

Preliminary Engineering for Regional Veloweb Trail Connections to Rail Stations in Denton and Dallas Counties

09/18/2020



North Central Texas
Council of Governments



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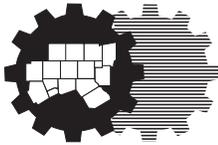


What is NCTCOG?

The **North Central Texas Council of Governments** (NCTCOG) is a voluntary association of, by, and for **local governments** within the 16-county North Central Texas Region. The agency was established by state enabling legislation in 1966 to assist local governments in **planning** for common needs, **cooperating** for mutual benefit, and **coordinating** for sound regional development. Its purpose is to strengthen both the individual and collective power of local governments, and to help them recognize regional opportunities, resolve regional problems, eliminate unnecessary duplication, and make joint regional decisions – as well as to develop the means to implement those decisions.

North Central Texas is a 16-county **metropolitan region** centered around Dallas and Fort Worth. The region has a population of more than 7 million (which is larger than 38 states), and an area of approximately 12,800 square miles (which is larger than nine states). NCTCOG has 229 member governments, including all 16 counties, 169 cities, 19 independent school districts, and 25 special districts.

NCTCOG's **structure** is relatively simple. An elected or appointed public official from each member government makes up the **General Assembly** which annually elects NCTCOG's **Executive Board**. The Executive Board is composed of 17 locally elected officials and one ex-officio non-voting member of the legislature. The Executive Board is the policy-making body for all activities undertaken by NCTCOG, including program activities and decisions, regional plans, and fiscal and budgetary policies. The Board is supported by policy development, technical advisory and study **committees** – and a professional staff led by **R. Michael Eastland**, Executive Director.



NCTCOG's offices are located in Arlington in the Centerpoint Two Building at 616 Six Flags Drive (approximately one-half mile south of the main entrance to Six Flags Over Texas).

North Central Texas Council of Governments

P. O. Box 5888

Arlington, Texas 76005-5888

(817) 640-3300

FAX: (817) 640-7806

Internet: <http://www.nctcog.org>

NCTCOG's Department of Transportation

Since 1974 NCTCOG has served as the Metropolitan Planning Organization (MPO) for transportation for the Dallas-Fort Worth area. NCTCOG's Department of Transportation is responsible for the regional planning process for all modes of transportation. The department provides technical support and staff assistance to the Regional Transportation Council and its technical committees, which compose the MPO policy-making structure. In addition, the department provides technical assistance to the local governments of North Central Texas in planning, coordinating, and implementing transportation decisions.

Prepared in cooperation with the Federal Highway Administration, US Department of Transportation, and the Texas Department of Transportation.

The contents of this report reflect the views of the authors who are responsible for the opinions, findings, and conclusions presented herein. The contents do not necessarily reflect the views or policies of the Federal Highway Administration, the Federal Transit Administration, or the Texas Department of Transportation.

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09/18/2020



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Project Description

The North Central Texas Council of Governments (NCTCOG) partnered with eight local governments including the Cities of Lewisville, Carrollton, Coppell, and Dallas; Denton and Dallas Counties; and the transit agencies, Denton County Transportation Authority (DCTA) and Dallas Area Rapid Transit (DART) to prepare preliminary design and opinion of probable construction costs for the Regional Veloweb alignment. The project study area, shown in the map on the next page, is bounded on the north by DCTA Hebron Station in Lewisville and continues southward approximately eight miles to the Campion Trail and future Cotton Belt Trail along the border between the cities of Coppell and Irving. An additional three miles of regional trail connections will also link with the DART North Carrollton/Frankford Rail Station and the DART Trinity Mills Rail Station in Carrollton, and to the North Levee Trail along Denton Creek in northern Coppell. The preliminary design completed in August 2020 consists of a minimum 12-ft. wide hard surface trail, pedestrian trail bridges and boardwalks, at-grade railroad crossings, and possible trailhead locations. Various sections of the trail alignment will be implemented in phases by the local communities.

NCTCOG procured professional services from Halff Associates, Inc. to evaluate alignment options, recommend a preferred route, and conduct a 15 percent preliminary engineering for a Regional Veloweb shared use path. A design development schematic, environmental summary, right-of-way and/or easement requirements, and opinions of probable costs by jurisdiction are under development. Further efforts are planned for construction implementation and potential funding partnerships with local governments, Dallas County, North Texas Tollway Authority (NTTA), DCTA and the Texas Department of Transportation (TxDOT).

Overall Cost Estimate Summary (2020)

PRELIMINARY OPINION OF PROBABLE CONSTRUCTION COST (15% SCHEMATIC SET)
**ALL 2020 BASE BID TOTALS INCLUDE A 20% CONTINGENCY

TRAIL SEGMENT	JURISDICTION	TOTAL ESTIMATED COST - 2020 12' WIDE TRAIL at 5-YEAR FLOOD ELEVATION
A (3915 LF = 0.74 Miles)	Lewisville	\$ 2,066,830.00
B (7418 LF = 1.40 Miles)	Carrollton	\$ 6,494,930.80
C (7009 LF = 1.33 Miles)	Carrollton	\$ 4,501,120.00
D1 (2063 LF = .39 Miles)	Carrollton	\$ 3,729,220.00
D2 (2051 LF = .39 Miles)	Lewisville	\$ 2,624,576.00
D3 (1917 LF = .36 Miles)	Unincorporated	\$ 1,186,556.40
E1 (2082 LF = .39 Miles)	Lewisville	\$ 796,384.80
E2 (2761 LF = .52 Miles)	Coppell	\$ 1,151,113.60
F (4374 LF = 0.83 Miles)	Carrollton	\$ 2,760,470.73
G (5473 LF = 1.04 Miles)	Carrollton	\$ 2,312,419.20
H (1885 LF = 0.36 Miles)	Dallas	\$ 990,301.00
I (3994 LF = 0.76 Miles)	Coppell	\$ 1,021,965.73
J (5188 LF = 0.98 Miles)	Coppell	\$ 1,268,134.00
K (3900 LF = 0.74 Miles)	Carrollton	\$ 869,731.20
L (4563 LF = 0.86 Miles)	Carrollton	\$ 852,670.00
GRAND TOTAL 2020 (11.09 Miles)		\$ 32,626,423.47

TRAIL SEGMENT TOTAL PER CITY	JURISDICTION	TOTAL ESTIMATED COST PER CITY
6.59 Miles	Carrollton	\$ 21,520,561.93
2.26 Miles	Coppell	\$ 3,441,213.33
0.36 Miles	Dallas	\$ 990,301.00
0.36 Miles	Unincorporated	\$ 1,186,556.40
1.52 Miles	Lewisville	\$ 5,487,790.80

Overall Cost Estimate Summary with Inflation (2021-2025)

PRELIMINARY OPINION OF PROBABLE CONSTRUCTION COST (15% SCHEMATIC SET)

****ALL 2020 BASE BID TOTALS INCLUDE A 20% CONTINGENCY**

TRAIL SEGMENT	TOTAL PROJECTED ESTIMATE WITH INFLATION				
	2021*	2022*	2023*	2024*	2025*
A	\$ 2,128,834.90	\$ 2,192,699.95	\$ 2,258,480.95	\$ 2,326,235.37	\$ 2,396,022.43
B	\$ 6,689,778.72	\$ 6,890,472.09	\$ 7,097,186.25	\$ 7,310,101.84	\$ 7,529,404.89
C	\$ 4,636,153.60	\$ 4,775,238.21	\$ 4,918,495.35	\$ 5,066,050.21	\$ 5,218,031.72
D1	\$ 3,841,096.60	\$ 3,956,329.50	\$ 4,075,019.38	\$ 4,197,269.96	\$ 4,323,188.06
D2	\$ 2,703,313.28	\$ 2,784,412.68	\$ 2,867,945.06	\$ 2,953,983.41	\$ 3,042,602.91
D3	\$ 1,222,153.09	\$ 1,258,817.68	\$ 1,296,582.22	\$ 1,335,479.68	\$ 1,375,544.07
E1	\$ 820,276.34	\$ 844,884.63	\$ 870,231.17	\$ 896,338.11	\$ 923,228.25
E2	\$ 1,185,647.01	\$ 1,221,216.42	\$ 1,257,852.91	\$ 1,295,588.50	\$ 1,334,456.15
F	\$ 2,843,284.86	\$ 2,928,583.40	\$ 3,016,440.90	\$ 3,106,934.13	\$ 3,200,142.15
G	\$ 2,381,791.78	\$ 2,453,245.53	\$ 2,526,842.90	\$ 2,602,648.18	\$ 2,680,727.63
H	\$ 1,020,010.03	\$ 1,050,610.33	\$ 1,082,128.64	\$ 1,114,592.50	\$ 1,148,030.28
I	\$ 1,052,624.71	\$ 1,084,203.45	\$ 1,116,729.55	\$ 1,150,231.44	\$ 1,184,738.38
J	\$ 1,306,178.02	\$ 1,345,363.36	\$ 1,385,724.26	\$ 1,427,295.99	\$ 1,470,114.87
K	\$ 895,823.14	\$ 922,697.83	\$ 950,378.76	\$ 978,890.13	\$ 1,008,256.83
L	\$ 878,250.10	\$ 904,597.60	\$ 931,735.53	\$ 959,687.60	\$ 988,478.22
GRAND TOTAL	\$ 33,605,216.17	\$ 34,613,372.66	\$ 35,651,773.84	\$ 36,721,327.05	\$ 37,822,966.86

TRAIL SEGMENT TOTAL PER CITY	CITY TOTAL PROJECTED ESTIMATE WITH INFLATION				
	2021*	2022*	2023*	2024*	2025*
6.59 Miles	\$ 22,166,178.79	\$ 22,831,164.16	\$ 23,516,099.08	\$ 24,221,582.05	\$ 24,948,229.51
2.26 Miles	\$ 3,544,449.73	\$ 3,650,783.23	\$ 3,760,306.72	\$ 3,873,115.92	\$ 3,989,309.40
0.36 Miles	\$ 1,020,010.03	\$ 1,050,610.33	\$ 1,082,128.64	\$ 1,114,592.50	\$ 1,148,030.28
0.36 Miles	\$ 1,222,153.09	\$ 1,258,817.68	\$ 1,296,582.22	\$ 1,335,479.68	\$ 1,375,544.07
1.52 Miles	\$ 5,652,424.52	\$ 5,821,997.26	\$ 5,996,657.18	\$ 6,176,556.89	\$ 6,361,853.60

*Projected inflation costs are approximated at three percent per year.

Summary of Findings

Trail Segment A (Lewisville – DCTA Hebron Station to South of SH 121/Sam Rayburn Tollway)

Trail Alignment

Trail Segment A will serve as a trail extension from the Lakeside Circle North entrance to the existing paved walkway area along the eastern side of the bus circulation drive (west of the DCTA Hebron Station platform) to the southern side of the station near the electrical substation. The existing sidewalk on the south side of the parking lot, adjacent to the electrical substation, will be reconstructed to a 12-ft. wide shared use path. The trail alignment will continue between the west side of the electrical substation and the adjacent apartment housing development and onto the DCTA right-of-way to the City of Lewisville city limits south of Sam Rayburn Tollway (SRT) (Exhibit 1 – Trail Segment A).

Project Stakeholders

- City of Lewisville
- Denton County Transportation Authority
- North Texas Tollway Authority
- Private Property Owners
- Utility Owners

Alignment and Engineering Constraints

- Final approvals and easements from DCTA, NTTA and Private Property Owners.
- DCTA identified an existing rail crossing within DCTA right-of-way at King Street Station Parkway and another just south of the SRT interchange as potential access points for maintenance vehicles. King Street Station Parkway is private property and the location would be considered a better option. NTTA, DCTA, and the City of Lewisville will coordinate further.
- Coordination with DCTA on the location and design requirements on the requested maintenance access.
- NTTA would like to explore a partnership opportunity for the construction of the trail under SRT. The trail construction would be appropriate for access of maintenance vehicles in accordance with the standard H10 truck of 20,000 pounds. In order to accommodate such maintenance vehicles, the trail would need to be constructed to the equivalent of a fire lane access road.
- Managing the trail cross slopes along the DCTA rail line.
- Crossing the existing drainage channel under SRT.

EXHIBIT 1



Trail Segment B (Carrollton – SRT to DART N. Carrollton/Frankford Station)

Trail Alignment

Trail Segment B parallels outside the DCTA rail line starting at the City of Lewisville and City of Carrollton city limits and continues through the planned future ecological park. The trail then continues south traversing over the Elm Fork of the Trinity River and Dudley Branch to the north side of W. Frankford Rd., crossing south onto Trade Center Blvd. The alignment will continue along the east side of Trade Center Blvd. for accessibility to the proposed City of Carrollton transit-oriented development east of the DART N. Carrollton/Frankford Station, and utilize the existing pedestrian crossing at Trade Center Blvd. to get into the DART N. Carrollton/Frankford Station (Exhibit 2 – Trail Segment B).

Project Stakeholders

- City of Carrollton
- Denton County Transportation Authority
- Dallas Area Rapid Transit
- U.S. Army Corps of Engineers
- Utility Owners

Alignment and Engineering Constraints

- Seeking final approvals and easements from DCTA, NTTA and Private Property Owners.
- Coordination with DCTA on the location and design requirements as the trail traverses the existing maintenance drives.
- Setting a proper vertical trail and bridge elevations across the Elm Fork of the Trinity River and Dudley Branch to ensure trail usability and decreased maintenance costs while meeting all floodplain criteria standards.
- Coordination with DART for at-grade rail crossing on the north side of W. Frankford Rd.
- Right-of-way limits along Frankford Rd. and Trade Center Blvd.

EXHIBIT 2



Trail Segment C (Carrollton – DART N. Carrollton/Frankford Station to DART Trinity Mills Station)

Trail Alignment

As the Trail Segment C continues south, a split bike lane concept is proposed to retrofit the existing typical section on Trade Center Blvd. and Nimitz Dr. The adjustment includes retaining walls to prevent an impact on existing vegetation/trees and would utilize the existing 60 ft. right-of-way. The existing curb lines would be shifted to reduce vehicular lane widths (Appendix Figure 3 – Trade Center Blvd. and Commodore Dr.). The trail continues south along the east side of Nimitz Dr., continuing across Furneaux Creek, across an open private property, under President George Bush Turnpike (PGBT) along the west side of Blanton Dr., ultimately connecting to the Trinity Mills Station (Appendix Figure 4 – Nimitz Dr.). A high visibility crosswalk is proposed at Blanton Dr. and W. Trinity Mills Rd. with prioritized signal phasing. Widening of existing 5-ft. sidewalks to 12-ft. path along Blanton Dr. and south entrance to platform is proposed (Exhibit 3 – Trail Segment C).

Project Stakeholders

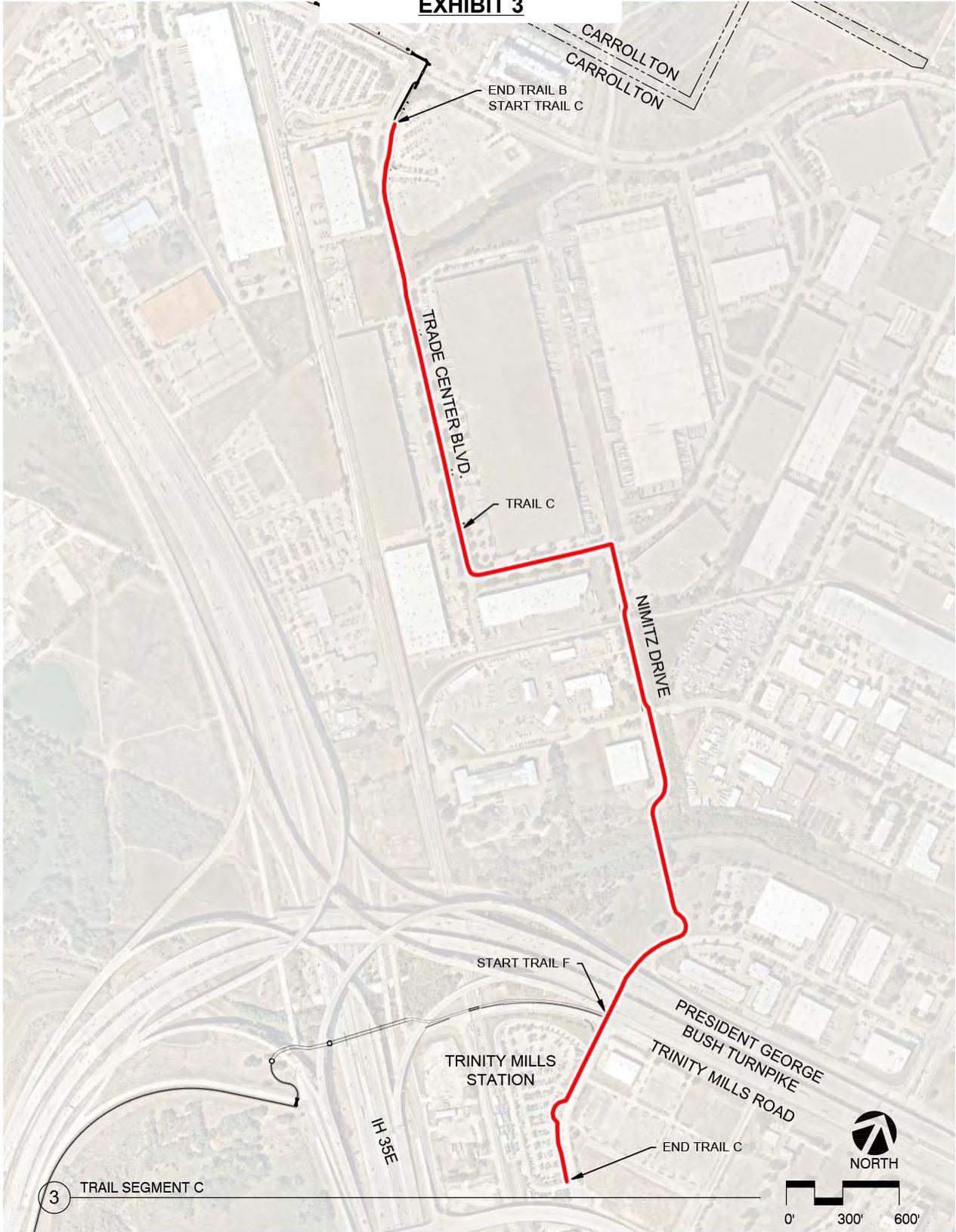
- City of Carrollton
- Denton County Transportation Authority
- North Texas Tollway Authority
- Texas Department of Transportation
- U.S. Army Corps of Engineers
- Private Property Owner
- Utility Owners

Alignment and Engineering Constraints

- Seeking final approvals and easements from DCTA, NTTA/TxDOT and Private Property Owner.
- Navigating the existing berms and existing vegetation along Trade Center Blvd.
- Setting a proper vertical elevation for trail and bridge over Furneaux Creek to ensure trail usability and decreased maintenance costs while meeting all floodplain criteria standards.
- Coordination with NTTA/TxDOT on the sidewalk widening the trail traverses under PGBT.

PRELIMINARY ENGINEERING FOR REGIONAL VELOWEB TRAIL CONNECTIONS TO RAIL STATIONS IN DENTON AND DALLAS COUNTIES

EXHIBIT 3



Trail Segment D1 (Carrollton – Carrollton Eco Park to IH 35E)

Trail Alignment

Trail Segment D1 connects Trail Segment B traversing to the right-of-way limits of IH 35E by an elevated boardwalk segment and bridge crossing over Timber Creek. The trail will meander through the planned future ecological park (Exhibit 4 – Trail Segment D1).

Project Stakeholders

- City of Carrollton
- U.S. Army Corps of Engineers
- Utility Owners

Alignment and Engineering Constraints

- Setting a proper boardwalk and bridge elevations over Timber Creek to ensure trail usability and decreased maintenance costs while meeting all floodplain criteria standards.
- Coordination with the City of Carrollton with the future ecological park.

EXHIBIT 4



Trail Segment D2 (Carrollton – Under IH 35E to Lewisville City Limits)

Trail Alignment

The trail traverses underneath IH 35E and then embanks the levee continuing south to the Lewisville city limits (Exhibit 5 – Trail Segment D2).

Project Stakeholders

- City of Carrollton
- Texas Department of Transportation
- U.S. Army Corps of Engineers
- Denton County Levee Improvement District
- Utility Owners

Alignment and Engineering Constraints

- Setting a proper vertical trail benching elevation under IH 35E to ensure trail usability and decreased maintenance costs while meeting all floodplain criteria standards.
- Coordination and approval of Denton County Levee Improvement District for the proposed access and alignment along the existing levees.
- No impact to Dallas Gun Club property.

EXHIBIT 5



Trail Segment D3 (Unincorporated – Lewisville City Limits to Vista Ridge Park)

Trail Alignment

The trail traverses on top of levee; further coordination is required with Denton County Levee Improvement District. The alignment will not encroach on Dallas Gun Club. Also, partnership for implementation, construction and maintenance is needed for the unincorporated area (Exhibit 6 – Trail Segment D3).

Project Stakeholders

- U.S. Army Corps of Engineers
- Denton County Levee Improvement District
- Utility Owners

Alignment and Engineering Constraints

- Coordination and approval of Denton County Levee Improvement District for the proposed road crossing, access and alignment along the existing levees.
- Partnership for implementation, construction and maintenance is needed for the unincorporated area of segment Trail Segment D3, from west of IH 35E to Lake Vista Dr.

EXHIBIT 6



Trail Segment E1 (Lewisville –Vista Ridge Park to Lewisville/Coppell City Limits)

Trail Alignment

The trail traverses on top of levee; further coordination is required with Denton County Levee Improvement District (Exhibit 7 – Trail Segment E1).

Project Stakeholders

- City of Lewisville
- Denton County Levee Improvement District
- Utility Owners

Alignment and Engineering Constraints

- Ensure a safe crossing of Vista Ridge Park entry drive.
- Avoid impact to existing levee vents.
- Further design required to ensure levee is undamaged through construction and design.

EXHIBIT 7



Trail Segment E2 (Coppell – Coppell City Limits to Denton Creek Trail)

Trail Alignment

The trail traverses on top of levee connecting to the west side of MacArthur Blvd. where there is an existing trail. The trail also makes connection to the existing sidewalks on both sides of MacArthur Blvd. at street level. Further coordination is required with Denton County Levee Improvement District (Exhibit 8 – Trail Segment E2).

Project Stakeholders

- City of Coppell
- Denton County Levee Improvement District
- Utility Owners

Alignment and Engineering Constraints

- Maintain trail alignment on top of levee.
- Route trail under MacArthur Blvd. and tie back to existing trail on west side.
- Further design required to ensure levee is undamaged through construction and design.
- Ensure usability of undercrossing under MacArthur Blvd.
- Further coordination with Denton County Levee Improvement District to ensure all design criteria is met.

EXHIBIT 8



Trail Segment F (Carrollton – DART Trinity Mills Station to Dickerson Parkway)

Trail Alignment

Trail Segment F will serve as a trail extension from Trinity Mills Station underneath IH 35E and along President George Bush Turnpike ending at Dickerson Parkway where there is a proposed development. The trail starts at the corner of MacArthur Dr. and Trinity Mills Rd., continuing west along W. Trinity Mills Rd., then crossing the DART rail lines at-grade. The trail then continues underneath IH 35E and PGBT by cutting into the embankment and installing retaining walls on both sides (Appendix Figure 5 – Under IH 35E and Appendix Figure 2 – Under PGBT). From there the trail follows the east side of the PGBT access road (within highway right-of-way) terminating at Dickerson Pkwy. (Exhibit 9 – Trail Segment F).

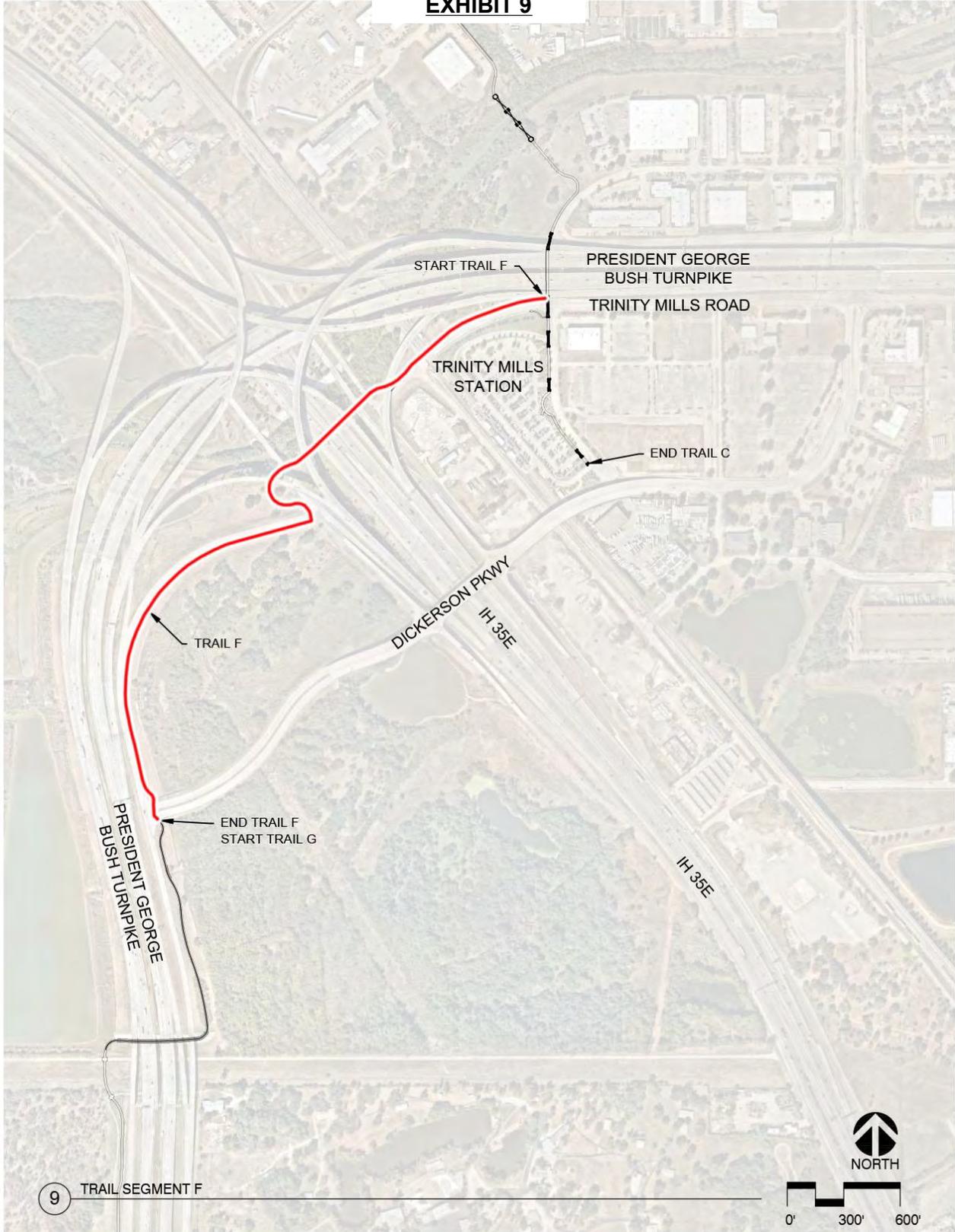
Project Stakeholders

- City of Carrollton
- Texas Department of Transportation
- Private Property Owners
- Utility Owners

Alignment and Engineering Constraints

- Schematics are available from TxDOT for IH 35E north/south frontage road/ramp improvements from PGBT to Sandy Lake Rd. Proposed construction is anticipated in the next five years, as design build procurement. Further coordination is recommended for trail alignment at this location.
- City of Carrollton has long-range plans for land development on the east side of PGBT from the PGBT/IH 35E interchange to Dallas Water Utilities' right-of-way. The tract is approximately 100 acres and will not require mitigation from U.S. Army Corps of Engineers. The tract is designated a floodplain and no longer a floodway. Trail segment F will provide access from this future development to the DART station.
- Crossing under PGBT by cutting into the embankment and installing retaining walls on both sides and crossing DART rail line at-grade.
- There is an Operation and Maintenance agreement for PGBT/IH 35E Interchange. TxDOT has jurisdiction of the northbound frontage roads; NTTA jurisdiction of main lanes.

EXHIBIT 9



Trail Segment G (Carrollton – Dickerson Parkway to Carrollton City Limits)

Trail Alignment

Trail Segment G will serve as a trail extension from the proposed development along Dickerson Pkwy. to McInnish Park. The trail begins at the corner of Dickerson Pkwy. and President George Bush Turnpike, continues along the east side of PGBT northbound frontage road (within highway right-of-way). The trail then goes underneath PGBT at the access drive of the Dallas Water Utilities (Appendix Figure 6 – Next to President George Bush Turnpike). Once on the west side of PGBT, the trail will follow the southbound frontage road (which is managed by NTTA) to the Sandy Lake Rd. intersection. A pedestrian refuge within the median will be needed to provide pedestrian safety while crossing Sandy Lake Rd. The trail runs along the south side of Sandy Lake Rd. until getting to McInnish Park entrance drive, minimizing impacts to existing trees and utilities (Appendix Figure 1 – Sandy Lake Rd.) (Exhibit 10 – Trail Segment G).

Project Stakeholders

- City of Carrollton
- Denton County Transportation Authority
- North Texas Tollway Authority
- Dallas Water Utilities
- Utility Owners
- Texas Department of Transportation

Alignment and Engineering Constraints

- Coordinating the proposed trail crossing at the existing Dallas Water Utilities' maintenance access drive.
- The existing crossing has a 16.5 ft. vertical clearance requirement.
- West side of PGBT from Dallas Water Utilities north to the PGBT/IH 35E interchange is not feasible for trail. Extensive retaining walls would be required adjacent to the existing detention ponds. Area under U.S. Army Corps of Engineers protection.
- City of Carrollton staff indicated a trail alignment is feasible along either northbound or southbound PGBT at the Dallas Water Utilities' property. The Sandy Lake Park property is now a local industrial development, which could make it conceivable to obtain an easement if needed. NCTCOG expressed a preference for the southbound PGBT option, within the Dallas Water Utilities' property to avoid double pedestrian crossing at Sandy Lake Rd.
- Crossing under PGBT.

- Ensuring a safe pedestrian crossing across the intersection of Sandy Lake Rd. and PGBT by providing a pedestrian refuge within the median and enhanced pedestrian signalization.

EXHIBIT 10



Trail Segment H (Dallas – Carrollton/Dallas City Limits to Dallas/Coppell City Limits along Sandy Lake Road)

Trail Alignment

Trail Segment H continues between City of Carrollton and the City of Coppell on the existing Sandy Lake Rd. bridge which is located in the City of Dallas. A proposed retrofit of Sandy Lake Rd. bridge over Elm Fork of the Trinity River will shift the existing concrete bridge barrier from the outside to the inside shoulder to separate vehicular traffic and the new pedestrian traffic along the bridge. The two-way cycle track will be 11'-9" wide allowing for two-way traffic along the bridge (Appendix Figure 7 – Sandy Lake Rd. bridge). In order to accommodate the space, the travel lanes will need to be adjusted to 13 feet from the existing 14-foot width. A detailed structural analysis of the Sandy Lake Rd. bridge will be required to evaluate the additional weight capacity of a physical traffic barrier. At the west side of the bridge the trail will transition to an elevated side path with an existing retaining wall adjacent to the trail along the Trinity River Kayak Company. At that same location the trail will need to accommodate an existing storm water inlet by necking down to 10 feet. Both the existing retaining wall and the storm water inlet will remain with the current design (Exhibit 11 – Trail Segment H).

Project Stakeholders

- City of Dallas (Transportation Department)
- Utility Owners

Alignment and Engineering Constraints

- Reduction of lane widths along Sandy Lake Rd. bridge.
- Further structural analysis of the bridge is needed during next phase of design to determine appropriate type and weight of vehicular traffic barrier for separated multi-use path.
- Adjustment of the existing storm sewer inlet will be required at the Trinity River Kayak Company driveway. The existing retaining wall to remain in place.

EXHIBIT 11



Trail Segment I (Coppell – Coppell/Dallas City Limits to just north of MacArthur Park)

Trail Alignment

Trail Segment I will serve as a trail extension from the border between the cities of Dallas and Coppell to the existing pedestrian boardwalk connecting Riverchase Elementary School to the neighborhood just on the east side of the Oncor easement. The trail segment follows along the south side of Sandy Lake Rd. to Starleaf St. The existing 6-ft. sidewalk along Sandy Lake Rd. will be replaced with a 12-ft. shared use path. Once at Starleaf St., the trail turns south and continues along the east side of Starleaf St. within Oncor's property keeping along the higher elevation of the easement until reaching the existing boardwalk, east of MacArthur Park (Exhibit 12 – Trail Segment I).

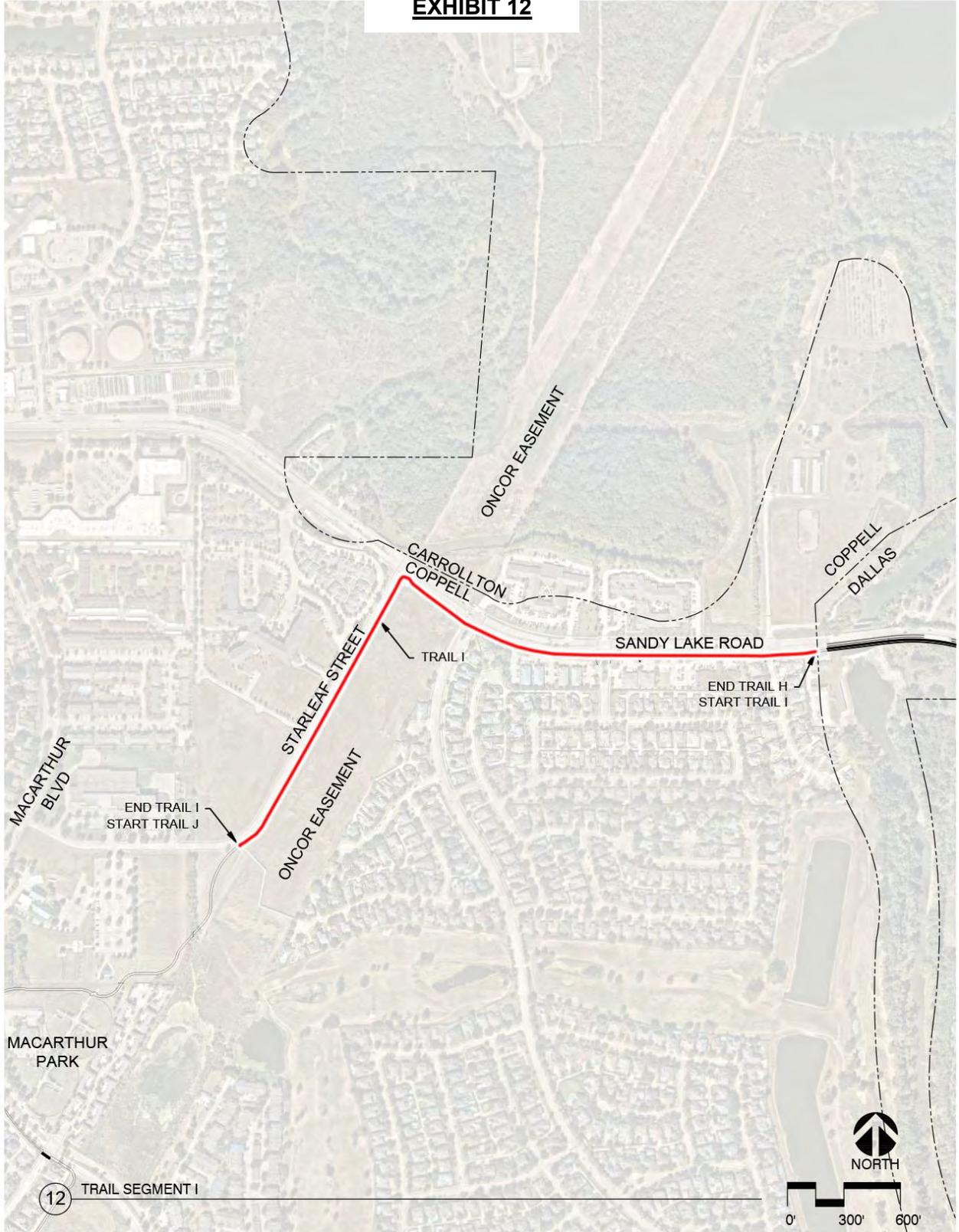
Project Stakeholders

- City of Coppell
- Oncor
- Utility Owners

Alignment and Engineering Constraints

- The existing 6-ft. sidewalk along Sandy Lake Rd. will be replaced with a 12-ft. shared use path along Sandy Lake Rd., from Riverchase Dr. to Starleaf St. Potential overhead electrical lines and storm sewer inlet adjustments may be required along Sandy Lake Rd.
- Navigating the existing Oncor utilities at the intersection of Sandy Lake Rd. and Starleaf St.

EXHIBIT 12



Trail Segment J (Coppell –just north of MacArthur Park to Cotton Belt Trail)

Trail Alignment

Trail Segment J will continue south and through MacArthur Park to the future Cotton Belt Trail. The trail starts just south of the existing pedestrian boardwalk connecting Riverchase Elementary School to the neighborhood just on the east side of the Oncor easement. The trail travels from that point south to MacArthur Park. Once at MacArthur Park, the trail will cross two drainage channels.

Once through MacArthur Park the trail continues southeast on S. MacArthur Blvd. In this segment, there is not adequate right-of-way to accommodate a shared use path per AASHTO design criteria of a minimum 10-ft. shared use path. Thus, a trail concept will be implemented with an eight-ft. one-way bicycle trail on each side of MacArthur Blvd. for northbound/southbound travel. The intent of this design is to accommodate two one-way bicycle/pedestrian travel lanes between Condor Drive to the Oncor easement just east of E. Bethel School Rd. At the Oncor easement the trail heads south, avoiding lower lying areas. The trail traverses through the easement and connects to the future Cotton Belt Trail to be located along the north side of the DART rail line (Exhibit 13 – Trail Segment J).

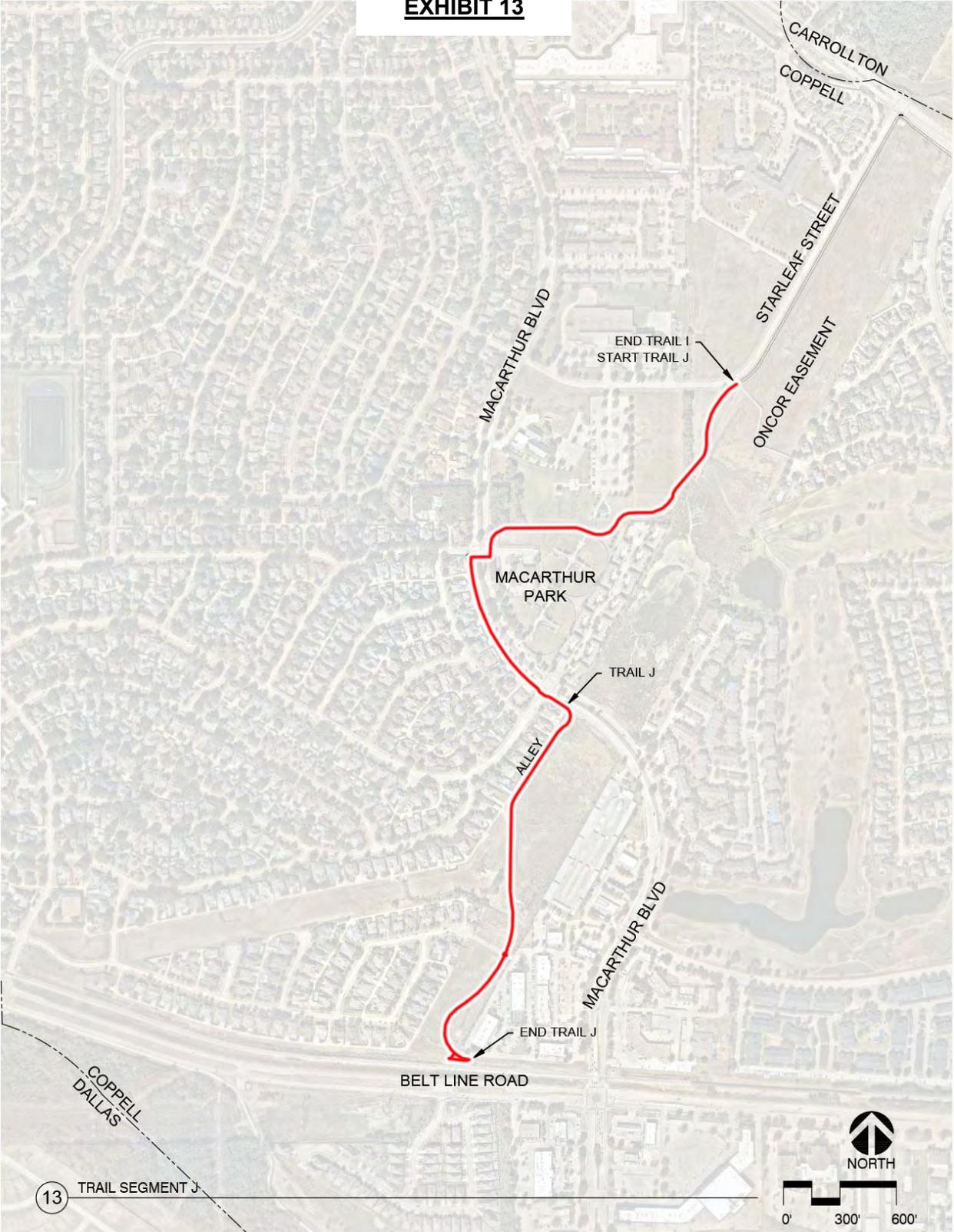
Project Stakeholders

- City of Coppell
- Oncor
- North Central Texas Council of Governments
- Utility Owners

Alignment and Engineering Constraints

- Navigating existing utilities and trees along MacArthur Blvd. Existing mature trees exist at 10-ft. off back of curb, preventing the design of a 12-ft. wide shared use path.
- The alignment is consistent with the City of Coppell's adopted trails master plan. The City may need to coordinate during the final design stage for the trail alignment along the public alley located south of MacArthur Blvd. and Bethel School Rd. Possible neighborhood concerns of having a trail close to the alley.
- Safely navigating through MacArthur Park.
- Coordination with Oncor to ensure maintained access for property maintenance.
- Connection to the future Cotton Belt Trail to be located along the north side of the DART rail line.

EXHIBIT 13



Trail Segments K and L (Carrollton – Sandy Lake Road to Cotton Belt Trail)

Trail Alignment

Trail Segments K and L will serve as a trail extension through McInnish Park to the future Cotton Belt Trail. Trail Segment K starts at the border between the cities of Carrollton and Dallas on the west side of the entry drive of McInnish Park, traveling south along McInnish Park Dr. through McInnish Park. The alignment avoids vehicular/pedestrian conflict points by traveling around the central parking lots. Just past the parking lot, the trail turns south and continues along Elm Fork Drive following it until it is east of the end of the RE Good Sports Complex. The trail will continue through the park, cross underneath the existing DART rail line bridge and connect to the future Cotton Belt Trail at the Dallas Pistol Club driveway (Exhibit 14 – Trail Segments K and L).

Project Stakeholders

- City of Carrollton
- North Central Texas Council of Governments
- Utility Owners

Alignment and Engineering Constraints

- Connection through McInnish Park limiting pedestrian and vehicular conflict points.
- Navigating existing drainage courses and floodplain requirements.
- Connection to the future Cotton Belt Trail.

EXHIBIT 14



Agency Contacts

NCTCOG

Kevin Kokes, AICP
Program Manager – Sustainable Development
Program
Phone: 817.695.9275
Email: kkokes@nctcog.org

Patricia Rohmer, PE
Project Engineer – Streamlined Project
Delivery/Data
Phone: 817.608.2307
Email: prohmer@nctcog.org

Matt Fall
Senior Planner – Sustainable Development
Program
Phone: 817.695.9207
Email: mfall@nctcog.org

Denton County Transportation Authority

Ann Boulden
Director – Capital Development
Phone: 972.966.5112
Email: aboulden@dcta.net

Jonathan Strawther
Email: jstrawther@dcta.net

Jonah Katz
Email: jkatz@dcta.net

North Texas Tollway Authority

Mark Bouma, PE
Senior Corridor Manager
Phone: 214.461.2058
Email: mbouma@ntta.org

Dallas Water Utilities

Raymond Keppta
Email: theodore.keppta@dallascityhall.com

Leslie Castillo
Program Manager
Email: leslie.castillo@dallascityhall.com

Sarah Standifer
Assistant Director, Stormwater Operations
Email: sarah.standifer@dallascityhall.com

Eduardo Valerio, PE
Email: eduardo.valerio@dallascityhall.com

City of Lewisville

Stacie Anaya
Director - Lewisville Parks & Recreation
Phone: 972.219.3550
Email: sanaya@cityoflewisville.com

City of Carrollton

Marcos Fernandez, PE
Senior Transportation Engineer
Phone: 972.466.3154
Email: marcos.fernandez@cityofcarrollton.com

Kim Bybee
Parks Manager
Phone: 972.466.9835
Email: kim.bybee@cityofcarrollton.com

City of Coppell

John Elias
Park Project Manager
Phone: 972.462.5115
Email: jelias@coppelltx.gov

City of Dallas

Jared White
Manager III - Park and Recreation
Phone: 214.670.4090
Email: jared.white@dallascityhall.com

Gus Khankarli, PE, PMP, CLTD
Assistant Director - Transportation
Phone: 214.948.4205
Email: g Hassan.khankarli@dallascityhall.com

Sherman Livingston
Project Coordinator III - Transportation
Phone: 214.671.8171
Email: sherman.livingston@dallascityhall.com

Haroon Abdoh, PE
Senior Program Manager - Public Works
Phone: 214.948.4308
Email: haroon.abdoh@dallascityhall.com

Sam Nahhas
Project Manager – Public Works
Phone: 214.948.4123
Email: sammair.nahhas@dallascityhall.com

Dallas County

Micah Baker
Senior Transportation Planner
Phone: 214.653.7465
Email: micah.baker@dallascounty.org

Minesha Reese
Transportation Planner
Phone: 214.653.6961
Email: minesha.reese@dallascounty.org

***Texas Department of
Transportation***

Maher Ghanayem
Phone: 214.320.6691
Email: maher.ghanayem@txdot.gov

Dallas Area Rapid Transit

Bakari Height
Service Planner II - Innovative Services
BHeight@dart.org

Ryan McCutchan
RMccutchan@dart.org

APPENDIX

FIGURE 1 – Trade Center Boulevard and Commodore Drive

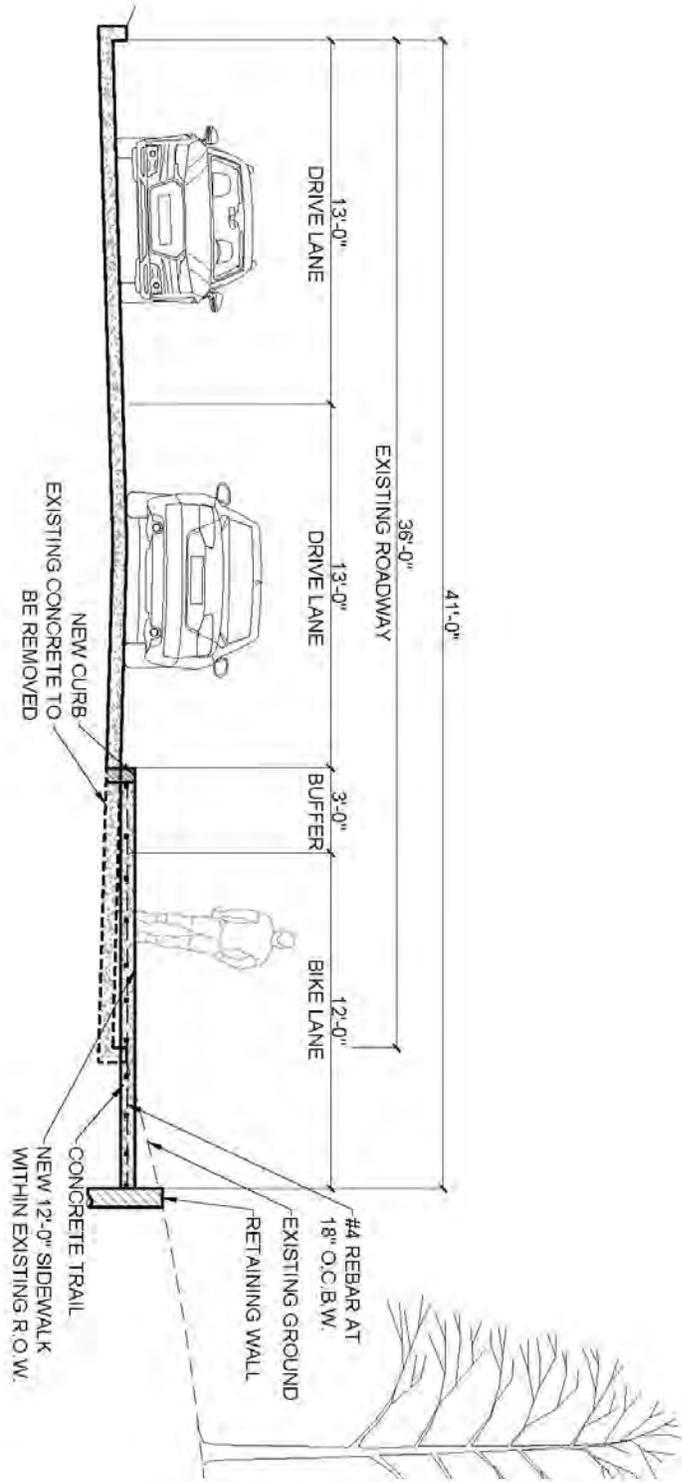


FIGURE 2 – Nimitz Drive

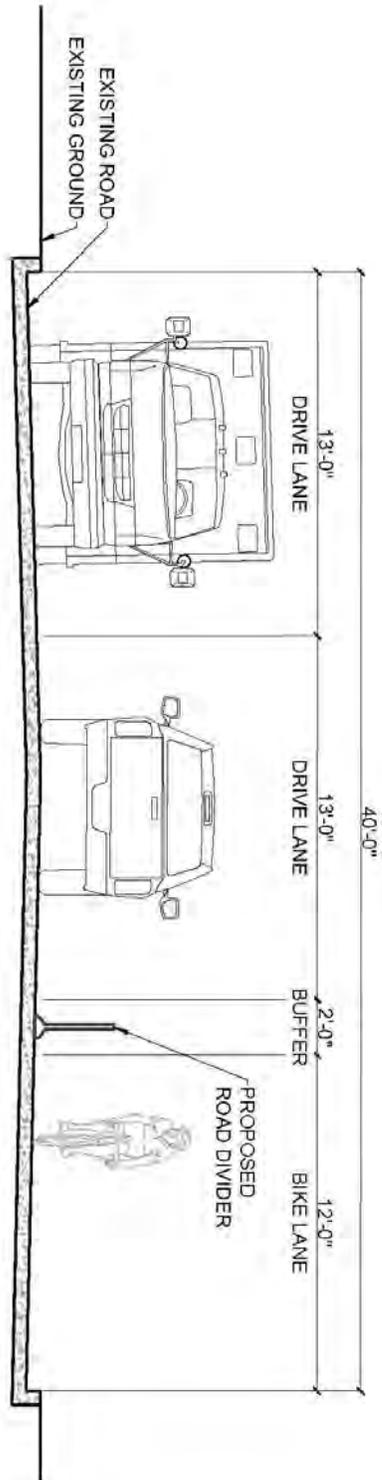


FIGURE 3 – Under IH 35E

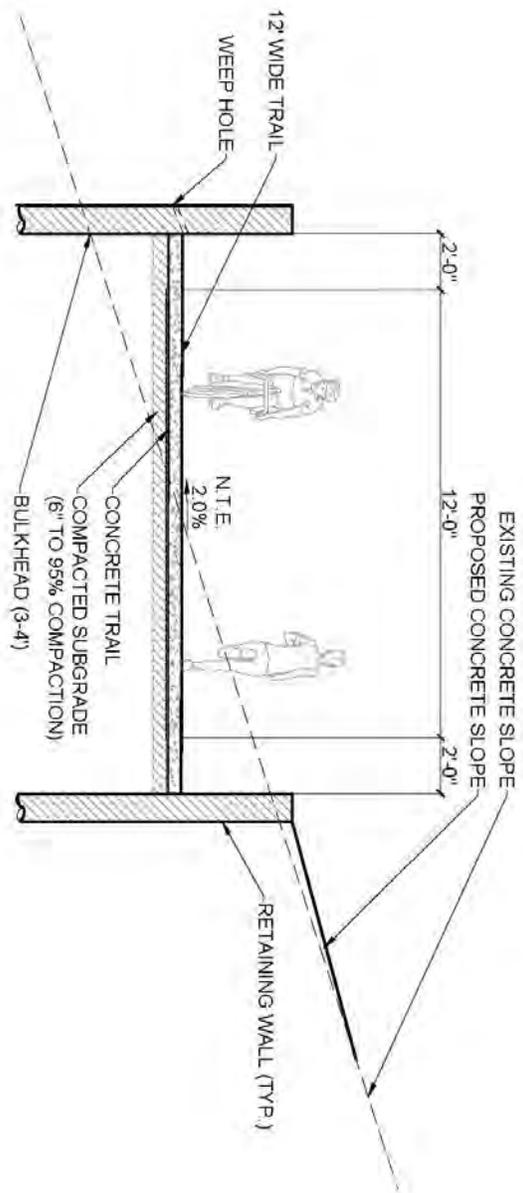


FIGURE 4 – Under President George Bush Turnpike

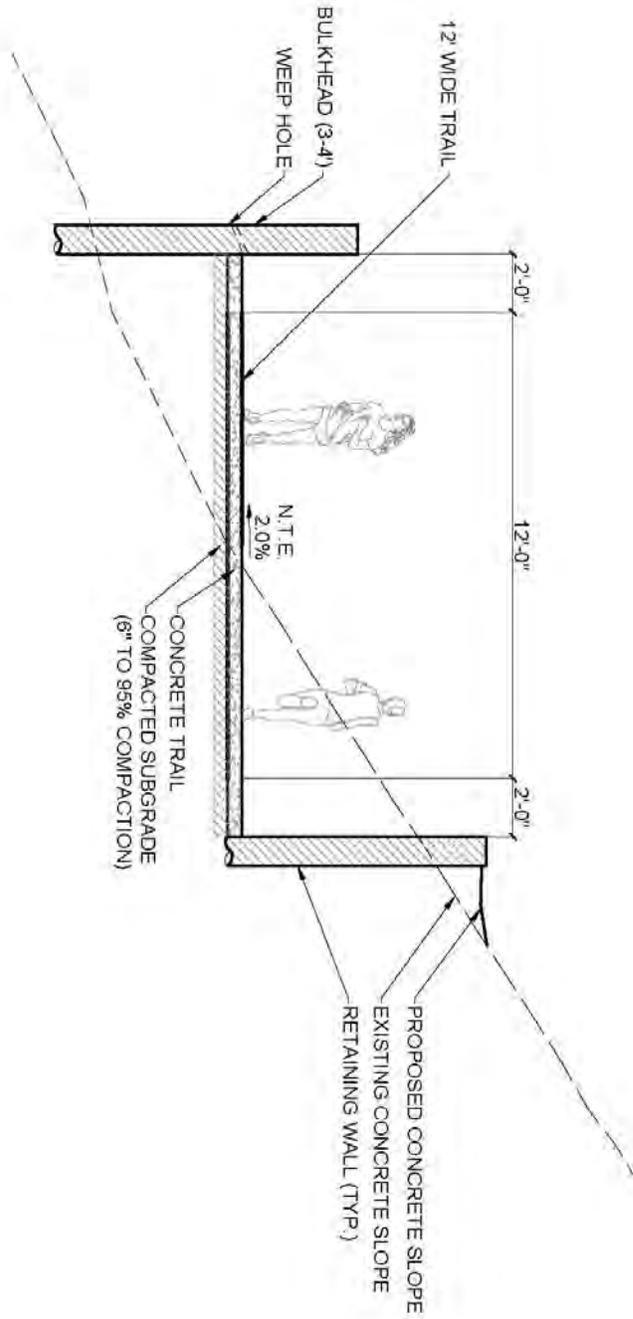


FIGURE 5 – Next to President George Bush Turnpike

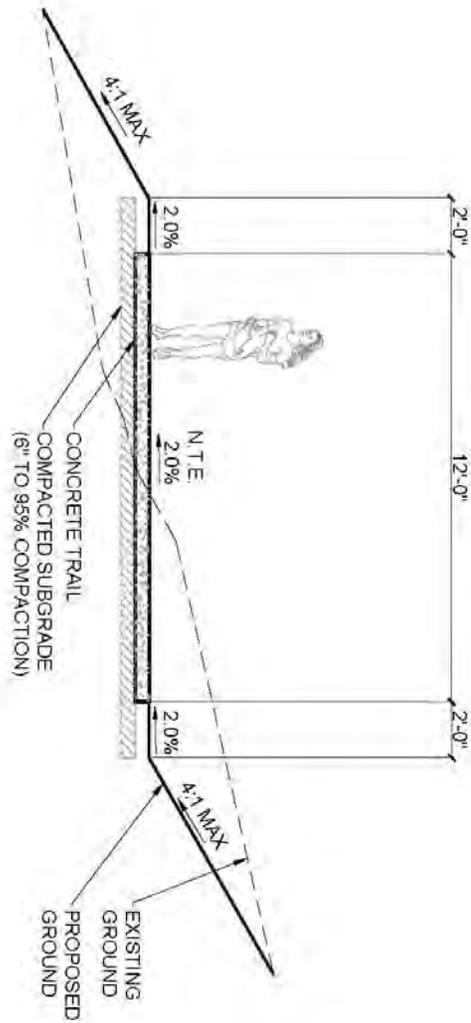


FIGURE 6 – Sandy Lake Road

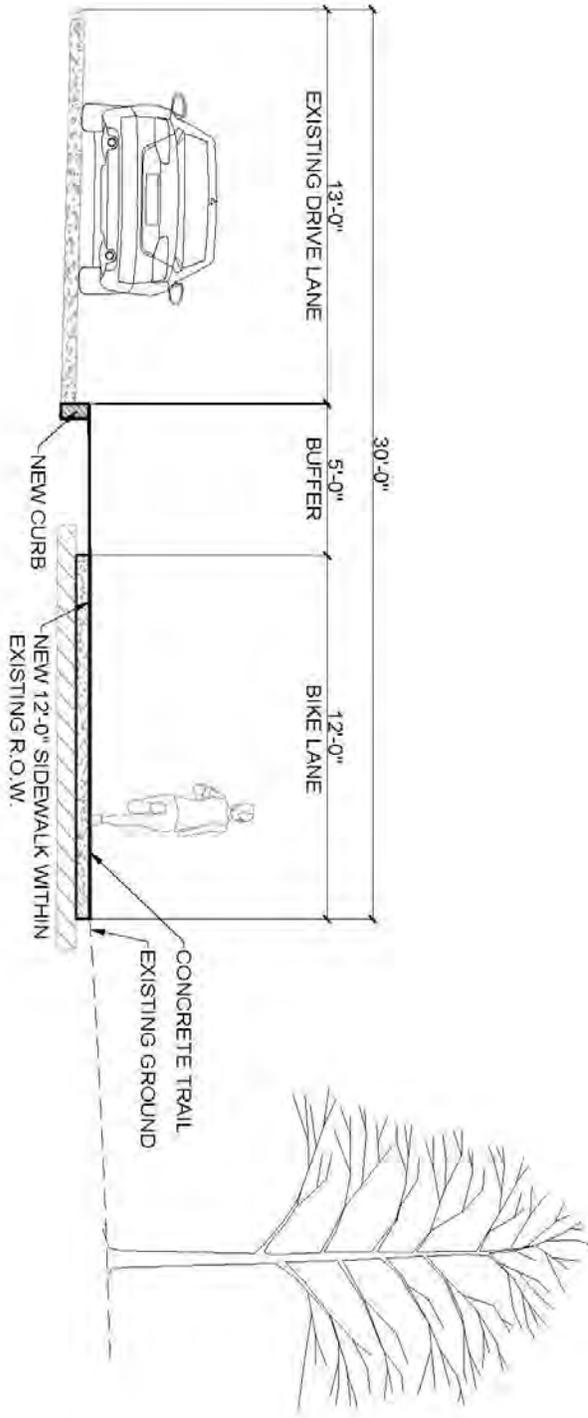


FIGURE 7 – Sandy Lake Road Bridge

