



Bike Network Plan



January 2025

City of San Antonio Transportation Department

Ron Nirenberg, Mayor

Catherine Hernandez, Director

“

“When we began updating our Bike Network Plan, I envisioned making bike riding a safe, viable mode of travel in San Antonio. Thanks to the hard work of our team, we’re well on our way to becoming a leader in urban cycling. This plan benefits everyone by reducing congestion, improving air quality, and enhancing safety and equity. Seeing this plan come to life during my time in office is a proud moment for me.”

”



- Mayor Ron Nirenberg

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Thank you to the many partners and members of the San Antonio community who provided input and feedback to develop the City of San Antonio's Bike Network Plan, and who continue to work together to increase bicycle safety and sustainability in our community.

Mayor Ron Nirenberg

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Development Services Department
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Economic Development Department
Fire Department
Information Technology Services Department
Metropolitan Health Department
Neighborhood and Housing
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Office of Historic Preservation
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World Heritage Office

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Churchill Distinguished Alumni Association
Dignowity Hill Neighborhood Association
Friends of McAllister Park
Ghisallo Cycling
Great Springs Project
New Leaders Council
River Aid San Antonio
San Antonio Roadrunners
Shearer Hills-Ridgeview
Neighborhood Association
UTSA Office of Sustainability

Health Impact Advisory Committee

Alamo Area Council of Governments
Bexar County Health & Wellness
disABILITYsa
Esperanza Peace & Justice Center
FitCitySA / Mayor's Fitness Council
Food Policy Council of San Antonio
Joint Base San Antonio / Veterans
Advisory Commission
Salud America!
San Antonio Area Foundation
San Antonio Independent School District /
School Health Advisory Council
San Antonio Lighthouse for the
Blind & Vision Impaired
South Texas Asthma Coalition (STAC)
The Health Collaborative
UT San Antonio Health

Technical Advisory Committee

Alamo Area Metropolitan
Planning Organization
B-Cycle
Bexar County Human Resources
Bexar County Public Works
Brooks City Base
Centro San Antonio
CPS Energy
Port San Antonio
San Antonio Missions National
Historical Park (NPS)
San Antonio Mobility Coalition
San Antonio River Authority
San Antonio Water System
Texas Department of Transportation
Urban Land Institute
VIA Metropolitan Transit

How to Read the Bike Network Plan

A complete and accessible bike network is an essential part of any transportation system. To equitably expand the existing bike network and improve safety along it, the City of San Antonio (COA) created the Bike Network Plan (BNP) - a guiding document to help program over two decades of necessary improvement to bike infrastructure across the San Antonio Region. The BNP has five sections*, guiding San Antonians through key questions about what this plan hopes to accomplish and providing recommendations that are context-sensitive, community first, and implementable.

Introduction: What is Riding Like in San Antonio Today? To make progress towards the goal of a connected, efficient, and safe bicycle network, the BNP establishes a baseline of where San Antonio is right now. To accomplish this, the BNP utilizes data spanning topics from crash frequencies to demographics to current road conditions and builds understanding of bike facilities, the roads they are on, the land uses around them, and the unseen consequences of that environment, such as traffic violence, health outcomes, and the inequitable disparities that stem from both.

Community: Who Does This Plan Reflect? With a baseline created, the BNP summarizes input from the community, four oversight committees, and five stakeholder groups received over two years, at more than 40 events, through three phases of public engagement. This input is instrumental in understanding the community's vision for the improvements they want to see when riding in San Antonio and guides all of the remaining sections of the plan.

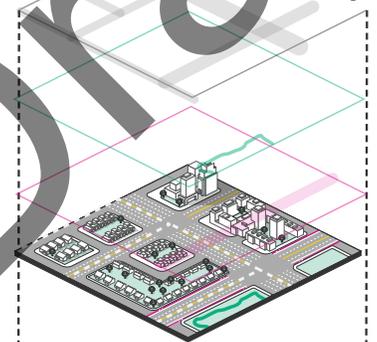
Design: What is San Antonio Building? The BNP creates template designs for bike facilities (like bike lanes and trails), intersection treatments (like mid-block crossings and bike signals), and special circumstances (like bike-bus interactions and ADA compliance) to ensure that the City deploys best practice bike designs. But the BNP doesn't mandate which bike designs should go on each street; rather, it provides context-sensitive recommendations based on factors like the number of car lanes, roadway function, speed limit, and adjacent land use.

Recommended Network: Where is the City Building it? The center of the BNP is its forward-looking network, showing where new bikeways will be built and bike users will be routed. It contains three parts: first, the development of the network by closing gaps in the existing bikeways, then breaking up that network into hierarchical bikeways by intended use (similar to how roadways are divided into arterials and local streets). Finally, bikeways are further divided into individual projects that can be prioritized and implemented.

Implementation: How Does The Become a Reality? Ongoing completion of the projects in the network is only part of a functional bike plan. Performance metrics must be set, policies must be added and updated, and new programs must be created in order to ensure safety and equity as the network continues to grow. Steady progress on these fronts will ensure that the network is open to use for all, well-connected, well-maintained, and above all else - implementable.

* Throughout the plan, readers will see call outs like this one with a letter corresponding to one of the BNP appendices listed at the end of the document. There, readers can learn more about any part of the plan.

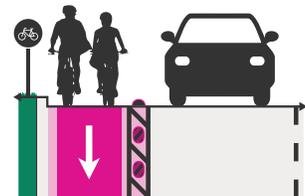
What is Riding like in San Antonio Today?



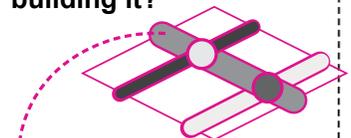
Who does this plan reflect?



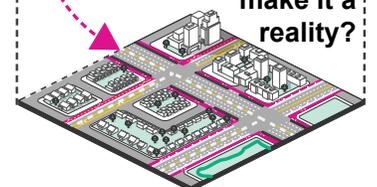
What are we building?



Where are we building it?



How do we make it a reality?



1



Introduction

Important Acronyms

BNP - The City of San Antonio Bike Network Plan, this document and its appendices

City or COSA – The City of San Antonio

SA – San Antonio

TD – Transportation Department

PWD – Public Works Department

SAPD – San Antonio Police Department

VIA – VIA Metropolitan Transit Authority

TxDOT – Texas Department of Transportation

CRIS – The TxDOT Crash Records Information System

AAMPO – Alamo Area Metropolitan Planning Organization

UDC – Unified Development Code

AADT – Average Annual Daily Traffic

FHWA – Federal Highway Administration

ROW – Right of Way

NACTO – National Association of City Transportation Officials

AASHTO – American Association of State Highway and Transportation Officials

MUTCD – Texas Manual on Uniform Traffic Control Devices

IMP – The COSA 5-year Rolling Infrastructure Maintenance Program

ADA – Americans with Disabilities Act

LTS – Level of Traffic Stress

HIA - Health Impact Assessment

Important Terms and Concepts

An essential part of understanding the BNP's vision is to know the key words and concepts that underpin this work.

The term **Bikeway** refers to space allocated for bike users to ride on without implying a certain type of infrastructure. Ideally this infrastructure is **Physically Separated** or **Protected** from vehicular traffic using a physical barrier - when the term "separated" is used, it means physically, not just visually.

Bike User (Not Bike user) refers to anyone riding a bike rather than "bike users." "Bike users" are often thought of as people who ride bikes recreationally rather than as a necessity, and because this plan serves everyone on a bike, Bike User is a more inclusive term.

Traffic Crash (Not Accident) is the term this plan uses to refer to collisions rather than "accidents." "Accident" implies that a collision was without fault, inevitable, and relieves responsibility from the driver and designer of the road.

Traffic Violence is any harm, injury, or deaths caused by unsafe behaviors and conditions on roadways, including crashes involving vehicles, pedestrians, and Bike Users.

A **High Injury Network (HIN)** is a network of roadway segments where there are high rates of serious or fatal crashes.

All Ages and Abilities refers to streets, intersections, sidewalks, and bike lanes that are designed to be safe and comfortable for all users, including children, seniors, and people with disabilities.

Low-Stress Routes are neighborhood roadways that have a lower speed limit and less traffic.

Complete Streets is an approach to include all users and all modes of travel in the development of safe streets where they have historically been dismissed.

Traffic Calming consists of physical design and other measures put in place on existing roads to reduce vehicle speeds and improve safety.

Capital Projects construct either new facilities or make significant, long-term improvements to existing facilities.

Bikesheds are geographical representations of the distance an average person can travel on a bike within a certain amount of time.

The COSA **Equity Atlas** uses race, ethnicity, education, language, and income data to identify neighborhoods that are disadvantaged compared to the rest of the city. The Equity Atlas uses a scale of 2 to 10, with higher scores assigned to areas with higher numbers of historically disadvantaged populations. For the purposes of this plan, "high-equity concern" areas are Census tracts scoring above 7 and "low-equity concern" areas are Census tracts scoring below 5.

What is the Bike Plan?

The City of San Antonio Bike Network Plan (BNP) is a visionary effort to rethink how San Antonians get around. The plan will serve as a blueprint for building and maintaining a comfortable, complete, and accessible bicycle network for all people regardless of their age or ability. The BNP will build off existing best practices, innovations, and industry standards to better guide decision-making and investments to transform San Antonio into a city with world-class bicycling facilities that meet the needs of the people who live, work, and travel here.

Why This Plan Is Important

San Antonio has made large strides in building a transportation network that provides choices for how to travel. However, additional investments are needed to create an interconnected, safe, and comfortable biking network that meets the needs of all San Antonians, no matter their confidence level. The following section addresses the benefits of promoting biking and other micromobility, as well as the evolving needs of San Antonians.

Bicycle Safety Is a Priority for the City

While education and other efforts are important, safe infrastructure that is designed for separation between motorists, bike users, and pedestrians is the most effective way to reduce crashes and crash severity. Infrastructure also impacts who walks or bikes, as many may choose not to walk or bike at all if it is perceived too dangerous or too indirect to use.



7.9%
of households in San Antonio do not have access to a vehicle.

Source: 2021 American Community Survey 5-Year Estimates



More than **200,000**

San Antonians don't have access to a vehicle.^K

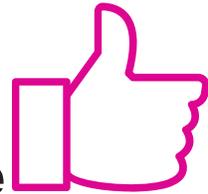
Source: National Highway Traffic Safety Administration

The BNP will provide **1,740 miles**

of new and upgraded bike facilities in San Antonio^E



The BNP will cause a **212% increase**



in shared use path mileage, from 211 miles to 660 miles

In 2022, San Antonio ranked the

16th deadliest city for bike users.

Source: National Highway Traffic Safety Administration

Between January 2018 and December 2022, over 3,900 pedestrian crashes and over 1,540 bike user crashes were reported in San Antonio alone.



The BNP will lead to a **275% increase**

of comfortable bike facilities and routes in disadvantaged areas

^E To see the full network review Appendix E

^K To read about the network's affects, review Appendix

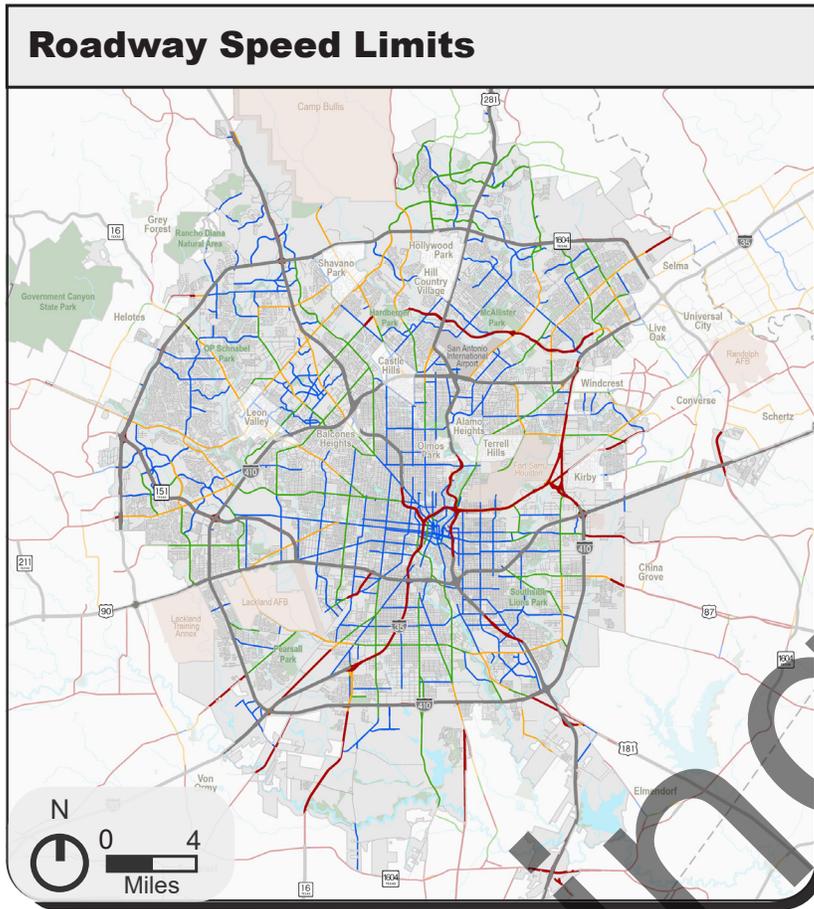
History of San Antonio's Bike Network

Since the first known bicycle activity in San Antonio in 1869, the City has made significant progress in developing a bicycle network. The largest expansions have been a result of extending the Riverwalk along the Mission Reach and constructing the Howard W. Peak Greenway Trail System. Yet, the City's history leaves a fragmented network for walking and bicycling.

Like most American cities, San Antonio is seeking ways to retrofit its built environment for walking and bicycling so that the City can adequately serve the transportation needs of residents and visitors. While the timeline below presents essential milestones in bike planning for San Antonio, the City has faced significant setbacks.



Roadways in San Antonio Today



Roadway Speed Limits

Under Texas state law, all residential streets are 30 mph unless otherwise posted. In San Antonio, major destinations and employment centers are typically on arterial corridors with speeds of 35 MPH or greater, making it uncomfortable for people to walk or bike in mixed traffic.

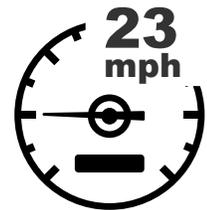
- Less than 30 MPH
- 35 MPH
- 40 MPH
- 45 MPH
- 50-60 MPH
- 65 MPH +
- Bexar County Line
- City of San Antonio
- ▒ Park or Recreation Area
- ▒ Military Installation
- ▒ San Antonio International Airport (SAT)



75%
Likelihood of fatality or severe injury



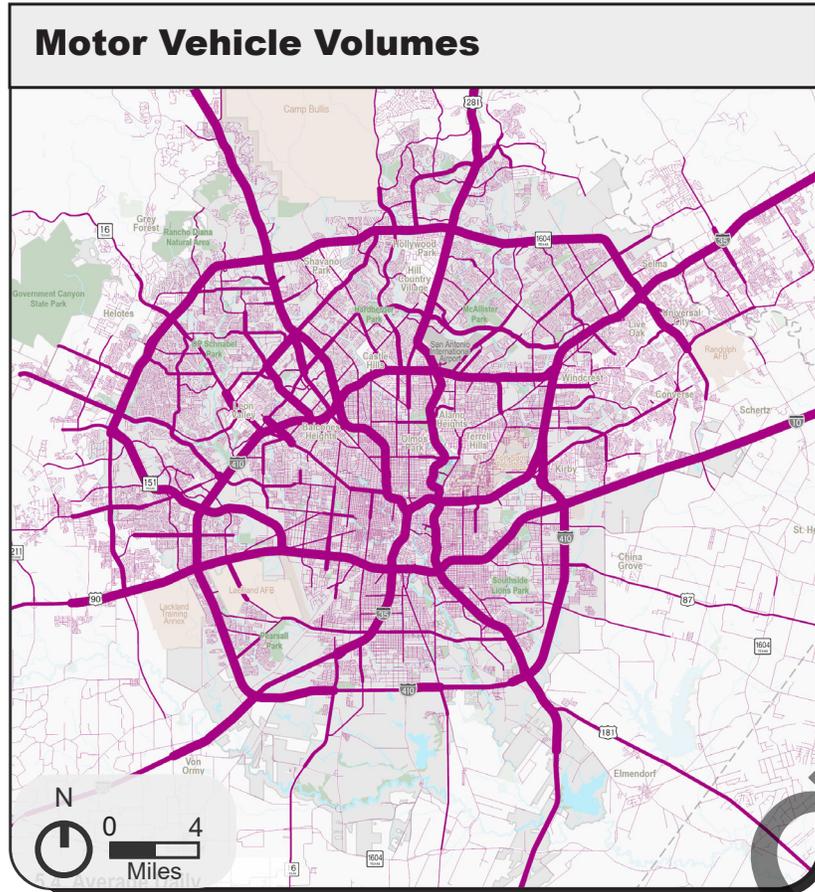
50%
Likelihood of fatality or severe injury



25%
Likelihood of fatality or severe injury



Source: Impact Speed and a Pedestrian's Risk of Severe Injury or Death. Brian Tefft, AAA Foundation for Traffic Safety, 2011

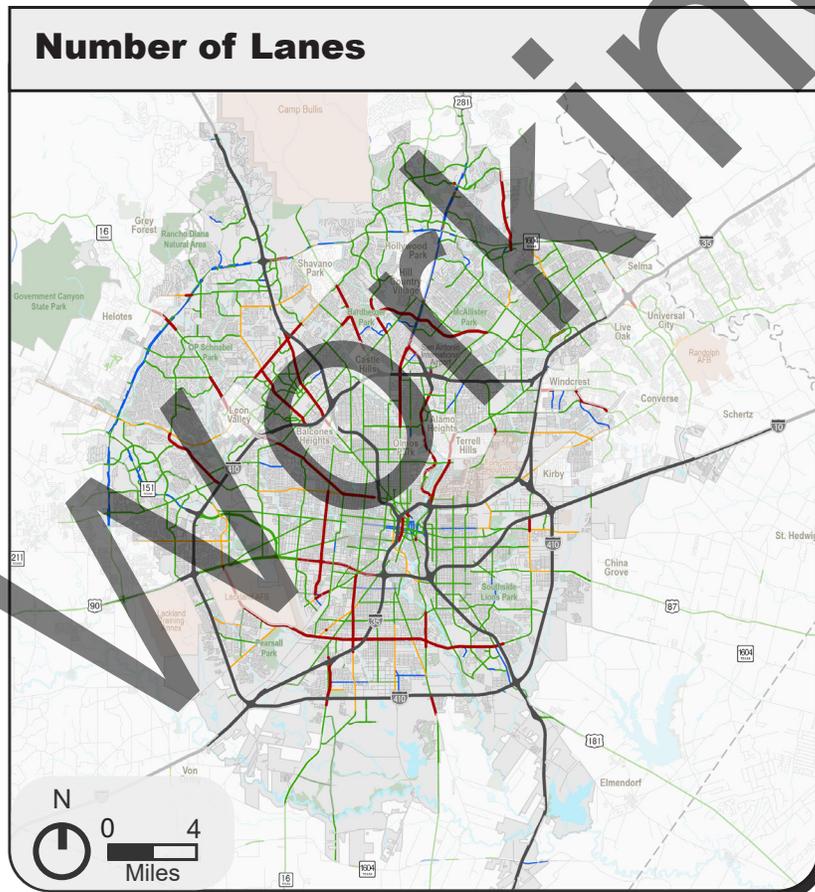


Vehicle volumes are highest on motor-vehicle only facilities, like highways. But when high vehicle volumes are on local serving streets, they significantly affect pedestrian and bike user comfort. Every motor vehicle interaction has a chance of fatality for bike users, thus the frequency of those interactions supports the need for protected bike spaces on a roadway.

- Less than 10,000
- 10,001 to 20,000
- 20,001 to 30,000
- 30,000 to 40,000
- Greater than 40,000

- Bexar County Line
- City of San Antonio
- Park or Recreation Area
- Military Installation
- SAT

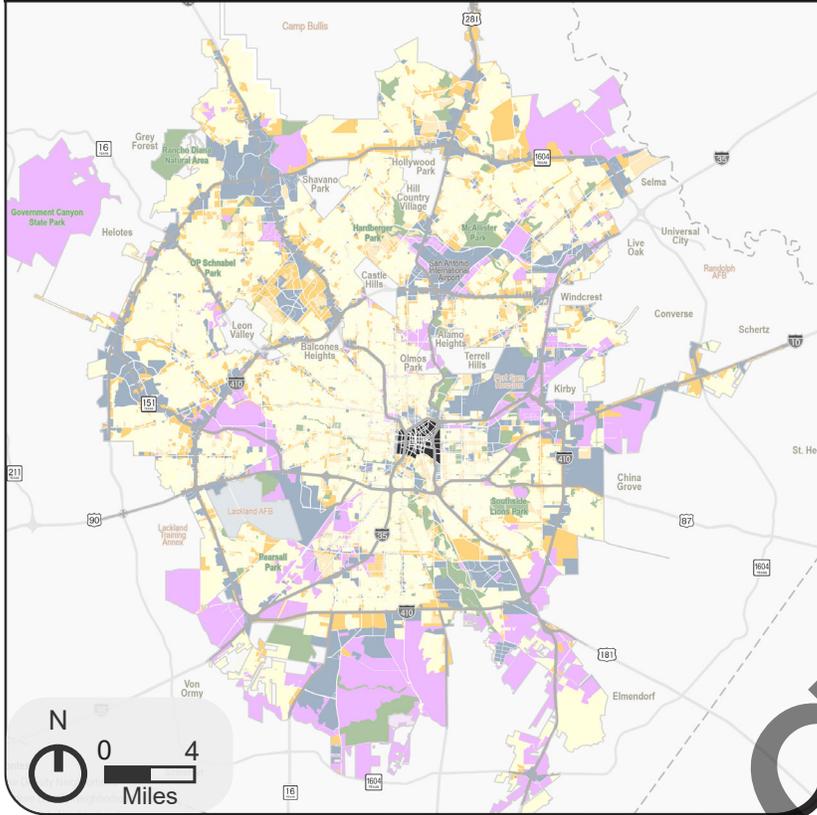
These base map symbols are shown on all maps on this page.



The number of travel lanes constructed is often determined based on existing or projected vehicle volumes, but sometimes streets are built with more lanes than needed. Later in the plan, corridors are evaluated to determine whether it is feasible to repurpose a vehicle travel lane for multimodal use.

- Interstate
- 2 Lanes or less
- 3 Lanes
- 4 Lanes
- 5 Lanes
- 6 Lanes

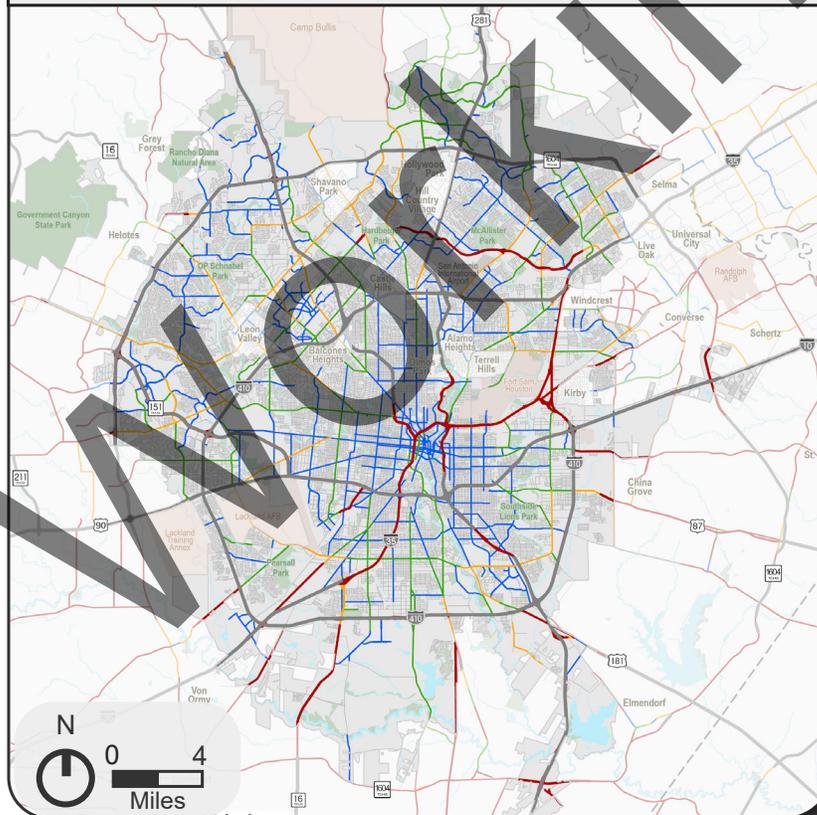
Place Types



San Antonio is formed by different neighborhoods that vary by their mix of uses. These characteristics influence how people travel. Understanding the challenges and opportunities of each surrounding street context is key to developing a bicycle network that works for the whole city and all users. Shown here, San Antonio's future zoning is simplified to 7 "Place Types."

-  Low density neighborhood
-  Industrial/agricultural
-  Medium density neighborhood
-  Recreation/open space
-  High density neighborhood
-  Employment/activity center
-  Central Business District

Speed Limit



A variety of factors impact safety and comfort for people walking, but interaction with vehicles is one of the most critical. As driving speed increases, a driver's line of sight of the roadway and its surroundings is also impacted. Research shows that when driving at a higher speed, the driver naturally focuses on objects further away.

-  Less than 30 MPH
-  35 MPH
-  40 MPH
-  45 MPH
-  50-60 MPH
-  65 MPH +

Riding in San Antonio Today

To understand what it is like to bike (and walk) today, it is important to understand what types of facilities exist. Prior to this study, San Antonio did not have a complete and up-to-date inventory of sidewalks, bike facilities, and crossings. To address this, a comprehensive mapping exercise and inventory was completed. The following facilities were identified in the inventory:



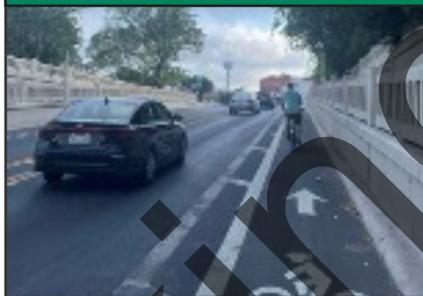
Riding 36th Street at PortSA



Protected Bike Lane

A protected bike lane is physically separated from motor traffic, distinct from the sidewalk, and may serve one or two-way bike traffic. Protected bike lanes are comfortable for most users.

Riding Roosevelt in Southtown



Buffered Bike Lane

A buffered bike lane features a painted buffer which provides further separation between vehicles or parking lanes.

Riding North St. Mary's Street



Bike Lane

Striped lane with pavement markings and signs that designate an exclusive lane for bicycle use. Bike lanes can be comfortable for users depending on roadway speeds, volumes, and number of lanes.

Riding King William Street



Bike Routes and Shared Lanes

Signed routes where the travel lane is shared by drivers and people biking are generally only comfortable for confident riders. These may be on local streets or wider roads and should include wayfinding and shared lane markings.

Introduction

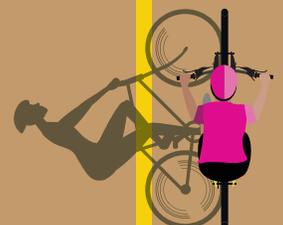
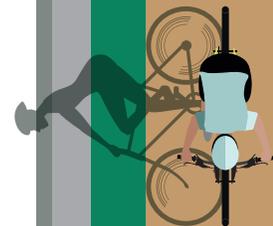
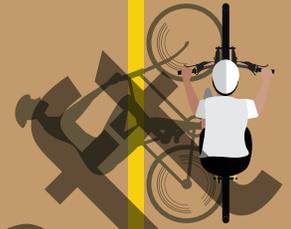
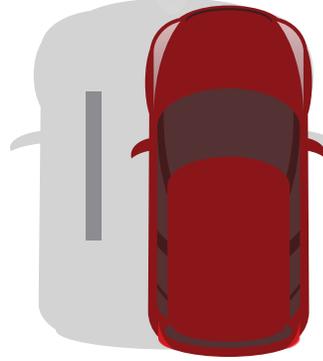
Riding the Leon Creek Greenway at the Rim

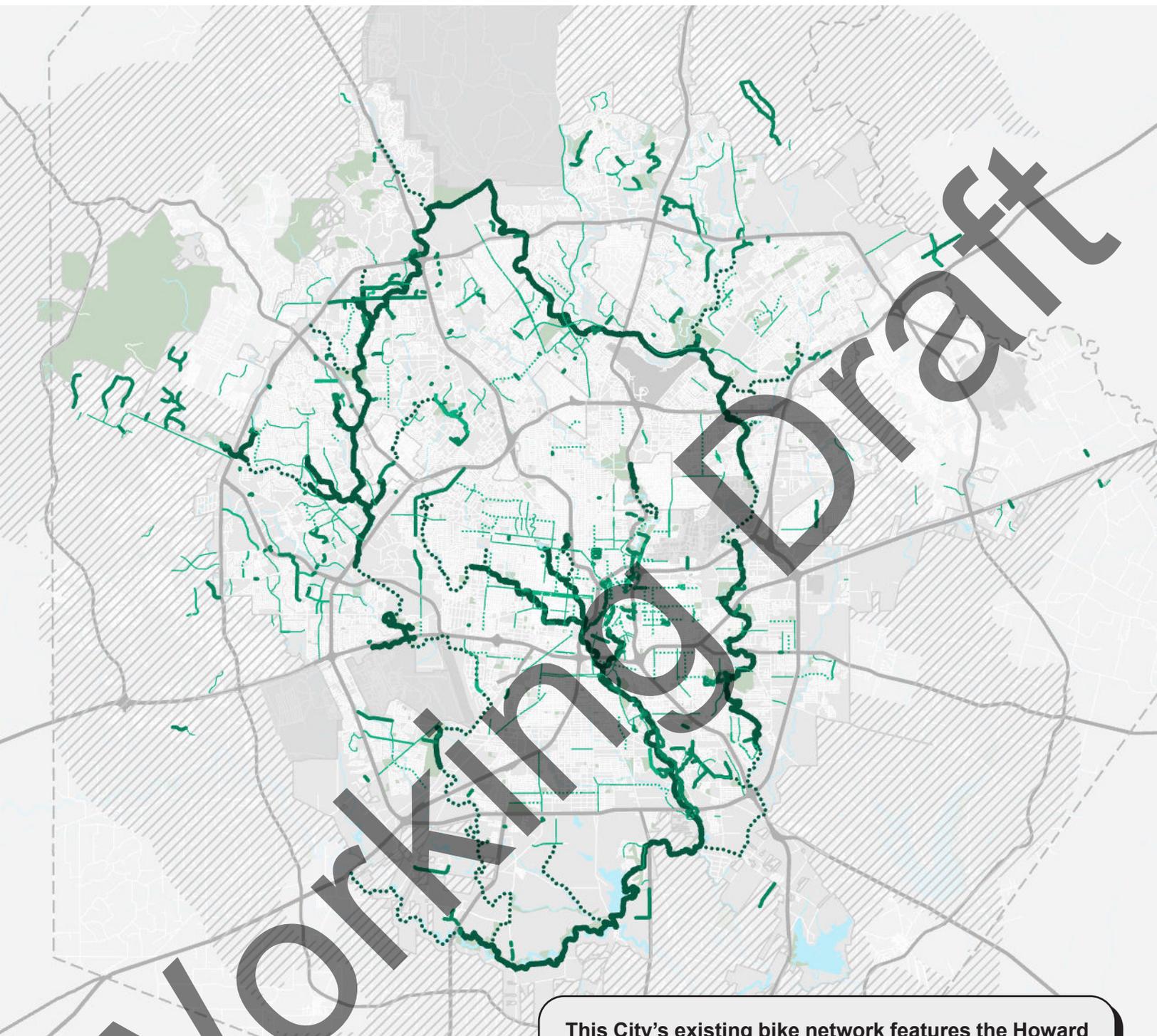


Off Street Paths and Trails

When bicycle and pedestrian facilities are connected to recreational areas, they act as an extension of the transportation system. Connecting parks and other recreational facilities via bicycle and pedestrian facilities is a way to make parks more accessible and provide a safe and convenient means for residents to explore the recreational system. San Antonio has an enviable trail system that includes over 110 miles of the Howard W. Peak Greenway Trail System. The four major segments of the Greenway are the Leon Creek Greenway, the Salado Creek Greenway, the Westside Creeks, and the Medina River Greenway, each offering several miles of uninterrupted trails. In addition, the Greenway trails connect dozens of local parks and consist of approximately 1,600 acres of creek-side open space and natural areas.

Facility Type	San Antonio (miles)	Other Entity (miles)	Total (miles)
Bike Route	71.2	1.6	72.8
Bike Lane	193.1	63.7	256.8
Buffered Bike Lane	25.6	2.3	27.9
Protected Bike Lane	3.4	0.0	3.4
Two-Way Cycle Track	5.9	1.2	7.1
TOTAL	504.0	100.3	604.3





City of San Antonio Bike Network

- | | |
|------------------------------|-----------------------------------|
| Existing Bike Facilities | Bexar County Line |
| — Bike Lane | City of San Antonio |
| — Buffered Bike Lane | Park or Recreation Area |
| — Shared Lane | Military Installation |
| — Protected Bike Lane | San Antonio International Airport |
| — Greenway Trail | Extraterritorial Jurisdiction |
| — Other Path | |
| ••••• Future Greenway Trails | |

0 2 4 Miles

Source: City of San Antonio (2023), TXDOT (2023), Justice40 Atlas (2022)

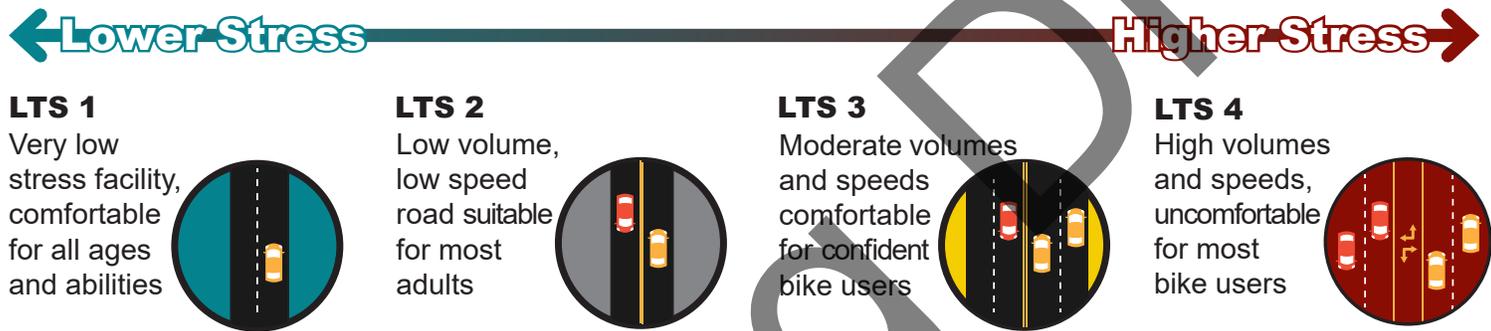
This City’s existing bike network features the Howard W. Peak Greenway Trail Network and an expansive on-street network largely consisting of standard painted bike lanes. In most cases, the on-street network does not fully address safety concerns on high-traffic and high-speed roadways. Disconnected routes fail to link residential areas with key destinations. This disconnectivity is even more severe in underserved areas, exacerbating historical inequities. The current lack of connectivity, safety, and accessibility make it difficult and unsafe for most bike users (or would-be bike users) to navigate.

How Comfortable is San Antonio's Bike Network?

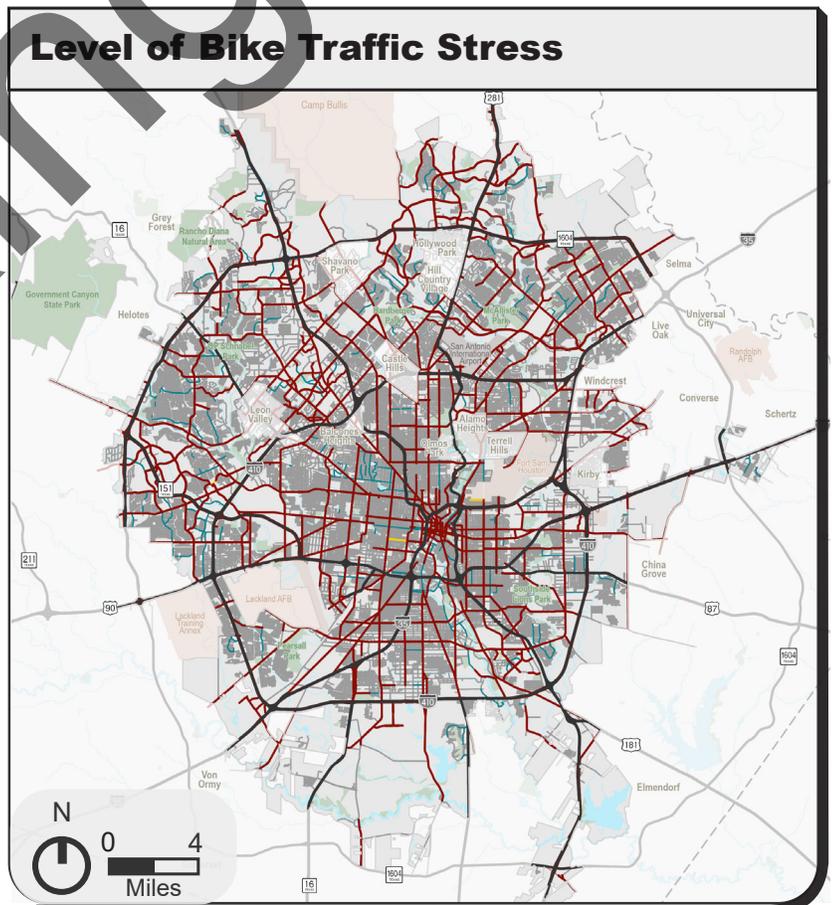
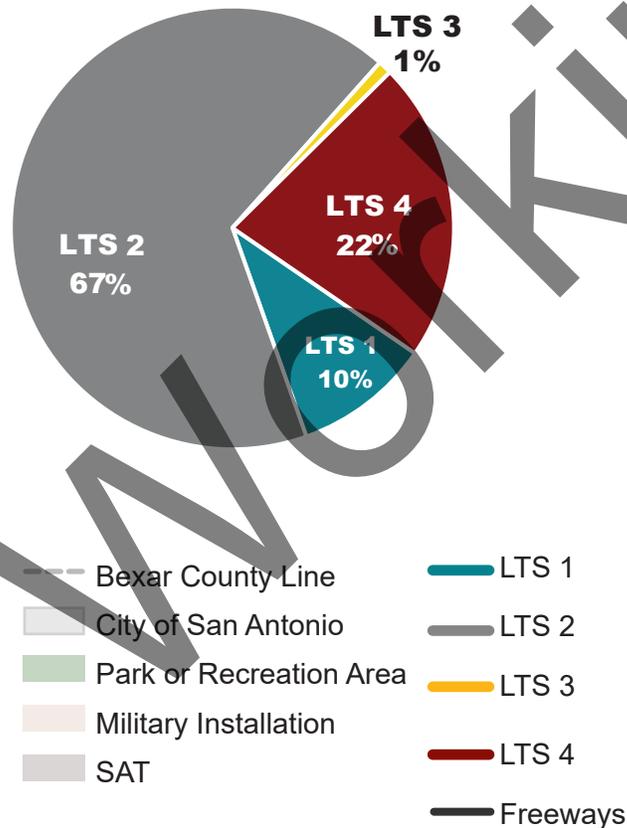
The BNP doesn't measure access by trips made that are unsafe or uncomfortable - riding a bike should be easy and desirable in San Antonio. Bicycle Level of Traffic Stress (LTS)^K is a method of quantifying the perceived sense of comfort associated with biking along a given roadway. Whether a rider feels comfortable on a street depends on factors such as the speed and volume of traffic, presence and type of bicycle infrastructure, and the design of the road and intersections.

LTS ranges from low-stress streets (LTS 1 and LTS 2) to high-stress streets (LTS 3 and LTS 4). LTS 1 is considered an all ages and abilities facility and is comfortable for families and children, whereas LTS 4 is high-stress and should only be used by the most confident bike rider. Depending on a person's skill level, roads with high LTS scores may deter potential bike users from riding, leading them to choose a different mode of transportation or forcing them to make lengthy detours to avoid high-stress streets.

While local and neighborhood roadways with lower speeds and fewer lanes make up the majority of the network, 23 percent of San Antonio's owned or maintained streets are considered high-stress (LTS 3 or LTS 4).



Level of Traffic Stress Distribution on San Antonio Owned or Maintained Streets



^K To read more about LTS and the method for determining it, review Appendix K

How Accessible is San Antonio's Bike Network?

One indication of a successful bicycle network is how far a person riding a bicycle can travel within 15 minutes using only low-stress (LTS 1 and LTS 2) streets. This was determined in a 2-step process - first identifying essential destinations, then overlaying a low-stress network and identifying a 15-minute bikeshed all around the City for different types of destinations. However, these bikesheds are often broken up by high-stress streets that create major barriers to people biking. Not only are these streets uncomfortable for most people, but they may also prevent someone riding along a low-stress roadway from continuing along their path if there is no safe or comfortable way to cross. These barriers force people biking to use circuitous routes to stay on low-stress routes.

1. Identify Where People Want to Go

Education Opportunities



Everyday Needs

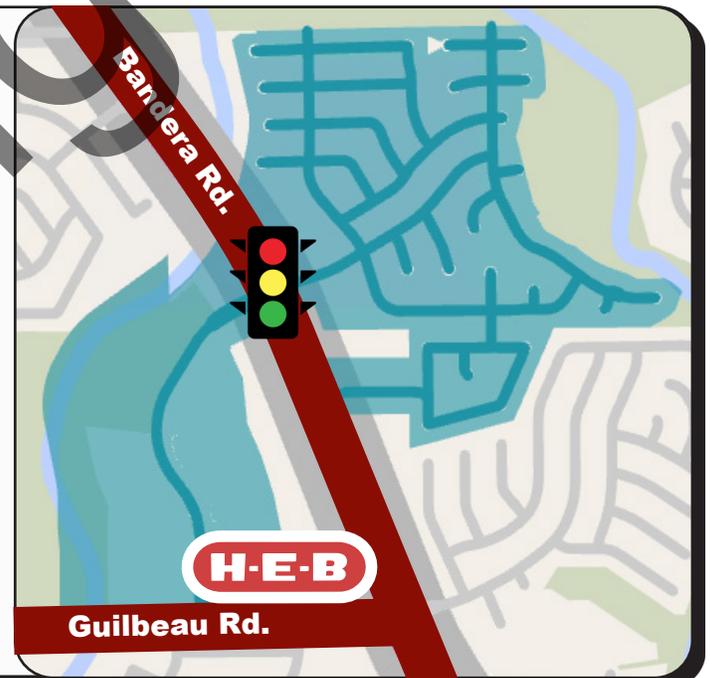


Recreation and Fun



2. Calculate Accessibility to Destinations via 15-Minute Bike Ride using Low-Stress Streets

In this example 15-minute Bikeshed off of Bandera Road, while some adjacent neighborhoods can access H-E-B via the low stress network, high stress roads act as a barrier to people via a bicycle.



Key findings from the bicycle accessibility analysis include:

- While most San Antonians can reach one destination by bike, **nearly 25% cannot reach any destination at all.**
- **Only 2% of San Antonians can access the same destinations** by bike as they would be able to by car.
- In the City, **only 10% of residents can access both grocery stores and healthcare services by bike.**
- **Only 13% of San Antonians today have biking access to colleges and universities.**
- Areas of low-stress connectivity are all over San Antonio, but **access between “low-stress islands” is limited.**

How Equitable is San Antonio's Bike Network?

Historically, Low Equity Concern Areas have seen a higher investment of bike infrastructure in comparison to areas of High Equity Concern. Areas of Low Equity Concern have more bike lanes, more buffered bike lanes, and more shared use paths compared with High Equity Concern Areas. While High Equity Concern areas have 19% more protected bikeways, fewer than four miles of protected bikeways exist in the City today.

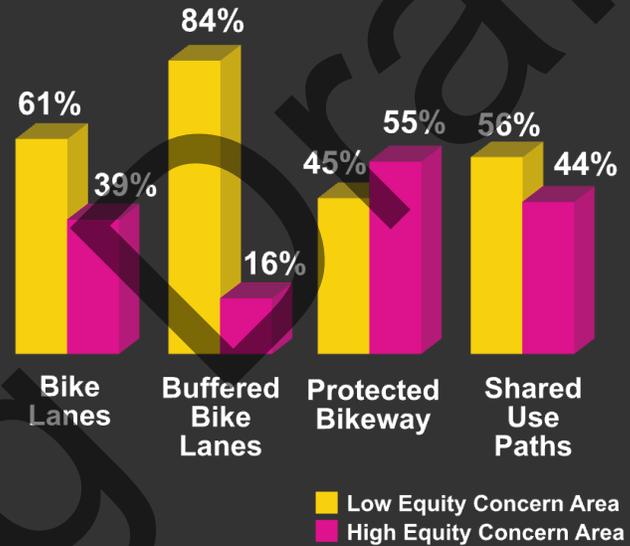
Furthermore, the financial burden of owning a car is a major barrier for many households to fully participate in the same social and economic opportunities as those who own a car. Those living without a car have greater need to access destinations by alternative means including by bike, the most affordable form of transportation besides walking. These populations may even take greater risks and bike on high stress roadways to access destinations despite feeling uncomfortable or unsafe, as it may be their only viable option. Today, those living in poverty or without access to a vehicle have limited connectivity to key destinations within a 15-minute bike ride:

- 85% of those living below the poverty level cannot access a health center within 15 minutes of biking.
- 34% of those without access to a car cannot reach a grocery store within 15 minutes of biking.
- 22% of those without access to a car cannot reach a K-12 school within 15 minutes of biking.

65%

More bike infrastructure investment in **Low Equity Concern Areas** historically

Historical Bike Infrastructure Investments



People living in areas of High Equity Concern experience

113%

more bike and pedestrian crashes than areas of Low Equity Concern.

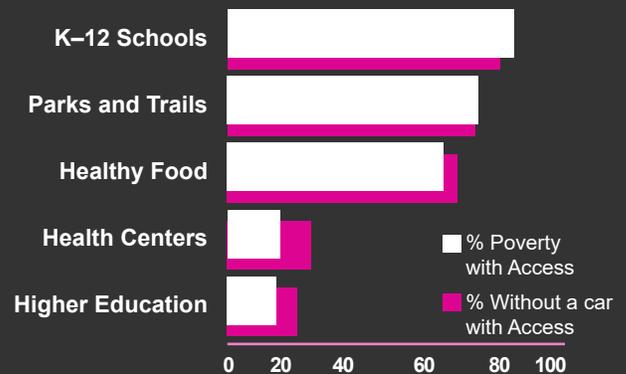
% of Total Bike and Pedestrian Crashes

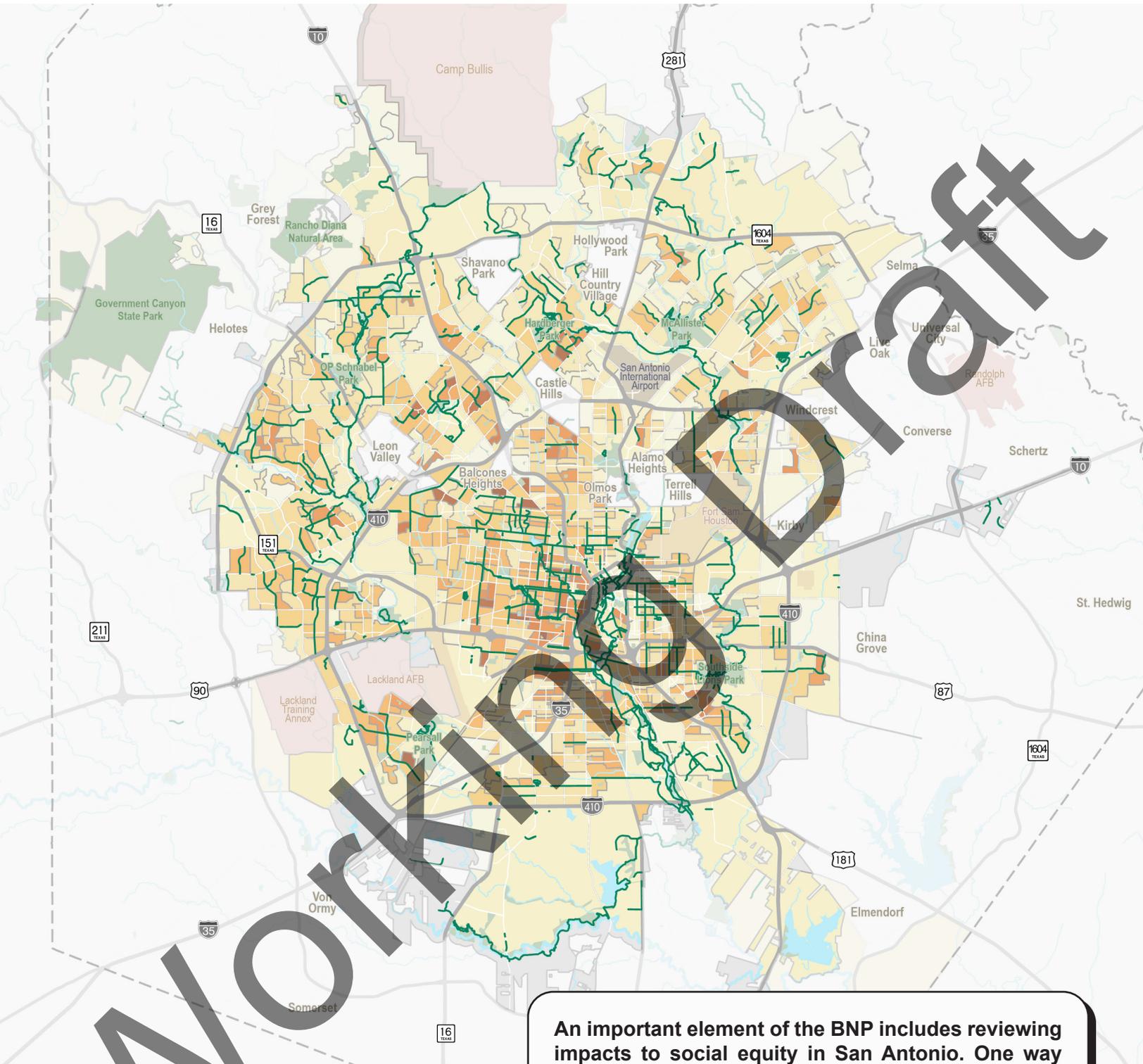
% of Bike and Pedestrian Serious Injuries

% of Bike and Pedestrian Fatalities

	Areas of High Equity Concern	Areas of Low Equity Concern
% of Total Bike and Pedestrian Crashes	47%	13%
% of Bike and Pedestrian Serious Injuries	47%	14%
% of Bike and Pedestrian Fatalities	44%	15%

Destinations accessible via 15-minute bike ride





Bike Equity Index Today

- Existing Low Stress Bike Facilities
- Lower Bike Equity Concerns
- Higher Bike Equity Concerns
- Bexar County Line
- City of San Antonio
- Park or Recreation Area
- Military Installation
- San Antonio International Airport

0 2 4 Miles
 Source: City of San Antonio (2023), TXDOT (2023)

An important element of the BNP includes reviewing impacts to social equity in San Antonio. One way to do this is through a Bike Equity Index. This index estimates how equitable an existing bicycle network is by overlaying Census data with existing bicycle infrastructure to identify areas with high socioeconomic need and limited access to high-quality bicycle infrastructure. This map shows the equity concerns around bike infrastructure today. Impacts that future bikeways will have to this index are discussed later in the plan.

How Safe is San Antonio's Bike Network?

Nationwide Crash Statistics

Nationwide, pedestrian and bike user fatalities are on the rise, and they continue to comprise larger proportions of the nation's annual traffic fatalities. The following sections introduce trends in transportation safety that have occurred in San Antonio from 2017 to 2022 and compare those trends to what is happening in peer cities throughout the nation. Understanding these larger trends helps to identify the critical factors impacting transportation safety that need to be addressed.

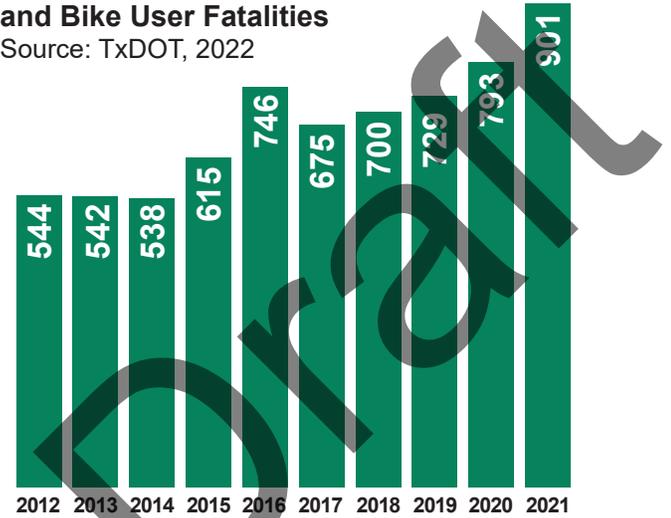
San Antonio has historically had significantly fewer crashes than Phoenix, but far more than Charlotte and San Diego. When compared to total population, however, San Antonio's pedestrian and bicycle fatality rates per 100,000 population are in between Austin and Dallas.

Fatal and Severe Injury Crashes

Of the 5,486 pedestrian and bike user crashes from 2018 - 2022, there were **331 fatal injury crashes and 580 serious injury crashes**. This means that on average, 160 people walking and 22 people bicycling have been seriously or fatally injured in a crash each year. In recent years, the number of these crashes have been trending upward, with more than 175 fatalities in 2022. From 2020 to 2022 fatal and serious injury bicycle crashes increased by 127%.

Statewide Pedestrian and Bike User Fatalities

Source: TxDOT, 2022

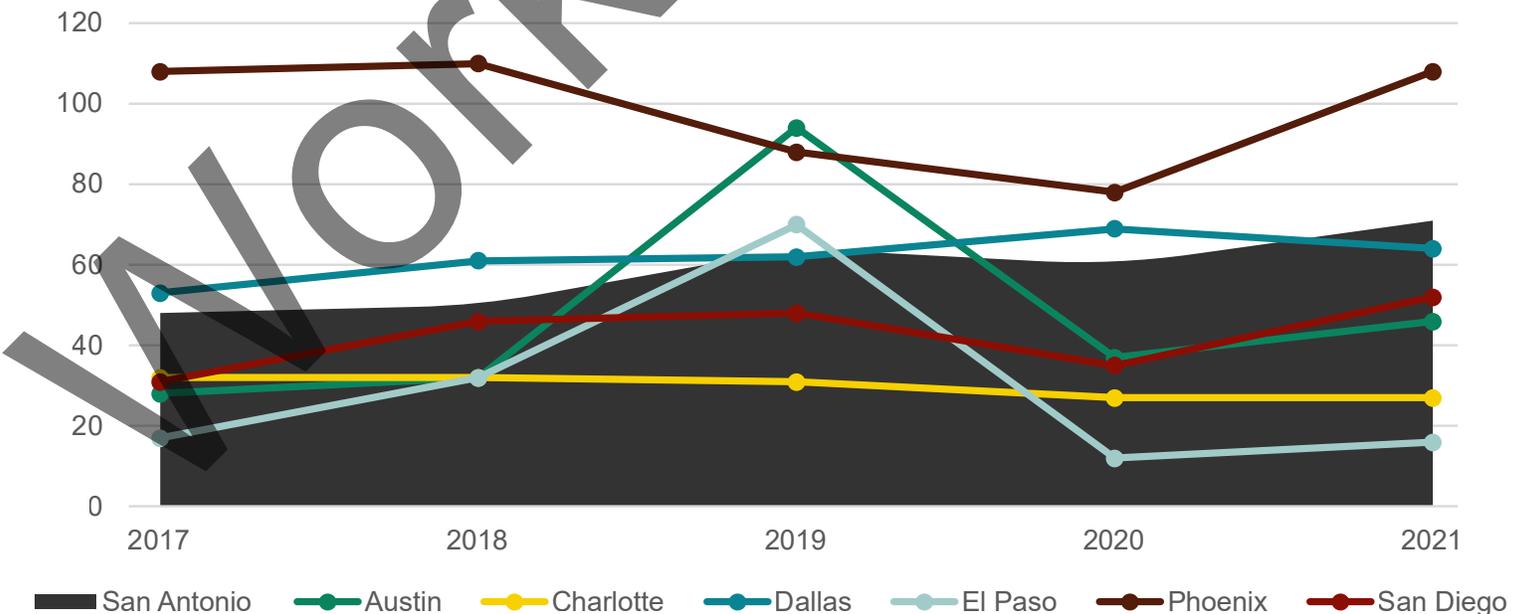


Pedestrian and Bicycle Fatalities Per 100,000 Population (2017-2021)

Source: Fatality Analysis Reporting System (FARS) 2023

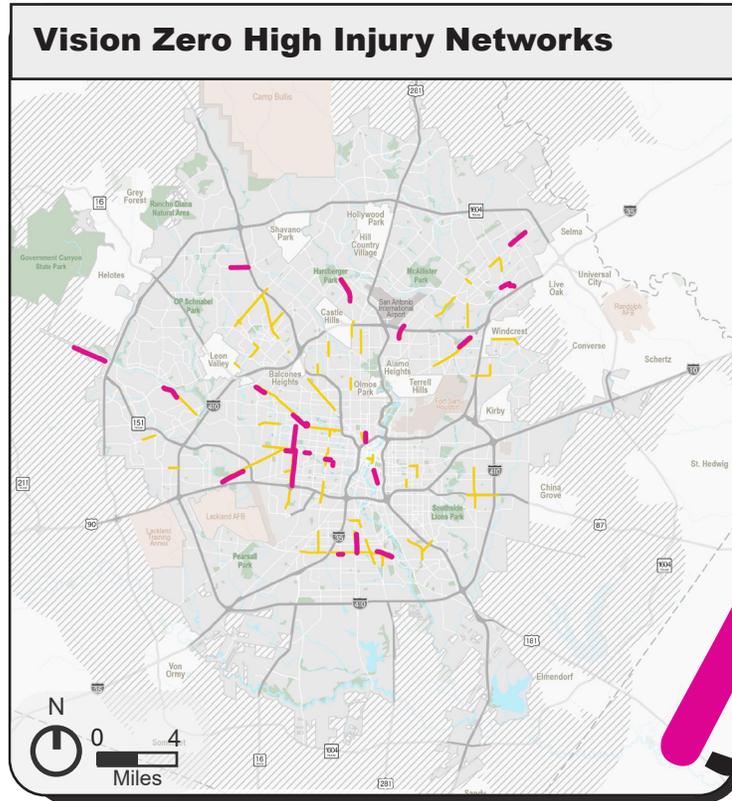
Phoenix	6.6
Dallas	5.5
San Antonio	4.9
Austin	4.8
San Diego	3.8
Charlotte	3.1
El Paso	2.4

Peer City Pedestrian and Bicycle Fatalities (2017 - 2022)



Source: Fatality Analysis Reporting System (FARS) 2023

Vision Zero San Antonio and the Bike HIN



- Pedestrian HIN
- Bicycle HIN
- Bexar County Line
- City of San Antonio
- Park or Recreation Area
- Military Installation
- San Antonio International Airport



The Bicycle High Injury Network has a crash concentration that is **44.4x** higher than the average San Antonio roadway.

Bike Infrastructure and Vision Zero

Vision Zero is a strategy cities can use to eliminate all traffic fatalities and serious injuries while simultaneously promoting equitable and safe mobility for all residents. San Antonio adopted its goal of zero traffic fatalities or serious injuries in 2015. The city's updated Vision Zero Action Plan, adopted in 2024, provides a framework that will assist in continuing to work towards this goal. The plan contains analysis of existing roadway and demographic conditions, and sets forth both recommended roadway projects and policy updates.

During crash analysis, the team developed High Injury Networks based on crash severity and frequency along corridors. High Injury Networks are roadways that experience disproportionately high numbers of crashes, or disproportionately severe crashes compared to other roadways. High Injury Networks were created for crashes of all modes, bicycle-involved crashes only, and pedestrian-involved crashes only. Both the Bicycle High Injury Network and the Pedestrian High Injury Network are shown above.

The Pedestrian High Injury Network has a crash concentration of 15.5 times higher than the average roadway in San Antonio, with about 53% of pedestrian crashes occurring on less than 1% of the network. Most concerning was the Bicycle High Injury Network, with a crash concentration of 44.4 times higher than the average. The data showed that about 45% of all bike user-involved crashes occurred on only .2% of the network.

Roadways on the BHIN, such as Callaghan, Commerce, Blanco, St. Mary's, and Military, are included in the BNP as Tier 1 projects. Paying close attention to this data is extremely important when implementing new bike infrastructure. Bike infrastructure implemented on San Antonio's roadways has to do more than just check a box - the city has an opportunity to make these streets safer for not only bike users, but all road users. For BHIN streets especially, bike infrastructure could save lives.

2



Community

San Antonio's Riding Community

The BNP is a plan for everyone, regardless of their knowledge and experience level, trip purpose, age, gender, background, or other factors. Understanding who is riding, why they are riding, and the user experience helps identify gaps and needs in the network. The Bike Network Plan examines facility needs to accommodate all user types and levels of comfort. Generally, people who walk and bike in San Antonio can be categorized into the following "rider types", recognizing many fit into multiple categories. **The goal of the rider types is to ensure that COSA plans and implements bikeways that feel comfortable for everyone and can accommodate many different users.**

1



Sports & Fitness
People who bike for sport, generally at higher speeds and longer distances.

2



Tourists
Visitors who choose to bike or walk and who may do so at home.

3



Commuters
People who walk or bike to work or school, including working bike users.

4



Kids & Families
Parents and children who walk or bike, often to parks and schools.

5



Recreational
People who walk or ride for fun, generally on the trail network.

6



Riders with Disabilities
People who use assistive devices.

7



Road Enthusiasts
People who prefer to bike in the street in mixed traffic.

8



Utilitarian
People who walk or bike for everyday errands.

9



On Small Wheels
People who use scooters, skateboards, or other small devices.



How Community Input is Applied to the Plan

Community input, feedback, and guidance is the heart of the BNP because San Antonians already know how they want to ride. Every piece of input received found its way into the BNP in some form, with quantifiable data supporting the BNP's tiered scoring of projects, drawn routes guiding the creation of new routes across the City, and suggestions around design informing what types of bike facilities are recommended on what roads and in what context. The BNP's goal is to see the community's vision become a reality and for San Antonians to see a reflection of themselves in this work. The City received more than 3,000 BNP survey responses, engaged more than 100 persons at major events, and hosted nearly 20 advisory body meetings, but this is only the beginning. Community engagement will be essential in making the BNP vision a reality.

Community Input

In survey 2 and at the BNP's open houses, San Antonians were asked which bike facilities made them feel safest and most excited to ride. Their responses guided the designs of bike facilities and their applicability to certain roadway types.

At every stage of engagement for both the public and stakeholders, the BNP gave respondents the opportunity to note where bike facilities are most needed. Their input was central to the BNP's network prioritization method.

At the BNP's open houses, San Antonians were asked what policies relating to the bike network's use and implementation they would want to see changed. Their responses underpin every policy recommendation in the plan.

Facility Design

Network Routing

Policy Changes

Engagement Structure

The BNP community engagement process was designed to learn from and understand San Antonians' mobility concerns, needs, and preferences. By evaluating San Antonio's transportation system through public and stakeholder feedback, the plan provides an equitable framework to guide, prioritize, and implement a high quality bicycle network and associated facilities. Community feedback has been considered at every step in developing the final BNP product: a comprehensive strategy for making San Antonio a safe place to ride regardless of age or ability. The BNP engagement process was broken up into three phases:

1

Phase 1: What are the Issues and Opportunities with Biking in San Antonio Today?

The goal of this phase was to establish the existing conditions, vision, and goals for the plan by focusing on lived experiences from the public and stakeholders regarding current transportation systems. It would share and ground-truth the Project Team's existing conditions assessment which was completed alongside Phase 1.

2

Phase 2: What Can Be Done?

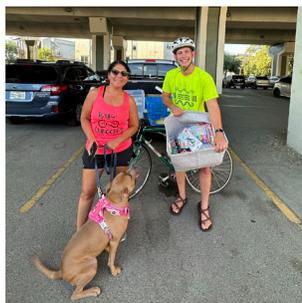
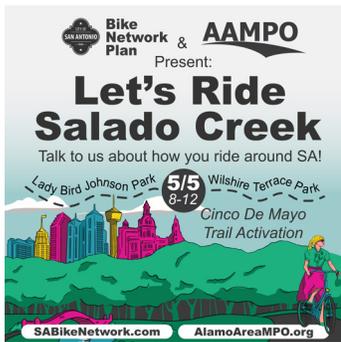
The goal of this phase was to use the needs and ideas expressed during Phase 1 and the Existing Conditions analysis to share and facilitate discussion on the range of infrastructure solutions available to create a bicycle network. Feedback on preferences and possibilities for the network helped inform future phases of the project, including the design of potential new bike facilities and the prioritized implementation plan. This phase included educational materials on the process of bike planning as well as the types of cycling facilities that could be constructed.

3

Phase 3: Is the Plan on the Right Path?

The team planned this phase to begin with educational engagement regarding bike infrastructure typologies, recommended bike network, and project phasing. The team would then work with the community to identify criteria to rank the alternatives identified to ensure the final Bike Network Plan meets community goals and needs. Engagement in this phase was intended to inform the development and evaluation of the phased improvement plan, focusing on the identification of projects, gauging community buy-in, and incorporating feedback into the project prioritization methodology.

Tools and Strategies



Online Survey & Mapping Tools

An online survey was developed in each phase to gain insight into the walking and biking needs of San Antonio residents, visitors, and employers. Surveys were made available online and in-person on electronic tablets at all outreach events. The northern and central portions of San Antonio garnered a higher number of comments.

Event Participation

The team attended numerous community events to connect with San Antonio's cycling community. The BNP Team had a presence at both Siclovia 2023 and Siclovia 2024. The team also attended SATX Tuesday Night Social Ride, Fiesta Bike Parade, Camino Verde, and "Let's Ride SA" Trail Activations, which encouraged people to ride on different greenway sections. The team put on sidewalk and pop-up events in popular areas.

Website & Online Engagement

The City developed a BNP website to host important project information and each phase's survey. This website contains a link to the city's website, and it serves as the main tool to disseminate information to the public. Online comment forms were made available throughout the project's duration, and virtual story maps were utilized to share information in an easy to view format. As the plan progressed, reports and updates were published to keep the public updated on how the BNP was moving forward. At the completion of the plan, the website will contain all finalized reports and maps that make up the BNP.

Community-Based Engagement

The team hosted 41 Pop-Up Information booths across the city with at least two events per council district. Two open house meetings were held in Districts 3 and 9 with interactive activities designed to identify priority improvements. Participants were able to indicate on maps which roadways they believed were safe or unsafe or which roadways need bike infrastructure the most. Prizes included project branded bike tools, shirts, water bottles, bells, lights with batteries, reflectors, pens, and fanny packs.



Stakeholder Engagement: Advisory Committees

Advisory committees were developed to ensure that diverse perspectives and specific types of expertise significantly influenced the BNP. Regular meetings with public health specialists, neighborhood associations, implementation agencies, and others provided opportunity for review and comment from people with important perspectives that may not be represented on the project team.

Internal Advisory Committee (IAC):



Expert staff from various City departments assisted the BNP team by providing responsibility area guidance, reviewing reports, and championing the goals and objectives of the study within their offices. **This committee held four meetings** sharing their expertise on City policy and implementation.

Mobility Working Group (MWG):



Community leaders provided input on their needs and visions, help to get the word out about the project, gather additional input from their affinity group, and suggest engagement activities that will be effective in their communities. **This group held four meetings** lifting up voices from the community.

Technical Advisory Committee (TAC):



Technical staff from agencies like Bexar County and VIA reviewed and provided input from their agency perspective for planning analysis and implementation recommendations. **This committee held four meetings** sharing recommendations and goals of each agency.

Health Impact Assessment Committee (HIAC):



San Antonio Health Experts advised on BNP HIA by providing data, identifying desired outcomes and metrics, offering opportunities for collaboration and assisting in evaluation. **This committee held three meetings** guiding the measures of the BNP's Health Impact.

Stakeholder Engagement: Partner Roundtables

The project team hosted five workshop roundtable meetings for various partners and groups to gather feedback on the bike facilities guidance and recommended network from organizations that will be implementing new bike facilities or partnering on future projects including developers, school districts, partner municipalities, universities, and representatives of the disability advocacy community.

Developers

As developers are most impacted by changes to the City's UDC, the BNP team met with them specifically to review the recommended network and proposed designs. Their expertise guided how new facilities will look in San Antonio and sets the stage for new designs to be incorporated into the UDC.

Independent School Districts

Students are prime candidates for bike commuting to school, but because of San Antonio's roadway designs, very few do it. To plan how to get students out of cars and onto bikes and addressing conflicts like parking in bike lanes around schools, the BNP met with representatives from San Antonio Independent School District.

Colleges and Universities

College students around San Antonio are already relatively frequent bike users, and making sure they can get on, around, and off campus safely is essential. The BNP met with representatives of Trinity University, University of Incarnate Word, and San Antonio College (SAC).

Accessibility Organizations

Too often, bike facilities are planned with only the "traditional bike user" in mind, but the BNP is planning a bike network for everyone to use, especially those of different abilities. Representatives from disABILITYsa and Operation Comfort met with the BNP team to discuss essential design considerations for ADA compliance.

Partner Cities

Representatives from the cities of Leon Valley, Schertz, Shavano Park, Balcones Heights, Live Oak, Alamo Heights, and Windcrest convened with City of San Antonio staff to discuss the bike facilities they are currently implementing, their plans for the future, and their preferred bike network. The BNP team and partner city representatives worked for two hours to refine the bike networks through their municipalities, ensuring future bike facility connectivity for San Antonians and transforming the BNP from a City of San Antonio document into a regional guide for bike-friendly transformation.



Engagement Findings

The City received over 3,000 BNP survey responses. We encourage you to dive into them in our Community Engagement Report. These quotes below are just a few representative responses:

“

I would LOVE to see a north-south bike route connecting Southtown to the Pearl, as well as some east-west routes through downtown (Maybe Houston Street from VIA Centro Plaza to the HEB on 415 N New Braunfels Ave. or Market St. or Commerce St. or maybe Cesar Chavez Blvd. connecting UTSA, the HEB on Flores, Hemisphere, and Alamo Dome.”

”

“

“We don't bike here because it's so unsafe for us with young kids. I would maybe bike a little on the streets if it were just me without kids, but even that would be infrequent. Parks and trails are the only places we take the bikes out a few times a year.”

”

“

My experience with bike lanes have been less pleasant as they are typically covered in glass, loose rocks, branches, parked cars, etc. It seems all of the debris from the road ends up on the bike lane which make them difficult to use.

”

“

I'd rather drive to a greenway trail and get there safely than ride my bike to a greenway trail. I don't always feel safe when riding on a designated bike lane if it's on a busy street. I recently rode my bike in downtown Austin, TX and felt extremely safe due to the barrier their protected bike lanes provide. I wish I had that same level of comfort in San Antonio so I could experience the same level of enjoyment in my own city.

”

“

If I'm riding by myself, I feel safest on a trail or on a quiet street. If I'm with a more experienced rider, I'll go on busier streets if necessary. Fredericksburg Road is completely terrifying and unsafe. The trails are a great amenity, but are mostly recreational for me. They don't take me places I need to go. I live near downtown, and have identified streets that feel safest to go to various places.

”





1 in 4

people reported their biggest frustration or concern getting around San Antonio today is the **lack of safe connections** or **inadequate connectivity**.



20 minutes

Given safe and comfortable connections and facilities, **1 in 4 people** indicated a willingness to walk **more than 20 minutes** to commute or get to a place of business.

1 in 2

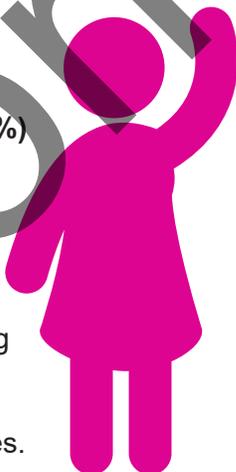
(51%) indicated they'd like to bike for **fun or utilitarian trips**, or use an e-bike.



ADA



Women were more likely to identify improved lighting (55%) and ADA accessibility (54%) as priorities than men. Men were more likely to identify enhanced facilities with separation or expanding and connecting bike routes (54% and 55%, respectively) as priorities.



45%

of people who indicated that they **do not bike** and do not want to bike were **55 years of age or older**.

2/3

of people who indicated that they do not bike but are **interested** were **between 25 and 44 years old**.



Phase 1 Engagement Findings

People experience San Antonio as car-oriented today:

- Driving is the primary mode of getting around the city, and it is very difficult to get around without a car.
- Many respondents who reported driving every day indicated that they would like to utilize other modes of transportation in addition to driving.

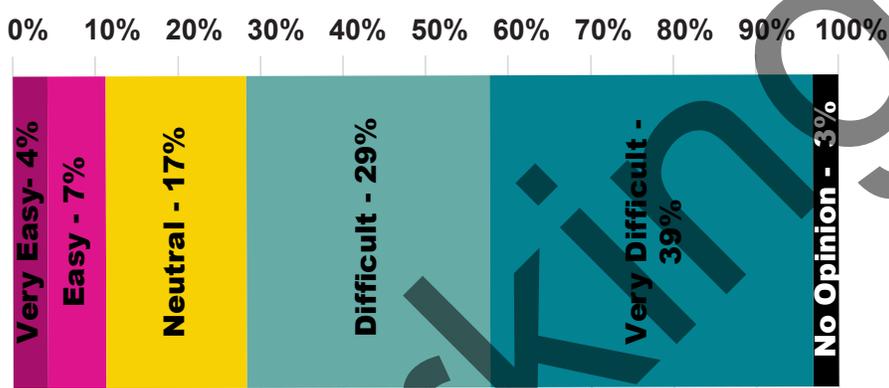
Facility type matters:

- 1 in 2 people indicated that they are most comfortable biking on facilities that are fully separated from cars - creating enhanced, separated facilities was a high priority improvement for respondents.

Connections:

- 25% of respondents said they were frustrated with the lack of safe multimodal connections: 1 in 4 people indicated willingness to walk more than 20 minutes to a destination if given safe connections.
- One quarter of people use trails as a means of transportation to connect to other destinations.

San Antonio residents have a clear desire to get around using modes other than driving. Safe and comfortable facilities will help make this happen!



Based on your experience, how easy is it to get around San Antonio without a car?

Generally, survey respondents indicated that it is a challenge to navigate the city without access to a vehicle. Approximately 7 out of 10 respondents indicated that it is very difficult or difficult for them to get around San Antonio without a car, compared to 1 in 10 (11%) who indicated it is easy or very easy to get around the city without a car.

If it were safe, comfortable, and not too far, which types of places would you walk or bike to?

While there is some differentiation with parks and community centers as a top destination type (83%), people indicated a similar willingness to walk or bike to restaurants or bars. Seeing friends and family, utilitarian trips like to schools and libraries, shopping, and commuting to work were also frequently mentioned.



Phase 2 Engagement Findings

Respondents prefer bike infrastructure in lower-traffic areas:

- Many indicated that they would prefer to detour or ride on an off-street facility over a shorter ride on a busier street. They would feel safest in residential areas that have less traffic and slower speeds.

Protected bike infrastructure is perceived as safest:

- Jersey barriers, planters, and curbs were all suitable safety implementations, and curb-level (elevated) bike lanes were also considered safer.
- Although considered less attractive than protected lanes, lanes protected with flex posts, painted lanes, and buffered lanes were not considered unpleasant by respondents.

San Antonio residents prefer bike infrastructure that is protected from vehicular traffic.

Which of these two bike lanes would you feel more comfortable riding on?

Residents expressed a strong desire for access to both on and off street bike facilities. There is not a clear preference for either facility type, and a very small percentage preferred neither facility.

However, when it comes to on-street bike lanes, respondents do seem to prefer bike lanes elevated to curb level rather than lanes located at street level due to safety concerns.

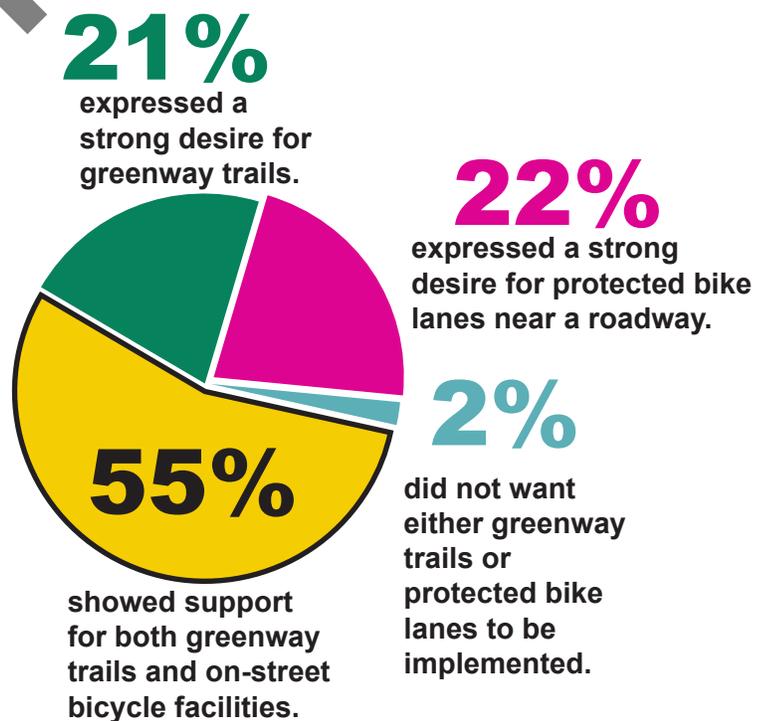
Respondents consider shared use paths bike lanes with rigid barriers, and elevated bike lanes to be safest, followed by lanes protected by parking, flex posts, or bumps. Buffered bike lanes and traditional bike scored the lowest in terms of safety.



Greenway Trail



Protected Bike Lane Near a Street



Phase 3 Engagement Findings

Respondents want bike infrastructure:

- Streets on which respondents indicated that bike infrastructure was desired received between 6 and 61 comments in support. In contrast, the street with the most comments in opposition only had 6.

Larger roadways are a priority:

- Higher traffic roadways like Huebner, Blanco, Bandera, and Culebra Road all garnered over 25 responses in favor of bike infrastructure.
- Many preferred roadways closer to the edges of the city as well, indicating the desire for bike infrastructure throughout all of San Antonio, not just areas of higher density.

Policy updates are needed:

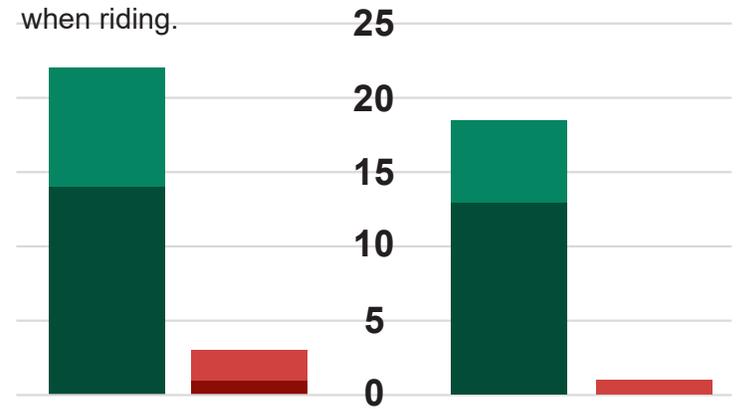
- Respondents believe riding on sidewalks should be legalized, and that the process for lowering neighborhood speed limits should be made easier

Bike Infrastructure Support



Respondents at open houses 1 and 2 were asked if they were **supportive** or **against** the following possible policy changes.

Both policies received numerous responses in support, and very few responses against. The results show that San Antonians prioritize a safe environment when riding.

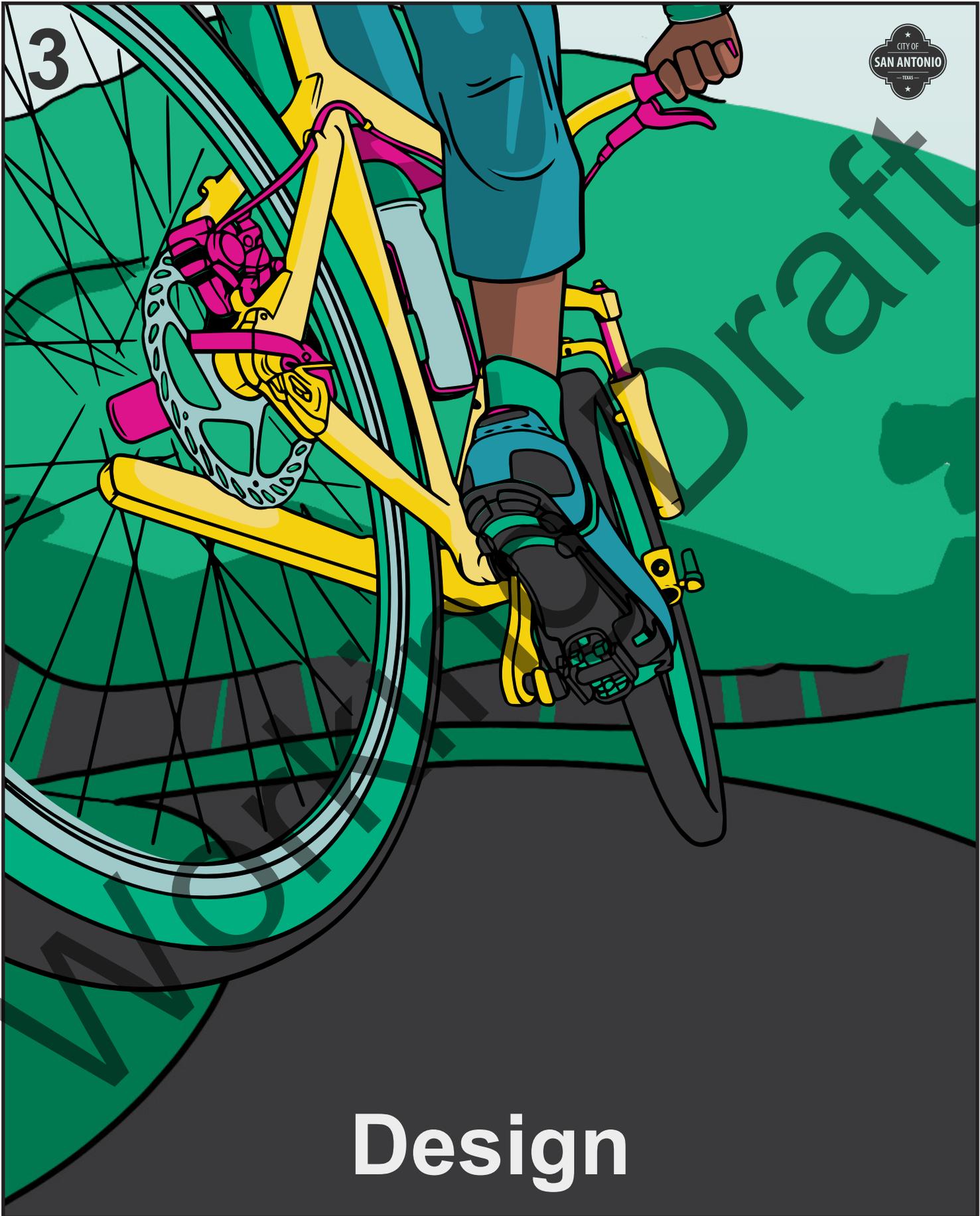


Should riding on sidewalks be allowed, since riding on shared-use paths is?

Should the city require an easier process for lowering speed limits on neighborhood streets?

During Phase 3, respondents were asked which roadways they wanted to see bike infrastructure on.

Higher-traffic, larger roadways tended to score higher during this exercise. More support for bike infrastructure on these roadways shows that San Antonians want bike connections to the numerous destinations that are along them.



Bike Facility Guidelines

Bike facilities both along roadways and at intersections are not one size fits all. Every bike facility's design should be approached flexibly, adapting to a variety and combination of factors, such as roadway function, average annual daily traffic (AADT), number of lanes, and surrounding land use. Safety is the most essential consideration in designing bike facilities; some designs are only useful in certain cases and special care must be taken to avoid putting bike users into dangerous circumstances. For each combination of street context and functional classification, the Bike Design Guidelines appendix contains a one-page bike facility selection sheet that describes the desired key street characteristics, and provides guidance to choose an appropriate bike facility.

Determining what bike facility options are safe in what context is a four-part process.

Step 1: Determine the land use context



Step 2: Determine the roadway function

Roadways in San Antonio are listed as many different functional types, with arterials carrying the most motor vehicle traffic the most directly and local streets serving few destinations.



Step 3: Additional Considerations

The listed function of the road does not always determine what it's like on the ground. The BNP filters bike facilities based on observable roadway attributes.



Step 4: Appropriate Bike Facilities

Based on the steps above, bike facilities that are appropriate in that context are provided to planners and designers for implementation.



What is a Quick-Build & How does San Antonio Build Now?

A “Quick-Build” is an infrastructure implementation process wherein the City both designs and constructs new bike improvements rapidly and, often, at a lower cost.^F In comparison to normal construction or “full-builds,” this typically means using temporary or semi-permanent materials and expediting the design process, sometimes using field engineering practices. Through the BNP, the City won a 2024 Safe Streets and Roads for All grant to integrate this process into the entire City’s project practices, aiming to make immediate improvements to street safety and accessibility while allowing for flexibility and future adaptation. A quick-build is not a one-size fits all method to deliver projects faster and has some key constraints.

Quick-Builds:

Different cities use the quick-build process differently. In Austin, quick-builds are a field engineering process which could deploy any type of material. For the purpose of this plan, a quick-build is defined broadly as the rapid deployment of flexible infrastructure, requiring little engineering review. These can be used to test, refine, and provide immediate safety improvements in advance or separate from a larger project. It also involves extensive community engagement and close monitoring to see how the facility is being used and check for maintenance issues. However, this means that quick-builds may not provide the same level of safety as a full-build project and may require more frequent maintenance. While quicker to deploy and often lower cost, they still may take weeks to months to put in place and cost a significant amount. The City hopes to use quick-builds for interim safety improvements at intersections and along bikeways.



A quick-build type protected bike lane project on Ocean Ave. in Santa Monica, CA.

Full-Builds:

The City of San Antonio currently has several project delivery methods from rolling maintenance through its infrastructure maintenance program to the deployment of new major projects through its 5-year bond cycle. Both have the opportunity to implement new bike infrastructure. Bond projects in particular can have a remarkable impact on bike connectivity, but require comprehensive planning, significant financial investment, and longer construction times.

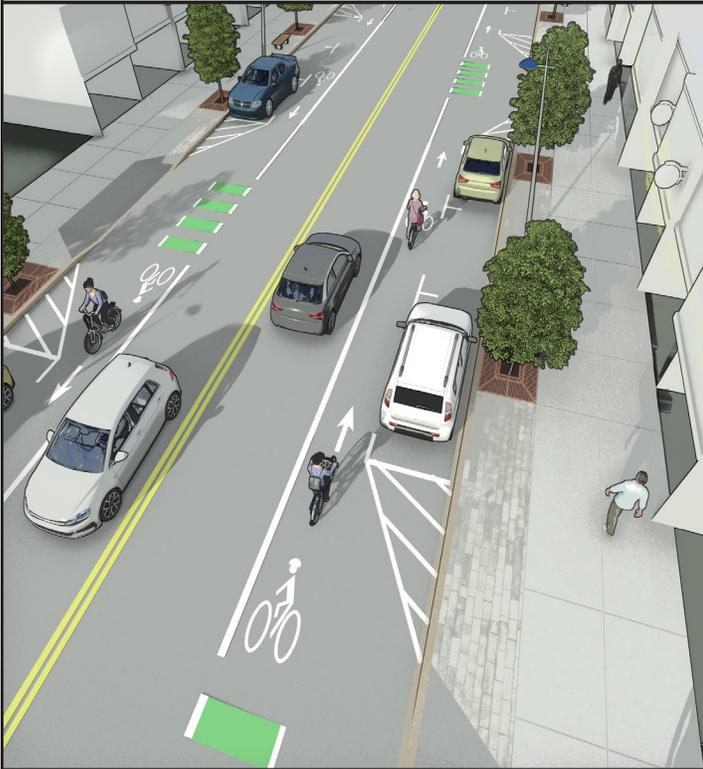
These “full-builds” are suited for long-term urban planning goals and provide robust facilities that can withstand heavy usage over time. These projects usually involve high quality materials like concrete, steel, and permanent landscaping, resulting in durable and aesthetically pleasing infrastructure. These improvements may be more costly, but can produce high quality results.



A full-build protected raised bike lane on Main Street in Downtown San Antonio.

^F To read more about Quick-Builds and the City’s cost estimation process, review Appendix F

 **Striped Bike Lanes**



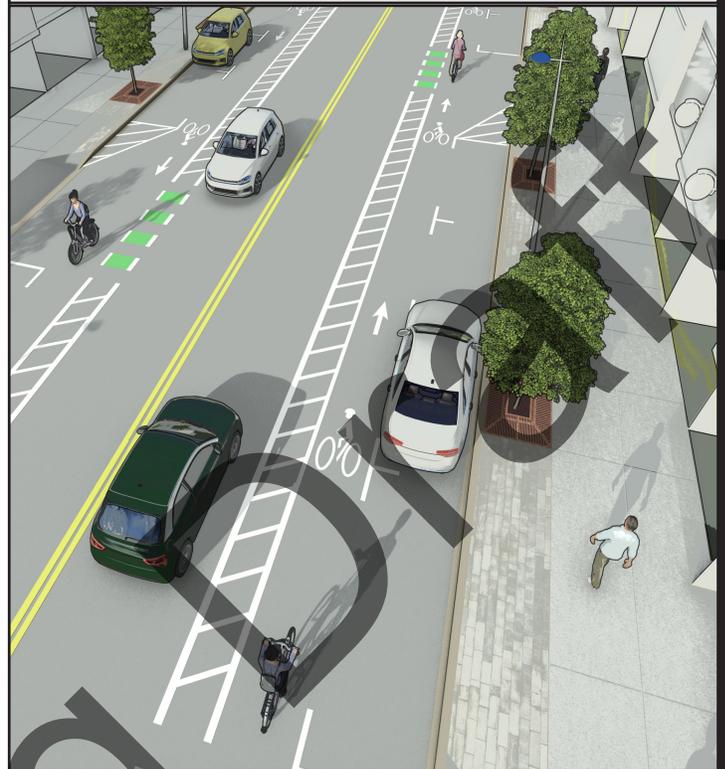
Striped bike lanes designate exclusive space for people biking through the use of pavement markings and are typically appropriate on streets with speeds of 30 MPH or less. Bike lanes are intended for one-way travel and are typically provided on both sides of two-way streets, and on one side of one-way streets. Conventional bike lanes may vary in width. In some cases, contraflow bike lanes may be provided to support access on one-way streets. Bike lanes are typically on the right side of the street, between the outside travel lane and curb, parking lane, or road edge. While the bike lane distinguishes predictable areas for bike user and automobile movement, bike users may leave the bikeway to pass other bike users or avoid debris and other traffic conflicts.

100-ft Quick-Build Total | 100-ft Full-Build Total
\$12,111 | \$32,421

Potential Percentage
 Cost Reduction to Quick
 Build from Full Build:

63%

 **Buffered Bike Lanes**



Buffered bike lanes provide additional horizontal separation between the bike lanes, travel lanes, or parking lanes, increasing comfort and separation for people biking. Buffered bike lanes are preferred along streets with higher volumes and speeds, where conventional bike lanes may not adequately enhance comfort and safety for people biking. Buffers provide a greater space for bicycling without making the bike lane appear overly wide, which could attract unintended motor vehicle use for driving or parking.

100-ft Quick-Build Total | 100-ft Full-Build Total
\$22,111 | \$43,021

Potential Percentage
 Cost Reduction to Quick
 Build from Full Build:

49%

 **Bike Boulevards**



Bike Boulevards, also known as Bicycle Boulevards, Neighborhood Greenways, or Neighborhood Bike Routes, are typically traffic calmed residential streets with low vehicle volumes and low speeds where motor vehicles and bicycles share the road space. Bike Boulevards use pavement markings, signs, and traffic calming elements to enhance safety and comfort for people on bicycles.

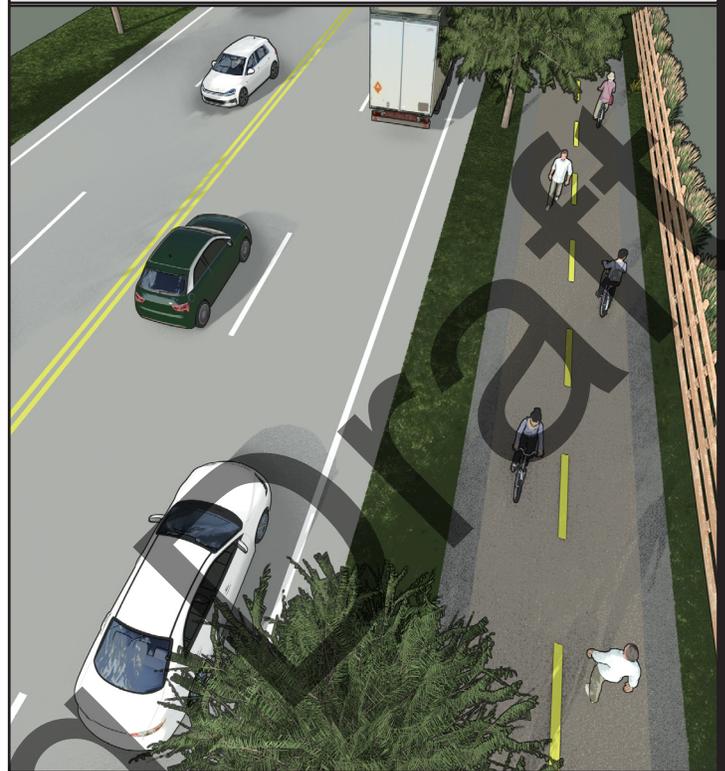
Bike Boulevards are only appropriate on streets with low speeds (preferably 20-25 MPH) and vehicular volumes (preferably 3,000 vehicles per day or less). If speeds and volumes are higher than that, traffic calming or other treatments should be applied to create the appropriate environment. Bike Boulevards aim to optimize through-travel for people biking and include treatments to create low-stress crossings across busy streets.

100-ft Quick-Build Total | 100-ft Full-Build Total
\$15,684 | \$34,077

Potential Percentage
 Cost Reduction to Quick
 Build from Full Build:

54%

 **Shared Use Paths**



Shared use paths are bi-directional paths for nonmotorized uses. They may run fully separate from a road or be directly adjacent to streets as a sidepath. These facilities may include separated lanes for people walking and biking or mix modes together if usage of the pathway is projected to be high or if there are active abutting land uses.

Shared use path design is similar to roadway design. It follows many of the same core design principles but on a different scale and with typically lower design speeds. When considering shared use paths, the competing needs of the corridor should be evaluated to best support adopted City policies and prioritize the most vulnerable users of our roadways. Shared use paths are not appropriate for streets with high pedestrian and bicycle volumes unless separate space can be provided for each mode. Shared use paths require intersection designs that safely accommodate bi-directional bicycle traffic.

Because they require excavation and poured concrete, by the BNP's definition of Quick Build, a Shared Use Path is a full-build-only design.

Protected Bike Lanes

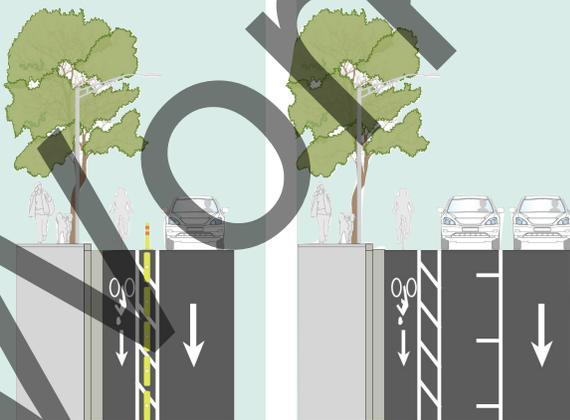
Protected bike lanes, also known as cycle tracks and separated bikeways, incorporate vertical physical separation from motorized traffic, parking lanes, and adjacent walking facilities. This vertical element differentiates protected bike lanes from striped and buffered bike lanes. Protected bike lanes can accommodate one-way or two-way travel, be placed on one or both sides of the street, and may be built at street level, sidewalk level, or somewhere in between. Physical separation varies - below different types of separation are detailed with their unique benefits and costs. Not every protection type fits in every situation, so San Antonians must work with planners and engineers to ensure the design fits the needs of the surrounding area.



Protected Bike Lane Types with their relative cost, perceived safety*, durability to car impacts, and minimum separator width:

Flexible Delineators
such as flexposts, Tuffcurb, parking stops, and armadillo bumps.

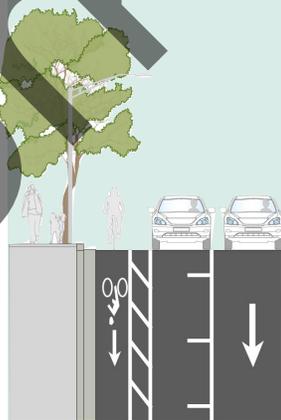
COST: LOW
SAFETY*: MEDIUM
DURABILITY: LOW
MIN. WIDTH: 1.5'-2'



QUICK-BUILD OPTIONS

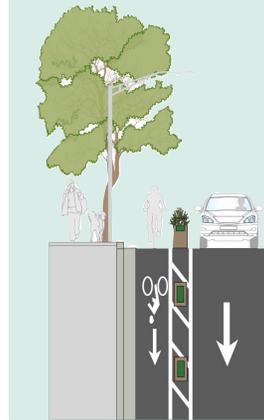
Parked Cars
with a buffer to avoid car doors, but only protective if fully occupied.

COST: LOW
SAFETY*: MEDIUM
DURABILITY: HIGH
MIN. WIDTH: 11'



Planters
provide a strong visual and physical barrier and offer an opportunity for placemaking.

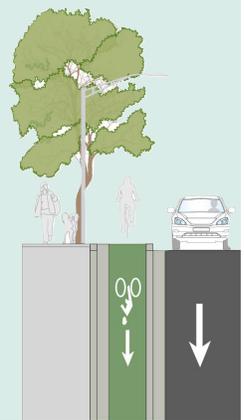
COST: MEDIUM
SAFETY*: HIGH
DURABILITY: LOW
MIN. WIDTH: 4'



FULL-BUILD OPTIONS

Raised Bike Lanes
separate bike users from cars vertically, but are very expensive.

COST: HIGH
SAFETY*: HIGH
DURABILITY: HIGH
MIN. WIDTH: 2'



100-ft Quick-Build Total

\$36,611

100-ft Full-Build Total

\$69,221

Potential Percentage Cost Reduction to Quick Build from Full Build:

48%

How do Bike Facilities Interact with Transit?

Transit and bikeways are complimentary modes of transportation, as biking can provide a great option to cover the “last mile” connection between a transit stop and a final destination. However, without consideration, buses and bikes may compete for curb space.

When bike facilities run along bus routes, especially those with protected bike lanes or shared use paths, the bike facility should be routed behind the bus stops to create a bus island. This treatment limits potential conflicts between people biking and buses. If a shared use path is present, the shared use path is subject to the same design criteria a sidewalk would be behind a bus stop. It is preferred, however, to separate the bikeway and walkway near bus islands to limit potential conflicts and indicate the need to slow down for people biking.

- A1** Bus boarding areas must have a 5 x 8-foot clearance space where boarding and alighting occurs for ramp deployment and have a 4-foot clear pedestrian path.
- A2** Raise the bike lane to sidewalk level throughout the length of the intended bus stop.
- A3** Bike yield lines and/or a crosswalk across the bikeway indicates to people biking to yield to people walking.
- A4** Paint conflict markings through the entire width of the bus stop to indicate to people biking buses may stop there.
- A5** Detectable warning surfaces should be placed at transitions between sidewalks and pedestrian crossings.
- A6** The accessible waiting area is located on the sidewalk. Any transit amenities should be placed on the sidewalk.
- A7** A minimum 4-foot wide buffer should be placed between the curb and the bikeway.

Curbside Bus Islands

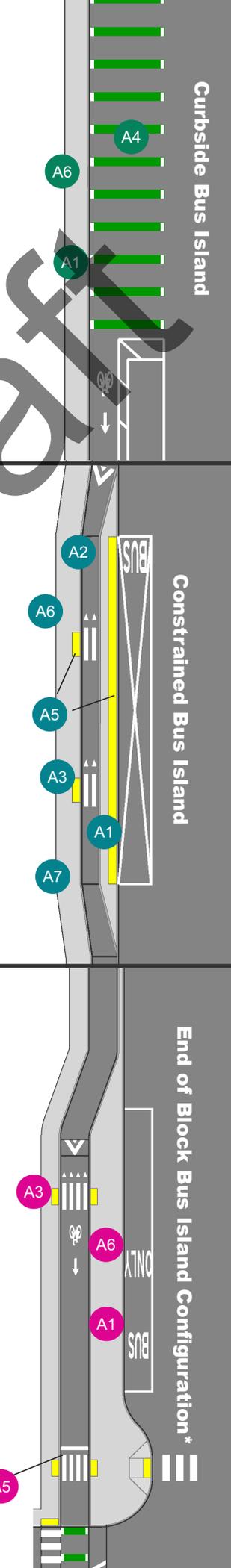
Where bus volumes are low (less than four buses per hour) or other constraints prevent the construction of stops that separate the bus from the bike lane, curbside bus stops are a low-cost option. In these stops, the bus merges into the bike lane, and people biking must either merge into traffic to bypass the bus or wait for the bus to move. In all cases, green conflict markings should be used to indicate the shared area for all users.

Constrained Bus Islands

Where a full bus island cannot be provided due to ROW or other space constraints, it is still desirable to maintain separation between the bike lane and bus stop. In these cases, the bike lane may be raised to sidewalk level and should run along the bus boarding area. When no buses are present, people can bike through the boarding area and people waiting for the bus wait on the sidewalk out of the bikeway. People biking yield during bus loading and unloading. Detectable warning strips may be placed along the edge of the sidewalk where passengers step into the raised boarding area and along the curb where passengers board the bus.

Bus Islands

Protected bikeways require some additional considerations near bus islands. Because people riding the bus must cross the bike lane to get to the bus island, intended crossing locations should be clearly marked using crosswalks and detectable warning surfaces. Yield markings should be used to indicate drivers' need to slow down for people biking. The bikeway may be raised to sidewalk level behind the bus stop to create a level path of travel for people walking and further indicating the need to slow down to people biking. Alternatively, keeping the bikeway at street level provides additional separation between people walking and biking.



Intersection Design Guidelines

What are Intersection Typologies?

Intersection Typologies provide intersection design guidelines for the development of future amendments based on the context of San Antonio's streets and the needs of people biking when they intersect. Furthermore, the Intersection Typologies offer an approach to determine which intersection treatments and solutions are most appropriate based on existing or planned bike facilities, as well as the project's goals and constraints. This process is designed to present a range of treatments and solutions that can be used for intersection retrofits or new builds, and applied to whole intersections or specific legs.

Why Intersection Typologies?

Intersections are critical points of conflict between different road users and represent a particularly challenging and potentially stressful place to navigate for people biking. For the majority of San Antonians, the presence of bike facilities alone may not be sufficient to encourage biking if intersections are not designed to be comfortable for bike users. These users are more likely to choose biking as a mode of transportation if they feel secure navigating intersections, which are frequently perceived as the most intimidating and hazardous parts of a journey.

Intersection Typology Design Guidance:

Intersections are the essential link in connecting a bike network, but only some designs are applicable for certain facilities and contexts. To determine what should be built in each circumstance, the BNP team developed the following three-step process, starting with the bike facility designers seeking to route through the intersection:

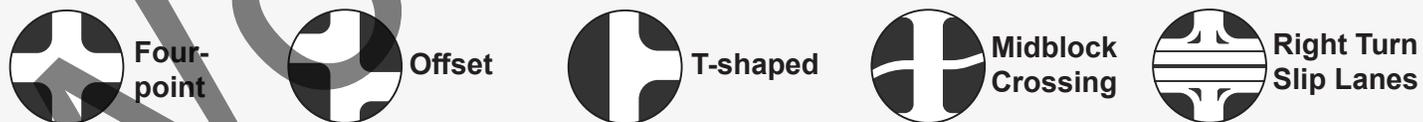
Step 1: Bike Facilities

In improving intersections, designers must determine what facility exists today, if it should be slated for upgrade, and if not, what facility should be built on this roadway.



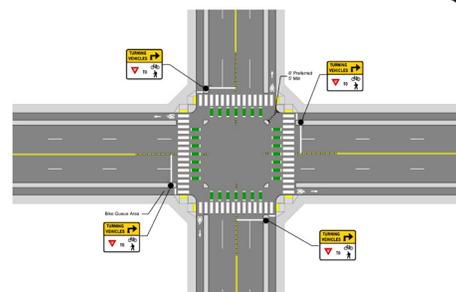
Step 2: Intersection Types

No two intersections in San Antonio are quite the same. Improving intersections is informed by the existing facility's geometry, the types of intersecting roadways, and existing designs for high motor vehicle speeds.



Step 3: Intersection Design Options

For each of these intersection types and adjoining bike facilities, the BNP provides pages to designers detailing key constraints and other essential considerations to get bike users safely through the intersection.



At different intersections, the BNP provides a suite of options. Below, select designs are highlighted to show an ideal intersection design or retrofit for these geometry types.

Four Point Intersection

At protected intersections, which are implementable on protected and buffered bike lanes, bike users are given a dedicated path to traverse, providing physical separation throughout the intersection, where bike users would otherwise be vulnerable when they cross vehicle travel lanes.

Offset Intersection

This Offset intersection treatment is called a "two way cycle track connection" which diverts people biking from either side of the minor street to a single crossing location. This minimizes the cost of crossing treatments and can enable the use of beacons and other crossing signals and treatments that cannot be used in close proximity to each other.

Midblock Crossing

Midblock Crossings have been implemented across San Antonio, but never before with protected bike lanes routed through them. This design adjoins a perpendicular shared use path to a roadway with protected bike lanes, and in the crossing provides bike users with a refuge island.

Right Turn Slip Lane

At right turn slip lanes, bike users come into conflict with drivers turning right very quickly. When the slip lane cannot be removed, the BNP provides the above design for a "Partially Protected Intersection" where the bike lane transitions to a protected intersection treatment in the island next to the slip lane. The bike lane utilizes the raised crossing, which slows down drivers and increases the visibility of people crossing the slip lane.

Other Design Guidelines

Building comfortable bikeways is not just about the bike facility, but about what the bike user experiences along the way - including placemaking elements, wayfinding and signage, green infrastructure, and bike parking at the end of their trip.

Placemaking

Placemaking refers to the process by which public spaces are planned, designed, and managed to create places that reflect and contribute to local culture and identity. This fosters a “character” for an area expressed through design, encouraging social connections, health, and pride and creates vibrant public spaces attract tourism and investment.

S Street Amenities

Outdoor furnishings, including benches, tables, chairs, waste receptacles, planters, water fountains and more, that make circulation welcoming and experiential.

L Lighting

A safe nighttime environment in bike and pedestrian spaces requires proper illumination, which may include street lights, accent lights, bollard lights, path lights and roadway lights. Element brighting and sizing should reflect the space’s use intensity.

T Transit Amenities

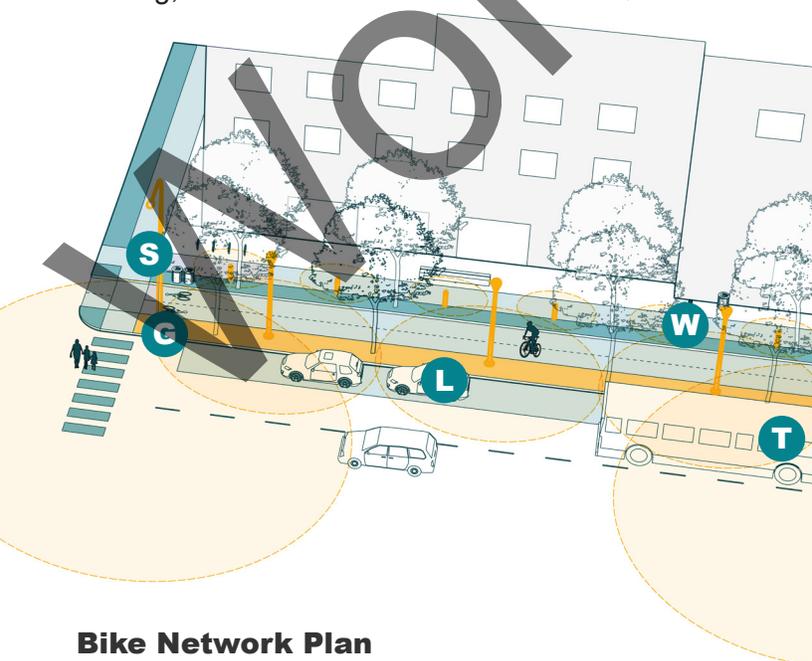
Transit facilities provide comfort for transit users, bike users, and pedestrians. Transit furnishings include bike racks, enhanced bus shelters with digital maps and timetables, trash receptacles, charging stations, transit curbs, ticket vending machines, comfortable seating, and access to Wi-fi.

W Wayfinding + Monumentation

Wayfinding refers to signage elements that provide an overall image of a district, mark entry or exit points, and provide informational cues about directions and destinations. Monumentation indicates the use of significant, often large, and architecturally distinct signs or markers that help guide and orient people within a space. These signs serve as important landmarks and are designed to be highly visible and easily recognizable, often incorporating elements of the surrounding environment or cultural references to enhance their effectiveness.

G Green Spaces

Tree wells, garden beds and planters are used in the pedestrian realm to create green space zones that serve as buffers, create habitats, improve aesthetics and seasonal appeal, and support water quality and stormwater management.



Placemaking on a protected bike lane project in Somerville, MA

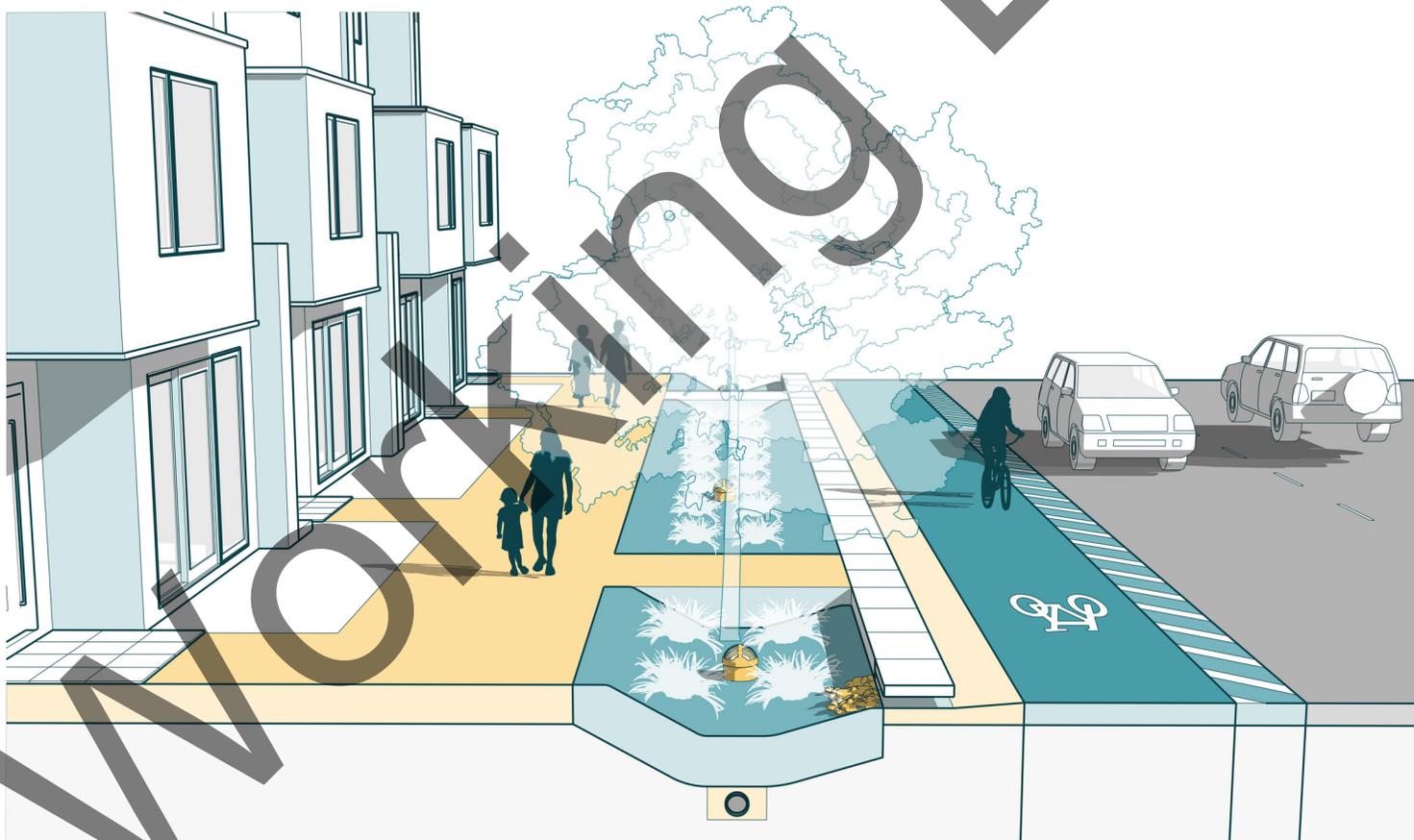
Green Stormwater Infrastructure

Green Stormwater Infrastructure offers San Antonio numerous benefits, including improved flood mitigation by managing stormwater and reducing runoff, which helps prevent damage and recharge the Edwards Aquifer. Already a part of the San Antonio River Authority's guidance - the BNP focuses on the implementation of Green Stormwater Infrastructure in the public right-of-way as a design overlay to bike facilities.

Green Stormwater Infrastructure enhances water quality by filtering pollutants, cuts infrastructure and water treatment costs, and beautifies public spaces while reducing the urban heat island effect. Environmentally, it supports improved air quality and biodiversity, and boosts climate resilience. Additionally, it helps San Antonio meet environmental regulations, fostering a sustainable and resilient urban future. Green Stormwater Infrastructure can be implemented across San Antonio through bioretention planters, stormwater tree pits, and pervious pavements along bike facilities.

The rendering below illustrates how runoff from a bike facility can be directed into bioretention swales through curb cuts, pipes, or trench drains.

Swales are typically shallow (fewer than 24 inches deep). The bottom base area along with the side slopes is considered the infiltration footprint area. The wider the bottom of the base, the more runoff can be detained. These can be placed in the roadway median, as a landscaped buffer for bike users, or in a flex zone separating bike users from pedestrian traffic.



A Bioswale with a pedestrian crossing in Hoboken, NJ



Wayfinding and Bike Signage

Wayfinding helps people navigate from one location to another, using visual cues and information systems. Clear signage and markers help people biking avoid getting lost, minimize travel time, and enhance their overall experience. Good wayfinding systems can also increase bike users' comfort by directing riders to lower-stress routes or to locations where bike facilities are present. While many may be familiar with traditional signage, bike facility signage can be extremely creative and informed by the community around it.

C Confirmation Signage

Confirmation signage indicates to bike users that they are riding along a designated bikeway and alerts people driving to expect higher volumes of bike riders. Confirmation signs can be as simple as stating "Bike Route" or can be a community-branded sign with additional details such as distances to major destinations along the route. Confirmation signs should be placed every 2-3 blocks along a bike boulevard, and especially after turns to confirm to riders they are taking the correct route.

D Decision signs

Decision signs indicate to people biking that there are two or more bikeways that converge or diverge and inform the rider of each route's destination. These signs often include information such as directional arrows and distances to key destinations. Decision signs should be placed on the near side of intersections where two or more bikeways meet.

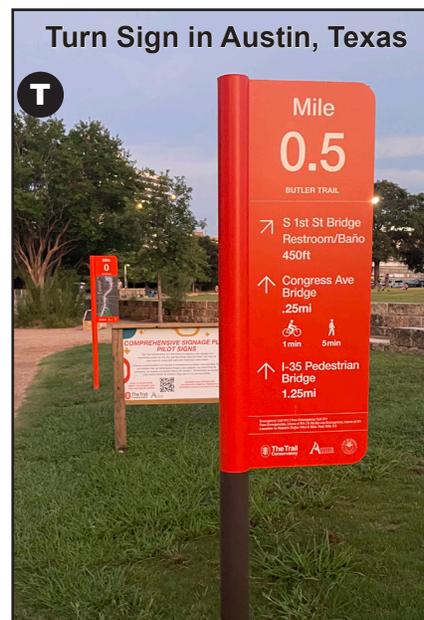
T Turn Signs

Turn signs indicate to people biking that the intended bike path turns from one street to another. Arrows are used with these signs to indicate the direction people biking should follow in order to remain on the bikeway. Turn signs should be placed on the near side of intersections where the bike route turns.

Traditional Bike Signage



Creative Bike Signage



Bike Signals

Bike signals are specialized traffic signals designed to facilitate safer and more efficient crossings for bike users, often used in situations like protected bike lanes at complex intersections. They operate similarly to vehicle signals but include a bike symbol and must be used alongside conventional traffic signals to address safety and operational challenges. Decisions about their installation and phasing should rely on engineering judgment and consider the needs of all intersection users.

A **Leading Bike Interval** gives bike users and pedestrians a 3-to-5-second head start to improve visibility and reduce conflicts with drivers, though it may increase driver delay and be less suitable in areas with heavy right-turn traffic.

- People walking and biking enter the intersection before drivers.
- Improved visibility and reduced conflict potential.

Protected phasing separates bike users and pedestrians from right-turning vehicles by prohibiting right turns on red during bike movements and allowing turns only when bikes are halted, though it requires a right-turn lane and may increase cycle lengths.

- People walking and biking are fully separated from right-turning vehicles.
- Drivers are not required to yield when turning.

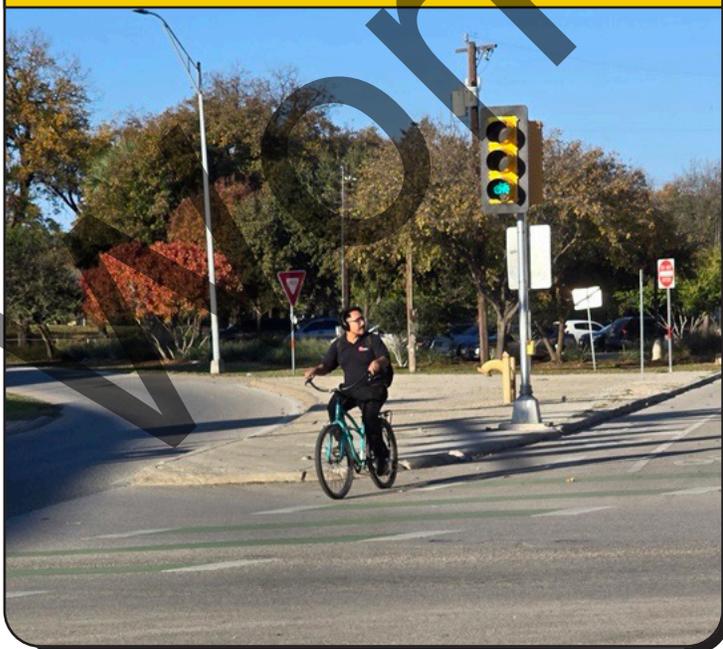
Protected-permissive phasing allows through vehicles and bike users to start simultaneously, followed by a flashing yellow turn phase for drivers. It improves visibility but is less suitable for areas with high right-turn volumes.

- People walking and biking can enter the intersection before right-turning vehicles.
- Improved visibility and reduced conflict potential.

Bike-only phasing stops all vehicle traffic to allow bike users exclusive intersection access, fully separating them from drivers but potentially increasing traffic delays and reducing compliance.

- People walking and biking are fully separated from drivers.
- Drivers are not required to yield to other users.

A bike user rides after waiting for the bike signal on Avenue B in San Antonio. Because this is a two-way facility near a highway ramp, this signal uses **bike-only phasing** so riders in both directions can cross safely.



A scooter user waits for a bike signal in Northwest Arkansas. This two-way facility does not experience frequent turning traffic, but still employs **protected phasing** to limit right turns.



Bike Parking

Safe, convenient, and accessible bike parking is an important component of the bike network. People may decide whether or not to bike based on the availability of parking at their destination and if they feel confident their bike will not be damaged or stolen. In order to ensure this, bike parking should be reliably available throughout the city, especially where there are concentrations of businesses or other destinations.

Bike parking can serve short-term or long-term storage. While bike corrals and U-racks do a great job serving short term bike storage, many would not feel comfortable leaving a bike there overnight or longer. To serve longer storage needs, the City will work with developers to place long term bike hangars and lockers in secure locations. Furthermore, temporary bike parking locations are an essential feature for events and other large gatherings. By mandating temporary bike parking areas at major sporting events and similar gatherings, the City can make trips more convenient by bike. Bike parking may be located on private property, especially in secured garages or bike cages, if built by developers. However, most is located within the public right-of-way on sidewalks, within on-street parking spaces, or in corner extensions as a part of a quick-build. **Q**

S Short-Term Bike Parking is needed where people stay for two hours or less, such as grocery stores, healthcare offices, restaurants, or gyms. Visitors unfamiliar with an area often prioritize visibility and access to their bike, so parking spaces should be within eyesight of a building entrance. Parking should be well-lit, public, weather-protected where feasible, and co-located with amenities such as bike repair stations.

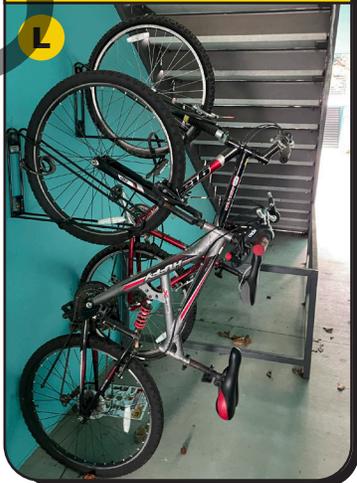
L Long-Term Bike Parking requires security and weather protection for regular bike users like employees, students, residents, or public transit passengers who store their bikes for several hours or more unattended. Location convenience is less important for long-term parking, but it should feature security, clear signage, be directly accessible without stairs, be designed to fit larger bikes like cargo bikes, and provide outlets for e-bike charging if feasible.

E Temporary Event Bike Parking encourages attendees to bike there instead of driving, reducing car traffic to the event. Temporary event parking should be secure - using sturdy and guarded racks, ample - providing enough racks to serve all potential riders, accessible - well-lit and close to the event entrance, and, if possible, weather-protected.

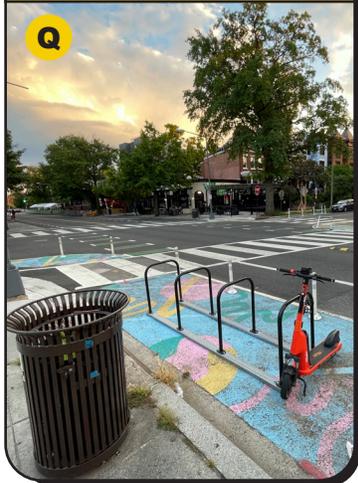
A new bike corral in San Antonio at the Quarry Market



Long-term bike parking hangars under residential stairs in Fayetteville, AR



Bike parking as part of a quick-build in Washington, DC



Ample and well-used event bike parking in Austin, TX





What is a Bike Network?

The core of the BNP is the definition of a network of safe and comfortable bikeways to connect San Antonians to the places they want to go and people they want to see. The network aims to make riding a bike a practical transportation option for more people by routing infrastructure that encourages biking for everyday tasks, such as commuting or running errands, both within neighborhoods and between destinations.

What Does the Bike Network Do?
A successful network plan serves two essential functions: setting intentions for the deployment of new infrastructure and routing bike usage.
Where to build:
The City's UDC Table 506-3 only requires bicycle facilities to be implemented on arterials (higher volume roadways connecting major points) and collectors (roadways with moderate traffic volumes, linking arterials and local roads). But with the bike network, many additional local roadways can require the implementation of bike infrastructure. As the City evaluates projects through its 5-year bond cycle, this network defines a list of projects for implementation to inform these discussions.
Where to ride:
Even before bike facilities are deployed or improved along the network, its existence also informs riders where to go by calling out specific low-stress routes that are already safe for bike users. While the BNP identifies a specific network of streets that must have safe bicycle facilities, streets or corridors that are not identified are not precluded from bicycle facility additions or improvements.

What principles inform the Bike Network?

The BNP articulates principles described below for the routing of bike facilities. These principles are not goals – there is no metric by which the below concepts are determined to be accomplished – but support reasoning behind the routing of new facilities.

Equity

Transportation decisions often place unfair burdens on those who may not own a vehicle and rely on biking to meet their daily travel needs. New bike infrastructure should support reparative outcomes for their communities.

Community Desire

Network prioritization should be influenced by community preferences from surveys and previous community engagement from other studies and plans.

Safety & Redundancy

Areas with a high rate of crashes should be prioritized to limit the risk of severe injury or death while riding a bike. Redundant facilities should be routed to ensure that people of all ages and abilities can move around San Antonio by bike.

Demand & Connectivity

Bike users should be able to get to every destination in San Antonio with minimal deviation from a direct path. Projects should be implemented in response to known demand or predicted latent demand for bike travel.

Feasibility

The projects recommended by the BNP should be specific and implementable in alignment with existing City project delivery procedures. For this reason, any bike project must state the implementation agency, project extents, draft cost estimates, specific recommendations for designs, and project constraints.

How was the network developed?

The most consistent criticism heard about the existing bike network are its numerous gaps. The BNP began by focusing on filling the gaps in, both along roads and at intersections.

Following community guidance, the BNP implemented a methodology of building new bike routes by closing gaps in the existing bike network, expanding the future network with frequently used routes from community input and use data, and including previous plans and upcoming or under construction programmed projects.

Step 1: What's Coming Up or Needs Work?

Existing bike facilities that may not be adequate for the surrounding roadway were overlaid with projects currently under construction containing new bike facilities to create the base of the network gaps soon to be or easily closed.

Existing Facilities & Upcoming Projects

Step 2: Close Small Gaps

Areas where small missing pieces between existing bike facilities could be closed were then added. They often require only a few blocks or less of infrastructure to connect the existing facilities.

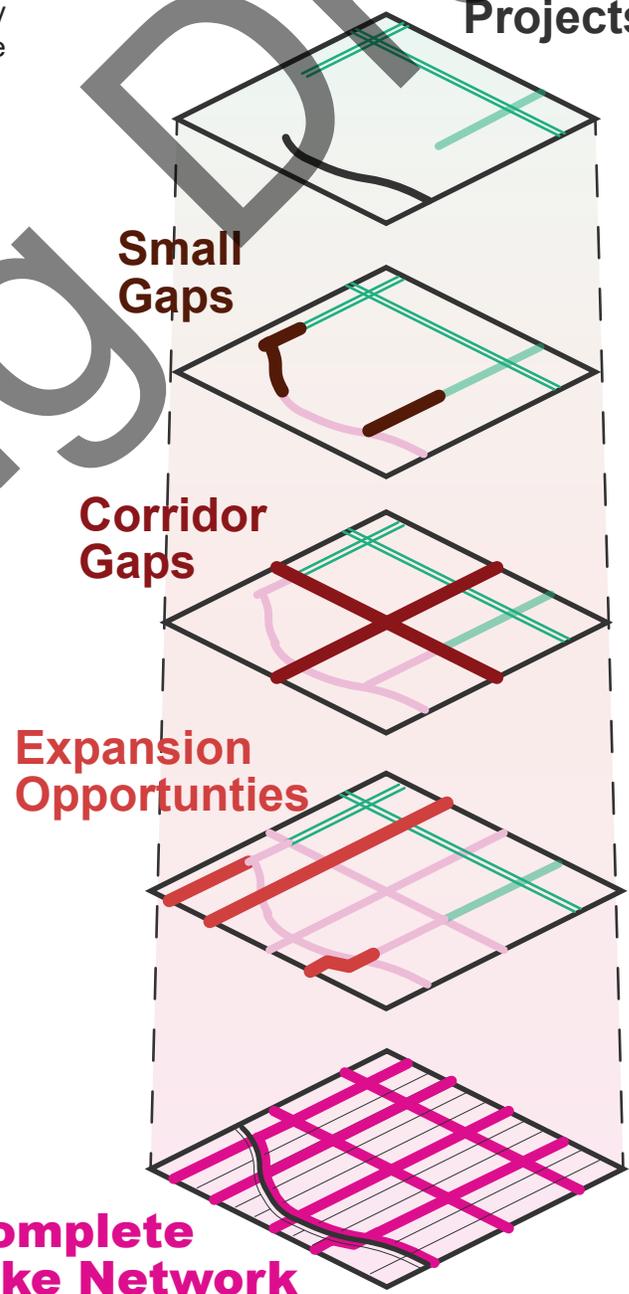
Step 3: Connect Corridors

Next, longer distance gaps between existing facilities were identified and added to ensure the network provides bike users with longer-distance connectivity.

Step 4: Expand the Network

Only after all needed upgrades and existing gaps were addressed were new routes added to the network. They were defined from previous plans and community comments to either add in low-stress alternatives or provide new connections to key destinations.

By layering together these closed gaps and expansion opportunities, the BNP formed the **Complete Bike Network** rooted in connectivity and community preference.

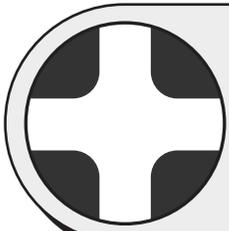


Complete Bike Network



What about roadway crossings?

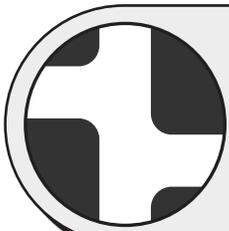
During the review process, intersections that required improvements to make the system safer were also identified. The crossings described below are not the only intersection improvements included in the BNP, but they are the only ones that require special attention, such as new signalization or key construction concerns.



New Low-Stress Crossing Needed: An unsignalized intersection where a low-stress existing or proposed facility meets or crosses through a high-stress roadway.



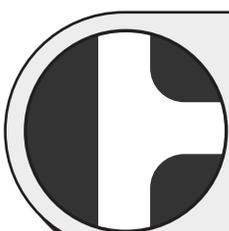
Mid-block Crossing Needed: When a trail or other shared-use path intersects a high-stress roadway, bike users will need a signalized mid-block crossing, like a pedestrian hybrid beacon.



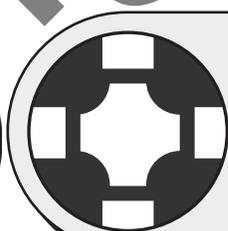
New Low-Stress Crossing Needed - Offset Intersections: As shown in intersection designs, offset intersections are difficult to connect and were identified for improvement in the network.



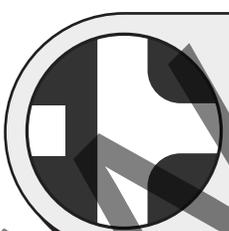
Vertical Gap Between Facilities: When trails and other facilities provide crossing through different levels but either do not provide a connection, or the connection is limited to one side of the roadway.



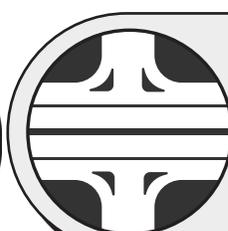
New Low-Stress Crossing Needed - T Intersections: When the road on which a planned bike facility ends at a major intersection, special care must be taken to get bike users across to another safe facility.



Upgraded Existing Crossing Needed: When a crossing is available, but it is unsignalized on a high-stress road or challenging for bike users to navigate.



Spot Gap: An opportunity to connect two existing facilities with a small trail or other off-street facility usually across fields and creeks, but also potentially across barriers like rail lines.



Construction Constraints: Due to challenging intersection geometry shapes, or slip lanes, some improvements are especially difficult to implement, such as major freeway intersections.

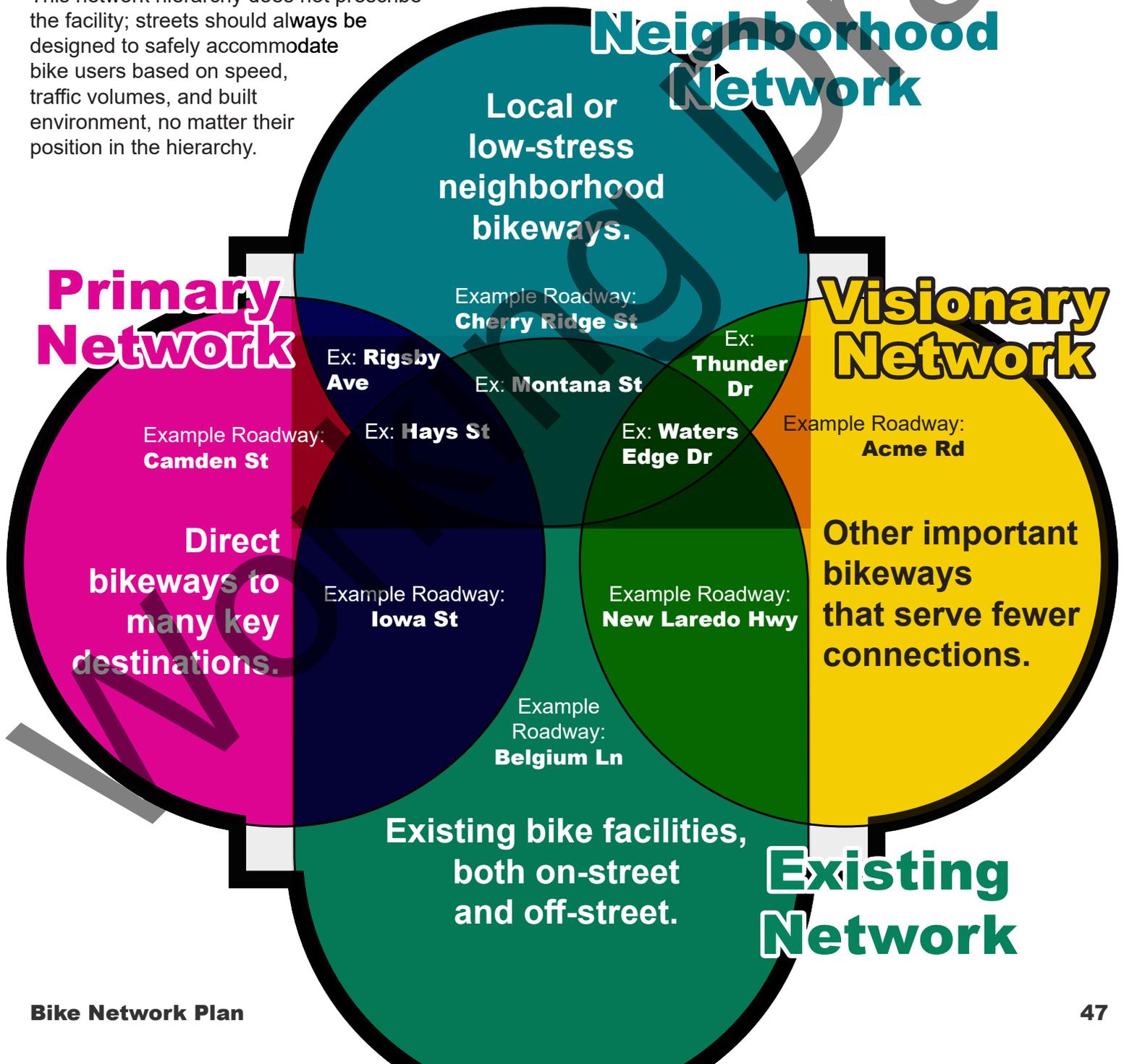
Does the BNP plan new Greenway Trails as a part of the Network?

The BNP focuses on roadway adjacent infrastructure, so only in rare circumstances is a completely off-street bikeway included. The Howard W. Peak Greenway Trail System is an incredible community asset, and the system will continue to expand under the City's leadership. Although not including trail expansions, the BNP will route new connections to the trail system and planned new trail access points.

Bike Network Hierarchy

A hierarchical network helps direct bike traffic appropriately. Major bike routes can function like major roads for bike users, accommodating higher volumes of bike traffic with wider lanes and better separation from vehicles. By establishing a clear hierarchy, San Antonio can ensure safe connectivity between many key destinations. The most direct bikeways serving the most key destinations are listed as the **Primary Network**. These are the roadways that will get bike riders where they need to go with very few diversions, if the correct infrastructure is provided. Less direct routes that may connect to a greater number of destinations in the future are included in the **Visionary Network**. These are essential connections, but not as direct or as connective. The **Neighborhood Network** includes lower-speed neighborhood streets acting as alternatives to higher speed and traffic streets on the network. All three of these networks are not exclusive of each other and are layered on top of and including the **Existing Network**.

This network hierarchy does not prescribe the facility; streets should always be designed to safely accommodate bike users based on speed, traffic volumes, and built environment, no matter their position in the hierarchy.



How Does the Hierarchical Network Look around San Antonio?

One way to think about a hierarchical bike network is like a major thoroughfare plan for future roadways. In that type of plan, the City routes future roadways not by the exact number of lanes or design, but by intended capacity. Thus, the BNP's Primary Network is like the major arterial network and is intended to carry the most bike traffic the most directly to the most destinations. The Visionary and Neighborhood Networks function like Collectors, providing essential connections that feed into the Primary Network but serve less bike traffic themselves. However, because of the complexity of San Antonio's roadway network and the fact that bikes require much less ROW than cars, our network hierarchy overlaps. Neighborhood connections themselves can carry significant bike traffic without requiring any additional roadway space if the City installs a bike boulevard. In the following pages, the BNP highlights the hierarchical bike network in each council district along with key benefits of this network and Tier 1 and 2 projects. To explain how these pages function, here's an example using Downtown San Antonio.

Downtown San Antonio Profile

Downtown is the heart of bike riding in San Antonio with dozens of ride groups calling Downtown home and significant progress already being made there towards a connected bike network. The BNP seeks to keep this momentum going with new connections on major roadways like Martin, Hackberry, and Camden.

Miles of Separated Bike Facilities

For every council district, the miles of existing and future protected bike facilities are shown after Tier 1 and 2 Projects are implemented.

Most Improved Key Destination Access

The BNP judged its network for connectivity to destinations, those with new connections on low stress streets.^K

Percent of All Streets That are Low-Stress

Lowering the level of stress for bike users is an essential part of this bike network, on average council districts have 12% more low-stress streets.

Featured^F Tier 1 Projects:

P#:	Roadway:	From:	To:
23	S Alamo St	Pereida	E Commerce St
24	Flores St	Cesar Chavez Blvd	W Poplar St
194	Hackberry St	Hays St	I-10
41	Camden St	Navarro St	Newell Ave

Featured^F Primary Network:

Roadway:	From:	To:
Market St	Riverwalk St	Main Plaza
Martin St	I-35	Broadway
Camden St	Newell	N St Marys
Jones Ave	I-37 S	Austin St

The Downtown Network also provides an opportunity to answer key questions about the Primary Network and the Tiers. In Downtown, many great bike projects are coming online, like the Avenue B Two-Way Protected Bike Lane, Santa Rosa St. Protected Lanes, and the Market St. Two-Way Bike Facility. But while Santa Rosa made the Primary Network, Avenue B is only shown as an existing facility - why?

Avenue B is a great facility. However, it cannot fulfill the direct connections that are required of a Primary Network facility because it cannot be extended beyond its current 2500 feet.

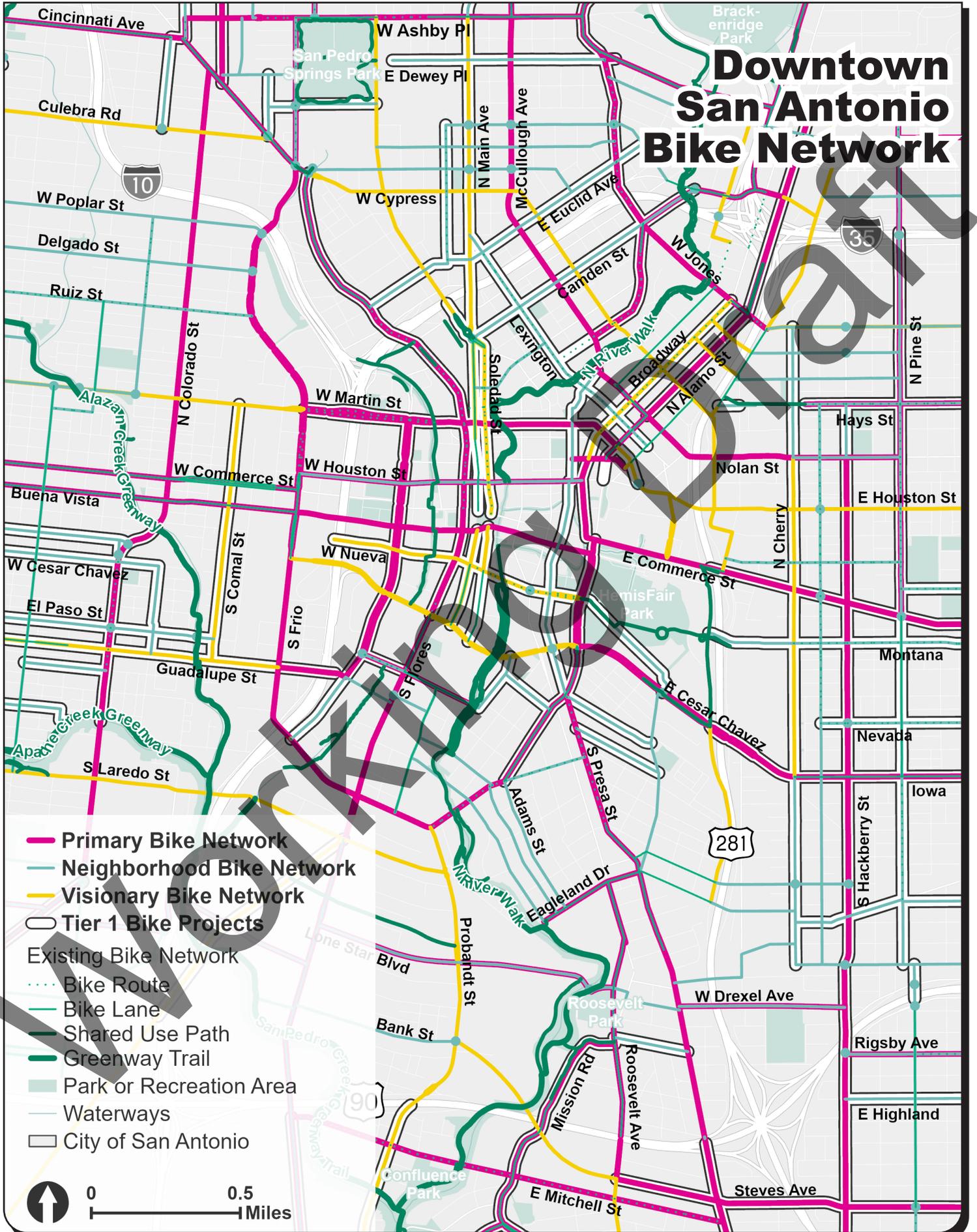
Similarly, Santa Rosa, already under construction, is a Tier 1 project while Market Street is not included as Tier 1, even though funded through a Transportation Alternatives grant?

The tiers of projects were determined by their feasibility and priority score. Market Street scored lower on priority and features significant constraints. While it is well on its way, it was not included in Tier 1 to respect constraints like removing a car travel lane, interacting with the San Antonio River Bridge, and removing some on-street parking.

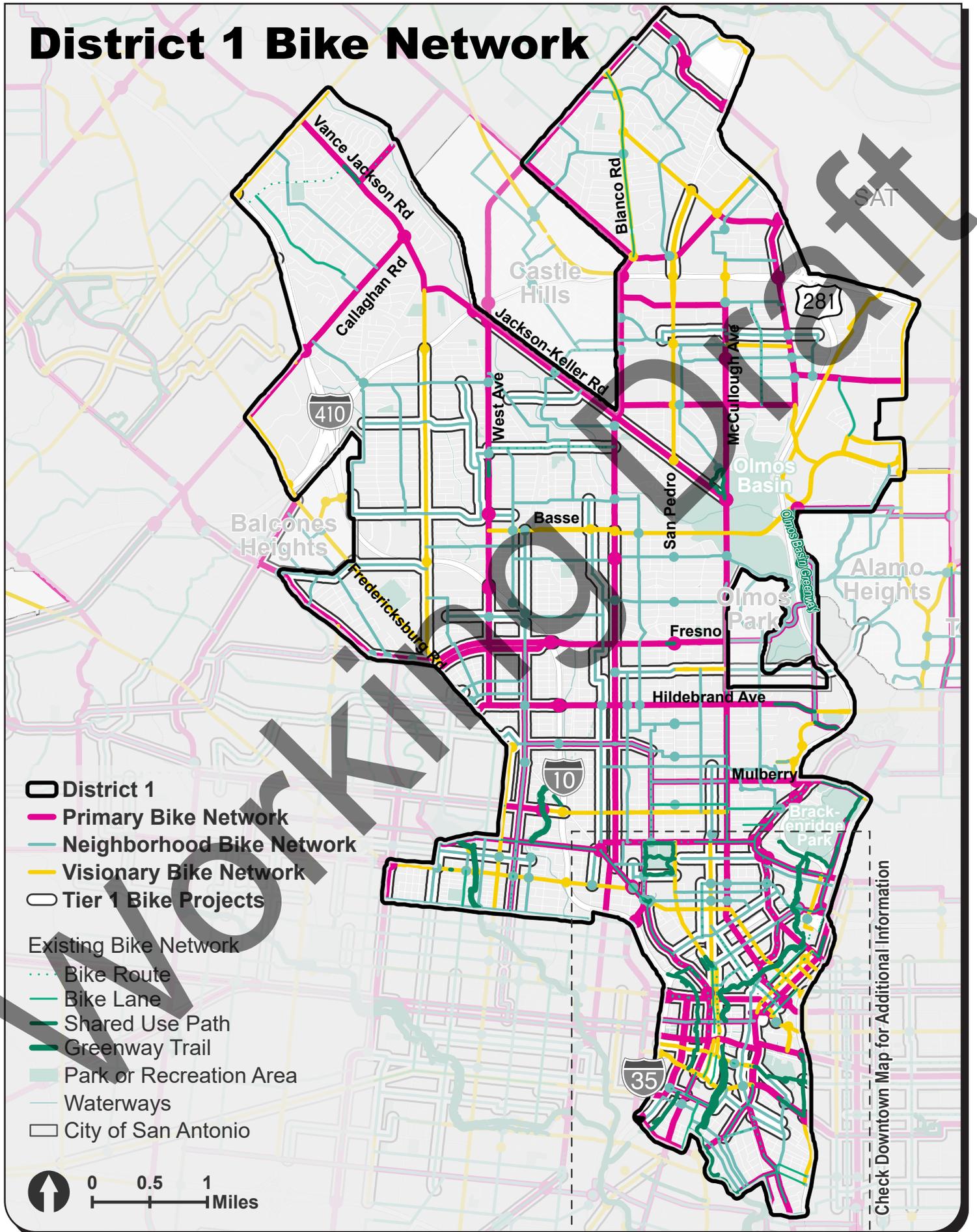
K Read more about the network's benefits in Appendix K

F Featured projects and network roadways are only a subset of the larger network and project list for each district.

Downtown San Antonio Bike Network



District 1 Bike Network



- District 1
- Primary Bike Network
- Neighborhood Bike Network
- Visionary Bike Network
- Tier 1 Bike Projects

Existing Bike Network

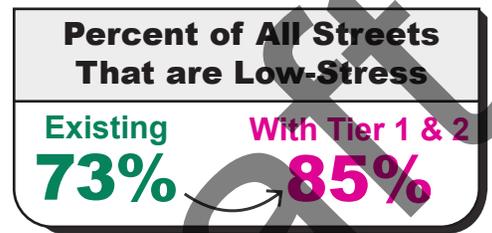
- Bike Route
- Bike Lane
- Shared Use Path
- Greenway Trail
- Park or Recreation Area
- Waterways
- City of San Antonio



Check Downtown Map for Additional Information

District 1 Profile

District 1 is home to Downtown, the epicenter of bike riding in San Antonio, from universities to mixed use developments to the Central Business District. The Bike Network Plan connects all these essential activity centers with an expanded protected bike network along roadways like McCullough, Alamo, Hildebrand, and North St. Mary's.



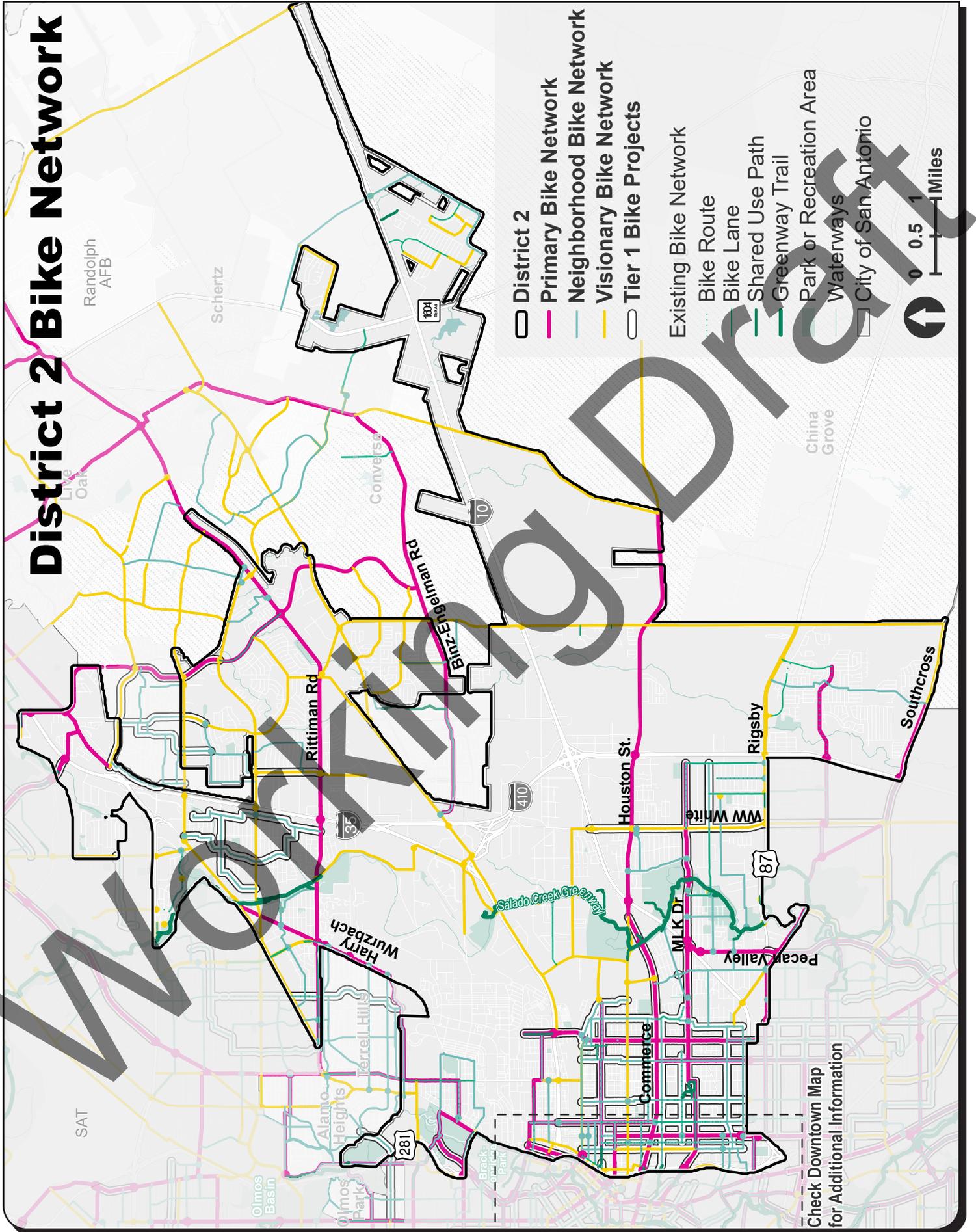
Featured Tier 1 Projects:

P#:	Roadway:	From:	To:
22	Nueva; Hemisfair	Pecos-La Trinidad	Cesar Chavez
23	S Alamo St	Pereida	E Commerce St
24	Flores St	Cesar Chavez Blvd	W Poplar St
25	S Main Ave	Cesar Chavez Blvd	I-35
26	Dwyer Ave	Cesar Chavez Blvd	Navarro St
30	St Marys St	Lexington Ave	Elmira St
33	N Presa St	W Market St	I-35
41	Camden St	Navarro St	Newell Ave
43	Martin St; 3rd St	I-35	Houston St
48	N Alamo St	Houston St	E Josephine St
59	Euclid Ave	N Flores St	Park Ave
61	Howard St	Euclid Ave	Park Ave
66	Dewey Pl	San Pedro Ave	W Josephine St
71	Blanco Rd	Fredericksburg Rd	Basse Rd
81	Fulton St	I-10	N Flores St
87	Olmos Drive	Blanco Rd	Crescent St
100	Wayside	Dewhurst Rd	Saxon Dr
105	Vance Jackson Rd	I-10	Loop 410
109	Dresden	West Ave	Blanco Rd
112	Jackson-Keller Rd	Loop 410	McCullough Ave
170	St Marys St	I-35	Tuleta Dr
171	N Main Ave	I-35	W Summit Ave
173	E Commerce St	I-37	Salado Creek
182	Montana St	I-37 Access Rd	S Mel Waiters
280	Olmos Drive	Fredericksburg Rd	I-10
1037	Babcock Rd	Loop 410	Fredericksburg
1069	Woodlawn	Wilson	I-10
1076	Wilson; 24th	Woodlawn	W Commerce
1077	Zarzamora St	Fredericksburg Rd	Mistletoe
1080	Vance Jackson Rd	Fredericksburg Rd	I-10
1082	Buckeye	Seward	Fredericksburg
1083	Fresno	Fredericksburg Rd	I-10
1086	Hildebrand	Fredericksburg Rd	I-10
1087	West	Hildebrand	I-10
1123	Guadalupe St	19th St	I-10
2094	West Ave	Blanco Rd	Bitters Rd
2109	Rhapsody	West Ave	US 281

Featured Primary Network:

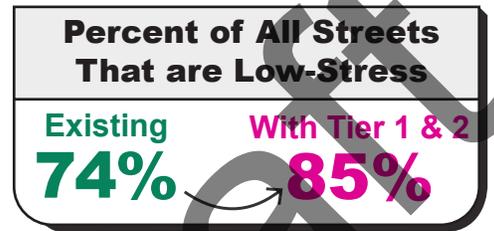
Roadway:	From:	To:
Alamo St	E Travis St	I-35 N
Arsenal	Washington St	S Flores St
Ashby Place	Grant Ave	N St Mary'S St
Avenue B	Brackenridge Rd	US 281
Babcock Rd	Balcones Heights Rd	Fredericksburg Rd
Blanco Rd	Fredericksburg Rd	Lockhill-Selma Rd
Buena Vista St	Pecos La Trinidad St	S Leona St
Callaghan Rd	Fredericksburg Rd	Vance Jackson Rd
Camden St	Newell Ave	N St Mary'S St
Cincinnati Ave	Fredericksburg Rd	Alexander Rd
Colorado St	I-10 W	Fredericksburg Rd
Commerce St	Riverwalk St	I-37 S Access Rd
Dewey Place	N St Mary'S St	W Josephine St
Dolorosa St	I-35 S	Soledad St
Eagleland Dr	E Guenther St	S St Mary'S St
Flores St	Nogalitos St	W Gramercy Pl
Fresno St	Fredericksburg Rd	San Pedro Ave
Frio St	W Cypress St	N Laredo St
Fulton Ave	N Flores St	Buckeye Ave
Guadalupe St	S Laredo St	I-35 S
Hildebrand Ave	Fredericksburg Rd	Devine Rd
Isom Rd	San Pedro Ave	E Ramsey Rd
Jackson-Keller Rd	Vance Jackson Rd	Mccullough Ave
Jones Maltsberger	Devine Rd	US 281
Market St	Riverwalk St	Main Plaza
Martin St	I-35	Broadway
Mccullough Ave	I-37 S Access Rd	E Rector St
Mulberry Ave	Avenue B	N Flores St
Newell Ave	Camden St	Avenue A
Oblate	Blanco Rd	Maltsberger Ln
Olmos Dr	Fredericksburg Rd	Rhode Dr
Presa St	Groveton St	S Alamo St
Santa Rosa St	Guadalupe St	W Martin St
St Mary'S St	Mccullough Ave	Alpine Trail St
Vance Jackson Rd	Jackson-Keller Rd	Wellsprings Dr
West Ave	W Hildebrand Ave	Afterglow Dr
Woodlawn Ave	N Elmendorf St	West Dr

District 2 Bike Network



District 2 Profile

District 2 encompasses the vibrant East Side of San Antonio, known for its rich cultural history and diverse neighborhoods. Home to St. Phillip’s College, the Alamodome, the Frost Bank Center, and the Hays Street Bridge, D2 features many biking destinations. The BNP’s Primary Network connects them all and neighborhoods in between.



Featured Tier 1 Projects:

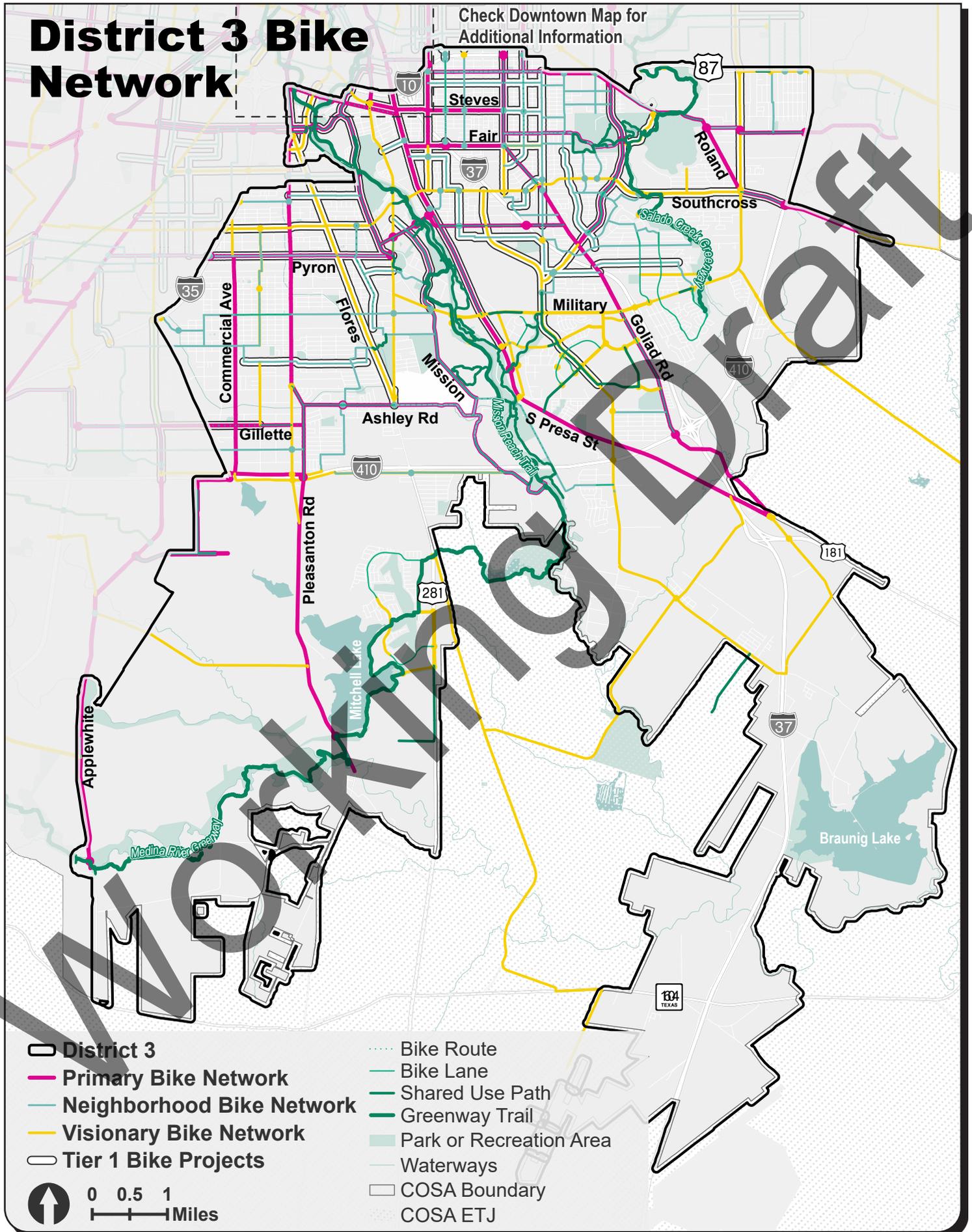
P#:	Roadway:	From:	To:
48	N Alamo St	Houston St	E Josephine St
57	N Walters St	Hood St	I-35
87	Olmos Drive	Blanco Rd	Crescent St
143	Vandiver Rd	Burr Rd	Urban Crest Dr
158	Overland Dr	Rittiman Rd	Walzem Elementary
170	St Marys St	I-35	Tuleta Dr
173	E Commerce St	I-37	Salado Creek
174	Iowa St; MLK Dr	I-37	I-10
179	Hays St	Austin St	N Onslow St
182	Montana St	I-37 Access Rd	S Mel Waiters Way
183	Nevada	S Mesquite St	Meerscheidt St
186	Porter; Aransas	S Cherry St	Clark Ave
192	Cherry St	Union Pacific Rail Road	Sherman
194	Hackberry St	Hays St	I-10
195	Pine St	I-10	I-35
196	Palmetto (N/S);	Westfall Ave	Sherman
197	Gevers; Dawson St	I-10	Sherman
198	Walters St	I-10	I-35
199	Mel Waiters Way	Westfall Ave	Hudson
201	Gabriel; Hudson	Sherman	Mel Waiters Way
2116	Thousand Oaks	Wetmore Rd	I-35
2184	Crestway Rd	Sherrri Ann Rd	Eaglecrest Blvd
2213	Eaglecrest Bld	Crestway Rd	Eisenhauer Rd
2222	Midcrown Dr	Crestway Rd	Round Table
2240	Excalibur/Fratt Rd	Ray Bon Dr	Rittiman Rd
2241	Windway Dr	Midcrown Dr	Round Table
2243	Fourwinds Dr	Crestway Rd	Walzem Rd
3007	MLK Dr; Lord Dr	I-10 E	Semlinger Rd
3014	Lord Rd	S WW White Rd	Semlinger Rd
3015	Rice Rd	S WW White Rd	Semlinger Rd
3016	S WW White Rd	Holmgreen Rd	Southcross Blvd
3162	Pecan Valley Dr	Pollydale Ave	Rigsby Ave
3191	S Walters St	I-10	S Gevers St
181	Paso Hondo	N Pine St	Mel Waiters Way
3003	N WW White Rd	Gembler Rd	Holmgreen Rd
159	Molokai; Kingston	Fairdale Dr	Walzem Rd
160	Lanark Dr; Harlow	Eisenhauer Rd	Elkhorn Dr

Featured Primary Network:

Roadway:	From:	To:
Alamo St	I-35 N Access Rd	E Josephine St
Avenue B	Tuleta Dr	Funston Pl
Binz-Engleman Rd	N Foster Rd	Old Seguin Rd
Burr Rd	New Braunfels Ave	Harry Wurzbach Rd
Carson St	N Walters St	New Braunfels St
Casa Blanca St	Broadway	N Alamo St
Cesar Chavez Blvd	I-37 S Access Rd	Iowa St
Commerce St	I-37 S	E Houston St
Corinne Dr	Harry Wurzbach Rd	Austin Hwy
Devine Rd	City Limits	Alamo Heights Blvd
Drexel Ave	Hoefgen Ave	S Hackberry St
Funston Place	Broadway	N New Braunfels St
Gevers St	I-10 E Access Rd	E Commerce St
Gibbs-Sprawl Rd	Rittiman Rd	Glenhaven Dr
Grayson St	N Pine St	N New Braunfels St
Hackberry St	Ih 10 E Access Rd	Nolan St
Harry Wurzbach Rd	Garraty Rd	Rittiman Rd
Hays St	N Cherry St	Onslow St
Houston St	E Commerce St	SE LOOP 410
Iowa St	Cesar Chavez Blvd	S New Braunfels St
Josephine St	Broadway	N Pine St
Lord Rd	Martin Luther King Dr	Semlinger Rd
Martin Luther King Dr	Lord Dr	S New Braunfels St
Mulberry Ave	River Rd	Bridge
New Braunfels Ave	Iowa St	Geneseo Rd
Nolan St	Live Oak St	N Pine St
Pecan Valley Dr	Roland Ave	Ih 10 Access Rd
Pine St	E Commerce St	E Josephine St
Rigsby Ave	Clark Ave	Roland Ave
Rittiman Rd	Gibbs-Sprawl Rd	Austin Hwy
Roland Ave	Rigsby Ave	Bridge
Sinclair Rd	SE LOOP 410	Foster Meadows
St Mary’S St	Tuleta Dr	SA ZOO
Walters St	E Drexel Ave	Hood St
New Sulphur Spgs Rd	Heather Meadow	SE LOOP 410
Jones Ave	I-37 S	Austin St
Weidner Rd	Eaglecrest Blvd	I-35 N

District 3 Bike Network

Check Downtown Map for Additional Information

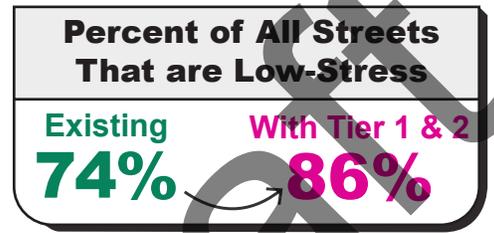


- District 3
- Primary Bike Network
- Neighborhood Bike Network
- Visionary Bike Network
- Tier 1 Bike Projects
- Bike Route
- Bike Lane
- Shared Use Path
- Greenway Trail
- Park or Recreation Area
- Waterways
- COSA Boundary
- COSA ETJ



District 3 Profile

District 3 hosts part of San Antonio’s South Side, rich in history and rapidly growing with new residential and commercial development. Progress towards a bike-friendly San Antonio began in D3 with the Mission Reach Trail. The BNP expands that success, connecting communities to their history safely and comfortably.



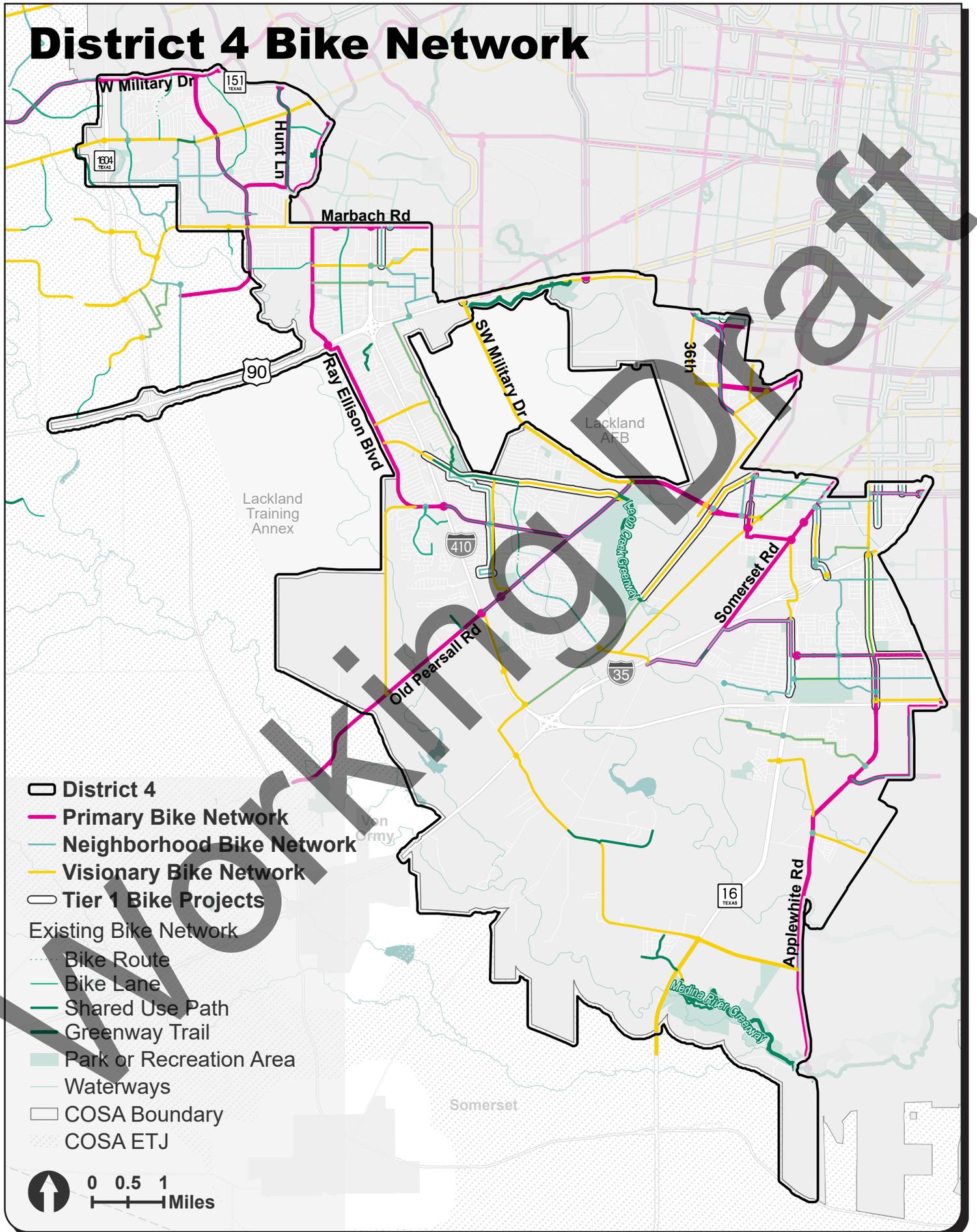
Featured Tier 1 Projects:

P#:	Roadway:	From:	To:
194	Hackberry St	Hays St	I-10
195	Pine St	I-10	I-35
197	Gevers St	I-10	Sherman
207	Theo	Zarzamora St	Mission Rd
209	Mission Rd	SA River	Roosevelt Ave
210	Mission Rd	Hansford	I-10
217	S New Braunfels	Southcross	Global Way
221	Koehler; Clark	Goliad Rd	S New Braunfels
223	Koehler; Groos	Presa St	S New Braunfels
225	Hackberry St	I-10	Southcross
226	Presa St	I-10	Southcross
227	Eads	Roosevelt Ave	Presa St
3016	S WW White Rd	Holmgreen Rd	Southcross Blvd
3050	S Presa St	E Southcross Blvd	Henderson Ct
3058	Curtis St	E Pyron Ave	Ware Blvd
3060	E Bonner Ave	Curtis St	Roosevelt Ave
3062	W Pyron Ave	I-35 S	Roosevelt Ave
3113	Gillette Blvd	S Zarzamora St	Garnett Ave
3141	Padre Dr	SE Military Dr	Roosevelt Ave
3145	E Southcross Blvd	Pecan Valley Dr	SE Loop 410
3149	E Southcross Blvd	I-35 S	Mission Rd
3153	Mission Rd	Hansford	SA River
3156	S Flores St	Pleasanton Rd	US 90
3157	Neal Ave; Probandt	Pleasanton Rd	US 90
3161	Pecan Valley Dr	S New Braufels Ave	Pollydale Ave
3162	Pecan Valley Dr	Pollydale Ave	Rigsby Ave
3164	E Highland Blvd	S Hackberry St	Clark Ave
3165	Steves Ave	Roosevelt Ave	Clark Ave
3169	Fair Ave	S Presa St	Clark Ave
3181	Clark Ave	Rigsby Ave	Hotwells Blvd
3183	Dollarhide Ave	E Southcross Blvd	E Palfrey st
3184	Dollarhide Ave	Skyridge Ave	E Southcross
3190	Lyric; Betty Jean	Hillje	Clark Ave
3191	S Walters St	I-10	S Gevers St
3192	S Gevers St	I-10	E Southcross
5177	S Flores	Pleasanton	Roosevelt Ave
3151	E Sayers Ave	Pleasanton Rd	Mission Rd

Featured Primary Network:

Roadway:	From:	To:
Applewhite Rd	Leon Creek	Medina River
Ashley Rd	Pleasanton Rd	Espada Rd
Commercial Ave	Sharmain Pl	Sunglo Dr
Espada Rd	Camino Coahuilteca	Mission Rd
Fair Ave	S Presa S	S Gevers St
Flores St	E Theo Ave	W Mitchell St
Gevers St	Fair Ave	I-10 E
Gillette Blvd	Escalon Ave	Pleasanton Rd
Goliad Rd	Old Corpus Christi Rd	Fair Ave
Hackberry St	Fair Ave	W Boyer St
Hiawatha St	S Gevers St	Pecan Valley Dr
Hot Wells Blvd	S Presa St	Goliad Rd
Jaguar Pkwy	S Zarzamora St	Dead End
Malone Ave	Lancaster St	Probandt St
Mission Rd	Espada Rd	E Mitchell St
Mitchell St	Mission Rd	S Presa St
Old Corpus Christi Rd	SE Loop 410	City Limits
Padre Dr	SE Military Dr	VFW Blvd
Pecan Valley Dr	Goliad Rd	Roland Ave
Pleasanton Rd	Medina River	Gladstone St
Presa St	SE Loop 410	I-10 E
Probandt St	E Theo Ave	E Malone
Pyron Ave	I-35 S	Roosevelt Ave
Rigsby Ave	S Hackberry St	Elgin Ave
Riverside Dr	VFW Blvd	Hot Wells Blvd
Roland Ave	S WW White Rd	Rigsby
Roosevelt Ave	I-10 E	Steves Ave
Sinclair Rd	SE Loop 410	Roland Ave
Southcross Blvd	S Ww White Rd	SW Loop 410
Steves Ave	Roosevelt Ave	S Gevers St
Theo Ave	Lancaster St	Mission Rd
University Way	Loop 410 Access Rd	Jaguar Pkwy
Vfw Blvd	E White Ave	Riverside Dr
Walters St	E Drexel Ave	Rigsby Ave
White Ave	Mission Rd	Vfw Blvd
Ww White Rd	E Southcross Blvd	Sinclair Rd
Chavaneaux Rd	Commercial Ave	Pleasanton Rd

District 4 Bike Network



District 4 Profile

District 4 and San Antonio's Southwest Side is home to the Freewheel Bike Park, a first of its kind bike-centric park in San Antonio. Getting more kids to the park is essential and the BNP accomplishes it with Tier 1 connections along Medina Base Road and by connecting every D4 neighborhood to the community resources in their area.

Miles of Separated Bike Facilities

Existing **15** → With Tier 1 & 2 **75**

Most Improved Key Destination Access

Percent of D4 Residents with Access to **Healthcare Centers**

Existing **0%** → With Tier 1 & 2 **19%**

Percent of All Streets That are Low-Stress

Existing **66%** → With Tier 1 & 2 **79%**

Tier 1 Projects:

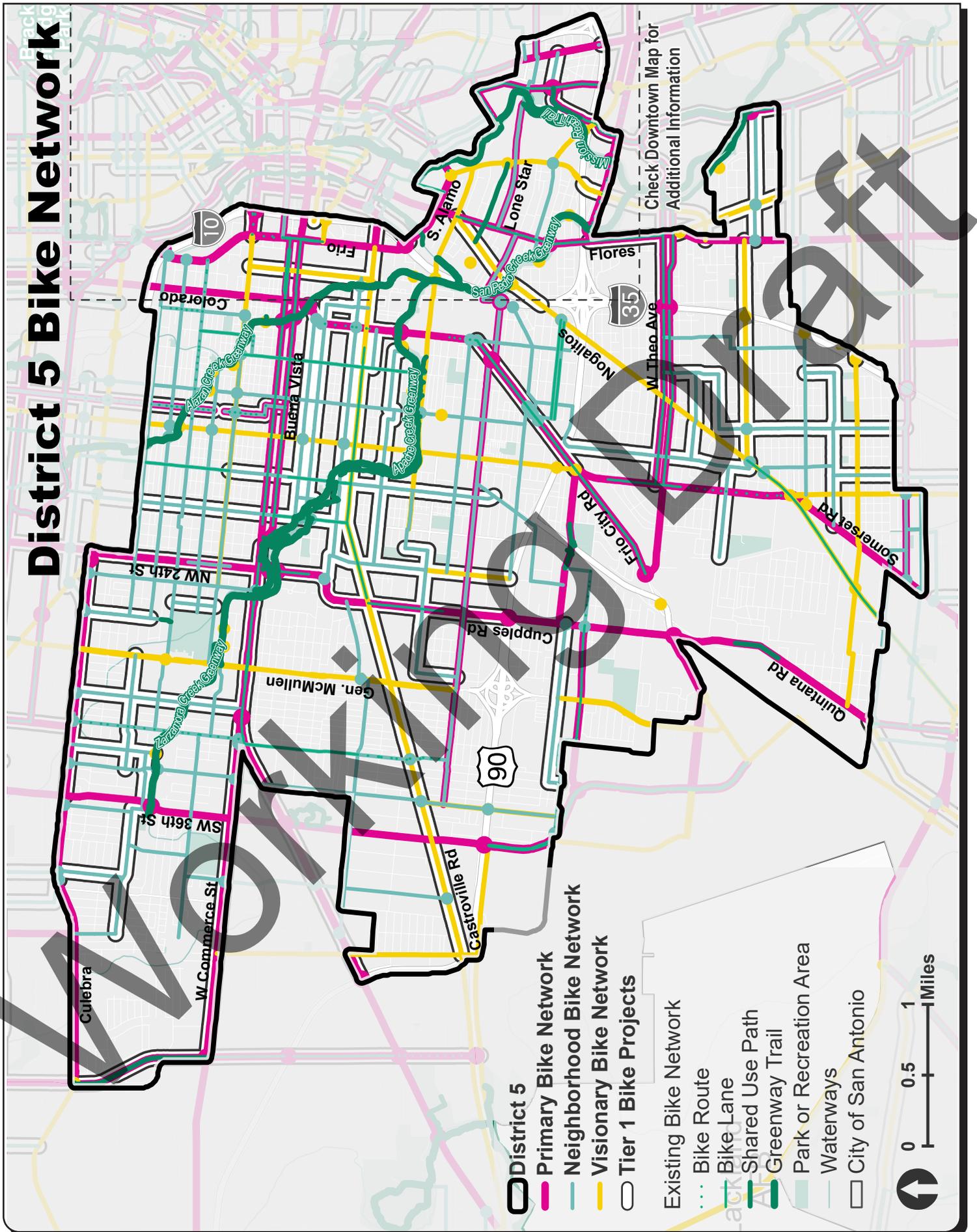
P#:	Roadway:	From:	To:
235	Buffalo; Gladstone; Huron	Theo	Pryon
242	Weir; Dahlgreen	Growdon	Cupples
256	Kyle	Fitch	SW Military
260	Barlite	Kendalia	I-35
1003	Harness; Meadow Leaf; Meadow Way	Marbach	Bronco
1007	W Military	US 90	Loop 410
1011	Callaghan Rd	US 90	TX 151
3062	Pyron Ave; S Flores S.	I-35 S	Roosevelt Ave
3066	Medina Base Rd	SW Loop 410	Old Pearsall Rd
3073	Bright Valley Dr; Apple Valley Dr	Walnut Valley Dr	Haven Vly
3087	Quitana Rd	Plumnear	Bynum Ave
3090	Bynum Ave	Price Ave	New Laredo Hwy
3100	Palo Alto Rd; Aragon Dr	Reforma Dr	Fairmeadows St
3110	S Zarzamora St	SW Loop 410	I-35 S
3113	Gillette Blvd	S Zarzamora St	Garnett Ave

Primary Network:

Roadway:	From:	To:
Applewhite Rd	Old Applewhite Rd	S Zarzamora St
Billy Mitchell Blvd	SW 36th St	General Hudnell Dr
Briggs Ave	Bynum Ave	New Laredo Hwy
Bynum Ave	Wilcox Ave	Gracie St
Chavaneaux Rd	Loop 410 Access Rd	Strech Ave
Clarence Tinker Dr	Billy Mitchell Blvd	General Hudnell Dr
Cupples Rd	General Hudnell Dr	Quintana Rd
Ellison Dr	SH 151	Bridge
Fairmeadows St	Somerset Rd	Palo Alto Rd
General Hudnell Dr	Billy Mitchell Blvd	Cupples Rd
Gillette Blvd	Escalon Ave	Palo Alto Rd
Gracie St	Mcarthur Ave	Bynum Ave
Heritage Farm	S Ellison Dr	Hunt Ln
Hunt Ln	SH 151	US 90
Ingram Rd	Hunt Ln	SH 151
Jaguar Pkwy	University Way	S Zarzamora St
Marbach Rd	Horal Dr	Rawhide Ln
Mcarthur Ave	Palo Alto Rd	Gracie St
Military Dr	SH 151	W Loop 1604 N
Old Pearsall Rd	Loop 1604	Military Dr
Palo Alto Rd	Fairmeadows St	Gillette Blvd
Paul Wagner Dr	Clarence Tinker Dr	Billy Mitchell Blvd
Prescott Dr	Klondike Dr	S Ellison Dr
Pyron Ave	Somerset Rd	I-35 S
Quintana Rd	Bynum Ave	Wilcox Ave
Ray Ellison Blvd	Old Pearsall Rd	US 90
Somerset Rd	Cassin Rd	W Gerald Ave
Spur 371	Billy Mitchell Blvd	Billy Mitchell Blvd
36Th St	Billy Mitchell Blvd	N Frank Luke Dr
SW MILITARY DR	Old Pearsall Rd	Bynum Ave
Thompson Place	Growdon Rd	N Frank Luke Dr
University Way	Loop 410 Access Rd	Jaguar Pkwy
Zarzamora St	Applewhite Rd	Gillette Blvd

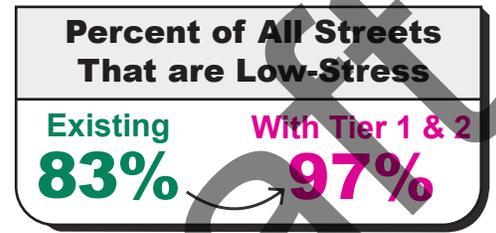


District 5 Bike Network



District 5 Profile

District 5 holds the Inner West Side, the heart of San Antonio, as well as Our Lady of the Lake College, the Guadalupe Cultural Arts Center, and four of San Antonio's beloved Greenway Trails. The BNP seeks to connect all these assets with comfortable routes through neighborhoods and safety improvements on major roadways.



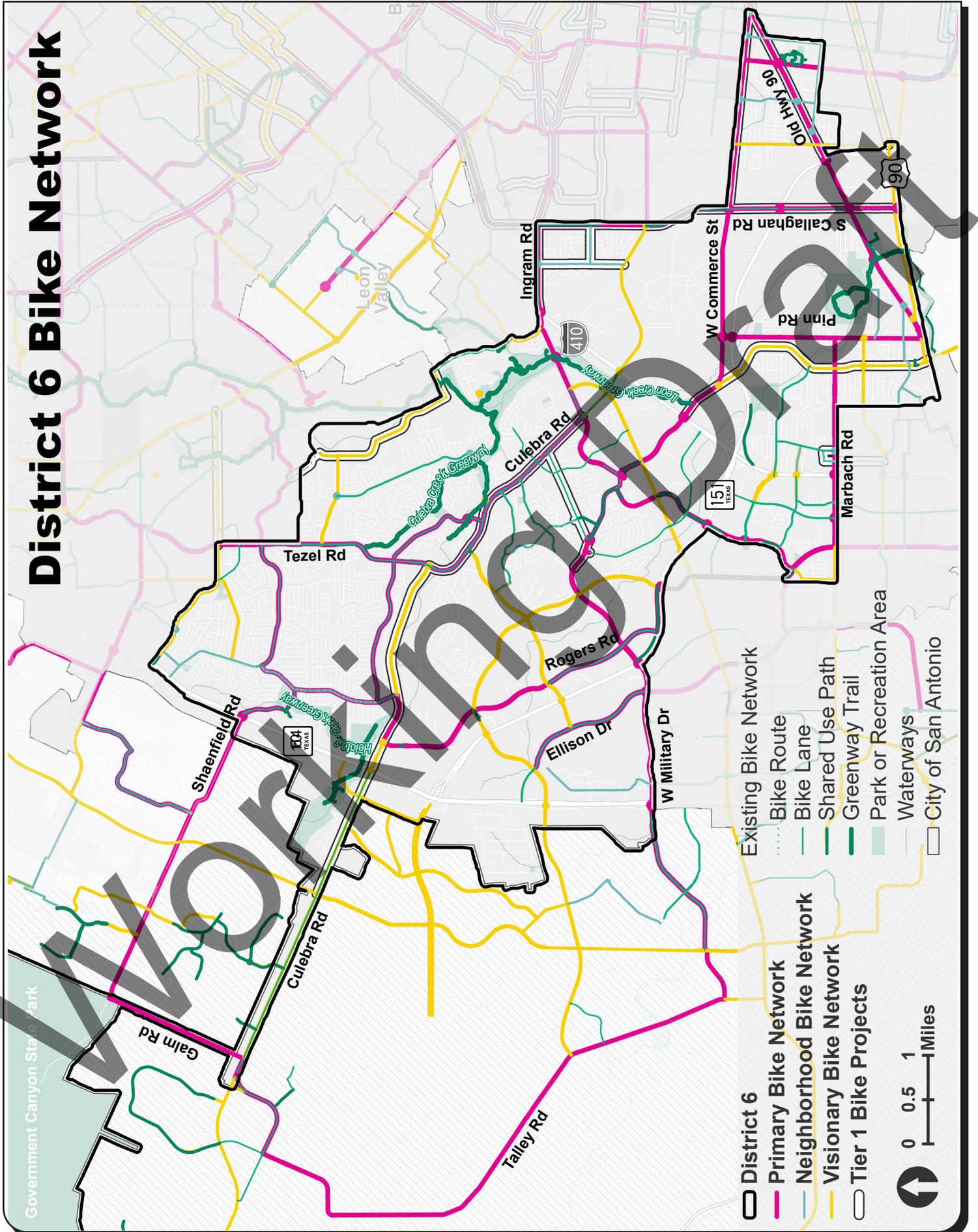
Featured Tier 1 Projects:

P#:	Roadway:	From:	To:
1	Nogalitos St	I-35	W Cevallos
7	Grove Ave	Union Pacific Rail Road	S Presa St
43	Martin St; 3rd St	I-35	Houston St
207	Theo	Zarzamora St	Mission Rd
209	Mission Rd	SA River	Roosevelt Ave
210	Mission Rd	Hansford	I-10
231	Division	Nogalitos	Pleasanton
238	Culberson	Normoyle Park	Charlotte
240	Fitch; Buffalo	Somerset Rd	Stonewall
242	Weir; Dahlgreen	Growdon	Cupples
1014	Callaghan Rd	TX 151	W Commerce
1025	W Commerce	Callaghan Rd	Old Highway 90
1026	Castroville Rd	Acme	General McMullen
1027	Old Highway 90	TX 151	W Commerce
1044	Roanoke/Yolanda	Overhill	Aurora
1070	Camino Santa Maria	Woodlawn	Culebra Rd
1076	Wilson; 24th	Woodlawn	W Commerce
1088	Calaveras	Fredericksburg Rd	Buena Vista
1094	Culebra Rd	36th St	Bandera Rd
1102	W Commerce	Old Highway 90	Buena Vista
1114	El Paso; 24th; 26th	W Commerce	Castroville
1115	Cupples	Castroville	US 90
1119	Comal	Martin	Guadalupe
1120	El Paso	24th St	Comal
1121	Barclay	El Paso	US 90
1122	Castroville Rd	General McMullen	19th St
1123	Guadalupe St	19th St	I-10
1130	Brazos	Alazan Creek	Apache Creek
1131	Saunders	19th St	Brazos
1132	W Cesar Chavez	Guadalupe	19th St
1135	Frio City Road	Zarzamora	Brazos
1141	19th St	Buena Vista	Guadalupe
3149	Southcross Blvd	I-35 S	Mission Rd
3156	S Flores St	Pleasanton Rd	US 90
3157	Neal Ave	Pleasanton Rd	US 90
5177	S Flores	Pleasanton	Roosevelt Ave
1099	Rivas	34th St	General McMullen

Featured Primary Network:

Roadway:	From:	To:
Alamo St	Frio St	Probandt
Brazos St	Frio City Rd	Colorado St
Buena Vista St	Commerce St	Leona St
Callaghan Rd	Martin Goland Ave	Callaghan Rd
Ceralvo St	34th ST	Frio City Rd
Colorado St	S Brazos St	I-10
Commerce St	Callaghan Rd	S San Joaquin Ave
Culebra Rd	Callaghan Rd	24th St
Cupples Rd	General Hudnell Dr	Castroville Rd
Drexel Ave	Hoefgen Ave	I-37 S
Eagleland Dr	Wickes St	Adams St
El Paso St	SW 24th St	SW 26th St
Old Hwy 90	SW 34th St	Commerce St
Flores St	Pleasanton Rd	S Alamo St
Frio City Rd	Malone Ave	Brazos St
Furnish Ave	S San Marcos St	S Flores St
Guadalupe St	S Frio St	I-35 S Access Rd
Kirk Place	Cupples Rd	S Zarzamora St
Lone Star Blvd	S Flores St	Roosevelt Park Dr
Malone Ave	Frio City Rd	S Flores St
Martin St	I-35	N Frio St
Mission Rd	Roosevelt Ave	E Edmonds Ave
Pleasanton Rd	Beatrice Ave	S Flores St
Presa St	I-10 E	W Boyer St
Pyron Ave	Otto St	Wabash St
Quintana Rd	Bynum Ave	Cupples Rd
Roosevelt Ave	Roosevelt Park Dr	I-10 E
San Marcos St	Furnish Ave	I-35 S Access Rd
Somerset Rd	S Zarzamora St	W Gerald Ave
St Mary'S St	Roosevelt Park Dr	Carolina St
24th ST	El Paso St	Culebra Rd
26th ST	Castroville Dr	24th St
36th ST	Eldridge Ave	N Frank Luke Dr
Theo Ave	Zarzamora St	Lancaster St
Thompson Place	Growdon Rd	Cupples Rd
Zarzamora St	Somerset Rd	Frio City Rd
Camino Santa Maria	Culebra Rd	Bradford Ave

District 6 Bike Network



Government Canyon State Park

- District 6
- Primary Bike Network
- Neighborhood Bike Network
- Visionary Bike Network
- Tier 1 Bike Projects
- Existing Bike Network
- Bike Route
- Bike Lane
- Shared Use Path
- Greenway Trail
- Park or Recreation Area
- Waterways
- City of San Antonio



District 6 Profile

District 6, located on the City's far West Side, is rapidly growing with new neighborhoods near destinations like SeaWorld and Government Canyon State Natural Area. The BNP seeks to better connect D6 residents to these assets by improving connectivity to Greenway trails and adding protective features to major roadways like Culebra.



Tier 1 Projects:

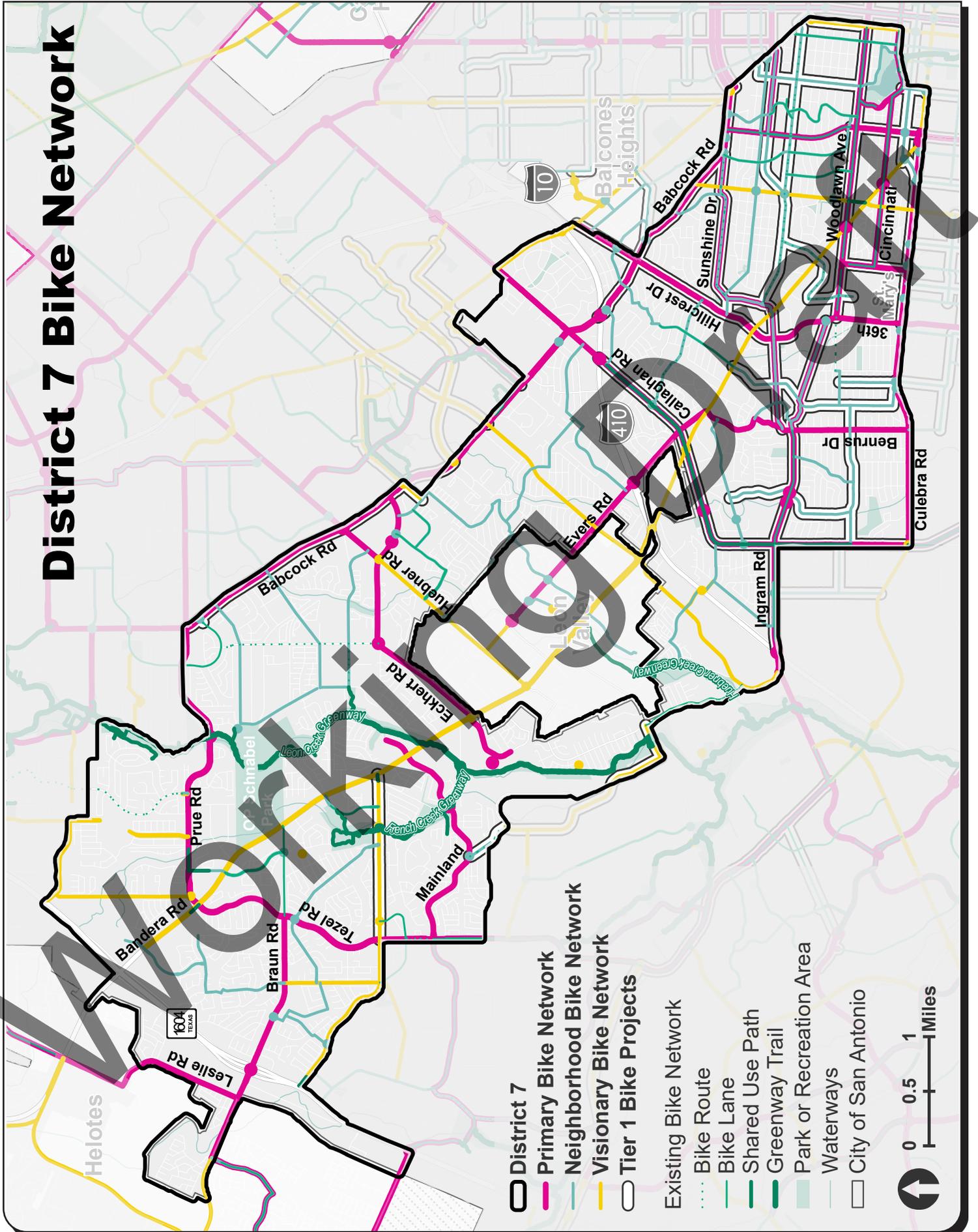
P#:	Roadway:	From:	To:
1003	Harness; Meadow Leaf; Meadow Way	Marbach	Bronco
1007	W Military	US 90	Loop 410
1011	Callaghan Rd	US 90	TX 151
1014	Callaghan Rd	TX 151	W Commerce
1016	Oakhill	Culebra Rd	Ingram Rd
1017	Viva Max	Oakhill	Callaghan Rd
1018	Callaghan Rd	Culebra Rd	Ingram Rd
1025	W Commerce	Callaghan Rd	Old Highway 90
1026	Castroville Rd	Acme	General McMullen
1027	Old Highway 90	TX 151	W Commerce
1029	Hemphill	Callaghan Rd	Broadview
5037	Culebra Rd	FM 1560 N	W Loop 1604 N
5095	Reed Rd; Richland Hills Dr; Military Dr	Culebra Rd	N Hunt Ln
5104	Culebra Rd	W Loop 1604 N	Grissom Rd;
5105	Culebra Rd	Tezel Rd;	Ingram Rd
5109	Coral Spgs; Grissom Rd; Heath Rd	Mainland Dr	Timberhill
5117	Guilbeau Rd	Bandera Rd	Tezel Rd

Primary Network:

Roadway:	From:	To:
Callaghan Rd	US 90	Ingram Rd
Commerce St	S San Joaquin Ave	W Military Dr
Culebra Rd	Ingram Rd	Rogers Rd
Dover Rdg	Weybridge	Tezel Rd
Ellison Dr	W Military Dr	Wiseman Blvd
Old Hwy 90	US 90	Commerce St
Galm Rd	Culebra Rd	Govt Canyon
Hunt Ln	Marbach Rd	Ingram Rd
Ingram Rd	Hunt Ln	Wurzbach Rd
Isla Bonita	Laguna Rio	Culebra Rd
Les Harrison Dr	Culebra Rd	Weybridge
Mainland Dr	Tezel Rd	Olde Village Dr
Marbach Rd	Hunt Ln	Pinn Rd
Military Dr	Commerce St	SH 151
36th St	Eldridge Ave	Fortuna St
Old FM 471 W	Talley Rd	Culebra Rd
Pinn Rd	US 90	Commerce St
Richland Hills Dr	Foxgrove Way	W Military Dr
Rogers Rd	Culebra Rd	State Hwy 151
Shaenfield Rd	Terra Oak	Oscar Wood Pl
Hwy 151 Access Rd	Hunt Ln	Rogers Rd
Terra Oak	Shaenfield Rd	Weybridge
Tezel Rd	Culebra Rd	Grimesland
Timber Path	Culebra Rd	Les Harrison Dr
Westover Link	N Ellison Dr	N Ellison Dr
Weybridge	Woodtrail	Dover Rdg

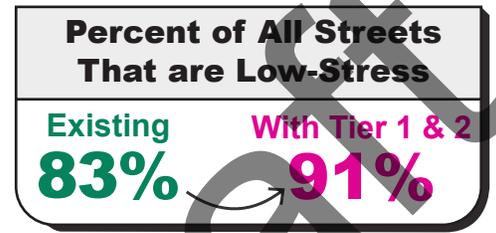
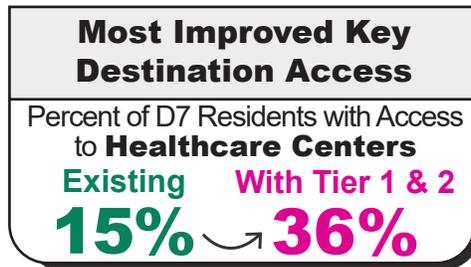


District 7 Bike Network



District 7 Profile

District 7 is home to Woodlawn Lake, one of the most popular destinations for bike riding in San Antonio. From St. Mary's University to the San Antonio Medical Center, the Bike Network Plan connects all these essential activity centers with an expanded protected bike network along roadways like Hillcrest, Woodlawn, Evers, and Ingram.



Tier 1 Projects:

P#:	Roadway:	From:	To:
280	Olmos Drive	Fredericksburg Rd	I-10
1019	Ingram Rd	Loop 410	Callaghan Rd
1023	Callaghan Rd	Ingram Rd	Loop 410
1029	Hemphill	Callaghan Rd	Broadview
1030	Marshwood; Majestic	Hemphill	Oak Knoll
1031	Ingram Rd	Callaghan Rd	Broadview
1037	Babcock Rd	Loop 410	Fredericksburg
1039	Broadview; Pettus	Bandera Rd	Culebra Rd
1042	Quill	Benrus	Sunshine
1043	Freeman	Broadview	36th St
1044	Roanoke/Yolanda	Overhill	Aurora
1053	Hillcrest	36th St	Fredericksburg
1058	Sunshine	Babcock Rd	Hillcrest
1061	Club; Thomas Jefferson	Saint Cloud	Fredericksburg Rd
1062	Donaldson	Quill	Fredericksburg
1065	Cheryl; Ligustrum	Donaldson	Marquette
1067	Woodlawn	36th St	Wilson
1068	Lake; Quentin	Woodlawn	Fredericksburg
1069	Woodlawn	Wilson	I-10
1070	Camino Santa Maria	Woodlawn	Culebra Rd
1076	Wilson; 24th	Woodlawn	W Commerce
1143	28th; Waverly; Rollins	Ruiz	Navidad
5109	Coral Spgs; Grisom Rd; Heath Rd	Mainland Dr	Timberhill
5117	Guilbeau Rd	Bandera Rd	Tezel Rd

Primary Network:

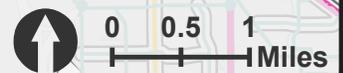
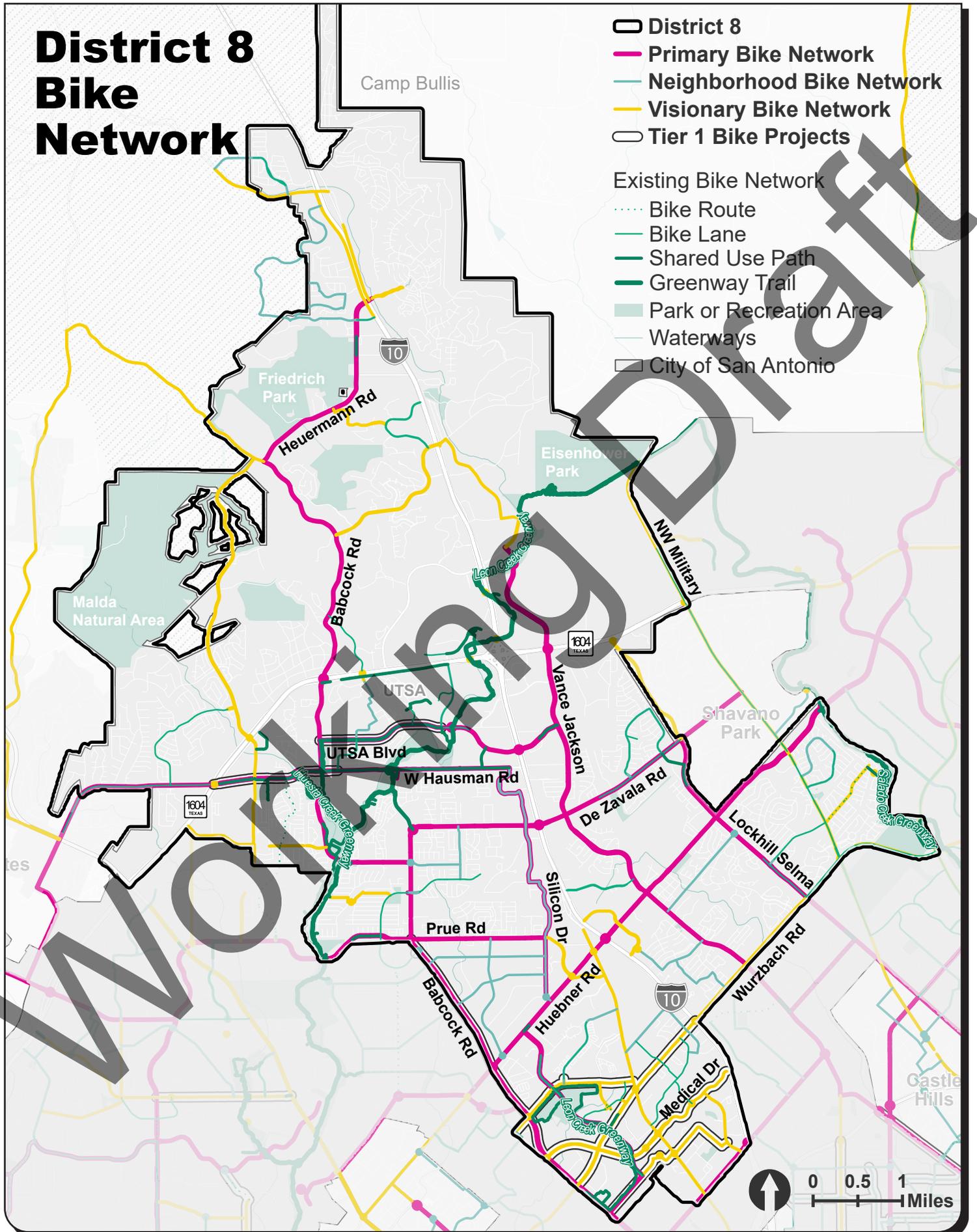
Roadway:	From:	To:
Babcock Rd	Fredericksburg Rd	Baywater Dr
Benrus Dr	Culebra Rd	Bandera Rd
Braun Rd	Corvey Ln	Tezel Rd
Broadview Dr	Freeman Dr	Ingram Rd
Callaghan Rd	Ingram Rd	Fredericksburg Rd
Camino Santa Maria	Culebra Rd	Woodlawn
Cincinnati Ave	S Josephine Tobin Dr	Camino Santa Maria
Club Dr	Wilson Blvd	Fredericksburg Rd
Culebra Rd	Callaghan Rd	NW 36th St
Dickinson Dr	E Sunshine Dr	Babcock Rd
Eckhart Rd	Caribou St	Oakdell Wy
Evers Rd	Forest Dell	Bandera Rd
Fredericksburg Rd	Fresno St	W Olmos Dr
Freeman Dr	Broadview Dr	NW 36th St
Hillcrest Dr	NW 36th St	Babcock Rd
Huebner Rd	Eckhart Rd	Babcock Rd
Ingram Rd	Wurzbach Rd	Freeman Dr
Josephine Tobin Dr	Glenmore Ave	W Woodlawn Ave
Leslie Rd	Baraun Rd	Rainbow Rdg
Mainland	Tezel Rd	Cul-De-Sac
NW 36th St	Culebra Rd	Hillcrest Dr
Prue Rd	Bandera Rd	Babcock Rd
Quill Dr	Benrus Dr	Sunshine Dr
Snow Flake Dr	Caribou St	Reindeer Trl
Sunshine Dr	Quill Dr	Dickinson Dr
Tezel Rd	Mainland Dr	Bandera Rd
Wilson Blvd	Culebra Rd	Babcock Rd
Woodlawn	NW 36th St	Elmendorf
Wurzbach Rd	Loop 410 Access Rd	Ingram Rd

District 8 Bike Network

-  District 8
-  Primary Bike Network
-  Neighborhood Bike Network
-  Visionary Bike Network
-  Tier 1 Bike Projects

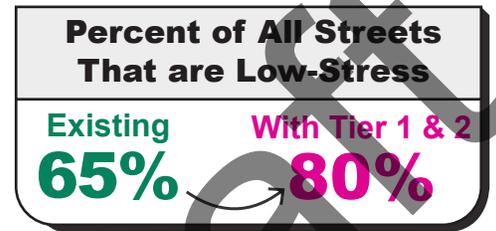
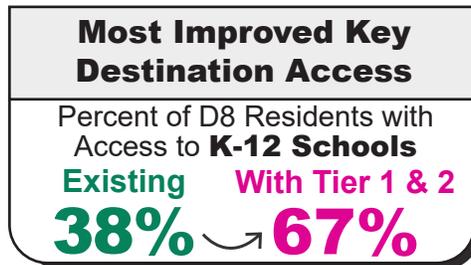
Existing Bike Network

-  Bike Route
-  Bike Lane
-  Shared Use Path
-  Greenway Trail
-  Park or Recreation Area
-  Waterways
-  City of San Antonio



District 8 Profile

With Eisenhower Park, Freidreich Wilderness Park, Malda Natural Area, and Hardberger Park, District 8 is a great place to enjoy the Hill Country's natural beauty. The BNP aims to better connect residents, students at UTSA and K-12 schools, and visitors to nature with new safe bikeways.



Tier 1 Projects:

P#:	Roadway:	From:	To:
5017	UTSA Blvd	Babcock Rd	Valero Way
5137	Cinnamon Hill; Hamilton Wolfe	Oakdell Way	Fredericksburg
5144	Donore Place; Louis Pasteur; Mocking Bird; Tupelo	Horizon Hill Blvd	Babcock Rd
5146	Babcock; Horn Blvd	Medical Dr	Prue Rd
5148	Medical Dr	Babcock Rd	W I-10
5153	Wurzbach Rd	Babcock Rd	W I-10
5172	W Hausman Rd	N Loop 1604 W	Roadrunner Way

Featured Tier 2 Projects:

P#:	Roadway:	From:	To:
2048	Vance Jackson	N Loop 1604	De Zavala
2049	De Zavala	I10 W	NW Military Hwy
2051	Indian Woods	De Zavala	Lockhill-Selma
2052	Vance Jackson	De Zavala	Huebner Rd
2054	Huebner Rd	I10 W	NW Military Hwy
2057	Vance Jackson	Huebner Rd	Wurzbach Rd
2069	George Rd	Lockhill-Selma	Cul-de-sac
2070	Vantage Hill Dr	NW Military Hwy	Neighborhood
2091	Huebner Rd	NW Military Hwy	N Loop 1604
2293	UTSA Blvd	I10	Vance Jackson
5015	Babcock Rd	Loop 1604 W	UTSA Blvd
5018	UTSA Blvd	Valero Way	IH 10 W
5019	Hausman Rd w	Bandera Rd	Loop 1604 w
5129	Eckhert Rd	Abe Lincoln	Babcock Rd
5130	Huebner Rd	Bandera Rd	Babcock Rd
5132	Wurzbach rd	Bandera Rd	Babcock Rd
5143	Babcock Rd	NW Loop 410	Medical Dr
5147	Huebner Rd	Babcock Rd	W IH 10
5150	Fairhaven St	Medical Dr	Datapoint Dr
5151	Datapoint Dr	Fredericksburg rd	Wurzbach Rd
5156	Floyd Curl Dr	Fawn Mdws	Huebner Rd
5160	Gus Eckert Rd	Gus Eckert Rd	Fredericksburg
5161	Valero Way	UTSA Blvd	N Loop 1604 W
5162	Prue Rd	Bandera Rd	Babcock Rd
5170	Babcock Rd	De Zavala Rd	Old Babcock Rd

Primary Network:

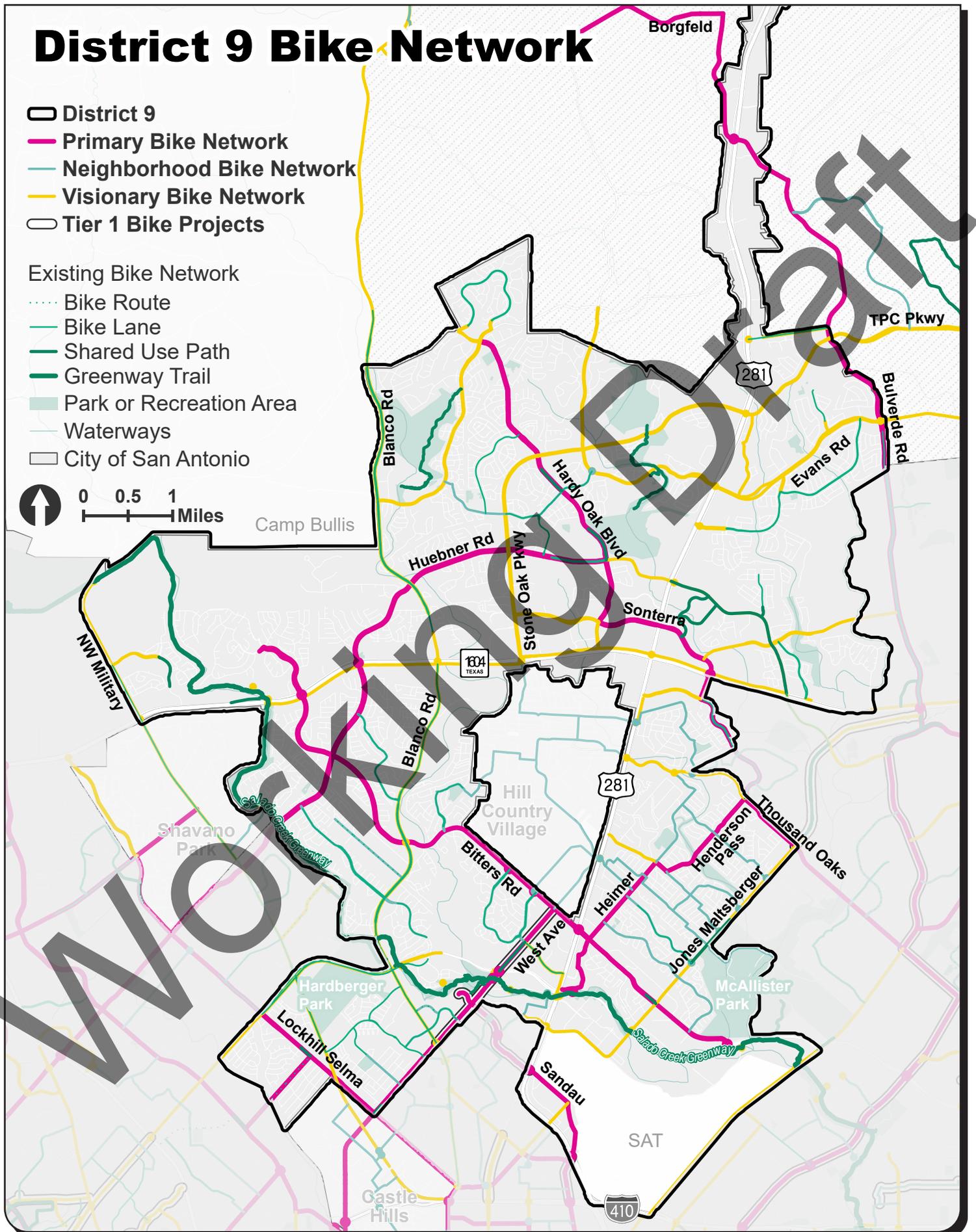
Roadway:	From:	To:
Babcock Rd	Baywater Dr	Heuermann Rd
De Zavala Rd	Babcock Rd	Lockhill-Selma Rd
Dominion Dr	Tbd	Tbd
Eckhert Rd	Babcock Rd	Oakdell Way
Floyd Curl Dr	Louis Pasteur Dr	Huebner Rd
FM 1560 N	SH 16	N Loop 1604 W
Hausman Rd	N Loop 1604 W	University Hts
Heuermann Rd	Babcock Rd	Milsa Dr
Huebner Rd	Babcock Rd	Salado Creek
Jv Bacon Pkwy	Jv Bacon Pkwy	W Hausman Rd
Lockhill-Selma Rd	Wurzbach Rd	De Zavala Rd
Louis Pasteur Dr	Babcock Rd	Floyd Curl Dr
Milsa Dr	Heuermann Rd	Stonewall Pkwy
Network Blvd	Prue Rd	Northwest Pkwy
Northwest Pkwy	Network Blvd	Silicon Dr
Prue Rd	Southwell Rd	Prue Bend
Silicon Dr	Northwest Pkwy	University Hts
Southwell Rd	Huebner Rd	Prue Rd
Spring Time Dr	Babcock Rd	Spring Shadow St
Stonewall Pkwy	Dominion Dr	Milsa Dr
University Hts	Silicon Dr	W Hausman Rd
UTSA Blvd	Babcock Rd	Vance Jackson Rd
Vance Jackson Rd	Wellsprings Dr	La Cantera Pkwy

District 9 Bike Network

-  District 9
-  Primary Bike Network
-  Neighborhood Bike Network
-  Visionary Bike Network
-  Tier 1 Bike Projects

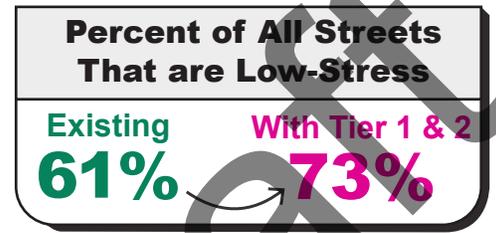
Existing Bike Network

-  Bike Route
-  Bike Lane
-  Shared Use Path
-  Greenway Trail
-  Park or Recreation Area
-  Waterways
-  City of San Antonio



District 9 Profile

District 9 is home to McAllister Park, one of the most used off-road riding areas in San Antonio. Aside from the Salado Creek Greenway, bike users have a difficult time accessing the park without using a car. The BNP seeks to better connect residents to their city, allowing bike users of all ages and abilities to "ride to the ride"!



Tier 1 Projects:

P#:	Roadway:	From:	To:
2094	West Ave	Blanco Rd	Bitters Rd
2109	Rhapsody	West Ave	US 281

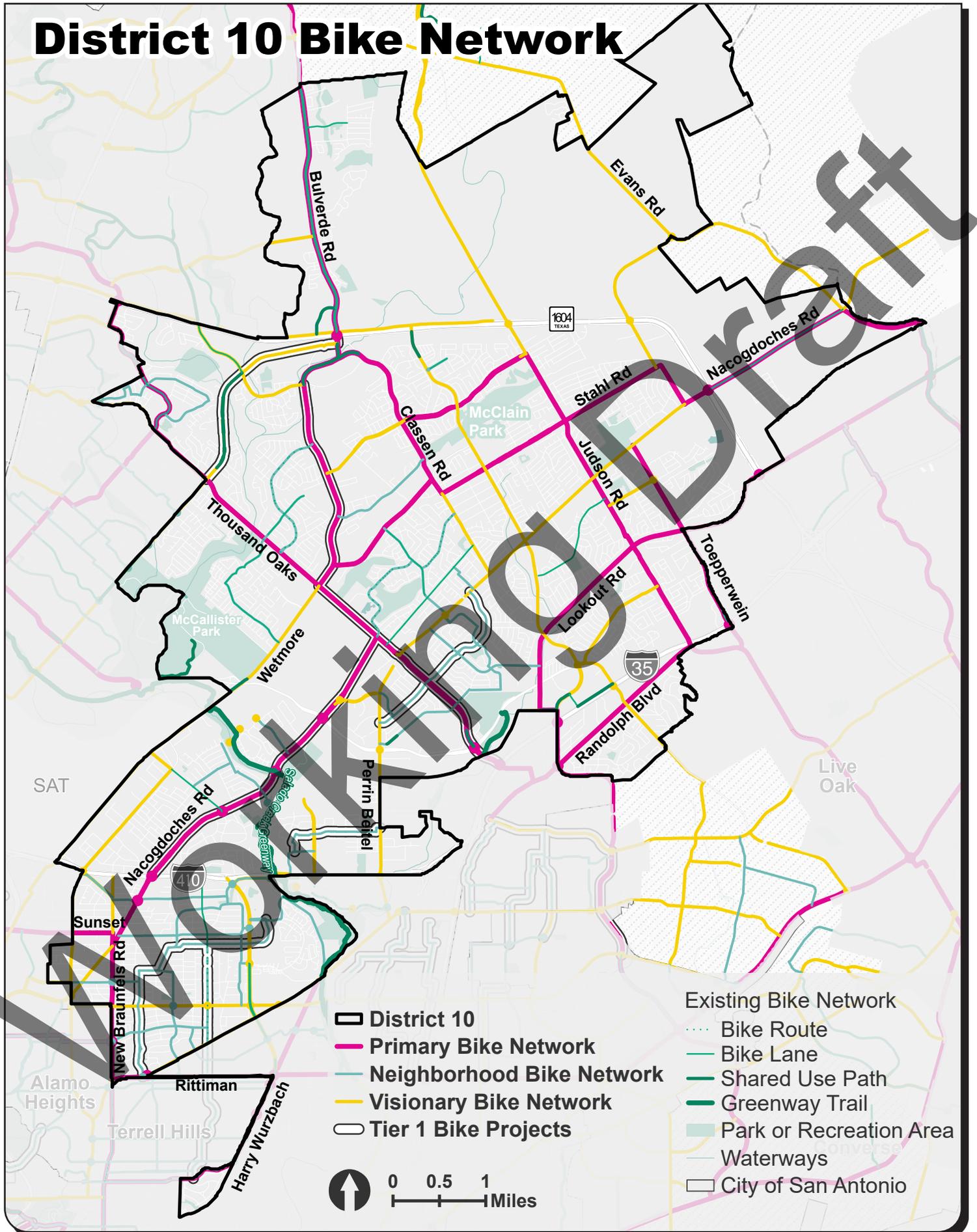
Featured Tier 2 Projects:

P#:	Roadway:	From:	To:
2010	Bulverde Rd	E Evans Rd	N Loop 1604
2016	Hardy Oak Blvd	H-E-B Hardy Oak	Stone Oak Pkwy
2018	Evans Rd	Stone Oak Pkwy	US 281
2027	Huebner Rd	N Loop 1604	Stone Oak Pkwy
2028	Stone Oak Pkwy	US 281	Evans Rd
2029	Stone Oak Pkwy	Evans Rd	Huebner Rd
2030	Stone Oak Pkwy	Huebner Rd	N Loop 1604
2074	Lockhill-Selma	NW Military Hwy	Blanco Rd
2083	Larkspur	Larkspur Elementary	Morey Peak
2084	West Ave	Lockhill-Selma	Blanco Rd
2091	Huebner Rd	NW Military Hwy	N Loop 1604
2093	W Bitters Rd	Blanco Rd	US 281
2097	Hidden View	Hidden Forest Elementary	Tower Dr
2100	Meadowbrook Dr	N Loop 1604	US 281
2106	Isom Rd	San Pedro Ave	Sandau
2110	Nakoma/Warfield; North Loop	Rhapsody	Salado Creek
2112	Copper Hill/Parhaven/Parkstone	US 281	Ledge Vw
2114	Thousand Oaks	US 281	Jones Maltsberger
2118	Shadow Cliff/Crow Valley/Great Oaks	Heimer Rd	Jones Maltsberger
2119	Henderson Pass	Thousand Oaks	Brook Holw
2120	Brook Hollow	US 281	Jones Maltsberger
2122	Oak Shadows	US 281	Heimer Rd
2124	Gross Canyon Dr	Neighborhood	Heimer Rd
2125	Perennial/Budding	Heimer Rd	Starcrest Dr
2126	Bitters Rd/Starcrest	US 281	Wurzbach Pkwy
2127	Heimer RD	US 281	Brook Holw
2129	Jones Maltsberger	US 281	US 281
2136	Jones Maltsberger	Starcrest Dr	Thousand Oaks
2297	Vista Real	Blanco Rd	Vista Bonita

Primary Network:

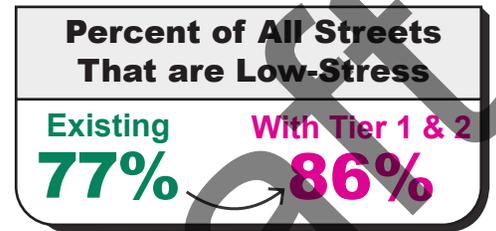
Roadway:	From:	To:
Bitters Rd	N Loop 1604 W	US 281
Brook Holw	Henderson Pass	Heimer Rd
Bulverde Rd	Ravello Hills	TPC Pkwy
Cedar Way	Henderson Pass	Borgfeld Dr
Country Pkwy	Maltsberger Ln	Heimer Rd
Dreamland Dr	Lockhill-Selma Rd	Rail Crossing
Gold Canyon Rd	N Loop 1604 E	Henderson Pass
Hardy Oak Blvd	Sonterra Blvd	Wilderness Oak
Heimer Rd	Brook Hollow Blvd	US 281
Henderson Pass	Brook Hollow Blvd	Gold Canyon Rd
Huebner Rd	Salado Creek	Hardy Oak Blvd
Jones Maltsberger Rd	281 N Access Rd	Isom Rd
Lockhill-Selma Rd	Woodyew	Wurzbach Rd
Maltsberger Ln	281 N Access Rd	Country Pkwy
Rhapsody Dr	West Ave	Salado Creek
Rogers Ranch	N Loop 1604 W	Point Bluff Dr
Sandau Rd	281 N Access Rd	Isom Rd
Sonterra Blvd	N Loop 1604 E	Hardy Oak Blvd
Starcrest Dr	Wurzbach Pkwy	Bitters Rd
Thousand Oaks Dr	Pebble Forest Dr	Oak Leigh St
Thrasher Oak	Henderson Pass	Henderson Pass
West Ave	Lockhill-Selma Rd	Bitters Rd

District 10 Bike Network



District 10 Profile

District 10 features some of San Antonio's best opportunities for new bike-to-park connectivity. The McAllister and Lady Bird Johnson Parks area is already connected to the Salado Creek Greenway. Through the BNP, D10 residents will enjoy new safe connections to McClain and Comanche Lookout Parks as well.



Tier 1 Projects:

P#:	Roadway:	From:	To:
143	Vandiver; Dover Rd	Burr Rd	Urban Crest Dr
152	Meadowlane; Urban Crest; Oakwell; Northridge	Austin Hwy	Oakwell Farms
2116	Thousand Oaks	Wetmore Rd	I-35
2137	Jones Maltzberger; Bulverde Rd	Thousand Oaks	N Loop 1604
2139	Bulverde; Wetmore	Redland Rd	Thousand Oaks
2149	El Sendero	Perrin Beitel	Nacogdoches
2168	Nacogdoches Rd	Loop 410	Starcrest Dr
2169	Nacogdoches Rd	Starcrest Dr	Thousand Oaks
2173	Barrington; Carriage; Comstock; Kings	Hidden Dr	Perrin Beitel

Featured Tier 2 Projects:

P#:	Roadway:	From:	To:
132	New Braunfels Ave	Austin Hwy	Loop 410
133	Nacogdoches Rd	Jones Maltzberger	Loop 410
135	Burr Rd	Incarnate Word	Harry Wurzbach
140	Harry Wurzbach Rd	Burr Rd	Loop 410
145	Rittiman Rd	Austin Hwy	I-35
150	Eisenhauer Rd; Claywell Dr	Broadway St	I-35
151	Ira Lee; Corinne Dr	Rittiman Rd	Laurens Ln
2010	Bulverde Rd	E Evans Rd	N Loop 1604
2114	Thousand Oaks	US 281	Jones Maltzberger
2115	Thousand Oaks	Jones Maltzberger	Wetmore Rd
2120	Brook Hollow	US 281	Jones Maltzberger
2130	Wetmore Rd	Loop 410	Salado Creek
2131	Wetmore Rd	Salado Creek	Thousand Oaks
2132	Broadway; MacArthur View	Loop 410	Wetmore Rd
2133	Starcrest Dr	Nacogdoches Rd	Neighborhood
2136	Jones Maltzberger	Starcrest Dr	Thousand Oaks
2145	Classen Rd	Autry Pond	Knollcreek
2153	O'Connor Rd	Nacogdoches Rd	O'Connor Rd
2164	Independence Ave	Crosswinds Wy	Judson Rd
2171	Perrin Beitel	Austin Hwy	Thousand Oaks
2202	Randolph Blvd	Crestway Rd	Judson Rd

Primary Network:

Roadway:	From:	To:
Austin Hwy	New Braunfels Ave	Rittiman Rd
Bulverde Rd	Wetmore Rd	Ravello Hills
Bulverde Rd	Nacogdoches Rd	Thousand Oaks
Burr Rd	Hathaway Dr	Harry Wurzbach Rd
Castano Ave	Alamo Heights Blvs	New Braunfels Ave
Cedar Rdg	Henderson Pass	Henderson Pass
Classen Rd	Bulverde Rd	Stahl Rd
Evans Rd	FM 2252	City Limits
Gold Canyon Rd	Henderson Pass	N Loop 1604 E
Harry Wurzbach Rd	Burr Rd	Eventide Dr
Henderson Pass	Thousand Oaks	Gold Canyon Rd
Higgins Rd	Stahl Rd	N Stahl Park
Judson Rd	Fiddlers Green St	Knollcreek
Knollcreek	Classen Rd	Judson Rd
Krugerrand Dr	Henderson Pass	Henderson Pass
Lookout Rd	Old Oconnor Rd	Toepperwein Rd
Nacogdoches Rd	New Braunfels Ave	Naco Perrin Blvd
New Braunfels Ave	Austin Hwy	E Sunset Rd
Point Oak	Henderson Pass	Henderson Pass
Randolph Blvd	Weidner Rd	Judson Rd
Rim Oak	Henderson Pass	Henderson Pass
Rittiman Rd	Austin Hwy	Harry Wurzbach Rd
Stahl Rd	Wetmore Rd	Nacogdoches Rd
Sunset Rd	Lado Bueno	New Braunfels
Thousand Oaks	I-35	Henderson Pass
Toepperwein Rd	I-35	Nacogdoches Rd
Villa Camino	Judson Rd	Judson Rd
Weidner Rd	Lowrie	Old Oconnor Rd
Wetmore Rd	Thousand Oaks	Bulverde Rd

Projects and Tiers

With the identification of the BNP network and the tiers based on the function each bikeway service, the next step was the prioritization of each bikeway for construction. Essential questions include:

How does the City break up this massive network into projects?

First, the BNP grouped individual roadway segments (from intersection to intersection) into projects based on their location and connection to key destinations. Then, the BNP split these projects at logical breaking points such as major highways without crossings, the end of a roadway, city boundaries, connections to existing major bike infrastructure, or planned future major bike projects. Finally, to ensure each project is implementable, the BNP broke up the project further by delivery agency like COSA Public Works, COSA Parks and Recreation, TxDOT, and partner cities. This yielded a complete list of 1,035 mostly 3-mile or less projects on the bike network.

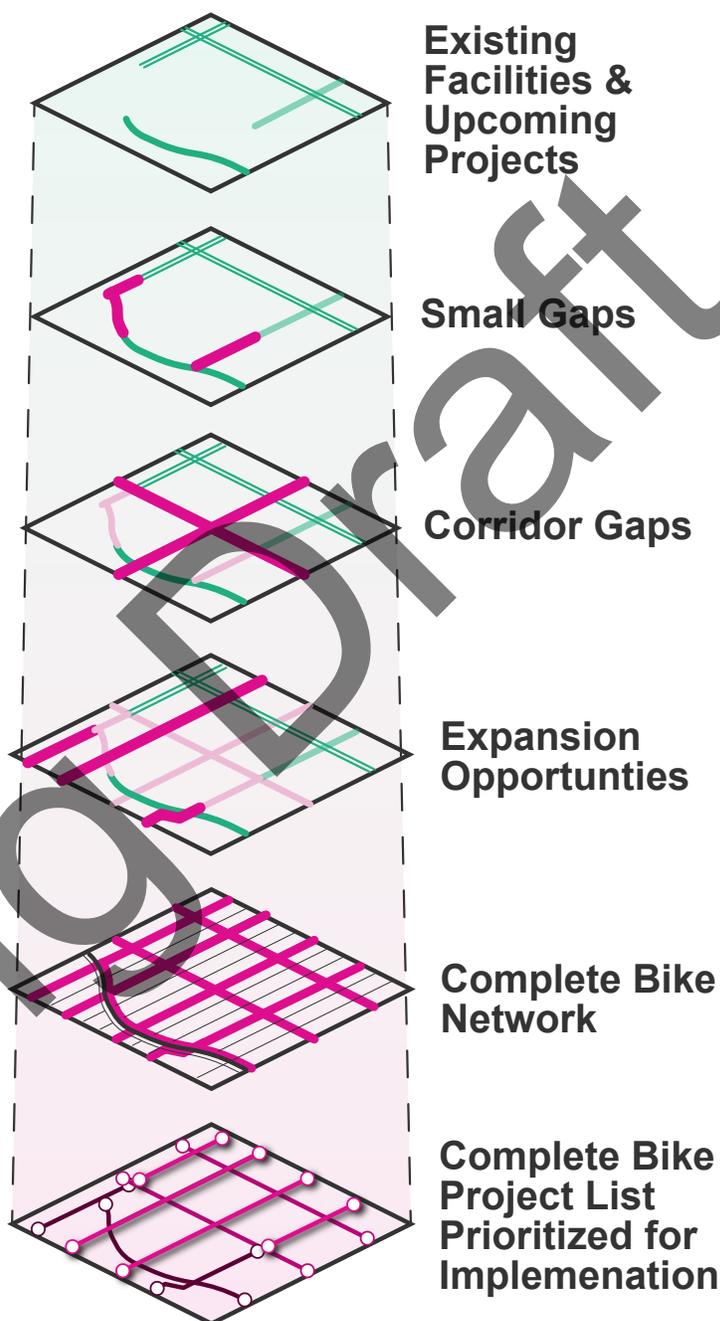
How do these projects affect the roadway they are along?

Implementing bike facilities will affect the entire surface of a roadway and its surrounding ROW. All projects and cost estimates are not only focused on building a bikeway, but on improving the entire roadway for all users. Thus, the BNP significantly informs the City's long term maintenance plans.

How were Projects Prioritized?

Similar to the network development, the five stated BNP principles were the foundation for scoring these projects. Using various data sources representing four of the principles (**Equity**, **Community**, **Safety**, and **Connectivity**), a 100-point maximum total "priority score" was attributed to each project. These scores alone will not dictate the priority of a project but will inform the final tier groups of all projects before incorporating the final principle of **feasibility**.

There are hundreds of constraints that affect the feasibility of a project, but 16 that frequently stop bike projects were identified and rated by severity. These 16 constraints became feasibility checks that every project was evaluated against, with projects checking more boxes being rated less feasible.



Feasibility checks and priority scores work together to evaluate all projects for how soon they can get on the ground and make San Antonio a safer place to ride a bike.

To determine project priority and feasibility, the City asked: Is this Project...?

Together, datasets within these four categories made up a maximum 100-point priority score. Most projects scored around 30 points, but this data-driven process allowed the prioritization of projects across the entire city before evaluating projects for feasibility.

Supporting Equity 20 pts

- ...near dense populations with low access to low-stress bikeways?
- ...in areas with differentially poor health outcomes or that are higher scoring in the COSA Equity Atlas?

Connective 30 pts

- ...connecting to transit stops?
- ...improving access to everyday needs like grocery stores or to parks & trails?
- ...connecting between direct gaps in bike facilities?

Safety Oriented 30 pts

- ...in a corridor with a high number of bike or pedestrian crashes?
- ...along the COSA Vision Zero High Injury or High Risk Networks?

Community Driven 20 pts

- ...a planned project from another plan?
- ...in public comments from surveys and in-person mapping?

Binary checks were performed to determine if projects are impacted by any high, medium, or low-level constraints. The severity of the constraint was determined by the likely duration of delay or the unlikelihood of project success. For example, while it's very simple to partner with a city like Olmos Park on bike facility improvements, partnering with TxDOT may require more time and coordination. Projects checking no high or mid severity constraints are considered "very feasible" while projects checking at least two mid level constraints are "feasible." All other projects are considered "less feasible."

Roadway Design Constraints	<input type="radio"/> Potentially impacting 10 or more parking spaces?	MID
	<input type="radio"/> Potentially removing a car travel lane?	MID
	<input type="radio"/> Potentially reconfiguring a roadway?	LOW
	<input type="radio"/> Potentially removing a left turn lane?	LOW
	<input type="radio"/> Potentially removing a right turn lane?	LOW
Project Management Constraints	<input type="radio"/> On a roadway that doesn't exist yet?	HIGH
	<input type="radio"/> Potentially modifying a rail crossing?	HIGH
	<input type="radio"/> Owned by TxDOT?	MID
	<input type="radio"/> Along a VIA Future Advanced Rapid Transit Line?	MID
	<input type="radio"/> Along a VIA Existing Service Line	LOW
Other Constraints	<input type="radio"/> Owned by a partner city?	LOW
	<input type="radio"/> On a long term highway widening project?	LOW
	<input type="radio"/> Potentially require additional Right-of-way	MID
	<input type="radio"/> Potentially impact private property	MID
	<input type="radio"/> Requiring a new signalized intersection?	MID
	<input type="radio"/> Potentially requiring environmental assessment?	LOW

Severity of each feasibility check

This process yielded our Tier Table, where projects of varying priority and feasibility are sorted into 4 tiers.

	Significantly Higher Priority Score	Above Average Priority Score	Below Average Priority Score	Significantly Lower Priority Score
Very Feasible	Tier 1			
Feasible		Tier 2	Tier 3	
Less Feasible				Tier 4

What does it mean for a project to be in each tier?

Because a project flags a certain constraint or scores poorly in a certain category does not mean that it isn't a priority in certain areas of San Antonio.

The four tiers for implementation are not a strict order by which bike projects must be deployed, but rather a guide for the City to prioritize future investments. The City must take into account additional community engagement and local preference before being funded for construction.

Tier 1 Projects

Timeframe: 2025 - 2030	Project Miles: 337
----------------------------------	------------------------------

These are very high priority projects with minimal feasibility concerns that can be quickly deployed and should be completed in the near term. Tier 1 projects are also prime candidates for quick-build infrastructure, meaning they can be deployed even earlier on in their timeframe.

Example: Protected Bike Lanes on Camden St.

Tier 2 Projects

Timeframe: 2028 - 2035	Project Miles: 733
----------------------------------	------------------------------

Tier 2 has the largest number of projects and the most mileage of improvements because so many projects met its criteria, either scoring lower in certain categories or checking more constraints. These are still high priority projects and if quick-build infrastructure is applicable to a Tier 2 project, it should be implemented outside its tier.

Example: Improved Bike Boulevard on Pine St.

Tier 3 Projects

Timeframe: 2030 - 2030	Project Miles: 420
----------------------------------	------------------------------

Tier 3 projects often have feasibility concerns or are not a very high priority, but could become feasible or a higher priority if circumstances change. If quick-build infrastructure is applicable to a Tier 3 project, these should be deployed once the quick build process is thoroughly vetted.

Example: Shared Use Paths on General Hudnell

Tier 4 Projects

Timeframe: 2035 - 2050	Project Miles: 250
----------------------------------	------------------------------

All other projects either checking a high severity constraint or scoring very low on priority are grouped in Tier 4. These are long-term visionary needs that should be implemented as opportunities arise but that likely cannot be implemented in the next decade.

Example: Eastside Greenway along Sherman St.

Can projects be prioritized outside of their tier groups?

Yes! This process creates a priority list of projects that make sense in 2025, but as with everything in the Bike Network Plan, it's meant to be adaptable to changing circumstances.

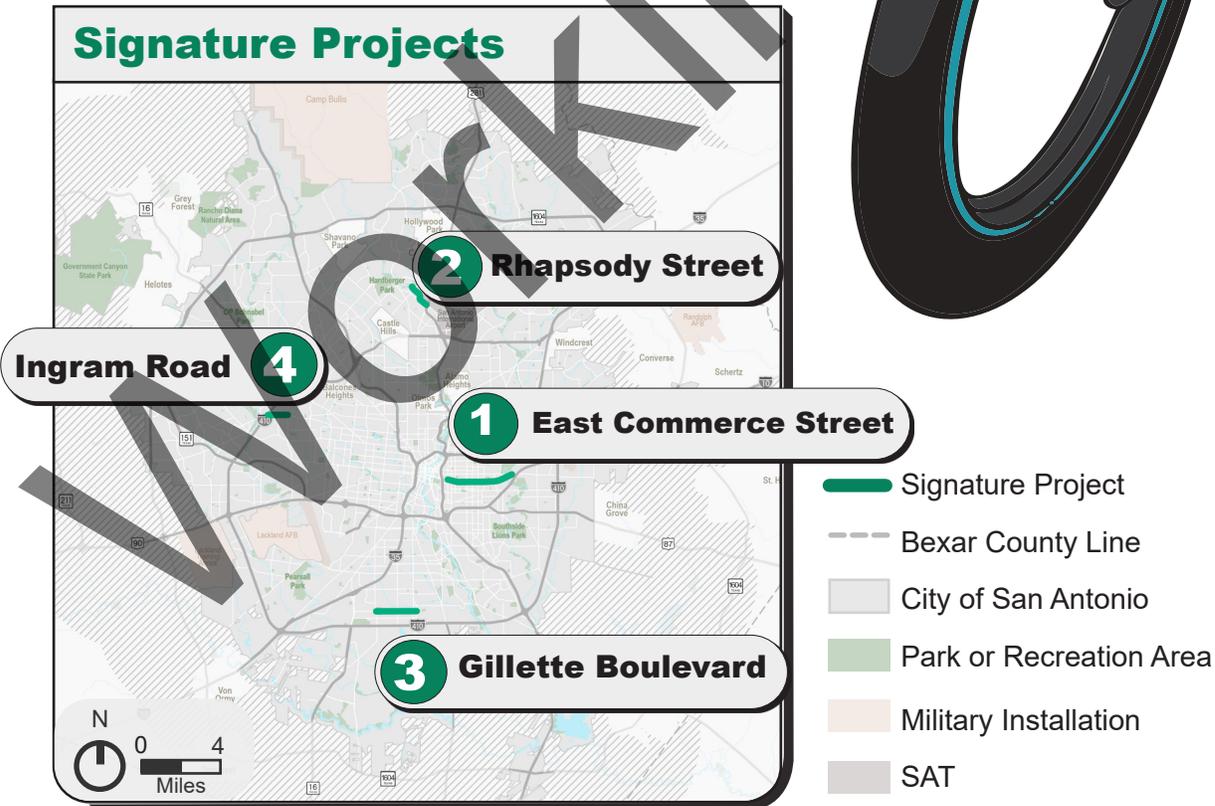
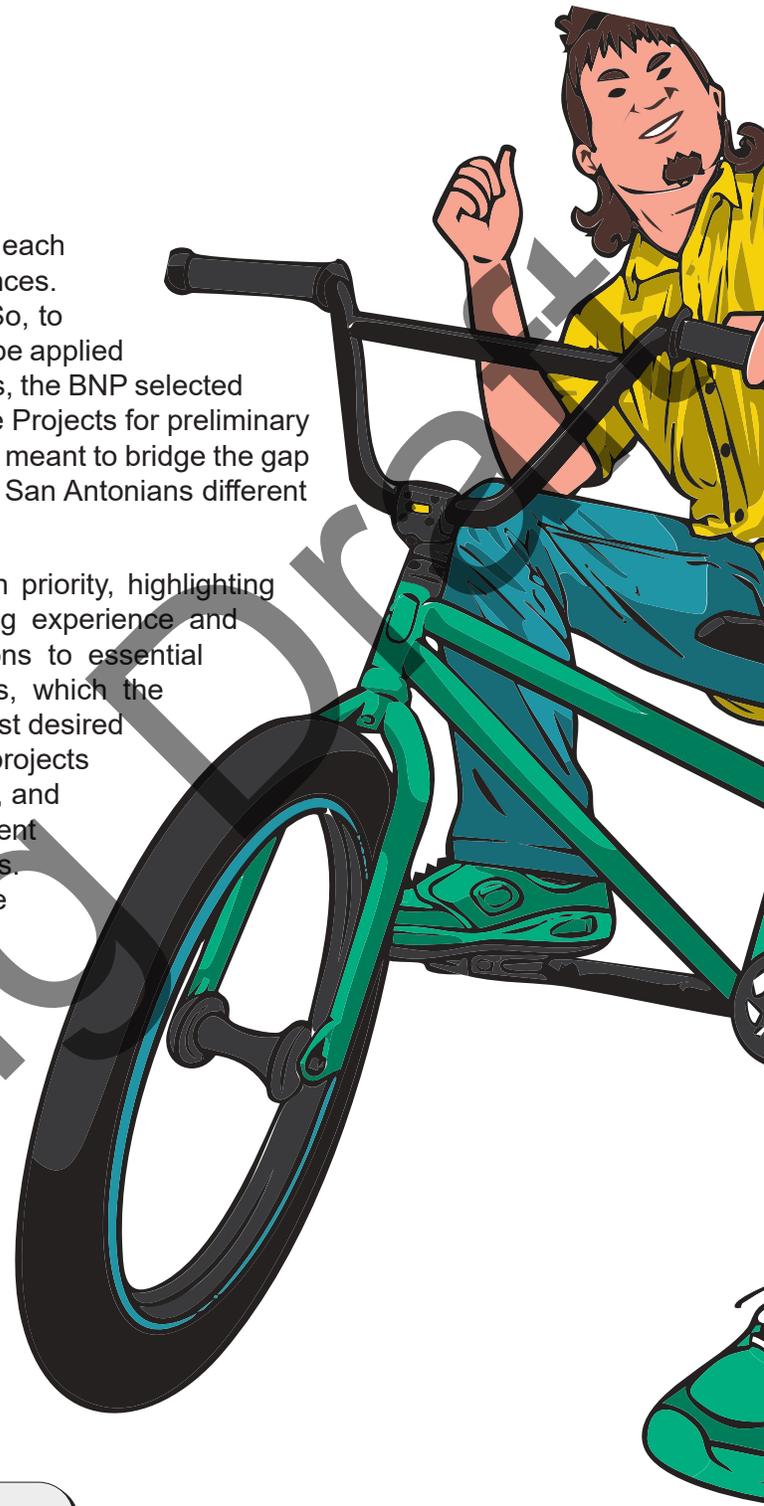
As San Antonio makes new and exciting bike improvements, projects can move up and down the tier list. In future revisions to the bike network, the City will measure these projects for feasibility based on new on-the-ground conditions and may add or remove factors for evaluation. This prioritization is not meant to set mandates or scores in stone, but to help move the City forward.

Signature Projects

What will this network look like once it is implemented?

The BNP does not define what facilities should be present on each roadway in order to remain flexible to changing circumstances. But San Antonians still deserve to know what's coming up. So, to showcase how recommended bike infrastructure design can be applied to the the bike network and projects in different circumstances, the BNP selected four representative high priority and implementable Signature Projects for preliminary conceptual rendering from across the city. These projects are meant to bridge the gap between the bike facility guidance and the network, showing San Antonians different selected facility types dependent on the situation.

These Signature Projects are both implementable and high priority, highlighting projects that would have a significant impact on the riding experience and accessibility of an area. They also feature key connections to essential locations and facilities such as greenway trails and parks, which the BNP's engagement process identified as the connections most desired by the community. In the following pages these signature projects are explore and rendered, showing how facility, placemaking, and Green Stormwater Infrastructure guidance is applied in different land use contexts and geographically diverse roadway types. All projects shown here are Tier 1 and all roadways are on the Primary Network.



1 East Commerce Street



From: Cherry	To: Houston	Council District: 2	
Road Type: Primary Arterial	Land Use: Activity Center	Lanes: 4	Speed: 35
Recommended Bike Facility: Protected Bike Lane			

East Commerce Street runs through the heart of the east side – from Downtown San Antonio to the Arena District. Lincoln Park, the Claude Black Multi Service Center, and the Dawson Community Center are all located along this route, which provides essential bike connectivity between major destinations, local parks, and community centers. This route provides safe bike infrastructure for a diverse user group as multiple land uses exist along it, from commercial centers Downtown to industrial areas on Coca Cola Place. This protected bike facility connects the Alamodome and the Riverwalk to the Salado Creek Greenway, making it part of the Great Springs Project Regional Trail connecting the San Antonio and Austin.

Signature Project 1, a traditional 4-lane-to-3-lane conversion that maintains parking on the north side of the street (frequent driveways along the southern curb limit use of the existing parking lane). A parking-protected bike lane provides parking for the Freidrich Refrigeration Building and additional protection to bike users. It also provides space near intersections for floating bus islands and green stormwater features, important VIA's Route 25 that runs along East Commerce Street.

2 Rhapsody Street



From: Walker Ranch Senior Center	To: US 281	Council District: 1 & 9	
Road Type: Major Collector	Land Use: Industrial	Lanes: 2	Speed: 35
Recommended Bike Facility: Buffered Bike Lane or Protected Bike Lane			

Rhapsody Street in North San Antonio features direct connections to the Walker Ranch Senior Center from nearby neighborhoods like Harmony Hills and industrial areas surrounding the San Antonio International Airport. This project will be a key connection, transforming the area into a safe and desirable walkable route to users of the Salado Creek Greenway and the senior center, nearby residents, and workers at the many local employment locations. The Walker Ranch Senior Center was recently designed with GSI features throughout its parking lot – this project can extend those features into the streetscape supporting waterflow into Salado creek.

Many features make this a uniquely implementable facility. It requires no roadway conversion or lane removal, and frequent driveways and ample parking lots allow no substantial parking to be lost. Thanks to the street’s low traffic volumes, both protected and buffered bike lanes may be applicable, allowing designs to adapt to different circumstances.

3 Gillette Boulevard

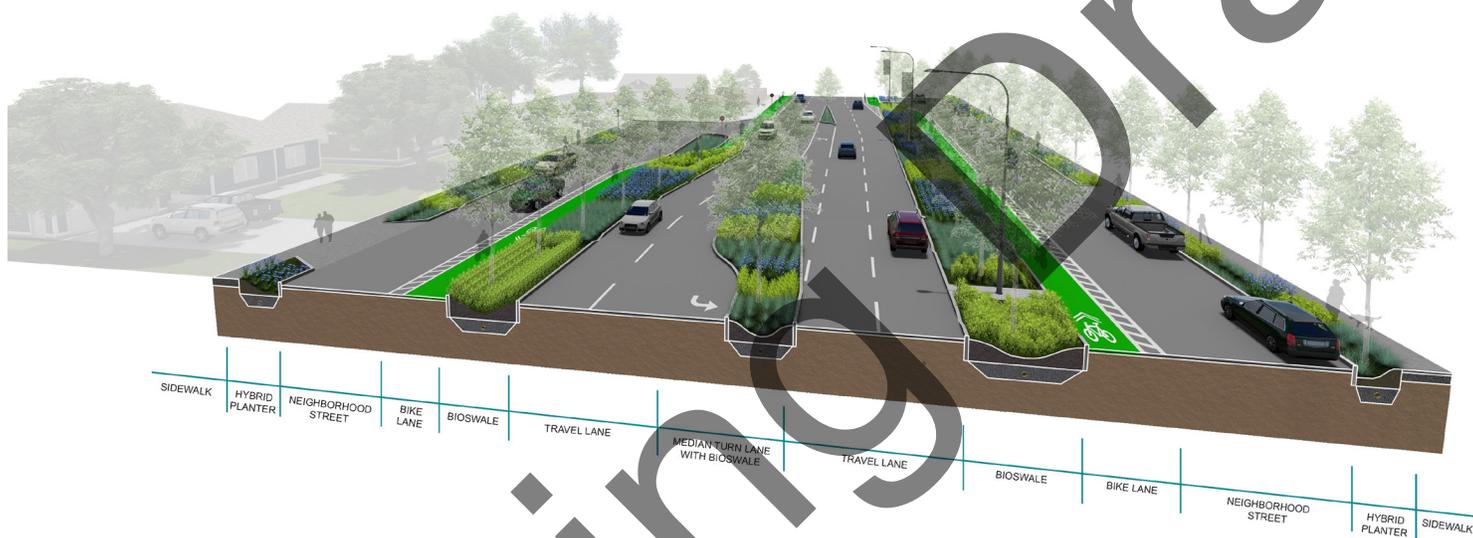


From: Zarzamora	To: H.Pleasanton	Council District: 3 & 4	
Road Type: Primary Arterial (but functioning closer to a Collector)	Land Use: Low Density	Lanes: 2	Speed: 35

Recommended Bike Facility:
 Protected Bike Lane or Bike Boulevard if speed/classification changes

Gillette Boulevard runs through Southside San Antonio, crossing rail lines and connecting the Ramirez Community Center and Gillette Elementary to universities such as Palo Alto College. It is a unique roadway featuring many different scales and designs. This project corridor features only two driving lanes, but closer to the Potet Jourdanton Freeway, it expands to five lanes with striped bike lanes. This supports its current designation as a Primary Arterial roadway, but its travel use and overall design are much closer to a Collector. This project provides a unique opportunity to implement safe bike infrastructure that affects a roadway designation. If the Primary Arterial designation is maintained, the protected bike lane design shown in this rendering could be implemented. If designated as a Collector, implementations as minimal as a bike boulevard may be appropriate. Either way, this project demonstrates flexibility in handling railroad crossings – given the lower speed and the high elevation of the railroad crossing, car users could yield to bikes when crossing, allowing this project to be implemented without interacting with rail ROW. This project also highlights flexibility near schools, allowing for new crosswalks for students and maintaining all parking and pick up areas.

4 Ingram Road

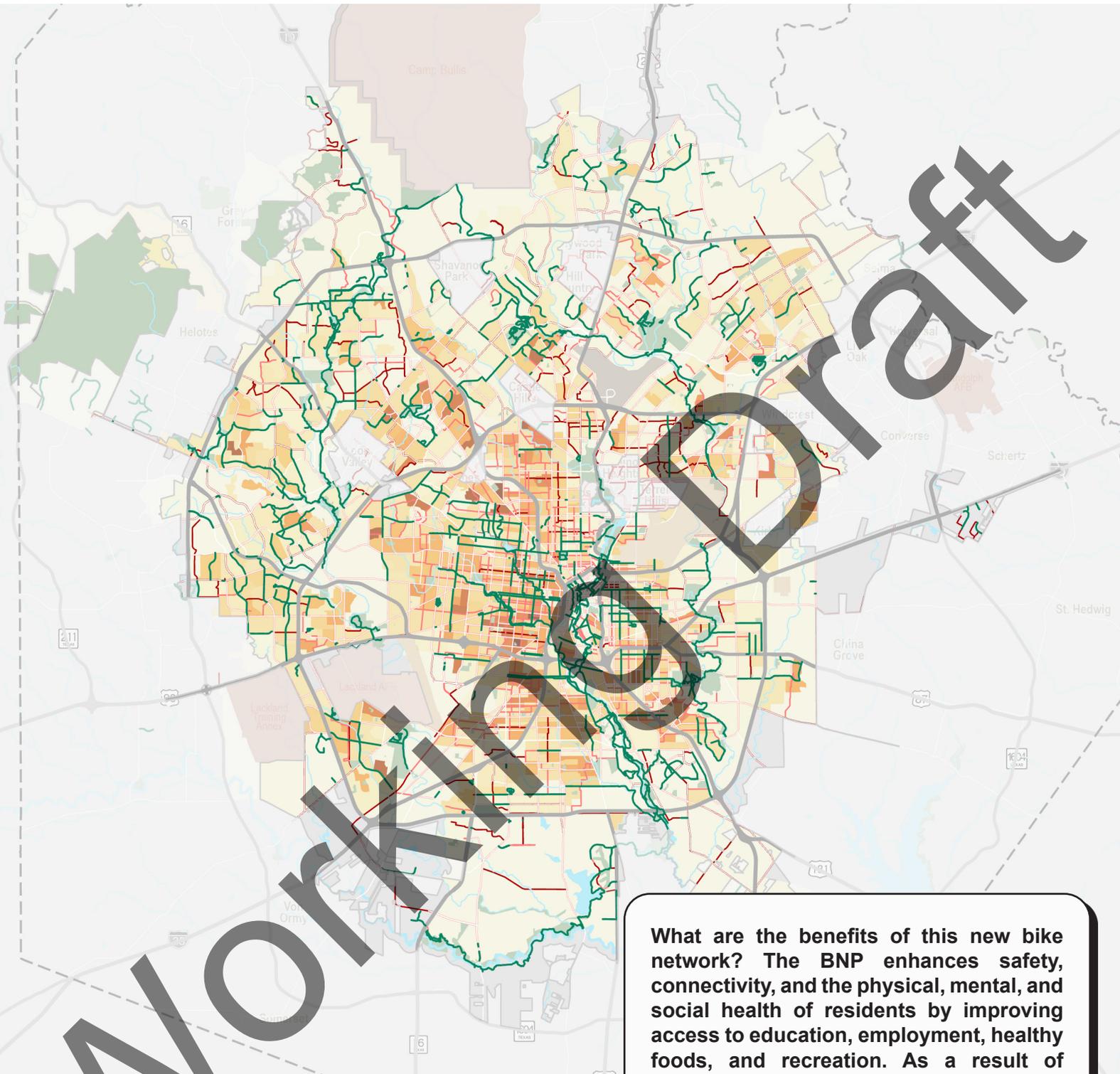


From: Callaghan	To: I-410	Council District: 6 & 7	
Road Type: Secondary Arterial	Land Use: Mid Density	Lanes: 5	Speed: 35
Recommended Bike Facility: Protected or Raised Protected Bike Lane			

Ingram Road’s elevation changes, high speeds, and high traffic volumes make the existing infrastructure (striped bike lanes) unsafe for students of the nearby Holmes High School and residents of Thunderbird Hills. The Zarzamora Creek Greenway will soon be extended north to Ingram Road, accelerating the need to improve this infrastructure and connectivity across I-410 to the frequently used Leon Creek Greenway and Ingram Transit Center.

More than any other project, Ingram Road’s potential for safe bike infrastructure demonstrates the flexibility of design standards when handling unique roadway designs. Ingram Road features access roads for single-family homes along it; converting the left curb of these access roads to buffered bike lanes creates a new safe path for bike users without removing any car travel, turn, or parking lanes. It also provides ample space on the main Ingram roadbed for planted medians to protect left turning motorists. The existing planted space between the main roadway and access roads provides an barrier for bikes from car traffic. To the east and west of the access roads’ extents, the bikeway can transition to the main roadbed and, by removing the center turn lane, can maintain protected bike facilities through the extent of the entire project.

Network



Bike Equity Index Tomorrow

- Near Term Low Stress Bike Facilities
- Long Term Low Stress Bike Facilities
- Lower Bike Equity Concerns
- High Bike Equity Concerns
- Bexar County Line
- City of San Antonio
- Park or Recreation Area
- Military Installation
- San Antonio International Airport

0 2 4 Miles
 Source: City of San Antonio (2023), TXDOT (2023)

What are the benefits of this new bike network? The BNP enhances safety, connectivity, and the physical, mental, and social health of residents by improving access to education, employment, healthy foods, and recreation. As a result of this network - disadvantaged areas will experience 275% growth in comfortable facilities, 75% more San Antonians will have access to physically separated bike facilities, two-thirds of residents will live within a 15-minute bike ride to a school and over half of all people will also have access to a grocery store within a 15-minute bike ride.

K Read more about the network's benefits in Appendix K

5



Implementation

Measuring Success

Before projects can be implemented and policies amended, the BNP must set how the City will measure success, define indicators for how this plan is affecting the safety and well being of San Antonians, and set goals to help keep the City on track for developing its bike network.^J Meeting or exceeding these metrics means that San Antonio is making real progress towards a safer and more functional transportation system. All metrics will be reported back at regular intervals based on the type of data used. Often the best data is kept by partner agencies and the City will work collaboratively to utilize their data to inform the City's processes.

Metrics Using City Data:

-  **1** *Count of roadway projects* in San Antonio that have received bike improvements across implementing agencies.
Source: COSA PW and TD
-  **2** *Count of intersections* in San Antonio that have received bike improvements across implementing agencies.
Source: COSA PW and TD
-  **3** *Count of policies implemented or amended, new programs created, or grants applied for and received.*
Source: COSA GA and TD
-  **4** *Count of the number of residents and students reached* by bike-related activities.
Source: COSA TD
-  **5** *Count of the total number of in-person or online events held* in support of bike-related activities.
Source: COSA TD

Metrics Using Partner Data:

-  **6** *Percentage change in commute mode share.*
Source: U.S. Census Bureau American Community Survey
-  **7** *Count of bike crashes resulting in deaths and serious injuries.*
Source: TxDOT Crash Record Information System (CRIS)
-  **8** *Percentage reduction in Vehicle Miles Traveled.*
Source: Google Environmental Insights Explorer
-  **9** *Count of bike trips connecting with VIA Bus riders by use of Bus Bike Racks.*
Source: VIA Metropolitan Transit
-  **10** *Count of Observed Bike Users* from strategically placed bike counters.
Source: Texas Transportation Institute
-  **11** *Reductions in reported rates of chronic diseases and mental health indicators.*
Source: U.S. Centers for Disease Control

^J Metrics and Indicators are explored further in Appendix J

Funding Success

Another essential component of implementation is the funding arrangement for recommended improvements.^G In previous sections, the BNP defined the likely costs of implementing new bikeways, but these estimates are not just for placing a bike facility on an existing roadway. Implementing bike facilities will affect the entire surface of a roadway and its surrounding ROW. Estimates here are not only the cost of a bike facility, but performing essential roadway maintenance and restriping on the whole roadway to create a safe bikeway and a cohesive bike network.

The total cost of the network over its 25 year time horizon, including improving the entire roadway along all 1,035 projects and 1,740 miles, is estimated as more than \$8 billion. Through only the City's two main sources of roadway construction funding, its 5-Year Bond Cycle and its Infrastructure Maintenance Program (IMP), if the recommended network in this plan is prioritized in those ongoing process, that total cost is feasible over 25 years. The City's 2022 - 2027 Bond funded \$997 million in roadway projects, many of which include bike facilities. The IMP was funded to the total of \$168.9 million in the City's 2025 Operating Budget. Assuming funding for these programs escalate with costs, funding the entire bike network as a part of other projects is feasible.

However, the BNP seeks to make bike facilities as a part of these projects, and on their own, much more affordable for the City using matching funds. As part of the Bipartisan Infrastructure Law matching funding sources at the State, Federal, and Non-profit levels are better funded than previously. By applying for them the cost burden of implementing the BNP will decrease significantly. Some of these considered funding sources are:

Local Traditional Funding

- Bike Facilities - Dedicated** (\$1 mil. annually)
- Vision Zero - Dedicated** (\$1 mil. annually)
- Municipal bond cycle** (\$1 bil. every 5 years)
- Infrastructure Maintenance Program (IMP)** (\$150 mil. annually)

State Formula Funding

- Congestion Mitigation and Air Quality (**CMAQ**)
- Transportation Alternatives (**TA**)
- Surface Transportation Block Grant (**STBG**)
- Metropolitan & Urban Area Corridors
- Supplemental Transportation Programs
- Strategic Priority

Federal Discretionary Funding

- Safe Streets and Roads for All (**SS4A**)
- Reconnecting Communities Pilot (**RCP**) Program
- Multimodal Project Discretionary Grant (**MPDG**) Program
- Active Transportation Infrastructure Investment Program (**ATIIP**)
- Rebuilding American Infrastructure with Sustainability and Equity (**RAISE**)

Other Funding Sources

- Texas Parks & Wildlife Department (**TPWD**) Recreational Trail Grants
- City Council Offices Neighborhood Access Mobility Programs (**NAMP**)
- Tax Increment Reinvestment Zone (**TIRZ**)
- Bexar County Community Development Block Grants (**CDBG**)

G Funding new bike facilities is a complex topic, it's explore fully in Appendix G

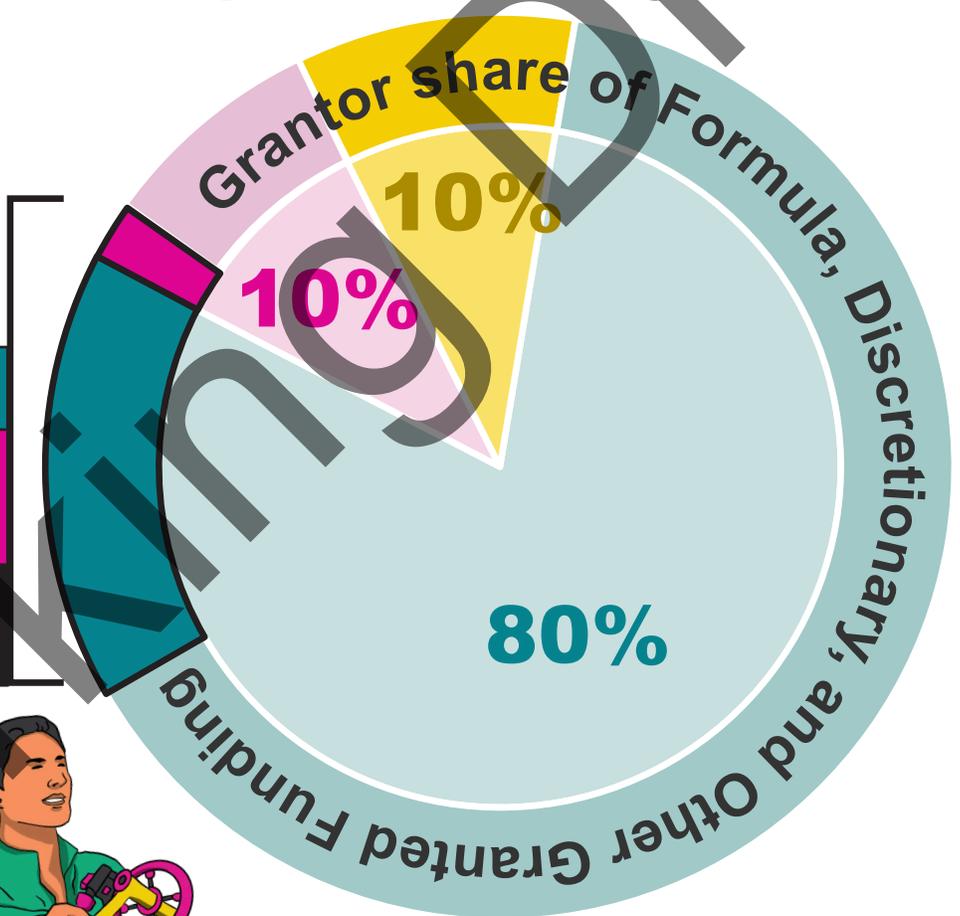
Funding Strategy

This funding strategy takes into consideration all possible funding sources and leans heavily on federal discretionary and formula funding sources, as they are the most historically reliable funding sources. The strategy also includes funds from AAMPO and several funding sources from TxDOT. This is important to keep in mind when determining how to finance projects as federal funds usually require a 20% or higher local or non-federal match (note that some programs have different match percentages if they fund construction and/or are located within Justice40 areas). The non-federal match will have to be provided entirely through municipal funds, TIRZ funds, or through partnerships with TxDOT, Bexar County, or nonprofit entities. This requires a commitment of **\$57.6 million** each year to fund the entirety of the BNP over a 25-year implementation timeframe, reducing the total cost of the network funded by the City by 82%.

Proposed BNP Funding Breakdown

COSA Funding Minimum Match Required:

Funding Source	Average Annual Local Funding Amount	
Formula Funding	\$51,200,000	16%
Discretionary Grants	\$6,400,000	2%
Local Funding Total	\$57,600,000	18%



- Federal Discretionary Grants
- State Formula Funding & Grants
- Other Granted Funding Sources



How to Leverage Matching Funds

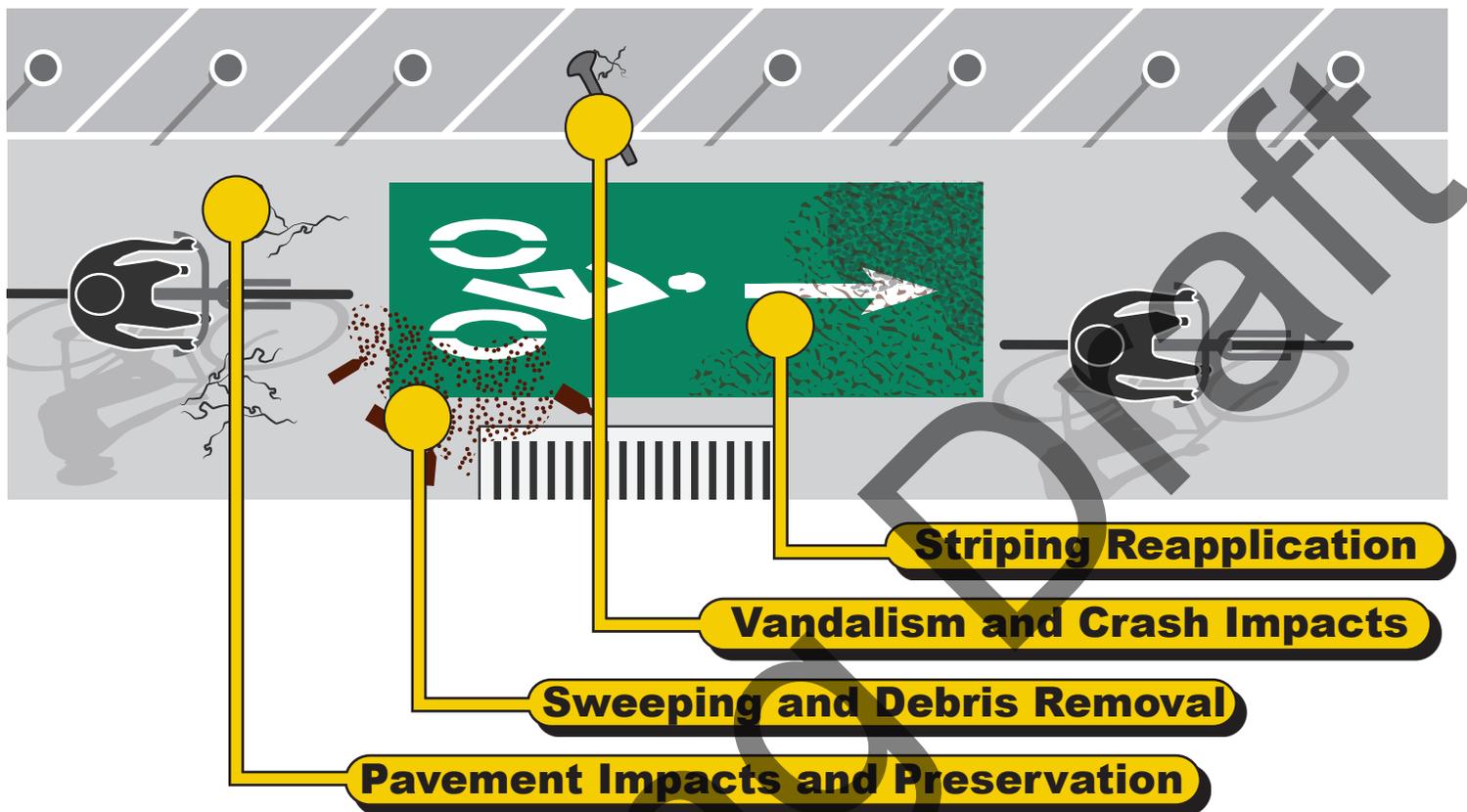
In order to leverage funding at this level, the BNP must prepare all the projects it can for competitiveness in these federal and state funding sources. Every bike project has merit and the key is showing the right information and the right data. The BNP's funding strategy plan provides sample narratives and forms for COSA TD and community leaders to use in applying for these funds. Although the award of federal and state discretionary and formula funds is ultimately up to the agency responsible, such as TxDOT and USDOT, there are several recurring merit criterion categories that appear across grant programs.

- **Safety** – The project's anticipated potential to reduce crashes based on the existing crash patterns in the immediate project area, the project's crash modification factors, and other project features.
- **State of Good Repair and Resiliency** – The need for the project based on the site's existing structural condition and the proposed project's ability to withstand severe weather events.
- **Climate Change and Sustainability** – The components of the project that will reduce emissions, reduce runoff, and benefit the environment and natural landscapes.
- **Mobility and Community Connectivity** – The components of the project that will create multimodal connections and improve access to everyday destinations, jobs, and community amenities.
- **Partnership and Collaboration** – The applicant's relationships to other agencies and organizations in support of delivering the project.
- **Equity and Quality of Life** – The project's potential to reduce transportation disparities and improve equity among community members, including in the impacts of project construction and operations.
- **Economic Impacts, Freight Movement, and Job Creation** – The potential for the project to improve economic activity in the community and create jobs.
- **Innovation** – The project's efforts to deploy technologies, project delivery mechanisms, partnerships, and funding opportunities that are new to the applicant.
- **Project Readiness** – The degree to which the project's development phases (i.e., scoping, preliminary engineering, utilities, and right-of-way acquisition) are completed and the project is ready for construction.
- **Benefit-Cost** – The project's return on investment and the degree to which the project's benefits outweigh its costs.

Discretionary grant funds are limited in availability and are highly competitive and available only once each fiscal year. When the application window opens, there is typically a 45-to-90-day window to apply. During this time, the City must identify a project to be funded, prepare a compelling narrative, prepare calculations and graphics that support the narrative, prepare a benefit-cost analysis for funding, and solicit signed letters of support and funding commitment. In addition to highlighting the attributes above, COSA TD can prepare projects for grant funding by:

- **Researching:**
What's coming out next? What projects does the BNP recommend for each funding source?
- **Preparing Internally:**
Does the City have appropriate funding?
Is there sufficient staff capacity for grant development? Are there enough City resources for implementation after a grant is awarded?
- **Determining Relevance:**
Does a project's proposal clearly communicate connections to the program's objectives and benefits to the community?
- **Building Partnerships:**
Does the City have a connection to other governmental organizations or stakeholders that may support the grant application?

Maintaining Success



After facilities are funded and implemented, one of the most essential components of creating a safer and more comfortable riding experience is maintaining those facilities. As part of the BNP, four primary maintenance issues affecting the functionality of bike networks were analyzed.¹ While programming to perform this maintenance is already a part of COSA’s 5-year Infrastructure Management Program (IMP), the BNP recommends additional funding for the IMP to cover necessary maintenance and new equipment to maintain bike facilities, approximately \$15,000,000 over 5 years of increase (a 1.75% annual budget increase based on the 2025 IMP Budget).

Sweeping and Debris Removal

Bike facilities should always be given sweeping priority as road debris can force bike users out into traffic, increasing the risk of severe or fatal injury. The City has already purchased a “mini-sweeper” to fit inside protected bike lanes and on shared use paths; as more of these facilities are implemented, the City should consider buying additional sweepers. To treat problem areas such as drainage at bottom of roadway slopes, drainage inlets, and construction zones, the City should partner with local bike-related nonprofits to use a human powered bike lane sweeper as frequently as monthly and modify the 3-1-1 app to provide a section specific to all bike related reporting.

Vandalism and Crash Impacts

Signage and protective elements are essential to a functional bike network. Those that experience vandalism and motor vehicle crash impacts should be replaced promptly, though interviewed experts have not frequently incurred maintenance costs. Replacing both signage and delineators will be required, depending on the bike facility.

1 Review Appendix I for information on Maintenance Costs



On the Salado Creek Greenway Trail, stained pavement has maintained its appearance after a decade of use, while pavement markings have degraded to being unrecognizable.

Pavement Impacts and Preservation

Motor vehicles have a known, substantial impact on pavement conditions. A BNP analysis found that motor vehicles cause, on average, 188,000 times more damage to the roadway surface than bikes. As a result, bike facilities, especially at roadway crossings and intersections, must be designed to resist motor vehicle impacts. As the BNP does not plan new surfaces outside existing roadways, except in rare circumstances, there will be no increased cost to the City's IMP by implementing new bike facilities. Peer city and COSA experts have found that concrete bike facilities withstand natural and motor vehicle impacts better than asphalt. Thus, on all new facilities and rehabilitation projects, bike facilities crossings at roadways should be considered for concrete construction rather than asphalt, with the added benefit that stained concrete could be used potentially reducing costs of striping reapplication.

Striping Reapplication

Motor vehicles not only impact the roadway surface, but the striping attached to it. Frequent vehicle traffic can degrade thermoplastic pavement markings and high temperatures can cause the asphalt surface to secrete oils that, when carried on the tires of motor vehicles, create a dirty appearance on pavement markings. Stained and etched concrete applications can both stand up to motor vehicle impacts and delineate bike and pedestrian spaces, so stained pavement applications should be considered for all bike facility projects, especially in high motor vehicle interaction areas (such as intersections) to avoid costly re-striping.

Rapid Success

For many bike facilities recommended in the BNP, implementation requires changes in the roadway, including lane removal, parking removal, limiting turn lanes, or new or augmented signalization for bike crossings at dangerous intersections. Today, several City policies limit how quickly the City can make those changes to the roadway to improve bike infrastructure.

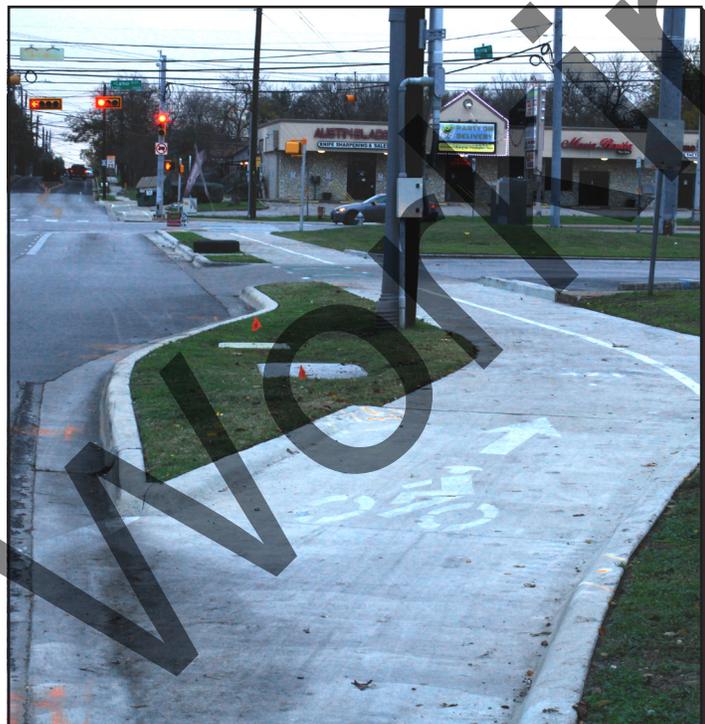
However, some recommended BNP projects or project segments can be implemented without triggering any of these restrictions or triggering any of the feasibility checks from the prioritization process. While bike improvements rooted in the City’s new facilities guidelines can be implemented all across San Antonio in small pieces, such as routing protected bike lanes behind bus stops, there are four types of larger, easier-to-implement infrastructure that can quickly improve bike safety.^E

Additionally, while the "Great Places to Start" tables below provide 10 options for such implementations, additional locations of a similar quality should be screened and evaluated for their inclusion in BNP projects.

Ramp Bike Lane to Shared Use Paths at Intersections

While often the most difficult to improve portion of a bike network, certain intersections are prime for a simple improvement in crossing safety. At intersections, bike lanes can be ramped to the sidewalk level to transition to a shared use path; such implementations are detailed in the Bike Facility Guidance for Future Amendments Document. This would not require the changing of any signals, car travel lanes, or turning lanes, but would require only additional pavement markings parallel to the crosswalk for bike users. This type of implementation can improve crossings of large and dangerous roadways. The City has already implemented similar infrastructure at “Five Points” intersection at Fredericksburg and Flores, but while this improvement which required geometry modifications, the examples below do not.

What this success looks like:



Intersection Bike Lanes Ramps in Austin, Texas

Great Places to Start:

Council District	Intersecting Streets
1	Main at Navarro (partially implemented)
2	Harry Wurzbach at Rittiman
3	Pecan Valley at Southcross
4	S. Ellison at Marbach
5	Commerce at General McMullen
6	Culebra/Tezal at Grissom
7	Woodlawn at Bandera
8	Springtime at Babcock
9	Interpark at West
10	MacArthur View at Nacogdoches

^E To see additional analysis of what can be implemented immediately review Appendix E

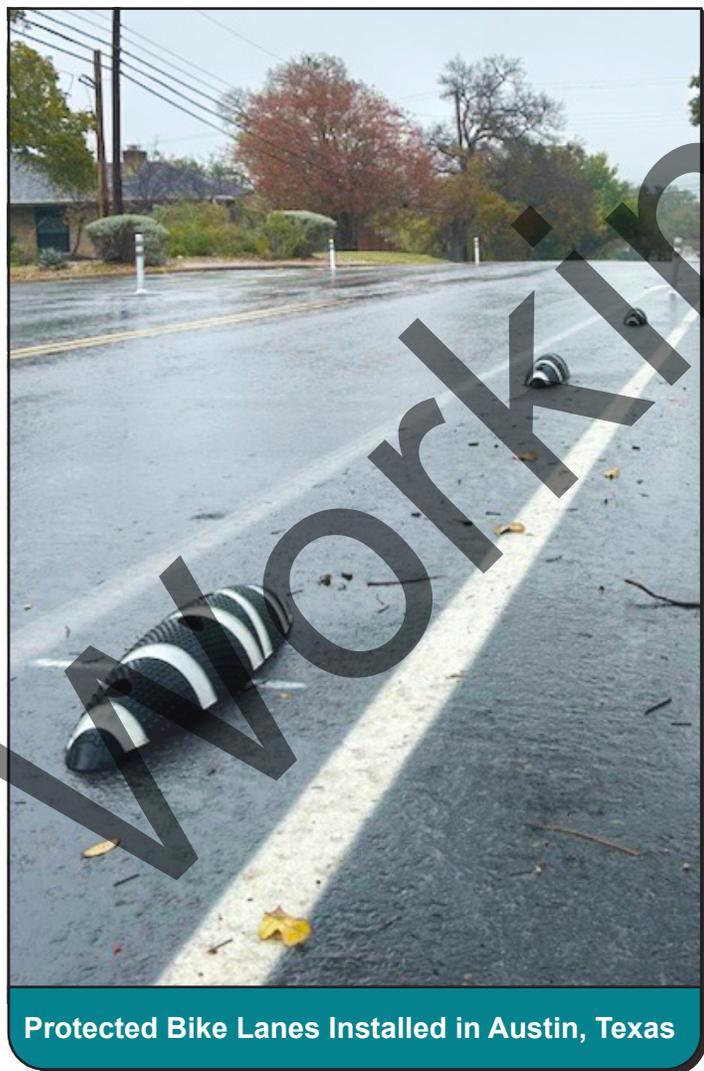
Make Bike Lanes Safer with Protectors

Striped bike lanes are a significant part of San Antonio’s bike network, but many are placed on unsuitable roadways with high speeds, heavy traffic, and excessive lanes. Fortunately, these lanes are often the easiest to upgrade while preserving other roadway features by simply narrowing adjacent car travel lanes. Car lanes typically need not exceed 10 feet unless the road regularly handles truck traffic or VIA Transit operations; however, many lanes in San Antonio are 12 feet or wider. Even with bus or truck use, only one lane needs to maintain an 11-foot width.

Reducing lane widths can create space for bikes, allowing bike lanes to meet or exceed the 5-foot minimum, add a buffer, or incorporate a protective separator. On major roads like Culebra and Bulverde, where narrow striped bike lanes are inappropriate, reducing inside travel lanes by 1 foot each while keeping one 11-foot right-most lane can provide enough space for protective separators. When included in planned resurfacing or restriping, these upgrades can significantly improve safety without additional costs. Buffered bike lanes are also easy to enhance. Many existing buffers are wide enough to accommodate protective separators, improving safety for bike users without altering car infrastructure or requiring restriping.

Additionally, acceptable striped or buffered bike facilities should still be evaluated for physical protection. For example, while 30-mile-per-hour streets with low traffic may support striped bike lanes, the City should consider adding protection on streets with sufficient roadway space during planned resurfacing to minimize costs and enhance safety for all users.

What this success looks like:



Protected Bike Lanes Installed in Austin, Texas

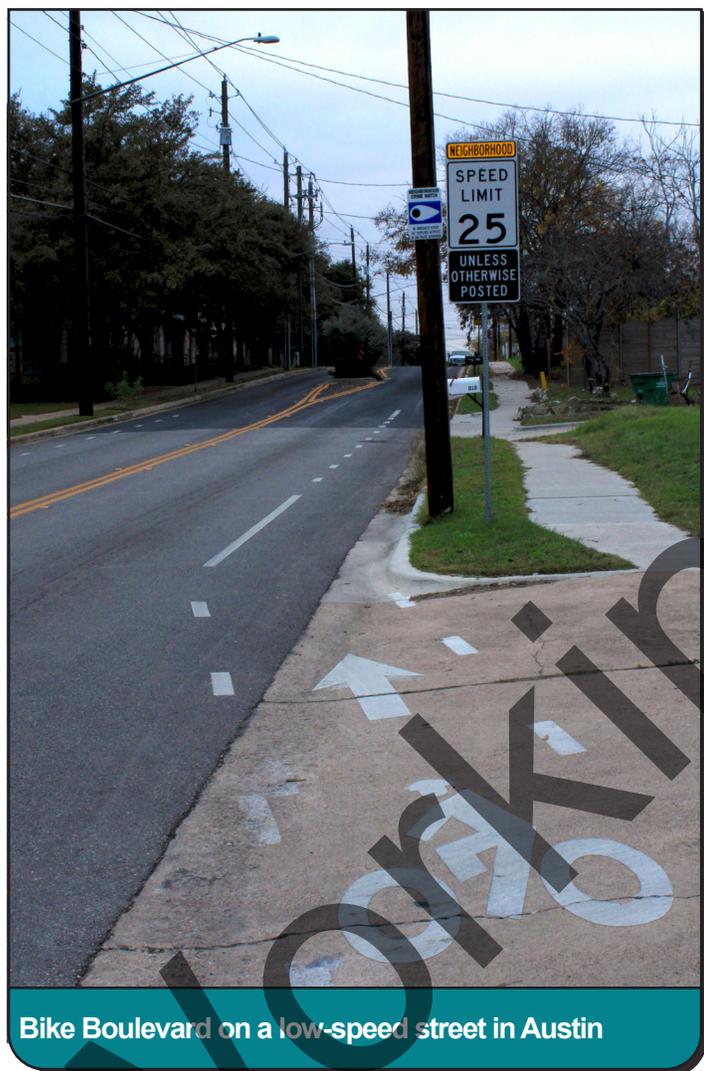
Great Places to Start:

Council District	Street Name	Extents
1	Treeline Pk.	Basse to Sunset
2	Mel Waiters Way	Commerce to MLK
3	Presa St.	Hot Wells to SW Military
4	Ray Ellison Blvd.	I-410 to Old Pearsall Rd
5	Commerce St.	Frio Rd to Brazos St
6	N. Ellison Dr.	W Military to Wiseman
7	Josephine Tobin Dr.	Elmendorf to Cincinnati
8	De Zavala (may require lane narrowing)	Indian Woods to Brandeis St.
9	Henderson Pass	Cedar Ridge to Gold Canyon
10	Rowe Dr.	Cadbury to Thousand Oaks

Bike Routes Along Existing Signalized Local Streets

Bike routes provide low stress routes for bike users to connect around the City, without having to ride along busy and unsafe roads. While these routes should be paired with traffic calming devices, lower speed limits, and new signalized intersections to ensure safety along them, they can and have been implemented in San Antonio without such changes. Bike routes of this type would not require a warrant analysis, would not reduce parking access, and would not affect any vehicular travel lanes. Moreover, these are extremely cost-effective solutions, only requiring shared lane markings and bike route wayfinding signage.

What this success looks like:



Great Places to Start:

Council District	Street Name	Key Connections
1	Cherry Ridge Dr., Pinebrook Dr., Panda Dr.	Dellview Park, Granados Sr. Center
2	Rice Rd., Semlinger Rd.	Salado Creek Greenway, Copernicus Park
3	Palfrey Ave., Corfu	Salado Creek Greenway
4	Ansley Blvd, Lytve Ave.	Palo Alto College, Zarzamora Middle School
5	W. Cesar Chavez Blvd.	Apache Creek Greenway, Lanier HS
6	Bowen's Crossing, Weybridge	Brauchle Elementary, Helotes Creek Greenway
7	Donaldson Ave, Quill Ave., Benrus St.	Jefferson High School, St. Paul Community Center
8	Hollyhock, Oakland Rd.	Leon Creek Greenway
9	Parhave, Turkey Point	Oak Haven Park, Mud Creek Park
10	Titan Dr, Asteroid Dr, Mayfair Dr.	Macarthur High-school; Salado Creek Greenway

Policy Action

What makes the difference for bike users isn't always the infrastructure on the ground, but often policy around how that infrastructure is deployed or how bike users can ride it. The BNP analyzed the City's UDC and Municipal Codes comprehensively to identify policies that affect bikes, including public input and peer city best practices.⁸ While some policies that significantly affect both bike operation and infrastructure deployment are determined at the state level, the larger Policy Action Report provides recommendations for the City to advocate to change those laws.

Policy Type	Recommendation	Justification
Helmet Use	No new helmet use requirements, but a city-wide educational campaign to recommend their use for bikes and micromobility devices.	While helmets can improve safety, mandating that San Antonians buy often untested products is not effective.
Riding Sidewalks	Allow bicycle riding on sidewalks except where signs prohibiting the action are present and identify those corridors where bikes should not ride the sidewalks.	To an SAPD officer, sidewalks and shared-use-paths look similar, so enforcing no sidewalk riding is not feasible in most areas.
Pedicab Operating	Increase the number of pedicab operating licenses, remove operating area limits, and lift location-specific restrictions.	Pedicabs are uniquely positioned to fill gaps in first-mile/last-mile mobility.
Lane Obstructions	Prohibit motor vehicles from parking, idling, or driving in all bike lanes citywide by placing no parking signs and educating drivers.	Just like blocking car travel lanes, blocking bike lanes is extremely dangerous.
Bike Security	Consolidate all bike parking regulations, add specifications for bike rack installations, and partner with nonprofits to locate stolen bikes.	Bike users deserve to have a place to park and trust that their bike will still be there when they come back.
Bike Visibility	Implement curb daylighting and colored roadway markings to improve the visibility of bikes at conflict points.	The most dangerous places for bike users are where they are not noticed by drivers.
Roadway Reallocations	Through the new COSA Complete Streets Policy, provide guidance on the qualifications for roadway reallocations on all streets.	Currently, the City has no way to evaluate when car lanes are over-built.
ROW & Utilities	Include explicit language about protection of existing or provision of new bikeways alongside improvements when the ROW is disturbed for construction purposes.	Bike facilities need to be safe even when roadwork is being done.
Traffic Studies	Require that traffic studies incorporate a data-driven safety analysis based on FHWA's guidance that considers vehicular, bike user, and pedestrian crash counts.	Currently, traffic studies only count motor vehicles, but the City wants to understand impacts to all types of traffic.
Speed Limits	Advocate for the removal of statewide prima facie speed limit minimums, lower speeds by amending UDC design speeds, and increase speed limit signage.	Lowering motor vehicle speeds is the key to a safe bike boulevard, which make up a plurality of the network.



Bike users ride with helmets at the Ride of Silence, honoring lost bike users in San Antonio, Texas.

Policy Recommendation: Helmet Use

Helmets laws may include a variety of rules set and enforced by the City requiring the use of helmets while riding bicycles. Helmets are intended to absorb impact and protect the skull and brain during collisions or falls. Use of helmets while biking may reduce the likelihood of severe injuries or fatalities resulting from a crash. However, helmet laws are often criticized for potentially placing the burden of safety on bike users rather than addressing infrastructure and motorist behaviors. These laws have equity implications as well since they may disproportionately impact low-income residents who might struggle to afford helmets or fines associated with not wearing one. Furthermore, helmets are not universally tested for efficacy, and while some helmets are, the differences are not reasonably distinguishable to SAPD officers.

Public and stakeholder opinions were split on this topic when asked about it during BNP engagement, with slightly more attendees being in favor of helmet laws. Those who opposed them cited unequal standards for motorcycles and possible increased cost for people riding. They believed that the best way to protect bike users is to keep them from interacting with vehicles.

Existing Policy

The City does not currently have a law requiring helmet use while bike-riding. In 2014, an ordinance was passed recommending study of the potential benefits of a helmet law.

Recommended Policy

The BNP recommends no law be created to mandate helmet usage, but that the City create a campaign to strongly recommend helmet use and form an advisory body to inform any future policy decisions around helmet use.



Policy Recommendation: Sidewalk Riding

A sidewalk riding policy governs whether and how bicycles can be ridden on sidewalks within the City. It can be an important but controversial rule as it requires a delicate balance of bike user and pedestrian safety. Riding on sidewalks may feel safer for bike users, especially where bike lanes are non-existent or inadequate, or where traffic speeds are high.

Furthermore, SAPD officers tasked with enforcing a ban on sidewalk riding are often confused as to the differences between a sidewalk and a shared use path. While fines being issued for this offense are extremely rare, it does create an equity concern for those whose only safe option to commute is to ride on a sidewalk, who may be fined for that action.

The majority of public respondents expressed support for sidewalk riding, citing the belief that riding off-street is safer, and bikers should not be penalized if there is inadequate bike infrastructure to make their trip safely. Those against sidewalk riding expressed concern for collisions and recommended safer bike-only infrastructure or shared-use paths instead.

Existing Policy

Currently, operating a bicycle on a sidewalk in San Antonio is prohibited under in the Code of Ordinances (19-286 and 19-661).

Recommended Policy

Allow bicycle riding on sidewalks except where signs prohibiting the action are present. Key corridors, where biking on sidewalks is not safe, should be identified and appropriately signed to inform bike users of the prohibition. Completing the bike network and providing bike users a safe space to ride is the most effective measure to reduce riding on sidewalks.

A bike user rides on a the sidewalk after a bike lane ends in Southtown San Antonio, Texas.





A pedicab providing an affordable and convenient first mile/last mile solution in Austin, Texas.

Policy Recommendation: Pedicabs

A pedicab is a small pedal-operated (motorized or non-motorized) vehicle that can be hired as a mobility option to move around the city. In San Antonio, pedicabs can operate (in specific areas only) between 9:00 AM and 2:00 AM depending on the day of the week.

Pedicabs are an excellent option for short-distance trips and last-mile connectivity. They do not contribute to air quality issues and allow people to move around the city without using a motor vehicle, reducing congestion and parking needs.

The City of Austin can be used as a case study in how to expand pedicab service while managing the public reception of the service. Austin expanded its pedicab service offerings to include electric pedal assist pedicabs in 2018 through an 18-month pilot program; 72 pedicabs participated in the pilot and no collisions, injuries, or ride complaints were reported. Data showed that the pilot effectively expanded pedicab service as drivers were able to ride longer and further in one night and were thus able to provide more rides.

Existing Policy

In San Antonio, pedicab operation is legal, but heavily restricted. Pedicabs cannot operate without a license, only 15 of which may be held at one time. A driver may only operate a pedicab 9 am – 4 pm and 6 pm – 2 am on weekdays (Monday through Friday), 9 am – 2am on weekend days (Saturday and Sunday), and 9 am – 2 am on City Holidays. They can only operate in the downtown area, except on Cesar Chavez Boulevard, Market Street, and Commerce Street.

Recommended Policy

COSA should increase the number of pedicab operating licenses, allow pedicabs to operate at all times, and expand the pedicab operating area and lift restrictions on operation on Commerce, Market, and Cesar Chavez.

Policy Recommendation: Lane Obstructions

Policies around obstructions in bike lanes prohibit blocking the bike lane by standing, driving, idling, parking, or otherwise preventing safe utilization of the lane by bike users. Bicycle lane obstructions add an unnecessary potential point of conflict between bike users and motorists by forcing bike users out of a dedicated facility and into car travel lanes, increasing the odds of a collision occurring between the two modes. While the most common lane obstructions are motor vehicles, these policies can pertain to other obstructions like trash bins.

Members of the public expressed frustration regarding the amount and frequency of obstructions and debris in bike lanes, and felt that it renders the infrastructure hazardous.

Existing Policy

Section 19-286 of the Code of Ordinances prohibits any person “to drive or propel or park or stand any vehicle upon any sidewalk”, but does not contain specific language that prohibits driving or idling in a bike lane and does not address prohibition of other items that may prevent safe operation within the lane.

Recommended Policy

The City should amend section 19-286 of the Code of Ordinances to include specific language that mentions bicycle lanes. Ordinance 2014-05-29-0370 should be updated to prohibit parking in all existing and future bicycle lanes. The restriction that limits the prohibition to streets with adequate width to support both on-street parking and bicycle lanes should be removed. Education about and enforcement of this policy update should be prioritized. Public safety officers should utilize progressive ticketing to enforce against cars in the bike lane. Progressive ticketing focuses first on educating and warning the public about new enforcement before ticketing. Updated ordinances should provide a means for residents to report vehicle violations in bike lanes to the City through 311.

A consistently parked-in bike lane on Main Street in Downtown San Antonio, Texas.





A well-used bike bike corral in Austin, Texas.

Policy Recommendation: Bike Parking

Bike parking laws may vary widely, but generally require a minimum number of bike parking spaces for bicycles and may also include other specific requirements like rack types, location, protection, and lighting around bike parking infrastructure. Providing plentiful and secure bike parking options is the first step to creating a more secure biking environment for bike users.

Public comments included requests for additional bike parking, requirement/encouragement around developing more bike parking, and requests for more bike parking specifically around transit hubs.

Existing Policy

Currently, bicycle spaces in San Antonio must, at a minimum, make up 10% of the number of the minimum required vehicle spaces (not required to exceed 24). They may not create any obstruction to public walkways or other hamper ingress/egress to other public facilities.

Recommended Policy

The BNP recommends an educational campaign to teach residents how to properly lock their bikes and what to do when their bike is stolen. Additionally, all bicycle parking regulations should be consolidated in a single section of the City's Code of Ordinances, Unified Development Code, or other policy documents and encourage building more bike parking facilities. The City should add specifications for bike rack installations on sidewalks to maintain a pedestrian through zone. Continue to explore recommendations from the 2011 Bike Plan and consider incentives for developers to provide secure bike parking.

Policy Recommendation: Bike Visibility and Detection

Policies around bike detection allow for the City to properly equip signalized intersection with technology that improves safe crossing for bike users. Policies around bike user visibility involve interventions that require bike users to make themselves more visible (e.g lights and reflective markings) and/or altering the built environment to increase the visibility of bike users on or near the roadway. At signalized intersections with no bicycle detection, bike users may have to push pedestrian buttons to cross at the crosswalk or otherwise cross the intersection on a red light. Increased visibility is key to bike user safety, as many motor vehicle-bike crashes occur in low-visibility environments (e.g. during dawn or dusk).

Bike user visibility issues were noted by members of the public, particularly along high-speed roads. Access roads along I-35, notably near Los Patios, were identified as areas where bike users were concerned about visibility.

Existing Policy

The City currently has no policies related to bicycle detection. The Code of Ordinances Sec. 19-295 contains specific requirements around bike user visibility. Bike users may not operate a bicycle after sunset and before sunrise, unless the bicycle is properly lit with specific approved equipment.

Recommended Policy

The BNP recommends that the City determine the type of bicycle detection that is most feasible and attractive for the community's needs and adopt a policy to install such detection systems at intersections along the bike network. It is also recommended that the City expand the scope of visibility to include bicycle infrastructure.

An extremely visible bike intersection in Frankfurt, Germany.





An early roadway reallocation in San Antonio along Arsenal Street, installed in 2015.

Policy Recommendation: Roadway Reallocation

Roadway reallocation allows portions of the roadway within the existing ROW to be used for multimodal options. The FHWA recommends roadway reallocation to reduce vehicle speeds to safer levels, increase bicycle infrastructure, and improve overall safety on the roadways. By making it easier for the City to dedicate more space to pedestrians and bike users, roadway reallocation policies can help significantly reduce traffic crashes involving vulnerable road users, as well as reduce congestion and air pollution, and improve public health.

Seventy-five percent of public respondents said they felt unsafe near fast-moving vehicles. Reallocating ROW to be used for dedicated and/or protected bicycle facilities is the best way to improve bike user comfort on roadways.

Existing Policy

The City does not have a unified approach to roadway reallocation; recommendation vary based on plan or policy. In October 2024, the City adopted its Complete Streets policy, which prioritizes all road users rather than just motorists.

Recommended Policy

Implementation of the new Complete Streets Policy is an opportunity to incorporate roadway reallocation recommendations. The City should require that roadways around civic buildings, (including schools) have complete pedestrian and bicycle infrastructure and leverage funding on this provision.

Policy Recommendation: ROW Acquisition and Utilities

Utility relocation is the process of moving utility infrastructure, such as water lines, telecommunication poles, or power lines. Moving above-ground utilities does not require the disruption of the roadway but may create some disturbances or obstruct bicycle or pedestrian infrastructure. Below-ground utility relocation may require significant reconstruction, repaving, or refinishing of the public ROW.

Some developments, particularly those that have large footprints or are minimally set back from the roadway, may disrupt, block, or destroy part of the public ROW during the construction process. Regardless of the construction type, the BNP seeks to provide adequate facilities to guide and protect bike users during construction.

Existing Policy

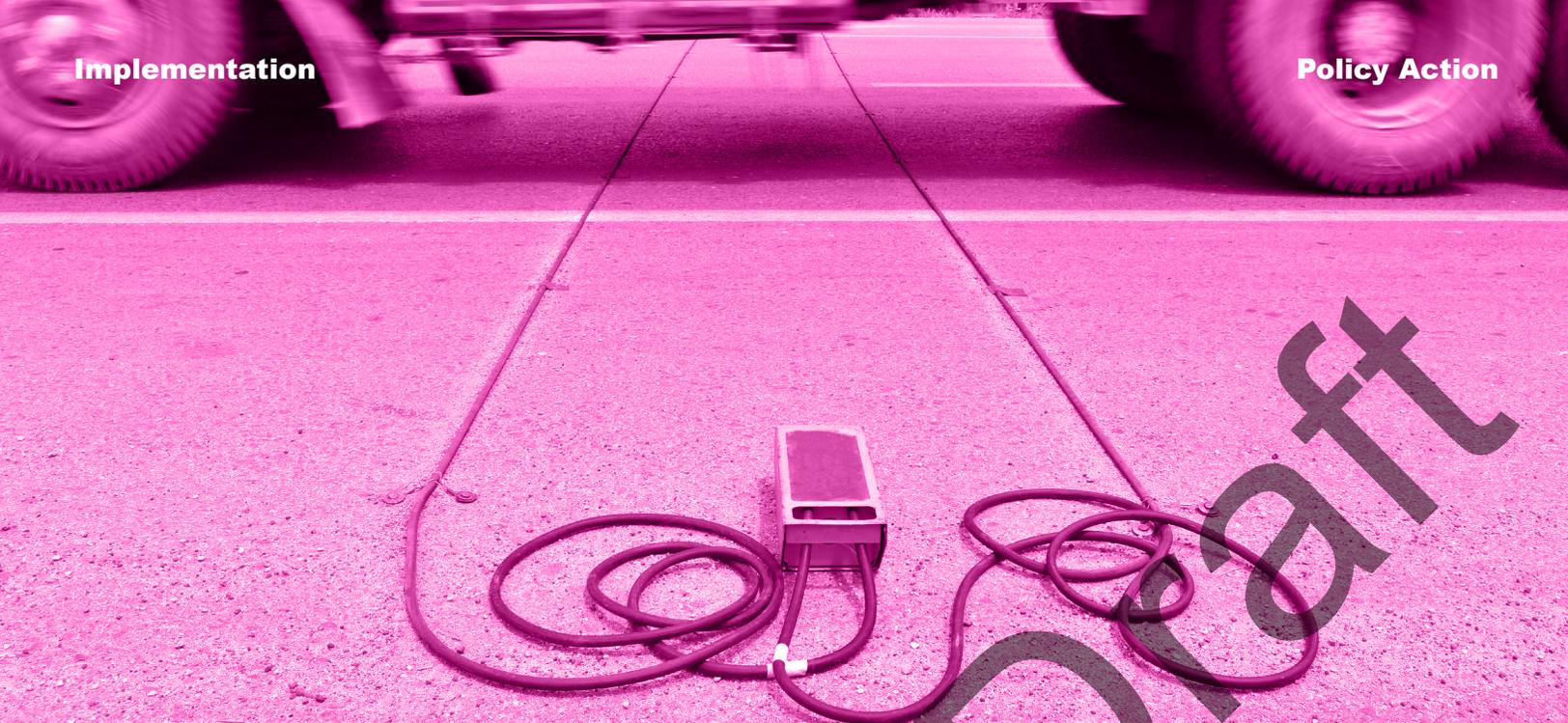
The Code of Ordinances requires that all developers encroaching upon or disturbing the public ROW to acquire a permit. A disturbed ROW must be restored to its original or better condition, contingent upon a traffic study approved by the City. However, during operations, it does not require the procurement of additional routes for bike users and the repair of bike facilities is not specifically mandated.

Recommended Policy

The BNP recommends that the City amend the Code of Ordinances to explicitly include the restoration or improvement of existing bicycle facilities or the development of new bicycle facilities in the case of ROW acquisition and private ROW disturbance. It is also recommended to require any construction that disturbs bicycle facilities to provide temporary bicycle facilities that adhere to the same standards of safety and accessibility for temporary pedestrian facilities outlined in the MUTCD.

ROW acquisition often requires a full survey, making it a great opportunity to plan for new bikeways.





Traffic studies often involve extensive motor vehicle counts, but usually ignore bike users.

Policy Recommendation: Traffic Studies

Traffic studies are conducted when new developments or projects are proposed and have the potential to impact or disrupt traffic patterns. Traditionally, traffic studies focus on capacity and operation impacts of increased traffic volumes and typically lack independent safety analysis. Updated traffic study policies incorporate the FHWA's data-driven safety analysis into the traffic study process. Data-driven safety analysis can help highlight safety issues before construction begins and benefits developers and users alike with safer roadways that have fewer costly crashes.

Seventy-five percent of states apply data-driven safety analysis in one or more of their project development processes. There is both federal and state support for incorporating safety analyses in traffic studies.

Existing Policy

In San Antonio, traffic studies are required to include traffic safety mitigation related indicators including, but not limited to, parking, pedestrian facilities, bicycle facilities, vehicular safety, and general traffic circulation. Traffic studies are required to examine existing conditions as well as a no build condition and a total traffic condition with the improvements to better understand capacity and level of service impacts and ultimately propose mitigation improvements. The traffic study must also include accident data at locations adjacent to the site and at nearby major intersections and driveways if the City identifies a safety concern during the scoping meeting.

Recommended Policy

The BNP recommends that the City incorporate a data-driven safety analysis portion into their traffic study requirements. The analysis should be based on FHWA guidance and should require all traffic studies to incorporate both systemic and predictive analysis that considers multimodal travel, if applicable.

Policy Recommendation: Setting Speed Limits

Policies around setting speed limit are dependent on City and State policy around design speeds. Texas has prima facie (default) speed limits for all roadways, based on the type of road (e.g. 30 mph for residential roads). However, the City may conduct an engineering and traffic investigation to determine if the prima facie limit is considered unsafe or unreasonable. If study findings support this assumption, the City may reduce the speed limit. Higher speeds on roadways have been found to increase crash occurrences. Speed limit policies play a key role in traffic safety and higher speeds are associated with greater crash rates.

Public opinion included a preference for speed limits to be decreased to 20 mph for streets that have no bike infrastructure. Residents believed the process for lowering neighborhood speed limits should be made easier and that neighborhoods should have the authority to determine what kind of infrastructure and traffic calming tools should be deployed to encourage drivers to slow down.

Existing Policy

The posted speed limit is the legal upper limit for vehicles traveling on a roadway. The MUTCD recommends considering factors such as the roadway environment, roadway characteristics, geographic context, reported crashes, speed distribution of free-flowing vehicles, and past speed studies. Setting speed limits is dependent on the prima facie speed limit.

Recommended Policy

The BNP recommends that San Antonio lower the citywide prima facie speed limit to 25 MPH and 20 MPH in residential areas. Since the 30 MPH speed limit is codified in the Texas Transportation Code, the City may have to work with policymakers at the state level to ensure that this change is not superseded by the state code. The BNP recommends that the City amend its maximum design speeds in the UDC based on updated prima facie speeds and follow an context-centered approach based on engineering, design, and safety. Once speeds have been amended, the City must update affected speed limit signage, particularly in residential neighborhoods and areas where speeds have decreased.

Roadways featuring higher speed limits should provide separated bike facilities.

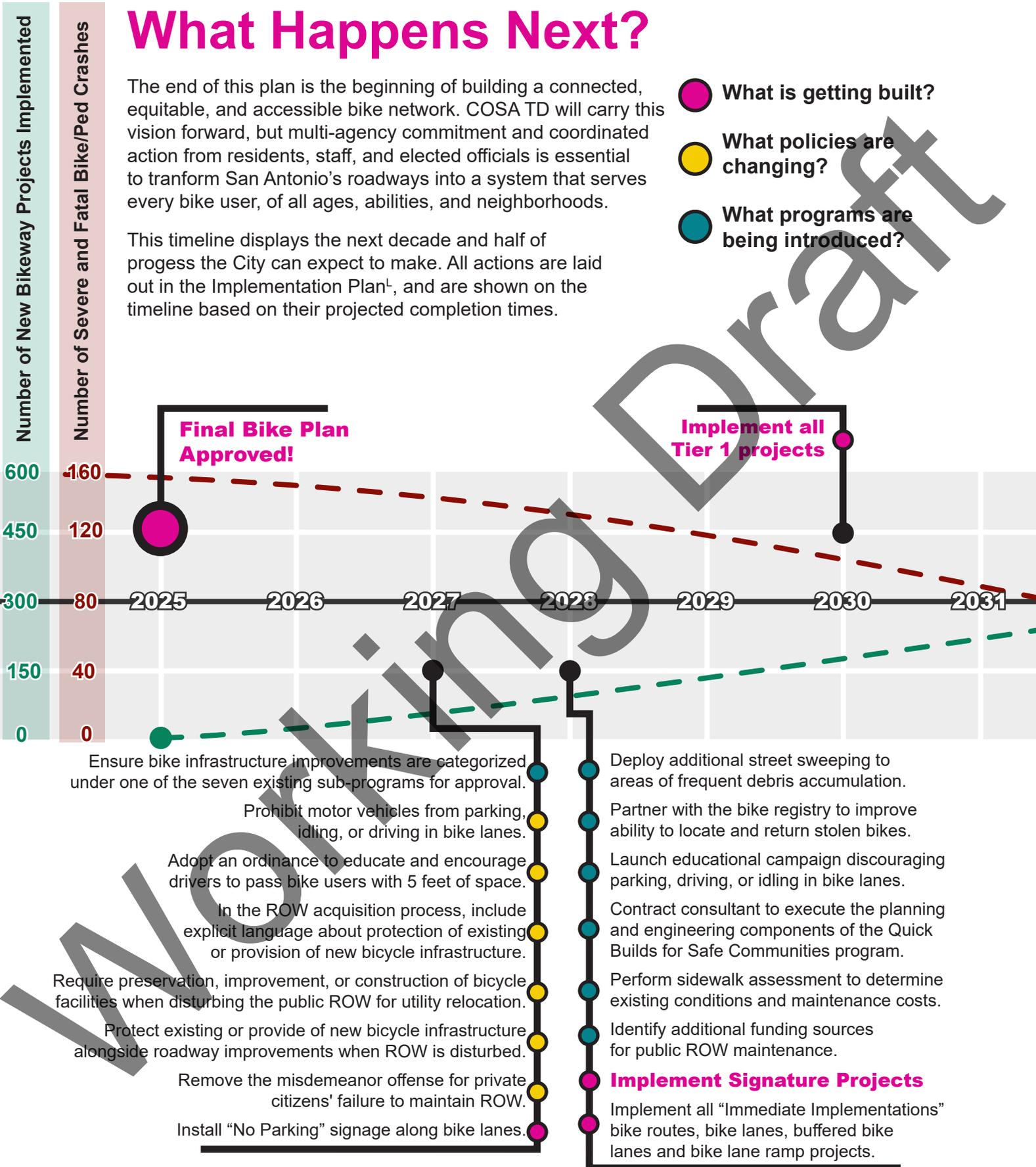


What Happens Next?

The end of this plan is the beginning of building a connected, equitable, and accessible bike network. COSA TD will carry this vision forward, but multi-agency commitment and coordinated action from residents, staff, and elected officials is essential to transform San Antonio's roadways into a system that serves every bike user, of all ages, abilities, and neighborhoods.

This timeline displays the next decade and half of progress the City can expect to make. All actions are laid out in the Implementation Plan^L, and are shown on the timeline based on their projected completion times.

- What is getting built?
- What policies are changing?
- What programs are being introduced?



^L Appendix L, the BNP's Implementation Plan lists all actions and reviews them in one consolidated table.



Further Reading and Additional Information

This document is only one part of the BNP. Every recommendation referenced here is part of an intensive process to understand San Antonio and work with the community to improve it. Read more about this work in the BNP's Appendices by selecting the links below.

Appendix A Existing Conditions, Needs Assessment, and Inventory Report

A comprehensive analysis of the context for the BNP and how conditions were recorded.

Appendix B Community Engagement Report

How the BNP engaged the San Antonio community over 2 years and 3 phases.

Appendix C Stakeholder Engagement Report

The BNP's development through oversight committees and stakeholder roundtables.

Appendix D Bike Facility Guidelines for Future Amendments

A tool to determine the appropriate bicycle facility based on the modal needs of a street.

Appendix E Recommended Network Development & Structure Report

The process of developing the bike network and the scoring process for each project.

Appendix F Cost Estimation Report

High-level cost estimates for bike infrastructure in the BNP and how they were calculated.

Appendix G Funding Strategy Plan

All the opportunities that could provide funds to complete bike infrastructure projects.

Appendix H Policy Actions and Constraints Report

All policy recommendations informing the City's approach to bike use & facility deployment.

Appendix I Bike Facility Maintenance Cost Estimation Memorandum

An analysis of likely costs of maintaining future bicycle infrastructure in the City's IMP.

Appendix J Performance Metrics and Targets Memorandum

11 data-driven metrics that the City can use to ensure progress toward its goals.

Appendix K Health Impact Assessment

A study of the effects that BNP proposals could have on the health of San Antonians.

Appendix L Implementation Plan

A complete list of all the BNP's recommendations in one comprehensive table.

Manu Ginóbili, San Antonio Spur and avid trail rider at the Connection Celebration of the Salado Creek and Leon Creek Greenways in 2021:

“ It is really something worth celebrating! ”

The Bike Network Plan is a 25-year vision for how the City can serve every San Antonian, from folks like Manu to kids across town with bike facilities for every age and ability. To stay up to date on the plan's implementation progress visit the San Antonio Transportation Department's website. For now, enjoy the ride!



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