SANMARCOS

TRANSPORTATION MASTER PLAN

2018

THE CITY OF
SAN MARCOS

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TRANSPORTATION MASTER PLAN

2018

SAN MARCOS

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Our City Council recognizes the future increased projections of traffic from western part of Hays County and, without alternative roadway(s), the impact of that increased traffic on congestion within our City. For this reason, there needs to be a meaningful commitment to a connection from Ranch Road 12 to Interstate Highway 35. We recognize the unique environmental characteristics of the land over the Edwards Aquifer, its recharge zones and the San Marcos River.

It is the desire of this Council to balance the needs for future mobility with the protection of these sensitive environmental features and areas. We support a plan that the cost of any roadway(s), if any, that address traffic originating outside our city be paid for with funds from sources other than the City of San Marcos. It is our intent to be part of any discussion with any authority working to plan any roadway in any part of our City's jurisdiction. The goal is to protect the San Marcos River, our unique environmental land, enhance air quality in the City and region while addressing mobility challenges we face in the future.

THE CITY OF SAN MARCOS

SANMARCOS

INTRODUCTION

The City of San Marcos and Hays County are experiencing significant growth, and San Marcos is among the fastest growing cities in the nation.

To keep pace with the growing community and transportation needs, the City has developed this Update to its 2004 Transportation Master Plan. By reviewing policies, development rules and the existing transportation network, this Update will help the City prepare and prioritize for the future.

This Transportation Master Plan considers new socioeconomic data and information from the City of San Marcos 2013 Comprehensive Plan "Vision San Marcos: A River Runs Through Us".

The improvements identified in this plan will help to enhance transportation safety, minimize congestion, preserve local character and protect the rivers and the San Marcos environment.

In December 2013, San Marcos was named #9 on Business Insider's list of the "10 Most Exciting Small Cities in America."

WHAT DOES A TRANSPORTATION MASTER PLAN DO?

Cities grow. Growth means more people with more places to go, creating increased demand on the roadways and infrastructure. To keep things running smoothly, cities must establish plans and policies to accommodate the growth.

A Transportation Master Plan is a planning tool that outlines goals and policies for the transportation system, and builds on data and analysis to develop recommendations to accommodate growth.

A Transportation Master Plan should protect the environmental, historic and natural resources of the area, while providing safety and mobility for all modes of transportation. The Plan serves the growing and changing needs of the community.

TRANSPORTATION MASTER PLAN DEVELOPMENT PROCESS

Creating a Transportation Master Plan includes a process from which recommendations are developed. The steps in this process are described below and presented in detail throughout the document.

Understand the Goals

Goals established in the Comprehensive Plan are the basis of the Transportation Master Plan. These goals are expanded and refined to inform the transportation recommendations in the Transportation Master Plan.

Document Existing Conditions

Understanding the existing conditions helps establish where the community is in relation to its goals. Data on demographics, bicycle infrastructure, trails, sidewalks, roadway inventory and traffic operations is collected. The projected level of growth based on census data and City planning information is also determined.

Community Engagement

Incorporating the community into the development of Transportation Master Plan is important to gather input and feedback for informed consent.

Develop the Future Scenario

Traffic models are used to evaluate future traffic conditions based on the projected levels of growth. These models along with information from the community engagement are used to identify problem areas and develop infrastructure recommendations. New roadway types are developed to reflect City goals. Performance measures are determined to prioritize projects.

Develop Recommendations, Capital Improvements and Thoroughfare Plans

Using the information from the previous steps, recommendations are developed to help the community reach its goals. Projects are prioritized and a list of projects with costs and timeframe for construction is developed. The Thoroughfare Plan identifies transportation corridors to be implemented as development occurs.

TRANSPORTATION PLANNING AND LAND USE

This Transportation Master Plan is guided by the City's Comprehensive Plan, Preferred Scenario Map and community input. This plan seeks to implement the policies of the Comprehensive Plan by framing a future transportation network focusing on multimodal mobility, safety, connectivity and accessibility and implementation in an environmentally sensitive manner.

The coordination of land use and transportation planning is essential to smart growth and sustainable development within the City of San Marcos. Land use informs the street design, street layout and streetscape to create an environment tailored to the mobility and livability needs of each street.

The coordination of land use and transportation planning is essential to smart growth and sustainable development within the City of San Marcos.

TRANSPORTATION GOALS

The Transportation Master Plan guides the development of transportation infrastructure in the City of San Marcos.

At the beginning of the planning process, City plans and policies were reviewed to identify related transportation goals and objectives. This Transportation Master Plan considered each of these goals and objectives throughout the planning process.

The City of San Marcos' Comprehensive Plan, "Vision San Marcos: A River Runs Through Us", envisions a more integrated transportation network that supports all types of users and modes.

It embraces the concept of "Complete Streets" - the approach to planning streets that are designed, operated and maintained to enable safe, convenient and comfortable travel and access for users of all ages and abilities.

COMPREHENSIVE PLAN VISION GOALS

- A connected network of efficient, safe and convenient multimodal transportation options while protecting the environment.
- A safe, well-coordinated transportation system implemented in an environmentally sensitive manner.
- A multimodal transportation network to improve accessibility and mobility, minimize congestion and reduce pollution.

GOALS

To achieve the vision of a more comprehensive and integrated transportation network that is multimodal, compact, and sustainable, these goals are defined as part of the Transportation Master Plan.

- Build a multimodal transportation network that is safe and efficient for all users with direct connection to key land uses.
- Develop roadway cross-sections that preserve the character of neighborhoods, encourage alternative modes and support appropriately located economic development.
- Identify green solutions and policy recommendations that can be considered for public and private development projects including Low Impact Development strategies.
- Increase bicycle use by integrating this mode within roadway cross-sections and constructing off-road trails to create a safe, convenient and functional alternative transportation system throughout the City.
- Continue to build a well-connected and context appropriate pedestrian network with an emphasis on safety, accessibility and comfort to encourage walking trips.
- Consider the transit network in planning corridors to serve downtown and key intensity zones; include transit needs in developing new cross-sections to allow for increased transit service.
- Expand the Greenways system to provide an alternate bike and pedestrian system to encourage increased mode shift and provide opportunities for recreation and economic development.
- Incorporate national best practices in the planning and design process.
- Prioritize safety within the transportation network as more vulnerable road users are encouraged to be on the road.
- Prioritize transportation projects within the core of San Marcos support the Comprehensive Master Plan vision to reduce sprawl and to address existing congestion.

EXISTING CONDITIONS

An important first step in developing an effective transportation plan is to document existing conditions in the study area. There are many factors to consider when planning for future demand on a community's transportation network.

Understanding how the existing infrastructure operates and how it is used helps planners shape a system that will best serve the community it supports. A summary of the current conditions for each of these areas is presented in the following pages.

- Demographics (population, employment, and growth)
- Land Use
- Roadway Network and Traffic Operations
- Traffic Generators
- Existing Transportation Infrastructure (multimodal, bicycle, pedestrian, greenways, trails, rail)
- Crash Data
- Environmental Features

Understanding the demographics, existing transportation network, and environmental constraints of a community helps to define how the transportation network is being used, and to plan for change.

The City of San Marcos has been ranked by the Census Bureau as one of the fastest growing cities in the U.S.

DEMOGRAPHICS

San Marcos' central position along IH 35 between San Antonio and Austin makes it an ideal location for industry. The City enjoys access to major transportation facilities, with proximity to international and regional airports.

The City also offers business incentives and support for small businesses and entrepreneurs such as local and state resources, Energy Efficiency Reward Programs, Workforce Development Assistance, tax credits, rebates and bonds. A continual source of new talent from the region's higher educational facilities, including Texas State University, Austin Community College and other career training programs work in industries ranging from education, retail and government, to manufacturing, aviation and corporate operations.

POPULATION

Over the past fifteen years, the City's population has grown by 31%.

The Capital Area Metropolitan Planning Organization predicts that the population of San Marcos will reach 90,500 by 2025, a 37% increase in growth since 2015.

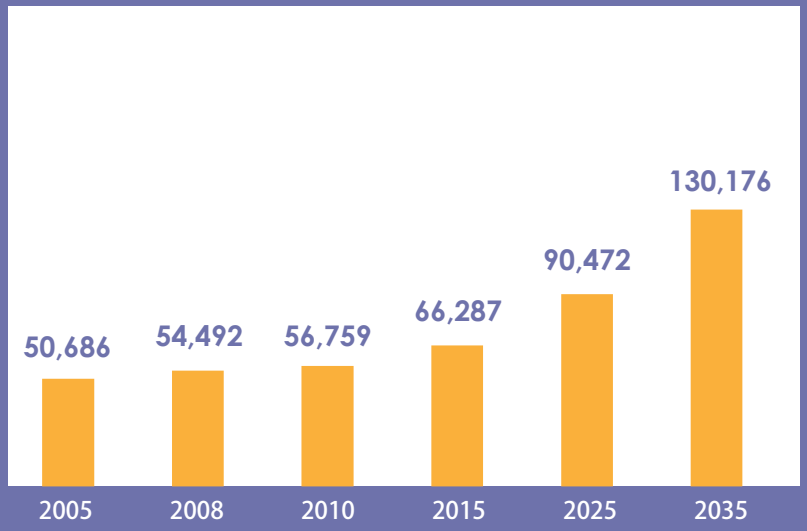
If current growth trends continue, by 2035, the population of San Marcos will reach 130,200 - a 96% increase since 2015.

EMPLOYMENT

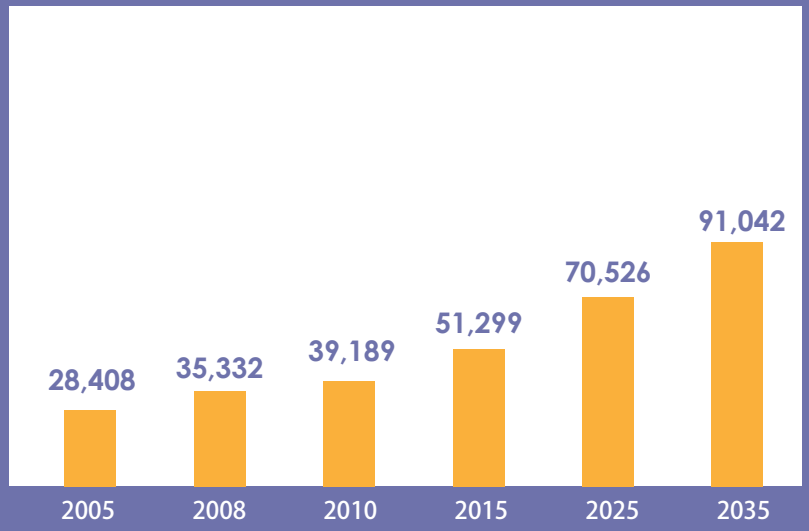
Employment projections indicate that the labor force will increase by 37% in 2025 and by up to 77% in 2035 from 2015.

This robust growth is expected to place a heavy demand on City's infrastructure including water, sewer, energy and transportation.

Population Growth



Employment Growth



Source: Growth data for population and employment obtained from the Capital Area Metropolitan Planning Organization

LAND USE

The City's existing land uses include a mixture of single and multi-family residential, commercial, industrial and institutional uses including Texas State University and multiple City Parks.

The City's downtown core is home to the historic Hays County Courthouse, as well as many local businesses including professional offices, retail, restaurants and bars. Bounded by historic residential neighborhoods and the San Marcos River, downtown San Marcos has maintained a 'small town' feel, and has become a popular destination within the community.

Growth in the small town has spurred a need for more intensive urban planning. Developers have been collaborating with the City of San Marcos to build master-planned communities such as La Cima, Trace and Kissing Tree.

The existing zoning provides context for selecting the appropriate street infrastructure.

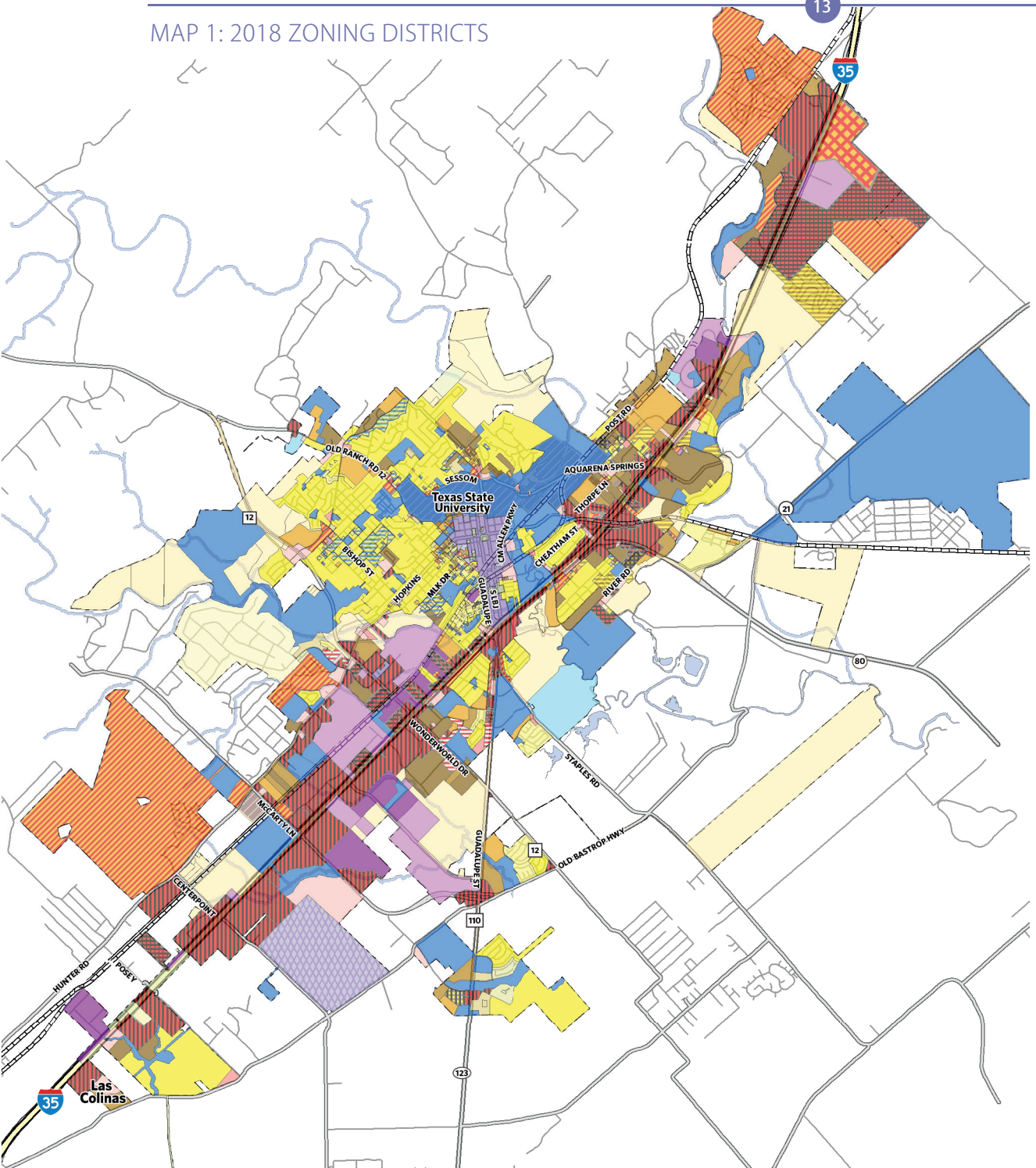
Zoning District Legend

- Agriculture Ranch (AR)
- Community Commercial (CC)
- Duplex (D)
- Duplex Restricted (DR)
- Future Development (FD)
- General Commercial (GC)
- Heavy Commercial (HC)
- Heavy Industrial (HI)
- Light Industrial (LI)
- Multi-Family 12 (MF-12)*
- Multi-Family 18 (MF-18)*
- Multi-Family 24 (MF-24)*
- Manufactured Home (MH)
- Manufactured Home/Residential (MR)
- Mixed Use (MU)
- Neighborhood Commercial (NC)
- Office/Professional (OP)
- Public/Institutional (P)
- Planned Development District (PDD)
- Patio Home, Zero-Lot-Line (PH-ZL)
- Single Family 4.5 (SF-4.5)*
- Single Family 11 (SF-11)*
- Single Family 6 (SF-6)*
- Single Family Rural (SF-R)*
- Townhouse Residential (TH)
- Vertical Mixed Use (VMU)
- Smart Code Civic Space (CS)
- Smart Code General Urban (T4)
- Smart Code Urban Center (T5)
- Smart Code District (SC)

*Residential District Definitions:
Multi-Family 12: maximum 12 units per gross acre
Multi-Family 18: maximum 18 units per gross acre
Multi-Family 24: maximum 24 units per gross acre
Single Family 4.5: minimum 4,500 square foot lots
Single Family 11: minimum 6,000 square foot lots
Single Family 6: minimum 11,000 square foot lots
Single Family Rural: minimum 1-acre lots

Source: City of San Marcos

MAP 1: 2018 ZONING DISTRICTS



ROADWAY NETWORK AND TRAFFIC OPERATIONS

Functional classifications of roadways are designed to describe the hierarchical arrangement and interaction within a transportation network. These classifications may change over time, as the function of a roadway changes to serve different land uses or demand on other transportation facility changes.

2004 FUNCTIONAL CLASSIFICATIONS

The City of San Marcos' 2004 Transportation Master Plan classified the roadway network into four categories. The 2004 Functional Classifications Map shows the previous distribution of roadway types.

2004 classifications of roadway facilities

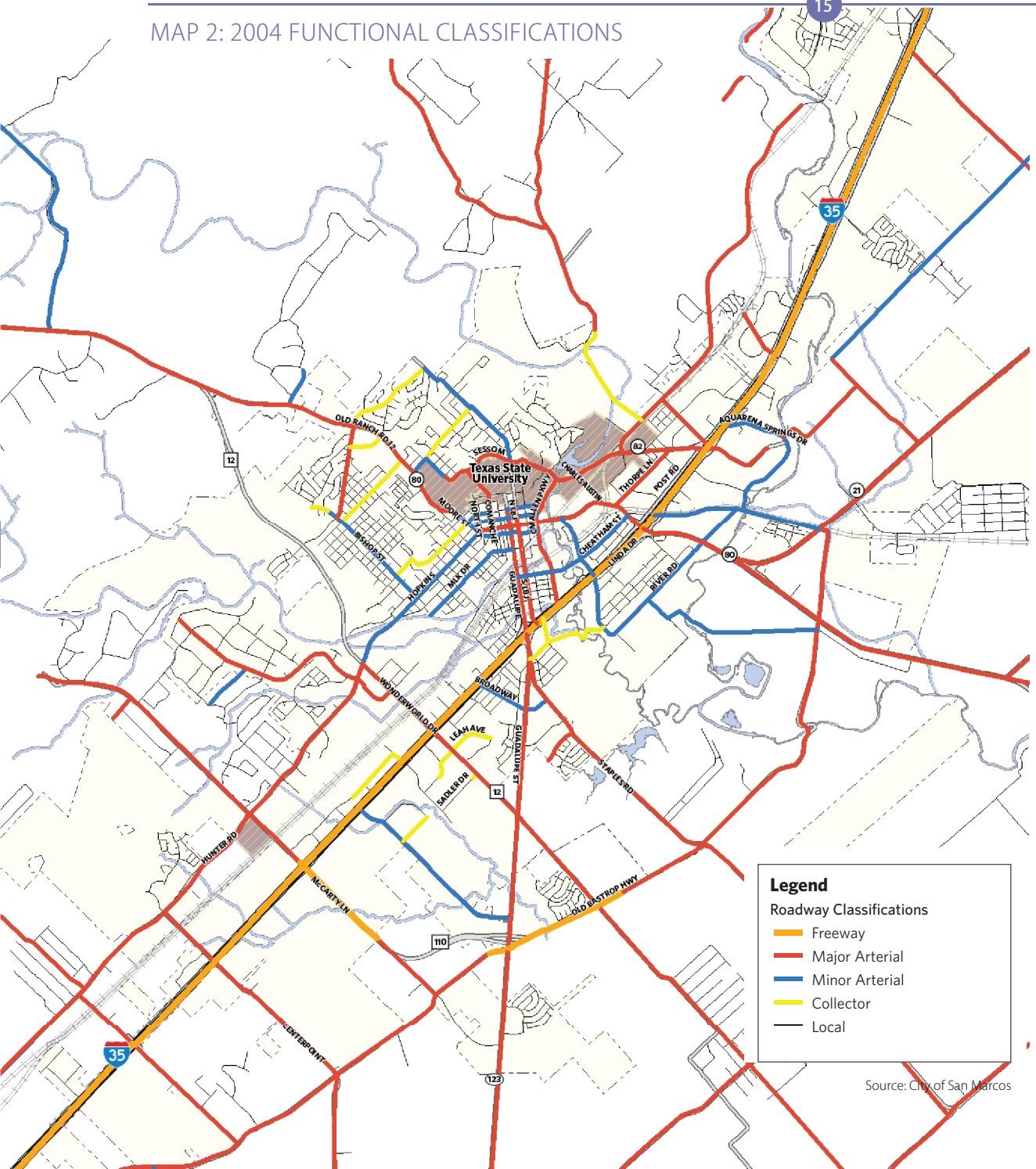
FREEWAYS

ARTERIAL STREETS

COLLECTOR STREETS

LOCAL STREETS

MAP 2: 2004 FUNCTIONAL CLASSIFICATIONS



Source: City of San Marcos

MAJOR ROADWAYS

Several roadways serve as major connecting facilities in San Marcos.

- **IH-35** is the only freeway that services San Marcos and nearby communities. It is accessed by grade separated interchanges with frontage roads on both sides.
- **SH 80** serves the east side of San Marcos and connects to RR 12, via Hopkins Street, through downtown.
- **SH 123**, a four-lane facility, originates in Seguin and becomes Guadalupe Street west of IH 35 as it approaches downtown.
- **SH 21** begins at SH 80 on the east side of San Marcos and runs northeast toward Bastrop County.
- **Loop 82**, also known as Aquarena Springs Drive, begins at IH 35 and runs through San Marcos where it intersects with IH 35 again as CM Allen Parkway.
- **RR 12 (Wonder World Drive)** connects the City of Wimberley and IH 35 on the south side of San Marcos.
- **Hopkins Street** connects with Hunter Road on the west, then joins with SH 80 as a major road through Downtown San Marcos.
- **Hunter Road** connects downtown San Marcos with the cities of Hunter and Gruene, running parallel to IH 35 on the west.
- **Sessom Drive** is a four-lane roadway connecting Academy Street with Aquarena Springs Drive and providing primary access to Texas State University.
- **Post Road** connects University Drive in San Marcos to IH 35 approximately four miles to the north.

TRAFFIC VOLUMES

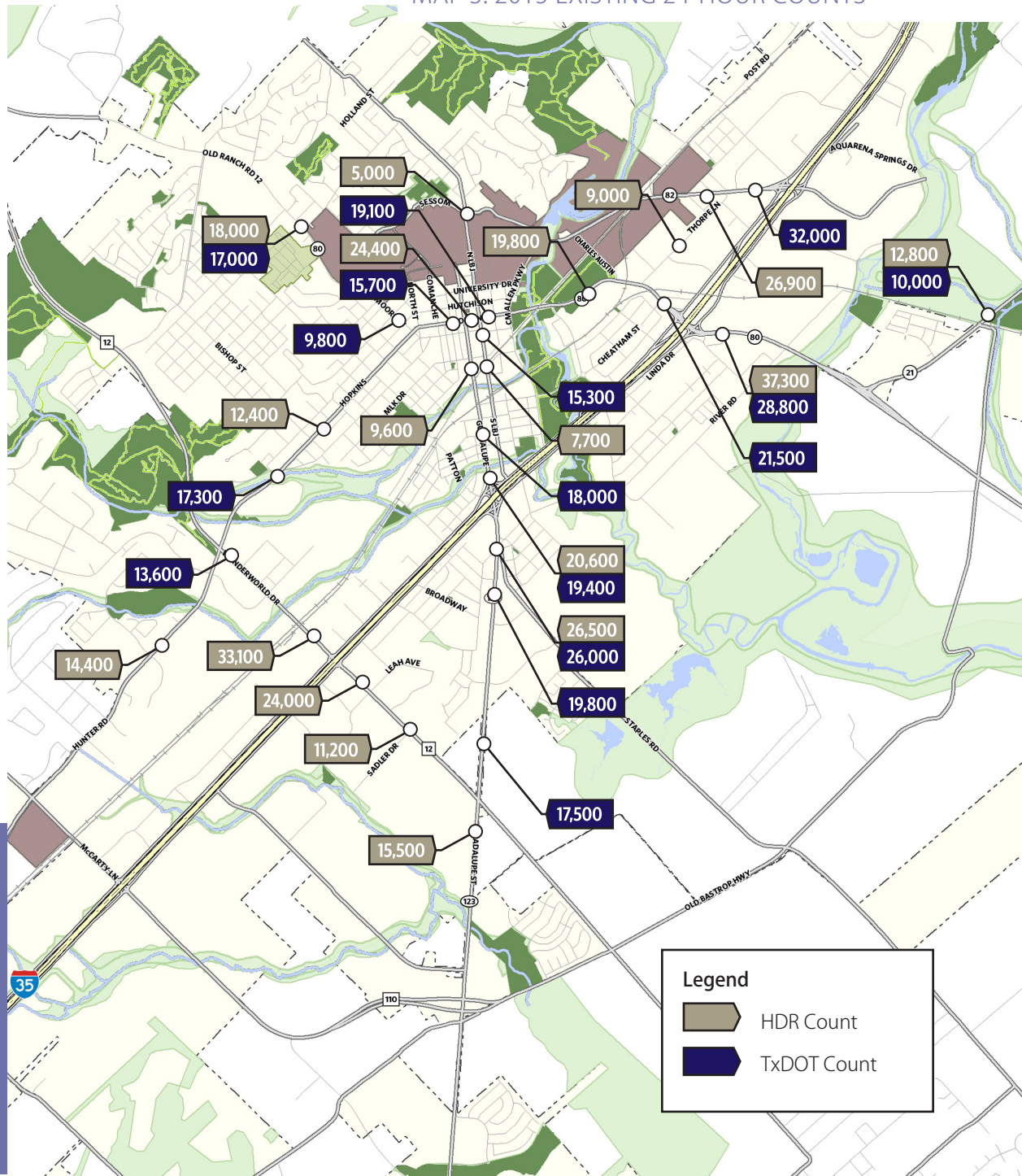
Long-range transportation plans are developed based on current and projected traffic volumes on the major streets and intersections of interest.

Traffic volumes are used to identify problem areas and analyze how the transportation system may be improved. Detailed traffic volume information is provided in the Appendix.

To help identify current issues affecting streets in San Marcos, daily traffic volumes were collected on several major corridors. These counts served as a base to determine where issues such as safety and roadway deficiencies need to be addressed.

Traffic counts are collected along major roadways to determine where problems may exist in the network.

MAP 3: 2015 EXISTING 24-HOUR COUNTS



EXISTING SYSTEM PERFORMANCE MEASURE: VOLUME-TO-CAPACITY

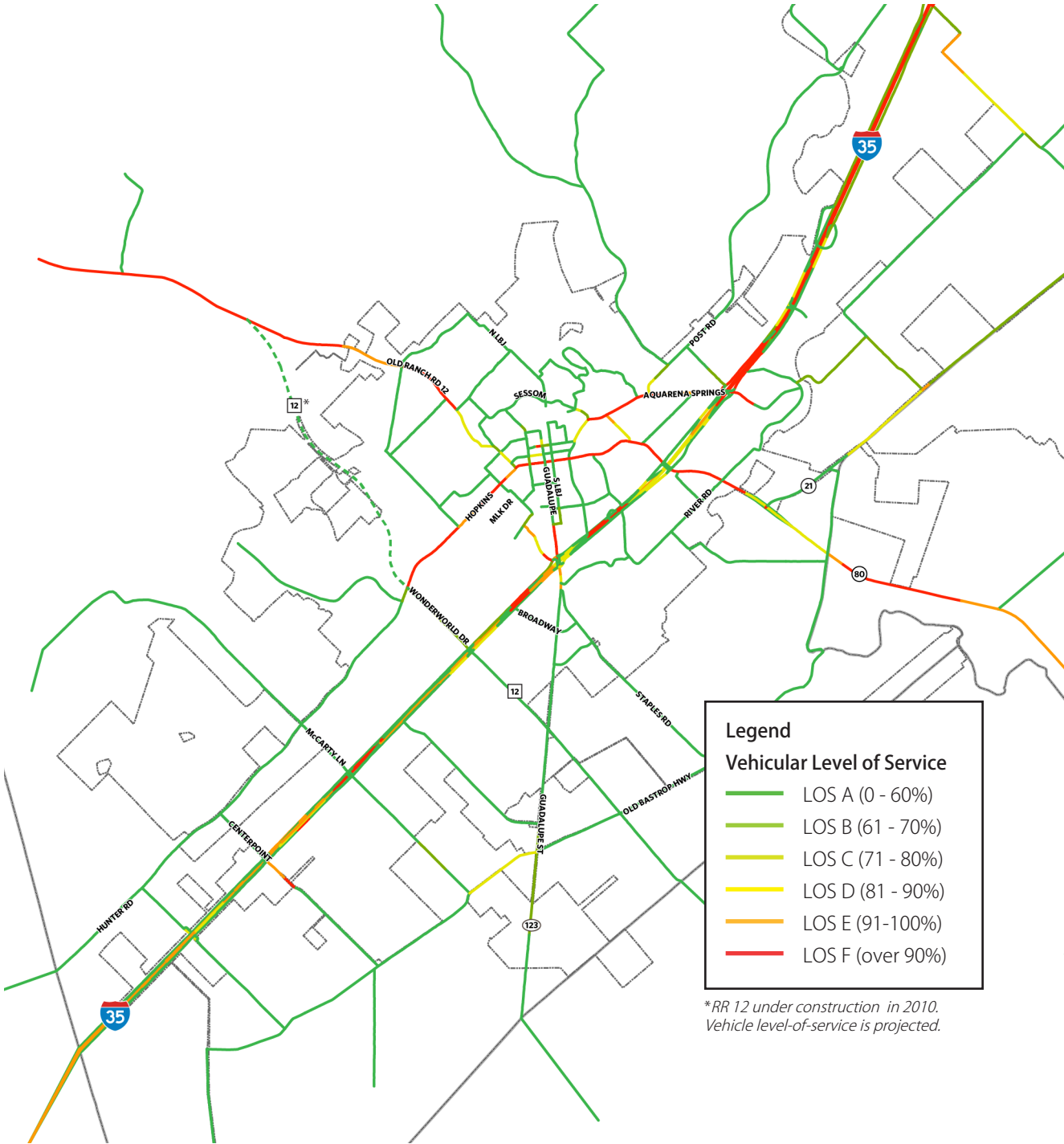
When planning for new roadways, they are designed large enough to carry the number of vehicles predicted to use the facility through a specific build year, often 30 or 40 years in the future.

Using simulation software, planners compare roadway demand (number of vehicles on the road) with roadway supply (carrying capacity). If a roadway begins to approach or reaches its full carrying capacity, congestion occurs.

Volume-to-capacity (V/C) ratio measures congestion levels on a roadway. When the V/C ratio begins to reach 100% of the roadway capacity, vehicular level of service for the facility degrades.

V/C and vehicular level of service for the City's existing transportation network show the facilities where traffic improvements should be considered.

MAP 4: 2010 EXISTING ROADWAY OPERATIONS



**RR 12 under construction in 2010. Vehicle level-of-service is projected.*

Twenty-two intersections were identified for vehicular LOS analysis, 19 of which are signalized. Turning movement counts were collected during the AM and PM travel peaks.

Volume to capacity and intersection performance measures focus on vehicular operations and do not measure multimodal performance or safety. Crash data can be useful for all transportation modes.

EXISTING SYSTEM PERFORMANCE MEASURE: INTERSECTION OPERATIONS

Level of service (LOS) is the standard performance measure used to evaluate vehicular traffic conditions at intersections. LOS measures the effect a number of factors can have on operating conditions.

Factors that can affect LOS include:

- Speed
- Volume of traffic and freedom to maneuver
- Geometric features
- Traffic interruptions
- Safety
- Driving comfort and convenience

Vehicular LOS helped to determine where safety and roadway deficiencies need to be addressed. Improvements to several intersections were identified as short-term enhancements that could have an immediate impact on vehicular mobility. Traffic analysis results are included in the Appendix.

These improvements are identified as short-term projects on the Capital Improvements Projects list.

Legend

Signalized

(Seconds of Delay per Vehicle)

- Less than 35 seconds
- Between 35 and 55 seconds
- 55 seconds or more

Unsignalized

(Seconds of Delay per Vehicle)

- Less than 25 seconds
- Between 25 and 35 seconds
- 35 seconds or more

YEAR 2015 LEVEL OF SERVICE

SIGNALIZED		AM Peak	PM Peak
Aquarena Springs Drive @	Thorpe Lane	B	C
	Charles Austin Drive	D	C
	Sessom Drive	C	C
SH 123 @	Staples Street (FM 621)	C	B
	Broadway Street	C	C
	Old Bastrop Highway	C	C
	FM 110	C	A
Hopkins Street @	Bishop Street	C	D
	Moore Street	C	C
	LBJ Street	B	B
	Guadalupe Street	B	D
Wonder World Drive@	Leah Avenue	C	C
	Sadler Drive	B	C
	IH 35	D	E
McCarty Lane @ Hunter Road		B	B
University Drive @ CM Allen Parkway		A	B
Loop 80 @ Clarewood Drive		A	C
Old RR 12 @ Holland Street		B	C
N. LBJ and Sessom Street@		B	C
UNSIGNALIZED			
Hopkins Street @ North Street		A	A
McCarty Lane @ IH 35[1]		E	C
SH 21 @ SH 80		C	C

[1]A signal has been installed since the 2015 analysis was performed.

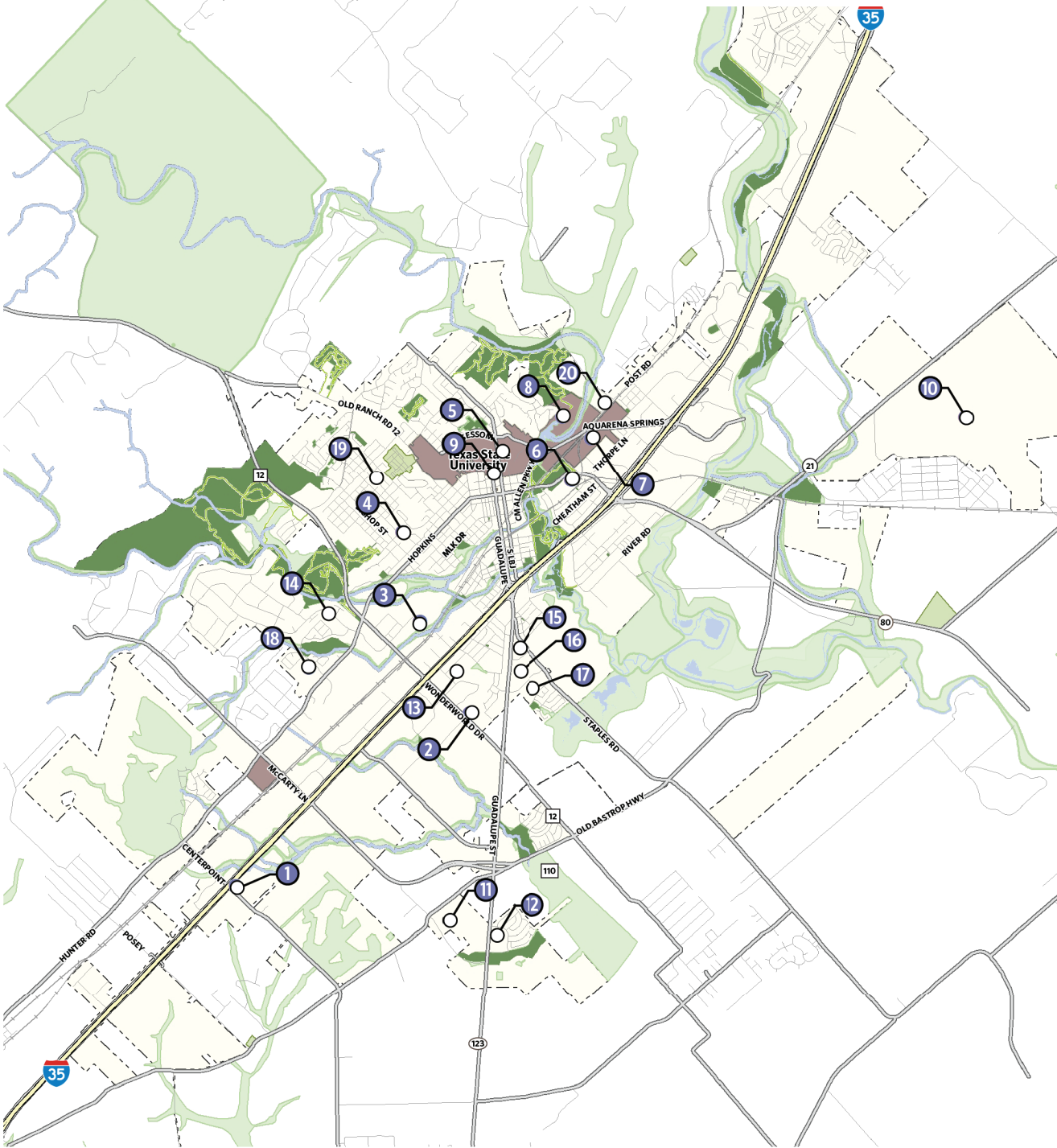
TRIP GENERATORS

A traffic generator is a land use that creates vehicular trips including homes, schools, offices, or a movie theater. There are several key traffic generators which create a sufficient number of trips to have unique impacts on traffic patterns in the City of San Marcos.

They include:

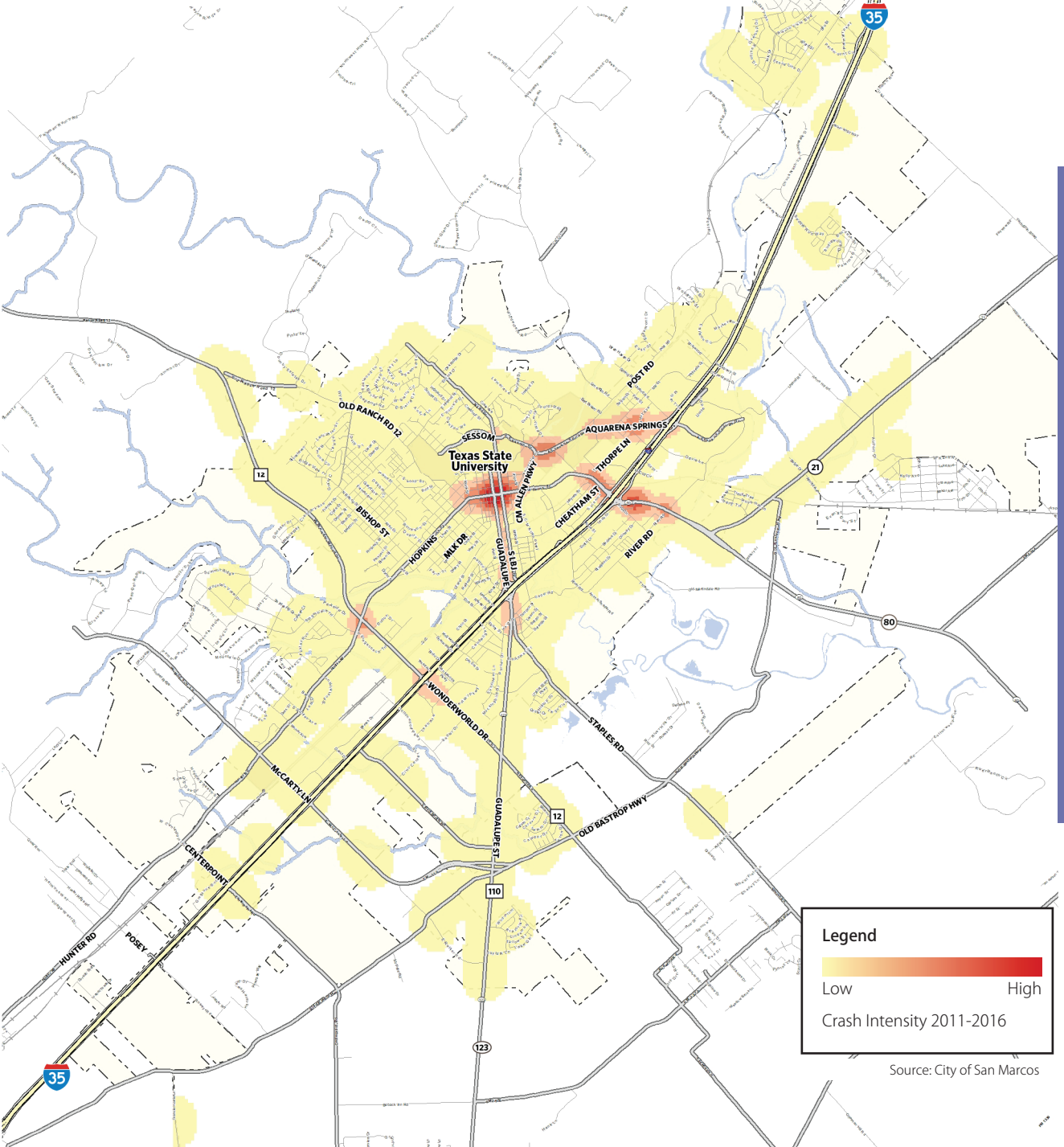
1. Tanger and Premium Outlet Centers
2. Central Texas Medical Center
3. Hays County Government Offices
4. Wonder World Park
5. Texas State University
6. City of San Marcos Government Offices
7. Bobcat Stadium
8. Aquarena Center
9. San Marcos Downtown Square
10. San Marcos Regional Airport
11. San Marcos High School
12. Bowie Elementary School
13. Mendez Elementary School
14. Hernandez Elementary School
15. Bonham Prekindergarten School
16. Owen Goodnight Middle School
17. DeZavala Elementary School
18. Doris Miller Middle School
19. Travis Elementary
20. Crockett Elementary

MAP 5: 2018 TRIP GENERATORS



Wonder World Dr
LEFT TURN
YIELD
ON GREEN
CTMC
CENTRAL TEXAS
MEDICAL CENTER
Adventist HEALTH SYSTEM
CTMC
CENTRAL TEXAS
MEDICAL CENTER
Emergency
Admitting /
Main Entry

MAP 6: CRASH INTENSITY



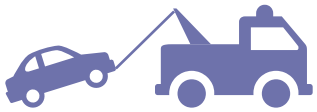
Source: City of San Marcos

CRASH DATA

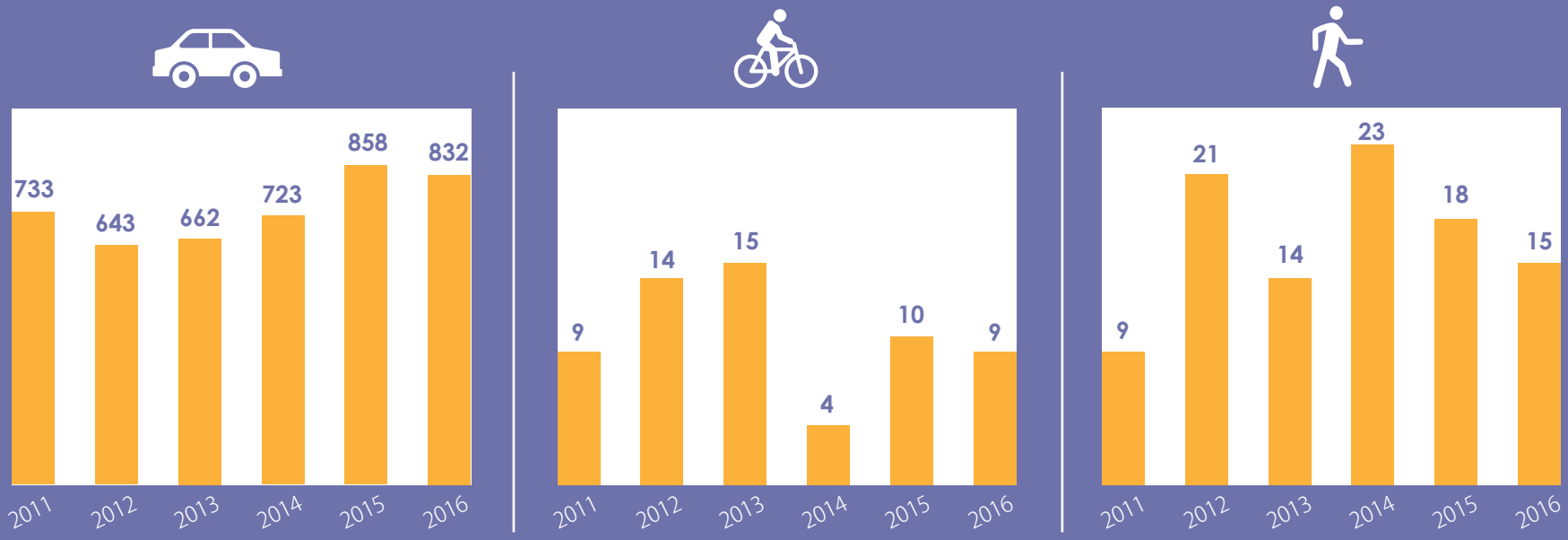
Crash history for the City of San Marcos was obtained from TxDOT. All crashes that occurred on I-35 were excluded.

Aquarena Springs and Loop 82 have seen the most crashes with approximately 1,390 crashes between 2011 and 2016. This accounts for over 30% of the total crashes reported during this time frame.

Crash data is included in the Appendix.



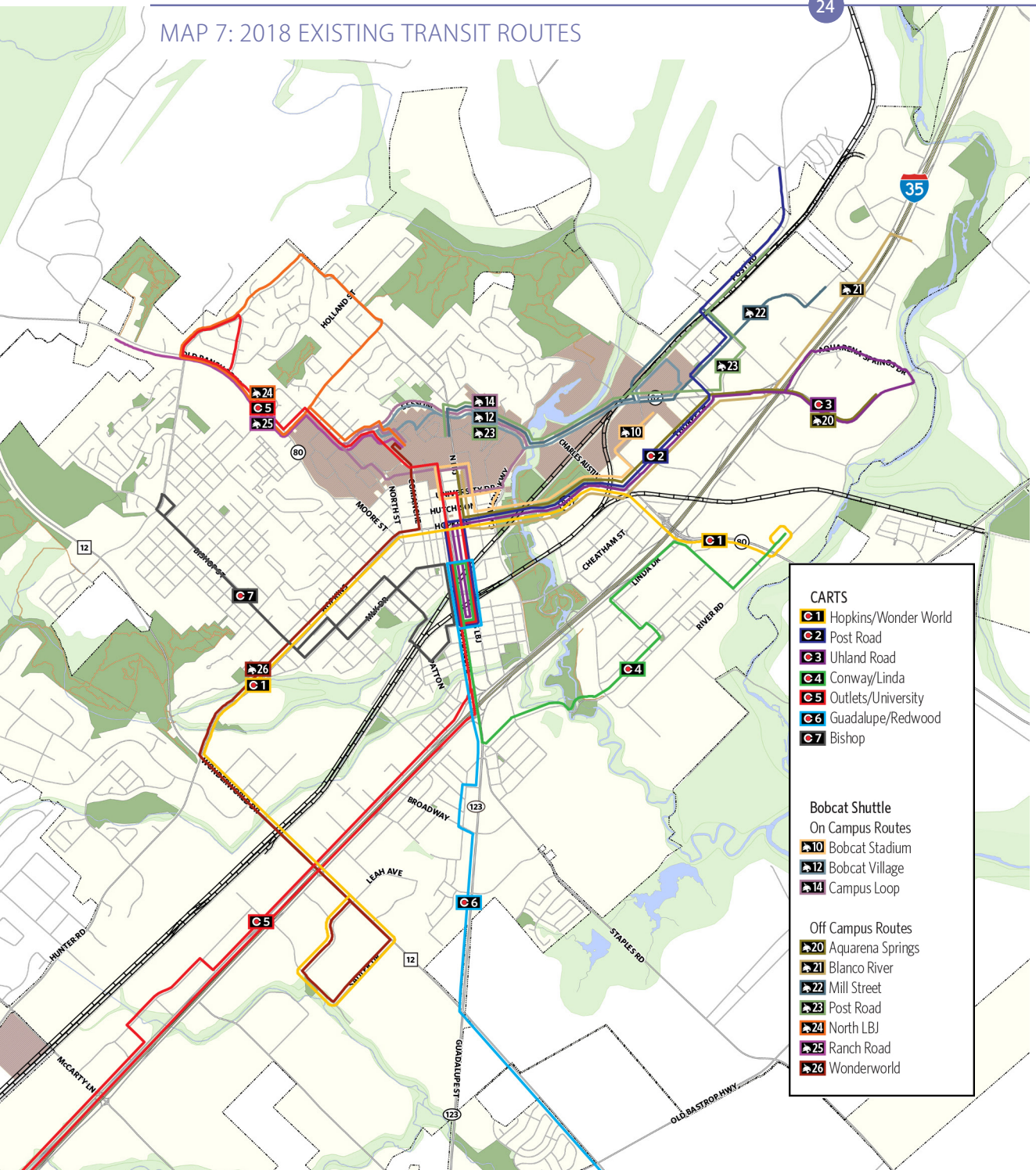
REPORTED CRASHES PER YEAR



Source: TxDOT Crash Record Information System (CRIS)

Since 2011, between 640 and 860 automobile crashes have been reported each year in San Marcos. In that same timeframe, 61 bicycle crashes and 100 pedestrian-involved crashes have been reported.

MAP 7: 2018 EXISTING TRANSIT ROUTES



MULTIMODAL TRANSPORTATION

Multimodal transportation is the movement of people and goods through multiple modes including passenger vehicles, bus, rail, pedestrians and bicycles. While passenger vehicles dominate transportation in the City of San Marcos, there are increasing opportunities for multimodal travel.

TRANSIT

Existing local transit service in San Marcos includes Capital Area Rural Transportation System (CARTS) and Bobcat Shuttle service offered by Texas State University. The City of San Marcos Intermodal Station, south of downtown, acts as a hub for transit services ranging from the local and regional CARTS routes to national intercity transit services offered by Amtrak and Greyhound.

CARTS operates seven municipal bus service routes throughout San Marcos. Two are Interurban Coach routes between San Marcos and Austin operating on weekdays. A county bus provides complementary transit services for disabled users living in or visiting the City of San Marcos.

Bobcat Shuttle operates eleven routes. Three of these routes operate on campus, while the remaining eight operate off campus.

The San Marcos Consolidated Independent School District (SMCISD) provides bus service throughout the district. Bus routes are designed to enhance student safety, maximize vehicle efficiency and limit ride times to less than 45 minutes each way. Elementary and secondary students may walk up to 1/4 and 1/2 of a mile to a bus stop, respectively.

SMCISD also offers Here Comes the Bus®, a mobile app that allows parents to view real time location of their child's school bus. Parents can receive notification of the bus arrival at stops and at the school, as well as push notifications or email when the bus is a certain distance from their stop. Here Comes the Bus® is available in English, Spanish and French.

According to the Comprehensive Plan, from 2008 to 2010, 5.3 percent of San Marcos' workforce walked or used a bicycle to get to work or school.

San Marcos currently establishes bicycle routes by considering:

- Traffic density
- On-road bicycle facilities
- Change in elevation
- Roadway conditions
- Connectivity
- Citizen feedback

BICYCLE FACILITIES

The City of San Marcos is committed to encouraging bicycle use by building safe, convenient and connected bicycle lanes and trails for riders of all ages and abilities.

The City is working to increase connectivity of the existing bicycle and trail system between its parks, recreational amenities, downtown, Texas State University, businesses and residential areas.

In November 2017, the Texas Transportation Commission approved $2.8 million in grant funding for bicycle and pedestrian facilities. Projects will include a two-mile shared-use path from Hopkins Street Bridge to IH 35.

Route Descriptions

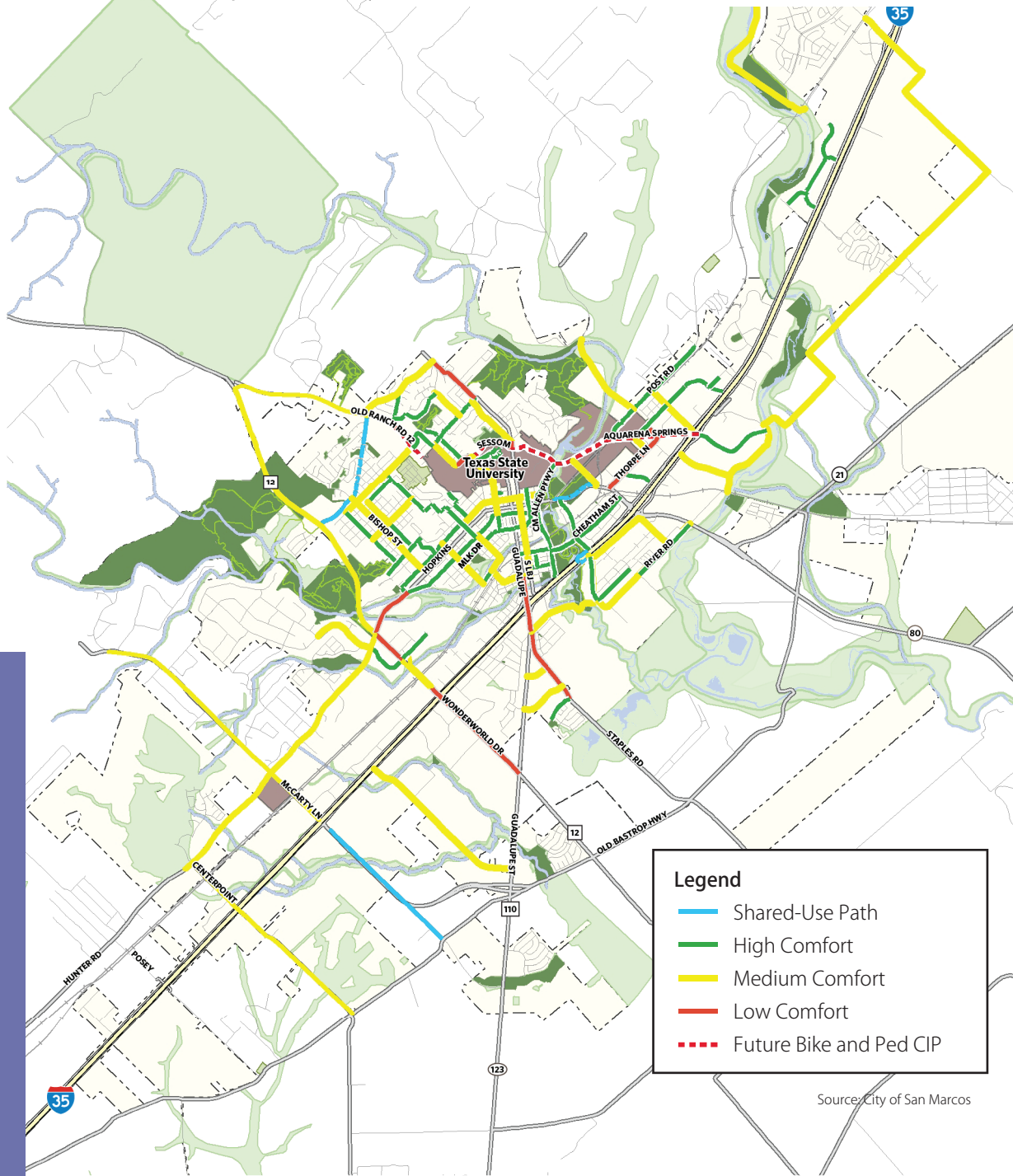
High Comfort Routes
Mild traffic and little elevation change, typically runs through neighborhood streets where bicycle lanes may be present.

Medium Comfort
Moderate traffic with wide lanes and/or wide shoulders. These routes may have elevation changes, and can lack striped facilities.

Low Comfort
May have high traffic, no bicycle facilities, and can have high elevation changes. These routes should be used by more experienced cyclists comfortable sharing the road with a high volume of traffic.

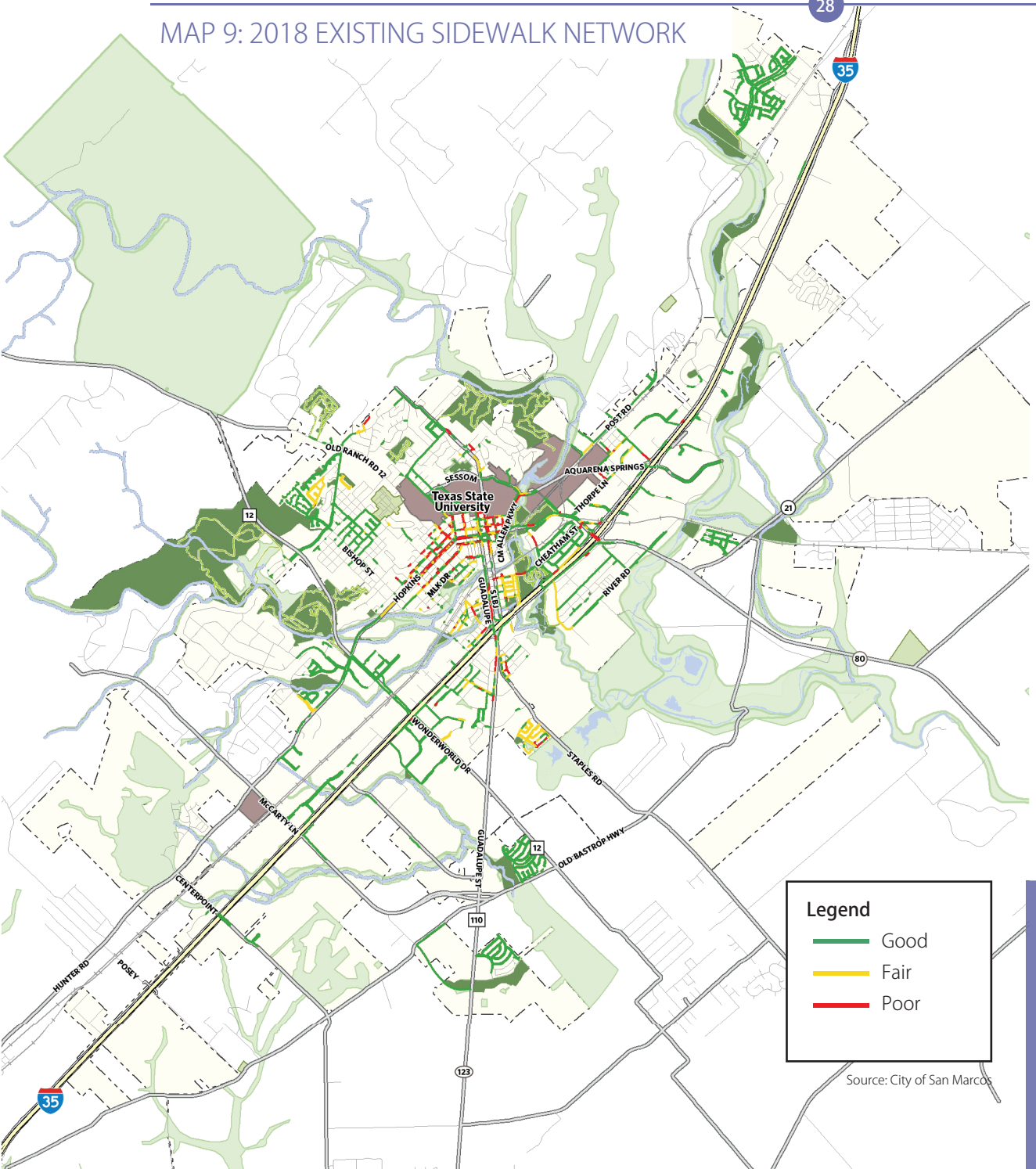
Shared Use Path
Off-street paths used for biking or walking with a surface that is asphalt, concrete, or firmly packed crushed granite.

MAP 8: 2018 EXISTING BICYCLE ROUTES



Source: City of San Marcos

MAP 9: 2018 EXISTING SIDEWALK NETWORK



Source: City of San Marcos

PEDESTRIAN FACILITIES

Sidewalks are essential to the transportation network. They provide pedestrians with safe, dedicated walkways and encourage pedestrian mobility. Wide intersections and high speed traffic make walking unpleasant and sometimes unsafe, discouraging non-motorized traffic.

The current sidewalk network in the City of San Marcos has missing links in critical areas. Many sections are poorly maintained. Broken segments in the adjacent sidewalk map represent gaps in the network.

The City pro-actively implemented a sidewalk maintenance program in 2016 to improve sidewalks throughout the City.

The City's sidewalk maintenance program replaces sidewalk and gaps within the network. To determine where to repair sidewalks, and where to build new sidewalks, the City often relies on citizen feedback.

Sidewalk Conditions

Good: Functional sidewalk with no noticeable failures

Fair: Functional sidewalk with limited or spot failures, may be of insufficient width

Poor: Non-functional sidewalk with failures, cannot be used by wheelchairs and would be difficult for pedestrians

The existing trails in San Marcos are commonly used for hiking and recreational biking. They are not as suitable for commuter cycling.

GREENWAYS AND TRAILS FACILITIES

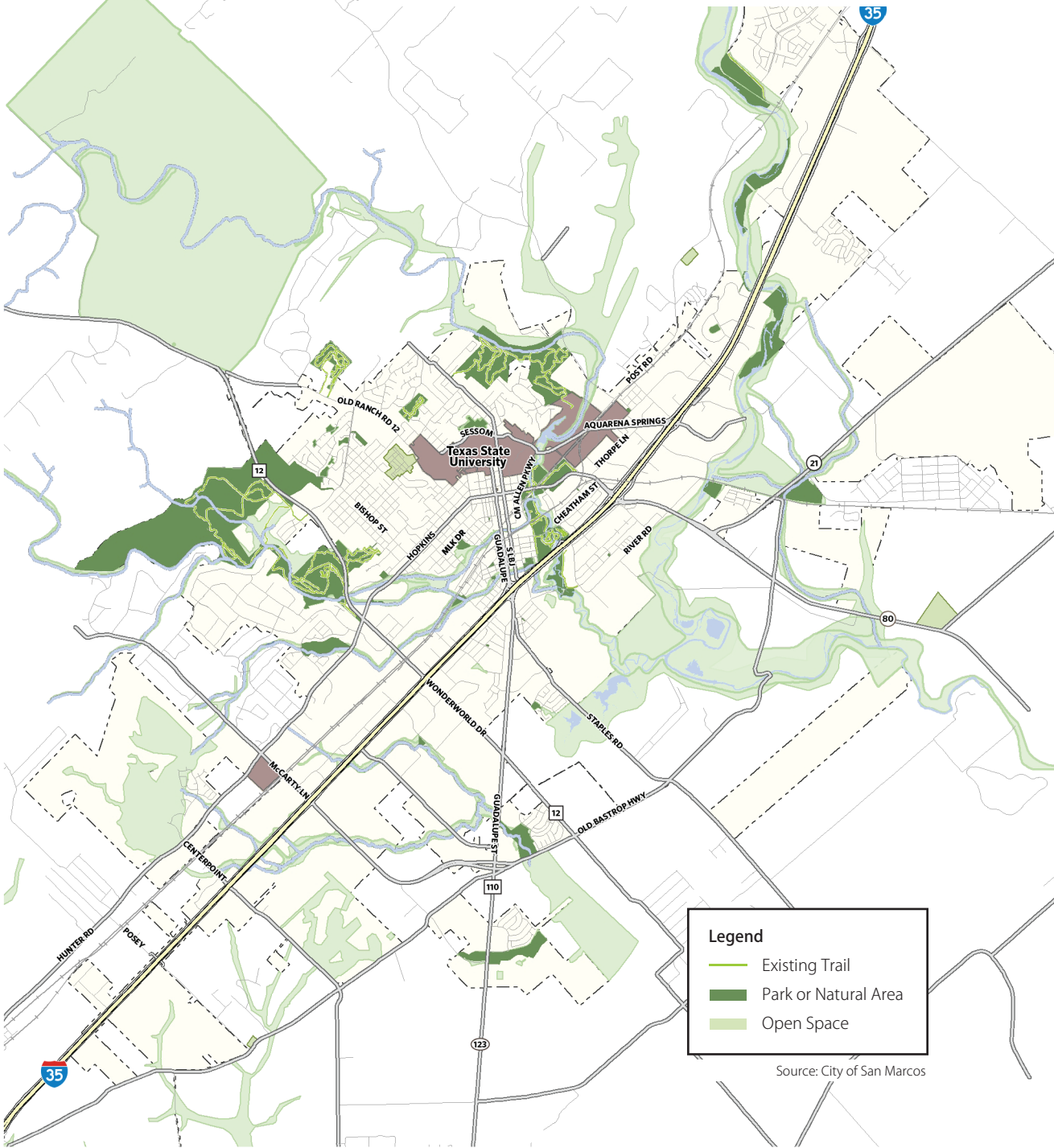
Community priorities identified in the Comprehensive Plan included providing more trails and natural areas.

The 2010 Parks, Recreation & Open Space Master Plan lays out a vision for the City's recreational assets: "Create a unified parks and recreation system that serves the entire San Marcos community, supports tourism efforts and remains a good steward to the river and surrounding environment." The Plan is currently undergoing an update.

The 2012 Hays County Parks, Open Space, and Natural Areas Master Plan recommends an increase in both the number and length of its trails, as well as enabling access for hiking and biking.

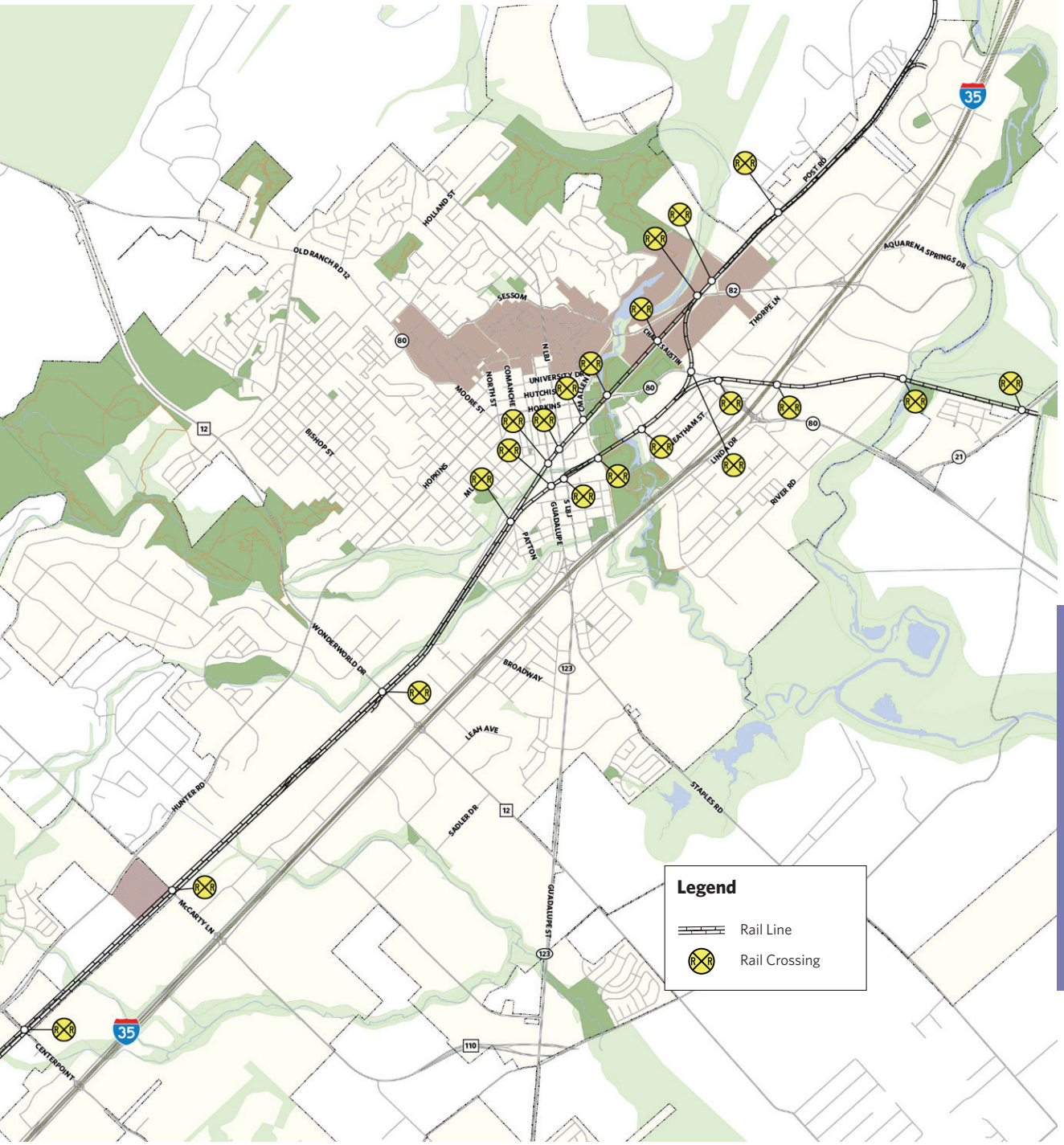
The San Marcos Greenbelt Alliance has developed a vision for a future system of trails that connect natural areas and neighborhoods within the City with a "Loop and Check" map.

MAP 10: 2016 EXISTING TRAIL NETWORK



Source: City of San Marcos

MAP 11: 2018 RAILROAD AT-GRADE CROSSINGS



RAIL FACILITIES

Union Pacific Railroad operates two segments of railroad freight lines within the City of San Marcos.

These include a north-south line that parallels IH 35 and an east-west line that diverges near the City's center.

Union Pacific Railroad operates two freight lines through the City.

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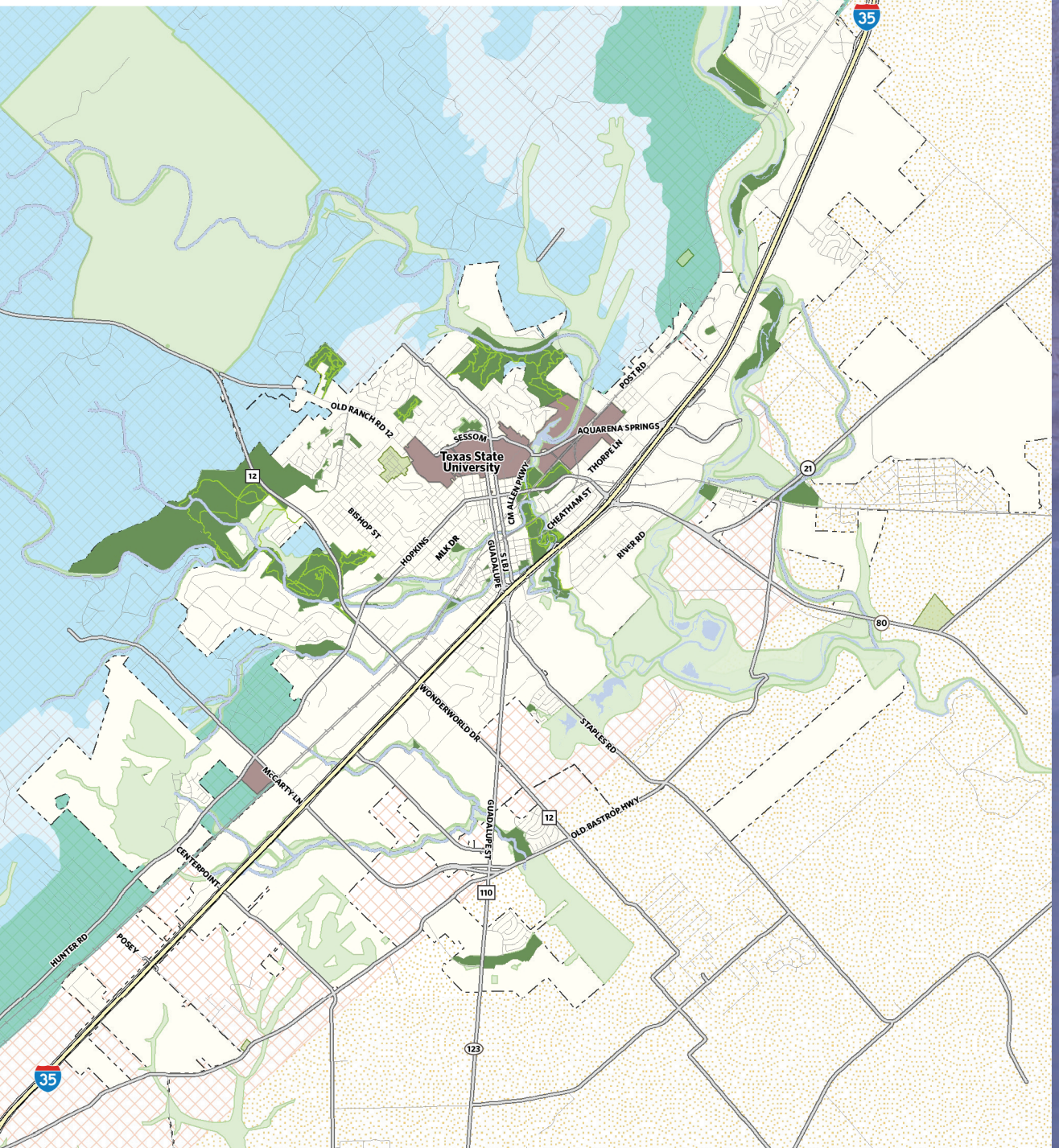
SERGI & ASSOC.
SERGI & ASSOCIATES, P.C.
ATTORNEYS AT LAW
(512) 392-5010
AMTRAK

MAP 12: 2018 ENVIRONMENTAL FEATURES



Legend

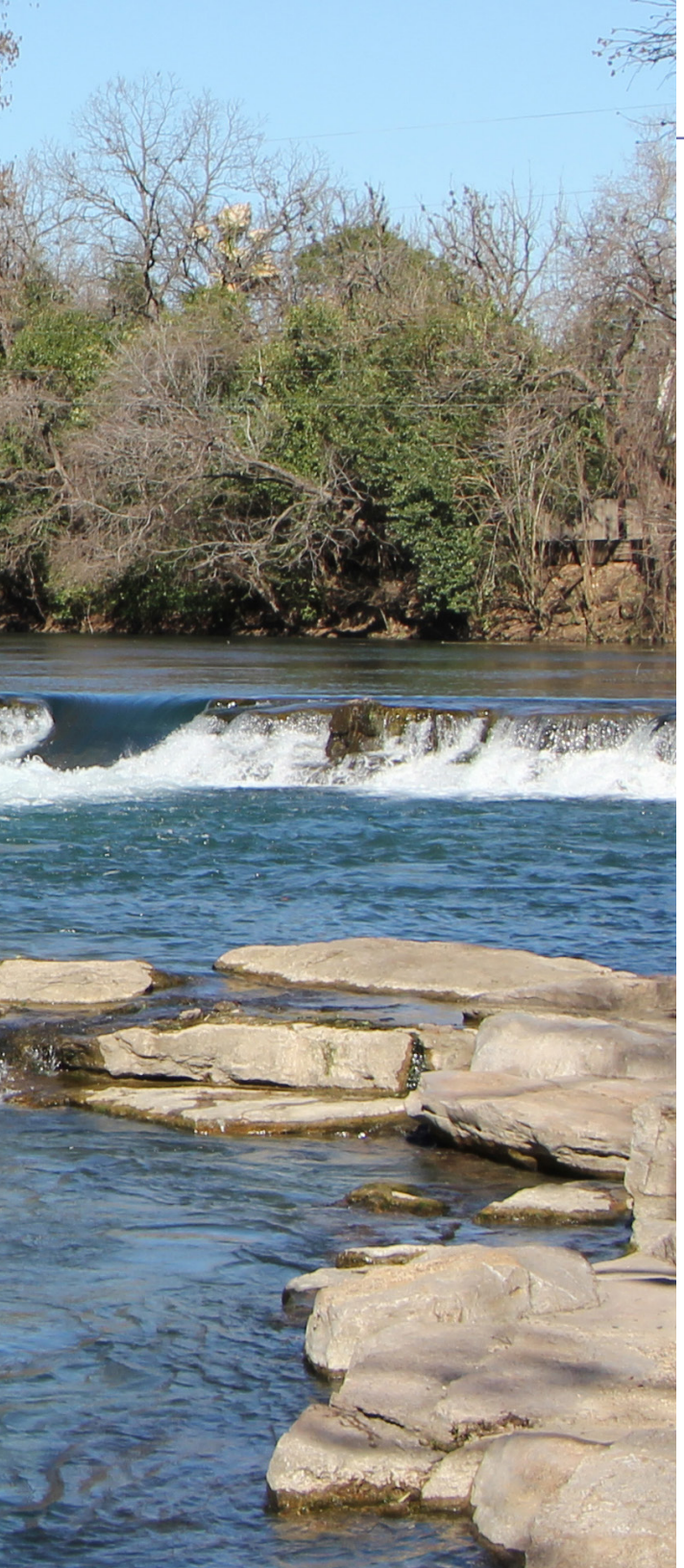
City Features

- City Limits
- River/Creek
- Open Space
- Existing Parkland
- Texas State University
- Railroad
- Existing Trail
- Major Creek

Environmental Features

- Edwards Aquifer Contributing Zone
- Edwards Aquifer Contributing Zone within the Transition Zone
- Edwards Aquifer Recharge Zone
- Edwards Aquifer Transition Zone
- Blackland Prairie
- Edwards Plateau

Source: City of San Marcos



ENVIRONMENTAL

The City of San Marcos is home to many key natural resources. The San Marcos and Blanco Rivers, their tributary creeks, and the Edwards Aquifer run throughout much of the City. Abundant natural resources create a diverse wildlife habitat. Native birds, salamanders, aquatic life and other species also live in these areas.

Several parks and historical features offer additional character and depth to the City.

Caution and careful planning are needed when evaluating infrastructure improvements so that impacts to environmental features can be avoided or minimized.

Flooding and low water crossings must also be taken into account when considering environmental constraints and impacts. The unique water features, combined with steep topography, contribute to San Marcos being particularly susceptible to flooding. Major floods have occurred several times in the past 100 years, with the most recent in 2017.

COMMUNITY ENGAGEMENT

Throughout the planning process for the Transportation Master Plan, City staff worked to keep the public informed and involved.

Engaging the public and community stakeholders helped to clarify the project vision and provided opportunities for meaningful input and involvement by the community.

Comments received at community events were compiled and considered for incorporation into this Plan.

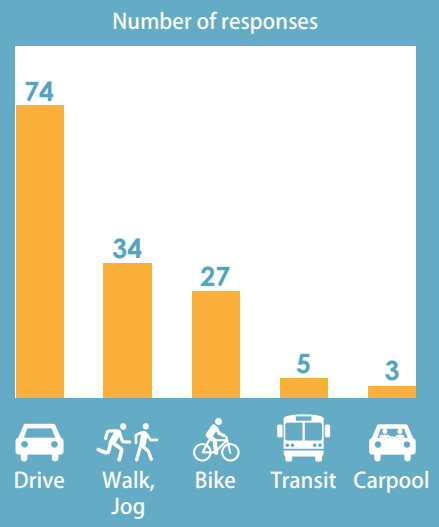
RHYTHM OF THE STREET

On July 26th, 2014, the City of San Marcos held a kick-off event for both the Code SMTX and Transportation Master Plan Processes. 'Rhythm of the Street' was a CNU award winning tactical urbanism event that temporarily transformed LBJ Drive to a two-way "Complete Street" with bicycle lanes, parklets, and sidewalk cafes.

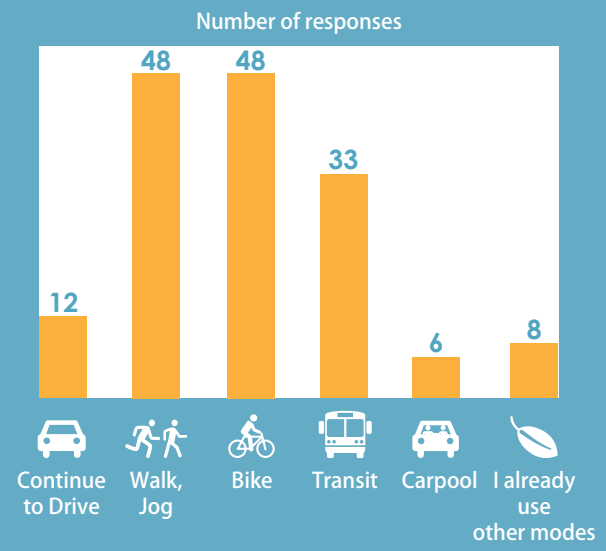
The goal of the event was to solicit community input for the Transportation Master Plan and to demonstrate how a city block could be better utilized to serve community needs. Participants were surveyed to determine their wants and needs for transportation options in San Marcos. Participants surveyed as part of the Rhythm of the Street event currently utilized a variety of transportation modes to travel around town. Complete survey results are included in the Appendix.

RHYTHM OF THE STREET SURVEY:

HOW DO YOU PRIMARILY GET AROUND TOWN?



IF YOU PRIMARILY DRIVE, WHICH OTHER MODES WOULD YOU CONSIDER IF IT WERE SAFE?



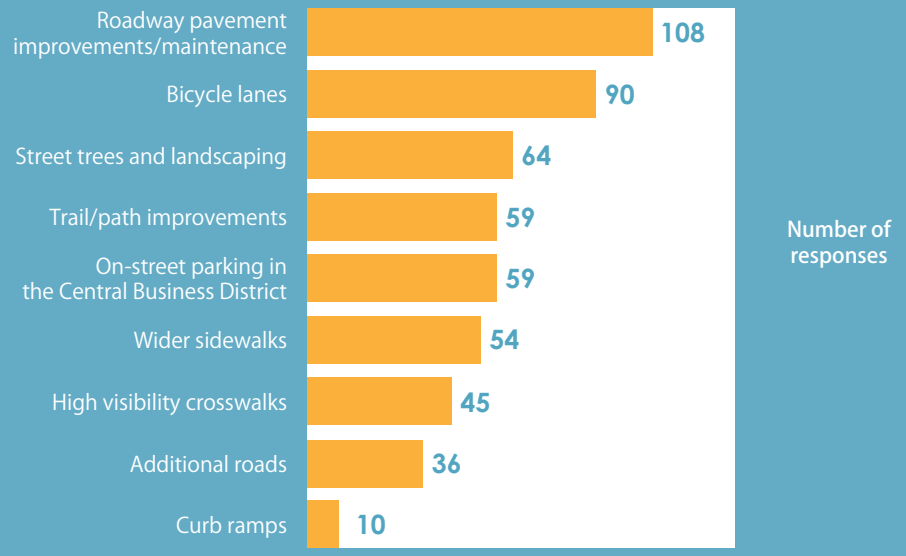
More than half of the participants indicated they would consider walking and cycling as an alternative to driving single occupancy vehicles.

CODE SMTX ZONING FOR CHARACTER WORKSHOPS

The Transportation Master Plan team participated in the Code SMTX Zoning for Character Workshops in August of 2015. During these workshops, the City of San Marcos worked with property owners and residents to explore the regulatory framework proposed for the six San Marcos Intensity Zones established in the Comprehensive Plan. Roadway transformations within the Intensity Zones were highlighted to show the impacts of a well-planned, multimodal network.

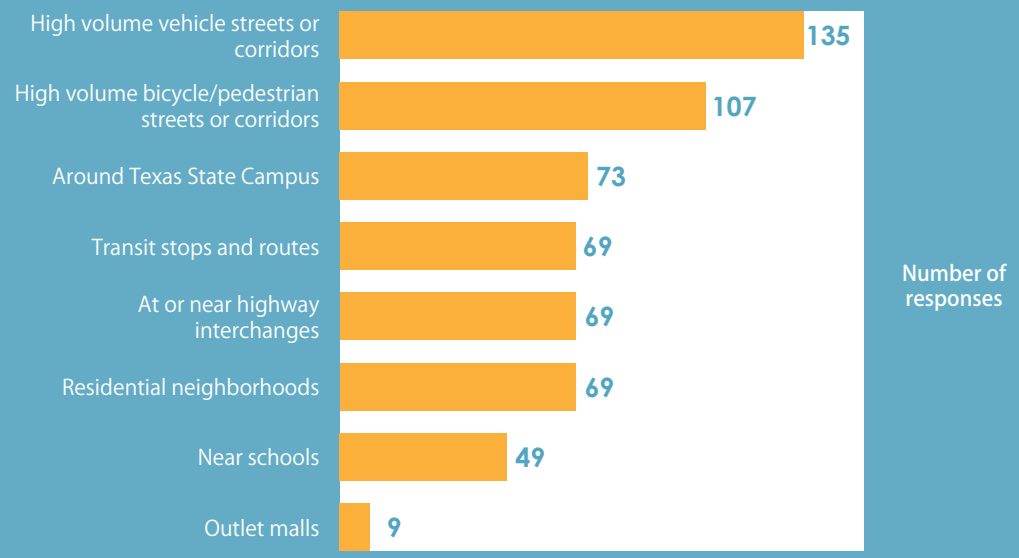
2015 TRANSPORTATION MASTER PLAN SURVEY:

PLEASE SELECT UP TO THREE STREET INFRASTRUCTURE IMPROVEMENTS THAT YOU FEEL ARE THE MOST IMPORTANT FOR THE CITY'S FUTURE.



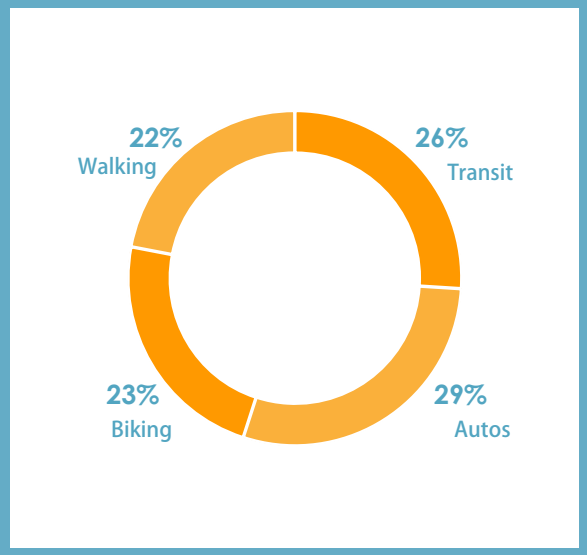
2015 TRANSPORTATION MASTER PLAN SURVEY:

IN WHAT LOCATION(S) SHOULD THE CITY PRIORITIZE ITS EFFORTS TO IMPROVE STREET INFRASTRUCTURE? SELECT UP TO FOUR.



2015 TRANSPORTATION MASTER PLAN SURVEY:

HOW WOULD YOU DIVIDE THE YEARLY TRANSPORTATION BUDGET FOR THE CITY OF SAN MARCOS?



GREENWAYS OUTREACH

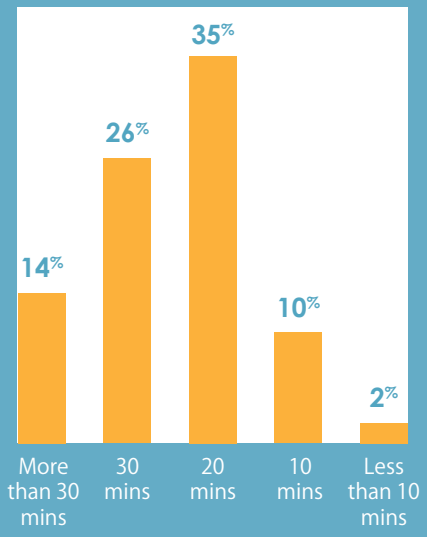
In the summer of 2016, a Greenways and Trails survey was made available online to San Marcos residents at the onset of the Greenways planning process. This survey asked a variety of questions about current and anticipated trails and greenways usage.

Respondents indicated that connectivity to parks, open space, and the San Marcos River are key to a successful greenways system. Survey results for the greenways system are included in the Appendix.

The largest impediments to usage of existing trails were identified as a lack of nearby connections and the lack of available facilities.

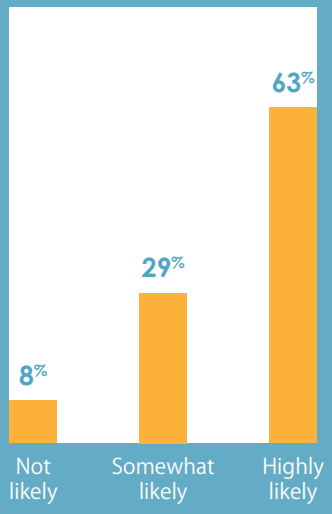
GREENWAYS WORKSHOP SURVEY:

IF YOU USED GREENWAYS TO GET TO A DESTINATION IN SAN MARCOS, HOW LONG WOULD YOU BE WILLING TO WALK OR BICYCLE TO GET THERE?



GREENWAYS WORKSHOP SURVEY:

HOW LIKELY ARE YOU TO USE GREENWAYS TO GET FROM PLACE TO PLACE IN SAN MARCOS?



With the results of the Greenways Survey, a Greenways Workshop was conducted. Attendees included local stakeholders such as City of San Marcos staff, Texas State University staff and San Marcos Greenbelt Alliance members.

The outcome of the meeting was a Greenways Plan built upon recent successes that incorporated stakeholder desires.

Attendees reviewed maps of existing and potential trails and greenways alignments to identify needed connections and desired trail routes.

TRANSPORTATION MASTER PLAN PUBLIC OPEN HOUSE

On November 9, 2016 the City of San Marcos hosted an Open House for the community to learn about the updates to their Transportation Master Plan. The open house featured exhibits of the Transportation Master Plan goals and vision, policy recommendations, the 2035 Thoroughfare Plan, the 2035 Bicycle Network, the 2035 Greenways Plan and other components of the master plan. Attendees were also able to view proposed cross-sections for City streets, different types of bicycle facilities, and options for trails and greenways.

A handout was prepared with the goal of gathering specific feedback regarding bicycle facilities and trails, proposed roadway cross-sections, the proposed 2035 Thoroughfare Plan and the prioritization of new roadways and greenways. A comment card and survey was also provided for citizens to provide open-ended feedback. Complete survey results for the Open House are included in the Appendix.

Comments received during the Open House were compiled and incorporated into the planning process.

2016 TRANSPORTATION MASTER PLAN SURVEY:

WHAT ENHANCEMENTS TO EXISTING ROADWAYS WOULD YOU LIKE TO SEE COMPLETED IN THE NEXT TEN YEARS?

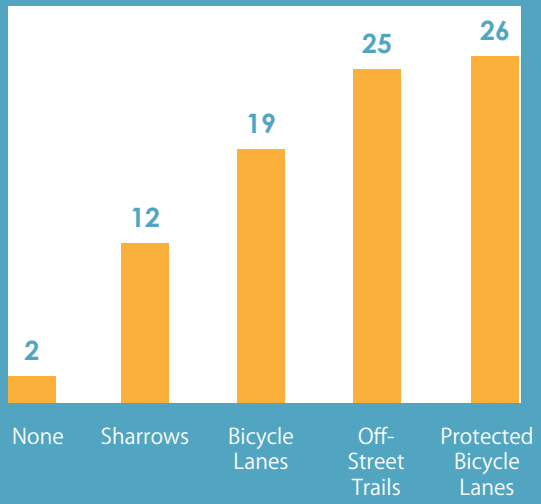
- Build bicycle lanes.
- Build sidewalks.
- Increase existing street capacity.
- Remove train delays.
- Traffic signal timing and synchronization.
- Connect Intensity Zones.

A goal of the Comprehensive Plan and the Transportation Master Plan is to obtain a "Bicycle Friendly Community" designation.

2016 TRANSPORTATION MASTER PLAN SURVEY:

WHAT TYPE OF BICYCLE FACILITY WOULD YOU PREFER?

Number of responses



ADDITIONAL OUTREACH

City Council was briefed multiple times throughout the development process of the Transportation Master Plan.

A workshop was held on March 1, 2016 to involve Council members and obtain direct feedback regarding cross-sections, policies and recommendations for the mid-, short- and long term improvements throughout the transportation network.

Stakeholder outreach was also an important part of the planning process. City officials met with local businesses, conducted a survey and held "Think Tank" sessions to help inform the development of the Thoroughfare Plan and other recommendations for the City.

An Open House for the Transportation Master Plan was also held October 18, 2017. The objective was to provide information on council direction, and discuss proposed plans and the list of critical intersections that required improvements.

The short-term (10 year) Capital Improvement Plan list and associated cost estimates, mid- and long-term improvements identified under the Transportation Master Plan were also discussed.

Participants were able to provide feedback on proposed projects, identify any missing projects and leave comments. Summaries and feedback from the Open House are included in the Appendix.

- I SUPPORT the Trails Plan and the associated costs.
- Franklin was recently resurfaced. As a cyclist, I feel that the road is now WORSE than it was before resurfacing. I am very unhappy with the quality of this work and hope whoever did this job recieves greater oversight in the future if they are even allowed to procede with future projects.

I like the trails & fruit trees that will be planted. I like the plans for bike paths. The Craddock extention will not be good for the River. It will contaminate the aquifer. We need to put the northern loop somewhere else. The Craddock extention will be a disaster.

The Craddock extention and all plans for "so called" loops on the West side of town need to be removed from the transportation plan.

(1) I support trail extensions, maintenance, and concepts for our city, especially on the recharge zone side of the city. These are important for preserving the few natural areas that we have. We need to discourage development on that side of town (west) to decrease non point runoff pollution from inappropriate development.

Please eliminate the Craddock extension from the Transportation Plan. I support the Trail Plan.

FUTURE SCENARIO

The Vision San Marcos Comprehensive Plan goals and objectives define how the City of San Marcos should grow and develop over the next two decades. The land use plan emphasizes infrastructure supportive of mobility and all modes of transportation, including walking, biking and transit. The San Marcos Five-Year Transit Plan reinforces the goal of 'creating a multimodal transportation network that improves accessibility and mobility, minimizes congestion and reduces pollution'. The Transit Plan further states that 'this goal includes a focus on non-vehicular transportation improvements and the creation of a sidewalk master plan to support pedestrian mobility and complement public transit'.

To achieve the overall vision of Vision San Marcos, the future scenario of this Transportation Master Plan places an emphasis on multimodal transportation and increased transit options.

2015

Current traffic conditions were documented and analyzed from the 2010 base-year travel demand model to identify gaps in the existing transportation network.

2025

Short-term improvements were developed from the 2025 travel demand model for implementation in zero to ten years.

2035

Mid-term and long-term improvements were developed and prioritized from the results of the 2035 travel demand model.

To help determine future traffic needs of San Marcos, transportation scenarios were analyzed for three base years.

TRANSPORTATION MODELING

The Capital Area Metropolitan Planning Organization (CAMPO) oversees the transportation planning process for Central Texas, including Hays County. CAMPO maintains a travel demand model used for transportation planning throughout the region. The model analyzes the operations of the existing transportation system and predicts operations of a future transportation system with and without improvements. This methodology was also used to develop the Transportation Master Plan.

EXISTING CONDITIONS MODEL

An update to a subset of CAMPO's travel demand model was developed for the City of San Marcos. The model update reflected observed 2015 travel and infrastructure conditions. Growth rates such as population and development were then applied to the updated 2015 model to analyze changing travel conditions for the 2025 and 2035 Future Scenarios. The model simulates travel on nearly every roadway within the City limits. Outputs of the model provide detailed information about the operations of the transportation system in San Marcos.

MODEL OUTPUTS

The model outputs reflect vehicular operations on the network. Modal shifts were considered in the input values.

The 2015 travel demand model demonstrates enough short trips in the network that a shift to alternate modes, such as walking and cycling, is obtainable. With appropriate infrastructure investments to make these types of trips safer and more convenient, trip conversions from single occupant vehicles could be achieved.

The importance of transit in the City's future transportation plan becomes more evident when analyzing the travel demand model results. As growth and development continue, the number of trips between the intensity zones is expected to increase. The zones can easily be connected with key transit routes, while enhanced pedestrian and bicycle facilities within each intensity zone could encourage mode shift.

When alternate transportation choices are safer and more convenient for users, more short trips can be captured through mode shift and removed from roadway demand.

The 2035 Future Scenario shows that many future trips within the City will be short trips that could be shifted to walking or cycling.

Trips made are less than one mile

Trips made are less than five miles

INDUCED DEMAND

'Congestion is not solved by building more roads. It is the roads that cause the traffic.' This concept is known as induced demand. The concept functions similar to supply and demand - the more there is of something, the more people will want it. In recent years, researchers have been able to collect enough data to prove this phenomenon has been happening with our roadways too. If a city increases its road capacity by 10%, the amount of driving in the city will also go up 10%. As a person's ability to travel is expanded (being provided with more roads), that person will travel more and further.

Strategies that can solve congestion, without inducing demand by building more roadways, include mode shift and increased transit use, compact mixed-use development, and utilizing demand strategies to manage auto-centric trips within the network.

FUTURE SCENARIO MODELS

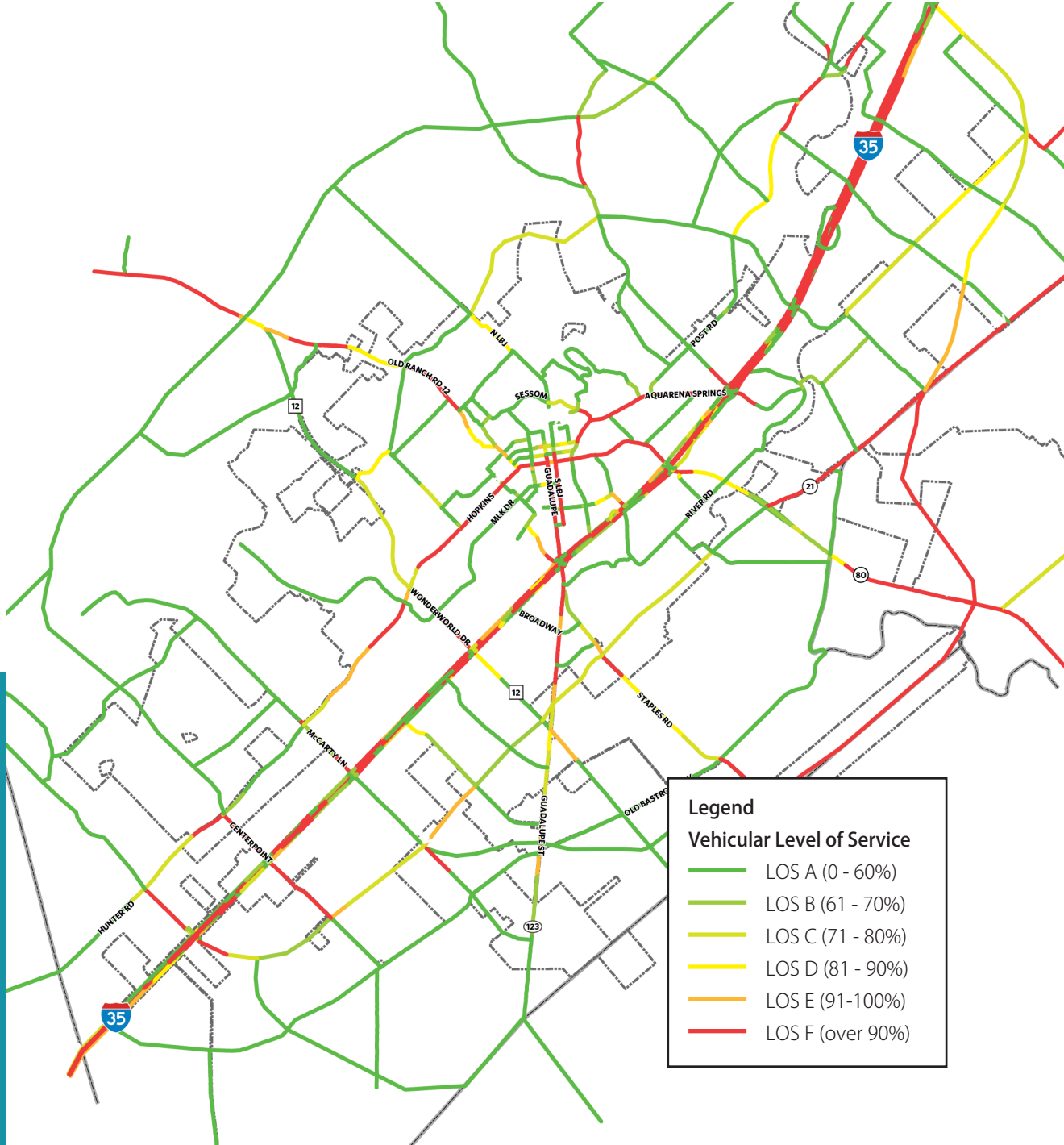
Demographic and land use inputs and future year network assumptions provided by the City of San Marcos were used in the travel demand model for two forecast years (2025 and 2035) and the 2015 base year.

Major assumptions of the future year network model include:

- A 15% multimodal reduction for shifts from automobile to active transportation modes (bicycle and pedestrian)
- A conceptual transit framework to serve trips between intensity zones identified in the Comprehensive Plan

Future scenario models helped determine the impacts of future growth on transportation operations in the roadway network and to identify short-term and long-term improvements to meet future demands.

MAP 13: 2035 BUILD LEVEL-OF-SERVICE



The 2035 Build Model results depict vehicular operations on the roadway network with significant investment in transportation infrastructure. Vehicles experience more delays and higher congestion in 2035 even with the added roadway infrastructure.

The addition of new roads and travel lanes will not accommodate future growth on its own. It is critical to evaluate the transportation system holistically and invest in pedestrian, bicycle and transit infrastructure as well as implement travel demand management strategies to manage the vehicular demand.

CRITICAL INTERSECTION OPERATIONS

To project future levels of service for intersection operations in 2035, growth and development assumptions were used to predict the traffic operating conditions in San Marcos.

A No Build scenario was analyzed for the Future Year 2035. The No Build scenario demonstrates reduced level of service throughout the network if no improvements are made.

Traffic analysis results are included in the Appendix

Legend

Signalized

(Seconds of Delay per Vehicle)

- Less than 35 seconds
- Between 35 and 55 seconds
- 55 seconds or more

Unsignalized

(Seconds of Delay per Vehicle)

- Less than 25 seconds
- Between 25 and 35 seconds
- 35 seconds or more

2035 NO BUILD LEVEL OF SERVICE

SIGNALIZED		AM Peak	PM Peak
Aquarena Springs Drive @	Thorpe Lane	E	F
	Charles Austin Drive	F	F
	Sessom Drive	F	F
SH 123 @	Staples Street (FM 621)	F	F
	Broadway Street	F	D
	Old Bastrop Highway	F	E
	FM 110	F	F
Hopkins Street @	Bishop Street	C	F
	Moore Street	D	F
	LBJ Street	B	E
	Guadalupe Street	F	F
Wonder World Drive @	Leah Avenue	D	D
	Sadler Drive	C	C
	IH 35	F	F
McCarty Lane @	IH 35 SB Frontage	F	F
	Hunter Road	D	D
University Drive @ CM Allen Parkway		B	D
Loop 80 @ Clarewood Drive		A	F
SH 21 @ SH 80		E	D
Old RR 12 @ Holland Street		E	F
N LBJ @ Sessom Street		D	F
UNSIGNALIZED			
Hopkins @ North Street		A	A

The 2035 Build scenario depicts the level of service for intersection operations with recommended improvements.

Recommended improvements were developed to ease the impact of the transportation growth on the roadway network. Improvements to these intersections were identified as short-term enhancements that could have an immediate impact on mobility within the City of San Marcos.

These improvements are shown on the Capital Improvements Projects list.

Legend

Signalized (Seconds of Delay per Vehicle)

- Less than 35 seconds
- Between 35 and 55 seconds
- 55 seconds or more

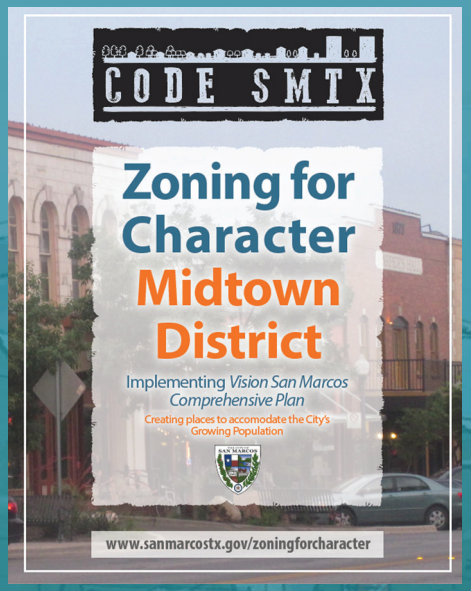
Unsignalized (Seconds of Delay per Vehicle)

- Less than 25 seconds
- Between 25 and 35 seconds
- 35 seconds or more

The Build model improves operations over No Build models by providing network and intersection improvements. Projected levels of service are within a desired range for a 20 year horizon.

2035 BUILD LEVEL OF SERVICE

SIGNALIZED		AM Peak	PM Peak
Aquarena Springs Drive @	Thorpe Lane	C	F
	Charles Austin Drive	C	D
	Sessom Drive	E	E
SH 123 @	Staples Street (FM 621)	E	D
	Broadway Street	D	C
	Old Bastrop Highway	F	F
	FM 110	F	F
Hopkins Street @	Bishop Street	C	D
	Moore Street	B	D
	LBJ Street	B	E
	Guadalupe Street	C	F
Wonder World Drive @	Leah Avenue	D	D
	Sadler Drive	C	C
	IH 35	F	F
McCarty Lane @	IH 35 SB Frontage	F	F
	Hunter Road	D	D
University Drive @ CM Allen Parkway		B	D
Loop 80 @ Clarewood Drive		A	C
SH 21 @ SH 80		E	D
Old RR 12 @ Holland Street		A	D
N LBJ @ Sessom Street		C	D
UNSIGNALIZED			
Hopkins @ North Street		A	A



Character zoning considers land use and development when planning the design of city streets.

TRANSPORTATION AND LAND USE CONSTRAINTS

This Transportation Master Plan seeks to implement the policies of the Comprehensive Plan by framing a future transportation network focused on multimodal mobility, connectivity and accessibility, implemented in an environmentally sensitive manner. The recommendations and projects identified in the Transportation Master Plan were developed to support the Comprehensive Plan Preferred Scenario and create a cohesive strategy for growth in San Marcos.

COMPREHENSIVE PLAN INTENSITY ZONES

The Comprehensive Plan Preferred Scenario Map created Intensity Zones to accommodate the City's future growth. Intensity Zones are defined as areas of change where the intent is to develop or redevelop. They are envisioned as well-planned areas where short trips meet daily needs, reducing the need to drive.

The zones are built on a walkable, complete community concept and include open spaces and trails. A key goal of this Transportation Master Plan is to develop a connected transportation system that provides route options throughout the City.

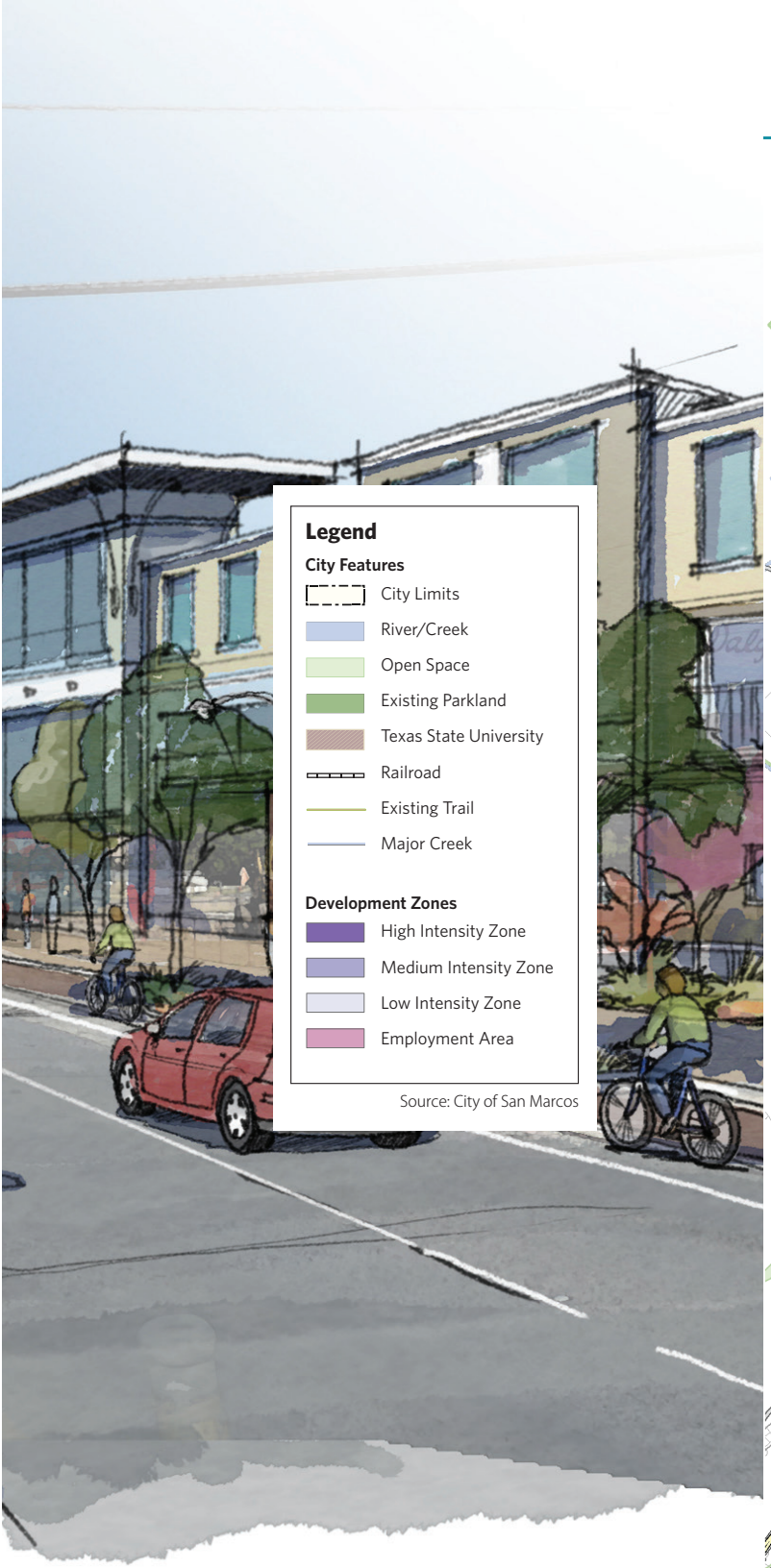
The Transportation Master Plan establishes a framework for high capacity transit service that provides enhanced connectivity between the intensity zones, connecting users to a robust system of bicycle and pedestrian facilities throughout each zone.

ZONING FOR CHARACTER

Character based zoning proposed in Code SMTX coordinates street design with adjacent development, by paying careful attention to the configuration, number and dimension of travel lanes, on-street parking, street landscaping, sidewalk widths and bicycle infrastructure.

The Transportation Master Plan provides updated cross-sections designed around these character zones. These cross-sections will be used to guide street design as growth and development occur, helping to ensure that the character of neighborhoods and communities are protected and evolve in a thoughtful and planned manner.

MAP 14: 2018 PREFERRED SCENARIO MAP



Legend

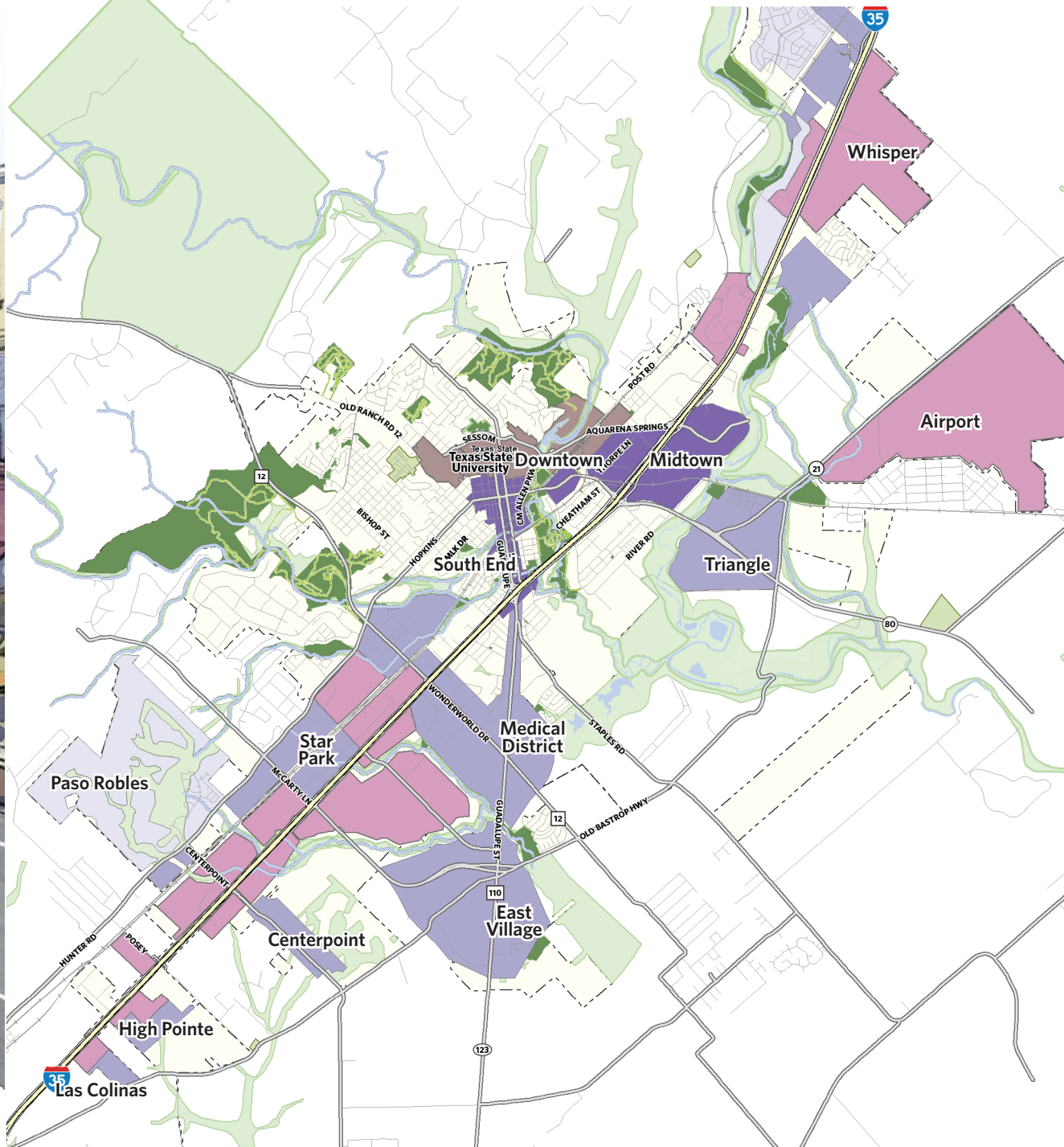
City Features

- City Limits
- River/Creek
- Open Space
- Existing Parkland
- Texas State University
- Railroad
- Existing Trail
- Major Creek

Development Zones

- High Intensity Zone
- Medium Intensity Zone
- Low Intensity Zone
- Employment Area

Source: City of San Marcos



Filling the gaps in the sidewalk and bicycle infrastructure will make a safer, more connected network for walking and biking and could encourage a modal shift from auto to active modes.

BICYCLE AND PEDESTRIAN INFRASTRUCTURE GAPS

Providing for walking and bicycling has the potential to reduce auto dependency, mitigate traffic congestion and contribute to improved air quality and community health.

The 2035 Future Scenario model indicates that approximately 14 percent of trips are less than one mile long. These trips are ideal opportunities for walking. Likewise, 80 percent of the trips are less than five miles long and have potential to become bicycle trips.

A well-designed multimodal network that is safe, efficient and provides direct access to key land uses could potentially convert short trips to an active mode such as walking or bicycling.

The current pedestrian and bicycle networks in the City of San Marcos have missing links in critical areas. Where they exist, many sections of sidewalks are poorly maintained. The City of San Marcos maintains an inventory of sidewalks including missing sidewalk segments and planned sidewalks segments.

Beginning in 2016 the City implemented a sidewalk maintenance program to replace and construct gaps in infrastructure. This program replaces over 10,500 linear feet of sidewalk each year.

Progress should continue towards construction of these sidewalks outside the Transportation Master Plan projects.

RECOMMENDATIONS

COMPLETE STREETS & CONTEXT SENSITIVE DESIGN

Smart Growth America defines Complete Streets as 'streets for everyone'. They are designed to enable safe access for people of all ages and abilities, for all modes of travel, and to respond to the communities they serve. A complete street in an urban community, such as San Marcos, will look different from a complete street in a suburban community.

Active travel (i.e., bicycle and pedestrian mobility) has been growing in popularity, although many communities lack the infrastructure to make active travel enjoyable. San Marcos envisions a connected network of efficient, safe and convenient multimodal transportation options that will create a more comfortable pedestrian and bicycle environment.

GOAL

- Develop roadway cross-sections that preserve the character of neighborhoods, encourage alternative modes and support appropriately located economic development.

OBJECTIVE

- Design roadways in consideration of land use context, creating environments that are supportive of adjacent land uses.

RECOMMENDATIONS

- **Roadway pavement greater than 40 feet wide be avoided when possible, as they create difficult pedestrian crossing conditions.**
- **Where roadways have a speed limit of 35 mph or greater, landscaped medians are encouraged to provide separation between lanes of opposing direction.**
- **On local residential streets where traffic volumes are minimal, allow for "queuing" streets with roadway widths of 30 feet and parking on both sides.**
- **Street trees should be planted within the required seven-foot landscape strip to provide shade and a clear and safe separation between the pedestrian and vehicular realms.**
- **Curbside parking is encouraged along residential streets, commercial streets, boulevards and avenues where land uses front the street.**
- **Use of rain gardens, bio-filtration swales and other low-impact drainage facilities are encouraged within medians and landscape areas and along the curb edge to intercept and naturally treat urban run-off.**

MODE SHIFT

A review of 2035 travel patterns in San Marcos showed that 14% of trips will be less than one mile, within a comfortable walking distance. Similarly, 80% of trips will be less than five miles, within a comfortable biking distance. The City should adopt a goal of converting 5% of trips less than one mile to walking trips, and 10% of trips less than five miles to bicycle trips by 2035.

Shifting travel modes from automobiles to active transportation modes (walking, cycling) positively impacts the City of San Marcos through health, environmental, economic, social and safety benefits.

- Health benefits are achieved by increasing physical activity and lowering your stress.
- Cycling and walking improve the environment by reducing vehicle emissions and noise pollution.
- Enhanced social benefits are seen through increased contact with neighbors and community.
- Safety is improved by creating calmer streets.

The City should continue to monitor travel modes through commute surveys and field observations to document progress towards the defined goals.

GOAL

- Encourage shifts to active modes of transportation.

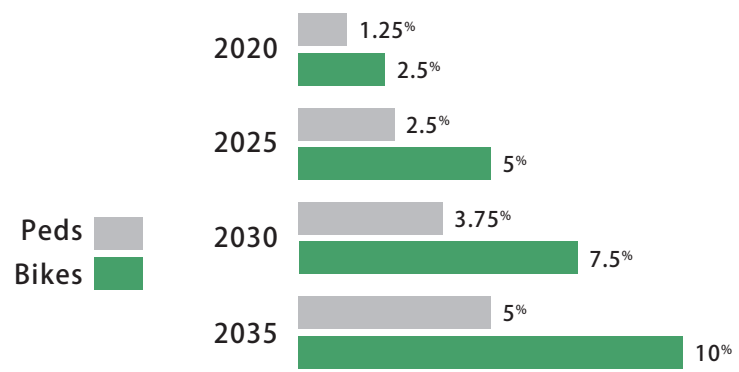
OBJECTIVES

- Convert 5% of trips less than one mile to walking trips.
- Convert 10% of trips less than five miles to bicycle trips.

RECOMMENDATIONS

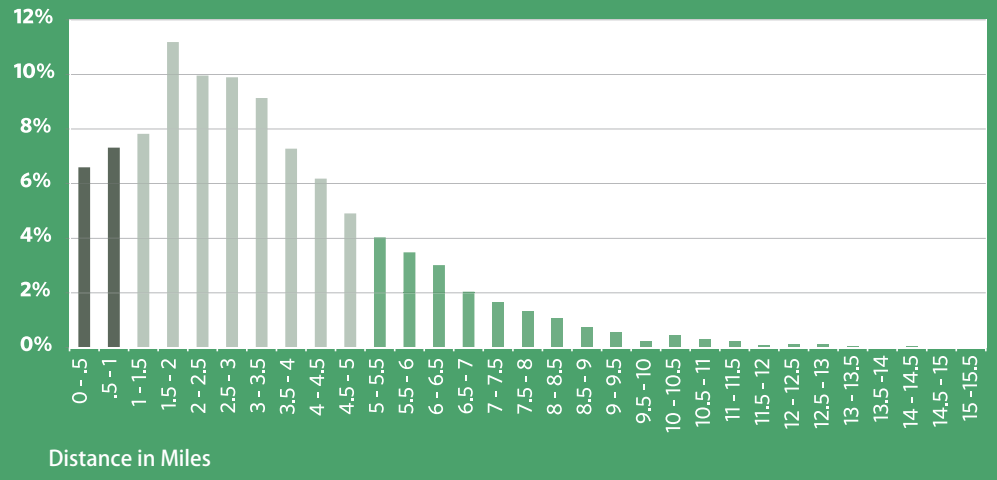
- Implement cross-sections to enhance safety and operations of all modes within the transportation network.
- Incorporate Complete Streets strategies to facilitate the development of new pedestrian and bicycle facilities.
- Utilize surveys to monitor mode choice throughout the City on a 5-year basis documenting progression towards the objectives of 5 and 10% modal shift.

15 Year Mode Shift Goal

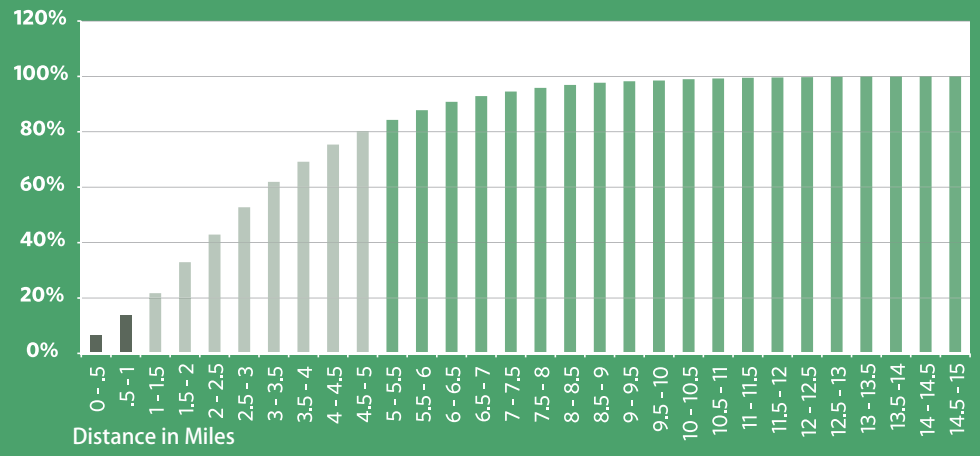


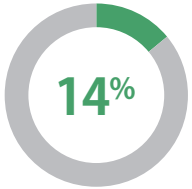
2035 TRIP DISTRIBUTION

Percent of Trips by Distance

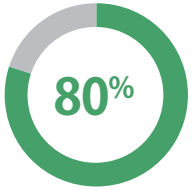


Cumulative Percent





Trips made that are less than one mile.



Trips made that are less than five miles.

GREEN STREETS

Green streets look to preserve environmental stability. Drainage and stormwater runoff can have negative impacts to the environment. Polluted runoff, erosion and sedimentation are unwanted impacts on surrounding areas. Optimal stormwater management introduces strategies to retain, treat or eliminate runoff at the source.

Cost-effective green infrastructure and improving water quality complement Complete Streets policies. To maintain a healthy policy of Green Streets, the City of San Marcos should implement Green Streets best practices when possible.

The City of San Marcos is also in the process of creating a stormwater management plan to help keep garbage, debris and pollution out of the San Marcos River.

GOAL

- **Identify green solutions and policy recommendations that can be considered for public and private development projects including Low Impact Development strategies.**

OBJECTIVES

- Reduce urban run-off from impervious surfaces such as roads and parking lots.
- Implement landscape standards that contribute to street beautification in a cost-effective and environmentally efficient manner.

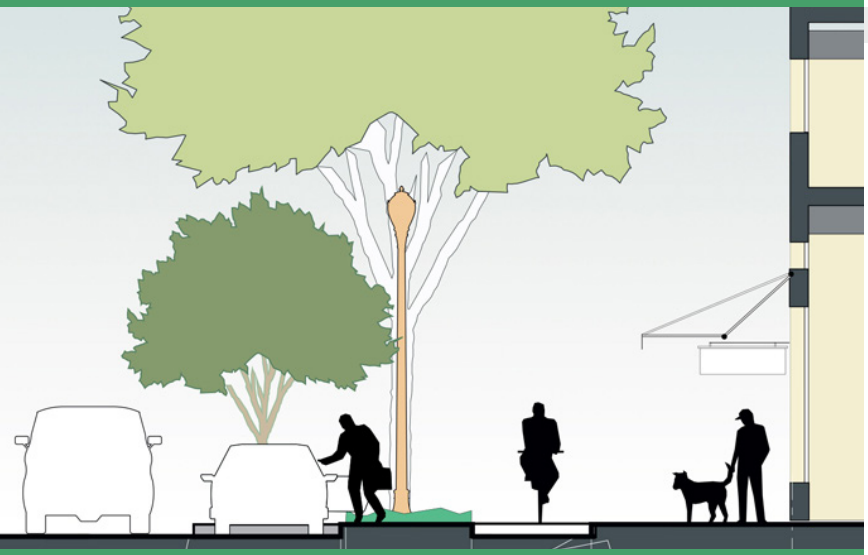
RECOMMENDATIONS

- Minimize impervious pavement use and opt for pervious asphalt and concrete, or permeable pavers.
- Consider a road diet where conditions are suitable to help reduce roadway widths and impermeable cover.
- Instead of impermeable concrete sidewalks, consider reinforced gravel pacing where surfaces will not compromise bicycle and pedestrian mobility and safety.
- Implement landscaping elements that help reduce stormwater runoff, such as street trees, bioswales, planters and rain gardens. Traffic calming elements provide potential sites for these types of landscaping elements.
- Introduce xeriscaping with native plants to reduce water consumption and the need to irrigate.
- Encourage alternate modes where trips are less than one mile. Walking and bicycling for short trips can help to reduce CO2 emissions, adding to the environmental benefits of Complete Streets.

S.M.A.C.
SAN MARCOS
ATHLETIC CLUB
SINCE 1976
LANDIS SHOE
PARKLET

THOROUGHFARE PLAN

San Marcos roadways should be designed and enhanced with Complete Streets policies in mind as the community develops and grows. The Transportation Master Plan recommends new cross-sections (shown in the Appendix) based on these polices. They have been applied to the future Thoroughfare Plan based on several criteria, including type of facility, traffic volumes and speeds. The new cross-sections provide recommended treatments for both new streets as well as for the retrofit of existing ones.



GOAL

- Build a multimodal transportation network that is safe and efficient for all users with direct connection to key land uses.

OBJECTIVES

- Consider the balance of vehicular capacity and public safety with pedestrian and bicycle safety in the development of new cross-sections.
- Preserve and balance the use of right-of-way for all modes of travel.
- Utilize roadway types that create a comfortable pedestrian and bicycle environment, accommodating vehicular traffic in an efficient but calm manner.
- Provide greenways for both recreation and transportation needs with bicycle and pedestrian linkages.
- Implement a transit system that connects key areas of the City to provide the greatest potential to reduce vehicle miles traveled.
- Provide facilities for pedestrian and bicycle through the network.
  Convert 5% of trips less than on mile to walking trips.
  Convert 10% of trips less than five miles to bicycle trips.

RECOMMENDATIONS

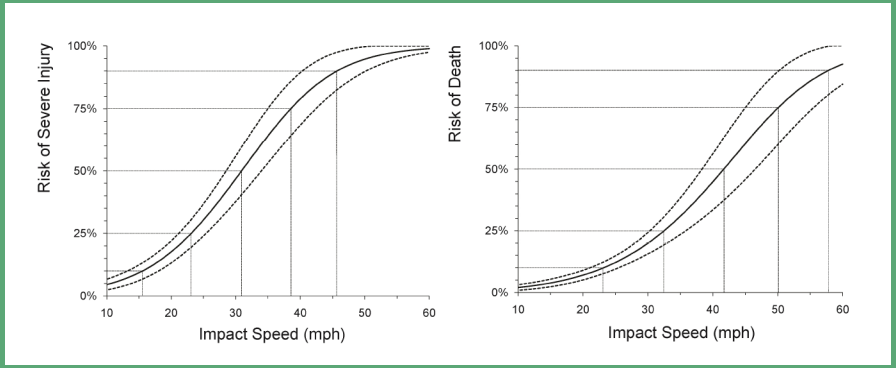
- Utilize the Thoroughfare Plan as a guideline on right-of-way needs for future and enhanced roadways within the City of San Marcos.
- Implement cross-sections to enhance safety and operations of all modes within the transportation network.
- Establish final alignments and cross-sections during the Preliminary Engineering process.
- Maintain flexibility for successful implementation of all roadways within the Transportation Master Plan.
- Reduce design speeds to support safe operations along roadways.
- Consider travel demand management strategies prior to implementation of thoroughfare projects to reduce vehicular demand.

SANCTUARY
LOFTS
330
STOP
ONLY
FRONTIER

Seven thoroughfare types are proposed for the Transportation Master Plan. The City of San Marcos supports cost-efficient design that follows Best Management Practices for safety throughout the transportation network. Lane widths should be minimized to reduce costs, slow traffic and improve roadway safety for all users. Typical interior lane widths are recommended at 11 feet with exceptions adjacent to curb and gutter or parking facilities or roadways with frequent bus operations. Street sections should be designed with interior lane widths of 10 feet.

The National Association of City Transportation Officials' (NACTO) Urban Street Design Guide details the toolbox and the tactics cities use to make streets safer, more livable and more economically vibrant. NACTO design practices seek to provide communities with streets and spaces where people can safely walk, bicycle, drive, take transit and socialize. This Transportation Master Plan adopts these guidelines and will implement NACTO design recommendations as the network continues to develop and grow.

To reduce the severity of crashes, Best Management Practices recommend narrower streets that promote slower driving speeds. According to research, risk of pedestrian death is 10% at an impact speed of 23 mph. At 32 mph, the risk of death increases to 25% and doubles to 50% at just 42 mph. Pedestrians struck by vehicles traveling at 58 mph have a 90% risk of death.



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

Highways are high-speed, limited access facilities that serve as the backbone infrastructure for the transportation network. Highways include freeways and frontage roads that provide connections outside of San Marcos, as well as parkways that are proposed to serve as high-volume connections around the periphery of the City. The primary function of highways is to move vehicles.

Boulevards are 4 and 6-lane roads that connect avenues with highways. Boulevards will serve as the primary routes between intensity zones, downtown and other major areas of the City. Boulevards are divided facilities with limited access and left-turn lanes at intersections.

Avenues are 3-4 lane roadways that serve lower traffic volumes than boulevards. Avenues will serve as the primary travel routes within any given area of the City and connect streets to the boulevards. They do not have raised medians, but do have protected bicycle and pedestrian facilities due to traffic volumes and speeds.

Commercial Streets are 2-lane roadways fronting commercial uses. These streets will serve as primary access for the commercial uses. They are characterized by wide sidewalks and on-street parking to promote safe pedestrian activities.

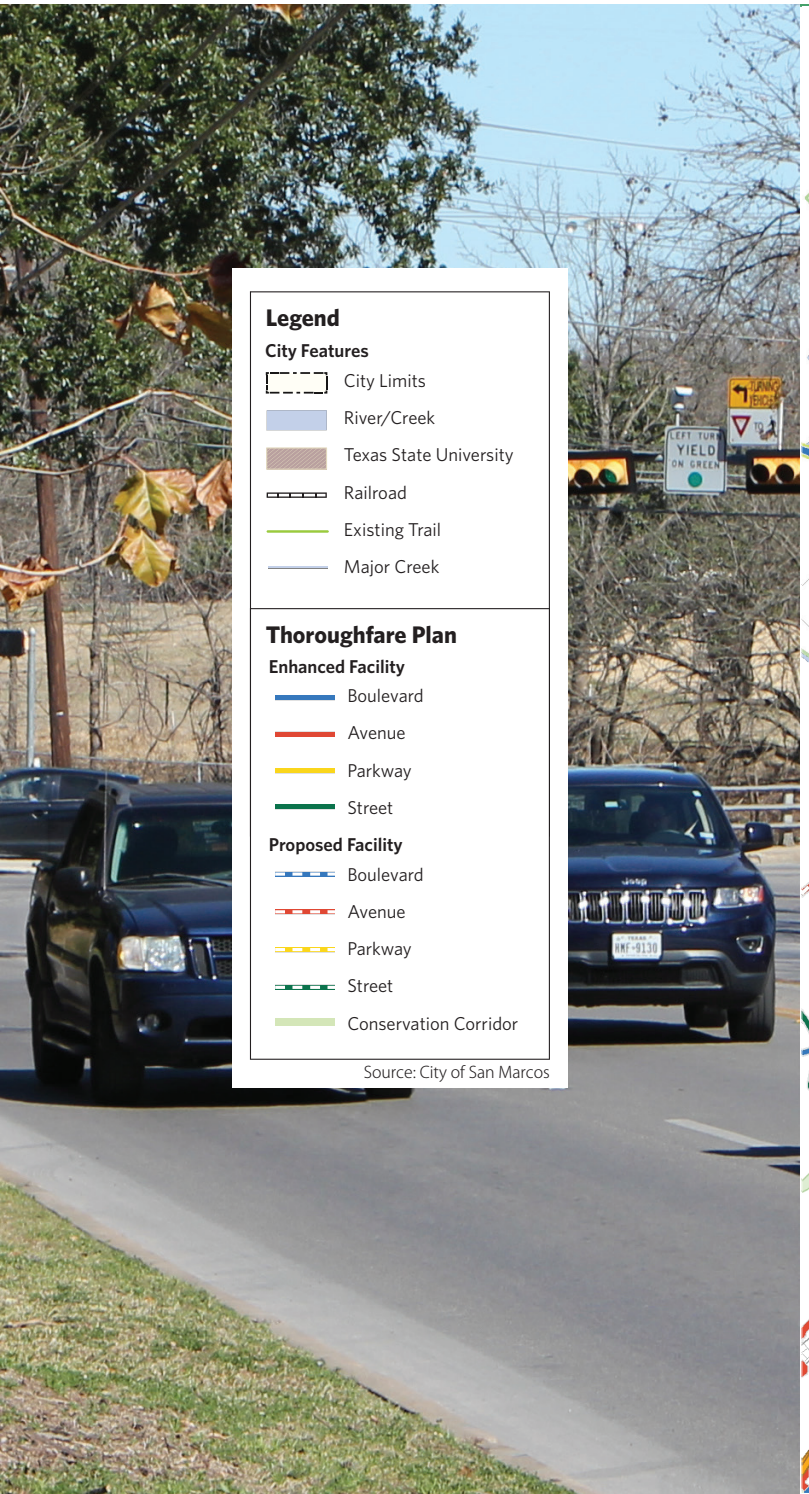
Residential Streets are 2-lane roadways serving residential neighborhoods outside of a commercial district. They are low-speed, low-volume facilities fronting residential uses.

Roads are built in the least intensive and rural parts of the community. Roads may front residential, agricultural or limited commercial uses. They lack curbs and sidewalks.

Allys are narrow roadways providing access or service at rear of residential of commercial properties. They are not designed to serve through vehicles or active transportation modes

Design speeds promote safety and improve a driver's ability to maneuver and react to changes in the driving environment.

MAP 15: PROPOSED 2035 THOROUGHFARE PLAN



Legend

City Features

- City Limits
- River/Creek
- Texas State University
- Railroad
- Existing Trail
- Major Creek

Thoroughfare Plan

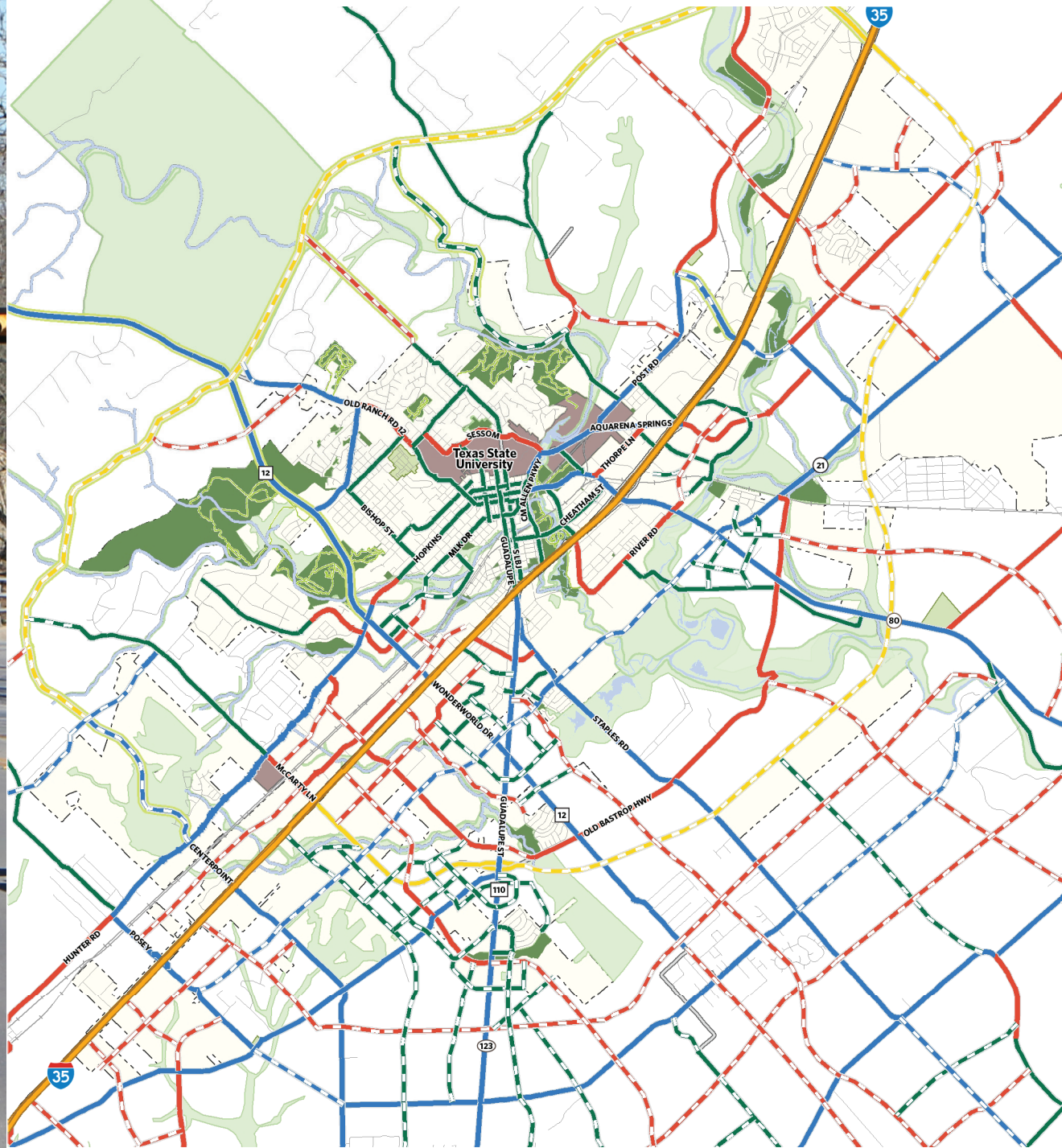
Enhanced Facility

- Boulevard
- Avenue
- Parkway
- Street

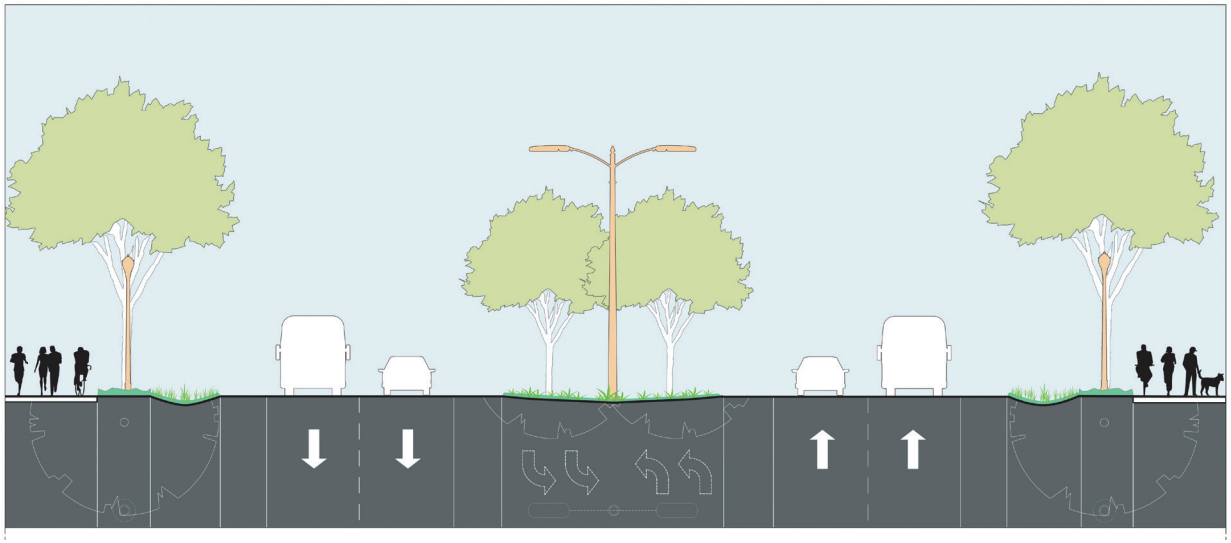
Proposed Facility

- Boulevard
- Avenue
- Parkway
- Street
- Conservation Corridor

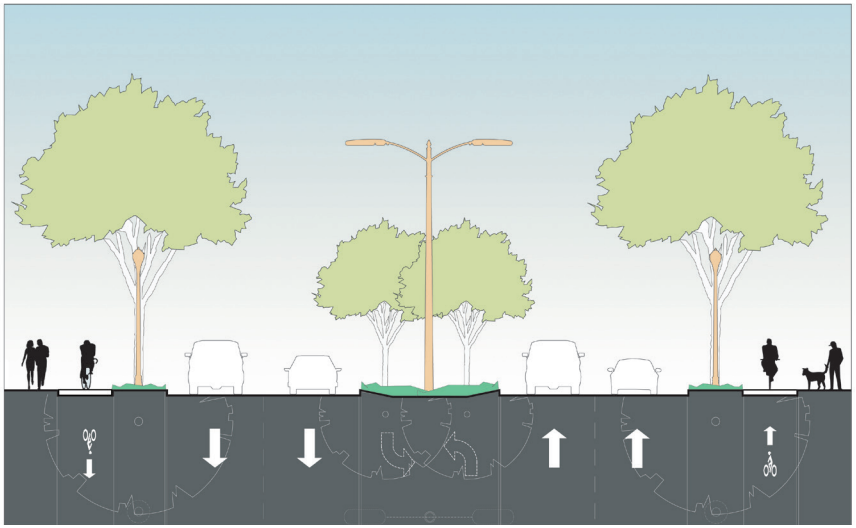
Source: City of San Marcos



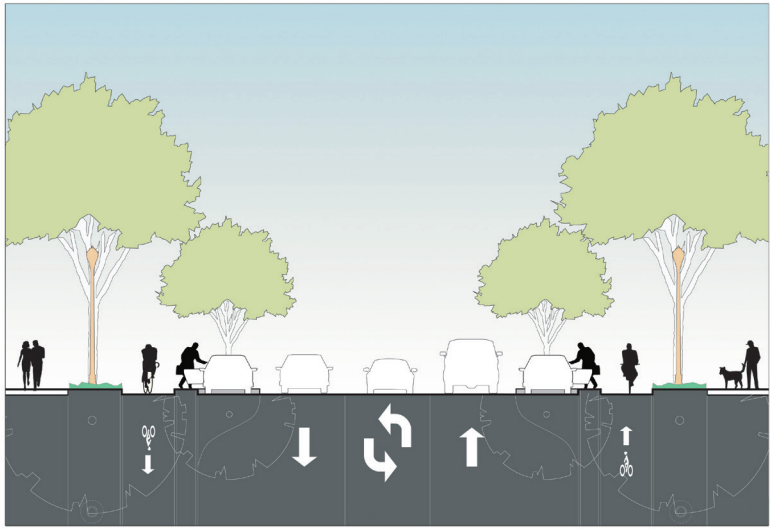
Concept for Parkway Cross-Section



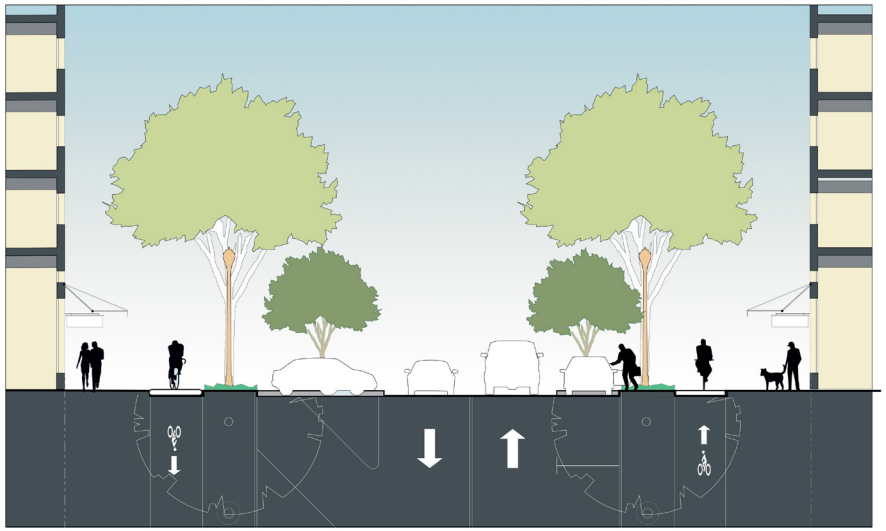
Concept for Boulevard Cross-Section



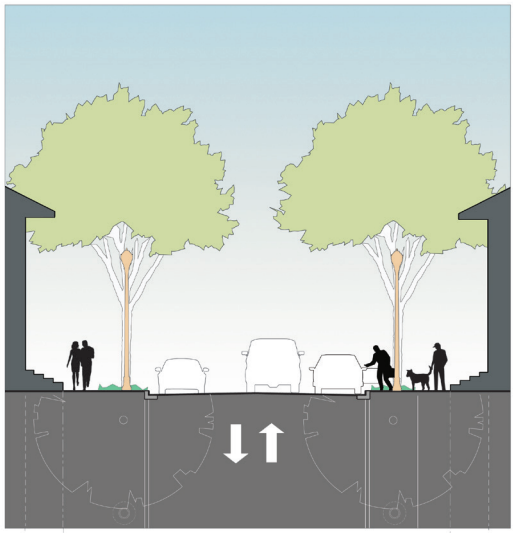
Concept for Avenue Cross-Section



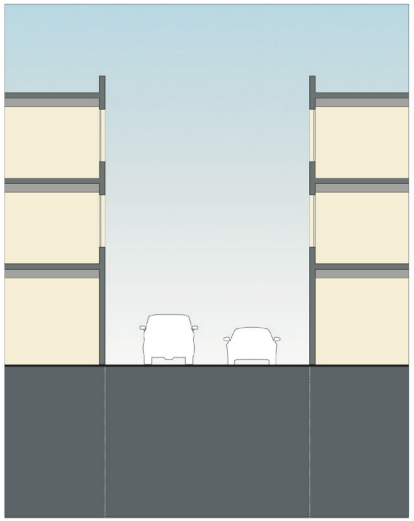
Concept for Commercial Street Cross-Section



Concept for Residential Street Cross-Section



Concept for Alley Cross-Section



Cross-Sections for the Transportation Master Plan were designed to support Complete Streets.

PROPOSED BICYCLE NETWORK

The Transportation Master Plan gives equal priority to the safe and efficient movement of pedestrians and bicyclists, and has identified multiple pedestrian and bicycle facility types for integration with the thoroughfare types.

The Bicycle Plan Map is reflective of the roadway facilities identified in the Thoroughfare Plan for the Future 2035 Build Scenario. Interim bicycle facilities should be considered as progress is made towards implementation of the Thoroughfare Plan.

The City of San Marcos has developed a Greenways Master Plan that also introduces bicycle facilities to the network. These facilities will be off-street paths used by cyclists and pedestrians.

Bicycle infrastructure should provide much-needed connectivity between east and west San Marcos across IH 35 in the near future (3-5 years). Hopkins Street and Guadalupe Street are viable options to provide these bicycle facilities.

GOAL

- Increase bicycle use by expanding safe, convenient bicycle lanes and trails throughout the City.
- Implement bicycle performance measures to evaluate proposed routes and identify the appropriate facility to provide maximum safety, comfort, ease of mobility, functionality and connectivity.

OBJECTIVE

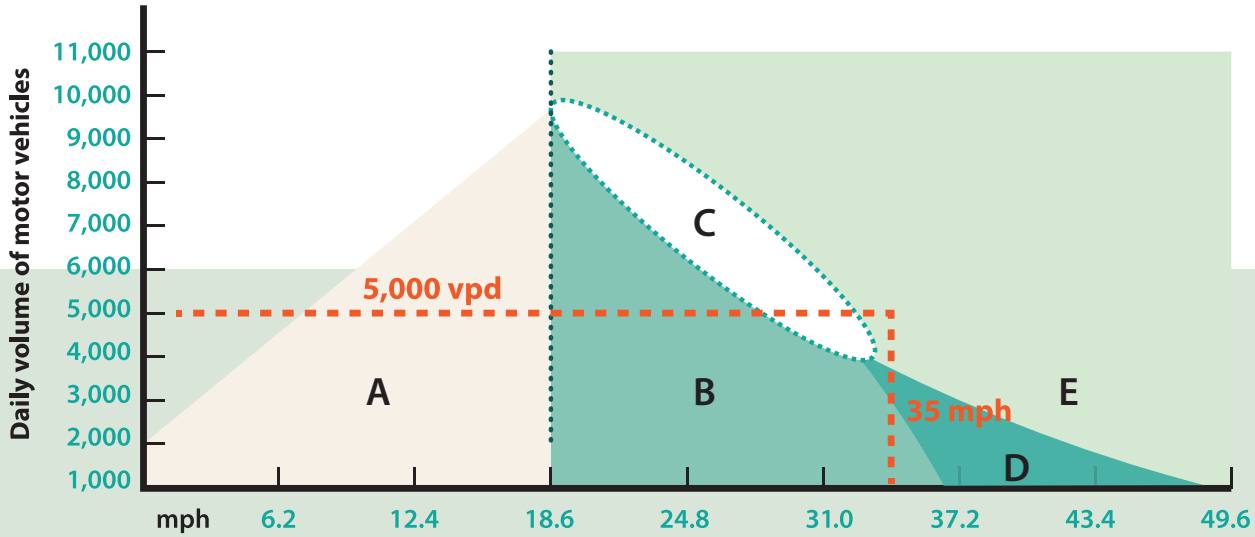
- Convert 10% of trips less than five miles to bicycle trips.

RECOMMENDATIONS

- Inventory and complete gaps in the bicycle infrastructure in the short-term.
- Phase bicycle improvements to develop a more robust system.
- Construct protected a bicycle lanes along high volume streets (>5,000 vehicles per day and >35 miles per hour).
- Bicycle facilities shall have a minimum unobstructed width of five feet, and a desirable width of seven feet.
- Shared-use paths shall have a minimum width of eight feet and a desirable width of twelve feet.
- Incorporate Complete Streets strategies to facilitate the development of new bicycle facilities.

Separated bike facilities should be introduced when traffic speeds exceed 35 mph and volumes exceed 5,000 cars per day.

Speed and volume relationship for determining on-street bicycle facilities.



Area A: **All modes can be mixed.** The only reason to consider bicycle tracks or bicycle lanes is for the sake of continuity of design on connecting bicycle routes.

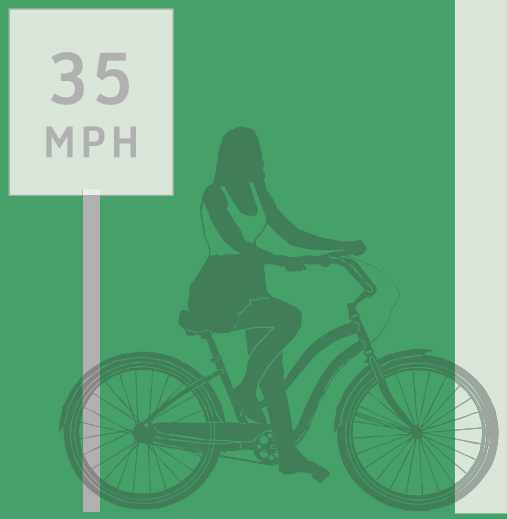
Area B: In general, a profile without segregation is acceptable, but **depending on circumstances bicycle tracks or bicycle lanes can be desirable**.

Area C: **Some form of separation is needed**, but visual separation (bicycle lanes) can be acceptable as well.

Area D: **Bicycle tracks are desirable**, but as densities are low, a mixed profile is acceptable, However, bicycle lanes are not advisable.

Area E: Speed and/or density of traffic flow make it an absolute necessity to segregate bicycles and motor traffic. **Separate bicycle tracks are the only option.**

Source: Kryzek, Forseth, Baum, 2009



DESIRED TYPES OF BIKE FACILITIES

Protected Bicycle Lane

A protected bicycle lane can be one or two-way within the roadway, and is separated from automobile traffic by a physical barrier.

Appropriate for facilities with speeds 35 mph or more; may be considered at lower speeds.

Also recommended for roads with more than 5,000 vehicles per day with high truck traffic and on-street parking.

Buffered Bicycle Lane

Buffered bicycle lanes are on-street lanes with a wider, painted striped buffer to separate it from automobile traffic.

Appropriate for facilities with speeds 35 mph or more; may be considered at lower speeds.

Also recommended for roads with more than 5,000 vehicles per day and with high truck traffic.

Shared-Use Path

A shared-use path is an off-street pedestrian trail that is shared with bicycles.

Bicycle volumes are low enough to share facilities with pedestrians.

May be considered adjacent to green space.

Sharrows

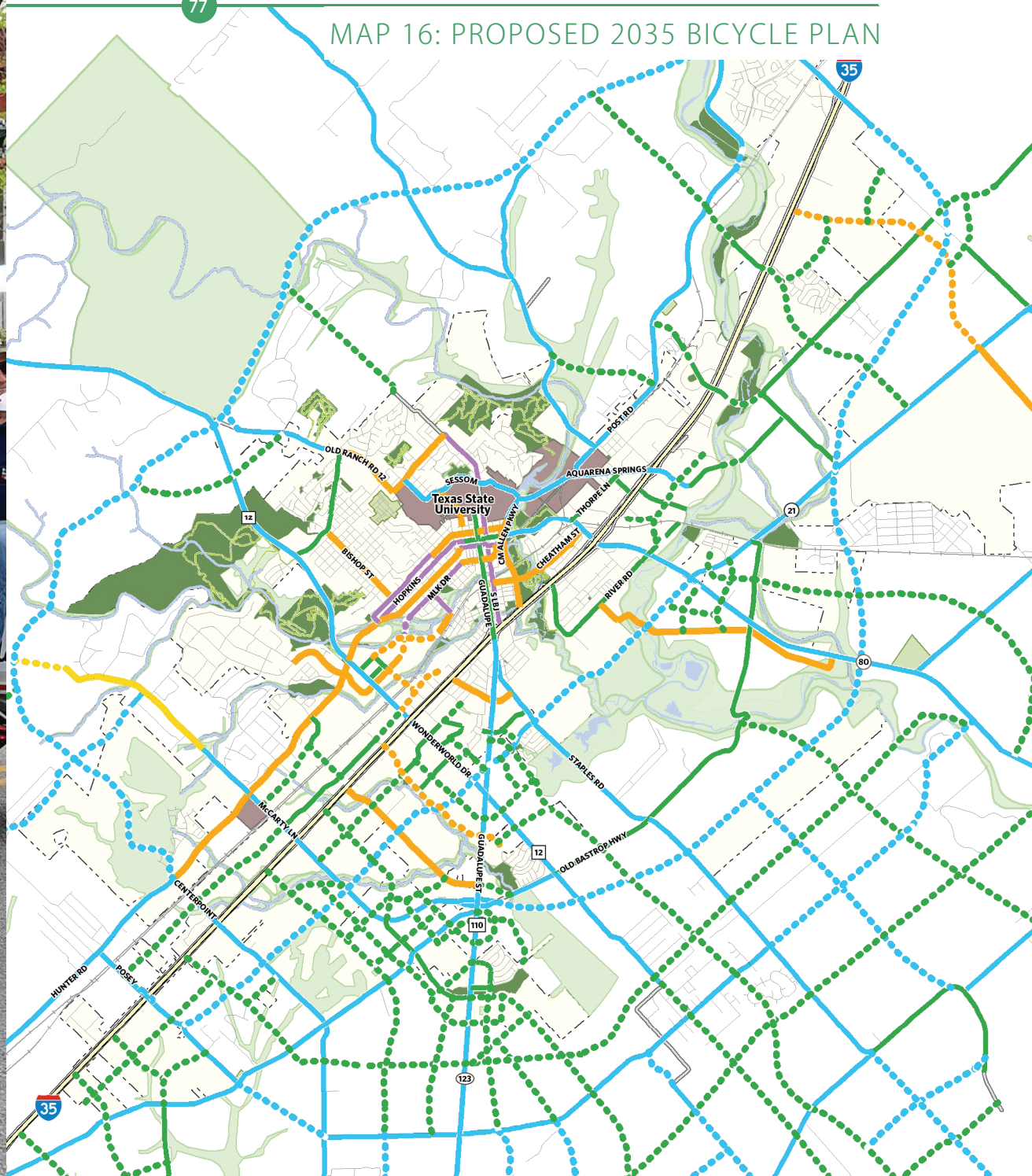
Sharrows are designated lanes within the roadway that are shared with both automobile traffic and bicycles.

This type of facility is appropriate for roads with speeds of 25 mph or less, with less than 5,000 vehicles per day and on space-constrained roadways.

Other options for bicycle facilities are available if right-of-way or other constraints prohibit installation of the desired facility.

- Bicycle lanes are dedicated, striped on-street facilities, but do not have a buffer from motorized traffic.
- Wider roadways may also be striped to have wide shoulders that function as bicycle facilities.

MAP 16: PROPOSED 2035 BICYCLE PLAN



Legend

City Features
- City Limits/Areas of Stability
- River/Creek
- Open Space
- Existing Parkland
- Existing Trails
- Texas State University
- Railroad

Enhanced Facility
- Protected Bike Lanes
- Buffered Bike Lanes
- Shared Use Path
- Sharrows
- Wide Shoulders

Proposed Facility
- Protected Bike Lanes
- Buffered Bike Lanes
- Shared Use Path
- Sharrows
- Wide Shoulders

Source: City of San Marcos

PROPOSED PEDESTRIAN NETWORK

The pedestrian network includes facilities such as sidewalks, curb ramps, trails, and greenways to facilitate pedestrian movements through the City of San Marcos.

Greenways are travel ways for pedestrians and cyclists that serve as major transportation connections throughout the City.

PROPOSED SIDEWALK PLAN

A safe and connected pedestrian network promotes healthier communities and an enhanced quality of life. Sidewalks are essential to creating a well-connected pedestrian network that encourages more walking as a means for shorter trips. The City of San Marcos is dedicated to completing and maintaining a connected system of sidewalks that are safe and accessible to everyone.

A Sidewalk Master Plan should be developed to identify gaps in the network, and prioritize construction of new sidewalks and repairs. A Sidewalk Master Plan will identify areas of high pedestrian activity and identify existing safety/connectivity issues to prioritize City funding. A Sidewalk Master Plan is a critical document supporting the City's ADA Transition Plan.

GOAL

- Maintain and complete the sidewalk system to form a well-connected, safe, accessible and continuous pedestrian network throughout the City of San Marcos.
- Implement a Sidewalk Master Plan to prioritize sidewalk repairs and installation.
- Utilize pedestrian level of service to better design and prioritize functionality and connectivity of infrastructure.

OBJECTIVE

- Convert 5% of trips less than one mile to walking trips.

RECOMMENDATIONS

- Maintain the existing inventory of sidewalks including missing and planned segments.
- Continue construction of missing sidewalks segments outside the Transportation Master Plan projects.
- Provide sidewalks along both sides of all thoroughfare types.
- Build sidewalks widths to serve the type of facility they support.
- Utilize shared-use paths along major thoroughfares as designated in the Thoroughfare Plan.
- Provide medians where pedestrian crossing distances exceed 40 feet as a protected pedestrian refuge in the center of the roadway.
- Where right-of-way is limited, building set back from the property line should be adequate to provide for wider pedestrian areas.

MATERIALS APPROPRIATE FOR SIDEWALKS

A variety of materials are available for sidewalks to accommodate different budgets and contexts. Safe sidewalk surfaces are firm, stable, and slip-resistant.

Concrete
Best for use in urban, suburban and areas with heavy pedestrian use, concrete is expensive to install, but has a longer life and requires less maintenance than other materials.

Asphalt
Less expensive than concrete, asphalt is an appropriate choice for less traversed walkways if they are properly maintained and accessible.

Brick Pavers
Pavers offer a different aesthetic that may appeal in some locations. Pavers should be used carefully, as they may shift or settle, and fall out of ADA-compliance.

GREENWAYS MASTER PLAN

Greenways are travel ways for pedestrians and cyclists that can serve as major transportation connections throughout cities. Greenways are built alongside roadways, through parks or other green spaces. Benefits from greenways include transportation, recreation and fitness. They also help preserve the environment.

GOAL

- Expand the Greenways system to provide an alternate bike and pedestrian system to encourage increased mode shift and provide opportunities for recreation and economic development.

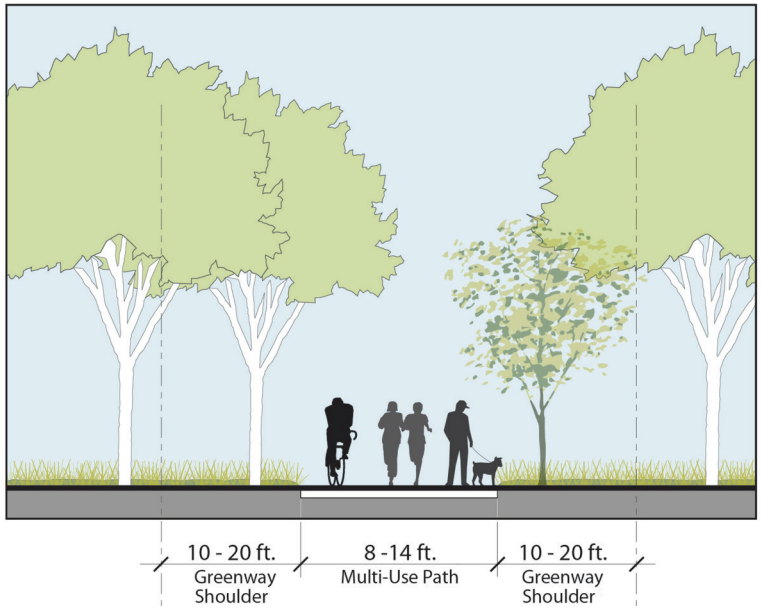
OBJECTIVES

- Support the Transportation Master Plan Goal of converting short trips to walk and bicycle trips.
- Provide opportunities for recreation and access to nature and wildlife by connecting greenways to parks and open space.
- Support tourism and economic development through greenways connected to Activity Centers.

RECOMMENDATIONS

- Greenways should have a minimum unobstructed width of 8 feet, although 12 feet is preferred.
- Easements for off-street greenways are recommended to be 30 feet to 80 feet in width to accommodate maintenance, vegetative buffers and shoulders.
- Utilize a variety of materials for greenways construction depending on location and use.

Multi-Use Greenway



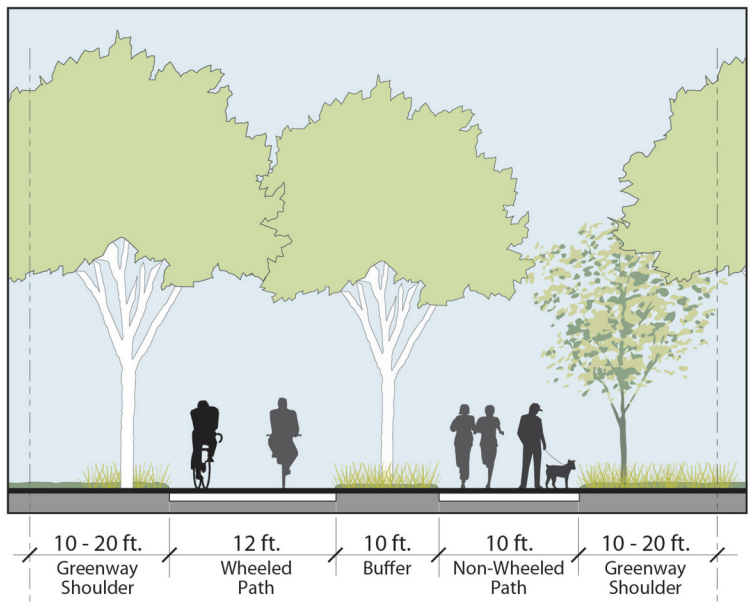
Unimproved and/or nature trails are not considered greenways, though connectivity to existing trails provides a better integrated network.

Several types of greenways are proposed for use within the City.

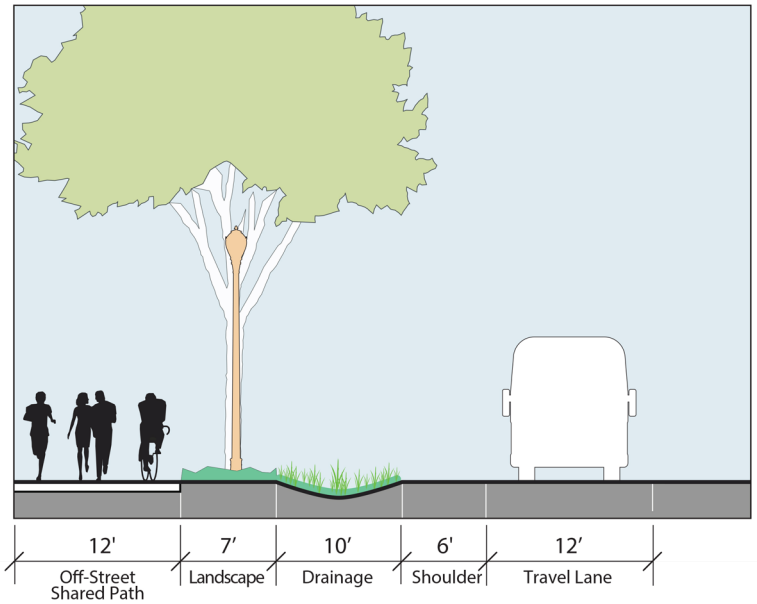
Types of Greenways Facilities

Multi-Use Greenways	Split-Use Greenways	Shared-Use Path
Multi-use greenways are shared off-street facilities for bicycles and pedestrians typically provided through parks and green spaces.	Split-use greenways are off-street facilities that separate paths for bicycles and pedestrians. In urban areas where high potential for pedestrian and bicycle conflicts exists, these facilities are implemented to improve safety.	A shared-use path is an off-street pedestrian trail that is shared with bicycles. These are often located along one side of a roadway facility.

Split-Use Greenway



Shared-Use Path



SEVERAL MATERIALS ARE APPROPRIATE FOR THE CONSTRUCTION OF GREENWAYS.

Decomposed Granite
can be used in environmentally sensitive areas where permeability is important and a natural look is desired.

Decomposed granite requires ongoing re-leveling due to compaction, erosion and wash-outs from rain and flooding.

Stabilizers should be considered where erosion is most likely to occur.

Crushed Limestone
is a locally-sourced, cost effective alternative to decomposed granite.

Crushed limestone also requires ongoing re-leveling due to compaction, erosion and wash-outs from rain and flooding.

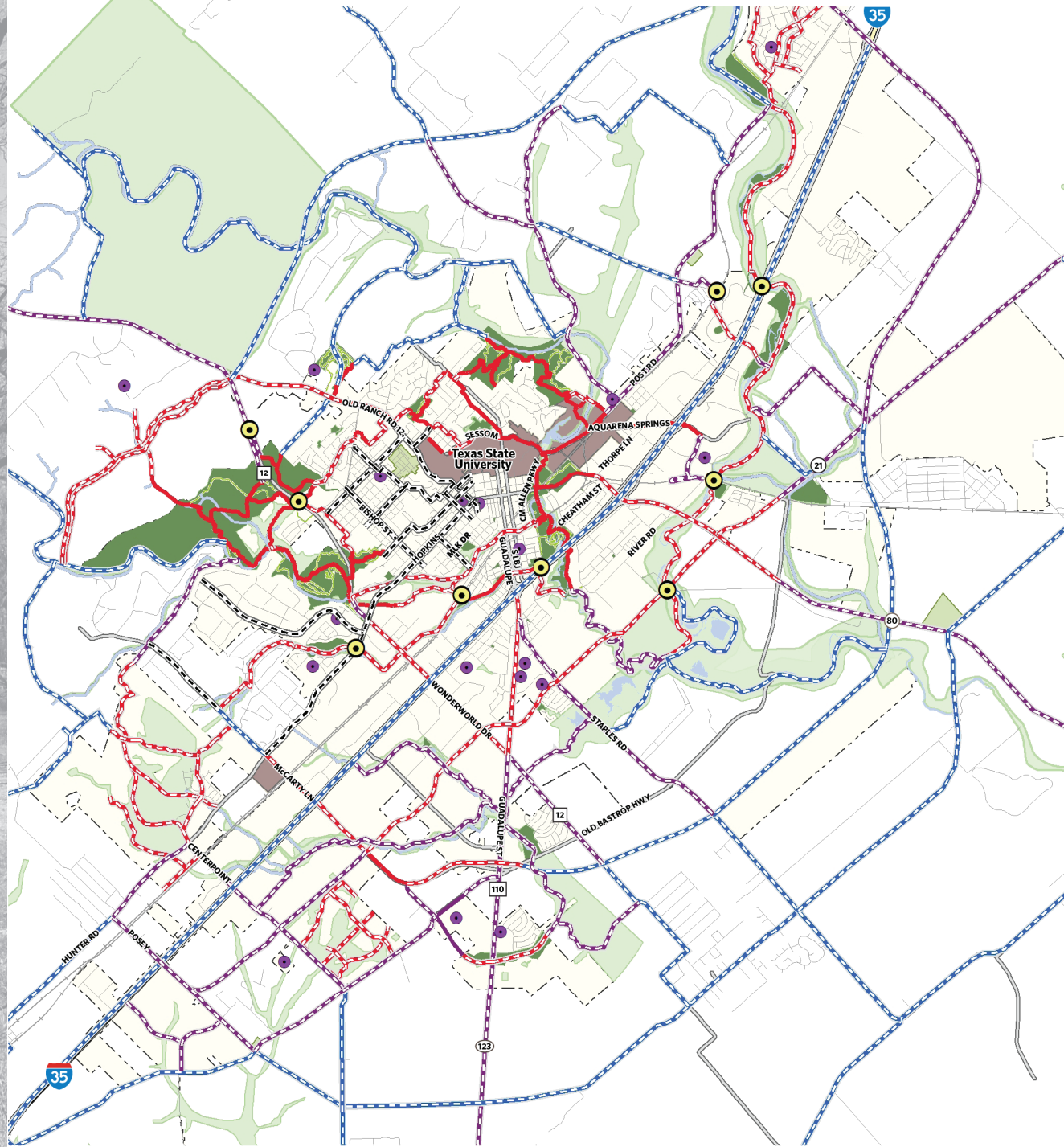
Asphalt
provides a smooth surface with lower installation costs than concrete, but is prone to uneven settlement.

Concrete
is a long-lasting surface appropriate in flood-prone areas or on steep slopes.

It is best suited for bicycle and wheelchair traffic.

Concrete requires minimal maintenance.

MAP 17: 2035 PROPOSED GREENWAYS PLAN



Legend

City Features

- City Limits
- River/Creek
- Open Space
- Existing Parkland
- Texas State University
- Railroad
- Existing Trail
- Major Creek

Greenways

Connectivity Priorities

- School
- Proposed Grade Separated Crossings
- Enhanced Sidewalks

Enhanced Facility

- Short-Term (0-10 Years)
- Mid-Term (10-20 Years)
- Long-Term (20+ Years)

Proposed Facility

- Short-Term (0-10 Years)
- Mid-Term (10-20 Years)
- Long-Term (20+ Years)

Source: City of San Marcos

GOAL

- Build on recommendations in the Five-Year Transit Plan and plan a transit network that serves downtown and key intensity zones.
- To encourage ridership for University students faculty and staff, consider a fare-free system as identified in the Five-Year Transit Plan.

OBJECTIVE

- Increase connectivity and provide transit service between key urbanized areas to help reduce auto trips.

RECOMMENDATIONS

- Continue to work with local transit providers to expand services.
- Enhance the existing bus service system.
- Develop a transit system to connect activity centers.
- Plan a summit for transportation leaders to discuss how to improve connectivity and integration with school, University and CARTS bus systems.
- Implement a strategy of concentrating service on a small number of high-demand routes with frequent service.
- Develop a transit oriented performance measure that evaluates the robustness of the transit system.
- Develop intensity zones with transit supportive land use that economically and socially support the effective implementation of transit.

PROPOSED TRANSIT NETWORK

A well-designed transit system that connects key areas of the City has the greatest potential to reduce vehicle miles traveled. In May 2014 the City of San Marcos completed a five-year transit plan to make recommendations for restructured and expanded system route service throughout the area.

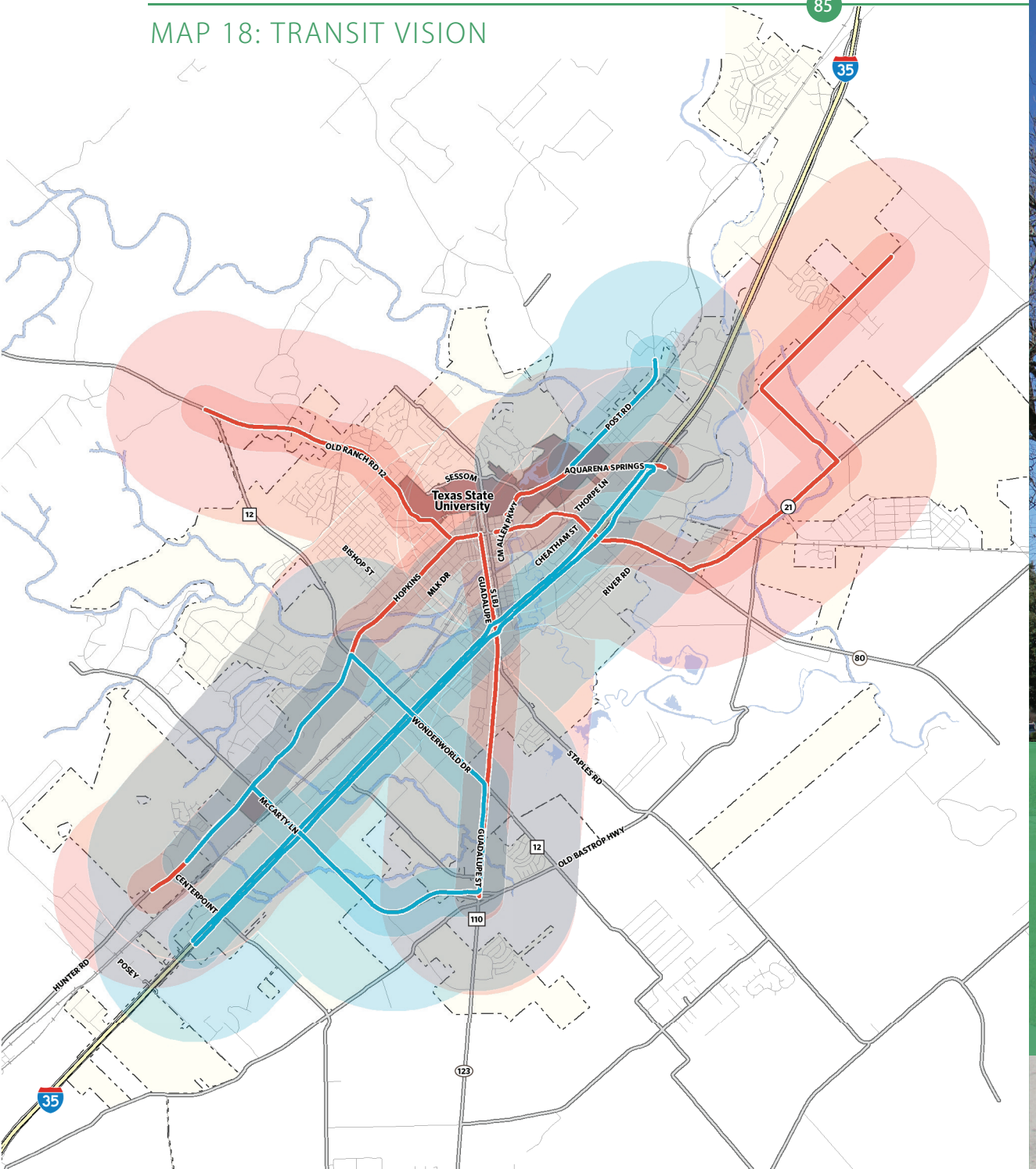
Building on this expansion, the Transportation Master Plan analyzed a conceptual transit framework for the 2035 Future Scenario designed to serve trips between intensity zones identified in the Comprehensive Plan.

The intensity zones included were Downtown, Midtown, Triangle, South End, Medical District, Star Park, East Village, Paso Robles and Centerpoint. These centers are expected to grow and place more demand on the surrounding network.

The conceptual transit framework was developed to serve areas with higher trips. A proposed service plan suggests five routes emanating from the intensity zones and serving downtown directly and three circulator routes to distribute passengers close to their destinations.

Assuming five percent of trips are made using transit, these proposed transit routes have the potential to divert about 4,200 daily trips from automobiles between these intensity zones. In addition, the proposed transit framework will help capture additional non-intensity zone related trips.

MAP 18: TRANSIT VISION



Legend

City Features

- City Limits/Areas of Stability
- River/Creek
- Texas State University
- Railroad

Transit Framework

- Route
- 1/4 Mile Route Pedestrian Buffer
- 1/2 Mile Route Bicycle Buffer
- Circulator
- 1/4 Mile Circulator Pedestrian Buffer
- 1/2 Mile Circulator Bicycle Buffer

Source: City of San Marcos

The proposed transit framework will help capture additional non-intensity zone related trips.

BEST PRACTICES

Implementing best practices that are shown to help improve safety and enhance connectivity for all modes, reduce congestion and manage travel demand can help to create a well planned, effective transportation network.

The following section discusses Best Practices the City of San Marcos can incorporate in their planning and design process for the transportation network.

GOAL

Incorporate national best practices in the planning and design process.

OBJECTIVE

Maximize transportation efficiency throughout the network and to key land uses.

RECOMMENDATIONS

- Utilize travel demand management to improve the overall efficiency of the travel network.
- Expand way-finding systems implement dynamic message signs to reduce congestion by providing routing information to major destinations.
- Utilize access management techniques to develop safer streets and a more attractive transportation network.
- Implement intelligent transportation system technologies to manage traffic demands.
- Promote ridesharing to reduce vehicular trips on the transportation network.

TRAVEL DEMAND MANAGEMENT

Travel Demand Management (TDM) refers to a set of strategies or policies designed to improve the overall efficiency of a travel network. TDM looks at moving people and goods, rather than focusing on the number of motor vehicles in the network. For example, reducing the number of single-occupant vehicles, or increasing ridership on transit both reduce the number of vehicles in the travel network, and therefore also reduces demand.

Data proves that single occupancy vehicles are a major cause of congestion. To reduce reliance on personal vehicles, it is imperative to expand viable transportation options. Transportation policies that encourage roadway expansion as a singular means to solve congestion contribute to more trips and work against travel demand management best practices.

GOAL

- Improve the efficiency of the transportation network and encourage modeshift towards more environmentally friendly transit options.

OBJECTIVE

- Improve the transportation network at a lower economic, environmental and social cost than high dollar, land-intensive improvements that may lead to greater greenhouse gas emissions and poor citizen health.

RECOMMENDATIONS

- Encourage carpools or vanpools through City sponsored programs.
- Promote Employer Commuter Choice Programs that expand options for employees on how to reach and accomplish their work, such as public or active transportation, telecommuting or alternate work hours.
- Provide real-time traveler information through a smart phone app or City website to provide an informed choice for users on how and when to travel.
- Create management districts for areas of paid parking and designate residential parking districts.
- Use license plate recognition technology to evaluate parking within Downtown San Marcos and other high demand areas.

WAY-FINDING / POINTS OF INTEREST

Way-finding refers to a system of visual information that helps people navigate through their surroundings. Way-finding systems can include signage, maps, symbols, color-coding, and typographic elements.

Way-finding systems should include information for pedestrians, cyclists and motorists. Each of these travel modes experience separate challenges navigating through the transportation network, and an inclusive, effective system can help to simplify their routes.

A strategic theme and careful planning will provide insight into understanding the built environment and help to define where way-finding information is most needed.

GOAL

- Invest in way-finding systems that can provide useful information to visitors and residents.

OBJECTIVE

- Minimize navigation challenges for all modes and reduce congestion.

RECOMMENDATIONS

- Inventory the current wayfinding system and evaluate opportunities for expansion.
- Utilize dynamic message sign technologies to supplement the wayfinding system.
- Strategically place signs to provide valuable route information and help to reduce circulation congestion by communicating the most direct routes to parking facilities.

ACCESS MANAGEMENT

Cities implement access management programs to limit and consolidate access along roadways. Too many access points, such as driveways in close proximity to each other, can cause congestion and a higher potential for conflicts and crashes.

Successful access management programs balance access to businesses, institutions and residences with roadway safety and mobility. This results in safer streets and a more attractive transportation network.

GOAL

- Establish an access management policy that controls access along roadways and manages placement of driveways and other access points.

OBJECTIVE

- Improve safety, reduce vehicular conflicts and congestion.

RECOMMENDATIONS

- Limit direct access to major roadways. Frequent property access is more congruous with local streets.
- Encourage joint access driveways to reduce access points on boulevards and parkways.
- Provide medians to control access and avoid center left-turn lanes that create multiple conflict points.
- Plan for spacing of signalized intersections to help provide efficient movement of traffic at the desired speeds.
- Preserve the functional areas of intersections. The functional area extends beyond the physical intersection area. On the approach to intersections, drivers will be maneuvering, braking, lane changing or turning. To support the safe operation of the intersection, driveways and entrances to roadways should not be located within the functional area.
- Limit the number of conflict points and separate areas of conflict, for example, separate left-turn movements from through traffic when possible.

INTELLIGENT TRANSPORTATION SYSTEMS

Intelligent Transportation Systems (ITS) are advanced applications that provide modern-day services to travelers and transportation. ITS systems allow users to be more informed of existing traffic conditions, and to make more selective use of transport networks. Cities can utilize ITS to help manage traffic demand during peak hours, special events and during emergencies.

GOAL

- Utilize ITS to build a responsive, adaptive and informative transportation network.

OBJECTIVE

- Provide travelers with information to make informed choices along travel routes.

RECOMMENDATIONS

- **Develop a smart phone application for the City of San Marcos to provide real-time information on travel times and route options for alternate modes of transportation. The app should include data on transit agencies such as CARTS and the Bobcat Shuttle system to improve communications to riders regarding bus arrival times. Crash locations and construction updates through the app could also help users make informed travel decisions.**
- **Upgrade the Traffic Management Center with fiber connection to traffic signals and consider vehicle detection technologies, Bluetooth readers and adaptive traffic control systems to improve the network's response to real-time traffic conditions.**
- **Implement full-color matrix variable message signs as a resource to communicate real-time traffic conditions to travelers.**
- **Consider variable speed limits that adjust in response to road congestion or travel conditions.**

RIDESHARE PROGRAMS

Rideshare programs are a common and cost effective travel mode. Ridesharing can be a viable option for commuters traveling to a common destination or for non-drivers. Carpooling or vanpooling can also be an effective alternative to manage congestion during peak hours or special events.

Ridesharing helps to reduce congestion, crash risk and pollution emissions. It can also help to reduce costs involved with roadway and parking facilities. These types of programs can be implemented by individual employers as part of a trip reduction incentive program, by a campus trip management program, a transit agency or by a regional transportation agency.

GOAL

- Expand rideshare programs as a transportation alternative, especially for non-drivers or where commuters may be traveling to a common destination.

OBJECTIVE

- Increase cost effective travel choices for commuters, reduce congestion and parking demands.

RECOMMENDATIONS

- Implement ridesharing as part of a comprehensive Travel Demand Management Program.
- Involve transportation agencies, businesses and employees in planning Rideshare Programs.
- Provide incentives to attract and retain rideshare users.

SUSTAINABLE PERFORMANCE MEASURES

The City of San Marcos should adopt sustainable performance measures that compliment traditional vehicle-based level of service metrics to evaluate the growth of the multimodal transportation network. Some examples include:

- Pedestrian Level of Service
- Pedestrian Walk Score
- Bicycle Level of Service
- Bicycle Travel Times
- Crash Frequency / Severity
- Average Vehicular Occupancy
- Transit Accessibility
- Transit Ridership
- Emergency Vehicle Response Times
- GreenRoads
- Vehicle Emissions
- Accessibility

GOAL

- Develop the City of San Marcos in a measured, sustainable manner.

OBJECTIVE

- Adopt sustainable performance measures that holistically evaluate the transportation system.

RECOMMENDATIONS

- Incorporate multimodal operations analysis into the City's Traffic Impact Analysis process.
- Conduct annual crash reviews to determine patterns and identify mitigating measures.
- Conduct annual vehicle occupancy surveys to measure progress towards a multimodal network.

SAFE STREETS DESIGN AND PUBLIC HEALTH

Research shows that narrower roads and lanes widths can have a positive impact on a street's safety without impacting traffic operations. According to NACTO, "The width allocated to lanes for motorists, buses, trucks, bikes and parked cars is a sensitive and crucial aspect of street design. Lane widths should be considered within the assemblage of a given street delineating space to serve all needs, including travel lanes, safety islands, bike lanes and sidewalks."

GOAL

- Prioritize safety within the transportation network as more vulnerable road users are encouraged to be on the road.

OBJECTIVE

- Reduce injury and fatality rates from vehicle-pedestrian and vehicle-bicycle crashes.

RECOMMENDATIONS

- Emphasize and implement engineering and design guidelines that support lower design speeds and promote safer street design.
- Use evaluation, education, and enforcement to reduce speeds on area roadways.
- Commit to the Vision Zero goal of zero traffic deaths and severe injuries.
- Establish a Vision Zero Task Force to develop a Vision Zero Action Plan.
- Adopt a Vision Zero Action Plan by 2023.

AUTONOMOUS VEHICLES

Advances in autonomous and connected vehicle (AV/CV) technology will change the way people navigate through cities. The future with AV/CV presents new opportunities, but communities must be proactive to ensure safe, efficient use and operation within their transportation network. Some experts predict 10 million self-driving cars will hit the roads by the year 2020.

While technological advancements have been made to introduce AV/CV for public transportation users like shuttles, transit and mini-buses, the possibility of introducing independent AV/CV on a mass scale maybe further into the future.

The City of San Marcos can prepare for the autonomous future through agency and government partnerships that test AV/CV vehicles on City streets and through carefully designed pilot programs. City leaders and partners should take initiative to guide discussions towards a focus on people and places, rather than the autonomous vehicles alone.

The City of Austin has a Smart Mobility Roadmap that guides the city's approach to shared, electric and autonomous vehicle technologies. The City of San Marcos should consider the research and policies from the City of Austin when developing an AV/CV blueprint.

GOAL

- Establish a vision for city streets built on a people and places framework. Integrate emerging technology with transit and active transportation to provide overall improvements and access for everyone.

OBJECTIVE

- Establish policies that support and regulate autonomous and connected vehicles and leverage new mobility technologies to enhance the public realm, support higher occupancy trips, and provide sustainable transportation options.

RECOMMENDATIONS

- Regulate use of autonomous and connected vehicles within city limits to prioritize safety.
- Avoid the potential increase in driverless cars contributing to congestion by establishing dedicated 'holding' lots near city cores and intensity zones.
- Promote shared use of autonomous and connected vehicles within City limits.
- Develop a detailed Autonomous Mobility Plan or Blueprint that establishes goals and policies for integration of AV/CV within the City, examines potential effects to the transportation network and identifies resources and funding options to effectively manage AV/CV demand on the network.

Plan for and regulate use of autonomous and connected vehicles within city limits to prioritize safety.

CAPITAL IMPROVEMENTS PLAN

PROJECT PRIORITIZATION

Funding isn't immediately available to implement all the projects recommended in this Plan. Prioritization criteria were developed to identify projects that are most critical to the needs of San Marcos. Project sheets for Capital Improvement Plan projects are included in the Appendix.

Implementation of projects in the Thoroughfare Plan, Bicycle Plan and Greenways Plan will occur over the next 20+ years.

To categorize projects into a prioritization list, the 2035 Thoroughfare Plan, 2035 Bicycle Plan and 2035 Greenways Plan were evaluated for several factors and weighted using the evaluation criteria.

Safety and Mobility	○ Traffic Operations ○ Crash History ○ Improved Pedestrian Crossings ○ Improved Bicycle Facility
Connectivity	○ Improved Neighborhood Connectivity ○ Regional Transportation Facility ○ Connectivity to Activity Centers ○ Pedestrian Environment ○ Bicycle Environment ○ Transit Connectivity to Activity Centers and Transit Hubs
Environment	○ Increased Roadway Footprint ○ Environmentally Sensitive Areas
Cost	○ Construction Cost ○ Right-of-Way Acquisition ○ Funding Identified or Available ○ Construction Impacts

IMAGE CREDIT: CITY OF SAN MARCOS FACEBOOK

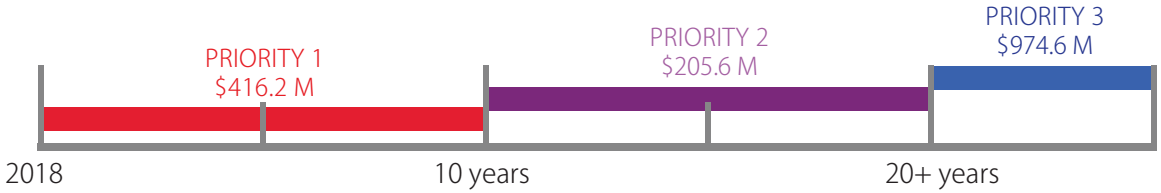
FUNDING PLAN, SOURCES AND STRATEGIES

The implementation of the Thoroughfare, Bicycle and Greenways Plans should consider the funding sources to be used and the agencies responsible for their construction, maintenance and operations.

A prioritization process was developed to implement projects based on most critical needs of San Marcos.

Short-, mid- and long-term projects are presented in the Appendix.

Projects are prioritized based on most critical needs of San Marcos.



GOAL

- Proactive coordination with partner agencies to develop an integrated transportation network.

OBJECTIVES

- Consider new opportunities for funding of the transportation system.
- Make the most of interagency partnerships to achieve the transportation plan vision.

RECOMMENDATIONS

- Evaluate multiple funding sources for implementation of the Thoroughfare Plan, Bicycle Plan and Greenways Plan.
- The City of San Marcos should assume the maintenance and operation of key TxDOT roadways to implement the Master Plan vision.

CAPITAL IMPROVEMENTS PROJECT LIST

A Capital Improvements Project (CIP) list was developed from the short-term projects recommended through the project prioritization. The intersection analysis was reviewed to include projects that will have an immediate, notable impact on transportation operations within the City of San Marcos.

THOROUGHFARE PLAN

Funding and financing of the short-term, mid-term and long-term improvements identified in the Thoroughfare Plan will require the combination of existing sustainable sources and the identification of new sustainable sources.

Sustainable sources of funding are expected to be available at a certain or predictable level.

The City should position improvements for competitive funding opportunities throughout the planning and implementation timeframe.

BICYCLE AND GREENWAYS PLANS

Funding and financing for bicycles, greenways and trail projects could be accomplished through similar sources, either solely or in combination or partnership with other agencies.

TYPES OF FUNDING SOURCES

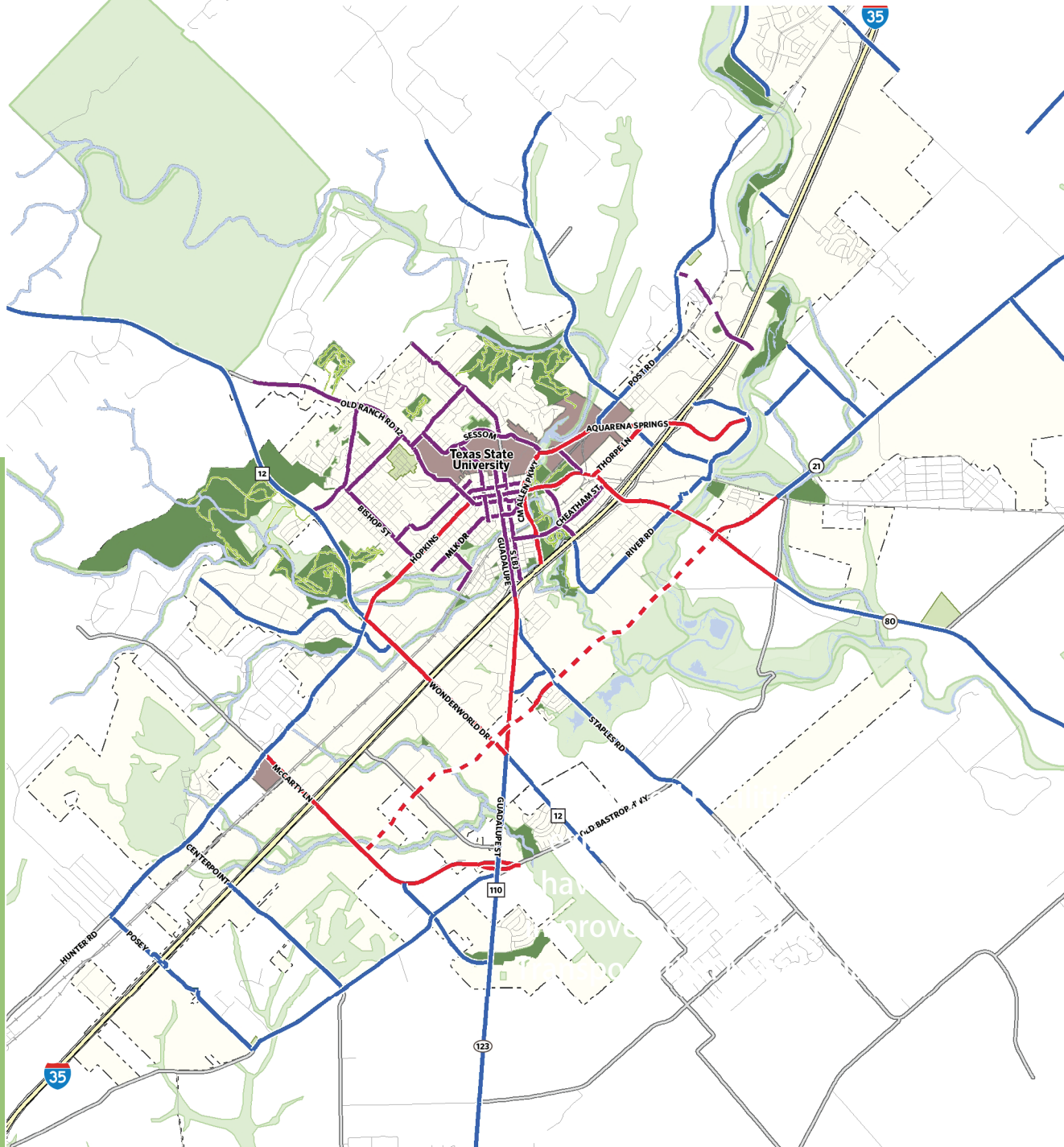
CURRENTLY AVAILABLE TO THE CITY

- Property tax (general obligation bonds and certificates of obligation)
- Cost-participation with local and state partners (e.g., Hays County, Developers, TxDOT)
- 4A and 4B Economic/Community Development Corporations
- Chapter 380/Chapter 381 Economic Development Agreements
- Tax Increment Reinvestment Zones (TIRZs) and Tax Increment Finance Districts (TIFs)
- Public-Private Partnerships
- Development Impact Fees
- Transportation Reinvestment Zone (TRZs)

ADDITIONAL POTENTIAL SOURCES

- TxDOT funding programs
- State Infrastructure Bank (SIB) loans
- CAMPO funding programs
- Grant funding opportunities (e.g., TIGER, FASTLANE)
- TIFIA loan/credit program

MAP 19: CAPITAL IMPROVEMENTS PROJECTS



Legend

City Features

- City Limits
- River/Creek
- Texas State University
- Railroad
- Existing Trail
- Major Creek

Capital Improvements Projects

Facility Features

- Short-Term Priority 1 Enhanced Facility
- Short-Term Priority 1 Proposed Facility
- Short-Term Priority 2 Enhanced Facility
- Short-Term Priority 2 Proposed Facility
- Mid-Term Priority 3 Enhanced Facility
- Mid-Term Priority 3 Proposed Facility

Source: City of San Marcos

PROJECT OWNERSHIP

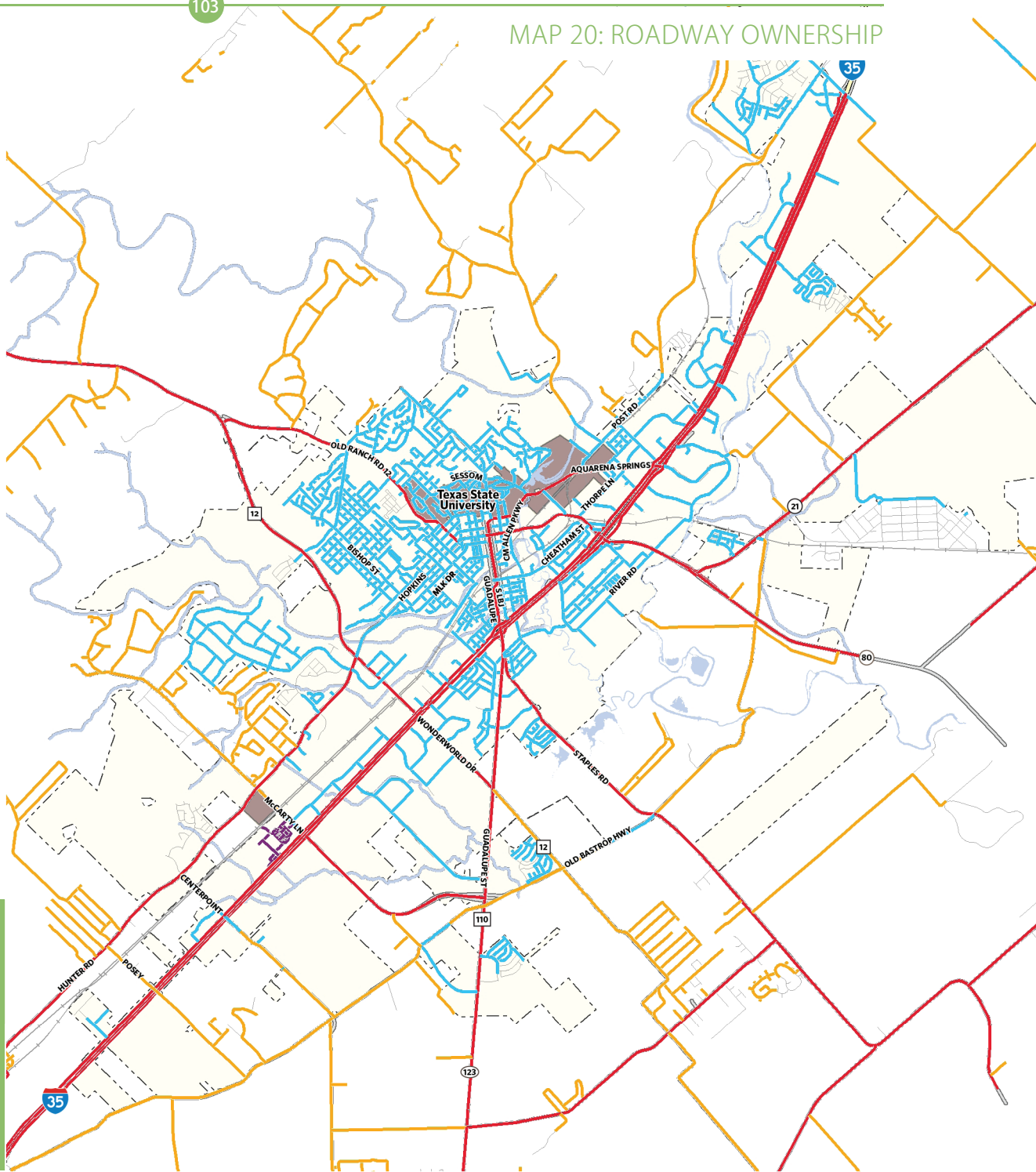
TxDOT has actively been working with local governments to remove roadways from the State Highway System. Recent legislation and changes in the Transportation Code have made it easier for TxDOT to transfer state assets (right-of-way and roadways) to local governments.

Removing a roadway from the System accrues benefits to TxDOT by reducing long-term maintenance obligations. Local governments, while accepting the maintenance of the roadway, accrue benefits by having local control over the roadway operations, driveway locations, signage, landscaping, etc.

MAP 20: ROADWAY OWNERSHIP

The City of San Marcos should pursue transfer of ownership of the following TxDOT facilities:

- Hopkins Street:
  Guadalupe Street to IH 35
- Guadalupe Street:
  IH 35 to Grove Street
- LBJ Drive:
  Grove Street to University Drive
- University Drive:
  LBJ Drive to Sessom Drive
- Aquarena Springs Drive:
  Sessom Drive to IH 35
- Old RR 12:
  Hopkins Street to RR 12



Legend

City Features

- City Limits
- River/Creek
- Texas State University
- Railroad
- Existing Trail
- Major Creek

Roadway Ownership

- State
- County
- Municipal
- Federal

Source: City of San Marcos

RIVER ROSE

SANMARCOS

TRANSPORTATION MASTER PLAN 2018

THE CITY OF
SAN MARCOS

SANMARCOS

TRANSPORTATION MASTER PLAN

2018