PART I: BACKGROUND & POLICIES

PART II: RECOMMENDATIONS

LIST OF MAPS, TABLES & FIGURES

EXECUTIVE SUMMARY

The City of Albuquerque's bikeway and multi-use trail system is a combination of on-street facilities (bike routes, shared lanes, bike lanes, bicycle boulevards, and shoulders) and off-street facilities (paved multi-use trails, unpaved trails, and grade-separated crossings). The mileage of official bikeways and trail facilities in the City grew by almost 200% between the years 2000 and 2010 alone. As of 2014, there are over 620 miles of bikeways and trails, with approximately 55% on street bike facilities and 45% multi-use trails. Much of the increased service has been on the west side of the Rio Grande. Additionally, numerous on-going programs help to educate, encourage, and promote cycling and use of multi-use trails.

The purpose of this document is to combine and update the City's two bicycle and trail plans - the *Trails and Bikeways Facility Plan*, 1993, and the *Comprehensive On-Street Bicycle Plan*, 2000 - ~~which will~~ to help the City better manage the growth of the bikeways trails system and ensure a well-connected, enjoyable, and ~~safe~~ comfortable non-motorized transportation and recreation system.

Vision

The City of Albuquerque envisions a system of bikeways and trails that connect throughout the city to support active transportation and recreation. The city envisions the bikeways and trails network to be an integral part of its system of Parks, Open Space and Trails, which is one of Albuquerque's most valuable assets and is an integral part of attracting economic growth. The bikeways and trails will allow people of all ages and abilities to experience the city using active transportation, such as walking, biking, or skating. The City aims to increase the numbers of shopping, dining, school, and recreational trips made via bikeways and trails in order to improve public health, air quality, congestion management, and quality of life for residents of Albuquerque.

The City will provide access for cyclists, pedestrians, and trail users to all areas of Albuquerque to encourage cycling and walking as ~~a~~ viable transportation options and to provide recreation opportunities, which result in an improved quality of life in the Albuquerque Metropolitan Area.

This Plan will foster the construction and preservation of bikeways and trails, strive for improved safety and improved connectivity; and encourage healthy, outdoor activity. The system will be implemented in partnership with multiple agencies and will be based on consensus and sensitivity to the diverse viewpoints within the community.

Goals

1. Improve the cyclist and pedestrian ~~safety~~experience.
2. Develop a continuous, interconnected, and comprehensive system of bikeways and trails.
3. Enhance maintenance of all bikeways and trails~~, and improve maintenance strategies~~.
4. Increase use of the bikeway and trails network.
5. Increase public awareness and education related to bikeways and trails.
6. Recognize and leverage the bikeway and trail network as an integral part of economic development and quality of life in Albuquerque.
7. Streamline administrative practices and coordination.

Needs Assessment

The City's bikeways and trails, ~~along with the~~ including grade-separated crossings, provide the City with a well-functioning recreation and non-motorized transportation system. However, the current system lacks continuity in some areas and has a number of barriers that are difficult to cross, such as the Rio Grande and major arterial streets. Another major challenge of the system is the number of improvements needed to remedy older facilities that ~~are deficient in relation to the~~ may not comply with current design criteria.

The Needs Assessment, found in Chapter 3 of this Plan, presents an overview of the needs of trail users and bicyclists in Albuquerque. This analysis provides a summary of trail and bikeway user volumes and behaviors; discusses public input gathered through an online survey; and examines the cyclist ~~safety~~ environment by analyzing reported bicycle crash data. Currently, no comparable data is collected for trail users specifically. Three GIS-based, geographic analytical tools were used to determine the quality and connectedness of the existing bikeway system. In total, three analytical methods were used to evaluate the existing bikeways and trails facilities, and five methods apply specifically to bicycle use. These methods and their findings are described further in Chapters 3 and 4.

The~~is~~ information gathered during needs assessment efforts was used in conjunction with field visits, input gathered at public meetings, stakeholder interviews, and analysis of the existing bikeways and multi-use trail system to form future project recommendations. Some of the data is being monitored and updated. ~~,~~ ~~f~~For example, MRCOG updates the bikeway and trail user count data on an ongoing basis; traffic crash data is updated by UNM. Adequately understanding user needs enables system planners and policy-makers to develop cost-effective solutions for improving the region's bikeway and trail system.

Recommendations & Implementation Approach

The Bikeways & Trails Facility Plan provides three types of recommendations:

- **Proposed capital improvements:** ~~The bikeways and trail map guides future facility improvements.~~An implementation plan and design guidelines were developed to guide design and construction of future facilities, support current and new education and outreach programs, and to guide development of the proposed 28 new grade-separated crossings, 290 miles of new bikeways, 159 miles of new trails, and numerous intersection enhancements Recommendations are also made for end-of-trip facilities, intersection improvements, and specific gap closures that were identified as priority projects. It is anticipated that a major portion of the multi-use trails capital funding will be allocated to existing trail renovation: for basic upkeep; for ~~implementation~~ construction of ~~safety~~ mobility and accessibility improvements; to address areas of high use/user conflicts; and in projects that result in more well-maintained trail corridors. Only projects within the City limits are proposed in this plan; future facilities that connect to the city are shown for context and continuity of analysis.
- **Programs:** The plan provides a review of existing programs to expand and continue, as well as new programs recommended for additional outreach, education, training, and awareness. To address advisory committees concerns related to the effectiveness of how the City Departments responsible for developing and managing the system coordinate with each other, with other jurisdictions and agencies, and effectively utilize public input, this plan suggests changes to improve organization of these activities.

- **Policy changes:** The plan proposes changes to adopted state and local policy to improve ~~the safety, and law~~ enforcement of laws relating to on-street bicycling facilities. This plan proposes design guidelines to address on-street facilities, multi-use trails, way-finding treatments, and end-of-trip facilities, as well as improved procedures for design review. Policy recommendations are made to incorporate improved maintenance of the facilities. ~~Design guidelines address on-street facilities, multi-use trails, way-finding treatments, and end-of-trip facilities.~~

To summarize the discussion and recommendations in the second part of this plan, an 'Implementation Matrix' was created. This matrix lists all of the actions that the City should undertake now and in the future to work towards achieving the goals and vision of this plan. Some of the actions are part of the ongoing work that the City does building and maintaining the bikeways and trails system. New programs and actions were classified as short-, mid- and long-term, depending on the urgency of need in combination with what may be feasible with current levels of staffing and funding.

The *Bikeways & Trails Facility Plan* concludes with a series of Technical Appendices, which are meant to preserve the record of the full analysis that went into developing this document, as well as other relevant studies. They include:

- **Appendix A** – Full Report of Proposed Facilities
- **Appendix B** – 50 Mile Activity Loop Executive Summary
- **Appendix C** – ADA Field Survey, 1996
- **Appendix D** – League of American Bicyclists (LAB) Report for Albuquerque, 2012
- **Appendix E** – Bollard Study, 2014
- **Appendix F** – Trail & Bikeway User Count Data, 2010
- **Appendix G** – Public Input, 2010 and 2014
- **Appendix H** – Compilation of 2010 Bikeways Data

PART I: BACKGROUND & POLICIES

CHAPTER 1: INTRODUCTION

A. Planning Purpose

The impetus for this planning process was to update and unify the City's two planning documents, *The Trails & Bikeways Facility Plan (TBFP)*, 1993 and the *Albuquerque Comprehensive On-Street Bicycle Plan (COSBP)*, 2000. By taking stock of current issues and the City's approach to bikeways and trails, we will be able to better manage the growth of the bikeway and multi-use trail system; thus helping to ensure a well-connected, enjoyable and ~~safe~~ efficient, non-motorized transportation and recreation system throughout the metropolitan area.

The purpose of the plan is to assess the current system and to make recommendations for new facilities, administration processes, and education and outreach programs. The trail and bicycle network is part of Albuquerque's system of Parks, Open Space and Trails (POST). This system is one of Albuquerque's prime attractions, connecting residents and visitors to Albuquerque's natural surroundings and providing the city a unique sense of place, while also providing the opportunity for healthy activities that many residents desire.

The bikeway and trail network is also a part of the City's multi-modal transportation system. Much of the funding that the City has allocated for bikeways and trails comes as part of a ¼-cent transportation tax and as a component of other transportation improvement projects. Incorporating bikeways and trails as an integral part of the transportation system is consistent with federal transportation policies that aim for a balanced, multi-modal system. Integrating bikeways on a variety of road types provides direct connections for those who rely on bicycling or walking as their mode of transit to commute, shop, or recreate.

This Rank II *Facility Plan* will guide the City-wide development of Albuquerque's bikeways and trails system to provide healthy and sustainable options for transportation and recreation, connections to nature, access to goods and services, and local economic development stimulus.

Albuquerque's Ranked Plans

The City of Albuquerque uses a system of ranked plans, starting with the Rank I *Albuquerque/Bernalillo County Comprehensive Plan*, which sets the vision, goals, and overall policies from a City-wide perspective. There are also lower-ranked plans that must comply with the intent, policies, and goals of higher-ranked plans. Rank II Plans, including area plans (such as the *West Side Strategic Plan*) or facility plans (such as the *Arroyos Facility Plan*), are exclusively policy documents that provide more detail and give more direction about large but distinct areas or facilities within Albuquerque. Rank III Plans provide the most detailed guidance for an area, and often include zoning customized to meet the goals of specific areas. The plans should be internally consistent and consistent within the ranking hierarchy.

B. Background and History of System

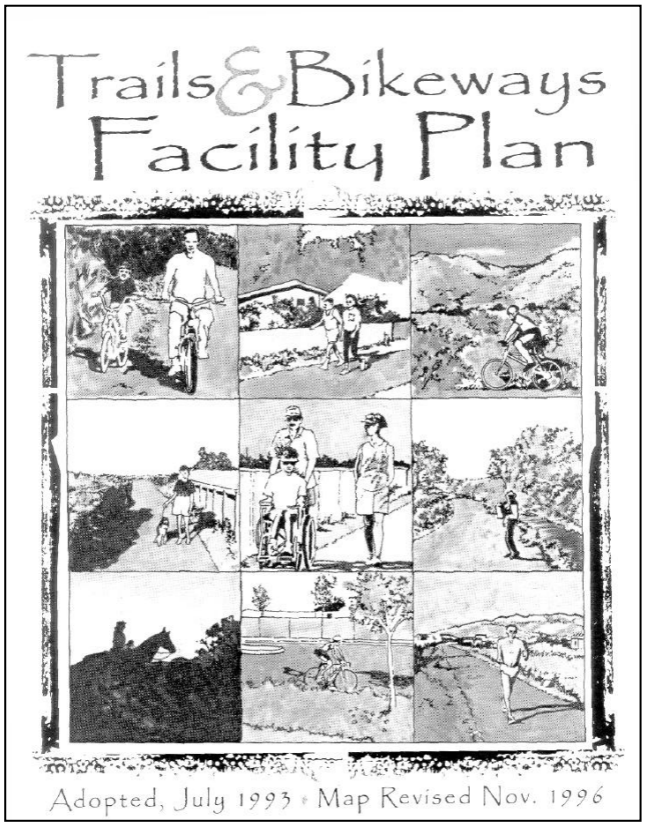
1. Previous Bikeway & Trail Planning in Albuquerque

In 1972, the City began work on its bicycle network. A team effort involving an ad hoc Bikeway Advisory Committee and the City of Albuquerque Planning Department developed *The Bikeway Study*, published in March 1974. The total proposed network originally targeted for completion in 1978 has yet to be realized. With a mature system of 620 miles of facilities, the fact that some of these early envisioned routes have not yet been completed speaks to the challenges in developing the system.

The Bikeway Study led to adoption of the *Bikeways Master Plan*, which establishes policy regarding bikeways in the Albuquerque Metropolitan Planning Area. A permanent Bikeway Subcommittee of the Environmental Planning Commission was created to advise the City on implementation of the Plan recommendations. These efforts were jointly adopted by the City and County. The bicycle subcommittee eventually became the current Greater Albuquerque Bicycling Advisory Committee (GABAC).

Since 1974, various plans and documents, including the *Facility Plan for Arroyos*, the *Facility Plan for Major Public Open Space* and several *Arroyo Corridor Plans*, have addressed different aspects of trail development, such as location, character, and even design. ~~This study~~ *The Bikeway Study* came at a crucial point in time as it helped Albuquerque acquire trail right-of-way (ROW) at a time when it was either free or very inexpensive. Now that most of the city has built out, the cost for ROW can be expensive and many times physically limiting.

A more recent planning effort was undertaken by the City Planning Department, which resulted in the *Trails & Bikeways Facility Plan*, completed in 1993. The Greater Albuquerque Recreational Trails Committee (GARTC) was established to help with the development of this plan. This plan established long-range policies for off-street trails and bicycle facilities within the Albuquerque Metropolitan Planning Area and was adopted by both the City and Bernalillo County. A proposed trail system that serves both recreational and commuting purposes was envisioned. The plan recommended the creation of two positions, a Bicycle/Pedestrian Coordinator in the Department of Municipal Development and a Trails Coordinator in the Parks & Recreation Department to oversee the development of on-street and off-street bikeways. ~~Both of these positions were created and are staffed to this day.~~ There are currently positions in each department dedicated to Bikeways & Trails Planning and Project Management.



At the time the *Trails & Bikeways Facility Plan* was adopted, there were 39 miles of paved trails. Staffing for the planning and implementation of the trail and bicycle network has remained stagnant or arguably reduced, while the size of the network has quadrupled. This is perhaps an indicator of the

growing pains the managers of the system and users of the system are currently grappling with.

In late 1996, the Department of Municipal Development initiated the *Albuquerque Comprehensive On-Street Bicycle Plan,* based on a recommendation in the *Trails & Bikeways Facility Plan* to investigate on-street bikeways more closely. A steering committee was created consisting of members from bicycle advisory and advocacy groups, public agencies, and other parties. The *Albuquerque Comprehensive On-Street Bikeway Plan* was adopted in 2000. It includes goals and policies, funding strategies, design standards, recommended facilities, and an implementation plan. Recommended elements of this study are currently being implemented as funding becomes available.

~~GABAC and GARTC were originally City/County committees. Each citizen committee was~~GABAC and GARTC were established by City ordinance and are~~is~~ charged with representing cyclists, equestrians, and pedestrians and advising governmental agencies on planning, projects, and programs affecting bicyclists and other trail users. Though they both include members representing unincorporated areas of city, Bernalillo County does not formally participate in the activities of the committees and will not jointly adopt the Bikeways and Trails Facility Plan. County trail and bikeway facilities are administered by the Bernalillo County *Pedestrian and Bicyclist Safety Action Plan*, adopted in 2012. This Plan seeks to coordinate new facility connections with those proposed by Bernalillo County. ~~The **County has withdrawn its participation with the advisory groups and adoption of the *Trails & Bikeways Facility Plan*.** The reason given was that the groups focused almost exclusively on urban, paved trails, which was not what the County was working on, and their adoption of the *Bernalillo County Bicycle & Pedestrian Safety Action Plan*.~~

2. Early Accomplishments

~~For many years,~~When first constructed in the 1970s, the Paseo del Bosque Trail, also known as "the Bosque Trail," went from just south of the Zoo to the Rio Grande Nature Center (4.85 miles). ~~With extensions north and south~~Subsequent expansions north and south made it possible for trail users to~~, trail users can now~~ travel over 16~~-~~ miles without encountering an at-grade intersection, ~~making this~~and this trail has become the most heavily used trail in the City. The second most frequently used trail for cyclists is the combined Paseo del Nordeste and the North Diversion Channel Trails. The original Paseo del Nordeste Trail started at the University of New Mexico, went north to the Hahn Arroyo, and then east to Pennsylvania Street.

Recent Accomplishments
Since 2007

- Over $10 million in bikeways and path improvements
- 3 bike boulevards
- Gail Ryba bike and pedestrian bridge over the Rio Grande ~~river~~
- Bear Canyon Arroyo bike and pedestrian bridge over I-25

Since the North Diversion Channel Trail was completed and connects to the trail along Paseo del Norte, this has become part of a popular north-south trail, making connections to the Paseo del Bosque Trail and the Paseo del Nordeste with minimal at-grade crossings. AMAFCA has worked closely with the City on the trails using the channel and other AMAFCA rights-of-way. These trails carry regional cycling traffic, not just local traffic. Tramway Trail was originally developed in the early 1980s and has undergone multiple renovations. It was extended to the north by Bernalillo County and the NMDOT has played a strong role in its development and maintenance. It is now approximately 8.5 miles long and is another of the region's most popular trails. See **Figure 3: 2014 Bike Map**, page 28, and **Figure 10: Existing Facilities Map**, page 64.

3. Recent Accomplishments

Since 1993, there have been major shifts in federal policies and requirements for multi-modal transportation accommodations. See the discussion in **Chapter 2.B.5, Federal Policies and Programs** for more information. At the local level, the Mid-Region Council of Governments (MRCOG) has implemented these policies through its Project Prioritization Process and allocation of NMDOT funds to local jurisdictions. The City has adopted various new funding initiatives, such as the quality of life ¼-cent gross receipts tax, which earmarked a portion for trails, followed by the current ¼-cent transportation tax.

In the past several years, the City has constructed over $10 million dollars in bikeway and path improvements, new facilities, and system upgrades. Part of this large expenditure was made possible by the American Recovery and Reinvestment Act of 2009 (ARRA), which funded "shovel ready" projects across the nation. These improvements have been focused on bridging major barriers and providing grade-separated crossings to reduce trail user/vehicle interactions and improve the ~~safety~~ ~~security~~ efficiency of the North Diversion Channel Trail.

In 2007, the City began construction of three bicycle boulevards, which provide an enhanced bicycle connection along Mountain Rd., 14th Street, and Silver Ave., which will ultimately connect the ~~Rio Grande~~Paseo del Bosque Trail to San Mateo Blvd. In 2010, the City completed the Gail Ryba bicycle and pedestrian bridge across the Rio Grande just north of I-40. At this time, the City also repaved the City portion of the ~~popular 16 mile long~~ Paseo del Bosque Trail, which had become rife with large pavement cracks. In 2012, four new underpasses were built along the North Diversion Channel, creating a second, nearly uninterrupted north-south trail route across the City. In 2013, the Bear Canyon Arroyo Bridge was completed, connecting the east and west sides of I-25 for non-motorized travel.

The mileage of official bikeways and trail facilities **within the City boundary** grew by almost 200% between 2000 and 2010 (see Table 1). From 2010 to the 2014, it has grown another 10%. This period also saw significant upgrades in grade-separated crossings and pavement maintenance as described above. This plan proposes projects that would more than double the current mileage of bikeways and trails. The intent of many of these new facilities is to increase continuity of the existing system by connecting gaps and bridging obstacles.

Table 1: Existing Bikeway and Trail Facilities over Time & Proposed Facilities

Bikeways & Trails	1974	1993	2000	2010	2014	Proposed	Proposed Full Build-Out
Multi-Use Trails	0	39	55	161	154	~~116~~115122	~~270~~276
Unpaved Trails	-	-	-	-	49	~~46~~4337	~~95~~86
Bike Boulevards	0	0	0	6	6	~~10~~11116	~~16~~24
Bike Lanes	0	24	48	170	197	~~202~~196197	~~399~~394
Bike Routes	0	0	56	134	115	~~787~~677	~~193~~192
Total System Length	**0**	**63**	**159**	**471**	**520***	**~~406~~~~398~~412**	**~~926~~886**
Total System (incl. unpaved)	-	-	-	-	620	~~452~~441449	~~1072~~972
Grade-Separated Crossings	0	10	15	26	31	~~16~~28	~~46~~59

- No data exists for these facilities in the years shown.
* The total system length in 2014 excludes unpaved trails, because they were not considered part of the total in previous plans. This needs to be done to compare "apples to apples" over time. There are approximately 50 more miles of unpaved trails managed by the Open Space Division that are outside the City limits.

On-going education and encouragement programs have been coordinated by the Department of Municipal Development and the Parks and Recreation Department. These recent improvements are in line with the present vision and goals of improving the ~~safety and~~ quality of the facilities and addressing specific facility gaps, in addition to focusing solely on increasing the extent of the system.

The City was presented a bronze level Bicycle-Friendly Community award from the League of American Cyclists in 2005 – a significant achievement for a first-time submittal. This recognition is a direct indication that the City is proceeding in the right direction with its development of bicycle facilities.

Other Jurisdictions'' ~~s~~ Planning Efforts

In addition to the City of Albuquerque, the State of New Mexico and the Mid-Region Council of Governments (MRCOG), and Bernalillo County have been active in bicycle and trail planning. In 2012, Bernalillo County adopted the *Pedestrian and Bicycle Safety Action Plan*, which identifies pedestrian and bicycle safety issues in the County and prioritizes projects to address the problems.

The Long Range Bikeway System (LRBS), presented in Figure 1, page 19, is part of the *2035 Metropolitan Transportation Plan* long-range transportation plan for the metropolitan area. Opportunities to update the LRBS are provided every ~~five~~ four years through the MRCOG transportation planning process. The LRBS is included in the Transportation Program, which is reviewed and approved annually by elected officials, including Bernalillo County, Albuquerque, and Rio Rancho.

At the state level, the New Mexico Bicycle-Pedestrian-Equestrian Transportation Plan was completed in 1996. This plan provides goals, recommended actions, and planning and design guidelines to improve and accommodate non-motorized transportation modes. The NM Department of Transportation is currently working on the Statewide Long-Range Multimodal Transportation Plan (SLRP), which sets the vision for how New Mexico's transportation system supports the well-being of our community now and in the future.

C. Bikeways and Trails Benefits

Recent years have seen a nationwide trend toward the increased development and use of bikeways and trails for both recreation and transportation. Bikeways and trails provide communities with myriad benefits, including improved public health ~~and safety~~, natural and cultural resource protection, environmental quality improvements, and economic growth.

Cycling and trail use is important to Albuquerque's future due to its potential to address several interrelated challenges, including traffic, air quality, and public health. By planning a metropolitan area that is more accessible to non-motorized transportation, practitioners can affect all of these areas, which collectively can have a profound influence on existing and future quality of life in Albuquerque. As the State *Bicycle-Pedestrian-Equestrian Advisory Plan* states, walking and bicycling are already "significant modes of transportation in New Mexico." Significant opportunities and reasons remain to expand the non-motorized transportation system and improve the quality of the user experience. Improving active transport

can achieve planning objectives including economic development, reduced traffic and parking congestion, energy consumption and pollution emissions, improved public health outcomes, and more compact development.

1. Economic Benefits

There are many positive economic benefits associated with bikeway and trail development. Bikeway and trail use reduces costs associated with vehicle use. **Commuting by bicycle costs, on average, less than half as much as driving** when all internal and external costs, including travel time, maintenance of infrastructure, environmental impacts and ownership expenses, are considered. According to AAA, the average annual cost to own and operate a motor vehicle is around $9,000 per year in 2012. With robust transportation facilities for non-motorized travel, combined with transit, families may be able to get by with fewer cars per household.

A significant economic benefit of increased cycling is a reduction in motor vehicle traffic congestion, which has estimated annual congestion costs at over $100 billion nationally. These costs result from lost productivity while stopped or slowed in traffic. **Each trip taken by walking or cycling is one fewer vehicle contributing to congestion and environmental pollution**. The economic impacts of traffic congestion also affect the business community through slower delivery times, diminished employee morale, and an inability of patrons to easily access businesses.

Studies show that walking, hiking, or biking a few times a week can **improve a person's health and reduce healthcare costs.** A cost-benefit analysis of using bike/pedestrian trails in Lincoln, Nebraska to reduce health care costs associated with inactivity showed that for every $1 investment in trails for physical activity led to $2.94 in direct medical cost reduction. Another study reported that those who exercise regularly "filed 14% fewer health claims, spent 30% fewer days in the hospital, and had 41% fewer claims greater than $5,000" (Greenways, Inc., p. 14). Surveys indicate far fewer medical bills, lower insurance reimbursements, and fewer hospital stays by people who regularly use trails for transportation or recreation.

Trails build strong communities and are a **valuable amenity for neighborhoods**. According to a National Association of Homebuilders study cited by the *New York Times*, trails are the number one amenity potential homebuyers look for when they are considering moving into a new neighborhood. Homes near trails are easier to sell, and homeowners see a direct correlation between trails and positive impact on quality of life. Trails translate into higher housing values. Trails revitalize neighborhoods; new houses and businesses take advantage of locations adjacent to trails.

Finally, **bikeways and trails support tourism** by providing additional destinations and opportunities for visitors, who patronize nearby motels, bed and breakfasts, cafes, or shops. Cities with well-developed cycling and trail infrastructure have become destinations in themselves – look at Portland, OR; Davis, CA; Sedona, AZ; Boulder, CO; Ketchum, ID; San Antonio, TX; and even Manhattan, NY. These places have branded themselves as bike-friendly vacation locations. Albuquerque could benefit from increased revenues by attracting active or sport tourism. Local businesses selling bicycles, biking gear, walking and hiking shoes, and equestrian gear also stand to benefit from increased demand for their products.

Trails build local businesses; bicycle tourism is a growing segment of the tourism market benefiting businesses that are well connected to trails. Several recent studies have concluded that people walking and bicycling spend more money locally and help to support local economy. "Bicycle Friendly Districts"

is a new concept, started in Long Beach, CA, that is focused on improving bicycle facilities in select districts that have neighborhood and business support in order to build community, increase physical activity, and make streets less congested.

2. Traffic ~~Safety~~Improvements

Roadway improvements ~~to~~that increase bicycle ~~safety~~ utilization and attractiveness also enhance motorists' ~~safety~~ experience as well. Bike lanes or bikeway shoulders minimize traffic flow impacts by providing bicyclists with a designated space and decrease degradation of the roadway edge, thereby increasing roadway life and decreasing roadway maintenance costs.

Vehicle speed differential is the primary cause in a large percentage of roadway crashes and a deterrent to potential cyclists. A traffic calming approach being used successfully across the country is the striping of bike lanes to create narrower vehicular travel lanes. For cyclists, this approach serves the more important benefit of creating wider ~~and safer~~ non-motorized travel lanes.

There is evidence that the more people walk and bicycle the safer it becomes to walk and bicycle. This is related to goals of both safety and increasing the number of users in the network (Safety in Numbers, 2003).

3. Social Equity in Mobility

According to the U.S. Census, nearly one-third of Americans do not drive —this includes children under 16, about 20% of residents over 65, and other residents over 16 that cannot afford or choose not to own a motor vehicle. Also included in this user-base are people that own cars but choose to walk or bike and people that would like to walk and bike but feel that significant barriers exist (e.g., physical barriers such as missing facilities or perceived barriers such as a lack of time). ~~Safe~~ Alternative options for transportation, mobility, and recreation should be provided for all residents and visitors to the City.

4. Public Health Benefits

Regular physical activity has a beneficial impact on health through its role of prevention of various diseases and health conditions and of protection against injury and disability.

In recent years, public health professionals and urban planners have become increasingly aware that the **impacts of motor vehicles on public health extend far beyond asthma and other respiratory conditions caused by air pollution**. There is a much deeper understanding of the connection between the lack of physical activity resulting from auto-oriented community designs and various health-related problems such as obesity and other chronic diseases. Although diet and genetic predisposition contribute to these conditions, physical inactivity is now widely understood to play a significant role in the most common chronic diseases in the US, including coronary heart disease, stroke, and Type II diabetes. In response to these trends, the public health profession has begun to advocate for the creation of walk-able and bike-able neighborhoods as one of the most effective ways to encourage active lifestyles. Prescription Trails is one of the programs targeted at getting more people active (see page 88). Studies show that 43% of people with ~~safe~~ dedicated places to walk within ten minutes of home meet recommended daily activity levels, compared to only 27% of those without ~~safe~~ these places to walk.

Sixty-percent of the total New Mexican population is considered overweight or obese. Data collected by the Center for Disease Control (CDC) between 1995 and 2010 indicates that the percentage of New Mexican residents classified as obese has increased from the 10 - 14% range in 1995 to 25% in 2010. As

Albuquerque becomes more inviting to non-motorized transportation, residents will have more opportunities to exercise, ideally resulting in a higher proportion of residents achieving recommended daily activity levels.

Physical activity is directly linked to our overall physical and mental health. Even moderate levels of exercise have been shown to aid in weight control, the prevention of heart disease and certain cancers, and the alleviation of anxiety and depression. However, making the choice to exercise can be a difficult one. "Lack of time or access to convenient outlets for healthy transportation and recreation opportunities" is a commonly cited barrier to increasing physical activity (Rails to Trails Conservancy). One way to ensure adequate amounts of exercise is to choose active transportation for one or more of your weekly trips to work, the store, or social gatherings.

~~Safe, d~~Dedicated paths and bikeways encourage the use of non-motorized modes of transportation for everyday errands and commuting. This allows people to build physical activity into their daily routines, rather than having to carve out extra time for exercise alone. Additionally, attractive, outdoor settings can make exercise more enjoyable and trails can provide cost-effective exercise options when compared to gym or health club memberships.

Tangible benefits include an improved mental outlook and enhanced well-being. Walking and cycling as transportation modes are an ideal form of exercise to maintain or improve one's health, which will eventually impact the national goal of reducing health care costs.

5. Environmental Benefits/Natural and Cultural Resource Protection

Trail preservation and development have positive impacts on environmental health and resource conservation. The designation of trail corridors can be used as a tool for preserving important natural landscapes in the face of increased development. Trails can provide an attractive alternative to driving for daily activities within the City.

The development of ~~safe~~ upgraded trail and bikeways for use in everyday commuting and errands can significantly reduce our consumption of fossil fuels and our emission of pollutants. Each time an Albuquerque driver chooses to walk or cycle, **one fewer motor vehicle trip is made**. It is the intent of this plan to increase the numbers of shopping, dining, school, and recreational trips made via multi-use bikeways and trails. Further, bicycling does not consume petroleum products, thereby conserving energy and reducing emissions.

Bicycling could have a significant impact on air quality by replacing motor vehicles for short trips of less than 5 miles. This represents trips that are less fuel-efficient and generate the highest emission rates per mile traveled. Transportation alternatives, including bicycling and walking, are viable solutions to reducing vehicle miles traveled and air quality impacts. Cumulatively, this pattern may reduce traffic in some neighborhoods, which would also improve air quality.

6. Quality of Life Benefits

Corporate relocation evidence shows that quality of life of a community is an increasingly important factor in corporate relocation decisions and may be more important than purely business-related factors when it comes to attracting new businesses, particularly in the high-tech and service industries. St. Mary's County in Maryland found over a ten year period that businesses that moved to the county

because of tax incentives tended to leave as soon as the incentives expired. However, businesses that moved to the county because of its quality of life remained to become long-term residents and taxpayers.

In the end, a more balanced and flexible transportation system will give greater choice and independence to more members of the community. Neighborhoods can experience reduced environmental and transportation impacts from traffic congestion. Like the motor vehicle, the bicycle provides personal mobility. **The public, of all ages, will feel ~~safer~~ more comfortable and more ~~are~~ at ease in using the transportation system, whether cycling or walking in their neighborhood, due to the traffic calming impacts of bikeways.** As more and more people use the streets and trails using a variety of transportation modes for a variety of purposes, the sense of community will be strengthened, pollution will be reduced for a healthier physical environment, and health care costs will be reduced.

An enhanced bikeways and trails system also provides more support to the compact urban forms, making infill development more desirable. Close-in infill developments become more viable due to the non-vehicular connectivity resulting from their locations, versus the tendency for residents on the periphery to be more compelled to use their vehicles.

D. The Planning Process

Beginning in 2008, the City began an update of the two existing bicycle and trail plans with the intention of combining both documents to reflect a consolidated approach to developing and managing the bikeways and trail system. Both plan documents needed to be updated to address current conditions, goals, policies, issues, and future priorities. Gannett Fleming West and Alta Planning were selected as the consultant team for the effort. They completed an extensive amount of data collection and analysis that have informed the recommendations in this plan. A *Draft Bikeways & Trails Master Plan* was completed in 2011, but it needed a clearer implementation approach, and additional planning was needed to adequately address the trail system and recreational concerns.

In 2012, the City Parks & Recreation Department revised the draft to incorporate trail and recreation related concepts. In late 2013, the Planning Department began work to consolidate the previous planning efforts with updated research and analysis. Staff updated the plan to directly respond to public comments collected in the 2011 planning effort, and updated the vision, goals, and policies to reflect the concerns raised by the public, advisory groups, and agency interviews. An implementation plan and design guidelines were developed to guide design and construction of future facilities, support current and new education and outreach programs, and to guide development of the proposed ~~16~~28 new grade-separated crossings, 290 miles of new bikeways, ~~162~~159 miles of new trails, and numerous intersection enhancements.

1. Public Involvement Summary

In the initial data collection and analysis stages of this effort, the consultant team held **several public open house meetings, a stakeholder workshop, and user and agency interviews.** They

developed a project website with updates and draft materials as the project progressed. A survey was also administered to get targeted feedback about bicycle facility preferences and the needs and desires of cyclists in the City. City Staff have carefully reviewed these documents and used them to inform additional plan content and revisions reflected in this current plan. Over 550 individual comments were received throughout this process. Additional information was gathered by staff by regularly attending both the GABAC and GARTC meetings. This public input was reviewed throughout the planning process to guide development of this *Bikeways & Trails Facility Plan*.

2. Data Collection & Analysis

Gannett Fleming West and Alta Planning completed a range of studies to better understand opportunities to improve our bikeway and trail system. They collected bikeway and trail user counts at 37 locations in 2010, which was compared to a smaller user count performed in 1997. A crash analysis was performed to understand the overall severity, where, and when reported collisions occurred. The planning and engineering studies – Cycle Zone Analysis, Bikeway Quality Index, the engineering gap analysis, StreetPlan, and public input – were used to develop the recommended facility improvements and programs. The detailed methodology and results from these analytic approaches is included as appendices; a summary of each approach and salient findings are included in **Chapter 3.C, Bikeway & Trail System Analysis**. The full report for each analysis is included as **Appendix C, Compilation of 2010 Bikeways Data**.

Additional work has gone into understanding and developing recommendations related to the way the City administers bikeways and trails, as well as how the advisory groups can be most effective. More recent work, such as DMD's Bollard Study, Parks and Recreation's Trail Design Guidelines, the Mayor's *ABQ the Plan: 50-Mile Activity Loop*, and newly adopted NACTO, AASHTO, and ITE guidance are incorporated.

The Facility Plan provides three types of recommendations:

- **Proposed capital improvements:** The bikeways and trail map guides future facility improvements. Recommendations are also made for end-of-trip facilities, intersection improvements, and specific gap closures that were identified as priority projects.
- **Programs:** The plan provides a review of existing programs to expand and continue, as well as new programs recommended for additional outreach, education, training, and awareness. The plan includes ongoing programs as well as periodic events and campaigns.
- **Policy changes & implementation actions:** The plan proposes changes to adopted state and local policy to improve the ~~safety,~~ design, and law enforcement ~~of~~on trails and bikeways. Policy recommendations are made to improve maintenance of the facilities. Design guidelines address on-street facilities, multi-use trails, intersection design, way-finding treatments, and end-of-trip facilities.

E. Using the Plan

The information gathered throughout the planning process was used to update goals and policies (**Chapter 2**), identify the strengths and weaknesses of our current bikeway and trail system (**Chapter 3**), the recommended network (**Chapter 4**), recommended programs (**Chapter 5**), the implementation approach (**Chapter 6**), and the design standards (**Chapter 7**).

This plan provides guidelines for implementing new projects identified during the planning process in **Chapter 4: Recommended Network** and **Chapter 6: Implementation Strategies**. It also provides policies for developing paths and bikeways in newly developing areas and in areas that need improved quality facilities in **Chapter 2: Planning & Policy Framework**. When a portion of the City has been identified for new development or redevelopment, whether by public or private means, this plan and the updated facilities map should be consulted to identify the need for bikeways or trails to be incorporated into the improvements as well as design standards for bikeway and trail facilities.

General guidelines for the design of those facilities are provided in **Chapter 7, Design Manual**. Facilities should be developed in accordance with the goals and policies of this plan and designed to be consistent with the Design Manual and most recent AASHTO, ITE, AADAG, and/or NACTO guidelines. Doing so will help ensure that new facilities are consistent with the long-range goals of the City to support and promote bicycle and trail use as a transportation option, recreation opportunity, and enhancement of quality of life for all citizens.

The following section, **Chapter 1.F, Acronyms**, and **Chapter 1.G, Definitions**, provide a comprehensive list of terminology and definitions used in this plan.

This plan proposes projects and programs that can be implemented over the next 50 years, at our current rates of funding for bikeways & trails activities. However, the plan recommends more frequent updates at ~~5~~4 year intervals to allow the City to keep up with new best practices and to reflect our evolving understanding of the challenges facing the City in terms of walking and bicycling. The bicycle and trail maps and geodatabases should be updated as facilities are developed; the printed bike system map is updated annually.

F. Acronyms

AADT	Average Annual Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
ADAAG	ADA Accessibility Guidelines
AMAFCA	Albuquerque Metropolitan Arroyo Flood Control Authority
APD	Albuquerque Police Department
B&PSEP	Bicycle & Pedestrian Safety Education Program (administered by P&R)
BQI	Bikeway Quality Index
CZA	Cycle Zone Analysis
DMD	Department of Municipal Development
DRC	Design Review Committee
FHWA	Federal Highway Administration
GABAC	Greater Albuquerque Bicycling Advisory Committee
GARTC	Greater Albuquerque Recreational Trails Committee
ITE	Institute of Transportation Engineers
KAFB	Kirtland Air Force Base
LOS	Level of Service
MPOS	Major Public Open Space
MRCOG	Mid-Region Council of Governments
MRGCD	Middle Rio Grande Conservancy District
MTP	Metropolitan Transportation Plan
MUTCD	Manual on Uniform Traffic Control Devices
NACTO	National Association of City Transportation Officials
NMDOT	New Mexico Department of Transportation
OSD	Open Space Division
POST	Parks, Open Space, and Trails
ROW	Right-of-way
P & R	Parks and Recreation Department
PROWAG	Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way
TAP	Transportation Alternatives Program
TDM	Traffic Demand Management
TIP	Transportation Improvement Programs

G. Definitions

Accessible — describes a trail, or a portion thereof, which complies with the American National Standards Institute (ANSI) Guidelines and is accessible to people with disabilities.

Accessway — access routes between lots shall consist of a minimum 6-foot wide path in a 12-foot wide space, shall meet ADA standards as required by law, and shall prevent vehicle entry. Access routes shall have no blind spots and access route exits shall be clearly visible from all points along the route. Pedestrian access routes longer than 120 feet shall be a minimum of 18 feet wide.

Activity Center — location such as employment center, schools, downtown and uptown, entertainment, museums, etc. that tend to attract cyclist for education, recreation, shopping or employment.

At-grade Crossing — a junction where multi-use trail or sidewalk users cross a roadway at the same level as motor vehicle traffic, as opposed to a grade-separated crossing where users cross over or under the roadway using an overpass or underpass.

Bicycle (Bike) — a human-powered vehicle with two or more wheels designed to transport by the act of pedaling one or more persons seated on one or more saddle seats on its frame.

Bike Boulevard — a bike route that is designed to prioritize the through movement of bicycles while maintaining local access for motor vehicle travel. This bikeway type is often used on neighborhood streets with good connectivity. Traffic calming devices are used to control motor vehicle speeds and discourage vehicle through trips. These devices may include diverters, speed humps, traffic circles, or pocket parks which allow through access by bicycles. A bicycle boulevard may be constructed with wide curb lanes or with standard travel lanes and bike lanes. Bicycle boulevards should limit bicycle stops to one per quarter-mile or preferably one per half-mile spacing. Also known as Neighborhood Greenways in other communities.

Bicycle Facilities — the infrastructure that accommodates or encourages bicycling including bikeways, shared roadways not specifically designated for bicycle use, bicycle parking and storage facilities, and bicycle signal actuation hardware.

Bicycle Network — a system of public bicycle facilities that can be mapped and used by bicyclists for transportation and recreational purposes.

Bike Route — a segment of a system of bikeways designated on a roadway with appropriate directional and informational signing, with or without a specific bicycle route number, in accordance with the MUTCD. Bike routes are primarily located on local streets and low-volume, low-speed collector streets.

Bike Lane — a lane on the roadway that has been designated by striping, signing, and pavement markings for preferential or exclusive use by bicyclists. Bike lanes or paved shoulders are part of the standard arterial and collector cross-section. At signalized intersections, bike lanes should have bicycle-sensitive actuation capability such as loop detectors, video detection, curbside push buttons, or other detection devices approved by the City Traffic Engineer.

Bike Lane, Buffered — buffered bike lanes are conventional bicycle lanes paired with a designated buffer space separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane.

Bike Lane, Protected — protected bike lanes have some sort of physical, stationary, vertical separation between moving motor vehicle traffic and the bike lane. Examples of vertical separation include plastic posts, bollards, curbs, planters, raised bumps or parked cars. Protected bike lanes can be at street level or

raised, either to sidewalk level or a level in between street and sidewalk level. Paint alone does not create a protected bike lane. See ***Cycle Track***

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 designed for the exclusive use of bicycles or are to be shared with other transportation modes.

Bikeway Quality Index — a metric developed to indicate the likely comfort of bicyclists riding on an existing bicycle facility. Bikeway Quality Index factors are variable depending on facility type but typically include surface quality and way-finding.

Bulb-out — a curb extension is a traffic calming measure, primarily used to extend the sidewalk, reducing the crossing distance and allowing pedestrians about to cross and approaching vehicle drivers to see each other when vehicles parked in a parking lane would otherwise block visibility.

Chicane — an artificial feature creating extra turns in a road, used to slow traffic ~~for safety~~.

Crosswalk — any portion of a roadway at an intersection or elsewhere distinctly indicated for pedestrian crossing by lines or other markings on the surface.

Cycle Zone Analysis — a zone-based system developed to analyze existing bicycling conditions. Zones consists of a more-or-less homogeneous cycling environment based on employment and population density, land use mix, road network density, connectivity, and topography.

Cycle Track — a cycle track is an exclusive bike facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane. A cycle track is physically separated from motor traffic and distinct from the sidewalk. See ***Bike Lane, Protected***

Directional or way-finding signs — signs typically placed at road and bicycle path junctions (decision points) to guide bikeway users toward a destination or experience.

Grade-separated crossing — an overpass or underpass allowing multi-use trail users to cross a major roadway without motor vehicle conflict.

Highway — a road or thoroughfare, such as a street, boulevard, or parkway, which functions as a main route for any form of transport or travel and is available to the public for use.

Loop detector — a device placed in the pavement, real or virtual, at intersections to detect a vehicle or bicycle and trigger a signal to provide a green light for through traffic. They are also used to count bicyclists on multi-use trails.

Major Public Open Space — an integrated system of lands and waters that have been designated as such in the Comprehensive Plan. The lands and waters and interests therein have been or shall be acquired, developed, used and maintained to retain their natural character to benefit people throughout the metropolitan area by conserving resources related to the natural environment, providing opportunities for outdoor education and recreation or defining the boundaries of the urban environment.

Medians — the area in the center of the roadway that separates directional traffic. Medians may be painted and leveled with the surrounding roadway or raised using curb and gutter. Medians may include landscaping, concrete, striping or any combination thereof.

Median Refuge — an area within an island or median that is intended for pedestrians or cyclists to ~~wait safely away~~be separated from travel lanes to wait for an opportunity to continue crossing the roadway.

Midblock Crosswalk — a legally established crosswalk that is not at an intersection.

Multi-Use Trail — see ***Trail***

Open Space Trail — a linear corridor within open space or linking open space to other facilities. Open space trails include open space arroyos and open space links.

Paved Trail — a trail surfaced with asphalt, concrete, soil cement, or other hard, stabilized surface.

Pavement Marking — any marking on the surface of the pavement that gives directions to motorists and other road users in the proper use of the road. The MUTCD determines the standard marking in New Mexico for state and local use.

Pedestrian — someone who walks or journeys on foot; a walker.

Pedestrian Hybrid Beacon — the pedestrian hybrid beacon (also known as the High intensity Activated crossWalK (or HAWK)) is a pedestrian-activated warning device located on the roadside or on mast arms over midblock pedestrian crossings. These are recognized by FHWA as "proven counter-measures" that improve safety.

Policy Goal – a broad statement of intent providing guidance for action.

Principle – things we want to do, or avoid doing, as we develop and implement the plan. Principles define how we will go about "doing business" to achieve the plan's goals.

Rectangular Rapid Flash Beacons — user-actuated amber LEDs that supplement warning signs at unsignalized intersections or mid-block crosswalks. They can be activated by pedestrians manually by a push button or passively by a pedestrian detection system. These are recognized by FHWA as "proven counter-measures" that improve safety.

Shared Roadway — a shared roadway is any roadway that may be legally used by both motor vehicles and bicycles and is not specifically designated as a bikeway.

Shared-use Path — see ***Trail.*** Also defined by the Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG) – a multi-use path designed primarily for use by bicyclists and pedestrians, including pedestrians with disabilities, for transportation and recreation purposes. Shared use paths are physically separated from motor vehicle traffic by a buffer or barrier and are either within the highway right of way or within an independent right-of-way.

Sharrow (Shared Lane Marking) — a pavement marking symbol that indicates an appropriate positioning of cyclist within a travel lane shared by both bicycle and motor vehicles. This is used in Albuquerque on low traffic volume streets, typically classified as collector or below.

Shoulder Bikeways (Paved Shoulders) — a bicycle facility located along uncurbed arterials and collectors. It consists of a smooth paved surface that covers all or part of the roadway shoulder. Shoulder bikeways, or paved shoulders, are similar to wide curb lanes on roadways with curb and gutter.

Sidewalk — the portion of a street or highway, beyond the curb or edge of roadway pavement, which is intended for use by pedestrians. Sidewalks are typically, but not always, curb-separated from the roadway and made of concrete, brick, asphalt, or other hard surface material.

Single-track Trail — a trail where users must generally travel in single file and is named not for the physical structure of the trail but rather for the user. Single track trails are typically 18-30 inches wide. Usually and almost always a soft-surface trail or unpaved natural surface trail. These trails are typically found on Major Public Open Space lands and sometimes referred to as mountain bike or hiking trails.

They disturb less ground and can be easier to maintain due to their narrow width. The narrowness of the trail tends to immerse the user closer to nature than a wider trail or dirt road.

Smart Trips — any trip made by walking, bicycling, sharing a ride or riding the bus that replaces a drive-alone vehicle trip.

Soft-surface Trail — a soft-surface trail is typically built with the earthen materials on hand and no fill or other material is brought to the area of construction. See ***Unpaved Trail***, ***Single-Track Trail***

StreetPlan — a GIS-based street evaluation model used in this Plan that graphically shows where bike lanes or wide curb lanes can be provided based on existing roadway configuration.

Traffic Demand Management Program — a TDM Program is an institutional framework for implementing a set of TDM strategies. Such a program has stated goals, objectives, a budget, staff, and a clear relationship with stakeholders. It may be a division within a transportation or transit agency, an independent government agency, or a public/private partnership.

Transportation Improvement Programs — a capital improvement program developed cooperatively by local and state transportation entities. TIP projects are drawn from and consistent with a statewide rural long-range plan and include a list of multi-modal transportation (a connected transportation system that supports cars, bicycles, pedestrians, and public transit) projects. All regionally significant projects must be in the TIP regardless of intended funding source.

Trail — a separate pathway that is physically separated from motor vehicle traffic by a buffer or barrier and either within the highway right-of-way or within an independent right-of-way. It is designated by signs for use by non-motorized traffic only, including pedestrians, bicyclists, skaters, wheelchair users, joggers, other non-motorized users, and equestrians. Not all trails may accommodate all of these uses. Most trails are designed for two-way travel. Trails may be either hard-surface or soft-surface; or paved or unpaved. See also, ***Paved Trail***, ***Shared-use Path***, ***Soft-surface Trail***

Traffic Calming — changes in street alignment, installation of barriers, and other physical measures employed to reduce traffic speeds and/or cut-through traffic volumes in ~~the interest of~~ an effort to enhance neighborhood and street ~~safety,~~ livability~~,~~ and other public purposes. Traffic Calming measures may include diverters, speed humps, traffic circles, or pocket parks which allow through access by bicycles.

Traffic Control Devices — Signs, signals, push buttons, or pavement markings whether permanent or temporary, placed on or adjacent to a travel way by authority of a public body having jurisdiction to regulate, warn, or guide traffic. MUTCD designates standards.

Unpaved Trail — an unsurfaced natural trail or trail surfaced with compacted earth, crusher fines, bark, or gravel. It is not surfaced with a hard, durable surface such as asphalt or Portland cement.

Utilitarian Trips — trips that are not primarily for recreational purposes, such as running errands.

Way-finding — signs, maps, and other graphic or audible methods used to convey location and directions to travelers.

Wide Curb Lanes — wide curb lanes are located on shared roadways with outside lane widths of 14 to 16 feet. Wide curb lanes are similar to shoulder bikeways, or paved shoulders, on roadways without curb and gutter.

CHAPTER 2: PLANNING & POLICY FRAMEWORK

A. Bikeways & Trails System Vision, Goals, and Policies

This section defines the vision statement, goals, and policies for the City's bikeways and trails system. Plan objectives and action items/strategies, along with methods to measure success in implementing the Plan, are included in **Chapter 6, Implementation Strategies**. A project management team consisting of members from public agencies and plan development team members adapted the *Trails & Bikeways Facility Plan* and the *Albuquerque Comprehensive On-Street Bicycle Plan* goals and objectives to reflect current issues and concerns about the bikeway and trail system.

1. Vision

The City of Albuquerque envisions a system of bikeways and trails that connect throughout the city to support active transportation and recreation. The city envisions the bikeways and trails network to be an integral part of its system of Parks, Open Space and Trails, which is one of Albuquerque's most valuable assets and is an integral part of attracting economic growth. The bikeways and trails will allow people of all ages and abilities to experience the city using active transportation, such as walking, biking, or skating. The City aims to increase the numbers of shopping, dining, school, and recreational trips made via bikeways and trails in order to improve public health, air quality, congestion management, and quality of life for residents of Albuquerque.

> ***The City will provide access for cyclists, pedestrians, and trail users to all areas of Albuquerque to encourage cycling and walking as ~~a~~ viable transportation options and to provide recreation opportunities, which result in an improved quality of life in the Albuquerque Metropolitan Area.***

This Plan will foster the construction and preservation of bikeways and trails, ~~strive for improved safety and~~ to reinforce bicycle and pedestrian rights to be in the roadway and on sidewalks or trails; improved connectivity; and encourage healthy, outdoor activity. The system will be implemented in partnership with multiple agencies and will be based on consensus and sensitivity to the diverse viewpoints within the community.

With over 620 miles of bikeways, paved trails, and unpaved trails already constructed, the City recognizes that improving the continuity, maintenance, and quality of existing routes should generally take precedence over investment in new routes.

2. Goals & ~~Policies~~Principles

The goals and ~~policies~~ principles section provides general guidance for the development of the bikeways & trails system. Goals are outcome statements that define what the City is trying to accomplish in its Bikeways & Trails system. Principles define how we will go about "doing business" to achieve the plan's goals. The goals and principles are visionary in nature, and relatively long-term in time horizon. For more detailed implementation strategies and actions related to these goals, please see **Chapter 6, Implementation Strategies,** and in particular, **Section F, the Implementation Matrix.**

1. **Improve ~~cyclist~~ the~~y~~ cycling and pedestrian ~~safety~~ experience.**
    a. **Principle~~Policy~~:** Develop a legible and predictable trail and bikeway system through planning, design, and implementation of physical improvements.

b. **Principle~~Policy~~:** Provide engineering and multi-disciplinary staff reviews for new and reconstructed bicycle and pedestrian facilities, including in the project scoping phases.

~~b.~~c. **Principle~~Policy~~:** Study, pilot, test, and implement best practices and designs that have been found successful in other communities to respond to the rapidly changing state of bicycle and pedestrian practices. Implementation of this plan should allow flexibility to include new projects and techniques that are highly consistent with the plan goals.

~~c.~~d. **Principle~~Policy~~:** Improve the utility of trail and bikeway facilities through programmatic activities, such as facility audits and assessments, education, outreach, and maintenance practices.

~~d.~~e. **Principle~~Policy~~:** Provide a welcoming and comfortable environment for all travelers along roadways and trails, which encourages more legitimate users on these facilities to help reduce crime. Focus on providing convenience, comfort, and protection for hazard and injury.

~~e.~~f. **Principle~~Policy~~:** Balance the need to discourage unauthorized motorized vehicle access on trails with the need to provide the trail users a facility without unnecessary obstructions through application of the best practice guidance for bollard placement in the design guidelines.

2. Develop a continuous, interconnected, and comprehensive system of bikeways and trails.

a. **Principle~~Policy~~:** Develop, construct, and promote an integrated system of bikeways and trails, with facilities distributed City-wide. The metropolitan area-wide recreational and commuter bicycle and trail network should emphasize connections among Comprehensive Plan Activity Centers.

a. **Principle~~Policy~~:** Focus on achieving connectivity of the existing bikeway and trail system when planning and programming trail and bikeway improvements.

b. **Principle~~Policy~~:** Work toward addressing and improving challenging intersections and physical barriers, and consider pedestrian and bicycle movement in the planning stages for new or reconstructed facilities.

c. **Principle~~Policy~~:** Provide access to destinations, such as activity centers, schools, parks, Major Public Open Space, shopping areas, and employment areas, for pedestrians and cyclists as part of a multi-modal approach.

d. **Principle~~Policy~~:** Consider connections between transit and bicycle and pedestrian facilities and reduce barriers where possible.

e. **Principle~~Policy~~:** Reduce implementation costs by including bicycle facilities as appropriate in all new and rehabilitation street projects.

f. **Principle~~Policy~~:** Include parallel paths and ~~safe~~ improve crossings for bicycles, pedestrians, and equestrians where appropriate in street and highway projects.

g. **Principle~~Policy~~:** Create a multi-purpose network of open areas and trail corridors along arroyos and appropriate ditches. Acquire, regulate, or appropriately manage trail corridors to protect natural features, views, drainage and other functions or to link other areas within the Major Public Open Space network.

3. **Enhance maintenance of all bikeways and trails, and improve maintenance strategies.**

   a. **Principle~~Policy~~:** Develop maintenance practices appropriate for each facility type.

   b. **Principle~~Policy~~:** Implement priority maintenance as appropriate for each facility type, including trail corridors and bikeways, based on the recommendations in Chapter 6.C, Maintenance and Operations.

4. **Increase use of the bikeway and trails network.**

   a. **Principle~~Policy~~:** Increase the number of people who walk and bicycle by aiming to attract new users and to encourage incidental users to walk and bicycle more frequently.

   ~~a.~~b. **Principle~~Policy~~:** Support the development of an integrated bikeways and trails system that serves the interests and needs of transportation and recreation.

   ~~b.~~c. **Principle~~Policy~~:** Support use of non-motorized infrastructure as part of everyday life for daily activities.

   ~~c.~~d. **Principle~~Policy~~:** Accommodate all types, ages, and abilities of users in a comfortable manner throughout the system, while recognizing that all modes of travel and/or level of user ability may not necessarily be accommodated on every road or trail.

   ~~d.~~e. **Principle~~Policy~~:** Support the development of bikeways and trails as in integral part of the City's transportation infrastructure.

   ~~e.~~f. **Principle~~Policy~~:** Facilitate and encourage commuter cycling and utilitarian trips by developing performance measures to better understand the impacts of programs and projects.

   ~~f.~~g. **Principle~~Policy~~:** Reduce conflicts between vehicular traffic, cyclists, and trail users.

   ~~g.~~h. **Principle~~Policy~~:** Reduce conflicts between different types of trail users.

   ~~h.~~i. **Principle~~Policy~~:** Accommodate the following users in the trail system recognizing that not all can be accommodated on every trail: cyclists (including upright, recumbent, and children), pedestrians (including walkers, runners, people using wheelchairs, people with baby strollers, people walking dogs), skaters, equestrians, and people with disabilities.

   ~~i.~~j. **Principle~~Policy~~:** Support the development of bikeways and trails as in integral part of the recreation Parks, Open Space, and Trails system (POST), including recreational loops, secondary trails, and neighborhood-scale connecting routes.

   ~~j.~~k. **Principle~~Policy~~:** Connect the bikeways and trails network with public transit, providing flexibility and choice for travel options and enhancing recreational opportunities.

5. **Increase public awareness and education related to bikeways and trails.**

   a. **Principle~~Policy~~:** Implement a comprehensive program to increase public awareness of bicycling and trail use and to encourage healthy living and active lifestyles through use of the City's trail and bikeway system.

   b. **Principle~~Policy~~:** Educate bicyclists, pedestrians, and other trail users on user ~~safety~~ performance and legal, predictable behavior, including the rights and responsibilities of each mode of travel.

c. **Principle~~Policy~~:** Educate motorists on the rights of pedestrians and cyclists.

6. **Recognize and leverage the bikeway and trail network as an integral part of economic development and quality of life in Albuquerque.**

a. **Principle~~Policy~~:** Plan, design, construct, operate, and maintain City roads to promote convenient access to all legal users of roads, streets, and highways in a manner that promotes efficient movement of people and goods whether by car, truck, transit, assistive device, foot, or bicycle.

~~a.~~b. **Principle~~Policy~~:** Promote bikeway and trail use as a non-polluting, cost-effective, and healthy mode of transportation and recreation.

~~b.~~c. **Principle~~Policy~~:** Promote pedestrian and cycling opportunities and integrate into development to foster pleasant non-motorized travel conditions.

~~c.~~d. **Principle~~Policy~~:** Dedicate a local funding source for construction and maintenance of bikeways and trails. Establish specific budget line items to support the provision of on-street and off-street bicycle systems and programs.

~~d.~~e. **Principle~~Policy~~:** Increase the attractiveness and activity along this system through enhanced streetscape and trail aesthetics, landscaping, and amenities along bikeways and trails where feasible.

~~e. **Policy:** Plan, design, construct, operate, and maintain City roads to promote convenient access to all legal users of roads, streets, and highways in a manner that promotes efficient movement of people and goods whether by car, truck, transit, assistive device, foot, or bicycle.~~

f. **Principle~~Policy~~:** Promote walking and bicycling as legitimate forms of transportation in all planning, design, and programming efforts.

7. **Streamline administrative practices and coordination.**

a. **Principle~~Policy~~:** Provide adequate staff to implement the *Bikeways & Trails Facility Plan* with appropriate office budgets to promote bicycling and trail use.

b. **Principle~~Policy~~:** Foster ongoing coordination among critical departments within the City to communicate and coordinate activities related to design of bikeways and trails.

c. **Principle~~Policy~~:** Organize and coordinate implementation of this Plan among City Departments and other agencies to produce well-designed facilities and a connected network of bikeways and trails that are ~~safe~~ comfortable and enjoyable for the public to use.

d. **Principle~~Policy~~:** Coordinate with Bernalillo County, NMDOT, AMAFCA, MRGCD, and MRCOG and other local jurisdictions as appropriate regarding connectivity, design, implementation, and maintenance.

e. **Principle~~Policy~~:** Develop and maintain databases useful for trail and bikeway planning, inventory, prioritization of improvements, and ~~accident~~crash reduction.

f. **Principle~~Policy~~:** Coordinate with APD to develop and implement a traffic law education and enforcement program that teaches pedestrians, bicyclists, and motorists about relevant laws for each mode of travel.

g. **Principle~~Policy~~:** Create and support opportunities for public and user input and engagement into the bikeways and trail system. Advisory groups and/or ad hoc committees should support the City's efforts to implement these policies and this Plan.

h. **Principle~~Policy~~:** Regularly accommodate bicycles and pedestrians recognizing that not all facilities may be appropriate on every roadway. Bicycles and pedestrians should be considered in the planning of every road project and by all departments when setting policy and programs.

B. Relationship to Other Plans

This section summarizes relevant documents and policies that regulate and establish a framework for bicycling and walking in Albuquerque. Plans and policies are considered relevant if they directly address bicycle or trail facilities or land-use patterns that directly affect non-motorized transportation. The chapter consists of the following sections:

Existing Bicycle and Trail Plans provides a summary of plans that have led to the current bike and trail facilities, policies, and programs in Albuquerque.

City Plans and Policies summarizes relevant Albuquerque plans and provides specific policies related to biking, walking, and riding in the City.

Regional Plans summarizes regional plans relevant to the *Bikeways & Trails Facility Plan*.

1. Applicable City Plans, Regulations & Guidance

Comprehensive Plan (2012)

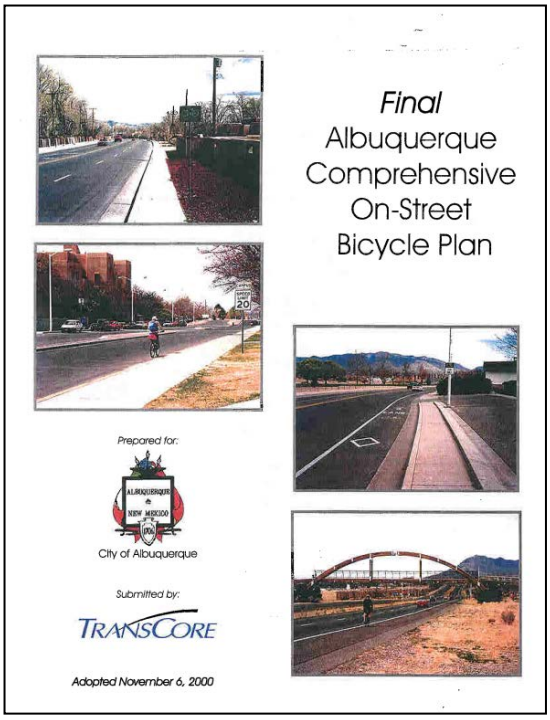
The Rank I *Albuquerque/Bernalillo County Comprehensive Plan* sets forth goals and policies to guide future land use and development in the city/county. Based on the vision of the community, the plan establishes a long-range plan for growth in a coordinated and coherent urban form to best promote the needs of the city. The plan incorporates goals and policies that support bicycle and trail facilities in all three areas; Land Use, Environmental Protection and Heritage Conservation, and Community Resource Management. These Comprehensive Plan policies were reviewed by the project team, and reflected as appropriate through this Plan. This Plan is consistent with the policy direction set in the Comprehensive Plan.

Trails & Bikeways Facility Plan (1993, amended 1996)

The City of Albuquerque and the County of Bernalillo jointly adopted the Rank II *Bikeways & Trails Facility Plan* in 1993. This plan established long-range policies for off-street, multi-use trails, and bicycle facilities. The plan identified funding sources (implemented later) and recommended two new positions: a bicycle/pedestrian/trail coordinator in Public Works (now DMD) and a trail coordinator position (Parks).

Recommended Facilities. The *Trails & Bikeway Facility Plan* developed a hierarchy of trail types as well as design standards. Primary trails serve the regional transportation network and also provide secondary recreational benefits. Primary trails were hard surfaced trails that encouraged separation of recreational trail users and commuter cyclists (though rarely accomplished due to right-of-way and budget constraints). Secondary trails provided access to the primary trails and could be either hard- or soft-surfaced trails. Finally, the Plan identified Trail Study Corridors with desirable trail connections but

no proposed alignment. The *Trails & Bikeway Facility Plan* incorporated alignments proposed in the Rank II *Facility Plan for Arroyos* and Rank III *Arroyo Corridor Plans*. It also identified the need for an on-street bicycle facility plan (later completed) and a plan for preserving and utilizing the acequia system in the valley for a trail network (not accomplished).



Comprehensive On-Street Bicycle Plan (2000)

The Rank II *Albuquerque Comprehensive On-Street Bicycle Plan,* adopted in 2000, developed recommendations to establish a comprehensive on-street network in order to make cycling a viable transportation option. A comprehensive set of goals, objectives, and action items was developed to be met by 2020. These objectives are included in this plan in **Chapter 6.A.4, Policies for Bikeway & Trail Development**.

Recommended Facilities. The objective of the on-street networks was to provide an interconnected bikeway network with half-mile spacing connecting major employment/shopping sites, schools, parks, and off-street trails. The proposed network consists of 507 miles of bike routes, lanes and short segments of sidewalk trails. Seventy-two percent (72%) of the recommended bikeways are located on arterial and collector roadways. This high ratio reflects the intent of the on-street bicycle plan to provide direct commuter routes and responds to the desire to integrate non-motorized forms of transportation into our road network. It provides planning-level cost estimates for bikeway corridor projects and recommends a flexible improvement program to implement the proposed network.

Programs and Policies. Encouragement, education, and enforcement programs were recommended in the plan. These include updating and distributing the city bicycle maps, bicycling awareness programs, ~~grade school safety curriculum~~a youth and adult Bicycle and Pedestrian Safety Education Program, media campaigns, and employer incentives for alternative travel. In addition, the plan recommended updating the Albuquerque Comprehensive Zoning Code to include bicycle end-of trip facilities. In 2003, the City attempted to accomplish this goal by updating the General Parking Regulations to increase the amount of required bicycle parking and establish guidelines for end-of-trip facilities (O-02-59). Ultimately, the Mayor vetoed the legislation because of its adverse impact on small businesses and suggested a higher threshold for the building size that would require end-of-trip facilities (EC-520).

Major Public Open Space Facility Plan (1999)

Trails in Major Public Open Space are a major part of the overall network of trails including paved trails in Rio Grande State Park MPOS (Bosque Trail) and single tracks in Elena Gallegos Open Space.

There are two types of open space within the plan area, Major Public Open Space and "open space." Major Public Open Space (MPOS) corresponds with the locations identified in the Albuquerque Bernalillo County Comprehensive Plan, the City of Albuquerque Major Public Open Space Facility Plan (jointly adopted by the City and County), and the Bernalillo County Parks, Open Space, and Trails Master Plan. Lower case "open space" examples include easements, privately maintained trails, recreational and educational facilities, utility facilities and corridors, water storage and drainage facilities, access easements and roadway and/or transit rights-of-way.

Facility Plan for Arroyos and Arroyo Corridor Plans (various years)

In 1986, the City and Bernalillo County jointly adopted the Rank II *Facility Plan for Arroyos* to establish guidelines that "create a multi-purpose network of recreational trails and open space along arroyos." The plan was also endorsed by the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA), an agency which is generally supportive of multiple uses of its facilities where compatible with the drainage function. Trail use of AMAFCA property is subservient to its drainage function and is controlled by revocable licenses approved by the Board of Directors to a public agency able to assume liability and responsibility.

Recommended Facilities. The plan grouped Arroyos in the Metropolitan area into one of three categories – Major Open Space Arroyos, Major Open Space Links, and Urban Recreational Arroyos – and ranked their priority for development. Trail development is specifically outlined for the Arroyos identified as Major Open Space Links and Urban Recreational Arroyos, while Major Open Space Arroyos are intended to remain in natural or semi-natural condition, with limited development of trails.

Major Open Space Links are scheduled for the development of arroyo corridor plans which will locate recreational trails forming continuous east/west linkages between peripheral Major Public Open Space. This Major Public Open Space includes the Sandia Foothills, the Manzano Foothills, and the West Mesa Escarpment, the Rio Grande Bosque and, in the South Valley, former oxbows of the Rio Grande located west of Coors Boulevard. Barriers such as major streets, I-25, and the North and South Diversion channels may require crossing structures placed at strategic locations to provide continuity to the trail system. Acquisition and maintenance of the public-right-of-way and/or easements associated with Major Open Space Links over-and-above that required for drainage purposes will be the responsibility of the City. Dedication of arroyo rights-of-way as open space or parks or the granting of recreational easements where appropriate, are the preferred method of acquisition. Channel treatments with Major Open Space Links may vary. The native landscaping of rights-of-way and/or easements associated with trails will comprise the unifying element along these arroyo corridors.

Major Open Space Arroyos are to remain in a natural or semi-natural condition with native vegetation and channel stabilization consisting primarily of naturalistic treatments such as ungrouped riprap and gabions. Tinted concrete or soil cement may be used in limited applications such as in low-flow channels or as needed to control erosion at points where developed runoff enters the arroyo. The existing open space characteristics of these arroyos will be preserved to the greatest extent feasible in order to provide visual and psychological relief from urbanization, and to protect the natural drainage process. Acquisition and maintenance of the public right-of-way associated with Major Open Space Arroyos

over-and-above that required for drainage will be the responsibility of the City. Dedication of arroyo rights-of-way as open space or parks or the granting of recreational easements, where appropriate, are the preferred methods of acquisition.

From a trails standpoint, Albuquerque's arroyos offer unique opportunities in that they are linear corridors that cross large areas of the city and are generally located away from major roadways with relatively few street crossings. The *Facility Plan for Arroyos* recognizes this opportunity and sets forth policies for providing joint use of the arroyo rights-of-way, combining recreational uses with their primary drainage function. The system envisioned in the *Facility Plan for Arroyos* is intended to address the needs of all types of trail users, including pedestrians, runners, equestrians, individuals with disabilities, and cyclists.

Area and Sector Development Plans (various years)

Rank II area and many Rank III Sector Development Plans also propose various trails, sometimes in a general way, and at other times very specifically. These proposals have all been included in **Figure 11: Proposed and Existing Trails Map**, page 66.

Code of Ordinances (ROA 1994)

Albuquerque has city ordinances related to bicycling and horseback riding that regulate both user behaviors as well as requirements for different facility types. Ordinances related to bikeways and trails are largely addressed in Chapter 8 Traffic Code. Articles 2 (Traffic Regulations) and 3 (Motorcyclists, bicycles and toy vehicles) contain laws pertaining to the ownership of a bicycle, proper riding skills, and bicycle equipment. Article 2 also contains laws related to pedestrian movement, including requirements to cross at right angles to the road, prohibiting crossing at locations other than signed crosswalks, and requiring use of sidewalks, tunnels, and overpasses where provided. Ordinances addressing proper horseback riding are identified in Chapter 8, Article 4: Animals.

Development Process Manual (2008)

The purpose of the Development Process Manual (DPM) is to clarify the development process for City staff, property owners, developers and their agents, especially planners, architects and engineers. The DPM contains the City's design standards and is intended to successfully carry out the goals and policies of the Albuquerque/Bernalillo County Comprehensive Plan.

All new roads in Albuquerque must be designed to accommodate bicycles. **The DPM establishes pavement width standards for roadways and minimum widths for bicycle facilities.** Arterials require a six-foot minimum bike lane or five-foot paved shoulder bikeway for posted speeds of 35 mph or less; seven-foot bike lane or six-foot paved shoulder bikeway for posted speeds of 40 mph or greater. Collector streets require a minimum six-foot bike lane or four-foot paved shoulder bikeway. All major local roads must have a signed bicycle route without striped lines at minimum or a six–foot wide paved path within a minimum twelve-foot wide Pedestrian Access Route.

Bikeway & Trail Location Guidelines and Design Standards are presented in **Chapter 7**, **Design Manual**. The AASHTO *Guide for the Development of Bicycle Facilities, 2012* (the "Bike Guide") serves as the principal resource for the location and design of on-street and multi-use trail facilities. In the evaluation of facilities, it should be considered whether the AASHTO or NACTO standards are more appropriate when there is conflict between the two guiding documents. When it comes to bikeways and trails in the developed urban portions of the city, the NACTO Urban Bikeway Design Guide shall be the governing

document in the event of conflict with the AASHTO document, unless the project funding stipulates otherwise. There should be documentation of which standards were selected and why. DPM standards have not been updated to reflect the most recent version of the "Bike Guide." The DPM provides specific design guidelines for on-street facilities including: bicycle lanes, paved shoulder bikeways, bicycle routes, wide curb lanes, and bicycle boulevards. It also outlines special provisions for bike lanes including design recommendations for dual right-turn lanes, free right turn lanes, crossing conflicts, and bikeway grades.

City of Albuquerque Decade Plan: Capital Improvement Program (2009)

The City of Albuquerque Decade Plan documents the capital improvement projects for the City over a ten year period. Funding for the Capital Improvement Program comes from the General Obligation Bond Program, which is approved by the voters and is updated every two years. Bicycle and trail projects are funded through a number of City departments including Parks and Recreation, Department of Municipal Development, and Planning. **The Decade Plan is the primary instrument for setting priorities for each two year Capital Improvement Program cycle.** As such, efforts to rank and prioritize projects within this Plan would not be able to take into account the changing fiscal, political, and maintenance-driven factors that determine what is programmed by the City.

2. Applicable Regional & State Plans

2035 Metropolitan Transportation Plan for the Albuquerque Metropolitan Planning Area

Every four years the Mid-Region Metropolitan Planning Organization (MPO) updates the Metropolitan Transportation Plan (MTP). The purpose of the MTP is to guide the development of the transportation system for the AMPA. The 2035 MTP sets goals that will lead to the development of an integrated transportation system and includes recommendations aimed at relieving congestion, maintaining air quality, and improving quality of life. The MTP establishes bicycle facilities and trails as important elements in their transportation demand management strategy.

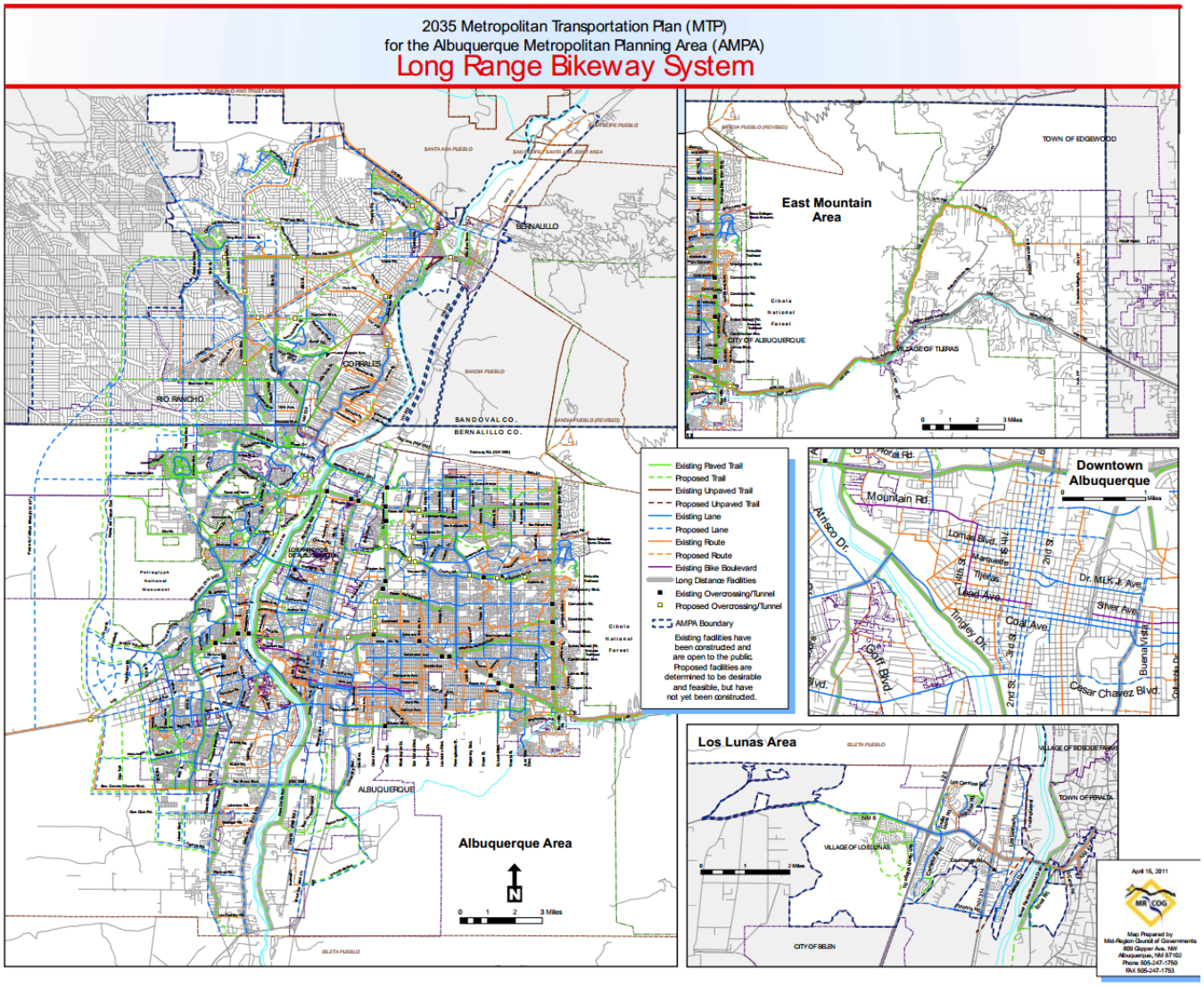
2035 Metropolitan Transportation Plan – Key Bicycle & Pedestrian Policies

- Provide sufficient funding to develop and maintain efficient, high-quality pedestrian and bicycle circulation systems for safe, affordable, convenient, and comfortable travel between activity centers, activity corridors, residential neighborhoods, and public transit.
- Support opportunities to redevelop existing roadways as multi-modal facilities (complete streets).
- Promote the development of street patterns and designs that strongly support pedestrian and bicycle comfort, convenience, and safety and give high priority to development projects that closely integrate transportation and land use planning and design.
- Build safe facilities. Plan, design, and build bicycle and pedestrian facilities in accordance with the best practices described in the latest edition of the AASHTO Guide for the Development of Bicycle Facilities and the AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities.
- Develop educational programs that encourage walking and bicycling; teach smart walking and bicycling skills; and teach motorists how to interact safely with pedestrians and bicyclists.
- Maintain strong and effective travel demand management and education programs to encourage, support, and enable shifts of person trips away from single-occupant vehicles and toward walking, bicycling, public transportation, ride-sharing, and work-at-home.
- Collect data and develop analytical methods to monitor and consistently evaluate the effectiveness of all projects and programs.

Long Range Bikeway System ~~Plan~~ Map (~~2007~~2011)

The Long Range Bikeway System Plan (LRBSP) maps existing and proposed bike facilities within the Albuquerque Metropolitan Planning Area (AMPA) and is adopted by the Metropolitan Transportation Board ~~through~~ as part of each ~~5~~4-year Metropolitan Transportation Plan (MTP). The LRBSP is the guiding document with respect to planned bikeway location and character, and it looks at transportation on the 20 year horizon. This map combines the on-street and off-street multi-use trails and is included in the annual AMPA Transportation Program. The map is periodically updated by the region in consultation with planners and elected officials from each jurisdiction. **Figure 1** shows the April 2011 map from the 2035 MTP. The 2040 MTP is anticipated to be adopted in 2015.

Figure 1: MRCOG 2035 Long Range Bikeway System Map ***(Note: For illustrative purposes only. To see the full-size version of the Long Range Bikeway System map, please visit www.mrcog-nm.gov.***



New Mexico Bicycle / Pedestrian / Equestrian Advisory Plan (2009)

The New Mexico Bicycle/Pedestrian/Equestrian (BPE) Advisory Plan, developed for the New Mexico Department of Transportation (NMDOT) provides goals, guidance, and recommended design standards intended to improve the facilitation of non-motorized facilities in New Mexico. **State law requires that provisions for pedestrians, bicycles, and equestrians be properly considered in all NMDOT projects.** The BPE Advisory Plan provides recommendations specific to various functions within NMDOT. Recommendations for planning and programs; funding, engineering and design; and education, enforcement, and encouragement have a statewide scope. The NMDOT is currently working on update to this document and establishing statewide criteria.

Statewide Transportation Improvement Program (STIP)

The New Mexico Department of Transportation (NMDOT) is responsible for developing the Statewide Transportation Improvement Program (STIP), the state's capital improvement program for multi-modal

transportation improvement projects. The STIP prioritizes projects through a transportation planning process with local governments and develops a funding budget for a four-year period. In Fiscal Years 2010-2013, NMDOT allocated $8.5 Million for bicycle and trail related projects in the City of Albuquerque. However, with recent changes to federal transportation programs and funding, the City is likely to see much less federal funding for bikeway and trail projects in the future. The NMDOT will continue to include multi-modal enhancements into future roadway projects.

5. Federal Policies and Programs

Mainstreaming Non-Motorized Transportation

Bicyclists and pedestrians have the same origins and destinations as other transportation system users, and it is important for them to have safe and convenient access to jobs, services, recreation facilities, and neighborhoods.

Federal surface transportation law places a strong emphasis on creating a seamless transportation system that all users can enjoy and use efficiently and safely. Current federal transportation policy is to increase non-motorized transportation to at least 15% of all trips and to simultaneously reduce the number of non-motorized users killed or injured in traffic crashes by at least 10%. This shift in policy has given tremendous flexibility to States and MPOs to fund bicycle and pedestrian improvements from a wide variety of programs. Virtually all the major transportation funding programs can be used for bicycle and pedestrian related projects. Specifically, States and MPOs are encouraged to:

1. **Include bicycle and pedestrian improvements as an incidental part of larger projects.**
2. Review and use the most appropriate funding source for a particular project and not rely primarily on transportation enhancements. Many bicycle and pedestrian projects are more suitable for funding under the congestion mitigation and air quality improvement program or the surface transportation program.
3. **Exceed minimum design standards and requirements** of transportation agencies and local communities to create safe, attractive, sustainable, accessible, and convenient bicycling and walking networks.
4. **Consider walking and bicycling as equals with other transportation modes.** Because of the benefits they provide, transportation agencies should give the same priority to walking and bicycling as is given to other transportation modes. Walking and bicycling should not be an afterthought in roadway design.
5. **Ensure that there are transportation choices** for people of all ages and abilities, especially children. People who cannot or prefer not to drive should have safe and efficient transportation choices.
6. Collect data on walking and biking trips and set mode share targets for walking and bicycling and track them over time.
7. **Improve non-motorized facilities during maintenance projects.** Transportation agencies should find ways to make facility improvements for pedestrians and bicyclists during resurfacing and other maintenance projects.

Improving conditions and safety for bicycling and walking embodies the spirit and intent of Federal surface transportation law and policy to create an integrated, inter-modal transportation system that

provides travelers with a real choice of transportation modes. State and local agencies are challenged to work together cooperatively with transportation providers, user groups and the public to develop plans, programs, and projects that reflect this vision. For more information on these policies, see the 2010 U.S. Department of Transportation "Policy Statement on Bicycle and Pedestrian Accommodation."

Moving Ahead for Progress in the 21st Century Act (MAP-21)

In 2012, Congress passed the Moving Ahead for Progress in the 21st Century Act (MAP-21). MAP-21 requires that planning organizations incorporate bicycle and pedestrian facilities into all annual and long-range Transportation Improvement Programs. MAP-21 creates a streamlined, performance-based, and multimodal program to address the many challenges facing the U.S. transportation system. These challenges include improving safety, maintaining infrastructure condition, reducing traffic congestion, improving efficiency of the system and freight movement, protecting the environment, and reducing delays in project delivery. MAP-21 established national performance goals for Federal Highway Programs:

- **Safety**—To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
- **Infrastructure condition**—To maintain the highway infrastructure asset system in a state of good repair.
- **Congestion reduction**—To achieve a significant reduction in congestion on the NHS.
- **System reliability**—To improve the efficiency of the surface transportation system.
- **Freight movement and economic vitality**—To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
- **Environmental sustainability**—To enhance the performance of the transportation system while protecting and enhancing the natural environment.
- **Reduced project delivery delays**—To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

Bicycle and pedestrian improvements are now addressed in the Transportation Alternatives Program (TAP), which is equal to 2% of the total amount authorized.

CHAPTER 3: EXISTING CONDITIONS & CURRENT ISSUES

This section presents an overview of the existing bikeway and trail system and the needs of bicyclists and trail users in Albuquerque. Adequately identifying user needs enables bikeway and trail system planners and policy-makers to develop cost-effective solutions for improving the region's bikeway and multi-use trail system. This section provides an overview of trail user and cyclist volumes and behaviors at many locations throughout the City (**Section 3.C.2, System Use**), discusses public input gathered through an online user survey (**Section 3.C.3, Facility Needs Assessment**), and examines ~~cyclist safety~~ cycling conditions by analyzing reported bicycle crash data (**Section 3.C.3, Facility Needs Assessment**).

This information was used in conjunction with field visits, input gathered at public meetings, stakeholder interviews, and analysis of the existing bikeways and trail system to develop Part II, Plan Recommendations.

A. Cyclist & Pedestrian Needs

The 2035 Metropolitan Transportation Plan (MTP) and the Centers and Corridors element of Albuquerque's Comprehensive Plan anticipate that Albuquerque's future will include an increasing mix of uses and higher densities concentrated in mixed-use centers. The 2035 MTP anticipates that the City will accommodate a greater share of regional population and employment than it has to date. The predicted Albuquerque Metropolitan Planning Area population in 2025 is 1,093,490, which is an increase of 53.4 percent, or 380,752 people, compared to the 2000 Census.

As the Albuquerque continues to grow, the City needs to plan for a truly multi-modal transportation and recreation system that serves the needs of all residents. The city's rapid growth is occurring west of the Rio Grande both in the northwest and southwest quadrant. Roughly half the people in New Mexico live in the Albuquerque area.

Table 2: Albuquerque and Albuquerque Metropolitan Area Population

Albuquerque Population	
Year	Population Estimate
2000	448,607
2006	507,789
2010	535,239
2012	55,419

Metro Area Population (includes Bernalillo, Sandoval and Valencia counties)	
Year	Population Estimate
2000	712,738
2005	766,016
2009	857,903
2012	902,794

1. Types of Users

Pedestrians

This group includes all travel that is primarily foot-powered, including walkers, joggers, runners, and skaters. Pedestrians are typically looking for facilities that provide connections to destinations for utilitarian trips or for longer continuous facilities for exercise-related trips. Key facilities for pedestrians include travel-ways with a smooth travel surface and infrastructure to enhance ~~safety~~ utilization at roadway crossings. The City also must provide adequate access and opportunities for individuals with disabilities to use the non-motorized bikeways and trails system facilities.

Cyclists

~~The needs and preferences of cyclists vary depending on skill level, equipment, and/or trip purpose. For example, bicyclists who ride for recreational purposes may prefer scenic, winding trails, while cyclists who ride to work or for errands may prefer more direct routes and on-street bicycle facilities. However, this traditional stereotype of each facility type is increasingly becoming blurred. Commuters in Albuquerque often feel more comfortable and relaxed on trails, while the City has also seen dramatic increases of the number of people who will use streets to access recreational opportunities, including craft breweries, parks, and open space, or use the streets *as* recreational opportunities, such as bicycle scavenger hunts and group rides.~~

The needs and preferences of cyclists vary widely depending on skill level, equipment, and/or trip purpose. For example, some recreational cyclists may prefer scenic, winding paved trails and bike-friendly roadways, while others prefer unpaved, off-road trails that offer miles of uninterrupted riding without necessarily reaching a specific destination. Cyclists who ride to work, school or for errands may prefer more direct routes to activity centers and/or commercial districts provided by trails and on-street bicycle facilities. Providing for all users requires understanding their disparate needs.

Advanced Users

~~Cyclists who use their bicycle for utilitarian trips (ones other than recreation)~~ Experienced cyclists may find that on-street facilities are the most functional facilities for bicycle transportation, whether for utility or recreation. This could be attributed to the more direct connections that streets can provide, as well as fewer conflicts between user types. Advanced cyclists have stated their preference for marked on-street bicycle lanes in numerous national surveys.

Traffic Intolerant Adults, Beginning Cyclists, & Children

Child cyclists, seniors, and beginning adults are generally thought to prefer trails, because there is no vehicular traffic. Individuals who cannot afford to drive a car or who choose to live without a car may have preferences that are not as easily classified. Despite each individual user's comfort level, there is generally a portion of the trip that requires using the street system. As a city, we should strive to make each trip as ~~safe and~~ comfortable and efficient as possible by providing a connected network ~~range~~ of on- and off-street options ~~across the city~~.

Many bicyclists – particularly less experienced riders – are far more comfortable riding on a busy street if it has a striped bike lane with painted markings. Part of the intent of this Plan is to encourage new riders, and providing future marked facilities such as bike lanes may be one way to accomplish that. It is also important to note that many advanced cyclists use Albuquerque's trail system due to its extensive length, mild curve radii overall, gentle slopes, and ease in reaching many parts of the City.

Other Wheeled Trail Users

In addition to the primary user groups identified above, there are other types of trail users who have slightly different needs. This user group includes the following: skaters, including in-line and roller-skates, long skateboards, skateboards, and kick scooter users. Others include people with baby strollers and individuals in wheelchairs. These users tend to prefer a surface that is smooth without major cracks. They may be moving at a slower pace than other wheeled trail users, and therefore share some similarities with the needs of pedestrians.

Equestrians

As with pedestrians and bicyclists, the needs of equestrians vary with experience and relative levels of urbanization and trail development. In areas of higher use, equestrians prefer facilities that provide adequate separation from other user types that may spook horses (e.g., cyclists or in-line skaters) and an unpaved trail.

2. User Needs – Current Issues

Balancing the Needs of the Various Users/Conflict of Use

Each of these different user groups has slightly different needs and ways of using the same facilities. On trails there are conflicts between faster moving cyclists and pedestrians or equestrians, particularly with trails that are built to the *minimum* standard width. The Paseo del Bosque is a good example of a hugely popular trail with a variety of users. On streets there are conflicts between cyclists and motor vehicle drivers, again, particularly on facilities that are narrow with little separation between users.

The City aims to address these user conflicts in three ways: 1) develop new facilities to meet the minimum design standards and guidelines needed to improve ~~the safety of~~ the trail or bikeway, 2) inventory, evaluate, and then retrofit design enhancements for facilities that do not meet the minimum standards or have high volumes of users, for example adding wide shoulders or a parallel soft-surface path, and 3) educate and promote awareness of trail etiquette and the types of accommodations that are required when there are high volumes of users, such as slower speeds and more communication between users. Current problem areas on multi-use trails have signage and graphics indicating who is supposed to yield to whom.

Figure 2: Trail Etiquette Signs

Future studies or evaluations of the trail system could focus on identifying known conflict of use areas and recommending ways to encourage separation of use. High-use areas or conflict points include Tingley Park and the Gail Ryba Bridge. Increasing awareness of trail etiquette and communication would be handled as an education program, which is a currently ongoing program. For more information on current and new programs, see **Chapter 5, Recommended Programs**.

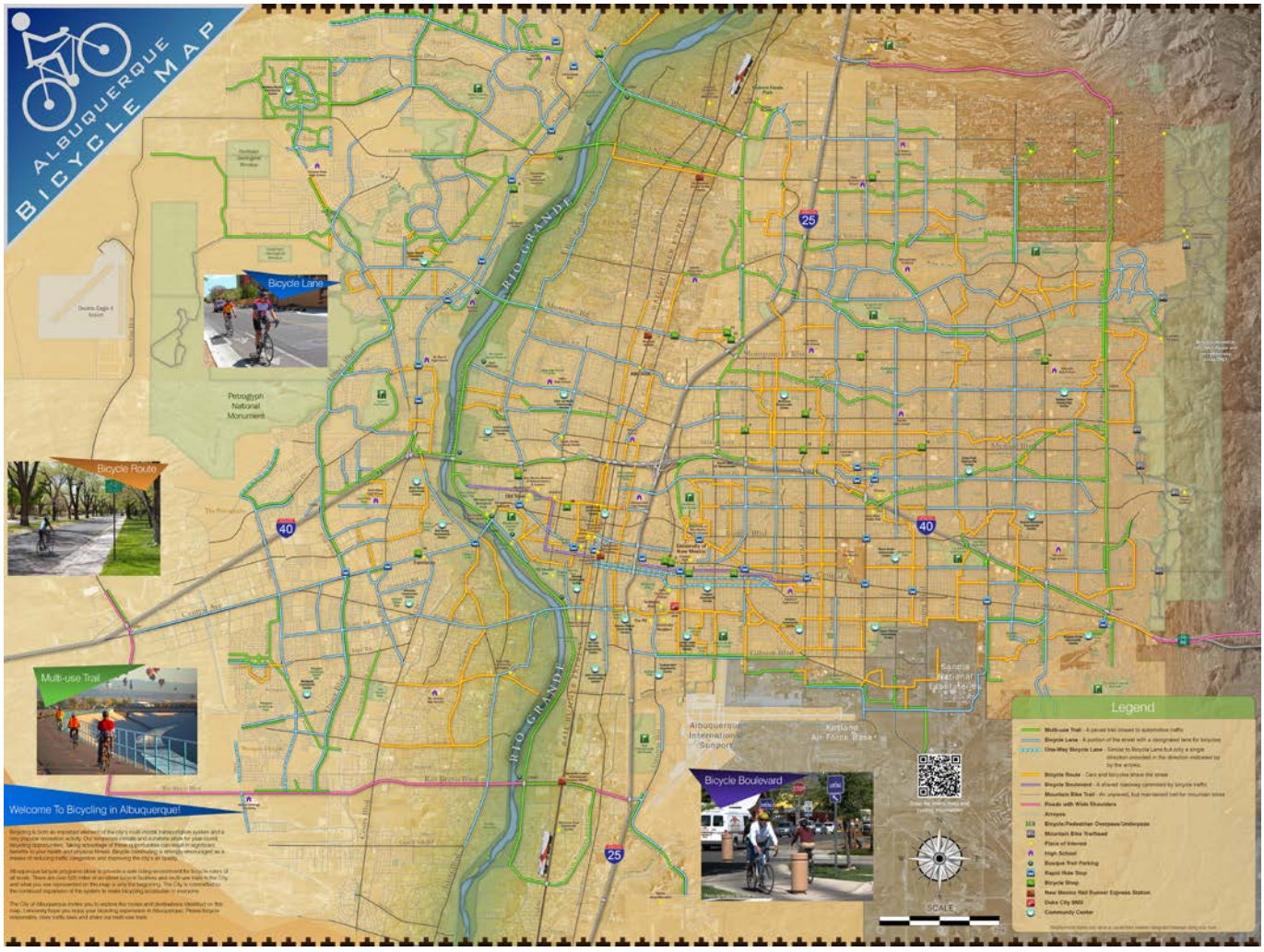
Equestrian Issues

In the on-line survey conducted in 2010, approximately 10% of equestrian respondents reported riding Albuquerque's trails. The majority of equestrian owners live in the Rio Grande Valley area although there are a few areas on the west side of Albuquerque where horses are still kept. The City and County have provided a few areas in the Valley with horse or equestrian parking available. A few notable examples include City Shining River Open Space Trailhead, Los Poblanos Fields Open Space, and the Albuquerque/Bernalillo County's Alameda Bachechi Open Space. The City and County should continue to add equestrian facilities where appropriate to encourage more equestrians and support the horse culture New Mexico and the City.

B. Existing Facilities

Albuquerque's formalized bikeway and trail system consists of on-street facilities (bike routes, bicycle boulevards, bike lanes, wide lanes/paved shoulders) and off-street facilities (multi-use trails). A significant portion of the City's bicycle facilities are trails, making up nearly one-half, or 277 miles, of the existing bicycle facilities in the area. Annually, the City prepares a map of the bikeways and trails in the metropolitan area for bicyclists and trail users.

Figure 3: 2014 Bicycle Map **(Note: For illustrative purposes only. To view a full-size version of this map, please visit: http://www.cabq.gov/parksandrecreation/recreation/bike**



1. Types of Existing Facilities

Bicycle Lanes

Designated exclusively for bicycle travel, bicycle lanes are separated from vehicle travel lanes with striping and include pavement stencils and signage. Bicycle lanes are most appropriate on arterial and collector streets in urban and rural areas where higher traffic volumes and speeds warrant greater separation than on local roads. There are approximately 203 miles of existing bike lanes within the city, most of which are located on collector and minor arterial streets. Most utilitarian bicyclists advocate for on-street facilities as the most functional facilities for bicycle transportation. These bicyclists have stated their preference for marked on-street bicycle lanes in numerous national surveys. Many bicyclists – particularly less experienced riders – are far more comfortable riding on a busy street if it has a striped and signed bike lane. Part of the intent of this Plan is to encourage new riders, and providing marked facilities such as bike lanes is one way of helping to persuade residents to give cycling a try. See **Figure 10: Existing Bikeways & Trails Map,** page 64.

If properly designed, bike lanes can ~~increase safety~~ encourage more use and promote proper riding. For this reason, bike lanes are highly desirable for ~~bicycle~~ utilitarian and recreational ~~commutes and other~~

~~utilitarian~~ ~~routes~~ uses along major roadways. Bike lanes help to define the road space for bicyclists and motorists, reduce the chance that motorists will stray into the cyclists' path, discourage bicyclists from riding on the sidewalk, and remind motorists that cyclists have a right to the road. One key consideration in designing bike lanes in an urban setting is to ensure that bike lanes and adjacent parking lanes have sufficient width (usually a minimum of five feet for bicycle lanes) so that cyclists have enough room to avoid a suddenly opened vehicle door, see the Design ~~Guidelines~~ Manual for additional information.

Bicycle Boulevards

Bicycle Boulevards are low-volume and low-speed streets where motorists and bicyclists share the same lane. A motorist will usually have to cross over into the adjacent travel lane to pass a bicyclist unless a wide outside lane or shoulder is provided. ~~Bicycle Boulevards are indicated with signage and pavement markings with a large image of a bicyclist~~Typically, such facilities are marked with special signage and pavement markings aimed at creating a~~. This is done to create~~ a unique identity for the Bicycle Boulevard. Bicycle Boulevards also typically have more intense design interventions, such as bulb-outs, chicanes, etc., that help ~~slow~~ calm vehicular traffic.

A common treatment for Bicycle Boulevards is to set posted speed limits lower than 20 miles per hour~~Traffic calming and other treatments along the corridor may reduce vehicle speeds~~ so that motorists and bicyclists generally travel at the same speed. This creates a ~~safer and~~ more comfortable environment for all users and serves as a reminder to drivers that cyclists are prioritized on these facilities. Bicycle Boulevards should also incorporate treatments to facilitate ~~safe more effective utilization and~~ convenient crossings where bicyclists must traverse major streets. Bicycle Boulevards work best in well-connected street grids where riders can follow reasonably direct and logical routes with few "twists and turns." Boulevards also work best when higher-order parallel streets exist to serve through vehicle traffic. There are approximately 6 miles of existing Bicycle Boulevards in Albuquerque. See **Figure 10: Existing Bikeways & Trails Map,** page 64.

Bicycle Routes & Sharrows

The most common bikeways are shared roadways, which accommodate vehicles and bicycles in the same travel lane. They include link routes on local streets to get cyclists to designated facilities, as well as routes specifically designated as Bike Routes. The most suitable roadways for shared vehicle/bicycle use are those with posted speeds of 25-mph or less and low traffic volumes of 3,000 average daily traffic or less, many of which are in residential areas.

These facilities may include traffic-calming devices to reduce vehicle speeds while limiting conflicts between motorists and bicyclists. A common practice is to designate a system of shared roadways, which have bicycle route signs, directional arrows and other way-finding information. Bicycle routes may be marked with sharrows, which are pavement markings used to indicate a shared travel lane with both bicycle and motor vehicles.

Approximately 134 miles of bike routes currently exist throughout the city, providing convenient links to other parts of the bikeways system and to destinations throughout the city, including residential areas, transit stops, and schools. See **Figure 10: Existing Bikeways & Trails Map,** page 64.

Wide Lanes/Paved Shoulders

A wide outside lane accommodates bicyclists on streets with insufficient width for bike lanes. Typically found in rural areas and on state highways, these facilities are on paved roadways with shoulders that are wide enough for bicycle travel (4'+). Shoulder bikeways often, but not always, include signage alerting motorists to expect bicycle travel along the roadway. See **Figure 10: Existing Bikeways & Trails Map,** page 64.

Bikeway Supporting Facilities

The City has implemented a number of bikeway supporting facilities, including signage, bicycle detectors, bicycle parking and end-of-trip facilities. The Design Manual, Chapter 7, provides information about planning the location, design, and installation of these types of facilities.

Bikeway Signage

Bikeway signage includes signs to identify a bike route, lane or multi-use trail to cyclists and drivers (e.g., "Bike Lane" signs posted along a roadway with a bike lane), signs that provide regulations or warnings to cyclists or drivers (e.g., "Bike X-ing" warning signs or bicycle-sized "Stop" signs), and signs that provide way-finding to cyclists (e.g., trailhead signage or bike route numbering). Examples of signs being used in Albuquerque are shown in **Figure 4** below.

In Albuquerque, most on-street facilities have standard bikeway signage, and some multi-use trail facilities have entrance monuments. There is currently little directional signage provided along bikeways in Albuquerque. Most local street connections, continuous bikeway routes, and destinations are not identified. Way-finding is difficult on trails that do not parallel roads, since cross streets and familiar landmarks are sometimes difficult to use as reference points. An important area of concern is the inability to readily identify a location on the multi-use trails for emergency response purposes.

Figure 4: Signage Examples

Bicycle Detectors: Loops, Video Cameras, and Push-buttons

Loop detectors are in-pavement wire sensors or video camera detection systems that activate traffic signals when a vehicle is positioned within or over the loop. The in-pavement wire sensor loops work by sensing the metal in the vehicle, and the video cameras detect changes in the background image. The in-pavement loop detectors and video camera detectors can be adjusted to be sensitive enough to detect when a bicycle has stopped over the loop, allowing a cyclist to activate a traffic signal. At some intersections that do not have dedicated right turn lanes, the City has installed pushbuttons, located at the stop bar next to the curb, allowing the cyclist to activate the pedestrian call.

Bicycle Parking

Short-term bicycle parking facilities consist of bicycle racks. These facilities are intended to accommodate bicycles of visitors, customers, messengers, and others for short periods of time. Racks are relatively low-cost devices that typically hold between two and eight bicycles, allowing bicyclists to securely lock their frames and wheels. Racks are secured to the ground and are located in highly visible areas.

Long-term bicycle parking facilities include lockers and other secure storage facilities that contain the entire bicycle. This type of parking is intended to accommodate bicycles of employees, students, residents, transit riders, and others expected to park more than two hours. This parking is provided in a secure, weather-protected manner and location. **Table 3** compares the typical characteristics of short- and long-term bicycle parking.

Table 3: Characteristics of Short- and Long-Term Bicycle Parking

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

End-of-Trip Facilities

Bicycle support facilities include end-of-trip facilities that would encourage bicyclists to commute to work or other activities by providing a way to "clean up" after a ride. Typically, these amenities include showers and clothing locker facilities located at places of employment. Such facilities are most often provided by building owners or tenants for use by employees.

Trails (i.e., "Shared-Use Paths" and "Multi-Use Trails")

Trails provide off-street connectivity to community resources such as parks, open spaces, schools, libraries, community centers, employment centers, shopping centers, bus stops, and the soft surface trails within Major Public Open Space areas. Shared Use Paths also provide commuting/transportation access to those who do not have the skill level or comfort level for on-street riding or just prefer to ride off-street.

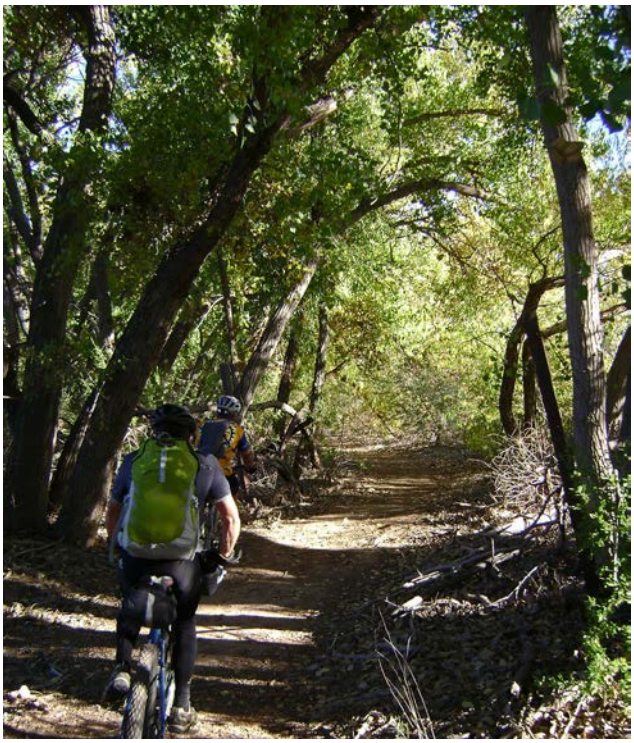
Today, the City of Albuquerque has approximately 200 miles of paved, off-street, multi-use trails. These "trails" or "paths" provide recreational and commuter access throughout the City for pedestrians, equestrians, bicyclists, skaters, and other types of users. There has been a long history of planning and creating these trails with the recreationalist in mind, provide trail connections to more recreational facilities such as parks, Major Public Open Space, and the Petroglyph National Monument. A recent trend and current goal is to also plan trails with the commuter in mind. There are also over 100 miles of unpaved trails, primarily located in Major Public Open Space areas.

The Paseo del Bosque Trail, the Unser Boulevard Trail, the North Diversion Channel Trail, and the Tramway Trail are examples of some of the major north/south multi-use trails. These major north/south trails provide connections to the east/west trails such as Paseo del Norte, I-40 Trail, Paseo del Nordeste Recreational Trail, and Paseo de las Montañas Trail. Developers are starting to include multi-use trails as part of new subdivisions to accommodate bicycles for transportation and other forms of

recreational activity. The I-40 Trail connects the east and west sides of the city, crossing the Rio Grande River on a multi-use bicycle/pedestrian bridge. Albuquerque's west side has fewer multi-use trails and is less well connected than the more mature multi-use trail system on the east side.

Other Multi-Use Trails

The City has other multi-use trails that are not paved but also are intended for many various users. Unless these trails are located in Major Public Open Space or a City park, they are typically informal and not maintained as trails. An example of a formal unpaved trail is the recent project on the north side of the Hahn Arroyo, between Comanche and California, which provides a good example of how to separate users in high use areas. An example of an informal unpaved network is the extensive network of drains and ditches (also known as acequias) within the Middle Rio Grande Conservancy District (MRGCD), which owns and/or maintains this irrigation system.



Other non-paved multi-use trails can be found in City Major Public Open Space, County Open Space, the United States Forest Service, and the National Park Service among other public and private lands. According to a recent inventory, the Open Space Division manages just over 100 miles of official trails, including in City owned Major Public Open Space in Sandoval and Bernalillo Counties. Many of these "single-track" trails are about one and a half to two feet wide and attract many hikers, runners, dog walkers, and mountain bicyclists. All of these paved and unpaved trails are considered to be part of Albuquerque's multi-use trail system, despite the City's varying degrees of oversight and maintenance on many of these informal trails.

Regional / Long Distance Trails & Routes

The MRCOG Long Range Bikeway System Map designates regional trails as "Long Distance Facilities." These bikeways and trails connect across the City or to other jurisdictions, such as Bernalillo County, Rio Rancho, Los Ranchos, and Corrales. The currently identified regional trails within Albuquerque include:

East/West:

- Paseo del Norte
- Osuna Rd. / Bear Canyon Arroyo
- Paseo del Nordeste
- Paseo de las Montanas
- I-40 Trail
- Rio Bravo Blvd.

North/South:

- Unser Blvd.
- Paseo del Bosque (River Trail) / Alameda west of the Rio Grande
- 2nd Street
- University Blvd.
- North Diversion Channel Trail

Much of the regional long distance trail and bikeway system has been constructed already; however, there are still significant gaps along these corridors. The City should focus on completing these gaps as

one of our main priorities. These links would be particularly suited for going after Federal or State transportation project funds because they connect across the Albuquerque Metropolitan Region.

The 50-Mile Activity Loop is another long-distance route being developed by the City. It consists of segments of trail, bikeways, and wide sidewalks. For more information about this project, see **Appendix B, 50-Mile Activity Loop Executive Summary**.

Multi-Use Trail Crossings

The City's extensive multi-use trail system intersects streets, highways, arroyos, drainages channels, and the Rio Grande. Where these intersections occur, various crossing treatments are used to provide ~~safe and~~ convenient crossing opportunities for the trail user. These crossings can be divided into two basic groups: grade-separated and at-grade. Underpasses and overpasses are two subsets of grade-separated crossings. There are currently 31 grade-separated crossings; this Plan proposes 15 new grade-separated crossings, along with 87 at-grade intersections that are recommended for enhancements or redesign strategies.

Grade-Separated Crossings

These are crossings where the pedestrian or bicyclist is completely separated from vehicle traffic when crossing a street intersection, trail, arroyo, drainage, or other obstruction. Grade-separated crossings can be further divided into two categories: overpasses and underpasses.

Overpasses provide locations where the trails pass above the obstruction. The trail may require a dedicated structure to provide this separated crossing. The trail may be aligned with an existing roadway bridge where the path is provided space on the bridge. Shared roadway/multi-use trail bridges can be found at some of the freeway, drainage channel, and river crossings. ~~There are areas throughout greater Albuquerque where it is crucial to put an overpass. Examples include Paseo del Norte and Coors and the east I-40 Trail at Rio Grande Blvd.~~ Overpasses can range from a simple pre-fabricated truss bridge, typically used to cross the shorter spans of arroyos and drainage channels like those along North Diversion Channel and Paseo del las Montañas, to the more complex bridge structure spanning multi-lane arterials and the Interstates, similar to the structures crossing Tramway, the newly constructed Bear Canyon Arroyo Bridge over Interstate 25, and several that cross Interstate 40.

An underpass serves a similar purpose as an overpass but differs in that the multi-use trail passes below the barrier. In locations where the multi-use trail is aligned with an existing roadway underpass, the multi-use trail can be provided space adjacent to the roadway for the crossing. Where trails run separate from the roadway, a modified culvert large enough to provide ~~safe~~ protected access for the trail user and maintenance equipment can be effective. The City has successfully used a technique termed "notches" where roadway bridges intersect multi-use trails following major drainage channel alignments. A notch in the channel's sloping side provides space for the multi-use trail to pass below the bridge.

At-Grade Crossings

At-grade multi-use trail crossings of roadways may occur at controlled or uncontrolled intersections and mid-block locations. Where the multi-use trail is in close proximity to a signalized intersection, the trail alignment may be diverted to the intersection, as shown in the photo of the crossing at Matthew Ave. where the multi-use trail user crosses at the crosswalk. Another example is the La Presa Dam crossing at Interstate 40 and Unser Blvd. Two-lane to six-lane streets with multi-use trail mid-block crossings are located throughout the City's bikeways network. Mid-block crossings are the most frequent at-grade multi-use trail crossings ~~and a concern to planners, engineers, and users~~. These crossings typically are not controlled with a traffic signal, so they present a major challenge to crossing at peak travel times. The implementation of specific design interventions must be considered on a location by location basis. The FHWA has endorsed and encourages a number of "Proven Safety Countermeasures" that include tools for mid-block crossings.

2. Existing Facility Enhancements – Current Issues

Intersection and Crossing Improvements

Intersections are challenging and dangerous for all travelers, particularly the more vulnerable bicyclist and pedestrian. Mid-block crossings where trails intersect major arterial streets are often difficult to navigate. On-street facilities in the developed portions of the city commonly "disappear" at the intersection, which typically adds turning lanes to increase the vehicular flow of traffic. This design

requires the cyclist to merge with vehicular traffic, which ~~can be safer and~~ may help to avoid a right-hook collision with turning vehicles. However, many cyclists and drivers do not know what to expect or do in these situations. Newer intersections with more right-of-way can accommodate a continuous bicycle lane or wide shoulder that is adjacent to the through lane; the right turn lane would cross the bicycle lane with this design. This plan discusses a variety of intersection treatments in the **Chapter 7.D, Design Manual**. Over time, the City should assess the existing intersections that include bicycle and pedestrian facilities and develop an approach to retrofit those intersections that are not consistent with the recommended designs.

Retrofitting Trails to be Universally Accessible

The Americans with Disabilities Act of 1990 (ADA) prohibits discrimination and ensures equal opportunity for persons with disabilities in employment, State and local government services, public accommodations, commercial facilities, and transportation. The current text of the ADA includes changes made by the ADA Amendments Act of 2008 (P.L. 110-325), which became effective on January 1, 2009 and is now accompanied by the 2010 ADA Standards for Accessible Design. Together they provide national accessibility regulations for buildings and related urban environments. However, when designing outdoor recreational facilities or shared-use paths (locally referred to as trails or multi-use trails), the application of strict ADA standards often proves impractical. As of early 2014, there are no enforceable Federal ADA standards or a proposed ruling for shared-use paths. The Federal Access Board anticipates adopting final standards in July 2014.

The Federal Access Board has adopted is the Public Rights-of-Way Accessibility Guidelines (PROWAG), which perhaps come the closest to providing guidance for trails/paths. PROWAG does not directly affect trails currently, but a future ruling for paths will likely be very similar to these guidelines. Therefore, the City will attempt to use these guidelines where feasible when constructing new trails until the ruling on trails is adopted by the Federal Access Board.

The City's 1996 ADA Field Survey was focused on a sample survey of local roadways and sidewalks. This study estimated a cost of approximately $63.6 million for correcting non-compliance with ADA for the major streets in the city, exclusive of legal fees and property acquisition. This report did not address the city's multi-use trails; however, the Parks & Recreation Department are currently evaluating both trails and parks for ADA compliance. For more information, see **Appendix C - ADA Field Survey.**

Bollard Placement Evaluation

Bollard Placement and Spacing Evaluation on Multi-use Trails

Bollards are a commonly used method of controlling vehicular access to multi-use trails. However, per the American Association of State Highway and Transportation Officials (AASHTO) *Guide for the Development of Bicycle Facilities, 2012* (Fourth Edition):

> "The routine use of bollards and other similar barriers to restrict motor vehicle traffic is not recommended. Bollards should not be used unless there is a documented history of unauthorized intrusion by motor vehicles. Barriers such as bollards, fences, or other similar devices create permanent obstacles to path users."

The goal of bollards should be to balance the need to discourage unauthorized motorized vehicle access on a trail with the need to provide the trail users a facility without unnecessary obstructions. AASHTO

has established several guidelines for the design of vertical barriers to make them as compatible as possible with the needs of path users and bicyclists.

In 2013, the City identified relevant design criteria for bollards on multi-use trail facilities, reviewed the installation of bollards on multi-use trails at selected locations, and then developed best practices for consideration of installed conditions and for future installations. This study was completed based on recommendations from GARTC and GABAC. These groups identified that the current bollard designs throughout the city are inconsistent and that excess bollards poses a hazard.

~~Therefore~~Subsequently, the City of Albuquerque adopted a series of best practices for the installation of bollards on the trail system. This will provide consistency within the trail system and establish a level of expectancy with the trail users that will result in less confusion and improvements in accessibility for all types of users. For more information, see **Appendix C, Bollard Study.**

Multi-Use Trail Bollard Inventory

The City developed an inventory of existing bollards on the City's multi-use trails system. Each bollard was photographed as a part of the inventory, and the photos was geo-tagged by a camera so that the data can be a part of the City's Geographic Information Systems (GIS) database. The inventory data collected will guide the city to retrofit and rehab locations that are inconsistent with the newly adopted best practices.

End-of-Trip Facilities & Programs

End-of-trip facilities, including bicycle parking and other facilities such as showers and clothing lockers, can be a determining factor in whether someone decides to make a bicycle trip. They enhance the bicycling experience by providing cyclists with somewhere to park and somewhere to refresh themselves following their trip. Numerous studies have shown the value of these facilities in attracting cyclists to employment and activity centers and in supporting multi-modal trips. In fact, in the online survey conducted in 2010, nearly 70% of the people who responded indicated that more bicycle parking would likely influence them to bike and/or use the trail system more often.

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

The City has no zoning requirement for end-of-trip facilities other than the bicycle parking requirements. Some businesses voluntarily provide end-of-trip facilities such as bike lockers, showers and changing rooms for employees who commute to work.

Recommended Locations for Additional Bicycle Parking Facilities

The online survey, which had over 1,200 responses, contained two questions related to the location of additional bicycle parking facilities. The top responses to the question of which types of places should have more bike racks or lockers were grocery stores, shopping centers, work sites, restaurants, transit stops, and parks. Respondents provided specific locations for additional bicycle parking, including throughout the downtown and Nob Hill areas as well as along Central Avenue. The University of New Mexico Hospital received the highest number of responses. The most effective way for the City to increase parking at these and other locations would be through a Bicycle Rack Program. The City could kick off such a program by conducting outreach to businesses in the areas of town and to the types of businesses identified above.

C. Bikeway & Trail System Analysis

The City completed an analysis of the existing bikeways and trail system and recommended future projects to extend and complete the network. This section analyzes the strengths and opportunities in the existing system, as well as the challenges and constraints that have often resulted in the gaps in the system that we have now. This system analysis forms the foundation for the recommended facilities that are presented in Part II of this *Facility Plan*, **Chapter 4, Recommended Network.**

1. Bikeway & Trail System - Assets & Challenges

Land Use and Destinations ("Demand" or Trip Generation)

The concept of "demand" for bicycle facilities can be difficult to comprehend. Unlike automobile use, where historical trip generation studies and traffic counts for different types of land uses permits an estimate of future "demand" for travel, bicycle trip generation methods are less advanced and standardized in the United States. Transportation planners use the concept of demand to analyze if existing facilities are sufficient and determine locations for new facilities. They also use the concept of "trip generation" to understand how much traffic a use may create, or the "trips generated."

Land use patterns can help predict demand and are important to bikeway planning because changes in land use (and particularly employment areas) will affect average commute distance, which in turn affects the attractiveness of bicycling as a commute mode. The bikeways system will connect the neighborhoods where people live to the places they work, shop, recreate, or go to school.

As part of its Comprehensive Plan, Albuquerque has adopted a "Centers and Corridors" framework to guide development in the city. The goal is to expand and strengthen concentrations of moderate and high-density mixed land use and social/economic activities that reduce urban sprawl, auto travel needs, and service costs, and that enhance the identity of Albuquerque and its communities. The Comprehensive Plan designates Neighborhood, Community, Major, and Special Activity Centers. The Centers are connected by roads that are designated as Major and Enhanced Transit Corridors, which also provide enhanced non-vehicular access to the Centers. Express Corridors emphasize vehicular access throughout the city. Similarly, there should be enhanced bicycle facility connections to and within the Activity Centers.

As the City invests in new bikeways and trails, an emphasis should be placed on regional bikeway connections that serve the Major, Community, and Neighborhood Activity Centers in Albuquerque, which contain:

- Major employment centers
- Civic buildings such as libraries
- Transit stations
- Major retail and commercial centers
- Schools
- Parks and regional recreation areas

It is particularly important for the bikeway and multi-use trail system to provide access to destinations popular among pedestrians and bicyclists. Within Albuquerque, popular destinations include:

- Educational facilities including University of New Mexico, Central New Mexico Community College, and elementary, junior high, and high schools
- Employment centers including KAFB/Sandia Labs, Intel, Journal Center, and Mesa del Sol
- Commercial areas including those along Route 66/Nob Hill, Coronado and Cottonwood malls, ABQ Uptown, and neighborhood shopping centers and grocery stores
- Public facilities such as the Bio Park, Albuquerque Public Libraries, and museums
- Old Town, Downtown, and Uptown Albuquerque
- Rural roadways on the community's outskirts for recreational cyclists
- Nearby communities in the East Mountains and South Valley, Valencia County, and Sandoval County
- Natural areas within and outside Albuquerque, including City Open Space, Sandia Mountain foothills/Forest Service wilderness, National Monuments, and the Rio Grande Valley State Park.

By looking at the existing bicycle facility system map, one can see the extent of facilities across the city. The current development policy is to provide a bikeway every half mile, putting a bicyclist a maximum of a quarter-mile from a bicycle facility. This intent is generally achieved across the city; major exceptions include the south valley and mesa, the north valley, and the northwest mesa. In those listed areas, facilities are provided at closer to one mile intervals. Albuquerque is well-served in the northeast quadrant. The further west one travels, additional gaps in both the connectivity and accessibility of the bikeway system appear. See **Figure 5: Existing Bikeways & Trails Map,** page 39.

Connections to Parks, Open Space, and Soft Surface Trails

Trails provide off-street connectivity to community resources such as parks, open spaces, schools, libraries, community centers, employment centers, shopping centers, bus stops, and soft-surface trails within Major Public Open Space areas. Trails also provide commuting/transportation access to those bicyclists who do not have the skill level or comfort level for on-street riding or prefer to ride off-street.

The Parks, Open Space, and Trails (POST) concept is to provide connections that link neighborhoods to the trail system so the public can access parks, open spaces, and Major Public Open Space area and use trails to get around without reliance on automobiles. Ideally, each resident should have access to a trail within a 15-minutes' walk or bicycle ride. The trail system may include Federal, State, City and Private trails. Trails may be used for recreation and/or commuting. Trails with heavy commuter use shall be evaluated for expansion to separate non-commuters and commuters.

Multi-Modal Connections

Multi-modal refers to the use of two or more modes of transportation in a single trip, (i.e., bicycling and riding the bus or train). This section describes bicycle-transit connections. Linking bicycles with Albuquerque's mass transit effectively increases the distance cyclists can travel, provides options in the event of a bicycle breakdown or collision, and gives cyclists alternatives to riding at night or in hot or inclement weather.

Making an effective multi-modal connection consists of several **key elements**:

- Providing **bicycle parking** facilities at transit stops and bike racks or storage on trains and buses
- Improving **bikeways that link with transit** facilities and stops, and

- Encouraging the use of bicycles on transit through education and encouragement programs.

Bike & Ride the Bus

ABQ Ride, the transit provider for the Albuquerque area, provides bike racks on all buses. When racks are full, bikes are allowed inside the bus at the driver's discretion. Transit centers in Albuquerque include: Alvarado Transit Center (1st St. & Central Ave.), Northwest Transit Center (Coors Bypass & Ellison Rd.), Central & Unser Transit Center, and the Uptown Transit Center (Uptown Blvd. & Americas Parkway).

New Mexico Rail Runner Express

Santa Fe is now connected to Belen by the Rail Runner Express commuter train. The Rail Runner currently has 14 stations, four of which are in Albuquerque. The Alvarado Transportation Center is its busiest station and is a multi-modal hub for rail and transit. Current bicycle use of the Rail Runner far exceeds the anticipated demand, creating some challenges in bicycle storage on the train and long-term storage at the stations. The bicycle-on-train counts provided by MRCOG for the year 2009 indicate a higher demand during the warmer months and may also be attributed to an increase in weekend train service.

Physical Constraints

Identified below are major constraints that most bicyclists in and around Albuquerque encounter on their bicycle trips. **Figure 5: Opportunities and Constraints,** provides a graphical display of these constraints. To provide a direct~~, safe~~ and connected bikeway and multi-use trail network, the following constraints should be considered and resolved when possible:

- Rio Grande
- Expo New Mexico
- Private (Gated) Neighborhoods
- Drainage and Irrigation Alignments
- Major Public Open Space
- I-40 and I-25
- Airports
- Military Base
- West Mesa Escarpment
- Railroad Tracks
- Golf Courses
- Indian Pueblos
- Major Arterials

Topography

Albuquerque is located within the Rio Grande Rift. The valley's alignment is north/south, gently sloping up to the east toward the Sandia Mountains. The slope is slightly steeper on the west side where it encounters the west mesa escarpment. The elevations within the city range from approximately 4,950 feet along the Rio Grande to 6,100 feet in the Sandia foothills and 5,750 feet on the west mesa. Few rolling hills exist except for the crossing of the North Diversion Channel along the west mesa escarpment and in the Sandia foot hills. The broad central portion of the Rio Grande Rift, especially east of the river, has very little change in elevation and could be considered nearly level. The topography of Albuquerque is well-suited for cycling with gentle terrain and the occasional hill.

Geography

According to the United States Census Bureau, Albuquerque has a total area of 181.3 square miles. 180.6 square miles of it is land and 0.6 square miles of it (0.35%) is water. The city is bordered to the north by Sandia Pueblo and Rio Rancho, to the east by the Sandia Mountains and to the south by KAFB and Isleta

Pueblo, restricting the majority growth to the west side. The Rio Grande flows in a southerly direction through the central portion of the city dividing the west and east sides of the city.

Figure 5: Opportunities and Constraints

(Insert 11x17 image – Opportunities & Constraints)

~~Other~~ System Constraints

Bicycle / Vehicle Crash Locations

~~Safety~~ Avoiding collisions, fatalities, and serious injuries is a major concern for both existing and potential bicyclists. For those who ride, ~~safety~~ avoiding hazards is ~~typically~~ an on-going concern. For those who don't ride, it is one of the most compelling reasons not to ride. In discussing ~~bicycle safety~~ collisions and injuries, it is important to separate perceived dangers from actual ~~safety~~ hazards.

Bicycle riding on-street is commonly perceived as ~~unsafe~~ an uncomfortable or dangerous situation because of the exposure of a lightweight, two-wheeled vehicle to heavier and faster moving automobiles, trucks, and buses. Actual collision statistics, however, show that bicyclists face only a marginally higher risk of sustaining an injury than a motorist based on numbers of users and miles traveled. Death rates are essentially the same with bicyclists as with motorists. Bicycle-vehicle collisions are much less likely to happen than bicycle-bicycle, bicycle-pedestrian, or collisions caused by physical conditions.

Understanding what contributes to crashes can lead to facility and/or programming improvements, whether the cause is due to substandard design, sight distance, maintenance issues, user error, or lack of education. The health and well-being of facilities' users should be paramount.

Lack of Way-finding Tools

Albuquerque's bikeway and trail system could benefit from signage and other way-finding tools to orient users and direct them to and through major destinations like downtown, North Diversion Channel, the Paseo del Bosque Trail, as well as surrounding schools, parks, and commercial areas.

Discontinuous Shared Use Path System

Although the City of Albuquerque has made significant progress toward completing a comprehensive shared use path system, several major gaps remain. One notably discontinuous area includes access to the trails in the northwest and southwest parts of the city. Through these areas, non-motorized users must negotiate major roadways with high vehicle speeds and volumes. In some places, crossings are not provided, and in others marked crosswalks require path users to wait for long periods until cross-traffic has stopped to allow them to pass.

2. System Use

Bikeway & Trail User Counts

Non-motorized user counts were conducted on the Albuquerque area streets and trails to quantify utilization on both weekdays and weekends. These counts were collected at 37 weekday locations and 14 weekend locations between April 27, 2010 and May 22, 2010. Trail and bikeway user count data was collected at 45 weekday locations and 18 weekend sites; a number of locations counted both trails and on-street facilities. The weekday locations were collected for two hours during both the AM (7:00 to 9:00 am) and PM (4:00 to 6:00 pm) peak commute periods. The weekend data was gathered for three hours from 9:00 am to 12:00 pm, primarily along trails. There were 13 sites where both weekday and weekend data were gathered. See **Appendix D.1, User Count Data** for additional information.

The weekday counts were collected to quantify commuter cycling traffic within the Albuquerque area. That traffic uses both the on-street and trail systems, and a large number of count locations were selected to determine what areas of the city experience commuter cyclists. Bicycle counts included both volumes and a number of additional characteristics, including if the rider was on the sidewalk, wearing a helmet,

or if any traffic laws were violated by the cyclist. The bicyclist violations recorded were primarily traffic control violations. This research did not review data for cars or pedestrians.

The weekend counts were primarily collected to assess the number of recreational users of the trail system, thus the major non-motorized trail users were counted. Some on-street counts were gathered at strategic locations with on-street bike lanes or shoulders along common recreational routes, or at key locations with limited non-motorized facilities. The trail system counted each user that passed the specific location or intersection. The users were categorized as: bicyclists, runners/joggers, walkers, roller bladers/skateboarders, or equestrians.

Bikeway & Trail User Count Results

The highest weekend usage was along the Bosque Trail with an average of more than 200 users per hour per link at three locations. The Bosque Trail experiences the highest utilization in the Albuquerque area. Based upon observation, it is assumed that the majority of the Bosque Trail users were recreational users. Some cyclists during the weekday counts appeared to be commuters; however, the overwhelming majority appeared to be recreational. Cyclists were the most frequently counted trail users, who generally out-numbered the second most frequent, walking and jogging. The least common trail users were equestrians, and they were observed more frequently on weekdays than weekends.

Overall, the university area has the greatest amount of cycling traffic in the Albuquerque area and the highest weekday cycling usage occurred at the University of New Mexico (UNM). The University area also experiences the highest percentage of cyclists not wearing helmets and cyclists using the sidewalks, primarily along Central Ave. The Silver Ave-Buena Vista Dr. intersection experienced the highest number of traffic violations. This intersection is the only count site located on the existing Bicycle Boulevard, and has all-way stop traffic control. The high violation rate, 29.3 percent of all entering vehicles, is a concern.

Because most of the on-street locations were signalized intersections, the violations at these intersections were running red lights. Few cyclists were seen running a red signal indication without first stopping at the approach. The second most common violation was riding on the wrong side of the street in a bike lane. In 2014, the City prepared an education campaign to address this issue by providing billboards on ABQ Ride buses that were targeted at bicyclists, **Figure 6**.

Figure 6: Educational Campaign Example

A second concern was for the high violation and low helmet use at the Rainbow Blvd-Woodmont Ave intersection. The AM peak reflects middle school children traveling to school and it yielded a violation rate of 54%and helmet use of 23%. It appears that an educational program should focus on this area and age group.

The traffic violation data collected as part of the bikeway and trail user counts were used to inform programmatic recommendations targeted at education and enforcement. See **Chapter 5, Recommended Programs.**

Volume Comparison: 1997 and 2010

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

The Rio Grande Bosque trail locations show a moderate increase in weekday activity and increases in helmet use. The Wyoming gate at Kirtland Air Force Base (KAFB) shows a significant decrease in volume, however, additional detail from the previous plan indicates that much of the cycling traffic has shifted to the Eubank gates. The university area had significantly lower volumes during the morning peak period at each site counted, though the afternoon peak is slightly higher. The counts also indicate that helmet use has increased and violations are less frequent in the university area.

Bicycle Commuting

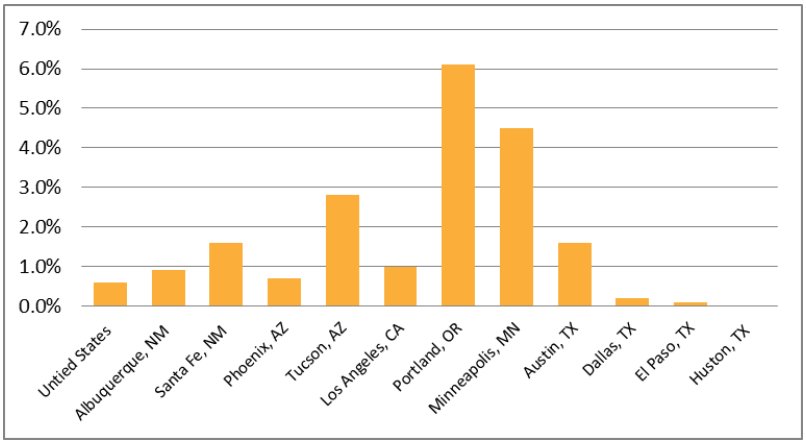
Data from the 1990 and 2000 US Census, shown in **Table 4**, indicate that bicycle use for commuting purposes has remained static for the last 20 years. This stable trend is reflected in the percent mode-share for all journey-to-work trips captured by the U.S. census data. This provides one measure of bicycle use, but does not include bicycle use for other trips (i.e., social trips, exercise trips, and other errands).

Table 5 compares the Albuquerque's bicycle commute mode-share to the national average and several other cities in the western U.S. Approximately 0.9% of Albuquerque's population commutes by bicycle. This is consistent with several other cities in the general vicinity, including Phoenix, AZ and Los Angeles, CA.

Table 4: Bicycle Commute Data for Albuquerque over Time

Journey To Work Mode Splits	1990	2000	2010	2012
Drive Alone	78.0%	77.7%	81.1%	79.5%
Carpool	12.1%	12.5%	8.7%	10.5%
Transit	2.0%	1.7%	2.0%	2.0%
Bicycle	1.2%	1.1%	1.4%	0.9%
Walk	2.9%	2.7%	2.6%	2.1%
Other	1.1%	0.7%	0.2%	1.2%
Work at Home	2.7%	3.6%	4.0%	3.9%
Source: U.S. Census & U.S. 2012 American Community Survey				

Table 5: 2012 Bicycle Commute Mode Share



Bicycle Commute Statistics:

- About 65% of Albuquerque's bicycle commuters are male. This is consistent with the male/female ratio reported in the online survey.
- The **average journey to work** trip for individuals traveling by taxi, motorcycle, bicycle, or other means was **about 23 minutes**, with the most frequent travel time being 10 – 20 minutes. This is consistent with a travel distance of two to three miles. This is slightly longer than the average 16 minute travel time reported in the 2000 Census data. The aggregated mode type could account for some of the variation in reported average travel times.
- About 20% of people who reported traveling to work via motorcycle, bicycle, taxi, or other means did not have a car or truck available for their use.
- The educational services, health care, and social assistance sector reported the highest number of people commuting via motorcycle, bicycle, taxi, or other means, which accounted for 24% of the tabulated response. A significant portion of this population is likely affiliated with UNM.

Current enrollment reported in 2013 at UNM is about 27,000. Estimated bicycle mode-share was not available for the University, but it is estimated the rates are about 10%, or about 2,500 bicycle commuters, which is consistent with rates reported by other universities across the U.S.

3. On-Street Bicycle Facility Needs Assessment

The Needs Assessment presents an overview of the needs of bicyclists and trail users in the Albuquerque area. This analysis provides an overview of cycling volumes and behaviors at many locations throughout the city; discusses public input gathered through an online user survey; and examines ~~cyclist safety~~ the potential for encountering hazards by analyzing reported bicycle crash data. Three geographic analytical tools were used to determine the quality and connectedness of the existing system. Seven primary methods were used to evaluate the existing bikeways and trails facilities:

- **Bicycle Counts** were conducted at 38 locations throughout the City, which measured volumes of users as well as information regarding helmet use and traffic violations.
- The **Crash Analysis** provides a summary of crash data involving bicyclists in Albuquerque for the years from 1995 to 2005. Crash data can help identify difficult or dangerous areas for bicycles.

- A **Bicycle User Survey** was conducted between April and mid-June 2010, with over 1,200 individual responses to questions about preferred facility types, current transportation and travel behavior, and concerns about traffic ~~safety~~collisions and injury.
- The **Bikeway Quality Index** (BQI) creates a snapshot of current conditions of biking infrastructure using quality and quantity measurements.
- The **Cycle Zone Analysis** (CZA) allows the City to better understand what areas of the City would produce the most 'bang for the buck' when it comes to investing in bicycling and trails infrastructure.
- A **Gap Closure Analysis** was used to identify and evaluate specific locations where there are gaps in the system of either on-street bicycle facilities or multi-use trails. For descriptions of the proposed engineering solutions, see Chapter 4, Recommended Network.
- **StreetPlan** is a model that analyzes a number of roadway characteristics to identify corridors with the greatest potential to retrofit bike lanes into the existing street-section.
- The **End-of-Trip Facilities Analysis** reviewed the existing facilities, programs, and policies in order to make recommendations to improve the quality and knowledge of end-of-trip facilities.

This information was used in conjunction with field visits, input gathered at public meetings, stakeholder interviews, and analysis of the existing bikeways and multi-use trail system to form future project recommendations. Adequately identifying user needs enables system planners and policy-makers to develop cost-effective solutions for improving the region's bikeway and trail system. The full description of these studies and their results is in **Appendix D, Compilation of 2010 Bikeways Data**.

Key Findings from the Analysis

- A disproportionate number of reported bicycle crashes, 83%, involve males who make up about 65% of Albuquerque's reported bicycle population. This is consistent with findings from other U.S. cities.
- Albuquerque's reported bicycle commute mode share has been static for about 20 years.
- A comparison of 1997 counts to 2010 counts found the highest morning peak on-street volumes at the Central Avenue and Yale Boulevard intersection. In 2010, 115 cyclists were counted here during the morning peak. This is a drop from the 164 cyclists observed at the same intersection in 1997. These drops in the morning counts are consistent with other count locations. This trend is not consistent with evening counts at the same locations where, in many cases, the numbers of cyclists increased slightly or remained the same. Potential reasons for these shifts could include a variation in the morning peak times or a shift in facility usage patterns.
- The highest on-street cyclist count volumes were found around UNM and KAFB. There was a significant shift of cycling traffic from the Wyoming gate to the new Eubank Gate. The greatest number of legal infractions (e.g., running a red light) were observed around UNM, while the greatest rates of compliance with roadway laws and helmet use were observed around KAFB.
- The highest weekday cycling use occurred at UNM. The highest weekend usage was along the Rio Grande Bosque Trail, with an average of more than 200 users per hour per link at three

locations. The lowest weekday cycling usage occurred along Unser Boulevard; the lowest weekend usage occurred along Coors Boulevard north of Montaño Road.

- Trail counts indicated that there is significant off-street cycling activity for recreation and utilitarian purposes that is not captured in the census commute mode share.
- Streets with the greatest number of reported crashes and highest reported crash rates per mile were 4-6 lane roads without bicycle facilities. The roadways with the greatest number of crashes per mile included Central Avenue, east of the rail road, Lomas Boulevard and San Mateo Boulevard.
- The seven intersections with the greatest number of reported crashes were all located along Central Avenue Count data was available at one intersection, Yale Boulevard, and indicated significant bicycle traffic during morning and evening peak hours.
- Nearly 2 out of 3 cyclists feel that bicycle lanes and multi-use trails do not connect to all the places they want to go.
- There is evidence that bicycle trips are replacing car commute trips when gasoline prices increase.
- Women responding to the survey generally identified as intermediate riders who prefer to ride on low traffic streets, while both genders indicated that bicycle routes and boulevards would 'very likely' increase their cycling. A greater percentage of women indicated strong support for this statement.
- Both men and women agreed that grocery stores were the land use most in need of increased bicycle parking. Other high-priority land uses included the work place, civic destinations (e.g., parks), shopping malls, and restaurants.

Public Perspectives

From stakeholder interviews conducted by the project team and feedback collected from the open houses in May 2010, the following themes emerged relating to bicycle program needs and interests:

- To encourage bicycling on streets, **roads should feel safer**.
- The Albuquerque area has a **great trail system** that should continue to be promoted.
- Existing programs should be continued and expanded with the help of **more staff and resources**.
- There is the desire to get "interested but concerned" potential bicyclists riding.
- Strong support exists for driver and bicyclist education, Share the Road and Share the Trail campaigns and Summer Streets events. Open house participants also expressed support of Safe Routes to School programs, bicycling and trail counts, and enforcement programs.

Chapter 5 describes existing education and outreach efforts around bicycling and trail use in Albuquerque and presents a menu of recommended new and expanded programs to continue to promote bicycle and trail use. **With limited local resources and funding, some of these programs may need to be developed and/or managed by private or non-profit groups.**

Additionally, the survey conducted by the project team resulted in the following considerations for development and prioritization of the bikeway and trail system:

- Focus high priority system improvements on closing small bikeway and trails gaps to high-activity destinations.
- Consider programs to increase bicycle parking at high priority locations across the city.
- Continue, and when possible, expand education, encouragement, and enforcement programs. Target these programs to key groups that are under-represented in the City's current cycling demographic, including women and groups that would benefit from education such as school age children.

4. Current Studies & Programs

Bicycle Boulevard Assessment

The City's consultant has been tasked to review current City of Albuquerque and National design guidelines and practices for bicycle boulevard corridors relative to the existing bicycle boulevard that runs on Mountain Road, 14th Street, and Silver Avenue.

Bicycle boulevards are designed to be optimized corridors for bicycles that discourage motor-vehicle cut-through traffic but otherwise allow local vehicular traffic. Study data is collected on signing and striping installations specific to the bicycle boulevard, traffic control at all intersections along the boulevard, bicycle related traffic control at arterial crossings, traffic calming elements to determination of conflict points.

Consultant tasks include research of the City of Albuquerque Bike Plan and national literature to identify criteria pertaining to the implementation and design of bicycle boulevards. The research will include, but not be limited to, the design application, implementation criteria, motorized vehicle volumes, and corridor operations. A technical memorandum summarizing the findings of the bicycle boulevard research and the evaluation of the bicycle boulevards in Albuquerque will be developed by the consultant. The critical design elements of the existing boulevard findings will be summarized in tabular format and design features will be identified using available aerial photography. Based upon deficiencies identified in the existing bike boulevard installation and criteria collected from other national bicycle boulevards, recommendations are to be provided so that best practices can be applied during the design and implementation of future City of Albuquerque bike boulevard projects. Once we know what they are we will address them and use this on future projects.

Bicycle Route Signage Inventory and Assessment

This project is to provide information to the City so that signage for existing routes can be updated in accordance with the *2009 Manual on Uniform Traffic Control Devices* (MUTCD) and the *2012 Guide for the Development of Bicycle Facilities* (or the "*Bike Guide*"). The consultant prepared a geographic information system (GIS) database, which registers the various signs identified by code and location. This information can then be used to budget phases and be provided to in-house staff or on-call contractors in order to install the various signs.

Bike routes represent the third tier of bikeway facilities serving bicyclists, below multi-use paths and bike lanes. For the purpose of this report a bike route is a street or roadway that has been identified by City personnel as a bike route. Unlike multi-use paths or bike lines, bike routes without proper signing may be indistinguishable from other roadways, which have not been identified as routes. As such, a growing need to provide proper signage had been identified to City staff.

With the increased use by cyclists the design team felt that it was prudent to follow the guidance of the *MUTCD* and *Bike Guide* to also post the bicycle warning sign (W11-1) supplemented with the "SHARE THE ROAD" plaque (W16-1P). This combination of signs is intended to provide motorists with an indication that there may be bicyclists in the roadway, along their direction of travel and that "they should be mindful and respectful of bicyclists" (*Bike Guide*). Additional posting of the W11-1 (without the W16-1P) were placed on the approaches of roadways that intersected routes, but were uncontrolled (i.e. no traffic control device such as a stop sign or signal used).

FIGURE 7: BICYCLE ROUTE SIGNAGE

The draft study recommendation is to add a significant number of new postings to the City's database. Approximately 2,500 new sign locations were identified, which would receive close to 4,600 new signs (some sign posts would have multiple signs). The study provided a cost estimate of over half a million dollars for the new signage, which will be addressed as future implementation projects as budget allows. Installation of the recommended signage will officially designate many of the bike routes that are identified as proposed in this Plan.

Bicycle Corridor & Way-finding Sign Development Project

The project scope consists of developing a Bicycle Route Way-finding Signage and Corridor Development Plan within the City of Albuquerque and Bernalillo County.

The City's consultant will review the existing *Bikeways and Trails Master Plan*, the *50-Mile Activity Loop Master Plan*, and MRCOG's 2035 *Long Range Bikeway Systems Map* in order to develop a baseline for the project. In coordination with City staff the consultant will review the city maps to identify bicycle destination sites (i.e., North Diversion Channel Trail, Bosque Trail, University of New Mexico, Central New Mexico Community College, Balloon Fiesta Park, Zoo and Bio Park, city hospitals, regional employment centers, etc.) and bicycle corridors used to assess community-wide destinations.

Once a prioritized list of destination sites and corridors has been developed, the consultant will develop way-finding signs for the destinations and corridor links. All way-finding signs will be developed in accordance with the 2009 Version of the MUTCD using GuideSign CADD software.

After obtaining final input on the destination sites, recommended bicycle corridors, way-finding sign development, and corridor placement from the staff and the public, the consultant will provide a summary report that outlines methodology, processes, and procedures used in the overall development of this project as well as associated costs to install these signs throughout the City. In addition to the

summary report, the consultant will also submit to the City a geographic database of proposed new way-finding sign locations.

5. Bikeway & Trail System – Current Issues

Coordination between City Departments & Other Agencies

The City bikeway and trail system links to the Bernalillo County bikeway and trail system and utilizes AMAFCA and MRGCD facilities. Input from and coordination with these entities outside the City governmental structure is required for effective planning, operations, and maintenance of the system.

Within the City, the Department of Municipal Development (DMD) develops and manages the on-street facilities, and the Parks & Recreation Department (P&R) designs and manages the trails. DMD typically manages the construction phases of both facilities. There is coordination between the two departments primarily during the implementation phases. The development of a single system of bikeways and trails requires close coordination among all relevant City Departments throughout the planning, prioritization, design, and development stages of facility construction, as well as programming and maintenance.

Advisory Groups

Albuquerque has two advisory committees related to bicycle and trails issues. Both are created by ordinance: the Greater Albuquerque Bicycling Advisory Committee (GABAC) by §14-13-3-6 and the Greater Albuquerque Recreational Trails Committee (GARTC) by §14-13-3-8. The two-committees provide multiple perspectives regarding the bikeways and trail system. It requires both Departments (P&R and DMD) that are critical to development/maintenance of the paved trail network to engage in the issues raised by the advisory committees. The paved trails are used by both constituencies.

There are a number of challenges that result from Albuquerque's two-committee structure, such as many of the guest presentations must be duplicated for each group and the need to fill a large number of volunteer positions. Another challenge is that staffing advisory groups has been estimated in other communities as taking approximately 35% of the bicycle/pedestrian staff's time. With two advisory groups, more staff time and resources are devoted to staffing the advisory groups, which leaves fewer resources to implement projects. These groups officially have non-voting members, such as NMDOT and Bernalillo County; however, those other agencies have become less involved over time in the ongoing operations. The NMDOT continues to encourage multi-modal improvements within state facilities. There are overlapping responsibilities between the groups, which each have different forms of representation.

The groups have not had ongoing training about the purpose and role of the committees. Currently, the groups primarily review projects as they are being developed, instead of serving a planning or policy-related function, as many other citizens advisory groups do. It is unclear at which stage the advisory groups could have the most impact on the implementation of the *Bikeways & Trails Facility Plan*.

Way-finding & Orientation

Albuquerque's bikeway and multi-use trail network could benefit from signage and other way-finding tools to orient users and direct them to and through major destinations. Way-finding is difficult on trails that do not parallel roads, since cross streets and familiar landmarks are sometimes difficult to use as reference points. An important area of concern is the inability to readily identify a location on the multi-use trails for emergency response purposes. These issues are addressed through recommended facility

improvements, see **Chapter 7, Design Manual,** and page ~~48~~57, Bicycle Corridor and Way-finding Sign Project, as well as through a future program to name and sign trail locations.

Discontinuous Network (Gaps)

A number of national and local surveys cite that safe, well-maintained bicycle facilities act as incentives to increase daily bicycle trips. Similar research exists for people who choose walking or other forms of pedestrianism. To support this assertion, the survey conducted as part of the planning effort in 2010 found that the two most important factors to make bicycling more attractive are: 1) providing additional bicycle and trail facilities, and 2) improved maintenance.

Although the City has made significant progress toward completing a comprehensive bikeways and multi-use trail network, several major gaps remain. One notably discontinuous area includes access to the trails in the northwest region of the city. The Paseo del Norte multi-use trail connection at Coors Boulevard and through or around the Paseo del Norte interchange should be improved with a grade-separated crossing, connecting to trails west of Coors Boulevard. Multi-use trails along Unser Boulevard and 98th Street, south of I-40, should be linked together by additional bikeways and trails in the east/west direction. The trails in Paradise Hills and Taylor Ranch also lack sufficient north/south connections. This plan proposes new bikeways and trails in these locations and others across the city where connectivity needs to be enhanced.

Trail Counts

Multi-use trails are popular with both commuters and people recreating. Basic trail counts have been done, but nothing to date has been completed that can substantially tell transportation and trail planners who is doing what or going where. Gathering this type of data over a long period of time can be very beneficial for planners to predict and project where the trail network may need to grow or change.

Recently, the MRCOG, Bernalillo County, and the City of Albuquerque have begun to install or have installed permanent trail counters throughout the greater Albuquerque paved multi-use trail network. Bernalillo County funded seven permanent counters at specific key intersections or high-use locations. These include cameras to count pedestrians and loop sensors to count cyclists. Analyzing the data will help Planners project future trail needs. Two infrared sensors and loop sensors were installed in 2014 in collaboration among MRCOG, Parks & Recreation, and the Rails to Trails Conservancy.

Even with counters, it is impossible to know exactly if someone is commuting or recreating unless interviewed, but it can be assumed during certain times of the day and whether it is a weekday or weekend what people may be doing. The most important aspect is to get a big picture of areas that are in high demand and where new trail

segments or gaps are needed most. It is also important to connect existing trails to new areas of growth to ensure that everyone has the option to use the trail system whether it ~~be~~is for commuting or exercise. The 2010 trail and bikeway count data are provided in **Appendix F, User Count Data.**

Maintenance

Timely and consistent maintenance of the multi-use trail system is important to make the trails ~~safe and~~ more enjoyable for trail enthusiasts. In recent years, budget constraints have hampered the City's ability to regularly maintain the trail system. Responsible agencies have come to depend on user notification or complaints, such as by using the City's 311 system, to notify them of segments or facilities in need of maintenance. ~~It is challenging in Albuquerque, given budget constraints, to adequately maintain the trails system. In recent years, the maintenance has become 311 driven.~~ Park Maintenance is trying to move toward a more systematic, proactive approach. They are exploring maintenance pilot projects, as described in **Section 6.C.1**, as well as moving towards an electronic tracking system called YARDI.

One notable challenge has been the spread of adjacent gravel, thorny seeds and other debris on to paved trails by users, weather or vehicles. Given that most of the trail network is un-landscaped and the vegetation is subject to the availability of natural precipitation, the challenges are different than for other park facilities. Among other maintenance policies, this plan suggests the City move towards establishment of native grasses along the trails~~:~~ to combat noxious weeds, reduce maintenance requirements, and make the trails more pleasant for the trail users.

PART II: RECOMMENDATIONS

The next several chapters describe the recommended bikeway and trail network, including priority bicycle facilities projects that are likely feasible and most capable of providing the greatest community benefit and improvements (**Chapter 4**), recommended outreach and education programs (**Chapter 5**), implementation strategies (**Chapter 6**), and the Design Manual (**Chapter 7**).

CHAPTER 4: RECOMMENDED NETWORK

The previous chapter reviewed the cyclist, pedestrian, and trail enthusiast needs, existing system components and needs, and current issues. This information was used in conjunction with field visits, input gathered at public meetings, stakeholder interviews, and analysis of the existing bikeways and multi-use trail system to provide future project recommendations. Comments that were received throughout the planning process were catalogued to ensure that they were all considered in the development of this plan. Some comments expressed conflicting desires or recommendations with other responses; other comments are not immediately feasible to include or recommend due to budget, staffing, or resource availability. When public comments and ideas were not possible to achieve in the near-term, they were included as a recommendation for future consideration.

A. Facility Gap Analysis

As a city-wide plan, the *Bikeways & Trails Facility Plan* reflects previous planning efforts while focusing on providing a connected on-road bike network and multi-use trail network within Albuquerque. The existing bicycle facilities discussed in this plan were developed from the Albuquerque Bikeways GIS layer, while proposed facilities were found in the MRCOG Long Range Bikeway System Map, the *Trails & Bikeways Facility Plan*, 1993, and adopted plans.

One purpose of the planning process is to refine, augment, and prioritize the proposed facility recommendations contained in the MRCOG Long Range Bikeway System Map. The final recommendations are based on facilities recommended in previous planning efforts, needs analysis and level of service provided by existing facilities, input from stakeholders, fieldwork, community comment, and input from other relevant municipal staff and decision makers.

1. Existing Bikeway & Trail Evaluation

Bikeway System Evaluation Approach

This section provides an approach to analyzing the quality of existing on-street bicycle routes in Albuquerque. While it is a priority to add new facilities to complete the bicycle network in Albuquerque, it is also important to ensure that the existing facilities are usable. The tables that follow document the approach to evaluating the quality of existing routes. Most facilities in Albuquerque are deemed adequate, though many could use minor improvements, such as more frequent stenciling in the bike lane. Another frequently identified ~~problem~~ challenge is the need to ~~identify~~ address narrow bike lanes that do not meet the current width standards. ~~The City should strive to identify the extent of bicycle lanes that are deficient in marked width, according to the current DPM standards and highlight these~~

~~locations of deficient on the printed Bike Map.~~ When prioritizing new projects, the City should target existing bicycle facilities that may be out of compliance with DPM and/or Design Manual criteria, when feasible and provided sufficient right-of-way exists or can be reasonably obtained. Additionally, **a future study of the City's on-street bicycle facilities should be completed according to the evaluation criteria identified below.** This action is listed as a short-term priority action in the Implementation Plan.

Table 6: Infrastructure Project Evaluation Criteria

Criterion	Measurement
~~Safety~~ Collisions & Injury	Can the project potentially improve bicycling and walking at locations with perceived or documented ~~safety issues~~collision or injury potential? This criterion takes into account available crash data as well as feedback from the Steering Committee and Albuquerque residents.
System Connectivity	To what degree does the project connect to other bikeways or walkways, shared use paths, and transit routes?
Completeness of Network	Are gaps present along the facility? Gaps are described in more detail following.
Barriers and Constraints	Do barriers prevent free movement along the route? Barriers may include major streets, rivers, steep hills, railroad tracks, and unconnected streets.
Serve Non-Motorized Needs	Does the route serve the needs of different types of bicyclists, pedestrians and other non-motorized users?

2. System Gap Analysis

This section discusses the identification of gaps within the existing City of Albuquerque bikeway and trail networks. The text first defines common bikeway and trail gap types with respect to streets and trails. Various gap closure measures used throughout the United States and other countries are discussed, including both on- and off-street treatments that could be applied in Albuquerque. The text concludes with a procedure for identifying and correcting Albuquerque's bikeway and multi-use trail network gaps.

This approach was used to inform the bikeway and trail recommendations made in this Plan. **This approach should also be used to analyze newly developing parts of town, gaps created between adjacent jurisdictions, and opportunities for future facilities as they arise.**

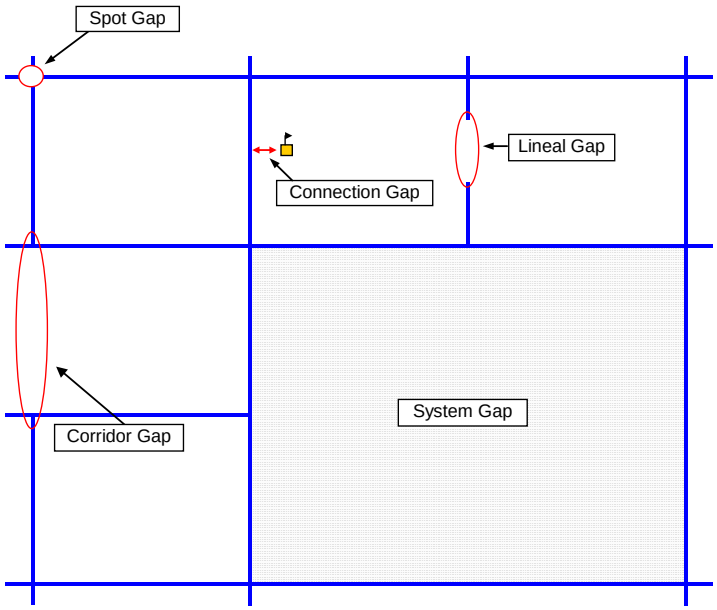
Defining Bikeway and Trail Gaps

Bikeway and trail gaps exist in various forms, ranging from short "missing links" on a specific street or multi-use trail corridor, to larger geographic areas with few or no facilities at all. Determining specifically what constitutes a "gap" ~~requires~~ would benefit from setting parameters for the bikeway and trail networks and determining which activity centers and major destinations require direct links to the networks. Gaps can then be organized based on length and other characteristics. Gaps can be classified into five main categories:

- **Spot gaps:** Spot gaps refer to point-specific locations lacking dedicated facilities or other treatments to accommodate ~~safe and~~ comfortable pedestrian or bicycle travel. Spot gaps primarily include intersections and other areas with potential conflicts with motor vehicles. Examples include bike lanes on a major street "dropping" to make way for right turn lanes at intersection, or a lack of intersection crossing treatments for pedestrians on a route or sidewalk as they approach a major street.

- **Connection gaps:** Connection gaps are missing segments (¼ mile long or less) on a clearly defined and otherwise well-connected walkway or bikeway. Major barriers standing between destinations and clearly defined routes also represent connection gaps. Examples include bike lanes on a major street "dropping" for several blocks to make way for on-street parking; a discontinuous sidewalk along a street; or a freeway standing between a major pedestrian or bicycle route and a school.
- **Lineal gaps:** Similar to connection gaps, lineal gaps are ½- to one-mile long missing link segments on a clearly defined and otherwise well-connected walkway or bikeway.
- **Corridor gaps:** On clearly defined and otherwise well-connected bikeways, corridor gaps are missing links longer than one mile. These gaps will sometimes encompass an entire street corridor where bicycle facilities are desired but do not currently exist (does not apply for walkway gaps).
- **System gaps:** Larger geographic areas (e.g., a neighborhood or business district) where few or no bikeways exist would be identified as system gaps. System gaps exist in areas where a minimum of two intersecting bikeways would be required to achieve the target network density (does not apply for walkway gaps).

Figure 8: Diagram of Gap Types



Gaps typically exist where physical or other constraints impede walkway or bikeway network development. Typical constraints include narrow bridges on existing roadways, severe cross-slopes, and potential environmental damage associated with wider pavement widths. Traffic mobility standards, economic development strategies, and other policy decisions may also lead to gaps in a network. For instance, the City's desire for on-street parking or increased vehicle capacity may hinder efforts to install continuous bike lanes along a major street. **Figure 8** presents a theoretical diagram illustrating the five gap types described above.

3. Gap Closure Measures

Numerous approaches exist for addressing bikeway system gaps. The following sections discuss various gap closure measures, ranging from minor treatments (e.g., signage) to larger-scale applications (e.g., new trail corridors).

Intersection Improvement Measures

Intersection improvements concentrate on facilitating ~~safe~~effective, convenient, and comfortable bicycle travel through intersections where minimal or no bicycle facilities exist. While the measures are largely intended for bikeways on major streets, some treatments may be appropriate on bikeways using secondary street corridors, and at multi-use trail/roadway crossings. Although the intersection improvement measures are most appropriate for addressing spot gaps, they could supplement other measures as part of larger efforts to address lineal, segment, corridor and system gaps.

Treatments for **improving intersections** for bicyclists include:

- Colored bike lanes – "Innovative Treatment" – see Design Manual
- Shared bicycle/right-turn lanes
- Shared bicycle/double right-turn lanes
- Bike boxes – "Innovative Treatment" – see Design Manual

Interchange Areas

Arterial streets may include free-flowing interchanges with high-speed merge lanes at freeway entrance and exit ramps. These conditions create a challenging bicycle environment for several reasons:

Challenges for bicyclists:

- Merging (especially exiting) motorists do not expect to see cyclists.
- Motorists cross the bicyclist's path travelling at high speeds as they transition to/from ramps.
- The angle and position of the merging ramp creates visibility challenges, forcing bicyclists to monitor overtaking traffic by looking over their left and right shoulders.
- Exiting vehicles may not signal their intent to cross the bicyclist's path.
- The design of merge/diverge points typically includes long vehicle/bicyclist conflict zones.
- The legal right-of-way is unclear in some interchanges where there is a free-flowing, dedicated lane instead of a merging lane that would intersect with the bicycle lane.

Albuquerque should consider solutions to these issues that have been implemented successfully in other major metropolitan areas. The City of Portland, Oregon has addressed this issue with striping or physical elements that encourage bicyclists to cross ramps at or close to a right angle. The treatment shortens the vehicle/bicycle conflict zone while also improving sight distance for bicyclists. Some bicyclists may choose to ignore this treatment, however, as this creates a less-direct route through the interchange area and forces them to relinquish right-of-way to exiting motorists.

Interchange area treatments include both signal timing and scrambler signal treatments.

Arterial Bike Lane Retrofit Measures

~~Most~~ Many arterial streets in Albuquerque exhibit characteristics (e.g., high vehicle speeds and/or volumes) where dedicated bicycle lanes may better accommodate ~~safe~~ effective and comfortable riding.

Indicating a preferential or exclusive space for bicycle travel, bike lanes are typically five to six feet wide delineated by striping and pavement stencils. These facilities create a predictable environment for motorists and bicyclists by clarifying the appropriate position for each user on a roadway. Bike lanes on congested streets also enable cyclists to pass slow or stopped vehicles on the right.

The measures listed below represent various approaches for adding bike lanes to existing streets. Although opportunities to add bike lanes through roadway widening may exist in some locations, most major Albuquerque streets pose physical and other constraints requiring street retrofit measures within existing curb-to-curb widths. As a result, the measures effectively reallocate existing street width through striping modifications to accommodate dedicated bike lanes.

The bike lane retrofit measures listed following are most appropriate for addressing connection gaps and lineal gaps, though they could supplement other measures to address corridor and system gaps. Although largely intended for arterial streets, these measures may be appropriate on collector streets where bike lanes would best accommodate cyclists.

Treatments for retrofitting arterial streets with bike lanes include:

- ~~Shoulder widening~~
- Reducing travel lane or on-street parking lane widths
- Removing travel lanes (road diet)
- Removing on-street parking
- Floating or off-peak bike lanes
- Uphill bike lanes
- Left side bike lanes on one-way streets
- Contra-flow bike lanes on one-way streets
- Cycle tracks
- Shoulder widening on temporary road sections without curb and gutter

~~***Arterial Shared Roadway Measures***~~

~~Although most arterial streets in Albuquerque have sufficient traffic volumes to warrant dedicated bike lanes, physical constraints or other factors may preclude these facilities. Because arterial streets typically provide the most direct routes to major bicyclist destinations and also serve as destinations in and of themselves, bicycle facility provisions on these corridors still hold great importance.~~

~~The measures below represent various approaches for accommodating bicyclists on major streets where bike lanes are desired but not possible. Similar to the bike lane retrofit measures described earlier, the arterial shared roadway measures work within existing curb-to-curb widths and do not impact vehicle or on-street parking capacity. The measures include various signage and pavement marking treatments to inform motorists of bicyclists on the roadway and to inform all users of appropriate behaviors.~~

~~The arterial shared roadway measures described below are most appropriate for addressing connection gaps and lineal gaps, though they could supplement other measures to address corridor and system gaps. Although largely intended for arterial streets, these measures may be appropriate on collector streets.~~

~~**Treatments appropriate for shared roadways include:**~~

- ~~Wide curb lanes~~
- ~~Shared lane markings~~
- ~~Combined bicycle/bus lanes~~
- ~~Warning signage on shared roadways~~
- ~~"Share the Road"/"Watch for Bicyclists" Signage~~
- ~~"Bicyclists Allowed Use of Full Lane" Signage~~
- ~~"Bike Lane Merges" Signage~~

Alternative Routing Measures

Alternative routing on secondary streets may be necessary to address bikeway connectivity needs where constraints preclude bike lanes or other treatments on arterial roadways. Alternative routing may also be necessary where constraints preclude a continuous multi-use trail corridor. Although these measures can effectively fill on- and off-street bikeway gaps, they should be applied only after careful consideration of several factors, discussed below.

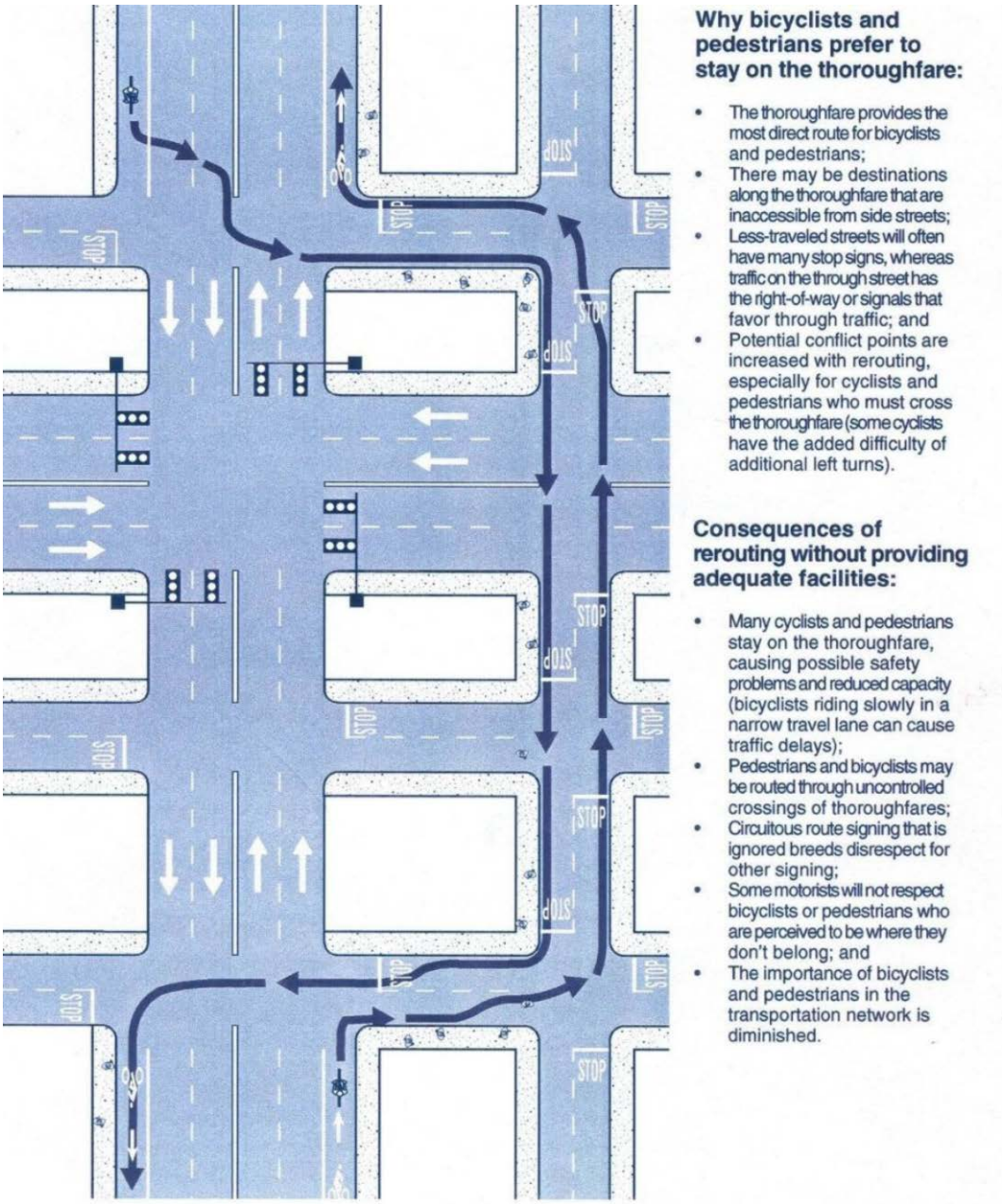
Bicyclists often gravitate to arterial and other major streets for several reasons:

- Major streets generally offer the most direct routes between bicyclist destinations while providing better connectivity compared with lower-order streets.
- Major streets usually have the right-of-way or signals favoring through traffic, whereas secondary streets often have numerous stop signs which can slow bicycle travel.
- Major streets include provisions to overcome major barriers such as railroads, freeways and drainage channels.
- The commercial character of major streets (e.g., employment, shopping, etc.) makes these corridors destinations in and of themselves.

Illustrated in **Figure 9**, alternative routing measures pose several challenges:

- Bicyclists on major streets may ignore alternative routes if they are used to overcome spot gaps and connection gaps. The relatively short lengths of spot and connection gaps may induce riders to remain on the thoroughfare despite the lack of bicycle accommodations, potentially creating ~~safety issues~~ cyclist hazard.
- Bicyclists may not be aware of the alternate route. When developing alternate route options, some of the cyclist route tracking applications should be consulted to understand current routing preferences.
- Bicyclists may perceive the alternative route as too circuitous.
- The alternative route may include uncontrolled crossings of major streets.

Figure 9: **Alternate Routing Issues (Source: Oregon Bicycle & Pedestrian Plan)**



It should be noted that alternative or parallel routing measures on secondary streets offer some benefits. Some users may not feel comfortable riding on major streets for various reasons (e.g., high traffic volumes and vehicle speeds, conflicts with motorists entering and leaving driveways, and/or conflicts with buses occupying bike lanes while loading and unloading passengers). Children and less-experienced riders might find these environments especially challenging. Secondary streets provide alternate route choices for bicyclists uncomfortable using the major street network.

Albuquerque benefits from a generally well-connected system of collector and local streets in many neighborhoods that – with the addition of relatively small-scale treatments – could be used to overcome bikeway system gaps. These streets (referred to as Bike Routes or Signed Shared Roadways) accommodate bicyclists and motorists in the same travel lanes often with no specific vehicle or bike lane

delineation. These corridors include warning signage to alert motorists of bicyclists on the roadway and may include way-finding signage to orient cyclists on the route. Alternative routing measures are largely intended to address lineal, corridor, and system gaps and are less appropriate for addressing spot and connection gaps (spot and connection gaps should be directly addressed on the corridor in which they are located). The measures fit within the overall concept of "Bicycle Boulevards," which incorporate a variety of treatments to enhance bicycle travel on these lower-order streets.

Trail Gap Closure Measures

The measures below largely focus on completing multi-use trail/bikeway gaps (e.g., discontinuous multi-use trail segments) and are most appropriate for addressing connection, lineal, corridor, and system gaps on the trail network. It should be noted, however, that some measures could effectively address some trail or bikeway gaps, especially connection gaps near on-street bikeways (e.g., a bicycle/pedestrian bridge crossing a freeway to connect an on-street bikeway with a nearby school).

Off-street gap closure methods can include:

- **Drainage easements** utilize maintenance easements to complete multi-use trail system gaps. Drainage corridors offer several advantages, including relatively direct routes between major destinations, and following gently sloping terrain. A license agreement with AMAFCA is required for trails in drainage easements.
- **Utility and irrigation corridor trails** typically include power line and water utility easements, as well as canals and drainage ditches. These corridors offer excellent transportation and recreation opportunities for cyclists and trail enthusiasts of all ages and skills. ~~Some safety issues due to~~ The proximity to the irrigation ditches or power poles and transmission lines should be understood and appropriate protective fencing/railing and warning signs installed and/or other safety measures as identified by the utility. A license agreement with ~~PNM or~~ MRGCD~~, respectively,~~ is required for trails in ~~utility and~~ irrigation corridors and an encroachment agreement is required for trails in electric utility corridors. In addition, a landowner agreement with the underlying property owner may be required.
- **Trail over-crossings and under-crossings** provide critical multi-use trail system links by joining areas separated by any number of barriers. Over-crossings and under-crossings address real or perceived ~~safety~~ security issues by providing users a formalized means for traversing "problem areas" drainage channels, waterways or major transportation corridors.
- **Access-ways** provide short connections from roadways or off-street paths to important pedestrian destinations such as schools, parks, transit centers and mixed-use centers.

4. Steps in Addressing Bikeway & Trail System Gaps

This section describes the recommended procedure for addressing gaps on the Albuquerque walkway and bikeway networks. The procedure involves a series of sequential steps incorporating information described throughout this memo. Given the diversity of walkways, bikeways and other conditions, the City should consider the procedure a "living document" and remain open to flexibility to address unique circumstances. **Figure 10** graphically depicts the procedure discussed below.

Gap Assessment Approach

Step 1: Identify Gap Type

Identify the gap type (e.g., spot gap, connection gap, lineal gap, corridor gap, system gap).

Step 2: Identify Appropriate Range of Gap Closure Measure Types

The type of gap determines the initial range of closure measure options. For instance, longer system gaps can be filled using nearly all gap closure measure types described in this chapter, while a limited range of measures are appropriate for shorter gaps such as spot and connection gaps. Use **Figure 7** and **9** to determine the initial range of options.

Step 3: Determine Appropriate Location for Gap Closure Measures

The type of gap also determines the appropriate gap closure location. Due to their relatively short lengths, spot and connection gaps should be addressed specifically where they exist. Mentioned earlier, alternative routing measures are not an appropriate measure for addressing these gaps. Although addressing spot and connection gaps may prove challenging, they represent the most critical walkway and bikeway links. In general, the majority of bikeway gaps should also be addressed specifically where they exist. Cyclists should not be re-routed further than across a street, and then only temporarily during construction. However, gap closure measures should be prioritized in areas of the City where more cyclists, pedestrians, and trail enthusiasts are expected to be, i.e. along routes to schools or near mixed-use centers.

Lineal, corridor, and system bikeway gaps, typically covering longer distances, offer greater implementation flexibility. Bicyclists generally prefer direct travel routes, though they may tolerate route diversions to avoid long bikeway gap segments. Identifying the appropriate gap closure location for lineal, corridor, and system gaps involves evaluating the feasibility of adding bicycle facilities to the major street or trail corridor under focus versus the appropriateness of using alternative routes. The feasibility analysis should consider the following:

- Whether compelling ~~safety,~~ operational, environmental, economic, or other reasons preclude bicycle facilities on the major street or multi-use trail corridor under focus
- Proximity of alternate route to the major street of multi-use trail corridor under focus
- Connectivity and continuity provided by the alternate route

The feasibility analysis will determine whether bicycle facilities should be added directly on the major street or multiuse trail corridor under focus, whether alternative routing is necessary, or both.

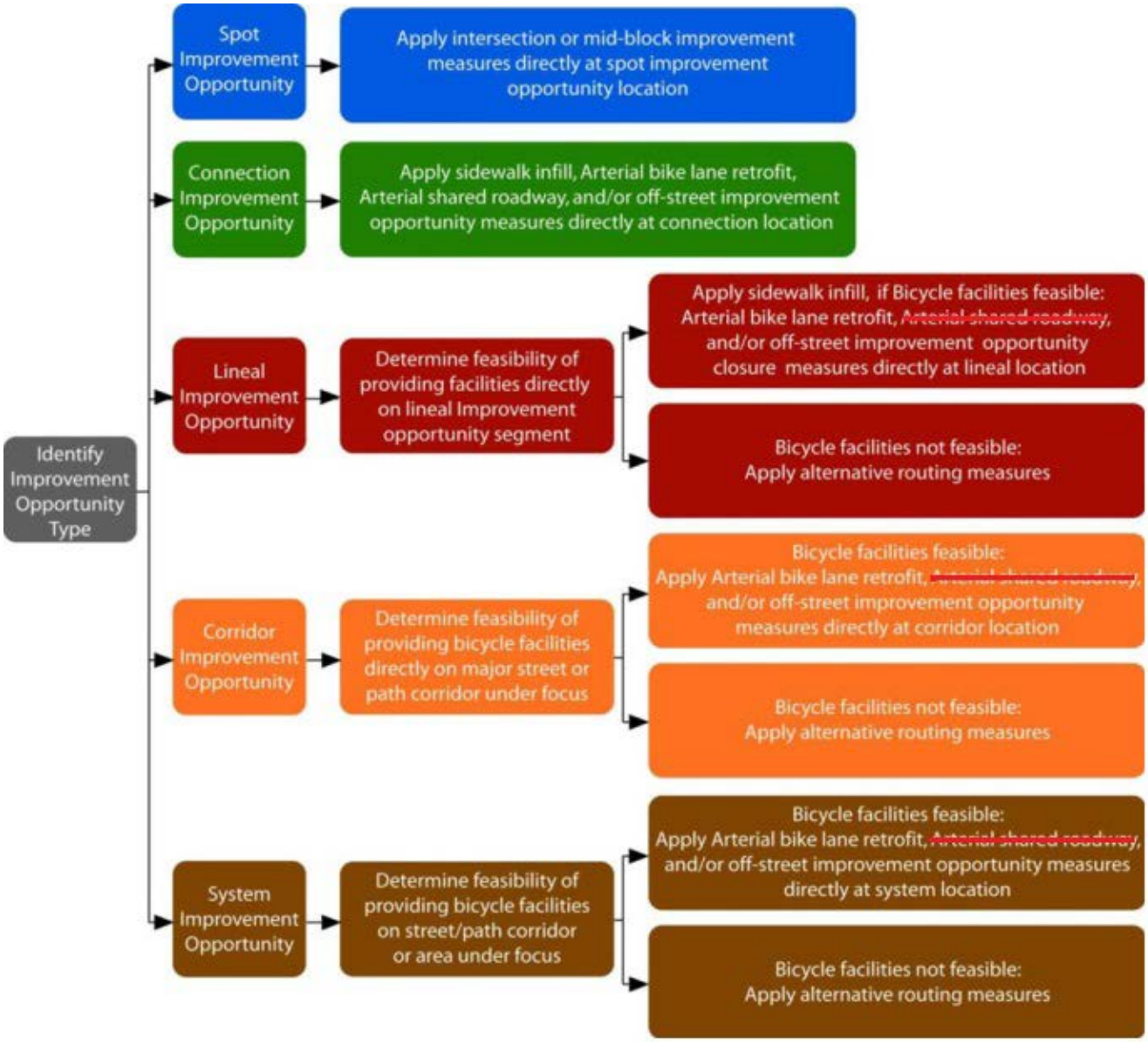
Step 4: Determine Appropriate Gap Closure Measure Type

The appropriate gap closure measure type depends both on the walkway or bikeway gap type and location. Intersection improvement measures or mid-block crossings represent the most appropriate strategy for addressing spot gaps, while sidewalk infill, arterial bike lane retrofit, arterial shared roadway, and off-street gap closure measures represent the most appropriate strategies for closing connection gaps. Appropriate measures for lineal, corridor, and system gaps depend on the feasibility analysis referenced in Step 3.

Step 5: Determine Specific Gap Closure Measure

Identification of the appropriate gap closure measure type and specific characteristics of the corridor/location under focus will help determine the appropriate specific gap closure measure.

Figure 10: Bikeway & Trail Gap Closure Analysis Procedure



Step 6: Evaluation

The City should gather data and public input as a means to further assess these topics and refine strategies and needs.

5. Evaluation of Bikeway Connectivity – Link Connections and Gap Closures

A review of the City's current bikeways and trail system revealed several locations with poor connectivity or gaps between existing facilities. Some of the gaps exist because of limited right-of-way, or other challenges that would not allow a continuous facility. Closure of the gaps is beyond standard

planning practice and requires that engineering analysis be incorporated. As a result, 25 locations received further engineering evaluation and recommendations. The full text for these recommendations is included as **Appendix D.6, Gap Closure Engineering Analysis**. One location of concern is the East Central Avenue area, which has been studied by the City, and recommendations from the East Gateway Sector Development Plan helped form the recommendations. The Paseo del Norte/I-25 interchange area is another location identified as a challenging area ~~that lacks~~ for bicycle facilities. It is currently under design by the NMDOT as part of the Paseo del Norte and I-25 Interchange reconstruction project, which includes accommodations for non-vehicular access across I-25.

Bikeway Gap Closure Engineering Study Locations

Spot Gaps - Intersection Improvements (2 locations)

1. Central Avenue and Yale Boulevard
2. Alameda Drain at 12th Street

Lineal Gap Closure Engineering Evaluations (7 locations)

3. Paseo del Norte/Paradise Boulevard
4. Wyoming Boulevard/Utah Street
5. Montano Road/Montgomery Boulevard Corridor
6. Girard Boulevard Corridor
7. Lomas Boulevard/Easterday Drive
8. Lomas Boulevard/San Pedro Drive
9. Rio Grande Boulevard

Corridor Gap Closure Engineering Evaluations (16 locations)

10. East Central Avenue
11. Paseo del Norte (North Diversion Channel to I-25)
12. Bridge Boulevard (Coors to Broadway)
13. Candelaria Road (12th Street to University)
14. San Pedro Drive (Zuni to Claremont)
15. San Mateo (Gibson to Ridgecrest)
16. Sequoia Road (Coors to Ladera Drive)
17. Indian School Road (Rio Grande to 12th Street)
18. Cutler Avenue (Washington to San Mateo)
19. Claremont Avenue as a Bicycle Boulevard (Richmond to Chelwood)
20. Alexander Boulevard (Comanche to Mission)
21. Montano Road (4th Street to 2nd Street)
22. Irving Boulevard (Universe to La Paz)
23. Washington Street (Lomas to Zuni)
24. Carlisle Boulevard (Garfield to Silver)
25. Second Street (Stover to Marquette)

B. Proposed Bikeway and Trail Facilities

The *Bikeways & Trails Facility Plan* provides guidance for the development of an on- and off-street bikeway and trails network to accommodate bicycling and other non-motorized travel and recreation. Albuquerque currently has a well-developed bikeway and trail system that currently contains over 620 miles of trails, lanes, routes, and boulevards. Through implementation of this plan, the city will achieve a fully interconnected system.

The projects proposed by this Plan originate from many different sources, which are detailed below:

- *The Trails and Bikeways Facility Plan*, 1993
- *The Albuquerque Comprehensive On-street Bicycle Plan*, 2000
- *The Mid-Region Council of Governments (MRCOG) Long Range Bicycle Plan*, 2011
- Adopted Plans: Rank II (Area & Facility Plans) and Rank III (Sector Development Plans)
- Input from stakeholder workshops, user and agency interviews, public meetings, and the Greater Albuquerque Bicycling Advisory Group (GABAC) and the Greater Albuquerque Recreational Trails Advisory Committee (GARTC)
- Detailed analysis of the existing bikeway and multi-use trail system
- City of Albuquerque STIP planning & the Decade Plan (CIP planning)

It is recognized that all of the project recommendations contained in this plan will require further detailed study and design. On-street facilities will have to be designed with their impacts to intersections and road systems in mind and coordination with City Traffic Engineering would be required.

Some of the multi-use trails recommended in this plan would be contained within property owned by either the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) or the Middle Rio Grande Conservancy District (MRGCD). Detailed analysis would be required to determine the feasibility of locating these trails within the rights-of-way for either entity. Furthermore, the design and construction of these trails would require considerable coordination and would have to go through the permitting and approval process for each respective entity.

Project Prioritization Approach

The City uses an **opportunistic project prioritization approach**. The City recognizes the importance of both extending the network in newly developing parts of the city and also completing the challenging network gaps in the existing system. ~~However, rather than rely on a purely scientific or rational approach to determining the relative priority of projects, the City responds to opportunities as they arise.~~ Generally, project criteria include ~~safety~~ user comfort, system connectivity, completeness of network, barriers and constraints, and serving non-motorized needs. The City relies on scientific and rational approaches in determining the relative priority of projects and responds to opportunities as they arise.

The City's budget is allocated for specific departments to accomplish projects, programs, or capital infrastructure construction/rehabilitation. This is broadly allocated through the Decade Plan, also known as the Capital Implementation Plan (CIP). To maximize the investment in bikeways and trails, projects will be prioritized when there is the opportunity to leverage funds from different budgets, such as City Council set-asides or Metropolitan Redevelopment street improvement funds. A similar process would occur when there is the opportunity to collaborate with a project that is led by another agency, such as

AMAFCA or NMDOT. In addition to the City's local funding allocation, state and federal funds for transportation projects are applied for through the Transportation Improvement Program (TIP). The MRCOG Project Prioritization Process identifies intermodal connectivity and alternate modes improvements, among other criteria, as a component of future project selection. This project ranking system encourages inclusion of multi-modal facilities in future project scope and design.

Staff from DMD, Parks and Recreation, Planning, and other agencies currently collaborate on an as-needed basis. It would be beneficial to form group that meets on a regular basis to discuss project selection, funding, and long-term strategies. Bikeways and trails advisory groups should also be directed to weigh-in on project priorities when developing future CIP and TIP project lists.

A final process where bikeways and trails are constructed is concurrently with adjacent development. Most of the network extensions are constructed through this process. The adjacent land owner is required to dedicate land and/or construct bikeway or trail facilities where they are identified on the map that is included in this Plan. The benefit of this process is that the system gets extended as new development occurs. A negative outcome of this development approach is that it sometimes leads to a fragmented network, such as along Irving Blvd. or Snow Vista Blvd. The City may initiate a road improvement project in cases like these to complete the final road section. Without an adopted plan in place, the project may neglect to include facilities that would complete a regional non-motorized transportation and recreation network. See Table 6 for infrastructure project evaluation criteria that could be used for future project prioritization. The criteria include safety, system connectivity, completeness of network, barriers and constraints, and serving non-motorized needs. Additionally, the City should regularly collect data and engage in public involvement as a means to further assess project priorities and refine system needs.

High Priority Projects

To best guide the opportunistic project prioritization that is applied, this plan identifies two types of high priority projects. The first is **"Current Projects,"** those that the City currently has funding to design or construct, and projects that are programmed in the Transportation Improvement Plan (TIP). The TIP is a process facilitated by MRCOG that allocates NMDOT funds to local governments. These are the projects that have a high likelihood of being constructed in the next 5-10 years.

The second type of high priority projects is classified as **"Critical Links."** The planning consultants identified 94 critical link projects based on input from City staff, stakeholder interviews, and three public open house meetings. These project priorities were re-evaluated in 2014 by the planning team that consisted of representatives from the Planning Department, Department of Municipal Development, and Parks and Recreation. This team reviewed the most up-to-date existing facilities map to identify gaps in the network. The community identified critical links was combined with the current gap analysis. **The project team then reviewed these to narrow down the projects that would bring the highest system value and that could be constructed with the next 15 years with our current rates of funding.**

It is also important to point out that in each of the two high priority categories there are both projects for new connections as well as enhancements and improvements to existing facilities. An example of these types of projects includes the Irving Blvd. road improvements, which will make a continuous bicycle lane, and the Claremont Bicycle Boulevard, which would upgrade an existing bicycle route into a bicycle boulevard.

1. Full Build-Out of the Bikeways & Trails Facility Plan

This *Facility Plan* proposes 425 miles of new bikeways and trails within the City of Albuquerque. They were developed through detailed analysis of the existing bikeway and multi-use trail system, projects recommended by previous plans, public input, stakeholder's recommendations and the *Facility Plan's* Goal to develop an interconnected and balanced bikeway system. All projects that were identified from the sources listed above are included in the *Full Build-Out of the Bikeways & Trails Facility Plan*. The present-day cost for these proposed projects based on the cost estimation assumption, described in **Chapter 4.B.3, Estimated Costs,** below, is **$121,168,000**. This total does not reflect right-of-way costs.

At current levels of funding for capital projects, which is **approximately $3 million per year**, the full build-out of the network will take approximately 50 years. These projects consist of the following:

Summary of Proposed Facilities within the City of Albuquerque:

- Paved Trails – ~~115~~ 122Miles
- Unpaved Trails – ~~45~~ ~~43~~37 Miles
- Bike Boulevards – ~~10+~~~~11~~16 Miles
- Bike Lanes – ~~199~~ ~~196~~197 Miles
- Bike Routes – ~~75~~ ~~76~~77 Miles
- Intersection Improvements – ~~87~~107
- Grade-separated Crossings – ~~16~~ 28

A complete listing of these projects and a map of the complete build-out of the *Bikeways & Trails Facility Plan* is included as part of **Appendix A, Full Report of Proposed Facilities**.

Figure 67: ~~Existing Bikeways and Trails Map~~ Proposed & Existing Bikeways and Trails Map - NW

Figure ~~11~~12: Proposed & Existing Bikeways and Trails Map - NE

Figure 8~~13~~: ~~Current Projects Map~~ Proposed & Existing Bikeways and Trails Map - SW

Figure 9~~14~~: ~~Critical Links Map~~ Proposed & Existing Bikeways and Trails Map - SE

Figure 10: Current Projects Map

Figure 11: Critical Links

2. High-Priority Projects

Current Projects

City Staff compiled a short list of projects, which are currently programmed or may already be in the design and/or construction phase. Current projects include approximately 2.4 miles of bike boulevards, 15 miles of bike lanes, 12 miles of multi-use trails and 3 miles of bike routes. The estimated cost for these projects is **$8.0 million**. A detailed list of these projects is shown below; the map is on page 68. The projects are listed in alphabetic order by City quadrant; the number does not reflect a relative priority.

Table 7: High-Priority "Current Projects"

No.	Type	Name	From	To	Length
1	Trail	Corrales Main Canal	PdN Frontage Rd. NW	Eagle Ranch Rd. NW	0.34 mi.
2	Trail	Corrales Main Canal	Piedras Marcadas Arroyo	Paseo del Norte Blvd. NW	0.15 mi.
3	Trail	Paseo del Mesa Trail	Atrisco Vista Blvd. NW	Existing Paseo de la Mesa	0.15 mi.
4	Trail	Paseo del Norte NW	All Saints Rd. NW	Coors Blvd. NW	0.44 mi.
5	Lane	Paseo del Norte NW	W. City limit	Rainbow Blvd. NW	0.50 mi.
6	Lane	12th Street NW	Bellamah Ave.	Menaul Blvd.	0.25 mi.
7	Lane	Channel Road NW	El Pueblo	Osuna Rd.	2.43 mi.
8	Route	El Pueblo Rd NW	Jefferson St.	Edith Blvd.	1.20 mi.
9	Lane	Quail Rd.	Alamogordo	57th Street	0.38 mi.
10	Lane + Trail	Unser Blvd. NW	Dellyne Ave. NW	Montano Rd. NW	0.55 mi.
11	Lane	Alameda Blvd. NE	Pan American	Edith Blvd.	1.52 mi.
12	Trail	Bear Canyon Arroyo Trail NE	I-25 Frontage Rd.	Osuna	0.12 mi.
13	Trail	Bear Canyon Arroyo Trail NE	Brentwood	West end Arroyo del Oso Golf Course	0.84 mi.
14	Lane	Channel Rd. NW	El Pueblo Rd.	Mission Ave.	2.43 mi.
15	Lane	Osuna Rd. NE	Jefferson St.	Edith Blvd.	1.75 mi.
16	Trail	Osuna Rd. NE	North Diversion Channel	Sandia Prep HS	0.54 mi.
17	Trail	Paseo del Norte NE	North Diversion Channel	Domingo Baca Arroyo	1.97 mi.
18	Lane	Singer Blvd. NE	Jefferson St.	Chappel Dr.	0.49 mi.
19	Lane	2nd Street SW	Claremont Ave.	Marquette	4.22 mi.
20	Route	Alvarado Dr. SE	Dakota St. SE	Zuni Rd. SE	2.07 mi.
21	Trail	Bobby Foster SE	University Blvd.	Los Picaros	1.81 mi.
22	Bike Blvd.	Fair Heights Bike Blvd.	Central Ave. NE	Zimmerman Ave. NE	2.40 mi.
23	Trail	La Semilla SE	Bobby Foster	Unnamed Paved Trail	1.99 mi.
24	Lane	Rio Bravo Blvd. SE	West of Empresa Dr. SE	I-25 Frontage Rd. SE	0.11 mi.
25	Trail	Sagan SE	La Semilla	Eastmen Crossing	0.91 mi.
26	Lane	San Pedro Dr. SE	Lomas Blvd. SE	Menaul Blvd. SE	1.50 mi.
27	Route	Sunport Interchange	University Blvd.	San Jose Drain	0.39 mi.
28	Trail	University Blvd. SE	Sunport Blvd.	Rio Bravo Blvd.	1.82 mi.
29	Lane	University Blvd. SE	Spirit Dr./Sunport	Rio Bravo Blvd.	0.70 mi.
30	Lane	University Blvd. SE	George Rd.	Randolph Rd.	0.53 mi.
31	Route	University Blvd. SE	Gibson Blvd.	Randolph Rd.	0.33 mi.
32	Lane	University Blvd. SE	Bobby Foster	Stryker	1.35 mi.
33	Lane	Zuni Rd. SE	Washington St. SE	Central Ave. SE	2.95 mi.

Other Current Projects

The 50-Mile Activity Loop

The 50-Mile Activity Loop is part of ABQ the Plan, Mayor Berry's long-term plan to invest in the future of Albuquerque. ABQ the Plan is about large-scale public projects that will increase quality of life for residents, enhance economic development opportunities, promote tourism, and spur private sector investments. By leveraging the City's on-going investments in its' approximately 200 miles of trails and 343 miles of bike lanes, routes and boulevards, the 50-Mile Activity Loop aims to bridge the gaps that have been challenging to complete.

The *50-Mile Loop Plan*, ~~conceived of~~completed in 2013, establishes an alignment for the 50-Mile Activity Loop and evaluates the existing infrastructure along the alignment. The Plan proposes improvements and enhancements to the existing infrastructure in need of improvement and gaps along the alignment in need of completion for all types of users. Approximately 17-miles of improvements are needed to complete the loop; the Plan describes an implementation approach and key stakeholders for each segment. The plan also proposes smaller "mini-loops" or connector trails that access local neighborhoods and increase overall connectivity and choices in transportation and recreation.

The *50-Mile Loop Plan* provides a proposed marketing plan for promoting the 50-Mile Activity Loop for health and wellness benefits for the residents of Albuquerque, identifying the 50-Mile Activity Loop as a way for tourists and residents to enjoy the City's unique destinations and to stimulate tourism and economic development. Finally, the Plan proposes a strategy and budget for implementation of the improvements and enhancements.

The full text of the *50-Mile Loop Plan* is incorporated by reference as part of the *Trails & Bikeways Facility Plan*; the executive summary is included as **Appendix B, 50-Mile Activity Loop Executive Summary**.

Fair Heights Bicycle Boulevard

As of 2014, the City is working on a plan for a bicycle boulevard through the Fair Heights Neighborhood. The proposed route is from Zuni, north along Jefferson and Madison to Mountain. From Mountain the route continues east to California and Dakota, which connect to the Tom Bolack Urban Forest existing trail. The design plans to be developed will coincide with the development of the San Pedro Dr. Road Diet Assessment.

The project will take into account the findings obtained and recommendations produced from the Silver Ave. Bicycle Boulevard Evaluation. Design elements will include permanent signage and pavement markings, median improvements, and construction of a bicycle median refuge on principal arterials or other critical locations as recommended by the consultant.

Alameda Drain

The MRGCD has authorized project funds for engineering and planning services to develop a Comprehensive Land Management and Multi-Use Corridor Plan for the Alameda Drain, from I-40 upstream to the Sandia Pueblo boundary. The intent is to work towards a three-way funding agreement between the MRGCD, Bernalillo County, and City of Albuquerque. The consolidated engineering and planning effort would assess infrastructure improvements and alternative maintenance techniques to allow for restoration of riparian habitat, ditch bank grasses, and native shrub and tree communities to transform the drain from a weed choked, elm tree growing, maintenance-intensive blight on the valley, to a community asset to be enjoyed by MRGCD constituents. Infrastructure improvements would

include assessment of uniform access control, crossing structure upgrades, management of storm water inflows and evaluation of storm water quality best management practices for storm water flows in the drain. Multi-use components would include assessment and locations of planned trails, park nodes, community gardens, and other public amenities. The MRGCD Funding would be contingent on matching funds from Bernalillo County and the City of Albuquerque. Both agencies have interest in this project to support their NEPA permitting and implementation of trails ($1M currently funded), tree canopy restoration, future storm drain connections, and other elements as determined through a community planning process.

Open Space Projects

The Open Space Division's current focus for future soft-surface trails is in areas of the East Mountains and Sandoval County properties including the John A. Milne / Gutierrez Canyon Open Space and the Golden Open Space. The goal is to construct approximately 10 miles of new trail in the Golden Property and 7 miles for the John A. Milne / Gutierrez Canyon Open Space. Because these trails are built largely with volunteer labor, it is expected that these trail networks will be completed within the next five years. Additionally, the OSD has been analyzing user created trails in the Sandia Foothills Open Space to see which ones can be converted into official trails. The process of determining which trails can become official trails entails looking at whether the trail adds to the overall circulation of the trail system or if it is a redundant trail. The process also involves looking at the grades and the amount of erosion on the user trails and weighing the potential for adding erosional control features, such as drain dips, and rerouting severely eroded sections. (Drain dips are defined in the OSD trails design guidelines). If the trail can be converted to a sustainable condition (minimum maintenance required) or maintainable condition (trail may require regular maintenance every few years) then the OSD will consider designating it as official and add it to the overall MPOS trail network.

There is no set time frame for the process of adding official trails to the Sandia Foothills Open Space and the work will take place as time and resources allow. Additional sites that have been identified for future trails in MPOS include the Placitas Open Space and the Route 66 Open Space. However, extensive planning needs to be done before trail building in these areas can begin. Therefore, no dates have been set for when trail work in these areas will begin or when it will be completed.

Critical Links

During stakeholder workshops and the public comment phase, a list of projects was created that reflect routes that are considered critical links in the City's bikeways system. The gap analysis process described in **Section 4.A.2** of this Plan was also completed to identify other key gaps in the system. Critical Links projects include approximately 4.2 miles of bike boulevards, 62 miles of bike lanes, 16 miles of multi-use trails and 5.5 miles of bike routes. The estimated cost for these projects is **$26.7 million**, excluding right-of-way acquisition costs. A detailed list of these projects is shown below; the corresponding map is on

page 70. **The following list identifies the high-priority critical link projects that could possibly be completed within the next 15 years, at the current rate of investment (approximately $3M per year)**

The projects are listed in alphabetic order by City quadrant; the number does not reflect a relative priority.

Table 8: High-Priority "Critical Links Projects"

No.	Type	Name	To	From	Length
1	Bike Lane	12th Street NW	Bellamah Ave. NW	NW Menaul Blvd.	0.91
2	Bike Lane	Candelaria Rd. NW	2nd Street NW	10th Street NW	0.50
3	Bike Lane	Coors Blvd. Bypass NW	Ellison Dr. NW	Eagle Ranch Rd. NW	0.74
4	Bike Lane	Coors Blvd. NW	Paseo Del Norte NW	Alameda Blvd. NW	1.45
5	Bike Lane	Coors Blvd. NW	Central Ave.	Saint Joseph Dr. NW	3.38
6	Bike Lane	Eagle Ranch Rd. NW	Coors Blvd. NW	Irving Blvd. NW	0.62
7	Bike Lane	Ellison Dr. NW	Coors Blvd. Bypass NW	Cabazon Rd. NW	0.71
8	Bike Lane	Indian School Rd. NW	Menaul Extension NW	Rio Grande Blvd. NW	0.63
9	Bike Lane	Irving Blvd. NW	Golf Course Rd. NW	Rio Los Pino Dr. NW	1.40
10	Bike Lane	La Orilla Rd. NW	Sumac Dr. NW	Coors Blvd. NW	0.10
11	Bike Lane	Ladera Dr. NW	South of Tessa Dr. NW	Ouray Rd. NW	1.81
12	Bike Lane	Menaul Blvd. NW	6th Street NW	12th Street NW	0.55
13	Bike Lane	Montano Rd. NW	Gallegos Lateral NW	4th Street NW	0.26
14	Bike Lane	Atrisco Dr. NW / Rainbow Blvd. NW	Unser Blvd. NW	Existing bike lanes on Rainbow Blvd.	0.88
15	Bike Lane	Paseo Del Norte NW	NW City Limits	Rainbow Blvd. NW	0.74
No.	**Type**	**Name**	**To**	**From**	**Length**
16	Bike Lane	Rio Grande Blvd. NW	Central Ave. W	Mountain Rd. NW	0.25
17	Bike Lane	Tierra Pintada Blvd. NW	Windward Dr. NW	Unser Blvd. NW	0.32
18	Bike Lane	Unser Blvd. NW	Black Arroyo Blvd. NW	Bandelier Dr. NW	0.65
19	Bike Lane	Unser Blvd. NW	Ladera Dr. NW	Ouray Rd. NW	1.02
20	Bike Lane	Woodmont Ave. NW	Paseo Del Norte NW	Valle Prado Lane NW	0.67
21	Bike Lane	2nd Street NW	I-40 NW	Montano Rd. NW	2.31
22	Bike Lane	Paseo Del Norte NW	Calle Nortena NW	Rainbow Blvd. NW	1.76
23	Bike Lane	NM 528 NW	Coors Blvd. NW	Cottonwood Dr. NW	0.78
24	Bike Lane	Golf Course Rd. NW	Taylor Ranch Rd. NW	Paseo Del Norte Blvd.	1.55
25	Bike Lane	Marquette Ave. NW	7th Street NW	2nd Street NW	0.21
26	Bike Lane	Tierra Pintada Blvd. NW	Unser Blvd. NW	Arroyo Vista Blvd. NW	0.65
27	Bike Lane	Atrisco Dr. NW / Rainbow Blvd. NW	Unser Blvd. NW	Existing bike lanes on Rainbow Blvd.	1.22
28	Bike Lane	Atrisco Dr. NW	Iliff Rd. NW	Juniper Rd. NW	0.21
29	Bike Lane	Paradise Blvd. NW	Coneflower Dr. NW	Universe Blvd. NW	0.51
30	Bike Lane	2nd Street NW	Montano Rd. NW	City Limits NW	0.49
31	Bike Route	Paseo del Norte NW	All Saints Rd. NW	Coors Blvd. NW	0.20
32	Trail	Unser Blvd. NW	Bandelier Dr. NW	Contess Rd. NW	0.23
33	Trail	Unser Blvd. NW	Mojave St. NW	Montano Rd. NW	0.39
34	Trail	Unser Blvd. NW	Atrisco Dr. NW	Paradise Blvd. NW	2.66
35	Trail	I-40 Westbound NW	Unser Blvd. NW	City Boundary NW	0.85
36	Trail	Frontage Rd. NW	Alamo Rd. NW	Paseo Del Norte Blvd.	0.44
37	Trail	Calle Cuervo NW	Coors Blvd. Bypass NW	Cabezon Rd. NW	0.69

38	Trail	Corrales Main Canal	Piedras Marcadas Arroyo	Paseo del Norte Blvd.	0.10
39	Trail	Paseo Del Norte Trail	Rancho Sereno NW	Eagle Ranch Rd. NW	0.40
40	Bike Lane	Unser Blvd. NW	Central Ave. W	Los Volcanes Rd. NW	0.32
41	Bike Lane	5th Street NW	Coal Ave. SW	Indian School Rd. NW	0.10
42	Trail	Paseo Del Norte Trail	Kimmick Dr. NW	Calle Nortena NW	1.82
43	Trail	La Orilla Rd. NW	Coors Blvd. NW	City Limits NW	0.24
44	Trail	Paradise Trail	Calle Chamisa NW	Unser Blvd. NW	1.15
45	Trail	Alameda Drain/2nd St.	2nd Street NW	Montano Rd. NW	1.51
46	Trail	North Diversion Channel	Alameda Blvd. NW	N City Limits NW	1.01
47	Trail	All Saints Rd. NW	Coors Blvd. NW	Eagle Ranch Rd. NW	0.32
48	Trail	Alameda Drain/2nd St.	Montano Rd. NW	N City Limits NW	0.49
49	Bike Blvd	Claremont Ave. NE	Richmond Dr. NE	Moon St. NE	3.95
50	Bike Blvd	Richmond Dr. NE	Candelaria Rd. NE	Claremont Ave. NE	0.25
51	Bike Lane	Edith Blvd. NE	Paseo Del Norte Blvd.	Alameda Rd. NE	1.29
52	Bike Lane	Alameda Blvd. NE	Barstow St. NE	Edith Blvd. NE	0.09
53	Bike Lane	Candelaria Rd. NE	University Blvd. NE	Edith Blvd. NE	0.53
54	Bike Lane	Carlisle Blvd. NE	Central Ave. E	Lomas Blvd. NE	0.53
55	Bike Lane	Carlisle Blvd. NE	Indian School Rd. NE	Montgomery Blvd. NE	0.75
56	Bike Lane	Chappell Dr. NE	Singer Blvd. NE	Pan American Frwy. NE	0.32
57	Bike Lane	Comanche Rd. NE	Carlisle Blvd. NE	Drainage Easement NE	1.20
58	Bike Lane	Constitution Ave. NE	Stanford Dr. NE	Girard Blvd. NE	0.52
59	Bike Lane	Eubank Blvd. NE	Osuna Rd. NE	Academy Rd. NE	1.33
60	Bike Lane	Eubank Blvd. NE	Central Ave. NE	Chico Rd. NE	0.56
No.	**Type**	**Name**	**To**	**From**	**Length**
61	Bike Lane	Indian School Rd. NE	Monte Largo Dr. NE	Embudo Trail	0.85
62	Bike Lane	Jefferson St. NE	Masthead St. NE	San Francisco Dr. NE	0.86
63	Bike Lane	Louisiana Blvd. NE	Signal Ave. NE	San Diego Ave. NE	0.10
64	Bike Lane	Louisiana Blvd. NE	San Antonio Dr. NE	Burton NE	0.44
65	Bike Lane	Montano Rd. NE/ Mercantile Ave. NE/ Commerce Dr. NE	West of Renaissance Blvd. NE	Chappell Dr. NE	0.87
66	Bike Lane	Montgomery Blvd. NE	N Diversion Channel	Culture Dr. NE	0.40
67	Bike Lane	San Francisco Rd. NE	Holbrook St. NE	Eubank Blvd. NE	0.50
68	Bike Lane	San Pedro Dr. NE	San Bernardino Ave. NE	I25 Ramp / City Limits	2.11
69	Bike Lane	San Pedro Dr. NE	Zuni Rd. NE	Claremont Ave. NE	1.25
70	Bike Lane	Wyoming Blvd. NE	Alameda Blvd. NE	Beverly Hills/ City limits	0.16
71	Bike Route	Avenida La Resolana NE	Montclaire Dr. NE	Morningside Dr. NE	0.07
72	Bike Route	Mackland Ave. NE	Lafayette Dr. NE	Montclaire Dr. NE	0.50
73	Bike Route	Mackland Ave. / Summit Dr. NE	Summit Dr. NE	Lafayette Dr. NE	0.09
74	Bike Route	Marble Ave. NE	Vassar Dr. NE	Summit Dr. NE	0.22
75	Bike Route	Morningside Dr./ Marble Dr. NE	Utah St. NE	I-40 Ramp NE	0.18
76	Bike Route	Morningside Dr. / Marble Dr. NE	San Pedro Blvd. NE	Texas St. NE	1.29
77	Bike Route	Morningside Dr. / Marble Dr. NE	Avenida La Resolana NE	San Pedro Blvd. NE	1.34
78	Trail	Domingo Baca Drainage	Barstow St. NE	Ventura St. NE	0.52

79	Trail	Paseo Del Norte NE	Existing unnamed trail	Barstow St. NE	0.25
80	Trail	Ventura St. NE	Academy Rd. NE	Paseo Del Norte Blvd.	1.62
81	Bike Lane	86th St. SW	Camino San Martin SW	Sapphire St. SW	0.42
82	Bike Lane	8th St. SW	Bridge Blvd. SW	Lead Ave. SW	0.85
83	Bike Lane	Blake Rd. SW	Arenal Main Canal SW	Unser Blvd. SW	0.33
84	Bike Lane	Central Ave. SW	Sunset Rd. SW	Atrisco Dr.	0.17
85	Bike Lane	Coal Ave. SW	Broadway Blvd. SE	6th Street SW	0.53
86	Bike Lane	Coors Blvd. SW	Huseman Pl. SW	City Limits SW	0.08
87	Bike Lane	Sage Rd. SW	Unser Blvd.	Sunspot Rd. SW	0.92
88	Bike Lane	Snow Vista Blvd. SW	Camino San Martin SW	Benavides Rd. SW	0.22
89	Bike Lane	Lead Ave. SW	8th Street SW	2nd Street SW	0.41
90	Bike Lane	Central Ave. SW	City boundary SW	Coors Blvd. SW	1.16
91	Bike Lane	4th St. SW	Tijeras Ave. SW	Silver Ave. SW	0.29
92	Bike Lane	Central Ave. SW	Tingley Dr. SW	San Pasquale Ave. SW	0.81
93	Bike Lane	Broadway Blvd. SW	Indian School Rd. SW	Coal Ave. SW	1.74
94	Bike Lane	2nd Street SW	Near Lagunitas Ditch SW	Marquette Ave. NW	1.07
95	Bike Lane	Old Coors Blvd. SW	Bridge Blvd. SW	Coors Blvd. SW	0.01
96	Bike Lane	2nd Street SW	Claremont Ave. SW	Marquette Ave. SW	1.42
97	Bike Route	Alcalde Pl./Lead Ave. SW	SW ABQ Riverside Drain	8th Street SW	0.72
98	Bike Route	Coal Ave. SW	6th Street SW	Alcalde Pl. SW	0.65
99	Bike Lane	Old Coors Blvd. SW	Bridge Blvd. SW	Coors Blvd. SW	0.01
100	Trail	I-40 Overpass	1st Street SW	N Diversion Channel	1.55
101	Bike Lane	2nd Street SE	Near Lagunitas Ditch	Marquette Ave. NW	1.83
No.	**Type**	**Name**	**To**	**From**	**Length**
102	Bike Lane	Ave. Cesar Chavez SE	Edith Blvd. SE	Yale Blvd. SE	1.32
103	Bike Lane	Bridge Blvd. SE / Avenida Cesar Chavez SW	Central Ave. SW	Old Coors Dr.	2.10
104	Bike Lane	Carlisle Blvd. SE	Central Ave. E	Garfield Ave. SE	0.39
105	Bike Lane	Carlisle Blvd. SE	Carlisle Pl. SE	Gibson Blvd. SE	0.56
106	Bike Lane	Eubank Blvd. SE	Southern Ave. SE	Central Ave. E	0.34
107	Bike Lane	Gibson Blvd. SE	I-25 Ramp SE	Broadway Blvd. SE	0.33
108	Bike Lane	University Blvd. SE	Avenida Cesar Chavez SE	Las Lomas Rd. SE	1.34
109	Bike Lane	University Blvd. SE	George Rd. SE	Randolph Rd. SE	0.32
110	Bike Lane	Washington St. SE	Central Ave. E	Zuni Rd. SE	0.26
111	Bike Lane	Gibson Blvd. SE	I-25 SE	I-25 Ramp SE	0.10
112	Bike Route	Morningside Dr. SE	Silver Ave. SE	Coal Ave. SE	0.20
113	Bike Route	University Blvd. SE	Randolph Rd. SE	Gibson Blvd. SE	0.09

3. Estimated Costs

The construction costs of the proposed projects are to be considered "planning level" estimates. Unknown or unanticipated aspects unique to a specific facility may not have been accounted for and may increase the estimated cost. For planning purposes these costs indicate what the typical project can be reasonably expected to cost in terms of 2014 dollars. To reduce implementation costs, efforts should be made to include bicycle facilities in all new and rehabilitation projects. This has been an on-going City practice that should continue.

Costs include in the estimate for each of the following facilities are as noted below:

Multi-use Paved Trails: Trail paving; signs; pavement markings; minor landscaping; way-finding signs/pavement marking. Right-of way acquisition has not been factored in. ***$195,000/mile***

Unpaved Trails: Trail construction. Right-of way acquisition has not been factored in. ***$5,000/mile***

Bicycle Boulevard: No anticipated change in roadway surface or cross-section; some traffic calming; Bicycle Boulevard signs/pavement markings; stop sign relocation; way-finding signs. ***$50,000/mile***

Bike lanes: Cost depending on the existing/proposed cross-section can vary greatly. For estimation purposes a blended or averaged cost for roadways that require moving of curb line or a "road diet" to obtain the required cross-sections is used. ***$374,000/mile***

Bike Routes: No anticipated change in roadway surface or cross-section; bike route signs; way finding sign/pavement markings. ***$5,000/mile***

Grade separated crossings: Cost of these crossings vary depending on the length and type chosen. ***$1,500,000/crossing***

Enhanced intersection: May include pavement marking; signs; traffic signal detection; colored bike lanes. ***$10,000/intersection***

HAWK / Pedestrian Hybrid Beacon: A mid-block, pedestrian activated signal to control traffic. According to the ITE, costs range from $75,000 to $150,000 per signal. ***$100,000/signal***

Right-of-Way: The costs related to acquisition of right-of-way will vary depending on the relative cost of land and the amount of right-of-way needed. Recent costs in 2014 generally have ranged from $4 - $8 per square foot. Using this range, a mile of right-of-way could cost between $100,000 and $425,000. Right-of-way acquisition **is not included** in the above estimates for each facility type. Because many of the missing gaps are due to limited right-of-way, it is understood that the following cost estimate is more reflective of the minimum possible expense.

Table 9: Full Build-Out Cost Estimate

Bikeways & Trails	Proposed (mi.)	Cost/Mile	Total
Multi-Use Trails	~~115~~ 122 miles	$195,000	$22,425,000
Unpaved Trails	~~45~~ ~~43~~37 miles	$5,000	$~~225~~215,000
Bike Boulevards	~~10~~ ~~11~~16 miles	$50,000	$~~500~~550,000
Bike Lanes	~~199~~ ~~196~~197 miles	$374,000	$~~74,426~~73,304,000
Bike Routes	~~75~~ ~~76~~77 miles	$5,000	$~~375~~380,000
Grade-Separated Crossings	~~14~~ ~~16~~28 each	$1,500,000	$~~21~~24,000,000
Enhanced Intersection	~~88~~ 107 each	$10,000	$~~880~~960,000
HAWK/Pedestrian Hybrid Beacon	16 each	$100,000	1,600,000
Total ~~System~~Proposed Facilities	**~~458~~ ~~441~~449 miles**	n/a	**$~~119,831~~~~121,754~~123,434,000**

C. Existing Facility Enhancements

1. Intersection and Crossing Improvements

This *Facility Plan* recommends improvements to intersections and crossings for the existing and proposed bikeways and multi-use trails. This *Facility Plan* recommends the construction of ~~15~~ 16 grade-separated crossings, improvement of ~~one~~ 16 mid-block crossings, and the improvement of ~~87~~96 existing intersections. The cost for these proposed intersection and crossing improvements based on the assumptions described above is ~~$2124,880,000~~ $26,560,000.

Funding available over the next ~~20~~ 50 years will not be sufficient to construct all of the proposed projects and intersection improvements. The list of projects and improvements that this *Facility Plan* recommends should be used as guidance for the City when planning future work and/or requesting funding to expand the City's roadway system. The City should complete a detailed study and prioritization plan to address the 87 intersections that were identified in the engineering study associated with this *Facility Plan* as well as additional intersections and mid-block crossing locations identified by GABAC and GARTC.

A "Prototypical Multi-lane Arterial Intersection Improvements" design recommendation was developed that incorporates traffic signal bicycle detection and a color enriched bike lane in motor vehicle/bicycle conflict areas. As funding allows, the City will apply this prototypical design to all of the 87 intersections identified in this planning process and will continue addressing other intersections with gaps in bicycle facilities. Each intersection that is adjacent to new bicycle facilities should be designed to accommodate a continuous facility through the intersection, as proposed in **Chapter 7, Design Manual,** and described below.

Generally, the goal is to make intersections more comfortable for cyclists. Include elements such as color, signage, medians, signal detection, and pavement markings. The level of treatment required for bicyclists at an intersection will depend on the bicycle facility type used, whether bicycle facilities are intersecting, the adjacent street function and land use. See the NACTO design guidelines and the 2012 AASHTO Guide for the Development of Bicycle Facilities for recommended intersection treatments.

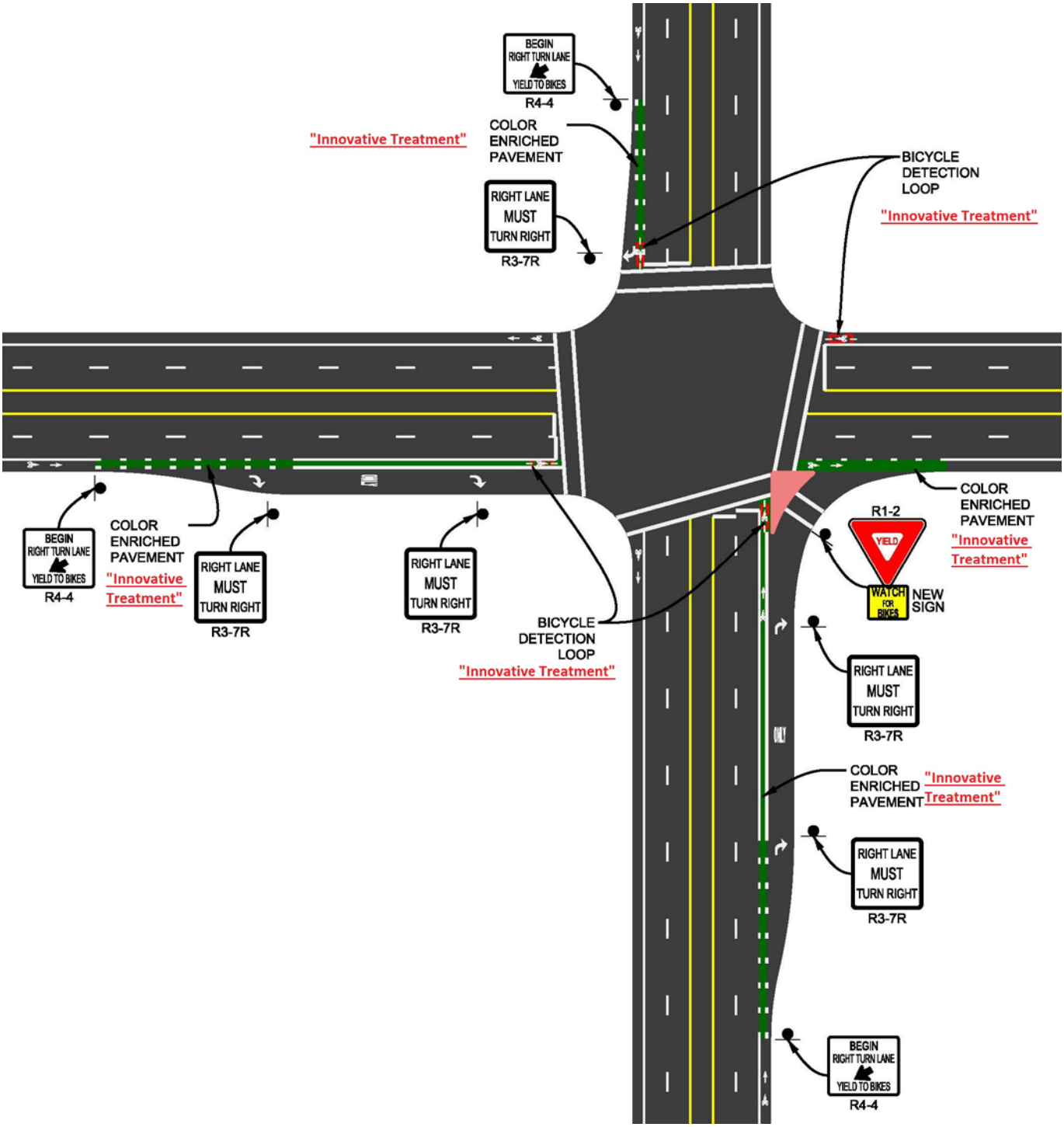
Prototypical Multi-lane Arterial Intersection Improvements

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

- Dedicated right-turn bay (west leg)
- Right-turn slip lane with yield condition (south leg)
- Combination right-turn/through lane with bike lane on the right side (east leg)
- Shared bike/right-turn lane (north leg)

Traffic signal bicycle detection is a part of each treatment, as is color enriched bike lanes in locations where motor vehicle traffic crosses over the bike lane. The four different intersection approaches are illustrated below. The description above begins with the intersection approach on the left side of the image and addresses each intersection approach in a counter-clockwise manner.

Figure 1217: Prototypical Multi-lane Arterial Intersection Design



2. Retrofitting Trails to Be Universally Accessible

As of 2014, the City of Albuquerque has begun a major program to evaluate trails along with parks to assess the current level of accessibility of these facilities. There is not yet a definite timeline for completion of the analysis as the program requires new training efforts. Additionally, the quantity of parks and miles of trails to evaluate is extensive.

The City's goal is to make as many facilities accessible as possible. There will be parks and trails that are not suitable to be accessible for physical, financial, property ownership, or other reasons. Therefore, not every park and not every trail will be fully accessible throughout the City's trails system.

The proposed Architectural and Transportation Barriers Compliance Board (Access Board) Guidelines for Shared Use Paths are unique, as the Shared Use Paths are designed for recreational as well as for transportation use. The proposed guidelines will apply to the design, construction, and alterations of pedestrian and bicycle facilities in the public right-of-way and were not addressed in the previous Access Board rulemaking.

The Guidelines will be adopted as City Standards for accessible trails and will be incorporated into the City's Development Process Manual (DPM) once they are approved and available.

3. Bollard Assessment & Remediation

In 2013, the City commissioned a report to identify relevant design criteria for bollards on multi-use trail facilities, review the installation of bollards on multi-use trails at several locations identified by the City, and develop best practices for implementation by the City of Albuquerque. The report performed bollard evaluations at 4 specific locations along the Bear Canyon Arroyo Trail and at the Gail Ryba Bridge and recommended design changes to improve consistency with AASHTO and MUTCD recommendations.

Common problems associated with bollards and multi-use trail facilities in Albuquerque include the following:

- Bollards may present a collision hazard when placed on a multi-use trail.
- Inconsistent installations lead to user confusion and do not meet a consistent user expectation.
- Inadequate spacing between bollards results in users being unable to access facilities, and do not comply with ADA guidance.
- Removable bollards are illegally removed from their locations when not locked.
- When not in place, removable bollards have a collar that becomes a trip hazard.

- When bollards are not in place, unauthorized motorized vehicles may access multi-use facilities.

The assessment noted that bollards are a commonly used method of controlling vehicular access to multi-use trails. However, according to the AASHTO Guide for the Development of Bicycle Facilities, 2012, the routine use of bollards and other similar barriers to restrict motor vehicle traffic is not recommended.

The goal of bollards should be to balance the need to discourage unauthorized motorized vehicle access on a trail with the need to provide the trail users a facility without unnecessary obstructions. Therefore, developing a series of best practices for the installation of bollards on the City of Albuquerque trail system is critical for the purpose of not only providing consistency within the trail system, but also establishing a level of expectancy with the trail users that will result in less confusion and improvements in accessibility for all types of users.

There are no standards or recommended guidelines that have been established to identify a threshold for what constitutes a history of unauthorized motorized vehicular use on a multi-use trail. The City does not have a policy to govern the design and installation of trail bollards to ensure consistent application. The City has installed bollards at numerous locations throughout the trail system to control vehicular access on trails. The only City Standard Drawing established for bollard installation pertains to an installation for access to a drainage facility.

The 2013 assessment identifies national and local recommended design practices but does not provide or recommend design standards. These best practice recommendations have been incorporated into this *Facility Plan's* **Chapter 7, Design Manual**. The full assessment is included as **Appendix C, Bollard Study**.

4. Facility Upgrades

~~Claremont Road –~~ Bicycle Route to Bicycle Boulevard

Claremont Road is an example of a road proposed to be upgraded from a Bicycle Route to a Bicycle Boulevard. As of 2014, the City is in the process of evaluating the success of the Silver, Mountain, and 14th Street Bicycle Boulevards to inform future installations. The Claremont route is a future project, and it is not currently under study or design.

Generally, the City should expand the system of bicycle boulevards utilizing quiet neighborhood streets that creates an attractive, convenient, and comfortable cycling environment welcoming to cyclists of all ages and skill levels.

Trail Amenities

Trail amenities should be equitably distributed City-wide where feasible and as funding is available. Amenities will be prioritized by standards to be established in a future effort. Typical amenities to be provided could include:

- Bike racks at trailheads and rest stops
- Rest stops along paths with seating; shade structures at key locations
- Water fountains where feasible
- Signage to identify location within the trail system, directions to community centers and facilities, and historic and interpretive signage
- Mile markers for way-finding
- Bike parking and bike lockers at destinations and connection points to other transportation modes, i.e. bus stops, train stations, employment centers
- Appropriate landscaping along trails

The Parks and Recreation Department will review and approve plans for landscaping along the trails. Installation of trail amenities and landscaping should be consistent with the recommendations provided in **Chapter 7, Design Manual.**

D. Way-finding

Way-finding for cyclists and other trail users can be a challenge. Knowing where you are on the multi-use trails sometimes is difficult due to the lack of a standardized location identification system. Marking of the on-street bikeways and multi-use trails with way-finding will provide the users an effective way to identify where they are and direct them to where they wish to go. **A standardized facility naming and marking program was developed for this plan, which is contained in the Design Manual, Chapter 7.E.2, Trail Way-finding.** The criteria for laying out this program are based on the needs of pedestrians and other trail users as well as bicyclists. Law enforcement and emergency responders can use this information in finding locations of incidents on the multi-use trails accurately. The existing multi-use trail system can be upgraded to include way-finding, and all newly constructed facilities can include way-finding as part of their design. See Chapter 3.C.5, Bikeway & Trail System, Way-finding and Orientation for more information on this topic.

1. Signage and Marking

Marking of the on-street bikeways and way-finding on multi-use trails will provide users an effective way of identifying where they are and direct them to where they wish to go. Marking and maintenance of the markings for the existing bikeway and trail system will be a combined effort undertaken by Street Maintenance Division for the on-street portion and by Parks and Recreation Maintenance for the multi-use trail portion. The Open Space Division has a separate protocol "way-finding" program for the Sandia Foothills Major Public Open Space and along the Paseo del Bosque, and is working to develop way-finding systems for trails within other Major Public Open Space areas. Implementation of signage requires coordination with Street Maintenance for consistency of the Bikeways and Trails system. Newly constructed facilities will include way-finding as part of their design and be included as part of the facility construction.

As of 2014, the City is developing a Bicycle Corridor and Way-finding Sign Implementation Plan. The goal of the project is to improve way-finding and navigability for non-motorized travelers throughout the city. The City's consultant first identified bicycle destination sites, such as the North Diversion Channel, Bosque Trail, University of New Mexico, Balloon Fiesta Park, and hospitals. This list of destinations was reviewed and discussed with GABAC members to gain input on any additional bicycle destination sites or corridors. Once the project develops a prioritized list of destination sites and corridors, the consultant will develop way-finding signs for the destination sites and corridors. One product of this project is a geographic database of proposed way-finding sign locations along the various corridors.

2. Emergency Responders

The City needs to coordinate with emergency responders with regards to the way-finding. The Trails Coordinator should spearhead this effort due to the greater impact the multi-use trail system due to the greater impact on or to the multi-use trail system. As part of this Facility Planning process, the Trails Coordinator developed a trail responsibility map. This map will be shared with the City's 311 phone service and with emergency responders, once all trails have been given names and orientation features. Implementing on-the-ground signage or trail markings will be critical for the trail users to be able to communicate to emergency responders about their location. The signage and markings also allow 311 calls to report more exact locations of trail maintenance problems, which may cause collisions or injury.

CHAPTER 5: RECOMMENDED PROGRAMS

Improvements to bikeway and trail facilities in Albuquerque should be complemented by programs and activities designed to promote bicycling and trail use. There are many existing efforts to encourage bicycling in Albuquerque, including efforts by local agencies, active community groups, and individual residents. The *Bikeways & Trails Facility Plan* recognizes these efforts and encourages the City and local residents to support, promote, and build upon them.

The League of American Bicyclist/Bicycle Friendly Community Program (BFC) has recognized Albuquerque as a city that welcomes cyclists by providing safe accommodation for cycling and encouraging people to bike for transportation and recreation.

In 2005 the City of Albuquerque was recognized with the Bronze level award and is one of three cities in New Mexico recognized as a Bicycle Friendly Community (Santa Fe—Silver, Las Cruces—Bronze). The City maintains the Bronze standing as of 2014.

To be considered a Bicycle Friendly Community the City had to submit an audit of the five E's: engineering, education, encouragement, enforcement, and evaluation efforts in the city. This comprehensive inquiry is designed to yield a holistic picture of the community's work to promote bicycling.

The following describes ~~current safety, education, outreach, and encouragement~~ the City's efforts related to bicycling and trail use in Albuquerque and presents a menu of recommended new and expanded programs to continue to promote bicycle and trail use.

A. Current ~~Safety, Education, & Encouragement~~ Programs

There are many existing efforts to encourage bicycling in Albuquerque, including efforts by local agencies, active community groups, and individual residents. Programs are typically classified as supporting one of the "5 E's" - Education, Encouragement, Engineering, Enforcement, and/or Evaluation. The City, with the support of local bicycling groups, offers a number of valuable materials and programs aimed at bicyclists and trail users. Eight established groups have been identified as being actively involved in bicycle education, outreach and encouragement in the metropolitan area: Greater Albuquerque Bicycle Advisory Committee (GABAC), Greater Albuquerque ~~Regional~~ Recreational Trails Committee (GARTC), Bicycle Coalition of New Mexico, BikeABQ, Sandia Bike Commuters Group, Duke City Wheelmen Foundation, New Mexico Touring Society, and Women's Mountain Bike and Tea Society.

This section is organized into two parts:

- City of Albuquerque Current Bicycling & Trail Programs
- Partnerships & Programs to Encourage and Support

1. City of Albuquerque Bicycling & Trail Programs

Printed Materials (Outreach, Education)

The City has several ongoing efforts that support bicycling and trail use, including the maintenance of a website dedicated to bicycling and the production of a comprehensive bicycle map.

- City of Albuquerque Metropolitan Albuquerque Bicycle Map: http://www.cabq.gov/bike/documents/ pdfs/2007ABQBikeMap.pdf
- Bosque Trail Map: http://www.cabq.gov/parksandrecreation/open-space/lands/RGVSPmapsplit11x17.pdf
- Sandia Foothills Trails Map: http://www.cabq.gov/openspace/pdf/foothillsmap.pdf

A series of trail user guides are posted at http://www.cabq.gov/bike that map out scenic routes and identify landmarks along the way. Many of the routes primarily rely on trails that provide an experience of the city that is separate from motor vehicles. The City also has a trail etiquette guide titled "Let's All Share."

Bicycle Safety Education Program (Education, Encouragement)

The City's Bicycle/Pedestrian Safety Education Program (B&PSEP ~~Program~~) began in 1995 with a mission to design and provide for the citizens of the Albuquerque metropolitan area educational activities and information to promote bicycle and pedestrian ~~safety~~hazard prevention, bicycling and walking as alternative transportation modes, and the health benefits of cycling and walking. The City's Bicycle Safety Education Classes are a national model. This program is administrated by the Parks & Recreation Department.

A primary objective of the program is to increase the bicycle ~~safety~~ hazard prevention knowledge of Albuquerque Public School elementary Students (4th & 5th grade) through bicycle ~~safety~~ education presentations and "bike rodeos."

Bike Rodeos (Education)

The City of Albuquerque offers 60 – 200 bicycle ~~safety~~ hazard prevention education rodeos annually for elementary school students. Since 1996, the program has hosted over 15,000 bike rodeos. The program is aimed at grades 3, 4, and 5, and the program consists of a presentation for the whole grade level followed by individual classes practicing on a skills course. The Bike Rodeo combines a ~~safety~~ hazard and injury prevention presentation with a hands-on bike ~~safety~~ experience, in which the child rides through a simulated road on a bike. Helmets were distributed to children who participated in bike ~~safety~~ hazard prevention programming. The program brings bikes and all supplies to schools or civic groups.

The League of American Bicyclists (LAB), a national organization, has developed an on-road training curriculum and a series of courses to teach bicycle handling and traffic skills (including Traffic Skills 101, Commuting, Cycling Skills for Kids and more). They certify trainers around the country who may offer these bicycle education sessions. The City offers Traffic Skills 101 classes quarterly. Website: www.cabq.gov/recreation/bike.

Youth Bicycle Safety Program (Education)

The City offers a free, year round bike ~~safety~~ education clinic for youth ages 7-10 teaching children how to "drive" their bike ~~safely~~ through a ~~safety~~ hazard and injury prevention talk and a hands-on experience.

The City of Albuquerque Park and Recreation Department's Bicycling 101 is a comprehensive class for adults (children 12 or older considered with parents or guardians) certified by the League of American Bicyclists. An Advanced Mechanics Class is also available.

Defensive Driving Class (Education)

The City requires City employees to take a defensive driving class in order to receive an operator's permit to drive a City vehicle. Half an hour of this class is taught by ~~the Bicycle Safety Education Program~~ B&PSEP with an emphasis on share the road principles. In 2013, an employee from the Parks and Recreation Department spoke at 11 classes, reaching approximately 451 city workers.

Other Ongoing Efforts in 2013 (Education, Outreach, Encouragement)

- Two Bicycle Mechanics classes were offered serving eight (8) adults. The 7-hour class provides the participants with a solid background in bike mechanics.
- The BSE Program has performed four (4) Bicycle Commuting Essentials classes since January, with twenty five (25) participants.
- The Share the Road Program remains at four participating schools. The ~~Bicycle Safety Education Program~~ B&PSEP performed twenty nine (29) Share the Road presentations to five hundred fifty nine (559) young people studying to get their driver's license.
- The Bike Safety E-Newsletter has enjoyed a steady increase in subscribers, with two more issues released, and four hundred seventy eight (478) current subscribers.
- The "Pumped Up!" program, teaching middle and high school youth about flat repair and bicycle traffic ~~safety~~ hazard and injury prevention, reached one hundred fifty two (152) participants.
- Two Cyclocross classes were performed, reaching eighteen (18) participants.
- The BSE Program answered thousands of calls per year relating to bicycling in the metro area, disseminated bike maps, and tracked all bike fatalities.
- The BSE Program purchased 6 new larger size BMX bikes for the bike safety rodeos. Painted bikes did not survive constant trailering. For years the program looked for chrome BMX bikes, and finally chrome has become an option.

It should be a top priority to continue, strengthen, and expand these programs. Seeking additional funding and staff capacity will be a key strategy, possibly through grant funding sources or local partners.

Esperanza Community Bike Shop Programs (Education, Encouragement, Outreach)

The Esperanza Community Bike Shop opened its doors to the public on March 8, 2013 with the goal of promoting bicycles as a viable means of transportation and recreation in and around Albuquerque. The shop provides bicycle-related educational opportunities in a variety of media including informal and structured programs.

Esperanza is open to the general public for walk-in repairs. Shop patrons are guided through repairs for everything from flat tires to complete bicycle overhauls. Over the course of nine months, this has been the greatest forum for the shop to serve the general public. From March through October 2013, Esperanza was visited by a total of 1,376 people. This includes 736 youth under the age of 18, 497 adults age 18 and above, and 143 visitors who did not disclose their age. During this timeframe the shop was open three days per week in the Spring and Fall and four days per week during the summer months.

Volunteers serve an important role at Esperanza. Currently there are three categories of volunteers.

1. **Mechanical volunteers.** These individuals help complete repairs on bikes that belong to customers and contracted organizations as well as bikes being repaired at Esperanza for distribution through educational programming.

2. **Organizational volunteers.** These individuals help with the constant organizational and part sorting needs at Esperanza.

3. **Work-study students.** Esperanza partners with several local schools to provide students with work place experience in exchange for school credit. Work-study students enter the program with a variety of skill levels, but all receive formal training as part of the program. Increasing participation in the work-study program is an important goal because it provides long-term bicycle education, and once the volunteers are trained, they help Esperanza run more smoothly in its day-to-day operations.

The following text describes some of the services that Esperanza Community Bike Shop offers:

League of American Bicyclists Certified Instructor Training

In 2013, the Adult Bicycle Educator attended the League of American Bicyclists Certified Instructor Training in Atlanta, Ga. This is the only nationally recognized bicycle education program within the United States and is necessary to become a League Certified Instructor. Having this certification greatly increased the abilities of the Adult Education Program through classroom training and practical cycling insight. This training emphasized the teaching of ~~safe~~ best cycling practices and road use law to adult cycling groups. The goal of this training is to help the instructor learn to foster an environment where participants feel confident about their ability to treat their bicycle as a vehicle and to ensure that people on bikes know how to ride ~~safely~~ with less risk and legally. The training and certification received through this course was instrumental in planning several Esperanza Community Bike Shop programs.

Albuquerque Metropolitan Court Safe Cycling Course

The Esperanza Community Bike Shop's Adult Education Program is currently working with the Albuquerque Metropolitan Court to implement a "Share the Road" bike/motor vehicle education segment into the Aggressive Driver remedial training class that is currently run by the Metro Court. This course segment will cover the rights and responsibilities of both drivers and cyclists, in order to promote a level of understanding between all road users.

Mom's Night Out Bicycle Maintenance Class

In an effort to diversify the clientele of the Esperanza Community Bike Shop Adult Education Program, one Mom's Night Out Bicycle Maintenance Class has been held. Although attendance was low (4 participants and 2 volunteers), it is hoped that later classes will reach a wider audience. Through targeted classes such as this, the program aims to decrease the perception that cycling is predominantly male activity.

Educational Materials

The Esperanza Community Bike Shop's Adult Education Program has been working on several informational pamphlets to be distributed through the bike shop or at public events. These materials include an Esperanza Community Bike Shop brochure that explains the adult education opportunities available at the shop, a Bike Lock pamphlet that demonstrates proper use of bicycle locks and strategies to avoid bicycle theft, and several bike maintenance pamphlets that highlight the key points in many

repairs. Distribution of these materials is ongoing, and to date approximately 300 copies of bicycle theft prevention and flat tire repair pamphlets have been place in the hands of community members. Through the use of these materials, the Esperanza Community Bike Shop's Adult Education Program is able to reach a larger audience to promote ~~safe and~~ confident cycling.

Transit Bus Training Rack

The Esperanza Community Bike Shop's Adult Education Program obtained a bike rack like the ones used on ABQ Ride busses. This rack has now been mounted on the wall of the Esperanza Community Bike Shop classroom to train cyclists on the proper loading of their bikes on ABQ Ride busses. This simple training decreases apprehension of multi-modal transportation and increases commuter confidence.

Guaranteed Ride Home Program (Encouragement)

The City's transit provider, ABQ Ride, offers free guaranteed ride home service for residents who commute to work or school by bike, walking, carpooling, vanpooling, or transit at least three times a week. The service is offered within ABQ Ride's bus route service area.

Long-Term Parking Program

The Bicycle Locker Program is intended to provide convenient locations for securely storing bicycles used for commuting to employment destinations, so that alternative modes of transportation can be locally supported and effectively promoted. Lockers are presently located close to various downtown government centers and adjacent to approximately thirty or more other public facilities and related private businesses scattered around the metropolitan Albuquerque area.

This federally-funded program has existed for many years. This program is administered by the City's Bicycle Coordinator within the Department of Municipal Development. The Bicycle Coordinator, which is a federally-funded position, manages new and existing written agreements submitted by individual bicycle commuters, who in exchange receive a locker key and agree to store only a bicycle within the locker at a prearranged location for a specific term. The Bicycle Coordinator reviews lockers on a periodic basis in order to minimize the potential for misuse.

The City currently manages around 300 bicycle lockers in locations requested by individuals and employers. Major employers that have taken advantage of the bike locker program include Intel, Honeywell, and the University of New Mexico. The purpose of this program is to provide secure bicycle parking to encourage bicycle commuting.

Bicycle Friendly Community Certification

The League of American Bicyclist/Bicycle Friendly Community Program (BFC) provides incentives, hands-on assistance, and award recognition for communities that actively support bicycling. A Bicycle Friendly Community welcomes cyclists by providing ~~safe~~ welcoming accommodation for cycling and encouraging people to bike for transportation and recreation. In 2005 the City of Albuquerque was recognized with the Bronze level award and is one of three cities in New Mexico recognized as a Bicycle Friendly Community (Santa Fe—Silver, Las Cruces—Bronze). The City maintains the Bronze standing as of 2014.

The Bikeway Coordinator is responsible for preparing and submitting application for this award along with community input and assistance from local advocacy groups. The application is an audit of the five

E's: engineering, education, encouragement, enforcement, and evaluation efforts in the city. This comprehensive inquiry is designed to yield a holistic picture of the community's work to promote bicycling. The application also helps to identify areas that Albuquerque can improve upon, or begin collecting data to improve our standing in future years.

Environmental Education Program (Education)

The Open Space Division of the Parks and Recreation Department provides Environmental Education and Interpretation through a number of outdoor activities, classroom programs and community events to educate the public on the use of Major Public Open Space and Trails. Trail maps are maintained for trail users and Hikes are sponsored as well as special events to heighten awareness of the low impact recreation and the protection of the natural state of Major Public Open Space. The Open Space Division's Trail Watch Volunteers Program is instrumental in educating the public about trail use ethics while noting maintenance needs to be corrected. In addition to hiking, mountain biking and horseback riding, the trails in the City's Parks, Open Space and Trails system provide the opportunity to protect and preserve the natural environment for the benefit of the Albuquerque resident and visitor trail users now and in the future. Each of these programs involves an element of outdoor stewardship education, including Leave no Trace Ethics, proper use of trails in MPOS, and in some cases, trail design and management.

Prescription Trails Program (Encouragement)

The Prescription Trails Program provides prescriptions for walking and wheelchair rolling and a walking guide that suggests routes in our community targeting and promoting healthy lifestyles for individuals and families (& pets, too).

The City's Prescription Trail Program is intended to make information available to all residents about the importance of walking for health and how to get started in a self-directed or group program. The easy to use Guide provides information about specific parks in the Albuquerque area with maps organized alphabetically by zip codes and level of difficulty for each trail location, the length of each "loop" and what amenities are provided in each park facility. A walking log is included in the Guide so the trail user can easily document their distances walked. Information is also provided on Walking Clubs and Mall Walking for those rainy days.

2. Partnerships & Programs to Encourage and Support

Local bicycling groups and state-sponsored programs offer a number of valuable materials and programs aimed at bicyclists and trail users. It is recommended that the following efforts continue to be provided to Albuquerque area residents. Where possible, these programs should be expanded in their scope to offer additional services and/or reach more residents.

Existing Committees, Organizations, Clubs, and Teams

Greater Albuquerque Bicycle Advisory Committee (GABAC) and Greater Albuquerque ~~Regional~~ Recreational Trails Committee (GARTC)

The City of Albuquerque has both a Bicycle Advisory Committee and a Regional Trails Committee that meet to address the needs of bicyclists and trail users in the Albuquerque area.

Bike ABQ

This non-profit bicycle advocacy group organizes bicycle education, encouragement, and enforcement programs for Albuquerque, in addition to advocating for infrastructure improvements. The organization hosts Bicycling 101 and Bicycle Mechanic classes, helps organize annual Bike to Work Day events and other bicycling events, and offers resources for bicyclists.

Bicycle Coalition of New Mexico

This statewide bicycling organization provides bicycle safety educations classes, events, and other resources for bicyclists. Website: www.bikenm.org/.

Sandia Bike Commuters Group (SBCG)

This bicycle commuter support group was formed in 1995 for employees of Sandia National Labs, a major area employer with about 8,500 employees, at KAFB. About 600 employees are on the mailing list for the SBCG, by which they receive event updates and other supportive communications. Members can also add content to the group's website, which contains many resources for bicyclists such as information on safety, gear, and facilities. The group estimates that about 200 employees commute by bicycle regularly. The group also hosts a Bike to Work Day event annually and offers a Bike Buddy program for employees.

Duke City Wheelmen Foundation

This local racing team hosts memorial rides and bicycle rides to highlight bicyclist visibility. Website: www.dukecitywheelmen.org/.

New Mexico Touring Society

The New Mexico Touring Society (NMTS) is a recreational bicycling club. The group holds numerous weekly rides and helps organize local bicycling programs, such as Bike to Work Day and valet bike parking at local events. The NMTS website also offers resources and information for existing and potential bicyclists. Website: www.nmts.org/.

Women's Mountain Bike and Tea Society (WOMBATS), New Mexico Chapter

WOMBATS is a women's mountain biking group in New Mexico. The group offers rides, classes, and other mountain biking activities and resources specifically for women.

MRCOG's Job Access Reverse Commute Program (Education)

The Mid-Region Council of Governments Job Access Reverse Commute (JARC) program provides many transportation benefits to lower income working individuals within the local area. Esperanza Community Bike Shop's Adult Education program has partnered with the MRCOG to provide safe cycling training and a refurbished bicycle to interested individuals within the JARC program.

A trial run of the JARC Bike Safety class was held on October 29th, 2013, with 5 MRCOG representatives and 2 Parks and Recreation personnel in attendance. The City and MRCOG are finalizing a Memorandum of Understanding and expect to be running a full schedule of JARC Bike Safety classes shortly.

Safe Routes to School (Evaluation, Engineering, Education, Encouragement, Enforcement)

Expanding the existing New Mexico Safe Routes to School program will offer great benefits to children's health and safety. The statewide Safe Routes to School program, run by the NMDOT, offers funding

assistance for developing an action plan, implementing infrastructure projects, and offering non-infrastructure projects.

It should be noted that funding for this program is currently on hold pending Congressional reauthorization of the federal transportation bill. The City should track availability of statewide funding and consider it a priority to apply for funding when the application process is re-opened. The City could also connect with APS for more general outreach and promotion to get students and teachers interested and educated about bicycling.

"Share the Road" Public Service Announcements (Education)

This BikeABQ campaign increased awareness through eight public service announcements that were broadcast on local television in 2009. The videos are currently available on YouTube. Website: www.youtube.com/user/bikeabq.

A local advocate, Olev Rapido, also coordinated a Share the Road campaign by distributing bumper stickers with bicycle friendly messages. The stickers feature messages such as "Share the Road" and "5 Feet to Pass: It's the Law." Bumper stickers have been made available at area bicycle shops, sports stores, and Whole Foods Market. Website: www.bicyclenm.net/OlevRapido/AwarenessInitiative/index.html.

Valet Bike Parking (Encouragement)

Recently the City has experimented with Valet Bicycle Parking during special events that attract people traveling to the event by bicycle. For example, at the 2009 Albuquerque International Balloon Fiesta approximately 200 secure bicycle parking spaces were available. The valet parking area was conveniently located next to a multi-use trail that connects the North Diversion Trail to the nearby balloon launching fields. At peak use times the parking area was at full capacity.

Valet bike parking is offered at the Balloon Fiesta and Freedom Fourth as a joint effort of the New Mexico Touring Society, BikeABQ, the City, and the event organizers.

Adult education at Esperanza Community Bike Shop came into full swing with the 2013 City of Albuquerque's Freedom Fourth Celebration at Balloon Fiesta Park. The bike valet parking was provided at the July 4th event to promote cycling within the City and to help with traffic and parking congestion. Over the course of the event, 278 bicycles were ~~safely~~ securely stored for the public, including several tandems, child trailers, and child seats. This shows an interest in bicycle transportation among families and demonstrates the feasibility of bicycling with young children.

Assuming that the people attending the event were averaging 2 individuals per

car, the Bike Valet at the Freedom Fourth removed 139 cars from the traffic flow around Balloon Fiesta Park and greatly decreased traffic and parking congestion. The turnout and use of the Bike Valet greatly exceeded expectations for this event, showing the potential for the growth of transportation and utility cycling within the City of Albuquerque.

Due to the volume of positive public feedback received concerning the Freedom Fourth Bike Valet, the City continued to provide bike valet services at City events throughout the summer. Bike valet parking was offered at the City of Albuquerque's Summerfest street parties, where use of the service ranged from 21 bicycles to 78 bicycles per event. The social atmosphere at these events also fostered conversations between staff, bike valet volunteers, and the public about ~~safe~~ better cycling practices and to distribute educational materials. Staff at these events also distributed bicycle lights to cyclists without proper bicycle lighting; this was very well-received by the public and reinforced the City's goal of increasing the number of responsible cyclists on our roads.

Listed below are the public use numbers of the bike valet parking offered at events in 2013:

- Freedom Fourth – 278 Bicycles (139 cars off of the road)
- Nob Hill Summerfest – 78 Bicycles (39 cars off of the road)
- Downtown Summerfest – 64 Bicycles (32 cars off of the road)
- Westside Summerfest – 26 Bicycles (13 cars off of the road)
- Old Town Salsa Fiesta – 21 Bicycles (10 cars off of the road)
- Montessori on the Rio Grande Harvest Fest – 23 Bicycles (11 cars off of the road)

Through the Bicycle Education Grant, mobile bicycle racks, banners, and shade tents have been purchased to improve the overall level of service for patrons bike valet within the Albuquerque Metropolitan area. This service continues to promote the use of the bicycle as a viable transportation option. The City and partners should continue this popular service at public events.

Bike-to-Work Day (Outreach)

Local bicycling groups, with the support of the City of Albuquerque, host Bike-to-Work Day annually. The 2014 event featured ten commuter stations near major employment areas with breakfast, giveaways such as water bottles and patch kits, prize raffles and other giveaways.

The City and other event partners (such as BikeABQ) should continue to support the event at the same level, and if possible expand the event to include components such as such as a commute ride to or from City Hall with the Mayor/City Council, commute classes, bike commute challenge contests, and celebratory events.

Driver Education (Education)

Three independent driving schools have signed up for the City's Share the Road presentations. This presentation lasts approximately one hour and teaches new motorists their responsibilities toward cyclists. It also teaches the new motorists the rights and responsibilities for cyclists. The interactions and questions from the new drivers have been priceless.

Albuquerque Community Bike Recycling Program (Encouragement)

This local non-profit volunteer group recycles bicycles by accepting donated parts and bicycles, rebuilding them into working bicycles, and donating those bikes to children and adults in need in Albuquerque. The group also hosts bicycle safety and repair demonstrations to public schools and adult groups. Website: www.communitybikerecycling.org/.

2010 National and New Mexico Bicycle Rally (Encouragement)

This national event was held in Albuquerque on June 3 - 6, 2010 and featured classes, rides, guest speakers, and a film. The national event kicked off the first state bike rally in New Mexico. The Bike Coalition of New Mexico plans to hold annual state bike rallies in the future.

University of New Mexico Bicycle Programs (Encouragement)

The University of New Mexico offers many services for bicyclists on campus, including students, faculty, and staff. The campus features many racks and 50 bike lockers, as well as a bike shop, which offers bicycle repair, maintenance, and rental bikes for recreation. Campus-suggested bike route maps are published as part of parking and transportation information, and maps of bicycle racks and lockers are available online.

The Parking and Transportation Services Department also offers a bike sharing program to campus departments. Ten bikes are loaned out to 10 departments on an annual basis for work- or university-related use. In addition to the bike, the department receives appropriate gear and bicycle safety education and agrees to store the bike indoors.

In addition to a campus bike parking map, the University's bicycle program website offers free bike registration, a guide to bicycle security, bicycling safety and maintenance tips, and links to other resources. Website: www.pats.unm.edu/bike_it.cfm.

Group Rides (Encouragement)

Various bicycling groups in Albuquerque host group road and trail rides, such as Farmers Market tours and the Ride of Silence to honor bicyclists killed and injured in crashes, charity rides, etc. The BikeABQ blog promotes these community rides.

Bicycle Events (Encouragement)

Throughout the year, numerous bicycling events are held. These include races, skills competitions, and bike polo

events. These events are tracked through some community calendars, such as www.nmcycling.org, www.usacycling.org, and www.bikehubnm.com. Facebook pages have been created to promote these events, such as the Critical Mass Albuquerque and Duke City Classic pages.

Ghost Bike Memorials (Education)

"Ghost bikes" are roadside memorials that commemorate the location a cyclist was killed. They are bicycles painted white, typically decorated with flowers and other personal items or notes to recognize the individual. Some argue that these installations fall under the 2007 State law that outlaws the desecration of roadside memorials, or *descansos*.

B. New Programs to Expand or Initiate

It must be stressed here that as of 2014, the City does not have the resources to expand upon the current offering of programs and projects that are currently ongoing. However, in the future, additional funding or staff resources may be allocated to develop some of the recommended programs below. Additionally, some of these programs could be initiated by community-based groups with targeted City support.

Launch Parties for New Bikeways and Trails (Promotion)

The recommendation to host Launch Parties for New Bikeways should be implemented in coordination with bikeway implementation projects. It is a low-cost strategy that publicizes new facilities and builds public awareness of bicycling. As a low-cost/high-benefit program, it should become part of the City's standard bikeway implementation procedure.

Coordinate Enforcement Actions (Education & Enforcement)

Enforcement actions can include motor vehicle speed enforcement, speed reader board deployment, bicycle light enforcement, trail crossing enforcement, and other actions.

Speeding vehicles endanger cyclists and discourage cycling. Targeted speed enforcement activities can address both of these issues. Law enforcement agencies can enforce speed limits on designated bikeways, near schools, and in response to bicyclist complaints. These campaigns are ideal for a Safe Routes to School Program. A speed reader board request program will deploy speed reader boards at the request of neighborhood associations and schools. The boards should be mounted temporarily (e.g. for two weeks) and then be moved to another location to keep motorists from becoming inured to the speed reader board effect.

A bike light enforcement program can issue "fix-it" tickets or warnings to bicyclists without lights and distribute safety brochures. The actual installation of free lights on the spot is a common alternative where everybody wins. The City should continue and consider expanding its bike light giveaway program.

The 2012 League of American Bicyclists (LAB) Report for

Albuquerque listed this as a key measure to take to improve cycling: "Ask police officers to target both motorist and cyclist infractions to ensure that laws are being followed by all road users. There seems to be a particular problem with enforcing the law that prohibits parking in bike lanes and drunk driving. Ensure that bicycle/car crashes are investigated thoroughly and that citations are given fairly."

For enforcement, all efforts will need to be coordinated with the Albuquerque Police Department (APD). The City should enter into discussions with the APD and seek to jointly agree to proceed with Law Enforcement Education trainings and Community Enforcement Actions (such as targeted speed enforcement near schools, speed reader board deployment, bicycle light giveaways, etc.). Several APD officers have already worked with GABAC and the City on bicycle and trails enforcement issues, so it is suggested that the City initiate contact through these officers.

Launch a Unified Share the Road Campaign (Awareness)

A marketing campaign that highlights bicyclists' ~~safety~~ right to coexist in the roadway is an important part of creating awareness of bicycling. This type of campaign is an effective way to reach the general public and reinforce other education and outreach messages. The City should create a unified ~~safety~~ bicycle awareness campaign building on existing work by BikeABQ and the BSE Program, placing ~~safety~~ bicycle awareness messages near high-traffic corridors (e.g., on billboards, in bus shelters, and in print publications).

A well-produced ~~safety~~ share the road campaign can be memorable and effective. One stellar example is the Sonoma County Transit "You've got a friend who bikes!" campaign. It combines compelling ads with an easy to- use website focused at motorists and bicyclists. This type of campaign is particularly effective when kicked off in conjunction with Bike to Work Day in May or back to school in the fall.

A media partner should be identified who could donate ad space/time and a steering committee formed to develop messages and a campaign strategy. A professional graphic design and/or marketing firm would elevate the effectiveness of the campaign.

Launch a Share the Trail Campaign (Awareness)

Conflicts between trail users can be a major issue on popular, well-used trail systems like the Bosque Trail. Some communities have launched successful "share the trail" events to help educate users about ~~safety and~~ trail courtesy. Share the Trail campaigns can be run by agencies, nonprofits, or any user group (equestrian, hikers, etc.). These programs educate users about expected behavior and how to limit conflicts. Volunteers often give out brochures and engage with users in a non-confrontational way. Volunteers can also report back to trail agencies about trail damage, erosion, or vandalism. Media outreach should be included as well. Common strategies include a bicycle bell giveaway, handing out maps and information, posting signs, tabling, and 'stings' that reward good behavior.

Apply to Become a Silver-Level Bicycle Friendly Community (Promotion)

The League of American Bicyclist/Bicycle Friendly Community Program (BFC) provides incentives, hands-on assistance and awards recognizing communities that actively support bicycling. A Bicycle Friendly Community welcomes cyclists by providing ~~safe~~ a proactive accommodation for cycling and encouraging people to bike for transportation and recreation.

The City's Engineering Group should prepare and submit an application for this award, with community input and assistance from local advocacy groups. The application is an audit of the five E's: Engineering,

education, encouragement, enforcement, and evaluation efforts in the City. The City should work with local advocacy groups to improve its application in the hopes of being awarded the silver level recognition. There are two application deadlines per year: one in February and the other in July.

Family-Oriented Bicycling and Trail Use Programs (Promotion, Outreach)

Family bicycling/trail programs help parents figure out how to ~~safely~~ transport children by bicycle and help children learn bicycling skills. The format can vary. Some events are panel discussions or workshops; others are open-house style events (e.g. at a park or on a trail) or activities at larger local events, such as the New Mexico State Fair.

Family activities may include:

- **Training** for children on how to ride a bicycle without training wheels
- **Bicycle skills~~/safety~~ course** for children (e.g. rodeo)
- **Information** about options to transport children (e.g. trailers, cargo bicycles, child seats, family tandems) and the opportunity to test ride these devices
- **Group ride or parade** (possibly with bicycle decorating station)
- **Bicycle safety check** (ABC's – air, breaks, chain/cranks operation check)
- Basic bike **maintenance course**
- Distribution of bicycling **maps & brochures**

Several family-oriented outreach programs are recommended, including a Summer Streets Car-Free Street Event, a Bike to Parks Program, and a Mountain Biking Program. These all should be seen as medium-priority actions and the City should select a program to focus on first. A *Share the Trail Campaign* is not a first-tier priority but may be implemented sooner if a community group like BikeABQ were willing to take primary responsibility for it.

Summer Car-Free Street Events (Encouragement)

These programs have many names: Summer Streets, Sunday Parkways, Ciclovias, or Sunday Streets. Summer Streets are periodic street closures (usually on Sundays) that create a temporary park that is open to the public for walking, bicycling, dancing, hula hooping, roller skating, etc. They have been very successful internationally and are rapidly becoming popular in the United States. They promote health by creating ~~a safe and~~ an attractive space for physical activity and social contact and are cost-effective compared to building new parks for the same purpose. These can be weekly or onetime events and are generally very popular and well-attended. Summer Streets events also often included guided rides and walks with themes, such as walks for seniors, women's or family rides, or bike rides with the Mayor/City Council.

In September of 2014, the first "ABQ CiQlovía" event was held. The event was generated largely through volunteer efforts, which led to support by MRCOG, City Council, and a variety of other local organizations. It was a hugely successful event that was strategically combined with the existing Carnuel

Road Parade and Fiesta. Together, the parade and ABQ CiQlovia attracted over 4,700 people who walked, biked, and played in the streets of downtown Albuquerque. ABQ CiQlovía integrated a demonstration buffered bicycle lane, and a demonstration of intersection improvements was chalked at the crossing of the 14th Street Bike Boulevard and Lomas Blvd. The City should strive to support and encourage future CiQlovia events.

Bike to Parks Program (Promotion)

Encouraging bicycling on trails and to parks is a great way to increase community health, decrease motor vehicle congestion and parking issues at parks, and maximize the use of public resources. A "bike to parks" program could distribute information about how and why to bike to parks. Elements may include:

- Distributing route information through maps, brochures, and online outreach
- Guided rides on trails and to parks
- Information kiosks
- Improved bicycle parking at trailheads and parks
- Outreach to existing groups (e.g., BikeABQ, senior and youth groups, schools/SRTS, etc.)

Mountain Biking Program (Encouragement)

A program to encourage mountain biking for adults and/or children can include ~~safety~~ hazard identification and avoidance education, skills training, group rides, and events. For example, the program can host introductory clinics to teach mountain biking skills and techniques.

Temporary riding courses can be set up at events, such as a Summer Streets car-free event, or a permanent course can be built. Class-based courses could also be offered. The Share the Trail program in Marin County, CA hosts workshops and group rides and provides safety and way-finding information to mountain bikers.

Provide Driver Education Related to Bicycling (Education)

Improving driver awareness of bicyclists helps to make a ~~safer and~~ more comfortable and less hazardous road environment for bicycling. Outreach through Drivers Ed classes is a good way to reach beginning drivers, while a diversion class can be offered to first-time offender violations that endanger bicyclists.

A Driver Diversion Class can be aimed at motorists and bicyclists. In lieu of a citation and/or fine, individuals can take a one-time, free or inexpensive class. In Marin County, interested citizens can take the class even if they did not receive a ticket. This program is a good way to educate road users about bicycle rights and responsibilities, and it can also increase public acceptance of enforcement actions.

Developing a Driver Diversion Class will be a longer-term effort, as it will require coordination with many community partners. The Diversion Class will require the support and participation of local courts, and working with lawyers, traffic ~~safety~~ professionals and educators to prepare the curriculum will help the program launch on a firm footing. This program may need start-up funding to develop the

course, but it should be self-sustaining on a long-term basis as the fee for participation can be set to cover the costs of the program.

Perform Annual Bicycle and Trail Counts (Evaluation & Data Collection)

Many jurisdictions, including the City of Albuquerque, do not perform regular bicycle or trail counts. As a result, they do not have a mechanism for tracking bicycle or trail use trends over time, or for evaluating the impact of projects, policies, and programs.

The City should conduct and/or coordinate annual counts of bicyclists and trail users according to national practices. The National Bicycle and Pedestrian Documentation Project has developed a recommended methodology, survey, count, and reporting form, and this approach may be modified to serve the needs and interests of individual jurisdictions.

The City should take the lead in standardizing a regional approach to counts and surveys. City staff may perform the counts themselves or assist local groups or volunteers in conducting the counts. The City of Albuquerque should also handle tracking, analysis, and reporting. The *Bikeways & Trails Facility Plan* established baseline counts at approximately 40 locations for morning and afternoon peak times. The locations of these initial counts should be considered for annual counts, see **Appendix D.1.**

Additionally, Bernalillo County and MRCOG have recently installed trail counter locations at 7 and 13 locations, respectively. These permanent counters should be used to gather user count data on an on-going basis. The City should coordinate with these agencies to use these data.

Bicycle Rack Program (Promotion)

The City should develop and implement a Bicycle Rack Program, which, similar to the Bicycle Locker Program, distributes racks across the city by request. By working with interested land owners to supplement the existing supply of bicycle parking, the City would effectively increase both the quantity and quality of bicycle parking throughout Albuquerque. The City can use preferred rack designs and ensure proper rack placement and the different types of bicycle racks - as rack types vary in their functionality - following the bike parking guidelines laid out in existing code or in **Chapter 7, Design Manual**. The program should provide assistance in the location, design and funding of bicycle racks to stimulate retrofitting short-term bicycle parking in the existing system.

This program should prioritize placement of enhanced bicycle facilities at key transit exchanges, such as the Alvarado Transit Center, if demand analysis indicates adequate potential for facility use.

Promote Increased Awareness of End-of-Trip Facilities (Promotion)

The City could raise awareness of the benefits of short- and long-term bicycle parking and end-of-trip facilities to developers, owners and managers of privately-owned commercial properties. The 2010 report, *Bike Corrals: Local Business Impacts, Benefits and Attitudes*, found widespread support for bike corrals from local businesses. "The Employer Guide to Bicycle Commuting: Establishing a Bike-Friendly Workplace for your Baltimore Region Employees" is a good example of information that the City could

make available to employers interested in encouraging cycling to work. The document compares the initial cost of 12 automobile parking spaces ($40,000 to $100,000) to the cost of 12 bike rack spaces and one automobile space ($4,600 to $9,600). This program should also provide guidance on the design and placement of these facilities.

Provide Incentives for End-of-Trip Facilities (Encouragement)

A number of incentives can be used to **encourage improved bicycle parking** and end-of-trip facilities. These include:

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

Bike Share Programs

A bicycle sharing system is a service in which bicycles are rented to individuals at unattended stations using electronic vending on a short term basis. Bike share schemes allow people to make short distance trips by borrowing a bike at a kiosk in one location and returning it to a kiosk in another location. A proposed system for Albuquerque would first be implemented in higher density, pedestrian-oriented areas with large employment and tourist bases such as Old Town, Downtown, UNM, and Nob Hill. Each kiosk would provide approximately 12 bikes. Approximately 25 kiosk stations would be installed at the onset. Alternately, there are bike share programs that rely on 'smart bikes' instead of kiosk systems. The City, County, and UNM would fund the capital costs to install the first kiosks or smart bike infrastructure. The program could be operated by either local government or non-profit groups, which would be responsible for maintaining the kiosks using revenue collected at them. The bike share system may be expanded over time to other areas of the city by public and private entities as demand intensifies.

Other Trends in Bicycle & Trail Planning

The City Bicycle and Trail Coordinator(s) should stay abreast of current trends and the state of the practice for encouraging and promoting bicycle and trail use. Some of the current concepts that could be considered include:

- ~~Bike Share Programs~~
- Bicycle Friendly Business Districts and other zone code amendments to support bicycle culture
- Explore regulation of electric cycles and electric assistance cycles. Electric bikes and trikes may become increasingly important for our aging citizen who may need this capability to continue to

enjoy cycling. They also provide a transportation capability for citizen who can no longer drive a motor vehicle.

- Explore development of a water trail in the Albuquerque reach of the Rio Grande and where feasible and considering public security develop/redevelop public infrastructure to support it. There are many groups nationally pursuing this type of initiative. Adoption of such a project can release state boat safety money and federal scenic river money and it is consistent with the Bosque Action Plan.
- Smart Trips - This is a program that targets neighborhoods to encourage people to walk, bicycle and take the bus. It also involves assessment of the impact of this intervention. https://www.portlandoregon.gov/transportation/43801

As staff time, funding, and local priorities dictate, the bicycle and trail coordinator(s) should consider the local applications of these national trends.

CHAPTER 6: IMPLEMENTATION STRATEGIES

Achieving the goals of the *Bikeways & Trails Facility Plan* requires the coordination of staff time with available funding and public input. While the City of Albuquerque can directly implement infrastructure investments, implementation of education, outreach, enforcement, and evaluation programs will necessarily involve numerous community partners.

This implementation plan is an important component of the overall planning effort. It helps ensure a structured approach to project development that involves the bicycling community, the general public, elected officials, city staff, partner organizations, and funding agencies. Additionally, the implementation plan serves as a measure of Albuquerque's progress on achieving these goals through the completion of particular projects, education, encouragement, and measurement with each passing year. As a result, implementation should be seen as an ongoing process rather than a finite task. This chapter provides guidance on strategies to implement recommended projects and programs.

A. Bikeway & Trail Facility Development Approach

1. Administrative Organization & Coordination

This plan seeks to create linkages between the Planning Department, Parks & Recreation (P&R) and the Department of Municipal Development (DMD) regarding planning of future projects and programming funding for facility improvements and projects. This will happen by communication and coordination about the design of trails and on-street bikeways. Bikeway and trails activities will also need to be coordinated with other agencies. The interdepartmental and cross-agency coordination would ideally take place at key milestones during the planning, design, and implementation of projects and programs.

Ideally coordination would take place to:

- Coordinate funding requests
- Annually update the Map and proposed projects list
- Adhere to Design Guidelines
- Train the Technical Review Committee
- Organize trainings
- Conduct interagency meeting and bikeways issues
- Update this Plan (at ~~5 or 10~~ 4 year intervals)

One of the issues for the bicycle and trail network in Albuquerque is that responsibilities for the system are divided among various departments, primarily P&R and DMD, but also the Planning Department, City Council and Cultural Services, requiring significant and on-going coordination and cooperation. Other communities have the same dynamic.

The Planning Team performed a comparative review of other jurisdictions' administrative organization and operations for their bicycle and trails programs. Looking to other successful communities can inform future organizational and/or operational restructuring in Albuquerque. The main finding of this review is that all of the communities surveyed also spread the responsibility for planning, design, construction, and maintenance among Public Works, Parks & Recreation, County Public Works and/or Parks & Recreation, and Regional Council of Governments. Our current organization of responsibilities is

generally consistent with other communities. These findings support this Plan's recommendations to focus on consistent and ongoing coordination among all the key departments and agencies who engage in bikeways and trails work.

A final thing to note is that both Minneapolis and Nashville/Davidson County have regionally focused boards or commissions within their Parks & Recreation Departments that address the recreational and experiential component of trails, along with other park and recreational topics.

Administrative Policies, Objectives, and Strategies

~~Following are proposed policies, objectives, and strategies to outline how City Departments can work together more efficiently for the benefit of trail users and cyclists. They provide an approach to implement Goal 7 of the *Bikeways & Trails Facility Plan*.~~

~~**Streamline administrative practices and coordination (Goal 7):**~~

~~1. **Policy**: Organize and coordinate implementation of this Plan among City Departments and other agencies to produce well-designed facilities and a connected network of trails and bikeways that are safe comfortable and enjoyable for the public to use.~~

This section outlines a more specific approach to implement the *Bikeways & Trails Facility Plan* Goal 7, Streamline administrative practices and coordination, and specifically Policy 7.c: "Organize and coordinate implementation of this Plan among City Departments and other agencies to produce well-designed facilities and a connected network of trails and bikeways that are comfortable and enjoyable for the public to use."

Objective 1: Provide full-time staff positions dedicated to trails and bikeways with appropriate office budgets to promote bicycling and trail use within Albuquerque.

Objective 2 (Planning): Create linkages between Planning Department, Parks & Recreation, and DMD regarding planning of future projects and programming funding for facility improvements and projects.

1. ~~**Strategy:**~~ DMD and Parks & Recreation, with assistance from the Planning Department, will coordinate requests for trails and bikeways funding. DMD will assist Planning and Parks & Recreation in the federal application process, and the three departments will coordinate representation at MRCOG.
2. ~~**Strategy:**~~ The Planning Department, in coordination with DMD and Parks & Recreation, will take the lead on developing funding mechanisms and implementing the 50-Mile Activity Loop.
3. ~~**Strategy:**~~ DMD and P&R, with assistance from the Planning Department will maintain an accurate list of major bikeway and trail projects currently programmed, to be updated on a biannual basis reflecting the status of programming, funding, design, and construction. This list will be the basis of the discussion and outcome of the two preceding strategies.
4. ~~**Strategy:**~~ DMD and Parks & Recreation, with assistance from the Planning Department, will conduct an annual update of the existing and proposed facilities map.

Objective 3 (Design): Foster linkages among critical departments within the City (primarily Parks & Recreation, DMD, and Planning) to communicate and coordinate activities related to design of trails and on-street bikeways.

1. ~~**Strategy:**~~ Adhere to the Design Guidelines adopted as part of this Plan when implementing projects unless strict adherence is not feasible. Any deviation must be documented by the project manager, including a rationale for the deviation.

2. ~~Strategy:~~ Create a ~~Technical Review~~ Staff Coordination Committee (~~TRC~~SCC) to include a few key staff members (P&R, DMD, and Planning Department) with expertise in design of trail and bike facilities. ~~TRC~~ SCC would review major projects on a project-by-project basis, and will be particularly focused on the project scoping and pre-design phases. This review would be in addition to and in anticipation of the Design Review Committee (DRC), which reviews and approves construction plans to ensure compliance with the Design Standards. Other experts would be included on a case-by case basis as necessary, e.g., ADA specialist, Traffic Engineer, Park Management, AMAFCA, etc. Where there are potentially difficult design issues, a pre-design meeting of the ~~TRC~~ SCC would be appropriate and input from Citizen Advisory Groups will be sought. ~~TRC~~SCC's recommendations will be documented by the Project Manager.
3. ~~Strategy:~~ Parks & Recreation and DMD will jointly organize periodic trainings for personnel, rotating among topic areas. Trainings will be kept to a manageable size but provide space for representation from citizen advisory groups. Coordination with MRCOG regarding topic areas is essential. Potential topics include:
    a. Multi-use trail design issues and innovations: for engineers, landscape architects, and others involved in trail design, including both in-house and non-City professionals.
    b. On-street bikeway design, including intersections, and techniques for trail crossings of arterials: for traffic ~~safety~~ personnel, engineers, and others involved in bikeway design.
    c. Maintenance practices, issues and techniques: maintenance staff.

Objective 4: Coordinate bikeway and trails activities with other agencies.

4. ~~Strategy:~~ DMD and Parks & Recreation (with assistance from Planning Department) will conduct a biennial (every 2 years) meeting among agencies involved in planning and implementation issues regarding bikeways and trails (construction, right of way, maintenance, funding, education, etc.) to include at least: the City (DMD, P&R, Planning Department, Open Space Division, Park Management, Bike Safety Program) NMDOT, Bernalillo County, AMAFCA, MRCOG, MRGCD, Rio Rancho, and representatives of Citizens Advisory Groups and other advocacy groups. Topics will include: presentation of status reports regarding funding and programming, new facilities, new standards, and how to resolve recurring issues. A summary of the meeting and outcomes will be transmitted to participants and the Mayor and City Council and be posted on the City's website.
5. ~~Strategy:~~ DMD and Parks & Recreation in partnership with the Planning Department will update this Plan every ~~10 years~~ 4 years.

Objective 5: The City (DMD, Parks & Recreation, and Planning) will utilize the input of Citizen Advisory Groups in an effective manner.

2. Bicycle & Trail Coordinator

Albuquerque currently has **full-time Trail ~~Planner~~ Coordinator** and a **grant-funded Bicycle ~~Encouragement Planner~~Coordinator** positions. There are also a number of Community Recreation Coordinators in Parks & Recreation whose work includes bicycle education programs. The 1993 *Trails & Bikeways Facility Plan* recommended both Bicycle/Pedestrian Coordinator and Trail Coordinator positions to take on the major responsibilities of implementing the elements with the plan. Likewise, the work plan of these staff should be aligned with the Implementation Plan in order to coordinate current bicycle and trail planning efforts and to assist with implementation of the many projects and programs recommended in this Plan. **The work should be divided between the Municipal Development and**

Parks & Recreation departments, bridging the gap between bicycling and trail use as transportation and as recreation.

In addition to existing bicycle ~~safety~~ education activities, **job duties for these staff positions may include**:

- Monitor the design and construction of bikeways and trails, including those constructed in conjunction with private development projects.
- Ensure bicycle facilities identified in specific plans are designed appropriately and constructed expediently.
- Staff GABAC and GARTC meetings.
- Continue the implementation of existing programs and projects.
- Coordinate implementation of the recommended projects and programs listed in this Plan.
- Identify new projects and programs that would improve the City's environment for bicycling.
- Collect data and monitor trends in bicycle & trail use in the City.
- Coordinate evaluation of projects and programs.
- Pursue funding sources for project and program implementation.

3. Role & Structure of Advisory Committees

Albuquerque has two advisory committees related to bicycle and trails issues. Both are created by ordinance: the Greater Albuquerque Bicycling Advisory Committee (GABAC), and the Greater Albuquerque Recreational Trails Committee (GARTC). The two-committee structure allows multiple perspectives regarding the trail system. City Parks & Recreation (P&R) staffs GARTC and the Department of Municipal Development (DMD) staffs GABAC. The purpose of this section is to consider new ideas on how to structure Albuquerque's advisory committees related to bicycle and trails programs, planning, and implementation.

Issues

~~Several members in leadership positions in the committees have described Albuquerque's two-committee structure as flawed. Committee members have expressed dissatisfaction with Albuquerque's two-committee structure. Some of their criticisms include: P&R doesn't attend GABAC; DMD doesn't attend GARTC; and GARTC doesn't have bicycle riders officially represented. Members are frustrated and ask: "What is our function? Our comments are too late in the process to be useful." Staff considers the two-committee structure duplicative and recommendations from each group are sometimes conflicting. Staffing both committees is very time-consuming. Also, City staff reports that both committees are very dissatisfied and that it is hard to fill positions, for a variety of possible reasons. The point of contact with other agencies and jurisdictions is unclear and varied (sometimes through GABAC/DMD; sometimes through GARTC/P&R).~~

~~Comments from the public included these: The committees aren't listened to, there is no structure, "catch as catch can" on whether they are able to provide input at the correct point in the process; there is minimal website presence for the committees; APD, NMDOT, and other agencies need to come to GABAC; and GARTC needs to be able to provide input on design. Another major challenge both advisory groups mention frequently in their meetings is the application of the **Open Meetings Act** to their work. The requirement to conduct business and discussions in publicly advertised, open meetings~~

~~makes it challenging to accomplish work between monthly meetings. GARTC has created subcommittees to study certain issues in more detail, and then report back to the entire committee.~~

~~The Working Group reviewed the issues and draft concepts related to the structure of the committees with GABAC and GARTC in May and June, 2014. Those concepts are described below. Although there is a general sense that the current two committee structure is not working very well, both committees agreed the issue needs more thought. There is generally a sense that one combined committee bringing together citizens, staff and guest presenters might be more efficient, but there are concerns that the voices of pedestrians, ADA advocates and equestrian issues might be overwhelmed and left out of the discussion. There is broad support for reaching out to Bernalillo County to join a combined committee since the trails and bikeways system is a regional network. Following is an overview of how other communities address citizen advisory groups.~~Committee members have expressed frustration with Albuquerque's two-committee structure. Some if their criticisms include: P&R doesn't attend GABAC and DMD doesn't attend GARTC. GARTC doesn't include representation of the broad cycling community and GABAC is not representative of the wide range of cyclists' types, abilities and confidence levels. Responsibilities between the Committees are unclear and they believe their comments on projects are too late in the process to be useful. Staff considers the two-committee structure duplicative (the same presentations have to go to two committees) and that the committees are very time-consuming given their departmental ~~resoucesresources~~. Also, City staff reports that both committees are dissatisfied and that it is hard to fill positions, possibly for a variety of reasons. The point of contact with other agencies and jurisdictions is unclear and varied (sometimes through GABAC/DMD; sometimes through GARTC/P&R).

GABAC/GARTC/Public Input

Several alternatives (status quo, a Bicycle Pedestrian Advisory Committee, and a City/County or Regional combined advisory committee) were presented for feedback from GABAC and GARTC and shared at public meetings on the BTFP in July 2014. These are some of the major themes that were voiced:

1. Many committee members understand the advantages of consolidating into one committee and there is general agreement the current system is not working very well. Major advantages of combining would be that there is a central place for discussing projects of common interest and limited staff resources would be used more effectively;
2. There is strong interest in creating a regional committee (as opposed to Albuquerque-only) since the bikeways and trail network is a regional system. This might either be City/County, or be more broadly regional, housed at MRCOG;
3. There are concerns that by combining all interest groups into one committee, the minority points of view will be lost;
4. There is a concern that recreational interests will be overwhelmed by the commuter/high-speed bicycle interests;
5. There is an acknowledgement that currently neither committee is truly working on pedestrian issues (e.g., sidewalks and creating a "walkable community);
6. There is a widely shared interest in having meaningful staff participation from various critical agencies in addition to the regular participation of DMD, P&R, MRCOG. These agencies could

include APD, NMDOT, Planning Department, Open Space Division, City Council, Risk Management, Bernalillo County, and others.

~~Overview of Other Communities' Bike/Pedestrian/Trails Programs~~

~~Tucson/Pima County~~

~~Tucson and Pima County transportation departments share staffing duties for the Tucson-Pima County Bicycle Advisory Committee (TPCBAC). The TPCBAC is a huge committee, with representatives from local governments and agencies as well as representation from the Wards (equivalent to Council Districts), and representatives from unincorporated Pima County (which has a number of representatives). Most of the governmental reps are *ex-officio* (i.e., non-voting).~~

~~The TPCBAC meets once per month, but the real work occurs in the Executive Committee (5 members). The Executive Committee is made up of chair of each of 5 subcommittees: Facilities; Downtown and University; Law Enforcement, Education and Outreach; and Mountain bike/BMX. The Executive Committee and the full TPCBAC each meet once a month. Some of the subcommittee meetings are less frequent. From reviewing some of the agendas and minutes, it appears the TPCBAC deals with everything – ranging from bike boulevards to safety education to forest access. Tucson established a pedestrian advisory committee in 2013 due to a number of fatalities, and the bike/ped coordinator is concerned about how staffing will be handled.~~

~~The Pima Association of Governments (PAG) functions like MRCOG in regard to bicycle/ pedestrian issues: a count program, analysis of crash data, etc. There is a "Bike/Pedestrian subcommittee" at PAG that advocates for trails. It includes a variety of types of users, including an equestrian representative.~~

~~City of Minneapolis~~

~~The Bike/Pedestrian program is located in the Public Works Department. Two committees advise the Department: a Bicycle Advisory Committee (BAC) and a Pedestrian Advisory Committee (PAC). Staff members serve on the BAC. There are 13 citizen members representing the Wards, three Minneapolis Parks & Recreation Board (MPRB) members, and 12 agency and City department members (voting, except for the City Attorney). There are four staff for the Bike/Ped program. They coordinate closely with MPRB. MPRB has a completely separate staff, including trails specialists.~~

~~There are lots of other bike/ped/trails people in region (Hennepin County, etc.) and likely numerous other advisory groups. There is not really a group that meets regularly and discusses projects (funding and priorities). It happens on a project by project basis. There is a Met Council that includes the 7 counties (like MRCOG) and deals with federal funding allocations. Projects are implemented by City, County, and MPRB. The MPRB forms ad hoc committees for new or major renovation capital projects consisting of citizens, key neighborhood reps, interest groups, etc. There are also task forces that deal with discrete proposals.~~

~~Moreno Valley, CA~~

~~Moreno Valley has a Recreational Trails Board (RTB) that considers matters pertaining to single-use and multi-use recreational trails, including bicycle, jogging and equestrian trails within or~~

~~affecting the City. The nine member Board meets every other month. They are based in Parks and Community Services. Membership is by application, not based on type of trail user or council district. People are asked to provide their area of interest/goals, and the town council decides. According to staff, it has worked well. It seems the RTB is mainly trying to get people to adopt trails, and it also sponsors a regular, "Hike to the Top" foothills hike. They have a map of multi-use trails that are decomposed granite. The Public Works department consults with this committee on the design of asphalt trails.~~

~~League of American Bicyclists Recommendations~~

~~Regarding the particular issue of how other communities approach the structure of advisory committees, there is a recent publication by the League of American Bicyclists regarding Bicycle Pedestrian Advisory Committees that provides a good overview of the issues:~~

~~http://www.advocacyadvance.org/site_images/content/bpac_best_practices(web).pdf~~

~~Pertinent to Albuquerque's situation, this article suggests:~~

~~the transportation agency be clear about the staff's role as liaison; the staff is responsible to the transportation agency, not the BPAC;~~

~~separating bike and pedestrians into different committees, if possible – it is difficult to find a balance otherwise~~

~~many issues noted by our Working Group: The committee should represent diversity of community (with targeted recruitment, particularly of females and minorities), have a very strong application process, conduct interviews, have term limits, make very clear the expectations for participation, provide orientation to new members, mentor new members, define the chair's responsibilities, and develop an annual work plan.~~

Advisory Committee Options for Albuquerque

The City explored three different approaches to addressing some of the issues and concerns raised above:

1. **Status quo:** Continue two committees – GABAC/GARTC – staffed by DMD/P&R. Potential improvements to the process: 1) Clarify the role of the committees and integrate the advisory committee role in a more standardized manner into the planning and design process; 2) identify outside agency representatives as regular liaisons; 3) Improve recruitment and selection process for new members, advertise vacancies, develop a nomination process or other improved process for filling positions, conduct interviews, assure diversity and broad representation, have term limits and fill vacant positions quickly; 4) Provide trainings for advisory committees, provide packets with orientation materials for new members; 5) Improve meeting effectiveness, abide by rules of conduct for public meetings, utilize subcommittees to address particular areas of interest; 6) require staff from both Departments attend others' meetings to enhance coordination of activities; and 7) Provide more staff assistance in developing coherent drafts that articulate committee comments and positions on the issues they consider.
2. **Bicycle and Trails Advisory Committee:** A combined group of about 12 members balanced between cyclists and other trail users (equestrians, people with disabilities, pedestrians, hikers,

runners, skaters). Cyclists could be broken down into types to represent riders with different concerns: e.g., young, active elderly, commuter, off road, tourer, and possibly a bike shop business owner. Geographic, gender and ethnic diversity would be sought. This committee would be a Big Tent and consider and provide advice on the broad range of issues affecting implementation of the bikeways and trails network as outlined in the BTFP. Several areas of distinctly different interests might be handled by sub-committees that meet less frequently than every month. Two obvious subcommittees might be: 1) on-street cycling staffed by DMD or another transportation engineering agency (to cover the design of bike lanes and routes, connectivity, etc.) and; 2) unpaved trails staffed by P&R or Open Space Division (including, perhaps, being charged with developing a plan specific to these types of trails and trail users). Reports from these committees could be provided to the full group in summary form. Ideally, this would be a regional committee and the major topics that affect the urban bikeway and trails network would be addressed by the full committee. The City of Albuquerque is discussing potential for cooperation with MRCOG and Bernalillo County.

3. **Albuquerque or Regional or City/County Bike and Pedestrian Advisory Committee:** Create one committee with representation by geographic regions which reflects the diversity of the community – age, gender, and type of travel. Consider: inclusion of representation from major established advocacy groups and ex officio agency representatives. This is the structure most communities utilize in some form. For general guidance, see the Advocacy Advance publication: Best Practices for Bicycle and Pedestrian Advisory Committees at: http://www.advocacyadvance.org/site_images/content/bpac_best_practices(web).pdf

Considerations regarding moving to single committee structure

In Albuquerque, this structure could leave out some users of the unpaved trail network, such as equestrians and hikers. There have been several suggestions about how to address this issue: create a standing subcommittee of the Open Space Advisory Board (or include equestrian representation on that Board and the P&R Advisory Board) and establish a process for regular communications with related land management agencies such as the MRGCD, US Forest Service, BernCo, etc.

Pedestrian issues: The BTFP recognizes the need for Albuquerque to develop a Pedestrian Plan. The issues specific to sidewalk inventory upgrades, safety and general walkability of the City are not currently being addressed by either of the existing committees. The City should make an effort to formalize its approach to obtaining citizen input on pedestrian issues. Several GARTC members suggested that it's not ideal to combine a pedestrian and bike committee. Many cities have a separate Pedestrian Committee and this approach should be considered in Albuquerque's future planning efforts – perhaps incorporated into the Complete Streets initiative.

Staffing: If Albuquerque moves to a single committee structure, the question arises as to how to staff the committee. Here are some options for input from the advisory committees. Any of these options will need to be reviewed by the City and other affected agencies:

1. **Planning Department.** If staffed by the Planning Department, participation and support of DMD and P&R would be essential. Responsibility for staffing the subcommittees (on-street cycling and unpaved trails subcommittees respectively) might be one way to insure that this occurs.

2. **DMD.** By way of example, in Minneapolis, the transportation department staffs the bicycle and pedestrian committees. The Parks Board, which is an independent organization which builds and maintains most of the extensive trail system, has 3 board members represented on the bike committee.
3. **Parks & Recreation.** The Bike Safety and Education program, trail maintenance, and many of the trail design functions are currently housed in P&R. DMD would need to commit to a strong involvement and presence.
4. **Joint City/County.** Would require exploration with the County to determine appropriate staffing. This is the Tucson-Pima County structure.
5. **MRCOG.** Would require coordination with MRCOG to assess feasibility and how to structure.

The Working Group will continue to consult with GABAC and GARTC and obtain input from the public and other agencies regarding the structure of the Advisory Groups.

4. Policies for Bikeway & Trail Development

The following objectives and policies were developed as part of the 2000 Comprehensive On-Street Bicycle Plan. They were intended to be completed by 2020, and still remain applicable to guide bikeway & trail development in the City. This section outlines a more specific approach to implement the *Bikeways & Trails Facility Plan* Goal 1 & 2: "Improve the cycling and pedestrian experience." and "Develop a continuous, interconnected, and comprehensive system of bikeways and trails."

Objective 1: Develop and Promote Albuquerque as a Bicycle-Friendly Community

1. Achieve the League of American Bicyclists' Bicycle Friendly Communities award designation and Bicycling Magazine's Top Ten Best Cities for Cycling award by institutionalizing bicycling as a legitimate form of transportation in all planning and programming efforts and public awareness campaigns.

   Measurement: Report the results of the survey and identify solutions to rectify deficiencies reported by the award. Review the LAB recommendations annually to determine among the most appropriate and necessary actions to implement this plan.
2. Provide full-time staff positions dedicated to bicycle transportation and appropriate office budgets to promote bicycling within Albuquerque.
3. Support the establishment of designated personnel and appropriate office budgets in other Albuquerque Metropolitan Planning Area jurisdictions to address bicycling concerns.
4. Maintain the dedicated local funding source for construction and maintenance of bikeways and establish specific budget line items in the Albuquerque budget to support the provision of on-street and off-street bicycle networks and programs.
5. Institutionalize bicycling as a legitimate form of transportation through bicycle-friendly roadway design practices and through consistent, routine training of City of Albuquerque, MRCOG, and other jurisdiction staff. Maintain bicycle transportation planning and design. Work with the University of New Mexico and New Mexico State University to develop curricula for bicycle-friendly transportation system design.
6. Support the efforts of the Greater Albuquerque Bicycling Advisory Committee (GABAC) and the Greater Albuquerque Recreational Trails Committee (GARTC) to promote bicycling and improve

bicycle ~~safety~~ hazard and injury reduction through effective responses to GABAC and GARTC concerns. Provide staff liaisons from the City, Bernalillo and Sandoval Counties, and other area departments of transportation to attend GABAC and GARTC meetings and to work on GABAC and GARTC issues on a routine basis.

Objective 2: Develop and Maintain a Continuous, Interconnected and Balanced Bikeway and Multi-Use Trail Network

1. Develop an interconnected network of bikeways on 1) local streets (bike routes and Bicycle Boulevards), 2) arterial streets (bike lanes), 3) along limited access arterials (separated multi-use trails), and 4) along arroyos, drains or utility easements. Encourage developers of walled subdivisions to provide connectivity between their developments and adjacent bikeways.
2. Link existing and proposed trails to form a connected network.
3. Improve bicycle connections between schools (elementary through college) and neighborhoods to encourage bicycling by children, teenagers and young adults.
4. Provide bicycle facilities at half-mile spacing intervals on average throughout the city. Increase on-street bikeway mileage from the current 365 to 500 by the year 2020 and 650 by the year 2030. Increase multi-use trail mileage from the current 175 to 200 in the year 2020 and 240 in the year 2030.

   Measurement: Prepare ~~a biennial~~ an annual report of the bicycle facilities that have been constructed.
5. Give increased priority to achieving connectivity of the bikeway network when planning and programming all roadway and bikeway improvements as appropriate.
6. Plan, program, and implement special provisions for crossings of high-volume, multi-lane streets. Review successful treatments utilized within other communities for difficult crossings.
7. Concentrate bicycle improvements for a five-mile radius ("hub and spoke") around major employment centers, schools, parks, and other activity centers.
8. Coordinate and develop interconnected bikeway improvements and standards between the City and adjacent jurisdictions, including Bernalillo County, Sandoval County, Los Ranchos, Rio Rancho, Corrales, and KAFB.
9. Monitor the implementation of elements within the *Bikeways and Trails* ~~*Master*~~ *Facility Plan* and update the Plan at ~~five~~ four year intervals.

Objective 3: Use Bicycle and Pedestrian Friendly Standards and Procedures for On-Street Bicycle Facilities and Multi-Use Trails

1. Restripe ~~all~~ collector and arterial roadways (where ~~practical~~designated on the Bikeways Map and per NACTO and AASHTO guidelines) to provide bike lanes, or minimum outside lane width of 14 feet.
2. Provide a striped bicycle lane or shoulder as described in chapter 23, section 5, subsection N of the City's Development Process Manual, in conjunction with NACTO and AASHTO bicycle facility design guidelines, on all new, rehabilitated or reconstructed roadways, as indicated in the ~~Master~~ Facility Plan.

3. Provide striped lanes/shoulders of at least five feet wide, from face of curb where curb and gutter exist, on all new or reconstructed bridges, underpasses, and overpasses, where not otherwise constrained or to the extent feasible.
4. Selectively plan and design for bicycle travel with all intersection improvements - include 5-foot bike lanes or minimum curb lane widths of 15 feet through intersections.
5. Include a through phase for all traffic signal timing plans at signalized intersections on roadways having designated bicycle networks.
6. Modify existing or install new traffic signal detection equipment (i.e., inductive loop, video detection, or pushbutton) to make all traffic signals bicyclist-responsive within need-based areas and as resources permit.
7. Implement other design considerations, per the current versions of the NACTO Urban Bikeway Design Guide, the AASHTO Guide for the Development of Bicycle Facilities, the "Design Guidelines" section of this plan and other appropriate design reference guidelines.
8. Evaluate and adjust traffic signal timing of the vehicle phase change and clearance interval to provide adequate time for bicycles at signalized intersections on designated bicycle networks.
9. On all trails, develop strategies and use design techniques on available right-of-way to minimize conflict of use.

Objective 4: Provide ~~a High Standard of~~ an Elevated Emphasis on Maintenance along Roadways & Trails

1. With On-Street Bikeway and Multi-Use Trails, improve and fully fund the street maintenance and sweeping program. Establish the highest priority for allocation of street sweeping resources to sweeping all bike routes and bike lanes in response to 311 requests and ~~at least once per month and bike routes on local streets~~ a minimum of four times a year. Multi-use trail sweeping should be performed on a regular basis and as requested.

   Measurement: Request the annual data on frequency of scheduled sweeping for the on-street bikeway and multi-use trail network, ~~along with the number and location of spot sweeping requests~~ based on 311 call volume. Establish a database to track trends and provide data that can be used refine scheduled sweeping and maintenance budget request.
2. Establish weed and vegetation control procedures to reduce the occurrence of noxious weeds (i.e., puncture vine) and plants that block sight lines or grow within two feet of trails or within bicycle facilities.
3. Effectively ~~M~~maintain street surfaces on designated bikeway and multi-use ~~trails to a high standard~~, including elimination of lip between paved surface and gutter, elimination of manhole/water valves in bike lanes and maintenance of bicycle-~~safe~~friendly railroad crossings, drain grates, and cattle guards. Avoid use of chip seal/coating wherever practicable.
4. Maintain bicycle facility pavement markings and signing. Missing or defective pavement markings and signs shall be replaced or repaired in a timely manner. Retro-reflectivity of pavement markings and signs shall be in accordance with current MUTCD requirements.
5. Maintain arterial and collector street surfaces, including those not designated as bikeways, on a routine basis to reduce hazards (e.g., potholes, debris) for bicyclists who use these facilities.

6. Establish timely responsiveness to maintenance requests from citizens through the use of the City's 311 Citizen Contact Center or website or other means for citizens to report concerns. ~~Establish an agency goal of 48 hours to address these requests.~~

   Measurement: Monitor response time for the maintenance requests and provide follow-up on the type of response. Report annually the number and type of request being made.

7. Maintain bicycle routes and lanes ~~to high standards~~ through construction projects, referring to Chapter 6, "Temporary Traffic Control," of the MUTCD ~~and maximize~~ maintaining curb lane widths (i.e., provide lane widths of 14 feet or greater) through construction projects on roadways ~~that do not have bike lanes~~ that would otherwise contain a bike lane or bike route. Where this is not feasible, provide appropriate bicycle friendly and reasonably direct detours and detour signing, per NACTO, AASHTO, and/or other City standards.
8. Encourage a bottle deposit program in order to reduce littering of roadways and bike facilities with broken glass.

Objective 5: Implement a Comprehensive Program to Increase Public Awareness of Bicycling

1. Develop and use video and audio Public Service Announcements (PSAs) and other means, such as billboards, to promote general public awareness and acceptance of bicycling and to promote bicycle ~~safety~~ education. Target use of PSAs on television/local radio stations for specific community events, especially during the annual Bike Month.
2. Provide specific line item agency funding to support public bicycling awareness programs and "Share the Road" campaigns.
3. Encourage wide-spread support and participation by bicycle shops, bicycle clubs, the GABAC, GARTC, and other bicycle interest groups in efforts to promote public awareness of bicycling.

   Measurement: Monitor membership and/or participation and growth.
4. Increase public outreach efforts, including video and audio PSAs to educate motorists on bicyclists' rights and responsibilities. Encourage the inclusion of bicycling-related questions in motor vehicle driving license tests as a means to raise awareness of bicyclists' rights and responsibilities.
5. Heighten public awareness of bicycle planning efforts and ensure on-going citizen participation and support for bikeway development. Provide periodic news releases for bicycle planning and bicycle system development and actively solicit public input.
6. Work with major employers throughout the Albuquerque to encourage commuting by bicycle among their employees and to increase motorists' awareness to share the road.

Objective 6: Educate All Bicyclists on Legal~~, Safe,~~ and Predictable Behavior

1. Develop, distribute, and update annually a bicycle map of the Albuquerque including the communities of Albuquerque, Los Ranchos, Rio Rancho, KAFB and metropolitan areas of Bernalillo County.
2. Distribute a user-friendly Bicycle Commuter Handbook, which includes commuting~~, and safety~~ tips and laws related to bicycling.
3. ~~Develop and f~~Fully support a bicycle education program in Albuquerque's elementary and secondary schools as part of current physical education requirements.

4. Encourage and support head injury awareness and helmet use through awareness of state laws, educational brochures, and programs.
5. Provide full support for the ~~Bicycle/Pedestrian Safety Education Program~~ B&PSEP staff in their work on bicycle education and in developing and overseeing a program for bicyclist education.
6. Continue development and use of video and audio PSAs, as well as short instructional ~~safety~~ videos to promote proper and legal bicyclist behavior.
7. Continue and expand Police Bicycle Patrols and dedicate a distinct percentage of their time to educational efforts on proper bicycling behavior.
8. Provide specific line item funding to support bicyclist education.

   Measurement: Report the annual budget that is used for bicyclist education.

Objective 7: Promote Trail Use and Bicycling as a Non-Polluting, Cost-Effective and Healthy Mode of Transportation and Recreation

1. Continue and expand marketing efforts to promote bicycling as an alternate mode of transportation, especially through cooperative efforts with a regional Travel Reduction/Rideshare Program. Work with businesses to provide bicycle commuting information to employers and employees and to learn how bikeways to and from their locations can be improved.
2. Provide outreach and personal travel cost information that shows how bicycle transportation can be beneficial to both employees and students.
3. Prioritize implementation of multi-use trails, which contribute key linkages to the on-street bikeway network, including interim trail improvements where needed and spot ~~safety~~ trail improvements.
4. Promote air quality benefits of bicycling through public outreach efforts to major public and private sector employers, such as the University of New Mexico (UNM), KAFB, Sandia National Laboratories, Intel, and area schools.
5. Develop and support cash incentive programs to promote bicycling, such as parking cash-out allowances (i.e., cash payments to bicyclists in lieu of employer-provided parking) for City, UNM, KAFB, and other employees who work for public or private sector employers.
6. Develop and implement bicycle parking ordinances where they do not currently exist. Monitor and fine-tune existing local bicycle parking ordinances based in part on bicyclist and business feedback and recommendations.
7. Continue and expand the interface between bikes and buses, including such features as bicycle racks on all buses and bicycle racks and lockers at park-and-ride lots. Promote bike/bus programs through ABQ Ride literature and PSAs.
8. Develop and implement specific incentive programs to encourage existing businesses and other entities to provide facilities for bicycling, such as bicycle racks, bicycle lockers, changing areas, showers, clothes lockers, and guaranteed ride home programs.
9. Develop and distribute to employers short videos that promote bicycle commuting, demonstrate bicycle commuting tips, show legal and ~~safe~~ predictable riding techniques, and promote bicycling awareness and acceptance.
10. Promote organized bicycle events and racing on city streets as a means of increasing public awareness of bicycling as a viable sport for public viewing and participation.

11. Promote the health benefits of cycling as a way of reducing stress, increasing daily physical activity, minimizing the risk of coronary heart disease, and controlling weight effectively.

Objective 8: Develop and Implement a Traffic Law Enforcement Program for Bicyclists and Motorists and Linked with Education Program Efforts

1. Update or develop materials for use by law enforcement personnel to support education and enforcement efforts.
2. Commit appropriate police time (bicycle and motor vehicle patrols) to target bicyclist and motorist enforcement efforts.
3. Develop and implement a consistent, balanced traffic law education program for law enforcement personnel for improving motorist and bicyclist compliance with traffic laws.

Objective 9: Develop and Maintain Databases Useful for Bicycle Planning, Prioritization of Bicycle Improvements and ~~Accident~~ Crash Prevention

1. Periodically conduct community-wide public opinion surveys to: 1) determine reasons why people do or do not ride bicycles; 2) develop bicycle trip patterns and purposes; and 3) gain input on bicycle projects and programs that could improve bicycling in Albuquerque.
2. Routinely conduct and update bicycle counts to estimate usage levels and to help determine progress toward achieving future bicycle mode split goals. Conduct before and after bicycle counts for roadways that are reconstructed or restriped to have bicycle lanes and for other improvements to bikeways to gauge the effect of prioritized improvements.
3. Maintain and update the bikeway and multi-use trail network inventory developed as part of the planning process. Maintain and update the bicycle ~~accident~~crash database. Use the database to identify high ~~accident~~crash locations and/or high ~~accident~~crash severity locations to help prioritize bicycle project and program improvements. Review each bicycle collision/~~accident~~crash ~~in a timely manner to identify system deficiencies and potential improvements.~~ in order to assess site conditions to determine if the incident location could be targeted for system improvement.

5. Procedures for Trail Design, Development, & Review

The Design Development and Review Process was developed by the Parks and Recreation Department and is intended to be used for public as well as private trail development.

Private trails are to be constructed to City Trails Standards even if proposed to be maintained by a private entity in the unlikely case that the City may have to maintain the trail in the future. Private trails available for public use shall be included on the Trails Map. Private trails located within gated communities and maintained by a Home Owners Association shall not be included on the Trails Map.

All trails shall be reviewed and approved by the Parks Management Division and Trails Planner prior to review and approval for construction by the Design Review Committee (DRC).

Trail System Implementation Approach

The Comprehensive Plan identified a range of "Possible Techniques" for implementation of multi-purpose network of open areas and trail corridors, which is provided in Policy II.B.1.f. The

implementation techniques relate to the planning and design of arroyo corridors and irrigation ditches and also include funding and safety measures. As the City explores new trail corridors, we should:

1. Incorporate a multiple use concept for suitable arroyos and irrigation ditches into corridor, sector, and site development plans.
2. Control development that would inhibit drainage or open space purposes of arroyos.
3. Obtain adequate right-of-way for multiple-use of designated arroyos in developing areas and coordinate design between the public and private sectors through subdivision and site development plan processes.
4. Require planning and construction of pedestrian, equestrian, and bicycle crossings where designated arroyos and ditches intersect major streets and highways as a component of transportation projects.
5. Identify trail corridors through rank three corridor and sector development plans to be dedicated by the Subdivision Ordinance. Fund trails and associated public amenities through Capital Implementation Program bond issues, and other financing methods.
6. Investigate use of ditch/acequia easements or rights-of-way for open space purposes. Coordinate planning efforts with property owners adjacent to irrigation ditch system and the Middle Rio Grande Conservancy District.
7. Work with all public agencies and the State legislature to ensure that vacated irrigation ditch rights-of-way or easements are retained as part of the Major Public Open Space network.
8. Institute ~~safety~~ barrier protection measures along irrigation ditches before inclusion in any multi-purpose network.
9. Work with the private sector to establish motorized recreational vehicle areas separate from the pedestrian, equestrian, and bicycle-oriented trail corridors and Major Public Open Space network.

Developer Requirements/Future Trail Segment Construction

~~Future proposed trails shown on the Bikeways and Trails Map and future Major and Minor Arterials and Collectors shall be built by developer at time of development.~~

Based on the latest population projections, the City can expect a significant increase in population, especially on the West side of Albuquerque. The recently released "Paseo del Norte High Capacity Transit Study Alternatives Analysis Report" dated August 2014 is proposing major changes in the way the residents of Albuquerque will travel around the City. A Bus Rapid Transit System such as the "Potential BRT Corridors" suggested in the Study could result in an increase in bicycle commuting as a way of supplementing a BRT mode for access to the Major Employment Centers as well as to Parks, Open Space, Trails, Libraries, Community Centers and other public facilities Although the Bikeways and Trails Facilities Plan will precede any adoption of a BRT program for the City, the Bikeways and Trails Plan may be updated in the near future to include bicycle commuting w/BRT and recreational access as part of a Transportation System. With more research and information, the City can develop policies that require coordination between City departments to assure access to bike facilities and trails. In the meantime, City policy remains that if a trail and/or bicycle facility is shown on the Trails Plan as proposed where a property is being developed, the development will be required to construct and maintain said facility. This policy is consistent with the 1993 Trails and Bikeways Facilities Plan policies.

As it is not possible to foresee the exact location of future development, new development within these developing areas shall be subject to the following requirements:

Future development areas without proposed roadway system shall be identified in a future study and be shown on the Bikeways and Trails map in either shading or textured as "Growth Areas." These Growth Areas are envisioned to develop within the next 10 years as the City population and land area expand – particularly on the west side and in the southwest area. It is not possible to foresee the exact location of future streets; therefore, new development within this "Growth Area" shall be subject to the following requirements:

1. The 1993 *Bikeways and Trails Facilities Plan* requires trail dedication and platted access for proposed trails shown on the Trails Map as part of the Development Review and Approval Process. This requirement shall remain.
2. Future development requests with major or minor arterials or collector streets shall include provisions for off-street trails in addition to required sidewalks within the right of way.
3. When new Development is proposed to provide a trail or trail corridor, a platted public access easement ("Neighborhood Pathway") shall be granted to the City.
4. Where a proposed future trail is shown on the map to be on or to cross the property, the trail shall be built by the Developer to City Standards and dedicated to the City for public trail use.
5. If a trail cannot be built by the Developer at the time of development review and approval, due to development phasing or other necessary delay, a trail easement for public use shall be dedicated to the City.
6. Trails shall be provided within City ~~ROW~~ right-of-way for all major arterials, minor arterials, and collectors. Major Arterials shall have minimum 10' wide trail in addition to standard sidewalk on both sides of the roadway to reduce pedestrian and bicycle crossings of the streets. Local streets shall not be required to provide a separate bicycle facility.
7. It is the City Parks and Recreation Department's Policy that if the trail is identified on the Bikeways and Trails Facilities Plan as a "proposed paved trail" it is to be developed, to city standards (as defined in chapter 7), as a trail which may be in lieu of a sidewalk. The Parks and Recreation Department must accept a trail for inclusion into the Trail System on the Trails Map. If a proposed trail is built, but not accepted by the City Parks Department due to the trail not meeting the minimum requirements as determined in the Design Manual, a trail maintenance agreement should be created to determine the owner or developer to take maintenance responsibility and should relieve the City of liability of that particular trail or trail section. If a proposed trail is not on the Plan, a sidewalk is still required per the DPM Standards for Transportation development.
8. Where trails are provided, a sidewalk may be on only one side of the street if the other side of the street is constructed with a minimum 3' wide soft surface stabilized crusher fines path adjacent the minimum 10' paved trail surface.
9. Trails designation and approval shall occur at the Development Review Board (DRB) and design shall be reviewed and approved by the Parks Management Division prior to the Design Review Committee (DRC). All paved trails are to be designed to accommodate different types of users – including cyclists (upright, recumbent, and children), pedestrians (walkers, runners, people using

wheelchairs, people with baby strollers, people walking dogs), skaters, equestrians, and people with physical challenges.

~~9.~~10. Trails should be designed to meet the current ADA standards to the maximum extent feasible. Situations that warrant exceptions to this requirement include, but are not limited to, various constraints posed by space limitations, roadway design practices, slope, and terrain. At such time as new ADA standards are adopted by the U.S. Access Board, the City shall conform to those new standards.

~~10.~~11. The City will only maintain trails and bikeways that are built within the public right-of-way.

~~11.~~12. All public and private development shall be built to the minimum design standards, as adopted in the *Bikeways & Trails Facility Plan* and/or the Development Process Manual. Facilities that cannot meet these minimum standards shall demonstrate the need for a design variance and present the request to the Advisory Group, DMD Engineering Division, and the Bike and Trail Coordinators, as appropriate. DMD Engineering Division shall make the final determination.

B. Legislative Recommendations

The State of New Mexico Code, City's Code of Ordinances, Zoning Code, and the Development Process Manual (DPM) were reviewed where they address the design and use of bicycle and trail facilities. In most cases these documents provide adequate information for developers, users, and law enforcement. However, to meet the goals set forth in this plan the following changes are recommended: Include an additional method for the hand signaling of a right-turn movement, add parking restriction in bicycle lanes and marked bicycle boxes, improve reporting of bicycle crashes by law enforcement, remove bicycle front fork size restriction, and consider redefining~~e~~ the way a bike lane width is referenced in the DPM when it is updated.

Documents to Revisit

- State of New Mexico Annotated Code
- City of Albuquerque Code of Ordinances
- City of Albuquerque Zoning Code
- Development Process Manual

These three documents have extensive sections that pertain to the design and use of bicycle and trail facilities. In most cases these documents provide adequate information for developers, users and police; however to meet the goals set forth in the *Bikeways & Trails Facility Plan,* the following changes are recommended:

1. New Mexico State Motor Vehicle Code

New Mexico Code Chapter 66 contains statutes describing legal uses of roadways for all system users (e.g., cyclists as well as motorists). The following statute describes legal hand and arm signals:

§66-7-327. Method of giving hand and arm signals: All signals herein required given by hand and arm shall be given from the left side of the vehicle in the following manner and such signal shall indicate as follows:

A. left turn: hand and arm extended horizontally;

B. right turn: hand and arm extended upward; and

C. stop or decrease speed: hand and arm extended downward.

Proposed Change: Amend subsection B to allow bicyclists to signal a right turn by extending their right hand and arm horizontally. Example language can be found in Oregon's statute ORS 811.395.2.A, which reads, "To indicate a right turn, either of the following:

1. Hand and arm extended upward from the left side of the vehicle. A person who is operating a bicycle is not in violation of this paragraph if the person signals a right turn by extending the person's right hand and arm horizontally.
2. Activation of front and rear turn signal lights on the right side of the vehicle."

Discussion: While enclosure within a motor vehicle prohibits the use of the right hand for signaling in many situations, a cyclist has the potential freedom to signal turning movements with either the left or right hand. In addition to having this potential freedom, many youth educators recommend that signaling a right hand turn with the right arm can be less confusing for youthful riders.

The city can work with legislative advocates to amend the existing state law during a future legislative phase. The Bernalillo County Sheriff's Office has been active in advocating for this change.

2. Traffic Code, Albuquerque Code of Ordinances

In general, there are some items about driver behavior towards bicyclists/pedestrians that should be added to the general traffic regulations, not buried IMO

§8-5-1-1 Stopping, Standing or Parking Prohibited – No Signs Required

No person shall stop, stand or park a vehicle except when necessary to avoid conflict with other traffic or in compliance with the law or the directions of a police officer or traffic control device, in any of the following places:

Discussion: Bicycle lanes are travel lanes. It can potentially increase conflicts for cyclists using a lane to have to weave in and out of motor vehicle traffic to avoid cars parked in the bike lane. The DPM, in section N.3.c.2., also states the following:

> *"Bike lanes are traffic lanes, therefore, automobile parking or motor vehicle use of a bike lane as a driving or passing lane should be prohibited."*

Yet elsewhere in the DPM, Appendix A, Section a, is a statement that indicate that in bike lanes "vehicle parking and cross flows by pedestrians and motorists [are] permitted."

Recommendation: Add the following:

(O) In a marked bicycle lane

(P) In a marked bicycle box

§8-5-1-15 Parking Not to Obstruct Traffic

No person shall park a vehicle upon a street, other than an alley, in such a manner or under such conditions as to leave available less than ten feet of the width of the roadway for free movement of vehicular traffic.

Discussion: This section of the traffic code does not specifically address bicycle lanes as vehicular travel lanes. As discussed in above for §8-5-1-1, bicycle lanes should specifically be mentioned as a travel lane.

Recommendation: Add the following: "Bike lanes are traffic lanes, therefore, automobile parking or motor vehicle use of a bike lane as a driving or passing lane is prohibited."

§8-2-9-1 and 8-2-9-2 Accidents, Reports

Discussion: Bicycle crashes are under-reported and a complete record of bicycle related crashes in the City will be a valuable tool for future planning, identification of roadway conflicts and identification of areas in need of better enforcement of traffic laws.

Recommendation: Each of the items in these two sections should be re-worded to clearly include bicycle crashes.

3. Zoning Code, Albuquerque Code of Ordinances

§14-16-3-1 Off-Street Parking, Parking for Bicycles

An applicant for a building permit for construction of a new building or building addition of 200 square feet or more shall provide parking in accordance with the general requirements of this section. In addition, new buildings and building additions over 2500 square feet constructed after November 1, 2002 shall also be required to comply with all parking design requirements set forth in this section.

(B) Parking for bicycles shall be provided on-site or on a site within 300 feet of the use, measured along the shortest public right-of-way, as follows:

(1) Residential use, five or more dwelling units or mobile homes per lot: one bicycle space per two dwelling units.

(2) Dormitory, fraternity or sorority house: one bicycle space for each six persons in residence.

(3) Nonresidential uses: one bicycle space per each 20 parking spaces required for automobiles and light trucks, but not less than two spaces per premises, unless otherwise specified below:

(a) Drive-in theater, mortuary, or motel or hotel rental unit: None.

(b) School elementary and middle: one bicycle space for each 20 students.

(c) School high, commercial, and trade: one bicycle space for each 50 students.

Discussion: The trigger for requiring bicycle parking is new construction or an addition over 200 square feet in multi-family residential and non-residential developments. Bicycle parking requirements are based on the total number of vehicle spaces required for each different land use type, which is described in §14-16-3-1(A). There are additional requirements for schools, which are likely to have a higher number of cyclists. The existing bicycle parking code does not include requirements for long-term parking.

Recommendation: Add parking requirements for long-term bicycle parking, where applicable. The following rates are provided for consideration from the 2010 Bicycle Parking Guidelines produced by the Association of Pedestrian and Bicycle Professionals. The minimum requirement for long term and short term parking is 2 spaces each. The General Parking Regulations should also be revised to add more specificity in the type of rack and spatial dimensions of bicycle parking areas according to the APBP guidelines.

Standard Bicycle Parking Rates:

Civic/Cultural – Non-assembly (library, government buildings, etc.): 1 space for each 10 employees, long-term parking; 1 space per 10,000 SF building area, short term parking

Civic/Cultural – Assembly (Church, stadium, park, etc.): 1 space for each 20 employees, long-term parking; short term parking for 2% maximum expected daily attendance.

Health Care/Hospital: 1 space for each 20 employees, long-term parking; 1 space per 20,000 SF building area, short term parking.

Rail/bus terminals and stations/airport: spaces for 5% of projected am peak period of ridership, long term parking; spaces for 1.5% of projected am peak period daily ridership.

Retail –food sales: 1 space for each 12,000 SF of building area, long term parking; 1 space for each 2,000 SF of building area, short term parking.

Retail – general: 1 space for each 12,000 SF of building area, long term parking; 1 space for each 5,000 SF of building area, short term parking.

Office: 1 space for each 10,000 SF of building area, long term parking; 1 space for each 20,000 SF of building area, short term parking.

Auto-related (automobile sales, rental and delivery, automobile repair, servicing, and cleaning): 1 space for each 12,000 SF of building area, long term parking; 1 space for each 20,000 SF of building area, short term parking.

Manufacturing and Production: 1 space for each 15,000 SF of building area, long term parking; the number of short term parking spaces required is prescribed by the Planning Director.

4. Albuquerque Development Process Manual (DPM)

The City aims to create a Unified Development Ordinance (UDO) that will modernize and update the standards provided in the Development Process Manual (DPM). This effort will take place over the next several years, and the portions that relate to trails and bikeways should consider the standards and practices developed in this Facility Plan. Generally, the current DPM or a future UDO should update the standards for bicycle facilities to align with and reflect modern best practices, such as provided in this document and the NACTO Bike Guide.

Volume II, Chapter 23, Section 1, Governing Regulations: This list of City regulatory documents pertaining to street design should be modified to reference the *Bikeways & Trails Facility Plan*, Chapter 7, Design Manual, for the design and specifications of bikeway and trails.

Volume II, Chapter 23, Section 5, Miscellaneous Street Design Criteria, N.1.2.a. Development of Bike Lanes on New or Reconstructed Roadways: Cross section diagrams show the bike lane measured from edge-line of the outside lane to the face of the curb. The language in the manual indicates the measurement should be from the painted edgeline to the edge of ~~gutter~~asphalt pavement. The ~~diagrams~~ Figure 2 should be updated to match the text.

Discussion: The guidance given is contradictory and should be consistent to ensure the desired outcome.

Volume II, Chapter 23, Section 3, Engineering Design Criteria: The list of guidance documents should be amended to reflect more current documents and best practices. The list should include documents listed in Chapter 7 of this Plan, including:

- AASHTO Policy on Geometric Design of Streets and Highways, 2012
- Manual on Uniform Traffic Control Devices (MUTCD), 2003
- Public Rights-of-Way Accessibility Guidelines (PROWAG), 2007
- ADA Final Guidelines for Outdoor Developed Areas, 2013
- National Association of City Transportation Officials (NACTO) *Urban Bikeway Design Guide*, 2014.

C. Maintenance & Operations Recommendations

1. Trails Maintenance Practices & Policies

Current Practices

The current Park Management maintenance protocol is to:

> Maintain a clear 3' recovery zone on both sides of trails, spraying for weeds both sides of trails, mowing both sides of trail to keep weeds and grasses at a manageable height, sweeping trails on an as-needed basis. Asphalt repairs include filling in cracks and remove and replace sections of trail as needed. This is limited due to funding and staffing, major repairs need to be contracted when funding is available. Painting and replacing bollards as needed, sign replacement and installation as needed, pruning of trees and shrubs that encroach into bike trails; this is on an as needed basis.

In practice, however, this procedure may not be effective, and more detailed written procedures for systematic evaluations, routing and preventive work, as well as spot repairs are needed. And these will have little meaning unless there are adequate staff and resources to perform the work. Park Management's work is largely driven by 311 complaints; and there is a backlog of complaints, some of which are duplicative. Staffing for trail maintenance has not significantly increased since 1993 when there were 39 miles of trails; now, Park Management maintains about 150-Miles of paved trails. In 2014, responsibility for the maintenance of the medians was transferred from Park Management to Solid Waste. It is hoped that be separating the functions, the City can develop a sustainable and effective trails maintenance program. Park Management is implementing the YARDI system. This will help with scheduled maintenance and made the 311 dispatching system much more efficient.

Bernalillo County, Open Space Division, and NMDOT also maintain paved trails in the Albuquerque area. In addition, AMAFCA, MRGCD, COA Street Maintenance, and Weed and Litter may perform work along trail corridors. There is sometimes informal coordination and occasional opportunities for cooperation, but there is no regular coordination among crews working in the same area.

One of the most common complaints is weed control, especially Puncture Vine (goat heads). Effective weed control is highly dependent on timing. Limited manpower limits the ability to apply herbicides at the optimum time. City Open Space Division, which has a full time worker to manage a portion of the Paseo del Bosque Trail, has managed to reduce the goat head population because of his ability to stay on top of the problem.

Trail Maintenance Recommendations

Best Management Practices

PM should establish maintenance standards and a schedule for inspections and maintenance activities and move away from the 311 driven maintenance approach. Maintenance programs can be divided into three levels depending upon the frequency of services needed:

- Yearly evaluation to address items such as crack repair, sign replacement, painting, repairs (fencing, gates, benches, etc.) drain clearing and facility evaluation.
- Regular maintenance: Weed control (spraying and manual), mowing, sweeping, pruning, trash removal, empty trash cans and dog waste dispensers.

- As needed: Flood or rain damage repair (silt clean-up, culvert clean out, etc.), bollard repair, graffiti removal, snow/ice removal, irrigation repairs, other immediate ~~safety~~ hazard remediation issues.

The City should work toward appropriate funding for trail maintenance with a goal to meet national standards for best management practices. To meet these standards requires adequate staffing, equipment, and supplies. PM is currently funded at about 60% of the national standard for maintaining each mile of asphalt trail. PM is upgrading its equipment to obtain smaller, more maneuverable equipment more suited to working on the trails without causing damage or disturbing desirable vegetation.

Division of Maintenance Responsibilities and Need for Collaboration

The number of agencies responsible for different sections of the trail network, or who have partial responsibility for maintenance of a trail corridor such as graffiti removal and weed control (in the broader corridor outside the narrowly defined trail corridor), or for at-grade crossing of streets, makes coordination of maintenance difficult.

In general, Park Management is responsible for off-street trails and trails within neighborhood or regional park facilities, including trails along AMAFCA channels. Bernalillo County is responsible for trails outside of the City limits. The Open Space Division is responsible for trail within Major Public Open Space and trails along open space arroyos. Other agencies which have trail or bikeways maintenance duties include: Street Maintenance, NMDOT, the National Park Service, neighborhood associations, and private parties (such as homeowner's associations). In some cases, one agency is responsible for the day-to-day duties and another for the long term care of the trail itself; or one agency is responsible for the trail and another for the upkeep of the wider right-of-way.

Governmental agencies responsible for trails are delineated in the Bikeways & Trails Facility Plan Maintenance map (Note: this is a general map and may not reflect all of the details regarding some segments of trail; and there are areas that need clarification).

Possible solutions to some of the difficulties created by overlapping responsibilities include:

- Work should continue among agencies to clarify and coordinate maintenance responsibilities.
- The City should pursue opportunities to share duties or trade responsibilities where it would be more efficient for one agency to manage an entire corridor.
- The City should evaluate if there is expertise in some departments that might be helpful to Park Management, for example, whether Street Maintenance or an on-call contractor for the City could help with crack repair, such as is done in Bernalillo County.
- The City should sponsor an annual "trail maintenance workshop" with presentations on practices and sharing of strategies and experiences. In addition to discussing issues and approaches it could help build relationships among various personnel, and provide a venue to clarify where there are opportunities to share responsibilities and promote more efficient use of resources. It could be internal to the City (Park Management, Weed and Litter, Street Maintenance, Open Space Division, etc.) or broader, including Bernalillo County, NMDOT, MRGCD, AMAFCA, Rio Rancho, etc. An initial concept: AMAFCA has offered to host such an event in their conference room. There would be display maps for people to write on and facilitated discussions could cover subjects such as: practices, equipment, costs, future collaboration, overlapping responsibilities,

and gaps. A summary of the discussions and outcomes would be prepared for the participants and managers.

- Looking at long term solutions, some considerations might include creating a cross-jurisdictional agency whose primary responsibility is to maintain and promote trails in the region, or promoting the creation of a regional non-profit trails organization to assist in supporting maintenance of the trails.

Inventory and Tracking

An accurate inventory, keyed to the Trails Maintenance Map is needed, with consistent names, confirmed mileages, and clear beginning and end points. Park Management plans to implement the YARDI system which is an automated work order system. Supervisors will receive 311's in real time for their respective areas, triage and send to appropriate personnel to address and close out. Employees will be assigned a tablet that will be used to input, communicate and view assigned work. YARDI will be used to schedule preventive maintenance tasks (be more proactive) and for inventory control, including parts, tools, time and areas maintained by Park Management. Eventually, utilizing signage, quick read codes, web site and apps there will be a platform for use by patrons of the trail system. YARDI will assist in organizing responsibilities of Park Management for various trail corridors, keeping track of requirements of license agreements, and maintaining schedules for regular inspections (as the system is being developed, these details are being included). The database and regular usage will allow PM to provide feedback to the trails community regarding how/when reported problems will be corrected.

Weed control and establishment of native grasses and plants

Effective weed control is highly dependent upon timing and ability to deploy manpower, whether removal is manual or chemical.

- The City should protect existing stands of native grasses and forbs and establish new stands to create a vegetative cover that is drought tolerant and reduces the intrusion of noxious weeds, overtime reducing the need for herbicides. This would make the trails more pleasant for users, less maintenance intensive, assist in preventing erosion at the edge of the asphalt, and address one of the most common citizen complaints about trail maintenance: goat heads.
- The entire right-of-way should be considered, in cooperation with other agencies that have responsibilities for maintenance in the corridor.
- Park Management might also support in-house training of workers to recognize desirable natives versus noxious weeds.
- More details on the how to address the problems with weeds are included in the Design Manual.

Upgrade the existing trails system to address maintenance issues

Parks should utilize capital project funding to develop an on-going urban trail renovation program. This would include evaluating priority trail rights-of-way for: ~~safety issues~~ potential hazards; potential for establishment of native grasses and forbs; ADA upgrades; replacement of bridge decking; locating opportunities for amenities (such as seats and shade structures, and occasional trees and shrubs where feasible); bollard relocation; signage upgrades; and separation of user types where desirable.

- Projects should be coordinated with other infrastructure upgrades (arroyo channel repairs/replacement, asphalt trail re-surfacing, etc. and various funding sources should be evaluated, including: trail renovation funding in CIP program; participation from agency that

owns and has responsibility for the right-of-way outside of the trail corridor (Street Maintenance, NMDOT, AMAFCA, other); and coordination with 50-Mile Activity Loop funding.

- Input should be sought from trail users, neighborhoods, trails maintenance crews, 311 logs and staff regarding priorities and guidance on how to implement specific projects.
- The Design Manual should be followed and re-seeding and mulching should be in compliance with City Standard specifications, modified if necessary to meet multiple objectives (e.g. erosion control).
- For major projects, the design engineer/landscape architect should include a concept plan for the long-term maintenance protocol if there are needs specific to that project that vary from routine maintenance practices.
- Park Management should evaluate each project as it is completed after one year and re-seed as necessary until grasses establish.

Use of volunteers and other workers

Park Management should maximize the use of volunteers, seasonal employees, community service workers, and inmate crews to enhance their ability to address problem areas. Use of volunteers requires a commitment of some employees with Saturday hours and ability to build regular communications with committed volunteers. The Adopt-a-Trail program hasn't been particularly effective thus far, but this program and trails clean up days (such as Company's Coming and National Trails Day) can have an impact with proper preparation and support. Community service workers haven't been utilized on trails due to the inconsistency of numbers available and difficulty of managing over a linear system. Inmate crews are reliable, but require organizational efforts up front and, again; management oversight is a big issue. Park Management should conduct strategic planning with key agencies and staff who are currently involved in these issues to consider how to best utilize these resources on the urban trails.

Maintenance Schedule

Maintenance programs can be divided into three levels depending on the regularity of services needed.

- Regular maintenance, performed weekly or monthly, includes such activities as mowing and landscape maintenance, sweeping and litter removal.
- Periodic maintenance, performed annually, includes crack repair, sign replacement, painting, drain clearing and facility evaluation.
- Occasional maintenance includes resurfacing or sealing the asphalt widening and furnishing replacement. This last level of maintenance can be accomplished on an as-needed basis.

Governmental agencies responsible for trails are delineated in the *Trails and Bikeway Facility Plan*. Presently Park Management is responsible for off-street trails and trails within neighborhood or regional park facilities, including trails along AMAFCA channels. Bernalillo County Parks and recreation is responsible for trails outside of the City limits. The Open Space Division is responsible for trails within Major Public Open Space and trails along open space arroyos.

The number of responsible agencies makes coordination of maintenance difficult. Possible solutions include:

- Creating a government agency whose primary responsibility is to maintain and promote trails in the region. However, a new level of government may be met with skepticism.

- Promoting the creation of a regional non-profit trails organization to maintain and support trails.

2. On-Street Bicycle Facilities Maintenance ~~Considerations~~Practices & Policies

See the recommendations in **Section 7.F** of **Chapter 7, Design Manual**. Also see the Policies for Bikeway & Trail Development, Section 6.A.4, Objective 4, "Provide an Elevated Emphasis on Maintenance along Roadways & Trails."

Current Practices

For on-street bikeways, pavement preservation, signs, pavement markings and sweeping are the responsibilities of Street Maintenance Division. City streets are swept a minimum of four times per year, and upon request according to 311 calls that report debris in the roadway.

On-Street Facility Maintenance Recommendations

Like all roadways, bike lanes, routes, and bike boulevards require regular maintenance. This includes sweeping, maintaining a smooth roadway, ensuring that the gutter-to-pavement transition remains relatively flat and installing bicycle-friendly drainage grates. These considerations are particularly relevant to bike lanes, as cyclists have a narrow corridor to traverse.

Best Management Practices

Effectively maintain street surfaces on designated bikeway and multi-use, including elimination of lip between paved surface and gutter, elimination of manhole/water valves in bike lanes and maintenance of bicycle-friendly railroad crossings, drain grates, and cattle guards. Avoid use of chip seal/coating wherever practicable. Maintain arterial and collector street surfaces, including those not designated as bikeways, on a routine basis to reduce hazards (e.g., potholes, debris) for bicyclists who use these facilities.

Maintain bicycle facility pavement markings and signing. Missing or defective pavement markings and signs shall be replaced or repaired in a timely manner. Retro-reflectivity of pavement markings and signs shall be in accordance with current MUTCD requirements.

Establish timely responsiveness to maintenance requests from citizens through the use of the City's 311 Citizen Contact Center or website or other means for citizens to report concerns. This practice could be measured by monitoring response time for the maintenance requests and provide follow-up on the type of response. Report annually the number and type of request being made.

Establish weed and vegetation control procedures to reduce the occurrence of noxious weeds (i.e., puncture vine) and plants that block sight lines or grow within two feet of trails or within bicycle facilities. Encourage a bottle deposit program in order to reduce littering of roadways and bike facilities with broken glass.

Maintenance of bicycle routes during construction

Maintain bicycle routes and lanes through construction projects, referring to Chapter 6, "Temporary Traffic Control," of the MUTCD maintaining curb lane widths (i.e., provide lane widths of 14 feet or greater) through construction projects on roadways that would otherwise contain a bike lane or bike route. Where this is not feasible, provide appropriate bicycle friendly and reasonably direct detours and detour signing, per NACTO, AASHTO, and/or other City standards.

Maintenance Schedule

With On-Street Bikeway and Multi-Use Trails, improve and fully fund the street maintenance and sweeping program. Establish the highest priority for allocation of street sweeping resources to sweeping all bike routes and bike lanes in response to 311 requests and a minimum of four times a year. Multi-use trail sweeping should be performed on a regular basis and as requested.

Measurement: Request the annual data on frequency of scheduled sweeping for the on-street bikeway and multi-use trail network, along with the number and location of spot sweeping requests based on 311 call volume. Establish a database to track trends and provide data that can be used refine scheduled sweeping and maintenance budget request.

3. Citizen Maintenance Requests

The City has in place a centralized reporting system, "Citizen Contact Center," that can be used effectively to report problems and request maintenance. Several methods for reporting are available: call 311 by telephone, using Twitter and by visiting www.SeeClickFix.com. Comments are then routed to the appropriate people. To increase utilization of this service the City should promote its use by informing bike clubs and organizations and bicycle advocacy groups and consider developing a Public Service Announcement.

One of the challenges of the current 311 reporting system is that the case is closed after a work order is issued. There isn't a way for the public to know where in the queue their concern is to be addressed. The City should explore adding another step to the 311 notification system that closes the loop after the work order is completed.

4. Spot Improvement Program

The City should consider implementing a "spot improvement" identification program where bikeways and trail users can provide recommendations. Soliciting comments from users can help the City identify specific problem locations that need maintenance and/or rehabilitation. Institutionalizing this process in the form of a spot improvement program can provide ongoing input and, in many cases, help identify problems before someone gets hurt. In addition, such a program can dramatically improve the relationship between an agency and the bicycling public.

Figure 13: Trail Maintenance Map

(insert 11x17 map here)

Figure 14: On-Street Facility Maintenance Map

(insert 11x17 map here)

D. Monitoring & Evaluation

For evaluation efforts, the City's top priority should be to perform Annual Bicycle and Trail Counts. The resources needed to support this effort will primarily be staff time, so a lead city staff person should be identified who is able to set aside sufficient time to manage the count effort. Many communities seek volunteers to do the counts. It is recommended that the City follow the National Bicycle and Pedestrian Documentation Project (NBPDP) methodology, which recommends counts in September. The advantages of starting with the NBPDP approach is that a) count forms, training materials and instructions are ready for use and b) the results can be compared with communities around the U.S.

1. Trail and Bikeway Counts

User Counts

Annual or semi-annual counts: The City should consider participating in the annual National Bicycle and Pedestrian Documentation Project. This will help to better estimate existing and future bicycle and pedestrian demand and activity. This nationwide effort provides consistent model of data collection and ongoing data for use by planners, governments and bicycle and pedestrian professionals. Annual counts are normally conducted in mid-September. Additional a second set of counts, possibly in April, could be conducted at the same locations and time period of the September counts to better understand seasonal fluctuation in the number of cyclists. If equestrian data is collected, the researcher should consult with equestrians for recommendations about locations, days, and times to perform user counts.

Day long counts: The City should conduct day long (sunrise to sunset) counts at selected locations to better understand the off-peak user patterns and to accurately identify the peak user time of day. This data can reveal the recreational and utilitarian usage of the bikeways in the city.

Counts at high crash location: At locations identified as having experienced greater than normal crashes with motor vehicles the City should conduct bicycle user counts. These counts can provide data to help in the determination of the greater than normal crash rate. Evidence has shown that as ridership increases, crash rates decrease. It has been speculated that this can be attributed to the expectation of cycling activity.

Permanent count locations: Permanent, automated bicycle count locations can be established where the City would like to record daily bicycle use. The location selected can be based on the type of target user group such as commuters, recreational, utilitarian and students. The information gathered can be used in determining commute mode-share, provide a fuller understanding of variation of use by time-of-day, season, weather and special events and provide supporting evidence of the change in use of the targeted facility.

- Consider day-long counts at along key corridors to determine daily citywide use.
- Consider counts along high crash corridors without existing bicycle facilities to determine current level of use.
- Conduct annual or semi-annual counts at selected locations on bikeways and multi-use trails across the city.

2. Crash Data Collection & Analysis

Approach to Crash Data Collection:

- The detailed crash analysis presented in this report should be **repeated every few years** to identify high crash locations and solutions to improve ~~safety~~ conditions for non-motorized transportation users. This could be done as a part of a periodic bikeway and multi-use trails 'report card' that documents relevant metrics, including new bikeway miles, new trails and crossings, major completed projects, number of bicycles and other trail users, crash analysis, user satisfaction, public perception of ~~safety~~ facilities, etc. This periodic review could be used to create updates to the *Bikeways & Trails Facility Plan* that can tune the plan's implementation strategies to respond to changing ~~safety,~~best practices and walking and bicycling patterns.
- The City should consider **education or enforcement programs** that address specific causes of crashes involving bicycles and other non-motorized transportation users. The most frequent type of crashes were instances where a car hit a bicycle at an angle.
- The City should consider a **detailed analysis of conditions along top crash corridors and at top intersections**. This analysis should help the city determine whether the higher numbers of crashes are related to difficult conditions or higher numbers of cyclists using the corridor.
- The majority of reported bicycle crashes have occurred on major roadways with four to six travel lanes, no dedicated bicycle facilities, and posted speeds of at least 35-mph. Future roadway design and corridor retrofit of these corridors should focus on **increasing safety ~~through increased~~ bicycle/vehicle** separation and enhanced crossing treatments.

3. Survey

The City should consider conducting a survey of the bicycle and trail users. This survey could be led by a local advocacy organization under the direction of the City. The survey results could be used to evaluate the City's progress and identify areas of concern and evolving needs of the users.

- Consider programs to increase bicycle parking at high priority locations across the city.
- Continue and when possible expand education, encouragement and enforcement programs. Target these programs to key groups that are under-represented in the city's current cycling demographic including women and groups that would benefit from education such as school age children.
- Consider placing high priority on filling gaps in the multi-use trail network.

E. Funding

1. State and Local Sources

New Mexico Department of Transportation

The Department of Transportation provides funds to match Federal-aid projects on New Mexico and U.S. highways within Albuquerque. State and Federal Transportation Improvement Funds are administered through the MRCOG.

New Mexico Legislature

During its annual legislative sessions, funds can be provided for bicycle projects through special appropriation bills (e.g., capital requests or memorials).

2. Local Sources

Capital Implementation Program (CIP)

Funding for capital improvement projects is provided through the General Obligation (GO) bond program and Urban Enhancement Trust Fund (UETF). Both the City of Albuquerque and Bernalillo County have set aside 5% of the Public Works Streets portion of their GO bonds to be used exclusively for bicycle projects, beginning in 1995. ~~The City set aside is equally distributed between the on-street (2.5%) and trails (2.5%) programs.~~ The GO bonds are obligated in 2-year cycles~~, generating $600,000 for the on-street system biennially~~. Additional monies from the CIP (e.g., major pavement rehabilitation or specific roadway construction projects) may be used for bicycle projects. On-street bikeways will be incorporated into new roadway construction and street rehabilitation/resurfacing projects wherever feasible.

Gross Receipts Tax

A 1/4-cent gross receipts tax for fixing existing streets, building new roads, expanding transit and constructing bikeways/trails was approved by voters in 1999. A set percentage (4%) of this revenue, or $1.65 million biennially, is earmarked for trails used for both commuting and recreational travel; however, no dedicated funds were specifically identified for on-street bikeway improvements.

Land Development

There also exists an opportunity to work with the private sector to implement bicycle projects. This is accomplished through right-of-way dedications, infrastructure improvements and/or impact fees. ~~Impact fees are deposited to the City's General Fund, which is allocated through the CIP and GO Bond Process.~~

Additional Funding Sources

Other funding opportunities include:

- City Council set-aside funds
- Municipal bonds
- Public/Private Partnerships
- Metropolitan Redevelopment Area projects
- Tax Increment Financing (TIFs), Special Investment Districts (SIDs), and Public Investment Districts (PIDs)

F. Summary of Implementation Actions

The following matrix lists the actions that the City will complete to implement this *Bikeways & Trails Facility Plan*. The actions are grouped according to work that is currently ongoing as a part of our standard practice today. The other sections classify future actions or projects as Short-Term, Mid-Term, and Long-Term. This Implementation Matrix should be used as a summary of the recommended actions and as a guide to realize the goals and policies proposed in this Facility Plan.

The following section, Chapter 7 Design Manual, provides standards and guidance for the design of specific bikeways and trails and should also be consulted as an implementation guide to improve the quality of our bikeways and trail system.

Table 10: Implementation Matrix on page X is arranged with several categories: Type of Project, Priorities, Actions, Deliverables and Lead Agency. Listed under the heading Type of Project are: CIP/Network Improvements, Administration, Data Collection and Analysis, Interagency Coordination, Maintenance, Planning and Programs. Priorities are listed as Ongoing, Short-term, Mid-term and Long-term. The Actions, Measurements, and Lead Agencies vary, depending on the implementation requirements. The following is a summary of the contents of the table broken down by the Type of Project. For more detailed information, refer to the ID numbers listed that correspond to the ID numbers found in the table.

CIP/Network

- Ongoing CIP/Network actions include increasing street bike mileage as well as trail miles and implementing new bikeways as roads are rehabilitated. (ID 1 & 7)
- Short-term action items include completing "Critical Links" identified in this Plan and assessing the need for new facilities. All new bridges, overpasses and underpasses should have a lane/shoulder of at least 5 feet. (ID 31, 32, 35 - 37)
- Mid-term actions will be using designs that minimize conflicts on trails and evaluating all collectors and arterials for striping to provide for bikes. Also prioritizing enhancements for unclear travel paths at major intersections and including major intersection improvements as part of the CIP. Strategies should be adopted for including trails and bikeways in all new subdivisions. (ID 57 - 61, 95)
- Long-term the plan calls for providing bike lanes or shoulders consistent with current development standards as well as AASHTO designs on all new or rehabilitated roadways and evaluating the extent of the system for each user type. In addition, the plan calls for developing and implementing a wayfinding network. (ID 99, 105, 106)

Administration

- Ongoing Administration actions include working with citizen groups to promote bicycling and walking and improving biking and pedestrian safety. Also, to continue to support land use regulations that enable trails and bikeways to be built and support programs related to education, outreach and encouragement as well as maintaining and leveraging local funding for construction and maintenance of trails. Departments within the City should communicate and coordinate requests for funding and representation at MRCOG. (ID 2 - 6)
- Short-term action items call for updating the short-term priority construction list every two years in conjunction with the Decade Plan as well as monitoring and documenting the implementation of the project and implementation actions in the plan. An annual report will be produced as documentation of these items. Ensuring routine training of pertinent staff and MRCOG is occurring and developing improved project identification, design and development through a Project/Technical Team is also a short-term action item. Evaluating and making recommendations regarding the current advisory groups and their effectiveness is called for. Conducting a biennial meeting among agencies with a summary of the outcome transmitted to the Mayor and City Council is an important action item, as is adopting a Complete Streets Ordinance and developing a city-wide policy for maintenance. (ID 21 - 30)

- Mid-term actions will be prioritizing trail amenity projects, creating a technical team to review major projects (in addition to DRC) and conducting annual training to address safety, maintenance, design, etc. (ID 54 - 56)
- Long-term the plan calls for providing full-time staff dedicated to trails and bikeways with appropriate budgets. (ID 98)

Data Collection & Analysis

- Ongoing Data Collection & Analysis actions include obtaining crash data and evaluating progress in reducing trail and bikeway injuries and fatalities. Also, monitoring response times for maintenance requests and an annual reporting of the type and number of requests being made. (ID 8 - 9)
- Short-term action items include performing evaluations of the bikeway facilities and compiling an inventory and prioritization of intersection and other enhancements that do not meet minimum design standards. Also, routinely conducting and updating bikeway and trail user counts to estimate usage levels and conducting before/after counts to gauge effectiveness of improvements. Also, keeping records of accidents and performing an annual review of the types reported to see if there are design or other changes that could lessen crashes. The plan calls for requesting the street sweeping data annually and establishing a database to track trends and provide data that could help refine street sweeping budgets and schedules. (ID 38 - 43)
- Mid-term actions will be developing a strategy to collect accident and injury data on trails and bikeways, conducting an annual user survey to collect and report mode-share data for all trips and periodically conducting community-wide public opinion surveys to determine how bicycling in Albuquerque could be improved. (ID 62 - 64)

Interagency Coordination

- Ongoing Interagency Coordination actions include coordinating and partnering with other agencies' bike and trail programs as well as continuing to expand the interface between buses and bikes. They also include promoting bike/bus programs through ABQ Ride. (ID 10 - 11)
- Short-term action items include providing staff liaisons from departments of transportation (Counties, City, MRCOG, etc.) to attend Advisory Group meetings on a routine basis and developing a map or GIS tool that will improve interagency knowledge of emergency access and wayfinding information on trails. (ID 44 - 45)
- Mid-term actions are to work with the state universities to develop standards for a bicycle friendly transportation design and to develop and support a bike education program in elementary and secondary schools. Also, coordinate improvements and standards among city departments and other jurisdictions. (ID 65 - 67)

Maintenance

- Ongoing Maintenance actions include establishing standards and schedules for inspection and maintenance activities and keeping an updated database and map. Also, ensuring that proper design guidelines are followed for trail maintenance and that re-seeding is done properly, along with mulching. Additionally, maintaining street surfaces on a routine basis to reduce hazards for cyclists.(ID 12 - 14)

- Short-term action items include establishing a 48-hour agency goal for responding to maintenance requests from citizens. Also, exploring alternative methods of treatment of puncture vine (goatheads) and, for major projects, requiring the design engineer to include a concept plan for the long-term maintenance that is envisioned. (ID 46 - 48)
- Mid-term actions are to implement the YARDI system, institutionalize a trail spot improvement program and determine the most effective way to prolong pavement life. Another action item calls for the City to consider adding another step to the 311 system that closes the loop after work is done. Trails should be swept regularly and procedures should be developed that will result in more frequent sweeping. The Parks Department should utilize G.O. bond funding to plan and implement a method for establishing native grass. Also, an annual update of the database of facilities maintenance responsibilities and considering how to address recurring issues. (ID 68 - 75)
- Long-term the plan calls for improving and funding the street maintenance and sweeping program to facilitate multi-use trail sweeping regularly and when requested. It also calls for maximizing the use of community service workers to help maintain the trails. Establishing native grasses and plants to squeeze out the puncture vines as well as a bottle deposit program will help keep the trails clean and safe.(ID 100 - 103)

Planning

- Ongoing Planning actions include continuing to develop signage standards for trails and implementing wayfinding signage, completing a Bollard Replacement inventory and preserving/adding equestrian facilities where appropriate.(ID 15 - 17)
- Short-term action items include conducting an inventory of trails that do not meet minimum standards or have high ridership and retrofitting to current standards. This action item also includes using the ¼ cent Transportation Tax for trail rehab and modifying the DPM to reflect current standards for bicycle facilities and current best practices. In order to help prioritize funding, a list of the top bike/auto crashes should be compiled. (ID 49 - 54)
- Mid-term actions will be performing an audit of trails and developing an implementation plan for retrofitting, updating the Facilities Plan for Arroyos, evaluating the feasibility of a foundation that would allow tax-deductible contributions and development of a city-wide streetscape program. Additionally, the plan calls for amending the traffic code to help keep bike parking and trails free of motor vehicles, to include bicycle crashes in reporting and to include long-term bicycle permitting. Amending the DPM to update conflicting measuring standards and developing a new policy regarding exclusive use permits for trails events will also be done in the mid-term time frame. (ID 76 - 85)
- Long-term the plan calls for developing maps for the public that show appropriate trail types and identifying trails that are expected to have heavy commuter traffic. The plan also calls for amending the State Motor Vehicle Code to allow alternate methods for signaling turns on a bicycle. Additionally there should be a Pedestrian Safety and Infrastructure Plan as well as a Traffic Level of Stress Analysis. (ID 104, 107 - 112)

Programs

- Ongoing Programs actions include developing an education and media campaign to promote bike etiquette and general awareness. Also, distributing an annual updated bike and trail map which includes tips and laws related to bicycling. (ID 18 - 20)
- Short-term action items include heightening public awareness of bicycle planning efforts and implementing launch parties when new facilities are completed. (ID 52 - 53)
- Mid-term actions will be promotion of bicycling, education on bicycling, development of incentive programs and encouraging bike related questions on driving license tests. Also, expanding and creating more family oriented bike programs such as Safe Rides to School and a Car Free Street Event and city-sponsored bike rack programs. (ID 86 - 96)
- Long-term the plan calls for connecting public outreach and education to law enforcement and developing a public campaign to encourage bicycle commuting. Also having a "One Stop" bicycling website and developing a Driver Diversion Class with the help of appropriate professionals. (ID 113 - 120)

Table 10: Implementation Matrix

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