WILLIAMS DRIVE MOBILITY ENHANCEMENTS

Existing Conditions Analysis
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1 INTRODUCTION

Williams Drive is an important east-west corridor within the City of Georgetown. Its redevelopment and improvement has been a priority for the City since 2003. The corridor begins just east of I-35 at N Austin Avenue and continues northwest through the City before exiting the city limits at Jim Hogg Road. The corridor forms key intersections at N Austin Avenue, I-35, Rivery Boulevard, Booty's Xing Road / Lakeway Drive, DB Wood / Shell Road, Del Webb Boulevard, and Jim Hogg Road.

The purpose of the Williams Drive Mobility Enhancements Project is to identify short-, medium-, and long-term improvements to reduce crashes; improve mobility and capacity; and support existing and future development along the corridor. The Mobility Enhancement Project will identify multimodal improvements that preserve the safety and efficiency of the transportation system. The study area consists of approximately 5.8 miles of Williams Drive from N Austin Avenue to Jim Hogg Road as shown in **Figure 1**.

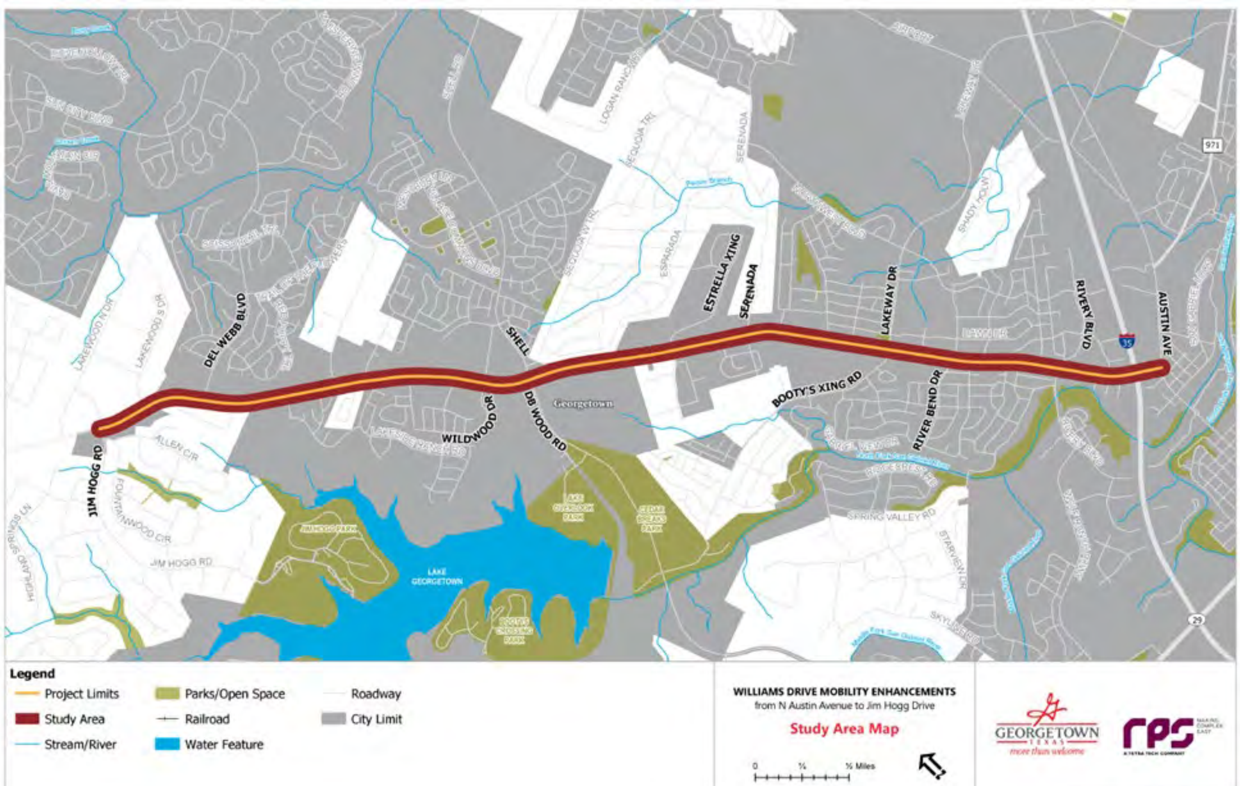

Figure 1 – Williams Drive Study Area Map

The goals of the Williams Drive Mobility Enhancement Project are to:

- Preserve public investment in existing transportation networks
- Improve access to adjacent properties
- Address the safety of all users, and minimize the frequency and severity of related crashes
- Prepare plans and specifications for construction
- Engage the public throughout the process

- Design and enhance lighting along the Williams Dr. corridor

The proposed improvements will:

- Improve safety through reduced crashes, fatalities, and injuries
- Improve traffic operations by better planning how vehicles, pedestrians, and cyclists move throughout the corridor
- Reduce congestion by improving travel time
- Improve accessibility by promoting safer travel to adjacent businesses and neighborhoods

The purpose of the Existing Conditions Analysis is to develop a baseline year of the existing conditions of the study area using the collected data. The analysis documents the corridor's existing physical and operational characteristics as well as the area's environmental constraints. Additionally, the analysis identifies existing deficiencies within the corridor with respect to roadway and intersection geometry, access management, bicycle and pedestrian infrastructure, and lighting.

The study area was divided into seven distinct corridor segments as shown in **Figure 2**. The limits for each segment are defined as follows: Segment 1 is from Jim Hogg Rd to Del Web Blvd; Segment 2 from Del Web Blvd to DB Wood Rd; Segment 3 from DB Wood Rd to Serenada Dr; Segment 4 from Serenada Dr to Lakeway Dr; Segment 5 from Lakeway Dr to River Bend Dr; Segment 6 from River Bend Dr to Rivery Blvd; and Segment 7 from Rivery Blvd to Austin Ave.

Figure 2 – Williams Drive Segment Map

2 PHYSICAL CHARACTERISTICS

2.1 Roadway Network

The existing roadway network along the Williams Drive study area consists of roadways with various functional classifications. Roadway functional classification establishes a hierarchical framework based on access and mobility, categorizing roadways into freeways, major arterials, minor arterials, collectors, and local roads/streets. This classification system ensures efficient transportation by balancing mobility and access for different travel types and land uses. The Williams Drive corridor is classified as a major arterial in the City of Georgetown's 2035 Thoroughfare Plan and as a minor arterial by the Texas Department of Transportation (TxDOT). The corridor creates major intersections at Jim Hogg Rd, Del Web Blvd, Wildwood Dr, Shell Rd / DB Wood Rd, Estrella Xing, Serenada Dr, Booty's Xing Rd / Lakeway Dr, River Bend Dr, Rivery Blvd, I-35, and Austin Ave.

The existing and planned roadways identified in the City's 2035 Thoroughfare Plan Map are illustrated in **Figure 3.** The Thoroughfare Plan proposes four new collectors along Williams Drive as well as the reclassification of Shell Rd / DB Wood Rd from a minor arterial to a major arterial.

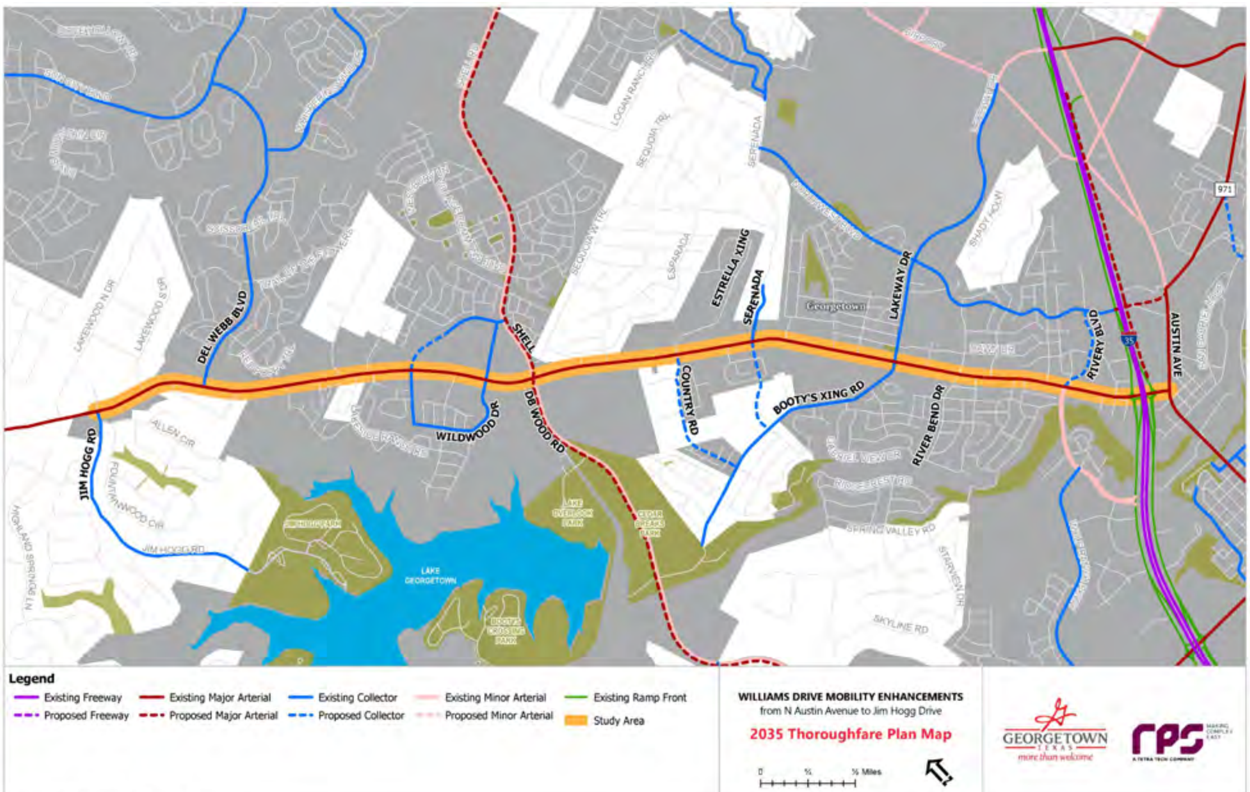

Figure 3 – 2035 Thoroughfare Plan Map

The I-35 and Williams Drive interchange is currently undergoing a major reconstruction under the Texas Department of Transportation (TxDOT) I-35 at Williams Drive Project. The project includes reconstructing the I-35 and Williams Drive interchange, adding operational improvements from North Austin Avenue to Rivery Boulevard, and extending the northbound frontage road from Williams Drive to the Lakeway Drive exit ramp. The specific improvements include:

- Reconstructing the Williams Drive interchange to a diverging diamond interchange (DDI);
- Constructing north and southbound intersection bypass lanes under Williams Drive bridge;
- Extending the northbound I-35 frontage road from Williams Drive to the Lakeway Drive exit ramp;
- Improving the existing southbound I-35 frontage road;
- Improving the Austin Avenue intersection at Williams Drive; and
- Improving bicycle and pedestrian paths along the I-35 frontage roads.

2.2 Sidewalks

Existing sidewalk data was obtained from the City of Georgetown's 2014 Sidewalk Master Plan and contained information on existing sidewalk condition such as excellent, good, passable, limited failure, failing, or not assigned (missing). The sidewalk conditions within the study area are illustrated in **Appendix A** and summarized in **Table 1**. The results indicate there are 8.2 miles of unassigned, or missing, sidewalks along the Williams Drive corridor. A review of aerial photography validated the data and confirmed the discontinuity of sidewalks along many parts of the study corridor. A preliminary review of the existing right-of-way (ROW) data revealed a large portion of the existing sidewalks are located outside the ROW on private property such as commercial and multi-family residential development.

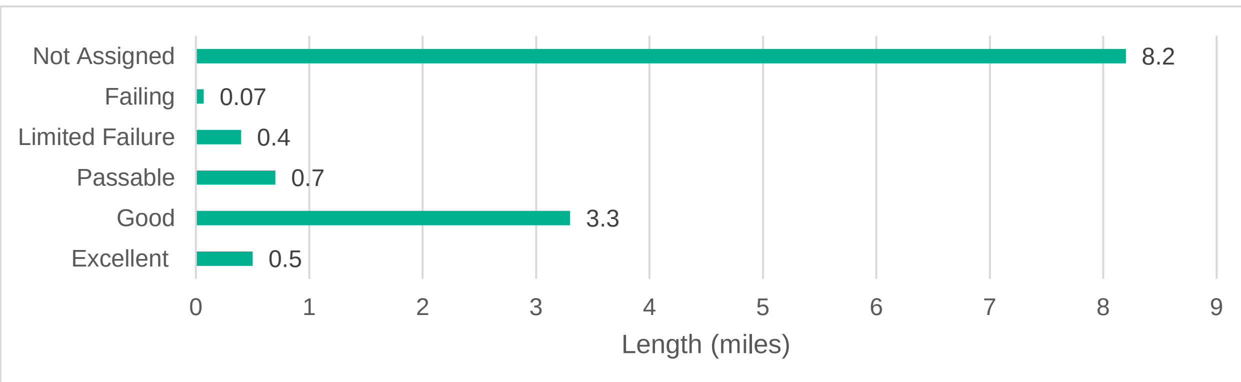

Table 1 – Existing Sidewalk Conditions

2.3 Bicycle Facilities

Bicycle network data was obtained from the 2019 Georgetown Bike Master Plan. A map of the existing and proposed bicycle facilities is shown in **Figure 4.** The current state of bicycle facilities along Williams Drive and its surrounding study area is limited, with no existing facilities on Williams Drive itself and only a small number of nearby facilities comprising a bike lane and an off-street path. The existing facilities include off-street paths along Del Webb Blvd and Austin Ave; and an existing bike lane along Rivery Blvd.

As outlined in the 2019 Bike Master Plan, the recommended improvements for the Williams Drive corridor encompass the implementation of a buffered bike lane spanning from Del Webb Blvd to Lakeway Dr. Additionally, the plan proposes the establishment of off-street paths along the eastbound side of Williams Drive between Del Webb and Lakeside Ranch Blvd, as well as along Wildwood Dr and DB Wood Rd. The plan further suggests the inclusion of off-street paths along DB Wood Rd and N Austin Ave at the intersecting streets. A comprehensive overview of the existing and proposed bicycle facilities within the study area is provided in **Table 2.**

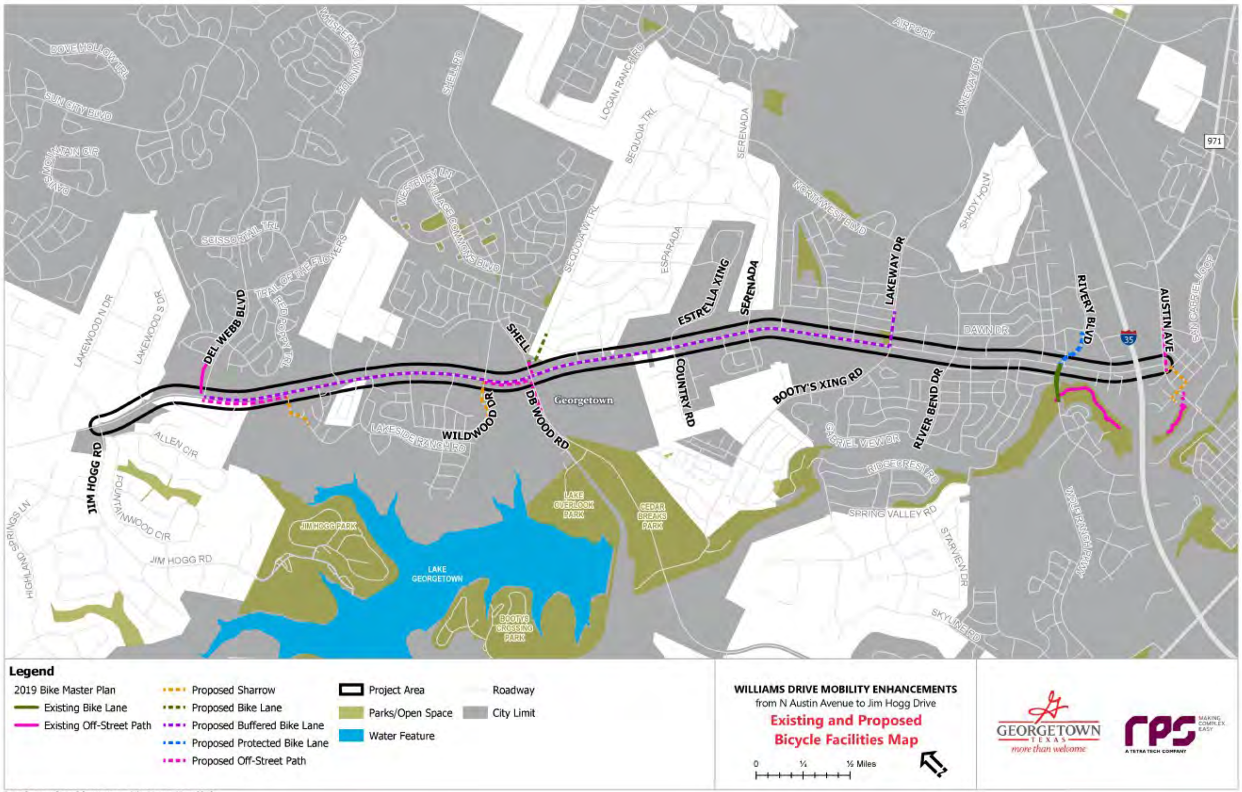

Figure 4 – Existing and Proposed Bicycle Facilities Map

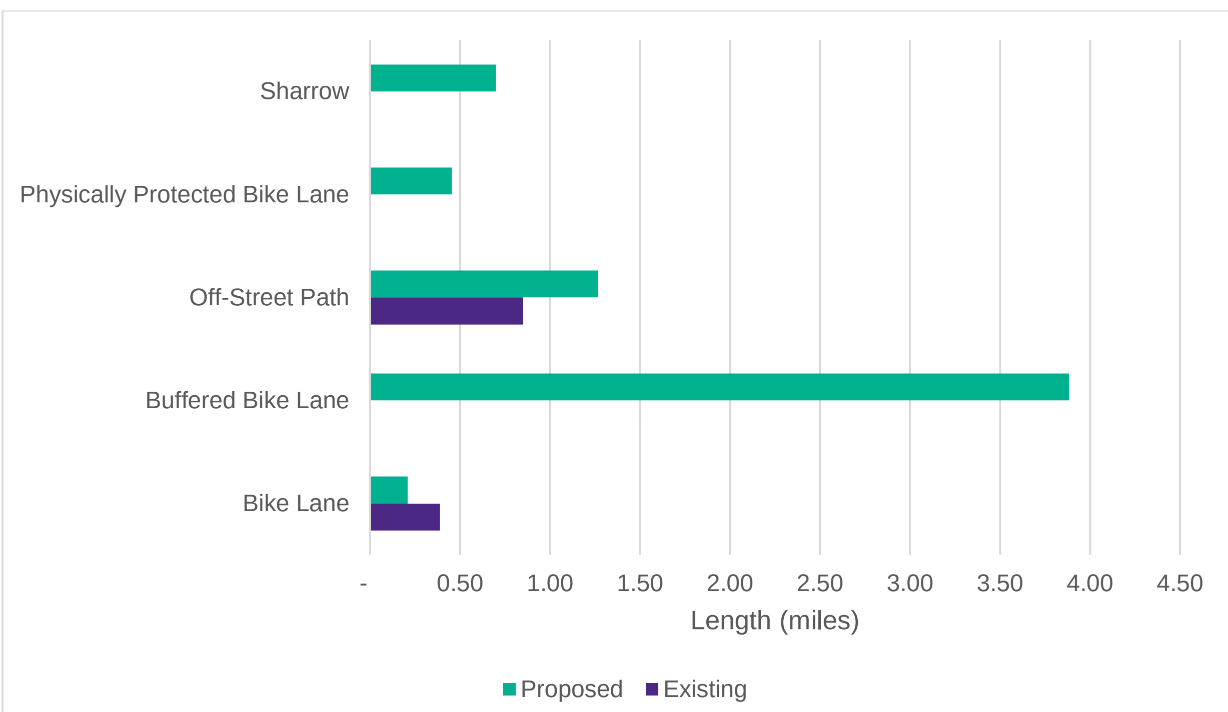

Table 2 – Bicycle Facilities by Type

2.4 Signalized Intersections

A total of 12 signalized intersections are distributed along the Williams Drive Corridor, as illustrated in **Figure 5**. These intersections are positioned at Jim Hogg Rd, Del Webb Blvd, Wildwood Dr, Shell/DB Wood Rd, Estrella Xing, Serenada Dr, Booty's Xing/Lakeway Dr, River Bend Dr, Rivery Blvd, I-35, and Austin Ave. Currently, all signals, except those situated at the I-35 interchange, are under the jurisdiction of the city. Further analysis of the prevailing traffic volumes and level of service at these signalized intersections can be found in Section 3.1 - Traffic Volumes.

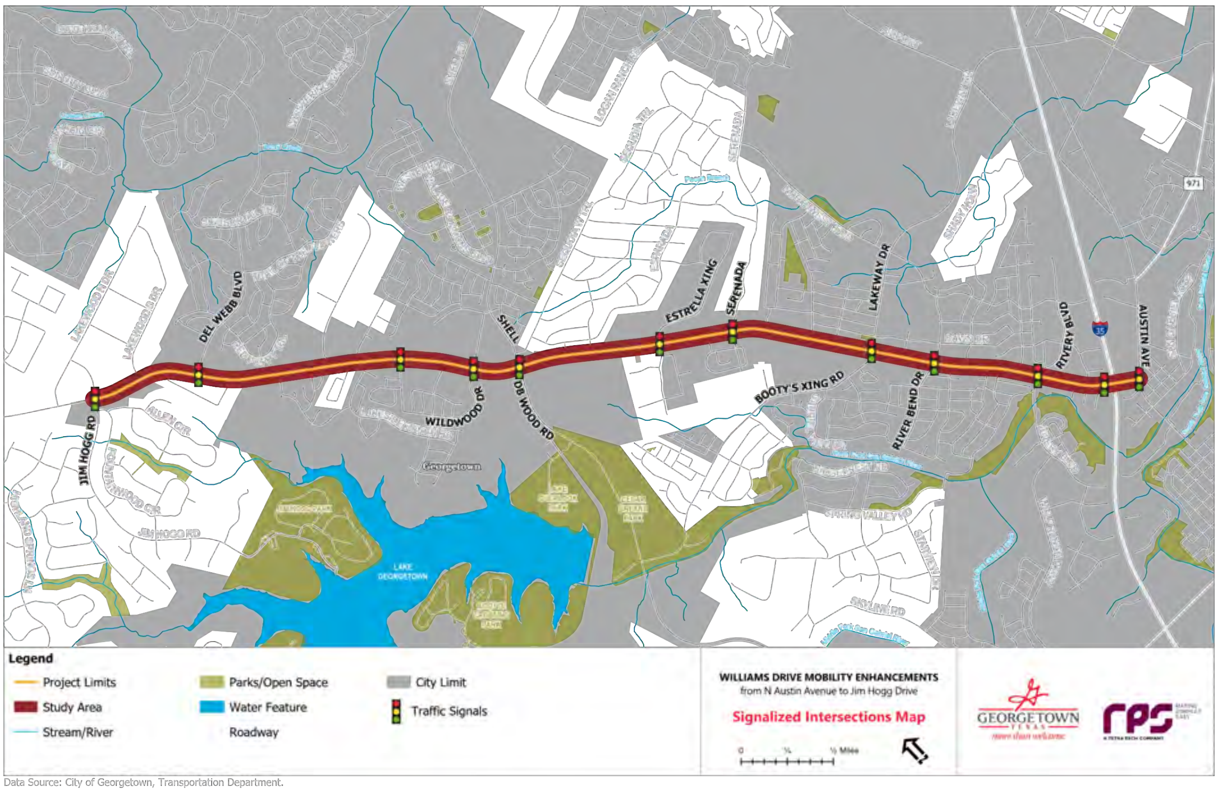

Figure 5 – Signalized Intersections Map

2.5 Existing Typical Sections

The existing typical section along the Williams Drive study area varies as the available ROW changes. Three distinct typical sections have been identified for the corridor which correspond to the segments between Jim Hogg Road and Sedro Trail; Penny Lane to Lakeway Drive; and Lakeway Drive to Austin Avenue.

The existing typical section #1 for the corridor segment from Jim Hogg Drive to Sedro Trail is illustrated in **Figure 6**. The existing ROW in this segment varies between 30'- 75' from the roadway centerline. The typical section consists of a 14' center median that functions as a two-way left turn lane, two 12' travel lanes in each direction, two 10' shoulders, and roadside drainage channels.

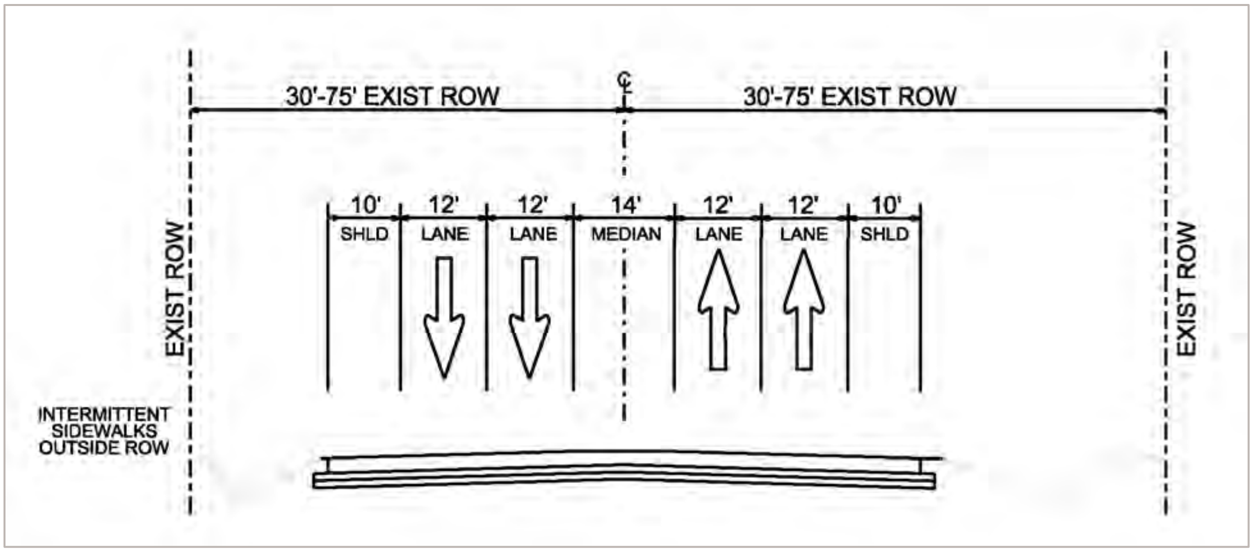

Figure 6 – (Existing Typical Section #1) Jim Hogg to Sedro Trail

The existing typical section #2 for the corridor segment from Penny Lane to Lakeway Drive is shown in **Figure 7**. The existing ROW in this segment varies between 30'- 75' from the roadway centerline. The typical section consists of a 14' center median that functions as a two-way left turn lane, two 12' travel lanes in each direction, two 10' shoulders, roadside drainage channels, and intermittent sidewalks. The primary distinction in typical section #2 is the occasional presence of sidewalks within the ROW.

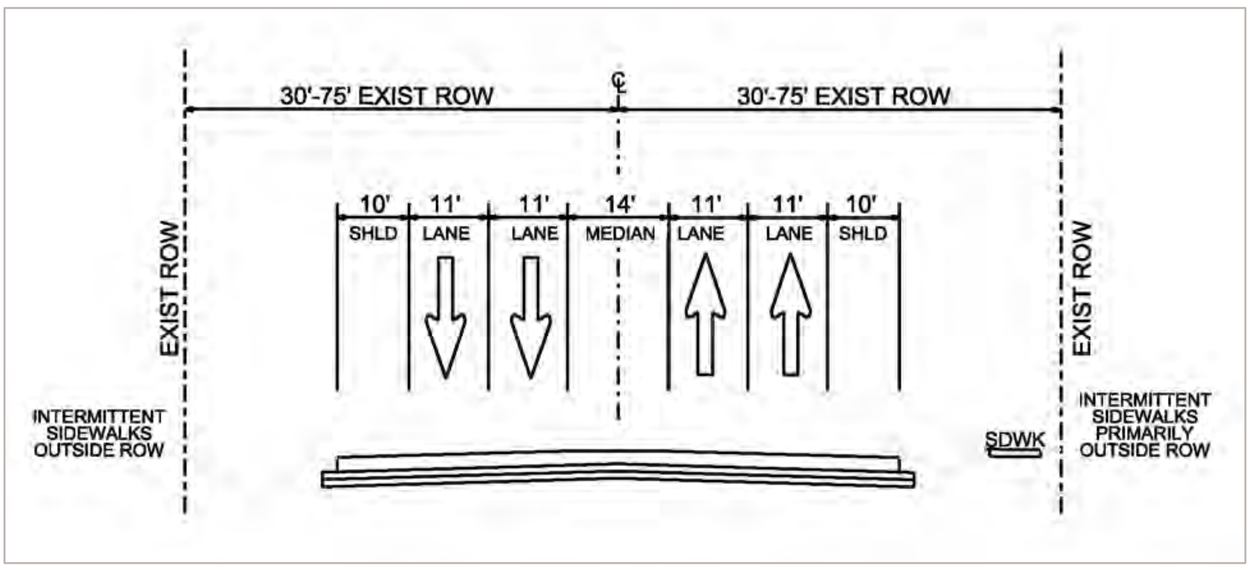

Figure 7 – (Existing Typical Section #2) Penny Lane to Lakeway Drive

The existing typical section #3 for the corridor segment from Lakeway Drive to Austin Avenue is shown in **Figure 8**. The existing ROW in this segment varies between 30'- 50' from the roadway centerline. The typical section consists of a 11' center median that functions as a two-way left turn lane, two 11' travel lanes in each direction, and two 6' sidewalks. The primary distinctions in typical section #3 include narrower medians and travel lanes, curb and gutter, and the presence of sidewalks within the ROW.

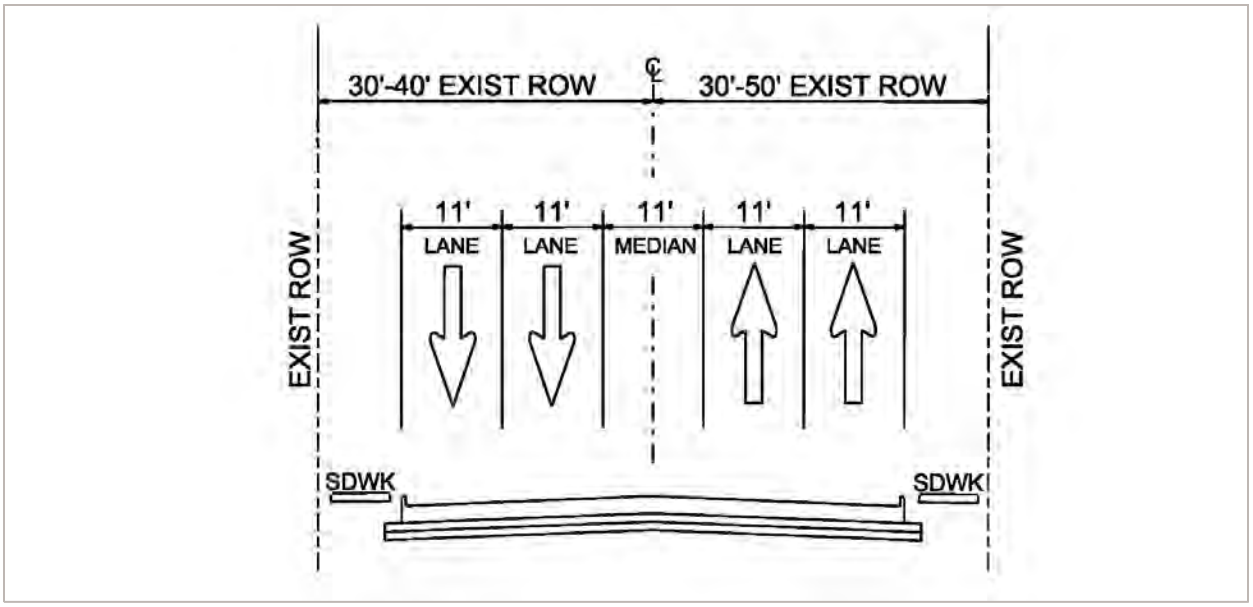

Figure 8 – (Existing Typical Section #3) Lakeway Drive to Austin Avenue

2.6 Driveways

The existing driveways along the study area were mapped and analyzed. The results are summarized in **Table 3**. The results reveal a total of 148 driveways along Williams Drive from Jim Hogg Road to Austin Avenue. Segment 1 near the western end of the corridor contains the lowest number of driveways, with a total of 11. Segment 6 near the eastern end of the corridor contains the highest number of driveways, with a total of 31. A map of the existing corridor segments is shown in **Figure 9**, while a map of the existing driveway density per segment is illustrated in **Figure 10**.

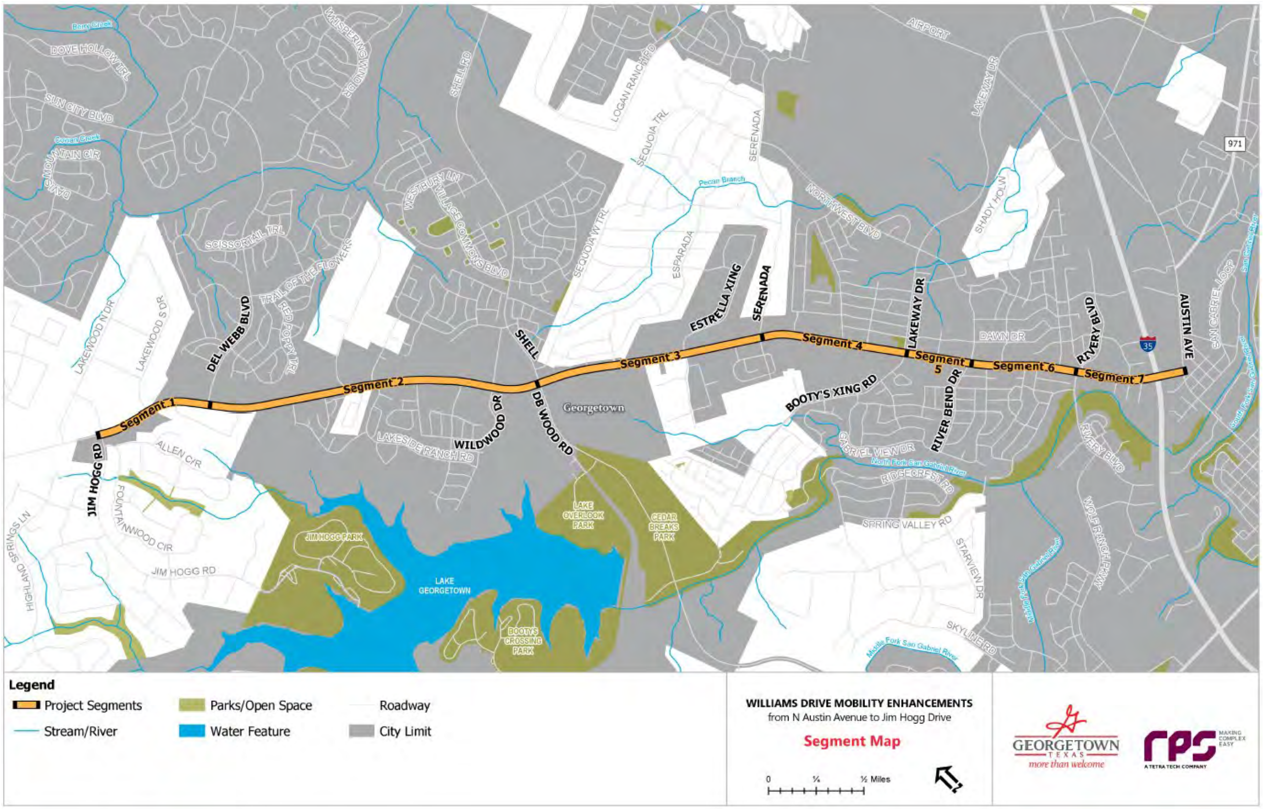

Figure 9 – Williams Drive Segment Map

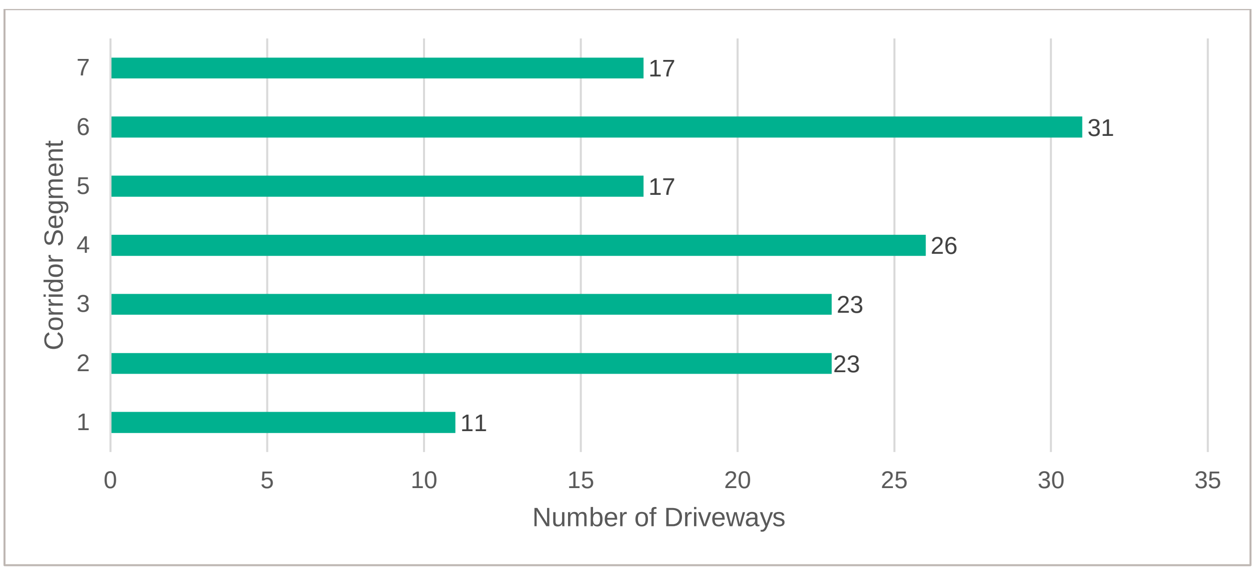

Table 3 – Total Driveways by Segment

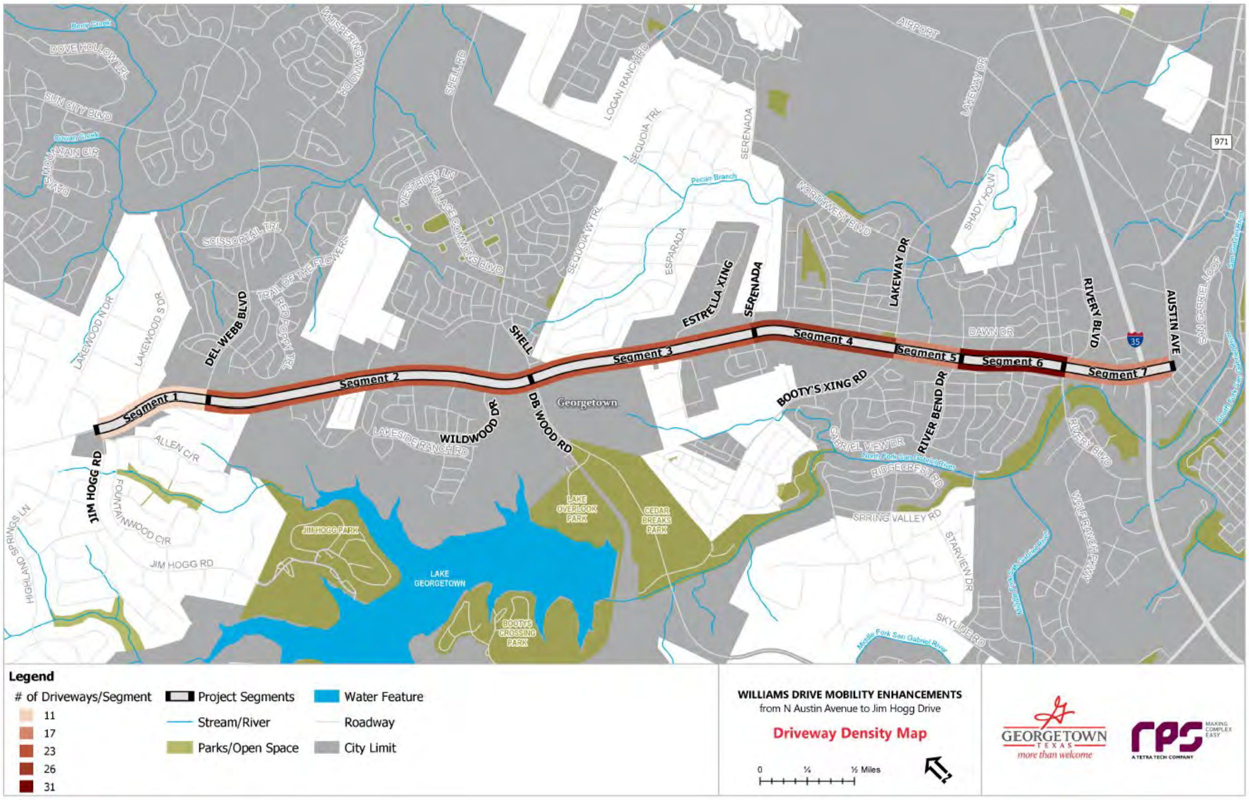

Figure 10 – Driveway Density Map

Table 4 presents a closer analysis of the driveway density data along the corridor, highlighting critical variables such as length in miles for each segment and the number of driveways per mile. The table provides a breakdown of the number of commercial and residential driveways per segment as well as the driveway density score. The top two segments with the highest commercial driveway density are segment 6 with a score of 51 and segment 5 with a score of 49. The top two segments with the highest residential driveway density are segment 7 with a score of 15 and segment 2 with a score of 6.

Segment	Limits From	Limits To	Feet	Number of Driveways	Driveways Per Mile	Driveways Per 1,000 Feet	Commercial Driveways
1	West of Jim Hogg	Del Webb	4,858	11	12	2	7
2	Del Webb	DB Wood/Shell Rd	9,187	23	13	3	13
3	DB Wood/Shell Rd	Serenada	6,336	23	19	4	19
4	Serenada	Lakeway	3,960	26	35	7	25
5	Lakeway	Riverbend	1,848	17	49	9	17
6	Riverbend	Rivery	3,010	31	54	10	29
7	Rivery	Austin Ave	2,904	17	31	6	9

Table 4 – Driveway Density

2.7 Signage

The existing roadway signage along the study area was mapped using data provided by the City of Georgetown. The maps are provided in **Appendix B**. The maps display the location and category of roadway signage along the various corridor segments. The categories of signage include advance crossing, dead end, destination, guide, keep right & left, lane use control, one-way, other, preferential lane, regulatory, route marker auxiliaries, speed limit, school speed limit, supplemental, traffic signal, temporary traffic control, two-way left turn only, warning, weight limit, scenic areas, warning, dead end, pedestrian, urban park, stop, and prohibited.

A breakdown of the conditions of the roadway signage is presented in **Figure 11**. There are a total of 321 signs along the length of the corridor of which 48% are in good condition, 28% are in critical condition, 20% are in fair condition, and 4% are unknown.

Based on the TxDOT sign spacing standards (TxDOT Sign Installation Standards), shown in **Figure 12**, and based on site observations, there is no overwhelming signage pollution issue anywhere on Williams Drive. Rather, the signage spacing, and density is sparse for some segments at present, specifically more rural areas heading toward Jim Hogg.

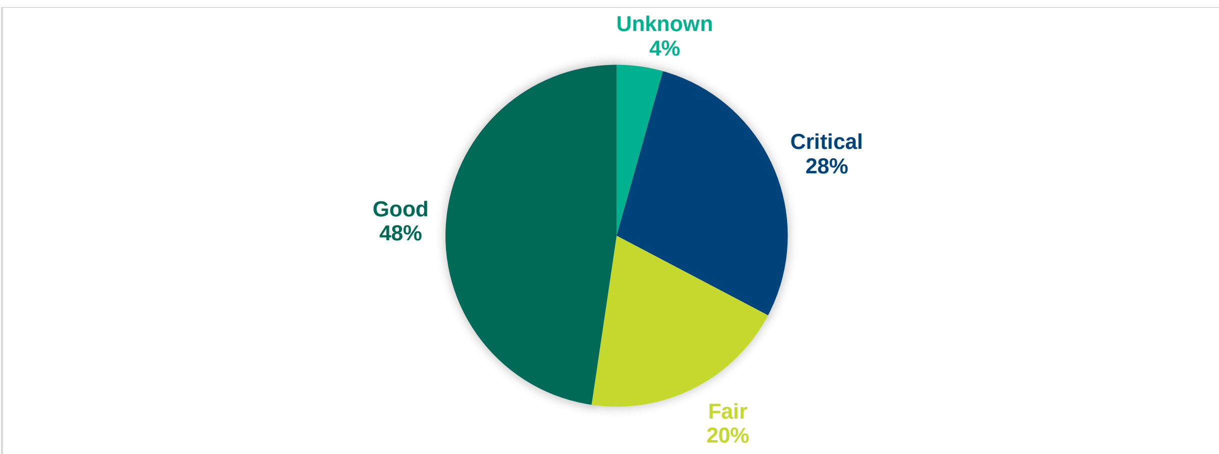

Figure 11 – Roadway Signage Conditions

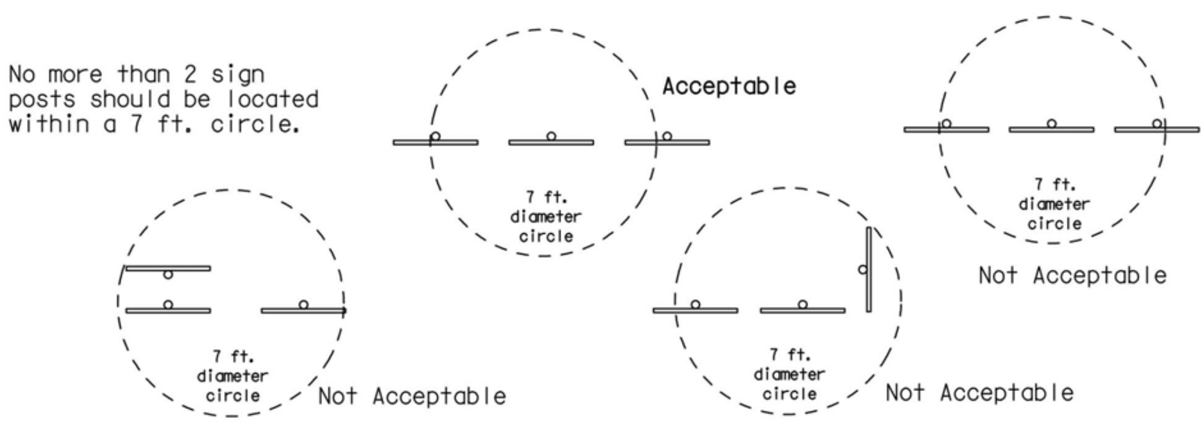

Figure 12 – TxDOT Sign Spacing Standards

2.8 Land Use

An existing land use analysis was conducted for the parcels located within a 250 foot buffer zone of the study area. Property data from the Williamson County Appraisal District was used to identify the current use of the parcels. A breakdown of the land uses along the corridor is shown in **Figure 13**. The office/retail/commercial category is the most prevalent land use type, with 46%, followed by single family with 29%, and vacant land with 25%.

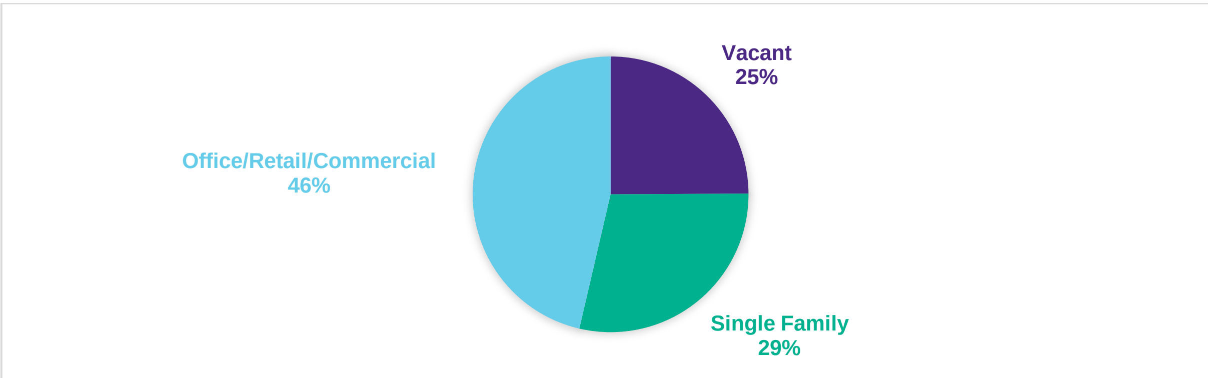

Figure 13 – Existing Land Use Breakdown

A map of the existing land use along the study area is shown in **Figure 14**. The office/retail/commercial land uses are located throughout the entire corridor, but a large concentration exist along the center and eastern half of the corridor. The vacant land is predominantly found on the western half of the corridor. Single family land use is clustered at the center and on both ends of the corridor.

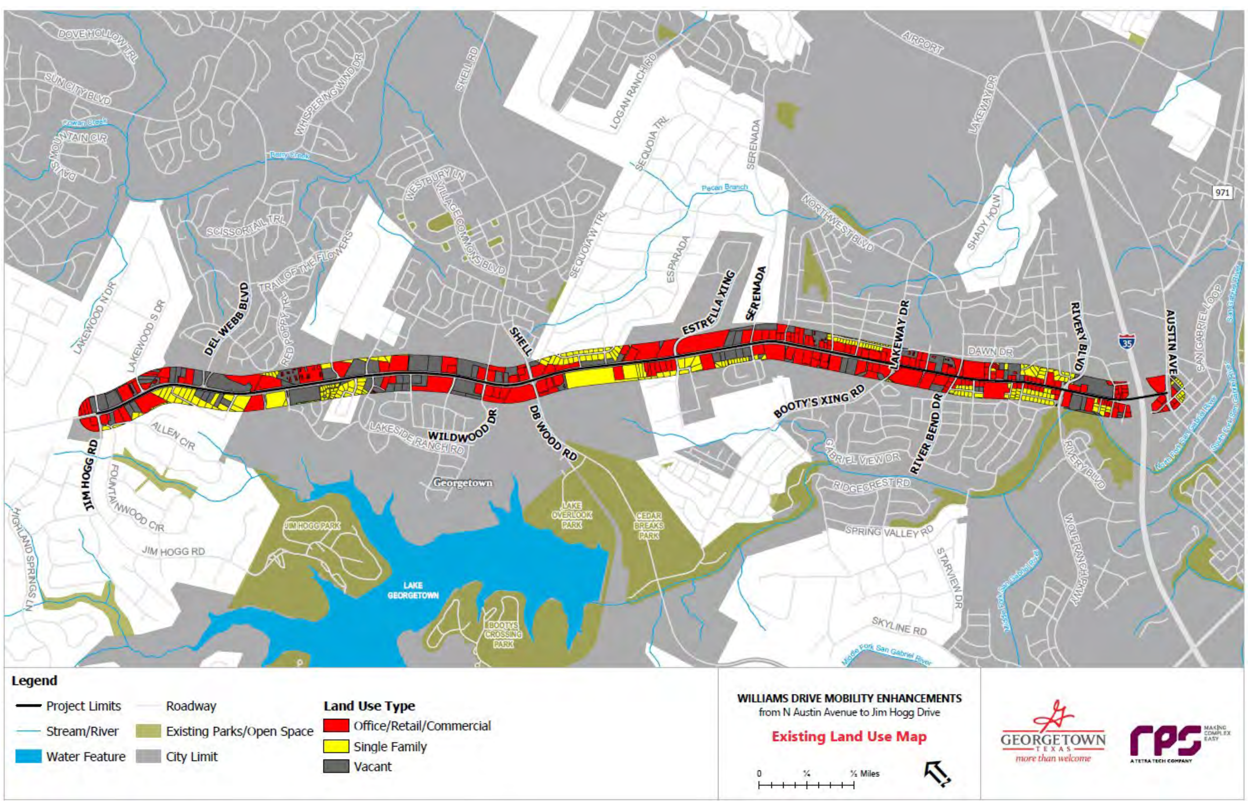

Figure 14 – Existing Land Use Map

A future land use analysis was similarly conducted for the parcels located within a 250 foot buffer zone of the study area. Future land use data collected from the City of Georgetown was used to identify the City's desired future use of the parcels. A breakdown of the future land uses along the corridor is shown in **Figure 15**. The top three future land use types are neighborhood with 33%, special area with 25%, and mixed density neighborhood with 24%.

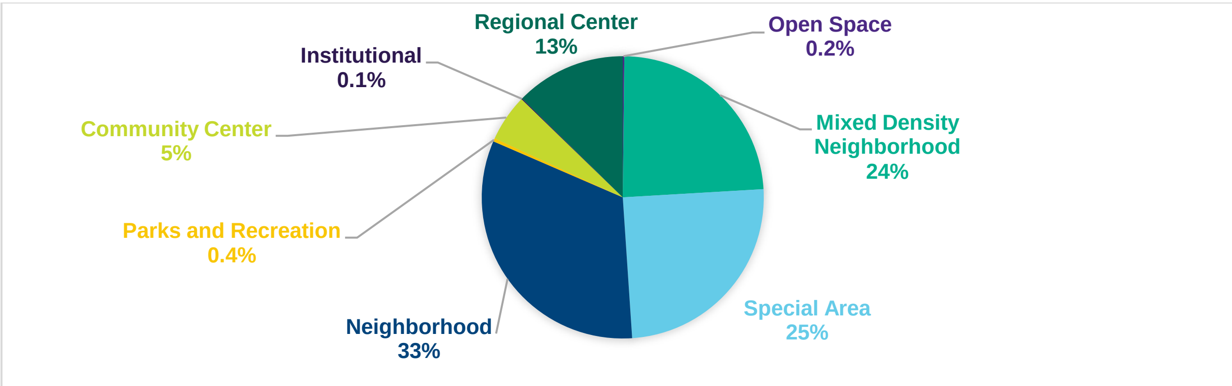

Figure 15 – Future Land Use Breakdown

A map of the future land use along the study area is shown in **Figure 16**. The neighborhood land use type is located mostly along the western end of the corridor. The mixed density neighborhood land use type is located along the western and central parts of the corridor. The special area land use type is located on the eastern side of the corridor.

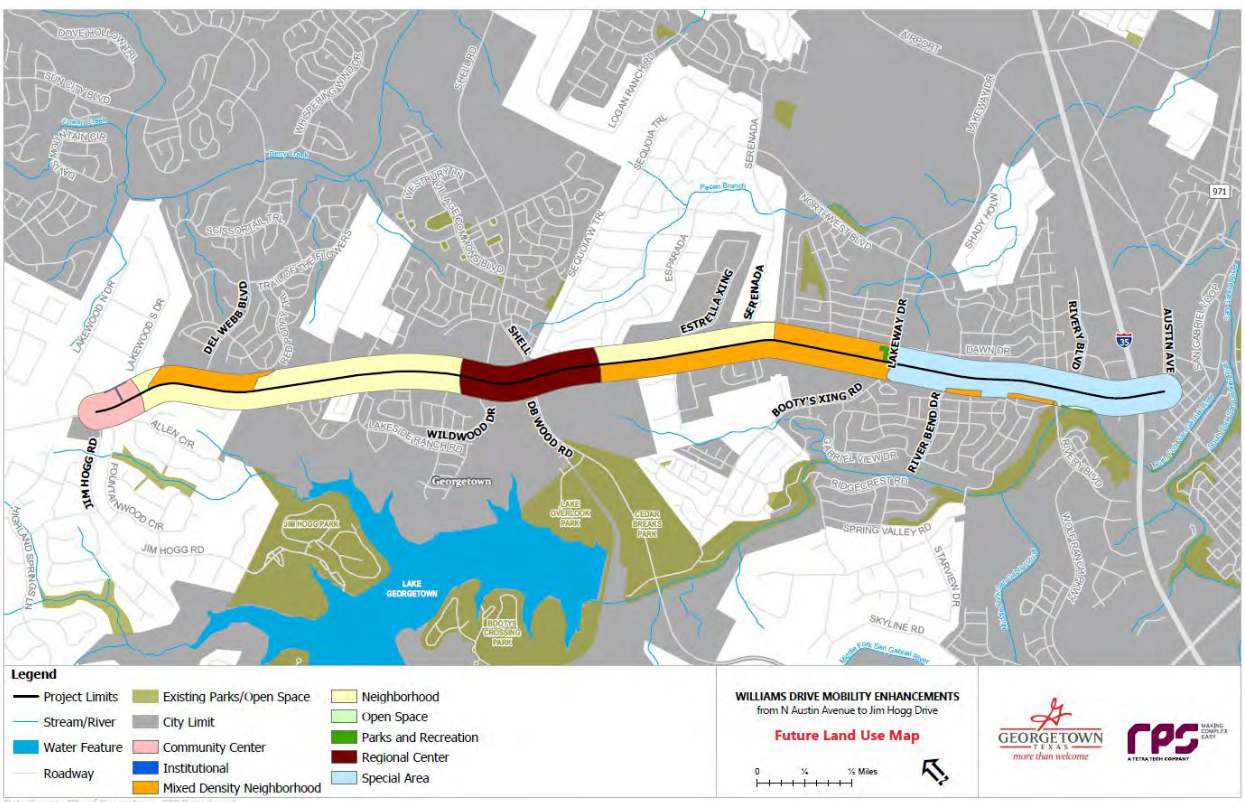

Figure 16 – Future Land Use Map

The Williams Drive Subarea, which is part of the City's 2030 Comprehensive Plan, establishes the desired future land use for the area on the eastern end of the Williams Drive corridor. This area, situated between Lakeway Drive and Austin Avenue, is envisioned as a densely urbanized area serving as an entry point to the City of Georgetown. **Figure 17** provides a breakdown of the future land use in this subarea. The top three land uses include high-density mixed housing (28%), urban mixed use (16%), and single-family (13%). A map of the subarea's future land use is shown in **Figure 18**. The land uses directly adjacent to the Williams Drive corridor include suburban mixed use, civic, small office/medium density housing, urban mixed use, and highway commercial.

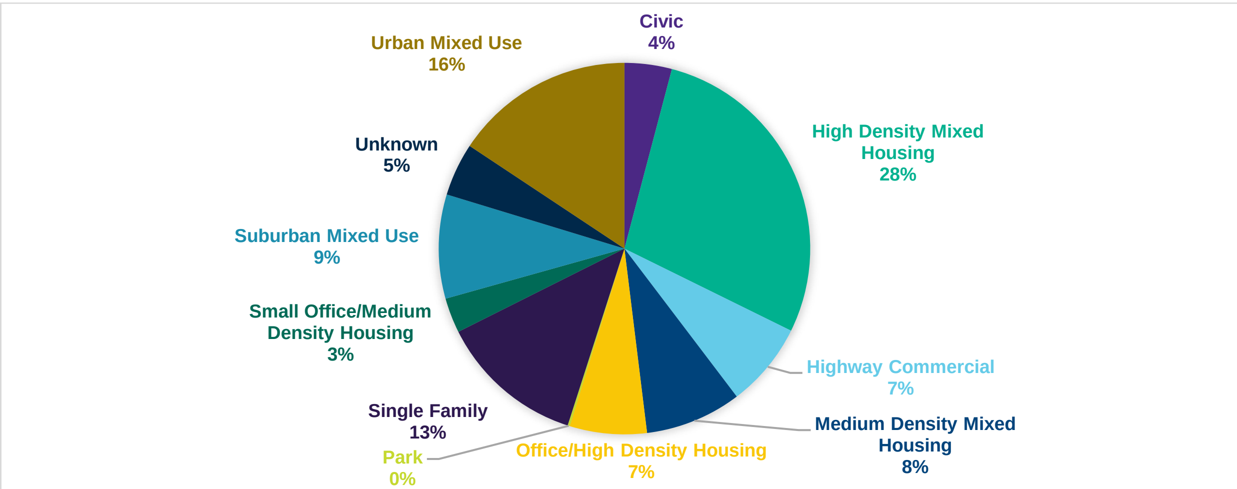

Figure 17 – Future Land Use Sub-area by Total Area

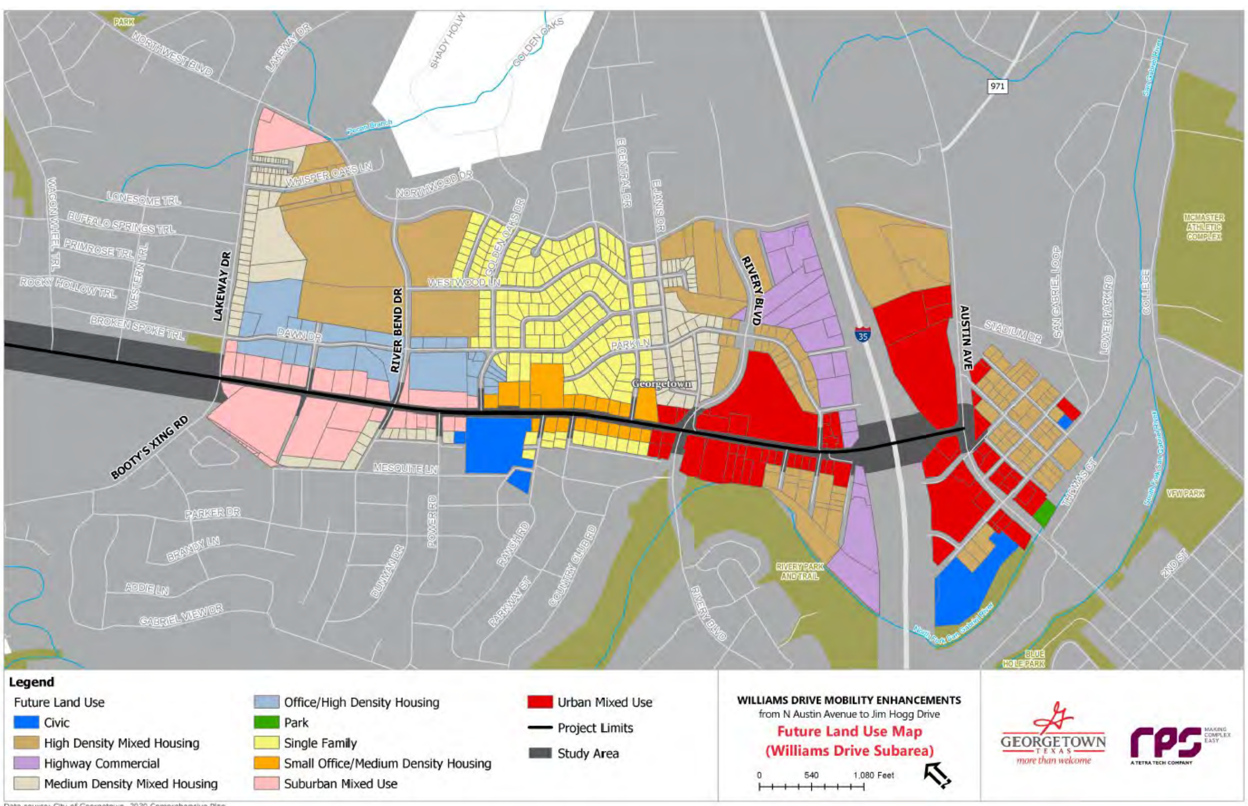

Figure 18 – Williams Drive Subarea Future Land Use Map

Figure 19 showcases the existing zoning districts along the corridor, with local commercial and general commercial dominating the area. Residential single family is located on the eastern end, while agriculture is concentrated in the central and western sections. Office space districts are primarily situated in the center-east and center-west areas.

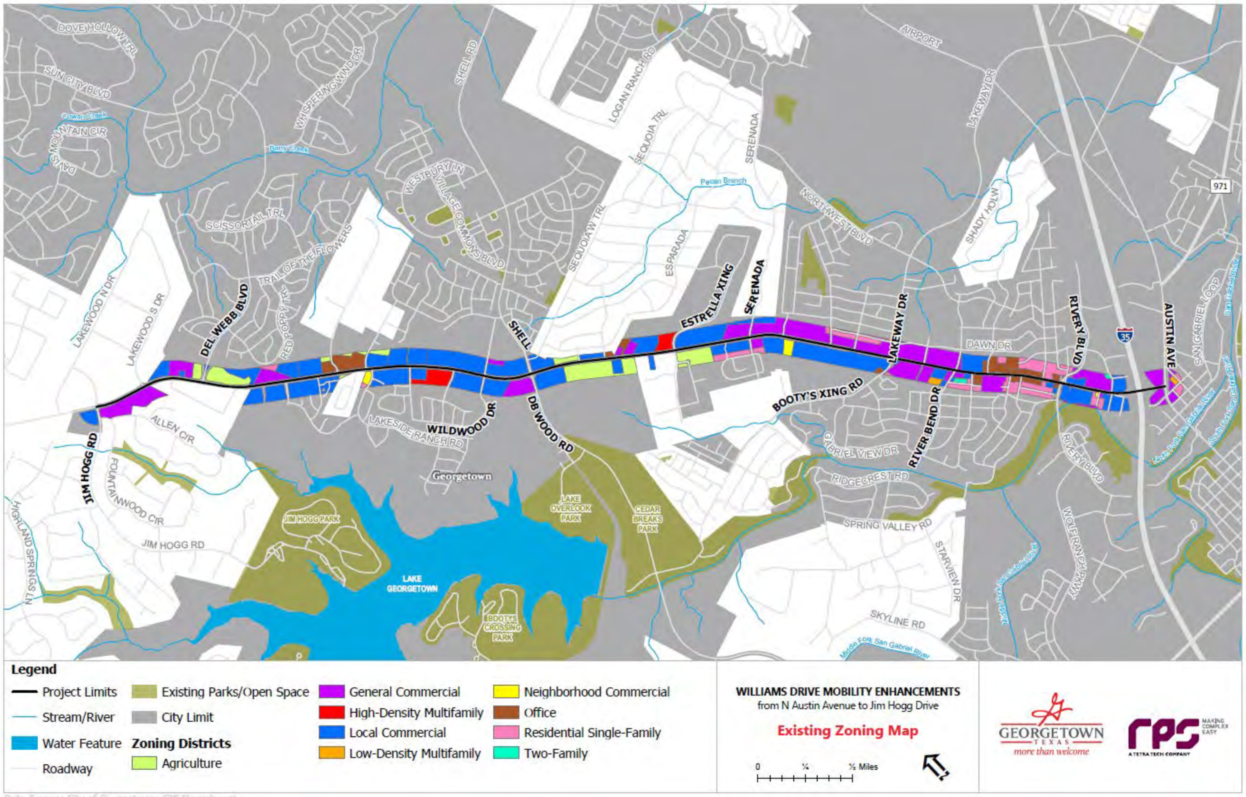

Figure 19 – Existing Zoning Map

2.9 Lighting

Street light data for the Williams Drive corridor was obtained from the City of Georgetown. Maps illustrating the location of the existing light poles are provided in **Appendix C**. An overview of the number of light posts per segment can be found in **Table 5**, totaling 50 light posts across seven segments. Notably, Segments 1 and 4 exhibit the lowest count of light posts, with one and five light posts respectively, indicating potential areas of inadequate illumination along these specific segments.

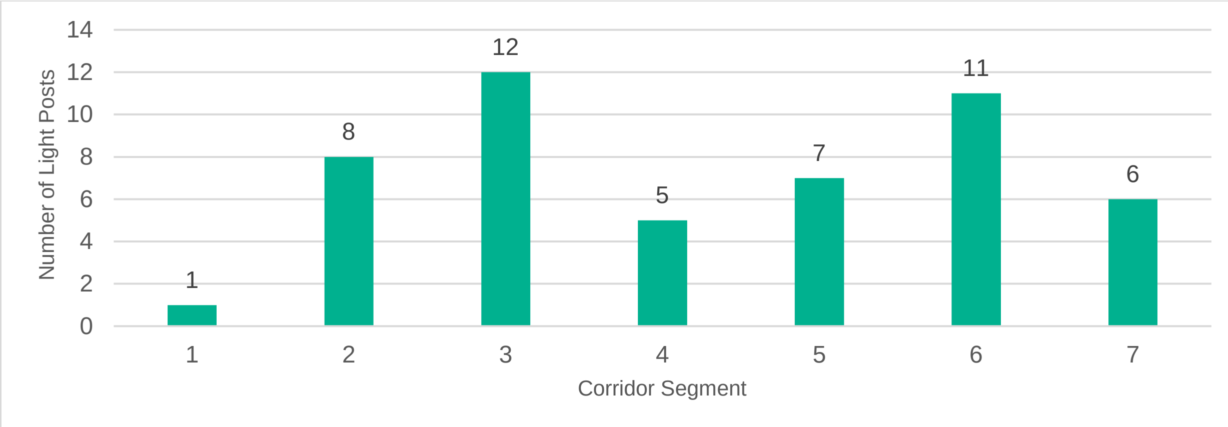

Table 5 – Total Street Lights by Segment

Existing Lighting Deficiencies

The Williams Drive corridor exhibits deficiencies in terms of illumination, which significantly impacts the visibility and safety conditions along the roadway. The existing lighting infrastructure along the corridor is insufficient in Segments 1 and 4, resulting in inadequate illumination levels during nighttime hours. Insufficient lighting can lead to reduced visibility for drivers, pedestrians, and bicyclists, increasing the risk of accidents and compromising overall safety. The deficiencies in illumination can be attributed to factors such as outdated lighting fixtures, inadequate placement and spacing of streetlights, and insufficient lighting coverage in certain areas. To address these deficiencies, it is crucial to conduct a comprehensive illumination assessment, identify areas with inadequate lighting, and implement appropriate lighting upgrades and improvements. This may include the installation of modern lighting fixtures, adjustment of streetlight placement and spacing, and consideration of additional lighting sources to ensure proper illumination levels along the Williams Drive corridor. By addressing the deficiencies in illumination, the corridor can enhance visibility, improve safety conditions, and provide a more comfortable and secure environment for all roadway users.

2.10 Utilities

There are 13 types of existing utilities located within the study area as shown in **Table 6**. Maps illustrating the locations of each are provided in **Appendix D**. The utilities and their function are described in further detail below.

No.	Utility Type	No.	Utility Type
1	Water System Valves	8	Storm Open Drains
2	Water Network Structures	9	Storm Culverts
3	Water Fittings/Wastewater Fittings	10	Pressurized Mains
4	Storm Inlets	11	RAW Waterlines
5	Storm Discharge Points	12	Water Lateral Lines
6	Manholes	13	Water Mains /Gravity Mains
7	Catch Basins		

Table 6 – Corridor Utility Types

1. Water system valves are essential devices used to control the flow, pressure, and direction of water within a water distribution system.
2. Water network structures refer to the physical components, such as pipes, pumps, storage tanks, and treatment facilities, that collectively form a system for the distribution and management of water resources.
3. Water and wastewater fittings are specialized components used to connect, redirect, and control the flow of water and wastewater within a plumbing system, ensuring proper functionality and efficient distribution.
4. Storm inlets are openings or structures located along streets or curbs that collect and divert stormwater runoff into the underground drainage system to prevent flooding and ensure proper water management.
5. Storm discharge points are designated locations where stormwater is released from drainage systems and directed into natural water bodies, such as rivers, streams, or retention ponds, to prevent excessive accumulation and potential flooding.
6. Manholes are access points in underground utility networks, typically constructed with a removable cover, providing entry for maintenance, inspection, and repair of sewer lines, stormwater systems, or other underground infrastructure.
7. Catch basins, also known as storm drains or stormwater inlets, are structures located along roads or pavements that collect and remove surface water runoff, preventing flooding and directing it to the underground drainage system.
8. Storm open drains are channels or ditches designed to collect and channelize stormwater runoff, typically found in open spaces or alongside roadways, facilitating its flow and preventing water accumulation.
9. Storm culverts are structures or pipes installed beneath roadways, railways, or embankments to allow the passage of stormwater runoff, facilitating its flow and preventing water accumulation.
10. Pressurized mains are underground pipes within a water distribution system that deliver water under pressure to consumers, ensuring a consistent and reliable water supply throughout the network.
11. RAW waterlines are pipelines that transport untreated or minimally treated water from its source, such as a river or reservoir, to water treatment facilities for purification and distribution to consumers.
12. Water lateral lines, also known as service lines, are small pipes that connect individual properties to the main water supply, delivering treated water for residential or commercial use.
13. Water and gravity mains are large pipes within a water distribution system that transport water under gravity flow or with the assistance of pumps, respectively, ensuring the delivery of water to various parts of the network.

3 OPERATIONAL CHARACTERISTICS

3.1 Traffic Volumes

Annual Average Daily Traffic (AADT) data was collected from TxDOT's Traffic Count Database System (TCDS). **Figure 20** displays the 2021 AADT at five points along the Williams Drive Corridor, with AADT measurements ranging from 33,623 east of the Shell Rd/DB Wood Road intersection to 26,067 west of the Austin Ave intersection. **Figure 21** displays the estimated 2023 AADT based on peak AM and PM 12-hour traffic counts.

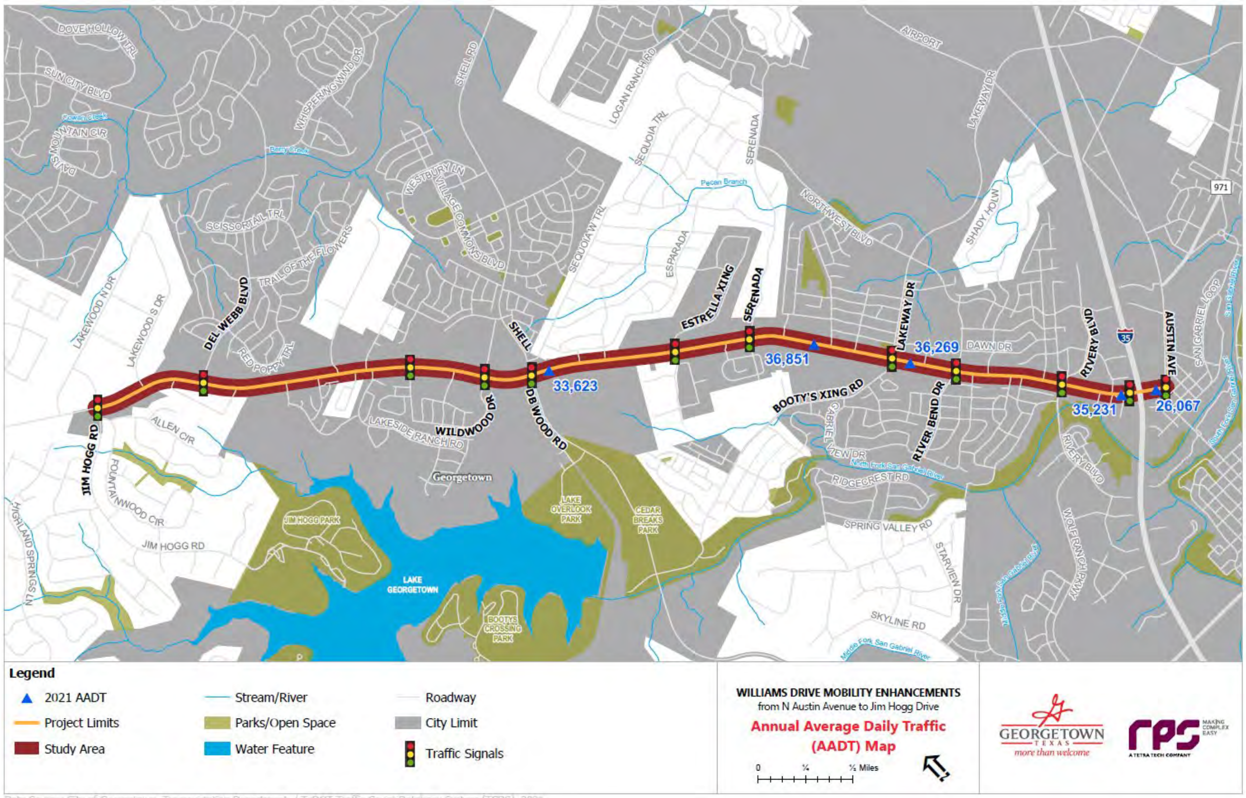

Figure 20 – Annual Average Daily Traffic (AADT) Map

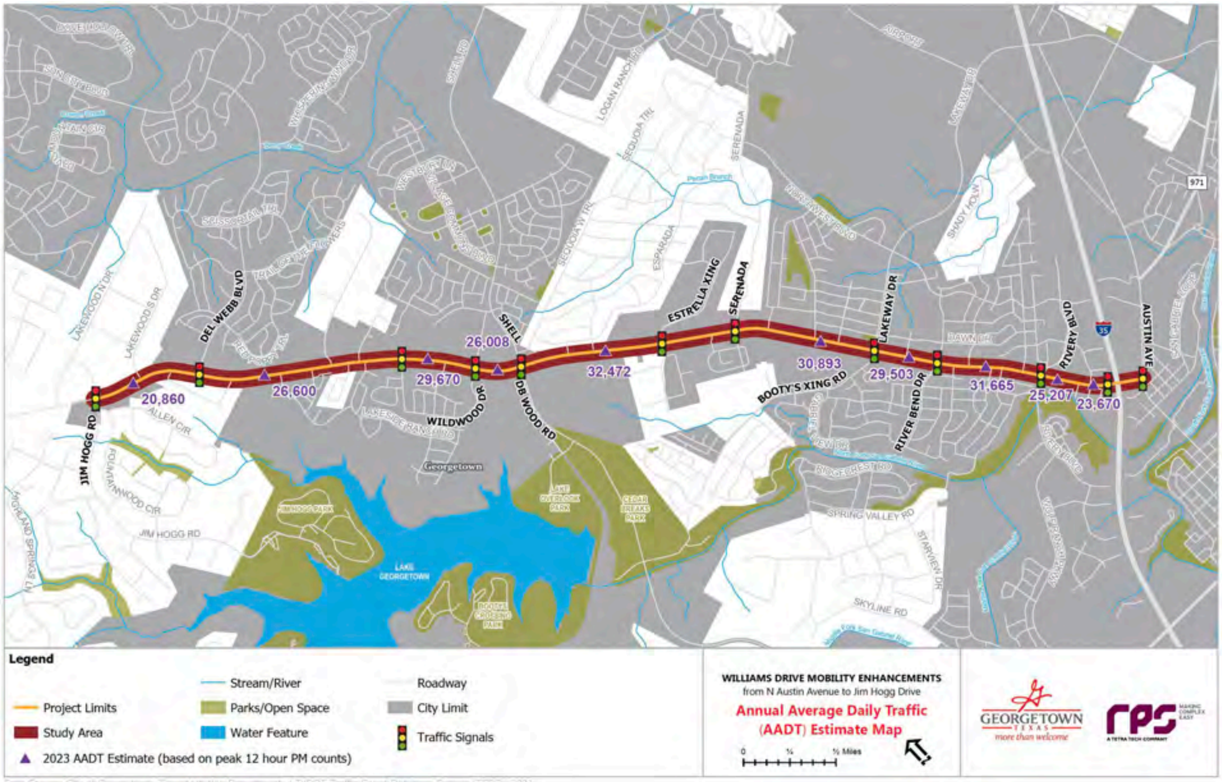

Figure 21 – Annual Average Daily Traffic (AADT) 2023 Estimate Map

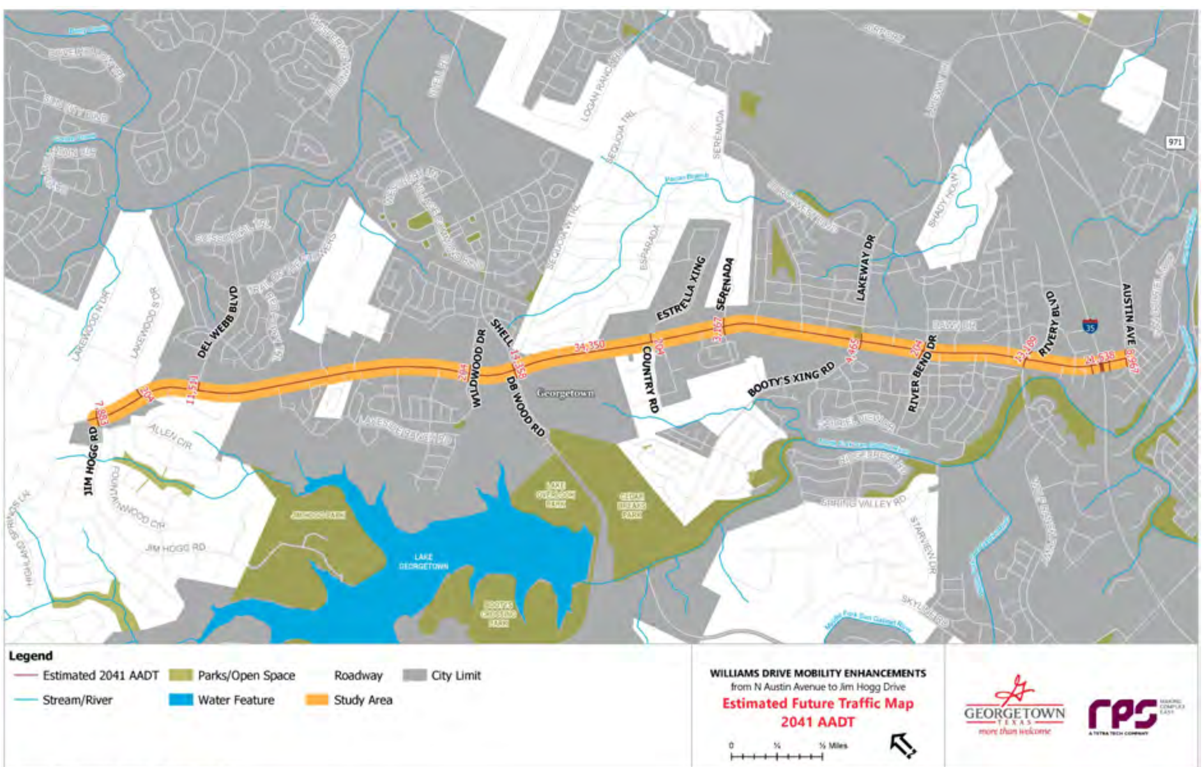

Figure 22 – Estimated Future Traffic Map (2041 AADT)

Figure 22 presents TxDOT's total estimated 2041 AADT for roads in the study area, with Williams Drive from Jim Hogg to I-35 projected at 37,370 vehicles daily and the I-35 interchange at 21,538. Major crossroads experience average daily traffic ranging from around 200 to 11,000.

			Existing 2023 AM		Existing 2023 PM	
ID	**Intersection**	**Control Type**	**Delay (veh/sec)**	**LOS**	**Delay (veh/sec)**	**LOS**
101	Williams Dr at Riverside Dr	Stop	32.6	D	45.6	E
102	Williams Dr at Cedar Lane	Stop	14.9	B	49.1	E
103	Williams Dr at Rivery Blvd	Signal	23.6	C	46.6	D
104	Williams Dr at Riverbend Dr	Signal	33.7	C	34.2	C
105	Williams Dr at Booty's Crossing	Signal	28.1	C	43.1	D
106	Williams Dr at Deer Haven Dr	Signal	101.5	F	81.8	F
107	Williams Dr at DB Wood Rd	Signal	59.1	E	48.5	D
108	Williams Dr at Wildwood Dr	Signal	24.5	C	33.7	C
109	Williams Dr at Woodlake Dr	Signal	37.0	D	24.2	C
110	Williams Dr at Penny Ln	Stop	21.3	C	25.8	D
111	Williams Dr at Del Webb Blvd	Signal	43.8	D	20.6	C
112	Williams Dr at Jim Hogg Dr	Signal	43.1	D	37.2	D

Table 7 – 2023 Intersection Level of Service

A level of service (LOS) analysis was conducted for the major intersections along the study area using existing traffic volumes. **Table 7** displays the results from the analysis. **Figures 23 and 24** display the existing LOS for intersections during the AM and PM peak hours, respectively. Most design or planning efforts typically use service flow rates at LOS C or D, to ensure an acceptable operating service for facility users. In the AM peak hour, the results indicate the intersections located at DB Wood Rd/Shell Rd and Deer Haven Dr/Serenada Dr are operating over capacity (E-F). In the PM peak hour, the results indicate the intersections located at Deer Haven Dr/Serenada Dr, Riverside Dr, and Cedar Dr are operating over capacity (E-F).

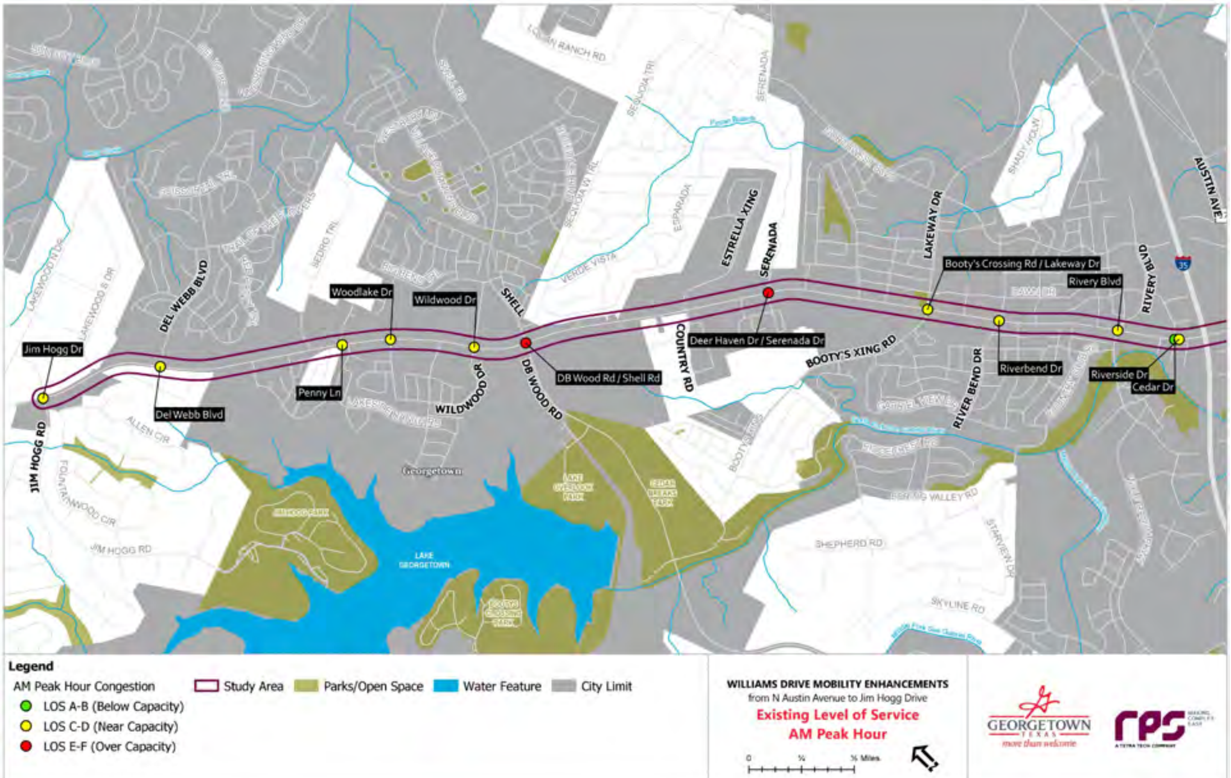

Figure 23 – Existing Level of Service Map (AM Peak Hour)

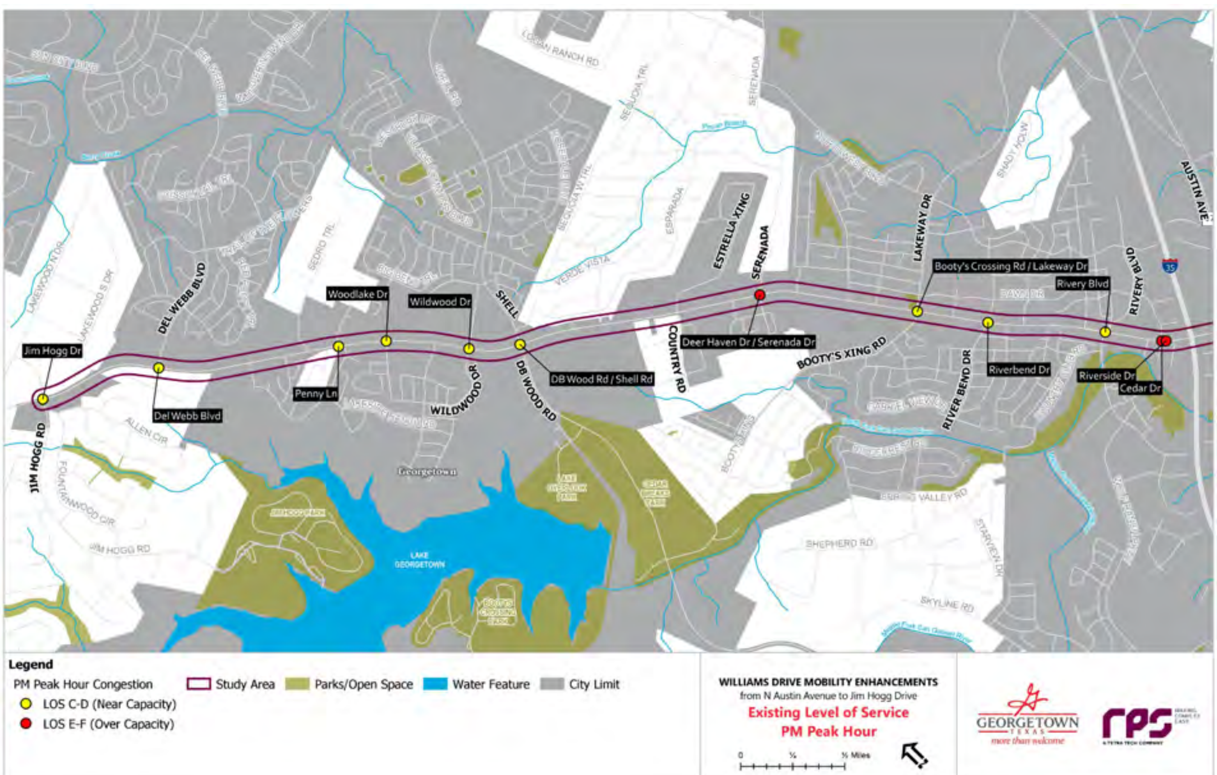

Figure 24 – Existing Level of Service Map (PM Peak Hour)

3.2 Posted Speed Limits

The posted speed limits along the length of the corridor are presented in **Figure 25**. The corridor generally has higher speed limits on the western side and lower limits on the eastern side, ranging from 55 mph to 30 mph. From Jim Hogg Rd to east of Serenada Drive, the speed limit is typically 50 to 55 mph. The speed limit reduces to 45 mph just east of Serenada Drive. Continuing east along the corridor, the speed limit reduces to 40 mph near Booty's Xing/Lakeway Dr and 30 mph near the residential and commercial area. As the corridor extends across I-35 to Austin Ave, the speed limit increases to 35 mph. A total of 21 speed limit signs are present along the corridor.

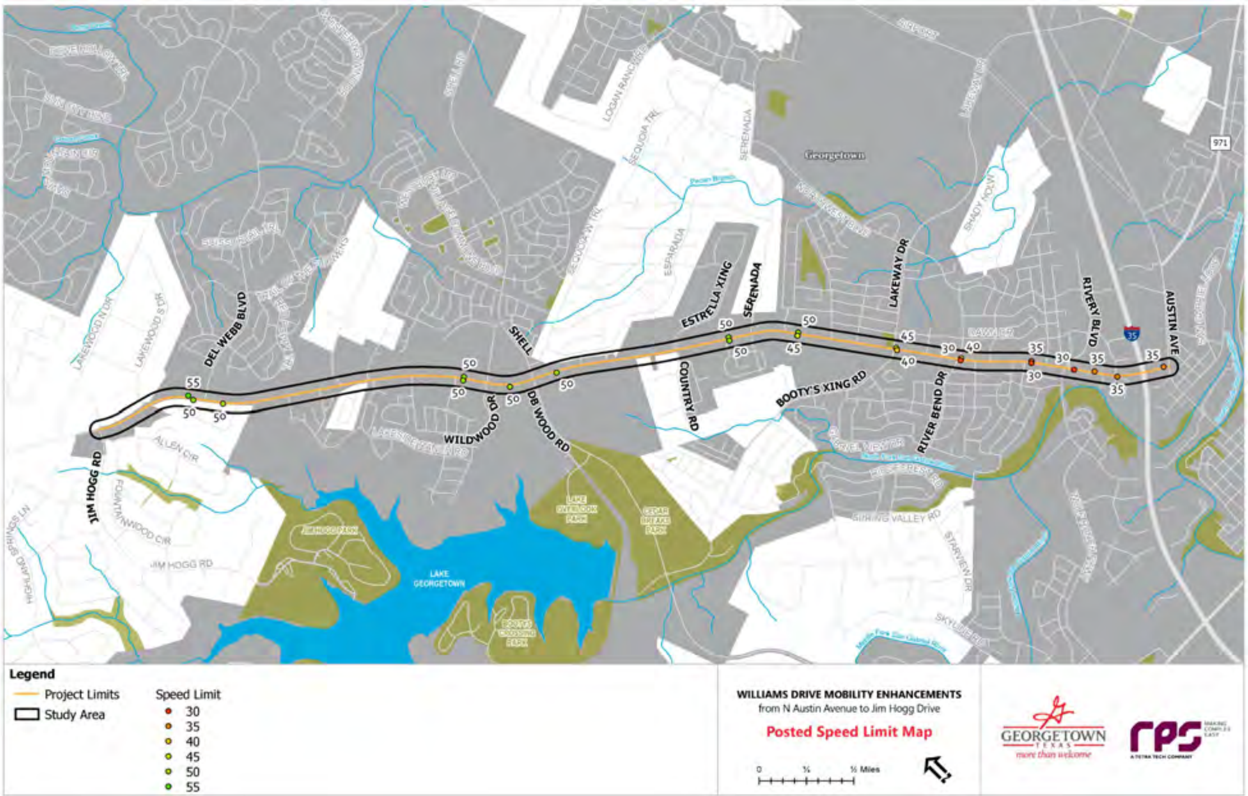

Figure 25 – Posted Speed Limits Map

3.3 Speed Management

The Williams Drive corridor exhibits inadequate speed limit regulations and a deficiency in implementing effective speed control measures. The predominant factor contributing to crashes along the corridor was identified as "failure to control speed," which accounted for 32% of the overall crash incidents between 2018 and 2022. Failed to control speed can include speeds starting at zero for either party. These deficiencies highlight the urgent need for speed management strategies to promote safer and more harmonious travel along the Williams Drive corridor. Research shows that changes in speed limits alone can lead to measurable declines in speeds and crashes. The Federal Highway Administration (FHWA) recommends speed management strategies such as setting appropriate speed limits and self-enforcing roadways to achieve desired speeds.

Design speed is a selected speed used to determine the various geometric design features of the roadway and directly impacts the operating speed or observed speed during free-flow conditions. The selected design speed should reflect the anticipated operating speed, topography, adjacent land use, modal mix, and functional classification of the roadway. The following geometric design and traffic demand features may have direct impacts on operating speed: horizontal curve radius, grade, access density, median treatments, on-street parking, signal density, vehicular traffic volume, lane widths, sight distance, and pedestrian and bicycle activity. There are 10 signals along the length of the project, for an average of 1 per 3,040 ft. The sharpest curve has a radius of 1,450 ft.

A self-enforcing roadway is designed to naturally encourage compliance with traffic regulations and promote safe driving behavior without the need for constant law enforcement presence. This is achieved through the use of various design features such as traffic calming measures, clear signage, and road markings that intuitively guide drivers to adhere to desired speeds and behaviors.

3.4 Safety Analysis

A five-year crash analysis was conducted for the corridor using data from TxDOT's Crash Record Information System (CRIS). TxDOT's CRIS query tool allows users to query, extract, and perform a custom analysis of crash data. According to the data, 845 crashes were reported along the study area between 2018 and 2022. This is an average of 169 crashes per year, and an average of 29.1 crashes per mile per year. Of the 845 total crashes, 453 (53.6%) were non-intersection crashes, and 392 (46.4%) were intersection crashes. **Figure 26** displays a heat map of the crashes. Major crash hot spots occur near the intersections at Shell/DB Wood Rd, Lakeway Dr/Booty's Xing Rd, River Bend Dr, Rivery Blvd, and Austin Ave. The data and map reveal a general trend of increasing crash density towards the eastern half of the corridor, particularly at intersections.

Crashes not occurring at intersections were identified by filtering the CRIS data using the intersection flag attribute. A heat map of the non-intersection crashes is shown in **Figure 27**. The map reveals a higher density of crashes between Serenada Dr and Austin Ave. Out of the 845 crashes that occurred between 2018 and 2022, 46.4% were intersection related.

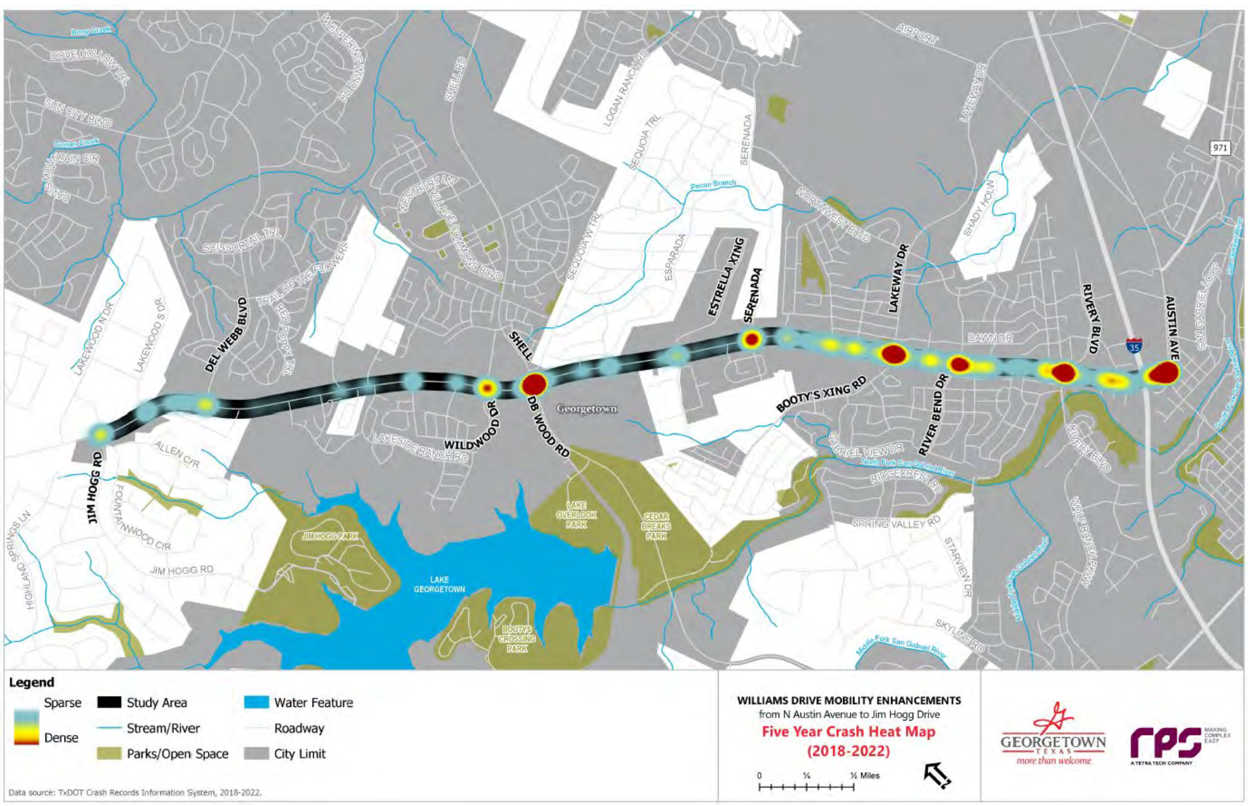

Figure 26 – Five Year Crash Heat Map (2018-2022)

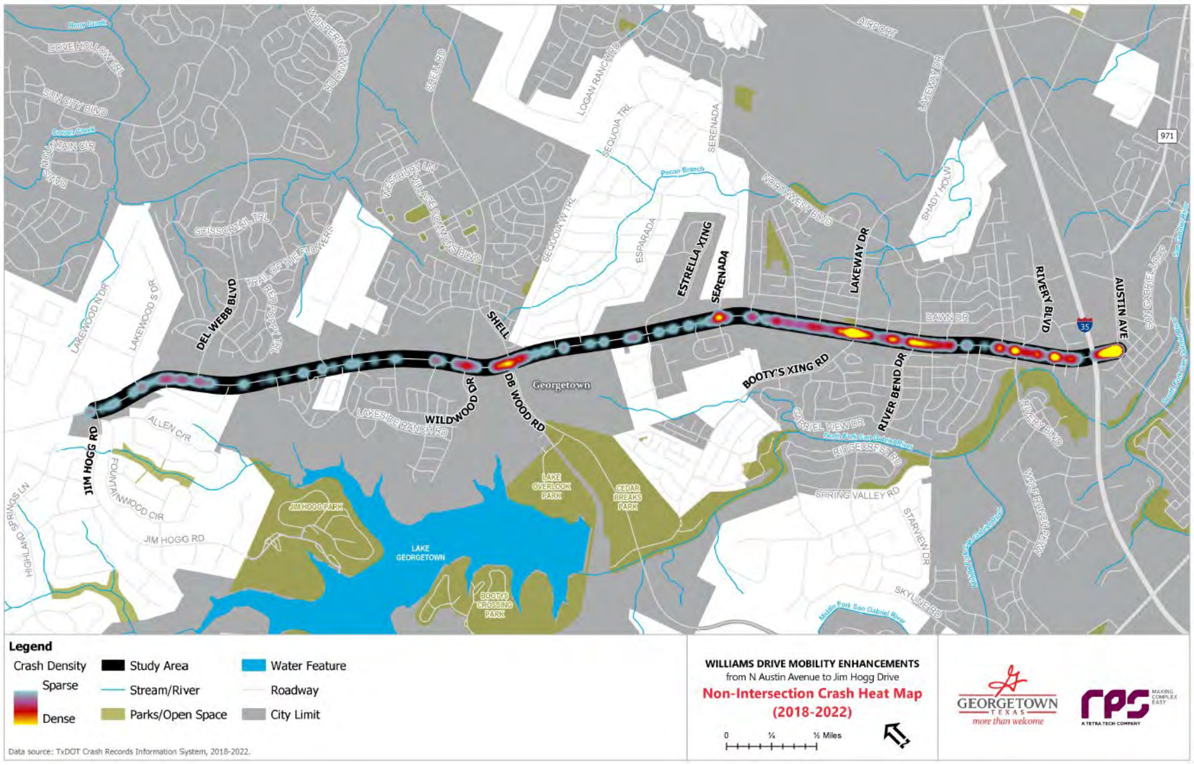

Figure 27 – Non-Intersection Crash Heat Map (2018-2022)

The number of total crashes by year is shown in **Table 8**. From 2018 to 2022, the number of crashes steadily increased by about 4% per year. Of the total number of crashes, three resulted in fatal injury and 13 in suspected serious injury. The top ten collision manners are shown in **Table 9**. The largest number of collisions are in the following categories: 159 for same direction (one straight, one stopped), 137 for opposite direction (one straight, one left turn), 119 for angle (one straight, one left turn), and 117 for same direction (both straight, rear end). The top ten crash factors are shown in **Table 10**. The top factors were: 189 failed to control speed, 141 failed to yield right of way when turning left, 76 failed to yield right of way from a private driveway, and 51 due to changing lanes when unsafe.

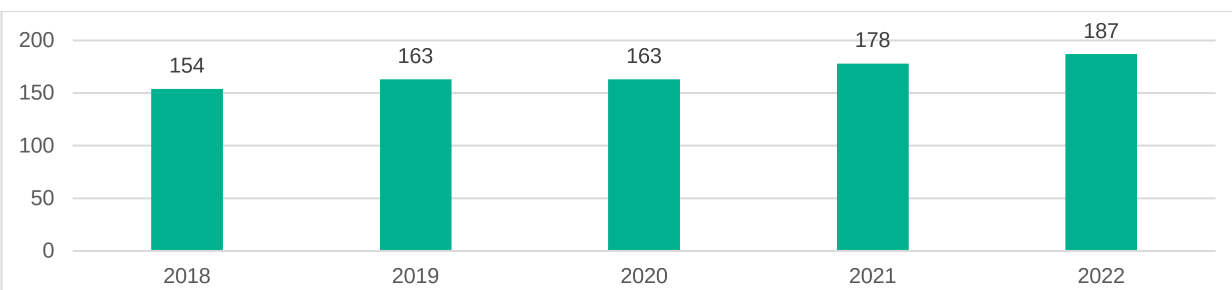

Table 8 – Total Crashes by Year

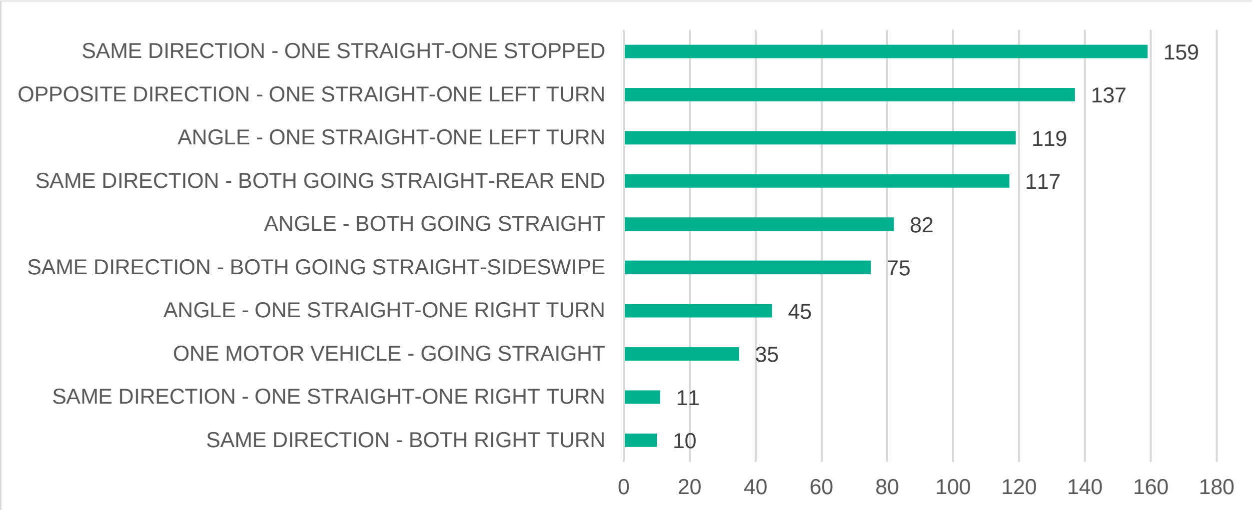

Table 9 – Top 10 Collision Manners

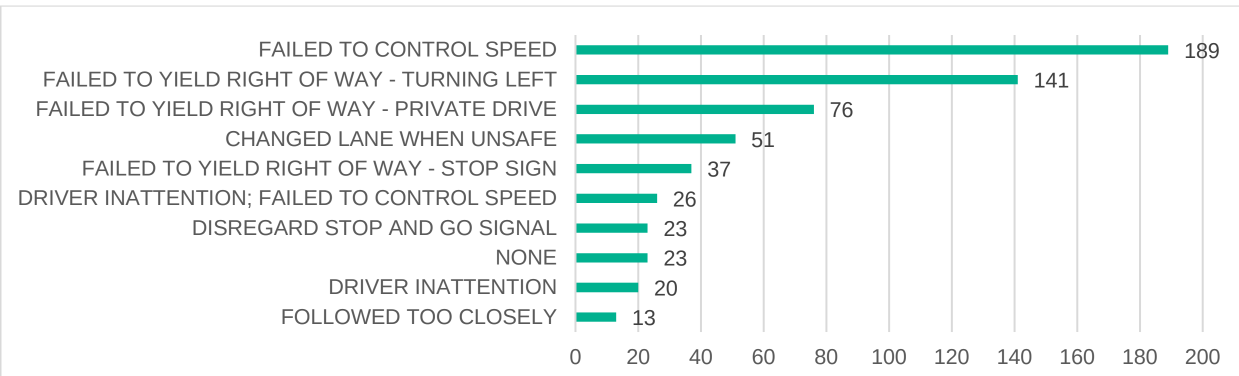

Table 10 – Top 10 Crash Factors

Signalized Intersections Crash Analysis

An analysis of the crash factors for each signalized intersection is shown in **Figures 28-37**. The major crash factors at each intersection were failure to yield right of way while turning left (Jim Hogg Rd, Wildwood Drive, DB Wood/Shell Rd), turned improperly (Austin Ave), failure to yield right of way at a stop sign (Estrella Xing), failure to control speed (Del Webb Blvd, Serenada Dr, Lakeway Dr/Booty's Xing, Rivery Blvd), and disregarding stop and go signal (River Bend Dr). As shown in **Table 11**, the two main factors across all intersections were failure to control speed (64) and failure to yield right of way while turning left (58). A third major factor across most intersections was disregarding the stop sign or light (38). The most dangerous intersections by the total number of crashes were DB Wood/Shell Rd with 68, Rivery Blvd with 41, and Austin Avenue with 40, as shown in **Table 12**.

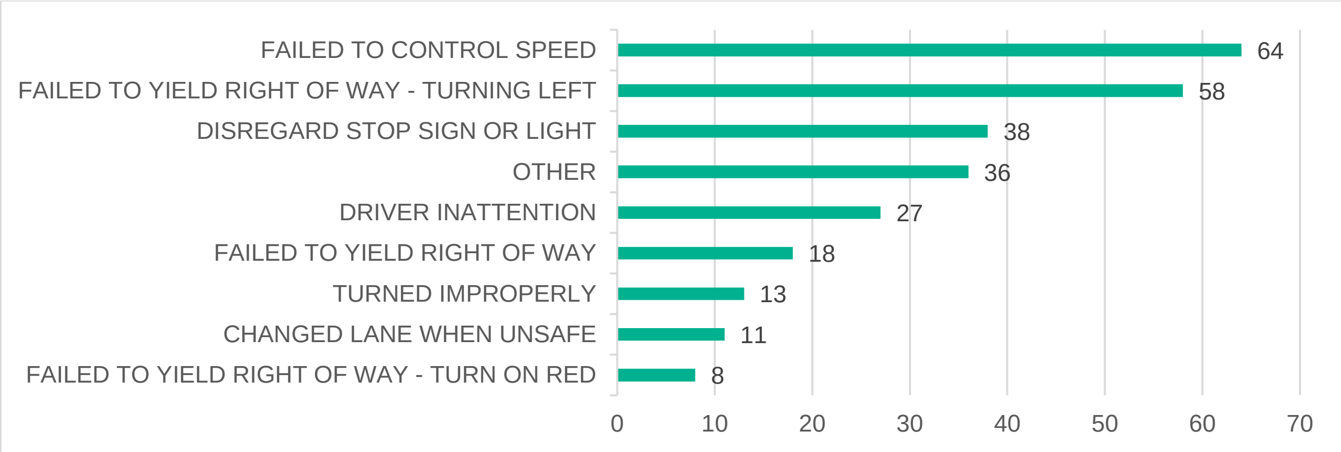

Table 11 – Intersection Crashes Contributing Factors

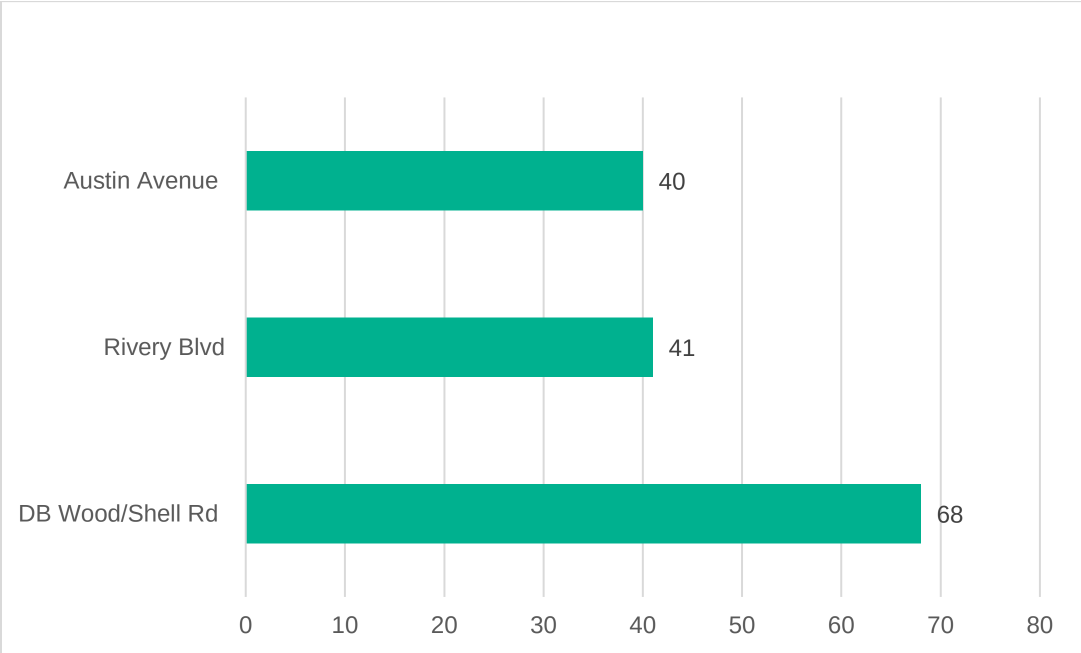

Table 12 – Most Dangerous Intersections (by crash count)

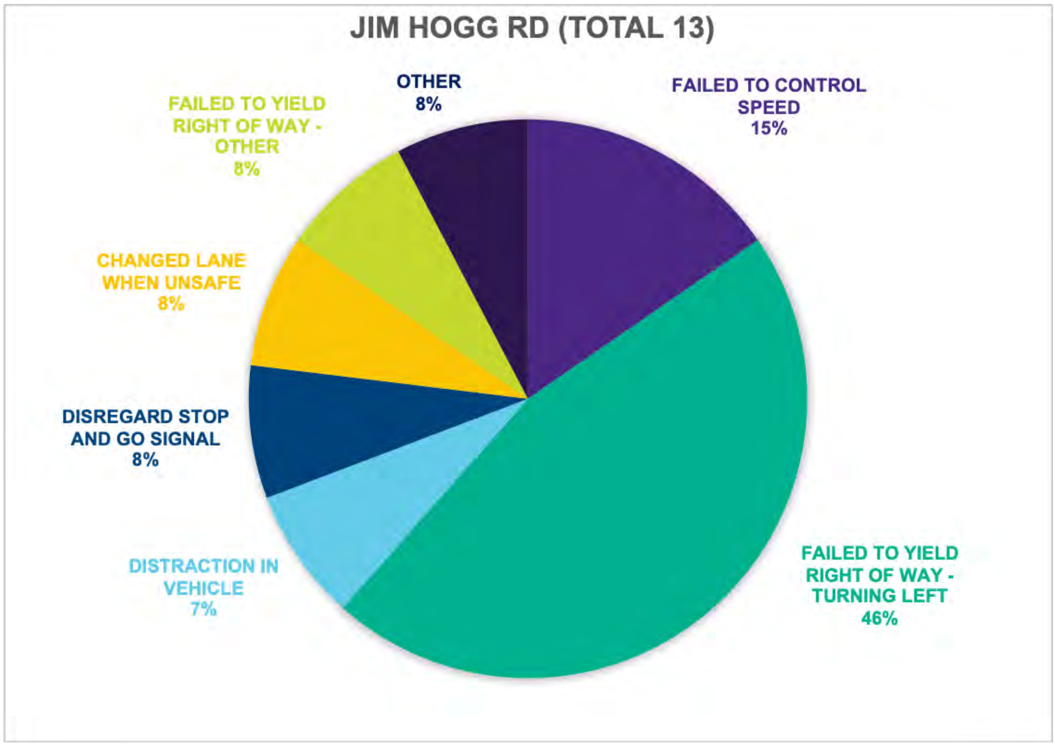

Figure 28 – Jim Hogg Rd Intersection Crash Factors

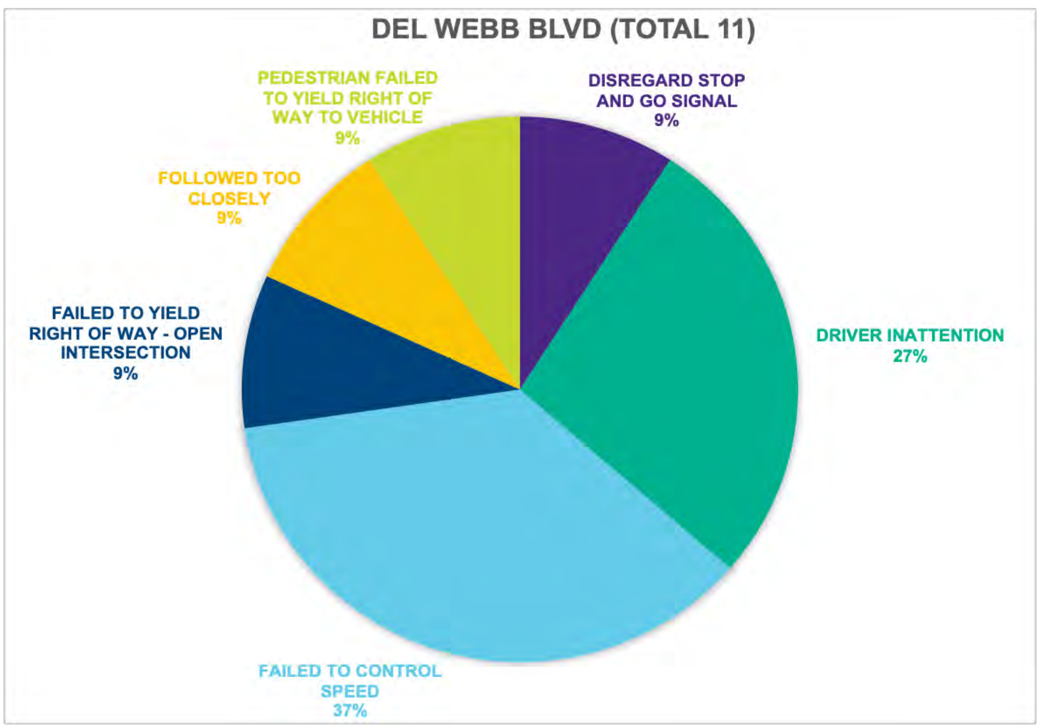

Figure 29 – Del Webb Blvd Intersection Crash Factors

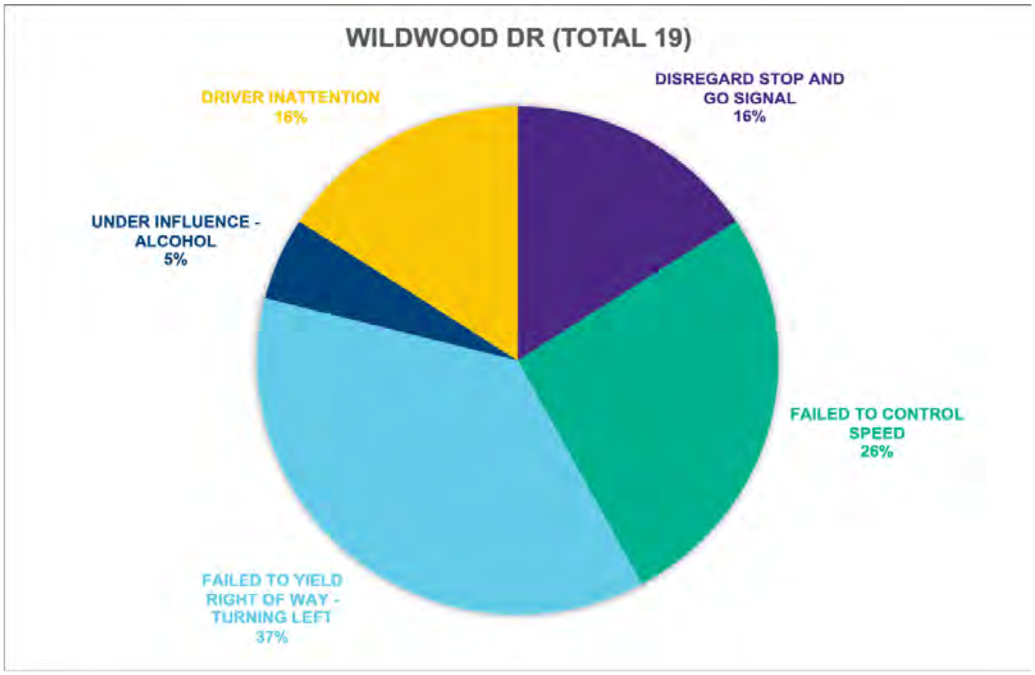

Figure 30 – Wildwood Dr Intersection Crash Factors

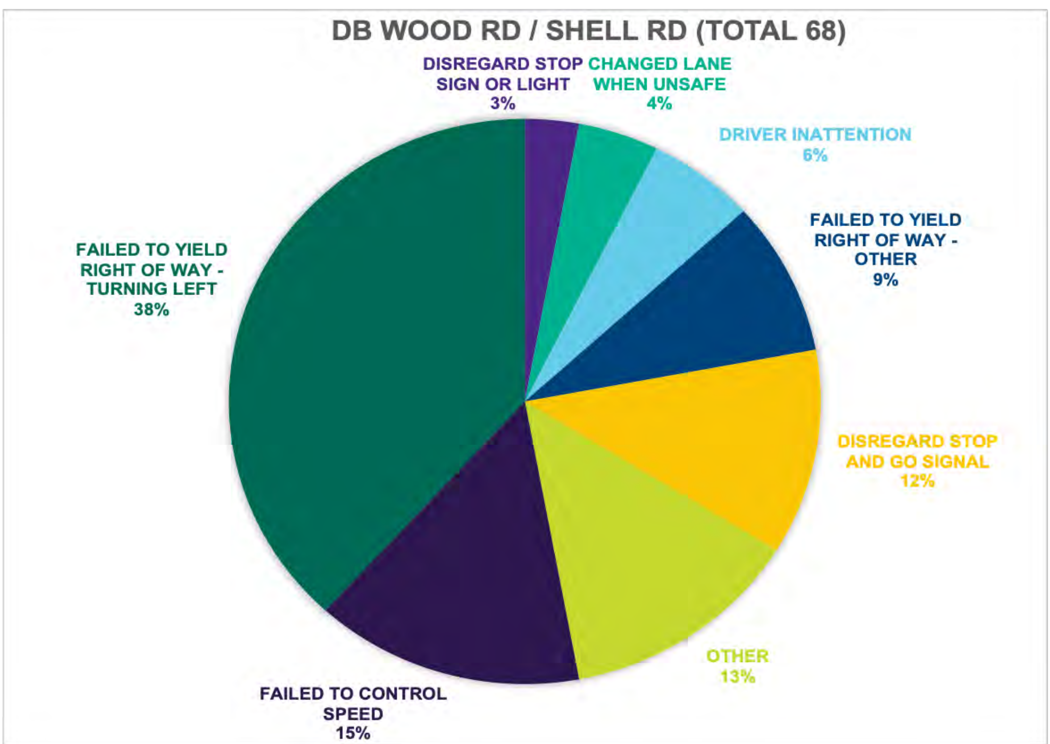

Figure 31 – DB Wood/Shell Rd Intersection Crash Factors

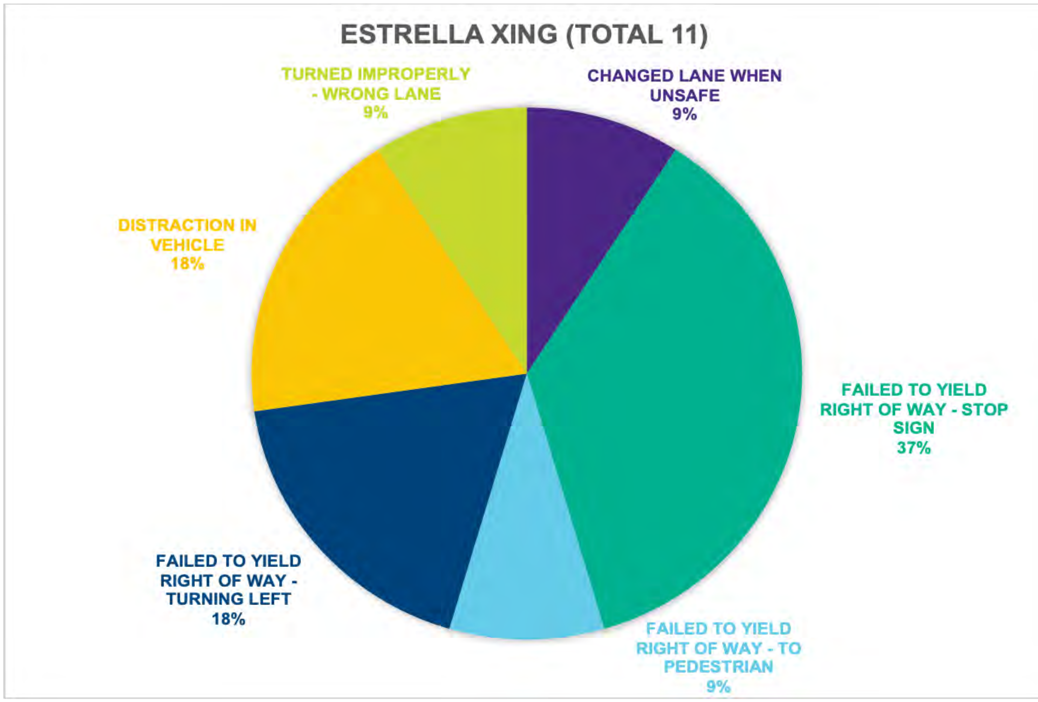

Figure 32 – Estrella Xing Intersection Crash Factors

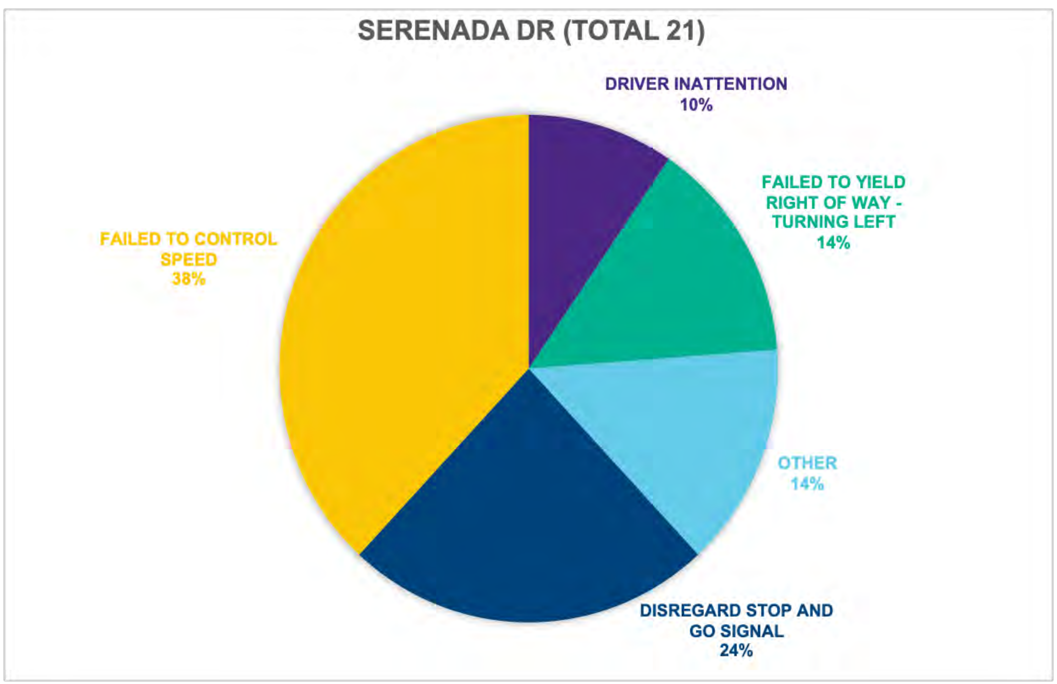

Figure 33 – Serenada Dr Intersection Crash Factors

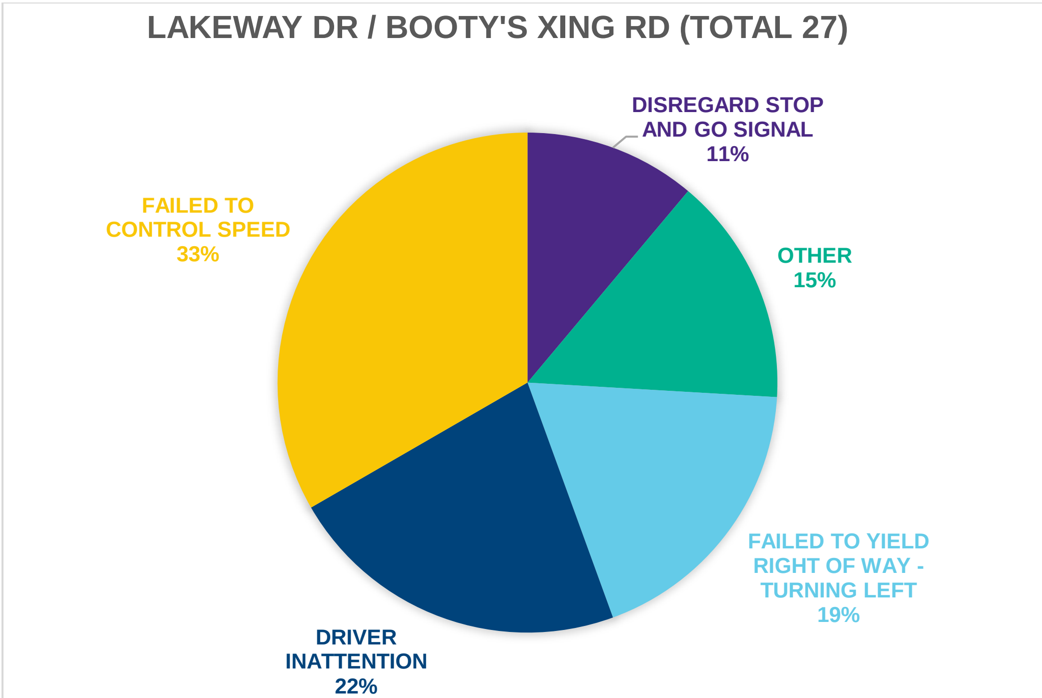

Figure 34 – Lakeway Dr/Booty's Xing Intersection Crash Factors

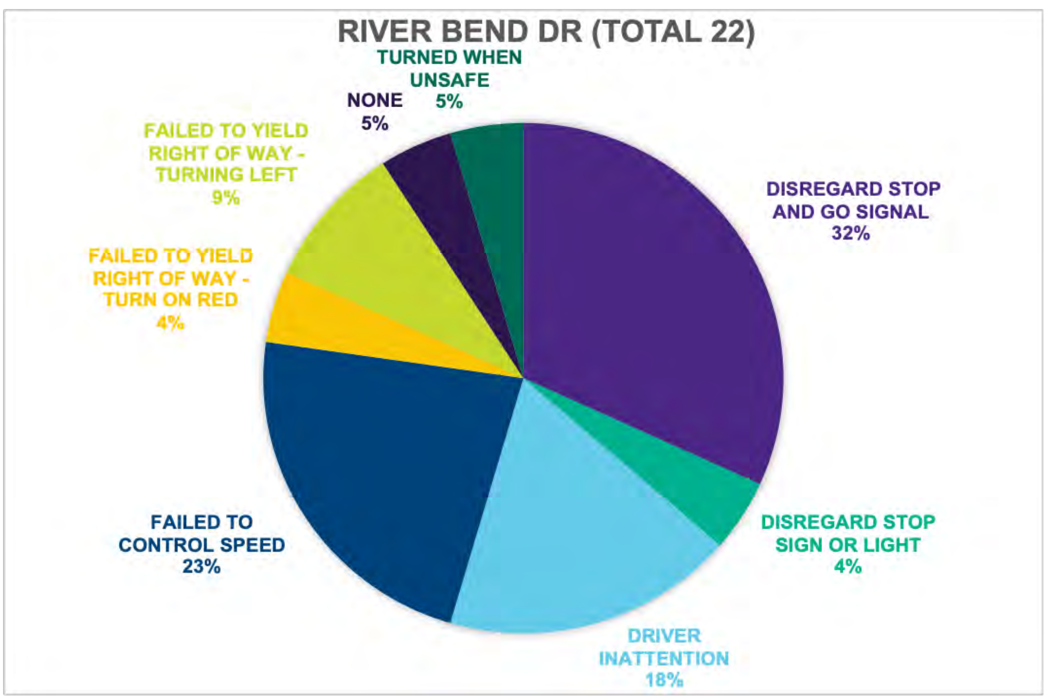

Figure 35 – River Bend Dr Intersection Crash Factors

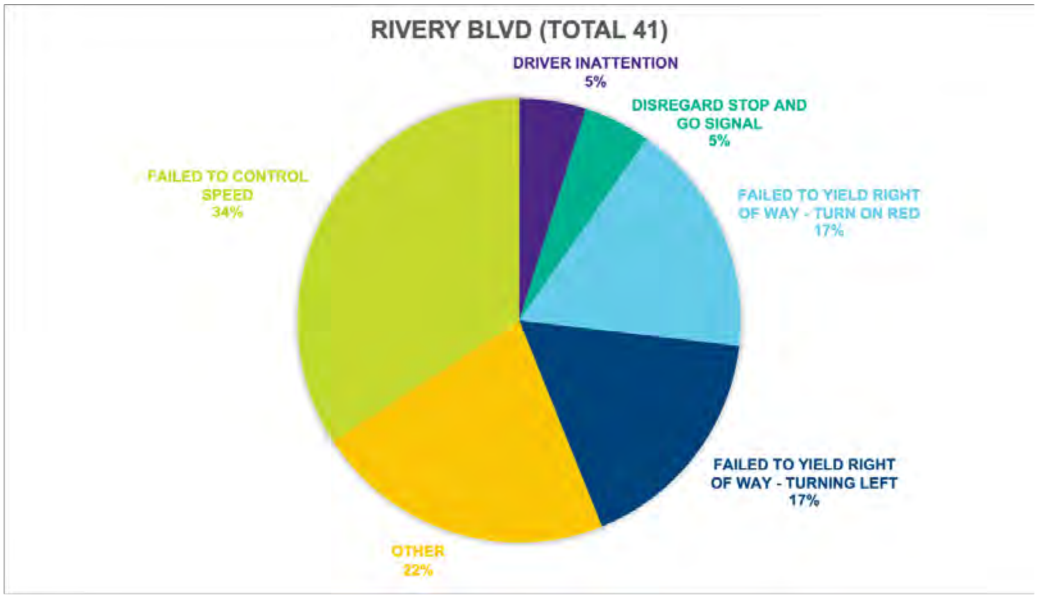

Figure 36 – Rivery Blvd Intersection Crash Factors

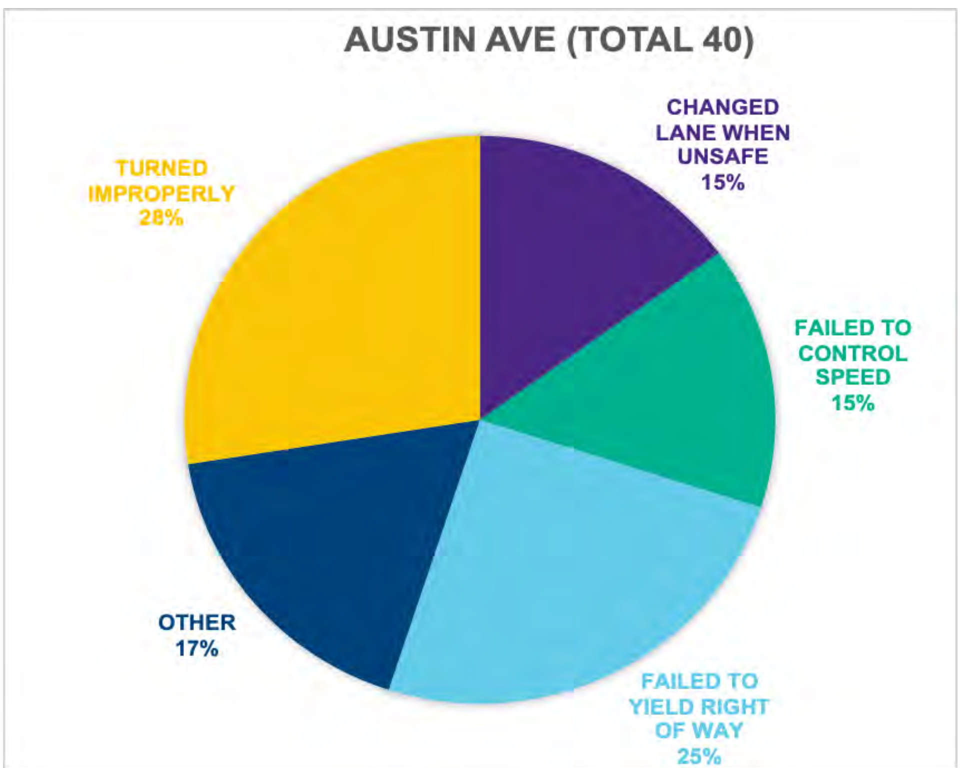

Figure 37 – Austin Ave Intersection Crash Factors

3.5 Roadway Connectivity Analysis

A roadway connectivity analysis was conducted along the study area using information from the 2017 Williams Drive Study and 2030 Comprehensive Plan. A roadway connectivity analysis evaluates the interconnectedness and efficiency of the roadway network to identify the overall mobility and accessibility of the area. The effective street network map as shown in **Figure 38** illustrates the key roadways that provide important connectivity throughout the study area. To identify the effective street network, roadways such as dead-end, cul-de-sac, and other disconnected roads were removed from the map. The analysis highlights key roadways such as Williams Drive, Del Web Blvd, Shell Rd/DB Wood Rd, Rivery Blvd, I-35, and Austin Ave, emphasizing the importance of preserving and enhancing access to these routes for improved connectivity in the study area.

Figure 38 – Effective Street Network Map

4 ROADWAY DEFICIENCIES

This section provides an overview of the existing deficiencies identified along the Williams Drive corridor. The analysis focuses on several key aspects relating to roadway geometry, intersection geometry and timing, and access management. Through the examination of these factors, the objective is to identify areas of improvement and bring attention to the critical challenges that require addressing in order to enhance the functionality, safety, and accessibility of the project corridor. This comprehensive evaluation of existing deficiencies serves as a foundation for formulating effective strategies and recommendations for future enhancements. Maps illustrating the locations and concentrations of some of these deficiencies and existing conflict areas along the corridor are provided in **Appendix E.**

4.1 Roadway Geometry

The Williams Drive corridor exhibits roadway geometry deficiencies relating to various cross-sectional elements. Roadway geometry refers to the design and layout of a road and includes elements such as sight distance, horizontal and vertical alignment, and cross-sectional elements. These design elements heavily influence the functionality, safety, and efficiency of a roadway. The cross-sectional deficiencies identified on Williams Drive relate to median design, curb and gutters, and pedestrian and bicycle facilities.

Median Design

The Williams Drive corridor exhibits deficiencies in controlling and restricting mid-block left-turn and crossing maneuvers. Williams Drive is currently classified as a major arterial by the City of Georgetown and as a minor arterial by TxDOT. The existing cross section includes two travel lanes in each direction, a continuous two-way left-turn lane (TWLTL), and two 10' shoulders in the western half of the corridor. The TxDOT Roadway Design Manual provides guidelines for several different roadway facilities including urban streets, or roadways in developed areas that provide access to abutting property as well as movement of vehicular traffic.

The manual states medians are desirable for urban streets with four or more traffic lanes. A raised median is used on urban streets where it is desirable to control or restrict mid-block left-turn and crossing maneuvers. Installing a raised median can improve traffic safety, increase throughput capacity and reduce delays, and provide pedestrian refuge areas. The manual states a raised median design should be considered where:

- ADT exceeds 20,000 vehicles per day;
- New development is occurring, and volumes are anticipated to exceed 20,000 vehicles per day; or
- There are operational concerns for mid-block turns

The findings from the analysis conducted in **Section 3.1 Traffic Volumes** and **Section 3.4 Safety Analysis** validate the existence of these conditions along the Williams Drive corridor, suggesting the potential need for a raised median. The analysis reveals the current AADT exceeds 26,000 vehicles and identifies various operational concerns related to intersection LOS and crash frequency.

Curb and Gutters

Curb and gutter infrastructure is absent along the Williams Drive corridor from Jim Hogg Drive to Lakeway Drive. The project area has only 25% curb and gutter at present. Curb and gutters play a crucial role in roadway design by effectively managing stormwater runoff and enhancing the overall functionality and longevity of roadways. The purpose of curb and gutters is to channelize and control the flow of water, prevent erosion, and minimize damage to the roadway and adjacent properties. They help collect and direct stormwater towards designated drainage systems, reducing the risk of flooding, improving roadway safety, and preserving the structural integrity of the pavement. Additionally, curb and gutters provide a clear delineation between the roadway and adjacent areas, improving pedestrian safety and facilitating efficient maintenance operations.

Bicycle and Pedestrian Facilities

The Williams Drive corridor exhibits notable deficiencies in its sidewalk and bicycle infrastructure, significantly impeding the safe and efficient movement of pedestrians and bicyclists. These deficiencies are primarily characterized by the presence of gaps in the sidewalk network, resulting in discontinuities that force pedestrians to navigate through areas lacking proper walkways, thereby increasing the likelihood of conflicts with vehicular traffic. The absence of dedicated bicycle lanes or protected cycling facilities exposes bicyclists to risks as they are compelled to share the roadway with motor vehicles, compromising their safety and discouraging the use of active transportation modes. These deficiencies highlight the urgent need for improvements in sidewalk connectivity and the implementation of dedicated bicycle infrastructure to enhance the overall accessibility and promote a more sustainable and pedestrian-friendly environment along the Williams Drive corridor.

4.2 Intersection Geometry and Timing

The Williams Drive corridor exhibits deficiencies in terms of intersection geometric design and signal timing, which adversely impact the overall efficiency and safety of the roadway network. The geometric design of various intersections along the corridor fails to adequately accommodate the volume of turning movements, leading to increased congestion, turning conflicts, and potential safety hazards. Additionally, the signal timing at various intersections does not effectively optimize traffic flow and fails to provide efficient progression along the corridor. These deficiencies contribute to delays, increased travel times, and potential conflicts between vehicles, pedestrians, and bicyclists. Addressing these intersection deficiencies through appropriate geometric design improvements and optimized signal timing is crucial to enhance the functionality, safety, and overall performance of the Williams Drive corridor, ensuring a smoother flow of traffic and improving the overall transportation experience for all users. A list of the existing geometric deficiencies at each intersection is shown in **Table 13.**

Intersection	Geometric Deficiencies
Wildwood Dr	Westbound approach needs a right turn bay to accommodate right turning movement. EB lane assignment needs to be revised to better accommodate volume of turning movement.
Shell/DB Wood Rd	Left turning movement is high and the single left turn bay is insufficient for the NB and SB movements.
Serenada/Deer Haven Dr	Lack of dedicated westbound left turn bay for left turning movement is causing higher delay and long queue.
Lakeway/Booty's Xing	Existing westbound lane configuration is experiencing excess queue from right turn movement unto Williams Dr. A dedicated westbound right turn lane is needed.
Rivery Blvd	A westbound right turn lane may be required to improve traffic operations and westbound right turning movements unto Williams Dr.
Cedar Dr	High through volume along Williams Dr is causing high delay along Cedar Ave.
Riverside Dr	High through volume along Williams Dr is causing high delay along Riverside Dr.

Table 13 – Geometric Deficiencies by Intersection

4.3 Access Management

The Williams Drive corridor exhibits significant deficiencies in terms of access management and high driveway density, which pose challenges to the efficient and safe operation of the roadway. The corridor lacks appropriate access management strategies, resulting in a high density of driveways along the corridor. This contributes to many of the non-intersection crash factors, as shown in **Figure 39.** This excessive number of driveways leads to frequent conflicts between turning vehicles, reduces traffic flow capacity, and increases the potential for accidents. Moreover, the close proximity of driveways to intersections further exacerbates these issues, causing congestion, reduced sight lines, and compromising the overall safety of the corridor. Addressing these deficiencies through effective access management techniques, such as consolidating driveways, implementing access restrictions, and improving spacing between access points, is crucial to mitigate conflicts, improve traffic flow, enhance safety, and optimize the functionality of the Williams Drive corridor.

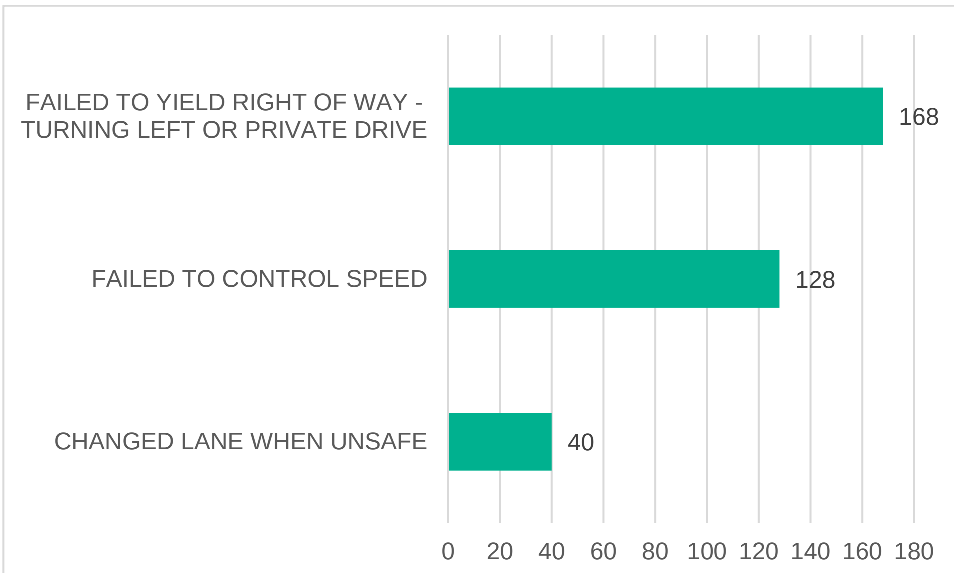

Figure 39 – Top 3 Non-intersection Crash Factors

5 ENVIRONMENTAL CONSTRAINTS

An environmental constraints analysis involves identifying and assessing the environmental factors and limitations that may impact a project or area, such as sensitive habitats, cultural resources, or regulatory requirements. The environmental constraints reviewed along the Williams Drive study area include parks and water features, wetlands, floodplains, and historic, cultural, and community resources.

5.1 Parks and Water

Geographic Information System (GIS) data for parks and water features was obtained from the City of Georgetown, Texas Parks and Wildlife Department (TPWD), and the Texas Water Development Board (TWDB). The parks and water features in proximity to the Williams Drive study area are illustrated in **Figure 40**. There are 14 parks within a half-mile radius of the project limits, including notable ones such as Jim Hogg Park, Lake Overlook Park, Lake Overlook Park, Cedar Breaks Park, and San Gabriel Park (located east of Austin Ave, not shown in **Figure 40**). A comprehensive list of the parks in proximity is available in **Table 14.** Williams Drive Pool and Park is the only park located directly adjacent to the Williams Drive corridor, near the Lakeway Dr intersection. The water features within a half-mile radius of the study area consist of the San Gabriel River, North and South Fork of the San Gabriel River, Pecan Branch, and Lake Georgetown, with no intersections occurring between these water features and the study area.

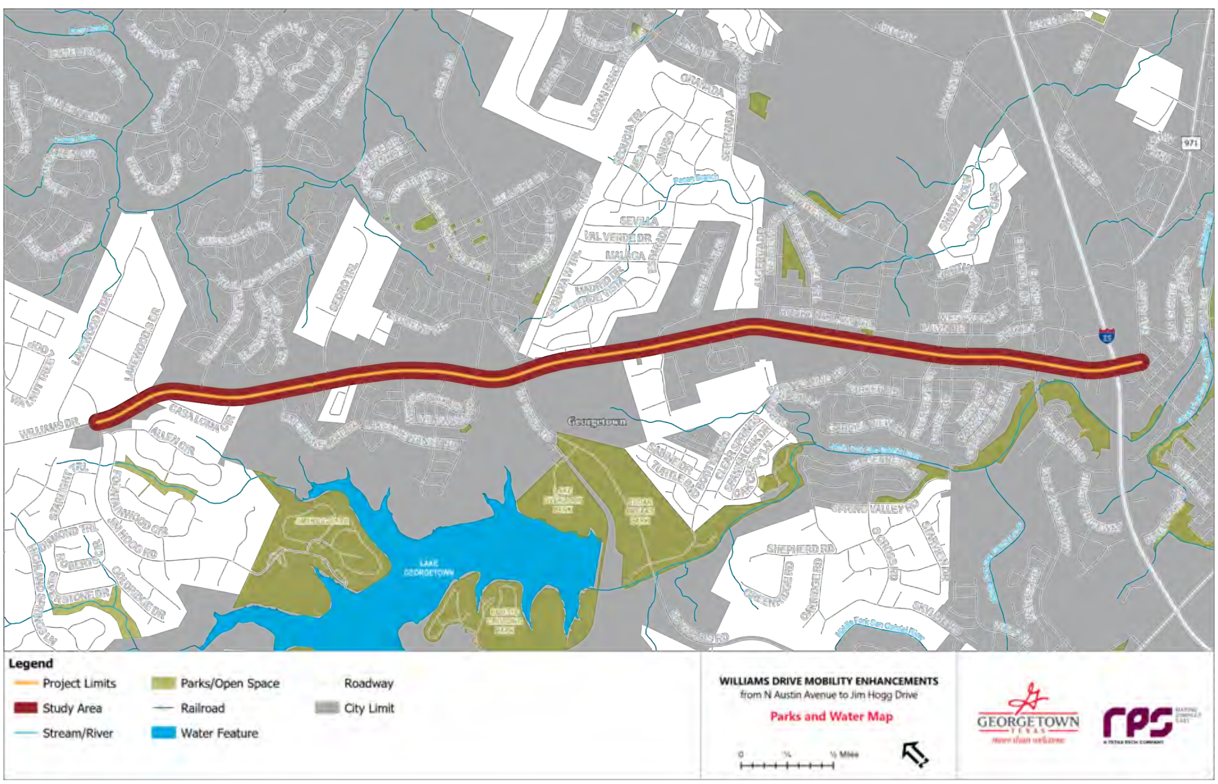

Figure 40 – Parks and Water Features Map

1	Blue Hole Park	8	Rivery Park and Trail
2	Cedar Breaks Park	9	San Gabriel Village Open Space
3	Emerald Springs Park	10	VFW Park
4	Fountainwood Linear Park	11	Village II Park
5	Jim Hogg Park	12	Williams Drive Pool and Park
6	Lake Overlook Park	13	Woodlake Park
7	McMaster Athletic Complex	14	San Gabriel Park

Table 14 – Study Area Parks

5.2 Wetlands and Floodplains

GIS data for wetlands and floodplains was obtained from the National Wetlands Inventory (NWI) and Federal Emergency Management Agency (FEMA). The wetlands in proximity to the Williams Drive study area are illustrated in **Figure 41**. The wetland types within a half-mile radius of the study corridor include freshwater forested/shrub wetland, freshwater pond, lake, and riverine. The map reveals there are no wetlands located within the study area. The floodplains map is illustrated in **Figure 42**. According to the map, there are no flood hazard zones that intersect with the study area.

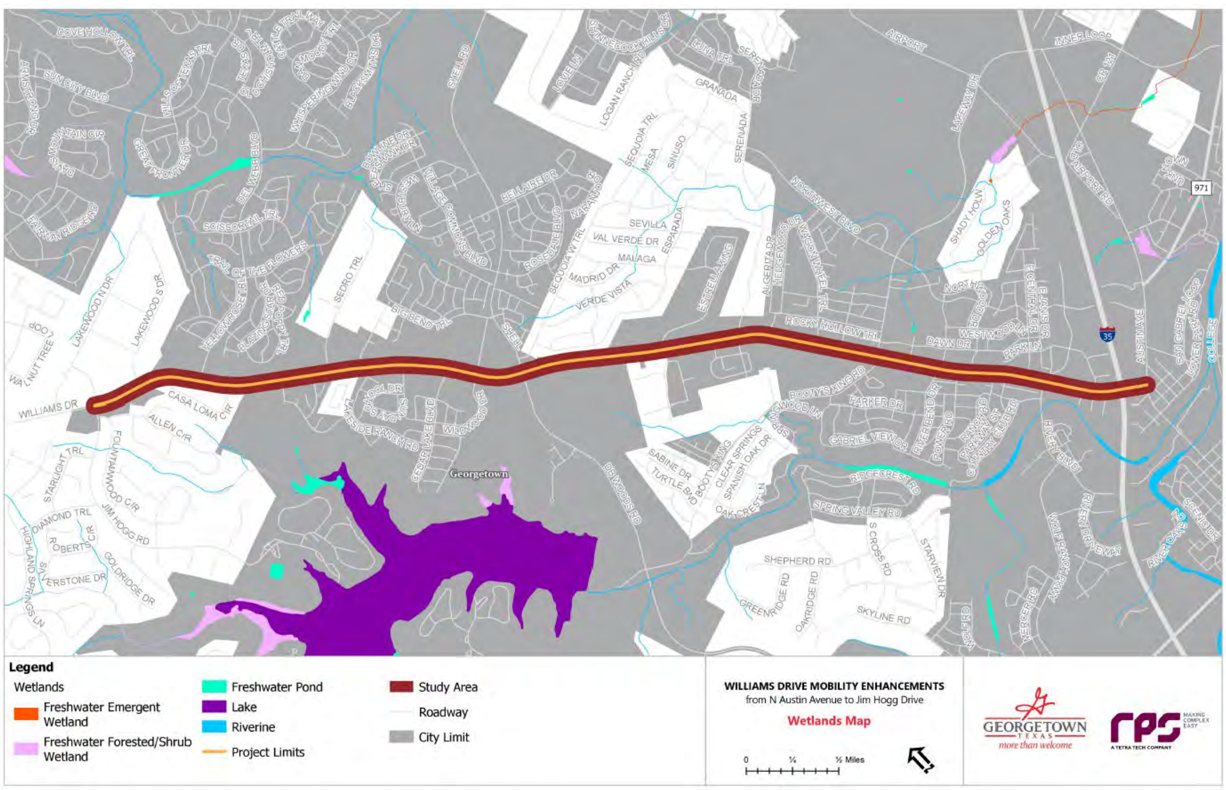

Figure 41 – Wetlands Map

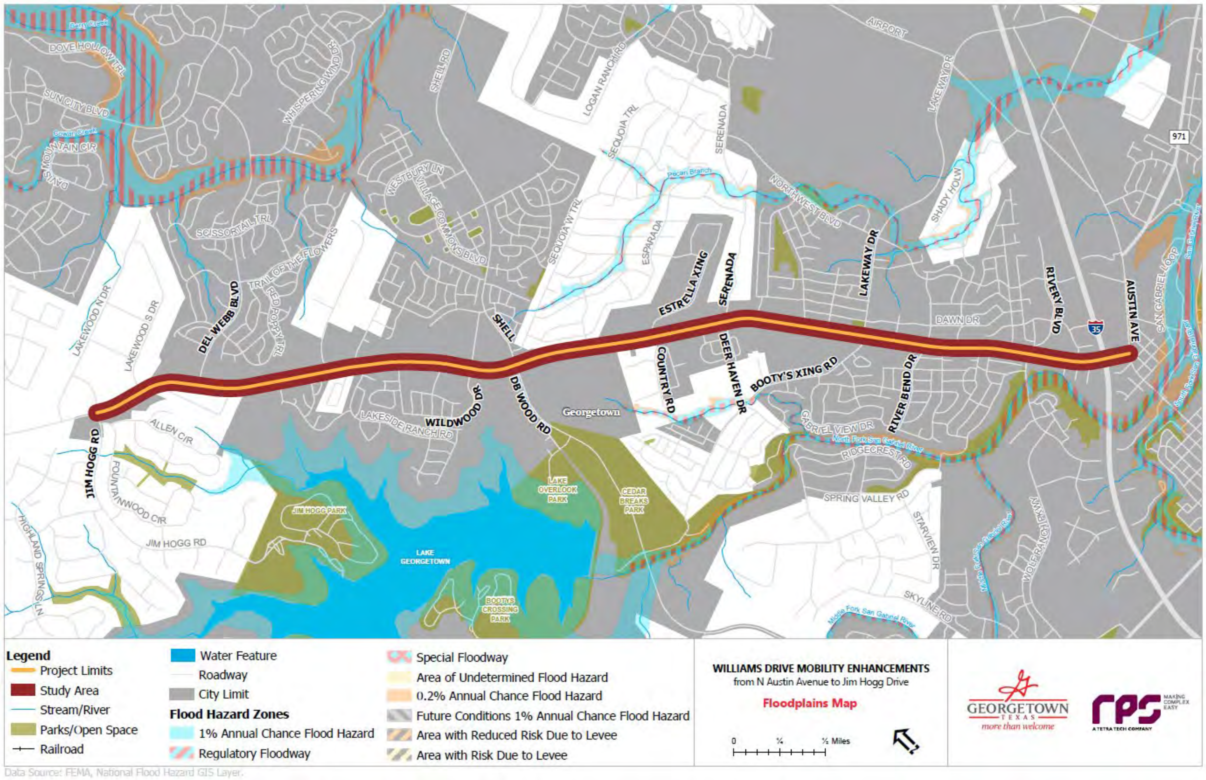

Figure 42 – Floodplains Map

5.3 Historic, Cultural, and Community Resources

GIS data for historic and cultural resources was obtained from the Texas Historical Commission (THC) Historic Sites Atlas. The historic and cultural resources in proximity to the study area are shown in **Figure 43.** Analysis of the data reveals no presence of historical markers, national register sites, or cemeteries directly adjoining or within the study area. However, it should be noted that Interstate 35 and Austin Avenue, intersecting the study area at its eastern edge, are recognized as part of the Historic Highway Routes.

Community resource data was acquired from the GIS department of the City of Georgetown and supplemented by a comprehensive desktop analysis. **Figure 44** illustrates the community resources surrounding the study area, demonstrating a diverse range of facilities in close proximity. Notable resources in the vicinity include a family cemetery, medical facilities, educational institutions, and a fire station.

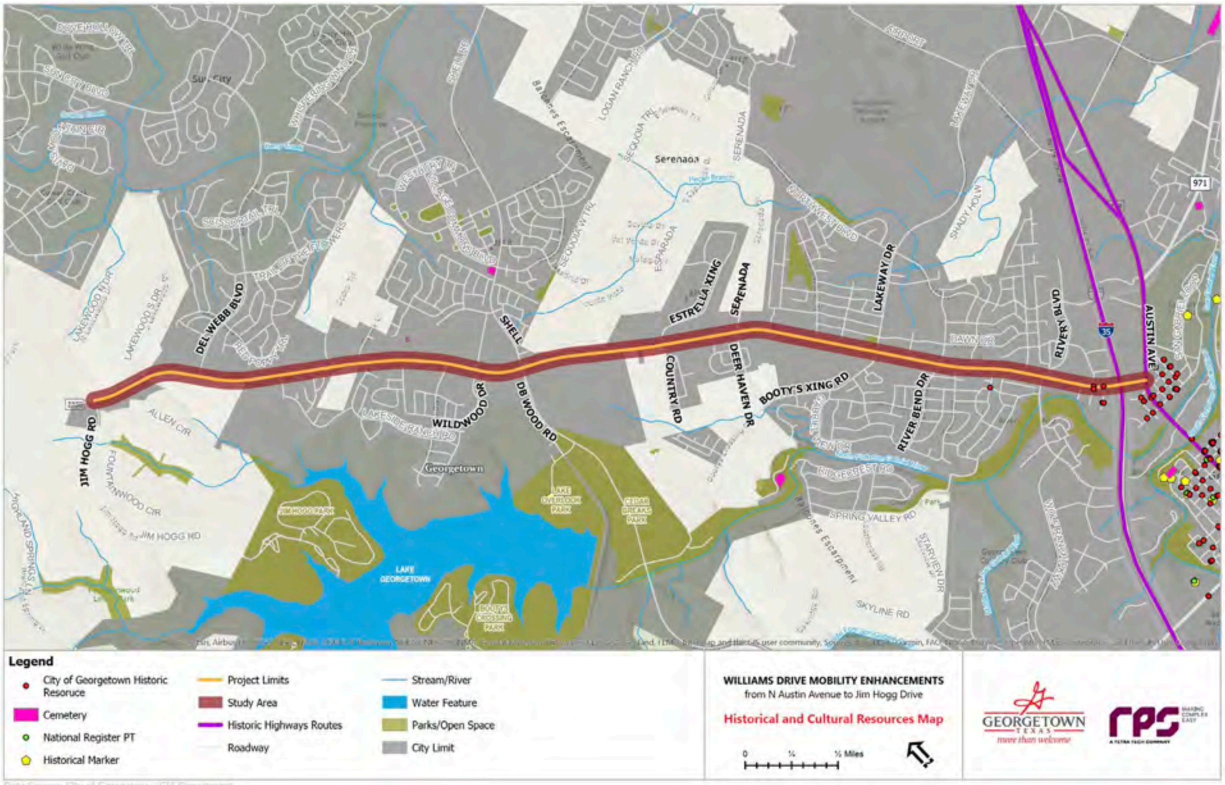

Figure 43 – Historic and Cultural Resources Map

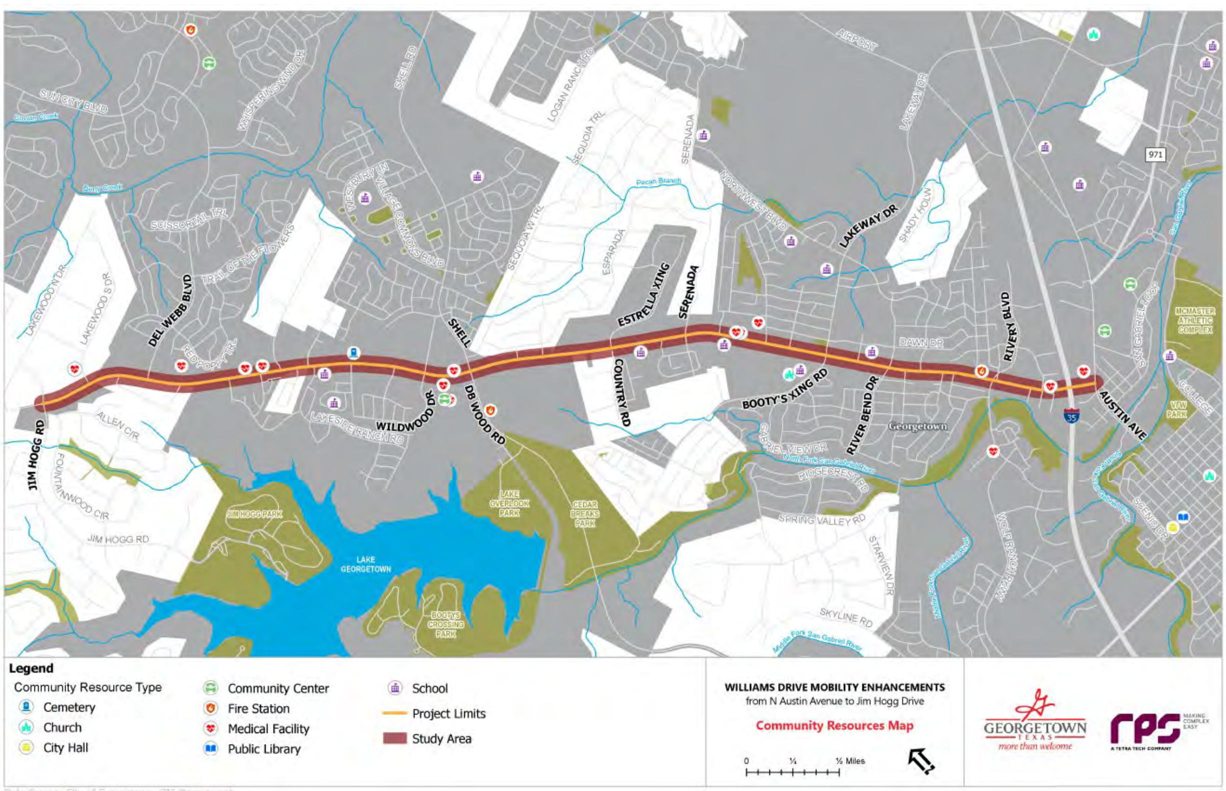

Figure 44 – Community Resources Map

Appendix A:
Existing Sidewalk Conditions Map

Appendix B:
Existing Street Signage Map

Appendix C:
Existing Street Lighting Map

Appendix D:
Existing Utilities Map

Appendix E:
Existing Conflict Areas Map