

City of Fort Worth

# BOMBER SPUR REGIONAL VELOWEB SHARED USE PATH

Final Document | February 2021



North Central Texas  
Council of Governments



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## OVERVIEW

The Bomber Spur Trail is part of the Regional Veloweb, a network of 1,876 miles of off-street shared-use paths (trails) designed for bicyclists, pedestrians, and other non-motorized forms of transportation. The Regional Veloweb serves as the regional expressway network for active transportation to provide greater connectivity.

In addition, the Bomber Spur Trail is identified in the City of Fort Worth's Active Transportation Plan and was ranked as the number 3 priority trail project. The Bomber Spur Trail connection will ultimately create a loop connecting downtown Fort Worth to the West Fork and Clear Fork segments of the Trinity Trails as shown in **Figure 1**. This project focuses on the southern portion of the Bomber Spur Trail corridor from Vickery Boulevard to Calmont Avenue (near IH-30).

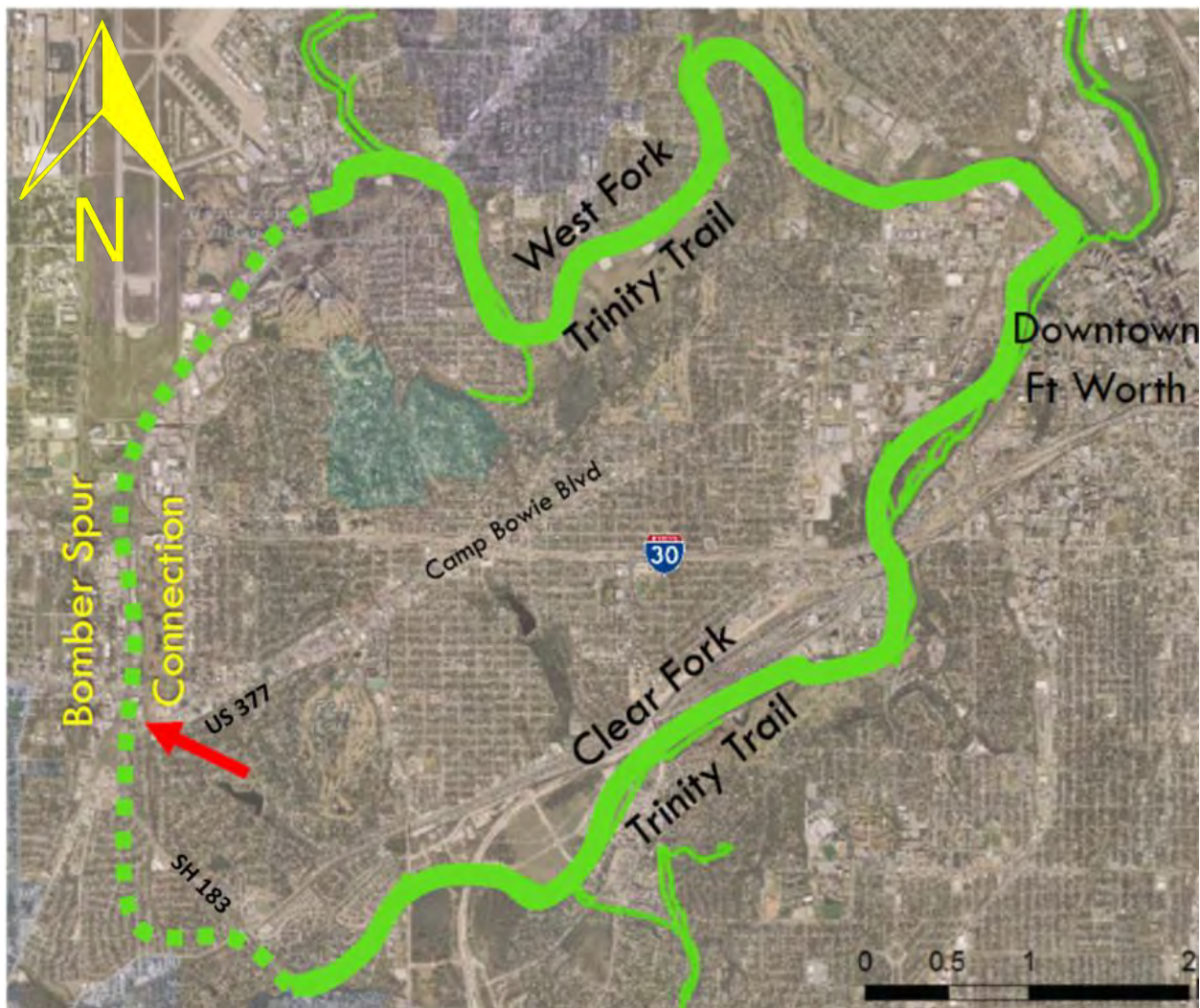


Figure 1 – Regional Veloweb in Western Fort Worth

## PROJECT DESCRIPTION

The North Central Texas Council of Governments (NCTCOG) partnered with the City of Fort Worth and Streams and Valleys, Inc. to prepare preliminary design and opinion of probable construction costs for the Bomber Spur Regional Veloweb Shared-Use Path alignment. The project limits, shown in **Figure 2** on page 5, extend from the intersection of W. Vickery Blvd. at Rockmoor Lane to Calmont Avenue. The preliminary design for the Bomber Spur Trail was completed in December 2020.

NCTCOG procured professional services from Kimley-Horn and Associates, Inc. to evaluate alignment options, recommend a preferred route, and conduct a thirty percent preliminary engineering design for the shared-use path. The preliminary engineering design includes a schematic roll plot of the proposed trail, potential pedestrian amenity locations, roadway crossing measures, preliminary environmental report, right-of-way and easement requirements, and opinions of probable construction costs.

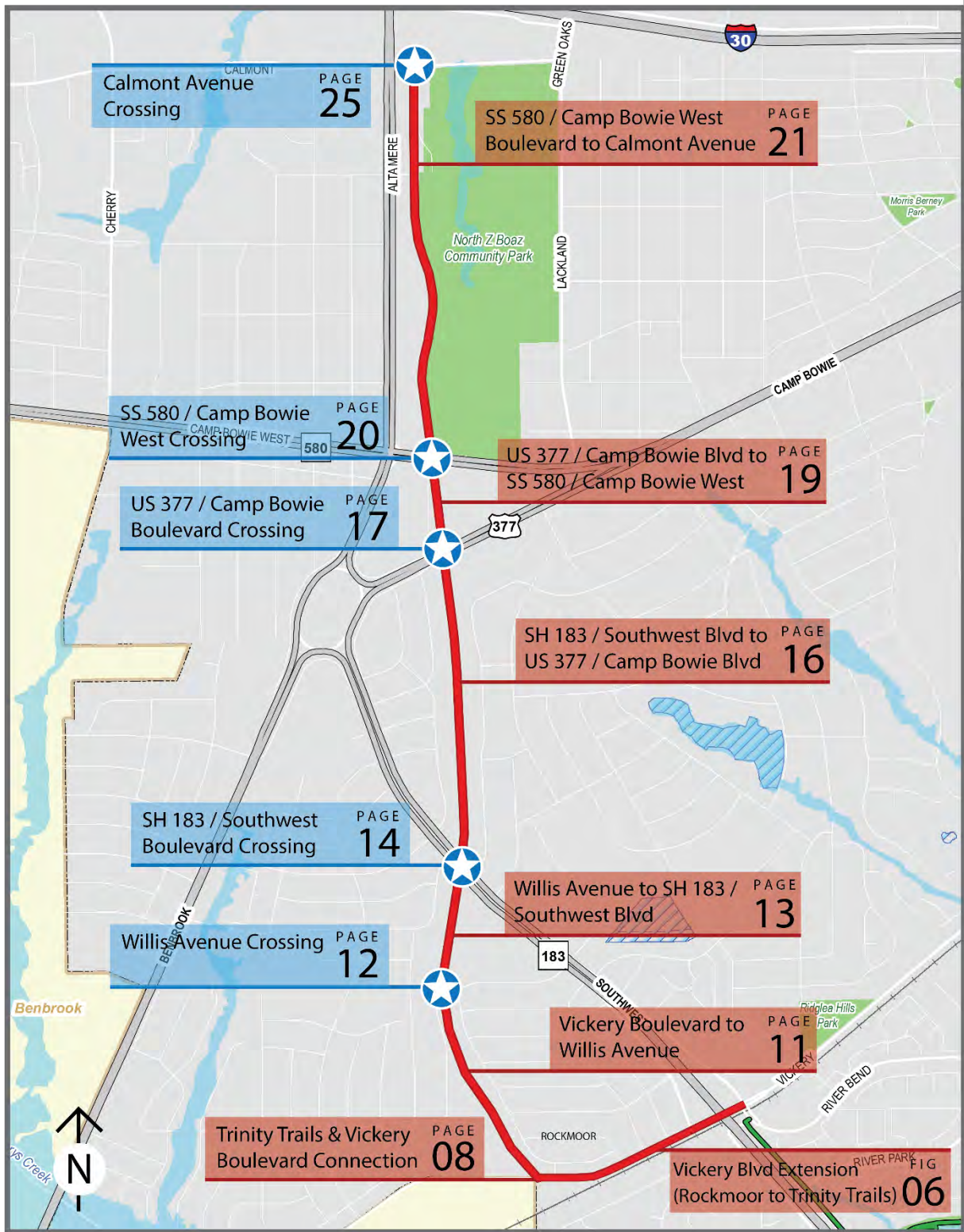
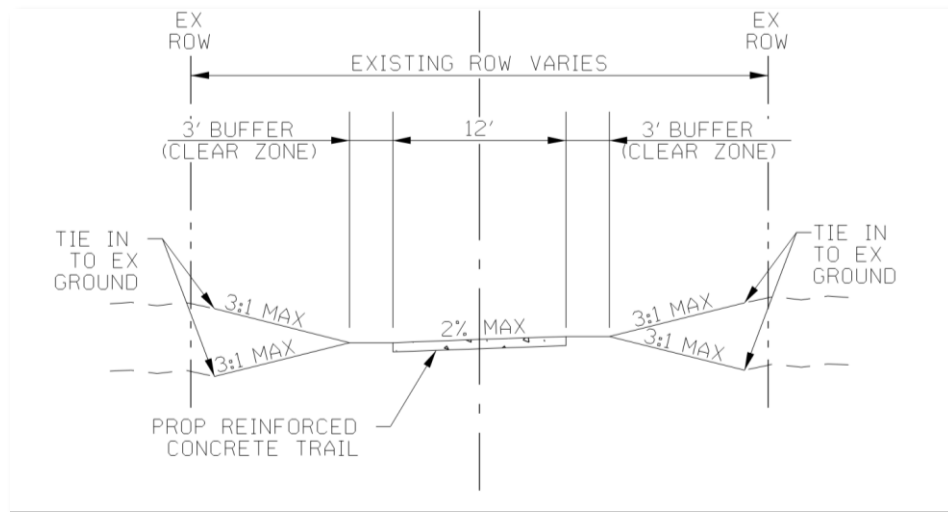


Figure 2 - Project Limits

## GENERAL DESIGN ELEMENTS

### Standard Typical Section

The Bomber Spur Trail will be a 12-foot wide concrete trail with a 3-foot wide buffer on each side before sloping to tie into existing ground at no steeper than 3H:1V slope, in accordance with the American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities (2012). The standard typical section is shown in **Figure 3** below.



*Figure 3 – Proposed Standard Typical Section*

### Profile Design

The proposed Bomber Spur Trail profile was designed using the latest Texas National Resources Information System (TNRIS) LiDAR topography (2009) and topographic survey at critical areas. The profile was designed to minimize grading impacts, meet a cyclist design speed of 18 miles per hour, and conform to all Americans with Disabilities Act (ADA) guidelines.

### Trail Improvements

The proposed Bomber Spur Trail preliminary engineering plan considers corridor improvements and amenities such as benches, trash receptacles, bike share stations, and shade structures along the trail that could be installed by the City and/or “Friends of the Trail” groups to enhance the basic trail construction. These improvements would be installed at several trailhead locations and rest areas. **Figure 4** on page 7 illustrates a vision for the design elements of trailheads and **Figure 5** on page 7 for rest areas.

Another improvement to be considered during final design is illumination. Adding lighting to the trail improves aesthetics and pedestrian safety. Renewable power sources for illumination, such as solar, should be considered.

**TRAIL HEAD**

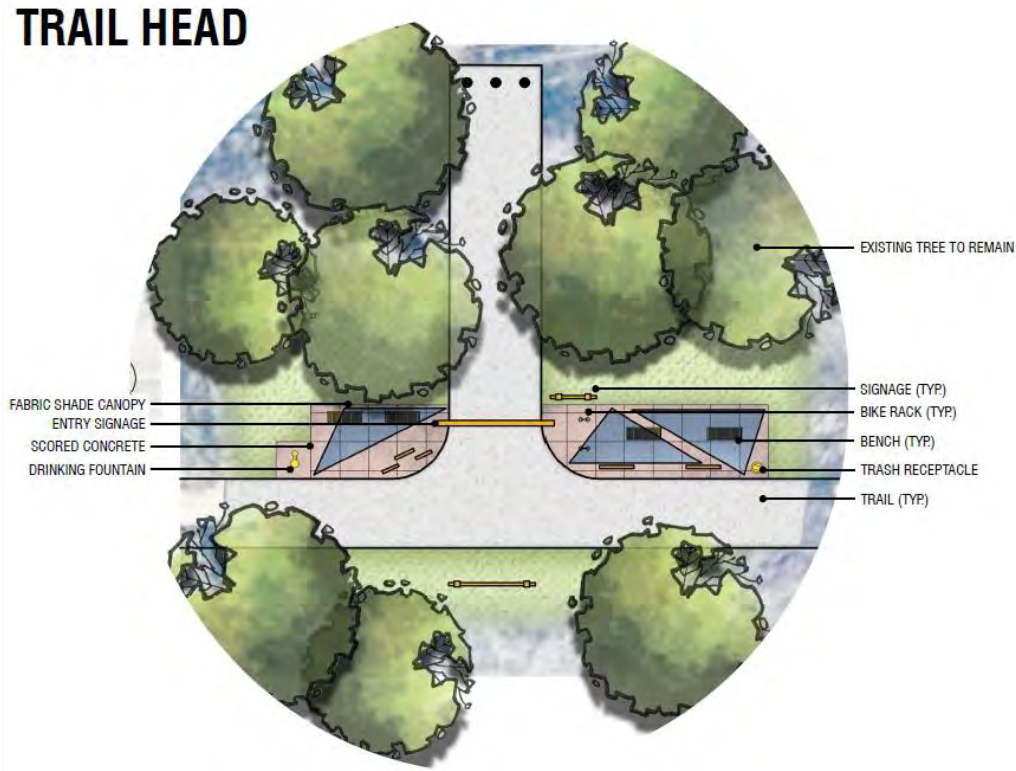
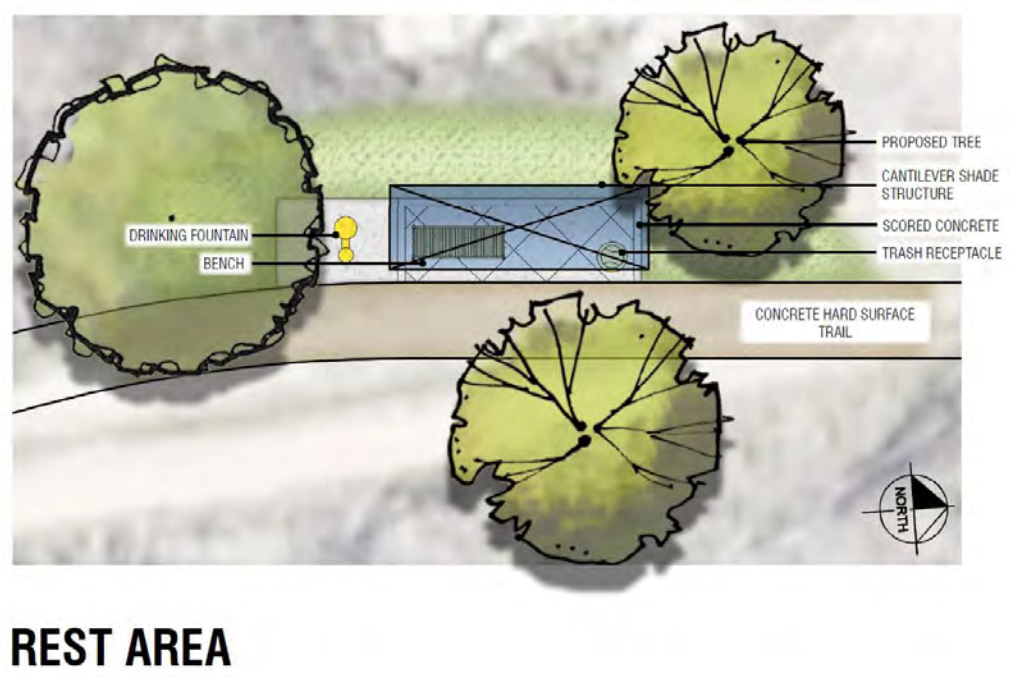


Figure 4 – Example Trailhead



**REST AREA**

Figure 5 – Example Rest Area



## Neighborhood Connections

Providing neighborhood access to the Bomber Spur Trail is a critical aspect of the conceptual design. There are three neighborhood trail connections proposed in the schematic along with connectivity at each street crossing. The neighborhood trail connections are located at the Monterrey Apartments, Borden Drive, and Brazos Avenue. Trail signage is proposed at all neighborhood connection locations and at the beginning and end of the trail.

Each neighborhood trail connection point will be fitted with removeable bollards to restrict vehicles from driving on the trail while allowing access points for emergency vehicles or maintenance crews. Any residential property owners along the trail would also be able to construct personal accesses from their properties to the trail.

## TRINITY TRAILS AND VICKERY BOULEVARD CONNECTION

### Trinity Trails Connection

The Clear Fork Trinity Trail currently provides a connection at the intersection of Vickery Boulevard and River Bend Boulevard. The City of Fort Worth has an ongoing sidewalk/ramp project at this intersection that will bring the Clear Fork Trinity Trail across the railroad track and to the north side of the intersection.

The preliminary engineering for the Bomber Spur terminated at the intersection of W. Vickery Boulevard and Rockmoor Lane. However, the connection from W. Vickery Blvd./ Rockmoor Lane to Riverbend Boulevard is critical to providing connectivity along the Trinity Trails network. This area was evaluated to determine future design constraints. These constraints include:

- crossing residential driveways,
- relocating existing utilities,
- adjusting existing bridge abutment at SH 183 overpass, and
- connecting to existing and proposed pedestrian improvements at the intersection of Vickery Boulevard and Riverbend Boulevard.

### Vickery Boulevard Evaluation

A conceptual analysis was completed to determine if the connection along Vickery Boulevard from the Bomber Spur Trail to River Bend Boulevard should be either:

- on the south side of Vickery Boulevard between the curb and railroad;
- on-street via restriping; or
- on the north side of Vickery Boulevard between curb and right-of-way (ROW).

Placing the trail on the south side of Vickery Boulevard was removed from consideration due to existing rail ROW restricting available space. The on-street option did not provide the enhanced safety that a separate shared-used path would provide, and would require

a “road diet” to remove a vehicular travel lane. In addition, on-street facilities would require additional analysis to amend the City of Fort Worth’s Thoroughfare Plan.

The preferred location selected for this future project by the City of Fort Worth was the north side of Vickery Boulevard between the curb and ROW / fence line as shown in **Figure 6**.



*Figure 6 – Future Extension of Bomber Spur Trail along Vickery Boulevard*

### **Cross Section and Drainage**

The trail section adjacent to Vickery Boulevard is proposed to be 10 feet wide. The trail will be on the north side of Vickery Boulevard, between the road and the existing fence. There will be no less than a 2-foot buffer between the edge of the trail and the face of curb on Vickery Boulevard as shown in **Figure 7**.

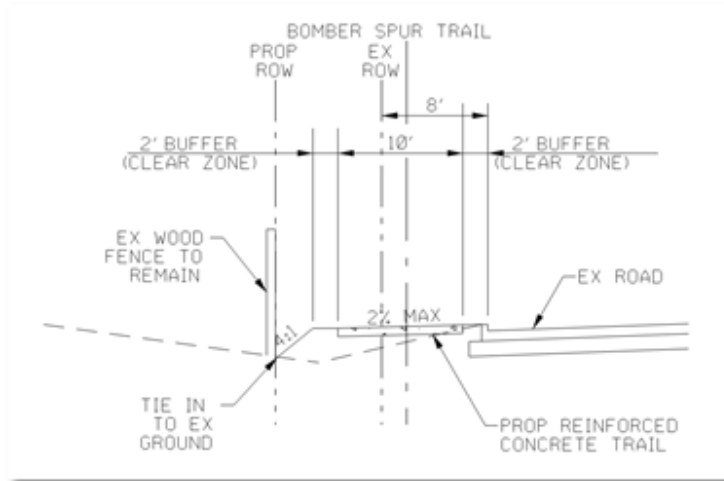


Figure 7 – Vickery Boulevard Typical Section

It is proposed to remove the existing drainage inlet structures in this trail segment and replace with an area drain (cyan color) to maintain existing drainage patterns and allow room for the trail as shown in **Figure 8**. Approximately 2,900 SF of additional ROW must be acquired to construct this area. The required area is between the property parcel line and blue line, shown in **Figure 8**. The blue line is just on the outside of the existing residential fences. The fences are not anticipated to be impacted by the drainage improvements (cyan color).

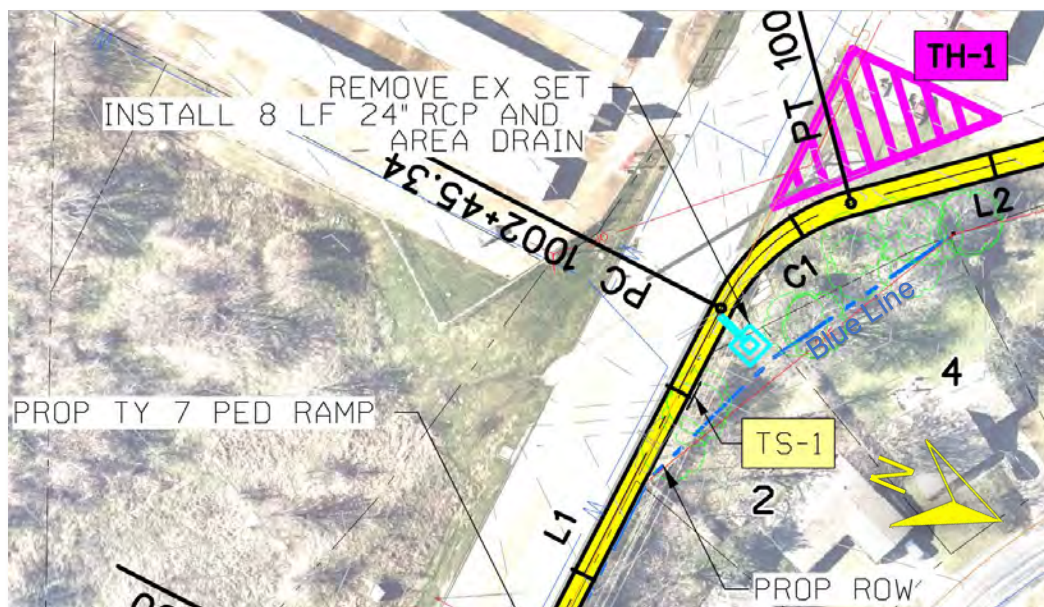


Figure 8 – Vickery Boulevard Drainage Improvements and ROW Requirements

## VICKERY BOULEVARD TO WILLIS AVENUE

### Design Considerations

Once the trail turns away from Vickery Boulevard and extends northward in the former rail right-of-way, it will expand to the standard 12' wide cross section shown previously in **Figure 3** on page 6.

There is adequate space to install a trailhead along the trail north of Vickery Boulevard. This trailhead location could also be considered for parking. Providing a trailhead at this location would require additional ROW acquisition than what is currently accounted for in the schematic.

The Bomber Spur Trail alignment was designed to follow the previous rail alignment through this section. This allowed the trail to avoid the existing drainage channel along the east side of the former rail ROW, reduce grading limits, and minimize impact to the larger trees adjacent to the trail.

### Monterrey Apartment Neighborhood Connection

The proposed trail connection to the Monterrey Apartments will be 12 feet wide and will include removeable bollards that will restrict vehicles from driving on the trail. It is proposed to add 18 feet of storm pipe at this location to maintain existing drainage patterns. Further coordination with the Monterrey Apartment complex is necessary in final design to construct the connection. The anticipated location for the Monterrey Apartment connection is shown in **Figure 9**.

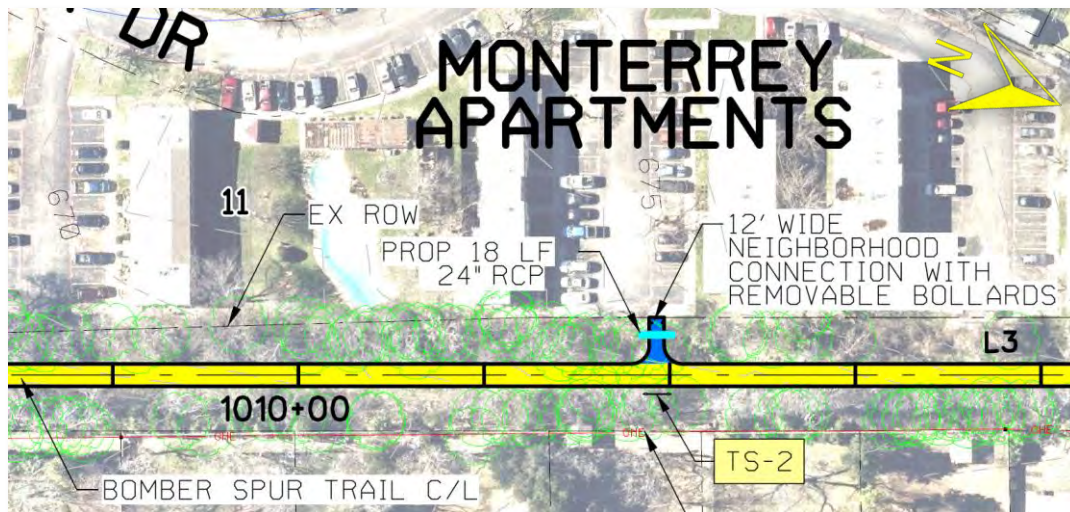


Figure 9 – Monterrey Apartment Neighborhood Connection

## Borden Drive Neighborhood Connection

The proposed Borden Drive trail connection will also be 12 feet wide and include removable bollards to delineate non-motorized space. The area of the proposed connection is within City ROW. This makes the Borden Drive connection a good location for additional trailhead improvements to be installed. The anticipated location for the Borden Drive connection is shown in **Figure 10**.

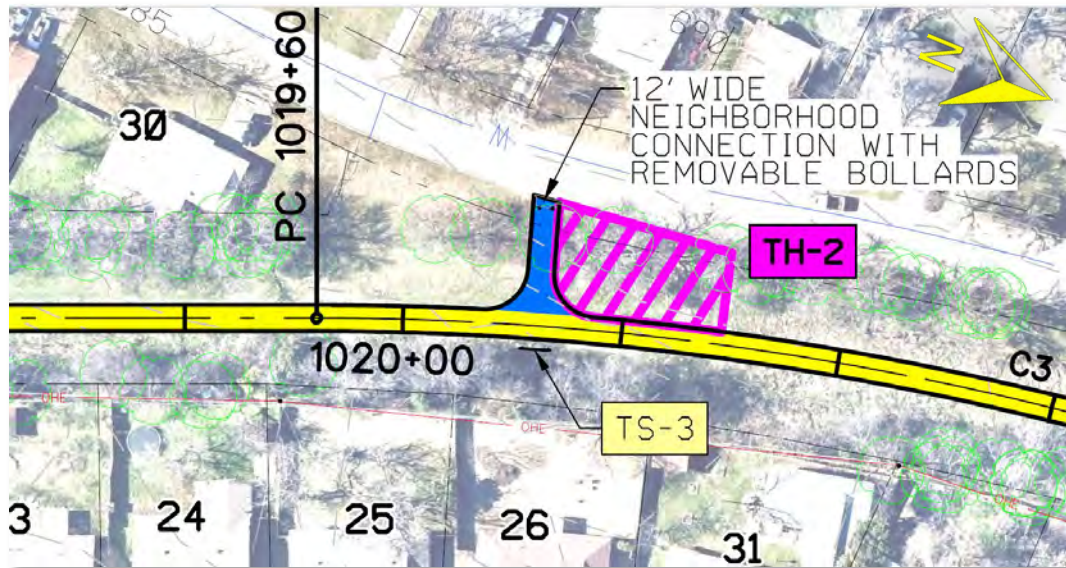
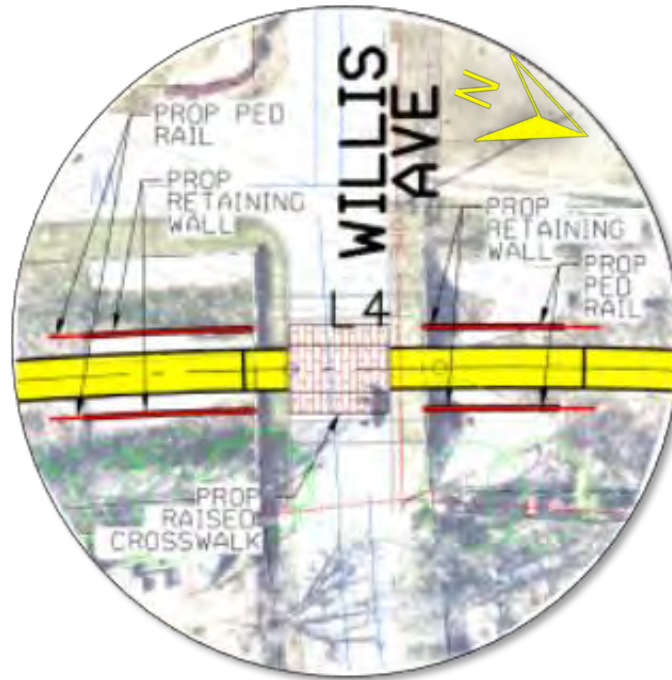


Figure 10 – Monterrey Apartment Neighborhood Connection

## WILLIS AVENUE CROSSING

### Design Considerations

The approach to the crossing at Willis Avenue will maintain the 12-foot typical trail width and 3-foot wide buffer zones on either side of the trail. Outside of the buffer zones is a 3-foot sloped zone at no greater than 4H:1V slope with retaining walls, as shown in **Figure 11**.



*Figure 11 – Willis Avenue Intersection*

The crossing at Willis Avenue will follow the previous rail alignment and be located in the center of the existing drainage improvements. Utilizing retaining walls as shown in **Figure 11** will allow the existing concrete channel flow lines and headwalls to remain. A drainage analysis will be required during final design to ensure the channels maintain adequate capacity.

Moving the crossing to either the east or west side of the existing drainage improvements was evaluated, but increased ROW requirements, utility relocations, and drainage reconstruction removed the option from consideration.

The trail crossing of Willis Avenue will have a raised crosswalk, which elevates pedestrians and cyclists as they move across the street. This provides better visibility for approaching vehicles as well as provide traffic calming to slow vehicles down.

Advanced warning signs along Willis Avenue as well as pedestrian crossing signs at the crosswalk are proposed to further alert drivers of the crossing. Advanced warning and stop signs are also proposed along the trail before pedestrians and cyclists enter the roadway to ensure trail users check for oncoming traffic.

## **WILLIS AVENUE TO SH 183/ SOUTHWEST BOULEVARD**

### **Design Considerations**

Following the crossing at Willis Avenue, the trail resumes standard typical section shown previously in **Figure 3** on page 6.

The alignment will continue to follow the previous rail alignment in this section reducing grading limits and minimizing impacts to the larger trees adjacent to the trail.

## SH 183/SOUTHWEST BOULEVARD CROSSING

### Design Considerations

Two alternatives were considered in consultation with the TxDOT Fort Worth District for the SH 183/Southwest Boulevard trail crossing which is a 6-lane median divided state highway with high speed traffic.

#### At-Grade Crossing with Pedestrian Hybrid Beacon

A lower cost crossing option consists of an at-grade “Z-Crossing” (trail alignment in which trail users cross SH 183/Southwest Boulevard perpendicular to the street, turn parallel to the street in the median, then cross the next side of the street perpendicularly) that utilizes pedestrian hybrid beacons (Reference **Figure 12**). The curves leading to the crossing as well as the Z-Crossing design requires bicyclists and pedestrians to slow down before crossing, thus increasing safety. The Z-Crossing also allows pedestrians to cross each portion of the divided SH 183/Southwest Boulevard perpendicularly, reducing the distance needed to cross. The Z-Crossing also provides an area for enhanced landscaping, such as shown in **Figure 12**.

An at-grade trail crossing would require signalization for the safety of trail users and motor vehicle traffic. Such signalization would consist of a pedestrian hybrid beacon with pedestrian activated signals that flash to stop vehicular traffic as pedestrians and bicyclists cross. The current design accounts for push button activated beacons, but other activation systems such as in-pavement loops or video/microwave detection may be considered during final design. The pedestrian hybrid beacon should be designed to communicate with the intersection signals at Overhill Road and Garza Avenue to maintain efficient traffic flow. In addition to the pedestrian hybrid beacon, advanced warning signs will be installed along SH 183/Southwest Boulevard to increase pedestrian and bicyclist safety.

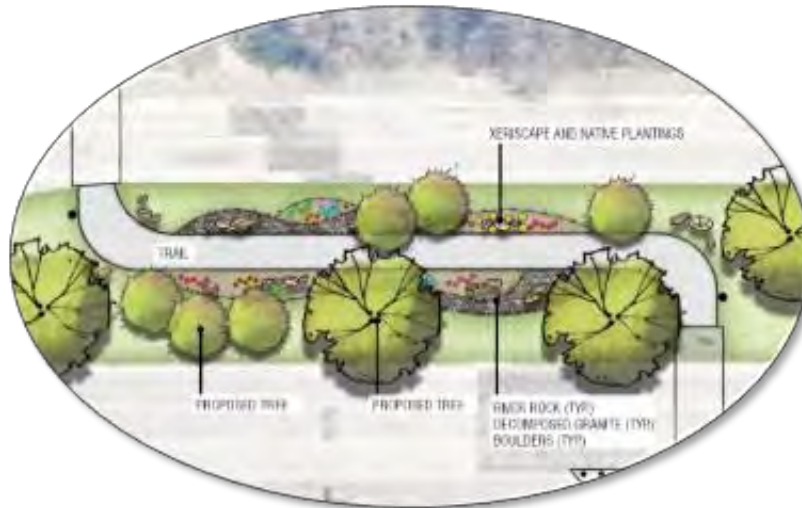


Figure 12 – Z-Crossing Rendering

### Trail Bridge Overpass Alternative

As an alternative to an at-grade Z-Crossing, a trail bridge was evaluated at this location. While utilizing pedestrian hybrid beacons as designed is considered safe, constructing a grade separated crossing would provide the safest highway crossing measure for trail users. The bridge would require the use of retaining walls with pedestrian rails in order to gain the necessary vertical clearance over SH 183/Southwest Boulevard. Due to ROW constraints it is not possible to use natural sloping in lieu of retaining walls. In addition, the bridge would need accommodate a minimum H10 loading for maintenance and emergency vehicles. The trail bridge span length of 210 feet would require the construction of a mid-span column placed in the median of the roadway. Also, an at-grade trail would need to be provided on each side of the pedestrian bridge abutment in order to provide trail access to the adjacent properties.

Additional coordination will be required during final design of the pedestrian crossing. This would include:

- conducting additional public engagement to discuss expected benefits and disadvantages of each crossing option,
- performing a cost/benefit analysis for each crossing option,
- coordinating design with TxDOT Bridge and Utility Departments,
- evaluating a Major Maintenance Agreement (MMA), and
- coordinating construction inspection with TxDOT's Bridge Department.

Constructing a trail bridge at this highway crossing would cost an estimated \$5,535,300 for 2020 construction costs. This cost is based on using a standard prefabricated pedestrian bridge.



## SH 183/SOUTHWEST BOULEVARD TO US 377/CAMP BOWIE BOULEVARD

### Design Considerations

North of the trail crossing at SH 183/Southwest Boulevard, the trail continues standard typical section shown previously in **Figure 3** on page 6.

North of Brazos Avenue the existing rail ROW widens to 200 feet. In this zone, the increased ROW allows for an enhanced area for trail improvements and amenities provided by the City and/or “Friends of the Trail” stakeholders. There is a proposed crushed granite walking path, and the space could include enhanced landscaping, benches, picnic tables, public art, or informational maps detailing the historical significance of the Bomber Spur corridor. See **Figure 13** for examples of the improvements and amenities that could be provided in this area.



*Figure 13 –Elements of Possible Area Improvements and Amenities*

## Brazos Avenue Neighborhood Connection

The Brazos Avenue trail connection is proposed to be 16 feet wide with removeable bollards to block vehicles from entering the trail. This 16' connection is proposed to match the existing neighborhood connection and allows maintenance vehicles to access for the trailhead and amenity area. This connection would utilize an existing alley in public ROW that would be converted into a neighborhood access point for the trail. It is proposed to add 26 feet of storm pipe at this location to maintain existing drainage patterns, as well as trail signage for wayfinding. This location also has additional space to install a trailhead. The anticipated Brazos Avenue connection and amenity area is shown in **Figure 14**.

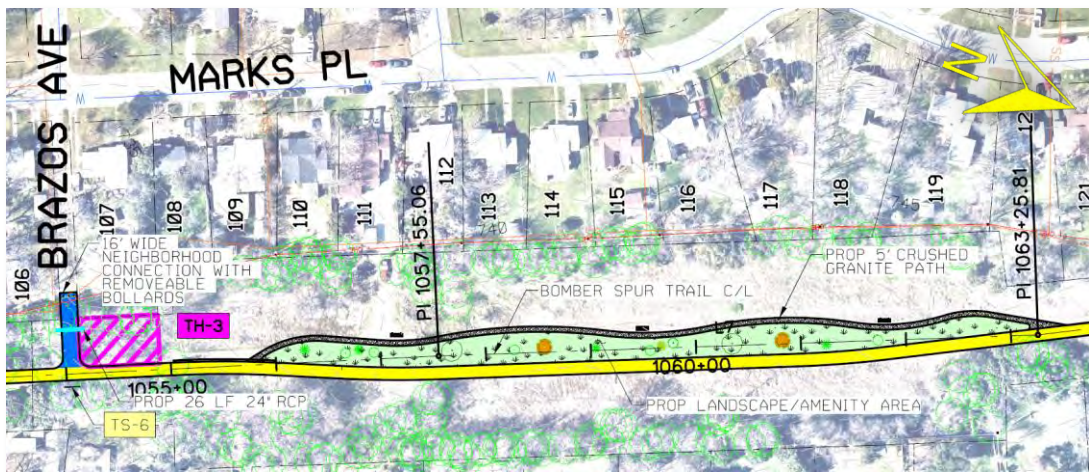


Figure 14 –Brazos Avenue Neighborhood Connection and Amenity Area

## US 377/CAMP BOWIE BOULEVARD CROSSING

### Design Considerations

Where the trail crosses US 377/Camp Bowie Boulevard a 16-foot wide trail bridge would allow pedestrians and bicyclists to safely cross over the street without having to interact with or stop traffic, as shown in **Figure 15**. This 16-foot wide bridge would provide a minimum of 12-foot wide clear path with 2-foot shy (buffer) zones on each side adjacent to the bridge railings. The bridge would utilize existing rail bridge abutments and span the state highway. The bridge would accommodate a minimum H10 loading for maintenance and emergency vehicles.

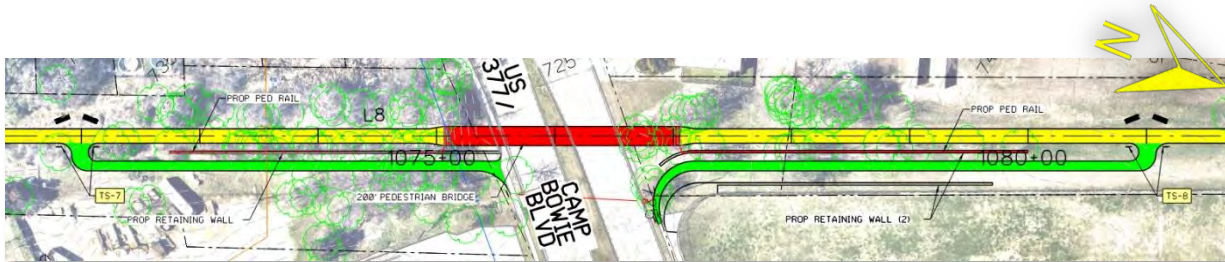


Figure 15 - US 377/Camp Bowie Blvd Bridge Overpass and Connection

Alongside the main trail connecting to the bridge, there will be an 8' wide sidewalk providing connection to existing and/or future sidewalks along US 377/Camp Bowie Boulevard. These path connections will provide access to the main trail alignment and slope down to the road to tie into existing sidewalk that runs parallel to US 377/Camp Bowie Boulevard. Retaining walls with pedestrian rails will be used to accommodate the vertical difference between the main trail and the access paths. **Figures 16-18** show cross sections for each segment of the trail bridge and paths. Further coordination with TxDOT will be required during final design of the pedestrian bridge overpass.

Rest areas for pedestrians and cyclists can be installed near the US 377/Camp Bowie Boulevard crossing. These rest areas may include benches, drinking fountains, trash receptacles, and shade structures.

Additional coordination will be required during final design of the trail bridge crossing including:

- Coordinating design with TxDOT Bridge and Utility Departments
- Evaluate a Major Maintenance Agreement (MMA)
- Coordinate construction inspection with TxDOT Bridge Department

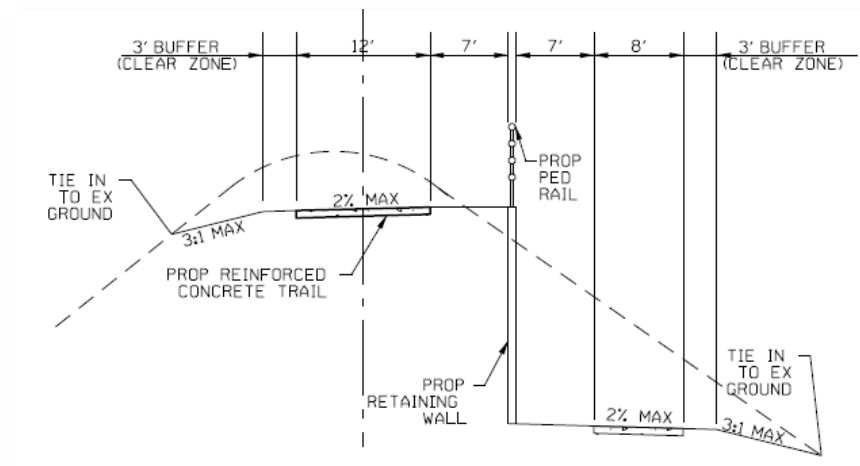


Figure 16 – Proposed South Bridge Approach Typical Section

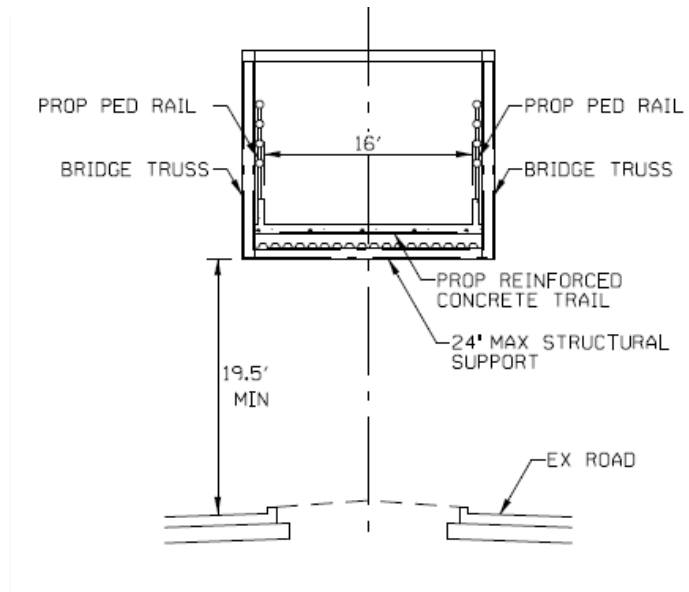


Figure 17 – Proposed Pedestrian Bridge Overpass Typical Section

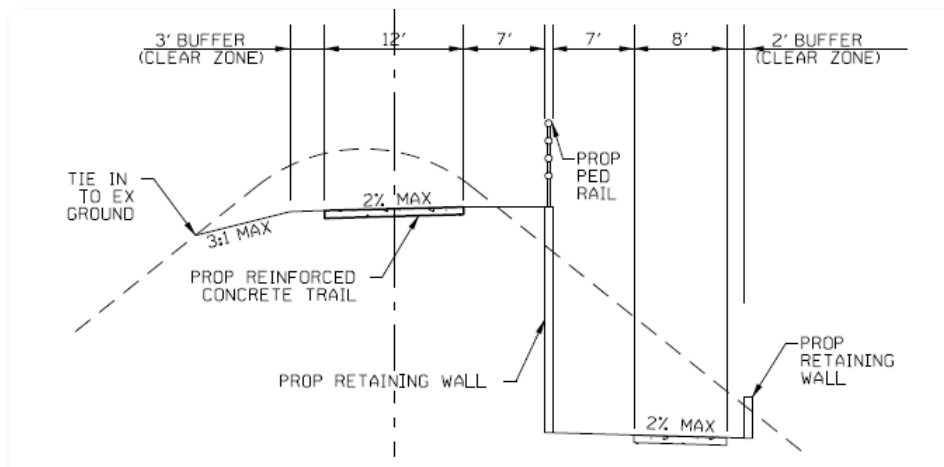


Figure 18 – Proposed North Bridge Approach Typical Section

### Enhanced Bridge Aesthetics

The bridge cost provided in the OPCC is for a standard prefabricated pedestrian bridge. As an alternate cost an allowance for enhanced bridge aesthetics was also provided. Enhanced bridge aesthetics could include options such as decorative pedestrian rail, painted bridge components, or lighting.

## US 377/CAMP BOWIE BOULEVARD TO SS 580/CAMP BOWIE WEST

### Design Considerations

North of the trail bridge crossing at US 377/Camp Bowie Boulevard, the trail continues the standard typical section shown previously in **Figure 3** on page 6.

The alignment will continue to follow the previous rail alignment in this section reducing grading limits and minimizing impacts to the larger trees adjacent to the trail.

## SS 580/CAMP BOWIE WEST CROSSING

### Design Considerations

At the location where the trail crosses SS 580/Camp Bowie West Boulevard, the 12-foot trail will tie into existing sidewalk along the state roadway. The trail will turn east along the road, cross to the north, then move west again to outline the west edge of Z Boaz Park. The crossing location was determined through discussions with NCTCOG, City of Fort Worth, TxDOT, and the Applied Learning Academy. **Figure 19** shows this crossing.

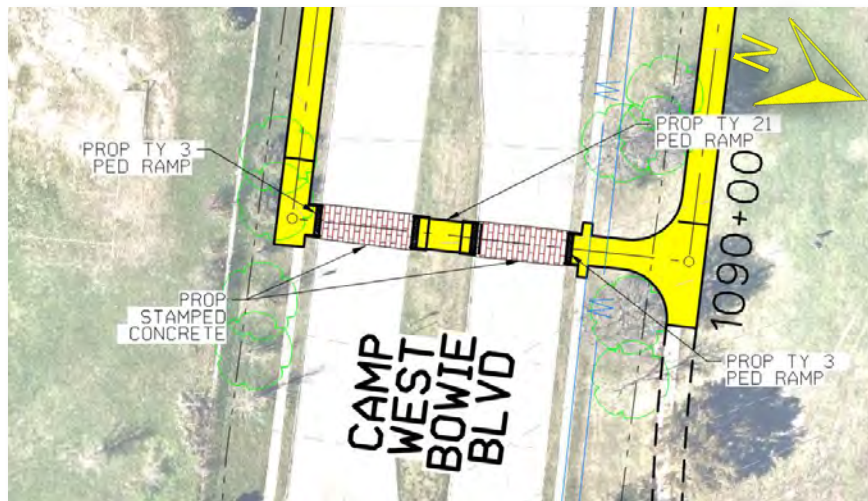


Figure 19 – Camp Bowie West Crossing (Option 2)

A pedestrian hybrid beacon will be installed at the east driveway of the Applied Learning Academy (as part of a separate project). In a meeting with NCTCOG, City of Fort Worth and TxDOT representatives on September 30, 2020, it was also understood by all parties that a future project (Bomber Spur Trail) may include scoping that will consider the possibility of removing the signal at option 1 (east driveway of the Applied Learning Academy) with the purpose of relocating it to option 2 (**Figure 19**) or another appropriate location which will accommodate the needs of both the school and bomber trail uses. With option 2 (**Figure 19**), the pedestrian hybrid beacon will be relocated approximately 300 feet to the west as part of the Bomber Spur Trail. This new location is approximately 700 feet from Alta Mere Drive. When the Bomber Spur Trail pedestrian hybrid beacon is installed it must be coordinated with the signal at Alta Mere Drive.

A memo written by TxDOT from the September 30, 2020 meeting and a graphic outlying option 1 and option 2 is included in the **Appendix**.

There is a future extension of the trail identified to the Z Boaz Park parking lot where there is room for a trailhead and additional park improvements to be installed by the City. The future extension of the trial to the Z Boaz Park parking lot is shown in **Figure 20**.

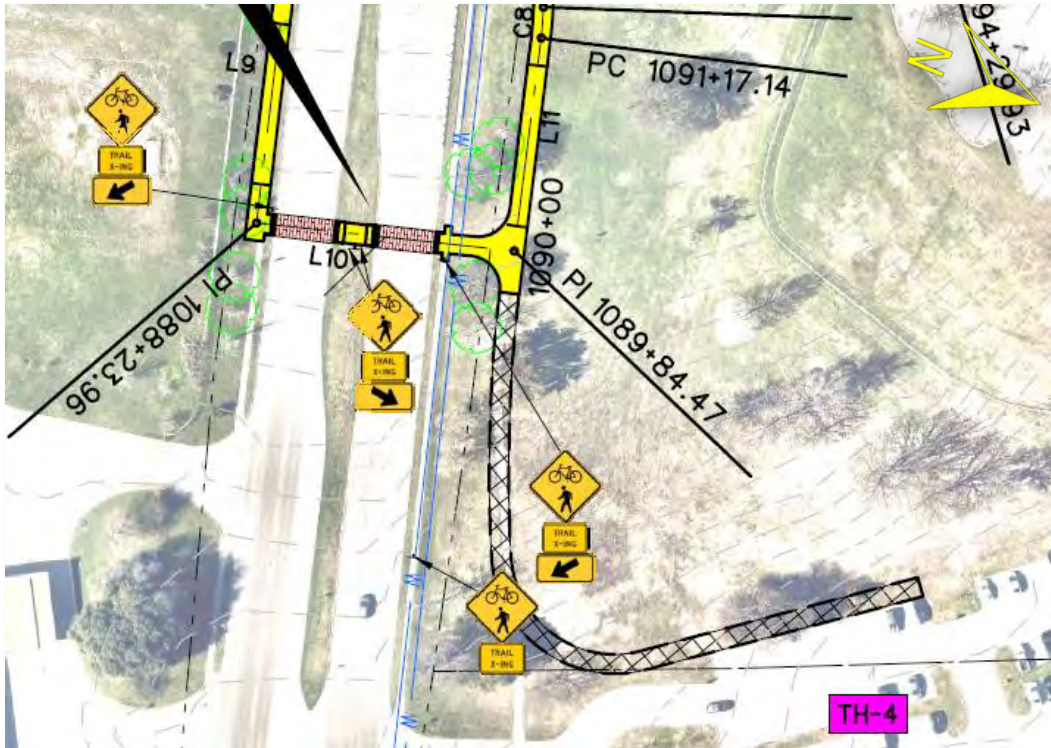


Figure 20 – Future Connection to Z Boaz Park Parking Lot

## SS 580/CAMP BOWIE WEST BOULEVARD TO CALMONT AVENUE

### Design Considerations

As the planned trail proceeds north of SS 580/Camp Bowie West Boulevard, the trail continues the standard typical section shown previously in **Figure 3** on page 6. The trail alignment through the park has been designed to be compatible with the Z Boaz Park Master Plan. It will utilize a combination of former rail ROW and existing North Z Boaz Park property along the west edge of the park.

As the trail approaches Calmont Avenue, the cross section will change to a 12-foot wide concrete trail with a 4-foot buffer to the left and 2-foot buffer to the right between the trail and a proposed screening wall. There will be approximately 22 feet between the end of the 4-foot left buffer and the park ROW boundary.

This layout is shown in **Figure 21** and the cross section in **Figure 24**.

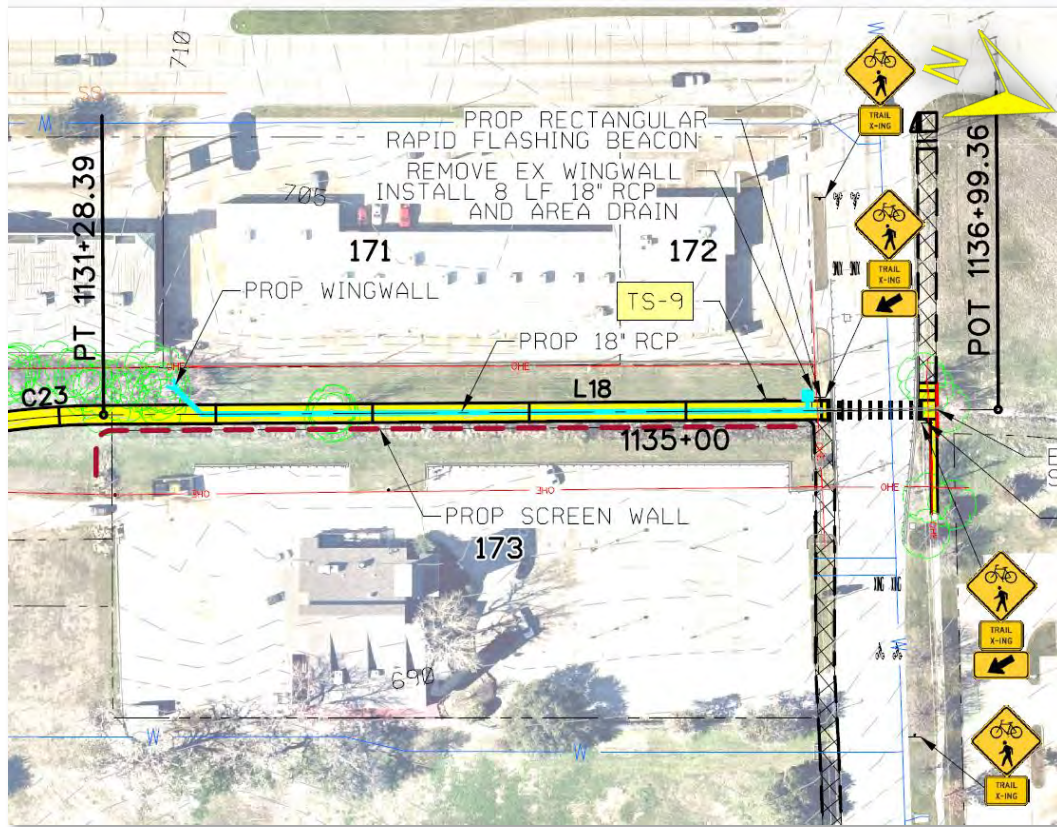


Figure 21 – Trail Layout Near Screen Wall

### Drainage

Existing drainage in the north area of the proposed path through the park is conveyed through a ditch that currently runs along the proposed trail alignment, seen in **Figure 22** on page 23. In order to maintain existing drainage, it is proposed to install concrete storm pipe underneath the trail to replace the existing ditch, shown in **Figure 23** on page 23. Storm water will be picked up in a proposed wingwall structure and carried north, under the trail, where the proposed storm pipes will connect to existing storm pipes at Calmont Avenue. An area drain is also proposed to be installed just south of Calmont Avenue, in order to maintain existing drainage patterns. Utilizing an internal storm system as proposed allows the trail to be constructed without the use of retaining walls, as well as improves the trail aesthetics by removing the unmaintained drainage ditch.

It is proposed to install a decorative screening wall at the north end of the park, providing separation between the trail and the nearby establishment, Rick’s Cabaret. The wall will be ornamental in nature and enhance the general aesthetic of the trail.



Figure 22 – Existing Drainage Channel

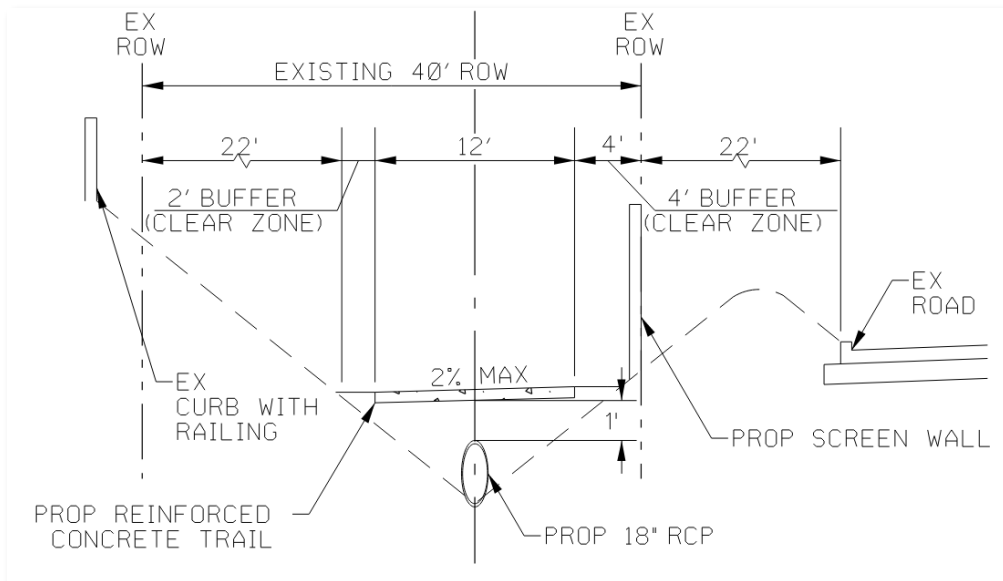


Figure 23 – Proposed Drainage Channel Typical Section



### Future Connection

There is a future extension of the trail identified to the Z Boaz Park parking lot where there is room for a trailhead to be installed. The future extension of the trail to the Z Boaz Park parking lot is shown in **Figure 24**.

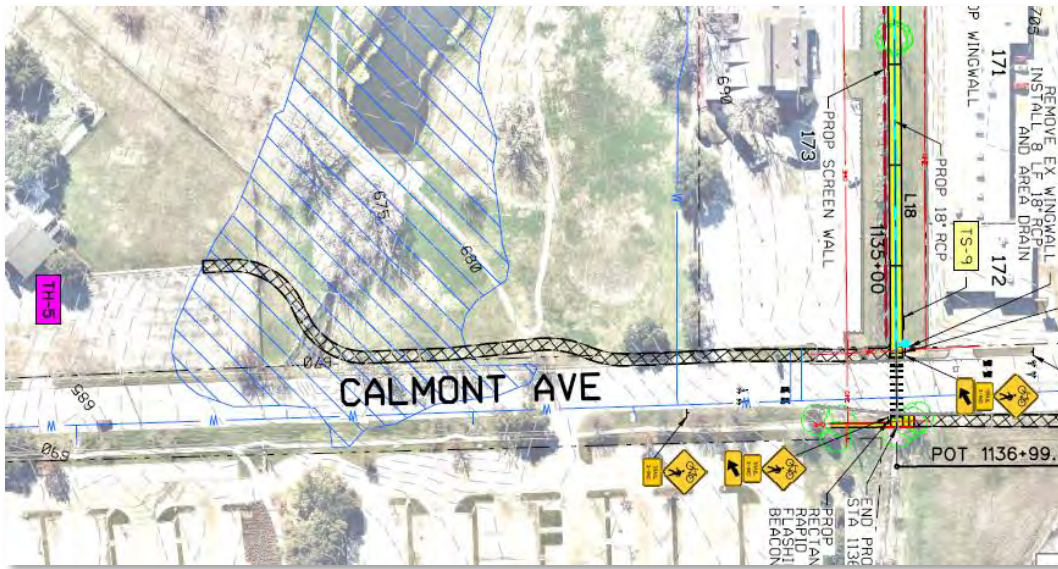


Figure 24 – Future Connection to Z Boaz Park Parking Lot

### Alta Mere Connection Evaluation

A trail connection to Alta Mere Drive through Arbor Avenue was also evaluated. The existing grades in this area would make it difficult to meet ADA requirements, requiring switchbacks, drainage crossing with retaining walls, and the removal of additional trees. In addition, public input determined this access would not be frequently used, and the connection was removed from the design.

## CALMONT AVENUE CROSSING

### Design Considerations

The proposed connection to Calmont Avenue is an at-grade crossing including a Rectangular Rapid Flashing Beacon. This beacon consists of a button-activated flashing sign to draw additional attention to the crossing trail users for increased safety while crossing. The crossing will include advanced warning signage along Calmont Avenue, a painted crosswalk and receiving ramp on the north side of Calmont Avenue that will tie to existing sidewalk. After crossing to the north side of Calmont Avenue, the trail will need to be extended westward to the intersection of SH 183/Alta Mere Dr where a continued northward alignment will be incorporated as part of the reconstruction of the SH 183/IH 30 interchange.

### Alternate Crossing Evaluation

An alternate Calmont Avenue crossing was evaluated to the east of Rick's Cabaret. A roadway crossing to the east of that commercial property would not require the drainage improvements detailed above. It would also provide more distance between the pedestrian crossing and the intersection at Calmont Avenue and Alta Mere Drive, improving pedestrian safety. After discussion with the City of Fort Worth Parks and Recreation Department it was determined that moving the crossing east would require the trail to extend through an area of the North Z Boaz Park that is planned to be a dedicated Texas Parks and Wildlife Department (TPWD) Wilderness Area and was in conflict with a soft surface mountain bike trail. Therefore, the alternative, while preferable for visual and drainage reasons, was removed from consideration.

## IH 30 CROSSING

The Bomber Spur Trail will advance beyond the preliminary design as part of other projects. The SH 183/IH 30 interchange reconstruction project is currently under design by TxDOT and will incorporate a trail crossing to the north side of IH 30. The continuation of the trail north to Westworth Village is in schematic design by TxDOT and is expected to have final schematic approval by 2022. That project will identify how to connect to the recently completed trail in Westworth Village. In addition, after the trail crosses IH 30, the City of White Settlement will need to coordinate a trail connection through the city to Lockheed Martin (west of SH 183 generally along Lockheed Blvd).

## OPINION OF PROBABLE CONSTRUCTION COST

As of December 2020, the project is funded through 30% design. It is the opinion of the engineer that the final design and construction of the trail would cost approximately \$7.6 million for base level improvements (2020 costs). This opinion of probable construction cost (OPCC) does not include the trail bridge alternative at SH 183/Southwest Blvd, trail heads, lighting, wayfinding signage, or other aesthetics the City and/or “Friends of the Trail” stakeholders may want to install with the base trail construction. Some basic elements like benches and signage identified on the schematic were included. Note while base trail and bridge construction may be eligible for implementation with federal transportation funding any aesthetic and public art enhancements above and beyond the base trail and bridge construction must be funded entirely by local funding and/or private contributions.

This opinion of cost is for the base design shown in the final schematic as well as engineering design services. Alternative cost options are provided for the previously outlined Trinity Trails connection, trail bridge crossing at SH 183/Southwest Boulevard, enhanced bridge aesthetic allowance, and public art allowance. A breakdown of the cost is shown below and a detailed opinion of probable construction cost for various sections of the trail is included in the **Appendix** along with potential inflation amounts.

Base Design (2020)	
Base Construction Sub Total	\$5,014,680
Construction Contingency (25%)	\$1,254,100
Engineering Survey, SUE, Environments (15%)	\$940,700
City Project Management, Inspections, Material Testing (6%)	\$376,500
<b>Base Sub Total</b>	<b>\$7,585,980</b>
Trail Bridge Alternative (SH 183/Southwest Blvd.)	+\$5,535,300
Upgraded Bridge Aesthetics Allowance	+\$400,000
Public Art Allowance	+\$63,000
Vickery Extension	+\$855,000

## ENVIRONMENTAL SUMMARY

The following is included the executive summary from the Environmental Technical Report, created by Cox|McLain Environmental Consulting for submittal with this document. For more information, reference the Environmental Technical Report included in the submittal package .

*The Bomber Spur Regional Veloweb Shared-Use Path project in Tarrant County, Texas aims to provide a shared path for cyclists and pedestrians to facilitate movement within the area, to provide recreation opportunities and enjoyment of outdoor spaces, to improve pedestrian and bicycle safety, and to renovate and renew the abandoned Bomber Spur rail right-of-way.*

*The purpose of this technical report is to provide a foundation for future detailed environmental, cultural, and socioeconomic analyses, and to evaluate resources and issues that should be considered by the project team as the project develops. This report also details the anticipated environmental clearance items required to receive environmental clearance from the Texas Department of Transportation (TxDOT).*

*The socioeconomic resources, cultural resources, hazardous materials, natural resources, and other considerations were analyzed, researched, and reviewed by professionals of each discipline and summaries of these resource reviews are provided in each section of this technical report.*

*Based on the project parameters known at this time, Cox|McLain Environmental Consulting, Inc. (CMEC) anticipates that once federal funding has been allocated for this project it will be classified as a categorical exclusion (CE) (3), which includes the construction of bicycle and pedestrian lanes, paths, and facilities as determined through scoping with TxDOT.*

*The following items are anticipated to be required for TxDOT-NEPA compliance and environmental clearance for this CE (3) categorized project:*

- *A Section 4(f) determination on the impact the project would have on North Z Boaz park, which could be authorized through a Section 4(f) exemption or de minimus determination.*
- *Any use (improvements within, or acquisition thereof) of North Z Boaz Park for the proposed project would require a Texas Parks and Wildlife Department (TPWD) Chapter 26 evaluation. Use of North Z Boaz Park would also require that the City hold a public hearing to present the proposed use of the parkland for the purposes of the project. Any public involvement would need to include Spanish translation accommodations.*
- *A historic Project Coordination Request (PCR), a historic research design, a reconnaissance survey, and a historic research survey report are recommended and anticipated for environmental clearance.*

- *A TxDOT hazardous materials initial site assessment (ISA) is anticipated to be required for environmental clearance.*
- *For biological resources, a Tier 1 form and associated attachments, species analysis form, species analysis spreadsheet, early coordination with TPWD for impacts to Species of Greatest Conservation Need (SGCNs) without Best Management Practices (BMPs), and implementation of species-specific BMPs are anticipated to be required.*
- *A surface water analysis form, Section 404 impacts table, and Waters of the U.S. Delineation Report are anticipated to be required. It is recommended that a formal delineation of aquatic features occur within the project area to determine the presence or absence of potential waters of the U.S. that would require Section 401/404 authorization.*

*It should be noted that based on CMEC's experience, TxDOT is not able to commit environmental resources to begin environmental scoping until an Advanced Funding Agreement (AFA) has been executed by the Local Government sponsor and TxDOT. Based on CMEC's experience with the TxDOT Fort Worth District Environmental Clearance team and assumptions expressed in **Section 8.1** of this report, the environmental clearance schedule for this project is anticipated to be approximately 12 - 18 months. Additional public involvement activities may be necessary or voluntarily implemented by the City of Fort Worth based on anticipated public opinion and controversy.*

*November 2020 Update:*

*Continual engineering refinement of the proposed project design has resulted in slight modifications to the proposed alignment, notably along the northern extent of the alignment (north of West Camp Bowie Boulevard). These adjustments in the geometric layout of the proposed trail alignment were a result of City of Fort Worth and NCTCOG comments on the preliminary design. Based on the relatively large assessment buffers utilized in this technical report, the findings contained within should extend to any minor design revisions that have occurred since this assessment was conducted. Extensions of the project limit termini or revisions in the geometric layout that would impact additional parcels/property owners not included in this assessment may necessitate a future update.*

## TREE SUMMARY

Cox|McLain Environmental Consulting prepared a tree inventory in accordance with the City of Fort Worth's municipal tree preservation ordinance. There are approximately 1,136 trees with diameters of six inches or greater identified by the survey in the construction area. Of these, 706 trees were identified as Hackberry.

All trees within 20 feet of either side of the trail alignment are anticipated to have root systems affected by the trail construction and were identified for removal in the Tree Removal Map included in the submittal package. The proposed plan would remove 208 trees. During final design tree protection measures may be used to reduce the amount of trees to be removed.

## RIGHT-OF-WAY SUMMARY

The Bomber Spur Trail section is proposed to be constructed through an abandoned railroad ROW strip. Since the retirement and removal of the rail line, the ROW has reverted back to each adjacent property owner along the strip. To construct the proposed trail, the City will have to acquire approximately 832,500 SF of ROW land from adjacent property owners that was previously used as rail ROW.

There is also approximately 2,900 SF of additional ROW to be acquired that was not previously part of the railroad ROW strip. These additional acquisitions are in the area where the trail abuts Vickery Boulevard, shown previously in **Figure 8** on page 10.

Streams and Valleys is working to identify ownership, property values, and acquisition and funding strategies.

## STAKEHOLDER AND ENGAGEMENT SUMMARY

### Stakeholder Meetings

Stakeholder meetings were held with representatives from Kimley-Horn, NCTCOG, City of Fort Worth, and TxDOT to discuss the status and direction of the preliminary design. The dates and locations of the stakeholder meetings were as follows:

- March 3, 2020 – 801 W Cherry St, Fort Worth, TX
- October 28, 2020 – Virtual Microsoft Teams Meeting

### Public Engagement Meeting

A public hearing was held on September 22, 2020 via virtual WebEx Meeting to inform residents surrounding the Bomber Spur Trail of the proposed design aspects as well as receive input and answer questions from the public. There were approximately 36 attendees from the public and stakeholder groups. Comments from this group was specifically address in the final schematic, most significantly review of the SH 183/Southwest Boulevard alternative bridge crossing.

Notes from these meeting are included in the **Appendix**.

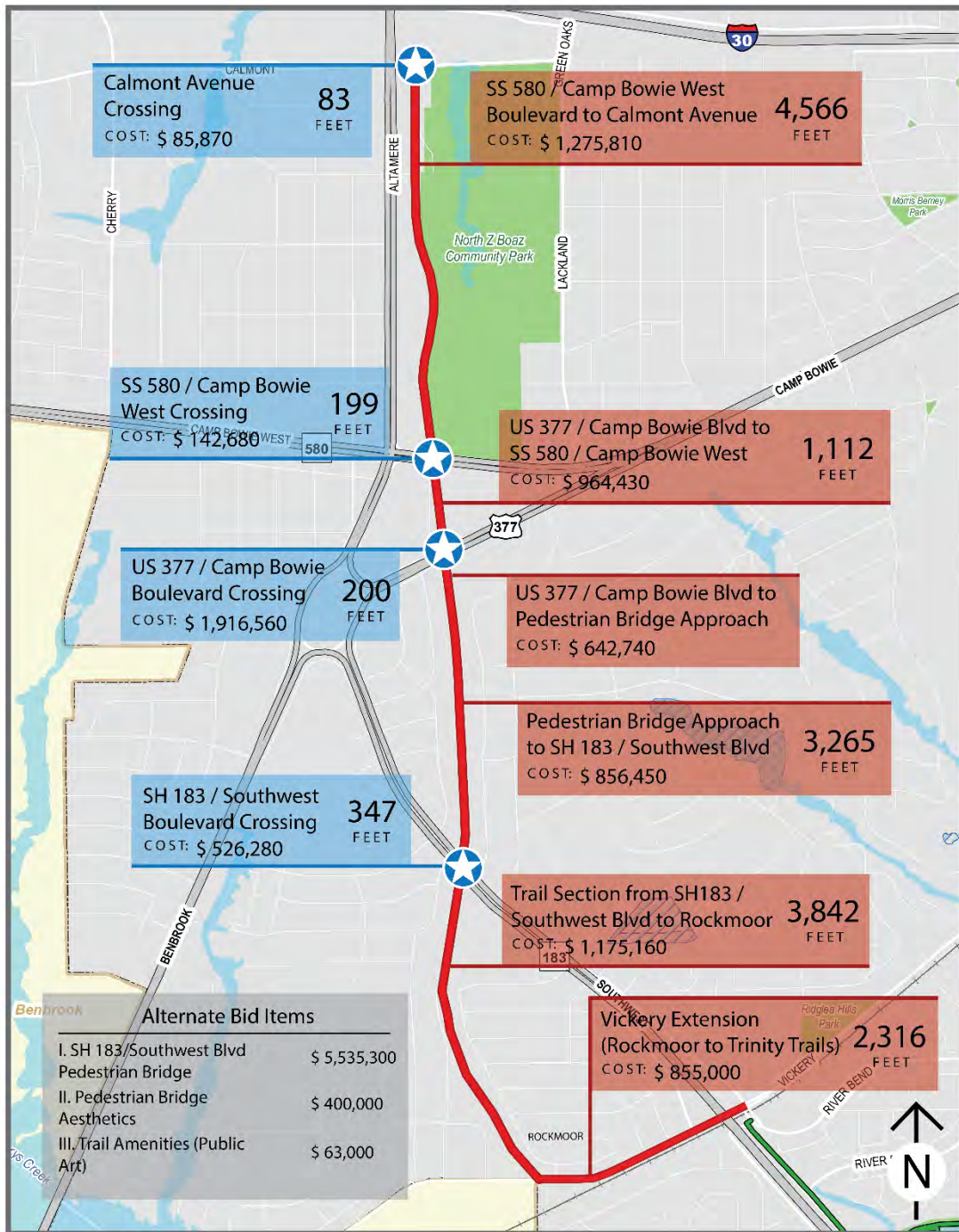
## APPENDIX

**Opinion of Probable Construction Costs**

**Stakeholder Meetings Notes**

**TxDOT Meeting Notes**

**Public Engagement Meeting Notes**



All estimates are based on 2020 construction costs



## 2020 Preliminary Opinion of Probable Construction Cost Summary

<b>Bomber Spur Costing Summary</b>	
<b>Preliminary Opinion of Probable Construction Cost (15% Schematic Set)</b>	
<b>**All 2020 Base Bid Total Include a 25% Contingency</b>	
	<b>2020</b>
Base Bid I: Crossing at Calmost Ave Project Total	\$ 85,870
Base Bid II - Trail Section from Calmont Ave to SS 580 / Camp Bowie West Blvd Project Total	\$ 1,275,810
Base Bid III - Crossing at SS 580 / Camp Bowie West Blvd Project Total	\$ 142,680
Base Bid IV - Trail Section from SS 580 / Camp Bowie West Blvd to US 377 / Camp Bowie Blvd Project Total	\$ 964,430
Base Bid V - Pedestrian Bridge Crossing at US 377 / Camp Bowie Blvd Project Total	\$ 1,916,560
Base Bid VI (A) - Trail Section from US 377 / Camp Bowie Blvd to Pedestrian Bridge Approach	\$ 642,740
Base Bid VI (B) - Trail Section from Pedestrian Bridge Approach to SH183 / Southwest Blvd	\$ 856,450
Base Bid VII - Crossing at SH183 / Southwest Blvd Project Total	\$ 526,280
Base Bid VIII - Trail Section from SH183 / Southwest Blvd to Vickery Blvd Project Total	\$ 1,175,160
<b>BASE BID</b>	<b>\$ 7,585,980.0</b>
Alternate I - SH 183/Southwest Blvd Pedestrian Bridge	\$ 5,535,800
Alternate II - Pedestrian Bridge Aesthetics Sub Total	\$ 400,000
Alternate III - Trail Amenities (Public Art) Sub Total	\$ 63,000
Alternate IV - Vickery Extension (Rockmoor to Trinity Trails)	\$ 855,000

## 2021 – 2028 Preliminary Opinion of Probable Construction Cost Summary

Bomber Spur Costing Summary								
Preliminary Opinion of Probable Construction Cost (15% Schematic Set)								
	2021	2022	2023	2024	2025	2026	2027	2028
<b>**All 2020 Base Bid Total include a 25% Contingency</b>								
Base Bid I: Crossing at Calmost Ave Project Total	\$ 88,496	\$ 91,348	\$ 94,315	\$ 97,400	\$ 100,609	\$ 103,946	\$ 107,416	\$ 111,026
Base Bid II - Trail Section from Calmont Ave to SS 580 / Camp Bowie West Blvd Project Total	\$ 1,316,536	\$ 1,358,990	\$ 1,403,142	\$ 1,449,060	\$ 1,496,815	\$ 1,546,480	\$ 1,598,132	\$ 1,651,849
Base Bid III - Crossing at SS 580 / Camp Bowie West Blvd Project Total	\$ 147,198	\$ 151,944	\$ 156,879	\$ 162,012	\$ 167,350	\$ 172,902	\$ 178,676	\$ 184,681
Base Bid IV - Trail Section from SS 580 / Camp Bowie West Blvd to US 377 / Camp Bowie Blvd Project Total	\$ 995,142	\$ 1,027,232	\$ 1,060,607	\$ 1,095,316	\$ 1,131,414	\$ 1,168,955	\$ 1,207,999	\$ 1,248,604
Base Bid V - Pedestrian Bridge Crossing at US 377 / Camp Bowie Blvd Project Total	\$ 1,977,796	\$ 2,041,575	\$ 2,107,905	\$ 2,176,888	\$ 2,248,630	\$ 2,323,242	\$ 2,400,839	\$ 2,481,540
Base Bid VI (A) - Trail Section from US 377 / Camp Bowie Blvd to Pedestrian Bridge Approach	\$ 663,242	\$ 684,626	\$ 706,867	\$ 729,996	\$ 754,051	\$ 779,068	\$ 805,086	\$ 832,145
Base Bid VI (B) - Trail Section from Pedestrian Bridge Approach to SH183 / Southwest Blvd	\$ 890,633	\$ 926,258	\$ 963,308	\$ 1,001,841	\$ 1,041,914	\$ 1,083,591	\$ 1,126,934	\$ 1,172,012
Base Bid VII - Crossing at SH183 / Southwest Blvd Project Total	\$ 543,042	\$ 560,553	\$ 578,764	\$ 597,704	\$ 617,402	\$ 637,887	\$ 659,191	\$ 681,348
Base Bid VIII - Trail Section from SH183 / Southwest Blvd to Vickery Blvd Project Total	\$ 1,212,704	\$ 1,251,808	\$ 1,292,476	\$ 1,334,771	\$ 1,378,757	\$ 1,424,504	\$ 1,472,080	\$ 1,521,559
<b>BASE BID</b>	<b>\$ 7,834,788</b>	<b>\$ 8,094,334</b>	<b>\$ 8,364,263</b>	<b>\$ 8,644,988</b>	<b>\$ 8,936,943</b>	<b>\$ 9,240,575</b>	<b>\$ 9,556,353</b>	<b>\$ 9,884,763</b>
Alternate I - SH 183/Southwest Blvd Pedestrian Bridge	\$ 5,757,232	\$ 5,987,521	\$ 6,227,022	\$ 6,476,103	\$ 6,735,147	\$ 7,004,553	\$ 7,284,735	\$ 7,576,125
Alternate II - Pedestrian Bridge Aesthetics Sub Total	\$ 416,000	\$ 432,640	\$ 449,946	\$ 467,943	\$ 486,661	\$ 506,128	\$ 526,373	\$ 547,428
Alternate III - Trail Amenities (Public Art) Sub Total	\$ 65,520	\$ 68,141	\$ 70,866	\$ 73,701	\$ 76,649	\$ 79,715	\$ 82,904	\$ 86,220
Alternate IV - Vickery Extension (Rockmoor to Trinity Trails)	\$ 881,291	\$ 908,649	\$ 937,101	\$ 966,691	\$ 997,465	\$ 1,029,469	\$ 1,062,754	\$ 1,097,370

## 2020 Preliminary Opinion of Probable Construction Cost Details

Base Bid I - Crossing at Calmont Ave			Section Length: 83.82 LF / 0.02 MI			
Item #	TxDOT Bid Item	Item Description	Total Quantity	Unit	Unit Price	Item Cost
1	05006001	MOBILIZATION	1	LS	5.0%	\$ 2,700
2	01006002	PREPARING ROW	0.5	STA	\$ 2,000.00	\$ 1,000
3	01006009	PREPARING ROW (TREE) (6" TO 24" DIA)	2	EA	\$ 700.00	\$ 1,400
4	01046022	REMOVING CONC (CURB AND GUTTER)	24	LF	\$ 10.00	\$ 240
5	01106004	EXCAVATION (ROADWAY AND CHANNEL)	10	CY	\$ 25.00	\$ 250
6	01326002	EMBANKMENT (FINAL)(DENS CONT)(TY A)	20	CY	\$ 15.00	\$ 300
7	01606003	FURNISHING AND PLACING TOPSOIL (4")	15	SY	\$ 2.30	\$ 40
8	01626002	BLOCK SODDING	15	SY	\$ 3.00	\$ 50
9	04506051	RAIL (HANDRAIL)(TY E)	35	LF	\$ 140.00	\$ 4,900
10	05316003	4' WIDE CONC SIDEWALKS (6")	25	SY	\$ 65.00	\$ 1,630
11	05316003	12' WIDE CONC SIDEWALKS (6")	10	SY	\$ 65.00	\$ 650
12	05316004	CURB RAMPS (TY 1)	1	EA	\$ 2,600.00	\$ 2,600
13	05316006	CURB RAMPS (TY 3)	1	EA	\$ 2,700.00	\$ 2,700
14	9999	RECTANGULAR RAPID FLASHING BEACON	2	EA	\$ 10,000.00	\$ 20,000
15	9999	STREET SIGNING AND MARKING	1	LS	\$ 2,000.00	\$ 2,000
16	9999	TRAIL SIGNAGE	1	EA	\$8,000.00	\$ 8,000
17	9999	MISC UTILITY ADJUSTMENT	1	LS	\$5,000.00	\$ 5,000
18	9999	EROSION CONTROL	1	LS	2.0%	\$ 920
19	9999	TRAFFIC CONTROL	1	LS	5.0%	\$ 2,290
<b>Base Bid I - General Sub Total</b>						\$ 56,670
<b>Construction Contingency 25.0%</b>						\$ 14,200
<b>Base Bid I - Construction Total</b>						<b>\$ 70,870</b>
Engineering, Survey, SUE, Environmental					15.0%	\$ 10,700
City Project Management, Inspections, Material Testing					6.0%	\$ 4,300
<b>Base Bid I: Crossing at Calmost Ave Project Total</b>						<b>\$ 85,870</b>

NOTE: ROW Acquisition and Inflation not accounted for in this OPCC.

2020 Preliminary Opinion of Probable Construction Cost Details cont.

Base Bid II - Trail Section from Calmont Ave to SS 580 / Camp Bowie West Blvd					Section Length: 4566.33 LF / 0.86 MI		
20	05006001	MOBILIZATION	1	LS	5.0%	\$	40,200
21	01006002	PREPARING ROW	45.5	STA	\$ 2,000.00	\$	91,000
22	01006009	PREPARING ROW (TREE) (6" TO 24" DIA)	44	EA	\$ 700.00	\$	30,800
23	01046036	REMOVING CONC (SIDEWALK OR RAMP)	1283	SY	\$ 10.00	\$	12,830
24	01106004	EXCAVATION (ROADWAY AND CHANNEL)	2040	CY	\$ 25.00	\$	51,000
25	01326002	EMBANKMENT (FINAL)(DENS CONT)(TY A)	450	CY	\$ 15.00	\$	6,750
26	01606003	FURNISHING AND PLACING TOPSOIL (4")	4700	SY	\$ 2.30	\$	10,810
27	01626002	BLOCK SODDING	4700	SY	\$ 3.00	\$	14,100
28	04646003	RC PIPE (CL III)(18 IN)	430	LF	\$ 100.00	\$	43,000
29	04646005	RC PIPE (CL III)(24 IN)	8	LF	\$ 140.00	\$	1,120
30	04656149	INLET (COMPL)(PAZD)(SL)(3FTX3FT)	1	EA	\$ 5,000.00	\$	5,000
31	04666152	WINGWALL (FW - 0) (HW=5 FT)	1	EA	\$ 10,000.00	\$	10,000
32	04966005	REMOV STR (WINGWALL)	1	EA	\$ 1,400.00	\$	1,400
33	05316003	12' WIDE CONC SIDEWALKS (6")	6200	SY	\$ 65.00	\$	403,000
34	10046001	TREE PROTECTION	40	EA	\$ 500.00	\$	20,000
35	9999	BICYCLE RACK	2	EA	\$1,500.00	\$	3,000
36	9999	10' SCREEN WALL	477	LF	\$200.00	\$	95,400
37	9999	EROSION CONTROL	1	LS	0.5%	\$	4,000
						<b>Base Bid II - General Sub Total</b>	\$ 843,410
						<b>Construction Contingency 25.0%</b>	\$ 210,900
						<b>Base Bid II - Construction Total</b>	<b>\$ 1,054,310</b>
						Engineering, Survey, SUE, Environmental	15.0% \$ 158,200
						City Project Management, Inspections, Material Testing	6.0% \$ 63,300
						<b>Base Bid II - Trail Section from Calmont Ave to SS 580 / Camp Bowie West Blvd Project Total</b>	<b>\$ 1,275,810</b>

NOTE: ROW Acquisition and Inflation not accounted for in this OPCC.

2020 Preliminary Opinion of Probable Construction Cost Details cont.

Base Bid III - Crossing at SS 580 / Camp Bowie West Blvd				Section Length: 199.42 LF / 0.04 MI		
38	05006001	MOBILIZATION	1	LS	5.0%	\$ 4,500
39	01006002	PREPARING ROW	2	STA	\$ 2,000.00	\$ 4,000
40	01006009	PREPARING ROW (TREE) (6" TO 24" DIA)	3	EA	\$ 700.00	\$ 2,100
41	01046001	REMOVING CONC (PAV)	120	SY	\$ 10.00	\$ 1,200
42	01046022	REMOVING CONC (CURB AND GUTTER)	48	LF	\$ 10.00	\$ 480
43	01106004	EXCAVATION (ROADWAY AND CHANNEL)	120	CY	\$ 25.00	\$ 3,000
44	01326002	EMBANKMENT (FINAL)(DENS CONT)(TY A)	20	CY	\$ 15.00	\$ 300
45	01606003	FURNISHING AND PLACING TOPSOIL (4")	270	SY	\$ 2.30	\$ 630
46	01626002	BLOCK SODDING	270	SY	\$ 3.00	\$ 810
47	05286003	COLORED TEXTURED CONC (8")	120	SY	\$ 90.00	\$ 10,800
48	05316003	12' WIDE CONC SIDEWALKS (6")	100	SY	\$ 65.00	\$ 6,500
49	05316004	CURB RAMPS (TY 1)	2	EA	\$ 2,500.00	\$ 5,000
50	05316016	CURB RAMPS (TY 21)	1	EA	\$ 2,900.00	\$ 2,900
51	10046001	TREE PROTECTION	7	EA	\$ 500.00	\$ 3,500
52	9999	RELOCATION OF PEDESTRIAN HYBRID BEACON	1	LS	\$ 35,000.00	\$ 35,000
53	9999	STREET SIGNING AND MARKING	1	LS	\$ 3,000.00	\$ 3,000
54	9999	MISC UTILITY ADJUSTMENT	1	LS	\$ 5,000.00	\$ 5,000
55	9999	EROSION CONTROL	1	LS	2.0%	\$ 1,590
56	9999	TRAFFIC CONTROL	1	LS	5.0%	\$ 3,970
<b>Base Bid III - General Sub Total</b>						\$ 94,280
<b>Construction Contingency 25.0%</b>						\$ 23,600
<b>Base Bid III - Construction Total</b>						<b>\$ 117,880</b>
Engineering, Survey, SUE, Environmental 15.0%						\$ 17,700
City Project Management, Inspections, Material Testing 6.0%						\$ 7,100
<b>Base Bid III - Crossing at SS 580 / Camp Bowie West Blvd Project Total</b>						<b>\$ 142,680</b>

NOTE: ROW Acquisition and Inflation not accounted for in this OPCC.

2020 Preliminary Opinion of Probable Construction Cost Details cont.

Base Bid IV - Trail Section from SS 580 / Camp Bowie West Blvd to US 377 / Camp Bowie Blvd				Section Length: 1112.00 LF / 0.21 MI		
57	05006001	MOBILIZATION	1	LS	5.0%	\$ 30,400
58	01006002	PREPARING ROW	11	STA	\$ 2,000.00	\$ 22,000
59	01006009	PREPARING ROW (TREE) (6" TO 24" DIA)	30	EA	\$ 700.00	\$ 21,000
60	01046036	REMOVING CONC (SIDEWALK OR RAMP)	145	SY	\$ 10.00	\$ 1,450
61	01106004	EXCAVATION (ROADWAY AND CHANNEL)	300	CY	\$ 25.00	\$ 7,500
62	01326002	EMBANKMENT (FINAL)(DENS CONT)(TY A)	100	CY	\$ 15.00	\$ 1,500
63	01606003	FURNISHING AND PLACING TOPSOIL (4")	1215	SY	\$ 2.30	\$ 2,800
64	01626002	BLOCK SODDING	1215	SY	\$ 3.00	\$ 3,650
65	04236008	RETAINING WALL (CAST - IN - PLACE)	4300	SF	\$ 100.00	\$ 430,000
66	04966014	REMOV STR (RAILROAD CROSSING)	1	EA	\$ 4,000.00	\$ 4,000
67	05316003	8' WIDE CONC SIDEWALKS (6")	420	SY	\$ 65.00	\$ 27,300
68	05316003	12' WIDE CONC SIDEWALKS (6")	900	SY	\$ 65.00	\$ 58,500
69	10046001	TREE PROTECTION	28	EA	\$ 500.00	\$ 14,000
70	9999	TRAIL SIGNAGE	1	EA	\$8,000.00	\$ 8,000
71	9999	TRAIL BENCH	2	EA	\$1,200.00	\$ 2,400
72	9999	EROSION CONTROL	1	LS	0.5%	\$ 3,030
<b>Base Bid IV - General Sub Total</b>						\$ 637,530
<b>Construction Contingency 25.0%</b>						\$ 159,400
<b>Base Bid IV - Construction Total</b>						<b>\$ 796,930</b>
Engineering, Survey, SUE, Environmental 15.0%						\$ 119,600
City Project Management, Inspections, Material Testing 6.0%						\$ 47,900
<b>Base Bid IV - Trail Section from SS 580 / Camp Bowie West Blvd to US 377 / Camp Bowie Blvd Project Total</b>						<b>\$ 964,430</b>
NOTE: 8' wide at-grade connection to US 377/Camp Bowie Blvd included with this section. 12' wide trail bridge approach included in Base Bid V.						
NOTE: ROW Acquisition and Inflation not accounted for in this OPCC.						

2020 Preliminary Opinion of Probable Construction Cost Details cont.

Base Bid V - Pedestrian Bridge Crossing at US 377 / Camp Bowie Blvd						Section Length: 199.81 LF / 0.04 MI	
73	05006001	MOBILIZATION	1	LS	5.0%	\$	60,400
74	01006002	PREPARING ROW	2	STA		\$ 2,000.00	\$ 4,000
75	01046037	REMOVE CONC (RAIL)	226	LF		\$ 30.00	\$ 6,780
76	01106004	EXCAVATION (ROADWAY AND CHANNEL)	600	CY		\$ 25.00	\$ 15,000
77	01326002	EMBANKMENT (FINAL)(DENS CONT)(TY A)	800	CY		\$ 15.00	\$ 12,000
78	04506051	RAIL (HANDRAIL)(TY E)	540	LF		\$ 140.00	\$ 75,600
79	05316003	12' WIDE CONC SIDEWALKS (6")	1000	SY		\$ 65.00	\$ 65,000
80	9999	PREFABRICATED PEDESTRIAN BRIDGE	1	LS		\$910,000.00	\$ 910,000
81	9999	BRIDGE ABUTMENT MODIFICATIONS	1	LS		\$65,000.00	\$ 65,000
82	9999	EROSION CONTROL	1	LS		2.0%	\$ 23,070
83	9999	TRAFFIC CONTROL	1	LS		5.0%	\$ 30,210
						<b>Base Bid V - General Sub Total</b>	\$ 1,267,060
						<b>Construction Contingency 25.0%</b>	\$ 316,800
						<b>Base Bid V - Construction Total</b>	<b>\$ 1,583,860</b>
						Engineering, Survey, SUE, Environmental	15.0% \$ 237,600
						City Project Management, Inspections, Material Testing	6.0% \$ 95,100
						<b>Base Bid V - Pedestrian Bridge Crossing at US 377 / Camp Bowie Blvd Project Total</b>	<b>\$ 1,916,560</b>
NOTE: 12' wide trail bridge approach included in this section. 8' wide at-grade connections to US 377/Camp Bowie Blvd included in Base Bid IV and VI.							
						NOTE: ROW Acquisition and Inflation not accounted for in this OPCC.	

2020 Preliminary Opinion of Probable Construction Cost Details cont

Base Bid VI (A) - Trail Section from US 377 / Camp Bowie Blvd to Pedestrian Bridge Approach						Section Length: 324.28 / 0.06 MI	
84	05006001	MOBILIZATION	1	LS	5.0%	\$	20,300
85	01006002	PREPARING ROW	3.5	STA	\$ 2,000.00	\$	7,000
86	01006009	PREPARING ROW (TREE) (6" TO 24" DIA)	35	EA	\$ 700.00	\$	24,500
87	01106004	EXCAVATION (ROADWAY AND CHANNEL)	1580	CY	\$ 25.00	\$	39,500
88	01326002	EMBANKMENT (FINAL)(DENS CONT)(TY A)	120	CY	\$ 15.00	\$	1,800
89	01606003	FURNISHING AND PLACING TOPSOIL (4")	400	SY	\$ 2.30	\$	920
90	01626002	BLOCK SODDING	400	SY	\$ 3.00	\$	1,200
91	04236008	RETAINING WALL (CAST - IN - PLACE)	2170	SF	\$ 100.00	\$	217,000
92	04966014	REMOV STR (RAILROAD CROSSING)	1	EA	\$ 4,000.00	\$	4,000
93	05316003	8' WIDE CONC SIDEWALKS (6")	355	SY	\$ 65.00	\$	23,080
94	05316003	12' WIDE CONC SIDEWALKS (6")	435	SY	\$ 65.00	\$	28,280
95	10046001	TREE PROTECTION	10	EA	\$ 500.00	\$	5,000
96	9999	MISC UTILITY ADJUSTMENT	1	LS	\$40,000.00	\$	40,000
97	9999	TRAIL SIGNAGE	1	EA	\$8,000.00	\$	8,000
98	9999	TRAIL BENCH	2	EA	\$1,200.00	\$	2,400
99	9999	EROSION CONTROL	1	LS	0.5%	\$	1,860
						<b>Base Bid VI - General Sub Total</b>	\$ 424,840
						<b>Construction Contingency 25.0%</b>	\$ 106,300
						<b>Base Bid VI - Construction Total</b>	<b>\$ 531,140</b>
						Engineering, Survey, SUE, Environmental 15.0%	\$ 79,700
						City Project Management, Inspections, Material Testing 6.0%	\$ 31,900
						<b>Base Bid VI (A) - Trail Section from US 377 / Camp Bowie Blvd to Pedestrian Bridge Approach</b>	<b>\$ 642,740</b>

NOTE: ROW Acquisition and Inflation not accounted for in this OPCC.

Base Bid VI (B) - Trail Section from Pedestrian Bridge Approach to SH183 / Southwest Blvd						Section Length: 2941.17 / 0.56 MI	
100	05006001	MOBILIZATION	1	LS	5.0%	\$	27,000
101	01006002	PREPARING ROW	29	STA	\$ 2,000.00	\$	58,000
102	01006009	PREPARING ROW (TREE) (6" TO 24" DIA)	19	EA	\$ 700.00	\$	13,300
103	01106004	EXCAVATION (ROADWAY AND CHANNEL)	100	CY	\$ 25.00	\$	2,500
104	01326002	EMBANKMENT (FINAL)(DENS CONT)(TY A)	80	CY	\$ 15.00	\$	1,200
105	01606003	FURNISHING AND PLACING TOPSOIL (4")	2975	SY	\$ 2.30	\$	6,850
106	01626002	BLOCK SODDING	2975	SY	\$ 3.00	\$	8,930
107	04646005	RC PIPE (CL III)(24 IN)	26	LF	\$ 140.00	\$	3,640
108	05316003	12' WIDE CONC SIDEWALKS (6")	3435	SY	\$ 65.00	\$	223,280
109	05316003	16' WIDE CONC SIDEWALKS (6")	130	SY	\$ 65.00	\$	8,450
110	10046001	TREE PROTECTION	40	EA	\$ 500.00	\$	20,000
111	9999	MISC UTILITY ADJUSTMENT	1	LS	\$ 5,000.00	\$	40,000
112	9999	REMOVABLE BOLLARD	3	EA	\$ 2,000.00	\$	6,000
113	9999	TRAIL SIGNAGE	1	EA	\$8,000.00	\$	8,000
114	9999	TRAIL BENCH	3	EA	\$1,200.00	\$	3,600
115	9999	TRAIL PICNIC TABLE	2	EA	\$3,000.00	\$	6,000
116	9999	BICYCLE RACK	1	EA	\$1,500.00	\$	1,500
117	9999	DECOMPOSED GRANITE GRAVEL PATH	3970	SF	\$4.50	\$	17,870
118	9999	LANDSCAPED AREA	1795	SY	\$60.00	\$	107,700
119	9999	EROSION CONTROL	1	LS	0.5%	\$	2,330
						<b>Base Bid VI - General Sub Total</b>	\$ 566,150
						<b>Construction Contingency 25.0%</b>	\$ 141,600
						<b>Base Bid VI - Construction Total</b>	<b>\$ 707,750</b>
						Engineering, Survey, SUE, Environmental 15.0%	\$ 106,200
						City Project Management, Inspections, Material Testing 6.0%	\$ 42,500
						<b>Base Bid VI (B) - Trail Section from Pedestrian Bridge Approach to SH183 / Southwest Blvd Project Total</b>	<b>\$ 856,450</b>

NOTE: ROW Acquisition and Inflation not accounted for in this OPCC.



2020 Preliminary Opinion of Probable Construction Cost Details cont

Base Bid VII - Crossing at SH183 / Southwest Blvd					Section Length: 347.14 LF / 0.07 MI	
100	05006001	MOBILIZATION	1	LS	5.0%	\$ 16,600
101	01006002	PREPARING ROW	2.5	STA	\$ 2,000.00	\$ 5,000
102	01046001	REMOVING CONC (PAV)	180	SY	\$ 10.00	\$ 1,800
103	01046022	REMOVING CONC (CURB AND GUTTER)	107	LF	\$ 10.00	\$ 1,070
104	01106004	EXCAVATION (ROADWAY AND CHANNEL)	100	CY	\$ 25.00	\$ 2,500
105	01326002	EMBANKMENT (FINAL)(DENS CONT)(TY A)	50	CY	\$ 15.00	\$ 750
106	01606003	FURNISHING AND PLACING TOPSOIL (4")	135	SY	\$ 2.30	\$ 320
107	01626002	BLOCK SODDING	135	SY	\$ 3.00	\$ 410
108	05286003	COLORED TEXTURED CONC (8")	180	SY	\$ 90.00	\$ 16,200
109	05286004	LANDSCAPE PAVERS	200	SY	\$ 80.00	\$ 16,000
110	05316003	12' WIDE CONC SIDEWALKS (6")	500	SY	\$ 65.00	\$ 32,500
111	05316004	CURB RAMPS (TY 1)	4	EA	\$ 2,500.00	\$ 10,000
112	05316006	CURB RAMPS (TY 3)	2	EA	\$ 2,700.00	\$ 5,400
113	9999	REMOVABLE BOLLARD	12	EA	\$ 2,000.00	\$ 24,000
114	9999	PEDESTRIAN HYBRID BEACON	2	EA	\$ 50,000.00	\$ 100,000
115	9999	PEDESTRIAN PUSH BUTTON	2	EA	\$ 5,000.00	\$ 10,000
116	9999	STREET SIGNING AND MARKING	1	LS	\$ 2,500.00	\$ 2,500
117	9999	TRAIL SIGNAGE	2	EA	\$ 8,000.00	\$ 16,000
118	9999	LANDSCAPED AREA	880	SY	\$ 60.00	\$ 52,800
119	9999	BICYCLE RACK	2	EA	\$ 1,500.00	\$ 3,000
120	9999	MISC UTILITY ADJUSTMENT	1	LS	\$ 10,000.00	\$ 10,000
121	9999	EROSION CONTROL	1	LS	2.0%	\$ 6,010
122	9999	TRAFFIC CONTROL	1	LS	5.0%	\$ 15,020
					<b>Base Bid VII - General Sub Total</b>	\$ 347,880
					<b>Construction Contingency 25.0%</b>	\$ 87,000
					<b>Base Bid VII - Construction Total</b>	<b>\$ 434,880</b>
					Engineering, Survey, SUE, Environmental 15.0%	\$ 65,300
					City Project Management, Inspections, Material Testing 6.0%	\$ 26,100
					<b>Base Bid VII - Crossing at SH183 / Southwest Blvd Project Total</b>	<b>\$ 526,280</b>

NOTE: ROW Acquisition and Inflation not accounted for in this OPCC.

2020 Preliminary Opinion of Probable Construction Cost Details cont

Base Bid VIII - Trail Section from SH183 / Southwest Blvd to Vickery Blvd						Section Length: 3842 LF / 0.73 MI	
123	05006001	MOBILIZATION	1	LS	5.0%	\$	37,000
124	01006002	PREPARING ROW	38	STA	\$ 2,000.00	\$	76,000
125	01006009	PREPARING ROW (TREE) (6" TO 24" DIA)	75	EA	\$ 700.00	\$	52,500
126	01046009	REMOVING CONC (RIPRAP)	1200	SY	\$ 10.00	\$	12,000
127	01046022	REMOVING CONC (CURB AND GUTTER)	42	LF	\$ 10.00	\$	420
128	01046036	REMOVING CONC (SIDEWALK OR RAMP)	30	SY	\$ 10.00	\$	300
129	01046037	REMOVE CONC (RAIL)	38	LF	\$ 30.00	\$	1,140
130	01046044	REMOVING CONC (FLUME)	37	SY	\$ 15.00	\$	560
131	01106004	EXCAVATION (ROADWAY AND CHANNEL)	1260	CY	\$ 25.00	\$	31,500
132	01326002	EMBANKMENT (FINAL)(DENS CONT)(TY A)	360	CY	\$ 15.00	\$	5,400
133	01606003	FURNISHING AND PLACING TOPSOIL (4")	3780	SY	\$ 2.30	\$	8,700
134	01626002	BLOCK SODDING	3780	SY	\$ 3.00	\$	11,340
135	04236008	RETAINING WALL (CAST - IN - PLACE)	600	SF	\$ 100.00	\$	60,000
136	04506051	RAIL (HANDRAIL)(TY E)	225	LF	\$ 140.00	\$	31,500
137	04646005	RC PIPE (CL III)(24 IN)	26	LF	\$ 140.00	\$	3,640
138	04656149	INLET (COMPL)(PAZD)(SL)(3FTX3FT)	1	EA	\$ 5,000.00	\$	5,000
139	04966002	REMOV STR (INLET)	1	EA	\$ 600.00	\$	600
140	04966004	REMOV STR (SET)	1	EA	\$ 600.00	\$	600
141	05286003	COLORLED TEXTURED CONC (8")	100	SY	\$ 90.00	\$	9,000
142	05316003	10' WIDE CONC SIDEWALKS (6")	315	SY	\$ 65.00	\$	20,480
143	05316003	12' WIDE CONC SIDEWALKS (6")	4735	SY	\$ 65.00	\$	307,780
144	05316010	CURB RAMPS (TY 7)	1	EA	\$ 2,600.00	\$	2,600
145	10046001	TREE PROTECTION	75	EA	\$ 500.00	\$	37,500
146	9999	REMOVABLE BOLLARD	4	EA	\$ 2,000.00	\$	8,000
147	9999	STREET SIGNING AND MARKING	1	LS	\$ 2,500.00	\$	2,500
148	9999	TRAIL SIGNAGE	3	EA	\$ 8,000.00	\$	24,000
149	9999	BICYCLE RACK	4	EA	\$ 1,500.00	\$	6,000
150	9999	MISC UTILITY ADJUSTMENT	1	LS	\$ 10,000.00	\$	10,000
151	9999	EROSION CONTROL	1	LS	0.5%	\$	3,600
152	9999	TRAFFIC CONTROL	1	LS	1.0%	\$	7,200
						<b>Base Bid VIII - General Sub Total</b>	\$ 776,860
						<b>Construction Contingency 25.0%</b>	\$ 194,300
						<b>Base Bid VIII - Construction Total</b>	<b>\$ 971,160</b>
						Engineering, Survey, SUE, Environmental	15.0% \$ 145,700
						City Project Management, Inspections, Material Testing	6.0% \$ 58,300
						<b>Base Bid VIII - Trail Section from SH183 / Southwest Blvd to Vickery Blvd Project Total</b>	<b>\$ 1,175,160</b>

NOTE: ROW Acquisition and Inflation not accounted for in this OPCC.

## 2020 Preliminary Opinion of Probable Construction Cost Details - Alternatives

Alternate I - SH 183/Southwest Blvd Pedestrian Bridge							
A1	05006001	MOBILIZATION	1	LS	5.0%	\$ 251,800	
A2	01006002	PREPARING ROW	2	STA	\$ 2,000.00	\$ 4,000	
A3	01046001	REMOVING CONC (PAV)	180	SY	\$ 10.00	\$ 1,800	
A4	01046022	REMOVING CONC (CURB AND GUTTER)	107	LF	\$ 10.00	\$ 1,070	
A5	01326002	EMBANKMENT (FINAL)(DENS CONT)(TY A)	650	CY	\$ 15.00	\$ 9,750	
A6	01606003	FURNISHING AND PLACING TOPSOIL (4")	135	SY	\$ 2.30	\$ 320	
A7	01626002	BLOCK SODDING	135	SY	\$ 3.00	\$ 410	
A8	04236008	RETAINING WALL (CAST - IN - PLACE)	30500	SF	\$ 100.00	\$ 3,050,000	
A9	04506051	RAIL (HANDRAIL)(TY E)	1800	LF	\$ 140.00	\$ 252,000	
A10	05406001	MTL W-BEAM GD FEN (TIM POST)	200	LF	\$ 22.00	\$ 4,400	
A11	05316003	12' WIDE CONC SIDEWALKS (6")	500	SY	\$ 65.00	\$ 32,500	
A12	9999	PREFABRICATED PEDESTRIAN BRIDGE	1	LS	\$ 980,000.00	\$ 980,000	
A13	9999	BRIDGE ABUTMENTS	2	LS	\$ 200,000.00	\$ 400,000	
A14	9999	MID SPAN COLUMN	1	LS	\$ 250,000.00	\$ 250,000	
A15	9999	TRAIL SIGNAGE	1	EA	\$ 8,000.00	\$ 8,000	
A16	9999	MISC UTILITY ADJUSTMENT	1	LS	\$15,000.00	\$ 15,000	
A17	9999	EROSION CONTROL	1	LS	0.5%	\$ 24,980	
A18	9999	TRAFFIC CONTROL	1	LS	5.0%	\$ 249,720	
<b>Alternate I - SH 183/Southwest Blvd Pedestrian Bridge</b>						<b>\$ 5,535,800</b>	
Alternate II - Pedestrian Bridge							
A19	9999	BRIDGE AESTHETICS ALLOWANCE	1	LS	\$400,000.00	\$ 400,000	
<b>Alternate II - Pedestrian Bridge Aesthetics Sub Total</b>						<b>\$ 400,000</b>	
Alternate III - Trail Amenities							
A20	9999	PUBLIC ART ALLOWANCE	1	LS	\$63,000.00	\$ 63,000	
<b>Alternate III - Trail Amenities (Public Art) Sub Total</b>						<b>\$ 63,000</b>	
Alternate IV - Vickery Extension (Rockmoor to Trinity Trails) <span style="float: right;">Section Length: 2315.90 LF / 0.44 MI</span>							
A1	05006001	MOBILIZATION	1	LS	5%	\$ 25,900	
A2	01006002	PREPARING ROW	23	STA	\$2,000.00	\$ 46,000	
A21	01046017	REMOVING CONC (DRIVEWAY)	750	SY	\$15.00	\$ 11,300	
A21	05316003	10' WIDE CONC SIDEWALKS (6")	2,222	SY	\$65.00	\$ 144,500	
A21	05306004	CONC DRIVEWAY (6")	750	SY	\$75.00	\$ 56,300	
A22	05316008	CURB RAMPS (TY 5)	1	EA	\$3,500.00	\$ 3,500	
A23	05316010	CURB RAMPS (TY 7)	10	EA	\$2,300.00	\$ 23,000	
A24	05316016	CURB RAMPS (TY 21)	1	EA	\$3,000.00	\$ 3,000	
A25	9999	MISC UTILITY ADJUSTMENTS	1	LS	\$30,000.00	\$ 30,000	
A26	9999	BRIDGE ABUTMENT MODIFICATION	1	LS	\$200,000.00	\$ 200,000	
<b>Alternative IV - General Sub Total</b>						<b>\$ 543,500</b>	
<b>Construction Contingency 30.0%</b>						<b>\$ 163,100</b>	
<b>Alternative IV - Construction Total</b>						<b>\$ 706,600</b>	
					Engineering, Survey, SUE, Environmental	15.0%	\$ 106,000
					City Project Management, Inspections, Material Testing	6.0%	\$ 42,400
<b>Alternate IV - Vickery Extension (Rockmoor to Trinity Trails)</b>						<b>\$ 855,000</b>	

NOTE: ROW Acquisition and Inflation not accounted for in this OPCC.



## Bomber Spur Regional Veloweb Shared-Use Path

**Subject:** Agency Coordination Meeting (Stakeholder Meeting No. 1)  
**Meeting Date:** March 3, 2020  
**Time:** 10:00 a.m. – 12:00 p.m.  
**Location:** 801 W Cherry St, #1300  
Fort Worth, TX 76102

### Attendees

Jeff Whitacre, Kimley-Horn and Associates	Pat Rohmer, NCTCOG
Colton Hermes, Kimley-Horn and Associates	Kevin Kokes, NCTCOG
Michael Billingsley, Kimley-Horn and Associates	Daniel Snyder, NCTCOG
Jeremy Williams, City of Fort Worth	Randell Brown, TxDOT
Joel McElhany, City of Fort Worth	Elisa Garcia, TxDOT
Leann Guzman, City of Fort Worth	Charles Cox, TxDOT
Ryan Blankenship, Cox McLain	Stacey Pierce, Streams and Valleys
	Lesley Schwalje, HNTB

### Action Items:

- 1) City of Fort Worth will provide 2015 title review information to Kimley-Horn.
- 2) City of Fort Worth will provide available property cost comparisons for use in estimating acquisition costs.
- 3) City of Fort Worth will coordinate public input meetings. The first meeting is tentatively targeted for April 2020. This meeting may be delayed due to COVID-19 regulations.
- 4) NCTCOG will provide update and available plans for Safe Routes to School crossings at Camp Bowie W Blvd (SS 580) and Camp Bowie Blvd (US 377).
- 5) Kimley-Horn will update survey map to include potential access at Arbor Ave.
- 6) Kimley-Horn to schedule corridor field walk.
- 7) Kimley-Horn will develop a right of entry letter for survey and environmental field crews and send to the City of Fort Worth for approval.



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## **Meeting Notes:**

### **1) Railroad easement property ownership:**

- a) City of Fort Worth performed a title review along the corridor in 2015. The review found that the corridor may now belong to 100-115 different owners.
- b) Kimley-Horn noted that following the strips and gores doctrine could revert ownership to the existing adjacent properties.
- c) Streams and Valleys will meet with the City to discuss assisting in private property acquisition. The City of Fort Worth can only approach property owners for eminent domain. Therefore, Streams & Valleys will contact property owners for potential volunteer property dedication and discuss amenities such as fencing/privacy upgrades to the property.
- d) Kimley-Horn will use standard letter right-of-entry with at least 10-day notice and include Cox|McLain for access. The letter may reference that the preliminary engineering work is funded as a partnership with the City of Fort Worth and NCTCOG.

### **2) Cox|McLain will provide a tree survey for the entire corridor with a sub-meter level of accuracy.**

### **3) Trail design considerations:**

- a) NCTCOG presented pedestrian and bicycle estimates based on a 0.5-mile and 2-mile radius study area.
- b) These estimates were compared to collected data from existing regional trails. The comparisons showed that the 2-mile radius study area likely over represents. Thus basing the trail design on the 0.5 mile study area forecasts is preferred, which suggests 200 pedestrians and 294 bicyclists will use the Bomber Spur Trail on a daily basis (494 total). Based on forecasts and discussion, it will likely not be necessary to provide separated/duel paths for bicyclists and pedestrians throughout the entire corridor. Separated/duel paths *may* be considered north of Camp Bowie Blvd (US 377) due to commercial destinations and anticipated pedestrians walking their dogs from the nearby dog park.



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- c) Additional potential access points should be explored throughout the corridor, including Arbor Ave and connecting to a nearby Safe Routes to School project at Camp Bowie W Blvd (SS 580) and Camp Bowie Blvd (US 377).
  - d) Emergency vehicle access and potential travel on the trail corridor needs to be considered in design. Med-star input needs to be provided. Access points for emergency vehicles must be identified. Design must also account for maintenance vehicles (H10 standards/20k pounds).
  - e) The public input process to be facilitated by the City will explore other amenities that may be desired with trail construction.
- 4) Trail overpass bridge at Camp Bowie Blvd (US 377):**
- a) City of Fort Worth expects to utilize a prefabricated pedestrian bridge that meets TxDOT's criteria.
  - b) Design needs to include access to Camp Bowie Blvd (US 377) sidewalk, preferably on both sides, in order to provide access to Applied Learning Academy and the properties on the south side of the roadway.
  - c) Design needs to include coordination along Camp Bowie W Blvd (SS 580) and Camp Bowie Blvd (US 377) with the Safe Routes to School Project from the Applied Learning Academy to Z Boaz Park. Additional coordination is needed with the TPW department to coordinate on the crossings. An individual meeting is recommended to coordinate on the planned school crossings at the earliest opportunity to provide feedback on the location of the crossings so that it also serves people on the Bomber Spur Trail.
- 5) Public input:**
- a) City of Fort Worth discussed previously held public input meeting, stating that no opposition was presented.
  - b) Public input will continue as the project moves forward. The City of Fort Worth will coordinate with Streams & Valleys to facilitate community meetings in April 2020 regarding right-of-entry with a second community meeting in Fall 2020 to present the trail concept.



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**6) TxDOT Coordination:**

- a) TxDOT verified that the Bridge Division should be involved in this project but will not need to provide a full review.
- b) Traffic related items should be coordinated with Theresa Poer with TxDOT.
- c) Items related to the I-30 interchange should be coordinated with Charles Cox with TxDOT and Nicole Carrillo with HNTB.

**7) Future Bomber Spur Trail Construction:**

- a) The City of Fort Worth will explore programming funds for future trail engineering / construction drawings
- b) The targeted construction timeframe for the City of Fort Worth is 2023. City staff will explore including funding for the Bomber Spur Trail construction in the next Bond Program, as well as other partnerships for construction funding.



## Bomber Spur Regional Veloweb Shared-Use Path

**Subject:** Stakeholder Meeting No. 2  
**Meeting Date:** October 28, 2020  
**Time:** 1:00 p.m. – 3:00 p.m.  
**Location:** Microsoft Teams Meeting

### Attendees

Jeff Whitacre, Kimley-Horn and Associates	Stacey Pierce, Streams and Valleys
Colton Hermes, Kimley-Horn and Associates	Jeremy Arreguin, TxDOT
Jeremy Williams, City of Fort Worth	Randell Brown, TxDOT
Jing Yang, City of Fort Worth	Iftekhhar Ali, TxDOT
Chelsea St. Louis, City of Fort Worth	Elisa Garcia, TxDOT
Pat Rohmer, NCTCOG	Jamye Sawey, TxDOT
Kevin Kokes, NCTCOG	Arthit Laikram, TxDOT
Daniel Snyder, NCTCOG	Manuel Padron, Jr., TxDOT

### Action Items:

- 1) Kimley-Horn will send out presentation and deliverables to all meeting attendees.
- 2) Kimley-Horn will coordinate with Streams and Valleys to provide materials for their RFP.
- 3) City of Fort Worth will investigate status of future sidewalks along SH 183/Southwest Boulevard.
- 4) Kimley-Horn will finalize schematic deliverables for November 19, 2020 submittal.

### Meeting Notes:

- 5) Kimley-Horn gave a brief recap of the September 22, 2020 public meeting.
- 6) Kimley-Horn walked through the significant project areas, starting on the TxDOT crossings, explaining the engineering considerations.

a) SH 183/Southwest Boulevard Crossing





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- Kimley-Horn explained the current “Z-crossing” design (trail alignment in which users cross SH 183/Southwest Boulevard perpendicular to the street, turn parallel to the street in the median, then cross the next side of the street perpendicularly).
  - Kimley-Horn discussed the alternative pedestrian bridge crossing option.
    - A bridge crossing at this location would cost an estimated \$4.495 million for 2020 construction costs.
    - There is concern over pedestrians using the bridge being able to see into the backyards of adjacent residential properties.
    - Kimley-Horn advised that while an overhead bridge crossing would be safest, utilizing pedestrian hybrid beacons is considered a safe crossing method.
    - At-grade sidewalk would need to be added on either side of bridge abutments to provide access to the adjacent residential properties.
    - Pedestrian bridge option would require the relocation of existing overhead electric lines.
    - TxDOT bridge and utility divisions would need to be coordinated with prior to beginning design.
    - Stakeholders agreed to keep the pedestrian bridge option as an alternative for the final schematic.
      - Kimley-Horn will update schematic to highlight the alternative crossing option.
    - Additional public input will be needed prior to making final crossing decision.
  - NCTCOG advised the City of Worth/TxDOT consider adding sidewalk along SH 183/Southwest Boulevard to increase area connectivity to the Bomber Spur Trail.



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- Sidewalks along SH 183/Southwest Boulevard have been discussed but the current status is unclear. City of Fort Worth will investigate further.
- b) US 377/Camp Bowie Boulevard Crossing
- A pedestrian bridge is proposed to allow pedestrians to cross over US 377/Camp Bowie Boulevard.
  - The bridge would utilize the existing rail bridge abutments.
  - There would also be ADA compliant ramps down to the street from either side of the bridge giving pedestrians access to the existing sidewalks along the roadway.
  - Retaining walls with pedestrian rail would be installed between the trail and the ramps to allow for the elevation differences.
- c) Camp Bowie West Crossing
- The crossing of Camp Bowie West was coordinated with City of Fort Worth, NCTCOG, Applied Learning Academy, and TxDOT.
  - There is a planned pedestrian hybrid beacon crossing at the existing Applied Learning Academy that will be relocated when the Bomber Spur Trail is constructed.
- d) Trinity Trails Connection
- The future connection to the Trinity Trails was discussed, explaining that the design is not part of this project, but was considered for overall connectivity.
  - Due to railroad Right of Way (ROW) restrictions, the future trail is proposed to go on the north side of Vickery Boulevard.
  - Kimley-Horn is also designing the Riverbend Boulevard and Vickery Boulevard intersection improvements and ensured the intersection improvements can accommodate the future Bomber Spur Trail extension.
- e) Vickery Boulevard Connection



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- The trail along Vickery Boulevard will be a 10-foot wide trail with a 2-foot wide buffer between the road for pedestrian safety.
  - The Vickery connection will also require drainage modifications and additional ROW.
- f) Willis Avenue Crossing
- Drainage infrastructure will be modified to accommodate the trail between the existing channels by constructing vertical retaining walls.
  - The crossing will utilize a raised crosswalk to help decrease vehicle speed and increase safety for trail users.
  - Advanced warning signage will be added to both the street and the trail. The signage will help increase pedestrian safety by alerting trail users and vehicles of the approaching crossing.
- g) Brazos Avenue Connection
- Brazos Avenue is an existing alley in public ROW that could be converted into a neighborhood access point for the trail. The connection will include removable bollards that will restrict vehicles from driving on the trail.
  - This area has additional space where a trailhead location could be constructed.
  - Brazos Avenue is one example of several potential neighborhood connections identified.
- h) Landscape/Amenity Area
- Area north of Brazos Avenue has extra wide ROW, providing room to construct enhanced pedestrian amenities.
  - Examples of amenities include landscaped area, benches, tables, or public art.
- i) North Z Boaz Park



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- Bomber Spur Trail was coordinated with the North Z Boaz Park master plan and will remain within the former rail right-of-way along the west side of the park property.
  - Connection to Arbor Avenue was considered, but not included in schematic design due to difficult existing grades.
- j) Calmont Avenue Crossing
- The trail as it approaches Calmont Avenue will be located on top of the existing drainage channel, with an internal storm pipe constructed under.
  - This option avoids the need for the addition of large retaining walls.
  - Crossing Calmont Avenue will utilize a pedestrian activated rectangular rapid flashing beacon. The trail will ultimately connect to Alta Mere Drive along the north side of Calmont Ave.
- 7) Kimley-Horn discussed altering the trail alignment to maximize tree preservation through the corridor.
- 8) Visioning
- a) Kimley-Horn will add an example bike sharing station to the vision board.
  - b) Streams and Valleys will be releasing an RFP for a visioning project for the Bomber Spur Trail.
    - NCTCOG advised this project consider illumination for the trail as well as alternative illumination solutions.
- 9) ROW Acquisition
- a) Streams and Valleys has determined the ROW/easement acquisition will have to go through the heirs of the original landowners at the time the railroad easement was dedicated.
- 10) Schedule and Project Cost
- a) Final deliverables are anticipated to be submitted on November 19, 2020.
  - b) The base project is estimated to cost \$6.984 million in 2024 construction costs.



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- c) This does not include the alternative pedestrian bridge crossing at SH 183/Southwest Boulevard or the future trail extension along Vickery Boulevard. These costs are provided in the OPCC.



# Meeting

9/30/2020

**Project** 0902-90-126, SS 580 Pedestrian Hybrid Beacon – Follow up

**Subject:** Meeting to Discuss Option 1 and Option 2 Crossing Locations on Spur 580 Near “Z Bonz”

**Invites:**

- Wilma Smith, [Wilma.Smith@fortworthtexas.gov](mailto:Wilma.Smith@fortworthtexas.gov), Fort Worth
- Aziz Rahman, [Aziz.Rahman@fortworthtexas.gov](mailto:Aziz.Rahman@fortworthtexas.gov), Fort Worth
- Chelsea St. Louis, [Chelsea.St.Louis@fortworthtexas.gov](mailto:Chelsea.St.Louis@fortworthtexas.gov), Fort Worth
- Rajnish Gupta, [rainish.gupta@fortworthtexas.gov](mailto:rainish.gupta@fortworthtexas.gov)
- Theresa Poer, [Theresa.Poer@txdot.gov](mailto:Theresa.Poer@txdot.gov), TXDOT
- Joaquin Artigas, [Joaquin.Artigas@txdot.gov](mailto:Joaquin.Artigas@txdot.gov), TXDOT
- Arthit Laikram, [Arthit.Laikram@txdot.gov](mailto:Arthit.Laikram@txdot.gov), TXDOT
- Russel Poer, [Russell.Poer@txdot.gov](mailto:Russell.Poer@txdot.gov), TXDOT
- Jeremy Arreguin, [Jeremy.Arreguin@txdot.gov](mailto:Jeremy.Arreguin@txdot.gov), TXDOT
- Krishna Satti, [Krishna.Satti@mbakerintl.com](mailto:Krishna.Satti@mbakerintl.com), MBI
- Caren Chambers, [cchambers@mbakerintl.com](mailto:cchambers@mbakerintl.com), MBI
- Jean Butts, [Jean.Butts@mbakerintl.com](mailto:Jean.Butts@mbakerintl.com), MBI
- Karla Weaver, [KWeaver@nctcog.org](mailto:KWeaver@nctcog.org), NCTCOG
- Patricia Rohmer, [PRohmer@nctcog.org](mailto:PRohmer@nctcog.org), NCTCOG
- Kevin Kokes, [KKokes@nctcog.org](mailto:KKokes@nctcog.org), NCTGOG
- Daniel Snyder, [DSnyder@nctcog.org](mailto:DSnyder@nctcog.org), NCTCOG
- Jeremy Williams, Fort Worth
- Shawn Conrad, [SConrad@nctcog.org](mailto:SConrad@nctcog.org)

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- A. Introductions and Attendance:
  - B. Plans and Discussion:

Conclusion: The City of Fort Worth, NCTCOG and TXDOT have come to a consensus, agreeing to move the pedestrian hybrid beacon (PHB) of CSJ 0902-90-126, to the location of the existing cross walk, shown as option 1 in the attached document. Option 2 was also discussed as an alternative for this project to coordinate with a future trail project in the planning stages near Irene Street. Option 2 however, was rejected for the scoping of CSJ 0902-90-126 as a PHB mid-block crossing in order to meet the current crossing needs for the school. We understand that the projected time for the construction of the future trail project near Irene street was unknown, and could be as many as 8 to 10 years out and is unfunded at this time. It is recommended that future planning considerations along this stretch of SS580 consider the impact the PHB would have on future crossings and traffic in the area due to proximity with other signals and other traffic and pedestrian impacts.

Additional wording added on 10-07-2020

In the meeting on September 30, 2020, it was also understood by all parties that a future project may include scoping that will consider the possibility of removing the signal at option 1 with the purpose of relocating it to option 2 or another appropriate location which will accommodate the needs of both the school and bomber trail uses



Option 2

Option 1

Original

Camp Bowie W Blvd

300 FT

100 FT

150 FT

120 FT

580







## **Bomber Spur Regional Veloweb Shared-Use Path**

**Subject:** Public Meeting No. 1  
**Meeting Date:** September 22, 2020  
**Time:** 6:00 p.m. – 7:30 p.m.  
**Location:** WebEx Meeting

### **Project Team Attendees**

Jeff Whitacre, Kimley-Horn and Associates	Pat Rohmer, NCTCOG
Colton Hermes, Kimley-Horn and Associates	Kevin Kokes, NCTCOG
Jeremy Williams, City of Fort Worth	Daniel Snyder, NCTCOG
Jing Yang, City of Fort Worth	Stacey Pierce, Streams and Valleys
Joel McElhany, City of Fort Worth	

### **Meeting Notes:**

- 1) City of Fort Worth started the meeting by introducing the project and project team.
  - a) The overall Regional Veloweb trail network was discussed and the limits for the Bomber Spur Trail were identified as it relates to the overall network.
  - b) The scope of the project will include the design of the 12-foot wide hard surface shared-use path (trail), identify potential trailhead locations, and propose roadway crossing options with safety countermeasures.
- 2) Kimley-Horn walked through the significant project areas explaining the engineering considerations.
  - a) Trinity Trails Connection
    - The future connection to the Trinity Trails was discussed, explaining that the design is not part of this project, but was considered for overall connectivity.
    - Due to railroad Right of Way (ROW) restrictions, the future trail is proposed to go on the north side of Vickery Boulevard.
  - b) Vickery Boulevard Connection
    - The trail along Vickery Boulevard will be a 10-foot wide trail with a 2-foot wide buffer between the road for pedestrian safety.



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- The Vickery connection will also require drainage modifications and additional ROW.
- c) Monterrey Apartments Connection
- The Monterrey Apartments Connection offers an opportunity for the adjacent neighborhood to access the trail. The connection will include removable bollards that will restrict vehicles from driving on the trail.
  - It was noted that adjacent residential property owners along the trail would also have the ability to construct personal access points from their properties to the trail.
- d) Borden Drive Connection
- Utilizing city-owned ROW could be used to provide access to Borden Drive. The connection will include removable bollards that will restrict vehicles from driving on the trail.
  - This area has additional space that could be utilized for a trailhead location.
- e) Willis Avenue Crossing
- Drainage infrastructure will be modified to accommodate the trail between the existing channels by constructing vertical retaining walls.
  - The crossing will utilize a raised crosswalk to help decrease vehicle speed and increase safety for trail users.
  - Advanced warning signage will be added to both the street and the trail. The signage will help increase pedestrian safety by alerting trail users and vehicles of the approaching crossing.
- f) SH 183/Southwest Boulevard Crossing
- An at-grade crossing of the highway is identified with a pedestrian hybrid beacon (an overhead signal that is activated by trail users to stop vehicle traffic).
  - Implementing curves on the trail and the “Z-crossing” (trail alignment in which users cross SH 183/Southwest Boulevard perpendicular to the street, turn parallel to the street in the median, then cross the next side



of the street perpendicularly) were intentional to help slow down trail users before the crossing.

- The “Z-crossing” provides opportunity for enhanced median landscaping, helping make this a signature area of the trail.

g) Brazos Avenue Connection

- Brazos Avenue is an existing alley in public ROW that could be converted into a neighborhood access point for the trail. The connection will include removable bollards that will restrict vehicles from driving on the trail.
- This area has additional space where a trailhead location could be constructed.

h) Landscape/Amenity Area

- Area north of Brazos Avenue has extra wide ROW, providing room to construct enhanced pedestrian amenities.
- Examples of amenities include landscaped area, benches, tables, or public art.

i) US 377/Camp Bowie Boulevard Crossing

- A pedestrian bridge is proposed to allow pedestrians to cross over US 377/Camp Bowie Boulevard.
- The bridge would utilize the existing rail bridge abutments.
- There would also be ADA compliant ramps down to the street from either side of the bridge giving pedestrians access to the existing sidewalks along the roadway.
- Retaining walls with pedestrian rail would be installed between the trail and the ramps to allow for the elevation differences.

j) Camp Bowie West Crossing

- The location of this at-grade crossing is still being discussed with City of Fort Worth and TxDOT.
- There is a planned pedestrian hybrid beacon crossing at the Applied Learning Academy.



k) North Z Boaz Park

- Bomber Spur Trail was coordinated with the North Z Boaz Park master plan and will remain within the former rail right-of-way along the west side of the park property.
- Connection to Arbor Avenue was considered, but not included in schematic design due to difficult existing grades.

l) Calmont Avenue Crossing

- The trail as it approaches Calmont Avenue will be located on top of the existing drainage channel, with an internal storm pipe constructed under.
- This option avoids the need for the addition of large retaining walls.
- Crossing Calmont Avenue will utilize a pedestrian activated rectangular rapid flashing beacon. The trail will ultimately connect to Alta Mere Drive along the north side of Calmont Ave.
- The SH 183/IH-30 interchange project (currently under design by TxDOT) will evaluate the alignment of the Bomber Spur Trail through the interchange to continue the trail north of IH-30.

**3)** Kimley-Horn discussed altering the trail alignment to maximize tree preservation through the corridor.

**4)** City of Fort Worth discussed the project schedule and estimated cost.

- a) Project is currently funded through 30% design.
- b) Final schematic design expected in November 2020.
- c) Final design and construction of trail estimated to cost \$7.8 million. The estimated cost includes inflation for construction year 2024 and engineering design services.
  - Due to cost of project City will likely require partnership in order to build project. Funding opportunities are still being researched.

**5)** City of Fort Worth discussed the ROW ownership in relation to the abandoned railroad easement.



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- a) Title research is on-going to determine who the current owners of the easement are.
  - b) After owner is determined City will investigate acquisition and funding strategies.

### **Questions and Answers:**

- Q:** Would someone able to cross the entire [SH 183/Southwest Boulevard crossing] in one signal?
- A:** No, the crossing would require two pedestrian hybrid beacon activations. This is due to the length of the crossing portion in the median as well as reducing the amount of stopping for traffic on SH 183/Southwest Boulevard.
- Q:** Is there any consideration for an overpass [trail bridge] on the [SH 183/Southwest Blvd crossing]?
- A:** Yes, an overpass was considered. The overpass option was not evaluated further due to physical, ROW, and cost constraints, and because the proposed crossing provides an adequately safe solution.
- Q:** Was there any consideration for how to reduce graffiti, etc. at the Willis Ave crossing?
- A:** We did not specifically evaluate this consideration; the intent is to provide a safe crossing for pedestrians using the trail. However, the increased use of the trail may help deter future vandalism.
- Q:** Will there be gravel trails along the concrete sidewalk?
- A:** It is not currently planned to include gravel trails along the concrete sidewalk throughout the corridor. The plan does include 2-foot wide grass shoulders on each side of the 12-foot wide trail and has a gravel trail through the pedestrian amenity area north of Brazos Avenue.
- Q:** You mention a raised cross walk at Willis. Would that be similar to a speed bump?



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- A:** Yes, similar to a speed bump but more gradual. It does still provide traffic calming/speed reduction.
- Q:** Will the drainage ditch at Calmont [Avenue] also provide separation from [Rick's Cabaret] or block access from that business?
- A:** Yes, there are plans to include a 10-foot high screen wall between the trail and Rick's Cabaret which will block the view and restrict access to the trail.
- Q:** How much room do you expect between trees and the trail?
- A:** There will be a minimum 4 feet between the trail and any adjacent trees.
- Q:** You are terminating at Calmont. Is the section from Calmont to Westworth Village (passing by Ridgmar Mall) covered under the Hwy 183 planning?
- A:** Yes, there are two phases north of Calmont Avenue. The SH 183/IH 30 interchange reconstruction is currently under design by TxDOT and will incorporate a trail crossing to the north side of IH 30. The continuation of the trail northward to Westworth Village is in schematic design by TxDOT and is expected to have final schematic approval by 2022. That project will identify how to connect to the recently completed trail in Westworth Village.
- Q:** Does the \$7.8 million budget include the landscape/greenery?
- A:** Yes, it includes the landscape/greenery shown in the target areas on the schematic.
- Q:** What will the landscaping be along the sides of the path, other than the current trees?
- A:** No additional landscaping proposed other than the specific landscape areas.
- Q:** How do we know if we own the land behind our property? Where do we find that out?
- A:** Due to the complexity of the ownership rights associated with the abandoned easement, the answer is not currently known. Streams and Valleys is currently



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researching who the property belongs to and will provide more information when it is available. This project's aim is to be a benefit to the neighborhood, not a burden.

**Q:** After completion, which entity will be responsible for ongoing maintenance?

**A:** City of Fort Worth will maintain the trail after construction.

**Q:** I believe the speed limit between Vickery Blvd and the proposed crosswalk is currently 45 mph. Could the construction of this trail decrease this speed?

**A:** There is no current plan by the City of Fort Worth to reduce the posted speed limit due to the trail construction.

**Q:** Can you expand upon the plans for funding? The sources of funding? Anticipated costs for acquiring ROW from homeowners?

**A:** City of Fort Worth would look for funding sources such as grant opportunities, NCTCOG partnership, potentially private fundraising, and this project has been proposed to be listed on the City of Fort Worth 2022 Bond Program. ROW costs and ownership rights are still being determined.

**Q:** Is it possible to include to include a bike lane on W Vickery and at the Willis crossing to connect to the new South Z Boaz park amenities scheduled to open spring of 2021?

**A:** Design for the Bomber Spur Trail does not account for on-street bicycle facilities but will extend a side path along West Vickery Boulevard.

**Q:** What about a connection to White Settlement and Lockheed Martin?

**A:** This future connection will may be part of either the SH 183/IH 30 Interchange reconstruction project or the future SH 183 reconstruction north of IH 30. White Settlement will need to coordinate the connection from the SH 183/IH 30 interchange area through that city to Lockheed Martin.



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**Q:** Where online can we find this plan?

**A:** The plan will be posted to City's website, which can be accessed here:  
<https://fortworthtexas.gov/projects/cfwbomberspurtrail/>

**Q:** Will the trail along West Vickery be against the fences along the easement behind the houses in Ridglea Hills Addition?

**A:** The trail will be between curb and fence. Grading limits or utility relocations may need to be adjacent to the fence, but the trail will not.





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### **Attendee List**

McElhany, Joel; Joel.McElhany@fortworthtexas.gov

Jing Yang; jing.yang@fortworthtexas.gov

Brandy Barrett, City of Westworth Village, bbarrett@cityofwestworth.com

Glenn Butler; butly1@msn.com

Jeff Whitacre; jeff.whitacre@kimley-horn.com

Patricia Rohmer; PRohmer@nctcog.org

Jeremy Williams, City of Fort Worth Senior Planner

Colton Hermes; colton.hermes@kimley-horn.com

John Stevenson; jstevenson@tpgfw.com

Randell Brown – TxDOT; Randell.Brown@txdot.gov

Daniel Snyder, Transportation Planner, NCTCOG, dsnyder@nctcog.org

Stacey Pierce; stacey@streamsandvalleys.org

Michael Crain, michael.crain@fortworthtexas.gov

Kevin Kokes; kkokes@nctcog.org

Ann Hufstetler; Annhuf@hotmail.com

Lindsay Chapman; lindsaychapman14@gmail.com

Randell Brown; randell.brown@txdot.gov

Jarroed Roecker; jarrodroecker@gmail.com

Chad Cline chad@tarranttech.com

Adelaide Leavens; adelaide@makbfoundation.org