WHAT CAN WE DO? - BICYCLE

Introduction

Since the City's Bicycle Master Plan was approved in 2011, much progress has been made to expand the bicycle network and increase bicycle ridership across the region. However, with the anticipated growth of an additional 1.1 million people to the city, there is no question that more has to be done and it has to be done now. The 2011 Bike Master Plan set in motion ambitious goals to build a bicycle network spanning 1,768 miles of facilities, the distance from San Francisco to St. Louis. This update builds upon the goals outlined in the 2011 Bike Master Plan but takes things a step further. While we have been making progress and closing the gaps in the network, the City recognizes that significant advancement needs to be made if we are to compete with other world-class cities in terms of our bicycle network. For that reason, this update focuses on the bicycle network as one component of a much larger, more complex transportation system and promotes aggressively pursuing key opportunities to meet the needs of a growing populace.

Fiesta Wildflower Ride

Expanding & taking advantage of the resources the City has already laid forth means getting creative and thinking big. The City will continue to leverage the existing resources and funding available, as well as cultivating the partnerships that have proven successful in implementing bicycle infrastructure. We have identified a series of key projects to be implemented in the short-term that will inspire and encourage more people to try bicycling. In the long-term,

there are several key connections that should be prioritized through the City's Infrastructure Management Program and future Bond packages. Bicycle programs will continue to emphasize safety, as well as connectivity and the many benefits of biking. Most notably, an increase in bicycle amenities and an enhancement of the bicycle counting program will continue to grow ridership and provide the needed justification for increased and sustained funding and investments to the bicycle network.

None of this will be possible without the involvement and commitment by the community, political figures, government leadership, and stakeholders across the region. Building the best bicycle network is a team effort, an effort that will benefit the entire community and region for generations to come. Building smart today means a happier tomorrow for all.

History

The first bicycle club in San Antonio was formed in 1891 and was called the Alamo Wheelmen. Bicycling was popular in the late 1800s and through the turn of the century, but declined in the 1930s with the rise of automobiles. Bicycling experienced a resurgence in the 1970s and the original bicycle club was revived as the San Antonio Wheelmen. Today there are numerous bicycle clubs in San Antonio that cater to different types and levels of cyclists.

Bicycle Planning and Implementation

In 1975, the City drafted a Bicycle Master Plan that included recommendations for facilities along creekways. Although this plan was not formally adopted, many of the recommended facilities have been implemented through the Greenway Trails Program.

In 1994, the Metropolitan Planning Organization (MPO) included a bicycle component within its Long-Range Plan. In 2001, the MPO conducted a Bicycle Suitability Study which resulted in a Bike Route Usability Map in 2003. The bicycle component of the MPO Long-Range Plan gets updated every five years with the update to overall Plan. With the expansion of the MPO in 2014, the organization began creating a regional Bicycle and Pedestrian map in 2015 to include cities and counties outside of Bexar County.

The first City-initiated Plan since 1975 was the 2011 Bike Plan that laid out a potential network of bicycle facilities to be built by the public and private sector as new roads were built and existing roads were upgraded in the City and its Extraterritorial Jurisdiction (ETJ). In 2000, San Antonio had 34 miles of bicycle facilities. This number increased to 66 miles in 2004, and 136 miles in 2009.

Existing Conditions

On-Street Network

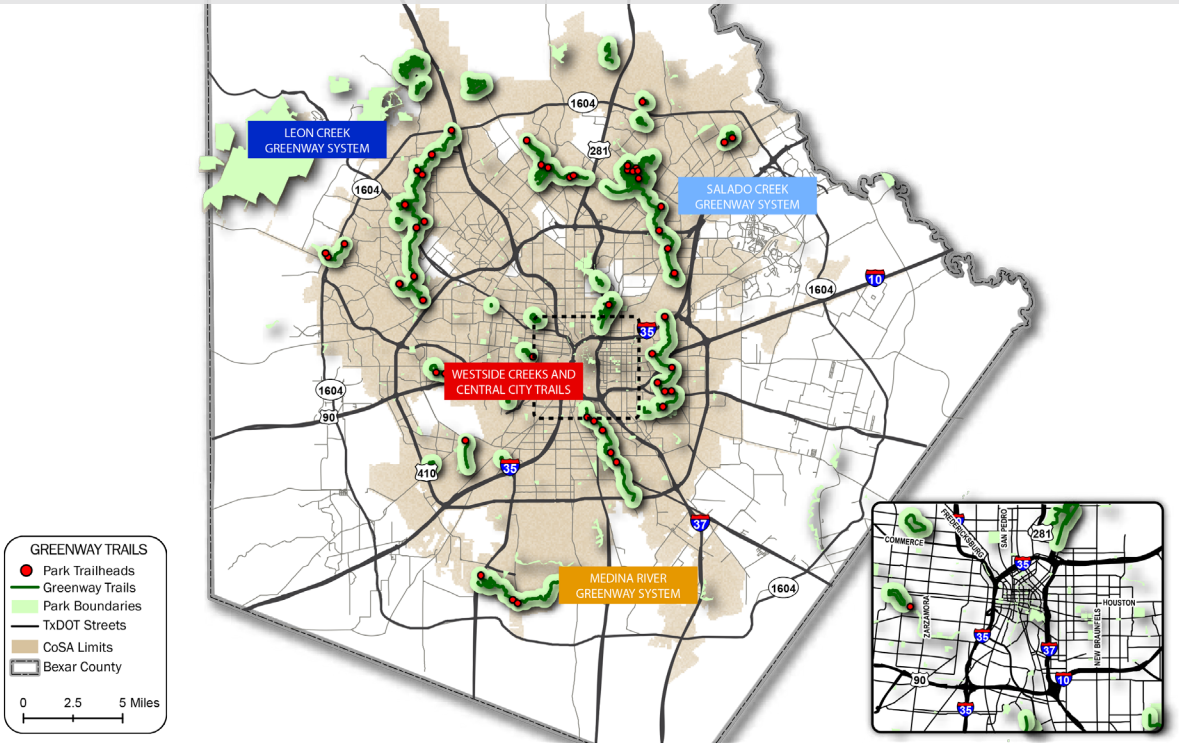
As of 2015, there are 286 miles of bicycle facilities in San Antonio (Figure 14). This represents an increase of 150 miles between 2010 and 2015. The majority of these facilities (63%) are bike lanes.

There are an additional 326 miles of bike facilities maintained by TXDOT, other incorporated cities, and unincorporated Bexar County for a total of 612 miles of bike facilities within Bexar County. The majority of these facilities (87%) are wide shoulders.

Greenway Trails

The Howard W. Peak Greenway Trails System (Figure 13) is an important component of the Bicycle Network. The system currently has 47 miles of trails that follow the Leon Creek, Salado Creek, Medina River, San Antonio River, and a series of smaller creeks on the Westside and Central City (Alazan, Apache, Martinez, San Pedro, and Olmos). A bicycle ridership counting program that began in 2012 by the Office of Sustainability reported over 100,000 cyclists in 2014 at a counter located at the San Antonio Mission Reach trail along the San Antonio River at the junction of Theo and Malone Streets. The count was almost at 75,000 when the counting program began in 2012. In addition to the Greenway Trails, several parks in San Antonio have mountain bike trails (e.g. McAllister Park, O.P. Schnabel Park, and Government Canyon State Park) that provide additional recreational options.

Figure 13: Howard W. Peak Greenway Trails System Map



Ridership

A 2010 Bicycle Travel Patterns study reported that in 2010 approximately 350,000 households in the San Antonio and Bexar County region owned at least one bicycle and that there are approximately 325,000 people in San Antonio and Bexar County who ride their bicycle at least once per month. At that time, approximately 93% of respondents said that they rode for recreational purposes, 17% for errands, 7% to commute to work, and 4% to commute to school.

A new survey was released in Winter 2015, asking about bicycle behavior, network preferences and priorities, and sentiments relating to bicycling in San Antonio. The City's Bicycle Survey found that 72% of respondents rode a bicycle weekly and 50% of respondents picked up bicycling within the last 10 years, lending quantitative support that bicycling has grown noticeably in San Antonio over the last decade. Coupled with an increase in available facilities, 35% ride to work and 13% ride to school at least monthly. Nearly half of respondents (44%) said they opt to run errands or do other shopping by bicycle at least once a month. Recreational riding still reigns supreme, with 84% riding for recreation at least monthly and 65% said they participate in social or group rides regularly. Most notably, 10% of respondents use bicycling as their primary mode of transportation.

Off road facilties appeal to less experienced riders.

San Antonio River Walk Mission Reach Trail

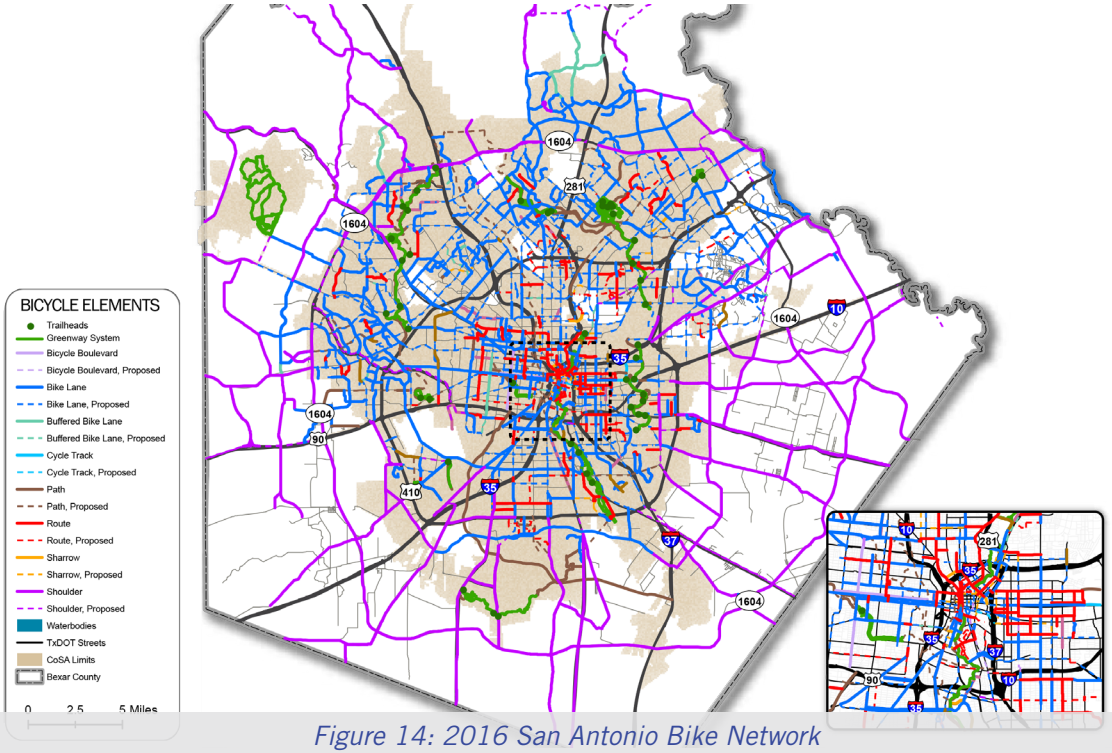


Figure 14: 2016 San Antonio Bike Network

Interchanges can be challenging for bicyclists

Safety has repeatedly been highlighted as an area of concern for bicyclists and a major reason why people don't ride their bicycles more than they currently do. When asked how unsafe respondents felt, 63% said they felt unsafe or very unsafe when biking for daily needs. Over half of respondents (57%) said they rode on sidewalks at some point, overwhelmingly citing safety as the reason, even when knowing it is illegal to do so within the city limits. The survey also asked about education concerns for both drivers and bicyclists. Unsafe passing, distracted driving, and respect for bicyclists topped the list for drivers, while visibility, respecting traffic laws, and riding predictably topped the list for bicyclists.

Availability and types of facilities greatly influence a person's decision to ride a bike, whether recreationally or for utilitarian purposes. When asked about on- and off-street facilities, 43% preferred to ride on trails and other off-street facilities, while 20% preferred riding on the street; 37% said they have no preference and that both types of facilities are fine. With regards to on-street facilities, 60% of respondents preferred protected bike lanes, 31% preferred to use bike lanes, and 9% did not have a preference or preferred to forgo bicycle-specific facilities. The survey also showed that people would be more likely to ride a bike if: 1) bike lanes were physically separated from traffic; 2) there were more connected facilities; 3) bike facilities were better maintained; 4) increased enforcement of traffic laws & ordinances and; 5) more bike amenities are available.

Just as vehicles rely on parking and signage to move about the road network, so do bicycles. The availability of network amenities also influenced a person's decision to ride, especially for utilitarian reasons. People are more likely to ride their bike if ample and secure parking is available at their destination. Other amenities such as network maps, public work stands for maintenance, showers, and wayfinding enhance the bicycle network and encourage more people to consider replacing a car trip with a bicycle.

What we've seen as a result is that bicycling is continuing to grow in San Antonio, people are still concerned about safety, and people demand more bicycle facilities and amenities.

Bicycling and the Built Environment

Typically, most bicycle trips will not be further than three (3) to five (5) miles in length. Many recreational bicycle trips will be much further and are typically at least 15 miles, and often up to 50 miles. Shorter trips are typically more destination focused: getting to work, school, the store, or a friend's house. An increase in bicycling as a mode choice means that the need to have destinations within a three mile range will become increasingly important.

Bicyclists represent all ages & all abilities

Enjoying the Fiesta Wildflower Ride

The opening of San Antonio B-Cycle in 2011 gave the city a first glimpse of the importance of bike share and its contribution to encouraging shorter trips by bicycle. Situated primarily in the Central Business District, B-Cycle currently boasts 55 stations and 450 bikes, providing locals and tourists alike

the ability to enjoy Downtown San Antonio and the Mission Reach River Trail, whether for recreational or utilitarian purposes. Since its inception, B-Cycle has traveled 1,075,010 miles across 237,525 total trips by 57,222 users (an average 4.5mi per trip).

Bicycling also encourages and supports transit. With nearly 10% of San Antonians relying on transit as their primary mode of transportation, bicycling offers choices to those seeking to access the transit network and addresses the "last-mile" problem of a multimodal transportation system. By providing facilities at destinations and integrating bicycling with transit, the symbiotic relationship between these two modes is strengthened and encourages more multimodal trips.

What Next?

Planning for Another Million

In addition to the fact that we see people biking more and more on San Antonio Streets and Greenway Trails today, as we look to the future we may see more of a shift to bicycling for necessity purposes as a percentage of the overall bicycling public. There are many reasons for this shift that include increasing congestion for automobile travel; increased desire for an active lifestyle to improve health outcomes; and changing demographic preferences for travel options. To accommodate this shift toward a desire for bicycling as viable option in everyday living, it's becoming increasingly important to ensure that public roadways allow for safe travel by bicycle as well as vehicular traffic.

San Antonio is a unique case study in bicycle planning in that the central business district is not the primary destination of those who travel throughout the city. Instead of a tradition central hub system, San Antonio has thirteen different activity centers throughout the city. As a result, bicycle network planning is two-fold: macro (city-wide) and micro (activity centers). This two-fold approach looks at the network holistically, focusing not only on bridging the gaps within the overall system but also on connecting neighborhoods to activity centers, as a way to increase bicycle ridership.

Importance of Public Outreach

In addition to the technical expertise of engineers and planners, the public will need to be engaged in this dialogue of trade-offs, challenges, and opportunities to meet current and long-term needs. While SA Tomorrow outreach has been successful, the bicycle survey and bicycle maps placed in area bike shops proved that the community is concerned with bicycling and wants to remain involved in the planning process. Moving forward, these groups will be key partners to collaborate with when choosing

and designing new bicycle projects. In strengthening these community relationships, the bicycle network will reflect the needs and desires of those that use it. By getting people involved in the planning process, from start to finish, we ensure a network that not only functions as it needs to, but encourages and inspires more people to use the network in a way they never thought possible. The active involvement of community members who use the transportation system will also garner more attention from both elected officials and City staff.

Moving Forward

Elements of the Plan

The following four elements collectively support and work toward achieving the 2011 Bicycle Master Plan's overarching goals:

1. Bicycle Facilities Network;
2. Network Support Facilities;
3. Program Recommendations; and
4. Implementation.

The specific goals and objectives of these elements support the overall vision and goals of Bike Plan 2016 of increasing bicycle ridership, improving the bicycle network, and maintaining safety among all bicyclists.

1. BICYCLE FACILITIES NETWORK

This element focuses on enhancing and maintaining a comprehensive bicycle system that serves all residents and visitors of the San Antonio-Bexar County region, regardless of age or ability. The bicycle network focuses on providing bicycle mobility within neighborhoods and destination areas and connectivity between destinations.

GOAL: Continue the development of a comprehensive network of on- and off-street bicycle facilities.

Objectives

1. Address key barriers in the bicycle network
2. Identify gaps in the bicycle network and prioritize key connections.
3. Improve bicycle facility maintenance practices.
4. Address and resolve the issues with parking in bicycle lanes
5. Connect the on-street network with off-street trails and paths to create a comprehensive bicycle network.
6. Prioritize protected bike facilities by quadrupling the lane miles of separated bicycle facilities.

2. NETWORK SUPPORT FACILITIES

A comprehensive bicycle network is made up of more than just bicycle facilities on which to ride. The network also includes end-of-trip facilities such as bicycle parking and shower/changing facilities. Without the necessary end-of-trip facilities, bicycling will not be a feasible mode of transportation, no matter how many miles of facilities exist. Furthermore, facilitating the transition between on- and off-street networks and complementing bicycle trips with mass transit are other elements that help make bicycling more feasible and the bicycle network more usable.

GOAL: Develop a system of integrated support facilities that improve the usability of the bicycle network.

Objectives:

1. Provide a comprehensive wayfinding system to facilitate network navigation by bicyclists
2. Provide end-trip facilities that support bicycling
3. Prioritize the growth and expansion of San Antonio B-Cycle Bike Share
4. Improve intersections for safe accommodation for bicyclists
5. Integrate bicycling with the mass transit network

3. BICYCLE PROGRAMS

A safe and well-connected bicycle network alone cannot significantly increase bicycling. Bicycle facilities don't make people better cyclists or make motorists understand how to drive around bicyclists. Education and encouragement are crucial elements to increasing bicycling while maintaining a safe environment to do so. We must equip all road users with the knowledge and skills of sharing the road if we are to expect bicyclists and motor vehicles to do so. Bicyclists, both inexperienced and experienced, and motorists alike must be educated of the rights, rules, and responsibilities of bicyclists in order to safely operate their bicycles. Promoting expansion of bicycle education in schools is encouraged.

Youth who learn to ride safely are more likely to embrace cycling as they mature. Like education, encouragement and promotion of bicycling are important elements of getting San Antonians on bicycles. Promotion is another form of education that informs of the benefits of bicycling. While similar to education, promotion focuses on attracting people to riding. Promotional programs should not only be for the general public, but also target certain populations and audiences of San Antonio, such as recreational cyclists, youth, or new bicyclists to give a few examples. Consistent enforcement of the rules for bicyclists and motorists as they pertain to bicyclists is a critical component of creating a safe and bicycle-friendly environment. This element focuses on enforcement efforts of

those laws in a consistent fashion, and ensuring that law enforcement officers are properly trained in bicycle laws. This component will overlap significantly with the education component and efforts to educate bicyclists and motorists of those laws.

GOAL: Provide educational, encouragement, and enforcement programs that support bicycling in San Antonio.

Objectives:

1. EDUCATE all road users of all ages and abilities of their rules, rights, and responsibilities.
2. ENCOURAGE bicycling as a form of transportation and exercise.
3. Consistently ENFORCE bicycle and motorist laws of the road.

4. IMPLEMENTATION

Funding and staffing are the key elements of implementation. This includes not only identifying and prioritizing dedicated funding and appointing staff persons; it also includes ongoing cooperation within and among City departments, other public agencies, and bicycle stakeholders to leverage resources that will strengthen implementation efforts. Furthermore, monitoring progress of implementation will help San Antonio periodically assess progress, identify new opportunities, and re-evaluate priorities and goals.

GOAL: Dedicate funding, political commitment, and partnerships to implement the facilities and programs in this plan.

Objectives:

1. Increase funding in appropriate areas of the City to implement the goals and objectives of Bike Plan 2011.
2. Institutionalize bicycle planning through new or revised policies, code amendments, operating procedures, and citizen advisory committees.
3. Engage and coordinate with other departments, agencies, and organizations to leverage resources and strengthen implementation efforts.
4. Periodically monitor implementation progress and update the bicycle master plan on a regular basis.

Educating drivers and bicyclists will improve safety

Bike Facilities Network

Objectives

1. Address key barriers in the bicycle network

In order to meet the needs of the bicycling community, we must continue to identify infrastructural barriers that prevent people from either choosing to ride or make it difficult to complete their trips by bicycle. Barriers include highway intersections (underpasses), train tracks, bridges, and floodplains. In identifying these challenges and taking into consideration the surrounding land use and existing bike facilities, we can design and implement facilities that address the specific challenges bicyclists face when traveling the network.

2. Identify gaps in the bicycle network and prioritize key connections.

Looking at a map, it is easy to see where bike facilities start, end, and where they don't connect. However, getting your feet on the ground paints a different picture of how we can close the gaps in the network. The bicycle network doesn't exist solely from 30,000 feet. Rather, a comprehensive network exists because neighborhood connections are identified and prioritized. A strong and functional network relies on connecting people to where they want to go. In order to build a network that does not discriminate against any of its users, we have to simultaneously look at the network from high above, as well as at the neighborhood level.

3. Improve bicycle facility maintenance practices.

A bicycle network will only be used if it feels safe to use. One barrier to ridership is the notion of maintenance. While debris in the road may not deter or interrupt vehicle travel, debris in the bike lane can have significant implications to those riding a bike. Ensuring regular maintenance of facilities, in terms of debris and pavement marking conditions, is important to keeping the network useful.

Currently, pavement markings are enhanced through the City's Infrastructure Management Program, though the schedule is limited and unpredictable. Street sweeping occurs every 6 months on residential streets and every 3 months on arterials and collectors. However, this is not consistent enough to keep bike facilities safe and fully functioning. Using funds to purchase and operate bike lane-specific street sweepers will address the challenges of debris.

4. Address and resolve the issues with parking in bicycle lanes

Perhaps one of the greatest barriers to a functional bike network is the conflict between bicycles and parking. Just as debris in bike facilities poses a threat to the safety of bicyclists, so do vehicles parked in the bicycle lane. While existing city ordinances address this issue in a balanced manner, enforcement is still lacking, making this a continued safety concern. Approaches thus far have included signage restrictions

with bicycle infrastructure projects and city ordinances. However, there are still several different approaches to be considered when addressing this issue. These include priced parking structures and permit programs in local neighborhoods and business districts that experience high levels of on-street, curbside parking. This will be a continued conversation with all stakeholders, as approaches thus far have not made significant progress in addressing the challenges for both parties.

5. Connect the on-street network with off-street trails and paths to create a comprehensive bicycle network.

The Greenway Trail system has been so wildly successful that connecting on-street facilities to off-street trails ensures public support for street projects. It also encourages more commutes by bicycle when people are able to use a variety of facilities that meet their comfort levels and needs.

6. Prioritize protected bike facilities.

As the network grows, we will need to accommodate all bicyclists, regardless of age and ability. Protected bike facilities have proven to increase ridership, while also improving safety for all users on the roadway. San Antonio is fortunate to have protected bike facilities that connect important and popular destinations. These facilities include the Avenue B protected lane (running parallel to Broadway from Newell Street to Mulberry Avenue), the Arsenal contraflow bike lane (S. Flores to Washington St), and the South Flores St. cycle track (Cesar Chavez to El Paso). While each of these facilities exhibit different designs, they have all seen an increase in use by a variety of bicyclists. These facilities reinforce the need for more protected bike lanes throughout San Antonio.

Amenities like bike parking support bicycling

Bike Parking Area Along S. Alamo St.

Network Support Facilities

Objectives

1. Provide a comprehensive wayfinding system to facilitate network navigation by bicyclists

Wayfinding systems provide guidance of the network for users, while also providing visibility for those who may not be traveling by bike. Wayfinding supports travel to destinations and makes navigation easier, especially if someone is not familiar with the network. This system not only includes points of interest, but also educates users on the types of facilities they are using. Wayfinding also provides an opportunity to promote bike share programs by indicating the location of stations.

2. Provide end-trip facilities that support bicycling

A bicycle network is not complete without amenities that make choosing bicycling easier. In order to enhance the network, amenities need to be available and secure at key destinations. Amenities to support bicycling include bike parking, bike stations, showers, and public work stands to address bike maintenance issues. These amenities make it more likely for people to consider a bike for errands, their commute, or riding to meet friends at a local restaurant.

3. Prioritize the growth and expansion of San Antonio B-Cycle Bike Share

San Antonio B-Cycle has experienced great success since its inception in 2011, but it has significant potential to impact the transportation network. Bike share addresses the last-mile problem with regards to transit use. In the context of San Antonio, it can enhance the tourism industry and contribute to smoother mobility within and around the downtown area, as well as other large commercial activity areas, such as Southtown and the Pearl.

4. Improve intersections for safe accommodation for bicyclists

Not all travel is direct and we will inevitably come into contact with people moving in different directions from us. To keep the system smoothly operating for everyone, we have to address all aspects of the network. Intersection improvements allow us to implement features that make traveling by bicycle more safe and smoother. Improvements can include bicycle boxes, which assist in traveling through an intersection safely and enhance the visibility of bicyclists. Bicycle traffic signals also increase safety

by giving bicyclists the opportunity to clear an intersection before vehicles, making travel safer. As bicycling grows in the region, there will be increased opportunities to prioritize and implement protected intersections at high-volume areas.

5. Integrate bicycling with the mass transit network

By providing bicycle parking at transit stations and bicycle racks on buses, we're able to encourage multi-modal travel and increased transit use. For those that rely on transit as a primary mode of transportation, bicycling allows them to access the transit network easier and faster than walking. Safe & secure bike parking is necessary at transit stations, in the event that bicycle racks are at full capacity. Even if someone doesn't rely on transit and instead makes the choice to use public transit, bicycling solves the last-mile challenge of a transit commute.

6. Emphasize deployment and monitoring of bicycle counters.

In order to grow the network, performance measures need to be established and tracked. Quantitative data lends support to continued funding and future investments in the system. While our bicycle counting program is small right now, it has proven useful in highlighting the popularity of the bicycle facilities that have been implemented so far. As the network continues to grow, this program will be useful in indicating where we should put future facilities, as well as prioritizing funding for projects.

Bicycle Programs

Objectives

1. EDUCATE all road users of all ages and abilities of their rules, rights, and responsibilities.

Education of facilities, rights, and responsibilities is crucial to ensuring the safe travel by all users across the network. Vision Zero, the concept that all traffic injuries and fatalities are preventable, is being implemented by the City and employs the 5 E's – Engineering, Enforcement, Education, Encouragement, and Evaluation. One of the most important E's is Education and has so far been the biggest focus in implementing Vision Zero and eliminating traffic fatalities on the City's roadways. Through outreach programs and participating in local events, Vision Zero is able to remind people that everyone in our community matters and it is up to each of us to do our part to ensure the safety of others.

2. ENCOURAGE bicycling as a form of transportation and exercise.

Bicycling offers a multitude of benefits, be it economic, environmental, or personal health. Continued partnerships with San Antonio Metropolitan Health Department (MetroHealth), San Antonio Housing Authority (SAHA), and many other agencies and organizations will be key in encouraging bicycling as a way to improve quality of life for all San Antonians.

3. Consistently ENFORCE bicycle and motorist laws of the road.

In relation to Vision Zero, enforcement will still play an important role in ensuring the usability of the bicycle network, but will follow education and encouragement in strategy priority. Continued partnerships with local law enforcement will assist in keeping users safe and respecting all users of the road, regardless of chosen mode.

Implementation Strategies

Objectives

1. Increase funding in appropriate areas of the City to implement the goals and objectives of Bike Plan 2011.

Funding is always a challenge, but no matter how well we leverage our existing resources, increased funding will allow us to address the greatest needs and challenges. Steady increases in funding will allow consistent implementation of facilities and amenities.

2. Institutionalize bicycle planning through new or revised policies, code amendments, operating procedures, and citizen advisory committees.

Because bicycling has grown in San Antonio over the last five years, it has allowed for much progress to be made in terms of solidifying bicycling as a legitimate mode of transportation and recreation. Since 2011, the City has passed several ordinances that address safety and the inclusion of

bicycle facilities in all major capital projects. The Safe Passing Ordinance has drawn attention to the existence and vulnerability of bicyclists on the roadway, while the Complete Streets Ordinance has led to increased opportunities for facility implementation. The Unified Development Code was recently amended to strengthen the requirement of bicycle facilities in development projects by the private sector.

From a community standpoint, bicycling visibility has increased through the Bicycle Mobility Advisory Committee (BMAC) at the AAMPO. The rise in bicycling has also given rise to a considerable number of advocacy and social groups throughout the regions. Many of these groups focus on providing education on safety, bicycle mechanics, and social aspects of the bicycling community. Through events and group rides, these groups reinforce the social fabric of the bicycling community and the importance to support this particular community in meeting its many needs.

3. Engage and coordinate with other departments, agencies, and organizations to leverage resources and strengthen implementation efforts.

Taking advantage of the resources we have means collaborating with a variety of internal departments, as well as external agencies. Previous partnerships have proven successful in implementing infrastructure and amenities and future collaborations will allow us to continue the growth and expansion of the network. Key partners include the City's Office of Sustainability, Development Services Department, and Parks & Recreation. Outside of the city, we've formed strong partnerships with the San Antonio River Authority (SARA), the Alamo Area Metropolitan Planning Organization (AAMPO) and the Texas Department of Transportation (TxDOT).

However, there is always room to improve and seek coordination with the other municipalities in the region. These municipalities include Alamo Heights, Terrell Hills, Olmos Park, Leon Valley, Castle Hills, Balcones Heights, Shavano Park, Kirby, Hollywood Park, and Hill Country Village. Whether it is bicycle infrastructure or other modes, collaborations with neighboring cities will be crucial to ensuring a connected and complete transportation network.

4. Periodically monitor implementation progress and update the bicycle master plan on a regular basis.

Are we moving in the right direction? Are we meeting our goals? If not, what should we be doing instead? These are all important questions that rely on qualitative and quantitative data to determine if we are making the use of our resources and meeting the needs of the community. What may work today, may not work 5 years from now. It's important to constantly ask what we could be doing better.

5-Year Action Agenda

There are several opportunities in the short-term to address the above objectives. Many of them prioritize expanding the bicycle network, though each opportunity lends itself to implementing network facilities and supporting the continued growth of the region. These opportunities include the Infrastructure Management Program (IMP), Bond packages, the Advanced Transportation District (ATD), and continued partnerships with departments within the City and agencies outside of the City's purview.

Through the City's Infrastructure Management Program (IMP), several infrastructure maintenance issues are addressed. Aside from sidewalks and street rehabilitation, the IMP is the most consistent outlet for implementing bicycle facilities. Thanks to annual funds from the General Fund and the Advanced Transportation District (ATD), the city has allocated funds annually, specifically to building bicycle infrastructure. Bicycle IMP projects include several multi-use paths, shared routes, bike lanes, and protected bike lanes. Project lists are submitted in 5-year windows, so as one year is completed, another year's worth of projects are being identified and selected. This annual review of projects allows us to assess projects that will best meet the most immediate needs of the bike network.

Due to limited funds and restrictions on the use of these funds, the City leverages other IMP outlets to install bike facilities. Street rehabilitation ensures a clean, blank slate for us to restripe the roadway to include bicycle lanes. Pavement marking rehabilitation gives us an opportunity to re-enhance older bike lane markings, as well as restripe for new lanes. However, the ability to leverage this outlet is largely dependent on the existing conditions of the road pavement. Intersection improvements give us an opportunity to introduce bike boxes, bicycle traffic signaling, and other amenities that ensure bicyclist safety, visibility, and mobility at intersections.

The City identifies and initiates a Bond package on five-year cycles. Focusing on major capital improvement projects, these projects range from improving community facilities to addressing storm water drainage needs. The Bond is most known for the inclusion of roadway projects and those that increase capacity. In moving towards a multimodal transportation system, all Bond projects must consider bicycle and pedestrian facilities, per the City's Complete Streets ordinance (passed in 2011). Balancing both the needs of today with the needs of the community in 2040, we seek the best possible bicycle facility for that particular roadway and surrounding area. These high dollar projects give us the best opportunity to implement "gold star" projects that will show the community what a street can look like and the positive impacts bicycle facilities can bring to a neighborhood.

Because of the various needs of the bicycle network, every Bond program is an opportunity to address these needs.

Advanced riders are comfortable in traffic

Through the Bond, we are able to include bicycle facilities in street projects and network amenities in facility projects, such as ensuring bicycle parking at libraries, parks, and community centers. As the momentum for bicycle facilities continues to grow, the Bond will still be the strongest outlet to implement amenities such as bike stations and showers and other amenities that encourage bicycling for utilitarian reasons.

The Advanced Transportation District allocates funding for bicycle infrastructure projects and bicycle programming. Aside from infrastructure, we have the opportunity to dedicate funding to enhance the bicycle counting program, through our programming funds. This program is still in its early phases but has already proven to be successful in demonstrating the positive impacts of bicycling infrastructure. Count programs will provide quantitative data to support performance measures of facility use. By tracking performance progress, there is a stronger argument for increased funding for bicycle infrastructure projects. Another opportunity for network enhancement includes allocating funds to expand the bicycle parking and corral program, a program that has been in place since 2013 and works with local businesses to provide bicycle parking for customers and visitors.

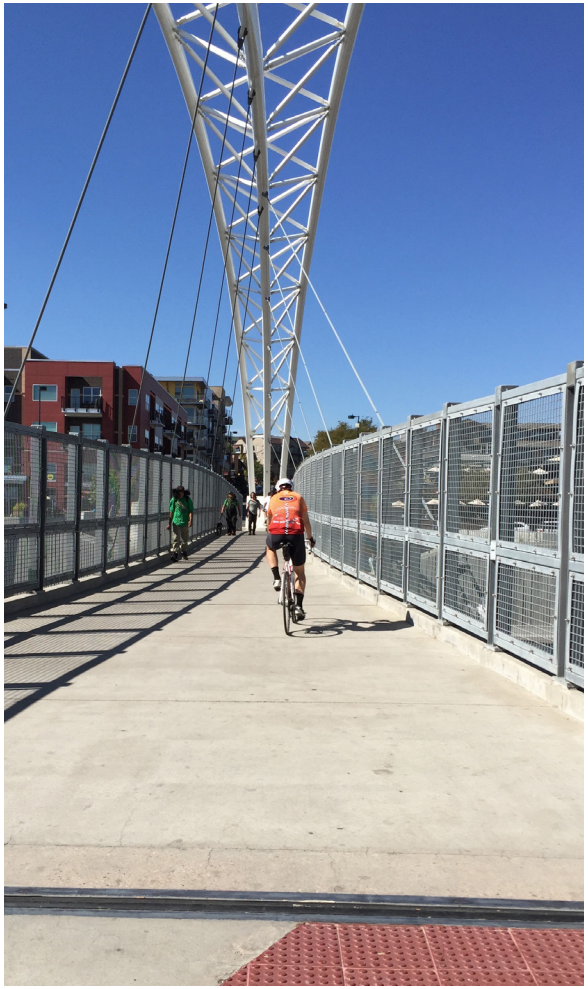
Continued partnerships with other City departments and external agencies are key to enhancing the bicycle network. Departments such as Parks & Recreations and Development Services give us the opportunity to implement facilities through other funding outlets, both public and private. These partnerships also cultivate a sense of teamwork in ensuring a comprehensive bike network to include

connections to greenway trail and creeks projects. These projects have positively contributed to an increased interest in bicycling throughout the city.

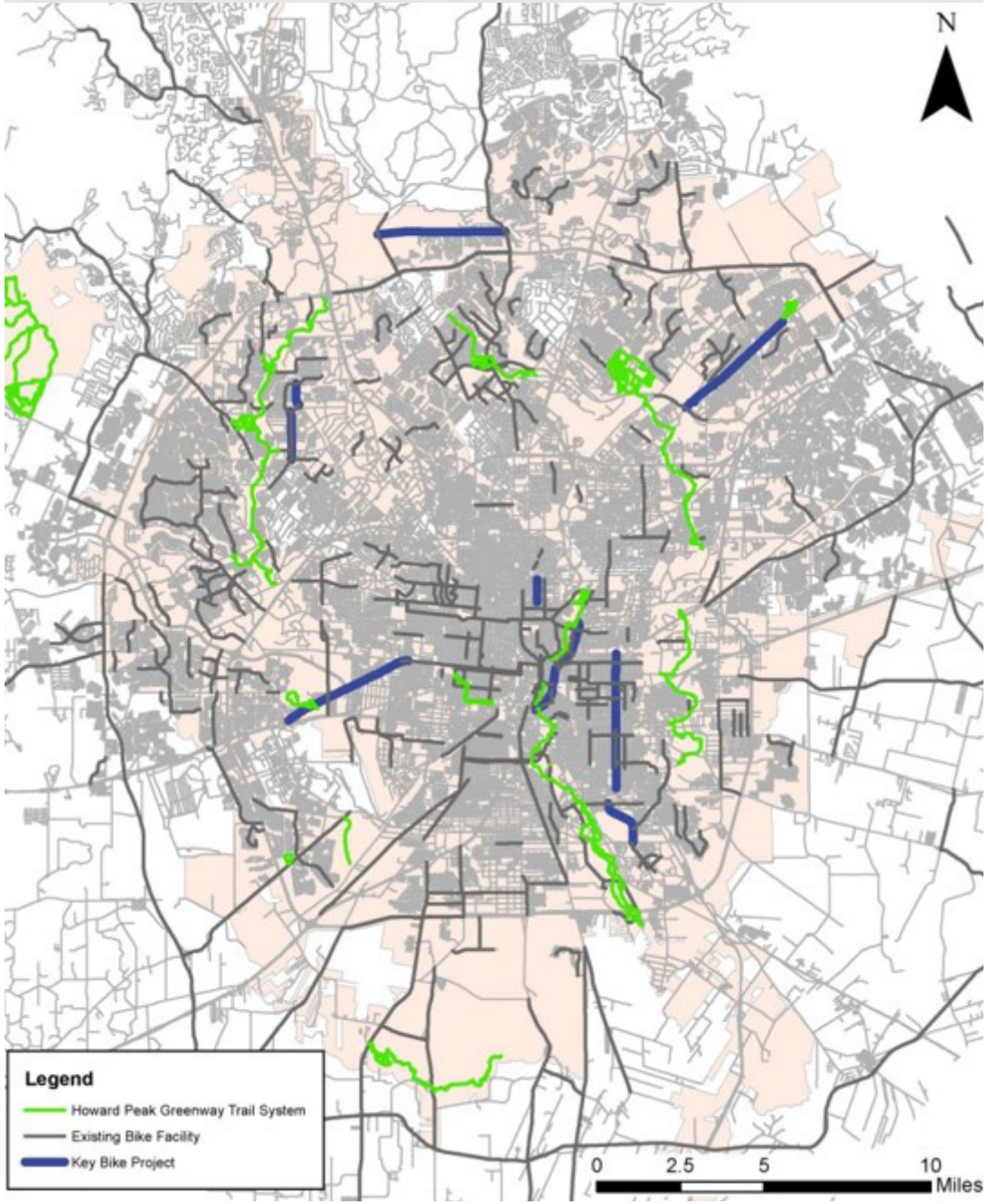
Safety is always a priority, one that remains strong through the implementation and commitment to Vision Zero. Continued education and outreach to the community will be crucial in encouraging people to ride, as well as a means to institutionalizing bicycling as a legitimate mode of transportation. Because bicycling is for all ages and abilities, so too is the community engagement and outreach to people of all ages and walks of life.

As bicycling has increased, it has become apparent that support facilities must also be prioritized. If there's not a place to safely park your bike or make basic repairs when out riding, people are less likely to ride. Emphasis on implementing bicycle amenities will encourage more people to ride and will lend more visibility to the fact that more people are choosing to bicycle every day.

Through these various outlets and taking into consideration the limitations faced, we've identified a number of key projects to implement in the short-term. These projects that will not only address the various needs of the bicycle community but will also close several gaps in the bike network. These projects will give us the opportunity to show the community how a street can be reimagined and redesigned into a road for all modes. These projects have been identified through Bond consideration, Bike IMP, and SA Tomorrow. While some funding is guaranteed, other projects may require additional funding through outside parties, such as state and federal agencies.



5 Year Action Plan Bike Projects



Key Projects

- Abe Lincoln: Eckhert – Horn Boulevard/Spring Time Street
- Alamo Street: Alamo Plaza – Blue Star Arts Complex
- Alamo Street: Houston Street – Cunningham/ Broadway
- Babcock: Spring Time – Horn Boulevard
- East-West Bike Trail
- Enrique Barrera Parkway: US Hwy 90 – Commerce Street
- Gevers Street: Sherman Street – Southcross Boulevard
- Howard Street: Mulberry Avenue to Hildebrand Avenue
- New Braunfels Avenue: Hot Wells – SW Military Drive
- Nacogdoches: Wurzbach Parkway – Judson Road

The City has also identified several targets that address several aspects of the bicycle network that should be achieved. These are outlined below but are subject to being altered based on success of other programs and available funding at any given time. No timelines for completion have been established at the current time.

Targets

- » Transform the B-Cycle bike-share system into a substantive transportation option with 100 stations and 1,000 bicycles.
- » Allocate 1% of the capital budget each year as a core program for pedestrian and bicycle improvements.
- » Quadruple the lane miles of separated and protected bicycle facilities.
- » Formally adopt bike boxes for bicyclist safety at top 30 critical intersections that have bicycle lanes.
- » Repurpose on-street parking spaces for bicycle parking in at least 25 key locations.
- » Exploring utility easements for additional off-road mountain biking trails
- » Identify public-private partnerships and opportunities for protected facilities & facility amenities

25-Year Long-Range Agenda

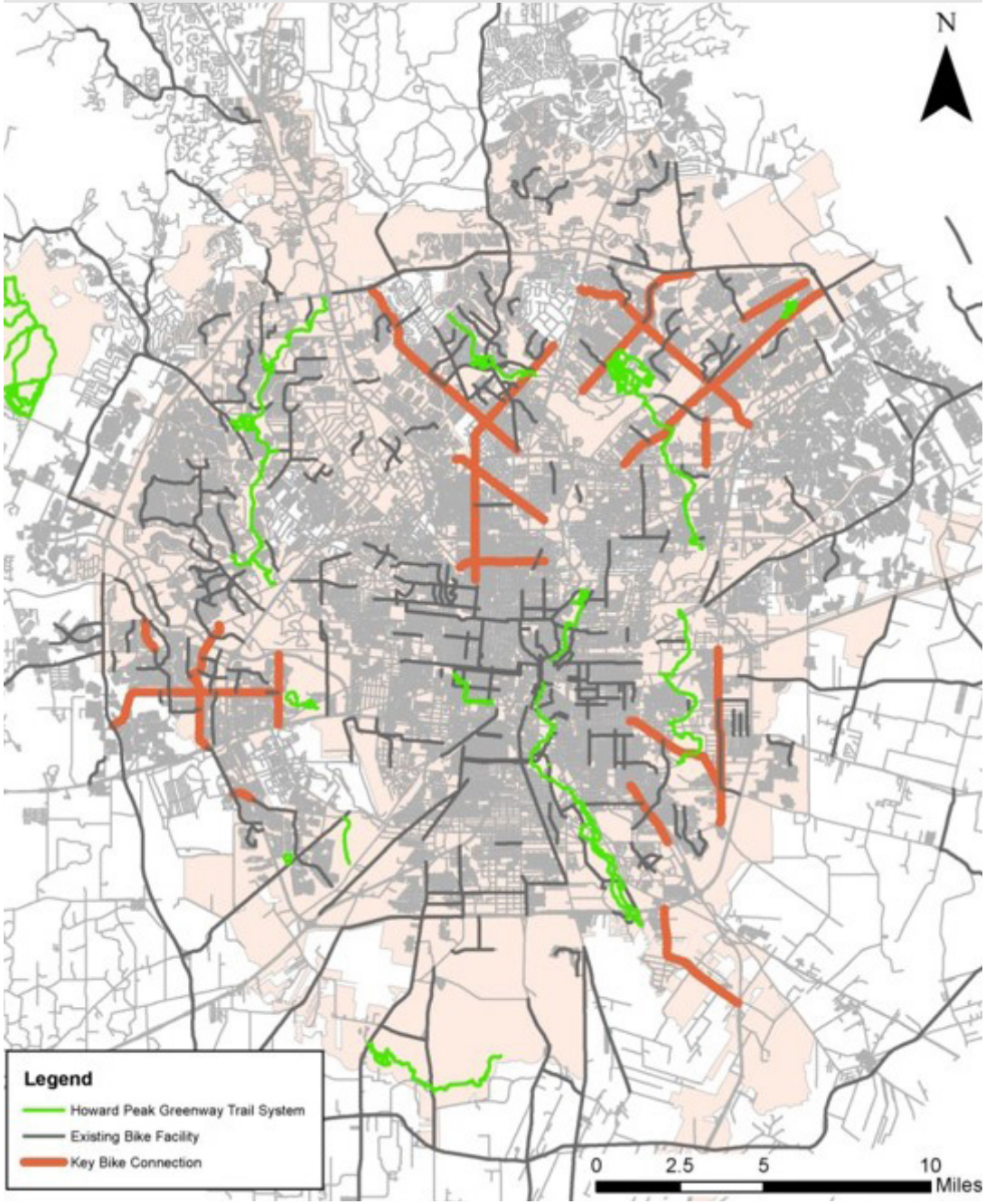
In the long-term, bicycle planning will continue to evolve as infrastructure and amenities are implemented and bicycling grows. Below are identified key connections that, when implemented, will provide mobility and accessibility across the region. These connections are not intended to be projects implemented at once, but in a piece meal manner as funding becomes available. Through the continuation of the City's Bond packages and the enforcement of the Complete Streets ordinance, these connections will encourage more bicycling as well as increased transit ridership.

B-Cycle Station

Key Connections

- Ellison Dr.: Military Dr – Potranco
- Ingram Rd: Potranco – Hunt Ln.
- Jackson Keller: Vance Jackson – McCullough Ave.
- Lockhill Selma: Blanco Rd. – N Loop 1604
- Roland Ave.: WW White – J Street
- WW White: Gembler – SE Military Dr.
- Goliad Rd: Southcross – SE Military Dr.
- Medina Base Rd.: Loop 410 – Ray Ellison
- Nacogdoches: Loop 410 – Loop 1604
- Perrin Beitel: Loop 410 – Wurzbach Pkwy
- Thousand Oaks: SH281 – IH35
- Jones Maltsberger: Wurzbach Pkwy – Loop 1604
- Stahl Rd: O'Connor – Green Mountain Rd.
- West Ave.: Fredericksburg Rd – Bitters Rd.
- Hunt Ln: Ingram Rd – Hwy 90
- Marbach: Loop 1604 – Pinn Rd.
- Pinn Rd: SH151 – Hwy 90
- Southton Rd: Loop 410 – IH37
- Fresno St: Fredericksburg Rd – McCullough Ave.

Key Bike Connections - 25 Year Goal



The Basics of Bicycling

1. How Roads and Bike Facilities Get Built

With the exception of state roads, brand new roads typically get built by the private sector as development occurs. This is the ideal time to acquire adequate right-of-way to ensure that the roadway provides safe facilities for bicycling as well as other modes of travel. Right-of-way is land dedicated for public purposes, including the transportation system. Once roads are built, dedicated, and accepted by a public entity, that entity is responsible for maintaining that road. Upgrades to roads can happen in one of two ways. The first is that private development will occur in the vicinity, and a Traffic Impact Analysis (TIA) will indicate developer responsibility for road improvements. The second form of upgrades is through publicly funded projects to enhance the overall transportation system.

Currently, the City's Unified Development Code (UDC) requires bicycle facilities on any roadways designated as collectors or above. Developers work with Development Services and TCI's Transportation Engineering team to determine the most appropriate facility for the development project.

2. Types of Bicycle Facilties

There are many different types of bicycle facilities. In general, a bicycle facility is built to provide a designated space for people bicycling within the roadway. This visible designation (through pavement markings, signage, and/or physical barriers) provides guidance to people bicycling on where to ride and guidance

to people driving and walking as to the potential presence of people bicycling in the roadway.

Much of the current roadway system was designed primarily for vehicles. As multimodal transportation options become more desirable, many of our roadways are being retrofitted to better and more safely accommodate all roadway users and modes of travel.

Having many different types of bicycle facilities is important to ensure a bicycle network that best meets the needs of different types of people that bike; to have options on different types of roadways; and to have options in different environments or "contexts" (such as rural versus urban or greenfield/raw land versus infill development). The decision as to what type of facility gets implemented is based on all these factors.

While off-road bicycle facilities are often a great choice, it is also important to have on-road facilities. The reason is that people who bike are often trying to get to the same destinations as people who drive cars (work, school, stores, etc.). Utilizing the existing road network, including arterial roadways, is often the most efficient route to travel. Below are many different options for bicycle facilities

Wide Shoulders

Wide shoulders are often found in rural areas and on state and county roads. These are usually not designated as bicycle specific areas, but they do provide a space where vehicles are not supposed to travel.

Bike Route

Bike routes do not have pavement markings, but utilize signs to indicate that an area is part of a bike route. They are often found on roads with low speeds and low traffic volumes because the bicycle will be sharing the road with vehicles.

Bike Boulevard

Bike boulevards are located on local and collector street that are enhanced to favor bicycle movement and provide traffic calming through signage, pavement markings, landscaping, and other physical barriers.

Sharrow

Sharrows are pavement markings used on a lane in a roadway that has extra lane space (e.g. at least 14 feet in width), but are not wide enough to accommodate a dedicated striped bike lane (minimum 15 feet preferred.). Sharrows provide awareness to bicyclists and drivers that they will need to share the travel lane.

Multi-Use Path

A multi-use path is an off-road facility that provides shared space for people bicycling and walking and runs parallel to the roadway. Multi-use paths work best with at least 10 feet in space and with a buffer between those using the path and vehicles traveling in the roadway.

Bike Lane

A bike lane is an on-road facility that has pavement markings and signage to indicate exclusive space for people bicycling. The use of green paint to help mark bike lanes provides greater visibility to the facility, particularly in potential conflict zone areas. A bike lane may be accompanied by a painted buffer to provide additional space between the bicyclist and motorist.

Protected Bike Lane

A protected bike lane has all the same features as a bike lane, but also includes a separation in the form of a painted buffer or physical barrier between the bicycle lane and the vehicular travel lane. Separations can include paint or a physical object, such as a curb, bollard, or pylon to delineate the bike lane from the vehicular travel lane. Bike lanes can also be protected by employing parking spaces to the left of the bike lane. This is what's known as "parking protected bike lane".

Cycle Track

A cycle track is a type of protected bike lane that is outside of the travel lane and adjacent to the pavement. This separated facility often makes use of curbs and landscape buffers to separate it from vehicular traffic.

3. Types of Bicycles

Just as there are different types of bicycle facilities, there are different types of bicyclists. At its most basic, bicyclists can be divided between utilitarian/functional riders and recreational riders. Within the recreation category, there are still more divisions, based on the mileage, frequency, and where bicyclists are willing and comfortable riding. The League of American Bicyclists has coined the term "ABC Cyclists" to denote the level of riding comfort with regards to the type of facility preferred or required by each group.

Wide shoulders, bike routes, and sharrows are generally used by more advanced bicycle riders. The reason is that these facilities are not dedicated specifically to people bicycling. Wide shoulders, while not specifically in the vehicular travel lane, are typically on high speed roads. Bike routes and sharrows may be on lower speed roads, but they do require people biking and people driving vehicles to share the travel lane.

The City has made many strides to place bike lanes throughout the roadway system. These facilities provide dedicated space for people who bike. However, on roads with high speed and/or high volumes of vehicular traffic, these roads may only feel safe to advanced bicycle riders. To help make these roads feel safe to more levels of people bicycling, the City is moving toward installing protected bike lanes.

For younger riders and less experienced riders, bike boulevards through neighborhoods and off-road multi-use paths or cycle tracks may provide the highest level of safety and comfort.

4. Multimodal Use of the Road and Roadway Design

There are many guides on how to build better bicycle facilities. The American Association of State Highway and Transportation Officials (AASHTO) provides the classic foundation for building transportation facilities. More recently, the National Association of City Transportation Officials (NACTO) created a supplemental guide that more specifically addresses multimodal road design.

Roadway design can be defined by three realms: The Pedestrian Realm, the Mode Transition Realm, and the Travelway Realm. The Pedestrian and Mode Transition Realm may include sidewalks, driveways, transit benches/shelters, transit landing pads, lighting, landscaping, curbs, parking, and bicycle facilities. The Travelway Realm may contain vehicular lanes, transit lanes, bicycle lanes, parking, and medians. All facilities may include pavement markings and signage. All facilities must be engineered for stormwater drainage flows and properly graded slopes.

Intersections provide a unique opportunity and represent the highest potential conflict point between people driving, biking, riding transit, or walking. Intersection design (e.g. roundabouts) and traffic signals help control the flow of traffic for all modes. Crosswalks and bike boxes help provide additional safety features. The second highest point of conflict is driveways.

For new roadways, particularly in new developments, design should reflect the highest level of safety for all modes – and all modes should be anticipated to use the facility. For existing roadways, particularly in built environments, roadway design is often restricted by limited right-of-way. Right-of-way is the dedicated space for the transportation system and other utilities (e.g. underground electric and cable). When right-of-way is limited, and additional land is not available, prioritizing all modes equally is not always feasible.

Facilities for people walking are always needed. All trips, whether by bike, transit, or vehicle begin and end with us as a pedestrian. When right-of-way is limited, the size of the pedestrian facility may be the minimum, versus wider for comfort and safety. Vehicular accommodations need to take into account the projected volumes of traffic on the roadway. Bike facilities should be on every collector and arterial. When this is not feasible, it is vital that alternative routes be identified and facilities built to ensure the bicycle network allows for safe passage to the same destinations as vehicles. People biking should only share facilities with people walking when that facility is built and designated as a multi-use path. Transit facilities may use vehicular lanes, but in certain corridors, it may be desirable to have dedicated transit lanes where cars are not permitted.

Of the 286 miles of bike facilities in the City (150 miles since 2010), most of the new facilities were in locations where right-of-way was not in direct competition with other modes for space in the road. To meet the travel needs of future generations, creative solutions will be needed to provide safe and reliable mobility options by both the private and public sectors. Supplemental guides from NACTO will be of greatest assistance to the City, when addressing the unique challenges that we face as we look to tomorrow and the incredible growth this region will witness.

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