



CHAPTER 5  
**TRANSPORTATION &  
MOBILITY**

# INTRODUCTION

A community's transportation system is vital to its ability to grow in a positive manner. Transportation is inherently linked to land use. The type of roadway dictates the use of adjacent land, and conversely, the type of land use dictates the size, capacity and flow of the roadway along with the prioritization of other modes of transportation like walking, biking and transit. Many of the decisions regarding land uses and transportation within Pflugerville have already been made; two major highways (SH 130 and SH 45) run through the City, and local rights-of-way in much of the City have been constructed or planned. A major challenge for Pflugerville now lies in the accommodation of population growth within the existing transportation system and in the accommodation of new land development, and future redevelopment, through the expansion of that system.

The transportation system should:

- Provide mobility and accessibility at appropriate levels according to the type of roadway,
- Focus on multi-modal transportation options, including pedestrian/bicycle access and ultimately transit,
- Expand as needed to meet the needs of the City's growing population and additional development,
- Seek to establish a dense network that provides multiple routes of access and distributes trips (for all modes),

- Be economically feasible for the City, and
- Be correlated with regional considerations, such as new/expanded highway systems and transit availability.

It is important to note that the references made regarding the transportation system should not be viewed solely as references to roadways. Communities across Texas and the nation are becoming increasingly aware of the problems inherent in constructing a system for the automobile alone with suburban locations like Pflugerville experiencing some of the most significant effects of this pattern. Pedestrian and bicycle accommodations are important to creating a community that will be sustainable for decades to come. Therefore, another challenge for the City lies in the integration of pedestrian and bicycle facilities so these facilities can create alternative modes of transportation.

Pflugerville prepares a Transportation Master Plan separately from the Comprehensive Plan, relying upon the Comprehensive Plan to set high-level policy direction for future updates. As such, this transportation element is divided into several sections. First is a general discussion of the existing transportation conditions. Next is an explanation of thoroughfare planning, with the concepts of Context-Sensitive Design (CSD) and Complete Streets outlined. Next is functional classifications and an explanation of the updated Thoroughfare Plan Map. Finally, the transportation recommendations are outlined. These policies should be used in conjunction with the Thoroughfare Plan Map to guide transportation decisions as Pflugerville continues to grow in population and geographic area.



*Roadway under construction*

# EXISTING CONDITIONS

## MAJOR ROADWAYS

### SH 45

Texas State Highway 45 (SH 45) is the main east-west thoroughfare through Pflugerville. It is a toll facility that provides a connection to Austin and Round Rock to the west and then merging with State Highway 130 going southward ultimately to Buda. The Texas Department of Transportation (TxDOT) maintains the roadway.

### SH 130

Texas State Highway 130 is the main north-south thoroughfare in Pflugerville. It provides a connection to Georgetown to the north and ultimately connecting through Austin to San Antonio to the south.

### FM 973

Farm to Market Road 973 is a paved rural road that connects agricultural areas to market towns in Travis and Williamson counties. Currently, it is a smaller north-south route along the east side of Pflugerville within the ETJ. However, the Texas Department of Transportation (TxDOT) Austin District proposed realigning FM 973 in a new location between US 290 and SH 130 in order to improve mobility and connectivity and provide additional roadway capacity to meet future traffic demands due to population growth.

### PFLUGERVILLE PARKWAY

Pflugerville Parkway is one of the main east-west corridors through Pflugerville. It provides a connection from communities in the east across SH 130 and the Greenlawn/IH 35 area as well as the local communities. The City of Pflugerville maintains the roadway. Pflugerville Parkway was widened in 2015, and the improvements include the expansion of East Pflugerville Parkway into a four-lane divided roadway with dedicated turn lanes, a 10-foot hike and bike trail, and additional streetlights to Colorado Sand Drive. Future improvements are planned to complete Pflugerville Parkway as a four lane facility to Weiss Lane and a six lane facility east of Weiss to a future connection with FM1100 in Elgin.

### PECAN STREET/ FM 1825 (WELLS BRANCH TO FM 685)

Pecan Street is one of the main east-west corridors through Pflugerville connecting to Wells Branch in the West and Cameron Road to the east. It provides a connection for neighborhoods in the east across SH 130 through Downtown Pflugerville. Over the years, there have been improvements to various intersections to improve local mobility and connectivity.

### KELLY LANE

Kelly Lane is an east-west corridor in the northern portion of the City, connecting to SH 45 at its western end and Weiss Lane on the east. Kelly Lane provides for connectivity of several neighborhoods to the SH 130 and SH 45 corridors.

### HEATHERWILDE BOULEVARD

Heatherwilde Boulevard is one of the main north-south corridors through Pflugerville. It provides a connection through Pflugerville, connecting neighborhoods as far north as Round Rock and south to the Tech Ridge area of Austin. Over the years, there have been improvements to various intersections to improve local mobility and connectivity.

### FM 685

FM 685 is one of the main north-south corridors through Pflugerville. It serves as an interurban connection beyond Pflugerville, reaching as far south via Dessau and Cameron Road alignments to the Mueller Neighborhood in Austin, and northward to its terminus in Hutto. It is often used as a main route to avoid paying tolls on SH 130.

## CORRIDORS THAT SUPPORT LONG TERM GROWTH

Beyond these eight major roadways, four corridors are emerging likely become major corridors necessary to meet the future needs of Pflugerville.

### WEISS LANE

Key adjacencies to this corridor include the popular Lake Pflugerville, and its emergence as a mixed-use hub of activity east of SH 130, the presence of multiple large school campuses, increasingly intense growth in eastern portions of Pflugerville, and favorable alignments to SH 130 and Cameron Road as a key element of Pflugerville's future multimodal transportation network.

### CAMERON ROAD

This roadway changes names and direction multiple times, crossing from SH 130 where it intersects Pecan, running alongside Austin Executive Airport and 1849 Park before twisting again to continue northward towards the Cele road in northeast Pflugerville. The roadway will grow in stature with growth, while also representing an opportunity for unique contextual rural design and multimodal impact due to its connections to several parks and the agrarian history of the area.

### CELE ROAD

This emerging corridor effectively serves as an extension of Kelly Lane eastward from Weiss, an area anticipated for significant growth and multiple school campuses. It ultimately serves as a major connection between Weiss Lane and FM 973. With the presence of the Cele agrarian community, it represents another opportunity for rural contextual design similar to Cameron Road.

### ROWE LANE

Located in the northern reaches of Pflugerville, Rowe Lane exists east of SH 130 and shares many attributes with Cele Road as an east-west connector. It should receive similar treatment and consideration to Cele Road in the future as a key element of the transportation network supporting Pflugerville's eastern growth. The future expansion of Rowe Lane, beyond SH 130, will lend itself to a more dense environment, appropriate for a facility that will provide additional access points to SH 45 and SH 130 facilities.



Roadway with ribbon curb, swale and sidewalk/trail



# TRANSPORTATION PLANNING

## CONTEXT-SENSITIVE DESIGN (CSD)

The following discussion is about a somewhat different approach to thoroughfare planning than the approach that has generally been taken by communities in the past. Traditional thoroughfare planning is mainly focused on providing optimal mobility and access for automobiles. Context-sensitive thoroughfare planning considers automobiles, but also considers broader aspects related to roadways such as slowing down traffic in special areas, providing for better pedestrian access, and reflecting the character of the area being traveled through. The key concept behind CSD is that the elements of the street should complement the adjacent development; for instance, a roadway may need to be designed as a six-lane boulevard as it travels through a major retail area, but may need to be altered to a minor street configuration as it travels through a residential neighborhood.

Some aspects of this approach can already be seen in Pflugerville and should be further encouraged in the future. For example, Pecan Street receives some unique treatments as it approaches downtown as well as where it parallels the Heritage Loop Trail and crosses Gilleland Creek. Likewise, portions of Pflugerville Parkway substantially feature multiuse trails parallel to the roadway, with a tree lawn providing separation from main lanes. This can be taken several steps further in the future through the use of landscaping elements, roadway geometry for

traffic calming and visual appeal, and further consideration of the user experience for all transportation system users.

## PROCESS OF DESIGN

The process of designing CSD roadways is similar to the process of designing traditional thoroughfares in that automobile traffic is considered with traffic counts, traffic demand, and level of service information gathering efforts. However, the difference is that automobile traffic is only one element considered, among numerous others, in the design of CSD roadways. The Institute of Transportation Engineers (ITE) released a publication entitled “An ITE Recommended Practice: Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities.” This publication outlines various principles that should be considered during the design process to arrive at a solution for a context-sensitive roadway project. These principles are as follows:

- The project satisfies the purpose and needs as agreed to by a full range of stakeholders. This agreement is forged in the earliest phase of the project and amended as warranted as the project develops.
- The project is a safe facility for both the user and the community.
- The project is in harmony with the community, and it preserves environmental, scenic, aesthetic, historic

and natural resource values of the area; in other words, it exhibits context-sensitive design.

- The project exceeds the expectations of both designers and stakeholders and achieves a level of excellence in people’s minds.
- The project involves efficient and effective use of the resources (time, budget, and community) of all involved parties.
- The project is designed and built with minimal disruption to the community.
- The project is seen as adding lasting value to the community.

The City should explore the possibilities of CSD solutions on any of its joint projects with TxDOT (e.g., FM 973) as well as future City roadways. City roadways in particular should consider the use and application of the National Association of City Transportation Officials (NACTO) Urban Street Design Guide in addition to the more conventional American Association of State Highway Transportation Officials (AASHTO) manual. NACTO publishes a number of useful guides that are particularly relevant to disruptive technologies in transportation, such as micromobility and autonomous vehicles, discussed later in this chapter. The set of thoroughfare sections shown and discussed in the following section of this chapter have been established in the Transportation Master Plan.

## COMPLETE STREETS

Complete Streets is an initiative that aims to maximize the utilization of public rights-of-way for all transportation users, regardless of age or ability. This method uses high-level policy direction to influence everyday decision-making processes in roadway design, rather than design prescription. Complete Streets is not about special projects, but about changing the approach to projects on all streets. It is an incremental approach aimed for long-term results. These policies utilize the entire right-of-way while focusing on safety, comfort, and convenience as well as cohesiveness with the context of the community. Complete Streets make it easier to cross the street, walk to shops, and bicycle to work, which in turn makes the City a better place to live.

### PUBLIC BENEFITS

Complete Streets improve safety, provide choices, reduce costs, and lead to better health and stronger economies. By considering the many different users of the roadway, streets can be designed to accommodate everyone and improve the livability of the community.

**Improve Safety** – Reduced travel speed combined with pedestrian infrastructure including sidewalks, bicycle lanes, crossings, median islands and curb extensions, all lower risk to pedestrians and cyclists.

**Provide Choices** – By building safe, comfortable, and convenient infrastructure for other modes of transportation, residents are more willing to use them.

**Reduce Costs** – By reevaluating the needs of the residents and incorporating community input at the beginning of the project, the schedule, scope, and budget can often be reduced. Narrowing the pavement area will also reduce costs.

**Improve Health** – With an aging population, older adults look to be more active. This demographic, along with kids and teens, may not be able to drive and therefore will seek pedestrian and bicycle facilities to become more active and independent.

**Strengthen Economies** – Areas that provide safe and comfortable walkability have lower commercial vacancies and higher home and office space values.

### ECONOMIC BENEFITS

Complete Streets affect the local economy in various ways. By providing convenient alternatives to driving, such as transit, walking, or biking, residents and visitors save money on transportation costs, which can then be used in other ways, such as housing, restaurants, and entertainment. Congestion costs can also be reduced if residents use alternative modes. Local businesses see the benefits in improving access to people traveling by foot or bicycle.

By increasing pedestrian and bicycle activity, businesses often see increased sales. Bicycle infrastructure can often create jobs directly through increased tourism, bicycle manufacturing, sales and repair, bike tours, and other activities. Complete Streets also spur private investment by improving the public space and making it more pedestrian- and cyclist-friendly. By revitalizing parts of the community with pedestrian-only plazas, wider sidewalks, landscaping, and traffic calming, private investors are more willing to build or redevelop residential, retail, and office buildings. In addition to private investments, property values increase with the walkability of a neighborhood.

## FUNCTIONAL CLASSIFICATION

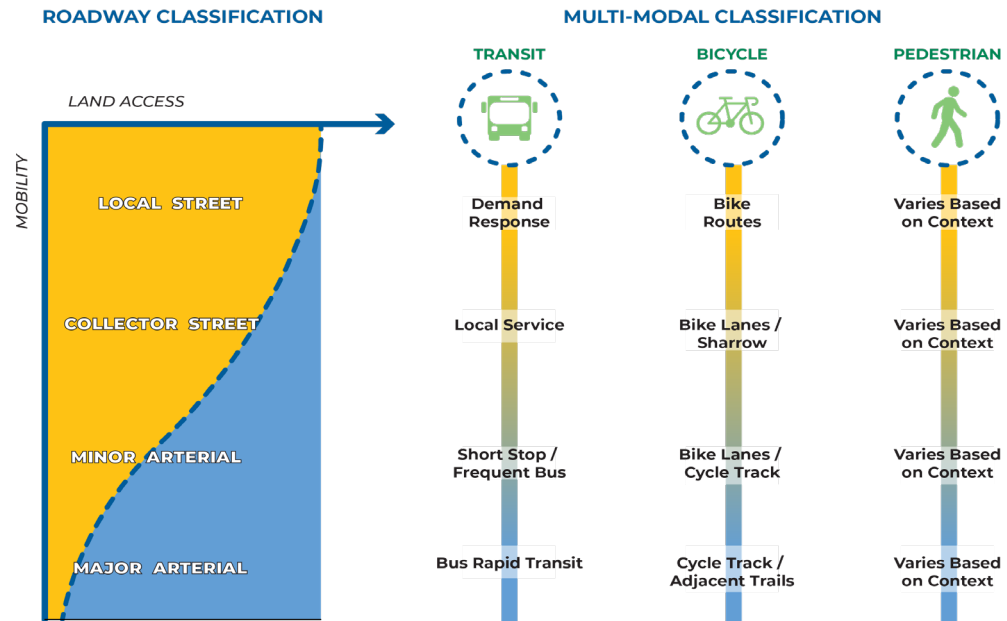
Pflugerville’s Transportation Master Plan is based upon a classification system that depicts the function of every roadway in the thoroughfare system. Roadway types generally include highways, arterials, collectors, and local streets. Their functions can be differentiated by comparing their ability to provide mobility with their ability to provide access to various locations. These different functions of each roadway type are illustrated in Map 5.1.

The functional classification of streets provides for the circulation of traffic in a hierarchy of movement from one classification to the next. Functional classes can be subdivided further into major and minor designations to further detail their role in the community.

Access and movement functions are directly related in that as speed increases, points of access decrease and vice versa. This is typically why freeways, with a high level of movement, have limited access points, whereas streets in neighborhood areas have more access points and reduced speed. Pflugerville’s current Thoroughfare Map recognizes seven general classifications for roadways based upon a hierarchical function and include:

- Urban Main Street
- Major Arterial
- Minor Arterial
- Urban 3-Lane
- Major Collector
- Minor Collector
- Local Street

**Figure 5.1.** Land Use Access and Mobility for Roadway Classifications



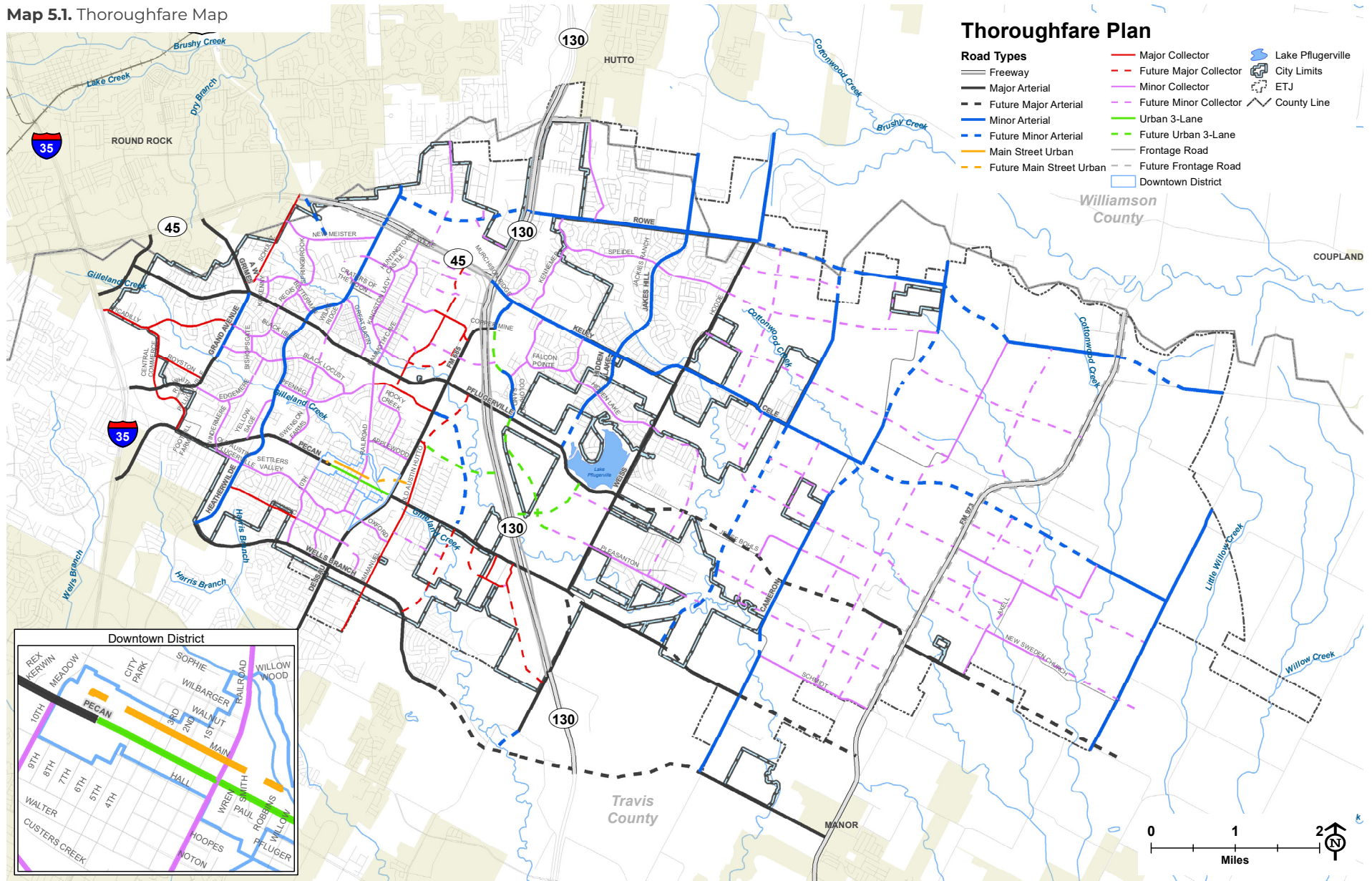
While this functional classification is important, care must be taken to emphasize the importance of connectivity within the overall network. Otherwise, emphasis on the hierarchy risks the creation of a dendritic pattern, similar to the branching pattern of trees. Unchecked, this emphasis can create choke points in the transportation system that can cause significant system-wide failure. Likewise, its emphasis leads towards automobile-centric development patterns that exacerbate traffic and discourage the use of other transportation modes.

This can be remedied through consideration of connectivity within the roadway classification network, but also within the development of

future areas. For example, regulations can incorporate connectivity ratios and ratios of access points to development size to ensure cross-connection between developments. Such an approach demonstrates the critical link between land use and transportation, and the importance of context. Emphasizing network density and connections rather than hierarchies is more sustainable long-term, and positively affects the overall transportation system as well as quality of life. It likewise can change the willingness of users to select other modes of transportation, discussed later in this chapter.



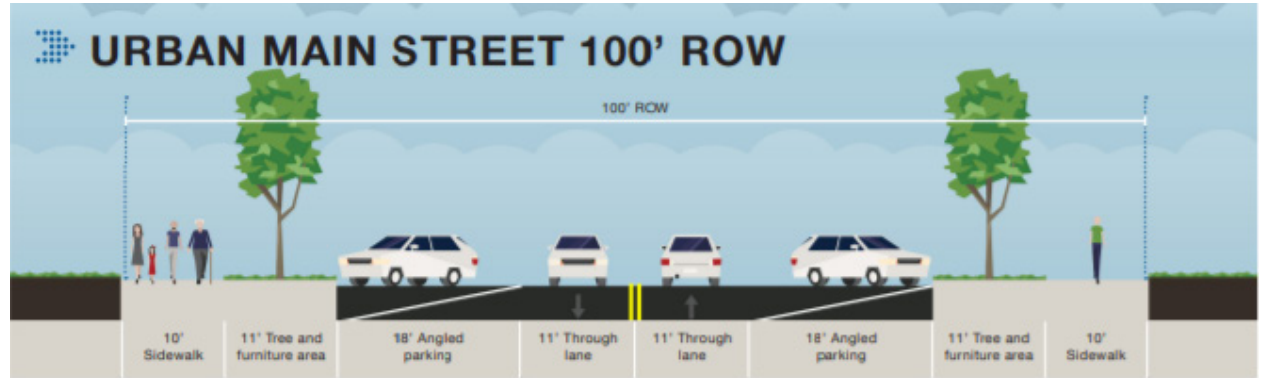
Map 5.1. Thoroughfare Map



### URBAN MAIN STREET

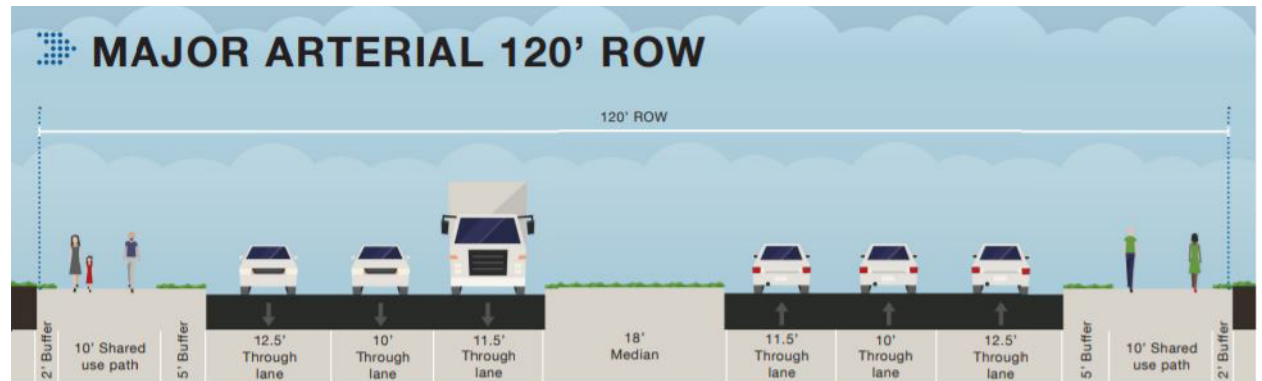
Two-lane divided roadway within 100' ROW. These streets are designed to provide angled parking.

Figure 5.2. Cross sections from Transportation Master Plan



### MAJOR ARTERIAL

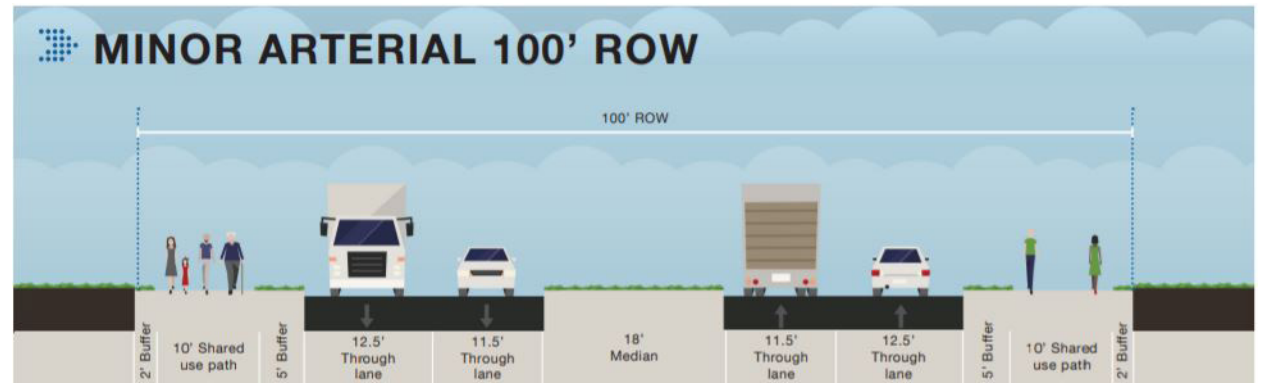
Six-lane divided roadway within 120' ROW. These streets are designed to provide a high degree of mobility, service relatively high traffic volumes, have high operational speeds, and service a significant portion of through travel.



Source: Kimley-Horn

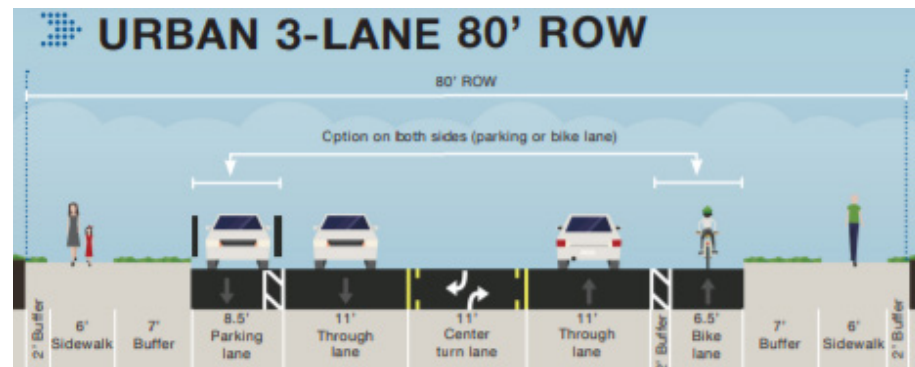
## MINOR ARTERIAL

Four-lane roadways with a similar function to the Major Arterial, but more local in nature. This section is a curbed roadway within 100' ROW.



## URBAN 80' STREET

Three-lane divided roadway within 80' ROW.



Source: Kimley-Horn

## MAJOR COLLECTOR

Connecting commercial areas to the arterial system and providing for access to local and neighborhood businesses is the primary function of a major collector. These facilities are typically three or four lane roadways containing 70' ROW and varying pavement width. This road type also typically serves to support commercial and transitional areas from residential development.



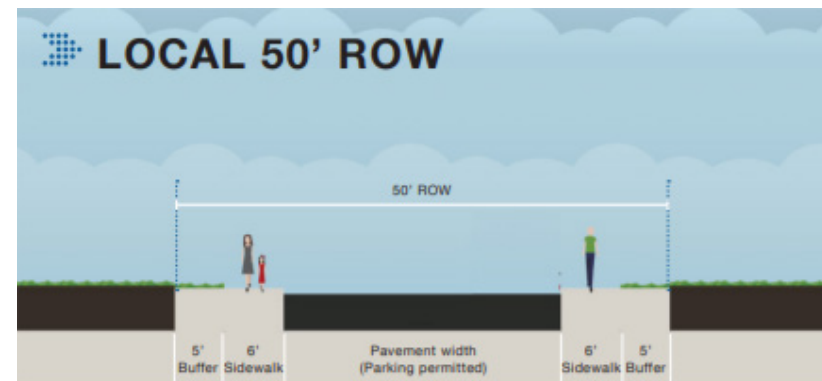
## MINOR COLLECTOR

Similar to the major collector, this road type serves to provide for collection and distribution of traffic between arterial and local streets and often serves as a spine road for neighborhoods, connecting residences to the rest of the roadway system. This two-lane roadway typically consists of approximately 35' of pavement within a 60' ROW. Minor Collectors also serve to support small-scale nonresidential type development with relatively short trip lengths.



## LOCAL STREET

The purpose of this type of facility is to primarily serve residential land uses, and typically provide access for neighborhoods to collector roadways. Local streets are contained within a 50' ROW and 30' of pavement.



## PRIORITY PROJECTS

The Transportation Master Plan highlighted eight roadways in Pflugerville that need to be improved. The highest priority projects were ranked by the public in the following order:

1. SH 45 Frontage Roads– Connection of SH 45 eastbound and westbound frontage roads
2. Kelly Ln. Phase 3 (from Moorlynch Avenue to Weiss Lane)
3. Kelly Ln. (from SH 130 to W. Falcon Pointe Boulevard)
4. E Pflugerville Pkwy.(from Colorado Sand Drive to Weiss Lane)
5. Rowe Ln. Extension (from Heatherwilde Boulevard to SH 130)
6. Cameron Rd. Realignment (from Pecan Street south to SH 130)
7. FM 685 (from SH 130 to E. Pecan Street)
8. Picadilly Dr. (from city limits to Commerce Drive)



*Crosswalk repairs in a Pflugerville neighborhood. Proactive maintenance extends the life of transportation infrastructure, improves safety and increases the comfort for road users for all transportation modes.*

# BICYCLE INFRASTRUCTURE PLAN

## DESIGN FOR ALL AGES AND ABILITIES

Pflugerville is a family-oriented community ranging from young families with children to young professionals and seniors. The City's bicycle infrastructure plan needs to focus on building a safe, comfortable and equitable bicycle network to serve all of Pflugerville's residents. The concept of building for all ages and abilities requires adopting a bicycle infrastructure plan that will implement bicycle facilities that are safe, comfortable and accessible to all age groups and abilities. This concept should serve as the foundation of the bicycle infrastructure plan. Any lesser accommodation than what is outlined in the recommendations of this chapter should require further justification.



*On-street protected bicycle lane*

FOR ALL AGES AND ABILITIES, BIKE FACILITIES SHOULD BE:

### SAFE

More people are likely to use bikes as a means of transportation and recreation when safe bicycle facilities and high-quality bikeways are provided. This means actively creating safer street conditions for cyclists so that they have a safe place to ride. Better bicycle facilities are correlated with increased safety for pedestrians and motorists.

### COMFORTABLE

Bicycle facilities that are safe, comfortable and provide low-stress levels can increase the number of people who choose to cycle as a daily commute option. Additionally, well designed bike facilities will attract underrepresented bicyclists, including women, children and seniors.

### EQUITABLE

High-quality bikeways provide safe mobility options for individuals who do not have a personal vehicle to get to work or school. Additionally, safe and comfortable street design for bicycle facilities eliminates the probability of bicycle accidents and unsafe bicycle behavior.

## BICYCLE LEVELS OF STRESS

There are two contributing factors to the levels of stress a cyclist experiences. Stress is contributed to by the physical conditions of the roadway and by the stressors the cyclist perceives to exist. People's levels of stress are most commonly compounded by vehicle traffic speed and volume.

The frequency at which a person bicycling is passed by a motor vehicle is one of the most useful indicators of the level of stress of a roadway or bike facility. Passing events increase with speed and volume, decreasing rider comfort and safety. "Designing for all Ages and Abilities: Contextual Guidance for High-Comfort Bicycle Facilities," published by the National Association of City Transportation Officials (NACTO), provides sufficient data to conclude that car traffic greater than 20 miles per hour and traffic volumes higher than 50 vehicles per direction per hour degrades cycling comfort and increases risk.

- At speeds of 20 mph, streets where daily motor vehicle volumes exceed 1,000-2,000 vehicles, frequent passing events make shared roadway riding more stressful and will deter many users.
- Between 20 and 25 mph, comfort breaks down more quickly, especially when

motor vehicle volume exceeds 1,000-1,500 ADT (Average Daily Traffic). When motor vehicle speed routinely exceeds 25 mph, shared lane markings and signage are not sufficient to create comfortable bicycling conditions.

- Motor vehicle speeds 30 mph or greater reduce safety for all streets users and are generally not appropriate in places with human activity.
- Where motor vehicles speeds exceed 35 mph, it is usually impossible to provide safe or comfortable bicycle conditions without full bikeway separation

Bicycle facilities should also take into consideration speed and volume conditions between peak and off-peak hours, which present two distinct issues that decrease comfort and safety. Data collected and published by the National Association of City Transportation Officials (NACTO), "Designing for all Ages and Abilities: Contextual Guidance for High-Comfort Bicycle Facilities," shows that levels of stress can fluctuate at different time frames throughout the day during peak and off-peak time frames. This can be used to emphasize the importance of protected bike lanes to mitigate the impacts of fluctuating conditions of the roadway and to pro-actively provide low levels of stress and high levels of comfort and safety to the cyclist.



*Protected bicycle lane in urban setting*

## SOURCES OF STRESS CHANGE THROUGHOUT THE DAY

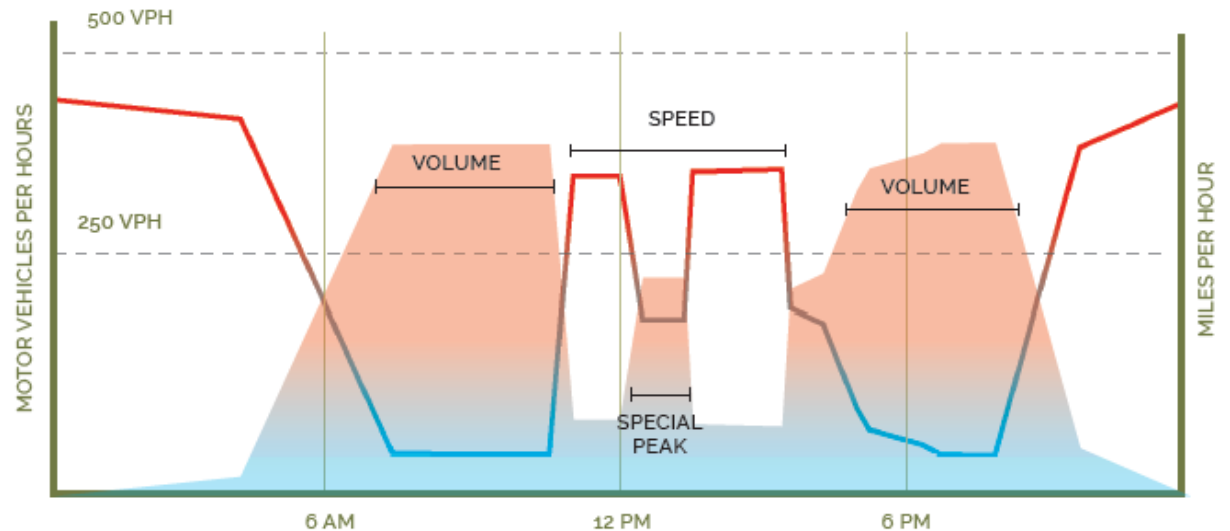
During high-volume peak periods, motor vehicle queuing prevents comfortable mixed traffic operation and increases the likelihood of bicycle lane incursion unless physical separation is present.

During off-peak periods, high volumes of speed can become an issue on streets that do not have traffic calming elements to discourage speeding.

Special peaks occur on streets that experience many peak activity periods. Schools will experience multiple peak periods, such as drop-off/pick-up times and maybe even after school events, in which pedestrian and motor vehicle volumes are high and most intense. Downtown cores and retail streets experience intensive commercial freight activity throughout the day including during off-peak times, adding importance to the creation of protected bike facilities.

These sources of stress can and should inform transportation facility design, particularly the discussion of Context-Sensitive Design (CSD) earlier in this chapter. Peaks and speed drastically alter the user experience, and context and adjacencies are critical considerations in facility design.

**Figure 5.3.** Bicycle stress throughout the day



Source: The Sources of Stress Change Throughout the Day Chart was sourced from "Designing for all Ages and Abilities: Contextual Guidance for High-Comfort Bicycle Facilities," published by the National Association of City Transportation Officials (NACTO).



## BICYCLE FACILITIES

Bicycle facilities may be planned in various street configurations. Below are different types of bike facilities that can be considered for various street types.

### BICYCLE BOULEVARDS

Bicycle boulevards, also known as neighborhood greenways, provide continuous comfortable bicycle routes through the local street network. Bike boulevards are characterized by slow motor vehicle speeds and low volumes. Bicycle boulevards may require traffic elements to reduce traffic volumes and speed. Directional markings and wayfinding signage can also contribute to rider comfort.



*Bicycle boulevard*

### BICYCLE LANES

Conventional bicycle lanes provide a designated space for cycling and offer an additional room outside the bike lane to separate the cyclist from the roadway. Buffered bike lanes are appropriate in areas where there are moderate levels of mixed traffic, but where curbside activity, traffic volumes and lane invasion are not significant sources of conflict.



*Conventional bicycle lane*

## PROTECTED BICYCLE LANES

Protected bicycle lanes, also known as separated bike lanes, use a combination of horizontal (e.g., buffer distance/stripping) and vertical separation (e.g., flex posts, parked cars, or curbs) to protect cyclists from motor traffic. The combination of horizontal and vertical separation elements can reduce most high levels of bicycle stress.

## MULTI-USE PATHWAYS

Multi-use pathways provide a continuous corridor for both cyclists and pedestrians. Multi-use pathways work best when connected to an on-street network that meets the same high benchmark of rider comfort and is designed to provide bicycle-friendly geometry. Ideally, bicycles should be separated from pedestrians where significant volumes of pedestrians and cyclists exist, but where space is limited multi-use pathways can still be valuable. The robustness of bikeway separation often scales relative to adjacent traffic stress.



*Protected bicycle lane*



*Multi-use pathway*

## PFLUGERVILLE USERS

The design of bike facilities should consider things or factors that will deter Pflugerville users from feeling or being safe and comfortable when riding. Bicycle facilities should be designed for all potential cyclists, including children, adults and seniors. Most commonly, bike facilities are designed for more confident riders and exclude many people who might otherwise ride. Such an approach is inappropriate for Pflugerville, which must seek to appeal to the broadest cross-section of users in order to align with this plan's guiding principles. Below are key characteristics of Pflugerville users and factors to consider when designing bike facilities for Pflugerville.

### DESIGNING BICYCLE INFRASTRUCTURE FOR ALL AGES AND ABILITIES

#### WOMEN

In addition to traffic stress levels, women are also concerned about personal safety. Providing a bicycle facility network that is well lit and in highly visible areas of the community could eliminate concerns of personal safety.

#### LOW INCOME RIDERS

Low income riders rely extensively on cycling or walking as their form of transportation to work or basic transportation needs. Typically, the basic infrastructure to serve this demographic is deficient in low-income

neighborhoods and exacerbates safety concerns. Bike facilities should be designed to bring safe conditions to major streets throughout the City and seek to connect people to opportunity (rather than simply recreation).

#### CHILDREN

School-age children are less visible to motorists and are less prone to detect risks, making them an essential demographic to consider for building safe bicycle facilities.

#### CONFIDENT CYCLIST

Although the percentage of highly experienced cyclists is usually low and they prefer to ride in mixed motor traffic conditions, this demographic should also be considered. Flexibility of on-street, off-street bike facilities and “sharrows” cater to this demographic. A sharrow is a travel lane that is shared by both the cyclist and the vehicle.

#### SENIORS

Bike facilities give seniors increased mobility, making it essential to design bike facilities with lower visual acuity and slower riding speeds. This population also experiences increased frequency of disabilities.

#### PEOPLE WITH DISABILITIES

People with disabilities may use adaptive bicycles, including tricycles and recumbent handcycles, which often operate lower to

the ground and have a wider envelope than most bicycles. Bicycle infrastructure is also well-suited to mobility scooters and similar equipment. Well-designed bicycle facilities provide comfortable biking conditions to provide mobility, health and independence to all abilities.

#### BIKE SHARE SYSTEMS

The bike share business model is becoming very popular in dense urban centers to link short trips to various areas of the inner City. Although bike share riders are used to a variety of stress level conditions, they will predominantly only ride in quality bikeways where there is a designated space for alternative transit users.

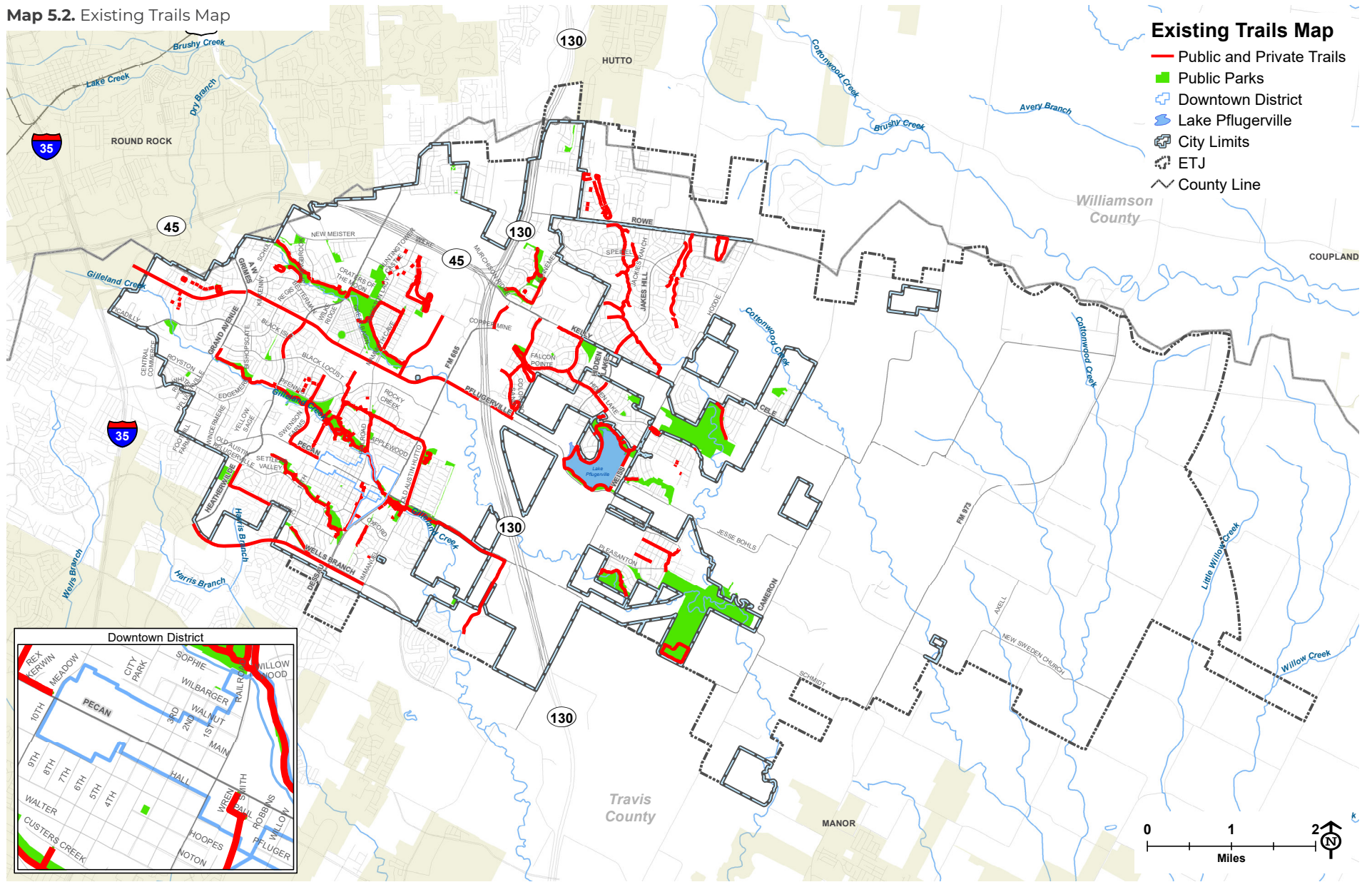
## WALKABILITY

The Future Land Use Map in Chapter 3 highlighted a variety of mixed-use locations throughout the City. The purpose of these areas is to connect neighborhoods to commercial services and increase the pedestrian connectivity throughout the City. In order to evaluate the City's success, it is important to find a way to track and measure progress. Consider incorporating the "10-minute neighborhood" policy. This concept strives to intensify the amount of land uses located in an area to create residential hubs where grocery stores, key household services, public transit service mobility options, parks, and public facilities are within a 10-minute walk from residences. More information on this topic is located on page 152.

Map 5.2 highlights the existing trail system in Pflugerville. While sidewalks also exist within neighborhoods not shown on the map, the City should add a number of on-street and off-street pedestrian and bicycle facilities to build on to its current network, while remembering that this system can and should serve as primary transportation to access opportunity and services rather than just recreation. To measure the walkability of a neighborhood, conduct a walk assessment that evaluates the streets, sidewalks, and physical activity spaces in each neighborhood. This will help find the best walking route where people feel safe and are the most common routes. The information collected from this assessment

can be used to create a walking map showing established routes and routes to improve. This approach is also unique in that non-experts can participate, making Pflugerville's residents part of the solution. The evaluation criteria for a walkability assessment is shown on page 150.

Map 5.2. Existing Trails Map



# WALKABILITY ASSESSMENT

Divide the City into smaller neighborhood study areas to conduct the walkability assessment. (See the Healthy Communities and Neighborhood Vitality Chapter for specific neighborhood districts) Print a map of the study areas to document notes for each street within the area being evaluated. The evaluator should walk each street within the study area and write all positive and negative aspects of the walk by using the study area map to document their observations. Each street evaluation should conclude with a brief description of the assets or the issues for each street. The evaluator will consider the questions below during their street evaluation.

## Sidewalks

- Is a sidewalk present? Is it wide enough?
- Is the sidewalk cracked or broken?
- Does the sidewalk have gaps or end suddenly?
- Are there trip hazards or accessibility issues?

## Safety

- Does it feel safe to walk?
- Are there areas that seem dangerous?
- Is traffic too fast?
- Is it well lit?
- Do you feel safe crossing the street?



*An example of an opportunity to improve walkability*



*Bulb out one of many designs used to slow down traffic*

## Neighborhood

- Are buildings well maintained?
- Are there vacant buildings?
- Are there places to shop?
- Are there destinations to which you would walk?

## Community and Recreation

- Are other people out walking?
- Are there places to gather as a community?
- Are there playgrounds or parks?
- Are parks unsafe or unmaintained?



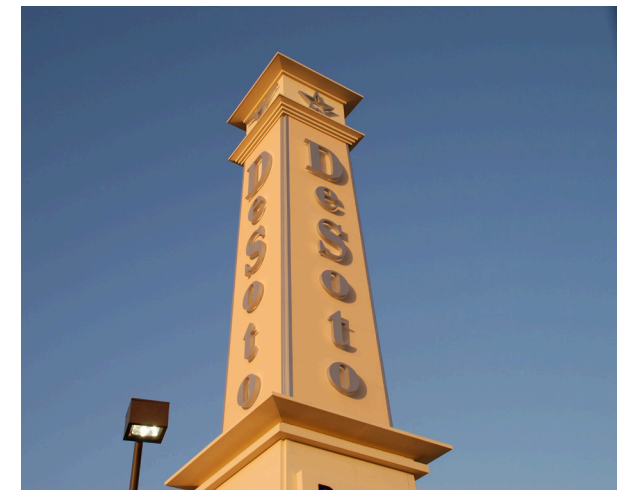
*Bollards used to separate vehicles from pedestrians*

## GATEWAYS AND BRANDING

Generally, people form initial opinions about a community based on the view as they pass through. SH 45 and SH 130 are the main corridors passing through Pflugerville, so it is important to have gateways to indicate to visitors that they have arrived in the City. Through the use of monument signs with the City's name, a positive perception of the community can be created for individuals passing through. In addition to gateways, branding elements can be implemented to aid in creating a positive perception for residents.

Multiple gateway features already exist in the City. The City should consider planning for additional monument signs at the western and eastern extents of Pflugerville Parkway, Pecan Street, and Kelly Lane creating a positive perception for those traveling east and west from surrounding cities and the region. Branding can include elements such as consistent use of distinctive materials or colors, a cohesive signage program, and a series of special places around the area.

As Downtown Pflugerville continues to grow, the City should also explore additional opportunities to incorporate wayfinding. Adding signage on Pflugerville Parkway to direct visitors to Lake Pflugerville and other destinations could attract more people to the area.



Examples of gateways and branding elements

**Figure 5.4.** 10-Minute Neighborhood Graphic

## 10-MINUTE NEIGHBORHOOD

The 10-minute walking radius is a guide used for neighborhood planning and design. Ten minutes is the ideal walking radius to reach nearby amenities like shops, services, schools and community centers. Neighborhoods that are renowned for being walkable have a few features that set them apart. These features include a strong pedestrian network with traffic calming, active streets and inclusive design. Pedestrian-friendly streets prioritize the pedestrian by slowing down vehicular traffic and focusing on the needs of the pedestrian. Lighting, wide sidewalks for multiple users, and other amenities like benches and shade structures make the pedestrian experience much more comfortable. Active streets that are full of life provide the opportunity for chance meetings, space for outdoor dining, and space to commute to work. Inclusivity is not about designing spaces specifically for one group, but about changing the approach to design so that spaces are comfortable and accessible for all people. 10-Minute neighborhoods, Complete Streets, Safe Routes to School Programs, Vision Zero, and Universal Design are all mutually reinforcing physical and social health initiatives that make it easier to cross the street, walk to shops, and bicycle to work, which in turn makes the City a better place for everyone to live.





## PUBLIC TRANSIT

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Public transit is a vital component of the transportation system, and serves a diverse demographic including students, commuters, elderly persons, and persons with disabilities. It is important to understand the existing transit demand and identify geographic and demographic areas that are currently being underserved so that new ways of expanding service can accurately be identified and acted upon. The City is in the process of evaluating the Pflugerville Pickup Pilot. This pilot program has the following goals:

- Provide a safe, reliable, efficient, and accessible transportation option for residents of and visitors to the city of Pflugerville.
- Address the mobility needs of the residents of Pflugerville
- Develop a local transit system that operates effectively and continues to develop regional transit options connecting the local community to the region.
- Pflugerville will have a regional transportation presence to ensure connectivity between emerging destinations and centers both within and external to Pflugerville and maintain a voice in regional transportation and planning cycles.
- It is recommended that a transit plan be developed which addresses the following four questions:

1. How well is transit demand currently being met?
2. What new connections and services should be provided?
3. How should transit be accommodated within Complete Streets?
4. What improvements to the Transit System for underserved communities and areas are needed?

For Pflugerville’s system to grow in the next few years, the City of Pflugerville and the transit system will need to develop a long-term strategy and determine priorities moving forward to address concerns raised by residents through surveys. With the growing population and the additional development in the City, transit will need to keep up in order to continue the optimization of people and goods within the City and regionally. As the City addresses the trade-off between increasing service frequency and/or routes, transit stops and routes should be considered from an accessibility, equity, and safety perspective. Furthermore, as the transit system grows, the City will need to contend with balancing the budget while considering costs for contractors, maintenance and service delivery options. As Pflugerville and the region continue to grow, the City should also integrate long-range planning efforts with regional efforts to leverage the location and resources in an economically competitive manner.

To help create strategic priorities with community input, the City should create a “Transit Advisory Board” to steer the future direction of transit and help implement the recommendations stated below.

The City should focus on accessibility to transit stops to enhance safety. The City should prioritize and provide pedestrian accessibility to all current transit stops, and future additional stops to ensure adequate access.

Transit is essential in the optimization of transporting people and goods. The City should focus on land use and transit integration as well as consider transit when planning for social services and other land-uses that have transit needs. For transit-dependent populations in the City, access to transit and essential social services go hand-in-hand.

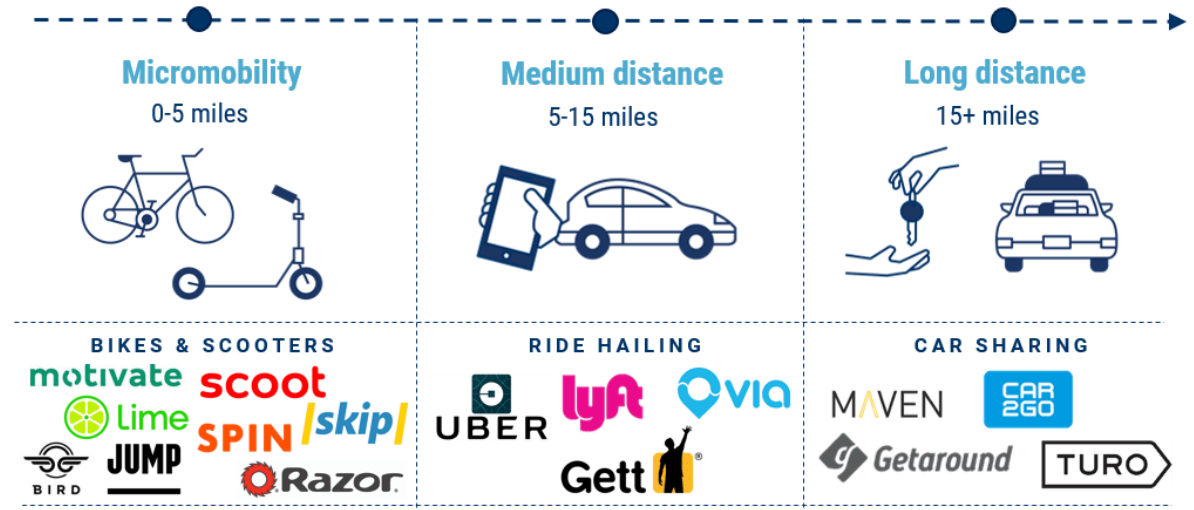
Environmental justice and equity need to be considered when planning for transit to ensure that the system adequately serves the most vulnerable populations. The City can also modify its development codes to require accommodation/provision for future transit enhancement and amenities (shelters, benches, signage, etc.).

# UNDERSTANDING DISRUPTORS AND FUTURE TRANSPORTATION TECHNOLOGIES

Disruptive technologies are those that upset existing market forces and reframe the market for a particular service, industry, and in some cases for society as a whole. Recent examples of disruptive technologies include e-commerce, Web-based broadcasting (Netflix, Hulu, Disney+), transportation network companies (Uber, Lyft), Airbnb, the smartphone, 3D Printers, and GPS navigation. Historic examples of disruptive technologies include the computer, refrigeration/air conditioning, the automobile, and television.

New transportation technologies are currently being developed that have the potential to fundamentally change how we travel, particularly in urban areas. Already transportation network companies, such as UBER and Lyft, have challenged or supplanted taxi services and now often dominate the ride hailing service market in urban areas. New technologies, such as self-driving vehicles, drone delivery services, air taxis, hyperloop rail services, micro-mobility vehicles (e-bikes, e-scooters, Segway) are all in various stages of utilization and development and have the potential to radically change how people and services will be provided in the future. Remote work utilizes existing technologies and is rapidly becoming widely accepted in the workforce, with the potential to permanently change commuting patterns.

Figure 5.5. Future Transportation Technologies



Source: CB Insights



This is an example of a long distance car sharing vehicle located near a transit stop in Austin. Both modes of transportation increase mobility options for those without a vehicle.

What is uncertain is when these technologies will be available, where these technologies will be most implementable, and how long it will take for them to be widely adopted by the public. Figure 5.6. Technology Matrix on page 155 outlines emerging technologies and their potential applicability for Pflugerville.



*This is an example of micromobility vehicles parked near a business.*

**Figure 5.6.** Technology Matrix

TECHNOLOGY	REMOTE WORK	DRONE DELIVERY SERVICES	AUTONOMOUS VEHICLES	MICRO-MOBILITY VEHICLES	AIR TAXI	HYPERLOOP
Applicability	High	High	High	Moderate	Low	Very Low
Potential Impact	Moderate	Low	Moderate	Low	Low	Very Low
Development Status	In use	Trials underway	Under development/ trials underway	In use	Under development/ trials forthcoming	Under development / trials underway
Implementation	Current	Short Term	Medium Term	Current	Medium Term	Long Term

# TRANSPORTATION GOALS, POLICY STATEMENTS, AND ACTION ITEMS

## POSITIONING PFLUGERVILLE FOR CONTINUED TRANSPORTATION SUCCESS

Several key principles were used in the preparation of the goals and policy statements to ensure the transportation network continues to serve all users in the future.

### NETWORK CONNECTIVITY

A connected network of regional facilities should be developed to foster continued growth/economic benefit as well as convenient internal circulation between neighborhoods and core community assets.

### REGIONAL TRAFFIC

Long-haul and regional traffic should be focused towards facilities designed to accommodate non-local and long-distance travel.

### A PIECE OF THE PUZZLE

This plan is one element of a coordinated transportation system to address long-range transportation needs. A comprehensive mobility plan is essential to implementation.

### A LIVING DOCUMENT

Local and regional growth should be monitored, and this chapter should be amended to proactively address mobility issues impacted by updated local plans, changing land development patterns, funding, technology, or attitudes in general towards mobility and safety.

## TRANSPORTATION GOALS AND OBJECTIVES

1. Develop new and strengthen existing pedestrian amenities.
  - 1.1. Bike and pedestrian facilities should exceed minimum standards and be designed for increased safety to fit the needs of more Pflugerville residents.
  - 1.2. Improve access for mobility impaired patrons through the installation of ADA compliant sidewalks and other facilities. This should move beyond minimums to ensure such facilities are affirming and welcoming.
  - 1.3. Bike and pedestrian facilities should be designed to serve as part of the transportation system in addition to recreational purposes.
  - 1.4. Pedestrian amenities (benches, lighting, trees/shade, landscaping, bike share and/or repair station infrastructure, etc.) should be provided along key corridors in the City.
  - 1.5. Conduct a walkability assessment to establish a baseline for walkability in the community.
  - 1.6. Consider adopting standards for new retail, office, and commercial development to provide access to parks, trails, amenities, and outdoor gathering spaces to create a unique sense of place in the development.

2. Develop 10-minute neighborhoods.
  - 2.1. Encourage a land use and development pattern that supports shorter trips to access goods, services and employment, potentially with less reliance on personal automobiles.
  - 2.2. Consider adopting standards for new development to be oriented and provide access to existing and proposed greenways to improve pedestrian access and connectivity to the community.
  - 2.3. Incorporate multimodal network design into transportation plans and establish standards for bicycle and pedestrian infrastructure supportive of 10-minute accessibility, with affirmative and welcoming design.
  - 2.4. Require local street stubs to extend though new development in order to support 10-minute neighborhoods and less the traffic impact on the arterial roadway system.
3. Enhance major corridors.
  - 3.1. Consider the creation of additional roadway corridors and innovative intersections to disperse traffic rather than relying primarily on the widening of existing corridors.
  - 3.2. Provide tools to neighborhoods without active homeowner's associations to provide improved landscape and fencing along key corridors.

- 3.3. Ensure unique branding in designated thoroughfares throughout the City to increase the perception of the community and foster a sense of place.
- 3.4. Create and implement a signage and wayfinding plan which prioritizes signage and visual standards. Guidelines should be developed to ensure consistency throughout the City.
- 3.5. Adopt a complete street policy to help define the designs that are appropriate for different streets.
  - 3.5.1. Develop major corridors using the Context Sensitive Design approach focusing specifically on corridors in the downtown area, Pflugerville Parkway, Weiss Lane, Cele Road, Cameron Road, Rowe Lane and FM 973.
  - 3.5.2. Downtown needs street standards that are designed to fit within the mixed-use districts category. These streets should be highly pedestrian-centered, with amenities like benches and shade structures.
  - 3.5.3. Consider incorporating a modern design into Weiss Lane that embraces bicycles and pedestrians while respecting the surrounding agricultural character.
- 3.6. Update roadway cross-sections to implement a complete street policy.
  - 3.6.1. Develop a set of street designs for use in compact neighborhoods/TND.
  - 3.6.2. Develop a set of street designs for use in conservation subdivisions, employing LID design practices.
- 4. Focus on sidewalk connectivity.
  - 4.1. Strategically invest in extending sidewalks along major roadways and other commercial areas where there are gaps in the sidewalk system. (e.g., F.M. 685, Pecan Street, etc.)
- 5. Expand the transit system.
  - 5.1. Continue to evaluate the potential to increase and expand transit and related infrastructure in Pflugerville and work towards implementation of transit that is responsive to the needs of the community.
  - 5.2. Consider creating a Transit Advisory Board to steer the future direction of transit and help implement recommendations.
- 6. Increase trails within the parks system and continue to acquire land to accommodate a larger trail system.
  - 6.1. Prioritize areas that fill in gaps in the existing network.
  - 6.2. Implement the Trails Master Plan and Parks Development Plan and provide for updates consistent with other master plans.
- 6.3. Ensure trails and associated amenities are ADA accessible, to the greatest extent possible.
- 7. Invest in and support the regional partnerships and efforts of the Transportation Master Plan to advance the mobility network in the City and beyond.
  - 7.1. Update and implement the Transportation Master Plan every 3 years.
  - 7.2. Continue to focus efforts on major corridors (e.g., Kelly Lane, FM 685, MoKan Corridor, Pflugerville Parkway, Rowe Lane, Pecan Street, and Weiss Lane).

