Bikeways Plan

CITY OF Yuma

2018

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ACKNOWLEDGMENTS

This document was prepared by *Leeman Group Consulting* for the City of Yuma City Council and Planning & Zoning Commission.

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RESOLUTION NO. R2019-004

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF YUMA, ARIZONA, ADOPTING THE 2018 YUMA BIKEWAYS PLAN AND AMENDING RESOLUTION R2012-29, THE CITY OF YUMA 2012 GENERAL PLAN TO INCORPORATE THE 2018 YUMA BIKEWAYS PLAN

WHEREAS, the General Plan of the City of Yuma was adopted in 2012 by Resolution R2012-29 for the orderly and balanced development of lands through efficient and systematic land use planning; and,

WHEREAS, the General Plan provides a vision of development into the future based on the existing development, the needs of the community, and the desires of property owners; and,

WHEREAS, the City of Yuma Planning and Zoning Commission held public hearings on January 14, 2019 and January 28, 2019 for General Plan Amendment Case No. GP-23761-2018, regarding the request to amend the General Plan; and,

WHEREAS, due and proper notice of the public hearings were given in the time, form, substance and manner as provided by law, including publication of such notice in The Sun on December 29, 2018 and January 26, 2019; and,

WHEREAS, as the community grows and prospers, it may be necessary to amend the General Plan to reflect development trends and opportunities; and,

WHEREAS, the proposed General Plan Amendment meets the goals and objectives of the General Plan, and retains an adequate mixture and balances of land uses.

NOW THEREFORE, BE IT RESOLVED by the City Council of the City of Yuma as follows: that Resolution R2012-29, the City of Yuma 2012 General Plan, is amended to change Chapter 3 – Transportation Element to reflect an updated proposed bikeway network as well as updated goals, objectives, and strategies to implement the plan and to adopt the 2018 Yuma Bikeways Plan as the planning document for bicycle facility planning, as depicted in Exhibit A, attached and by this reference made a part of this resolution.

Adopted this 6th day of March, 2019.

APPROVED:

Douglas J. Nicholls
Mayor

ATTESTED:

Lynda L. Bushong
City Clerk

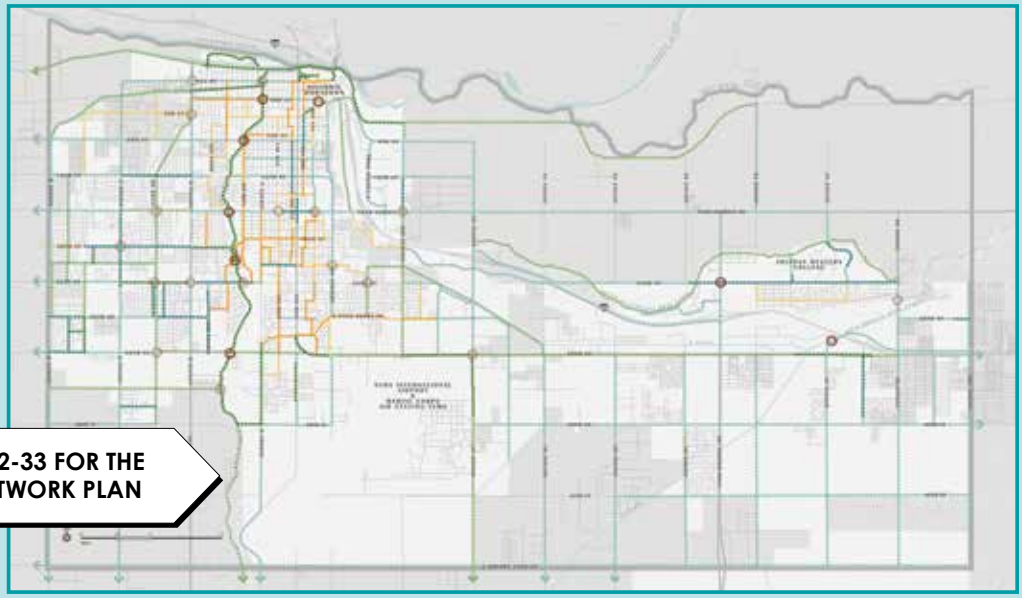
APPROVED AS TO FORM:

Richard W. Files
City Attorney

CONTENTS

EXECUTIVE SUMMARY

Building a connected bikeways network is an investment in Yuma's future. Bikeways improve the residents' quality of life, increase business and tourism, conserve resources, and provide a more affordable travel option. Studies have shown a direct correlation between the number of bicycle facilities and the number of users; an increase in bikeways leads to an increase in users. As the public survey demonstrated, the demand for bikeways in Yuma clearly exists, and the more connected the system, the more useful and popular it will become.



SEE PAGES 32-33 FOR THE BIKEWAY NETWORK PLAN

PLAN ORGANIZATION

VISION STATEMENT

A unified bikeway network providing people of all ages & abilities the opportunity to safely ride a bicycle in Yuma.

The 2018 Yuma Bikeways Plan establishes a comprehensive framework to guide development of the City's bicycle facilities that addresses current deficiencies and will accommodate the region's growth over the next ten years. The plan starts with an overview of the existing bikeways system and definition of key terms used in the plan.

An extensive public outreach effort was conducted to inform the plan; including a public survey, interactive online map, stakeholder focus groups, and coordinated efforts between city departments. Feedback from community members indicates that cyclists have a number of distinct values, which are summarized in the vision statement for the plan: "A unified bikeway network that provides people of all ages and abilities the opportunity to safely ride a bicycle."

This vision will be accomplished through four overarching goals, each expounded upon in a section of this plan: Safety, Convenience, Connectivity, and Promotion. The final section focuses on implementation of the proposed bikeway network improvements. This section describes in detail the high-priority projects identified through the detailed analysis provided in this plan. The final pages include a worksheet entitled *Measuring Success*, which provides a list of performance metrics to track implementation success over time.

KEY RECOMMENDATIONS

CROSS-TOWN CONNECTIONS
Public outreach efforts emphasized the need for better connections east-west across town, particularly between the East Mesa (Arizona Western College and the Fortuna Foothills neighborhoods) to Downtown Yuma.

CITYWIDE BIKE COORDINATOR
Management of the bikeway network currently falls under the purview of several departments. Employing a dedicated citywide bike coordinator ensures that efforts regarding bikeways are effectively implemented across departments and cyclists have an advocate for their needs.

SHARROW MARKINGS ON BIKE ROUTES
Bike routes in the city are currently designated with signage along the roadway. Adding *sharrow* pavement markings along existing and new bike routes will improve motorist awareness and safety of cyclists.

BIKE COUNT PROGRAM
Implementation of a consistent program to count the number of cyclists at key locations throughout the bikeway network is essential to measuring success in increasing ridership.

BICYCLE FRIENDLY COMMUNITY SILVER STATUS
In 2017, Yuma was awarded Bronze status as a Bicycle Friendly Community (BFC). Improvements to the bikeway network recommended in this plan aim to elevate Yuma to BFC Silver status when the next application is submitted. To make tracking progress toward this goal easier, this plan includes a worksheet entitled *Measuring Success*, which provides a list of performance measures to track implementation success on an annual basis.

SEE PAGES 64-65 TO TRACK PROGRESS ON THE MEASURING SUCCESS WORKSHEET

PRIORITY PROJECTS

BIKE LANES
1st St (Ave B to 4th Ave)
16th St (Ave B to 8th Ave)
16th St (1st Ave to Pacific Ave)
24th St (Ave B to Ave A)
Arizona Ave (16th St to Palo Verde St)
Araby Rd (24th St to 32nd St)
Avenue 9E (24th St to N Frontage Rd)
N Frontage Rd (Ave 9E to Ave 10E)
Pacific Ave (8th St to 12th St)
Palo Verde St (Ave 2 1/2 E to Ave 3E)

BIKE CROSSINGS
E Main Canal & W Main Canal Linear Parks
E Main Canal Linear Park at 8th St
E Main Canal Linear Park at 24th St
E Main Canal Linear Park at 32nd St

BIKE PATHS & LINEAR PARKS
16th St Path (Ave C to Ave B)
32nd St Path (Ave B to Ave A)
32nd St Path (Arizona Ave to Pacific Ave)
32nd St Path (Ave 3E to Ave 7 1/2 E Alignment)
Avenue 6E Path (41st St to 46th St)
B 3.7 Lateral Linear Park (23rd St to Pacific Ave)
Colorado River Levee Linear Park Extension
Pacific Ave Path (Colorado River Levee to 8th St)
Pacific Ave Path (16th St to 32nd St)
Thacker Lateral Linear Park (W Main Canal to 24th St)

BIKE ROUTES
22nd St (4th Ave to B 3.7 Lateral)
Arizona Ave (Palo Verde St to 32nd St)
Palo Verde St (Arizona Ave to Ave 2 1/2 E)

SEE PAGES 42-61 FOR DETAILS ON EACH PRIORITY PROJECT

1.0

INTRODUCTION

Project Overview

The intent of the 2018 Yuma Bikeways Plan is to establish a comprehensive framework to guide development of the City's bicycle facilities to address current deficiencies and accommodate the region's growth. The City's first bicycle facilities planning effort was conducted nearly twenty-five years ago in a plan adopted in 1995. Recommendations of that plan were revisited in 2009 with the adoption of the Bicycle Facilities Master Plan. Minor updates and adjustments were made to the bicycle network plan in conjunction with the 2014 Transportation Master Plan. In 2018, the City of Yuma Planning Division of the Department of Community Development initiated this plan as a periodic update to the 2009 Plan. In the intervening years since the adoption of the 2009 plan, many improvements to the bikeway network have been completed, including 5 miles of bike paths, 4 miles of bike lanes, a half-mile of bike routes, and several bike crossings. The recommendations found in this plan build on those successes.

Recommendations of this plan were informed through extensive public input; stakeholder focus groups; review of current best practices; and coordinated efforts between City of Yuma Planning, Engineering, Public Works, and Parks & Recreation staff. Feedback from community members suggests that cyclists have a number of distinct goals. Some desire long stretches of bike paths to enjoy the scenery at a relaxed pace, others wish to see more bike lanes to enable them to commute throughout the city, while others want to see an increase in safety for cyclists through education and outreach efforts. These various goals are summarized in the vision statement for the plan: "A unified bikeway network that provides people of all ages and abilities the opportunity to safely ride a bicycle." This vision will be accomplished through four goals: safety, convenience, connectivity, and promotion.

REGIONAL CONTEXT

Within and around the City of Yuma planning area lie a number of natural and cultural assets such as the Colorado River, the Ocean to Ocean Bridge, the Historic Yuma Territorial Prison State Historic Park, the Chocolate Mountains, the Gila Mountains, to name a few. The surrounding communities of Somerton, San Luis, Wellton, and the Fortuna Foothills neighborhood are also taken into consideration when planning for bikeways and overall connectivity. Coordination between the surrounding jurisdictions, particularly Yuma County, is key to creating a truly connected bike infrastructure system that takes full advantage of all the resources the region has to offer.

The region's year-round sunny skies and mild weather make it an ideal location for cycling. In the winter months, the area's population sees a significant increase from visitors and

migrant workers who flock here to enjoy the mild temperatures and work in the agriculture industry. Recent development patterns in Yuma have created a somewhat spread-out city, which has lead to a gap in the bikeway network between the established area of town on the west side and the more recent development on the east mesa. Achieving connectivity between the two sides of town is a fundamental goal of this plan.

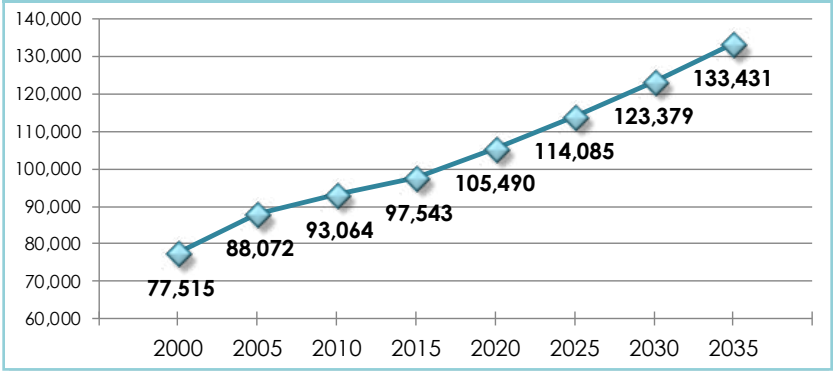
REGULATORY REVIEW

Review of other master plans and studies helped to guide recommendations made in this plan. This plan is one component in a broader system of long-term planning documents, the principal of which is the General Plan that guides City development. The 2012 General Plan addresses bicycling in Chapter 3: Transportation Element. As mentioned previously, this plan intends to update and serve as a replacement for the 2009 Bicycle Facilities Master Plan. In 2017, Yuma County updated the Circulation Element of the Comprehensive Plan to include a section on Non-Motorized Facilities and identify the location for bike routes. The Arizona Department of Transportation (ADOT) published a Statewide Bicycle and Pedestrian Plan in 2013 that provides valuable data on cycling in the state and sets goals for improvements. Additionally, the Yuma Code of Ordinances addresses regulations specifically for Bicycles and Play Vehicles in Chapter 213 of Title 21: Streets and Traffic Code.

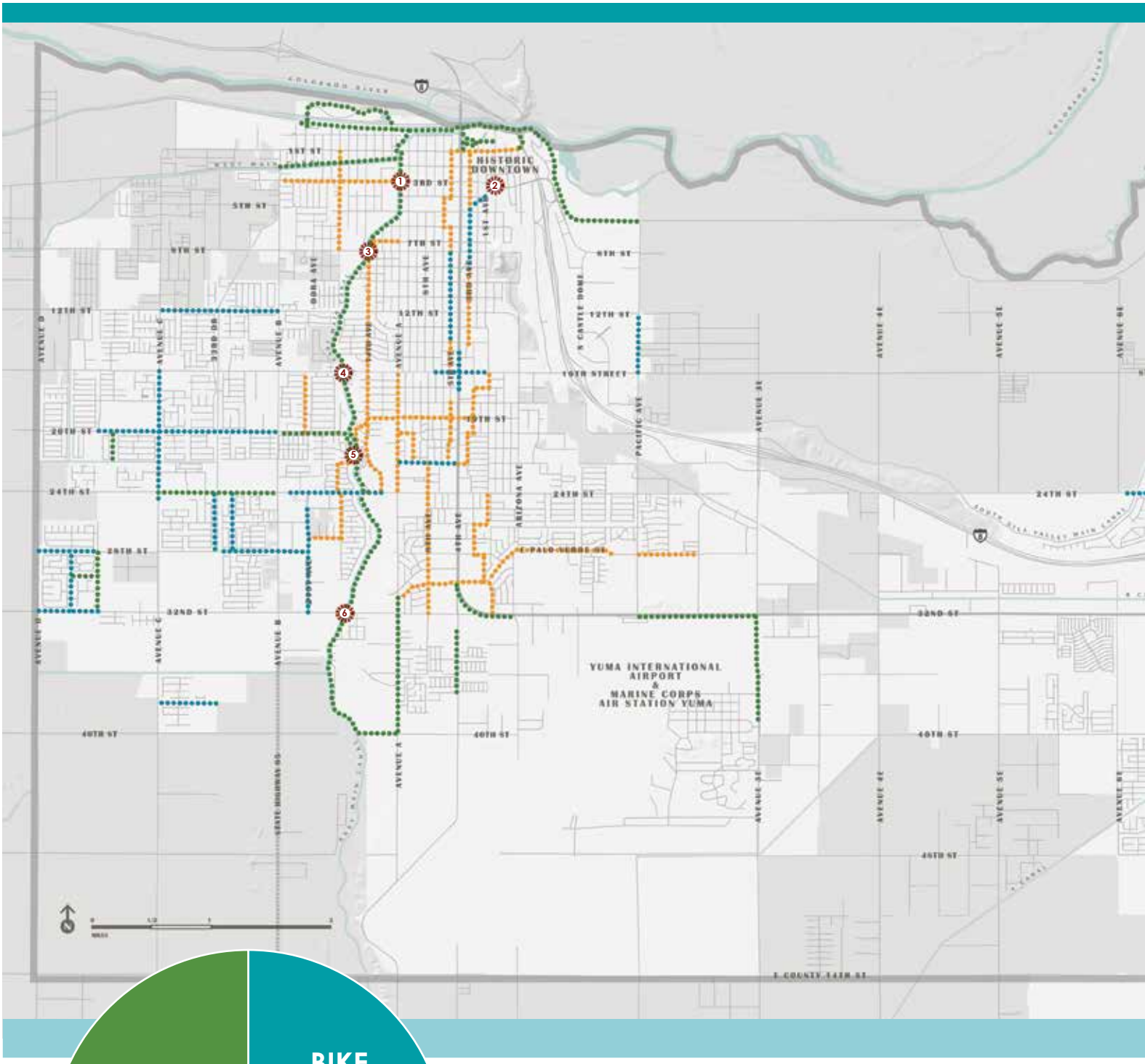
DEMOGRAPHIC CONDITIONS

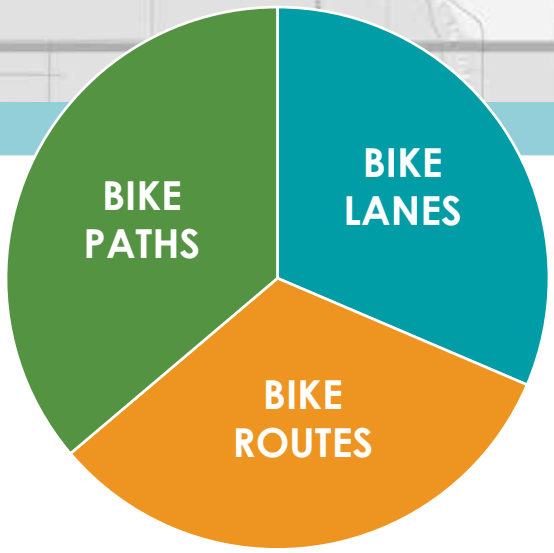
According to the 2010 U.S. Census, the population of the City of Yuma was 93,064. From 2000 to 2010, the City experienced an average annual growth rate of nearly 2%, and the 2017 population was estimated to be 101,620 (Arizona Office of Economic Opportunity). As shown in Figure 1-1, population growth is expected to continue over the coming years, and bicycle facility development needs to keep pace. Yuma's population grows significantly in the winter months, with the population peaking in January and February. Seasonal visitors are comprised of two groups: leisure visitors and seasonal workers. Of the seasonal visitors, approximately 80% are made up of transient leisure visitors and 20% are transient farm or non-farm workers and their families. The typical age of leisure visitors is 65-70, many of who reside in RV or manufactured housing parks.

FIGURE 1-1 PROJECTED POPULATION GROWTH



Yuma is a predominately Hispanic and white community, with small populations of African-Americans, Asian-Americans, and other multi-race persons, as compared with the State of Arizona and the United States overall. The median age, according to 2010 Census data, was 31.3 years old, which closely resembles that of the state. The median household income of $44,216 (*2012-2016 American Community Survey 5-Year Estimates*), is lower than average, but the number of persons below the poverty level is lower than average as well, indicating an affordable cost of living in the Yuma region. Like most suburban communities, a large majority (79.5%) of working Yuma residents commute to work by car, driving alone. Three and a half percent walk to work and less than 1% ride a bike. The need exists to address issues that prevent some people who might otherwise be bicycling commuters.





The City of Yuma has developed an extensive network of bikeways over the past years. The backbone of the system is the East Main Canal Linear Park, which runs north to south and connects many neighborhoods through the established area of town. Running east-west on the north edge of town is the Colorado River Levee Linear Park, which connects several of Yuma's most popular parks and historic downtown. Despite a strong backbone, the existing bikeway network lacks overall connectivity, particularly a connection from the West side of town to the more recent development on the East Mesa, which has a disproportionately low number of facilities.

FIGURE 1-2

EXISTING BIKEWAYS

LEGEND

- BIKE PATH
- BIKE LANE
- BIKE ROUTE
- BIKE CROSSING
- PLANNING AREA

1 3RD ST & E MAIN CANAL
Pedestrian-Activated Signal

2 GISS PKWY AT CITY HALL
Active Warning Beacon

3 8TH ST & E MAIN CANAL
Pedestrian-Activated Signal

4 16TH ST & E MAIN CANAL
Grade-separated Underpass

5 22ND ST & E MAIN CANAL
Bridge over Canal

6 32ND ST & E MAIN CANAL
Crossing Island

7 24TH ST & ARABY RD
Protected Bike Lane at Intersection

8 AVE 8E & 30TH ST
Crossing Island

19
MILES OF BIKE PATHS

17
MILES OF BIKE LANES

17
MILES OF BIKE ROUTES

53
TOTAL MILES OF BIKEWAYS

Existing Bicycle Facilities

The City of Yuma has four categories of bicycle facilities: bike paths, bike lanes, bike routes, and bike crossings. Each facility type serves the community by offering recreation and transportation opportunities. Figure 1.1 illustrates the existing bikeway network. See Appendix A for a complete inventory list of existing bikeways.

"It's great to see the City take such a vested interest in bicycling. Cycling over the past few years has really increased, thus a need for more attention to the safety of us cyclists throughout the community."

City of Yuma Resident, 2018 Bikeways Survey

BIKE PATHS

Bike paths are off-street paved paths that are physically separated from motorized traffic by an open space or barrier. Bike paths attract recreational users such as joggers, walkers, and other non-motorized users. Typically, bike paths are constructed of concrete or asphalt and are built to a standard width of 10 feet. For the purpose of this planning effort, unpaved paths are not classified as bike paths as they are generally unsuitable for road bike use.

Many of Yuma's bike paths also qualify as linear parks, which are continuous greenway corridors not located within or adjacent to a street right-of-way. Many of these linear parks are located adjacent to irrigation canal rights-of-way, such as the East & West Main Canal Linear Parks and the Colorado River Levee Linear Park. When located along the canal rights-of-way, paths provide long stretches of un-interrupted distance for a cyclist to travel without encountering motorized traffic, making these the safest type of bikeways, particularly for recreational users, families, and children. Extensive mileage of canals and irrigation ditches throughout the Yuma region offer great potential for future bike path development. Bike paths located adjacent to or within street rights-of-way are typically constructed on major roadways with heavy traffic. The separation provided by the pathway gives cyclists an added level of protection from vehicular traffic.

BIKE LANES
Bike lanes are a portion of the roadway which has been designated by striping, pavement markings, and signage for the exclusive use of cyclists. Typically, no physical barrier exists between vehicle traffic and bicycle traffic, except in special cases where protected bike lanes might be appropriate. The City currently does not have any protected bike lanes in its inventory. Bike lanes are best suited to experienced cyclists due to the close proximity to and interaction with vehicular traffic. For the purpose of this planning effort, one bike lane mile is counted as a roadway mile with bike lanes on both sides. The City has a total of 16.5 roadway miles of bike lanes; To calculate lane-miles, the number would double to account for lanes on both sides of the roadway for a total of 37 lane-miles.

BIKE ROUTES
Bike routes are designated by the City on streets that typically have low traffic volume and speeds. Currently, signage alone alerts cyclists and motorists alike to share the road; no dedicated bike lane exists. Most bike routes are located in the established, most densely populated parts of the City as these urban areas are hard to serve with bike lanes or paths as most of the roadways and adjacent land is already developed. While bike routes offer an ambiguous level of safety, they help cyclists identify low-traffic streets to ride on. Routes should be improved by adding sharrow (shared-lane arrow) markings to the pavement to increase awareness.

BIKE CROSSINGS
Bike crossings are designed to allow bicyclists to safely cross major intersections. Crossings vary based on intersection conditions, but typically include more than a standard full-movement traffic signal. Options to increase intersection safety include: cyclist-activated warning signals, grade-separated crossings, and mid-block crossings.

Enjoying a sunset ride along the Colorado River Levee Linear Park.

Definition of Plan Terms

AASHTO
The American Association of State Highway and Transportation Officials (AASHTO) issues a guide for bicycle facilities, which the City of Yuma uses as a reference for bicycle facility design.

Active Warning Beacon

Active warning beacons (also referred to as rectangular rapid flashing beacons or RRFB) are user-actuated amber flashing lights that supplement warning signs at unsignalized intersections or mid-block crosswalks. Active warning beacons are used to alert drivers to yield where bicyclists and pedestrians have the right-of-way to cross a road. In Yuma, an active warning beacon was installed at a mid-block crosswalk on Giss Parkway near City Hall. Active warning beacons differ from HAWK signals in that the warning beacon does not require traffic to stop.

ADOT
Arizona Department of Transportation

Bicycle Facilities
A general term denoting improvements and provisions made by public agencies or others to accommodate or encourage bicycling, including parking facilities, maps, and bikeways.

Bike Station
A bicycle facility designed for the purpose of providing support at bicycle destinations including bike racks, lockers, shower facilities, and water fountains.

Bike Crossing
A bicycle facility designed to allow bicyclists to safely cross major intersections. Crossings vary based on intersection conditions. Options to increase intersection safety include: traffic signals, at-grade crossing, grade-separated crossings, and mid-block crossings.

Bike Lane

Lanes are a portion of the roadway which has been designated by striping, pavement markings, and signage for the exclusive use of cyclists. Typically, no physical barrier exists between vehicle traffic and bicycle traffic. (See *Protected Bike Lane*)

Bike Path

Off-street paved paths that are physically separated from motorized traffic by an open space or barrier. Bike paths often attract recreational users such as joggers, walkers, and other non-motorized users. Paths are considered the safest type of bikeways. Also referred to as *multi-use paths*.

Bike Route


Bike routes are designated by the City on streets that typically have low traffic volume and speeds. Signage alerts cyclists and motorists alike to share the road; no dedicated bike lane exists. Bike routes are denoted with *sharrow* markings on the pavement. (See *Sharrow*)

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

Crossing Island
Crossing islands – also known as center islands, refuge islands, pedestrian islands, or median slow points – are located within raised medians in the center of the street at intersections or midblock crossings to help protect crossing pedestrians from motor vehicles. Center crossing islands allow pedestrians to deal with only one direction of traffic at a time, and they enable pedestrians and cyclists to stop partway across the street and wait for an adequate gap in traffic before crossing the second half of the street.

HAWK

A High-intensity Activated Crosswalk (HAWK), also known as a *hybrid beacon* or *pedestrian hybrid beacon* (PHB), is a device that assists pedestrians and cyclists in crossing a street at a marked but unsignaled crosswalk by warning and controlling vehicular traffic. HAWK signals are used to improve non-motorized crossings of major streets in locations where side-street volumes do not support installation of a conventional traffic signal or at mid-block crossings.

Linear Park

In the context of bikeways, a linear park refers to a type of bike path that is not located within or adjacent to a street right-of-way. Linear parks are developed as continuous greenway corridors, with trees, viewing areas, rest nodes, lighting, and multi-use paths. Examples of linear parks in Yuma include the Colorado River Levee Linear Park, the East Main Canal Linear Park, and the West Main Canal Linear Park.

Multi-modal Transportation
A general term referring to trip events where an individual incorporates more than one mode of transportation; for example, public transit, private automobiles, walking, and/or bicycling.

Protected Bike Lane

Protected bike lanes are located at street level and use a variety of methods for physical protection from passing motorized traffic. The physical barrier serves to make protected bike lanes safer than standard bike lanes and can be formed using posts, planters, curbs, or parked cars. Protected bike lanes are most appropriate on roads with heavy traffic and high travel speeds.

Sharrow

A shared-lane arrow marking or *sharrow* is a pavement marking placed in the travel lane to indicate that automobiles and bicycles share use of the roadway. Sharrows are commonly used along bike routes to increase awareness of the presence of cyclists.

Shoulder
The portion of the roadway contiguous to the travel lane for accommodation of stopped vehicles, for emergency use, and for lateral support of sub-base, base, and surface courses.

Image Credits: NACTO Urban Bikeway Design Guide (nacto.org) and Chicago Complete Streets (chicagocompletestreets.org).

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PLAN VISION

A unified bikeway network providing people of all ages and abilities the opportunity to safely ride a bicycle in Yuma.

Identifying Values

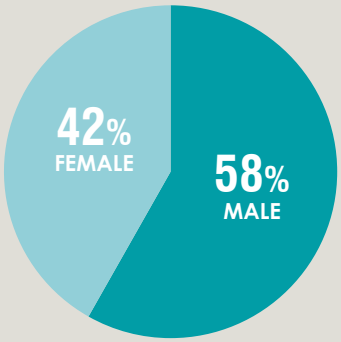
A successful Bikeways Plan is based on a realistic and accurate vision statement, set of goals, and performance measures that address important community considerations. The vision statement identifies the future intent of the community relative to providing bikeways: "A unified bikeway network providing people of all ages and abilities the opportunity to safely ride a bicycle in Yuma." The vision can be implemented by focusing on four overarching goals: Safety, Convenience, Connectivity, and Promotion.

PUBLIC INPUT

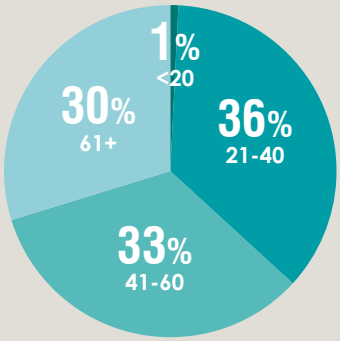
Extensive public outreach efforts shaped the vision statement and four overarching goals. The goal of public involvement is to educate the general public about implementing city infrastructure and to provide a forum for city residents to discuss and evaluate conflicting interests regarding the importance of any city improvement. Public involvement allows citizens to voice ideas and view information about the city plans. Public input is critical to any planning process, and the public was invited to engage on this project in several ways throughout this Bikeways Plan process: survey, online interactive map, stakeholder meetings, and public meetings.

The planning process started with a two-month-long survey and interactive online map open to the general population and conducted from mid-February through mid-April 2018. The survey, presented in both online and paper versions, had a total of 387 respondents. Approximately 57% of respondents were male and 41% female. Most respondents were between the ages of 21 and 40 years old, but overall age distribution was

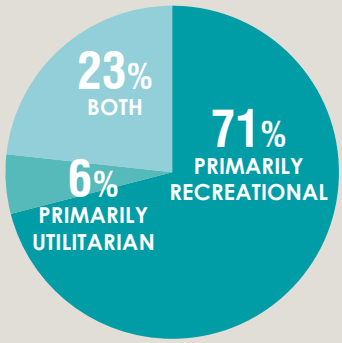
KEY RESULTS *of the* PUBLIC SURVEY



GENDER



AGE



USER TYPE

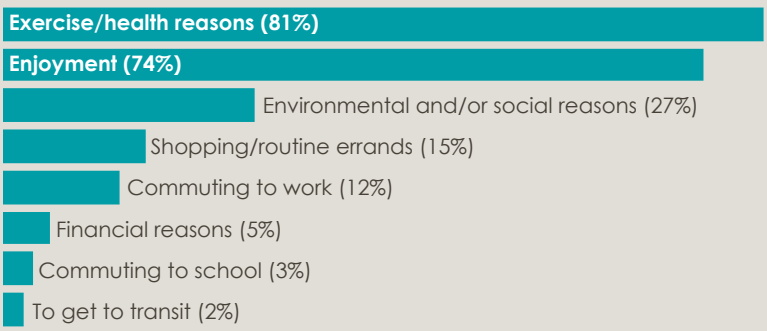
nearly even. Over 80% were full-time residents of the Yuma area (City or County residents), with 71% reporting themselves to be City residents. A full report of survey results can be found in Appendix D.

In addition to the traditional survey questions, respondents were also invited to comment on an interactive map which allowed location-specific comments. Participants commented on existing bikeways, locations for potential bikeways, specific spots where improvements are needed, and destinations they wish to reach by bicycle. Users could also discuss recommendations made by other participants, initiating a dialogue on certain projects. The interactive map proved to be an excellent tool for involving a wide range of the population in a convenient manner with constructive results. A full report of map results can be found in Appendix E.

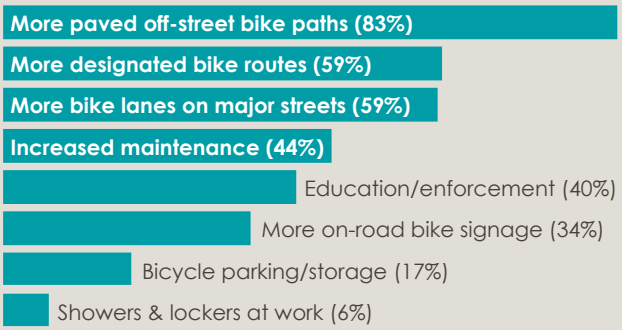
Planners also reached out to specific stakeholder groups to get their input on Yuma's bikeway network. Stakeholder meetings were held between February 26 through March 2 with the following groups: Local Bicycle Clubs, Arizona Western College, Yuma Regional Medical Center, Visit Yuma, Yuma Crossing National Heritage Area, Safe Kids Yuma, Yuma County Arizona Health Zone, and City of Yuma staff. Each stakeholder group had a unique perspective on biking and the specific improvements needed. Their unique concerns and recommendations are addressed in the plan.

The public was also invited to attend public meetings to voice their opinions on the future of bikeways. A kickoff meeting was held March 1, 2018 at City Hall and drew over 20 attendees. Planning staff presented an overview of the plan and then opened the floor to an informative discussion about safety concerns, potential incentives, and education programs, among other issues. At the meeting, attendees also viewed and commented on maps of the existing and proposed bikeway network and made specific recommendations for some known problem areas. Public involvement continued throughout the planning process and the public was also invited to review and comment on the plan at the Planning & Zoning Commission and City Council meetings.

Public input was used to identify recurring themes and values and when combined with best practices and safety data, shaped the four goals of this plan: Safety, Convenience, Connectivity, and Outreach. Each of these goals is enumerated in the following pages and detailed information about each topic is outlined in a chapter dedicated to each goal. These overarching values closely align with those identified in previous planning efforts, but the strategies to implement them have changed over time.



PRIMARY REASONS FOR BIKING



DESIRED IMPROVEMENTS TO INCREASE BIKING

Goals & Performance Measures

To achieve the vision of creating a unified bikeway network that provides people of all ages and abilities the opportunity to safely ride a bicycle, specific goals, objectives, and performance measures must be articulated. Specific strategies to achieve the stated goals are expounded upon later in the following sections. Reference the *Measuring Success Annual Gradesheet* (page 62-63) to track progress towards specific goals.

GOAL 1: Safety

Create and maintain a system of bicycle facilities that provides for the safety of all bicycle users, regardless of skill level or age.

Safety is probably the most influential factor when deciding whether or not to make a trip by bike or by car. Cyclists are vulnerable users; a crash involving a cyclist is twice as likely to result in a fatality as crashes involving only motorists. Improvements to the design and maintenance of bikeways, streets, and intersections will reduce bicycle crashes. Public safety campaigns, combined with enforcement, foster a higher level of predictability among all users, drivers and cyclists alike. Bicyclists should feel safe riding with traffic and crossing major intersections. Safe bikeway options must exist for users of all abilities and ages.

PERFORMANCE MEASURES

- Number of bicycle crashes
  - > Reduce bicycle fatality rate to zero over next 10 years
  - > Reduce bicycle injuries by 50% over next 10 years
- Number of cycling safety education programs in schools.
- Number of traffic safety education programs for all users and enforcement authorities.

GOAL 2: Convenience

Provide an attractive, diverse, and accessible system of bicycle facilities that meets the needs of the City's residents, businesses, and visitors.

Many short auto trips could be replaced by biking trips, with resulting benefits for users' health and air quality. To facilitate users to choose cycling as their mode of transportation, bikeways and facilities need to be easily accessible and convenient. The City aims to provide an equal level of service to all neighborhoods across town. Secure and free bicycle parking should be readily available at destinations. The bikeway network needs to be coordinated with the transit system in order to maximize convenience for users.

PERFORMANCE MEASURES

- Increase in ridership (recreational users, tourists, commuters, school-age children)
  - > Regular bike counts at key locations
  - > Percentage of commuters who bike (American Communities Survey)
- Number of bike racks
- Number of transit users with bicycles

GOAL 3: Connectivity

Develop a plan for locating bikeways to link homes, schools, parks, workplaces, and other important city features.

A connected bikeway system enhances both safety and convenience. The overall plan for the development of the bikeway network aims to seamlessly connect users to key destinations such as schools, employment centers, commercial nodes, and parks. Highest priority segments are identified and should be completed first to enhance the connectivity and safety of the overall network.

PERFORMANCE MEASURES

- Miles of bike paths, lanes, and routes added
- Number of bikeways miles as compared to the overall total road network miles
- Number of bike crossings implemented
- Number of priority projects completed
- Level of public and private funding committed to bicycle facilities

GOAL 4: Promotion

Continue to expand and promote public awareness of bicycle facilities, opportunities, and programs among City residents and visitors.

Yuma has received recognition for its efforts to create a bicycle friendly community. The City will continue to promote bicycling by distributing bikeway network maps and online resources; by supporting and partnering with local bike advocacy groups in their efforts to promote cycling; and by instituting programs to encourage local businesses to become more bike-friendly. Increasing ridership among all types of users (recreational, commuters, tourists, and school-age children) is the ultimate aim of the promotion efforts.

PERFORMANCE MEASURES

- Achieve League of American Bicyclists 'Bicycle Friendly Community' silver level by 2028
- Number of bike month activities
- Number of employer- and school-sponsored bike campaigns
- Increase in ridership (recreational users, tourists, commuters, school-age children)
    - > Regular bike counts at key locations
    - > Percentage of commuters who bike (American Communities Survey)

Key Outcomes

Building a connected bikeways network leads to many benefits for the community. It improves the residents' overall quality of life, increases business and tourism, and conserves resources. Measuring the success at implementing this plan will help quantify these improvements to our community.

"Bike infrastructure is one of the highest returning investments we can make in our towns and cities."
StrongTowns.org

IMPROVE QUALITY OF LIFE
The City of Yuma strives to create a high quality of life for its residents. Many studies have demonstrated how bicycling improves mental and physical health in people of all ages. For example, one study found that cyclists live an average of two years longer than non-cyclists and take 15% fewer sick days from work. Another study showed that regular bike riding through adulthood protects against a variety of age-related health issues. Employers can attract and retain better employees when their community has a high quality of life - and bikeways are a contributing factor.

ECONOMIC BENEFITS
Bike-friendly places are good for the economy and tourism. First and foremost, bike-friendly places are more compatible with human-scaled development patterns, which have consistently proven to be more financially viable than car-scaled suburban development patterns. High-quality bike facilities have a positive impact on area property values.

Bicycle tourism is a growing segment of the market, and tourism officials are recognizing that tourists on bicycles tend to stay longer in a state and spend more per day than other tourists. Touring cyclists also tend to be older and wealthier and contribute significantly to the local economy. This segment of the population is more likely to support locally-owned bed-and-breakfasts, motels, cafes, craft breweries, and shops. The fastest growing demographic for biking is people ages 60-79, which closely aligns with the typical Yuma winter visitor.

CONSERVE RESOURCES
A bike-friendly city is more affordable for its residents. When people have the option to ride a bike instead of drive, they can save thousands of dollars each year on transportation costs. According to figures found in AAA's *Your Driving Costs* 2014 report, it costs between $5500 and $7500 to operate an automobile for 10,000 miles per year. The average bike commuter spends between $100 and $300 per year to operate a bicycle. Start-up costs for cycling are also typically much cheaper than purchasing an automobile.

A bike-friendly city is also more affordable for the municipality itself. Bike infrastructure is far cheaper to install and maintain when compared to car infrastructure. According to Yuma's development fee report, the average cost per arterial road lane mile is $912,500 while the average cost per bike lane mile is $175,000; one mile of roadway is five times more expensive to build than one bikeway mile. Bikes also cause less wear and tear on the roadways, meaning less maintenance costs per trip/per mile.

BECOMING A BICYCLE FRIENDLY COMMUNITY
In 2017, Yuma was awarded Bronze status as a Bicycle Friendly Community (BFC) by the League of American Bicyclists. The BFC report card, shown in full in Appendix D, offered several recommendations to improve the bikeways system to achieve the next level of recognition, Silver status.

The most basic of those recommendations is the need for more bikeway network miles as compared to the overall total road network miles; an overall expansion of the bikeway network. A need was also identified for more

high-speed roads to include bike facilities and to spend more of the overall transportation budget on bike facilities.

Several recommendations were made to improve policies and ordinances, such as: strengthen the Complete Streets policy to ensure more rigorous implementation and reporting; develop a design manual that meets current National Association of City Transportation Officials (NACTO) standards; and, adopt more bicycle-friendly laws and ordinances.

As for education and outreach, the League recommended Yuma improve bicycle-safety education programs for students, increase Bike Month activities, and overall efforts to increase ridership and improve safety.

Due to Yuma's population, the League also recommended the need for a dedicated City staff person who would focus on implementing bikeway facilities across departments and advocate for cyclists' needs throughout City projects.

The Colorado River Levee Linear Park (bike path) offers expansive views of the restored East Wetlands and mountains beyond.

3.0

SAFETY

Safety is probably the most influential factor when deciding whether or not to make a trip by bike or by car. Cyclists are vulnerable users; a crash involving a cyclists is twice as likely to result in a fatality as crashes involving only motorists. Improvements to the design and maintenance of bikeways, streets, and intersections will reduce bicycle crashes. Public safety campaigns, combined with enforcement, can foster a higher level of predictability among all users, drivers and cyclists alike. Bicyclists should feel safe riding with traffic and crossing major intersections. Safe bikeway options should exist for users of all abilities and ages.

GOAL 1

Create and maintain a system of bicycle facilities that provides for the safety of all bicycle users, regardless of skill level or age.

Objective 1.1: Improve safety of the bikeways, particularly the road segments and intersections identified as the most dangerous for cyclists.

- ***Strategy 1.1.1*** Prioritize construction or improvement of bikeway facilities on the most dangerous segments.
- ***Strategy 1.1.2*** Prioritize construction of bicycle crossing improvements at the most dangerous intersections.
- ***Strategy 1.1.3*** Configure traffic signals to detect bicycles at intersections.
- ***Strategy 1.1.4*** Add sharrow pavement markings to existing and future bike routes.
- ***Strategy 1.1.5*** Use high-visibility crosswalks where bikeways cross roadways.

Objective 1.2: Where possible, separate bicycle facilities from vehicular traffic on high volume urban roadways.

- ***Strategy 1.2.1:*** Construct bike paths or protected bike lanes on roadways with a posted speed limit of over 35 miles per hour and multiple lanes in each direction.
- ***Strategy 1.2.2:*** Where linear parks cross major roadways, seek to build grade-separated crossings.

Objective 1.3: Maintain bicycle facilities and road shoulders free of dangerous debris.

- ***Strategy 1.3.1:*** Establish a program of regularly inspecting and maintaining all bicycle facilities.
- ***Strategy 1.3.2:*** Promote a program to use volunteer maintenance for bicycle facilities, such as an "Adopt-a-Path" program.

Objective 1.4: Increase the number of children and adults who receive bicycle safety and skills training.

- ***Strategy 1.4.1:*** Partner with local schools to create school programs to educate children on bicycle safety.
- ***Strategy 1.4.2:*** Build a Bike Safety Town for training and education in one of the City parks.
- ***Strategy 1.4.3:*** Create public service announcements to educate local residents on bicycle-related laws and regulations.
- ***Strategy 1.4.4:*** Install pavement markings or signage to discourage wrong-way bicycle riding.
- ***Strategy 1.4.5:*** Increase police enforcement of traffic rules regarding cycling and motorist behavior.

Bicycle Crash Analysis

When a crash occurs between a motor vehicle and a bike, it comes as no surprise that it is the cyclist who is most likely to be injured. According to 2015 data collected by the National Highway Traffic Safety Administration (NHTSA), Arizona ranked third highest in the nation for bicyclist fatalities with a rate of 4.3 fatalities per million population and fifth highest when measured as an overall percentage of traffic fatalities (3.2%).

YUMA CRASH ANALYSIS (2008-2017)

According to data provided by the Arizona Department of Transportation (ADOT), there were a total of 323 reported crashes involving bicyclists within the planning area during the 10-year period from 2008-2017. The average annual number of bicycle crashes was 32, but the annual rate of crashes showed a downward trend over the 10-year period, as seen in Figure 3-4 on page 19. On a monthly basis, the period between February and March had the highest incidence of bicycle crashes, perhaps in part due to the increased population of winter visitors, as illustrated in Figure 3-5 on page 19.

During the 10-year span, there were three fatal accidents, which accounts for one percent of all accidents. Ninety-two percent of crashes involving a cyclist resulted in possible injury or worse to the cyclist, an indicator of how vulnerable cyclists are. On average, 86% of all types of crashes happened during light conditions (including at dawn and dusk), with 14% happening under dark conditions (including dark-lighted areas). Of the fatal accidents however, 33% happened in dark conditions, indicating that fatal accidents are more likely to happen at night.

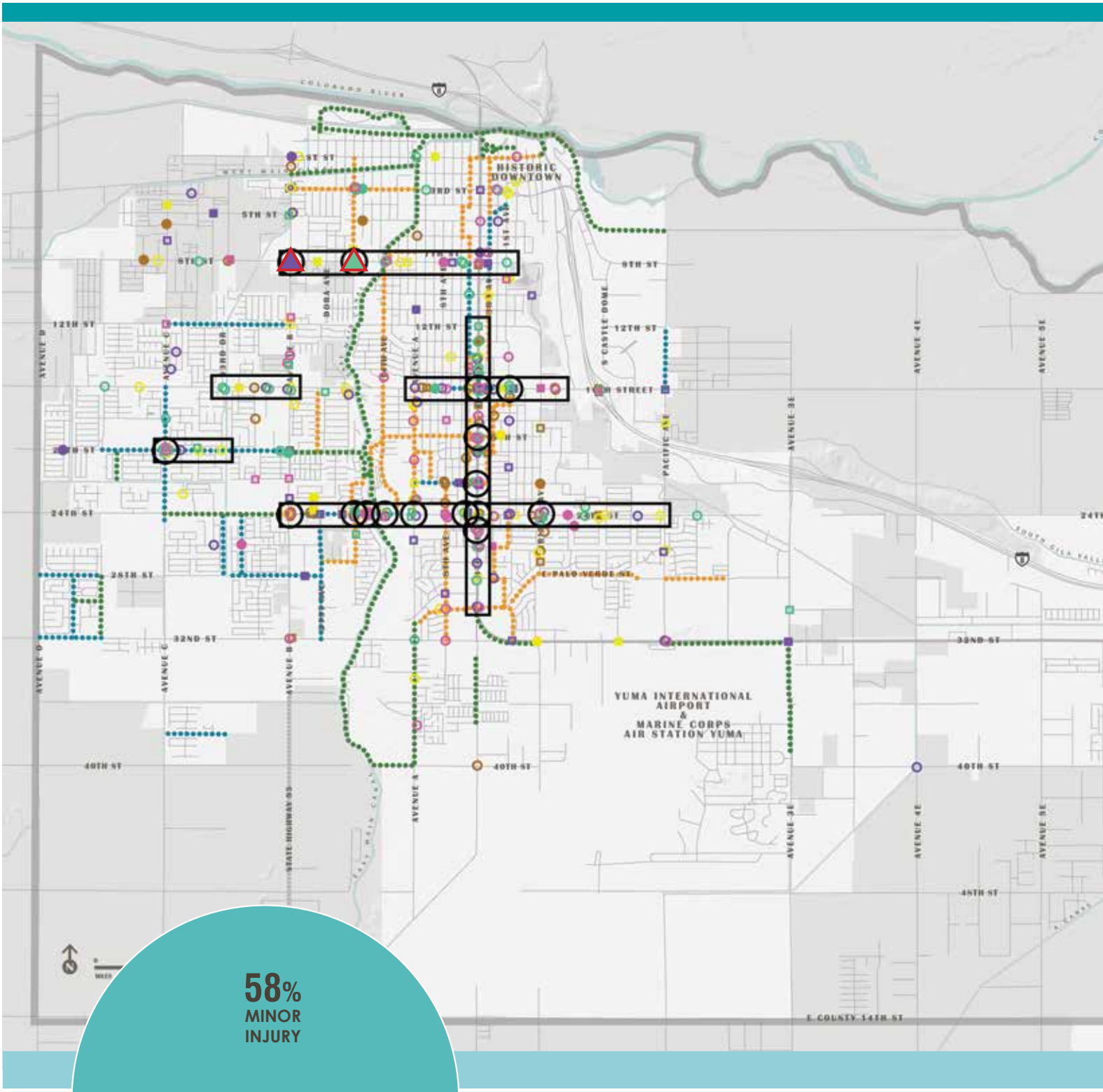
All bicycle crashes within the planning area in the last ten years (2008-2017) are mapped on the following page (Figure 3-3). From this mapping effort, the most dangerous road segments and intersections can be identified and are noted on the map. Figure 3-1 lists the most dangerous road segments, which are defined as those having 10 or more crashes per mile. Figure 3-2 lists the most dangerous intersections, which are those with five or more crashes in the 10-year period. The map clearly shows that crashes are more likely to happen where there are no bike facilities. Approximately 75% of the accidents happened along road segments where there were no bike facilities. Of these, nearly half occurred on road segments where bike facilities are proposed; indicating that many accidents could be avoided with safer facilities. Of the accidents that happened where no bikeways currently exist nor are proposed, most were either on low-volume residential streets or the most high-volume, dangerous segments like 4th Avenue and 24th Street. All of the fatal accidents occurred on road segments where there were no bikeways, further emphasizing the impact designated bikeways have on rider safety.

FIGURE 3-1 MOST DANGEROUS ROAD SEGMENTS

ROAD SEGMENT	SEGMENT LENGTH (MILES)	TOTAL CRASHES (2008-17)	CRASH DENSITY/MILE
24th St (Avenue B to Pacific Ave)	3	58	19.3
16th St (Avenue A to Redondo Dr)	1 ¼	22	17.6
16th St (33rd Dr to Avenue B)	½	9	18
8th St (Avenue B to 1st Ave)	2	23	11.5
4th Ave (12th St to Catalina Dr)	2 ¼	44	19.5
20th St (Avenue C to 33rd Dr)	½	12	24

FIGURE 3-2 MOST DANGEROUS INTERSECTIONS

INTERSECTION	TOTAL CRASHES	FATALITIES	SERIOUS INJURIES	MINOR INJURIES
8th St & Magnolia Ave	8	1	1	6
Avenue C & 20th St	8	0	1	4
24th St & 17th Ave	7	0	4	2
24th St & Arizona Ave	6	0	0	5
Avenue B & 8th St (County)	5	1	0	2
24th St & Avenue B	5	0	0	5
16th St & 4th Ave	5	0	0	3



323

CRASHES INVOLVING BICYCLES IN THE PLANNING AREA

32

AVERAGE NUMBER OF CRASHES PER YEAR

BICYCLE CRASHES 2008-2017

EXISTING BIKEWAYS
- BIKE PATH
- BIKE LANE
- BIKE ROUTE

PLANNING AREA

CRASH TYPE
- FATAL
- SERIOUS INJURY
- MINOR INJURY
- POSSIBLE INJURY
- NO INJURY

CRASH ANALYSIS
- MOST DANGEROUS ROAD SEGMENTS
- MOST DANGEROUS INTERSECTIONS

CRASH YEAR
2008-09, 2010-11, 2012-13, 2014-15, 2016-17

FIGURE 3-4 ANNUAL CRASH QUANTITY

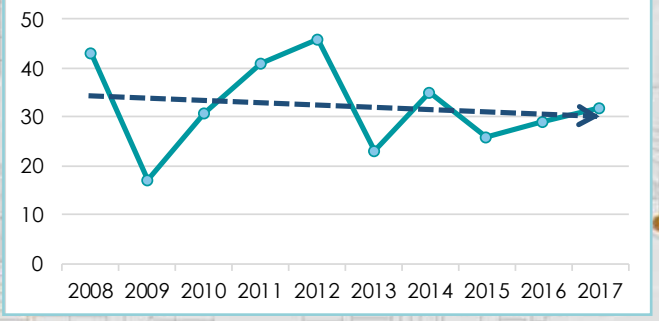
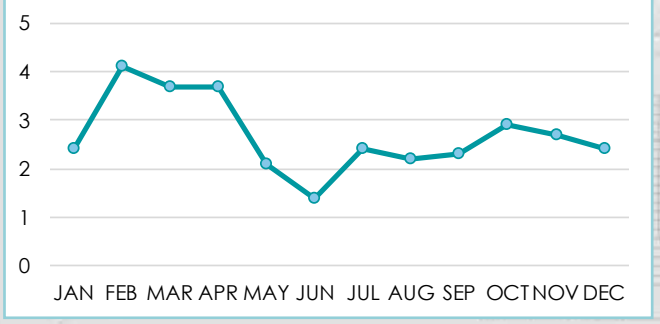


FIGURE 3-5 AVERAGE MONTHLY CRASH QUANTITY



3

FATAL CRASHES IN 10-YEAR PERIOD

86%

OF ALL CRASHES HAPPEN IN NATURAL LIGHT CONDITIONS

During the 10-year period from 2008-2017, there were a total of 323 reported crashes involving pedalcycles (as defined by ADOT) within the planning area. All crashes are indicated on the map and the most dangerous areas of town noted. Areas with the highest prevalence of crashes have been taken into careful consideration in the recommendations made in this plan.

2008-2017 data provided by ADOT for analysis in this plan.

Improving Safety

The proposed bikeway network plan shown in Section 5.0 carefully considers how to improve safety at each of the most dangerous road segments and intersections, as well as analyzing overall strategies to improve safety of the entire network. In some cases, the best option is to add or improve bikeways, whereas in other cases it is best to divert bicycle traffic to a safer route. Providing alternative routes for cyclists helps keep them off the most dangerous road segments, particularly in cases where existing development and right-of-way widths might not allow for the addition of bikeways. Safety at intersections can be improved by adding crossing improvements such as active warning beacons, HAWKs, traffic signal detection, or crossing islands. Additional strategies to improve safety such as installation of sharrows, separating bikes and vehicles, and regular maintenance of bikeways are elaborated upon here.

TRAFFIC SIGNAL DETECTION

Many traffic signals use loop detectors to detect vehicles on side streets, which triggers a green light for a waiting vehicle. Many of these signals are not sensitive enough to detect bicycles. Therefore, a cyclist will oftentimes wait several minutes for a vehicle to arrive to trigger the green light. This specific concern was mentioned on several occasions during the public outreach efforts; both at the Public Open House and in the online survey. Where loop detectors are used, they should be configured to detect bicyclists and

FIGURE 3-6
TRAFFIC SIGNAL DECTECTOR MARKING

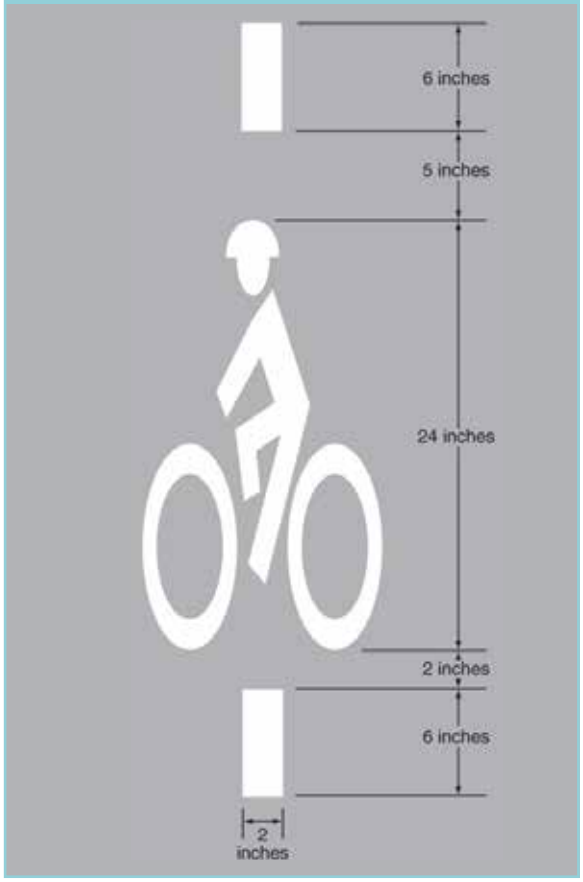
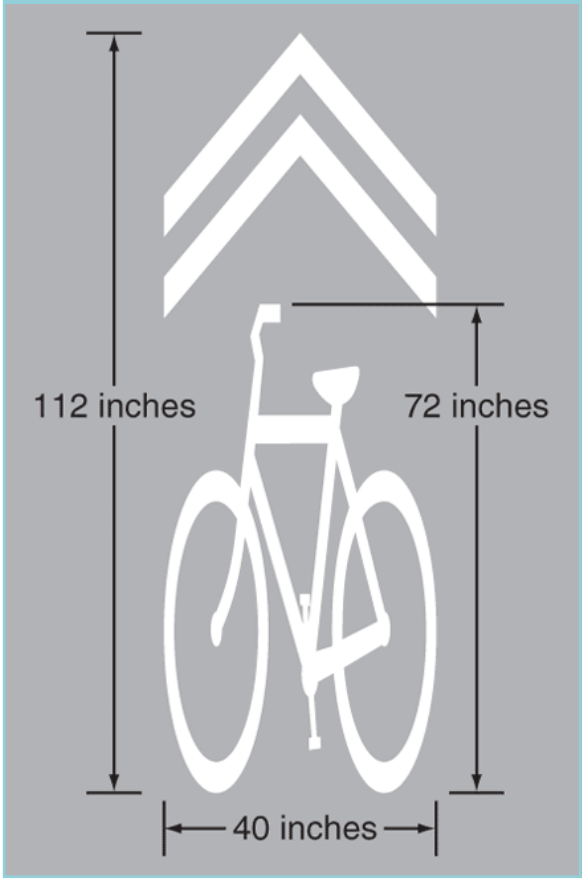
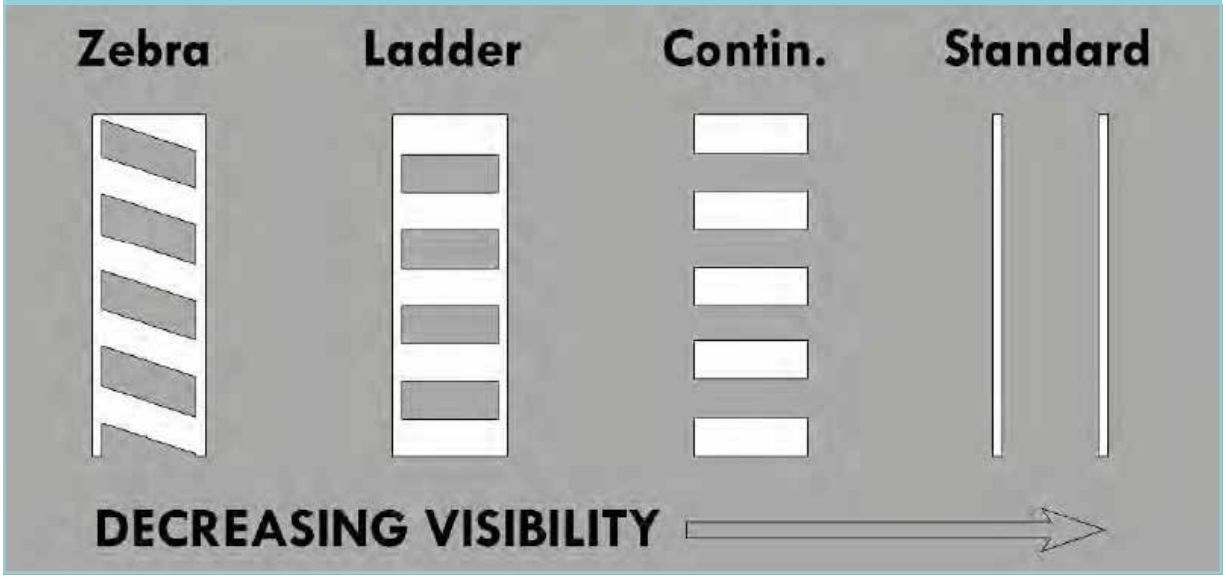


FIGURE 3-7
SHARROW MARKING



Both images from the Manual on Uniform Traffic Control Devices (MUTCD)

FIGURE 3-8 CROSSWALK TYPES



pavement markings, such as those shown n Figure 3-6, should be provided to indicate to cyclists the optimum position for a cyclist to activate the signal.

A related problem involves the proper timing of green lights to allow cyclists adequate time to cross the intersection. It takes a cyclist longer to cross than a motor vehicle, particularly at some very wide intersections where they need to cross multiple lanes of traffic. Lights at wide intersections should be evaluated for these bicycle safety features.

SHARROWS

Safety of existing bike routes can be improved by adding shared-lane pavement markings, known as 'sharrows', along the routes. Sharrows are painted in the travel lane, as shown in Figure 3-7, to indicate that automobiles and bicycles share use of the roadway, thereby increasing awareness of the presence of cyclists. Sharrows also offer a wayfinding element along bike routes and the arrows reduce the incidence of wrong-way cycling. Sharrow markings should be installed on all future bike routes as well as added to existing routes.

CROSSWALKS

Figure 3-8 illustrates various crosswalk types; those shown on the left are more visible to drivers and therefore safer for cyclists and pedestrians using the crosswalk. The crosswalks typically found in Yuma are "standard" style crosswalks which consist of two solid parallel white lines; the least visible of the crosswalk types. For increased visibility and safety, it is recommended that "ladder" style or higher visibility crosswalk types be used where bikeways cross roadways. Existing crosswalks along the bikeways should be re-striped to have high-visibility crosswalks. Crosswalk recommendations herein are consistent with the City of Yuma's 2018 Transportation Master Plan Supplement.

SAFE SEPARATION OF BIKES & VEHICLES

It is particularly important to ensure the bikeways are safe on high-volume and high-speed roadways. Physically separating the bikeway from the vehicular travel lanes is the most effective way to improve safety for cyclists. The safest solution is to provide a bike path that has physical separation from the roadway, such as the existing bike path along 32nd Street. When adequate right-of-way is not available for a 10-foot path, protected bike lanes are the next best option. Protected bike lanes are located on the roadway with vehicular traffic, but they employ a variety of methods for physical protection from passing traffic. The physical barrier serves to make protected bike lanes safer than standard bike lanes and can be formed using posts, planters, curbs, or parked cars. Bike paths or protected bike lanes are recommended for roadways with a posted speed limit of over 35 miles per hour and multiple lanes in each direction.

Where linear parks cross major roadways, the safest and most convenient option is a grade-separated crossing. Such a grade-separated crossing currently exists where the East Main Canal Linear Park crosses 16th Street. While grade-separated crossings are the most expensive solution, they also allow for uninterrupted pathways for cyclists. These types of facilities serve the needs of young cyclists, families, and recreational cyclists.

REGULAR MAINTENANCE

Maintenance of bikeways and roadways is critical for user safety and to protect public funds invested in these facilities. Common maintenance problems such as potholes, cracks, and debris present hazards for cyclists and motorists alike. Gravel, sand, branches, and glass present obstacles for cyclists, often causing them to swerve unpredictably into the travel lane in order to avoid the hazards. Responsive and frequent maintenance will facilitate safe bicycle travel.

Grade-separated crossing of the East Main Canal Linear Park at 16th Street. (Image courtesy of Bing.com)

> *"The biggest problem is deteriorated roadways. On a bike with 120psi tires, the raised cracks and holes are nearly unbearable. Equally as much of a problem is the overall deteriorated surface, exposing aggregate for a rough ride."*
>
> City of Yuma Resident, 2018 Bikeways Survey

The Streets Division of Public Works regularly sweeps roadways, including on-street bike lanes and routes. Arterial and collector streets are swept six times per year, while local roads are swept four times per year. Best practices suggest that arterials and collector roads be swept at least once per month. Bike paths are swept and maintained four times per year.

To ensure ongoing maintenance of the East Main Canal path, it is recommended that Public Works adopt a specific Maintenance Plan. To help with maintenance of the East Main Canal path and other off-street bike facilities, Public Works could promote an Adopt-a-Path program whereby volunteers adopt one-mile segments of a pathway and agree to remove trash and debris a minimum of four times per year for at least a two-year period. This program would be similar to Public Works' existing Adopt-a-Street program.

When road surfaces are repaired or resurfaced, it is important to ensure that ridges are not present within the bike lane. Drainage facilities should also be designed and maintained with consideration for bicycle traffic. As surface repairs are made, grates should be brought to grade to ensure a smooth riding surface. Bicycle-friendly grates with features to prevent a bicycle wheel from getting trapped should be used in all cases.

Another portion of the bikeway system in need of regular maintenance are the signs and pavement markings that help alert motorists of the presence of cyclists. On heavily traveled routes, bike lane pavement markings need to be repainted once per year. Signage should be inspected during regular street sweeping activities and any damaged signage should be replaced as soon as possible.

Public Works has a system to allow residents to report problems online. The response time varies depending on the problem or concern reported, with hazards to the public taking priority. More information can be found on Public Works Department webpage at www.yumaaz.gov.

Safety & Skills Training

SAFETY & SKILLS TRAINING

Bicycle safety and skills training classes are needed for children and adults alike. For school-age children, it is best to coordinate such training with the schools to include the training in regular curriculum. Many online resources that can serve as examples of these programs can be found at *www.pedbikeinfo.org*.

Adult safety and skills training classes are also important. The League of American Bicyclists offers a course to certify League Cycling Instructors (LCI) who can then teach the Smart Cycling class. Certification requires a 20-hour weekend seminar, an assessment test, and a $350 fee. On an annual basis, a local resident, sponsored by the City, could complete the LCI training. In exchange for the sponsorship, the LCI instructor would commit to teaching at least four classes annually.

Cycling safety classes are also offered by some local bike shops on an on-demand basis. Bike shops could advertise cycling safety classes at the point of sale when people purchase bikes to encourage them to refresh their knowledge of cycling rules of the road. In addition to sponsoring safety classes in schools, the City could build a Bike Safety Town at one of the local parks to serve as a training ground for teaching children the rules of the road. Similar Safety Towns exist in several communities across the country, such as the exemplary example found in Naperville, Illinois. Open Bike Nights can be held periodically to allow participants to practice the basic rules of safe bicycling, such as riding single file, stopping and looking both ways at intersections, using correct hand signals, and following road signs and signals. Local Scout groups could host bicycle education programs to help teach younger children.

Safety Town in Naperville, IL
(Image courtesy of PositivelyNaperville.com)

PUBLIC SERVICE ANNOUNCEMENTS

Public Service Announcements (PSAs) are an effective way to inform motorists and cyclists alike about safe biking. PSAs can be designed to inform drivers to be more cautious of cyclists and the importance of sharing the road. Public comments revealed that many residents feel that drivers do not respect the cyclists right to be on the road and motorist behavior was one of the key reasons they cited for not riding more frequently. Drivers should be reminded to allow at least three feet of clearance when passing bicyclists on the road, to look before opening their car door or pulling out of a parking space, and to yield to cyclists at intersections. Drivers should be especially cautious and watchful for cyclists when making turns.

PSAs can also be designed to help cyclists understand and avoid risky behavior. Cyclists are vulnerable users and should be aware of tactics to keep them safe and visible to surrounding traffic. Besides basic safety precautions such as wearing a helmet, having lights on both the front and back of the bike, and wearing bright clothing at night, PSAs should also remind cyclists to always ride with traffic, how to safely cross intersections, and to keep a watchful eye out for opening car doors. PSAs could also target certain audiences, such as winter visitors who might not be familiar with Arizona's cycling laws.

The City has produced bicycling-related PSAs in the past and should seek to expand the inventory of such videos to be played on City TV stations. During the public outreach meetings of this planning effort, students at Arizona Western College showed interest in seeking a partnership with the City to produce such a public safety announcement.

"I would love to ride to work, but the roads are unsafe for bicycling. Drivers are unwilling to share the road. Better access to safe bike lanes and enforcement will help."

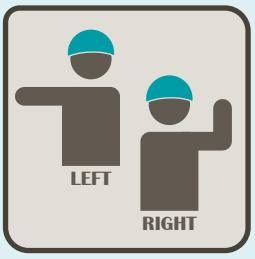
City of Yuma Resident, 2018 Bikeways Survey

INCREASED ENFORCEMENT

Enforcement is another key factor to improve bicycling safety and reduce crashes. Law enforcement officers should receive training regarding bicycle safety, particularly to develop an understanding of state laws and local ordinances. Awareness of the most dangerous intersections and road segments, shown in Figure 3-3, will help officers better target their enforcement efforts. Trained officers are also more effective at reporting crashes involving bicyclists and accurately identifying the cause.

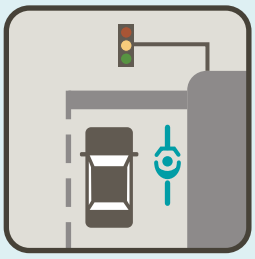
Public comments pointed to a specific problem in Yuma of drivers running red lights and the need for increased enforcement to keep cyclists safe. Comments also highlighted the need for improved enforcement of bicycling laws aimed at the cyclists themselves, such as wearing a helmet, not riding two or more abreast, and always riding with the flow of traffic.

FIGURE 3-9 TIPS FOR SAFE CYCLING



USE HAND SIGNALS & WEAR A HELMET

Hand signals tell motorists what you intend to do. Signaling is required by law, is courteous, and helps keep you safe. Always wear a helmet, it might save your life!

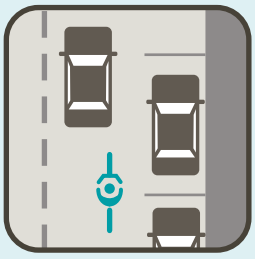


OBEY TRAFFIC SIGNALS, SIGNS, & LAWS

Bicyclists must operate their bikes like other vehicles. Obey all laws, just as if you were driving a car.

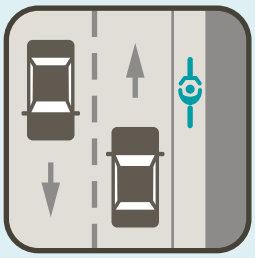
USE LIGHTS AT NIGHT

Use a white light in front and a red light in back. Make sure your bike has reflectors and wear reflective or high-visibility clothing when biking after dark.



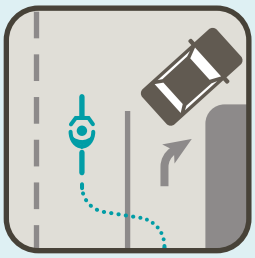
STAY TO THE RIGHT

When there is no dedicated bike lane, keep to the right of the roadway. In areas with on-street parking, look out for opening car doors to avoid getting hit. Never ride more than two abreast.



RIDE WITH TRAFFIC

Motorists aren't looking for cyclists in oncoming traffic. Bicycling on the wrong side, even when you're on the sidewalk, is especially dangerous at intersections, roadway curves, and hills.



FOLLOW LANE MARKINGS

Don't go straight from a right turn only lane, and don't ride to the right of a right turn lane. Don't turn left from the right lane; to safely make a left turn, move to the left turn lane just as you would in a car.

4.0

CONVENIENCE

Many short auto trips could be replaced by biking trips, with resulting benefits for users' health and air quality. To facilitate users to choose cycling as their mode of transportation, bikeways and facilities need to be easily accessible and convenient. The City aims to provide an equal level of service to all neighborhoods across town. Secure and free bicycle parking should be readily available at destinations. The bikeway network should be coordinated with the transit system in order to maximize convenience for users.

GOAL 2

Provide an attractive, diverse, and accessible system of bicycle facilities that meets the needs of the City's residents, businesses, and visitors.

Objective 2.1: Provide equal and convenient access, within a 1/4-mile, to bicycle facilities in all neighborhoods across Yuma.

- ***Strategy 2.1.1:*** Prioritize construction of key bicycle facilities on the East Mesa to address the current deficit.
- ***Strategy 2.1.2:*** Provide connections between existing "service islands".

Objective 2.2: Enhance convenience by ensuring secure and accessible bicycle parking, connections to the transit system, and bicycle service stations.

- ***Strategy 2.2.1:*** Provide bike racks at all public parks and public facilities.
- ***Strategy 2.2.2:*** Amend the zoning code to require bicycle parking facilities for all new multi-family, office, commercial, and industrial projects.
- ***Strategy 2.2.3:*** Locate bikeways along transit routes.
- ***Strategy 2.2.4:*** Partner with local bike shops to provide bike service stations along the linear parks and at key destinations.

Accessibility Analysis

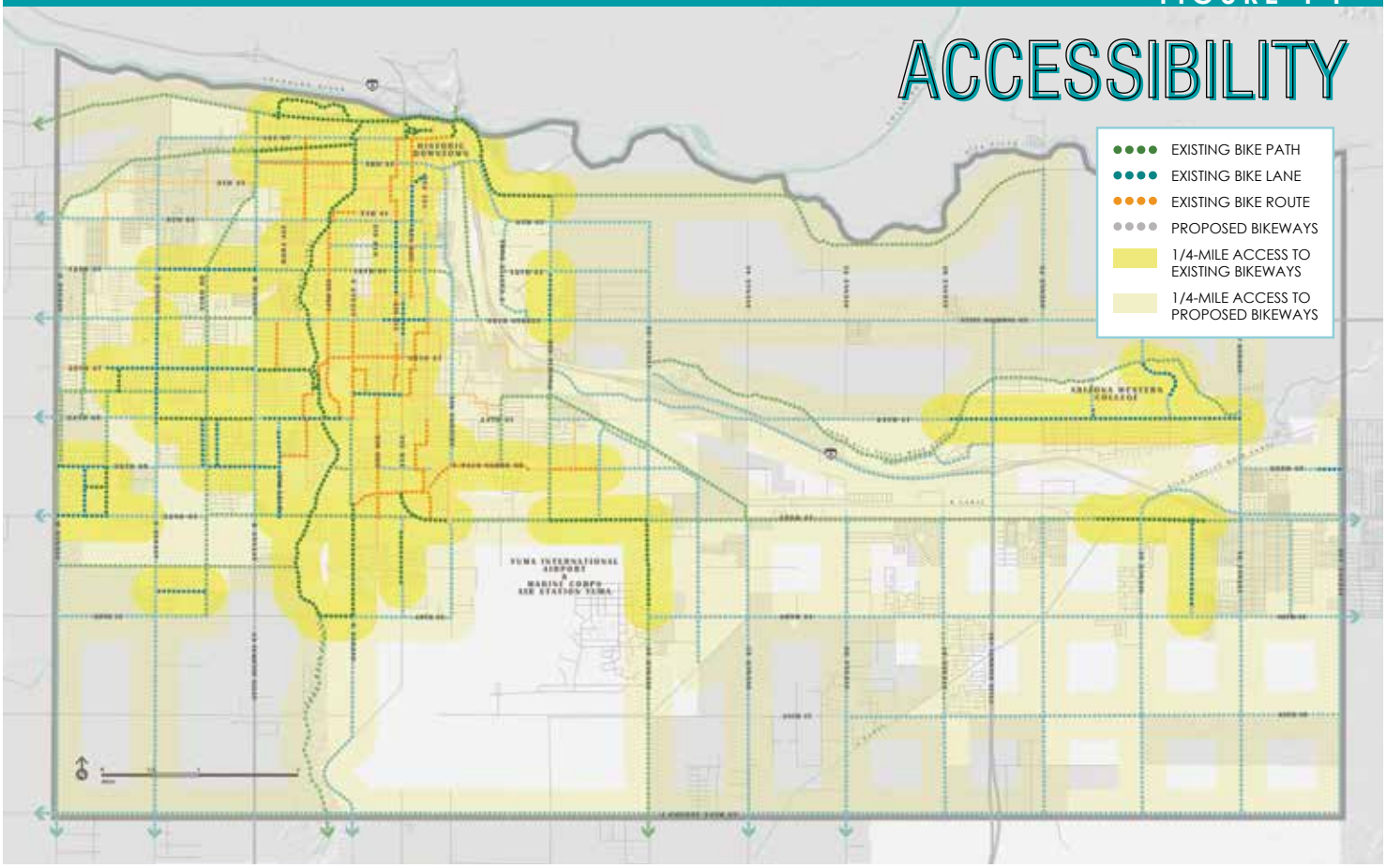
People who live near multi-use trails are 50% more likely to meet physical activity guidelines and 73-80% more likely to bicycle.

Active Transportation: Making the Link from Transportation to Physical Activity and Obesity, 2009

Studies show that people are more likely to use bicycle facilities when they live within easy access, defined in this plan as within a 1/4-mile. One goal of the proposed Bikeway Network Plan (Figure 5-2) is to provide developed areas within the City convenient access to the bikeway network within a 1/4-mile. Figure 4-1 below shows the areas currently served by existing bikeways in bright yellow and those areas that will be served by the proposed bikeways plan at buildout in light yellow.

As is evident in the map below, the current bikeway network is lacking on the East Mesa. Most of the facilities are concentrated on the more densely populated west side of town. Bikeways to serve the growing population on the East Mesa should be prioritized to address the current deficit. The map also shows that the location of existing bikeways creates a series of "service islands" that are disconnected from one another, making biking to a destination across town difficult. To make the existing bikeways more practical and useful, disjointed sections need to be connected, such as the Pacific Avenue lane and the facilities in the residential neighborhoods on the far west side of town.

FIGURE 4-1



Improving Convenience

BICYCLE PARKING

Bicycling is only feasible as a mode of transportation if secure and accessible bike parking is available at the final destination. The City can ensure bike parking is located at public parks and facilities, available at major events, and encourage local businesses to install bike parking. Comments from the public survey highlighted the need for bike parking particularly at retail centers and workplaces. Several studies have shown that people are more likely to commute to work by bike if bike parking is available at their workplace.

The City can adopt policies that can encourage the provision of bicycle parking. For example, properties developed in the Aesthetic Overlay District are required to provide a bike rack for each building on the site. In 2017, the City updated the parking regulations to allow for a reduction in car parking spaces when bike parking is provided. The zoning code should be amended to require bicycle parking facilities for all new multi-family, office, commercial, and industrial projects. These ordinances should specify the amount and location of the bike parking. An ordinance could also be adopted to allow on-street bike parking or bicycle corrals to be placed in the right-of-way.

Bike racks can also be opportunities for public art installations. The City's Public Art Committee could sponsor a program to design

Bike racks can be opportunities for public art installations, such as these existing racks on Main Street.

and install artistic bike racks around town.

Bike racks should follow the Association of Pedestrian & Bicycle Professionals (APBP) guidelines. According to best practices, the inverted 'U', post & ring, or wheelwell-secure styles of racks are preferred for their ease of use and security. Wave, schoolyard, and spiral style racks are not preferred. Short-term bike parking should be visible and close to the entrance it serves and installed on a flat, hard surface.

CONNECTING TO TRANSIT

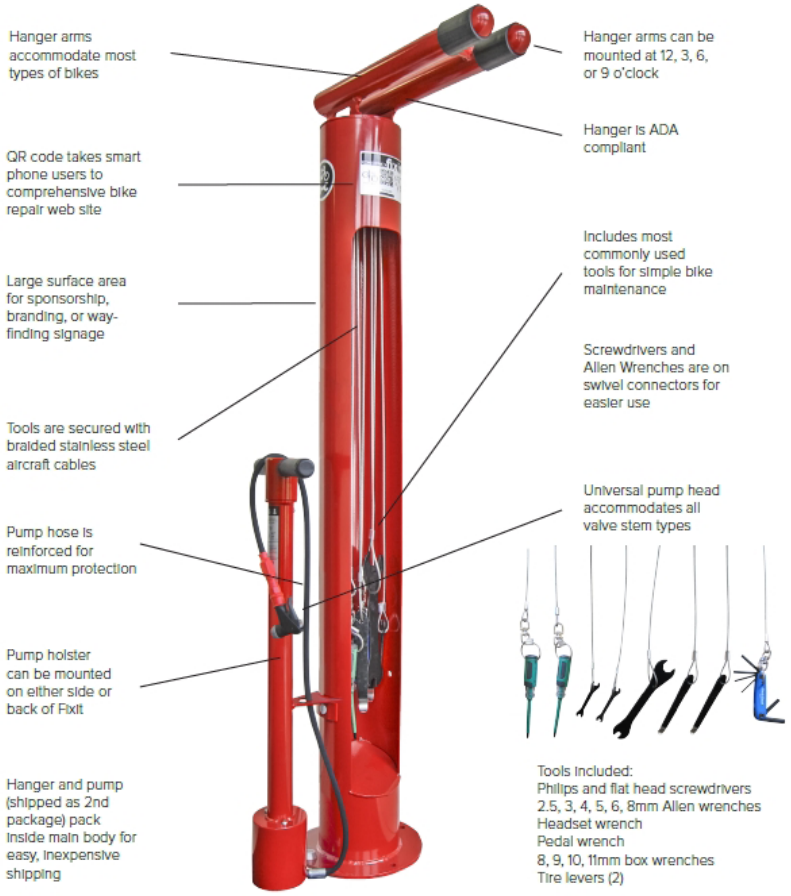
To support multi-modal trips, bike facilities should be located along transit routes. Careful consideration is given to co-locating bicycle and transit facilities in the proposed Bikeway Network Plan (Figure 5-2). Bike parking should be provided at transit centers and transfer hubs, and grant funding has been secured to install bike racks at the Downtown Transit Center and the West Yuma Transfer Hub.

All Yuma County Area Transit (YCAT) buses are equipped with bicycle racks, which hold two or three bikes. Two additional bikes are allowed inside the bus, depending on passenger loads and bus operator discretion. Riders must be able to load and unload their bikes without help from the operator.

All YCAT buses are equipped with bike racks.

BICYCLE SERVICE KIOSKS

Bicycle service kiosks offer a variety of tools and a pump for quick repairs to bikes. The City could promote a program to partner with local bicycle shops to sponsor the installation of service kiosks at key locations, such as along the linear parks, in downtown, and at parks. One example of such a bike service kiosk is the 'FixIt' bike repair kiosk manufactured by Dero and shown below.



Bike Repair Kiosks such as these manufactured by Dero can be added along bike paths.

5.0

CONNECTIVITY

A connected bikeway system enhances both safety and convenience. The overall plan for the development of the bikeway network aims to seamlessly connect users to key destinations such as schools, employment centers, commercial nodes, and parks. Critical connections are identified and should be completed first to enhance the connectivity and safety of the overall network.

GOAL 3

Develop a plan for locating bikeways to link homes, schools, parks, workplaces, and other important city features.

Objective 3.1: Construct segments of the bikeway network that will provide broad connections across town.

- ***Strategy 3.1.1:*** Construct bikeways to connect Arizona Western College with the west side of town.
- ***Strategy 3.1.2:*** Construct bikeways to connect the Fortuna Foothills with the west side of town.
- ***Strategy 3.1.3:*** Construct bikeways, preferably bike paths, that create looping routes to allow for long recreational rides.

Objective 3.2: Prioritize construction of key segments of the bikeway network that will improve connectivity and safety.

- ***Strategy 3.2.1:*** Develop a prioritized list of bicycle facility construction projects.
- ***Strategy 3.2.2:*** Improve connections between the East Main Canal Linear Park and adjacent neighborhoods.

Objective 3.3: Ensure new development is connected to the bikeway network.

- ***Strategy 3.3.1:*** Amend the zoning and subdivision code to require all new residential developments to provide bicycle facility connections to any and all city parks, trails, or open spaces within a one-half-mile radius of the development.
- ***Strategy 3.3.2:*** Construct bike lanes or bike paths on or along all new arterial roadways.

Objective 3.4: Define specific funding mechanisms for bicycle facility design, implementation, and maintenance.

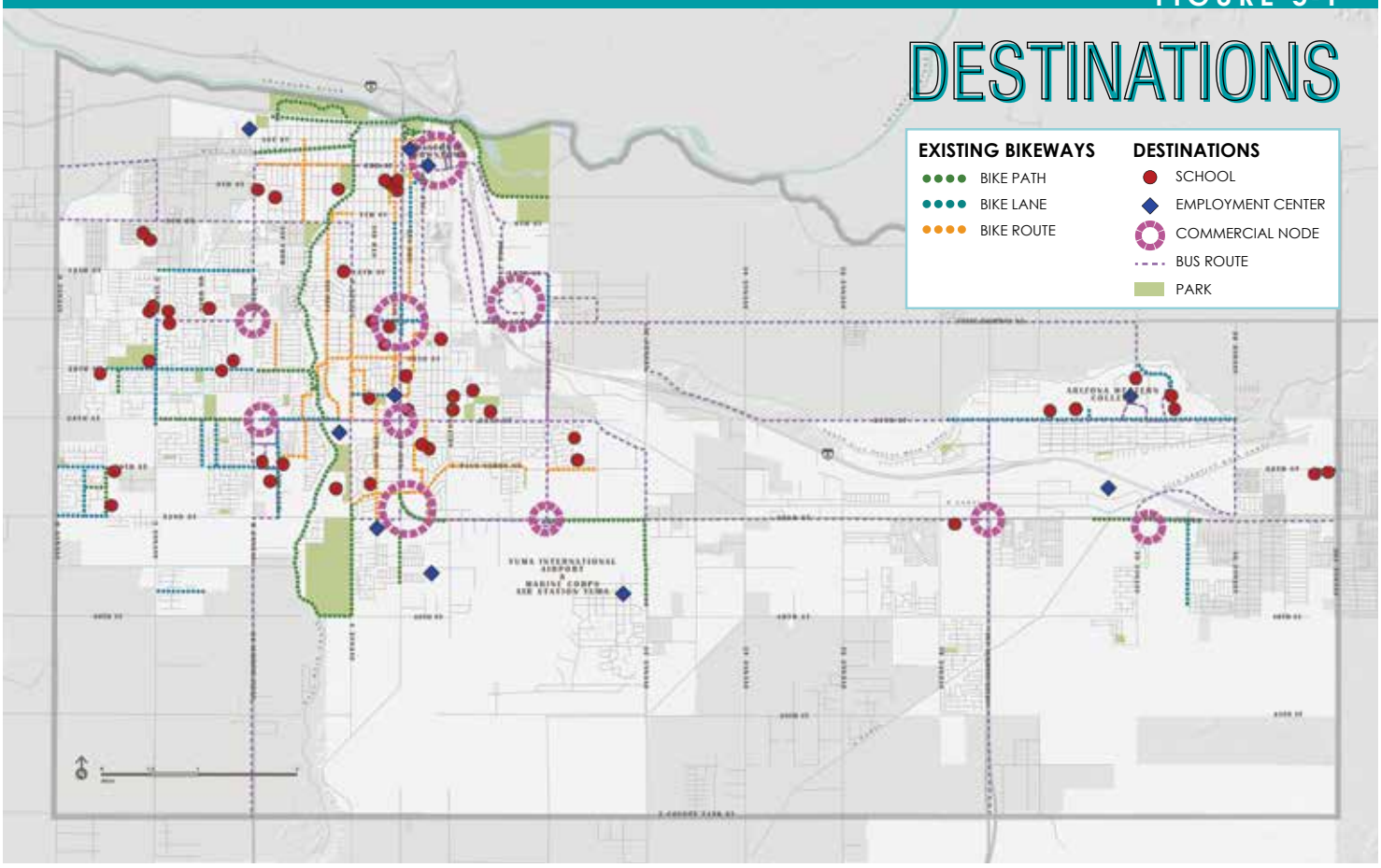
- ***Strategy 3.4.1:*** Seek grant funding and partnerships to expand and maintain the bikeway network.
- ***Strategy 3.4.2:*** Develop the Capital Improvement Program (CIP) to meet the bicycle facility needs stated in this plan. Bikeways improvements should be re-assessed and re-evaluated annually in conjunction with the CIP plan.
- ***Strategy 3.4.3:*** Coordinate with Public Works staff to add bike facilities when roads are maintained and re-surfaced.
- ***Strategy 3.4.4:*** Hire a dedicated bikeways staff person to coordinate bikeways issues across departments and serve as the bicycle advocate for the City.

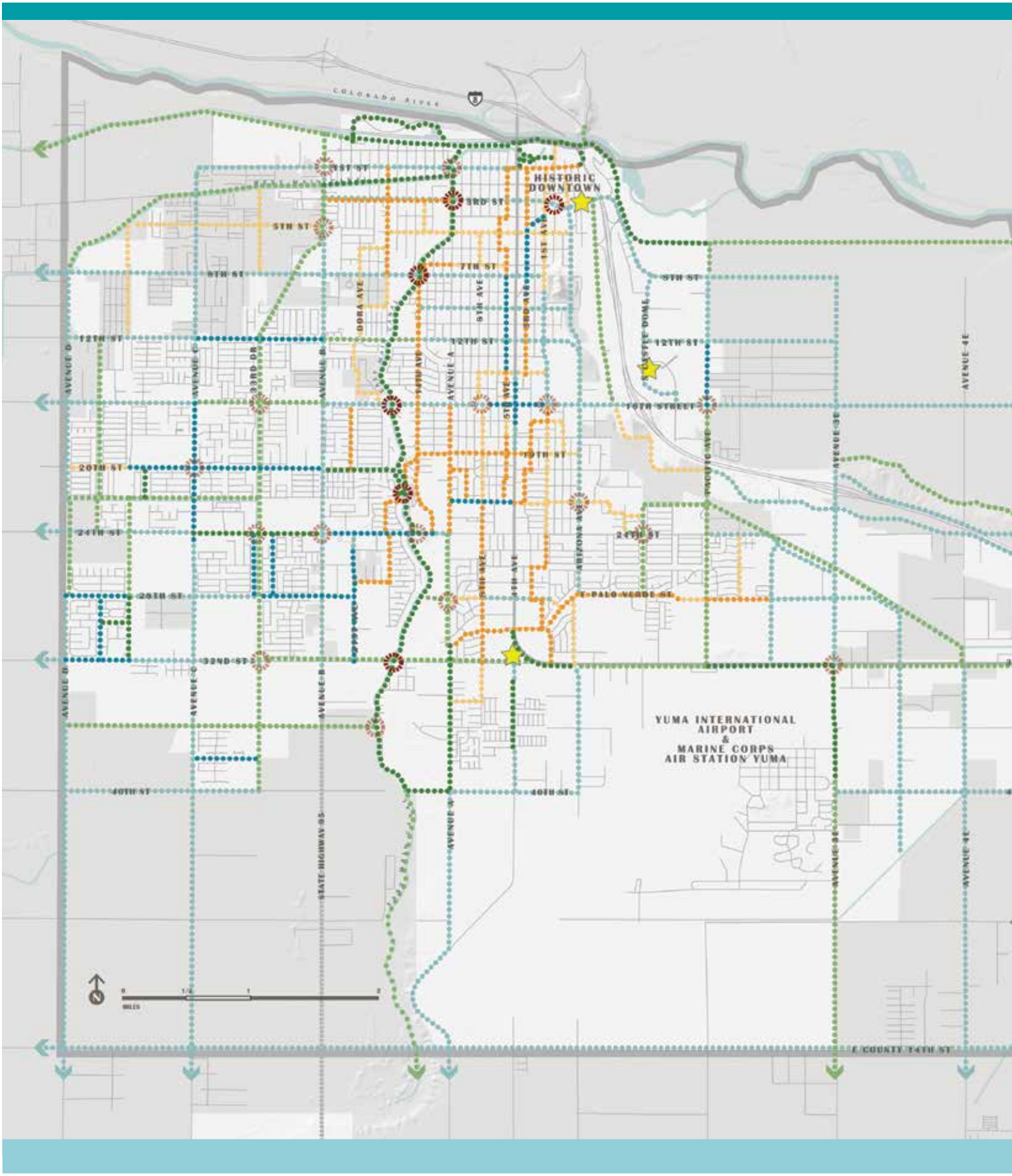
Identifying Destinations

Destinations drive the reason people use bike facilities. Residents and visitors need to get to and from these destinations and the fundamental intent of this plan is to provide for that access. Key destinations -- such as schools, parks, employment centers, commercial nodes, and bus routes -- are located on the map below, Figure 5-1. The goal of the proposed Bikeway Network Plan shown in Figure 5-2 is to provide direct access to all of these major destinations. Direct access is defined by the existence of a bikeway located either directly adjacent to or within the area bounded by the property lines of a destination.

As can be seen in Figure 5-1, destinations are split into two distinct areas of town; the more densely populated and more established west side of town and the more recently developed east side of town, known as the 'East Mesa'. The East Mesa has seen considerable growth in residential development over the last decade, and much of the future residential development is anticipated to happen in that area. As noted in the previous section on Level of Service (Figure 4-1), development on the East Mesa has lower access to bikeways than the west side of town. It is important to prioritize connections between the west and east sides of town.

FIGURE 5-1




COLORADO RIVER
HISTORIC DOWNTOWN
1ST ST
3RD ST
5TH ST
7TH ST
8TH ST
9TH ST
12TH ST
16TH STREET
20TH ST
24TH ST
28TH ST
32ND ST
40TH ST
E COUNTY 14TH ST
1ST AVE
3RD AVE
4TH AVE
5TH AVE
6TH AVE
ARIZONA AVE
PACIFIC AVE
AVENUE A
AVENUE B
AVENUE C
AVENUE D
AVENUE 4E
33RD DR
ODRA AVE
CASTLE DOME
E PALO VERDE ST
STATE HIGHWAY 95
YUMA INTERNATIONAL AIRPORT & MARINE CORPS AIR STATION YUMA
0
1/2
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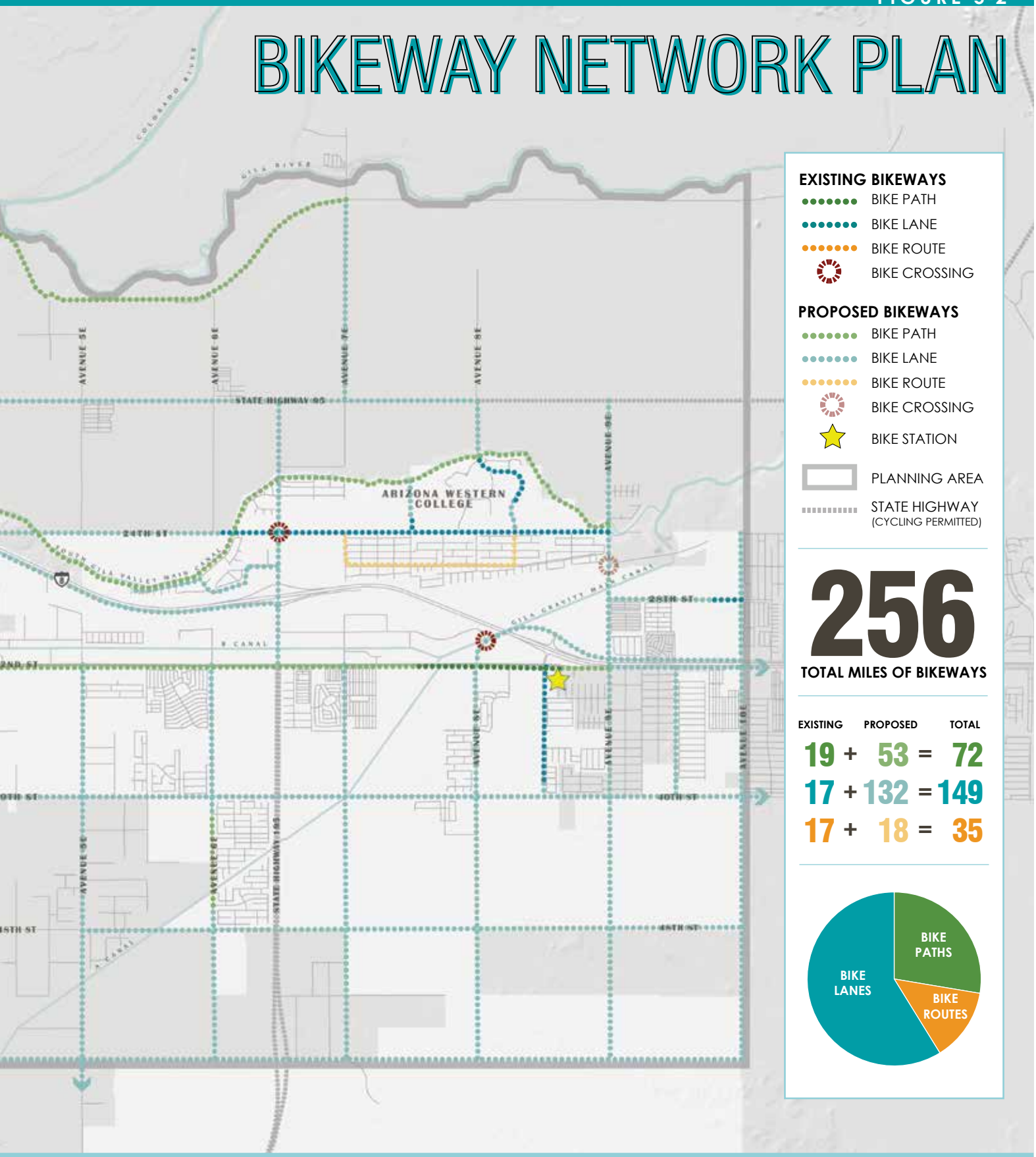
MILES

BIKEWAY NETWORK PLAN



EXISTING BIKEWAYS
- BIKE PATH
- BIKE LANE
- BIKE ROUTE
- BIKE CROSSING

PROPOSED BIKEWAYS
- BIKE PATH
- BIKE LANE
- BIKE ROUTE
- BIKE CROSSING
- BIKE STATION
- PLANNING AREA
- STATE HIGHWAY (CYCLING PERMITTED)

256
TOTAL MILES OF BIKEWAYS

EXISTING		PROPOSED		TOTAL
19	+	53	=	72
17	+	132	=	149
17	+	18	=	35

The Case for Building Bikeways

To have a truly integrated and connected bikeway system, a total of 203 miles need to be added to the existing network. A majority of the additional mileage, 132 miles, will be in the form of bike lanes along existing or new roadways. Particularly when designed into the road at construction, bike lanes are a cost effective way to expand the system. An additional 53 miles of bike paths are proposed to be added; some in the form of multi-use paths and some as linear parks. Construction of paths presents more challenges in terms of obtaining or coordinating right-of-way and a higher level of investment in trail amenities, but paths also offer the greatest level of user safety and more opportunities for funding partnerships exist. The plan proposes an additional 18 miles of bike routes, which are by far the least expensive bikeway option, but also offer cyclists the least protection.

> *"Cities with more bike paths and lanes have significantly higher bike commuting rates."*
>
> Buehler, R., and J. Pucher. "Cycling to work in 90 large American cities: new evidence on the role of bike paths and lanes", *Transportation*, March 2012.

Several studies have shown that the more bikeways a city has, the more cyclists use the facilities. In New York City, bike counts have shown that the rate of expansion of the bicycle network corresponds to the rate of growth in cycling the following year. Washington, DC has found similar results in that the highest rates of bike commuting tend to be in neighborhoods where the city has invested in bike facilities. The public survey conducted in Yuma reflected the same sentiment; when asked what prevents them from biking more often, 72% of survey respondents said the lack of bike paths, lanes, and designated routes was the number one reason they didn't bike more frequently. When asked what improvements would influence them to bike more often, respondents overwhelmingly replied (86%) that more paved off-street bike paths would make the difference. Bike routes and lanes were the second most popular answer, with 62% of respondents noting these types of bikeways. The demand for bikeways clearly exists; the more connected the system, the more useful and popular it will become.

Not only does an increase in bike facilities lead to more cyclists, but more facilities means a safer environment for cyclists which leads to more people willing to cycle. As the bicycle crash analysis shown in Section 3.0 proves, most bicycle accidents occur on roads where there are no bike facilities. Adding facilities makes biking safer, which is a major concern of people who expressed a desire to ride more often. Research has shown that bicycle safety improvements attract proportionately more people to bicycling than automobile safety improvements, making bikeways a sound investment.

Cyclists enjoy the multi-use paths at the West Wetlands Park.

Critical Connections

The proposed bikeways network shown in Figure 5-2 aims to provide seamless, safe bikeway connections between various parts of town. Public outreach efforts emphasized four specific areas in need of better connections: Arizona Western College to Downtown Yuma, Fortuna Foothills to Downtown Yuma, connecting bikeways to create a looping route for recreational riders, and improved connections between the East Main Canal Linear Park and the surrounding neighborhoods.

ARIZONA WESTERN COLLEGE CONNECTION

Arizona Western College (AWC) is located north of Interstate 8, representing a large employer and destination for nearly 8,000 students. During the public comment period, many people commented on the need for bikeway connections between AWC and destinations in downtown Yuma. Several people mentioned they would commute to work or school along this route if safe bikeways were available. Currently, bike lanes exist along 24th Street in front of AWC, but the lanes are completely disconnected from the rest of the bikeway network. Four potential routes are offered as solutions: 1) extending the bike lanes west along 24th Street to Avenue 3E; 2) extend bikes lanes south along Araby Road down to 32nd Street where the lane would intersect a bike path along 32nd Street; 3) build a linear park along the South Gila Valley Canal to allow cyclists and motorists separate connections to Avenue 3E; and 4) extend bike lanes north along Avenue 7E to the Colorado River where the Levee Linear Park would be extended to connect with the existing linear park at Pacific Avenue. These four routes would connect AWC to various neighborhoods and destinations within Yuma and would allow cyclists of various skill levels to safely travel across town.

FORTUNA FOOTHILLS CONNECTION

The east-west connections from Yuma to AWC constitute the first step in creating a strong connection to the Fortuna Foothills neighborhood, which is located just outside the planning boundary in Yuma County. The Fortuna Foothills is largely a residential area and home to many winter visitors. Public outreach showed high demand for cyclists wishing to travel between the Foothills and downtown Yuma. Most requests called for a bike path as the safest bikeway option. Coordination with the County's efforts to add bike lanes and routes is critical in achieving this connection. Currently, the County has designated two bike routes through residential neighborhoods that connect Avenue 10E to Avenue 15E. The City's plan would connect bike lanes and paths to the County's bike routes to create a continuous bikeway.

"The bike/running path on the East Main Canal is great. It's a terrific (and safe) way to move north and south. I wish there was a similar fashion of moving east and west."

City of Yuma Resident, 2018 Bikeways Survey

LOOPING ROUTES FOR RECREATION

Many recreational riders, including many of the local bike groups, enjoy long rides through and around the City. These recreational riders desire bikeways that connect around the City to create a long continuous loop; the more separation from automobile traffic, the better. The proposed plan offers several looping routes of varying distance: for example, the East Main Canal Linear Park connects to the proposed Thacker Lateral Linear Park and the proposed extension of the Colorado River Levee Linear Park connects to bike lanes that encompass the city.

6.0

PROMOTION

Yuma has received recognition for its efforts to create a bicycle friendly community. The City will continue to promote bicycling by distributing bikeway network maps and online resources; by supporting and partnering with local bike advocacy groups in their efforts to promote cycling; and by instituting programs to encourage local businesses to become more bike-friendly. Increasing ridership among all types of users (commuters, recreational users, school-age children, and tourists) is the ultimate aim of all promotion efforts.

GOAL 4

Continue to expand and promote public awareness of bicycle facilites, opportunities, and programs among City residents and visitors.

Objective 4.1: Promote the current bikeways network to residents and visitors.

- ***Strategy 4.1.1:*** Increase knowledge and awareness of the bikeways by publishing a highly accurate and regularly updated map of the bikeway network.
- ***Strategy 4.1.2:*** Publish the bikeways network map online.

Objective 4.2: Increase ridership among commuters, school-age children, recreational users, and tourists by expanding programs to promote bicycling.

- ***Strategy 4.2.1:*** Increase bicycle commuters by encouraging employer-sponsored cycling incentives.
- ***Strategy 4.2.2:*** Support and sponsor Bike Month activities to encourage ridership.
- ***Strategy 4.2.3:*** Partner with other local organizations to sponsor a Physical Activity Campaign, Bike Rodeo, and other programs to encourage children to cycle to school.
- ***Strategy 4.2.4:*** Implement and administer a Bike-Friendly Business program to draw awareness to tourism-related businesses who support cyclists.
- ***Strategy 4.2.5:*** Implement a periodic bike count program at key locations.

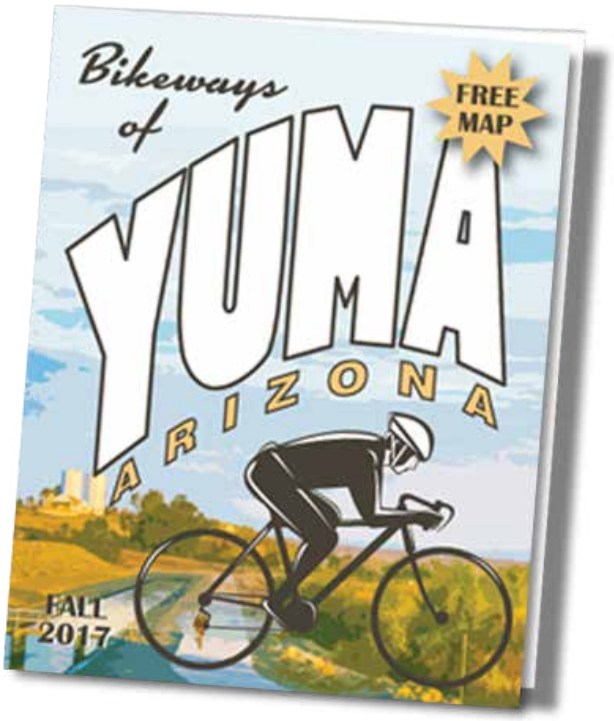
Promoting the Bikeway Network

PRINTED BIKE MAP

Since 2015, the City has published a user-friendly bike map to promote the bikeway network. The map was specifically developed to encourage and educate residents and visitors on the extensive opportunities for cycling in Yuma. In addition to defining the types of bikeways and offering safety tips, the map clearly identifies future routes to provide residents the opportunity to review and comment on proposed bikeways in a format that is more accessible than comprehensive planning documents. The maps have been generously offered for free, thanks to funding from the Yuma Crossing National Heritage Area (YCNHA). Two thousand copies were distributed in the fall of 2015, and an additional 600 copies were printed in late 2017. Maps are available at more than nine sites around town, including key tourist destinations, City Hall, and local bike shops. The map is also available for download on the City's website. The map is currently managed by Community Planning staff, and this effort should be con-

tinued in the future with annual updates to the online map and re-printings when needed. Securing a long-term funding source to support printing costs will ensure the longevity of this valuable map.

ONLINE RESOURCES
In addition to the online bike map, the City should increase the breadth of bicycling resources offered online. The City could help promote Bike Month by publishing an online calendar of Bike Month events and by advertising Bike Month events on the website, radio, and City TV. A webpage dedicated to cycling can also be a hub for safety tips, information on current projects, and a place to take public comment. Any public service announcements produced should be made available online to help promote awareness and safe cycling practices.



Increasing Ridership

An indicator in the level of success of improving convenience and successful promotion efforts is the overall increase in ridership. Riders can be classified as commuters, school-age children, tourists, and recreational riders; each group has different interests and therefore different promotional strategies to attract new riders.

The simplest way to increase ridership cross all types of users is to build more bikeways, as mentioned in the previous section. Studies show that demand for bikeways exists, but people don't feel that the system is safe enough or connected to their destinations. Responses from the public survey conducted as part of this planning effort showed similar results; Yuma residents want more bike lanes and paths in order to ride more.

COMMUTERS
Bicycling is a healthy and cost effective way to get to and from work. The average American spends over $8,700 a year on automobile costs, and it's estimated that a 10-mile round trip bike ride could save $10 when car maintenance is factored into the equation. Employers can take several steps to encourage employees to cycle more. Employees will have different reasons for embracing cycling -- some are looking for ways to improve health, some are environmentally conscious, and some are looking to save money. Outreach efforts should focus on attracting potential cyclists, while understanding that not everyone is a good candidate to become a bike commuter. Employers can also offer incentives to cycle to work. Secure indoor bike storage during the day is the most critical, with access to shower facilities a close second. Access to tools and occasional safety and awareness classes would be an added bonus. Cycling can be included in existing worksite wellness programs to encourage and recognize cyclists. Sponsoring a Bike to Work Day during Bike Month would be an excellent first step. The City of Yuma should set the example for other large employers in town by adopting incentives for cycling.

SCHOOL-AGE CHILDREN
School-age children need safe bikeways to bike for recreation and to bike to school. According to the Safe Routes to School National Partnership, in one generation, the percentage of children who walk or bike to school has dropped from 50% to 15%. Programs like a Physical Activity Campaign can help students, parents, and educators to understand safe biking practices, the health benefits of biking, as well as raise awareness for safe bike routes. Such a program could also include incentives such as winning a bike and giveaways of safety items such as helmets, lights, or other bike gear. In the past, Yuma has had a dedicated Safe Routes to School coordinator to organize efforts to promote biking and walking to school. This position hasn't been funded in several years, but the work is valuable and ways to fund this position again should be explored.

RECREATIONAL USERS
Recreational users can be encouraged to cycle more through broad public outreach campaigns and specific organized activities. These activities are best focused during Bike Month to have the greatest impact. Bike Month activities typically include a proclamation made by the Mayor and City Council, public service announcements aired with greater frequency, and additional cycling events. The City should also consider coordinating a volunteer maintenance or construction day to improve bike facilities.

Many local groups host cycling events, during Bike Month and throughout the year. As much as possible, the City should support these activities through direct funding, assistance with organization, policing assistance, or assistance with promotion and marketing.

TOURISTS
Bicycle tourism is a growing segment of the market, and tourism officials are recognizing that tourists on bicycles tend to stay longer in a state and spend more per day than other tourists. Touring cyclists, who also tend to be older and wealthier, can contribute significantly to the local economy. This segment of the population is more likely to support locally-owned bed-and-breakfasts, motels, cafes, craft breweries, and shops. For a minimal environmental impact, the economic impacts are certainly worth taking notice of.

To help businesses market to bicycle tourists, the City should adopt and administer a Bicycle Friendly Business program. The type of program recognizes tourism-related businesses such as restaurants, hotels, attractions, retail outlets, and others, through recognition and signage. If the business provides at least five of the following services, they can apply to be recognized as a bicycle-friendly business: bicycle cleaning station, bicycle pump, bicycle mechanic, bicycle parking, bicycle rentals, bicycle shuttle service, bicycle tours, bicycle tools/supplies for sale, complimentary charging station, complimentary bicycle locks, complimentary bicycle rentals, complimentary water (refill water bottles), limited groceries (energy bars or healthy ready-to-eat foods), long-term vehicle parking, public restroom, self-serve bicycle repair station, shipping, and complimentary wi-fi. Compliant businesses can purchase or print a Bike Friendly sign to display. Businesses in the historic downtown can be targeted for this type of program. This type of program has been successfully implemented by the Oregon Tourism Commission, and Yuma could model their program on this example.

Yuma's Visitor Information Center located at the Quartermaster Depot State Historic Park offers bike rentals on a daily or hourly basis. Renters are supplied with maps, locks, and helmets. A vast majority of the riders use the scenic paths within the East and West Wetlands Parks and along the Colorado River Levee Linear Park. A smaller number venture down the East Main Canal Linear Park. The Visitor Center could expand on the rental program by offering guided bike tours of historic sites throughout the downtown area.

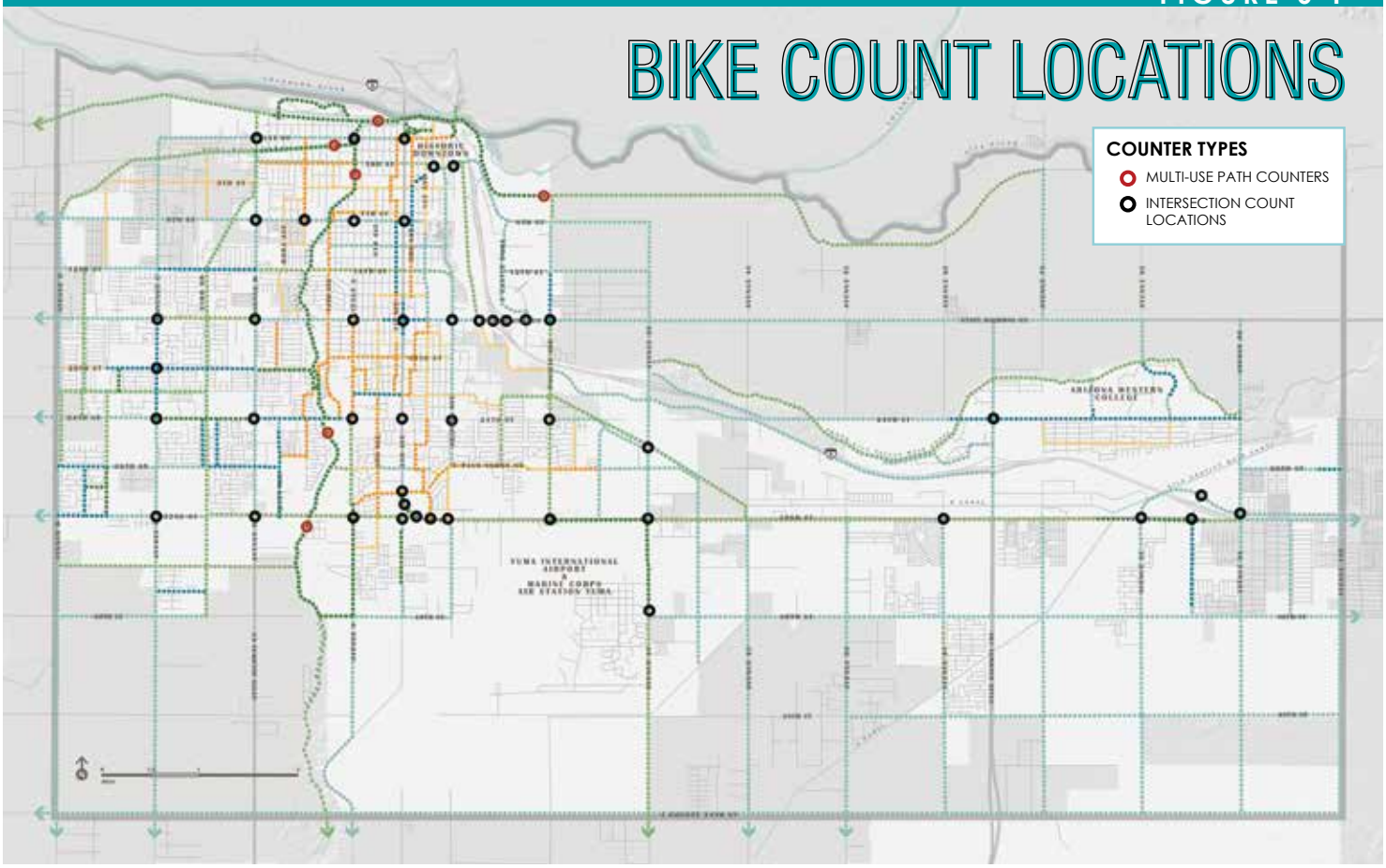
Tracking Ridership

CYCLIST COUNT PROGRAM

A program to count the number of cyclists at key locations throughout the bikeway network is essential to measuring success in increasing ridership. Counts can be collected manually or through the use of automated counters. Starting in the winter of 2018, Traffic Engineering will conduct a regular count program at specified intersections across town, as shown in black in Figure 6-1, which will include bicycle turn movements. Additionally, automated counters can be installed along key sections of the bike paths (as shown in red in Figure 6-1). Short duration counts, either automated or manual, can be conducted periodically to supplement the data to provide a more accurate picture of cycling activity across the network.

The city can partner with the Yuma Metropolitan Planning Organization (YMPO) to conduct bike counts. YMPO as the ability to gather counts on up to 50 locations at one time using tube counters. On a biannual basis, in February and August, counts should be conducted for a one-week period at the path locations shown in Figure 6-1. Gathering data from February and August allows seasonal comparison of cyclists in line with Yuma's population fluctuation. As more paths are constructed, key locations should be added to the annual bike count program. By partnering with YMPO, bi-annual bike counts along the multi-use paths can be conducted for approximately $5,000 to $6,000 per year.

FIGURE 6-1



7.0

IMPLEMENTATION

The four overarching goals of the plan (safety, convenience, connectivity, and promotion) and corresponding strategies would be meaningless without an effective plan for implementation. Building the envisioned network involves coordination between several City departments and across governmental agencies. It also involves organizing various funding sources and partnerships to bring the projects to fruition. Funding won't be available to build the entire network in the next ten years, so it is also essential to prioritize projects based on the community's needs and desires.

Building the Network

INTERDEPARTMENTAL COORDINATION

Planning, building, and maintaining the bicycle network involves coordination between several departments across the City: Community Planning, Traffic Engineering, Development Engineering, the Capital Improvement Program, Parks & Recreation, and Public Works. Each department plays a critical and unique role in making the bikeway network effective. Community Planning creates the long-term plan for the network by preparing documents such as this one. Public input is essential to the planning process; Planning staff aims to collect and synthesize current public and stakeholder opinion in all planning efforts. Adopted plans serve to guide other departments in their decision making process as it relates to bikeways. The Engineering Department's role deals mainly with construction of bikeways along new roads and in conjunction with new development. Currently, Engineering has policies requiring bike lanes on all new arterial roadways. As new development occurs, the City relies on Engineering staff to ensure proposed bikeways are constructed in those areas. Traffic Engineering staff are the resident experts on designing the exact specifications for bikeways. When new roads are designed or existing roads resurfaced, Traffic Engineers are responsible for recommending a bikeway solution to meet the intent of the adopted plan. The Capital Improvements Program (CIP) also plays a critical role in allocating funds to bikeway projects. In some cases, bikeways can be included with roadway projects - such as adding bike lanes to a new or existing roadway. In other cases, bike projects need to be prioritized in the CIP as standalone projects. Parks & Recreation plays a role in promoting cycling activities and encouraging cycling within the park system. Public Works is largely responsible for maintaining the bikeway network through street maintenance and maintenance of the linear parks. Maintenance is key to the ongoing viability of the bikeway network. Potholes and road debris can have a negative impact on the ability of cyclists to use the designated bikeways.

CITYWIDE BIKE COORDINATOR

Under the current organization, management of the bikeway network falls under the purview of several departments. Many municipalities employ a bike coordinator who serves as the point person for all things dealing with the bikeway network. This person's sole focus would be on bikeways to ensure that the various departments across the City were coordinating efforts and working together effectively. In many organizations, this person is part of the engineering team, but is sometimes part of the planning department. Appendix F summarizes the bike coordinator position in the largest cities in Arizona.

In addition to implementing and updating the Bikeways Plan, duties of this position would include an annual review of roadway projects in the CIP and road resurfacing projects to ensure planned bikeway projects and improvements are included; periodic review of the development fees program and eligible projects; coordinate community biking events; coordinate partnerships with local bike clubs and non-profits; sponsor traffic safety classes; and, seek and secure funding.

The bike coordinator would also work closely with the traffic engineers to make recommendations as projects come up.

ROAD RESURFACING
The Streets Division of Public Works conducts a bi-annual resurfacing project to address ongoing maintenance of roads. When selected roads are slurry sealed in the Spring and Fall, road diets can be implemented to provide bicycle facilities within the existing pavement width. This is a cost effective way to add bicycle facilities at a minimal cost. When Public Works releases the slurry seal maps for review, the bike coordinator should identify roads with proposed bikeways and make recommendations for potential improvements. This is also a convenient time to recommend adding or replacing bike route signage where appropriate.

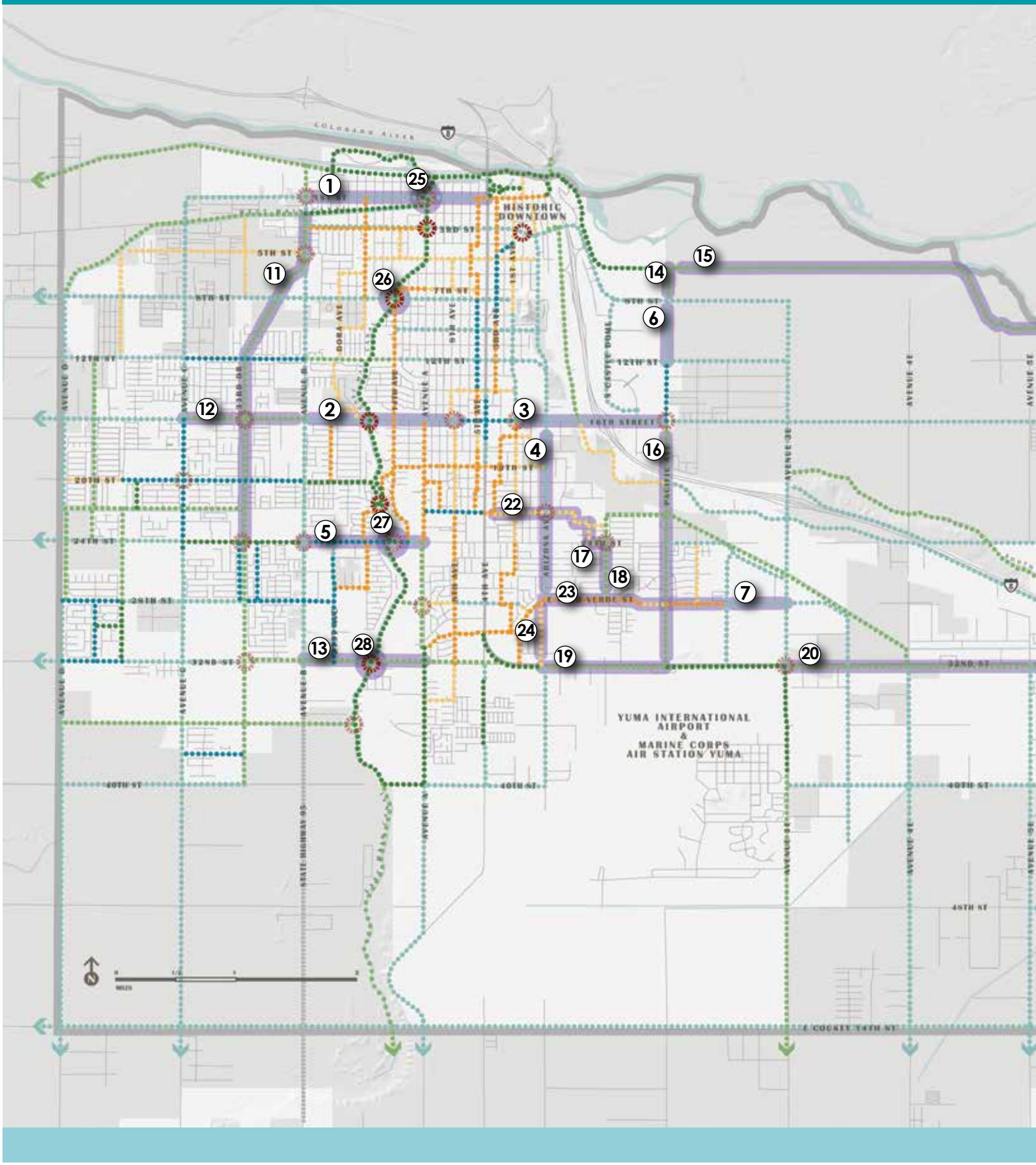
DEVELOPMENT APPROVAL
The bicycle network is also expanded in conjunction with new development, as part of the development approval process. The current policy is to require bike lanes on all new arterial roads and, in certain cases, to require residential developers to provide bike facilities to serve the residents. New development pays development fees, which can be used to construct bike lanes and bike paths to serve new development.

Prioritizing Projects

The proposed bikeway network adds a total of 203 miles, including 53 miles of bike paths, 132 miles of bike lanes, and 18 miles of bike routes. Additionally, two bike crossings are added and two significantly improved. To achieve full build-out of the proposed network, projects are prioritized based on public input, safety analysis, and overall impact on connectivity. The highest priority projects are discussed in this section; all projects, including mid- and low-priority projects, are listed in detail in Appendix B. The list shown in Appendix B represents the full build-out of the proposed bikeway network. Each segment was rated as high, moderate, or low priority in the following four categories: public survey, online interactive map, stakeholder input, and safety analysis. If a project was deemed high priority in at least two of the four categories, it was classified as a high priority project.

In the following pages, conceptual designs for each high priority project are shown, along with possible funding sources and an estimate of costs. The identified projects are intended to feed into the Capital Improvements Program, either into the current projects or the Potential Infrastructure Projects (PIP) list. The intent of this plan is that the high-priority projects be constructed in the next ten years to achieve a more connected and safe bikeway network. The high priority projects improve 2 miles and adds 31 miles of bikeways to the system; 9.5 miles of bike lanes, 19.5 miles of bike paths, and 2 miles of bike routes. It also adds two bike crossings, improves two bike crossings.

Costs for each high-priority project were estimated based on a variety of sources: the Transportation Master Plan, the 2018 Draft Infrastructure Improvements Plan & Development Fees Report, current Capital Improvements Program estimates, and actual costs of past bikeways projects. Cost estimates are shown as generalized figures from low ($) to high ($$$$).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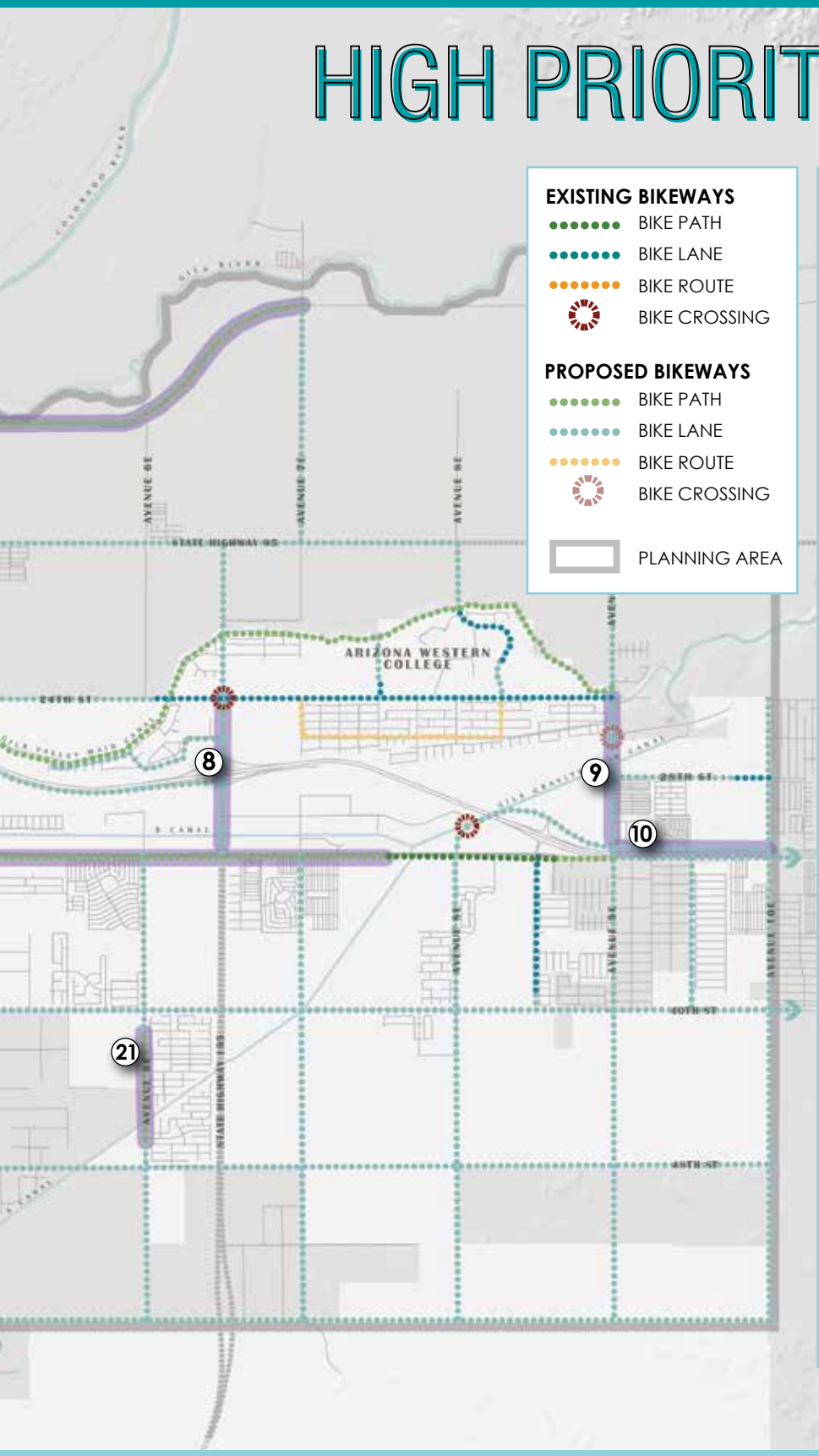
HISTORIC DOWNTOWN
YUMA INTERNATIONAL AIRPORT & MARINE CORPS AIR STATION YUMA
COLORADO RIVER
5TH ST
8TH ST
12TH ST
16TH STREET
20TH ST
24TH ST
28TH ST
32ND ST
40TH ST
45TH ST
AVENUE D
AVENUE C
AVENUE B
AVENUE A
1ST AVE
4TH AVE
ARIZONA AVE
PACIFIC AVE
AVENUE 3E
AVENUE 4E
AVENUE 5E
E COUNTY 14TH ST

HIGH PRIORITY PROJECTS



BIKE LANES

1. 1st St (Ave B to 4th Ave)
2. 16th St (Ave B to 8th Ave)
3. 16th St (1st Ave to Pacific Ave)
4. Arizona Ave (16th St to Palo Verde St)
5. 24th St (Ave B to Ave A)
6. Pacific Ave (8th St to 12th St)
7. Palo Verde St (Ave 2½ E to Ave 3E)
8. Araby Rd (24th St to 32nd St)
9. Avenue 9E (24th St to N Frontage Rd)
10. N Frontage Rd (Ave 9E to Ave 10E)

BIKE PATHS & LINEAR PARKS

11. Thacker Lateral Linear Park (W Main Canal to 24th St)
12. 16th St Path (Ave C to Ave B)
13. 32nd St Path (Ave B to Ave A)
14. Pacific Ave Path (Colorado River Levee to 8th St)
15. Colorado River Levee Linear Park Extension
16. Pacific Ave (16th St to 32nd St)
17. 24th Street (Kennedy Ln to B 3.7 Lateral)
18. B 3.7 Lateral Linear Park (24th St to Palo Verde)
19. 32nd St Path (Arizona Ave to Pacific Ave)
20. 32nd St Path (Ave 3E to Ave 7½ E Alignment)
21. Avenue 6E Path (41st St to 46th St)

BIKE ROUTES

22. 22nd St (4th Ave to 24th St)
23. Palo Verde St (Arizona Ave to Ave 2½ E)
24. Arizona Ave (Palo Verde St to 32nd St)

BIKE CROSSINGS

25. E Main Canal & W Main Canal Linear Parks
26. E Main Canal Linear Park at 8th St
27. E Main Canal Linear Park at 24th St
28. E Main Canal Linear Park at 32nd St

NOTE: The numbering system is for labeling purposes only; all projects are considered of equal priority. Projects should be constructed as the opportunity arises.

HIGH PRIORITY BIKE LANES

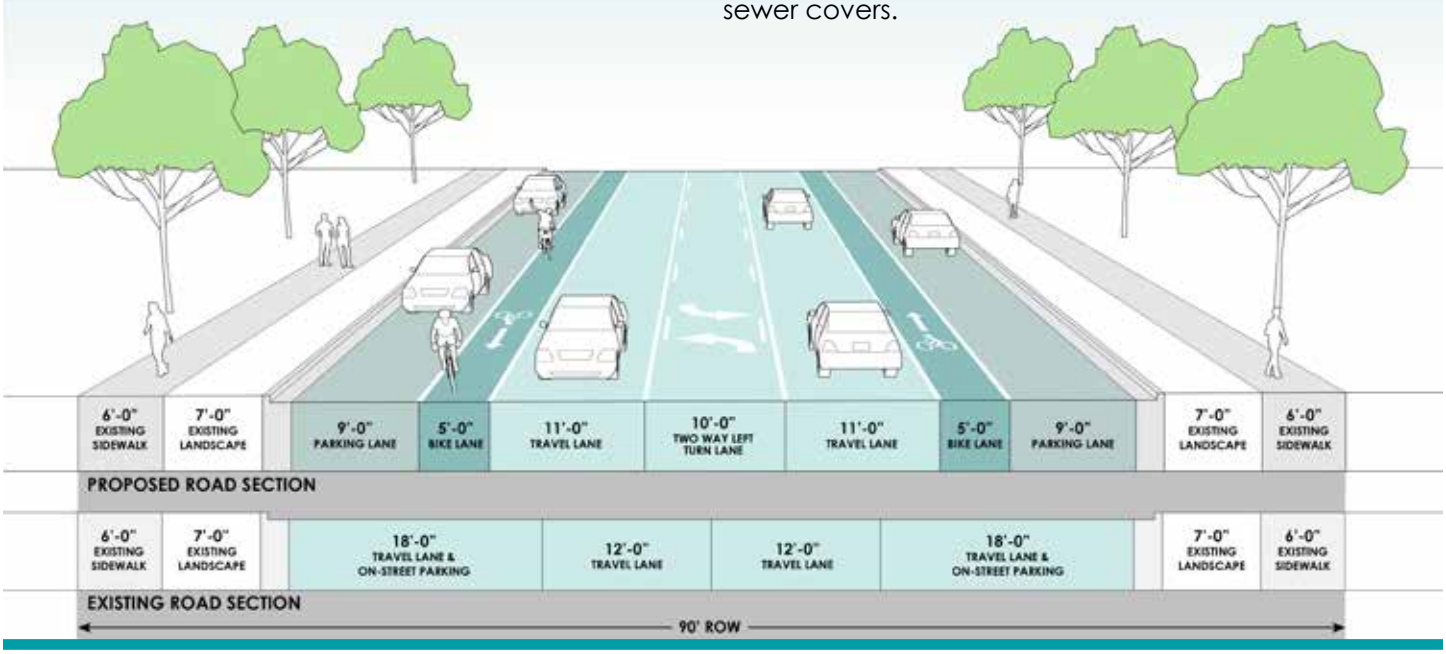
	PROJECT	MILEAGE	COST
①	**1ST STREET** (Ave B to 4th Ave)	1.5 m	$
②	**16TH STREET** (Ave B to 8th Ave)	1.3 m	$$$
③	**16TH STREET** (1st Ave to Pacific Ave)	1.25 m	$
④	**ARIZONA AVENUE** (16th St to Palo Verde St)	1.5 m	$$$
⑤	**24TH STREET** (Ave B to Ave A)	1.0 m	$
⑥	**PACIFIC AVENUE** (8th St to 12th St)	0.5 m	$$
⑦	**PALO VERDE STREET** (Ave 2½ E to Ave 3E)	0.5 m	$
⑧	**ARABY ROAD** (24th St to 32nd St)	1.0 m	$$$$
⑨	**AVENUE 9E** (24th St to N Frontage Rd)	1.0 m	$$$
⑩	**N FRONTAGE ROAD** (Ave 9E to Ave 10E)	1.0 m	$$

NOTE: $ = <$50,000; $$ = $50,000-250,000; $$$ = $250,000-$1M; $$$$ = $1M+

① 1ST STREET (Avenue B to 4th Ave)

MILEAGE 1.5 miles
FUNDING STATUS Routine Maintenance
ESTIMATED COST $
FUNDING SOURCES General Fund

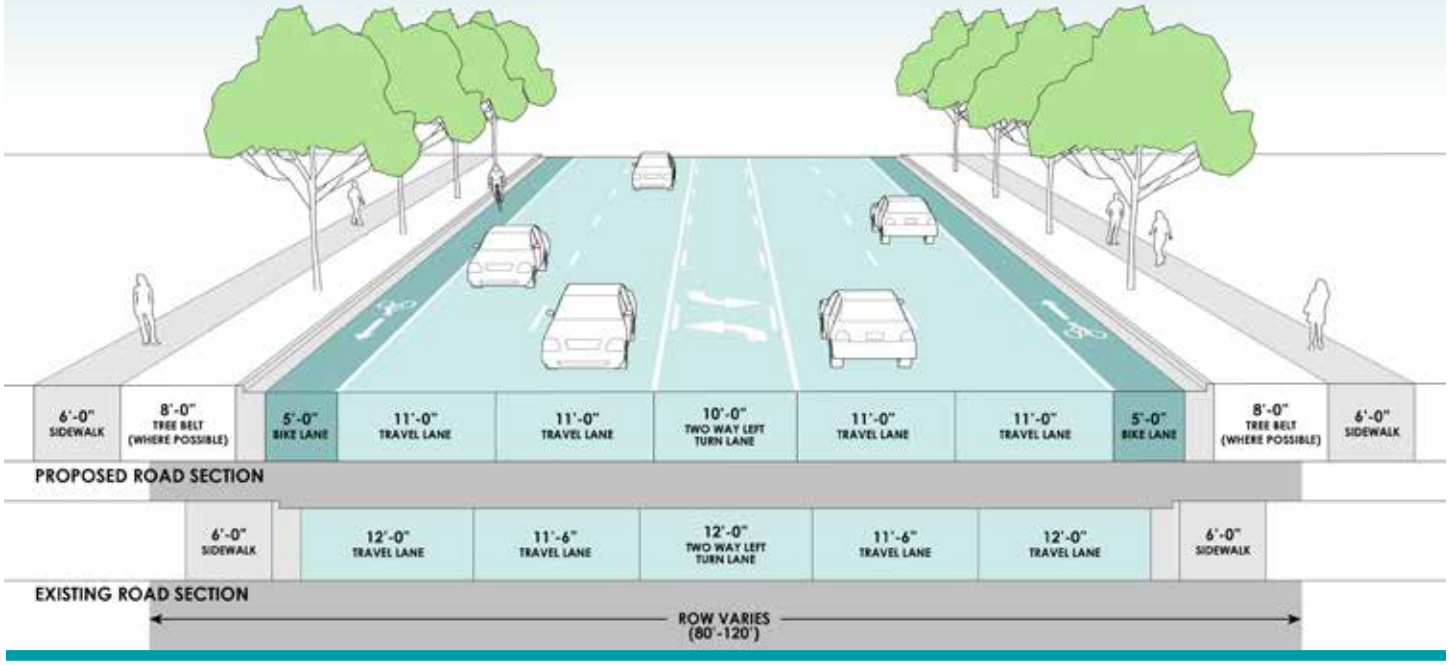
When this segment is repaved or re-striped, implement a road diet reducing the travel lanes from four to two travel lanes plus a two-way left turn lane in order to add bike lanes. This project will also address the pot-holes and the deep indents in the road around the sewer covers.



2 16TH STREET (Avenue B to 8th Ave)

MILEAGE 1.3 miles
FUNDING STATUS Not Funded
ESTIMATED COST $$$
FUNDING SOURCES Grants, General Fund

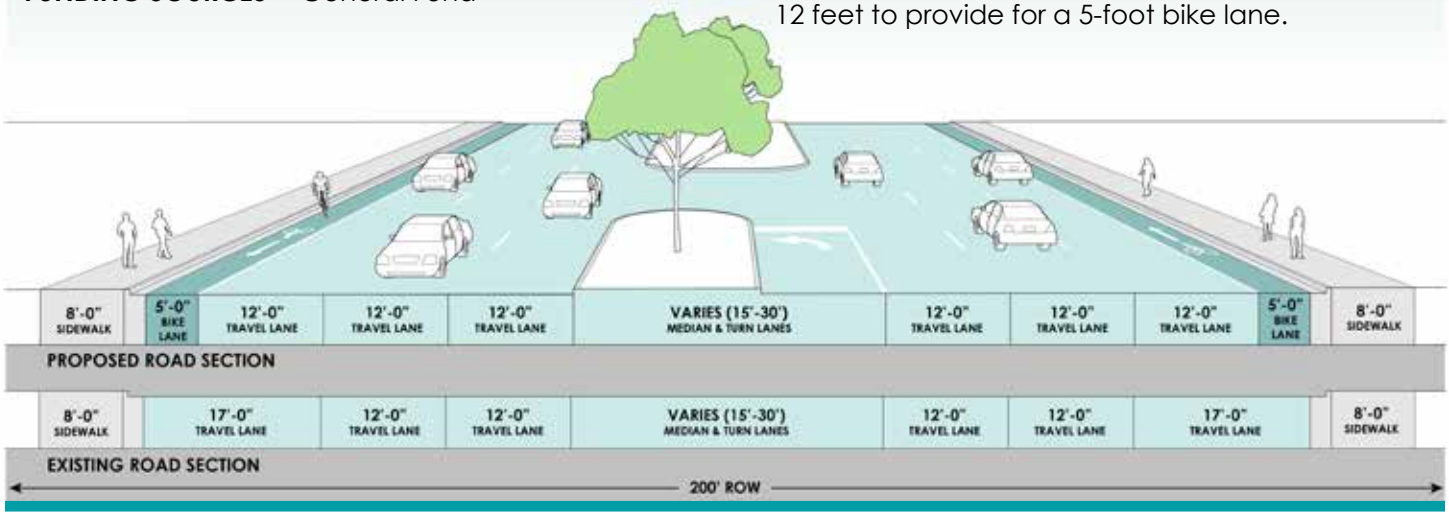
Reconstruct the roadway to add bike lanes. Where needed, obtain right-of-way to accomplish a full street section shown below, including bike lanes, tree belt, and sidewalk.



3 16TH STREET (1st Ave to Pacific Ave)

MILEAGE 1.25 miles
FUNDING STATUS Routine Maintenance
ESTIMATED COST $
FUNDING SOURCES General Fund

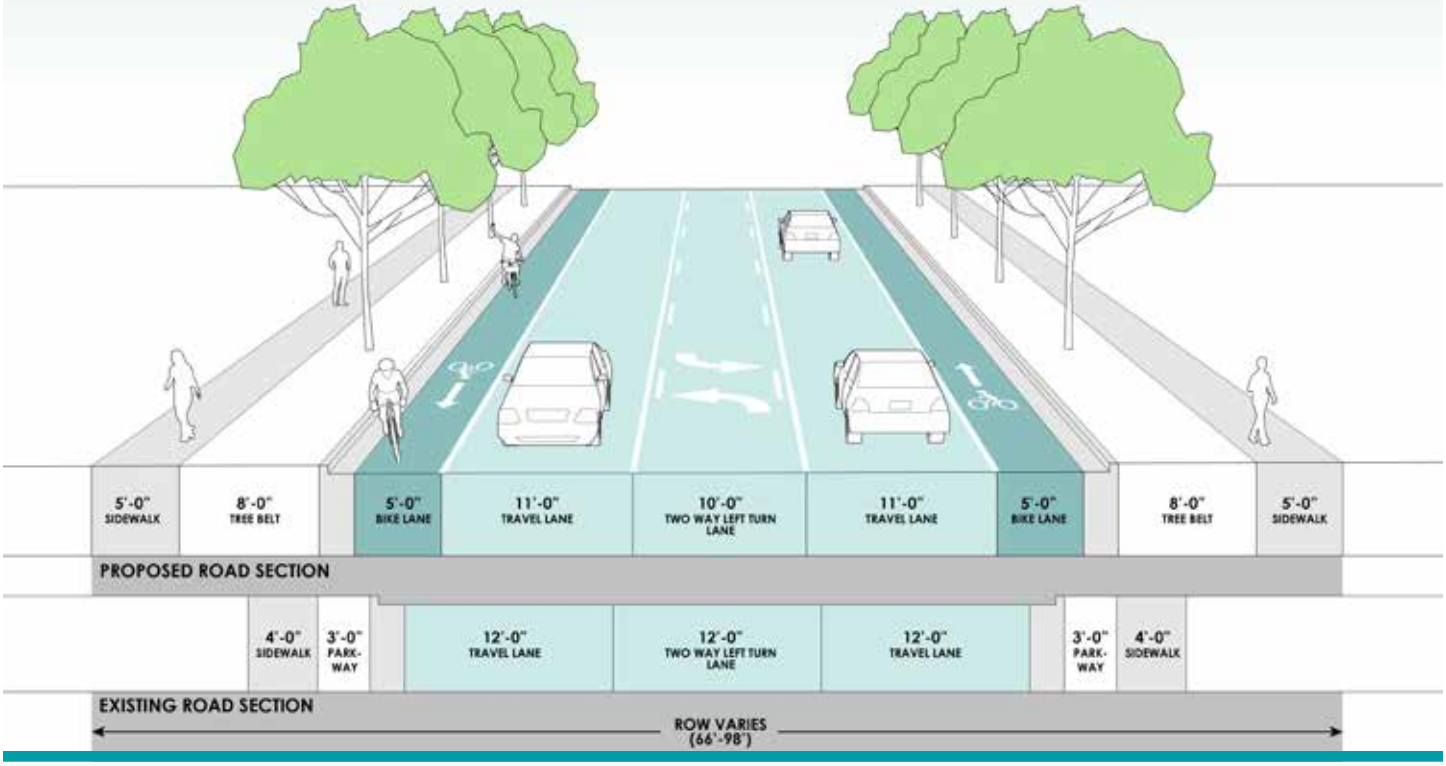
Stripe bikeways along this road segment. The road was built with adequate pavement for bike lanes with the intention of striping them in the future. The outer travel lane will be narrowed from 17 feet to 12 feet to provide for a 5-foot bike lane.



4 ARIZONA AVENUE (16th St to Palo Verde St)

MILEAGE	1.5 miles
FUNDING STATUS	Not Funded
ESTIMATED COST	$$$
FUNDING SOURCES	Grants, General Fund

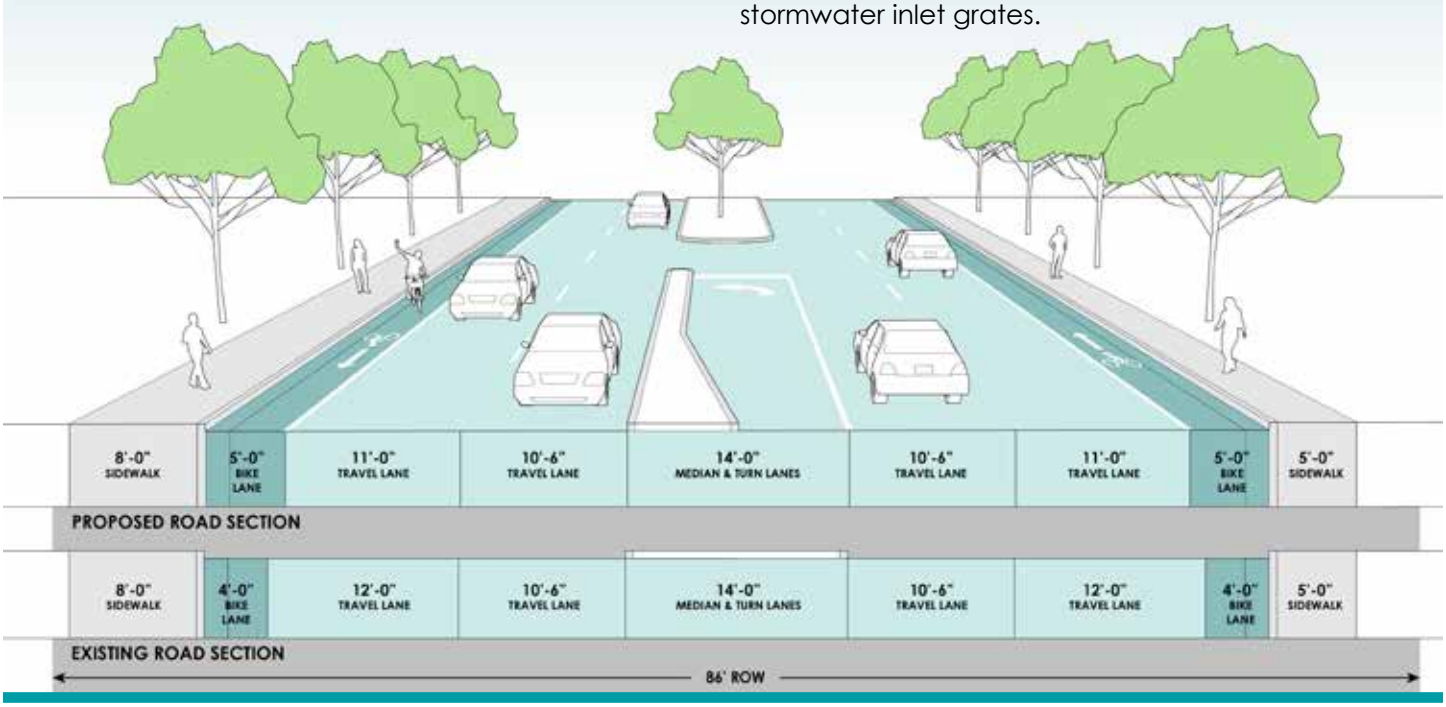
Reconstruct the roadway to add bike lanes. For the 0.9-mile section from 17th Street to 24th Street which falls in the Mesa Heights Revitalization Area, Community Development Block Grant (CDBG) funds could potentially be used for these infrastructure improvements. Bike lanes along this road segment provide safe access to area schools and parks. A 2019 Capital Improvements Project will address potholes and pavement conditions from Palo Verde Street to 32nd Street, but funding for reconstructing the road to add bike lanes has not yet been appropriated.



5 24TH STREET (Avenue B to Avenue A)

MILEAGE	1 mile
FUNDING STATUS	Funded - Routine Maintenance
ESTIMATED COST	$
FUNDING SOURCES	General Fund

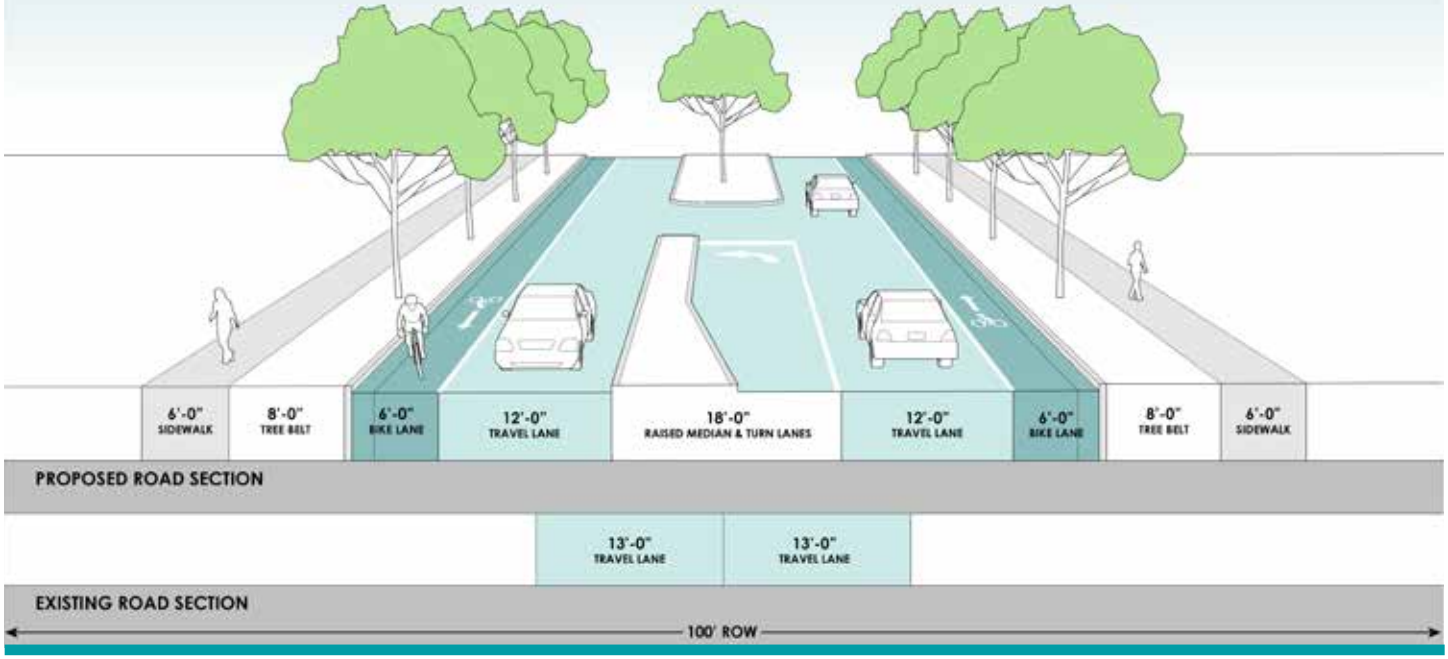
Improve the existing bike lane during the scheduled Fall 2018 slurry seal maintenance by re-striping the outer travel lane to 11 feet. During re-surfacing of the road, careful attention will be given to ensuring a smoothly graded riding surface around the existing stormwater inlet grates.



6 PACIFIC AVENUE (8th St to 12th St)

MILEAGE	0.5 miles
FUNDING STATUS	Not Funded
ESTIMATED COST	$$
FUNDING SOURCES	General Fund

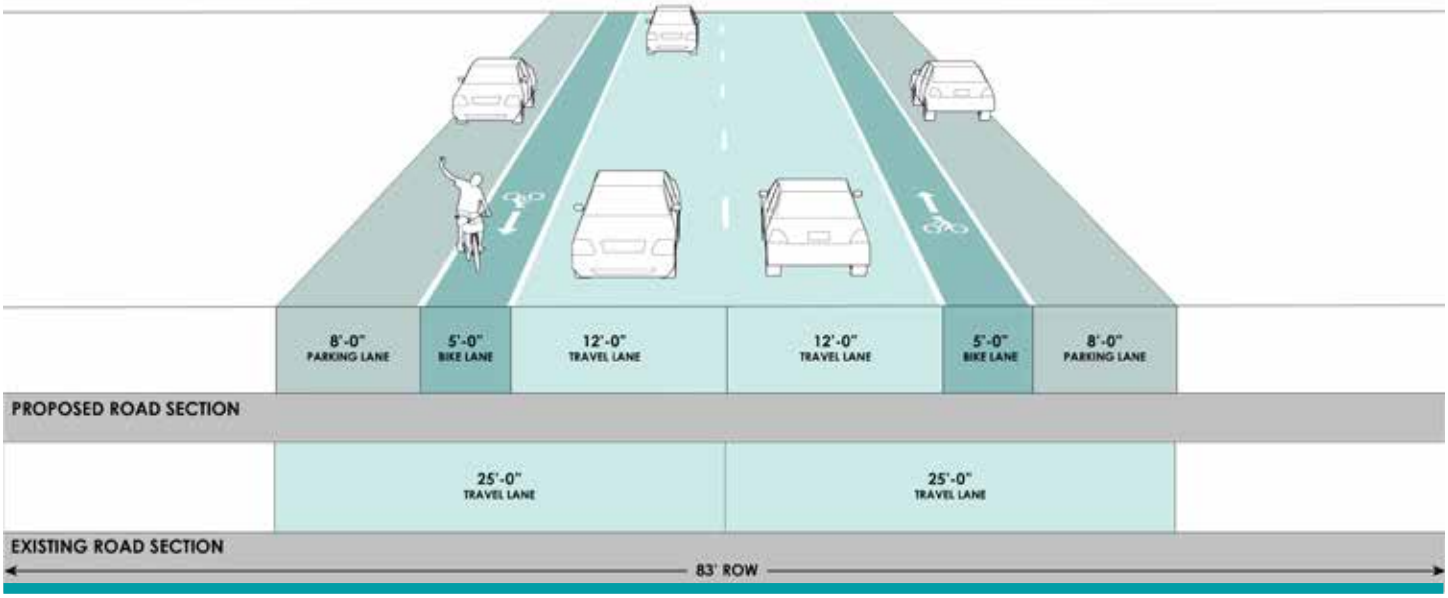
Construct bike lanes as part of the build-out construction of the roadway. Final build-out will also include street trees and sidewalks on both sides of the road.



7 PALO VERDE STREET (Avenue 2 1/2 E to Avenue 3E)

MILEAGE 0.5 miles
FUNDING STATUS Routine Maintenance
ESTIMATED COST $
FUNDING SOURCES General Fund

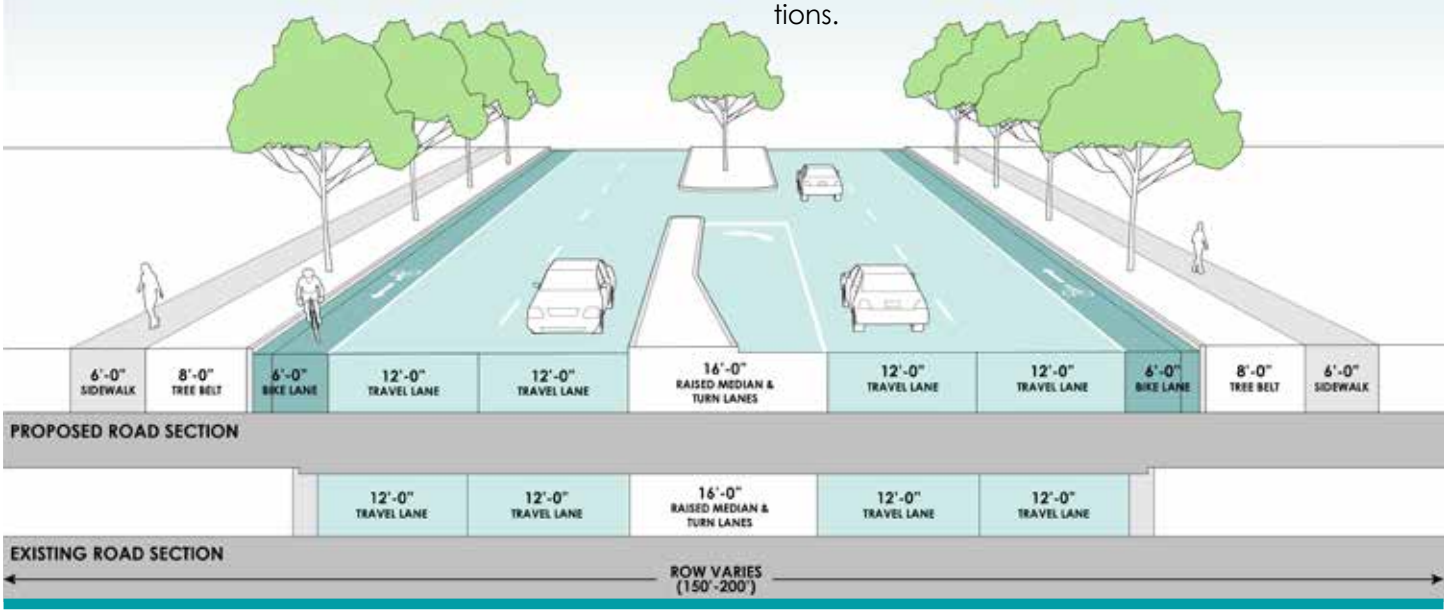
Stripe 5-foot bike lanes on the existing roadway to serve as an interim solution until the final roadway is built, which will also include bike lanes. This project can be accomplished during routine maintenance and addresses east-west connections across town.



8 ARABY ROAD (24th St to 32nd St)

MILEAGE 1 mile
FUNDING STATUS Not Funded
ESTIMATED COST $$$$
FUNDING SOURCES Grants, Partnerships, General Fund

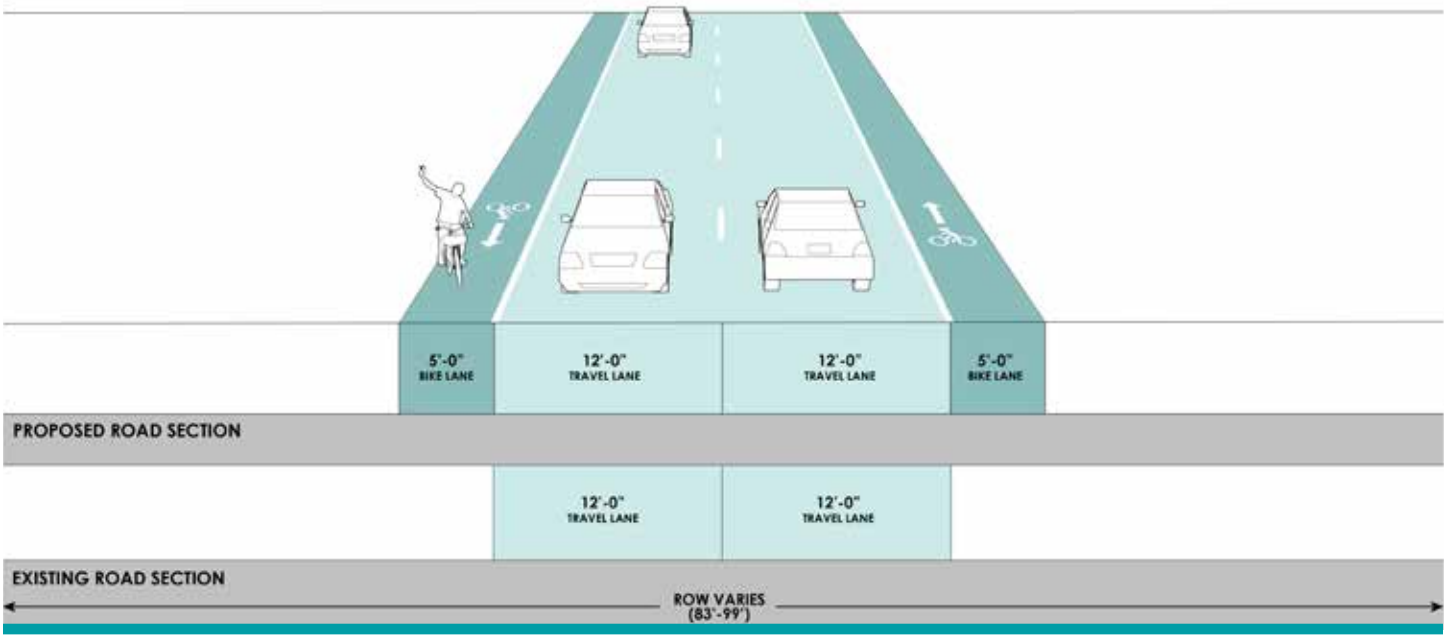
Reconstruct roadway to add bike lanes and work with ADOT for safe cyclist access around the roundabout. This project addresses safety concerns and connections from downtown to East Mesa destinations.



9 AVENUE 9E (24th St to N Frontage Rd)

MILEAGE	1 mile
FUNDING STATUS	Partially Funded
ESTIMATED COST	$$$
FUNDING SOURCES	HURF, Grants

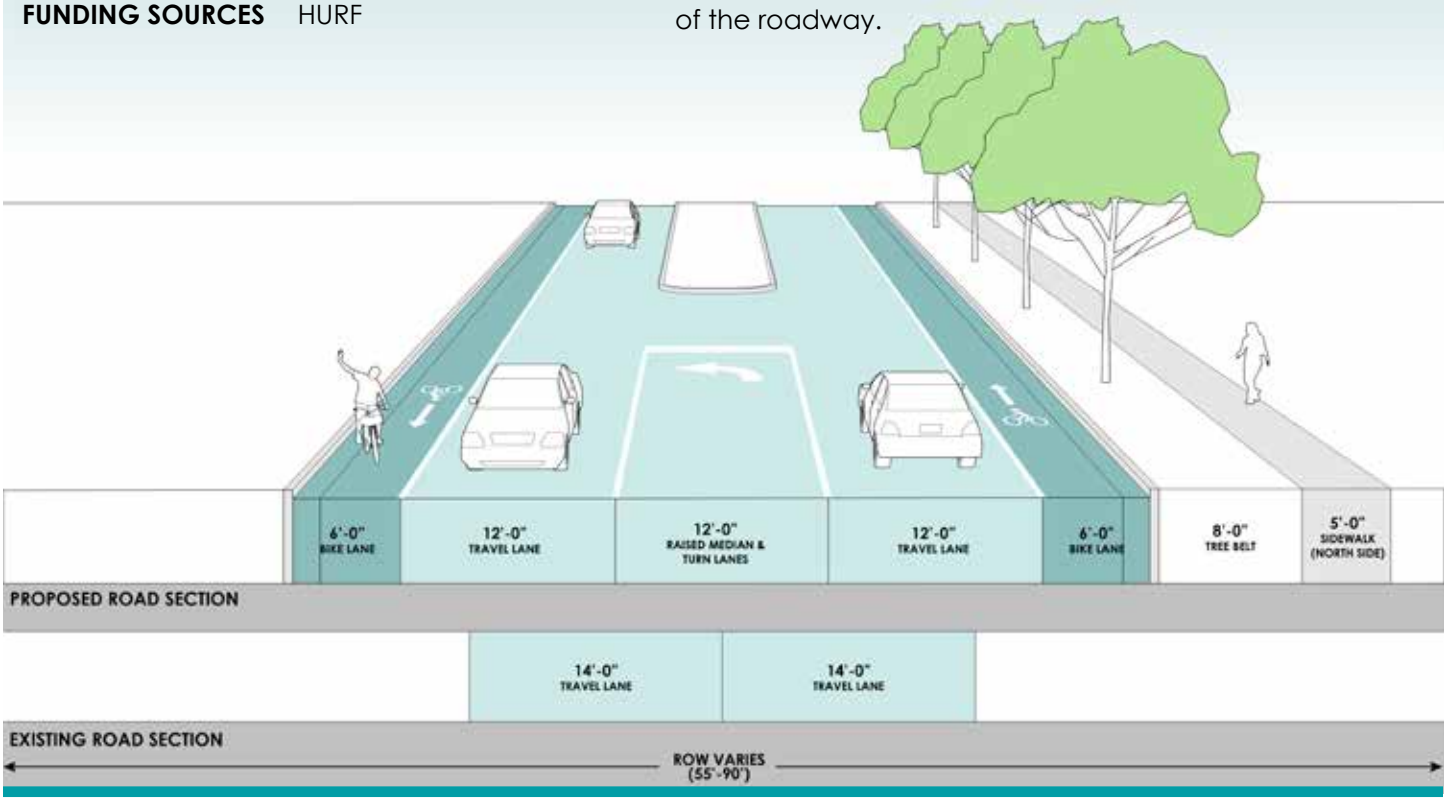
In response to safety concerns raised by the local bicycling community and a 2011 fatality along this route, the addition of pavement for bike lanes is currently funded in the 2019 Capital Improvements Program. Grant funding should be sought to improve the railroad crossing. As an interim solution until the crossing can be improved, add asphalt or millings to the shoulder to add lane width to allow automobiles to give cyclists adequate clearance.



10 N FRONTAGE ROAD (Avenue 9E to Avenue 10E)

MILEAGE	1 mile
FUNDING STATUS	Not Funded
ESTIMATED COST	$$
FUNDING SOURCES	HURF

Construct bike lanes to match the proposed lanes to be constructed by the County east of Avenue 10E. Add a sidewalk and tree belt with street trees on the north side of the roadway.



HIGH PRIORITY BIKE PATHS

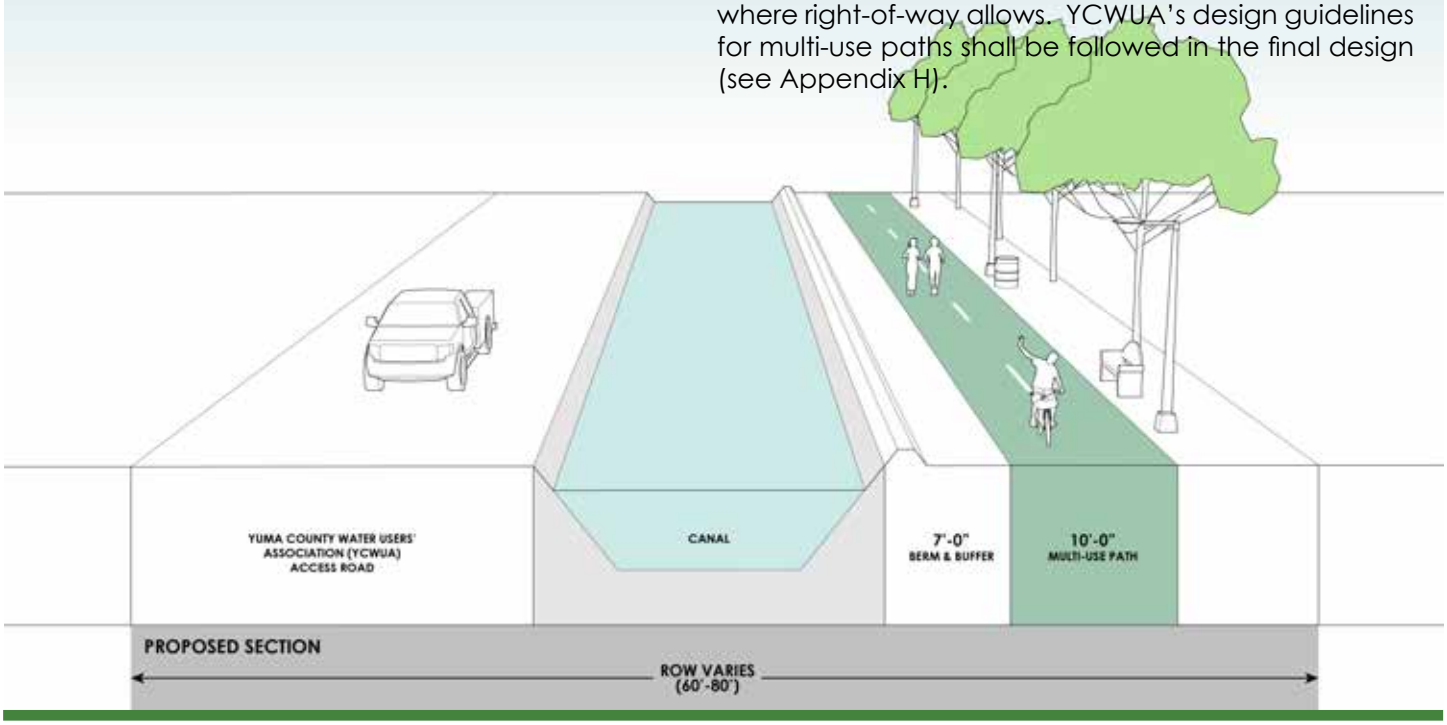
PROJECT	MILEAGE	COST
⑪ **THACKER LATERAL LINEAR PARK** (W Main Canal to 24th St)	3.0 m	$$$$
⑫ **16TH STREET PATH** (Ave C to Ave B)	1.0 m	$$$
⑬ **32ND STREET PATH** (Ave B to Ave A)	1.0 m	$$$
⑭ **PACIFIC AVENUE PATH** (Colorado River Levee Linear Park to 8th St)	0.25 m	$$
⑮ **COLORADO RIVER LEVEE LINEAR PARK EXTENSION**	5.5 m	$$$$
⑯ **PACIFIC AVENUE** (16th St to 32nd St)	2.0 m	$$$
⑰ **24TH STREET PATH** (Kennedy Ln to B 3.7 Lateral)	0.13 m	$$
⑱ **B 3.7 LATERAL LINEAR PARK** (24th St to Palo Verde St)	0.5 m	$$$
⑲ **32ND STREET PATH** (Arizona Ave to Pacific Ave)	1.0 m	$$$
⑳ **32ND STREET PATH** (Ave 3E to Ave 7½E Alignment)	4.5 m	$$$$
㉑ **AVENUE 6E** (41st St to 46th St)	0.7 m	$$$

NOTE: $ = <$50,000; $$ = $50,000-250,000; $$$ = $250,000-$1M; $$$$ = $1M+

⑪ THACKER LATERAL LINEAR PARK (W Main Canal to 24th St)

MILEAGE 3 miles
FUNDING STATUS Not Funded
ESTIMATED COST $$$$
FUNDING SOURCES Development Fees, Grants, Partnerships, General Fund

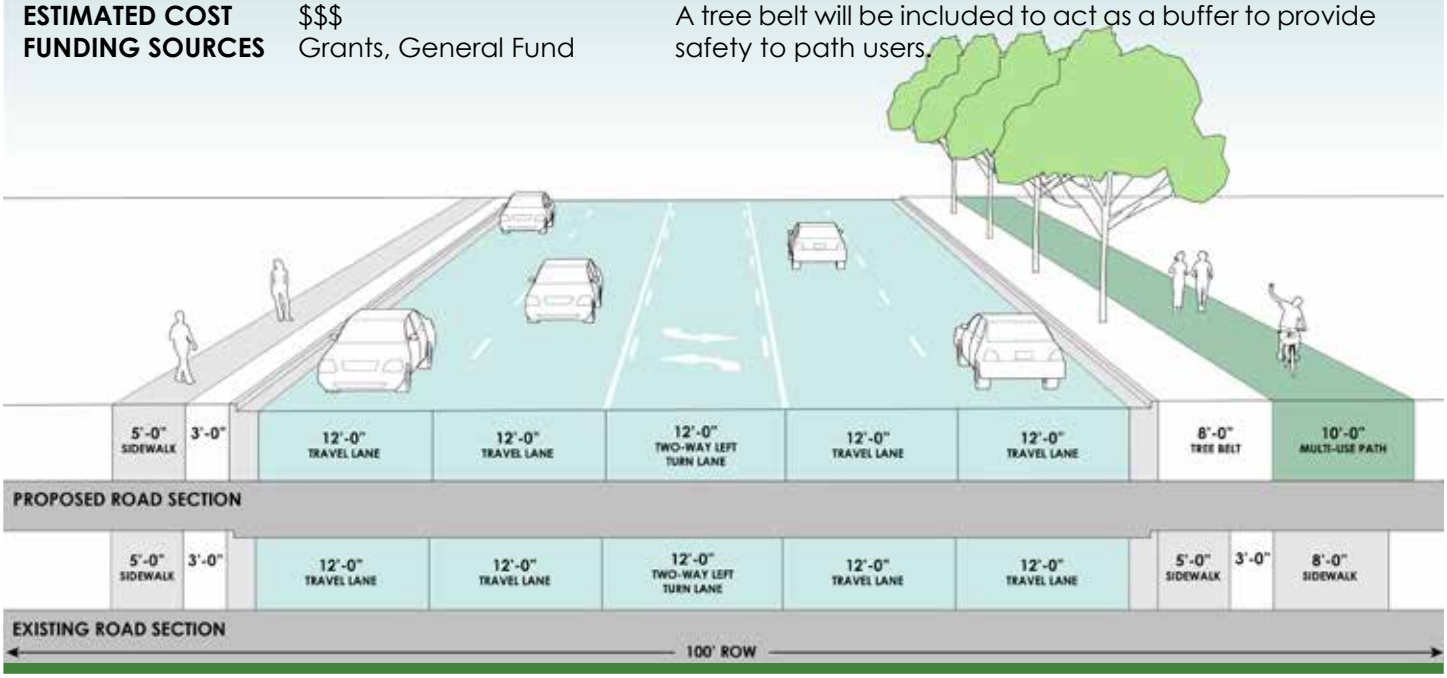
Coordinate with Yuma County Water Users' Association (YCWUA) to build a linear park (10-foot multi-use path) along the east side of the Thacker Lateral. Site amenities such as shade trees, path lighting, benches, dog stations, and trash receptacles will be provided where right-of-way allows. YCWUA's design guidelines for multi-use paths shall be followed in the final design (see Appendix H).



12 16TH STREET PATH (Ave C to Ave B)

MILEAGE 1 mile
FUNDING STATUS Not Funded
ESTIMATED COST $$$
FUNDING SOURCES Grants, General Fund

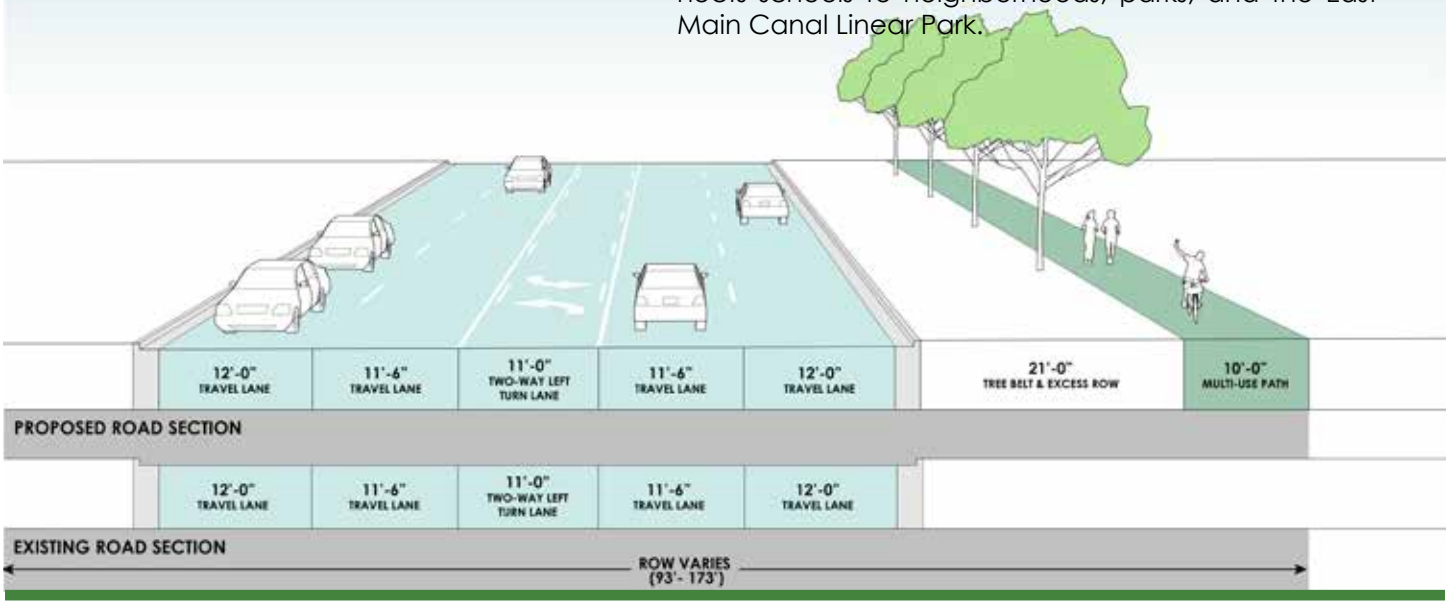
Remove the existing double sidewalk on the north side of the road and replace with a 10-foot multi-use path. A tree belt will be included to act as a buffer to provide safety to path users.



13 32ND STREET PATH (Ave B to Ave A)

MILEAGE 1 mile
FUNDING STATUS Not Funded
ESTIMATED COST $$$
FUNDING SOURCES Grants, Partnerships, General Fund

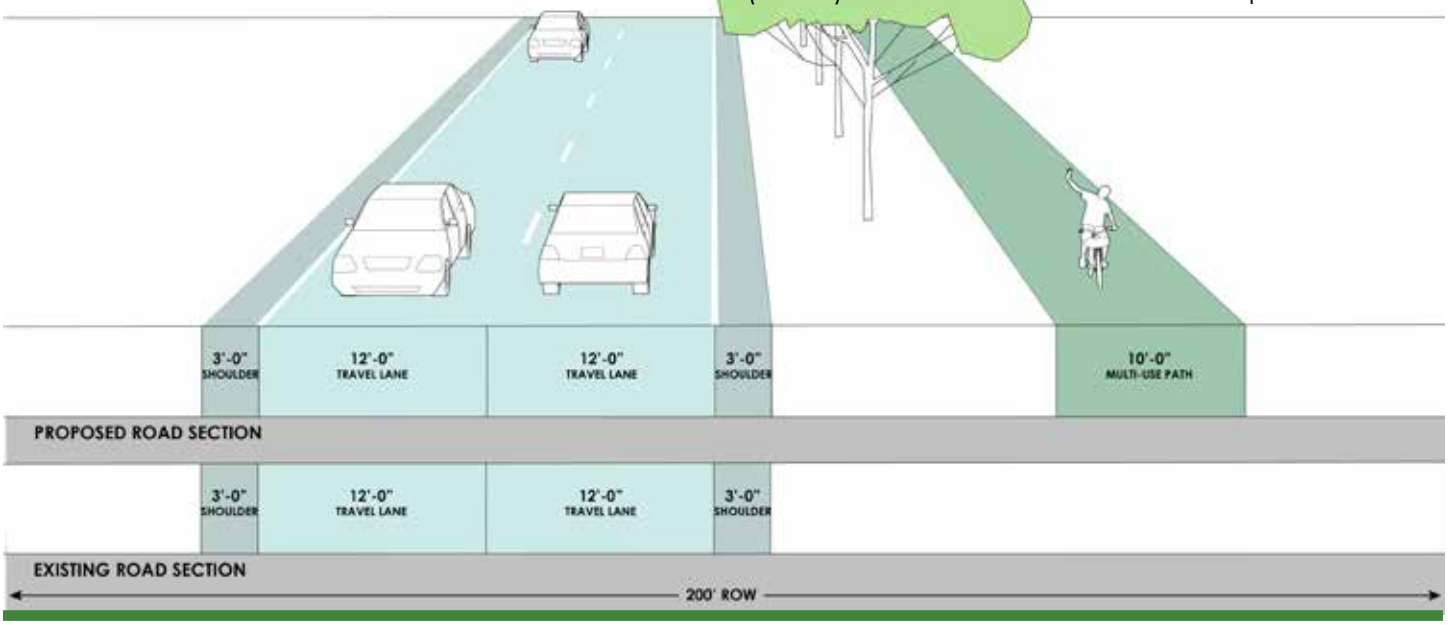
Construct a 10-foot multi-use path along the north side of 32nd Street. The multi-use path will be located to allow for future roadway expansion. On the eastern side of this road segment, additional right-of-way will be acquired from Kofa High School. This segment connects schools to neighborhoods, parks, and the East Main Canal Linear Park.



14 PACIFIC AVENUE PATH (Colorado River Levee to 8th St)

MILEAGE 0.25 miles
FUNDING STATUS Not Funded
ESTIMATED COST $$
FUNDING SOURCES Grants, Partnerships, General Fund

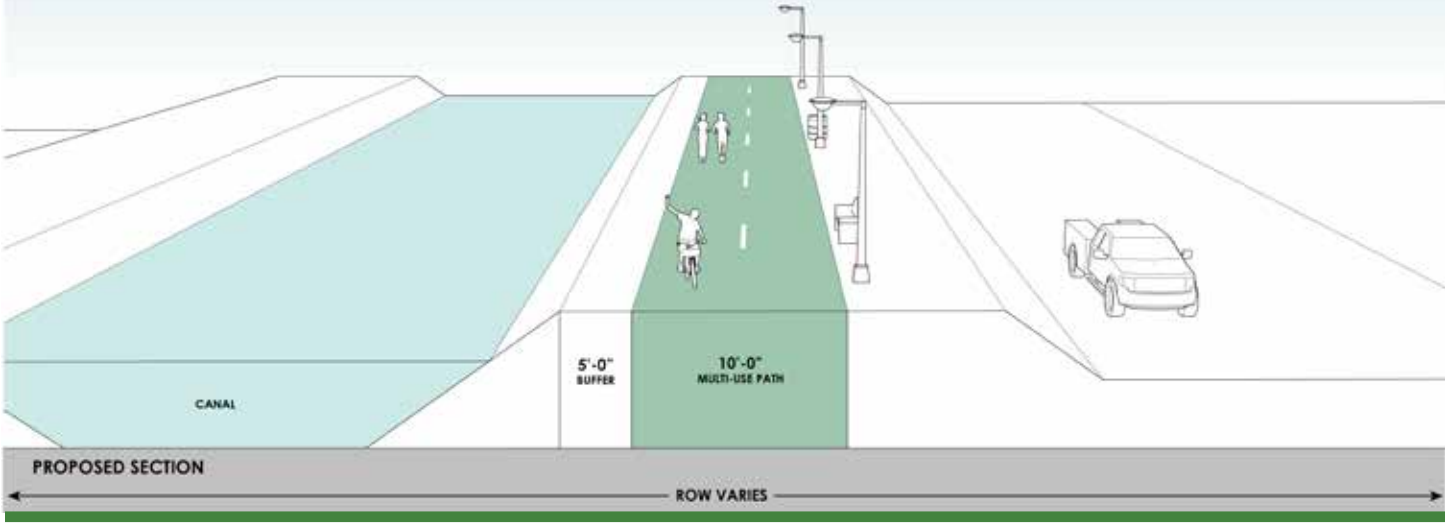
Construct a path on the west side of Pacific Avenue. Connect this path to the Colorado River Levee Linear Park by crossing the MODE (Main Outlet Drain Extension). This path will complete a critical connection between the Pacific Avenue Athletic Complex (PAAC) and the downtown waterfront parks.



15 COLORADO RIVER LEVEE LINEAR PARK EXTENSION

MILEAGE 5.5 miles
FUNDING STATUS Not Funded
ESTIMATED COST $$$$
FUNDING SOURCES Grants, Partnerships, General Fund

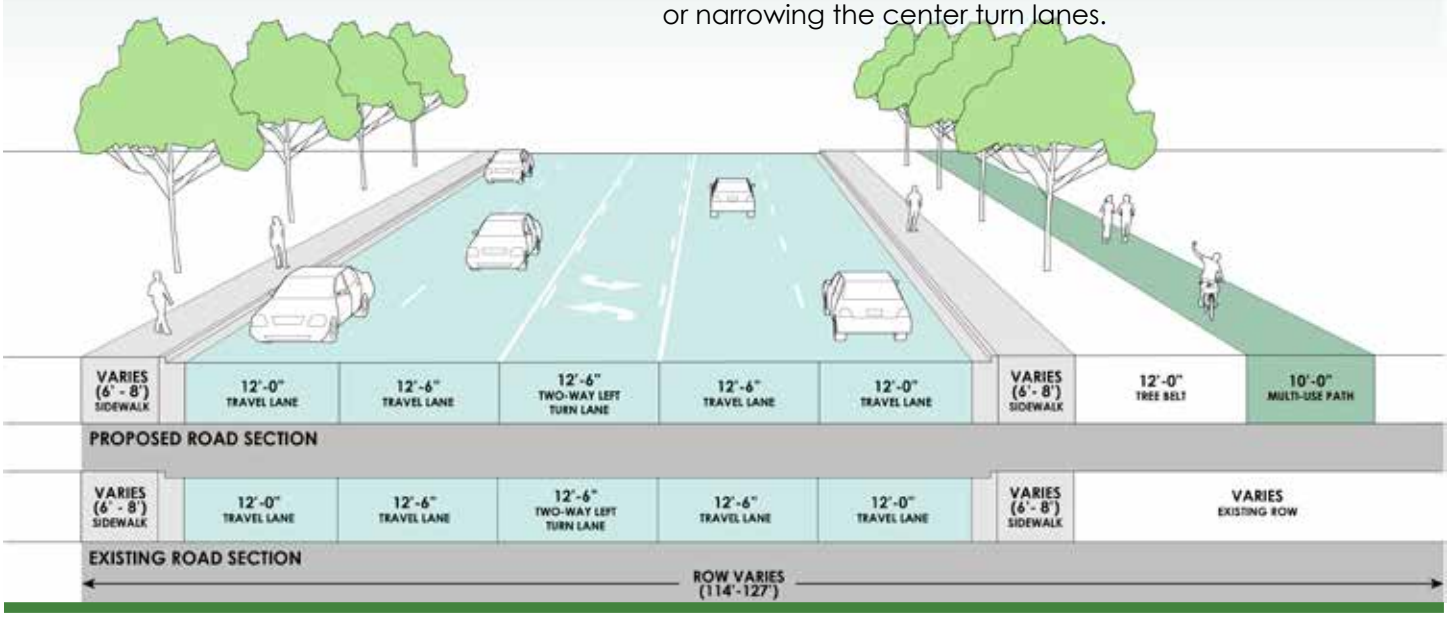
Extend the Colorado River Levee Linear Park to the east to Avenue 7E to serve visitors and residents alike. Construct a 10-foot multi-use path along the levee road.



16 PACIFIC AVENUE PATH (16th St to 32nd St)

MILEAGE 2 miles
FUNDING STATUS Not Funded
ESTIMATED COST $$$
FUNDING SOURCES Grants, General Fund

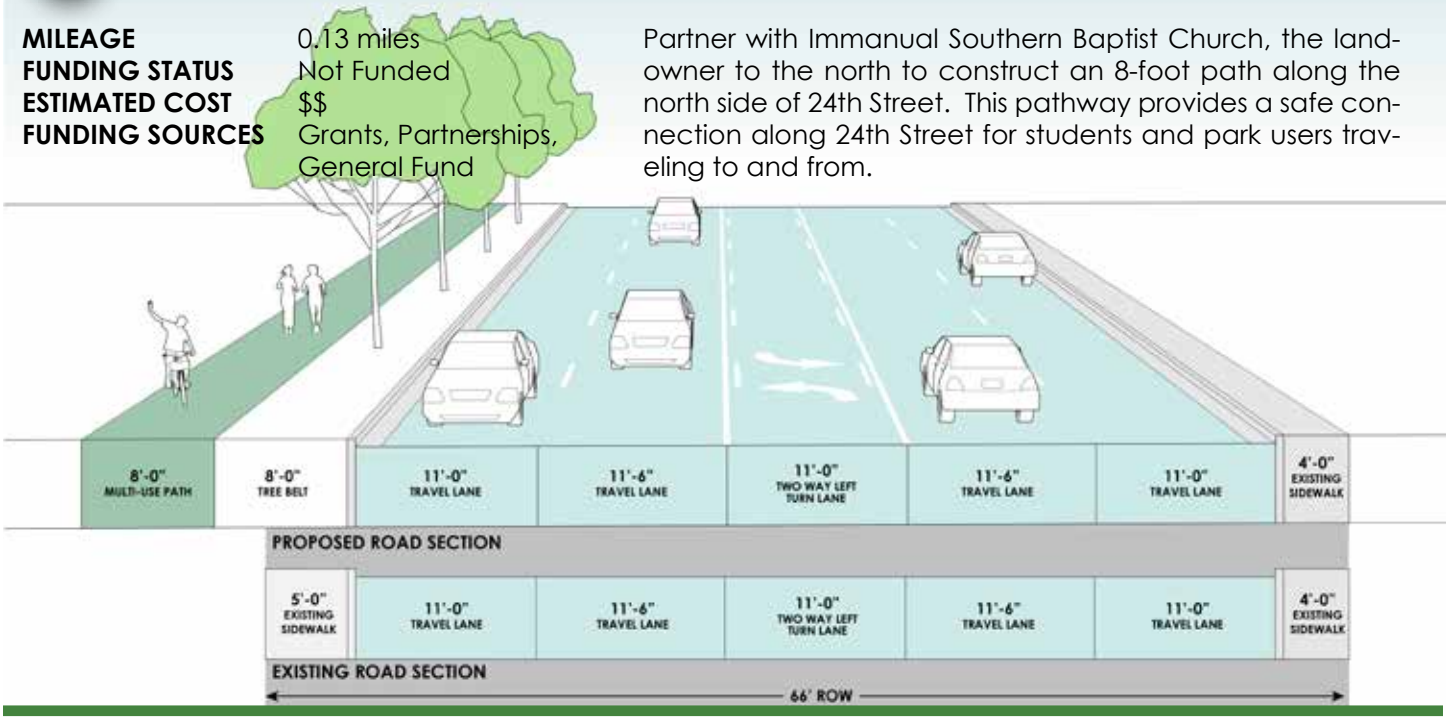
Construct a 10-foot multi-use path on the east side of Pacific Avenue in existing right-of-way. Placement of the proposed multi-use path allows room for future roadway expansion. Where right-of-way is not wide enough to allow for path construction, such as on the bridge, the path will transition to bike lanes by removing or narrowing the center turn lanes.



17 24TH STREET PATH (Kennedy Ln to B 3.7 Lateral)

MILEAGE 0.13 miles
FUNDING STATUS Not Funded
ESTIMATED COST $$
FUNDING SOURCES Grants, Partnerships, General Fund

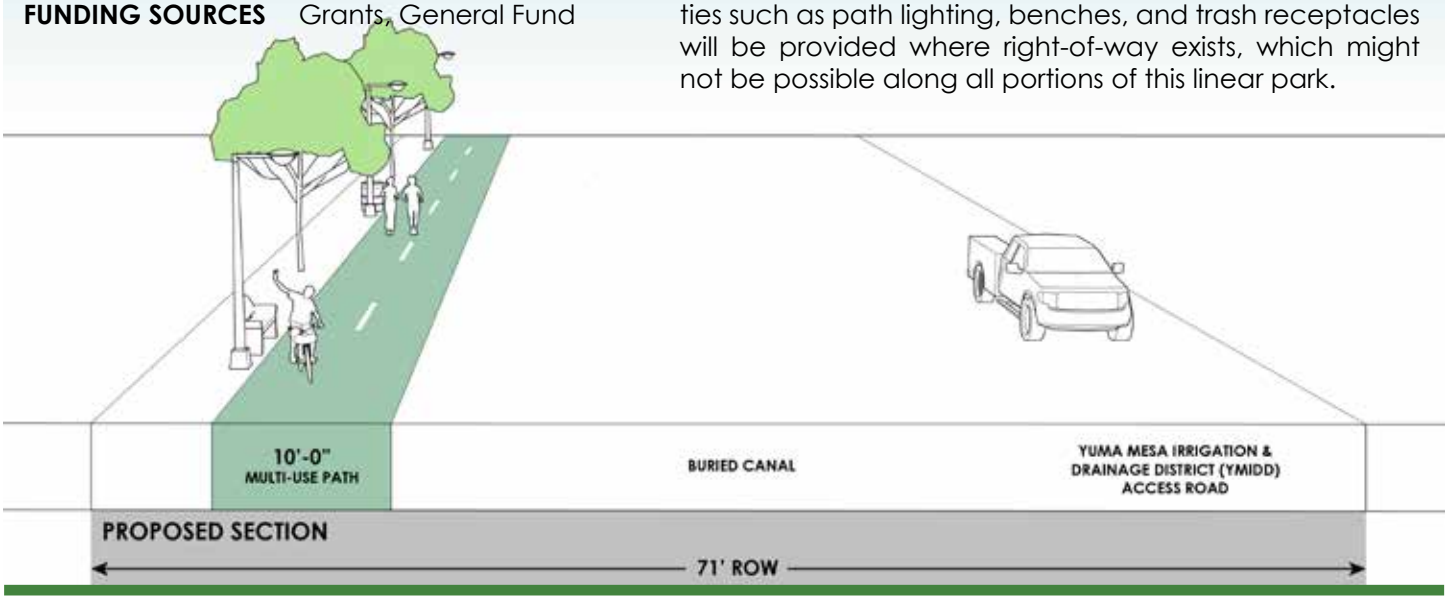
Partner with Immanual Southern Baptist Church, the landowner to the north to construct an 8-foot path along the north side of 24th Street. This pathway provides a safe connection along 24th Street for students and park users traveling to and from.



18 B 3.7 LATERAL LINEAR PARK (24th St to Palo Verde St)

MILEAGE 0.5 miles
FUNDING STATUS Not Funded
ESTIMATED COST $$$
FUNDING SOURCES Grants, General Fund

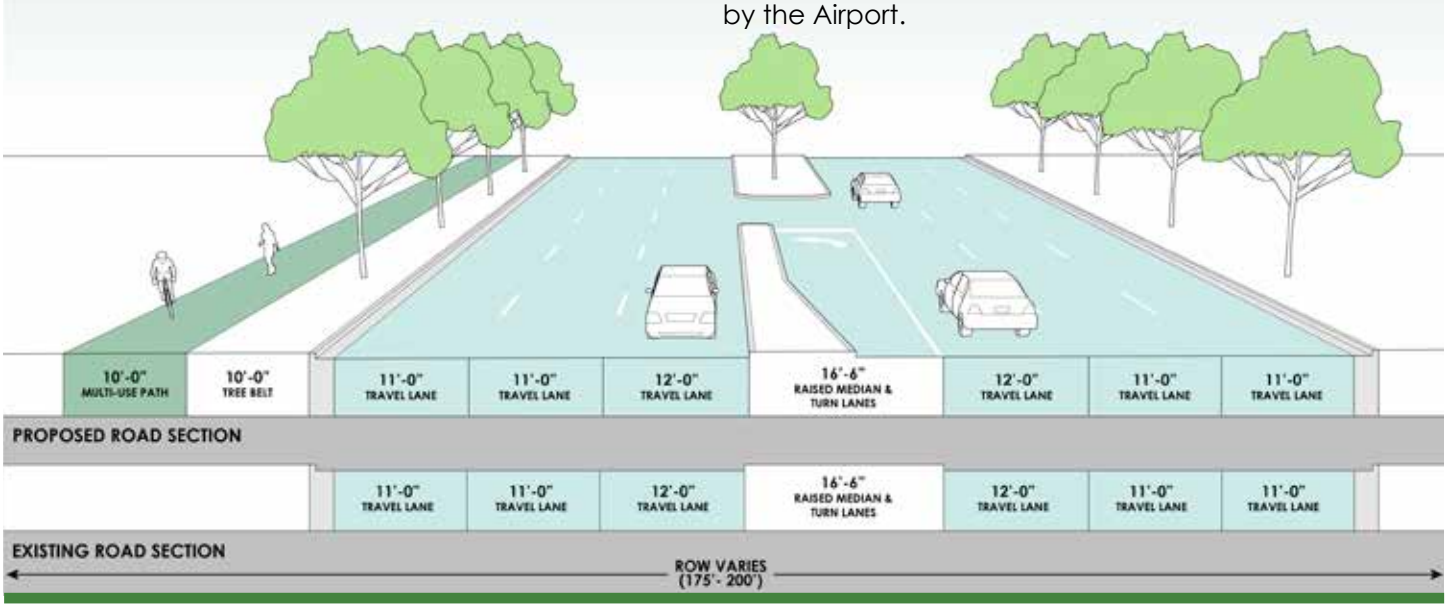
Coordinate with Yuma Mesa Irrigation & Drainage District (YMIDD) to build a linear park (10-foot multi-use path) along this buried portion of the B 3.7 Lateral. Site amenities such as path lighting, benches, and trash receptacles will be provided where right-of-way exists, which might not be possible along all portions of this linear park.



19 32ND STREET PATH (Arizona Ave to Pacific Ave)

MILEAGE 1 mile
FUNDING STATUS Partially Funded
ESTIMATED COST $$$
FUNDING SOURCES Partnerships, General Fund

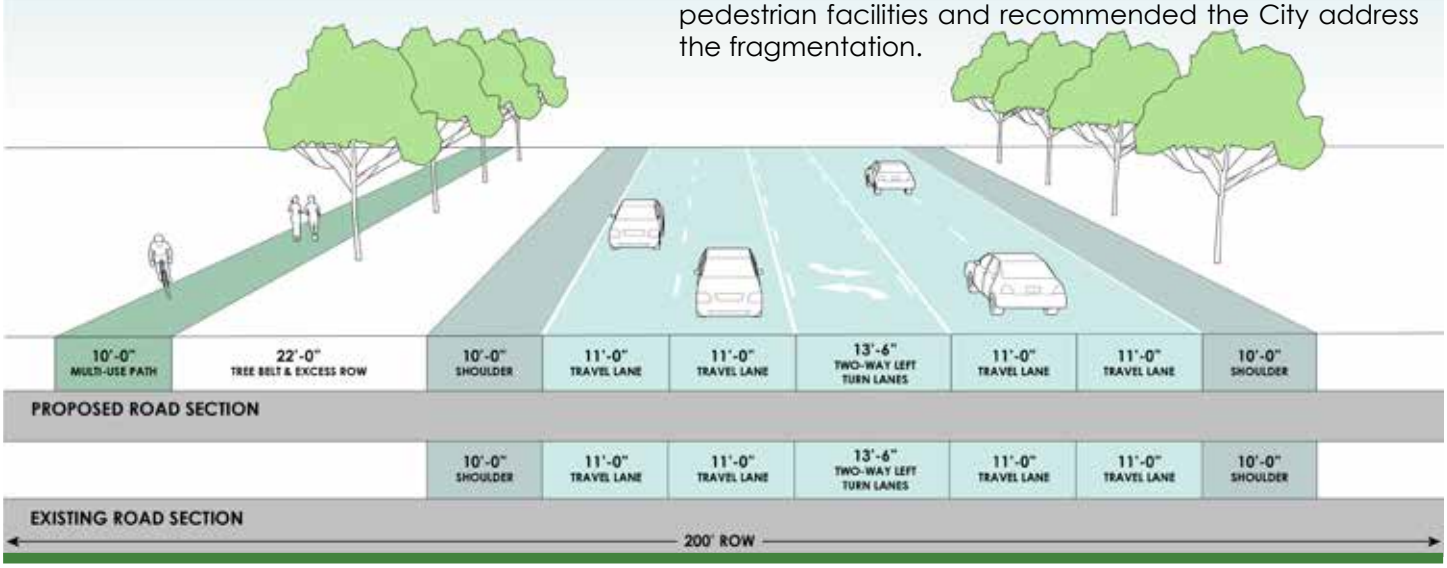
Construct a 10-foot multi-use path along the south side of 32nd Street to connect with the existing path. This addresses east/west connections through town. The 2014 Road Safety Assessment of the area noted the gaps in pedestrian facilities and recommended the City address the fragmentation. The 0.1-mile section of the path in front of the airport will be constructed by the Airport.



20 32ND STREET PATH (Ave 3E to Ave 7 1/2 E Alignment)

MILEAGE 4.5 miles
FUNDING STATUS Not Funded
ESTIMATED COST $$$$
FUNDING SOURCES Grants, General Fund

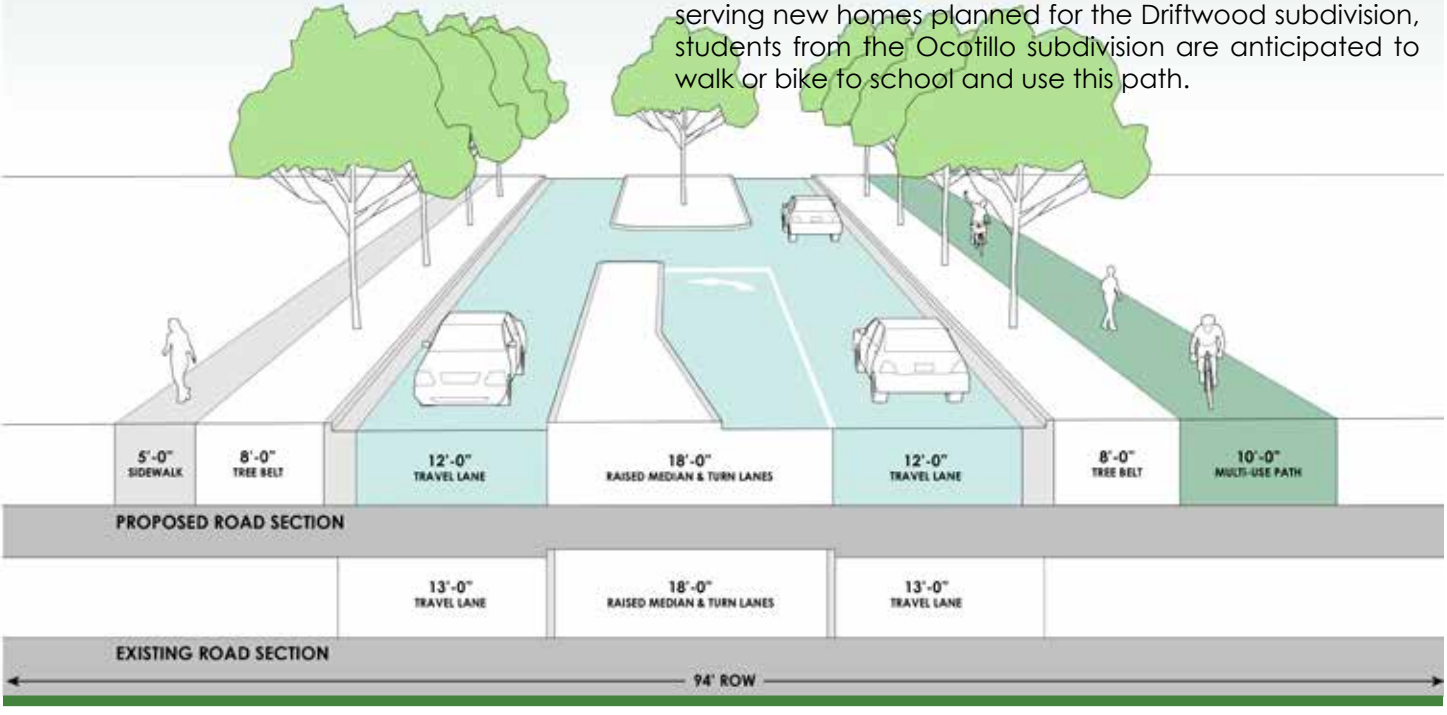
Construct a 10-foot multi-use path along the south side of 32nd Street to connect with the existing path. This addresses east/west connections through town. The 2014 Road Safety Assessment of the area noted the gaps in pedestrian facilities and recommended the City address the fragmentation.



21 AVENUE 6E PATH (41st St to 46th St)

MILEAGE 0.7 miles
FUNDING STATUS Funded
ESTIMATED COST $$$
FUNDING SOURCES City Road Tax

Construct a 10-foot mixed-use path along the east side of Avenue 6E. Construction of the Dorothy Hall Elementary School near the intersection of 44th St and Ave 6E is anticipated to be complete by August 2019. In addition to serving new homes planned for the Driftwood subdivision, students from the Ocotillo subdivision are anticipated to walk or bike to school and use this path.



HIGH PRIORITY BIKE ROUTES

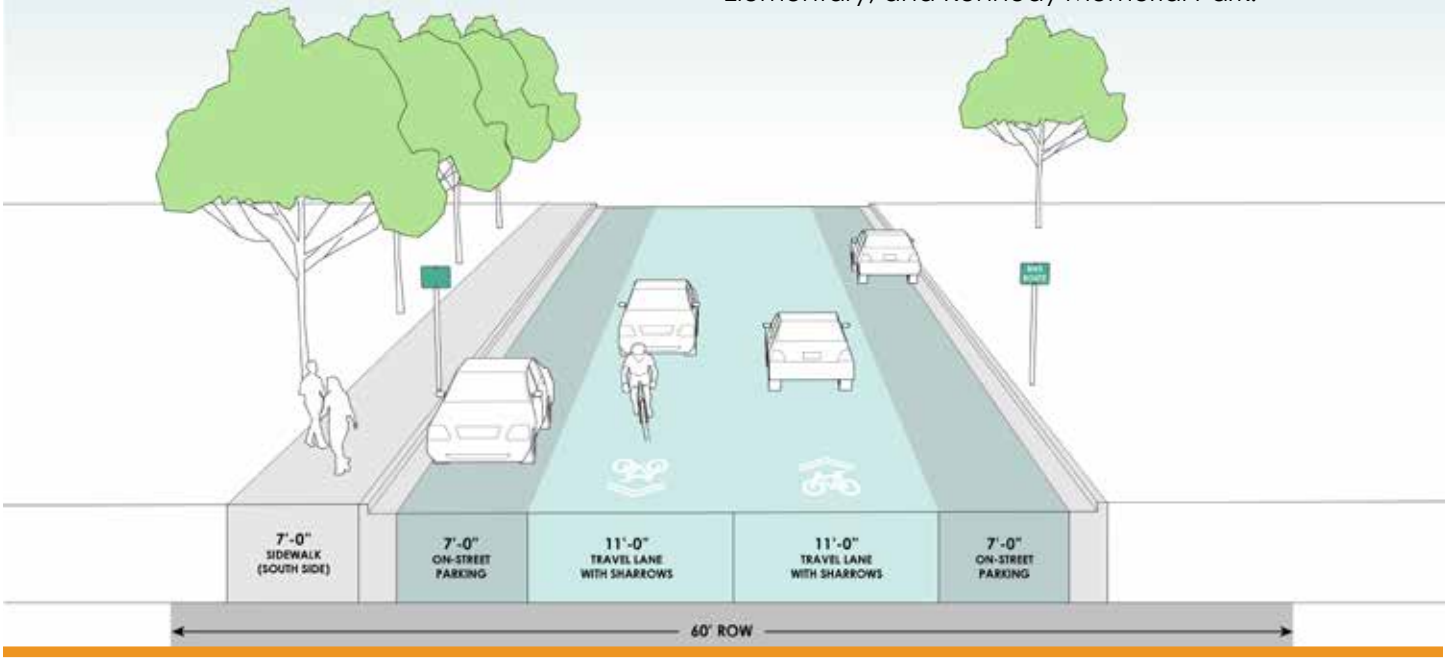
PROJECT	MILEAGE	COST
(22) **22ND STREET** (4th Ave to 24th St)	1 m	$
(23) **PALO VERDE STREET** (Arizona Ave to Ave 2½ E)	1 m	$
(24) **ARIZONA AVENUE** (Palo Verde St to 32nd St)	0.5 m	$

NOTE: $ = <$50,000; $$ = $50,000-250,000; $$$ = $250,000-$1M; $$$$ = $1M+

(22) 22ND STREET (4th Ave to 24th St)

MILEAGE 1 mile
FUNDING STATUS Not Funded
ESTIMATED COST $
FUNDING SOURCES CDBG, Grants, Partnerships, General Fund

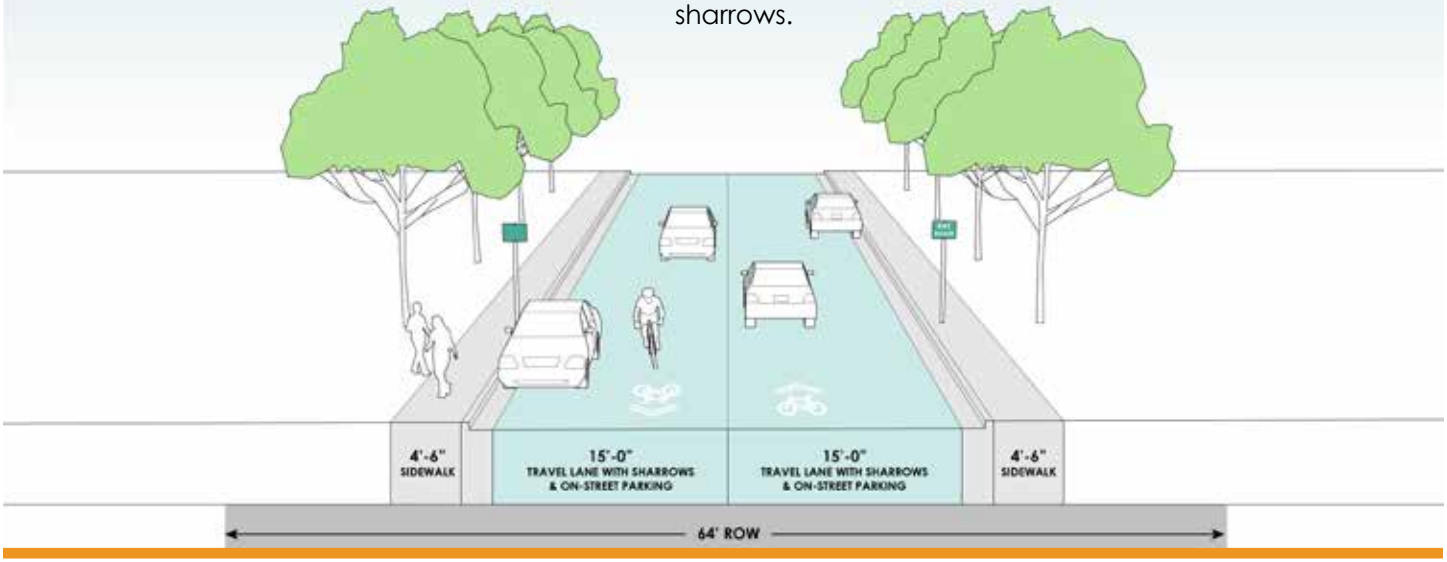
Install bike route signage and sharrow pavement markings along the existing roadway. Since this project is located within the Mesa Heights Revitalization Area, CDBG funds could be used. This project creates safer access to Gila Vista Junior High School, CW McGraw Elementary, and Kennedy Memorial Park.



23 PALO VERDE STREET (Arizona Ave to Ave 2 1/2 E)

MILEAGE 1 mile
FUNDING STATUS Not Funded
ESTIMATED COST $
FUNDING SOURCES Grants, Partnerships, General Fund

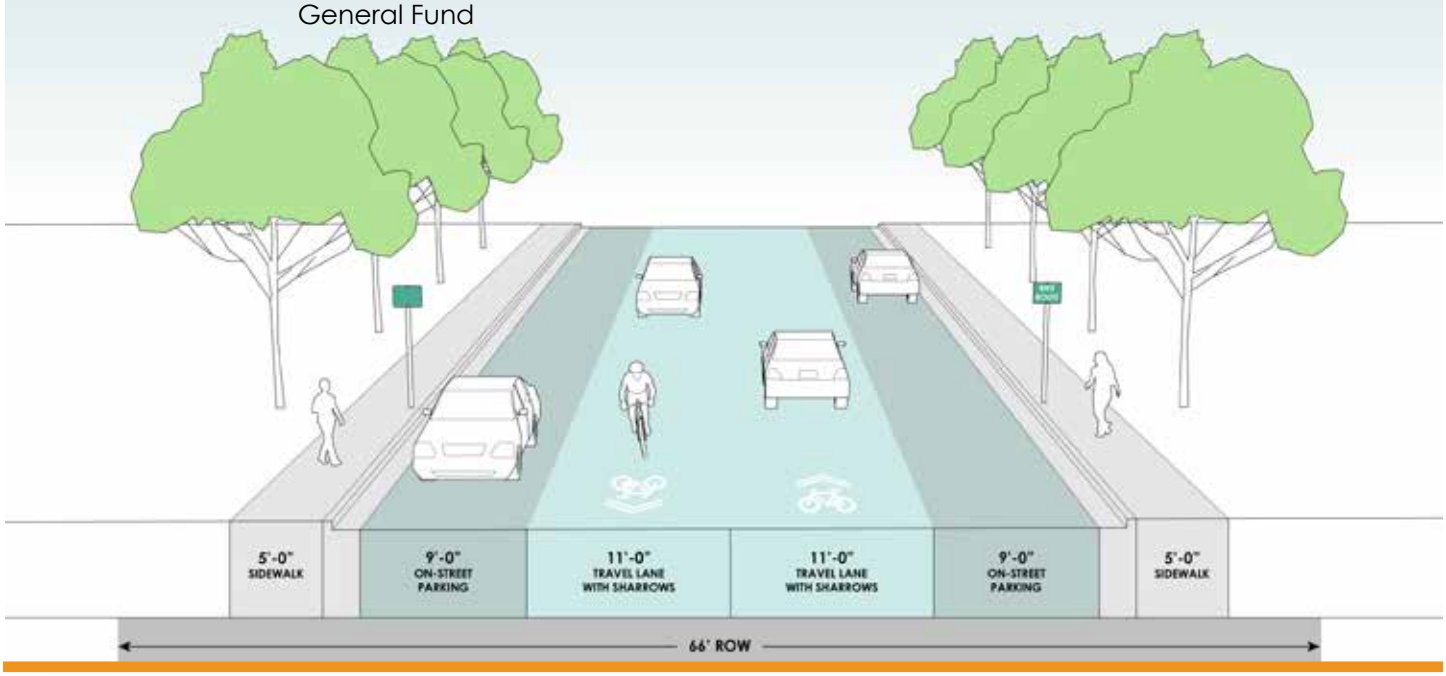
Install bike route signage, sharrow pavement markings, and address potholes and pavement condition. Of this road segment, 0.8 miles is currently designated as a bike route with signage. Signage should be added to the remaining 0.2 miles and the entire distance should be marked with sharrows.



24 ARIZONA AVENUE (Palo Verde St to 32nd St)

MILEAGE 0.5 miles
FUNDING STATUS Not Funded
ESTIMATED COST $
FUNDING SOURCES Grants, Partnerships, General Fund

Install bike route signage and sharrow pavement markings along the existing roadway.



HIGH PRIORITY BIKE CROSSINGS

PROJECT	COST
(25) E MAIN CANAL & W MAIN CANAL LINEAR PARKS	$
(26) E MAIN CANAL LINEAR PARK AT 8TH STREET	$
(27) E MAIN CANAL LINEAR PARK AT 24TH STREET	$$
(28) E MAIN CANAL LINEAR PARK AT 32ND STREET	$

NOTE: $ = <$50,000; $$ = $50,000-250,000; $$$ = $250,000-$1M; $$$$ = $1M+

25 E MAIN CANAL & W MAIN CANAL LINEAR PARKS

FUNDING STATUS Not Funded
ESTIMATED COST $
FUNDING SOURCES Grants, Partnerships, General Fund

To improve the connection between the East Main Canal and West Main Canal Linear Parks, the crossing at 1st Street should be improved and more directional signage added. While crosswalks exist across 1st Street at this location, they should be improved by adding ladder-style markings. To make the crossing safer, a pedestrian refuge island should be added on 1st Street along with a HAWK signal. Pavement markings should be added to the path indicating directions from the East Main Canal to the West Main Canal Linear Park. Some directional signage exists, but more should be added to improve connection between the two pathways.

26 E MAIN CANAL LINEAR PARK AT 8TH STREET

FUNDING STATUS Not Funded
ESTIMATED COST $
FUNDING SOURCES Grants, General Fund

Where the East Main Canal Linear Park crosses 8th Street, the traffic light currently has a pedestrian-activated crossing button. Many users commented that the activation button is located too far from the path, forcing cyclists to dismount in order to push it. Add pavement to the existing path to extend to the signal activation button so cyclists do not have to dismount or relocate the stop bar. Crosswalks exist at this intersection, but they should be improved with ladder-style markings to draw more attention to the crossing. Install pedestrian crossing signage.

27 E MAIN CANAL LINEAR PARK AT 24TH STREET

FUNDING STATUS Not Funded
ESTIMATED COST $$
FUNDING SOURCES Partnerships, Grants

The intersection of the East Main Canal Linear Park and 24th Street is one of the most difficult crossings along the path. To address these serious safety concerns, the path should be re-routed to direct users straight across 24th Street rather than forcing them to cross at Ridgeview Drive. Pave the existing gravel path approaching 24th Street from the north to provide a safer and less confusing transition across 24th Street. Install a ladder-style crosswalk and HAWK signal at the proposed path crossing. A partnership with the Yuma Regional Medical Center will allow this project to be constructed efficiently.

28 E MAIN CANAL LINEAR PARK AT 32ND STREET

FUNDING STATUS Not Funded
ESTIMATED COST $
FUNDING SOURCES Grants, Partnerships, General Fund

On the north and south of 32nd Street, there are sections of the East Main Canal Linear Park that are unpaved. These sections will be paved to improve flow along the path. In 2017, a crossing island was added to aid path users when crossing 32nd Street. This has improved safety, but has caused confusion for some drivers as to whether or not they need to stop. Signage directing vehicles not to stop will be added. To draw further attention to the crossing island, a ladder-style crosswalk will be added. A HAWK signal will also be added for maximum safety.

Funding & Partnerships

When seeking funding sources for recommended projects and initiatives in this plan, most will fall into one of three categories: capital improvement projects, planning and research initiatives, and safety/education programs. The first step to identifying funding sources is to determine the scope and type of project.

Capital improvement projects are usually construction activities or modifications to the built environment that improve conditions for bicycling. These projects are usually funded by government entities, such as the City, County, or State. Some capital improvement projects are funded by private developers in conjunction with new development. Construction of bikeways is typically funded by the City Road Tax Fund, the Highway Users Revenue Fund (HURF), the Development Fee Fund, or grant funding. The Development Fee Fund can only be used to increase capacity of the bikeway network; these funds cannot be used to improve or repair existing bikeways.

Planning and research initiatives include plans and studies that provide the city with guidance and direction for building facilities and implementing safety and education programs. An example of this type of initiative would be the recommended bike count program. Federal grant funding may be available for planning and research initiatives, or City funds can be used.

Safety and education programs aim to increase bicycling while reducing crashes. Efforts can include a wide range of programmatic activities, such as: child bicycle safety training, bike helmet giveaways, traffic safety campaigns, police training programs, campaigns to increase rates of cycling, publication of maps and brochures, maintenance of websites, and other on-going programs. Grants may be available for tailored programs, or City funds can be used.

GRANT FUNDING

Federal grant funding is available for many types of transportation projects, including bikeways and cycling initiatives. Under the most recent federal surface transportation law, entitled MAP-21, dedicated funding for bicycle and pedestrian efforts was consolidated into the Transportation Alternatives Program (U.S. DOT, 2013). Half of the funds are distributed to metropolitan planning organizations. The remaining funds are available to states to distribute through a competitive grant process. The Federal Highway Administration states that "[v]irtually all the major transportation funding programs can be used for bicycle and pedestrian-related projects."

Community Development Block Grant funds may be available for projects that fall within the Mesa Heights Revitalization Area.

Other grant opportunities may be available for certain types of projects from the following sources: People for Bikes, the Alliance for Biking & Walking, McKee Foods: OH! The Outdoor Happiness Movement, and the Arizona Non-Motorized and Motorized Trail Projects Competitive Grants. Other sources may require a partnership with a nonprofit or other community entity in order to be eligible to apply.

PARTNERSHIPS

The Yuma Metropolitan Planning Organization (YMPO) coordinates regional transportation and may be able to provide funding for certain projects. YMPO can also provide assistance for certain planning and research initiatives, such as the bike count program. YMPO has path counters that can be deployed on demand at a fee to the City.

Local cycling clubs are great partners, particularly for education and promotion projects. The City relies on local bike groups to organize Bike Month events and to encourage riders to participate in special campaigns. Local bike clubs can champion bicycle safety

education programs. The city can also partner with local cycling groups to implement quick-build, experimental projects to temporarily test out ideas about bikeways. Local groups should approach City staff with ideas for temporary installations. Implementing certain bikeway projects on a temporary basis with inexpensive materials is a good way to test the design before a larger investment is made.

The Yuma Association of Realtors partnered with the City to install wayfinding signage along the linear parks as part of a placemaking grant they received. Partnerships with local groups such as these can help add valuable 'finishing touches' to the bikeway network. These types of small projects have a big impact on the user's experience of the bikeway system.

In 2016, The Yuma Association of Realtors won two placemaking grants. They joined with the Yuma Region Bicycle Coalition to install 10 sings similar to the one shown here along the existing linear parks.

MEASURING SUCCESS

This worksheet is used to track progress of key performance measures. Each year, this worksheet should be updated and published on the City's website for the public to view progress toward implementation of this plan. Many of these performance measures align with the Bicycle Friendly Community (BFC) application. The 10-year goals align with targets for BFC Silver status communities.

	10-YR GOAL	BASELINE (2017)
CONNECTIVITY		
TOTAL BIKEWAY MILES	**Build 50 miles**	**53 miles existing**
Bike Paths (miles)[1]	Build 17 miles	19 miles existing
Bike Lanes (miles)	Build 16 miles	17 miles existing
Bike Routes (miles)	Designate 17 miles	17 miles existing
Bike Crossings (number)	Build 2 new crossings	8 crossings existing
PERCENT OF ROAD NETWORK[2] WITH BIKEWAYS	**Increase to 25%**	**10% (41.5 of 409)**
Percentage of >35mph streets with bikeways	Increase to 20%	10% (19 of 193)
FUNDING	--	--
Percentage of transportation budget spent on bike facilities	Increase to 0.5%	Unknown
SAFETY		
ANNUAL BICYCLE CRASHES (reported in City limits)	**Reduce by 30%**	**30**
Annual Number of Cyclist Fatalities	Zero fatalities	0
Annual Number of Cyclist Injuries[3]	Reduce by 50%	23
ANNUAL TRAFFIC SAFETY EDUCATION PROGRAMS	**--**	**--**
Annual Number of Adult Bicycling Skills Classes	2 per year	Available on request
Number of Schools Offering Bicycle Education	Increase to 45%	Unknown
ANNUAL PUBLIC SAFETY ANNOUNCEMENTS	**2 per year**	**0**
CONVENIENCE		
BICYCLE PARKING	**--**	**--**
Bike racks installed at public facilities	Install 20 racks	0
NUMBER OF BIKE STATIONS INSTALLED ANNUALLY	**Install 3 stations**	**0**
PROMOTION		
RIDERSHIP	**--**	**--**
Annual bike count conducted? (Y/N)	Collect 10-yr data set	N
Percentage of population who commute by bike[4]	Increase to 2%	0.6%
ANNUAL CYCLING EVENTS	**--**	**--**
Annual Bike Month Events	4 events	0 events
Annual Bike to Work Events	1 event	0 events
NUMBER OF BIKE MAPS PRINTED	**2,000 maps per year**	**1,000 maps**
Online map updated? (Y/N)	Update annually	Y
UPDATE THIS SHEET ANNUALLY & PUBLISH ONLINE	**Update annually**	**--**

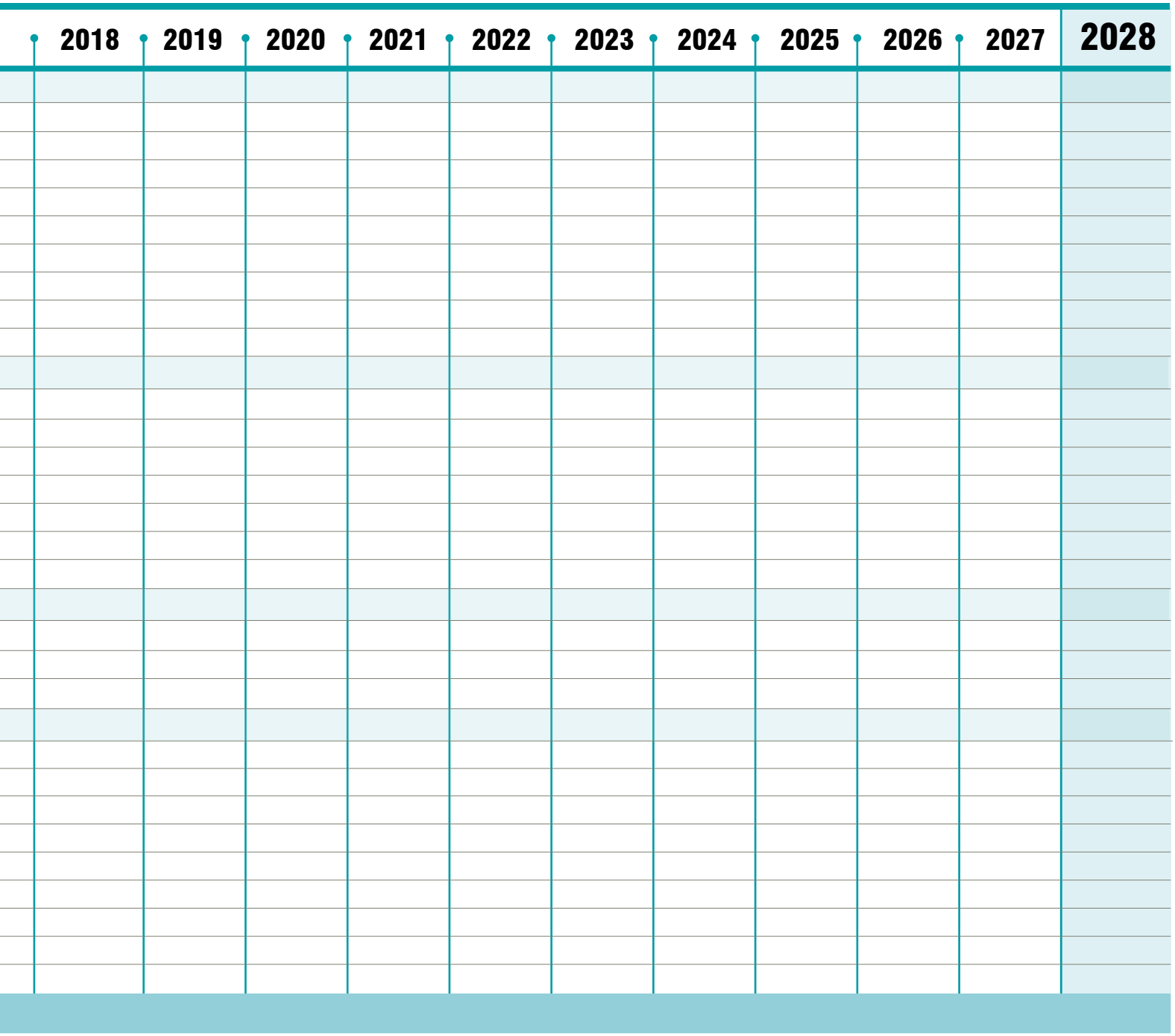
NOTES

[1] *Does not include unpaved trails*

[2] *Roadway network includes all roads within the planning boundary*

[3] *Includes reported serious and minor injuries, not reported possible injuries*

[4] *Based on data from the American Community Survey, published by the U.S. Census Bureau (Table B08301 - Means of Transportation to Work)*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APPENDICES

A Inventory of Existing Bikeways
B Inventory of Proposed Bikeways
C Bicycle Friendly Community 2017 Report Card
D Survey & Survey Results
E Social Pinpoint Map Results
F Arizona Communities with Dedicated Bike Staff by Population
G Impact of Bikeways Plan on City Departments
H Yuma County Water Users' Association Guidelines for Linear Parks

Appendices are available for download on the City of Yuma website at www.yumaaz.gov/community-development/bikeways-of-yuma