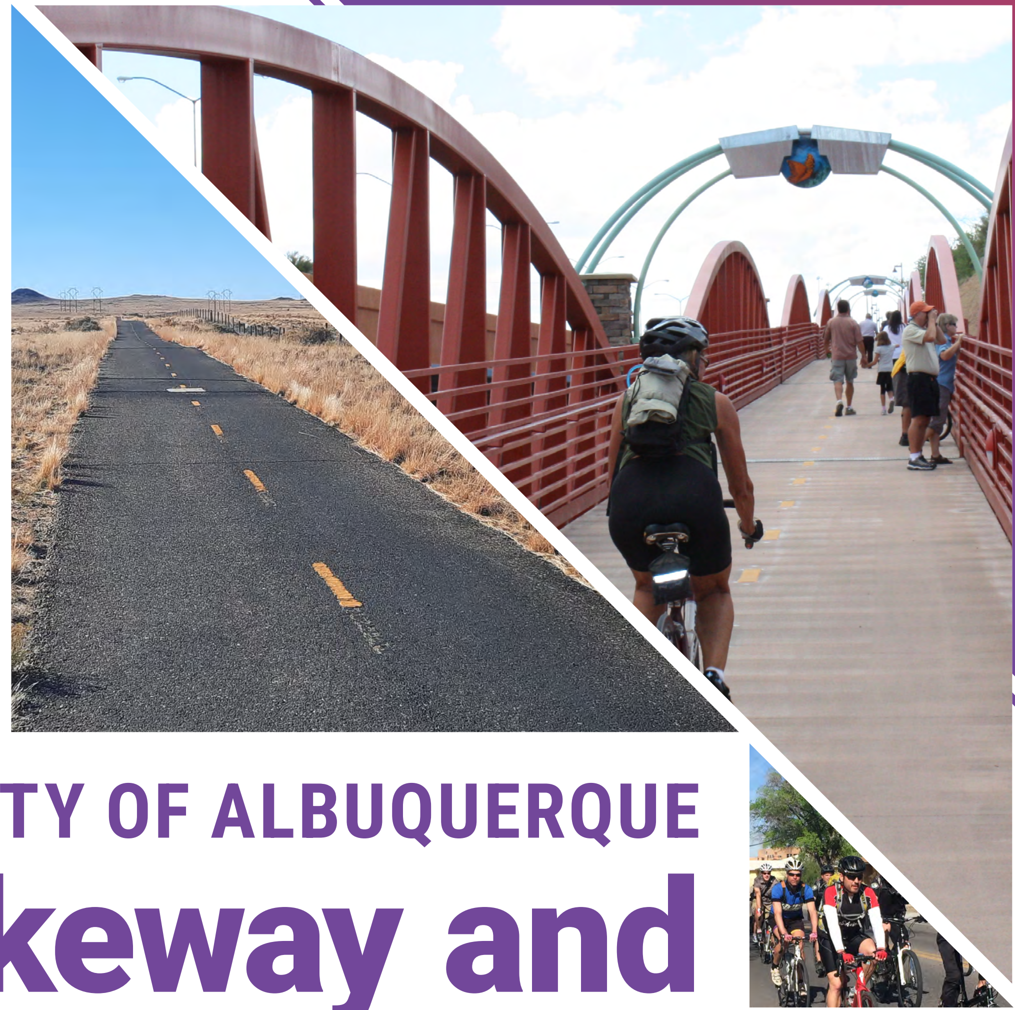

BIKEWAY & TRAIL FACILITIES PLAN

ONE ALBUQUERQUE

CITY OF ALBUQUERQUE

2024 Bikeway and Trail Facilities Plan

ONE ALBUQUERQUE municipal development

ONE ALBUQUERQUE parks & recreation

Acknowledgments

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1. Introduction and Plan Overview

What is the 2024 Bikeway & Trail Facilities Plan?

Albuquerque boasts many on and off-street biking facilities for both transportation and recreation, yet there are significant barriers and safety concerns that limit the number of people who are willing to travel by bicycle. It has been nearly a decade since the City took a comprehensive look at its bicycling infrastructure and the needs of people who bike. In that span of time, practices for bikeway facility design have evolved significantly, and the City has prioritized reversing the rise in traffic fatalities and addressing the safety of its most vulnerable road users. Since the previous plan was last updated in 2015, the City has also adopted major new policies and regulatory documents, including the *Comprehensive Plan*, *Development Process Manual*, and the *Integrated Development Ordinance*.

The 2024 *Bikeway and Trail Facilities Plan* (2024 Plan) aligns with these recently adopted plans and policies and presents an opportunity to center the needs of historically underserved communities and ensure an equitable distribution of bikeways across the city. The 2024 Plan also identifies critical improvements that can make bicycling across the City of Albuquerque safer, more comfortable, and accessible to more people while establishing a clear vision for how to prioritize and implement proposed projects.

The 2024 Plan focuses on projects that are plausible in the near term—pending available funding and staff resources—and provides a road map for the City to build out a dense network of high-comfort facilities that connects to everyday destinations. Recommendations include an array of bikeway facilities and crossing treatments that create useful and comfortable connections and encourage more people to choose bicycling as a mode of transportation, creating a virtuous cycle where drivers become more cognizant of bicyclists and safety increases.

Plan Background

In 2015, the City of Albuquerque adopted the *Bikeways and Trails Facility Plan*, which combined and updated the City's two bicycle and trail plans – the *Trails and Bikeways Facility Plan* (1993), and the *Comprehensive On-Street Bicycle Plan* (2000). By combining these two plans, the City was able to better manage the growth of on-street bikeways and multi-use trails and promote a well-connected, and safer non-motorized transportation system. The 2015 Plan recommended regular updates to address the evolving challenges and opportunities related to walking and biking.

While some of the 2015 Plan text will remain and is still relevant, the 2024 Plan identifies targeted updates to reflect emerging best practices in planning for and implementing a bikeway and trail system that can support both transportation and recreational bicycling activities. The 2024 Plan focuses specifically on City-led improvements to **on-street bikeways**, including bike boulevards and various forms of bike lanes, and **paved multi-use trails**, with an emphasis on enhanced crossings where trails intersect with major roads.

An Update to the City's Rank II Plan

The City of Albuquerque uses a system of ranked plans, starting with the Rank I *Comprehensive Plan*, which sets a vision, goals, and overall policies. Lower-ranked plans must comply with the intent, policies, and goals of the higher-ranked plans. The 2024 Plan is a Rank II Facility Plan and serves as a policy document that provides direction for the City's infrastructure investments and is a mechanism for implementing the *Comprehensive Plan*.

Ultimately, the 2024 Plan seeks to better accommodate the needs of people who bike today and attract a new generation of residents and visitors of all ages, abilities, and backgrounds to a form of transportation and recreation that is healthy, economical, sustainable, and fun.

Recent Accomplishments

Between 2021 and 2022, the City installed four pedestrian hybrid beacons (PFBs), with eight additional PHBs or rectangular rapid flashing beacons (RRFBs) currently being designed.

Between 2021 and 2023, the City installed over 9 miles of bike lanes and 17.3 miles of buffered bike lanes through the Annual Complete Streets Maintenance Program.

In Fall 2023, the City completed a 1.7-mile portion of the multi-jurisdictional Alameda Drain Trail from Fourth Street to Montaño Blvd.

A Strong Foundation for Bicycling in Albuquerque

The 2024 Plan builds upon expansive networks of on-street bikeways and paved multi-use trails, policies that support safety and increasing rates of bicycling, and a strong culture of bicycling and outdoor recreation around the City of Albuquerque.

Quality Infrastructure: Albuquerque is particularly notable for its network of paved multi-use trails, including the Paseo del Bosque Trail and the North Diversion Channel Trail, which offer both long-distance spines for everyday transportation purposes and high-quality recreational amenities.

Over time, the City has expanded the network of on-street bikeways through direct investments and innovative techniques for implementing projects. Particularly noteworthy is the Annual Complete Streets Maintenance Program, which incorporates Complete Streets design principles during annual repaving and restriping efforts and resulted in 16.5 miles of new or enhanced bikeways in 2023 alone.

The city also features an emerging network of bike boulevards—neighborhood streets that include traffic calming to slow motor vehicles, discourage through-vehicle traffic, and provide enhanced crossings at major intersections.

Other key investments include numerous sidepaths—multi-use trails at sidewalk level—across the western portion of the city as part of larger roadway improvement projects.

Existing bikeways and trails are complemented by major planned infrastructure investments, including the Rail Trail, an eight-mile loop and signature urban trail that will connect various regional destinations and activity centers in the greater downtown area, including the Paseo del Bosque Trail, and the Alameda Drain Trail, a partially constructed paved multi-use trail - with further design and construction ongoing - which will ultimately run nine miles north-south from I-40 to the northern end of 2nd Street.

The City of Albuquerque was named a silver-level Bicycle Friendly Community by the League of American Bicyclists in 2020, an upgrade from bronze status.

The Bosque Trail was recognized in 2023 by Travel & Leisure magazine as one of the best urban bike trails in the United States.

Policy Support: Over the last five years, the City of Albuquerque has passed various policies that support the adoption of active modes of travel and increase the safety and quality of facilities for people walking and biking. The 2024 Plan is an opportunity to create consistency among recently approved plans and policies. Key initiatives include:

- The ***Vision Zero Action Plan***, through which the City aspires to eliminate traffic fatalities by 2040.
- The ***Climate Action Plan***, which identifies GHG emissions reduction strategies including greater use of and investments in alternative modes.
- The ***Complete Streets Ordinance***, which codifies an emphasis on the needs of bicyclists and pedestrians during street design.
- The ***City of Albuquerque-Bernalillo County Comprehensive Plan*** and the long-range ***Mid-Region Metropolitan Planning Organization (MRMPO) before Metropolitan Transportation Plan***, developed by the Mid-Region Metropolitan Planning Organization, both emphasize investing in a wider range of transportation options and development patterns that reduce the distances needed to access destinations.
- Policy priorities from the Comprehensive Plan have been integrated into the ***Development Process Manual***, the City's infrastructure design standards document.

See **Chapter 2: Existing Conditions and Programs** for a complete list relevant plans and policies and **Appendix A: Planning & Policy Framework** for a comprehensive summary of these documents.

Culture of Bicycling and Outdoor Recreation: Participants in the plan development process highlighted the culture around bicycling as a reason for optimism. Pleasant weather means that bicycling is an option year-round, and various community groups and organizations play an integral role in supporting bicycling by advocating for improved bikeways and bicycle-friendly policies and hosting bicycling-related events and programs. Notable community-driven events that encourage people to ride include the CiQlovía open streets festival and the annual Halloween-themed Day of the Tread. The City oversees Bike to Wherever Day each May and Bike thru Burque Week each October and supports community programs through the Esperanza Bicycle Safety Education Center, which provides trainings and free tune-ups for Albuquerque residents.

A Commitment to Saving Lives

Albuquerque features some of the highest pedestrian and overall traffic fatality rates in the U.S. Safety is a critical issue for people bicycling as well; between 2016 and 2020, 14 people died while biking on Albuquerque roads, and over 700 people suffered traffic-related injuries while biking. Many of these severe and fatal crashes occurred on lower-comfort bicycle facilities—including streets with bike lanes—that coincide with the City's High Fatal and Injury Network (HFIN).

The City of Albuquerque is committed to Vision Zero and actively working to eliminate traffic deaths and serious injuries through a variety of strategies, including creating connected, quality bike infrastructure that increases the level of comfort and safety for all riders. Updating the Bikeway and Trail Facilities Plan is an important step toward this goal.

Applying Emerging Approaches and Best Practices to Bikeway Facility Selection and Network Development

Creating safe places for people to bike and increasing the number of people who choose to bike as an everyday form of transportation requires an understanding of the needs of a wide range of potential users, the application of best practices in street design, and creative means of implementation so that the impacts of bikeway investments can be felt sooner rather than later.

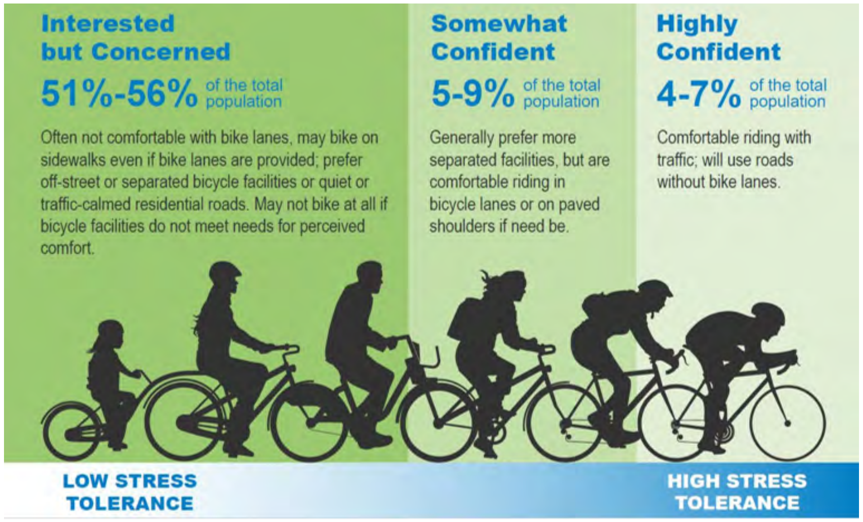


Figure 1. Three Types of Bicyclists

Addressing the Needs of Bicyclists of All Ages, Abilities, and Backgrounds

The City of Albuquerque is committed to providing quality transportation options for all community members and for users of all modes. The 2024 Plan strives to consider the needs for different user types and to make each trip as safe, comfortable, and efficient as possible by providing a connected network of low-stress, high-comfort on- and off-street options for people of all ages, abilities, and backgrounds. The 2024 Plan also intends to prioritize bikeway investments in areas that have not had their fair share of investment in the past.

Bicyclist User Types

National surveys indicate that two-thirds of the population are interested in riding a bicycle, even if they don't do so today. These existing and prospective bicyclists can be categorized into three general user types (see Figure 1). Interested, but concerned bicyclists make up more than half of the total population. These prospective bicyclists feel most comfortable using paved multi-use trails, sidepaths, low-volume neighborhood streets with safe crossings or bicycle facilities completely separated from motor vehicle traffic by physical barriers, and often choose not to bike if these facilities are not present. Somewhat confident and highly confident bicyclists feel comfortable using a broader range of bikeway facility types, though even more confident bicyclists tend to prefer as much separation from motor vehicles as possible.

Demand for a safe, comfortable network of bikeways is higher than ever in Albuquerque. However, not all of Albuquerque's existing bikeways appeal to the broad range of residents and visitors who are interested in biking. The recommendations from the 2024 Plan focus on creating densely connected networks that create more opportunities for people to ride – and present a variety of options for bicyclists depending on their comfort level.

Other Types of Trail Users

Pedestrians or People Walking

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

Other Wheeled Trail Users

Other types of trail users may have slightly different needs. These users include in-line and roller-skates, long skateboards, skateboards, and kick scooter users travel at speeds comparable to bicycles, as well as people with baby strollers and individuals in wheelchairs. These users tend to prefer a surface that is smooth without major cracks and often move at a slower pace than other wheeled trail users.

Equestrians

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

Needs of People of Different Ages and Ability Levels, Genders, and Races

The level of comfort for people bicycling can vary depending on a person's age, gender, and even race. This plan strives to consider the needs for different user types and to make each trip as safe, comfortable, and efficient as possible by providing a connected network of low-stress, high-comfort on- and off-street options for people of all ages, abilities, and backgrounds. This plan also intends to prioritize bikeway investments in areas that have not had their fair share of investment in the past.

Ages and Ability Levels: Child bicyclists, older adults, women, and adults beginning to bicycle may prefer lower-stress, higher-comfort multi-use trails because there is no vehicular traffic or low-stress on-street bikeways such as bike boulevards or separated bike lanes that have greater separation from 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.

Gender: In contrast to northern European countries where half or more of bicyclists are women, in the United States approximately 72% of bicycle commuters are men. Research has shown there are a variety of reasons for this gender gap in bicycling in the United States, including but not limited to lack of safe infrastructure, social or cultural expectations, and concerns over harassment. Trip patterns also vary by gender, as women are often responsible for a disproportionate share of domestic chores and tend to have more complex trip patterns, including dropping their kids off at school before going to work or stopping by the grocery store before picking up an older parent to take them to an appointment.

While there is no silver bullet for achieving gender parity in bicycling, cities that invest in premium infrastructure such as separated bikeways have seen the largest increases in the number of women who choose to bicycle. A recent study found that when New York City built new separated bike lanes, the project resulted in more overall people bicycling and between a 4-6% increase in women bicycling.

Race: It is important to recognize that not all people can move through our communities in the same way and that the mobility for Black, Indigenous, or people of color (BIPOC) can be different because of structural racism in the planning, policy, enforcement, and design of our communities. Past examples that continue to impact today's built environment and communities include redlining, in which the Federal Housing Administration refused to insure mortgages in and near black and brown communities, and the intentional construction of the Interstate Highway System through communities of color, which led to many communities being demolished or bisected.

Historically, BIPOC communities have been intentionally left out and have not had their fair share of infrastructure investments such as sidewalks, bike lanes, or other amenities. City and staff, in collaboration with the community, can intentionally include everyone, particularly BIPOC communities, in the planning and project development processes.

The City installed buffered bike lanes along San Pedro Drive as part of a road diet in which one lane of traffic was removed in each direction to reduce travel speeds and create safer conditions for people walking and biking.

A Critical Review of Albuquerque Bikeways

The City of Albuquerque features an extensive system of paved multi-use trails and has greatly expanded its network of on-street bikeways in recent years. However, many of these bikeways are located along high-speed and high-volume roadways that provide important connections but are unlikely to appeal to less confident bicyclists. The layout of the city and the roadway network also create significant barriers; in addition to the relatively modest number of bridges over the Rio Grande and the Interstates, major street intersections can be challenging or unsafe to cross and limit the ability to reach key destinations.

The 2024 Plan differs from past planning efforts by prioritizing **high-comfort bikeways** that provide as much separation as possible between bicycles and motor vehicles and

enhanced crossings that can make biking a safer and more appealing option for a wide range of individuals, including people who do not bike on City streets today.

A Focus on Quicker Implementation

The 2024 Plan emphasizes projects that are technically feasible and could be implemented in the near term, provided that sufficient funding, staff time, and other resources are available. This approach recognizes that bikeways cannot be implemented on all streets without major reconstruction efforts that are both costly and take place infrequently.

Rather, targeted changes to Albuquerque streets can make an immediate impact and can provide significant benefits in terms of safety and bicyclist user comfort. These lower-cost, high-impact projects include changes within existing curb lines to install new bikeways or enhance existing facilities, and utilizing neighborhood streets that run parallel to busy, higher-stress streets and that still provide useful connections to major destinations.

What is (and is Not) Included in the 2024 Plan?

Targeted Updates to the Previous Plan

The *2015 Bikeways and Trails Facility Plan*, initially developed in 2012 and updated in 2015, covered a wide range of bicycle, pedestrian, and trail-related issues. Key recommendations from the 2015 Plan have been accomplished, including numerous bikeway improvements, while elements from the Design Manual chapter of the 2015 Plan have been integrated into the City's *Development Process Manual*.

The 2024 Plan focuses specifically on recommendations related to on-street bikeways and paved multi-use trails, including ways to reconfigure existing roads to make bikeways more comfortable, and replaces those elements from the 2015 Plan. Major changes include a revised approach to project identification and prioritization, updated project priority lists, as well as policy and programmatic recommendations and considerations for accommodating e-bikes on paved trails and sidepaths. After adoption, 2024 Plan recommendations are intended to be integrated into the regional Long Range Bikeway System, maintained by the Mid-Region Council of Governments (MRCOG).

The 2024 Plan does not consider certain elements covered in the 2015 Plan, namely unpaved trails, equestrian needs, and recreational facilities within City parks and open space. These items are maintained with the 2024 Plan; however, there are opportunities to revise additional chapters or sections of the 2024 Plan as needed in the future. MRCOG will continue to lead recommendations on unbuilt future roads.

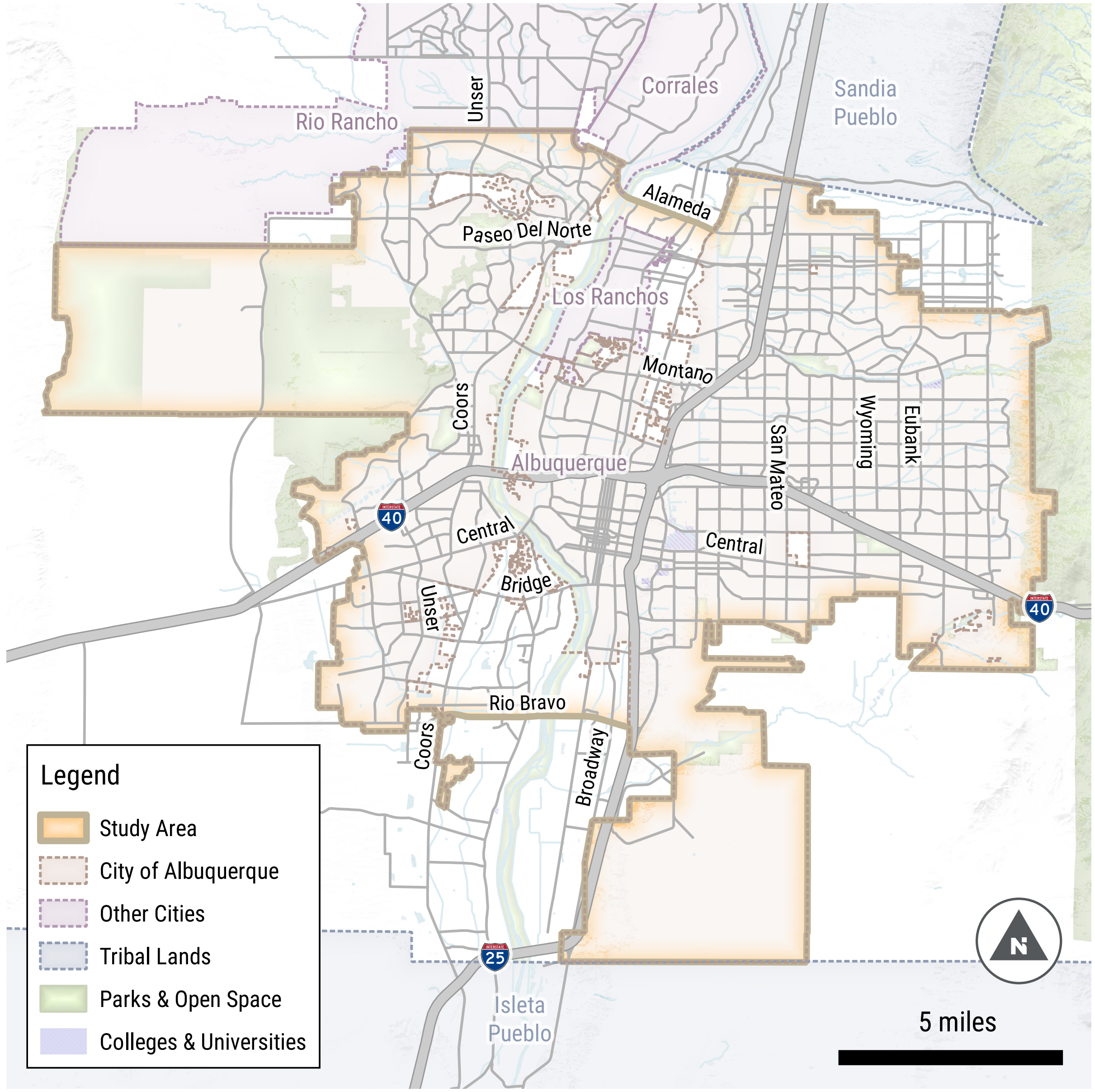
Table 1. Key Components of the 2024 Plan and Differences from the 2015 Plan

Included in the 2024 Plan	Not Included in the 2024 Plan
Conditions along **existing bikeways and trails**	**Equestrian and pedestrian considerations**: Maintained from the 2015 Plan
Enhancements to existing bikeways	**Bikeways along future roads**: Refer to the MRCOG Long Range Bikeway System for alignments and proposed facility types
New on-street bikeways, including a range of facility types	**Unpaved trails**: Maintained from the 2015 Plan
Proposed **paved multi-use trails** within City limits	**Bikeway improvements outside City limits** or the 2024 Plan study area
Crossing enhancements for paved multi-use trails and bike boulevards	**Recreational facilities** within parks and open space parcels
Bicycle-related **policy and programmatic recommendations**	**Trail Maintenance and Operations:** Maintained from the 2015 Plan
Recommendations for **sidepath and trail design to better accommodate e-bike users**.	See **Appendix H: Additional Considerations for Multi-Use Trails** for further information.
Updated **bikeway evaluation and prioritization process** that considers equity and safety	

Study Area

The study area for the 2024 Plan is the extent of the incorporated City of Albuquerque as well as areas between Rio Bravo Boulevard and Alameda Boulevard outside of city limits. Recommendations for unincorporated portions of the study area and the Village of Los Ranchos focus on regional connections that bolster City-led improvements by creating an integrated network that crosses major barriers through the North and South Valley. The 2024 Plan is not intended to replace more detailed local plans and defers to those resources for potential improvements to streets in other jurisdictions, such as the Bernalillo County *Bicycle and Pedestrian Safety Action Plan*.

Figure 2. Bikeway and Trail Facilities Plan Study Area



Plan Components and Products

In addition to the **formal plan**, the 2024 Plan is accompanied by **online story maps** that present existing conditions analyses and details on priority projects in an accessible format. These online story maps are intended to be user-friendly and easy to access, and can be more easily updated to remain relevant in the coming years.

Key components of the 2024 Plan include:

1. **Introduction and Plan Overview** – Summarizes the purpose of the plan as well as the vision statement and goals that will guide investments in bikeway infrastructure across the City of Albuquerque.
2. **Existing Conditions and Programs** – Provides an overview of existing bikeways and paved multi-use trails, including comfort level of existing facilities using a Bicycle Level of Traffic Stress assessment, equity considerations, and the connection between the 2024 Plan and existing city plans and policies, such as Complete Streets and Vision Zero.
   - The **Existing Conditions Story Map** shows the streets and paved multi-use trail corridors that appeal to a broad range of people interested in bicycling, as well as the streets where only the most confident bicyclists are willing to ride.
3. **Community and Stakeholder Engagement** – Summarizes the phases of community outreach, including engagement strategies and key takeaways from community surveys, as well as the role of stakeholder advisory groups in the plan development process.
4. **Facility Types** – Outlines the design components and appropriate contexts for bikeway facility types that are present in the City of Albuquerque today and proposed in the 2024 Plan.
5. **Proposed Bikeways and Trails Network** – Documents the process for identifying potential projects and developing the proposed bikeway and trail networks. For each proposed project, the 2024 Plan indicates the facility type, potential means of implementation, and planning-level cost estimates.
   - The **Proposed Network Story Map** displays proposed projects, including information about facility types and project prioritization.
6. **Implementation** – Documents the process for prioritizing projects, the mechanisms the City can utilize for implementing bikeway improvements, and policy and programmatic recommendations to support bicycle-friendly street design and further create a culture around bicycling for recreation and transportation.

Appendices – A collection of supporting guidance and reference documents for the 2024 Plan and the 2015 Plan. These documents include findings from community surveys, the methodology behind the Bikeway Evaluation Process, a comprehensive set of policy recommendations, and documents that support plan implementation, including a Bike Boulevard Toolkit and profiles of a subset of projects to support project scoping and development.

Why Bicycling?

Bicycling is both an essential element of the transportation system and a popular activity for recreation. Building physical infrastructure that encourages people to take advantage of these opportunities has numerous benefits for Burqueños and the city as a whole.

Access to Destinations. Investing in on-street bikeways and paved multi-use trails increases transportation options and improves access to jobs and services. Over 50 percent of trips in the U.S. are **under three miles**, and almost 30 percent of trips are under a mile. Bicycling is a practical mode of transportation for trips of these distances, and a wide range of people choose to make shorter trips by bike when safe and comfortable options for doing so are available. Increased adoption of e-bikes make shorter trips that much more convenient and expands the distance that one can easily reach by bike.

Equity. Bicycling is an affordable mode of transportation. Many individuals and families struggle to afford the full costs of driving, which includes purchasing, maintaining, insuring, and fueling a car. A network of high-comfort bikeways and trails provides a less expensive transportation option that can connect people to transit and serve individuals who either cannot or choose not to drive.

Health. **Studies** indicate that bicycling provides overall health benefits and is associated with a lower risk of cardiovascular disease and adverse cancer outcomes.

Well-being. Bicycling on trails is a great way to experience nature, which can have a positive impact on mental health. **Research** has shown that spending two hours a week in nature can tremendously benefit overall well-being.

Climate. Riding a bike is one way to help address a changing climate. Replacing motor vehicle trips with bicycling trips in urban environments **reduces carbon dioxide emissions** and improves a city's air quality.

Safety. **Research** indicates that cities where more people bike are safer for all road users, with even greater benefits when separated bike lanes are utilized. Choosing to bike generally makes streets safer by reducing the number of vehicles on the road, which can in turn reduce the number of severe injuries and fatalities resulting from crashes. Enhanced crossings for bike boulevards and paved trails also provide direct benefits for pedestrians and improve access to transit.

Quality of Life. Interest in biking in Albuquerque has grown in recent years. Popular bike-oriented events go hand in hand with community support to improve and expand bicycling infrastructure. For over 15 years, the City has hosted Bike to Work Day (now **Bike to Wherever Day**) and recently added a fall event called Bike Thru Burque Week. Burqueños embraced bicycling even more during the COVID-19 pandemic, and that interest appears to be continuing.

Vision Statement and Goals

This 2024 Plan centers around a clear, bold vision for expanding bicycling options for Burqueños. The vision statement and goals reflect established policy priorities for the City of Albuquerque and input from stakeholders and community members who were involved in the 2024 Plan development process. The goals and objectives provide an overarching purpose and structure for the analysis, prioritization framework, and recommendations contained in the 2024 Plan.

Vision Statement

Albuquerque is a city that embraces bicycling by implementing convenient on-street bikeways and paved multi-use trail facilities that enhance safety and appeal to people of all ages, abilities, and backgrounds. Over the next decade, the City will increase the range of transportation options and enable a greater share of trips to be made by bicycle by expanding and improving bikeways and multi-use trails into a comfortable and well-connected network.

Goals and Priorities

1. **Equitable: Increase access to on-street bikeways and multi-use trails for all people in Albuquerque.**
    - Create opportunities for traveling by bicycle to be a safe and convenient everyday activity by investing in bikeways and trails that appeal to users of all ages and abilities.
    - Ensure an equitable distribution of bikeways across the City to provide opportunities for all people to travel and recreate by bicycle.
    - Prioritize infrastructure improvements in areas that have not had bikeway investment and/or have a high level of social vulnerability.
2. **Connected: Improve and expand the on-street bikeway and multi-use trail networks so they are intuitive, convenient, and well-connected.**
    - Increase the extent of the on-street bikeways and multi-use trail networks by implementing new facilities and filling in network gaps.
    - Improve crossing opportunities at intersections with major roads and barriers such as the Interstates and the Rio Grande.
    - Create a network of low-stress corridors that connect to enable a wider range of trips to be taken by bicycle.
3. **Useful: Create networks of on-street bikeways and multi-use trails that can be used for both recreational and everyday transportation purposes.**
    - Improve the quality of existing bikeways and trails to increase user comfort levels and encourage bicycle trips to be made by residents and visitors of all ages and abilities.
    - Provide access to a range of everyday locations, recreational sites, and significant community destinations via the on-street bikeway and multi-use trail networks.
    - Increase access to Rail Runner and ART stops and major transit station areas.
4. **Integrated: Integrate on-street bikeway and multi-use trail development into the City and regional transportation planning processes to increase overall travel options and support health, economic, climate, and environmental efforts throughout the City.**

- Incorporate plan recommendations into city and regional long-range planning efforts and the City's development review process.
- Support the local economy by increasing bikeway and multi-use trail access to commercial districts and activity centers.
- Support goals from the Comprehensive Plan and Climate Action Plan to reduce transportation costs and transportation-related greenhouse gas emissions through increased opportunities for residents and visitors to travel across Albuquerque without a private vehicle.
- Support the City's Vision Zero goals of eliminating traffic fatalities and serious injuries by 2040 by implementing high-quality facilities that promote user safety and comfort.

5. **Prioritized: Use an objective, data-driven process for selecting bikeway and multi-use trail improvement projects.**
   - Formalize and adopt the use of the City's Bikeway Evaluation Process and the Bicycle and Trail Crossing Guide as part of the 2024 Plan.
   - Emphasize equity considerations among project selection criteria, including demographic characteristics and socioeconomic measures such as access to vehicles and median household income.

6. **Implementable: Identify feasible improvements that can improve upon and expand the current bikeway and trail networks.**
   - Improve bikeway comfort levels by providing separation from motor vehicles as part of street reconfiguration efforts and the design of new streets.
   - Ensure maintenance needs of existing multi-use trails and on-street bikeways are met prior to constructing new facilities.
   - Continue to incorporate bikeway improvements through the annual Complete Streets Maintenance Program and other transportation projects.
   - Consider technical feasibility as part of proposed improvements, including parallel route options if space is not available to enhance existing bikeways.
   - Partner with adjacent jurisdictions and transportation agencies to implement improvements for bikeways and multi-use trails that support regional trips across municipal boundaries.

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2. Existing Conditions and Programs

Overview

The 2024 Plan public outreach process revealed that if given quality bicycle infrastructure, there would be a greater demand for everyday bicycling. That public demand is supported through various initiatives and policies that seek to further build out the City's bicycling infrastructure. This chapter provides an overview of the current bicycle planning context, including key city priorities and how they relate to bicycle planning, as well as the existing bikeways and trails network. This chapter also outlines various analyses used in the 2024 Plan to consider how well existing bikeway facilities meet the needs of community members. See the **Existing Conditions Online Story Map** for detailed maps and additional information on existing bikeways.

Key Policy Priorities and Programs

The 2015 Plan guided the implementation of numerous bikeway improvements and outlined bicycle design considerations that have subsequently been integrated into the *Development Process Manual*, the City's infrastructure design document. This section highlights key issues and policy priorities that support investments in bikeway infrastructure, as well as implementation measures that are helping to create safe streets that meet the needs of all users. See Table 2 for a full overview of relevant plans and policies, including how the 2024 Plan will build on these documents, and **Appendix A: Planning & Policy Framework** for detailed summaries.

Safety

Albuquerque has some of the highest traffic fatality rates in the U.S. and people walking and biking are especially vulnerable. Following an executive order and Vision Zero pledge that established safety as a policy priority, the City developed an initial ***Vision Zero Action Plan*** (2021) and ***Vision Zero Year in Review Report/Action Plan Update*** that outline areas of improvement for the City of Albuquerque and identifies strategies for eliminating traffic fatalities and serious injury crashes by 2040, including safe multimodal street designs and a shift to active modes. The report also emphasizes the need to address safety in vulnerable communities, defined as parts of the city where individuals are more likely to rely on walking, bicycling, and taking transit.

To support Vision Zero policies, the City is using a one-time City Council funding allocation to fund a range of safety projects and initiatives, including improvements along Louisiana Boulevard and other High Fatal and Injury Network (HFIN) corridors. The inauguration of an automated speed enforcement program in 2022 has resulted in meaningful reductions in speed along corridors with high crashes, including locations documented on the City's HFIN. Other efforts include the implementation of a Downtown Safety Zone with reduced speed limits to 20 mph and the installation of enhanced pedestrian crossings—a major priority for the 2024 Plan—along corridors such as Central Avenue.

Complete Streets

Through various policies, implementation programs, and updates to the *Development Process Manual*—the City's roadway design standards document—the City has integrated Complete Streets principles into its transportation decision-making processes and investment decisions. This focus begins with the City's **Complete Streets Ordinance**, originally passed in 2015 and updated in 2019, which commits the City of Albuquerque to consider the needs of people walking and biking as part of all roadway projects, including rehabilitation and new road construction. The Ordinance cites the need to create a well-connected transportation network that serves all roadway users and to implement and prioritize improvements equitably by examining neighborhood factors, such as low-to-moderate income, the number of older residents, people with disabilities, and traffic fatalities.

Implementation

Recently developed design documents and programs provide the City with tools for implementing high-quality bikeways and enhanced crossings.

The ***Development Process Manual*** (DPM), updated in 2020, is the City's technical standards document and provides design standards and guidance on public infrastructure that is installed or improved as part of public capital improvement projects or privately-funded site development, including bikeway and trail facility type definitions and design elements. The DPM update incorporates best practices in facility design and encourages wider bike lanes and buffers to the extent feasible. The DPM defers to the *Bikeway and Trail Facilities Plan* for facility selection.

The ***Bicycle and Trail Crossings Guide*** is used as a reference by City staff when identifying locations for a crossing and appropriate crossing types and complements the street design guidance contained in the DPM. Depending on the context, recommended crossing treatments range from simple crosswalk markings to more robust treatments such as rectangular rapid flashing beacons (RRFB) or pedestrian hybrid beacons (PHB). Several PHBs have been installed in recent years along corridors such as Central Avenue and Lomas Boulevard.

Recently installed PHB along Central Avenue near the International District Library

The **Annual Complete Streets Maintenance Program** serves as a primary mechanism for implementing the Complete Streets Ordinance by incorporating design techniques that support the needs of people walking and biking into restriping plans when roads are resurfaced. The program has led to tangible changes to the configuration of roads in Albuquerque; in 2023 alone, the program resulted in 16.5 miles of new or enhanced bikeways. Because the program installs bikeways across the city, community members see multi-modal facilities in all neighborhoods, increasing awareness and expectations about the presence of people walking and biking.

Table 2. Bikeway Enhancements Completed Through the Annual Complete Streets Maintenance Program, 2021-2023

Bikeway Improvement	2021	2022	2023	Three-Year Total
New Bike lane miles	1.4	5.4	2.5	9.3
New buffered bike lane miles	3.3	5.3	8.7	17.3
Miles of existing bike lanes expanded to meet or exceed current minimum width of 5'	3.6	2.7	5.3	11.6
New road miles of bike routes (shared lane markings)	0.0	4.0	0.6	4.6
Road lane miles were the driving lane was narrowed	11.4	18.2	6.2	35.8
Road lane miles where striped parking was added to narrow the roadway	2.3	11.0	1.5	14.8
Miles of road diets	1.6	1.0	2.5	5.1
Intersections where daylighting was added	0	79	24	103
New or refreshed crosswalks	0	48	68	116

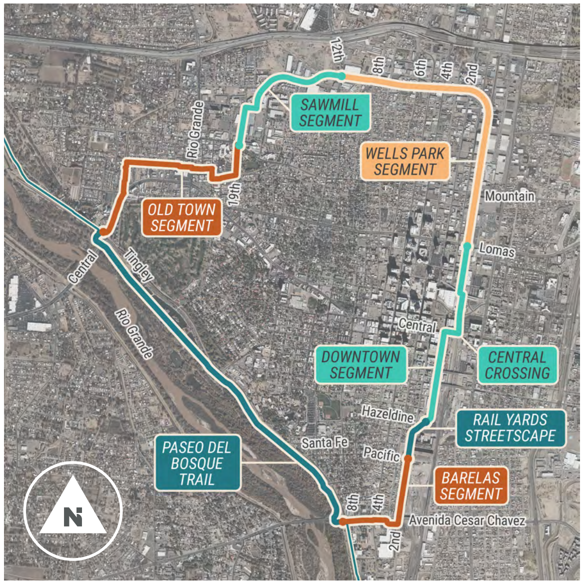
Signature Projects

The **Albuquerque Rail Trail** is a planned seven-mile loop and signature urban trail through the greater Downtown Albuquerque area. The paved trail will link numerous key destinations: including the Rail Yards, Downtown core, Wells Park, Sawmill, Old Town, Bosque Trail, Barelas, and the National Hispanic Cultural Center. The loop will consist of a combination of trails at sidewalk level along city streets, portions of the BNSF rail corridor and the spur through Sawmill, and the existing Paseo del Bosque trail along the Rio Grande.

Once completed, the Rail Trail will serve as a major amenity and recreational attraction and will provide transportation connections for people walking and biking throughout the greater Downtown area. Similar trails in cities across the US have also spurred revitalization and new housing development.

The **Alameda Drain Trail** runs parallel to historic drainage and irrigation facilities and will ultimately provide a high quality paved multi-use trail for nine-miles from I-40 to the northern end of 2nd Street. The project is a cooperative effort among Bernalillo County, the City of Albuquerque, Middle Rio Grande Conservancy District, and the Albuquerque Metropolitan Arroyo Flood Control Authority and is being completed in phases, with various segments complete and others in various stages of design and construction, as of early 2024.

Figure 3. Proposed Segments for Albuquerque Rail Trail



The 2024 Plan considers both the Rail Trail and the Alameda Drain Trail to be critical components of the proposed bikeways and trails network and identifies various connections to the facilities.

Alameda Drain Trail south of Griegos Road

Table 3. Applicability of Relevant Plans and Policies and Opportunities for Further Progress

Category	Document	Relevance to the 2024 Plan	Opportunities for Further Progress Through the 2024 Plan
Policy Documents	**Comprehensive Plan (2017)**	Policy document that provides a vision for long-term growth and development priorities, including transportation and urban design. Contains high-level descriptions of bikeway facility types.	Incorporate relevant policies into bikeway prioritization to further support implementation of Comp Plan goals and policies.
	Complete Streets Ordinance (2019)	City Ordinance requiring the consideration of Complete Streets design principles and the needs of people walking and biking as part of all roadway projects.	Define desired bikeway facility types and their application based on City of Albuquerque road conditions.
	Vision Zero Action Plan (2021) and Year in Review (2023)	Outlines areas of action to address crashes resulting in serious injuries and fatalities for the city as a whole, and for vulnerable communities and vulnerable road users, in particular. Contains a City-level prioritized High Fatal and Injury Network (HFIN).	Incorporate safety data and Vision Zero analyses into bikeway prioritization.
	Climate Action Plan (2021)	Establishes the value of walking and bicycling as mitigation and resilience strategies and documents community desires to increase pedestrian and bikeway facilities.	Prioritize projects that are most likely to increase the share of trips taken by bicycle, producing a reduction in GHG emissions.

Category	Document	Relevance to the 2024 Plan	Opportunities for Further Progress Through the 2024 Plan
Regional Planning Documents and Programs	**Statewide Prioritized Bicycle Network Plan (NM Bike Plan)**	Identifies a system of priority tiers and design guidance for bikeway facilities along US and NM highways based on the role the roadway could play in statewide and regional bikeway systems.	Consider potential NMDOT-led improvements as part of the 2024 Plan recommendations
	Connections: 2040 Metropolitan Transportation Plan (2020)	Documents current transportation trends while projecting future transportation needs and establishing regional investment priorities.	Develop recommendations that can form the basis for federal funding applications.
	Long Range Bikeway System	Contains a regional map of existing, planned, and proposed bikeways, based on input from public agency staff across the Albuquerque region, as well as proposed bikeways on future roads that will be built as a part of development projects.	Consider previously proposed enhancements as an input to the network development process. Incorporate bikeway and trail recommendations from 2024 Plan into the Long Range Bikeway System.
	MRCOG Non-Motorized Traffic Counts Program	Program provides quantitative data on level of use along existing bikeways and trails.	2024 Plan can be used as a reference for prioritizing locations for data collection.

Category	Document	Relevance to the 2024 Plan	Opportunities for Further Progress Through the 2024 Plan
Reference Documents	**Bikeways & Trails Facility Plan (2015)**	Previous city-level bikeway and trail plan that establishes bicycle and trail-specific goals, proposes capital improvements, and outlines potential programs and policy recommendations.	Focus on an implementable network of bikeways and trails that suits the needs for people biking of all ages, abilities, and backgrounds. Create criteria for selecting, designing, and implementing bike boulevards. Reconcile the bikeway and trail network with the LRBS. Update recommendations for on-street bikeways and paved multi-use trails.
	Development Process Manual (2020)	Technical standards document for infrastructure improvements, which provides design guidance on a variety of public and private developments, including public right-of-way and bikeway and trail facilities design.	Incorporate emerging best practices in bikeway and trail design into City design standards.
	Bicycle & Trail Crossings Guide (2021)	Identifies appropriate crossing facility types and countermeasures for improving roadway crossing conditions along bicycle and trail routes and decision-making guidance.	Apply crossing treatment guidance to trail and bike boulevard crossing locations and prioritize investments that will support a well-connected, low-stress network.
	Bikeway Project Evaluation Process: Overview and Methodology (2022)	Outlines the City's evaluation process for selecting bikeway projects based on the project benefits, technical feasibility, and the magnitude of cost.	Update the process to ensure consistency with 2024 Plan goals and objectives. Formally adopt the evaluation process as part of the 2024 Plan.

Category	Document	Relevance to the 2024 Plan	Opportunities for Further Progress Through the 2024 Plan
Implementation Programs	**Annual Complete Streets Maintenance Program**	Leverages city-wide repaving and restriping program to implement on-street bikeways.	Identify projects that could be implemented through Complete Streets resurfacing, as well as complementary treatments to further enhance safety and user comfort.
	Capital Project Development	City-led bikeway and trail implementation projects, either as standalone projects or part of larger roadway improvements, utilizing funds from general obligations bonds and other City sources.	Identify clear project priorities and magnitude of cost estimates.
	Private Development	Site development projects are required to improve the roadway frontage, creating a means for implementing sidepaths. Trails and bikeways may be built on new roads accompanying private subdivision development.	Identify desired bikeway improvements that could occur through private development.

Category	Document	Relevance to the 2024 Plan	Opportunities for Further Progress Through the 2024 Plan
Recent / Ongoing Studies	**I-25 Bicycle Accessibility Study (2020; updated 2021)**	Evaluates gaps in the bikeway network caused by I-25 and identifies potential improvements.	Integrate and prioritize recommendations into the 2024 Plan as appropriate. Review the benefits of previously proposed I-25 bridge crossing locations.
	Bike Gap Closure Project List Summary Profiles and Feasibility Study– Summary Profiles (2022 / 2023)	Evaluates opportunities to close gaps on existing bikeways, based on priority list provided by GABAC (now GAATC). Feasibility Study conducts further engineering analysis on three priority locations: San Pedro Dr, Claremont Ave, and the Osuna Rd/San Mateo Blvd intersection.	Incorporate previously proposed bikeway and trail projects into the recommended network in the 2024 Plan, as appropriate.
	Rail Trail Framework Plan, Alignment Studies, and Planning and Design (Ongoing)	Set of studies and plans that identify the alignment, preferred design, and desired amenities along the proposed Rail Trail. Design in progress on the first segments as of 2024.	Incorporate the Rail Trail alignment into the recommended network and identify potential on-street connections.
	Rio Grande Trail Master Plan (ongoing)	Identifies alignments for a 500-mile multi-use trail open to people hiking, biking, and horseback riding along the Rio Grande corridor from Texas to Colorado.	Coordinate on recommended trail alignments through the City of Albuquerque.
	UNM Integrated Campus Master Plan (ongoing)	Guides the University of New Mexico's decisions on the physical environment and character of each campus, including issues related to access and mobility.	Coordinate on recommended street and bikeway projects that connect to and travel through the UNM main campus.

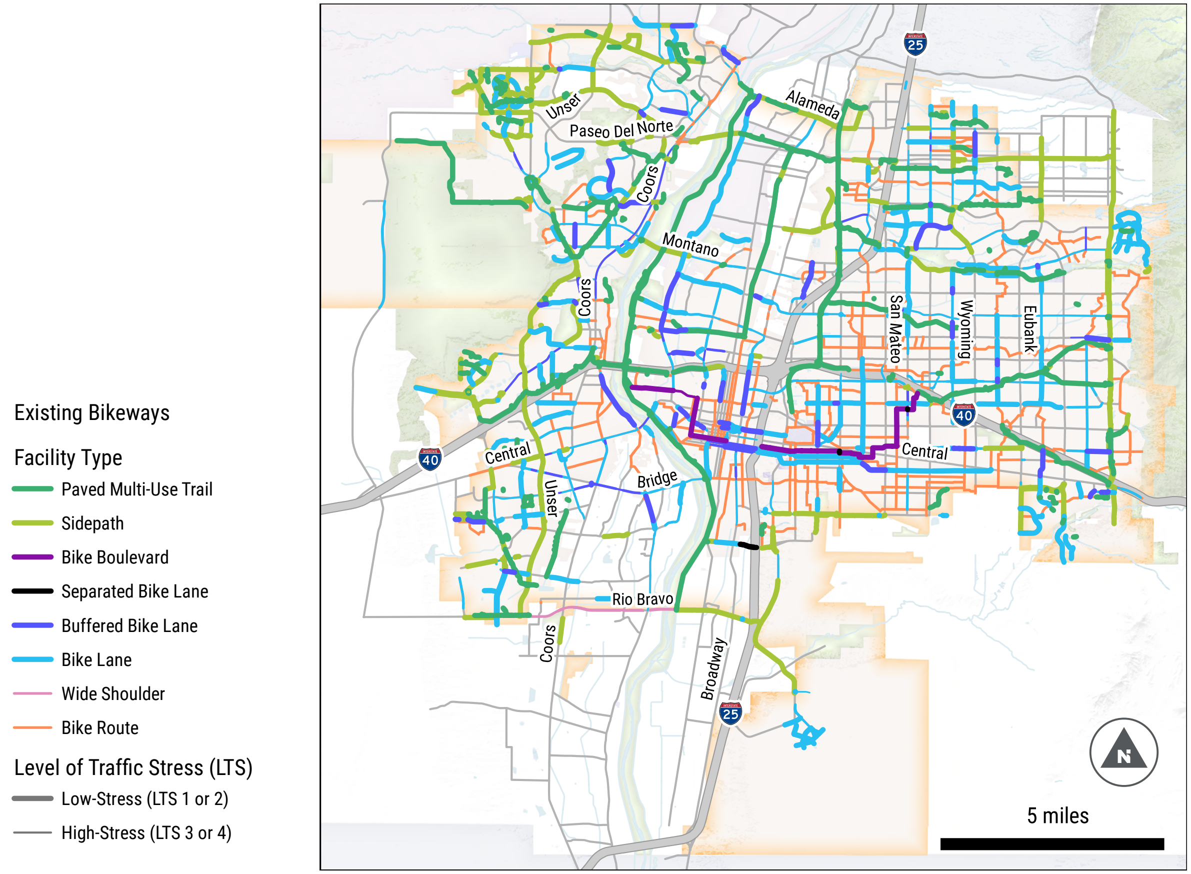
Existing Bikeway and Trail Facilities

The City of Albuquerque features an extensive network of bicycling infrastructure, consisting of a variety of on-street bikeways and paved multi-use trails and sidepaths. Figure 4 depicts the existing bikeways and trails. Table 4 provides definitions and summarizes the mileage of bikeway and trail facilities by type across the City of Albuquerque. See **Chapter 4: Facility Types: Definitions and Considerations** for additional information on design considerations and appropriate context for different facility types.

Altogether, the City of Albuquerque features over 420 miles of paved multi-use trails and on-street bike lanes. Of the 230 miles on bike lanes, 32 miles have been installed since 2015. In that span, dozens of miles of bikeways have also been upgraded to meet or exceed design standards (i.e., a minimum width of 5') or to include buffers.

The on-street bikeway network also includes shared streets – bike routes and bike boulevards – where some combination of signage, pavement markings, and traffic calming features are utilized to indicate to motorists that bicyclists may be present and to create safer conditions for people bicycling. Bike routes are noted in Table 4 but are not

Figure 4. Existing Bikeways and Trails



included in the analyses that follow as they do not feature the enhanced crossings or other conditions that are critical for creating useful connections that appeal to bicyclists of all ages and abilities.

As of Spring 2024, the City does not have any separated bike lanes (also called protected bike lanes); however, the separated bike lanes will be installed along Louisiana Boulevard between Gibson Boulevard and Kathryn Avenue in 2024 and are among the facility types recommended for Albuquerque streets as part of the 2024 Plan. Bernalillo County recently installed separated bike lanes along Sunport Boulevard.

Table 4. Definitions of On-Street Bikeway and Paved Trail Facility Types and Current Mileage

<table>
<tr><th rowspan="2">Facility Type</th><th rowspan="2">Definition</th><th colspan="3">Total Miles</th></tr>
<tr><th>2015 City</th><th>2023 City</th><th>2023 Plan Study Area</th></tr>
<tr><td>Paved multi-use trails</td><td>Off-street facilities in their own right-of-way that are shared among people biking, walking, jogging, and rolling.</td><td rowspan="2">160*</td><td>91.8</td><td>109</td></tr>
<tr><td>Sidepaths</td><td>Two-way, off-street paved facilities that are shared among people biking, walking, jogging, and rolling. Sidepaths are located within the public street right-of-way on the outside of the curb and are designed to the same standards as paved multi-use trails.</td><td>92.0</td><td>100.5</td></tr>
<tr><td>Standard bike lanes</td><td>Separate, dedicated space for people biking that is delineated by striping. Standard bike lanes are typically located at the road edge and include signage and bike stencils, but do not provide additional vertical or horizontal separation from vehicular travel lanes.</td><td rowspan="2">198*</td><td>194.8</td><td>214.5</td></tr>
<tr><td>Buffered bike lanes</td><td>Bikeways with striped, horizontal space between the bike lane and the adjacent vehicle travel lane to provide additional separation between bicyclists and moving vehicle traffic.</td><td>35.6</td><td>38.0</td></tr>
<tr><td>Separated bike lanes</td><td>Also known as protected bike lanes, separated bike lanes are a type of bike lane that is located at street level but features some form of vertical separation from motor vehicles.</td><td>0</td><td>0.1</td><td>0.4</td></tr>
<tr><td>Paved bikeable shoulders</td><td>Space at the road edge separated by striping that can be used by people biking. Unlike bike lanes, shoulders typically do not feature bike stencils or signage indicating bicyclists may be present. Bikeable shoulders are typically located in more rural areas and on the edges of the city.</td><td>N/A</td><td>1.4</td><td>4.5</td></tr>
<tr><td>Bike boulevards</td><td>Low-stress corridors that feature traffic calming elements, frequent signage and pavement markings, and enhanced crossing treatments to reduce through-vehicle traffic and manage vehicle speeds. Though people biking share space with motor vehicles, the low-stress conditions ensure these bikeways appeal to people biking of all ages and abilities.</td><td>6</td><td>8.9</td><td>8.9</td></tr>
<tr><td>Bike routes</td><td>Shared streets that use signage to indicate that bicyclists may be present. Bike routes are typically, but not always designated along local streets with low volumes of vehicle traffic. Some bike routes include pavement markings.</td><td>116</td><td>162.4</td><td>177.8</td></tr>
</table>

Note: Summary conditions as of December 31, 2023. *2015 data did not distinguish among different facility types.

Other Multi-Use Trails

The City features other multi-use trails that are not paved but are also intended for various users. Unless these trails are located in Major Public Open Space or a City park, they are typically informal and not maintained as trails.

Examples of unpaved multi-use trails include the extensive network of drains and ditches (also sometimes known as acequias) within the Middle Rio Grande Conservancy District (MRGCD), which owns and/or maintains this irrigation system. Other unpaved multi-use trails can be found along the Bosque, 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.

The Open Space Division manages just over 100 miles of official trails, including in City-owned Major Public Open Space in Sandoval and Bernalillo Counties. Many of these "single-track" trails or hiking are about one and a half to two feet wide and attract many hikers, runners, dog walkers, and mountain bicyclists. All of these unpaved trails are considered to be part of Albuquerque's multi-use trail system, despite the City's varying degrees of oversight and maintenance.

The 2024 Bikeway and Trail Facilities Plan did not include updated information for unpaved or equestrian trails.

Unpaved multi-use trail through the Bosque

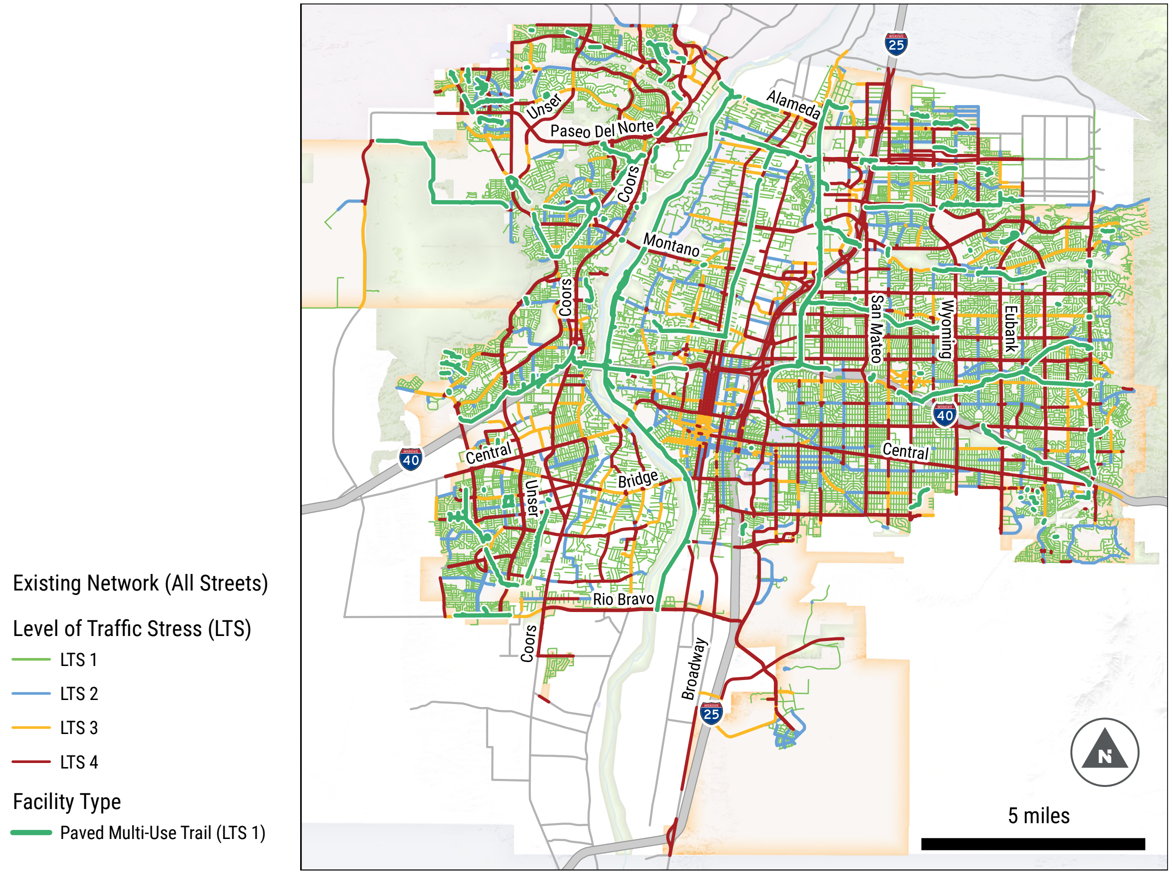
How Well Does the Bikeway Network Meet the Needs of Albuquerque Community Members Today?

Measuring Traffic Stress

Level of Traffic Stress (LTS) is a widely-used planning tool that systematically quantifies the stress a person is likely to experience while bicycling on a particular street. LTS is based on the premise that a person's level of comfort on a bicycle increases as separation from vehicular traffic increases or as traffic volume and speed decrease. LTS utilizes a numerical scale to classify streets and multi-use trails from greatest comfort (LTS 1) to least comfort (LTS 4). Most people interested in bicycling feel comfortable doing so on lower-stress facilities (LTS 1 and LTS 2), whereas more confident bicyclists may also feel comfortable riding on higher-stress facilities (LTS 3 and LTS 4).

Figure 5 shows current LTS values for all roads in the 2024 Plan study area, including roads with and without bikeways, while Figure 6 shows LTS values for streets with existing bikeways, including the facilities that are classified as low stress today (i.e., LTS 1 or 2). All paved multi-use trails and sidepaths are classified as LTS 1 because they provide separation from traffic, even when located adjacent to roadways with fast, heavy vehicle traffic. Many residential streets are also classified as LTS 1 because they have low traffic volumes and speed limits. Due to the lack of physical separation between motorists and bicyclists and the relatively high posted speeds and traffic volumes, many roads in Albuquerque with existing bike lanes are considered LTS 3 or 4. Bike lanes along roads with lower posted speed limits (i.e., 30 MPH or less) and modest traffic levels (i.e., less than 7,000 vehicles per day) are generally considered LTS 1 or 2.

Figure 5. Current LTS Levels of all Albuquerque Streets

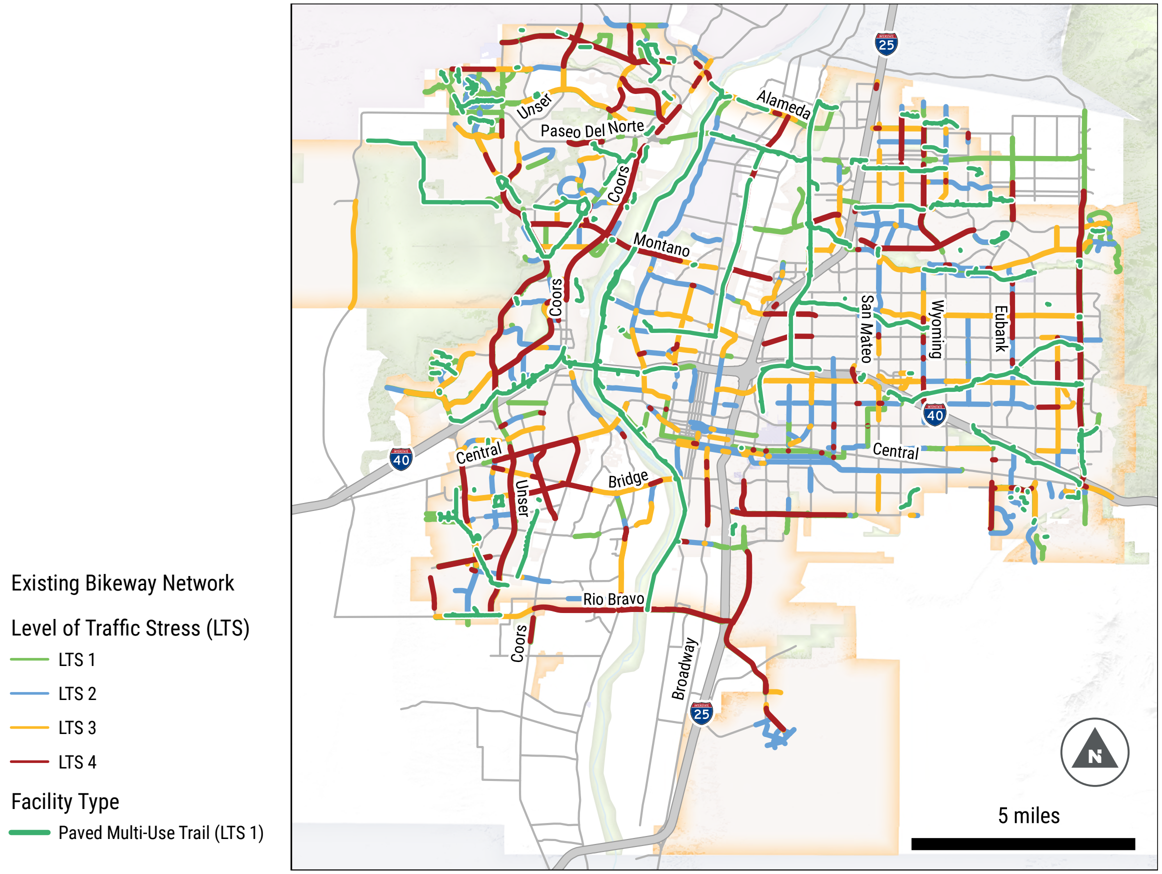


A central goal of the 2024 Plan is to identify and prioritize actionable next steps the City can take to expand the low-stress bikeway network and create safe, comfortable, and attractive biking options for a broad range of community members. As shown in Figure 6, only a limited number of Albuquerque's existing streets and facilities provide a comfortable, low-stress biking experience that appeals to people of all ages and abilities—and these low-stress facilities are often not connected. The disconnected network limits access to destinations (including multi-use trails) and discourages people from making longer trips by bike. See the [Existing Conditions Story Map] for detailed information.

Applying LTS Results

The 2024 Plan uses LTS as a reference for locations where user comfort could be enhanced on existing bikeways and quantifies the potential for proposed projects to achieve a lower LTS as part of the facility needs criterion in the Bikeway Evaluation Process. 2024 Plan recommendations include opportunities to create lower-stress conditions on streets with existing bikeways through further separation between people biking and motorists or slower vehicle speeds—achieved through techniques such as narrower travel lanes and modified signal timing patterns. The 2024 Plan also considers opportunities for bikeways on lower-volume streets that are parallel to higher-stress streets that are typically costlier to reconfigure.

Figure 6. LTS Levels along Existing Bikeways



Notes on LTS Methodology

The LTS assessment was applied to the entire network of streets and paved trails across the 2024 Plan study area, including locations with and without dedicated bikeways. For the purposes of LTS analysis, only certain bikeways (i.e., bike lanes, shoulders, and trails) are considered to be dedicated bicycle facilities. Though bike routes help direct bicyclists to key destinations and raise awareness of their presence on the road to motorists, these routes are scored using the “mixed traffic” criteria as there is no physical separation between moving traffic and bicyclists, and research indicates the presence of signs alone does not influence traffic stress.

The stress or comfort people feel based on their proximity to traffic is an important aspect, but far from the only component, of people’s biking experience. Other factors influence the decision to ride a bicycle on a particular facility, including incidences of speeding and conflicts with turning movements at driveways and site access points.

LTS Inputs

LTS builds on the Mineta Transportation Institute’s nationally-recognized research and applies LTS rating values for individual street segments based on the following inputs and characteristics:

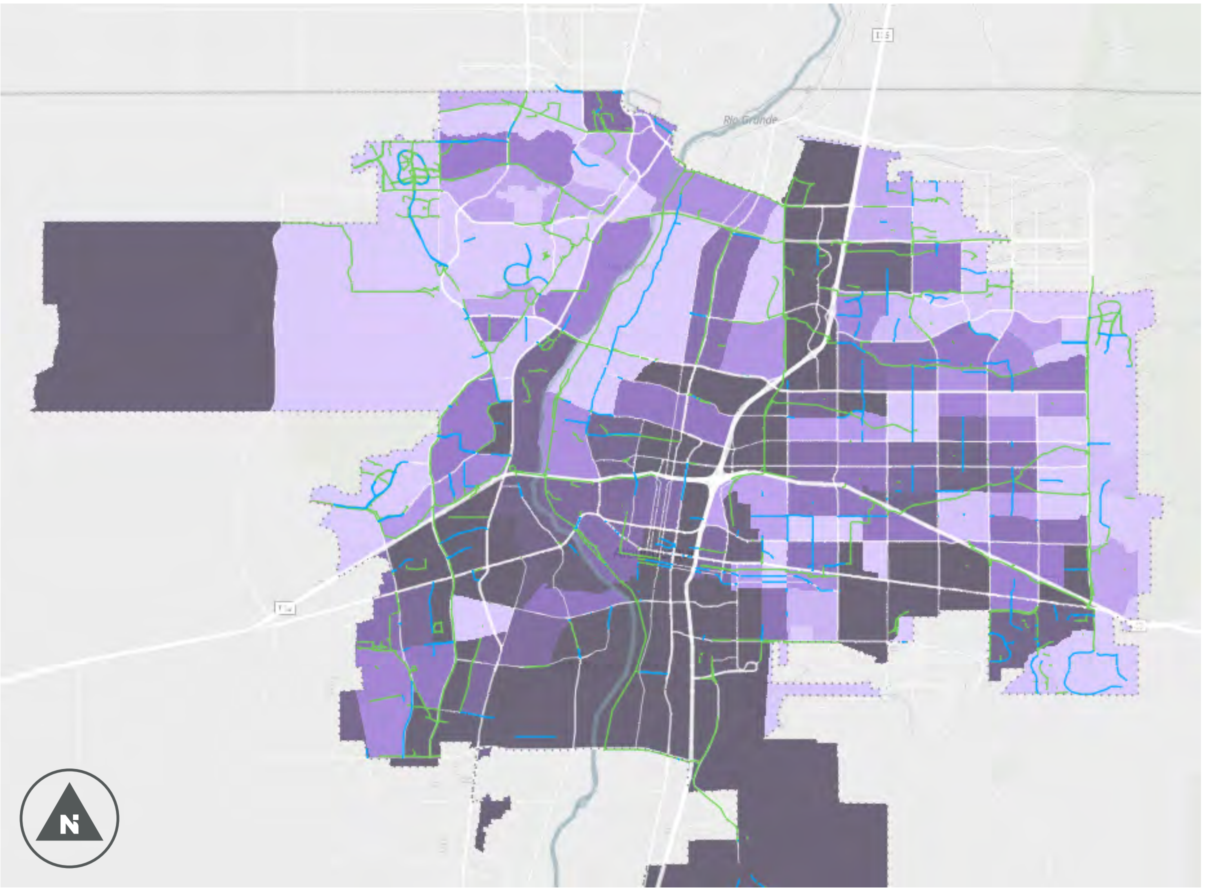
- Bicycle facility presence, type, and width
- Posted speed limit
- Number of travel lanes per direction
- Average daily traffic (ADT) volume
- Presence and width of on-street parking lanes
- Presence of a centerline

Equity in Access

Access to low-stress bikeways is not evenly distributed across the City of Albuquerque. Figure 7 displays the low-stress bikeway network overlaid on top of the Vulnerability Index used by the Mid-Region Council of Governments and the City of Albuquerque for various equity-related analyses. Darker colors represent the Census tracts with more vulnerable populations, as measured through indicators related to:

- Per-capita income and poverty levels
- Population dynamics (including share of residents 17 years old or younger and 65 years old or older)
- Population with a disability
- Non-white population
- Population with limited English proficiency
- Multi-family housing with 10 or more units
- Households with limited access to vehicles

Figure 7. Vulnerability Index and Existing Low-Stress Bikeways



Applying Equity Analysis

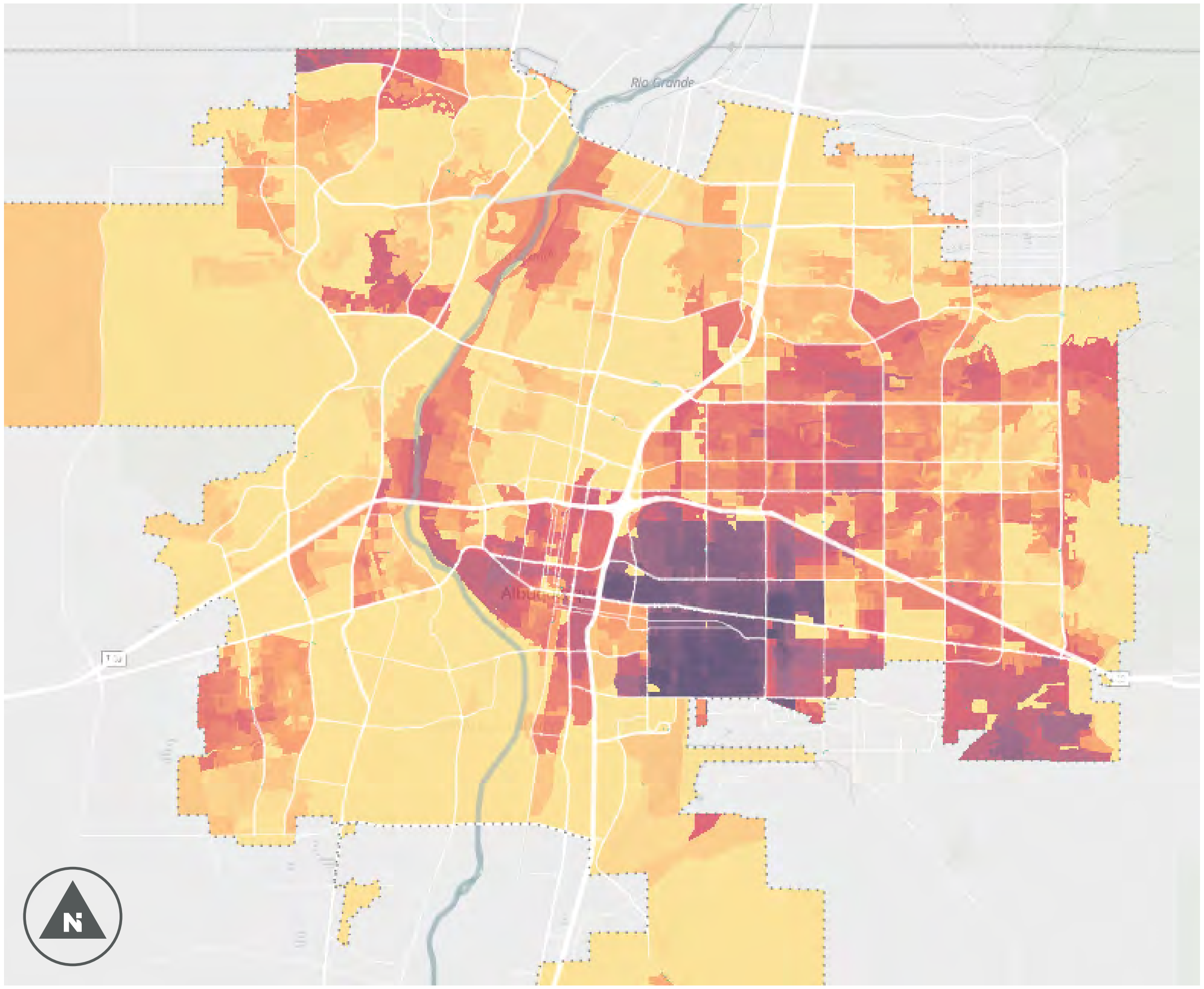
The Vulnerability Index data can be contrasted against the existing bikeway and paved multi-use trail networks to understand how accessible low-stress facilities are to different population groups. The International District, for example, has no meaningful low-stress bikeways, despite being home to a high number of lower-income individuals and families who either cannot afford or must make large financial sacrifices to own and drive a car. The Bikeway Evaluation Process incorporates the Vulnerability Index into project prioritization. See **Chapter 6: Implementation** for additional details.

Opportunities for Connections

Bicycle Network Analysis (BNA) highlights areas where bicyclists cannot easily access destinations such as schools, major job sites, and stores via low-stress bikeways and paved multi-use trails. BNA integrates LTS data with consideration of how bicyclists experience intersections to reflect not only bicyclists' comfort or stress riding along streets and multi-use trail corridors, but also how existing infrastructure allows or prevents them from crossing major roadways safely and comfortably.

Places shown in darker colors represent the areas where bicyclists can access a broad range of destinations using low-stress bikeways and paved multi-use trails, while places shown in lighter colors represent areas where bicyclists can reach fewer destinations. In Albuquerque, biking access to destinations is greatest in the neighborhoods surrounding the University of New Mexico, where there is a dense concentration of destinations and several low-stress bikeways. Meanwhile, large swaths of the South Valley—including areas in the City of Albuquerque and unincorporated Bernalillo County—have limited biking access to destinations. Investments in higher-comfort bikeways and multi-use trails can help improve bicycling access to critical destinations in these areas.

Figure 8. Bicycle Network Analysis Results



Applying BNA Results

This 2024 Plan uses BNA as a reference during network development to identify areas where additional low-stress connections would be particularly beneficial and prioritizes implementable bikeway projects that provide connections through local neighborhoods and across regional barriers like the Rio Grande to help make biking a safe, comfortable, and enjoyable option for trips citywide.

3. Community and Stakeholder Outreach

Overview

The City of Albuquerque used a variety of outreach strategies to raise awareness about the 2024 Plan development process and gather input from community members on bicycling-related needs and priorities. This chapter summarizes the community and stakeholder outreach and highlights some of the key takeaways that informed the 2024 Plan.

Figure 9. Public and Stakeholder Outreach Infographic

3 **Phases of Outreach**

- **12+** Hosted more than a dozen pop-up meetings
- **5** Community meetings
- **9** City and regional committee presentations

2 **Stakeholder working groups**

- **8** Total meetings

2 **Surveys in English and Spanish that reached >1,200 people**

Pop-up events during Bike to Wherever Day and Bike Thru Burque Week

Key Takeaways

The key takeaways listed below represent a combination of input received from stakeholders and community members at in-person meetings and pop-up events and through the initial community survey. **This input informed the 2024 Plan vision and goals, proposed bikeway projects, and the criteria used in project prioritization.** Detailed summaries of both surveys can be found in **Appendix B: Community Survey Summary** and **Appendix C: Project Priorities Survey Map Results.**

- **Survey respondents see positive changes in Albuquerque over time**: Survey respondents were generally positive about the trajectory of bicycling conditions in Albuquerque, though not as positive as they had been in past Bike to Wherever/ Bike to Work Day surveys. Reasons that respondents felt positive about bicycling in Albuquerque included the expanding network of on-street bikeways, a high-quality network of paved multi-use trails, pleasant weather, and a growing culture of bicycling.
- **Most trips by bicycle are for recreational purposes**: The majority of recent bicycling trips among survey respondents were for recreational purposes, though many respondents indicated a desire to bike for more utilitarian purposes if quality bikeways were available. These findings are consistent with previous surveys conducted for Bike to Wherever Day and Bike to Work Day.
- **Safety and personal security are major concerns while bicycling**: Survey respondents emphasized safety as their highest priority, which is consistent with previous surveys. Major sources of safety concerns included excessive speeding and the presence of larger vehicles on the road. While paved multi-use trails remain popular places to ride, several participants voiced concerns over personal security along some trail segments, including the North Diversion Channel.
- **Bicyclists prefer greater physical separation from motor vehicles**: When asked to rate different bikeway facility types, respondents' level of comfort rose significantly along bikeways with greater physical and spatial separation from motor vehicles.
- **Bikeway travel is limited by natural and human-made barriers**: Limited bridges and crossings of the Rio Grande, Interstates 25 and 40, and the railroad tracks near Downtown affect access to key destinations and the ability to complete trips by bicycle. Participants asked that improved facilities along key crossings be prioritized.
- **Major street crossings are major barriers to bicycling:** Crossing major streets, both at signalized intersections – where bike lanes are not always continuous and require traveling in mixed traffic – and at unsignalized or uncontrolled intersections where wide roads and fast-moving traffic create hazardous conditions. Several participants expressed a desire for better bike detection at signalized crossings.
- **Plan recommendations should include improvements to existing facilities**: Participants noted that many existing bikeways could be improved further and that some bikeways classified as low stress in the Level of Traffic Stress analysis do not always feel low stress, particularly where motorists regularly travel above the posted speed limits.
- **Neighborhood streets can be quality bikeways**: Many participants prefer riding along quiet neighborhood streets and indicated that Bike Route signage is useful. For bike routes and bike boulevards to be low stress, participants requested enhanced crossings and other features beyond signage and pavement markings.
- **Greater integration of modes is desired**: Participants expressed a desire for greater integration between bicycling and transit, including more bike parking at transit stops and station areas and making it easier to bring bikes on buses.
- **There is a need to manage potential conflicts associated with e-bikes**: Participants and stakeholders highlighted the need

to both create opportunities for a greater range of users and to manage conflicts among bicyclist types, including the use of e-bikes on paved multi-use trails and on-street bikeways.

Phases of Outreach

The planning process included three outreach phases designed to generate input on general barriers and challenges to bicycling in Albuquerque, as well as specific locations for improvements and project priorities. Table 5 provides an overview of the phases of engagement, the information the Project Team shared with the public, and the input gathered to inform the planning process. Specific outreach strategies are described in the following section. Phase 1 of engagement focused on understanding bicyclist user needs and general priorities. Outreach events aligned with the nationwide Bike Month and with the City's Bike to Wherever Day event (previously Bike to Work Day) on May 19, 2023. During these events, the Project Team promoted the plan and encouraged the public to fill out the annual Bike to Wherever Day survey and identify locations for potential improvements.

The launch of Phase 2 aligned with Bike Thru Burque Week in October 2023 and the CiQlovía open streets festival. Outreach events featured a survey map where community members could indicate which potential projects they think should be prioritized.

Phase 3 centered around the release of the plan for public review before the draft plan was brought before the Environmental Planning Commission for review and recommendation to City Council for final approval.

Table 5. Phases of Public Outreach

Phase	Information Shared	Input Gathered
1. Needs Assessment (May-June 2023)	• Existing conditions including Level of Traffic Stress (LTS) analysis	• Challenges and opportunities for biking in Albuquerque • Critical factors for prioritization • Preferred facility types • Priority corridors for improvements
2. Project Priorities	• Proposed bikeway and paved trail network, including facility types, implementation timeline, and magnitude of costs	• Bikeway projects that community members believe should be prioritized
3. Plan Review	• Full draft of the 2024 Plan, including network components and policy recommendations	• General feedback on 2024 Plan contents

Public Engagement Strategies

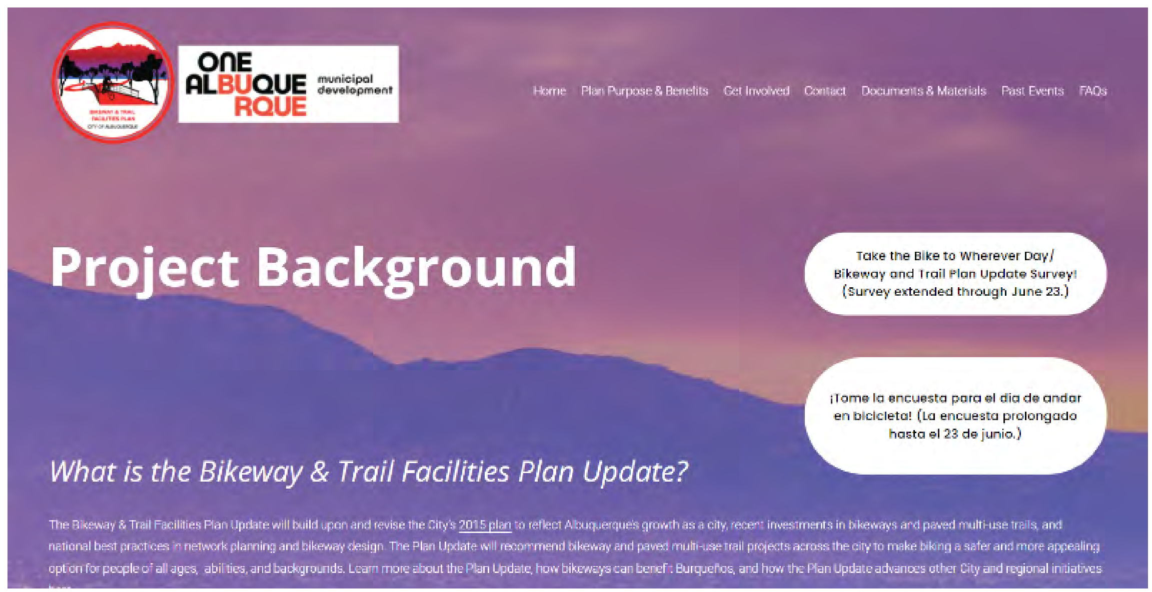
Engagement strategies included a combination of in-person and virtual events and activities. Online advertising and marketing efforts about opportunities for input took place in coordination with Bike to Wherever Day in May 2023 and Bike Thru Burque Week in October 2023, to leverage well-established programs and activities and to increase awareness of the plan development process. Coordinated efforts included plan promotion via Bike Thru Burque social media channels, event webpages, and email lists.

Logo for 2023 Bike Thru Burque Week

Logo for 2023 Bike to Wherever Day

Project Website

A dedicated project website ([www.abqbikeplan.com]) hosted information about the project, including links to public meetings, draft products such as the [Existing Conditions Story Map], surveys, and interactive maps. Key elements of the project website, including both surveys, were available in Spanish.



Homepage for Bikeway and Trail Facilities Plan website

Stakeholder Outreach

Stakeholder outreach included two formal working groups convened specifically for the 2024 Plan and formal presentations to standing city and regional committees.

Working Groups

The planning process convened two working groups: the Technical Working Group (TWG) comprised of staff from various City departments and peer agencies and the Stakeholder Advisory Committee (SAC) comprised of community members, external stakeholders, and bicycling advocates. Both groups provided input on bicycling-related needs, the plan development methodology, components of project prioritization, draft deliverables, and related implementation strategies.

The Project Team held four meetings with each group, including a joint visioning session in early 2023 to introduce this effort and to consider potential plan priorities. In addition to the formal meetings, the Project Team held a series of four network design workshops with select members of the TWG in Summer 2023 to review and develop the proposed bikeway network.

Table 6. Composition of the Technical Working Group and Stakeholder Advisory Committee

Technical Working Group	Stakeholder Advisory Committee
City departments • Municipal Development • Parks and Recreation • Planning • Council Services • ABQ RIDE • Sustainability • Senior Affairs **Peer agencies** • Bernalillo County • Mid-Region Council of Governments	**External agencies** • Albuquerque Public Schools • Sandia National Labs • UNM Parking & Transportation **City advisory committee representatives** • Greater Albuquerque Active Transportation Committee • Greater Albuquerque Recreational Trails Committee • Transit Advisory Board **Community organizations** • Bike ABQ • Duke City Wheelmen • Together 4 Brothers **Other** • Private citizens and advocates

City and Regional Boards and Committees

The Project Team gave regular updates to key City and regional boards and committees at their scheduled monthly meetings. Table 7 describes the role and composition of these boards and committees. Presentations to the committees coincided with the three plan outreach phases to increase awareness and encourage participation.

Table 7. Boards and Committees Involved in Plan Outreach Efforts

Entity	Role of Committee
Greater Albuquerque Active Transportation Committee (GAATC)	**Description/Role**: Advises the City on the needs of people who walk, bike, use mobility devices, and other people-powered transportation options. **Participants**: Volunteer community members; staff from various City departments and peer agencies attend to provide reports.
Greater Albuquerque Recreational Trails Committee (GARTC)	**Description/Role**: Supports, encourages, and advises agencies to set priorities related to the development of new trails and maintenance of existing trails throughout the region. **Participants**: Volunteer community members; staff from various City departments and peer agencies attend to provide reports.
MRCOG Active Transportation Committee	**Description/Role**: Brings active transportation modes into the larger discussion of transportation issues in the Albuquerque Metropolitan Planning Area and discusses and reviews regional plans and projects. **Participants**: Staff from MRCOG agencies across the region, including the City of Albuquerque; interested community members.

Community Meetings

The first two phases of engagement included both an in-person public meeting and a virtual public meeting; the virtual public meetings were recorded and posted online. Meeting content engaged the public on topics such as the vision and goals of the plan, solicited input on the proposed network and projects for prioritization, and informed the public of next steps for implementation.

In-Person Pop-Up Events

In addition to traditional public meetings, the Project Team hosted a series of in-person pop-up events, many of which coincided with Bike to Wherever Day and Bike Thru Burque Week programs and activities to increase participation rates. Each pop-up event included promotional materials, paper surveys, and hard copies of map materials.

Phase 2 outreach overlapped with several public meetings for the City's Comprehensive Plan Update where City staff provided information about the 2024 Plan, including the project priorities survey.

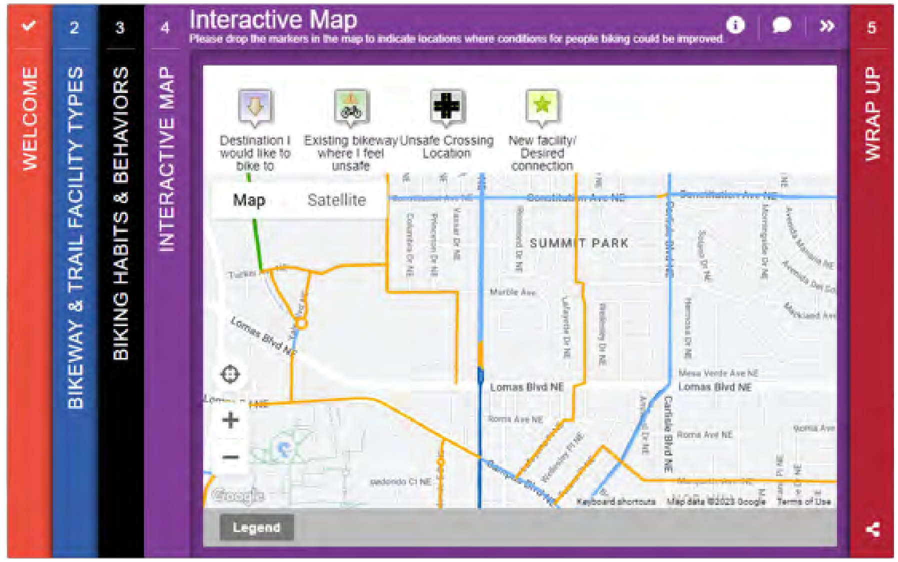
Surveys and Interactive Maps

The Project Team utilized surveys and interactive maps in phases 1 and 2 to solicit location-based feedback from the public. More information about these surveys, including detailed summaries of findings, can be found in **Appendix B: Community Survey Summary** and **Appendix C: Project Priorities Survey Map Results.** The Key Takeaways section at the end of this chapter summarizes highlights from the general input survey.

Bike to Wherever Day Survey and Interactive Map

A general input community survey during phase 1 gathered feedback about general bicycling conditions, personal habits, and preferred facility types. The survey leveraged and expanded upon the annual Bike to Wherever Day survey to include an interactive map with components and questions particularly relevant to the 2024 Plan. The survey was open from May 1 to June 16, 2023, and received a total of 679 responses. The interactive map collected data on the following topics:

- Destinations that respondents would like to bike to
- Existing bikeways where respondents feel unsafe
- Unsafe crossing locations
- Locations where new facilities are desired



Interactive map component of the Bike to Wherever Day Survey

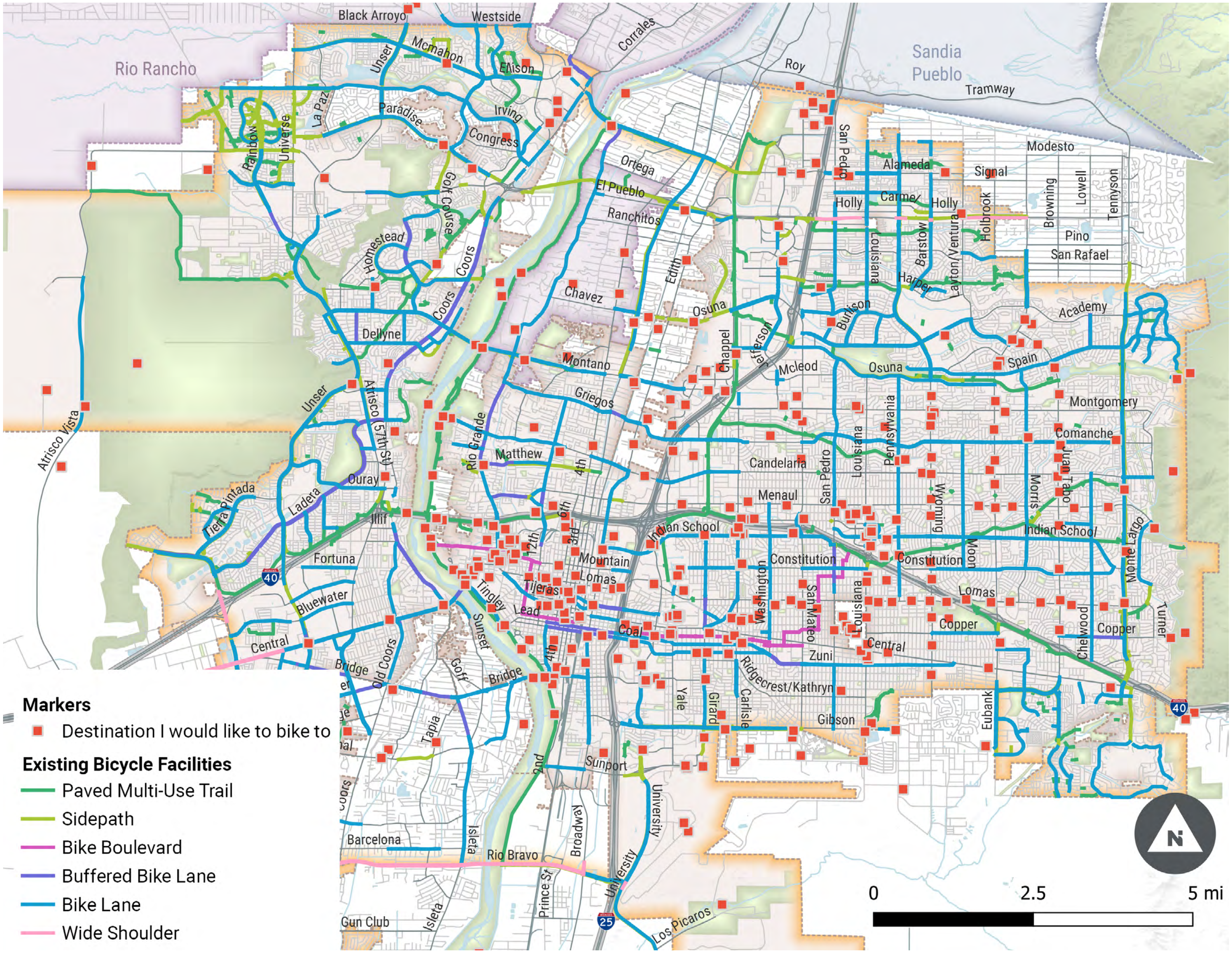
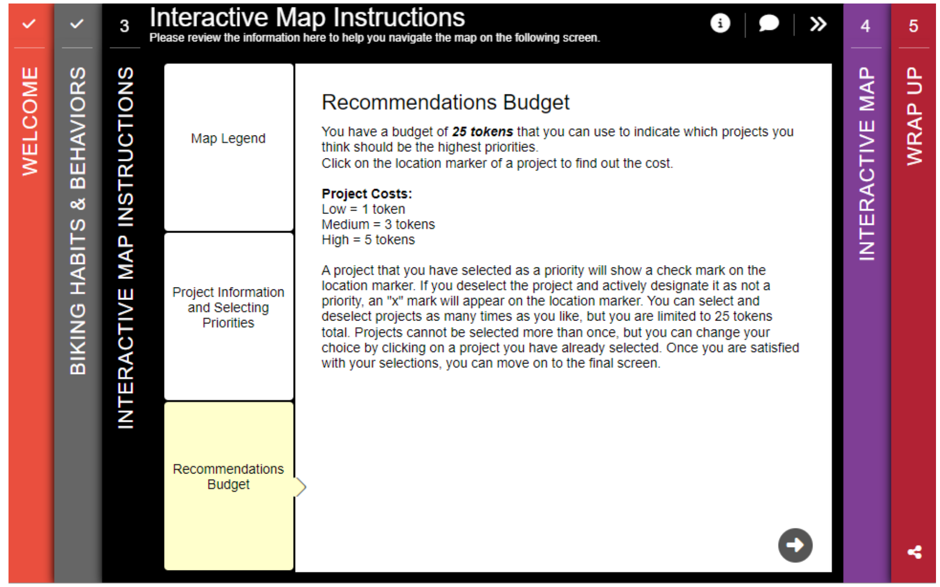


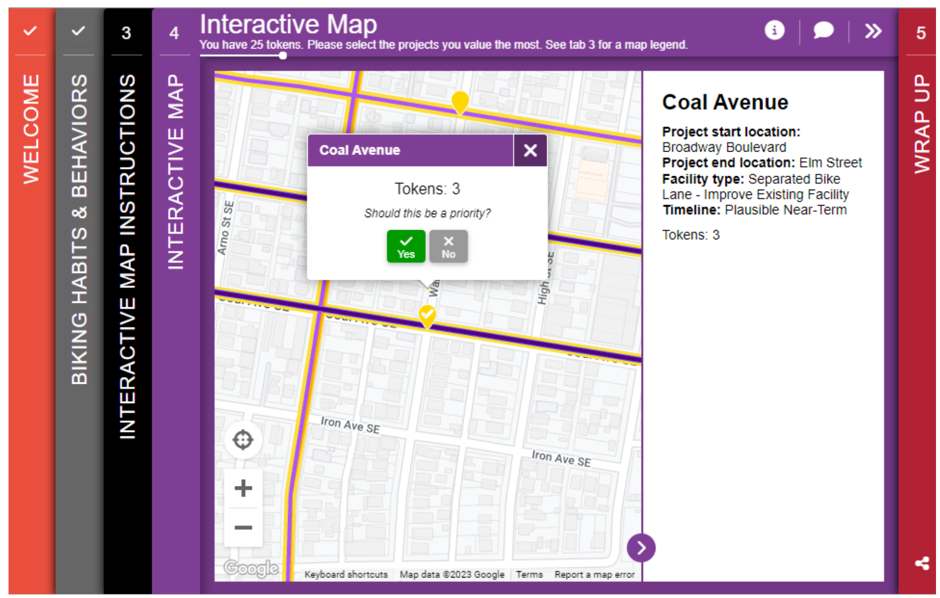
Figure 10. Destinations People Would Like to Bike To, Bike to Wherever Day Survey

Project Priorities Map Survey

The project priorities map survey was available online from October 21 through November 30, 2023, as part of phase 2 of engagement and provided participants an opportunity to view the proposed bikeways and their estimated timeframe for implementation. The interactive survey map included an exercise in which participants were given a "budget" of virtual tokens and asked to select which potential bikeway projects to prioritize. Projects had a "cost" of one, three, or five tokens to represent the technical feasibility and complexity of a proposed improvement.

A total of 662 individuals participated in the project priorities survey map. The Project Team incorporated results into project prioritization as a community input criterion in the bikeway evaluation process. **Appendix C: Project Priority Survey Map Results** provides details on the most frequently selected priority projects.





Instructions tab and interactive map component of the Project Priorities Survey Map

4. Facility Types: Definitions and Considerations

Purpose

This document defines various on and off-street bikeway facilities based on current design guidance and their intended application across the City of Albuquerque. The 2024 Bikeway and Trail Facilities Plan did not update information related to unpaved trails, though unpaved trails are defined and described later in this section. As facility types are described in multiple City of Albuquerque planning documents and best practices in bikeway facility design are constantly evolving, these definitions ensure a common understanding of terms and establish the appropriate contexts in which different bikeway facility types may be implemented as part of the *2024 Plan*.

Note on Unpaved Trails

See **Appendix H: Additional Considerations for Multi-Use Trails** for discussion on unpaved trails for equestrians, hiking, and mountain biking. These trails primarily serve recreational purposes and are not evaluated in the 2024 Plan.

Design Guidance

Information on appropriate contexts for the application of bikeway facility types is derived from the Federal Highway Administration (FHWA) *Bikeway Selection Guide* and reflects the bikeway infrastructure needed to achieve low-stress conditions for people biking. Design guidance and standards are taken from the City of Albuquerque *Development Process Manual* (DPM) unless otherwise noted.

Note: The 2024 Plan recommends revisions to the DPM based on emerging national best practices. These updates would impact desired widths and other elements of bikeway facility design.

Identifying Appropriate Facility Types

This section is intended as a reference and resource for identifying appropriate bikeway facility types and informs the recommendations of the *2024 Plan*. Bikeway facilities should adhere to the FHWA Bikeway Selection Guide to the greatest extent possible (see Figure 11).

LOW-VOLUME SHARED STREETS

- Bike Boulevard
- Enhanced Bike Route

ON-STREET FACILITIES

- Bike Lanes
- Buffered Bike Lanes
- Separated/Protected Bike Lanes

OFF-STREET FACILITIES

- Paved Multi-Use Trails
- Sidepaths

CONTEXT-SPECIFIC TREATMENTS

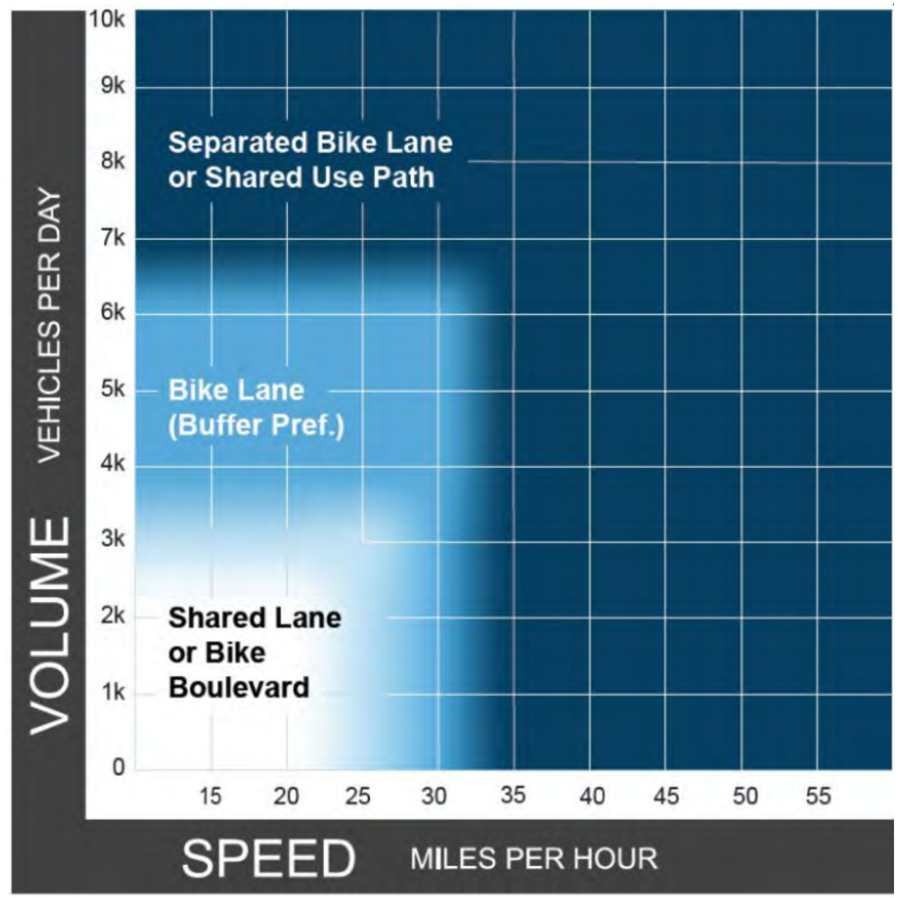
- Two-Way Cycle Track
- Raised Bike Lanes

RECREATIONAL TRAILS

- Unpaved Multi-Use Trails

Figure 11 illustrates how additional separation between where people driving and bicycling is needed as vehicle volumes and speeds increasewhat facility types are appropriate for all users, based on the volume of motor vehicles and the actual speeds of motor vehicles. The graph is intended to minimize the level of traffic stress (LTS) experienced by all users, regardless of volume and speed conditions, and ability levels. The lightest color in the lower left shows that bike boulevards and bike routes are appropriate facility types along streets with low traffic volumes and vehicle speeds. As traffic volumes and speeds increase (darkest colors), separated facilities such as multimodal multi-use trails orand sidepaths are more appropriate. In addition, this graph shows that, with some exceptions such as crossing treatments for bike boulevards, lowest-stress conditions can be handled in the short term with the lowest-cost facilities while higher stress conditions require more long term and capital-intensive facilities.

Figure 11. Preferred Bikeway Facility Type Based on Roadway Speed and Volume



Source: FHWA Bikeway Selection Guide

Low-Volume Shared Streets:

Bike Boulevard

Bike boulevards are low-stress corridors with slow speeds and low vehicle volumes that feature traffic calming elements and enhanced crossing treatments to reduce through vehicle traffic and manage vehicle speeds.

Though people biking share space with motor vehicles, the low-stress conditions ensure these bikeways appeal to people biking of all ages and abilities.

Appropriate Contexts

Primarily residential streets that run parallel to major roads and have posted speeds of 25 mph or lower before implementation.

Per the DPM, the target daily vehicle volume is 1,000 or below after implementation; 1,000–2,000 vehicles per day is acceptable.

Narrower streets (under 40 feet wide) are preferable for bike boulevards as wider streets require additional treatments to encourage slower vehicle speeds.

Posted Speeds

20 mph or lower after implementation

Considerations and Design Guidance

Per the DPM and the *Bike Boulevard Toolkit*, typical features include branded signage and pavement markings, design elements to narrow the roadway (e.g. diverters or striped on-street parking) and reduce traffic (e.g. closed medians at major intersections), and enhanced street crossings to remove barriers to longer-distance travel.

See the City of Albuquerque *Bike Boulevard Toolkit* for detailed design considerations and the City of Albuquerque *Bicycle and Trail Crossing Guide* for appropriate crossing treatments at major intersections.

Silver Ave

Girard Blvd

Low-Volume Shared Streets:

Enhanced Bike Route

Enhanced bike routes are shared streets that utilize signage and pavement markings (i.e. sharrows) to indicate that bicyclists may be present and to help bicyclists connect to other facilities and local destinations.

Today, bike routes are a common form of bikeway throughout Albuquerque and are typically designated through basic signage along local streets with low volumes of vehicle traffic. However, conditions vary in terms of treatments and traffic volumes and speeds and not all existing bike routes meet the criteria described below. Many existing bike routes are proposed as bike boulevards or enhanced bike routes in the 2024 Plan.

Appropriate Contexts

Low-volume (generally under 2,000 vehicles per day) and low-speed streets, including residential streets.

Enhanced bike routes typically provide short connections to local destinations or link other facilities to one another and do not involve crossing treatments at intersections with major streets.

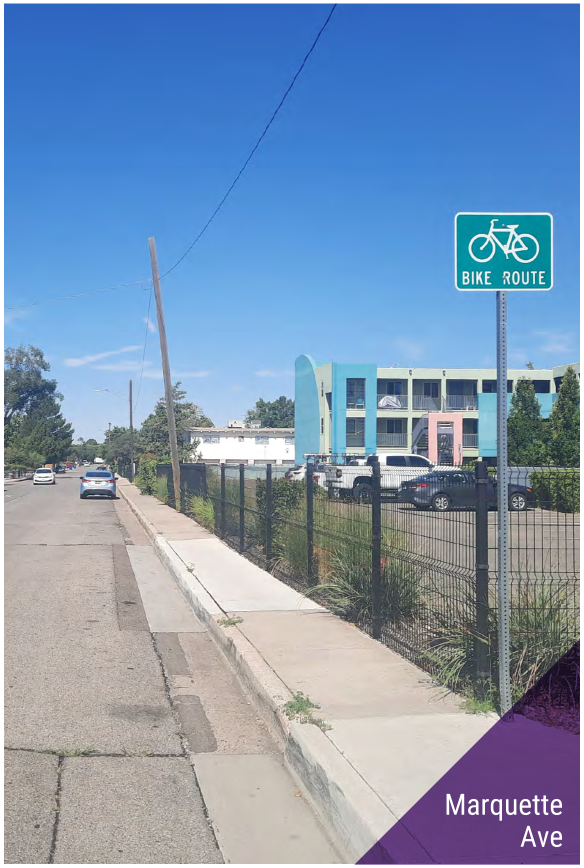
Posted Speeds

25 mph or lower

Considerations and Design Guidance

Enhanced bike routes share many of the characteristics of bike boulevards, including frequent pavement markings and traffic calming features to reduce vehicle speeds and increase bicyclist user comfort.

Per the DPM, bike route designations may be used selectively on higher-volume roads where a bikeway connection is desired but right-of-way is constrained and bike lanes that meet the minimum design standards are not feasible.



Marquette Avenue is an existing bike route. Additional pavement markings and traffic calming techniques are desired to create an enhanced bike route.

On-Street Facilities:

Bike Lanes

Bike lanes utilize striping to delineate a separate, dedicated space for people biking. Standard bike lanes are typically located at the road edge and do not provide additional vertical or horizontal separation from vehicular travel lanes.

Appropriate Contexts

Collector and arterial streets with moderate speeds and volumes. Per the FHWA Bikeway Selection Guide, bike lanes are best suited for streets with traffic volumes under 6,500 vehicles per day.

On local streets with wide pavement sections (i.e., at least 40 feet wide), bike lanes may be an appropriate alternative to bike boulevards.

Posted Speeds

30 mph or lower

Considerations and Design Guidance

Per the DPM, bike lanes should be a minimum of 5 feet wide, with additional width (up to 6.5 feet) desired as space permits. The gutter pan is not included in the bike lane width.

Bike lanes may be implemented on existing roadways by narrowing vehicle travel lanes, medians, and/or parking lanes; reducing the number of vehicle travel lanes; and/or reconsidering the need for on-street parking.

Carlisle Blvd

Griegos Rd

Buffered Bike Lanes

Buffered bike lanes are bikeways with striped, horizontal space between the bike lane and the adjacent vehicle travel lane, which provides additional separation between bicyclists and moving vehicle traffic.

Appropriate Contexts

Buffers are appropriate for all bike lanes as space permits. Buffers are particularly critical for increasing user comfort level as vehicle speeds and traffic volumes increase.

Per the FHWA Bikeway Selection Guide, buffered bike lanes are best suited for streets with traffic volumes under 6,500 vehicles per day (the same threshold recommended for standard bike lanes).

Posted Speeds

35 mph or lower (DPM)

30 mph or lower (FHWA Bikeway Selection Guide)

Considerations and Design Guidance

Per the DPM, buffers may range from 1–3 feet, depending on the available roadway space, with wider buffers preferred. Buffers that are 1.5 feet or less may be comprised of parallel striped lines. Wider buffers should feature cross hatching.

The term buffered bike lanes specifically refers to separation from moving vehicle traffic, though buffers may also be applied on the inside of a bike lane to create separation from parked vehicles or to improve sight lines where walls or barriers are present on the roadway edge.

On-Street Facilities:

Separated Bike Lanes

Separated bike lanes, also known as protected bike lanes, are a form of buffered bike lane located at street level that features some form of vertical separation from motor vehicles.

Austin, Texas

Appropriate Contexts

Vertical separation may be considered for all buffered bike lanes, depending on the roadway conditions, and is desirable for ensuring user comfort on roads with traffic volumes over 6,500 vehicles per day, per the FHWA Bikeway Selection Guide.

Posted Speeds

30 mph or higher

Vertical separation is critical for ensuring user comfort level on roads with operating speeds of 35 mph or greater, per the FHWA Bikeway Selection Guide.

Considerations and Design Guidance

Vertical elements may include flex posts, parking stops, curbs, or other form of physical separation.

Per the DPM, separated bike lanes should be a minimum width of 6.5 feet with a 3-foot buffer for the vertical element.

Vertical separation is most appropriate along corridors with limited numbers of driveways to ensure more continuous barriers.

Off-Street Facilities:

Paved Multi-Use Trails

Paved multi-use trails are off-street facilities in their own right-of-way that are shared with people walking, jogging, and rolling.

Appropriate Contexts

Multi-use trails are typically located in natural settings or along drainage channels or arroyos.

Posted Speeds

N/A

Considerations and Design Guidance

DPM guidance calls for a minimum width of 10 feet, with 12 feet recommended and 14 feet desired for high-use areas and long-distance routes. Additional space is needed for shoulders and frontages against private property.

Consult the AASHTO Guide for the Development of Bicycle Facilities for detailed design guidance.

Bosque Trail

North Diversion Channel Trail

Off-Street Facilities:

Sidepaths

Paved multi-use sidepaths are two-way, off-street facilities that are shared among people biking, walking, and rolling. Sidepaths are located within the public street right-of-way on the outside of the curb. Because sidepaths are located at curb level, they provide vertical separation between people biking and motor vehicle traffic.

Appropriate Contexts

Sidepaths are appropriate on streets with sufficient space behind the curb. Sidepaths are most appropriate on streets with limited intersections and driveways because drivers making turns often do not account for bicyclists traveling in both directions at these conflict points.

Vertical separation (achieved through sidepaths at curb level) and buffers are critical for ensuring user comfort level on roads with operating speeds of 35 mph or greater, per the FHWA Bikeway Selection Guide.

Posted Speeds

30 mph or higher

Considerations and Design Guidance

Per the DPM, sidepaths are designed using the same width and engineering standards as paved multi-use trails and should be demarcated with a dashed yellow centerline on asphalt pavement. Wider sidepaths are desired to the greatest extent possible to allow for both people walking and biking to comfortably pass and to increase overall capacity of the facility.

Sidepaths should be offset from the curb and the property line. These buffers create spatial separation and ensure that people biking feel comfortable using the full extent of the sidepath. Landscaping and street trees are desired for shade as long as they do not impede visibility approaching intersections and site access points.

Sidepaths may take the place of sidewalks and can complement on-street bike lanes to provide options for different bicyclist user types. Conflicts at driveways and intersections must be accounted for during facility design.

Arroyo Vista Blvd

McMahon Blvd

Raised Bike Lanes

Raised bike lanes are one-way facilities that are located at sidewalk level or slightly elevated from the roadway to provide vertical separation from moving traffic.

Raised bike lanes may have a buffer and/or a vertical element in between the bikeway and the roadway.

Appropriate Contexts

Roads with high speeds and traffic volumes (above 6,500 vehicles per day).

Can be an appropriate treatment where sufficient right-of-way is available outside of the roadway and/or near transit stops to manage conflicts among buses, pedestrians, and bicyclists.

Posted Speeds

30 mph or higher

Considerations and Design Guidance

The NACTO Urban Bikeway Design Guide recommends that one-way raised bike lanes be 6.5 feet wide, with a 1.5-foot buffer next to a vehicle travel lane, or a 3-foot buffer next to a parking lane.

If the bike lane is level with the sidewalk, a textured material or colored pavement should distinguish spaces for people walking and biking.

Raised bike lanes are most appropriate on streets with few driveways and conflicts associated with turning movements. The 2024 Plan does not recommend raised bike lanes in any specific locations, though these facilities may be considered during final design on a case-by-case basis.

Two-Way Cycle Track

Cycle tracks are fully separated bikeway facilities that support people biking in opposite directions. Cycle tracks can be located at sidewalk-level or at the same level as vehicle travel lanes if there is a form of physical separation.

Appropriate Contexts

Generally appropriate for short connections between segments of on-street bikeways or sidepaths and streets where there is not enough room for separated bike lanes on both sides of the street.

Locations where high volumes of both bicyclists and pedestrians are anticipated and there is a strong desire and ample ROW to manage conflicts by providing dedicated spaces for people walking and biking on separate facilities.

Posted Speeds

30 mph or higher

Considerations and Design Guidance

The NACTO Urban Bikeway Design Guide recommends a minimum facility width of 12 feet, with a 3-foot buffer between the bike lane and parked vehicles. Some form of vertical separation should be placed in the buffer zone.

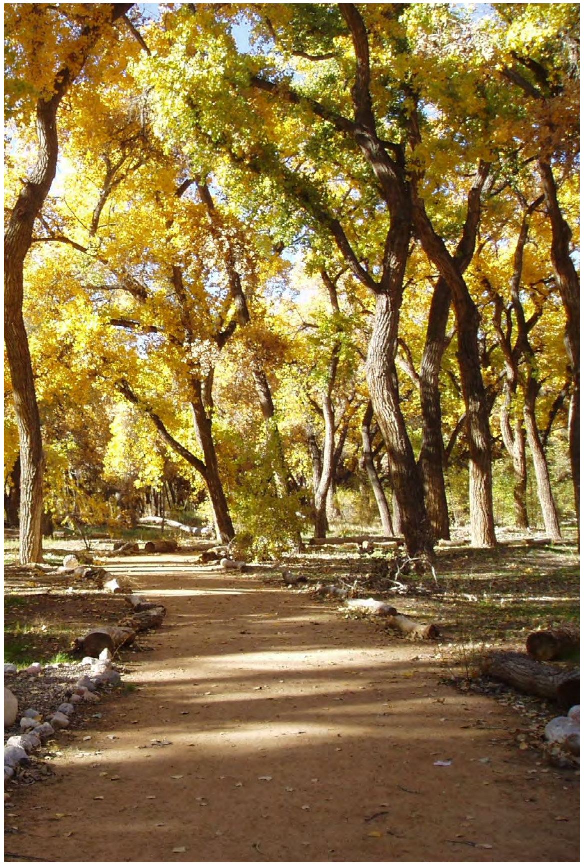
Cycle tracks are typically located on the road edge rather than the median. Additional intersection treatments needed.

Recreational Trails:

Unpaved Trails

Unpaved trails typically accommodate but are not limited to (unless posted and signed) equestrians, mountain bikers, hikers, joggers, and people walking who may prefer a soft walking surface (stabilized unpaved trails may also be suitable for wheelchair users depending on their ability). Unpaved multi-use trails are typically used for recreational purposes.

The 2024 Plan did not update information related to unpaved trails. For appropriate contexts and design considerations and guidance, see **Appendix H: Additional Considerations for Multi-Use Trails.**



5. Proposed Bikeways and Trails Network

Chapter Overview

This chapter outlines the considerations that were applied in developing the proposed bikeways and trails network and provides an overview of the strategies that may be used by the City of Albuquerque to develop individual bikeway and trail improvement projects. Additional details on project priorities and how projects may be implemented can be found in **Chapter 6: Implementation and Recommendations**. See the Proposed Network Story Map and **Appendix F: Priority Project Tables** for detailed information on proposed bikeway and trail projects.

Components of the Proposed Bikeways and Trails Network

On-street Bikeways and Paved Multi-use Trails

The 2024 Plan identifies new projects and enhancements to existing bikeways and trails to complement the existing network of low-stress bikeways. This collection of improvements will ultimately form a robust and well-connected city-wide network that increases the range of transportation options, serves the daily needs of all Albuquerque community members, and provides access to major destinations. Table 8 summarizes the components of the proposed bikeways and trails network.

Figure 12 depicts the full network of existing and proposed on-street bikeways and paved multi-use trail facilities, including projects that are considered both plausible near term and long term. Altogether, the 2024 Plan proposes 385 miles of new or enhanced bikeways. See Table 9 for mileage of new and enhanced bikeways and trails by facility type.

Table 8. Components of the Proposed Bikeways and Trails Network

Network Component	Description
Existing Bikeways and Trails	**Existing facilities** that provide low stress conditions for people biking (LTS 1 or 2). Projects are not generally proposed on these bikeways.
Proposed Projects	**Improvements to existing facilities**, including upgrades to create lower-stress facility types and the implementation of enhanced crossings – based on the City's *Bicycle and Trail Crossings Guide* – where paved multi-use trails and bike boulevards intersect with major streets. **New on-street bikeways and paved multi-use trails**, including a range of facility types. Proposed projects draw from previous plans and studies, public and stakeholder input on desired routes, and an analysis of street conditions and desired connections, including opportunities to reconfigure streets to better accommodate bikeways.

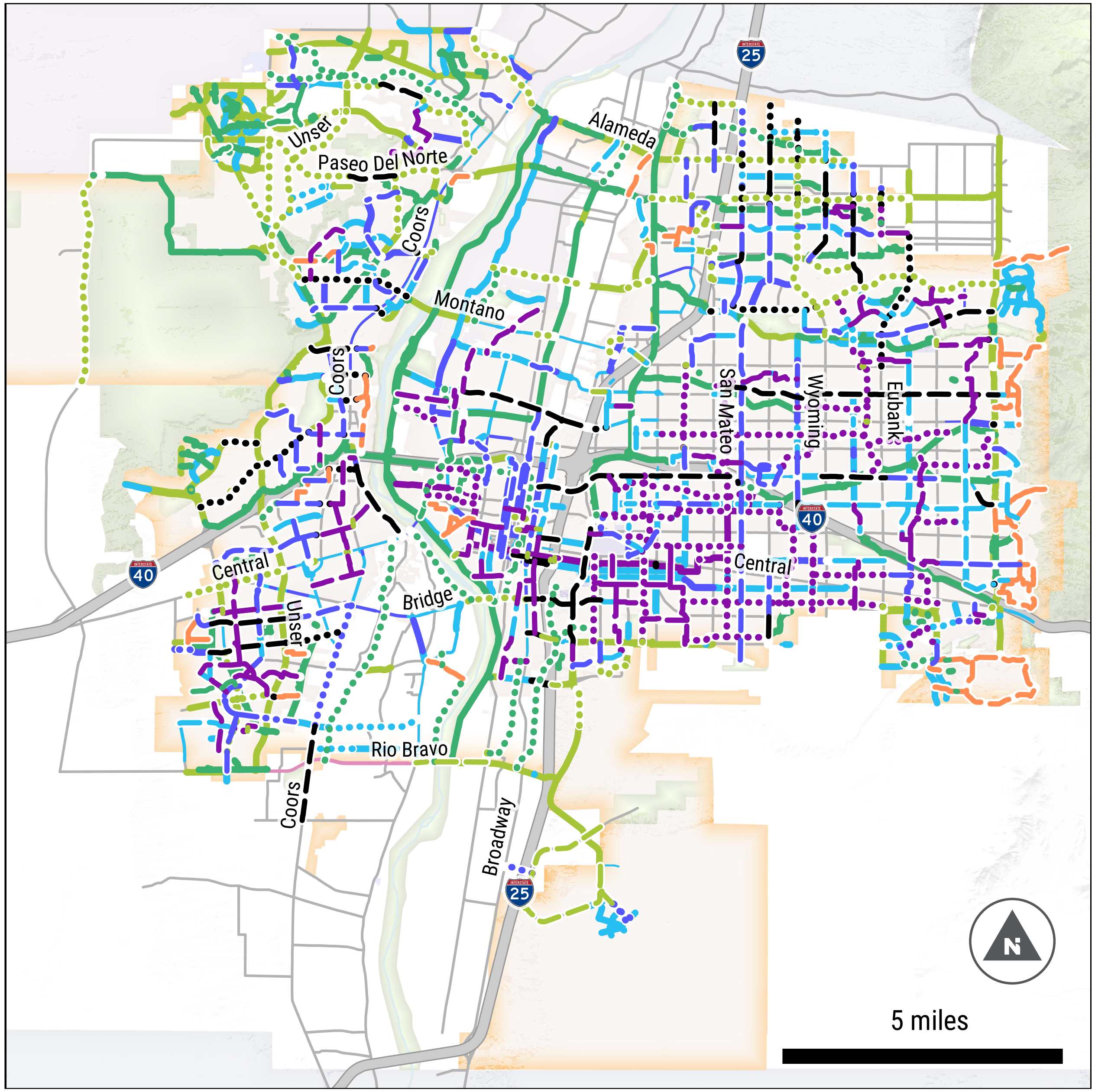
Table 9. Mileage of New or Enhanced Bikeways by Facility Type

Facility	2024 City Limits	2024 Plan Study Area
Bike Boulevard	96.3	97.0
Enhanced Bike Route	24.5	25.4
Bike Lane	33.7	37.4
Buffered Bike Lane	56.6	59.8
Separated Bike Lane	52.3	53.3
Paved Multi-Use Trail	21.4	32.5
Sidepath	74.6	79.7
Total	359.6	385.0

Notes:

- Mileage includes new bikeways as well as enhancements to existing bikeways, including miles of roads where speed limit reductions are proposed to increase bicyclist comfort level.
- Mileage calculated in terms of street centerline miles for bike boulevards, bike lanes (all types), and enhanced bike routes.
- Total mileage calculated for sidepaths and paved multi-use trails. Many sidepath projects assume new sidepaths on both sides of the streets to provide access to destinations on opposite sides of busy roadways.
- The Study Area includes some locations outside of City limits. See Figure 2 for the extent of the 2024 Plan Study Area.

Figure 12. Proposed On-Street Bikeway and Paved Multi-Use Trail Network



Proposed Bikeways

Facility Type

- Paved Multi-Use Trail
- Sidepath
- Bike Boulevard
- Separated Bike Lane
- Buffered Bike Lane
- Bike Lane
- Enhanced Bike Route
- Wide Shoulder

Potential Timeframe

- Plausible Near-Term
- Long-Term

Existing Bikeways

- Low-Stress (LTS 1 or 2)
- High-Stress (LTS 3 or 4)

Proposed Crossing Locations

Enhanced crossings are generally proposed along paved multi-use trails and bike boulevards and ensure that neighborhoods surrounded by high-speed and high-volume roadways are not cut off from key destinations. Multiple enhanced crossings may be needed for bike boulevards to be fully implemented or for existing multi-use trails to be useful and appealing to a wider range of users.

The 2024 Plan recommends 180 enhanced crossing locations along existing or proposed bike boulevards and 76 enhanced crossings along existing or proposed multi-use trails. Two additional grade separated crossings along the North I-25 corridor are included in the 2024 Plan as these crossings were vetted and included as recommendations in the I-25 Bicycle Accessibility Study. See the LRBS for additional long-range Interstate crossing opportunities.

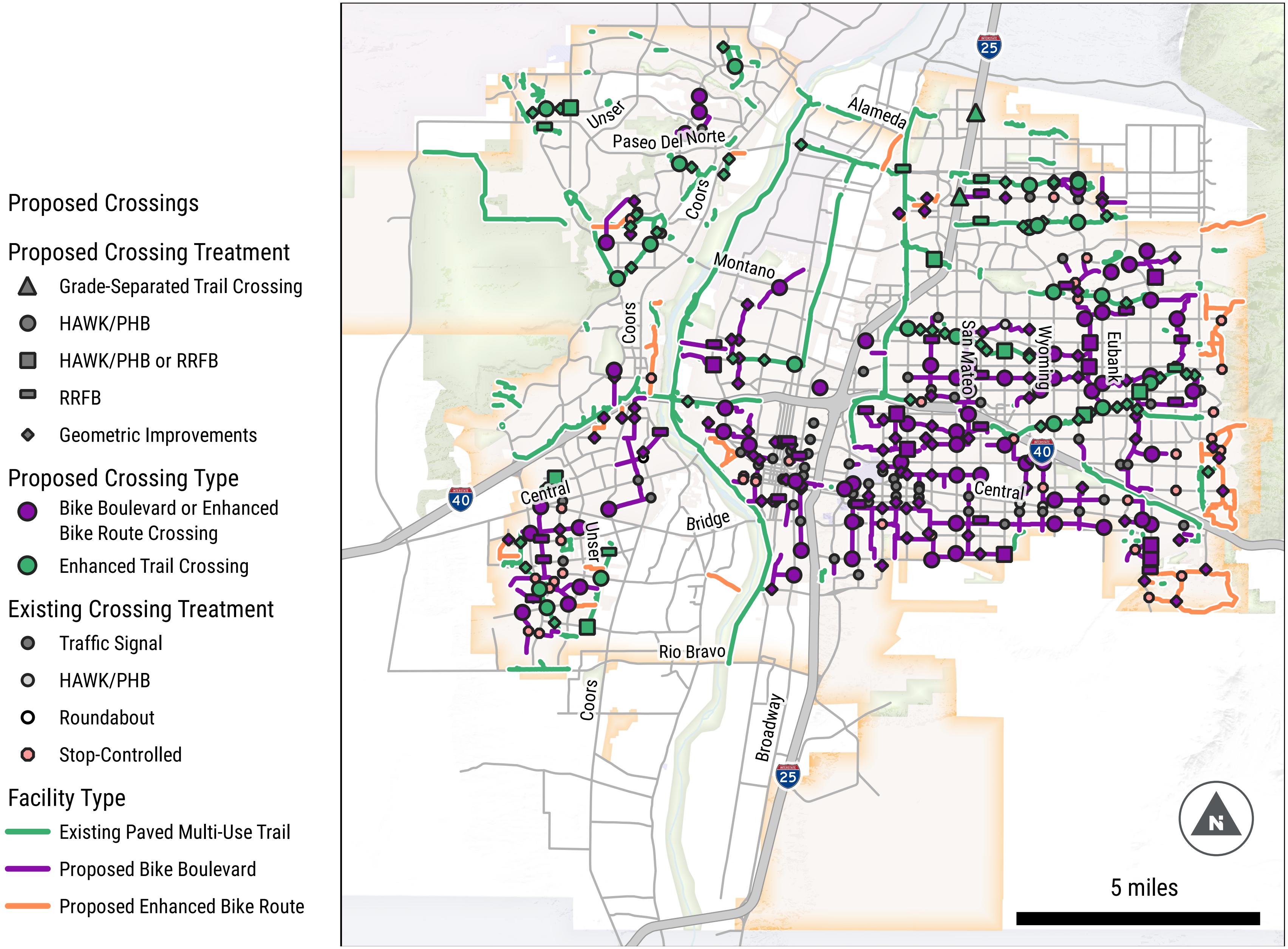
Specific treatment types are based on the context-sensitive guidance contained in the City of Albuquerque Bicycle and Trail Crossings Guide. See Table 10 for a summary of proposed crossings by type and Figure 13 for proposed locations for enhanced crossings. See the Enhanced Crossings section below for additional information.

Table 10. Enhanced Crossings by Type along Paved Multi-Use Trails and Bike Boulevards

Crossing Type	Paved Multi-use Trails	Bike Boulevards
Geometric Improvements	42	85
Rectangular Rapid Flashing Beacon (RRFB)	6	21
RRFB or PHB*	7	10
Pedestrian Hybrid Beacon (PHB) or HAWK	21	64
Total	76	180

Per the Bicycle and Trail Crossing Guide, either crossing type would be appropriate. Further investigation is recommended for these locations.

Figure 13. Proposed Enhanced Crossings along Bike Boulevards and Paved Multi-use Trails



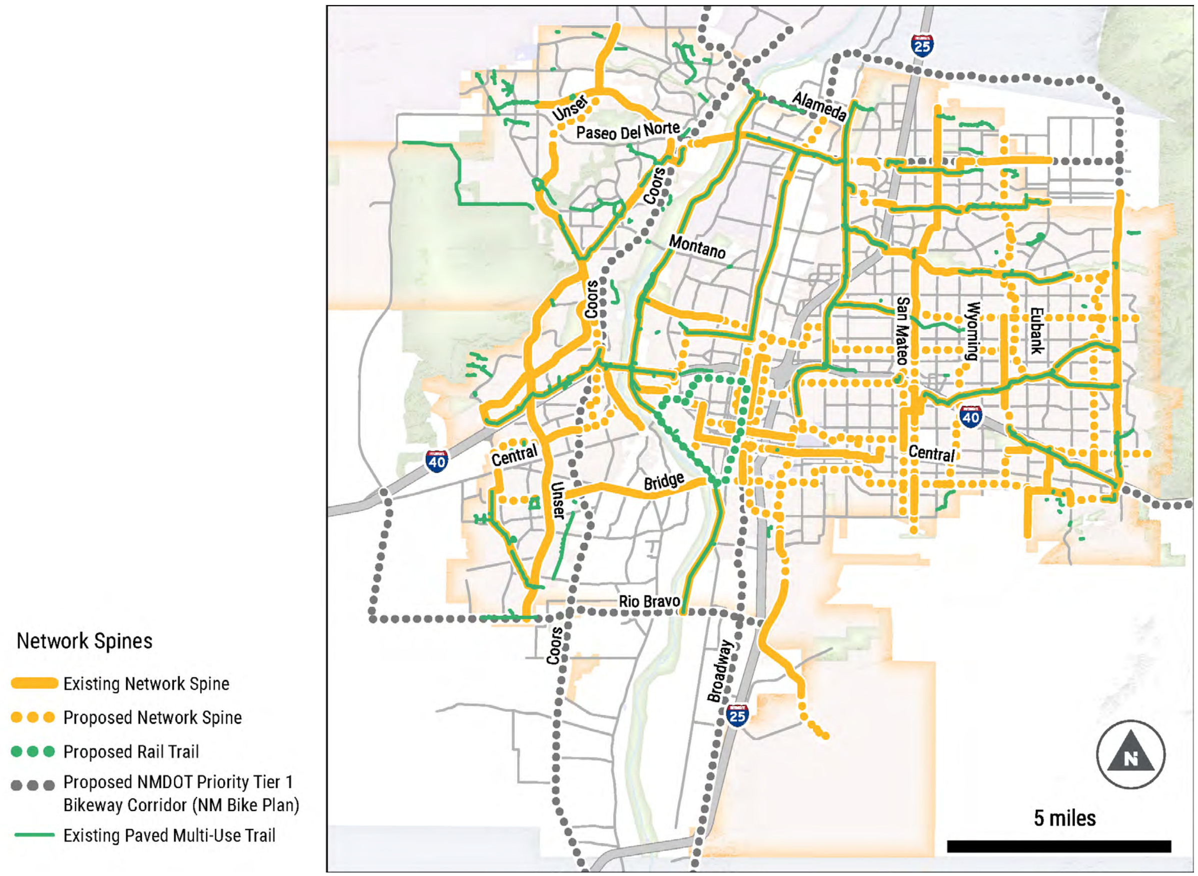
Network Spines

Purpose of Network Spine Designations

The 2024 Plan designates a series of corridors as network spines that support longer-distance travel by bicycle and link together key destinations and connect multiple neighborhoods. Network spines anchor the network and are distributed geographically across the city to ensure all Albuquerque residents have access to the bikeway and trail network, though not all areas of the city have the same concentration of spines. Other bikeways should tie into the spines to create as much connectivity as possible.

Spines may be a range of facility types, as long as they currently provide—or could be improved to provide—low-stress conditions. Some spines are parallel to each other to accommodate the preferences of different users and support different potential implementation timeframes. Projects along network spines are prioritized in the bikeway evaluation process. See Figure 14 for network spines, including existing and proposed bikeways. Refer to the **[Proposed Network Story Map]** for additional details.

Figure 14. Existing and Proposed Network Spines



Candidates for Network Spines

Existing bikeways that are designated as network spines include:

- Major paved trails, such as the Paseo del Bosque Trail, the North Diversion Channel Trail, and east-west arroyo trails.
- Bike boulevards where enhanced crossings and traffic calming treatments are already present.
- Low-stress on-street bike lanes, such as Rio Grande Boulevard north of Candelaria Road and portions of San Pedro Drive.

Network spines along proposed bikeways include:

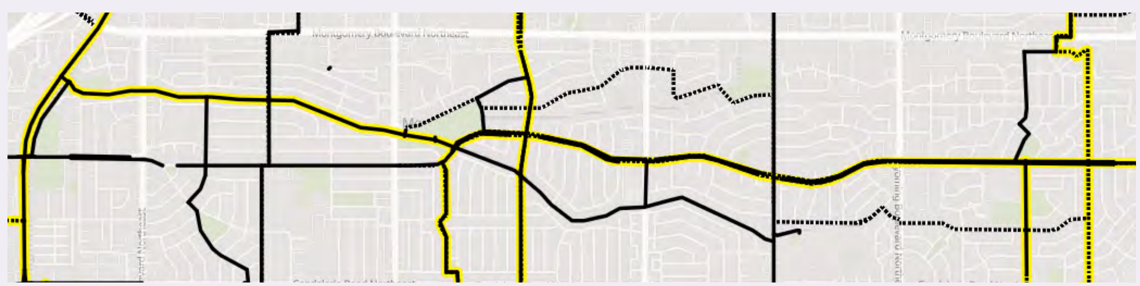
- Buffered and separated bike lanes, including connections between paved multi-use trails.
- Bike boulevards on neighborhood streets that connect to other spines or that provide long-distance connections or access to major destinations, if enhanced crossings are provided.

Emphasis on Near-Term Improvements

Proposed bikeways that are designated as network spines feature improvements that are plausible in the near term unless no other option is available. One such example is the Bridge Boulevard-Avenida Cesar Chavez corridor where existing roadway conditions and right-of-way constraints limit the ability to implement high-quality bikeways within the existing curb lines. The corridor is nonetheless included as a spine due to its role in regional mobility and the lack of parallel river crossing options.

Example: Comanche Road

Comanche Road is part of a network spine that features proposed separated bike lanes to the east of San Mateo Boulevard. This network spine links the Bosque Trail to Tramway Boulevard and utilizes the existing Paseo del Nordeste Trail and North Diversion Channel Trail as well as proposed bikeway improvements on Candelaria Road. Bikeway improvements along this corridor are mostly plausible in the near-term.



Bikeway Network Development Process

Process for Identifying Projects

Figure 15 outlines the steps taken to identify bikeway improvement projects, while Table 11 describes how the considerations applied in the identification of projects and development of the bikeways and trails network are directly connected to the goals of the 2024 Plan. Proposed projects draw from previous plans and studies, public and stakeholder input on desired routes and general preferences on facility types, and an analysis of street conditions and desired connections, including opportunities to reconfigure streets to better accommodate bikeways.

Figure 15. Bikeway Network Development Process Flow Chart

Review Existing Conditions →

Existing networks and results of level of traffic stress analysis

Existing plans and proposed/ongoing improvements

Analysis of network gaps and key destina-tions for bicycling

Public Input →

Unsafe locations to bike today

Desired conections for transportation and recreation purposes

Existing bikeways that feel high stress

Project Identification

Routes and facility types

Bikeway improvement strategies

Means of Implementation

Prioritization

Cost estimates

Table 11. Connection Between 2024 Plan Goals and Bikeway Network Design Principles

Goal	Network Design Principles
Equitable	• Review existing facilities and prioritize projects in areas where residents are most likely to rely on bicycling as a means of transportation. • Prioritize projects in **vulnerable areas** that have not had bikeway investments. • Ensure **equitable access** to high-quality bikeway facilities across all portions of the city.
Connected	• **Fill network gaps** to create a denser grid and/or useful **neighborhood connections**. • Create a **well-connected network** that supports travel by bicycle across the city.
Useful	• Recommend infrastructure improvements to create a **robust *low-stress* network** that is appealing to people of all ages and abilities (LTS 1 or LTS 2) • Create networks that can be used for both **recreational** and everyday **transportation** purposes. • **Improve existing bikeways** to increase user comfort and encourage bicycle trips by people of all ages and abilities. • Provide access to **a range of everyday locations**, including activity centers (including designated Comprehensive Plan Centers), transit stops and station areas, recreational sites, and other significant community destinations.
Integrated	• Review and incorporate proposed projects from the **Long Range Bikeway System**, as appropriate. • Coordinate with partner agencies on **ongoing and planned projects** that could form components of the regional bikeways and trails network in the near term.
Prioritized	• Utilize a **data-driven process to prioritize projects** for implementation. See the Implementation chapter for more details.
Implementable	• Emphasize projects that are **technically feasible and plausible in the near term** for the City to implement.

Building Upon Existing Conditions Analysis

Critical Review of Existing Facilities

The 2024 Plan recognizes that a high-quality and comfortable bikeway is more than a line on the map or a sign on the side of the road. While some existing bikeways form important building blocks for a well-connected, low-stress network, the LTS analysis demonstrates that not all existing bikeways are appealing to bicyclists of all ages and abilities. Put simply, Albuquerque's existing low-stress network (i.e., bikeways with LTS 1 or 2) is limited.

The bikeway and trail network development process began with a critical review of existing facilities to identify gaps in the low-stress network and areas of Albuquerque that are underserved by bikeways and trails. Since some existing bikeways are better candidates than others for improvements, the 2024 Plan considered the following questions as part of the review of existing facilities and identification of potential enhancements:

- What type of improvements are needed for an existing bikeway to meet best practices in facility design, per the FHWA Bikeway Selection Guide?
- If an existing bikeway cannot easily be improved to meet the needs of users of all ages and abilities, is there a nearby alternative route?
- Can the City implement bikeway improvements by reconfiguring the street through lower-cost techniques within the existing curb lines, or would costlier reconstruction of the roadway be needed to install high-quality bikeways?

Applying Public and Stakeholder Feedback

The 2024 Plan incorporates feedback received through public and stakeholder outreach into project identification and development of the proposed network. Key desires from public outreach that are addressed through proposed projects include:

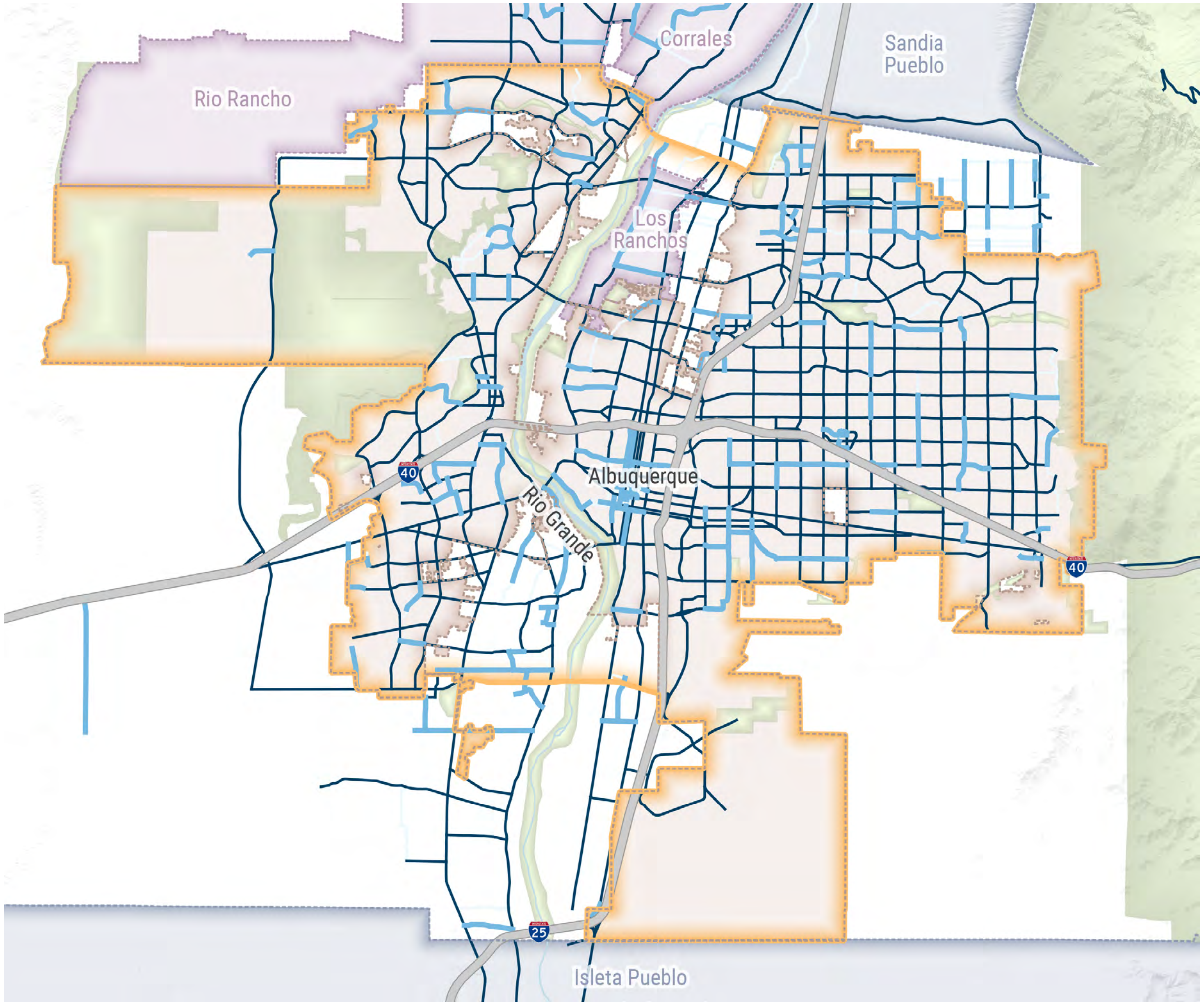
- Providing a range of options to address the fact that different users prefer different facility types
- Creating more facilities on low-stress streets that are parallel to major corridors
- Addressing a desire for separated bikeways when facilities are located along streets with high vehicle speeds and traffic volumes
- Concern about comfort at signalized intersections along corridors with existing bike lanes that are high-stress
- The ability to cross major streets when traveling along multi-use trails and existing bike routes
- Additional bikeways in areas that have not historically had high-quality options for travel by bicycle

Constraints on Achieving a Low-Stress Network

Roadway Conditions: The bikeway facilities that create the lowest-stress conditions may not always be practical or feasible due to current traffic conditions and roadway design. Per the FHWA *Bikeway Selection Guide*, bike lanes and buffered bike lanes best support low-stress conditions along roads with less than 7,000 vehicles per day and operating speeds of 30 MPH or lower.

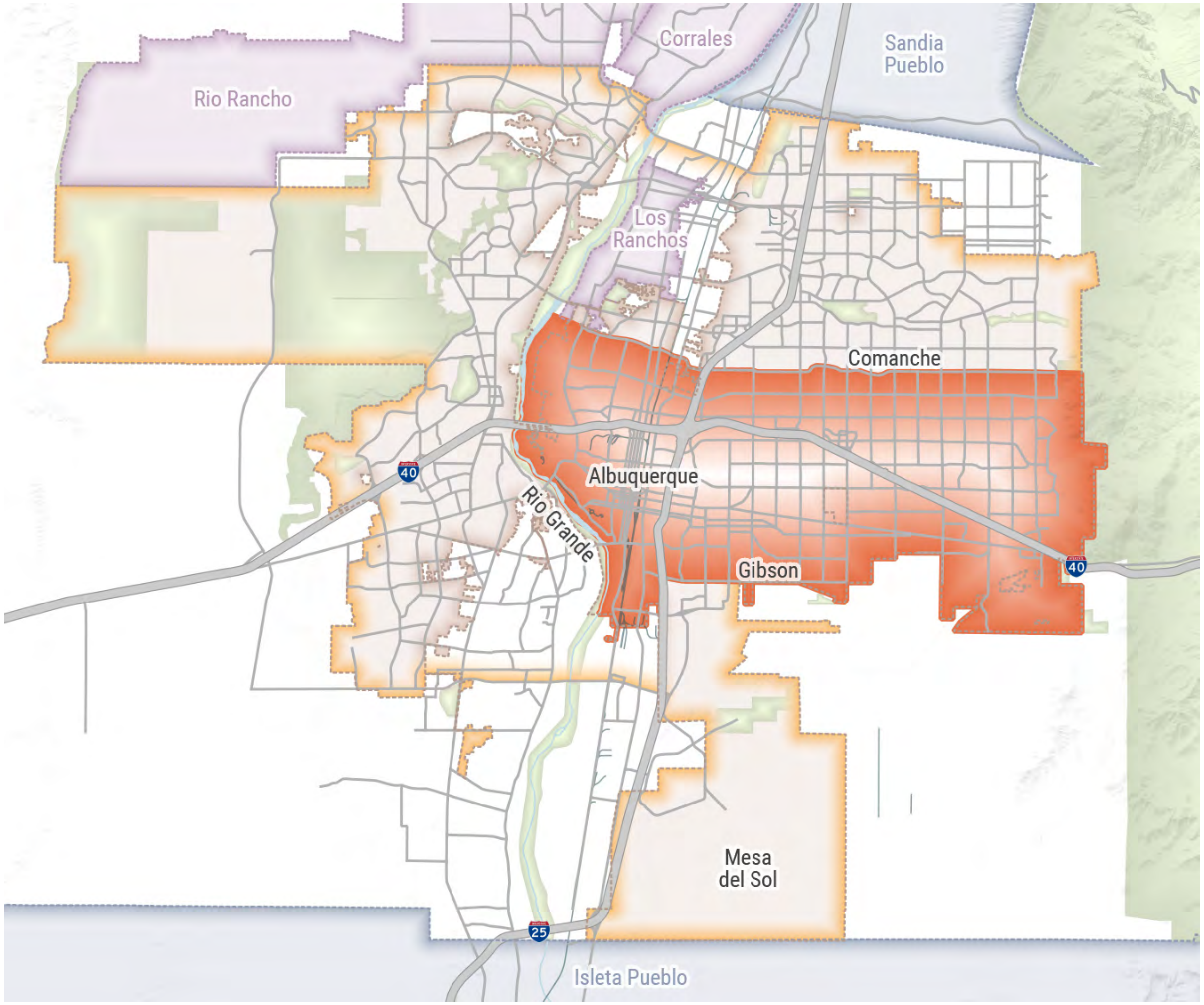
As shown in Figure 16, many major roads exceed those thresholds and would require separated bike lanes or sidepaths to support the needs of bicyclists of all ages and abilities. However, many streets in older parts of the city (i.e., constructed before around 1960) feature high numbers of driveways and limited access control and would require costly reconstruction to create the kinds of limited access conditions where separated bikeways are more feasible.

Figure 16. Streets in Albuquerque Where Separated Bikeways and Buffered Bike Lanes Would be Required to Meet Best Practices in Facility Design



Available Right-of-Way: Uncertainty over right-of-way is a common challenge in older parts of the city, which limits the implementation of improvements outside of existing curb lines without additional resources and engineering analysis. As a result, sidepath and crossing enhancements (e.g., pedestrian hybrid beacons) may not be plausible in the near term in some parts of the city (see Figure 17). Right-of-way west of the Rio Grande and in newer parts of the city tends to be more clearly documented, making crossing enhancements and improvements outside of the curb lines (but within City property) more plausible in the near term.

Figure 17. Locations Where Uncertainty Over Right-of-Way Limits Near-Term Implementation of Bikeway Projects (Shaded Area)



Approaches to Project Development: Reconfiguration versus Reconstruction

New and enhanced bikeways require some level of change to the way space is allocated within a roadway right-of-way. These changes take two forms: **reconfiguration** and **reconstruction/new construction**. Specific techniques for implementing bikeways are discussed below in the Bikeway Improvement Strategies section.

Reconfiguration includes street improvements that can generally be accomplished within the existing curb lines and are generally lower cost.

- Bikeway improvement strategies that can be accomplished as part of reconfiguration include:
- Installing new or wider bike lanes
- Traffic calming techniques
- Installation of vertical barriers to existing buffered bike lanes
- Road diets and lane narrowing and the reallocation of space for other uses, including bikeways

Reconstruction or new construction projects include more comprehensive changes to the roadway to accommodate bikeways – including widening projects that relocate curb and gutter - and are generally higher in cost and complexity. Reconstruction projects include:

- Street widening to install paved shoulders or bikeways
- Narrowing medians to create space for on-street bikeways
- Implementing bikeway facilities outside of the existing curb-to-curb space
- Installation of sidepaths where the sidewalk would need to be replaced with a wider facility to accommodate both bicyclists and pedestrians
- New paved multi-use trails (a form of new construction)

As much as possible, the 2024 Plan identifies potential new bikeways or enhancements to existing bikeways that can be accomplished through roadway reconfiguration. Many of these reconfiguration projects can be accomplished through regular resurfacing and restriping efforts, plus additional signage or spot improvements, as needed. Additional crossings or changes to intersection geometry to better accommodate bike lanes may require additional resources. See the Means of Implementation section in **Chapter 6: Implementation and Recommendations** for additional discussion.

Bikeway and Trail Project Details

In addition to locations of bikeway improvements, the 2024 Plan identifies various details and considerations for each proposed project that can assist the City of Albuquerque in implementation. These project details are summarized in Table 12 and are described in greater detail in the following sections and **Chapter 6: Implementation and Recommendations**.

Table 12. Components of Projects Proposed in the 2024 Plan

Facility Type	The 2024 Plan identifies the preferred facility type to achieve low-stress conditions given the roadway context. See **Chapter 4: Facility Types** for definitions and general design considerations.
Bikeway Improvement Strategy	Required changes to the roadway to achieve the desired facility type. Strategies include roadway restriping through road diets, enhanced crossings, implementation of bike boulevard treatments, vertical separation, and road expansion, among other techniques.
Priority Level	Projects are scored using the City's Bikeway Evaluation Process to determine overall priority level. This information—along with cost estimates, timeframe, and means of implementation—is used to inform bikeway investment decisions. See **Chapter 6: Implementation and Recommendations** for evaluation criteria and **Appendix D: Bikeway Evaluation Process** for additional details.
Potential Implementation Timeframe	Designations of **plausible near-term** or **long-term** based on current roadway conditions and the types of changes needed to the street to create low-stress bikeway facilities. See **Chapter 6: Implementation and Recommendations** for additional details.
Means of Implementation	The City may implement projects through a range of approaches, including as a standalone investment, through annual roadway resurfacing efforts, or as part of a larger roadway improvement project. See **Chapter 6: Implementation and Recommendations** for additional details.

Bikeway Improvement Strategies

Low-stress on-street bikeway facilities can take a variety of forms and can be achieved through a range of techniques for reconfiguring or reconstructing a roadway. The 2024 Plan applies a variety of strategies, outlined in Table 13, in the identification of bikeway and trail improvement projects.

A major priority for the 2024 Plan is to provide useful connections that are plausible in the near term. This approach emphasizes projects with lower costs and high impacts and acknowledges the real constraints related to staffing capacity and the financial resources available for implementation. *Near-term* opportunities to create lower-stress bikeways through reconfiguration include narrowing vehicle lanes to allow for buffers and wider bike lanes, road diets through restriping, and adding vertical separation, where feasible. Additional details and case studies are provided below for some of these strategies. *Long-term* projects include bikeways installed through strategies such as road expansion and median narrowing. Long-term projects also provide opportunities to incorporate street design elements that offer various co-benefits for pedestrians and overall roadway safety, such as street trees.

In practice, projects may require a combination of strategies. For example, separated bike lanes may be installed through a road diet or narrowing travel lanes to create space for a striped buffer and the installation of some form of vertical separation, while a bike boulevard may require a combination of traffic calming strategies and enhanced crossings. A sidepath may be installed by narrowing a median and reconstructing the sidewalk and/or moving the curb line into the roadway.

The travel lanes on this section of Copper Avenue east of Chelwood Park Boulevard were recently narrowed to create space for a striped buffer.

Table 13. Bikeway Improvement Strategies Summary Table

Strategy	Description
Road Diet	Removal of general-purpose travel lanes and reallocation of roadway space for bike lanes – with buffers and vertical separation as conditions permit. A road diet may be achieved in the near term through restriping. Changes to the curb lines generally indicate a long-term project.
Restriping / Lane Narrowing	Installation of new bike lanes or enhancements to existing bike lanes (e.g., application of striped buffers) through narrowing lanes and/or utilizing additional space on the road edge. Restriping may occur through the Annual Complete Streets Maintenance Program or as part of a stand-alone project. Where pavement is in good condition, striping can be removed and reapplied without resurfacing.
Speed Reduction + Traffic Calming	Increase bicyclist user comfort by reducing vehicle speeds adjacent to an existing or proposed bikeway through a combination of context-appropriate traffic calming techniques such as lane narrowing, adding street trees, adjustments to signal timing patterns, and reductions in posted speed.
Vertical Separation	Application of vertical barriers to existing bike lanes or as part of a restriping effort to create separated bike lanes.
Road Expansion	Install bike lanes and/or sidepaths as part of broader road improvement projects.
Median Narrowing	Reallocation of excess median width space to allow for a lateral shift in driving lanes and installation on-street bike lanes and/or sidepaths on the edges of the street. Many medians in newer parts of the city are excessively wide and were intended to conserve right-of-way for future roadway users.
Enhanced Crossings	Install new or improved crossings where multi-use trails or bike boulevards intersect with major streets. These crossings improve user safety and allow bicyclists and pedestrians to more comfortably cross major streets.
Bike Boulevard and Enhanced Bike Route Treatments	Application of traffic calming techniques, enhanced crossings, and signage and pavement markings along neighborhood streets to create low-stress conditions for bicyclists. Bike boulevards and enhanced bike routes may be implemented by upgrading existing bike routes or implementing design treatments on new corridors identified in the 2024 Plan.
Multi-Use Trails	Installation of new paved multi-use trails or improvements to existing trails, including enhanced crossings, to create more useful long-distance connections.
Sidepath Installation	Widening of existing sidewalks or installing a new facility outside of the curb line to create a low-stress facility that is shared by people bicycling, walking, and rolling.

Road Diets and Lane Narrowing Through Restriping

Opportunities and Benefits

Various corridors in Albuquerque feature excess vehicle travel lanes and lane widths, exceeding minimum thresholds outlined in industry best practice documents. These conditions encourage speeding and create high-stress conditions for bicyclists and pedestrians, but provide opportunities for road diets and narrowing of travel lanes to reallocate space for new or enhanced bike lanes. Installing bikeways in this manner is generally lower cost and can be implemented as part of regular roadway resurfacing and restriping or as part of a standalone effort to implement bikeways.

The 2024 Plan identifies on-street bikeway projects that are plausible in the near-term through restriping. Many of these projects include the installation of vertical barriers in the striped buffer space to create separated bike lanes, where feasible. Bikeway projects that involve reconfiguration of the roadway are based on initial screenings of traffic volumes, number of travel lanes, and curb-to-curb width.

Assumptions

Road diets are appropriate when daily traffic volumes exceed certain thresholds. Table 14 contains thresholds applied by the City of Albuquerque for determining the appropriateness of implementing a road diet based on the number of general-purpose travel lanes and daily traffic volumes. The 2024 Plan applies a planning-level assumption in which road diets are feasible where there are fewer than 15,000 vehicles per day on streets with four general-purpose travel lanes and fewer than 30,000 vehicles per day on streets with six general-purpose travel lanes. Proposed road diets may be vetted using the MRCOG travel demand model before moving forward to design.

Table 15 provides key assumptions about appropriate travel lane widths and other street elements. This information is used to determine if proposed improvements are likely to fit within the existing curb lines. The guidance is consistent with ranges provided in the City's DPM and reflects current City processes. Note that the 2024 Plan did not perform an exhaustive inventory of all travel lane and median widths across the city and that additional engineering analysis is needed before projects are implemented.

Table 14. Guidelines for the Appropriateness of Road Diets on Albuquerque Roads

	Daily Traffic Volumes	Next Steps in Consideration of a Road Diet
4-lane to 2-lane conversion	<10,000 vehicles	No study required before implementing a road diet
	10,000-15,000 vehicle	Generally feasible; review of congestion at intersections before implementing road diet
	>15,000 vehicles	Study of traffic operations and intersection delay required
6-lane to 4-lane conversion	<25,000 vehicles	No study required before implementing a road diet
	25,000-30,000 vehicle	Generally feasible; review of congestion at intersections before implementing road diet
	>30,000 vehicles	Study of traffic operations and intersection delay required

Table 15. Minimum Widths by Street Element (Project Identification Purposes)

Street Element	Minimum Width
Inside Travel Lanes	10’
Outside Travel Lanes	10.5’ 11’ when transit is present
Center Turn Lanes	10.5’; 11’ preferred
Median	15’ on principal arterials 10.5’ on minor arterials and collectors
On-street Parking	7’, including gutter pan
Bike Lane	5’ not including gutter pan
Buffered Bike Lane	7’
Separated Bike Lane	9’; 6’ bike lane + 3’ buffer

Note: Minimum street width values by element are consistent with the City’s DPM.

Speed Modifications

Opportunities and Benefits

There are several corridors with existing or proposed bikeways where posted speeds are relatively high given the surrounding land uses. In these locations, modest reductions in posted speed limits could be accompanied by design and operational changes that produce lower design speeds, such as narrower travel lanes and modified signal timing, to create lower-stress bikeways.

Example: Chelwood Park

Chelwood Park Boulevard traverses largely residential areas in east Albuquerque, yet features a posted speed limit of 35 MPH. With the addition of traffic calming measures, the posted speed limit could be lowered to 25 or 30 MPH in line with many comparable roadways.

Chelwood Park Boulevard north of Copper Avenue

Vertical Separation

Opportunities and Benefits

Physical separation increases safety and is an important strategy for creating low-stress bikeways that appeal to users of all ages and abilities, particularly along streets with higher traffic volumes and vehicle operating speeds. According to the FHWA inventory of crash modification factors, even simple flexible delineators may result in a 50% reduction in crash rates compared to a standard bike lane.

The City of Albuquerque features a growing number of buffered bike lanes, some of which may be candidates for vertical separation where the buffer area is at least 3' wide and where there are limited numbers of driveways.

Considerations for Implementation

- Separated bike lanes can be installed as part of new bikeways or by applying a range of barrier types to upgrade existing buff-ered bike lanes to separated bike lanes.
- Vertical separation may be applied as a targeted improvement following the imple-mentation of buffered bike lanes through resurfacing efforts.
- Many cities take the approach of applying lower-cost treatments in the near-term and applying more permanent features based on the observed impacts and public response.

Figure 18. Existing Buffered Bike Lanes (Top) and Option for Separated Bike Lanes (Bottom)

Note: The image on the bottom depicts one form of vertical separation with a flexible delineator. See Chapter 4: Facility Types for additional discussion and other forms of vertical barriers.

Enhanced Crossings

Opportunities and Benefits

The usability of the proposed network of bike boulevards and many existing paved multi-use trails depends on the ability to cross intersections with major streets. As demonstrated through public input for the 2024 Plan and national research, many people feel unsafe crossing these larger roadways without measures such as pedestrian hybrid beacons that increase motorist awareness of the presence of people walking and biking, and when activated, tell motorists to come to a complete stop. Enhanced crossings are also an important strategy for the City in addressing its Vision Zero goals as they have been shown to reduce the overall frequency and severity of crashes. See Table 16 for descriptions of crossing treatment types and general considerations for application.

Benefits for Pedestrians

While the enhanced crossings in the 2024 Plan are specifically intended to support bicycle travel along existing and proposed bikeways, these crossings also provide significant benefits for pedestrians. In particular, crossings along bike boulevards and paved multi-use trails improve access to transit along major streets and reduce the distance between existing signalized intersections.

Considerations for Implementation

- Enhanced crossings may be implemented as an individual investment, though benefits along paved multi-use trails and longer bike boulevards are greatest when crossings are implemented simultaneously to support greater overall mobility.
- Planning-level assumptions from the City's Bicycle and Trail Crossing Guide are used for selecting the appropriate crossing type and for developing project cost estimates. For bike boulevards, crossings are included in the overall estimated project cost.
- A general assumption for enhanced crossings is that two-way left turn lanes become a raised median refuge island that allows for a two-stage crossing. See examples of geometric improvements and a PHB with two-stage crossings in Table 16.

Crossings of the Interstates and Rio Grande

Due to high costs and challenges related to implementation, dedicated bicycle and pedestrian bridge crossings are included in the 2024 Plan only if they have been subject to follow-up studies or analysis. These include a proposed facility along Bridge Boulevard over the Rio Grande and proposed crossings of I-25 at San Diego Avenue and San Francisco Street, which were evaluated at part of the *I-25 Bicycle Accessibility Study*. In other instances, the 2024 Plan leverages existing crossings by identifying bikeway improvements leading up to those bridges, such as a continuous bike boulevard along Alvarado Street on both sides of the I-40 crossing.

Additional crossings of the Rio Grande and the interstates may be identified as part of the update to the Long Range Bikeway System, a long-range planning tool maintained by MRCOG and updated as part of the *Metropolitan Transportation Plan*.

Table 16. Enhanced Crossing Types and Applications

Crossing Type	Description	Applications & Constraints
Geometric Improvements  *Silver Avenue at Girard Boulevard*	A range of potential treatments -- including marked crosswalks, median refuge islands, bulbouts, raised crossings, and stop control -- intended to support safe, comfortable bicycle crossings of lower-volume and lower-speed streets. Where paved trails cross minor residential streets, treatments may include adding stop signs along the residential streets – pending a traffic analysis – so that trail users have priority and can continue bicycling without stopping.	• Lower speed and/or volume roadways • Rely on signage and crosswalk markings for driver compliance
Rectangular Rapid Flashing Beacon (RRFB)  *Mackland and Carlisle*	A traffic control device that increases driver awareness of pedestrians and bicyclists crossing roadways at marked midblock crossings or uncontrolled intersections. The beacons consist of rectangular-shaped amber lights that flash when activated and reinforce the need for drivers to stop at the crosswalk.	• Appropriate on streets with moderate speeds and traffic volumes • Safety benefits decrease as road width, traffic volumes, and vehicle speeds increase • Should feature raised medians to allow for two-stage crossing, if needed • Driver yield rates are lower than PHBs
Pedestrian Hybrid Beacon (PHB)  *Central Avenue at San Pablo Street*	Also referred to as HAWK signals, PHBs are a traffic control device that tell drivers to come to a complete stop at a midblock crossing or uncontrolled intersection when activated by a pedestrian or bicyclist.	• Driver yield rates are shown to be 90-100% • Should feature raised medians to allow for two-stage crossing, if needed • Higher cost than RRFBs • Require electrical connections and additional right-of-way for i implementation

Bike Boulevard and Enhanced Bike Route Treatments

Opportunities and Benefits

The grid network across much of Albuquerque means there are low-stress neighborhood streets that run parallel to major roadways that provide direct connections to key destinations. Many of these streets are currently designated as existing bike routes—though conditions vary widely—and are proposed as either bike boulevards or enhanced bike routes.

Though bike boulevards and enhanced bike routes are shared streets, low-cost **traffic calming treatments** can be applied between major intersections to ensure low vehicle speed and traffic volumes and create comfortable conditions for bicyclists of all ages and abilities. In addition to managing vehicle speeds, **enhanced crossings** are essential components of bike boulevards as major street crossings can be significant barriers that can limit the utility of these bikeways.

Selecting Bike Boulevard Corridors

Concurrent with the 2024 Plan, the City developed a *Bike Boulevard Toolkit* with guidance on which types of streets are appropriate candidates for bike boulevards and techniques for creating low-stress conditions for bicyclists, including the traffic calming features needed to achieve low traffic volumes and vehicle operating speeds.

Lowest-stress bike boulevards feature the following characteristics:

- 1,000 vehicles per day or less and operating speeds of 15-18 MPH or lower
- Traffic calming features that reduce motor vehicle speeds and discourage cut-through traffic
- Enhanced crossing treatments at intersections with major streets; refer to the Bicycle and Trail Crossings Guide when determining appropriate crossing treatments

Building Upon a Growing Bike Boulevard Network

Over the last decade, the City of Albuquerque has introduced a series of bike boulevards that now connect Old Town, Downtown, the University of New Mexico (UNM), Nob Hill, the Fair Heights neighborhood, and Uptown.

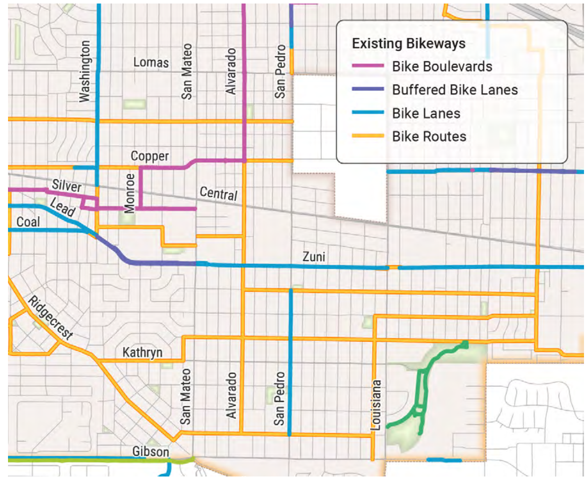
The 2024 Plan recommends numerous bike boulevards that connect to existing facilities and expands the network of low-stress bikeways.

Building a Network of Bike Boulevards

Figure 19 depicts the way a well-connected network of bike boulevards with enhanced crossings could be implemented in a portion of southeast Albuquerque. At present, there are numerous existing bike routes, though bikeway facilities are limited to basic signage and there are few crossings at major intersections that support low-stress bicycle travel. The proposed network consolidates the bike routes into a series of bike boulevards to form a simpler and more coherent network, thus increasing the chances of full implementation.

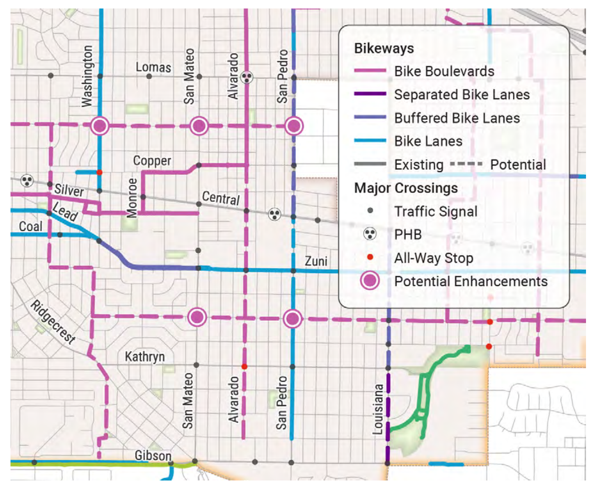
Figure 19. Transitioning from Bike Routes to Bike Boulevards

Existing Bike Routes in Southeast Albuquerque



Locations Where Crossing Improvements Would be Needed

Proposed Bike Boulevards and Enhanced Crossings



Bike Boulevards Versus Enhanced Bike Routes

Enhanced bike routes are shared streets with many of the characteristics of bike boulevards, including frequent pavement markings and traffic calming features to reduce vehicle speeds and increase bicyclist user comfort. The primary difference between bike boulevards and enhanced bike routes is the length of the facility and the lack of need for enhanced crossings, which is an integral part of bike boulevards. Enhanced bike routes are generally shorter-distance bikeways that provide connections to nearby destinations, including parks and trailheads, and other bikeways and paved multi-use trails. The 2024 Plan recommends upgrading various existing bike routes to enhanced bike routes or bike boulevards.

Improvements to Existing Bike Routes

Many existing bike routes along neighborhood streets are recommended as enhanced bike routes and bike boulevards that are plausible in the near term, though the 2024 Plan does not prioritize all existing bike routes for improvements. Existing bike routes may be enhanced on a case-by-case basis through existing resurfacing and maintenance programs.

In some cases, long-term projects are identified along existing bike routes that are designated as collector and arterial streets with higher speeds and traffic volumes. Where existing bike routes are located along corridors that exceed the speed and volume thresholds outlined in **Chapter 4: Facility Types**, such as Avenida Cesar Chavez between the Rio Grande and Yale Boulevard, the City may consider removing Bike Route signage to encourage bicyclists to use parallel facilities.

Constraints and Considerations for Implementation of Bike Boulevards

Feasibility of Pedestrian Hybrid Beacons: PHBs, a form of enhanced crossing and a critical component of many bike boulevards, are plausible in the near term where the right-of-way is known to be available, traffic signal utilities can support a new signal, and electrical power can be easily tapped into. Additional right-of-way and engineering analysis may be required prior to project design and implementation in older parts of the city (i.e., east of the Rio Grande between Gibson Boulevard and Comanche Road).

Phased Implementation: Implementation of bike boulevards may take place in phases as pavement markings and traffic calming features that rely on restriping can be installed as part of Complete Streets resurfacing. However, the corridor cannot be considered a bike boulevard until enhanced crossings are provided, generally as part of a standalone project. Other traffic calming measures may also be warranted, especially if there is a need to further manage traffic volume and travel speeds.

Case Study: Claremont Avenue Bike Boulevard

Claremont Avenue is proposed as a bike boulevard from just east of the North Diversion Channel Trail to Moon Street, a distance of more than 3.5 miles. As a continuous local street, Claremont Avenue offers a potentially low-stress option for accessing major commercial destinations and transit stops along nearby Menaul Boulevard. Because of the length of the corridors and the connections it provides to other bikeways, Claremont Avenue is also designated as a potential network spine.

In addition to low traffic volumes and vehicle speeds, Claremont Avenue already features traffic calming measures in the form of mini-roundabouts. Low-cost treatments such as frequent signage and striping could create a recognizable bike boulevard along linear portions of the corridor.

However, the value and benefits of a Claremont Avenue as a bike boulevard and network spine can only be realized through enhanced crossings at major intersecting streets such as San Mateo Boulevard, Louisiana Boulevard, and Wyoming Boulevard. Safer and more comfortable means of crossing these multi-lane arterials opens up a wide range of possibilities for less confident bicyclists who may otherwise be unwilling to attempt to cross such significant barriers. Enhanced crossings also provide significant benefits for pedestrians, as many of these arterials are important transit corridors.

Claremont Avenue at Charleston Street (left); San Mateo Boulevard at Claremont Avenue

Sources: Toole Design (left), Google Street View (right)

Improving the Multi-use Trail Network

Paved multi-use trails are an integral part of the transportation network and support both long-distance trips across the city as well as recreational activities. Many of the City's paved multi-use trails form network spines. Some of these facilities are in separate right-of-way, such as the Bosque Trail, while others such as the North Diversion Channel Trail are fully grade-separated featuring notches under major roadways to allow for low-stress crossings. The 2024 Plan contains recommendations to both expand the paved trail network and to improve the comfort and usefulness of existing trails through design improvements. Coordination with the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) or other entities is generally required for improvements or expansion of the paved trail network.

Proposed Multi-Use Trails

New paved multi-use trails have been previously proposed in the 2015 Plan and the Long Range Bikeway System, and a subset of these facilities that are generally feasible and would be highly useful for everyday transportation purposes are included in the 2024 Plan. Due to high construction costs and the need for detailed engineering design, proposed trails included in the 2024 Plan are usually considered long-term projects.

Planners, designers, and members of the public should refer to the Long Range Bikeway System for proposed sidepaths along future roads and paved trails in master-planned areas and to the DPM for guidance on trail design and desired amenities.

Addressing Gaps in Major Multi-Use Trails

The 2024 Plan includes projects that address gaps in paved multi-use trails where right-of-way for improvements is currently available. Other multi-use trails projects where right-of-way is not currently available may still be included in the Long Range Bikeway System.

A major gap in the trail network is along the I-40 Trail. Based on the results of a recent study which determined that providing additional trail connections are not feasible at this time, projects along the I-40 Trail are not included in the 2024 Plan, though I-40 Trail improvements are included in the Long Range Bikeway System.

Impacts of Width on Trail Capacity

At 11', a trail can comfortably accommodate 150-300 people passing a single point in an hour.

At 12–15', a trail can comfortably accommodate 300-500 people passing a single point in an hour.

The 2024 Plan recommends that the minimum width for paved multi-use trails and sidepaths be increased to 11' with 12-14' preferred. See **Chapter 6: Implementation and Recommendations** for additional information.

Enhancements to Existing Trails

Increased Trail Width along Network Spines

Paved multi-use trails are popular with a range of users, including people walking, jogging, rolling, and biking, and some of the more popular trails in Albuquerque, including the Bosque Trail, experience issues related to crowding. The growing presence of e-bikes creates a greater need to manage conflicts among users traveling at different speeds. Multi-use trails can meet increased demand and support different types of bicyclists through increased width during trail resurfacing, particularly along trails that were too narrow when initially constructed.

Today, most trails and sidepaths are 10’ wide, with some facilities only 8’ wide, particularly where right-of-way is constrained. Research shows that at less than 11’, trails do not provide space for people to travel side-by-side and pass other users without increasing the potential for conflicts. Where space permits, trails that serve as network spines and that are below 11’ in width should be widened.

Enhanced Crossings

Many paved multi-use trails feature at-grade crossings with major streets that limit the usability of the trails. The 2024 Plan identifies locations for enhanced crossings and crossing types. In some cases, a project is proposed along existing trails involving multiple enhanced crossings. Enhanced crossings may be implemented individually, though a series of enhanced crossings along paved multi-use trails is critical for the extent of the trail to be useful and low-stress.

Crossings at major streets without enhanced traffic control treatments, such as where the Embudo Trail intersects with Wyoming Boulevard, create barriers and limit the number of people who are willing to make trips by bicycle. Image source: Google Street View.

Sidepaths

Opportunities and Benefits

Paved sidepaths at curb level provide a low-stress option for bicyclists of all ages and abilities, particularly where there is a buffer between the edge of the path and motor vehicle traffic. Particularly in newer parts of the city, sidepaths provide opportunities for long-distance connections and may be candidates for network spines.

The 2024 Plan proposes various projects that install new facilities or convert sidewalks into facilities that may be used by people walking, biking, and rolling. Sidepaths may be installed by the City through a dedicated bikeway project, as part of larger roadway improvement projects, or as part of the build-out of the street frontage along private development. Sidepaths may also be implemented through reallocation of roadway space, including narrowing medians. Sidepath projects that require moving curb lines are generally considered a long-term project with higher costs.

Considerations for Implementation

- Sidepaths may not be feasible in the near term where there is limited right-of-way on the edge of a roadway or where there are frequent driveways and turning movements.
- Sidepaths may be considered on both sides of the street as space permits to better support two-way travel along a roadway and minimize the need for crossings
- A minimum of 14' of space is needed where subdivision walls are present to account for shy zones.
- Sidepaths may be installed alongside existing or future on-street bike lanes to support the preferences of different bicyclist user types.
- The 2024 Plan identifies sidepath projects along existing roads only. Planners and designers should refer to the Long Range Bikeway System for sidepaths along future roadways.
- Maintenance agreements are required for sidepaths installed as part of private development projects.

Sidepath along Girard Boulevard near the Albuquerque International Sunport

6. Implementation and Recommendations

Chapter Overview

While the City of Albuquerque plans to implement the full set of projects identified in the 2024 Plan, constrained resources necessitate prioritizing improvements and implementing projects through various creative approaches. This chapter identifies priority projects, describes the potential means of implementing projects, identifies complementary policy and programmatic actions, and describes potential funding sources for 2024 Plan recommendations.

Project Prioritization

Evaluation Criteria and Prioritization

Background and Purpose

The 2024 Plan applies a data-driven prioritization process to help the City determine which bikeway projects to prioritize. The prioritization criteria align with the goals of the 2024 Plan and reflect overall City priorities and feedback received during the plan development process. The data-driven process uses nine evaluation criteria that address six key issues: safety, equity, access to destinations, network improvements, potential for bicycling trips, and community preferences. Table 17 summarizes the evaluation criteria categories and Table 18 summarizes the scoring system used for project prioritization. The criteria and methodology in this 2024 Plan are intended to replace the Bikeway Evaluation Process initially developed in 2021 in coordination with the City's Greater Albuquerque Bicycling Advisory Committee (now GAATC).

Data Sources and Methodology

The evaluation criteria rely on a variety of existing datasets from the City and the Mid-Region Council of Governments (MRCOG), including crash data, the High Fatal and Injury Network (HFIN), and the equity-focused Vulnerability Index, as well as datasets developed for the 2024 Plan, including Bicycle Level of Traffic Stress and trip potential analysis. **Appendix D: Bikeway Evaluation Process** describes the criteria used in project prioritization and explains their link to plan goals and City policy priorities. The evaluation process utilizes Census data and datasets regularly updated by MRCOG or City staff, so the City and partner agencies can adapt the methodology to consider future projects not identified in this 2024 Plan.

Project Selection Considerations

Evaluation criteria reflect the overall benefits associated with a particular project, and the results of prioritization are meant to inform City decision-making. However, the City will consider other factors beyond prioritization scores as part of project selection, including staffing needs, financial resources, and technical feasibility of a project.

Prioritization Results

Figure 20 depicts the relative priority of the projects proposed in the 2024 Plan, while Table 19 lists the highest priority projects. See the [Proposed Network Story Map] for an interactive map, including details on facility type, project score, and potential timeframe for implementation for each priority project. See **Appendix F: Priority Project Lists** for a complete list of projects and rankings.

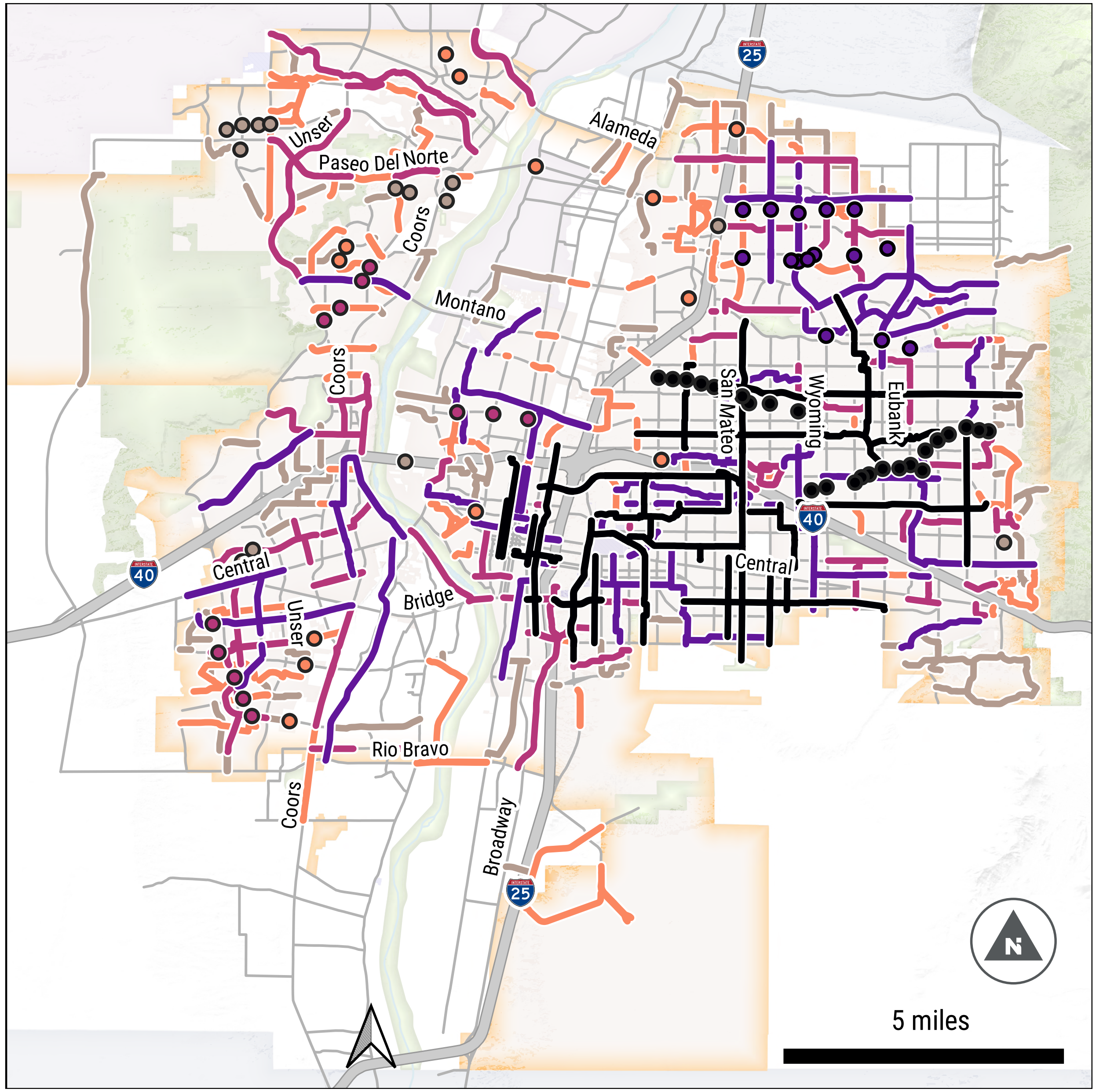
Table 17. Evaluation Criteria Categories and Purpose

Category	Purpose
Safety	Prioritize projects that improve bicycle facilities along corridors with a history of crashes or provide alternative parallel routes to these corridors.
Equity	Prioritize projects in areas with high share of vulnerable communities, as defined by the City of Albuquerque and MRCOG Vulnerability Index, which considers a series of economic, demographic, housing, and transportation factors. These vulnerable communities are particularly likely to rely on biking as a form of transportation and to benefit from improved facilities.
Access	Prioritize projects that provide direct access to important everyday destinations, including schools, parks, community centers, transit station areas, and high-frequency stops, as well as commercial and mixed-use areas designated as Centers in the Comprehensive Plan.
Network Improvements	Prioritize projects that provide a high level of user comfort, meet best practices in bikeway facility design (based on the FHWA *Bikeway Selection Guide*), and support longer-distance travel by bicycle along a Network Spine.
Level of Use	Prioritize projects that create opportunities for more trips to be taken by bicycle, based on an analysis of the share of trips that are less than 2 miles in length in the project area.
Community Input	Prioritize projects that received positive feedback the through online survey map and in-person outreach conducted in phase 2 of outreach.

Table 18. Bikeway Evaluation Process Criteria Summary Table

Category	Criterion	Data Source	Max Points by Criterion	Share of Points by Category
Safety	Bicyclist-Involved Crashes	NMDOT Traffic Safety Division, 5-year crash inventory (2018-2022)	3	15%
	High Fatal Injury Network	Simplified HFIN, City of Albuquerque Vision Zero Year-in-Review/Action Plan Update	3	
Equity	Vulnerability Communities	CABQ/MRCOG Vulnerability Index	8	20%
Access	Destinations	Inventory maintained by the City of Albuquerque	3	15%
	Designated Activity Centers	City of Albuquerque Comprehensive Plan	3	
Network Improvements	Facility Needs	Bicycle Level of Traffic Stress (LTS) scores contained in the 2024 Plan	4	30%
	User Comfort	FHWA Bikeway Selection Guide, based on whether project meets best practices	4	
	Network Spine	Map of Network Spines contained in the 2024 Plan	4	
Level of Use	Potential For Bicycle Trips	Trip potential analysis, based on Replica data; aggregated at Census block group level	4	10%
Community Input	Community Input	Results of Project Priorities Map Survey	4	10%
Total			40	100%

Figure 20. Projects in the 2024 Plan by Prioritization Score



Prioritization Results

Prioritization Score (Out of 40)

- Medium
-
- High
-
- Very High

Project Type

- New & Enhanced Bikeways
- Enhanced Crossings

Table 19. Highest Priority Projects from the 2024 Plan

Corridor	From Street	To Street	Length (mi.)	Proposed Facility	Timeframe
5th Street/6th Street	Coal Avenue	I 40 Frontage Road Eastbound	2.9	Buffered Bike Lane, Bike Lane	Plausible Near-Term
Alvarado Drive	Eastern Avenue	I 40 Trail Bridge	2.2	Bike Boulevard, Bike Lane	Long-Term
Avenida Cesar Chavez	Broadway Boulevard	Yale Boulevard	1.1	Separated Bike Lane	Plausible Near-Term
Broadway Boulevard	Coal Avenue	Lomas Boulevard	0.9	Buffered Bike Lane	Plausible Near-Term
Buena Vista Drive	Gibson Boulevard	Central Avenue	1.6	Bike Boulevard	Long-Term
Chelwood Park Boulevard	Copper Avenue	Candelaria Road	2.6	Bike Lane	Plausible Near-Term
Claremont Avenue	Richmond Drive	Juan Tabo Boulevard / Paseo de las Montanas Trail	6.0	Bike Boulevard, Bike Lane	Long-Term
Comanche Road	San Mateo Boulevard	East of Tramway Boulevard	5.5	Separated Bike Lane, Enhanced Bike Route, Bike Lane	Plausible Near-Term
Constitution Avenue	Pennsylvania Street	Indian School Road	3.4	Bike Lane	Plausible Near-Term
Edith Bouelvard	Gibson Boulevard	Menaul Boulevard	3.4	Bike Boulevard, Bike Lane	Plausible Near-Term

Corridor	From Street	To Street	Length (mi.)	Proposed Facility	Timeframe
Indian School Road	Broadway Boulevard	San Pedro Drive	3.8	Separated Bike Lane	Plausible Near-Term
Las Lomas Road / Campus Boulevard	University Boulevard	Monte Vista Boulevard	1.0	Buffered Bike Lane, Bike Lane, Bike Boulevard	Plausible Near-Term
Louisiana Boulevard	Gibson Boulevard	Central Avenue	1.2	Buffered Bike Lane, Separated Bike Lane	Plausible Near-Term
Marquette Avenue / Roma Avenue	Girard Boulevard	San Pedro Drive	2.3	Bike Boulevard	Long-Term
Parsifal Street/Moon Street	Paseo de las Montanas Trail	Academy Road	3.6	Bike Boulevard, Bike Lane, Sidepath	Long-Term
Paseo de las Montanas Trail / Embudo Recreation Trail	Hendola Drive	Marie Park Drive	0.0	Paved Multi-Use Trail Crossing	Long-Term
Paseo del Nordeste Trail	Carlisle Boulevard	Pennsylvania Street	0.0	Paved Multi-Use Trail Crossing	Long-Term
San Pablo Street / Charleston Street / Mesilla Street	Southern Avenue	Constitution Avenue	2.3	Bike Boulevard	Long-Term
San Pedro Drive	Ridgecrest Drive	Osuna Road	6.1	Buffered Bike Lane	Plausible Near-Term
Silver Avenue	2nd Street	University Boulevard	1.1	Bike Boulevard, Separated Two-Way Cycle Track, Sidepath	Plausible Near-Term

Corridor	From Street	To Street	Length (mi.)	Proposed Facility	Timeframe
Summer Avenue / Mackland Avenue / Marble Avenue	Stanford Drive / North Diversion Channel Trail	Louisiana Boulevard / I 40 Trail Bridge	3.4	Bike Boulevard, Bike Lane	Long-Term
Trumbull Avenue	Valverde Drive	Eubank Boulevard	3.7	Bike Boulevard, Sidepath	Long-Term
University Boulevard	South of Gibson Boulevard	Lomas Boulevard	2.6	Separated Bike Lane, Bike Boulevard	Plausible Near-Term
Washington Street / Montclaire Drive	Menaul Boulevard	Montgomery Boulevard	1.7	Bike Boulevard, Sidepath	Long-Term
Wellesley Drive / Tulane Drive / Lafayette Drive	Gibson Boulevard	Indian School Road	2.9	Bike Boulevard, Sidepath	Long-Term

Potential Implementation Timeframes

Definitions

To assist with planning and budgeting needs, the 2024 Plan proposes an implementation timeframe for all proposed projects: **plausible near-term** and **long-term**. These designations are based on the proposed facility type and the type of street improvements needed to achieve the desired conditions. Plausible near-term generally aligns with reconfiguration projects, whereas long-term generally aligns with reconstruction. All projects, regardless of implementation timeline, are subject to the bikeway evaluation process and are included in the project prioritization ranking tables.

- **Plausible near-term:** Projects that are considered plausible in the near-term are generally feasible through reconfiguration and do not require any additional right-of-way. Plausible near-term projects are usually lower cost and lower complexity and represent opportunities to build a network quickly if funding becomes available. This designation does not necessarily indicate that a project will happen, but that the project could happen, pending available funding, limited utility conflicts, staff capacity, and availability of local contractors to design and perform restriping and other improvements.
- **Long-term:** Long-term projects include improvements that require moving curb lines, narrowing medians, acquiring right-of-way, or constructing paved multi-use trails. A long-term designation does not mean the project will not or cannot happen in the near term, but these projects are generally higher in cost and complexity and typically take longer to finance and implement.

Notes on Technical Feasibility and Project Identification

Since the 2024 Plan emphasizes projects that are plausible in the near term, the timeframe for implementation is both a designation applied to projects *and* an input into project identification. Where multiple route options are present, the 2024 Plan recommends paths that are more technically feasible over corridors that might require costlier and more challenging changes to the roadway. Long-term projects are included in the 2024 Plan but do not generally comprise key components for the proposed network unless no other options are available.

In much of east Albuquerque, particularly in the older parts of the City east of the Rio Grande and south of Comanche Road, uncertainty over right-of-way can create challenges for implementing enhanced crossings or other improvements outside of the curb lines. For this reason, many sidepath and bike boulevard projects are by default designated as long-term, though implementation may be plausible in the near term in some locations pending additional survey and right-of-way analysis and the availability of electrical and fiber connections.

Means of Implementation

Implementation Categories

There are various ways in which the City of Albuquerque can pursue the actual implementation of bikeway improvements. The *means of implementation* refers to the process of constructing bikeways and differs from the bikeway improvement strategies, which highlight the changes to the roadway that are needed to create a high-quality bikeway or trail facility.

Means of implementing bikeway projects can be grouped into two broad categories: **opportunistic** or **proactive** improvements.

- **Opportunistic** refers to a situation where bikeway improvements are not the primary purpose of a roadway investment but may be included as part of a larger project. Opportunistic improvements include the installation of on-street bikeways and paved trails as part of a roadway widening project or as part of a regularly scheduled roadway rehabilitation. A key consideration is to identify bikeway or trail improvements upfront when scoping more comprehensive roadway improvement projects.
- **Proactive** refers to a targeted or stand-alone project that is specifically intended to improve conditions for people bicycling. Proactive projects require dedicated resources to implement.

Table 20 summarizes bikeway improvement project types by implementation category. The extent of changes to a roadway informs whether projects can be made proactively or opportunistically. Depending on the situation, some of the project types described below could be completed in either a proactive or opportunistic manner.

Table 20. Summary of Means of Implementation for Bikeway and Trail Projects Led by the City of Albuquerque

	Opportunistic *Can be Accomplished via Other Means and Programs*	**Proactive** *Standalone Project*
Reconfiguration	• Annual Complete Streets Maintenance Program • Bike lanes • Buffered bike lanes • Enhanced bike routes	• High-priority bike lanes and buffered bike lanes • Separated bike lanes • Bike boulevards with enhanced crossings and/ or traffic-calming features • Intersection and signal improvements • Speed modifications
Reconstruction	• City-led major **roadway improvement** projects integrating bikeways • Paved multi-use trails/ Sidepaths accompanying **private development** • Street construction accompanying **private development**	• High-priority paved multi-use trails/ sidepaths • High-priority projects that require roadway widening or median narrowing

Annual Complete Streets Maintenance Program

New or Upgraded On-Street Bikeways

Every year the City of Albuquerque repaves dozens of miles of municipal roads, which provides opportunities to install alternative striping designs that include new or wider bike lanes, buffers, and other pavement markings. Bikeway improvement projects identified in the 2024 Plan—defined as a new facility or a change in facility type, such as converting a bike lane into a buffered bike lane—can be implemented through the Annual Complete Streets Maintenance Program. Additional improvements to complement striping improvements, such as enhanced crossings, could be implemented in the future as part of a standalone project.

General Facility Enhancements Through Restriping

In addition to the proposed projects contained in the 2024 Plan, modest improvements to existing bikeways can be applied through resurfacing and restriping, such as widening a bike lane from 5' to 6'. The City's standard practice as part of the Annual Complete Streets Maintenance Program currently is and should continue to be to enhance existing bikeways within the existing curb lines to meet DPM guidance and national best practices, where feasible, regardless of whether there is a proposed bikeway project along the corridor.

Standalone Bikeway Projects

General Bikeway Improvements

More significant improvements that require changes to curb lines, intersection upgrades, enhanced crossings, acquiring right-of-way, and other changes beyond what can be implemented through restriping generally require standalone projects that are funded through federal and local funds, including money from general obligation bonds. A reconfiguration project that just requires restriping may also be performed as a standalone project, especially in cases where a bikeway improvement is a high priority but the roadway is not scheduled for resurfacing in the near term. Due to the need for enhanced crossings, bike boulevards generally require standalone projects.

Complementary Treatments to Complete Streets Resurfacing

Standalone projects may also include targeted improvements to further enhance existing bikeways and bikeways newly installed through resurfacing and restriping. These improvements require independent funding and include techniques beyond the striping changes that can be applied through the Annual Complete Streets Maintenance Program. Targeted improvements include applying vertical separation, where appropriate and as space permits, and signal upgrades to accommodate bicycle and pedestrian safety treatments such as leading pedestrian intervals and dedicated bicycle signal phases.

Private Development

Bikeways and multi-use trails may be constructed along the frontage of a private development or redevelopment project, depending on the scale of the project and the location. The Long Range Bikeway System, maintained by the Mid-Region Council of Governments, is the primary resource when requiring infrastructure investments as part of private site development.

Major Roadway Projects

Bikeways and trails are often installed as part of new roadway construction or major roadway projects, such as the widening of Unser Blvd between Paseo del Norte and Paradise Blvd. Where bikeways and trails are installed, design should follow the guidance contained in the DPM.

Planning, Policy, and Programmatic Recommendations

Overview

This section outlines a series of **planning**, policy, and program recommendations that support the implementation of on-street bikeways and paved multi-use trails across the City of Albuquerque and encourage a greater share of trips to be taken by bicycle. Individual recommendations are described below and summarized in Table 24 at the end of this document.

Table 21. Categories of 2024 Plan Recommendations

Planning	Policy	Programmatic
• City Staff, Regional, and Stakeholder Coordination • Data Collection and Evaluation • Project Development • Signage/Wayfinding Plan	• Local Level • State Level	• Existing Programs to Continue • New Programs to Initiative • Partnerships and Programs to Encourage

Planning Recommendations

City Staff, Regional, and Stakeholder Coordination

Implementation of the 2024 Plan will require coordination between the City and various partner agencies and peer institutions. This section highlights specific opportunities to partner on programs and investments related to bikeway facility implementation and supporting programs.

City/Inter-Departmental

- Continue inter-departmental coordination among Municipal Development (DMD), Parks and Recreation (PRD), Planning, ABQ RIDE, and others involved in on-street bikeways and off-street multi-use trails
- Update Bikeway and Trail Facilities Plan at regular intervals (e.g., every five years)

Transit

- Coordinate on potential street improvements along existing or proposed transit corridors (e.g., University Blvd).
- Pursue a comprehensive program to improve access to transit, including bicycle and pedestrian connections to high-frequency transit routes.
- Increase installation of bike parking at park-and-ride facilities and on-street locations near ART stops.

Higher Education

- Coordinate with the University of New Mexico on the Integrated UNM Campus Master Plan and the implementation of enhanced bike facilities within the Main Campus. Ongoing coordination is needed for the maintenance of facilities on campus roads that are owned by the City of Albuquerque.
- Coordinate with Central New Mexico Community College (CNM) on proposed improvements in or near Main Campus and area branch campuses. Specific priorities around CNM Main Campus include the Buena Vista Dr Bike Boulevard and bikeways along University Blvd.

Law Enforcement

- Departments overseeing the Rail Trail and other paved multi-use trails should coordinate with the Albuquerque Police Department (APD) on bicycle patrols to address security concerns.
- Encourage APD to enforce the city ordinance prohibiting drivers from parking in bike lanes.

Regional Planning, Coordination, and Data Collection

MRCOG

- Participate in regional boards and committees and seek federal funding for bikeway and trail improvements through the Transportation Improvement Program (TIP).
- Coordinate with MRCOG on its non-motorized counts program, including locations for deployment and data sharing.
- Support the development of the Metropolitan Transportation Plan (MTP), including integration of Bikeway and Trail Facilities Plan recommendations into the regional Long Range Bikeway System (LRBS).
- Participate in updates to the LRBS, including identification of potential bridge crossings over the Interstates and the Rio Grande.
- Develop criteria and guidance on the appropriate contexts and considerations for dedicated pedestrian and bicycle bridges, including Interstates and other access-controlled facilities.

BERNALILLO COUNTY

- Convene staff on an as-needed basis to identify regional bikeway and trail priorities and review improvements that transcend jurisdictional boundaries.
- Participate in the Bicycle and Pedestrian Safety Action Plan update and other relevant planning efforts.

NMDOT

- Coordinate on future updates to the Statewide Prioritized Bicycle Network Plan.
- Collaborate on potential projects along NM highways within city limits, including crossings where City streets intersect with NMDOT facilities.
- Coordinate on maintenance of paved multi-use trails located within city limits that are owned and maintained by NMDOT.

AMAFCA

- Coordinate on the continued development and maintenance of paved multi-use trails along arroyos and flood control infrastructure.

STATE OF NEW MEXICO

- Coordinate with the State to identify feasible walking and biking routes through EXPO New Mexico.

Data Collection & Evaluation

MRCOG Active Transportation Count Program

For evaluation efforts, the City should coordinate with MRCOG on its Active Transportation Count Program. Short and long-term bicycle, pedestrian, and trail counts require many resources, equipment, and staff time to be able to collect a comprehensive set of data and then analyze data.

To better understand best practices and approaches to these programs, starting in 2022 and throughout 2023, MRCOG completed a planning effort in coordination with partner agencies, including the City of Albuquerque, to create and formalize an Active Transportation Count Program and Plan. Discussions with MRCOG and partner agencies throughout the planning process, determined that a centrally organized Active Transportation Count Program managed by MRCOG was the most suitable for the region. At the time of the discussions, most partner agencies did not feel well-equipped to create their own non-motorized count programs because they require many staff resources, coordination, understanding of different methodologies/ technologies, analyses, and funding.

Next steps include creating a stakeholder committee consisting of MRCOG staff and interested partner agencies. The City should partner with and coordinate on MRCOG's Active Transportation Count Program and work with MRCOG to monitor these data and collect before and after counts for key on-street bike and multi-use trail projects.

Program History and Permanent Counters

In partnership with PRD, MRCOG manages seven bicycle and pedestrian EcoCounters. These counters were installed between 2014 – 2017 at the following locations:

- Paseo del Bosque Trail and Tingley Beach
- Paseo del Bosque Trail and Montano Rd
- Paseo del Norte and the Rail Runner
- North Diversion Channel Trail near the Journal Center
- North Diversion Channel Trail near Indian School Rd
- Near the Erna Fergusson Library
- Jerry Cline Park

Data related to these counters and other active transportation counts can be found on the MRCOG **website.** MRCOG also works with partner agencies to set up a camera to gather short duration video counts of people walking and biking. Typically, these counts are gathered at locations before and after an improvement project to see if the project had an impact on active transportation usage rates.

CRASH DATA ANALYSIS

DMD's Transportation Engineering Division and Traffic Engineering Divisions monitor and analyze crash data to inform current and planned projects and to identify potential future projects. The Vision Zero program also uses crash data to prioritize proposed bikeway and trail projects. DMD, APD, and MRCOG have recurring meetings to review fatal and serious injury crash reports and identify if there are potential engineering countermeasures that could address crashes. DMD should continue this data-driven analysis and the fatal crash review meetings. There is an opportunity for the Active Transportation Planner to put together an annual summary of crash data by mode, and crash factors, and update the story map with bicycle-involved crashes. MRCOG also tracks and monitors crash data and the City should work with MRCOG on crash data analysis to identify trends.

TRACKING NEW BIKEWAYS AND TRAILS

In coordination with PRD, DMD should track and monitor new on-street bikeway and paved multi-use trail projects and keep the geographic information systems (GIS) data up to date. This data tracking should distinguish new bikeway and trail projects that were identified for the 2024 Plan versus those created or updated based on the results of crash data or other subsequent analyses and studies.

Surveys

In partnership with MRCOG and as part of the City's Bike to Wherever (Work) Day event in May, MRCOG distributes a bike survey to understand the barriers, perceptions, and feedback from the community. The survey helps the City evaluate its progress in implementing new on-street bikeways and trails and to understand areas of concern or potential gaps in the network. The City should continue to partner with MRCOG in putting the survey together and disseminating the survey through Bike to Wherever Day events. The City should use data collected from the survey to better understand the community's perceptions of bicycling in Albuquerque and to evaluate transportation projects that include bicycle and/or pedestrian improvements.

Project Development

Proactive Planning for Long-term Projects

The following strategies will assist in the development of long-term projects and allow the city to develop more accurate budgets for implementation and long-term maintenance:

- **Consider life cycle and maintenance costs as part of project scoping**: Cost estimates for new bikeways and capital investments such as PHBs and RRFBs should include both capital project cost estimates and annualized maintenance costs across a period of time (e.g., 10 years).
- **Preserve right-of-way for future improvements:** Preserve abandoned rail or utility corridors for future multi-use trails. Future trail alignments should be incorporated into the Long Range Bikeway System.
- **Proactive survey and right-of-way analysis along high-priority crossing locations**: Determining right-of-way limits and obtaining property when installing PHBs and for intersection improvements can be time-consuming and costly. The City could proactively survey proposed locations for PHBs and other spot improvements along the 10 highest-scoring bike boulevard corridors and trail crossing locations to identify whether existing City right-of-way is sufficient or if property acquisition would be needed.

Updates to the Development Process Manual

GENERAL OBSERVATIONS AND RECOMMENDATIONS

The City of Albuquerque *Development Process Manual* (DPM) contains standards and guidance for various infrastructure types, with roadway design elements organized around *Comprehensive Plan* Corridor designations. As a design manual, the DPM focuses primarily on the required features of different street elements, with some guidance given on how street designs should vary based on the surrounding context. The 2024 Plan can complement the DPM by providing greater direction on the appropriate bikeway facility type for different contexts and strategies for meeting the needs of users of all ages and abilities. In addition to references to the 2024 Plan, references can be provided to City-specific design guidance documents that are not currently mentioned in the DPM, including the *Bike Boulevard Toolkit* (Appendix E) and the *Bicycle and Trail Crossings Guide* (Appendix J).

RECOMMENDATIONS BY DESIGN ELEMENT AND FACILITY TYPE

Recommended updates to the DPM are organized by design element and facility type.

CROSSINGS

- **Crossing spacing:**
    - Expand the focus of the DPM beyond the distance or spacing between crossings by corridor type to include guidance on bikeway crossings. Greater clarity is needed to explicitly allow for the placement of crossings where bike boulevards and multi-use trails intersect with major streets.
    - Include guidance on minimum spacing between signalized intersections and PHBs. Best practice is generally a minimum of 300'.
- **Crossing design:**
    - Include cross references to the *Bicycle and Trail Crossings Guide* for discussion on appropriate crossing types.
    - Provide guidance to ensure crossings at mid-block locations are properly illuminated.

PAVED MULTI-USE TRAILS

- **Width:**
    - Change the minimum width for paved multi-use trails from 10' to 11', with 12' as the preferred minimum.
- **Public access:**
    - Provide a general recommendation that paved multi-use trails should be publicly accessible for all hours of the day, to the greatest extent possible, especially if they are critical for network connectivity (e.g., dedicated bridges over the Interstates).

SIDEPATHS

- **Appropriateness:**
    - Update language to indicate that sidepaths are a standard bikeway facility type rather than just an alternative design for sidewalks.
- **Design guidance:**
    - Additional consideration could be provided regarding intersections, driveway conflicts, buffer zones, shy distance, the needs of contraflow bicyclists, and other factors that influence the experience of people walking and biking along a roadway.
    - Existing language indicating that sidepaths are to be designed to the standards of paved multi-use trails should be retained.

ON-STREET BIKEWAYS

- **Bike boulevards:**
    - Provide references to the 2024 Plan for facility type definitions and how to differentiate between bike routes and bike boulevards.
    - Create a reference to the *Bike Boulevard Toolkit* for guidance on appropriate corridors and desired design elements.
    - Create a reference to the *Bicycle and Trail Crossings Guide* for appropriate crossing treatments of bike boulevards at major intersections.
    - Formalize a standard speed limit for bike boulevards. If 18 MPH is not considered appropriate, then the speed limit should be 15 MPH.
    - Discuss the application of traffic calming techniques along bike boulevards, including the use of speed bumps and stop sign orientation.

- For signage along bike boulevards and enhanced bike routes, use “Bicycles May Use Full Lane (R4-11) rather than “Share the Road.”
- **Bike lanes and buffered bike lanes:**
  - Include a maximum bike lane width to ensure the bike lane is not confused with a travel lane or turn lane.
  - Clarify that any buffer wider than 1.5’ requires cross hatching.
- **Separated bike lanes:**
  - Provide additional guidance on separated bike lane design, including appropriate barrier types and buffer widths.
  - Clarify the circumstances in which separated bike lanes are most appropriate.
- **Application of green paint:**
  - Provide guidance and a standard detail on the application of green paint along different bicycle facility types, including at conflict areas and approaches to intersections.
  - Include references to national design manuals, including the recently updated MUTCD, the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide, and the AASHTO *Guide for the Development of Bicycle Facilities*.

DESIGN GUIDANCE FOR CONTEXT-SPECIFIC BICYCLE FACILITY TYPES

- **Two-way cycle tracks:**
  - Update language to state that “two-way cycle tracks may be considered under specific circumstances” rather than that two-way cycle tracks are “discouraged” (7-86).
  - Clarify the differences between two-way cycle tracks and separated bike lanes.
- **Raised bike lanes:**
  - Complement the current references to national design manuals with a reference to the 2024 Plan for appropriate contexts and limitations in the application of raised bike lanes across the City of Albuquerque.

GENERAL STREET DESIGN

- **Road diets:** Provide guidance on appropriate locations for the application of road diets.
- **Traffic control plans:** Formalize the consideration of a bike detour during the review of traffic control plans.
- **Drainage:** Provide guidance on preferred types of drainage grates and placement in the gutter pan to avoid conflicts with users along on-street bikeways. Include cross references to the Drainage section to ensure consistency.
- **Green stormwater infrastructure:** Provide guidance on use of native drought-tolerant grasses and plants adjacent to multi-use trails.

INTERSECTIONS

- **Daylighting:** Require and provide guidance on the use of daylighting to improve visibility by restricting on-street parking for a certain distance from intersections to ensure sightlines are not obstructed and all roadway users can see each other.
- **Bike lane design at intersections:** Conduct an internal review of existing intersection design treatments, including general challenges at major street intersections in Albuquerque, and identify preferred bikeway design treatments, opportunities for protected intersections, and bicycle detection techniques. Develop guidance on desired treatments for different intersection types.
- **Signalization:** Develop guidance for bicycle and pedestrian-specific signal treatments, including equipment needs and appropriate contexts.

Annual Complete Streets Maintenance Program

The Annual Complete Streets Maintenance Program can be further enhanced through proactive planning and design efforts. Identifying likely roadways for resurfacing

12-18 months in advance, where possible, would provide time for additional analysis of street design needs, including spot improvements that are currently outside of the scope of the program, and identification of supplemental funding sources. General recommendations are provided below; additional staff resources would be required.

- **Advanced planning:** Identify roadways for resurfacing more proactively to allow for advanced planning and design. Consider restructuring the selection criteria of roadways for surfacing to include equity considerations, multimodal needs, and safety concerns.
- **Coordinated resurfacing schedules:** Coordinate future resurfacing on adjacent segments to minimize the time where bikeway facilities end at the terminus of a repaving project. To the extent possible, the objective should be to create continuous bikeways.
- **Documentation:** Continue to compile technical memoranda that document future improvements and additional location needs and compile recommendations into a formal database and geospatial inventory.
- **Internal coordination:** Consult the Bikeway and Trail Facilities Plan recommendations during resurfacing and restriping and consider opportunities to implement ADA improvements concurrent to pavement preservation.
- **Supplemental funding:** Create a dedicated and flexible source of supplemental funding for small spot improvements such as signage, flexible delineators, etc.

Maintenance

Develop maintenance plans for on-street bikeways and paved multi-use trails: Maintenance of on-street bikeways and paved multi-use trails is critical for both recreation and transportation purposes and should be viewed as an ongoing investment in creating alternatives to single-occupancy vehicle travel. To continue the current level of maintenance and add any recommended additional maintenance responsibilities requires additional staff resources, equipment, and funding. Considerations and components of on-street bikeway and paved multi-use trail maintenance plans include:

- Coordination between DMD and PRD
- Coordination with outside agencies that are also responsible for multi-use trail maintenance including AMAFCA, Bernalillo County, NMDOT, National Park Service, neighborhood associations, private entities (such as homeowner's associations), and any other relevant groups.
- Explore opportunities to utilize volunteers for multi-use trail maintenance
- More frequent street sweeping of bikeway network spines and other high-volume bikeways.
- Refreshing of pavement markings regularly for on-street bikeways, and for trail and bike boulevard crossings as needed.
- Inspection of bicycle-specific loop detectors at key crossing locations regularly.
- For major bikeway and trail projects, the design engineer or landscape architect should include a concept plan for the long-term maintenance protocol if there are needs specific to that project that vary from routine maintenance practices.
- Establish timely responsiveness to maintenance requests from citizens through 311
- Funding to hire additional staff to support maintenance for on-street bikeways and paved multi-use trails.
- Develop maintenance cost estimates for each type of new bikeway or multi-use trail. Identify a strategy to increase maintenance funding as new bikeways and multi-use trails are constructed.

Provide adequate staffing for traffic signal maintenance: *2024 Plan recommendations* include a high number of PHBs and RRFBs. The enhanced crossings require additional technology, staff time, and maintenance; adequate staffing is needed to support the ongoing operations of traffic signals and crossing equipment.

Current Maintenance Practices

Current maintenance practices are described below. In addition to the formal maintenance techniques, members of the public are encouraged to submit comments and requests via 311 and online comments so that DMD and PRD can be more responsive to critical maintenance issues.

As more on-street bikeways and multi-use trails are built, additional funding for staff and maintenance is needed, and the recommendation to develop maintenance plans for both on and off-street facilities is increasingly critical.

On-Street Bikeways: For on-street bikeways, pavement preservation, signs, pavement markings, and sweeping are the responsibilities of the Department of Municipal Development, typically through the Street Maintenance Division and/or Traffic Engineering Division. City streets are swept four times per year on average, and as needed based reports of debris in roadways.

Multi-Use Trails: Current maintenance practices for paved multi-use trails include:

- Maintain a clear 3' recovery zone on both sides of trails, spray for weeds on both sides of trails, mow both sides of trails to keep weeds and grasses at a manageable height, and sweep trails on an as-needed basis.
- Asphalt repairs include filling in cracks and removing and replacing sections of trail as needed. Repairs may be limited based on 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, and pruning of trees and shrubs that encroach into bike trails; this is on an as-needed basis.

Inter-agency Coordination: Bernalillo County, Open Space Division, and NMDOT also maintain paved trails in the Albuquerque area; in addition, AMAFCA, MRGCD, and other agencies may perform work along trail corridors. Informal coordination and occasional opportunities for cooperation may occur, but there is no regular coordination among crews working in the same area.

As more on-street bikeways and multi-use trails are built, additional funding for staff and maintenance is needed, and the recommendation to develop maintenance plans for both on and off-street facilities is increasingly critical.

Signage/Wayfinding Plan

Background/Purpose

Directional signage and wayfinding can help people bicyclists better navigate the transportation network and access destinations such as commercial centers, public facilities, multi-use trails, parks, or transit stations. At present, wayfinding is primarily used on bike boulevards and at select locations along the paved multi-use trail network. Improved signage along paved multi-use trails was frequently cited by community members as a need during public outreach events, and expanded wayfinding and signage could be particularly useful for appealing to a wider range of potential bicyclists. Both the creation and implementation of a formal signage/wayfinding plan require additional staff resources and funding.

Signage and Wayfinding Plan Elements

The City of Albuquerque should pursue a comprehensive signage and wayfinding plan with the following elements:

- Signage design principles, including general frequency of signage along paved multi-use trails and on-street bikeway types and standard conventions around signage content, such as destination types.
- A "sign family" of the various sign types to be consistently applied throughout the city. All signs must be MUTCD compliant.
- Guidance on placement, including approaches to intersections, trail crossings, and other decision points.
- Integration among bikeway facilities, including bike boulevards, paved trails, and other bikeway networks such as the 50 Mile Activity Loop.
- Maintenance needs and considerations.

Source: Rails to Trails Conservancy; Toole Design

Policy Recommendations

Local Level

Incorporate Plan Recommendations into Ongoing City and Regional Planning Efforts

The 2024 Plan should be referenced during the development of Community Planning Area Assessments, and plan recommendations should be incorporated into updates to the City's *Comprehensive Plan* and the *Metropolitan Transportation Plan*. Additional staff resources are needed to ensure continued participation in regional boards and committees through MRCOG and to adequately support internal planning needs.

E-Bike Policies

ESTABLISH A CITY-LEVEL POLICY ON THE USE OF E-BIKES ALONG PAVED MULTI-USE TRAILS

Electric bicycles, or e-bikes, are an increasingly popular option for bicycling that provide a way for people of varying abilities to take longer trips by bike and overcome barriers such as steep hills. City-level policies can encourage the further adoption of e-bikes as both a recreational activity and a utilitarian mode of transportation. Since e-bikes are capable of traveling at higher speeds than standard bikes, state regulations and local policy are critical for managing conflicts among different user groups, particularly along paved trails.

As of spring 2024, the City is considering an e-bike policy that would allow all classes of e-bikes on paved multi-use trails and imposes a speed limit of 20 miles per hour on paved multi-use trails. This draft policy revises previous city ordinances to allow Class 1, 2, and 3 e-bikes on streets except where explicitly prohibited, and on designated trails within Open Space Lands or Regional Preserves (see Table 22 for definitions). Further policies may be considered that clarify which types of powered micromobility devices (e-scooters, e-skateboards, etc.) – in addition to e-bikes – are allowed on city streets, on-street bikeways, and/or sidewalks.

Table 22. Standard E-bike Classes and Definitions

Class	Bicycle Equipment	Appropriate Locations to Ride
Class 1	Bicycle equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the electric bicycle reaches 20 mph.	All roads and paved multi-use trails.
Class 2	Bicycle equipped with a throttle-actuated motor that ceases to provide assistance when the bicycle reaches 20 mph.	Any road; paved multi-use trails if located within a street or highway, or if a city permits.
Class 3	Bicycle equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the electric bicycle reaches 28 mph. People under 16 may not operate class 3 e-bikes.	Any road; paved-multi-use trails if located within a street or highway, or if a city permits.

Source: People for Bikes; Department of the Interior

Emerging Best Practices in E-bike Rebate Programs

According to **research from Portland State University**, emerging best practices from e-bike rebate programs around the US include:

- Using a "targeted universalism" approach to create high incentive programs for certain population groups in addition to more modest incentives for the general population.
- Partnering with academic institutions or regional planning agencies for collecting and tracking data.
- Partnering with local bike shops for access to service and demonstrating e-bike use.
- Making the application process for rebates simple and available through an online portal.

PROVIDE INCENTIVES FOR THE PURCHASE AND USE OF E-BIKES

The City of Albuquerque can investigate and pursue one of several emerging models to encourage e-bike adoption through incentive or rebate programs. One potential model is Denver, CO's successful **E-Bike Incentive Program,** operated by the City's Office of Climate Action, Sustainability, and Resiliency, which created a point-of-purchase rebate program at brick-and-mortar bike shops for residents to purchase e-bikes or cargo e-bikes, with an increased rebate for residents earning 80% area median income or less. The program is funded by a **2020 ballot measure** that approved a sales tax increase to support a range of climate initiatives. The program has been shown to attract new people to bicycling and successfully replaced an average of 3.4 car trips per user per week in its first year.

Allow Bicyclists to Follow Pedestrian Control Signals

Currently, people bicycling in Albuquerque must follow the same rules of the road as people driving. In addition to investing in lower-stress bikeways, there are opportunities to modify existing traffic laws to create a safer and more comfortable experience for people bicycling. Leading pedestrian intervals (LPIs) are an FHWA proven safety countermeasure that allows people a five to seven-second head start when crossing the street before people driving enter the intersection. There are opportunities to also allow people bicycling the opportunity to cross the intersection using the LPI. In recent years, DMD has implemented LPIs at approximately 15 intersections, including along critical HFIN corridors such as Louisiana Boulevard at Kathryn Avenue, Southern Avenue, and Trumbull Avenue.

A policy of allowing bicyclists to follow LPIs has precedent in other cities, including New York City, which made it legal for people bicycling to cross roadway intersections using pedestrian signals in in 2019. The City of Albuquerque should investigate and create a similar law that would allow people bicycling to use LPIs to cross an intersection except where otherwise indicated by traffic control devices. Bicyclists would still be required to yield to people in the crosswalk.

Reevaluate Local Bike Laws that Prevent Safe and Inclusive Biking

In partnership with the community and advocates, the City should reevaluate its existing rules, laws, and policies that impact people bicycling and walking and investigate if there are opportunities to remove or improve them in alignment with recent national best practices. This policy review would follow an example by a growing number of cities.

NACTO released a working paper called "**Breaking the Cycle: Reevaluating the Laws that Prevent Safe and Inclusive Biking**" in 2022 that investigated laws or rules that are intended to keep people safe but that are often enforced unevenly and disproportionately impact marginalized people, including but not limited to people of color, low-income, and unhoused people. The paper investigates commonly enforced laws related to equipment (e.g., helmets, bike lights, etc.), behavior (e.g., stop signs, traffic signals,), and locations (e.g., biking on sidewalks, biking the wrong way in a bike lane). The paper also identifies recommendations for city agencies to revisit and potentially eliminate laws that can be used to criminalize people on bikes; for example, Kansas City had a statute that required bike wheels and tires to be clean. In another example, the State of California passed a bill in 2022 to decriminalize jaywalking; the law went into effect on January 1, 2023.

Investigate Opportunities to Pay Volunteers who Serve on City Advisory Committees

GAATC and GARTC advise the City on matters of walking, biking, and on and off-street facilities, and having a diverse committee of people from different backgrounds, genders, geographic areas is critical for creating safe, comfortable, and accessible facilities to serve the entire community. To help support and encourage diverse representation, the City should investigate opportunities to pay committee members a stipend for each meeting they participate in. Committee members can choose whether or not to accept a stipend; however, providing a stipend may be a determining factor in whether a person can serve on a committee. People who serve on committees may have to take time off from work, find childcare, or have other scheduling conflicts that must be addressed before they can serve. Member of the City of Sacramento's Active Transportation Commission each receive a $50 stipend per meeting. The City of Albuquerque should research what other cities do and if there are opportunities to bring such a model to Albuquerque.

State Level

Idaho Stop/Stop As Yield

The City should support and encourage the adoption of a state-level Idaho Stop/stop-as-yield law in New Mexico. An Idaho Stop, named after the state which first sanctioned the technique in 1982, allows a person bicycling to treat a stop sign as a yield sign then proceed through the intersection when safe to do so rather than coming to a complete stop. States such as Delaware, Minnesota, Colorado, Washington, Oregon, and others have also passed stop-as-yield laws. Current data and **research** show added safety benefits because people bicycling can mitigate risk to their advantage. The year after Idaho passed its law, bicyclist injuries from traffic crashes declined by 14.5%. In Delaware, bicyclist-involved crashes fell 23% in the 30 months after the law compared to the 30 months before the passage of the law. These laws are popular among people bicycling because of the safety benefits and increased level of comfort, as well as the fact that a person biking will not lose their momentum.

Statewide E-bike Rebate Program

The City of Albuquerque should advocate for the Mexico State Legislature to develop a statewide e-bike program. A model for such a program is the State of Colorado, which responded to the success of Denver's rebate program and designated $12 million for the **Colorado Energy Office** to roll out a statewide e-bike rebate. The Colorado Energy Office distributed most of its funding between August and December 2023 before temporarily pausing the program due to **higher-than-expected participation**. Funds from this statewide program are also distributed through Denver's E-Bike Incentive Program.

Other states provide e-bike rebates directly or through state-funded programs, rather than distributing funding to local jurisdictions. For example, the state-operated **California Air Resource Board** funds a replacement vehicle program (including e-bikes and electric vehicles) through local air quality management districts, such as the **Bay Area Air Quality Management District**.

Programmatic Recommendations

In addition to direct investments in physical infrastructure there are various existing and potential programs that can further encourage individuals to ride a bicycle and create a greater culture around bicycling as a form of everyday transportation and recreation. This section highlights three categories of programmatic recommendations:

- Existing Programs to Continue
- New Programs to Initiate
- Partnerships and Programs to Encourage

It is important to emphasize that, as of 2024, the City does not have the funding or staffing resources to fully pursue the programs recommended in the plan. This list is intended to identify how additional funding or staff resources could be allocated in the future. Some of these programs could also be initiated by other agencies or organizations with targeted City support.

Existing Programs to Continue

Bicycle Encouragement Programs

The City hosts two annual encouragement events that support mode shift through behavior change and create greater awareness of the presence of people bicycling along Albuquerque streets. As the City continues to implement its bikeway network, these programs provide opportunities to further build a culture around bicycling and the City should continue to host them.

Bike to Wherever Day

Each May, the City of Albuquerque hosts the annual Bike to Wherever Day in partnership with local advocates and business partners. The event is an adaptation of Bike to Work Day – the event rebranded following the COVID-19 pandemic and adopted the slogan “It doesn’t matter where you go, just bike!” – and is supported by a prominent public awareness campaign to promote bicyclist safety and encourage community members to try bicycling for transportation purposes. Bike to Wherever Day typically features a variety of pop-up stations throughout the city where participants can obtain informational materials, complete an annual survey, and pick up bicycle safety giveaway items.

Bike Thru Burque Week

Each October, the City hosts Bike Thru Burque Week, a weeklong promotional and awareness event that encourages people to bike at some point over the course of the week. People can sign up to participate through the Bike Thru Burque website, including events such as a scavenger hunt, photo contest, and a team, individual, or kids riding challenge in which participants track their miles ridden and receive points based on destinations visited. Participants from the photo scavenger hunt and the highest-scoring teams can win prizes such as including gift certificates to local businesses or bicycle-related safety. Participants can also propose a ride in the crowdsourced map.

Bicycle-Friendly Community Status

The League of American Bicyclists/Bicycle Friendly Community Program (BFC) provides incentives, hands-on assistance, and award recognition for communities that actively support bicycling. A Bicycle Friendly Community welcomes bicyclists by promoting safe accommodation and encouraging people to bike for transportation and recreation. In 2005, the City was recognized with the Bronze level award, and in 2020, the City was named Silver, an upgrade from the Bronze status.

The City should complete an application each certification cycle (i.e., every four years). The application is an audit of equity and accessibility, engineering, education, encouragement, and evaluation and planning. As of 2023, the

City of Albuquerque maintains Silver status and should aspire for Gold status in upcoming application cycles. Recommendations from the 2020 Report Card and recent City efforts, as of the end of 2023, related to those recommendations are contained in Table 23. In future applications, the City should consider feedback provided by the League of American Bicyclists and work toward making recommended improvements pending available staffing resources and funding.

Table 23. Recommendations from the League of American Bicyclists (2020) and Progress to Date

Recommendation	Progress to Date
1. Continue efforts to improve data-driven road safety operations and adopt a comprehensive road safety plan	The City completed a Vision Zero Action Plan in late 2021 and a Year in Review Report/Action Plan Update in 2023 (approved at City Council in November 2023).
2. Continue to expand the bike network throughout all areas of the city, and increase connectivity through the use of different types of low-stress bicycle facilities.	The City has installed dozens of miles of new bikeways in the last four years through targeted projects, roadway upgrades, and restriping efforts. The 2024 Plan will help the City to continue to expand the low-stress bicycle network.
3. Work with local League Cycling Instructors (LCIs) to offer Bicycle Friendly Driver training to motorists.	Esperanza Bicycle Safety Education Center employs multiple LCIs who provide training in community settings and in public schools. The City has coordinated with the State of New Mexico on incorporating bicycle safety-related material into driver education programs.
4. Hire a full-time Bicycle & Pedestrian Coordinator for the City.	The City has funded and posted for a full-time employee to serve as an active transportation planner, though the City has been unable to fill the position.
5. Adopt a target level of bicycle use (percent of trips) to be achieved within a specific timeframe and ensure data collection necessary to monitor progress.	MRCOG oversees a growing non-motorized counts program that is being used to establish rates of bicycling and changes in use over time.

Recommendation	Progress to Date
6. Expand bicycle safety education to be a routine part of education for students of all ages, and ensure that schools and the surrounding neighborhoods are particularly safe and convenient for biking and walking.	Bicycle safety education takes place at Albuquerque Public Schools (APS) through a partnership between the Parks and Recreation Department and APS, including bike rodeos. APS operates a Vision Zero for Youth Initiative that encourages students to safely navigate their routes to school as pedestrians and bicyclists
7. Continue to increase the amount of high-quality bicycle parking throughout the City, including near bus stops.	Bicycle parking is required as part of private development through the City's Development Process Manual. The City and Rio Metro RTD install bike parking in public places and at Rail Runner stations through travel demand management programs.
8. Continue efforts to re-launch a new public bike share system to replace the Pace Bikeshare system that recently ceased operations.	MRCOG and Rio Metro RTD evaluated opportunities to reintroduce a public bike share system but determined a publicly funded program was not viable. The City Planning Department administers the Shared Active Transportation Program Permit and Agreement, which allows for private shared micromobility operators to apply for a permit to serve the city.

Esperanza Bicycle Safety Education Center

The Esperanza Bicycle Safety Education Center is operated by the Parks and Recreation Department out of a facility on the west side of Albuquerque, with plans to open an east side location in 2024. Esperanza focuses on bicycle education to increase the safety, self-sufficiency, and comfort of recreational, fitness, and utility riders alike, and provides classes and programs of varied types and topics, including bicycle safety, road use and traffic law, mechanics, and riding skills. The Center supports mechanical safety with the Open Bike Clinics at its shop, while providing Pop-Up Bike Clinics throughout the community. Esperanza also accepts donations of bikes, bike parts, and other bicycle-related items, which are refurbished for use through their ongoing programs.

Esperanza offers a range of programs and instruction techniques they utilize, depending on the needs of the organizations they partner with. Examples of programs offered by Esperanza include but are not limited to:

- Earn-a-bike classes
- Mechanical clinics
- Safe Routes to School programming
- Walking safety at elementary schools
- Bike rodeos
- Flat tire repair at middle schools

- Teaching adults to ride a bicycle
- Teaching kids to ride a bicycle
- Introduction to mountain biking
- Introduction to bike packing
- Adaptive cycling (primarily for adults this time)
- Hosting League of American Bicyclists Certified Instructor Trainings
- Educating driving instructors about people walking and biking

Bikeways and Trails Map

The City updates and prints hardcopy bikeways and trails maps approximately every two years. In addition to the most up-to-date bikeway facilities, the map contains resources and information on City programs and resources, safety tips, biking regulations and frequently asked questions, and guidance on bringing bikes on public transit.

Guaranteed Ride Home Program

The City's transit provider, ABQ RIDE, offers free guaranteed ride home service for community members who regularly use alternative modes of transportation instead of single-occupancy vehicles to ensure those individuals will not be stranded should an emergency arise. Eligible participants include those who commute to work or school by bike, walking, carpooling, vanpooling, or transit at least three times a week, a person.

Open Space Division Programs

In addition to hiking, mountain biking, and horseback riding, the Open Space Division of the Parks and Recreation Department serves to protect and preserve the natural environment for the benefit of the Albuquerque resident and visitor trail users. Key products and programs include:

- Environmental education and interpretation for schools, youth, families, and adults through several outdoor activities, classroom programs, and community events to educate the public on the use of Major Public Open Space and Trails.
- Trail maps and informational pamphlets
- Sponsored hikes and special events to heighten awareness of the low-impact recreation and the protection of the natural state of Major Public Open Space
- Trail Watch Volunteers Program, which serves to educate the public about trail use ethics while noting maintenance needs.

Each of these programs involves an element of outdoor stewardship education, including Leave no Trace Ethics, proper use of trails in MPOS, and in some cases, trail design and management.

Prescription Trails Program

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

New Programs to Initiate

Bike Rack Program

The City should develop and implement a Bike Rack Program to proactively identify and install racks at key locations within the City right-of-way. As an initial step, staff should create and publicly share a GIS layer of where existing public and private bike racks are located. This data should be kept up to date as new bike parking is installed.

It is important to note that public funding cannot be used to improve existing private property, so locations for new bike parking must be within the City right-of-way as part of this program. The installation of bike parking must also meet ADA/PROWAG requirements. Per existing requirements, developers must continue to provide adequate bike parking within their new developments or redevelopments to confirm Integrated Development Ordinance (IDO) requirements.

Launch Parties or Ribbon Cuttings for New Bikeways and Trails

In coordination with the completion of bikeways and trail projects, the City should host launch parties or ribbon-cutting ceremonies as part of the City's standard bikeway and trail implementation procedures. Such events are a low-cost strategy that celebrates and publicizes new facilities and builds public awareness of bicycling and walking. As a low-cost/high-benefit program, it should become.

Parks and Trails Programs

Launch a Share the Trail Campaign

Conflicts between multi-use trail users can be a major issue on popular, well-used trail systems like the Bosque Trail. Some communities have launched successful "share the trail" events to help educate users about safety and trail courtesy. Share the Trail campaigns can be run by agencies, nonprofits, or any user group (equestrian, hikers, etc.). These programs educate users about expected behavior and how to limit conflicts. Volunteers often give out brochures and engage with users in a non-confrontational way.

Volunteers can also report back to trail agencies about trail damage, erosion, or vandalism. Media outreach should be included as well. Common strategies include a bicycle bell giveaway, handing out maps and information, posting signs, tabling, and 'stings' that reward good behavior. The City of Albuquerque could investigate opportunities to further pursue a campaign.

Bike to Parks Program

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

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

Regional Transportation Demand Management Program

Transportation demand management (TDM) refers to a set of strategies and policies that seek to reduce single-occupancy vehicle travel, congestion, and carbon emissions, and increase rates of walking, riding transit, carpooling, and ridesharing as alternatives to driving alone. The City of Albuquerque currently operates various bicycle-focused programs that fall under the umbrella of TDM, including the installation of bike parking and encouragement programs such as Bike to Wherever Day. These programs could be expanded at a regional level to complement the types of infrastructure improvements identified in the 2024 Plan. Potential bicycle-related components of such a program are outlined on the following pages. Both significant staff time and financial resources are required to operate a TDM program.

Potential Elements of a Regional TDM Program

- Bike parking
- Private business incentives
- Bicycle benefits program
- End-of-trip facilities
- Safe Routes to Schools
- Bicycle encouragement events

Bike Parking

Easily accessible bike parking at popular destinations and transit facilities is a critical component to increasing the share of bicycling trips. With additional staffing and funding support, the City or MRCOG could expand bike-parking-related programs and provide clear guidance on location siting and maintenance policies. A regional bike parking program could offer two forms of parking: short and long-term.

- **Short-term parking** is intended for people visiting locations for less than four hours. Typical short-term parking racks include inverted U, post and ring, and bike corrals. Roll-up bike racks should be prioritized as they better accommodate e-bikes for short-term parking.
- **Long-term bicycle parking,** such as bike lockers, is oriented toward employees, residents, and public transit users who need to store their bikes for a longer period. Local initiatives around long-term bicycle parking include bike lockers at Rail Runner Express stations, which are managed by the Rio Metro Regional Transit District.

Example of bike corrals and bike lockers

Private Business Incentives

Private employers often provide incentive programs to employees to encourage active transportation as a form of wellness and to reduce single-occupancy commuting trips and manage parking demand. Regional program administrators could create a **TDM Toolkit** that provides employers with resources related to a range of TDM strategies, including ride matching, bicycle equipment and safety training, transit user guides, and strategies for the efficient use of available parking. The toolkit could also contain case studies and examples of employer programs in other markets.

Bicycle Benefits Program

Bicycle Benefits is a national program that incentivizes bicycling by partnering with local businesses to provide discounts to customers who bike. As of fall 2023, there are no participating businesses in New Mexico. However, the City could support this program by encouraging local businesses to participate and providing marketing support and advertising through encouragement events. Such a program could take place at the city or regional scale to amplify the impacts of the program; staff support for program coordination would be required.

End-of-Trip Facilities

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 people biking with somewhere to park and somewhere to refresh themselves following their trip. Numerous studies have shown the value of these facilities in attracting bicyclists to employment and activity centers and in supporting multi-modal trips. In fact, in the online survey conducted in 2010, nearly 70% of the people who responded indicated that more bicycle parking would likely influence them to bike and/or use the trail system more often.

As mentioned previously, the City does not currently have a bike rack program, which would be an excellent way to encourage utilitarian bicycle trips to retail and other destinations. The City has no zoning requirement for end-of-trip facilities other than the bicycle parking requirements. Some businesses voluntarily provide end-of-trip facilities such as bike lockers, showers, and changing rooms for employees who commute to work. End-of-trip facilities can be incorporated into a TDM program.

Safe Routes to Schools

Safe Routes to Schools (SRTS) is a popular program across cities, regions, and states that focuses on creating active transportation options for students from elementary to high school, structured around the Es of Safe Routes: Engagement, Equity, Engineering, Encouragement, Education, and Evaluation. Both PRD and Albuquerque Public Schools are implementing elements of a SRTS program; there are opportunities to further these efforts and coordination through a regional TDM program.

Bicycling Encouragement Events

Bike to Wherever Day and Bike Thru Burque could be expanded upon as part of a formal TDM program to be more regionally focused. Management of these event by dedicated staff could also create greater opportunities to cultivate partnerships with private businesses and community organizations.

Partnerships and Programs to Encourage

This section describes programs that are led by external organizations, including public agencies and private entities, and partnership opportunities that could advance the City's goals of creating additional opportunities for Albuquerque community members and visitors to travel by bicycle.

ABQ CiQlovía Open Streets Festival

ABQ CiQlovía is an annual event – organized by the International District Healthy Communities Coalition (IDHCC), Presbyterian Community Health, and community members – that temporarily closes specific streets to people driving and opens them up for people to walk, bike, play, and reimagine the City's largest public space. Since 2017, the event has been on different routes in the International District. Over the past few years, the City's Vision Zero program has sponsored the event and staff have also worked with ABQ CiQlovía to coordinate and align with the City's Bike to Wherever Day and Bike Thru Burque events. City staff have also participated in the event to share information about transportation plans and/or projects occurring in the area. The City should encourage future CiQlovía events. When Bike Thru Burque and CiQlovía overlap, the City should coordinate with event organizers to co-promote each event.

Albuquerque Public Schools

Elements of a Safe Routes to Schools program are being undertaken by Albuquerque Public Schools (APS), which recently began a Vision Zero for Youth Initiative through federal grant funding. In addition to developing a Vision Zero for Youth Action Plan, APS planning staff is working with 21 pilot schools to develop and implement training materials to encourage students to walk and bike to school and educate them about traffic safety. As part of its Vision Zero for Youth Initiative, in October 2023, APS hosted Walktober, an event to promote walking to school at different elementary and middle schools. APS is also pursuing a general awareness campaign about the need for traffic safety around schools and is interested in institutionalizing SRTS programs across the District so that programs are applied and overseen at the individual school level.

Rio Metro Regional Transit District Job Access Program

The Rio Metro Regional Transit District's (RMRTD) Job Access Program is a continuation of MRCOG's previous program called Jobs Access Reverse Commute (JARC), a now discontinued federal program that provided taxi-based work transportation for low-income individuals. RMRTD continues to provide this service for Bernalillo County residents receiving Temporary Assistance for Need Families, those living within 150% of the Federal poverty line, seniors, and individuals with disabilities. Additional information can be found on RMRTD's website.

Shared Micromobility – Bike and Scooter-share Programs

A bicycle or scooter sharing system is a service in which bicycles or scooters are rented on a short-term basis to individuals at unattended stations or existing bike racks using electronic vending or a smartphone application. Bike and scooter share schemes allow people to make short-distance trips by borrowing a bike or scooter from a kiosk, bike rack, or drop zone in one location and returning it to a kiosk, bike rack, or drop zone in another location.

In 2018, the City of Albuquerque created a Shared Active Transportation Program and permitting process for private bike and scooter sharing companies to apply for a permit to serve Albuquerque. The City's Planning Department administers the permit and agreement. Currently, there are no operators. The City should continue this permit program and also follow emerging best practices in shared micromobility to ensure the current policy framework supports the needs of Albuquerque residents and potential visitors looking for alternative transportation options.

University of New Mexico Bicycle Programs

The University of New Mexico (UNM) is recognized as a Bronze level Bicycle Friendly University (BFU) by the League of American Bicyclists. UNM offers various services for bicyclists on campus, including bike racks, bike lockers, and a bike shop, which offers bicycle repair, maintenance, and rental bikes for recreation. Campus maps of bicycle racks and lockers are available online.

Bicycle Events and Awareness Programs

Bicycle Races and Group Rides

Numerous bicycling events are held throughout the year. These include races, skills competitions, and bike polo events. These events are tracked through some community calendars, such as www.nmcycling.org, www.usacycling.org, and www.bikehubnm.com. Facebook pages have been created to promote these events, such as the Critical Mass Albuquerque and Duke City Classic pages.

Bike Valet

At events such as the International Balloon Fiesta, the Downtown Growers' Market, and City Summerfest events, local bicycle advocates or other groups provide bike valets. Bike valets can encourage people to bike to events instead of driving and serve to promote bicycling as a viable transportation option. Over the last 10+ years, bike valets have become increasingly popular and well-used. The City should continue to support and encourage bike valets and at large City events, the City should provide a bike valet to encourage people to bicycle to the events.

Ghost Bike Memorials

"Ghost bikes" are roadside memorials that commemorate the location where a bicyclist was killed. These memorials are typically bicycles painted white and are often decorated with flowers and other personal items or notes to recognize the individual.

Previous Micromobility Programs

Downtown ABQ MainStreet Initiative, in partnership with MRCOG, launched a downtown pilot bike share program in May 2015 called BICI Bike Share. The pilot program featured 75 bikes and 15 stations and was funded by a PNM grant along with local private businesses. In 2016, the program moved under the management of the Rio Metro Regional Transit District (Rio Metro RTD) to expand the program beyond downtown. The program re-launched the program in April 2018 under the brand Pace ABQ with 200 bikes and 30 stations, and added an additional 50 bikes and 10 stations in June 2018. Though Rio Metro RTD had federal funding secured through the Transportation Alternative Program (TAP) for continued development of the bike share program, the bike share operator went out of business during the COVID-19 pandemic.

Funding

Federal and State Sources

New Mexico Department of Transportation

The New Mexico Department of Transportation (NMDOT) along with the Mid Region Council of Governments (MRCOG) administer and program federal funding allocated to the State and Region by USDOT/ Federal Highway Administration (FHWA). There are a variety of sub-allocated funds that are eligible only for pedestrian and bicycle facilities (Transportation Alternatives Program (TAP) as well as the sub-allocated large urban funds under the Surface Transportation Enhancement funding. There are also various opportunities to apply directly to USDOT/ FHWA for competitive grant funding as well as congressional earmarks. Local and Tribal entities must provide local match requirements for most federal funding opportunities.

New Mexico Legislature

During its annual legislative sessions, funds can be provided for bicycle projects through special appropriation bills (e.g., capital outlay requests or memorials).

Local Sources

Capital Implementation Program (CIP)

Funding for capital improvement projects is provided through the General Obligation (GO) bond program. 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 GO bonds are obligated in 2-year cycles. Typically, this 5% set aside is used as matching funding for federally funded transportation projects that include bikeways. Parks and Recreation also receive funding for off-street facilities as part of the two-year bond cycle. In addition to the GO program, the City's Parks and Recreation Department also receives dedicated tax funding in a two-year cycle for recreational trails and off-street trail facilities.

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 – particularly through the City's Annual Complete Streets Maintenance Program.

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.

Additional Funding Sources

Other funding opportunities include:

- City Council set aside funds
- Municipal bonds
- Public/Private Partnerships
- Metropolitan Redevelopment Area projects
- Tax Increment Financing (TIFs), Special Investment Districts (SIDs), and Public Investment Districts (PIDs)

Additional Funding for Bikeway and Trail Facility Implementation

At present, the only source of recurring funding for bikeway and trail improvements is a 5% set-aside of transportation General Obligation (GO) bond money. Dedicated bikeway or trail projects are often completed with federal funds, with GO bond money used as a local match (up to 20% of the total federal award). However, federal funds are competitive, require substantial staff resources to administer, and are not available at the levels needed to address the full range of desired improvements. While additional funds for capital improvements are needed, additional staff resources are also critical for administering programs and pursuing grant opportunities, particularly related to federal funding. Recommendations for additional funding include:

- Pursue a dedicated bikeway GO bond program that would allow for near-term implementation of higher-cost, high-impact projects (i.e., projects with a priority level of “very high” or “high”).
- Create a dedicated source of supplemental funding for spot improvements as part of the Complete Streets Annual Maintenance Program.
- Create a dedicated source of supplemental funding for spot improvements along paved multi-use trails and sidepaths.
- Continue to pursue federal funding through the programs overseen by the MRCOG and the NMDOT Planning Division (e.g., Highway Safety Improvement Program, Recreational Trails Program, Carbon Reduction Program, etc.).
- Pursue competitive grants through federal discretionary programs (e.g., RAISE and Safe Streets for All). Collaborate with MRCOG on grant funding applications and administration.
- Identify additional funds for local match needed to support federal funding applications.

Table 24. Summary of Planning, Policy, and Programmatic Recommendations

ID	Category	Action	Relevant Plan Goals	Timeline/Next Steps	Measurement	Staff Resources	Financial Resources	Lead Agency, Coordinating Agency
1	Planning	**Annual Complete Streets Maintenance Program:** Enhance the existing program to include advanced planning for resurfacing needs and inclusive selection criteria for project locations. Identify supplemental funding.	Equitable, Useful, Implementable	Near-term	Miles of bikeways added or enhanced per year	$$	$$	**DMD,** City Council
2	Planning	**Annual progress reporting:** Annually staff should put together a memo outlining new bikeway and trail projects implemented the previous year. The memo should identify bikeways and trails implemented within vulnerability communities.	Equitable, Integrated	Ongoing	Annual memorandum	$	$	**DMD, PRD**
3	Planning	**Coordination:** Continue and expand the interface between bikes and buses, including such features as bicycle racks on all buses, bicycle racks and lockers at park and ride lot, and the guaranteed ride home program. Promote bike/bus programs through ABQ RIDE literatures, PSAs, Strive Not to Drive Week, Bike to Wherever Day, and Bike thru Burque.	Connected, Useful, Integrated	Ongoing	Transit boardings with bicycles	$$	$$	**ABQ RIDE,** DMD, PRD
4	Planning	**Coordination:** Incorporate plan recommendations into ongoing City and regional planning initiatives.	Integrated, Implementable	Ongoing	N/A	$$	N/A	**DMD, Planning, PRD, City Council,** MRCOG
5	Planning	**Coordination:** Coordiate with the State of New Mexico to identify and implement walking/biking facilities through EXPO NM.	Connected, Equitable, Useful	Long-term	Routes identified and implemented through EXPO NM	$	$$$	**State of NM,** Administration, City Council, DMD, Planning, PRD
6	Planning	**Data collection:** Continue to support MRCOG's annual bike survey that is distributed at the City's Bike to Wherever Day.	Equitable, Useful, Integrated	Ongoing	Number of survey participants	$	$	**MRCOG,** DMD, PRD

ID	Category	Action	Relevant Plan Goals	Timeline/Next Steps	Measurement	Staff Resources	Financial Resources	Lead Agency, Coordinating Agency
7	Planning	**Data collection:** Develop a map or GIS tool that will improve interagency knowledge of emergency access location and wayfinding information on trails.	Integrated	Long-term	Development of mapping tool	$$	$$	**PRD**, APD, Other First Responders
8	Planning	**Data collection:** Review, track, and analyze crash data to inform current and planned projects and to identify future projects.	Equitable, Connected, Integrated, Prioritized, Implementable	Ongoing	Annual analysis of crash data	$	$	**DMD, PRD**
9	Planning	**Data collection:** Coordinate and partner where appropriate with MRCOG on its Active Transportation Count Program.	Equitable, Integrated	Ongoing	Number of locations counted	$	$	**MRCOG,** DMD, PRD, Planning
10	Planning	**Data collection:** Track and monitor new bikeway and trail projects and keep GIS layer up-to-date.	Equitable, Connected, Integrated, Prioritized, Implementable	Ongoing	Quarterly data updates	$	$	**DMD, PRD**
11	Planning	**Data tracking:** Keep the existing bikeway and trails GIS shapefile up-to-date as new facilities are built. Ensure up-to-date data is reflected in the online bikeway and trail data interactive map.	Useful, Integrated	Ongoing	Quarterly data updates	$	$	**DMD, PRD**
12	Planning	**Design standards:** Design and construct facilities according to design standards/ guidelines to improve safety of facilities. Adhere to the Design Guidelines in the DPM or 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.	Connected, Useful, Integrated, Prioritized, Implementable	Ongoing	Number of projects that deviate from design standards/ guidelines	$	$	PRD, DMD, Planning

ID	Category	Action	Relevant Plan Goals	Timeline/Next Steps	Measurement	Staff Resources	Financial Resources	Lead Agency, Coordinating Agency
13	Planning	**Future plans and studies:** Develop a Pedestrian Safety Plan or Active Transportation Plan that integrates biking, walking, transit, and micromobility.	Equitable, Integrated, Implementable	Long-term	Creation of plan	$$$	$$$	**Planning,** DMD, PRD,
14	Planning	**Future plans and studies:** Update the Arroyo Facilities Plan.	Integrated, Implementable	Long-term	Creation of plan	$$	$$	**PRD,** Planning
15	Planning	**Future plans and studies:** Update the Bollard Inventory to identify the location and design of all existing bollards on trails. Prioritize remediation of bollard installations that do not meet the Design Standards in City right-of-way.	Integrated	Medium to Long-term	Bollard inventory and remediation plan	$$	$$	**PRD**, DMD, Planning
16	Planning	**Maintenance:** Create on-street bikeways and paved multi-use trail maintenance plans and hire additional traffic maintenance staff. Ensure maintenance plan incorporate work order and tracking system.	Useful, Integrated	Medium to Long-term	Creation of maintenance plan	$$$	$$	**DMD, PRD,** Administration, City Council
17	Planning	**Performance measures:** Identify performance standards and metrics for active transportation.	Equitable, Useful, Integrated, Implementable	Long-term	Creation of performance standards	$	$	DMD, PRD, Planning
18	Planning	**Project cost assumptions:** Develop a City-wide policy for incorporating maintenance considerations and funding as part of all new (or major renovation) trail construction projects.	Integrated, Implementable	Long-term	Creation of policy	$$	$$	**Administration, City Council,** PRD, DMD, Planning
19	Planning	**Project development:** Conduct proactive survey and right-of-way analysis for upcoming projects and consider life cycle and maintenance costs as part of project scoping.	Useful, Implementable	Medium to long-term	Number of projects completed per year	$$	$$$	**DMD, PRD, City Council**

ID	Category	Action	Relevant Plan Goals	Timeline/Next Steps	Measurement	Staff Resources	Financial Resources	**Lead Agency,** Coordinating Agency
20	**Planning**	**Project development:** Design, construct, and maintain the proposed projects based on the project prioritization list with higher ranking projects being a higher priority.	Equitable, Connected, Useful, Prioritized, Implementable	Ongoing	Priority level of projects completed each year	varies	varies	**DMD, PRD, Planning, Administration, City Council**
21	**Planning**	**Project development:** Establish native drought-tolerant grasses and plants next to trails, with a goal that over time, the natives will outcompete the puncture vine.	Integrated, Implementable	Long-term	Number of projects involving landscaping	$	$	**PRD**, DMD, Planning
22	**Planning**	**Project development:** For major trail projects, require the design engineer to include a concept plan for the long-term maintenance protocol that is envisioned (e.g., care of plantings, drainage issues, etc.).	Useful, Integrated, Implementable	Ongoing	Create of maintenance protocols for multii-use trails	$	$	**PRD**, DMD, Planning
23	**Planning**	**Project development:** Prioritize implementation of trail amenities projects. Obtain supplemental capital funding as needed for major projects and to provide trail amenities.	Integrated	Long-term	Number of trail amenities projects per year	$$	$$	PRD
24	**Planning**	**Project development:** Provide appropriate bikeways on all new or reconstructed bridges, underpasses, and overpasses, to the greatest extent feasible.	Equitable, Connected, Integrated	Ongoing	Number of new or reconstructed bridges with adequate bikeways	$	$	DMD, PRD, Planning, NMDOT, MRCOG
25	**Planning**	**Public information:** Create and maintain a webpage on the City's website to include all information about bicycling in Albuquerque.	Useful, Integrated	Near to medium-term	Creation of webpage	$	$	**IT, DMD, PRD**, ABD RIDE

ID	Category	Action	Relevant Plan Goals	Timeline/Next Steps	Measurement	Staff Resources	Financial Resources	**Lead Agency,** Coordinating Agency
26	**Planning**	**Public information:** Include trail and bikeway dedication events as part of other public project planning. Continue to support Land Development Regulations enabling trail and bikeway dedication and construction.	Equitable, Connected, Useful, Integrated, Implementable	Ongoing	Dedications as part of public and private projects			**Planning, PRD, DMD**
27	**Planning**	**Public information:** Update, develop, and distribute a bicycle and trail map.	Integrated	Ongoing	Publication and distributiion of bike and trail map	$$	$$	**DMD**, PRD
28	**Planning**	**Regional and stakeholder coordination:** Partner with regional and local agencies on programs and investments related to bikeway and trail data collection and facility implementation.	Connected, Integrated, Implementable	Ongoing	N/A	$$$	$	**MRCOG, DMD, Planning, PRD, ABQ RIDE, APD,** Bernalillo County, AMAFCA, UNM, CNM, APS
29	**Planning**	**Signage/wayfinding:** Create a signage and wayfinding plan, including a sign family for paved trails, bike boulevards, and other bikeways.	Useful, Implementable	"Near-term to medium-term: Fund and develop plan. Long-term: Plan implementation"	Creation of wayfinding plan	$$	$$	**DMD, PRD**
30	**Planning**	**Training/capaciity-building:** Ensure that consistent, routine training of City of Albuquerque, MRCOG, and other jurisdiction staff is taking place related to national best practices in on-street bikeways and off-street multi-use trail planning.	Connected, Useful, Integrated, Implementable	Ongoing	Number of trainings per year	$$	$$	DMD, PRD, Planning, MRCOG
31	**Planning**	**Unpaved Trails:** Preserve and add equestrian facilities where appropriate.	Connected, Integrated	Ongoing	Total miles of unpaved trails	$$	$$	**PRD**, DMD, Planning

ID	Category	Action	Relevant Plan Goals	Timeline/Next Steps	Measurement	Staff Resources	Financial Resources	Lead Agency, Coordinating Agency
32	Planning	**Updates to the Development Process Manual:** Update the City's DPM to reflect emerging best practices in bicycle planning and design and recommendations included in this plan.	Integrated, Implementable	Near-term	Approved updates to the DPM	$$	No additional cost if using existing staff resources	**DMD, PRD, Planning**
33	Policy	**Access to schools:** Evaluate waivers and variance requests for bicycle and pedestrian facilities around schools and within high vulnerability areas as identified by the Vulnerability Index.	Equitable, Integrated, Implementable	Near-term	Number of waivers/variance requests	$	$	**Planning**
34	Policy	**Advisory boards:** Investigate opportunities to pay people who serve on City boards and commissions (e.g., GAATC and GARTC) to encourage a greater and more diverse representation of people serving on these committees.	Equitable, Integrated	Long-term	Paying people for their time on committees	$$	$$$	**Boards and Commissions, Administration, City Council,** PRD, DMD
35	Policy	**Advisory groups:** Continue to work with citizen advisory and advocacy groups to promote bicycling and pedestrianism, improve bicycle and pedestrian safety, and improve the implementation of new facilities in their advisory role.	Integrated	Ongoing	Advisory committee meetings and feedback on City efforts related to waking and biking	$	$	**DMD, PRD,** Administration, City Council, ABQ RIDE
36	Policy	**E-bike policy:** Collaborate with the State on a rebate program to encourage the adoption of e-bikes and reduce single-occupancy vehicle trips.	Useful, Integrated	"Near-term to medium-term: Evaluate program needs. Long-term: Identify funding sources"	Creation and implementation of e-bike incentive program	$$	$$$	**State of New Mexico Legislature,** Administration, City Council, Sustainability

ID	Category	Action	Relevant Plan Goals	Timeline/Next Steps	Measurement	Staff Resources	Financial Resources	**Lead Agency,** Coordinating Agency
37	Policy	**E-bike policy:** Develop a City policy that identifies appropriate types of e-bikes – among other micromobility devices – on paved trails. Requires City Council approval	Useful, Integrated	Ongoing	Adoption of policy by City Council	$	$	**PRD, City Council**
38	Policy	**Encouragement events:** Develop a new policy regarding Exclusive Use Permit for Trails Events.	Integrated	Long-term	Creation of policy	$$	$	**PRD, Planning**
39	Policy	**Funding:** Evaluate the feasibility of a Parks, Open Space & Trails Foundation, which would allow tax-deductible contributions and encourage patronships.	Integrated	Long-term	Creation of Parks, Open Space & Trails Foundation	$$	$$	PRD
40	Policy	**Funding:** Identify dedicated funding for bikeway and trail project design, implementation, and maintenance.	Useful, Implementable, Prioritized	Ongoing	Creation of dedicated funding source	$$	$$$$	**Administration, City Council**, DMD, PRD
41	Policy	**Funding:** Identify funding and resources to create a City Bike Rack Program to install bike racks within public ROW and meeting ADA.	Equitable, Connected, Integrated	Long-term	Creation and funding for a bike rack program	$$	$$	Administration, City Council, DMD
42	Policy	**Micromobility:** Update the City's existing Active Transportation Ordinance and Permit Program that enables private shared micromobility operators to apply for a permit to serve residents with shared bikes and/or scooters. Updates should align with national best practices which have evolved since the ordinance originally passed in 2018.	Equitable, integrated, useful	Long-term	Completion of updates to permit program	$	$	**City Council, Planning,** DMD, PRD
43	Policy	**Staffing resources:** Provide full-time staff positions dedicated to trails and bikeways with appropriate office budgets to promote bicycling and trail use and planning within Albuquerque.	Equitable, Integrated, Implementable	Ongoing	Number of full-time employees	$$	$$	**DMD, PRD, Administration, City Council**

ID	Category	Action	Relevant Plan Goals	Timeline/Next Steps	Measurement	Staff Resources	Financial Resources	Lead Agency, Coordinating Agency
44	Policy	**Traffic code:** Investigate changes to the traffic code that would allow people bicycling to cross a roadway following pedestrian control signals such as leading pedestrian intervals.	Equitable, Useful, Integrated, Implementable	Long-term	Changes to traffic code	$$	$	**Administration, City Council**, DMD
45	Policy	**Traffic code:** Make the Idaho Stop or Stop as Yield legal in New Mexico.	Equitable, Useful, Integrated, Implementable	Medium to Long-term	Adoption of law	$	$	**State of New Mexico Legislature**, Administration, City Council, DMD, PRD
46	Policy	**Traffic code:** Reevaluate City of Albuquerque laws around walking and biking that may disproportionately impact marginalized communities.	Equitable, Integrated	Near to medium-term	Evaluation of existing laws and plan to address			**Administration, City Council, APD,** DMD, PRD
47	Programmatic	**Bicycle friendly community status:** Address recommendations from the League of American Bicyclists Bicycle-Friendly Communities. Continue to submit the Bicycle-Friendly Communities application every four years.	Equitable, Connected, Useful, Integrated	Ongoing	City submitting application every four years	$	$	**DMD,** PRD, ABQ RIDE
48	Programmatic	**Education:** Continue and expand Police Bicycle Patrols and dedicate a distinct percentage of their time to educational efforts on proper bicycling and driver behaviors.	Integrated	Long-term	Number of Police Bicycle Patrols per year	$$	$	**APD,** PRD, DMD
49	Programmatic	**Education:** Maintain ongoing training programs through the Esperanza Bicycle Safety Education Center and coordinate on the APS Vision Zero for Youth Initiative.	Equitable, Useful, Integrated	Ongoing	Number of events per year	$$$	$$	**PRD**

ID	Category	Action	Relevant Plan Goals	Timeline/Next Steps	Measurement	Staff Resources	Financial Resources	Lead Agency, Coordinating Agency
50	**Programmatic**	**Encouragement events:** Continue supporting programs related to education, outreach, and encouragement. Identify funding to support bikeway and trail programming and education efforts.	Equitable, Useful, Integrated	Ongoing	Events per year; number of participants	$$	$$	**PRD,** DMD, Planning, Administration, City Council
51	**Programmatic**	**Encouragement events:** Continue to plan and implement Bike to Wherever Day and Bike thru Burque events.	Integrated	Ongoing	Events per year; number of participants	$$	$$	**DMD,** PRD, MRCOG, Planning, ABQ RIDE
52	**Programmatic**	**Encouragement events:** Encourage and coordinate with ABQ CiQlovía organizers to co-promote Bike Thru Burque and ABQ CiQlovía.	Equitable, Integrated, Implementable	Ongoing	Number of co-promoted events	$	$	**DMD**, PRD, Planning
53	**Programmatic**	**Encouragement programs:** Continue to encourage and support bicycle events and awareness programs such as bicycle group rides, bike valets, and ghost bike memorials.	Integrated	Ongoing	Create and maintain iinventory of events	$	$	**DMD, PRD**
54	**Programmatic**	**Interagency programs:** Continue to provide ABQ RIDE's Guaranteed Ride Home Program.	Integrated	Ongoing	Number of program participants per year	$	$	**ABQ RIDE**
55	**Programmatic**	**Interagency programs:** Continue to support Rio Metro's Job Access Program.	Integrated	Ongoing	Number of program participants per year	$$	$$	**Rio Metro**
56	**Programmatic**	**Park programs:** Continue to provide and support environmental education and interpretation activities, programs, and events at Major Public Open Space and Trails.	Integrated	Ongoing	Number of events per year	$$	$$	**PRD**

ID	Category	Action	Relevant Plan Goals	Timeline/Next Steps	Measurement	Staff Resources	Financial Resources	**Lead Agency,** Coordinating Agency
57	**Programmatic**	**Parks programs:** Continue to provide and support the City's Prescription Trails Program.	Integrated	Ongoing	Funding level for program	$$	$$	**PRD**
58	**Programmatic**	**Parks programs:** Investigate opportunities to create a bike to parks program.	Equitable, Useful, Integrated	Long-term	Creation of program	$$	$$	**PRD**
59	**Programmatic**	**Parks programs:** Launch a share the trail campaign	Equitable, Useful, Integrated	Long-term	Creation of program	$$	$$	**PRD**
60	**Programmatic**	**Public information:** Heighten public awareness of bicycle and trail planning efforts through launch parties or ribbon cuttings for new bikeways and trails	Integrated	Ongoing	Number of press releases or ribbon cuttings celebrating new projects	$	$	Administration, City Council, DMD, PRD
61	**Programmatic**	**Regional transportation demand management program:** Create a regional TDM program that incentivizes and encourages bicycle travel and general reductions in single-occupancy vehicle travel.	Integrated	"Near-term: Evaluate program needs and partnership opportunities. Long-term: Identify funding and staff resources"	Creation of regional TDM program	$$$	$$$	**MRCOG,** DMD, PRD

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Acronyms and Definitions

Acronyms

AWDT ....Average Weekday Daily Traffic

AASHTO.....American Association of State Highway and Transportation Officials

ADA............Americans with Disabilities Act

AMAFCA ....Albuquerque Metropolitan Arroyo Flood Control Authority

APS............Albuquerque Public Schools

APD............Albuquerque Police Department

BNA............Bicycle Network Analysis

DMD ....Department of Municipal Development

FHWA ....Federal Highway Administration

GAATC ....Greater Albuquerque Active Transportation Committee

GARTC ....Greater Albuquerque Recreational Trails Committee

GIS ....Geographic Information Systems

HFIN...........High Fatal and Injury Network

ITE ....Institute of Transportation Engineers

KAFB..........Kirtland Air Force Base

LTS.............Level of Traffic Stress

MRCOG ......Mid-Region Council of Governments

MRGCD ......Middle Rio Grande Conservancy District

MTP ....Metropolitan Transportation Plan

MUTCD.......Manual on Uniform Traffic Control Devices

NACTO ....National Association of City Transportation Officials

NMDOT ......New Mexico Department of Transportation

OSD............Open Space Division

POST..........Parks, Open Space, and Trails

ROW ....Right-of-way

PHB............Pedestrian Hybrid Beacon

PRD............Parks and Recreation Department

PROWAG ....Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way

RRFB ....Rectangular Rapid Flashing Beacon

STIP ....State Transportation Improvement Program

TAP ....Transportation Alternatives Program

TDM ....Transportation or Travel Demand Management

TIP ....Transportation Improvement Programs

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.

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

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

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

Bike Boulevard — low-stress corridors with slow speeds and low vehicle volumes that feature traffic calming elements and enhanced crossing treatments to reduce through vehicle traffic and manage vehicle speeds. Though people biking share space with motor vehicles, the low-stress conditions ensure these bikeways appeal to people biking of all ages and abilities.

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

Bike Route — shared streets that utilize signage and pavement markings (i.e. sharrows) to indicate that bicyclists may be present and to help bicyclists connect to other facilities and local destinations.

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 capabilities such as loop detectors, video detection, curbside push buttons, or other detection devices approved by the City Traffic Engineer.

Space along the edge of a roadway that utilizes striping to delineate a separate, dedicated space for people biking. Standard bike lanes are typically located at the road edge and do not provide additional vertical or horizontal separation from vehicular travel lanes.

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.

Buffered Bike Lane — bikeways with striped, horizontal space between the bike lane and the adjacent vehicle travel lane, which provides additional separation between bicyclists and moving vehicle traffic.

Chicane — an artificial feature used to slow traffic by creating extra turns in a road.

Complete Streets — an approach to planning, designing, building, operating, and maintaining streets that enables safe access for all people who need to use them, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities.

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

Cycle Track — a fully separated bikeway facility that support people biking in opposite directions. Cycle tracks can be located at sidewalk-level or at the same level as vehicle travel lanes if there is a form of physical separation.

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

E-bike — a variety of bicycles equipped with electric motors that provide assistance for riders either when pedaling or through a throttle. There are three classes of e-bikes depending on the level and type of assistance provided.

Enhanced Crossing — a street crossing that features a range of treatments that support bicycle travel along existing and proposed bikeways. Enhanced crossing along narrower and slower speed roadways include simpler treatments such as signage and striping; along roadways with higher speed and traffic volumes, treatments include rectangular rapid flashing beacons and pedestrian hybrid beacons.

Geometric crossing improvement — A range of potential treatments -- including marked crosswalks, median refuge islands, bulbouts, raised crossings, and stop control -- intended to support safe, comfortable bicycle crossings of lower-volume and lower-speed streets.

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

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

Long-term Project — bikeway improvements that require moving curb lines or narrowing medians or constructing paved multi-use trails. A long-term designation does not mean the project will not or cannot happen in the near term, but these projects are generally higher in cost and complexity and typically take longer to finance and implement.

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. Loop detectors are also used to count bicyclists on multi-use trails.

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

Means of Implementation — a range of approaches for implementing a new bikeway or enhancing an existing facility, including as a standalone investment, through annual roadway resurfacing efforts, or as part of a larger roadway improvement project.

Median — the area in the center of the roadway that separates directional traffic. Medians may be painted and level 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 bicyclists to be separated from travel lanes to wait for an opportunity to continue crossing the roadway.

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

Multi-use Trail — a separate pathway that is physically separated from motor vehicle traffic by a buffer or barrier and either within the highway right-of-way or within an independent right-of-way. Multi-use trails are 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.

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

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

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

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

Pedestrian Hybrid Beacon (PHB) — the pedestrian hybrid beacon (also known as the High Intensity Activated crosswalk, or HAWK) is a pedestrian-activated warning device located on the roadside or on mast arms over midblock pedestrian crossings. PHBs are recognized by FHWA as a proven countermeasures that improve safety.

Plausible Near-term Project — bikeway projects that are feasible through reconfiguration and do not require any additional right-of-way. Plausible near-term projects are usually lower cost and lower complexity and represent opportunities to build a network quickly if funding becomes available. This designation does not necessarily indicate that a project will happen, but that the project could happen, pending available funding, limited utility conflicts, staff capacity, and availability of local contractors to design and perform restriping and other improvements among other potential constraints.

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

Practical Uses — when the primary purpose is to get to a necessary destination, such as to work or school, or to perform essential errands such as shopping for food or going to a doctor's appointment.

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

Raised Bike Lane — one-way facilities that are located at sidewalk level or slightly elevated from the roadway to provide vertical separation from moving traffic. Raised bike lanes may have a buffer and/or a vertical element in between the bikeway and the roadway.

Recreational Use — when the primary purpose of a bicycle trip is for fun, fitness, training, or as a social activity.

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

Road Diet — A reduction in the number of motor vehicle travel lanes along a roadway in order to reduce speeds, improve safety, and reallocate space for other roadway uses, such as bike lanes.

Separated Bike Lane — bikeways with some sort of physical, vertical separation between moving motor vehicle traffic and the bike lane, such as plastic posts, bollards, curbs, parking stops, planters, raised bumps or parked cars. Also referred to as protected bike lanes, these facilities can be at street level, raised to sidewalk level, or a level in between the street and sidewalk level. Paint alone does not create a protected bike lane.

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.

Sharrow (Shared Lane Marking) — a pavement marking symbol that indicates an appropriate positioning of bicyclists 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.

Sidepath — two-way, off-street facilities that are shared among people biking and walking. Sidepaths are located within the public street right-of-way on the outside of the curb. Because sidepaths are located at curb level, they provide vertical separation between people biking and motor vehicle traffic. Sidepaths can be implemented in lieu of a sidewalk.

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

Single-track Trail — a trail where users must generally travel in a single file and is named not for the physical structure of the trail but rather for the user. Single-track trails are typically 18-30 inches wide. Usually and almost always a soft-surface trail or unpaved natural surface trail. These trails are typically found on Major Public Open Space lands and are sometimes referred to as mountain bike or hiking trails. Single-track trails disturb less ground and can be easier to maintain due to their narrow width. The narrowness of the trail tends to immerse the user closer to nature than a wider trail or dirt road.

Traffic Volume — the total number of motor vehicles that pass along a roadway segment over a period of time (e.g., a 24-hour period).

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

Transportation Improvement Program — a capital improvement program managed by the metropolitan planning organization and 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 the 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 to enhance neighborhood and street safety, livability, and other public purposes. Traffic Calming measures may include diverters, speed humps, traffic circles, or pocket parks which allow through access by bicycles.

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

Unpaved Trail — a range of dirt or gravel paths that accommodate but are not limited to (unless posted and signed) equestrians, mountain bikers, hikers, joggers, and people walking who may prefer a soft walking surface (stabilized unpaved trails may also be suitable for wheelchair users depending on their ability). Unpaved multi-use trails are typically used for recreational purposes.

Utilitarian Trips — trips that are for everyday purposes, such as commuting or running errands, rather than for recreation.

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

BIKEWAY & TRAIL FACILITIES PLAN

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2024 CITY OF ALBUQUERQUE BIKEWAY AND TRAIL FACILITIES PLAN

APPENDIX A: PLANNING & POLICY FRAMEWORK

Table of Contents

Overview and Summary

This comprehensive review identifies and summarizes local and regional policies and planning efforts to understand how they relate to and/or support the development of the 2024 *Bikeway and Trail Facilities Plan*. Reviewing these initiatives helps to reveal gaps in ongoing efforts to improve bicycling conditions across the City of Albuquerque and where there are opportunities for further progress.

Relevant documents and initiatives are organized into the following categories:

- Policy documents
- Regional Planning Documents and Programs
- Reference Documents
- Implementation Programs
- Recent / Ongoing Studies
- Encouragement Programs
- Advisory Committees
- Other Initiatives

Table 1 contains a summary of these documents and identifies their relevance to the 2024 Plan. Detailed summaries can be found in the sections below.

Table 1. Applicability of Relevant Plans and Policies and Opportunities for Further Progress

Category	Document	Relevance to the 2024 Plan	Opportunities for Further Progress Through the 2024 Plan
Policy Documents	**Comprehensive Plan (2017)**	Policy document that provides a vision for long-term growth and development priorities, including transportation and urban design. Contains high-level descriptions of bikeway facility types.	Incorporate relevant policies into bikeway prioritization to further support implementation of Comp Plan goals and policies.
	Complete Streets Ordinance (2019)	City Council Ordinance requiring the consideration of Complete Streets design principles and the needs of people walking and biking as part of all roadway projects.	Define desired bikeway facility types and their application based on City of Albuquerque road conditions.
	Vision Zero Action Plan (2021) and Year in Review (2023)	Outlines areas of action to address crashes resulting in serious injuries and fatalities for the city as a whole, and for vulnerable communities and vulnerable road users, in particular. Contains a city-level High Fatal and Injury Network (HFIN).	Incorporate safety data and Vision Zero analyses into bikeway prioritization.
	Climate Action Plan (2021)	Establishes the value of walking and bicycling as mitigation and resilience strategies and documents community desires to increase pedestrian and bikeway facilities.	Prioritize projects that are most likely to increase the share of trips taken by bicycle, producing a reduction in GHG emissions.
Regional Planning Documents and Programs	**Statewide Prioritized Bicycle Network Plan (2018)**	Identifies a system of priority tiers and design guidance for bikeway facilities along US and NM highways based on the role the roadway could play in statewide and regional bikeway systems.	Consider potential NMDOT-led improvements as part of 202 Plan recommendations.
	Connections: 2040 Metropolitan Transportation Plan (2020)	Documents current transportation trends while projecting future transportation needs and establishing regional investment priorities.	Develop recommendations that can form the basis for federal funding applications.
	Long Range Bikeway System	Contains a regional map of existing, planned, and proposed bikeways, based on input from public agency staff across the Albuquerque region, as well as proposed bikeways on future roads that will be built as a part of development projects.	Consider previously proposed enhancements as an input to the network development process. Incorporate bikeway and trail recommendations from the 2024 Plan into the Long Range Bikeway System.

Category	Document	Relevance to the 2024 Plan	Opportunities for Further Progress Through the 2024 Plan
	MRCOG Non-Motorized Traffic Counts Program	Program provides quantitative data on level of use along existing bikeways and trails.	The 2024 Plan can be used as a reference for prioritizing locations for data collection.
	Regional Transportation Safety Action Plan Update (ongoing)	Profiles the most dangerous locations across the Albuquerque metropolitan area and identifies appropriate safety countermeasures.	Recommendations from the RTSAP can support federal funding applications. Appropriate countermeasures can be incorporated into the final project design.
	Bernalillo County Pedestrian and Bicycle Safety Action Plan (ongoing)	Evaluates bicycle and pedestrian needs by subarea and identifies appropriate countermeasures and location-specific bicycle and pedestrian improvement projects across unincorporated areas of Bernalillo County.	Consider bikeway connections from unincorporated areas to city and regional routes.
Reference Documents	**Bikeways & Trails Facility Plan (2015)**	Previous city-level bikeway and trail plan that establishes bicycle and trail-specific goals, proposes capital improvements, and outlines potential programs and policy recommendations.	Focus on an implementable network of bikeways and trails that suits the needs for people biking of all ages, abilities, and backgrounds. Create criteria for selecting, designing, and implementing bike boulevards. Reconcile the bikeway and trail network with the LRBS. Update recommendations for on-street bikeways and paved multi-use trails.
	Development Process Manual (2020)	Technical standards document for infrastructure improvements, which provides design guidance on a variety of public and private developments, including public right-of-way and bikeway and trail facilities design.	Incorporate emerging best practices in bikeway and trail design into City design standards.
	Bicycle & Trail Crossings Guide (2022)	Identifies appropriate crossing facility types and countermeasures for improving roadway crossing conditions along bicycle and trail routes and decision-making guidance.	Apply crossing treatment guidance to trail and bike boulevard crossing locations and prioritize investments that will support a well-connected, low-stress network.
	Bikeway Project Evaluation Process: Overview and Methodology (2022)	Outlines the City's evaluation process for selecting bikeway projects based on the project benefits, technical feasibility, and the magnitude of cost.	Update the process to ensure consistency with the 2024 Plan goals and objectives. Formally adopt the evaluation process as part of the 2024 Plan.
Implementation Programs	**Complete Streets Annual Maintenance Program**	Leverages city-wide repaving and restriping program to implement on-street bikeways.	Identify projects that could be implemented through Complete Streets resurfacing, as well as complementary treatments to further enhance safety and user comfort.

Category	Document	Relevance to the 2024 Plan	Opportunities for Further Progress Through the 2024 Plan
	Capital Project Development	City-led bikeway and trail implementation projects, either as standalone projects or part of larger roadway improvements, utilizing funds from general obligations bonds and other City sources.	Identify clear project priorities and magnitude of cost estimates.
	Private Development	Site development projects are required to improve the roadway frontage, creating a means for implementing sidepaths. Trails and bikeways may be built on new roads accompanying private subdivision development.	Identify desired bikeway improvements that could occur through private development.
Recent / Ongoing Studies	**I-25 Bicycle Accessibility Study (2020; updated 2021)**	Evaluates gaps in the bikeway network caused by I-25 and identifies potential improvements.	Integrate and prioritize recommendations into the 2024 Plan as appropriate. Review the benefits of previously proposed I-25 bridge crossing locations.
	Bike Gap Closure Project List Summary Profiles and Feasibility Study (2022 / 2023)	Evaluates opportunities to close gaps on existing bikeways, based on priority list provided by GABAC (now GAATC). Feasibility Study conducts further engineering analysis on three priority locations: San Pedro Dr, Claremont Ave, and the Osuna Rd/San Mateo Blvd intersection.	Incorporate previously proposed bikeway and trail projects into the recommended network in the 2024 Plan, as appropriate.
	Rail Trail Framework Plan, Alignment Studies, and Planning and Design (ongoing)	Set of studies and plans that identify the alignment, preferred design, and desired amenities along the proposed Rail Trail. Design in progress on the first segments as of 2024.	Incorporate the Rail Trail alignment into the recommended network and identify potential on-street connections.
	Rio Grande Trail Master Plan (ongoing)	Identifies alignments for a 500-mile multi-use trail open to people hiking, biking, and horseback riding along the Rio Grande corridor from Texas to Colorado.	Coordinate on recommended trail alignments through the City of Albuquerque.
	UNM Integrated Campus Master Plan (ongoing)	Guides the University of New Mexico's decisions on the physical environment and character of each campus, including issues related to access and mobility.	Coordinate on recommended street and bikeway projects that connect to and travel through the UNM main campus.

Policy Documents

City of Albuquerque/Bernalillo County Comprehensive Plan

The *Comprehensive Plan* (2017) is the City's primary reference for policy priorities and the long-term vision document for managing growth. The document contains a range of policies and recommendations related to infrastructure development and desired urban form and is organized around a series of designated Centers and Corridors where additional development is encouraged.

Chapter 6 – Transportation

The Transportation chapter of the *Comprehensive Plan* describes existing conditions and general priorities for all modes of transportation, with an emphasis on the relationship between transportation and land use. Guiding transportation principles of the *Comprehensive Plan* include creating additional travel options and improved access to designated Centers, including by bicycle. The chapter defines different types of bikeway facilities, including bike lanes, raised bike lanes, buffered bike lanes, protected bike lanes, cycle tracks, shared lanes/bike routes, and bike boulevards, although the *Comprehensive Plan* generally refers to the 2024 Plan for recommendations and priorities. Bikeway facility design guidance is provided in the *Development Process Manual*.

Goals from the Transportation chapter that explicitly relate to the 2024 Plan are *italicized*, though providing additional transportation options supports additional plan goals. Each goal is supported by a series of policies, subsequent actions, and identified agencies for action to help translate these goals into implementable next steps.

> **Goal 6.1 Land Use – Transportation Integration**: Plan, develop, operate, and maintain a transportation system to support the planned character of existing and future land uses.
> **Goal 6.2 *Multi-Modal System***: *Encourage walking, biking, and transit, especially at peak-hour commuting times, to enhance access and mobility for people of all ages and abilities.*
> **Goal 6.3 *Safety***: *Plan, develop, operate, and maintain a transportation system that provides safe access and mobility for all roadway users.*
> **Goal 6.4 *Public Health***: *Promote individual and community health through active transportation, noise mitigation, and air quality protections.*
> **Goal 6.5 *Equity***: *Expand mobility by providing safe and connected networks for non-auto travel and public transit for low-income and vulnerable populations.*
> **Goal 6.6 Economy**: Invest in a transportation system that stimulates and supports job creation and business development and improves the movement of people, goods, and services
> **Goal 6.7 System Effectiveness**: Implement and maintain an effective and efficient transportation system in a coordinated and cost-effective manner.
> **Goal 6.8 Context**: Provide transportation investments that are responsive to context and natural setting.

Other Comp Plan Goals and Policies that are especially relevant and aligned with the 2024 Plan are in the Land Use, Urban Design, Parks & Open Space, and Resilience & Sustainability chapters.

Chapter 7 – Urban Design

The Urban Design chapter of the *Comprehensive Plan* outlines goals and policies that support creating walkable places and describes how Center and Corridor types interact with street design elements. The first goal and related policies of the Urban Design chapter are especially aligned with the purpose of the 2024 Plan.

Goal 7.1 Streetscapes & Development Form: Design streetscapes and development form to create a range of environments and experiences for residents and visitors.

Policy 7.1.3 Priority Street Elements: Design cross sections according to priorities for street elements within each Corridor, including where the Corridor passes through Centers, especially where right-of-way or budgets may be constrained.

Sub-policy a): Follow the priority elements for the Travel Way in Table 7-5 based on the Corridor type and location. A key component of the chapter is a Priority Street Element Matrix that links elements of the travel way and the pedestrian realm with the various Corridor and Center types. Street design elements in the matrix are marked as high, medium, or low-priority elements. Elements that are directly related to bicycling include bikeway facilities and multi-modal intersection design. Prioritization of other elements of the travel way and the pedestrian realm also contribute to creating a bikeable environment, including the number of travel lanes, freight considerations, and presence of medians, landscape-buffer zones, and on-street parking.

While the Priority Street Elements Matrix identifies to what degree a Center or Corridor should have bicycle facilities, the *Comprehensive Plan* points to other planning to specify the type of bikeway. Similarly, the *Comprehensive Plan* defers to the *Development Process Manual* for street design standards, as well as guidance on the allocation of right-of-way for constrained corridors.

Figure 1: Priority Street Elements Matrix from the Comprehensive Plan

	CORRIDOR & CENTER TYPES											
	MULTI-MODAL						COMMUTER					
ELEMENTS TO CONSIDER WHEN ALLOCATING RIGHT-OF-WAY	Down-town	Urban Center	Activity Center	Employ-ment Center	Village Center	Other	Down-town	Urban Center	Activity Center	Employ-ment Center	Village Center	Other
STREET DESIGN ELEMENTS												
Travel Way Realm												
Number and Width of Travel Lanes (single-occupancy vehicle capacity)	M	M	M	H	L	H	M	M	M	H	M	H
Dedicated Transit Lanes/Guideways	L	L	L	L	L	L	L	L	L	L	L	L
Transit Signal Priority/Queue Jump	M	L	L	L	L	M	L	L	L	L	L	L
Freight‡ (wider lanes, large turning radii)	L	L	L	H	M	M	M	M	M	H	M	M
Bicycle Facilities**	M	H	H	L	M	M	L/H**	L	L	L	M	H
Medians (divide high-speed traffic, provide pedestrian refuge)	M	H	H	M	M	M	M	M	H	M	H	H
Single-Occupancy Vehicle Intersection Design (turning lanes)	L	M	M	H	M	M	M	M	M	H	M	H
Multi-Modal Intersection Design (reduce crossing distance, provide refuges)	H	H	H	M	H	M	H	M	M	M	M	M
Pedestrian Realm												
Wide Sidewalks (i.e., wider than minimum 6' clear width)	H	H	M	M	H	M	M	M	M	L	M	L
Transit Stop/Station Features	M	M	M	L	H	L	H	M	M	L	M	L
Landscape/Buffer Zone (furnishings, street trees, seating, utilities††)	H	M	M	M	M	M	M	M	M	M	H	H
On-Street Parking	M	L	L	L	M	L	L	L	L	L	L	L

H = High Priority Element‡‡ / M = Medium Priority Element‡‡ / L = Low Priority Element‡‡

Note: Table 7-5 of the Comprehensive Plan shows a second part of the matrix.

Parks & Open Space
The Parks & Open Space chapter (Chapter 10) of the *Comprehensive Plan* provides Goals and Policies that aim to conserve land from development and provide visual, social, and psychological relief from the built environment to improve quality of life. Trails serve both recreational and commuting bicyclists' needs by connecting parks with neighborhoods, shopping areas, and activity centers. The following Goal and Policy are specifically aligned with the 2024 Plan:
Goal 10.2 Parks: Provide opportunities for outdoor education, recreation, and cultural activities that meet community needs, enhance quality of life, and promote community involvement for all residents.
Policy 10.2.3 Multi-use Trails: Connect parks by designing, building, and maintaining trails to accepted standards.

Resilience & Sustainability
The Resilience & Sustainability chapter (Chapter 13) of the *Comprehensive Plan* provides a holistic perspective on Albuquerque's long-term challenges that tie together patterns of growth, interactions with the natural environment, and how these patterns affect community health and the ability to adapt to a changing environment. The BTFP emphasizes a prioritized and implementable bikeway network that leverages ROW within existing facilities rather than new facilities and is therefore more resource-efficient. The following Goal and Policy are directly relevant to the BTFP Update:
Goal 13.5 Community Health: Protect and maintain safe and healthy environments where people can thrive.
Policy 13.5.2 Healthful Development: Encourage public investments and private development that enhance community health.

Sub-policy b) Ensure access to parks and open space for all residents by walking, biking, and driving to provide opportunities for passive and active recreation in the outdoors and encourage healthful connections to nature.

Complete Streets Ordinance

The Complete Streets Ordinance, originally passed in 2015 and updated in 2019, commits the City of Albuquerque to the consideration of the needs of people walking and biking as part of all roadway projects, including rehabilitation and new road construction. The Ordinance highlights the need to create a well-connected transportation network that serves all roadway users and emphasizes the use of national best practices and in the application of Complete Streets design principles. The ordinance also asserts equity should play a key role in project implementation and prioritization by examining contextual factors, such as low-to-moderate income, the number of elderly residents and people with disabilities, and traffic fatalities. The Complete Streets Annual Maintenance Program, discussed in the Implementation Program section, is one of the primary mechanisms for executing the Ordinance.

Vision Zero Plans and Programs

The *Vision Zero Action Plan* (2021) outlines areas of improvement for the City of Albuquerque and identifies strategies for eliminating traffic fatalities and severe crashes by 2040. The plan places particular emphasis on vulnerable communities, defined as parts of the city where individuals are more likely to rely on walking, bicycling, and taking transit, and vulnerable road users, which refers to people walking, biking, and taking transit, people with disabilities, seniors, and children.

The *Vision Zero Action Plan* outlines six thematic goals and lists implementation actions, timeframes, lead agencies, and performance indicators. While each goal contributes to creating safer and more comfortable streets for people to bike, the walking and rolling thematic goal includes strategies such as creating more transportation options, removing barriers through design improvements, and developing and promoting incentive programs.

The *Year in Review Report* /Action Plan Update (2023) evaluates the progress made over the first year following the completion of the *Vision Zero Action Plan*. In addition to progress to date, the document identifies barriers to implementation and specific strategies that the City should pursue. The report also consolidates action items into the **four thematic goals** and promotes a Safe System Approach to reducing crash risks in which responsibilities are shared among a range of stakeholders and roadway users:

1. Safe, multimodal street designs
2. Culture of safety
3. Shift to active modes
4. Data and transparency

Specific **action items** for each category are prioritized into three levels:

1. Sustainable Vision Zero Program: Foundational actions that are crucial for the City to establish a robust Vision Zero program.
2. Transformative Next Steps: Actions that will be the most beneficial toward eliminating traffic deaths and serious injuries, have a high feasibility of being implemented, and require relatively low resources.
3. Supporting Actions: Additional actions that are less impactful but will help to incrementally achieve Vision Zero.

Climate Action Plan

Following a City Resolution (R-19-187) to reduce its GHG emissions by 26-28% below 2025 levels by 2005, the City adopted a *Climate Action Plan* (2021) containing a range of mitigation strategies, including improving bikeway infrastructure. The plan is structured around key themes, such as clean transportation, and highlights the need to consider frontline communities that will be impacted “first and worst” by climate change. The plan generates many of its recommendations from the results of a community survey in which participants see public transit and active transportation options – including bike lane upgrades and/or expansion – as key priorities for reducing transportation emissions. The plan’s clean transportation recommendations include creating and improving walking and bicycling infrastructure and investing in sidewalk improvements, especially in low-income and older neighborhoods. Other recommendations center around improving transit access and amenities.

State, Regional, and County Planning Documents and Programs

New Mexico Statewide Prioritize Bicycle Network Plan (NM Bike Plan)

The Statewide Prioritized Bicycle Network Plan (NM Bike Plan), prepared by NMDOT in 2018, Identifies a system of priority tiers and design guidance for bikeway facilities along US and NM highways based on the role the roadway could play in statewide and regional bikeway systems. The priority tiers are accompanied by design guidance, including the appropriate bikeway facility type based on roadway conditions (i.e., posted speeds and traffic volumes) and surrounding land use context (i.e., urban versus rural). The intent of the NM Bike Plan is for the priority tiers and design guidance to be referenced during major rehabilitation or reconstruction projects, though NMDOT and or local agency partners may choose to pursue improvements proactively. Key Tier I corridors in Albuquerque include Coors Boulevard, Paseo del Norte, Tramway Boulevard, and 2nd Street.

Connections: 2040 Metropolitan Transportation Plan

The *Connections 2040 Metropolitan Transportation Plan* (MTP), developed by the Mid-Region Council of Governments (MRCOG), is the long-range regional transportation plan for the Albuquerque Metropolitan Planning Area. The MTP documents current transportation conditions and projects regional travel patterns based on anticipated levels of population growth and the distribution of housing and jobs. The MTP includes a long-term list of anticipated investments intended to help the region address its transportation needs and covers a variety of modes, including active transportation, transit, roadways/motor vehicle travel, and freight. The plan also explores the linkages between transportation investments and economic and environmental resiliency.

The MTP plays a critical role in the distribution of federal funds. Projects must be included in the MTP or consistent with MTP goals and strategies, to receive federal funds. Short-term projects – including bikeway and trail improvements – are evaluated using a prioritization process that rewards projects that address MTP goals and that are identified in local plans, such as the *Bikeway and Trail Facilities Plan*.

The chapter in the *Connections 2040 MTP* on active transportation highlights regional safety issues, mode shift strategies, opportunities to close network gaps, and the health benefits of active transportation. Increasing transportation options, bringing people and destinations closer together, and reducing emissions through alternative modes of transportation are all highlighted as regional priorities in the MTP.

Long Range Bikeway System

The Long Range Bikeway System (LRBS) is a regional inventory of existing and proposed bikeways and trails that is developed and maintained by MRCOG. In addition to coordinating the regional network of bikeways and trails, the LRBS map is used by public agencies to require improvements by private developers as part of site improvement projects and to identify locations where easements for bikeway and trail connections are required as part of master-planned developments. While the LRBS generally aligns with the City of Albuquerque's network of existing and planned bikeways, the 2024 Plan provides the opportunity to review and refine the LRBS network within city limits.

MRCOG Non-Motorized Traffic Counts Program

MRCOG operates a series of permanent counters along multi-use trails around the region and is developing a Non-Motorized Traffic Counts Program for regional entities to partake in and leverage data regarding walking and bicycling. The intent is to expand the program to better capture regional bicycling patterns, as well as trends in active transportation travel over time.

Regional Transportation Safety Action Plan

The update to the Regional Transportation Safety Action Plan (RTSAP), completed Spring 2024, applies recent crash data and emerging national best practices in safety analysis to identify general safety strategies and appropriate countermeasures that can be applied to address locations with high rates of crashes. A guiding principle of the RTSAP is that roadways in the Albuquerque region should acknowledge the needs of commuters while prioritizing safety for all modes over speed. The RTSAP update features profiles of the most dangerous locations in each jurisdiction in the Albuquerque metropolitan area and identifies a potential safety project that could improve conditions at a specific location. In addition to drawing attention to areas with safety issues, the RTSAP allows local agencies to apply for federal funding under the Safe Streets for All Program.

Bernalillo County Pedestrian & Bicycle Safety Action Plan

Bernalillo County is currently updating its Pedestrian and Bicycle Safety Action Plan, previously completed in 2012, to incorporate recent crash data and identify project priorities for unincorporated areas. The Safety Action Plan considers bicycle and pedestrian needs by subarea, the frequency and sources of crashes by location, and identifies appropriate countermeasures and location-specific bicycle and pedestrian improvement projects. The 2024 Plan includes recommendations for corridors that transcend jurisdictional boundaries and provide important regional connections, and defers to the Pedestrian & Bicycle Safety Action Plan for project recommendations in unincorporated areas.

Reference Documents

Bikeways & Trails Facilities Plan

The City's previous *Bikeways and Trails Facilities Plan* (2015) considers on-street bikeways and both paved and unpaved trails. The plan contains an evaluation of the existing facility conditions, establishes a planning and policy framework, identifies a recommended network including gaps and high-priority projects, and recommends programs that support bicycling and trail activities. The plan also includes a design manual that outlines an interagency coordination process, intersection design guidelines, wayfinding guidance, and maintenance and operations procedures. (Much of the design guidance has been incorporated into or superseded by the Development Process Manual).

Plan Vision

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

Plan Goals

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

Recommendations include capital improvements; programs supporting outreach, education, training, and awareness related to bicycling; and state and local policy changes to safety, enforcement of laws, design guidelines, and improving design review procedures. Network recommendations were generally incorporated into the Long Range Bikeway System, maintained by MRCOG. Notably, the plan does not specifically emphasize facilities that are comfortable for all ages, abilities, and backgrounds and does not assess the quality of conditions along existing bikeways.

Development Process Manual

The *Development Process Manual* (DPM), which was subject to comprehensive updates completed in 2020, provides design standards and guidance on public infrastructure that is to be installed or improved as part of public capital improvement projects or privately-funded site development. The DPM features a comprehensive Transportation chapter that includes bikeway and trail facility type definitions and design elements. Though the DPM generally encourages wider bike lanes and buffers on certain designated Corridors and higher classification roadways (see Figure 1), the DPM does not include specific guidance on facility selection or how design should vary based on traffic speeds and volumes. The DPM points to the Long Range Bikeway System and the 2015 *Bikeways and Trails Facilities Plan* for the specific location of new or enhanced bikeways. The DPM notes national bikeway guides as references, including the AASHTO *Guide for the Development of Bicycle Facilities*, the NACTO *Urban Bikeway Design Guide*, and the MUTCD.

While the DPM provides practical design guidance, there are some limitations and opportunities for updates. In particular, guidance on crossing spacing does not consider trail crossings or the needs of people biking along bike boulevards. Subsequent City of Albuquerque design documents, including the *Bicycle and Trail Crossings Guide* and the *Bike Boulevard Toolkit,* should be used as references. A limitation of the DPM is that it is organized primarily around the Centers and Corridors structure, though many bikeways are better suited for parallel corridors. Another issue is the limited discussion of sidepaths, which are presented as an alternative to sidewalks rather than a primary strategy for implementing low-stress bikeways along busy streets that would otherwise be unappealing to most people biking.

Figure 2. Street Element Dimensions Table and Graphic from the DPM (Table 7.2.29)

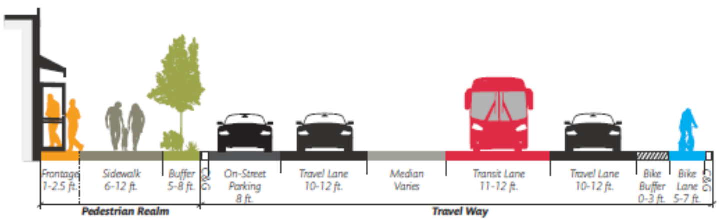


TABLE 7.2.29 **Street Element Dimensions**

Corridor Type / Classification	Location	Design Speed (MPH)	Pedestrian Realm: Frontage Zone (ft.)	Pedestrian Realm: Sidewalk Width (ft.)	Pedestrian Realm: Landscape / Buffer Zone (ft.)	Travel Way: Bike Lane Width (ft.)*	Travel Way: Bike Buffer (ft.)	Travel Way: Travel Lane Width (ft.)***
Premium Transit	Inside Center	30-35	1-2.5	10-12	6-8	6-6.5	0-3	10-12
	Outside Center	35-40	1-2.5	8-10	6-8	6-7	1.5-3	10-12
Major Transit	Inside Center	30-35	1-2.5	10-12	6-8	5-6.5	0-3	10-12
	Outside Center	35-40	N/A	6-10	6-8	6-7	1.5-3	10-12
Multi-modal	Inside Center	30-35	1-2.5	10-12	6-8	5-6.5	0-3	10-11
	Outside Center	35-40	N/A	6-10	6-8	6-7	1.5-3	10-11
Commuter	Inside Center	30-35	1-2.5	10	6-8	5-6.5	1.5-3	10-12
	Outside Center	40-50	N/A	6	6-8	6-7	3-5	10-12
Main Street	Main Street	25-30	1-2.5	10-12	6-8	5-6.5	0-3	10-11
Other Arterial	Inside Center	30-35	1-2.5	10	6-8	5-6.5	0-3	10-11
	Outside Center	35-40	N/A	6	5-6	6-7	1.5-3	10-11
Minor Arterial	Inside Center	30-35	1-2.5	10	6-8	5-6.5	0-3	10-11
	Outside Center	35-40	N/A	6	5-6	6-6.5	1.5-3	10-11
Major Collector	Inside Center	25-30	1-2.5	10	5-6	5	0-3	10-11
	Outside Center	30-35	N/A	6	5-6	5-6	0-3	10-11
Minor Collector	Inside Center	25-30	1-2.5	10	5-6	5	0-3	10-11
	Outside Center	30-35	N/A	6	5-6	5-6	0-3	10-11
Major Local	Inside / Outside Center	18-30	1-2.5 / N/A	5	5-6	Shared Lane**		See Part 7-4(J) Local Streets
Other Locals	Inside / Outside Center	15-25	1-2.5 / N/A	5	4-6	N/A	N/A	

** Not including the gutter pan.*
*** Dedicated bicycle infrastructure may be appropriate along some major local roads. In these circumstances, use the design characteristics of a minor collector (inside Center). See Part 7-4(J) Local Streets for more information.*
**** See Part 7-4(G) Public Transit for additional guidance on travel lane widths for roads with transit service.*

Bicycle and Trail Crossings Guide

The purpose of the City of Albuquerque *Bike and Trail Crossings Guide* (2022) is to "provide clear and consistent guidance for the design and application of bicycle and pedestrian crossings." The guide contains two main parts; the first part describes appropriate countermeasures for improving roadway crossing conditions along bicycle and trail routes, while the second part defines the decision-making process for selecting the appropriate crossing facility type. Factors that inform the crossing type include the level of traffic, posted speed, and number of lanes to cross.

The *Crossings Guide* is actively used as a reference by City staff when identifying appropriate crossing types and locations and complements the guidance on the desired spacing of crossings contained in the DPM. Depending on the context, recommended crossings range from simple crosswalk markings to more robust treatments such as rectangular rapid flashing beacons or pedestrian hybrid beacons.

Bikeway Project Evaluation Process: Overview and Methodology

The Bikeway Project Evaluation Process, first developed in 2022, outlines the methodology for prioritizing bikeway and trail projects from three perspectives: project benefits, technical feasibility, and magnitude of costs. The three considerations are intended to be complementary, though project feasibility and magnitude of cost may supersede project benefits when decisions are made about which projects to implement. There is an opportunity to both formally adopt the Bikeway Evaluation Process as part of the 2024 Plan and to update the evaluation criteria to be consistent with the plan's vision and goals.

Project benefits are measured using various qualitative and quantitative criteria, with adjustment factors applied to weight certain considerations (i.e., safety, transportation equity, and connectivity) more heavily. Public input to this methodology included feedback from staff at public agencies in addition to members of the Greater Albuquerque Active Transportation Committee.

Table 2. Project Benefits Criteria and Components for the Bikeway Project Evaluation Process

Criteria	Component
Safety	High Fatal and Injury Network
	Total Crashes
	Mode-Specific Crashes
Transportation Equity	Vulnerable Communities Index
Connectivity	Network Connections
	Access to Key Destinations
Facility Improvements	Current vs. Proposed Facilities
Level of Use	Strava Data Monthly Users
Land Use Context	Comp Plan Center Designation
	Employment Activity

Technical feasibility factors are generally considered based on whether the project could be implemented within the existing curb-to-curb space, as well as whether a project location is included on the MRCOG network of road diet candidates. Projects are not intended to be ranked by feasibility, though the following considerations are critical for understanding the challenges associated with implementation:

- Right-of-way
- Topography/Terrain
- Jurisdiction/coordination requirements
- Drainage issues
- Land use context
- Desired facility type
- Impacts on vehicle traffic

The **magnitude of cost** consideration uses general engineering assumptions to identify the resources needed to implement projects ranging from signage and striping to capital-intensive projects such as a bridge over the interstate or a major roadway reconstruction. Cost estimates are intended to be complementary to project benefits.

Implementation Programs

Complete Streets Annual Maintenance Program

The City of Albuquerque directs a Complete Streets Annual Maintenance Program that incorporates Complete Streets principles into restriping plans when roads are resurfaced. The program is one of the primary mechanisms by which the City's *Complete Streets Ordinance* is put into practice and has led to tangible changes to the configuration of roads in Albuquerque in ways that help improve safety and create more space for people walking and biking. In 2022 alone, the program resulted in 10.7 miles of new or enhanced bikeways and 2.7 miles of widened bike lanes. The program is also noteworthy as it provides an opportunity to install bikeways across the city, which allows residents to get used to seeing multi-modal facilities in all neighborhoods. and increases expectations about the presence of people walking and biking.

Capital Project Development

Larger capital improvements, including projects that require expanding or reconstructing part or all of a roadway or building a new trail, are implemented through the City's Capital Improvement Program. As part of the City's General Obligation (GO) bond program, 5% of funds are set aside for bikeway facilities, which ensures a modest but consistent stream of funds for implementation. That money is frequently used as a local match for federal funding applications through the Transportation Improvement Program, managed by MRCOG. The recent federally-funded Bike Gap Closure project resulted in a road diet and the installation of bikeways along Alexander Blvd between Comanche Rd and Mission Ave. Projects may also be designed and implemented through discretionary funds available to each city councilor.

Private Development

On-street bikeways, sidepaths, and trails are often implemented alongside road improvements associated with private site development projects. The Long Range Bikeway System is the primary reference document for whether bikeways or trails should be included as part of site development requirements, while bikeways must be designed following the standards contained in the DPM.

Recent / Ongoing Studies

I-25 Bicycle Accessibility Study

The *I-25 Bicycle Accessibility Study* (2020; updated 2021) documents potential bikeway improvements along existing and proposed crossings of I-25 from Menaul Blvd to Tramway Blvd. The study uses previously proposed improvements and new crossings as a starting point, including recommendations from the 2015 *Bikeways and Trails Facilities Plan* and the Long Range Bikeway System. The study relied on feedback from a Technical Working Group and the MRCOG Active Transportation Committee to identify challenges and review potential improvements. Technical analyses included socioeconomic data, destinations, connections to public transit, crash data, Strava data, bicycle level of service, and a road diet analysis.

The study resulted in recommended improvements to most of the existing crossings (including crossings of Frontage Roads), ranging from signage improvements to enhanced bikeways, as well as several corridors that run parallel to I-25 and connect to east-west crossings. The study also evaluated three potential dedicated bicycle/pedestrian crossings, as identified in the Long Range Bikeway System. While dedicated crossings would provide clear benefits, the crossings would also require major capital investments and significant bikeway connections on either side of I-25. The study ultimately recommended that two crossings – San Diego Ave and San Francisco Ave – be considered for further study and eventual implementation. The 2024 Plan reviews and incorporates other recommendations from the *I-25 Bicycle Accessibility Study*, as appropriate.

Bike Gap Closure Project Profiles and Feasibility Study

As part of a Bike Gap Closure Program, the City used federal funds to review and prioritize gaps in the City's bikeway network based on a list identified by the Greater Albuquerque Bicycling Advisory Committee (now GAATC). The list of gaps were subject to the City's bikeway evaluation process to identify potential projects that could be implemented in the near term, including a road diet and buffered bike lanes along Alexander Blvd from Comanche Rd to Mission Ave.

Several bike gap closure projects were subject to a more detailed engineering review:

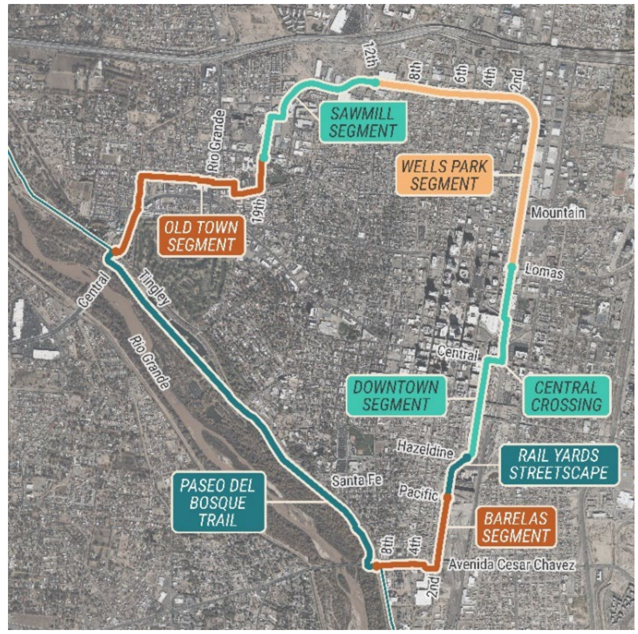
- Claremont Ave bike boulevard – West of Carlisle Blvd to Moon St
- San Pedro Dr bike lanes – Bell Ave north to Marble Ave and Haines Ave north to Claremont Ave
- Osuna Rd wayfinding improvements at the intersection of Bear Canyon Arroyo and the North Diversion Channel Trail and crossing improvements at San Mateo Blvd

Rail Trail Framework Plan and Alignment Studies

The Albuquerque Rail Trail is a proposed seven-mile loop – including a segment of the Bosque Trail – that will ultimately link several neighborhoods in the Albuquerque core, including Downtown, Barelas, Sawmill, and Old Town, and major landmarks such as the National Hispanic Cultural Center and the Rail Yards. The paved trail is envisioned as a signature recreational and transportation facility featuring a range of amenities and public spaces and supported by a variety of housing and economic development initiatives. As of the 2024 Plan, segments of the Rail Trail were in various stages of planning and design, with various planning documents completed or in progress.

Framework Plan: Completed in March 2022, the Framework Plan focuses specifically on the section between the Railyards and Downtown for which the City received a federal RAISE grant. The Framework Plan outlines the vision and general goals for the Rail Trail, proposes an alignment and typical sections, and identifies desired amenities and design features.

Wells Park & Sawmill Section (Rail Spur Trail Feasibility Study): The Feasibility Study considers the section of the Rail Trail along the rail corridor to the north of Lomas Blvd and continuing north and west to the Sawmill area and the Museum of Natural History along Mountain Rd. The study proposes utilizing vacated rail lines to the west of 12th St and an elevated section along the constrained portion of the corridor from north of Lomas Blvd to 6th St.



Barelas Section: The Barelas Concept Plan recommends a preferred alignment and typical sections for the segment of the Rail Trail between the Rail Yards and the National Hispanic Cultural Center. Major considerations include creating separation between trail users and motorists along the constrained the Avenida Cesar Chavez/Avenida Dolores Huerta corridor and supporting neighborhood connections to the Rail Trail.

Old Town Section (*Ongoing)*: The segment between Old Town and the Bosque Trail access point at Central Ave will utilize a series of neighborhood streets to navigate the narrow right-of-way through historic portions of Albuquerque and provide a connection to the Botanic Garden.

Rio Grande Trail

The Rio Grande Trail is envisioned as a 500-mile multi-use trail open to people hiking, biking, and horseback riding along the Rio Grande corridor from Texas to Colorado. The trail is in the planning stages but is ultimately intended to support long-distance recreation and tourism like the Continental Divide Trail, though alignments through urban areas are also intended to be useful for residents. Through the City of Albuquerque, the Rio Grande includes a north-south alignment along the Bosque Trail and an east-west alignment that connects the Bosque Trail near Downtown to Tijeras Pass. The Study is being led by the State Parks Department with participation from the Parks & Recreation Department at the City of Albuquerque and will identify near-term and long-term improvements.

UNM Integrated Campus Master Plan

UNM is in the process of replacing its *2009 Master Plan* to reflect emerging priorities and campus investment needs. The Integrated Campus Master Plan addresses all UNM properties, including the main campus, and guides the University's decisions on the physical environment and character of each campus, including issues related to access and mobility. The plan is reviewing the way the campus and external streets are utilized and considering opportunities to better accommodate the needs of people who travel to or through campus by bicycle.

Other Initiatives and Programs

Encouragement Programs

Bike Thru Burque Week is a week-long event held each October that encourages people to bike at their own pace and on their schedules. Past activities that took place as part of Bike Thru Burque Week include riding challenges, scavenger hunts, and photo contests, and are organized through an informational and interactive website and social media campaign. In addition to generally encouraging people to ride a bicycle, the event actively promotes trips to local businesses. Bike Thru Burque is organized by the City of Albuquerque in partnership with MRCOG, local bicycling advocates, local businesses, and volunteers.

Bike Thru Burque Week generally coincides with **CiQlovía,** a community-led open streets event that closes public streets to vehicle traffic and allows people to walk, roll, ride, and participate in family-friendly activities. The event is intended to raise awareness about public health issues and traffic safety and to encourage active lifestyles.

Bike to Wherever Day, originally branded as Bike to Work Day before the COVID-19 pandemic, is held each May and encourages people to ride a bicycle to some destination of their choice. Bike to Wherever Day is organized by the City of Albuquerque in partnership with MRCOG, local bicycling advocates, and numerous volunteers and local businesses. Informational booths with giveaway items are set up at public places and along trails across the city to encourage participation. Organizers administer a survey on bicycling needs and preferences each year as part of Bike to Wherever Day. Information on Bike to Wherever Day is available on the Bike Thru Burque website.

Esperanza Bicycle Safety Education Center

Funded by the City of Albuquerque and operated by the Parks and Recreation Department, the mission of the Esperanza Bicycle Safety Education Center is "increasing the safety, self-sufficiency, and comfort of recreational, fitness, and utility riders alike." As a City-funded bike shop, staff time is dedicated to increasing access to bicycle services and resources for community members. Esperanza offers free bicycle repairs and bike safety classes to the public, in addition to school-based bicycle education such as "bike rodeos." Staff are certified League of American Bicyclists League Cycling Instructors (LCI).

Advisory Committees

Greater Albuquerque Active Transportation Committee

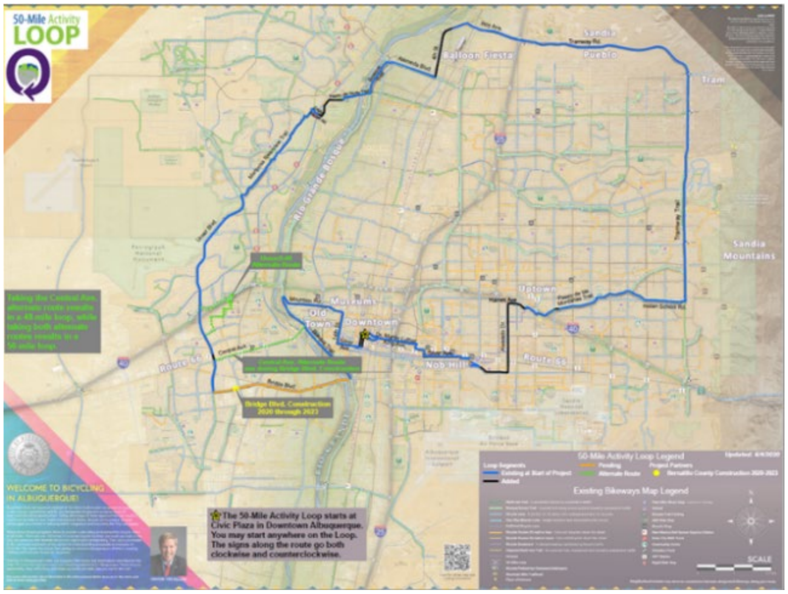
The Greater Albuquerque Active Transportation Committee (GAATC) is comprised of community members and local advocates who represent different geographic areas across the city. The role of the committee is to advise City staff on policies, programs, and design considerations related to active transportation, including reviews of proposed projects related to walking, bicycling, taking public transit, and any other wheeled mobility device that utilizes on-street space. GAATC meets every month.

Greater Albuquerque Recreational Trails Committee

The Greater Albuquerque Recreational Trails Committee (GARTC) is comprised of community members who represent different user groups, including hikers, mountain bikers, equestrians, physically challenged users, elderly users, and runners/joggers. The committee meets monthly and is intended to advise on decisions that impact off-street recreational trails and help implement the *Bikeway and Trail Facilities Plan*.

50 Mile Activity Loop

The 50-Mile Activity Loop is a collection of multi-use trails and on-street bikeways that comprise a continuous route circumnavigating the city. The Activity Loop features unique signage and mileage markers and is intended to appeal to recreational cyclists. The route follows a combination of corridors along the edge of the city, such as Tramway Boulevard and Unser Boulevard, and urban streets through Downtown and Nob Hill.



2024 CITY OF ALBUQUERQUE BIKEWAY AND TRAIL FACILITIES PLAN

APPENDIX B: COMMUNITY SURVEY SUMMARY (SPRING 2023)

BIKEWAY & TRAIL FACILITIES PLAN
CITY OF ALBUQUERQUE

ONE ALBUQUERQUE municipal development

ONE ALBUQUERQUE parks & recreation

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Background

The City of Albuquerque and its planning partners developed a survey and interactive map to gather feedback about bicycling conditions, habits, and preferences to support both Bike to Wherever Day and the 2024 *Bikeway and Trail Facilities Plan*. The survey was open from May 1 to June 16, 2023 and coincided with Bike to Wherever Day on May 19, 2023 a major City-sponsored event to promote bicycling and encourage trips to local businesses. This survey mirrors past surveys distributed annually in conjunction with the Bike to Wherever Day surveys.

Input from the survey will inform the *Bikeway and Trails Facilities Plan Update* as well as general bicycle planning for the City and partner agencies, including the Mid-Region Council of Governments (MRCOG). In total, 679 people participated in the survey, 36 of whom completed paper surveys at one of the Bike to Wherever Day pop-up events. This document summarizes the results of the survey and highlights key findings from the interactive input map.

Key Takeaways

Below are several key takeaways from the survey results.

- Survey respondents were generally positive about the trajectory of bikeway improvements and bicycling conditions in Albuquerque, though not as positive as they had been in past surveys. Reasons that respondents feel positive about bicycling in Albuquerque include pleasant weather, a high-quality network of paved multi-use trails, and a growing culture of biking.
- Survey respondents emphasized safety as a priority, which is consistent with previous Bike to Wherever Day and Bike to Work Day surveys. Respondents frequently cited a lack of separation from motorists as a barrier to bicycling, and likewise indicated that increased separation from motorists was the best strategy for improving safety. Crossing major streets and the high speeds of motor vehicles were also identified as major barriers to bicycling in Albuquerque.
- When asked to rate different bikeway facility types, respondents' level of comfort rises significantly along bikeways with greater physical and spatial separation from motor vehicles.
- The vast majority of survey respondents' trips continue to be for recreational purposes, though many respondents indicated a desire to bike for more utilitarian purposes.
- Compared to the general population, participants were disproportionately likely to be confident bicyclists, yet they still expressed significant safety concerns and a preference for greater separation from motorists and slower vehicle speeds. Less confident bicyclists, who are underrepresented in the survey results, are even more likely to require quality bikeways and low-stress conditions to consider bicycling as a regular transportation option.

Methodology

The survey and interactive map were available online on the project website (www.abqbikeplan.com) and in-person at Bike to Wherever Day pop-up tables. The Bike to Wherever Day tables also featured giveaway items and general information about bicycling in Albuquerque.

Figure 1. Bike to Wherever Day Pop-Up Table

The survey was advertised primarily through the Bike Thru Burque website, email list, and social media platform, as well as the City of Albuquerque and partner agency newsletters and outreach platforms. Survey flyers were distributed throughout May at the Downtown Growers' Market and additional pop-up events at Bike In Coffee.

Survey Content

The survey was offered in both English and Spanish and solicited feedback on a range of topics:

- General bicycling conditions
- Comfort level bicycling along different facility types
- Respondents bicycling habits
- Perspectives on e-bikes
- Demographic Information

While a survey is administered every year as part of Bike to Wherever Day, the 2023 online survey featured an interactive input map that allowed participants to identify locations where they feel unsafe and where additional facilities are desired. Pop-up events included poster-sized maps where individuals could place stickers on the map that corresponded with the online input options.

Connection to Bike To Wherever Day

Bike to Wherever Day is an annual event organized by the City of Albuquerque in partnership with MRCOG, local bicycling advocates, and numerous volunteers and local businesses. This year's event returned to the pre-pandemic format centered around in-person pop-up tables and information booths with giveaway items that were set up at public places and along trails across the city to encourage participation. A survey on bicycling needs and preferences is typically administered as part of Bike to Wherever Day. Information on Bike to Wherever Day is available on the Bike Thru Burque website.

Changing travel patterns and a greater emphasis on biking for a range of everyday activities, not just commuting to work, are consistent with the newer theme of "bike to wherever" rather than the pre-pandemic "bike to work" event title.

Survey Results

Survey Respondents' Bicycling Habits

Bicycling Confidence Levels Among Respondents

Survey respondents are disproportionately likely to consider themselves "advanced" or "expert" bicyclists compared to the overall population. Overall, more than three-quarters of respondents indicated they are an "advanced" or "export," while about one-fifth (19 percent) consider themselves "intermediate" bicyclists. By contrast, national surveys indicate that 50 to 60 percent of adults consider themselves “interested but concerned” bicyclists, which is analogous to the “intermediate” category utilized in past Bike to Work Day and Bike to Wherever Day surveys.

Notably, an even higher share of respondents indicate they are highly confident bicyclists than in recent surveys. Whereas 60 to 67 percent of respondents in surveys from 2020 to 2022 indicated they are “advanced” or “expert,” about 76 percent of respondents to the 2023 survey indicated they are highly confident.

Figure 2: Respondents’ Level of Experience as a Bicyclist

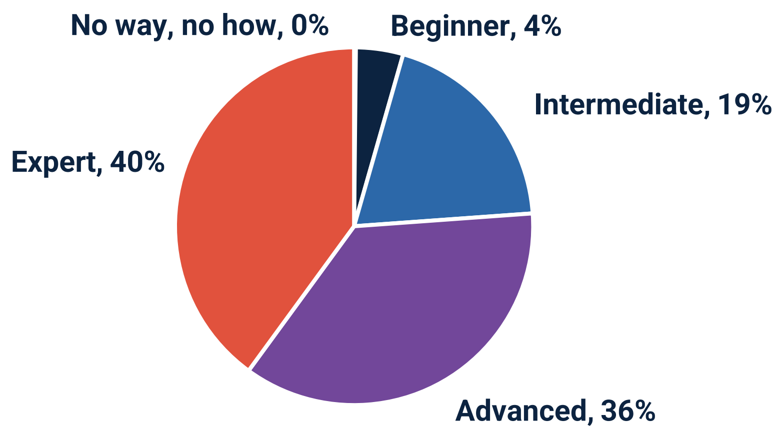
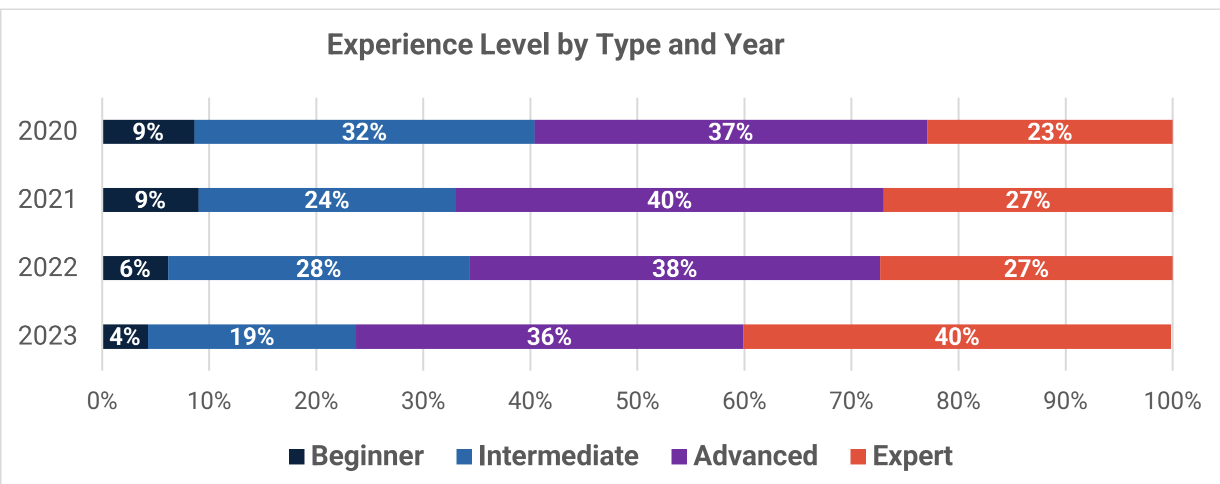


Figure 3: Respondents’ Experience Level Over Time, 2020-2023

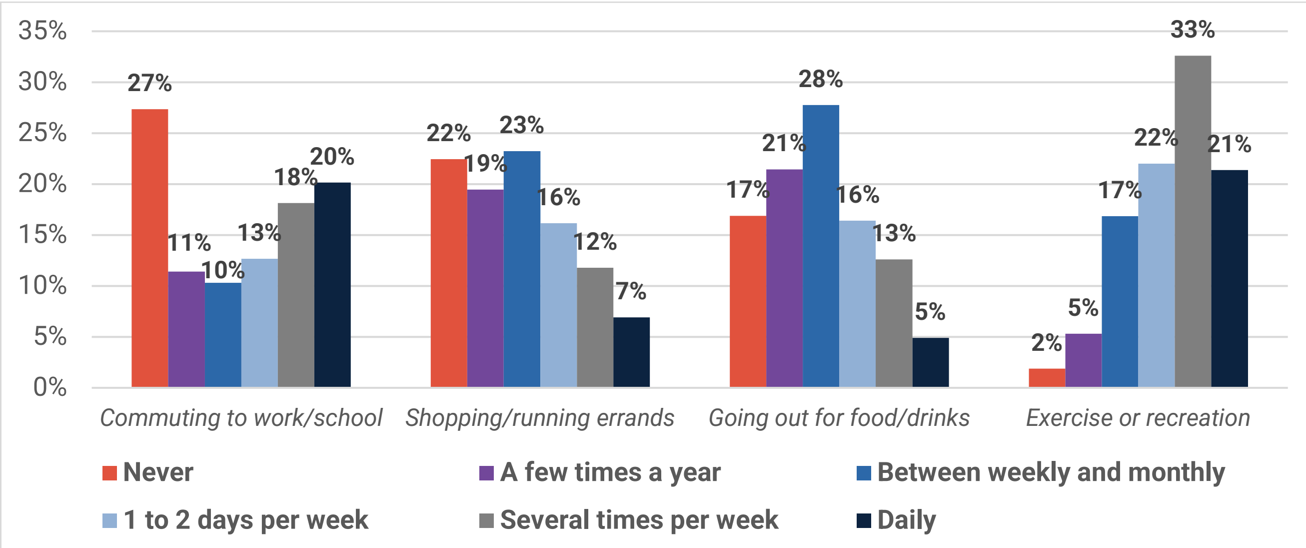


Frequency of Bicycling Trips by Type

Among survey respondents – who skew toward the more confident and dedicated end of the bicycling spectrum – the most common trip types are for exercise or recreation, with more than half (54 percent) of respondents indicating they bike for exercise or recreation daily or several times per week. About one fifth of respondents indicated they bike to work, compared to about one percent of the overall Albuquerque population.

Respondents also indicated they regularly bike (i.e., at least once a week) for discretionary trips, with about one third indicating they bike for shopping or running errands (combined 35 percent) and for going out for food or drinks (34 percent).

Figure 4. Frequency of Bicycling Trips by Type



General Bicycling Conditions in Albuquerque

The survey asked several questions related to general bicycling conditions across the City of Albuquerque, including questions about perceptions of conditions over time, barriers and challenges to bicycling, positive aspects of bicycling in Albuquerque, and strategies for improving bicycle safety.

Bicycling Conditions Over Time

Nearly half of survey participants believe that conditions for people biking are improving over time (48 percent), while a third believe conditions are staying about the same (36 percent). Seventeen percent believe conditions are worsening. While generally positive, survey respondents were less optimistic than in past surveys. When asked the same question, nearly three quarters of survey respondents in 2017 and 2018 indicated that conditions were getting better over time (see Figure 2). Beginning in 2020, the share of respondents who say conditions are improving has decreased over time, while those saying that conditions are staying the same or getting worse rose considerably, despite the expansion of on-street bikeways as part of the Annual Complete Streets Maintenance Program during this period.

Figure 5. Perspectives on Bicycling Conditions Over Time

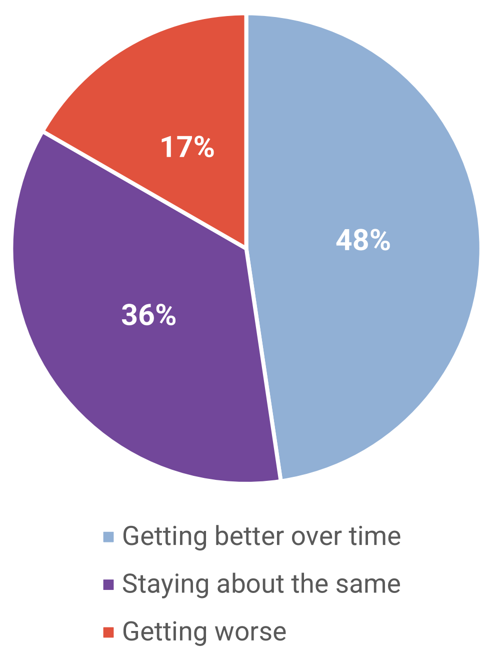
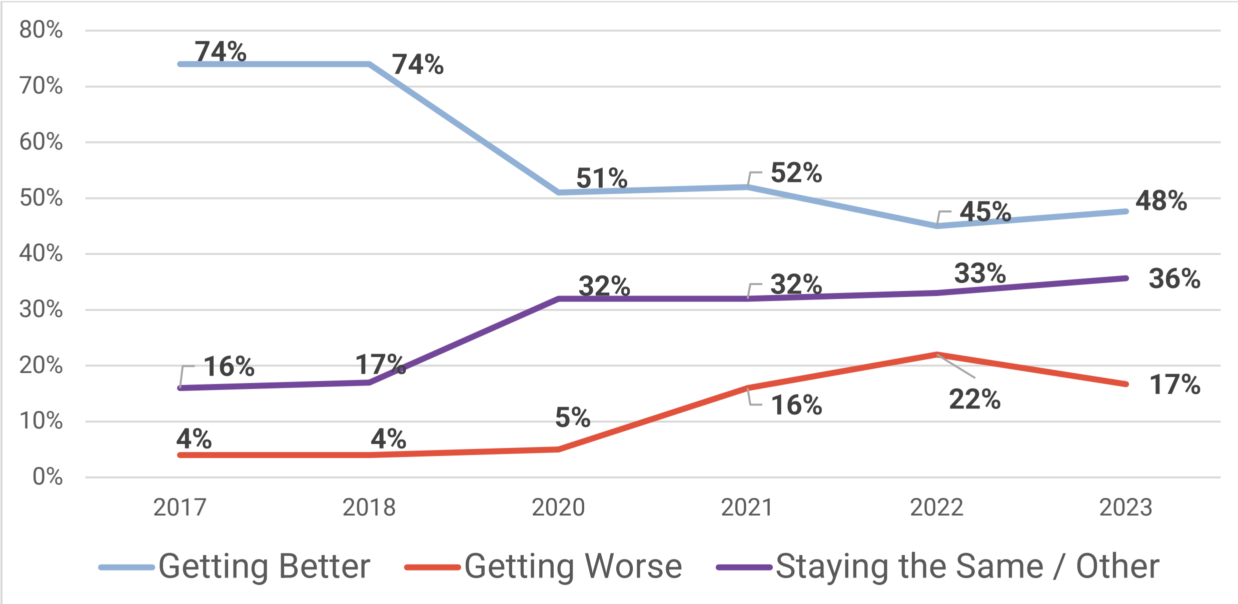


Figure 6: Perspectives on Bicycling Conditions Over Time, 2017-2023

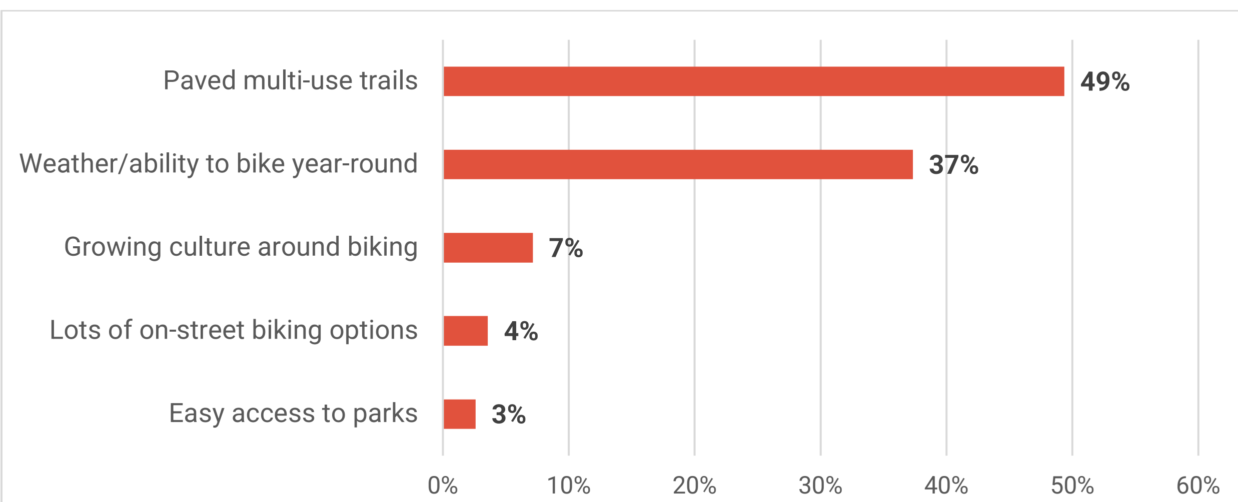


Note: This question was not asked in 2019.

Best Parts of Bicycling

Nearly half of respondents (49 percent) indicated that paved multi-use trails were the best part of bicycling in Albuquerque, while over a third (37 percent) selected weather and the ability to bike year-round. In addition to their top reason, respondents could provide comments about additional highlights related to bicycling in Albuquerque. A total of 139 respondents provided further comments. Nice weather (56 comments) and a growing culture of biking (38 comments) were the most frequently cited, followed by paved trails (31) and on-street biking options (24).

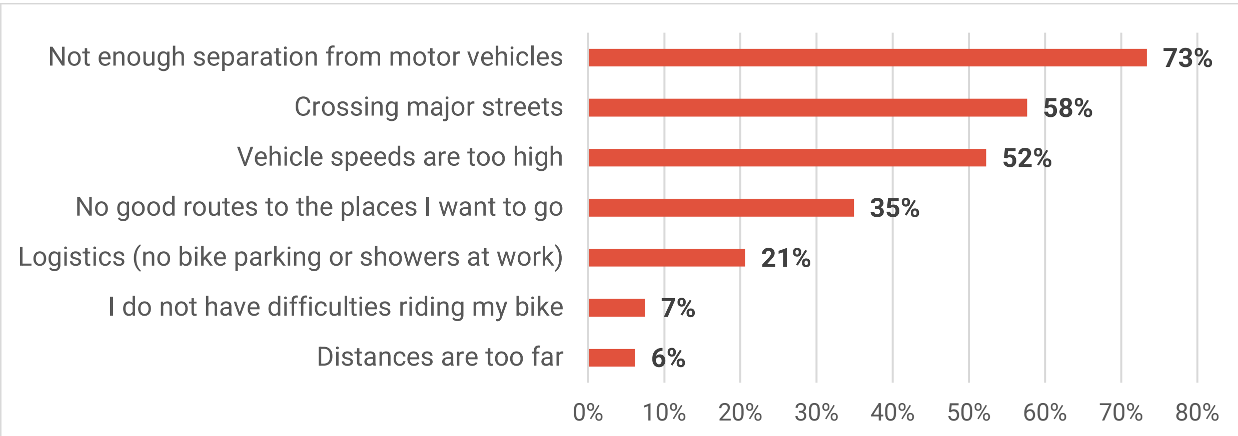
Figure 7: Best Parts of Bicycling in Albuquerque



Barriers or Challenges

When asked about the greatest barriers or challenges when bicycling in Albuquerque, the top three concerns were all related to general roadway design. Nearly three in four respondents (73 percent) selected "not enough separation from motor vehicles" as a concern. The second and third most selected barriers, respectively, were "crossing major streets" (58 percent) and "vehicle speeds are too high" (52 percent). By contrast, distance was not a commonly identified barrier to bicycling, which may be related to the fact that most respondents identified as either advanced or expert bicyclists (see "Bicycling Skills" section). Respondents were allowed to select up to three barriers or challenges.

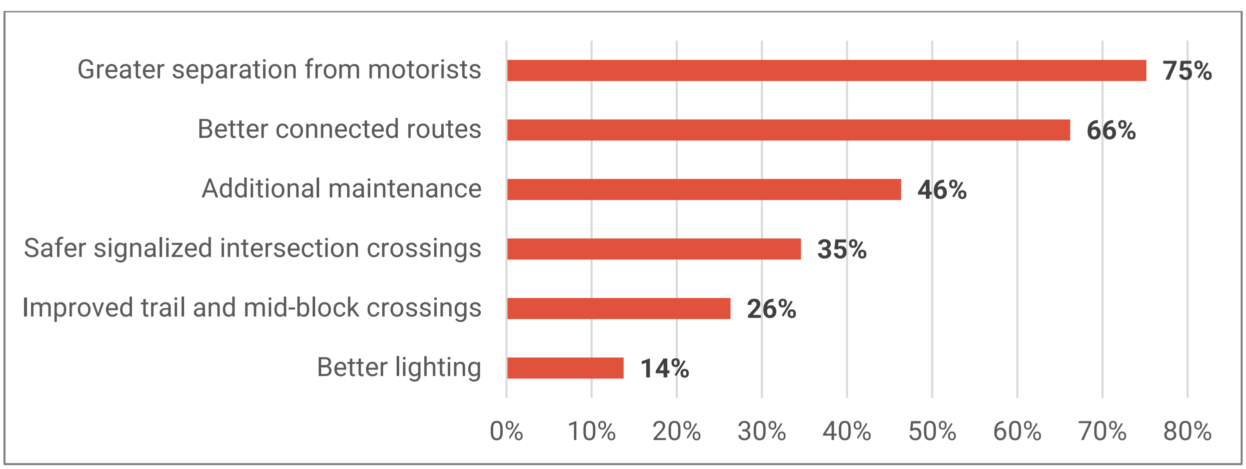
Figure 8: Major Barriers of Challenges When Bicycling in Albuquerque



Strategies for Improvement

Mirroring responses from the question on barriers or challenges, three quarters of respondents (75 percent) indicated that greater separation from motorists was among their preferred strategies for improving safety for people biking. Better connected routes that link people to their destinations was the second most frequently selected strategy (66 percent). Other responses included additional maintenance of both bikeways and paved multi-use trails (46 percent), safer signalized intersection crossings (35 percent), and improved trail and mid-block crossings (26 percent). Respondents were allowed to select up to three strategies for enhancing safety.

Figure 9: Preferred Strategies to Enhance Safety for People Biking



Bicycling Habits

Several survey questions focused on respondents' bicycling habits, including as frequency of biking, their top reasons for biking, their experience as a rider, and attitudes towards e-bikes.

Bicycling Trips

The survey asked respondents how frequently they make four different types of trips by bike: commuting, shopping, going out for food/drinks, and exercise or recreation. Over half of respondents say they ride for recreation or exercise at least several times per week (33 percent), if not daily (21 percent). Over a third of respondents say they commute to work or school at least several times per week.

Survey respondents also indicate that they are more likely to ride for recreation several times a week rather than for other types of trips (commuting, shopping, or going out). While only two percent of survey respondents say they never ride for exercise or recreation, significant portions of respondents say they never ride their bike for certain types of transportation trips (commuting, shopping/running errands, and going out for food/drinks).

Bicycling Over Time

Survey respondents generally indicated they bike more than in the past. About one-half (50 percent) of respondents stated they ride more than they did 10 years ago, compared to less than one quarter (23 percent) who ride less than they did 10 years ago. Compared to before the pandemic, about one-third (31 percent) indicated they ride more (32 percent), compared to only 11 percent who ride less.

Figure 10: Respondents' Bicycling Habits Compared to 10 Years Ago

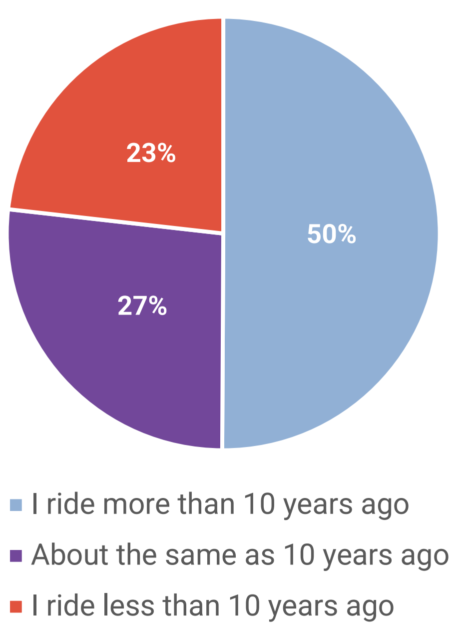
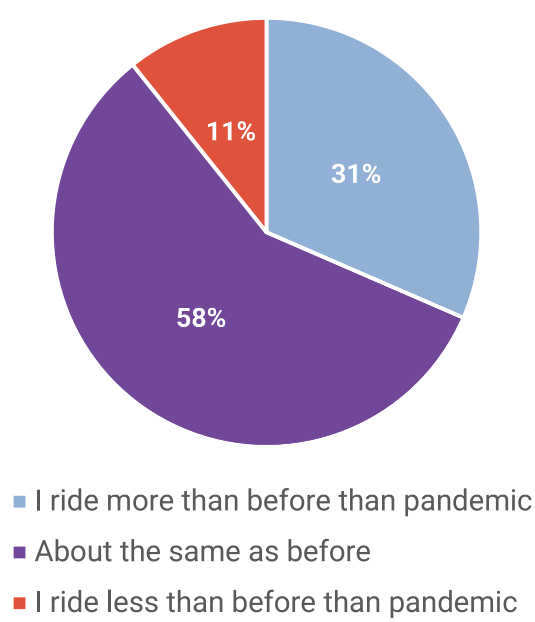


Figure 11: Respondents' Bicycling Habits Compared to Before the Pandemic



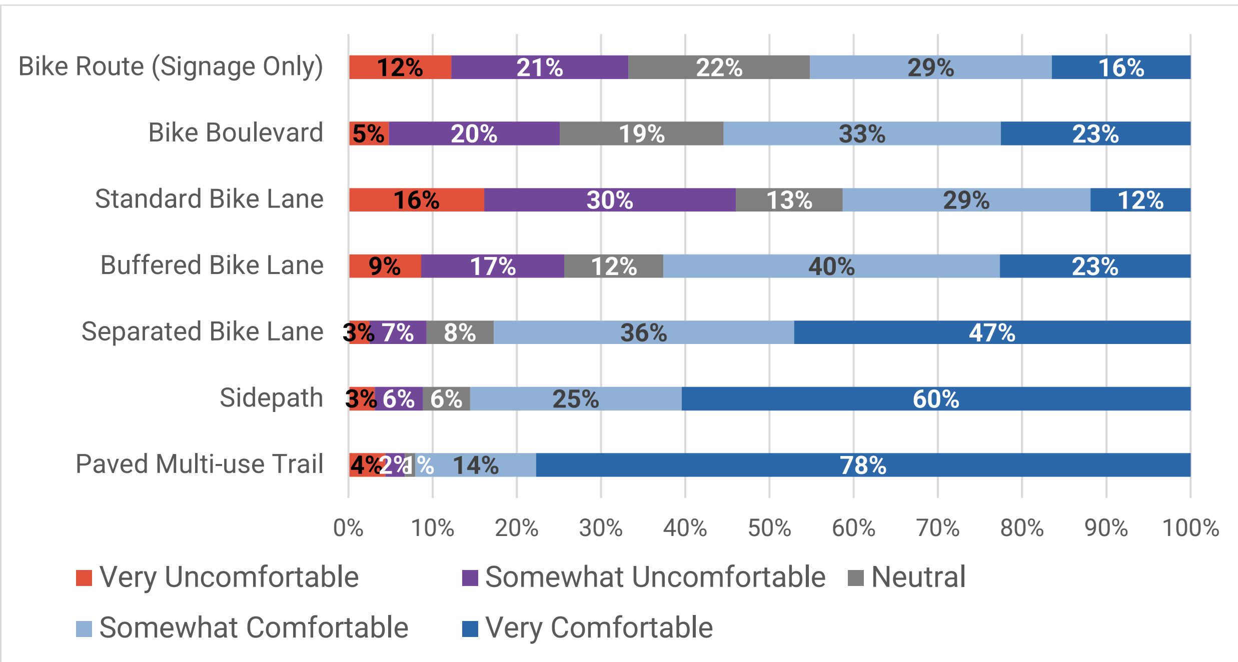
Reasons for Bicycling

Respondents selected reasons they choose to bike, with responses focused on both intrinsic motivators, such as, "It's good exercise," "It saves me money," and "It's the easiest/quickest way for me to travel," and extrinsic motivators such as "It's better for the environment," and "I don't have a car or good public transit options." Respondents indicated the top three reasons they chose to bike are for exercise (90 percent), for their mental health (69 percent), and for the environment (59 percent). The least common reason selected by respondents was the lack of a personal vehicle or good public transit options (five percent).

Level of Comfort by Bicycle Facility Type

Respondents were asked to rate their level of comfort based on images of seven different bikeway facility types. These bikeways can be grouped into three categories: shared streets, bike lanes, and off-street facilities. In general, respondents expressed a preference for greater separation from motorists and slower vehicle speeds alongside bikeways. Although respondents were disproportionately likely to be confident bicyclists, they expressed significant safety concerns and a clear preference for higher-comfort bikeway facilities. National research indicates that less confident bicyclists are even more likely to require quality bikeways and low-stress conditions to consider bicycling as a regular transportation option.

Figure 12: Respondents Level of Comfort by Bicycle Facility Type



Shared Streets: Along a designated <u>bike route</u> with signage only, slightly less than half (45 percent) of respondents indicated they would feel somewhat or very comfortable biking, while about one-third (33 percent) indicated they would feel somewhat or very uncomfortable.

Respondents had somewhat more positive responses when asked to rate a <u>bike boulevard</u> with additional signage and pavement markings, as more than half of respondents indicated they would feel somewhat (33 percent) or very (23 percent) comfortable, while about one-quarter indicated they would feel somewhat (20 percent) or very (five percent) uncomfortable.

Figure 13. Shared Street Facilities: Bike Route (left) and Bike Boulevard (right)

Bike Lanes: The level of comfort along on-street bike lanes increases with greater spatial and physical separation from motor vehicles. Almost half (46 percent) said <u>standard bike lanes</u> were very or somewhat uncomfortable, compared to 41 percent who indicated standard bike lanes were very or somewhat comfortable. By contrast, 63 percent of respondents indicated they were very or somewhat comfortable riding along a <u>buffered bike lane</u>, while 83% of respondents indicated they were very or somewhat comfortable riding along a <u>separated bike lane</u>. Standard bike lanes were the facility type that the fewest respondents indicated they felt very comfortable riding along (12 percent).

Figure 14. Bike Lane Facilities: Standard Bike Lane (Left), Buffered Bike Lane (Center), and Separated Bike Lane (Right)

Off-Street Facilities: The vast majority of respondents indicated they would feel comfortable on off-street facilities, including paved multi-use trails and sidepaths. Overall, 92 percent of participants indicated they were very or somewhat comfortable on a paved multi-use trail (78 percent and 14 percent respectively), while 85 percent indicated they would feel either very or somewhat comfortable on a sidepath.

Figure 15. Off-street Facilities: Multi-use Trail (Left) and Sidepath (Right)

E-Bikes

Most participants responded positively about e-bikes. About 40 percent of respondents indicated they have ridden an e-bike, whether they own one (17 percent) or not (22 percent), and a total of 65 percent of respondents indicated some level of interest in owning or using an e-bike. By contrast, only 35 percent of respondents indicated they have no interest in riding or owning an e-bike.

An even larger share of respondents – over 80 percent – indicated that e-bikes should be allowed on paved multi-use trails. Of those, 57 percent indicated e-bike speeds should be limited, while 24 percent said all speeds are fine. Only 10 percent of respondents explicitly stated that e-bikes should not be allowed on paved multi-use trails.

Figure 16: Respondents' Experience with E-bikes

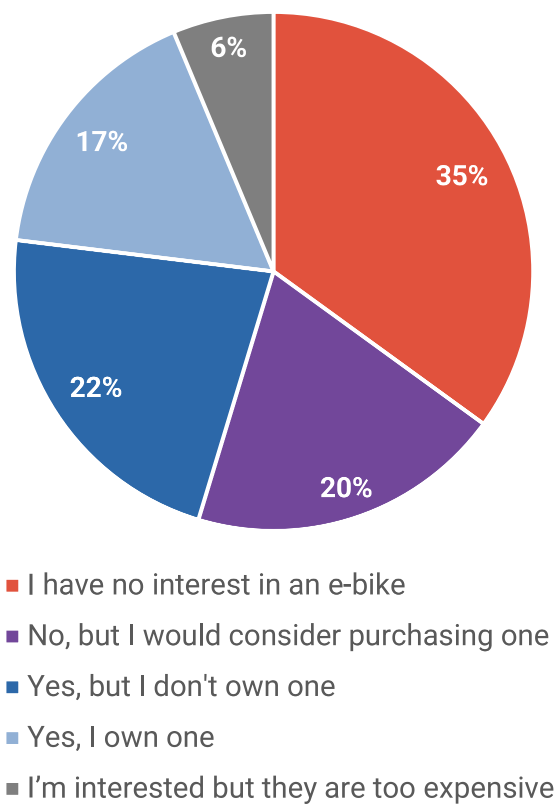
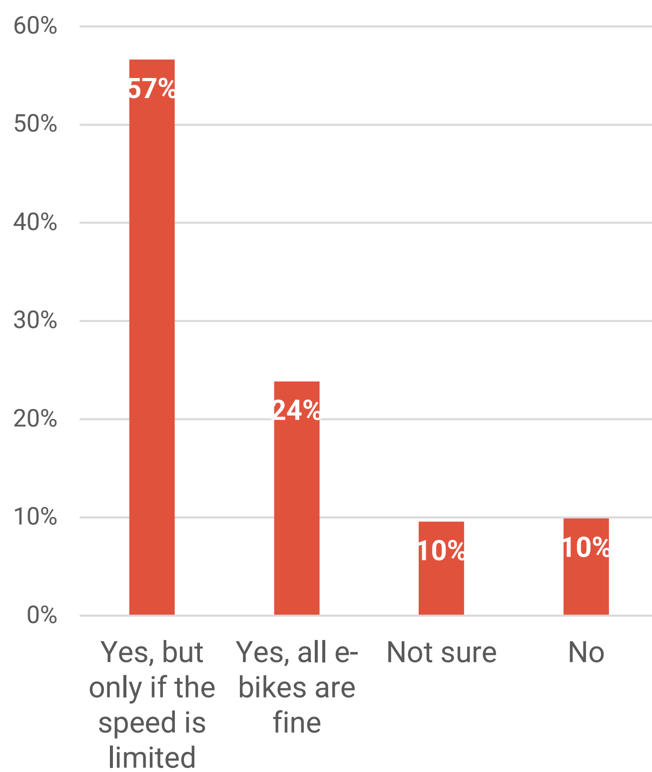


Figure 17: Perspectives on Whether E-Bikes Should be Allowed on Paved Multi-use Trails



Open-Ended Comments

Participants provided more than 1,000 open-ended comments across various questions in the survey. Open-ended comments focused heavily on the desire for safer bicycling conditions and a preference for separated/protected bike lanes and facilities with greater separation from motor vehicle traffic. Other frequently mentioned topics in the comments included:

- Network connectivity, including the need for well-connected and continuous bikeways
- Perceived/actual threats to physical safety, including reckless drivers and concerns about vehicle speeds and challenges crossing busy streets
- Need for enhanced maintenance along trails and on-street bikeways, including poor pavement conditions and debris becoming obstacles
- Concerns about personal security
- Better integration with transit, including bicycle parking at ART stations

See Appendix C for a complete inventory of comments collected through the online survey.

Demographics of Survey Respondents

Similar to past Bike to Work Day/Bike to Wherever Day surveys, respondent demographics do not align with typical Albuquerque residents; overall, survey respondents were somewhat more likely to be male, white, and higher income than the overall population of the City of Albuquerque. The profile of survey respondents should be considered when interpreting results.

Race: A significant majority (68 percent) of survey respondents were white/Caucasian, followed by Hispanic/Latino/a, representing 17 percent of survey respondents. This percentage under-represents the City's racial makeup, as nearly half of residents identify as Hispanic or Latino. Respondents could not select multiple race/ethnicity types due to survey malfunction, even though they were given that prompt within the question, and only the respondents' first choice were recorded.

Gender: Over half (54 percent) of respondents identified as male, while 39 percent identified as female. pas The gender split for past Bike to Work/Wherever surveys has fluctuated, with high rates of male respondents before 2020 when the survey was primarily administered in person.

Year	Number of Responses	Male	Female
2023	581	54%	39%
2022	464	53%	43%
2021	281	45%	53%
2020	819	44%	53%
2019	941	67%	32%
2018	930	66%	33%
2017	766	65%	33%

Income: Respondents' income skewed much higher than the city's median household income of $56,366 (2017-2021 ACS). Nearly half of respondents (48 percent) reported their annual household income as over $100,000, while only about 15 percent of respondents had annual household incomes of $50,000 or less.

Age: The survey featured a generally even distribution of age among respondents 25 years old and above; about one quarter (24 percent) of respondents were between 35 and 44 years old, representing the largest age group of survey participants. Only about one percent of respondents were age 24 or younger.

Figure 18. Race of Survey Respondents

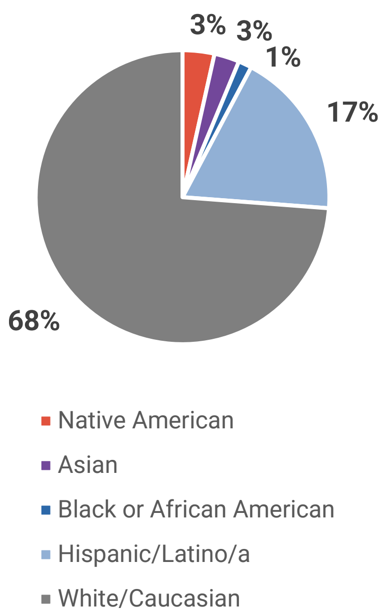


Figure 19: Gender of Survey Respondents

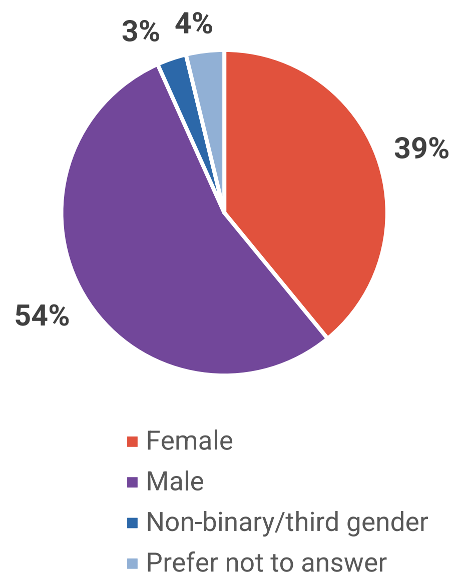


Figure 20. Household Income Among Survey Respondents

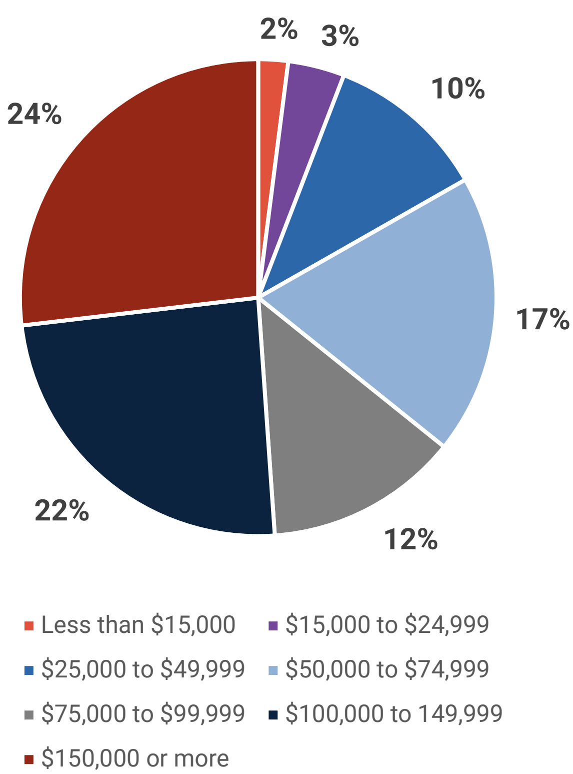
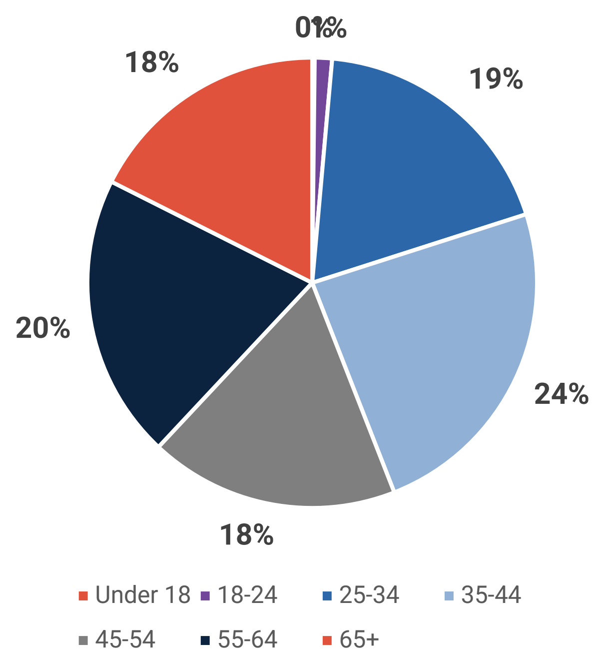


Figure 21. Age of Survey Respondents



Interactive Map

The interactive input map allowed participants an opportunity to provide location-specific comments and feedback. Information solicited through the interactive map included:

- Destinations that respondents would like to be able to better access by bicycle
- Routes where a new facility or connection is needed
- Unsafe crossing locations
- Existing bikeways where respondents feel unsafe

The input map, including online users and stickers placed on board at pop-up events, resulted in an inventory of more than 2,800 points. See Figure 19 for comments by type and Figure 20. See Appendix B for detailed maps by input type.

Figure 22: Interactive Map Input by Type

Several common themes and recurring types of safety concerns emerged from the interactive input map.

Desired destinations: Common destinations where respondents would like to bike if more (and safer) connections were present include major commuting destinations, such as Downtown and UNM, and regional tourism centers such as Old Town and Sawmill. Other responses to desired destinations to access by bicycle were geographically spread across the city.

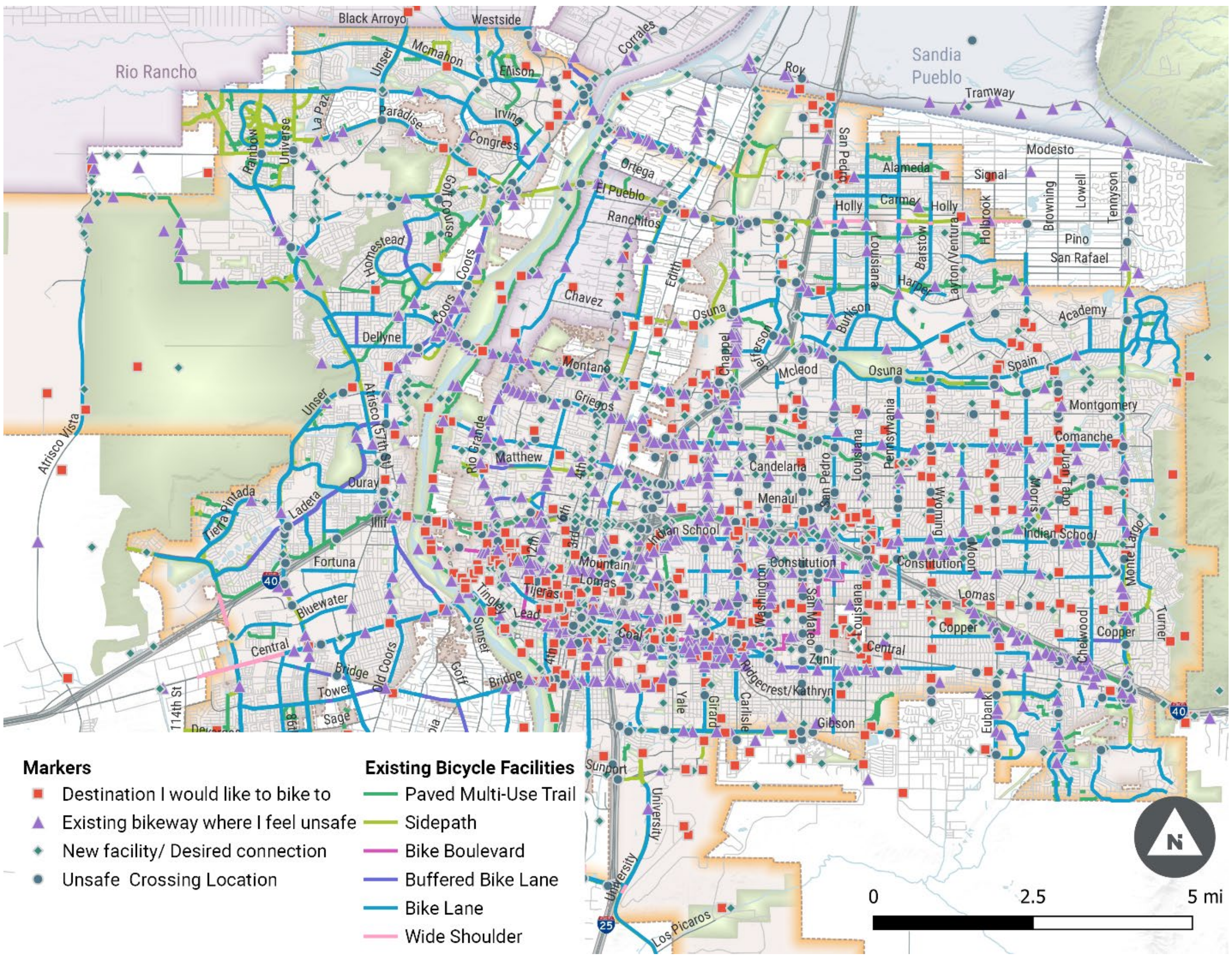
New facilities / desired connections: Common responses included locations where there are gaps between existing bikeways, including Paseo del Norte and Unser Blvd, and corridors that provide critical east-west connections, including Candelaria Rd and Alameda Blvd to the west of I-25. Other desired connections would support access to major destinations, including Silver Ave Bike Boulevard through Downtown and Broadway Blvd on the east side of Downtown from Lead Ave to Mountain Rd.

Unsafe crossing locations: Commonly cited unsafe crossing locations include where bike lanes intersect with I-25 and I-40 and numerous places where paved trails require an at-grade crossing at major streets. San Mateo Blvd is particularly noteworthy as a corridor where many individuals indicated they feel unsafe crossing the street.

Existing bikeways where respondents feel unsafe: Existing bikeways where people feel unsafe generally included higher speed and volume roadways with relatively narrow bike lanes. These include key east-west corridors such as Candelaria Rd, Comanche Rd, and Montaño Rd. Lead Ave and Coal Ave were also frequently identified as feeling unsafe, particularly in the stretches east of I-25 where there are bike lanes but no buffers.

While paved multi-use trails are among the best parts about bicycling in Albuquerque, according to survey respondents, there were numerous comments related to personal security along these facilities, particularly along the North Diversion Channel Trail and the arroyo trails across east Albuquerque.

Figure 23: Interactive Input Map Comments by Type and Location



Desired Destinations

- Downtown
- Old Town
- Sawmill
- UNM Main Campus
- CNM campuses
- Isotopes Park / UNM South Campus
- State Fairgrounds
- Cottonwood Mall
- Bosque Trail access points
- Lomas Blvd - East of Louisiana Blvd
- Wyoming Blvd - North of I-40
- Eubank Blvd / Juan Tabo Blvd - North of Indian School Rd

New Facility / Connection Desired

- Atrisco Vista - northern section
- Montaño Rd - 4th St to 2nd St
- Paseo del Norte - Universe Blvd to Calle Norteña
- Unser Blvd - Rosa Parks Rd to Paradise Blvd
- Silver Ave – Downtown and I-25 crossing
- Rio Grande Blvd - Central Ave to I-40
- I-40 Trail - East of 8th St
- 4th St - North of Downtown
- Candelaria Rd - Broadway Blvd to I-40
- Candelaria Rd - East of I-25
- Griegos Rd - 4th St to 2nd St
- North Diversion Channel - North of Balloon Museum
- Bear Canyon Arroyo - Juan Tabo Blvd to Tramway Blvd
- Alameda Blvd - Balloon Museum to I-25
- San Pedro Dr - North of I-40
- Broadway Blvd - Lead Ave to Mountain Rd

Unsafe Crossing

- Louisiana Blvd - I-40 area
- San Mateo Blvd corridor
- Lomas Blvd - UNM area
- Carlisle Blvd / Lomas Blvd
- Carlisle Blvd / I-40 area
- Lead Ave & Coal Ave at I-25
- Along Lead Ave & Coal Ave corridors
- Along Paseo del Nordeste Trail
- Along Paseo de las Montañas Trail
- Central Ave / Tramway Blvd / I-40 area
- Central Ave / Girard Blvd
- Martin Luther King Jr Blvd / I-40
- Bosque Trail access at Alcalde Pl
- Rio Grande Blvd / I-40
- !2th St / I-40
- Comanche Rd / I-25
- Candelaria Rd / I-25
- San Mateo Blvd / Osuna Rd

Unsafe Existing Bikeway

- Diversion Channel - Various underpasses
- Griegos Rd / Comanche Rd - Rio Grande Blvd to Carlisle Blvd
- Candelaria Rd - Rio Grande Blvd to Carlisle Blvd
- Comanche Rd - east of San Pedro Dr
- Alameda Blvd - west of I-25
- Coors Blvd
- I-40 Trail around Coors Blvd
- Unser Blvd - Central Ave to I-40
- Bridge Blvd / Avenida Cesar Chavez
- Lead Ave & Coal Ave - I-25 interchange
- Lead Ave & Coal Ave
- Gibson Blvd - east of I-25
- Lead Ave & Coal Ave
- Mountain Rd - Rio Grande to I-25
- Zuni Rd
- Indian School Rd
- Tramway Blvd / Roy Ave
- 4th St - North of Alameda Blvd
- Rio Grande Blvd - Mountain Rd to I-40
- 12th St - south of I-40 to Matthew Ave
- Washington St - Lomas Blvd to Constitution Rd

Survey Questions and Data Tables

1. In general, how often do you ride a bike for these trip purposes?								
	Commuting to work/school		**Shopping/running errands**		**Going out for food/drinks**		**Exercise or recreation**	
	Total	***Share***	***Total***	***Share***	***Total***	***Share***	***Total***	***Share***
Daily	129	20%	44	7%	31	5%	137	21%
Several times per week	116	18%	75	12%	80	13%	209	33%
1 to 2 days per week	81	13%	103	16%	104	16%	141	22%
Between weekly and monthly	66	10%	148	23%	176	28%	108	17%
A few times a year	73	11%	124	19%	136	21%	34	5%
Never	175	27%	143	22%	107	17%	12	2%
Total	**640**	**100%**	**637**	**100%**	**634**	**100%**	**641**	**100%**

2. What are the top reasons you choose to ride a bike? Select up to three responses.		
	Total	***Share***
It's good exercise	561	90%
It helps my mental health	428	69%
It's better for the environment	368	59%
It saves me money	176	28%
It's the easiest/quickest way for me to travel	111	18%
I don't have a car or good public transit options	28	5%
Total	**622**	

3. How would you describe your experience as a bicycle rider?		
	Total	***Share***
Beginner – I am only comfortable riding on separated multi-use trails and residential roads	27	4%
Intermediate – I feel somewhat comfortable getting around but prefer multi-use trails for riding	123	19%
Advanced – I am comfortable riding on multi-use trails and on most streets	229	36%
Expert – I feel comfortable riding almost anywhere	253	40%
No way, no how – I have absolutely no interest in bicycling now or ever regardless of conditions.	1	0%
Total	**633**	**100%**

4. Do you ride more, less, or the same amount as ten years ago?		
	Total	***Share***
I ride more than 10 years ago	315	50%
About the same as 10 years ago	168	27%
I ride less than 10 years ago	146	23%
Total	**629**	**629**

5. Do you ride more, less, or the same amount before the COVID-19 pandemic?		
	Total	***Share***
I ride more than 10 years ago	315	50%
About the same as 10 years ago	168	27%
I ride less than 10 years ago	146	23%
Total	**629**	**100%**

6. (Optional). Please provide any additional comments on how your individual bicycling habits have changed.

7. Do you feel that bicycling conditions in Albuquerque are:		
	Total	*Share*
Getting better over time	294	48%
Staying about the same	220	36%
Getting worse	103	17%
Total	**617**	**100%**

8 (Optional). Please provide any additional comments on how bicycling conditi*ons are changing.*

9. What are the main barriers or challenges you encounter when riding your bike around Albuquerque? Select up to three responses.		
	Total	***Share***
Not enough separation from motor vehicles	452	73%
Crossing major streets	355	58%
Vehicle speeds are too high	322	52%
No good routes to the places I want to go	215	35%
Logistics issues (no bike parking, no showers at work, etc.)	127	21%
I do not have difficulties riding my bike	46	7%
Distances are too far	38	6%
Total	**616**	**100%**

10. What is the best part about riding a bike in Albuquerque?		
	Total	**Share**
Paved multi-use trails (e.g., Bosque Trail and Diversion Channel Trail)	304	49%
Nice weather/ability to bike year-round	230	37%
Lots of on-street biking options	22	4%
Easy access to parks and recreational areas	16	3%
Growing culture around biking	44	7%
Total	**616**	**100%**

Note: Respondents could provide supplemental comments.

11. Which of the following design improvements would most improve safety for people bicycling around Albuquerque? (Select your top three strategies.)		
	Total	**Share**
Better lighting	83	14%
Improved trail and mid-block crossings	159	26%
Safer signalized intersection crossings	209	35%
Additional maintenance	280	46%
Better connected routes	400	66%
Greater separation from motorists	454	75%
Total	**604**	**100%**

12. Have you ridden an e-bike?		
	Total	**Share**
I have no interest in an e-bike	217	35%
No, but I would consider purchasing one	122	20%
Yes, but I don't own one	138	22%
Yes, I own one	104	17%
I'm interested but they are too expensive	39	6%
Total	**620**	**100%**

13. Should e-bikes be allowed on paved multi-use trails along with people walking and riding regular bicycles?		
	Total	**Share**
Yes, but only if the speed on e-bikes is limited	337	57%
Yes, all e-bikes are fine	142	24%
Not sure	57	10%
No	59	10%
Total	**595**	**100%**

14. What is your level of comfort biking on the following facilities?

	Very Uncom-fortable	Somewhat Uncom-fortable	Neutral	Somewhat Comfortable	Very Comfortable	Total
	Total	*Total*	*Total*	*Total*	*Total*	
Paved Multi-use Trail	28	15	8	92	499	**642**
Sidepath	19	35	34	153	368	**609**
Standard Bike Lane	103	191	81	188	76	**639**
Buffered Bike Lane	55	108	75	254	144	**636**
Separated Bike Lane	16	43	51	227	300	**637**
Bike Route (Signage Only)	77	133	136	181	104	**631**
Bike Boulevard	30	127	122	206	141	**626**

	Very Uncom-fortable	Somewhat Uncom-fortable	Neutral	Somewhat Comfortable	Very Comfortable	Total
	Share	*Share*	*Share*	*Share*	*Share*	
Paved Multi-use Trail	4%	2%	1%	14%	78%	**100%**
Sidepath	3%	6%	6%	25%	60%	**100%**
Standard Bike Lane	16%	30%	13%	29%	12%	**100%**
Buffered Bike Lane	9%	17%	12%	40%	23%	**100%**
Separated Bike Lane	3%	7%	8%	36%	47%	**100%**
Bike Route (Signage Only)	12%	21%	22%	29%	16%	**100%**
Bike Boulevard	5%	20%	19%	33%	23%	**100%**

15. My top three priorities when selecting improvement projects are:		
	Total	*Share*
Safety	555	90%
Network Connectivity	489	80%
Facility Improvements	337	55%
Economic Activity	191	31%
Level of Use	123	20%
Total	**615**	

17. What is your gender?		
	Total	*Share*
Female	227	39%
Male	315	54%
Non-binary/third gender	17	3%
Prefer not to answer	22	4%
	581	100%

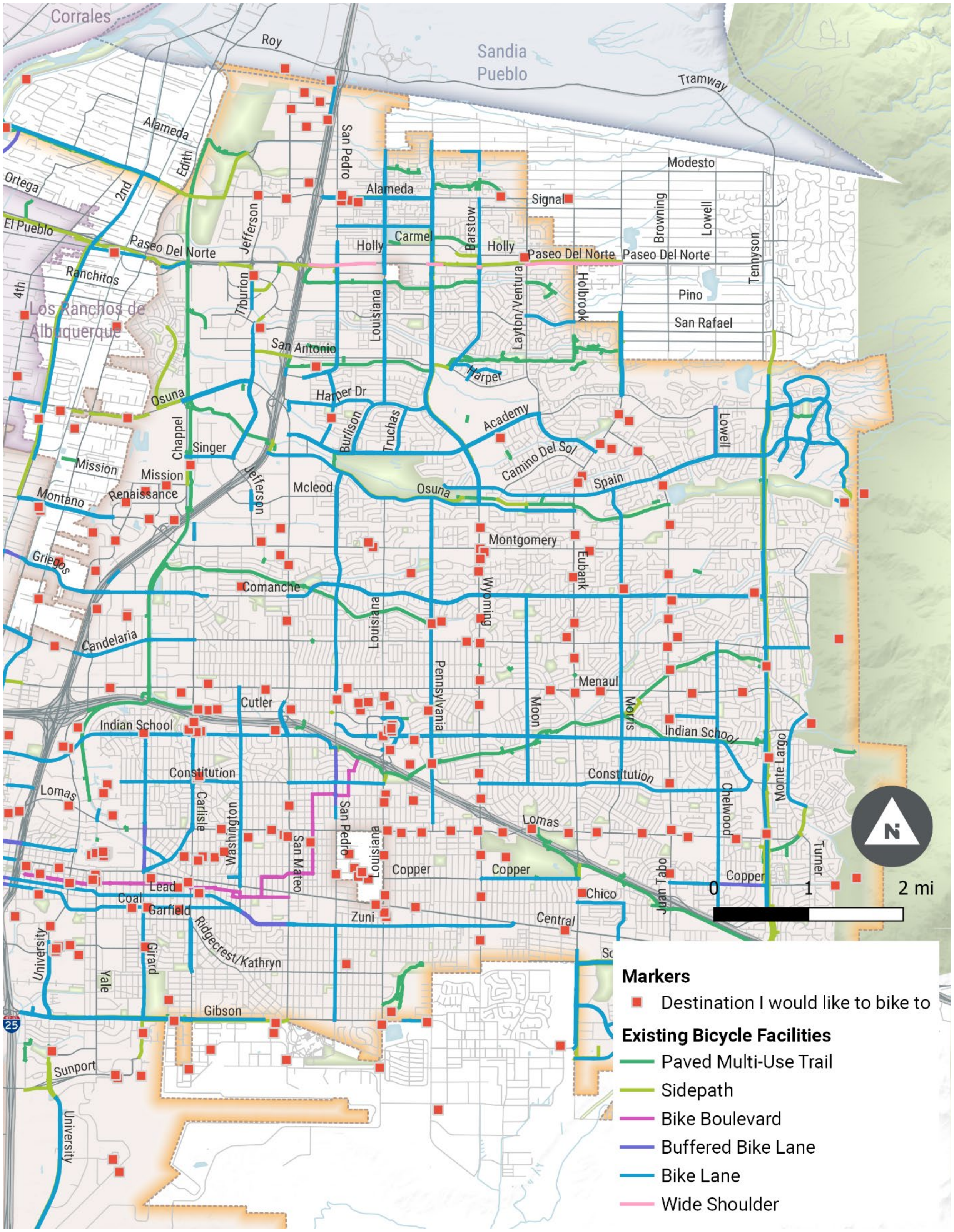
18. What is your approximate annual household income?		
	Total	***Share***
Less than $15,000	10	2%
$15,000 to $24,999	19	3%
$25,000 to $49,999	54	10%
$50,000 to $74,999	94	17%
$75,000 to $99,999	65	12%
$100,000 to 149,999	120	22%
$150,000 or more	133	24%
Prefer not to answer	57	10%
Total	**552**	**100%**

19. Which age group are you in?		
	Total	***Share***
Under 18	1	0%
18-24	7	1%
25-34	105	19%
35-44	135	24%
45-54	101	18%
55-64	115	20%
65+	99	18%
Total	**563**	**100%**

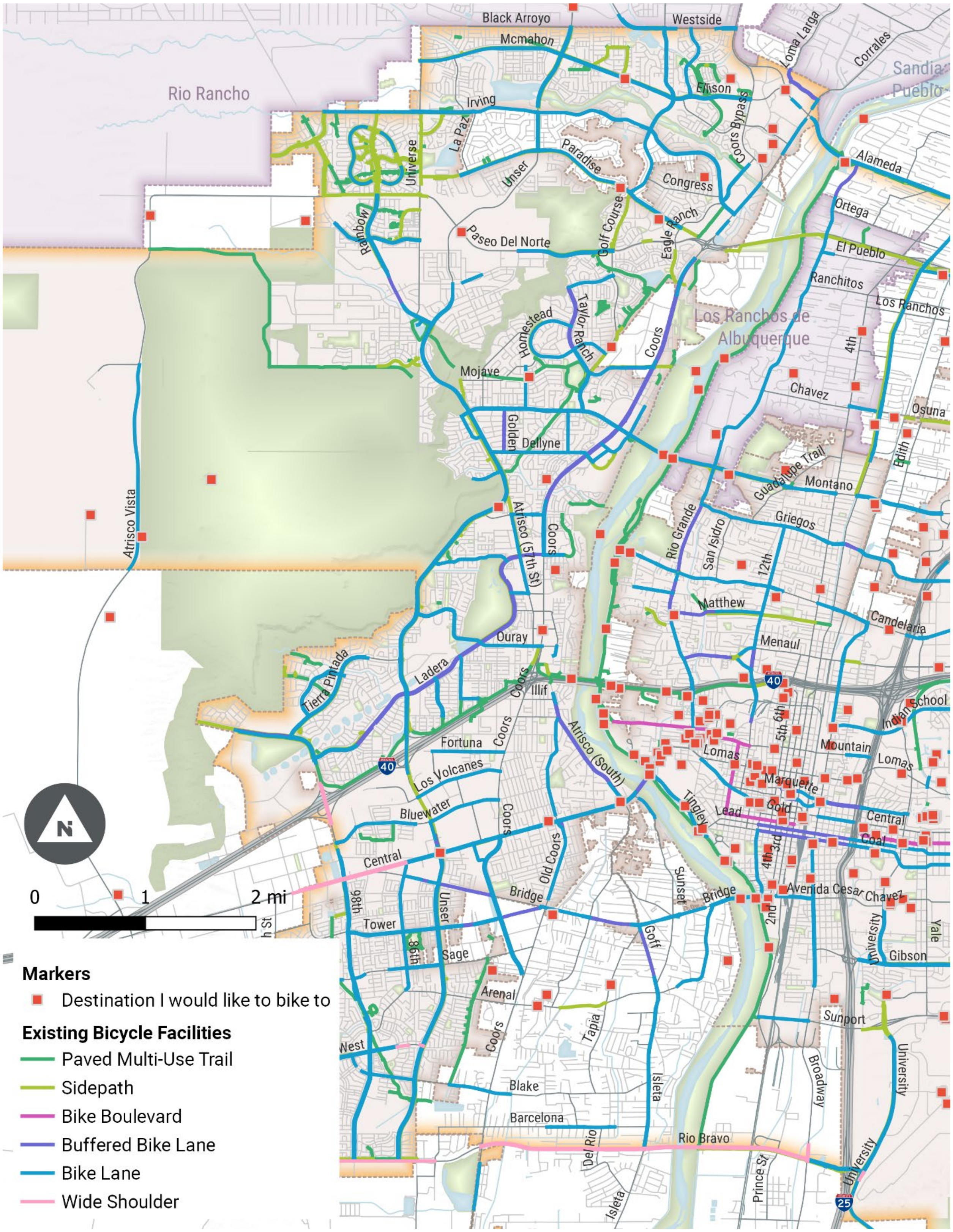
21. Which race/ethnicity best describes you? (Check all that apply)		
	Total	***Share***
Asian	15	3%
Black or African American	8	1%
Hispanic/Latino/a	100	17%
Native American	19	3%
White/Caucasian and not Hispanic or Latino/a	400	68%
Prefer not to answer	44	8%
Total	**586**	**100%**

Interactive Map – Results by Input Type

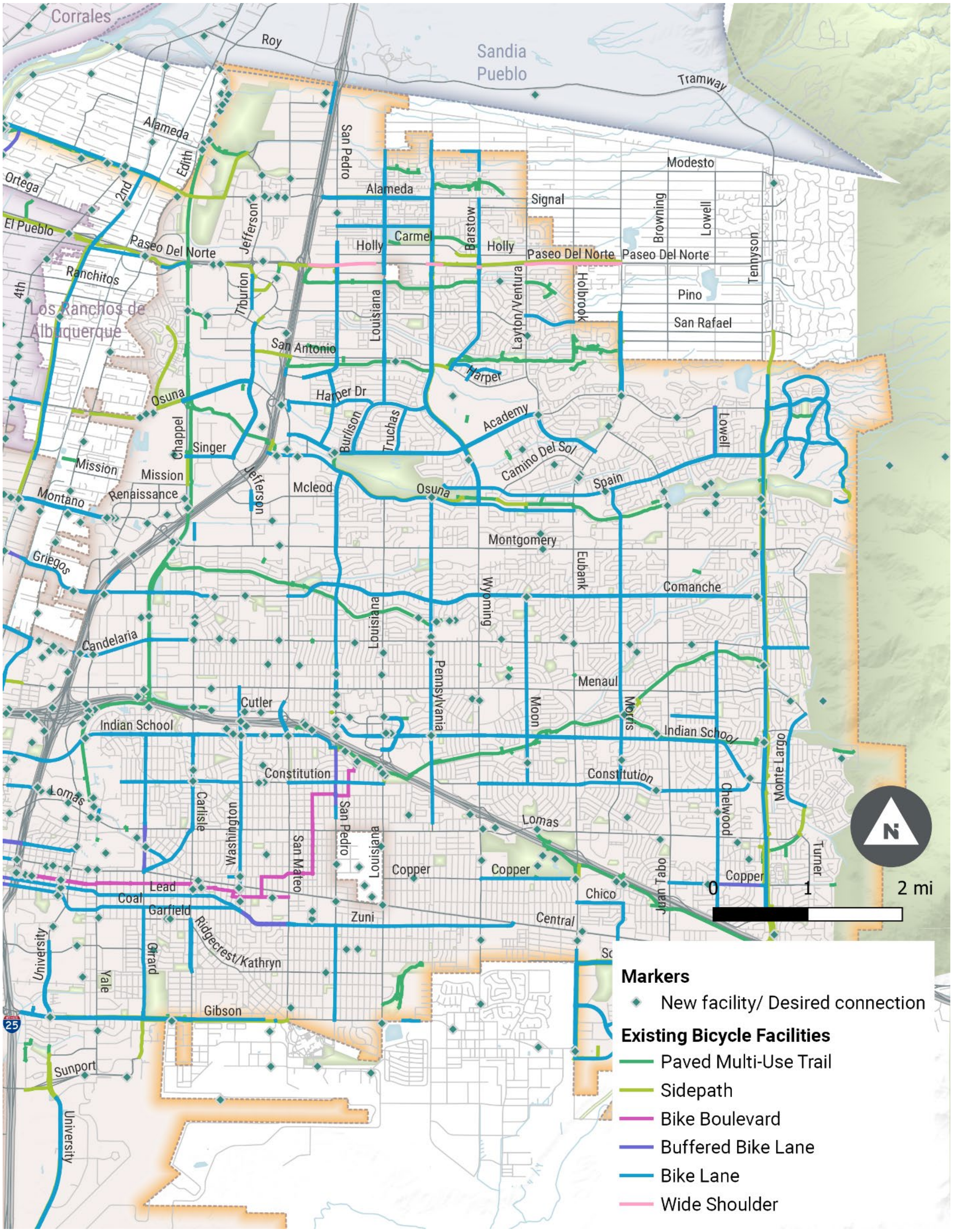
Destination Respondents Would Like to Bike To – East Albuquerque



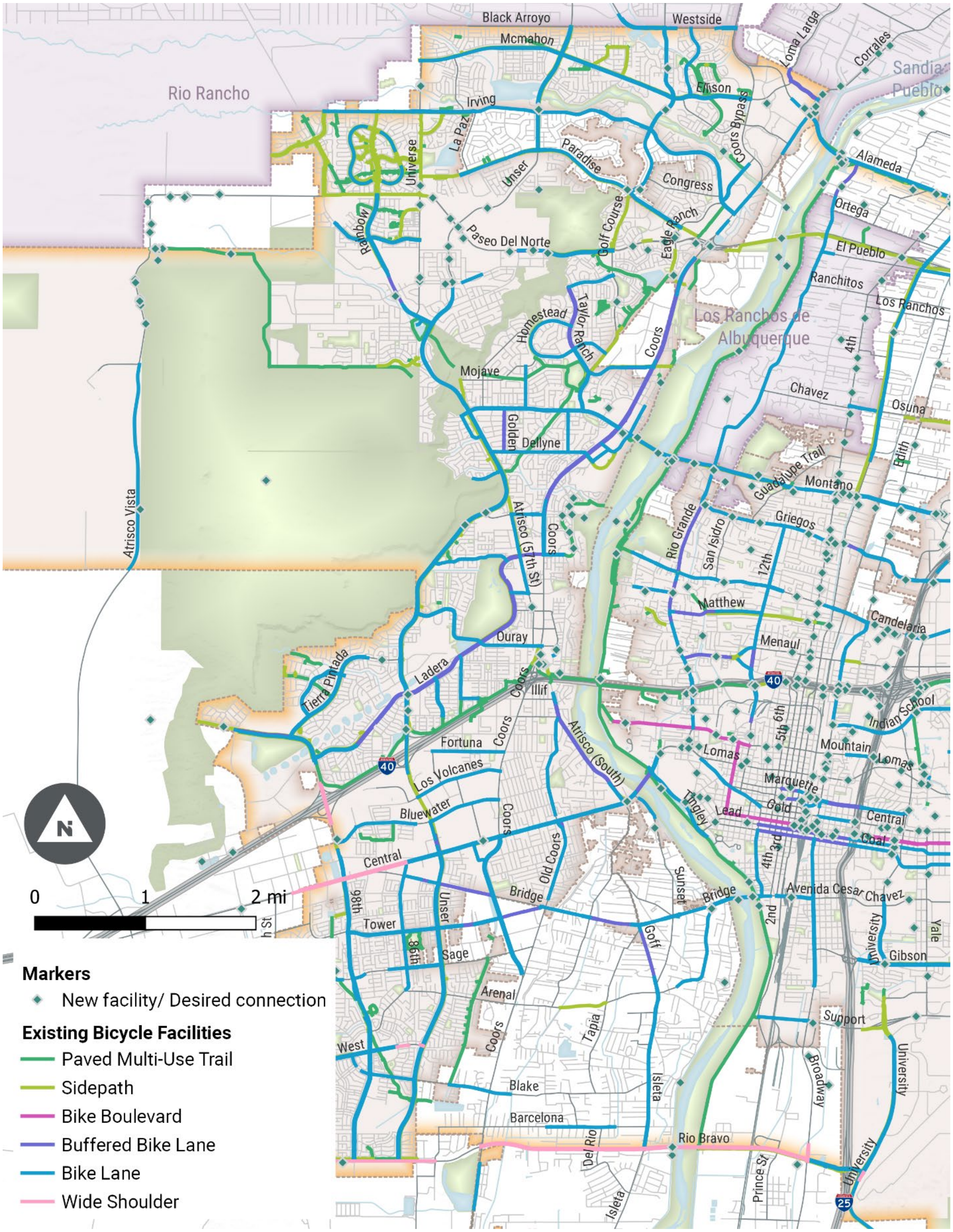
Destination Respondents Would Like to Bike To – West Albuquerque



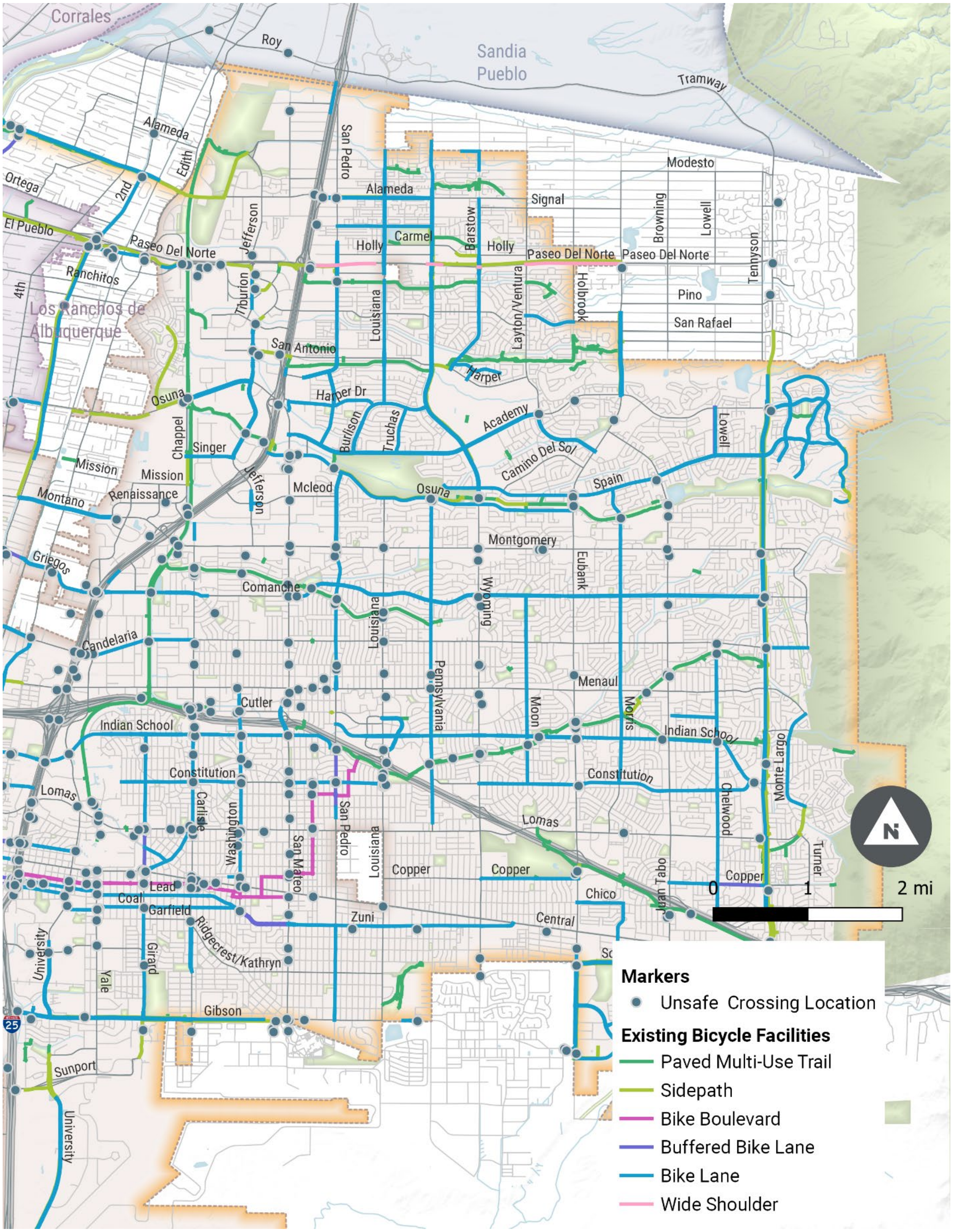
Routes Where a New Facility or Connection is Needed – East Albuquerque



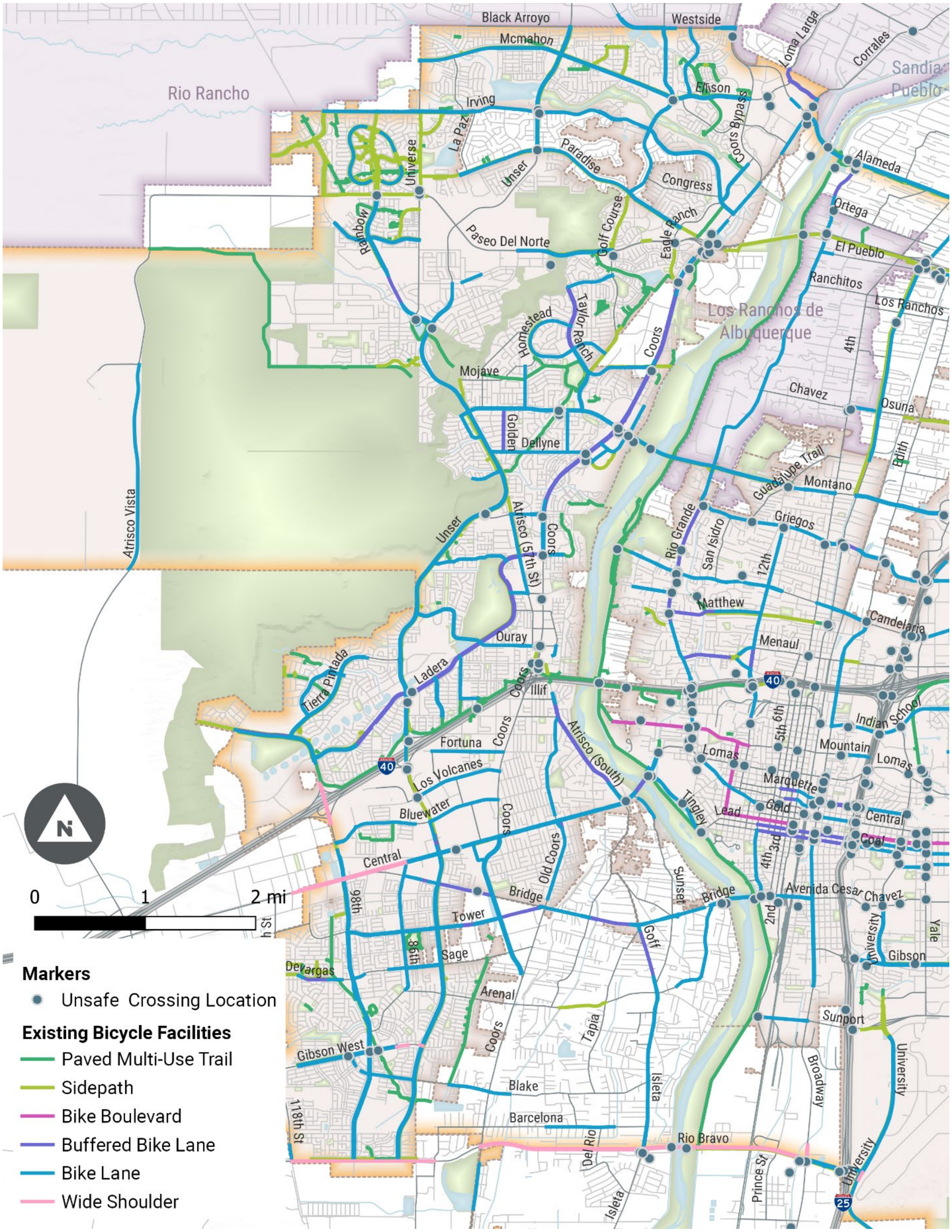
Routes Where a New Facility or Connection is Needed – West Albuquerque



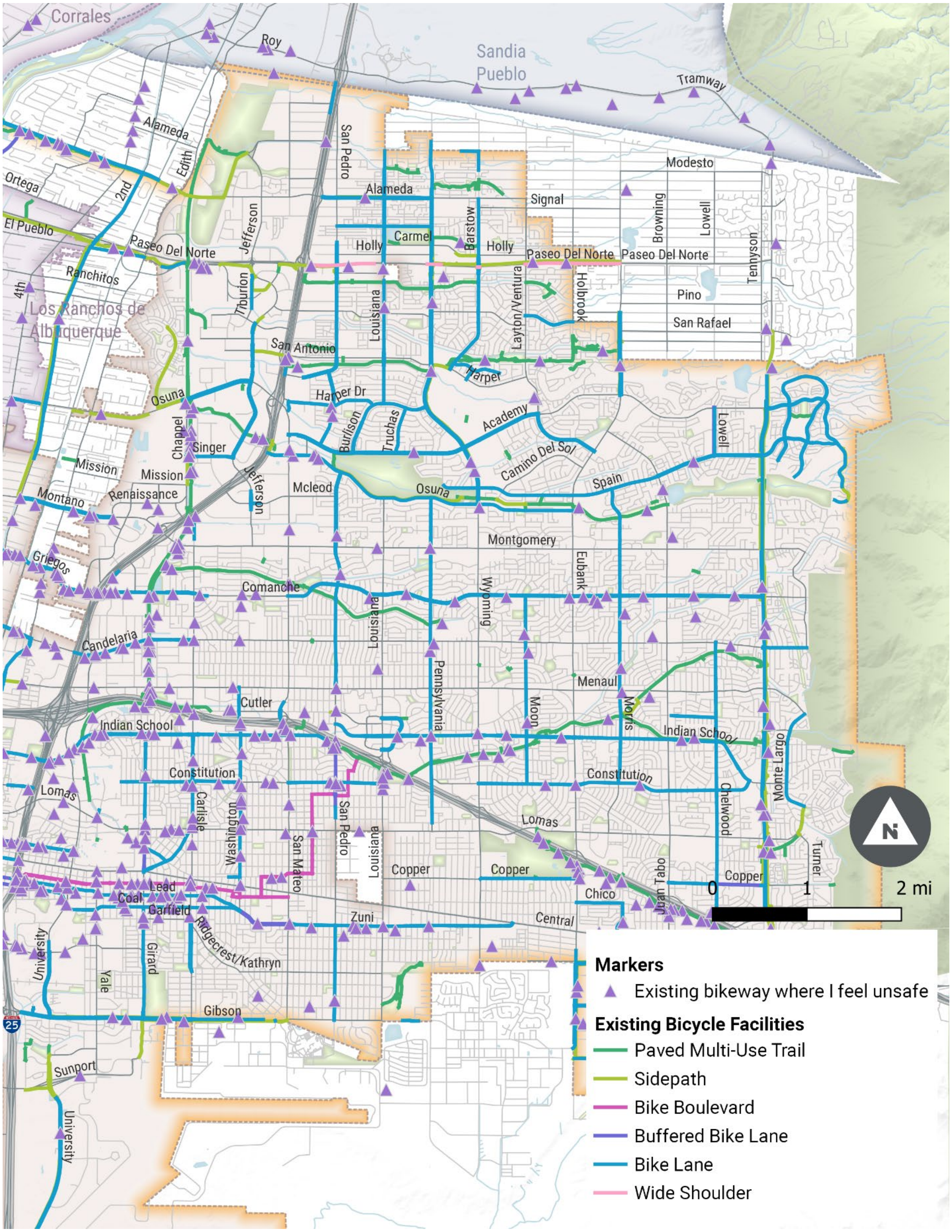
Unsafe Crossing Location – East Albuquerque



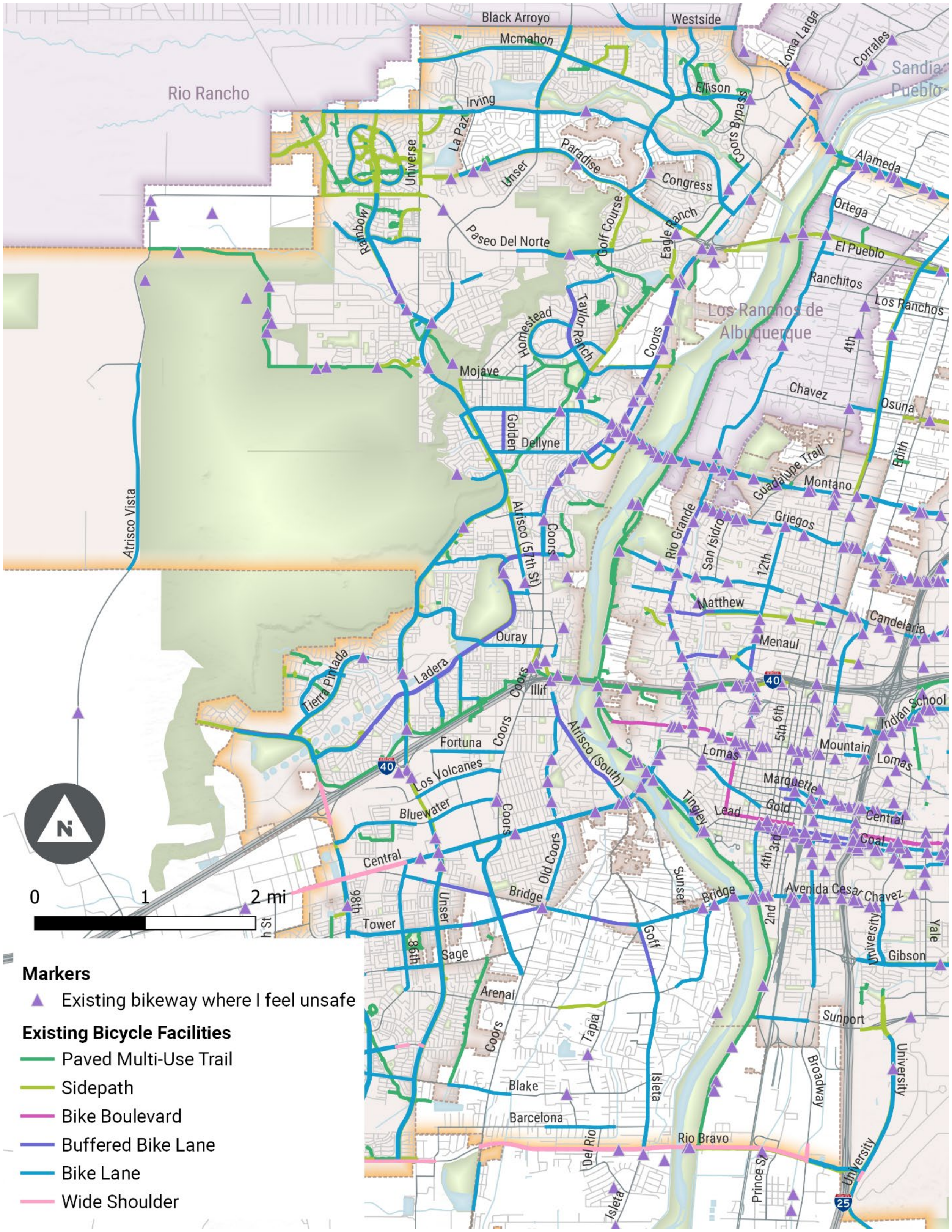
Unsafe Crossing Location – West Albuquerque



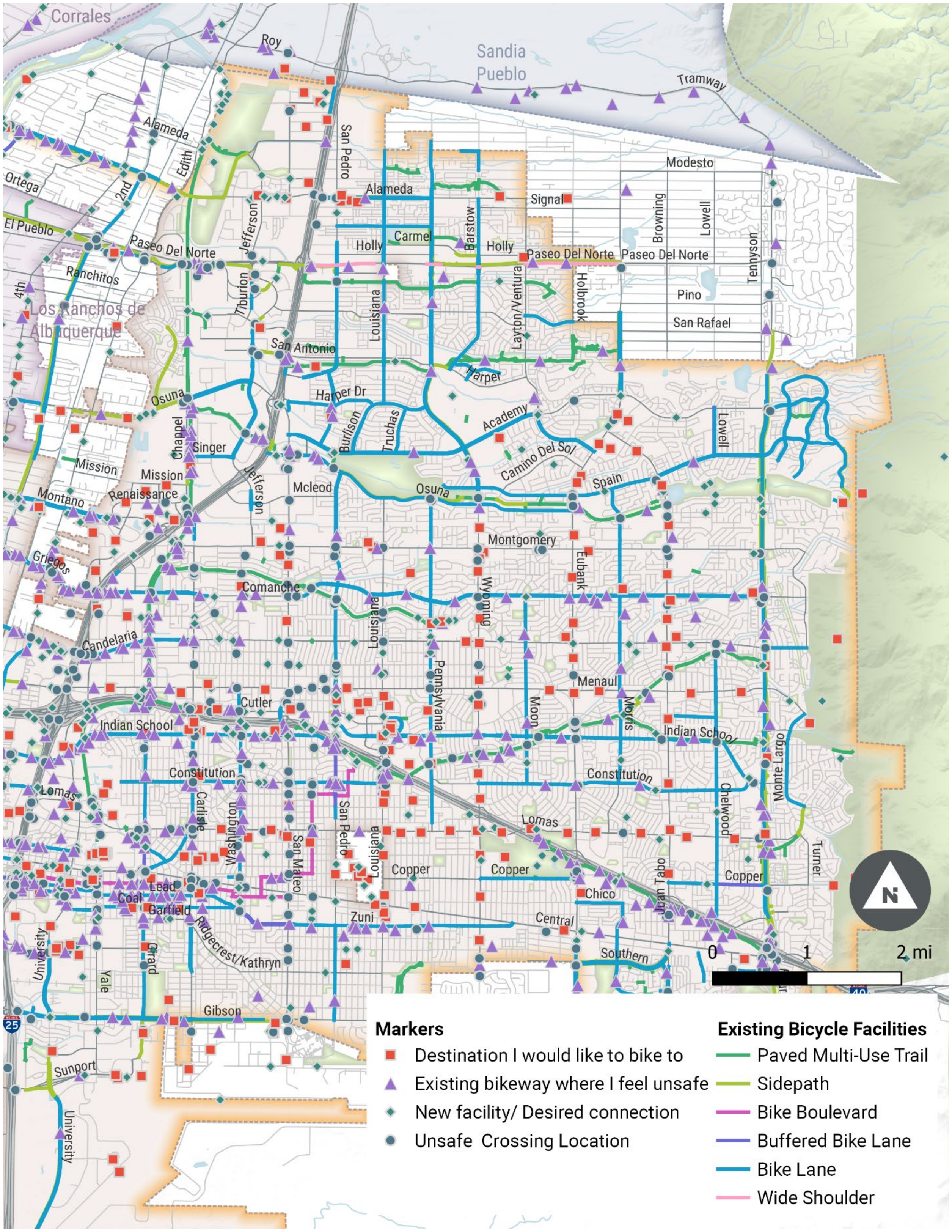
Existing Bikeways Where Respondents Feel Unsafe – East Albuquerque



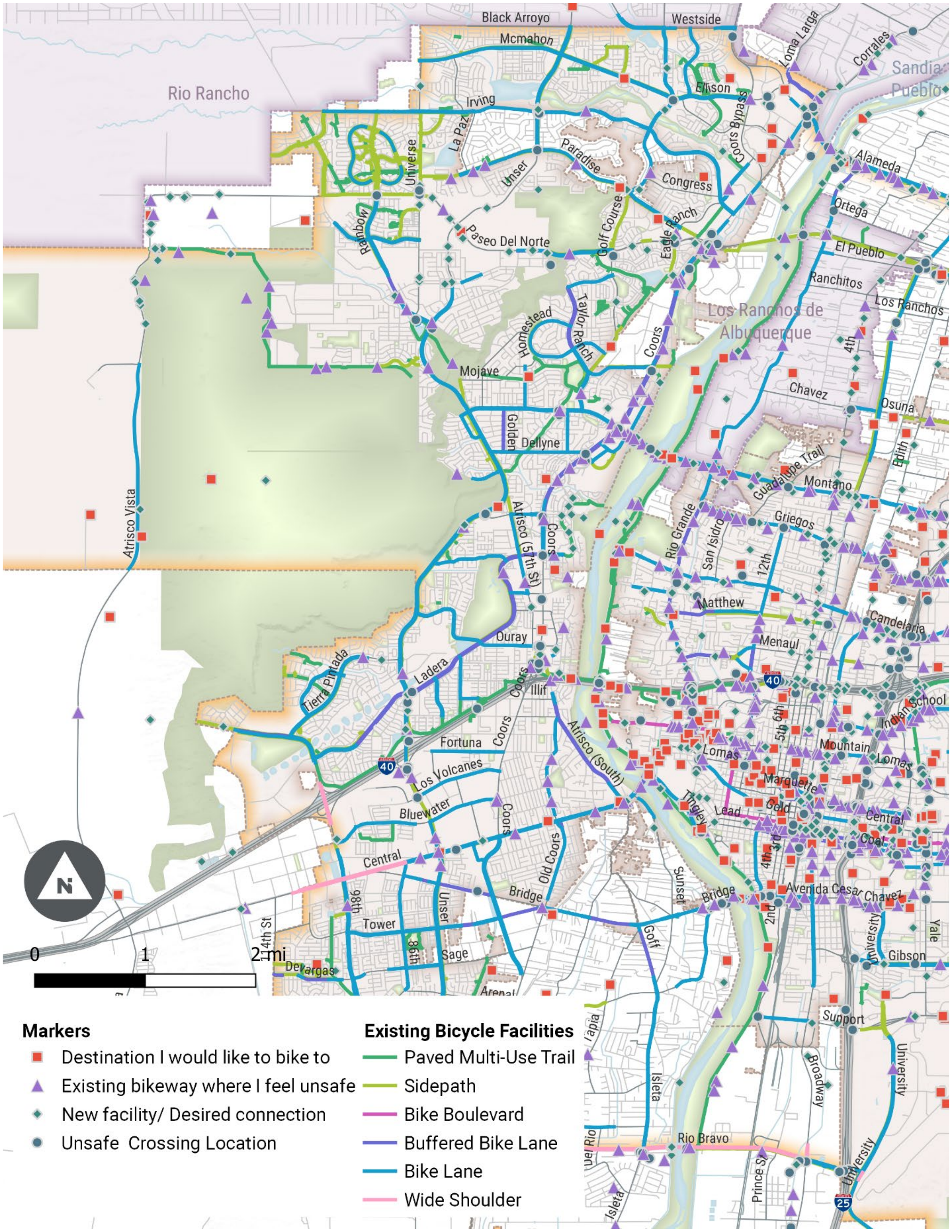
Existing Bikeways Where Respondents Feel Unsafe – West Albuquerque



All Markers – East Albuquerque



All Markers – West Albuquerque



Open-Ended Survey Comments

Open-Ended Comment Summary

The comment summary reflects input collected from both the MetroQuest survey and paper surveys collected by MRCOG. All comments received were compiled and grouped into similar themes. The Project Team received a total of 1,021 comments through 679 separate survey submissions. All comments received were read, compiled, evaluated, and grouped by topic or theme.

To indicate the frequency of key themes and messages, the Project Team used the terms “many,” “several,” “some,” and “few.”

- “Many” is used to indicate that a theme was expressed in more than 50 percent of the comments within a topic area.
- “Several” indicates approximately 30 to 50 percent.
- “Some” indicates approximately 10 to 30 percent.
- “Few” means it was mentioned more than once in up to approximately 10 percent of comments.

Comments by Theme

Ability/Comfort/Lifestyle

A total of 139 submissions addressed ability, comfort, and/or lifestyle, which was defined as how one’s lifestyle, physical abilities, or comfort level affects their biking behavior. Comments included information about the intersection between the respondent’s physical ability, such as age, injury, etc., and their biking behavior (including commuting, recreation, etc.). Beyond comments about the respondent’s lifestyle, these concerns often touched on the comfort and experience level of cyclists.

- Several comments related to how the respondent's comfort level influenced their biking behavior. These comments included mentions of safety for women and children and were often co-coded with safety concerns in terms of infrastructure.
- Several comments related to how changes in the respondent's lifestyle, such as retirement or expanding their family, affected their biking behavior, often indicating that they ride more or less than before the lifestyle change.
- Some comments related to how the ability of the respondents affected their biking behavior. Age and biking experience were most frequently mentioned for this topic area.

EXAMPLES OF COMMENTS ABOUT ABILITY/COMFORT/LIFESTYLE

- *I am more than an "intermediate” cyclist. I am an "advanced," but I do not always feel comfortable biking around town, because it's not just me and my abilities that give me confidence. Drivers and poor infrastructure will always make biking difficult.*
- *Since having a kid, I bike less and feel less comfortable biking in Albuquerque.*
- *Because many of the things that I need to do are within 4 miles of me which is (should be) a quick bike ride. However, it's very difficult to get to those places safely and comfortably, so I end up driving my car almost all the time.*

Electric Bikes

A total of 30 submissions addressed the topic of electric bikes. Any comments with the mention of electric bikes or e-bikes were included in the electric bike code. Comments included information about the respondent's feelings towards electric bikes (positive or negative), comments regarding the use of electric bikes on trails and bike paths, and the practicality of using an electric bike for commuting purposes.

- Several comments focused on the practicality of using an electric bike for easier commuting.
- Several comments addressed the need for specific rules for electric bikes, such as having posted speed limits or safety concerns with electric bikes around other multimodal users of trails and bikeways.
- Some comments addressed positive views of electric bikes for increasing mobility around the city.
- A few comments indicated negative views about electric bikes, such as the unsafe biking behavior of those who use electric bikes.

EXAMPLES OF COMMENTS ABOUT ELECTRIC BIKES

- *I got a pedal-assist e-bike so I can commute with my kids, as we had to move farther from work/school. I feel most comfortable with them when we can take protected/separated bike lanes or bike paths.*
- *Retired, live in Nob Hill. After my car was stolen in 2012, I bought a bike trailer instead of getting another car. Bought an e-bike in 2020. I love getting around on my e-bike and using the trailer when I buy groceries. I'll never buy another car.*
- *I don't like e-bikes that are speeding. I have also seen and heard motorized scooters on the bosque bike path in the evenings. I don't bother to report this anymore.*

Environment Conducive to Biking

A total of 90 submissions addressed the environment and whether it is conducive to biking. This topic code includes comments about Albuquerque's weather or other environmental conditions, such as landscaping/shade and access to nature.

- Several comments focused on Albuquerque's weather which is conducive to biking and commuting year-round.
- Some comments addressed access to nature, parks, and landscapes that make for a pleasant biking experience.
- A few comments addressed the need for improvement of landscaping, especially shade around bike paths and bikeways.

EXAMPLES OF COMMENTS ABOUT ENVIRONMENT CONDUCIVE TO BIKING

- *Relocating to Albuquerque has made year-round biking much easier due to better weather and fewer hills; am impressed with the paths too - it's the glass and other debris that I find the most problematic, and that is heaviest in standard street lanes.*
- *Nice weather year-round.*
- *Vegetation along bike paths to make them ecologically viable and pleasant.*

Expand Bike Facility Capacity/Network

A total of 43 submissions addressed the need to expand the capacity of existing bike facilities and the network overall. Comments included information regarding the need or desire to expand bike lanes, lane miles, or the need or desire to improve existing bike paths or other facilities.

- Several commenters indicated that more dedicated bike lanes should be constructed or expanded.
- Some commenters suggested that existing bike lanes should be widened for improved safety.
- Some respondents indicated that existing bike lanes were not constructed in a way that improved network connections throughout the city.

EXAMPLES OF COMMENTS ABOUT EXPAND BIKE FACILITY CAPACITY/NETWORK

- *I ride my bike less in ABQ than my previous city because it's not safe to ride to where I work - narrow two-lane roads, no bike facilities, high-traffic speeds.*
- *The city is making some areas better and more bike accessible, but this is not universally true and I still see many areas where bike lanes are not part of new street designs or redos of existing streets.*
- *It sure would be nice to be able to cross Central at any point I want. Cut outs in the median would allow bikes to cross, but not cars. Whomever designed the "improvements" to Central has never spent a minute on a bike.*

Location Specific Comments

A total of 161 comments included information that was location specific. This comment code was used for comments that included reference to a specific location(s) and was usually used in conjunction with another code(s). Comments generally described areas that need improvement or areas that are used for commuting or recreational purposes. All areas mentioned are listed on the following page.

EXAMPLES OF COMMENTS ABOUT SPECIFIC LOCATIONS

- *Many crossings at large intersections seem designed by people who don't bike. Weird angles to reach the crossing buttons and then actually crossing. Crossings at small streets where one can't see cross traffic until almost out in the intersection. Path along 2nd street has many examples of this. Bike it someday and experience it yourselves.*
- *We need an open space mountain bike trail connecting south foothills and north foothills and it would be incredible to create bike only, one direction loop of trails on the north side of the river or north of Montaño.*
- *Moved to ABQ 2 years ago from Denver; I was much more comfortable riding my bike there. The Bosque Trail is one of the few places I feel safe riding my bike in ABQ. There is no good connection between the east side of town to the Bosque.*

- 14th Street Bike Blvd
- Second Street Overpass
- Altura Park
- AMAFCA/Arroyo Trails
- Atrisco Vista
- Bosque and Bosque Trails
- Bridge Blvd
- Carlisle/Hahn Arroyo
- Cedar Street between Coal and Silver
- Central Ave
- Central Ave/Zuni Rd
- Claremont Ave to the North Diversion Channel Overpass
- San Mateo Blvd/Constitution Rd
- Coors Blvd/Montaño Rd
- Downtown Albuquerque
- Elena Gallegos Trails
- Foothills
- Highway 165 in Placitas
- Highway 550
- I-25/Gibson Blvd
- I-40 East of Wyoming Blvd
- Jefferson Journal Business Park to San Mateo Blvd
- Juan Tabo Blvd South of Southern Boulevard
- Jefferson Journal Business Park to San Mateo
- Kirtland Air Force Base
- “La Esperanza Bike Center” [Esperanza Bicycle Safety Education Center]
- Lead Ave-Coal Ave Corridor
- Lomas Blvd/Central Ave Intersection
- Lomas Blvd/Alvarado Dr Intersection
- Louisiana/Constitution
- Malls (Coronado, Cottonwood, Uptown, and Winrock) Montaño Rail Runner Station
- Montgomery Blvd/San Mateo Boulevard
- Montgomery Blvd Interchange
- Nob Hill
- North Diversion Channel
- North Second St
- Paseo del Norte
- Pennsylvania Rd/San Pedro Dr
- Rio Bravo Blvd
- Rio Grande Blvd
- San Mateo Blvd
- Sandia Science & Technology Park
- Sandia Mountains
- Silver Ave
- South Eubank Blvd
- Sunport Blvd Bridge
- Tingly Beach Area
- Tom Bolack Park Underpass
- Town of Bernalillo
- Trail in front of old Encore Building on South Eubank
- Tramway Blvd
- Tramway Blvd/Eubank Blvd
- Trails from the University of New Mexico to Balloon Fiesta Park
- Unser Blvd
- Village of Los Lunas
- West Mesa Volcanoes
- Wyoming Blvd
- Zuni Rd

Maintenance/Condition of Bike Facilities

A total of 121 comments addressed maintenance/conditions of bike facilities. This comment code was used for comments that referenced pavement condition, maintenance needs, and needed repairs of existing bike facilities. Comments generally described areas that need improvement or the current conditions of existing bike lanes, bike boulevards, trails, etc. The most common theme of these comments is the garbage, glass, and debris in bike lanes or on trails, as well as the cracks and potholes in bike facility pavement.

- Several comments included mentions of broken glass, debris, and garbage in the bike lanes, trails, bike boulevards, and other bike facilities.
- Several comments included mentions of cracked and potholed pavement that affect the biking conditions in Albuquerque.
- Several comments addressed the need for maintenance of the bikeways, including comments about poorly maintained landscaping in several areas. Commenters also expressed the need for proper cleaning of public restrooms located along bike trails. Some comments in this topic code address a general need for maintenance but did not include any specific details.

- A few comments suggested the need for full re-pavement of facilities instead of only filling cracks to avoid uneven surfaces.

EXAMPLES OF COMMENTS ABOUT MAINTENANCE/CONDITION OF BIKE FACILITIES

- *Improvement and expansion of bike infrastructure in town in general is really necessary. There are places on the Northern Diversion trail that have nasty cracks and bumps and a lot of roadside bike lanes are worse, not to mention the debris that gets knocked into the bike lane.*
- *Bike lanes filled with debris/glass. Especially heavy traveled areas like 165 in Placitas and 550. Several tire popping holes on Rio Grande…. Tar gaps on diversion trails still. City/Cities should take care of heavily traveled routes.*
- *It is actually a great town cycle around in... pretty safe ways to get just about anywhere. The most pressing problem I see is that existing bike trails and lanes are not being maintained and are deteriorating making them dangerous.*

Miscellaneous/Other Comments

A total of 178 comments were labeled as miscellaneous, which includes comments that do not fit into any other code. Comments coded as miscellaneous/other most frequently included references to the growing bike culture in Albuquerque, awareness of climate change, and the positive effects of biking on mental health.

- Many comments praised the increasing bike community, culture, and social aspect in Albuquerque.
- Some comments were about the mental health benefits of riding bicycles.
- A few comments were about the positive impact of bike commuting on climate change.
- A few comments mention Vision Zero.
- A few comments were about bringing back the bike share program.
- A few comments were regarding the nexus between bike infrastructure and economic development.

EXAMPLES OF MISCELLANEOUS/ OTHER COMMENTS

- *We need Vision Zero!*
- *[Albuquerque has an] excellent community of cyclists.*
- *I miss the bike share. I used to not have a car but after the pandemic, with the buses and bike share gone, I felt like I had to prioritize getting a car so now I have one and bike a lot less.*

Multimodal Transportation Connections

A total of 38 comments addressed multimodal transportation connections. Comments included those about the respondent's use of public transportation options or other modes of transportation like walking.

- Some comments referred to the use of public transportation over biking. Generally, these comments noted safety concerns with biking and how the Albuquerque Rapid Transit (ART) system is safer for commuting.

- Some comments referenced the respondent's use of public transportation *in addition* to commuting by bicycle. Generally, these comments were positive and referred to bike racks on the city buses.
- A few comments mentioned safety concerns with using public transportation options.
- A few comments referenced parking options for those who park their vehicles and commute by bicycle and public transportation.

EXAMPLES OF COMMENTS ABOUT MULTIMODAL TRANSPORTATION CONNECTIONS

- *I commute to work partly by bus, partly by bike, and weekly by car, from Nob Hill to the base. The decline in base bus service has been dramatic over the last 10 years, and Covid plus the free bus service almost killed ridership, but it's improving.*
- *I'm car-free by choice. I ride my bicycle, walk or use mass-transit.*
- *Where my riding habits have decreased it is only because public transportation options make it easier to utilize the bus.*

Not Applicable Comments

A total of 34 comments were labeled as not applicable. These comments were incoherent, unintelligible, or off-topic.

- Several comments were regarding an issue with the survey. In some cases, the respondent wished to select more than one option.
- Some comments were in response to the respondent not having enough biking experience in Albuquerque.
- A few comments were incoherent or incomplete.
- A few comments stated, "thank you."

Network and Destination Connectivity

A total of 205 comments addressed network and destination connectivity. This comment code was used for comments relating to connections between parts of the bike network or origins and destinations.

- Several comments referenced the need to add additional safe and protected connections across the city of Albuquerque.
- Several comments were about the respondent's issues with commuting due to the lack of connected continuous routes between their home and work.
- Some comments included requests to increase the connectivity of existing facilities.

EXAMPLES OF COMMENTS ABOUT NETWORK AND DESTINATION CONNECTIVITY

- *I think more North-South connections with better (safer) trails would be a major improvement. Based on examples in other countries like Netherlands, converting certain roads (e.g., Pennsylvania & San Pedro) to one-way and using the other lane exclusively for bikes would encourage more bike riding and move us away from dependence on autos.*
- *On the west side, they don't have a great bike lane connection to the east across Coors. I take 1 route to work and another one to home because of the bike lane connection issues. Both routes have locations where I must ride in the driving lane.*
- *Need more neighborhood routes - reduce two-way traffic on some neighborhood streets, while allowing two-way bike traffic to continue through - Vancouver created a street network in a few years without building out an expensive bike only network.*

Other Examples of Cities and/or Biking Infrastructure

A total of 32 comments referenced other examples of cities and/or their biking infrastructure, culture, and network, compared to Albuquerque.

- Most comments referred to other cities or regions with safer and better biking infrastructure.
- A few comments referred to the bike-friendliness of Albuquerque compared to other cities and regions.

EXAMPLES OF COMMENTS ABOUT OTHER EXAMPLES OF CITIES AND/OR BIKING INFRASTRUCTURE

- *I came from a much more bike friendly city and it has been difficult to transition riding with intensely aggressive drivers and roads designed for excessive speeds.*
- *Before moving to Albuquerque, I rode bike everywhere. This city? Not designed more for cars than anything else; filled with disgustingly stupid motorists with little respect for human life. Of course, part of my reason for not riding as much is having adopted a puppy who is only just now getting to be old enough to run alongside me.*
- *I moved to Albuquerque in 2019 and have biked more here than anywhere else I have lived, in large part because of the bike-friendly amenities that exist.*

Perceived/Actual Threats to Physical Safety

A total of 178 comments referenced perceived/actual threats to physical safety. Comments included instances where bike accidents, crashes, and other dangerous biking situations had occurred or where the respondents feel collisions could occur. These comments were also used in conjunction with suggestions on how to improve safety and prevent dangerous situations for cyclists and pedestrians.

- Many comments referred to the need and desire to create safer bikeways in Albuquerque, with a general sense of a lack of safe and connected bike networks. Many of these comments suggested protected bike lanes while others focused on the general lack of safety.
- Several comments focused on a general apprehension of biking for commuting purposes, stating that the respondent did not feel safe riding to work due to poor conditions and

unsafe roadways for cyclists. Many stated that they did not commute on busy streets and mainly chose trails or smaller streets.
- Several comments suggested that biking in Albuquerque is dangerous due to bikeway conditions and the proximity to high-speed drivers and pedestrians on the walkways.
- Some comments stated that due to the dangerous nature of the bikeways, they have almost been involved in a collision or crash.
- A few respondents indicated that they have been hit by a driver while riding their bicycle.

EXAMPLES OF COMMENTS ABOUT PERCEIVED/ACTUAL THREATS TO PHYSICAL SAFETY

- *As I've read more about dangers of riding, it makes me more scared.*
- *I have become less comfortable riding on shared streets or bike lanes on busy roads, after some unsafe experiences with cars. I now restrict my biking to dedicated paths and bike boulevards.*
- *I think ABQ does a pretty good job for a city with many competing priorities. But my son was hit while riding on the sidewalk of Eubank, which he traverses a short way to get to a bike path on his commute. Some major streets are just too unsafe to use. Another issue I run into is at intersections with lights in which a bike cannot be detected and stays red. It's usually a hassle to get to the button so it knows someone wants to cross. One ends up running the red light.*

Perceived/Actual Threats to Physical Security

A total of 80 comments referenced perceived/actual threats to physical security. Comments included instances where the respondents felt unsafe while biking due to the actions of people present in underpasses, bridges, or bikeways. Issues of drug use, crime, and homelessness were often included in comments with this topic code. Comments with this code also included mentions of bike theft and streetlights not operating. These comments were frequently used in conjunction with suggestions on how to improve security and prevent dangerous situations for cyclists and pedestrians.

- Many comments addressed the issue of unhoused individuals living/camping in or near protected bikeways.
- Many comments addressed drug use under bridges, overpasses, and bikeways, which caused respondents to feel unsafe while riding their bikes in these areas.
- Several comments mentioned potential theft or actual theft while riding their bicycles through the city.
- A few comments were about insufficient streetlights, lighting, or signage in certain areas.

EXAMPLES OF COMMENTS ABOUT PERCEIVED/ACTUAL THREATS TO PHYSICAL SAFETY

- *Bike theft is a problem especially when using a bike to ride to work and doing errands. I personally have had 3 bikes stolen (2 at UNM which were securely locked and one inside a vehicle). Also, bike education is needed as I see many people riding on the wrong side of the street, going through red lights, etc.*
- *I see that the city is generally keeping the trails in good condition and fixes some cracks regularly. I appreciate that very much. However, some underpasses are being occupied with homeless encampment (e.g. Louisiana Blvd). That is getting worse.*
- *Less open drug markets along multi use trails…they are unsafe especially for women, children and elderly. People have had drug users experiencing g homelessness attempt to forcibly take bikes.*

Protected Bike Lanes/Facilities

A total of 192 comments referenced the need for protected bike lanes/facilities. Comments included instances where the respondents felt unsafe while biking due to the proximity of vehicles. Comments about the need or desire for a physical barrier or a separated facility away from vehicles were included in this code. In some instances, comments about existing protected bike lanes were positive and indicated a need for additional protected networks for bicyclists. Generally, there is a common consensus that more separated/protected bike lanes are needed to aid in a more connected and safer bike network.

- Many comments were made about the need and desire for separated/protected bike lanes. Most of the comments indicated that the protected bike lanes in Albuquerque work well but there is a need for more to maintain connectivity for all users.
- Several comments indicated that the respondent would commute more if there were more protected/separated bike lanes throughout the city and in their area.
- Several positive comments were in response to the existing protected/separated bike lanes.
- A few comments indicated the need for protected/separated bike lanes and facilities, but that maintenance would be key because street sweepers could not access the protected bike lanes.

EXAMPLES OF COMMENTS ABOUT PROTECTED BIKE LANES/FACILITIES

- *I want to ride more, but drivers in NM are absolutely crazy and the bike lanes here have no protection. We need protected bike lanes, either with concrete curb stops or plastic posts. Data show that 10x more people will ride in protected lanes.*
- *Have street sweepers that can clean separated bike lanes.*
- *Protected bike lanes will encourage many people to bike that are not currently biking in Albuquerque. Connecting the Paseo trail to more of downtown, ideally with a protected, separate path, will help alleviate parking congestion AND make Albuquerque a more walkable, livable community.*

Recreation

A total of 86 comments referenced riding bicycles for recreation. Comments included mentions of mountain biking, exercise, and biking specifically for enjoyment.

- Many comments in this code referred to biking being "fun."

- Several comments indicated that the respondent used biking as their preferred exercise activity.
- A few comments referred to mountain biking and the desire for a mountain bike park.

EXAMPLES OF COMMENTS ABOUT RECREATION

- *Used to be just a commuter, but now more of a recreational, but avid, cyclist (riding long distances/Sandia mountain).*
- *It is a fun activity to do with a toddler. We all get out and see the neighborhood or sites around town.*
- *I'm discovering mountain biking again and love our scene here. I'd love to see the Bosque as a focus because its cooler and shaded. Improvements to trails and additional offerings are warranted. Mental health benefits number 1.*

Sentiment (negative)

A total of three comments were coded as sentiment (negative) only. These comments expressed negative feelings without identifying specific issues, and may have included phrases, such as "awful," "never," "sucks," and "worst." These were generally not used in tandem with any other code.

EXAMPLES OF SENTIMENT (NEGATIVE) COMMENTS

- *The change is incremental though. I understand there are limited resources, but for the sake of climate, health, and better communities we need to shift much more rapidly. Someone needs to have the courage to stand up and do this.*
- *Economic activity shouldn't impact infrastructure and it's disgusting that it's an option. That kind of logic is as dumb as believing New Mexicans will benefit from a foreign for-profit company owning our utilities. Everyone household and future homeowners deserves infrastructure investments in every community as to improve their (generationally inheritable) quality of life."*

Sentiment (Positive)

A total of 66 comments were coded as sentiment (positive). These comments included phrases such as "awesome," "enjoy," "great," and "love." These were generally not used in tandem with any other code.

- Some comments thanked the City of Albuquerque for this work.
- Some comments referred to the greatness of biking in general.
- A few comments mentioned an appreciation for the strength of the current network of bikeways and the number of destinations reachable by bike.

EXAMPLES OF SENTIMENT (POSITIVE) COMMENTS

- *I enjoy 2 wheels!!*
- *The infrastructure is actually pretty good.*
- *THANKS for continuing to improve cycling in our town. And thank you for encouraging more folks to ride bicycles.*

Supporting Infrastructure/Facilities

A total of 65 comments referenced the need for supporting facilities and amenities along bikeways and trails. Many of these comments were about the desire for supporting infrastructure for bike riders like lockers, restrooms, and showers.

- Several comments were made regarding the need for better/improved bicycle parking.
- Several comments were regarding efforts by the City of Albuquerque to support infrastructure and facilities for biking, including restrooms and hydration stations.
- Some comments were made about the need for better maintenance of supporting facilities. For example, maintenance and regular cleaning of the restrooms.
- Some comments referenced the desire for showers, additional restrooms, and water refill stations.

EXAMPLES OF COMMENTS ABOUT RECREATION

- *I would like to see better upkeep of the multi-use trails. Fill across trail cracks and mend the sides of the pavements as well as brushing back vegetation. Cleansing the toilet facilities could be far better.*
- *We have fantastic trails that cover huge distances safely (bosque, diversion, etc.), but there are rarely shaded options to sit and take a break. Also, nowhere to refill water/use the restroom. It would also help to have more wayfinding signs for navigation.*

Vehicle/Driver Behavior and Conflict

A total of 145 comments referenced vehicle/driver behavior and conflict. Comments included mention of reckless drivers, inattentive or aggressive driving behavior, traffic violations, and conflict between bicyclists and motorists.

- Many comments were made about aggressive driving behavior. This includes comments made about respect for bicyclists on the road.
- Several comments were made about traffic violations. These include distracted drivers, excessive speeding, wrong-way drivers and drivers running red lights.
- Several comments were made about the speed limits in areas without protected bike lanes. These comments included mentions of lowering the speed limit in frequently used bike lane areas.

EXAMPLES OF COMMENTS ABOUT VEHICLE/DRIVER BEHAVIOR

- *ABQ drivers do not respect bike lanes. I see driving violations of bike lanes daily. I will never feel safe riding without meaningful physical buffering between bikes and cars.*
- *Drivers act unaware of bikes, speed, run lights, and make turns even when cross walk light is on and you are trying to cross. Given number of empty liquor bottles along streets many are DUI.*
- *Drivers don't consider bicyclists as worth sharing the roads with. That's why bike lanes that connect neighborhoods are crucial for the safety of bicyclists.*

2024 CITY OF ALBUQUERQUE BIKEWAY AND TRAIL FACILITIES PLAN

APPENDIX C: PROJECT PRIORITIES SURVEY MAP RESULTS (FALL 2023)

BIKEWAY & TRAIL FACILITIES PLAN
CITY OF ALBUQUERQUE

ONE ALBUQUERQUE municipal development

ONE ALBUQUERQUE parks & recreation

Background

The second phase of outreach for the 2024 *Bikeway and Trail Facilities Plan* featured an interactive online survey map that allowed members of the public a chance to review the draft City bikeway and trail network and indicate which improvements they thought should be prioritized. The survey map was posted on the project website and was available in both English and Spanish. Results of the survey map were incorporated into the prioritization of projects for implementation.

The map utilized a feature in which participants were given a "budget" and allowed to select projects they thought should be prioritized. Each project was assigned a point value that reflected the general magnitude of costs (low, medium, or high). Participants were able to select any combination of projects until they expended their budget.

Advertising and Means of Participating

The survey map was available on the project website from October 21 through November 30, 2023 to coincide with the beginning of Bike Thru Burque Week (October 21 to 29). In-person pop-up events in which attendees could indicate priorities through a hardcopy sticker map took place throughout Bike Thru Burque Week, including the CiQlovía open street festival on October 22, 2023.

Information about the survey map was posted online and distributed through project email lists and the Bike Thru Burque platform. Additional outreach took place through local organizations such as BikeABQ, which posted links to the survey on social media. Flyers with links to the survey and project website were distributed at in-person events and shared online.

Table 1: Community Events During the Second Phase of outreach

Date	Location/Event
	In-person Events
10/21/23	Bike-In Coffee
10/22/23	CiQlovía Open Street Festival
10/27/23	Canteen Brewhouse
10/28/23	Sierra Club E-Bike Event
10/29/23	Day of the Tread
10/29/23	Bike-In Coffee
10/30/23	Public Meeting: Mid-Region Council of Governments
	Online Events
10/16/23	Greater Albuquerque Active Transportation Committee
10/31/23	Virtual Public Meeting

Survey Participants

A total of 662 individuals participated in the online survey map (including seven participants in a Spanish language version), and the survey website was visited more than 1,250 times. A somewhat smaller number (570 to 572) answered questions on their bicycling habits. Survey map participants tended to be frequent and experienced bicyclists. Overall, more than three- quarters of respondents (78%) indicated they ride a few times a week or every day, while a similar percentage (74%) indicated they are either advanced or expert bicyclists.

Table 2: Survey Question: How many times a week do you ride a bike?

Frequency	Total	Share
Every day	168	29.4%
A few times a week	278	48.6%
Once a week	53	9.3%
A couple of times a month	46	8.0%
Rarely	25	4.4%
Never	2	0.3%
Total	**572**	**100%**

Table 3: Survey Question: How would you describe your experience level as a bicyclist?

Experience Level	Total	Share
No way, no how – I have absolutely no interest in bicycling now or ever regardless of conditions.	1	0.2%
Beginner – I am only comfortable riding on separated multi-use trails and residential roads	35	6.1%
Intermediate – I feel somewhat comfortable getting around but prefer multi-use trails for riding	112	19.6%
Advanced – I am comfortable riding on multi-use trails and on most streets	234	41.1%
Expert – I feel comfortable riding almost anywhere	188	33.0%
Total	**570**	**100%**

Survey Layout

The survey map was developed using the Metroquest online engagement platform and contained five informational or interactive tabs.

- **Welcome**: Brief overview of the 2024 Plan and goals of the survey.
- **Biking Habits and Behaviors**: Introductory questions to help the Project Team understand who completed the survey.
- **Interactive Map Instructions**: Overview of survey map components and instructions to participants on how to identify project priorities. See additional information below.
- **Interactive Map**: Online map to collect input on which proposed projects should be prioritized.
- **Wrap Up:** Additional information on the project, including links to the project website.

Survey Map Instructions

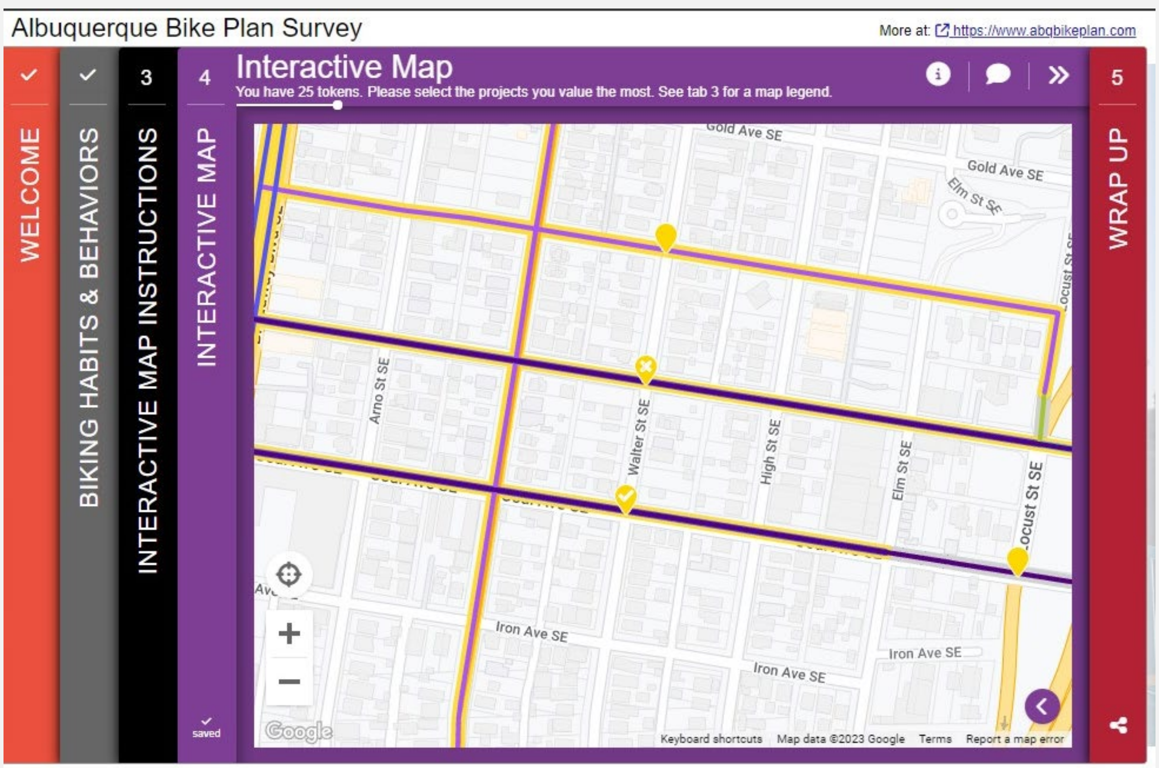
Project Details: Participants could click on the center point for each project to learn project details, including:

- **Location**: Project route and limits. Participants were instructed to note that longer corridors may consist of several project segments.
- **Facility Type**: Proposed type of bikeway or trail.
- **Timeframe**: Plausible near-term or long-term. Additional details available on the project website.
- **Magnitude of Cost**: Projects were assigned an initial estimate – low, medium, or high – based on technical feasibility and complexity. *Note: Costs were subject to further consideration for the final 2024 Plan.*

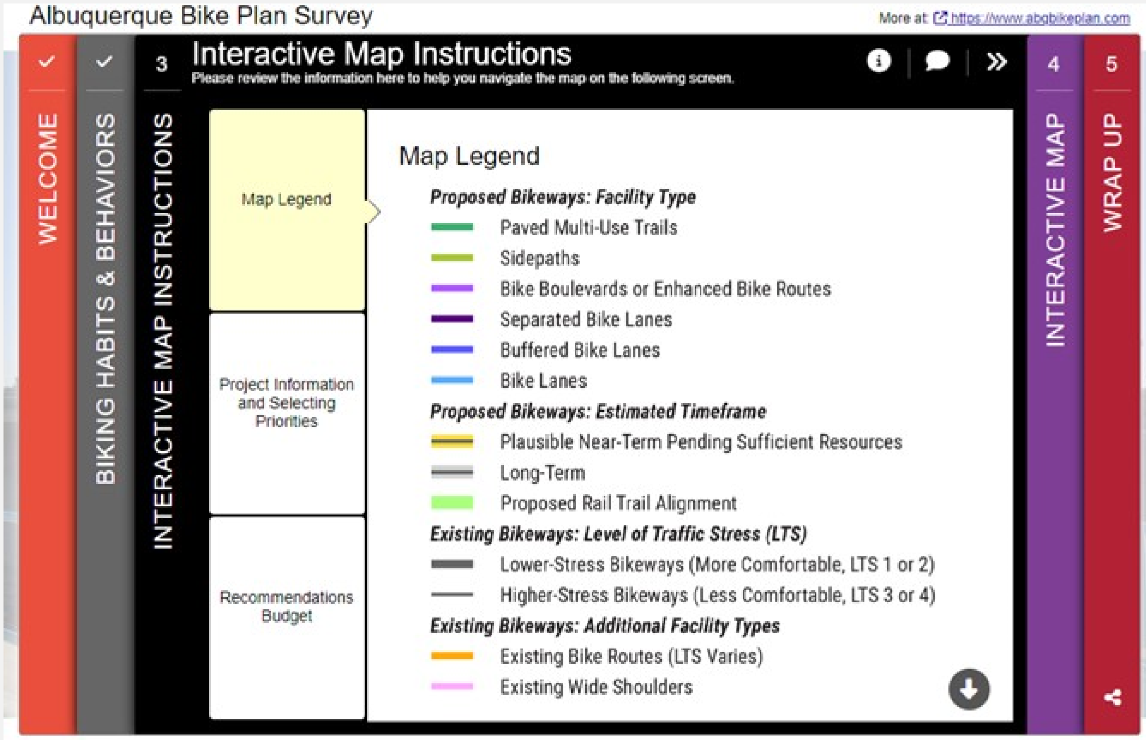
Recommendations Budget: Participants were given a budget of 25 tokens that could be used to indicate which projects should be the highest priorities.

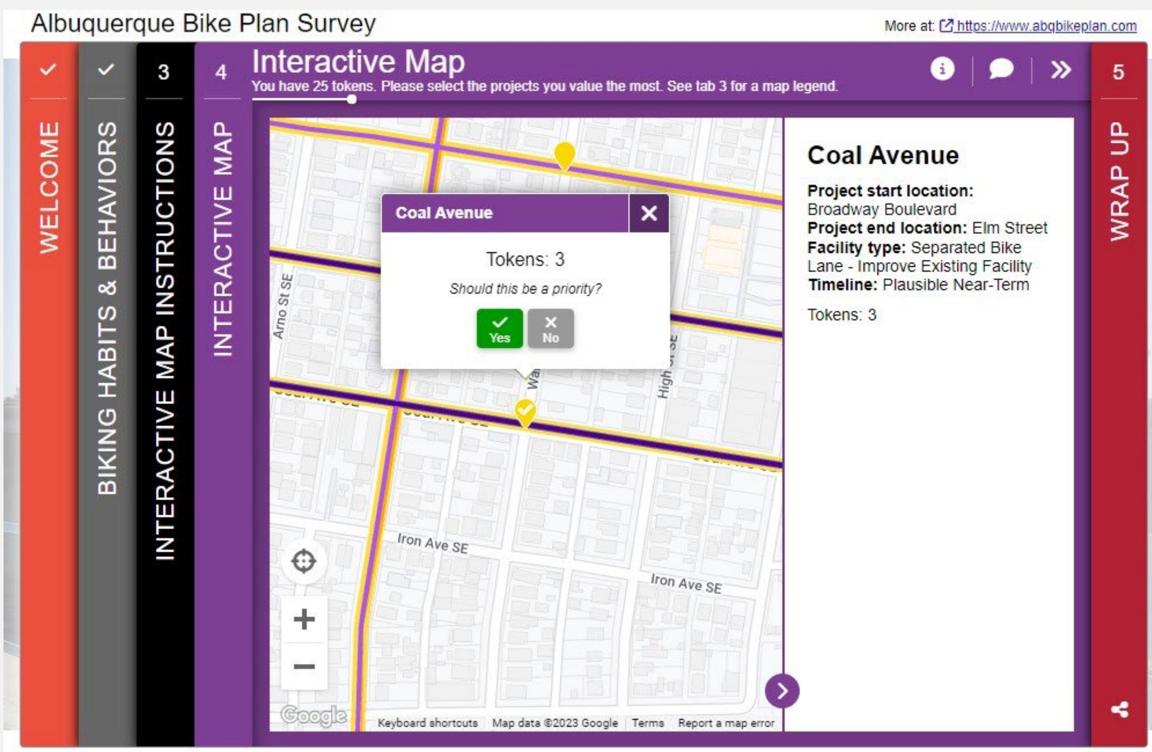
Project costs:

- Low = 1 token
- Medium = 3 tokens
- High = 5 tokens

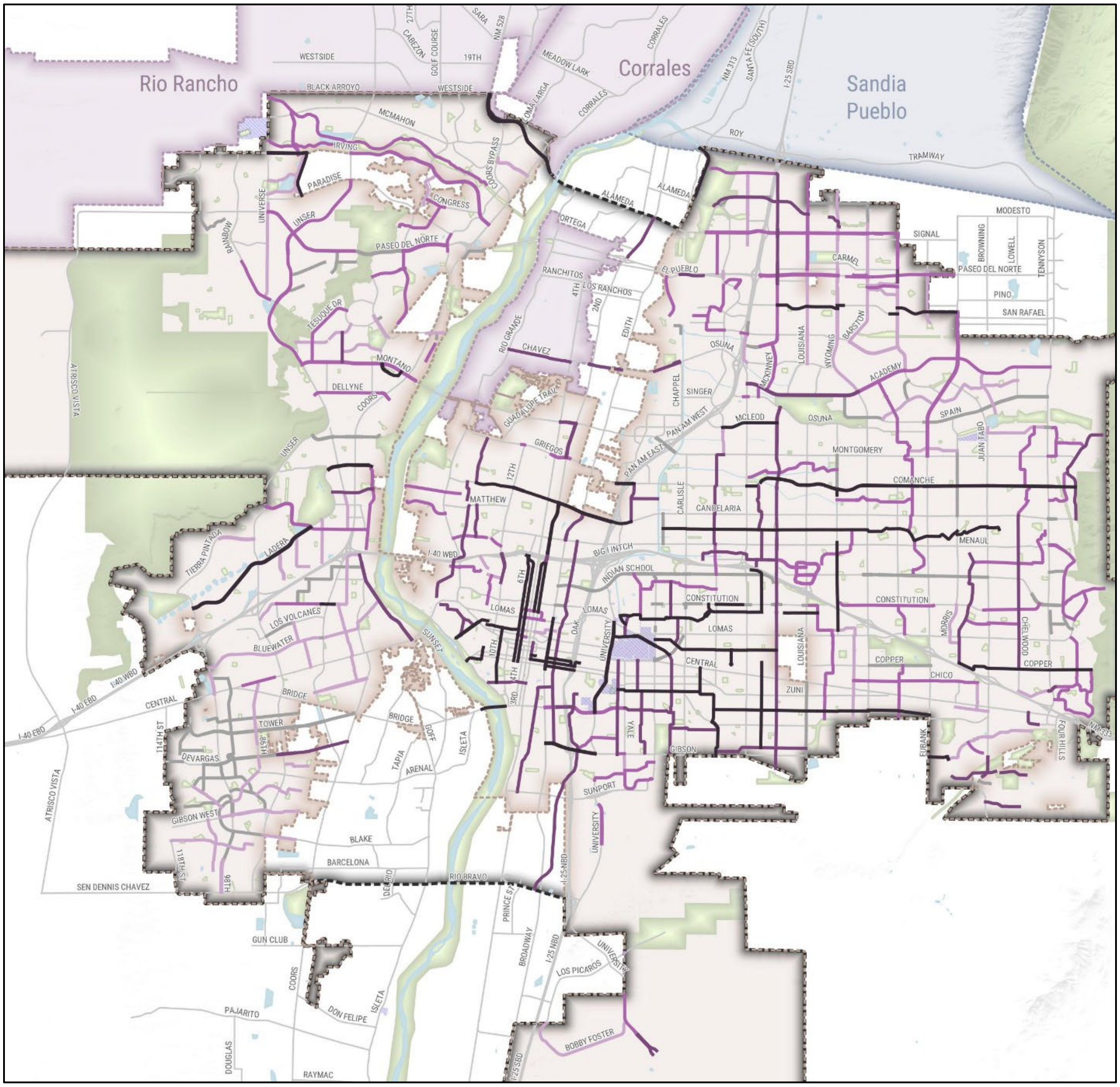


Survey Map Instructions





Survey Map Results



Highest Priority Projects

Table 4: 20 Most Frequently Selected Projects

Rank	Street	From	To	Proposed Facility	Timeline	Cost Level
1	University Boulevard	Avenida Cesar Chavez	Lomas Boulevard	Separated Bike Lane	Plausible Near-Term	Medium
2	Indian School Road	Broadway Boulevard	San Pedro Drive	Separated Bike Lane - Improve Existing Facility	Plausible Near-Term	Medium
3	San Pedro Drive	Ridgecrest Drive	Osuna Road	Buffered Bike Lane	Plausible Near-Term	Low
4	Las Lomas Road / Campus Boulevard	University Boulevard	Monte Vista Boulevard	Buffered Bike Lane / Enhanced Bike Route	Plausible Near-Term	Low
5	Comanche Road	San Mateo Boulevard	Tramway Boulevard	Separated Bike Lane	Plausible Near-Term	Medium
6	Constitution Avenue	Washington Street	Truman Street	Buffered Bike Lane (*EB direction only*)	Plausible Near-Term	Low
7	North Diversion Channel Trail Extension^*	Balloon Museum Drive	Edith Boulevard	Paved Multi-Use Trail	Long-Term	High
8	Candelaria Road	San Isidro Street	I 40 Frontage Road Southbound	Separated Bike Lane	Plausible Near-Term	Medium
9	Washington Street	Indian School Road	Menaul Boulevard	Buffered Bike Lane	Plausible Near-Term	Low
10	Lead Avenue	2nd Street	Oak Street	Separated Bike Lane / Two-Way Cycle Track - Improve Existing Facility	Plausible Near-Term	Medium
11	Coal Avenue	Broadway Boulevard	Elm Street	Separated Bike Lane - Improve Existing Facility	Plausible Near-Term	Medium
12	Avenida Cesar Chavez	Broadway Boulevard	Yale Boulevard	Separated Bike Lane	Long-Term	Medium
13	Avenida Dolores Huerta^	La Vega Drive	Bosque Trail	Sidepath	Long-Term	High

Rank	Street	From	To	Proposed Facility	Timeline	Cost Level
14	Garfield Avenue	Buena Vista Drive	Morningside Drive	Bike Boulevard	Plausible Near-Term	Low
15	Claremont Avenue	Richmond Drive	Juan Tabo Blvd / Paseo de las Montañas Trail	Bike Boulevard	Long-Term	Medium
16	Diversion Channel Trail UNM Connection	Tucker Avenue	Yale Boulevard	Paved Multi-Use Trail	Long-Term	High
17	Coal Avenue	Elm Street	Oak Street	Separated Bike Lane - Improve Existing Facility	Long-Term	High
18	Griegos Road	12th Street	2nd Street	Buffered Bike Lane / Bike Lane	Plausible Near-Term	Low
19	Louisiana Boulevard[1]	Gibson Boulevard	Central Avenue	Separated Bike Lane/Buffered Bike Lane	Plausible Near-Term	Medium
20	Alvarado Drive	Eastern Avenue	I 40 Trail Bridge	Bike Boulevard	Plausible Near-Term	Low

Note: The need for intersection crossings were generally considered as part of the cost associated with a corridor improvement and were not among the project options. Several comments indicated that trail crossings at major streets should be prioritized.

^ Project is located outside City boundaries and/or requires permission and coordination with external agencies
* Project identified in the regional Long Range Bikeway System
1 Project in progress; construction expected in 2024

2024 CITY OF ALBUQUERQUE BIKEWAY AND TRAIL FACILITIES PLAN

APPENDIX D: BIKEWAY EVALUATION PROCESS: OVERVIEW AND METHODOLOGY

Background

Purpose

As part of the 2024 *Bikeway and Trail Facilities Plan*, the City of Albuquerque revised an existing Bikeway Evaluation Process to reflect plan goals and emerging city policy priorities. The Bikeway Evaluation Process includes nine criteria across six priority categories that consider project benefits such as safety, equity, land use, access to destinations, and network connectivity. Scores for each criterion can be totaled by project and project scores may be compared to one another for prioritization purposes.

The evaluation criteria rely on a variety of existing datasets from the City of Albuquerque and the Mid-Region Council of Governments (MRCOG), including crash data, the Vulnerability Index, and the High Fatal Injury Network (HFIN), as well as datasets developed for the 2024 Plan, including level of traffic stress and trip potential analysis.

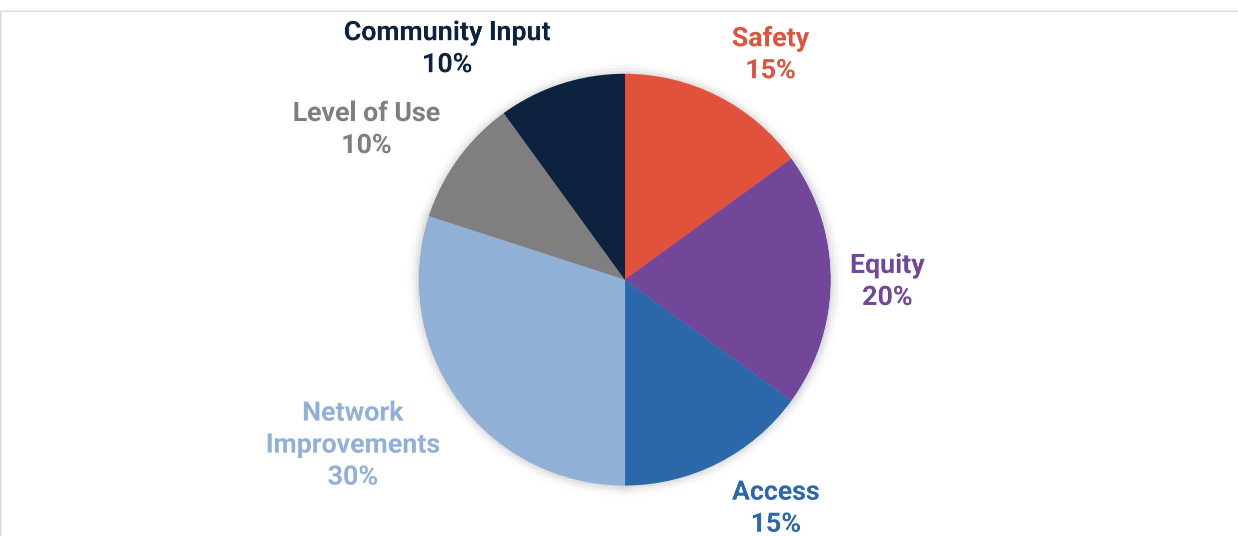
This document describes the criteria used in project prioritization and explains their link to plan goals and city policy priorities. While the criteria are specifically applied to the project list developed for the 2024 Plan, the evaluation process utilizes Census data and datasets that are regularly updated by MRCOG or City staff and therefore can be easily adapted for consideration of future projects.

Project Selection Considerations

Evaluation criteria reflect benefits associated with a particular project and the results of prioritization are intended to inform decision-making. However, it is important to note that projects may not always be implemented based on their priority ranking, and other factors are considered as part of project selection, including staffing, financial resources, and technical feasibility of a project. Some projects may also be implemented through ongoing resurfacing and restriping efforts that take place as part of the Annual Complete Streets Maintenance Program. To reflect these considerations, the 2024 Plan includes the potential timeframe for implementation (plausible near-term and long-term) and magnitude of cost estimates for all projects.

Evaluation Criteria: Summary Table

Category	Criterion	Description	Max Score
Safety	**Bicyclist-Involved Crashes**	Points awarded based on the number of recorded crashes along the project corridor or a parallel route (if the project is along a neighborhood street or a trail).	**3**
	High Fatal Injury Network	Points awarded for projects located along an HFIN corridor or parallel route within 1/3-mile.	**3**
Equity	**Vulnerability Index**	Presence of vulnerable communities in the project area, including population groups that are most likely to rely on biking as a form of transportation; based on the Vulnerability Index.	**8**
Access	**Destinations**	Based on access provided to key destinations, such as schools, parks, transit stations, and community centers.	**3**
	Comprehensive Plan Centers	Based on access provided by project to designated Comprehensive Plan Centers.	**3**
Network Improvements	**Facility Needs**	Based on existing Bicycle Level of Traffic Stress (LTS) scores, with projects along higher stress facilities generating more points.	**4**
	User Comfort	Points awarded based on whether a proposed facility meets FHWA bikeway selection guidance.	**4**
	Network Spine	Based on whether project is along or intersects with a network spine that provides critical connections across the city.	**4**
Level of Use	**Potential For Bicycle Trips**	Based on a trip potential analysis that considers the share of short-distance trips (i.e., less than 2 miles) in the project area.	**4**
Community Input	**Community Input**	Based on input provided through an online survey map of proposed projects.	**4**
Total			**40**



Safety

Metric: Bicyclist-Involved Crashes

Overview

Bicyclists are particularly vulnerable to crashes involving motor vehicles and are disproportionately likely to suffer severe injuries compared to motorists. Quality infrastructure that reduces conflicts between vehicles and bicyclists is a high priority in the 2024 Plan. The inclusion of this criterion is based on the premise that enhanced bikeways are needed in locations that currently have high numbers of crashes.

Scoring Methodology

Points are awarded based on the recorded crashes along the project corridor (or parallel routes within 0.25 miles if the project is along a local road or a multi-use trail) for the most recent 5-year period for which crash data is available. The number of bicyclist-involved crashes is normalized based on the project length to allow for comparison of all projects, regardless of length.

Project Location Characteristics	Points
One or more fatal bicycle-involved crashes OR high rate of bicyclist-involved crashes	3
Medium rate of bicyclist-involved crashes	2
Low rate of bicyclist-involved crashes	1
0 non-fatal bicyclist-involved crashes	0

Note: The most recent crash data at the time of the completion of the 2024 Plan was from 2018-2022.

Metric: High Fatal Injury Network

Overview

Expanded bikeways are an important part of the City's commitment to Vision Zero, which sets a goal of zero fatalities and serious injuries by 2040. As part of the Vision Zero Year in Review (2023), the City of Albuquerque created an updated and simplified HFIN network comprised of priority safety corridors. The HFIN considers locations with high numbers of severe crashes compared to the City overall. Creating safer conditions for people biking along these high-risk corridors – or quality facilities on a parallel route – aligns with Vision Zero's goal of protecting vulnerable road users and eliminating all traffic-related fatalities.

Scoring Methodology

Points awarded for projects located along HFIN corridor or a parallel route within 0.33 miles of an HFIN corridor.

Project Benefits/Location Characteristics	Points
Project located along or within 0.33 miles of HFIN corridor	3
Project intersects with multiple HFIN corridors	2
Project intersects with one HFIN corridor	1
Project is not located along/does not intersect with HFIN corridor	0

Equity

Metric: Vulnerability Index

Overview

Bikeway investments can address equity-related concerns by prioritizing projects that are likely to benefit historically marginalized groups or populations that are more likely to depend on bicycling as a means of transportation. Providing quality transportation infrastructure in these areas is a critical means of improving access to jobs and services and supporting healthy lifestyles. The Mid-Region Council of Governments (MRCOG) maintains and regularly updates a Vulnerability Index that considers economic, demographic, housing, and transportation factors and can be used to identify populations that are at increased risk of traffic violence. Data is available at the census tract level and features a composite percentage ranking based on combined population variables, with higher values indicating greater levels of vulnerability.

Table 1: Vulnerability Index Variables

Type	Variables
Economic	Unemployment, poverty
Demographic	Gender, seniors, youth, disability, race (persons of color), ethnicity (Hispanic/Latino), English proficiency, foreign born, educational attainment, single-parent households
Housing	Multifamily, mobile homes, crowding, group quarters
Transportation	Vehicles available

Scoring Methodology

Points are awarded based on a weighted average vulnerability score among the portions of census tracts that intersect with a 0.25-mile buffer around the project area.

Project Benefits/Location Characteristics	Points
Average vulnerability score for project area in *highest* quintile (80-100%)	8
Average vulnerability score for project area in *fourth* quintile (60-80%)	6
Average vulnerability score for project area in *third* quintile (40-60%)	4
Average vulnerability score for project area in *second* quintile (20-40%)	2
Average vulnerability score for project area in *lowest* quintile (0-20%)	0

Access

Metric: Access to Major Destinations

Overview

A useful bicycle network relies on access to major destinations, including schools, parks, major transit stops and community facilities. The City of Albuquerque maintains a spatial data inventory of destinations, classified as either major or minor depending on the number of trips generated by each destination type.

Table 2: Destinations by Type

Destination	Type	Destination	Type
ART Stops	Major	Park/Open Space (<10 acres)	Minor
Charter School	Minor	Park/Open Space (>10 acres)	Major
Community/Senior Center	Major	Private Schools and Universities	Minor
Cultural Site (e.g. Museum, Theater)	Major	Public School (ES, MS, HS)	Major
Hospital	Major	Public University (UNM, CNM)	Major
Library	Major	Rail Runner Stations and Transit Park-and-Ride Facilities	Major
Medical Clinic	Minor	Transit Stops Along Frequent Routes (i.e. one bus every 15 minutes or less)	Minor

Scoring Methodology

Points are awarded based on whether a project provides access to one or more destinations, with access to major destinations generating higher points. Projects that provide access to multiple destinations receive the most points. A project or corridor is considered to provide access if it passes within 0.25 of a destination.

Project Benefits	Points
Access to 3 or more major destinations	3
Access to 2 major destination or 3 or minor destinations	2
Access to ≤2 minor destinations	1
No access to major or minor destinations	0

Metric: Comprehensive Plan Centers

Overview

The Comprehensive Plan identifies a series of designated Centers where development should be concentrated and where trips could be made more easily by walking or biking. Comprehensive Plan policy guidance asserts that Centers should be linked together through a range of transportation options, including bikeways.

Scoring Methodology

Points are awarded based on whether a project provides access to one or more designated Comprehensive Plan Centers, with projects that link together multiple Centers receiving the most points. A project or corridor is considered to provide access if it passes within 0.25 miles of a Center.

Project Benefits	Points
Access to multiple Comprehensive Plan Centers	3
Access to one Comprehensive Plan Center	2
No access to Comprehensive Plan Center	0

Network Improvements

Metric: Facility Needs

Overview

The 2024 Plan uses a Bicycle Level of Traffic Stress (LTS) analysis to quantify how stressful it is to bike on a particular street. LTS is based on the premise that a person's level of comfort on a bicycle increases as separation from vehicular traffic increases, or as traffic volume and speed decrease. Roadways with high LTS levels create barriers for people biking and require the greatest level of improvements in order to provide conditions that appeal to people of all ages and abilities.

Scoring Methodology

General bikeway projects: Points in this criterion are based on the average LTS scores for the segments along a project route. The average score is weighted based on the length of each segment. Higher average LTS scores indicate the greatest room for improvement in user comfort level.

Multi-use trails and bike boulevards: For multi-use trails and bike boulevards located along low-stress neighborhood streets, the barriers to bicycling are typically crossings of major streets. For these project types, points are awarded based on the number of enhanced crossings (i.e., PHBs or RRFBs) along the project route.

Project Benefits/Location Characteristics		Points
Corridors/LTS Scores	**Enhanced Crossings**	
Average LTS > 3.5	≥4 enhanced crossings along project corridor	4
Average LTS = 2.51-3.5	3 enhanced crossings along project corridor	3
Average LTS = 1.51-2.5	2 enhanced crossings along project corridor	2
Average LTS = 1.25-1.5	1 enhanced crossing along project corridor	1
Average LTS = 1	Zero enhanced crossings	0

Metric: User Comfort

Overview

Bikeways are most likely to be utilized – and to appeal to users of all ages and abilities – if they provide a high level of user comfort. The 2024 Plan references the FHWA Bikeway Selection Guide for appropriate facility types based on the roadway conditions and surrounding context.

Scoring Methodology

Projects are awarded points if the proposed bikeway matches the recommended facility type contained in the FHWA Bikeway Selection Guide, based on the posted speed limit and traffic volumes.

Project Benefits	Points
Proposed project *meets* FHWA facility selection guidance	4
Proposed project *does not* meet FHWA facility selection guidance	0

Metric: Network Spine

Overview

The 2024 Plan identifies a network of longer distance bikeways, or spines, which provide connections across the city. These spines include both existing and proposed facilities. A network is most useful when these spines feature low-stress, high comfort facilities.

Scoring Methodology

Projects along network spines receive maximum points in this criterion. Projects that intersect with network spines and provide connections to these critical facilities also receive points.

Project Benefits	Points
Project along existing or proposed network spine	4
Project intersects with multiple network spines	2
Project intersects with network spine	1
Project does not intersect with a network spine	0

Potential Level of Use

Overview

A primary goal of the 2024 Plan is to create a useful and safe network that increases the overall share of trips that are taken by bicycle. Rather than consider existing bicycling trips, which depends on limited counts data or app-based tools such as Strava that are biased toward wealthier and recreational riders, the evaluation process utilizes *trip potential* data that synthesizes Census and commercially available data on travel behavior to model the number of short distance trips that take place at a small geographic level (e.g., block groups). Short distance trips are generally a function of population density and nearby employment opportunities, which attract work and shopping/service trips. Locations with high shares of short distance trips therefore indicate the potential for more bicycling trips if quality infrastructure were provided.

Scoring Methodology

Points are awarded based on the share of trips that originate and/or terminate in the project area that are less than two miles in length. The total share of trips is based on a weighted average of conditions in the Census block groups along the project area.

Project Benefits	Points
Highest quintile of short distance trips	4
Fourth quintile of short distance trips	3
Third quintile of short distance trips	2
Second quintile of short distance trips	1
Lowest quintile of short distance trips	0

Community Support

Overview

Input on proposed projects for the 2024 Plan was possible through an online survey map in which participants could indicate their highest priorities. The survey map was available through the project website and hardcopy sticker maps at pop-up events and the in-person community meeting.

Scoring Methodology

Points are awarded based on the number of votes in favor of each project.

Note: Additional projects were identified after the survey map was administered. In these cases, project benefit points were awarded based on the number of positive public comments for the nearest parallel facility

Project Benefits	Points
Highest quintile of public comments	4
Fourth quintile of public comments	3
Third quintile of public comments	2
Low number of public comments	1
No comments received	0

Discussion/Future Considerations

Relationship to Vision Zero Project Evaluation

As part of the City of Albuquerque Vision Zero Initiative, the Department of Municipal Development adapted the Bikeway Evaluation Process to prioritize streets on the HFIN for safety improvement projects. The **HFIN Evaluation Process** retains similar criteria and basic structure of the Bikeways Evaluation Process but includes changes to individual metrics to ensure applicability to a wider range of projects and to align with Vision Zero goals.

Use of Strava Data

Previous versions of the Bikeway Evaluation Process utilized Strava data as a measure of existing bicycling rates along a project area. However, Strava captures an incomplete picture of bicycling behavior since the data only reflects users of the app, who tend to be higher income and engage in more recreational trips. By contrast, the trip potential analysis utilized in the updated evaluation process considers the *demand* for short distance trips.

Potential Applications of the Bikeway Evaluation Process

The Bikeway Evaluation Process was initially applied to projects identified on a priority bike gap closure list developed by the Greater Albuquerque Bicycling Advisory Committee (now GAATC) and to recommendations that emerged from the *I-25 Bicycle Accessibility Study*. The process may be more broadly applied in the future as a screening process for City bikeway, pedestrian, and/or trail projects. Among the potential applications include:

- General priority project lists
- Priority gap closure needs
- Potential projects contained in the Long Range Bikeway System

Ongoing Data Updates

The Bikeway Evaluation Process utilizes existing datasets, including the HFIN and the Vulnerability Index, as well as other data derived from the Census and other publicly and commercially available sources. Future application of the evaluation process will require ongoing updates.

2024 CITY OF ALBUQUERQUE BIKEWAY AND TRAIL FACILITIES PLAN

APPENDIX E: BIKE BOULEVARD TOOLKIT

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Introduction

Bike boulevards are low-speed, low-volume local streets that are comfortable places for people of all ages and abilities to ride bikes. Bike boulevards are shared facilities that do not separate people biking from people driving, but instead depend on moderating vehicle speeds and creating as much awareness as possible of the presence of people biking. They are generally located parallel to major streets that are desired paths of travel and are intended to provide low-stress connections to community destinations.

Over the last decade, the City of Albuquerque has introduced a series of bike boulevards that now connect Old Town, Downtown, the University of New Mexico (UNM), Nob Hill, the Fair Heights neighborhood, and Uptown. This toolkit provides guidance for what types of streets are appropriate candidates for bike boulevards and how to design these streets to function effectively as bike boulevards. This toolkit is intended to be accessible to a wide audience of community members and stakeholders, including engineers, planners, bicycle advocates, and curious residents, and draws from the lessons learned through bike boulevard development in the City of Albuquerque and emerging best practices from around the US. The toolkit was developed alongside the update to the City of Albuquerque Bikeways and Trails Facilities Plan.

This design toolkit is intended to complement local technical design manuals, such as:

- City of Albuquerque *Development Process Manual* Chapter 7 (2020)
- City of Albuquerque *Neighborhood Traffic Management Program* (NTMP) (2020)
- City of Albuquerque *Bicycle and Trail Crossing Guide* (2022)

This toolkit begins with an overview of the principles of a bike boulevard, followed by key bike boulevard design elements and traffic controls for major and minor streets. This toolkit also includes strategies to calm traffic by managing vehicular speed and divert traffic by managing vehicular volumes. Table 1 includes the main features included in a bike boulevard.

Table 1. Summary of Bike Boulevard Elements Within The Toolkit

Bike boulevard design elements	Route identification
	Reduced speeds
	Narrow drivable or operating width (e.g., striped on-street parking
	Prioritized travel along bike boulevard
Traffic controls for major street crossings	Traffic signals and enhanced crossings
	Offset intersection treatments
Traffic calming strategies to manage vehicle speeds	Horizontal deflection treatments (e.g., traffic circles)
	Vertical deflection treatments (e.g., speed humps)
Traffic calming strategies to manage traffic volumes	Major street medians
	Regulatory signs
	Diagonal diverters and partial closures

1) Principles of a Bike Boulevard

The purpose of bike boulevards is to provide low-stress bicycling routes that are intuitive to use and connect people to community destinations and other bikeways that appeal to people biking of all ages and abilities, such as multi-use trails. The principles below form the basis for selecting bike boulevard candidate corridors and ensuring that the facility design serves the needs of all users.

Manage Traffic Volumes and Speeds

One of the most important reasons someone will choose whether or not to bike on a street is the speed and volume of motor vehicle traffic on that street. To provide the most comfortable bicycling experience for all ages and abilities, bike boulevards need to have low volumes of motor vehicle traffic, and people driving motor vehicles along the bike boulevard should be moving slowly enough to maintain a comfortable environment for people biking.

Table 2 shows the preferred thresholds for traffic volumes and speeds along bike boulevards and at major street crossing opportunities in Albuquerque. The traffic volumes assume the bike boulevard is on a two-way street. The volumes should be divided in half if the bike boulevard is on a one-way street.

Table 2. Bike Boulevard Traffic Speed and Volume Thresholds

Peak Hourly Traffic Volume	Average Daily Traffic: *Preferred*	Average Daily Traffic: *Acceptable*	Operating Speed
≤120 vehicles	≤1,000	1,000-2,000	≤20 mph

A daily traffic volume of 1,200 roughly equates to 120 vehicles in the peak hour, or one vehicle traveling down the street every 30 seconds on average. This level of volume is low enough that people biking will infrequently be passed by people driving a motor vehicle. Lower vehicle operating speeds (e.g., 18 or 20 MPH compared to standard 25 MPH on local roads in Albuquerque) increases safety by reducing the speed differential between people biking (which generally travel at 8 to 12 mph on flat terrain) and people driving a motor vehicle. This leads to a lower likelihood of a crash occurring and improves the sense of comfort for people biking.

If candidate bike boulevard streets do not currently meet the criteria outlined in Table 2, they should be redesigned to achieve these target traffic volume and speed thresholds by using the strategies outlined in Chapter 4) Traffic Calming Strategies and Chapter 5) Traffic Diversion Strategies.

Potential measures include restricting through movements for motor vehicles at major intersections and using traffic calming to reduce the current operating speeds on the street. In cases where the candidate street is too wide, with too high of traffic volume, and too high of motor vehicle speeds, it may be necessary to evaluate adjacent corridors to find a street that is a better candidate for a bike boulevard.

Traffic Counts and Speed Data Collection

The collection of traffic counts and speed data along potential bike boulevard routes is recommended to determine both the viability of the route as a bike boulevard and whether traffic volume and speed should be further managed to make the corridor comfortable for people who are biking.

Make the Network Intuitive Through Wayfinding and Branding

In addition to designing the streets to be safe and convenient, bike boulevards should include wayfinding and branding. Bike boulevard wayfinding should be frequent enough to guide people to community destinations. Bike boulevard streets should be branded with the standard purple Albuquerque bike boulevard signage (see Figure 1) to communicate to people biking where the routes are and to demonstrate to people driving that they can expect to see people bicycling on the street.

The wayfinding and branding elements of bike boulevards also help establish a network where people biking do not have to spend excessive time ahead of their trip planning a safe route. Rather, people bicycling can walk out the door and follow the signs and pavement markings that confirm they are on an optimal route for biking toward their destination.

Designing for Bicycle Priority at Local Street Crossings

One of the benefits of bike boulevards being located along local streets is that they mostly cross other low-traffic volume local streets until people biking arrive at a major street crossing. In much of Albuquerque, these major street crossings are located every half-mile. To encourage local trips by bicycle, bike boulevards should generally have the right of way at local street intersections and stop signs should be placed on the roads intersecting the bike boulevard. This approach minimizes stops for people biking, as getting back up to speed on a bicycle after stopping requires more energy than in a motor vehicle. Additionally, if stop signs are placed for people biking in locations where there are low cross-traffic volumes, people biking may disregard stop signs.

It is important to note that by changing the right of way for people biking on local streets alone, streets may inadvertently become good cut-through routes for people driving. Therefore, changing the right of way at local street intersections should be coupled with traffic calming elements, such as traffic circles, and volume management elements, such as medians restricting through motor vehicle traffic at major street crossings.

Figure 1: Conditions along Silver Ave Bike Boulevard

Provide Safe and Convenient Crossings at Major Streets

Major street crossings are often a barrier that prevent people from biking to community destinations. Providing safe and convenient crossings at major streets is an equally important principle to managing traffic volumes and speeds along the bike boulevard. Bike boulevard candidate streets are chosen specifically because they have low existing traffic volumes. This often means that low-volume streets do not have existing bicycling or pedestrian crossing infrastructure when intersecting with major streets because traffic signals are located at intersections of other major streets with higher vehicular volumes. Planners and designers should evaluate major street crossing locations based on crossing street traffic volume and speed, as well as the number of lanes to cross, to determine how to improve the safety and convenience of the crossing for people biking. The City of Albuquerque *Bicycle and Trail Crossings Guide* should be used to determine the appropriate crossing treatment at major streets.

Promote Bicyclist Comfort

In addition to designing safe infrastructure and signing and branding for bike boulevard streets, there are other factors that help make bike boulevards comfortable for everyone. These include the concepts of creating a sense of enclosure and accounting for natural topography and barriers as part of route decisions.

Create Enclosure Using Existing Narrow Streets or Adding Street Design Features to Narrow a Wider Street

Local streets in Albuquerque have been built with a variety of pavement widths, sidewalk configurations, and plantings. Narrower streets feel more comfortable for people biking and naturally slow motor vehicle traffic. The presence of street trees also increases the feeling of enclosure and safety along a narrow street. When selecting candidate bike boulevard streets, designers should evaluate the existing street width and character to determine if additional techniques to narrow the roadway are necessary to increase the sense of enclosure.

In addition to landscaping, a sense of enclosure can be created by reducing the paved area of a roadway that is open to people driving through striping on-street parking or installing design interventions such as diverters. In some cases where a local street is sufficiently low-volume and low-speed, but the street is too wide, a parallel street should be considered if it is narrower and still connects well with the overall bike network.

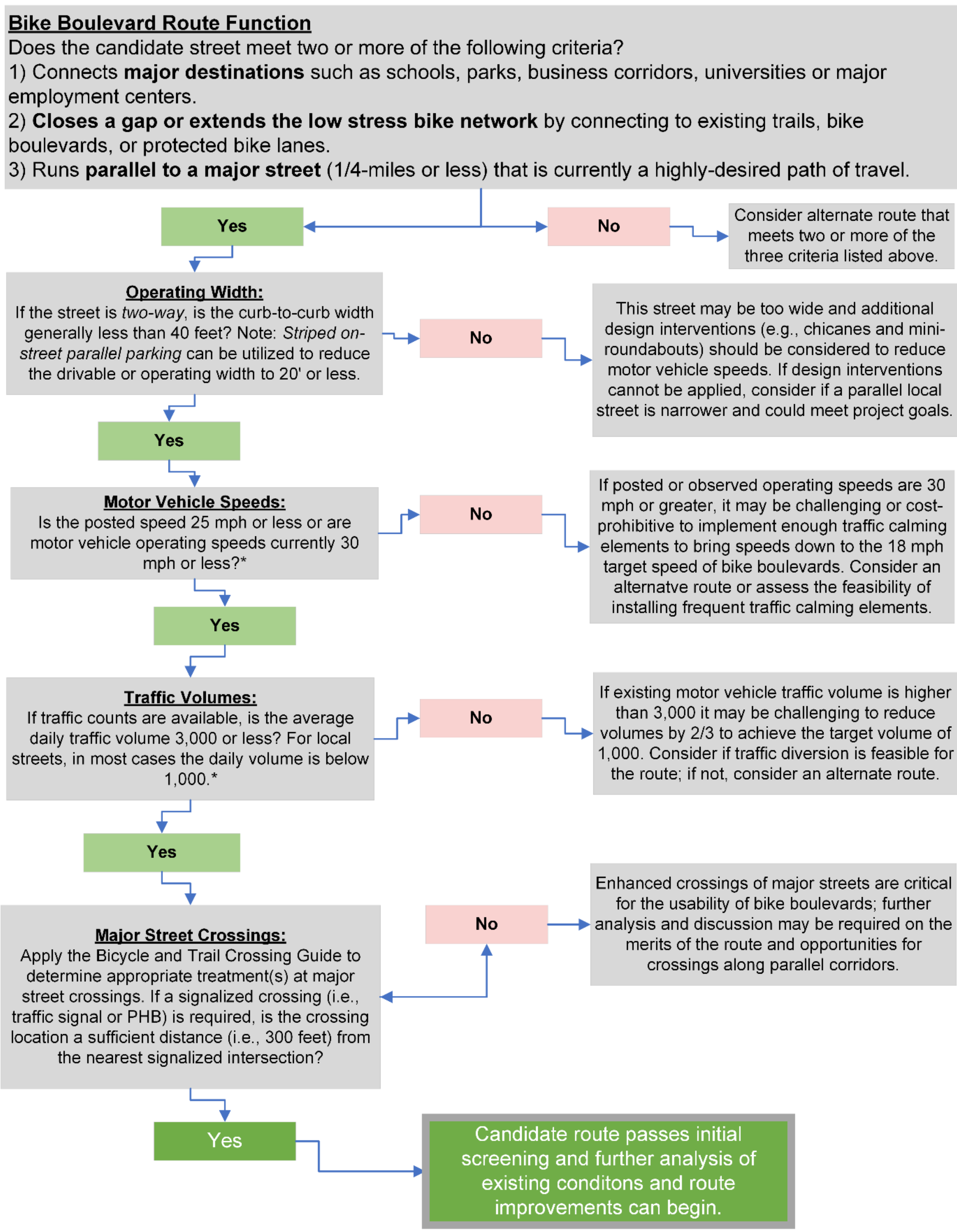
Considering Natural and Infrastructure Barriers and Topography

Bike boulevard routes should be chosen to use existing crossings of natural barriers (such as arroyos and rivers) and infrastructure barriers (such as railroad tracks and highways) where possible. Additionally, major inclines can present a barrier to people biking on a street. Route topography should therefore be considered to determine the route with the most gradual grade changes.

Build a Network That Connects People to Community Destinations

The bike boulevard network should conveniently connect people to community destinations and other low-stress bikeways, including multi-use trails. In Albuquerque, the best candidate streets for bike boulevards can be challenging to implement due to the high cost of improving major street crossings. However, the bike boulevard network should strive to connect people as directly as possible to community destinations. Re-routing a candidate bike boulevard to a different street should not create a more indirect route because it will likely be used less than a more direct route.

Figure 2: Candidate Bike Boulevard Route Screening Flow Chart



**Consider collecting information on vehicle speeds and traffic counts for candidate routes if no data is available.*

2) Bike Boulevard Design Elements

Baseline bike boulevard design elements include route identification, reduced speed limits, and traffic controls for minor street crossings. A summary of these elements, as well as their specific treatments, their level of benefits, their level of effort regarding implementation, and notes on the appropriateness of the treatments, is shown in Table 3. Each element is described in detail in the following sections. Note that standard bike boulevard features should be paired with other treatments to reduce traffic volume and manage vehicle speeds.

Elements of a Bike Boulevard

Table 3. Summary of Bike Boulevard Design Elements

	Treatment	Level of Benefit	Ease of Implementation	Appropriateness and Benefit
Route Identification	Wayfinding and Branding	●	○	**Core feature of bike boulevard:** Identifies bike boulevards as streets where people biking are present and should be given priority.
	Shared Lane Markings	◐	○	**Core feature of bike boulevard:** Builds awareness that people biking are present and for navigation.
	Bicycles May Use Full Lane Signs	○	○	**Core feature of bike boulevard:** Creates further awareness that people biking are present and should be given priority.
Reduced Speed and Traffic Volumes	Traffic Calming	●	◐	**Use depends on street conditions:** In many cases, some level of traffic calming is desired to lower motor vehicle speeds to make it comfortable for people biking.
	Traffic Diversion	●	◐	**Use depends on street conditions:** Median and partial road closures reduce vehicle cut-through traffic and create lower-stress conditions for people biking.
	Reduced Speed Limits	◐	○	**Core feature of bike boulevard:** Communicates to people driving that bike boulevards are unique streets and slower vehicle speeds are required.
	Striped Parking Lanes	◐	○	**Use depends on street conditions:** Creates sense of enclosure and narrows drivable space on local roads with on-street parking.
Street Crossings	Enhanced Crossings at Intersections with **Major Streets**	●	●	**Core feature of bike boulevard:** Ensure crossing opportunities for people biking of all ages and abilities; extends network to connection between neighborhoods.
	Prioritize Travel at Crossings with Other **Local Streets**	●	○	**Core feature of bike boulevard:** Appropriate to communicate bicycle priority on the route to people biking and driving.

High ● Medium ◐ Low ○

Route Identification

Route identification is comprised of multiple elements working in conjunction to communicate the location and path of a bike boulevard. These elements include:

- Wayfinding and branding
- Shared lane markings
- "Bicycles May Use Full Lane" signs

Wayfinding and Branding

Definition: Wayfinding is a system of navigational signs that aid people bicycling in reaching their destinations (see Figure 3). Wayfinding signs on bike boulevards should work in conjunction with the rest of the bicycle network, such as bike lanes and multi-use trails and should be designed for people biking of all ages and abilities. The frequency of this treatment should be every two to four blocks, in addition to before and after every turn.

Complementary Treatments: Wayfinding signs should not be considered a stand-alone alternative to, or substitute for, safety improvements. For this reason, it may be desirable to supplement bicycle wayfinding signs with other roadway improvements to accommodate bicycle travel, depending upon motor vehicle speeds and volumes along the route.

Route Based: Many bike boulevard wayfinding systems are route-based, meaning they are designed to identify all routes within a signed bicycle network uniquely. This approach, similar to an interstate system, may be accomplished for bicycle routes by providing a unique sign identifier – a route name, number, letter, shape, color, logo, or some combination of these features.

Figure 3: Wayfinding Sign with Route Name Identification and Advance Turn Notice

Figure 4: Mile Markers along Silver Ave Bike Boulevard

Figure 5: Street Sign Toppers as part Albuquerque Bike Boulevard Network

Shared Lane Markings

Definition: Shared lane markings, sometimes referred to as "sharrows," are roadway stencils that communicate to both the person biking and the person driving. For the person biking, it is one element that communicates the road is a designated bike boulevard (other elements include wayfinding and traffic signage). For people driving, it alerts them to expect people biking on the roadway.

Application and Design Considerations: Shared lane markings should be placed along each block (in each direction of travel), in accordance with guidance from the Manual on Uniform Traffic Control Devices (MUTCD) and may be complemented by bicycle stencils. Shared lane markings can also be used in conjunction with ***wayfinding markings*** to indicate when people biking should make a turning movement. In these cases, the pavement marking can be modified to include a turn arrow that indicates the direction of the turning movement (shown in Figure 7).

Figure 6: Shared Lane Markings with Striped Parking Lanes

Figure 7: Wayfinding Markings

Figure 8: Bicycle Stencil Markings

Shared lane markings should not be considered bikeways unless they are installed with other design features that slow and reduce motor vehicle traffic. The lateral placement of a shared lane marking is measured from the center of the chevron marking to the face of the curb or edge of the pavement. On bike boulevards, shared lane marking placement should be in the middle of the motor vehicle travel lane. This placement guidance is only applicable to bike boulevards and should be reevaluated if they are to be placed on other roadway types.

Guiding Principles for an Effective Bicycle Wayfinding System

Simplicity: Intuitive wayfinding helps people biking navigate and understand where they are in relation to nearby landmarks and destinations. Information should be clear, legible, and simple enough to be understood by a wide audience. In addition, bicycle wayfinding must provide concise messages, revealing enough information without overwhelming the user. Information on each sign should be kept to a minimum to avoid confusion and facilitate quick comprehension. Wayfinding should be placed efficiently to minimize sign clutter.

Legibility: Legibility is a key goal of bicycle wayfinding sign design. Title case (upper and lowercase letters) should be used on all destination signs. Where signs will be read by moving people biking, a font height of 2 in. for the lowercase letters is the minimum height, with 2.5 in or larger recommended to provide adequate sight distance and response time.

Consistency: Wayfinding systems should have common styles, fonts, colors, materials, and placement to promote continuity and help users quickly understand and interpret messages without having to stop their bicycle. Sign frequency and placement should be consistent, so users know what to expect.

Bicycles May Use Full Lane Signs

Definition: Being overtaken by a motor vehicle in a shared lane can cause significant stress to a person bicycling, particularly if they are passed too closely by a vehicle traveling at a higher speed. Some states and cities have passed legislation requiring motor vehicles to provide a minimum clearance when passing a bicycle; the City of Albuquerque's Traffic Code states a minimum passing distance of five feet (§ 8-3-3-10). The frequency of these signs should be approximately two every four blocks (one in each direction of travel).

Application and Design Considerations: To emphasize priority for people biking on a bike boulevard, the BICYCLES MAY USE FULL LANE sign (R4-11 of the Manual on Uniform Traffic Control Devices) may be used in situations where people driving must wait behind slower moving people biking or change lanes to pass a person biking at a safe distance.

Figure 9: Bicyclist May Use Full Lane Sign

Reduced Speed Limits

Definition: Reduced speed limits do not by themselves reduce vehicle speeds. The standard speed limit on residential streets in Albuquerque is 25 miles per hour (mph); however, bike boulevards currently have a designated speed limit of 18 mph. While 18-mph is not a federally recognized speed limit since it is not an increment ending in 5 or 0, its application is intended to be unique and to catch the attention of people driving on bike boulevards.

Application and Design Considerations: Where lower speed limits are authorized, a Speed Limit sign (R2-1) should be located at the beginning of the bike boulevard and on each block where the reduced speed limit applies to ensure people driving are aware of the reduced limit (see Figure 10). The frequency of regulatory speed limit signs should be two every two blocks (one in each direction of travel).

Figure 10: Bike Boulevard Speed Limit Sign in Albuquerque

Narrow Drivable Space and Sense of Enclosure

Striped On-Street Parking

Definition: Striping parallel on-street parking lanes on local roads can narrow the drivable or operating width of a street, causing people driving to slow down. Striped on-street parking also encourages people bicycling to ride more towards the center of the road and avoid colliding with any unexpectedly opened car doors. This treatment should be paired with shared lane markings, wayfinding and branding signage, and other bike boulevard treatments to be considered part of the bike boulevard route identification.

Application and Design Considerations: Striped parking lanes are a preferred technique on bike boulevards and should be implemented throughout a bike boulevard where on-street parking is present. See Figure 6 for an emaple of striped on-street parking in Albuquerque.

Sense of Enclosure Through Design Interventions

Definition: A sense of enclosure can also be created through street trees and traffic calming measures that reduce the drivable area of a street, such as diverters and chicanes.

Application and Design Considerations: See the Traffic Calming Strategies (Speed Management) chapter for additional details.

> **Parking on Bike Boulevards**
>
> Striping parking lanes also creates a sense of enclosure for people in general traveling on the road. Bike boulevards generally travel through low-stress, local roads that have residential homes or small-scale commercial shops. On residential streets, parallel parking can help create a sense of enclosure for people biking, though high parking turnover can create stress for people biking. If a bike boulevard travels through a commercial area, or is located on a wider street, reverse angle parking (also called back-in angle parking) is preferred. See 7-4(H)(2)(ii) in the Development Process Manual for additional

Prioritizing Travel for the Bike Boulevard at Crossings with Other Local Streets

Definition: The general goal of a bike boulevard is to prioritize travel for people biking along the corridor. For crossings of bike boulevards with minor streets, defined as a neighborhood street with a functional classification of "Local Road," the right of way should be prioritized for the bike boulevard route.

Application and Design Considerations: On long corridors with a frequent application of all-way or two-way stop control, the efficiency of travel along the bike boulevard can be improved by removing stop controls and requiring the cross street to stop or yield, or by utilizing roundabouts or mini traffic circles. This strategy for prioritizing people bicycling on bike boulevards should be applied throughout the bike boulevard.

The removal of stop signs can result in increased motor vehicle speeds and volumes or induce cut-through motor vehicle traffic when the bike boulevard parallels a congested arterial or is the only route through an area with few connecting streets. It may be necessary to install traffic calming or diversion treatments to discourage or prevent increased traffic volume, speeds, or both.

Additional parking restrictions may be desirable to "daylight" corners and to improve sight distance at locations where stop signs are removed or yield control is provided. It may also be beneficial to supplement stop or yield signs on side streets with the following plaques or branding strategies to highlight the fact that cross-street traffic, including people biking, do not stop:

- Cross Street Traffic Does Not Stop (W4-4P) plaque (Figure 11)
- Bike boulevard wayfinding sign to highlight the presence of people biking

Figure 11: Example of Cross Traffic Does Not Stop Plaque

3) Traffic Controls and Intersection Treatments at Major Street Crossings

Definitions and General Considerations

Crossings of major streets, defined as either collector or arterial roads, can be a significant barrier along bike boulevards. Local streets will typically have stop control at the approach to the major street, while the major street will be uncontrolled. Enhanced crossings at these locations are critical as a bike boulevard designation implies low-stress connections to community destinations and that people biking of all ages and abilities can safely navigate the route. Intersection crossings should also assume that people walking may utilize the crossing and should include crosswalk markings and accessibility features, along with other appropriate design measures to accommodate people walking and bicycling.

A summary of potential treatments at major street crossings, their level of benefits, level of effort for implementation, and notes on the appropriateness of the treatments, is provided in Table 4. Note that these crossing treatments are context-dependent, and they are optimal when paired with other bike boulevard design elements. Included in the guidance are treatments for offset intersections, which are common features of intersections of local and major streets in Albuquerque. The guidance on street crossings should be used in tandem with the City of Albuquerque *Bicycle and Trail Crossings Guide* (2022).

Table 4. Summary of Traffic Control and Intersection Treatments at Major Street Crossings

	Treatment	Level of Benefits	Ease of Implementation	Appropriateness and Benefit
Crossing Treatments	Traffic Signals, Pedestrian Hybrid Beacons, Rectangular Rapid-Flashing Beacons, Warning Signage and Crosswalk Striping	●	●	**Critical feature at major street crossings**. The specific crossing treatment recommendation depends on the traffic speed and volume of the major street and should follow the guidance from the City of Albuquerque *Bicycle and Trail Crossings Guide* (2022)
	Median Refuge Islands	●	◐	**Critical feature at major street crossings.** Median refuge islands allow for allow people biking to complete the crossing movement in two stages, if needed.
Off-set Intersection Treatments	Bicycle Lane with Two-Stage Bicycle Turn Box	◐	◐	Can be paired with a street median at major street crossings when bike boulevards must follow a major street for short segments.
	Two-Way Separated Bike Lane or Sidepath Connection	●	●	Option for low stress travel when bike boulevards must follow a major street for short segments.
	Staggered Crossing with Raised Median	●	◐	Option for enhancing crossing opportunities at major streets; allows for two-stage crossings.

High ● Medium ◐ Low ○

Traffic Signals and Enhanced Crossings

Definition: Where no crossing treatment for an intersection of a bike boulevard and a major street is present, an evaluation is needed to determine if an enhanced crossing treatment should be installed and/or intersection design improvements to aid people biking to cross the collector or arterial street. All crossings of major streets should include some form of designated crossing.

Application and Design Considerations: Depending on the traffic volume, travel speeds, and number of lanes, a pedestrian hybrid beacon (PHB), or a rectangular rapid flashing beacon (RRFB), or traffic signals may be present to control the major street (see Figure 12). Refer to the *Bicycle and Trail Crossings Guide* for additional details on each crossing treatment types and for the preferred treatment based on street conditions. In general, a PHB should be at least 300 feet or one block from the nearest traffic signal.

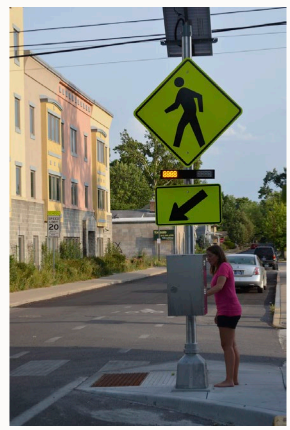
Where traffic signals are present at bike boulevard crossings, it may be desirable to allow coordinated traffic signals to operate on half cycle lengths or to operate in "free" or uncoordinated mode during off-peak hours to reduce delays for people biking and provide frequent service.

In locations where a new crossing is being evaluated, it is appropriate to consider projected bicycle volumes instead of existing volumes when evaluating signal and pedestrian hybrid beacon warrants. The existing volumes may be too low to meet the requirements of a traffic signal warrant but the existing volumes are typically low because there is no existing safe crossing which leads to people biking avoiding the crossing location altogether.

Enhanced Crossings Treatments on Bike Boulevards

A **pedestrian hybrid beacon** (PHB) is an overhead signal that is push-button activated to stop vehicles and allow a safe crossing. See Figure 12 for an example. PHBs are also known as a High-Intensity Activated Crosswalk Beacon (HAWK).

A **rectangular rapid flashing beacon** (RRFB) is a push-button activated beacon that alerts people driving to yield to people walking or biking. See photo below.



Traffic signals are car-oriented lights that indicate when vehicles are allowed to cross an intersection. They are marked with red, yellow, and green lights.

Figure 12: Pedestrian Hybrid Beacon along Fair Heights Bike Boulevard

Source: Google Maps

Offset Intersection Treatments and Travel along Major Streets

In some cases, bike boulevards may not continue directly through an intersection, requiring people biking to make turns or travel for a brief distance on an arterial or collector street before continuing along the same street on the other side of the intersection. These "offset" or asymmetrical intersections require special consideration and treatments to provide a continuous, comfortable path for people biking. Without effective design treatments, offset intersections can become a barrier along the corridor, creating a less attractive bike boulevard.

The following treatments provide examples for improving offset intersections and supporting the needs of people biking of all ages and abilities. In most cases this will require a protected bike lane, off-street sidepath, or a staggered crossing with a raised median to create a high level of comfort while riding along the major street.

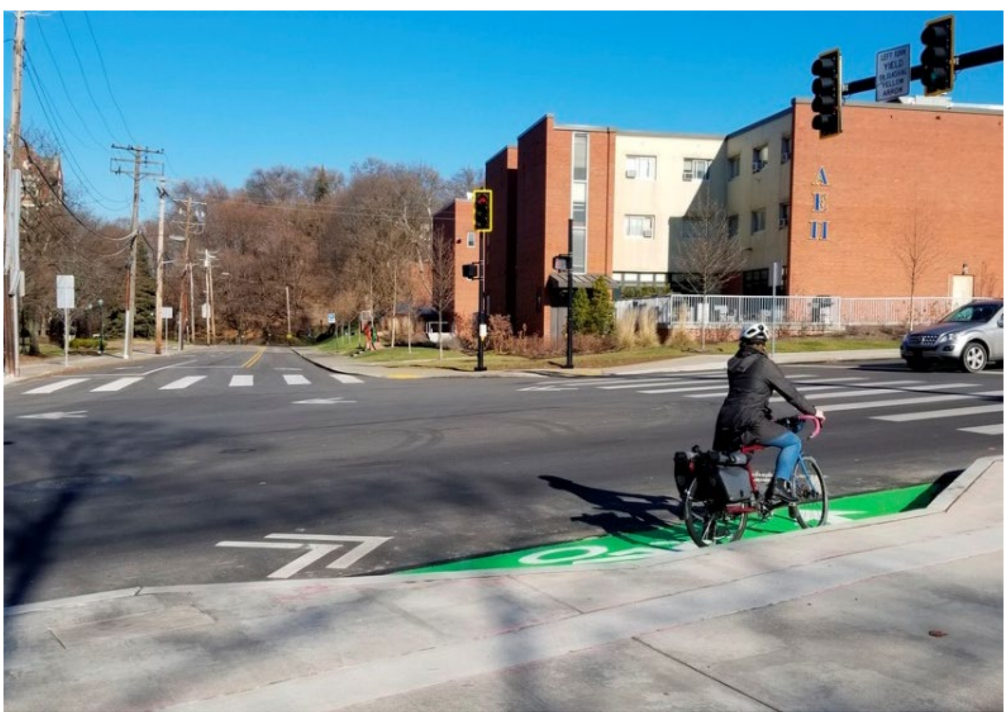
Bike Lane with Two-Stage Bicycle Turn Box

Definition: Where roadway space is limited and bike lanes are the preferred treatment or only practical option, the addition of two-stage bicycle turn boxes may be used to create space for people biking to do the following:

- Wait for gaps in traffic at uncontrolled crossings outside of the path of moving traffic or people biking
- Actuate an activated beacon, pedestrian hybrid beacon, or traffic signal via passive detection or a curbside push button

Application and Design Considerations: Space for a two-stage bicycle turn box may be created by restricting parking or recessing the curb to place the two-stage bicycle turn box within the sidewalk buffer (see Figure 15).

Figure 13: Example of a Two-Stage Bicycle Turn Box



Sidepath or Two-Way Separated Bike Lane Connection

Definition: To connect bike boulevard segments across and along major streets, sidepaths and two-way separated bike lane may be considered for short distances on one side of the street (see Figure 16). Since bike boulevards should generally avoid traveling along major streets, this facility type should be used selectively. Where appropriate, sidepaths and separated bike lanes ensure a higher level of user comfort than typical on-street bike lanes and better support travel by people biking of all ages and abilities.

Application and Design Considerations: Where a sidepath or a two-way separated bike lane is provided, the street buffer between the street and bikeway should be made as wide as practical to:

- Improve comfort for people biking operating counter-flow to traffic
- Create queuing space for people biking
- Allow the construction of a protected intersection at the terminus of the bikeway

On-street parking should be eliminated where right-of-way is constrained or where sight lines would be limited with the preservation of parking. Consideration should be given to the use of green-colored pavement within the bikeway, and a bike crossing should be marked to improve visibility and help people biking navigate the facility.

Locating the sidepath or separated bike lane on one side allows for crossings to be concentrated to one location. Where it is determined that traffic control is necessary at the end of the bikeway entering the minor street, yield control is recommended. Where an activated beacon, PHB, or traffic signal is required to cross the street, detection may be passive or provided by a curbside push button.

Figure 14: Example Two-Way Sidepath along Neighborhood Street

Staggered Crossing with Raised Median

Definition: Where a center turn lane is present along the major street, a staggered crossing with a raised median may be provided to facilitate crossings by people walking and biking. The typical configuration of a staggered crossing requires a two-stage crossing action and has the benefit of forcing people walking and biking to turn slightly toward traffic before crossing.

Application and Design Considerations: For crossings of lower volume two-lane streets, a couplet of center bicycle-only left turn lanes may be used to facilitate an offset crossing along a bike boulevard (see). Center-left turn lanes are appropriate where there are sufficient gaps between vehicles to allow bicycles to enter the left turn lane.

To improve comfort and safety, a raised curb or other form of vertical separation between the bike lane and adjacent travel lane is strongly recommended. A striped buffer may also be considered; however, this treatment places people biking in the middle of the major street and should be limited to locations where major road vehicle speeds 30 mph or lower.

Figure 15: Examples of Staggered Crossings with Raised Medians along Bike Boulevards in Albuquerque

4) Traffic Calming Strategies (Speed Management)

Traffic calming strategies focus on reducing motor vehicle travel speeds and traffic volumes. This section summarizes techniques for reducing speed through horizontal and vertical deflection treatments, including their respective benefits, level of effort for implementation, and notes on the appropriateness of the treatments. Note that these elements are context-dependent and are most effective when paired with other bike boulevard treatments.

Table 5: Summary of Traffic Calming Treatments

	Treatment	Level of Benefits	Ease of Implementation	Appropriateness
Horizontal deflection treatments	One-Lane Pinch-Points	●	◐	Appropriate in mid-block locations on local roads and not adjacent to major streets.
	Chicanes	◐	◐	Appropriate in mid-block locations on long blocks and along street segments with few stop control devices.
	Neighborhood Mini Traffic Circles	●	◐	Appropriate at the intersection of two local streets in periodic locations along the bike boulevard. Desired spacing is every two blocks.
Vertical deflection treatments	Speed Humps	◐	◐	Appropriate at periodic locations throughout a bike boulevard (e.g., every 200-400 feet), depending on existing travel speeds and target design speed); should not be placed on blocks immediately approaching a major street.
	Raised Crosswalks and Speed Tables	●	●	Appropriate near neighborhood destinations with high foot traffic or at intersections of bike boulevards with major streets where the speed limit is 30 MPH or less.
	Raised Intersection	●	●	Appropriate at intersections adjacent to destinations with high foot traffic.
	Speed Cushions	●	◐	Appropriate at periodic locations throughout a bike boulevard (e.g., every 200-400 feet) depending on existing travel speeds and target design speed; speed cushions should not be placed on blocks immediately adjacent to a major street.

High ● Medium ◐ Low ○

Traffic calming strategies are particularly important when the drivable or operating width of the road is greater than 20 feet, assuming on-street parking is striped and the drivable width can be reduced by 16 to 20 feet. Table 6 outlines the need for design interventions based on the curb-to-curb width of the street.

Table 6: Curb-to-Curb Width and Potential Design Interventions

Curb-to-curb Width	Design Interventions
<40 feet	Sense of enclosure can be created through striping on-street parking. Mini-traffic circles should be considered to further
40 to 46 feet	Street is too wide for striped parking to create a sense of enclosure and too narrow for on-street bike lanes. Additional design interventions desired.
>46 feet	Street is likely too wide to achieve modest motor vehicle travel speeds through striped parking and horizontal deflection techniques. Use of bike lanes or an alternative route should be considered.

Horizontal Deflection Treatments

Horizontal deflection treatments require people driving to slow down to adjust to a visually narrower roadway or accommodate a shifting or curving travel lane. Horizontal deflections may require more upfront planning than vertical deflections, but they offer more flexibility in managing vehicle speed and volume. The main strategies for managing automobile speed include:

- One-lane pinch points
- Chicanes
- Neighborhood mini traffic circles

Pinch Points

Definition: Pinch-points require people driving to yield as they approach this treatment (see Figure 17). Treatments to create pinch-points include curb extensions, chokers, and diverters, which narrow a roadway to one travel lane.

Figure 16: Road Narrows Plaque

Application and Design Considerations: This treatment may be most appropriate on two-way streets with more than 18 feet of operating width, streets with low parking demand, or streets with parking on one side.

Pinch-points may benefit from the addition of edge line striping and a ROAD NARROWS sign (W5-1) approaching the location where visibility to the pinch point is limited (see Figure 16). The frequency of pinch points may be one every 600 to 800 feet and should be evaluated based on traffic analyses. For more information on techniques that create pinch-points, see the City of Albuquerque *Neighborhood Traffic Management Program*.

Figure 17: Example of One Lane Pinch Point

Chicanes

Definition: Chicanes are a series of curb extensions, pinch-points, parking bays, or landscaping features that alternate from one side of the road to the other. Chicanes should be designed to reduce vehicle speeds by requiring people driving to shift laterally through narrowed travel lanes (see Figure 18). This can be accomplished by shifting the path of travel from one-half of the street to one full lane width.

Application and Design Considerations: Chicanes require sufficient width within the travel lane and careful consideration of parking availability. Areas where parking is restricted should be clearly identified with signs, and in some cases supplemented with markings or physical features to prevent parking in places that could create conflicts. The addition of curb extensions or islands may help prevent parking near the chicane. Where space permits, chicanes should be placed approximately every 200 to 400 feet.

It may be desirable to add a center line and edge line markings to guide users through a chicane and to encourage people driving to stay in their lane. For more information on chicanes, see the City of Albuquerque *Neighborhood Traffic Management Program*.

Figure 18: Example of Chicane Use as Traffic Calming Treatment

Neighborhood Mini Traffic Circles

Definition: Neighborhood mini traffic circles may be used to slow vehicle approach speeds to intersections with uncontrolled or yield-controlled approaches (see Figure 19). In this configuration, the mini traffic circle is intended to prevent speeding and cut-through motor vehicle traffic while still allowing people biking to continue through minor local street intersections without having to come to a complete stop. It is also acceptable to allow stop control at mini circles in either two-way stop or all-way stop control configurations.

Application and Design Considerations: Mini traffic circles vary in size and have different design criteria than roundabouts. The circle should be designed to slow passenger vehicles while still allowing occasional access for larger emergency vehicles. The frequency of these mini traffic circles should be at every quarter mile or less, with more frequent spacing (e.g., every other intersection) preferred.

To improve safety for people bicycling, mini traffic circles and approach streets should have clear sight lines and should be clearly signed and marked to guide navigation around the circle. Sufficient lighting should be provided to ensure the mini traffic circle is visible to reduce crash risk for people biking who could potentially strike the street element at night. Reflective markers can also be placed along the edges of the traffic circle to increase their visibility in low light and nighttime conditions. For more information on traffic circles, see the City of Albuquerque *Neighborhood Traffic Management Program*.

Figure 19: Mini Traffic Circle along Silver Ave Bike Boulevard

Vertical Deflection Treatments

Vertical deflections, or vertical speed control measures, are wide, slight pavement elevations that result in slower driving speeds. The primary geometric characteristics of vertical deflections are the height, length, width, and approach and departure ramp slopes of the device. Well-designed vertical deflections allow vehicles and people biking to proceed over the device at the intended speed with minimal discomfort. Vertical deflections should be indicated with pavement markings so they are visible to both people driving and people biking. Where visibility is a concern, warning signs should be considered. Vertical deflection treatments include:

- Speed humps, raised crosswalks and speed tables
- Raised intersection
- Speed cushions

See the City of Albuquerque Neighborhood Traffic Management Program for additional guidance on vertical deflection techniques.

Speed Humps, Raised Crosswalks and Speed Tables

Speed humps, raised crosswalks, and speed tables can be effective devices to reduce speeds along a bike boulevard. To have the intended impact, they should be placed strategically along the route. For example, a speed table combined with a pedestrian crosswalk can be an effective gateway treatment at the entrance to a bike boulevard to indicate to a person driving a motor vehicle that they are entering an area where lower speeds are expected (see Figure 20). Raised crosswalks are also an effective strategy to slow the turning speeds of motor vehicles entering a roadway. Where speed humps are used to control speeds, they are most effective when they are placed periodically along the route (e.g., every 200 to 400 feet) to reinforce speed control.

Stormwater flow should be accommodated when considering vertical deflection treatments. To minimize cost during retrofit installations, the raised device may have a side taper to the edge of the street to allow stormwater to continue to flow along existing gutters.

Figure 20: Example of Raised Crosswalk and Raised Intersection

Raised Intersection

Similar to raised crosswalks, raised intersections are constructed to elevate the entire intersection to sidewalk level and are designed to provide approach ramps that are similar to raised crosswalks. This strategy may be appropriate at intersection locations where the following conditions exist:

- Bike boulevards turn to a cross street
- The intersection is offset
- People biking may need to make a diagonal crossing to access a park, school, or other destination
- Locations where trucks and other large vehicles must routinely turn
- Locations where priority for people walking is desired
- Intersections with higher volume streets or signalized locations where speed humps, speed bumps, or raised crosswalks are not appropriate

Raised intersections require careful consideration of pedestrian accessibility requirements. At a minimum, the provision of a continuous detectible warning surface will be required at all locations where a flush pedestrian route intersects the street edge.

Speed Cushions

Speed cushions are similar to speed tables but are designed with cutouts to allow wider wheelbase vehicles and people biking to bypass the raised portion of the device. They may be built with a variety of approach ramp profiles. These devices are typically placed in pairs and centered in a travel lane to prevent people driving from bypassing them. The frequency of speed cushions should be every 200 to 400 feet. See Figure 21 for an example.

Figure 21: Example of Speed Cushion

5) Traffic Diversion Strategies (Volume Management)

Traffic diversion treatments are volume management tools used to reduce through-traffic on bike boulevards. They may consist of "soft" treatments, which rely on compliant behavior (e.g., posting turn restrictions) or hardscape treatments, which force compliant behavior through geometric design. Diversion strategies will typically maintain local motor vehicle access to residences and businesses along the bike boulevard while diverting people driving on through trips to other streets.

A summary of these elements, as well as their specific treatments, their level of benefits, level of effort of implementation, and notes on the appropriateness of the treatments, are contained in Table 7. Note that these bike boulevard elements are context-dependent, and they are optimal when paired with other bike boulevard treatments. Designs can be modified as needed to allow emergency vehicle access by providing cut-through slots to match emergency vehicle wheelbases or by providing lowered curb heights so emergency vehicles can drive over the elements in an emergency.

Table 7. Summary of Traffic Diversion Treatments

Treatment	Level of Benefits	Effort of Implementation	Benefits and Appropriateness
Regulatory Signs	○	○	Signage alone has minimal benefit and is more effective when implemented in conjunction with infrastructure changes.
Major Street Medians	●	●	Medians at intersections of local streets along a bike boulevard and an arterial or collector significantly limits the amount of cut through motor vehicle traffic along the bike boulevard.
Diagonal Diverters	●	●	Diverters are appropriate on bike boulevards with high vehicular volumes as they entirely restrict through access for people driving. Significant outreach to residents is needed.
Forced Turns and Partial Closures	●	◐	Forced turns and partial closures are appropriate at bike boulevard intersections with local and major streets and can reduce the amount of cut through motor vehicle traffic along the bike boulevard.

High ● Medium ◐ Low ○

Major Street Medians

Definition: Raised medians at major street crossings can be constructed to restrict motor vehicle access on local streets while allowing through movements for people bicycling and walking (see Figure 22). Major street medians can be highly beneficial on bike boulevards by limiting through traffic for motor vehicles.

A key consideration is whether it is desired to provide people walking and biking a single-stage or two-stage crossing. A single-stage crossing is when people walking or biking cross the entirety of the street in one stage. A two-stage crossing is when the people walking or biking are given a signal or expected to cross one direction of motor vehicle traffic to the median before waiting for another signal or break in traffic to cross the other direction of traffic in a second stage. In all locations, the median should extend outside the limits of the intersection to prevent people from driving around them.

Application and Design Considerations: A refuge median is desirable to allow a two-stage crossing when used at controlled and uncontrolled crossings of major streets with multiple travel lanes in each direction. The median should be a minimum of 6 feet wide to allow people biking to take refuge in the median without sticking out into active motor vehicle traffic lanes. A 10-foot or wider median is preferred to accommodate larger groups of people biking as well as people biking with trailers or on larger bikes.

The primary design consideration in a median or hardened centerline opening is the alignment of approaching people driving to the median. Where the median opening is located in the perceived line of travel for a person driving a motor vehicle, the median opening should be designed to discourage people driving from attempting to enter the bicycle crossing.

A secondary design consideration is whether it is desired to provide a median opening space for people biking to pass through the median that is separate from people walking. This can be accomplished by providing separate median openings for each direction of bicycle travel and limiting the opening to a width between 5 and 6.5 feet. At locations where people biking can cross the roadway in a single stage or where there are traffic signals, the median may be a hardened centerline or as narrow as two feet. Median openings can also be designed to allow emergency vehicles to cross them by straddling the island and passing over it while also discouraging people driving from crossing them.

Uncontrolled crossings should be evaluated to confirm whether other treatments may be necessary, including providing active traffic control devices such as PHBs, RRFBs, or traffic signals to facilitate the crossing. For more information, see the City of Albuquerque *Bicycle and Trail Crossings Guide*.

Figure 22: Raised Median along Silver Ave Bike Boulevard

Diagonal Diverters

Definition: Diagonal diverters prevent through motor vehicle movements in all directions at street intersections, requiring people driving to turn left or right while allowing people biking to continue through the intersection at smaller cut-through locations at the ends of the diverter (Figure 23). Diagonal diverters are typically installed at four-way intersections of local streets and require a physical barrier to restrict motor vehicle access and force people driving to turn off the bike boulevard. Diagonal diverters may be constructed with curb extensions with or without drainage channels at the curb, bollards, or a guardrail.

Application and Design Considerations: Like a median or hardened centerline used for traffic diversion, the diagonal diverter must allow people biking to pass through. This can be accomplished by providing a median opening between 5 and 6.5 feet in width for each direction of bicycle travel; a refuge space is not required because of the lower volume and lower speed local street context. A separate accessible pedestrian route should be provided. Diagonal diverters may be placed along a bike boulevard at locations where traffic volumes exceed acceptable vehicular volumes and where redundant residential access exists. For more information, see the City of Albuquerque *Neighborhood Traffic Management Program*.

Forced Turns and Partial Closures

Definition: The ends of a two-way street can be converted to one-way motor vehicle traffic by installing an island or a curb extension to force people driving to turn. This design also restricts people driving from turning onto or continuing along the bike boulevard. A type of forced turn diversion strategy could involve a "toucan crossing" in which both people biking and people walking (i.e., "two can") cross. This type of crossing requires traffic diversion to restrict left turns and through traffic from the minor street. A simplified version of a toucan crossing is a partial or half closure, which prohibits vehicular traffic from entering a street. This partial closure includes openings for people bicycling or walking to access the street and continue traveling.

Application and Design Considerations: This design may be considered at the intersection of two local streets or at major street crossings if it is not desirable to install a controlled crossing treatment. The geometry of a forced turn or partial closure requires people driving to turn right from the minor street while allowing people biking to proceed. Forced turns and partial closure treatments should minimize the extent to which people biking must pass through a constrained space between curbs or vertical elements.

Figure 23: Example of Diagonal Diverter and Partial Street Closure with Bicycle Cut Through along Local Street

Regulatory Signage

Motor vehicle traffic may be restricted along bike boulevards through the use of mandatory turn signs (R3-1 or R3-2 from the MUTCD), as shown in Figure 24. These should be supplemented by right and/or left turn pavement marking arrows to emphasize the restriction. Signs and pavement markings alone may not be effective at discouraging motor vehicle access. All signs should include an EXCEPT BICYCLES plaque to allow people biking to have access to the bike boulevard. For more information on signed turn restrictions, see the City of Albuquerque *Neighborhood Traffic Management Program*.

Figure 24: Examples of Regulatory Signage

2024 CITY OF ALBUQUERQUE BIKEWAY AND TRAIL FACILITIES PLAN

APPENDIX F: PRIORITY PROJECTS TABLES

BIKEWAY & TRAIL FACILITIES PLAN
CITY OF ALBUQUERQUE

ONE ALBUQUERQUE municipal development

ONE ALBUQUERQUE parks & recreation

List of Tables

Notes

Table 1: Priority Levels for All Projects Proposed in 2024 Plan

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
Very High	5th Street / 6th Street	Coal Avenue	I-40 Frontage Road EB	2.9	Buffered Bike Lane, Bike Lane	Plausible Near-Term	$7,980,000	$14,480,000
Very High	Academy Road	Wyoming Boulevard	Tramway Boulevard	4.3	Sidepath	Long-Term	$36,930,000	
Very High	Alvarado Drive	Eastern Avenue	I-40 Trail Bridge	2.2	Bike Boulevard, Bike Lane	Long-Term	$3,250,000	$5,480,000
Very High	Alvarado Drive / Palomas Drive	I-40 Trail Bridge	Comanche Road	1.4	Bike Boulevard	Long-Term	$3,040,000	$4,280,000
Very High	Avenida Cesar Chavez	Broadway Boulevard	Yale Boulevard	1.1	Separated Bike Lane	Plausible Near-Term	$2,100,000	$4,940,000
Very High	Bear Canyon Arroyo Trail	Wyoming Boulevard	Morris Street	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$2,350,000	
Very High	Broadway Boulevard	Coal Avenue	Lomas Boulevard	0.9	Buffered Bike Lane	Plausible Near-Term	$2,060,000	$4,300,000
Very High	Buena Vista Drive	Gibson Boulevard	Central Avenue	1.6	Bike Boulevard	Long-Term	$4,420,000	$5,790,000
Very High	Candelaria Road	San Isidro Street	I-40 Frontage Road SB	2.4	Separated Bike Lane	Plausible Near-Term	$3,300,000	$9,340,000
Very High	Chelwood Park Boulevard	Copper Avenue	Candelaria Road	2.6	Bike Lane	Plausible Near-Term	$1,520,000	$5,580,000
Very High	Claremont Avenue	Richmond Drive	Juan Tabo Boulevard / Paseo de las Montañas Trail	6.0	Bike Boulevard, Bike Lane	Long-Term	$9,310,000	$14,950,000
Very High	Comanche Road	San Mateo Boulevard	East of Tramway Boulevard	5.5	Separated Bike Lane, Enhanced Bike Route, Bike Lane	Plausible Near-Term	$6,870,000	$20,160,000
Very High	Constitution Avenue	Pennsylvania Street	Indian School Road	3.4	Bike Lane	Plausible Near-Term	$2,830,000	$9,460,000
Very High	Constitution Avenue	Vassar Drive	Mesilla Street	1.6	Bike Lane, Buffered Bike Lane, Buffered Bike Lane One Direction	Plausible Near-Term	$2,080,000	$5,150,000
Very High	Crest Avenue / Eastern Avenue	Washington Street	Louisiana Boulevard	1.5	Bike Boulevard	Long-Term	$3,090,000	$4,440,000
Very High	Edith Bouelvard	Gibson Boulevard	Menaul Boulevard	3.4	Bike Boulevard, Bike Lane	Plausible Near-Term	$5,860,000	$10,610,000
Very High	Eubank Boulevard	Montgomery Boulevard	San Francisco Road	5.3	Separated Bike Lane	Long-Term	$12,850,000	$19,620,000
Very High	Indian School Road	Broadway Boulevard	San Pedro Drive	3.8	Separated Bike Lane	Plausible Near-Term	$5,280,000	$14,930,000
Very High	Las Lomas Road / Campus Boulevard	University Boulevard	Monte Vista Boulevard	1.0	Buffered Bike Lane, Bike Lane, Bike Boulevard	Plausible Near-Term	$1,290,000	$3,010,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
Very High	Lead Avenue / Coal Avenue	Broadway Boulevard	Elm Street	0.8	Separated Bike Lane	Plausible Near-Term	$1,900,000	$2,420,000
Very High	Louisiana Boulevard	Gibson Boulevard	Central Avenue	1.2	Buffered Bike Lane, Separated Bike Lane	Plausible Near-Term	$2,630,000	$5,740,000
Very High	Marquette Avenue / Roma Avenue	Girard Boulevard	San Pedro Drive	2.3	Bike Boulevard	Long-Term	$4,340,000	$6,390,000
Very High	Parsifal Street / Moon Street	Paseo de las Montañas Trail	Academy Road	3.6	Bike Boulevard, Bike Lane, Sidepath	Long-Term	$6,490,000	$10,150,000
Very High	Paseo de las Montañas Trail / Embudo Recreation Trail	Hendola Drive	Marie Park Drive	0.0	Paved Multi-Use Trail Crossing	Long-Term	$7,910,000	
Very High	Paseo del Nordeste Trail	Carlisle Boulevard	Pennsylvania Street	0.0	Paved Multi-Use Trail Crossing	Long-Term	$5,120,000	
Very High	Paseo del Norte	I-25 Frontage Road NB	Eubank Boulevard	4.6	Sidepath	Long-Term	N/A	
Very High	Prospect Avenue / Cutler Avenue	Morningside Drive	San Pedro Drive	1.4	Bike Boulevard, Bike Lane	Plausible Near-Term	$1,530,000	$3,200,000
Very High	San Pablo Street / Charleston Street / Mesilla Street	Southern Avenue	Constitution Avenue	2.3	Bike Boulevard	Long-Term	$2,720,000	$4,730,000
Very High	San Pedro Drive	Ridgecrest Drive	Osuna Road	6.1	Buffered Bike Lane	Plausible Near-Term	$7,340,000	$19,270,000
Very High	Silver Avenue	2nd Street	University Boulevard	1.1	Bike Boulevard, Separated Two-Way Cycle Track, Sidepath	Plausible Near-Term	$3,400,000	$4,760,000
Very High	Stanford Drive / Columbia Drive	Gibson Boulevard	Central Avenue	1.6	Bike Boulevard	Plausible Near-Term	$1,670,000	$3,110,000
Very High	Summer Avenue / Mackland Avenue / Marble Avenue	Stanford Drive / North Diversion Channel Trail	Louisiana Boulevard / I-40 Trail Bridge	3.4	Bike Boulevard, Bike Lane	Long-Term	$5,590,000	$8,660,000
Very High	Tower Road	106th Street	Bridge Boulevard	2.9	Buffered Bike Lane, Separated Bike Lane	Plausible Near-Term	$2,760,000	$8,210,000
Very High	Trumbull Avenue	Valverde Drive	Eubank Boulevard	3.7	Bike Boulevard, Sidepath	Long-Term	$5,390,000	$8,580,000
Very High	University Boulevard	South of Gibson Boulevard	Lomas Boulevard	2.6	Separated Bike Lane, Bike Boulevard	Plausible Near-Term	$4,730,000	$10,940,000
Very High	Washington Street / Montclaire Drive	Menaul Boulevard	Montgomery Boulevard	1.7	Bike Boulevard, Sidepath	Long-Term	$2,690,000	$4,020,000
Very High	Washington Street / Valverde Drive / Morningside Drive	Gibson Boulevard	Marquette Avenue	2.1	Bike Boulevard	Plausible Near-Term	$3,200,000	$5,020,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
Very High	Wellesley Drive / Tulane Drive / Lafayette Drive	Gibson Boulevard	Indian School Road	2.9	Bike Boulevard, Sidepath	Long-Term	$4,940,000	$7,470,000
High	10th Street	Santa Fe Avenue	Marquette Avenue	0.9	Bike Boulevard, Bike Lane	Plausible Near-Term	$1,010,000	$1,970,000
High	2nd Street / 3rd Street	Marble Avenue	Candelaria Road	2.4	Buffered Bike Lane	Plausible Near-Term	$2,070,000	$6,560,000
High	57th Street / 58th Street / 59th Street	Gonzales Road	Atrisco Drive / I-40 Trail	2.6	Bike Boulevard, Sidepath	Plausible Near-Term	$2,180,000	$4,420,000
High	57th Street / Atrisco Drive	Ouray Road	Sequoia Road	0.6	Buffered Bike Lane	Plausible Near-Term	$730,000	$2,340,000
High	86th Street	98th Street	Central Avenue	1.9	Buffered Bike Lane, Bike Lane, Bike Boulevard	Plausible Near-Term	$1,300,000	$4,560,000
High	94th Street	Benavides Road	Volcano Road	1.8	Bike Boulevard	Plausible Near-Term	$2,210,000	$3,830,000
High	98th Street / Snow Vista Boulevard	North of Rio Clara Avenue	De Vargas Road	1.4	Sidepath	Long-Term	$2,220,000	
High	Academy Road	Seagull Street	Wyoming Boulevard	1.7	Separated Bike Lane	Long-Term	$8,450,000	$12,810,000
High	Airport Drive	Central Avenue	Los Volcanes Road	0.8	Buffered Bike Lane	Plausible Near-Term	$590,000	$2,080,000
High	Alameda Boulevard	Balloon Museum Drive	Ventura Street	5.8	Sidepath	Long-Term	$11,360,000	
High	Alameda Boulevard / NM 528	Lorretta Drive	Westside Boulevard	3.7	Sidepath	Long-Term	N/A	
High	Alameda Drain Trail	Central Avenue	Rio Grande Boulevard / I-40	0.9	Paved Multi-Use Trail	Long-Term	$1,240,000	
High	Alameda Drain Trail	Matthew Avenue	4th Street	0.0	Paved Multi-Use Trail Crossing	Long-Term	$1,610,000	
High	Alamogordo Drive / Vista Grande Drive	Bridges Avenue	Saint Joseph's Drive	1.4	Enhanced Bike Route	Plausible Near-Term	$340,000	$1,580,000
High	Amole Arroyo Trail / Snow Vista Trail / West Gate Trail	Blake Road	Tower Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$2,930,000	
High	Apache Avenue / Utah Street	Española Street	Claremont Avenue	1.0	Bike Boulevard	Long-Term	$1,790,000	$2,650,000
High	Atrisco Drive	Central Avenue	I-40 Trail Bridge	1.7	Separated Bike Lane, Buffered Bike Lane	Plausible Near-Term	$990,000	$2,850,000
High	Atrisco Riverside Drain	Bridge Boulevard	Central Avenue	1.7	Paved Multi-Use Trail	Long-Term	$2,390,000	
High	Avenida Cesar Chavez	Walter Street	Langham Street	0.3	Separated Bike Lane	Long-Term	$1,200,000	$1,200,000
High	Avenida Cesar Chavez Railroad Overpass	3rd Street	Broadway Boulevard	0.4	Sidepath	Long-Term	N/A	

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
High	Avenida Dolores Huerta	La Vega Drive	Paseo del Bosque Trail	0.4	Sidepath	Long-Term	N/A	
High	Barcelona Road	Coors Boulevard	Isleta Boulevard	1.1	Bike Lane	Long-Term	N/A	
High	Barstow Street	Harper Road	Signal Road	1.8	Separated Bike Lane, Buffered Bike Lane	Plausible Near-Term	$2,010,000	$5,960,000
High	Bermuda Drive / Chelwood Road	Candelaria Road	Manitoba Drive	1.8	Bike Boulevard	Plausible Near-Term	$2,030,000	$3,590,000
High	Blake Road / De Anza Drive	98th Street / 86th Street	Unser Boulevard	1.3	Buffered Bike Lane	Plausible Near-Term	$1,410,000	$3,470,000
High	Bluewater Road	98th Street	Camino Azul / Coors Boulevard	2.0	Buffered Bike Lane	Plausible Near-Term	$1,330,000	$5,030,000
High	Bluewater Road / La Bajada Road	Coors Boulevard	Atrisco Drive	1.2	Bike Boulevard, Sidepath	Plausible Near-Term	$1,120,000	$2,070,000
High	Brentwood Hills Boulevard / Marie Park Drive	Martha Street / Embudo Trail	Eastridge Drive / Tramway Boulevard Crossing	1.8	Bike Boulevard	Long-Term	$2,360,000	$3,980,000
High	Calabacillas Arroyo Trail	Universe Boulevard	Eagle Ranch Road	4.4	Paved Multi-Use Trail	Long-Term	$6,230,000	
High	Camino del Sol / Kielich Avenue / Malaguena Lane	Spain Road	Lowell Street	2.9	Bike Boulevard, Bike Lane	Plausible Near-Term	$3,810,000	$7,410,000
High	Central Avenue	90th Street	Unser Transit Center	2.9	Sidepath	Long-Term	$4,970,000	
High	Chico Road	Utah Street	Shirley Street / I-40 Trail	1.6	Bike Boulevard	Long-Term	$2,080,000	$3,450,000
High	Cloudview Avenue	Chelwood Park Boulevard	Lomas Verdes Avenue / Panorama Place	0.5	Bike Lane	Plausible Near-Term	$210,000	$1,230,000
High	Coal Avenue	Elm Street	Oak Street	0.1	Separated Bike Lane	Long-Term	$1,090,000	$1,090,000
High	Cochiti Road / Shirley Street	Morris Street / Elizabeth Street	Chico Road	1.0	Bike Boulevard	Long-Term	$2,840,000	$3,720,000
High	Coors Boulevard	Blake Road (LRBS)	Bridge Boulevard (LRBS)	2.3	Buffered Bike Lane	Long-Term	N/A	
High	Copper Avenue	Wyoming Boulevard	Eubank Boulevard	1.0	Bike Lane	Plausible Near-Term	$970,000	$2,900,000
High	Copper Avenue	Tomasita Street / I-40 Trail Bridge	Copper Trailhead	2.3	Buffered Bike Lane, Bike Boulevard, Enhanced Bike Route	Plausible Near-Term	$1,440,000	$3,990,000
High	Dellwood Road / Aztec Road	Pennsylvania Street	Parsifal Street	1.3	Bike Boulevard	Long-Term	$2,250,000	$3,410,000
High	Diversion Channel Trail UNM Connection	Tucker Avenue	Yale Boulevard	0.2	Paved Multi-Use Trail	Long-Term	$250,000	

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
High	Doctor Martin Luther King Junior Avenue	Arno Street	Oak Street	0.4	Separated Bike Lane	Plausible Near-Term	$1,460,000	$1,740,000
High	Domingo Baca Trail	San Pedro Drive	Ventura Street	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$2,790,000	
High	Dorado Place / Wenonah Avenue	Wenonah Avenue	Central Avenue	0.3	Buffered Bike Lane, Bike Boulevard	Plausible Near-Term	$440,000	$910,000
High	Garfield Avenue	Buena Vista Drive	Morningside Drive	1.4	Bike Boulevard	Plausible Near-Term	$1,400,000	$2,630,000
High	Gibson Boulevard	Broadway Boulevard	I-25 NB Frontage Road	0.8	Sidepath, Separated Bike Lane	Plausible Near-Term	N/A	
High	Girard Boulevard (Gaps)	Central Avenue	Indian School Road	0.2	Bike Lane, Buffered Bike Lane	Plausible Near-Term	$670,000	$1,100,000
High	Gonzales Road	Coors Boulevard	Old Coors Drive	0.9	Bike Boulevard	Plausible Near-Term	$1,760,000	$2,570,000
High	Hannett Avenue / Aspen Avenue / Haines Avenue	Stanford Drive	Washington Street	2.6	Bike Boulevard	Long-Term	$4,070,000	$6,380,000
High	Indian School Road	West of Wyoming Boulevard	Juan Tabo Boulevard	2.1	Separated Bike Lane, Buffered Bike Lane	Plausible Near-Term	$2,730,000	$7,420,000
High	Irving Boulevard	Unser Boulevard	Golf Course Road	4.5	Sidepath	Long-Term	$7,440,000	
High	Isleta Drain	Central Avenue	Rio Bravo Boulevard	4.3	Paved Multi-Use Trail	Long-Term	N/A	
High	Jewett Drive / Michael Hughes Drive / Durant Avenue	Tramway Boulevard	Monte Largo Drive / Lomas Blvd	0.9	Enhanced Bike Route	Plausible Near-Term	$800,000	$1,600,000
High	Ladera Drive	Arroyo Vista Boulevard	Ouray Road	2.5	Separated Bike Lane	Long-Term	$10,860,000	$17,210,000
High	Lagrima de Oro Road	Dona Marguerita Avenue	Morris Street	0.8	Bike Boulevard	Plausible Near-Term	$1,590,000	$2,320,000
High	Lomas Boulevard	6th Street	BNSF Rail Corridor	0.4	Sidepath	Long-Term	$2,300,000	
High	Louisiana Boulevard	Burlison Drive	Modesto Avenue	2.5	Buffered Bike Lane, Separated Bike Lane	Plausible Near-Term	$2,590,000	$8,020,000
High	Manitoba Drive	Juan Tabo Boulevard	Tramway Ridge Drive	1.1	Bike Boulevard, Sidepath	Plausible Near-Term	$1,620,000	$2,470,000
High	Marble Avenue / 1st Street	6th Street	1st Street / Lomas Boulevard	0.5	Bike Boulevard	Plausible Near-Term	$1,980,000	$2,390,000
High	Mariposa Diversion Trail	Unser Boulevard	Kachina Street	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$2,640,000	
High	Marquette Avenue	14th Street	6th Street	0.5	Bike Boulevard	Plausible Near-Term	$850,000	$1,320,000
High	Marquette Avenue / Roma Avenue	2nd Street	Edith Boulevard	0.5	Bike Boulevard, Sidepath	Plausible Near-Term	$770,000	$1,090,000
High	McLeod Road	Jefferson Street	San Pedro Drive	0.9	Bike Lane, Buffered Bike Lane	Plausible Near-Term	$1,070,000	$3,090,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
High	Montaño Road	Unser Boulevard	Winter Haven Road	2.0	Separated Bike Lane	Long-Term	$9,220,000	$14,290,000
High	Monte Vista Boulevard	Central Avenue	Lomas Boulevard	0.7	Buffered Bike Lane	Plausible Near-Term	$1,140,000	$2,470,000
High	Moon Street	Susan Avenue / Southern Boulevard	Copper Avenue	0.9	Bike Boulevard	Plausible Near-Term	$1,020,000	$1,820,000
High	Morris Street	Candelaria Road	Montgomery Boulevard	1.0	Bike Lane	Plausible Near-Term	$1,270,000	$3,240,000
High	Morris Street	Tomasita Street	Constitution Avenue	0.8	Bike Lane, Bike Boulevard	Plausible Near-Term	$630,000	$1,910,000
High	Mountain Road	Tomasita Street	Chelwood Park Boulevard	0.9	Bike Boulevard, Bike Lane	Long-Term	$1,450,000	$2,450,000
High	Mountain Road	Broadway Boulevard	Edith Boulevard	0.2	Bike Lane	Plausible Near-Term	$650,000	$960,000
High	Natalie Avenue/Ponderosa Avenue	Paseo del Nordeste/San Mateo Boulevard	Pennsylvania Street	1.7	Bike Boulevard, Bike Lane	Plausible Near-Term	$1,390,000	$2,990,000
High	Osuna Road	West of San Mateo Boulevard	East of San Mateo Boulevard	0.1	Separated Bike Lane	Long-Term	$580,000	$580,000
High	Ouray Road	57th Street	Coors Boulevard NB Frontage Road	0.2	Separated Bike Lane	Long-Term	$1,490,000	$1,490,000
High	Ouray Road / Bob McCannon Parkway	Unser Boulevard	Alamogordo Drive	1.9	Buffered Bike Lane	Plausible Near-Term	$1,890,000	$5,450,000
High	Panmunjon Road / Hollywood Avenue / Marble Avenue	Mountain Road	14th Street	1.2	Bike Boulevard	Long-Term	$1,900,000	$2,950,000
High	Paseo del Norte	Universe Boulevard	Eagle Ranch Road	4.9	Sidepath	Long-Term	$8,690,000	
High	Pennsylvania Street	South of Comanche Road	Montgomery Boulevard	0.7	Buffered Bike Lane	Plausible Near-Term	$840,000	$2,090,000
High	Pennsylvania Street	Marble Avenue	Menaul Boulevard	1.5	Buffered Bike Lane, Bike Lane, Separated Bike Lane	Plausible Near-Term	$2,080,000	$4,990,000
High	Pino Arroyo Trail / Quintessence Trail	San Pedro Drive	Toulon Drive	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$4,110,000	
High	Randolph Road / Alamo Avenue	University Boulevard	Girard Boulevard	1.1	Buffered Bike Lane, Bike Lane, Bike Boulevard	Plausible Near-Term	$990,000	$2,840,000
High	Sage Road / De Vargas Road	Del Mastro Drive	Corel Drive/Unser Boulevard	1.4	Separated Bike Lane	Plausible Near-Term	$1,630,000	$5,180,000
High	San Francisco Road / Coronado Avenue	San Pedro Drive	Eubank Boulevard	2.7	Bike Lane, Bike Boulevard, Buffered Bike Lane	Plausible Near-Term	$2,430,000	$6,630,000
High	San Isidro Street / Guadalupe Trail	Indian School Road	Grecian Avenue	2.8	Bike Boulevard	Plausible Near-Term	$3,830,000	$6,290,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
High	Santa Clara Avenue	Yale Boulevard	Wellesley Drive	0.8	Bike Boulevard, Bike Lane	Plausible Near-Term	$670,000	$1,690,000
High	Santa Fe Avenue	12th Street / Bosque Trail Access	2nd Street	0.6	Bike Boulevard	Plausible Near-Term	$1,320,000	$1,870,000
High	Seagull Street	Osuna Road	Academy Road	0.2	Buffered Bike Lane	Plausible Near-Term	$650,000	$990,000
High	Sequoia Road	Ladera Drive	Vista Grande Drive	0.7	Separated Bike Lane, Bike Lane, Enhanced Bike Route	Long-Term	$950,000	$2,250,000
High	South Diversion Channel Trail	Rio Bravo Boulevard	Basehart	3.6	Paved Multi-Use Trail	Long-Term	$5,070,000	
High	Spain Road / Knight Road	Academy Road	Tramway Boulevard	3.1	Buffered Bike Lane, Separated Bike Lane, Bike Lane	Plausible Near-Term	$3,080,000	$9,700,000
High	Tom Bolack Park Trail	San Pedro Drive	Paseo de las Montañas Trail	0.3	Paved Multi-Use Trail	Long-Term	$430,000	
High	Tomasita Street / Martha Street	I-40 Trail Bridge	Gretta Street / Prospect Avenue	2.0	Bike Boulevard	Plausible Near-Term	$1,820,000	$3,560,000
High	Tony Sanchez Drive / Singing Arrow Avenue	Innovation Parkway	East of Dorado Place	1.6	Bike Boulevard, Bike Lane, Buffered Bike Lane	Long-Term	$2,000,000	$4,300,000
High	UNM South Campus Trail	Gibson Boulevard	Buena Vista Drive	0.7	Paved Multi-Use Trail	Long-Term	$1,060,000	
High	Unser Boulevard	Montaño Road	Paradise Boulevard	6.6	Sidepath	Long-Term	$10,790,000	
High	Uptown Boulevard	San Pedro Drive	Louisiana Boulevard	0.5	Buffered Bike Lane	Plausible Near-Term	$950,000	$2,300,000
High	Uptown Loop / Americas Parkway	Loop	Loop	1.3	Buffered Bike Lane	Plausible Near-Term	$2,640,000	$5,930,000
High	Utah Street	Southern Avenue	Marble Avenue / Charleston Street	1.9	Bike Boulevard, Bike Lane	Long-Term	$2,530,000	$4,330,000
High	Ventura Street	Academy Road	Alameda Boulevard	2.3	Separated Bike Lane, Buffered Bike Lane	Plausible Near-Term	$3,170,000	$8,740,000
High	William Street	Woodward Road	Pacific Avenue / Edith Boulevard	2.0	Bike Boulevard, Bike Lane	Plausible Near-Term	$1,500,000	$3,930,000
High	Wyoming Boulevard	Academy Road	Signal Avenue	3.2	Sidepath	Long-Term	$19,160,000	
High	Yale Boulevard	Las Lomas Road	Tucker Avenue	0.4	Buffered Bike Lane, Bike Lane	Long-Term	$690,000	$890,000
Medium	12th Street	Sawmill Road	BNSF Rail Spur	0.3	Buffered Bike Lane	Plausible Near-Term	$180,000	$830,000
Medium	12th Street	BNSF Rail Spur	I-40 Frontage Road WB	0.2	Buffered Bike Lane	Long-Term	$740,000	$1,310,000
Medium	14th Street	Lomas Boulevard	N/A	0.0	Bike Boulevard Crossing	Long-Term	N/A	

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
Medium	15th Street	Marble Avenue	Bellamah Avenue	0.5	Bike Boulevard	Long-Term	$530,000	$940,000
Medium	2nd Street / 3rd Street	McKnight Avenue / I-40 Frontage Road EB	Arvada Ave	0.3	Buffered Bike Lane	Long-Term	$700,000	$1,270,000
Medium	4th Street	Ortega Road	Alameda Boulevard	0.7	Bike Lane	Plausible Near-Term	N/A	
Medium	64th Street	I-40 Trail	Ladera Drive	0.7	Bike Boulevard, Paved Multi-Use Trail	Plausible Near-Term	$1,690,000	$2,320,000
Medium	72nd Street / Hanover Road / Estancia Drive	Fortuna Road	Illif Road	1.2	Enhanced Bike Route, Buffered Bike Lane	Plausible Near-Term	$1,220,000	$2,750,000
Medium	98th Street	Dennis Chavez Boulevard	Blake Road	1.1	Buffered Bike Lane	Plausible Near-Term	$990,000	$2,980,000
Medium	98th Street	Central Avenue	South of Bluewater Road	0.6	Sidepath	Long-Term	$1,160,000	
Medium	Alameda Drain Trail	Rio Grande Boulevard / I-40	Matthew Avenue	0.9	Paved Multi-Use Trail	Plausible Near-Term	$1,300,000	
Medium	Alameda Drain Trail / 2nd Street	Paseo del Norte Boulevard	Alameda Boulevard	0.8	Paved Multi-Use Trail	Long-Term	N/A	
Medium	Amole del Norte Trail	Blake Road	Sage Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	N/A	
Medium	Amole Mesa Avenue	118th Street	Amole Arroyo Trail	1.5	Bike Lane, Bike Boulevard, Sidepath	Plausible Near-Term	$610,000	$2,610,000
Medium	Andalusian Avenue	Tanager Drive	102nd Street Trail Access	0.4	Enhanced Bike Route	Plausible Near-Term	$90,000	$420,000
Medium	Anderson Avenue / Smith Avenue	Wellesley Drive	Washington Street	0.8	Bike Boulevard	Plausible Near-Term	$690,000	$1,420,000
Medium	Arenal Road	Atrisco Riverside Drain	Isleta Boulevard	0.7	Enhanced Bike Route	Plausible Near-Term	N/A	
Medium	Aspen Avenue	I-40 Trail	Rail Trail Access	0.6	Bike Boulevard	Long-Term	$1,320,000	$1,820,000
Medium	Atrisco Drain	Arenal Road	Isleta Boulevard	0.2	Paved Multi-Use Trail	Long-Term	N/A	
Medium	Atrisco Riverside Drain	Rio Bravo Boulevard	Arenal Road	1.6	Paved Multi-Use Trail	Long-Term	N/A	
Medium	Atrisco Vista Boulevard	Double Eagle Airport Road	Paseo del Norte	3.9	Sidepath	Long-Term	$5,450,000	
Medium	Avalon Trail	90th Street	Bluewater Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$1,320,000	
Medium	Aztec Road / Princeton Drive	Candelaria Road / Comanche Road	North Diversion Channel Trail	1.1	Bike Lane, Bike Boulevard	Plausible Near-Term	$1,770,000	$3,540,000
Medium	Balloon Fiesta Northwest Access Trail	North Diversion Channel	I-25	2.2	Sidepath	Long-Term	$3,040,000	
Medium	Balloon Museum Drive	Jefferson Street / Balloon Museum Drive	San Diego Avenue	0.1	Sidepath	Long-Term	$210,000	
Medium	Barstow Street	Alameda Boulevard	Trail Access	0.2	Bike Lane	Plausible Near-Term	$60,000	$360,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
Medium	Barstow Street	Eagle Rock Ave / Trail Access	Florence Avenue	0.3	Bike Lane	Long-Term	$70,000	$70,000
Medium	Barstow Street	Signal Avenue	Alameda Boulevard	0.1	Separated Bike Lane	Long-Term	$30,000	$30,000
Medium	Bear Canyon Trail	Jefferson Street	N/A	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$1,030,000	
Medium	Bellamah Avenue	West of 15th Street	12th Street	0.2	Buffered Bike Lane	Long-Term	$80,000	$410,000
Medium	Benavides Road	Del Rey Road	Camino San Martin	1.2	Bike Boulevard	Plausible Near-Term	$580,000	$1,630,000
Medium	Bethel Avenue	San Jose Drain	Broadway Boulevard	0.4	Bike Boulevard	Long-Term	$200,000	$560,000
Medium	Black Arroyo Trail	Ellison Road	Seven Bar Loop Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$1,320,000	
Medium	Blake Road	Isleta Drain (LRBS)	Isleta Boulevard (LRBS)	1.7	Bike Lane	Long-Term	N/A	
Medium	Blake Road	Unser Boulevard	Blake Circle	0.5	Buffered Bike Lane	Long-Term	$420,000	$620,000
Medium	Bluewater Road	Camino Azul	East of Coors Boulevard	0.1	Separated Bike Lane	Long-Term	$730,000	$730,000
Medium	Bobby Foster Road	Broadway Boulevard	Los Picaros Road	0.5	Buffered Bike Lane	Long-Term	N/A	
Medium	Bobby Foster Road / Los Picaros Road	University Boulevard	Los Picaros Road	8.0	Sidepath	Plausible Near-Term	$11,250,000	
Medium	Bosque Plaza Lane	Winter Haven Road	La Orilla Road	0.1	Sidepath	Long-Term	$140,000	
Medium	Broadway Boulevard	Menaul Boulevard	Candelaria Road	0.6	Separated Bike Lane	Plausible Near-Term	$1,060,000	$2,510,000
Medium	Calabacillas Arroyo Spur Trail	Calabacillas Arroyo	Unser Boulevard	1.4	Paved Multi-Use Trail	Long-Term	$1,930,000	
Medium	Calle Norteña	Taylor Ranch Drive / Taylor Ranch Road	Golf Course Road	0.6	Buffered Bike Lane	Plausible Near-Term	$520,000	$1,620,000
Medium	Camino de la Sierra / Arcadia Road	Tramway Trail	Copper Avenue	2.0	Enhanced Bike Route	Plausible Near-Term	$470,000	$2,230,000
Medium	Camino de la Sierra / Glenwood Hills Drive	Candelaria Road	Emudito Trailhead	1.8	Enhanced Bike Route	Plausible Near-Term	$410,000	$1,970,000
Medium	Camino de la Sierra / Lomas Boulevard	Monte Largo Drive / Monte Largo Drive	Indian School Road	0.5	Enhanced Bike Route	Plausible Near-Term	$130,000	$600,000
Medium	Camino San Martin	Snow Vista Boulevard	Gibson Boulevard	0.8	Bike Boulevard	Plausible Near-Term	$1,400,000	$2,070,000
Medium	Campbell Road	Paseo del Bosque Trail	Alameda Drain Trail Spur	0.9	Bike Boulevard	Plausible Near-Term	$590,000	$1,390,000
Medium	Candelaria Road	Tramway Boulevard	Palo Alto Drive	0.1	Separated Bike Lane	Long-Term	$720,000	$720,000
Medium	Candelaria Road	I-25 Frontage Road SB	Princeton Drive	0.3	Separated Two-Way Cycle Track	Long-Term	$1,240,000	$2,130,000
Medium	Carlisle Boulevard	Calle del Ranchero	Constitution Road	0.1	Bike Lane	Plausible Near-Term	$610,000	$710,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
Medium	Carruthers Road	Westwind Street / Overlook Drive	Academy Road	0.7	Bike Boulevard	Plausible Near-Term	$2,420,000	$3,070,000
Medium	Cedarbrook Avenue / Larchmont Drive / Montgomery Boulevard	Tramway Boulevard / Manitoba Drive	Glenwood Hills Drive	1.1	Enhanced Bike Route, Sidepath	Plausible Near-Term	$430,000	$1,290,000
Medium	Chacoma Place / San Pasquale Avenue	El Vado / East of Central Avenue	Laguna Boulevard	0.9	Enhanced Bike Route	Plausible Near-Term	$210,000	$990,000
Medium	Chavez Road	Rio Grande Boulevard	4th Street	1.0	Sidepath	Long-Term	N/A	
Medium	Chico Road	Eubank Boulevard	Morris Street	0.5	Buffered Bike Lane	Plausible Near-Term	$480,000	$1,400,000
Medium	Cloudview Avenue / Encantado Road	Lomas Verdes Avenue / Panorama Place	Avital Northeast Drive	0.1	Separated Bike Lane	Long-Term	$760,000	$760,000
Medium	Comanche Road	Alexander Boulevard	Princeton Drive	0.5	Sidepath, Bike Lane	Plausible Near-Term	N/A	
Medium	Coors Boulevard	Gun Club Road	Blake Road	1.7	Separated Bike Lane	Plausible Near-Term	N/A	
Medium	Coors Frontage Road	Southwestern Polytechnic Institute Road	Paseo del Norte Trail	0.4	Enhanced Bike Route	Plausible Near-Term	$100,000	$440,000
Medium	Corrales Main / La Orilla Outlet Northwest Trail	Coors Trail	Southwestern Polytechnic Institute Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$580,000	
Medium	De Vargas Road	Osprey Drive	Cockatiel Drive	0.2	Buffered Bike Lane	Long-Term	$50,000	$50,000
Medium	Del Mastro Drive	Del Rey Road	De Vargas Road	0.5	Bike Lane	Plausible Near-Term	$180,000	$1,080,000
Medium	Del Rey Road	Benavides Road	De Anza Drive	0.6	Bike Boulevard, Bike Lane	Plausible Near-Term	$420,000	$1,110,000
Medium	Dellyne Avenue	West of Unser Boulevard	Coors Boulevard	1.1	Buffered Bike Lane	Plausible Near-Term	$730,000	$2,890,000
Medium	Dellyne Avenue	Oxnard Road	Winter Haven Road	0.3	Separated Bike Lane	Long-Term	$1,390,000	$1,390,000
Medium	Don Quixote Drive / Don Fernando Avenue	Paseo del Bosque Trail Access	Rio Grande Boulevard	0.7	Bike Boulevard	Long-Term	$1,400,000	$2,050,000
Medium	Eagle Ranch Road	All Saints Road	Paradise Boulevard	0.2	Sidepath	Long-Term	$940,000	
Medium	Edith Boulevard	El Pueblo Road	Alameda Boulevard	0.8	Enhanced Bike Route	Plausible Near-Term	$1,220,000	$1,920,000
Medium	El Pueblo Road	North Diversion Channel Trail	West of Tiburon Street	0.4	Sidepath	Long-Term	$550,000	
Medium	Embudito Drive / Hugh Graham Road	Tramway Trail	Glenwood Hills Drive / Camino de la Sierra	0.8	Enhanced Bike Route	Plausible Near-Term	$200,000	$920,000
Medium	Embudo Channel Trail	Cutler Avenue	-	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$290,000	
Medium	Encantado Road	Avital Northeast Drive	Camino de la Sierra	0.6	Enhanced Bike Route, Bike Lane	Plausible Near-Term	$180,000	$880,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
Medium	Eucariz Avenue	West of 98th Street	Stinson Street	1.6	Bike Boulevard, Bike Lane, Sidepath	Plausible Near-Term	$3,140,000	$4,550,000
Medium	Florence Avenue	Louisiana Boulevard	Barstow Road	1.0	Bike Lane	Long-Term	$310,000	$1,340,000
Medium	Forest Hills Drive	I-25 NB Frontage Road	Barnhart Street	0.2	Buffered Bike Lane	Long-Term	$50,000	$50,000
Medium	Fortuna Road	Ben E Keith Way	64th Street	0.7	Buffered Bike Lane	Plausible Near-Term	$290,000	$1,700,000
Medium	Fortuna Road	Estancia Drive	64th Street	0.2	Separated Bike Lane	Long-Term	$990,000	$990,000
Medium	Fortuna Road Trail	Unser Boulevard	Ben E Keith Way	0.4	Paved Multi-Use Trail	Long-Term	$560,000	
Medium	Gallant Fox Road / Raton Avenue	Juan Tabo Boulevard	Wagon Train Drive	0.6	Enhanced Bike Route, Paved Multi-Use Trail	Plausible Near-Term	$470,000	$950,000
Medium	Gibson Boulevard	Eubank Boulevard	Innovation Parkway	0.3	Bike Lane	Long-Term	$360,000	$360,000
Medium	Gibson Boulevard	Camino San Martin	Spring Flower Place	0.1	Separated Bike Lane	Long-Term	$750,000	$750,000
Medium	Gibson Boulevard	De Anza Drive	Unser Boulevard / Spring Flower Road	1.1	Sidepath	Long-Term	$1,510,000	
Medium	Gibson Boulevard	Buena Vista Drive	Yale Boulevard	0.1	Sidepath	Long-Term	$180,000	
Medium	Gibson Boulevard	I-25 NB Frontage Road	University Boulevard	0.3	Sidepath	Long-Term	$720,000	
Medium	Golf Course Road	Homestead Circle	Paseo del Norte	1.0	Sidepath	Long-Term	$5,450,000	
Medium	Greene Avenue	Golf Course Road	Irving Boulevard	0.6	Bike Boulevard, Bike Lane	Plausible Near-Term	$1,320,000	$2,060,000
Medium	Griegos Drain	Campbell Road	Candelaria Road	0.2	Paved Multi-Use Trail	Long-Term	$350,000	
Medium	Griegos Drain	Montaño Road	Chavez Road	1.1	Paved Multi-Use Trail	Long-Term	$1,490,000	
Medium	Griegos Road	5th Street	Las Hermanas Street	0.4	Buffered Bike Lane, Bike Lane	Plausible Near-Term	$1,140,000	$2,130,000
Medium	Harper Road	Barstow Street	Ventura Avenue	1.7	Sidepath	Long-Term	$3,040,000	
Medium	Herman Roser Avenue	Elizabeth Street / Tony Sanchez Drive	Juan Tabo Boulevard	0.3	Bike Boulevard, Bike Lane	Long-Term	$1,190,000	$1,570,000
Medium	Holbrook Street	Ramtha Street / Quintessence Road	Carmel Avenue	1.0	Bike Boulevard, Separated Bike Lane, Buffered Bike Lane, Paved Multi-Use Trail	Long-Term	$1,220,000	$2,560,000
Medium	Homestead Circle	Taylor Ranch Road	Los Alisos Place	0.1	Bike Lane	Plausible Near-Term	$330,000	$500,000
Medium	I-25 Frontage Road NB	Harper Drive	Del Rey Avenue	0.7	Sidepath	Long-Term	$1,260,000	
Medium	I-40 Trail	Gabaldon Drive	-	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$290,000	
Medium	Iliff Road	Estancia Drive	Atrisco Dr	0.5	Separated Bike Lane, Bike Lane	Long-Term	$670,000	$1,930,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
Medium	Iliff Road / 72nd Street	I-40 Trail Bridge	Ladera Drive	0.7	Buffered Bike Lane	Plausible Near-Term	$270,000	$1,580,000
Medium	Indian School Road	Americas Parkway	Uptown Loop Road	0.3	Bike Lane	Plausible Near-Term	$990,000	$1,570,000
Medium	Indian School Road	Rio Grande Boulevard	12th Street	0.7	Buffered Bike Lane	Plausible Near-Term	$830,000	$1,400,000
Medium	Indian School Road	Cumbres Street	Embudo Trailhead	0.9	Enhanced Bike Route, Bike Lane	Plausible Near-Term	$230,000	$1,120,000
Medium	Indian School Road	Eastridge Drive / Constitution Avenue	Cumbres Street	0.5	Separated Bike Lane	Plausible Near-Term	$690,000	$1,970,000
Medium	Iron Avenue / 14th Street	Tingley Drive / Paseo del Bosque Trail	Silver Avenue	0.5	Bike Boulevard, Sidepath	Plausible Near-Term	$300,000	$650,000
Medium	Irving Boulevard	Universe Boulevard	La Paz Drive	0.6	Buffered Bike Lane	Plausible Near-Term	$1,030,000	$2,660,000
Medium	Irving Boulevard	Rio Los Pinos Drive/Timan Avenue	Golf Course Road	0.8	Separated Bike Lane	Plausible Near-Term	$870,000	$2,810,000
Medium	Jefferson Street	Montgomery Boulevard	McLeod Road	0.5	Buffered Bike Lane	Plausible Near-Term	$910,000	$2,080,000
Medium	Jefferson Street	Masthead Street	Paseo del Norte WB Frontage Road	1.4	Sidepath	Long-Term	$2,800,000	
Medium	Juan Tabo Boulevard	Cicadia Road	Horseshoe Trail	0.4	Buffered Bike Lane	Plausible Near-Term	$260,000	$1,170,000
Medium	Kachina Street	San Ildefonso Drive	Taylor Ranch Road	0.7	Bike Lane, Enhanced Bike Route	Plausible Near-Term	$860,000	$2,210,000
Medium	Kayenta Street	South of Irving Boulevard	McMahon Boulevard	0.8	Buffered Bike Lane	Plausible Near-Term	$800,000	$2,680,000
Medium	Kimela Drive / Rainwater Road	Camino San Martin	Desert Breeze Drive / Trail Access	0.9	Bike Boulevard	Plausible Near-Term	$1,460,000	$2,240,000
Medium	Kimmick Drive	Unser Boulevard	Paseo del Norte	0.6	Bike Lane	Long-Term	$430,000	$430,000
Medium	Kimmick Drive	Rosa Parks Road	Paseo del Norte	0.2	Sidepath	Plausible Near-Term	$560,000	
Medium	La Cueva Channel / San Diego Avenue Trail	Balloon Museum Drive	Wyoming Boulevard	2.0	Paved Multi-Use Trail	Long-Term	N/A	
Medium	La Orilla Road	West of Coors Boulevard	Bosque Plaza Lane	0.3	Separated Bike Lane, Sidepath	Long-Term	$1,040,000	$1,040,000
Medium	Laguna Boulevard	Kit Carson Avenue	14th Street	0.6	Enhanced Bike Route	Plausible Near-Term	$450,000	$1,010,000
Medium	Las Lomitas Drive	Vista Del Norte Drive	El Pueblo Road	0.7	Bike Lane	Plausible Near-Term	$260,000	$1,550,000
Medium	Laurelwood Parkway	Hanover Road / I-40 Trail Access	Ladera Drive	0.4	Buffered Bike Lane	Plausible Near-Term	$180,000	$1,020,000
Medium	Liberty Drive	Barstow Street	Ventura Street	0.5	Bike Boulevard	Plausible Near-Term	$1,580,000	$2,040,000
Medium	Lomas Channel Trail	Hupmobile Drive	-	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$290,000	
Medium	Los Volcanes Road	Unser Boulevard	Airport Drive	0.5	Bike Lane	Plausible Near-Term	$450,000	$670,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
Medium	Louisiana Boulevard	Modesto Avenue	Elena Drive	0.7	Separated Bike Lane	Long-Term	$150,000	$150,000
Medium	Manitoba Drive	Tramway Ridge Drive	Larchmont Drive	0.2	Separated Bike Lane, Bike Lane	Long-Term	$870,000	$970,000
Medium	Mariposa Basin Recreation Trail	San Ildefonso Drive	Mojave Street	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$580,000	
Medium	Marna Lynn Avenue / Davenport Street / Congress Avenue	Petroglyph Trailhead	Congress Avenue / Golf Course Road	1.1	Bike Boulevard	Plausible Near-Term	$2,910,000	$3,920,000
Medium	McKinney Drive	Academy Road	Forest Hills Drive	0.8	Buffered Bike Lane, Bike Lane	Plausible Near-Term	$610,000	$2,170,000
Medium	Mesa Arenoso Drive / Pauza Drive	Sacate Blanco Avenue	Gibson Boulevard	0.9	Bike Boulevard	Plausible Near-Term	$1,460,000	$2,230,000
Medium	Mill Pond Road Trail	Aspen Avenue	I-40 Trail	0.2	Paved Multi-Use Trail	Long-Term	$320,000	
Medium	Mission Avenue	Alexander Boulevard	Chappel Road	0.6	Buffered Bike Lane	Plausible Near-Term	$410,000	$1,890,000
Medium	Mojave Street	Atrisco Drive	Homestead Circle	1.0	Enhanced Bike Route, Bike Lane, Paved Multi-Use Trail	Plausible Near-Term	$300,000	$1,380,000
Medium	Monachos Road / Via Posada Street	Juan Tabo Boulevard	Wagon Train Drive / Stagecoach Road	0.7	Enhanced Bike Route, Paved Multi-Use Trail	Plausible Near-Term	$400,000	$940,000
Medium	Montaño Road	5th Street	2nd Street	0.6	Sidepath	Long-Term	$1,490,000	
Medium	Monte Largo Drive / Menaul Boulevard	Lomas Boulevard / Monte Verde Drive	Tramway Trail	1.7	Bike Lane, Buffered Bike Lane	Plausible Near-Term	$1,000,000	$4,290,000
Medium	Montgomery Boulevard	Culture Drive	North Diversion Channel Trail	0.5	Sidepath, Bike Lane	Plausible Near-Term	N/A	
Medium	Moon Street	Matthew Avenue	Veranda Road	0.1	Bike Lane	Plausible Near-Term	$340,000	$550,000
Medium	Moon Street / Easterday Drive	Lomas Boulevard / I-40 Trail Bridge	Constitution Avenue	0.5	Bike Boulevard, Bike Lane	Plausible Near-Term	$820,000	$1,340,000
Medium	North Diversion Channel Trail Extension	Balloon Museum Drive	Edith Boulevard	0.9	Paved Multi-Use Trail	Long-Term	$1,270,000	
Medium	North Domingo Baca Trail	Barstow Street	Ventura Street	0.5	Paved Multi-Use Trail	Long-Term	$730,000	
Medium	Osuna Road	2nd Street / Elwood Street	Chappell Road	0.9	Sidepath	Long-Term	$2,190,000	
Medium	Osuna Road	West of 4th Street	2nd Street	0.5	Sidepath	Long-Term	N/A	
Medium	Paradise Boulevard	Chaparral Street	Paseo del Norte Northwest	0.2	Sidepath	Long-Term	$1,290,000	
Medium	Paseo de la Mesa	Atrisco Vista Boulevard	Paseo de la Mesa Trailhead	0.1	Paved Multi-Use Trail	Long-Term	$220,000	

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
Medium	Paseo del Norte	Calle Norteña	Golf Course Road	0.8	Separated Bike Lane	Plausible Near-Term	$600,000	$1,160,000
Medium	Paseo del Norte Trail	Rio Grande Boulevard	El Pueblo Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$440,000	
Medium	Piedras Marcadas Park Trail	Golf Course Road	Rancho Sereno Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$1,320,000	
Medium	Piedras Marcadas Trail	Ventana Ranch Road	Universe Boulevard	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$2,640,000	
Medium	Rainbow Boulevard	Unser Boulevard	Volcano Vista High School	0.8	Sidepath	Long-Term	$1,440,000	
Medium	Renaissance Boulevard	Alexander Boulevard (south of Montaño Road)	Alexander Boulevard (north of Montaño Road)	1.0	Sidepath	Long-Term	$1,960,000	
Medium	Richmond Drive	Menaul Boulevard	Candelaria Road	0.5	Bike Lane	Plausible Near-Term	$480,000	$1,430,000
Medium	Rio Bravo Boulevard	Isleta Boulevard	2nd Street	2.5	Sidepath	Plausible Near-Term	N/A	
Medium	Rockwood Road	Rolling Rock Place / Unser Boulevard Access	Seven Falls Place / Trail Access	0.4	Enhanced Bike Route	Plausible Near-Term	$100,000	$440,000
Medium	Rosa Parks Road	Unser Boulevard	Calle Norteña	0.6	Bike Lane	Long-Term	$130,000	$130,000
Medium	Rosa Parks Road	Kimmick Drive	Calle Norteña	0.3	Sidepath	Plausible Near-Term	$1,020,000	
Medium	Rough Rider Road / Pioneer Trail	Barstow Street	Ventura Street	0.6	Bike Boulevard, Bike Lane	Plausible Near-Term	$1,580,000	$2,220,000
Medium	Rover Avenue	Tramway Boulevard	Monte Largo Drive	0.3	Bike Lane	Plausible Near-Term	$400,000	$910,000
Medium	Rutledge Street / Washington Street / Ellison Street	North Diversion Channel Trail Access	Jefferson Street	1.2	Enhanced Bike Route, Bike Lane	Plausible Near-Term	$1,190,000	$2,510,000
Medium	Sage Road	East of Unser Boulevard	Old Coors Drive	1.1	Separated Bike Lane	Long-Term	$890,000	$890,000
Medium	Saint Josephs Drive	Saint Joseph's Avenue	Alamogordo Drive	0.7	Separated Bike Lane	Long-Term	$1,600,000	$2,770,000
Medium	San Antonio Drive / Ellison Street	I-25 Frontage Road SB	I-25 Frontage Road NB	0.1	Sidepath	Long-Term	$1,610,000	
Medium	San Diego Avenue	Balloon Museum Drive	San Mateo Boulevard	0.4	Buffered Bike Lane	Plausible Near-Term	$140,000	$840,000
Medium	San Francisco Road I-25 Crossing	Jefferson Street	I-25 NB Frontage Road	0.5	Sidepath, Paved Multi-Use Trail	Long-Term	N/A	
Medium	San Ildefonso Drive	Montaño Road	Mojave Street	0.5	Buffered Bike Lane	Plausible Near-Term	$480,000	$1,410,000
Medium	San Jose Drain	City Limits	Bethel Avenue	0.6	Paved Multi-Use Trail	Long-Term	$920,000	
Medium	San Jose Drain	Rio Bravo Boulevard / 2nd Street	City Limits	1.5	Paved Multi-Use Trail, Sidepath	Long-Term	N/A	

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
Medium	San Mateo Boulevard	Wilshire Avenue	Balloon Fiesta Parkway	1.2	Separated Bike Lane, Buffered Bike Lane	Plausible Near-Term	$1,070,000	$4,020,000
Medium	San Pedro Drive	Domingo Baca Trail	I-25 / Balloon Fiesta Parkway	1.5	Buffered Bike Lane, Bike Lane, Separated Bike Lane	Long-Term	$750,000	$1,160,000
Medium	San Pedro Drive	Domingo Baca Trail	Carmel Avenue	0.3	Separated Bike Lane	Long-Term	$2,040,000	$2,040,000
Medium	San Pedro Drive / Forest Hills Drive	Barnhart Street	Domingo Baca Trail	1.3	Buffered Bike Lane, Separated Bike Lane, Bike Lane	Plausible Near-Term	$850,000	$3,400,000
Medium	Seven Bar Loop	Coors Boulevard Bypass	Coors Boulevard	0.6	Buffered Bike Lane	Plausible Near-Term	$1,290,000	$2,830,000
Medium	Signal Avenue	Barstow Street	Ventura Street	0.5	Bike Lane	Long-Term	$110,000	$110,000
Medium	Silver Charm Road	Juan Tabo Boulevard	Gulf Stream Street	0.2	Enhanced Bike Route	Plausible Near-Term	$340,000	$500,000
Medium	Simms Park Road	Tramway Boulevard	Elena Gallegos Open Space	1.4	Enhanced Bike Route	Plausible Near-Term	$320,000	$1,520,000
Medium	Snow Vista Trail Connection	Duke Avenue	Eucariz Avenue	0.2	Paved Multi-Use Trail	Long-Term	$250,000	
Medium	Spring Flower Road / Desert Breeze Drive	Unser Boulevard	Trail Access	0.4	Enhanced Bike Route	Plausible Near-Term	$110,000	$490,000
Medium	Stagecoach Road / Wagon Train Drive	Four Hills Road	Four Hills Road	3.7	Enhanced Bike Route	Plausible Near-Term	$1,150,000	$4,390,000
Medium	Stanford Drive	Marble Avenue	Indian School Road	0.7	Bike Lane, Bike Boulevard	Plausible Near-Term	$450,000	$1,510,000
Medium	Sunport Boulevard	I-25 NB Frontage Road	Transport Street	0.1	Sidepath	Plausible Near-Term	$460,000	
Medium	Sunport Loop / Yale Boulevard	Randolph Road	Girard Boulevard	0.8	Sidepath	Long-Term	$1,370,000	
Medium	Tanager Drive	Red Robin Road	Tower Road	0.5	Enhanced Bike Route	Plausible Near-Term	$400,000	$810,000
Medium	Taylor Ranch Road	North of Homestead Circle	East of Golf Course Road	0.4	Buffered Bike Lane	Plausible Near-Term	$880,000	$1,980,000
Medium	Taylor Ranch Road	Montaño Road	Montaño Plaza Drive	0.4	Buffered Bike Lane	Plausible Near-Term	$470,000	$1,310,000
Medium	Tesuque Drive	Montaño Road	Homestead Circle	1.2	Bike Boulevard	Plausible Near-Term	$1,910,000	$2,980,000
Medium	Tiburon Street / Headline Boulevard	Tiburon Street, El Pueblo Road	Headline Boulevard	0.8	Buffered Bike Lane, Enhanced Bike Route	Plausible Near-Term	$590,000	$2,020,000
Medium	Tierra Pintada Boulevard	Watershed Drive	Unser Boulevard	0.6	Separated Bike Lane	Long-Term	$2,630,000	$4,100,000
Medium	Tijeras Arroyo Trail	Innovation Parkway	Juan Tabo Boulevard	0.6	Paved Multi-Use Trail	Long-Term	$880,000	
Medium	Tramway Boulevard	Wenonah Avenue	Central Avenue	0.2	Sidepath	Long-Term	$220,000	
Medium	Turner Drive	Encantado Road	Lomas Boulevard	0.8	Enhanced Bike Route	Plausible Near-Term	$480,000	$1,210,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
Medium	Universe Boulevard	Rainbow Boulevard	Paseo del Norte	2.8	Sidepath	Long-Term	$4,560,000	
Medium	University Boulevard	Arbus Drive	Stryker Road	0.4	Buffered Bike Lane	Long-Term	$300,000	$1,360,000
Medium	University Boulevard	Arbus Drive	Crick Avenue	1.5	Sidepath	Plausible Near-Term	$2,110,000	
Medium	University Boulevard	Clark Carr Road	Aircraft Avenue	1.3	Sidepath	Long-Term	$2,140,000	
Medium	Unser Boulevard	Irving Boulevard	Existing Sidepath	0.1	Sidepath	Plausible Near-Term	$380,000	
Medium	Ventana Ranch East Trails	Paradise Boulevard	Irving Boulevard	1.8	Paved Multi-Use Trail	Plausible Near-Term	$2,600,000	
Medium	Ventana Ranch South Trail	Ventana West Parkway	Hearthstone Road	0.4	Paved Multi-Use Trail	Plausible Near-Term	$510,000	
Medium	Ventana Ranch Trail	Rainbow Boulevard	-	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$150,000	
Medium	Ventana West Parkway	Ventana Ranch South Trail	Paseo del Norte	0.3	Sidepath	Plausible Near-Term	$450,000	
Medium	Villa Corrales	Vista del Norte Drive	Diversion Channel Trail Access	0.2	Enhanced Bike Route	Plausible Near-Term	$340,000	$530,000
Medium	Volcano Road	98th Street	94th Street	0.3	Sidepath	Long-Term	$390,000	
Medium	Washington Street	Indian School Road	Menaul Boulevard	0.5	Buffered Bike Lane	Plausible Near-Term	$1,070,000	$2,020,000
Medium	Washington Street	Paseo del Norte Frontage Road	Alameda Boulevard	0.7	Buffered Bike Lane	Plausible Near-Term	$260,000	$1,530,000
Medium	Western Trail / Namaste Road	Unser Boulevard	Tres Gracias Drive / San Antonio Oxbow Open Space	1.2	Separated Bike Lane, Buffered Bike Lane, Enhanced Bike Route	Plausible Near-Term	$1,700,000	$4,330,000
Medium	Westgate Community Park Trail	Delgado Drive	98th Street / Snow Vista Boulevard	0.9	Paved Multi-Use Trail	Plausible Near-Term	$1,210,000	
Medium	Winter Haven Road	Montaño Plaza Drive	Bontierra Trail	0.4	Buffered Bike Lane	Plausible Near-Term	$150,000	$870,000
Medium	Wyoming Boulevard	Oakland Avenue	Beverly Hills Avenue	0.6	Separated Bike Lane	Long-Term	$510,000	$760,000
Medium	Wyoming Boulevard	Palomas Avenue	Holly Avenue	0.2	Separated Bike Lane	Long-Term	$1,290,000	$1,290,000
Medium	Wyoming Boulevard	Signal Avenue	Oakland Avenue	0.2	Separated Bike Lane	Long-Term	$960,000	$960,000
Medium	Wyoming Boulevard	Bear Canyon Arroyo Trail	Spain Road	0.1	Sidepath	Plausible Near-Term	$430,000	
Medium	Yale Boulevard	Randolph Road	Gibson Boulevard	0.2	Buffered Bike Lane	Plausible Near-Term	$720,000	$1,200,000

Table 2: Priority Levels for Proposed Paved Multi-use Trail Crossings

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate
Very High	Bear Canyon Arroyo Trail	Wyoming Boulevard	Morris Street	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$2,350,000
Very High	Paseo de las Montañas Trail / Embudo Recreation Trail	Hendola Drive	Marie Park Drive	0.0	Paved Multi-Use Trail Crossing	Long-Term	$7,910,000
Very High	Paseo del Nordeste Trail	Carlisle Boulevard	Pennsylvania Street	0.0	Paved Multi-Use Trail Crossing	Long-Term	$5,120,000
High	Alameda Drain Trail	Matthew Avenue	4th Street	0.0	Paved Multi-Use Trail Crossing	Long-Term	$1,610,000
High	Amole Arroyo Trail / Snow Vista Trail / West Gate Trail	Blake Road	Tower Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$2,930,000
High	Domingo Baca Trail	San Pedro Drive	Ventura Street	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$2,790,000
High	Mariposa Diversion Trail	Unser Boulevard	Kachina Street	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$2,640,000
High	Pino Arroyo Trail / Quintessence Trail	San Pedro Drive	Toulon Drive	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$4,110,000
Medium	Amole del Norte Trail	Blake Road	Sage Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	N/A
Medium	Avalon Trail	90th Street	Bluewater Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$1,320,000
Medium	Bear Canyon Trail	Jefferson Street	N/A	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$1,030,000
Medium	Black Arroyo Trail	Ellison Road	Seven Bar Loop Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$1,320,000
Medium	Corrales Main / La Orilla Outlet Northwest Trail	Coors Trail	Southwestern Polytechnic Institute Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$580,000
Medium	Embudo Channel Trail	Cutler Avenue	-	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$290,000
Medium	I-40 Trail	Gabaldon Drive	-	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$290,000
Medium	Lomas Channel Trail	Hupmobile Drive	-	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$290,000
Medium	Mariposa Basin Recreation Trail	San Ildefonso Drive	Mojave Street	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$580,000
Medium	Paseo del Norte Trail	Rio Grande Boulevard	El Pueblo Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$440,000
Medium	Piedras Marcadas Park Trail	Golf Course Road	Rancho Sereno Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$1,320,000
Medium	Piedras Marcadas Trail	Ventana Ranch Road	Universe Boulevard	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$2,640,000
Medium	Ventana Ranch Trail	Rainbow Boulevard	-	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$150,000

Note: This table includes new or upgraded crossings to existing trails. Crossings as part of new trails are included in "Paved Multi-Use Trail Projects."

Table 3: Priority Levels for Proposed Paved Multi-use Trails

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate
High	Alameda Drain Trail	Central Avenue	Rio Grande Boulevard / I-40	0.9	Paved Multi-Use Trail	Long-Term	$1,240,000
High	Atrisco Riverside Drain	Bridge Boulevard	Central Avenue	1.7	Paved Multi-Use Trail	Long-Term	$2,390,000
High	Calabacillas Arroyo Trail	Universe Boulevard	Eagle Ranch Road	4.4	Paved Multi-Use Trail	Long-Term	$6,230,000
High	Diversion Channel Trail UNM Connection	Tucker Avenue	Yale Boulevard	0.2	Paved Multi-Use Trail	Long-Term	$250,000
High	Isleta Drain	Central Avenue	Rio Bravo Boulevard	4.3	Paved Multi-Use Trail	Long-Term	N/A
High	South Diversion Channel Trail	Rio Bravo Boulevard	Basehart	3.6	Paved Multi-Use Trail	Long-Term	$5,070,000
High	Tom Bolack Park Trail	San Pedro Drive	Paseo de las Montañas Trail	0.3	Paved Multi-Use Trail	Long-Term	$430,000
High	UNM South Campus Trail	Gibson Boulevard	Buena Vista Drive	0.7	Paved Multi-Use Trail	Long-Term	$1,060,000
Medium	Alameda Drain Trail	Rio Grande Boulevard / I-40	Matthew Avenue	0.9	Paved Multi-Use Trail	Plausible Near-Term	$1,300,000
Medium	Alameda Drain Trail / 2nd Street	Paseo del Norte Boulevard	Alameda Boulevard	0.8	Paved Multi-Use Trail	Long-Term	N/A
Medium	Atrisco Drain	Arenal Road	Isleta Boulevard	0.2	Paved Multi-Use Trail	Long-Term	N/A
Medium	Atrisco Riverside Drain	Rio Bravo Boulevard	Arenal Road	1.6	Paved Multi-Use Trail	Long-Term	N/A
Medium	Calabacillas Arroyo Spur Trail	Calabacillas Arroyo	Unser Boulevard	1.4	Paved Multi-Use Trail	Long-Term	$1,930,000
Medium	Fortuna Road Trail	Unser Boulevard	Ben E Keith Way	0.4	Paved Multi-Use Trail	Long-Term	$560,000
Medium	Griegos Drain	Campbell Road	Candelaria Road	0.2	Paved Multi-Use Trail	Long-Term	$350,000
Medium	Griegos Drain	Montaño Road	Chavez Road	1.1	Paved Multi-Use Trail	Long-Term	$1,490,000
Medium	La Cueva Channel / San Diego Avenue Trail	Balloon Museum Drive	Wyoming Boulevard	2.0	Paved Multi-Use Trail	Long-Term	N/A
Medium	Mill Pond Road Trail	Aspen Avenue	I-40 Trail	0.2	Paved Multi-Use Trail	Long-Term	$320,000
Medium	North Diversion Channel Trail Extension	Balloon Museum Drive	Edith Boulevard	0.9	Paved Multi-Use Trail	Long-Term	$1,270,000
Medium	North Domingo Baca Trail	Barstow Street	Ventura Street	0.5	Paved Multi-Use Trail	Long-Term	$730,000
Medium	Paseo de la Mesa	Atrisco Vista Boulevard	Paseo de la Mesa Trailhead	0.1	Paved Multi-Use Trail	Long-Term	$220,000
Medium	San Jose Drain	City Limits	Bethel Avenue	0.6	Paved Multi-Use Trail	Long-Term	$920,000
Medium	Snow Vista Trail Connection	Duke Avenue	Eucariz Avenue	0.2	Paved Multi-Use Trail	Long-Term	$250,000
Medium	Tijeras Arroyo Trail	Innovation Parkway	Juan Tabo Boulevard	0.6	Paved Multi-Use Trail	Long-Term	$880,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate
Medium	Ventana Ranch East Trails	Paradise Boulevard	Irving Boulevard	1.8	Paved Multi-Use Trail	Plausible Near-Term	$2,600,000
Medium	Ventana Ranch South Trail	Ventana West Parkway	Hearthstone Road	0.4	Paved Multi-Use Trail	Plausible Near-Term	$510,000
Medium	Westgate Community Park Trail	Delgado Drive	98th Street / Snow Vista Boulevard	0.9	Paved Multi-Use Trail	Plausible Near-Term	$1,210,000
Medium	San Jose Drain	Rio Bravo Boulevard / 2nd Street	City Limits	1.5	Paved Multi-Use Trail, Sidepath	Long-Term	N/A

Table 4: Priority Levels for Proposed Sidepaths

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate
Very High	Academy Road	Wyoming Boulevard	Tramway Boulevard	4.3	Sidepath	Long-Term	$36,930,000
Very High	Paseo del Norte	I-25 Frontage Road NB	Eubank Boulevard	4.6	Sidepath	Long-Term	N/A
High	98th Street / Snow Vista Boulevard	North of Rio Clara Avenue	De Vargas Road	1.4	Sidepath	Long-Term	$2,220,000
High	Alameda Boulevard	Balloon Museum Drive	Ventura Street	5.8	Sidepath	Long-Term	$11,360,000
High	Alameda Boulevard / NM 528	Lorretta Drive	Westside Boulevard	3.7	Sidepath	Long-Term	N/A
High	Avenida Cesar Chavez Railroad Overpass	3rd Street	Broadway Boulevard	0.4	Sidepath	Long-Term	N/A
High	Avenida Dolores Huerta	La Vega Drive	Paseo del Bosque Trail	0.4	Sidepath	Long-Term	N/A
High	Central Avenue	90th Street	Unser Transit Center	2.9	Sidepath	Long-Term	$4,970,000
High	Irving Boulevard	Unser Boulevard	Golf Course Road	4.5	Sidepath	Long-Term	$7,440,000
High	Lomas Boulevard	6th Street	BNSF Rail Corridor	0.4	Sidepath	Long-Term	$2,300,000
High	Paseo del Norte	Universe Boulevard	Eagle Ranch Road	4.9	Sidepath	Long-Term	$8,690,000
High	Unser Boulevard	Montaño Road	Paradise Boulevard	6.6	Sidepath	Long-Term	$10,790,000
High	Wyoming Boulevard	Academy Road	Signal Avenue	3.2	Sidepath	Long-Term	$19,160,000
Medium	98th Street	Central Avenue	South of Bluewater Road	0.6	Sidepath	Long-Term	$1,160,000
Medium	Atrisco Vista Boulevard	Double Eagle Airport Road	Paseo del Norte	3.9	Sidepath	Long-Term	$5,450,000
Medium	Balloon Fiesta Northwest Access Trail	North Diversion Channel	I-25	2.2	Sidepath	Long-Term	$3,040,000
Medium	Balloon Museum Drive	Jefferson Street / Balloon Museum Drive	San Diego Avenue	0.1	Sidepath	Long-Term	$210,000
Medium	Bobby Foster Road / Los Picaros Road	University Boulevard	Los Picaros Road	8.0	Sidepath	Plausible Near-Term	$11,250,000
Medium	Bosque Plaza Lane	Winter Haven Road	La Orilla Road	0.1	Sidepath	Long-Term	$140,000
Medium	Chavez Road	Rio Grande Boulevard	4th Street	1.0	Sidepath	Long-Term	N/A
Medium	Eagle Ranch Road	All Saints Road	Paradise Boulevard	0.2	Sidepath	Long-Term	$940,000
Medium	El Pueblo Road	North Diversion Channel Trail	West of Tiburon Street	0.4	Sidepath	Long-Term	$550,000
Medium	Gibson Boulevard	De Anza Drive	Unser Boulevard / Spring Flower Road	1.1	Sidepath	Long-Term	$1,510,000
Medium	Gibson Boulevard	Buena Vista Drive	Yale Boulevard	0.1	Sidepath	Long-Term	$180,000
Medium	Gibson Boulevard	I-25 NB Frontage Road	University Boulevard	0.3	Sidepath	Long-Term	$720,000
Medium	Golf Course Road	Homestead Circle	Paseo del Norte	1.0	Sidepath	Long-Term	$5,450,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate
Medium	Harper Road	Barstow Street	Ventura Avenue	1.7	Sidepath	Long-Term	$3,040,000
Medium	I-25 Frontage Road NB	Harper Drive	Del Rey Avenue	0.7	Sidepath	Long-Term	$1,260,000
Medium	Jefferson Street	Masthead Street	Paseo del Norte WB Frontage Road	1.4	Sidepath	Long-Term	$2,800,000
Medium	Kimmick Drive	Rosa Parks Road	Paseo del Norte	0.2	Sidepath	Plausible Near-Term	$560,000
Medium	Montaño Road	5th Street	2nd Street	0.6	Sidepath	Long-Term	$1,490,000
Medium	Osuna Road	2nd Street / Elwood Street	Chappell Road	0.9	Sidepath	Long-Term	$2,190,000
Medium	Osuna Road	West of 4th Street	2nd Street	0.5	Sidepath	Long-Term	N/A
Medium	Paradise Boulevard	Chaparral Street	Paseo del Norte Northwest	0.2	Sidepath	Long-Term	$1,290,000
Medium	Rainbow Boulevard	Unser Boulevard	Volcano Vista High School	0.8	Sidepath	Long-Term	$1,440,000
Medium	Renaissance Boulevard	Alexander Boulevard (south of Montaño Road)	Alexander Boulevard (north of Montaño Road)	1.0	Sidepath	Long-Term	$1,960,000
Medium	Rio Bravo Boulevard	Isleta Boulevard	2nd Street	2.5	Sidepath	Plausible Near-Term	N/A
Medium	Rosa Parks Road	Kimmick Drive	Calle Norteña	0.3	Sidepath	Plausible Near-Term	$1,020,000
Medium	San Antonio Drive / Ellison Street	I-25 Frontage Road SB	I-25 Frontage Road NB	0.1	Sidepath	Long-Term	$1,610,000
Medium	Sunport Boulevard	I-25 NB Frontage Road	Transport Street	0.1	Sidepath	Plausible Near-Term	$460,000
Medium	Sunport Loop / Yale Boulevard	Randolph Road	Girard Boulevard	0.8	Sidepath	Long-Term	$1,370,000
Medium	Tramway Boulevard	Wenonah Avenue	Central Avenue	0.2	Sidepath	Long-Term	$220,000
Medium	Universe Boulevard	Rainbow Boulevard	Paseo del Norte	2.8	Sidepath	Long-Term	$4,560,000
Medium	University Boulevard	Arbus Drive	Crick Avenue	1.5	Sidepath	Plausible Near-Term	$2,110,000
Medium	University Boulevard	Clark Carr Road	Aircraft Avenue	1.3	Sidepath	Long-Term	$2,140,000
Medium	Unser Boulevard	Irving Boulevard	Existing Sidepath	0.1	Sidepath	Plausible Near-Term	$380,000
Medium	Ventana West Parkway	Ventana Ranch South Trail	Paseo del Norte	0.3	Sidepath	Plausible Near-Term	$450,000
Medium	Volcano Road	98th Street	94th Street	0.3	Sidepath	Long-Term	$390,000
Medium	Wyoming Boulevard	Bear Canyon Arroyo Trail	Spain Road	0.1	Sidepath	Plausible Near-Term	$430,000
Medium	Comanche Road	Alexander Boulevard	Princeton Drive	0.5	Sidepath, Bike Lane	Plausible Near-Term	N/A
Medium	Montgomery Boulevard	Culture Drive	North Diversion Channel Trail	0.5	Sidepath, Bike Lane	Plausible Near-Term	N/A
Medium	San Francisco Road I-25 Crossing	Jefferson Street	I-25 NB Frontage Road	0.5	Sidepath, Paved Multi-Use Trail	Long-Term	N/A
High	Gibson Boulevard	Broadway Boulevard	I-25 NB Frontage Road	0.8	Sidepath, Separated Bike Lane	Plausible Near-Term	N/A

Table 5: Priority Levels for Proposed Bike Boulevards

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
Very High	Alvarado Drive	Eastern Avenue	I-40 Trail Bridge	2.2	Bike Boulevard, Bike Lane	Long-Term	$3,250,000	$5,480,000
Very High	Alvarado Drive / Palomas Drive	I-40 Trail Bridge	Comanche Road	1.4	Bike Boulevard	Long-Term	$3,040,000	$4,280,000
Very High	Buena Vista Drive	Gibson Boulevard	Central Avenue	1.6	Bike Boulevard	Long-Term	$4,420,000	$5,790,000
Very High	Claremont Avenue	Richmond Drive	Juan Tabo Boulevard / Paseo de las Montañas Trail	6.0	Bike Boulevard, Bike Lane	Long-Term	$9,310,000	$14,950,000
Very High	Crest Avenue / Eastern Avenue	Washington Street	Louisiana Boulevard	1.5	Bike Boulevard	Long-Term	$3,090,000	$4,440,000
Very High	Edith Bouelvard	Gibson Boulevard	Menaul Boulevard	3.4	Bike Boulevard, Bike Lane	Plausible Near-Term	$5,860,000	$10,610,000
Very High	Marquette Avenue / Roma Avenue	Girard Boulevard	San Pedro Drive	2.3	Bike Boulevard	Long-Term	$4,340,000	$6,390,000
Very High	Parsifal Street / Moon Street	Paseo de las Montañas Trail	Academy Road	3.6	Bike Boulevard, Bike Lane, Sidepath	Long-Term	$6,490,000	$10,150,000
Very High	Prospect Avenue / Cutler Avenue	Morningside Drive	San Pedro Drive	1.4	Bike Boulevard, Bike Lane	Plausible Near-Term	$1,530,000	$3,200,000
Very High	San Pablo Street / Charleston Street / Mesilla Street	Southern Avenue	Constitution Avenue	2.3	Bike Boulevard	Long-Term	$2,720,000	$4,730,000
Very High	Silver Avenue	2nd Street	University Boulevard	1.1	Bike Boulevard, Separated Two-Way Cycle Track, Sidepath	Plausible Near-Term	$3,400,000	$4,760,000
Very High	Stanford Drive / Columbia Drive	Gibson Boulevard	Central Avenue	1.6	Bike Boulevard	Plausible Near-Term	$1,670,000	$3,110,000
Very High	Summer Avenue / Mackland Avenue / Marble Avenue	Stanford Drive / North Diversion Channel Trail	Louisiana Boulevard / I-40 Trail Bridge	3.4	Bike Boulevard, Bike Lane	Long-Term	$5,590,000	$8,660,000
Very High	Trumbull Avenue	Valverde Drive	Eubank Boulevard	3.7	Bike Boulevard, Sidepath	Long-Term	$5,390,000	$8,580,000
Very High	Washington Street / Montclaire Drive	Menaul Boulevard	Montgomery Boulevard	1.7	Bike Boulevard, Sidepath	Long-Term	$2,690,000	$4,020,000
Very High	Washington Street / Valverde Drive / Morningside Drive	Gibson Boulevard	Marquette Avenue	2.1	Bike Boulevard	Plausible Near-Term	$3,200,000	$5,020,000
Very High	Wellesley Drive / Tulane Drive / Lafayette Drive	Gibson Boulevard	Indian School Road	2.9	Bike Boulevard, Sidepath	Long-Term	$4,940,000	$7,470,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
High	10th Street	Santa Fe Avenue	Marquette Avenue	0.9	Bike Boulevard, Bike Lane	Plausible Near-Term	$1,010,000	$1,970,000
High	57th Street / 58th Street / 59th Street	Gonzales Road	Atrisco Drive / I-40 Trail	2.6	Bike Boulevard, Sidepath	Plausible Near-Term	$2,180,000	$4,420,000
High	94th Street	Benavides Road	Volcano Road	1.8	Bike Boulevard	Plausible Near-Term	$2,210,000	$3,830,000
High	Apache Avenue / Utah Street	Española Street	Claremont Avenue	1.0	Bike Boulevard	Long-Term	$1,790,000	$2,650,000
High	Bermuda Drive / Chelwood Road	Candelaria Road	Manitoba Drive	1.8	Bike Boulevard	Plausible Near-Term	$2,030,000	$3,590,000
High	Bluewater Road / La Bajada Road	Coors Boulevard	Atrisco Drive	1.2	Bike Boulevard, Sidepath	Plausible Near-Term	$1,120,000	$2,070,000
High	Brentwood Hills Boulevard / Marie Park Drive	Martha Street / Embudo Trail	Eastridge Drive / Tramway Boulevard Crossing	1.8	Bike Boulevard	Long-Term	$2,360,000	$3,980,000
High	Camino del Sol / Kielich Avenue / Malaguena Lane	Spain Road	Lowell Street	2.9	Bike Boulevard, Bike Lane	Plausible Near-Term	$3,810,000	$7,410,000
High	Chico Road	Utah Street	Shirley Street / I-40 Trail	1.6	Bike Boulevard	Long-Term	$2,080,000	$3,450,000
High	Cochiti Road / Shirley Street	Morris Street / Elizabeth Street	Chico Road	1.0	Bike Boulevard	Long-Term	$2,840,000	$3,720,000
High	Dellwood Road / Aztec Road	Pennsylvania Street	Parsifal Street	1.3	Bike Boulevard	Long-Term	$2,250,000	$3,410,000
High	Garfield Avenue	Buena Vista Drive	Morningside Drive	1.4	Bike Boulevard	Plausible Near-Term	$1,400,000	$2,630,000
High	Gonzales Road	Coors Boulevard	Old Coors Drive	0.9	Bike Boulevard	Plausible Near-Term	$1,760,000	$2,570,000
High	Hannett Avenue / Aspen Avenue / Haines Avenue	Stanford Drive	Washington Street	2.6	Bike Boulevard	Long-Term	$4,070,000	$6,380,000
High	Lagrima de Oro Road	Dona Marguerita Avenue	Morris Street	0.8	Bike Boulevard	Plausible Near-Term	$1,590,000	$2,320,000
High	Manitoba Drive	Juan Tabo Boulevard	Tramway Ridge Drive	1.1	Bike Boulevard, Sidepath	Plausible Near-Term	$1,620,000	$2,470,000
High	Marble Avenue / 1st Street	6th Street	1st Street / Lomas Boulevard	0.5	Bike Boulevard	Plausible Near-Term	$1,980,000	$2,390,000
High	Marquette Avenue	14th Street	6th Street	0.5	Bike Boulevard	Plausible Near-Term	$850,000	$1,320,000
High	Marquette Avenue / Roma Avenue	2nd Street	Edith Boulevard	0.5	Bike Boulevard, Sidepath	Plausible Near-Term	$770,000	$1,090,000
High	Moon Street	Susan Avenue / Southern Boulevard	Copper Avenue	0.9	Bike Boulevard	Plausible Near-Term	$1,020,000	$1,820,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
High	Mountain Road	Tomasita Street	Chelwood Park Boulevard	0.9	Bike Boulevard, Bike Lane	Long-Term	$1,450,000	$2,450,000
High	Natalie Avenue/Ponderosa Avenue	Paseo del Nordeste/San Mateo Boulevard	Pennsylvania Street	1.7	Bike Boulevard, Bike Lane	Plausible Near-Term	$1,390,000	$2,990,000
High	Panmunjon Road / Hollywood Avenue / Marble Avenue	Mountain Road	14th Street	1.2	Bike Boulevard	Long-Term	$1,900,000	$2,950,000
High	San Isidro Street / Guadalupe Trail	Indian School Road	Grecian Avenue	2.8	Bike Boulevard	Plausible Near-Term	$3,830,000	$6,290,000
High	Santa Clara Avenue	Yale Boulevard	Wellesley Drive	0.8	Bike Boulevard, Bike Lane	Plausible Near-Term	$670,000	$1,690,000
High	Santa Fe Avenue	12th Street / Bosque Trail Access	2nd Street	0.6	Bike Boulevard	Plausible Near-Term	$1,320,000	$1,870,000
High	Tomasita Street / Martha Street	I-40 Trail Bridge	Gretta Street / Prospect Avenue	2.0	Bike Boulevard	Plausible Near-Term	$1,820,000	$3,560,000
High	Tony Sanchez Drive / Singing Arrow Avenue	Innovation Parkway	East of Dorado Place	1.6	Bike Boulevard, Bike Lane, Buffered Bike Lane	Long-Term	$2,000,000	$4,300,000
High	Utah Street	Southern Avenue	Marble Avenue / Charleston Street	1.9	Bike Boulevard, Bike Lane	Long-Term	$2,530,000	$4,330,000
High	William Street	Woodward Road	Pacific Avenue / Edith Boulevard	2.0	Bike Boulevard, Bike Lane	Plausible Near-Term	$1,500,000	$3,930,000
Medium	14th Street	Lomas Boulevard	N/A	0.0	Bike Boulevard Crossing	Long-Term	N/A	
Medium	15th Street	Marble Avenue	Bellamah Avenue	0.5	Bike Boulevard	Long-Term	$530,000	$940,000
Medium	64th Street	I-40 Trail	Ladera Drive	0.7	Bike Boulevard, Paved Multi-Use Trail	Plausible Near-Term	$1,690,000	$2,320,000
Medium	Anderson Avenue / Smith Avenue	Wellesley Drive	Washington Street	0.8	Bike Boulevard	Plausible Near-Term	$690,000	$1,420,000
Medium	Aspen Avenue	I-40 Trail	Rail Trail Access	0.6	Bike Boulevard	Long-Term	$1,320,000	$1,820,000
Medium	Benavides Road	Del Rey Road	Camino San Martin	1.2	Bike Boulevard	Plausible Near-Term	$580,000	$1,630,000
Medium	Bethel Avenue	San Jose Drain	Broadway Boulevard	0.4	Bike Boulevard	Long-Term	$200,000	$560,000
Medium	Camino San Martin	Snow Vista Boulevard	Gibson Boulevard	0.8	Bike Boulevard	Plausible Near-Term	$1,400,000	$2,070,000
Medium	Campbell Road	Paseo del Bosque Trail	Alameda Drain Trail Spur	0.9	Bike Boulevard	Plausible Near-Term	$590,000	$1,390,000
Medium	Carruthers Road	Westwind Street / Overlook Drive	Academy Road	0.7	Bike Boulevard	Plausible Near-Term	$2,420,000	$3,070,000
Medium	Del Rey Road	Benavides Road	De Anza Drive	0.6	Bike Boulevard, Bike Lane	Plausible Near-Term	$420,000	$1,110,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
Medium	Don Quixote Drive / Don Fernando Avenue	Paseo del Bosque Trail Access	Rio Grande Boulevard	0.7	Bike Boulevard	Long-Term	$1,400,000	$2,050,000
Medium	Eucariz Avenue	West of 98th Street	Stinson Street	1.6	Bike Boulevard, Bike Lane, Sidepath	Plausible Near-Term	$3,140,000	$4,550,000
Medium	Greene Avenue	Golf Course Road	Irving Boulevard	0.6	Bike Boulevard, Bike Lane	Plausible Near-Term	$1,320,000	$2,060,000
Medium	Herman Roser Avenue	Elizabeth Street / Tony Sanchez Drive	Juan Tabo Boulevard	0.3	Bike Boulevard, Bike Lane	Long-Term	$1,190,000	$1,570,000
Medium	Holbrook Street	Ramtha Street / Quintessence Road	Carmel Avenue	1.0	Bike Boulevard, Separated Bike Lane, Buffered Bike Lane, Paved Multi-Use Trail	Long-Term	$1,220,000	$2,560,000
Medium	Iron Avenue / 14th Street	Tingley Drive / Paseo del Bosque Trail	Silver Avenue	0.5	Bike Boulevard, Sidepath	Plausible Near-Term	$300,000	$650,000
Medium	Kimela Drive / Rainwater Road	Camino San Martin	Desert Breeze Drive / Trail Access	0.9	Bike Boulevard	Plausible Near-Term	$1,460,000	$2,240,000
Medium	Liberty Drive	Barstow Street	Ventura Street	0.5	Bike Boulevard	Plausible Near-Term	$1,580,000	$2,040,000
Medium	Marna Lynn Avenue / Davenport Street / Congress Avenue	Petroglyph Trailhead	Congress Avenue / Golf Course Road	1.1	Bike Boulevard	Plausible Near-Term	$2,910,000	$3,920,000
Medium	Mesa Arenoso Drive / Pauza Drive	Sacate Blanco Avenue	Gibson Boulevard	0.9	Bike Boulevard	Plausible Near-Term	$1,460,000	$2,230,000
Medium	Moon Street / Easterday Drive	Lomas Boulevard / I-40 Trail Bridge	Constitution Avenue	0.5	Bike Boulevard, Bike Lane	Plausible Near-Term	$820,000	$1,340,000
Medium	Rough Rider Road / Pioneer Trail	Barstow Street	Ventura Street	0.6	Bike Boulevard, Bike Lane	Plausible Near-Term	$1,580,000	$2,220,000
Medium	Tesuque Drive	Montaño Road	Homestead Circle	1.2	Bike Boulevard	Plausible Near-Term	$1,910,000	$2,980,000

Table 6: Proposed Projects in 2024 Plan in Alphabetical Order

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
High	10th Street	Santa Fe Avenue	Marquette Avenue	0.9	Bike Boulevard, Bike Lane	Plausible Near-Term	$1,010,000	$1,970,000
Medium	12th Street	Sawmill Road	BNSF Rail Spur	0.3	Buffered Bike Lane	Plausible Near-Term	$180,000	$830,000
Medium	12th Street	BNSF Rail Spur	I-40 Frontage Road WB	0.2	Buffered Bike Lane	Long-Term	$740,000	$1,310,000
Medium	14th Street	Lomas Boulevard	N/A	0.0	Bike Boulevard Crossing	Long-Term	N/A	
Medium	15th Street	Marble Avenue	Bellamah Avenue	0.5	Bike Boulevard	Long-Term	$530,000	$940,000
High	2nd Street / 3rd Street	Marble Avenue	Candelaria Road	2.4	Buffered Bike Lane	Plausible Near-Term	$2,070,000	$6,560,000
Medium	2nd Street / 3rd Street	McKnight Avenue / I-40 Frontage Road EB	Arvada Ave	0.3	Buffered Bike Lane	Long-Term	$700,000	$1,270,000
Medium	4th Street	Ortega Road	Alameda Boulevard	0.7	Bike Lane	Plausible Near-Term	N/A	
High	57th Street / 58th Street / 59th Street	Gonzales Road	Atrisco Drive / I-40 Trail	2.6	Bike Boulevard, Sidepath	Plausible Near-Term	$2,180,000	$4,420,000
High	57th Street / Atrisco Drive	Ouray Road	Sequoia Road	0.6	Buffered Bike Lane	Plausible Near-Term	$730,000	$2,340,000
Very High	5th Street / 6th Street	Coal Avenue	I-40 Frontage Road EB	2.9	Buffered Bike Lane, Bike Lane	Plausible Near-Term	$7,980,000	$14,480,000
Medium	64th Street	I-40 Trail	Ladera Drive	0.7	Bike Boulevard, Paved Multi-Use Trail	Plausible Near-Term	$1,690,000	$2,320,000
Medium	72nd Street / Hanover Road / Estancia Drive	Fortuna Road	Illif Road	1.2	Enhanced Bike Route, Buffered Bike Lane	Plausible Near-Term	$1,220,000	$2,750,000
High	86th Street	98th Street	Central Avenue	1.9	Buffered Bike Lane, Bike Lane, Bike Boulevard	Plausible Near-Term	$1,300,000	$4,560,000
High	94th Street	Benavides Road	Volcano Road	1.8	Bike Boulevard	Plausible Near-Term	$2,210,000	$3,830,000
Medium	98th Street	Dennis Chavez Boulevard	Blake Road	1.1	Buffered Bike Lane	Plausible Near-Term	$990,000	$2,980,000
Medium	98th Street	Central Avenue	South of Bluewater Road	0.6	Sidepath	Long-Term	$1,160,000	
High	98th Street / Snow Vista Boulevard	North of Rio Clara Avenue	De Vargas Road	1.4	Sidepath	Long-Term	$2,220,000	
High	Academy Road	Seagull Street	Wyoming Boulevard	1.7	Separated Bike Lane	Long-Term	$8,450,000	$12,810,000
Very High	Academy Road	Wyoming Boulevard	Tramway Boulevard	4.3	Sidepath	Long-Term	$36,930,000	
High	Airport Drive	Central Avenue	Los Volcanes Road	0.8	Buffered Bike Lane	Plausible Near-Term	$590,000	$2,080,000
High	Alameda Boulevard	Balloon Museum Drive	Ventura Street	5.8	Sidepath	Long-Term	$11,360,000	

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
High	Alameda Boulevard / NM 528	Lorretta Drive	Westside Boulevard	3.7	Sidepath	Long-Term	N/A	
High	Alameda Drain Trail	Central Avenue	Rio Grande Boulevard / I-40	0.9	Paved Multi-Use Trail	Long-Term	$1,240,000	
Medium	Alameda Drain Trail	Rio Grande Boulevard / I-40	Matthew Avenue	0.9	Paved Multi-Use Trail	Plausible Near-Term	$1,300,000	
High	Alameda Drain Trail	Matthew Avenue	4th Street	0.0	Paved Multi-Use Trail Crossing	Long-Term	$1,610,000	
Medium	Alameda Drain Trail / 2nd Street	Paseo del Norte Boulevard	Alameda Boulevard	0.8	Paved Multi-Use Trail	Long-Term	N/A	
High	Alamogordo Drive / Vista Grande Drive	Bridges Avenue	Saint Joseph's Drive	1.4	Enhanced Bike Route	Plausible Near-Term	$340,000	$1,580,000
Very High	Alvarado Drive	Eastern Avenue	I-40 Trail Bridge	2.2	Bike Boulevard, Bike Lane	Long-Term	$3,250,000	$5,480,000
Very High	Alvarado Drive / Palomas Drive	I-40 Trail Bridge	Comanche Road	1.4	Bike Boulevard	Long-Term	$3,040,000	$4,280,000
High	Amole Arroyo Trail / Snow Vista Trail / West Gate Trail	Blake Road	Tower Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$2,930,000	
Medium	Amole del Norte Trail	Blake Road	Sage Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	N/A	
Medium	Amole Mesa Avenue	118th Street	Amole Arroyo Trail	1.5	Bike Lane, Bike Boulevard, Sidepath	Plausible Near-Term	$610,000	$2,610,000
Medium	Andalusian Avenue	Tanager Drive	102nd Street Trail Access	0.4	Enhanced Bike Route	Plausible Near-Term	$90,000	$420,000
Medium	Anderson Avenue / Smith Avenue	Wellesley Drive	Washington Street	0.8	Bike Boulevard	Plausible Near-Term	$690,000	$1,420,000
High	Apache Avenue / Utah Street	Española Street	Claremont Avenue	1.0	Bike Boulevard	Long-Term	$1,790,000	$2,650,000
Medium	Arenal Road	Atrisco Riverside Drain	Isleta Boulevard	0.7	Enhanced Bike Route	Plausible Near-Term	N/A	
Medium	Aspen Avenue	I-40 Trail	Rail Trail Access	0.6	Bike Boulevard	Long-Term	$1,320,000	$1,820,000
Medium	Atrisco Drain	Arenal Road	Isleta Boulevard	0.2	Paved Multi-Use Trail	Long-Term	N/A	
High	Atrisco Drive	Central Avenue	I-40 Trail Bridge	1.7	Separated Bike Lane, Buffered Bike Lane	Plausible Near-Term	$990,000	$2,850,000
High	Atrisco Riverside Drain	Bridge Boulevard	Central Avenue	1.7	Paved Multi-Use Trail	Long-Term	$2,390,000	
Medium	Atrisco Riverside Drain	Rio Bravo Boulevard	Arenal Road	1.6	Paved Multi-Use Trail	Long-Term	N/A	
Medium	Atrisco Vista Boulevard	Double Eagle Airport Road	Paseo del Norte	3.9	Sidepath	Long-Term	$5,450,000	
Medium	Avalon Trail	90th Street	Bluewater Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$1,320,000	

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
Very High	Avenida Cesar Chavez	Broadway Boulevard	Yale Boulevard	1.1	Separated Bike Lane	Plausible Near-Term	$2,100,000	$4,940,000
High	Avenida Cesar Chavez	Walter Street	Langham Street	0.3	Separated Bike Lane	Long-Term	$1,200,000	$1,200,000
High	Avenida Cesar Chavez Railroad Overpass	3rd Street	Broadway Boulevard	0.4	Sidepath	Long-Term	N/A	
High	Avenida Dolores Huerta	La Vega Drive	Paseo del Bosque Trail	0.4	Sidepath	Long-Term	N/A	
Medium	Aztec Road / Princeton Drive	Candelaria Road / Comanche Road	North Diversion Channel Trail	1.1	Bike Lane, Bike Boulevard	Plausible Near-Term	$1,770,000	$3,540,000
Medium	Balloon Fiesta Northwest Access Trail	North Diversion Channel	I-25	2.2	Sidepath	Long-Term	$3,040,000	
Medium	Balloon Museum Drive	Jefferson Street / Balloon Museum Drive	San Diego Avenue	0.1	Sidepath	Long-Term	$210,000	
High	Barcelona Road	Coors Boulevard	Isleta Boulevard	1.1	Bike Lane	Long-Term	N/A	
Medium	Barstow Street	Alameda Boulevard	Trail Access	0.2	Bike Lane	Plausible Near-Term	$60,000	$360,000
Medium	Barstow Street	Eagle Rock Ave / Trail Access	Florence Avenue	0.3	Bike Lane	Long-Term	$70,000	$70,000
Medium	Barstow Street	Signal Avenue	Alameda Boulevard	0.1	Separated Bike Lane	Long-Term	$30,000	$30,000
High	Barstow Street	Harper Road	Signal Road	1.8	Separated Bike Lane, Buffered Bike Lane	Plausible Near-Term	$2,010,000	$5,960,000
Very High	Bear Canyon Arroyo Trail	Wyoming Boulevard	Morris Street	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$2,350,000	
Medium	Bear Canyon Trail	Jefferson Street	N/A	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$1,030,000	
Medium	Bellamah Avenue	West of 15th Street	12th Street	0.2	Buffered Bike Lane	Long-Term	$80,000	$410,000
Medium	Benavides Road	Del Rey Road	Camino San Martin	1.2	Bike Boulevard	Plausible Near-Term	$580,000	$1,630,000
High	Bermuda Drive / Chelwood Road	Candelaria Road	Manitoba Drive	1.8	Bike Boulevard	Plausible Near-Term	$2,030,000	$3,590,000
Medium	Bethel Avenue	San Jose Drain	Broadway Boulevard	0.4	Bike Boulevard	Long-Term	$200,000	$560,000
Medium	Black Arroyo Trail	Ellison Road	Seven Bar Loop Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$1,320,000	
Medium	Blake Road	Isleta Drain (LRBS)	Isleta Boulevard (LRBS)	1.7	Bike Lane	Long-Term	N/A	
Medium	Blake Road	Unser Boulevard	Blake Circle	0.5	Buffered Bike Lane	Long-Term	$420,000	$620,000
High	Blake Road / De Anza Drive	98th Street / 86th Street	Unser Boulevard	1.3	Buffered Bike Lane	Plausible Near-Term	$1,410,000	$3,470,000
High	Bluewater Road	98th Street	Camino Azul / Coors Boulevard	2.0	Buffered Bike Lane	Plausible Near-Term	$1,330,000	$5,030,000
Medium	Bluewater Road	Camino Azul	East of Coors Boulevard	0.1	Separated Bike Lane	Long-Term	$730,000	$730,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
High	Bluewater Road / La Bajada Road	Coors Boulevard	Atrisco Drive	1.2	Bike Boulevard, Sidepath	Plausible Near-Term	$1,120,000	$2,070,000
Medium	Bobby Foster Road	Broadway Boulevard	Los Picaros Road	0.5	Buffered Bike Lane	Long-Term	N/A	
Medium	Bobby Foster Road / Los Picaros Road	University Boulevard	Los Picaros Road	8.0	Sidepath	Plausible Near-Term	$11,250,000	
Medium	Bosque Plaza Lane	Winter Haven Road	La Orilla Road	0.1	Sidepath	Long-Term	$140,000	
High	Brentwood Hills Boulevard / Marie Park Drive	Martha Street / Embudo Trail	Eastridge Drive / Tramway Boulevard Crossing	1.8	Bike Boulevard	Long-Term	$2,360,000	$3,980,000
Very High	Broadway Boulevard	Coal Avenue	Lomas Boulevard	0.9	Buffered Bike Lane	Plausible Near-Term	$2,060,000	$4,300,000
Medium	Broadway Boulevard	Menaul Boulevard	Candelaria Road	0.6	Separated Bike Lane	Plausible Near-Term	$1,060,000	$2,510,000
Very High	Buena Vista Drive	Gibson Boulevard	Central Avenue	1.6	Bike Boulevard	Long-Term	$4,420,000	$5,790,000
Medium	Calabacillas Arroyo Spur Trail	Calabacillas Arroyo	Unser Boulevard	1.4	Paved Multi-Use Trail	Long-Term	$1,930,000	
High	Calabacillas Arroyo Trail	Universe Boulevard	Eagle Ranch Road	4.4	Paved Multi-Use Trail	Long-Term	$6,230,000	
Medium	Calle Norteña	Taylor Ranch Drive / Taylor Ranch Road	Golf Course Road	0.6	Buffered Bike Lane	Plausible Near-Term	$520,000	$1,620,000
Medium	Camino de la Sierra / Arcadia Road	Tramway Trail	Copper Avenue	2.0	Enhanced Bike Route	Plausible Near-Term	$470,000	$2,230,000
Medium	Camino de la Sierra / Glenwood Hills Drive	Candelaria Road	Emudito Trailhead	1.8	Enhanced Bike Route	Plausible Near-Term	$410,000	$1,970,000
Medium	Camino de la Sierra / Lomas Boulevard	Monte Largo Drive / Monte Largo Drive	Indian School Road	0.5	Enhanced Bike Route	Plausible Near-Term	$130,000	$600,000
High	Camino del Sol / Kielich Avenue / Malaguena Lane	Spain Road	Lowell Street	2.9	Bike Boulevard, Bike Lane	Plausible Near-Term	$3,810,000	$7,410,000
Medium	Camino San Martin	Snow Vista Boulevard	Gibson Boulevard	0.8	Bike Boulevard	Plausible Near-Term	$1,400,000	$2,070,000
Medium	Campbell Road	Paseo del Bosque Trail	Alameda Drain Trail Spur	0.9	Bike Boulevard	Plausible Near-Term	$590,000	$1,390,000
Very High	Candelaria Road	San Isidro Street	I-40 Frontage Road SB	2.4	Separated Bike Lane	Plausible Near-Term	$3,300,000	$9,340,000
Medium	Candelaria Road	Tramway Boulevard	Palo Alto Drive	0.1	Separated Bike Lane	Long-Term	$720,000	$720,000
Medium	Candelaria Road	I-25 Frontage Road SB	Princeton Drive	0.3	Separated Two-Way Cycle Track	Long-Term	$1,240,000	$2,130,000
Medium	Carlisle Boulevard	Calle del Ranchero	Constitution Road	0.1	Bike Lane	Plausible Near-Term	$610,000	$710,000
Medium	Carruthers Road	Westwind Street / Overlook Drive	Academy Road	0.7	Bike Boulevard	Plausible Near-Term	$2,420,000	$3,070,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
Medium	Cedarbrook Avenue / Larchmont Drive / Montgomery Boulevard	Tramway Boulevard / Manitoba Drive	Glenwood Hills Drive	1.1	Enhanced Bike Route, Sidepath	Plausible Near-Term	$430,000	$1,290,000
High	Central Avenue	90th Street	Unser Transit Center	2.9	Sidepath	Long-Term	$4,970,000	
Medium	Chacoma Place / San Pasquale Avenue	El Vado / East of Central Avenue	Laguna Boulevard	0.9	Enhanced Bike Route	Plausible Near-Term	$210,000	$990,000
Medium	Chavez Road	Rio Grande Boulevard	4th Street	1.0	Sidepath	Long-Term	N/A	
Very High	Chelwood Park Boulevard	Copper Avenue	Candelaria Road	2.6	Bike Lane	Plausible Near-Term	$1,520,000	$5,580,000
High	Chico Road	Utah Street	Shirley Street / I-40 Trail	1.6	Bike Boulevard	Long-Term	$2,080,000	$3,450,000
Medium	Chico Road	Eubank Boulevard	Morris Street	0.5	Buffered Bike Lane	Plausible Near-Term	$480,000	$1,400,000
Very High	Claremont Avenue	Richmond Drive	Juan Tabo Boulevard / Paseo de las Montañas Trail	6.0	Bike Boulevard, Bike Lane	Long-Term	$9,310,000	$14,950,000
High	Cloudview Avenue	Chelwood Park Boulevard	Lomas Verdes Avenue / Panorama Place	0.5	Bike Lane	Plausible Near-Term	$210,000	$1,230,000
Medium	Cloudview Avenue / Encantado Road	Lomas Verdes Avenue / Panorama Place	Avital Northeast Drive	0.1	Separated Bike Lane	Long-Term	$760,000	$760,000
High	Coal Avenue	Elm Street	Oak Street	0.1	Separated Bike Lane	Long-Term	$1,090,000	$1,090,000
High	Cochiti Road / Shirley Street	Morris Street / Elizabeth Street	Chico Road	1.0	Bike Boulevard	Long-Term	$2,840,000	$3,720,000
Very High	Comanche Road	San Mateo Boulevard	East of Tramway Boulevard	5.5	Separated Bike Lane, Enhanced Bike Route, Bike Lane	Plausible Near-Term	$6,870,000	$20,160,000
Medium	Comanche Road	Alexander Boulevard	Princeton Drive	0.5	Sidepath, Bike Lane	Plausible Near-Term	N/A	
Very High	Constitution Avenue	Pennsylvania Street	Indian School Road	3.4	Bike Lane	Plausible Near-Term	$2,830,000	$9,460,000
Very High	Constitution Avenue	Vassar Drive	Mesilla Street	1.6	Bike Lane, Buffered Bike Lane, Buffered Bike Lane One Direction	Plausible Near-Term	$2,080,000	$5,150,000
High	Coors Boulevard	Blake Road (LRBS)	Bridge Boulevard (LRBS)	2.3	Buffered Bike Lane	Long-Term	N/A	
Medium	Coors Boulevard	Gun Club Road	Blake Road	1.7	Separated Bike Lane	Plausible Near-Term	N/A	
Medium	Coors Frontage Road	Southwestern Polytechnic Institute Road	Paseo del Norte Trail	0.4	Enhanced Bike Route	Plausible Near-Term	$100,000	$440,000
High	Copper Avenue	Wyoming Boulevard	Eubank Boulevard	1.0	Bike Lane	Plausible Near-Term	$970,000	$2,900,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
High	Copper Avenue	Tomasita Street / I-40 Trail Bridge	Copper Trailhead	2.3	Buffered Bike Lane, Bike Boulevard, Enhanced Bike Route	Plausible Near-Term	$1,440,000	$3,990,000
Medium	Corrales Main / La Orilla Outlet Northwest Trail	Coors Trail	Southwestern Polytechnic Institute Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$580,000	
Very High	Crest Avenue / Eastern Avenue	Washington Street	Louisiana Boulevard	1.5	Bike Boulevard	Long-Term	$3,090,000	$4,440,000
Medium	De Vargas Road	Osprey Drive	Cockatiel Drive	0.2	Buffered Bike Lane	Long-Term	$50,000	$50,000
Medium	Del Mastro Drive	Del Rey Road	De Vargas Road	0.5	Bike Lane	Plausible Near-Term	$180,000	$1,080,000
Medium	Del Rey Road	Benavides Road	De Anza Drive	0.6	Bike Boulevard, Bike Lane	Plausible Near-Term	$420,000	$1,110,000
High	Dellwood Road / Aztec Road	Pennsylvania Street	Parsifal Street	1.3	Bike Boulevard	Long-Term	$2,250,000	$3,410,000
Medium	Dellyne Avenue	West of Unser Boulevard	Coors Boulevard	1.1	Buffered Bike Lane	Plausible Near-Term	$730,000	$2,890,000
Medium	Dellyne Avenue	Oxnard Road	Winter Haven Road	0.3	Separated Bike Lane	Long-Term	$1,390,000	$1,390,000
High	Diversion Channel Trail UNM Connection	Tucker Avenue	Yale Boulevard	0.2	Paved Multi-Use Trail	Long-Term	$250,000	
High	Doctor Martin Luther King Junior Avenue	Arno Street	Oak Street	0.4	Separated Bike Lane	Plausible Near-Term	$1,460,000	$1,740,000
High	Domingo Baca Trail	San Pedro Drive	Ventura Street	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$2,790,000	
Medium	Don Quixote Drive / Don Fernando Avenue	Paseo del Bosque Trail Access	Rio Grande Boulevard	0.7	Bike Boulevard	Long-Term	$1,400,000	$2,050,000
High	Dorado Place / Wenonah Avenue	Wenonah Avenue	Central Avenue	0.3	Buffered Bike Lane, Bike Boulevard	Plausible Near-Term	$440,000	$910,000
Medium	Eagle Ranch Road	All Saints Road	Paradise Boulevard	0.2	Sidepath	Long-Term	$940,000	
Very High	Edith Bouelvard	Gibson Boulevard	Menaul Boulevard	3.4	Bike Boulevard, Bike Lane	Plausible Near-Term	$5,860,000	$10,610,000
Medium	Edith Boulevard	El Pueblo Road	Alameda Boulevard	0.8	Enhanced Bike Route	Plausible Near-Term	$1,220,000	$1,920,000
Medium	El Pueblo Road	North Diversion Channel Trail	West of Tiburon Street	0.4	Sidepath	Long-Term	$550,000	
Medium	Embudito Drive / Hugh Graham Road	Tramway Trail	Glenwood Hills Drive / Camino de la Sierra	0.8	Enhanced Bike Route	Plausible Near-Term	$200,000	$920,000
Medium	Embudo Channel Trail	Cutler Avenue	-	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$290,000	
Medium	Encantado Road	Avital Northeast Drive	Camino de la Sierra	0.6	Enhanced Bike Route, Bike Lane	Plausible Near-Term	$180,000	$880,000
Very High	Eubank Boulevard	Montgomery Boulevard	San Francisco Road	5.3	Separated Bike Lane	Long-Term	$12,850,000	$19,620,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
Medium	Eucariz Avenue	West of 98th Street	Stinson Street	1.6	Bike Boulevard, Bike Lane, Sidepath	Plausible Near-Term	$3,140,000	$4,550,000
Medium	Florence Avenue	Louisiana Boulevard	Barstow Road	1.0	Bike Lane	Long-Term	$310,000	$1,340,000
Medium	Forest Hills Drive	I-25 NB Frontage Road	Barnhart Street	0.2	Buffered Bike Lane	Long-Term	$50,000	$50,000
Medium	Fortuna Road	Ben E Keith Way	64th Street	0.7	Buffered Bike Lane	Plausible Near-Term	$290,000	$1,700,000
Medium	Fortuna Road	Estancia Drive	64th Street	0.2	Separated Bike Lane	Long-Term	$990,000	$990,000
Medium	Fortuna Road Trail	Unser Boulevard	Ben E Keith Way	0.4	Paved Multi-Use Trail	Long-Term	$560,000	
Medium	Gallant Fox Road / Raton Avenue	Juan Tabo Boulevard	Wagon Train Drive	0.6	Enhanced Bike Route, Paved Multi-Use Trail	Plausible Near-Term	$470,000	$950,000
High	Garfield Avenue	Buena Vista Drive	Morningside Drive	1.4	Bike Boulevard	Plausible Near-Term	$1,400,000	$2,630,000
Medium	Gibson Boulevard	Eubank Boulevard	Innovation Parkway	0.3	Bike Lane	Long-Term	$360,000	$360,000
Medium	Gibson Boulevard	Camino San Martin	Spring Flower Place	0.1	Separated Bike Lane	Long-Term	$750,000	$750,000
Medium	Gibson Boulevard	De Anza Drive	Unser Boulevard / Spring Flower Road	1.1	Sidepath	Long-Term	$1,510,000	
Medium	Gibson Boulevard	Buena Vista Drive	Yale Boulevard	0.1	Sidepath	Long-Term	$180,000	
Medium	Gibson Boulevard	I-25 NB Frontage Road	University Boulevard	0.3	Sidepath	Long-Term	$720,000	
High	Gibson Boulevard	Broadway Boulevard	I-25 NB Frontage Road	0.8	Sidepath, Separated Bike Lane	Plausible Near-Term	N/A	
High	Girard Boulevard (Gaps)	Central Avenue	Indian School Road	0.2	Bike Lane, Buffered Bike Lane	Plausible Near-Term	$670,000	$1,100,000
Medium	Golf Course Road	Homestead Circle	Paseo del Norte	1.0	Sidepath	Long-Term	$5,450,000	
High	Gonzales Road	Coors Boulevard	Old Coors Drive	0.9	Bike Boulevard	Plausible Near-Term	$1,760,000	$2,570,000
Medium	Greene Avenue	Golf Course Road	Irving Boulevard	0.6	Bike Boulevard, Bike Lane	Plausible Near-Term	$1,320,000	$2,060,000
Medium	Griegos Drain	Campbell Road	Candelaria Road	0.2	Paved Multi-Use Trail	Long-Term	$350,000	
Medium	Griegos Drain	Montaño Road	Chavez Road	1.1	Paved Multi-Use Trail	Long-Term	$1,490,000	
Medium	Griegos Road	5th Street	Las Hermanas Street	0.4	Buffered Bike Lane, Bike Lane	Plausible Near-Term	$1,140,000	$2,130,000
High	Hannett Avenue / Aspen Avenue / Haines Avenue	Stanford Drive	Washington Street	2.6	Bike Boulevard	Long-Term	$4,070,000	$6,380,000
Medium	Harper Road	Barstow Street	Ventura Avenue	1.7	Sidepath	Long-Term	$3,040,000	
Medium	Herman Roser Avenue	Elizabeth Street / Tony Sanchez Drive	Juan Tabo Boulevard	0.3	Bike Boulevard, Bike Lane	Long-Term	$1,190,000	$1,570,000
Medium	Holbrook Street	Ramtha Street / Quintessence Road	Carmel Avenue	1.0	Bike Boulevard, Separated Bike Lane,	Long-Term	$1,220,000	$2,560,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
					Buffered Bike Lane, Paved Multi-Use Trail			
Medium	Homestead Circle	Taylor Ranch Road	Los Alisos Place	0.1	Bike Lane	Plausible Near-Term	$330,000	$500,000
Medium	I-25 Frontage Road NB	Harper Drive	Del Rey Avenue	0.7	Sidepath	Long-Term	$1,260,000	
Medium	I-40 Trail	Gabaldon Drive	-	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$290,000	
Medium	Iliff Road	Estancia Drive	Atrisco Dr	0.5	Separated Bike Lane, Bike Lane	Long-Term	$670,000	$1,930,000
Medium	Iliff Road / 72nd Street	I-40 Trail Bridge	Ladera Drive	0.7	Buffered Bike Lane	Plausible Near-Term	$270,000	$1,580,000
Medium	Indian School Road	Americas Parkway	Uptown Loop Road	0.3	Bike Lane	Plausible Near-Term	$990,000	$1,570,000
Medium	Indian School Road	Rio Grande Boulevard	12th Street	0.7	Buffered Bike Lane	Plausible Near-Term	$830,000	$1,400,000
Medium	Indian School Road	Cumbres Street	Embudo Trailhead	0.9	Enhanced Bike Route, Bike Lane	Plausible Near-Term	$230,000	$1,120,000
Very High	Indian School Road	Broadway Boulevard	San Pedro Drive	3.8	Separated Bike Lane	Plausible Near-Term	$5,280,000	$14,930,000
Medium	Indian School Road	Eastridge Drive / Constitution Avenue	Cumbres Street	0.5	Separated Bike Lane	Plausible Near-Term	$690,000	$1,970,000
High	Indian School Road	West of Wyoming Boulevard	Juan Tabo Boulevard	2.1	Separated Bike Lane, Buffered Bike Lane	Plausible Near-Term	$2,730,000	$7,420,000
Medium	Iron Avenue / 14th Street	Tingley Drive / Paseo del Bosque Trail	Silver Avenue	0.5	Bike Boulevard, Sidepath	Plausible Near-Term	$300,000	$650,000
Medium	Irving Boulevard	Universe Boulevard	La Paz Drive	0.6	Buffered Bike Lane	Plausible Near-Term	$1,030,000	$2,660,000
Medium	Irving Boulevard	Rio Los Pinos Drive/Timan Avenue	Golf Course Road	0.8	Separated Bike Lane	Plausible Near-Term	$870,000	$2,810,000
High	Irving Boulevard	Unser Boulevard	Golf Course Road	4.5	Sidepath	Long-Term	$7,440,000	
High	Isleta Drain	Central Avenue	Rio Bravo Boulevard	4.3	Paved Multi-Use Trail	Long-Term	N/A	
Medium	Jefferson Street	Montgomery Boulevard	McLeod Road	0.5	Buffered Bike Lane	Plausible Near-Term	$910,000	$2,080,000
Medium	Jefferson Street	Masthead Street	Paseo del Norte WB Frontage Road	1.4	Sidepath	Long-Term	$2,800,000	
High	Jewett Drive / Michael Hughes Drive / Durant Avenue	Tramway Boulevard	Monte Largo Drive / Lomas Blvd	0.9	Enhanced Bike Route	Plausible Near-Term	$800,000	$1,600,000
Medium	Juan Tabo Boulevard	Cicadia Road	Horseshoe Trail	0.4	Buffered Bike Lane	Plausible Near-Term	$260,000	$1,170,000
Medium	Kachina Street	San Ildefonso Drive	Taylor Ranch Road	0.7	Bike Lane, Enhanced Bike Route	Plausible Near-Term	$860,000	$2,210,000
Medium	Kayenta Street	South of Irving Boulevard	McMahon Boulevard	0.8	Buffered Bike Lane	Plausible Near-Term	$800,000	$2,680,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
Medium	Kimela Drive / Rainwater Road	Camino San Martin	Desert Breeze Drive / Trail Access	0.9	Bike Boulevard	Plausible Near-Term	$1,460,000	$2,240,000
Medium	Kimmick Drive	Unser Boulevard	Paseo del Norte	0.6	Bike Lane	Long-Term	$430,000	$430,000
Medium	Kimmick Drive	Rosa Parks Road	Paseo del Norte	0.2	Sidepath	Plausible Near-Term	$560,000	
Medium	La Cueva Channel / San Diego Avenue Trail	Balloon Museum Drive	Wyoming Boulevard	2.0	Paved Multi-Use Trail	Long-Term	N/A	
Medium	La Orilla Road	West of Coors Boulevard	Bosque Plaza Lane	0.3	Separated Bike Lane, Sidepath	Long-Term	$1,040,000	$1,040,000
High	Ladera Drive	Arroyo Vista Boulevard	Ouray Road	2.5	Separated Bike Lane	Long-Term	$10,860,000	$17,210,000
High	Lagrima de Oro Road	Dona Marguerita Avenue	Morris Street	0.8	Bike Boulevard	Plausible Near-Term	$1,590,000	$2,320,000
Medium	Laguna Boulevard	Kit Carson Avenue	14th Street	0.6	Enhanced Bike Route	Plausible Near-Term	$450,000	$1,010,000
Very High	Las Lomas Road / Campus Boulevard	University Boulevard	Monte Vista Boulevard	1.0	Buffered Bike Lane, Bike Lane, Bike Boulevard	Plausible Near-Term	$1,290,000	$3,010,000
Medium	Las Lomitas Drive	Vista Del Norte Drive	El Pueblo Road	0.7	Bike Lane	Plausible Near-Term	$260,000	$1,550,000
Medium	Laurelwood Parkway	Hanover Road / I-40 Trail Access	Ladera Drive	0.4	Buffered Bike Lane	Plausible Near-Term	$180,000	$1,020,000
Very High	Lead Avenue / Coal Avenue	Broadway Boulevard	Elm Street	0.8	Separated Bike Lane	Plausible Near-Term	$1,900,000	$2,420,000
Medium	Liberty Drive	Barstow Street	Ventura Street	0.5	Bike Boulevard	Plausible Near-Term	$1,580,000	$2,040,000
High	Lomas Boulevard	6th Street	BNSF Rail Corridor	0.4	Sidepath	Long-Term	$2,300,000	
Medium	Lomas Channel Trail	Hupmobile Drive	-	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$290,000	
Medium	Los Volcanes Road	Unser Boulevard	Airport Drive	0.5	Bike Lane	Plausible Near-Term	$450,000	$670,000
Very High	Louisiana Boulevard	Gibson Boulevard	Central Avenue	1.2	Buffered Bike Lane, Separated Bike Lane	Plausible Near-Term	$2,630,000	$5,740,000
High	Louisiana Boulevard	Burlison Drive	Modesto Avenue	2.5	Buffered Bike Lane, Separated Bike Lane	Plausible Near-Term	$2,590,000	$8,020,000
Medium	Louisiana Boulevard	Modesto Avenue	Elena Drive	0.7	Separated Bike Lane	Long-Term	$150,000	$150,000
High	Manitoba Drive	Juan Tabo Boulevard	Tramway Ridge Drive	1.1	Bike Boulevard, Sidepath	Plausible Near-Term	$1,620,000	$2,470,000
Medium	Manitoba Drive	Tramway Ridge Drive	Larchmont Drive	0.2	Separated Bike Lane, Bike Lane	Long-Term	$870,000	$970,000
High	Marble Avenue / 1st Street	6th Street	1st Street / Lomas Boulevard	0.5	Bike Boulevard	Plausible Near-Term	$1,980,000	$2,390,000
Medium	Mariposa Basin Recreation Trail	San Ildefonso Drive	Mojave Street	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$580,000	

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
High	Mariposa Diversion Trail	Unser Boulevard	Kachina Street	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$2,640,000	
Medium	Marna Lynn Avenue / Davenport Street / Congress Avenue	Petroglyph Trailhead	Congress Avenue / Golf Course Road	1.1	Bike Boulevard	Plausible Near-Term	$2,910,000	$3,920,000
High	Marquette Avenue	14th Street	6th Street	0.5	Bike Boulevard	Plausible Near-Term	$850,000	$1,320,000
Very High	Marquette Avenue / Roma Avenue	Girard Boulevard	San Pedro Drive	2.3	Bike Boulevard	Long-Term	$4,340,000	$6,390,000
High	Marquette Avenue / Roma Avenue	2nd Street	Edith Boulevard	0.5	Bike Boulevard, Sidepath	Plausible Near-Term	$770,000	$1,090,000
Medium	McKinney Drive	Academy Road	Forest Hills Drive	0.8	Buffered Bike Lane, Bike Lane	Plausible Near-Term	$610,000	$2,170,000
High	McLeod Road	Jefferson Street	San Pedro Drive	0.9	Bike Lane, Buffered Bike Lane	Plausible Near-Term	$1,070,000	$3,090,000
Medium	Mesa Arenoso Drive / Pauza Drive	Sacate Blanco Avenue	Gibson Boulevard	0.9	Bike Boulevard	Plausible Near-Term	$1,460,000	$2,230,000
Medium	Mill Pond Road Trail	Aspen Avenue	I-40 Trail	0.2	Paved Multi-Use Trail	Long-Term	$320,000	
Medium	Mission Avenue	Alexander Boulevard	Chappel Road	0.6	Buffered Bike Lane	Plausible Near-Term	$410,000	$1,890,000
Medium	Mojave Street	Atrisco Drive	Homestead Circle	1.0	Enhanced Bike Route, Bike Lane, Paved Multi-Use Trail	Plausible Near-Term	$300,000	$1,380,000
Medium	Monachos Road / Via Posada Street	Juan Tabo Boulevard	Wagon Train Drive / Stagecoach Road	0.7	Enhanced Bike Route, Paved Multi-Use Trail	Plausible Near-Term	$400,000	$940,000
High	Montaño Road	Unser Boulevard	Winter Haven Road	2.0	Separated Bike Lane	Long-Term	$9,220,000	$14,290,000
Medium	Montaño Road	5th Street	2nd Street	0.6	Sidepath	Long-Term	$1,490,000	
Medium	Monte Largo Drive / Menaul Boulevard	Lomas Boulevard / Monte Verde Drive	Tramway Trail	1.7	Bike Lane, Buffered Bike Lane	Plausible Near-Term	$1,000,000	$4,290,000
High	Monte Vista Boulevard	Central Avenue	Lomas Boulevard	0.7	Buffered Bike Lane	Plausible Near-Term	$1,140,000	$2,470,000
Medium	Montgomery Boulevard	Culture Drive	North Diversion Channel Trail	0.5	Sidepath, Bike Lane	Plausible Near-Term	N/A	
High	Moon Street	Susan Avenue / Southern Boulevard	Copper Avenue	0.9	Bike Boulevard	Plausible Near-Term	$1,020,000	$1,820,000
Medium	Moon Street	Matthew Avenue	Veranda Road	0.1	Bike Lane	Plausible Near-Term	$340,000	$550,000
Medium	Moon Street / Easterday Drive	Lomas Boulevard / I-40 Trail Bridge	Constitution Avenue	0.5	Bike Boulevard, Bike Lane	Plausible Near-Term	$820,000	$1,340,000
High	Morris Street	Candelaria Road	Montgomery Boulevard	1.0	Bike Lane	Plausible Near-Term	$1,270,000	$3,240,000
High	Morris Street	Tomasita Street	Constitution Avenue	0.8	Bike Lane, Bike Boulevard	Plausible Near-Term	$630,000	$1,910,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
High	Mountain Road	Tomasita Street	Chelwood Park Boulevard	0.9	Bike Boulevard, Bike Lane	Long-Term	$1,450,000	$2,450,000
High	Mountain Road	Broadway Boulevard	Edith Boulevard	0.2	Bike Lane	Plausible Near-Term	$650,000	$960,000
High	Natalie Avenue/Ponderosa Avenue	Paseo del Nordeste/San Mateo Boulevard	Pennsylvania Street	1.7	Bike Boulevard, Bike Lane	Plausible Near-Term	$1,390,000	$2,990,000
Medium	North Diversion Channel Trail Extension	Balloon Museum Drive	Edith Boulevard	0.9	Paved Multi-Use Trail	Long-Term	$1,270,000	
Medium	North Domingo Baca Trail	Barstow Street	Ventura Street	0.5	Paved Multi-Use Trail	Long-Term	$730,000	
High	Osuna Road	West of San Mateo Boulevard	East of San Mateo Boulevard	0.1	Separated Bike Lane	Long-Term	$580,000	$580,000
Medium	Osuna Road	2nd Street / Elwood Street	Chappell Road	0.9	Sidepath	Long-Term	$2,190,000	
Medium	Osuna Road	West of 4th Street	2nd Street	0.5	Sidepath	Long-Term	N/A	
High	Ouray Road	57th Street	Coors Boulevard NB Frontage Road	0.2	Separated Bike Lane	Long-Term	$1,490,000	$1,490,000
High	Ouray Road / Bob McCannon Parkway	Unser Boulevard	Alamogordo Drive	1.9	Buffered Bike Lane	Plausible Near-Term	$1,890,000	$5,450,000
High	Panmunjon Road / Hollywood Avenue / Marble Avenue	Mountain Road	14th Street	1.2	Bike Boulevard	Long-Term	$1,900,000	$2,950,000
Medium	Paradise Boulevard	Chaparral Street	Paseo del Norte Northwest	0.2	Sidepath	Long-Term	$1,290,000	
Very High	Parsifal Street / Moon Street	Paseo de las Montañas Trail	Academy Road	3.6	Bike Boulevard, Bike Lane, Sidepath	Long-Term	$6,490,000	$10,150,000
Medium	Paseo de la Mesa	Atrisco Vista Boulevard	Paseo de la Mesa Trailhead	0.1	Paved Multi-Use Trail	Long-Term	$220,000	
Very High	Paseo de las Montañas Trail / Embudo Recreation Trail	Hendola Drive	Marie Park Drive	0.0	Paved Multi-Use Trail Crossing	Long-Term	$7,910,000	
Very High	Paseo del Nordeste Trail	Carlisle Boulevard	Pennsylvania Street	0.0	Paved Multi-Use Trail Crossing	Long-Term	$5,120,000	
Medium	Paseo del Norte	Calle Norteña	Golf Course Road	0.8	Separated Bike Lane	Plausible Near-Term	$600,000	$1,160,000
Very High	Paseo del Norte	I-25 Frontage Road NB	Eubank Boulevard	4.6	Sidepath	Long-Term	N/A	
High	Paseo del Norte	Universe Boulevard	Eagle Ranch Road	4.9	Sidepath	Long-Term	$8,690,000	
Medium	Paseo del Norte Trail	Rio Grande Boulevard	El Pueblo Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$440,000	

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
High	Pennsylvania Street	South of Comanche Road	Montgomery Boulevard	0.7	Buffered Bike Lane	Plausible Near-Term	$840,000	$2,090,000
High	Pennsylvania Street	Marble Avenue	Menaul Boulevard	1.5	Buffered Bike Lane, Bike Lane, Separated Bike Lane	Plausible Near-Term	$2,080,000	$4,990,000
Medium	Piedras Marcadas Park Trail	Golf Course Road	Rancho Sereno Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$1,320,000	
Medium	Piedras Marcadas Trail	Ventana Ranch Road	Universe Boulevard	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$2,640,000	
High	Pino Arroyo Trail / Quintessence Trail	San Pedro Drive	Toulon Drive	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$4,110,000	
Very High	Prospect Avenue / Cutler Avenue	Morningside Drive	San Pedro Drive	1.4	Bike Boulevard, Bike Lane	Plausible Near-Term	$1,530,000	$3,200,000
Medium	Rainbow Boulevard	Unser Boulevard	Volcano Vista High School	0.8	Sidepath	Long-Term	$1,440,000	
High	Randolph Road / Alamo Avenue	University Boulevard	Girard Boulevard	1.1	Buffered Bike Lane, Bike Lane, Bike Boulevard	Plausible Near-Term	$990,000	$2,840,000
Medium	Renaissance Boulevard	Alexander Boulevard (south of Montaño Road)	Alexander Boulevard (north of Montaño Road)	1.0	Sidepath	Long-Term	$1,960,000	
Medium	Richmond Drive	Menaul Boulevard	Candelaria Road	0.5	Bike Lane	Plausible Near-Term	$480,000	$1,430,000
Medium	Rio Bravo Boulevard	Isleta Boulevard	2nd Street	2.5	Sidepath	Plausible Near-Term	N/A	
Medium	Rockwood Road	Rolling Rock Place / Unser Boulevard Access	Seven Falls Place / Trail Access	0.4	Enhanced Bike Route	Plausible Near-Term	$100,000	$440,000
Medium	Rosa Parks Road	Unser Boulevard	Calle Norteña	0.6	Bike Lane	Long-Term	$130,000	$130,000
Medium	Rosa Parks Road	Kimmick Drive	Calle Norteña	0.3	Sidepath	Plausible Near-Term	$1,020,000	
Medium	Rough Rider Road / Pioneer Trail	Barstow Street	Ventura Street	0.6	Bike Boulevard, Bike Lane	Plausible Near-Term	$1,580,000	$2,220,000
Medium	Rover Avenue	Tramway Boulevard	Monte Largo Drive	0.3	Bike Lane	Plausible Near-Term	$400,000	$910,000
Medium	Rutledge Street / Washington Street / Ellison Street	North Diversion Channel Trail Access	Jefferson Street	1.2	Enhanced Bike Route, Bike Lane	Plausible Near-Term	$1,190,000	$2,510,000
Medium	Sage Road	East of Unser Boulevard	Old Coors Drive	1.1	Separated Bike Lane	Long-Term	$890,000	$890,000
High	Sage Road / De Vargas Road	Del Mastro Drive	Corel Drive/Unser Boulevard	1.4	Separated Bike Lane	Plausible Near-Term	$1,630,000	$5,180,000
Medium	Saint Josephs Drive	Saint Joseph's Avenue	Alamogordo Drive	0.7	Separated Bike Lane	Long-Term	$1,600,000	$2,770,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
Medium	San Antonio Drive / Ellison Street	I-25 Frontage Road SB	I-25 Frontage Road NB	0.1	Sidepath	Long-Term	$1,610,000	
Medium	San Diego Avenue	Balloon Museum Drive	San Mateo Boulevard	0.4	Buffered Bike Lane	Plausible Near-Term	$140,000	$840,000
High	San Francisco Road / Coronado Avenue	San Pedro Drive	Eubank Boulevard	2.7	Bike Lane, Bike Boulevard, Buffered Bike Lane	Plausible Near-Term	$2,430,000	$6,630,000
Medium	San Francisco Road I-25 Crossing	Jefferson Street	I-25 NB Frontage Road	0.5	Sidepath, Paved Multi-Use Trail	Long-Term	N/A	
Medium	San Ildefonso Drive	Montaño Road	Mojave Street	0.5	Buffered Bike Lane	Plausible Near-Term	$480,000	$1,410,000
High	San Isidro Street / Guadalupe Trail	Indian School Road	Grecian Avenue	2.8	Bike Boulevard	Plausible Near-Term	$3,830,000	$6,290,000
Medium	San Jose Drain	City Limits	Bethel Avenue	0.6	Paved Multi-Use Trail	Long-Term	$920,000	
Medium	San Jose Drain	Rio Bravo Boulevard / 2nd Street	City Limits	1.5	Paved Multi-Use Trail, Sidepath	Long-Term	N/A	
Medium	San Mateo Boulevard	Wilshire Avenue	Balloon Fiesta Parkway	1.2	Separated Bike Lane, Buffered Bike Lane	Plausible Near-Term	$1,070,000	$4,020,000
Very High	San Pablo Street / Charleston Street / Mesilla Street	Southern Avenue	Constitution Avenue	2.3	Bike Boulevard	Long-Term	$2,720,000	$4,730,000
Very High	San Pedro Drive	Ridgecrest Drive	Osuna Road	6.1	Buffered Bike Lane	Plausible Near-Term	$7,340,000	$19,270,000
Medium	San Pedro Drive	Domingo Baca Trail	I-25 / Balloon Fiesta Parkway	1.5	Buffered Bike Lane, Bike Lane, Separated Bike Lane	Long-Term	$750,000	$1,160,000
Medium	San Pedro Drive	Domingo Baca Trail	Carmel Avenue	0.3	Separated Bike Lane	Long-Term	$2,040,000	$2,040,000
Medium	San Pedro Drive / Forest Hills Drive	Barnhart Street	Domingo Baca Trail	1.3	Buffered Bike Lane, Separated Bike Lane, Bike Lane	Plausible Near-Term	$850,000	$3,400,000
High	Santa Clara Avenue	Yale Boulevard	Wellesley Drive	0.8	Bike Boulevard, Bike Lane	Plausible Near-Term	$670,000	$1,690,000
High	Santa Fe Avenue	12th Street / Bosque Trail Access	2nd Street	0.6	Bike Boulevard	Plausible Near-Term	$1,320,000	$1,870,000
High	Seagull Street	Osuna Road	Academy Road	0.2	Buffered Bike Lane	Plausible Near-Term	$650,000	$990,000
High	Sequoia Road	Ladera Drive	Vista Grande Drive	0.7	Separated Bike Lane, Bike Lane, Enhanced Bike Route	Long-Term	$950,000	$2,250,000
Medium	Seven Bar Loop	Coors Boulevard Bypass	Coors Boulevard	0.6	Buffered Bike Lane	Plausible Near-Term	$1,290,000	$2,830,000
Medium	Signal Avenue	Barstow Street	Ventura Street	0.5	Bike Lane	Long-Term	$110,000	$110,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
Very High	Silver Avenue	2nd Street	University Boulevard	1.1	Bike Boulevard, Separated Two-Way Cycle Track, Sidepath	Plausible Near-Term	$3,400,000	$4,760,000
Medium	Silver Charm Road	Juan Tabo Boulevard	Gulf Stream Street	0.2	Enhanced Bike Route	Plausible Near-Term	$340,000	$500,000
Medium	Simms Park Road	Tramway Boulevard	Elena Gallegos Open Space	1.4	Enhanced Bike Route	Plausible Near-Term	$320,000	$1,520,000
Medium	Snow Vista Trail Connection	Duke Avenue	Eucariz Avenue	0.2	Paved Multi-Use Trail	Long-Term	$250,000	
High	South Diversion Channel Trail	Rio Bravo Boulevard	Basehart	3.6	Paved Multi-Use Trail	Long-Term	$5,070,000	
High	Spain Road / Knight Road	Academy Road	Tramway Boulevard	3.1	Buffered Bike Lane, Separated Bike Lane, Bike Lane	Plausible Near-Term	$3,080,000	$9,700,000
Medium	Spring Flower Road / Desert Breeze Drive	Unser Boulevard	Trail Access	0.4	Enhanced Bike Route	Plausible Near-Term	$110,000	$490,000
Medium	Stagecoach Road / Wagon Train Drive	Four Hills Road	Four Hills Road	3.7	Enhanced Bike Route	Plausible Near-Term	$1,150,000	$4,390,000
Medium	Stanford Drive	Marble Avenue	Indian School Road	0.7	Bike Lane, Bike Boulevard	Plausible Near-Term	$450,000	$1,510,000
Very High	Stanford Drive / Columbia Drive	Gibson Boulevard	Central Avenue	1.6	Bike Boulevard	Plausible Near-Term	$1,670,000	$3,110,000
Very High	Summer Avenue / Mackland Avenue / Marble Avenue	Stanford Drive / North Diversion Channel Trail	Louisiana Boulevard / I-40 Trail Bridge	3.4	Bike Boulevard, Bike Lane	Long-Term	$5,590,000	$8,660,000
Medium	Sunport Boulevard	I-25 NB Frontage Road	Transport Street	0.1	Sidepath	Plausible Near-Term	$460,000	
Medium	Sunport Loop / Yale Boulevard	Randolph Road	Girard Boulevard	0.8	Sidepath	Long-Term	$1,370,000	
Medium	Tanager Drive	Red Robin Road	Tower Road	0.5	Enhanced Bike Route	Plausible Near-Term	$400,000	$810,000
Medium	Taylor Ranch Road	North of Homestead Circle	East of Golf Course Road	0.4	Buffered Bike Lane	Plausible Near-Term	$880,000	$1,980,000
Medium	Taylor Ranch Road	Montaño Road	Montaño Plaza Drive	0.4	Buffered Bike Lane	Plausible Near-Term	$470,000	$1,310,000
Medium	Tesuque Drive	Montaño Road	Homestead Circle	1.2	Bike Boulevard	Plausible Near-Term	$1,910,000	$2,980,000
Medium	Tiburon Street / Headline Boulevard	Tiburon Street, El Pueblo Road	Headline Boulevard	0.8	Buffered Bike Lane, Enhanced Bike Route	Plausible Near-Term	$590,000	$2,020,000
Medium	Tierra Pintada Boulevard	Watershed Drive	Unser Boulevard	0.6	Separated Bike Lane	Long-Term	$2,630,000	$4,100,000
Medium	Tijeras Arroyo Trail	Innovation Parkway	Juan Tabo Boulevard	0.6	Paved Multi-Use Trail	Long-Term	$880,000	
High	Tom Bolack Park Trail	San Pedro Drive	Paseo de las Montañas Trail	0.3	Paved Multi-Use Trail	Long-Term	$430,000	

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
High	Tomasita Street / Martha Street	I-40 Trail Bridge	Gretta Street / Prospect Avenue	2.0	Bike Boulevard	Plausible Near-Term	$1,820,000	$3,560,000
High	Tony Sanchez Drive / Singing Arrow Avenue	Innovation Parkway	East of Dorado Place	1.6	Bike Boulevard, Bike Lane, Buffered Bike Lane	Long-Term	$2,000,000	$4,300,000
Very High	Tower Road	106th Street	Bridge Boulevard	2.9	Buffered Bike Lane, Separated Bike Lane	Plausible Near-Term	$2,760,000	$8,210,000
Medium	Tramway Boulevard	Wenonah Avenue	Central Avenue	0.2	Sidepath	Long-Term	$220,000	
Very High	Trumbull Avenue	Valverde Drive	Eubank Boulevard	3.7	Bike Boulevard, Sidepath	Long-Term	$5,390,000	$8,580,000
Medium	Turner Drive	Encantado Road	Lomas Boulevard	0.8	Enhanced Bike Route	Plausible Near-Term	$480,000	$1,210,000
Medium	Universe Boulevard	Rainbow Boulevard	Paseo del Norte	2.8	Sidepath	Long-Term	$4,560,000	
Medium	University Boulevard	Arbus Drive	Stryker Road	0.4	Buffered Bike Lane	Long-Term	$300,000	$1,360,000
Very High	University Boulevard	South of Gibson Boulevard	Lomas Boulevard	2.6	Separated Bike Lane, Bike Boulevard	Plausible Near-Term	$4,730,000	$10,940,000
Medium	University Boulevard	Arbus Drive	Crick Avenue	1.5	Sidepath	Plausible Near-Term	$2,110,000	
Medium	University Boulevard	Clark Carr Road	Aircraft Avenue	1.3	Sidepath	Long-Term	$2,140,000	
High	UNM South Campus Trail	Gibson Boulevard	Buena Vista Drive	0.7	Paved Multi-Use Trail	Long-Term	$1,060,000	
High	Unser Boulevard	Montaño Road	Paradise Boulevard	6.6	Sidepath	Long-Term	$10,790,000	
Medium	Unser Boulevard	Irving Boulevard	Existing Sidepath	0.1	Sidepath	Plausible Near-Term	$380,000	
High	Uptown Boulevard	San Pedro Drive	Louisiana Boulevard	0.5	Buffered Bike Lane	Plausible Near-Term	$950,000	$2,300,000
High	Uptown Loop / Americas Parkway	Loop	Loop	1.3	Buffered Bike Lane	Plausible Near-Term	$2,640,000	$5,930,000
High	Utah Street	Southern Avenue	Marble Avenue / Charleston Street	1.9	Bike Boulevard, Bike Lane	Long-Term	$2,530,000	$4,330,000
Medium	Ventana Ranch East Trails	Paradise Boulevard	Irving Boulevard	1.8	Paved Multi-Use Trail	Plausible Near-Term	$2,600,000	
Medium	Ventana Ranch South Trail	Ventana West Parkway	Hearthstone Road	0.4	Paved Multi-Use Trail	Plausible Near-Term	$510,000	
Medium	Ventana Ranch Trail	Rainbow Boulevard	-	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	$150,000	
Medium	Ventana West Parkway	Ventana Ranch South Trail	Paseo del Norte	0.3	Sidepath	Plausible Near-Term	$450,000	
High	Ventura Street	Academy Road	Alameda Boulevard	2.3	Separated Bike Lane, Buffered Bike Lane	Plausible Near-Term	$3,170,000	$8,740,000
Medium	Villa Corrales	Vista del Norte Drive	Diversion Channel Trail Access	0.2	Enhanced Bike Route	Plausible Near-Term	$340,000	$530,000

Priority Level	Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Cost Estimate – Low	Cost Estimate – High
Medium	Volcano Road	98th Street	94th Street	0.3	Sidepath	Long-Term	$390,000	
Medium	Washington Street	Indian School Road	Menaul Boulevard	0.5	Buffered Bike Lane	Plausible Near-Term	$1,070,000	$2,020,000
Medium	Washington Street	Paseo del Norte Frontage Road	Alameda Boulevard	0.7	Buffered Bike Lane	Plausible Near-Term	$260,000	$1,530,000
Very High	Washington Street / Montclaire Drive	Menaul Boulevard	Montgomery Boulevard	1.7	Bike Boulevard, Sidepath	Long-Term	$2,690,000	$4,020,000
Very High	Washington Street / Valverde Drive / Morningside Drive	Gibson Boulevard	Marquette Avenue	2.1	Bike Boulevard	Plausible Near-Term	$3,200,000	$5,020,000
Very High	Wellesley Drive / Tulane Drive / Lafayette Drive	Gibson Boulevard	Indian School Road	2.9	Bike Boulevard, Sidepath	Long-Term	$4,940,000	$7,470,000
Medium	Western Trail / Namaste Road	Unser Boulevard	Tres Gracias Drive / San Antonio Oxbow Open Space	1.2	Separated Bike Lane, Buffered Bike Lane, Enhanced Bike Route	Plausible Near-Term	$1,700,000	$4,330,000
Medium	Westgate Community Park Trail	Delgado Drive	98th Street / Snow Vista Boulevard	0.9	Paved Multi-Use Trail	Plausible Near-Term	$1,210,000	
High	William Street	Woodward Road	Pacific Avenue / Edith Boulevard	2.0	Bike Boulevard, Bike Lane	Plausible Near-Term	$1,500,000	$3,930,000
Medium	Winter Haven Road	Montaño Plaza Drive	Bontierra Trail	0.4	Buffered Bike Lane	Plausible Near-Term	$150,000	$870,000
Medium	Wyoming Boulevard	Oakland Avenue	Beverly Hills Avenue	0.6	Separated Bike Lane	Long-Term	$510,000	$760,000
Medium	Wyoming Boulevard	Palomas Avenue	Holly Avenue	0.2	Separated Bike Lane	Long-Term	$1,290,000	$1,290,000
Medium	Wyoming Boulevard	Signal Avenue	Oakland Avenue	0.2	Separated Bike Lane	Long-Term	$960,000	$960,000
High	Wyoming Boulevard	Academy Road	Signal Avenue	3.2	Sidepath	Long-Term	$19,160,000	
Medium	Wyoming Boulevard	Bear Canyon Arroyo Trail	Spain Road	0.1	Sidepath	Plausible Near-Term	$430,000	
Medium	Yale Boulevard	Randolph Road	Gibson Boulevard	0.2	Buffered Bike Lane	Plausible Near-Term	$720,000	$1,200,000
High	Yale Boulevard	Las Lomas Road	Tucker Avenue	0.4	Buffered Bike Lane, Bike Lane	Long-Term	$690,000	$890,000

Table 7: Implementation Strategies by Project

Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Priority Level	Primary Strategy	Secondary Strategies
10th Street	Santa Fe Avenue	Marquette Avenue	0.9	Bike Boulevard, Bike Lane	Plausible Near-Term	High	Bike Boulevard	Restriping
12th Street	Sawmill Road	BNSF Rail Spur	0.3	Buffered Bike Lane	Plausible Near-Term	Medium	Restriping - Road Diet	
12th Street	BNSF Rail Spur	I-40 Frontage Road WB	0.2	Buffered Bike Lane	Long-Term	Medium	Restriping - Road Diet	Restriping
14th Street	Lomas Boulevard	N/A	0.0	Bike Boulevard Crossing	Long-Term	Medium	Enhanced Crossing	
15th Street	Marble Avenue	Bellamah Avenue	0.5	Bike Boulevard	Long-Term	Medium	Bike Boulevard	Future Roadway / Street Frontage Buildout
2nd Street / 3rd Street	Marble Avenue	Candelaria Road	2.4	Buffered Bike Lane	Plausible Near-Term	High	Speed Reduction	Restriping
2nd Street / 3rd Street	McKnight Avenue / I-40 Frontage Road EB	Arvada Ave	0.3	Buffered Bike Lane	Long-Term	Medium	Speed Reduction	Restriping
4th Street	Ortega Road	Alameda Boulevard	0.7	Bike Lane	Plausible Near-Term	Medium	Peer Agency Led	
57th Street / 58th Street / 59th Street	Gonzales Road	Atrisco Drive / I-40 Trail	2.6	Bike Boulevard, Sidepath	Plausible Near-Term	High	Bike Boulevard	Improve Available Back-of-Curb
57th Street / Atrisco Drive	Ouray Road	Sequoia Road	0.6	Buffered Bike Lane	Plausible Near-Term	High	Restriping - Road Diet	
5th Street / 6th Street	Coal Avenue	I-40 Frontage Road EB	2.9	Buffered Bike Lane, Bike Lane	Plausible Near-Term	Very High	Restriping - Road Diet	Restriping
64th Street	I-40 Trail	Ladera Drive	0.7	Bike Boulevard, Paved Multi-Use Trail	Plausible Near-Term	Medium	Bike Boulevard	Improve Existing Sidewalk / Trail Connection
72nd Street / Hanover Road / Estancia Drive	Fortuna Road	Illif Road	1.2	Enhanced Bike Route, Buffered Bike Lane	Plausible Near-Term	Medium	Enhanced Bike Route	Restriping
86th Street	98th Street	Central Avenue	1.9	Buffered Bike Lane, Bike Lane, Bike Boulevard	Plausible Near-Term	High	Restriping	Speed Reduction
94th Street	Benavides Road	Volcano Road	1.8	Bike Boulevard	Plausible Near-Term	High	Bike Boulevard	
98th Street	Dennis Chavez Boulevard	Blake Road	1.1	Buffered Bike Lane	Plausible Near-Term	Medium	Restriping	
98th Street	Central Avenue	South of Bluewater Road	0.6	Sidepath	Long-Term	Medium	Improve Available Back-of-Curb	
98th Street / Snow Vista Boulevard	North of Rio Clara Avenue	De Vargas Road	1.4	Sidepath	Long-Term	High	Future Roadway / Street Frontage Buildout	

Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Priority Level	Primary Strategy	Secondary Strategies
Academy Road	Seagull Street	Wyoming Boulevard	1.7	Separated Bike Lane	Long-Term	High	Median Modifications	
Academy Road	Wyoming Boulevard	Tramway Boulevard	4.3	Sidepath	Long-Term	Very High	Curbline and/or Median Modifications	Improve Available Back-of-Curb
Airport Drive	Central Avenue	Los Volcanes Road	0.8	Buffered Bike Lane	Plausible Near-Term	High	Restriping	
Alameda Boulevard	Balloon Museum Drive	Ventura Street	5.8	Sidepath	Long-Term	High	Improve Available Back-of-Curb	Future Roadway / Street Frontage Buildout
Alameda Boulevard / NM 528	Lorretta Drive	Westside Boulevard	3.7	Sidepath	Long-Term	High	Peer Agency Led	
Alameda Drain Trail	Central Avenue	Rio Grande Boulevard / I-40	0.9	Paved Multi-Use Trail	Long-Term	High	Paved Multi-Use Trail	
Alameda Drain Trail	Rio Grande Boulevard / I-40	Matthew Avenue	0.9	Paved Multi-Use Trail	Plausible Near-Term	Medium	Paved Multi-Use Trail	
Alameda Drain Trail	Matthew Avenue	4th Street	0.0	Paved Multi-Use Trail Crossing	Long-Term	High	Enhanced Crossing	
Alameda Drain Trail / 2nd Street	Paseo del Norte Boulevard	Alameda Boulevard	0.8	Paved Multi-Use Trail	Long-Term	Medium	Peer Agency Led	
Alamogordo Drive / Vista Grande Drive	Bridges Avenue	Saint Joseph's Drive	1.4	Enhanced Bike Route	Plausible Near-Term	High	Enhanced Bike Route	
Alvarado Drive	Eastern Avenue	I-40 Trail Bridge	2.2	Bike Boulevard, Bike Lane	Long-Term	Very High	Bike Boulevard	Restriping
Alvarado Drive / Palomas Drive	I-40 Trail Bridge	Comanche Road	1.4	Bike Boulevard	Long-Term	Very High	Bike Boulevard	
Amole Arroyo Trail / Snow Vista Trail / West Gate Trail	Blake Road	Tower Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	High	Enhanced Crossing	
Amole del Norte Trail	Blake Road	Sage Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	Medium	Enhanced Crossing	
Amole Mesa Avenue	118th Street	Amole Arroyo Trail	1.5	Bike Lane, Bike Boulevard, Sidepath	Plausible Near-Term	Medium	Restriping	Speed Reduction, Future Roadway / Street Frontage Buildout, Bike Boulevard
Andalusian Avenue	Tanager Drive	102nd Street Trail Access	0.4	Enhanced Bike Route	Plausible Near-Term	Medium	Enhanced Bike Route	
Anderson Avenue / Smith Avenue	Wellesley Drive	Washington Street	0.8	Bike Boulevard	Plausible Near-Term	Medium	Bike Boulevard	
Apache Avenue / Utah Street	Española Street	Claremont Avenue	1.0	Bike Boulevard	Long-Term	High	Bike Boulevard	
Arenal Road	Atrisco Riverside Drain	Isleta Boulevard	0.7	Enhanced Bike Route	Plausible Near-Term	Medium	Peer Agency Led	
Aspen Avenue	I-40 Trail	Rail Trail Access	0.6	Bike Boulevard	Long-Term	Medium	Bike Boulevard	

Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Priority Level	Primary Strategy	Secondary Strategies
Atrisco Drain	Arenal Road	Isleta Boulevard	0.2	Paved Multi-Use Trail	Long-Term	Medium	Peer Agency Led	
Atrisco Drive	Central Avenue	I-40 Trail Bridge	1.7	Separated Bike Lane, Buffered Bike Lane	Plausible Near-Term	High	Additional vertical separation	Restriping, Restriping - Road Diet, Speed Reduction
Atrisco Riverside Drain	Rio Bravo Boulevard	Arenal Road	1.6	Paved Multi-Use Trail	Long-Term	Medium	Peer Agency Led	
Atrisco Riverside Drain	Bridge Boulevard	Central Avenue	1.7	Paved Multi-Use Trail	Long-Term	High	Paved Multi-Use Trail	
Atrisco Vista Boulevard	Double Eagle Airport Road	Paseo del Norte	3.9	Sidepath	Long-Term	Medium	Future Roadway / Street Frontage Buildout	
Avalon Trail	90th Street	Bluewater Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	Medium	Enhanced Crossing	
Avenida Cesar Chavez	Broadway Boulevard	Yale Boulevard	1.1	Separated Bike Lane	Plausible Near-Term	Very High	Restriping - Road Diet	
Avenida Cesar Chavez	Walter Street	Langham Street	0.3	Separated Bike Lane	Long-Term	High	Separated Intersection	
Avenida Cesar Chavez Railroad Overpass	3rd Street	Broadway Boulevard	0.4	Sidepath	Long-Term	High	Feasibility Analysis	
Avenida Dolores Huerta	La Vega Drive	Paseo del Bosque Trail	0.4	Sidepath	Long-Term	High	Feasibility Analysis	
Aztec Road / Princeton Drive	Candelaria Road / Comanche Road	North Diversion Channel Trail	1.1	Bike Lane, Bike Boulevard	Plausible Near-Term	Medium	Restriping	Bike Boulevard
Balloon Fiesta Northwest Access Trail	North Diversion Channel	I-25	2.2	Sidepath	Long-Term	Medium	Improve Available Back-of-Curb	
Balloon Museum Drive	Jefferson Street / Balloon Museum Drive	San Diego Avenue	0.1	Sidepath	Long-Term	Medium	Improve Available Back-of-Curb	
Barcelona Road	Coors Boulevard	Isleta Boulevard	1.1	Bike Lane	Long-Term	High	Peer Agency Led	
Barstow Street	Signal Avenue	Alameda Boulevard	0.1	Separated Bike Lane	Long-Term	Medium	Future Roadway / Street Frontage Buildout	
Barstow Street	Harper Road	Signal Road	1.8	Separated Bike Lane, Buffered Bike Lane	Plausible Near-Term	High	Restriping	Speed Reduction, Add Vertical Separation
Barstow Street	Alameda Boulevard	Trail Access	0.2	Bike Lane	Plausible Near-Term	Medium	Restriping	
Barstow Street	Eagle Rock Ave / Trail Access	Florence Avenue	0.3	Bike Lane	Long-Term	Medium	Future Roadway / Street Frontage Buildout	

Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Priority Level	Primary Strategy	Secondary Strategies
Bear Canyon Arroyo Trail	Wyoming Boulevard	Morris Street	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	Very High	Enhanced Crossing	
Bear Canyon Trail	Jefferson Street	N/A	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	Medium	Enhanced Crossing	
Bellamah Avenue	West of 15th Street	12th Street	0.2	Buffered Bike Lane	Long-Term	Medium	Restriping	Future Roadway / Street Frontage Buildout
Benavides Road	Del Rey Road	Camino San Martin	1.2	Bike Boulevard	Plausible Near-Term	Medium	Bike Boulevard	
Bermuda Drive / Chelwood Road	Candelaria Road	Manitoba Drive	1.8	Bike Boulevard	Plausible Near-Term	High	Bike Boulevard	
Bethel Avenue	San Jose Drain	Broadway Boulevard	0.4	Bike Boulevard	Long-Term	Medium	Bike Boulevard	
Black Arroyo Trail	Ellison Road	Seven Bar Loop Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	Medium	Enhanced Crossing	
Blake Road	Unser Boulevard	Blake Circle	0.5	Buffered Bike Lane	Long-Term	Medium	Speed Reduction	Future Roadway / Street Frontage Buildout, Restriping
Blake Road	Isleta Drain (LRBS)	Isleta Boulevard (LRBS)	1.7	Bike Lane	Long-Term	Medium	Peer Agency Led	
Blake Road / De Anza Drive	98th Street / 86th Street	Unser Boulevard	1.3	Buffered Bike Lane	Plausible Near-Term	High	Speed Reduction	Restriping
Bluewater Road	Camino Azul	East of Coors Boulevard	0.1	Separated Bike Lane	Long-Term	Medium	Separated Intersection	
Bluewater Road	98th Street	Camino Azul / Coors Boulevard	2.0	Buffered Bike Lane	Plausible Near-Term	High	Speed Reduction	Restriping
Bluewater Road / La Bajada Road	Coors Boulevard	Atrisco Drive	1.2	Bike Boulevard, Sidepath	Plausible Near-Term	High	Bike Boulevard	Improve Available Back-of-Curb
Bobby Foster Road	Broadway Boulevard	Los Picaros Road	0.5	Buffered Bike Lane	Long-Term	Medium	Peer Agency Led	
Bobby Foster Road / Los Picaros Road	University Boulevard	Los Picaros Road	8.0	Sidepath	Plausible Near-Term	Medium	Future Roadway / Street Frontage Buildout	
Bosque Plaza Lane	Winter Haven Road	La Orilla Road	0.1	Sidepath	Long-Term	Medium	Improve Available Back-of-Curb	
Brentwood Hills Boulevard / Marie Park Drive	Martha Street / Embudo Trail	Eastridge Drive / Tramway Boulevard Crossing	1.8	Bike Boulevard	Long-Term	High	Bike Boulevard	
Broadway Boulevard	Menaul Boulevard	Candelaria Road	0.6	Separated Bike Lane	Plausible Near-Term	Medium	Restriping - Road Diet	
Broadway Boulevard	Coal Avenue	Lomas Boulevard	0.9	Buffered Bike Lane	Plausible Near-Term	Very High	Restriping - Road Diet	
Buena Vista Drive	Gibson Boulevard	Central Avenue	1.6	Bike Boulevard	Long-Term	Very High	Bike Boulevard	

Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Priority Level	Primary Strategy	Secondary Strategies
Calabacillas Arroyo Spur Trail	Calabacillas Arroyo	Unser Boulevard	1.4	Paved Multi-Use Trail	Long-Term	Medium	Paved Multi-Use Trail	
Calabacillas Arroyo Trail	Universe Boulevard	Eagle Ranch Road	4.4	Paved Multi-Use Trail	Long-Term	High	Paved Multi-Use Trail	
Calle Norteña	Taylor Ranch Drive / Taylor Ranch Road	Golf Course Road	0.6	Buffered Bike Lane	Plausible Near-Term	Medium	Speed Reduction	Restriping
Camino de la Sierra / Arcadia Road	Tramway Trail	Copper Avenue	2.0	Enhanced Bike Route	Plausible Near-Term	Medium	Enhanced Bike Route	
Camino de la Sierra / Glenwood Hills Drive	Candelaria Road	Emudito Trailhead	1.8	Enhanced Bike Route	Plausible Near-Term	Medium	Enhanced Bike Route	
Camino de la Sierra / Lomas Boulevard	Monte Largo Drive / Monte Largo Drive	Indian School Road	0.5	Enhanced Bike Route	Plausible Near-Term	Medium	Enhanced Bike Route	Speed Reduction
Camino del Sol / Kielich Avenue / Malaguena Lane	Spain Road	Lowell Street	2.9	Bike Boulevard, Bike Lane	Plausible Near-Term	High	Bike Boulevard	Restriping
Camino San Martin	Snow Vista Boulevard	Gibson Boulevard	0.8	Bike Boulevard	Plausible Near-Term	Medium	Bike Boulevard	
Campbell Road	Paseo del Bosque Trail	Alameda Drain Trail Spur	0.9	Bike Boulevard	Plausible Near-Term	Medium	Bike Boulevard	
Candelaria Road	San Isidro Street	I-40 Frontage Road SB	2.4	Separated Bike Lane	Plausible Near-Term	Very High	Restriping - Road Diet	
Candelaria Road	Tramway Boulevard	Palo Alto Drive	0.1	Separated Bike Lane	Long-Term	Medium	Separated Intersection	
Candelaria Road	I-25 Frontage Road SB	Princeton Drive	0.3	Separated Two-Way Cycle Track	Long-Term	Medium	Restriping - Road Diet	
Carlisle Boulevard	Calle del Ranchero	Constitution Road	0.1	Bike Lane	Plausible Near-Term	Medium	Restriping	
Carruthers Road	Westwind Street / Overlook Drive	Academy Road	0.7	Bike Boulevard	Plausible Near-Term	Medium	Bike Boulevard	
Cedarbrook Avenue / Larchmont Drive / Montgomery Boulevard	Tramway Boulevard / Manitoba Drive	Glenwood Hills Drive	1.1	Enhanced Bike Route, Sidepath	Plausible Near-Term	Medium	Enhanced Bike Route	Improve Available Back-of-Curb
Central Avenue	90th Street	Unser Transit Center	2.9	Sidepath	Long-Term	High	Future Roadway / Street Frontage Buildout	Improve Available Back-of-Curb
Chacoma Place / San Pasquale Avenue	El Vado / East of Central Avenue	Laguna Boulevard	0.9	Enhanced Bike Route	Plausible Near-Term	Medium	Enhanced Bike Route	
Chavez Road	Rio Grande Boulevard	4th Street	1.0	Sidepath	Long-Term	Medium	Peer Agency Led	
Chelwood Park Boulevard	Copper Avenue	Candelaria Road	2.6	Bike Lane	Plausible Near-Term	Very High	Speed Reduction	Restriping

Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Priority Level	Primary Strategy	Secondary Strategies
Chico Road	Eubank Boulevard	Morris Street	0.5	Buffered Bike Lane	Plausible Near-Term	Medium	Restriping	
Chico Road	Utah Street	Shirley Street / I-40 Trail	1.6	Bike Boulevard	Long-Term	High	Bike Boulevard	
Claremont Avenue	Richmond Drive	Juan Tabo Boulevard / Paseo de las Montañas Trail	6.0	Bike Boulevard, Bike Lane	Long-Term	Very High	Bike Boulevard	Restriping
Cloudview Avenue	Chelwood Park Boulevard	Lomas Verdes Avenue / Panorama Place	0.5	Bike Lane	Plausible Near-Term	High	Restriping	
Cloudview Avenue / Encantado Road	Lomas Verdes Avenue / Panorama Place	Avital Northeast Drive	0.1	Separated Bike Lane	Long-Term	Medium	Separated Intersection	
Coal Avenue	Elm Street	Oak Street	0.1	Separated Bike Lane	Long-Term	High	Separated Intersection	
Cochiti Road / Shirley Street	Morris Street / Elizabeth Street	Chico Road	1.0	Bike Boulevard	Long-Term	High	Bike Boulevard	
Comanche Road	San Mateo Boulevard	East of Tramway Boulevard	5.5	Separated Bike Lane, Enhanced Bike Route, Bike Lane	Plausible Near-Term	Very High	Restriping - Road Diet	Restriping, Enhanced Bike Route, Add Vertical Separation
Comanche Road	Alexander Boulevard	Princeton Drive	0.5	Sidepath, Bike Lane	Plausible Near-Term	Medium	Peer Agency Led	
Constitution Avenue	Pennsylvania Street	Indian School Road	3.4	Bike Lane	Plausible Near-Term	Very High	Restriping	Speed Reduction, Restriping - Road Diet
Constitution Avenue	Vassar Drive	Mesilla Street	1.6	Bike Lane, Buffered Bike Lane, Buffered Bike Lane One Direction	Plausible Near-Term	Very High	Restriping	
Coors Boulevard	Gun Club Road	Blake Road	1.7	Separated Bike Lane	Plausible Near-Term	Medium	Peer Agency Led	Separated Intersection
Coors Boulevard	Blake Road (LRBS)	Bridge Boulevard (LRBS)	2.3	Buffered Bike Lane	Long-Term	High	Peer Agency Led	Separated Intersection
Coors Frontage Road	Southwestern Polytechnic Institute Road	Paseo del Norte Trail	0.4	Enhanced Bike Route	Plausible Near-Term	Medium	Enhanced Bike Route	
Copper Avenue	Tomasita Street / I-40 Trail Bridge	Copper Trailhead	2.3	Buffered Bike Lane, Bike Boulevard, Enhanced Bike Route	Plausible Near-Term	High	Speed Reduction	Restriping, Bike Boulevard, Enhanced Bike Route
Copper Avenue	Wyoming Boulevard	Eubank Boulevard	1.0	Bike Lane	Plausible Near-Term	High	Speed Reduction	Restriping

Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Priority Level	Primary Strategy	Secondary Strategies
Corrales Main / La Orilla Outlet Northwest Trail	Coors Trail	Southwestern Polytechnic Institute Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	Medium	Enhanced Crossing	
Crest Avenue / Eastern Avenue	Washington Street	Louisiana Boulevard	1.5	Bike Boulevard	Long-Term	Very High	Bike Boulevard	
De Vargas Road	Osprey Drive	Cockatiel Drive	0.2	Buffered Bike Lane	Long-Term	Medium	Future Roadway / Street Frontage Buildout	
Del Mastro Drive	Del Rey Road	De Vargas Road	0.5	Bike Lane	Plausible Near-Term	Medium	Restriping	
Del Rey Road	Benavides Road	De Anza Drive	0.6	Bike Boulevard, Bike Lane	Plausible Near-Term	Medium	Bike Boulevard	Restriping
Dellwood Road / Aztec Road	Pennsylvania Street	Parsifal Street	1.3	Bike Boulevard	Long-Term	High	Bike Boulevard	
Dellyne Avenue	West of Unser Boulevard	Coors Boulevard	1.1	Buffered Bike Lane	Plausible Near-Term	Medium	Restriping	Speed Reduction
Dellyne Avenue	Oxnard Road	Winter Haven Road	0.3	Separated Bike Lane	Long-Term	Medium	Separated Intersection	
Diversion Channel Trail UNM Connection	Tucker Avenue	Yale Boulevard	0.2	Paved Multi-Use Trail	Long-Term	High	Paved Multi-Use Trail	
Doctor Martin Luther King Junior Avenue	Arno Street	Oak Street	0.4	Separated Bike Lane	Plausible Near-Term	High	Additional vertical separation	
Domingo Baca Trail	San Pedro Drive	Ventura Street	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	High	Enhanced Crossing	
Don Quixote Drive / Don Fernando Avenue	Paseo del Bosque Trail Access	Rio Grande Boulevard	0.7	Bike Boulevard	Long-Term	Medium	Bike Boulevard	
Dorado Place / Wenonah Avenue	Wenonah Avenue	Central Avenue	0.3	Buffered Bike Lane, Bike Boulevard	Plausible Near-Term	High	Restriping	Bike Boulevard
Eagle Ranch Road	All Saints Road	Paradise Boulevard	0.2	Sidepath	Long-Term	Medium	Improve Available Back-of-Curb	
Edith Bouelvard	Gibson Boulevard	Menaul Boulevard	3.4	Bike Boulevard, Bike Lane	Plausible Near-Term	Very High	Bike Boulevard	Restriping
Edith Boulevard	El Pueblo Road	Alameda Boulevard	0.8	Enhanced Bike Route	Plausible Near-Term	Medium	Enhanced Bike Route	
El Pueblo Road	North Diversion Channel Trail	West of Tiburon Street	0.4	Sidepath	Long-Term	Medium	Improve Available Back-of-Curb	
Embudito Drive / Hugh Graham Road	Tramway Trail	Glenwood Hills Drive / Camino de la Sierra	0.8	Enhanced Bike Route	Plausible Near-Term	Medium	Enhanced Bike Route	
Embudo Channel Trail	Cutler Avenue	-	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	Medium	Enhanced Crossing	

Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Priority Level	Primary Strategy	Secondary Strategies
Encantado Road	Avital Northeast Drive	Camino de la Sierra	0.6	Enhanced Bike Route, Bike Lane	Plausible Near-Term	Medium	Enhanced Bike Route	Restriping, Speed Reduction
Eubank Boulevard	Montgomery Boulevard	San Francisco Road	5.3	Separated Bike Lane	Long-Term	Very High	Median Modifications	
Eucariz Avenue	West of 98th Street	Stinson Street	1.6	Bike Boulevard, Bike Lane, Sidepath	Plausible Near-Term	Medium	Bike Boulevard	Restriping
Florence Avenue	Louisiana Boulevard	Barstow Road	1.0	Bike Lane	Long-Term	Medium	Restriping	Future Roadway / Street Frontage Buildout
Forest Hills Drive	I-25 NB Frontage Road	Barnhart Street	0.2	Buffered Bike Lane	Long-Term	Medium	Future Roadway / Street Frontage Buildout	
Fortuna Road	Estancia Drive	64th Street	0.2	Separated Bike Lane	Long-Term	Medium	Separated Intersection	
Fortuna Road	Ben E Keith Way	64th Street	0.7	Buffered Bike Lane	Plausible Near-Term	Medium	Restriping	
Fortuna Road Trail	Unser Boulevard	Ben E Keith Way	0.4	Paved Multi-Use Trail	Long-Term	Medium	Paved Multi-Use Trail	
Gallant Fox Road / Raton Avenue	Juan Tabo Boulevard	Wagon Train Drive	0.6	Enhanced Bike Route, Paved Multi-Use Trail	Plausible Near-Term	Medium	Enhanced Bike Route	Improve Existing Sidewalk / Trail Connection
Garfield Avenue	Buena Vista Drive	Morningside Drive	1.4	Bike Boulevard	Plausible Near-Term	High	Bike Boulevard	Speed Reduction
Gibson Boulevard	De Anza Drive	Unser Boulevard / Spring Flower Road	1.1	Sidepath	Long-Term	Medium	Future Roadway / Street Frontage Buildout	Improve Available Back-of-Curb
Gibson Boulevard	Broadway Boulevard	I-25 NB Frontage Road	0.8	Sidepath, Separated Bike Lane	Plausible Near-Term	High	Peer Agency Led	
Gibson Boulevard	Buena Vista Drive	Yale Boulevard	0.1	Sidepath	Long-Term	Medium	Improve Available Back-of-Curb	
Gibson Boulevard	Eubank Boulevard	Innovation Parkway	0.3	Bike Lane	Long-Term	Medium	Future Roadway / Street Frontage Buildout	
Gibson Boulevard	I-25 NB Frontage Road	University Boulevard	0.3	Sidepath	Long-Term	Medium	Improve Available Back-of-Curb	
Gibson Boulevard	Camino San Martin	Spring Flower Place	0.1	Separated Bike Lane	Long-Term	Medium	Separated Intersection	
Girard Boulevard (Gaps)	Central Avenue	Indian School Road	0.2	Bike Lane, Buffered Bike Lane	Plausible Near-Term	High	Restriping	
Golf Course Road	Homestead Circle	Paseo del Norte	1.0	Sidepath	Long-Term	Medium	Curbline and/or Median Modifications	Future Roadway / Street Frontage Buildout
Gonzales Road	Coors Boulevard	Old Coors Drive	0.9	Bike Boulevard	Plausible Near-Term	High	Bike Boulevard, Paved Multi-use Trail	

Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Priority Level	Primary Strategy	Secondary Strategies
Greene Avenue	Golf Course Road	Irving Boulevard	0.6	Bike Boulevard, Bike Lane	Plausible Near-Term	Medium	Bike Boulevard	Restriping
Griegos Drain	Campbell Road	Candelaria Road	0.2	Paved Multi-Use Trail	Long-Term	Medium	Paved Multi-Use Trail	
Griegos Drain	Montaño Road	Chavez Road	1.1	Paved Multi-Use Trail	Long-Term	Medium	Paved Multi-Use Trail	
Griegos Road	5th Street	Las Hermanas Street	0.4	Buffered Bike Lane, Bike Lane	Plausible Near-Term	Medium	Restriping - Road Diet	Restriping
Hannett Avenue / Aspen Avenue / Haines Avenue	Stanford Drive	Washington Street	2.6	Bike Boulevard	Long-Term	High	Bike Boulevard	
Harper Road	Barstow Street	Ventura Avenue	1.7	Sidepath	Long-Term	Medium	Improve Available Back-of-Curb	
Herman Roser Avenue	Elizabeth Street / Tony Sanchez Drive	Juan Tabo Boulevard	0.3	Bike Boulevard, Bike Lane	Long-Term	Medium	Bike Boulevard	Restriping
Holbrook Street	Ramtha Street / Quintessence Road	Carmel Avenue	1.0	Bike Boulevard, Separated Bike Lane, Buffered Bike Lane, Paved Multi-Use Trail	Long-Term	Medium	Bike Boulevard	Restriping - Road Diet, Paved Multi-Use Trail
Homestead Circle	Taylor Ranch Road	Los Alisos Place	0.1	Bike Lane	Plausible Near-Term	Medium	Restriping	
I-25 Frontage Road NB	Harper Drive	Del Rey Avenue	0.7	Sidepath	Long-Term	Medium	Improve Available Back-of-Curb	Future Roadway / Street Frontage Buildout
I-40 Trail	Gabaldon Drive	-	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	Medium	Enhanced Crossing	
Iliff Road	Estancia Drive	Atrisco Dr	0.5	Separated Bike Lane, Bike Lane	Long-Term	Medium	Restriping	
Iliff Road / 72nd Street	I-40 Trail Bridge	Ladera Drive	0.7	Buffered Bike Lane	Plausible Near-Term	Medium	Restriping	
Indian School Road	West of Wyoming Boulevard	Juan Tabo Boulevard	2.1	Separated Bike Lane, Buffered Bike Lane	Plausible Near-Term	High	Speed Reduction	Restriping - Road Diet, Restriping
Indian School Road	Broadway Boulevard	San Pedro Drive	3.8	Separated Bike Lane	Plausible Near-Term	Very High	Restriping - Road Diet	
Indian School Road	Eastridge Drive / Constitution Avenue	Cumbres Street	0.5	Separated Bike Lane	Plausible Near-Term	Medium	Restriping - Road Diet	
Indian School Road	Americas Parkway	Uptown Loop Road	0.3	Bike Lane	Plausible Near-Term	Medium	Speed Reduction	Restriping
Indian School Road	Cumbres Street	Embudo Trailhead	0.9	Enhanced Bike Route, Bike Lane	Plausible Near-Term	Medium	Enhanced Bike Route	Restriping, Speed Reduction
Indian School Road	Rio Grande Boulevard	12th Street	0.7	Buffered Bike Lane	Plausible Near-Term	Medium	Speed Reduction	Restriping
Iron Avenue / 14th Street	Tingley Drive / Paseo del Bosque Trail	Silver Avenue	0.5	Bike Boulevard, Sidepath	Plausible Near-Term	Medium	Bike Boulevard	Improve Available Back-of-Curb

Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Priority Level	Primary Strategy	Secondary Strategies
Irving Boulevard	Rio Los Pinos Drive/Timan Avenue	Golf Course Road	0.8	Separated Bike Lane	Plausible Near-Term	Medium	Restriping - Road Diet	
Irving Boulevard	Universe Boulevard	La Paz Drive	0.6	Buffered Bike Lane	Plausible Near-Term	Medium	Speed Reduction	Restriping - Road Diet
Irving Boulevard	Unser Boulevard	Golf Course Road	4.5	Sidepath	Long-Term	High	Improve Available Back-of-Curb	Future Roadway / Street Frontage Buildout
Isleta Drain	Central Avenue	Rio Bravo Boulevard	4.3	Paved Multi-Use Trail	Long-Term	High	Peer Agency Led	
Jefferson Street	Montgomery Boulevard	McLeod Road	0.5	Buffered Bike Lane	Plausible Near-Term	Medium	Speed Reduction	Restriping - Road Diet
Jefferson Street	Masthead Street	Paseo del Norte WB Frontage Road	1.4	Sidepath	Long-Term	Medium	Improve Available Back-of-Curb	
Jewett Drive / Michael Hughes Drive / Durant Avenue	Tramway Boulevard	Monte Largo Drive / Lomas Blvd	0.9	Enhanced Bike Route	Plausible Near-Term	High	Enhanced Bike Route	
Juan Tabo Boulevard	Cicadia Road	Horseshoe Trail	0.4	Buffered Bike Lane	Plausible Near-Term	Medium	Speed Reduction	Restriping - Road Diet
Kachina Street	San Ildefonso Drive	Taylor Ranch Road	0.7	Bike Lane, Enhanced Bike Route	Plausible Near-Term	Medium	Restriping	Enhanced Bike Route
Kayenta Street	South of Irving Boulevard	McMahon Boulevard	0.8	Buffered Bike Lane	Plausible Near-Term	Medium	Restriping - Road Diet	Restriping, Future Roadway / Street Frontage Buildout
Kimela Drive / Rainwater Road	Camino San Martin	Desert Breeze Drive / Trail Access	0.9	Bike Boulevard	Plausible Near-Term	Medium	Bike Boulevard	
Kimmick Drive	Unser Boulevard	Paseo del Norte	0.6	Bike Lane	Long-Term	Medium	Future Roadway / Street Frontage Buildout	
Kimmick Drive	Rosa Parks Road	Paseo del Norte	0.2	Sidepath	Plausible Near-Term	Medium	Future Roadway / Street Frontage Buildout	
La Cueva Channel / San Diego Avenue Trail	Balloon Museum Drive	Wyoming Boulevard	2.0	Paved Multi-Use Trail	Long-Term	Medium	Feasibility Analysis	
La Orilla Road	West of Coors Boulevard	Bosque Plaza Lane	0.3	Separated Bike Lane, Sidepath	Long-Term	Medium	Separated Intersection	
Ladera Drive	Arroyo Vista Boulevard	Ouray Road	2.5	Separated Bike Lane	Long-Term	High	Median Modifications	
Lagrima de Oro Road	Dona Marguerita Avenue	Morris Street	0.8	Bike Boulevard	Plausible Near-Term	High	Bike Boulevard	
Laguna Boulevard	Kit Carson Avenue	14th Street	0.6	Enhanced Bike Route	Plausible Near-Term	Medium	Enhanced Bike Route	

Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Priority Level	Primary Strategy	Secondary Strategies
Las Lomas Road / Campus Boulevard	University Boulevard	Monte Vista Boulevard	1.0	Buffered Bike Lane, Bike Lane, Bike Boulevard	Plausible Near-Term	Very High	Restriping	Bike Boulevard
Las Lomitas Drive	Vista Del Norte Drive	El Pueblo Road	0.7	Bike Lane	Plausible Near-Term	Medium	Restriping	
Laurelwood Parkway	Hanover Road / I-40 Trail Access	Ladera Drive	0.4	Buffered Bike Lane	Plausible Near-Term	Medium	Restriping	
Lead Avenue / Coal Avenue	Broadway Boulevard	Elm Street	0.8	Separated Bike Lane	Plausible Near-Term	Very High	Additional vertical separation	
Liberty Drive	Barstow Street	Ventura Street	0.5	Bike Boulevard	Plausible Near-Term	Medium	Bike Boulevard	
Lomas Boulevard	6th Street	BNSF Rail Corridor	0.4	Sidepath	Long-Term	High	Improve Available Back-of-Curb	
Lomas Channel Trail	Hupmobile Drive	-	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	Medium	Enhanced Crossing	
Los Volcanes Road	Unser Boulevard	Airport Drive	0.5	Bike Lane	Plausible Near-Term	Medium	Speed Reduction	Restriping
Louisiana Boulevard	Burlison Drive	Modesto Avenue	2.5	Buffered Bike Lane, Separated Bike Lane	Plausible Near-Term	High	Restriping	Restriping - Road Diet, Speed Reduction
Louisiana Boulevard	Gibson Boulevard	Central Avenue	1.2	Buffered Bike Lane, Separated Bike Lane	Plausible Near-Term	Very High	Restriping - Road Diet	Speed Reduction
Louisiana Boulevard	Modesto Avenue	Elena Drive	0.7	Separated Bike Lane	Long-Term	Medium	Future Roadway / Street Frontage Buildout	
Manitoba Drive	Tramway Ridge Drive	Larchmont Drive	0.2	Separated Bike Lane, Bike Lane	Long-Term	Medium	Separated Intersection	
Manitoba Drive	Juan Tabo Boulevard	Tramway Ridge Drive	1.1	Bike Boulevard, Sidepath	Plausible Near-Term	High	Bike Boulevard	Improve Available Back-of-Curb
Marble Avenue / 1st Street	6th Street	1st Street / Lomas Boulevard	0.5	Bike Boulevard	Plausible Near-Term	High	Bike Boulevard	Speed Reduction
Mariposa Basin Recreation Trail	San Ildefonso Drive	Mojave Street	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	Medium	Enhanced Crossing	
Mariposa Diversion Trail	Unser Boulevard	Kachina Street	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	High	Enhanced Crossing	
Marna Lynn Avenue / Davenport Street / Congress Avenue	Petroglyph Trailhead	Congress Avenue / Golf Course Road	1.1	Bike Boulevard	Plausible Near-Term	Medium	Bike Boulevard	
Marquette Avenue	14th Street	6th Street	0.5	Bike Boulevard	Plausible Near-Term	High	Bike Boulevard	
Marquette Avenue / Roma Avenue	2nd Street	Edith Boulevard	0.5	Bike Boulevard, Sidepath	Plausible Near-Term	High	Bike Boulevard	Improve Existing Sidewalk / Trail Connection

Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Priority Level	Primary Strategy	Secondary Strategies
Marquette Avenue / Roma Avenue	Girard Boulevard	San Pedro Drive	2.3	Bike Boulevard	Long-Term	Very High	Bike Boulevard	
McKinney Drive	Academy Road	Forest Hills Drive	0.8	Buffered Bike Lane, Bike Lane	Plausible Near-Term	Medium	Restriping	
McLeod Road	Jefferson Street	San Pedro Drive	0.9	Bike Lane, Buffered Bike Lane	Plausible Near-Term	High	Restriping	Restriping - Road Diet, Speed Reduction
Mesa Arenoso Drive / Pauza Drive	Sacate Blanco Avenue	Gibson Boulevard	0.9	Bike Boulevard	Plausible Near-Term	Medium	Bike Boulevard	
Mill Pond Road Trail	Aspen Avenue	I-40 Trail	0.2	Paved Multi-Use Trail	Long-Term	Medium	Paved Multi-Use Trail	
Mission Avenue	Alexander Boulevard	Chappel Road	0.6	Buffered Bike Lane	Plausible Near-Term	Medium	Restriping - Road Diet	
Mojave Street	Atrisco Drive	Homestead Circle	1.0	Enhanced Bike Route, Bike Lane, Paved Multi-Use Trail	Plausible Near-Term	Medium	Enhanced Bike Route	Restriping, Improve Existing Sidewalk / Trail Connection
Monachos Road / Via Posada Street	Juan Tabo Boulevard	Wagon Train Drive / Stagecoach Road	0.7	Enhanced Bike Route, Paved Multi-Use Trail	Plausible Near-Term	Medium	Enhanced Bike Route	Improve Existing Sidewalk / Trail Connection
Montaño Road	Unser Boulevard	Winter Haven Road	2.0	Separated Bike Lane	Long-Term	High	Median Modifications	
Montaño Road	5th Street	2nd Street	0.6	Sidepath	Long-Term	Medium	Improve Available Back-of-Curb	
Monte Largo Drive / Menaul Boulevard	Lomas Boulevard / Monte Verde Drive	Tramway Trail	1.7	Bike Lane, Buffered Bike Lane	Plausible Near-Term	Medium	Restriping	Speed Reduction, Restriping - Road Diet
Monte Vista Boulevard	Central Avenue	Lomas Boulevard	0.7	Buffered Bike Lane	Plausible Near-Term	High	Speed Reduction	Restriping
Montgomery Boulevard	Culture Drive	North Diversion Channel Trail	0.5	Sidepath, Bike Lane	Plausible Near-Term	Medium	Peer Agency Led	
Moon Street	Susan Avenue / Southern Boulevard	Copper Avenue	0.9	Bike Boulevard	Plausible Near-Term	High	Bike Boulevard	
Moon Street	Matthew Avenue	Veranda Road	0.1	Bike Lane	Plausible Near-Term	Medium	Restriping	
Moon Street / Easterday Drive	Lomas Boulevard / I-40 Trail Bridge	Constitution Avenue	0.5	Bike Boulevard, Bike Lane	Plausible Near-Term	Medium	Bike Boulevard	Restriping
Morris Street	Candelaria Road	Montgomery Boulevard	1.0	Bike Lane	Plausible Near-Term	High	Speed Reduction	Restriping
Morris Street	Tomasita Street	Constitution Avenue	0.8	Bike Lane, Bike Boulevard	Plausible Near-Term	High	Restriping	Bike Boulevard
Mountain Road	Broadway Boulevard	Edith Boulevard	0.2	Bike Lane	Plausible Near-Term	High	Restriping	
Mountain Road	Tomasita Street	Chelwood Park Boulevard	0.9	Bike Boulevard, Bike Lane	Long-Term	High	Bike Boulevard	Restriping

Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Priority Level	Primary Strategy	Secondary Strategies
Natalie Avenue/Ponderosa Avenue	Paseo del Nordeste/San Mateo Boulevard	Pennsylvania Street	1.7	Bike Boulevard, Bike Lane	Plausible Near-Term	High	Bike Boulevard	Restriping
North Diversion Channel Trail Extension	Balloon Museum Drive	Edith Boulevard	0.9	Paved Multi-Use Trail	Long-Term	Medium	Paved Multi-Use Trail	
North Domingo Baca Trail	Barstow Street	Ventura Street	0.5	Paved Multi-Use Trail	Long-Term	Medium	Paved Multi-Use Trail	
Osuna Road	West of San Mateo Boulevard	East of San Mateo Boulevard	0.1	Separated Bike Lane	Long-Term	High	Separated Intersection	
Osuna Road	2nd Street / Elwood Street	Chappell Road	0.9	Sidepath	Long-Term	Medium	Improve Available Back-of-Curb	
Osuna Road	West of 4th Street	2nd Street	0.5	Sidepath	Long-Term	Medium	Peer Agency Led	
Ouray Road	57th Street	Coors Boulevard NB Frontage Road	0.2	Separated Bike Lane	Long-Term	High	Separated Intersection	
Ouray Road / Bob McCannon Parkway	Unser Boulevard	Alamogordo Drive	1.9	Buffered Bike Lane	Plausible Near-Term	High	Restriping	Speed Reduction
Panmunjon Road / Hollywood Avenue / Marble Avenue	Mountain Road	14th Street	1.2	Bike Boulevard	Long-Term	High	Bike Boulevard	
Paradise Boulevard	Chaparral Street	Paseo del Norte Northwest	0.2	Sidepath	Long-Term	Medium	Curbline and/or Median Modifications	
Parsifal Street / Moon Street	Paseo de las Montañas Trail	Academy Road	3.6	Bike Boulevard, Bike Lane, Sidepath	Long-Term	Very High	Bike Boulevard	Restriping, Improve Available Back-of-Curb
Paseo de la Mesa	Atrisco Vista Boulevard	Paseo de la Mesa Trailhead	0.1	Paved Multi-Use Trail	Long-Term	Medium	Paved Multi-Use Trail	
Paseo de las Montañas Trail / Embudo Recreation Trail	Hendola Drive	Marie Park Drive	0.0	Paved Multi-Use Trail Crossing	Long-Term	Very High	Enhanced Crossing	
Paseo del Nordeste Trail	Carlisle Boulevard	Pennsylvania Street	0.0	Paved Multi-Use Trail Crossing	Long-Term	Very High	Enhanced Crossing	
Paseo del Norte	Calle Norteña	Golf Course Road	0.8	Separated Bike Lane	Plausible Near-Term	Medium	Additional vertical separation	
Paseo del Norte	Universe Boulevard	Eagle Ranch Road	4.9	Sidepath	Long-Term	High	Future Roadway / Street Frontage Buildout	Improve Available Back-of-Curb
Paseo del Norte	I-25 Frontage Road NB	Eubank Boulevard	4.6	Sidepath	Long-Term	Very High	Peer Agency Led	
Paseo del Norte Trail	Rio Grande Boulevard	El Pueblo Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	Medium	Enhanced Crossing	

Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Priority Level	Primary Strategy	Secondary Strategies
Pennsylvania Street	Marble Avenue	Menaul Boulevard	1.5	Buffered Bike Lane, Bike Lane, Separated Bike Lane	Plausible Near-Term	High	Restriping	Speed Reduction
Pennsylvania Street	South of Comanche Road	Montgomery Boulevard	0.7	Buffered Bike Lane	Plausible Near-Term	High	Restriping	
Piedras Marcadas Park Trail	Golf Course Road	Rancho Sereno Road	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	Medium	Enhanced Crossing	
Piedras Marcadas Trail	Ventana Ranch Road	Universe Boulevard	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	Medium	Enhanced Crossing	
Pino Arroyo Trail / Quintessence Trail	San Pedro Drive	Toulon Drive	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	High	Enhanced Crossing	
Prospect Avenue / Cutler Avenue	Morningside Drive	San Pedro Drive	1.4	Bike Boulevard, Bike Lane	Plausible Near-Term	Very High	Bike Boulevard	Restriping
Rainbow Boulevard	Unser Boulevard	Volcano Vista High School	0.8	Sidepath	Long-Term	Medium	Future Roadway / Street Frontage Buildout	Improve Available Back-of-Curb
Randolph Road / Alamo Avenue	University Boulevard	Girard Boulevard	1.1	Buffered Bike Lane, Bike Lane, Bike Boulevard	Plausible Near-Term	High	Restriping	Future Roadway / Street Frontage Buildout
Renaissance Boulevard	Alexander Boulevard (south of Montaño Road)	Alexander Boulevard (north of Montaño Road)	1.0	Sidepath	Long-Term	Medium	Improve Available Back-of-Curb	Future Roadway / Street Frontage Buildout
Richmond Drive	Menaul Boulevard	Candelaria Road	0.5	Bike Lane	Plausible Near-Term	Medium	Restriping	
Rio Bravo Boulevard	Isleta Boulevard	2nd Street	2.5	Sidepath	Plausible Near-Term	Medium	Peer Agency Led	
Rockwood Road	Rolling Rock Place / Unser Boulevard Access	Seven Falls Place / Trail Access	0.4	Enhanced Bike Route	Plausible Near-Term	Medium	Enhanced Bike Route	
Rosa Parks Road	Unser Boulevard	Calle Norteña	0.6	Bike Lane	Long-Term	Medium	Future Roadway / Street Frontage Buildout	
Rosa Parks Road	Kimmick Drive	Calle Norteña	0.3	Sidepath	Plausible Near-Term	Medium	Future Roadway / Street Frontage Buildout	
Rough Rider Road / Pioneer Trail	Barstow Street	Ventura Street	0.6	Bike Boulevard, Bike Lane	Plausible Near-Term	Medium	Bike Boulevard	Restriping
Rover Avenue	Tramway Boulevard	Monte Largo Drive	0.3	Bike Lane	Plausible Near-Term	Medium	Restriping	
Rutledge Street / Washington Street / Ellison Street	North Diversion Channel Trail Access	Jefferson Street	1.2	Enhanced Bike Route, Bike Lane	Plausible Near-Term	Medium	Enhanced Bike Route	Speed Reduction, Restriping

Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Priority Level	Primary Strategy	Secondary Strategies
Sage Road	East of Unser Boulevard	Old Coors Drive	1.1	Separated Bike Lane	Long-Term	Medium	Future Roadway / Street Frontage Buildout	
Sage Road / De Vargas Road	Del Mastro Drive	Corel Drive/Unser Boulevard	1.4	Separated Bike Lane	Plausible Near-Term	High	Restriping - Road Diet	Restriping
Saint Josephs Drive	Saint Joseph's Avenue	Alamogordo Drive	0.7	Separated Bike Lane	Long-Term	Medium	Restriping - Road Diet	Future Roadway / Street Frontage Buildout, Median Modifications
San Antonio Drive / Ellison Street	I-25 Frontage Road SB	I-25 Frontage Road NB	0.1	Sidepath	Long-Term	Medium	Curbline and/or Median Modifications	
San Diego Avenue	Balloon Museum Drive	San Mateo Boulevard	0.4	Buffered Bike Lane	Plausible Near-Term	Medium	Restriping	
San Francisco Road / Coronado Avenue	San Pedro Drive	Eubank Boulevard	2.7	Bike Lane, Bike Boulevard, Buffered Bike Lane	Plausible Near-Term	High	Restriping	Bike Boulevard, Speed Reduction
San Francisco Road I-25 Crossing	Jefferson Street	I-25 NB Frontage Road	0.5	Sidepath, Paved Multi-Use Trail	Long-Term	Medium	Feasibility Analysis	
San Ildefonso Drive	Montaño Road	Mojave Street	0.5	Buffered Bike Lane	Plausible Near-Term	Medium	Speed Reduction	Restriping
San Isidro Street / Guadalupe Trail	Indian School Road	Grecian Avenue	2.8	Bike Boulevard	Plausible Near-Term	High	Bike Boulevard	
San Jose Drain	Rio Bravo Boulevard / 2nd Street	City Limits	1.5	Paved Multi-Use Trail, Sidepath	Long-Term	Medium	Peer Agency Led	
San Jose Drain	City Limits	Bethel Avenue	0.6	Paved Multi-Use Trail	Long-Term	Medium	Paved Multi-Use Trail	
San Mateo Boulevard	Wilshire Avenue	Balloon Fiesta Parkway	1.2	Separated Bike Lane, Buffered Bike Lane	Plausible Near-Term	Medium	Restriping - Road Diet	Restriping
San Pablo Street / Charleston Street / Mesilla Street	Southern Avenue	Constitution Avenue	2.3	Bike Boulevard	Long-Term	Very High	Bike Boulevard	
San Pedro Drive	Domingo Baca Trail	I-25 / Balloon Fiesta Parkway	1.5	Buffered Bike Lane, Bike Lane, Separated Bike Lane	Long-Term	Medium	Speed Reduction	
San Pedro Drive	Ridgecrest Drive	Osuna Road	6.1	Buffered Bike Lane	Plausible Near-Term	Very High	Speed Reduction	Restriping, Restriping - Road Diet
San Pedro Drive	Domingo Baca Trail	Carmel Avenue	0.3	Separated Bike Lane	Long-Term	Medium	Separated Intersection	
San Pedro Drive / Forest Hills Drive	Barnhart Street	Domingo Baca Trail	1.3	Buffered Bike Lane, Separated Bike Lane, Bike Lane	Plausible Near-Term	Medium	Restriping	Speed Reduction
Santa Clara Avenue	Yale Boulevard	Wellesley Drive	0.8	Bike Boulevard, Bike Lane	Plausible Near-Term	High	Bike Boulevard	Restriping

Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Priority Level	Primary Strategy	Secondary Strategies
Santa Fe Avenue	12th Street / Bosque Trail Access	2nd Street	0.6	Bike Boulevard	Plausible Near-Term	High	Bike Boulevard	
Seagull Street	Osuna Road	Academy Road	0.2	Buffered Bike Lane	Plausible Near-Term	High	Restriping	
Sequoia Road	Ladera Drive	Vista Grande Drive	0.7	Separated Bike Lane, Bike Lane, Enhanced Bike Route	Long-Term	High	Restriping	Restriping - Road Diet, Enhanced Bike Route
Seven Bar Loop	Coors Boulevard Bypass	Coors Boulevard	0.6	Buffered Bike Lane	Plausible Near-Term	Medium	Speed Reduction	Restriping - Road Diet
Signal Avenue	Barstow Street	Ventura Street	0.5	Bike Lane	Long-Term	Medium	Future Roadway / Street Frontage Buildout	
Silver Avenue	2nd Street	University Boulevard	1.1	Bike Boulevard, Separated Two-Way Cycle Track, Sidepath	Plausible Near-Term	Very High	Bike Boulevard	Restriping, Improve Available Back-of-Curb, Improve Existing Sidewalk / Trail Connection
Silver Charm Road	Juan Tabo Boulevard	Gulf Stream Street	0.2	Enhanced Bike Route	Plausible Near-Term	Medium	Enhanced Bike Route	
Simms Park Road	Tramway Boulevard	Elena Gallegos Open Space	1.4	Enhanced Bike Route	Plausible Near-Term	Medium	Enhanced Bike Route	Speed Reduction
Snow Vista Trail Connection	Duke Avenue	Eucariz Avenue	0.2	Paved Multi-Use Trail	Long-Term	Medium	Paved Multi-Use Trail	
South Diversion Channel Trail	Rio Bravo Boulevard	Basehart	3.6	Paved Multi-Use Trail	Long-Term	High	Paved Multi-Use Trail	
Spain Road / Knight Road	Academy Road	Tramway Boulevard	3.1	Buffered Bike Lane, Separated Bike Lane, Bike Lane	Plausible Near-Term	High	Restriping	Speed Reduction
Spring Flower Road / Desert Breeze Drive	Unser Boulevard	Trail Access	0.4	Enhanced Bike Route	Plausible Near-Term	Medium	Enhanced Bike Route	
Stagecoach Road / Wagon Train Drive	Four Hills Road	Four Hills Road	3.7	Enhanced Bike Route	Plausible Near-Term	Medium	Enhanced Bike Route	
Stanford Drive	Marble Avenue	Indian School Road	0.7	Bike Lane, Bike Boulevard	Plausible Near-Term	Medium	Restriping	Bike Boulevard
Stanford Drive / Columbia Drive	Gibson Boulevard	Central Avenue	1.6	Bike Boulevard	Plausible Near-Term	Very High	Bike Boulevard	
Summer Avenue / Mackland Avenue / Marble Avenue	Stanford Drive / North Diversion Channel Trail	Louisiana Boulevard / I-40 Trail Bridge	3.4	Bike Boulevard, Bike Lane	Long-Term	Very High	Bike Boulevard	Restriping
Sunport Boulevard	I-25 NB Frontage Road	Transport Street	0.1	Sidepath	Plausible Near-Term	Medium	Improve Available Back-of-Curb	

Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Priority Level	Primary Strategy	Secondary Strategies
Sunport Loop / Yale Boulevard	Randolph Road	Girard Boulevard	0.8	Sidepath	Long-Term	Medium	Improve Available Back-of-Curb	
Tanager Drive	Red Robin Road	Tower Road	0.5	Enhanced Bike Route	Plausible Near-Term	Medium	Enhanced Bike Route	
Taylor Ranch Road	North of Homestead Circle	East of Golf Course Road	0.4	Buffered Bike Lane	Plausible Near-Term	Medium	Speed Reduction	Restriping - Road Diet, Restriping
Taylor Ranch Road	Montaño Road	Montaño Plaza Drive	0.4	Buffered Bike Lane	Plausible Near-Term	Medium	Restriping	
Tesuque Drive	Montaño Road	Homestead Circle	1.2	Bike Boulevard	Plausible Near-Term	Medium	Bike Boulevard	
Tiburon Street / Headline Boulevard	Tiburon Street, El Pueblo Road	Headline Boulevard	0.8	Buffered Bike Lane, Enhanced Bike Route	Plausible Near-Term	Medium	Restriping	Enhanced Bike Route
Tierra Pintada Boulevard	Watershed Drive	Unser Boulevard	0.6	Separated Bike Lane	Long-Term	Medium	Median Modifications	
Tijeras Arroyo Trail	Innovation Parkway	Juan Tabo Boulevard	0.6	Paved Multi-Use Trail	Long-Term	Medium	Paved Multi-Use Trail	
Tom Bolack Park Trail	San Pedro Drive	Paseo de las Montañas Trail	0.3	Paved Multi-Use Trail	Long-Term	High	Paved Multi-Use Trail	
Tomasita Street / Martha Street	I-40 Trail Bridge	Gretta Street / Prospect Avenue	2.0	Bike Boulevard	Plausible Near-Term	High	Bike Boulevard	
Tony Sanchez Drive / Singing Arrow Avenue	Innovation Parkway	East of Dorado Place	1.6	Bike Boulevard, Bike Lane, Buffered Bike Lane	Long-Term	High	Restriping	Bike Boulevard
Tower Road	106th Street	Bridge Boulevard	2.9	Buffered Bike Lane, Separated Bike Lane	Plausible Near-Term	Very High	Speed Reduction	Restriping, Restriping - Road Diet
Tramway Boulevard	Wenonah Avenue	Central Avenue	0.2	Sidepath	Long-Term	Medium	Improve Available Back-of-Curb	
Trumbull Avenue	Valverde Drive	Eubank Boulevard	3.7	Bike Boulevard, Sidepath	Long-Term	Very High	Bike Boulevard	Improve Available Back-of-Curb
Turner Drive	Encantado Road	Lomas Boulevard	0.8	Enhanced Bike Route	Plausible Near-Term	Medium	Enhanced Bike Route	
Universe Boulevard	Rainbow Boulevard	Paseo del Norte	2.8	Sidepath	Long-Term	Medium	Future Roadway / Street Frontage Buildout	
University Boulevard	South of Gibson Boulevard	Lomas Boulevard	2.6	Separated Bike Lane, Bike Boulevard	Plausible Near-Term	Very High	Restriping - Road Diet	Bike Boulevard
University Boulevard	Arbus Drive	Stryker Road	0.4	Buffered Bike Lane	Long-Term	Medium	Restriping - Road Diet	
University Boulevard	Arbus Drive	Crick Avenue	1.5	Sidepath	Plausible Near-Term	Medium	Future Roadway / Street Frontage Buildout	
University Boulevard	Clark Carr Road	Aircraft Avenue	1.3	Sidepath	Long-Term	Medium	Improve Available Back-of-Curb	

Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Priority Level	Primary Strategy	Secondary Strategies
UNM South Campus Trail	Gibson Boulevard	Buena Vista Drive	0.7	Paved Multi-Use Trail	Long-Term	High	Paved Multi-Use Trail	
Unser Boulevard	Montaño Road	Paradise Boulevard	6.6	Sidepath	Long-Term	High	Future Roadway / Street Frontage Buildout	Improve Available Back-of-Curb
Unser Boulevard	Irving Boulevard	Existing Sidepath	0.1	Sidepath	Plausible Near-Term	Medium	Improve Available Back-of-Curb	
Uptown Boulevard	San Pedro Drive	Louisiana Boulevard	0.5	Buffered Bike Lane	Plausible Near-Term	High	Restriping - Road Diet	
Uptown Loop / Americas Parkway	Loop	Loop	1.3	Buffered Bike Lane	Plausible Near-Term	High	Restriping - Road Diet	Speed Reduction
Utah Street	Southern Avenue	Marble Avenue / Charleston Street	1.9	Bike Boulevard, Bike Lane	Long-Term	High	Bike Boulevard	Restriping
Ventana Ranch East Trails	Paradise Boulevard	Irving Boulevard	1.8	Paved Multi-Use Trail	Plausible Near-Term	Medium	Paved Multi-Use Trail	
Ventana Ranch South Trail	Ventana West Parkway	Hearthstone Road	0.4	Paved Multi-Use Trail	Plausible Near-Term	Medium	Paved Multi-Use Trail	
Ventana Ranch Trail	Rainbow Boulevard	-	0.0	Paved Multi-Use Trail Crossing	Plausible Near-Term	Medium	Enhanced Crossing	
Ventana West Parkway	Ventana Ranch South Trail	Paseo del Norte	0.3	Sidepath	Plausible Near-Term	Medium	Future Roadway / Street Frontage Buildout	
Ventura Street	Academy Road	Alameda Boulevard	2.3	Separated Bike Lane, Buffered Bike Lane	Plausible Near-Term	High	Restriping - Road Diet	Restriping, Future Roadway / Street Frontage Buildout
Villa Corrales	Vista del Norte Drive	Diversion Channel Trail Access	0.2	Enhanced Bike Route	Plausible Near-Term	Medium	Enhanced Bike Route	
Volcano Road	98th Street	94th Street	0.3	Sidepath	Long-Term	Medium	Future Roadway / Street Frontage Buildout	Improve Available Back-of-Curb
Washington Street	Indian School Road	Menaul Boulevard	0.5	Buffered Bike Lane	Plausible Near-Term	Medium	Restriping	
Washington Street	Paseo del Norte Frontage Road	Alameda Boulevard	0.7	Buffered Bike Lane	Plausible Near-Term	Medium	Restriping	
Washington Street / Montclaire Drive	Menaul Boulevard	Montgomery Boulevard	1.7	Bike Boulevard, Sidepath	Long-Term	Very High	Bike Boulevard	Improve Available Back-of-Curb
Washington Street / Valverde Drive / Morningside Drive	Gibson Boulevard	Marquette Avenue	2.1	Bike Boulevard	Plausible Near-Term	Very High	Bike Boulevard	Speed Reduction
Wellesley Drive / Tulane Drive / Lafayette Drive	Gibson Boulevard	Indian School Road	2.9	Bike Boulevard, Sidepath	Long-Term	Very High	Bike Boulevard	Improve Existing Sidewalk / Trail Connection

Project / Location	From Street	To Street	Length (mi.)	Facility Type(s)	Timeframe	Priority Level	Primary Strategy	Secondary Strategies
Western Trail / Namaste Road	Unser Boulevard	Tres Gracias Drive / San Antonio Oxbow Open Space	1.2	Separated Bike Lane, Buffered Bike Lane, Enhanced Bike Route	Plausible Near-Term	Medium	Restriping - Road Diet	Restriping, Enhanced Bike Route
Westgate Community Park Trail	Delgado Drive	98th Street / Snow Vista Boulevard	0.9	Paved Multi-Use Trail	Plausible Near-Term	Medium	Paved Multi-Use Trail	
William Street	Woodward Road	Pacific Avenue / Edith Boulevard	2.0	Bike Boulevard, Bike Lane	Plausible Near-Term	High	Bike Boulevard	Restriping
Winter Haven Road	Montaño Plaza Drive	Bontierra Trail	0.4	Buffered Bike Lane	Plausible Near-Term	Medium	Restriping	
Wyoming Boulevard	Oakland Avenue	Beverly Hills Avenue	0.6	Separated Bike Lane	Long-Term	Medium	Future Roadway / Street Frontage Buildout	Restriping
Wyoming Boulevard	Palomas Avenue	Holly Avenue	0.2	Separated Bike Lane	Long-Term	Medium	Separated Intersection	
Wyoming Boulevard	Academy Road	Signal Avenue	3.2	Sidepath	Long-Term	High	Curbline and/or Median Modifications	Improve Available Back-of-Curb
Wyoming Boulevard	Bear Canyon Arroyo Trail	Spain Road	0.1	Sidepath	Plausible Near-Term	Medium	Improve Available Back-of-Curb	
Wyoming Boulevard	Signal Avenue	Oakland Avenue	0.2	Separated Bike Lane	Long-Term	Medium	Separated Intersection	
Yale Boulevard	Randolph Road	Gibson Boulevard	0.2	Buffered Bike Lane	Plausible Near-Term	Medium	Speed Reduction	Restriping - Road Diet
Yale Boulevard	Las Lomas Road	Tucker Avenue	0.4	Buffered Bike Lane, Bike Lane	Long-Term	High	Future Roadway / Street Frontage Buildout	Restriping

Cost Estimates Notes and Assumptions

General Considerations

Estimated costs are intended to be used for City project programming efforts and are representative of relative potential costs for each project and anticipated strategies for implementation. Assumptions are built in to account for construction cost contingencies and design fees, and a range has been provided for various project types based on the level of anticipated risk and uncertainty over the type of roadway improvements that are needed to implement bikeways.

Standard assumptions were applied for sidepaths, multi-use trails, and multi-use trail crossings; as a result, the 2024 Plan does not include low and high cost estimates for these project types. The cost estimates for these project types include materials and construction costs only. Right-of-way acquisition costs are excluded.

Costs are presented based on current dollars as of this plan release in 2024 and do not account for inflation for future years.

Cost Estimate Ranges

LOW = The low end of the estimated cost range could be used for implementation efforts in which the following assumptions may apply:

- Existing pavement is in good condition
- Traffic signal infrastructure at intersections is relatively new
- Potential to use quick-build style construction materials
- Simple geometry and feasibility is anticipated

Some costs could be lower if the project is implemented opportunistically as part of the Annual Complete Streets Maintenance program or other resurfacing and restriping efforts.

HIGH = The high end of the estimated cost range could be used for implementation efforts in which the following assumptions may apply:

- Existing pavement is in poor condition
- Traffic signal infrastructure at intersections is outdated
- Robust construction materials are desired
- More complex geometry and risks are anticipated

Some costs could be higher, and additional study for feasibility is recommended.

Exclusions

Items excluded from the cost estimates include:

- Right-of-way acquisition
- Utility relocations
- Other location-specific circumstantial conditions

Cost estimates are not provided for the following:

- Partner-led projects
- Projects in progress at the time of plan adoption
- Projects that require a high level of engineering analysis and/pr feasibility assessments

2024 CITY OF ALBUQUERQUE BIKEWAY AND TRAIL FACILITIES PLAN

APPENDIX G: PROJECT PROFILES

Academy Road from Wyoming Blvd. to Tramway Blvd.

Project Characteristics

Existing Conditions

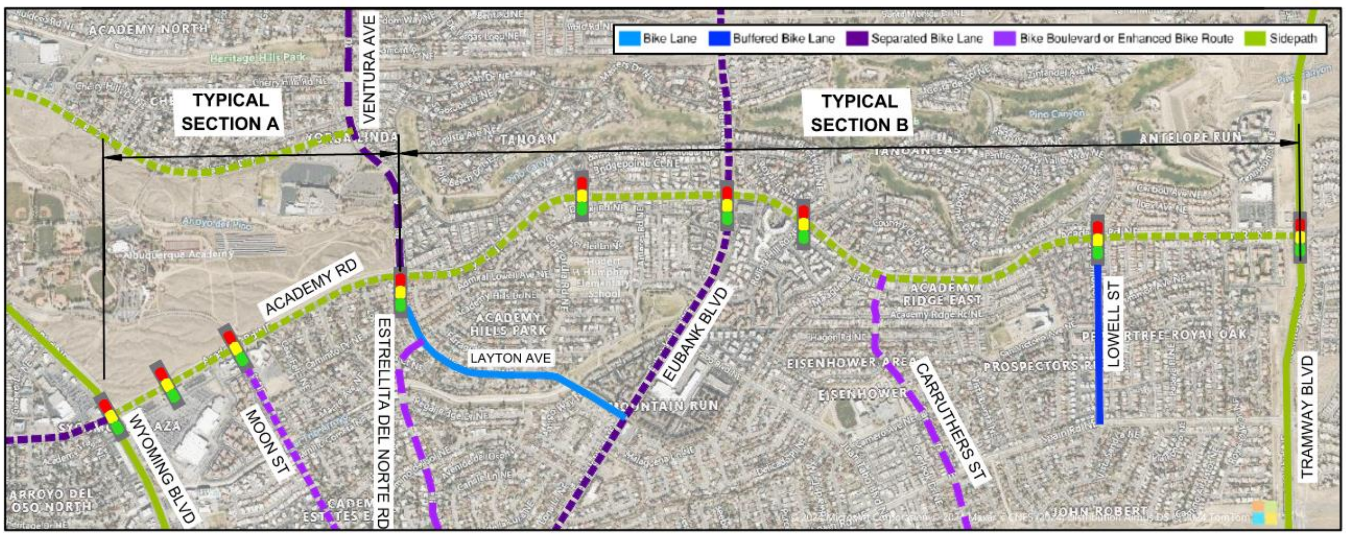
Typical Section	Section A	Section B
Termini / Length (miles)	0.9	3.5
Existing Facility	Bike lane	None
Speed Limit (mph)	40	40
Traffic Volumes (AWDT)	22,000	11,000 - 19,000
LTS (Level of Traffic Stress)	**4**	**4**

Proposed Facility

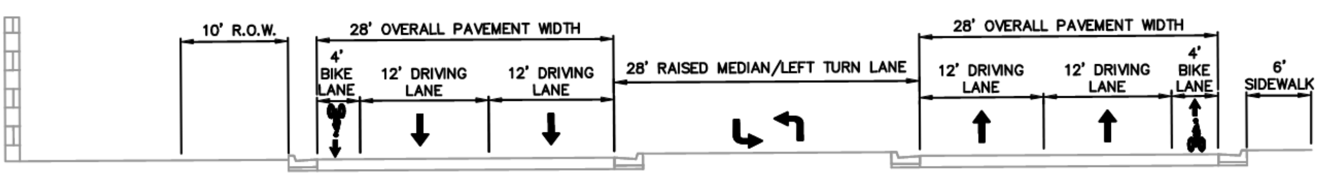
Facility Type	Side Path
Timeframe	Long Term
Cost Estimate	$36.9M+
Strategies	Improve Available Back-of-Curb, Median and Curb Line Modifications
Priority Level	**Very High**

Notes and Considerations:

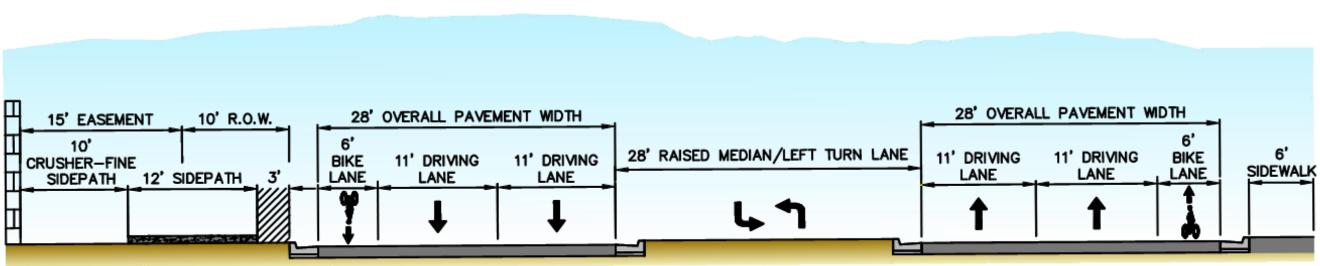
- **Functional Classification:** Minor arterial
- **Project Benefits:** High trip potential; high crash rates, significant improvement bicyclist user comfort
- **Vulnerability Index Score:** Medium
- **Destinations:** Passes along Mountain Run Activity Center
- **Council Districts:** 4 and 8
- **Other:** Road Diet Candidate



Section A



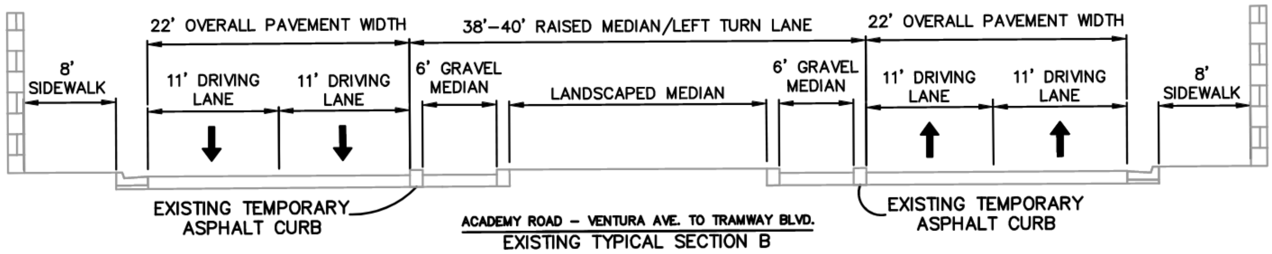
ACADEMY ROAD – WYOMING BLVD. TO VENTURA AVE.
EXISTING TYPICAL SECTION A

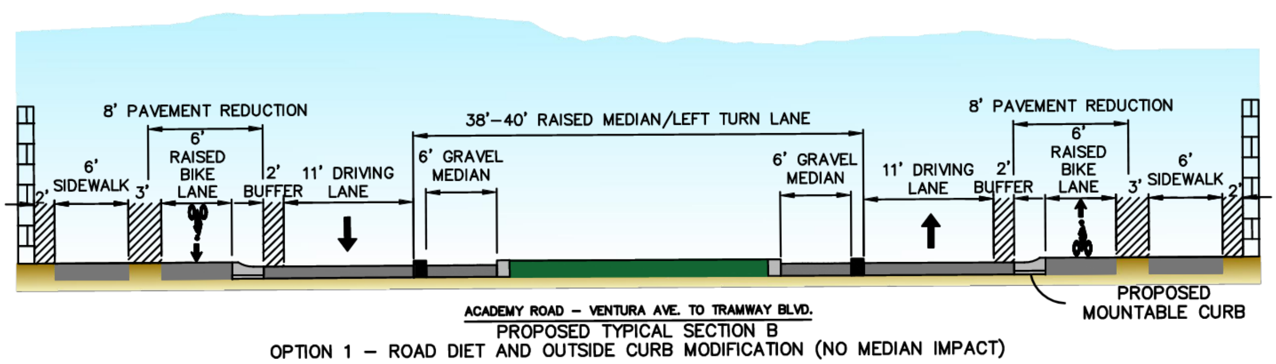


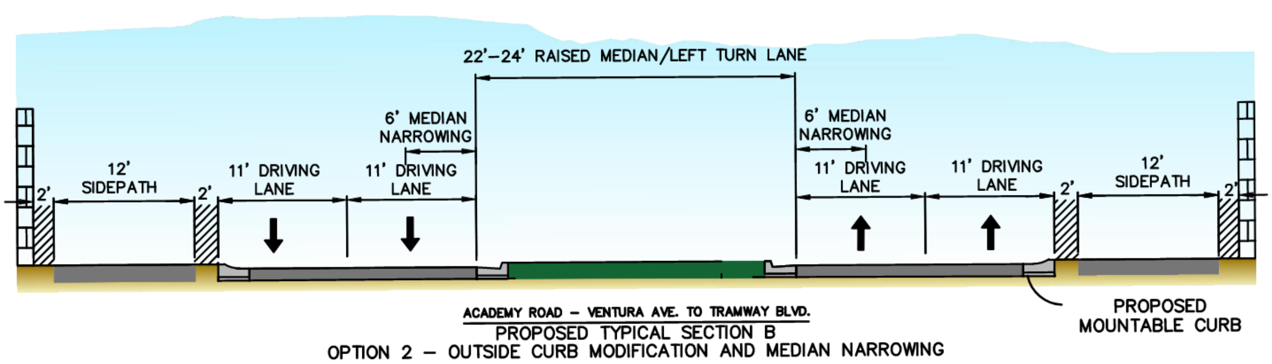
ACADEMY ROAD – WYOMING BLVD. TO VENTURA AVE.
PROPOSED TYPICAL SECTION A

Academy Road from Wyoming Blvd. to Tramway Blvd.

Section B







Alvarado Drive from Summer Ave. to Maderia Dr.

Project Characteristics

Existing Conditions

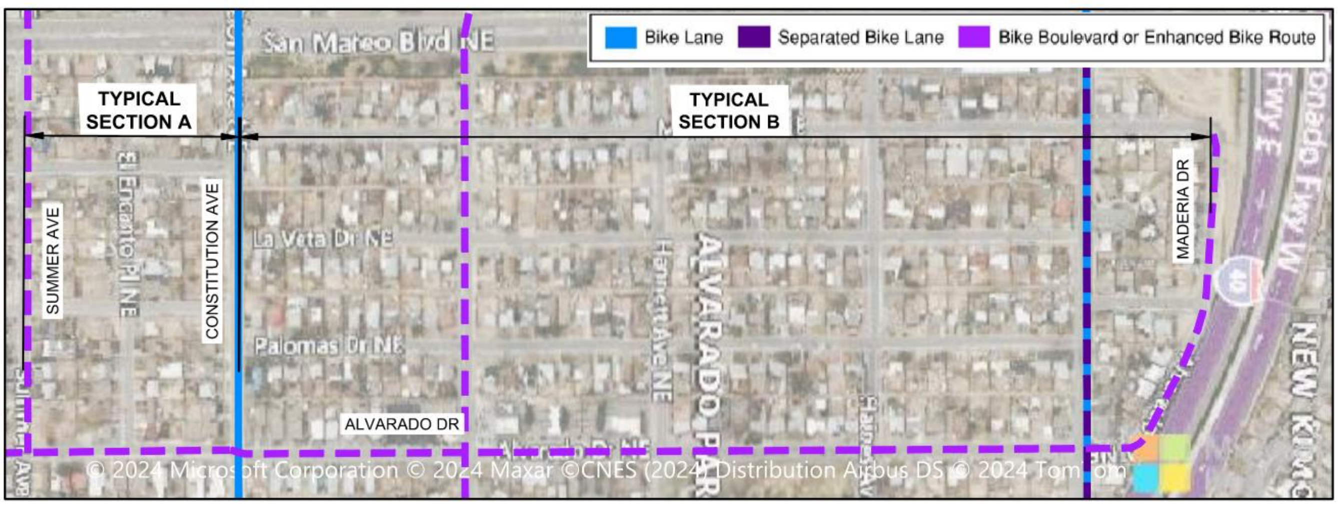
Typical Section	Section A	Section B
Termini / Length (miles)	0.1	0.7
Existing Facility	None	None
Speed Limit (mph)	25	25
Traffic Volumes (AWDT)	Unavailable	Unavailable
LTS (Level of Traffic Stress)	**1**	**1**

Proposed Facility

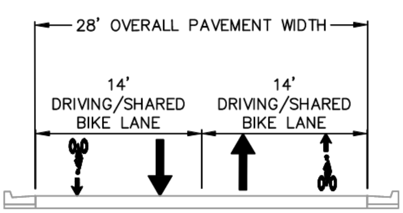
Facility Type	Bike Boulevard
Timeframe	Long Term
Cost Estimate	$1.2M - $2.0M
Strategies	Bike Boulevard
Priority Level	**Very High**

Notes and Considerations:

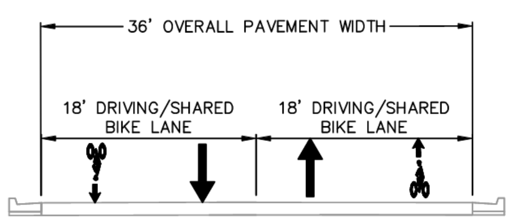
- **Functional Classification:** Major local
- **Project Benefits:** Proposed network spine, high trip potential; high rates of crashes on parallel corridors
- **Vulnerability Index Score:** High
- **Destinations:** Passes along Hiland Center Activity Center
- **Council Districts:** 7
- **Other:** Extension of existing bike boulevard



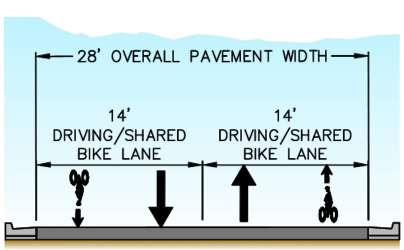
Sections A & B



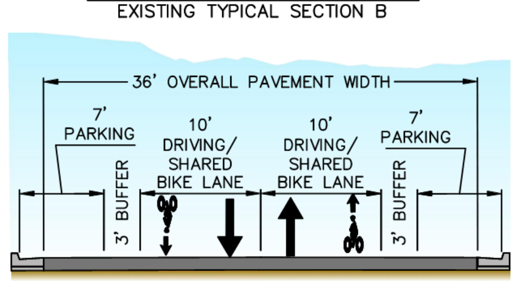
ALVARADO DRIVE – SUMMER AVE. TO CONSTITUTION AVE.
EXISTING TYPICAL SECTION A



ALVARADO DRIVE – CONSTITUTION AVE. TO MADERIA DR.
EXISTING TYPICAL SECTION B



ALVARADO DRIVE – SUMMER AVE. TO CONSTITUTION AVE.
PROPOSED TYPICAL SECTION A



ALVARADO DRIVE – CONSTITUTION AVE. TO MADERIA DR.
PROPOSED TYPICAL SECTION B

Alvarado Drive from Eastern Ave. to Copper Ave.

Project Characteristics

Existing Conditions

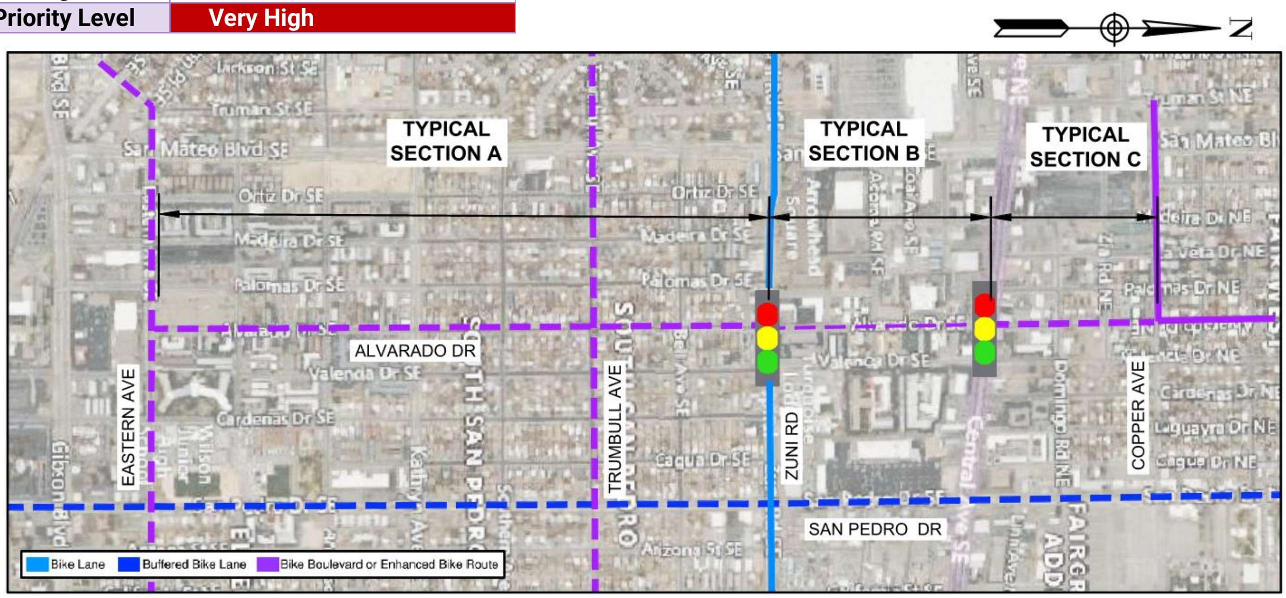
Typical Section	Section A	Section B	Section C
Termini / Length (miles)	0.2	0.3	0.9
Existing Facility	None	None	None
Speed Limit (mph)	25	25	25
Traffic Volumes (AWDT)	Unavailable	Unavailable	Unavailable
LTS (Level of Traffic Stress)	1	1	1

Proposed Facility

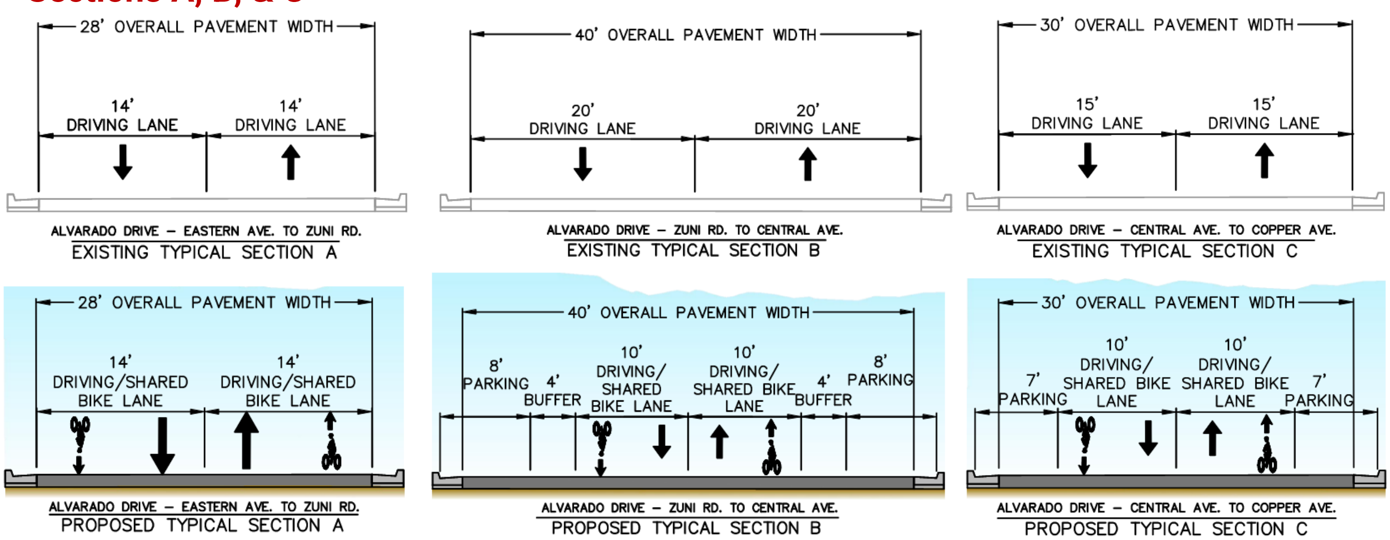
Facility Type	Bike Boulevard
Timeframe	Long Term
Cost Estimate	$2.0M - $3.5M
Strategies	Bike Boulevard
Priority Level	Very High

Notes and Considerations:

- **Functional Classification:** Major local
- **Project Benefits:** Proposed network spine, high trip potential; high rates of crashes on parallel corridors
- **Vulnerability Index Score:** Medium-High
- **Destinations:** Hiland Center, Central Ave. Corridor
- **Council Districts:** 6 and 7
- **Other:** Extension of existing bike boulevard



Sections A, B, & C



Bluewater Road from 98th St. to Coors Blvd.

Project Characteristics

Existing Conditions

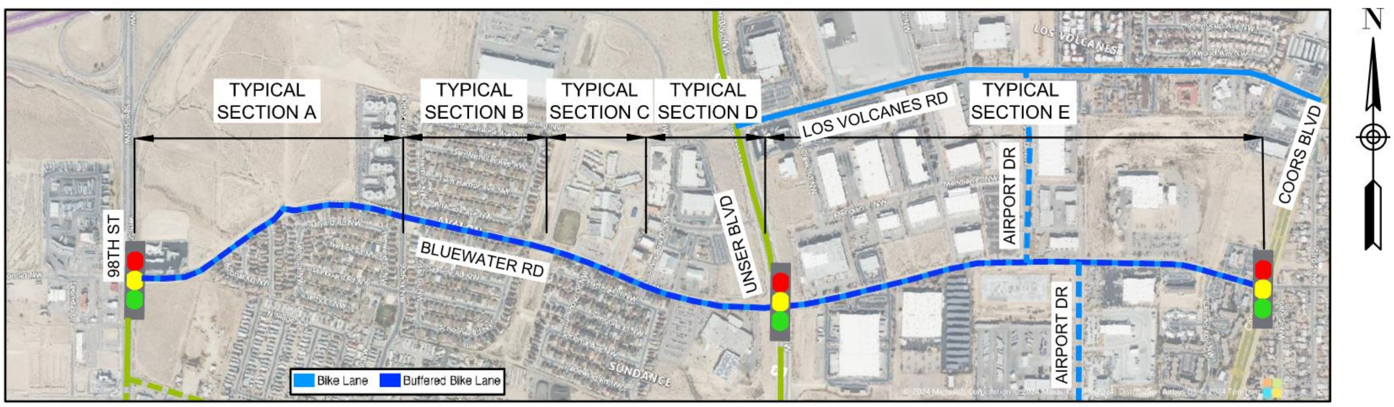
Typical Section	Section A	Section B	Section C	Section D	Section E
Termini / Length (miles)	0.5	0.2	0.2	0.2	0.9
Existing Facility	Bike Lane	Bike Lane	Bike Lane	None	Bike Lane
Speed Limit (mph)	35	35	35	40	40
Traffic Volumes (AWDT)	Unavail.	7,000	7,000	7,000	10,000
LTS (Level of Traffic Stress)	3	3	3	4	3

Proposed Facility

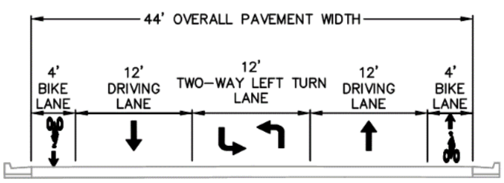
Facility Type	Bike Lanes, Buffered Bike Lanes
Timeframe	Plausible Near-Term
Cost Estimate	$1.3M - $5.1M
Strategies	Bike Lane Restriping, Speed Reduction
Priority Level	**High**

Notes and Considerations:

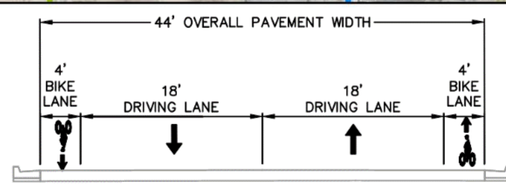
- **Functional Classification:** Major Collector
- **Project Benefits:** High trip potential; proposed network spine
- **Vulnerability Index Score:** High
- **Destinations:** Near Route 66 Activity Center, multiple schools
- **Council Districts:** 1



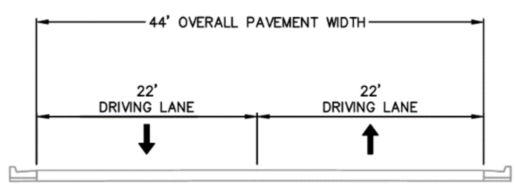
Sections A - E



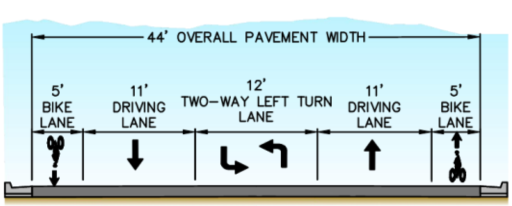
BLUEWATER RD. – 98TH ST. TO 90TH ST.
AVALON TRAIL TO OLIVER ROSS DR.
UNSER BLVD. TO COORS BLVD.
EXISTING TYPICAL SECTION A, C, E



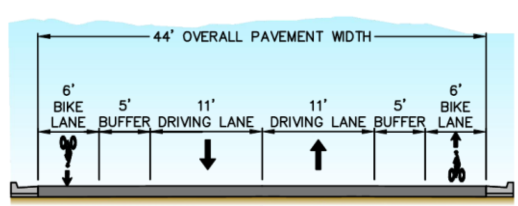
BLUEWATER RD. – 90TH ST. TO AVALON TRAIL
EXISTING TYPICAL SECTION B



BLUEWATER RD. – OLIVER ROSS DR. TO UNSER BLVD.
EXISTING TYPICAL SECTION D



BLUEWATER RD. – 98TH ST. TO 90TH ST.
AVALON TRAIL TO OLIVER ROSS DR.
UNSER BLVD. TO COORS BLVD.
PROPOSED TYPICAL SECTION A, C, E



BLUEWATER RD. – 90TH ST. TO AVALON TRAIL
OLIVER ROSS DR. TO UNSER BLVD.
PROPOSED TYPICAL SECTION B, D

Candelaria Road from Rio Grande Blvd. to I-25

Project Characteristics

Existing Conditions

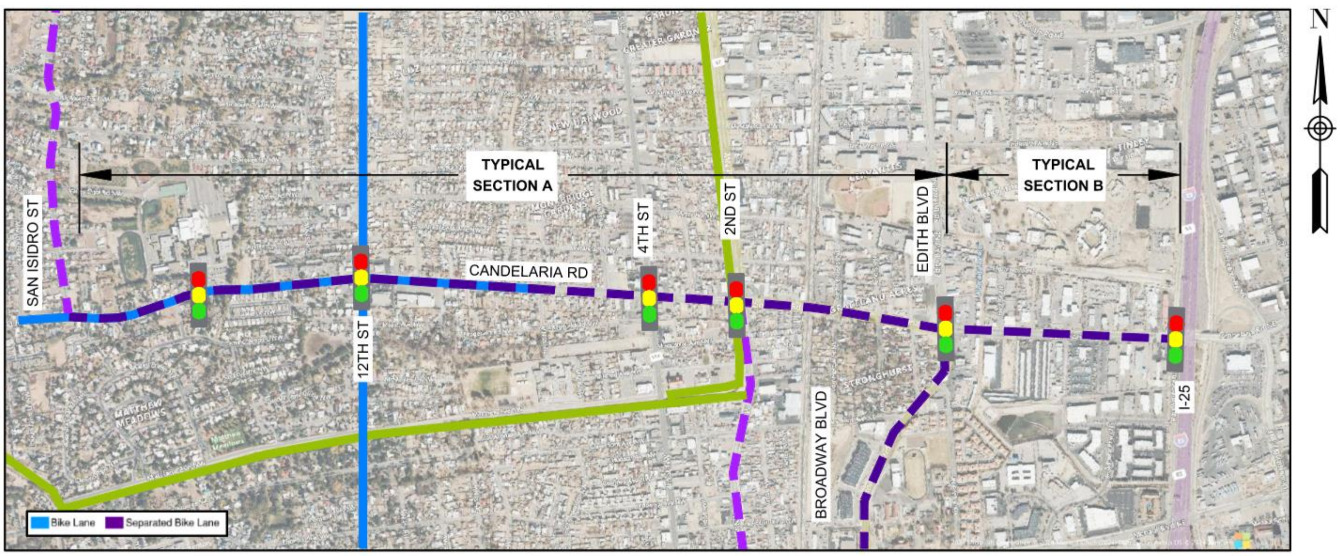
Typical Section	Section A	Section B
Termini / Length (miles)	1.9	0.5
Existing Facility	Bike Lane	None
Speed Limit (mph)	35	35
Traffic Volumes (AWDT)	11,000	16,000
LTS (Level of Traffic Stress)	**3**	**4**

Proposed Facility

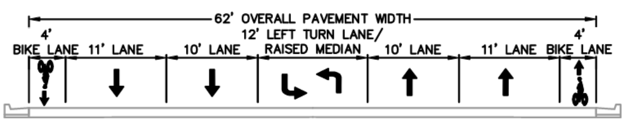
Facility Type	Separated Bike Lanes
Timeframe	Plausible Near-Term
Cost Estimate	$3.3M - $9.3M
Strategies	Restriping – Road Diet
Priority Level	**Medium**

Notes and Considerations:

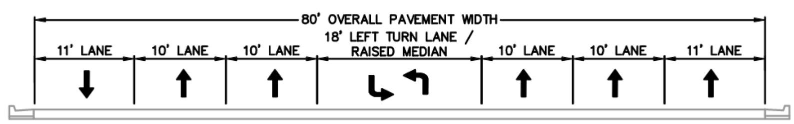
- **Functional Classification:** Principal Arterial
- **Project Benefits:** Network spine, major improvement to bicycle level of comfort, high level of public support
- **Vulnerability Index Score:** High
- **Destinations:** Rio Grande Nature Center, 12th/Candelaria Activity Center
- **Council Districts:** 2
- **Other:** Road Diet Candidate



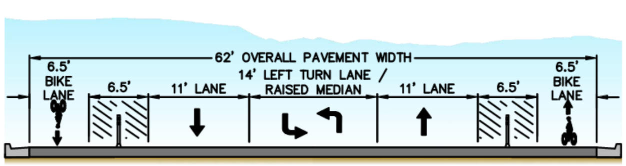
Sections A & B



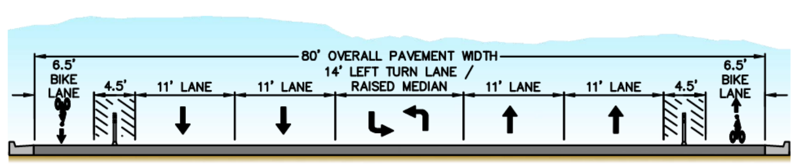
CANDELARIA RD. – SAN ISIDRO ST. TO EDITH BLVD.
EXISTING TYPICAL SECTION A



CANDELARIA RD. – EDITH BLVD. TO I-25
EXISTING TYPICAL SECTION B



CANDELARIA RD. – SAN ISIDRO ST. TO EDITH BLVD.
PROPOSED TYPICAL SECTION A



CANDELARIA RD. – EDITH BLVD. TO I-25
PROPOSED TYPICAL SECTION B

Comanche Road from Montgomery Park to Tramway Blvd.

Project Characteristics

Existing Conditions

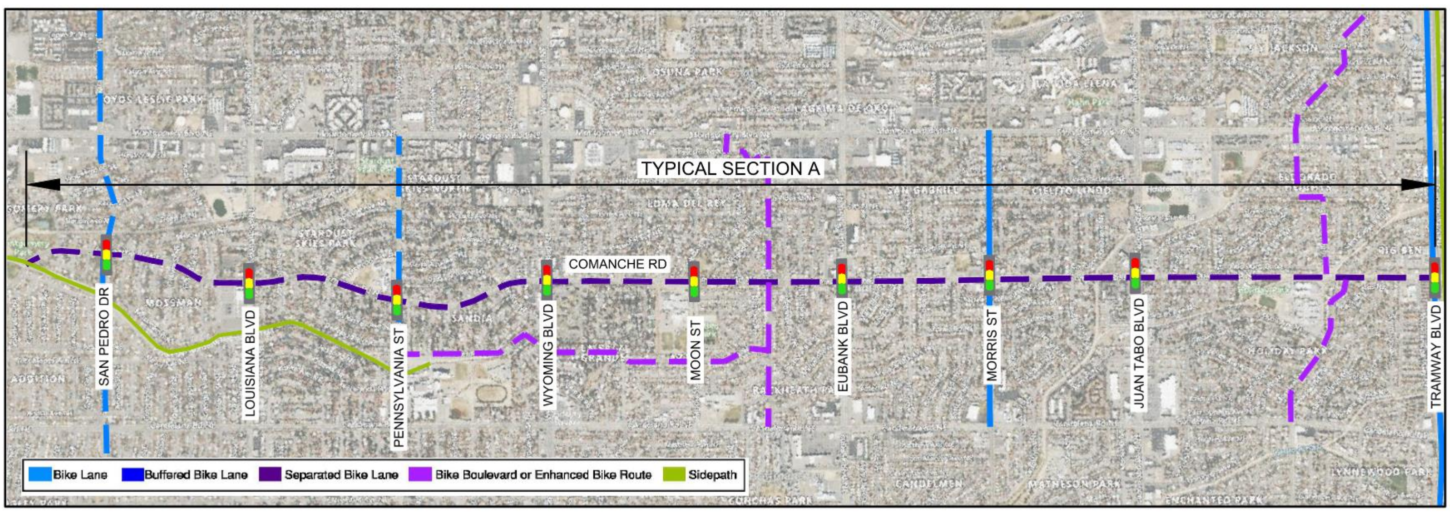
Typical Section	Section A
Termini / Length (miles)	5
Existing Facility	Bike Lane
Speed Limit (mph)	35
Traffic Volumes (AWDT)	12,000
LTS (Level of Traffic Stress)	**3**

Proposed Facility

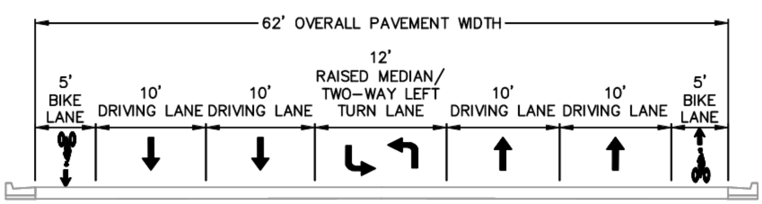
Facility Type	Separated Bike Lanes
Timeframe	Plausible Near-Term
Cost Estimate	$6.9M - $20.2M
Strategies	Restriping – Road Diet
Priority Level	**Very High**

Notes and Considerations:

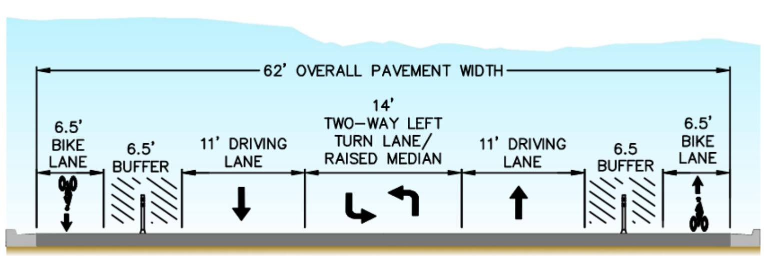
- **Functional Classification:** Major Collector
- **Project Benefits:** Network spine, major improvement to bicycle level of comfort, high level of public support
- **Vulnerability Index Score:** High
- **Destinations:** Multiple schools
- **Council Districts:** 7 and 8
- **Other:** Road Diet Candidate



Section A



COMANCHE RD. – MONTGOMERY PARK TO TRAMWAY BLVD.
EXISTING TYPICAL SECTION



COMANCHE RD. – MONTGOMERY PARK TO TRAMWAY BLVD.
PROPOSED TYPICAL SECTION

Irving Boulevard from Golf Course Rd. to Coors Blvd.

Project Characteristics

Existing Conditions

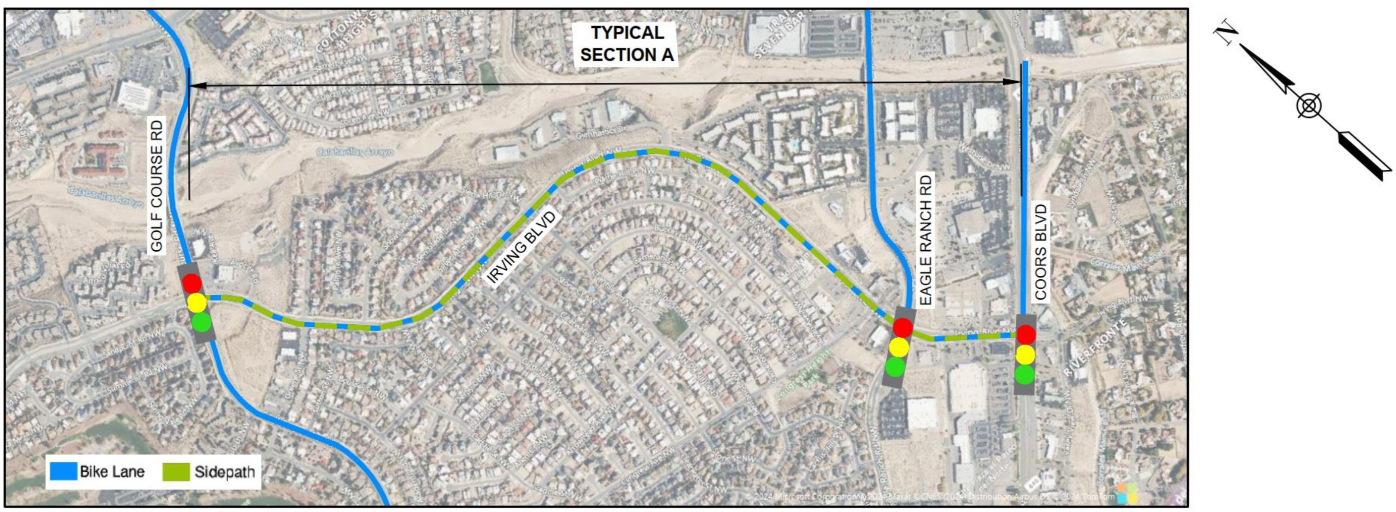
Typical Section	Section A
Termini / Length (miles)	1.6
Existing Facility	Bike Lanes
Speed Limit (mph)	40
Traffic Volumes (AWDT)	20,000
LTS (Level of Traffic Stress)	4

Proposed Facility

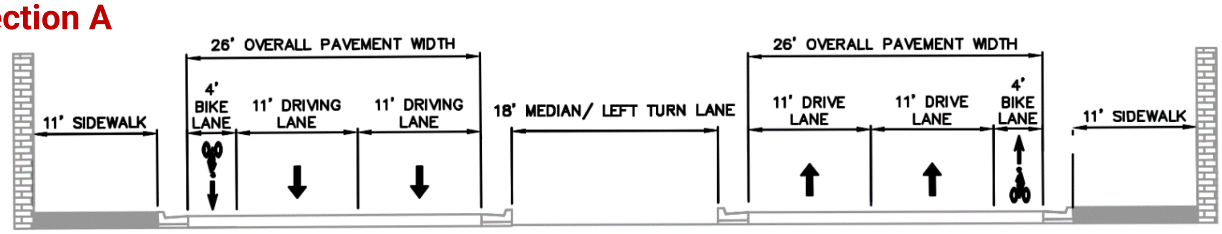
Facility Type	Side Path
Timeframe	Long Term
Cost Estimate	$7.6M+
Strategies	Improve Available Back- of-Curb, Curb Line and Median Modifications
Priority Level	High

Notes and Considerations:

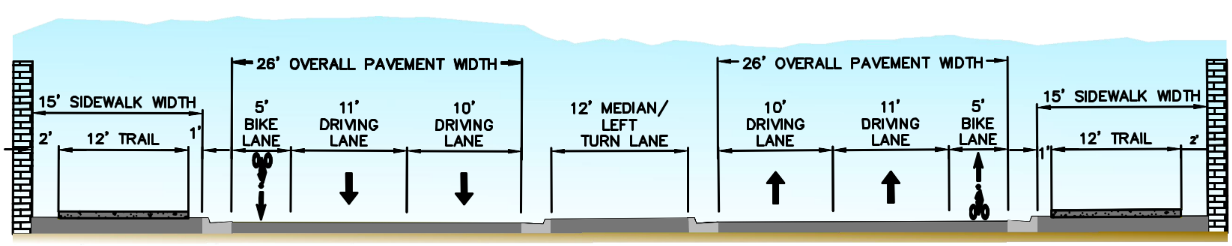
- **Functional Classification:** Principal Arterial
- **Project Benefits:** High trip potential; Major improvement to bicyclist level of comfort
- **Vulnerability Index Score:** Medium
- **Destinations:** Coors/Paseo Activity Center
- **Council Districts:** 5
- **Other:** Road Diet Candidate



Section A



IRVING BLVD. – GOLF COURSE RD. TO COORS BLVD.
EXISTING TYPICAL SECTION



IRVING BLVD. – GOLF COURSE RD. TO COORS BLVD.
PROPOSED TYPICAL SECTION

Irving Boulevard from Unser Blvd. to Rio De Los Pinos Dr.

Project Characteristics

Existing Conditions

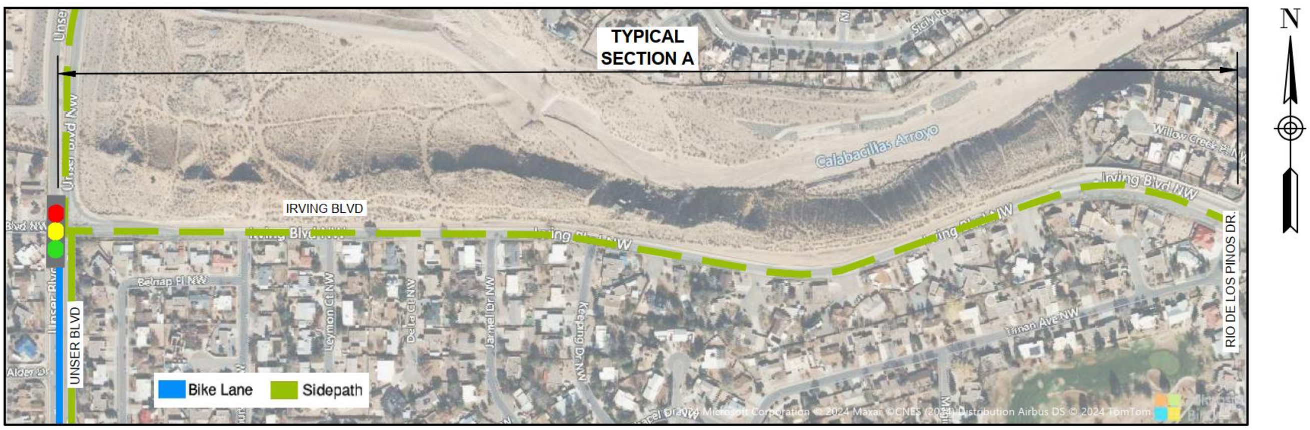
Typical Section	Section A
Termini / Length (miles)	0.8
Existing Facility	None
Speed Limit (mph)	30
Traffic Volumes (AWDT)	10,000
LTS (Level of Traffic Stress)	4

Proposed Facility

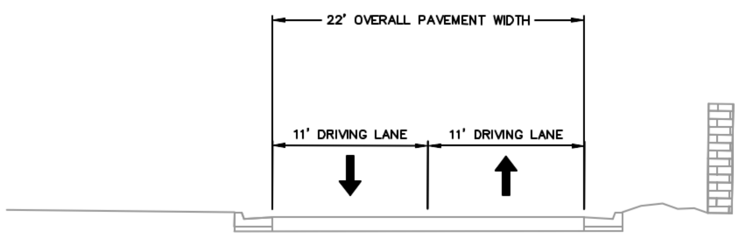
Facility Type	Side Path
Timeframe	Long Term
Cost Estimate	$1.2M+
Strategies	Improve Available Back- of-Curb
Priority Level	**Medium**

Notes and Considerations:

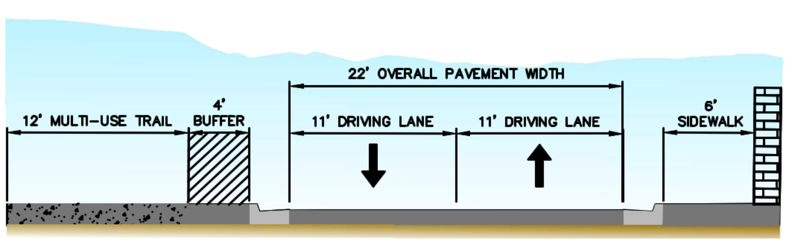
- **Functional Classification:** Principal Arterial
- **Project Benefits:** High trip potential; Major improvement to bicyclist level of comfort
- **Vulnerability Index Score:** Medium
- **Destinations:** N/A
- **Council Districts:** 5



Section A



IRVING BLVD. – UNSER TO RIO DE LOS PINOS DR.
EXISTING TYPICAL SECTION A



IRVING BLVD. – UNSER TO RIO DE LOS PINOS DR.
PROPOSED TYPICAL SECTION A

Ladera Drive from Ouray Rd. to Arroyo Vista Blvd.

Project Characteristics

Existing Conditions

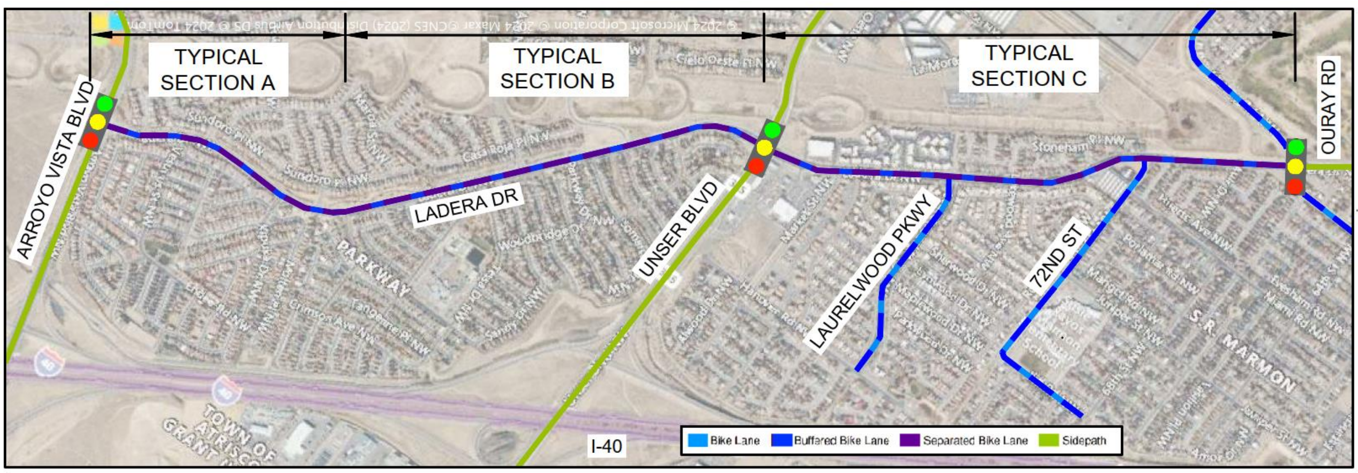
Typical Section	Section A	Section B	Section C
Termini / Length (miles)	1.1	0.9	0.5
Existing Facility	Buffered Bike Lane	Buffered Bike Lane	Bike Lane
Speed Limit (mph)	40	35	35
Traffic Volumes (AWDT)	17,000	16,000	7,000
LTS (Level of Traffic Stress)	**4**	**3**	**2**

Proposed Facility

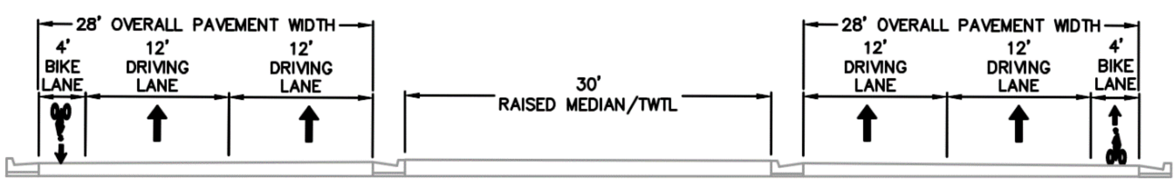
Facility Type	Separated Bike Lanes
Timeframe	Long Term
Cost Estimate	\$2.6M - \$10.7M
Strategies	Restriping – Road Diet, Median Modifications
Priority Level	**High**

Notes and Considerations:

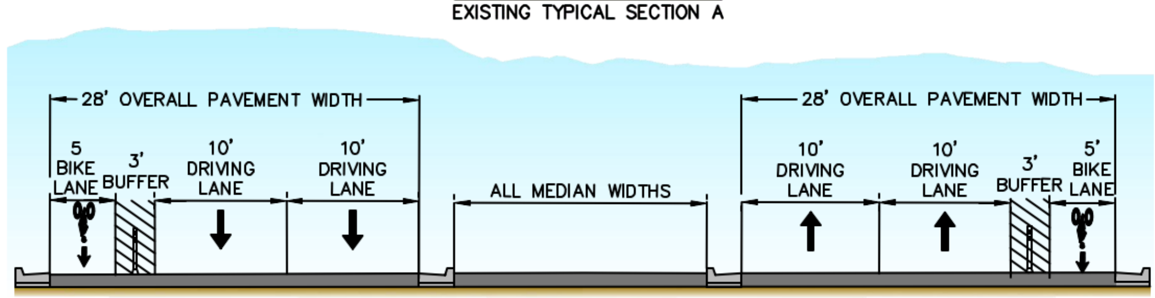
- **Functional Classification:** Minor Arterial
- **Project Benefits:** Network spine, major improvement to bicyclist level of comfort, high level of public support
- **Vulnerability Index Score:** Medium
- **Destinations:** Unser/Ladera Activity Center, Regional Sports Complex
- **Council Districts:** 1
- **Other:** Road Diet Candidate



Section A



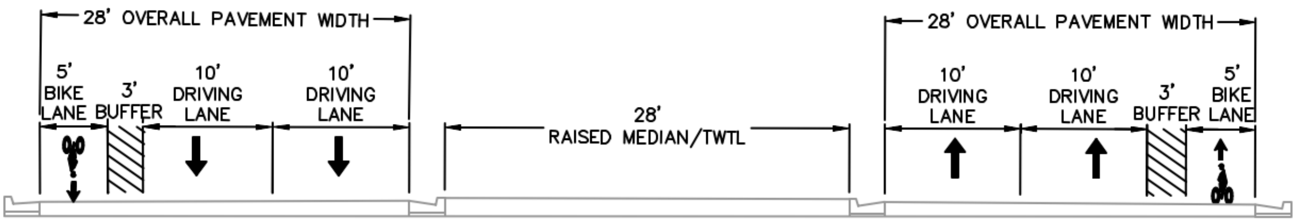
LADERA DR. – GAVIN RD. TO ARROYO VISTA BLVD.
EXISTING TYPICAL SECTION A



LADERA DR. – OURAY RD. TO ARROYO VISTA BLVD.
PROPOSED TYPICAL SECTION A, B, C

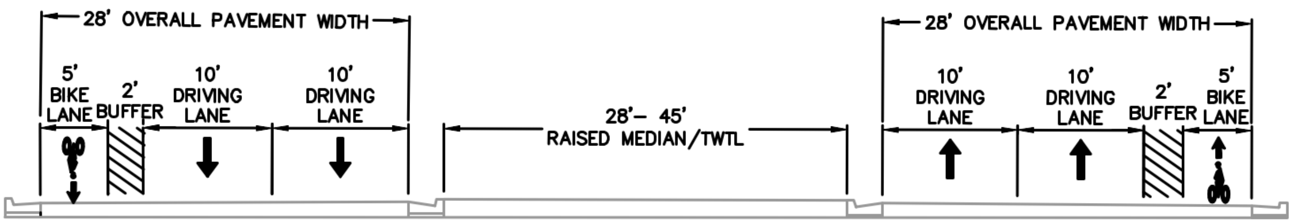
Ladera Drive from Ouray Rd. to Arroyo Vista Blvd.

Sections B & C



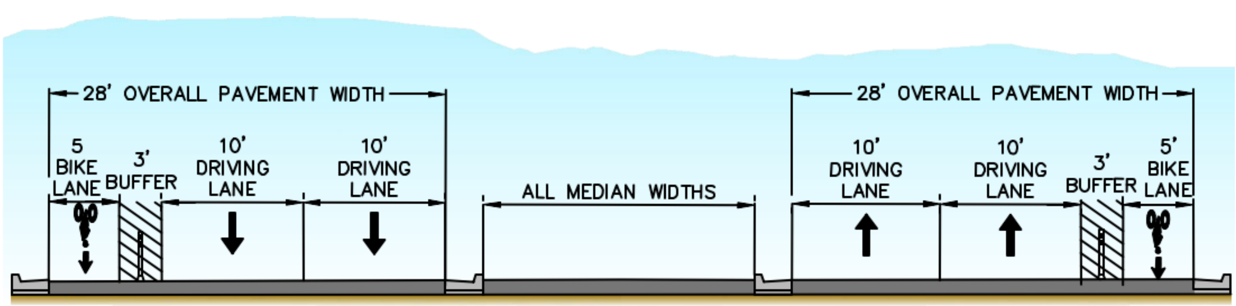
LADERA DR. – UNSER BLVD. TO GAVIN RD.

EXISTING TYPICAL SECTION B



LADERA DR. – OURAY RD. TO 72ND ST.

EXISTING TYPICAL SECTION C



LADERA DR. – OURAY RD. TO ARROYO VISTA BLVD.

PROPOSED TYPICAL SECTION A, B, C

2024 CITY OF ALBUQUERQUE BIKEWAY AND TRAIL FACILITIES PLAN

APPENDIX H: ADDITIONAL CONSIDERATIONS FOR MULTI-USE TRAILS (FROM 2015 PLAN)

BIKEWAY & TRAIL FACILITIES PLAN
CITY OF ALBUQUERQUE

ONE ALBUQUERQUE municipal development

ONE ALBUQUERQUE parks & recreation

Overview and Note on Contents

The material in this appendix is taken directly from the 2015 Bikeways and Trails Facilities Plan and is meant to preserve content that was not updated as part of the 2024 Plan.

Interagency Coordination Processes

Shared Use of Irrigation Ditches

Any trail proposal for an MRGCD-owned or managed facility has to be reviewed and approved by usefor the adequate right of way, current management and maintenance of that facility, landownership, and the ability for another local entity to manage and maintain the trail through a license agreement. The size of the facility and available right-of-way are strong determinants in the feasibility of a multi-use trail that can be separated from the MRGCD's required maintenance access. Other than at road crossings, rails and fences are generally not installed along ditch banks as they prevent or impede our access and maintenance.

Equestrians use unimproved maintenance roads and trails on our facilities and generally keep their distance from bicycles and other fast-moving users. Our ditches and drains are used by and very important to equestrians in the valley and we try to provide or maintain access wherever feasible/desirable.

Wherever possible, multi-use trails should meet ADA standards for design and access. It's helpful to make them higher in elevation than the maintenance road for drainage so less material migrates onto the trail. The opinion about bollards is that they can cause some hazards on a trail but we are increasingly using them rather than the horse log step-overs to provide better access for those who have more mobility issues, bicycles, strollers, etc. while excluding vehicles and four and three-wheelers (ATVs).

Albuquerque has significant opportunities to develop trails along drainage ditches.

The trail corridors proposed for the Corrales Main Canal and Alameda Drain will need more study for feasibility. Some funding has been allocated for the Alameda Drain from Matthew Ave. north to Alameda Blvd. and reconnaissance and coordination efforts have commenced.

It would be good for the MRGCD, City, and County to develop maintenance and management standards and signage/information more specific to trails on MRGCD facilities as the concerns, management, opportunities and purposes are unique.

Shared Use of Utility Corridors

PNM transmission rights-of-way or easements are identified as the location for several proposed bike routes or trails. As the easement holder, PNM has the legal right to use and maintain the easement including ensuring vehicular access to the lines, maintaining adequate clearances, and other safety measures. If the bike lanes and/or trails become guest uses at these locations, an encroachment agreement will be necessary. The City also needs to directly contact the underlying property owner. In addition, it will be the City of Albuquerque's responsibility to ensure that PNM's uses of the easement are not affected or interfered with in any way by the inclusion of the bike lane or trail. Four proposed bike lane and/or trail locations are identified within PNM's 115kV transmission rights-of-way and easements. The four locations are:

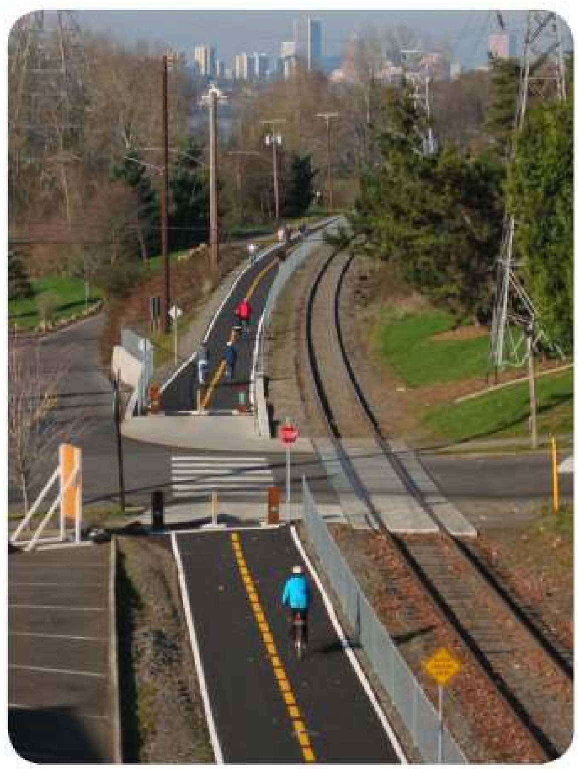
- Along the PNM CE 115kV transmission line from Irving Blvd. NW heading north toward McMahon Blvd. NW
- Along the PNM BW 115kV transmission line north of Interstate 40 east of Atrisco Vista Blvd NW
- Along the PNM SE 115kV transmission line/ID 46kV transmission line corridor in Tijeras Arroyo
- Along the PNM RE/ER 115kV transmission line corridor on San Antonio Drive NE just west of Tramway Blvd NE

Based on PNM's experience constructing and maintaining facilities at these locations, the terrain is difficult and is not conducive for bike trails. Coordination with PNM will be necessary as trails are developed at any of these four locations.

PNM does not support the development of trails within PNM existing 345kV transmission line rights-of- way or easements. The higher voltage lines can potentially result in electrical nuisance shocks. Nuisance shocks may occur when a person touches an ungrounded metal object, in this case, such as bicycle handlebars. A nuisance shock does not harm the recipient but can be startling. PNM will not grant an encroachment easement in 345kV transmission corridors.

New Mexico Department of Transportation (NMDOT)

Any trail, lane, and route proposal for a NMDOT roadway facility will require review and approval by NMDOT for the following, but not limited to, adequate right-of-way, accessibility, connectivity, maintenance of the facility and need for license agreement. As we had discussed, bringing some of the other agency coordination text referring to ADA compliance, design, feasibility, etc. to the introductory section would cover these items for all affected agencies.



The Springwater Corridor in Portland, Oregon runs next to an active rail line.

Trail Design

Background Information

In 1981, the American Association of State Highway and Transportation Officials (AASHTO) first attempted to create a comprehensive set of guidelines for accommodating bicyclists in various riding environments. Although it was not intended to set forth strict standards, the AASHTO Guide for the Development of Bicycle Facilities (revised in 1991, 1999, and the current 2012 fourth edition) has been the predominant source of information in this area although no enforceable Federal standards exist.

While most states have deferred to AASHTO's guidelines as de-facto design standards since 1981, some state and local governments are leading the way in the production of their own standards and guidelines in order to address local issues and meet the current needs of pedestrians, bicyclists, equestrians, and other user groups. In 1992, the U.S. Department of Transportation and the Federal Highway Administration conducted a national bicycling and walking survey entitled Case Study No. 24, Current Planning Guidelines and Design Standards Being Used by State and Local Agencies for Bicycle and Pedestrian Facilities. That study was followed in 1999 by a similar, but broader effort entitled Designing Sidewalks and Trails, Part 1: Review of Existing Guidelines and Practices. By compiling and listing a number of examples of state and local guidelines, these documents identified models to which other communities could refer when developing their own bicycle and pedestrian plans, as guides to the state of the practice. (Part 2 of the 1999 FHWA study summarizes the earlier findings in a "best practices" guide, described more fully below.)

Until recently, bicycle-related protection measures (such as appropriate widths, turning radii, sight distances, and avoiding conflicts with vehicular traffic) have been the dominant trail design concerns. While these remain vital concerns, the presence of accepted standards such as the AASHTO guidelines have led to a shift in focus toward providing more "inclusive" and accessible outdoor recreational settings, especially in the urban environment. Rather than focusing solely on the cyclist and/or pedestrian, our collective awareness has been broadened to include all types of users, including children, parents with strollers, equestrians, people in wheelchairs, vision impairments, and those with other impairments or physical challenges. It is relatively easy to design for one or two user groups; however, it is extremely challenging to design multi-use trails that will be perfect for every user group.

ADA Guidelines

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 multi-use trails (with the exception of facilities built on Federal Land), the application of strict ADA standards often proves impractical and currently lacks any Federal ruling or legal requirement. There is practical design and smart practices that can and should be followed when building multi-use trail and trailhead facilities. These will be followed until the Federal government adopts a ruling for requirements that shall be followed. The following is some history on how practical design and smart practice came to be.

In 1993, the nonprofit organization Project Play and Learning in Adaptable Environments, Inc., (PLAE), in partnership with the USDA Forest Service and a number of other agencies and organizations, took the initiative to develop guidelines and published Universal Access to Outdoor Recreation: A Design Guide. By acknowledging a desire for various levels of recreational challenge and related facility development in settings ranging from highly-developed urban to primitive, natural landscapes, this book pioneered the way for designers to address the needs of people of all abilities in outdoor recreation and provides a universal approach to outdoor design in the spirit of ADA regulations. However, as comprehensive as it is, the PLAE design guide does not yet enjoy the support of law, such as ADAAG.

To address this, the U.S. Architectural and Transportation Barriers Compliance Board (a.k.a. the "Access Board" – the agency which administers and develops accessibility design guidelines) formed the Recreation Access Advisory Committee (RAAC) to study the issues and develop federal standards for outdoor recreational facilities. Based in part on the research and recommendations of the PLAE partnership in Universal Access to Outdoor Recreation, the RAAC published draft Recommendations for Accessibility Guidelines: Recreational Facilities and Outdoor Developed Areas in 1994 but could not reach consensus on many issues. Public comment also demonstrated a lack of consensus, especially regarding trails accessibility. In 1997 the Access Board created the Outdoor Developed Areas Regulatory Negotiation Committee (RNC), with representation by people with disabilities, state, federal and local land management agencies, trails groups, designers, and owners/operators of various “outdoor developed areas.” After careful examination of the previous work done by RAAC, and the solicitation of input from the public, a final report was submitted by the RNC to the Access Board in September of 2013 (available at http://www.access-board.gov/guidelines-and-standards/recreation-facilities/outdoor- developed-areas/final-guidelines-for-outdoor-developed-areas). The report gives recommendations on accessibility issues related to outdoor recreation access routes, beach access, picnic elements, and camping facilities.

The 2000 Census shows that 20% or approximately 54 million U.S. Citizens over the age of 15 have a disability. Also, 17 million Americans have serious hearing disabilities (2000 Census).There are three times more people with severe vision impairments than there are wheelchair users and information is a barrier for people with vision disabilities.

The newest and most comprehensive guidelines that can and should be used when designing multi-use trails is called Public Rights of Way Accessibility Guidelines (PROWAG). These guidelines were originally intended to supplement the ADAAG to provide standards specific to public rights-of-way. Applicable to new construction and alterations of existing facilities within the public right-of-way excluding shared-use paths or multi-use trails. As an enforceable standard, PROWAG provides the best guidelines for multi-use trail design and should be followed until there is specific guidelines enforceable for multi-use trails.

When designing multi-use trails for ADA, the two main barriers of people with disabilities should be remembered. Movement and information are two major barriers for people with disabilities. People with mobility disabilities may have limited agility, speed, endurance and may benefit from designers implementing firm level surfaces, curb ramps where needed, and limited cross slopes. People with vision impairments from complete blindness to partial vision tend to benefit from sounds, textures, and contrasts such as audible/vibrotactile crossing information, tactile indication of boundary between pedestrian and vehicular roadways, clearly defined pathways, and high color contrasts. People with hearing disabilities rely on vision and benefit from good sight lines for assessing street crossing conditions, information in the visual, and information in a visual or vibrotactile format. Persons with cognitive disabilities have different processing and decision-making skills and benefit from straightforward, and direct environments, uncomplicated street crossings, and easy to understand symbols. Therefore, the design of multi-use trails should try and accommodate a broad spectrum of users and enable users to travel independently as much as possible.

FHWA Best Practices Guidelines

In 2001 the FHWA issued the latest in its series of technical guides intended to help designers at the state level more easily integrate bicycle and pedestrian projects into mainstream transportation projects. Designing Sidewalks and Trails for Access, Part 2: Best Practices Design Guide followed their earlier compendium of existing guidelines and practices (described above). According to the transmittal letter which accompanied the initial distribution of the Best Practices Design Guide, “its aim was to develop tools to help the FHWA, and State and local governments meet their responsibilities under Title II [of the Americans with Disabilities Act of 1990] and Section 504 [of the Rehabilitation Act of 1973], while reducing their vulnerability to complaints filed under the ADA. The guide reflects recognized “best practices” in effect at the time of publication, and also incorporates recommendations from the Access Board’s 1999 final report from the Regulatory Negotiation Committee on Accessibility Guidelines for Outdoor Developed Area (described above).

State and Local Efforts

The City of Albuquerque’s efforts to address trail implementation date back to 1973, when an advisory committee began research for The Bikeway Study, which was published the following year. That document marked Albuquerque's first bicycle network plan, which evolved into the Long Range Bikeway System maps currently published by the Mid-Region Council of Governments (MRCOG). In the early '80s, the Albuquerque/Bernalillo County Comprehensive Plan reaffirmed the City's dedication to implementing a multi-purpose trails network. Other local documents created in the mid-1980s to the early '90s began to address trail design issues specific to Albuquerque. The 1986 Facility Plan for Arroyos, for example, promotes the use of the city's numerous drainage features for urban recreational purposes. Several Arroyo Corridor Plans further carry out the multi-use trail goals stated in the Facility Plan. The Bear Canyon Arroyo Corridor Plan, San Antonio Arroyo Corridor Plan, Amole Arroyo Corridor Plan, and Pajarito Arroyo Corridor Plan have been adopted by the City and contain varying levels of design guidelines for implementing specific types of trails. Several other corridors, including the City's two largest arroyos, the Calabacillas and Tijeras, have been the subjects of similar studies, which have not yet been adopted.

In 1989, the City Council adopted Bill No. 0-133 establishing a Greater Albuquerque Recreational Trails Committee (GARTC), which serves as the off-road counterpart to the Greater Albuquerque Bicycling Advisory Committee (GABAC) now GAATC, providing a voice for the trail-user and cycling communities in City government. In conjunction with the City's Planning Department, GARTC began research for a "Master Recreational Trails Plan" shortly after its formation. This process resulted in the 1993 Trails & Bikeways Facility Plan, which represents the city's most comprehensive trails planning document to date (plan maps updated in 1996).

In 1996, the New Mexico State Highway and Transportation Department (NMSHTD – now NMDOT) produced the first state-wide New Mexico Bicycle-Pedestrian-Equestrian (BPE) Transportation Plan. Developed partially in fulfillment of federal mandates under the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), the plan provides general guidance in the development of bikeways, walkways, and equestrian trails. Three appendices include some design standards, applicable state laws, and trail-related signing and striping excerpts from the Manual on Uniform Traffic Control Devices (MUTCD). The recommendations in the plan are "loosely categorized" according to an emerging national convention called the "4-E" approach, which emphasizes the four functional areas of engineering, education, enforcement, and encouragement in promoting and implementing successful BPE programs. The state plan was revised in 1999, 2001, and 2003. Currently, the NMDOT has begun a comprehensive and collaborative process to develop a 2040 Statewide Long-Range Multimodal Transportation Plan (SLRP). The plan will provide a vision for how New Mexico's transportation system can support the well-being of our residents and visitors now and in the future.

Current Directions

The various local documents concerning Albuquerque trails have provided the first stages in trail design guidance based on the needs of individual user groups. However, they fall short in providing adequate guidelines for implementing a multi-purpose network that will accommodate all potential users. Many were oriented primarily toward bicycles, while those that addressed multiple users tended to focus on separate single-use facilities.

In the greater Albuquerque area, as is true throughout the nation, finding solutions to the wants and needs of multiple user groups is increasingly challenging. It is simply not feasible in most cases to provide separate facilities for each of the various use types. Acquiring sufficient right-of-way to provide adequate widths and necessary separations for multiple, parallel trails is cost-prohibitive, at best, and is often not even possible within developed portions of the city. The City of Albuquerque has adopted the strategy of accommodating multiple user groups with the design and construction of multi-use trails.

Designing for Multiple-Use

The concept of combining user groups on single trail facilities is not without its difficulties. Multi-purpose trail design is faced with the challenge of allowing for the freedom of choice essential to a satisfactory outdoor recreation experience, on one hand, while at the same time minimizing conflicts between different trail users. In order for multi-use trails to function effectively, the various user groups need to be cognizant and respectful of the needs of other users. Public education is an important element in reducing conflicts often associated with multi-use trails.

Several studies have been undertaken at various levels to try to understand the underlying causes of trail conflicts. In 1994 the Federal Highway Administration and the National Recreational Trails Advisory Committee sought to summarize this information and "establish a baseline of the current state of knowledge and practice and to serve as a guide for trail managers and researchers." Their resulting report, Conflict on Multiple-Use Trails, offers a useful summary of possible management strategies that adhere to the "minimum tool rule," which advocates using the least intrusive measures possible. Some of their suggestions include:

- Build trails wide enough to accommodate expected levels of use
- Provide adequate trail mileage and a variety of trail opportunities
- Provide appropriate signage and/or educational material
- Design in adequate sight distances and provide pullout areas
- Paint a yellow center stripe and two white side stripes on all multi-purpose trails within the City of Albuquerque Right of Way.
- Have an effective maintenance program appropriate to trail type and use.

Trail Difficulty Rating System

In most instances, individuals intentionally choose a specific environmental setting when exploring the outdoors. These choices are made with distinct expectations for recreational experiences, especially with regard to the level of accessibility of a given area or facility. Because of the close relationship between the expectation and the resultant outdoor experience, successful design and management strategies should include an understanding of this cause and effect. A key to this success lies in the provision of adequate information to enable trail users to make informed decisions about a given facility.

Trail users can more easily gauge the level of effort required for a given segment of trail through the implementation of a difficulty rating system. Although no national standard format has yet been established, five key attributes have emerged for assessing the navigability of a trail facility. Referred to as the Universal Trail Assessment Process (UTAP), this system quantifies each of the following elements:

- Grade/Running Slope/Inclination (average and maximum)
- Cross Slope (average and maximum)
- Trail Width (average and minimum)
- Surface Type/Condition (firmness)
- Obstacles (type and magnitude)

Both PLAE and RAAC recommend the additional measure of summarizing the above information into a rating hierarchy similar to ski run designations – Easy, Moderate, Difficult, and Most Difficult, with accompanying "Universal Design" symbols which graphically reinforce the text designation (discussed further under "Signage" later in this report). However, it should be emphasized that without the UTAP attributes, the simple designation of “Easy” or “Moderate” becomes very subjective and may not provide adequate information to some trail users to assess their ability to negotiate a particular facility.

Of course, other factors also influence ease of use, including overall length of a given trail facility, as well as the relative distances between specific facilities, use areas, and access points. Awareness of those factors is key to determining a trail user’s ability to complete a trail segment, given their own abilities or the amount of time available. And while more difficult to quantify in terms of the above system, these factors can be conveyed via trail maps and/or mileage signs.

Local Applicability

Trail design and construction have increased dramatically in Albuquerque since 1991 and the passage of the first federal Intermodal Surface Transportation Enhancement Act (ISTEA), which set aside unprecedented levels of funding for alternative transportation facilities, including trails. And, given the passage of its successor bills, TEA-21 and the current SAFETEA-LU (2005-2009), this trend is not likely to end soon. In short, trail planners are not waiting for a uniform federal standard for trail development.

However, in the absence of any comprehensive local standards, there is a great deal of variability in the configuration of those facilities. Until the Access Board issues its “final rule” and codifies it as law, an interim standard is needed to guide trail development in the greater Albuquerque area.

Since the underlying goal is to make Albuquerque’s trails accessible to as many people as possible, regardless of ability, the trail community and the larger transportation system as a whole would best be served by striving for the highest level of accessibility that can reasonably be attained within the realms of the underlying natural landscape and physical geography. Therefore, to the extent practicable, paved trails within the City’s jurisdiction should be in substantial compliance with the current PROWAG as stated in the sections above. At such time as new federal regulations for shared-use paths are ruled and enacted, the ADAAG and PROWAG standards should still take precedence. Any trails within Federally owned and managed lands are subject to the Access Board’s ruling for outdoor developed areas.

General Trail Information

While not intending to stifle creativity or variation among projects, this document is intended to provide a basic set of design guidelines which sets forth minimum acceptable parameters for various types of trail facilities constructed within the greater Albuquerque area. The guidelines are organized into a number of categories, each of which may have up to three levels of information: **Design Standards,** which represent minimum required design criteria; **Design Considerations & Guidelines** provide background information and issues that may influence facility design; and **Design Guidance** offers suggested criteria or other information which may guide the design process.

The AASHTO Guide for the Development of Bicycle Facilities (2012 edition) has an extensive section of design guidelines for Shared Use Paths, covering the following categories:

- Separation between Shared Use Paths and Roadways
- Width and Clearance
- Design Speed
- Horizontal Alignment

- Grade
- Sight Distance
- Path-Roadway Intersections
- Signing and Marking
- Other issues, such as Lighting; Restriction of Motor Vehicles; Railroad Crossings; etc.

Rather than duplicating that information here, this document will instead focus on issues and criteria specific to Albuquerque's multi-use trail system. The remainder of the material from the AASHTO Guide is incorporated herein by reference. In the event of a conflict with this or future versions of the AASHTO Guide, the more stringent criteria will apply.

Shared-use paths (also referred to as "trails" and "multi-use paths") are often viewed as recreational facilities, but they are also important corridors for utilitarian trips.

The Federal Highway Administration's Manual on Uniform Traffic Control Devices (MUTCD), Part 9: Traffic Control for Bicycles is the accepted reference for most matters relating to signage, signalization, and striping of bicycle trails. The MUTCD offers three levels of information: Standards, which should be followed; Guidance, which is recommended, but not required; and Options, which are permitted, and may or may not be followed, at the discretion of the local authority. The guidelines presented in the MUTCD should be followed in the design of Albuquerque's multi-use trails.

Multi-use trails, shared-use paths, or simply "trails," provide a desirable facility for cyclists, pedestrians, equestrians, and other trail users. They allow for travel and recreational use that is separated from traffic. Multi-use trails should generally provide new travel opportunities while accommodating all types of trail users.

The Albuquerque Development Process Manual defines a multi-use trail as:

> *Paved trails, also called multi-use trails or shared-use paths, are facilities that are dedicated for pedestrians and cyclists and are designed for use by people of all abilities for transportation and recreational purposes. 2. Trails are physically separated from vehicular traffic and are either within the roadway right-of-way or within an easement.*

Sidepaths are physically separated from motor vehicle traffic by an open space or barrier and are either within the public street right-of-way or within an independent (private) right-of-way."

Trail Types

Albuquerque's multi-use trails can be grouped into two broad categories: paved and unpaved multi-use trails. **Paved trails** are intended to accommodate all types of non-motorized users that include but not limited to bicycles (and other types of cycles), in-line skates and ski trainers, all types of skateboards, strollers, wheelchairs, equestrians, and many types of pedestrians preferring a hard, all-weather surface. **Unpaved trails** typically accommodate but are not limited to (unless posted and signed) equestrians, mountain bikers, hikers, and pedestrians preferring a soft walking surface (stabilized unpaved trails may also be suitable for wheelchair users depending on their ability). In any given corridor, these two basic trail types may be categorized in one of three ways:

- **Single Track, Limited Use** – although this runs counter to the concept of "multiple-use," there may be instances where only single use types are allowed or, more frequently, certain uses may be prohibited in order to minimize potential conflicts or impacts. This situation would most likely occur in specific management areas such as Wilderness areas or designated Open Space facilities, such as the Pino Trail at Elena Gallegos. Site specific signage will define the appropriate usage of trails in Open Space. The Open Space Division is responsible for defining appropriate uses based on topography, environmental conditions, and to avoid potential user conflicts.
- **Single Track, Multiple Use** – either of the trail types (paved or unpaved) within a corridor by itself, but open to any non-motorized users. This category comprises the vast majority of Albuquerque trails.
- **Multiple Track, Multiple Use** – in some cases, it may be possible and appropriate to provide parallel hard and soft-surfaced trails within the same corridor. Some separation between the two types is desirable.

Trail Location

As noted in the AASHTO Guide, multi-use trails ("shared use paths") should serve as an off-road transportation system which augments a community's roadway network. "Shared-use paths should not be used to preclude on-road bicycle facilities, but rather to supplement a system of on-road bike lanes, wide outside lanes, paved shoulders, and bike routes" [AASHTO, 1999, p.33]. This is because even though off-street facilities may parallel a roadway, the presence of other, usually slower, users may make the trail a less efficient (and in fact more dangerous) route for commuters or other "serious" cyclists.

Multi-use trails may be located in separate, designated corridors (purchased, donated, negotiated, or dedicated during the development process), or shared rights-of-way, utilizing corridors along arroyos, power lines, and even roadways (assuming minimal driveway and other intersection crossings). All trails built within the City of Albuquerque right-of-way should be built to the guidelines proposed in this design manual whether it is a private developer building out a section of road or an entire subdivision. If a developer constructs a trail and it is intended to be maintained by a Homeowner's Association, Neighborhood Association, or any means other than a public governmental agency such as the City of Albuquerque, the trail shall be built to the standards of this design manual in consultation with the Parks and Recreation Department's Trails Planner or other City official. If a trail is to be built within a private right-of-way, it is not required to be built to City standards or specifications however, it is highly recommended. Trails built to City standards ensure longevity and high quality resulting in less maintenance costs to the entity maintaining the trail. Trails built within a private right-of-way shall never be maintained by the City of Albuquerque or other governmental or quasi-governmental entity unless there is a trail maintenance agreement or other legal agreement that is signed and accepted by the City or another agency.

The City of Albuquerque may require a *"trail maintenance agreement"* when a trail is built within the City right-of-way to ensure there is sufficient documentation of who will retain maintenance responsibility after the project is constructed. The City requires developers to help build out trail sections when they go through the development process when the trail is a proposed link on the Bikeways and Trails Facility Plan map. All trails within the public right-of-way are open to use by the public. Trails built within an independent or private right-of-way do not have to be open to the public but can be.

Design Considerations & Guidelines

The maps that are associated with the Bikeways and Trails Facility Plan show locations of many proposed facilities as well as existing facilities. The updated map is based on the Mid-Region Council of Governments

(MRCOG) Long Range Bikeway System map, as well as many Sector and Facility Plans prepared by or for the City of Albuquerque. Specific locations should be coordinated with the City's Trails Planner when developments are going through the design, planning, and construction process.

Trail Design Criteria

Trail design criteria are outlined below, however, design must follow the DPM.

Trail Cross Section for Typical Paved Multi-use Trail

Design Standards

Width (same as the DPM standards)

- 10 feet is the minimum allowed for a two-way shared-use path (trails less than 10 feet wide need an exception by the City and may need a separate legal "trailmaintenance agreement").
- 12 feet or 14 feet or greater is recommended for high-use areas and regional corridors, or in heavy-use situations with high concentrations of multiple users, such as joggers, bicyclists, skaters, equestrians, and pedestrians.

Lateral Clearance

- A 2-foot or greater compacted shoulder on both sides.
- 3' or more from walls, fences, posts, signs, and other structures.

Overhead Clearance

- Clearance to overhead obstructions should be a minimum of 10 feet.

Design Speed

- The maximum design speed for bike paths is 18-20 mph. Speed bumps or other surface irregularities should never be used to slow bicycles.

Grade

- The recommended running grade is 5% or less. Steeper grades can be tolerated for shorter distances. The cross slope shall be no greater than 2%. It is recommended cross slope is designed at 1.5%.

Design Considerations & Guidelines

Trails should be constructed according to this design manual. Further guidance can be found in the books and publications listed in the beginning of the manual. Constructing trails may have limitations in regards to PROWAG or any ADA document issued in the future for. Prohibitive impacts include harm to significant cultural or natural resources, a significant change in the intended purpose of thetrail, requirements of construction methods that are against federal, state or local regulations or presence of terrain characteristics that prevent compliance.

Surfacing

According to the ADA, an accessible surface must be "stable, firm, and slip-resistant" [28 CFR Part 36, Appendix A, Section 4.5.1; 1994, p. 513]. Trail or path surfaces which meet these criteria can accommodate bicyclists, in-line skaters, individuals using wheelchairs, and other trail users who need or prefer the security of a firm surface. Any pavement design should be prepared or approved by a geotechnical engineer, based on site-specific soil conditions. Nonetheless, some general design parameters apply specifically to trail construction, as outlined below.

Concrete

In general, concrete trail surfacing should follow The City's Standard Specifications for sidewalk construction. The major difference between a concrete trail and a sidewalk is that a sidewalk is typically not wider than 6 feet. The minimum trail width is 10 feet and 8 feet with a written exception or legal maintenance agreement with the City. Also, trails have separation between back of curb and sidewalks do not. Thickness typically should typically be four inches (4") minimum, but should be thickened to at least six inches where frequent vehicular traffic is expected (such as at curb access ramps and maintenance vehicle crossings). Addition of color may enhance the visual character of a concrete trail surface, but texturing should be kept to a minimum. Control joints should be saw cut, rather than tooled, in order to maintain a smoother, more even rolling surface.

Asphalt

Asphalt is much less expensive to install than concrete and is used more often than concrete for trail applications. Asphalt is aggregate mixed with oil. It is actually meant to be driven over as the movement of a vehicle over the asphalt literally "kneads" the asphalt keeping it smooth. Therefore, it is recommended and shall be required to use a smaller aggregate for trail applications due to the lack of vehicles "kneading" the asphalt. Parks and Recreation requires "Type C" asphalt which has been typically used since 2010. In lieu of Type C, a super pave IV (SP IV) can also be used however "Type C" is recommended for paved trails. The aggregate is small which helps to keep the trail surface smooth for cyclists and pedestrians. Another concern with asphalt trail surfaces in New Mexico is oxidation (loss of asphalt binder) due to sun exposure, and cracking over time. Both of these problems can be minimized to a small extent through modification of the pavement mix to increase the amount of asphalt binder in relation to the aggregate, as compared to a standard roadway mix. Care should be taken, though, not to increase the binder content to the point that the surface becomes difficult to finish.

Surface thickness also affects the durability of asphalt. Since the design of asphalt surfacing is generally based upon vehicular loads, two inches is usually considered more than adequate to support bicycle and foot traffic. However, since bicycles are not heavy enough to provide the "kneading action" of automobile traffic (which helps hold asphalt roadways together), surface integrity relies solely on the tensile strength of the asphalt binder. Current thinking generally holds that increasing the thickness of the asphalt surface will in turn increase durability and help reduce cracking. Therefore, although the typical trail section in the City's Standard Specifications for Public Works Construction shows 2" of asphalt over 8" of compacted subgrade, the recommended design thickness for trail surfacing when maintenance vehicles will be utilizing the trail consists of 3" of asphalt over 12" of compacted subgrade. In areas with soft (sandy or high clay content) subgrade material, the addition of 4" of engineered base course is recommended. Final determination of subgrade and base course treatment should be made by a qualified civil or geotechnical engineer and it is recommended that 12" of subgrade preparation at 95% compaction rather than 8" of subgrade be used on all new and rehabilitated paved trails. Unless otherwise determined by a civil or geotechnical engineer, aggregate base course should have an "R- Value" >/=76 and subgrade should have an "R-Value" >/=50.

Figure 1: Typical Paved Multi-Use Trail Cross Section

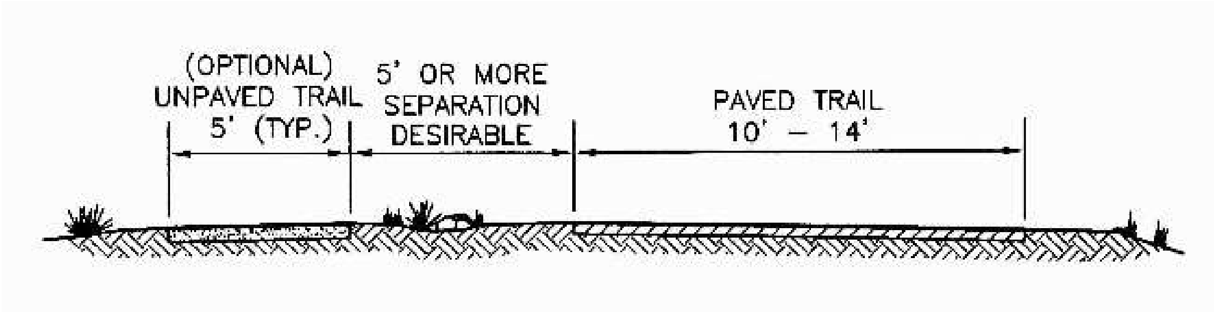
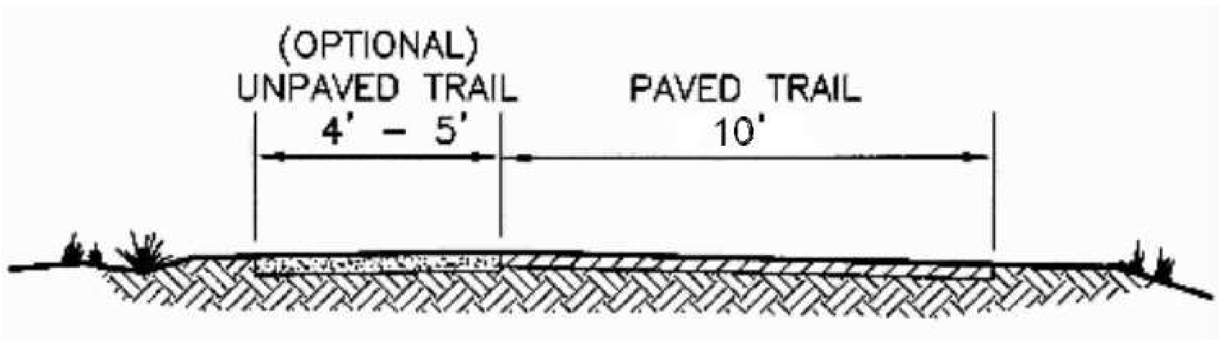


Figure 2: Typical Paved Multi-Use Trail Cross Section (no separation)



Unpaved Trails

Unpaved (non-stabilized) trails within the urban/rural area are sometimes provided as an alternative to parallel paved facilities, primarily for use by equestrians or joggers. However, Major Public Open Space has over a hundred miles of unpaved natural surface multi-use trails throughout all quadrants of the City and in Bernalillo and Sandoval County. In many cases, the existing native soil is suitable for surfacing such trails, especially in Major Public Open Space (unless a stabilized crusher fine ADA type trail is desired). These could include 3/8" or smaller angular gravel, crusher fines, decomposed granite, or other suitable soils (e.g. sandy loams) which remain firm underfoot in both wet and dry conditions. A 3”- 4” layer of these imported materials should be adequate in most instances if subgrade soils provide adequate support (greater depth may be required over loose sand or silt). Unpaved trails should be separated from paved trails within the same corridor as far as possible, given right-of-way constraints.

Unpaved trails are typically classified as “singletrack” trails. These are primarily found in Major Public Open Space areas. However, The City Open Space Division also maintains and manages a few paved trails as well. Actually, when looking at the trail system as a network City Major Public Open Space maintains a large majority of trails within the regional Albuquerque area and beyond. Most of these “MPOS” trails differ in design and construction from the paved trail network with exception of the MPOS paved trails but they are just as important and need to be addressed in this design manual as they are considered part of the overall trail network. Some basic MPOS trail designs are listed below for MPOS trails. For more detailed information on MPOS trail standards, trailhead design, signage, etc. please refer to the draft MPOS trail standards. These can found by contacting the Open Space Division directly. Major Public Open Space trails’ typical cross sections differ from the paved trail cross sections as seen in the figures above. Each MPOS property is different and trails are designed to accommodate specific environmental terrains and conditions. However, the natural surface trails designed and constructed by the Open Space Division typically follow the

International Mountain Bicycling Association publication entitled “Trail Solutions; IMBA’s Guide to Building Sweet Singletrack” 2004 edition. The figures below are typical examples used by the Open Space Division for design and construction of MPOS trails. Unless noted as either Major Public Open Space, MPOS, or Open Space in this design manual, all other material is referring to trails that are not MPOS with the exceptions of any paved and maintained by MPOS trail sections such as the northern section of the Paseo del Bosque Trail.

Figure 3: Typical MPOS Singletrack Full Bench Trail

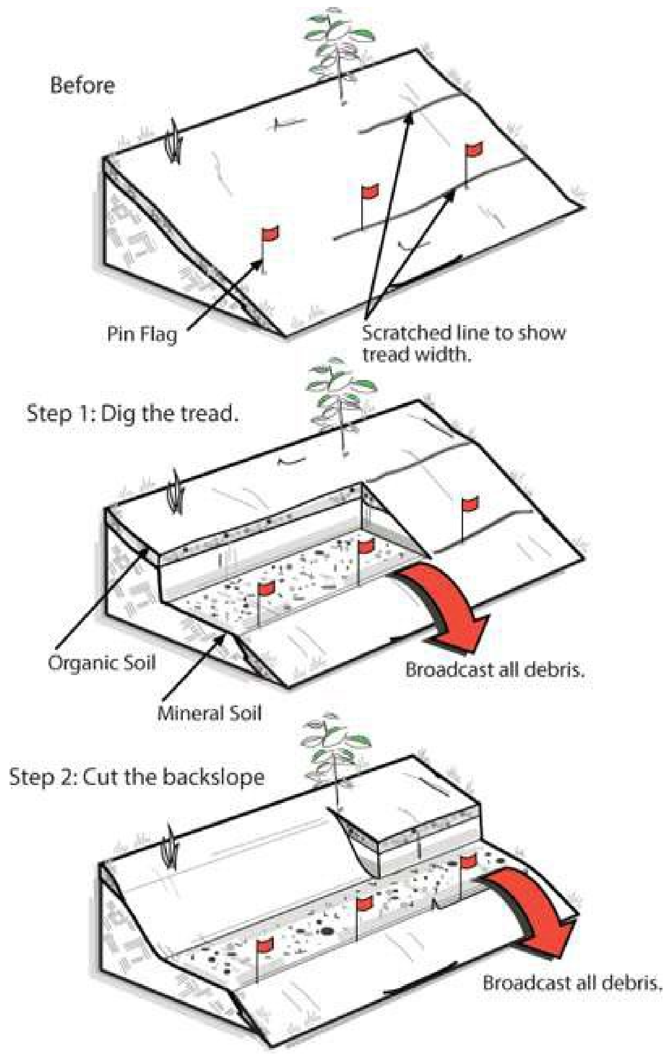
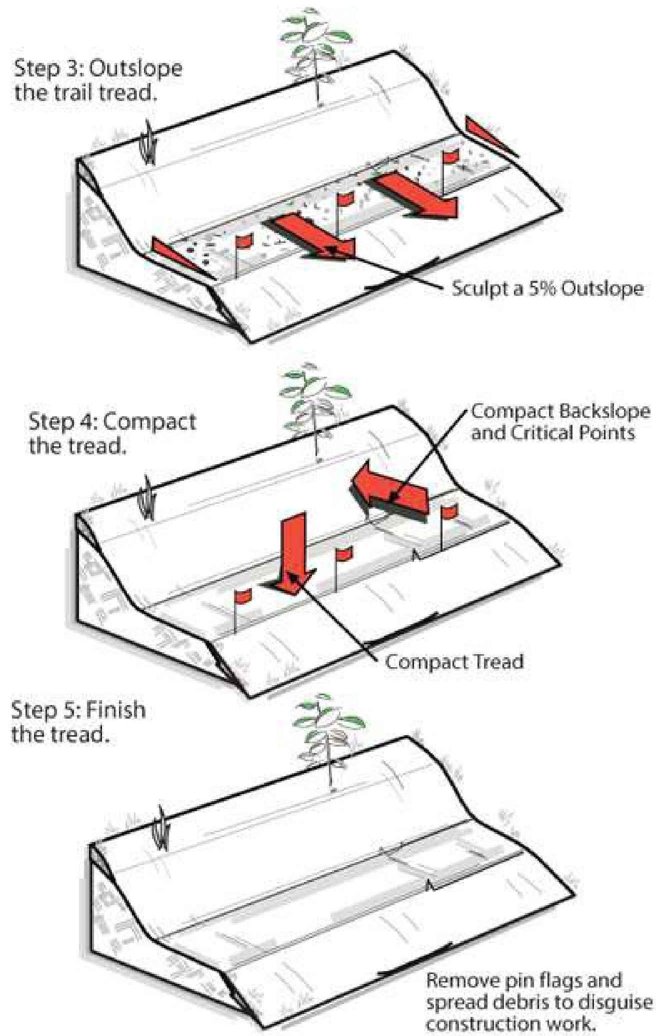


Figure 4: Typical MPOS Singletrack Full Bench Trail (cont.)



Source: Trail Solutions: IMBA

Figure 5: Sustainable Trail Design using the Half Rule

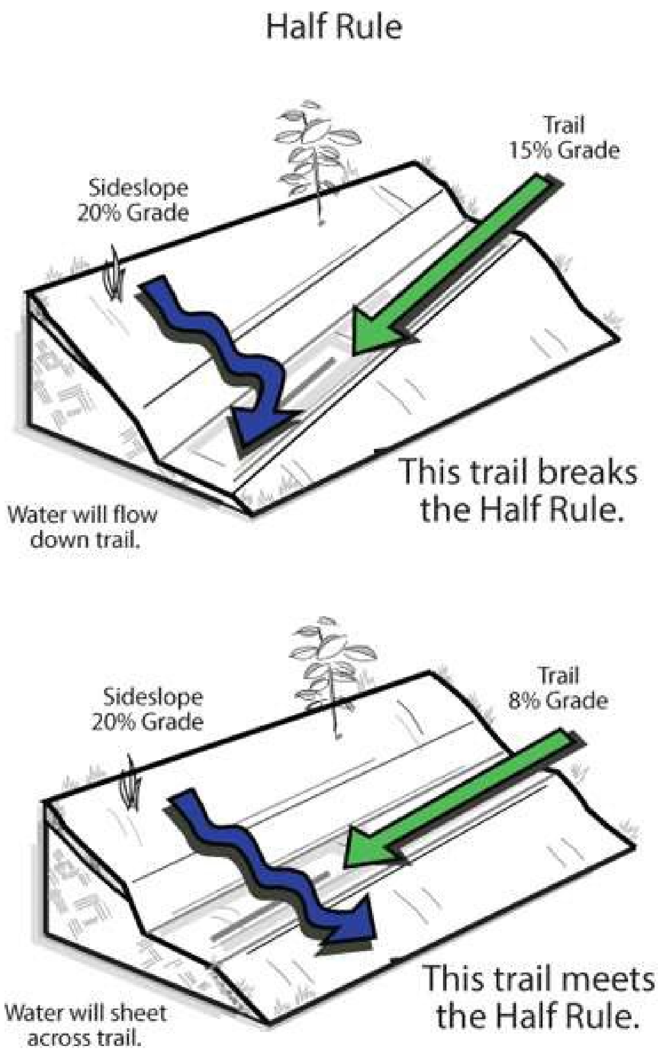
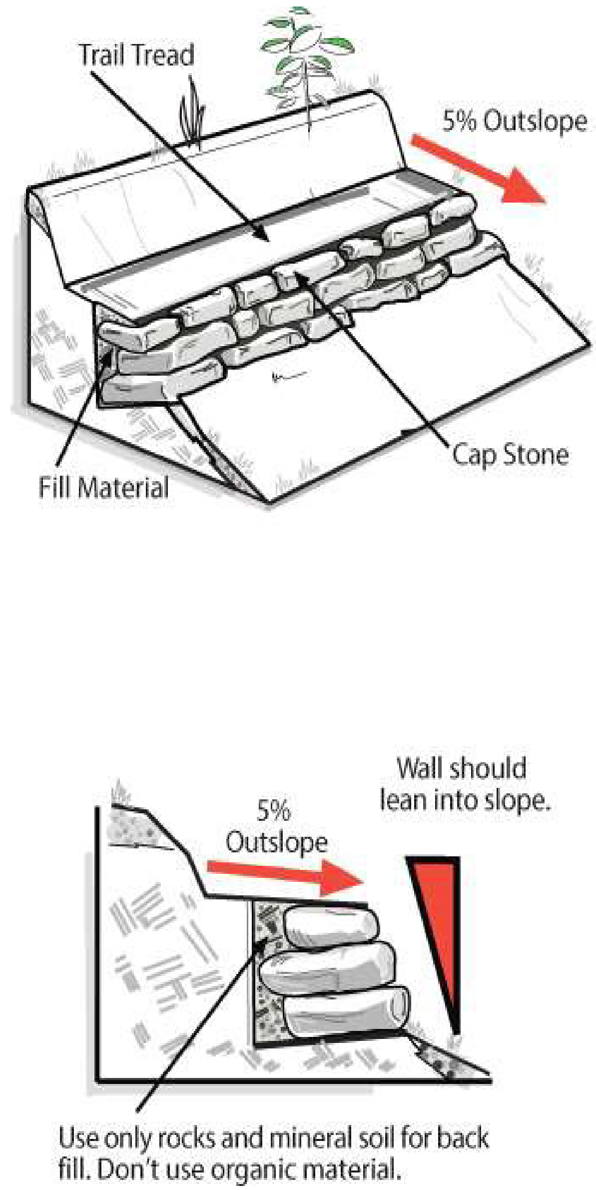


Figure 6: Typical MPOS Design for Natural Retaining Walls



Source: Trail Solutions: IMBA

Design Considerations & Guidelines

Asphalt is the most widely used surfacing for paved trails in the Albuquerque area, due primarily to its lower cost, and ease of installation and maintenance. It also offers a smooth surface, if installed correctly, and holds up relatively well over time, since it is not subject to the degree of frost heave or other environmental degradation often encountered in harsher climates.

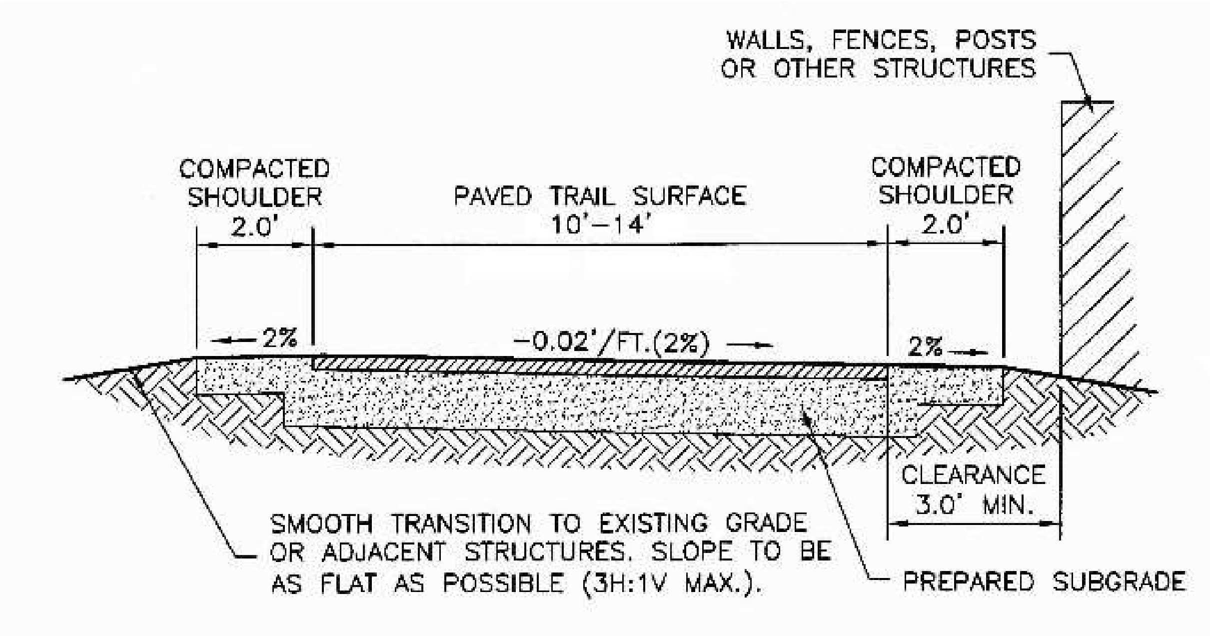
Concrete is also commonly used for trail surfacing, although less so in Albuquerque than other locations. The primary benefit of concrete is its longevity and smoothness, resulting in reduced maintenance requirements and associated long-term costs. However, its initial installation cost often outweighs the long-term benefit of a concrete surface; especially here in Albuquerque where geographically it is vastly sprawled out and hundreds of miles of trail are needed to adequately connect the City together. Other perceived problems with concrete include the rigidity of the surface (runners usually prefer the flexibility of asphalt) and the somewhat large spacing of the required construction and crack-control joints (esp. for skateboards). These complaints can often be overcome by providing an adjacent soft- surfaced trail for runners, and using saw-cut control joints, rather than tooled joints, in concrete that create a tighter gap.

Environmentally-friendly variations on traditional pavement are also becoming more readily accepted and available. One such variation involves the use of recycled materials (such as shredded tires, plastic, or even crushed glass) in place of a portion of the normal stone aggregate in asphalt or concrete. Another removes the “fines”(smallest components) from the mix aggregate to create a porous pavement, which enables water to pass directly through the pavement and infiltrate into the ground below, thus minimizing runoff. Other alternatives which are gaining acceptance as naturalistic, yet stable trail surfaces involve the use of organic or synthetic binders to form pavements using native soils or other decorative materials; and even the use of brick or concrete pavers. While the use of alternative surfacing may be appropriate in certain circumstances, some of these materials may have limited application for urban trails, due to potential deterioration and/or unevenness of the surface. In any case, sound engineering judgment should be used in determining suitability of materials for trail use on any given project.

Trail Dimensions

Trails should be of sufficient width to accommodate expected numbers of users without excessive interference. Side slopes and clearances from adjacent obstacles should be designed to minimize danger to cyclists who may inadvertently stray from the paved surfacing. Shoulders should provide a stable recovery surface in those instances. Railings (addressed later) may also be used to keep trail users from leaving the paved path, and may be placed within the 2’-3’ clear (recovery) zone illustrated below. Refer to the AASHTO Guide for additional information not addressed here.

Figure 7: Paved Trail Dimensions and Clearances



Shared-use paths should be constructed according to this design manual and to the AASHTO Guide for the Development of Bicycle Facilities when and where feasible. Shared-use paths will be designed according to American with Disabilities Act (ADA) standards when a Federal ruling is adopted by the Access Board. In the meantime, trails (paths) will be constructed using the best ADA practices as adopted through the "Public Rights of Way Accessibility Guidelines" (PROWAG) when and where possible. Constructing trails may have limitations that make meeting ADA standards difficult and sometimes prohibitive. Prohibitive impacts include harm to significant cultural or natural resources, a significant change in the intended purpose of the trail, requirements of construction methods that are against federal, state or local regulations or presence of terrain characteristics that prevent compliance. Parks and Recreation is currently (started in 2013) auditing all paved trails for ADA compliance. Once the audit is completed, the report will show how many miles of trail and which trails can be utilized by people with disabilities.

Design Considerations & Guidelines

Shared-use paths serve cyclists and pedestrians and provide additional width over a standard sidewalk. Facilities may be constructed adjacent to roads (side paths), through parks, or along linear corridors such as active or abandoned railroad lines or waterways. Regardless of the type, paths constructed next to the road should have some type of vertical (e.g., curb or barrier) or horizontal (e.g., landscaped strip) buffer separating the path area from adjacent vehicle travel lanes. However, sometimes right of way restrictions hinder the possibility for a vertical or horizontal barrier. It will be determined the engineers, designers, and planners if the benefits of having a trail outweigh the risks when the ROW is constrained.

Elements that enhance shared-use path design include:

- Providing frequent access points from the local road network. If access points are spaced too far apart, users will have to travel out of direction to enter or exit the path, which will discourage use.
- Placing directional and way finding signage to direct users to and from the path.
- Building to a standard high enough to allow heavy maintenance equipment to use the path without causing it to deteriorate.

- Limiting the number of at-grade crossings with streets or driveways.
- Terminating the path where it is easily accessible to and from the street system, preferably at a controlled intersection or at the beginning of a dead-end street. If poorly designed, the point where the path joins the street system can put pedestrians and cyclists in a position where motor vehicle drivers do not expect them.
- Identifying and addressing potential safety and security issues up front.
- Whenever possible, and especially where heavy use can be expected, separate bicycle and pedestrian ways should be provided to reduce conflicts.
- Providing accessible parking space(s) at trailheads and access points.
- Providing, where possible, a soft surface shoulder adjacent to paved surfaces for use by joggers and equestrians.

Trails should be of sufficient width to accommodate expected numbers of users without excessive interference. Side slopes and clearances from adjacent obstacles should be designed to minimize danger to cyclists who may inadvertently stray from the paved surfacing. Shoulders known as the "recovery zone" should provide a 2-3' stable recovery surface in those instances. Compacted base course, subgrade, or crusher fines are recommended and gravel should not be used unless the aggregate is finer than 3/8". Railings (addressed later) may also be used to keep trail users from leaving the paved path, and may be placed within the 2-3' clear zone illustrated below. Refer to the AASHTO Guide for additional information not addressed here.

Trail Alignment

Although multi-use trails are, by definition, intended for many modes of use, the design of those trails is effectively determined by only a few user groups – those with the most stringent requirements. In the case of paved trails, this presents something of a conundrum, in that the design must accommodate two sometimes-conflicting extremes. Bicycles, on the one hand, are a very efficient means of transportation, capable of fairly high speeds and long distances. Wheelchairs, on the other, are relatively inefficient and slow. While both have wheels, and therefore share some basic requirements in terms of surfacing, most other design requirements for the two are quite different. In order to accommodate wheelchairs which typically have shorter travel distances and may need frequent rest stops on as many multi-use paths as possible, shared-use paths will need to meet the requirements of the Americans with Disabilities Act (ADA) once a proposed ruling by the Access Board is adopted by the Department of Justice as an "enforceable standard", which currently does not exist for shared-use paths.

In contrast, AASHTO guidelines for bicycle design focus on higher travel speeds and efficiency of movement. Nonetheless, the two are not mutually exclusive. Trail designers must find the common ground between the two seemingly contradictory sets of criteria, and work within those parameters. In the simplest of terms, while the overall design of a trail facility should consider both modes, bicycles tend to dictate horizontal alignment criteria, while wheelchair requirements drive vertical alignment.

The information that follows is a summary of trail design criteria that should satisfy both ADA and AASHTO for use in the design of Albuquerque's urban multi-use trails.

Design Standards

Table 1: Maximum Recommended Running Grade Lengths

Max. Running Grade	For Distances Up To:
5% or less	Unlimited
8.33%	200 ft. with resting intervals
10%	30 ft. with resting intervals
12.5%	10 ft. with resting intervals

Defined under ADA accessibility guidelines for outdoor areas

Table 2: Minimum Recommended Curve Radii for Paved Trails

Grade	Design Speed	Min. Centerline Radius*
less than 3%	20 mph (30 km/hr)	95 ft. (29 m)
3% - 5%	25 mph (40 km/hr)	160 ft. (49 m)
greater than 5%	30 mph (50 km/hr)	265 ft. (81 m)

Assumes 2% superelevation (cross slope in direction of curve)

Table 3: Recommended Vertical Curve Radii for Paved Trails

Grade Change (Algebraic Difference)	Minimum Length for Crest Curve	Minimum Length for Sag Curve
less than 2%	None Required	None Required
2% - 4%	10 ft. (3 m)	60 ft. (18 m)
>4% - 6%	60 ft. (18 m)	160 ft. (49 m)
>6% - 8%	100 ft. (30 m)	300 ft. (91 m)
greater than 8%	160 ft. (49 m)	500 ft. (152 m)

Design Considerations & Guidelines

Grade

Trails in the urban area should be designed to provide running grades of 5% (20H:1V) or less wherever possible. If necessary, due to existing terrain or right-of-way constraints, grades up to 12.5% (8H:1V) are permissible, provided that a rest area be provided every 10 feet (77 cm) of vertical rise. See the table above for running grades and recommended resting intervals. Such rest areas may be integral to the trail (i.e. a landing with a maximum grade of 2.03% at least 5 feet in all directions of the landing pad), or, with approval of the City's project manager, may be offset alongside the trail, to provide a more even surface for bicycles and other faster-moving uses. The table above lists recommended maximum distances for various trail grades under the current most stringent ADA guidelines for outdoor recreation areas. It should be noted that the natural environment terrain and grade may prohibit ADA compliance. This is allowed as long as the entire system or trail network has a certain amount of ADA-accessible trails located throughout the City. In addition, the standards may be waived where compliance would cause "substantial harm to cultural, historic, religious or significant natural features or characteristics."

Horizontal Curves

Many factors, including design speed, tire friction, lean angles, sight distances, and braking capabilities, are involved in determining minimum acceptable dimensions for horizontal alignments of bicycle facilities. These are covered in detail in the AASHTO Guide [pp. 37-46]. By default, facilities that are designed to facilitate the turning movements of two-way bicycle traffic would easily accommodate the spatial requirements of wheelchairs and other slower modes of travel. However, the same is not true for vertical alignment. It is, in fact, difficult to separate horizontal and vertical alignment criteria, so the designer should carefully weigh the impact that any changes to one might have on the other. As can be seen in the tables in the Design Standards below, the grade selected for a vertical alignment affects design speed, which in turn affects the minimum turning radius.

Curves sharper than those in the tables above may be necessary in circumstances of limited right-of-way or other physical constraints. If so, such curves should be identified by solid centerline striping and warning signs per the MUTCD.

Vertical Curves

Vertical curves are used to make a smooth transition at changes in trail grade. This issue comes most sharply into focus in the design of ramps that meet the letter of ADA requirements, but also must serve bicycles. The typical alternating 30-foot, 12:1 (8.33%) ramp and 5- to 10-foot level landing configuration (often seen on bridge approaches and other areas of significant grade change) makes for abrupt transitions and runs contradictory to the 30 mph design speed recommended in the AASHTO Guide for such grades. Adding at least a short vertical curve at each change in grade will provide a much smoother travel surface, and lessen the potential for accidents by minimizing the chance of bicycles (and even some other modes of wheeled use) becoming airborne.

The most recent AASHTO Guide provides tables listing minimum lengths of Crest Vertical Curves (e.g. over the top of a hill) but no longer provides that information for sag curves (e.g. at the bottom of a valley), stating only that the minimum length of a vertical curve should be one meter (3 ft.). The previous (1991) AASHTO publication did not differentiate between the two types, offering a single graph [p. 29] that presented minimum lengths for any vertical curve based upon grade differential and design speed. The current differentiation is due to the fact that crest and sag curves are governed by different criteria. While crest curves can occur either at the top of a hill or in the middle of a slope, in both cases approach speeds are generally slower than exit speeds. Nonetheless, stopping sight distance (the distance that the trail surface is visible ahead) is usually the primary concern, since the slope is breaking away from the user. Sag curves represent the opposite conditions, and usually see the highest speeds on the approach to the grade change. Visibility is rarely an issue; instead, user comfort and ease of negotiation (due to resultant "G" forces) are the main criteria. So while the AASHTO guide has relaxed its recommendations for vertical sag curves, the resultant abrupt change in some instances might make for uncomfortable riding conditions for cyclists. In lieu of the 3' minimum requirement, the table above suggests vertical curves which will make for a more pleasant trail experience.

In general, vertical curve grade transitions should be designed to provide as gentle a transition as possible, given the physical constraints of a site. The table above provides suggested lengths of vertical curves for various conditions, based on 2% increments in grade change. These numbers are generalized and should provide acceptable results in most cases; however, if more detailed information is required; please refer to the current AASHTO Guide.

As with horizontal curves described above, there will undoubtedly be instances when such lengths cannot be achieved in designing vertical curves. In the case of the accessible ramp design described above, provision of even a short vertical curve at each grade transition will permit easier negotiation by bicycles.

Figure 8: Crest Curve

Figure 9: Sag Curve

Trails along Roadways

Design Summary

Where a shared-use path must be adjacent to a roadway, a five foot minimum buffer should separate the path from the edge of the roadway, or a physical barrier of sufficient height should be installed.

Shared use paths may be considered along roadways under the following conditions:

- The path will generally be separated from all motor vehicle traffic.
- Bicycle and pedestrian use is anticipated to be high.
- To provide continuity with an existing path through a roadway corridor.
- The path can be terminated at each end onto streets or trails with good bicycle and pedestrian facilities.
- There is adequate access to local cross-streets and other facilities along the route.
- Any needed grade separation structures do not add substantial out-of-direction travel.

Discussion

Concerns about shared use paths directly adjacent to roadways (e.g., with minimal or no separation) are:

- Half of bicycle traffic may ride against the flow of vehicle traffic, contrary to the rules of the road.

- When the path ends, cyclists riding against traffic tend to continue to travel on the wrong side of the street, as do cyclists who are accessing the path. Wrong-way bicycle travel is a major cause of crashes.
- At intersections, motorists crossing the path often do not notice bicyclists approaching from certain directions, especially where sight distances are poor.
- Bicyclists are required to stop or yield at cross-streets and driveways, unless otherwise posted.
- Stopped vehicles on a cross-street or driveway may block the path.
- Because of the closeness of vehicle traffic to opposing bicycle traffic, barriers are often necessary to separate motorists from cyclists. These barriers serve as obstructions, complicate facility maintenance and waste available right-of-way.
- Paths directly adjacent to high-volume roadways diminish users' experience by placing them in an uncomfortable environment.

As bicyclists gain experience and realize some of the advantages of riding on the roadway, some riders stop using paths adjacent to roadways. Bicyclists may also tend to prefer the roadway as pedestrian traffic on the shared use path increases due to its location next to an urban roadway. When designing a bikeway network, the presence of a nearby or parallel path should not be used as a reason to not provide adequate shoulder or bike lane width on the roadway, as the on-street bicycle facility will generally be superior to the "sidepath" for experienced cyclists and those who are cycling for transportation purposes. Bike lanes should be provided as an alternate (more transportation-oriented) facility whenever possible.

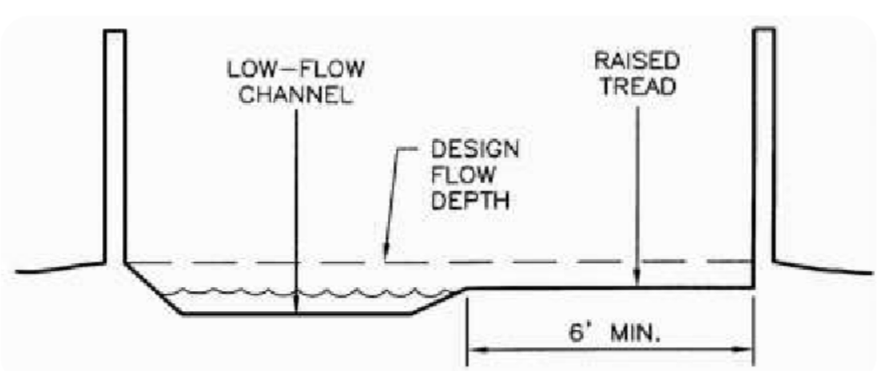
Guidance

Please see the DPM and the discussion on "Sidepaths" for further guidance.

Drainage

Since many trails follow drainage features (e.g. arroyos or ditches), they often must address not only drainage issues related to the trails themselves, but also accommodate runoff originating elsewhere. In fact, "neighborhood access" to a trail is often provided via wide rundowns which carry storm water from adjacent streets into shared arroyo/trail corridors. This is not a desirable configuration. Both the water itself, and the silt and debris which invariably accompany it, make for potentially hazardous trail conditions. Instead, parallel facilities should be provided which keep the trail access separate from the drainage way, or the trail access tread can be elevated six to eight inches above a low-flow channel within the rundown. Likewise, when trails cross drainage rundowns along the edge of a channel, the drainage flow should be routed under the trail, rather than across it.

Figure 10: Neighborhood Trail Access via Shared Drainage Rundown



Design Considerations & Guidelines

In general, drainage design for trails does not differ greatly from drainage design for roadways. Nonetheless, a few key principles should be highlighted here:

- Trail surfaces should have a 1% to 2% cross slope, and uniform surface planarity (no depressions or "bird baths") in order to prevent water ponding on thetrail;
- Interception ditches should be provided on the uphill side of trails which traverse slopes or hillsides, to prevent runoff from washing sediment onto the trail;
- Drainage grates or other structures should be sized and/or located so as not to interfere with trail traffic (narrow bicycle tires in particular).
- Culverts should be sized adequately to passexpected flows and allow for easy maintenance, including removal of debris. Minimum culvert size should be 12" diameter; 18" diameter is preferred for maintenance purposes.

Shared Use of Drainage Facilities

In recent years, the shared use of drainage channels for underpasses beneath major roadways has become more commonplace in the Albuquerque area. Trails are most often accommodated through such crossing by creating a notch in the side of the channel, with ramps leading in and out of the crossing.

Albuquerque has significant opportunities to develop trails along drainage ditches.

Less frequently, suspended platforms have been mounted on the side of the channel where adequate flow capacity exists. The notched configuration, while significantly more expensive, is generally preferred by drainage authorities because it does not impede the flow of water in the channel, and, in fact, increases the channel cross section (and carrying capacity) at the bridge crossing. The figures below show possible configurations of such a crossing, based upon the depth and capacity of the channel at the crossing.

Figure 11: Trail Underpass Notched Into Side of Channel

Figure 12: Depressed Underpass for Low Bridge Clearance Condition

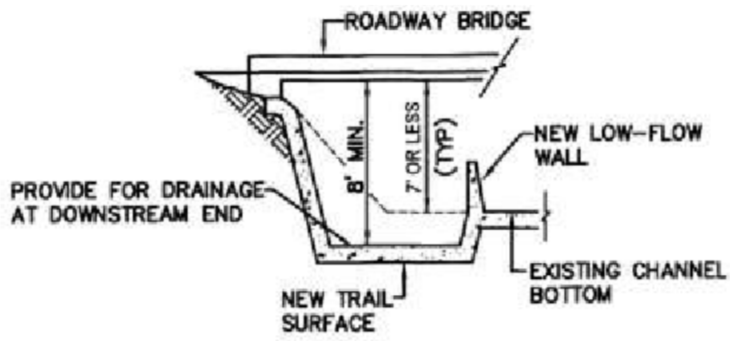
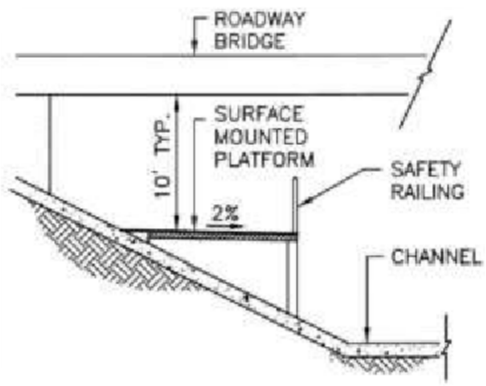


Figure 13: Trail Underpass Attached to Channel Surface



One of the primary concerns about placing trail crossings within major drainage channels lies in the fact that users are essentially directed into a potentially dangerous situation, where storm runoff may inundate the trail. Although the probability of such an occurrence would be quite low at any given time, it is nonetheless a valid concern. The potential hazard of such a crossing can be greatly decreased through the following actions:

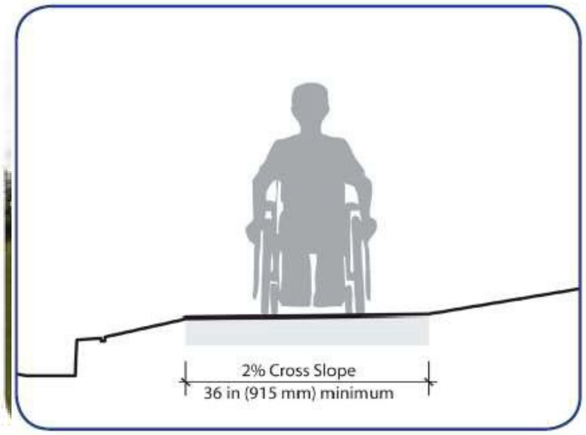
- Provide hand railings at the edge of the trail surface, in accordance with the Access Control section below.
- Post signs at either end of the crossing warning users not to enter the underpass if water is present or flowing across the trail surface.
- Provide alternate, at-grade crossing opportunities for times when the trail crossing may be flooded.
- Design notch configurations to keep the trail surface above the nominal “10-year design flow” depth, and such that inundation of the trail would be minimal for a “100-year” flood event.

If trail users heed the second guideline above, the last one would not be much of an issue. However, the fact remains that common sense does not always prevail, or that a trail user might unintentionally end up in such a situation (e.g. brake failure or other unforeseen mishap). While no national standard exists for acceptable flow depth across a trail, depths of greater than one-foot should be viewed as the maximum allowable condition. Any deeper, and stormwater flows begin to obscure the railing at the trail edge, limiting or eliminating the benefit it should provide.

Trail Accessibility

Design Standards

- 3 feet minimum clear width, where less than 5 feet, passing space should be provided at least every 100 feet.
- Cross slope should not exceed 2 percent where and when possible.
- Curb ramps shall be provided at roadway crossings and curbs. Tactile warning strips and auditory crossing signals are recommended along with any other mandated ADA street crossing criteria.



ADA clearance requirement.

Running slopes typically should not exceed 5%. However, certain conditions may require the use of steeper slopes for grade separated crossings.

- The trail surface shall be firm and stable. The Forest Service Accessibility Guidelines defines a firm surface as a trail surface that is not noticeably distorted or compressed by the passage of a device that simulates a person who uses a wheelchair. Where rights-of-way are available, paths can be made more accessible by creating side paths that meander away from a roadway that exceeds a 5% slope.

Shared-use paths surfacing materials affects which types of users can benefit from the facility.

Design Considerations & Guidelines

- General guidelines have been created inresponse to the ADA for accessible trails.
- FHWA. (2001). Designing Sidewalks and Trails for Access, Chapter 14: Shared Use Path Design, Section 14.5.1: Grade. www.fhwa.dot.gov/environment/sidewalk2/sidewa lks212.htm#tra2
- Regulatory Negotiation Committee on Accessibility Guidelines for Outdoor Developed Areas Final Report, (1999). www.access- board.gov/outdoor/outdoor-rec-rpt.htm

Access Control

Access control devices are intended to minimize the potential for trail user conflicts by restricting vehicular access to trails or serving as barriers from dangerous conditions. Access control measures can include, but are not limited to, railings, fences, gates, and bollards or guard posts. Landscaping and/or natural features can also be used effectively for access control in some settings. Each type of access control has its place, as indicated in the Design Guidance below.

Design Standards

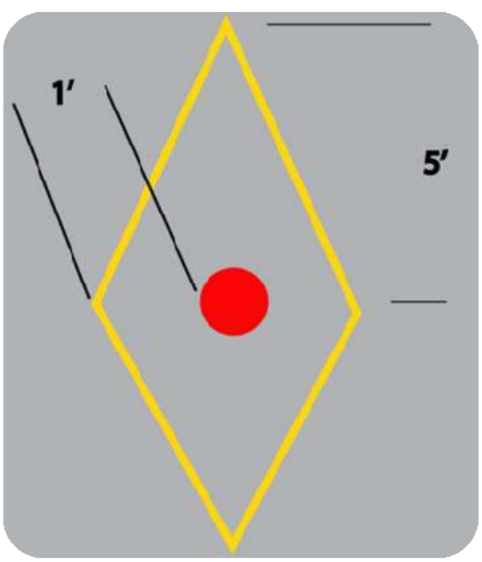
Bollards/Guide Posts

Bollards should only be used or installed in areas where it is likely a vehicle will mistake the trail for a possible vehicular road or where there have been documented claims that vehicles have been driving on the trail. Bollards have become more of a hazard to trail users than users being run over or into by illegal vehicle trespass on multi-use trails.

Therefore, bollards should be installed on an as needed basis rather than adding them to every project and crossing of streets. When determined they are needed, access control bollards may be made of any number of materials, including but not limited to: wood, concrete, plastic (PVC), or steel, as appropriate to a particular setting. Sizing should be appropriate for both maximum visibility and as a visual deterrent to motor vehicles. Surfaces of the bollard should be relatively smooth, with no protruding objects to snag on clothing or appendages of passersby. Selection of bollard materials is less important than their placement. If deemed necessary for a particular trail access point, bollards should be placed only in the center of the trail and (if additional protection is necessary), at either edge. For a typical ten- foot trail, this would result in two five-foot-wide accessible openings on either side of the trail centerline. In specific situations where ATV access must be addressed such as within AMAFCA facilities, bollard spacing may be reduced to provide a minimum 36"-wide clear opening on either side of the trail centerline. This will permit wheelchair access, but exclude all but the smallest ATVs (and motorcycles). Bollards should be brightly painted and reflectorized for greater visibility, especially in low light conditions.

A specific diamond shaped stripe shall be placed around center bollards per AASHTO. If maintenance and emergency vehicles are expected to gain access via the trail itself, access control bollards should be designed for easy removal or collapse. Otherwise, gates should be provided in adjacent fences or railings to permit such access. Consultation with local authorities is advised in such situations. Although AMAFCA currently requires 36-inch maximum spacing on bollards, the proposed PROWAG standards will require 48-inch spacing. A minimum of 48-inch spacing is required to pass certain types of cycles for ADA use such as those that have parallel seating and are over 36 inches wide.

Figure 14: Typical Striping around Bollard



Following is a list of best practices that should be consistent when installing bollards at any trail facility by the City of Albuquerque:

- Only apply bollards if the need is demonstrated, or if the trail entrance cannot be designed or modified to discourage use by unauthorized motor vehicles. Bollard use should be reserved for problematic locations.
    - Bollards should not be installed on trail facilities that parallel a roadway unless it is identified as a problematic location.
    - Bollards should be considered along obscured facilities that are not readily visible and at other problematic locations.
- All bollards should be made of a retro-reflectorized material or have retro-reflectorized tape affixed to them for easy visibility from both approaches to the bollard.
    - Where possible, retractable bollards should be implemented. Appropriate usage ensures that the bollards will remain in place and cannot be removed from the site and when retracted, the bollard will not be a hazard as there is no "collar" that sticks up when the bollard is removed due to this type of bollard retracting into the ground rather than coming off.
- Bollards should be 40 inches in height (minimum) and 4 inches (minimum) in diameter to ensure visibility but short enough to not interfere with handlebars on cycles.
    - In most instances, a single bollard should be placed at the centerline of the trail, where adequate sight distance is available.
- An even number of bollards shall never be used as they typically will be placed in the center of the travel way for each travel direction and they tend to direct users into each other causing confusion.
- If it is necessary to restrict access adjacent to the multi-use trail to restrict motorized traffic, bollards should be placed a minimum of 2-feet off of the edge of the trail.
- A minimum clear width of 5 feet should be provided between the edge of trail and the edge of the bollard.
- A striped envelope (4 inch wide, retro-reflective yellow "diamond") should be striped around the bollard to provide guidance to divert users around the bollard. A striped yellow centerline should also be provided along the trail for 25-feet on either side of the bollard.
- Bollards should be set back 30-feet from the roadway to separate the conflict point for users between the roadway and bollards, or as far back as is practical based on site conditions.

These recommendations are consistent with what the Parks and Recreation Trails Planner drafted in 2012 and a draft paper developed by the Greater Albuquerque Recreational Trails Committee (GARTC) as well as ideas coming from a coordination meeting held July 22, 2013. Standards to ensure consistent application should be implemented by all departments of the City of Albuquerque. Every trail and entrance are unique and special consideration will need to be given to each site to determine how best to place bollards, if the need for bollards is demonstrated.

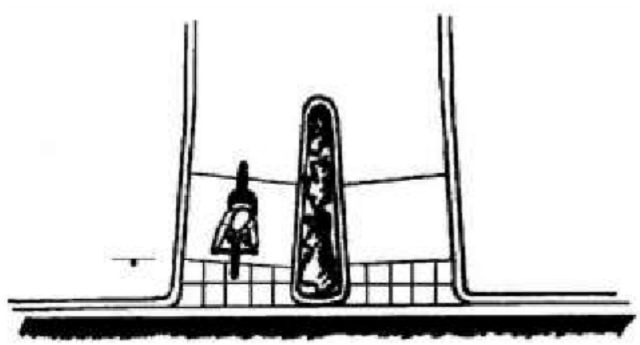
Design Considerations & Guidelines

In recent years, the use of bollards as trailhead access control has become the subject of some debate. Posts or bollards have commonly been used to restrict vehicular access at roadway intersections. In addition, they serve a secondary purpose of warning trail users of the upcoming intersection. On the other hand, bollards also present obstacles for trail users to negotiate, and therefore become potential hazards, particularly in times of low visibility. While there is not yet consensus on the issue, it is increasingly held that in older, established areas of the city, where people are familiar with the existence of non-vehicular trails, bollards may no longer be necessary.

Trailhead access control can also take other forms beyond the use of posts or bollards. An attractive alternative might involve dividing the trail into two one-way paths, half the width of the total trail, with a landscaped median or other central barrier (**Figure 51**). The resultant one-way paths are generally narrow enough to discourage vehicular access, while better defining trail movements. The trail could also be divided around power poles or other existing features in order to eliminate the need for adding bollards. This configuration works particularly well with traffic signal poles that incorporate user- activated crosswalk signals.

At the same time, it should be acknowledged that bollards or medians by themselves do not serve as effective deterrents to trail access by motorcycles and smaller all-terrain vehicles (ATVs), which can be a significant nuisance in some areas, while also being illegal per City Ordinance. Some years ago, a common solution involved the placement of specially-designed bicycle gates or wheelchair-accessible chicanes across trails to exclude such vehicles. Today, however, the consensus seems to be that such measures are more of a nuisance for legitimate users; especially bicyclists. Instead, enforcement and user vigilance seem to be fairly effective at keeping unauthorized uses to a minimum, at least on more heavily-used trails.

Figure 15: Divided Trail Access with Median



Fencing & Railings

Design Standards

The figure below provides criteria for appropriate application of various railing types.

Figure 16: Railing Warrants

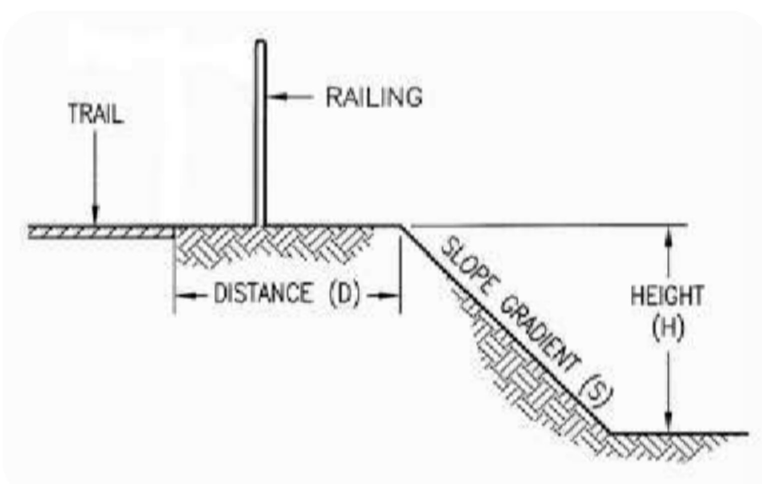


Table 4: Slope Gradient by Distance

DISTANCE (D)	SLOPE GRADIENT (S)	HEIGHT (H)	RAILING TYPE
10' or further	any	any	**None**
5'-10'	3H:1V or flatter	any	**None**
5'-10'	3H:1V to 1H:1V	12' or more	**2-Bar**
5'-10'	1H:1V to vertical	6' or more	**2-Bar**
5' or closer	3H:1V to 2H:1V	6' or more	**2-Bar**
5' or closer	2H:1V to 1H:1V	4' or more	**2-Bar**
3'-5'	1H:1V to vertical	1.5' – 4'	**4-Bar / 6-Bar**
3'-5'	1H:1V to vertical	4' or more	**Barrier**
3' or closer	**1H:1V to vertical**	**1.5' or more**	**Barrier**

Design Considerations & Guidelines

Railings

Protection railings should be used in situations where trails cross, or are adjacent to, drop-offs, steep slopes, hazardous drainage facilities, or other conditions where the trail user would be ill advised to leave the trail.

Railings usually take the form of two-, four-, or six-bar steel pipe railings, depending on the severity of the conditions behind the railing. In cases where extremely hazardous conditions exist along a trail a barrier railing should be used. Barrier railings are those with spaces of six inches or less (or three inch, maximum, openings to comply with U.S. Consumer Product Safety Commission (CPSC) guidelines near playgrounds or other areas frequented by small children). Railings are preferred over fencing in such situations because steel pipe is inherently stronger than most fencing. Railings also present a smoother surface than fencing, which often facilitates recovery if a cyclist wanders off the trail (i.e. brushing against a railing would typically be less catastrophic than catching a handlebar end in a fence mesh).

Post and wire fence.

Fencing

Fencing along trails serves two purposes: access control and/or screening. Access control fencing usually consists of wire mesh (e.g. field fence), multiple individual wire strands (high-tensile fencing), or simply a single strand of cable suspended between posts (the aptly named "post-and-cable

Open boundaries can be used where users may be entering or existing the trail.

barrier”). Screen fencing, on the other hand, can be comprised of a wide range of materials, but should conform to three main criteria:

- Screen fencing should not be totally opaque; rather it should provide for limited or indirect visibility to and from the trail corridor (e.g. offset “shadow-box” pickets).
- Materials should be strong enough to withstand impacts from trail users in the event of unintentional contact (for instance, vinyl fencing, while decorative, may not be capable of supporting a horse, or even a cyclist, if the fence is hit with any force).
- Fencing along trails should not contain any sharp edges or corners which could serve as snag points or otherwise cause injury to trail users.

Managing Multiple Users

Trails that experience high levels of use, particularly by a variety of user types, may become overcrowded and undesirable for some users. The City should consider widening a high-use trail where feasible; otherwise, treatments such as separating bicycle and pedestrian areas, pavement markings and etiquette signs can improve sharing the trail.

Centerline striping encourages trail users to provide space for other users to pass.

Design Standards

- Stripe a centerline. See guidelines below for specifics.
- Separate bicycle and pedestrian areas where feasible.
- Barrier separation – vegetated buffers or barriers, elevation changes, walls, fences, railings and bollards.
- Distance separation – differing surfaces.
- Install Park & Recreation Department typical trail etiquette signage, the “yield to” sign.
- In Major Public Open Space areas, trailheads should have regulation signage as well as the Open Space Division’s trail etiquette or “yield to” signage.

Albuquerque uses guidance signage to encourage multiple users to share trail facilities.

Design Considerations & Guidelines

Centerline striping shall be used to encourage users to stay on a particular side of the trail. Use of thermoplastic material shall be used. The line shall be colored yellow and dashed using 3 foot long skips and 9 foot spacing between dashes. Refer to AASHTO for recommendations when solid center stripes should be used such as on turns or curves. Centerline striping is particularly beneficial in the following circumstances:

- For heavy volumes of bicycles and/or other users,
- On curves with restricted sight distance, and
- On unlighted paths where nighttime riding is expected.
- Differing surfaces suitable to each user group foster visual separation and clarity of where each user group should be. A dirt track can draw runners, equestrians,

and walkers to reduce conflicts with cyclists. When trail corridors are constrained, the approach is often to locate the two different trail surfaces side by side with no separation.

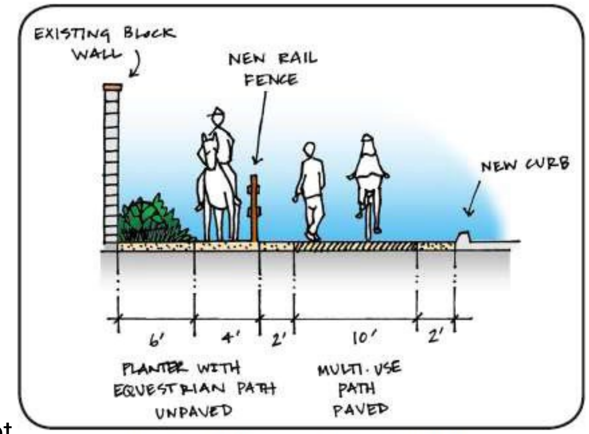
The MUTCD contains information about centerline striping.

Equestrian Facilities

Design Standards

Width

- 5-6 feet in low (rural) development
- 8-12 feet in moderate to high development



Recommended design for a multi-use path that accommodates equestrians.

Lateral Clearance

- A 3 foot or greater shoulder on both sides.

Overhead Clearance

- Clearance to overhead obstructions should be 10 foot minimum, with 12 feet recommended.

Design Considerations & Guidelines

With a multi-use trail system, planners and designers should always work to incorporate facilities that will accommodate all trail users whenever possible and feasible. Equestrians often are not thought about when designing in more urban trail areas. With an ever growing and interconnected trail system that extends from rural to urban, equestrian design should always be incorporated. Specifically, a bridge or tunnel should be expected to be used by equestrians and additional criteria should be taken into consideration:

Example multi-use equestrian trail.

- Overhead clearance is particularly important to accommodate both horse and rider. Ten-foot clearance is a minimum (twelve feet is preferred) without requiring the rider to dismount or duck.
- Horses may be frightened by the sound and motion of traffic beneath them, which could, in turn, result in injury to the rider. Therefore, equestrians tend to prefer underpasses to bridges. (However, adequate sight distances are critical. Poorly designed underpasses can also be dangerous, if, for example, a fast-moving bicycle suddenly appears within the confines of a narrow tunnel.) If a bridge is the only alternative for an equestrian crossing, solid side walls or other screening should be provided for at least three feet up from the bridge deck to minimize visibility of traffic below.
- Trail etiquette signs are triangular and look like yield signs and should be placed throughout the trail system/network. These signs help to educate trail users understand who has the right of way when approaching and passing each other. The sign is typically made to be 24 x 24 inches in size.

Walkers, hikers and cyclists often share trail corridors with equestrians. Pedestrians and riders are often compatible on the same tread as they both accept unpaved surfaces and move at relatively slow speeds.

However, fast moving and quiet cyclists approaching a horse from behind are a valid concern for riders. In areas where conflicts seem likely, efforts are made to physically separate the different user groups.

For equestrian routes, trail tread or surface should be relatively stable. The trail surface should be solid, obstacle-free and should stay in place. Appropriate trail surfaces include: compacted native soil, crusher fines and decomposed granite. Hard surfaces, such as asphalt and concrete are not amenable to equestrians.

Trails that are comfortable for equestrians are ones that accommodate most trail users. While horses can easily negotiate grades up to 20 percent for short distances (up to 200 feet), steeper running grades result in faster water run-off and erosion problems. Following contours helps reduce erosion problems, minimize maintenance needs and increase comfort levels. A 2 percent cross slope or crowned tread and periodic grade reversals along running slopes will minimize standing surface water and will resolve most drainage issues on a multi-use path. An exception is to cut sections where uphill water must be collected in a ditch and directed to a catch basin, where the water can be directed under the trail in a drainage pipe of suitable dimensions. Additionally, on running grades steeper than 5 percent, add 6-12 inches of extra tread width to help enhance safety and user comfort where possible.

- USDA/FHWA Equestrian Design Guidebook for Trails, Trailheads, and Campgrounds.

Signage

Development of a consistent signage system is an important element in the creation of a unified and recognizable trail system in metropolitan Albuquerque. Signage can be grouped broadly into two categories: regulatory and informational. Regulatory signage includes warnings, regulations, and directives applicable to trail use in general (Stop, No Motor Vehicles, Trail Etiquette, etc.), while informational signage would refer to a signage package specific to a particular trail and location, providing information such as the trail name (especially at designated trailheads), connections to other trails or facilities (through maps or directional arrows), and distances to key destinations. In an effort to expand trail accessibility, these signs also often include information such as trail length, grades, cross slopes, and obstacles which may be encountered (see Trail Difficulty Rating System).

Figure 10b - Bike Facilities map

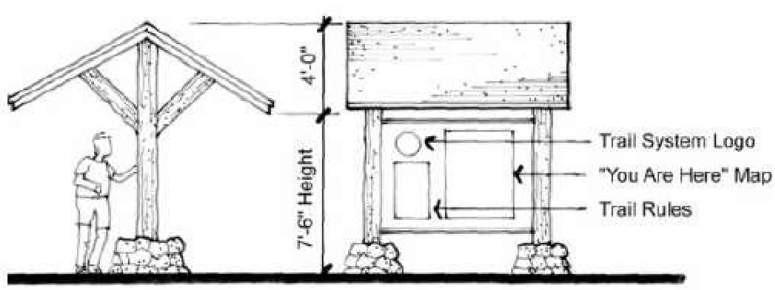


Figure 10 c- Example of a trail information kiosk

Design Considerations & Guidelines

Regulatory signage should be placed where most visible and effective, and should be grouped, where practical and appropriate, to minimize the number of posts (potential obstacles). In some cases, free-standing signs may be replaced by pavement markings, for the same reasons. (A specific example would be to replace “Stop Ahead” signs with the same message painted on the trail surface. See Pavement Markings discussion below.) Sizing and placement should be in accordance with the most recent version of the Federal Highway Administration’s Manual on Uniform Traffic Control Devices (MUTCD) Part 9, Bicycle Facilities. However, the City Parks and Recreation Department has developed a few signs that will give Albuquerque’s paved multi-use trail network its own sense of community and style.

Trail signage has been designed with a standardized mounting system and graphic medium which can be easily modified or replaced as the trail system grows. Using the same design scheme throughout the entire Trail Network will help users understand that the network is a large system. For example, if you are on a trail on the west side of the City and see the specific green/blue general regulatory/informational sign, you will also see this same sign on a trail that is part of the network on the east side of the City. However, creativity and customization of trail-specific information signage is encouraged in addition to having the “network specific” regulatory signage in order to develop individual identities for each trail facility.

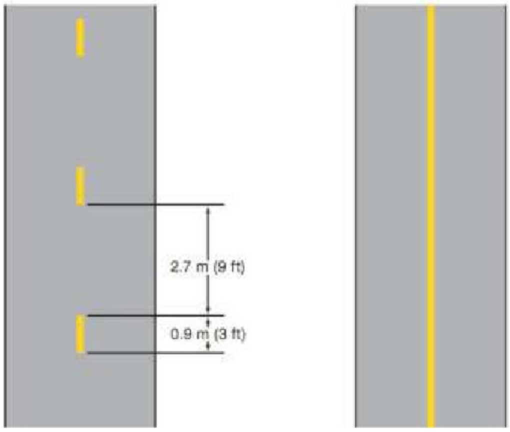
Pavement Markings
In general, pavement markings supplement or reinforce the regulatory signage, and are comprised of striping, text, and/or stenciled figures. Centerline striping shall be used to help define directions of travel or separate different user groups on multi-purpose trails and be yellow per AASHTO’s recommendations, while solid white edge striping gives trail users visual reinforcement of the limits of the trail surface, which is particularly valuable in low light conditions (especially if a potentially hazardous condition exists beyond the edge of the trail). Text is generally intended to convey warnings of changing conditions ahead, although it is sometimes used in place of or in addition to vertical regulatory signage (such as “Yield” signs). Figures usually take the form of arrows or other symbols, or may be used to designate portions of the trail for different modes of travel.

Design Considerations & Guidelines
Striping along a trail should be consistent, as any change in color, thickness or width can be perceived as an indication of an expected change. An example of this would be changing from dashed to solid striping on sharp curves which require cyclists to slow down (as described in the Trail Alignment section above).

Placement of text on the pavement, rather than on post-mounted signs, can reduce potential vandalism and/or graffiti targets; however, they are more easily overlooked, and are easily obscured by snow or wind-blown debris. Therefore, critical signage such as “Stop” signs should still be provided on posts alongside the trail.

Both AASHTO and MUTCD provide additional guidance on striping trail facilities.

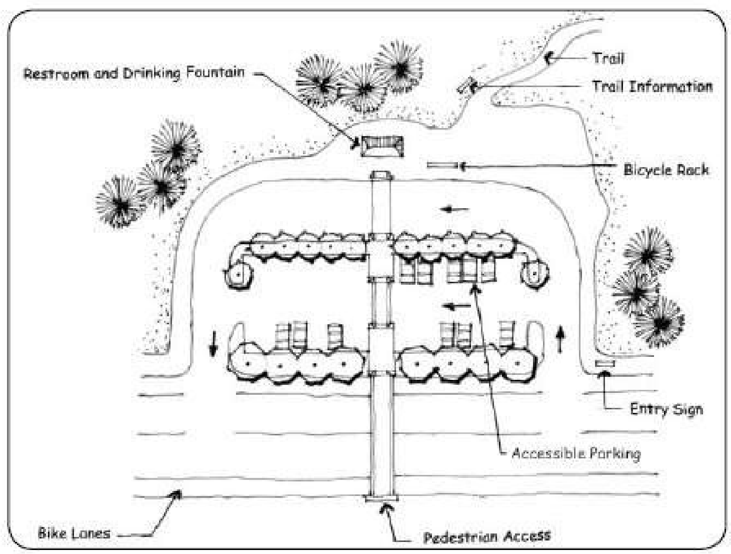
Figure 17: Examples of Centerline Markings for Trails



Trail Heads & Amenities

Trailheads

Major trailheads should include automobile and bicycle parking, trail information (kiosks including maps, user guidelines and regulations, wildlife information, etc.), garbage receptacles and if possible on a location by location basis; restrooms and water fountains. Minor trailheads can provide a subset of these amenities.



Example major trailhead.

Good access to a path system is a key element for its success. Trailheads (formalized parking areas) serve the local and regional population arriving to the path system by car, transit, bicycle or other modes.

Trailheads provide essential access to the shared-use path system and include amenities like parking for vehicles and bicycles, restrooms (at major trailheads) and posted maps.

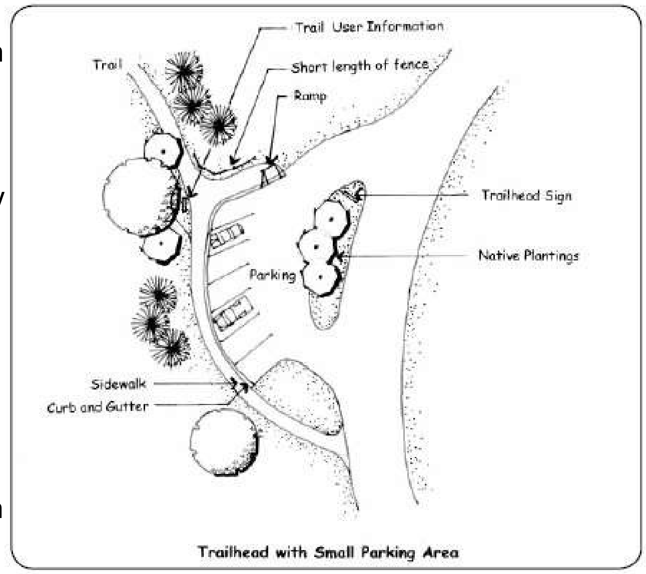
All areas of newly designed or newly constructed and altered portions of existing trails connecting to designated trailheads or accessible trails should comply with the most recent and stringent ADA regulations. However, the guidelines do recognize that often the natural environment will prevent full compliance with certain technical provisions. The accessibility audits that the Parks and Recreation Department is working on that started in 2013 will provide an idea of what needs to or can be done to help make trail heads more accessible if and when possible.

Design Considerations & Guidelines

- AASHTO Guide for the Development of Bicycle Facilities. Regulatory Negotiation Committee on Accessibility Guidelines for Outdoor Developed Areas.

Trailhead Parking

One of the City's goals is to provide a trail network which offers ready access to and from all parts of the city, thereby enabling a reduction in automobile usage. Nonetheless, due to gaps in that developing system, as well as simple human nature, the fact remains that many people do, and will continue to use vehicles to get to the trails. As a result, it is necessary to provide parking wherever possible at trailheads and other major access points along the City's trail network.



Example minor trailhead.

Design Considerations & Guidelines

At a minimum, parking should be provided for cars, with additional spaces provided for horse trailers at trails likely to see equestrian usage. The size/capacity of each parking area should be determined in consultation with the Parks and Recreation Department, and should be based upon projected usage of the trail. Design of the lots should follow parking guidelines set forth in the Development Process Manual (DPM). Parking lots serving accessible trails should have be designed to current ADA standards for parking lots.

Amenities

The provision of amenities such as benches and/or tables, trash receptacles, lighting, water fountains, shade structures, industrial type vandal resistant bicycle pumps, and even restrooms tends to make trail use more enjoyable, especially on longer trails. Trail-related amenities can range from minor to major, both in terms of initial installation costs and long term maintenance issues. A major trail improvement might include a restroom facility with a water fountain, as well as benches, bicycle rack, and a trash receptacle. These major amenities should typically be provided in areas with high traffic and, preferably, overlapping uses (e.g. where a trail passes through a park or other public gathering area) in order to maximize return on the investment. Minor improvements, on the other hand, might include benches (or even sitting- height boulder groupings) or trash receptacles, alone or in combination, situated at intervals along the trail. Shade structures – always welcome in the Southwest climate – and directional signage packages fall in the mid-range of the amenity scale.

Lighting may be used for visual accent, as well as providing additional security in areas of concern, such as tunnels or other isolated locations. Fixtures should be vandal resistant and should be placed where they most effectively illuminate the trail (or key features within the corridor), without shining in trail users' eyes. They should also be designed and/or located in such a way as to shield nuisance light and minimize impact on adjacent properties. AASHTO provides additional recommendations for lighting in its Guide for the Development of Bicycle Facilities. For the 50 Mile Activity Loop amenities and other information, please refer to that specific Plan.

Design Considerations & Guidelines

Development of trail amenities should follow a conscious plan whereby major amenities are grouped in nodes at key locations, while minor amenities are consistently found along the length of each trail.

Styles of amenities should be compatible with adjacent development or closely allied with other amenities found along the length of the trail, in a thematic arrangement. Materials for benches, trash receptacles, tables, and such, must be of durable materials and should be designed (or coated) for easy graffiti removal. Introduction of bicycle pumps used to inflate soft or flat tires will start in 2014. Use of recycled materials is encouraged wherever possible. Coordination with the City's Park Management Division is also encouraged during the material selection process, in order to ensure that maintenance issues are adequately addressed.

Landscaping

Design Considerations & Guidelines

Landscaping along trails typically will fall into one of two categories: revegetation or enhancement. At a minimum, disturbed land within trail corridors should be re-seeded with native grasses (and wildflowers, where appropriate) according to Section 1012 of the City Standard Specifications. Those specifications list two generic seed mixes (for sand or clay soils) which may be used city- wide, with the condition that the shrub component (four- wing saltbush, etc.) be eliminated from seeding alongside recreational trails unless more than 5 feet away from edge of trail (however, the inclusion of xeric shrubs in the seed mix may be desirable for slope stabilization in areas of significant cut or fill). As an alternative to those generic mixes, trail developers may use a more site-specific mix, specified by the project landscape architect, Planner, or in consultation with the City Open Space Division. The addition of wildflower seed to a revegetation mix will provide color and seasonal interest to the trailside, and is particularly effective where the seeding can take advantage of any available supplemental water (e.g. sprinkler overspray from adjacent properties, collected storm water, etc.). Specifically where goat heads (puncture vine) are present or a nuisance, native plants that can out-compete the goat heads should be considered.

Landscaping improves the walking and bicycling experience, and can deter vandalism.

More intensive "enhancement" landscaping may be appropriate for high use areas; perhaps at an important trailhead, through a neighborhood development, or in conjunction with a major trail amenity/improvement as identified above. The viability of such landscaping is dependent upon the availability of water and electricity (or alternative power) for an irrigation system, and the establishment of a maintenance agreement with the City Parks Department or a private entity, prior to implementation.

Vancouver, B.C. has a program where neighbors adopt a traffic circle, and an annual reward is given to the most beautiful one.

Regardless of the type of landscaping considered, shoulder and clear-zone requirements (as identified earlier in the Trail Dimensions section) shall be followed. Native seeding should be kept back two feet from the edge of the trail (unless it is strictly grasses), in most cases, to allow for the graded, compacted shoulders. Trees are encouraged along trails for the shade that they provide; however, they should be planted at least 6-10 feet back from the edge of trail (to maintain the three-foot clear zone at maturity), and further, if possible, to minimize root damage to the trail surface. Likewise, shrubs should be located such that their branches do not interfere with the trail as they mature. Plant materials in general should be selected for people- and trail-friendly characteristics: thorny plants, trees which tend to drop messy fruit/seeds/pods (which could affect surface traction), and heavy pollen-producers should not be used alongside trails. Native, non-invasive, low water use trees whose roots go downward rather than outward are highly recommended and encouraged next to shared-use paths.

Safety & Visibility

In addition to design factors such as stopping sight distances and trail widths, trail design must also take into consideration geographical and environmental factors such as local weather conditions, location (surroundings), and visibility. There is usually a strong correlation between a trail user's sense of security and the level of visibility, both into and out from the trail. Therefore, trail designers should strive to maintain a balance between the privacy of adjacent landowners, and security concerns of trail users. Security concerns on a trail can be addressed through Crime Prevention through Environmental Design (CPTED) guidelines.

Neighborhood-friendly fencing deters trail users from disturbing private property.

Crime Prevention through Environmental Design (CPTED) The four principles of CPTED are:

- Natural surveillance – maintaining sight lines and visibility to deter criminal activities.
- Natural access control utilizes fences, lighting, signage and landscape to clearly define where people and vehicles are expected to be.
- Territorial reinforcement – use physical designs such as pavement treatments, landscaping and signage to develop a sense of proprietorship over the trail.
- Maintenance - if graffiti or vandalism occurs and is not repaired replaced right away, it can send the message that no one is watching or that no one cares.

Design Considerations & Guidelines

Design considerations for maximizing visibility include location, height, and type of fencing (see Access Control section below); clear lines of sight into and through tunnels, underpasses, and bridges; elimination of blind corners at intersections and other locations; and the addition of lighting in appropriate areas.

Bollards and pavement change prevent motor vehicles from using the trail.

Weather-related design consists primarily of maximizing solar orientation to minimize dangers from ice and snow accumulation. In some cases, protection from potentially gusty winds may be appropriate for open, exposed stretches of trail. Discussion of potential hazardous conditions related to storm water runoff is contained in the Drainage section below.

Privacy of adjacent property owners

- Encourage the use of neighborhood friendly fencing and also planting of landscape buffers.
- Clearly mark path access points. Post path rules that encourage respect for private property.
- Strategically placed lighting.

Unwanted vehicle access

- Utilize landscaping to define the corridor edge and path, including earth berms or boulders.
- Use bollards at intersections as needed and as outlined in various bollard assessments, future policies, and AASHTO.
- Pass a motorized vehicle prohibited ordinance and sign the path.
- Create a Trail Watch Program and encourage citizens to photograph and report illegal vehicle use of the corridor. Authorized vehicles are not considered "illegal" vehicle trespass.
- Lay the shared-use path out with curves that allow bike/pedestrian passage but are uncomfortably tight for automobile passage

Rest stops should provide garbage receptacles to minimize littering.

Litter and dumping

- Post rules encouraging pack it in/pack-it-out practices.
- Place garbage receptacles at trailheads.
- Strategically placed lighting, utilizing light shields to minimize unwanted light in adjacent homes.
- Manage vegetation to allow visual surveillance of the path from adjacent properties and from roadway/path intersections.
- Encourage local residents to report incidents as soon as they occur.
- Remove dumpsites as soon as possible.

Emergency call boxes improve users' feelings of safety.

Trespassing

- Clearly distinguish public path right-of-way from private property through the use of vegetative buffers and the use of good neighbor type fencing.
- Post rules encouraging respect for property.

Local on-street parking

- Designate residential streets as parking for local residents only to discourage user parking.
- Place "no outlet" and "no parking" signs prior to path access points.
- Accessible parking should be provided when feasible.

Crime

- Manage vegetation to ensure visibility from adjacent streets and residences.
- Place lights strategically and as necessary.
- Place benches and other amenities at locations with good visual surveillance and high activity.
- Provide mileage markers every 1/4 mile and clear directional signage for orientation.

- Create a “Trail Watch Program” involving local residents.
- Encourage proactive law enforcement on the trail.

Vandalism

- Select benches, bollards, signage and other site amenities that are durable, low maintenance and vandal resistant.
- Respond through removal or replacement.
- Keep a photo record of all vandalism when possible and turn it over to local law enforcement.
- Encourage local residents to report vandalism.
- Create a Trail Watch Program and maintain good surveillance of the corridor.
- Involve neighbors in trail projects to build a sense of ownership.
- Place amenities in well used and visible areas.

Trails should provide frequent access points into neighborhoods.

Visibility

There is usually a strong correlation between a trail user’s sense of security and the level of visibility, both into and out from the trail. Therefore, trail designers should strive to maintain a balance between the privacy of adjacent landowners, and security concerns of trail users.

Design considerations for maximizing visibility include:

- the location, height, and type of fencing (see Access Control section);
- clear lines of sight into and through tunnels, underpasses, and bridges;
- elimination of blind corners at intersections and other locations; and
- addition of lighting in appropriate areas.

Community Involvement to Make Trails a Better Place

Creating a secure trail environment goes beyond design and law enforcement and should involve the entire community. The most effective and most visible deterrent to illegal activity on Albuquerque’s trail system will be the presence of legitimate path users. Getting as many “eyes on the corridor” as possible is a key deterrent to undesirable activity.

- **Good access to the path** - Access ranges from providing conveniently located trailheads along the trail to encouraging the construction of sidewalks to accommodate access from private developments adjacent to the trail. Access points should be inviting and signed so as to welcome the public onto the trail.
- **Good visibility from neighbors** - Neighbors adjacent to the trail can potentially provide 24-hour surveillance of the trail and can become Albuquerque’s biggest ally. Though some screening and setback of the path is needed for privacy of adjacent neighbors; complete blocking out of the trail from neighborhood view should be discouraged. This eliminates the potential of neighbors’ “eyes on the trail” and could result in a “tunnel effect” on the trail.
- **High level of maintenance** - A well-maintained trail sends a message that the community cares about the public space. This message alone will discourage undesirable activity along the trail.

- **Programmed events** - Community events along the trail will help increase public awareness and thereby attract more people to use the trail. Neighbors and residents can help organize numerous public events along the path which will increase support for the path. Events might include a day-long path clean up or a series of short interpretive walks led by long- time residents or a park naturalist.
- **Adopt-a-trail Program** - Nearby businesses, community institutions and residential neighbors often see the benefit of their involvement in trail development and maintenance. Businesses and developers may view the trail as an integral piece of their site planning and be willing to take on some level of responsibility for the trail.
- **Trail Watch Program** - Partnering with local and county law enforcement, a trail watch program would provide an opportunity for local residents to become actively involved in crime prevention along Albuquerque's trail system. Similar to Neighborhood Watch programs, residents are brought together to get to know their neighbors and are educated on how to recognize and report suspicious activity. Although this section is related to better awareness, trail watch programs do not solely need to be tied to crime prevention. Many people can report fun items in trail watch reports such as different wildlife and bird sightings and other nature specific items such as interesting native vegetation as well as where noxious weeds are located.

Multi-use Trails

Development of a consistent signage system is an important element in the creation of a unified and recognizable trail system in metropolitan Albuquerque. Signage can be grouped broadly into two categories: regulatory and informational. Regulatory signage includes warnings, regulations, and directives applicable to trail use in general (Stop, No Motor Vehicles, Trail Etiquette, etc.), while informational signage would refer to a signage package specific to a particular trail and location, providing information such as the trail name (especially at designated trailheads), connections to other trails or facilities (through maps or directional arrows), and distances to key destinations. In an effort to expand trail accessibility, these signs also often include information such as trail length, grades, cross slopes, and obstacles which may be encountered (see **Trail Difficulty Rating System**).

Wayfinding can be a challenge for most trail users. A system needs to be established to provide effective wayfinding for the trail users and location identification for emergency responders.

Trail identification

Multi-use trails are typically identified by name, usually coinciding with the major feature which they parallel such as an arroyo, highway or geographical location. Examples of these are the Bear Canyon, I- 40 trail and Paseo del Bosque multi-use trails. Knowing where you are on these trails can be difficult due to lack of an addressing system. A logical system needs to be established that provides the trail user with their location and direction of travel. Multi-use trails shall follow the following conventions with regards to direction and location.

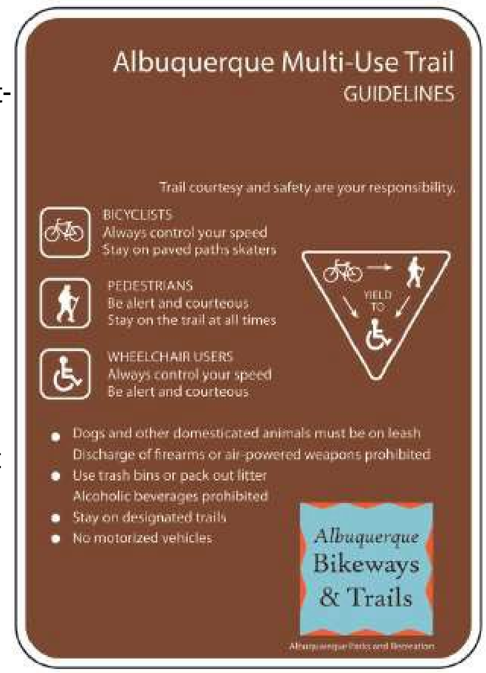
Trail Name

- Officially recognized trails should all have names. Trail names should be memorable, informative, and linked to specific trail sections.
- Names are more useful when easier to recall. In general, words are more memorable than numbers. More specific names are better than generic ones ("Sandia Crest Trail" rather than "Long Trail"). Sets of trail names should be easy to distinguish (avoid sets like "Tramway Trail", "Tramway Hills Trail,"

"Tramway Heights Trail" etc.). Using both Spanish ("Paseo de las Montañas") and English ("North Diversion Channel Trail") adds to distinctiveness and honors New Mexico's multilingual heritage (in part).

- Trail names can be useful when they provide information on trail location, trail connections and character or function of the trail. Many of the paved trails in the Albuquerque area are named for the roads or watercourses that they parallel. This helps locate where they are, but can be problematic when trails or trail sections only follow a part of a road or watercourse that runs a long distance. Names like "Mariposa Linear Park" and "Emery Trail" show links to Mariposa Basin, and the Michial Emery trailhead respectively.
- Separate trail sections should receive distinct names, even if along same road or watercourse. Sections can be distinguished by suffixes such as "east, central, west" or other appropriate divisions. Foothills trail 365 should be divided into "North" and "South" sections.

Trail direction and mile marker



- The trail names shall be posted on trail signage at street and trail intersections. Stencils on paved trails offer a defacement-resistant alternative to traditional post-mounted, eye-level signage.
- Multi-use trails that have a predominantly south/north alignment shall have a mile marker designation that begins at mile zero at the southern terminus of the trail. If there are plans to extend the trail towards the south the mile marker shall begin at the future southerner terminus of the planned extension. The mile markers shall increase along the trails alignment in the northerly direction.
- Multi-use trail that have a predominantly west/east alignment shall have a mile marker designation that begins at mile zero the existing western terminus of the trail. If there are plans to extend the trail to the west the mile marker shall being at the future western terminus of the planned extension. The mile markers shall increase along the trails alignment in the easterly direction.
- When posting mile marking information shall be shown to the nearest 1/10th of a mile in decimal format. Whole number mile marks shall use a decimal point followed by a zero.

Trail location

- Locations on a trail shall be identified by the distance from the beginning terminus of the trail expressed in miles and tenths of miles.

It would be beneficial to the trail users to include on the City's bike map multi-use trail mile markers at major locations such as trail heads, trail/trail intersections and trail/street intersections. Emergency responders should be aware of the multi-use trail identification system and incorporate it into their dispatching protocol.

Guidance
Trail identification/location marking and wayfinding can be comprised of signs, trail heads, kiosks, maps and pavement markings. The type of location marking is dependent on the location and anticipated needs of the trail users.

Regulatory Signs

Design Considerations & Guidelines
Regulatory signage should be placed where most visible and effective, and should be grouped, where practical and appropriate, to minimize the number of posts (potential obstacles). In some cases, free-standing signs may be replaced by pavement markings, for the same reasons. (A specific example would be to replace "Stop Ahead" signs with the same message painted on the trail surface. See Pavement Markings discussion below.) Sizing and placement should be in accordance with the most recent version of the Federal Highway Administration's Manual on Uniform Traffic Control Devices (MUTCD) Part 9, Bicycle Facilities. However, the City Parks and Recreation Department has developed a few signs that will give Albuquerque's paved multi-use trail network its own sense of community and style. The following are examples of what the Parks and Recreation Department has implemented since 2013.

Figure 18: Trail Etiquette Signs

Informational signage should be dealt with on a trail-by-trail basis, developing a logo or theme for each trail, and developing a signage package which reflects that theme. This package has been designed with a standardized mounting system and graphic medium which can be easily modified or replaced as the trail system grows. However, creativity and customization of the trail-specific informational package, post (or alternative mounting) configuration and thematic colors are encouraged, in order to develop individual identities for each trail facility.

Pavement Markings

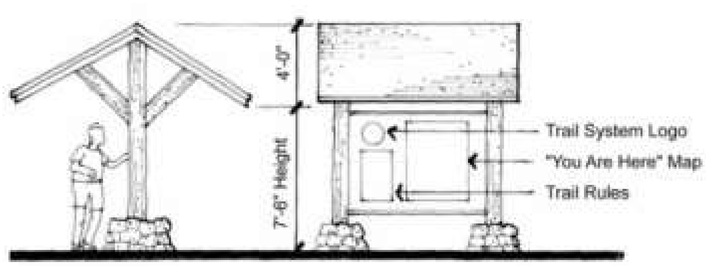
In general, pavement markings supplement or reinforce the regulatory signage, and are comprised of striping, text, and/or stenciled figures. Centerline striping shall be used to help define directions of travel or separate different user groups on multi-purpose trails and be yellow per AASHTO's recommendations, while solid white edge striping gives trail users visual reinforcement of the limits of the trail surface, which is particularly valuable in low light conditions (especially if a potentially hazardous condition exists beyond the edge of the trail). Text is generally intended to convey warnings of changing conditions ahead, although it is sometimes used in place of vertical regulatory signage (such as "Yield" signs). Figures usually take the form of arrows or other symbols, or may be used to designate portions of the trail for different modes of travel.

Design Considerations & Guidelines
Striping along a trail should be consistent, as any change in color, thickness or width can be perceived as an indication of an expected change. An example of this would be changing from dashed to solid striping on sharp curves which require cyclists to slow down (as described in the Trail Alignment section above).

Placement of text on the pavement, rather than on post-mounted signs, can reduce potential vandalism and/or graffiti targets; however, they are more easily overlooked, and are easily obscured by snow or wind-blown debris. Therefore, critical signage such as "Stop" signs should still be provided on posts alongside the trail.

Guidance
Both AASHTO and MUTCD provide additional guidance on striping trail facilities.

Figure 19: Trail Information Kiosk



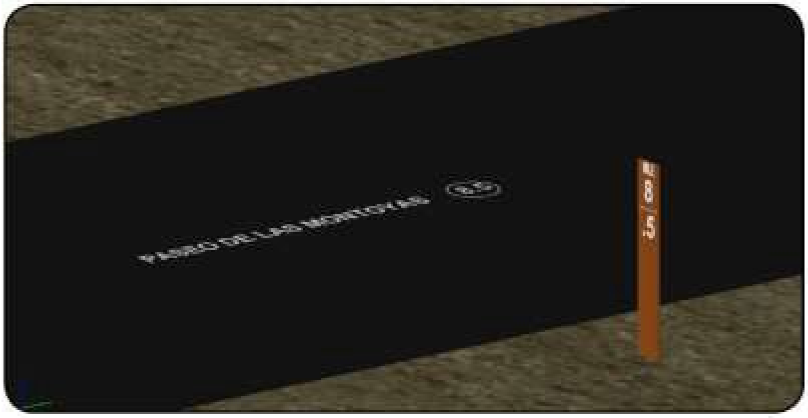
Signage Location

Trail head
Trail head identification should be used to indicate the terminus of the trail, thus informing users approaching the trail from an intersecting trail and when users are leaving a specific trail to use another trail. The trail head can be as simple as a sign identifying the trail by name or more informative by including additional

information, such as the City's Bike Map, or a map emphasizing the trail and showing the trail length, major destinations and distances and 911 emergency reporting instructions. A kiosk can provide a good location to display this information in addition to trail etiquette educational information and pet waste cleanup stations. Trail appurtenances near the kiosk may also improve user satisfaction and aid in alerting quick moving commuters to the congested quality, which maybe present near the kiosk.

Mid-trail marking
Mid-trail markings should be placed at 0.5 mile intervals starting at the southern or western trail terminus and shall include the trail name and mile marker. A combination of a pavement marking and sign can be used or pavement marking solely. Pavement markings showing the trail name and mile marker shall be placed on and parallel to the trail centerline using retro-reflective pavement marking utilizing a 4-inch high white letters and numbers. When a sign is used, a single, double-sided sign shall be placed on the right side of the trail in the direction of increasing mileage. The sign shall be a flexible fiberglass composite extending 3 feet above ground displaying the mile marker and optionally the trail name. An example of the mid-trail pavement marking and sign is shown in the figure below.

Figure 20: Mid-trail Pavement Marking and Sign



Trail/street intersections
Where a multi-use trail intersects a street the trail name, trail mile marker and street name shall be displayed. In addition destination guide signs may be appropriate.

Intersection sign
A post mounted street name sign, similar to a D3-1 with 4-inch initial upper-case letters with 3-inch lower-case letters, shall be located on the right side of the trail near as particle to the edge of the street right-of-way. These signs shall display the trail name and street name. For trails with long names appropriate abbreviations can be used.

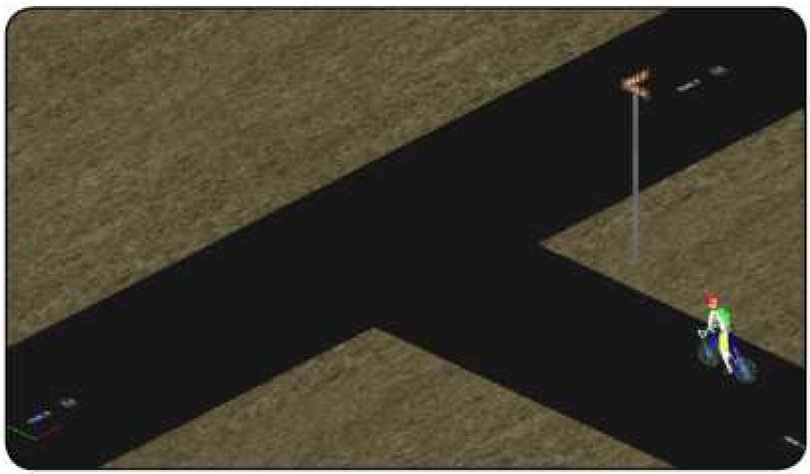
Intersection pavement marking
The street name shall be shown using retro-reflective pavement marking in 6-inch high white letters placed perpendicular to the trails centerline approximately 10 feet from the intersection. The trail name and mile marker retro-reflective pavement marking shall be placed on and parallel to the trail centerline using retro-reflective pavement marking using 4- inch high white letters and numbers and should be placed approximately 25 feet before the intersection.

Trail/trail intersections
Where multi-use trails intersect the trail names and mile markers shall be shown using signs and pavement markings.

Intersection sign
Post mounted signs displaying both trail names, similar to a D3-1 sign with 4-inch initial upper-case letters with 3- inch lower-case letters, shall be located at the intersection. For trail with long names appropriate abbreviations can be used.

Intersection pavement marking
The trail name, for each trail, shall be shown using retro-reflective pavement marking in 4-inch high white letters and numbers. The multi-use trail name and mile marker shall be placed on and parallel to the center line of the trail approximately 25 feet before the intersection.

Figure 21: Trail/Trail Intersection Signage



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2024 CITY OF ALBUQUERQUE BIKEWAY AND TRAIL FACILITIES PLAN

APPENDIX I: MULTI-USE TRAIL BOLLARD ASSESSMENT

CITY OF ALBUQUERQUE
CITY WIDE-ON CALL ENGINEERING SERVICES
(TRANSPORTATION & STORM DRAINAGE)
5015.00

TASK 3
MULTI-USE TRAIL BOLLARD ASSESSMENT

Prepared For:

Prepared By:

PARSONS BRINCKERHOFF

September 5, 2013

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1. Introduction

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 several locations identified by the City, and develop best practices for implementation by the City of Albuquerque.

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 don not comply with ADA requirements.
- Removable bollards are illegally removed from their locations when not locked.
- When not in place, removable bollards have a 1-inch high collar that becomes a trip hazard.
- When bollards are not in place, unauthorized motorized vehicles may utilize multi-use facilities.

2. AASHTO Criteria

2.1 Multi-Use Trails and Bollards

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."*
>
> *"Furthermore, physical barriers are often ineffective at the job they were intended for – keeping out motorized traffic. People who are determined to use the path illegally will often find a way around the physical barrier, damaging path structures and adjacent vegetation. A three-step approach may be used to prevent unauthorized motor vehicle entry to shared use paths:*
>
> 1. *Post signs identifying the entry as a shared use path and regulatory signs prohibiting motor vehicle entry.*
> 2. *Design the path entry locations so that it does not look like a vehicle access and make intentional access by unauthorized users difficult. A preferred method of restricting entry of motor vehicles is to split the entry way into two sections separated by low landscaping.*
> 3. *Assess whether signing and path entry design prevents or reduces unauthorized traffic to tolerable levels. If motor vehicle incursion is isolated to a specific location, consider targeted surveillance and enforcement."*

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 of Albuquerque does not have a policy for when bollards should be considered.

2.2 AASHTO and MUTCD Bollard Guidelines

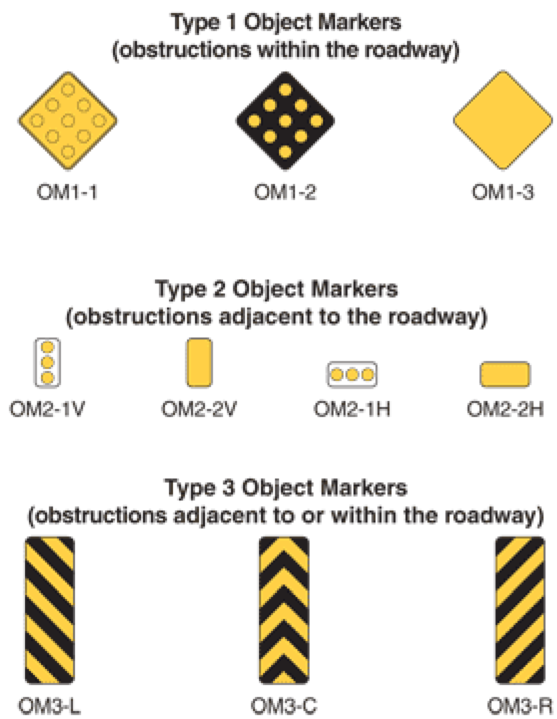
If a need for the implementation of bollards for a multi-use trail is identified, AASHTO has set forth several guidelines for the design of vertical barriers to make them as compatible as possible with the needs of path users and bicyclists. It should be noted that the parameters listed below are recommended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

- Bollards should be marked with a retroreflectorized material on both sides or with appropriate object markers, per Section 9B.26 of the *Manual of Uniform Traffic Control Devices* (MUTCD).
    - MUTCD Section 9B.26 Object Markers

      Fixed objects adjacent to shared-use paths may be marked with Type 1, Type 2, or Type 3 object markers. If the object maker is not intended to also be seen by motorists, a small version of the Type 3 object marker may be used.

      Standard:

      - Obstructions in the traveled way of a shared-use path shall be marked with retroreflectorized material or appropriate object markers.
      - All object markers shall be retroreflective.
      - On Type 3 object markers, the alternating black and retroreflective yellow stripes shall be sloped down at an angle of 45 degrees toward the side of which traffic is to pass the obstruction.



- Bollards should permit passage, without dismounting, for adult tricycles, bicycles towing trailers, and tandem bicycles. Bollards should not restrict access for people with disabilities.
  - Outdoor Developed Areas Accessibility Guidelines: 3 feet for clear tread width
  - Architectural and Transportation Barriers Compliance Board (Access Board): 5-feet is the minimum clear width for shared use paths
- Bollard placement should provide adequate sight distance to allow users to adjust their speed to avoid hitting them.
- Bollards should be a minimum height of 40 inches and minimum diameter of 4 inches.
- Striping an envelope around the approach to the post is recommended as shown below, to guide users around the object.

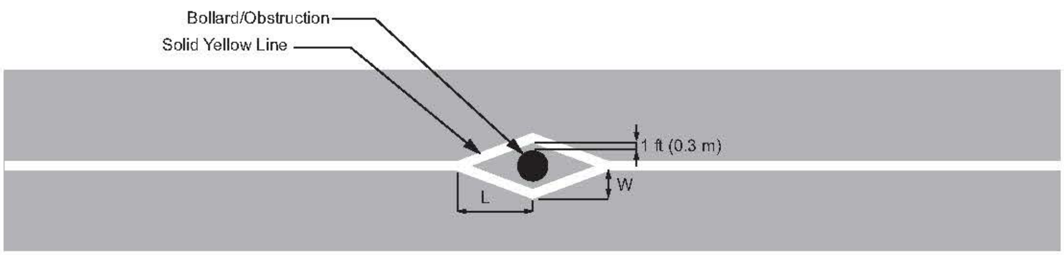


Figure 5-21. Bollard Approach Markings

Source: AASHTO *Guide for the Development of Bicycle Facilities, 2012 (Fourth Edition)*:

- One strategy is to use flexible delineators, which may reduce unauthorized vehicle access without causing the injuries that are common with rigid bollards.
- Bollards should be installed in locations where vehicles cannot easily bypass the bollard. Use of one bollard in the center of the path is preferred. When more than one post is used, an odd number of posts spaced at 6 feet is desirable. However, two posts are not recommended, as they direct opposing path users towards the middle, creating conflicts and the possibility of a head-on collision. Wider spacing can allow entry to motor vehicles, while narrower spacing might prevent entry by adult tricycles, wheelchairs users, and bicycles with trailers.
- Bollards should be set back from the roadway a minimum of 30 feet. Bollards set back from the intersection allow path users to navigate around the bollard before approaching the roadway.
- Hardware installed in the ground to hold a bollard or post should be flush with the surface to avoid creating an additional obstacle.
- Lockable, removable (or reclining) bollards allow entrance by authorized vehicles.

3. CITY OF ALBUQUERQUE BOLLARD INSTALLATIONS

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 (see **Appendix A**). As part of this assessment, the City of Albuquerque requested that bollards at the following locations be reviewed and compared to AASHTO design guidelines:

- Bear Canyon Arroyo Bridge (East Entrance), at the north end of Brentwood Lane (**Figure 1**)
- Bear Canyon Arroyo Bridge (West Entrance), adjacent to the east side of Jefferson Street, north of Balloon Park Road (**Figure 2**)
- Bear Canyon Arroyo Trail, adjacent to the west side of Jefferson Street, north of Balloon Park Road (**Figure 3**)
- Gail Ryba Bridge (East Entrance), which crosses over the Rio Grande, adjacent to the Bosque Trail (**Figure 4**)

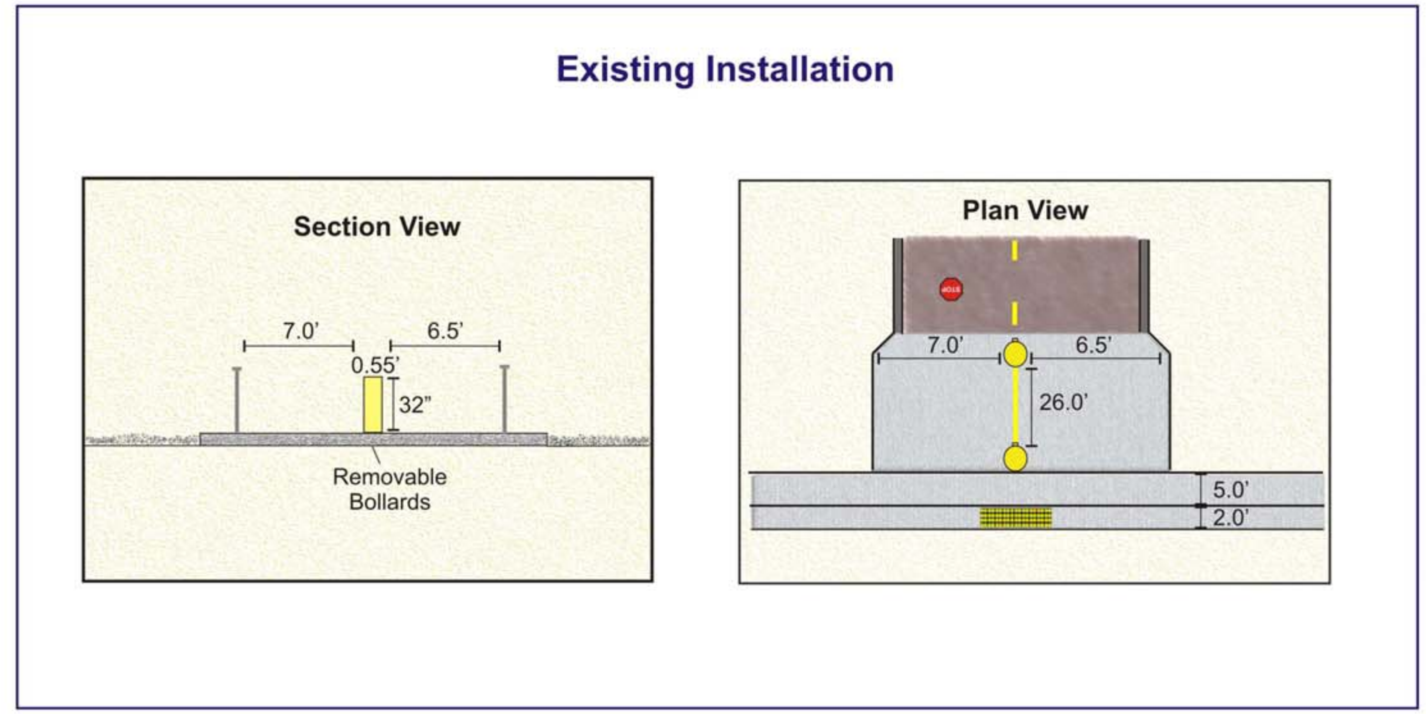
It should be noted that during the development of this assessment, changes were made to the bollard installations at the Bear Canyon Arroyo Bridge (East Entrance) and at the Bear Canyon Arroyo Bridge (West Entrance). For the purpose of this assessment, only the new installations were documented and evaluated as compared to AASHTO design guidelines. **Table 1** summarizes the relevant design criteria for the each of the installations and indicates if the criteria meet or exceed AASHTO criteria.

Table 1: Multi-Use Trail Design Criteria Summary

		Bear Canyon Arroyo Bridge (East Entrance)	Bear Canyon Arroyo Bridge (West Entrance)	Bear Canyon Arroyo Trail (West Jefferson)	Gail Ryba Bridge (East Entrance)
Visibility	Retroreflectorized Material	×	×	✓	✓
	Appropriate Object Markers	×	×	-	-
Permit Passage	ADA Accessible (3 feet)	✓	✓	×	✓
	Clear Width (5 feet)	✓	✓	×	✓
Adequate Sight Distance		✓	✓	✓	✓
Bollard Dimensions	Height (40 inches)	×	×	×	×
	Width (4 inches)	✓	✓	✓	✓
Striped Envelope		×	×	×	✓
Flexible Delineators		×	×	×	×
Placement	One Bollard in Center	✓	✓	×	×
	Odd Number of Posts with 6 foot Spacing	-	-	×	×
Setback(30 foot)minimum		×	✓	×	-
Flush Mounting Hardware		✓	✓	×	✓
Removable Bollards for Access		✓	✓	✓	✓

✓ - Criteria Met
× - Criteria Not Met

Figure 1: Bear Canyon Arroyo (East Entrance)



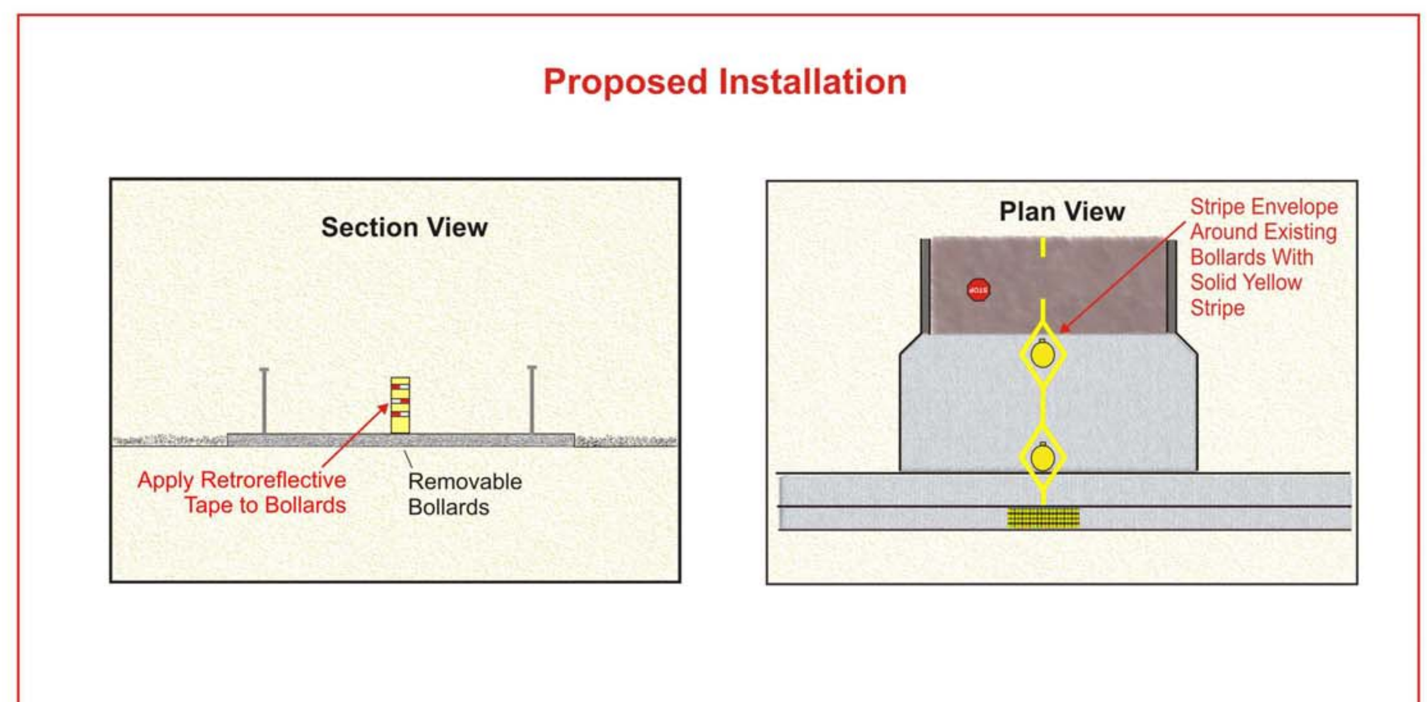
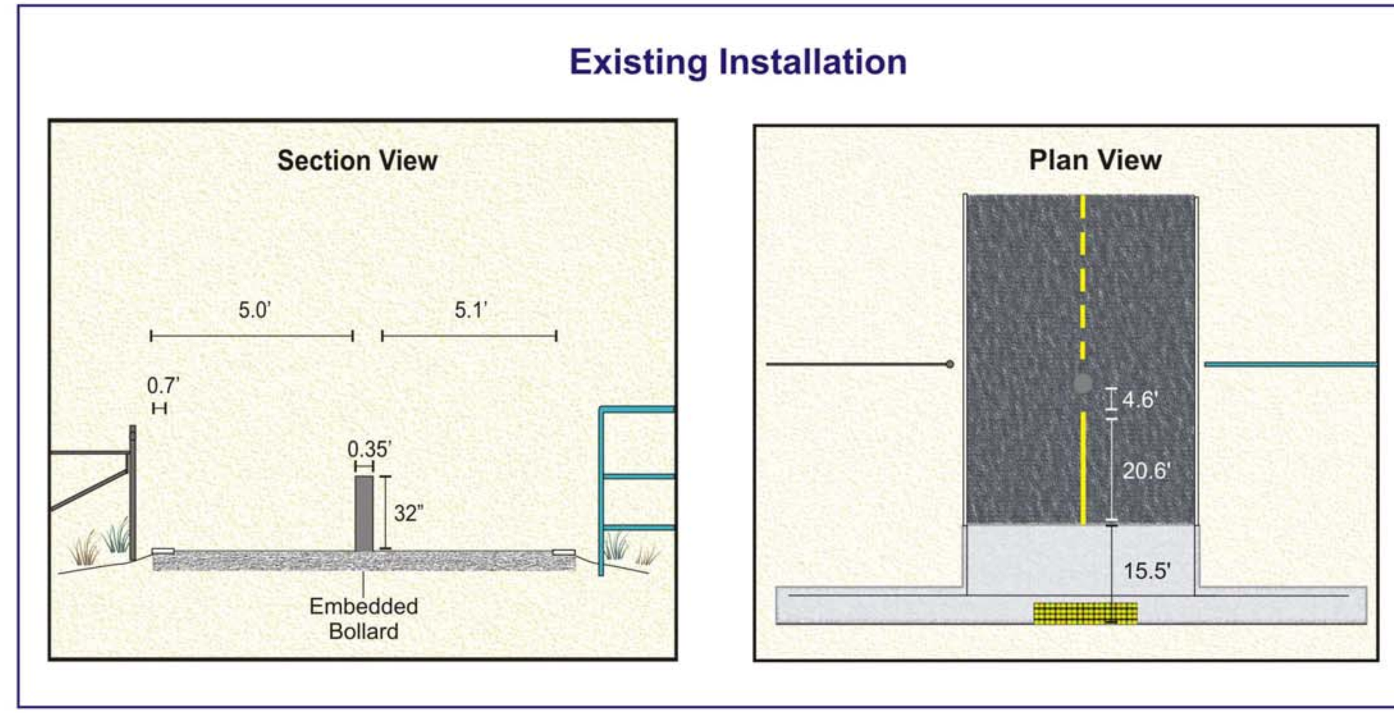


Figure 2: Bear Canyon Arroyo (West Entrance)



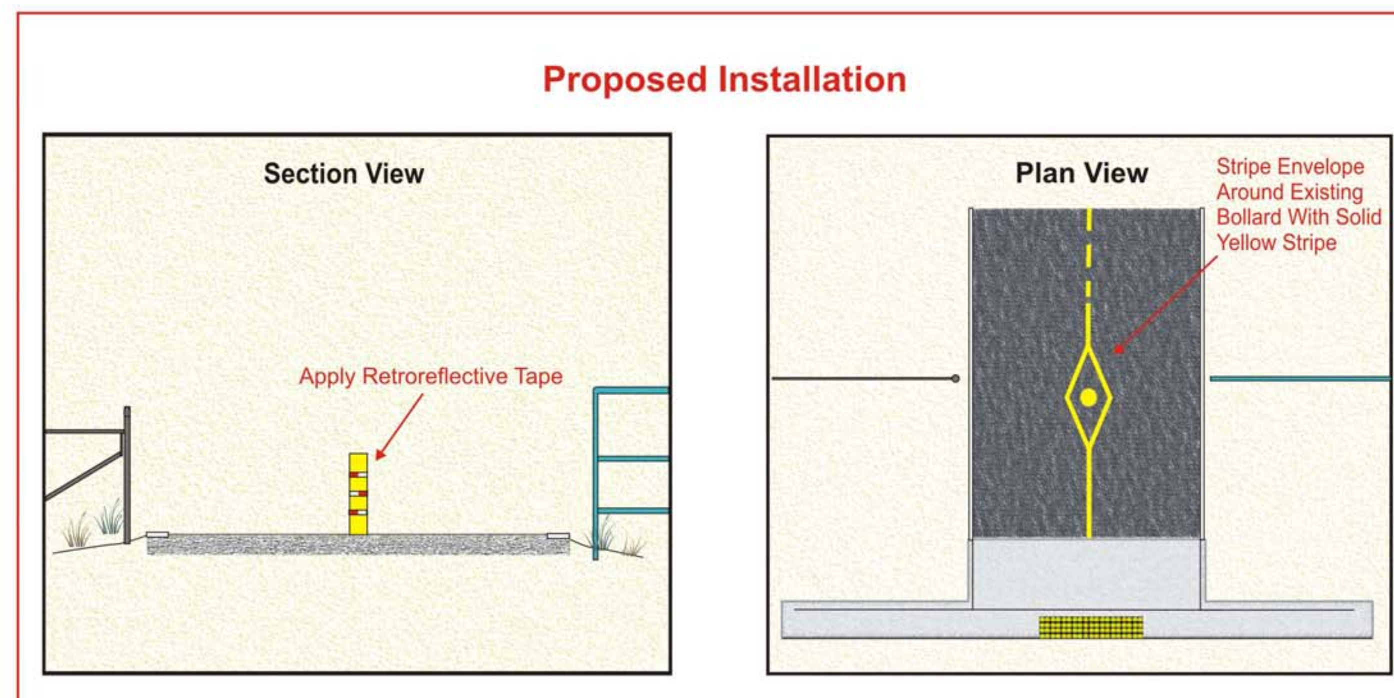
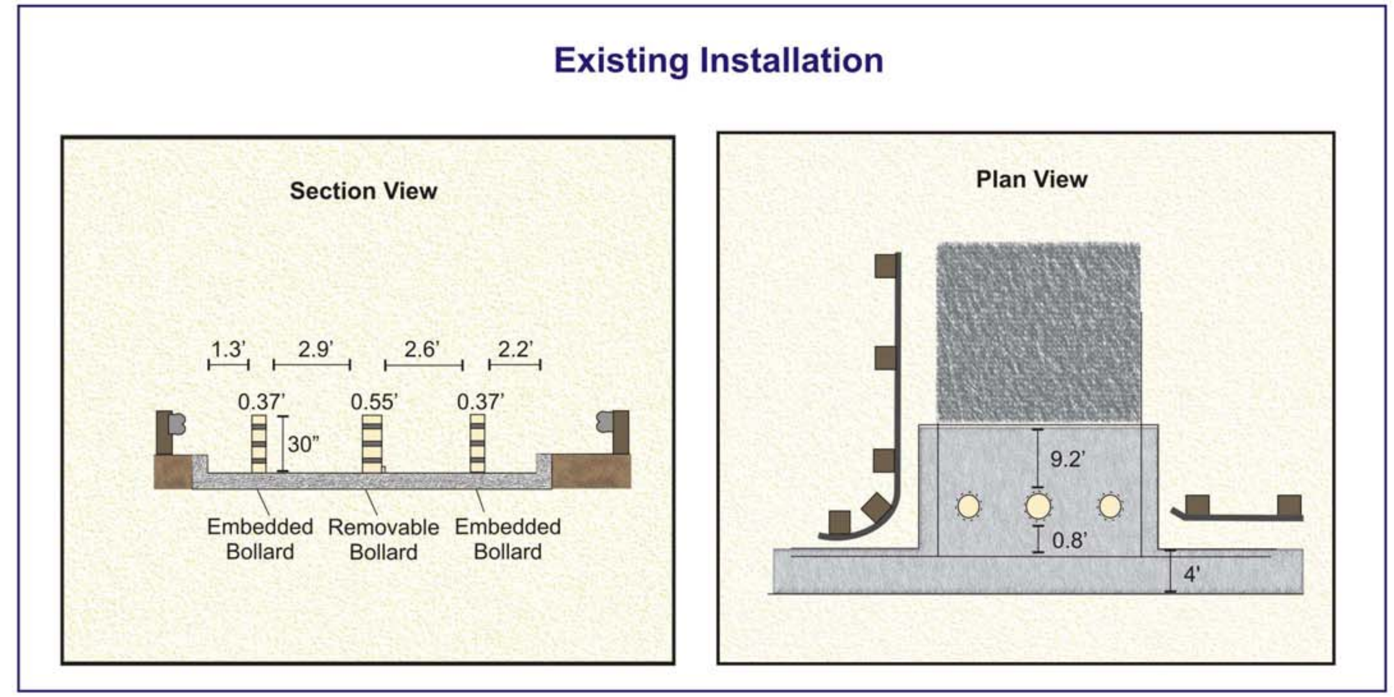


Figure 3: Bear Canyon Arroyo Trail



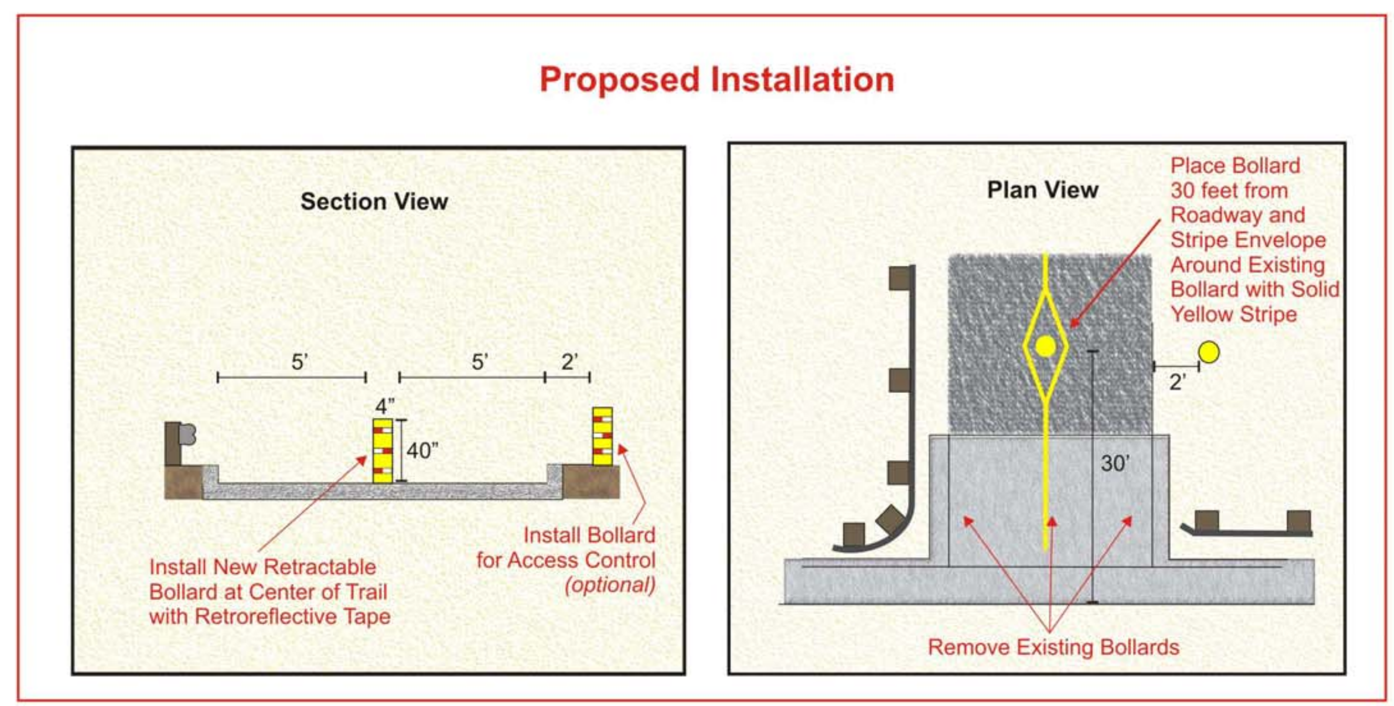
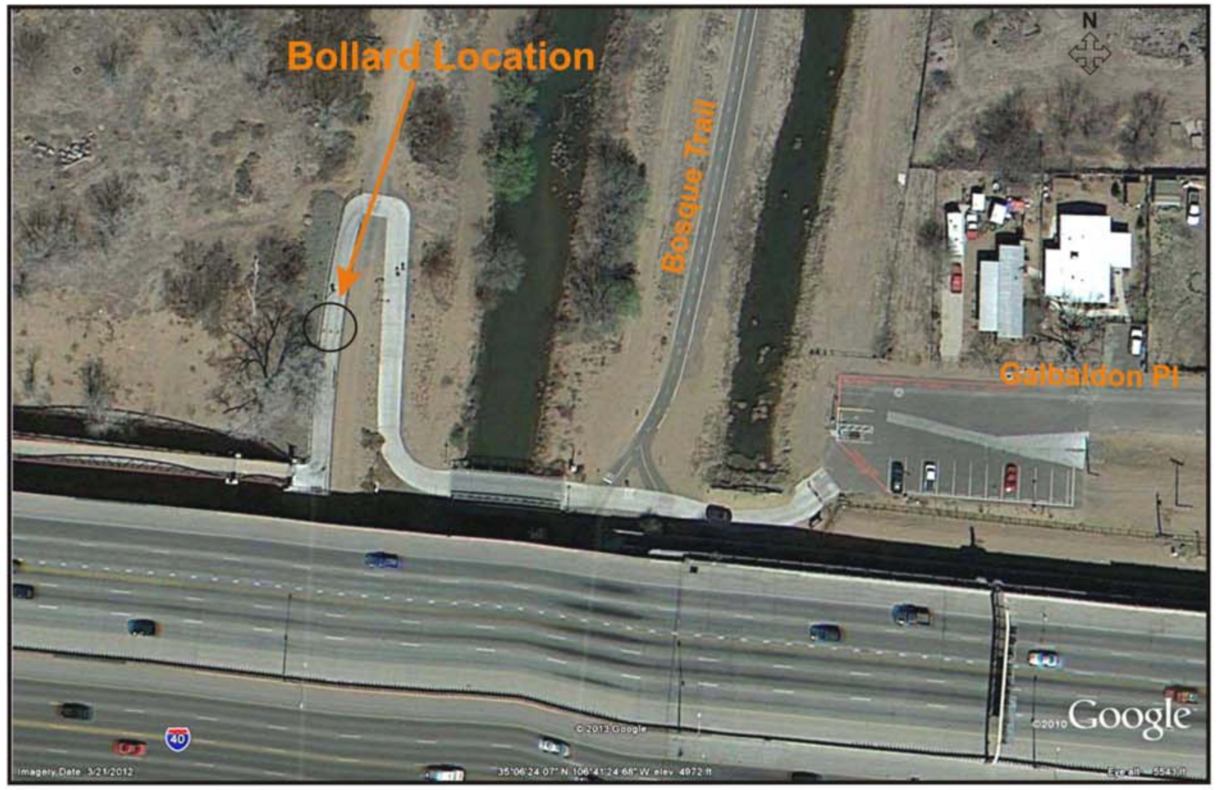
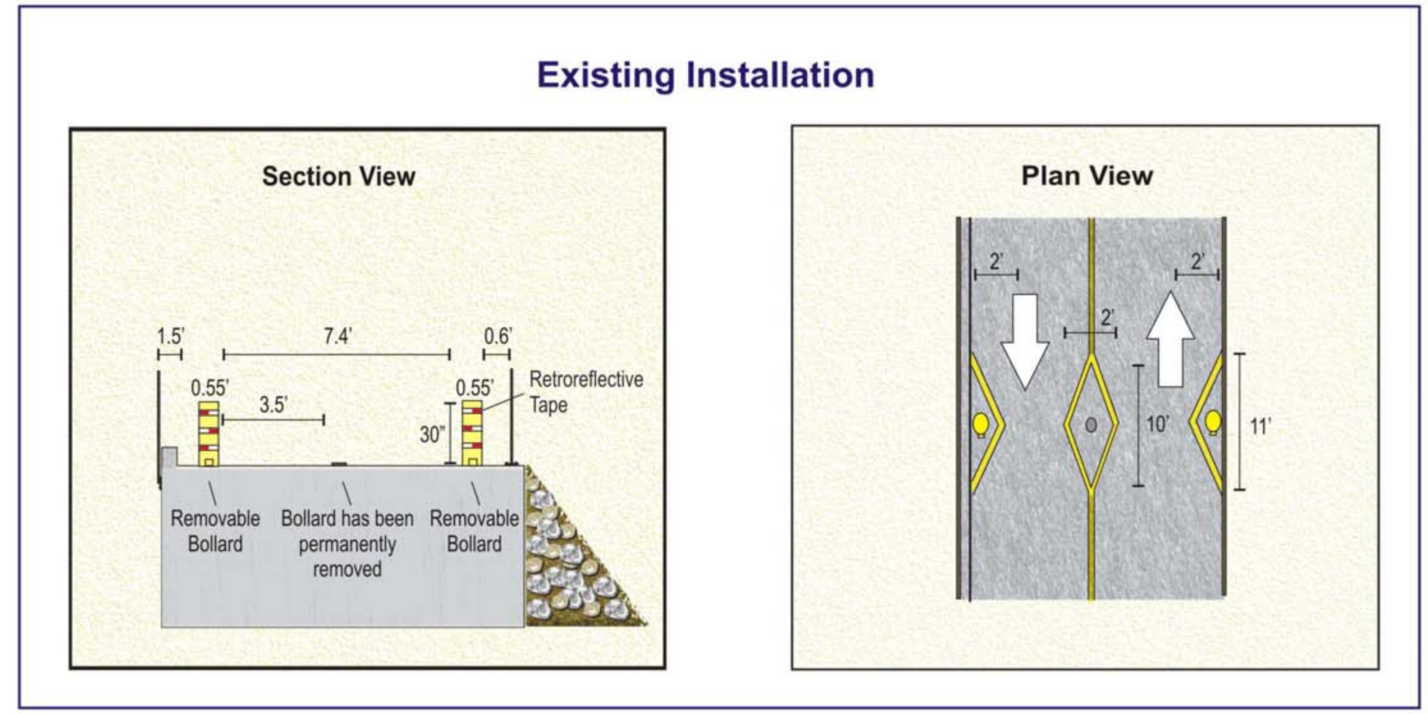
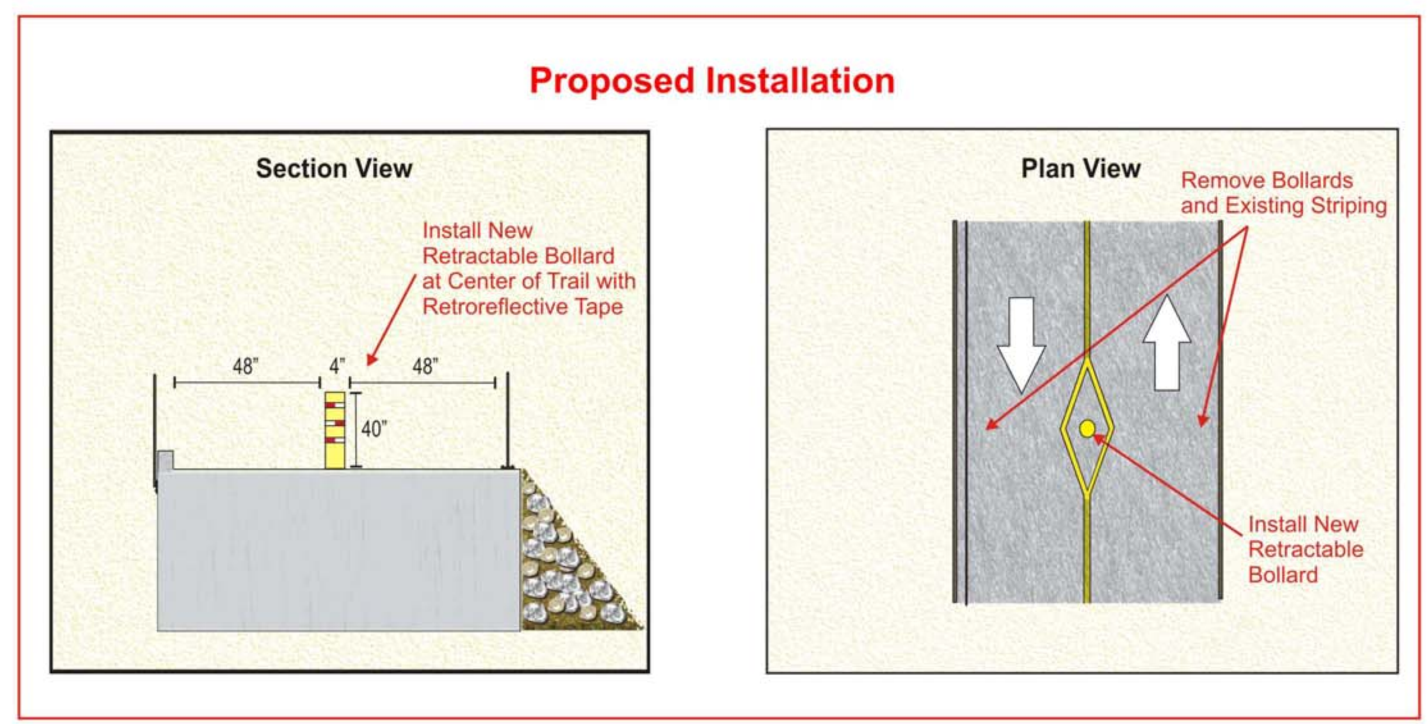


Figure 4: Gail Ryba Bridge







The evaluation findings show that the bollard installations reviewed are not in compliance with AASHTO and MUTCD recommendations. In conjunction with a cursory review of additional locations, the following issues are consistent throughout the City of Albuquerque:

- Bollards are rarely retroreflectorized or emblazoned with retroreflectorized tape.
- Bollards are not 40 inches in height and were always much shorter.
- Striping is inconsistent between sites and even within a given trail segment.
- Bollard placement (number and spacing) is inconsistent throughout the City.
- Bollards are often placed too close to the roadway, frequently at the back of the entrance ramp to the trail.

The proposed modifications to the existing installations maintain existing equipment and enhance conditions with retroreflective paint and tape and optimization of bollard placement. Retractable, 40-inch bollards were not specified unless a new bollard was required.

4. National Guidance

Since national standards governing the placement of bollards on multi-use trails do not currently exist, different agencies, committees and coalitions have developed best practices or suggested guidance for bollard types, placement, and locations. The common thought is that bollards should be utilized to increase trail safety by providing separation between motorized vehicles and trail users. A trail entry point should provide safe access to users and keep unauthorized vehicles out.

The following are a summary of best practices and guidelines, including a summary of recommended revisions to the MUTCD (California), Section 9C-101, for the implementation of bollards on multi-use trails developed in California by the City of Sacramento and California Department of Transportation:

- The first steps to control entry at a trail approach should be to install signs that state vehicle entry is prohibited, and to design the entry to discourage vehicle access.
- Barriers should be placed out of the path of travel. Place bollards on the centerline or lane line of a trail.
- Bollards should be permanently reflective for nighttime visibility and coated with a bright color for daytime visibility.
- Bollards should be placed so that there is sufficient sight distance to allow users to adjust speed.
- Bollards should permit passage, without dismounting, for adult tricycles, bicycles towing trailers, and tandem bicycles. Five feet of clearance should be measured face to face and not center to center.
    - When placed off the pavement, bollards should be placed a minimum of 2-feet from the edge of the trail or outer lane line.
- Fold down and sleeve bollards should not be used on trails because when they are not in use, they are a hazard to users.
    - If removable bollards are used, the foundation shall be flush with the surface.
- Use special advance warning signs or pavement markings where sight distance is a concern.
- Develop a separate access for authorized vehicles when warranted on shared facilities.

These guidelines are largely consistent with other agency practices and recommendations. A summary of agency and organization guidelines and standard drawings are included in **Appendix B**.

5. Summary and Recommendations

The Albuquerque metropolitan area has more than 175 miles of paved multi-use trails. While bollards are commonly used on these facilities, the City of Albuquerque does not have established standards defining the appropriate installation of bollards on a multi-use trail and the applications are inconsistent. AASHTO together with the MUTCD, has developed recommended criteria for the installation of bollards on multi-use trails, which are not design standards, but have been established as best practices.

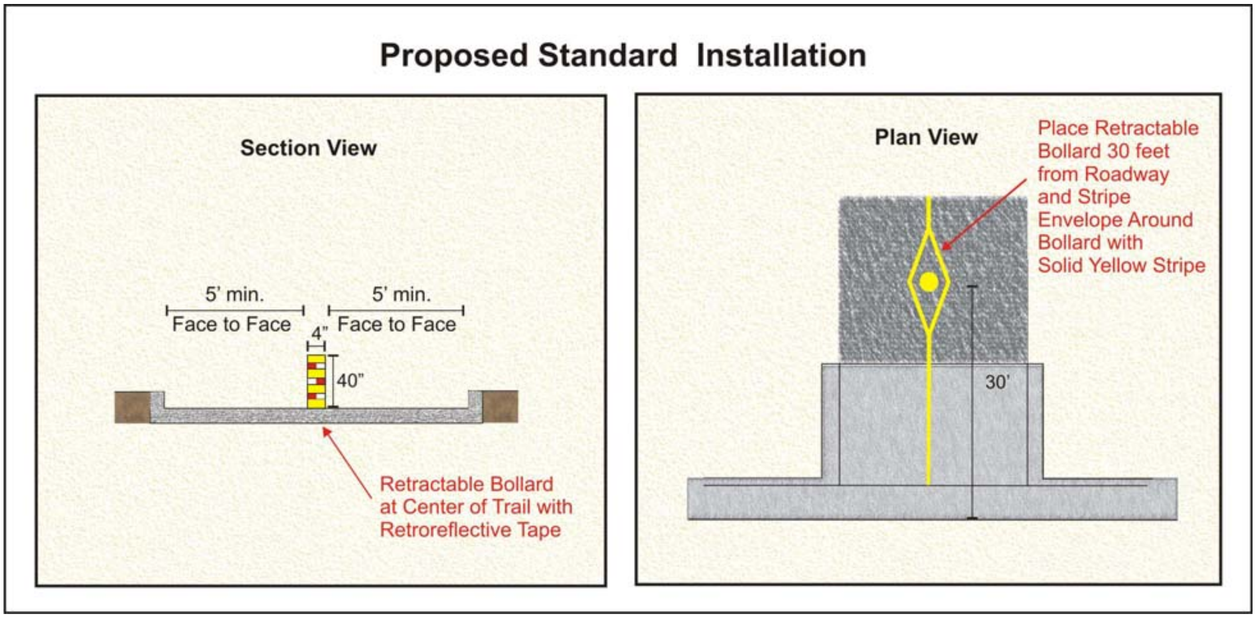
The goal of bollards should be to balance the need to discourage unauthorized motorized vehicle access on a trail with the need to provide the trail users a facility without unnecessary obstructions. Therefore, developing a series of best practices for the installation of bollards on the City of Albuquerque 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.

Following is a list of best practices that should be consistent when installing bollards at any trail facility by the City of Albuquerque (**Figure 5**):

- Only apply bollards if the need is demonstrated, or if the trail entrance cannot be designed or modified to discourage use by unauthorized motor vehicles. Bollard use should be reserved for problematic locations.
    - Bollards should not be installed on trail facilities that parallel a roadway unless it is identified as a problematic location.
    - Bollards should be considered along obscured facilities that are not readily visible and at other problematic locations.
- All bollards should be made of a retroreflectorized material or have retroreflectorized tape affixed to them for easy visibility from both approaches to the bollard.
    - Where possible, retractable bollards should be implemented. Appropriate usage ensures that the bollards will remain in place and cannot be removed from the site and when retracted, the bollard will not be a hazard.
- Bollards should be 40 inches in height (minimum) and 4 inches (minimum) in diameter to ensure visibility.
- In most instances, a single bollard should be placed at the centerline of the trail, where adequate sight distance is available.
    - Two bollards should not be used as they typically will be placed in the center of the travel way for each travel direction.
    - If it is necessary to restrict access adjacent to the multi-use trail to restrict motorized traffic, bollards should be placed a minimum of 2-feet off of the edge of the trail.
- A minimum clear width of 5 feet should be provided between the edge of trail and the bollard.

- A striped envelope (4 inch, retroreflective yellow) should be striped around the bollard to provide guidance to divert users around the bollard. A striped yellow centerline should also be provided along the trail for 25-feet on either side of the bollard.
- Bollards should be set back 30-feet from the roadway to separate the conflict point for users between the roadway and bollards, or as far back as is practical based on site conditions.

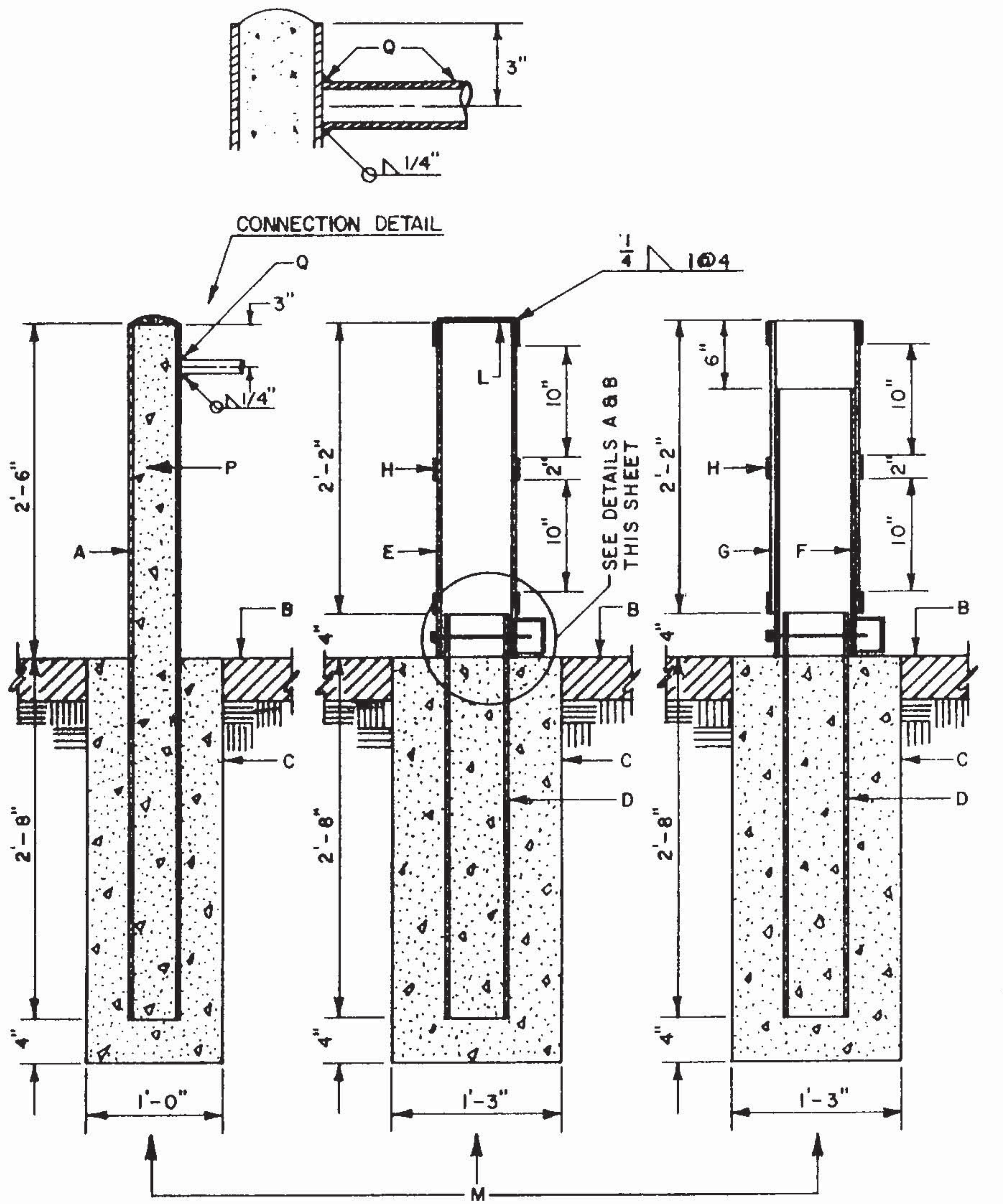
Figure 5: Recommended Practice for Bollard Placement



These recommendations are consistent with a draft policy being developed by the Greater Albuquerque Recreational Trails Committee (GARTC) (**Appendix C**) and current practices of the City of Albuquerque Parks and Recreation Department (coordination meeting held July 22, 2013). Standards to ensure consistent application should be implemented by all departments of the City of Albuquerque. Every trail and entrance are unique and special consideration will need to be given to each site to determine how best to place bollards, if the need for bollards is demonstrated.

Appendices

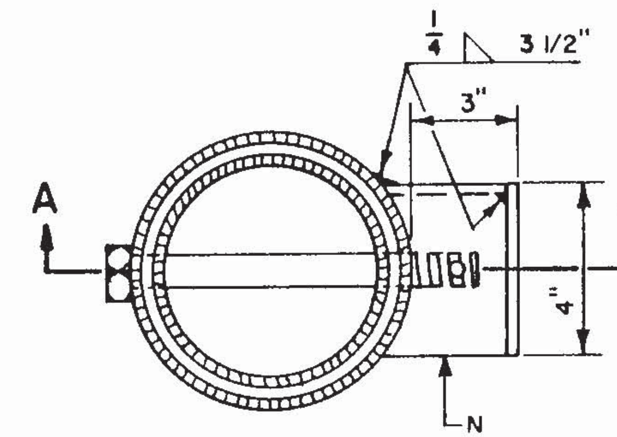
Appendix A: City of Albuquerque Standard Detail



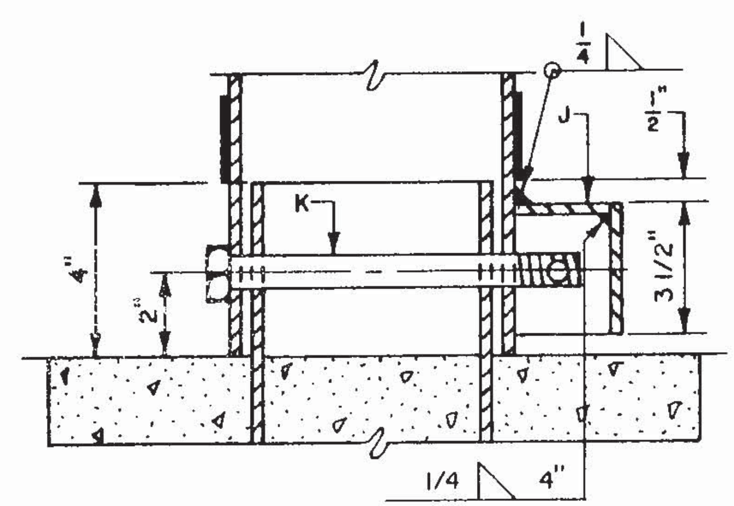
STATIONARY POST

REMOVABLE POST

REMOVABLE POST WITH RUBBER SLEEVE



DETAIL A
PLAN



DETAIL B
SECTION A-A

GENERAL NOTES:

1. FOR SLEEVE, USE GATES NO. 37 W WATER HOSE, DISCHARGE HOSE OR EQUIVALENT. I.D. 6.625" O.D. 7.29", 6 PLY WITH BLACK NEOPRENE COVER.
2. WELDS ARE TO BE GROUND SMOOTH.
3. EXPOSED STEEL AND SLEEVE TO BE PAINTED WITH AN OIL BASE ALKYD PRIMER AND AN OIL BASE ALKYD ENAMEL TOP COAT. COLOR TO BE BRIGHT YELLOW.

CONSTRUCTION NOTES:

A. 4" NOMINAL DIA. SCHEDULE 40 GALV. STEEL PIPE, 5'-2" TO BE FILLED W/CONC. PAINT PIPE BRIGHT YELLOW ABOVE FINISHED GRADE.
B. PAVEMENT OR FINISHED GRADE.
C. CONC. COLLAR, 3000 PSI AT 28 DAYS, W/SMOOTH OR BROOM FINISH WHERE PAVEMENT IS ADJACENT.
D. 5" NOMINAL DIA. SCHEDULE 40 GALV. STEEL PIPE, 3'-0" TO BE FILLED W/CONC. TO LEVEL SHOWN.
E. 6" NOMINAL DIA. SCHEDULE 40 GALV. STEEL PIPE, 2'-8" PAINT PIPE BRIGHT YELLOW (REMOVABLE).
F. 6" NOMINAL DIA. SCHEDULE 40 GALV. STEEL PIPE, 2'-0" (REMOVABLE).
G. SLEEVE, 2'-2" PAINT BRIGHT YELLOW, SEE NOTE NO. I THIS SHEET.
H. 2" WIDE REFLECTIVE TAPE, AS APPROVED BY ENGINEER, LOCATE AROUND PIPE AS SHOWN.
J. 1/4" THICK STEEL SAFETY GUARD BOX. OPEN ON ONE SIDE & BOTTOM. WELD ALL SEAMS.
K. 3/4" X 8" GALV. HEX. BOLT W/A 3/8" DIA. HOLE FOR PADLOCK. (PADLOCK FURNISHED BY CITY).
L. 1/4" X 6 5/8" DIA. GALV. STEEL PLATE COVER, WELDED TO PIPE.
M. PLACEMENT OF POSTS SHOULD BE WELL AWAY FROM TRAFFIC ON MAJOR ROADWAYS & PREFERABLY AT THE R.O.W. LINE. TRAFFIC ENGINEERING SHOULD BE CONSULTED ON LOCATION WHEN NEAR TRAFFIC.
N. ALIGN WITH TRAFFIC FLOW IN EASEMENTS OR BIKEPATH TO AVOID TRIPPING HAZARDS WITH BOX.
P. PIPES ARE NOT TO BE FILLED W/CONC. WHEN PIPES ARE LOCATED WITHIN 15' OF STREET FLOWLINE. USE WELDED STEEL CAP INSTEAD.
Q. WHERE CONNECTING BOLLARDS ARE SPECIFIED, WELD 1-1/4" NOM., SCH. 40 PIPE BETWEEN BOLLARDS.

REVISIONS	CITY OF ALBUQUERQUE
	DRAINAGE STATIONARY & REMOVABLE POST DETAILS DWG. 2250 AUG. 1986

Appendix B: Agency Bollard Standard Details

American Association of State Highway Transportation Officials (AASHTO)

Guide to Bicycle Facilities, 4th Edition

Shared Use Path Chicanes

Chicanes (i.e., horizontal curvature) can be designed to reduce path users' approach speeds at intersections where users must stop or yield, or where sight distance is limited. Care should be taken to end chicanes far enough in advance of the intersection to allow the user to focus on the curves in the pathway first, then the approaching intersection (rather than both at the same time). A solid centerline stripe is recommended at chicanes to reduce the instances of bicyclists "cutting the corners" of the curves. Chicanes should not be designed for speeds less than 8 mph (13 km/h).

Restricting Motor Vehicle Traffic

Unauthorized use of pathways by motor vehicles occurs occasionally. In general, this is a greater issue on pathways that extend through independent rights-of-way that are not visible from adjacent roads and properties. Per the MUTCD (*7*), the R5-3, "No Motor Vehicles" sign can be used to reinforce the rules.

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. Bollards on pathways may be struck by bicyclists and other path users and can cause serious injury. Approaching riders may shield even a conspicuous bollard from a following rider's view until a point where the rider lacks sufficient time to react.

Furthermore, physical barriers are often ineffective at the job they were intended for—keeping out motorized traffic. People who are determined to use the path illegally will often find a way around the physical barrier, damaging path structures and adjacent vegetation. Barrier features can also slow access for emergency responders. A three-step approach may be used to prevent unauthorized motor vehicle entry to shared use paths:

1. Post signs identifying the entry as a shared use path and regulatory signs prohibiting motor vehicle entry. For example, the R5-3, "No Motor Vehicles" sign may be placed near where roads and shared use paths cross and at other path entry locations.
2. Design the path entry location so that it does not look like a vehicle access and make intentional access by unauthorized users difficult. A preferred method of restricting entry of motor vehicles is to split the entry way into two sections separated by low landscaping. Each section should be half the nominal path width; for example a 10-ft (3-m) path should be split into two 5-ft (1.5-m) sections. Emergency vehicles can still enter, if needed, by straddling the landscaping. Alternatively, it may be more appropriate to designate emergency vehicle access via protected access drives that can be secured. The approach to the split should be delineated with solid line pavement markings to guide the path user around the split.
3. Assess whether signing and path entry design prevents or reduces unauthorized traffic to tolerable levels. If motor vehicle incursion is isolated to a specific location, consider targeted surveillance and enforcement. If unauthorized use persists, assess whether the problems posed by unauthorized vehicle entry exceed the risks and access issues posed by barriers. Where the need for bollards or other vertical barriers in the pathway can be justified despite their risks and access issues, measures should be taken to make them as compatible as possible with the needs of bicyclists and other path users (*6*):

- Bollards should be marked with a retroreflectorized material on both sides or with appropriate object markers, per Section 9B.26 of the MUTCD (*7*).
- Bollards should permit passage, without dismounting, for adult tricycles, bicycles towing trailers, and tandem bicycles. Bollards should not restrict access for people with disabilities. All users legally permitted to use the facility should be accommodated; failure to do so increases the likelihood that pathway users will collide with the bollards.
- Bollard placement should provide adequate sight distance to allow users to adjust their speed to avoid hitting them.
- Bollards should be a minimum height of 40 in. (1.0 m) and minimum diameter of 4 in. (100 mm). Some jurisdictions have used taller bollards that can be seen above users in order to reinforce their visibility.
- Striping an envelope around the approach to the post is recommended as shown in Figure 5-21 to guide path users around the object.
- One strategy is to use flexible delineators, which may reduce unauthorized vehicle access without causing the injuries that are common with rigid bollards.
- Bollards should only be installed in locations where vehicles cannot easily bypass the bollard. Use of one bollard in the center of the path is preferred. When more than one post is used, an odd number of posts spaced at 6 ft (1.8 m) is desirable. However, two posts are not recommended, as they direct opposing path users towards the middle, creating conflict and the possibility of a head-on collision. Wider spacing can allow entry to motor vehicles, while narrower spacing might prevent entry by adult tricycles, wheelchair users, and bicycles with trailers.
- Bollards should be set back from the roadway edge a minimum of 30 ft (10 m). Bollards set back from the intersection allow path users to navigate around the bollard before approaching the roadway.
- Hardware installed in the ground to hold a bollard or post should be flush with the surface to avoid creating an additional obstacle.
- Lockable, removable (or reclining) bollards allow entrance by authorized vehicles.

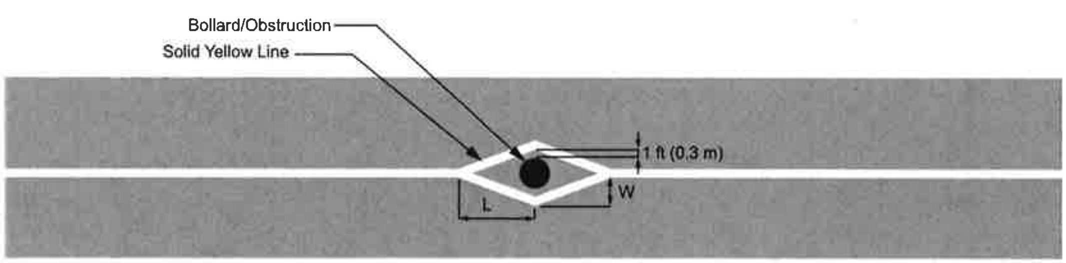


Figure 5-21. Bollard Approach Markings

Edgeline Striping

Edgeline striping may be considered for use on shared use paths under several situations. The use of 4 to 6 in. (100 to 150 mm) wide, white edge lines may be beneficial on shared use paths where nighttime use is not prohibited. The use of white edge lines may be considered at approaches to intersections to alert path users of changing conditions, and if the pathway design includes a separate area for pedestrian travel, it should be separated from the bicycle traveled way by a normal white line. Refer to Section 5.2.1 for more information on segregation of traffic.

Approach Markings for Obstructions

Obstructions should not be located in the clear width of a path. Where an obstruction on the traveled portion occurs (for example, in situations where bollards are used), channelizing lines of appropriate color (yellow for centerline, otherwise white) should be used to guide path users around it. An example of a centerline treatment is given in Figure 5-21. For obstructions located on the edge of the path, an obstruction marking (see Figure 4-30) should be used. Approach markings should be tapered from the approach end of the obstruction to a point at least 1 ft (0.3 m) from the obstruction (See Table 4-1 to determine taper length).

Pavement Markings to Supplement Intersection Control

Stop and yield lines may be used to indicate the point at which a path user should stop or yield at a traffic control device. Design of stop and yield lines is described in Chapter 3B of the MUTCD (*7*). Stop or yield lines may be placed across the entire width of the path. If used, the stop or yield line should be placed a minimum of 2 ft (0.6 m) behind the nearest sidewalk or edge of roadway if a sidewalk is not present.

Supplemental Pavement Markings on Approaches

Advance pavement markings may be used on roadway or path approaches at crossings where the crossing is unexpected or where there is a history of crashes, conflicts, or complaints. If a supplemental word marking (such as "HWY XING") is used, its leading edge should be located at or near the point where the approaching user passes the intersection warning sign or advance traffic control warning sign that the marking supplements. Additional markings may be placed closer to the crossing if needed, but should be at least 50 ft (15 m) from the crossing. Advance pavement markings may be placed across the entire width of the path or within the approach lane. Pavement markings should not replace the appropriate signs. Pavement markings may be words or symbols as described in Part 3 of the MUTCD (*7*).

Advance Stop or Yield Lines

Advance stop lines or yield lines may be used on multilane roadway approaches to a path crossing where the path is given priority. The applicability of either a stop line or a yield line is governed by state law. Figure 5-23 shows an application of advanced yield lines, and Figures 5-18 and 5-20 illustrate the use of both applications where the path is given priority. Advance stop and yield lines reduce the likelihood for a multiple-threat crash between the path user and a vehicle. The advance stop or yield line provides a clearer field of vision between path users who are crossing the road and approaching vehicles in both lanes. These treatments have shown promising results (*16*), (*17*).

Bicycling Info.org

Design Details (web)

Design Details

Width and clearance

Ten feet or 3 meters is the recommended minimum width for a two-way, shared use path on a separate right of way. Other critical measurements include:

- 8 feet (2.4m) may be used where bicycle traffic is expected to be low at all times, pedestrian use is only occasional, sightlines are good, passing opportunities are provided, and maintenance vehicles will not destroy the edge of the trail.
- 12 feet is recommended where substantial use by bicycles, joggers, skaters, and pedestrians is expected, and where grades are steep (see later).
- 2 feet of graded area should be maintained adjacent to both sides of the path.
- 3 feet of clear distance should be maintained between the edge of the trail and trees, poles, walls, fences, guardrails or other lateral obstructions.
- 8 feet of vertical clearance to obstructions should be maintained; rising to 10 feet in tunnels and where maintenance and emergency vehicles must operate.

Design speed, horizontal and vertical alignment

The design of a shared use path should take into account the likely speed of users, the ability of bicyclists to turn corners without falling over, skidding, or hitting their pedal on the ground as they lean over. The AASHTO Guide for the Design of Bicycle Facilities has a number of tables, and equations to help designers meet the tolerances of a bicyclist based on the following key numbers:

- 20 miles per hour (30 km/h) is the minimum design speed to use in designing a trail
- 30 miles per hour (50 km/h) should be used where downgrades exceed 4 percent
- 15 miles per hour (25 km/h) should be used on unpaved paths where bicyclists tend to ride more slowly (and cannot stop as fast without skidding or sliding on a loose surface)

The result is a series of recommended desirable minimum curve radii for corners that should be safe for bicyclists.

Lighting

Shared use paths in urban and suburban areas often serve travel needs both day and night, for example commuter routes and trails accessing college campuses. Fixed source lighting improves visibility along trails and at intersections, and is critical for lighting tunnels and underpasses. The AASHTO guide recommends using average maintained illumination levels of between 5 and 22 lux, and the Florida DOT recommends 25 as the average initial lux. Also, there needs to be a periodic monitoring of the lights and a maintenance program.

Preventing motor vehicle use of paths

In some locations, shared use paths may be mistaken for motor vehicle roads or may suffer from illegal or unauthorized motorized use. At intersections with roadways, therefore, the path should be clearly signed, marked and/or designed to discourage or prevent unauthorized motorized access. A variety of alternatives exist to achieve this:

a. bollards. Probably the most common device is the bollard, often lockable, collapsible or removable to allow for authorized access to the trail. Great care should be used in locating the bollard to ensure that they are visible, allow trail users through, and are not placed so as to channel both directions of trail users towards the same point in the trail. If bollards are to be used, they should be retro-reflective, brightly colored, and have pavement markings around them. On a ten foot trail, one bollard should be used in the center of the trail. If more than one bollard is necessary, there should be five feet between them.
b. splitting the trail in two. Many manuals suggest the option of splitting a ten foot trail into two five foot approaches to an intersection, with a planted triangle between them. This may increase maintenance costs.
c. medians. The Florida DOT manual notes that "curbing with tight radii leading up to the roadway can often prevent motorists from attempting to enter the path. Medians should be set back from the intersection 25 feet (8m) to allow bicyclists to exit the roadway fully before navigating the reduced pathway width."

Signing and marking

While fewer signs may be needed on paths compared to on-street facilities, adequate signing and marking are essential on shared use paths, just as they are on streets and highways. Trail users need to know about potential conflicts, regulatory information, destinations, cross streets etc. The Manual on Uniform Traffic Control Devices (MUTCD) provides some minimum traffic control measures that should be applied and a range of options.

Striping: a yellow center line stripe is recommended where trails are busy, where sight distances are restricted, and on some unlit trails where night time riding is expected. The line should be dashed when adequate passing sight distance exists, and solid when no passing is recommended.

A solid white line may be used to separate pedestrians from bicycle/blading traffic, and solid white edge stripes may also be useful where nighttime riding is expected.

Warning signs: a range of warning signs can be used to inform users that recommended design criteria cannot be met, for example curve radii or grades or where unexpected conditions may exist.

Informational signs: trail users need to know where they are, where they are going, what cross streets they are crossing, how far destinations are away, and what services are available close to the trail. The MUTCD has information on the appropriate signs to use in these instances. Although not in the MUTCD, many trails post signs encouraging uniform trail user etiquette (e.g. "give audible signal when passing" or which type of trail user has the right-of-way).

Intersection markings and signs: pavement marking and signs at intersections should channel users to cross at clearly defined locations and indicate that crossing traffic is to be expected. Similar devices to those used on roadways (STOP and YIELD signs, stop bars etc) should be used on trails as appropriate.

The AASHTO Guide notes that in addition to traditional warning signs in advance of intersections, motorists can be alerted to the presence of a trail crossing through flashing warning lights, zebra-style or colored pavement crosswalks, raised crosswalks, signals, and neck-downs/curb-bulbs. However, some devices such as flashing warning lights are expensive to install and maintain and should be kept to a minimum.

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Caltrans

Caltrans Highway Design Manual Chapter 1000

CHAPTER 1000 BICYCLE TRANSPORTATION DESIGN

Topic 1001 - Introduction

Index 1001.1 – Bicycle Transportation

The needs of non motorized transportation are an essential part of all highway projects. Mobility for all travel modes is recognized as an integral element of the transportation system. Therefore, the guidance provided in this manual complies with Deputy Directive 64-Revision #1: Complete Streets: Integrating the Transportation System. See AASHTO, "Guide For The Development Of Bicycle Facilities".

Design guidance for Class I bikeways (bike paths), Class III bikeways (bike routes) and Trails are provided in this chapter. Design guidance that addresses the mobility needs of bicyclists on all roads as well as on Class II bikeways (bike lanes) is distributed throughout this manual where appropriate.

See Topic 116 for guidance regarding bikes on freeways.

1001.2 Streets and Highways Code References

The Streets and Highways Code Section 890.4 defines a "bikeway" as a facility that is provided primarily for bicycle travel. Following are other related definitions, found in Chapter 8 Nonmotorized Transportation, from the Streets and Highway Code:

(a) Section 887 -- Definition of nonmotorized facility.

(b) Section 887.6 -- Agreements with local agencies to construct and maintain nonmotorized facilities.

(c) Section 887.8 -- Payment for construction and maintenance of nonmotorized facilities approximately paralleling State highways.

(d) Section 888 -- Severance of existing major non motorized route by freeway construction.

(e) Section 888.2 -- Incorporation of non motorized facilities in the design of freeways.

(f) Section 888.4 -- Requires Caltrans to budget not less than $360,000 annually for non motorized facilities used in conjunction with the State highway system.

(g) Section 890.4 -- Class I, II, and III bikeway definitions.

(h) Section 890.6 - 890.8 -- Caltrans and local agencies to develop design criteria and symbols for signs, markers, and traffic control devices for bikeways and roadways where bicycle travel is permitted.

(i) Section 891 -- Local agencies must comply with design criteria and uniform symbols.

(j) Section 892 -- Use of abandoned right-of-way as a nonmotorized facility.

1001.3 Vehicle Code References

(a) Section 21200 -- Bicyclist's rights and responsibilities for traveling on highways.

(b) Section 21202 -- Bicyclist's position on roadways when traveling slower than the normal traffic speed.

(c) Section 21206 -- Allows local agencies to regulate operation of bicycles on pedestrian or bicycle facilities.

(d) Section 21207 -- Allows local agencies to establish bike lanes on non-State highways.

(e) Section 21207.5 -- Prohibits motorized bicycles on bike paths or bike lanes.

(f) Section 21208 -- Specifies permitted movements by bicyclists from bike lanes.

(g) Section 21209 -- Specifies permitted movements by vehicles in bike lanes.

(h) Section 21210 -- Prohibits bicycle parking on sidewalks unless pedestrians have an adequate path.

(i) Section 21211 -- Prohibits impeding or obstruction of bicyclists on bike paths.

(j) Section 21400 – Adopt rules and regulations for signs, markings, and traffic control devices for roadways user.

with adequate stopping sight distances. **The minimum stopping sight distance based on design speed shall be 125 feet for 20 miles per hour, 175 feet for 25 miles per hour and 230 feet for 30 miles per hour.** The distance required to bring a bicycle to a full controlled stop is a function of the bicyclist's perception and brake reaction time, the initial speed of the bicycle, the coefficient of friction between the tires and the pavement, and the braking ability of the bicycle.

Stopping sight distance is measured from a bicyclist's eyes, which are assumed to be 4 ½ feet above the pavement surface to an object ½-foot high on the pavement surface.

(11) *Length of Crest Vertical Curves*. Figure 1003.1C indicates the minimum lengths of crest vertical curves for varying design speeds.

(12) *Lateral Clearance on Horizontal Curves*. Figure 1003.1D indicates the minimum clearances to line of sight obstructions, *m*, for horizontal curves. It is assumed that the bicyclist's eyes are 4 ½ feet above the pavement surface to an object ½-foot high on the pavement surface.

Bicyclists frequently ride abreast of each other on bicycle paths, and on narrow bicycle paths, bicyclists have a tendency to ride near the middle of the path. For these reasons, lateral clearances on horizontal curves should be calculated based on the sum of the stopping sight distances for bicyclists traveling in opposite directions around the curve. Where this is not possible or feasible, the following or combination thereof should be provided: (a) the path through the curve should be widened to a minimum paved width of 14 feet; and (b) a yellow center line curve warning sign and advisory speed limit signs should be installed.

(13) *Grades*. Bike path grades must meet DIB 82. The maximum grade rate recommended for bike paths should be 5 percent. Sustained grades should be limited to 2 percent.

(14) *Pavement Structure*. The pavement material and structure of a bike path should be designed in the same manner as a highway, with a recommendation from the District Materials Branch. It is important to construct and maintain a smooth, well drained, all-weather riding surface with skid resistant qualities, free of vegetation growth. Principal loads will normally be from maintenance and emergency vehicles.

(15) *Drainage*. For proper drainage, the surface of a bike path should have a minimum cross slope of 1 percent to reduce ponding and maximum of 2 percent Per DIB 82. Sloping of the traveled way in one direction usually simplifies longitudinal drainage design and surface construction, and accordingly is the preferred practice. However, the unpaved shoulders slope away from the path at 2 percent. Ordinarily, surface drainage from the path will be adequately dissipated as it flows down the gently sloping shoulder. However, when a bike path is constructed on the side of a hill, a drainage ditch of suitable dimensions may be necessary on the uphill side to intercept the hillside drainage. Where necessary, catch basins with drains should be provided to carry intercepted water across the path. Such ditches should be designed in such a way that no undue obstacle is presented to bicyclists.

Culverts or bridges are necessary where a bike path crosses a drainage channel.

(16) *Entry Control for Bicycle Paths*. Obstacle posts and gates are fixed objects and placement within the bicycle path traveled way can cause them to be an obstruction to bicyclists. Obstacles such as posts or gates may be considered only when other measures have failed to stop unauthorized motor vehicle entry. Also, these obstacles may be considered only where safety and other issues posed by actual unauthorized vehicle entry are more serious than the safety and access issues posed to bicyclists, pedestrians and other authorized path users by the obstacles.

The 3-step approach to prevent unauthorized vehicle entry is:

(a) Post signs identifying the entry as a bicycle path with regulatory signs prohibiting motor vehicle entry where roads and bicycle paths cross and at other path entry points.

(b) Design the path entry so it does not look like a vehicle access and makes intentional access by unauthorized users more difficult. Dividing a path into two one-way paths prior to the intersection, separated by low plantings or other features not conducive to motor vehicle use, can discourage motorist from entering and reduce driver error.

(c) Assess whether signing and path entry design prevents or minimizes unauthorized entry to tolerable levels. If there are documented issues caused by unauthorized motor vehicle entry, and other methods have proven ineffective, assess whether the issues posed by unauthorized vehicle entry exceed the crash risks and access issues posed by obstacles.

If the decision is made to add bollards, plantings or similar obstacles, they should be:

- Yielding to minimize injury to bicyclists and pedestrians who may strike them.
- Removable or moveable (such as gates) for emergency and maintenance access must leave a flush surface when removed.
- Reflectorized for nighttime visibility and painted, coated, or manufactured of material in a bright color to enhanced daytime visibility.
- Illuminated when necessary.
- Spaced to leave a minimum of 5 feet of clearance of paved area between obstacles (measured from face of obstacle to face of adjacent obstacle). Symmetrically about the center line of the path.
- Positioned so an even number of bicycle travel lanes are created, with a minimum of two paths. Odd number of openings increases the risk of head-on collisions if traffic in both directions tries to use the same opening.
- Placed so additional, non-centerline/lane line posts are located a minimum of 2 feet from the edge of pavement.
- Delineated as shown in California MUTCD Figure 9C-2.
- Provide special advance warning signs or painted pavement markings if sight distance is limited.
- Placed 10 to 30 feet back from an intersection, and 5 to 10 feet from a bridge, so bicyclists approach the obstacle straight-on and maintenance vehicles can pull off the road.
- Placed beyond the clear zone on the crossing highway, otherwise breakaway.

When physical obstacles are needed to control unauthorized vehicle access, a single non-removable, flexible, post on the path centerline with a separate gate for emergency/maintenance vehicle access next to the path, is preferred. The gate should swinging away from the path,

Fold-down obstacle posts or bollards shall not be used within the paved area of bicycle paths. They are often left in the folded down position, which presents a crash hazard to bicyclists and pedestrians. When vehicles drive across fold-down obstacles, they can be broken from their hinges, leaving twisted and jagged obstructions that project a few inches from the path surface.

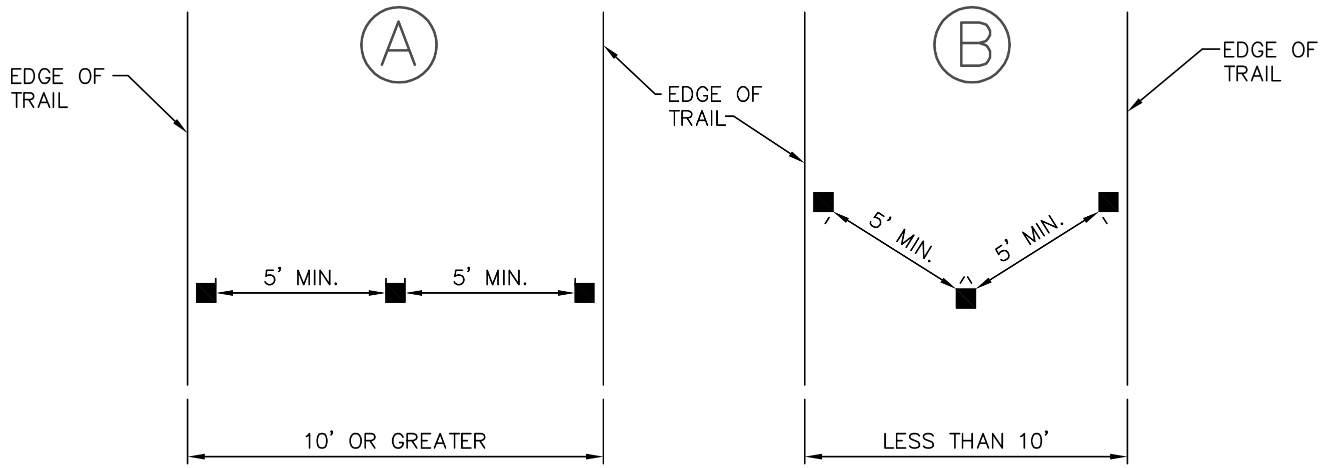
Obstacle posts or gates must not be used to force bicyclists to slow down, stop or dismount. Treatments used to reduce vehicle speeds may be used where it is desirable to reduce bicycle speeds.

For obstacle post visibility marking, and pavement markings, see the California MUTCD, Section 9C.101(CA).

(17) Lighting. Fixed-source lighting raises awareness of conflicts along paths and at intersections. In addition, lighting allows the bicyclist to see the bicycle path direction, surface conditions, and obstacles. Lighting for bicycle paths is important and should be considered where nighttime use is not prohibited, in sag curves (see Index 201.5), at intersections, at locations where nighttime security could be a problem, and where obstacles deter unauthorized vehicle entry to bicycle paths. See Index 1003.1(16). Daytime lighting should also be considered through underpasses or tunnels.

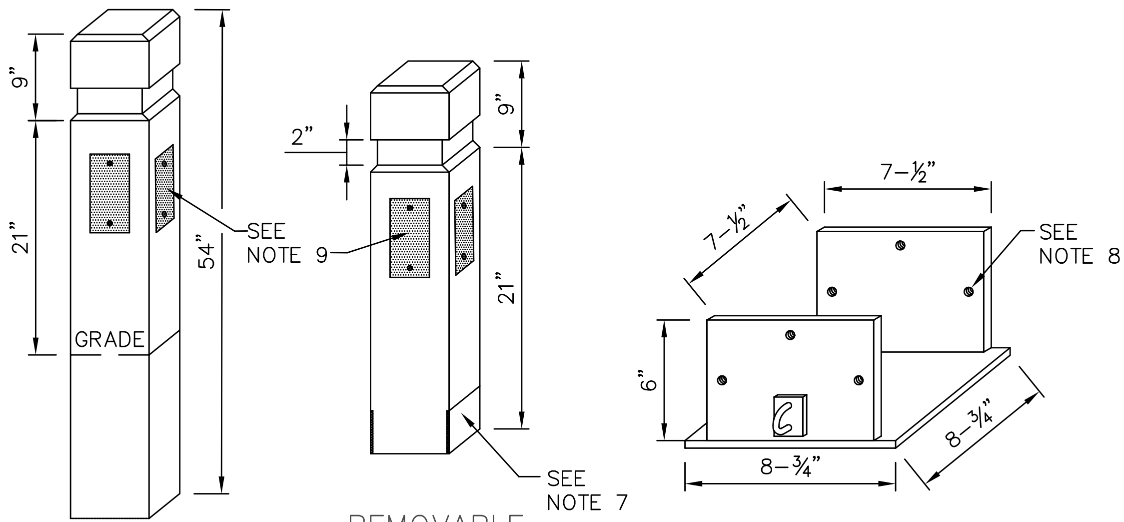
City of Bellevue (WA)

Standard Details



BOLLARD PLACEMENT

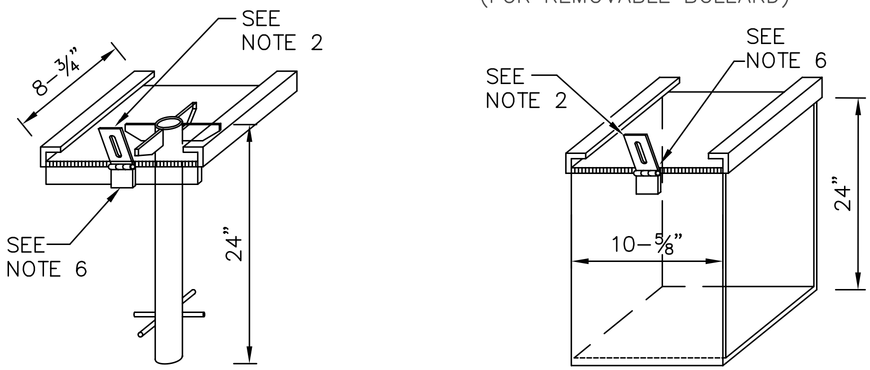
City of Bellevue	TYPICAL BOLLARD PLACEMENT ON PATHWAYS	DRAWING NUMBER	DEV–13
		SCALE	NONE
		REVISION DATE	12/05
		DEPARTMENT	TRANS



FIXED BOLLARD

REMOVABLE BOLLARD

SLIDE-THROUGH POST BRACKET
(FOR REMOVABLE BOLLARD)



2" SCHEDULE 40
GALVANIZE PIPE
(FOR SUPPORT PLATE)

GALVANIZED STEEL PLATE
(FOR SUPPORT PLATE)

ALTERNATE BRACKET SUPPORT
(FOR REMOVABLE BOLLARD)

NOTES

1. ALL PLATE MATERIALS SHALL BE ⅜" GALVANIZED STEEL.
2. LOCKING HINGE SHALL BE HEAVY DUTY CLASP. PROVIDE ADEQUATE CLEARANCE BETWEEN PAVEMENT & CLASP TO ALLOW CLASP TO LIE FLAT WHEN OPEN.
3. BOLLARD SHALL BE MANUFACTURED FROM 8" X 8" DOUGLAS FIR #2 OR BETTER AND PRESSURE-TREATED WITH LP-22.
4. REMOVABLE BOLLARD INSTALLATION: PIPE BASES ARE SET IN A 12" DIAMETER HOLE, 32" DEEP; PLATE BASES ARE SET IN A HOLE WITH 2" OF CLEARANCE ON ALL SIDES AND BOTH ARE TO BE BACKFILLED WITH CONCRETE. LOCK HASP FACES THE STREET.
5. FIXED BOLLARD INSTALLATION: SET FIXED BOLLARDS IN A IN A 16" DIAMETER HOLE, 24" DEEP, AND BACKFILL WITH CONCRETE.
6. USE ¼" WELD (BOTH SIDES) TO MOUNT CLASP.
7. FOR REMOVABLE BOLLARD BASE BRACKET INCISE ¼" TO FIT BOLLARD BASE.
8. FOR REMOVABLE BOLLARD SLIDE THROUGH POST BRACKET. DRILL THREE HOLES FOR ½" x 1.5" MACHINE SCREWS (STAINLESS STEEL) AS SHOWN.
9. FOR BOLLARD REFLECTIVITY USE HIGH INTENSITY DELINEATOR 4" x 8" ZUMAR OR EQUIVALENT; USE WHITE COLOR ONLY. INSTALL ON ALL SIDES OF THE BOLLARD VISIBLE FROM APPROACHING BICYCLIST. FASTEN WITH STAINLESS STEEL LAG SCREWS.
10. DELINEATORS SHOULD BE ATTACHED TO ALL BOLLARDS THAT ARE LOCATED WITHIN THE CITY OF BELLEVUE BICYCLE SYSTEM (PER THE BELLEVUE PEDESTRIAN AND BICYCLE TRANSPORTATION PLAN, 1999) OR AS SPECIFIED BY THE ENGINEER.

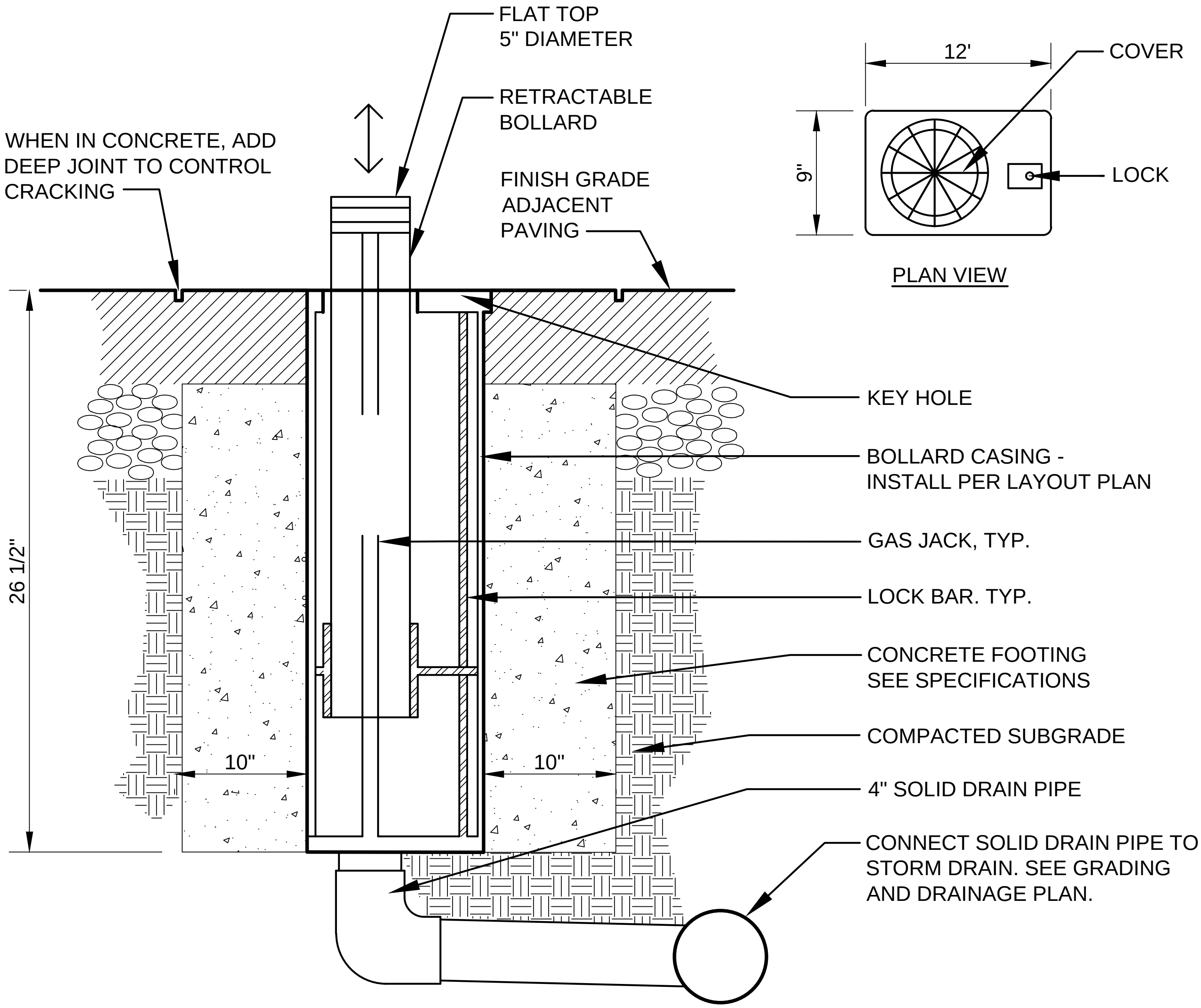
City of Bellevue

REMOVABLE AND FIXED BOLLARD

DRAWING NUMBER	DEV-14
SCALE	NONE
REVISION DATE	01/08
DEPARTMENT	TRANS

City of Fremont (CA)

Retractable Bollard Standard Detail



ACCEPTABLE MANUFACTURER, OR APPROVED EQUAL:

URBACO
CHATEAUNEUF SEMI-AUTOMATIC RETRACTABLE BOLLARD
MODEL #9240, 26" HEIGHT ABOVE GROUND LEVEL
PHONE #: (888) 987-2220

NOTES:
1. COLOR: BLACK; SEE SPECIFICATIONS
2. SUBMIT COLOR SAMPLE TO CITY LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO ORDERING.
3. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
4. WHERE STORM DRAIN IS NOT AVAILABLE INSTALL DRAIN SUMP WITH CITY APPROVAL. SUMP TO BE CLASS II WASHED DRAIN ROCK WRAPPED IN MIRAFI 140 FABRIC, OR APPROVED EQUAL. SEE PSD SF-4.

NO.	REVISED	DATE

REVISIONS

CITY OF FREMONT
PARK STANDARD DETAILS
RETRACTABLE BOLLARD

DATE APPROVED BY CITY COUNCIL
December 13, 2011

RESOLUTION NO. 2011-65

SENIOR LANDSCAPE ARCHITECT

COMMUNITY SERVICES DIRECTOR

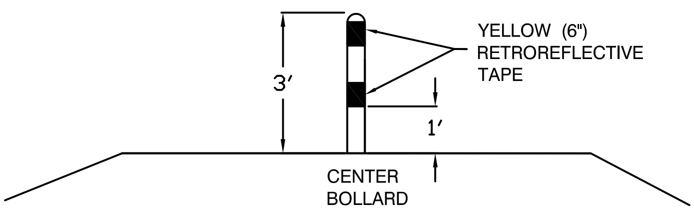
FILE NO.	SCALE	DRAWN	CHECKED	DATE	DWG NO.	
PSD SF-2.DWG	N.T.S.	EL/TB	RER	05/06/0211	PSD SF-2	1 OF 1

City of Oakland (CA)

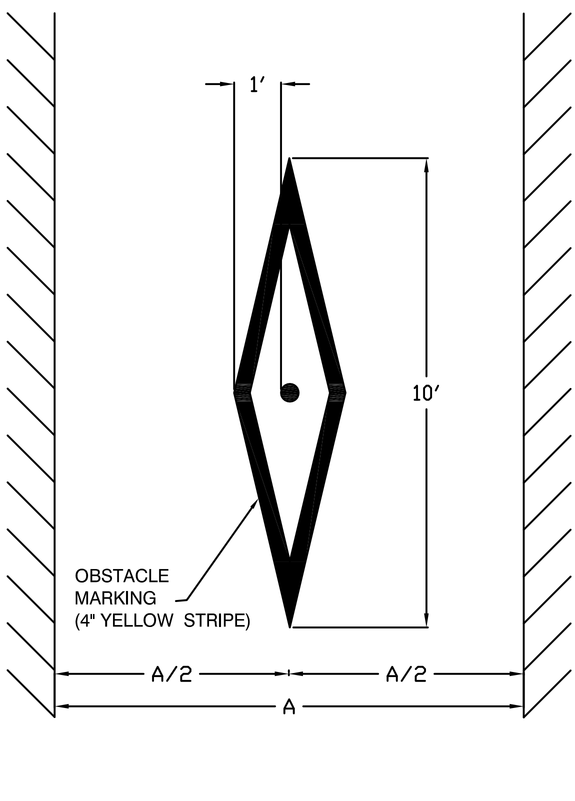
Bollard Placement and Markings Standard Drawings

CENTER BOLLARD

SECTION VIEW



PLAN VIEW



NOTE:
MUTCD Section 9C.101(CA) Barrier Posts on Class I Bikeways

Support: Before a decision is made to install barrier posts, consideration needs to be given to the implementation of other remedial measures, such as Bike Path Exclusion (R44A(CA)) signs (see Section 9B.07) and/or redesigning the path entry so that motorists do not confuse it with vehicle access.

Guidance: Such devices should be used only where extreme problems are encountered.

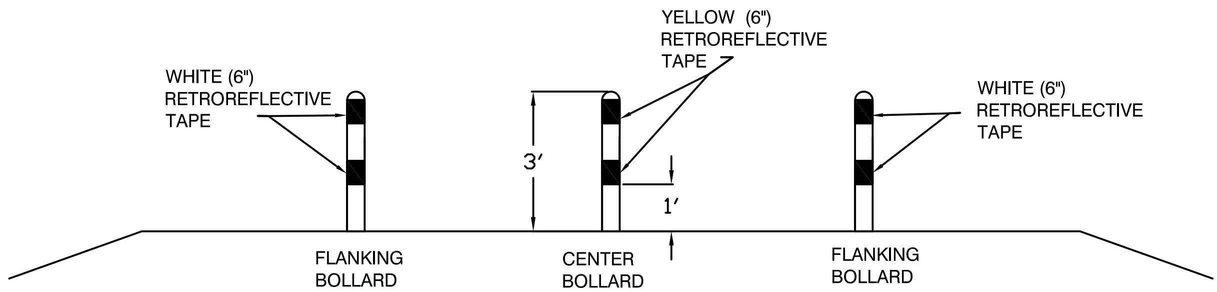
Oakland Standard:

1. Avoid the use of bollards wherever possible.
2. When deemed necessary, a center bollard shall be located in the middle of path and delineated by yellow (6") retroreflective tape at the top and midpoint of the bollard and by a yellow (4") obstacle marking stripe around the base of the bollard.
3. When additional bollards are deemed necessary, flanking bollards shall be placed in line with the center bollard and perpendicular to the direction of travel. The bollards shall be spaced with a minimum 5' clearance between bollards and all other vertical elements. Each flanking bollard shall be delineated by white (6") retroreflective tape at the top and midpoint of each bollard and by a white (4") obstacle marking stripe around the base of the bollard. See Dwg. X-2.
4. Removable bollards shall have a mount point that is flush with the travel surface.

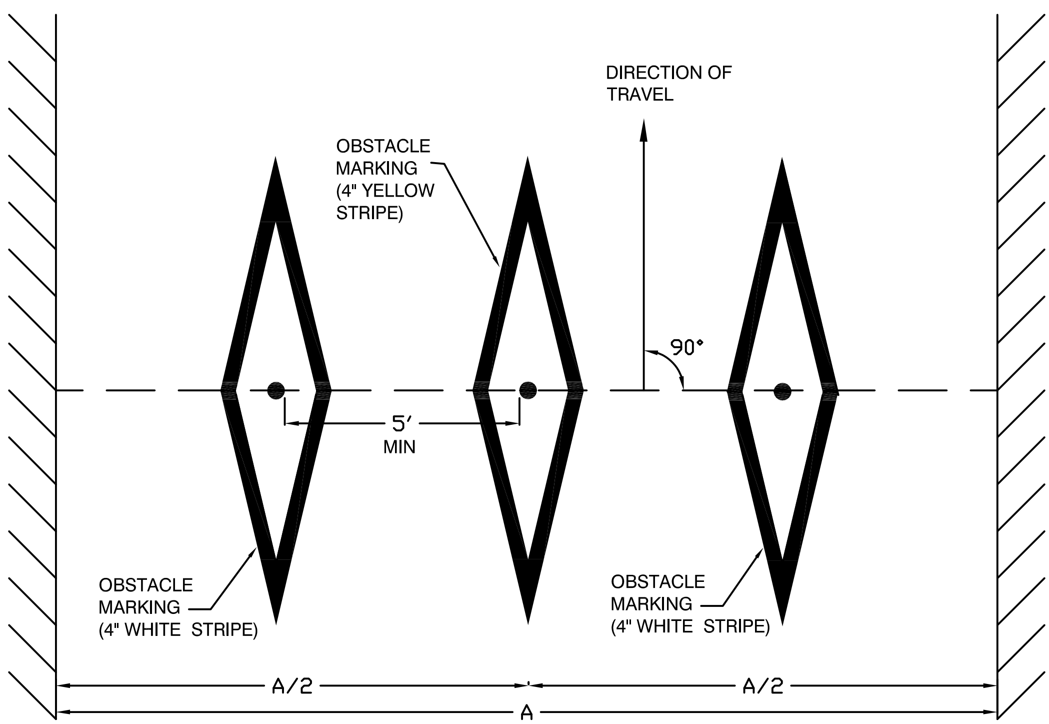
CITY OF OAKLAND	DEPARTMENT OF ENGINEERING AND CONSTRUCTION		
	BOLLARD PLACEMENT AND MARKINGS FOR BICYCLE AND PEDESTRIAN PATHS	DATE: APRIL 2009 REV. DATE:	DWG. X-1

CENTER BOLLARD WITH FLANKING BOLLARDS

SECTION VIEW



PLAN VIEW



CITY OF OAKLAND	DEPARTMENT OF ENGINEERING AND CONSTRUCTION		
	BOLLARD PLACEMENT AND MARKINGS FOR BICYCLE AND PEDESTRIAN PATHS	DATE: APRIL 2009 REV. DATE:	DWG. X-2

Federal Highway Administration (FHWA) – Trail Program

Bollards, Gates, and other Barriers (web)

Recreational Trails Program

Bollards, Gates, and other Barriers

Thank you to information sources and reviewers: John Ciccarelli, Bicycle Solutions; Jakob Helmboldt, Virginia Department of Transportation; Richard Moeur, Arizona Department of Transportation; Mark Plotz, National Center for Bicycling and Walking and NCBW Forum; John Williams, Tracy-Williams Consulting; *Trails for the Twenty-First Century, 2nd Edition,* Rails-to-Trails Conservancy; Jennifer Toole, Toole Design Group; Jim Lazar, Olympia (WA) Safe Streets Campaign; Maggie O'Mara, Bicycle Design Reviewer, California Department of Transportation, John F. Cinatl, Associate Transportation Planner - Bike Facilities, California Department of Transportation.

Photo of bollards on the Delaware and Hudson Rail Trail in Pawlet VT. Trail users created a new trail to get around the bollards.
Photo by Jon Kaplan, Bicycle and Pedestrian Program Manager, Vermont Agency of Transportation.

Some trail managers install bollards, gates, or other barriers to restrict unauthorized use. Trail managers should question whether bollards, gates, fences, or other barriers are needed at all. *For the purpose of the bullets below, "bollard" includes bollards, gates, fences, or any other barrier constructed or installed next to, within, or across a trail presumably to restrict unauthorized access.*

- Even "properly" installed bollards constitute a serious and potentially fatal safety hazard to unwary trail users. In addition, no bollard layout that admits bicycles, tricycles, and bicycle trailers can exclude single-track motor vehicles such as motorcycles and mopeds. For these reasons, bollards should never be a default treatment, and should not be used unless there is a documented history of intrusion by unauthorized cars, trucks, or other unauthorized vehicles.
- A landscaped median may be an appropriate method to reduce the likelihood that somebody might think the shared use path is a public street or driveway. See "What kind of barrier will keep cars off a bike path?" *by John Williams and Kathleen McLaughlin*, originally published in *Bicycle Forum (Issue 30, August 1992)*, now *NCBW Forum*. See Article.
- Bollards are often ineffective: a determined person is likely to go around or go through. This may result in additional maintenance costs for the trail, either to repair or replace the bollards, or to repair trail or landscaping damage where vehicles go around the bollards.
- Bollards are often a hazard to trail users, who can crash into them, possibly resulting in serious injury or death. Poorly installed bollards can lead to head-on collisions. Bollards are involved in "second user" crashes, where the first user hides the bollard until it is too late to avoid it, even if the first user has adequate sight distance. These crashes can produce serious or incapacitating injuries. This can happen to pedestrians as well as bicyclists or other higher speed users.
- Unjustified bollards can create liability exposure. Trail managers should consider whether or not they increase their liability if they install bollards, gates, fences, or other barriers.
- Bollards, gates, fences, or other barriers can slow access for emergency response.

If installed, bollard, gates, fences, or other barriers:

FHWA RTP Contact

Christopher Douwes
Trails and Enhancements Program Manager
Federal Highway Administration
FHWA HEPH-10 Rm E74-474
1200 New Jersey Ave SE
Washington DC 20590-0001
Phone: 202-366-5013
Fax: 202-366-3409

State RTP Contacts

Contact your State RTP Administrator to ask about policies and funding in your State.

See also: Federal Agency Contacts

- **Must not** restrict access for people with disabilities (ABA, Rehabilitation Act, and ADA: cited above).
- Must be easily visible, especially in low light conditions. Section 9C.03 of the Manual on Uniform Traffic Control Devices (MUTCD) *requires* retroreflectorization of any obstruction in the traveled way of a shared-use path. This includes posts along the edge of a path (within a path's "shoulder"). In addition, MUTCD Figure 9C-2 defines a diamond-shaped marking that should be used around bollards or other obstructions within a path.
- Should have sufficient sight distance to allow users to adjust speed. This is especially important on paths that have traffic calming features such as curves or landscaping near the bollards. Insufficient sight distance increases the likelihood that bollards will be dangerous hazards.
- Should permit passage, without dismounting, for adult tricycles, bicycles towing trailers, and tandem bicycles. All users legally permitted to use the facility should be accommodated; failure to do so increases the likelihood that the bollards will be dangerous hazards.

According to *Trails for the Twenty-First Century, 2nd Edition* (April 2001), published by the Rails-to-Trails Conservancy:

If you determine that a traffic barrier is necessary, ensure that barriers are well marked and visible to bicyclists, day or night... Bollards must be at least 3 feet tall and should be placed at least 10 feet from the intersection. This will allow trail users to cross the intersection before negotiating the barrier posts...

One bollard is generally sufficient to indicate that a path is not open to motorized vehicles. The post should be placed in the center of the trail tread. Where more than one post is necessary, a 5-foot spacing is used to permit passage of bicycle trailers, adult tricycles, and wheelchairs. Always use one or three bollards, never two. Two bollards, both placed in the paved portion of the trail, will channel trail users into the center of the trail, causing possible head-on collisions. Bollards should be designed to be removable or hinged to permit entrance by emergency and service vehicles... (Pages 85-86).

Additional Notes:

- Spacing between bollards should permit passage of bicycle trailers and adult tricycles without dismounting, and manual and motorized wheelchairs. A "5-foot spacing" means 5-foot gaps between bollards, not a 5-foot center-to-center placement.
- Bollards should be designed to be knock-down, removable, or hinged to permit entrance by emergency and service vehicles. A knocked-down bollard must be reinstalled or removed immediately to avoid having an additional safety hazard.
- Hardware installed in the ground to hold bollard or posts must be flush with the surface to avoid having an additional safety hazard.
- Bollards, gates, fences, or other barriers outside the trail tread (on each side) may be acceptable if there is sufficient clear trail tread to avoid head-on collisions and to ensure accessibility. But the purpose of the bollards, gates, fences, or other barriers should be questioned.

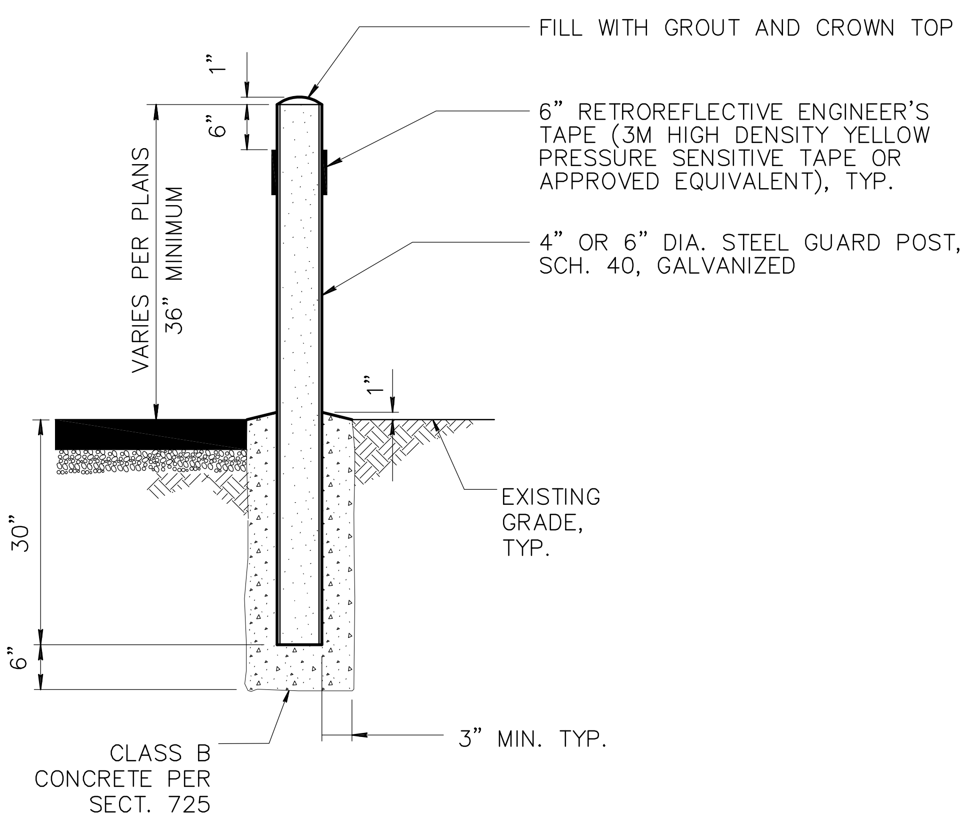
Additional Resources:

- **Presentation: Bicycle Path Entry Control.** (Ed Cox, Bicycle and Pedestrian Coordinator, City of Sacramento, CA and Maggie O'Mara, Senior Transportation Engineer, California Department of Transportation)
  This presentation discusses methods to control entry to shared use paths. It considers issues related to bollards, gates, and other barriers. It looks at examples and discusses what works well and what doesn't.
  Disclaimer: This presentation is provided in the interest of information exchange,

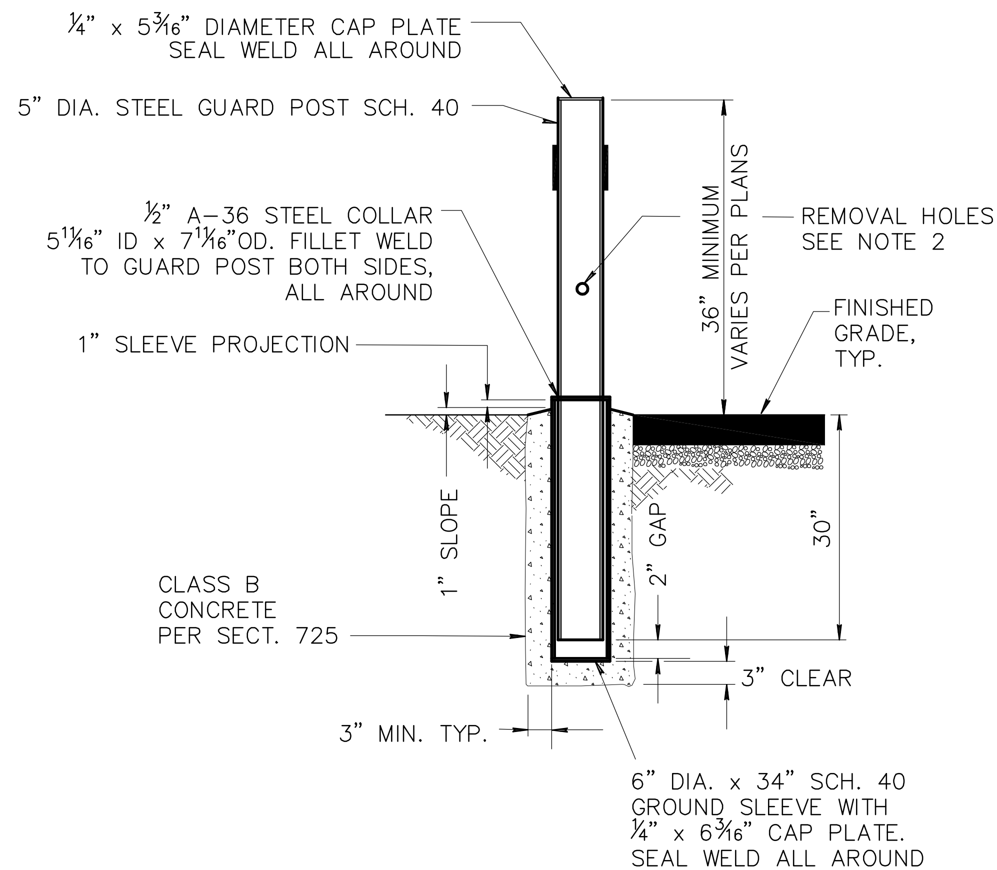
and reflects the views of the authors. Providing this resource does not necessarily represent endorsement by the U.S. Department of Transportation.

Maricopa Association of Governments (AZ)

Standard Detail



TYPE 1 PERMANENT



TYPE 2 REMOVABLE

NOTES

1. BOLLARDS SHALL HAVE A HEIGHT OF 3 FEET OR BE EQUAL TO THE HEIGHT OF THE BACK SCREEN WALL OF BIN ENCLOSURES. POSTS SHALL BE PLACED A MINIMUM OF 4” FROM THE WALL.
2. REMOVABLE POSTS SHALL HAVE 1” DIA. HOLES DRILLED THROUGH AT A DISTANCE ⅓ THE OVERALL POST LENGTH FROM TOP.
3. REMOVABLE POST – GRIND SMOOTH ALL SHARP EDGES PRIOR TO GALVANIZATION. GALVANIZE PER ASTM A54 AFTER FABRICATION.

DETAIL NO.			REVISED	DETAIL NO.
140	MARICOPA ASSOCIATION of GOVERNMENTS — STANDARD DETAIL ENGLISH	BOLLARD	01-01-2009	140

Minnesota Department of Transportation (Mn/DOT)

Mn/DOT Bikeway Facility Design Manual

Chapter 5: Shared-Use Paths

5-1.0 Introduction

This chapter provides guidelines for design of bicycle transportation facilities that are separated from the roadway. In most cases, a path separated from the roadway may be used by bicyclists, pedestrians, roller skaters, and individuals in wheel chairs, as well as other users, and the path must be designed for shared use. This manual does not provide guidance on design or construction of recreational off-road mountain biking paths. The 2006 Department of Natural Resources, *Trail Planning Design, and Development Guidelines*, provides detailed guidance on shared use paved trails, natural surface trails, winter use trails and bikeways.

5-1.1 Types of Off-Roadway Bicycle Facilities

In addition to shared-use paths, several other types of off-roadway facilities may meet the needs of various users, as described below.

5-1.1.1 Shared-Use Paths

Shared-use path is a term adopted by the 1999 AASHTO Guide for the Development of Bicycle Facilities in recognition that paths are seldom, if ever, used only by bicycles. As shown in Figure 5-1, a shared-use path is typically located on exclusive right-of-way, with no fixed objects in the pathway and minimal cross flow by motor vehicles. Portions of a shared-use path may be within the road right-of-way but physically separated from the roadway by a barrier or landscaping. Users typically include bicyclists, in-line skaters, wheelchair users (both non-motorized and motorized) and pedestrians, including walkers, runners, people with baby strollers or dogs with people.

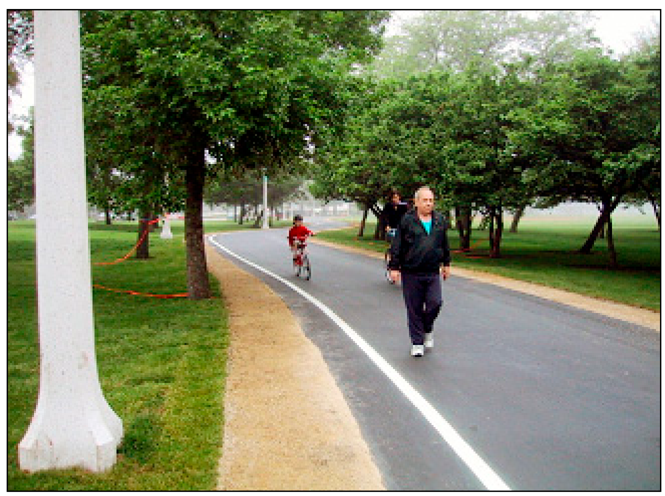


Figure 5-1:
Example of typical shared-use path

Shared-use paths are a valuable element of bicycle networks and serve both a transportation and recreation function, providing route continuity for commuting and recreation trips, access to destinations not otherwise available to bicyclists on the street and road system, and access between buildings and other discontinuities in the street network. Where shared-use paths have been added to the transportation network, they have proven to be significant

5-4.3.3 Curb Ramp Design and Arrangements

Use curb ramps at every intersection between a shared-use path and a roadway. If the approaching path is perpendicular to the curb, the width of the curb ramp should be at least as wide as the average width of the shared-use path. If the path is parallel to the curb, the width of the curb ramp should equal the path width or 2.7 m **(9 ft)**, whichever is greater.

If a crossing or crosswalk is intended for bicyclists, the curb ramp or sloping pavement should be flush with the street. The slope of the curb ramp shall be no greater than 8.3 percent (12:1), and the slope of the curb ramp flares should be no greater than 10 percent (10:1).

Curb ramps shall include a 0.6 m **(2.0 ft)** wide strip of detectable warnings at their base to ensure that path users with vision impairments are aware of the intersection, according to the Americans with Disabilities Act Accessibility Guidelines (ADAAG). According to ADAAG and Mn/DOT Standard Plate 7036, detectable warnings should consist of raised truncated domes that meet the following specifications:

- Bottom diameter 23 mm **(0.9 in)** to 36 mm **(1.4 in)**
- Top diameter 50 to 65 percent of base diameter
- Height of 5 mm **(0.2 in)**
- Center-to-center spacing of 41 to 61 mm **(1.6 to 2.4 in)**
- A color contrasting with adjacent pavement, either light on dark or dark on light, which can help all path users to locate the curb on the opposite corner as well as provide visual cue of the truncated dome strip.

Other detectable surfaces, such as aggregate and grooves, are less detectable and less easily understood by people with vision impairments. ADAAG specifies truncated domes over rounded domes because they provide greater access to people with mobility impairments.

Example of swing-down bollard to allow emergency and maintenance vehicle access

Too many bollards inhibit path access.

Figure 5-20: Bollards

5-4.3.4 Controlling Motor Vehicle Access

A good method of controlling access onto a path by motor vehicles is to split the entry into two one-way sections of path, each 1.5 m **(5 ft)** wide, separated by low landscaping or other material. Emergency vehicles can still enter if necessary by straddling the landscaping. In most situations, this is preferable to bollards, chicanes, or other methods.

A bollard may also be used at the entrance to a bicycle path. See Figure 5-20. When used, a single bollard may be installed in the middle of the path to deny access to motor vehicles. Removable or hinged flexible bollards are recommended so service vehicles can use the path. When more than one bollard is used, there should always be one in the center of the path, and bollards on both edges, 1.5 m **(5 ft)** from the center bollard. This spacing will accommodate any type of bicycle or wheelchair.

Gates and other devices that require path users to maneuver around objects are strongly discouraged. See Figure 5-21.

Figure 5-21:
Gates across a bicycle path (not recommended)

5-4.3.5 One-Way Paths and Signalized Intersections

One-way paths have the advantage of increased visibility and safety at signalized intersections. Where there are substantial numbers of right-turning motorists and through bicyclists, the one-way path intersection design shown in Figure 5-22 should be considered. End the one-way path 20 to 30 m **(65 to 100 ft)** before the intersection and let bicyclists continue on a bicycle lane in the roadway.

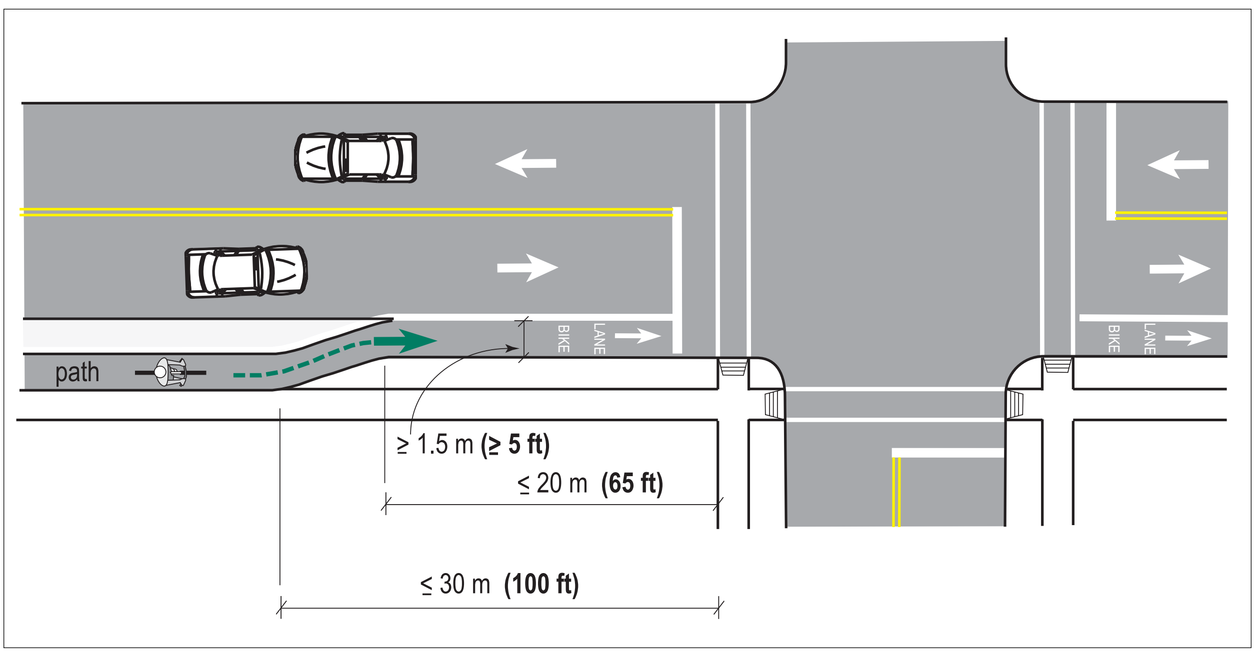


Figure 5-22:
One-Way Path Approaching Intersection

New York City Department of Parks and Recreation (NYC DPR)

NYC Bicycle Master Plan

Design Guidelines

Design standards are a critical component in the Network implementation process. They help ensure a consistent, safe level of service for users and protect local government agencies from liability issues in the event of injury. NYC DOT is in the process of developing Bicycle Facility Design Standards. This chapter of the *Plan* offers the following Design Guidelines to be used while the DOT Standards are being developed.

The Design Guidelines are a compilation of national guidelines and examples of existing and proposed facilities in New York City. The Guidelines are intentionally broad, providing designers with the flexibility that is often required in a locale as complex as New York City.

Most local design guidelines have been based in whole or in part on national and state standards. The national standards are listed below.

1. *Guide to the Development of Bicycle Facilities*, AASHTO

Released in 1981, and updated in 1991, the AASHTO Guide has become the basic reference for facility designers across the country.

2. *Manual on Uniform Traffic Control Devices (MUTCD)*, Federal Highway Administration

Released in 1935, and updated in 1988, the MUTCD is the national manual for streets and highways. Conformance with the manual's standards is required in nearly every state by statute (New York included).

3. *Guidelines for Greenways,* The Greenway Collaborative

This document provides detailed advice on the planning, design and maintenance of multi-use paths and trails.

4. *Design & Maintenance Manual for Multi-use Trails*, Rails-to-Trails Conservancy

This document provides information similar to that found in Guidelines for Greenways, but with an emphasis on abandoned rail corridors and canal tow paths.

5. *Guidelines for Establishing In-Line Skate Trails in Park and Recreation Areas,* International In-Line Skating Association

As noted on page 5, bicycle facilities are divided into the following three categories:

Multi-use Path, separated from motor vehicle traffic

On-Street Bicycle Lane, designated by lane markings and signs

Signed Bicycle Route, designated by signs only

On-Street Facilities

Bicycle Lanes - Width

AASHTO: The minimum bicycle lane width requirement is **4 feet**. However, certain edge conditions dictate additional desirable bicycle lane width, see Figures A - C.

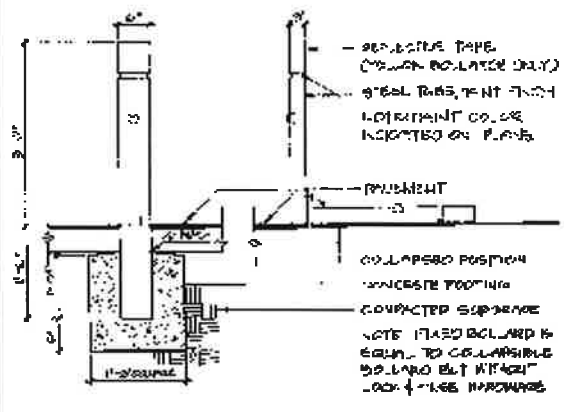
Vehicle Access Controls

Bicycle paths often need some form of physical barrier at roadway intersections to prevent unauthorized motor vehicles from entering. Barriers are especially warranted when paths are located near sensitive natural habitats. However, access for maintenance and emergency vehicles must be provided. Listed below are some possible examples of physical barriers:

Gates / Bollards: Lockable gates or collapsible bollards permit entrance by authorized vehicles. AASHTO recommends that, when more than one post is used, a 5 foot spacing is desirable; wider spacing can allow motor vehicle entry, while narrower spacing might prevent safe entry by bicycles. NYC DPR has developed several guard rail and bollard details for various locations throughout the city.

Additional methods for restricting access include curbing, fence and barrier rails or changes in elevation, such as graded berms.

Vegetation: A path can be divided into two narrow entryways and separated by low landscaping to prevent unauthorized access. Emergency vehicles could enter by straddling the landscaping. All terrain vehicles (ATVs) can usually drive over most plantings, rendering this alternative less effective.



Detail for a collapsible steel bollard.
Source: Reconstruction of the Shore Parkway Bicycle Path, DPR

Steel barrier rail installed along the perimeter of Marine Park, Brooklyn.

Vegatated berm along Flatbush Avenue and Floyd Bennett Field, Brooklyn.

Vehicular access controls.

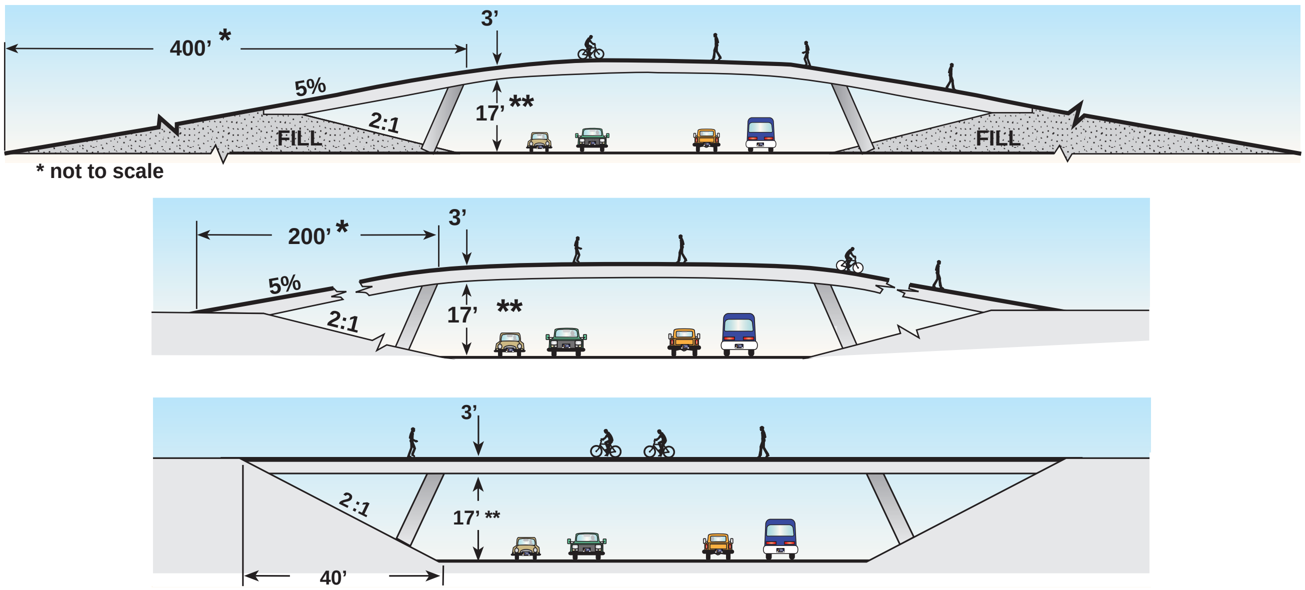
Oregon Department of Transportation

Bicycle and Pedestrian Design Guide (2011)

Bicycle and Pedestrian Design Guide

2011

Oregon Department of Transportation



** 23' req'd over RR tracks
17'.4" over NHS Highways routes
17.0' over NHS (Non Highway Routes)
16.0' over non - NHS Routes

Figure 7-19: Path overcrossings, various configurations

Preventing Motor-Vehicle Access

Geometric Design

The most effective way to discourage motor vehicle access to paths is to make it physically difficult to do so. One method branches the path into two narrower one-way paths just before it reaches the roadway, making it difficult for a motor vehicle to gain access to the path.

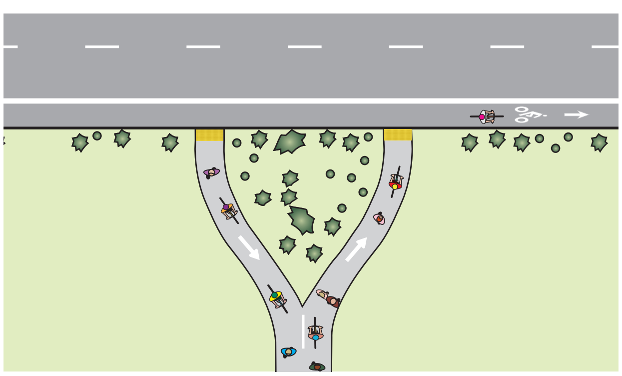


Figure 7-20: Path splits to prevent it appearing like a driveway

Another method is to create very tight curb returns to make it difficult for motorists to enter a path from the roadway.

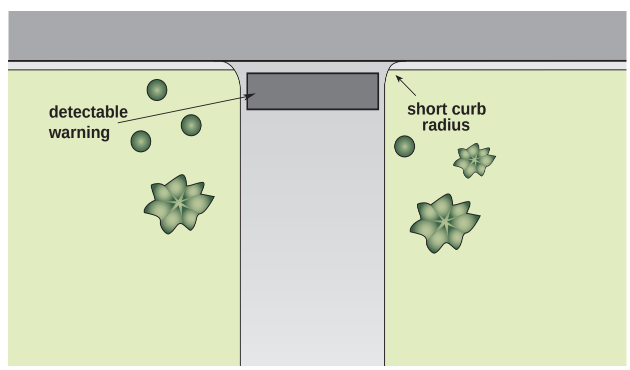


Figure 7-21: Tight curb radii prevent motor vehicle access

Bollards

Bollards may be used to limit vehicle traffic on paths. However, they are often hard to see, cyclists may not expect them and injuries result when cyclists hit them. Overuse of bollards is a serious hazard to bicyclists and may prevent path use by trailers, wheelchairs and other legitimate path users. In a group of riders, the riders in front block the visibility of those behind, setting up cyclists in the back of the pack for a crash.

Bollards should only be used when absolutely necessary. When used, they must be spaced wide enough (min. 5 feet) for easy passage by cyclists, bicycle trailers and adult tricycles as well as wheelchair users. A single bollard is preferred, as two may channelize bicyclists to the middle opening, with a potential for collisions. They should not be placed right at the intersection, but set back 20 feet or more, so users can concentrate on motor vehicle traffic conflicts rather than on avoiding the bollard. They should be painted with bright, light colors for visibility, illuminated and/or retro-reflectorized. A striped envelope around the bollard will direct path users away from the fixed object hazard. Flexible delineators, that collapse when struck by a bicyclist, should be considered.

Bollards are overused and can cause injury

Split path entry eliminates need for bollards

Offset Fencing

Placing railing or other barrier part way across a trail makes it possible for intended users to accesses the trail; maintenance vehicle operators are provided with keys to unlock the fences when they need access. The fences, like bollards, can be hazards to bicyclists and can restrict certain trail users from gaining access to the trail. They should be coated with retro-reflective material and well-lit.

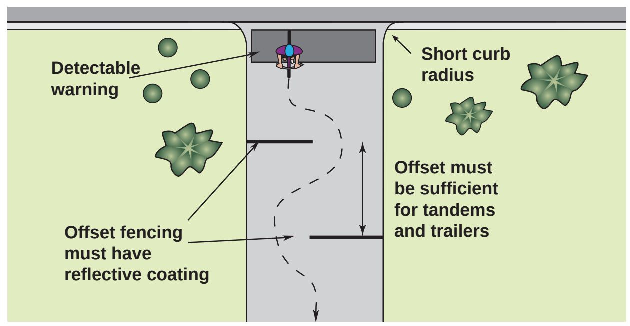


Figure 7-22: Offset gates prevent motor vehicle access

Offset fencing

Washington State Department of Transportation (WSDOT)

WSDOT Design Manual Chapter 1515

WSDOT Standard Plans

1515.01 General

Shared-use paths are designed for both transportation and recreation purposes and are used by pedestrians, bicyclists, skaters, equestrians, and other users. Some common locations for shared-use paths are along rivers, streams, ocean beachfronts, canals, utility rights of way, and abandoned railroad rights of way; within college campuses; and within and between parks as well as within existing roadway corridors. A common application is to use shared-use paths to close gaps in bicycle networks. There might also be situations where such facilities can be provided as part of planned developments. Where a shared-use path is designed to parallel a roadway, provide a separation between the path and the vehicular traveled way in accordance with this chapter.

As with any roadway project, shared-use path projects need to fit into the context of a multimodal community. Exhibits are provided throughout this chapter to illustrate possible design solutions, which should be treated with appropriate flexibility as long as doing so complies with corresponding laws, regulations, standards, and guidance. Engage various discipline experts, including landscape architects, soil and pavement engineers, maintenance staff, traffic control experts, ADA and bicycle coordinators, and others. Additionally, when designing such facilities, consider way-finding.

This chapter includes technical provisions for making shared-use paths accessible to persons with disabilities. Design shared-use paths and roadway crossings in consultation with your region's ADA Coordinator, Bicycle Coordinator, and State Bicycle and Pedestrian Coordinator. For additional information on pedestrian and bicycle facilities, see Chapters 1510 and 1520, respectively.

1515.02 References

(1) Federal/State Laws and Codes

Americans with Disabilities Act of 1990 (ADA)

ADA (28 CFR Part 35, as revised September 15, 2010)

23 CFR Part 652, Pedestrian and Bicycle Accommodations and Projects

49 CFR Part 27, Nondiscrimination on the Basis of Disability in Programs or Activities Receiving Federal Financial Assistance (Section 504 of the Rehabilitation Act of 1973 implementing regulations)

(1) Fencing

Limited access highways often require fencing or other forms of controlling access. Shared-use paths constructed within these corridors, such as shown in Exhibit 1515-13, likely require fencing. For guidance on fencing, limited access controls, and right of way, refer to Division 5 of the *Design Manual*. Evaluate the impacts of fencing on sight distances.

Shared-Use Path in Limited Access Corridor
Exhibit 1515-13

(2) Restriction of Motor Vehicle Traffic

Shared-use paths often need some form of physical barrier at roadway intersections to prevent unauthorized motor vehicles from entering.

Bollards have been used by many path owners to prevent unauthorized vehicle access. However, bollards should not be applied indiscriminately, and there are other considerations to bollard installation.

(a) **Landscaped Islands**

A preferred method of restricting entry of motor vehicles is to split the entry way into two sections separated by low landscaping, thereby splitting a path into two channels at roadway intersections. This method essentially creates an island in the middle of the path rather than installing a bollard. Such an island could be planted with low-growing, hardy vegetation capable of withstanding the occasional authorized vehicle traveling over it. When splitting a path, employ MUTCD pavement markings and signing, such as is used for bollards and obstructions.

(b) **Bollard Considerations**

Typically, one bollard located in the center of the path is sufficient to control motor vehicle access to the path. If more than one bollard is needed, the additional bollards should be placed at the edge of the shared-use path.

Install bollards at entrances to shared-use paths to discourage motor vehicles from entering. Do not use bollards to divert or slow path traffic. When locating such installations, stripe an envelope around the bollards and paint and reflectorize them to be visible to path users both day and night. Bollards located on or adjacent to shared-use paths represent an object that needs to be avoided by bicyclists and pedestrians. To increase the potential for appropriate maneuvering to occur, provide designs where the post is clearly visible and recognizable.

When designing bollards, the following apply:

- The desirable design is to provide a single bollard, installed in the middle of the path to reduce confusion.
- When multiple bollard posts are used in wide path sections, use a minimum 5-foot spacing between the edge of concrete footings to permit passage of bicycle-towed trailers, wheelchairs, and adult tricycles, with room for bicycle passage without dismounting.
- Provide 4 feet minimum (5 feet desirable) clear width between the edge of concrete footing and edge of path.
- At a minimum, provide stopping sight distance to bollards. An ideal location for bollard placement is in a relatively straight area of the path where the post placement has the stopping sight distance given in Exhibit 1515-14a and 14b. Do not place bollards in difficult-to-see locations (for example, immediately upon entering a tunnel).
- For cases where multiple posts are used longitudinally along the path, locate them at least 20 feet apart, with the first post in line from each direction having stopping sight distance.
- Use a contrasting striping pattern on the post.
- Use reflective materials on the post, such as a band at the top and at the base.
- Design all bollards along a corridor to be uniform in appearance. Frequent cyclists can become familiar with the posts and recognize them easily.
- Provide pavement markings in accordance with the *Standard Plans* and MUTCD at all bollards on paved paths.
- Use removable bollards (Bollard Type 1) to permit access by emergency and service vehicles.
- Nonremovable bollards (Bollard Type 2) may be used where access is not needed.

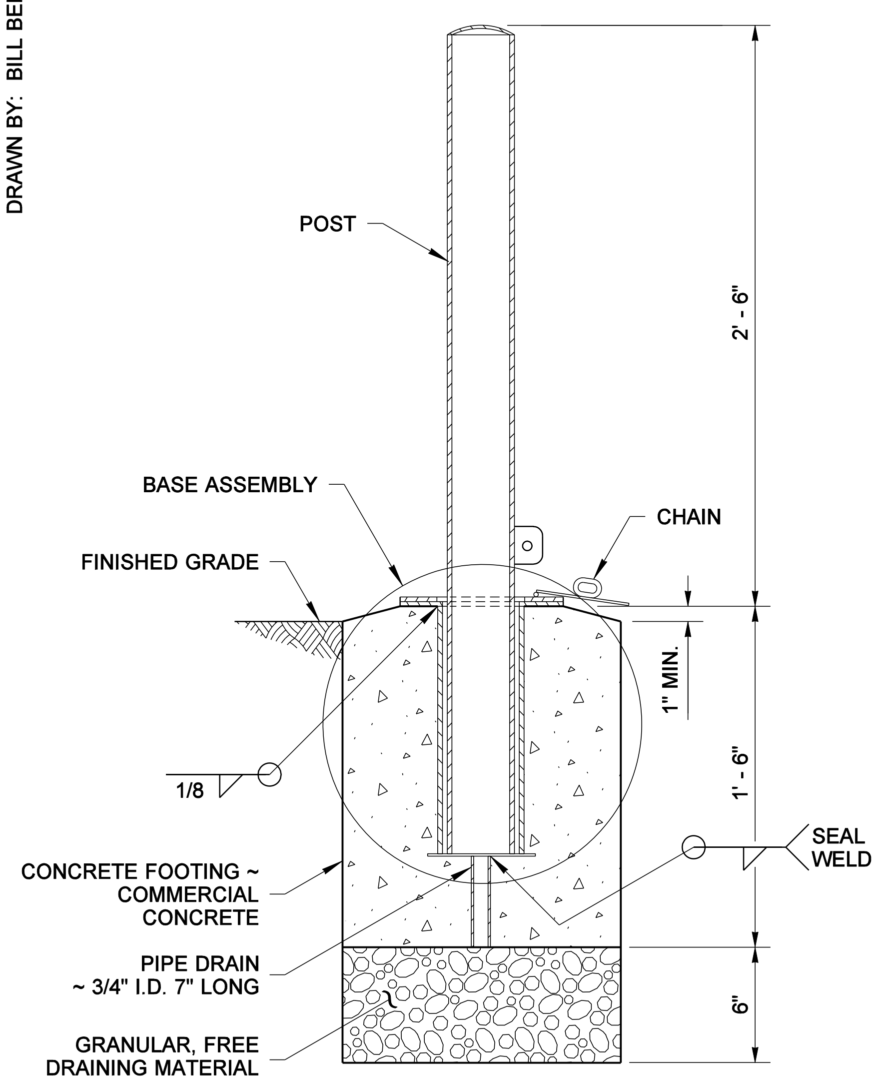
Refer to the *Standard Plans* for bollard designs and the *Standard Plans* and MUTCD for pavement markings at bollards.

When bollards need to be placed near the roadway, see Chapter 1600 for clear zone requirements.

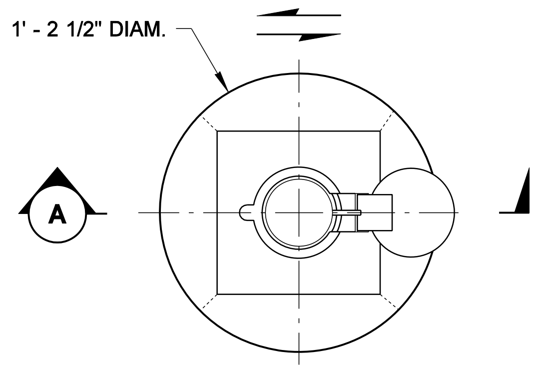
1515.09 Documentation

For the list of documents required to be preserved in the Design Documentation Package and the Project File, see the Design Documentation Checklist:
www.wsdot.wa.gov/design/projectdev/

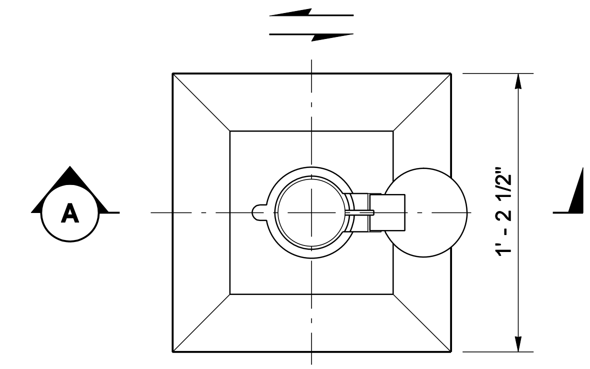
DRAWN BY: BILL BERENS



SECTION A

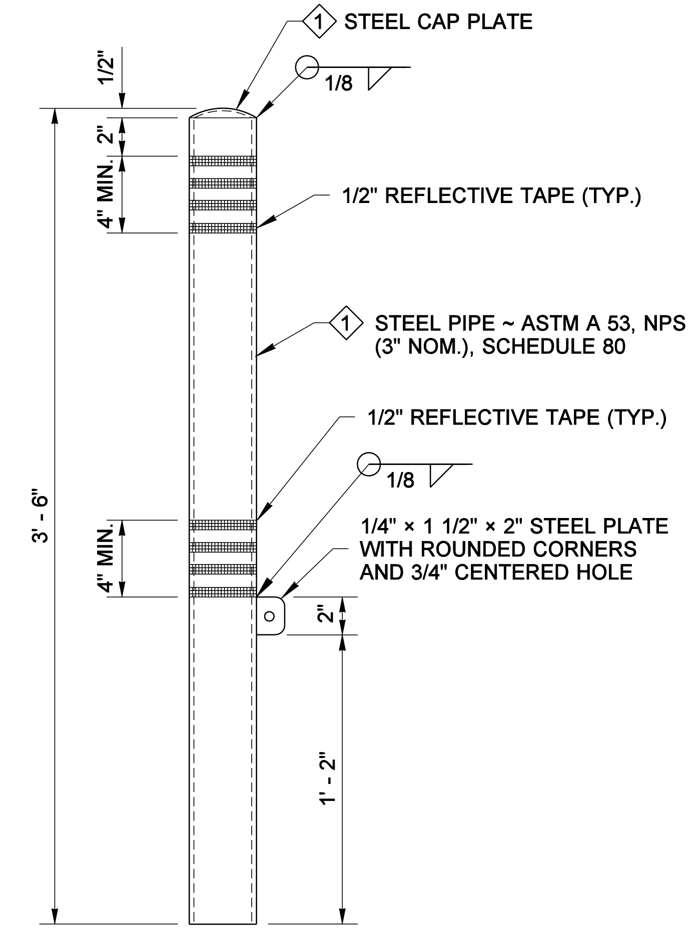


ROUND FOOTING



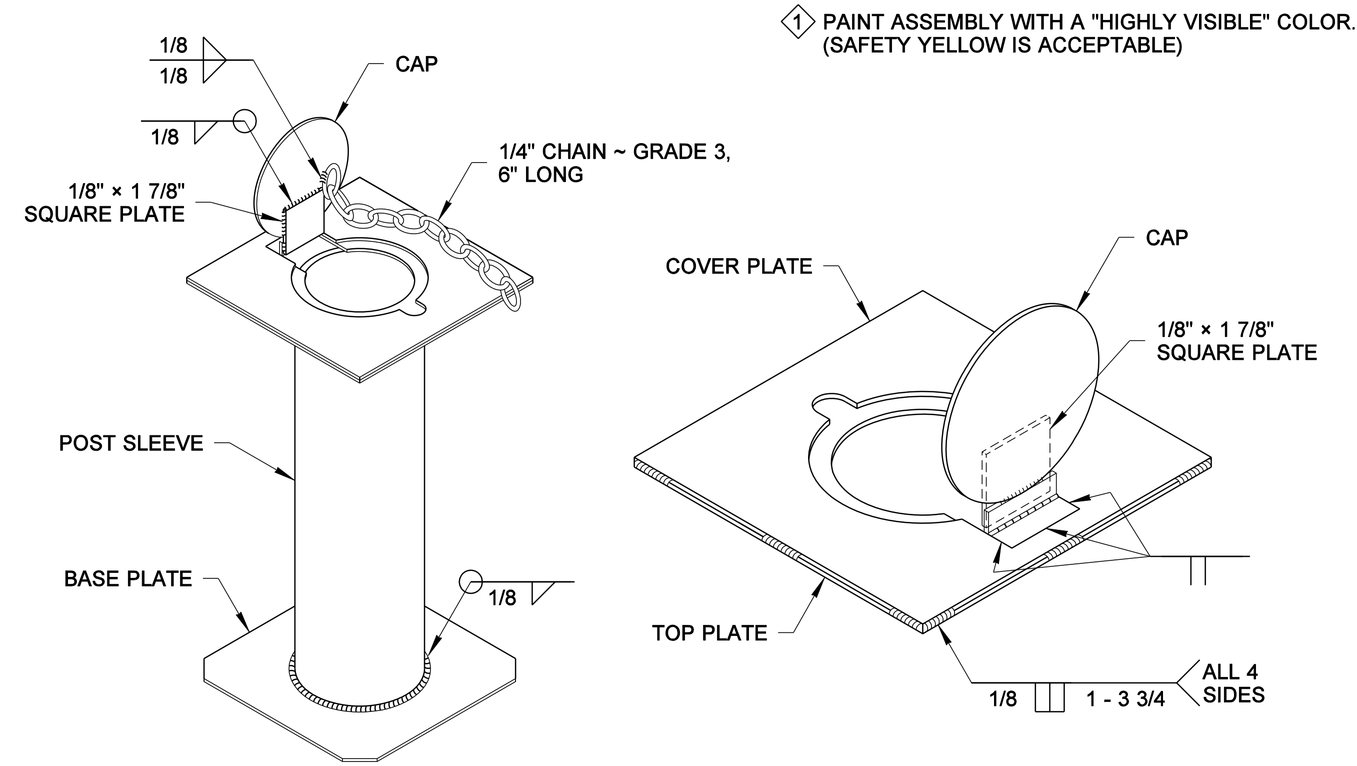
SQUARE FOOTING

PLAN VIEW



POST

1 PAINT ASSEMBLY WITH A "HIGHLY VISIBLE" COLOR. (SAFETY YELLOW IS ACCEPTABLE)



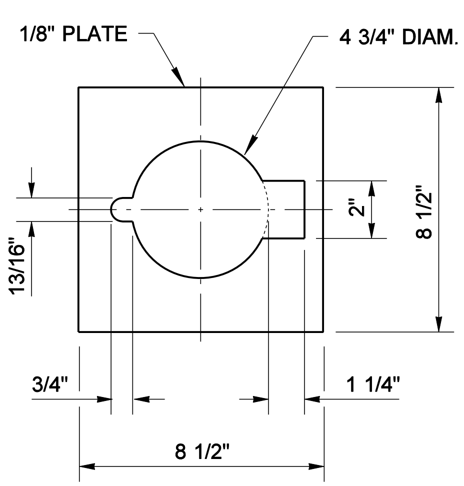
1 BASE ASSEMBLY

NOTE

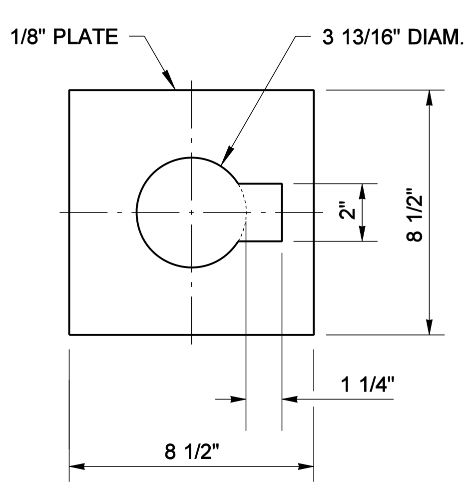
This bollard does not have an effective breakaway design feature and cannot be installed within the Design Clear Zone.

EXPIRES JUNE 19, 2010

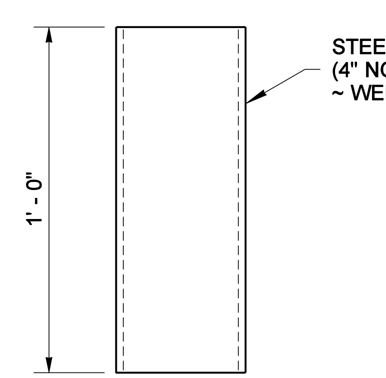
NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT BUT AN ELECTRONIC DUPLICATE. THE ORIGINAL, SIGNED BY THE ENGINEER AND APPROVED FOR PUBLICATION, IS KEPT ON FILE AT THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION. A COPY MAY BE OBTAINED UPON REQUEST.



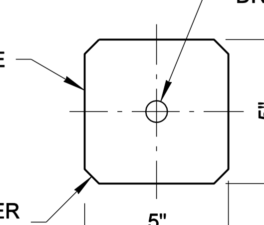
COVER PLATE



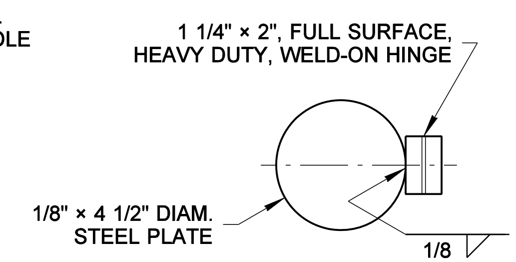
TOP PLATE



POST SLEEVE



BASE PLATE



CAP AND HINGE

BOLLARD TYPE 1

STANDARD PLAN H-60.10-01

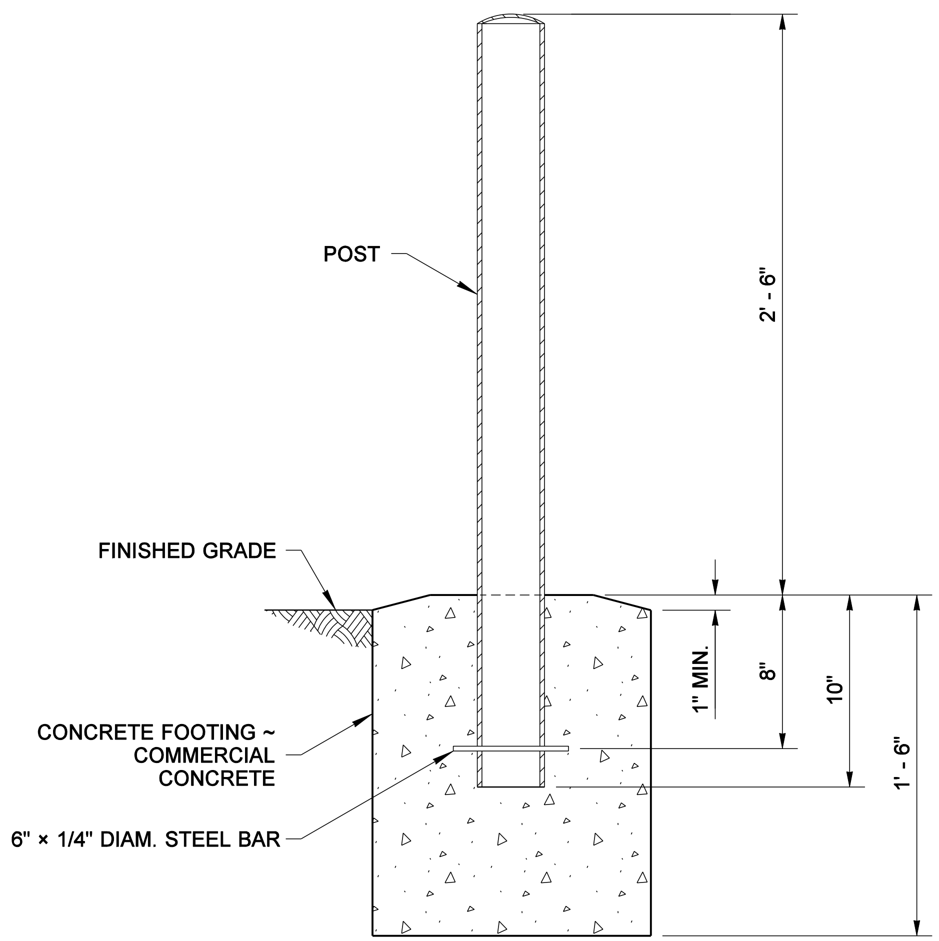
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

Pasco Bakotich III	*07-03-08*
STATE DESIGN ENGINEER	DATE

Washington State Department of Transportation

DRAWN BY: BILL BERENS



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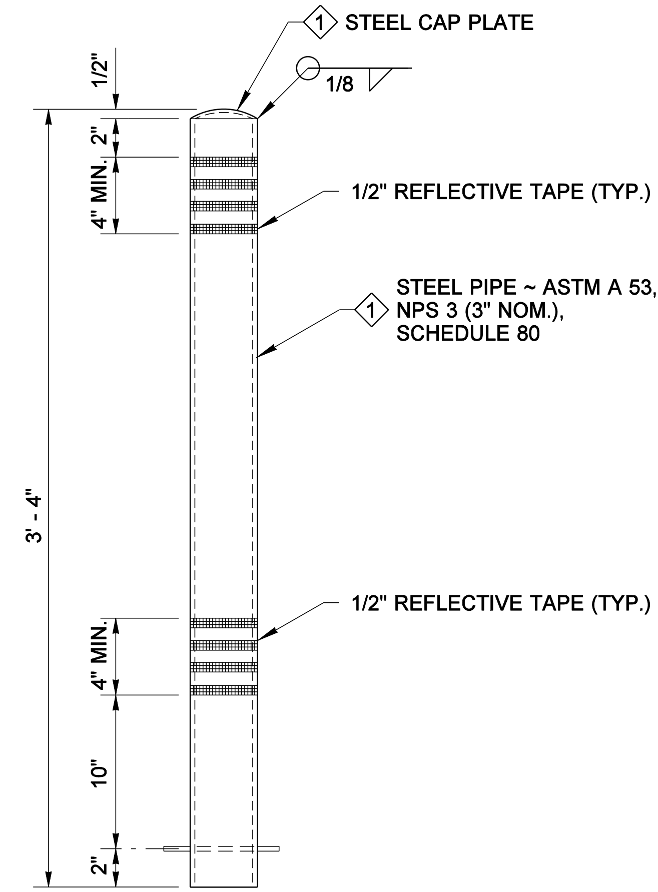
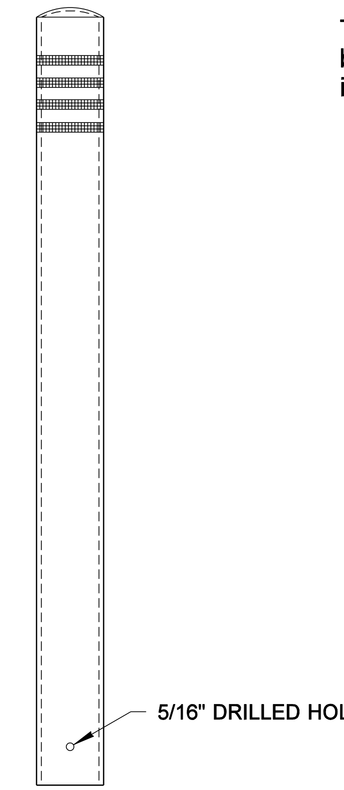


FRONT VIEW



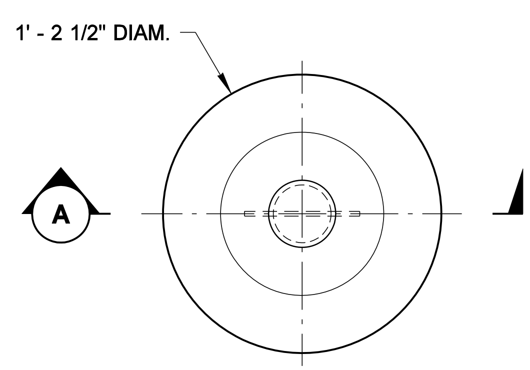
SIDE VIEW

1 PAINT ASSEMBLY WITH A "HIGHLY VISIBLE" COLOR.
(SAFETY YELLOW IS ACCEPTABLE)

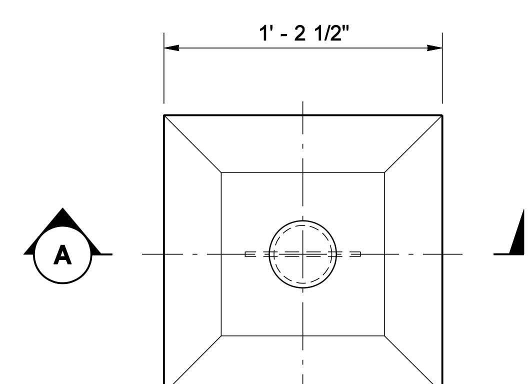
POST

NOTE

This bollard does not have an effective breakaway design feature and cannot be installed within the Design Clear Zone.



ROUND FOOTING



SQUARE FOOTING

PLAN VIEW

EXPIRES JUNE 19, 2010

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BOLLARD TYPE 2

STANDARD PLAN H-60.20-01

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

Pasco Bakotich III — STATE DESIGN ENGINEER

07-03-08 — DATE

Washington State Department of Transportation

Appendix C: GARTC Draft Bollard Policy

DRAFT

Policy and Standards for the Use of Bollards In Bernalillo County, New Mexico

The Greater Albuquerque Recreational Trails Committee is an advisory committee created by the City of Albuquerque. This committee is authorized to advise all executive branches within the City of Albuquerque, the Bernalillo County government, AMAFCA, and other government entities within Bernalillo County regarding multi-use trails.

Various government entities have chosen to use bollards (metal barrier posts) to prevent entry of illegal motor vehicles onto multi-use trails in Bernalillo County. Multi-use trails are separate paths or trails dedicated to use by cyclists, skaters, runners and other pedestrians. These trails should be open and accessible to the elderly and the disabled. Disabled and elderly citizens have various conveyances that require more space than typical bicycles and bollard designs should reflect that reality.

Bollards present a hazard to the users of multi-use trails and GARTC members think their use should be carefully considered. Instead of automatically installing many, closely spaced bollards at entrances to multi-use trails, the City departments and other government entities should really think out the need for bollards and whether the bollards themselves may pose more of a hazard to the public than illegal motor vehicles. Dealing with a law enforcement problem with an “engineering solution” may cause grave harm to the public. Children are thought to be more at risk because of undeveloped skills and the elderly are more vulnerable because of diminished vision, spatial resolution and slower reaction times.

We at GARTC think that all government entities in Bernalillo County should adopt a bollard policy based upon the three step approach outlined in the 2012 Guide for the Development of Bicycle facilities (AASHTO), pages 5-46 and 5-47.
A worthwhile goal is to establish a uniform bollard utilization policy throughout Bernalillo County.
Other considerations are:

1) AASHTO recommendations for spatial dimensions should be codified as City of Albuquerque standards in all cases. For instance, bollards should not be placed closer together than 6 feet.

2) If it is determined by a thoughtful and judicious process that bollards are truly necessary, then the configuration should be a single bollard on the centerline of the trail. The configuration commonly used in Albuquerque, i.e., a triplet of closely spaced bollards, should be banned because it can block disabled people and endangers all people.

3) The City of Albuquerque should consider using signs on multi-use trails requesting the public to report illegal vehicles and should provide the appropriate telephone number.

4) If law enforcement is difficult to execute or ineffective, surveillance cameras should be used to control illegal motor vehicles. Many of the City and AMAFCA multi-use trails are isolated and difficult to police. Therefore, the City should also consider mounted police patrols to deal with illegal activities on such trails.

GARTC

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2024 CITY OF ALBUQUERQUE BIKEWAY AND TRAIL FACILITIES PLAN

APPENDIX J: Bicycle and Trail Crossings Guide

BIKEWAY & TRAIL FACILITIES PLAN
CITY OF ALBUQUERQUE

ONE ALBUQUERQUE municipal development

ONE ALBUQUERQUE parks & recreation

City of Albuquerque

Bicycle and Trail Crossings Guide

ONE ALBUQUERQUE

ONE ALBUQUERQUE vision zero

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Introduction

Background

New Mexico regularly has the highest (or among the highest) rate of pedestrian fatalities per capita in the nation, and Albuquerque crashes account for 42% of the state's fatal pedestrian-involved crashes. In 2019, 13% of pedestrians involved in a crash died as a result (NMDOT, 2019). Additionally, New Mexico ranks as the fifth worst state for bicyclist fatalities per capita and bicycle fatalities per bicycle miles traveled (Streetlight Data, 2021).

At least 52% of pedestrian fatal crashes in New Mexico occurred at locations without traffic signals or stop signs (the actual percentage is likely much higher, as over a quarter of police reports did not include crash location). Given the high rates of pedestrian and bicyclist fatalities, especially fatalities where no traffic control exists, creating safe pedestrian and bicyclist crossing opportunities throughout the City of Albuquerque is of high importance.

Albuquerque has hundreds of miles of off-street multi-use paths, providing excellent opportunities for walking and biking within the city. However, with the exception of the Bosque Trail and North Diversion Channel Trail (which have grade-separated crossings along their entire lengths), multi-use trails frequently intersect with wide, high-speed arterial roadways. Long block lengths in many parts of the city also create challenges for pedestrians trying to cross, as signalized pedestrian crossings are often placed over a half mile apart. More frequent and safer designated crossing locations are a means of addressing these safety issues and enhancing conditions for bicyclists, pedestrians, and trail users across Albuquerque.

Purpose

The purpose of this report is to provide clear and consistent guidance for the design and application of bicycle and pedestrian crossings within the City of Albuquerque. This report is divided into two parts. The first section describes **countermeasures** to improve safety at crossing locations. Countermeasures are ordered from least comprehensive to most comprehensive and include visibility treatments, signal treatments, and infrastructure treatments.

The second section provides a **three-step decision-making tool** on how apply crossing treatments to specific roadway contexts.

- Step 1 determines the **appropriateness of a location for a crossing** based on its Comprehensive Plan designations, distance from other crossings, proximity to transit, safety considerations, and presence of special generators and trails.
- Step 2 determines the **technical feasibility** of a location for a crossing based on engineering factors.
- Step 3 provides guidance on selecting **appropriate treatments** given a roadway's width, speed, and traffic volumes.

Role of the MUTCD

The Manual of Uniform Traffic Control Devices (MUTCD) serves as the primary reference for **design standards and signage placement**, while this document and the Development Process Manual (DPM) serve as the primary references in selecting a **crossing location** and the **appropriate treatment** for a crossing.

Policy Guidance

The following Albuquerque plans and policies support the implementation of improved bicycle and pedestrian crossings and provide guidance on their design and location.

Comprehensive Plan: The Albuquerque/Bernalillo County Comprehensive Plan (Comp Plan) provides guidance on where pedestrian crossings should be prioritized based on Center and Corridor designations. Centers are areas within the metropolitan area that are planned for higher-intensity uses and include Downtown, Urban Centers, Activity Centers, Employment Centers, and Village Centers. Corridor designations help prioritize street elements and modes based on anticipated or desired users, and include Premium Transit Corridors, Major Transit Corridors, Main Street Corridors, Multi-Modal Corridors, and Commuter Corridors. See Comp Plan Figure 5-2 for a map of Albuquerque's Centers and Corridors. In the Comp Plan, Premium Transit, Major Transit, and Main Street Corridors are the highest priority locations for crossings, especially where these roadways intersect with a Center or transit station.

Development Process Manual: The City of Albuquerque's DPM provides guidance and standards on street design to ensure consistent high-quality infrastructure throughout the city and includes sections on the design and location of pedestrian/bicyclist crossings. The DPM recommends signalized crossings (through traffic signals or pedestrian hybrid beacons) at all existing traffic signals and at least every ½ mile. For crossings at unsignalized locations, the DPM provides a decision path to determine the appropriate design and level of vehicular control (DPM Figure 7.4.52).

Complete Streets Ordinance: The City of Albuquerque Complete Streets Ordinance requires that all roadway projects, excluding maintenance projects, be designed to "mitigate existing, insufficient multi-modal facilities" and include consideration of all modes of transportation. Per the Ordinance, Complete Streets should "allow comfortable and convenient street crossings and pedestrian access to adjacent land uses." The Complete Streets Ordinance encourages enhanced mid-block crossings with high-visibility markings and, where necessary, pedestrian hybrid beacons or traffic signals. Roadway projects are also required to include appropriate measures to facilitate the crossing of bicycle traffic.

Vision Zero Action Plan and Executive Order: The City of Albuquerque's Vision Zero Initiative has the goal of eliminating traffic fatalities in Albuquerque by 2040. The Vision Zero Action Plan outlines techniques for achieving this goal, including Complete Streets designs, speed management, and increasing opportunities for walking and rolling.

Crossing Design Elements

Introduction

The following section describes crossing design elements that can be installed to designate a pedestrian crossing. These include: **signal treatments**, **visibility treatments**, and **infrastructure treatments**.

The measures described in this report should rarely be installed as stand-alone treatments, as pedestrian crossings are safest when a combination of tools are used. For example, visibility treatments like crosswalks and signage can be combined with infrastructure treatments such as curb extensions or refuge islands to create a safer and more comfortable crossing.

Pedestrian crossings can be defined as either designated or undesignated crossings. Designated crossings can be either signalized or unsignalized; undesignated crossings are always unsignalized. Figure 1 and Figure 2 are examples of designated and undesignated crossings, while Figure 3 and Figure 4 are examples of signalized and unsignalized crossings, respectively.

Designated vs Undesignated Crossings

The City of Albuquerque's DPM defines **designated pedestrian crossings** as those "where pedestrians are encouraged to cross a roadway, as indicated by a combination of signal devices, signage, or pavement markings."

Undesignated crossings are locations without pavement markings, signal devices, or signage where pedestrians may legally cross a roadway. These crossings are typically at intersections with smaller streets that have sidewalk and may have a stop sign; pedestrians are expected and encouraged to cross at these locations but there are no formal signs or striping that indicate the presence of a pedestrian crossing. Designated pedestrian crossings generally provide a higher level of safety and comfort than undesignated crossings (see Table 1).

Table 1: DPM Table 7.4.43 Designated Pedestrian Crossing Types

TABLE 7.4.43 **Designated Pedestrian Crossing Types**		
↑ SAFETY COMFORT	**Controlled Locations**	Traffic control device (signal or stop signs)
		Pedestrian hybrid beacon
	Uncontrolled Locations	Flashing beacon (rapid rectangular flash beacon, in-pavement flashers)
		Pedestrian refuge island
		Signage (in-street, overhead, or sign post)
		Marked crosswalk (no signs or signals)

State of New Mexico Law: Drivers are required by law in New Mexico to yield to pedestrians in a crosswalk (NM Stat §66-7-334). When crossing at any location other than a crosswalk or an unmarked crosswalk at an intersection (i.e. an undesignated crossing), pedestrians are allowed to cross but must yield to vehicles (NM Stat §66-7-335).

Signalized vs Unsignalized Crossings

Signalized crossings are associated with a traffic signal or other traffic control device that requires vehicle traffic to come to a complete stop. Generally, signalized pedestrian crossings are located only at intersections with a full traffic signal or at pedestrian hybrid beacons (PHBs), also referred to as HAWK signals.

Unsignalized crossings are designated crossings that do not have traffic signals and may be located at mid-block locations or intersections.

Crossing Design Elements

Figure 1: Designated Signalized Crossing at Tramway Blvd and Spain Rd

Figure 2: Undesignated Crossing at Garfield Ave and Richmond Dr

Figure 3: Designated Signalized Crossing at Lomas Blvd and Alvarado Dr

Figure 4: Unsignalized Designated Crossing at San Pedro Dr and Claremont Ave

Crossing Design Elements: Enhanced Visibility Treatments

Enhanced Visibility Treatments

Enhanced visibility treatments, including signage, crosswalk markings, advance stop or yield lines, in-street pedestrian crossing signs, overhead flashing lights, pedestrian-scale lighting, and rectangular rapid flashing beacons (RRFBs), can alert drivers to the presence of a crosswalk and increase the likelihood of drivers yielding at crossing locations.

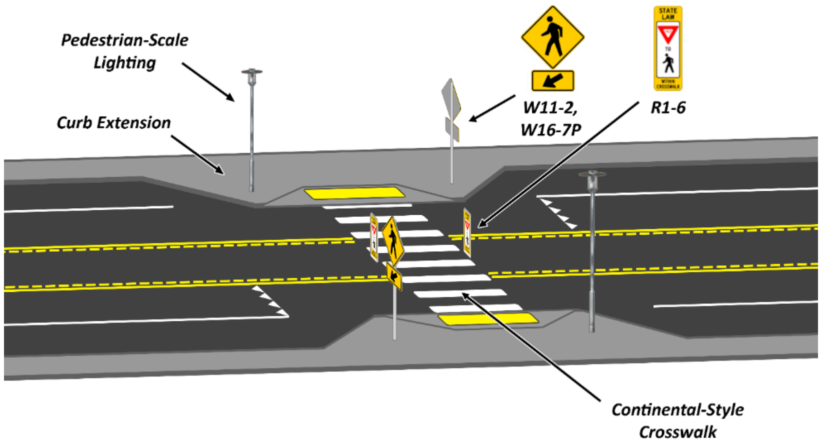
High-visibility crosswalk markings with signage can act as a stand-alone treatment on slower-speed, lower volume roadways (see Figure 5) or as complementary treatments to signalized crossings or RRFBs on high-speed, busier roadways.

Each enhanced visibility treatment in this report is meant to be installed with other visibility treatments and/or infrastructure treatments. For example, crosswalk markings can be paired with signage, curb extensions, pedestrian-scale lighting, and in-street pedestrian crossing signs to create a comfortable, high-visibility crossing location (see Figure 6).

All enhanced visibility treatments increase the visibility of the crossing for motorists, have minimal impacts on traffic operations, and are low-cost.

Figure 5: High Visibility Crosswalk Markings and Signage on Mountain Rd

Figure 6: Enhanced Visibility Treatments at Unsignalized Crossing



Crossing Design Elements: Enhanced Visibility Treatments

Signage

A variety of signs can designate a location as a crossing and alert drivers to the presence of pedestrians and bicyclists. Pedestrian crossing signs are usually installed at the crosswalk location and may have a placard with an arrow pointing to the crosswalk.

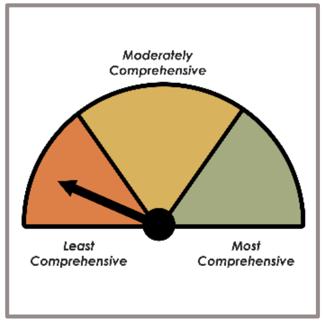


Figure 7: Bicyclist Crossing Signage at Indian School Rd near North Diversion Channel Trail

Benefits

Increases visibility: Signs can remind drivers that they are required by law to yield to pedestrians within a crosswalk and alert drivers to trail crossings or areas with high pedestrian/bicyclist activity.

Education: Signs educate and remind drivers that motorists must yield to people crossing.

Limitations

Not effective as stand-alone treatment: Signs must be accompanied with other crossing treatments to be effective.

Design Considerations

MUTCD compliance: Pedestrian crossing signs that communicate the location of a crosswalk are required to conform to standards contained in the MUTCD. The typical pedestrian crossing sign is a rotated square with a yellow or fluorescent green retroreflective background and a black silhouette of a pedestrian. Pedestrian crossings may also include "Yield to Pedestrian" signs, "Stop for Pedestrians" signs, or other signs that remind drivers of state laws requiring yielding or stopping for pedestrians within crosswalks.

Table 2 shows MUTCD-approved signs for crossing locations. Additional signs for school zones can be referenced in MUTCD Section 7B.08.

Advance stop or yield signs: When applied in conjunction with an RRFB, advance yield or stop signs should be located 30 to 50 feet in advance of the crosswalk (MUTCD R1-5 signs). Advance crossing signs have been associated with increased driver yielding rates and help address concerns related to multiple threat crashes on multi-lane roadways.

Complementary Treatments

Signage alone is not sufficient to create a safe crossing location and should be accompanied with other treatments. Signage can be paired with:

- High visibility crosswalk markings
- Advance stop/yield lines
- In-street pedestrian crossing signs
- Pedestrian scale lighting
- RRFBs
- PHBs
- Infrastructure treatments such as pedestrian refuge islands, curb extensions/bulb-outs, raised crosswalks, and road diets

Location/Context

Although signage and crosswalk markings are adequate treatments for low-speed, low-volume roadways, these treatments alone are generally **not sufficient** in the following conditions:

- Where the speed limit is greater than 40 mph.
- Where pedestrians must cross two or three lanes a time, speed limits are 35 mph or above, and average daily traffic (ADT) is greater than 9,000.
- Where pedestrians must cross four or more lanes at a time, speed limits are above 30 mph, and ADT is greater than 9,000.

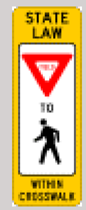
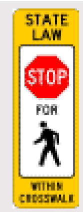
Crossing Design Elements: Enhanced Visibility Treatments

Table 2: Pedestrian and Bicycle Warning Signs, MUTCD

Image	*Name*	*MUTCD Reference*	*Image*	*Name*	*MUTCD Reference*
	**Pedestrian Warning Sign**	*W11-2* *Section 2C.50*		**Downward Diagonal Arrow (to be used with Pedestrian and/or Bicyclist Warning Sign)**	*W-16-7p* *Section 2C.50*
	**Bicycle Warning Sign**	*W11-1* *Section 2C.50*		**School Sign**	*S1-1* *Section 7B.08*
	**Bicycle and Pedestrian Warning Sign**	*W11-15* *Section 2C.50*		**Trail X-ing Plaque**	*W11-15P* *Section 2C.50*
	**Trail Crossing**	*W11-15a Section 2C.50*		**When Flashing Plaque**	*W16-13P* *Section 2C.50*

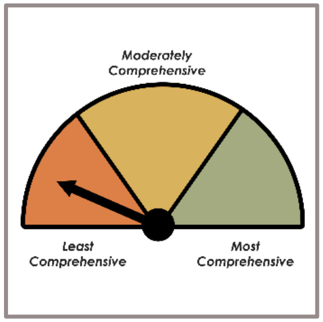
Crossing Design Elements: Enhanced Visibility Treatments

Table 3: Signs for Unsignalized Crossings, MUTCD

Image	*Name*	*MUTCD Reference*	*Image*	*Name*	*MUTCD Reference*
	**Yield Here to Pedestrians**	*R1-5* *Section 2B.11*		**Stop Here for Pedestrians**	*R1-5c* *Section 2B.11*
	**Yield Here to Pedestrians**	*R1-5a* *Section 2B.11*		**In-Street Pedestrian Crossing (Yield)**	*R1-6* *Section 2B.12*
	**Stop Here for Pedestrians**	*R1-5b* *Section 2B.11*		**In-Street Pedestrian Crossing (Stop)**	*R1-6a* *Section 2B.12*
	**Overhead Pedestrian Crossing (Yield)**	*R1-9* *Section 2B.12*		**Overhead Pedestrian Crossing (Stop)**	*R1-9a* *Section 2B.12*

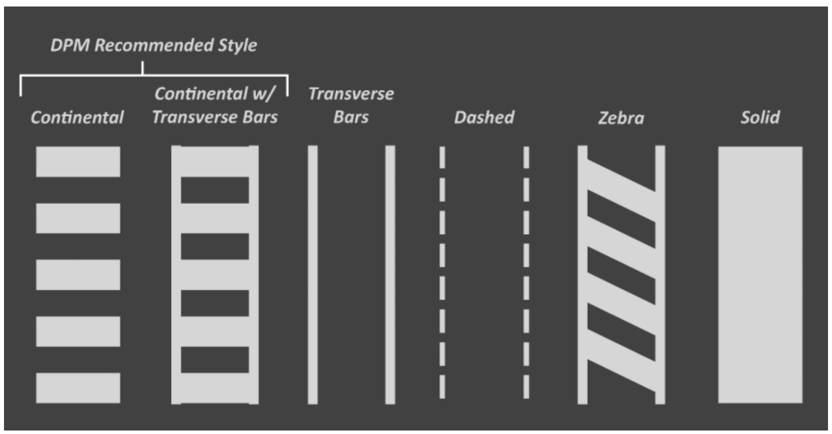
Crossing Design Elements: Enhanced Visibility Treatments

High Visibility Crosswalk Markings



Crosswalk markings serve two primary purposes: 1) communicating to pedestrians the safest place to cross; 2) legally designating a location where vehicles must yield to those crossing. High visibility crosswalk marking types include continental, continental with transverse bars, and zebra, as shown in Figure 8. The DPM recommends continental-style crosswalks with or without transverse bars.

Figure 8: Crosswalk Marking Types



Benefits

Reduce pedestrian crashes: High visibility crosswalk markings may reduce pedestrian crashes by up to 40% (Chen et al., 2012), although some studies have shown that crosswalk markings alone without other visibility enhancements do not reduce crashes (Zegeer et al., 2005).

Increase driver yield rates: High visibility markings have been proven to increase driver yielding rates and are more easily detected by drivers than standard crosswalk designs (NCHRP, 2016). A study that examined driver yield rates on two-lane streets with speed limits of 25 or 30 mph indicated that in-street pedestrian crossing signs with high visibility signs and crosswalk markings had yield rates ranging from 82% to 91% (NCHRP, 2006).

Limitations

Not effective as stand-alone treatment: In most locations, crosswalk markings alone are not sufficient to allow pedestrians to safely cross the street. Along streets with traffic volumes greater than 12,000 ADT, crosswalk markings can increase crash rates if not installed with other crossing improvements (Zegeer et al., 2005).

Maintenance: Crosswalk markings need regular maintenance and re-painting to remain highly visible to drivers. Crosswalk markings are likely to last longer on the pavement if placed between the wheel path of vehicles.

Crossing Design Elements: Enhanced Visibility Treatments

Complementary Treatments

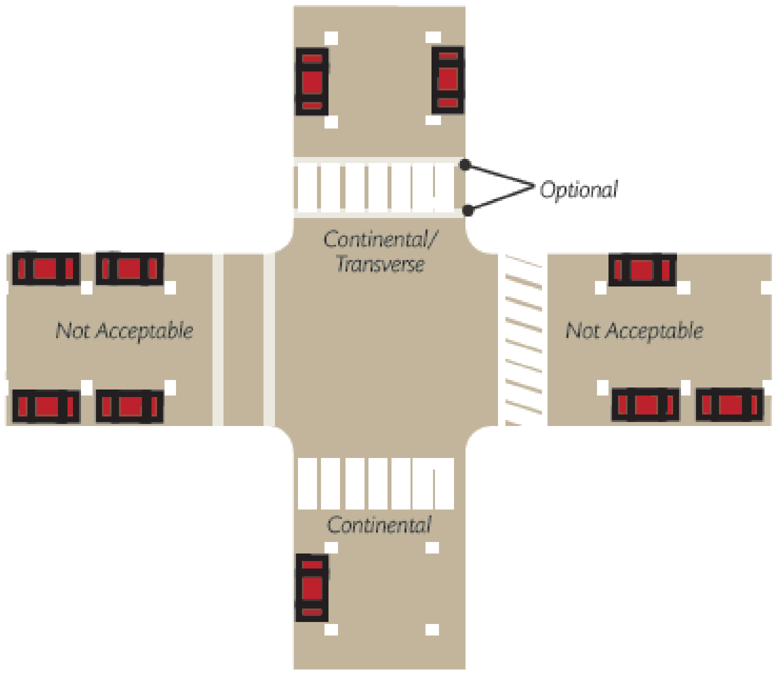
Crosswalk markings alone are not sufficient to create a safe crossing location and should be accompanied with other treatments such as:

- Warning signage
- Advance stop/yield lines
- In-street pedestrian crossing signs
- Pedestrian-scale lighting
- RRFBs
- PHBs
- Infrastructure treatments such as pedestrian refuge islands, raised crosswalks, curb extensions/bulb-outs, and road diets

Design Considerations

Recommended style: DPM section 7-4(E)(1)(ix) provides guidance on crosswalk markings, recommending high-visibility **continental** crosswalk markings for all crosswalks. Transverse bars may be placed in conjunction with continental crosswalk markings but should not be used as a stand-alone crosswalk. Figure 9 shows the DPM recommended crosswalk designs.

Figure 9: DPM Figure 7.4.72 Crosswalk Markings



Width: Per the DPM, crosswalks within Centers should be at least 10 feet wide and crosswalks outside of Centers should be at least 6 feet wide.

Pavement materials: DPM section 7-4(C) provides guidance on crosswalk pavement and marking materials. Alternative pavement materials, such as brick, pavers, permeable pavement, stamped concrete, or gravel, may be used to differentiate the crosswalk from the rest of the street (7-4(C)(7)).

Crossing Design Elements: Enhanced Visibility Treatments

Location/Context

In New Mexico, vehicles are not required to yield to pedestrians unless they are crossing within a marked crosswalk. Therefore, crosswalk markings should always be used in locations where driver yielding is desired, especially in locations where bicyclists and pedestrians would experience long delays while waiting for gaps in traffic. Figure 10 is an example of a bicycle crossing location without crosswalks where bicyclists must yield to vehicles before crossing.

Potentially Dangerous Applications

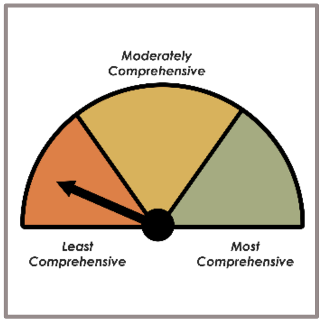
There are some contexts where marking a crosswalk without installing other crossing treatments can *decrease* safety for those attempting to cross. These contexts include:

- Roads with speed limits of 40 mph or greater
- Roads with four or more lanes, no raised median or refuge island, and ADT of 12,000 or greater
- Roads with four or more lanes with a raised median or refuge island with ADT of 15,000 or greater (Zegeer et al., 2005)

Marking a crosswalk in these locations without installing other treatments encourages pedestrians to cross at unsafe locations where vehicles are unlikely to yield, even if they are legally required to do so.

Figure 10: Bicyclist Crossing without Crosswalk Markings, Lomas Blvd and 14th St

Advance Stop/Yield Lines



Advance stop lines are a solid white line placed across the roadway before a crosswalk to indicate where a vehicle should stop to wait for pedestrians. Advance yield lines are similar but have a triangle "sharks teeth" design rather than a solid line.

Figure 11: Advance Yield Line on Multi-Lane Crossing

Source: Toole Design Group

Benefits

Reduce multiple-threat crashes: Advance stop/yield lines can reduce pedestrian crashes by 25% (FHWA, 2013). By positioning vehicles behind a crosswalk, drivers in vehicle travel lanes on multi-lane roadways are more likely to see and yield to people crossing the street. They also allow pedestrians to better see oncoming traffic and respond if a vehicle does not yield.

Limitations

Motorist compliance: Advance stop/yield lines are not effective if vehicles stop beyond the line. Driver education and advance signage (see MUTCD R1-5 series signs in

Table 2) can help increase compliance.

Maintenance: Like all pavement markings, advance stop/yield lines need regular maintenance to remain highly visible.

Parking restrictions: If on-street parking is present, parking should be restricted between advance stop/yield lines and the crosswalk to increase the visibility of pedestrians.

Complementary Treatments

Treatments that can complement advance stop/yield lines include:

- High visibility crosswalks (advance stop/yield lines should always be installed in conjunction with a crosswalk)
- Warning signage
- In-street pedestrian crossing sign
- Pedestrian-scale lighting
- RRFBs
- PHBs
- Infrastructure treatments such as pedestrian refuge islands, curb extensions/bulb-outs, raised crosswalks, and road diets

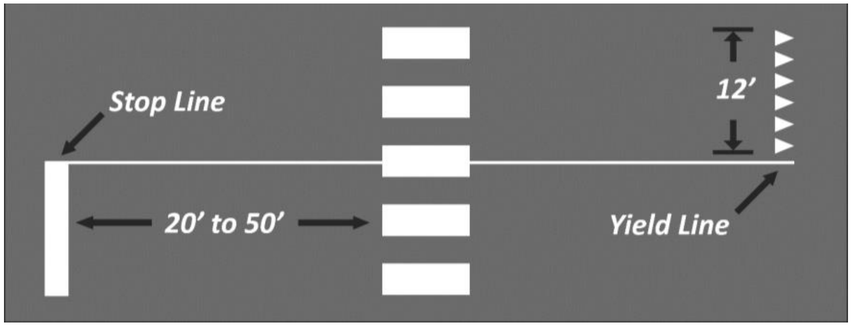
Crossing Design Elements: Enhanced Visibility Treatments

Design Considerations

Stop lines vs yield lines: Advance stop lines should be placed where vehicles are legally required to stop and wait for pedestrians, such as at stop signs, traffic signals, or PHBs. Advance yield lines should be placed where vehicles are legally required to yield to pedestrians, including unsignalized crosswalks and RRFBs.

Placement: Advance stop/yield lines should be placed 20-50’ in advance of a crossing location (see Figure 12). Generally, 30’ is an appropriate distance between a crosswalk and advance stop/yield lines (FHWA, 2013). The MUTCD recommends placing a stop line 40’ from the crosswalk at *signalized* midblock crossings. For additional guidance on the placement and design of advance stop and yield lines, see MUTCD Section 3B.16.

Figure 12: Recommended Stop/Yield Line Layout

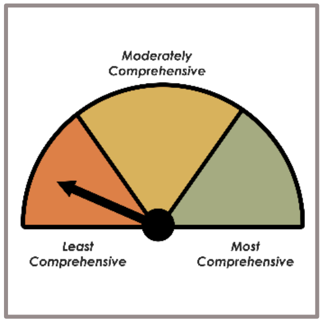


Location/Context

While advance stop/yield lines can be installed at any crosswalk, they are particularly effective at the following locations:

- Multi-lane roads with speed limits of 35 mph or greater
- Multi-lane roads with ADT of 15,000 or greater

In-Street Pedestrian Crossing Signs



In-street pedestrian crossing signs are placed in the middle of a street to serve as a reminder to motorists that they are required by law to yield to crossing pedestrians. Signs can be placed in a median, on lane lines, or on the yellow center line if no median is present.

Figure 13: In-Street Pedestrian Crossing Sign Example

Source: Visi Flash Pedestrian Safety Solutions

Crossing Design Elements: Enhanced Visibility Treatments

Benefits

Education: In-street pedestrian crossing signs educate and remind drivers that motorists must yield to people crossing.

Traffic calming: Signs placed in the roadway have a traffic calming effect by visually narrowing the roadway.

Limitations

Maintenance: In-street signs can be easily damaged and need to be replaced when struck.

Limited effectiveness on large roads: In-street pedestrian crossing signs are more effective on low-speed streets with two lanes (PBIC, n.d.).

Complementary Treatments

In-street pedestrian crossing signs can be installed in conjunction with the following treatments:

- High visibility crosswalks (in-street pedestrian crossing signs should always be installed in conjunction with a crosswalk)
- Warning signage
- Advance stop/yield lines
- Pedestrian-scale lighting
- RRFBs
- PHBs
- Infrastructure treatments such as pedestrian refuge islands, curb extensions/bulb-outs, raised crosswalks, and road diets

Design Considerations

MUTCD compliance: MUTCD yield sign R1-6 (see

Table 2) should be used as in-street pedestrian crossing signs in New Mexico. Other signs, including roadside and overhead warning signs, can be installed in conjunction with R1-6 signs.

Placement: Signs can only be placed at unsignalized crossing locations and should comply with AASHTO breakaway requirements.

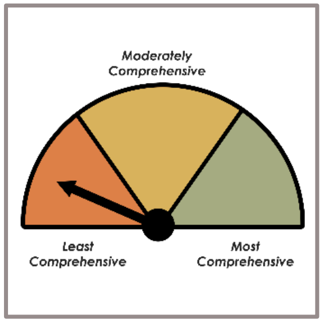
For further design considerations, reference MUTCD section 2B.12.

Location/Context

In-street pedestrian crossing signs can be installed on lower-speed, narrower roadways. They can be considered as a treatment on one to three lane roads with speed limits of 30 mph or less.

Crossing Design Elements: Enhanced Visibility Treatments

Overhead Flashing Lights



Overhead flashing lights are alternating yellow lights placed on a masthead above the roadway to indicate the presence of a crossing or school zone. Overhead flashing lights are an older technology that has been used extensively in the Albuquerque region.

Figure 14: Overhead Flashing Lights Example

Source: FHWA

Benefits

Increases visibility: Overhead flashing lights can draw drivers' attention to a crossing location or school zone.

Minimal impacts on traffic operations: Overhead flashing lights do not reduce roadway capacity or create delay for motorists.

Limitations

Limited effectiveness as a stand-alone treatment: Overhead flashing lights are not effective by themselves and should be paired with other treatments to reduce crashes and increase driver yield rates.

Low motorist compliance: Compared to RRFBs, overhead flashing lights have lower motorist compliance because they are not as visible.

Complementary Treatments

Overhead flashing lights can be installed in conjunction with the following treatments:

- High visibility crosswalks
- Warning signage
- Advance stop/yield lines
- In-street pedestrian crossing signs
- Pedestrian-scale lighting
- Infrastructure treatments such as pedestrian refuge islands, curb extensions/bulb-outs, raised crosswalks, and road diets

Design Considerations

Overhead flashing lights can be continuously flashing or intermittently flashing only when a pedestrian is present. For overhead flashing lights at crossing locations, intermittent flashing systems can result in higher driver yield rates because a driver can be reasonably sure a pedestrian is present when the lights are activated. Overhead flashing lights that indicate a school zone should be activated continuously during posted school zone times. Further design guidance can be referenced in MUTCD Section 4L.03.

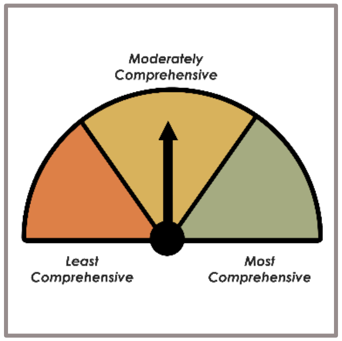
Crossing Design Elements: Enhanced Visibility Treatments

Location/Context

As RRFBs have similar installation and maintenance costs and are a more effective treatment at increasing driver yield rates, RRFBs are generally recommended instead of overhead flashing lights when designing new crossings. **Overhead flashing lights should not be considered a replacement for an RRFB when determining an appropriate crossing treatment.**

However, existing overhead flashing lights can remain in place to supplement high visibility crosswalk markings and signage or to indicate school zones. Crosswalk markings and signage without an RRFB or PHB can be installed in locations with shorter crossing distances, lower vehicle speeds, and lower traffic volumes.

Pedestrian-Scale Lighting



Pedestrian-scale lighting can help increase the visibility of pedestrians crossing at night and increase driver yield rates. Lighting should be placed between oncoming vehicles and the crossing location (FHWA, 2013).

Some level of illumination is required at all formal crossing locations. See DPM Section 7-4(M)(1)(ii) for illumination guidelines. Greater illumination is needed in areas with higher levels of pedestrian activity, including high-use trails, Centers, Main Street Corridors, and Premium Transit Station Areas.

Benefits

Reduce crashes: Intersection lighting can reduce pedestrian crashes by 42% (FHWA, 2021).

Increase comfort: Pedestrian-scale lighting helps pedestrians feel safe and comfortable while walking at night.

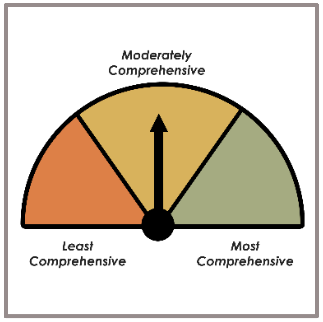
References

Local dark sky ordinances require shielded light fixtures to prevent light pollution. Integrated Development Ordinance (IDO) section 5-8(E)(1) lists requirements for pedestrian-scale lighting, including lighting levels, spacing, and height requirements. DPM section 7-4(M) contains additional standards for roadway lighting.

Figure 15: Pedestrian-Scale Lighting on Central Ave

Crossing Design Elements: Enhanced Visibility Treatments

Rectangular Rapid Flashing Beacon



Rectangular rapid flashing beacons (RRFBs) mounted overhead or on the roadside can notify drivers that pedestrians are crossing the roadway.

An RRFB device includes amber LED flashing lights that are installed to enhance pedestrian crossing warning signs at unsignalized crosswalks. RRFBs can be continuously flashing, pedestrian-activated using manual pushbuttons, or activated by passive pedestrian detection using automated sensors. Flashing lights are positioned, below a pedestrian sign and above an arrow placard pointing to the crosswalk.

RRFBs should always be installed with pedestrian or bicycle warning signage and high visibility crosswalks.

Benefits

Reduce crashes: RRFBs can reduce pedestrian crashes by up to 47% (NCHRP, 2017).

Increase driver yield rates: While yielding rates vary by city, studies show yield rates at RRFBs between 72% and 96% (Shurbutt & Houten, 2010). Another study saw yielding rates at night increase from 35% to 100% (NCHRP, 2016).

Minimal impacts on traffic operations: Because RRFBs are inactive when pedestrians are not present, they have minimal impacts on traffic operations and roadway capacity.

Reduce crossing delay: Because RRFBs are activated immediately, pedestrians do not need to wait to cross if drivers comply with the RRFB.

Figure 16: Rectangular Rapid Flashing Beacon on Multi-Lane Arterial

Source: Texas A&M Transportation Institute

Limitations

Over-use: Over-using RRFBs may reduce their effectiveness (FHWA, 2021).

Lower driver yield rates on wide roads: On wide, high-speed, or high-volume roadways, RRFBs resulted in a wide range of driver yield rates (25% to 73%), indicating that the effectiveness of RRFBs may be limited in these contexts (NCHRP, 2006).

Motorist compliance: While RRFBs draw drivers' attention to a crosswalk, drivers do not always yield to pedestrians waiting to cross the street without full traffic signals or PHBs requiring them to come to a complete stop.

Crossing Design Elements: Enhanced Visibility Treatments

Complementary Treatments

The following treatments can be installed in conjunction with an RRFB:

- High visibility crosswalks
- Warning signage
- Advance stop/yield lines
- In-street pedestrian crossing signs
- Pedestrian-scale lighting
- Infrastructure treatments such as pedestrian refuge islands, curb extensions/bulb-outs, raised crosswalks, and road diets

Figure 17 provides an example of complementary treatments that can be installed with RRFBs, including warning signage, high visibility crosswalks, refuge islands, curb extensions, and advance yield lines.

Design Considerations

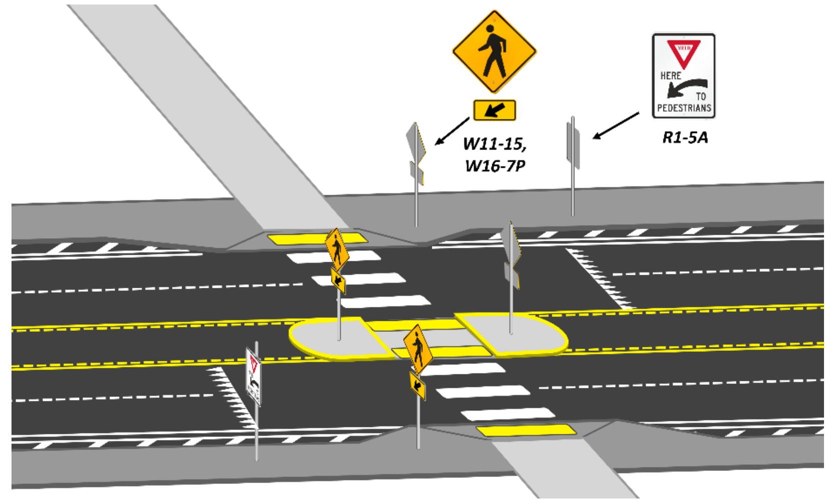
Intermittent flashing vs continuously flashing: Generally, intermittent flashing beacons result in greater driver yield rates than continuously flashing beacons. Intermittent flashing beacons are typically activated using a manual pushbutton or automated sensor. Because they do not flash constantly, drivers can be reasonably sure that a pedestrian is crossing the street when they are flashing (NCHRP, 2006).

Uncontrolled locations: FHWA guidance states that RRFBs shall not be installed at locations that are stop or yield-controlled unless the location is at a roundabout.

Sign position: If a roadway includes a center median, install the RRFB in the median as well as the sides of the roadway to increase visibility (FHWA, 2021).

Overhead vs roadside mounted: Overhead RRFBs can result in increased driver yield rates over roadside-mounted RRFBs (NCHRP, 2006).

Figure 17: RRFB with Complementary Treatments



Location/Context

RRFBs are commonly installed at high-volume or high-speed intersections or at school crossings. While some jurisdictions use RRFBs at all multi-lane unsignalized crosswalks, others prioritize locations with significant pedestrian safety issues so as to not diminish their effectiveness (NCHRP, 2016; FHWA, 2013).

RRFBs are most appropriate at multi-lane crossings with speed limits less than 40 mph (FHWA, 2021).

Signal Treatments

Signalized crossing treatments are those that force vehicles to stop because of the presence of a traffic signal. The two most common types of signalized crossing treatments are full traffic signals and PHBs, also known as HAWK signals (see Figure 18 and Figure 19).

Signalized crossings can provide safety and comfort for pedestrians and bicyclists because they provide a clear regulatory message that brings traffic to a complete stop. Signalized crossings also increase the connectivity of bicycle and pedestrian networks.

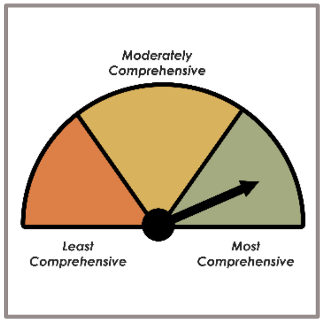
While signalized crossings are generally safer than unsignalized crossings, long crossing distances and high vehicle speeds can still contribute to a hostile pedestrian environment. Infrastructure treatments (discussed later in this report) such as curb extensions, refuge islands, and road diets can greatly increase the comfort of signalized pedestrian crossings. Signal treatments are also generally high-cost and may impact traffic operations.

Figure 18: Crossing at Full Traffic Signal on Taylor Ranch Rd

Figure 19: Pedestrian Hybrid Beacon on Central Ave

Crossing Design Elements: Signal Treatments

Full Traffic Signal



Full traffic signals are standard traffic signals that generally have pedestrian signal heads and associated countdown timers. Countdown timers help communicate to pedestrians how much time is remaining in the walk phase, aiding pedestrians in making decisions about when they should cross the street to avoid being caught in the middle of an intersection.

Figure 20: Traffic Signal on Lead Ave

Appropriateness

Because the MUTCD requires an engineering study of traffic conditions, pedestrian characteristics, and physical characteristics for a full traffic signal to be installed, traffic signals are rarely selected as a crossing treatment unless there is also a traffic-related need for a signal. Full traffic signals are generally installed where enhanced levels of traffic control are needed for vehicular movement or to address critical safety issues. However, signals have the added benefit of bringing traffic to a complete stop for pedestrians to cross the street.

Benefits and Limitations

Full traffic signals have high rates of motorist compliance and can reduce crashes by 33% (McGee et al., 2003). However, traffic signals need to be warranted per the MUTCD, which limits their application.

Complementary Treatments

While full traffic signals provide a high level of vehicle control, they are not inherently safe for pedestrian/bicyclist crossings. Intersections can have multiple conflict points during the pedestrian walk phase if vehicles are permitted to make left and right turns at the same time.

Additional treatments that make intersection crossings safer and more comfortable by addressing conflict points include:

- Warning signage
- High-visibility crosswalk markings
- Advance stop/yield lines
- Pedestrian-scale lighting

Crossing Design Elements: Signal Treatments

- Median refuge islands
- Leading pedestrian/bicycle intervals
- Right turn on red restrictions
- Curb extensions
- Raised crosswalks
- Road diets

References

MUTCD section 4C describes warrants for traffic signal installation. Pedestrian crossing volume can be used as a warrant for installing a traffic signal; however, the pedestrian signal warrant can be difficult to meet if inhospitable conditions deter pedestrians from crossing. Other criteria that can justify the installation of a traffic signal include vehicle volume, peak hour traffic, school crossings, coordinated signal systems, crashes, traffic flow, and rail crossings.

The DPM recommends installing pedestrian crossings at all at-grade signalized intersections (see Section 7-4(A)(7)(iii)(b)). The DPM also recommends installing signalized pedestrian crossings at key intersections between arterials and collectors.

The DPM provides general guidance on the spacing of traffic signals (see Section 7-4(A)(6)). Outside of Comprehensive Plan Centers, traffic signals should not be spaced less than ¼-mile apart without approval from the City Engineer.

Signalized pedestrian crossings (i.e. full traffic signals or PHBs) should be provided at intervals recommended in DPM Table 7.4.41 and 7.4.42. Spacing depends on functional classification and Comprehensive Plan Center/Corridor designations.

Pedestrian Hybrid Beacon/HAWK Signal

A pedestrian hybrid beacon (PHB) is a traffic control device commonly used to help pedestrians safely cross busy or higher-speed roadways at mid-block locations and uncontrolled intersections. PHBs result in higher vehicle yield rates than RRFBs because they clearly assign right of way and provide stop control for vehicles (FHWA, 2021).

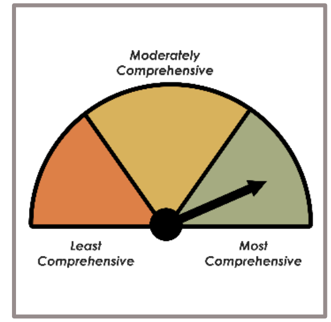


Figure 21: PHB on Lomas Blvd and Alvarado Dr

Source: City of Albuquerque

Crossing Design Elements: Signal Treatments

Benefits

The primary purpose of PHBs is to reduce crashes and improve driver yield rates to pedestrians.

Driver yield rates: Several studies have indicated that driver yielding rates at PHBs can be between 90 to 100 percent (NCHRP, 2006). In comparison to RRFBs or standard crosswalk signage, the steady red signal on PHBs provides a direct regulatory message that generally results in a more uniform response.

Reduce crashes: PHBs can reduce pedestrian crashes by 55%, total crashes by 29%, and serious injury and fatal crashes by 15% (FHWA, 2021). Crash analyses in Seattle, WA have documented that PHBs can reduce vehicle-vehicle crashes as well as pedestrian-vehicle conflicts (NCHRP, 2006).

Limitations

Cost: The primary limitation of PHBs is their cost. While less expensive than installing a full traffic signal, PHBs generally cost between $200,000 and $250,000.

Siting limitations: PHBs should not be installed within 100 feet of stop or yield controlled intersections (MUTCD 4F.02.4) and need to be installed in locations with adequate sight distance.

Complementary Treatments

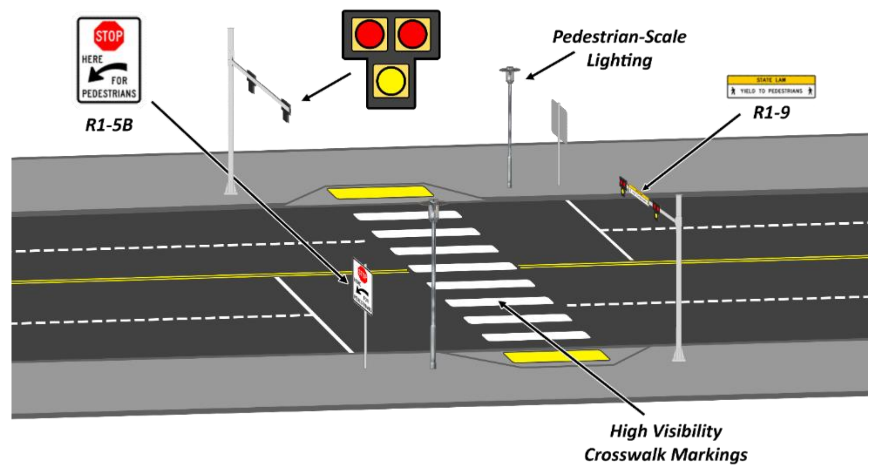
The MUTCD requires the following treatments at PHB locations (see Figure 22):

- Crosswalks (section 4F.01)
- Signage
- Advance stop lines

Other optional crossing treatments that can complement a PHB include:

- Pedestrian-scale lighting
- Infrastructure treatments such as pedestrian refuge islands, curb extensions/bulb-outs, and road diets

Figure 22: PHB Complementary Crossing Treatments

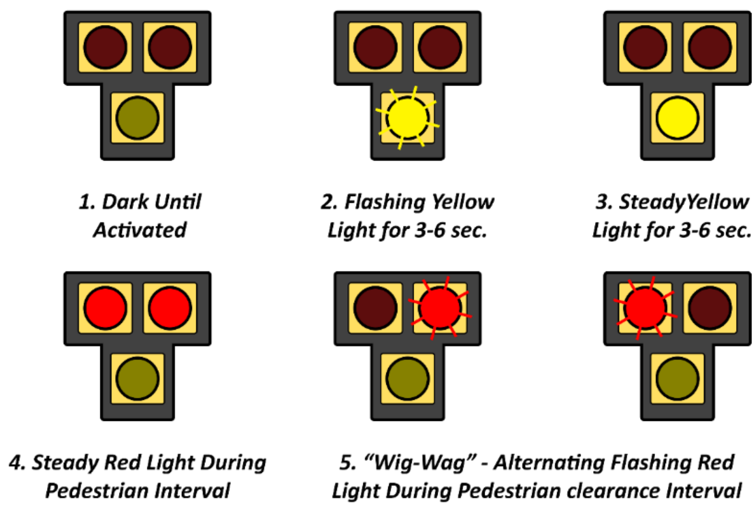


Design Considerations

Light cycles: PHBs remain dark until activated by a pedestrian (normally with a push-button). Once activated, they cycle through several signal phases: flashing yellow, steady yellow, steady red, and flashing red. The flashing red phase is referred to as the “wig-wag” phase and allows vehicles to proceed after stopping if the crosswalk is clear.

Bicycle considerations: PHBs can be especially effective at facilitating trail or bicycle boulevard crossings because low volume roadways and trails are unlikely to meet warrants for full traffic signals. PHBs can be designed to improve level of service for bicyclists by providing bicycle signal heads and bicycle signal detectors. However, as bicyclists can enter the intersection more quickly than pedestrians, the wig-wag phase can introduce conflict points if vehicles fail to see a bicyclist before proceeding through the crossing. For this reason, the steady red light should be longer and the wig-wag phase should be shorter at PHBs with high volumes of crossing bicyclists (NACTO, 2014).

Figure 23: PHB Signal Cycle



Location/Context

PHBs can be installed at intersections or mid-block locations. While PHBs can be considered for most roadway contexts, they are most useful on high-speed, high-volume multi-lane roadways. Roadways where multiple-threat crashes are a concern and roadways with speed limits of 40 mph or greater should be prioritized for the installation of PHBs. PHBs can also be considered for areas with high populations of vulnerable road users, including children, people with disabilities, and older adults.

Crossing Design Elements: Infrastructure Treatments

Infrastructure Treatments

Infrastructure treatments greatly improve the safety and comfort of crossing locations. Infrastructure treatments that reduce vehicle speeds and shorten crossing distance can also reduce the need for traffic signals, PHBs, and RRFBs. Figure 24 and Figure 25 show examples of infrastructure treatments at crossing locations.

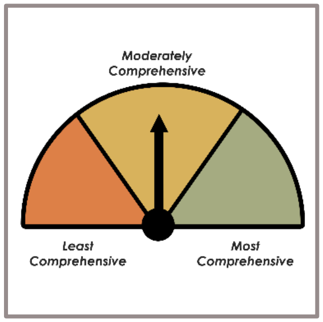
The infrastructure treatments considered in this guide include:

- Raised crosswalks
- Curb extensions/bulb-outs
- Pedestrian refuge islands
- Grade-separated crossings
- Road diets

Figure 24: Crossing with Road Diet, Curb Extension and Refuge Island

Figure 25: Raised Crosswalk with Curb Extension and In-Street Pedestrian Crossing Sign

Raised Crosswalks



Raised crosswalks are crosswalks placed on top of a speed table that allow pedestrians to cross a street at the same level as the sidewalk. These treatments should be placed on low-speed, low-volume roads, though they may be placed on side streets that intersect major roads to help facilitate crossings (see Figure 26). Raised crosswalks can be installed at mid-block locations or at intersections.

Figure 26: Raised Crosswalk on Alameda Drain Trail

Benefits

Reduce crashes: Raised crosswalks can reduce vehicle/pedestrian crashes by 46% on local roads.

Increases yield rates: A study in Cambridge MA found yielding rates increased from 10% to 55% after installing raised crosswalks (FHWA, 2013).

Traffic calming: Raised crosswalks serve as a speed table and can reduce vehicle speeds by 6 to 11 mph.

Increases visibility: Raised crosswalks place pedestrians directly in a driver's field of vision.

Limitations

Limited roadway contexts: Raised crosswalks should only be installed on roadways with low speeds and traffic volumes.

Emergency response and transit routes: As large vehicles may not be able to navigate raised crosswalks, they should not be installed on emergency response routes or transit routes.

Complementary Treatments

Raised crosswalks can be complemented by:

- High-visibility crosswalk markings
- Warning signage
- Advance stop/yield lines
- In-street pedestrian crossing signs
- Pedestrian-scale lighting
- RRFBs
- Infrastructure treatments such as curb extensions/bulb-outs and road diets

Crossing Design Elements: Infrastructure Treatments

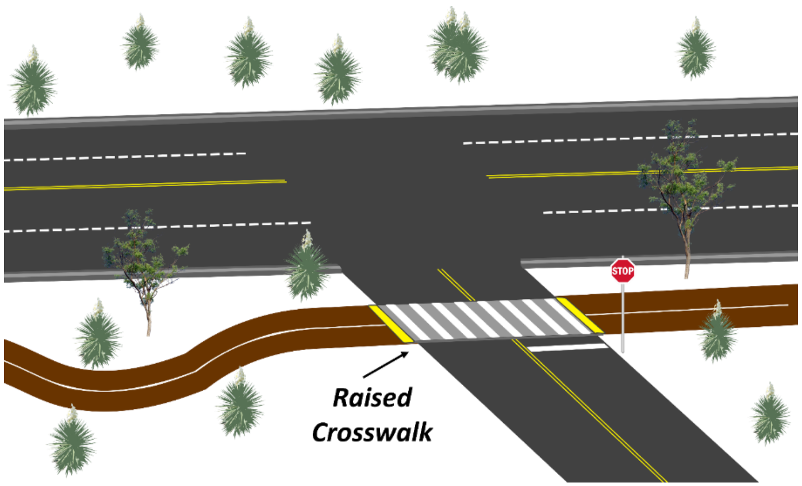
Design Considerations

Width: Raised crosswalks are generally at least 10 ft wide and span the entire width of the street.

Stormwater runoff: Raised crosswalks can reduce the hydraulic capacity of roadways and may require a hydraulic analysis to ensure that stormwater runoff will not exceed curb heights.

Setback from major roads: If installed on a local road intersecting with a major road, raised crosswalks should be set back from the main road to allow turning vehicles to see pedestrians. Additionally, tighter curb return radii and/or deceleration lanes can help slow turning traffic and increase driver yield rates. Figure 27 shows an example of a raised crossing on a sidepath parallel to a major street.

Figure 27: Raised Crosswalk on Side Street



Location/Context

Raised crosswalks are generally only appropriate on low speed, local roads (i.e. 1-3 lanes, speed limits of 30 mph or under, and ADT <9,000 [NMDOT, 2020]). They may be applied on sidepaths adjacent to major roadways (see Figure 27).

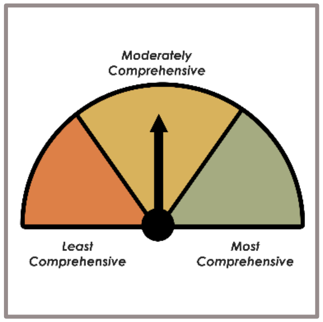
References

MUTCD Section 3B.25 includes instructions for appropriate pavement markings and signage on and approaching a speed hump.

The City of Albuquerque's Neighborhood Traffic Management Program includes speed humps and tables in its toolkit of traffic calming treatments for local roads.

Curb Extensions/Bulb Outs

Curb extensions or bulb-outs extend the pedestrian area into the roadway at intersections in order to shorten the distance required to cross a street, encourage slower driving, and reduce turning speeds.



Source: FHWA Traffic Calming E-Primer

Benefits

Reduces crossing distance: By extending the pedestrian realm, curb extensions reduce the distance required to cross a street and the amount of time a pedestrian is exposed to vehicle traffic.

Increases visibility of those waiting to cross: Curb extensions position pedestrians in a visible location to drivers, which can increase driver yield rates.

Traffic calming: By narrowing the roadway, curb extensions cause drivers to slow down and look for pedestrians. Curb extensions also tighten turn radii, which slows turning vehicles.

Creates space for landscaping/lighting: Curb extensions create additional space in the pedestrian realm for landscaping or lighting, which can further increase pedestrian visibility.

Limitations

Right-of-way constraints: The application of curb extensions may be limited along roadways with constrained right-of-way.

Bicycle lanes: If positioned in a bicycle lane, curb extensions can force bicyclists to merge with vehicle traffic, which introduces conflict points.

Reduces parking: Curb extensions are often built in the parking lane, which reduces the number of available parking spaces.

Vehicular delay: Curb extensions can increase delay for vehicles at locations with high volumes of turning traffic.

Crossing Design Elements: Infrastructure Treatments

Complementary Treatments

Curb extensions can be paired with:

- High-visibility crosswalk markings
- Warning signage
- Advance stop/yield lines
- In-street pedestrian crossing signs
- Pedestrian-scale lighting
- RRFBs
- PHBs
- Infrastructure treatments such as pedestrian refuge islands, raised crosswalks, and road diets

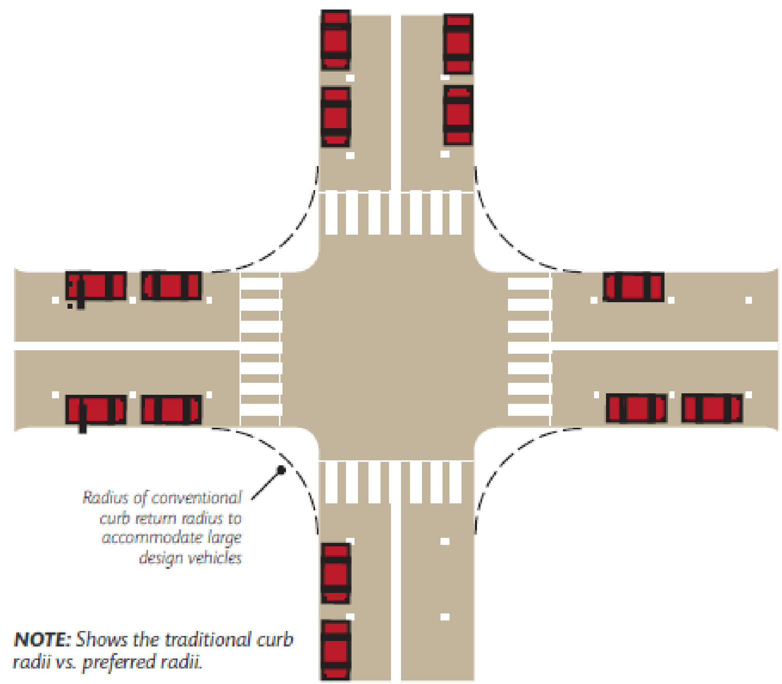
Design Considerations

Turn radii: Curb extensions should be designed with a wide enough turn radius for emergency vehicles and buses (see Figure 28). DPM Table 7.4.66 provides recommended curb return radii based on Comprehensive Plan Center and Corridor designations. The DPM recommends tighter turn radii in Centers and Premium Transit Station Areas and along Multi-Modal, Main Street, and Major Transit Corridors.

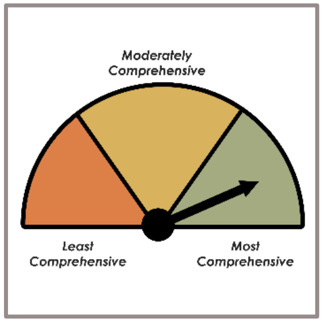
Location/Context

Curb extensions are highly versatile and can be implemented on almost any street type regardless of speed limit or traffic volumes, including local streets, collectors, and arterials. Curb extensions can be placed on all corners of an intersection or only one corner. They are often built on streets with on-street parking but can be implemented along streets without parking if there is enough right-of-way for vehicle travel lanes and/or bike lanes to remain unimpeded.

Figure 28: DPM Figure 7.2.95 Standard Curb Return Radii Diagram



Pedestrian Refuge Islands



Pedestrian refuge islands are raised areas in the middle of a roadway that reduce crossing distance and facilitate two-stage crossings by giving pedestrians a place to wait for an adequate gap between vehicles before finishing the second leg of the crossing.

Figure 29: Pedestrian refuge island with high-visibility crosswalk and signage

Source: BikePedImages.org – Katy Lang

Benefits

Reduce crashes: Pedestrian refuge islands can reduce crash rates by 46% at marked crosswalks and 39% at unmarked crosswalks. They can also reduce motor vehicle crashes by 14% (FHWA Safety Program, n.d.).

Reduces crossing delay: By dividing a crossing into two stages, the amount of vehicle traffic and number of lanes to navigate at a time is effectively split in half. This reduces delay for people crossing as they do not need to wait as long for a gap in traffic.

Reduces crossing distance: By providing space for pedestrians in the median, refuge islands reduce the distance required to cross a street and the amount of time a pedestrian is exposed to vehicle traffic.

Traffic calming: Refuge islands visually narrow the roadway, which can reduce vehicle speeds.

Creates space for landscaping and lighting: Landscaping and/or pedestrian-scale lighting can be added to refuge islands to increase the visibility of pedestrians crossing.

Limitations

Vehicular access: Pedestrian refuge islands placed in a center turn lane limit vehicle left turns in that location.

Complementary Treatments

Pedestrian refuge islands can be installed to complement a full traffic signal or PHB or can be installed at unsignalized locations. Refuge islands can be paired with:

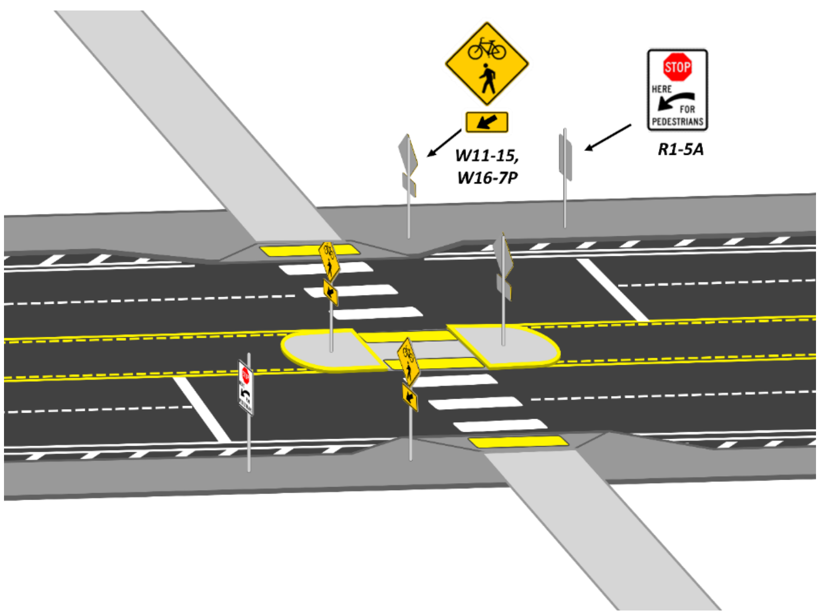
- High-visibility crosswalk markings

Crossing Design Elements: Infrastructure Treatments

- Warning signage
- Advance stop/yield lines
- In-street pedestrian crossing signs
- Pedestrian-scale lighting
- RRFBs
- PHBs
- Infrastructure treatments such as curb extensions, raised crosswalks, and road diets

Figure 30 shows examples of treatments that can complement a pedestrian refuge island, including curb extensions, signage, advance stop/yield lines, and high-visibility crosswalk markings.

Figure 30: Pedestrian Refuge Island Complementary Treatments



Design Considerations

Placement: Pedestrian median islands may be located at signalized or unsignalized intersections or at mid-block crossings.

Width: Per the DPM, pedestrian medians should be at least six feet wide to allow enough space for pedestrians and bicyclists to wait comfortably.

Vertical elements: The DPM recommends a raised curb or other vertical elements to separate the island from vehicle traffic.

ADA accessibility: Pedestrian medians should be ADA accessible and include detectable warning signals.

Location/Context

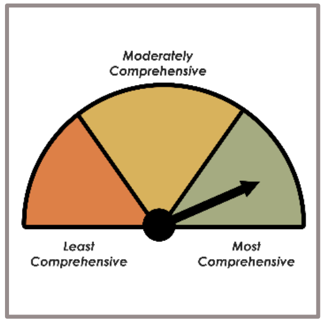
The DPM recommends installing refuge islands on roads with three or more lanes, traffic volumes over 12,000 ADT, and/or speeds over 30 mph.

Pedestrian medians may be especially effective at the following locations:

- In areas with vulnerable populations who may take a longer time to cross the street, including children, people with mobility-related disabilities, and older adults
- Along designated bicycle routes
- Where there are high-volume pedestrian and/or bicycle crossings

Crossing Design Elements: Infrastructure Treatments

Grade-Separated Crossings



Grade-separated crossings allow bicyclists/pedestrians to cross a street by passing underneath it via a tunnel or crossing over it via a bridge. This type of crossing eliminates pedestrian/bicyclist interactions with motor vehicles at crossing locations, providing a safe and comfortable crossing experience and improving multi-modal connectivity. They can be especially useful where trail crossings intersect with major arterials or highways, as they allow trail users to pass through high-speed, high-volume areas without experiencing intersection conflict points.

Figure 31: Grade-Separated Underpass on North Diversion Trail

Source: primepassages.com

Figure 32: Grade-Separated Bridge on Paseo del Norte Trail

Source: primepassages.com

Benefits

Safety and comfort: Grade-separated crossings provide high levels of safety and comfort at crossings by eliminating interactions with vehicles.

Minimize pedestrian/bicyclist delay: Grade-separated crossings minimize delay by allowing pedestrians/bicyclists to cross without waiting for a traffic signal or for vehicles to yield at crosswalks.

No impact on traffic operations: By completely separating bike/pedestrian crossing activity, grade-separated crossings allow bicyclists, pedestrians, and motorists to traverse an intersection without causing delays for other users.

Crossing Design Elements: Infrastructure Treatments

Limitations

Increase travel distance: Grade-separated crossings can add distance and delay if they are positioned out of the direction of travel. Pedestrians are especially sensitive to out-of-direction travel and may choose to risk crossing a street at-grade if the crossing location is inconvenient. Studies indicate that 95% of pedestrians will use a grade-separated crossing if it does not add distance to their route, but if using the crossing takes 50% longer than crossing at-grade, very few people will use the facility (Mead et al., 2014). Generally, grade-separated crossings within an existing trail network see higher usage because they do not create out-of-direction travel.

Cost: Grade-separated crossings are the most expensive crossing treatment of available options. Traffic calming with enhanced pedestrian crossings can be a far more cost-effective intervention and, in many cases, contributes to a more convenient and connected pedestrian network.

Design Considerations

Choosing between above or below-grade crossings: Whether a grade-separated crossing should be above or below the roadway depends on its site characteristics and costs. Bicyclists tend to prefer crossing below a roadway because a tunnel or underpass allows them to build up speed and momentum to ascend on the other side. Additionally, below-grade crossings generally allow for gentler ramp slopes than above-grade crossings. However, below-grade crossings have additional considerations and maintenance needs due to drainage, lighting, and possible graffiti removal (FHWA, 2013).

ADA compliance: Grade-separated crossings should be ADA compliant with ramps for wheelchair access (generally a 5% grade). For above-grade crossings, long ramps may be needed to meet ADA requirements. Stairs can be considered in addition to ramps where ramps add significant travel distance. More information on ADA compliant design can be found in the Public Rights of Way Accessibility Guidelines (PROWAG).

Wayfinding: Pedestrians/bicyclists are more likely to go out of the direction of travel to use grade-separated crossings if wayfinding signage is provided.

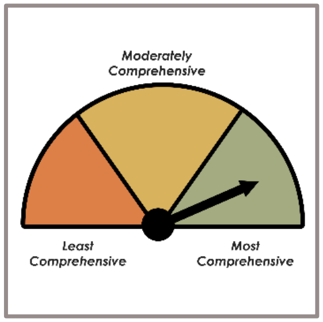
Location/Context

Grade-separated crossings should be considered in the following contexts:

- Where there is a need to provide bicyclist/pedestrian connectivity across rivers, railroads, or highways
- Multi-use trails or other off-road paths
- High volume, high speed roadways

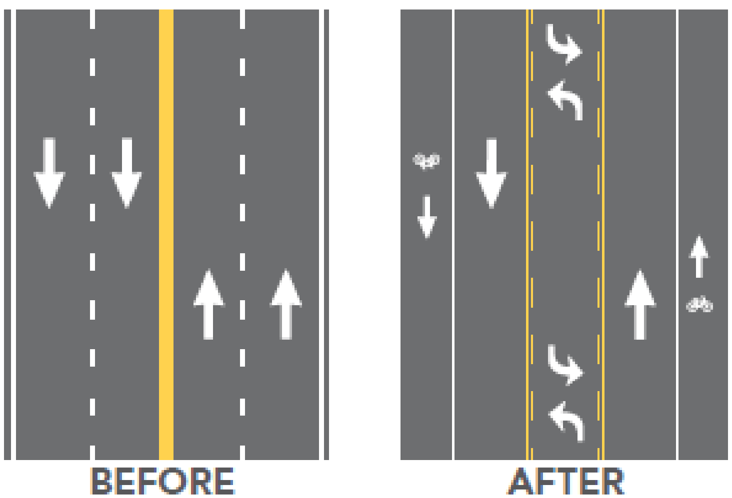
Crossing Design Elements: Infrastructure Treatments

Road Diets



A road diet encourages slower driving speeds and re-allocates space to other modes of travel. The DPM distinguishes between a **road reconfiguration**, which reduces the number of vehicle travel lanes, and **road restriping and narrowing**, which maintains the same number of travel lanes but narrows general purpose lanes to create space for other modes. Road diets that remove travel lanes but add two-way left turn lanes can have operational benefits for auto traffic because the center turn lane reduces delay from left-turning vehicles (FHWA, 2014).

Figure 33: Example of a Road Diet



Source: Federal Highway Administration

Benefits

Reduces crossing distance: By removing vehicle travel lanes, road diets decrease crossing distance and reduce the need for signalized crossings or RRFBs.

Reduce crashes: Road diets have been shown to decrease crashes by 19-47% (FHWA, 2014).

Multi-modal connectivity: Road diets increase space for bike lanes, sidewalks, transit stops, and street amenities.

Traffic calming: Road diets can reduce vehicle speeds and speed differentials by narrowing the roadway and reducing the number and width of travel lanes. On roads with only one travel lane in each direction, speeds are limited by the lead vehicle, which creates a more uniform and slower speed along the roadway (FHWA, 2014).

Low cost: Many road diets can be achieved through restriping, which has low costs and can be done at the same time as regular roadway maintenance.

Limitations

May increase congestion: If a road diet is implemented along a roadway with traffic volumes approaching its designed capacity, removing general purpose lanes may increase congestion. However, congestion also serves to slow travel speeds and can encourage the adoption of other modes of transportation.

Crossing Design Elements: Infrastructure Treatments

Complementary Treatments

Treatments that can complement a road diet include:

- High visibility crosswalk markings
- Warning signage
- Advance stop/yield lines
- In-street pedestrian crossing signs
- Pedestrian-scale lighting
- RRFBs
- PHBs
- Infrastructure treatments such as pedestrian refuge islands, curb extensions/bulb-outs, and raised crosswalks

Figure 34 and Figure 35 demonstrate an example of a crossing before and after a road diet has been implemented.

Design Considerations

Street element widths: General purpose lanes can be narrowed to 10-11’ without impacting traffic operations. DPM Table 7.2.29: Street Element Dimensions recommends travel lane width for roadways based on functional classification and Comprehensive Plan Center and Corridors Designations. The table also recommends the widths of other street design elements, including sidewalks, bike lanes, and buffer zones which should be incorporated into a road diet.

Figure 34: Crossing at Zuni Rd Before Road Diet

Figure 35: Crossing at Zuni Rd After Road Diet

Location/Context

Road diets can be applied on any roadway with a designed capacity higher than actual vehicle traffic volumes. The Mid-Region Council of Governments (MRCOG) produces a Potential Road Diets Candidates Map that shows regional roadways with excess capacity. It defines road diet candidates based on the number of general purpose travel lanes and traffic volume along a corridor. On roadways with excess capacity, removing general purpose lanes may not have a significant impact on traffic operations or congestion.

Road diets can also be implemented along roadways with traffic volumes that are approaching their designed capacity if there is a need for improved multi-modal facilities or identified safety issues along the roadway. Additional congestion may occur when a road diet is applied where traffic volumes exceed the roadway capacity. In these cases, motorists may choose to drive along another route, travel during non-peak hours, switch modes, or forgo unnecessary trips. Decision-makers should consider whether parallel facilities have the capacity to absorb some trips that might be redistributed to other corridors when a road diet is implemented.

Crossing Design Elements Summary

Enhanced visibility treatments, signal treatments, and infrastructure treatments each have unique benefits and limitations. In general, more comprehensive treatments are more costly and/or have more significant impacts on traffic operations. However, more comprehensive treatments also have greater benefits for increasing the comfort and safety of a crossing location.

Table 4 summarizes the benefits and limitations of each crossing treatment. Table 5 summarizes complementary techniques for each crossing treatment to assist in determining which treatments can be combined to create a holistic design for a crossing location.

Crossing Design Elements: Summary Tables

Table 4: Benefits and Limitations Summary Table

		Enhanced Visibility							Signal		Infrastructure				
		Warning Signage	High Visibility Crosswalk Markings	Advance Stop / Yield Lines	In-Street Pedestrian Crossing Signs	Overhead Flashing Lights	Pedestrian-Scale Lighting	RRFB	Full Traffic Signal	PHB	Raised Crosswalks	Curb Extensions	Pedestrian Refuge Islands	Grade-Separated Crossings	Road Diets
Benefits	Increases Visibility	X	X	X	X	X	X	X		X	X	X			
	Education	X			X										
	Increases Yield Rates		X					X	X	X	X				
	Reduces Crashes		X	X			X	X	X	X	X		X	X	X
	Traffic Calming				X						X	X	X		X
	Increases Comfort						X		X	X	X	X	X	X	X
	Minimal Impacts on Traffic	X	X	X	X	X	X	X						X	
	Reduces Crossing Delay							X					X	X	
	Reduces Crossing Distance											X	X		X
	Creates Space for Amenities											X	X		X
	Low Cost	X	X	X	X										X
	Increases Multi-Modal Connectivity								X	X				X	X
Limitations	Not Effective as Stand-Alone Treatment	X	X	X	X	X	X								
	Maintenance		X	X	X		X							X	
	Motorist Compliance			X		X		X							
	Can Impact Parking			X								X			
	Limited Effectiveness on Large Roads	X	X		X	X					X				
	High Cost								X	X				X	
	Increases Crossing Travel Distance													X	
	Impacts Bicycle Lanes											X			
	Impacts Traffic Operations								X	X	X	X	X		X
	Siting Limitations								X	X		X	X	X	

Crossing Design Elements: Summary Tables

Table 5: Complementary Treatments Summary Table

		Enhanced Visibility							Signal		Infrastructure				
		Warning Signage	High Visibility Crosswalk Markings	Advance Stop/Yield Lines	In-Street Pedestrian Crossing Signs	Overhead Flashing Lights	Pedestrian-Scale Lighting	RRFB	Full Traffic Signal	PHB	Raised Crosswalks	Curb Extensions	Pedestrian Refuge Islands	Grade-Separated Crossings	Road Diets
Complementary Techniques	Warning Signage		X	X	X	X	X	X	X	X	X	X	X		X
	High Visibility Crosswalk Markings	X		X	X	X	X	X	X	X	X	X	X		X
	Advance Stop/Yield Lines	X	X		X	X	X	X	X	X	X	X	X		X
	In-Street Pedestrian Crossing Signs	X	X	X		X	X	X			X	X	X		X
	Pedestrian-Scale Lighting	X	X	X	X	X		X	X	X	X	X	X	X	X
	RRFB	X	X	X	X		X				X	X	X		X
	PHB	X	X	X	X		X					X	X		X
	Raised Crosswalks	X	X	X	X	X	X	X	X			X	X		X
	Curb Extensions/Bulb Outs	X	X	X	X	X	X	X	X	X	X		X		X
	Pedestrian Refuge Islands	X	X	X	X	X	X	X	X	X		X			X
	Road Diets	X	X	X	X	X	X	X	X	X	X	X	X		

Crossing Applications & Roadway Context

The following section provides guidance on the selection and application of bicycle and pedestrian crossings. **Step 1** outlines a process for determining if a site is an appropriate and/or desired location for a crossing. Criteria include Comprehensive Plan designations, crash and safety factors, proximity to other crossing locations, proximity to transit, presence of pedestrian generators, and whether the crossing is located along a multi-use trail.

Step 2 provides guidance on the technical feasibility of a crossing location, and considers sight distances, proximity to cross-streets, and whether driver yielding behavior is desired.

After a site has been selected and determined to be a feasible location for a crossing, appropriate crossing treatments can be selected. **Step 3** recommends crossing design treatments, including enhanced visibility crosswalks, rectangular rapid flashing beacons, and pedestrian hybrid beacons. Guidance on crossing treatment applications is based on roadway factors such as the number of lanes a pedestrian must cross at a time, posted speed limit, and average daily traffic (ADT).

Figure 36 demonstrates the process for selecting a crossing location and appropriate treatments.

Figure 36: Three Step Flow Chart for Crossing Selection

Step 1: Site Selection

City of Albuquerque Guidance

The first step in the decision-making process for adding a new crossing is determining the appropriateness of a particular location. The Albuquerque/Bernalillo County Comprehensive Plan and DPM identify the general desirability of crossing locations based on Center and Corridor designations, the spacing between crossings, and other factors. Specific crossing locations may be based on the presence of transit stops, trails that intersect with a major roadway, and the presence of pedestrian generators.

Desired spacing for pedestrian crossings by Center and Corridor type are provided in Section 7-4(A)(7): Designated Pedestrian Crossings of the DPM. For a map of Centers and Corridors designations, reference the Albuquerque/Bernalillo County Comprehensive plan or the interactive Comprehensive Plan map on the City's website.

Key Considerations in Determining the Appropriateness of a Pedestrian Crossing

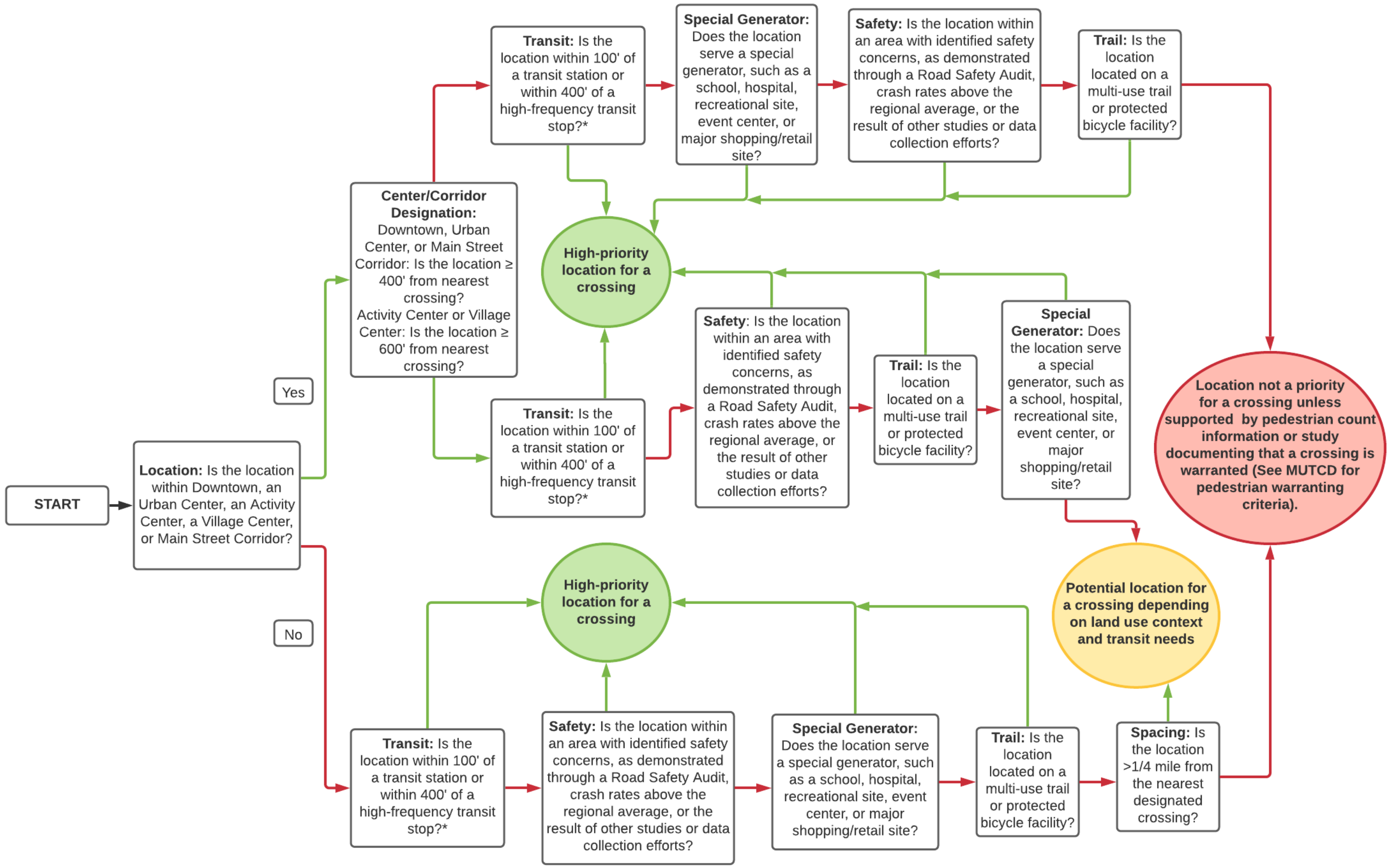
- Center or Corridor Designation
- Spacing Between Crossings
- Transit Stops
- Multi-use Trails
- Pedestrian Generators
- Identified Safety Concerns

Pedestrian Crossing Warranting Criteria

The MUTCD includes criteria for pedestrian volume warrants to install a PHB or full traffic signal. Warranting studies are required for installation of a full traffic signal. However, for PHB installation, MUTCD warranting criteria are guidelines rather than standards and are therefore not legally required. A warranting study is not needed to install a PHB if a crossing location meets site selection criteria in Step 1 (see Figure 36); however, a warranting study may be conducted at locations that do not meet general policy guidance for a crossing facility.

Figure 37 summarizes the DPM guidance in a flow chart that can be used to determine whether a location is a priority for installing crossing treatments.

Figure 37: Site Selection Flowchart



**High-frequency is defined as transit service at least every 30 minutes during normal operating hours.*

Step 2: Site Feasibility

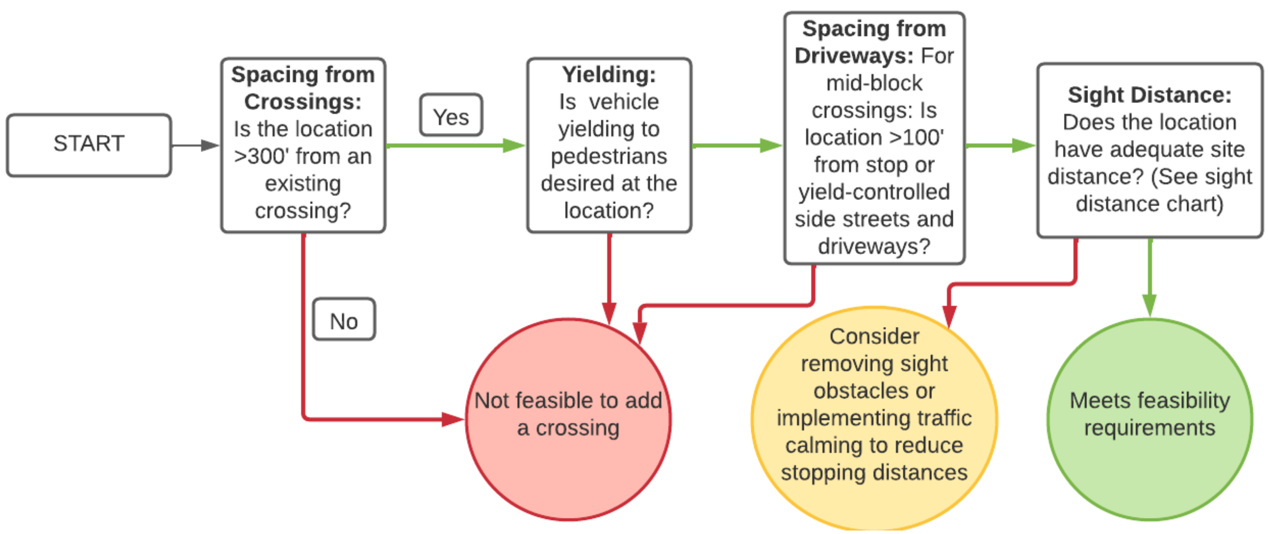
The second step in the decision-making process is determining whether the site is technically feasible for building a new crossing. Technical feasibility factors include distance from existing crossings and intersections and sight distance. Figure 38 is a flowchart that that can be used to determine if it is feasible to install a crossing at a particular location.

Another factor that impacts site feasibility is whether drivers yielding to pedestrians is desired. In New Mexico, drivers are legally required to yield to pedestrians in striped crosswalks. In some locations where stopping for pedestrians could create dangerous conditions for other road users, it may not be feasible to install crosswalks.

Table 6: DPM Table 7.4.64 Minimum Stopping Sight Distance

TABLE 7.4.64 **Minimum Stopping Sight Distance**							
Design Speed (MPH)	Upgrades			Flat	Downgrades		
	9%	**6%**	**3%**	**0%**	**-3%**	**-6%**	**-9%**
25	140 ft.	145 ft.	150 ft.	155 ft.	160 ft.	165 ft.	175 ft.
30	180 ft.	185 ft.	200 ft.	200 ft.	205 ft.	215 ft.	230 ft.
35	225 ft.	230 ft.	240 ft.	250 ft.	260 ft.	275 ft.	290 ft.
40	270 ft.	280 ft.	290 ft.	305 ft.	315 ft.	335 ft.	355 ft.
45	320 ft.	330 ft.	345 ft.	360 ft.	380 ft.	400 ft.	430 ft.
50	375 ft.	390 ft.	405 ft.	425 ft.	450 ft.	475 ft.	510 ft.

Figure 38: Site Feasibility Flowchart



Step 3: Crossing Design Selection

Once a site has been chosen and determined to be a feasible location for a crossing, appropriate crossing treatments can be selected. Crossing designs vary based on the following conditions:

- Level of traffic (ADT)
- Posted speed limit (MPH)
- Number of lanes a pedestrian must cross at a time

As a general rule, crossing designs should have increased visibility features and increased levels of vehicle control as speeds, traffic volumes, and roadway width increase.

Enhanced crosswalks with high visibility pavement markings and signage are appropriate for streets with lower volumes, speeds, and number of lanes. For wider, busier roads, more comprehensive designs are needed to draw motorists' attention to the crossing and encourage them to stop or yield to people crossing. RRFBs are generally appropriate for roads where speed limits are 35 mph or lower or where pedestrians need to cross only one or two lanes at a time. For roads with higher speed limits and more lanes to cross, a PHB or other traffic signal where vehicles must come to a complete stop is the minimum recommended crossing treatment.

Methodology

The recommendations in this report are adapted from the FHWA *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations*, which compiled recommendations based on the MUTCD and studies of safety and driver compliance at crossing locations. The FHWA guidance specifically recommends crossing treatments based on a roadway's number of vehicle travel lanes, posted speed limits, and average daily traffic (ADT).

This report makes the following changes to the FHWA's guidance to adapt it to an Albuquerque context:

- **Number of Crossing Lanes:** Instead of total vehicle travel lanes, this report uses the total number of lanes a pedestrian must cross at a time to calculate the appropriate crossing treatment. For example, a four-lane road with no refuge island requires a pedestrian to cross all four lanes at a time, and the treatments recommended in the four-lane category should be referenced. However, if a refuge island were installed, a pedestrian would only need to cross two lanes at a time and the two-lane category should be referenced.
- **ADT per Crossing Stage:** ADT is also adjusted to reflect the traffic volume a pedestrian will encounter on each stage of the crossing. If a pedestrian must cross both directions of travel at a time, total ADT should be used to determine the crossing design. However, if a refuge island separates the crossing into two stages, ADT should be divided in half to reflect the traffic volume a pedestrian will encounter on each stage of the crossing.

The purpose of using crossing lanes and ADT per crossing stage is to encourage the use of refuge islands, road diets, and speed limit reductions, which can dramatically improve pedestrian safety while reducing the need for more costly interventions such as PHBs. The adjustments also provide additional nuance to the FHWA guidance for Albuquerque's wider arterial roadways. See the appendices for a list of additional changes to the FHWA guidance and rationale.

Crossing Applications & Roadway Context

Application

Table 8 and Figure 39 through Figure 42 provide guidance on selecting the appropriate crossing treatments based on roadway context. Either the table or flow charts can be used to select a crossing treatment. Highlighted cells in the table are treatments that should always be considered, while un-highlighted cells are optional treatments (see Table 7).

The recommended overall crossing designs include the following treatment types:

- Crosswalk markings and signage
- Rectangular rapid flashing beacons
- Pedestrian hybrid beacons

For each crossing location, only one of the recommended crossing designs should be selected. Complementary treatments that can be added to the overall crossing design include advance stop or yield lines, in-street pedestrian crossing signs, and raised crosswalks. Other treatments described in the Crossing Design Elements section of this report can also be used to complement the overall crossing designs but are not included in the selection tool. See the Crossing Design Elements section for additional information about the design and application of each treatment.

Users of this guide are strongly urged to run multiple roadway configuration scenarios for each crossing location before selecting a treatment. Applying a median refuge island, road diet, and/or speed limit reduction may reduce the need for more costly and comprehensive treatments like a PHB. For examples on how to apply the guidance using multiple roadway scenarios, see the Trail Crossing Profiles section of this report.

Table 7: Notes on Crossing Treatment Selection Matrix

Notation	Definition
(No markings)	Not an appropriate treatment
X	Treatment may be considered
X (highlighted)	Treatment *should always* be considered

85th Percentile Speed vs Posted Speed Limit

85th percentile is the speed at or below which 85 percent of all vehicles are observed to travel under free-flowing conditions. In many cases, 85th percentile speeds are higher than the posted speed limit.

At the discretion of the City Engineer, 85th percentile speed may be used in place of posted speed limit when selecting appropriate crossing treatments. In areas with identified safety concerns, using 85th percentile speed rather than posted speed can more accurately reflect actual vehicle speeds and appropriate safety countermeasures.

Crossing Applications & Roadway Context

Table 8: Crossing Treatment Selection Matrix

			Recommended Crossing Designs			Complementary Treatments		
Number of Crossing Lanes	Speed Limit	ADT Per Crossing Stage	Crosswalk Markings and Signage	RRFB	PHB	Stop or Yield Lines	In-Street Crossing Sign	Raised Crosswalk
One lane	≤ 30 mph	<9,000	X			X	X	X
		9,000 to 15,000	X			X	X	
		>15,000	X	X	X	X	X	
	35 mph	<9,000	X	X	X	X		
		9,000 to 15,000	X	X	X	X		
		>15,000	X	X	X	X		
	≥ 40 mph	<9,000		X	X	X		
		9,000 to 15,000		X	X	X		
		>15,000		X	X	X		
Two lanes	≤ 30 mph	<9,000	X			X	X	X
		9,000 to 15,000	X	X	X	X	X	
		>15,000	X	X	X	X	X	
	35 mph	<9,000	X	X	X	X		
		9,000 to 15,000		X	X	X		
		>15,000		X	X	X		
	≥ 40 mph	<9,000		X	X	X		
		9,000 to 15,000		X	X	X		
		>15,000		X	X	X		

Crossing Applications & Roadway Context

			Recommended Crossing Designs			Complementary Treatments		
Number of Crossing Lanes	Speed Limit	ADT Per Crossing Stage	Crosswalk Markings and Signage	RRFB	PHB	Stop or Yield Lines	In-Street Crossing Sign	Raised Crosswalk
Three Lanes	≤ 30 mph	<9,000	X	X	X	X	X	X
		9,000 to 15,000	X	X	X	X	X	
		>15,000	X	X	X	X	X	
	35 mph	<9,000	X	X	X	X		
		9,000 to 15,000		X	X	X		
		>15,000			X	X		
	≥ 40 mph	<9,000			X	X		
		9,000 to 15,000			X	X		
		>15,000			X	X		
Four or More Lanes	≤ 30 mph	<9,000	X	X	X	X		
		9,000 to 15,000		X	X	X		
		>15,000		X	X	X		
	35 mph	<9,000		X	X	X		
		9,000 to 15,000		X	X	X		
		>15,000			X	X		
	≥ 40 mph	<9,000			X	X		
		9,000 to 15,000			X	X		
		>15,000			X	X		

Figure 39: Crossing Treatment Selection Flowchart, One Lane Crossings

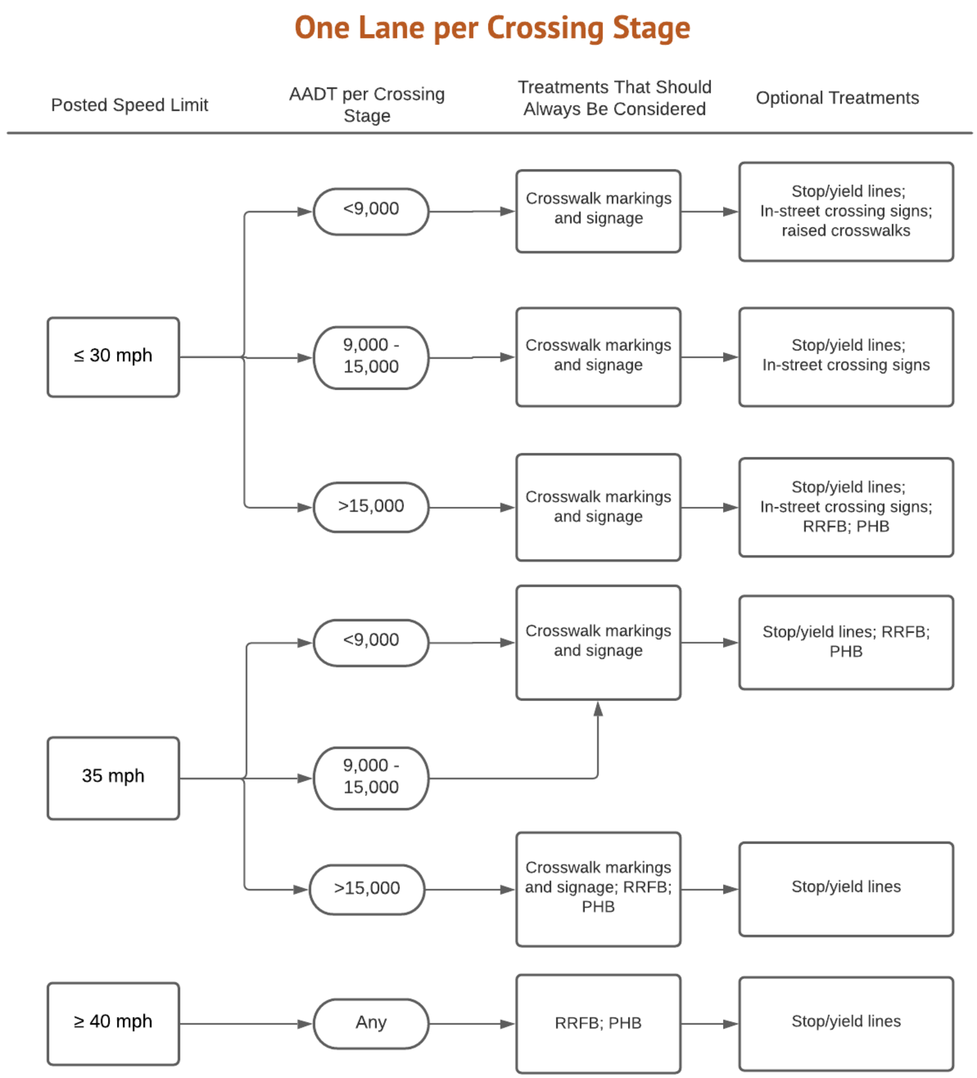


Figure 40: Crossing Treatment Selection Flowchart, Two-Lane Crossings

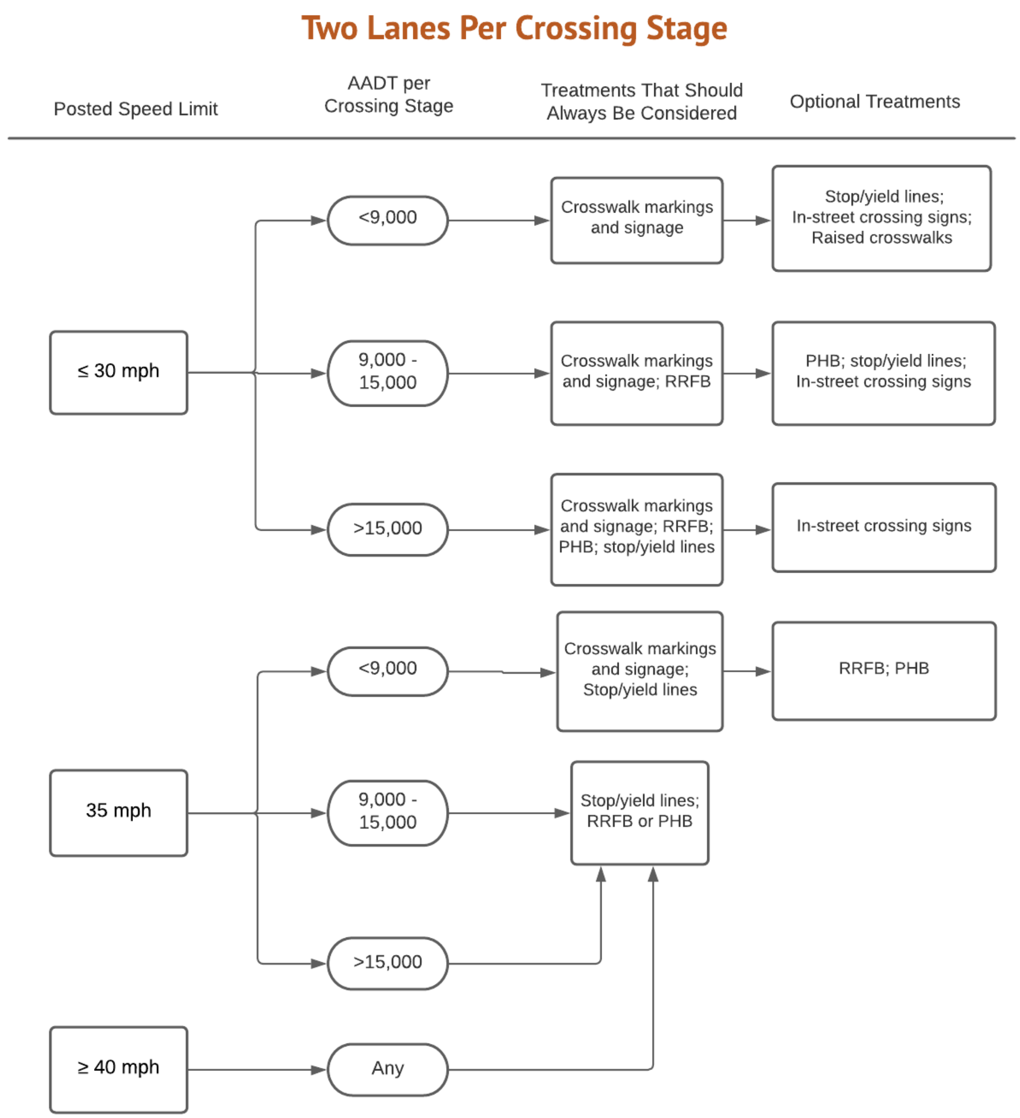


Figure 41: Crossing Treatment Selection Flowchart, Three-Lane Crossings

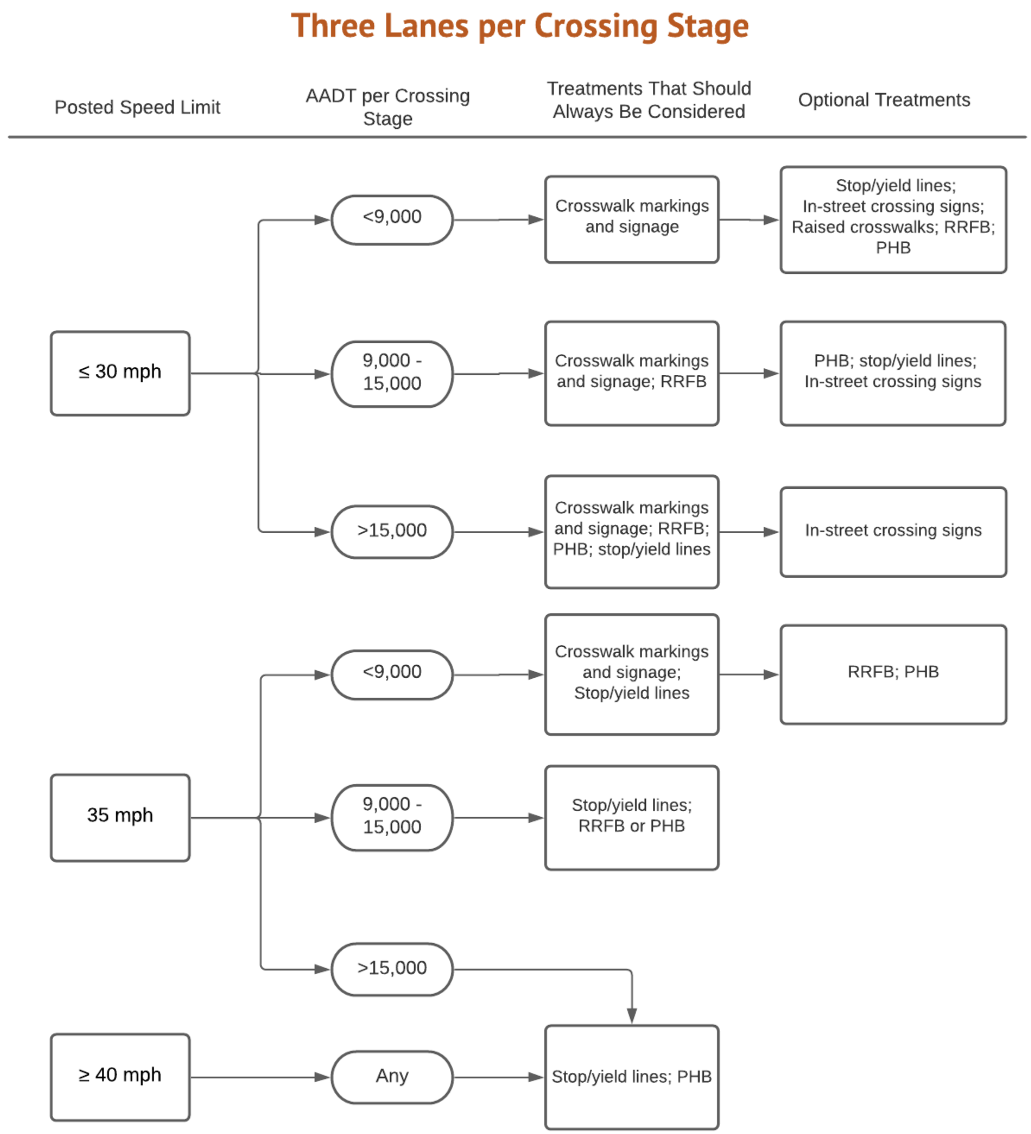
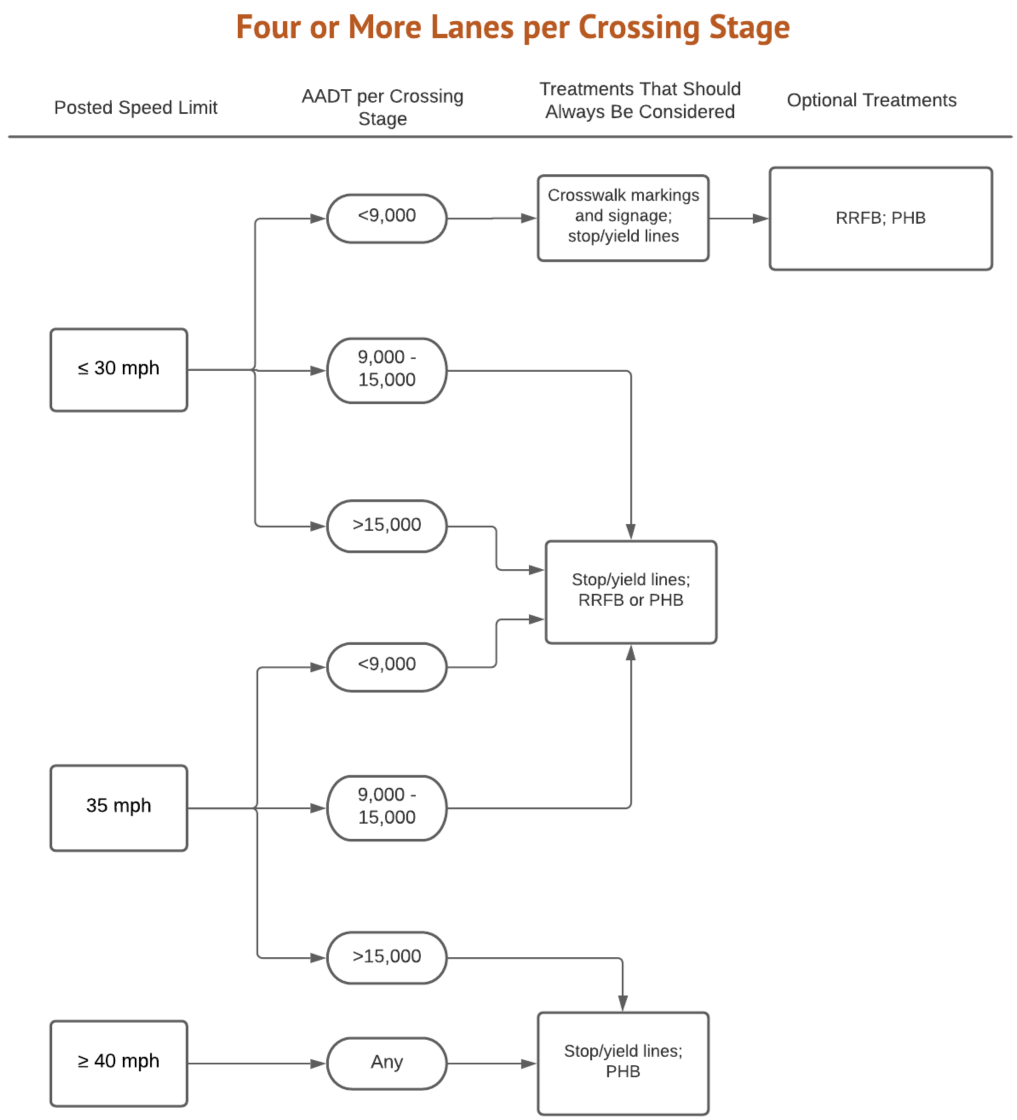


Figure 42: Crossing Treatment Selection Flowchart, Four or More Lane Crossings



Juan Tabo Blvd

Existing Conditions

The **Paseo de las Montañas Trail** crosses Juan Tabo Blvd between Menaul Blvd and Candelaria Rd. Table 9 describes the existing conditions along Juan Tabo Blvd at the crossing location.

Table 9: Juan Tabo Blvd Existing Conditions

Existing Conditions	Paseo de las Montañas Trail @ Juan Tabo Blvd
General Purpose Lanes	6
Raised Median/Refuge Island	Yes
Crossing Lanes	3
Total ADT	23,000
ADT per Crossing Stage	11,500
Speed Limit	40
Functional Classification	Principal Arterial
Comprehensive Plan Corridor Designation	Multi-Modal

The existing crossing includes a median refuge, overhead flashing lights, and bicycle/pedestrian warning signage (see Figure 43). There are no marked crosswalks or advance stop or yield lines at the crossing. Roadway-scale overhead lighting is present on both sides of the roadway near the crossing location.

Figure 43: Existing Trail Crossing at Juan Tabo Blvd

The trail crossing is located 700' from an unsignalized crossing at Claremont Ave to the north and 1700' from a signalized crossing at Candelaria Rd to the north. To the south, the crossing is located 900' from a signalized crossing at Menaul Blvd (see Figure 44).

Figure 44: Adjacent Crossing Locations at Juan Tabo Blvd

Trail Crossing Profiles and Example Applications

Juan Tabo Blvd

Alternatives

The recommended treatments for the crossing of the Paseo de las Montañas Trail at Juan Tabo Blvd depend on the roadway's speed, number of lanes, and ADT. While ADT cannot be controlled, changing the speed limit and number of lanes influences the appropriate options for recommended crossing treatments.

Option 1: Keep the current configuration and install a PHB

If no changes are made to the speed limit and number of general purpose lanes on Juan Tabo Blvd, the only appropriate crossing treatment option is a PHB.

Option 2: Change roadway design characteristics or operations

2A: Reduce the speed limit and install an RRFB or PHB

If the speed limit on Juan Tabo Blvd were reduced from 40 mph to 35 mph, either RRFBs or PHBs could be considered for the crossing treatment. Additional traffic calming treatments may be needed to ensure that vehicles comply with the reduced speed limit.

A PHB would provide a safer and more comfortable crossing environment as trail users still need to cross three lanes of traffic at a time. However, because they are expensive to install and impact traffic operations, PHBs should be prioritized at locations with higher traffic volumes and populations of vulnerable road users who may not be able to use an RRFB safely.

2B: Reduce the number of lanes and install an RRFB or PHB

If a road diet were introduced (from six lanes to four lanes) either RRFBs or PHBs could be considered. Juan Tabo Blvd is identified on MRCOG's Potential Road Diet Candidates Map.

Recommendation

Option 2A and/or 2B with RRFB

The following recommendations should be used in combination for the crossing of the Paseo del Las Montañas Trail at Juan Tabo Blvd:

- Keep the existing refuge island, reduce the speed limit and/or number of general purpose lanes, and replace overhead flashing lights with an RRFB.
- If the speed limit is reduced, additional traffic calming treatments, such as lane narrowing, could further encourage driver compliance.
- Add crosswalk markings and advance stop/yield lines to increase the crossing's visibility and reduce the likelihood of multiple threat crashes.
- Add accessibility features such as truncated domes in the median refuge.
- If the RRFB is to be activated automatically, ensure that it can detect pedestrians crossing from both the sidewalk and the trail.
- At time of design, ensure that overhead lighting levels meet DPM requirements.

Changing the roadway configuration eliminate the need for a more costly PHB. In addition to cost, RRFBs have an advantage over PHBs because they can be activated immediately, reducing delay for trail users crossing the road.

Eubank Blvd

Existing Conditions

The **Paseo de las Montañas Trail** crosses Eubank Blvd between Indian School Rd and Snow Heights Blvd. Table 10 describes the existing conditions along Eubank Blvd at the crossing location.

Table 10: Eubank Blvd Existing Conditions

Existing Conditions	Paseo de las Montañas Trail @ Eubank Blvd
General Purpose Lanes	6
Raised Median/Refuge Island	Yes
Crossing Lanes	3
Total ADT	31,000
ADT per Crossing Stage	15,500
Speed Limit	40
Functional Classification	Principal Arterial
Comprehensive Plan Corridor Designation	None

The existing crossing at Eubank Blvd includes a median refuge, overhead flashing lights, and bicycle/pedestrian warning signage (see Figure 45). There are no marked crosswalks or advance stop or yield lines at the crossing. Roadway-scale overhead lighting is present on both sides of the roadway near the crossing location.

Figure 45: Existing Trail Crossing at Eubank Blvd

The trail crossing is located 500' from a signalized crossing at Snow Heights Blvd to the north and 800' from a signalized crossing at Indian School Rd to the south (see Figure 46).

Figure 46: Adjacent Crossing Locations at Eubank Blvd

Eubank Blvd

Alternatives

The recommended treatments for the crossing of the Paseo de las Montañas Trail at Eubank Blvd depend on the roadway's speed, number of lanes, and ADT. Changing the number of lanes influences the appropriate options for recommended crossing treatments. Because of the corridor's high traffic volumes, reducing the speed from 40 mph to 35 mph does not change the recommended treatment options.

Option 1: Keep the current roadway configuration and install a PHB

If no changes were made to the number of general purpose lanes on Eubank Blvd, the only appropriate crossing treatment option is a PHB.

Option 2: Change roadway design characteristics or operations

Reduce the number of general purpose lanes and install an RRFB or PHB

If a road diet were introduced (from six lanes to four lanes) either RRFBs or PHBs could be considered. However, Eubank Blvd may not be a candidate for a road diet if traffic volumes are projected to grow in the future. The threshold for inclusion on MRCOG's Road Diets Candidates map is an ADT below 35,000, and Eubank Blvd has an ADT of 31,000.

Recommendation

Option 1 with PHB

The following recommendations should be used in combination for the crossing of the Paseo del Las Montañas Trail at Eubank Blvd:

- Keep the existing median refuge island and install a PHB at the Eubank Blvd crossing location.
- Per the MUTCD, marked crosswalks, advance stop lines, and signage shall be installed with PHBs to increase its visibility and reduce the risk of multiple threat crashes.
- Add accessibility features such as truncated domes in the median refuge.
- At time of design, ensure that overhead lighting levels meet DPM requirements.

While PHBs are more costly than RRFBs, it is likely not feasible to reduce the number of lanes on Eubank Blvd given its high traffic volumes. A PHB at the crossing location will bring vehicles to a complete stop, which will allow trail users to safely cross the busy and high-speed arterial.

Trail Crossing Profiles and Example Applications

Wyoming Blvd

Existing Conditions

The **Paseo de las Montañas Trail** crosses Wyoming Blvd between Indian School Rd and Constitution Ave. Table 11 describes the existing conditions along Wyoming Blvd at the crossing location.

Table 11: Wyoming Blvd Existing Conditions

Existing Conditions	Paseo de las Montañas Trail @ Wyoming Blvd
General Purpose Lanes	6
Raised Median/Refuge Island	Yes
Crossing Lanes	3
Total ADT	31,000
ADT per Crossing Stage	15,500
Speed Limit	40
Functional Classification	Principal Arterial
Comprehensive Plan Corridor Designation	Multi-Modal

The existing crossing at Wyoming Blvd includes a median refuge, overhead flashing lights, and bicycle/pedestrian warning signage (see Figure 47). There are no marked crosswalks or advance stop or yield lines at the crossing. Roadway-scale overhead lighting is present on both sides of the roadway near the crossing location.

The trail also crosses a frontage road parallel to Wyoming Blvd, which includes signage and a median refuge island between Wyoming Blvd and the frontage road. There is a concrete barrier between Wyoming Blvd and the frontage road that may make it more difficult to drivers to see pedestrians waiting to cross and may reduce driver yield rates.

Figure 47:Existing Trail Crossing at Wyoming Blvd

The trail crossing is located 1000’ from a signalized crossing at Indian School Rd to the north and 1600’ from a signalized crossing at Constitution Ave to the south (see Figure 48).

Figure 48: Adjacent Crossing Locations at Wyoming Blvd

Wyoming Blvd

Alternatives

The recommended treatments for on Wyoming Blvd at the Paseo de las Montañas crossing depend on the roadway's speed, number of lanes, and ADT. Changing the number of lanes influences the appropriate options for recommended crossing treatments. Because of the corridor's high traffic volumes, reducing the speed from 40 mph to 35 mph does not change the recommended treatment options.

Option 1: Keep the current roadway configuration and install a PHB

If no changes were made to the number of general purpose lanes on Wyoming Blvd, the only appropriate crossing treatment option is a PHB.

Option 2: Change roadway design characteristics or operations

Reduce the number of general purpose lanes and install an RRFB or PHB

If a road diet were introduced (from six lanes to four lanes) either RRFBs or PHBs could be considered. However, Wyoming Blvd may not be a candidate for a road diet if traffic volumes are projected to grow in the future. The threshold for inclusion on MRCOG's Road Diets Candidates map is an ADT below 35,000, and Wyoming Blvd has an ADT of 31,000.

Recommendation

Option 1 with PHB

The following recommendations should be used in combination for the crossing of the Paseo del Las Montañas Trail at Wyoming Blvd:

- Keep the existing median refuge island and install a PHB at the Wyoming Blvd crossing location.
- Per the MUTCD, marked crosswalks, advance stop lines, and signage shall be installed with PHBs to increase its visibility and reduce the risk of multiple threat crashes.
- Add accessibility features such as truncated domes in the median refuge.
- At time of design, ensure that overhead lighting levels meet DPM requirements.

While PHBs are more costly than RRFBs, it is likely not feasible to reduce the number of lanes on Wyoming Blvd given its high traffic volumes. A PHB at the crossing location will bring vehicles to a complete stop, which will allow trail users to safely cross the busy and high-speed arterial. A PHB would also address visibility issues caused by the concrete wall barrier between Wyoming Blvd and the frontage road.

San Mateo Blvd

Existing Conditions

The **Paseo del Nordeste Trail** crosses San Mateo Blvd between Montgomery Blvd and Comanche Rd. Table 12 describes the existing conditions along San Mateo Blvd at the crossing location.

Table 12: San Mateo Blvd Existing Conditions

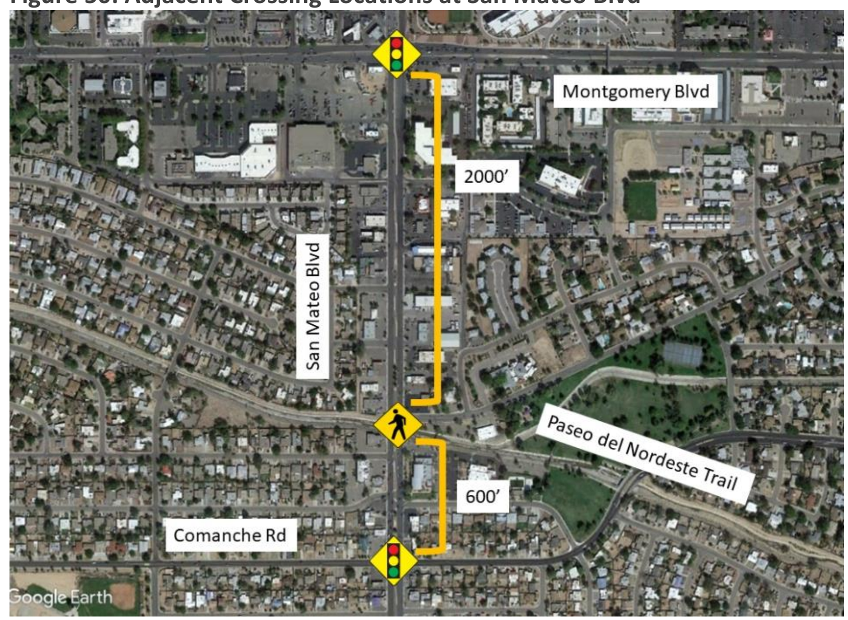
Existing Conditions	Paseo del Nordeste Trail @ San Mateo Blvd
General Purpose Lanes	6
Raised Median/Refuge Island	Yes
Crossing Lanes	3
Total ADT	25,000
ADT per Crossing Stage	12,500
Speed Limit	40
Functional Classification	Principal Arterial
Comprehensive Plan Corridor Designation	Major Transit

The existing crossing at San Mateo Blvd includes a median refuge and overhead bicycle warning signage (see Figure 49). There are no marked crosswalks or advance stop or yield lines at the crossing. Roadway-scale overhead lighting is present on both sides of the roadway near the crossing location. Unlike similar trail crossings, the crossing at San Mateo Blvd does not have overhead flashing lights or pedestrian crossing signage.

Figure 49:Existing Trail Crossing at San Mateo Blvd

The trail crossing is located 2000' from a signalized crossing at Montgomery Blvd to the north and 600' from a signalized crossing at Comanche Rd to the south (see Figure 50).

Figure 50: Adjacent Crossing Locations at San Mateo Blvd



San Mateo Blvd

Alternatives

Per the recommended crossing treatments guidelines, crossing treatments for San Mateo Blvd at the Paseo del Nordeste Trail depend on the roadway's speed, number of lanes, and ADT. Changing the speed limit and number of lanes influences the appropriate options for recommended crossing treatments.

Option 1: Keep the current roadway configuration and install a PHB

If no changes were made to the speed limit and number of general purpose lanes on San Mateo Blvd, the only appropriate crossing treatment option is a PHB.

Option 2: Change roadway design characteristics or operations

2A: Reduce the speed limit and install an RRFB or PHB

If the speed limit on San Mateo Blvd were reduced from 40 mph to 35 mph, either RRFBs or PHBs could be considered for the crossing treatment. Additional traffic calming treatments may be needed to ensure that vehicles comply with the reduced speed limit.

A PHB would provide a safer and more comfortable crossing environment as trail users still need to cross three lanes of traffic at a time. However, because they are expensive to install and impact traffic operations, PHBs should be prioritized at locations with higher traffic volumes and populations of vulnerable road users who may not be able to use an RRFB safely.

2B: Reduce the number of lanes and install an RRFB or PHB

If a road diet were introduced (from six lanes to four lanes) either RRFBs or PHBs could be considered. San Mateo Blvd is identified on MRCOG's Potential Road Diet Candidates Map.

Recommendation

Option 2A and/or 2B with RRFB

The following recommendations should be used in combination for the crossing of the Paseo del Nordeste Trail at San Mateo Blvd:

- Keep the existing median refuge island, introduce a road diet and/or speed limit reduction, and replace flashing lights with an overhead RRFB.
- If speed limit is reduced, add additional traffic calming treatments to encourage driver compliance.
- Add crosswalk markings and advance stop/yield lines to increase the crossing's visibility and reduce the likelihood of multiple threat crashes.
- Add accessibility features such as truncated domes in the median refuge and on sidewalk curb ramps.
- If the RRFB is to be activated automatically, ensure that it can detect pedestrians crossing from both the sidewalk and the trail.
- At time of design, ensure that overhead lighting levels meet DPM requirements.

Changing the roadway configuration would allow the City to install an RRFB rather than a more costly PHB. In addition to cost, RRFBs have an advantage over PHBs because they can be activated immediately, reducing delay for trail users crossing the road.

Carlisle Blvd

Existing Conditions

The **Paseo del Nordeste Trail** crosses Carlisle Blvd between Montgomery Blvd and Comanche Rd. Table 13 describes the existing conditions along Carlisle Blvd at the crossing location.

Table 13: Carlisle Blvd Existing Conditions

Existing Conditions	Paseo del Nordeste Trail @ Carlisle Blvd
General Purpose Lanes	6
Raised Median/Refuge Island	Yes
Crossing Lanes	3
Total ADT	21,000
ADT per Crossing Stage	10,500
Speed Limit	35
Functional Classification	Minor Arterial
Comprehensive Plan Corridor Designation	Major Transit

The existing crossing at Carlisle Blvd includes a median refuge, overhead flashing lights, and bicycle/pedestrian warning signage (see Figure 51). There are no marked crosswalks or advance stop or yield lines at the crossing. Roadway-scale overhead lighting is present on both sides of the roadway near the crossing location.

Figure 51:Existing Trail Crossing at Carlisle Blvd

The trail crossing is located 1150’ from a signalized crossing at Montgomery Blvd to the north and 1400’ from a signalized crossing at Comanche Rd to the south (see Figure 52).

Figure 52: Adjacent Crossing Locations at Carlisle Blvd

Carlisle Blvd

Alternatives

Based on the guidance provided in this report and the posted speed limit and traffic volume along Carlisle Blvd, an RRFB with pedestrian refuge island is an appropriate treatment for the crossing of the Paseo del Nordeste Trail.

Additional options include the application of a road diet for traffic calming and general safety purposes. Reducing the number of lanes would not influence the types of crossing treatments that can be applied.

Option 1: Keep the existing roadway configuration, replace overhead flashing lights with an RRFB, and apply enhanced crosswalk markings

High visibility crosswalk markings and an RRFB in place of flashing lights would enhance driver awareness and more clearly demarcate the pedestrian crossing.

Option 2: Keep the existing roadway configuration and install a PHB

If no changes were made to the speed limit and number of general purpose lanes on Carlisle Blvd, a PHB is an appropriate crossing treatment option. Installation of a PHB would require motorists to come to a complete stop. While a PHB would affect traffic operations, the crossing location is spaced far enough from existing traffic signals to minimize impacts.

Recommendation

Option 1: Apply enhanced crosswalk markings

The following recommendations should be used in combination for the crossing of the Paseo del Nordeste Trail at Carlisle Blvd:

- Keep the existing median refuge at the crossing and replace overhead flashing lights with an RRFB
- Add crosswalk markings and advance stop/yield lines to increase the crossing's visibility and reduce the likelihood of multiple threat crashes.
- Add accessibility features such as truncated domes in the median refuge.
- If the RRFBs is to be activated automatically, ensure that it can detect pedestrians crossing from both the sidewalk and the trail.
- At time of design, ensure that overhead lighting levels meet DPM requirements.

This recommendation allows the City to keep the roadway configuration on Carlisle Blvd. Additions of RRFBs, crosswalk markings, yield lines, and truncated domes would be cost-effective and would enhance the visibility and safety for trail users crossing the street.

Pennsylvania St

Existing Conditions

Claremont Ave crosses Pennsylvania St between Candelaria Rd and Menaul Blvd along a proposed bike boulevard route. Table 14 describes the existing conditions along Pennsylvania St at the intersection.

Table 14: Pennsylvania St Existing Conditions

Existing Conditions	Claremont Ave @ Pennsylvania St
General Purpose Lanes	2
Raised Median/Refuge Island	No
Crossing Lanes	2
Total ADT	7,000
ADT per Crossing Stage	7,000
Speed Limit	25
Functional Classification	Major Collector
Comprehensive Plan Corridor Designation	None

There are no existing crossing treatments at the intersection of Claremont Ave and Pennsylvania St (see Figure 53). There are stop signs controlling traffic on Claremont Ave, but no traffic control devices on Pennsylvania St. There is one roadway-scale overhead light on the southeast corner of the intersection.

Figure 53:Existing Crossing at Pennsylvania St

The intersection is located 1250' from a signalized crossing at Candelaria Rd to the north and 1250' from a signalized crossing at Menaul Blvd to the south (see Figure 54).

Figure 54: Adjacent Crossing Locations at Pennsylvania St

Pennsylvania St

Alternatives

Pennsylvania St at Claremont Ave is a low-speed and low-volume two-lane roadway. As such, no changes to the existing configuration are needed to add crossing treatments.

Option 1: Keep the existing roadway configuration and install crosswalk markings and signage

If no changes were made to the speed limit and number of general purpose lanes on Pennsylvania St, the appropriate crossing treatment is high-visibility crosswalk markings and signage.

Recommendation

Apply crosswalk markings and signage

The following recommendations should be used in combination for the crossing at Pennsylvania St and Claremont Ave:

- Add continental-style crosswalk markings across Pennsylvania St.
- Add pedestrian warning signage.
- Ensure that nighttime lighting levels are adequate.
- At time of design, ensure that overhead lighting levels meet DPM requirements. Additional lighting will likely be needed.
- Additional optional treatments include in-street pedestrian crossing signs, advance yield lines, and raised crosswalks.
    - While advance yields lines can be installed on two-lane streets, their main purpose is to prevent multiple threat crashes on multi-lane roads.
    - Raised crosswalks can be installed on streets with less than 9,000 ADT and help to slow traffic and increase the visibility of pedestrians crossing the street.

Golf Course Rd

Existing Conditions

Marna Lynn Ave crosses Golf Course Rd between Paradise Blvd and Paseo del Norte Blvd. Table 15 describes the existing conditions along Golf Course Rd at the intersection.

Table 15: Golf Course Rd Existing Conditions

Existing Conditions	Marna Lynn Ave @ Golf Course Rd
General Purpose Lanes	4
Raised Median/Refuge Island	Raised median w/out refuge island
Crossing Lanes	2
Total ADT	26,000
ADT per Crossing Stage	13,000
Speed Limit	40
Functional Classification	Minor Arterial
Comprehensive Plan Corridor Designation	Major Transit

There are no existing crossing treatments at the intersection of Marna Lynn Ave and Golf Course Rd (see Figure 55). There are stop signs controlling traffic on Marna Lynn Ave, but no traffic control devices on Golf Course Rd. Golf Course Rd has a 10’-wide raised concrete median, but no designated spaces in the median for pedestrian refuge islands. There is no overhead lighting at the intersection.

Figure 55:Existing Crossing at Golf Course Rd

The intersection is located 1500’ from a signalized crossing at Paradise Blvd to the north and 2100’ from a signalized crossing at Paseo del Norte Blvd to the south (see Figure 56).

Figure 56: Adjacent Crossing Locations at Golf Course Rd

Golf Course Rd

Alternatives

Per the recommended crossing treatments guidelines, crossing treatments for Golf Course Rd at Marna Lynn Ave depend on the roadway's speed, number of lanes, and ADT. The selected alternative also depends on the decision to restrict or maintain options for left turns at the intersection.

Option 1: Keep the existing roadway configuration and install a PHB

If no changes are made to the speed limit and the geometry of the roadway is unchanged, the most appropriate crossing treatment is a PHB.

Option 2: Change roadway design and operations characteristics by adding a refuge island and RRFB or PHB

If the speed limit on Golf Course Rd were reduced from 40 mph to 35 mph and refuge islands were added to the median, a crossing could be provided with an RRFB and crosswalk markings. A PHB may still be considered for additional safety benefits. Additional traffic calming treatments may be needed to ensure that vehicles comply with the reduced speed limit.

Recommendation

Option 2 with RRFB/PHB and refuge island, pending further study

Further engineering analysis is needed determine if there are adequate sight lines at the intersection to install a crossing with RRFB. A PHB may be desired to bring traffic to a complete stop to ensure greater driver yielding rates.

A pedestrian refuge island is desired for this location; however, installing this feature at the intersection with Marna Lynn Ave would limit use of one of the left turn bays (depending on the location for the crossing). Additional consideration should be given to the effects of limiting access at the intersection.

The following additional recommendations should be used in combination for the crossing at Golf Course Rd and Marna Lynn Ave:

- Reduce the posted speed limit to 35 mph.
- Install crosswalk markings and advance stop/yield lines to increase the crossing's visibility and reduce the likelihood of multiple threat crashes.
- Add accessibility features such as truncated domes.
- Install adequate lighting to meet DPM-required lighting levels.

Definitions

Advance Stop/Yield Lines: Pavement markings placed 20 to 50 feet ahead of a crosswalk that indicate where vehicles should wait for pedestrians and bicyclists to cross.

Average Daily Traffic: The average 24 hour volume of vehicles on a roadway segment, calculated by dividing the total volume during a year by 365 days.

Controlled Pedestrian Crossing: a location where vehicles in all directions are managed with traffic control devices that may facilitate pedestrian crossing (DPM 7-4(A)(2)).

Crosswalk Markings: Pavement markings that indicate a crosswalk's location. Styles include solid, standard, continental, dashed, zebra, and ladder. Ladder, continental, and zebra markings are considered "high visibility" crosswalk markings.

Designated Crossing: A crossing where pedestrians are encouraged to cross a roadway, as indicated by a combination of signal devices, signage, or pavement markings (DPM 7-4(A)(2)).

Full Traffic Signals: Standard traffic signals with pedestrian signal heads and countdown timers.

Grade-Separated Crossing: A bridge or underpass that allows bicyclists or pedestrians to cross a road without interacting with vehicles.

In-Pavement Lights: Raised pavement markers installed on both sides of a crosswalk which may contain LED strobe lighting that emanate outward in the direction of oncoming traffic. They can either be continuous or pedestrian-activated. Also referred to as Crosswalk Warning Systems.

Median Refuge Islands: A median with a space for pedestrians to wait for a gap in traffic, allowing two-stage crossings across multi-lane roads. Also referred to as a pedestrian refuge island, crossing island, or pedestrian safety island.

Mid-Block Crossing: a designated pedestrian crossing not located at an intersection. Mid-block crossings provide direct access to destinations and reduce the distance between intersections with designated crossings (DPM 7-4(A)(2)).

Multiple Threat Crashes: Crashes that occur on roadways with two or more vehicle travel lanes in the same direction. Occurs when a driver in one lane stops for pedestrian while a driver in another lane continues and strikes the person crossing the street.

Pedestrian Hybrid Beacons (PHB): A pedestrian-activated traffic signal that brings vehicles to a complete stop until pedestrians have finished crossing. Also referred to as a high-intensity activated crosswalk (HAWK) signal.

Rectangular Rapid Flashing Beacons (RRFB): An overhead or roadside-mounted sign equipped with flashing LED lights to alert drivers of an unsignalized crossing location. They can be either continuously flashing or pedestrian-activated.

Road Diet: A range of techniques to encourage slower travel speeds and create space for pedestrian, bicycle, and transit users (DPM 7-6).

Signalized Crossing: A designated pedestrian crossing where traffic is forced to stop and the pedestrian is protected by a traffic signal or pedestrian-activated signal device (DPM 7-4(A)(2)).

Signalized Intersection: An intersection where vehicles are managed through a traffic signal. Pedestrian crossings are typically provided at signalized intersections (DPM 7-4(A)(2)).

Stopping Sight Distance: The length of roadway visible to the driver and sufficiently long enough to enable a vehicle traveling at or near the design speed to stop or change lanes before reaching a stationary object in its path (DPM 7-6).

Uncontrolled Intersection: Intersections without any signage or traffic control (DPM 7-116).

Uncontrolled Pedestrian Crossing: a location where pedestrians may cross a roadway where vehicles are not controlled. Pedestrian crossings with pavement markings and signage are an example of both uncontrolled and designated pedestrian crossings (DPM 7-4(A)(2)).

Undesignated Crossing: Locations without pavement markings, signal devices, or signage where pedestrians are expected to cross the roadway.

Unsignalized Crossing: Pedestrian crossings without a traffic signal. Unsignalized pedestrian crossings may have other features to alert drivers to the presence of pedestrians, including signage, crosswalk markings, and rectangular rapid flashing beacons.

Unsignalized Intersection: An at-grade intersection in which the flow of traffic is not controlled by a traffic signal. Unsignalized intersections may be STOP-sign controlled, YIELD sign-controlled, or uncontrolled (DPM 7-6).

Crossing Treatments Guidelines Methodology

Table 16 documents which FHWA's vehicle lane categories align with Albuquerque's guidance that uses crossing lanes rather than total vehicle travel lanes.

Table 16: FHWA Vehicle Travel Lane Categories

Albuquerque Category	FHWA Category
One lane	2 lanes (1 lane in each direction)
Two lanes	3 lanes with raised median (1 lane in each direction)
Three lanes	3 lanes without raised median (1 lane in each direction with a two-way left-turn lane)
Four or more lanes	4+ lanes without raised median (2 or more lanes in each direction)

Appendices

Table 17 documents other changes that were made to the FHWA guidance and the reasoning behind the adaptations.

Table 17: Changes to FHWA Crossing Treatments Guidance

Change to FHWA Guidance	Rationale
Added advance stop/yield lines to all one-lane crossings	The FHWA states that advance stop/yield lines are a candidate treatment for any uncontrolled pedestrian crossing. However, implementation on one-lane crossings should not be prioritized as the primary purpose of advance stop/yield lines is to prevent multiple threat crashes.
Added RRFB as a treatment for one-lane crossings with ADT over 15,000 and ≥40 mph speeds	Other jurisdictions, including Portland Bureau of Transportation, Colorado DOT, and Virginia DOT, allow RRFBs instead of PHBs on two and three lane streets w/ refuge islands where ADT > 15,000 and speed limits are 40 mph.
Added RRFB as a treatment on two-lane crossings with ADT over 15,000 and ≥40 mph speeds	Other jurisdictions, including Colorado DOT and Virginia DOT, allow RRFBs instead of PHBs on two-lane roads without refuge islands where ADT > 15,000 and speed limits are 40 mph.
Adding raised crosswalks to one, two, and three lane roadways with ≤ 30 mph speeds and ADT < 9,000	Typical application for raised crosswalks per the NMDOT Transportation Design Manual
Removed curb extensions, road diets, and refuge islands from the tables and figures	Removed for clarity and to reduce redundancy. These treatments can be considered for all roadways regardless of speed, ADT, or number of lanes.
Removed optional crosswalk markings and signage where RRFBs or PHBs are the minimum required crossing design	Removed for clarity and to reduce redundancy. Crosswalk markings and signage are a required component of RRFBs and PHBs per the MUTCD.
Highlighted crosswalk markings, RRFBs and PHBs as treatments that should always be considered for the following contexts: -One lane crossings with speeds of 35 mph and ADT >15,000 -Two-lane crossings with speed limits ≤ 30 mph and ADT >15,000 -Three-lane crossings with speed limits ≤ 30 mph and ADT >15,000	FHWA guidance did not mark any treatment as “should always be considered” for these categories. Highlighting treatments encourages users to consider all available options before making a decision.

Change to FHWA Guidance	Rationale
Highlighted crosswalk markings and RRFBs as treatments that should always be considered for the following contexts: -Two-lane crossings with speed limits ≤ 30 mph and ADT between 9,000 and 15,000 -Three-lane crossings with speed limits ≤ 30 mph and ADT between 9,000 and 15,000	FHWA guidance did not mark any treatment as "should always be considered" for these categories. Highlighting treatments encourages users to consider all available options before making a decision. Although PHBs can still be considered, PHBs were not highlighted in these contexts because less comprehensive treatments are adequate for lower speed/volume roadways.
Highlighted RRFB and PHB as treatments that should always be considered for four-lane crossings with speed limits ≤ 30 mph and ADT between 9,000 and 15,000. Removed the option for crosswalk markings and signage for this context.	FHWA guidance did not mark any treatment as "should always be considered" for these categories. Highlighting treatments encourages users to consider all available options before making a decision. Crosswalk markings and signage were removed because it is not an adequate treatment for four-lane medium volume roadways.

Appendices

Crash Modification Factors

Treatment	CMF Countermeasure Title	CMF	Crash Type and Severity	Roadway Classification and Context	Source
Full Traffic Signal	Install Traffic Signal	.77	All types, Injury Crashes	Road Type not Specified; Urban	McGee et al., 2003
PHB	Install pedestrian hybrid beacon (PHB or HAWK) with advanced yield or stop markings and signs	.43	Vehicle/Pedestrian, All Severities	Minor Arterial; Urban/Suburban	Zegeer et al., 2017
RRFB	Install rectangular rapid flashing beacon (RRFB)	.53	Vehicle/Pedestrian, All Severities	Minor Arterial; Urban/Suburban	Zegeer et al., 2017
High Visibility Crosswalk Marking	Install high-visibility crosswalk	.6	Vehicle/Pedestrian, All Severities	Road Type not Specified; Urban	Li Chen, Cynthia Chen, and Reid Ewing, 2012
Advance Stop/Yield Lines	Install advanced yield or stop markings and signs	.75	Vehicle/Pedestrian, All Severities	Minor Arterial; Urban/Suburban	Zegeer et al., 2017
Pedestrian Refuge Islands	Install raised median with marked crosswalk (uncontrolled)	.54	Vehicle/Pedestrian, All Severities	Principal Arterial; Urban/Suburban	Zegeer et al., 2002
Raised Crosswalk	Install raised pedestrian crosswalk	.55	Vehicle/Pedestrian, Injury Crashes	Local; Urban/Suburban	Elvik, R. and Vaa, T., 2004
Road Diet	Road diet (Convert 4-lane undivided road to 2-lanes plus turning lane)	.63	All types; Injury Crashes	Principal Arterial; Urban	Abdel-Aty et al., 2014

Appendices

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