M E M O R A N D U M

TO: Mayor and Council

FROM: Richard Mendoza, P.E., Director, Public Works Department

CC: Spencer Cronk, City Manager
Robert Goode, P.E. Assistant City Manager

DATE: April 16, 2018

SUBJECT: State of Bridges in the City of Austin

In light of the recent Florida International University pedestrian bridge collapse, we have received a few questions from City Council. To answer these concerns, I am reaching out to provide an update on the current state of bridges in the City of Austin. It is important to note that **the "accelerated" pedestrian bridge construction method used by the Florida International University has never been applied here in Austin.**

I will outline the ratings and the reasoning below for the following recommendation, but thought I would summarize the main message here:

Public Works has identified five bridges requiring major rehabilitation or replacement:

1. Redbud Trail/Emmett Shelton bridge over Lady Bird Lake
2. Barton Springs Road bridge over Barton Creek
3. Delwau Lane bridge over Boggy Creek
4. William Cannon Drive Railroad Overpass
5. Slaughter Lane Railroad Overpass

Background

National Perspective

As of 2013, there are over 600,000 bridges in the United States. Approximately 30 percent of the bridges are structurally deficient or functionally obsolete. According to the U.S. Department of Transportation, the federal government's annual investment is less than two thirds of what is needed to maintain roads and bridges, and this doesn't factor in improvements. As infrastructure deteriorates the cost of maintenance and repair increases, and the longer it takes, the higher and faster those costs rise. The Federal Highway Administration estimates it will cost $20.5 billion annually for the next 16 years to properly update existing bridges, more than 60% of what is currently being spent.

Texas Perspective

According to the Texas Department of Transportation (TxDOT), Texas maintained 53,875 bridges for public vehicular traffic in 2016—about 26,000 more bridges than any other state in the nation, and more than the combined inventories of 17 states. Nonetheless, only 1.9 percent of Texas bridges are structurally deficient (see definition below), which is the second-lowest percentage of structurally deficient bridges in the nation. The national average is 9.6 percent. According to a TxDOT report, the cost to repair the backlog of deficient bridges will increase from $3 billion in 2010 to $7 billion in 2035.

Bridge Inspection/Condition Assessment

Every two years, TxDOT inspects all vehicular bridges with spans over 20 ft. in length. The purposes of bridge inspections are: 1) to ensure public safety and confidence in bridge structural capacity, 2) to protect public investment and allow efficient allocation of resources, 3) to effectively schedule maintenance and rehabilitation operations, 4) to provide a basis for repair, replacement, or other improvements such as retrofit railings, and 5) to ensure that federal funding will remain available for bridge rehabilitation and replacement.

Bridge ratings are based on both **structura**l and **sufficiency ratings**.

Structural ratings are with regard to the load capacity of the bridge (i.e. can heavy trucks use the bridge). A structure is classified by the Federal Highway Administration (FHWA) as "structurally deficient" if it meets any of the following criteria:

- Needs an "extreme restriction" on its load-carrying capacity
- Has deterioration severe enough to reduce its load-carrying capacity beneath its original as-built capacity
- Bridge is closed
- Frequently is over-topped during flooding, creating severe traffic delays.

The fact that a bridge is classified under the federal definition as "structurally deficient" does not imply that it is unsafe…a structurally deficient bridge has maintenance concerns but the bridge does not pose a safety risk. *Through regular inspections, any potentially unsafe conditions will be identified and an unsafe bridge closed to traffic.* These bridges typically require significant maintenance and repair to remain in service and will require more substantive rehabilitation work, or even complete replacement, to address deficiencies. To remain in service, structurally deficient bridges are often posted with weight limits to restrict the gross weight of vehicles using the bridges to less than the maximum weight typically allowed by statute.

Sufficiency ratings are with regard to the functionality and accommodations of the bridge, such as not having pedestrian accommodations. Sufficiency ratings are intended to indicate a measure of the ability of a bridge to remain in service. Ratings are on a scale of 1 to 100, with 100 considered as an entirely sufficient bridge, usually new; an entirely deficient bridge would receive a rating of zero. Only bridges that carry vehicular traffic receive a Sufficiency Rating.

The Sufficiency Rating is a network level indicator for general reporting purposes since it consists of a high level composite rating that covers numerous aspects of bridges. It is currently the only single number that can be easily reported to the public and it is used for State and Federal funding allocations. However, the Sufficiency Rating by itself is not a great measure of the integrity or condition of any individual structures. Bridges are complex structures with numerous separate components contributing to the integrity of the whole. Therefore, we primarily use these individual component ratings for managing the bridges, selecting maintenance, and developing candidates for rehabilitation and reconstruction. Component ratings such as for the deck, superstructure (beams), substructure (abutments, columns), structural adequacy (can heavy trucks continue to use the bridge), approach roadway, and waterway impacts are collected during the biannual TxDOT inspections.

Within these sufficiency ratings, a bridge may be considered *functionally obsolete*. A "functionally obsolete" structure is one that was built to standards that are not used today. These bridges are not automatically rated as structurally deficient, nor are they inherently unsafe. Functionally obsolete bridges are those that may be occasionally flooded or do not have adequate lane widths, shoulder widths, or vertical clearances to serve current traffic demand. A functionally obsolete bridge is similar to an older house. A house built in 1950 might be perfectly acceptable to live in, but it does not meet all of today's building codes. Yet, when it comes time to consider upgrading that house or making improvements, the owner must look at ways to bring the structure up to current standards. *Almost all older bridges are "obsolete" in some fashion when compared to today's modern bridge standards.*

Design Life vs. Service Life

The design life of a bridge system is a target life in years, set at the initial design stage. *128 of Austin's bridges are older than their expected design life of 50 years.* Service Life is the time duration during which the bridge system provides the desired level of performance or functionality by extending its use via repair and/or maintenance of the bridge's components. In other words, all of the 128 bridges have lasted beyond their "design life" but are still within their "service life". The service life of a bridge system is governed by the service life of its critical elements, components, and subsystems. The service life of a bridge element, component, or subsystem ends when it is no longer economical or feasible to repair or retrofit it, and replacement is the only remaining option. Our goal is to maximize each bridge's service life by replacing or retrofitting bridge elements, components, or subsystems that will allow the bridge as a system to continue providing the desired function. This really is the driving force for our Bridge Maintenance Program.

To fully understand the needs of a bridge, all these factors, including the use of a bridge and its surrounding features, must be considered.

City of Austin Bridge Condition Ratings

Austin currently has 434 bridges with spans longer than 20 feet. Following each TxDOT inspection, the City of Austin's Public Works Department receives an inspection report. These reports include a condition rating of the bridge, an assessment of the bridge, and recommendations for enhancements and/or repairs.

According to the 2016 TxDOT bridge report, **388 bridges in the City of Austin (90 percent of our inventory) received a "good", "very good", or "excellent" condition sufficiency rating.** The rating on the prior report was 83 percent "good" or better…the statewide average reported as "good" or better is 82 percent. A summary table of Austin's bridge ratings is below.

As you can see, no City-owned bridge has a sufficiency rating of "Failed", "Failing", "Critical", "Serious", or "Poor". Forty six of Austin's bridges are rated in either "Fair" or "Satisfactory" condition. These lower sufficiency ratings are often less a result of a bridge's overall functionality, and more associated with some of its components not meeting current code requirements. For example, a bridge may be in good working condition, but receive a lower rating based on its railing not meeting the minimum code standards.

City of Austin Bridge Condition Sufficiency Ratings

Sufficiency Rating	No. of Structures	% of total bridges
Excellent: 90-100	127	29%
Very Good: 80-89	150	35%
Good: 70-79	111	26%
Satisfactory: 60-69	40	9%
Fair 50-59	6	1%
Poor: 40-49	0	0%
Serious: 30-39	0	0%
Critical: 20-29	0	0%
Failing: 10-19	0	0%
Failed: <10	0	0%

Analysis of our Bridge Ratings

Almost all older bridges are obsolete in some fashion when compared to today's modern bridge standards. As you can see in the Appendix, 94 of Austin's bridges are coded by TxDOT as *"Functionally Obsolete".* This is expected since our bridges are on average 41 years old…some are nearly 100 years old. Although they are considered functionally obsolete by the national bridge evaluation criteria, they are not "structurally deficient" nor structurally unsafe in any way.

While the 6 bridges in **"fair"** condition have some deficiencies, they are not yet "structurally deficient" overall. Their lower ranking is based on certain outdated accommodations, but these bridges are not considered a safety hazard at this time. These bridges will continue to receive routine inspection and maintenance.

The 40 bridges in "**satisfactory"** condition also have some deficiencies, but their ranking is mainly due to certain obsolete features. Staff will continue to address these bridges with routine maintenance activities. Most of these bridges do not currently need rehabilitation or replacement, with the exception of two: the bridge on Redbud Trail over Lady Bird Lake and the bridge on Barton Springs Rd. over Barton Springs.

The 46 structures in Satisfactory and Fair condition will continue to be preserved and remain in service with mostly routine bridge maintenance. However, some of these structures do have specific component-level deficiencies which have not yet triggered a low rating, but are nonetheless of concern to us. These structures will become candidates for rehabilitation or complete replacement when spot repairs and preventative maintenance are no longer effective in curing critical deficiencies.

There are two bridges considered in "**good"** condition that staff believe require immediate rehabilitation: the bridge on William Cannon over the Union Pacific Rail Road (UPRR) crossing, and the bridge on Slaughter Lane over UPRR.

Weight Limited Bridges - Recent inspection reports from TxDOT recommend four City of Austin bridges for weight limit reductions because deterioration of the structure was enough to require a lower load (weight) limit. These structures are: 4th Street over Waller Creek; 5th Street over Waller Creek; Colorado Low Water Crossing below Mansfield Dam; and Nixon Lane over S. Fork Williamson Creek. The 4th Street bridge over Waller Creek is slated to be replaced soon as part of the pending Downtown Station constructed by Capital Metro. Public Works' crews and bridge maintenance contractors have completed the needed repairs on the other three bridges which should remove the load limit requirement.

City bridges will be evaluated again this summer, and the ratings may be revised at that time.

The following section outlines justification for why we are recommending certain bridges for immediate rehabilitation and replacement, in light of the rankings above.

Recommendation for Bridge Repair/Rehabilitation/Replacement

Public Works has identified five bridges requiring immediate rehabilitation or replacement. Bridges are critical links in the roadway system which cannot be structurally unsound, deficient in safety, or have damage that is left unaddressed for any substantial length of time. Staff takes a proactive approach for funding bridge and structure needs to avoid any issues related to safety and mobility if we let bridges fall into lesser condition ratings. Therefore, criticality and risks are other factors considered in addition to condition ratings when selecting named projects. All but the Slaughter Ln Railroad Overpass have been identified in the City's Long Range CIP Strategic Plan since the inception of the document in FY 2014.

1. Redbud Trail/Emmett Shelton bridge over Lady Bird Lake
2. Barton Springs Road bridge over Barton Creek
3. Delwau Lane bridge over Boggy Creek
4. William Cannon Drive Railroad Overpass
5. Slaughter Lane Railroad Overpass

The Redbud Trail/Emmett Shelton, Barton Springs, and William Cannon Road bridges are all currently in preliminary engineering and will require additional funding for design and construction. The Delwau bridge and Slaughter Lane Railroad Overpass are not currently in the preliminary engineering phase and without funding identified for that effort. You can find a detailed report for each of these bridges in the Appendix.

Culverts/Pipes/Pedestrian Bridges

Public Works is continuing to implement the recommendations from the 2016 Bridge Audit report to incorporate all City bridges regardless of span and function into our annual service plan and implement a bridge asset management system. In addition to the 436 bridges mentioned above, there are more than 1,100 box culverts, pipe crossings, and bridges with spans less than 20 feet that provide roadway drainage. These assets are not currently inspected by TxDOT. Public Works has a location map of all water crossings and we are working on a plan to evaluate the condition of these structures. We are also working with the Parks and Recreation Department to complete an inventory and condition assessment of all of our pedestrian bridges. Once the inventory and condition assessments are complete (estimated to be 2 years, depending on funding for data collection efforts), these structures will be added to our annual bridge maintenance program and capital improvement plan.

Funding

Public Works spends approximately $1.0 million annually from our operating budget on bridge maintenance and repairs, many of which are recommended from the inspection reports. In addition, staff have presented capital funding needs for bridges in several forums for the five named major bridges above, including grant applications and the proposed 2018 Bond.

Grant applications for all five major bridges mentioned above were submitted in the 2019-2022 CAMPO Call for Projects; none were recommended for funding. Three of the five major bridges (excluding Delwau Ln over Boggy Creek and the Slaughter Lane Railroad Overpass) were submitted to TxDOT for Category 6 grant funding consideration. Category 6 is a state-wide bridge replacement and rehabilitation program (http://onlinemanuals.txdot.gov/txdotmanuals/bpd/category_6_funding.htm); but only $50M was available to the entire state this year, and a 10% match is required for approved projects. We are currently awaiting a response from TxDOT regarding the three submittals.

The Redbud Trail/Emmett Shelton Bridge over Lady Bird Lake has received about $3.4M of Bonds to date to fund Preliminary Engineering and 30% design. Austin Water has also contributed funds for these efforts related to the scope for water and wastewater utilities carried by the bridge. This work is still underway. We are working towards picking an alignment before the next CAMPO application to address their "readiness" concern.

The 2018 Bond Election Advisory Task Force (BEATF) recommended $54 million in bridge funding for Council's consideration. If approved by Council and subsequently by the voters, then this funding will go towards the *five bridges requiring immediate major rehabilitation or replacement starting with Redbud Trail/Emmett Shelton bridge over Lady Bird Lake.* The decline of this bridge poses a major threat to safety, not to mention mobility between Austin and West Lake Hills and access to the Red Bud Isle Park (see Appendix A for more details).

In terms of budget development, for each of the next five years staff anticipates it will need at least $2 million in additional programmatic funding for pedestrian bridges, low water crossings, retaining walls, and safety barriers.

Please do not hesitate to contact me if you have any questions or need more information on this matter.

Appendix A – Bridges Recommended for Rehabilitation or Replacement

Redbud Trail/Emmett Shelton Bridge

Background:
The Redbud Trail/Emmett Shelton Bridge connects Austin to West Lake Hills over Lady Bird Lake just downstream of the Tom Miller Dam. The existing bridge consists of two structures built in 1948 that are now 70 years old. The primary structure has experienced substructure degradation and been repaired several times due to flood flows from high volume dam releases by the Lower Colorado River Authority (LCRA).

Proposal:
Staff recommends the construction of a new bridge will meet the following goals: 1) have the same number of lanes dedicated to vehicular mobility as the current bridge, 2) address load capacity (heavy trucks) concerns, 3) raise the bridge out of the 100 year flood plain, and 4) include a sidewalk and shared-use pathway. Staff would also include intersection safety improvements and multi-modal connections at Redbud Trail and Lake Austin Blvd, creating a multi-modal connection from the south side of the bridge to Lake Austin Blvd.

Justification:
Redbud Trail/Emmett Shelton bridge is the only approved trucking route stipulated in an Interlocal Agreement between the City of West Lake Hills and the City of Austin for Ullrich Water Treatment Plant (WTP) vehicles. If the bridge is not replaced, a load capacity study will need to be conducted due to structural concerns. This may negatively impact services at the Ullrich Water Treatment Plant, around 16,000 daily commuters, and visitors to the Redbud Isle Park.

Many bridges constructed in this era were only designed for the lighter truck loadings of that era and a 50 year design life. Further, trucks in the 1940s were about half the weight of today's trucks. Therefore, these structures have seen more than twice the design loadings they were designed for and are thus well beyond their anticipated design life. Furthermore, the Ullrich WTP traffic has substantially increased the truck loadings beyond normally expected traffic and well beyond designed loadings. About 13 sludge and chemical trucks traverse this bridge per day weighing over 70,000 lbs. gross load. The 6 year plant expansion project added construction traffic and increased the operational trucking demands with the increased Ullrich WTP capacity.

Inspections –
TxDOT sufficiency ratings have been consistently around 67 since our rehabilitation project was completed in 1998. Despite this seemingly acceptable rating, staff are concerned that the visual inspections performed are highly overrating the structural capacity of this bridge. The exact prediction of when a bridge will begin to fail is impossible, so a cautious approach must be taken to bridge replacement. Bridge inspections will continue to assure that the bridge is performing adequately to keep open with confidence, but caution is advised.

A very detailed analysis and actual load testing by CFX engineering lead by Dr. Ramon Carrasquillo of the University of Texas was performed to estimate the remaining service life (RSL) of the bridge. This study also determined its capacity for handling this continued heavy truck traffic and the construction traffic for the now completed Ullrich WTP expansion projects. The CFX report showed that this structure was already very close to the end of its useful life in 1997 before the Ullrich WTP expansion construction project began. The bridge deck was structurally modified in late 1998 to enhance its load carrying capacity. This was intended to add about 10 years to its remaining service life and carry us through the Ullrich WTP expansion construction. We are now past the theoretical RSL calculated by CFX. And although substantial safety factors are used in the design of bridges, we need to push forward now with the renewal of this structure.

The bridge may become critically and structurally deficient over the next few years. There is a high risk of the main steel girders reaching their actual fatigue failure life (too many millions of loadings). Public Works will monitor the bridge for signs of structural deterioration. Fortunately, this structure has redundant girders

meaning that a sudden catastrophic collapse as seen elsewhere in the nation is extremely unlikely. Conversely, severe load restrictions, limited number of allowable truck loadings per day, lengthy detours and closures are a distinct possibility if any excessive distresses or structural damages are discovered.

From the drainage perspective, a previous study done for the LCRA as a tabletop study of a “rain bomb” event showed that the Redbud Trail Bridge deck would be about 6” under water in a 100-year flood event and possibly could stay out of service for up to three days during such an event. This period could even be longer if severe scouring were to compromise the stability of the bridge foundations again as a result of flood waters or LCRA flood water releases.

The existing bridge also has very narrow, substandard sidewalks serving as the Western end of the Lance Armstrong Bikeway (LAB). This is the only pedestrian and bike route to the popular parks destination on Redbud Isle. Thus, a 10’ shared-use pathway is proposed on the downstream side and a dedicated bike lane on the LCRA dam side to enhance pedestrian and bicycle mobility.

Barton Springs Road Bridge

Background:
The Barton Springs Road Bridge over Barton Creek is a critical primary arterial connection to several major roads and communities. The bridge is located near the intersection of Robert E Lee Road and Barton Springs Road. It was originally built in 1925 with two lanes and was expanded to four lanes in 1946.

Proposal: The proposed project is to replace or rehabilitate the existing bridge structure on Barton Springs Rd. over Barton Creek and construct intersection safety improvements at Barton Springs Rd. and Robert E Lee Rd. These improvements will enhance multi-modal connectivity on this primary arterial to Zilker Metropolitan Park. The intersection safety improvements will improve both safety and mobility capacity for all modes of travel.

There are a large number of highly interrelated improvements planned at the intersection of Barton Springs Road and Robert E Lee as part of this project including:

- Complex bridge geometry including an immediate adjacent "T" intersection
- Realignment of traffic lanes to match new Barton Springs cross section east of Robert E Lee
- Structural sidewalk and bridge class railing along west side of Robert E Lee
- Expansion of the bike lanes across the bridge and through the intersection
- Large retaining wall and slope stabilization along the Umlauf property
- Sidewalk connectivity on the southeast corner
- Redesign of signalized traffic intersection
- Street drainage design
- Environmental protection of Zilker Park and Barton Creek
- Protection of the creek & trailside amenities below the bridge
- Hike & Bike Trail
- Terraced Slopes & Plantings along the trails
- Zilker Zephyr Miniature Train
- Multiple public and private utilities attached to the bridge

Justification:
Structurally, the bridge appears to be in fair condition; however, the deck width and geometry are obsolete. The bridge is currently a bottle-neck for the enhancement of all modes of travel on Barton Springs Road approaching Zilker Park from the east.

A proof of concept design that showed widening the bridge deck 30 feet could accommodate 2 - 6' sidewalks, 2 - 5' bicycle lanes, 4 - 10' travel lanes and a 15' median. This matches the new cross section of Barton Springs Road established by the reconstruction of that roadway east of Robert E Lee Rd. The cross section of the newer, wider Barton Springs Road to the east completed in 2003 has been a mismatch to the older roadway because of the lack of a median, substandard sidewalks, and missing bike lanes on the bridge. Staff in the Public Works Department and Austin Transportation Department confirmed the inadequacy of these elements in addition to many other aspects of this intersection.

The noted intersection safety improvements associated with this bridge project will improve both safety and mobility capacity for all modes of travel. New sidewalks and bicycle improvements constructed for all ages and abilities may encourage increased and safer active transportation in this busy recreational area.

William Cannon Dr Railroad Overpasses

Background:
The William Cannon Drive Overpass maintains a separated grade crossing between the Union Pacific Railroad and this major east-west arterial in south Austin. Unfortunately, these mechanically stabilized earth (MSE) walls have been a concern since their construction in the early 1980s. The mechanically stabilized earth (MSE) walls that support both the east and west ends of the William Cannon Drive Railroad Overpass have experienced movements/deflections which have both caused noticeable separation between the sidewalk and the street and have triggered major cracking in the roadway surface. Many first generation MSE walls that were built in the early 1980s in Texas have developed problems over time, such as excess movement of the retained fill or failure of the fascia wall.

Proposal:
Options to address the MSE walls include replacing the walls or rehabilitating and reinforcing the existing walls in order to assure that no excess movement of the retained fill or failure of the fascia wall will create a failure of the embankment. If the MSE walls are to be replaced, then the overpass/elevated structure will also be replaced, thus extending the bridge length. Regardless of whether the MSE walls are replaced or rehabilitated, the project will also include full depth roadway construction on the approaches with asphalt, sidewalks and bicycle facilities on both sides, curb and gutter, and utility relocations.

If the MSE walls are replaced with an elevated bridge structure, the improvements are expected to last 100 years. If the MSE walls are rehabilitated and reinforced, they are expected to last 75 years (but the elevated structure/overpass would likely need to be replaced before then). The project will preserve the existing grade separation between all users of the roadway and the railroad

Justification:
A preliminary engineering report and full design were prepared for the west end of the overpass, beginning in 2003. The preliminary engineering report for the east end of the overpass is currently underway, and expected to be completed in spring 2018. Civil design for the east end is partially funded, and will begin when the preliminary engineering for the east end of the overpass is complete.

The mechanically stabilized earth (MSE) walls that support both the east and west end embankments of the William Cannon Drive Railroad Overpass have experienced significant movements and deflections. These movements have caused noticeable separation between the sidewalk and the street and have triggered major cracking in the roadway surface and retaining wall panels. The west end approach of this single span bridge exhibited movement and a potential for failures immediately after construction. The project was conditionally accepted after several experts were consulted and a monitoring program was established. The situation stabilized after a few years, remained relatively steady for about 20 years, then began moving and failing again as the drought cycle abated and we experienced wetter weather again.

Many first generation design MSE walls that were built in the early 1980s in Texas have developed problems over time. Typically excessive movement of the retained fill and/or failure of the fascia wall have occurred. Options to address these MSE wall issues include replacing the walls or rehabilitating and reinforcing the existing walls in order to assure that no excessive movement of the retained fill or fascia wall panel damage will allow failure of the embankment. The proposed project also includes full depth roadway construction on the approaches, sidewalks and bicycle facilities on both sides, curb and gutter, and utility relocations.

There are current load capacity concerns for this overpass. If this project is not executed, we will need to conduct a load capacity study, and potentially limit the number of vehicles and associated weights on the overpass. This is a major east-west arterial in south Austin with limited alternative routes. If lanes of traffic were restricted or not available due to load capacity concerns, it would potentially cause a loss of mobility, significant delays, and long detour routes for south Austin and impact emergency response times.

Slaughter Lane Railroad Overpass

Background:
The Slaughter Lane Railroad Overpass maintains a separated grade crossing between the Union Pacific Railroad and this major east-west arterial in south Austin, and was constructed in the same timeframe and using the same means/methods as the William Cannon Railroad Overpass. The mechanically stabilized earth (MSE) walls that support both the east and west ends of the Slaughter Lane Railroad Overpass have experienced movements/deflections which have both caused noticeable separation between the sidewalk and the street and have triggered major cracking in the roadway surface. Many first generation MSE walls that were built in the early 1980s in Texas have developed problems over time, such as excess movement of the retained fill or failure of the fascia wall. Unfortunately, these mechanically stabilized earth (MSE) walls have been a concern since their construction in the early 1980s.

Proposal:
Options to address the MSE walls include replacing the walls or rehabilitating and reinforcing the existing walls in order to assure that no excess movement of the retained fill or failure of the fascia wall will create a failure of the embankment. If the MSE walls are to be replaced, then the overpass/elevated structure will also be replaced, thus extending the bridge length. Regardless of whether the MSE walls are replaced or rehabilitated, the project will also include full depth roadway construction on the approaches with asphalt, sidewalks and bicycle facilities on both sides, curb and gutter, and utility relocations.

If the MSE walls are replaced with an elevated bridge structure, the improvements are expected to last 100 years. If the MSE walls are rehabilitated and reinforced, they are expected to last 75 years (but the elevated structure/overpass would likely need to be replaced before then). The project will preserve the existing grade separation between all users of the roadway and the railroad.

Justification:
The mechanically stabilized earth (MSE) walls that support both the east and west end embankments of the Slaughter Lane Railroad Overpass have experienced significant movements and deflections. These movements have caused noticeable separation between the sidewalk and the street and have triggered major cracking in the roadway surface and retaining wall panels.

Many first generation design MSE walls that were built in the early 1980s in Texas have developed problems over time. Typically excessive movement of the retained fill and/or failure of the fascia wall have occurred. Options to address these MSE wall issues include replacing the walls or rehabilitating and reinforcing the existing walls in order to assure that no excessive movement of the retained fill or fascia wall panel damage will allow failure of the embankment. The proposed project also includes full depth roadway construction on the approaches, sidewalks and bicycle facilities on both sides, curb and gutter, and utility relocations.

There are current load capacity concerns for this overpass. If this project is not executed, we will need to conduct a load capacity study, and potentially limit the number of vehicles and associated weights on the overpass. This is a major east-west arterial in south Austin with limited alternative routes. If lanes of traffic were restricted or not available due to load capacity concerns, it would potentially cause a loss of mobility, significant delays, and long detour routes for south Austin and will impact emergency response times. If load capacity restrictions are put in place, emergency response times, Capital Metro Bus Route, and multi-modal commutes would likely result in increased emissions and increased congestions on nearby roadways.

Delwau Lane Bridge

Background:
The Delwau Lane Bridge is the only access to 5 residences and a businesson the north side of Boggy Creek. This bridge crosses Boggy Creek and has been severely damaged by 7 different flooding events over the last 20 years, and in some cases has been under the flood waters during flooding events.

Proposal:
Replace the existing bridge due to age, design, and damage to the bridge from flooding events. The new bridge will be elevated above historic flooding levels so that City residents can access/leave their properties as needed, especially in times of emergency response. The new bridge will be a wider deck than is currently in place so that multi-modal improvements can be included as pedestrian and bicycle routes are developed in the area. Scour mitigation will also be included for future flooding events.

Justification:
Serious repairs were required after four major flooding events over the last 20 years. The bridge was closed for multiple days on several occasions at great inconvenience to the residents. This 50 foot bridge is a bottleneck in South Boggy Creek which has a 500' flood plain at this point in the channel. There is major scouring during flooding events, and flood levels often rise over the elevation of the existing structure.

Watershed Protection had placed scour mitigation measures, most of which unfortunately have been lost to successive flood events. These flood events have completely damaged the abutments on several occasions requiring major emergency repairs. The appropriate bridge span should be about 3 times the current clear span to minimize the potential for future flood damage.

Appendix B – Bridge Ratings

Bridges Rated in "FAIR" Condition

Facility Carried	Location	Feature Crossed	Year Built	Functionally Obsolete	Sufficiency Rating
E 5TH ST EB	0.10 MI E OF RED RIVER	WALLER CREEK	1924	O	52.1
S 1ST STREET	0.9 MI S OF SH 71	WILLIAMSON CREEK	1973	O	57.8
S 1ST STREET	1.0 Mi S of SH 71(B WHITE	WILLIAMSON CREEK	1973	O	58.2
E RIVERSIDE DR	3.7 MI E OF LP 275	COUNTRY CLUB CREEK BR	1986	O	58.4
VERTEX BLVD	2.7 MI E OF IH 35	ONION CREEK	2016		58.7
S PLEASANT VALLEY	0.14 MI S OF CESAR CHAVEZ	COLORADO RI-LONGHRN DAM	1960	O	58.8

Bridges Rated in "SATISFACTORY" Condition

Facility Carried	Location	Feature Crossed	Year Built	Functionally Obsolete	Sufficiency Rating
N LAMAR BLVD	0.10 MI S OF W 15TH ST	SHOAL CREEK	1941	O	60.2
CIRCLE S RD	0.90 MI S OF W CANNON	BOGGY CREEK	1915	O	60.8
S 1ST STREET	1.15 MI S OF SH 71	WILLIAMSON CREEK	1973	O	61.6
BAYTHORNE DR	2.7 MI W OF IH 35	ONION CREEK	2016		61.9
E RIVERSIDE DR	1.9 MI E OF LOOP 275	WILLOW CREEK	1974		62.8
W STASSNEY LN	0.8 MI W OF S 1ST ST	WILLIAMSON CREEK BRANCH	1978		63.1
E STASSNEY LANE	0.25 MI E OF IH 35	WILLIAMSON CREEK	1980	O	63.7
PLEASANT VALLEY RD	0.1 MI N OF WM CANNON DR	WILLIAMSON CREEK	1986	O	64.0
E 7TH ST EB	1.6 MI E OF IH 35	TILLERY ST & CM RAIL	1948		65.1
E 7TH ST WB	1.6 MI E OF IH 35	TILLERY ST & CM RAIL	1948		65.1
E RIVERSIDE DR	0.30 MI W OF IH 35	BLUNN CREEK	1916	O	65.5
W 15TH ST	0.20 MI W OF WEST AVE	SHOAL CREEK/LAMAR PKWY	1966		65.6
W 45TH ST	0.5 MI W OF BURNET RD	SHOAL CREEK	1958	O	65.7
SLAUGHTER LN	0.14 MI W OF BRODIE LN	TRIB OF SLAUGHTER CR	1988	O	66.0
S CONGRESS AVE	0.1 MI S OF CESAR CHAVEZ	LADY BIRD LAKE	1909	O	66.1
PRESIDENTIAL UPLEV	1.2 MI SW OF US 71	PRESIDENTIAL LOW LEVEL	1998	O	66.2
REDBUD TRAIL	0.30 MI W OF LAKE AUSTIN	COLORADO RIVER RELIEF	1948	O	66.3
E 45TH ST	1.9 MI W OF AIRPORT BLVD	WALLER CREEK	1945	O	66.8

CAMERON RD	0.50 MI N OF US 183	LITTLE WALNUT CREEK BR	1986	O	66.8
S 1ST ST	1.0 MI S OF WM CANNON	BOGGY CREEK	1979	O	66.9
REDBUD TRAIL	0.20 MI W OF LAKE AUSTIN	COLORADO RIVER	1948	O	67.1
BARTON SPRINGS RD	0.70 MI E OF LP 1	BARTON CREEK	1925	O	67.3
E 15TH ST	0.27 MI E OF CONGRESS	WALLER CREEK	1916	O	67.7
METRIC BLVD	0.70 MI S OF PARMER	WALNUT CREEK	1990	O	67.8
E RIVERSIDE DR WB	1.4 MI E OF IH 35	COUNTRY CLUB CREEK	1978	O	67.9
E RIVERSIDE DR EB	1.4 MI E OF IH 35	COUNTRY CLUB CREEK	1978	O	67.9
E STASSNEY LANE	2.2 MI SE OF IH 35	DRAW	1998	O	67.9
E STASSNEY LANE	2.8 MI E OF IH 35	DRAW	1998	O	67.9
MANCHACA RD	0.70 MI S OF US 290	WILLIAMSON CREEK	1968	O	68.0
OLD SAN ANTONIO RD	0.20 MI W OF IH 35	SLAUGHTER CREEK	1915	O	68.3
MANOR RD	0.5 MI W OF US 183	LITTLE WALNUT CREEK	1983	O	68.6
PAYTON GIN RD	0.1 MI W OF LAMAR BLVD	LITTLE WALNUT CREEK	1965	O	68.7
GRACY FARMS LN	0.35 MI E OF BURNET RD	BRANCH WALNUT CREEK	1990	O	68.7
S 1ST ST	0.5 MI S OF BARTON SPR RD	E BOULDIN CREEK	1916	O	69.0
MT BONNELL RD	0.4 MI S OF FM 2222	DRY CREEK	1922	O	69.1
W 51ST ST	0.40 MI E OF LAMAR BLVD	WALLER CREEK	1964	O	69.1
S 1ST ST	0.1 MI S OF BARTON SPR RD	E BOULDIN CREEK	1936	O	69.7
WALNUT CREEK CROSS	0.02 MI W OF PARK 35 CIR	WALNUT CREEK BRANCH	1985		69.8
W OLTORF ST	0.15 MI E OF S LAMAR BLVD	W BOULDIN CREEK	1977	O	69.9

Bridges Rated in "GOOD" Condition

Facility Carried	**Location**	**Feature Crossed**	**Year Built**	**Functionally Obsolete**	**Sufficiency Rating**
PRESIDENTIAL SB	0.2 MI SW OF US 71	HOTEL DR	1998	O	70.2
SPRINKLE CUTOFF RD	0.23 MI SE OF PIONEER FMS	WALNUT CREEK	2005	O	70.2
E 6TH ST WB	0.09 MI E OF RED RIVER	WALLER CREEK	1930	O	70.3
W RUNDBERG LANE	0.15 MI W OF LAMAR BLVD	LITTLE WALNUT CREEK	1976	O	70.4
WALSH TARLTON LN	0.40 MI SW OF FM 2244	BEE CAVE CREEK	1982	O	70.5
E 51st ST	0.4 MI SE OF MANOR RD	DRAW	1995	O	70.5
WEST GATE BLVD	0.90 MI S OF US 290	WILLIAMSON CREEK BRANCH	1974	O	70.6
WEST GATE BLVD	0.75 MI S OF US 290	WILLIAMSON CREEK	1975	O	70.6

WATERFORD CTR SB	0.15 MI N OF US 183	DETENTION POND	1996	O	70.6
GROVE BLVD	0.07 MI N OF RIVERSIDE	TRIB OF COUNTRY CLUB CR	1980	O	70.7
E RIVERSIDE DR	3.2 MI E OF LP 275	BR OF COUNTRY CLUB CR	1986	O	70.7
S LAKELINE BLVD	1.3 MI E OF CYPRESS CREEK	S BRUSHY CREEK	1990		70.7
E MLK JR BLVD	0.17 MI E OF CONGRESS	WALLER CREEK	1917	O	70.8
WEST GATE BLVD	0.60 MI S OF US 290	WILLIAMSON CREEK BRANCH	1972	O	70.8
W WILLIAM CANNON	1.9 MI E OF BRODIE LANE	UP RR	1982	O	70.8
MEARNS MEADOW BLVD	0.05 MI N OF RUTLAND	LITTLE WALNUT CREEK	1987	O	70.8
W 24TH ST	0.05 MI W OF LAMAR	SHOAL CREEK	1928	O	70.9
E 38TH ST	0.5 MI W OF IH 35	WALLER CREEK	1951		70.9
MANOR RD	1.2 MI S OF SPRINGDALE RD	FORT VIEW BRANCH	2004	O	70.9
RUTLAND DR	2.2 MI E OF FM 1325	LITTLE WALNUT CREEK	1972	O	71.0
CAMERON RD	0.80 MI N OF US 183	LITTLE WALNUT CREEK	1986	O	71.1
LOW WATER XING RD	0.40 MI W OF RM 620	COLORADO RIVER	1938		71.2
CAMERON RD	0.1 MI NE OF IH 35	TANNEHILL CREEK	1958		71.3
E RUNDBERG LANE	0.12 MI NW OF IH 35	DRAW	1976	O	71.5
DESSAU RD SB	1.1 MI E OF IH 35	WALNUT CREEK	1991	O	71.5
DESSAU RD NB	1.1 MI E OF IH 35	WALNUT CREEK	1991	O	71.5
W 5TH ST	0.1 MI E OF N LAMAR BLVD	SHOAL CREEK	1930	O	71.6
W 12TH ST	0.1 MI E OF N LAMAR BLVD	SHOAL CREEK	1927	O	71.8
PRESIDENTIAL NB	0.2 MI SW OF US 71	HOTEL DR	1998	O	71.8
E 7TH ST EB	0.42 MI E OF CONGRESS ST	WALLER CREEK	1930	O	71.9
E 51ST ST	0.15 MI E OF MANOR RD	FORT VIEW BRANCH	1967	O	71.9
WEST GATE BLVD	1.10 MI S OF US 290	WILLIAMSON CREEK BRANCH	1974		71.9
SOUTHWEST PKWY WB	0.50 MI W OF LOOP 1	GAINES CREEK	1988	O	71.9
STECK AVE	0.35 MI E OF LOOP 1	SHOAL CREEK	1965		72.1
E 41ST ST	0.05 MI W OF RED RIVER	WALLER CREEK	1929		72.3
HANCOCK DR	0.5 MI E OF LP 1	SHOAL CREEK	1961		72.3
MONTERREY OAKS	0.35 MI S OF US 290	DRAW	1980		72.3
CITY PARK RD	4.85 MI SW OF FM 2222	TURKEY CREEK	1972		72.4
BURNET RD	3.5 MI S OF US 183	HANCOCK CREEK	1939		72.6
E 8TH ST WB	0.38 MI E OF CONGRESS	WALLER CREEK	1940	O	72.8
CHANNEL RD	0.80 MI N OF WESTLAKE DR	ROCKY CLIFF SLOUGH	2011		72.8
E 32ND ST	0.25 MI E OF DUVAL	WALLER CREEK	1930	O	72.9
JONES RD	1.30 MI E OF BRODIE LN	WILLIAMSON CREEK	1972	O	72.9

JONES RD	1.2 MI E OF BRODIE LN	WILLIAMSON CREEK BRANCH	1975	O	72.9
SPICEWOOD SPRINGS	0.10 MI W OF LOOP 1	DRAIN	1981		72.9
SPRINGDALE RD	0.3 MI S OF 51ST ST	FORT VIEW BRANCH CREEK	1968		73.0
SOUTHWEST PKWY EB	0.50 MI W OF LOOP 1	GAINES CREEK	1988	O	73.0
RED RIVER ST	0.06 MI N OF 1ST ST	WALLER CREEK	1930	O	73.1
S PLEASANT VALLEY	0.45 MI S OF STASSNEY LN	WILLIAMSON CREEK BRANCH	1974		73.1
METRO CENTER DR	0.35 MI W OF RIVERSIDE DR	CARSON CREEK	2000	O	73.2
METRO CENTER DR	0.36 MI W OF RIVERSIDE DR	CARSON CREEK RELIEF	2000	O	73.2
E 11TH ST WB	0.38 MI E OF CONGRESS	WALLER CREEK	1958		73.4
E 10TH ST WB	0.1 MI W OF IH 35	WALLER CREEK	1964	O	73.4
SLAUGHTER LN	0.33 MI E OF BRODIE LN	DRAW	1988		73.4
SLAUGHTER LN	0.38 MI E OF BRODIE LN	DRAW	1988		73.4
E HOWARD LN	2.35 MI SE OF IH 35	DRAW	1999		73.4
WELLS BRANCH PKWY	0.4 MI SE OF FM 1825	HARRIS BRANCH	1995		73.7
E 4TH ST WB	0.08 MI E OF RED RIVER	WALLER CREEK	1933	O	73.8
E MLK JR BLVD	1.2 MI NE OF IH 35	BOGGY CREEK	1955	O	73.8
SLAUGHTER LN	0.25 MI E OF MANCHACA RD	UP RR	1993		73.8
AIRPORT BLVD	0.2 MI E OF IH 35	DRAW	1944		73.9
REPUBLIC OF TEXAS	0.05 MI N OF SW PKWY	GAINES CREEK	1995		74.0
AVERY RANCH BLVD	0.40 MI E OF PARMER LN	MORGAN CREEK	2002		74.0
NORTH LOOP BLVD	0.4 MI E OF LAMAR BLVD	WALLER CREEK	1952		74.1
MC ALLEN PASS	0.9 MI N OF PARMER LN	DRAW	1999		74.1
MC ALLEN PASS	0.7 MI N OF PARMER LANE	DRAIN	2003		74.2
AVERY RANCH BLVD	1.60 MI E OF PARMER LN	DRAW	2002		74.3
W 29TH ST	0.05 MI W OF LAMAR BLVD	SHOAL CREEK	1939		74.5
SCOFIELD RIDGE PKY	0.50 MI W OF HOWARD LN	WELLS BRANCH TRIB	1995		74.5
MCKINNY FALLS PKWY	0.95 MI SW OF US 183	DRAW	1995		74.6
CENTER RIDGE DR	0.30 MI W OF MCALLEN PASS	DRAW	2003		74.6
DESSAU RD	0.7 MI NE OF PARMER LN	DRAW	1992		74.7
GROVE DR	0.11 MI SE OF PARKING LOT	COUNTRY CLUB CREEK	1948		74.8
SHOAL CREEK BLVD	1.40 MI S OF US 183	W SHOAL CREEK	1971		74.8
SOUTHWEST PKWY WB	0.40 MI W OF LOOP 1	GAINES CREEK	1988		74.9
SOUTHWEST PKWY EB	0.40 MI W OF LOOP 1	GAINES CREEK	1990		75.0
SPEEDWAY	0.9 MI N OF MLK BLVD	WEST WALLER CREEK	1946		75.1
HANCOCK DR	0.14 MI W OF BURNET RD	HANCOCK CREEK	1960		75.1
SPICEWOOD SPRINGS	1.90 MI SW OF US 183	BULL CREEK BRANCH	1980		75.1
N LAKE CREEK PKWY	0.1 MI N OF FM 620 (SH45)	DRAW	2000		75.1
HOUSTON ST	0.25 MI E OF BURNET RD	HANCOCK CREEK	1950		75.2

WEST GATE BLVD	0.11 MI N OF CAMERON LOOP	BOGGY CREEK	1975		75.3
SPEEDWAY	0.1 MI SW OF W 46TH ST	WALLER CREEK	1948		75.7
WILLIAM CANNON WB	1.75 MI E OF IH 35	ONION CREEK	2000		75.7
HOTEL DR	0.02 MI SE SPIRIT OF TX	DRAINAGE DITCH	1997		76.1
GRACY FARMS LN	0.05 MI E OF BURNET RD	WALNUT CREEK BRANCH	1990		76.4
WILLIAM CANNON EB	1.7 MI E OF IH 35	ONION CREEK	2012		76.4
HARRIS RIDGE BLVD	0.30 MI NE OF PARMER LN	DRAW	2003	O	76.6
E 3RD ST	0.07 MI E OF RED RIVER	WALLER CREEK	1938		76.7
RAIN CREEK PKWY	0.65 MI NW OF GREAT HILLS	BRANCH BULL CREEK	1979		77.0
MCKINNY FALLS PKWY	0.3 MI W OF US 183	DRAW	1995		77.0
EAST SIDE DR	0.10 MI N OF W MONROE	BLUNN CREEK	1931		77.2
AVERY RANCH BLVD	0.30 MI W OF PARMER LN	DRAW	2005		77.4
DAVIS LN	0.2 MI W OF ESCARPMENT	DRAW	1990		77.5
LAKE CREEK PKWY SB	0.40 MI SE OF FM 620	LAKE CREEK	1990	O	77.6
LAKE CREEK PKWY NB	0.40 MI SE OF FM 620	LAKE CREEK	1990	O	77.6
AVERY RANCH BLVD	0.75 MI W OF PARMER LN	DRAW	2005		77.6
AVERY RANCH BLVD	0.70 MI W OF PARMER LN	DRAW	2005		77.6
WILLIAM CANNON DR	0.10 MI SE OF BRODIE LN	S FORK WILLIAMSON CREEK	1977	O	77.8
MT BONNELL RD	2.00 MI S OF FM 2222	WATER PLANT RD	1995		78.0
RIVERSIDE DR WB	0.15 MI E OF S LAMAR BLVD	W BOULDIN CREEK	1931	O	78.2
DAVIS LN	0.1 MI E OF ESCARPMENT	DRAW	1990		78.5
HARRIS BR PKWY SB	0.35 MI S OF FM 734	HARRIS BRANCH	1999	O	78.8
HARRIS BR PKWY NB	0.35 MI S OF FM 734	HARRIS BRANCH	1999	O	78.8
AVERY RANCH WB	1.00 MI E OF PARMER LN	DOUBLE EAGLE DRAW	2002	O	78.9
AVERY RANCH EB	1.00 MI E OF PARMER LN	DOUBLE EAGLE DRAW	2002	O	78.9
OLD MANOR ROAD	1.5 MI E IH 35	TANNEHILL BRANCH	2013		79.0
E 21ST ST	0.18 MI E OF CONGRESS AVE	WALLER CREEK	1953		79.4
SHOAL CREEK BLVD	0.1 MI N OF N LAMAR BLVD	SHOAL CREEK	1934		79.7
SHOAL CREEK BLVD	0.05 MI W OF LAMAR BLVD	SHOAL CREEK	1934		79.7

Bridges Rated in "VERY GOOD" Condition

Facility Carried	**Location**	**Feature Crossed**	**Year Built**	**Functionally Obsolete**	**Sufficiency Rating**
LOS CIELOS BLVD	1.2 MI E OF SH 130	DRY CREEK EAST	2005		80.1
SOUTHPARK MEADOWS	0.9 MI E OF IH 35	SLAUGHTER CREEK	2011		80.1
TRACE CREEK PASS	0.8 MI E OF FM 3177	ELM CREEK	2014		80.1
CANYON RIDGE DR	0.20 MI E OF IH 35	WALNUT CREEK BRANCH	2003	O	80.2

BRAKER LN	0.20 MI E OF LOOP 1	UP RR	1985		81.0
MONTANA ST	0.27 MI SE OF VARGAS RD	CARSON CREEK	1995		81.0
ST MERRYN RD	1.4 MI N OF US 290	DEKER CREEK	2015		81.1
ESCARPMENT BLVD	0.20 MI N OF SH 45	DRAW OF SLAUGHTER CR	2003		81.7
SLAUGHTER LN	0.65 MI W OF S CONGRESS	NICHOLS BRANCH	1980		81.9
SPIRIT OF AUSTIN	0.01 MI SW OF SPIR OF TEX	DRAIN	1998		82.5
CASTRO ST	0.25 MI NW OF TILLERY ST	BOGGY CREEK	1981		82.6
COUNCIL BLUFF DR	0.20 MI N OF OAK CREEK DR	WALNUT CREEK	1985		82.7
WEST AVE	0.10 MI S OF W 5TH ST	SHOAL CREEK	1963		82.8
RIVERSIDE DR EB	0.15 MI E OF S LAMAR BLVD	W BOULDIN CREEK	1931	O	82.9
ANDERSON LN	0.1 MI E OF LP 1	UP RR	1981	O	83.1
E OLTORF ST	0.50 MI W OF IH 35	BLUNN CREEK	1953		83.2
AIRPORT BLVD	0.5 MI SE OF N LAMAR BLVD	WALLER CREEK	1938	O	83.4
WEST COW PATH	0.07 MI N OF DUVAL RD	WALNUT CREEK BRANCH	1980		83.4
W MARY ST	0.05 MI W OF S 6TH ST	W BOULDIN CREEK	1928		84.3
BARTON SPRINGS RD	1.30 MI E OF LP 1	W BOULDIN CREEK	1931		84.5
SPECTRUM DR	0.18 MI NE OF FM 734	DAVIS SPRING BRANCH	1990		84.6
PARLIAMENT HOUSE	0.05 MI NW OF LONSDALE DR	LAKE CREEK	1985		84.7
DORSETT RD	0.03 MI NW OF WYCLIFF LN	WALNUT CREEK BRANCH	1980		84.8
DORSETT RD	0.12 MI NW OF WYCLIFF LN	WALNUT CREEK BRANCH	1980		84.8
DESSAU RD	1.3 MI E OF IH 35	FERGUSON CREEK	1980		85.1
S 1st ST NB	0.9 MI S OF SLAUGHTER LN	NICHOLS BRANCH	2001		85.1
S 1st ST SB	1.40 MI S OF SLAUGHTER LN	SLAUGHTER CREEK	2001		85.1
W ANDERSON LN	0.1 MI W OF LP 1	SHOAL CREEK	1967		85.3
WILLIAM CANNON DR	1.20 MI S OF SW PKWY	DRAW	1990	O	85.3
BOWMAN AVE	0.50 MI E OF EXPOSITION	JOHNSON CREEK	1948		85.7
MONTOPOLIS DR	0.05 MI S OF SH 71	CARSON CREEK	1995		85.8
AVENUE F	AT 45TH STREET	WALLER CREEK	1957		85.9
WESTLAKE DR	1.00 MI N OF REDBUD TR	BEE CREEK	1987		85.9
LOYOLA LN	0.73 MI E OF US 183	DRAW	2000		86.0
SPRINGDALE RD	0.45 MI SW OF AIRPT BLVD	BOGGY CREEK	1973		86.1
W 9TH ST	0.1 MI E OF N LAMAR BLVD	SHOAL CREEK	1976		86.1
S 1st ST SB	0.9 MI S OF SLAUGHTER LN	NICHOLS BRANCH	2001		86.1
S 1st ST NB	1.40 MI S OF SLAUGHTER LN	SLAUGHTER CREEK	2001		86.1
BECKETT RD	0.01 MI SW OF WM CANNON	DRAW	1990		86.4
WOODWARD ST	0.20 MI W OF IH 35	BLUNN CREEK	1976		86.5

WOODWARD ST	0.15 MI W OF IH 35	BLUNN CREEK BRANCH	1976		86.5
W STASSNEY LN	0.10 MI E OF S 1ST ST	WILLIAMSON CREEK BRANCH	1978		86.5
METRIC BLVD	0.50 MI S OF HOWARD LN	WELLS BRANCH TRIB	1988		86.5
E 38 1/2 ST	0.2 MI E OF IH 35	BOGGY CREEK	1948		86.6
SALEM HILL DR	0.2 MI NW EMERALD FOREST	WILLIAMSON CREEK BRANCH	1972		86.6
PECAN PARK BLVD	0.10 MI W OF US 183	PECAN CREEK	1987	O	86.7
E MONROE ST	0.35 MI E OF S CONGRESS	BLUNN CREEK	1931		86.8
PARK BLVD	0.20 MI W OF RED RIVER	WALLER CREEK	1935		86.8
W 46TH ST	0.30 MI E OF GUADALUPE	WALLER CREEK	1958		86.8
E 51ST ST	1.3 MI E OF IH 35	TANNEHILL BRANCH	1967		86.8
BLESSING AVE	0.15 MI N OF ST JOHN'S	BUTTERMILK CREEK	1974		86.8
AVENUE G	0.05 MI S OF 45TH ST	WALLER CREEK	1931		87.1
W HOWARD LN	0.70 MI E OF IH 35	DRAW	1999		87.1
BURLESON RD	0.33 MI S OF E OLTORF	COUNTRY CLUB CREEK	1977		87.2
BURLESON RD	0.4 MI S OF E OLTORF	COUNTRY CLUB CREEK	1977		87.2
WILLIAM CANNON DR	1.50 MI S OF SW PKWY	WILLIAMSON CREEK	1990	O	87.3
BURLESON RD	0.86 MI NW OF US 183	DRAW	1997		87.4
E 12TH ST WB	0.15 MI E OF SAN JACINTO	WALLER CREEK	1931		87.5
E 12TH ST EB	0.15 MI E OF SAN JACINTO	WALLER CREEK	1931		87.5
MANOR RD	1.6 MI S OF SPRINGDALE RD	TANNEHILL BRANCH	1957		87.6
PRESIDENTIAL SB	0.4 MI SW OF US 71	EMPLOYEE AVE	1998		87.6
DELWAU LN	0.05 MI N OF SHELTON RD	BOGGY CREEK	1987		87.7
BRODIE LN	0.2 MI N OF FRATE BARKER	DRAIN	1995		87.7
GROVE BLVD	1.1 MI N OF RIVERSIDE DR	COUNTRY CLUB CREEK	1999		87.7
W 55TH ST	0.12 MI E OF GUADALUPE	WALLER CREEK	1960		87.8
W ELIZABETH ST	0.05 MI E OF S 1ST ST	E BOULDIN CREEK	1960		87.8
BENNETT AVE	0.15 MI N OF 53 1/2 ST	TANNEHILL BRANCH	1961		87.8
JIMMY CLAY DR	0.10 MI SE OF E STASSNEY	WILLIAMSON CREEK	1970		87.8
BRADSHAW ROAD	2.1 MI NE OF FM 1327	RINARD CREEK	1999		87.8
LOYOLA LANE	0.1 MI W of US 183	BRANCH OF WALNUT CREEK	2000		87.8
HARRIS AVE	0.20 MI W OF RED RIVER	WALLER CREEK	1934		87.9
W MONROE ST	0.50 MI E OF S 1ST ST	E BOULDIN CREEK	1952		87.9
BERKMAN DR	0.1 MI N OF 51ST ST	TANNEHILL BRANCH	1964		87.9
S 1ST ST	0.1 MI S OF CESAR CHAVEZ	LADY BIRD LAKE	1951		88.0
E 26TH ST	0.65 MI W OF IH 35	WALLER CREEK	1931		88.1

N PLEASANT VALLEY	0.25 MI S OF 12TH ST	BOGGY CRK, ROSEWOOD, RR	1973		88.1
SAMSUNG BLVD	0.64 MI S OF PARMER LANE	DRAW	2005		88.1
BRIARCLIFF BLVD	0.13 MI NW OF BERKMAN DR	FORT VIEW BRANCH	1980		88.2
CROSSING PLACE	0.11 MI NE RIVERSIDE DR	TRIB OF COUNTRY CLUB CR	1980		88.2
BRODIE LN	0.30 MI SW OF WM CANNON	S FORK WILLIAMSON CREEK	1990		88.2
LOYOLA LN	1.50 MI E OF US 183	WALNUT CREEK BRANCH	2000		88.2
SPRINGDALE RD	0.5 MI NE OF AIRPORT BLVD	TANNEHILL BRANCH	1946		88.4
GEORGIAN DR	0.60 MI S OF RUNDBERG LN	LITTLE WALNUT CREEK	1975		88.4
E 9TH ST EB	0.42 MI E OF CONGRESS	WALLER CREEK	1968		88.5
OAK SPRINGS DR	0.37 MI E OF AIRPORT BLVD	TANNEHILL BRANCH	1963		88.5
SENDERO HILLS PKWY	0.08 MI S OF LOYOLA LANE	WALNUT CREEK BRANCH	1980		88.5
ESCARPMENT BLVD	1.20 MI S OF WM CANNON	DRAW	1990		88.6
ESCARPMENT BLVD	1.50 MI S OF WM CANNON	DRAW	1990		88.6
WATERFORD CTR NB	0.15 MI N OF US 183	DETENTION POND	1996		88.6
W HOWARD LN	0.01 MI W OF BURNET RD	WALNUT CREEK BRANCH	1994		88.7
E DEAN KEETON ST	0.75 MI W OF IH 35	W WALLER CREEK	1931		88.8
SOUTHWEST PKWY	0.90 MI W OF LOOP 1	GAINES CREEK	1988		88.8
E 12TH ST	1.72 MI E OF SAN JACINTO	BOGGY CREEK	1938		88.9
E 12TH ST	0.6 MI E OF AIRPORT BLVD	TANNEHILL BRANCH	1969		88.9
BUNTING DR	0.05 MI S OF DANWOOD ST	BULL CREEK TRIB NO 2	1985		88.9
GILES RD	0.85 MI NE OF US 290	DECKER CREEK BR	2001		88.9
EMERALD FOREST DR	0.3 MI N OF STASSNEY LN	WILLIAMSON CREEK	1973		89.0
HARRIS GLENN DR	0.40 MI NE OF PARMER LN	DRAW	2003		89.0
SAMSUNG BLVD	0.20 MI E OF SPRINKLE RD	WALNUT CREEK BRANCH	2005		89.0
NORTHGATE BLVD	0.50 MI NE OF US 183	QUAIL CREEK	1976		89.1
METRIC BLVD	0.35 MI S OF KRAMER LANE	LITTLE WALNUT CREEK	1978		89.1
ESCARPMENT BLVD	0.3 MI S OF SLAUGHTER LN	SLAUGHTER CREEK	1985		89.1
WICKERSHAM LN	0.05 MI N OF RIVERSIDE	COUNTRY CLUB CREEK	1987		89.1
SHOAL CREEK BLVD	2.40 MI S OF US 183	SHOAL CREEK	1992		89.1

E OLTORF ST	0.95 MI E OF IH 35	COUNTRY CLUB CREEK	2003		89.1
CENTRE CREEK DR	0.20 MI NE OF RUTHERFORD	LITTLE WALNUT CREEK	1985		89.2
AMHERST DR	0.15 MI S OF FM 734	WALNUT CREEK BRANCH	1992		89.2
LOYOLA LN	1.29 MI E OF US 183	WALNUT CREEK BRANCH	2000		89.2
TRAVIS COUNTRY CIR	0.62 MI N OF SW PKWY	TRAVIS COUNTRY CREEK	2000		89.2
W 38TH ST	0.2 MI E OF JEFFERSON ST	SHOAL CREEK	1955		89.3
FLORAL PARK DR	0.55 MI W OF US 183	BULL CREEK TRIB NO 2	1985		89.3
DITTMAR RD	0.30 MI W OF S CONGRESS	BOGGY CREEK	1987		89.3
BRODIE LN	0.40 MI S OF SLAUGHTER LN	DRAW	1995		89.3
NORTH PLAZA DR	0.15 MI S OF RUNDBERG LN	DRAW	1972		89.4
COLLINFIELD DR	0.15 MI S OF RUNDBERG LN	QUAIL CREEK	1972		89.4
DITTMAR RD	0.55 MI W OF S CONGRESS	BOGGY CREEK	1983		89.4
W 6TH ST	0.1 MI E OF N LAMAR BLVD	SHOAL CREEK	1940		89.5
QUAIL VALLEY BLVD	0.15 MI S OF CRIPPLE CRK	LITTLE WALNUT CREEK	1974		89.5
NEENAH AVE	0.61 MI E OF PARMER LN	DAVIS SPRING BRANCH	1990		89.5
STRATFORD DR	1.60 MI SE OF REDBUD TR	DRAW	1962		89.6
LOYOLA LN	0.55 MI NW OF MANOR RD	LITTLE WALNUT CREEK	1963		89.6
MOUNTAIN QUAIL RD	1.10 MI NE OF RUNDBERG LN	LITTLE WALNUT CREEK	1972		89.6
BENNETT AVE	0.35 MI N OF ST JOHN'S	BUTTERMILK CREEK	1974		89.6
BLACK ANGUS DR	0.04 MI NE WHISPERING VAL	WALNUT CREEK BRANCH	1981		89.6
ROLLINGWOOD DR	0.1 MI W BARTON SPRGS RD	BEE CAVE CREEK	1983		89.6
OAK CREEK DR	0.1 MI NW OF FM 1325	WALNUT CREEK BRANCH	1985		89.6
SOUTHWEST PKWY	1.40 MI W OF LOOP 1	DRAW	1988		89.6
ADELPHI LN	0.2 MI S OF FM 734	WALNUT CREEK BRANCH	1990		89.6
PLEASANT VALLEY RD	0.04 MI S OF OLTORF ST	COUNTRY CLUB CREEK	2003		89.6
CENTER RIDGE DR	0.01 MI W OF MCALLEN PASS	DRAIN	2003		89.6
W 30TH ST	0.20 MI E OF GUADALUPE	WEST WALLER CREEK	1931		89.7
GREENBROOK PKWY	0.1 MI W OF WESTMINSTER	FORT VIEW BRANCH	1966		89.7
SPRING LAKE DR	0.04 MI SE SPRING HOLLOW	BULL CREEK BRANCH	1970		89.7
OLD CEDAR LANE	0.30 MI SE WEST WILD DR	WELLS BRANCH	1976		89.7
SCENIC DR	0.07 MI N OF MATTHEWS DR	DRAW	1980		89.7
BECKETT RD	0.75 MI SW OF WM CANNON	DRAW	1990		89.7

BECKETT RD	0.80 MI SW OF WM CANNON	DRAW	1990		89.7
DITTMAR RD	0.75 MI E OF FM 2304	BOGGY CREEK	2004		89.7
BERKMAN DR	0.55 N OF 51ST ST	FORT VIEW BRANCH	1960		89.8
JAIN LN	0.05 M E OF STUART RD	BOGGY CREEK	1983		89.8
SHADY LN	0.35 MI NE OF AIRPORT BLV	DRAW	1988		89.8
PARK BEND DR	0.5 MI E OF LP 1	DRAW	1996		89.8
W 34TH ST	0.25 MI W OF LAMAR	SHOAL CREEK	1938		89.9

Bridges Rated in "EXCELLENT" Condition

Facility Carried	**Location**	**Feature Crossed**	**Year Built**	**Functionally Obsolete**	**Sufficiency Rating**
WESTLAKE DR	2.4 MI SE OF LOOP 360	DRAW	1985		90.0
W ST ELMO RD	0.20 MI W OF SOUTH 1ST	UP RR	1963		90.2
ROYAL APPROACH RD	0.10 MI E OF BUNNY RUN RD	DRAW	1990		90.2
LINDSHIRE LN	0.47 MI S OF SLAUGHTER LN	TRIB OF SLAUGHTER CR	1990		90.5
LA CROSSE AVE	0.3 MI SE OF LOOP 1	VELAWAY CREEK	1990		90.5
LYNNBROOK DR	0.67 MI W OLD MANCHACA	BR OF SLAUGHTER CR	2005		90.5
SPICEWOOD PKWY	1.0 MI S OF ANDERSON MILL	BULL CREEK BRANCH	1980		90.6
OAK CREEK DR	0.6 MI NW OF FM 1325	WALNUT CREEK	1985		90.6
SAN FELIPE BLVD	0.15 MI N OF MCNEIL DR	RATTAN CREEK	1985		90.6
REPUBLIC OF TEXAS	0.4 MI SW OF SENDERO DR	DRAW	1995		90.6
REPUBLIC OF TEXAS	0.9 MI SW OF SENDERO DR	TRAVIS COUNTRY CREEK	1995		90.6
W HOWARD LN	0.3 MI E OF IH 35	DRAW	1999		90.6
GATLING GUN LN	0.01 MI W OF BRODIE LN	DRAIN	2005		90.6
ROSEWOOD AVE	1.2 MI E OF IH 35	BOGGY CREEK	1953		90.7
LOS INDIOS TR	0.4 MI NE OF SAN FELIPE	RATTAN CREEK	1985		90.7
COLONY LOOP DR	0.41 MI NE OF LOYOLA LANE	WALNUT CREEK BRANCH	1990		90.7
DAHLGREEN RD	0.17 MI S OF LA CROSSE AV	VELAWAY CREEK	1990		90.7
REPUBLIC OF TEXAS	1.3 MI SW OF SENDERO DR	DRAW	1995		90.7
NIXON LANE	0.15 MI S OF FM 969	S FK WILLIAMSON CR	1998		90.7
LOYOLA LN	2.12 MI E OF US 183	ELM CREEK	2000		90.7
RED RIVER ST	0.30 MI S OF E 15TH ST	WALLER CREEK	1970		90.8
SANDERLING TRAIL	0.25 MI W OF WALSH TRLTN	BEE CAVE CREEK	1979		90.8
METRIC BLVD	0.1 MI S OF FM 734	TAR BRANCH OF WALNUT CRK	1990		90.8
LAUREL CREEK DR	0.12 MI SW CENTENNIAL TRL	BULL CREEK BRANCH	1990		90.8
MANOR RD	0.1 MI SW OF AIRPORT BLVD	BOGGY CREEK	1921		90.9
DITTMAR RD	0.8 MI W OF S CONGRESS	BOGGY CREEK BRANCH	2004		91.0
TRINITY ST	0.04 MI S OF MLK BLVD	WALLER CREEK	1962		91.1

W LIVE OAK ST	0.10 MI E OF S 1ST ST	E BOULDIN CREEK	1965		91.3
POND SPRINGS RD	1.1 MI E OF US 183 FR	RETENTION DRAIN	2003		91.3
LA CROSSE AVE	0.70 MI W OF ESCARPMENT	DRAW OF SLAUGHTER CR	2000		91.4
E 24TH ST	0.15 MI E OF SPEEDWAY	WALLER CREEK	1954		91.5
LYONS RD	0.19 MI SE OF WEBBERVILLE	BOGGY CREEK BRANCH	1962		91.5
NUCKOLS CROSSING	0.50 MI SE OF TODD LN	DRAW	2013		91.5
ESCARPMENT BLVD	0.80 MI S OF WM CANNON	DRAW	1990		91.6
PECAN SPRINGS RD	0.25 MI W OF SPRINGDALE	FORT VIEW BRANCH	1979		91.7
EXIT RAMP	0.6 MI S OF SH 71	PRESIDENTIAL BLVD	2016		91.7
TRAVIS COUNTRY CIR	0.6 MI NE REPUBLIC OF TEX	TRAVIS COUNTRY CREEK	2004		91.8
DENSON DR	0.40 MI E OF LAMAR BLVD	WALLER CREEK	1963		91.9
W 10TH ST	0.1 MI E OF N LAMAR BLVD	SHOAL CREEK	1976		91.9
BOLM RD	0.8 MI NW OF US 183	BOGGY CREEK	1989		91.9
WEBBERVILLE RD	0.65 MI NE OF SPRINGDALE	FORT VIEW BRANCH	1968		92.0
PARKFIELD DR	1.40 MI S OF KRAMER LANE	QUAIL CREEK	1972		92.0
MEARNS MEADOW BLVD	0.70 MI NW OF RUNDBERG LN	TRIB OF LITTLE WALNUT CR	1973		92.0
WEBBERVILLE RD	0.23 MI SE OF PLEASANT VA	BOGGY CREEK	1976		92.0
SAN JACINTO BLVD	0.40 MI S OF EAST 30TH ST	WALLER CREEK	1936		92.1
PARKER LN	0.30 MI S OF OLTORF	N BR COUNTRY CLUB CR	1963		92.1
BLUFFSTONE LN	0.05 MI NW OF LP 360	BULL CREEK TRIB #2	1986		92.1
MUSTANG CHASE	0.03 MI SW RAMBLING RIDGE	WALNUT CREEK BRANCH	1994		92.1
WOODLAND AVE	0.40 MI E OF S CONGRESS	BLUNN CREEK	1938		92.2
TILLERY ST	0.85 MI SW OF OAK SPRNGS	BOGGY CREEK	1962		92.2
SHOAL CREEK BLVD	0.60 MI N OF STECK AVE	SHOAL CREEK	1971		92.2
PARKFIELD DR	0.90 MI S OF KRAMER LANE	LITTLE WALNUT CREEK	1972		92.2
ESKEW DR	0.65 MI W OF BRODIE LN	WILLIAMSON CREEK TRIB	1983		92.2
SAN JANCINTO BLVD	0.05 MI NE OF MLK BLVD	WALLER CREEK	1936		92.3
SHOAL CREEK BLVD	4.30 MI S OF US 183	HANCOCK CREEK	1953		92.3
HUNTERS TRACE	0.10 MI S OF RUNDBERG LN	QUAIL CREEK	1972		92.3
BARTON HILLS DR	0.6 MI SW OF ROBERT E LEE	BARTON CREEK BRANCH	1976		92.3
E LIVE OAK ST	0.75 MI E OF S 1ST ST	BLUNN CREEK	1916		92.4
SEMINARY RIDGE DR	0.25 MI S OF MANASSAS DR	BOGGY CREEK	1977		92.4
GREENLAWN ST	0.05 MI E OF SHOAL CK BVD	SHOAL CREEK	1985		92.4
COVERED BRIDGE RD	0.18 MI S OF SH 71	WILLIAMSON CREEK	1990		92.4
HEFLIN LN	0.30 MI SE OF MLK BLVD	FORT VIEW BRANCH	1999		92.4

COLONY CREEK DR	0.4 MI E OF NORTHGATE BLV	COLONY CREEK	1976		92.5
PECOS ST	0.05 MI S OF W 35TH ST	CAMP MABRY DRAW	1977		92.5
SHADY LN	0.1 MI SW OF AIRPORT BLVD	BOGGY CREEK	1983		92.5
WESTMINSTER DR	0.15 MI S OF ROGGE	FORT VIEW BRANCH	2004		92.5
TUSCANY WAY	0.1 MI S of US 290	BRANCH OF WALNUT CREEK	2016		92.5
E 26 1/2 ST	0.12 MI E OF SPEEDWAY	W WALLER CREEK	1929		92.6
W ANNIE ST	0.1 MI E OF S 1ST ST	E BOULDIN CREEK	1960		92.6
E 23RD ST	0.18 MI E OF SPEEDWAY	WALLER CREEK	1962		92.6
WELLINGTON DR	0.65 MI N OF MANOR RD	EAST FORT VIEW BRANCH	1966		92.6
CRIPPLE CREEK DR	0.45 MI SE PINE KNOLL DR	TRIB OF LITTLE WALNUT CR	1973		92.6
GOLDEN MEADOW DR	0.15 MI N OF RUTLAND	LITTLE WALNUT CREEK	1973		92.6
METCALFE RD	0.2 MI S OF BURLESON RD	N BR COUNTRY CLUB CR	1977		92.6
WHITE ROCK DR	0.1 MI W OF SHOAL CRK BLV	SHOAL CREEK	1984		92.6
BOULDER LN	0.75 MI E OF FM 620	BULL CREEK BRANCH	1985		92.6
HELEN ST	0.20 MI N OF 53 1/2 ST	TANNEHILL BRANCH	1956		92.7
FRANKLIN BLVD	0.30 MI E OF LAMAR BLVD	WALLER CREEK	1959		92.7
NELRAY BLVD	0.1 MI E OF GUADALUPE ST	WALLER CREEK	1959		92.7
W 551/2 ST	0.12 MI E OF GUADALUPE	WALLER CREEK	1960		92.7
INDIAN TRAIL	0.50 MI E OF EXPOSITION	JOHNSON CREEK	1963		92.7
W JOHANNA ST	0.05 MI E OF S 1ST ST	E BOULDIN CREEK	1964		92.7
S BROOK DR	0.05 MI S OF SCENIC BROOK	WILLIAMSON CREEK BRANCH	1967		92.7
OAK MEADOW DR	0.40 MI NW OF US 290	WILLIAMSON CREEK BRANCH	1967		92.7
W MARY ST	0.10 MI E OF S 1ST ST	E BOULDIN CREEK	1969		92.7
PINO LANE	0.15 MI S OF PALO BLANCO	WILLIAMSON CREEK BRANCH	1972		92.7
CROSSCREEK DR	.05 MI E OF SHOAL CK BLVD	SHOAL CREEK	1974		92.7
CHERRY CREEK DR	0.05 MI NW OF WEST GATE	WILLIAMSON CREEK BRANCH	1974		92.7
BLAIRWOOD DR	0.1 MI S OF WEST GATE	WILLIAMSON CREEK BRANCH	1974		92.7
BRUSH COUNTRY RD	0.20 MI N OF WM CANNON	WILLIAMSON CREEK	1975		92.7
BERKETT DR	0.05 MI SE OF WEST GATE	WILLIAMSON CREEK BRANCH	1976		92.7
FOSTER LN	0.08 MI E SHOAL CRK BLVD	SHOAL CREEK	1977		92.7
WOODCREEK RD	0.20 MI E OF CONVICT HILL	WILLIAMSON CREEK TRIB	1977		92.7

LAKE CREEK PKWY	0.75 MI SE OF FM 620	PECAN CREEK	1978		92.7
ABILENE TRAIL	0.3 MI NE OF ESCARPMENT	DRAW	1990		92.7
ABILENE TRAIL	0.7 MI NE OF ESCARPMENT	DRAW	1990		92.7
LOVELL DR	0.15 MI SE OF MANOR RD	TANNEHILL BRANCH	1973		92.8
WHITNEY WAY	0.18 MI NE OF FARO DR	TRIB OF COUNTRY CLUB CR	1973		92.8
DEERBROOK TRAIL	0.01 MI N OF LAKE CRK PK	LAKE CREEK	1978		92.8
MELLOW MEADOWS RD	0.01 MI W OF LAKE CRK PK	LAKE CREEK	1979		92.8
HOLT DR	0.05 MI W OF WORDHAM DR	S FORK WILLIAMSON CREEK	1980		92.8
STONECROFT DR	0.02 MI W OF WORDHAM DR	S FORK WILLIAMSON CREEK	1980		92.8
SCHOOL HOUSE LN	0.10 MI N OF LAKE CREEK	PECAN CREEK	1981		92.8
CROFTWOOD DRIVE	1.4 MI S OF LP 1	BRANCH OF WILLIAMSON CRK	1995		92.8
ST MERRYN RD	0.02 MI N OF THISTLE HILL	WILBARGER CREEK BRANCH	1998		92.8
SHORT SPRINGS DR	0.03 MI W OF LONG DAY DR	TRIB OF WALNUT CR	2007		92.8
BARTON SKYWAY	0.75 MI N of US 290	WEST BOULDIN CREEK	2008		92.8
BUENA SUERTE DRIVE	0.3 MI E OF FM 1826	BRANCH OF WILLIAMSON CRK	2010		92.8
LOYOLA LN	0.50 MI E OF US 183	WALNUT CREEK	2001		93.9
WILLIAM CANNON DR	2.8 MI E OF IH 35	MARBLE CREEK	2000		94.3
W NORTH LOOP BLVD	0.1 MI E OF BURNET RD	HANCOCK CREEK	2004		94.3
E 7TH ST EB	0.25 MI SE OF SHADY LANE	E 1ST ST WB	1963		95.0
FORT BRANCH BLVD	0.10 MI S OF WEBBERVILLE	FORT VIEW BRANCH	2013		95.1
W RAMP TO GARAGE	0.1 MI E OF PRESIDENTIAL	OPEN GROUND	1999	O	95.7
E RAMP FROM GARAGE	0.07 MI W OF PRESIDENTIAL	OPEN GROUND	1999	O	95.7
BURLESON RD	0.47 MI SE OF US 183	DRAW OF ONION CR	1993		96.0
ANDERSON LANE	0.1 MI S OF US 183	N LAMAR BLVD	1996		96.5
BILBROOK PLACE	0.60 MI S OF SLAUGHTER LN	SLAUGHTER CREEK BRANCH	1988		97.1
N PLEASANT VALLEY	0.13 MI N OF E 7TH ST	BOGGY CREEK	1981		97.9
W 3RD ST	0.10 MI S OF W 5TH ST	N LAMAR BLVD	1959		98.0
RIVER PLANTATION	1.0 MI W OF BRADSHAW RD	ONION CREEK	1994		98.0
GEN AVIATION AVE	0.5 MI N OF BURLESON RD	TRIB OF ONION CR	1995		98.8
LAKEWOOD DR	0.58 MI N OF FM 2222	BULL CREEK	2013		98.9
S PLEASANT VALLEY	0.18 MI SW OF E ST ELMO	DRAW	2013		99.8
S PLEASANT VALLEY	0.27 MI SW OF E ST ELMO	DRAW	2013		99.8
BULL RUN	0.12 MI NW MUSTANG CHASE	WALNUT CREEK BRANCH	1994		100.0