PART I: BACKGROUND & POLICIES

PART II: RECOMMENDATIONS

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Chapter 1: Introduction

A. Planning Purpose

The impetus for this planning process was to update and unify the City's two planning documents, *The Bikeways and Trails Facility Plan (TBFP)*, 1993 and the *Albuquerque Comprehensive On-Street Bicycle Plan (COSBP)*, 2000. By assessing and updating these plans and 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, 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 (P.O.S.T). 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.

The intent of this *Facility Plan* is to develop Albuquerque's bikeways and trails system in order to provide healthy and sustainable options for transportation and recreation, connections to nature, access to goods and services, and local economic development stimulus.

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*, which was 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 the advent of the Long Range Bikeway System (formerly called 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 first 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 the on-street and off-street bikeways. Both of these positions were created and are staffed to this day.

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, and arguably has been 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 and it consisted 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, but the County has withdrawn its participation and adoption of the *Trails & Bikeways Facility Plan*. Each of these citizen committees was established by ordinance and is charged with representing cyclists, equestrians, and pedestrians, and advising governmental agencies on planning, projects, and programs affecting bicyclists and a variety of trail users.

2. Early Accomplishments

For many years, 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, trail users can now travel over 16 miles without encountering an at-grade intersection, making this trail 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.

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 1980's 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.

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 has implemented these policies through their Project Prioritization Process and allocation of NMDOT funds to local jurisdictions. The City has adopted various new funding initiatives like 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 improve the safety 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 (River) 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 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.

TABLE 1: EXISTING BIKEWAY AND TRAIL FACILITIES OVER TIME

Bikeways & Trails	1974	1993	2000	2010	2014	Proposed	Full Build-Out
Multi-Use Trails	0	39	55	161	177	163	340
Unpaved Trails	-	-	-	-	100	-	100
Bike Boulevards	0	0	0	6	6	8	14
Bike Lanes	0	24	48	170	203	206	409
Bike Routes	0	0	56	134	134	81	215
Total System Length	**0**	**63**	**159**	**471**	**520***	**458**	**978**
Total System (incl. unpaved)	-	-	-	-	**620**	**558**	**1078**
Grade-Separated Crossings	0	10	**15**	**26**	**31**	**15**	**46**

- 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.

The mileage of official bikeways and trail facilities in the City grew by almost 200% between 2000 and 2010 (see Table 2). From 2010 to the 2014, it has grown another 10%. This time 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.

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, over 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.

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 a myriad of 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 less 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. "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

Roadway improvements to increase bicycle safety and attractiveness enhance motorists' safety 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 in local communities 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.

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 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. Studies show that 43% of people with safe places to walk within ten minutes of home meet recommended daily activity levels, compared to only 27% of those without safe 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 the 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, 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 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 less 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 providing energy conservation and emission reductions.

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 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 will experience fewer environmental and transportation impacts from traffic congestion. Like the motor vehicle, the bicycle provides personal mobility. The public, of all ages, will feel safer and more are 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 Trails and Bikeways 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 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 did not have a clear implementation approach, nor did it adequately address the trail system and recreational concerns.

In 2012, the plan was transferred to the City Parks & Recreation Department from Department of Municipal Development, for revisions to incorporate trail and recreation related concepts into this new Plan. In late 2013, the Planning Department began work consolidating the previous two plans with the updated research and analysis done for the 2011 *Draft Bikeways & Trails Master Plan*. Efforts were made to directly respond to public comments collected in the earlier planning effort, and to update 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 15 new grade-separated crossings, 295 miles of new bikeways, 163 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 performed a careful review of these documents, and used them to inform additional plan content and revisions that are 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 and Trails Facility Plan*.

2. Data Collection & Analysis

Gannett Fleming West and Alta Planning also 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, Section C.

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 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. There are ongoing programs as well as periodic events and campaigns.
- Policy changes & Implementation Approach: The plan proposes changes to adopted state and local policy to improve the safety, design, and law enforcement of trails and bikeways. Policy

recommendations are made to incorporate improved maintenance of the facilities. Design guidelines address on-street facilities, multi-use trails, intersection design, wayfinding treatments, and end-of-trip facilities.

E. Using the Plan

The information gathered throughout the planning process was used to identify the strengths and weaknesses of our current bikeway and trail system (Chapter 3), updated goals and policies (Chapter 2), 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. (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 (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.

This plan also provides the general guidelines for the design of those facilities (Chapter 7: Design Guidelines). Developing facilities in accordance with the goals and policies of this plan, and designed to be consistent with the Design Guidelines and most recent AASHTO, ITE, AADAG, and/or NACTO guidelines will help ensure that their development is consistent with the long-range goals of the City, which include bicycle and trail use as a transportation option, recreation opportunity, and to enhance general quality of life.

F. 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.

Access-way — 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.

ADA Accessibility Guidelines (ADAAG) — accessibility guidelines and standards for the built environment, transportation, communication, medical diagnostic equipment, and information technology. They are developed by the U.S. Access Board, a federal agency that promotes equality for people with disabilities through leadership in accessible design.

Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) — the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) was created in 1963 by the New Mexico Legislature and tasked to prevent injury, loss of life and property damage due to flooding. AMAFCA does this by building and maintaining flood control structures which help alleviate flooding.

American Association of State Highway and Transportation Officials (AASHTO) — an organization that publishes guidelines and specifications which are used in transportation design and construction throughout the United States.

Americans with Disabilities Act (ADA) — the 1990 Federal law establishes the civil rights of people with disabilities. It prohibits discrimination and ensures equal opportunity for access in employment, State and local government services, public common spaces, commercial facilities, and transportation.

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.

Average Annual Daily Traffic (AADT) — the total volume of vehicle traffic of a highway or road for a year divided by 365 days. AADT is a useful and simple measurement of how busy the road is. It is also sometimes reported as "average annual daily traffic."

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. 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.

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.

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 (BQI) — 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 wayfinding.

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 (CZA) — 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.

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

Federal Highway Administration (FHWA) — the agency under US Department of Transportation responsible for the approval of transportation projects that affect the defined federal highway system.

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

Greater Albuquerque Bicycling Advisory Committee (GABAC) — a citizens advisory committee that reviews and comments on projects that effect on-street cycling within Albuquerque.

Greater Albuquerque Recreational Trails Committee (GARTC) — a citizens advisory committee that reviews and comments on policy and projects affecting regional trails (bike, pedestrian, equestrian, in line skates, etc.) within Albuquerque.

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.

Institute of Transportation Engineers (ITE) — an international educational and scientific association of transportation professionals who are responsible for meeting mobility and safety needs.

Level of service (LOS) — Refers to the measurement of how well automobile traffic "flows" on a roadway system or how well an intersection functions.

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.

Manual on Uniform Traffic Control Devices (MUTCD) — a Federal manual that designates standards for signage and pavement markings.

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 from travel lanes for an opportunity to continue crossing the roadway.

Metropolitan Planning Organization (MPO) — an organization of elected officials in urbanized regions with 50,000 or more population which provide a forum for local decision-making on transportation issues of a regional nature.

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

Middle Rio Grande Conservancy District (MRGCD) — an organization established to control irrigation facilities in the valley. It manages Rio Grande flows to miles of ditches and hundreds of farmers in the Middle Rio Grande Conservancy District. MRGCD policy is established by an elected board.

Mid-Region Council of Government (MRCOG) — the Metropolitan Planning Organization representing the counties of Bernalillo, Valencia, Torrance, and Sandoval, MRCOG provides planning services in the areas of transportation, agriculture, workforce development, employment growth, land use, water, and economic development.

Multi-Use Trail — see ***Trail***

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.

P.O.S.T — a City of Albuquerque interdepartmental planning effort for Parks, Open Space, and Trails. Also, the physically connected system of Parks, Open Space, and Trails.

Right-of-way (ROW) — a general term denoting land, property, or interest therein, usually in a strip, acquired for or devoted to transportation purposes. It may also be used as a legal term to denote the right of one vehicle or pedestrian to proceed in preference to another vehicle or pedestrian, i.e., bicyclists should yield right-of-way to equestrians and pedestrians on multi-use trails.

Roadway — the portion of the highway, including shoulders, for vehicle use.

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 an open space or barrier and are either within the highway right of way or within an independent right-of-way.

Shared Lane Marking (Sharrow) — 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.

Statewide Transportation Improvement Program (STIP) — a statewide compilation of local, regional, Metropolitan Planning Organization (MPO), and rural Transportation Improvement Programs (TIPs) as required by federal regulation.

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.

Trail — a separate pathway that is physically separated from motor vehicle traffic by an open space 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, ***Soft-surface Trail***

Transportation Improvement Programs (TIPs) — 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.

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 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.

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. Plan Vision, Goals, and Policies

This section defines the vision statement, goals, and policies of the *Bikeways and Trails Facility Plan*. Plan objectives and action items/strategies, along with methods to measure success in implementing the Plan, are included in the Implementation Chapter. A project management team (PMT) consisting of members from public agencies and plan development team members adapted the *Bikeways and trails 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; striving for improved safety and improved connectivity; and the encouragement of healthy, outdoor activity. The system will be implemented in partnership with multiple agencies and will be founded on consensus and sensitivity to the diverse viewpoints within the community.

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

2. Goals & Policies

The goals and policies section provides general guidance for the development of the bikeways & trails system. 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 bicycle and pedestrian safety.**
    a. **Policy:** Develop a legible and predictable trail and bikeway system through planning, design, and implementation of physical improvements.
    b. **Policy:** Provide engineering and multi-disciplinary reviews for new and reconstructed bicycle and pedestrian facilities.
    c. **Policy:** Improve the utility of trail and bikeway facilities through programmatic activities, such as facility audits and assessments, education, outreach, and maintenance practices.

d. **Policy:** Provide a welcoming and comfortable environment for all travelers along roadways and trails.

e. **Policy:** 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 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. **Policy:** Develop, construct, and promote an integrated system of bikeways and trails, with facilities distributed City-wide. A metropolitan area-wide recreational and commuter bicycle and trail network which emphasizes connections among Activity Centers.

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

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

c. **Policy:** Provide access to destinations, such as Activity Centers, schools, parks, open space, shopping areas, and employment areas, for pedestrians and cyclists as part of a multi-modal approach.

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

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

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

g. **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 Open Space network.

3. **Enhance maintenance of all bikeways and trails.**

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

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

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

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

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

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

e. **Policy:** Facilitate and encourage commuter cycling and utilitarian trips.

f. **Policy:** Reduce conflicts between vehicular traffic and trail and bikeway users.

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

h. **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. **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. **Policy:** The bikeways and trails network should connect 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. **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. **Policy:** Educate bicyclists, pedestrians, and other trail users on user safety and legal, predictable behavior, including the rights and responsibilities of each mode of travel.

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

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

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

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

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

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

c. **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 and enjoyable for the public to use.

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

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

f. **Policy:** 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. **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. **Policy:** Bicycles and pedestrians should be regularly accommodated, while recognizing that these facilities may not be appropriate on every roadway, and 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 which 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.

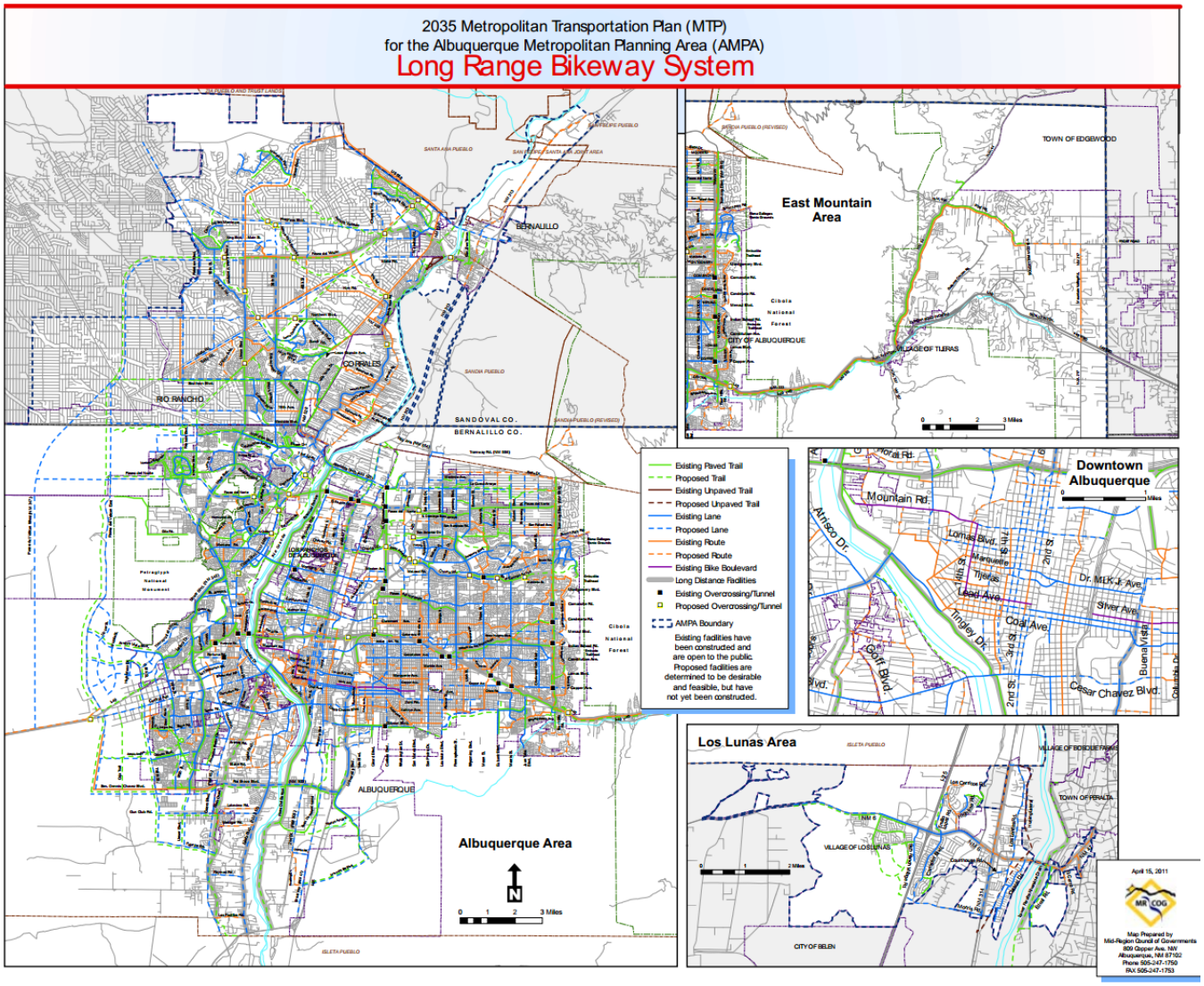
Regional Plans summarizes regional plans relevant to the Bikeway and Trails Facility Plan.

1. Existing Bicycle and Trail Plans

Long Range Bikeway System Plan (2007)

The Long Range Bikeway System Plan (LRBSP) maps existing and proposed bike facilities within the Albuquerque Metropolitan Planning Area (AMPA). The LRBSP is the guiding document with respect to planned bikeway location and character. This map combines the on-street and off-street multi-use trails and is included in the annual AMPA Transportation Program. The map is updated periodically updated; **Figure 1** shows the April 2011 map.

FIGURE 1: MRCOG 2035 LONG RANGE BIKEWAY SYSTEM MAP



Comprehensive On-Street Bicycle Plan (2000)

The 2000 Albuquerque Comprehensive On-Street Bicycle Plan 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.

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 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 discontinuous features of the local roadway network. The plan does not prioritize proposed bikeways. It does, however, provide 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 included; updating and distributing the city bicycle maps, bicycling awareness programs, grade school safety curriculum, media campaigns, and employer incentives for alternative travel. In addition, the plan recommended updating the Albuquerque Zoning Code to include bicycle end-of trip facilities. In 2003, the City attempted to accomplish this goal by updating ordinance §14-16-3-1(B) 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 impact to small businesses and suggested a higher threshold for the building size that would require end-of-trip facilities (EC-520).

Trails & Bikeways Facility Plan (1993)

The City of Albuquerque and the County of Bernalillo adopted the Bikeways and 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 (later implemented), and recommended two new positions: a bicycle/pedestrian/trail coordinator in Public Works (now DMD) and a trail coordinator position (Parks).

Facilities. The Trails and 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 and separation between recreational trail users and commuter cyclists was encouraged (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 Trail Study Corridors identified areas with desirable trail connections without a defined proposed alignment. The TBFP incorporated alignments proposed in the 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 the preserving and utilizing the acequia system in the valley for a trail network (not accomplished).

Facility Plan for Arroyos and Arroyo Corridor Plans

In 1986, the City and Bernalillo County adopted The Facility Plan for Arroyos with the goal to establish guidelines "to 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 use of its facilities where compatible with the drainage function. Trail usage 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 competent to assume liability and responsibility.

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 identified for the Arroyos identified as Major Open Space Links and Urban Recreational Arroyos while Major Open Space Arroyos are intended to remain natural or semi-natural condition with limited development of trails.

From a trails standpoint, Albuquerque's arroyos offer unique opportunities in that they are linear corridors which cross large areas of the city and are generally located away from major roadways with relatively few street crossings. The *FPA* 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 *FPA* is intended to address the needs of all types of trail users, including pedestrians, runners, equestrians, disabled individuals, and cyclists.

2. City Plans & Policies

The City of Albuquerque uses a system of ranked plans, starting with the Rank 1 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 2 Plans, such as the WSSP or 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 3 plans provide the most detailed guidance for an area, and often include zoning customized to meet the goals of specific areas.

Comprehensive Plan (2012)

The 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.

Area and Sector Development Plans

Area and many 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 the Proposed Trails Map.

Code of Ordinances (ROA 1994)

Albuquerque has city ordinances related to bicycling and horseback riding which regulate both user behaviors as well as provide provisions for 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 between lots or from stub streets or cul-de-sacs.

Bikeway Location and Design Guidelines are presented in Section 3. American Association of State Highway and Transportation Officials (AASHTO) *1999 Guide for the Development of Bicycle Facilities* (or current revision) serves as the principal resource for the location and design of on-street and multi-use trail facilities. These standards have not been updated since adoption of the *2012 Fourth Edition* of the AASHTO "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 the next 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.

3. Regional Plans & Policies

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 Albuquerque Metropolitan Planning Area (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.

A summary of key policies related to bicycle and trail development follows:

- 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.

4. Statewide and National Plans & Policies

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 provisions for pedestrians, bicycle and equestrian traffic be properly considered in all NMDOT projects.** The BPE Advisory Plan provides recommendations specific to various functions within NMDOT. However, recommendations for planning and programs, funding, engineering and design, and education, enforcement and encouragement have a wider statewide scope.

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.

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 airports, transit terminals and other intermodal facilities as well as 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. Transportation agencies and local communities should go beyond minimum design standards and requirements to create safe, attractive, sustainable, accessible, and convenient bicycling and walking networks.
4. Considering 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. Ensuring 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. Collecting data on walking and biking trips.
7. Setting mode share targets for walking and bicycling and tracking them over time.
8. Improving 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 which 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 which 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.

The national total reserved for the TAP is equal to 2 percent of the total amount authorized from the Highway Account of the Highway Trust Fund for Federal-aid highways each fiscal year. The TAP provides funding for programs and projects defined as transportation alternatives, including on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, community improvement activities, and environmental mitigation; recreational trail program projects; safe routes to school projects; and projects for planning, designing, or constructing boulevards and other roadways largely in the right-of-way of former Interstate System routes or other divided highways.

CHAPTER 3: EXISTING CONDITIONS & CURRENT ISSUES

This section presents an overview of the existing bikeway and trail system and the needs of bicyclists and path users in Albuquerque. Adequately identifying user needs enables path and bikeway 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, discusses public input gathered through an online user survey, and examines cyclist safety by analyzing reported bicycle crash data. 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 develop the Plan recommendations, Part II of this document.

A. Cyclist & Pedestrian Needs

The 2035 Metropolitan Transportation Plan & Centers and Corridors element of Albuquerque's Comprehensive Plan anticipates that Albuquerque's future will include an increasing mix of uses and higher densities concentrated in mixed-use centers. The document 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 from the 2000 Census.

As the population of 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
2012	555,419
2010	535,239
2006	507,789
2000	448,607

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

1. Types

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 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 and stereotyped perspective 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 poker games and group rides.

Advanced Users

Cyclists who use their bicycle for utilitarian trips (ones other than recreation) may find that on-street facilities are the most functional facilities for bicycle transportation. 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 as possible by providing a range of options across the city.

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 future marked facilities such as bike lanes may be one way of accomplishing 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 equestrian 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 tread.

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 Trail often has the problem of being a victim of its own success on the weekends and summer evenings. 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 a threefold manner: 1) developing new facilities to meet the minimum design standards and guidelines 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) to 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 in addition to signage.

Future studies or evaluations of the trail system could focus on identifying known conflict of use areas, and make recommendations about 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.

Equestrian Issues

In the on-line survey 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 County's Bachechi Open Space. To encourage more equestrians and the culture New Mexico and the Southwest has regarding horses, it is recommended that the City and County add equestrian facilities where appropriate in the future.

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-third, or 177 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 2 shows the 2013 City of Albuquerque Bicycle Map.

FIGURE 2: 2013 BICYCLE MAP
(INSERT BIKE MAP IMAGE HERE)

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. 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 would argue that on-street facilities are the most functional facilities for bicycle transportation. Bicyclists have stated their

preference for marked on-street bicycle lanes in numerous national surveys. The fact is that 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.

This Plan takes the approach that if properly designed, bike lanes can increase safety and promote proper riding. For this reason, bike lanes are highly desirable for bicycle commutes and other utilitarian routes 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, see the Design Guidelines for additional information) so that cyclists have enough room to avoid a suddenly opened vehicle door.

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 an image of a large bicyclist. This is done to create a more unique identity for the Bicycle Boulevard. Bicycle Boulevards also typically have more intense design interventions, such as bulb-outs, chicanes, etc., that help slow vehicular traffic.

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. Bicycle Boulevards also incorporate treatments to facilitate safe 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 thru vehicle traffic. There are approximately 6 miles of existing Bicycle Boulevards in Albuquerque.

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 a Bike Route. The most suitable roadways for shared vehicle/bicycle use are those with low 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 are signed with 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.

Wide Lanes/Paved Shoulders

A wide outside lane provides accommodation for 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.

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 Guidelines provide the 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 wayfinding to cyclists (e.g., trailhead signage or bike route numbering). Examples of some signs being used in Albuquerque are shown in Figure 3, 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. Wayfinding 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 3: SIGNAGE EXAMPLES
(INSERT IMAGES HERE)

Bicycle Detectors: Loops, Video Cameras and Pushbuttons

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 detector 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, allow bicyclists to securely lock their frames and wheels, 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 that require one to "clean up" after a ride. Typically, these amenities include showers and clothing locker facilities and can be located at places of employment. Such facilities are most often provided by building owners or tenants for use by those that work in the building.

Trails, also known as "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 open spaces. Shared Use Paths also provide commuting/transportation access to those who do not have the necessary skill levels or comfort levels for on street riding or just prefer to ride off street.

Today, the City of Albuquerque has approximately 177 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 commuter in mind. There are also over 100 miles of unpaved trails. A recent trend or goal today is to plan trails with the commuter in mind but also to provide trail connections to more recreational facilities such as parks, Major Public Open Space, and the Petroglyph National Monument.

The 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 Paseo del Norte, I-40 Trail, Paseo del Nordeste Recreational Trail and Paseo de las Montañas Trail that run predominantly in the east/west direction. 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 of Albuquerque's east side.

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 Open Space or a City park, they are typically informal and not maintained as trails. An example of a formal unpaved trail which may provide a good example for how to separate users in high use areas is the recent project on the north side of the Hahn Arroyo, between Comanche and California. 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. Many of these trails tend to be what is known as "single track" and 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 that is being developed by the City. It consists of segments of trail, bikeways, and urban trail (wide sidewalks). For more information about this project, see Appendix B.

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 obstructions. 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 a 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. A couple 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. At locations of independent trail alignment a modified culvert large enough to provide safe 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 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. 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 spots for all travelers, particularly the more vulnerable bicyclist and pedestrians. Mid-block crossings where trails intersect major arterial streets are often difficult to navigate across. 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 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 Design Manual, Chapter 7.D. 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. It also mandates the establishment of

TDD/telephone relay services. 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.

One ruling that is the closest guidelines for paths and one that the Federal Access Board has adopted is the Public Rights-of-Way Accessibility Guidelines (PROWAG). According to the City of Albuquerque's ADA consultants, PROWAG does not directly affect trails but when a ruling comes out in the future for paths it is very likely that these guidelines will be similar to what is adopted for trails. Therefore, the City will attempt to use these guidelines where feasible when constructing new paths until the ruling on trails is adopted by the Federal Access Board.

Bollard Placement Evaluation

Bollard Placement and Spacing Evaluation on Multi-use Trails

The purpose of this report is to identify relevant design criteria for bollards on multi-use trail facilities, review the installation of bollards on multi-use trails at selected locations, and then develop best practices for consideration of installed conditions and for future installations.

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."

If a need for the implementation of bollards for a multi-use trail is identified, AASHTO has set forth several guidelines for the design of vertical barriers to make them as compatible as possible with the needs of path users and bicyclists. It should be noted that parameters contained within the evaluation are recommended practices and not design standards.

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.

Multi-Use Trail Bollard Inventory

The purpose of this project is to develop an inventory of the existing bollard installations on the 160-miles of multi-use trails identified on the Albuquerque Bicycle Map. Each bollard will be photographed as a part of the inventory and the photos will be geo-tagged by a camera so that the data can be a part of the City's Geographic Information Systems (GIS) database. The multi-use trail inventory will include virtually all of the City's facilities. The inventory data collected will then be compared to the

recommendations provided by the above-referenced Bollard Placement and Spacing Evaluation in order to develop a City-wide placement and spacing policy on bollards, with modifications to those which do not meet the adopted criteria.

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 earlier in this planning process, nearly 70% of the people who responded indicated that more bicycle parking would likely influence them to bike and/or use the multi-use trail system more often.

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

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

Recommended Locations for Additional Bicycle Parking Facilities

The online survey, which had over 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 and parks. Respondents provided specific locations for additional bicycle parking, including throughout the downtown and Nob Hill areas as well as along Central Avenue. Grocery stores and transit stops were other common responses. The University of New Mexico Hospital was the single most common suggestion. The most effective way for the City to increase parking at these and other locations would be through a Bicycle Rack Program. The City could kick off such a program by conducting outreach to businesses in the areas of town and to the types of businesses identified above.

C. Bikeway & Trail System Analysis

The City's consultant completed an analysis of the existing bikeways and trail system, and used this foundation to make recommendations for proposed 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. An emphasis will 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

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.

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, and Valencia & Sandoval Counties
- Natural areas within and outside Albuquerque, including Albuquerque Open Space, Sandia Mountain foothills, National Monuments, and Rio Grande Valley State Park

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 which reduce urban sprawl, auto travel needs, and service costs, and which 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 provide enhanced non-vehicular access to the Centers; while Express Corridors emphasize vehicular access throughout the city. Similarly, there should be enhanced bicycle facility connections to and within the Activity Centers.

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 the soft surface trails within open spaces. Trails also provide commuting/transportation access to those bicyclists who do not have the necessary skill levels or comfort levels for on street riding or just 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 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
- 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. 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. Maps 2 through 5 in Appendix B provide 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 (River)
- Expo New Mexico
- Military Base
- West Mesa Escarpment

- Private (Gated) Neighborhoods
- Drainage and Irrigation Alignments
- Open Space
- I-40 and I-25
- Airports
- Railroad Tracks
- Golf Courses
- Indian Pueblos
- Major Arterials

Topography

Albuquerque is located within the Rio Grande Rift. The valley's alignment is north/south with a gently sloping side to the east meeting the Sandia Mountains with slightly steeper sloping topography 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 of 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 gentile 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 developed metro area is over 1,000 square miles. 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 westerly direction. The Rio Grande River flows in a southerly direction through the central portion of the city dividing the west and east sides of the city.

Other Constraints

Bicycle / Vehicle Crash Locations

Safety is a major concern of both existing and potential bicyclists. For those who ride, safety is typically an on-going concern or even a distraction. For those who don't ride, it is one of the most compelling reasons not to ride. In discussing bicycle safety, it is important to separate out perceived dangers versus actual safety hazards.

Bicycle riding on-street is commonly perceived as unsafe 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 degree 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.

Lack of Wayfinding Tools

Albuquerque's bikeway and trail system could benefit from signage and other wayfinding 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 C for the full user count data.

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 violations recorded were primarily traffic control violations.

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 equestrian and they were observed more frequently on weekdays than weekends.

Overall, the UNM 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. The University area also experiences the highest percentage of cyclists not wearing helmets and cyclists utilizing 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 4.

FIGURE 4: EDUCATIONAL CAMPAIGN EXAMPLE
(INSERT BUS ADVERT IMAGE HERE)

A second concern was for the high violation and low helmet usage at the Rainbow Blvd-Woodmont Ave intersection. The AM peak reflects middle school children traveling to school and it yielded a violation rate of 53.9 percent and helmet usage of 23.1 percent. It appears that an educational program should focus on this area and age group.

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.

Volume Comparison: 1997 and 2010

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

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

Bicycle Commuting

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

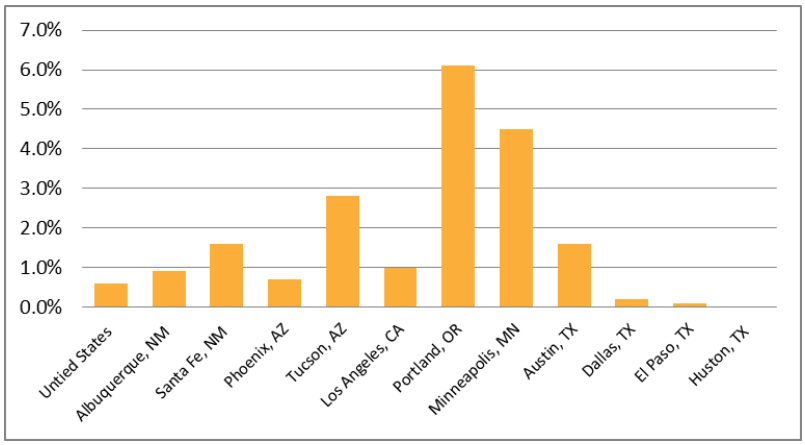
Table 5 shows the Albuquerque's bicycle to work mode-share in comparison to the national average and several other cities in the western U.S. Approximately 0.9% of Albuquerque's population commutes by bicycle. This is consistent with several other cities in the general vicinity including Phoenix, AZ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



Additional bicycle to work statistics of note obtained from the 2006 - 2008 American Community Survey include:

- 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 tabulated response. A significant portion of this population is likely affiliated with UNM.

Current enrollment reported in 2013 at the University of New Mexico 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 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.
- The **Bikeway Quality Index** (BQI) method creates a snapshot of current conditions of biking infrastructure using quality and quantity measurements.
- The **Cycle Zone Analysis** (CZA) tool 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 found in Appendix C.

Key Findings from the Analysis

- A disproportionate number of reported bicycle crashes, 83 percent, involve males who make up about 65 percent of Albuquerque's reported bicycle population. This is consistent with findings from other U.S. cities.
- The average bicycle commute trip is about 23 minutes. This is consistent with the idea of the 20-minute neighborhood and idea that the average bicycle trip in the U.S. is two to three miles.
- Albuquerque's reported bicycle commute to work mode share has been static for about 20 years.
- A comparison of 1997 counts to 2010 counts found the highest AM peak on-street volumes at the Central Avenue and Yale Boulevard intersection. In 2010, 115 cyclists were counted here during the AM peak. This is a drop from the 164 cyclists observed at the same intersection in 1997. These drops in the AM counts are consistent with other count locations. This trend is not consistent with PM counts at the same locations where, in many cases, the numbers of cyclists increased slightly or remained the same. Potential reasons for these shifts could include a variation in the AM peak times or a shift in facility usage patterns.
- The highest on-street cyclist count volumes were found around the University of New Mexico and Kirtland Air Force Base (AFB). 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 Kirtland AFB.

- The highest weekday cycling usage occurred at the University of New Mexico. The highest weekend usage was along the Rio Grande Bosque Trail with an average of more than 200 users per hour per link at three locations. The lowest weekday cycling usage occurred along Unser Boulevard, the lowest weekend usage occurred along Coors Boulevard north of Montaño Road.
- Trail counts indicated that there is significant off-street cycling activity for recreation and utilitarian purposes that is not captured in the census commute mode share.
- Cyclists were the most commonly counted trail users; they were generally noted in ratios of 1:1 to 5:1 when compared to walkers and joggers, the second most prevalent trail users.
- Streets with the greatest number of reported crashes and highest reported crash rates per mile were 4-6 lane roads without bicycle facilities. The roadways with the greatest number of crashes per mile included East Central Avenue, Lomas Boulevard and San Mateo Boulevard.
- The seven intersections with the greatest number of reported crashes were all located along Central Avenue. Count data was available at one intersection, Yale Boulevard, and indicated significant bicycle traffic during AM and PM peak hours.
- Nearly 2/3 of cyclists feel that bicycle lanes and multi-use trails do not connect to all the places they want to go.
- There is 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.

Bikeway Programs

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 interest in getting "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* (*Bike Facs*). 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 Facs* 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 Facs*). 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 5: 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 Bike 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 develops and manages the on-street facilities and the Parks & Recreation Department designs and manages the trails. The Department of Municipal Development 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 between all relevant City Departments throughout the planning, prioritization, design, and development stages of facility construction, as well as regarding 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), see §14-13-3-6, and the Greater Albuquerque Recreational Trails Committee (GARTC), see §14-13-3-8. The two-committee structure allows multiple perspectives regarding the bikeways and trail system. It requires both Departments (P&R and DMD) which are critical to development/maintenance of the paved trail network to engage in the issues concerning them. 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 other project work. These groups officially have non-voting members, such as NMDOT and Bernalillo County; however, those other agencies are not as involved in the ongoing operations as when the groups were first initiated. There are overlapping responsibilities between the groups, which each have different forms of representation.

The operations of the groups have not had the benefit of recent training and guidance about the purpose and role of the committees. Currently, the groups primarily react to 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.

Wayfinding & Orientation

Albuquerque's bikeway and multi-use trail network could benefit from signage and other wayfinding tools to orient users and direct them to and through major destinations. Wayfinding 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 Design Guidelines and page 44, Bicycle Corridor and Wayfinding 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 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. Some examples are: 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 Mid Region Council of Governments (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. Once the data is analyzed over a period of time, it will help Planners project future trail needs. Two infrared sensors and loop sensors will be installed in 2014 or 2015 in collaboration between MRCOG, City Parks and 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 for commuting or exercise. Trail and bikeway count data is provided in Appendix A. Natural surface multi-use trails that are primarily in Major Public Open Space are mainly recreational users. The Open Space Division has car counters at two major parking lot and trailhead locations. One

is at the Elena Gallegos Open Space in the foothills and the other is at Boca Negra Canyon within Petroglyph National Monument. This type of count data gives land managers an idea of how many people are using the Open Space for recreation and to know how much trail work a certain area may need during a certain time of the year.

Maintenance

Timely and consistent maintenance of the multi-use trail system is paramount to keep the trails system clean, from deteriorating quickly, safe, and fun. Maintenance can be difficult due to the multi-use trails being a linear and irregular long system similar to a road network. It is much different than that of a Park or Open Space as those are typically contained within parcels or discrete geographical areas. Issues related to funding and resource availability for this work further complicate the picture.

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 Process

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 Evaluation

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 is the need to identify bike lanes that do not meet the current width standards. **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	Can the project potentially improve bicycling and walking at locations with perceived or documented safety issues? 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?

A system of "●", "◑", and "○" should be used to rate each alignment. A "●" indicates favorable conditions, a "◑" indicates mixed or neutral conditions, and a "○" indicates unfavorable conditions.

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.**

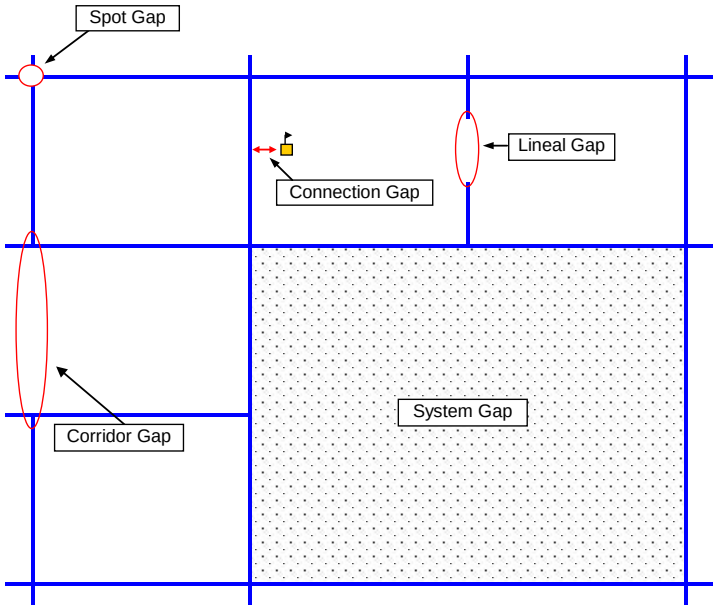
Defining Bikeway and Trail Gaps

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 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 5: 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 5 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, 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
- Shared bicycle/right-turn lanes
- Shared bicycle/double right-turn lanes
- Bike boxes

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:

- 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

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 arterial streets in Albuquerque exhibit characteristics (e.g., high vehicle speeds and/or volumes) where dedicated bicycle lanes may better accommodate safe and comfortable riding. Indicating a preferential or exclusive space for bicycle travel, bike lanes are typically five to six feet wide with delineation taking the form of 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

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

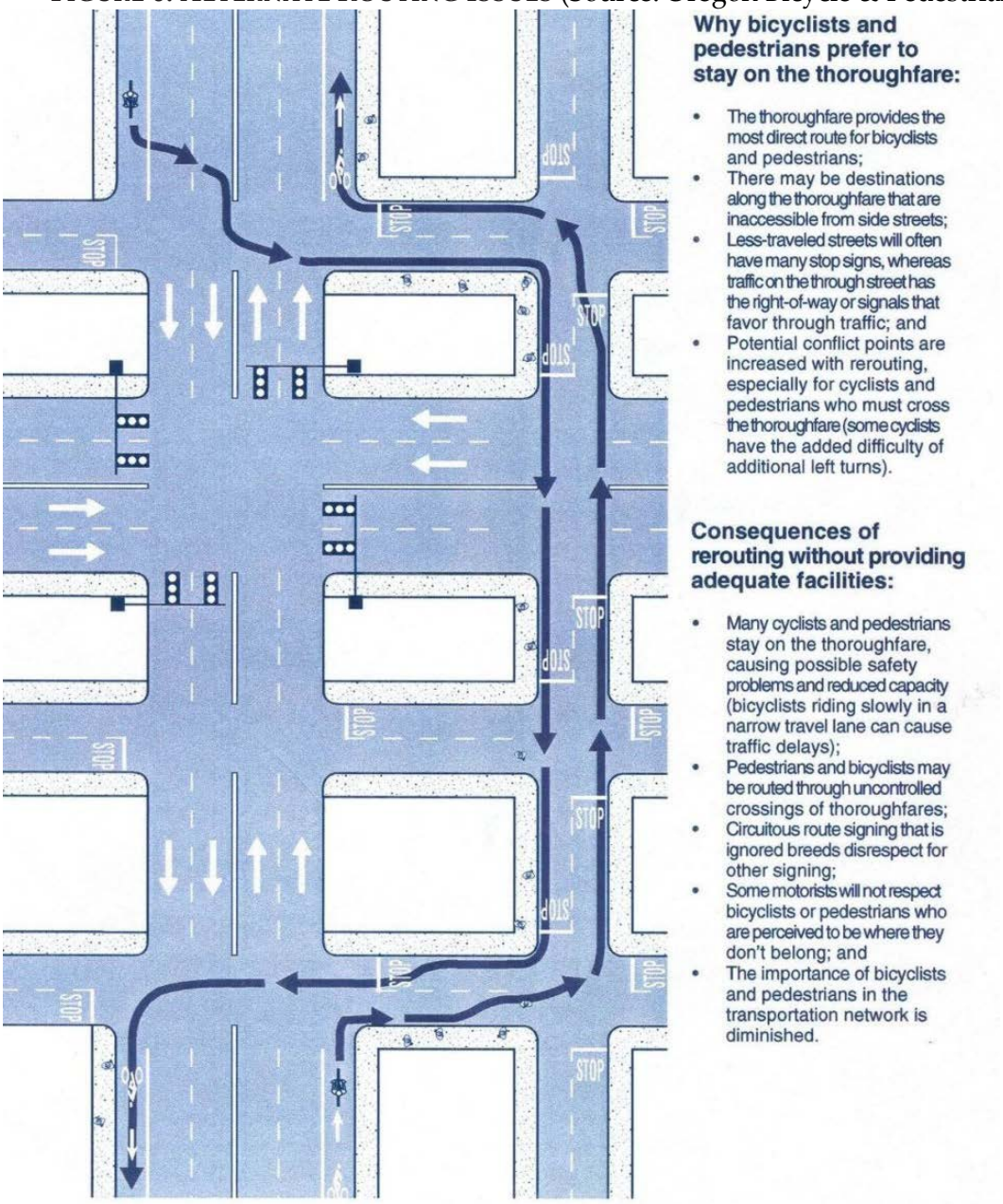
Alternative Routing Measures

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. Consequently, commuter cyclists and those traveling longer distances often gravitate to these routes.
- 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 6, 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.
- Bicyclists may perceive the alternative route as too circuitous.
- The alternative route may include uncontrolled crossings of major streets.

FIGURE 6: 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 wayfinding 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.
- **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 proximity to the irrigation ditches or power poles should be understood and appropriate protective fencing/railing and warning signs installed.
- **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 issues by providing users a formalized means for traversing "problem areas" drainage channels, waterways or major transportation corridors.
- **Accessways** 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 7 graphically depicts the procedure discussed below.

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. Using Figure 7, 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.

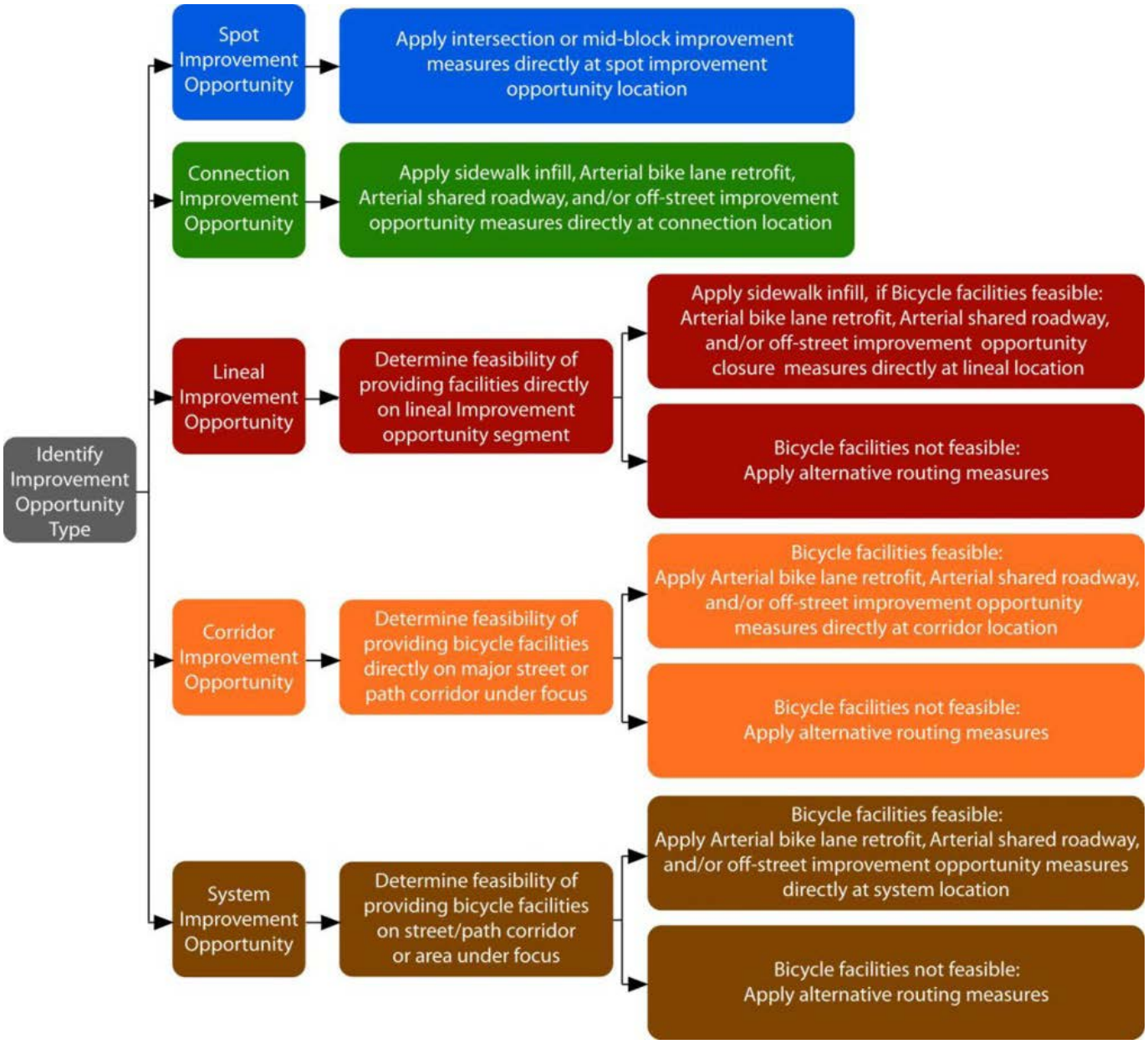
Step 4: Determine Appropriate Gap Closure Measure Type

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 7: BIKEWAY & TRAIL GAP CLOSURE ANALYSIS PROCEDURE



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 C.6. 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 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.

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 and 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 which 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*

- 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.

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.

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.

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 **"Programmed 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 State Department of Transportation 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 consists 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 10 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 this type 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 458 miles of new bikeways and trails within the City of Albuquerque. They were developed through the detailed analysis of the existing bikeway and multi-use trail system, projects recommendations of 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*. 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:

- Bike Boulevards – 8 Miles
- Bike Lanes – 206 Miles
- Multi-use Trails - 163 Miles
- Bike Routes - 81 Miles
- Intersection Improvements – 87
- Grade-separated Crossings – 15

A complete listing of these projects is included reporting **Appendix A**. A map of the complete build-out of the *Bikeways & Trails Facility Plan* is also included in the back of this report.

The present-day cost for the full build-out of these proposed projects based on the cost estimation assumption, described in Section 4.B.3 below, is $133,014,000.

2. High-Priority Projects

Programmed Projects

In addition the City of Albuquerque provided a short list of projects, which are currently programmed or may already be in the design and/or construction phase. These projects include approximately 4.5 miles of bike boulevards, 72 miles of bike lanes, 42 miles of multi-use trails and 20 miles of bike routes. The estimated total cost for these projects is $51.1 million. A detailed list of these projects is shown below. A map of these projects is also included in the back of this report.

TABLE 7: HIGH-PRIORITY PROGRAMMED PROJECTS

Type	Name	From	To	Length
Bicycle Blvd	Alvarado Dr.	Central Ave.	Zimmerman	2.40 mi.
Bicycle Lane	Paseo del Norte	W. City limit	Rainbow	1.12 mi.
Bicycle Lane	Singer Blvd.	Jefferson St.	Chappel Dr.	0.49 mi.
Bicycle Lane	Zuni Rd.	Washington St.	Central Ave.	2.95 mi.
Bicycle Lane	University Blvd.	Avenida Cesar Chavez	Las Lomas Rd.	1.34 mi.
Bicycle Lane	Osuna Rd.	Jefferson St.	Edith Blvd.	1.75 mi.
Bicycle Lane	Central Ave.	Sunset	Atrisco Dr.	0.14 mi.
Bicycle Lane	Black Arroyo Blvd.	Unser Blvd.	W. City limit	1.75 mi.
Bicycle Lane	Carlisle Blvd.	Indian School Rd.	Claremont Ave.	0.43 mi.
Bicycle Lane	Alameda Blvd.	Barstow St.	Edith Blvd.	1.17 mi.
Bicycle Lane	2nd Street	Claremont Ave.	Marquette	4.22 mi.
Bicycle Lane	San Pedro Dr.	Zuni Rd.	Claremont Ave.	1.75 mi.
Bicycle Lane	Central Ave.	City limit	Coors Blvd.	1.16 mi.
Bicycle Lane	Fair Heights Bike Blvd	Dakota	Zuni Rd.	2.07 mi.
Bicycle Lane	Channel Rd.	El Pueblo	Osuna Blvd.	2.43 mi.
Bicycle Lane	Alameda Blvd.	Barstow St.	Edith Blvd.	0.34 mi.
Bicycle Lane	12th Street	Bellamah Ave.	Menaul Blvd.	0.25 mi.
Bicycle Lane	Quail Rd.	Alamogordo	57th Street	0.38 mi.
Bicycle Lane	El Pueblo Rd.	Jefferson St.	Edith Blvd.	1.20 mi.
Trail	I-40 Overpass	1st Street	North Diversion Channel	1.55 mi.
Trail	Paseo del Norte	North Diversion Channel	Domingo Baca Arroyo	1.97 mi.
Trail	Bear Canyon Arroyo Trail Extension	Brentwood	West end Arroyo del Oso GC	0.84 mi.
Trail	Osuna Widening	North Diversion Channel	Sandia Prep HS	0.54 mi.
Trail	University Blvd.	Gibson Blvd.	Rio Bravo Blvd.	2.58 mi.
Trail	Unser Blvd.	Dellyne Ave.	Montano Rd.	0.55 mi.
Trail	Corrales Main Canal	Frontage Rd.	Eagle Ranch Rd.	0.34 mi.
Trail	Alameda Drain/2nd St.	Alameda Drain (E/W)	Osuna Rd.	2.00 mi.
Trail	Corrales Main Canal	Piedras Marcadas Arroyo	Paseo del Norte	0.15 mi.
Trail	Paseo del Norte	All Saints	Coors	0.44 mi.
Trail	Westside Rd.	Golf Course Rd.	NM 528	0.81 mi.

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 our approximately 177-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* 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.

Fair Heights Bicycle Boulevard

The City is currently 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.

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. **The following list identifies the high-priority critical link projects that can possibly be completed within the next 10 years.**

TABLE 8: HIGH-PRIORITY CRITICAL LINKS PROJECTS

Type	Name	To	From	Length
Bicycle Blvd	Richmond Dr. NE	Candelaria Rd. NE	Claremont Ave. NE	0.25 mi.
Bicycle Blvd	Claremont Ave. NE	Richmond Dr. NE	Moon St. NE	3.95 mi.
Bicycle Lane	Sage	82nd Street	Unser	0.20 mi.
Bicycle Lane	Sage	86th Street	82nd Street	0.21 mi.
Bicycle Lane	Sage	90th Street	86th Street	0.21 mi.
Bicycle Lane	Coors	Huseman	S. City limit	0.08 mi.
Bicycle Lane	Coors Blvd. Bypass	Ellison DR NW	Eagle Ranch RD NW	0.74 mi.
Bicycle Lane	Edith Blvd. NE	Paseo Del Norte	Alameda RD NE	1.29 mi.
Bicycle Lane	Indian School Rd. NW	Menaul Extension NW	Rio Grande Blvd. NW	0.63 mi.
Bicycle Lane	12th ST NW	NW Bellamah AV	NW Menaul Blvd.	0.63 mi.
Bicycle Lane	Carlisle Blvd. SE	Silver AV SE	Garfield AV SE	0.34 mi.
Bicycle Lane	Coal AV SW	SE Broadway BLVD	6th ST SW	0.53 mi.

Bicycle Lane	Lead AV SW	SW 8th ST	SW 2nd ST	0.41 mi.
Bicycle Lane	Menaul Blvd. NW	NW 6th ST	12th ST NW	0.55 mi.
Bicycle Lane	Eubank Blvd. SE	Southern AV SE	Central AV E	0.34 mi.
Bicycle Lane	Rio Grande Blvd. NW	Central AV W	Mountain RD NW	0.25 mi.
Bicycle Lane	Gibson Blvd. SE	I-25 Ramp SE	Broadway Blvd. SE	0.33 mi.
Bicycle Lane	Carlisle Blvd. NE	Central AV E	Lomas Blvd. NE	0.53 mi.
Bicycle Lane	University Blvd. SE	George RD SE	Randolph RD SE	0.32 mi.
Bicycle Lane	University Blvd. SE	Rio Bravo Blvd. SE	Spirit DR SE	0.50 mi.
Bicycle Lane	Montano RD NW	Gallegos Lateral NW	4th ST NW	0.26 mi.
Bicycle Lane	San Pedro DR NE	San Bernardino AV NE	I25 Ramp / City Limits	2.11 mi.
Bicycle Lane	University Blvd. SE	Spirit DR SE	North of Spirit DR SE	0.20 mi.
Bicycle Lane	Sage RD SW	90th ST SW	West of Sunspot RD SW	0.30 mi.
Bicycle Lane	Blake RD SW	Arenal Main Canal SW	Unser Blvd. SW	0.33 mi.
Bicycle Lane	Jefferson ST NE	Masthead ST NE	San Francisco DR NE	0.86 mi.
Bicycle Lane	Carlisle BLVD SE	Silver AV SE	Central AV E	0.05 mi.
Bicycle Lane	Woodmont AV NW	Paseo Del Norte NW	Valle Prado LA NW	0.67 mi.
Bicycle Lane	Unser Blvd. NW	Montano RD NW	Dellyne Ave NW	0.54 mi.
Bicycle Lane	Rio Bravo Blvd. SE	West of Empresa DR SE	I25 SE	0.11 mi.
Bicycle Lane	Carlisle Blvd. SE	Carlisle PL SE	Gibson Blvd. SE	0.56 mi.
Bicycle Lane	Averida Cesar Chavez SE	Edith Blvd. SE	Yale Blvd. SE	1.32 mi.
Bicycle Lane	Washington ST SE	E Central AV	SE Zuni RD	0.26 mi.
Bicycle Lane	La Orilla RD NW	Sumac DR NW	Coors Blvd. NW	0.10 mi.
Bicycle Lane	Chappell DR NE	Singer BLVD NE	Pan American Frwy.	0.32 mi.
Bicycle Lane	Unser Blvd. NW	Black Arroyo Blvd.	Bandelier DR NW	0.65 mi.
Bicycle Lane	NW Atrisco Dr./NW Rainbow Blvd.	NW Unser Blvd.	Existing bike lanes on Rainbow Blvd.	0.88 mi.
Bicycle Lane	86th ST SW	Camino San Martin SW	Sapphire St. SW	0.42 mi.
Bicycle Lane	Eubank	Central Ave	Chico	0.56 mi.
Bicycle Lane	Bridge Blvd. SE/Avenida Cesar Chavez SE	W. Central AV	Old Coors Dr	2.10 mi.
Bicycle Lane	Coors Blvd. NW	Paseo Del Norte NW	Paseo Del Norte Ramp NW	0.08 mi.
Bicycle Lane	Ellison DR NW	Coors Blvd. Bypass NW	Cabazon RD NW	0.71 mi.
Bicycle Lane	Coors Blvd. NW	Paseo Del Norte NW	Alameda Blvd. NW	1.37 mi.
Bicycle Lane	Ladera Dr. NW	Unser Blvd. NW	Ouray RD NW	1.08 mi.
Bicycle Lane	Irving Blvd. NW	Rio Los Pino Dr NW	Unser Blvd. NW	0.77 mi.
Bicycle Lane	8th ST SW	Bridge Blvd. SW	Lead AV SW	0.85 mi.
Bicycle Lane	Unser Blvd. NW	Ladera DR NW	Ouray RD NW	1.02 mi.
Bicycle Lane	Candelaria Rd	2nd St	10th St	0.50 mi.

Bicycle Lane	Snow Vista Blvd. SW	Camino San Martin SW	Benavides RD SW	0.22 mi.
Bicycle Lane	Irving Blvd. NW	Golf Course RD NW	Rio Los Pino Dr. NW	0.63 mi.
Bicycle Lane	Tierra Pintada Blvd. NW	Windward Dr NW	Unser Blvd. NW	0.32 mi.
Bicycle Lane	Ladera Dr. NW	South of Tessa DR NW	Unser Blvd. NW	0.73 mi.
Bicycle Lane	Eagle Ranch RD NW	Coors Blvd. NW	Irving Blvd. NW	0.62 mi.
Bicycle Lane	Coors Blvd. NW	Central Ave	Saint Joseph Dr. NW	3.38 mi.
Bicycle Lane	University Blvd.	Bobby Forster	Stryker	1.35 mi.
Bicycle Lane	Candelaria RD NE	University Blvd. NE	Edith Blvd. NE	0.53 mi.
Bicycle Lane	Eubank Blvd. NE	Osuna Rd NE	Academy RD NE	1.33 mi.
Bicycle Lane	Comanche RD NE	Carlisle Blvd. NE	Drainage Easement	1.20 mi.
Bicycle Lane	Montano Rd. NE/Mercantile AV NE/Commerce DR NE	West of Renaissance Blvd. NE	Chappell DR NE	0.87 mi.
Bicycle Lane	Paseo Del Norte	Calle Nortena NW	Rainbow Blvd. NW	1.76 mi.
Bicycle Lane	NM 528 NW	Coors Blvd. NW	Cottonwood DR NW	0.78 mi.
Bicycle Lane	Golf Course RD NW	Taylor Ranch Rd	Paseo Del Norte	1.55 mi.
Bicycle Lane	Constitution AVE NE	Stanford Dr NE	Girard Blvd. NE	0.26 mi.
Bicycle Lane	Gibson Blvd. SE	I-25 SE	I-25 Ramp SE	0.10 mi.
Bicycle Lane	Tierra Pintada Blvd NW	Unser Blvd. NW	Arroyo Vista BLVD NW	0.65 mi.
Bicycle Lane	NW Atrisco Dr/NW Rainbow Blvd.	NW Unser Blvd.	Existing bike lanes on Rainbow Blvd.	1.22 mi.
Bicycle Lane	Indian School	Monte Largo	Embudo Trail	0.85 mi.
Bicycle Lane	San Francisco	Holbrook	Eubank Blvd.	0.50 mi.
Bicycle Lane	Louisiana Blvd.	San Antonio	Burtson	0.44 mi.
Bicycle Lane	Louisiana Blvd. NE	Signal AV NE	San Diego AV NE	0.10 mi.
Bicycle Lane	Wyoming Blvd. NE	Alameda Blvd. NE	Beverly Hills/ City limits	0.16 mi.
Bicycle Lane	Alameda Blvd.	Barstow St	Edith Blvd.	0.09 mi.
Bicycle Lane	<Null>	<Null>	<Null>	0.40 mi.
Bicycle Lane	Central Ave	Tingley	San Pasquale	0.81 mi.
Bicycle Lane	Broadway Blvd.	Inidan School	Coal	1.74 mi.
Bicycle Lane	Atrisco	Iliff	Juniper	0.21 mi.
Bicycle Lane	Paradise	<Null>	Universe	0.51 mi.
Bicycle Lane	University Blvd. SE	George RD SE	Randolph RD SE	0.40 mi.
Bicycle Lane	2nd ST	Near Lagunitas Ditch	Marquette AV NW	1.07 mi.
Bicycle Lane	Carlisle Blvd. NE	Indian School RD NE	Claremont AV NE	0.32 mi.
Bicycle Lane	San Pedro Dr	Zuni Rd	Claremont Ave	1.00 mi.
Bicycle Lane	Unser Blvd. NW	Central AV W	Los Volcanes RD NW	0.32 mi.
Bicycle Lane	Old Coors	Bridge	Coors	0.01 mi.
Bike Route	Mackland AV NE	Lafayette DR NE	NE Montclaire DR	0.50 mi.
Bicycle Lane	Marble AV NE	Vassar DR NE	Summit DR NE	0.22 mi.
Bicycle Lane	Mackland AV/Summit	Summit DR NE	Lafayette DR NE	0.09 mi.

	DR NE			
Bicycle Lane	Avenida La Resolana NE	Montclaire DR NE	Morningside DR NE	0.07 mi.
Bicycle Lane	Alcalde PL/Lead AV SW	SW Abq Riverside Drain	SW 8th ST	0.72 mi.
Bicycle Lane	Coal AV SW	SW 6th ST	Alcalde PL SW	0.65 mi.
Bicycle Lane	University Blvd. SE	Randolph RD SE	Gibson Blvd. SE	0.33 mi.
Bicycle Lane	Morningside/Marble Dr. NE	Utah NE	NE I40 Ramp	0.18 mi.
Bicycle Lane	Morningside/Marble Dr. NE	San Pedro	Texas	1.29 mi.
Bike Route	Morningside/Marble Dr. NE	Avenida La Resolana NE	San Pedro	1.34 mi.
Bike Route	University Blvd. SE	Randolph RD SE	Gibson Blvd. SE	0.09 mi.
Trail	Paseo Del Norte Trail	Kimmick	Calle Nortena	0.37 mi.
Trail	Paseo Del Norte Trail	Kimmick	Universe	1.45 mi.
Trail	La Orilla	Coors	City Limits	0.24 mi.
Trail	Paradise Trail	Calle Chamisa	Unser	1.15 mi.
Trail	Domingo Baca Drainage	Barstow ST NE	Ventura ST NE	0.52 mi.
Trail	Unser Blvd. NW	Bandelier	Contess	0.23 mi.
Trail	Unser Blvd. NW	Mojave ST NW	Montano RD NW	0.39 mi.
Trail	Unser Blvd.	Artisco	Parasise	2.66 mi.
Trail	JUAN TABO BL Blvd.	NE Tramway Blvd.	NE Juan Tabo Blvd.	1.04 mi.
Trail	I-40 Westbound	Unser Blvd	City Boundary	0.85 mi.
Trail	NE Ventura St	NE Academy RD	Paseo Del Norte	0.72 mi.
Trail	NE Ventura St	Freedom	Paseo Del Norte	0.90 mi.
Trail	Paseo Del Norte	<Null>	Barstow	0.25 mi.
Trail	Pennsylvania	G	<Null>	0.48 mi.
Trail	Calle Cuervo	Coors Blvd. Bypass	Cabezon	0.69 mi.
Trail	Corrales Main Canal/La Orilla Outlet	Piedras Marcadas Arroyo	Paseo Del Norte	0.10 mi.

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.

Multi-use 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***

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***

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	Cost/Mile	Total
Multi-Use Trails	163 miles	$195,000	$31,785,000
Bike Boulevards	8 miles	$50,000	$400,000
Bike Lanes	206 miles	$374,000	$77,044,000
Bike Routes	81 miles	$5,000	$405,000
Grade-Separated Crossings	15 each	$1,500,000	$22,500,000
Enhanced Intersection	88 each	$10,000	$880,000
Total System	458 miles	n/a	$133,014,000

C. Existing Facility Enhancements

1. Intersection and Crossing Improvements

This *Facility Plan* recommends improvements to intersection and crossing for the existing and proposed bikeways and multi-use trails. This *Facility Plan* recommends the construction of 15 grade separated crossings, improvement of one mid-block crossing and the improvement of 87 existing intersections. The cost for these proposed intersection and crossing improvements based on the cost estimation assumption described above is $23,380,000.

Funding available over the next 20 years will not be sufficient to construct all of the proposed projects, intersection, and crossing improvements. The list of projects and improvements that this *Facility Plan* recommends should be used as guidance for the City when, planning future projects, requesting funding and be included when expanding 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*.

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. The City will apply this prototypical design to all of the 87 intersections identified in this planning process and will continue addressing other intersections where bicycle facilities "disappear" as funding allows. Each intersection that is adjacent to new bicycle facilities should be designed to accommodate a continuous facility through the intersection, as proposed in the Design Guidelines, and described below.

Prototypical Multi-lane Arterial Intersection Improvements

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

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

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

Four different intersection approaches are shown:

[Insert Prototypical Multi-lane Arterial Intersection Designs]

2. Retrofitting Trails to be Universally Accessible

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 design process 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 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 utilize 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 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. 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, and the City does not have a policy for when bollards should be considered. The City of Albuquerque has installed bollards at numerous locations throughout the City's trail system to control vehicular access on trails. Currently, standards or recommended practices to ensure consistent application are not fully established by the City of Albuquerque to govern the design and installation of trail bollards. The only City Standard Drawing established for bollard installation pertains to an installation for access to a drainage facility.

The 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.

4. Facility Upgrades

Claremont Road – Bicycle Route to Bicycle Boulevard

Claremont Road is a road proposed to be upgraded from a Bicycle Route to a Bicycle Boulevard. The City is currently 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.

Trail Amenities

Trail amenities shall be equitably distributed City-wide where feasible and as funding is available. Amenities shall be prioritized by standards to be established. Typical amenities to be provided 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 wayfinding
- Bike parking and bike lockers at destinations and connection points to other transportation modes, i.e.: bus stops, train stations, employment centers
- Appropriate landscaping shall be developed 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 of identifying 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.F.2, Trail Wayfinding.** 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.

1. Signage and Marking

Marking of the on-street bikeways and multi-use trails way-finding will provide the 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. 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.

The City is developing a Bicycle Corridor and Wayfinding Sign Implementation Plan currently, in 2014. The goal of the project is to improve wayfinding 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 prioritized list of destination sites and corridors has been developed, the consultant will develop wayfinding signs for the destination sites and corridors. The

product of this study is a geographic database that identifies proposed wayfinding sign locations along the various corridors.

2. Emergency Responders

Coordination between the City and emergency responders with regards to the way-finding system needs to be established. This effort would best be done by the Trails Coordinator due to the fact that a greater part of this will involve the multi-use trail system. As part of this Facility Planning process, the Trails Coordinator developed a trail responsibility map. This map will eventually be shared with the City's 311 phone service and with emergency responders, after 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.

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 following describes current safety, education, outreach, and encouragement 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. 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 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/openspace/pdf/RGVSP2.pdf
- Sandia Foothills Trails Map: http://www.cabq.gov/openspace/pdf/foothillsmap.pdf

There is a series of trail user guides that 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 (BSE Program) began in 1995 with a mission to design and provide for the citizens of the Albuquerque metropolitan area educational activities and information which promote bicycle and pedestrian safety, 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 administratively housed in the Parks & Recreation Department.

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

Bike Rodeos (Education)

The City of Albuquerque offers 60 – 200 bicycle safety 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 presentation with hands-on bike safety, in which the child rides through a simulated road on a bike. Helmets were distributed to children that participated in bike safety 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/bicycle.html.

Youth Bicycle Safety Program (Education)

The City offers a free, year round bike safety clinic for youth ages 7-10 teaching children how to "drive" their bike safely through a safety 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 with an emphasis on share the road principles. In 3013, 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 servicing eight (8) adults. The class is a 7 hour class that 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 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, 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, disseminate bike maps and track all bike fatalities.
- The BSE Program purchased 6 new larger size BMX bikes for the bike safety rodeos. For years we have been looking for Chrome BMX bike and finally Chrome has become an option. Painted bike did not survive constant trailering.

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 mediums 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, 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 time frame 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. There are five mechanical volunteers at Esperanza. 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. Two of the current volunteers at Esperanza are organizational volunteers. These individuals help with the constant organizational and part sorting needs at Esperanza. The last category of volunteers is 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 complete certification as 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 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 and legally. The training and certification received through this course was instrumental in the planning of 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, we have held one Mom's Night Out Bicycle Maintenance Class to date. Although attendance was low (4 participants and 2 volunteers), it is hoped that latter classes will reach a wider audience. Through targeted classes such as this, we believe that we will 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 which can be distributed through the bike shop or at public events. These materials include an Esperanza Community Bike Shop brochure which explains the adult education opportunities available at the shop, a Bike Lock pamphlet which demonstrates proper use of bicycle locks and strategies to avoid bicycle theft, and several bike maintenance pamphlets which 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 the Albuquerque community. Through the use of these materials, the Esperanza Community Bike Shop's Adult Education Program is able to reach a larger audience in the promotion of safe and confident cycling.

Transit Bus Training Rack

The Esperanza Community Bike Shop's Adult Education Program contacted the City of Albuquerque Transit Department about the availability of bike rack such as are used on the front of ABQ Ride City busses. The Transit Department graciously supplied us with a rack. This rack has now been mounted on the wall of the Esperanza Community Bike Shop classroom. Through the use of this rack we are able 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 in close proximity 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; much like federal funding that has been allocated for existing and new on-street bicycle lanes and trails. Administration of the program is

performed by the City's Bicycle Coordinator within the Department of Municipal Development (768-2680 and on the City's website), which is also a federally-funded position. The Bicycle Coordinator receives new and manages 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. Review of lockers and their active files are performed by the Bicycle Coordinator on a periodic basis in order to minimize the potential for misuse.

The City currently manages around 300 bicycle lockers. The locations for theses lockers come from request 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 accommodation for cycling and encouraging people to bike for transportation and recreation. In 2005 the City of Albuquerque was awarded the Bronze level recognition and is one of three cities in New Mexico recognized as a Bicycle Friendly Community (Santa Fe—Silver, Las Cruces—Bronze). We maintain 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.

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 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 enforcements 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 Kirtland Air Force Base. 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 Mid-Region Council of Governments 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, with 5 representatives of the Mid-Region Council of Governments and 2 Parks and Recreation personal in attendance. We are currently finalizing the Memorandum of Understanding between the City of Albuquerque and the Mid-Region Council of Governments, 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 New Mexico Department of Transportation, 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 broadcasted 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. It was decided that a bike valet should be provided for this July 4th event as a way to promote cycling within the City and to help with traffic and parking congestion. Over the course of the event, 278 bicycles were safely stored for the public; including several tandems, child trailers, and child seats. This shows an interest in bicycle transportation for among families, and demonstrates the feasibility of bicycle use with young children.

With the assumption that the people in attendance at this 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 our 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 decision was made to continue to provide bike valet services at City events throughout the summer. These bike valets were primarily held 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 a sense of conversation in which the staff and volunteers of the bike valet were able to discuss safe cycling and general cycling topics as well as distribute educational materials with many interested members of the public. The staff at these events also distributed bicycle lights to cyclists without proper bicycle lighting; this was also 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 Valets conducted 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 use of the Bicycle Education Grant; mobile bicycle racks, banners, and shade tents have been purchased to improve the overall level of service for the patrons of these bike valets 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 2010 event featured eight commuter stations near major employment areas with breakfast, giveaways such as water bottles and patch kits, prize raffles and a "Bike Buddy" component where beginner bicyclists can ride with more experienced bicyclists. The Bike Buddy program is available on an ongoing basis but is primarily promoted through the Bike-to-Work Day promotion.

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, there are numerous bicycling events held. These include races, skills competitions, and bike polo events, to name a few. These events are tracked through some community calendars, such as www.nmcycling.org, www.usacycling.org, and www.bikehubnm.com. There are also Facebook pages that 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. It has been argued 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 the City currently 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 (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.

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 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. It is recommended that the City create a unified safety campaign building off of existing work by BikeABQ and the BSE Program, placing safety messages near high-traffic corridors (e.g., on billboards, in bus shelters, and in print publications).

A well-produced safety campaign will 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 be able to 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 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 award recognition for communities that actively support bicycling. A Bicycle Friendly Community welcomes cyclists by providing safe accommodation for cycling and encouraging people to bike for transportation and recreation. In 2005 the City of Albuquerque was awarded the Bronze level recognition and is one of three cities in New Mexico recognized as a Bicycle Friendly Community (Santa Fe—Silver, Las Cruces—Bronze).

The City's Engineering Group 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. There are two application deadlines per year: one in February and the other in July. To assist

with completing the BFC application, a BFC checklist was developed and is located on Appendix H of the plan.

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. 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
- 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 which program they would like 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 is 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 attractive space for physical activity and social contact, and are cost-effective compared to the cost of building new parks for the same purpose. These events can be weekly events 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.

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 will 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 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 wayfinding information to mountain bikers.

Provide Driver Education Related to Bicycling (Education)

Improving driver awareness of bicyclists helps to make a safer and more comfortable 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 instead. 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 can also increase public acceptance of enforcement actions.

Developing a Driver Diversion Class will be a longer-term effort, as they 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 (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.

It is recommended that the City perform 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 forms and this approach may be modified to serve the needs and interests of individual jurisdictions.

The City should take the lead role in standardizing a regional approach to counts and surveys. City staff may perform the counts themselves, or assist local groups or volunteers in performing 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.

Bicycle Rack Program (Promotion)

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

Consider placement of enhanced bicycle facilities (e.g., a bicycle depot) at key transit exchanges, such as the Alvarado Transit Center, if demand analysis indicates adequate potential for facility use. Finally, and for a similar reason as above, the City should also provide guidance on the different types of bicycle racks, as rack types vary in their functionality.

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 USD) to the cost of 12 bike rack spaces and one automobile space ($4,600 to $9,600 USD). This program should also provide guidance on the design and placement of these facilities.

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

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

- Providing motor vehicle parking relaxations where bicycle parking is provided beyond the minimum requirements.
- Providing motor vehicle parking relaxations where complete end-of-trip facilities are provided (i.e., long- and short-term parking, coupled with showers, washrooms and clothing lockers).
- In space-constrained applications, such as 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.

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
- Zone code amendments to support bicycle culture

As staff time, funding, and local priorities dictate, the bicycle and trail coordinators 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. Below we offer guidance for a strategy 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 fostering linkages among critical departments within the City (primarily P&R, DMD and Planning) to communicate and coordinate activities related to design of trails and on-street bikeways. Another piece is to coordinate bikeway and trails activities 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
- Update master facilities List/Map
- Adhere to Design Guidelines
- Technical Review Committee
- Organize trainings
- Conduct interagency meeting and bikeways issues
- Update this Plan (at 5 or 10 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 between Public Works, Parks & Recreation, County Public Works and/or Parks & Recreation, and Regional Council of Governments. The current organization of responsibilities is generally consistent with other communities. These findings support this Plan's recommendations to

focus on consistent and ongoing coordination between 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 Goals, policies, objectives and strategies to outline how the Departments in Albuquerque can work together more efficiently for the benefit of trail users and cyclists.

GOAL 7: Streamline administrative practices and coordination

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 and enjoyable for the public to use.
    a. Objective: Provide full-time staff positions dedicated to trails and bikeways with appropriate office budgets to promote bicycling and trail use within Albuquerque.
    b. Objective (Planning): Create linkages between Planning Department, Parks & Recreation and DMD regarding planning of future projects and programming funding for facility improvements and projects.
        i. 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.
        ii. 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.
        iii. Strategy: DMD and P&R, with assistance from the Planning Dept. 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.
        iv. Strategy: DMD and Parks & Recreation, with assistance from the Planning Department, will conduct an annual update of the existing and proposed facilities map.
    c. Objective (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.
        i. 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.
        ii. Strategy: Create a Technical Review Committee (TRC) to include a few key staff members (P&R, DMD, and Planning Department) with expertise in design of trail and bike facilities. TRC would review major projects on a project-by-project basis. This review would be in addition to and in anticipation of DRC. 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 would be appropriate and input from Citizen Advisory Groups will be sought. TRC's recommendations will be documented by the Project Manager.

iii. 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 of citizen advisory groups. Coordination with MRCOG regarding topic areas is essential. Here are some potential topics:

1. 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.
2. On-street bikeway design, including intersections, and techniques for trail crossings of arterials: for traffic safety personnel, engineers, and others involved in bikeway design.
3. Maintenance practices, issues and techniques: maintenance staff.

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

i. 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, Park Management, Bike Safety Program) NMDOT, BernCo, 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.

ii. Strategy: DMD and Parks & Recreation in partnership with the Planning Department will update this Plan every 10 years.

e. Objective: 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 a full-time Trail Planner and a grant-funded Bicycle Encouragement position. 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

The City currently has two advisory committees for bikeways and trails – 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. GABAC has a broader interest in the street network and GARTC has a broader interest in the unpaved trails. The current structure requires both Departments, Parks & Recreation (P&R) and the Department of Municipal Development (DMD), which are responsible for development and maintenance of the bicycle and trails network to be engaged in issues concerning the paved trails, which are of mutual interest to both committees.

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 if 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 with sometimes conflicting recommendations from each group and that the committees are very time-consuming. Also, City staff reports that both committees are very 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). 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.

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 making outreach to Bernalillo County to join with the City since

the trails and bikeways system is a regional network. Following is an overview of how other communities address citizen advisory groups.

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, the equivalent of Council Districts, and representatives from unincorporated Pima County (which has a number of representatives). Most of the governmental reps are *ex-officio* (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 regards 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/Ped program is located in the Public Works Department. Two committees advise PW 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, there are 3 Minneapolis Parks & Recreation Board (MPRB) members, there are 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 which 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 their staff person, it has worked well. It seems the RTB is mainly trying to get people to adopt trails and they also sponsor 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 which 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;
- recommends 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.

Options for Albuquerque

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

1. **Status quo - two Committees**: Continue with two committees – GABAC/GARTC – staffed by DMD/P&R. Ideas which may improve the process: 1) Clarify the role of the committees, integrate the advisory committee role in a more standardized manner into the planning and design process; (i.e. at particular points in the process, as outlined in the Streamlining Administration strategies), identify outside agency representatives as regular liaisons to work with the committees; 2) Improve recruitment and selection process for new members, advertise vacancies, develop a nomination process or other more standardized process for filling positions, conduct interviews, assure diversity and broad representation, have term limits and fill vacant positions quickly; 3) Provide trainings for advisory committees, provide packets with orientation materials for new members; 4) Improve meeting effectiveness, abide by rules of conduct for public meetings, utilize subcommittees, not necessarily supported by City staff, to address particular areas of interest; and 5) consider a way to have committee members (or their constituencies) assist in standardized trail counts and reporting on other issues.
2. **Albuquerque Bike and Pedestrian Advisory Committee:** Create one committee with representation by geographic regions, and which reflects the diversity of the community – age, gender, type of travel, and other special interest as appropriate. Consider: inclusion of representation from major established advocacy groups and ex-officio agency representatives. For general guidance, see the League of American Bicyclists Advocacy Advance publication: Best Practices for Bicycle and Pedestrian Advisory Committees at the web address above.
3. **City/County Bike, Pedestrian and Trails Advisory Committee:** Create one committee that represents the City/County, or Albuquerque Metropolitan Planning Area. Work could be done by subcommittees, somewhat independently of staff, to address particular areas of emphasis; and by a strong executive committee.

Considerations regarding moving to single committee structure

In Albuquerque, consolidation of the two committees may not specifically address the interests of people who use the unpaved trails (particularly equestrians). One concept for consideration is to create a standing subcommittee, with a specific charge to map and enhance the unpaved trail network and provide input on major projects which affect the network. An alternate approach to recognizing and accommodating equestrian interests would be to consider amending the Open Space Advisory Board and/or Parks and Recreation Advisory Boards to include equestrian and unpaved trail user interests. A process for regular communications with related land management agencies could be established; to include the Open Space Division, MRGCD, US Forest Service, etc.

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:

a. **Planning Department.** If staffed by the Planning Department, participation and support of P&R and DMD would be essential.

b. **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.

c. **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.

d. **City Council/Mayor's Office.** Nashville/Davidson County housed their advisory groups in the Mayor's Office. City Council has a Constituent Services group that might be appropriate to house an advisory group.

e. **Joint City/County.** Would require exploration with the County to determine appropriate staffing. This is the Tucson-Pima County structure.

f. **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

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.

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 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 report of the bicycle facilities that have been constructed.
5. Give priority to achieving connectivity of the bikeway network when planning and programming all roadway and bikeway improvements.
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 Albuquerque Bikeways and Trails Master Plan and update the Plan at five 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) 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 AASHTO bicycle facility design guidelines, on all new, rehabilitated or reconstructed roadways, as indicated in the Master 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.
4. 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.
7. Implement other design considerations, per the current versions of 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 Maintenance along Roadways

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 lanes 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 when 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. 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 bicycle facilities.
3. 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 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 curb lane widths (i.e., provide lane widths of 14 feet or greater) through construction projects on roadways that do not have bike lanes. Where this is not feasible, provide appropriate bicycle friendly and reasonably direct detours and detour signing.
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 utilize 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. 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 Greater Albuquerque Bicycling Advisory Committee, Greater Albuquerque Recreational Trails Committee 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 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 usage through awareness of state laws, educational brochures and programs.
5. Provide full support for the Bicycle/Pedestrian Safety Education Program 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 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 an effective method of weight control.

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 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 Albuquerque Bikeways and Trails Master Plan Update. The facility information will be provided to AGIS and MRCOG in GIS format. Maintain and update the bicycle accident database. Utilize the database to identify high accident locations and/or high accident severity locations to help in the prioritization of bicycle project and program improvements. Review each bicycle collision/accident in a timely manner to identify system deficiencies and potential improvements.

5. Procedures for Design Development & Review

The Design Development and Review Process were developed by the Parks and Recreation Department and are 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 Trail located within a gated community and maintained by the 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 City Design Review Committee (DRC).

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.

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 existing 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 in place.
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 shall be dedicated for public use and granted to the City.
6. Trails shall be provided within City ROW 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. 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.
8. 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 – include 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 physical challenges.
9. 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. The City will only maintain trails and bikeways that are built within the Public right-of-way.
11. All public and private development shall be built to the minimum design standards, as adopted in the Bikeway and 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 redefine the way a bike lane width is referenced in the DPM.

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 and 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.

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 sue 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.

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

N1.2.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 edge-line to the edge of gutter. The diagrams should be updated to match the text.

Discussion: The guidance given is contradictory and should be consistent to ensure the desired outcome.

C. Maintenance & Operations Recommendations

1. Current Trail Maintenance Practice

Two full-time staff are assigned to trail maintenance (to cover approximately 177 miles of urban recreational trails). Staffing has not changed much since 1993 when there were 39 miles of trails. Several workers from the Streetscape crews help out as is feasible. The 2015 Fiscal Year Budget proposes to shift maintenance responsibilities related to medians and streetscapes, which may result in an increased capacity of trail maintenance staff.

The current maintenance protocol is to:

> Maintain a clear 3' recovery zone on both sides of trails, spraying for weeds both sides of trail, mowing both sides of trail to keep weeds and grasses at a manageable height, sweeping trails on an as-need 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, routine 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. They currently have a large backlog of 311 complaints, some of which may be duplicates. Other complaints have been addressed, but haven't been recorded as completed. PM is implementing the YARDI system. This will help with scheduled maintenance and make the 311 dispatching system much more efficient, saving the trails maintenance crew valuable time. The trails layer is anticipated to come on line in March.

Bernalillo County and NMDOT also maintain paved trails in the metropolitan area. In addition, MRGCD, AMAFCA, COA Street Maintenance, and Weed and Litter may perform work along trail corridors. There is sometimes informal coordination and occasional opportunities for cooperation, but is no regular coordination among crews working in the same area.

Trail Maintenance Recommendations

Community service workers

Community service workers are a good source of hand labor that could be strategically utilized for certain trail maintenance tasks. The Adopt-a-Trail Program doesn't provide significant assistance.

Timing

Effective weed control is highly dependent on timing. Limited manpower limits the ability to apply herbicides at the optimum time. COA Open Space, 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.

Equipment

Park Management and other agencies performing trail maintenance have identified needs for additional equipment for sweeping, mowing, etc. that is especially suited to trail maintenance. Larger, heavier, less maneuverable equipment can potentially damage trail surfaces or disturb desirable native plants adjacent to the trails. PM is currently seeking funds for updated equipment for the trails.

Inventory

An accurate inventory and map of existing trails are needed, with consistent names, confirmed mileages, and clear beginning and end points. The Trails Coordinator has developed a map showing primary maintenance responsibility for trails in the metropolitan area as part of this planning effort. Duplications should be eliminated and responsibility for maintenance clarified to the extent possible. Many of the trails are operating under license agreements or intergovernmental agreements with other entities which stipulate maintenance responsibilities and regular reporting. These should be noted in the inventory. A process should be developed for updating the inventory and map on a regular basis. YARDI will eventually provide a platform for integration between the map that James Lewis is creating, an inventory, and Park Maintenance's maintenance practices.

Collaboration

Presently City 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.
- Some entities may have partial responsibility for maintenance of a trail corridor, such as graffiti removal, weed control in a broad corridor outside the narrowly defined trail corridor, or at-grade crossings of streets. There may be opportunities to share duties and organize who is doing what. The City should investigate if Street Maintenance or an on-call contractor for the City help with crack repair, as is done in Bernalillo County.

Trail Maintenance Workshops

The City should conduct a "trail maintenance workshop" which we envision as a 1/2 day event, with presentations on practices and sharing of strategies and experiences. In addition to discussing issues and approaches, it may help facilitate discussion of opportunities and build relationships among various personnel. We would like to discuss this with P&R and PM. It could be internal to the City (PM, Weed and Litter, Street Maintenance, Open Space) or broader, including Bernalillo County, NMDOT, MRGCD, AMAFCA, Rio Rancho, etc.

One initial concept: AMAFCA has offered to host such an event in their big conference room. We would have display maps for people to write on and have discussions to cover subjects such as: practices, equipment, costs, specifications, future collaboration, overlaps, and gaps. A facilitator would assist and provide a summary of the discussion and outcomes.

Test Weed Control Strategies

There is broad agreement among the parties we've interviewed so far that if we can get native grasses and other desirable native plants that don't require irrigation and a lot of mowing established next to the asphalt trails, the use of herbicides can be reduced over time, the weed problem can be abated, and the trails will be more pleasant to users, both aesthetically and practically. However, establishing native grasses and forbs without irrigation is highly dependent on rainfall and other weather variables. The first step is to protect existing stands of native plants as much as possible during initial construction or reconstruction.

We think it worthwhile for Parks Maintenance to consider potential ideas for test sections to try different strategies for weed control/establishment of native grasses and plants in narrow areas along existing trails. We have discussed some ideas with Parks Maintenance, and they are briefly described below, but they need to be fleshed out, and designed and implemented by Park Management personnel or a contractor. These would include various combinations of soil prep (including ways of removing or reducing the existing weed seed bank), seeding of native grasses and forbs, and mulching (principally based on City of Albuquerque reclamation seeding specifications). This is intended for the 2-3' recovery zone adjacent to the trail.

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 Albuquerque Trails and Bikeway Facility Plan. Presently City 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. 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.

3. 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.

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.

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

The detailed crash analysis presented in this report should be repeated every few years to identify high crash locations and solutions to improve safety 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, etc. This periodic review could be used to create updates to the *Bikeways and Trails Facility Plan* that can tune the plan's implementation strategies to respond to changing safety, 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 separation and enhanced crossing treatments.

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- The majority of reported bicycle crashes have occurred on major roadways with 4 – 6 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 by through increased 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.

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.

F. Summary of Implementation Actions

The following matrix lists the actions that the City will complete to implement this *Bikeways and Trails Facility Plan*. The actions are grouped according to work that is currently ongoing, and a part of our standard practice today. The other sections classify future actions or projects as Short-Term, Mid-Term, and Long-Term.