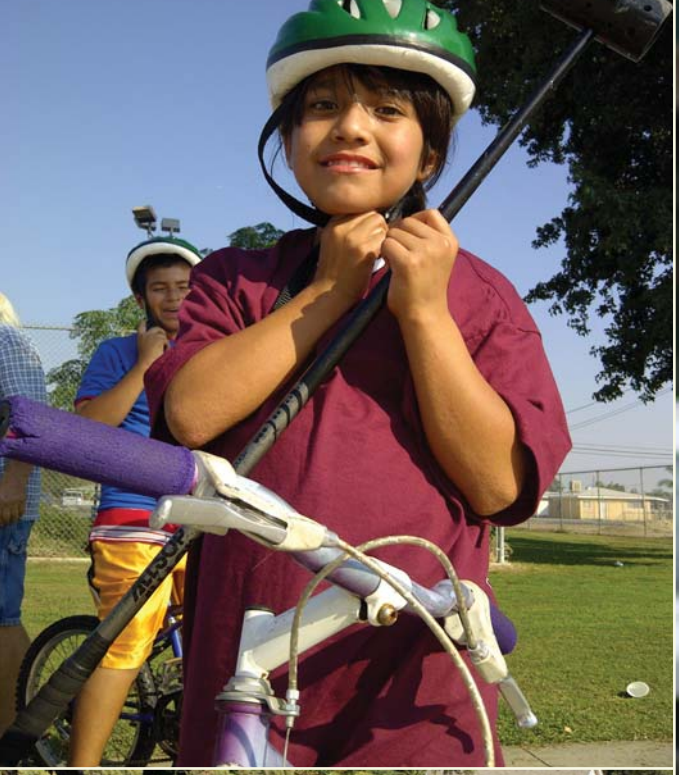

City of Bakersfield
Bicycle Transportation Plan

November 2013

PREPARED BY:
Alta Planning + Design
PREPARED FOR:
City of Bakersfield

City of Bakersfield

Bicycle Transportation Plan

Prepared by:

Alta Planning and Design

In Partnership with:

Ruettgers & Schuler Civil Engineers

Prepared for:

City of Bakersfield

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1. Introduction

The City of Bakersfield Bicycle Transportation Plan guides the future development of bicycle facilities and programs in the City. The recommendations in this Plan will help the City create an environment and develop programs that support bicycling for transportation and recreation, encourage fewer trips by car and support active lifestyles.

This Plan was developed with extensive input from the community and seeks to meet its needs and desires for a pleasant, enjoyable, and safe place to bicycle. The diligent efforts of the City of Bakersfield staff and residents interested in improving the bicycling environment in the City have contributed to this document.

This Plan provides a blueprint for making bicycling an integral part of daily life in Bakersfield and supports the goals of the Bakersfield General Plan Circulation Element and other plans and policies adopted by the City.

1.1 Purpose of the Plan

This Bicycle Transportation Plan provides an overarching vision supported by strategies and actions for improving the bicycling environment in Bakersfield. The purpose of this Plan is to identify strategic expansion of the existing network, complete network gaps, provide greater connectivity, educate, and encourage the public, and to maximize funding sources.

This Plan also satisfies requirements of the California Bicycle Transportation Account (BTA), and other state and federal funding programs that require a bicycle master plan for project eligibility.

The purpose of this Plan is to identify strategic expansion of the existing network, complete network gaps, provide greater connectivity, educate, and encourage the public, and to maximize funding sources.

1.2 Vision, Goals and Objectives

The Vision, Goals and Objectives of the City of Bakersfield Bicycle Transportation Plan will guide the development and implementation of the City's bicycle network and programming for years to come. The vision is a broad inspirational statement that presents a desired future state. Goals are broad statements of what the City and its residents hope to achieve over time and that ultimately add up to the stated vision. Objectives are specific, action-oriented statements that mark progress toward the goal.

This Plan lays out a framework for creating and expanding programs and capital improvements to increase bicycling in Bakersfield.

1.2.1 Vision

This Plan envisions the City of Bakersfield with a transportation system that supports the City's goals for active living, improved safety, and a sense of community where bicycling is an integral part of daily life. The system will include a comprehensive, safe, and logical citywide bicycle network that will support bicycling as a viable, convenient and popular travel choice for residents and visitors.

The following goals and objectives are identified steps towards achieving this vision.

1.2.2 Goals and Objectives

Goal 1: Increase bicycle mobility.

Objective 1.1: Develop a bicycle transportation plan and prioritized capital improvement program that creates and maintains a safe and logical bikeways system.

Objective 1.2: Increase the mileage of bikeways by 10 percent by 2018 and 20 percent by 2023.

Goal 2: Maintain the bikeway network.

Objective 2.1: Establish routine maintenance schedule and standards for sweeping, surface repair, litter removal, repainting of striping, signage and signal actuation devices.

Goal 3: Supplement bikeways with education, encouragement, evaluation and enforcement programs.

Objective 3.1: Develop and implement educational opportunities for bicyclists, pedestrians and motorists to learn about their rights and responsibilities.

Objective 3.2: Develop and implement encouragement programs to promote bicycling as a viable travel choice.

Objective 3.3: Develop and implement an annual evaluation program to count and survey the community on bikeway facilities and programs.

Objective 3.4: Develop and implement an enforcement program to encourage safe travel behavior and to reduce aggressive and/or negligent behavior of drivers, bicyclists and pedestrians.

Goal 4: Ensure timely and efficient implementation of the bikeway network.

Objective 4.1: Update the Bicycle Transportation Plan every five years to identify new facility improvements and programmatic opportunities as the bicycle network develops, assess their feasibility, gauge public support, identify funding sources and develop implementation strategies.

Objective 4.2: Identify and pursue reliable sources of revenue to implement projects identified in the Bicycle Transportation Plan.

1.3 Bicycle Transportation Plan Process

The City of Bakersfield initiated the plan development process in August 2012 through its Community Development Department. To fully engage the City and residents, the City hosted a stakeholder group meeting, a bicycle tour, a community workshop, conducted a survey, and provided information on the City website to inform the community of the project status and recommendations.

The first public workshop was held in December 2012 to gather community input on existing bicycling conditions, challenges and opportunities for improvement. The community survey was circulated at this time as well, and over 400 responses were collected. The survey was distributed to community members, bicyclists and non-bicyclists alike, in order to identify challenges and barriers to bicycling.

In early September 2013, the Draft Plan was presented at a community workshop. The Draft Plan was also presented to the Planning Commission on September 19, 2013.

1.4 Overview of the Plan

The Bakersfield Bicycle Transportation Plan contains the following chapters:

Chapter 1 – Introduction: Sets the context for the Plan including purpose and structure.

Chapter 2– Existing Conditions: Provides a description of the existing bicycle conditions in the City of Bakersfield. The chapter includes a map of existing bikeways and descriptions of existing bicycle programs.

Chapter 3 – Needs Analysis: Reviews the relationship between bicycle activity, commute patterns, demographics, land use and collisions. This chapter also includes a review of community input.

Chapter 4– Bikeway Network Recommendations: Includes recommended network, signage and pavement marking, spot improvements and bicycle parking improvements.

Chapter 5– Program Recommendations: Describes proposed bicycle encouragement, education, enforcement and evaluation programs.

Chapter 6 – Benefits of Bicycling: Provides an outline of congestion and air quality benefits of this Plan's recommendations.

Chapter 7 – Implementation: Outlines an implementation strategy, including cost estimates for proposed projects.

Chapter 8 – Funding: Provides potential funding sources for implementing the Plan's projects and programs.

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2. Existing Bicycle Facilities and Programs

2.1 Setting and Land Use

The City of Bakersfield, with a population of 347,000, is one of the largest cities in California. It is located near the southern end of the San Joaquin Valley, south of Fresno and northwest of the Los Angeles metropolitan area. Bakersfield is the largest city in and government seat of Kern County.

The City is comprised of residential neighborhoods and commercial centers concentrated in the Downtown, Valley Plaza Mall, and the Northwest Promenade. Figure 2-1 presents Bakersfield's land use map. Single- and multi-family residential homes account for approximately 25 percent of the City's land area, while commercial designations account for approximately 3 percent of the City. Industrial property makes up about 7 percent of the City's land.[1] Bakersfield is a place where people can both live and work and establishes the City as an important employment and retail center in the southern San Joaquin Valley.

Population growth in Kern County has been rapid since the 1970's and is expected to continue to grow at a steady rate. The California Department of Finance estimates the County will grow from 841,100 (2010) to 1,057,400 (2020) and to 1,341,300 (2030).[2]

The City of Bakersfield is accessible by highways and both regional and local transit. State Highway 99 (north-south) connects the City with other San Joaquin Valley cities, Sacramento, and Los Angeles. State Highway 58 runs east-west and connects Bakersfield with the Mojave Valley. Interstate 5 runs parallel to State Highway 99 and connects Southern California to Northern California and the Bay Area.

Approximately 1.2 percent of Bakersfield residents use public transit.[3] Three public transit agencies operate within the City: Golden Empire Transit (GET), Kern Regional Transit, and Amtrak. GET has annual boardings of 7.2 million passengers.[4] GET operates bus routes throughout the City and provides front-loading bicycle racks. Kern Regional Transit serves Bakersfield with nine of its twelve routes, all of which have front-loading bicycle racks.

Riverwalk

[1] Metropolitan Bakersfield General Plan, 2000.
[2] California Population Projections, California Department of Finance, 2013.
[3] American Community Survey, United States Census, 2007-2011.
[4] www.getbus.org/about/

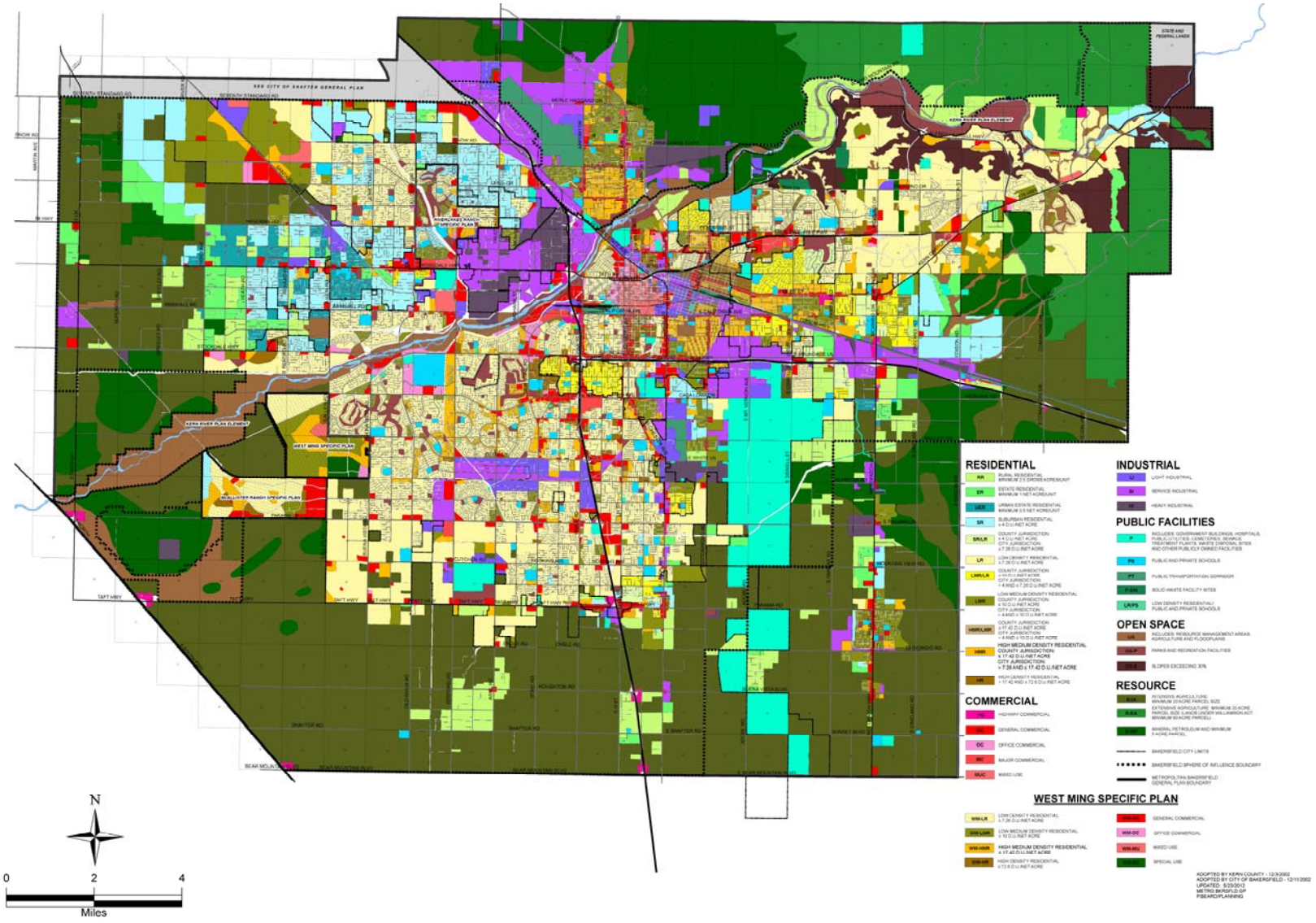
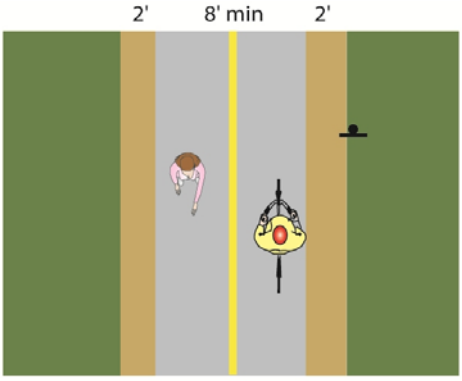
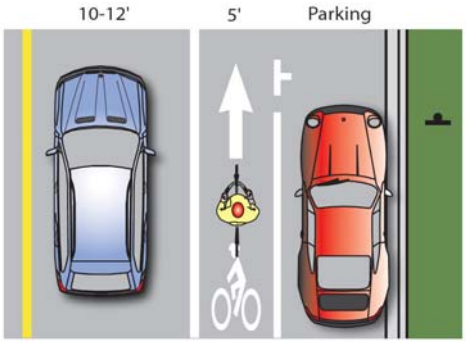


Figure 2-1: Metropolitan Bakersfield Land Use Map

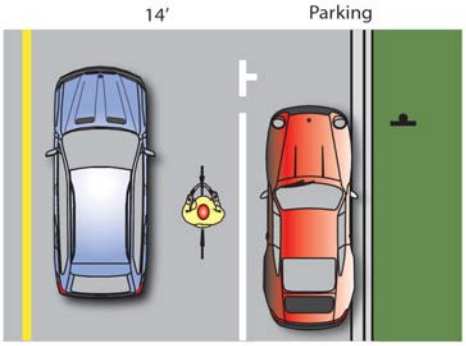
2.2 The Five E's and Bikeway Classifications



Class I bikeways are separated from the roadway.



Class II bike lanes provide a striped travel lane on roadways for bicyclists.



Class III bicycle routes are signed roadways indicating a preferred bicycle route.

Figure 2-2: Caltrans Bikeway Classificaitons

As defined by the League of American Bicyclists, bicycle-friendly cities demonstrate achievements in each of five categories, often referred to as the Five E's of bicycle planning. The Five Es are:

- **Engineering** includes on-street bicycle facilities and bicycle parking as well as signage and maintenance.

Aside from physical infrastructure, the other 4 E's are programmatic in nature. Programs are a great way to maximize use of bicycle facilities and include:

- **Encouragement** programs such as bike maps and events such as Bike to Work Day which reward existing bicyclists and motivate more people to ride bicycles.
- **Education** programs improve safety and awareness. These may be delivered in schools as bicycle skills programs, or provided at low or no cost to adults through non-profit organizations.
- **Enforcement** programs that reinforce legal and respectful driving and bicycling make novice bicyclist feel more secure.
- **Evaluation** programs provide a method for monitoring improvements and informing future investments.

The analysis of Bakersfield's existing facilities and programs within the framework of the Five Es is one way to assess the City's bicycle-friendly status.

The City of Bakersfield has a growing network of Class I, II and III facilities throughout the City. The City has also implemented several programs to support bicycling. This chapter presents existing facilities and programs in order to help identify where new facilities are needed and what programs will better support bicycling in Bakersfield.

This Plan refers to standard bikeway definitions identified by Caltrans in Chapter 1000 of the 2012 Highway Design Manual, shown above in Figure 2-2.

2.3 Engineering

2.3.1 Existing Bikeways

The City has installed 143 miles of bikeways, , as summarized in Table 2-1. A complete breakdown of bicycle facilities and respective lengths can be found in Table 2-2.The longest bikeway is the Kern River Bike Path, which attracts users from the City and region. The Kern River Parkway includes approximately 32 miles of pathways, and all but three miles of the paths are within City limits. Figure 2-5 maps Bakersfield's existing bikeways. These figures exclude bikeways in Kern County.

Table 2-1: Existing Bikeways Summary

Class	Mileage
Class I: Shared-Use Path	27.9
Class II: Bike Lanes	114.38
Class III: Bike Route	0.73
Total Mileage	**143.01**

Over the past ten years, beginning with fiscal year 2003/2004, the City of Bakersfield has invested over $10M in bicycle facilities. Of this sum, 90% is attributed to bike lane maintenance on arterial and collector roads performed as part of wider maintenance and rehabilitation activities. Bicycle-specific investments totaled about $1M and principally consisted of bicycle lane planning and design, although some bicycle parking and road crossing beacons were also included. A breakdown of the investments is presented in Appendix D.

Kern River Bike Path

Table 2-2: Existing Bikeways Detail

Name	Start	End	Distance (miles)
Class I Shared-Use Paths			
Access Path - Oak Street	Oak Street	Kern River Parkway	0.02
Alfred Harrell Path	City Limit	Old Alfred Harrell Hwy	0.32
CSU Path	Stockdale Highway	Camino Media	0.88
Kern River Parkway	Enos Lane	China Grade Loop	21.84
Kern River Parkway Spur	Kern River Parkway	Coffee Road	0.02
Kern River Parkway Spur	Kern River Parkway	Coffee Road	0.02
Morning Drive Bike Path	Paladino Drive Bike Path	City Limits	1.62
Paladino Drive Path	Royal Coach Circle	Morning Drive	1.83
Park at Riverwalk	Kern River Parkway	Kern River Parkway	0.85
Reina Class I Path	Jewetta Avenue	Verdugo Ln	0.50
		Class I Total	**27.90**
Class II Bike Lanes			
21st Street	Union Avenue	King Street	0.66
21st Street	Oak Street	Union Avenue	2.02
30th Street	Chester Avenue	Union Avenue	0.87
4th Street	P Street	Union Avenue	0.50
Akers Street	Ming Avenue	Wilson Avenue	0.50
Allen Road	Stockdale Highway	Ming Avenue	0.99
Alta Vista Drive	Bernard Street	Niles Street	0.45
Ashe Road	Stockdale Highway	Panama Lane	4.02
Auburn Street	Columbus Street	Fairfax Road	1.33
Belle Terrace	City Limit	New Stine Road	0.72
Bernard Street	Mount Vernon Avenue	Oswell Street	1.03
Brimhall Road	Allen Road	Coffee Road	3.01
Buena Vista Road	Stockdale Highway	White Lane	1.63
Buena Vista Road	White Lane	Panama Lane	2.00
California Avenue	Marella Way	Stockdale Highway	0.74
Calloway Drive	Old River Road	Brimhall Road	1.19
Calloway Drive	Hageman Road	Norris Road	2.51
Camino Media	Old River Road	Gosford Road	1.31
Chester Avenue	Columbus Street	Garces Circle	5.12
City Hills Drive	Vineland Road	Panorama Drive	0.86
Clay Patrick Farr Way	Granite Falls Drive	Rosedale Highway	0.23
Coffee Road	Norris Road	Stockdale Highway	4.54
Columbus Street	River Boulevard	Panorama Drive	2.77
Fairfax Road	Alfred Harrell Highway	Start of Class 3	2.96
Gosford Road	Stockdale Highway	Harris Road	3.51
Hageman Road	Knudsen Drive	Mohawk Street	0.49
Hageman Road	Old Farm Road	Mohawk Street	4.08
Haley Drive	Truxtun Avenue	California Avenue	0.34
Haley Street	Columbus Street	Highway 178	0.41
Haley Street	Flower Street	Kentucky Street	0.48
Jewetta Avenue	Brimhall Road	Stockdale Highway	1.27
Jewetta Avenue	Snow Road	Hageman Road	2.00
Manor Street	Kern River Parkway	Union Avenue	0.38
Ming Avenue	S. Allen Road	Buena Vista Road	0.99
Ming Avenue	Buena Vista Road	New Stine Road	3.91
Miramonte Drive	Alfred Harrell Highway	Highway 178	1.06
Mohawk Street	City Limit	California Avenue	1.68
Monitor Street	White Lane	Hosking Avenue	2.50

Name	Start	End	Distance (miles)
N. Laurelglen Boulevard	Gosford Road	Wilford Court	0.59
New Stine Road	Stockdale Highway	Hahn Avenue	4.06
Norris Road	Lavender Gate Drive	Calloway Drive	0.09
Oak Street	Kern River Parkway	Brundage Lane	1.96
Old River Road	Stockdale Highway	Panama Lane	3.49
Olive Drive	Allen Road	Coffee Road	3.17
Panama Lane	Colony Street	S. H Street	0.34
Panama Lane	Dennen Street	Gosford Road	3.34
Panorama Drive	Vineland Road	Masterson Street	1.04
Panorama Drive	Union Avenue	Fairfax Road	5.53
Planz Road	Wilson Road	S. Chester Avenue	3.54
Royal Coach Circle	Fairfax Road	Paladino Drive Path	0.07
s. Laurelglen Boulevard	Wildford Court	Gosford Road	0.56
S. P Street	California Avenue	Brundage Lane	1.95
Scarlet Oak Boulevard	Camino Media	Ming Avenue	0.22
Snow Road	Verdugo Lane	Calloway Drive	0.49
Stockdale Highway	Renfro Rd	Oak Street	6.24
Union Avenue	Columbus Street	Panorama Drive	0.25
University Avenue	Haley Street	Columbus Street	1.50
Vineland Road	Paladino Drive	City Hills Drive	0.76
W. Columbus Street	Chester Avenue	Union Avenue	0.91
White Lane	S. Allen Road	Buena Vista Road	1.00
White Lane	H Street	Union Street	1.03
White Lane	Buena Vista Drive	Dovewood Street	4.51
Wible Road	Oak Street	Cty Limit	0.39
Wible Road	City Limit	Planz Road	1.27
WIlson Road	Planz Road	White Lane	0.53
Watts Drive	Union Avenue	Madison Street	0.49
		Class II Total	**114.38**
Class III Bike Routes			
Norris Road	Snow Road	Lavender Gate Drive	0.73
		Class III Total	**0.73**
		Bikeways Total	**143.01**

2.3.2 Signing

The California Manual on Uniform Traffic Control Devices (CA MUTCD) outlines the requirements for bikeway signage.

The Bike Lane Sign (R81) is required at the beginning of each designated bike lane and at each major decision point. The Bike Route Sign (D11-1) is required on Class III facilities. Shared-use paths require additional standardized signs to help manage different user groups. The City has installed CA MUTCD standard signs along its bikeways.

Figure 2-3: Caltrans Bikeway Signs

2.3.3 Bicycle Signal Detection

Where traffic signals are not operated on fixed timing but instead activated by detection, bicycle detection is important because it reduces bicyclist delay and discourages red light running. The City has various means of bicycle detection employed on a case-by-case basis, including video and electromagnetic loop detection. The City has typically used Type C or Type E loops but now uses Type D loops, shown in Figure 2-4. The City is currently in the process of including bicycle detection at all new and retrofitted signals.

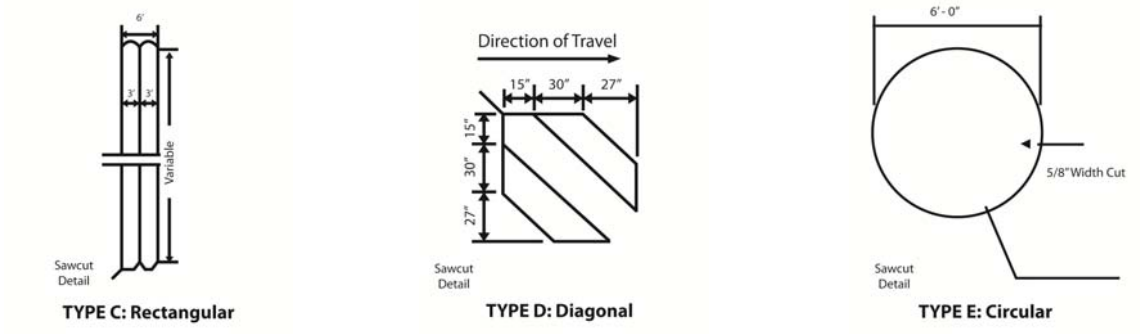


Figure 2-4: Loop detectors in use in Bakersfield

2.3.4 Bicycle Parking and End of Trip Facilities

Bicycle parking can range from a simple and convenient bicycle rack to storage in a bicycle locker or room that protects against weather, vandalism and theft. For those who dress more formally, travel longer distances, or bicycle in hot weather, the ability to shower and change can be as important as bicycle parking. Generally, public bicycle parking is located in downtown Bakersfield. Known bicycle parking locations include those listed below and are shown on Figure 2-5:

- City Hall (parking and shower facilities for employees)
- Bakersfield Community Development Building (parking and shower facilities for employees)
- Bike Bakersfield
- Dagny's Coffee Company
- Bakersfield Sports Village

A bicycle rack in Downtown Bakersfield

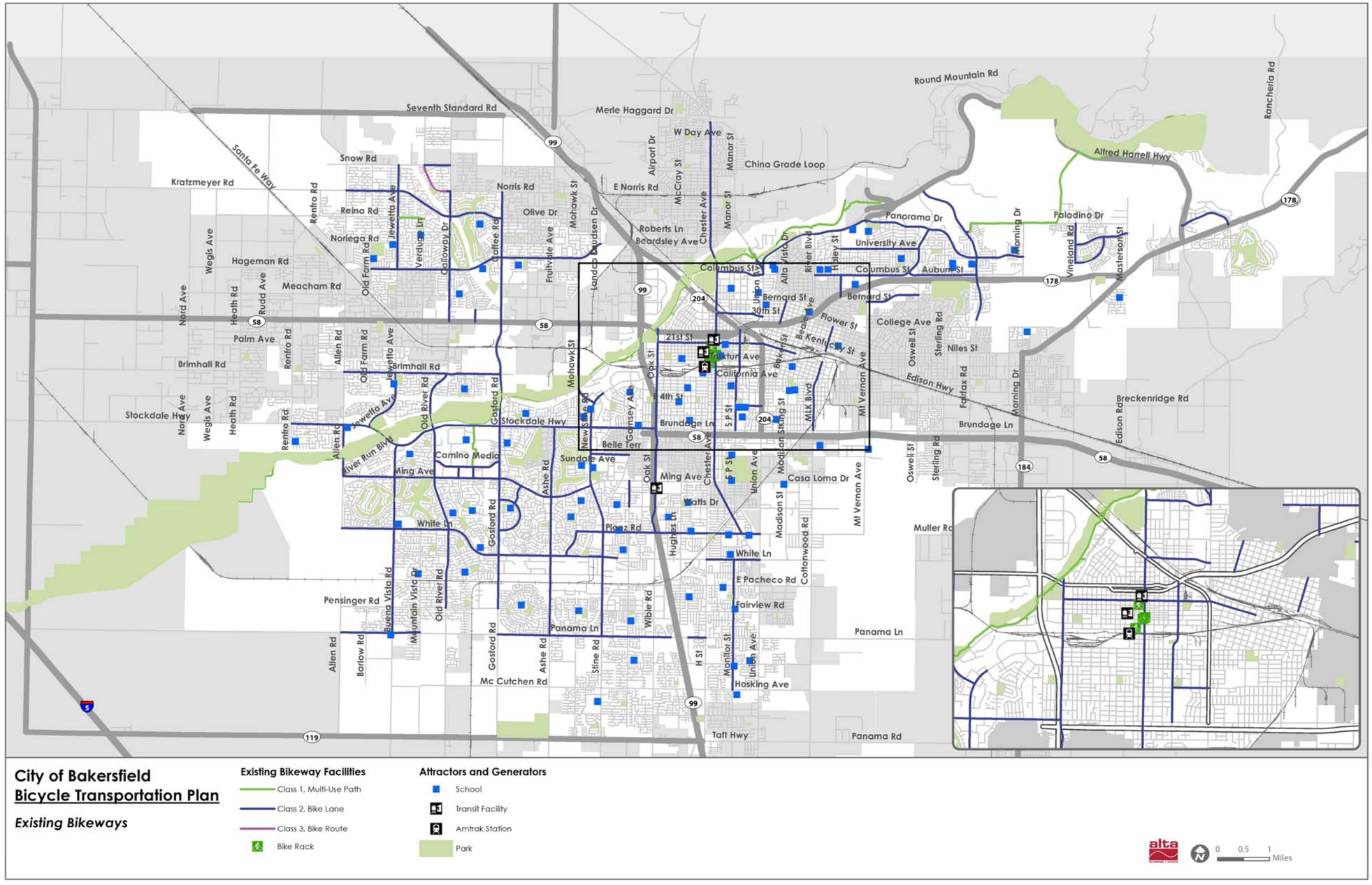


Figure 2-5: Bakersfield Existing Bikeway Network

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2.3.5 Maintenance

Street and Bike Path Sweeping

Street sweeping clears the road of debris that would otherwise make bicycling difficult. Streets are the primary focus of the City's street sweeping program; however, Class II and III bike facilities are typically covered by this work. The Bakersfield Public Works Department has a rotating street sweeping schedule for residential roadways, which are swept monthly.

Roadway Maintenance

Potholes are a hazard to bicyclists that can cause crashes and/or damage to bicycles. Residents may report potholes to the Public Works Department using a 24 hour pothole hotline: (661) 326-ROAD. Residents may request other repairs, including those on bike paths, either by filling out a Citizen Job Request Form on the City's website or calling (661) 326-3111.

2.4 Encouragement Programs

The following describes encouragement related programs hosted by the City of Bakersfield and groups within the City.

2.4.1 Bike to Work Day

Bike to Work Day is an event promoting bicycling to work and is typically held the third Friday in May. The City of Bakersfield encourages City staff to participate in Bike to Work Day with a group ride and raffle prizes. Bike Bakersfield typically hosts events during the month and commuter stands the week of Bike to Work Day.

Bike Bakersfield hosts numerous group rides
(photo courtesy of Bike Bakersfield)

2.4.2 Full Moon Ride

The Full Moon Ride is a monthly ride along the Kern River Bike Path. This event is sponsored by non-profit organization Bike Bakersfield and is advertised by the City. The ride is slow paced and appropriate for bicyclists of all skill levels and ages. Approximately 100-175 riders participate each month.

2.4.3 Sunday City Bike Ride

Also promoted by Bike Bakersfield, this monthly group ride was first held on December 16, 2012. It is modeled on the Full Moon Ride but on city streets instead of the Parkway.

2.4.4 Free Bike Valet at major events

Bike Bakersfield organizes a free bike valet at concerts, festivals, and other large events around the City

2.5 Education Programs

Education programs typically consist of bicycle traffic skills and/or maintenance training, public service messages in traditional and online media, and handouts distributed at events. The educational programs in Bakersfield are summarized in the following sections.

2.5.1 Build-A-Bike

The City of Bakersfield's Parks and Recreation Department provides a Build-A-Bike program for children ages nine through 13 several days per week at the Martin Luther King Jr. Community Center. The program offers a hands-on learning environment where the children are taught how to build their own bikes, as well as the fundamentals of bicycle repair, maintenance, and safety. To operate the program, the Bakersfield police department donates unclaimed stolen bicycles, Snider's Cyclery provides discounted parts and materials, and Bike Bakersfield provides an instructor.

2.5.2 Bicycle Rodeos

The City of Bakersfield and Bike Bakersfield co-sponsor Bicycle Rodeos in the summer for children ages nine through 12. Bicycle rodeos help children develop basic bicycling techniques and safety skills through the use of props to simulate the roadway environment. Children receive instructions on how to maneuver, observe signs, and look for on-coming traffic before proceeding through intersections. The rodeos are free to participants.

Bicycle Rodeos help children develop basic bicycling skills and knowledge
(photo courtesy of Bike Bakersfield)

2.5.3 Confident City Cycling Classes

Bike Bakersfield offers this course that teaches state and local laws, on-bike skill development, and other lessons to help cyclists become safer and more confident. The classes are free for Bike Bakersfield members.

2.5.4 City Website

The City posts information about bicycling on its website to educate the community. This information includes bicycle-related violations from the California Vehicle Code and Municipal Code, as well as the location of the central traffic district[5] where bicycling is prohibited on the sidewalk.

The website also provides the following information: "Every year in California over 100 people are killed and thousands more are injured in bicycle collisions. You can make bicycling safer for everyone by obeying the law, keeping your bicycle in good condition and riding carefully. Remember, a bicycle is a vehicle that shares the road with much larger vehicles. Always remain alert and watch for cars and trucks at intersections, driveways, and exits from parking lots."

2.6 Enforcement Programs

The City of Bakersfield Police Department enforces bicycle-related infractions. Reserve officers can be assigned to the City's bicycle patrol.[6]

2.7 Evaluation Programs

Evaluation programs measure and evaluate the impact of projects, policies and programs. Typical evaluation programs range from a simple year-after-year comparison of US Census Journey to Work data to bicycle counts and community surveys. Bicycle counts and community surveys act as methods to evaluate the impacts of specific bicycle improvement projects and can also function as way to measure progress towards reaching a City's sustainability goals.

The City of Bakersfield does not currently have bicycle-related evaluation programs. However, bicycle counts were conducted as part of this planning process, as summarized in section 2.4 of this document. This count effort is intended to become the beginnings of a benchmarking effort, continuing on an annual basis to measure and evaluate projects, policies and programs.

[5] The central traffic district is defined as all of the area within the boundary of the following streets: from the west line of F Street to the east line of Q Street, from the north line of 25th Street to the north line of 15th Street, except 23rd and 24th Streets

[6] http://www.bakersfieldcity.us/police/Support_Services/Police_Reserves/index.html

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3. Needs Analysis

The needs of Bakersfield bicyclists are diverse and depend on the individual level of experience, confidence, age, trip type and many other factors. This examination begins with a review of the types of bicyclists and typical trip purposes. It is followed by a review of trip attractors and generators to identify potential bicycle trip origins and destinations. Travel mode choice and typical travel time are then reviewed to understand the current and potential rates of bicycling. Bicycle related collisions are also reviewed to understand locations likely in need of bicycle related improvements. A closer look at the existing gaps in the bicycle network will help inform network development. The needs analysis concludes with a summary of community input gathered from a community survey and a workshop.

3.1. Types of Bicyclists

This Plan seeks to address the needs of current and potential bicyclists and therefore it is important to understand the needs and preferences of all types of bicyclists. Bicyclists' needs and preferences vary between skill levels and their trip types. Generally, bicycling typologies fall into four categories.[1] Figure 3-1 illustrates these bicyclist types in a bar chart relating to the proportion of the public estimated from surveys to identify with each typology.

- *Strong and Fearless* bicyclists will ride on almost any roadway despite the traffic volume, speed and lack of bikeway designation and are estimated to be less than 1% of the population.
- *Enthused and Confident* bicyclists will ride on most roadways if traffic volumes and speeds are not high. They are confident in positioning themselves to share the roadway with motorists and are estimated to be 7% of the population.
- *Interested but Concerned* bicyclists will ride if bicycle paths or lanes are provided on roadways with low traffic volumes and speeds. They are typically not confident cycling with motorists. Interested but Concerned bicyclists are estimated to be 60% of the total population and the primary target group that will bicycle more if encouraged to do so.
- *No Way, No How* are people that do not consider cycling part of their transportation or recreation options and are estimated to be about one-third of the population.

Figure 3-1: Typology of Existing and Potential Bicyclists

[1] Source: Roger Geller, Bicycle Coordinator, City of Portland, Oregon

The needs of bicyclists also vary between trip purposes. For example, people who bicycle for performance or recreational purposes may prefer long, straight, and un-signalized roadways while bicyclists who ride with their children to school may prefer direct roadways with lower vehicular volumes and speeds. The different types of bicyclists and their trip purposes include:

- Commuters: regularly bicycle between their residences and work
- Enthusiasts: ride for fitness or sport, and generally (but not always) have confidence and skills for riding in traffic
- Casual / Family / Elderly: people who use bicycles for running errands, leisure, or as a family activity
- Children: bicycle to school, activities and to visit friends

An effective bicycle network accommodates bicyclists of all abilities. Casual bicyclists generally prefer roadways with low traffic volumes and low speeds. They also prefer paths that are physically separated from roadways. Because enthusiasts typically ride to destinations or to achieve a goal, they generally choose the most direct route, which may include arterial roadways with or without bike lanes. Commuters generally prefer increased separation from automobile traffic, but will ride on arterial roadways if they need to in order to reach their destinations. Children are more comfortable riding on very low volume residential streets and separated pathways.

Bicyclists of all abilities and purposes ride every day in Bakersfield. Parents bicycle with their children to school, people bicycle to work in Bakersfield and adjacent unincorporated Kern County, community members bicycle to GET stations, and recreational bicyclists ride through Bakersfield on extended bicycle trips.

Bicyclists of all abilities and purposes ride every day in Bakersfield.

3.2. Bicycle Attractors and Generators

3.2.1 Parks and Community Centers

Bakersfield has 59 park facilities including playgrounds, ball fields, courts, and picnic areas that serve as recreational destinations for the community. These outdoor amenities attract individuals, families, local residents and tourists. Bakersfield's larger park destinations are described below and shown on Figure 3-2.

Aera Park and Baseball Fields: Aera Park is located at the intersection of Stockdale Highway and Jewetta Avenue, close to the Kern River. The park's 11 baseball fields host Bakersfield Southwest youth leagues. In addition, Aera Park has wi-fi available.

Centennial Park: Located on Montclair north of Stockdale Highway, Centennial Park has a wide variety of amenities, including playground equipment; picnic areas; facilities for basketball, volleyball, tennis, baseball, and soccer; and a no-leash zone for dogs.

Centennial Plaza: The Centennial Plaza is located at Truxton Avenue and N Street, near to the Rabobank Arena Theatre and Convention Center. It includes a fountain, waterfall, and stage.

Dr. Martin Luther King Jr. Community Center and Park: This park is located at the intersection of East California and South Owens and has a pool, summer spray park, basketball and tennis courts, and a full gym. The adjacent community center has a large multipurpose room with a kitchen, after school program for children, and free lunch program during the summer months.

Jastro Park: Located between Truxtun Avenue and 18th Street, Jastro Park has a bandstand, shade canopy, two picnic areas, facilities for a variety of sports, horseshoe pits, playground equipment, and a summer spray park.

Jefferson Park: Amenities at Jefferson Park include a spray park, sandlot style play area, amphitheater, and pool. It is located at Bernard Street and Beale Avenue.

Kern River Parkway Bike Path: The Kern River Bike Path covers more than 30 miles along the Kern River through Bakersfield. There are more than 6,000 acres of trails, parks, and waterways, including the paved shared-use path previously discussed.

McMurtrey Aquatic Center: Located in Downtown at the corner of 14th and Q Streets, this aquatic facility features a large recreation pool and a 50-meter competition pool, as well as a double water slide.

The Park at River Walk: A 32 acre park adjacent to the Kern River at the junction of Stockdale Highway and Buena Vista Road, The Park at River Walk has an amphitheater, swimming facilities, and wi-fi access. It is behind The Shops at River Walk.

Planz Park: This park is located at Planz Road and South H Street, and provides three picnic areas, a baseball diamond, a basketball court, a spray park, and a pool. **Silver Creek Community Center and Park:** Located at Harris Road and Reliance Drive, the park and community center include a pavilion, a swimming pool, a multi-purpose room, a stage, lighted tennis courts, a disc golf course, horseshoe pits, an exercise course, two play areas, a multi-use sports field, and two large picnic areas.

Wayside Park: This park is located at Ming Ave and El Toro Drive. It offers two picnic areas, a softball diamond, basketball and tennis courts, and a spray park.

3.2.2 Schools

Children below driving age are a large population of existing and potential bicyclists. Schools in Bakersfield are listed in Table 3-1 and shown in Figure 3-2. Elementary and junior high/middle schools in Bakersfield are managed by the Bakersfield City School District, while high schools are managed by the Kern High School District.

Table 3-1: Bakersfield Public Schools

School Names			
Elementary Schools			
Almondale	Evergreen	Loudon	Planz
American	Franklin	McAuliffe	Quailwood
Berkshire	Frank West	McKinley	Reagan
Bill Williams	Fremont	Mount Vernon	Roosevelt
Bimat	Garza	Munsey	San Lauren
Buena Vista	Granite Pointe	Nichols	Sandrini
Casa Loma	Harding	Noble	Sandstone
Castle	Harris	Norris	Seibert
Chavez	Hart	Old River	Sing Lum
College Heights	Hills	Owens Primary	Stine
Columbia	Horizon	Owens Intermediate	Stockdale
Del Rio	Horace Mann	Palla	Suburu
Discovery	Jefferson	Patriot	Thorner
Douglas	Johnson Children's Center	Pauly	Valle Verde
Downtown	Kendrick	Penn	Valley Oaks Charter
Eissler	Laurelglen	Pioneer	Veterans
Endeavour	Longfellow	Plantation	Wayside
Junior High / Middle Schools			
Actis	Freedom	Sierra	Valley Oaks Charter
Chipman	Greenfield	Stiern	Warren
Compton	Ollivier	Stonecreek	Washington
Curran	Rafer Community Day	Tevis	
Emerson	Sequoia	Thompson	
High Schools			
Bakersfield	Frontier	Liberty	South
Centennial	Golden Valley	Mira Monte	Stockdale
East Bakersfield	Highland	North	West
Foothill	Independence	Ridgeview	

In addition to elementary, middle, junior high, and high schools, Bakersfield is also home to California State University (CSU) Bakersfield and Bakersfield College. As of the fall quarter 2012, CSU Bakersfield enrolled 8,520 total students[2]. Established in 1913, Bakersfield College is one of the nation's oldest continually-operating community colleges, today serving 15,000 students on the 153-acre main campus in northeast Bakersfield, at the Weill Institute in downtown Bakersfield, and at the Delano Center 35 miles north of Bakersfield[3].

[2] http://www.calstate.edu/as/stat_reports/2012-2013/f12_01.htm
[3] http://www.bakersfieldcollege.edu/about/facts/

3.2.3 Retail Centers

Located in the central portion of the city, Downtown Bakersfield is comprised of several blocks and features restaurants, retail shops, and entertainment uses, including the Rabobank Arena, Theatre, and Convention Center. There are Class II bike lanes on Chester Avenue, Q Street, and 21st Street that serve the downtown.

There are two major shopping centers in Bakersfield: Valley Plaza Mall and Northwest Promenade. Located in southwest Bakersfield adjacent to Highway 99, the Valley Plaza Mall has a wide variety of shops and restaurants, as well as a movie theatre. It can be accessed by Wible Road, which has Class II bike lanes. The Northwest Promenade is an outdoor shopping center located on the northwestern side of the Kern River. The Promenade fronts Rosedale Highway, which lacks bicycle facilities, but there are Class II bike lanes on Coffee Road, which runs along the property's eastern edge. The East Hills Mall, located in the northeast portion of the city, contains a United Artists Theatre. There are Class II bike lanes on Columbus Street to the north and Bernard Street to the south of the mall.

Smaller shopping and lifestyle centers, such as the Shops at Riverwalk and the Marketplace, are scattered throughout Bakersfield and are home to major chain stores and restaurants, such as Target, Costco, Wal-Mart, Family Dollar, P.F. Chang's, and BJ's Restaurant and Brewhouse.

3.2.4 Top Employers

Nearly 25,000 people are employed by Bakersfield's top ten employers. Making bicycling to work convenient through increased access to employment centers and City and privately sponsored encouragement programs would target this large pool of potential bicyclists. Table 3-2 lists the top ten employers, their location, and number of employees. They are also shown on Figure 3-2. This Plan's recommendations consider large employer locations.

Table 3-2: Top 10 Employers (2010)

Employer	Address	Number of Employees
County of Kern	1115 Truxtun Avenue	7,475
Giumarra Farms	PO Box 1969	4,200
Grimmway Farms	N/A	3,500
Wm. Bolthouse Farms, Inc.	7200 E. Brundage Lane	2,000
Bakersfield Memorial Hospital	420 30th Street	1,400
City of Bakersfield	1600 Truxtun Avenue	1,300
Mercy Hospital	2215 Truxtun Avenue	1,200
ARB, Inc.	PO Box 1559	1,200
Kern Medical Center	1830 Flower Street	1,200
State Farm Insurance	900 Old River Road	1,045
Total		**24,520**

Source: Greater Bakersfield Chamber of Commerce

3.2.5 Transit

Public transit riders often face the "first mile, last mile" dilemma of how to connect their home and final destination with the actual transit route. For instance, a transit bus may take a passenger to within a mile of

their employment site, but that might be outside the range of their walking capability or tolerance. Bicycle racks on buses and bicycle parking at transit stops ensure that bicycling is a complementary solution to the transit connectivity issue.

Approximately 1.2% of Bakersfield's working population report taking transit to work daily[4]. Three public transit agencies operate within the City: Golden Empire Transit (GET), Kern Regional Transit, and Amtrak.

GET has annual boardings of 7.2 million passengers.[5] There are two GET transit centers; one is downtown on 22nd Street between Eye Street and Chester Avenue, and the other is in southwest Bakersfield on Wible Road. GET operates bus routes throughout the City and provides front-loading bicycle racks. The racks can carry up to two bicycles, and bicycles are also allowed inside the bus if the rack is full and room is available.

Kern Regional Transit operates bus routes throughout Kern County. Nine of 12 bus routes traverse Bakersfield. Some Kern Regional Transit buses are equipped with bicycle racks that are available on a first-come first-served basis. The City has installed bicycle lanes and routes along major bus routes, including Chester Avenue.

Amtrak offers inter-city train and bus service to and from Bakersfield. The Bakersfield Amtrak station is located off Truxtun Avenue and S Street. Some buses are equipped with front bicycle racks, while others allow bicycles to be stored in luggage compartments below the vehicles. Most Amtrak trains permit bicycles to be walked onto train cars and secured to onboard bicycle racks. On older trains not equipped with racks, bicycles must be stored in a container and checked. There are no bikeways adjacent to the Amtrak station, though there are several nearby facilities through the downtown, such as Class II bike lanes to the east on Q Street.

[4] American Community Survey, United States Census, 2007-2011.
[5] www.getbus.org/about/

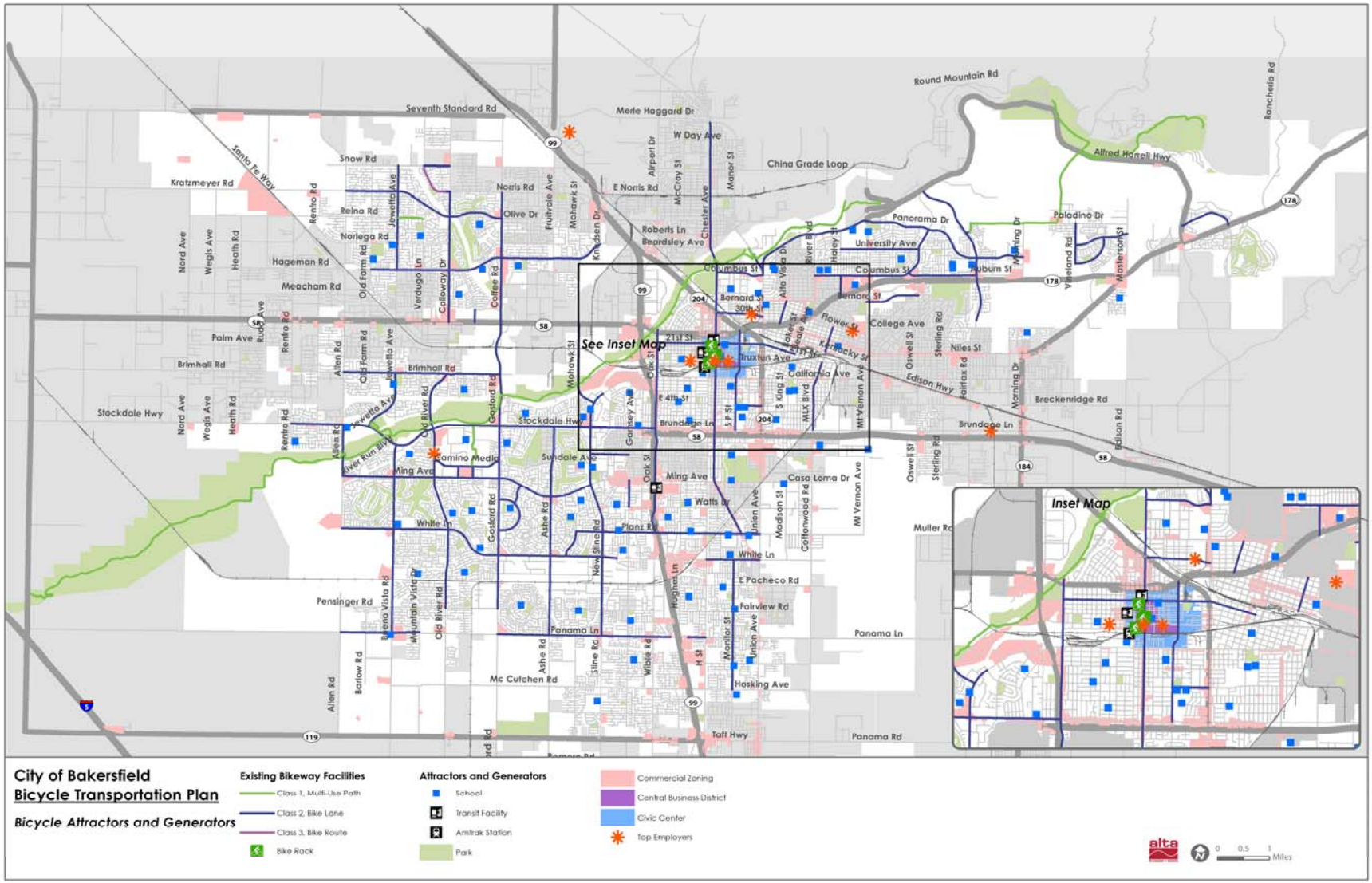

Figure 3-2: Bicycle Attractors and Generators

3.3. Commuter Travel

Monitoring the number of commuter bicyclists in the City provides a way to track the use of bicycle facilities. As bicycle facilities are built and education and encouragement programs are implemented, the data can be revisited to monitor changes in bicycling rates. The proportion of Bakersfield residents that bicycle to work is about 0.4%, which is slightly lower than Kern County and the United States as a whole, and less than half that of California (Table 3-3).

Table 3-3: Work Commute Mode Share by Geography

Mode	Bakersfield	Kern County	California	United States
Bicycle	0.4%	0.5%	1.1%	0.6%
Carpool	13.5%	15.4%	11.1%	9.7%
Drive Alone	79.4%	76.2%	73.3%	76.4%
Public Transit	1.2%	1.2%	5.2%	5.0%
Walked	2.2%	1.7%	2.8%	2.8%
Other	1.1%	2.1%	1.3%	1.2%
Worked from Home	2.3%	2.9%	5.3%	4.3%

Source: U.S. Census Bureau, 2011 American Community Survey, SFB08301

Review of travel time to work is important to estimate the potential number of bicycle commuters. Generally, a commute time of 15 minutes or less is equivalent to a 30 minute bicycle commute, assuming flat topography and light to moderate traffic. The example of communities nationwide demonstrates that it is possible for Bakersfield to shift a portion of the 31.5 % of the 15 minute or less commuters to bicycling. Table 3-4 compares average Bakersfield commute times with Kern County, California, and the United States.

Table 3-4: Travel Time to Work

Travel Time to Work	Bakersfield	Kern County	California	United States
Less than 15 minutes	31.5%	32.7%	24.5%	27.8%
15 to 29 minutes	43.0%	37.9%	35.8%	36.4%
30 to 44 minutes	14.8%	16.8%	21.6%	20.2%
45 to 59 minutes	4.9%	5.1%	8.0%	7.5%
60 minutes or more	5.8%	7.5%	10.1%	8.1%

Source: U.S. Census Bureau, 2011 American Community Survey, SF B08303

3.4. Bicycle Counts

As part of this Bicycle Transportation Plan effort, the City of Bakersfield with assistance from Bike Bakersfield volunteers conducted bicycle counts at 14 sites geographically dispersed throughout the city to gather information on the number and characteristics of existing bicyclists. The counts were conducted from 6:30am to 9:00am and 3:30pm to 6:00pm on Tuesday September 18, 2012 and 8:00am to 12:00pm on Saturday September 22, 2012, for a total of 9 hours of observations per site. Table 3-5 presents a summary of the data gathered as part of this effort.

Table 3-5: Summary of Bicycle Counts by Site

	Total Count				Avg. Count / Hour	
Location	AM	PM	Weekend	Total	Weekday	Weekend
Chester Ave & Class 1 Bike Path	118	121	382	621	48	96
Kern River Trail & Stockdale Hwy	134	103	371	608	47	93
Baker St & Sumner St	47	60	83	190	21	21
4th St & P St	30	65	94	189	19	24
Stockdale Highway & Don Hart (Near Cal State)	44	46	66	156	18	17
Paladino Dr & Morning Dr	41	9	86	136	10	22
21st St & Oak St	30	37	47	114	13	13
S. Chester Ave & Ming Ave	24	38	41	103	12	10
Riverlakes & Hageman	31	26	28	85	11	7
Brimhall Ave & Calloway	16	13	34	63	7	9
Ming Ave & Ashe Rd	22	19	18	59	8	5
Columbus St & Union Ave	19	10	23	52	6	6
Chester Ave & Truxtun Ave	14	14	19	47	6	5
University Ave & Mt Vernon Ave	4	11	5	20	3	1
Total for all sites	574	572	1297	2443	-	-
Average for each measure	41	41	93	175	16	23
Proportion of all observed bicyclists	23%	23%	53%	100%	-	-

The top two sites both featured an intersection with a bike path. This is likely due to the community preferences for bike paths, as described further in Section 3.8.

Across all sites, women and youth riders accounted for only 16% and 6% of the total bicyclists observed, respectively. Both of these measures suggest that the environment is not perceived by the general public as comfortable enough for bicycling.

This summary of the data should be regarded as indicative measures of bicycling activity levels. As with bicycle collision analysis, manual bicycle counting has high statistical variability due to low sample size (9 hours out of the 4380 daylight hours of the year) and observation numbers (average 16 riders per hour across all sites). Ideally, future comparisons should utilize rolling five year averages to minimize the effect of random variation in the data. Should Bakersfield adopt permanent automatic counting technology at some sites (whether stand-alone or as part of traffic signal detection), it would be possible to develop locally specific seasonal, day of the week, and time of day expansion factors for any future short-term manual count efforts.

3.5. Estimated Commuter and Utilitarian Bicyclists

A key goal of this Plan is to maximize the number of bicyclists in order to realize multiple benefits, such as improved health, less traffic congestion, and maintenance of ambient air quality levels. In order to achieve this, a better understanding of the number of existing bicyclists is needed. The US Census collects only the primary mode of travel to work and it does not consider bicycle use when bicyclists ride to transit or school. Alta Planning + Design has developed a bicycle model that estimates usage based on available empirical data.

This model uses Bakersfield specific data from the US Census American Community Survey (ACS); National Safe Routes to School survey; and Federal Highway Administration College Commute Survey. The calculation steps are outlined below.

Bicycle to work mode share:

- Number of bicycle commuters, derived from the ACS
- Work at home bicycle mode share
- Number of those who work from home and likely bicycle, derived from assumption that five percent of those who work at home make at least one bicycle trip daily.

Bicycle to school mode share:

- Number of students biking to school, derived from multiplying the K-8 student population by the national bike to school average rate of two percent
- Number of college students biking to the CSU Bakersfield and Bakersfield College, derived from an assumption that one percent of those students living in Bakersfield bike.

Number of those who bike to transit:

- Number of people who bicycle to GET and Kern Regional Transit Stations, assuming that five percent of transit patrons use bicycles to access the station and/or their destination.

As shown on Table 3-6, there are an estimated 5,564 existing daily bicycle commute trips in Bakersfield. This is an order-of-magnitude estimate based on available data and does not include recreational trips. Table 3-7 presents the estimated air quality benefits.

Table 3-6: Existing Bicycling Demand (Estimated)

Variable	Figure	Source
Existing study area population	352,429	2011 ACS, B01003 1-Year Estimates
Existing employed population	139,907	2011 ACS, B08301 1-Year Estimates
Existing bike-to-work mode share	0.4%	2011 ACS, B08301 1-Year Estimates
Existing number of bike-to-work commuters	560	Employed persons * by bike-to-work mode share
Existing work-at-home mode share	2.3%	2011 ACS, B08301 1-Year Estimates
Existing number of work-at-home bike commuters	161	Assumes 5% of population working at home makes at least one daily bicycle trip
Existing transit-to-work mode share	1.2%	2011 ACS, B08301 1-Year Estimates
Existing transit bicycle commuters	84	Employed persons multiplied by transit mode share. Assumes 5% of transit riders access transit by bicycle
Existing school children, ages 5-14 (grades K-8)	58,856	2011 ACS, S0101 1-Year Estimates
Existing school children bicycling mode share	2.0%	National Safe Routes to School surveys, 2003.
Existing school children bike commuters	1,177	School children population multiplied by school children bike mode share
Existing number of college students in study area	8,002	CSU Bakersfield 2011 Fast Facts
Existing estimated college bicycling mode share	10.0%	Review of bicycle commute share in seven university communities (source: National Bicycling & Walking Study, FHWA, Case Study No. 1, 1995).
Existing college bike commuters	800	College student population multiplied by college student bicycling mode share
Existing total number of bike commuters	2,782	Total bike-to-work, school, college and utilitarian bike trips. Does not include recreation.
Total daily bicycling trips	5,564	Total bicycle commuters x 2 (for round trips)

Table 3-7: Bicycling Air Quality Impact

Existing Vehicle Trips and Miles Reduction		
Vehicle Trips per Weekday	1,734	Assumes 73% of vehicle trips replaced by bicycle trips for adults/college students and 53% for school children
Vehicle Trips per Year	452,574	Reduced number of weekday vehicle trips multiplied by 261 (weekdays in a year)
Vehicle Miles per Weekday	9,505	Assumes average round trip travel length of 8 miles for adults/college students and 1 mile for schoolchildren
Vehicle Miles per Year	2,480,775	Reduced number of weekday vehicle miles multiplied by 261 (weekdays in a year)
		Existing Emissions Reduction
Hydrocarbons (lbs/weekday)	28	Daily mileage reduction multiplied by 1.36 grams per reduced mile
PM10 (lbs/weekday)	0	Daily mileage reduction multiplied by 0.0052 grams per reduced mile
PM2.5 (lbs/weekday)	0	Daily mileage reduction multiplied by 0.0049 grams per reduced mile
NOX (lbs/weekday)	20	Daily mileage reduction multiplied by 0.95 grams per reduced mile
CO (lbs/weekday)	260	Daily mileage reduction multiplied by 12.4 grams per reduced mile
C02 (lbs/weekday)	7,732	Daily mileage reduction multiplied by 369 grams per reduced mile
Hydrocarbons (lbs/year)	7,438	Yearly mileage reduction multiplied by 1.36 grams per reduced mile
PM10 (lbs/year)	28	Yearly mileage reduction multiplied by 0.0052 grams per reduced mile
PM2.5 (lbs/year)	27	Yearly mileage reduction multiplied by 0.0049 grams per reduced mile
NOX (lbs/year)	5,196	Yearly mileage reduction multiplied by 0.95 grams per reduced mile
CO (lbs/year)	67,818	Yearly mileage reduction multiplied by 12.4 grams per reduced mile
C02 (lbs/year)	2,018,125	Yearly mileage reduction multiplied by 369 grams per reduced mile

Source: Emissions rates from EPA report 420-F-05-022 "Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline-Fueled Passenger Cars and Light Trucks." 2005.

3.6. Collision Analysis

Analysis of bicycle related collision data provides the city with a basis for infrastructure and programmatic recommendations that can improve safety. Collision data comes from the Statewide Integrated Traffic Report System (SWITRS). Because SWITRS is a repository for all police departments to submit traffic records, data is sometimes incomplete due to varying reporting methods. While collision data is sometimes incomplete and does not capture the "near misses," it does provide a general sense of the safety issues facing bicyclists in Bakersfield.

This chapter reviews collision data from the years 2006 through 2010 to identify where collisions frequently occur and what factors influenced the collisions.

Table 3-8: Annual Reported Bicycle Related Collisions (2006-2010)

Year	Total Collisions
2006	56
2007	54
2008	54
2009	43
2010	49
Total	**256**

Source: SWITRS

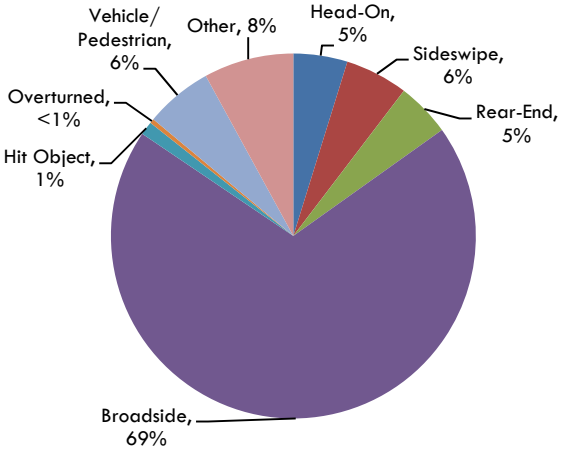

Figure 3-3: Type of Collision

3.6.1 Annual Collision Totals

In this time period, there were 256 total reported collisions involving bicyclists. The number of bicycle related collisions remained fairly constant throughout the five-year period (Table 3-8) dipping slightly in 2009 and rising again in 2010. It should be noted, however, that many bicycle collisions go unreported and the true number may be higher than shown.

Compared to other California cities with populations over 250,000, Bakersfield ranked the lowest by average population.[6]

Figure 3-7 maps these collisions. The vast majority of collisions occurred in downtown Bakersfield or adjacent to downtown to the east and south.

3.6.2 Collision Types

Figure 3-3 breaks down the collision types by percentage The most typically reported collision type is a broadside collision. A broadside collision is a collision where the bicycle and the car were traveling at right angles to each other before the crash. .

This indicates those involved were either not obeying traffic control devices (e.g. signals, stop signs) or ensuring it was safe to cross. While SWITRS data does not note if the collision included sidewalk riding, sidewalk bicycling puts the bicyclist at risk because drivers do not expect a faster (relative to a pedestrian) bicyclist, particularly those riding against traffic.

[6] http://www.ots.ca.gov/media_and_research/Rankings/default.asp#what

3.6.3 Time of Day

As shown in Figure 3-4, the majority of collisions have historically occurred between 2pm and 8pm. Approximately 26% of the collisions occurred during typical school dismissal and after school activities times. This was only surpassed by collisions during the evening peak period (29% of collisions).

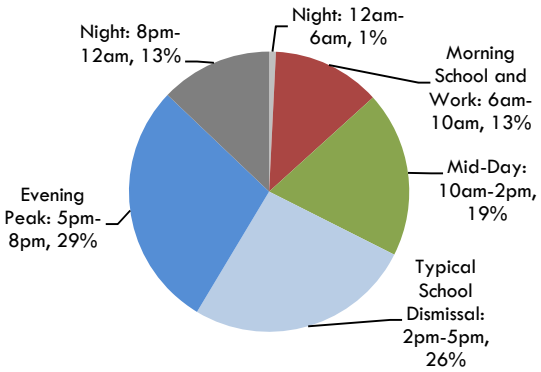

Figure 3-4: Time of Day

While most of the collisions occurred in the afternoon and evening, records show collisions typically occur during daylight hours (Figure 3-5)

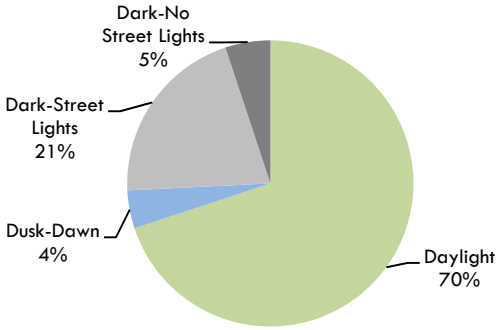

Figure 3-5: Bicycle Collisions - Lighting

3.6.4 Parties Involved

The most common age group involved in reported bicycle related collisions were children under 18 years old (Figure 3-6, 40%). Over 50% of reported collisions involved people under 25 years old. While these age groups may bicycle more than their seniors, collision rates are not possible to determine without more detailed exposure data. However, this may indicate a need for focused bicycling education for younger riders.

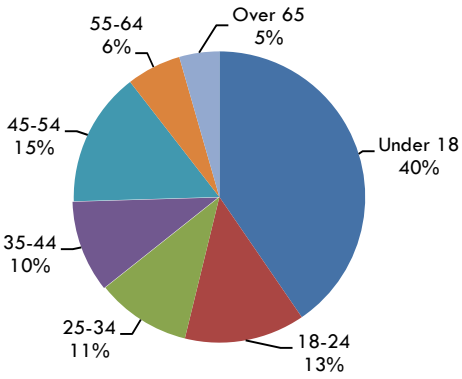

Figure 3-6: Age of Party Involved

3.6.5 Common Violations

Identification of the most common violations in bicycle-related collisions and the locations where they occurred can inform the City of possible engineering or education needs[7]. A specific recurring violation can be the result of unclear traffic controls or roadways not designed for bicycle use. It can also be the result of bicyclists not aware of or complying with the "rules of the road" or not feeling comfortable riding with traffic.

Table 3-9 lists the top five most common reported traffic violations and the specific locations where these violations most frequently occur.

Frequent traffic violations include riding on the wrong side of the road, automobile right of way, disobeying traffic signals and signs, and improper turning.

These violations suggest the need for bicycle and motorist education and direct and logical bikeways on or parallel to busy roadways.

Table 3-9: Common Collision Related Violations and Location

Violation	% of Collisions	Frequently Occurs At
Wrong Side of Road	32.0%	Akers Road California Avenue Columbus Street
Automobile Right of Way	23.8%	21st Street 30th Street California Avenue
Disobeying Traffic Signals and Signs	10.9%	Baker Street (at Truxtun Avenue and Sumner Street) Brundage Lane Ming Avenue
Improper Turning	10.5%	Gage Street Ming Avenue
Unknown	5.9%	34th Street

Table 3-10 lists the traffic violations by the at fault party. Bicyclists were most commonly cited at fault for bicycle related collisions between 2006 and 2010. They were most at fault for riding on the wrong side of the road, disobeying traffic signals and signs, and failing to yield to right-of-way. Motorists, including truck drivers, were at fault for 18% of collisions, mostly for disobeying bicyclist right of way.

Table 3-10: Traffic Violation by Party at Fault

Violation	Bicycle	Vehicle	Not Stated	Total
Wrong Side of Road	78	1	3	82
Vehicle Right of Way	40	17	4	61
Other or Unknown	12	3	15	30
Traffic Signals and Signs	23	3	2	28
Improper Turning	14	6	7	27
Under the influence	5	5		10
Unsafe Starting / Backing		7	1	8
Unsafe Speed	3	2	2	7
Improper Passing	1	1		2
Pedestrian Right of Way		1	1	2
Unsafe Lane Change	1			1
Lights / Brakes	1	1		2
Total	178	47	31	256
% Party at Fault	**70%**	**18%**	**12%**	100%

Wrong way riding may be due to a number of factors.

Table 3-11: Corridors Where Bicycle Related Collisions

[7] The violation data may be subject to systemic officer judgment biases.

Violators may not know the rules of the road or may not feel comfortable bicycling with traffic or crossing major roadways. For example, Columbus Street is a five-lane roadway with limited controlled intersections. Many bicyclists will ride against traffic for short distances rather than navigate complex intersections. Table 3-11 lists the most frequent corridors where wrong way riding was listed as a factor in the reported bicycle involved collision.

Involved Wrong Way Riding

Corridor	No. of Collisions
Columbus Street	4
Union Avenue	3
California Avenue	3
Old River Road	3
S H Street	3
White Lane	3
Ming Avenue	3

3.6.6 Frequent Collision Locations

Table 3-12 lists the corridors with the most collisions as well as roadway and bikeway descriptions.

Table 3-12: Top Collision Corridors

Corridor	No. of Collisions	Roadway Type	Speed Limit[8]	No. Travel Lanes[9]	Bikeway Type
White Lane	11	Arterial	55	8	Bike lanes
Ming Avenue	9	Arterial	45	8	Bike lanes
California Avenue	9	Arterial	45	8	Bike lanes
21st Street	7	Local	35	5	Bike lanes
Union Avenue	7	Arterial	45	8	None
S H Street	6	Arterial	45	3	None
H Street	6	Collector	40	5	None
RT 178	5	Freeway	varies	4	Shoulder
New Stine Road	5	Arterial	45	8	Bike Lanes
34th Street	5	Collector	40	6	Wide curbside lane
Baker Street	5	Collector	40	5*	None
Brundage Lane	5	Arterial	40	6	None

** with parallel parking*

These roadways may have more collisions than others because they:

- May carry more bicycle traffic as they provide logical and direct north/south connections, and are near attractor or popular destinations.
- Have higher traffic volumes and speeds, leading many bicyclists to ride either on sidewalks or against the flow of traffic (like runners often do, to observe oncoming vehicles) because they don't feel comfortable taking the lane. Both behaviors increase crash risk.

Table 3-13 lists the intersections with the most collisions as well as roadway and bikeway types. With a few exceptions (e.g. Gage Street / Kentucky Street), bicycle-involved collisions were more often at intersections with higher speed limits and numbers of travel lanes.

[8] Highest speed limit is listed when this criteria differs along the corridor.
[9] The number of lanes identified is the highest number along the corridor.

Table 3-13: Top Collision Intersections

Intersection	No. of Collisions	Roadway Type[10]	Speed Limit[11]	No. Travel Lanes[12]	Bikeway Class[13]
1. Ming Avenue / New Stine Road	4	Arterial / Arterial	45 / 45	8 / 8	2 / 2
2. Monitor Street / White Lane	3	Collector / Arterial	40 / 40	4 / 5	2 / 2
3. 19th Street / Union Avenue	2	Local / Arterial	25 / 50	2 / 7	None / None
4. 24th Street / Beech Street	2	Arterial / Local	40 / 25	5 / 2	None / None
5. 30th Street / Union Avenue	2	Local / Arterial	30 / 45	3 / 0	3 / None
6. 34th Street / Chester Avenue	2	Collector / Arterial	40 / 35-40	5 / 6	None / 2
7. 34th Street / Union Avenue	2	Collector / Arterial	40 / 45	6 / 7	None / None
8. Akers Road / White Lane	2	Collector / Arterial	45 / 50	4 / 7	3 / 3
9. Ashe Road / White Lane	2	Arterial / Arterial	50 / 50-55	7 / 8	2 / 2
10. Baker Street / E Truxtun Avenue	2	Collector / Arterial	25 / 40	4 / 6	None / None
11. Baker Street/ Sumner Street	2	Collector/Collector	25/35	4 / 3	None / None
12. Benton Street / Ming Avenue	2	Local / Arterial	25 / 45	2 / 5	None / None
13. Brundage Lane / H Street	2	Arterial / Collector	40 / 40-45	5 / 5	3 / None
14. Brundage Lane / P Street	2	Arterial / Collector	40 / 40	5 / 4	3 / 2
15. California Avenue / Chester Lane	2	Arterial / Local	40 / 25	6 / 3	None / None
16. California Avenue / Oak Street	2	Arterial / Arterial	40 / 40	8 / 7	None / 2
17. California Avenue / Stockdale Hwy / New Stine Road	2	Arterial / Arterial / Arterial	40 / 45 / 45	9 / 8 / 9	2 / 2 / 2
18. East California Avenue / Haley Street	2	Arterial / Collector	40 / 35	7 / 4	None / None
19. Gage Street / Kentucky Street	2	Local / Local	25 / 25	2 / 3	None / None
20. Golden State Avenue / M Street	2	Highway / Local	45 / 25	7 / 2	None / None
21. Kyner Avenue / Monitor Street	2	Local / Collector	25 / 40	2 / 3	None / 2
22. McDonald Way / Ming Avenue	2	Local / Arterial	25 / 45	2 / 7	None / None

For both corridors and intersections, no obvious correlation exists between collisions and the presence of bikeways.

[10] The highest roadway type is listed when this criteria differs on either side of the intersection
[11] Highest speed limit is listed when this criteria differs on either side of the intersection
[12] The number of lanes identified is the maximum number at the approach/departure of the intersection (i.e., thru + right turn + left turn lanes)
[13] When bikeway class changes on either side, the class with this highest level of separation is noted

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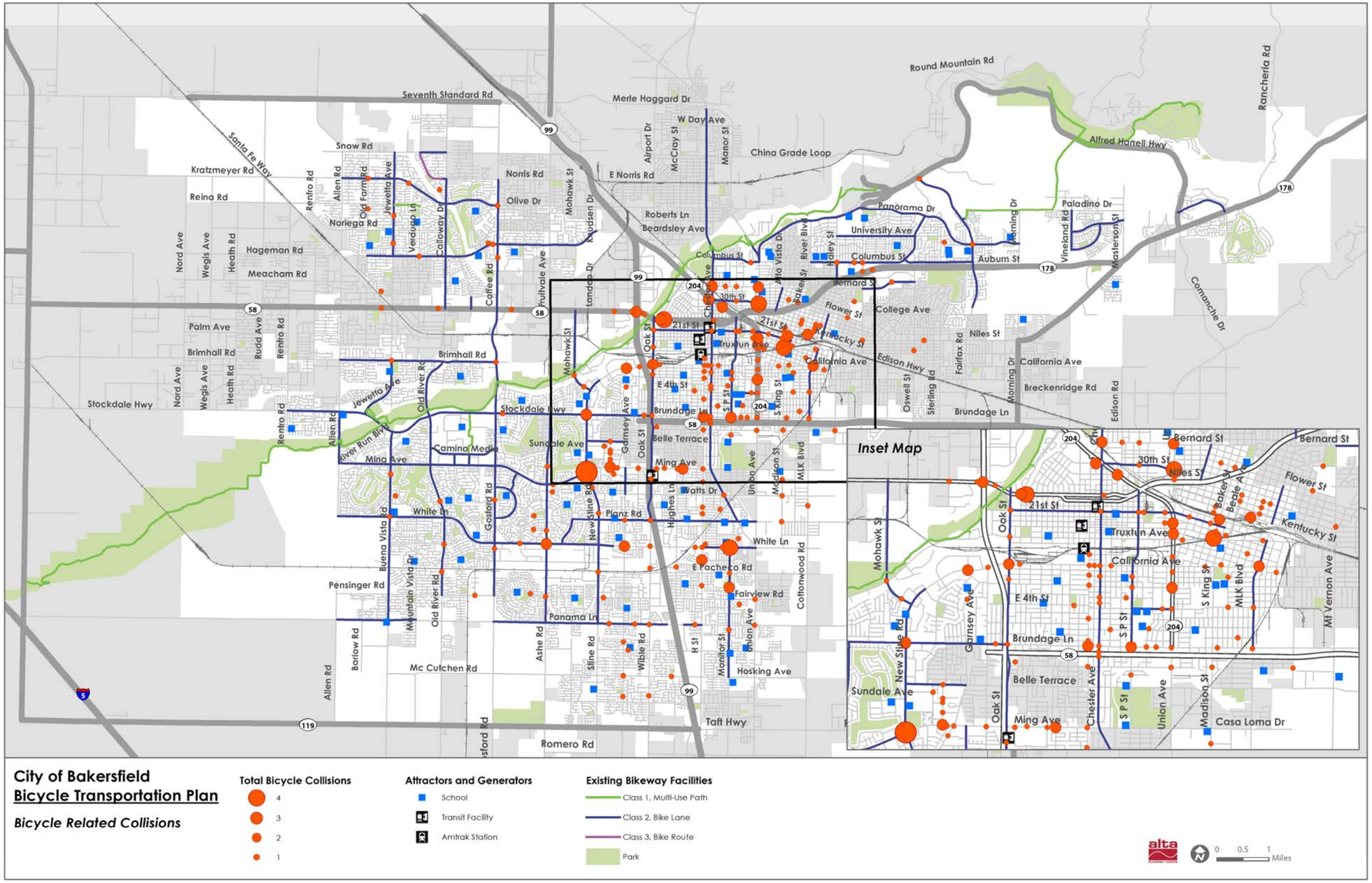

Figure 3-7: Reported Bicyclist-Involved Collision Map

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3.7. Gap Analysis

This section describes the five types of gaps that can occur in a bikeway network and organizes gaps in Bakersfield into these categories. The gaps are then mapped and help inform the network recommendations.

3.7.1 Gap Types

Spot Gaps

Spot gaps refer to point-specific locations lacking dedicated bicycle facilities or other treatments to accommodate safe and comfortable bicycle travel. Spot gaps primarily include intersections and other vehicle/bicycle conflict areas posing challenges for riders. Examples include bike lanes on a major street "dropping" to make way for right turn lanes at intersection, or a lack of intersection crossing treatments for bicyclists on a bikeway as they cross a major street.

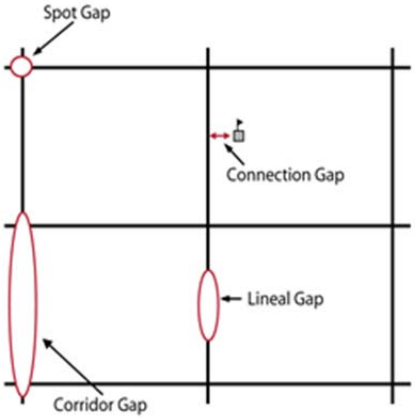


Figure 3-8: Bikeway Gap Types

Connection Gaps

Connection gaps are missing segments (1/4 mile long or less) on a clearly-defined and otherwise well-connected bikeway. Major barriers standing between bicycle destinations and clearly defined routes also represent connection gaps. Examples include bike lanes on a major street "dropping" for several blocks to make way for on-street parking; a discontinuous off-street path; or a freeway standing between a major bikeway and a school.

Lineal Gaps

Similar to connection gaps, lineal gaps are 1/4 mile to one-mile long missing link segments on a clearly defined and otherwise well-connected bikeway.

Corridor Gaps

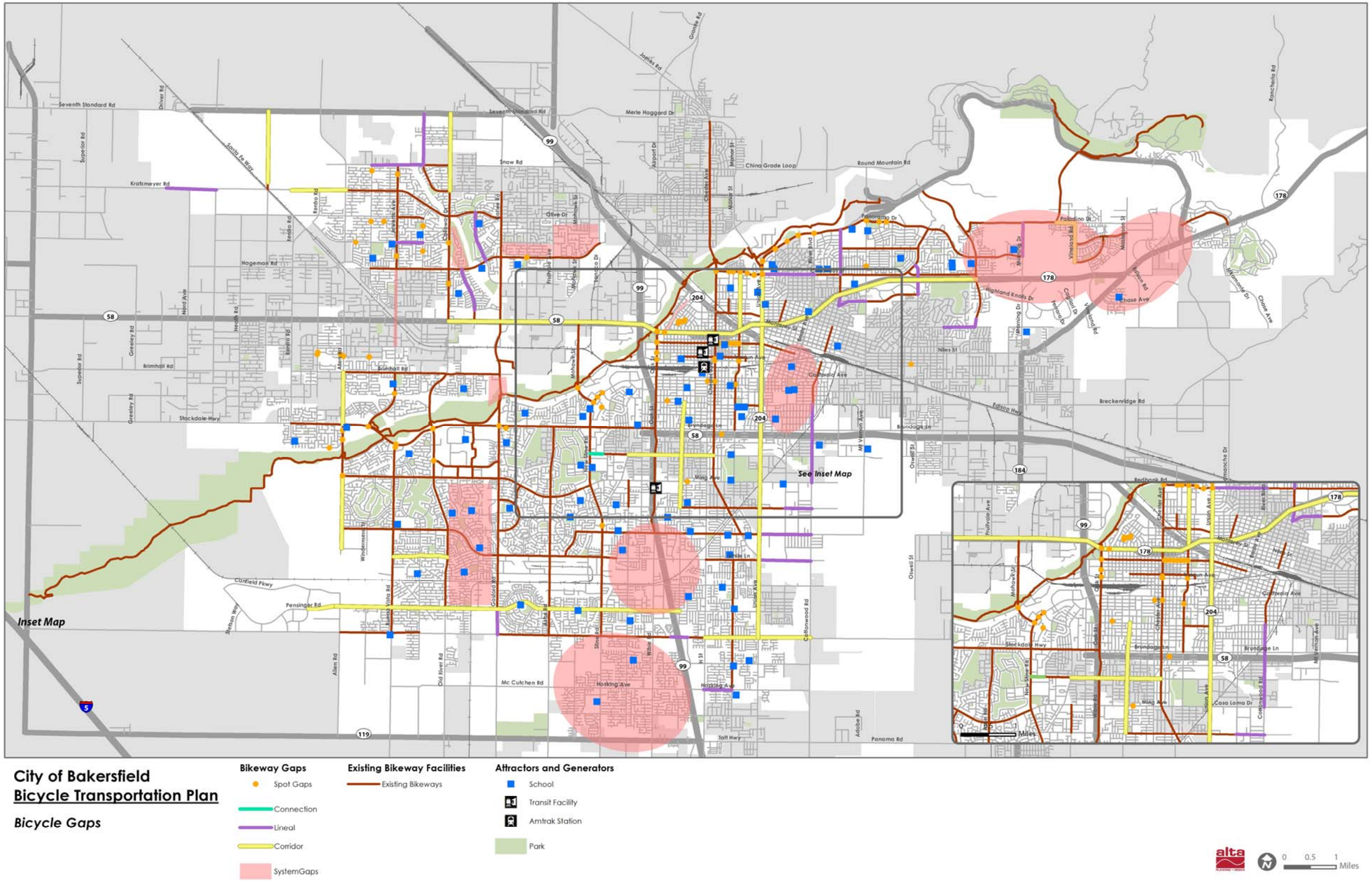
On clearly-defined and otherwise well-connected bikeways, corridor gaps are missing links longer than one mile. These gaps will sometimes encompass an entire street corridor where bicycle facilities are desired but do not currently exist.

System Gaps

Larger geographic areas (e.g., a neighborhood or business district) where few or no bikeways exist are identified as system gaps. System gaps exist in areas where a minimum of two intersecting bikeways would be required to achieve the target network density. Gaps typically exist where physical or other constraints impede bicycle network development.

3.7.2 Gap Analysis Findings

Bakersfield's bikeway network gaps fall into all five types presented above. Gaps are mapped in Figure 3-9. Additional gaps not included in the tables are system gaps in southwest, southeast, and northeast Bakersfield, where bikeways are generally not present.



City of Bakersfield
Bicycle Transportation Plan

Bicycle Gaps

Bikeway Gaps
- Spot Gaps
- Connection
- Lineal
- Corridor
- SystemGaps

Existing Bikeway Facilities
- Existing Bikeways

Attractors and Generators
- School
- Transit Facility
- Amtrak Station
- Park

alta

0 0.5 1 Miles

Figure 3-9: Bikeway Gaps

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3.8. Community Identified Needs

Community input was sought through an online survey, direct liaison with advocacy groups, and an advertised public workshop.

3.8.1 Community Survey

The City of Bakersfield solicited community input through an online survey on desired types and locations of bicycle improvements. The survey was open from September 24 to December 20, 2012. A total of 431 community members responded.

Respondent Characteristics and Behaviors

As shown in Figure 3-10, the majority of respondents (approximately one-fourth) were between the ages of 45-54; the next highest age range was 25-34 years (one-fifth of respondents). Gender equality has been shown to be an indicator of the perceived safety of bicycling in a given transportation system[14]. The survey respondents were 62 percent male and 38 percent female.

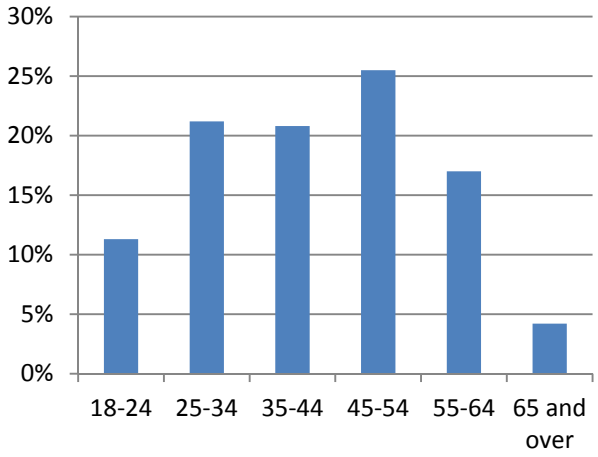


Figure 3-10: Age Distribution of Survey Respondents

Almost half of survey respondents typically drive alone for distances less than one mile (Figure 3-11). This group could potentially shift their drive alone trips to bicycle trips as this is a reasonably easy distance to commute by bike. About one-fourth of survey respondents walk and bike respectively for distances less than one mile.

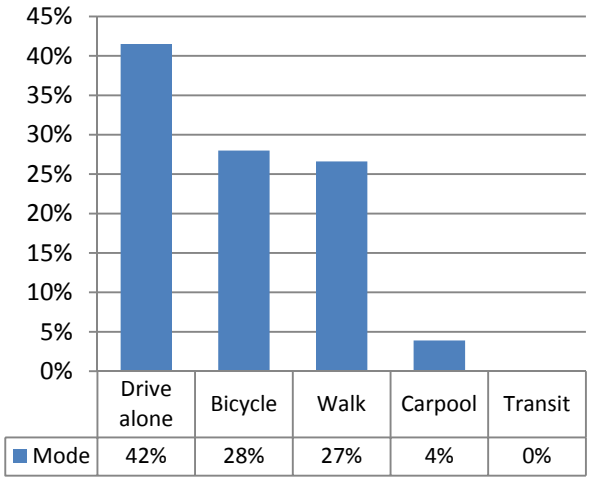


Figure 3-11: Mode Share for Trips Under 1 Mile

[14] http://policy.rutgers.edu/faculty/pucher/irresistible.pdf

The proportion of respondents that drive alone jumps up to two-thirds when trips are up to five miles (Figure 3-12). Bicycling and carpooling mode shares remain constant, but the proportion of people walking declines.

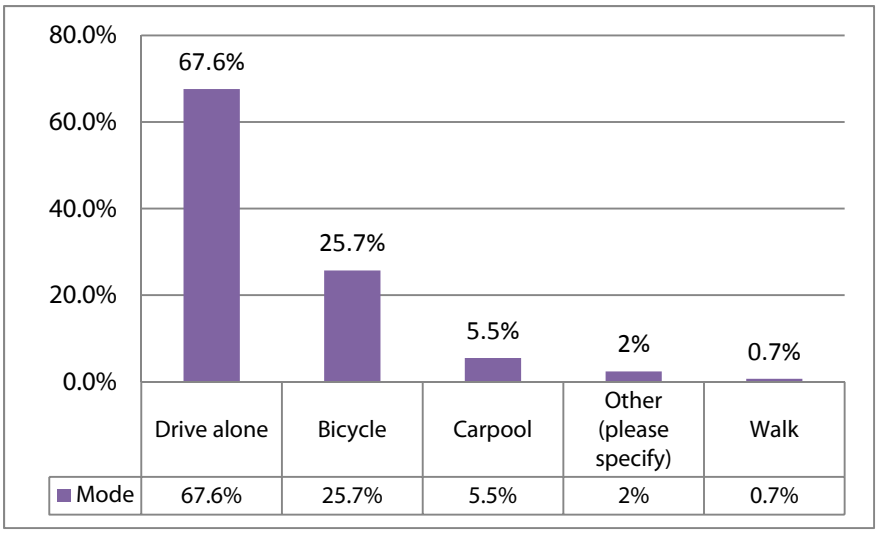


Figure 3-12: Mode Share for Trips Under 5 Miles

Two-thirds of respondents do not take children to school, but of the respondents that do, most drive their children to school and then continue on to another location. The next largest group of respondents drives to school and then back home.

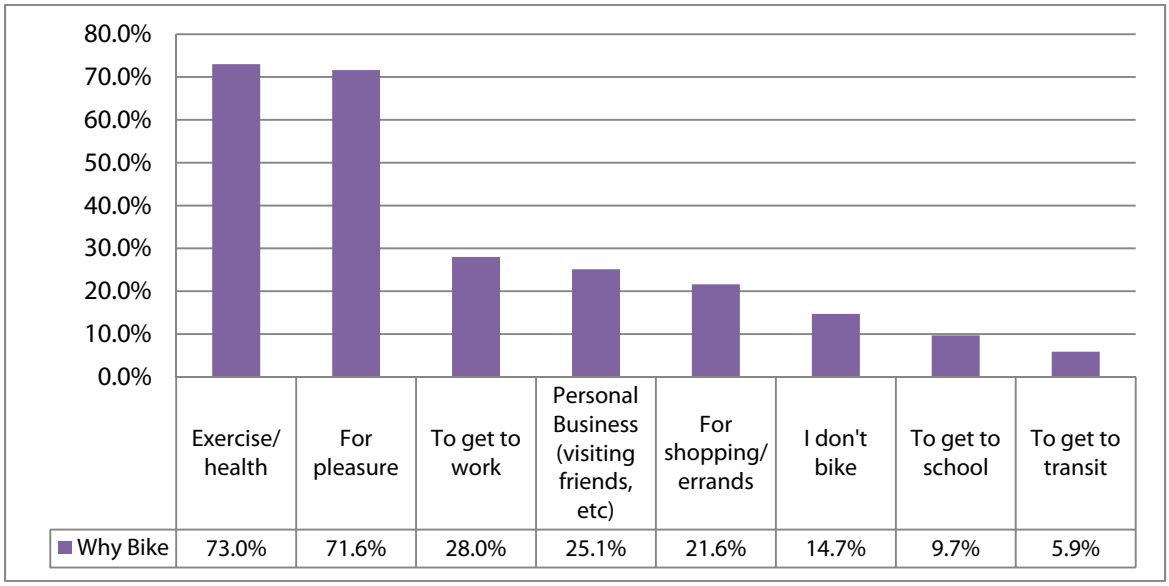


Figure 3-13: Respondents' Reasons for Bicycling

Three-fourths of respondents reported that they ride bicycles for pleasure and exercise/health (Figure 3-13). These were the most frequently selected reasons by a large margin as compared with other reasons for biking. The next most popular reason to bike was to get to work (28% of respondents). With additional educational programs for commuters, it is likely that recreational bicyclists may shift some of their commute trips to

bicycle trips. Providing existing recreational bicyclists with route planning tips and information about gear, such as panniers to carry large loads, may give them the tools they need to try commuting by bike.

In the month prior to the survey, the majority of respondents (30%) biked one to five times, which averaged to approximately once a week or so, and about one-fifth of respondents bike 11 to 20 times per month. 37% of respondents ride 11 miles or more on average while 16% don't ride, suggesting that respondents have a wide range of bicycling abilities.

Community Identified Challenge and Opportunity Areas

Survey respondents identified specific problem areas they avoid when bicycling. These challenge areas are shown in Figure 3-14. The largest words are the challenge areas that respondents identified the most and include Rosedale, Stockdale, Coffee, Calloway, California, Gosford, and Ming. With the exception of the latter two and the addition of downtown, these same streets were nominated when asked where they would ride if facilities were available.

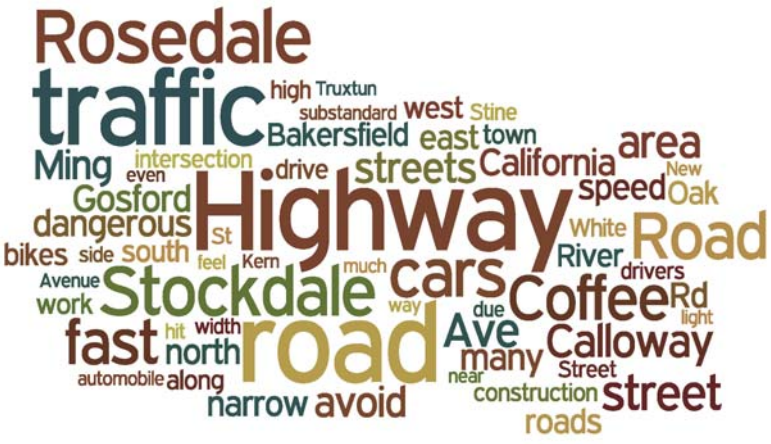


Figure 3-14: Location Bicyclists Avoid in Bakersfield

The survey also asked respondents what prevents them from bicycling more often (Figure 3-15). The most common responses included too many/too fast cars, no bikeways, and poor road conditions. This indicates that survey respondents aren't comfortable biking on higher volume and higher speed roads and the existing bikeways may not connect them to their destinations.

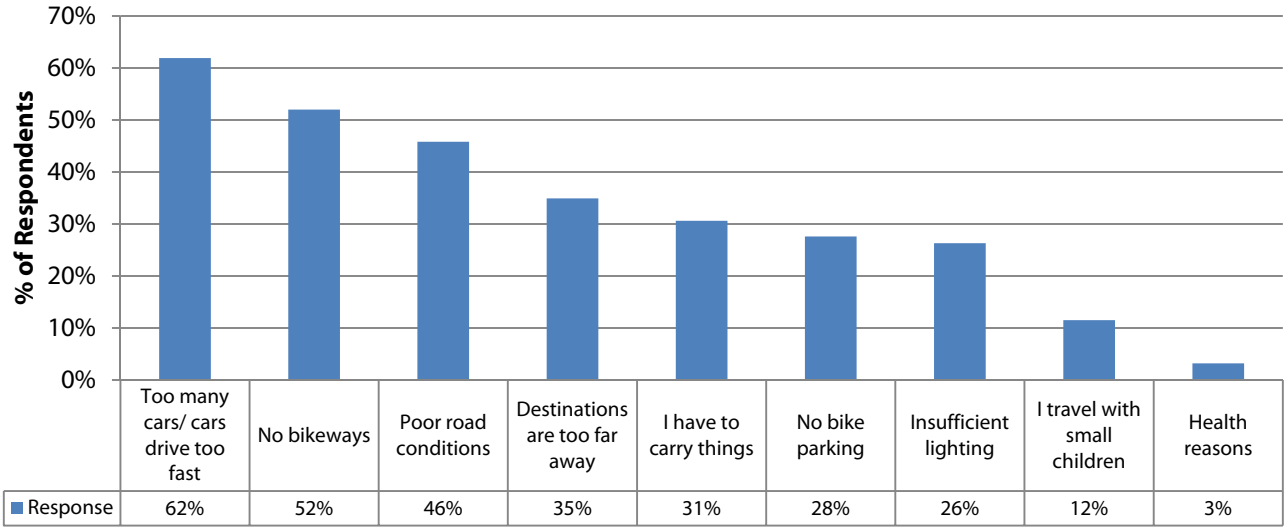


Figure 3-15: Issues that Prevent Respondents from Riding More Often

Bicycling Preferences

Most respondents would prefer off-street paved bike paths and low volume, traffic-calmed bicycle boulevards (Figure 3-16), reiterating that vehicle volumes and speeds are of a concern to residents. This is in line with respondent's favorite places to bike, which include the Kern River Bike Path, Panorama, and Downtown Bakersfield.

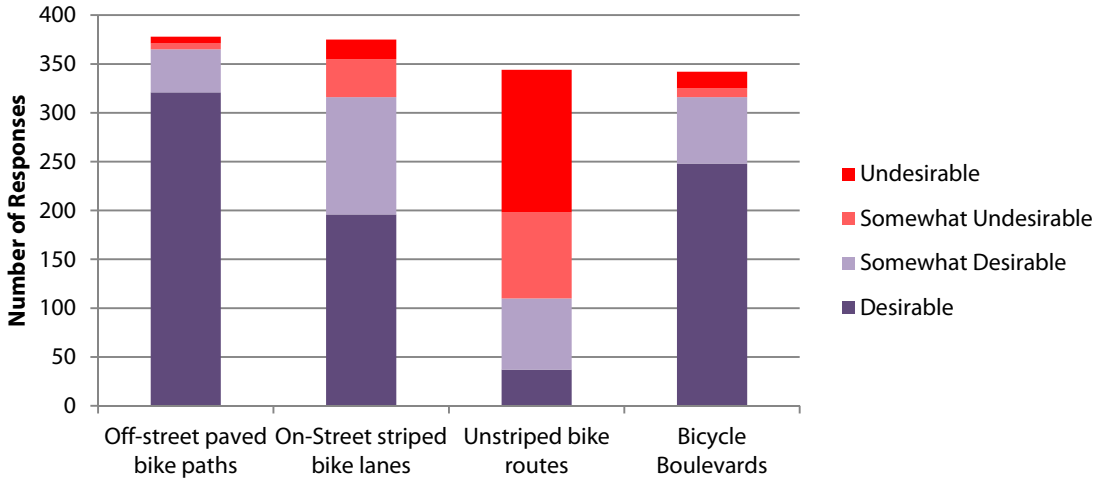


Figure 3-16: Bicycle Facility Preferences

Respondents noted that more bike paths and improved safety from cars are the most important methods of encouraging them to bicycle more often (Figure 3-17).

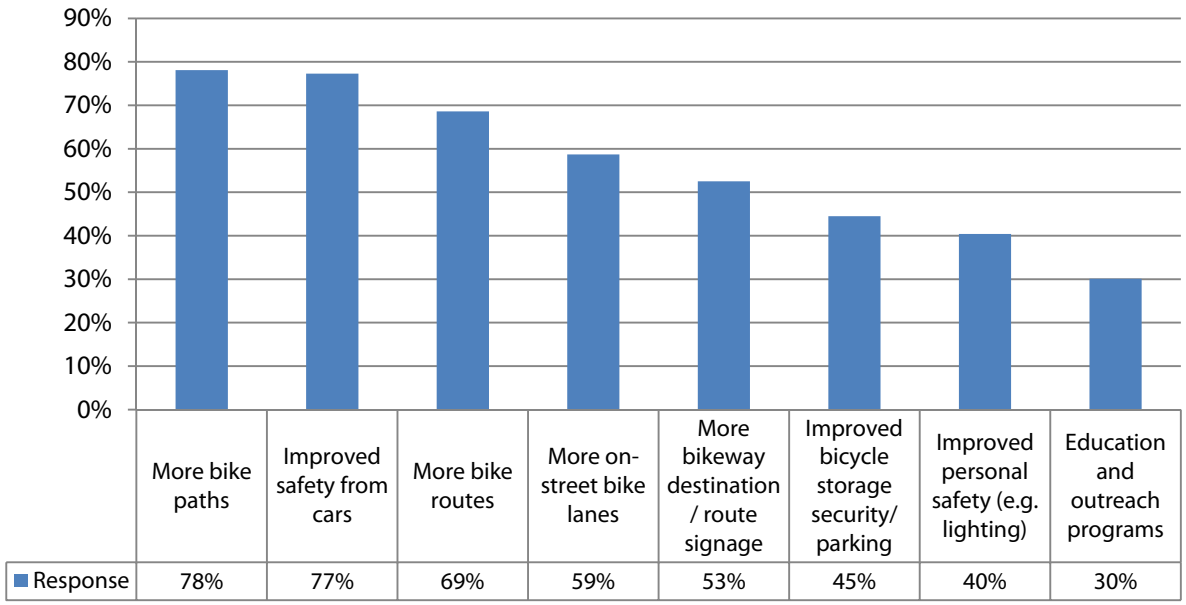


Figure 3-17: Ways to Encourage More Bicycling in Bakersfield

Bikeway destination and route signage is also a priority. As shown in Figure 3-18, more Bakersfield residents would bike to work, parks, community centers, libraries, grocery stores, and for other errands if these improvements were implemented.

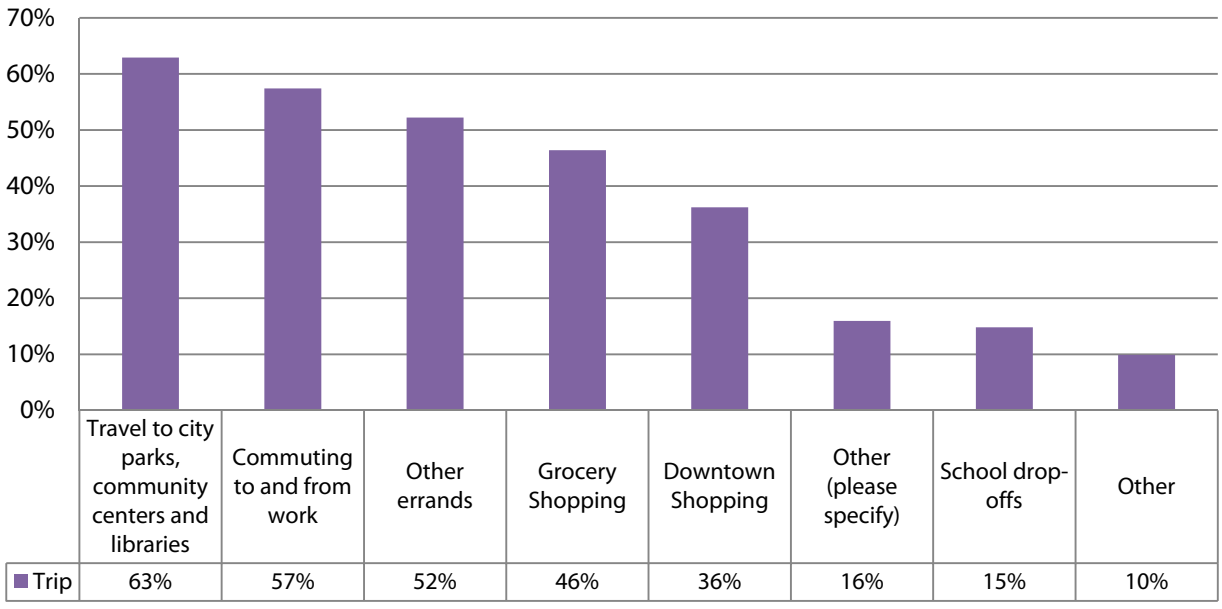


Figure 3-18: Driving Trips Perceived to be Feasible by Bike with Existing Facilities

3.8.2 Public Workshop

A public workshop was held on December 12, 2012 to solicit input on the Bicycle Transportation Plan development. Themes identified in the workshop included:

- Existing bicycle lanes are too narrow for safety or comfort, and frequently "drop" whenever additional motor traffic lanes are squeezed in
- Due to the high motor vehicle travel speeds in Bakersfield, members of the public interested in bicycling will only be convinced to ride by providing facilities with greater separation
- There are many routes which regular bicycling enthusiasts know to ride, especially routes utilizing less trafficked local streets. These routes are not apparent to the general public who otherwise might be inclined to try riding. Several such routes were identified through neighborhoods, especially in the southwest
- The southeast is a social justice area which features many people who are "captive bicyclists" without access to motor vehicles. This area has few bicycle facilities yet high existing and possibly latent demand for bicycling. Future efforts should consider Spanish language outreach to engage this community.

The workshop attendees were given markers and pens to highlight and write on large format maps of the city. Community comments are summarized in Figures 3-19 through 3-23. The "Planned Bikeways" shown on these figures are those from the General Plan and adopted Specific Plans. These were included to determine the community's support for these facilities and are not necessarily the recommendations of this Plan.

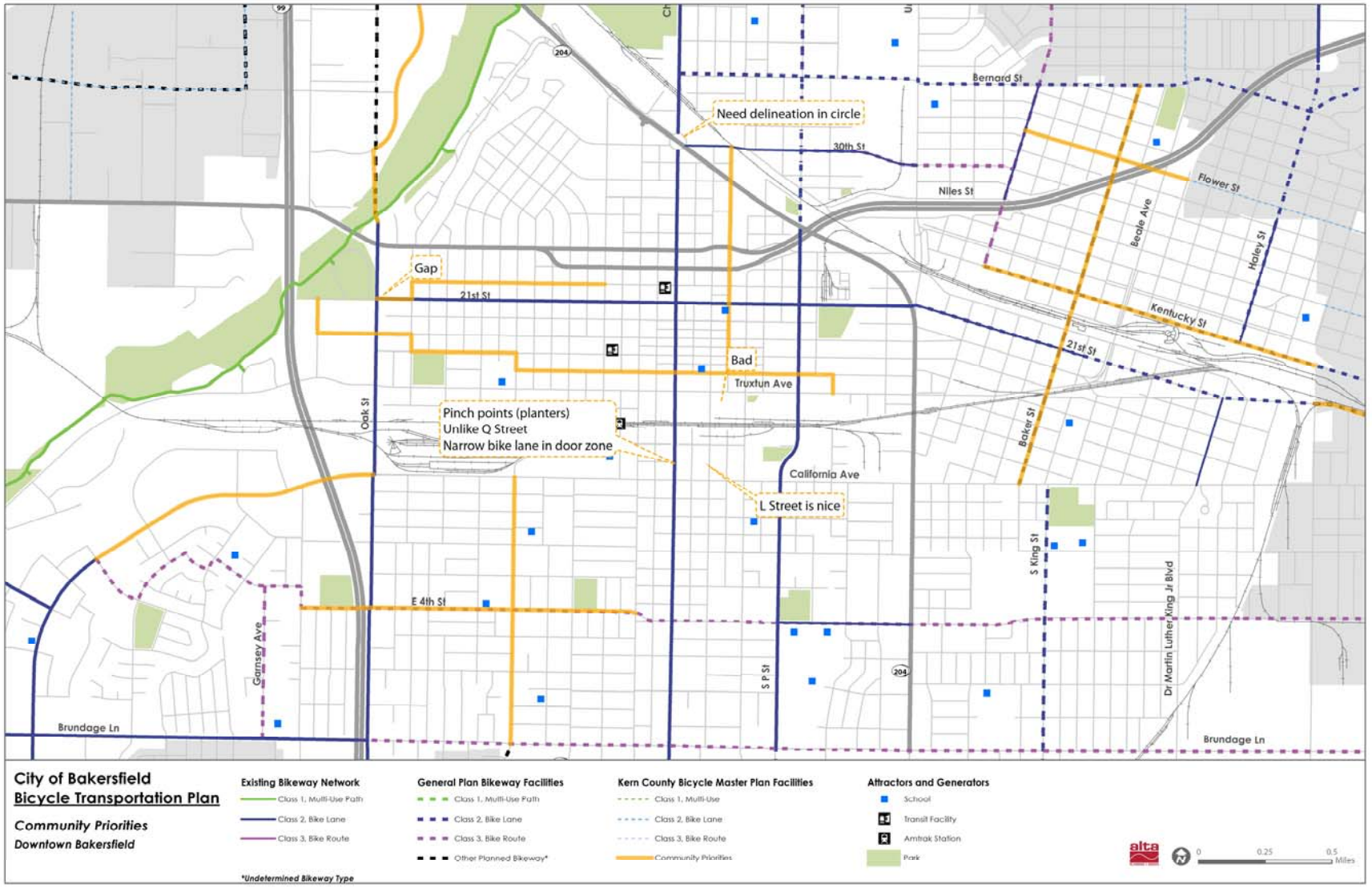


Figure 3-19: Community Priorities - Downtown

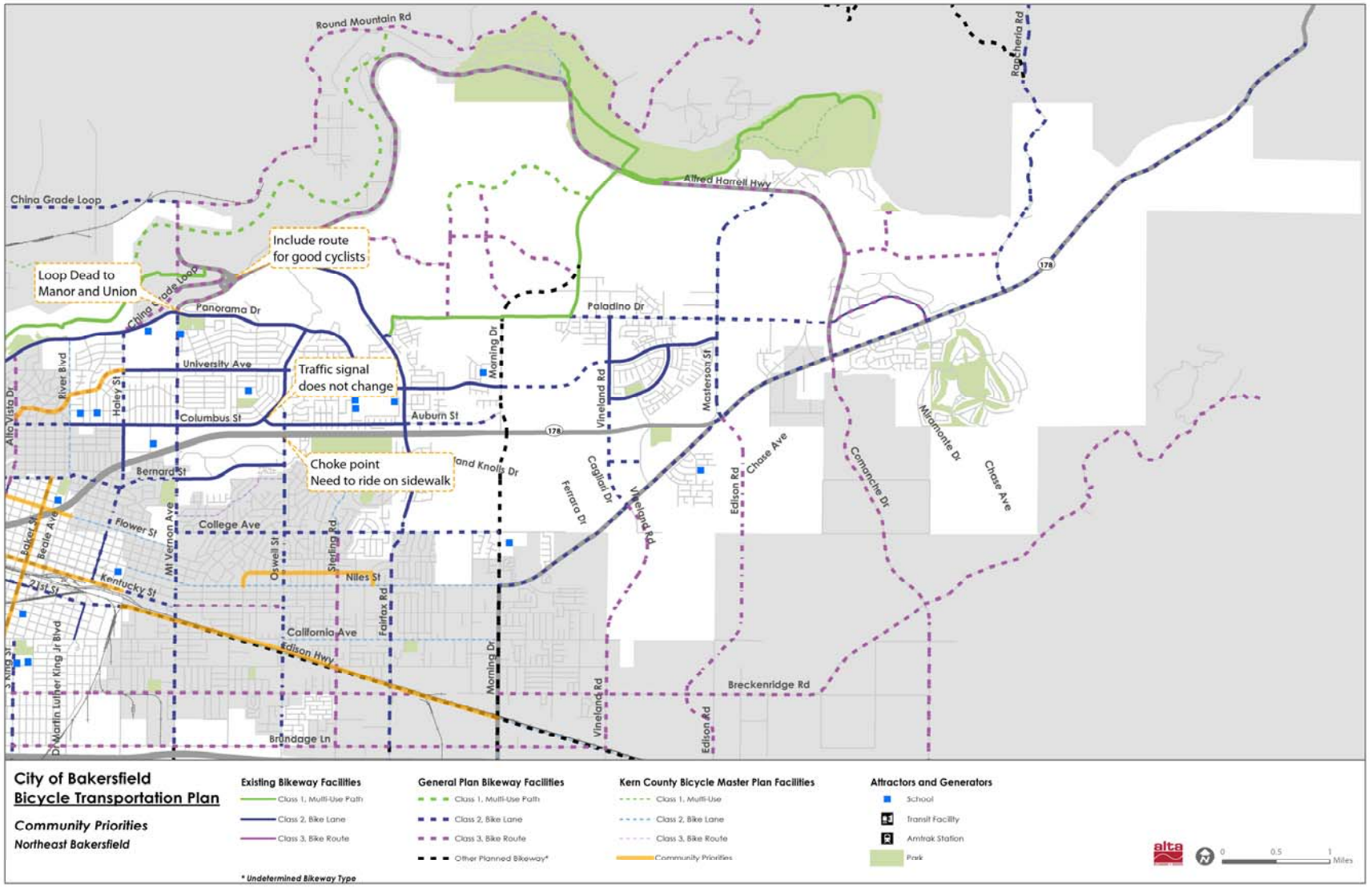


Figure 3-20: Community Priorities - Northeast

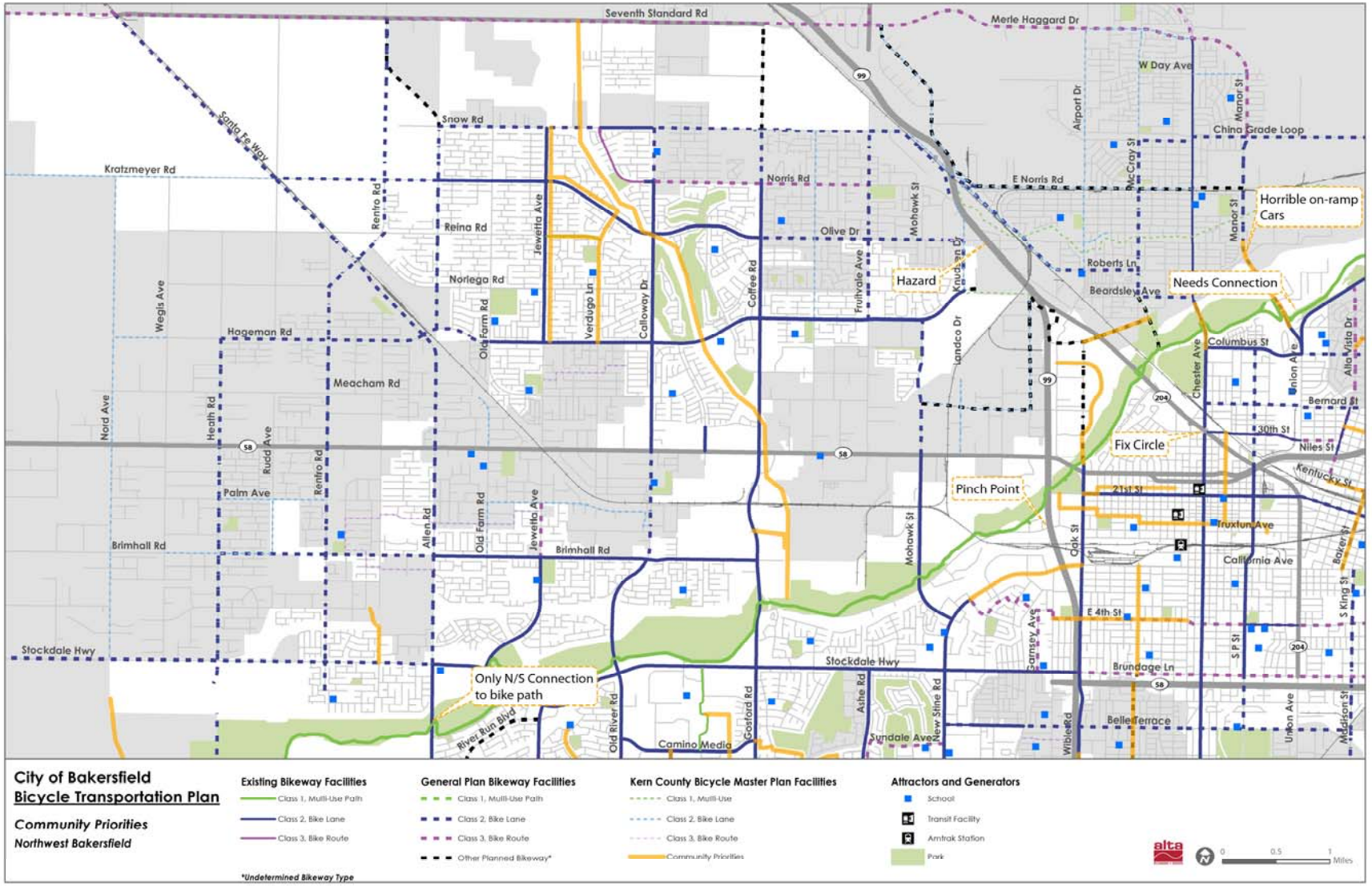


Figure 3-21: Community Priorities Northwest

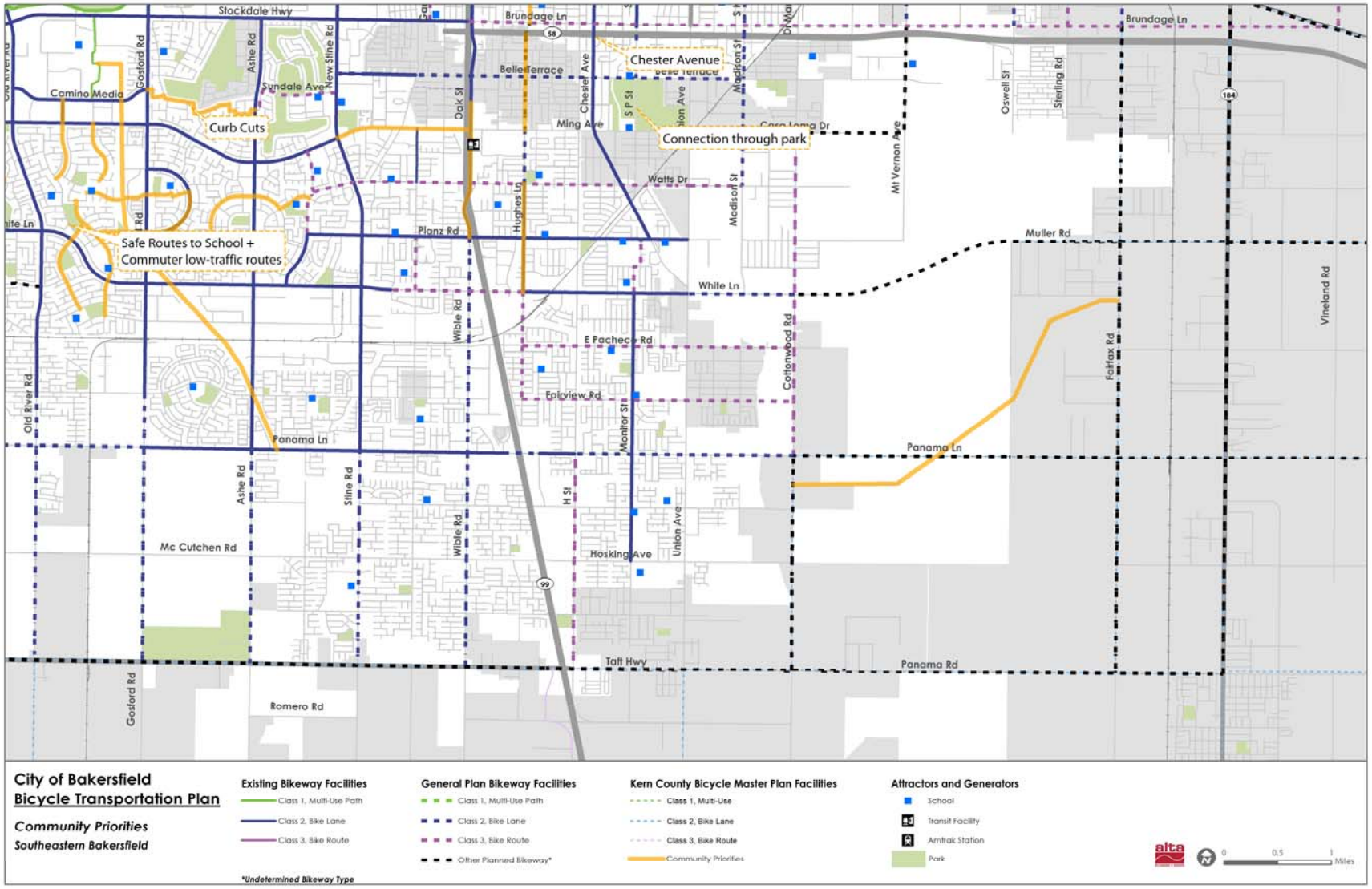


Figure 3-22: Community Priorities Southeast

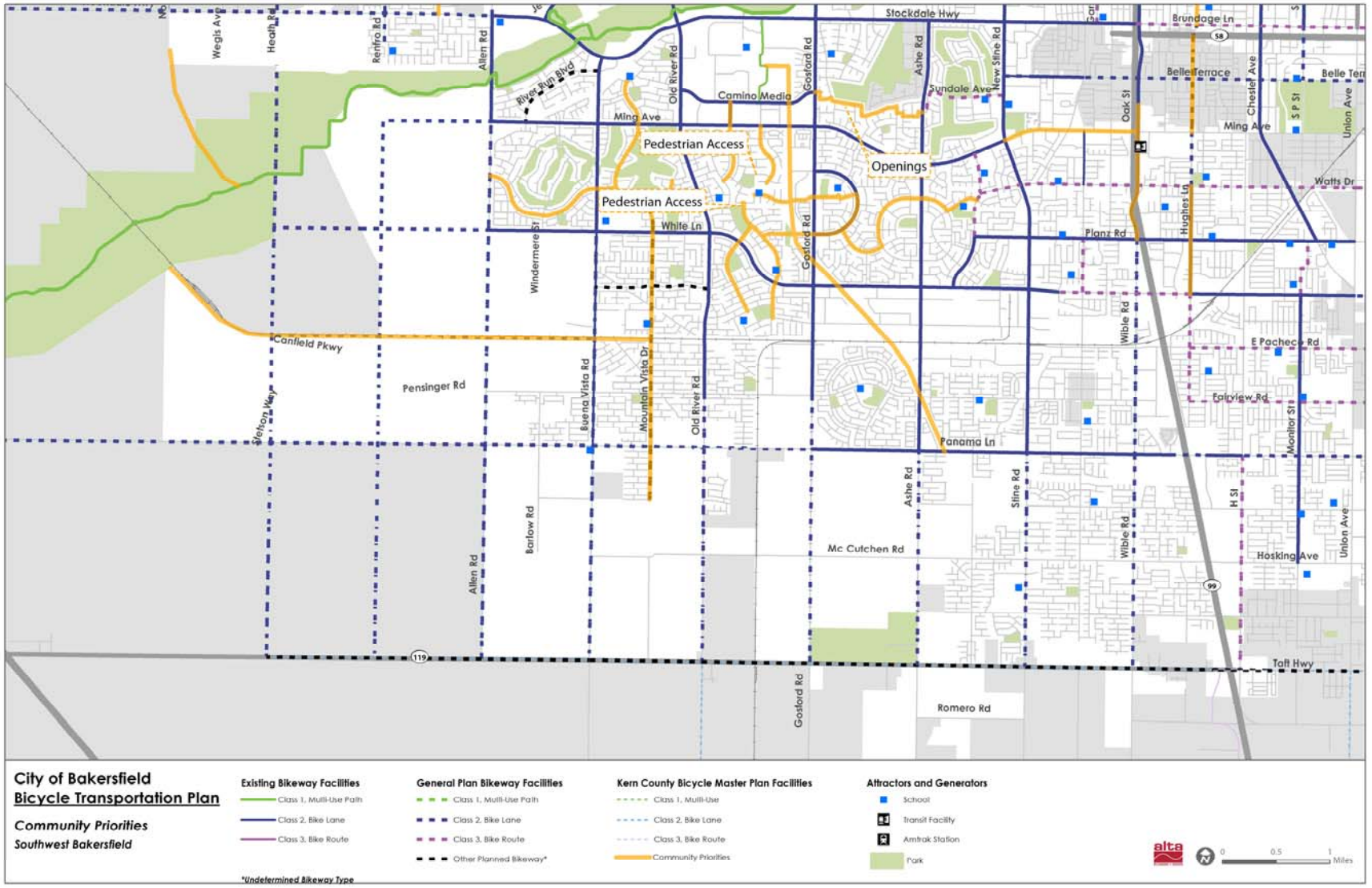


Figure 3-23: Community Priorities Southwest

3.9. Summary of Bicyclist Needs

Infrastructure improvements such as bikeways are needed to connect attractors and generators, improve safety at high collision areas and provide a greater measure of protection for interested but concerned bicyclists. Other infrastructure improvements including signage and parking will support the on-street network. Programmatic improvements such as education, outreach and encouragement may help reduce conflict and encourage more bicycling.

Bicycle attractors and generators such as parks, schools, event centers, retail and major employers need better connections to bikeways. While the City of Bakersfield has invested in its arterial roadway bicycle network, additional routes on lower speed collectors and neighborhood streets are needed to improve access to community destinations.

The collision analysis suggests the need for additional investment in bikeways and/or reductions in vehicle operating speeds in the downtown area and at major intersections through increased enforcement. The analysis reveals a need for bicycle education for both drivers and bicyclists about rights, responsibilities and the rules of the road. As Bakersfield's bikeway network is developed, a bikeway map and distinctive wayfinding signage program will help bicyclists travel on less heavily travelled bicycle priority streets.

Identified Needs and Sources

- Connections to commercial centers *(collision analysis)*
- Connections to parks, community centers, and libraries *(community survey)*
- Bikeway improvements on major corridors including: White Lane, Ming Ave, California Ave, 21st St, and Union Ave *(collision analysis)*
- Bikeway connections on local roadways *(collision analysis/community survey)*
- Bikeway gap closures *(gap analysis)*
- Bike paths and bike boulevards *(community survey)*
- Education programs *(collision analysis)*
- Wayfinding signage *(community survey)*

4. Bikeway Network Recommendations

This chapter presents the proposed bicycle network for the City of Bakersfield based on community input, needs analysis findings, and network recommendations in the Metropolitan Bakersfield (Metro) General Plan. The proposed improvements are intended to make bicycling more comfortable and accessible for bicyclists of all skill levels and trip purposes. This chapter presents the following improvement types:

- **Network Improvements** fill gaps in the existing network so the community has a seamless bicycle network to use. The network improvements include bikeways for consideration that will need further analysis and are identified as needing a feasibility study.
- **Spot Improvements** identify specific locations for focused improvement.

4.1. Network Improvements

This section includes bikeway network recommendations. The recommendations include two categories of bikeways:

- **Confident Commuter:** These bikeways will serve the confident bicyclist who will ride on most roadways if traffic volumes and speeds are not high. They are confident in positioning themselves to share the roadway with motorists.
- **Family Friendly:** These bikeways serve those who are interested in bicycling only on roadways with low traffic volumes and speeds.

The proposed bikeways were developed with consideration for roadway widths, vehicle volumes and speeds, and connections to destinations. Recommendations include three bikeway types:

- Class 1 Multi-Use Paths
- Class 2 Bike Lanes
- Class 3 Bicycle Routes.

In addition to these standard bikeway types, the City of Bakersfield may consider the development of a bicycle boulevard system, to be designed and developed as the recommended bikeways are implemented. The "Family Friendly" network may be the framework for a bicycle boulevard system.

Many of the proposed bikeways will need further study before they can be implemented. These are identified as needing a feasibility study.

Table 4-1 presents a summary of existing bikeway miles and recommended bikeway miles. A key feature is the inclusion of "Family Friendly Bikeway" routes, which avoid the high traffic arterials and connect with many schools.

Table 4-1: Summary of Proposed Bikeways by Class

Class	Existing Bikeway Miles	Recommended Bikeway Miles	Miles of Recommended Family Friendly Bikeways
Class I	27.90	44.55	44.55
Class II	114.39	111.07	7.06
Class III	0.73	104.03	51.15
Totals	**143.01**	**259.65**	**102.76**

There are over 259 miles of new proposed bikeways with over 100 of those miles intended to be family friendly and connect less confident bicyclists to community destinations such as schools and community centers.

The recommended bikeway network is presented on the following pages in a number of figures:

- Figure 4-1: Bikeway Recommendations Overview
- Figure 4-2: Bikeway Recommendations (Northwest)
- Figure 4-3: Bikeway Recommendations (Northeast)
- Figure 4-4: Bikeway Recommendations (Southeast)
- Figure 4-5: Bikeway Recommendations (South)
- Figure 4-6: Bikeway Recommendations (Southwest)

Detailed descriptions of the recommended bikeways are presented in Sections 4.1.1 through 4.1.3.

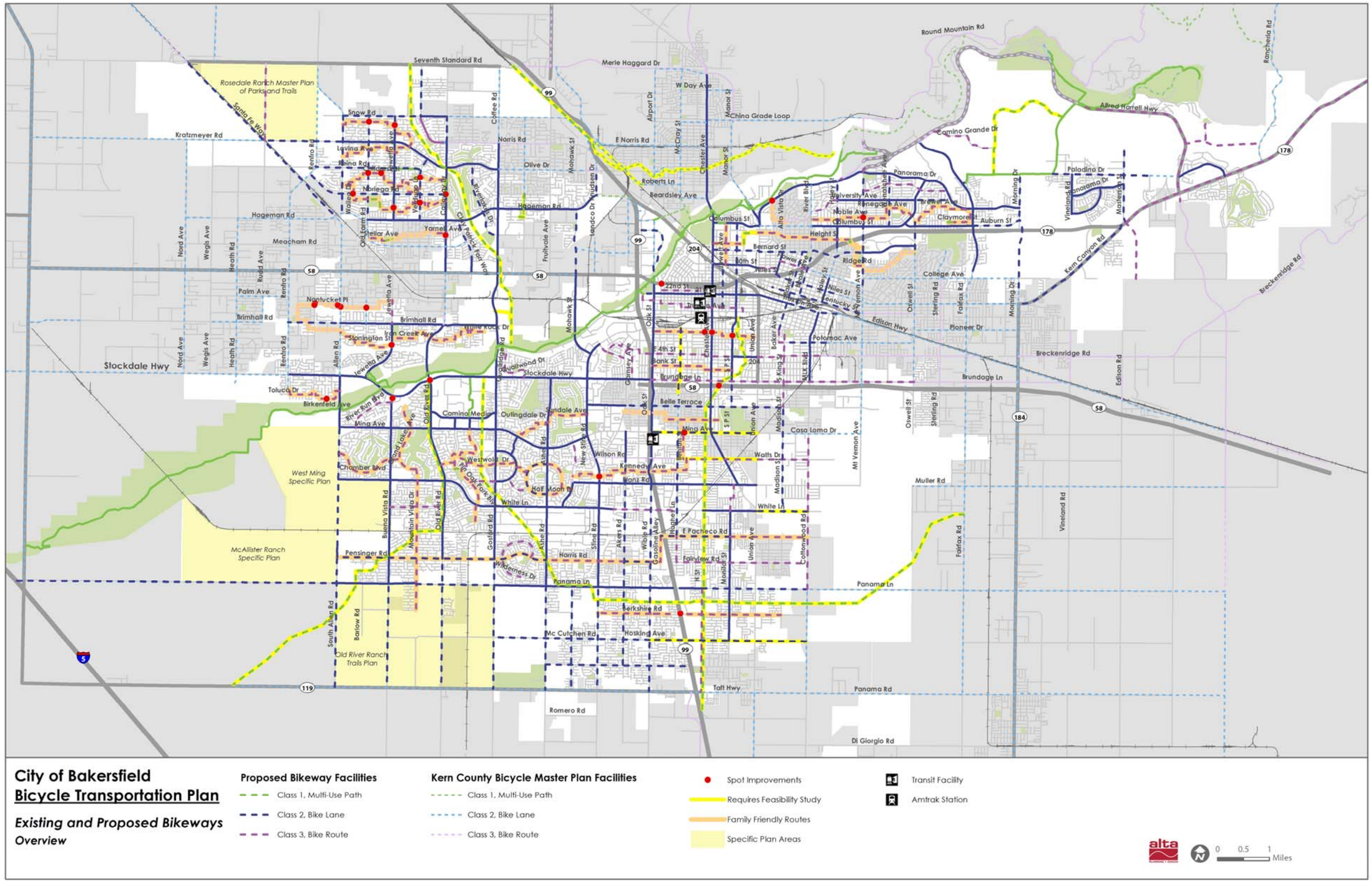


Figure 4-1: Bikeway Recommendations Overview

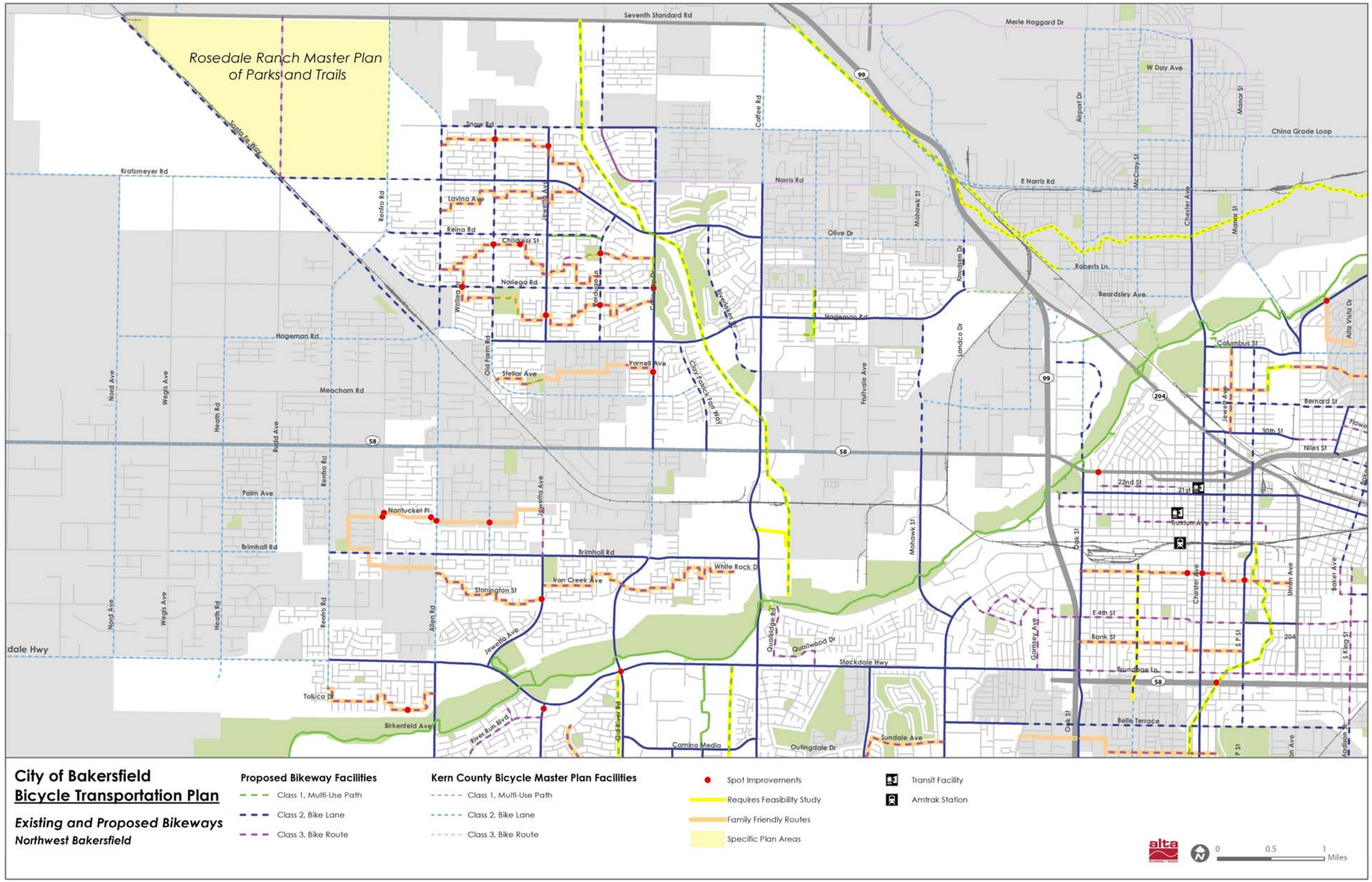


Figure 4-2: Bikeway Recommendations (Northwest)

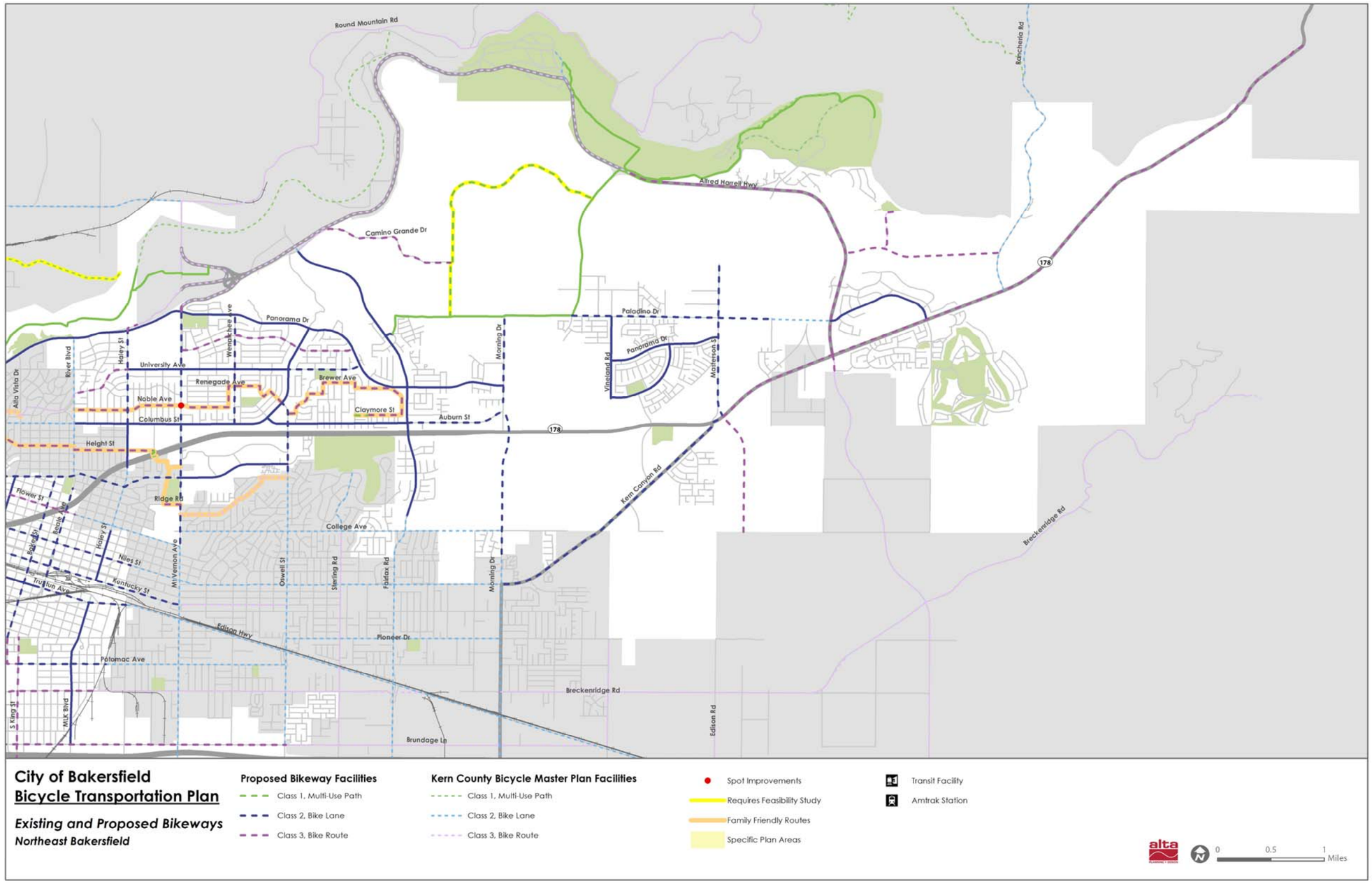


Figure 4-3: Bikeway Recommendations (Northeast)

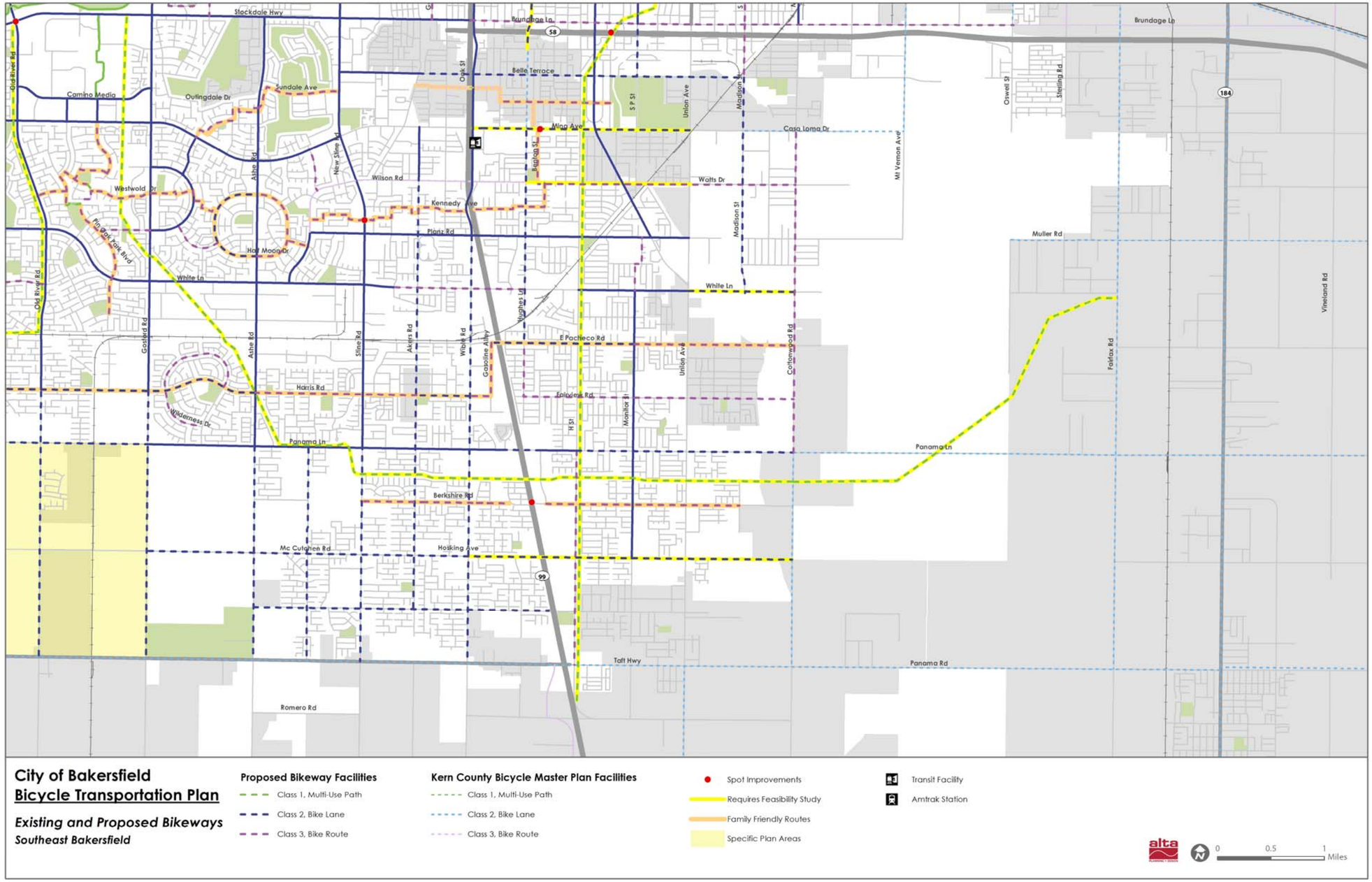


Figure 4-4: Bikeway Recommendations (Southeast)

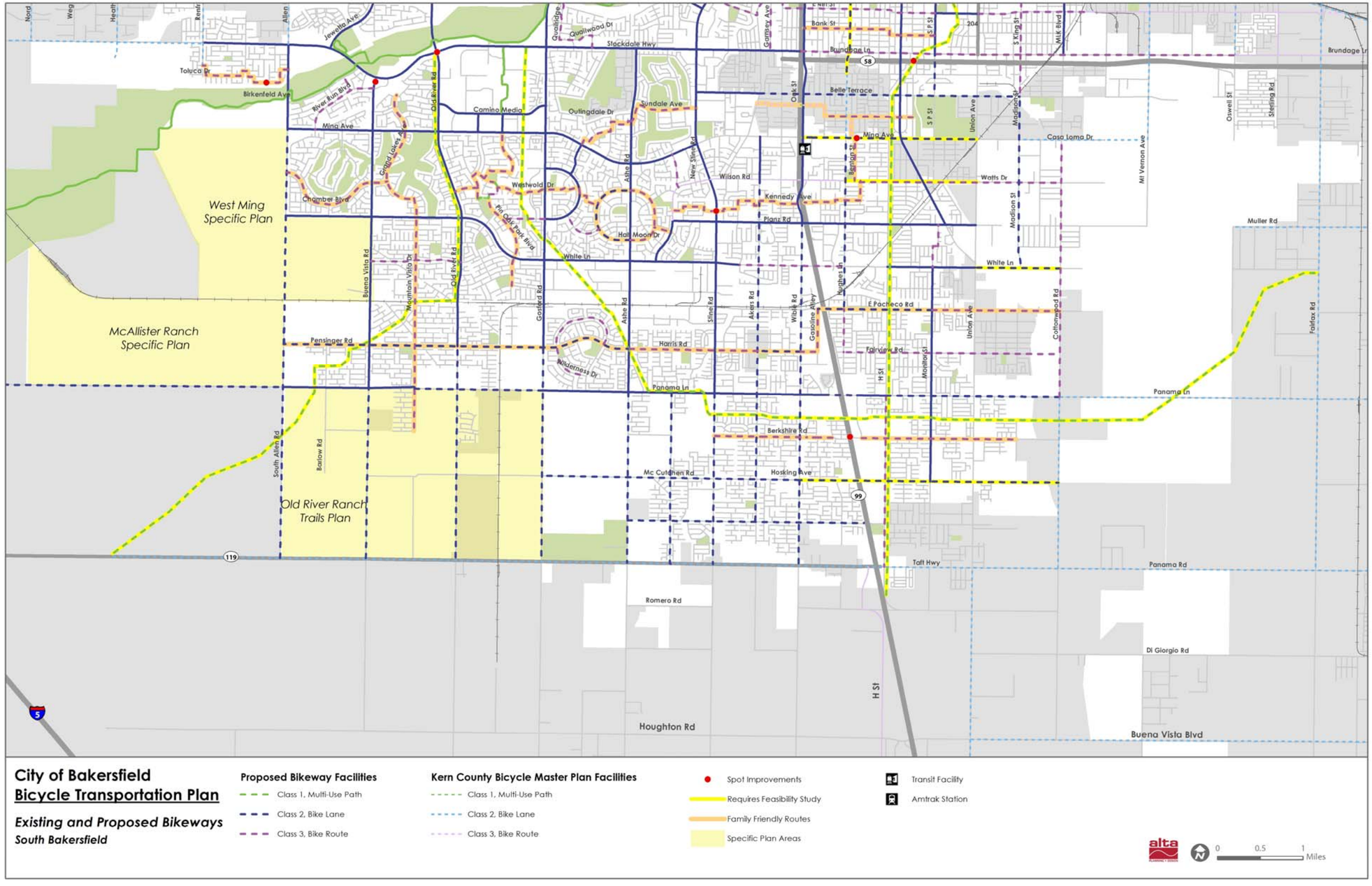


Figure 4-5: Bikeway Recommendations (South)

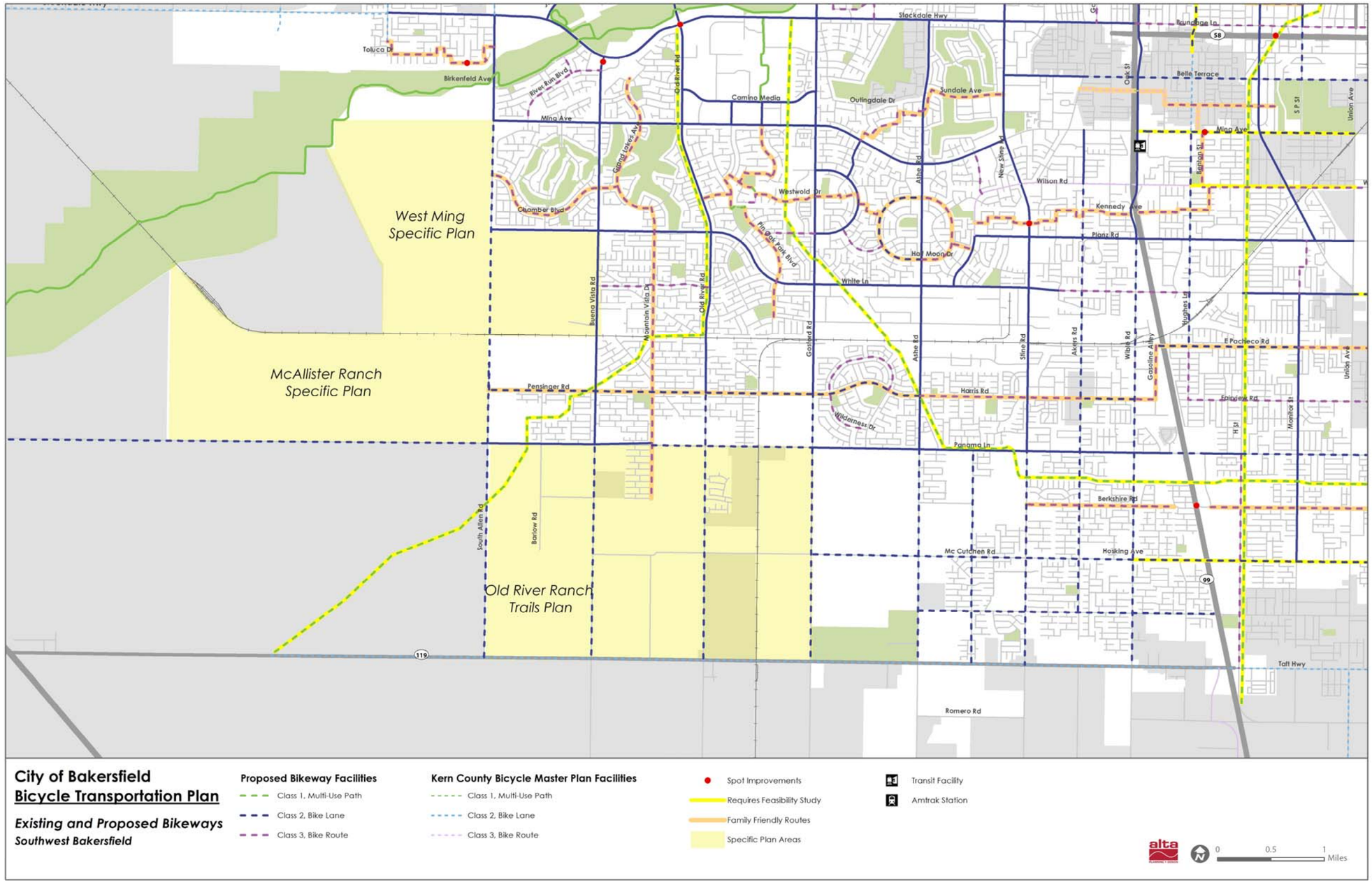


Figure 4-6: Bikeway Recommendations (Southwest)

4.1.1 Class I Shared-Use Paths

A Class I Bicycle Path (shown in Figure 4-7) provides for bicycle and pedestrian travel on a paved right-of-way completely separated from streets or highways. These recommended facilities can be popular for recreational bicycling as well as for commuting.

The recommended Class I paths include a number of paths along canals that will need further study as well as shorter connections through parks or extensions of existing paths.

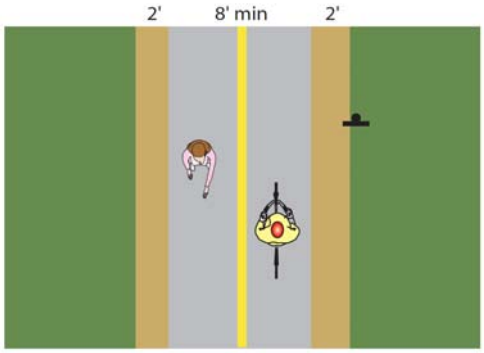


Figure 4-7: Class I Path

Table 4-2: Recommended Class I Paths

Class	Street Name	Start	End	Distance (Miles)	Feasibility Study Needed?	Family Friendly / Confident Commuter
I	178 Overcrossing	Height Street	Mirador Drive	0.10	Yes	Family Friendly
I	21st St	Westwind Dr	Kern River Bike Path	0.06	Yes	Family Friendly
I	Almondale Pk Shared Path	Meadow Creek Street	Verdugo Lane	0.14	Yes	Family Friendly
I	Arvin-Edison Canal Path	Cottonwood Road	Fairfax Road	3.77	Yes	Family Friendly
I	Arvin-Edison Canal Path	Stockdale Highway	Cottonwood Road	9.54	Yes	Family Friendly
I	Bakersfield Commons Conn.	Coffee Road	Friant-Kern Canal	0.44	Yes	Family Friendly
I	Buena Vista Canal Path	Ming Ave	Taft Hwy	8.29	Yes	Family Friendly
I	Calloway Shared Path	Balvanera Drive	Noriega Road	0.28	Yes	Family Friendly
I	Claymore Extension	Eissler Street	Piper Way	0.11	Yes	Family Friendly
I	Coffee Road Path Widening	Truxtun Avenue	Kern River Parkway	0.06	Yes	Family Friendly
I	Columbus Path	Kern River Parkway	Columbus Street	0.37	Yes	Family Friendly
I	Emerald Cove Park Path	Vaquero Avenue	Hageman Road	0.23	Yes	Family Friendly
I	Friant-Kern Canal	Seventh Standard Road	Kern River	6.10	Yes	Family Friendly
I	H Street Canal Path	Railroad Bridge	Highway 99	7.97	Yes	Family Friendly
I	McInnes - Westwold Path	McInnes Boulevard	Westwold Drive	0.08	Yes	Family Friendly
I	NE Bakersfield Path	Paladino Drive	Morning Drive Path	2.70	Yes	Family Friendly
I	North Rosedale Park Path	Campfire Drive	Jewetta Avenue	0.18	Yes	Family Friendly
I	Overcrossing	Willow Drive	Rio Mirada	0.17	Yes	Family Friendly
I	Panorama Class I Connecti	Kern River Parkway	Panorama Drive	0.06	Yes	Family Friendly
I	Park Path	Mountain Oak Road	Broad Oak Avenue	0.19	Yes	Family Friendly

Class	Street Name	Start	End	Distance (Miles)	Feasibility Study Needed?	Family Friendly / Confident Commuter
I	Patton Way Shared Path	Weldon Avenue	Hageman Road	0.27	Yes	Family Friendly
I	Polo Park Shared Path	Old Farm Road	Grazing Avenue	0.37	Yes	Family Friendly
I	Rail ROW Path	7th Standard Road	E. Norris Road	2.23	Yes	Family Friendly
I	River Bike Trail Connecti	Kern River Parkway	Elm Street	0.26	Yes	Family Friendly
I	San Dimas Path	36th Street	Jeffrey Street	0.43	Yes	Family Friendly
I	Truxtun Shared Path link	Coffee Road	Quailridge Road	0.15	Yes	Family Friendly
		Class I Total Miles		**44.55**		

4.1.2 Class II Bike Lanes

Bicycle lanes provide a signed, striped and stenciled lane for one-way travel on both sides of a roadway. Class II bicycle lanes are often used by commuters, bicycle enthusiasts and casual riders (if on lower volume and lower speed roadways). Bicycle lanes are often recommended on roadways with moderate traffic volumes and speeds and where separation of users facilitates safer operation.

Class II Bicycle Lanes are recommended on higher volume roadways that serve as important connections in the bikeway network.

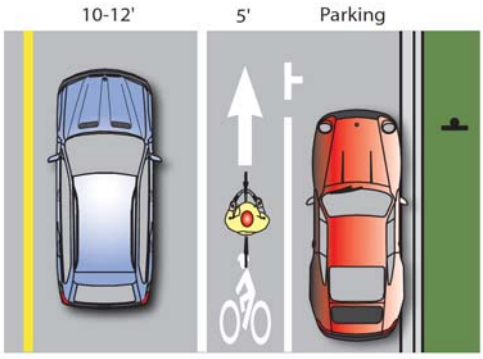


Figure 4-8: Class II Bike Lane

Table 4-3: Recommended Class II Bike Lanes

Class	Street Name	Start	End	Distance (Miles)	Feasibility Study Needed?	Family Friendly / Confident Commuter
II	21st St	Oak St	Westwind Dr	0.13		Confident Commuter
II	21st Street	King Street	Washington Street	0.89		Confident Commuter
II	A St/Hughes Ln	California Ave	Terrace Way	1.26	Yes	Confident Commuter
II	Akers Road	Wilson Rd	McKee	3.99		Confident Commuter
II	Allen Road	Ming Avenue	White Lane	1.52		Confident Commuter
II	Allen Road	Pensinger Road	Highway 119	2.75		Confident Commuter
II	Allen Road	Snow Road	Hageman Road	1.89		Confident Commuter
II	Ashe Road	Panama Lane	Taft Highway	2.00		Confident Commuter
II	Auburn Street	Morning Drive	Fairfax Road	0.92		Confident Commuter
II	Baker Street	Bernard Street	California Avenue	1.57		Confident Commuter
II	Beale Avenue	Grace Street	21st Street	1.00		Confident Commuter
II	Belle Terrace	Stine Road	Madison Street	3.04		Confident Commuter

Class	Street Name	Start	End	Distance (Miles)	Feasibility Study Needed?	Family Friendly / Confident Commuter
II	Bernard Street	Chester Avenue	Mt. Vernon Avenue	2.95		Confident Commuter
II	Brimhall Road	Renfro Road	Allen Road	1.01		Confident Commuter
II	Buena Vista Road	Panama Lane	Highway 119	2.00		Confident Commuter
II	Calloway Drive	Snow Road	Norris Road	0.50		Confident Commuter
II	Clay Patrick Farr Way	Hageman Road	Granite Falls Dr	0.83		Confident Commuter
II	E. Pacheco Road	Gasoline Alley	Monitor Street	1.33		Family Friendly
II	Gosford Road	Harris Road	Taft Highway	2.50		Confident Commuter
II	Haley Street	Panorama Drive	Columbus Street	0.87		Confident Commuter
II	Half Moon Drive	Ashe Rd	Ashe Rd	1.15		Family Friendly
II	Harris Road	Ashe Road	Wible Road	0.50		Family Friendly
II	Harris Road	S. Allen Road	Ashe Road	4.08		Family Friendly
II	Hosking Avenue	Wible Rd	Cottonwood Road	3.03	Yes	Confident Commuter
II	Hosking Avenue	Wible Rd	Gosford Rd	2.99		Confident Commuter
II	Hughes Lane	Ming Ave	E. Pacheco Road	1.50		Confident Commuter
II	Kentucky Street	Alta Vista Drive	Mt. Vernon Avenue	1.81		Confident Commuter
II	Kern Canyon Road	Masterson Street	Morning Drive	2.66		Confident Commuter
II	Knudsen Drive	Olive Drive	Hageman Road	0.47		Confident Commuter
II	M Street	30th Street	17th Street	0.85		Confident Commuter
II	Madison Street	Belle Terrace	White Ln	1.00		Confident Commuter
II	Masterson Street	Highway 178	Alfred Harrell Highway	1.43		Confident Commuter
II	McKee Rd	Ashe Rd	SH 99	2.76		Confident Commuter
II	Ming Avenue	Oak Street	Union Avenue	2.03	Yes	Confident Commuter
II	Mohawk Street	Hageman Road	Rosedale Highway	1.26		Confident Commuter
II	Morning Drive	Auburn Street	Willis Avenue	1.38		Confident Commuter
II	Morning Drive	Paladino Drive	Morningstar Avenue	0.80		Confident Commuter
II	Mountain Ridge Rd	Panama Ln	Taft Hwy	2.00		Confident Commuter
II	Mt. Vernon Avenue	Panorama Drive	Flower Street	2.19		Confident Commuter
II	Niles Street	Alta Vista Drive	Virginia Street	1.28		Confident Commuter
II	Noriega Road	Renfro Rd	Calloway Drive	2.01		Confident Commuter
II	Old Farm Road	Snow Road	Hageman Road	2.00		Confident Commuter
II	Old River Road	Harris Road	Taft Highway	2.50		Confident Commuter
II	Olive Drive	Santa Fe Way	Allen Road	1.52		Confident Commuter
II	Oswell Street	Columbus Street	City Limits	0.66		Confident Commuter
II	P Street	Brundage Lane	Belle Terrace	0.50		Confident Commuter
II	Paladino Drive	Rivani Drive	Grand Canyon Drive	1.87		Confident Commuter
II	Panama Lane	Dennen Street	Colony Street	0.33		Confident Commuter
II	Panama Lane	H Street	Cottonwood Road	2.03		Confident Commuter
II	Panama Lane	Interstate 5	Gosford Road	2.02		Confident Commuter
II	Panama Lane	Interstate 5	Gosford Road	2.02		Confident Commuter
II	Panama Lane	Mountain Vista Road	Gosford Road	1.50		Confident Commuter

Class	Street Name	Start	End	Distance (Miles)	Feasibility Study Needed?	Family Friendly / Confident Commuter
II	Patton Way	Weldon Avenue	Hageman Road	0.28		Confident Commuter
II	Patton Way	Weldon Avenue	Hageman Road	0.28		Confident Commuter
II	Potomac Avenue	S. King Street	Monticello Avenue	0.82		Confident Commuter
II	Q Street	Columbus Street	Highway 178	1.12		Confident Commuter
II	Reina Road	Renfro Road	Verdugo Lane	2.04		Confident Commuter
II	Riverlakes Drive	Olive Drive	Coffee Road	1.57		Confident Commuter
II	Santa Fe Way	7th Stnard Road	Hageman Road	4.14		Confident Commuter
II	Sillect Avenue	Buck Owens Boulevard	Kern River Parkway	1.33		Confident Commuter
II	Snow Road	Allen Road	Verdugo Lane	1.50		Confident Commuter
II	Stine Road	Panama Lane	Taft Highway	2.00		Confident Commuter
II	University Avenue	Columbus Street	Panorama Drive	0.68		Confident Commuter
II	Verdugo Lane	Olive Drive	Hagaman Road	1.22		Confident Commuter
II	Verdugo Lane	Seventh Standard Road	Snow Road	1.00		Confident Commuter
II	Wenatchee Avenue	Panorama Drive	Columbus Street	1.02		Confident Commuter
II	White Lane	Union Street	Cottonwood Road	0.99	Yes	Confident Commuter
II	Wible Road	Planz Road	Taft Highway	4.00		Confident Commuter
			Class II Total Miles	**111.07**		

4.1.3 Class III Bicycle Routes

Class III Bicycle Routes provide for shared roadway use and are generally only identified with signing. Bicycle Routes may have a wide travel lane or shoulder that allow for parallel travel with automobiles. They also may be on low volume, low speed streets.

The recommended Bicycle Routes provide connections through residential areas connecting residents to schools, retail districts and other community destinations.

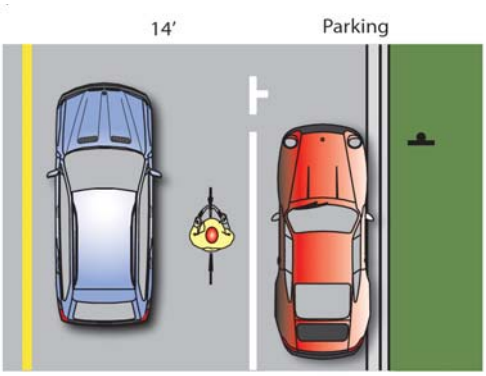


Figure 4-9: Class III Bicycle Route

Bike Lane

Table 4-4: Recommended Class III Bicycle Routes

Class	Street Name	Start	End	Distance (Miles)	Feasibility Study Needed?	Family Friendly / Confident Commuter
III	17th Street	A Street	Truxtun Avenue	1.26		Confident Commuter
III	18th St - 19th St Route	21st Street	17th Street	1.01		Confident Commuter
III	22nd Street	Elm Street	F Street	0.72		Confident Commuter

Class	Street Name	Start	End	Distance (Miles)	Feasibility Study Needed?	Family Friendly / Confident Commuter
III	36th Street	Chester Avenue	San Dimas Path	0.59		Family Friendly
III	4th Street	Union Avenue	City Limits	1.25		Confident Commuter
III	Alfred Harrell Highway	City Limit	Panorama Drive	0.10		Confident Commuter
III	Alfred Harrell Highway	Morning Drive Bike Path	Highway 178	3.32		Confident Commuter
III	Allegheny Court	Old Walker Pass Road	Rivers Edge Park	0.44		Confident Commuter
III	Appletree - Hahn Route	Wilson Road	Wible Road	1.80		Family Friendly
III	Baker Street	California Avenue	S. King Street	0.35		Confident Commuter
III	Bank Street 2nd Street Ro	Oak Street	S. P Street	1.59		Family Friendly
III	Berkshire Road	Colony Street	Madison Street	1.81		Family Friendly
III	Berkshire Road	Stine Road	Santana Sun Drive	1.50		Family Friendly
III	Broad Oak - Oak Grove Rt	Park Path	Westwold Drive	0.20		Confident Commuter
III	Brundage Lane	Union Avenue	Oswell Street	5.08		Confident Commuter
III	Camino Grande	Alfred Harrell	NE Bakersfield Path	1.29		Confident Commuter
III	Campus Park	Buena Vista Road	Old River Road	1.06		Confident Commuter
III	Chamber Boulevard	S. Allen Road	Grand Lakes Avenue	1.45		Family Friendly
III	China Grade Loop	City Limit	Panorama Drive	0.11		Confident Commuter
III	Chinon - Limoges Route	McInnes Boulevard	Haggin Oaks Boulevard	0.37		Family Friendly
III	Chippewa - Yorkshire	Jewetta Avenue	Verdugo Lane	0.88		Family Friendly
III	Christmas Tree Lane	Mt Vernon Avenue	Panorama Drive	1.65		Confident Commuter
III	Comanche Drive	City Limit	Highway 178	0.16		Confident Commuter
III	Cottonwood Road	Casa Loma Drive	E. Panama Lane	3.00		Confident Commuter
III	Coventry - Benton Route	Ming Avenue	Oak Street	1.40		Family Friendly
III	E. Pacheco Road	Hughes Lane	Cottonwood Road	2.52		Family Friendly
III	Edison Road	Highway 178	End of Street	1.15		Confident Commuter
III	El Capitan Bike Route	Noriega Road	Polo Park Path	0.44		Family Friendly
III	Ewoldsen Class III Route	Oak Grove Street	N. Half Moon Drive	1.43		Family Friendly
III	Fairview Road	Hughes Lane	Cottonwood Road	2.53		Confident Commuter
III	Flower Street	Alta Vista Drive	Owens Street	0.64		Confident Commuter
III	Garnsey Avenue	Garnsey Lane	Stockdale Highway	0.57		Confident Commuter
III	Grand Lakes Avenue	Rossilyn Lane	Brandy Rose Street	1.83		Family Friendly
III	Greenwich - Balvanera	Verdugo Lane	Calloway Road	0.55		Family Friendly
III	Haggin Oaks Blvd	Camino Media	Limoges Way	0.74		Family Friendly
III	Half Moon Drive	Ashe Road	Ashe Road	0.96		Family Friendly
III	Harris Rd-Gasoline Alley	Wible Road	Pacheco Road	0.70		Family Friendly
III	Harris Road	Ashe Road	Akers Road	1.51		Family Friendly
III	Hawaii - Wailea	Allen Road	Noriega Road	0.38		Family Friendly

Class	Street Name	Start	End	Distance (Miles)	Feasibility Study Needed?	Family Friendly / Confident Commuter
III	Height Street	River Boulevard	178 Overcrossing	0.75		Family Friendly
III	Highway 178	City Limits	Masterson Street	6.60		Confident Commuter
III	Hughes Lane	E Pacheco Rd	Fairview Road	1.00		Confident Commuter
III	Iron Creek Goose Creek CT	Allen Road	Coffee Road	3.66		Family Friendly
III	Jewetta Avenue	Columbus Street	Bernard Street	0.52		Family Friendly
III	Jewetta Avenue	Palm Avenue	Brimhall Road	0.50		Confident Commuter
III	Jewette Avenue	Bernard Street	30th Street	0.27		Confident Commuter
III	Kahala - Constitution Rou	Hawaii Lane	Jewetta Avenue	1.34		Family Friendly
III	La France Drive	Castro Lane	El Toro Drive	1.03		Family Friendly
III	Laurel Park - Wrangler	Bay Meadows Lane	Calloway Drive	1.83		Family Friendly
III	Laurelglen Boulevard	Pin Oak Park Boulevard	Gosford Road	0.48		Confident Commuter
III	Madison Street	Brundage Lane	Belle Terrace	0.49		Confident Commuter
III	Marella Class III	Garnsey Avenue	Montclair Street	0.55		Confident Commuter
III	Marella Way	California Avenue	Montclair Street	1.00		Confident Commuter
III	Maywood - Charger Route	Oswell Street	Piper Way	1.85		Family Friendly
III	Merrimac Avenue	Raider Drive	Monitor Street	0.06		Confident Commuter
III	Mezzadro/Alderbrk/La vina	Allen Road	Allen Road	3.63		Family Friendly
III	Monitor Street	Merrimac Avenue	White Lane	0.25		Confident Commuter
III	Mountain Oak - McInnes Rt	Park Path	McInnes - Westwold Path	0.59		Family Friendly
III	Mountain Park Dr	Kern River Parkway	River Run Boulevard	0.18		Confident Commuter
III	Mountain Vista Drive	Grand Lakes Avenue	Berkshire Road	2.73		Family Friendly
III	Noble Avenue Route	River Boulevard	Columbus Street	2.30		Family Friendly
III	Old Walker Pass Road	Comanche Drive	Rancheria Road	1.46		Confident Commuter
III	Olympia Drive	S. Laurel Glen Boulevard	Half Moon Bay Drive	0.49		Confident Commuter
III	Pacific Street	Union Avenue	Alta Vista Drive	0.36		Confident Commuter
III	Palm Street	Real Road	P Street	1.79		Confident Commuter
III	Park/Blanch/11th/10th Route	Oak Street	Union Ave	1.08		Family Friendly
III	Pin Oak Boulevard	Bear Creek Road	District Boulevard	1.14		Family Friendly
III	Polo Drive	Dapple Avenue	Meadow Creek Street	0.26		Confident Commuter
III	Quailwood - Quailridge	Truxtun Avenue	Stockdale Highway	1.02		Confident Commuter
III	Raider Drive	Planz Road	Merrimac Avenue	0.25		Confident Commuter
III	Real Road	Garnsey Lane	Palm Street	0.08		Confident Commuter
III	Ridge Oak Drive	Rose Petal Street	Mountain Oak Road	0.42		Family Friendly
III	Ridge Road	Camino Real	Mt. Vernon Avenue	0.16		Family Friendly
III	River Run Boulevard	Ming Avenue	Buena Vista Road	0.93		Confident Commuter

Class	Street Name	Start	End	Distance (Miles)	Feasibility Study Needed?	Family Friendly / Confident Commuter
III	Rose Petal Street	Brandy Rose Street	Ridge Oak Drive	0.20		Confident Commuter
III	Rudd Avenue	Seventh Standard Road	Santa Fe Way	1.50		Confident Commuter
III	S, King Street	California Avenue	Brundage Lane	1.00		Confident Commuter
III	S. H Street	Panama Lane	Taft Highway	2.00		Confident Commuter
III	Sage Drive	Half Moon Bay Drive	Wilson Road	0.20		Family Friendly
III	School House Road	Ming Ave	Ashe Road	1.33		Family Friendly
III	Spring Creek Loop	Wilderness Drive	Reliance Drive	1.03		Confident Commuter
III	Stellar Avenue	Old Farm Road	Campfire Drive	0.34		Family Friendly
III	Sundale Avenue	La Puente Drive	New Stine Road	0.91		Family Friendly
III	Toluca Drive Route	Renfro Road	Allen Road	1.48		Family Friendly
III	University Avenue	Haley Street	River Boulevard	0.58		Confident Commuter
III	W. Jeffrey Street	Overcrossing	River Boulevard	1.10		Family Friendly
III	Watts Drive	Cottonwood Road	Madison Street	0.50		Confident Commuter
III	Westholme Boulevard	Ming Avenue	Wilson Road	0.40		Confident Commuter
III	White Lane	Dovewood Street	Hughes Lane	1.22		Confident Commuter
III	Wilderness Drive	Harris Road	Reliance Drive	0.54		Confident Commuter
III	Yarnell Bike Route	Paul Avenue	Calloway Drive	0.31		Family Friendly
			Class III Total Miles	**104.03**		

4.2. Spot Improvements

Spot improvements include location-specific engineering improvements. These engineering improvements are designed to address specific locations where either the community reported a network barrier or a crossing improvement is needed to facilitate bicycle travel. These recommended improvements are also shown in Figure 4-1 through Figure 4-6.

Note: the following proposed improvements are listed alphabetically and NOT by priority.

Table 4-5: Proposed Spot Improvements

Street 1	Street 2	Description of Study or Project
10th Street	P Street	Crossing Improvement A proposed Class III bike route on 10th Street meets P Street at an uncontrolled intersection. A detailed study of the intersection and potential crossing improvements would help bicyclists cross P Street. Feasibility Study is required to determine improvement options.
11th Street	Chester Street	Crossing Improvement A proposed Class III bike route on 11th Street meets Chester Street at an uncontrolled intersection. A detailed study of the intersection and potential crossing improvements would help bicyclists cross Chester Street. Feasibility Study is required to determine improvement options.
Appleblossom Drive	New Stine Road	Crossing Improvement A Class III bike route is proposed for Appleblossom Dr that crosses New Stine Road, an arterial with seven lanes and raised median. This intersection is approximately 600-feet from the nearest controlled intersection. Feasibility study is required to determine crossing options.
Barnsdale Avenue	Jenkins Road	Crossing Improvement A Class III bike route is proposed on Nantucket Pl and Barnsdale Ave. A crossing improvement would help bicyclists cross Jenkins Road. Feasibility study is required to determine crossing options.
Benton Street	Ming Avenue	Crossing Improvement A Class III bike route is proposed for Benton St. Benton St forms a staggered t-intersection with five lane Ming Ave with no marked crossing. The western leg of the is 540 feet east of the Hughes Ln signals. Feasibility study is required to determine crossing options.
Benton Street	Wilson Road	Crossing Improvement A Class III bike route is proposed for Benton St. Benton St forms a staggered t-intersection with five lane Wilson Rd. The western leg of the t is 540 feet east of the Hughes Ln signals. There is only one marked crosswalk across Wilson Rd which may lead to sidewalk riding. Feasibility study is required to determine crossing options.
Berkshire Road	Highway 99	Crossing Improvement A Class III bike route is proposed for Berkshire Rd, removing the need to bicycle on higher volume and higher speed parallel major roads. A bike/ped crossing of Highway 99 would be required to complete this route. Feasibility study is required to determine crossing options.
Birkenfeld Avenue	End of Street	Access Improvement Curb ramps will complete this link between two cul-de-sacs. Pavement is already provided for the less than 20 foot connection.
Blanche Street	H Street	Crossing Improvement A proposed Class III bike route on Blanch Street-11th Street meets H Street at an uncontrolled off-set intersection. A detailed study of the intersection and potential crossing improvements would help bicyclists cross H Street. Feasibility Study is required to determine improvement options.

Street 1	Street 2	Description of Study or Project
Calloway Drive	Noriega Road	Intersection Improvement This signalized t-intersection includes an existing Class II bike lane on Calloway Drive and proposed bike lanes on Noriega Road. Intersection improvements to facilitate bicyclist left turns or to provide off street facilities would improve connectivity. Feasibility study is required to determine crossing options.
Calloway Drive	Stockdale Highway	Intersection Improvement This intersection includes existing Class II bike lanes and is adjacent to the Kern River bike path, however there are no bicycle facilities at the intersection. This intersection of two 9-lane roads has bike lanes on both intersecting roads, but no intersection bicycle facilities. With the long crossing distances, slower bicyclists could face issues with crossing in the allotted time.. A detailed study of the intersection is recommended to investigate options to provide facilities and facilitate bicyclist left turns. Feasibility study is required to determine improvement options.
Childress Street	Old Farm Road	Crossing Improvement A Class III bike route is proposed for Childress St. crossing Old Farm Road. Childress St is stop controlled on both approaches to Old Farm Rd but Old Farm Rd is not controlled. The intersection is 440 feet south of the all-way stop controlled Old Farm Rd / Reina Rd intersection. A detailed study of the intersection is recommended to investigate options such as all-way stop and crosswalks. Feasibility study is required to determine improvement options.
Donerail Drive/Court	Jewetta Avenue	Connection Improvement A Class III bike route is proposed for Donerail Drive/Court and meets the existing Class II bike lanes on Jewetta Avenue at an uncontrolled intersection. A detailed study of the intersection and potential crossing improvements would help bicyclists cross Jewetta Avenue. Feasibility study is required to determine improvement options.
Elm Street	24th Street	Crossing Improvement To provide improved access to the Kern River Bike Trail, a connection along Oak Street cul-de-sac (at the north end of Oak St) and navigating the busy 24th St / Oak St intersection could enable users to travel to and from residential areas to the south-east of the bike trail. Feasibility study is required to determine improvement options.
Greenwich Drive	Verdugo Lane	Intersection Improvement This intersection is where the proposed Class II bike lanes on Verrdugo meet the proposed Class III bike route on Greenwich Drive. The closest controlled intersection is 760 feet to the north. A detailed study of crossing improvements is recommended. Feasibility study is required to determine improvement options.
Jenkins Path	Nantucket Drive	Connection Improvement Similar to Nantucket Pl at the east end (connecting to Allen Rd), a short 20 foot path connection and curb ramps would enable users to continue west. Feasibility study is required to determine improvement options.
Jewetta Avenue	Valletta Avenue	Crossing Improvement Valleta Ave is a proposed Class III bike route which forms a t-intersection with Jewetta Ave where Class II bike lanes exist. A detailed study of the intersection and potential crossing improvements would help bicyclists cross Jewetta Avenue. Feasibility study is required to determine improvement options.
Loma Linda Drive	Panorama Drive	Crossing Improvement A proposed Class III bike route on Loma Linda Dr intersects with the 77 foot wide, five-lane Panorama Dr. Crossing improvements would enable users to access the pathway along the north side of Panorama Dr. and the Kern River Bike Trail. Feasibility study is required to determine improvement options.

Street 1	Street 2	Description of Study or Project
Marla Avenue / Cherry Valley Ave	Old Farm Road	Crossing Improvement Marla Ave includes a proposed Class III bike route and crossing proposed Class II bike lanes on Old Farm Road, this intersection is uncontrolled. A detailed study of the intersection and potential crossing improvements would help bicyclists cross Old Farm Road. Feasibility study is required to determine improvement options.
Nantucket Place	Hampton Park Way	Connection Improvement Nantucket Place meets Hampton Park way at an open cul-de-sac Curb. A bikeway connection here would connect two proposed Class III bike routes. Feasibility study and determination of public ROW is required to determine improvement options.
Noble Avenue	Mount Vernon Avenue	Crossing Improvement The proposed Class III bike route on Noble Ave crosses the five-lane Mount Vernon Ave, which is a proposed Class II route. A detailed study of the intersection and potential crossing improvements would help bicyclists cross Mount Vernon Avenue. Feasibility study is required to determine improvement options.
Old Farm Road	Mezzadro Avenue	Crossing Improvement Mezzadro Avenue (proposed Class III) intersects with Old Farm Road, a five lane cross section (proposed Class II) At an uncontrolled intersection. A detailed study of the intersection and potential crossing improvements would help bicyclists cross Old Farm Road. Feasibility study is required to determine improvement options.
Old Town Road	Allen Road	Crossing Improvement A Class III bike route is proposed for Old Town Rd, which has stop controlled approaches to the five lane Allen Rd. A detailed study of the intersection and potential crossing improvements would help bicyclists cross Old Farm Road. Feasibility study is required to determine improvement options.
Old Town Road	Old Farm Road	Crossing Improvement This intersection is 1000 feet south of Palm Ave signals and 1500 feet north of Brimhall Rd signals. Old Town Rd is a proposed Class III bike route. Old Farm Rd has Class II bike lanes lane. A detailed study of the intersection and potential crossing improvements would help bicyclists cross Old Farm Road. Feasibility study is required to determine improvement options.
Pacific Breeze Avenue	Childress Street	Connection Improvement Pacific Breeze Avenue meets Childress way at an open cul-de-sac Curb. A bikeway connection here would connect two proposed Class III bike routes. Feasibility study and determination of public ROW is required to determine improvement options.
Pecos River Drive	Jewetta Avenue	Crossing Improvement A proposed Class III bike route on Pecos River Dr meets the existing Class II bike lanes on Jewetta Avenue at an uncontrolled crossing. A detailed study of the intersection and potential crossing improvements would help bicyclists cross Jewetta Avenue. Feasibility study is required to determine improvement options.
Polo Glen Drive	Verdugo Lane	Crossing Improvement A proposed Class III bike route on Verdugo Lane meets the proposed Class II bike lane on Verdugo at this intersection. A detailed study of the intersection and potential crossing improvements would help bicyclists cross Verdugo Lane. Feasibility study is required to determine improvement options.
Rosa Parks Highway	Canal Path	Crossing Improvement The proposed Canal Path intersects with the Rosa Parks Highway. A crossing study would determine the most feasible way to provide the path crossing.

Street 1	Street 2	Description of Study or Project
Stockdale Highway	Buena Vista Road	Intersection Improvement At this location, two existing Class II bike lanes meet however the intersection is very wide. A study of signal timing to accommodate bicyclists crossing time and facilities to improved bicyclist visibility is recommended. Feasibility study is required to determine improvement options.
Wailea Drive	Noriega Road	Crossing Improvement A Class III bike route is proposed for Wailea Drive and it crosses a proposed Class II bike lane on Noriega Road. A detailed study of the intersection and potential crossing improvements would help bicyclists cross Noriega Road. Feasibility study is required to determine improvement options.
Zenith Avenue	Calloway Drive	Intersection Improvement A proposed Class III bike route on Zenith Ave meets the existing Class II bike lanes on Calloway drive at this uncontrolled intersection. A detailed study of the intersection and potential crossing improvements would help bicyclists cross Calloway Drive. Feasibility study is required to determine improvement options.

4.3. Bicycle Detection at Traffic Signals

4.3.1 Bicycle Detection at Traffic Signals

Traffic signals control traffic by either using timers or actuation (detection). Bicycle detection at actuated traffic signals can provide a substantial improvement for bicycle access and mobility. California Assembly Bill 1581 requires all new and replacement actuated traffic signals to detect bicyclists. Caltrans Policy Directive 09-06 clarifies the requirements and permits loop and video detection. Many of Bakersfield's actuated intersections detect bicyclists but not all do.

Recommendations

This Plan recommends that the City install bicycle detection at all actuated intersections along existing and proposed bikeways. Additionally, the City should consider installing bicycle detection at all actuated intersections. Where loop detection is used (see Appendix A Design Guidelines for details) a pavement stencil of the bicycle detection marking should be used to show bicyclists where to position themselves.

4.4. Wayfinding Signage

Wayfinding signs direct bicyclists along the bicycle network and to community destinations. These signs may also include "distance to" information, which displays mileage to community destinations.

Recommendations

This Plan recommends installation of wayfinding signs at decision points and confirmation signs that display destinations and mileage.

Decision signs (Figure 4-10) mark the junction of two or more bikeways. Decision signs are comprised of a Bicycle Route Guide

Sign (D11-1) and a Destination Supplemental Sign (D1-1b). Decision signs are located on the near-side of intersections. They include destinations and their associated directional arrows, but not distances.

Confirmation signs (Figure 4-11) confirm that a bicyclist is on a designated bikeway. Each confirmation sign includes a Bicycle Route Guide Sign (D11-1) and a Destination Supplemental Sign (D1-1b). Confirmation signs are located mid-block or on the far-side of intersections. Confirmation signs include destinations and their associated distances, but not directional arrows.

Figure 4-10: Decision Wayfinding Signs

Figure 4-11: Confirmation Wayfinding Signs

4.5. Bicycle Parking Recommendations

Bicycle parking can be categorized into short-term and long-term parking. Bicycle racks are the preferred device for short-term bike parking. These racks serve people who leave their bicycles for relatively short periods of time, typically for shopping or errands, eating or recreation. Bicycle racks provide a high level of convenience and moderate level of security. Long-term bike parking includes bike lockers and bike stations and serve people who intend to leave their bicycles for longer periods of time and are typically found at transit stations, multifamily residential buildings and commercial buildings. These facilities provide a high level of security but are less convenient than bicycle racks.

Bicycle Parking Requirements for Development Projects

The City of Bakersfield currently has bicycle parking requirements for development projects. This Plan recommends the City consider updating its bicycle parking requirements to differentiate between short-term and long-term bicycle parking.

Bicycle Parking Plan

This Plan recommends the City develop a bicycle parking plan detailing specific needs and recommendations for bicycle parking at key attractors such as downtown, transit stations, educational facilities and other attractors. It is recommended the bicycle parking plan include recommendations for the following areas:

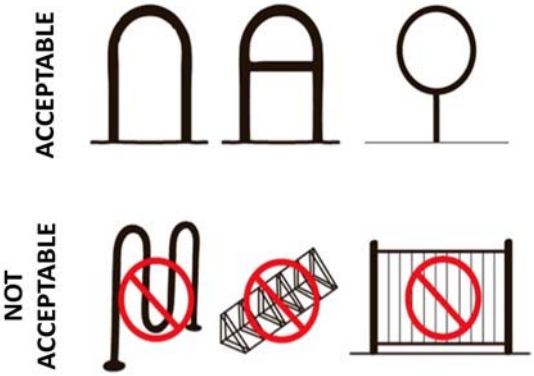
- Downtown Bakersfield at key attractors such as restaurants, bars/pubs, and retail
- Community centers
- Libraries
- Parks
- Transit stations

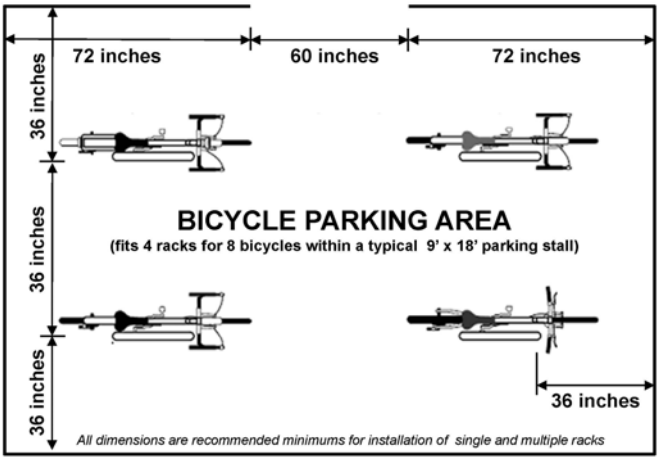
Bicycle Parking Design Guidelines

The City of Bakersfield recently implemented bicycle parking design guidelines. All newly installed bicycle parking should meet the following requirements.

All bike racks installed in the City of Bakersfield need to be selected and installed in a manner that will enhance convenience and maximize security. Listed below are the basic parameters that should be used when selecting and purchasing bike racks:

- An acceptable bike rack must have at least two points of contact to support a bike upright.
- Bike rack designs must incorporate elements that will allow for the locking of the frame and at least one wheel of a bike with any kind of lock, especially high security "u-locks."
- A rack must be securely anchored to the ground and not easily removed. It must resist being cut or detached using common hand tools such as bolt cutters, pipe cutters, wrenches, and pry bars (i.e. tools that can be easily concealed in a backpack).
- Under normal use a rack must be resistant to rusting, bending or deformation.
- Bike rack designs with the potential for scraping the paint on a bike when parked will not be approved (i.e. sharp edges, points, etc.).
- The following diagrams will be used as the basis for approving acceptable bicycle racks and parking areas. However, alternative rack designs and parking layout may be approved by the Building Director provided they are consistent with the intent of these guidelines.





(Note: In calculating the required bicycle parking spaces, an acceptable rack as shown above is considered a 2-bike capacity rack.)

4.6. Studies

4.6.1 Bike Share

Bicycle sharing programs like those in New York, Chicago, Boston, Washington, D.C., Montreal, and Paris are popular and successful programs that provide bicycles on-demand for fast and easy transportation. Bicycles are located at a bike share station where members can 'check-out' a bike for use. Bike share data shows typical users are tourists, students, and those between the ages of 25-34.

Recommendation

This Plan recommends the City consider a bike share feasibility study with a particular focus on California State University Bakersfield and Bakersfield College.

5. Program Recommendations

Of the Five Es of bicycle planning, four are related to programs: encouragement, education, enforcement and evaluation. Programs will complement engineering improvements such as bike paths, lanes and routes by giving Bakersfield residents the tools they need to safely and confidently use the bikeway network. All of the Five Es work together to enhance the bicycling experience in Bakersfield. The following section presents recommended programs to support the vision and goals of this plan. The recommendations include continuation of those the City currently administers and those identified by the community, as well additional programs that have proven to be popular and effective in other bicycle-friendly cities.

5.1 Encouragement

The following programs are designed to encourage community members to ride bicycles. Through the public outreach process, community members identified encouragement programs as a way to increase bicycling mode share and reach the goals outlined in this plan as well as in the Sustainable Initiatives Plan. Community recommended programs include car-free streets and employer-based programs.

5.1.1 Safe Routes to School Program

Helping children walk and bicycle to school is good for children's health and can reduce congestion, traffic dangers and air pollution caused by parents driving children to school. Safe Routes to School programs use a "5 Es" approach; using Engineering, Education, Enforcement, Encouragement, and Evaluation strategies to improve safety and encourage children walking and biking to school. The programs are usually run by a coalition of city government, school and school district officials, and teachers, parents, students, and neighbors.

A Bakersfield Safe Routes to School program will be a key element to implementing this Plan, especially considering the high numbers of bicycle collisions involving children under the age of 18.

Recommendation

This Plan recommends that the City pursue grant funding to develop and implement a Safe Routes to School program.

Resource Guide: National Center for Safe Routes to School: http://www.saferoutesinfo.org/

Student bicycle education classes teach bicycle traffic safety and the rules of the road

5.1.2 Kern Green

Kern Green is a local non-profit committed to protecting the environment through education and awareness. The organization encourages businesses, schools and individuals to integrate green practices in daily work and professional life. In addition to providing interesting facts and figures through their website, Kern Green helps local employers become Certified Green Businesses, hosts community recycle drives, and partners with local schools to educate students and hold fun awareness events.

Recommendation

This Plan recommends that the City work closely with Kern Green to promote bicycling as a viable and effective tool to improving the environment, including having the Kern Green website include information about bicycling as a way to reduce Bakersfield's carbon footprint.

5.1.3 Bicycle Helmet Giveaway

In several cities, the local police department and their respective Police Activities League (PAL) host free bicycle helmet giveaways for children. Some departments even give helmets to children who are observed bicycling without one, provided they have their parents sign and return a "citation" issued by the officer. The State of California's Office of Traffic Safety offers grants to purchase bicycle helmets for giveaways.

The Police Activities League (PAL), a non-profit organization within the Police Department, continues to give away helmets from the same OTS grant. PAL's intention is to reinforce laws requiring safe bicycle use and promote trust between police officers and children.

Recommendation

This Plan recommends that the City coordinate with the local PAL to organize a Bicycle Helmet Giveaway.

This Plan recommends a bicycle helmet giveaway program

(photo courtesy of Bike Bakersfield)

5.1.4 Bike to Work Day

Bike to Work Day is a region wide event promoting bicycling to work and is typically the third Thursday in May. Bike Bakersfield organizes Bike to Work events throughout the area, and the City of Bakersfield encourages staff to participate through a group ride and raffle prizes. Among the most popular components of Bike to Work Day are energizer stations, where volunteers set up a table with promotional items, coffee and snacks along popular bicycle commuting routes during the morning and afternoon commute hours.

Recommendation

This Plan recommends that the City consider sponsoring a Bike to Work Week. The week's lineup of events can include a Bike to Work Day celebration downtown with Pedal Pools (group rides), raffles and prizes, and speeches from Council Members or the Mayor. The type of events held can be developed through community input.

5.1.5 Employer-Based Encouragment Programs

Though the City cannot host these programs, it can work with or provide information to employers about commuting by bicycle. Popular employer-based encouragement programs include hosting a bicycle user group to share information about how to bicycle to work and to connect experienced bicyclists with novice bicyclists. Employers can host bicycle classes and participate in Bike to Work day.

Recommendation

This Plan recommends that the City collaborate with employers to implement bicycle related programs.

5.1.6 Launch Party for New Bikeways

When a new bikeway is built, some residents will become aware of it and use it, while others may not realize that they have improved bikeway options available. A launch party is a good way to inform residents about a new bikeway and can also be an opportunity to share other bicycling materials (such as maps and brochures) and answer questions about bicycling. It can also be a media-friendly event, with elected official appearances, ribbon cuttings, and a press release that includes information about the new facility, other existing and future facilities, and any timely information about bicycling.

Sample Program: When a new bikeway is built, the City of Vancouver throws a neighborhood party to celebrate. Cake, t-shirts, media and festivities are provided and all neighbors are invited as well as city workers (engineers, construction staff, planners) who participated in project planning and implementation.

Recommendation

This Plan recommends that the City host a launch party for all high priority projects recommended in this plan as well as inform the public of all new bikeways through its website and social media outlets.

5.1.7 Car-Free Street Events

Car-free street events have many names: Sunday Parkways, Ciclovías, Summer Streets, and Sunday Streets. These are periodic street closures (usually on Sundays) that create a temporary park that is open to the public for walking, bicycling, dancing, hula hooping, roller-skating, etc. Car-free street events promote health by creating a safe and attractive space for physical activity and social contact, and are cost-effective compared to the cost of building new parks for the same purpose.

Closing streets for a car-free community event creates a temporary park for walking, bicycling, skating, dancing, etc.

Sample Programs:

- Los Angeles' CicLAvia: http://www.ciclavia.org/
- San Francisco Sunday Streets: http://sundaystreetssf.com/
- Oakland's Oaklavia http://oaklavia.org/media
- New York City Summer Streets: http://www.nyc.gov/html/dot/summerstreets/
- Portland Sunday Parkways: http://portlandsundayparkways.org/

Recommendation

This Plan recommends that the City consider organizing a local open-streets event. Specific locations for this and other events can be developed through community outreach and support.

5.1.8 Bicycle Friendly Community

The League of American Bicyclists (LAB) recognizes communities that improve bicycling conditions through education, encouragement, enforcement and evaluation programs. Communities can achieve platinum, gold, silver, or bronze status or an honorary mention. Bicycle friendliness can indicate that a community is healthy and vibrant. Like good schools and attractive downtowns, bicycle friendliness can increase property values, spur business growth and increase tourism.

Recommendation

This Plan recommends that the City pursue Bicycle Friendly Community status. This Plan is a valuable resource for completing the LAB application efficiently. The following link provides detailed information about the application process.

http://www.bikeleague.org/programs/bicyclefriendlyamerica/communities/

5.2 Education

Education programs are designed to improve safety and awareness. The needs analysis (including community input and collision analysis) identified a need for education programs. Community members identified education classes as a way to reduce conflict and encourage more bicycling. Bicycle related collision data shows that in addition to engineering improvements, education about riding on the right side of the road and how to comfortably ride in traffic may reduce bicycle related collisions. A sampling of recommended education programs is below.

5.2.1 Youth Bicycle Safety Education Classes

Youth bicycle safety education provides children with knowledge and training about safe and proper bicycle use

Typical school-based bicycle education programs educate students about the rules of the road, proper use of bicycle equipment, biking skills, street crossing skills, and the benefits of biking. Education programs can be part of a Safe Routes to School program. These types of education programs are usually sponsored by a joint City/School District committee that includes appointed parents, teachers, student representatives, administrators, police, active bicyclists and engineering department staff.

Recommendation

This Plan recommends that the City pursue a Safe Routes to School Program that includes annual youth bicycle safety education classes. The City should consider the need for multi-lingual instruction

Sample programs:

- League of American Bicyclists: http://www.bikeleague.org/programs/education/courses.php#kids1
- Bicycle Transportation Alliance – Portland, OR: http://www.bta4bikes.org/resources/educational.php

5.2.2 Bicycle Rodeos

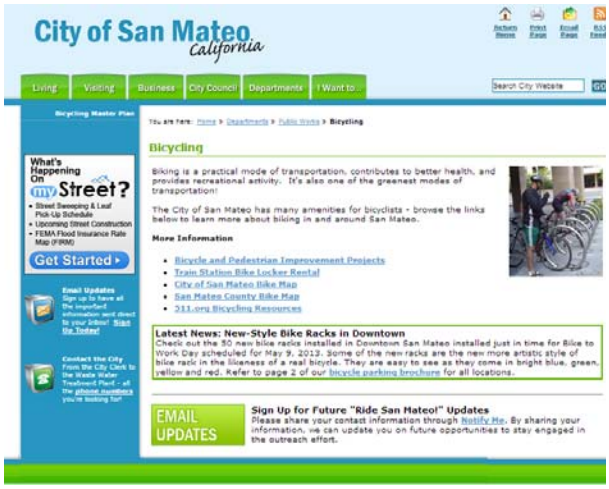
Bicycle rodeos are events where police officers teach children safe bicycling skills and the rules of the road. Bike Bakersfield has been providing bike rodeos for kids since 2005. In 2012, the Kern County Sheriff's Activities League hosted a bicycle rodeo and helmet giveaway for 100 children.

Recommendation

This Plan recommends the City work with Bike Bakersfield, the Sheriff's Department, and the Police Department to continue the Bicycle Rodeo program on an annual basis.

5.2.3 Bicycle Resource Website

Many cities in California host a bicycle resource website. These websites typically provide a bicycle map of the City, bicycle parking locations, and information about the local Bicycle and/or Pedestrian Committee and local advocacy groups.



The City of San Mateo dedicates a page of its website to bicycle information

Recommended components of the resource website include:

- Dynamic bikeway and bike parking map
- Advertise all bikeways after implementation
- Bicycling tips including information on how to:
    - Carry items using baskets and panniers
    - Properly lock a bicycle
    - Ride in the rain with help from fenders and rain gear
    - Tips can also include information on the importance of bicycle lights and reflectors.
- Bikeway maintenance and repair phone number
- Driver speed feedback sign request forms
- Bicycle events calendar
- Education and skill class information

This Plan also recommends that the City's website provide bicycle-related information in Spanish and other languages.

Sample websites:

- Los Angeles Department of Transportation Bicycle Services: http://www.bicyclela.org/
- Bike Santa Clarita: http://bikesantaclarita.com/
- City of San Mateo, CA: http://www.ci.sanmateo.ca.us/index.aspx?NID=2118

5.2.4 Bicycle Safety Campaign

A marketing campaign that highlights bicyclist and pedestrian safety is an important part of creating awareness of bicycling and walking in Bakersfield. This type of high-profile campaign is an effective way to reach the public, highlight bicycling and walking as viable forms of transportation, and reinforce safety for all road users.

A well-produced safety campaign will be memorable and effective. One good example is the Sonoma County Transit "You've got a friend who bikes!" campaign. It combines compelling ads with an easy-to-use website focused at motorists, pedestrians, and bicyclists. This type of campaign is particularly effective when kicked off in conjunction with other bicycling/walking events or back to school in the fall. The safety and awareness messages should be displayed near high-traffic corridors (e.g., on billboards), printed in local publications, broadcast as radio and/or television ads and be available in Spanish and other languages.

Recommendation

This Plan recommends that the City pursue grant funding to implement a bicycle safety campaign.

Sample program: Sonoma County (CA) Transit: http://www.sctransit.com/bikesafe/bikes.htm

5.2.5 Share the Road Outreach and StreetSmarts

Share the Road outreach is a way for the City to actively disseminate the rules of the road in person to residents. One way to conduct outreach is for the City to conduct "checkpoints". Working with volunteers from a local advocacy group and the police department, officers could stop motorists and bicyclists to offer a brochure on the rules of the road as they pertain to motorists and bicyclists. An example of the Marin County Bicycle Coalition's Share the Road Checkpoints can be found at the link below.

Bicycle safety campaigns increase the general public's awareness of bicycling and can be used to promote safe roads by and for all users

Recommendation

The City may also consider tabling at a Farmer's Market or street fair to conduct Share the Road outreach. Much like the checkpoints, the City could distribute Share the Road brochures and present illustrations of common misconceptions motorists and bicyclists have of one another.

On a citywide scale, the City could start a StreetSmarts media campaign, similar to those in San Jose, Marin, Davis and other California cities. Developed by the City of San Jose, StreetSmarts uses print media, radio spots and television spots to educate people about safe driving, bicycling and walking behavior. More information about StreetSmarts can be found at the link below.

http://www.getstreetsmarts.org/

5.2.6 Adult Bicycling Skills Classes

In addition to employer hosted classes, community members can also particpate in private bicycling skills classes. The most common program is the League of American Bicyclists courses (including Road I, Road II, and Commuting), taught by League Certified Instructors. Courses cover bicycle safety checks, fixing a flat, on-bike skills, crash avoidance techniques, and traffic negotiation. Occasional courses are already organized by Bike Bakersfield.

Recommendation

This Plan recommends that the City provide funding and support to Bike Bakersfield or a similar group to host adult bicycling skills classes on a bi-annual basis, at minimum. The City may also highlight local or nearby courses on its bicycling website. The City should advertise the courses in multiple languages and use responses to the advertisement to determine the need for multi-lingual instruction.

Adult bicycle skills courses can ensure that bicyclists have the information and skills they need to avoid hazards and follow the law

Sample programs:

- League of American Bicyclists: http://bikeleague.org/programs/education/courses.php

5.2.7 Senior Bicycle Education Classes

Senior bicycle education programs help older adults either re-learn bicycling or learn how to bicycle with less agility. Seniors who are no longer able to drive may still be able to bicycle shorter distances on either a regular two wheeled bicycle or an adult tricycle. The Portland (OR) Parks and Recreation Department hosts a free senior tricycle program that provides tricycles to senior centers and takes folks on guided rides.

Recommendation

This Plan recommends that the City collaborate with interested agencies, health departments, and senior centers to evaluate interest and implement multi-lingual senior bicycle education classes.

Sample Program:

- Portland Senior Tricycle Program http://www.portlandonline.com/transportation/index.cfm?c=34772&a=155167

5.3 Enforcement

Enforcement programs enforce legal and respectful use of the transportation network. The bicycle related collision analysis and community identified needs indicate enforcement programs will help educate both motorists and bicyclists about the rules and responsibilities of the road.

The following outlines recommended enforcement programs for Bakersfield.

5.3.1 Bicycle Patrol

Police bicycle patrols not only increase the mobility of officers in dense areas but also provide law enforcement officers with an opportunity to display safe and legal bicycle skills. Bicycle patrols also show the community that the City is engaged in sustainable transportation.

Recommendation

This Plan recommends that the City institute regular bicycle patrols in the Downtown area and along the Kern River Bike Trail.

5.3.2 Speed Feedback Signs

Speed feedback signs display the speed of passing motor vehicles, assuming that motorists will slow down if they are aware of their speed.

Recommendation

This Plan recommends that the City include information on how to request a speed feedback sign on its bicycling resource website.

5.3.3 Targeted Enforcement

Targeted enforcement involves the focused efforts of police officers on a particular issue or specific location. For example, the Police Department may conduct pedestrian stings at locations where pedestrians and motorists conflict and do not comply with traffic signals. Similar strategies may be applied to areas with bicycle traffic.

Recommendation

This Plan recommends that the City coordinate with the Police Department to conduct targeted enforcement stings at locations known for noncompliance with traffic laws and at high conflict or high bicycle-related collision areas.

5.4 Evaluation

Evaluation programs help the City measure how well it is meeting the goals of this plan and the Metro General Plan, and evaluation is a key component of any engineering or programmatic investment.

5.4.1 Annual Count and Survey Program

Evaluation programs measure and evaluate the impact of projects, policies and programs. Typical evaluation programs range from a simple year-over-year comparison of US Census Journey to Work data to bicycle counts and community surveys. Bicycle counts and community surveys act as methods to evaluate not only the impacts of specific bicycle improvement projects but can also function as way to measure progress towards reaching City goals such as increased bicycle travel for trips of one mile or less.

Recommendation

This Plan recommends, at a minimum:

- Before and after bicycle, pedestrian and vehicle counts on all roadway projects.
- Annual community survey to evaluate bicycling activity, impacts of bicycle programs and facilities and to measure the City's progress towards reaching its goals.

The City may consider the use of automatic count technologies for bicycle count efforts. In-pavement loop detectors accurately count on-street bicycle activity and infrared counters can count bicycle and pedestrian activities on paths.

The City may also produce an annual report or 'report card' on bicycling activity. Annual reports developed from count and survey efforts can help the City measure its success towards the goals of this Plan as well as those of the Metro General Plan.

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6. Benefits

6.1. Why Bicycling is Important

Bicycling is important to Bakersfield's future due to its potential to address the interrelated challenges of traffic, air quality, creating a sense of community, and public health. Non-motorized transportation infrastructure can also provide economic benefits to the community. By becoming a more bicycle-friendly city, Bakersfield can affect all of these elements and can collectively influence the existing and future quality of life.

Fostering conditions where bicycling is accepted and encouraged increases a community's livability from a number of different criteria that are often difficult to measure, but nevertheless important. In areas where people ride a bicycle, there are more opportunities for chance meetings than where people generally travel by vehicle. People bicycling are also more likely to talk and interact on a more human level. More activity at a slower rate also provides more "eyes on the street", or the effect of people looking out for one another. All of these quality of life benefits can enhance Bakersfield's sense of place.

This chapter outlines estimated future bicycling activity and the benefits of bicycling including traffic, economic, air quality and health benefits.

6.2. Future Usage and Benefits

Alta has developed a Caltrans approved bicycle model that estimates bicycle network usage and benefits associated with increased bicycling. Table 6-1 quantifies the estimated reduction in vehicle miles traveled in Bakersfield following implementation of the bikeway network, as well as an increase of bicycle mode share from 1.35 percent to 2.6 percent.

6.2.1 Traffic Benefits

Each time residents in Bakersfield choose to bicycle for utilitarian purposes, automobile trips are removed from the road. As Bakersfield's downtown, other retail and employment districts become more inviting to bicycles, more work, school, shopping, and recreational trips will be made on bicycle. Cumulatively, this pattern may reduce traffic in some areas and, subsequently, improve air quality.

Table 6-1 presents estimated future bicycling trips that would result from implementation of this plan. As estimated, bicycle mode share would increase to 2.6 percent - from 5,564 existing trips to 11,195 with the built-out bikeway network.

Table 6-1: Projected Year 2030 Bicycling Demand

Data		Source and Assumptions
Future Commute Statistics		
Future study area population	433,253	CA Department of Finance State and County Population Projections applied to 2007-2011 American Community Survey, B01003 5-Year Estimates
Future employed population	175,497	CA Department of Finance State and County Population Projections applied to 2007-2011 American Community Survey, B08301 5-Year Estimates
Future bike-to-work mode share	0.7%	Assumes the number of bicycle to work commuters will double after full bikeway network buildout (based on 2007-2011 American Community Survey, B08301 5-Year Estimates)
Future number of bike-to-work commuters	1,299	Future employed persons multiplied by bike-to-work mode share
Future work-at-home mode share	3.5%	Assumes the number of work-at-home employees will increase by 25% (based on 2007-2011 American Community Survey, B08301 5-Year Estimates)
Future number of work-at-home bike commuters	612	Assumes 10% of population working at home makes at least one daily bicycle trip
Future transit-to-work mode share	1.5%	Assumes the number of transit-to-work commuters will increase by 25% (based on 2007-2011 American Community Survey, B08301 5-Year Estimates)
Future transit bicycle commuters	642	Employed persons multiplied by transit mode share. Assumes 25% of transit riders access transit by bicycle
Future school children, ages 6-14 (grades K-8)	15,830	CA Department of Finance State and County Population Projections applied to 2007-2011 American Community Survey, B01003 5-Year Estimates
Future school children bicycling mode share	4.0%	Assumes school children bicycling mode share will double (based on National Safe Routes to School surveys, 2003)
Future school children bike commuters	633	School children population multiplied by children bike mode share
Future number of college students in study area	48,238	CA Department of Finance State and County Population Projections applied to 2007-2011 American Community Survey, B01003 5-Year Estimates
Future estimated college bicycling mode share	5.0%	National Bicycling & Walking Study, FHWA, Case Study No. 1, 1995 [Review of bicycle commute share in seven university communities (5%), adjusted to consider site-specific topographic constraints (1%)]
Future college bike commuters	2,412	College population multiplied by college bike mode share
Future total number of bike commuters	5,598	Total of bike-to-work, transit, school, college and utilitarian bicycle commuters (Does not include recreation)
Total daily bicycling trips	11,195	Total bicycle commuters x 2 (for round trips)
Estimated Adjusted Mode Share	2.6%	Estimated bicycle commuters divided by population
Future Vehicle Trips and Miles Reduction		
Reduced Vehicle Trips per Weekday	3,491	Assumes 73% of bicycle trips replace vehicle trips for adults/college students and 53% for school children
Reduced Vehicle Trips per Year	911,184	Reduced number of weekday vehicle trips multiplied by 261 (weekdays in a year)
Reduced Vehicle Miles per Weekday	25,580	Assumes average round trip travel length of 8 miles for adults/college students and 1 mile for schoolchildren
Reduced Vehicle Miles per Year	6,676,326	Reduced number of weekday vehicle miles multiplied by 261 (weekdays in a year)

6.2.2 Economic Benefits

An inviting bicycle network and supportive programs have potential to improve the following economic factors:

- Studies suggest that home prices near trails are higher than home prices farther away from trails.[1]
- Bicycle and pedestrian facilities can lead to increased spending. A 1991 National Park Service study found that long rural trails generated more revenue per person than shorter urban trails. The study estimated average expenditures of rail-trail users at $1.90 per person to $14.88 per person.[2]
- A high-quality bicycling environment can bring bicycle-related businesses to the region. Portland, Oregon's bicycle industry was worth approximately $90 million in 2008,[3] and a study of the economic impact of bicycling in Wisconsin found that manufacturing contributes $426 million and retail sales and service contribute up to $100 million.[4]

While data are not available to quantitatively estimate the economic impacts of constructing a high-quality network in Bakersfield, this Plan's implementation may contribute to increased property values, tourism, retail sales and bicycle-related businesses.

6.2.3 Air Quality Benefits

Increased bicycle commute trips would have the additional benefit of improving air quality levels over levels projected without improvements to the bicycle network. Analysis conducted for this Plan found that implementation of the bicycle network could result in approximately 11,195 daily commute and utilitarian bicycle trips. The corresponding reduction in vehicle miles driven would reduce air pollution emissions. Measuring environmental improvements by reduction in greenhouse gases allow easy measurement and tracking of real benefits.

Table 6-2: Projected Year 2030 Bicycling Air Quality Impact

Data		Source and Assumptions
Future Air Quality Benefits		
Reduced Hydrocarbons (pounds/weekday)	77	Daily mileage reduction multiplied by 1.36 grams per reduced mile
Reduced PM10 (pounds/weekday)	0.3	Daily mileage reduction multiplied by 0.0052 grams per reduced mile
Reduced PM2.5 (pounds/weekday)	0.3	Daily mileage reduction multiplied by 0.0049 grams per reduced mile
Reduced NOX (pounds/weekday)	54	Daily mileage reduction multiplied by 0.95 grams per reduced mile
Reduced CO (pounds/weekday)	699	Daily mileage reduction multiplied by 12.4 grams per reduced mile
Reduced C02 (pounds/weekday)	20,809	Yearly mileage reduction multiplied by 369 grams per reduced mile
Reduced Hydrocarbons (pounds/year)	20,018	Yearly mileage reduction multiplied by 1.36 grams per reduced mile
Reduced PM10 (pounds/year)	77	Yearly mileage reduction multiplied by 0.0052 grams per reduced mile
Reduced PM2.5 (pounds/year)	72	Yearly mileage reduction multiplied by 0.0049 grams per reduced mile
Reduced NOX (pounds/year)	13,983	Yearly mileage reduction multiplied by 0.95 grams per reduced mile
Reduced CO (pounds/year)	182,513	Yearly mileage reduction multiplied by 12.4 grams per reduced mile
Reduced C02 (pounds/year)	5,431,229	Yearly mileage reduction multiplied by 369 grams per reduced mile
Emissions rates from EPA report 420-F-05-022 "Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline-Fueled Passenger Cars and Light Trucks." 2005.)		

[1] Racca, D., & Dhanju, A. (2006). Property Value/Desirability Effects of Bike Paths Adjacent to Residential Areas. Delaware Center for Transportation.
[2] Center for International Public Management, Inc. for the Florida Dept. of Environmental Protection, Office of Greenways and Trails. (1998). Thinking Green: A Guide to the Benefits and Costs of Greenways and Trails.
[3] Alta Planning+Design. (2009). The Value of the Bicycle-Related Industry in Portland.
[4] Wisconsin Department of Transportation. The Economic Impact of Bicycling in Wisconsin.

6.2.4 Health Benefits

Bicycling can improve public health through increased physical activity. In recent years public health professionals and urban planners have become increasingly aware that the impacts of vehicles on public health extend far beyond asthma and other respiratory conditions caused by air pollution. Dependency on vehicles has decreased physical activity, which in turn is linked to cardiovascular disease, stroke, hypertension, Type-2 diabetes and osteoporosis. In comparison to European countries and Canada (Figure 6-1[5]), the U.S. has a higher rate of obesity and lower rate of walking, bicycling, and public transportation use. Improving non-motorized facilities may help alleviate these disorders and reduce obesity.

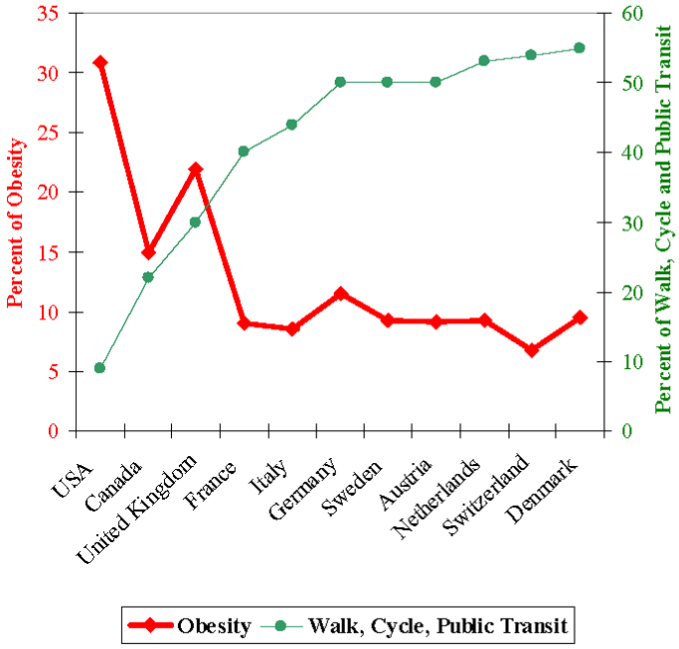

Figure 6-1: Transportation and Obesity Rates

The Centers for Disease Control recommend that all healthy adults aged 18 to 65 need moderate-intensity physical activity at least three days each week. Community design, including bicycle facilities, influences the ability of Bakersfield residents to attain these levels of exercise through daily activities such as commuting to work, school or for recreation.

[5] Pucher, J., & Dijkstra, L. (September 2003). Promoting Safe Walking and Cycling to Improve Public Health. American Journal of Public Health.

7. Implementation

This chapter provides a strategy for implementing the capital project recommendations in this Plan. This implementation strategy and sequence is guided by a criteria-based ranking consistent with the goals of this plan as well as the goals of other City plans and the Metro General Plan.

Phased implementation of the recommended projects and programs presented in Chapter 4 and Chapter 5 will take a significant amount of time, subject to a large number of variables. The most important of these variables include availability of funding for non-motorized transportation, the City of Bakersfield's success in obtaining competitive grant funding, and local community and political support.

In the near-term, it is critically important to focus on a group of achievable, high priority projects. These high priority projects are drawn directly from the results of the criteria-based ranking process presented in Table 7-1. The high priority projects identified in Table 7-5 of this chapter represent roughly $2.1 million dollars in capital improvements and site-specific technical traffic studies to support near-term project refinement and development.

These projects are intended for near-term implementation in the next one to five years. While this is a significant jump in expenditure for the City of Bakersfield, current trends indicate that Bakersfield is poised to make this jump. The city's commitment to implementing the goals of the Metro General Plan, to continued investment in Downtown, and commitment to the preparation of the Bicycle Transportation Plan, will certainly attract the wide variety of transportation funding and generate other financing required to complete this high priority project list.

7.1. Bikeway Project Prioritization

The intent of prioritizing projects is to create a prioritized list of bicycle projects for implementation. As projects are implemented, lower ranked projects move up the list. The project list and individual projects outlined in this Plan are flexible concepts that serve as a guideline. The high-priority Tier 1 project list, and perhaps the overall system and segments themselves, may change over time as a result of changing bicycling patterns, land use patterns, implementation constraints and opportunities and the development of other transportation system facilities.

Projects may be implemented out of scoring order as opportunities or challenges arise. Opportunities may include grant availability, new development projects, or roadway repaving. The City of Bakersfield should review the project list and project ranking at regular intervals to ensure it reflects the most current priorities, needs, and opportunities for implementing the bicycle network in a logical and efficient manner.

7.1.1 Prioritization Criteria

The plan's vision and goals inform the ranking criteria, which were developed with input from the City of Bakersfield and the Bicycle Transportation Plan Steering Committee. These criteria are described in Table 7-1 and outlined below.

The criteria include:

- Safety
- Gap Closure
- Community Connections
- Employment Connections
- School Connections
- Public Input

Based on the nature of the criterion, the projects were scored:

- Score / No Score
- Full Score / Half Score / Zero Score
- Scaled range from zero to 20

For example, projects evaluated for network connectivity will receive either a zero score or a full score. The project either extends the existing network/overcomes a freeway barrier or does not. By contrast, projects that connect to community destinations can receive a full, half or no score depending on whether it directly connects, indirectly connects or does not connect to a community destination.

The maximum potential score for each project is the sum of the maximum potential scores of all project criteria (100).

Table 7-1: Project Ranking Criteria

Criteria	Description	Maximum Score
Safety	This ranking is based on available collision data identifying corridors with high incidents of bicycle related collisions within a quarter mile buffer of the proposed improvement. Projects are scored on a scaled ranking from zero to 20 with locations with the most collisions receiving the maximum score.	20
Gap Closure	Projects that close identified gaps receive 20 points.	20
Community Center Connections	Projects that directly connect to community destinations including retail districts, libraries, community centers, and parks, receive 15 points. Projects located within a half mile of these destinations that connect to a bikeway directly connected to the destination receive 7 points Projects that do not connect to a community center receive zero points.	15
Employment Connections	Projects that directly connect to any of the ten largest employers or the highest employment census blocks in the City receive 15 points. Projects that connect to a bikeway that connects directly to one of these employers or areas of moderate employment density receive 7 points. Projects that do not connect to major employers, high or moderate employment density areas receive zero points.	15
School Connections	Projects that directly connect to schools receive 15 points. Projects that connect to a bikeway that directly connect to a school receive 7 points. Projects that do not connect to schools receive zero points.	15
Public Input	Projects that were identified by the community receive 15 points. Projects that were not identified by the community receive zero points.	15
	Maximum Total Score	**100**

Bikeway projects were then placed into three phasing groups: Tier 1, Tier 2, and Tier 3.

- **Tier 1** (>50 points): Tier 1 projects have the highest potential for addressing the City's goals for bicycle transportation and are intended for near-term project implementation within one to five years.
- **Tier 2** (30-50 points): Tier 2 projects are intended for development within 6 to 10 years.
- **Tier 3** (<30 points): Tier 3 projects are not currently ready for implementation but are included as long-term potential bicycle-specific projects over the next 11 to 20 years.

Table 7-3 lists the projects and their scores, organized into the three Tiers.

7.1.2 Cost Estimate Assumptions

This section presents typical planning level unit costs for constructing bikeways in California's Central Valley Area, shown in Table 7-2. The cost estimates for each of the recommended bikeway projects is included in Table 7-3. Unit costs presented here are planning-level cost estimates based on typical or average costs experienced by California cities and counties when constructing similar project. While these costs also reflect the suburban nature of the City of Bakersfield, they do not consider project-specific factors such as intensive grading, landscaping, intersection modifications, and right-of-way acquisition that may increase actual construction costs. For some segments project costs may be significantly greater.

Table 7-2: Estimated Bikeway Unit Costs

Item	Quantity	Units	Unit Cost	Total
Class III Bike Route – Urban – Per Mile				
Bike Route Sign/Wayfinding[1]	10	EA	$ 300	$ 3,000
Shared Lane Marking[2]	20	EA	$ 250	$ 5,000
	Total Cost Per Mile			**$ 8,000**
Class II Bike Lanes – Urban – Per Mile				
Bike Lane Sign/Wayfinding	10	EA	$ 300	$ 3,000
Striping Removal	10,560	LF	$ 1.25	$ 13,200
Striping and Stenciling	10,560	LF	$ 2.50	$ 26,400
	Total Cost Per Mile			**$ 42,600**
Class I Shared Use Path - 10' paved, 2' shoulders – Per Mile				
Wayfinding	4	EA	$ 300	$ 1,200
Clear and Grub	73,920	SF	$ 1.00	$ 73,920
Asphalt Concrete Pavement	52,800	SF	$ 8.00	$ 422,400
Decomposed Granite Shoulders	21,120	SF	$ 5.00	$ 105,600
Striping[4]	15,840	LF	$ 2.50	$ 39,600
	Total Cost Per Mile			**$ 642,720**

1 Assumes five signs per mile in each direction.
2 Assumes shared lane marking are placed every 265 feet.
3 Assumes two signs per mile in each direction.
4 Includes center stripe and striping along path edges.

The construction of recommended facilities will also require additional field work to verify conditions. These include but are not limited to: roadway width, travel lanes, actual motor vehicle speeds, motor vehicle volumes, bicycle and motor vehicle travel patterns and conflicts, and pavement conditions. Final bikeway treatments should be selected based on verified conditions.

Table 7-3: Prioritized Bikeway Projects by Tier

Class	Location	Start	End	Distance (Miles)	Study Needed?	Family Friendly / Confident Commuter	Safety	Gap Closure	Community Center Connections	Employment Connections	School Connections	Public Input	Total Score	Tier	Cost Estimate
II	Baker Street	Bernard Street	California Avenue	1.57		Confident Commuter	11	20	15	15	7	15	83	1	$66,900
II	Potomac Avenue	S. King Street	Monticello Avenue	0.82		Confident Commuter	4	20	15	0	15	15	69	1	$34,900
I	River Bike Trail Connection	Kern River Parkway	Elm Street	0.26	Yes	Family Friendly	20	20	15	7	7	0	69	1	$167,100
III	Baker Street	California Avenue	S. King Street	0.35		Confident Commuter	4	20	15	7	7	15	68	1	$2,800
III	E. Pacheco Road	Hughes Lane	Cottonwood Road	2.52		Family Friendly	3	20	15	0	15	15	68	1	$20,200
II	Belle Terrace	Stine Road	Madison Street	3.04		Confident Commuter	4	20	15	7	7	15	68	1	$129,500
III	Pin Oak Boulevard	Bear Creek Road	District Boulevard	1.14		Family Friendly	1	20	15	0	15	15	66	1	$9,100
III	Ewoldsen Class III Route	Oak Grove Street	N. Half Moon Drive	1.43		Family Friendly	1	20	15	0	15	15	66	1	$11,400
III	Harris Road	Ashe Road	Akers Road	1.51		Family Friendly	2	20	15	7	7	15	66	1	$12,100
II	Harris Road	Ashe Road	Wible Road	0.50		Family Friendly	1	20	15	0	15	15	66	1	$21,300
II	Hughes Lane	Ming Ave	E. Pacheco Road	1.50		Confident Commuter	2	20	15	7	7	15	66	1	$63,900
II	Harris Road	S. Allen Road	Ashe Road	4.08		Family Friendly	2	20	15	7	7	15	66	1	$173,800
II	Haley Street	Panorama Drive	Columbus Street	0.87		Confident Commuter	1	20	7	7	15	15	65	1	$37,100
II	E. Pacheco Road	Gasoline Alley	Monitor Street	1.33		Family Friendly	1	20	15	7	7	15	65	1	$56,700
II	Akers Road	Wilson Rd	McKee	3.99		Confident Commuter	1	20	15	7	7	15	65	1	$170,000
I	Arvin-Edison Canal Path	Stockdale Highway	Cottonwood Road	9.54	Yes	Family Friendly	1	20	15	7	7	15	65	1	$6,131,500
III	17th Street	A Street	Truxtun Avenue	1.26		Confident Commuter	4	0	15	15	15	15	64	1	$10,100
II	M Street	30th Street	17th Street	0.85		Confident Commuter	4	0	15	15	15	15	64	1	$36,200

Class	Location	Start	End	Distance (Miles)	Study Needed?	Family Friendly / Confident Commuter	Safety	Gap Closure	Community Center Connections	Employment Connections	School Connections	Public Input	Total Score	Tier	Cost Estimate
II	Sillect Avenue	Buck Owens Boulevard	Kern River Parkway	1.33		Confident Commuter	20	0	15	7	7	15	64	1	$56,700
I	H Street Canal Path	Railroad Bridge	Highway 99	7.97	Yes	Family Friendly	4	0	15	15	15	15	64	1	$5,122,500
I	Friant-Kern Canal	Seventh Standard Road	Kern River	6.10	Yes	Family Friendly	1	0	15	15	15	15	61	1	$3,920,600
II	Beale Avenue	Grace Street	21st Street	1.00		Confident Commuter	11	20	15	7	7	0	60	1	$42,600
II	Q Street	Columbus Street	Highway 178	1.12		Confident Commuter	3	20	15	15	7	0	60	1	$47,700
III	Haggin Oaks Blvd	Camino Media	Limoges Way	0.74		Family Friendly	1	20	7	0	15	15	58	1	$5,900
II	Kentucky Street	Alta Vista Drive	Mt. Vernon Avenue	1.81		Confident Commuter	11	0	15	7	7	15	55	1	$77,100
III	Flower Street	Alta Vista Drive	Owens Street	0.64		Confident Commuter	2	0	15	15	7	15	54	1	$5,100
III	S, King Street	California Avenue	Brundage Lane	1.00		Confident Commuter	4	20	15	0	15	0	54	1	$8,000
III	4th Street	Union Avenue	City Limits	1.25		Confident Commuter	4	20	15	0	0	15	54	1	$10,000
III	Watts Drive	Cottonwood Road	Madison Street	0.50		Confident Commuter	4	20	15	7	7	0	53	1	$4,000
III	Brundage Lane	Union Avenue	Oswell Street	5.08		Confident Commuter	4	20	15	7	7	0	53	1	$40,600
II	Niles Street	Alta Vista Drive	Virginia Street	1.28		Confident Commuter	1	0	15	15	7	15	53	1	$54,500
II	Bernard Street	Chester Avenue	Mt. Vernon Avenue	2.95		Confident Commuter	4	20	15	7	7	0	53	1	$125,700
III	Berkshire Road	Stine Road	Santana Sun Drive	1.50		Family Friendly	2	20	15	0	15	0	52	1	$12,000
II	21st Street	King Street	Washington Street	0.89		Confident Commuter	11	20	7	7	7	0	52	1	$37,900
I	178 Overcrossing	Height Street	Mirador Drive	0.10	Yes	Family Friendly	2	20	15	0	15	0	52	1	$64,300
III	Laurelglen Boulevard	Pin Oak Park Boulevard	Gosford Road	0.48		Confident Commuter	1	20	15	0	0	15	51	1	$3,800

Class	Location	Start	End	Distance (Miles)	Study Needed?	Family Friendly / Confident Commuter	Safety	Gap Closure	Community Center Connections	Employment Connections	School Connections	Public Input	Total Score	Tier	Cost Estimate
III	Mountain Oak - McInnes Rt	Park Path	McInnes - Westwold Path	0.59		Family Friendly	1	20	15	0	15	0	51	1	$4,700
III	22nd Street	Elm Street	F Street	0.72		Confident Commuter	6	0	15	15	0	15	51	1	$5,800
III	Christmas Tree Lane	Mt Vernon Avenue	Panorama Drive	1.65		Confident Commuter	1	20	15	0	15	0	51	1	$13,200
II	Madison Street	Belle Terrace	White Ln	1.00		Confident Commuter	1	20	15	0	15	0	51	1	$42,600
I	Park Path	Mountain Oak Road	Broad Oak Avenue	0.19	Yes	Family Friendly	1	20	15	0	15	0	51	1	$122,100
II	Wible Road	Planz Road	Taft Highway	4.00		Confident Commuter	2	20	15	7	7	0	51	1	$170,400
III	Pacific Street	Union Avenue	Alta Vista Drive	0.36		Confident Commuter	1	20	15	7	7	0	50	2	$2,900
III	Chinon - Limoges Route	McInnes Boulevard	Haggin Oaks Boulevard	0.37		Family Friendly	0	20	15	0	15	0	50	2	$3,000
III	Maywood - Charger Route	Oswell Street	Piper Way	1.85		Family Friendly	0	20	15	0	15	0	50	2	$14,800
I	McInnes - Westwold Path	McInnes Boulevard	Westwold Drive	0.08	Yes	Family Friendly	0	20	15	0	15	0	50	2	$51,400
II	Riverlakes Drive	Olive Drive	Coffee Road	1.57		Confident Commuter	1	20	15	7	7	0	50	2	$66,900
II	Stine Road	Panama Lane	Taft Highway	2.00		Confident Commuter	0	20	15	0	15	0	50	2	$85,200
II	Noriega Road	Renfro Rd	Calloway Drive	2.01		Confident Commuter	0	20	15	0	15	0	50	2	$85,600
III	Marella Class III	Garnsey Avenue	Montclair Street	0.55		Confident Commuter	5	0	15	7	7	15	49	2	$4,400
III	Marella Way	California Avenue	Montclair Street	1.00		Confident Commuter	5	0	15	7	7	15	49	2	$8,000
II	Hosking Avenue	Wible Rd	Cottonwood Road	3.03	Yes	Confident Commuter	0	20	15	7	7	0	49	2	$129,100
II	P Street	Brundage Lane	Belle Terrace	0.50		Confident Commuter	3	0	15	7	7	15	47	2	$21,300

Class	Location	Start	End	Distance (Miles)	Study Needed?	Family Friendly / Confident Commuter	Safety	Gap Closure	Community Center Connections	Employment Connections	School Connections	Public Input	Total Score	Tier	Cost Estimate
III	Sundale Avenue	La Puente Drive	New Stine Road	0.91		Family Friendly	1	0	15	15	15	0	46	2	$7,300
III	Palm Street	Real Road	P Street	1.79		Confident Commuter	2	0	15	7	7	15	46	2	$14,300
II	Verdugo Lane	Olive Drive	Hagaman Road	1.22		Confident Commuter	1	0	15	0	15	15	46	2	$52,000
II	A St/Hughes Ln	California Ave	Terrace Way	1.26	Yes	Confident Commuter	2	0	15	7	7	15	46	2	$53,700
III	Raider Drive	Planz Road	Merrimac Avenue	0.25		Confident Commuter	15	0	15	0	15	0	45	2	$2,000
III	University Avenue	Haley Street	River Boulevard	0.58		Confident Commuter	1	0	7	7	15	15	45	2	$4,600
III	Quailwood - Quailridge	Truxtun Avenue	Stockdale Highway	1.02		Confident Commuter	1	0	15	7	7	15	45	2	$8,200
III	School House Road	Ming Ave	Ashe Road	1.33		Family Friendly	1	0	15	7	7	15	45	2	$10,600
III	18th St - 19th St Route	21st Street	17th Street	1.01		Confident Commuter	0	0	15	7	7	15	44	2	$8,100
II	Calloway Drive	Snow Road	Norris Road	0.50		Confident Commuter	8	20	15	0	0	0	43	2	$21,300
II	Panama Lane	H Street	Cottonwood Road	2.03		Confident Commuter	2	20	7	7	7	0	43	2	$86,500
III	Broad Oak - Oak Grove Rt	Park Path	Westwold Drive	0.20		Confident Commuter	0	20	7	0	15	0	42	2	$1,600
III	Ridge Oak Drive	Rose Petal Street	Mountain Oak Road	0.42		Family Friendly	1	20	7	7	7	0	42	2	$3,400
III	Harris Rd-Gasoline Alley	Wible Road	Pacheco Road	0.70		Family Friendly	0	20	7	0	0	15	42	2	$5,600
III	White Lane	Dovewood Street	Hughes Lane	1.22		Confident Commuter	1	20	7	7	7	0	42	2	$9,800
II	Morning Drive	Auburn Street	Willis Avenue	1.38		Confident Commuter	0	20	7	0	15	0	42	2	$58,800
II	Snow Road	Allen Road	Verdugo Lane	1.50		Confident Commuter	1	20	7	7	7	0	42	2	$63,900

Class	Location	Start	End	Distance (Miles)	Study Needed?	Family Friendly / Confident Commuter	Safety	Gap Closure	Community Center Connections	Employment Connections	School Connections	Public Input	Total Score	Tier	Cost Estimate
II	Clay Patrick Farr Way	Hageman Road	Granite Falls Dr	0.83		Confident Commuter	0	20	7	7	7	0	41	2	$35,400
I	Buena Vista Canal Path	Ming Ave	Taft Hwy	8.29	Yes	Family Friendly	1	0	7	15	15	0	38	2	$5,328,100
III	Merrimac Avenue	Raider Drive	Monitor Street	0.06		Confident Commuter	15	0	7	0	15	0	37	2	$500
III	Monitor Street	Merrimac Avenue	White Lane	0.25		Confident Commuter	15	0	7	0	15	0	37	2	$2,000
III	Spring Creek Loop	Wilderness Drive	Reliance Drive	1.03		Confident Commuter	1	0	7	7	7	15	37	2	$8,200
III	Mountain Vista Drive	Grand Lakes Avenue	Berkshire Road	2.73		Family Friendly	1	0	7	7	7	15	37	2	$21,800
II	Half Moon Drive	Ashe Rd	Ashe Rd	1.15		Family Friendly	1	0	7	7	7	15	37	2	$49,000
I	Bakersfield Commons Conn.	Coffee Road	Friant-Kern Canal	0.44	Yes	Family Friendly	1	0	7	7	7	15	37	2	$282,800
III	Madison Street	Brundage Lane	Belle Terrace	0.49		Confident Commuter	1	20	15	0	0	0	36	2	$3,900
III	Jewetta Avenue	Palm Avenue	Brimhall Road	0.50		Confident Commuter	1	20	15	0	0	0	36	2	$4,000
II	University Avenue	Columbus Street	Panorama Drive	0.68		Confident Commuter	1	20	15	0	0	0	36	2	$29,000
I	Coffee Road Path Widening	Truxtun Avenue	Kern River Parkway	0.06	Yes	Family Friendly	1	20	15	0	0	0	36	2	$38,600
II	Gosford Road	Harris Road	Taft Highway	2.50		Confident Commuter	1	20	15	0	0	0	36	2	$106,500
III	Comanche Drive	City Limit	Highway 178	0.16		Confident Commuter	0	20	15	0	0	0	35	2	$1,300
III	Campus Park	Buena Vista Road	Old River Road	1.06		Confident Commuter	1	20	0	7	7	0	35	2	$8,500
II	Patton Way	Weldon Avenue	Hageman Road	0.28		Confident Commuter	8	20	7	0	0	0	35	2	$11,900
II	Morning Drive	Paladino Drive	Morningstar Avenue	0.80		Confident Commuter	0	20	15	0	0	0	35	2	$34,100

Class	Location	Start	End	Distance (Miles)	Study Needed?	Family Friendly / Confident Commuter	Safety	Gap Closure	Community Center Connections	Employment Connections	School Connections	Public Input	Total Score	Tier	Cost Estimate
II	Auburn Street	Morning Drive	Fairfax Road	0.92		Confident Commuter	0	20	15	0	0	0	35	2	$39,200
III	Highway 178	City Limits	Masterson Street	6.60		Confident Commuter	0	20	15	0	0	0	35	2	$52,800
II	Allen Road	Ming Avenue	White Lane	1.52		Confident Commuter	0	20	15	0	0	0	35	2	$64,800
II	Olive Drive	Santa Fe Way	Allen Road	1.52		Confident Commuter	0	20	15	0	0	0	35	2	$64,800
I	Claymore Extension	Eissler Street	Piper Way	0.11	Yes	Family Friendly	0	20	0	0	15	0	35	2	$70,700
II	Paladino Drive	Rivani Drive	Grand Canyon Drive	1.87		Confident Commuter	0	20	15	0	0	0	35	2	$79,700
II	Kern Canyon Road	Masterson Street	Morning Drive	2.66		Confident Commuter	0	20	15	0	0	0	35	2	$113,300
I	North Rosedale Park Path	Campfire Drive	Jewetta Avenue	0.18	Yes	Family Friendly	0	20	15	0	0	0	35	2	$115,700
III	Jewette Avenue	Bernard Street	30th Street	0.27		Confident Commuter	4	0	15	7	7	0	33	2	$2,200
III	Jewetta Avenue	Columbus Street	Bernard Street	0.52		Family Friendly	4	0	15	7	7	0	33	2	$4,200
III	36th Street	Chester Avenue	San Dimas Path	0.59		Family Friendly	4	0	15	7	7	0	33	2	$4,700
III	La France Drive	Castro Lane	El Toro Drive	1.03		Family Friendly	4	0	15	7	7	0	33	2	$8,200
III	Park/Blanch/11th/ 10th Route	Oak Street	Union Ave	1.08		Family Friendly	4	0	15	7	7	0	33	2	$8,600
III	Bank Street 2nd Street Ro	Oak Street	S. P Street	1.59		Family Friendly	4	0	15	7	7	0	33	2	$12,700
II	White Lane	Union Street	Cottonwood Road	0.99	Yes	Confident Commuter	6	20	7	0	0	0	33	2	$42,200
II	Ming Avenue	Oak Street	Union Avenue	2.03	Yes	Confident Commuter	4	0	15	7	7	0	33	2	$86,500
II	McKee Rd	Ashe Rd	SH 99	2.76		Confident Commuter	2	0	15	0	15	0	32	2	$117,600
III	Polo Drive	Dapple Avenue	Meadow Creek Street	0.26		Confident Commuter	1	0	15	0	15	0	31	2	$2,100

Class	Location	Start	End	Distance (Miles)	Study Needed?	Family Friendly / Confident Commuter	Safety	Gap Closure	Community Center Connections	Employment Connections	School Connections	Public Input	Total Score	Tier	Cost Estimate
III	Wilderness Drive	Harris Road	Reliance Drive	0.54		Confident Commuter	1	0	15	0	0	15	31	2	$4,300
III	Garnsey Avenue	Garnsey Lane	Stockdale Highway	0.57		Confident Commuter	2	0	15	7	7	0	31	2	$4,600
III	Height Street	River Boulevard	178 Overcrossing	0.75		Family Friendly	1	0	15	0	15	0	31	2	$6,000
III	W. Jeffrey Street	Overcrossing	River Boulevard	1.10		Family Friendly	2	0	15	7	7	0	31	2	$8,800
III	Grand Lakes Avenue	Rossilyn Lane	Brandy Rose Street	1.83		Family Friendly	1	0	0	0	15	15	31	2	$14,600
I	Almondale Pk Shared Path	Meadow Creek Street	Verdugo Lane	0.14	Yes	Family Friendly	1	0	15	0	15	0	31	2	$90,000
I	San Dimas Path	36th Street	Jeffrey Street	0.43	Yes	Family Friendly	2	0	15	7	7	0	31	2	$276,400
III	China Grade Loop	City Limit	Panorama Drive	0.11		Confident Commuter	1	0	7	7	15	0	30	2	$900
III	Half Moon Drive	Ashe Road	Ashe Road	0.96		Family Friendly	1	0	0	7	7	15	30	2	$7,700
III	Hughes Lane	E Pacheco Rd	Fairview Road	1.00		Confident Commuter	3	20	7	0	0	0	30	2	$8,000
III	Coventry - Benton Route	Ming Avenue	Oak Street	1.40		Family Friendly	0	0	15	0	15	0	30	2	$11,200
III	Noble Avenue Route	River Boulevard	Columbus Street	2.30		Family Friendly	0	0	15	0	15	0	30	2	$18,400
II	Old Farm Road	Snow Road	Hageman Road	2.00		Confident Commuter	0	0	15	0	15	0	30	2	$85,200
II	Buena Vista Road	Panama Lane	Highway 119	2.00		Confident Commuter	0	0	15	0	15	0	30	2	$85,200
II	Mt. Vernon Avenue	Panorama Drive	Flower Street	2.19		Confident Commuter	1	0	15	7	7	0	30	2	$93,300
II	Old River Road	Harris Road	Taft Highway	2.50		Confident Commuter	1	0	15	7	7	0	30	2	$106,500
I	Emerald Cove Park Path	Vaquero Avenue	Hageman Road	0.23	Yes	Family Friendly	0	0	15	0	15	0	30	2	$147,800
I	Polo Park Shared Path	Old Farm Road	Grazing Avenue	0.37	Yes	Family Friendly	0	0	15	0	15	0	30	2	$237,800

Class	Location	Start	End	Distance (Miles)	Study Needed?	Family Friendly / Confident Commuter	Safety	Gap Closure	Community Center Connections	Employment Connections	School Connections	Public Input	Total Score	Tier	Cost Estimate
II	21st St	Oak St	Westwind Dr	0.13		Confident Commuter	0	0	15	7	7	0	29	3	$5,500
II	Panama Lane	Dennen Street	Colony Street	0.33		Confident Commuter	2	20	7	0	0	0	29	3	$14,100
III	Berkshire Road	Colony Street	Madison Street	1.81		Family Friendly	0	0	15	7	7	0	29	3	$14,500
III	Fairview Road	Hughes Lane	Cottonwood Road	2.53		Confident Commuter	0	0	15	7	7	0	29	3	$20,200
I	21st St	Westwind Dr	Kern River Bike Path	0.06	Yes	Family Friendly	0	0	15	7	7	0	29	3	$38,600
II	Hosking Avenue	Wible Rd	Gosford Rd	2.99		Confident Commuter	2	20	7	0	0	0	29	3	$127,400
II	Verdugo Lane	Seventh Standard Road	Snow Road	1.00		Confident Commuter	1	20	7	0	0	0	28	3	$42,600
III	Edison Road	Highway 178	End of Street	1.15		Confident Commuter	0	20	7	0	0	0	27	3	$9,200
II	Patton Way	Weldon Avenue	Hageman Road	0.28		Confident Commuter	0	20	7	0	0	0	27	3	$11,900
III	Rudd Avenue	Seventh Standard Road	Santa Fe Way	1.50		Confident Commuter	0	20	7	0	0	0	27	3	$12,000
III	Alfred Harrell Highway	Morning Drive Bike Path	Highway 178	3.32		Confident Commuter	0	20	7	0	0	0	27	3	$26,600
II	Oswell Street	Columbus Street	City Limits	0.66		Confident Commuter	0	20	7	0	0	0	27	3	$28,100
II	Masterson Street	Highway 178	Alfred Harrell Highway	1.43		Confident Commuter	0	20	7	0	0	0	27	3	$60,900
I	NE Bakersfield Path	Paladino Drive	Morning Drive Path	2.70	Yes	Family Friendly	0	20	7	0	0	0	27	3	$1,735,300
I	Columbus Path	Kern River Parkway	Columbus Street	0.37	Yes	Family Friendly	4	0	7	7	7	0	25	3	$237,800
III	Real Road	Garnsey Lane	Palm Street	0.08		Confident Commuter	2	0	7	0	0	15	24	3	$600
III	Ridge Road	Camino Real	Mt. Vernon Avenue	0.16		Family Friendly	3	0	7	7	7	0	24	3	$1,300

Class	Location	Start	End	Distance (Miles)	Study Needed?	Family Friendly / Confident Commuter	Safety	Gap Closure	Community Center Connections	Employment Connections	School Connections	Public Input	Total Score	Tier	Cost Estimate
III	Chippewa - Yorkshire	Jewetta Avenue	Verdugo Lane	0.88		Family Friendly	1	0	7	0	15	0	23	3	$7,000
III	Chamber Boulevard	S. Allen Road	Grand Lakes Avenue	1.45		Family Friendly	1	0	7	0	0	15	23	3	$11,600
III	Laurel Park - Wrangler	Bay Meadows Lane	Calloway Drive	1.83		Family Friendly	1	0	7	0	15	0	23	3	$14,600
III	Iron Creek Goose Creek CT	Allen Road	Coffee Road	3.66		Family Friendly	1	0	7	0	15	0	23	3	$29,300
II	Wenatchee Avenue	Panorama Drive	Columbus Street	1.02		Confident Commuter	1	0	7	0	0	15	23	3	$43,500
II	Ashe Road	Panama Lane	Taft Highway	2.00		Confident Commuter	2	0	7	7	7	0	23	3	$85,200
III	Alfred Harrell Highway	City Limit	Panorama Drive	0.10		Confident Commuter	0	0	7	0	15	0	22	3	$800
III	Toluca Drive Route	Renfro Road	Allen Road	1.48		Family Friendly	0	0	7	0	15	0	22	3	$11,800
II	Panama Lane	Mountain Vista Road	Gosford Road	1.50		Confident Commuter	0	0	7	0	15	0	22	3	$63,900
I	Overcrossing	Willow Drive	Rio Mirada	0.17	Yes	Family Friendly	0	0	7	0	0	15	22	3	$109,300
II	Allen Road	Pensinger Road	Highway 119	2.75		Confident Commuter	1	0	7	7	7	0	22	3	$117,200
II	Mohawk Street	Hageman Road	Rosedale Highway	1.26		Confident Commuter	0	0	7	7	7	0	21	3	$53,700
II	Panama Lane	Interstate 5	Gosford Road	2.02		Confident Commuter	0	0	7	7	7	0	21	3	$86,100
III	Camino Grande	Alfred Harrell	NE Bakersfield Path	1.29		Confident Commuter	0	20	0	0	0	0	20	3	$10,300
I	Patton Way Shared Path	Weldon Avenue	Hageman Road	0.27	Yes	Family Friendly	0	20	0	0	0	0	20	3	$173,500
III	Appletree - Hahn Route	Wilson Road	Wible Road	1.80		Family Friendly	4	0	7	0	7	0	18	3	$14,400
III	Cottonwood Road	Casa Loma Drive	E. Panama Lane	3.00		Confident Commuter	3	0	15	0	0	0	18	3	$24,000

Class	Location	Start	End	Distance (Miles)	Study Needed?	Family Friendly / Confident Commuter	Safety	Gap Closure	Community Center Connections	Employment Connections	School Connections	Public Input	Total Score	Tier	Cost Estimate
III	S. H Street	Panama Lane	Taft Highway	2.00		Confident Commuter	2	0	15	0	0	0	17	3	$16,000
III	Greenwich - Balvanera	Verdugo Lane	Calloway Road	0.55		Family Friendly	1	0	15	0	0	0	16	3	$4,400
I	Arvin-Edison Canal Path	Cottonwood Road	Fairfax Road	3.77	Yes	Family Friendly	1	0	0	0	0	15	16	3	$2,423,100
III	Sage Drive	Half Moon Bay Drive	Wilson Road	0.20		Family Friendly	0	0	0	0	0	15	15	3	$1,600
III	Stellar Avenue	Old Farm Road	Campfire Drive	0.34		Family Friendly	0	0	15	0	0	0	15	3	$2,700
III	Westholme Boulevard	Ming Avenue	Wilson Road	0.40		Confident Commuter	1	0	7	0	7	0	15	3	$3,200
III	El Capitan Bike Route	Noriega Road	Polo Park Path	0.44		Family Friendly	0	0	15	0	0	0	15	3	$3,500
III	Allegheny Court	Old Walker Pass Road	Rivers Edge Park	0.44		Confident Commuter	0	0	15	0	0	0	15	3	$3,500
III	Olympia Drive	S. Laurel Glen Boulevard	Half Moon Bay Drive	0.49		Confident Commuter	0	0	0	0	0	15	15	3	$3,900
III	Old Walker Pass Road	Comanche Drive	Rancheria Road	1.46		Confident Commuter	0	0	15	0	0	0	15	3	$11,700
II	Knudsen Drive	Olive Drive	Hageman Road	0.47		Confident Commuter	0	0	15	0	0	0	15	3	$20,000
II	Brimhall Road	Renfro Road	Allen Road	1.01		Confident Commuter	0	0	15	0	0	0	15	3	$43,000
II	Santa Fe Way	7th Stnard Road	Hageman Road	4.14		Confident Commuter	0	0	15	0	0	0	15	3	$176,400
I	Rail ROW Path	7th Standard Road	E. Norris Road	2.23	Yes	Family Friendly	0	0	15	0	0	0	15	3	$1,433,300
III	Kahala - Constitution Rou	Hawaii Lane	Jewetta Avenue	1.34		Family Friendly	1	0	7	0	0	0	8	3	$10,700
III	Mezzadro/Alderbr k/Lavina	Allen Road	Allen Road	3.63		Family Friendly	1	0	7	0	0	0	8	3	$29,000
I	Panorama Class I Connecti	Kern River Parkway	Panorama Drive	0.06	Yes	Family Friendly	1	0	7	0	0	0	8	3	$38,600

Class	Location	Start	End	Distance (Miles)	Study Needed?	Family Friendly / Confident Commuter	Safety	Gap Closure	Community Center Connections	Employment Connections	School Connections	Public Input	Total Score	Tier	Cost Estimate
II	Mountain Ridge Rd	Panama Ln	Taft Hwy	2.00		Confident Commuter	1	0	7	0	0	0	8	3	$85,200
II	Reina Road	Renfro Road	Verdugo Lane	2.04		Confident Commuter	1	0	7	0	0	0	8	3	$86,900
I	Calloway Shared Path	Balvanera Drive	Noriega Road	0.28	Yes	Family Friendly	1	0	7	0	0	0	8	3	$180,000
III	Yarnell Bike Route	Paul Avenue	Calloway Drive	0.31		Family Friendly	0	0	7	0	0	0	7	3	$2,500
III	Hawaii - Wailea	Allen Road	Noriega Road	0.38		Family Friendly	0	0	7	0	0	0	7	3	$3,000
II	Allen Road	Snow Road	Hageman Road	1.89		Confident Commuter	0	0	7	0	0	0	7	3	$80,500
III	Mountain Park Dr	Kern River Parkway	River Run Boulevard	0.18		Confident Commuter	1	0	0	0	0	0	1	3	$1,400
III	Rose Petal Street	Brandy Rose Street	Ridge Oak Drive	0.20		Confident Commuter	1	0	0	0	0	0	1	3	$1,600
III	River Run Boulevard	Ming Avenue	Buena Vista Road	0.93		Confident Commuter	1	0	0	0	0	0	1	3	$7,400
I	Truxtun Shared Path link	Coffee Road	Quailridge Road	0.15	Yes	Family Friendly	1	0	0	0	0	0	1	3	$96,400
II	Panama Lane	Interstate 5	Gosford Road	2.02		Confident Commuter	0	0	0	0	0	0	0	3	$86,100

7.2. Bikeway Cost by Class and Tier

Table 7-5 presents a summary of bikeway miles and cost estimates by bikeway class. The total estimate for all the bikeway projects in this Plan is $34.2 million. A significant amount of this cost estimate is due to the cost of the Class I bike paths. The cost estimate for the recommended Class II and Class III projects is approximately $5.6 million.

Table 7-5: Summary of Costs by Class and Miles

Facility Type	Cost Estimate	Miles
I	$28,633,300	44.55
II	$4,732,200	111.07
III	$831,900	104.03
Total	**$34,217,400**	**259.65**

Table 7-6 presents a summary of bikeway projects by implementation tier. Tier 1, intended for implementation within the next five years, is estimated to cost $17.1 million. This includes the Arvin-Edison Canal, H Street Canal, and the Friant-Kern Canal paths which will require a feasibility study and will take considerable time to study and implement. The cost to implement the Tier 1 projects without the paths is approximately $2 million.

Table 7-6: Summary of Costs by Tier and Miles

Tier	Cost Estimate	Miles
1	$17,152,400	80.45
2	$8,946,600	98.87
3	$8,098,400	80.33
Total	**$34,217,400**	**259.65**

Table 7-5 at the end of this chapter outlines the high priority projects that include the Tier 1 bikeway infrastructure projects and priority programs.

7.3. Maintenance Cost Estimates

Bikeways require regular maintenance and repair. On-street bikeways are maintained as part of the normal roadway maintenance program and extra emphasis should be placed on keeping bike lanes and roadway shoulders clear of debris and keeping vegetation overgrowth from blocking visibility. The high cost of maintaining Class I facilities may be shared among various agencies or departments. The typical maintenance costs for the existing and proposed bikeway network are shown in Table 7-4.

Table 7-4: Bikeway Maintenance Cost Estimates (Existing and Proposed)

Facility Type	Unit Cost	Description	Length (Miles)	Annual Cost	Notes
Class I	$8,500	Miles/Year	72.45	$615,800	Lighting and removal of debris and vegetation overgrowth
Class II	$2,000	Miles/Year	225.45	$450,900	Repainting lane stripes and stencils, sign replacement as needed
Class III	$1,000	Miles/Year	104.76	$104,800	Sign replacement as needed
			Annual Cost	**$1,171,500**	

7.4. High Priority Projects and Programs

The high priority projects are comprised of the following:

- Tier 1 bikeway infrastructure projects;
- Spot improvement studies; and
- Selected programs including a bike parking plan; Safe Routes to School Plan, and a citywide youth bicycle saftey education program.

Table 7-5 below presents the high priority projects and cost estimates. This list may change to reflect the City's most current priorities, needs, and opportunities for implementing the bicycle network in a logical and efficient manner. A number of projects will require a feasibility study before implementation and those study costs have been included rather than implementation costs. The cost estimates for all projects are high level and detailed scoping should be completed before implementation. The total cost estimate for the high priority projects is approximately $3.3 million.

Table 7-5: High Priority Projects

Class	Project/Location	Start	End	Distance (Miles)	Family Friendly / Confident Commuter	Cost Estimate
II	Baker Street	Bernard Street	California Avenue	1.57	Confident Commuter	$66,900
II	Potomac Avenue	S. King Street	Monticello Avenue	0.82	Confident Commuter	$34,900
I	River Bike Trail Connection	Kern River Parkway	Elm Street	0.26	Family Friendly	$167,100
III	Baker Street	California Avenue	S. King Street	0.35	Confident Commuter	$2,800
III	E. Pacheco Road	Hughes Lane	Cottonwood Road	2.52	Family Friendly	$20,200
II	Belle Terrace	Stine Road	Madison Street	3.04	Confident Commuter	$129,500
III	Pin Oak Boulevard	Bear Creek Road	District Boulevard	1.14	Family Friendly	$9,100
III	Ewoldsen Class III Route	Oak Grove Street	N. Half Moon Drive	1.43	Family Friendly	$11,400
III	Harris Road	Ashe Road	Akers Road	1.51	Family Friendly	$12,100
II	Harris Road	Ashe Road	Wible Road	0.50	Family Friendly	$21,300
II	Hughes Lane	Ming Ave	E. Pacheco Road	1.50	Confident Commuter	$63,900
II	Harris Road	S. Allen Road	Ashe Road	4.08	Family Friendly	$173,800
II	Haley Street	Panorama Drive	Columbus Street	0.87	Confident Commuter	$37,100
II	E. Pacheco Road	Gasoline Alley	Monitor Street	1.33	Family Friendly	$56,700
II	Akers Road	Wilson Rd	Taft Hwy	4.47	Confident Commuter	$190,400
I	Arvin-Edison Canal Path	Stockdale Highway	Cottonwood Road	9.54	Family Friendly	Study
III	17th Street	A Street	Truxtun Avenue	1.26	Confident Commuter	$10,100
II	M Street	30th Street	17th Street	0.85	Confident Commuter	$36,200
II	Sillect Avenue	Buck Owens Boulevard	Kern River Parkway	1.33	Confident Commuter	$56,700
I	H Street Canal Path	Railroad Bridge	Highway 99	7.97	Family Friendly	Study
I	Friant-Kern Canal	Seventh Standard Road	Kern River	6.10	Family Friendly	Study

Class	Project/Location	Start	End	Distance (Miles)	Family Friendly / Confident Commuter	Cost Estimate
II	Beale Avenue	Grace Street	21st Street	1.00	Confident Commuter	$42,600
II	Q Street	Columbus Street	Highway 178	1.12	Confident Commuter	$47,700
III	Haggin Oaks Blvd	Camino Media	Limoges Way	0.74	Family Friendly	$5,900
II	Kentucky Street	Alta Vista Drive	Mt. Vernon Avenue	1.81	Confident Commuter	$77,100
III	Flower Street	Alta Vista Drive	Owens Street	0.64	Confident Commuter	$5,100
III	S, King Street	California Avenue	Brundage Lane	1.00	Confident Commuter	$8,000
III	4th Street	Union Avenue	City Limits	1.25	Confident Commuter	$10,000
III	Watts Drive	Cottonwood Road	Madison Street	0.50	Confident Commuter	$4,000
III	Brundage Lane	Union Avenue	Oswell Street	5.08	Confident Commuter	$40,600
II	Niles Street	Alta Vista Drive	Virginia Street	1.28	Confident Commuter	$54,500
II	Bernard Street	Chester Avenue	Mt. Vernon Avenue	2.95	Confident Commuter	$125,700
III	Berkshire Road	Stine Road	Santana Sun Drive	1.50	Family Friendly	$12,000
II	21st Street	King Street	Washington Street	0.89	Confident Commuter	$37,900
I	178 Overcrossing	Height Street	Mirador Drive	0.10	Family Friendly	Study
III	Laurelglen Boulevard	Pin Oak Park Boulevard	Gosford Road	0.48	Confident Commuter	$3,800
III	Mountain Oak - McInnes Rt	Park Path	McInnes - Westwold Path	0.59	Family Friendly	$4,700
III	22nd Street	Elm Street	F Street	0.72	Confident Commuter	$5,800
III	Christmas Tree Lane	Mt Vernon Avenue	Panorama Drive	1.65	Confident Commuter	$13,200
II	Madison Street	Belle Terrace	White Ln	1.00	Confident Commuter	$42,600
I	Park Path	Mountain Oak Road	Broad Oak Avenue	0.19	Family Friendly	$122,100
II	Wible Road	Planz Road	Taft Highway	4.00	Confident Commuter	$170,400
Arvin-Edison Canal Path Feasibility Study						$200,000
H Street Canal Path Feasibility Study						$200,000
Friant-Kern Canal Feasibility Study						$200,000
178 Overcrossing Feasibility Study						$100,000
River Bike Trail Connection Feasibility Study						$75,000
Spot Improvement Studies						$100,000
Bike Parking Plan						$75,000
Safe Routes to School Plan						$350,000
Youth Bicycle Safety Education Program						$50,000
					Total	**$3,283,900**

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8. Funding Sources

Federal, State and local government agencies invest billions of dollars every year in the nation's transportation system. Only a fraction of that funding is used in development projects, policy development and planning to improve conditions for cyclists. Even though appropriate funds are limited, they are available, but desirable projects sometimes go unfunded because communities may be unaware of a fund's existence, or may apply for the wrong type of grants. The competition between municipalities for the available bikeway funding is often fierce.

Whenever Federal funds are used for bicycle projects, a certain level of State and/or local matching funding is generally required. State funds are often available to local governments on similar terms. Almost every implemented bicycle program and facility in the United States has had more than one funding source, and it often takes a good deal of coordination to pull the various sources together.

According to the Federal Highway Administration's (FHWA) publication, *An Analysis of Current Funding Mechanisms for Bicycle and Pedestrian Programs at the Federal, State and Local Levels*, where successful local bike facility programs exist, there is usually a full time bicycle coordinator with extensive understanding of funding sources. Cities such as Seattle, Washington, Portland, Oregon and Tucson, Arizona, are prime examples. Bicycle coordinators are often in a position to develop a competitive project and detailed proposal that can be used to improve conditions for cyclists within their jurisdictions.

To support agency efforts to find outside funding sources to implement improvements along the proposed corridors, a summary by source type is provided below.

8.1. Federal Sources

8.1.1 Moving Ahead for Progress in the Twenty-First Century (MAP-21)

The largest source of federal funding for bicyclists and pedestrians is the US DOT's Federal-Aid Highway Program, which Congress has reauthorized roughly every six years since the passage of the Federal-Aid Road Act of 1916. The latest act, Moving Ahead for Progress in the Twenty-First Century (MAP-21) was enacted in July 2012 as Public Law 112-141. The Act replaces the Safe, Accountable, Flexible, Efficient Transportation Equity Act – a Legacy for Users (SAFETEA-LU), which was valid from August 2005 - June 2012. SAFETEA-LU contained dedicated programs including Transportation Enhancements, Safe Routes to School, and Recreational Trails, all commonly tapped sources of funding to make non-motorized improvements nationwide. MAP-21 combines these programs into a single source called 'Transportation Alternatives' programs (TAP). More information on TAP, including eligible activities, can be found below and at: http://www.fhwa.dot.gov/map21/guidance/guidetap.cfm

MAP-21 authorizes funding for federal surface transportation programs including highways and transit for the 27 month period between July 2012 and September 2014. It is not possible to guarantee the continued availability of any listed MAP-21 programs, or to predict their future funding levels or policy guidance. Nevertheless, many of these programs have been included in some form since the passage of the Intermodal

Surface Transportation Efficiency Act (ISTEA) in 1991, and thus may continue to provide capital for active transportation projects and programs.

In California, federal monies are administered through the California Department of Transportation (Caltrans) and Metropolitan Planning Organizations (MPOs) such as the Southern California Association of Governments (SCAG). Most, but not all, of these programs are oriented toward transportation versus recreation, with an emphasis on reducing auto trips and providing inter-modal connections. Federal funding is intended for capital improvements and safety and education programs, and projects must relate to the surface transportation system.

There are a number of programs identified within MAP-21 that are applicable to bicycle and pedestrian projects. These programs are discussed below.

More information: http://www.fhwa.dot.gov/map21/summaryinfo.cfm

Transportation Alternatives

Transportation Alternatives (TA) is a new funding source under MAP-21 that consolidates three formerly separate programs under SAFETEA-LU: Transportation Enhancements (TE), Safe Routes to School (SR2S), and the Recreational Trails Program (RTP). These funds may be used for a variety of pedestrian, bicycle, and streetscape projects including sidewalks, bikeways, multi-use paths, and rail-trails. TA funds may also be used for selected education and encouragement programming such as Safe Routes to School, despite the fact that TA does not provide a guaranteed set-aside for this activity as SAFETEA-LU did. MAP-21 provides $85 million nationally for the RTP.

Complete eligibilities for TA include:

1. **Transportation Alternatives** as defined by Section 1103 (a)(29). This category includes the construction, planning, and design of a range of bicycle and pedestrian infrastructure including "on–road and off–road trail facilities for pedestrians, bicyclists, and other active forms of transportation, including sidewalks, bicycle infrastructure, pedestrian and bicycle signals, traffic calming techniques, lighting and other safety–related infrastructure, and transportation projects to achieve compliance with the Americans with Disabilities Act of 1990." Infrastructure projects and systems that provide "Safe Routes for Non-Drivers" is a new eligible activity.

   For the complete list of eligible activities, visit:
   http://www.fhwa.dot.gov/environment/transportation_enhancements/legislation/map21.cfm

2. **Recreational Trails.** TA funds may be used to develop and maintain recreational trails and trail-related facilities for both active and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, and other active and motorized uses. These funds are available for both paved and unpaved trails, but may not be used to improve roads for general passenger vehicle use or to provide shoulders or sidewalks along roads.

   Recreational Trails Program funds may be used for:

   - Maintenance and restoration of existing trails
   - Purchase and lease of trail construction and maintenance equipment

- Construction of new trails, including unpaved trails
- Acquisition or easements of property for trails
- State administrative costs related to this program (limited to seven percent of a state's funds)
- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a state's funds)

Under MAP-21, dedicated funding for the RTP continues at FY 2009 levels – roughly $85 million annually. California will receive $5,756,189 in RTP funds per year through FY2014 (*http://www.fhwa.dot.gov/environment/recreational_trails/funding/apportionments_obligations/recfunds_2009.cfm*).

3. **Safe Routes to School.** There are two separate Safe Routes to School Programs administered by Caltrans. There is the Federal program referred to as SRTS, and the state-legislated program referred to as SR2S. Both programs are intended to achieve the same basic goal of increasing the number of children walking and bicycling to school by making it safer for them to do so. All projects must be within two miles of primary or middle schools (K-8).

   The Safe Routes to School Program funds non-motorized facilities in conjunction with improving access to schools through the Caltrans Safe Routes to School Coordinator. For more information visit: http://www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm

   Eligible projects may include:

   - **Engineering improvements.** These physical improvements are designed to reduce potential bicycle and pedestrian conflicts with motor vehicles. Physical improvements may also reduce motor vehicle traffic volumes around schools, establish safer and more accessible crossings, or construct walkways, trails or bikeways. Eligible improvements include sidewalk improvements, traffic calming/speed reduction, pedestrian and bicycle crossing improvements, on-street bicycle facilities, off-street bicycle and pedestrian facilities, and secure bicycle parking facilities.

   - **Education and Encouragement Efforts.** These programs are designed to teach children safe bicycling and walking skills while educating them about the health benefits, and environmental impacts. Projects and programs may include creation, distribution and implementation of educational materials; safety based field trips; interactive bicycle/pedestrian safety video games; and promotional events and activities (e.g., assemblies, bicycle rodeos, walking school buses).

   - **Enforcement Efforts.** These programs aim to ensure that traffic laws near schools are obeyed. Law enforcement activities apply to cyclists, pedestrians and motor vehicles alike. Projects may include development of a crossing guard program, enforcement equipment, photo enforcement, and pedestrian sting operations.

4. **Planning, designing, or constructing roadways within the right-of-way of former Interstate routes or divided highways.** At the time of writing, detailed guidance from the Federal Highway Administration on this new eligible activity was not available.

Average annual funds available through TA over the life of MAP-21 equal $814 million nationally, which is based on a 2% set-aside of total MAP-21 authorizations. Projected MAP-21 apportionments for California total $3,546,492,430 for FY 2013 and $3,576,886,247 for FY 2014 (*http://www.fhwa.dot.gov/MAP21/funding.cfm*). The 2% set-aside for TA funds in California will be about $71,000,000 for the next two fiscal cycles. State DOTs may elect to transfer up to 50% of TA funds to other highway programs, so the amount listed above represents the maximum potential funding.

TA funds are typically allocated through MPOs and require a 20 percent local match.

Surface Transportation Program (STP)

The Surface Transportation Program (STP) provides states with flexible funds which may be used for a variety of highway, road, bridge, and transit projects. A wide variety of bicycle and pedestrian improvements are eligible, including on-street bicycle facilities, off-street trails, sidewalks, crosswalks, bicycle and pedestrian signals, parking, and other ancillary facilities. Modification of sidewalks to comply with the requirements of the Americans with Disabilities Act (ADA) is also an eligible activity. Unlike most highway projects, STP-funded bicycle and pedestrian facilities may be located on local and collector roads which are not part of the Federal-aid Highway System. Fifty percent of each state's STP funds are sub-allocated geographically by population. These funds are funneled through Caltrans to the MPOs in the state. The remaining 50% may be spent in any area of the state.

Highway Safety Improvement Program (HSIP)

MAP-21 doubles the amount of funding available through the Highway Safety Improvement Program (HSIP) relative to SAFETEA-LU. HSIP provides $2.4 billion nationally for projects and programs that help communities achieve significant reductions in traffic fatalities and serious injuries on all public roads, bikeways, and walkways. MAP-21 preserves the Railway-Highway Crossings Program within HSIP but discontinues the High-Risk Rural roads set-aside unless safety statistics demonstrate that fatalities are increasing on these roads HSIP is a data-driven funding program and eligible projects must be identified through analysis of crash experience, crash potential, crash rate, or other similar metrics. . Infrastructure and non-infrastructure projects are eligible for HSIP funds. Bicycle and pedestrian safety improvements, enforcement activities, traffic calming projects, and crossing treatments for active transportation users in school zones are examples of eligible projects. All HSIP projects must be consistent with the state's Strategic Highway Safety Plan.

Last updated in 2006, the California SHSP is located here:
http://www.dot.ca.gov/hq/traffops/survey/SHSP/SHSP_Final_Draft_Print_Version.pdf

Pilot Transit-Oriented Development Planning

MAP-21 establishes a new pilot program to promote planning for Transit-Oriented Development. At the time of writing the details of this program are not fully clear, although the bill text states that the Secretary of Transportation may make grants available for the planning of projects that seek to "facilitate multimodal connectivity and accessibility," and "increase access to transit hubs for pedestrian and bicycle traffic."

8.1.2 Congestion Mitigation and Air Quality Improvement Program (CMAQ)

The Congestion Mitigation and Air Quality Improvement Program (CMAQ) provides funding for projects and programs in air quality nonattainment and maintenance areas for ozone, carbon monoxide, and particulate matter which reduce transportation related emissions. These federal dollars can be used to build bicycle and pedestrian facilities that reduce travel by automobile. Purely recreational facilities generally are not eligible.

To be funded under this program, projects and programs must come from a transportation plan (or State (STIP) or Regional (RTIP) Transportation Improvement Program) that conforms to the State Implementation Plan and must be consistent with the conformity provisions of Section 176 of the Clean Air Act.

CMAQ funding is administered through Kern Council of Governments on the local level. Within Kern County, these funds are eligible for transportation projects that contribute to the attainment or maintenance of National Ambient Air Quality Standards in non-attainment or air-quality maintenance areas. Examples of eligible projects include enhancements to existing transit services, rideshare and vanpool programs, projects that encourage bicycle and pedestrian transportation options, traffic light synchronization projects that improve air quality, grade separation projects, and construction of high-occupancy vehicle (HOV) lanes.

8.1.3 Partnership for Sustainable Communities

Founded in 2009, the Partnership for Sustainable Communities is a joint project of the Environmental Protection Agency (EPA), the U.S. Department of Housing and Urban Development (HUD), and the U.S. Department of Transportation (USDOT). The partnership aims to "improve access to affordable housing, more transportation options, and lower transportation costs while protecting the environment in communities nationwide." The Partnership is based on five Livability Principles, one of which explicitly addresses the need for bicycle and pedestrian infrastructure ("Provide more transportation choices: Develop safe, reliable, and economical transportation choices to decrease household transportation costs, reduce our nation's dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health").

The Partnership is not a formal agency with a regular annual grant program. Nevertheless, it is an important effort that has already led to some new grant opportunities (including the TIGER grants). The City of Bakersfield should track Partnership communications and be prepared to respond proactively to announcements of new grant programs.

More information: http://www.epa.gov/smartgrowth/partnership/

8.1.4 Rivers, Trails, and Conservation Assistance Program (RTCA)

The Rivers, Trails and Conservation Assistance Program is the community assistance arm of the National Park Service. RTCA provides technical assistance to communities in order to preserve open space and develop trails. The assistance that RTCA provides is not for infrastructure, but rather building plans, engaging public participation and identifying other sources of funding for conversation and outdoor recreation projects.

More information: http://www.nps.gov/pwro/rtca/who-we-are.htm

8.1.5 Community Development Block Grants

The Community Development Block Grants (CDBG) program provides money for streetscape revitalization, which may be largely comprised of pedestrian improvements. Federal CDBG grantees may "use Community Development Block Grants funds for activities that include (but are not limited to): acquiring real property; reconstructing or rehabilitating housing and other property; building public facilities and improvements, such as streets, sidewalks, community and senior citizen centers and recreational facilities; paying for planning and administrative expenses, such as costs related to developing a consolidated plan and managing Community Development Block Grants funds; provide public services for youths, seniors, or the disabled; and initiatives such as neighborhood watch programs."

Trails and greenway projects that enhance accessibility are the best fit for this funding source. CDBG funds could also be used to write ADA Transition Plans.

More information: www.hud.gov/cdbg

8.1.6 Community Transformation Grants

Community Transformation Grants administered through the Center for Disease Control support community–level efforts to reduce chronic diseases such as heart disease, cancer, stroke, and diabetes. Active transportation infrastructure and programs that promote healthy lifestyles are a good fit for this program, particularly if the benefits of such improvements accrue to population groups experiencing the greatest burden of chronic disease.

More info: http://www.cdc.gov/communitytransformation/

8.1.7 Other Federal Bicycle Infrastructure Funding Options

As part of the federal Recovery Act of 2009, States will be receiving $53.6 billion in state fiscal stabilization funding. States must use 18.2 percent of their funding – or $9.7 billion – for public safety and government services. An eligible activity under this section is to provide funding to K-12 schools and institutions of higher education to make repairs, modernize and make renovations to meet green building standards. The Leadership in Energy and Environmental Design (LEED) Green Building Rating System, developed by the U.S. Green Building Council (USGBC), addresses green standards for schools that include bicycle and pedestrian facilities and access to schools.

Another $5 billion is provided for the Energy Efficiency and Conservation Block Grant Program. This provides formula funding to cities, counties and states to undertake a range of energy efficiency activities. One eligible use of funding is for bicycle and pedestrian infrastructure.

More info: http://www2.ed.gov/policy/gen/leg/recovery/factsheet/stabilization-fund.html

http://www1.eere.energy.gov/wip/eecbg.html

8.2. State Sources

8.2.1 Streets and Highways Code – Bicycle Transportation Account (BTA)

The Bicycle Transportation Account (BTA) funds non-motorized facilities and access to cities and counties that have adopted bikeway master plans. Section 2106 (b) of the Streets and Highways Code transfers funds annually to the BTA from the revenue derived from the excise tax on motor vehicle fuel; this appropriation for bicycle facilities is anticipated to be $7.2 million annually. The Caltrans Office of Bicycle Facilities administers the BTA.

For a project to be funded from the BTA, the project shall:

1. Be approximately parallel to a State, county, or city roadways, where the separation of bicycle traffic from motor vehicle traffic will increase the traffic capacity of the roadway; and
2. Serve the functional needs of commuting cyclists; and
3. Include but not be limited to:
    - New bikeways serving major transportation corridors
    - New bikeways removing travel barriers to potential bicycle commuters
    - Secure bicycle parking at employment centers, park and ride lots and transit terminals
    - Bicycle carrying facilities on public transit vehicles
    - Installation of traffic control devices to improve the safety and efficiency of bicycle travel
    - Elimination of hazardous conditions on existing bikeways serving a utility purpose
    - Project planning
    - Preliminary and construction engineering

Maintenance is specifically excluded from funding and allocation takes into consideration the relative cost effectiveness of the proposed project.

More info: http://www.dot.ca.gov/hq/LocalPrograms/bta/btawebPage.htm

8.2.2 State Highway Account

Section 157.4 of the Streets and Highways Code requires Caltrans to set aside $360,000 for the construction of non-motorized facilities that will be used in conjunction with the State highway system. The Office of Bicycle Facilities also administers the State Highway Account fund. Funding is divided into different project categories. Minor B projects (less than $42,000) are funded by a lump sum allocation by the CTC and are used at the discretion of each Caltrans District office. Minor A projects (estimated to cost between $42,000 and $300,000) must be approved by the CTC. Major projects (more than $300,000) must be included in the State Transportation Improvement Program and approved by the CTC. Funded projects have included fencing and bicycle warning signs related to rail corridors.

8.2.3 Climate Ready Grant Program - California State Coastal Conservancy

Climate Ready grants are intended to encourage local governments and non-governmental organizations to advance planning and implementation of on-the-ground actions that reduce greenhouse gas emissions and lessen the impacts of climate change on California's coastal communities. The grant program makes eligible "development of multi-use trails with clearly identified GHG reduction goals; (and) protecting and managing open space lands with clearly identified GHG reduction goals." A total of $1,500,000 is available on a

competitive basis, with a minimum award of $50,000 and a maximum of $200,000. The size of awarded grants will be based on each project's needs, its overall benefits, and the extent of competing demands for funds.

8.2.4 Office of Traffic Safety (OTS) Grants

Office of Traffic Safety Grants are supported by Federal funding under the National Highway Safety Act and SAFETEA-LU. In California, the grants are administered by the Office of Traffic Safety.

Grants are used to establish new traffic safety programs, expand ongoing programs or address deficiencies in current programs. Bicycle safety is included in the list of traffic safety priority areas. Eligible grantees are governmental agencies, state colleges, state universities, local city and county government agencies, school districts, fire departments, and public emergency services providers. Grant funding cannot replace existing program expenditures, nor can traffic safety funds be used for program maintenance, research, rehabilitation, or construction. Grants are awarded on a competitive basis, and priority is given to agencies with the greatest need. Evaluation criteria to assess need include potential traffic safety impact, collision statistics and rankings, seriousness of problems, and performance on previous OTS grants.

The California application deadline is January of each year. There is no maximum cap to the amount requested, but all items in the proposal must be justified to meet the objectives of the proposal.

More information can be found here: http://www.ots.ca.gov/Grants/Apply/default.asp

8.3. Regional & Local Sources

8.3.1 Developer Impact Fees

As a condition for development approval, municipalities can require developers to provide certain infrastructure improvements, which can include bikeway projects. These projects have commonly provided Class II facilities for portions of on-street, previously planned routes. They can also be used to provide bicycle parking or shower and locker facilities. The type of facility that should be required to be built by developers should reflect the greatest need for the particular project and its local area. Legal challenges to these types of fees have resulted in the requirement to illustrate a clear nexus between the particular project and the mandated improvement and cost.

8.3.2 New Construction

Future road widening and construction projects are one means of providing on street bicycle facilities. To ensure that roadway construction projects provide bike lanes where needed, it is important that the review process includes input pertaining to consistency with the proposed system. In addition, California's 2008 Complete Streets Act and Caltrans's Deputy Directive 64 require that the needs of all roadway users be considered during "all phases of state highway projects, from planning to construction to maintenance and repair."

More info: http://www.dot.ca.gov/hq/tpp/offices/ocp/complete_streets.html

8.3.3 Restoration

Cable TV and telephone companies sometimes need new cable routes within public rights of way. Recently, this has most commonly occurred during expansion of fiber optic networks. Since these projects require a significant amount of advance planning and disruption of curb lanes, it may be possible to request reimbursement for affected bicycle facilities to mitigate construction impacts. In cases where cable routes cross undeveloped areas, it may be possible to provide for new bikeway facilities following completion of the cable trenching, such as sharing the use of maintenance roads.

8.4. Private Sources

Private funding sources can be acquired by applying through the advocacy groups such as the League of American Bicyclists and the Bikes Belong Coalition. Most of the private funding comes from foundations wanting to enhance and improve bicycle facilities and advocacy. Grant applications will typically be through the advocacy groups as they leverage funding from federal, state and private sources. Below are several examples of private funding opportunities available.

8.4.1 Bikes Belong Grant Program

The Bikes Belong Coalition of bicycle suppliers and retailers has awarded $1.2 million and leveraged an additional $470 million since its inception in 1999. The program funds corridor improvements, mountain bike trails, BMX parks, trails, and park access. It is funded by the Bikes Belong Employee Pro Purchase Program.

More information: http://www.bikesbelong.org/grants/

8.4.2 Bank of America Charitable Foundation, Inc.

The Bank of America Charitable Foundation is one of the largest in the nation. The primary grants program is called Neighborhood Excellence, which seeks to identify critical issues in local communities. Another program that applies to greenways is the Community Development Programs, and specifically the Program Related Investments. This program targets low and moderate income communities and serves to encourage entrepreneurial business development.

More information: http://www.bankofamerica.com/foundation

8.4.3 The Robert Wood Johnson Foundation

The Robert Wood Johnson Foundation was established as a national philanthropy in 1972 and today it is the largest U.S. foundation devoted to improving the health and health care of all Americans. Grant making is concentrated in four areas:

- To assure that all Americans have access to basic health care at a reasonable cost
- To improve care and support for people with chronic health conditions
- To promote healthy communities and lifestyles
- To reduce the personal, social and economic harm caused by substance abuse: tobacco, alcohol, and illicit drugs

More information: http://www.rwjf.org/applications/

8.4.4 The Wal-Mart Foundation

The Wal-Mart Foundation offers a Local, State, and National Giving Program. The Local Giving Program awards grants of $250 to $5,000 through local Wal-Mart and Sam's Club Stores. Application opportunities are announced annually in February with a final deadline for applications in December. The State Giving Program provides grants of $25,000 to $250,000 to 501c3 nonprofits working within one of five focus areas: Hunger Relief & Nutrition, Education, Environmental Sustainability, Women's Economic Empowerment, or Workforce Development. The program has two application cycles per year: January through March and June through August. The Wal-Mart Foundation's National Giving Program awards grants of $250,000 and more, but does not accept unsolicited applications.

More information: http://foundation.walmart.com/apply-for-grants

8.4.5 The Kodak American Greenways Program

The Conservation Fund's American Greenways Program has teamed with the Eastman Kodak Corporation and the National Geographic Society to award small grants ($250 to $2,000) to stimulate the planning, design and development of greenways. These grants can be used for activities such as mapping, conducting ecological assessments, surveying land, holding conferences, developing brochures, producing interpretive displays, incorporating land trusts, and building trails. Grants cannot be used for academic research, institutional support, lobbying or political activities.

More information: http://www.conservationfund.org

8.4.6 Community Action for a Renewed Environment (CARE)

CARE is a competitive grant program that offers an innovative way for a community to organize and take action to re-duce toxic pollution in its local environment. Through CARE, a community creates a partnership that implements solutions to reduce releases of toxic pollutants and minimize people's exposure to them. By providing financial and technical assistance, EPA helps CARE communities get on the path to a renewed environment. Transportation and "smart-growth" types of projects are eligible. Grants range between $90,000 and $275,000.

More information: http://www.epa.gov/care/

8.4.7 Corporate Donations

Corporate donations are often received in the form of liquid investments (i.e. cash, stock, bonds) and in the form of land. Employers recognize that creating places to bike and walk is one way to build community and attract a quality work force. Bicycling and outdoor recreation businesses often support local projects and programs. Municipalities typically create funds to facilitate and simplify a transaction from a corporation's donation to the given municipality. Donations are mainly received when a widely supported capital improvement program is implemented. Such donations can improve capital budgets and/or projects.

8.5. Other Sources

Local sales taxes, fees and permits may be implemented as new funding sources for bicycle projects. However, any of these potential sources would require a local election. Volunteer programs may be developed to substantially reduce the cost of implementing some routes, particularly multi use paths. For example, a local college design class may use such a multi-use route as a student project, working with a local landscape architectural or engineering firm. Work parties could be formed to help clear the right of way for the route. A local construction company may donate or discount services beyond what the volunteers can do. A challenge grant program with local businesses may be a good source of local funding, in which the businesses can "adopt" a route or segment of one to help construct and maintain it.

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City of Bakersfield
Bicycle Transportation Plan

Existing and Proposed Bikeways

Overview

Proposed Bikeway Facilities

- Class 1, Multi-Use Path
- Class 2, Bike Lane
- Class 3, Bike Route

Kern County Bicycle Master Plan Facilities

- Class 1, Multi-Use Path
- Class 2, Bike Lane
- Class 3, Bike Route

- Spot Improvements
- Requires Feasibility Study
- Family Friendly Routes
- Specific Plan Areas

- Transit Facility
- Amtrak Station

alta PLANNING + DESIGN

0 0.5 1 Miles