



Appendix B

Technical Memoranda and Reports

Disclaimer:

Technical memoranda and reports were prepared as independent documents to support the preparation of the Final Environmental Impact Statement (FEIS) for the Dallas CBD Second Light Rail Alignment (D2 Subway). Information from these documents was incorporated into the FEIS to provide information on existing conditions, and in some cases, assess potential impacts to the resources. Information contained in the FEIS is the most current and supersedes information in the technical memoranda and reports.



B-8

Water Resources and Water Quality Technical Memorandum



Technical Memorandum

Date: Wednesday, October 31, 2018

Project: Task Order 39-D2 Subway

To: Ernie Martinez, Project Manager, DART Capital Planning
Kay Shelton, EIS Project Manager, DART Capital Planning

From: James Frye, GPC 6 Project Manager
Kristine Lloyd, GPC 6 EIS Task Manager

Subject: DART GPC VI – Contract C-2012668, D2 Subway Project, Water Resources Existing Conditions
Technical Memorandum, HDR PN 10024656

Introduction

The following is a review of the existing water resources along an approximate 2.3-mile corridor in downtown Dallas. This memorandum includes an assessment of existing waters of the U.S. including wetlands, surface water quality, groundwater resources and floodplains along the proposed corridor.

Methodology

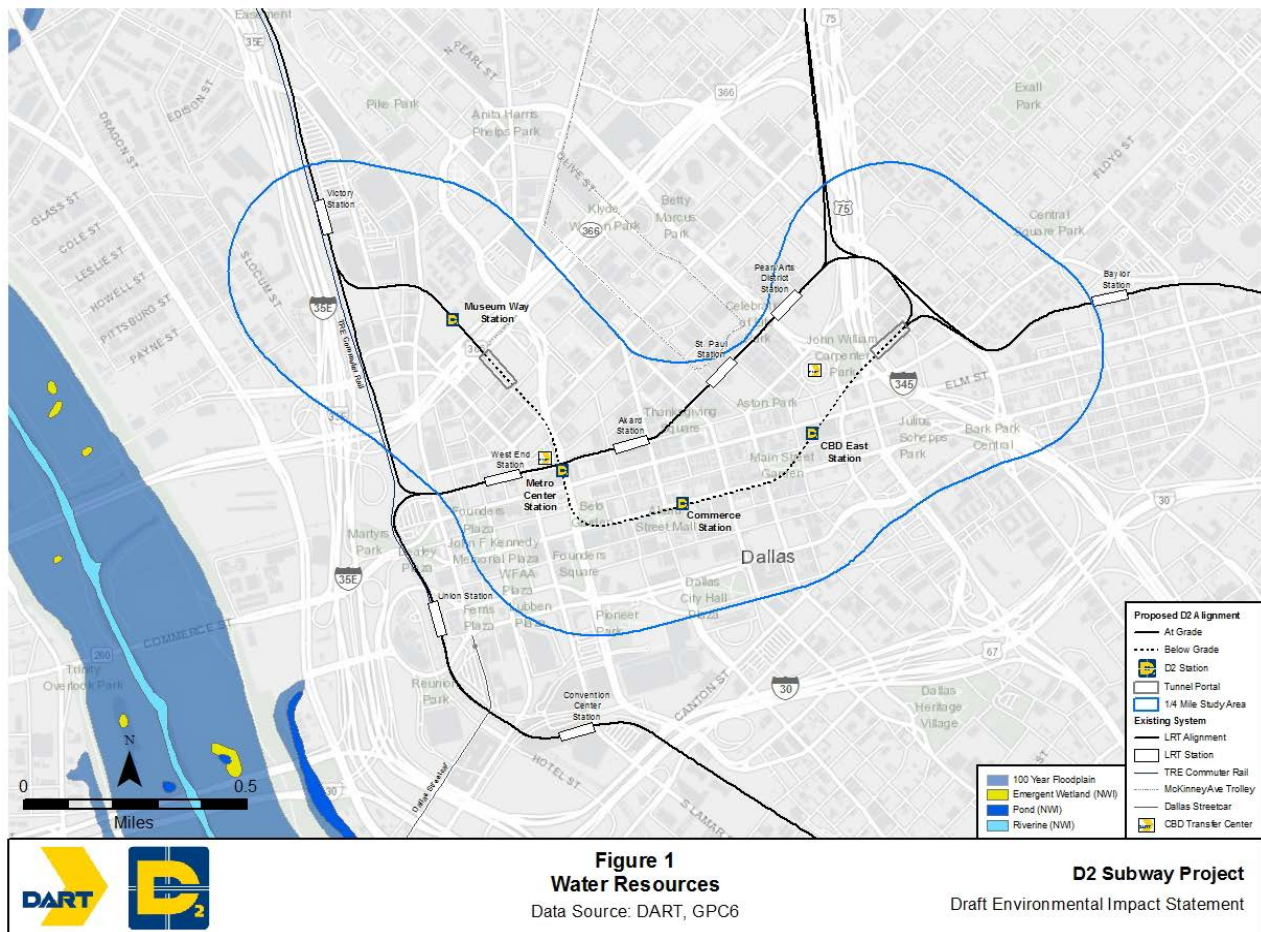
Documenting the water resources of the corridor included review of geographic information system (GIS) data, review of past and recent aerial imagery, and field observation within the study area. Potential waters of the U.S. were evaluated by qualified environmental scientists on August 28, 2018 using routine on-site methods. For the purpose of the water resources survey, the width of the study area extends 0.25 mile on either side of the D2 Corridor (**Figure 1**).

Recent aerial photography, U.S. Geological Survey (USGS) National Hydrography Dataset (NHD), U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI), and USGS topographic maps (7.5-minute series) of the study area were used to identify potential locations for waters of the U.S. and areas prone to wetland development before going into the field.

Regulatory Context

Surface waters, impoundments, floodplains, and other waters of the U.S., including adjacent wetlands are all considered to be Jurisdictional Waters. These waters are regulated under Section 404 of the Clean Water Act (CWA), and enforced by the U.S. Army Corps of Engineers (USACE). Waters of the U.S. are defined in 40 CFR 230.3 as, “*All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide*” (EPA, 2016a), including, but not limited to:

Figure 1. Water Resources



Source: HDR, 2018.

All interstate waters including wetlands, the territorial seas, impoundments such as prairie potholes, pocosins and Texas coastal prairie wetlands; all tributaries that contribute flow either directly or through another water; and ponds, lakes, oxbows, impoundments and similar waters.

Existing Water Resources

This section describes the existing conditions with respect to surface water and groundwater resources in the study area.

Waters of the U.S., Including Wetlands

The presence of waters of the U.S., including wetlands, was evaluated using the online USGS topographic server (2018) and the online USFWS NWI mapper (2018). Data obtained from the NHD, NWI, and USGS topographic server show no waters of the U.S., including wetlands within the project area. On-site field observations conducted on August 28, 2017, by qualified environmental scientists confirmed that no potential waters of the U.S. including wetlands are present within the study area.



Surface Water Quality

The project study area is located within the Trinity River basin, which drains approximately 17,969 square miles (TCEQ, 2004). For the purposes of monitoring water quality, the Texas Commission on Environmental Quality (TCEQ) has divided the Trinity River basin into 41 discrete segments. The proposed project is within the watershed of Segment 0805-Upper Trinity River. Defined uses of Segments 0805 include aquatic life use, recreational use, general use, and fish consumption use. According to the 2014 Texas Integrated Report of Surface Water Quality, Segment 0805-Upper Trinity River is listed as impaired for dioxin in edible tissue and PCBs in edible tissue (TCEQ, 2015).

Groundwater

The study area is located over the Trinity Aquifer and the Woodbine Aquifer. The Trinity Aquifer is a major aquifer extending across much of the central and northeastern part of the state. The Woodbine Aquifer is a minor aquifer located in northeast Texas and overlies the Trinity Aquifer.

The study area is located over the downdip, or subsurface, portion of the Trinity Aquifer (TWDB, 2014). The downdip portion of the aquifer is involved in subsurface water storage (as opposed to surface water recharge). The Trinity Aquifer extends across 61 counties in Texas, from the Red River to the south-central portion of the state. Water quality within the southern portion of the aquifer is generally better than in the northern portion which is highly mineralized. The source aquifer for the project area is the downdip portion of the Woodbine Aquifer. Only the lower two zones of this aquifer are developed to supply water for domestic and municipal uses. The main use of groundwater in the project study area is municipal use (George, P. et al, 2011). According to the Texas Water Development Board's (TWDB) water well database, there are 19 water well records within the 0.25 mile study area buffer and 8 wells within 200 feet of the proposed alignment (TWDB, 2013). Water pressure within the aquifer shows declines around major cities as a result of heavy use. Some of the state's largest water level declines, ranging from 350 to more than 1,000 feet, have occurred in counties along the IH-35 corridor from McLennan County to Grayson County (TWDB, 2017). As a result of intense groundwater extraction and depletion over time, 18 counties in this region, including Tarrant, Collin, and Dallas counties, have been included in the list of Priority Groundwater Management Areas of the state by the TCEQ (TCEQ, 2013).

Floodplains

Federal Emergency Management Agency (FEMA) floodplain maps were consulted for the project area (Map ID 48113C0345J). According to the FEMA floodplain map, the study area lies entirely within Zone X, which is an area defined as having minimal flood hazard. Floodplain areas are shown on **Figure 1**.



References

George, P., Mace R., and Petrossian, R. "Aquifers of Texas". Report 380. July 2011. Available online: http://www.twdb.texas.gov/publications/reports/numbered_reports/doc/R380_AquifersofTexas.pdf.

TCEQ. 2004. Atlas of Texas Surface Waters: Maps of the Classified Segments of Texas River and Coastal Basins. TCEQ Publication GI-316, August 2004.

TCEQ. 2013. Priority Groundwater Management Areas (PGMAs). December 2013. https://www.tceq.texas.gov/assets/public/permitting/watersupply/groundwater/maps/pgma_areas.pdf

TCEQ. 2015. Texas Integrated Report of Surface Water Quality. Approved by the EPA on November 19, 2015.

TWDB. 2007. "Northern Trinity/Woodbine GAM Assessment of Groundwater Use in the Northern Trinity Aquifer Due To Urban Growth and Barnett Shale Development". January 2007. https://www.twdb.texas.gov/groundwater/models/gam/trnt_n/TRNT_N_Barnett_Shale_Report.pdf

TWDB. 2013. Texas Water Development Board Groundwater Database. 2013. Available for download online: <http://www.twdb.texas.gov/groundwater/data/gwdbbrpt.asp>.

TWDB. 2014. Major Aquifers of Texas. http://www.twdb.texas.gov/mapping/doc/maps/Major_Aquifers_36x36.pdf Last updated January 2014.

TWDB. 2017. Trinity Aquifer. Summary. <http://www.twdb.texas.gov/groundwater/aquifer/majors/trinity.asp>. Accessed October 30, 2018.

U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

USFWS. 2018. National Wetlands Inventory Wetlands Mapper. <https://www.fws.gov/wetlands/data/mapper.html>. Accessed October 17, 2018.

USGS. 2018. USGSTopo (MapServer) https://services.arcgis.com/ArcGIS/rest/services/World_Topo_Map/MapServer. Accessed October 17, 2018.