

GRAPEVINE SPRINGS PARK

TRAIL FEASIBILITY STUDY



ACKNOWLEDGEMENTS

City Council

Karen Hunt, Mayor

Clay Phillips, City Manager

Cliff Long, Place 1 Councilmember

Brianna Hinojosa - Flores, Place 2 Councilmember

Wes Mays, Place 3 Councilmember

Gary Roden, Mayor Pro Tem, Place 4 Councilmember,

Nancy Yingling, Place 5 Councilmember

Marvin Franklin, Place 6 Councilmember

Mark Hill, Place 7 Councilmember

Parks and Recreation Staff

Brad Reid, Director of Parks and Recreation

Guy McLain, Assistant Director of Park Operations

John Elias, Park Operations Manager

Parks and Recreation Board

Greg Garcia

Ed Guignon

Lisa Montes

Jack Clark

Philip Houm

Maureen Corcoran

Melinda Melnick

Alternates:

Scott Yocum

Hillary Hodgson

TABLE OF CONTENTS

Executive Summary

Project Overview

- A: Senior and Community Center and Grapevine Springs Park
- B: Cotton Belt Line Rail
- C: Southwestern Boulevard Crossing (Roadway Bridge)
- D: Existing Bridge over Grapevine Creek
- E: Freeport Parkway/Wrangler Drive to Coppell Middle School West

A. Senior and Community Center and Grapevine Springs Park

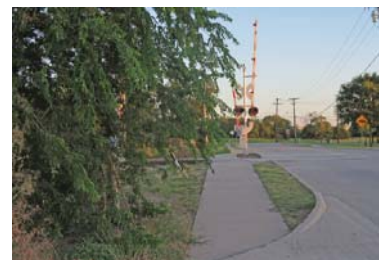
1. Existing Conditions
2. Coordination with Local and Regional Entities
 - Coppell Historical Society
 - Dallas County Historical Society
 - Dallas County Parks Department
 - Texas Historical Society
3. Mitigation and Materials
 - Tree and Vegetation Removal/Mitigation
 - 8' Width Concrete Hike and Bike Trail
 - Low Water Culvert Crossing
 - Pedestrian Railing (at Low Water Culvert Crossing)
4. Trail Feasibility

B. Cotton Belt Line Rail

1. Existing Conditions
2. Coordination with Local and Regional Entities
 - DART (Dallas Area Rapid Transit)
3. Mitigation and Materials
 - Tree and Vegetation Removal/Mitigation
 - 8' Width Concrete Hike and Bike Trail
 - Rail Crossing Approach Signage
 - Accessible Curb Ramps
4. Trail Feasibility
5. Future Trail Crossing under existing Rail Bridge

C. Southwestern Boulevard Crossing (Roadway Bridge)

1. Existing Conditions
2. Coordination with Local and Regional Entities
 - City of Coppell Public Works/Transportation
3. Hydrologic and Hydraulic Considerations
 - FEMA Mapping
 - Floodplain Permitting
 - Trail Impacts along Stream
 - Trail Impacts along Bridge Crossings
 - Summary



4. Existing Storm Drainage - Proposed configuration
5. Mitigation and Materials
 - 8' Width Concrete Hike and Bike Trail
 - Retaining Walls
 - Existing Storm Drainage new configuration
 - Pedestrian Railing
 - Rock Rip Rap
6. Trail Feasibility

D. Existing Bridge over Grapevine Creek

1. Existing Conditions
2. Coordination with Owner and/or Local and Regional Entities
 - ML Realty Partners (Owner)
 - Curci Coppell, Inc. (Property Owner)
 - Interinsurance Exchange of the Automobile Club (Property Owner)
3. Structural Assessments
4. Mitigation and Materials
 - Bridge Railing
 - Trail Security Lighting
 - Pedestrian Amenities (Benches, Trash Receptacles, etc.)
5. Trail Feasibility

E. Freeport Parkway to Coppell Middle School West

1. Existing Conditions
2. Coordination with Local and Regional Entities
 - City of Coppell Public Works/Transportation
3. Mitigation and Materials
 - 10' Width Concrete Hike and Bike Trail
 - 4' Width Concrete Sidewalk Connection
 - Accessible Curb Ramps
 - Painted Crosswalks
4. Trail Feasibility

Additional Trail Amenities

Probable Cost Opinion



OVERVIEW

Grapevine Springs Park Trail corridor is shown as a prioritized trail identified in the Coppell Community-Wide Trails Implementation Plan, dated 2009. The City of Coppell retained Teague Nall & Perkins, Inc. to perform an analysis to identify the feasibility of an approximate 2 mile length hike and bike trail, having a northern trailhead at Grapevine Springs Park to a southern terminus at Coppell Middle School West. The following is a summary of the findings of this analysis, including ownership along the corridor of the creek, environmental impacts, structural analysis of existing bridges, responses from entities requiring permissions, and probable construction costs. This Hike and Bike Trail Corridor has been organized into five sections:

A. Senior and Community Center and Grapevine Springs Park:

This Section is has a starting point at the southwest corner of the Senior and Community Center. Currently being constructed is a looped connector trail at the Senior and Community Center that will include an intersection at this starting point. Generally, the proposed trail will continue along the western boundary of Grapevine Springs Park, and continue behind the City of Coppell Service Center building before turning back to the west towards South Coppell Road.

B. Cotton Belt Line Rail:

As the trail continues to South Coppell Road from the Park, the trail will have an at-grade crossing over the existing Rail Line. The trail will route along the east side of the South Coppell Road only. The trail then makes an easterly turn to take a parallel alignment to the DART right-of-way. This segment of the trail has a southern limit at the Southwestern Boulevard Bridge.

C. Southwestern Boulevard Crossing (Roadway Bridge):

The proposed trail will parallel Grapevine Creek as it goes under Southwestern Boulevard. The trail will have a parallel alignment to the creek as it passes under the existing roadway bridge. Because of the trail's location alongside the creek, the trail will experience occasional flooding inundation. Permanent signage on either side of the bridge will caution trail patrons of this potential obstacle during rainy weather.

D. Existing Bridge over Grapevine Creek:

From Southwestern Boulevard the trail turns south as it approaches an existing abandoned bridge. The bridge will serve to move the trail alignment from the north side of Grapevine Creek to the south side of the creek. The trail alignment continues southwest towards Freeport Parkway.

E. Freeport Parkway/Wrangler Drive to Coppell Middle School:

The Trail will continue along the eastern right-of-way of Freeport Parkway, heading south to Wrangler Drive. A street crossing of the trail will place the alignment on the south side of Wrangler Drive. The trail will traverse easterly and terminate with a trailhead at Coppell Middle School West.

Note: See Plate 1, Overall Grapevine Springs Creek Connector Trail Layout, (next page) for graphic representation of areas A through E.

Plate 1 - Grapevine Springs Park Trail Layout



A. SENIOR AND COMMUNITY CENTER AND GRAPEVINE SPRINGS PARK

1. Existing Conditions:

The South Coppel Road Connector Trail is currently under construction and will connect Old Town Coppel to, and loop around, the Senior and Community Center. The Grapevine Springs Park Hike and Bike Trail connects to this project as well. The trailhead connection is proposed to begin at the southern end of the Center and replace, in part, an existing decomposed granite path (Exhibit A.1). The proposed trail encounters an existing wooden bridge that serves as a landmark where a worn foot path (Exhibit A.2) spans a minor stream of intermittent flow. As the trail emerges from the wooded area, it will traverse a relatively flat and open area at the back of the City of Coppel Service Center Building (Exhibit A.3). This alignment leads west towards South Coppel Road. Nearly the entire expanse of this alignment is of relatively flat topography. The exception to this flat topography is the wooded area along the western boundary of Grapevine Springs Park where a more varied topography is evident. This topographic relief consequently accommodates effective natural drainage within the park. The trail alignment will feature additional landmarks of interest with existing low stone walls built as part of the Works Progress Administration (WPA) (Exhibit A.4).



Exhibit A.1
South Entry at Community Center



Exhibit A.2
Existing Wooden Bridge



Exhibit A.3
Existing Path behind Coppel Service Center Building



Exhibit A.4
Existing WPA Stone Wall

2. Coordination with Local and Regional Entities:

Upon initial discussions with the Dallas County Parks Department, an optional trail route was proposed, discussed, and is now considered a part of the overall conceptual layout for the trail. The alignment moves the trail to the western edge of Grapevine Springs Park, avoiding impact and disturbance of an all-weather surface trail and any historically significant areas of the park, including the signature WPA-era stone walls constructed along drainage channels of the Park.

- Coppel Historical Society: Initially, contacting the local Society was planned. However, with the adjusted trail alignment to the western edge of the Park, no adverse impact to the Park's historical artifacts is anticipated. Therefore, collaboration with local Society was not sought. As a courtesy, once the trail becomes a viable project, the design will seek input from the local Society. Mr. Don Carter is the current Society president. His contact information is listed as: dcarter787@verizon.net.
- Dallas County Historical Society: Due to adjustment of the Trail Alignment no discussion including the County Historical Society took place.
- Dallas County Parks Department: At a meeting with the County Parks Department, the proposed layout through the Park was presented. With a strategic and collaborative planning discussion, an alternative route of the trail was suggested by County Parks staff. This alignment discussion is communicated on the current trail plan herein. No other suggestions nor concerns were expressed in relation to the trail being built within the Grapevine Springs Park land. Dallas County Parks was represented by Rosalinda Adame and Rick Loessberg at a formal meeting with City Staff and the consultant.
- Texas Historical Society (THC): The proposed trail alignment has moved away from any known WPA-era Park features or walls located in the park, THC was still contacted for the sake of this report and to make them aware of future construction in the area. It is strongly encouraged to engage THC as early in the design process as possible. THC's review of any discovered archeological finds within the Park and along the trail route will be necessary. THC's review should be limited to the short segment of trail aligned through the wooded area near the western boundary of the Park as part of this Section of the proposed trail. (Exhibit A.5; next page)

3. Mitigation and Materials

- Tree and Vegetation Removal/Mitigation
- 8' Width Concrete Hike and Bike Trail (Approx. 800 LF)
- Low Water Culvert Crossing
- Pedestrian Railing (at Low Water Culvert Crossing)

4. Trail Feasibility:

This portion of the trail is economically and physically feasible to construct. The densely vegetated area will require selective clearing where the existing worn path does not provide for an adequate trail alignment. A varied topography will allow most trail users to experience physical challenges along the trail in the easy to moderate range.

Exhibit A.5 - THC Coordination Letter

TEXAS HISTORICAL COMMISSION *real places telling real stories*

July 20, 2015

Clifton Hall, ASLA
Landscape Architect
Teague nall & perkins
1100 Macon Street
Fort Worth, Texas 76102

Re: Project review under the Antiquities Code of Texas, *Proposed Grapevine Springs Connector Trail, Dallas County* (City of Coppell)

Dear Mr. Hall:

Thank you for your correspondence concerning the above referenced project. This letter presents the comments of the Executive Director of the Texas Historical Commission, the state agency responsible for administering the Antiquities Code of Texas.

The review staff, led Rebecca Shelton, has examined our records. According to our maps, the area of the proposed hike and bike trail has never been surveyed. Archeological sites have been recorded on similar landforms in Dallas County, and there are several recorded sites along Grapevine Creek. Therefore, a professional archeologist should survey the proposed trail.

The work should meet the minimum archeological survey standards posted on-line at www.thc.state.tx.us. A report of investigations should be produced in conformance with the Secretary of the Interior's Guidelines for Archaeology and Historic Preservation, and submitted to this office for review. You may obtain lists of most professional archeologists in Texas on-line at: www.c-tx-arch.org or www.rpanet.org. Please note that other potentially qualified archeologists not included on these lists may be used.

Since this work will be conducted by an entity of the state of Texas, an Antiquities Permit must be secured from our office before fieldwork may begin. Please ask prospective contractors if they are qualified to receive an Antiquities Permit.

Thank you for your cooperation in this state review process, and for your efforts to preserve the irreplaceable heritage of Texas. **If you have any questions concerning our review or if we can be of further assistance, please contact Rebecca Shelton at 512.463.6043.**

Sincerely,



for
Mark Wolfe, State Historic Preservation Officer

MW/rls

B. COTTON BELT LINE RAIL

1. Existing Conditions:

The existing rail line is active and is designated as a future Commuter Rail Corridor. Commuter Rail Service is proposed to be in operation by 2030 as the Cotton Belt Line Rail. The existing at-grade crossing located at South Coppell Road has a 5' width sidewalk (Exhibit B.1). Through discussions with DART, the trail alignment on both the north and south side of the rail line will require a minimum clearance separation of 50 linear feet between the edge of trail and the centerline of the rail right-of-way. A tree line and prairie grasses limit mass vegetation removal and mitigation (Exhibit B.2). South of the rail line is a more densely vegetated area that will warrant a more selective clearing of trees.



Exhibit B.1
At Grade Crossing



Exhibit B.2
Corridor Along Drainage

2. Coordination with Local and Regional Entities:

TNP began discussions with Dallas Area Rapid Transit (DART) using research conducted and site information gathered during numerous site visits. TNP also referenced the planning guidelines of the 2009 Community Wide Trails Implementation Plan in the trail planning meeting with DART. At the meeting, DART was presented a trail alignment that routed under the existing wood trestle bridge located at the southern edge of Grapevine Springs Park. Trail alignment was discussed and DART shared some insight to the future plans for the Commuter Rail Corridor. DART strongly encouraged that the at-grade crossing at South Coppell Road would be the most feasible option at this time.

a. DART (Dallas Area Rapid Transit):

As the owner of the Cotton Belt Line Rail, DART has communicated their recommendation for the 8' width trail to be built at South Coppell Road as an at-grade crossing. Further review and coordination with DART will be necessary throughout the design process for the trail. Coordination with DART will be required at the 30%, 60%, and final plans for their review by the Planning Department and the DART Engineer. A license agreement between DART and the City of Coppell will also be required as part of the project.

B. COTTON BELT LINE RAIL (continued)

b. Texas Historical Society (THC):

As the trail approaches the Southwestern Boulevard Bridge (Section C) the trail begins to run parallel to Grapevine Creek. Along the corridor of Grapevine Creek the THC has mentioned that there are several recorded Archeological sites (Exhibit A.5). Coordination with the THC will be required through the design process and an Antiquities Permit will need to be secured prior to any fieldwork is allowed to begin.

3. Mitigation and Materials:

- Tree and Vegetation Removal/Mitigation
- 8' Width Concrete Hike and Bike Trail (2700 LF)
- Rail Crossing Approach/Additional DART-required signage and adherence to DART standards

4. Trail Feasibility:

This portion of the trail, with the proposed at-grade crossing at South Coppell Road, is economically and physically feasible. When DART designs and reconstructs the wood trestle bridge, they stated their receptivity to coordinating a trail alignment under their rail bridge. This under-bridge alignment would replace the at-grade trail crossing at South Coppell Road. Commuter rail speeds will be much faster than current freight train speeds. High speeds for Commuter Rail is the primary reason for moving the trail alignment under the future bridge, see Future Trail Crossing under Railway Bridge - #5.

5. Future Trail Crossing under Railway Bridge(s):

DART's Planning Department has brought to the forefront the current plans along the Cotton Belt Line Rail, at the time that it becomes a Commuter Rail, there is a proposed second track to run parallel, South of the existing rail alignment within the existing Right-of-Way. With the current proposed trail alignment and the at-grade crossing, DART will maintain the rights for the corridor and if the crossing is built that it be vacated/removed in the future should the corridor be needed for transit. If the proposed trail is constructed and needs to be vacated/removed, DART is open to the idea of discussing the option to then coordinate the Trail alignment under any future bridge(s) that would be built to take the place of the existing Bridge on the South Boundary of Grapevine Springs Park maintaining its connectivity through the corridor. Current heavy rail traffic through this area operates at lower speeds, making a properly marked at-grade crossing much safer, knowing that the existing rail bridge will be removed for the transition to Commuter Rail Traffic. Commuter Rail operate at higher speeds thus allowing for coordination to re-route the proposed Trail under the bridge at that time and removing the at-grade crossing that is proposed as part of this study.

C. SOUTHWESTERN BOULEVARD CROSSING (ROADWAY BRIDGE)

1. Existing Conditions:

From the at-grade crossing at South Coppell Road the proposed trail alignment routes back to the east. This alignment will parallel the Cotton Belt Line Rail before turning south towards Southwestern Boulevard through a heavily vegetated area. The Southwestern Boulevard bridge, upon visual inspection, is determined to be structurally sound and able to withstand the proposed demolition and reconstruction of the under-bridge slope apron to accommodate an 8' Width Hike and Bike Trail underpass. The bridge has an existing concrete apron at a 4:1 slope (Exhibit C.1). Located in the concrete apron and aligned with the center line of the roadway is a daylighting storm drain (Exhibit C.2). Vegetation and areas of rock rip rap continue beyond the slope where the apron terminates with a 24" vertical drop near the bottom of the creek. Existing exposed utility located at the north side of the bridge will have to be considered and integrated into the new design (Exhibit C.3). Continuing south of the bridge, a platted Utility, Drainage, and Hike and Bike Trail easement exists on the north edge of Grapevine Creek, continuing west to Freeport Parkway at Grapevine Creek (Exhibit C.4).



Exhibit C.1
Bridge Concrete Apron



Exhibit C.2
Daylighting Storm Drain



Exhibit C.3
Exposed Utility at Bridge



Exhibit C.4
Vegetation around Bridge

2. Hydrologic and Hydraulic Considerations:

The proximity of the proposed project along Grapevine Creek results in the need to evaluate potential hydrologic and hydraulic impacts that the project could create and to determine means by which any potential impacts can be mitigated.

a.FEMA Mapping:

Based on review of FEMA Flood Insurance Rate Maps (FIRM) 48113C0010L and 48113C0030L, both effective as of July 2014, Grapevine Creek is currently mapped as having a Zone AE Floodplain with Floodway. The floodplain width in the vicinity of the project varies between 150 and 500-feet. The “AE” designation indicates that the stream has been previously studied by FEMA and that 100-year flood elevations have been established along the creek. The “100-year” storm is a hypothetical event that statistically could occur once every one hundred years or, otherwise stated, has a one percent chance of occurring in any given year. The presence of a mapped floodway indicates that the potential limits and impacts of fill and encroachment within the floodplain have been previously studied by FEMA. The floodplain and floodway limits are shown on Exhibit C.5.

b.Floodplain Permitting:

As proposed, approximately one mile of the trail alignment will be constructed within the limits of the existing floodplain and/or floodway. Existing federal and state laws, along with City of Coppell’s regulations and ordinances, require that projects constructed in floodplains/floodways must have “no adverse impact” to properties adjacent to the creek. For the purposes of this feasibility study, an adverse impact is considered to be:

- Reductions in floodplain conveyance,
- Increases to creek/floodplain flood elevations & extents, and
- Increases in creek velocities.

By City ordinance, any construction within the floodplain/floodway requires preparation and submittal of a Conditional Letter of Map Revision (CLOMR), a Flood Plain Development Permit (FDP) and Letter of Map Revision (LOMR). The CLOMR and FDP would be prepared and submitted to the City during the design process. The LOMR would be prepared and submitted to FEMA upon completion of construction. The CLOMR and LOMR, respectively, are mechanisms by which the City and FEMA can review the proposed and as-built impacts of the project on the floodplain/floodway and revise the FIRM maps. These documents will require detailed survey and hydraulic modeling of portions of the stream adjacent to and impacted by the project, as well as responding to any FEMA review comments. FEMA review and approval of a CLOMR is typically estimated to take nine to twelve months to obtain FEMA approval of a LOMR. As stated above the LOMR process takes place after construction of the project. The trail can be in service during the LOMR approval process. It should be noted that the need for and submittal of a CLOMR/LOMR is at the discretion of the City’s Floodplain Administrator. If the analysis and design of the proposed improvements show to have no adverse impact to a floodplain elevations or extents, the City could forego preparation and submittal of a CLOMR/LOMR. In our experiences with floodplain permitting in the City of Coppell, the CLOMR is typically required, at a minimum.

While FEMA floodplains are typically established based on watershed conditions at the time of the study (October 1986 for Grapevine Creek), the

City of Coppell requires evaluation and design of improvements to a more stringent condition in which the floodplain limits and impacts are considered assuming a fully-developed watershed. The City of Coppell has computed fully-developed peak discharges for Grapevine Creek as part of its 1991 Storm Drainage Master Plan. The hydraulic analysis performed as part of the CLOMR and LOMR processes would include evaluations of the impacts of the proposed trail under fully-developed watershed conditions.

c. Trail Impacts Along Stream:

As mentioned above, some portions of the trail are proposed to be constructed within the mapped floodplain of Grapevine Creek. Constructing the trail within the floodplain will require a detailed channel survey and hydraulic analysis to analyze flood elevations and determine the impacts of any fill or grading associated with construction. The proposed trail alignment is shown on Exhibit C.5. The trail has been categorized into segments based on the potential for adverse or negative hydraulic impacts to the creek and adjacent land. The potential for hydraulic impacts for each segment are discussed below.

It appears that several portions of the trail alignment are not located in the mapped floodplain/floodway area and would not require detailed floodplain impact analysis. Trail segments that are vertically above and horizontally beyond the floodplain limits would have a low potential for negative hydraulic impacts and are shown in green on Exhibit C.5. This includes segments within Grapevine Springs Park, around the Cotton Belt Railroad, and along Freeport Parkway and Wrangler Drive.

In other areas it appears that the trail could be constructed along the edge of the floodplain fringe, potentially above the 100-year flood elevations. Constructing the trail in this manner could minimize or altogether remove the need to place fill within the floodplain and thus minimize negative hydraulic impacts. Some hydraulic modeling could be necessary in these segments, depending on the results of ground survey and detailed geometric layout of the trail. Trail segments that appear to meet this criteria of having moderate impacts are shown in yellow on Exhibit C.5. This includes the majority of the trail segment between Southwestern Boulevard and Freeport Parkway.

Two segments, one proposed and one planned for the future, appear to have the highest potential for creating negative hydraulic impacts. These locations are discussed at length in the following section.

d. Trail Impacts At Bridge Crossings:

The proposed trail will require crossings of Grapevine Creek at the following structures (from downstream to upstream): The Cotton Belt Railroad, Southwestern Boulevard, and the private bridge crossing located 1,100 feet downstream of Freeport Parkway. FEMA's water surface profiles for Grapevine Creek indicate that the Cotton Belt Railroad bridge and the Southwestern Boulevard bridge are each above the creek's 500-year storm water surface elevations. The existing private bridge is not reflected on FEMA's profiles and therefore, has likely not been incorporated into FEMA's hydraulic model. The hydraulic analysis performed as part of the trail project should include and incorporate this crossing.

The trail is currently proposed to parallel the Cotton Belt Railroad and cross it at-grade near Coppell Road. This alignment (shown in green) would be out of the existing floodplain/floodway and limited hydraulic impacts are anticipated. Similar results and impacts are anticipated at the private bridge (downstream of Freeport Parkway).

The trail is proposed to cross under the bridge at Southwestern Boulevard. Typically, it is necessary to perform grading and place some fill in order to construct a trail under a bridge like the one at Southwestern Boulevard. The grading and placement of fill often creates the potential for loss of channel conveyance and negative hydraulic impacts.

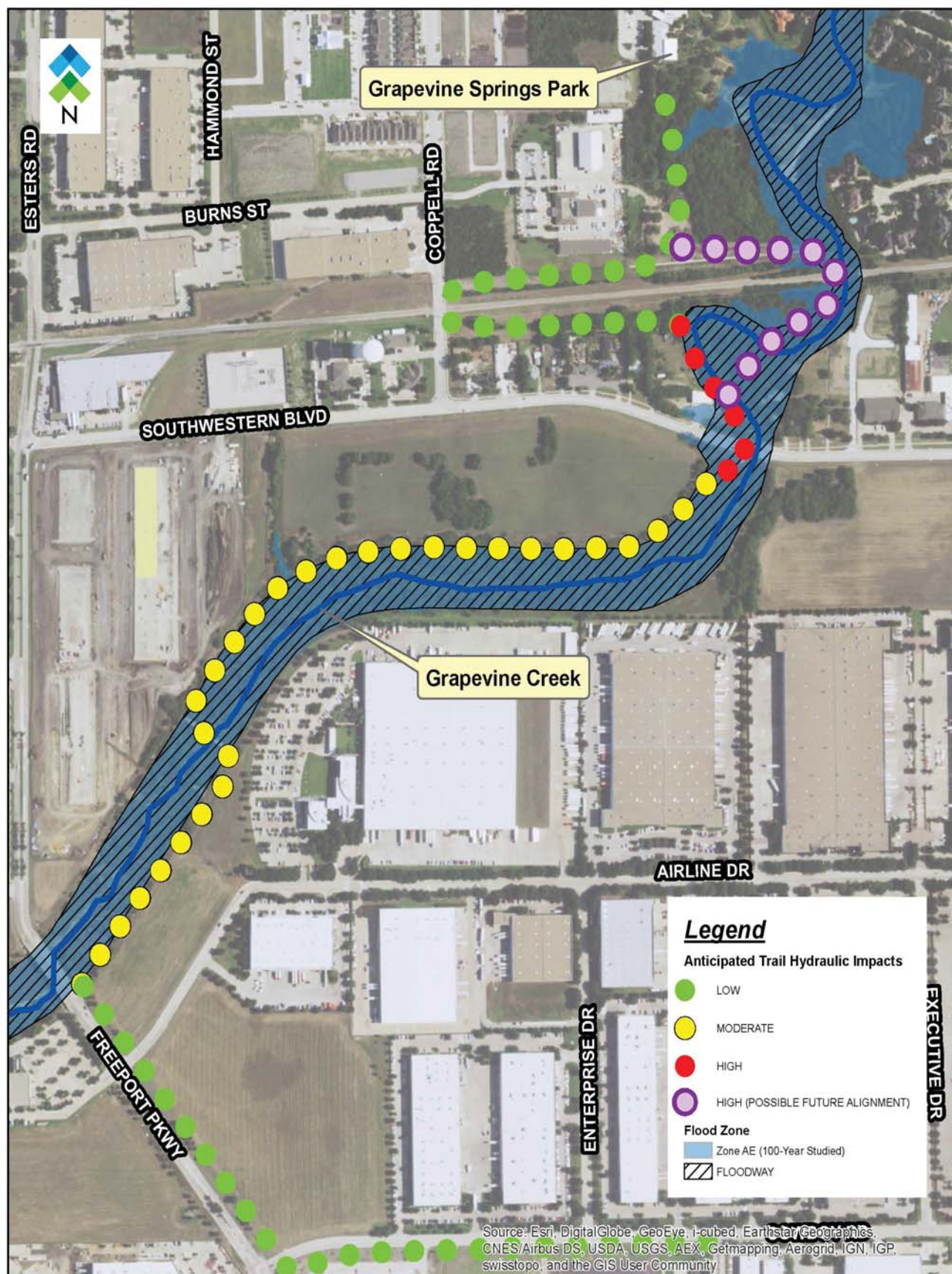
Detailed hydraulic modeling of the bridge will be necessary to ensure that the proposed improvements do not adversely impact conveyance and water surface elevations of the creek. To minimize the potential for impacts to conveyance and water surface elevations, the portion of trail under the bridge should be constructed as close to existing grade as possible. This will likely put this portion of the trail below the 100-year water surface elevation of Grapevine Creek. As a result this portion of the trail may become submerged during large rain events or during periods of sustained rain cycles (e.g. May 2015). It should be noted that it is very common for trails along creeks to be located below the 100-year water surface elevation.

It should be noted that future improvements to the Cotton Belt by DART could necessitate that the trail be realigned under the bridge and closer to the channel (shown in purple). In this scenario, the fill and grading associated with the trail construction could pose similar risks and require similar consideration to the trail alignment described above for Southwestern Boulevard.

e. Hydrologic and Hydraulics Summary:

In summary, the proposed trail along the Grapevine Creek corridor will likely have some hydraulic impacts to the existing floodplain. Detailed hydraulic modeling will be necessary along the creek, particularly in the vicinity of Southwestern Boulevard, to ensure that construction of the trail does not result in increased water surface elevations along the channel. Furthermore, because trail improvements are proposed within the existing Grapevine Creek floodplain and floodway, a CLOMR and LOMR may be required to satisfy City, state and federal criteria. The CLOMR, if required by the City, would be prepared during the design process and if it is determined that it needs to be submitted to FEMA, a nine to twelve month review/processing period would likely be required. The LOMR, if required by the City, would be prepared and processed following construction of the trail and similarly, would have a nine to twelve month review/processing period with FEMA.

Exhibit C.5 - Anticipated Trail Hydraulic Impacts



3. Existing Storm Drainage – Proposed Configuration:

The outlet of the existing storm drain under Southwestern Boulevard would need to be reconfigured to account for the proposed retaining wall and hike and bike trail. This would likely involve removal of some portion of the existing concrete rip-rap surrounding the outlet and forming of a new headwall in the proposed retaining wall. In addition, a shallow concrete flume would be constructed under the proposed hike and bike trail. The flume would be bridged with a stamped steel or aluminum plate thereby allowing storm water flows from the storm drain outlet to pass under the proposed trail. This is a common approach used on many trails and sidewalks. It reduces the potential of storm water discharges washing over the trail which can create safety and maintenance issues.

4. Mitigation and Materials:

- Tree and Vegetation Removal/Mitigation
- 8' Width Concrete Hike and Bike Trail (2,050 LF)
- Retaining Walls
- Existing Storm Drainage – new configuration
- Pedestrian Railing
- Rock Rip Rap

5. Trail Feasibility:

This segment of the trail is economically and physically feasible. It will require additional coordination in order for this section to be safely constructed with multiple design professionals. Along the entire length of the existing concrete apron, approximately 8' will need to be demolished. What is demolished will be replaced with a retaining wall for leveling sufficient space for the proposed trail. The wall will be extended beyond the bridge to meet with existing grade as the trail maintains a 5% longitudinal slope climb to the banks of the creek. Also to the north, a retaining wall would need to be maintained to meet existing grade heading to the proposed Cotton Belt Line Rail at-grade crossing. The downhill slope beyond the edge of the proposed trail to the creek would need to be maintained with rock rip rap at a gradual slope in order to eliminate any vertical drops at the creek. **See Exhibits C.6 - Grapevine Springs Park Proposed Connector Trail and Exhibit C.7 - Grapevine Springs Park Proposed Connector Trail, Southwestern Blvd. Section (next page) for plan and section view of proposed trail layout.**

Exhibit C.6 - Grapevine Springs Park Proposed Connector Trail - Southwestern Blvd. Plan

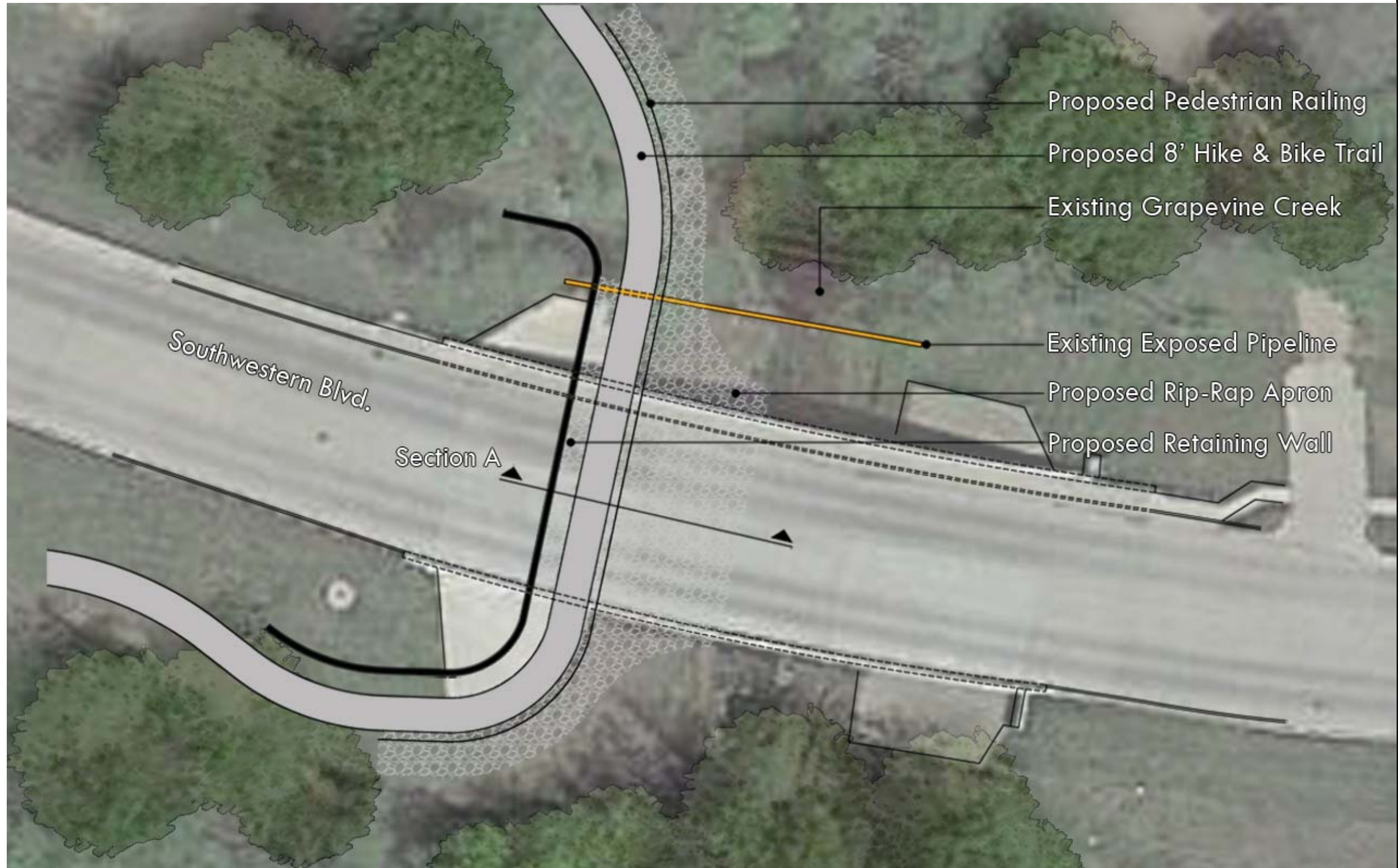
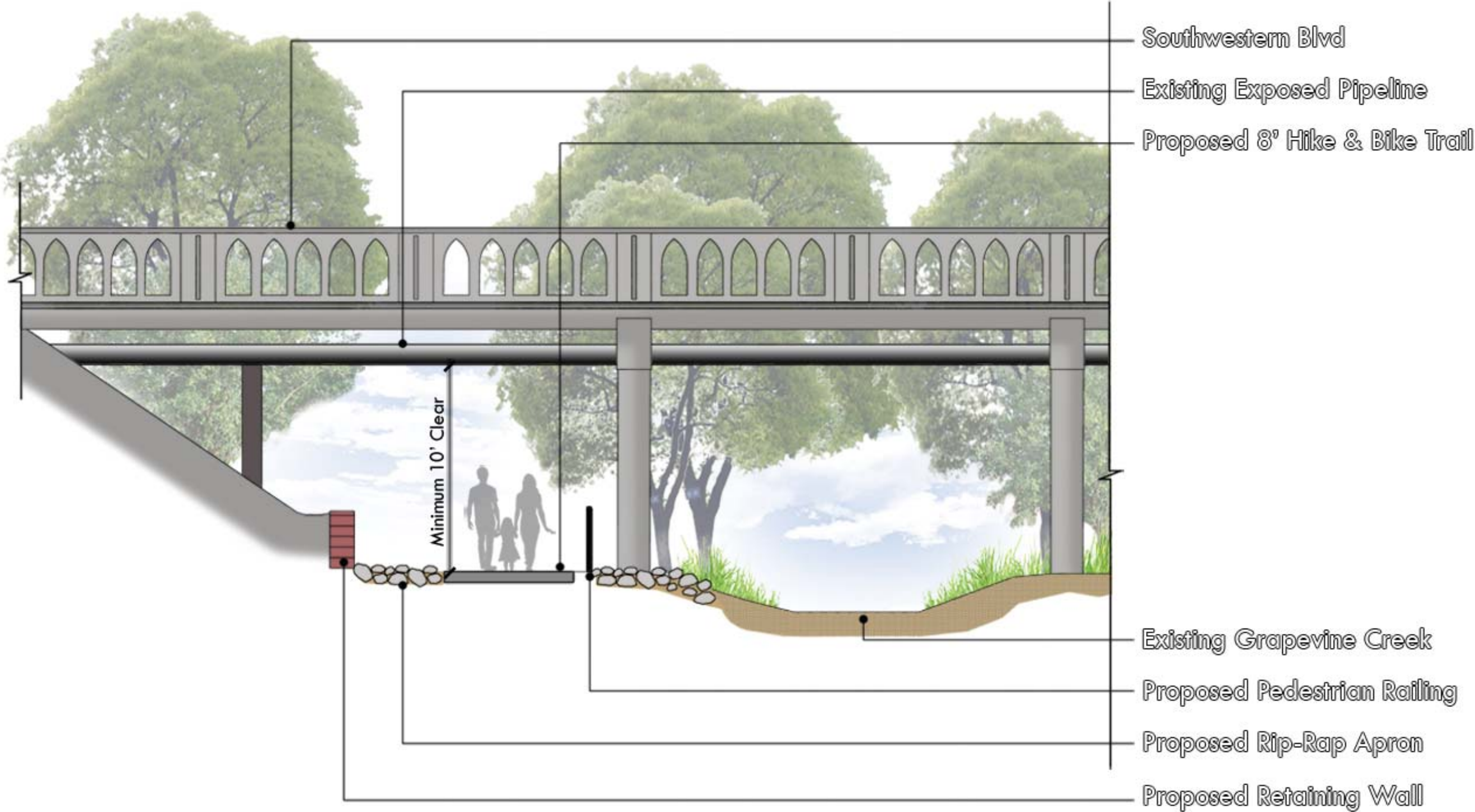


Exhibit C.7 - Grapevine Springs Park Proposed Connector Trail - Southwestern Blvd. Section



D. EXISTING BRIDGE OVER GRAPEVINE CREEK

1. Existing Conditions:

From Southwestern Boulevard an existing, Utility and Hike and Bike Trail Easement is in place along the north bank of Grapevine Creek for a legal ease of alignment of a trail. Approximately 1200' east of Freeport Parkway is an existing abandoned bridge that crosses the Creek. The existing bridge is currently owned by Park West Creek, LLC, represented by ML Realty Partners. At the south end of the bridge is an existing 20' width Utility easement. This easement is not designated to include a Hike and Bike Trail, as is the case for the easement on the north side of the creek. This easement from the bridge is designated approximately 410' feet South from the egress of the bridge within the property owned by Curci Coppell, LLC. At the terminus of this Utility Easement a new property owned by Interinsurance Exchange of the Automobile Club extends to Freeport Parkway and within the boundary of Airline Drive. This property has no existing easements.



Exhibit D.1
Existing Bridge



Exhibit D.2
View Across Existing Bridge



Exhibit D.3
Daylighting Storm Drain



Exhibit D.4
Vegetation around Bridge

2. Coordination with Local and Regional Entities:

There are three property owners that exist along this portion of the overall trail alignment. The existing shared easement along the north edge of Grapevine Creek would, through further discussions with property owners, need to terminate at the existing bridge. The proposed trail would then begin along the southern edge of the existing bridge and be aligned within the existing easement to Freeport Parkway. **See Exhibits D.5 and D.6 in reference to property ownership.**

- ML Realty Partners (Owner at north end of bridge):

As Owner of the existing bridge, the attached letter states that they are open to begin discussions and move forward with the process of dedicating the existing bridge to the City of Coppell (Exhibit D.5).

- Curci Coppell, LLC (Owner at south end of bridge):

Property Owner was contacted and message left with no returned communication. There is an existing 20' Utility, Drainage, and Maintenance Easement on the property, but is not a shared Easement with a Hike and Bike Trail. This parcel would need to be replatted to allow for the trail along the south side of Grapevine Creek (Exhibit D.6).

- Interinsurance Exchange of the Automobile Club; Attn: Real Estate Planning. 3333 Fairview Road A479, Costa Mesa, California 92626 Property (Owner at Freeport Parkway):

This un-platted property at the northeast corner of Freeport Parkway and Airline Drive has no easements running through the property. This property owner would need to be contacted to discuss the possibility of routing the trail through this portion of the corridor. Replatting of the parcel would most likely be necessary (Exhibit D.6).

Exhibit D.5 - Property Owner's Coordination Letter



July 7, 2015

Teague Nall & Perkins
Attn: Clifton Hall, ASLA
1100 Macon Street
Fort Worth, Texas 76102

Re: Grapevine Spring Creek Proposed Connector Trail

Dear Clifton,

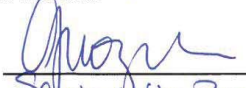
Pursuant to our discussion and based upon our review of the attached Conceptual Trail Alignment, we are interested in furthering our discussions relating the dedication of the existing bridge that is currently owned by MLRP Park West Crossing LLC to the City of Coppell. Future discussions will be required to confirm the details of this transaction; including but not limited to, that the City of Coppell will need to be held liable for the Hike and Bike Trail and bridge upon the date of deeding the Bridge to the City. Please let us know when you have the information required and are ready to move forward with discussions.

Very truly yours,

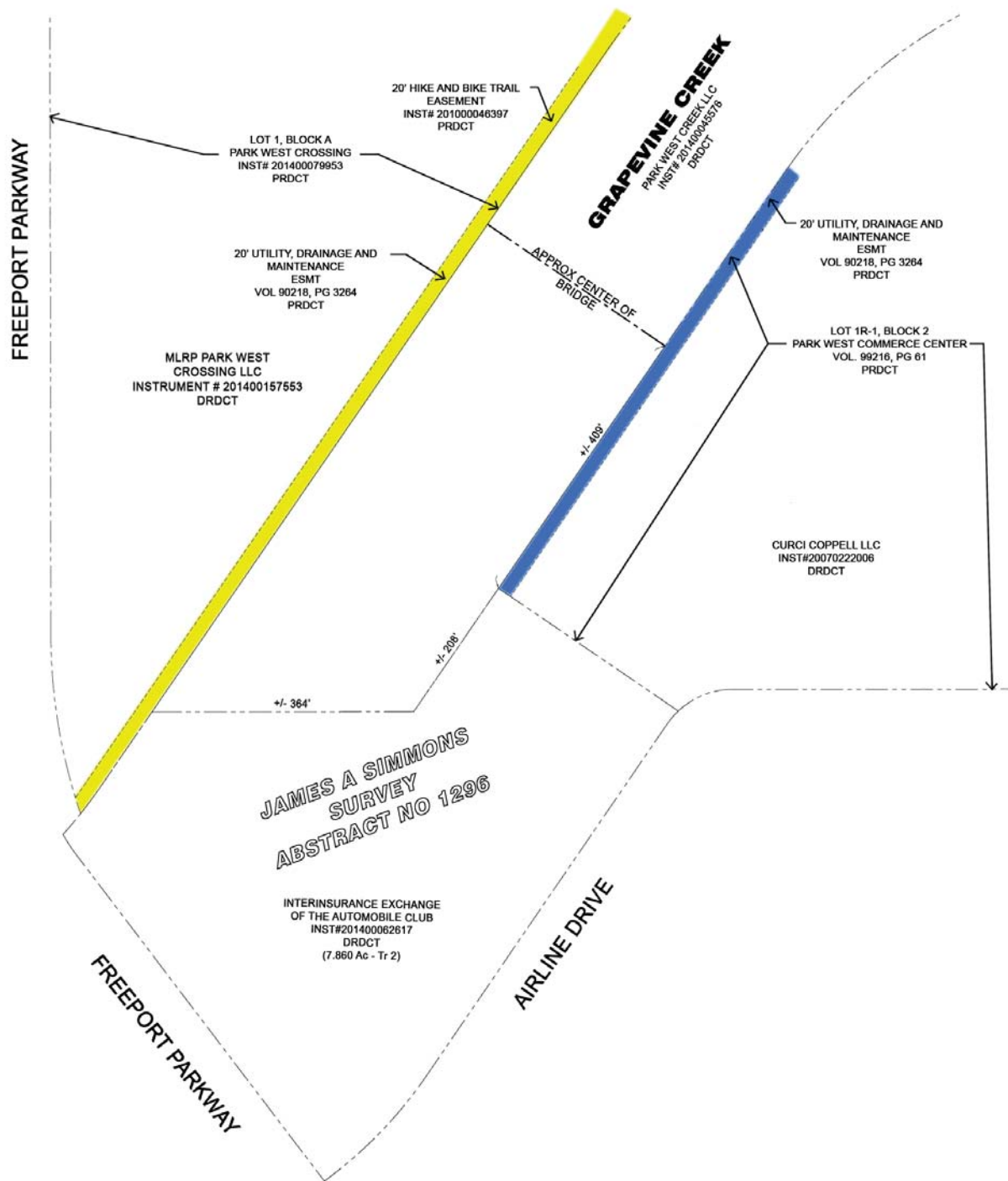
MLRP PARK WEST CROSSING LLC,
a Delaware limited liability company

By: ML Realty Partners, LLC

Its: Sole Member

By: 
Its: Senior Vice President
Name: Nancy Kozinski

The Chancellory, One Pierce Place, Suite 450 • Itasca, Illinois 60143 • phone (630) 250-2900 • fax (630) 250-2901
8150 N. Central Expressway, Suite M-2140 • Dallas, Texas 75206 • phone (214) 389-1155 • fax (214) 389-1163



3. Structural Assessments:

Based upon a visual inspection the bridge generally appears to be structurally sound to support proposed hike and bike trail live loads as well as parks maintenance vehicular live loads. The following observed deficiencies would need to be addressed through the design of the proposed use:

- Hand Rail Modification to meet current Codes
- Abutment Soil Erosion Reconstruction
- Steel Substructure cleaning and repair
- Bridge deck concrete spalls and crack epoxy resurfacing or new overlay
- Bridge Deck <4" open expansion joint cover plates required

4. Mitigation and Materials:

- Tree and Vegetation Removal/Mitigation
- 8' Width Concrete Hike and Bike Trail (2,700 LF)
- Additional Approach Signage
- Bridge Railing
- Trail Security Lighting
- Rock Rip Rap/ Channel Improvements at Bridge Abutments

5. Trail Feasibility:

This portion of the Hike and Bike Trail is economically and physically feasible. However, the feasibility of the trail construction will require further coordination and legal cooperation with property owners, as well as with the deeded ownership of the existing Grapevine Creek bridge. Replatting of properties to allow for a trail easement would most likely be at City expense. Utilizing the Grapevine Creek bridge is the preferred trail alignment option for crossing the creek. This bridge would allow for a continuous path at the 8' minimum trail width. If the trail were to stay along the north side of the creek to Freeport Parkway, the trail would need to transition from an 8' to a 4' width at the existing, less safe road surface sidewalk across the Freeport Parkway bridge. From the Freeport Parkway bridge the trail would transition back to a 10' width to Coppell Middle School West as identified as the Community-Wide Spine Trail. **See Exhibits D.7 and D.8 (next two pages) for example of proposed connector trail bridge.**

Exhibit D.7 - Grapevine Springs Park Proposed Connector Trail - Existing Bridge



Existing 12' Wide Bridge

Existing Bridge Railing to be
Removed and Replaced

Existing Grapevine Creek

Before

Exhibit D.8 - Grapevine Springs Park Proposed Connector Trail - Proposed Bridge



Proposed Hike &
Bike Trail Bridge

Proposed Bridge Railing

Resurface Existing
Bridge Spans

Existing Grapevine Creek

After

E. FREEPORT PARKWAY TO COPPELL MIDDLE SCHOOL WEST

1. Existing Conditions:

Foresight of this proposed spine of the trail provided developments the opportunity to plan for the trail to be incorporated at a later date. This portion of the trail is identified in the 2009 Coppell Community-Wide Trails Implementation Plan as a Community Spine Trail that would be 10' in width. The existing grade is relatively flat and there is limited to no large vegetation within this section of the proposed trail. **See Exhibits E.1 and E.2 below.**



Exhibit E.1
At intersection looking east
along Wrangler Dr



Exhibit E.2
At intersection at Wrangler and
Freeport Parkway

2. Coordination with Local and Regional Entities:

There is no knowledge of any coordination with Local or Regional Entities as the Hike and Bike Trail was planned to be incorporated.

3. Mitigation and Materials:

- 10' Width Concrete Hike and Bike Trail (3,100 LF)
- 4' Width Concrete Sidewalk (Connection to Trail from Freeport Parkway)
- Accessible Curb Ramps
- Painted Crosswalks

4. Trail Feasibility:

This portion of the trail is the most feasible to be built. There are limited to no issues involving grading and foresight of the development in the area created Easements for the Trail to be constructed completely along this portion of the proposed alignment at the full proposed 10' width.

ADDITIONAL TRAIL AMENITIES

Additional amenities are proposed along the trail as an effort to provide continuity throughout the City of Coppell. Items proposed to be included are listed:

- Embedded Trail distance markers -
¼ mile intervals
- Trail Signage -
2000' intervals
- Emergency call boxes -
1 per 2000' trail length
- Benches -
500' trail intervals
- Trash Receptacles -
500' trail intervals
- Barrier/Safety railing -
25% of trail length or as needed



Plate 2 - Grapevine Springs Park Proposed Connector Trail



GRAPEVINE SPRINGS PARK TRAIL

CITY of COPPELL, TEXAS - PARKS DEPT.

8/26/15

PREPARED BY TNP INC.

OPINION OF PROBABLE CONSTRUCTION COSTS

FEASIBILITY STUDY

ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	TOTAL PRICE	SUBTOTAL
A: SENIOR AND COMMUNITY CENTER AND GRAPEVINE SPRINGS PARK						
1	Trail grading - 20' swath	800	LF	\$5.00	\$4,000	
2	8' Hike and Bike Trail - 6" thick	800	LF	\$38.00	\$30,400	
3	Painted center stripe	800	LF	\$0.75	\$600	
4	Refurbish Existing Decomposed Granite Trail to Park (8' Width)	10	LF	\$40.00	\$400	
5	Low Water Culvert Crossing	1	EA	\$3,000.00	\$3,000	
6	Tree removal, haul off or chip on-site - 60% of trail length	400	LF	\$5.00	\$2,000	
7	Tree pruning for trail clearance - 40% of trail length	200	LF	\$5.00	\$1,000	
8	Re-vegetate along trail - 22' width	800	LF	\$3.50	\$2,800	
9	Temporary irrigation	800	LF	\$5.00	\$4,000	
					Total:	\$48,200
B: COTTON BELT LINE RAIL						
1	Traffic Control - Rail Corssing at South Coppell Road	1	LS	\$5,000.00	\$5,000	
2	Trail Grading -20' swath	2,700	LF	\$5.00	\$13,500	
3	8' Hike and Bike Trail - 6" thick	2,700	LF	\$38.00	\$102,600	
4	Painted center stripe	2,700	LF	\$0.75	\$2,025	
5	8' Width Ramps with Tactile Warning Strips	2	EA	\$2,500.00	\$5,000	
6	Painted Crosswalk - Drive Approach north of Rail Line	1	EA	\$1,000.00	\$1,000	
7	Demolition of 5' Walk along South Coppell Road	230	LF	\$8.00	\$1,840	
8	Misc. At-Grade Coordination Equipment Movement	1	LS	\$10,000.00	\$10,000	
9	At-Grade Crossing Approach Signage	2	EA	\$500.00	\$1,000	
10	Tree removal, haul off or chip on-site - 60% of trail length	600	LF	\$5.00	\$3,000	
11	Tree pruning for trail clearance - 40% of trail length	400	LF	\$5.00	\$2,000	
12	Re-vegetate along trail - 22' width	2,700	LF	\$3.50	\$9,450	
13	Temporary irrigation	2,700	LF	\$5.00	\$13,500	
					Total:	\$169,915
C: SOUTHWESTERN BLVD CROSSING (ROADWAY BRIDGE)						
1	Trail Grading - 20' Swath	2,050	LF	\$5.00	\$10,250	
2	8' Hike and Bike Trail - 6" Thick	2,050	LF	\$38.00	\$77,900	
3	Painted Center Stripe	2,050	LF	\$0.75	\$1,538	
4	Concrete Apron Demolition	1,500	SF	\$12.00	\$18,000	
5	Retaining Wall along concrete and beyond bridge	190	LF	\$160.00	\$30,400	
6	Storm Drainage Release - new configuration	1	LS	\$25,000.00	\$25,000	
7	Rock Rip Rap	460	SY	\$90.00	\$41,400	
8	Erosion control mat	800	LF	\$6.00	\$4,800	
9	Pedestrian Railing	225	LF	\$70.00	\$15,750	
10	Tree removal, haul off or chip on-site - 60% of trail length	500	LF	\$5.00	\$2,500	
11	Tree pruning for trail clearance - 40% of trail length	300	LF	\$5.00	\$1,500	
12	Re-vegetate along trail - 22' width	2,050	LF	\$3.50	\$7,175	
13	Temporary irrigation	2,050	LF	\$5.00	\$10,250	
					Total:	\$246,463
D: EXISTING BRIDGE OVER GRAPEVINE CREEK						
1	Trail Grading - 20' swath	2,700	EA	\$5.00	\$13,500	
2	8' Hike and Bike Trail - 6" Thick	2,700	EA	\$38.00	\$102,600	
3	Painted Center Stripe	2,700	EA	\$0.75	\$2,025	
4	Tree removal, haul off or chip on-site - 60% of trail length	1,000	LF	\$5.00	\$5,000	
5	Tree pruning for trail clearance - 40% of trail length	500	LF	\$5.00	\$2,500	
6	Re-vegetate along trail - 22' width	2,700	LF	\$3.50	\$9,450	
7	Temporary irrigation	2,700	LF	\$5.00	\$13,500	
GRAPEVINE CREEK EXISTING BRIDGE CROSSING						

GRAPEVINE CREEK EXISTING BRIDGE CROSSING						
8	Clean & Resurface Existing Bridge (12' width)	300	LF	\$65.00	\$19,500	
9	Pedestrian railing, each side	600	LF	\$70.00	\$42,000	
10	Bridge approach improvements	2	EA	\$5,000.00	\$10,000	
11	Approach signage	2	EA	\$500.00	\$1,000	
12	Bridge/Pedestrian Lighting	6	EA	\$6,000.00	\$36,000	
13	Cosmetic improvements (painting, accent columns)	1	EA	ALLOW	\$30,000	
14	Structural improvements (if needed)	1	EA	ALLOW	\$50,000	
15	Abutment 18" Stone Riprap Channel Improvements	1	EA	ALLOW	\$8,500	
16	Bridge/Real Property purchase	1	EA	ALLOW	Not Included	
					Total:	\$345,575

E: FREEPORT PARKWAY/WRANGLER DRIVE TO COPPELL MIDDLE SCHOOL WEST						
1	Traffic Control - Freeport Parkway and Wrangler Circle	1	LS	\$7,500.00	\$7,500	
2	Trail Grading - 24' Swath	3,100	LF	\$5.00	\$15,500	
3	10' Hike and Bike Trail - 6" Thick	3,100	LF	\$44.00	\$136,400	
4	Painted Center Stripe	3,100	LF	\$0.75	\$2,325	
5	4' Sidewalk Connection from Freeport Parkway	25	LF	\$16.00	\$400	
6	Remove 1 Ramp at Wrangler Drive (South Corner)	1	EA	\$1,500.00	\$1,500	
7	10' Width Ramps with Tactile Warning Strips	13	EA	\$2,700.00	\$35,100	
8	Painted Crosswalk - Wrangler Drive	1	EA	\$1,000.00	\$1,000	
9	Painted Crosswalk - Airline Drive	1	EA	\$1,000.00	\$1,000	
10	Painted Crosswalk - State Champions Driveway	1	EA	\$1,000.00	\$1,000	
11	Painted Crosswalk - Wrangler Circle	1	EA	\$1,000.00	\$1,000	
12	Re-vegetate along trail - 22' width	3,100	LF	\$3.50	\$10,850	
13	Temporary irrigation	3,100	LF	\$5.00	\$15,500	
					Total:	\$229,075

ADDITIONAL TRAIL AMENITIES						
1	Embedded Trail distance markers - 1/4 mile intervals	10	EA	\$350.00	\$3,500	
2	Trail signage - 2000' trail intervals	6	EA	\$500.00	\$3,000	
3	Emergency call boxes - 1 per 2000' trail length	6	EA	\$25,000.00	\$150,000	
4	Benches - 500' trail intervals	23	EA	\$2,000.00	\$46,000	
5	Trash receptacles - 500' trail intervals	23	EA	\$900.00	\$20,700	
6	Barrier/Safety railing - 25% of trail length	2,900	LF	\$12.00	\$34,800	
7	Special Paving rest nodes - 2000' trail intervals, 400 sf eac	6	EA	\$2,500.00	\$15,000	
8	Special Paving rest nodes - seatwalls, landscaping	6	EA	\$4,000.00	\$24,000	
					Total:	\$297,000

MISCELLANEOUS						
1	Project Signage	2	EA	\$1,000.00	\$2,000	
2	Permitting	1	EA	\$5,000.00	\$5,000	
3	Temporary irrigation meter	3	EA	\$1,500.00	\$4,500	
4	Erosion Control	1	LS	ALLOW	\$20,000	
					Total:	\$31,500

Overall Probable Construction Cost	PROJECT TOTAL:	\$1,367,728
	15% CONTINGENCY:	\$205,159
	PROJECT GRAND TOTAL:	\$1,572,887
COST PER LINEAR FOOT OF PROPOSED TRAIL:	11,500 LF =	\$136.77

