Appendix C: Existing Drainage Conditions Report

I-610 South

From FM 521/Almeda Road to Telephone Road

CSJ: 0271-16-158 & 0271-16-159

Texas Department of Transportation
Houston District
September 2025

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1 INTRODUCTION

The Texas Department of Transportation (TxDOT) is conducting a feasibility study for the 5.8-mile segment of Interstate 610 South (I-610S), from Farm-to-Market (FM) 521/Almeda Road to Telephone Road.

This report provides a description of the existing drainage infrastructure within the study area. The information presented was collected from publicly available sources, land survey, and field investigations. This information is intended to provide the basis to build upon for subsequent feasibility and schematic design analysis related to proposed improvements. The existing drainage infrastructure through the study area includes storm drainpipes, inlets, and culverts. Offsite drainage areas outfall the project at 12 locations as shown in **Figure 1**. There are nine (9) drainage areas. Outfalls that are in common drainage areas include D1 and D2, E1 and E2, and G1 and G2.

Figure 1: Location Overview

2 EXISTING WATERSHEDS

The I-610S study limits are within two major watersheds: Sims Bayou and Brays Bayou. Harris County Flood Control District (HCFCD) and Geographic Information System (GIS) data was used to define the watershed boundary (**Figure 2**). Most of the study area outfalls toward Brays Bayou.

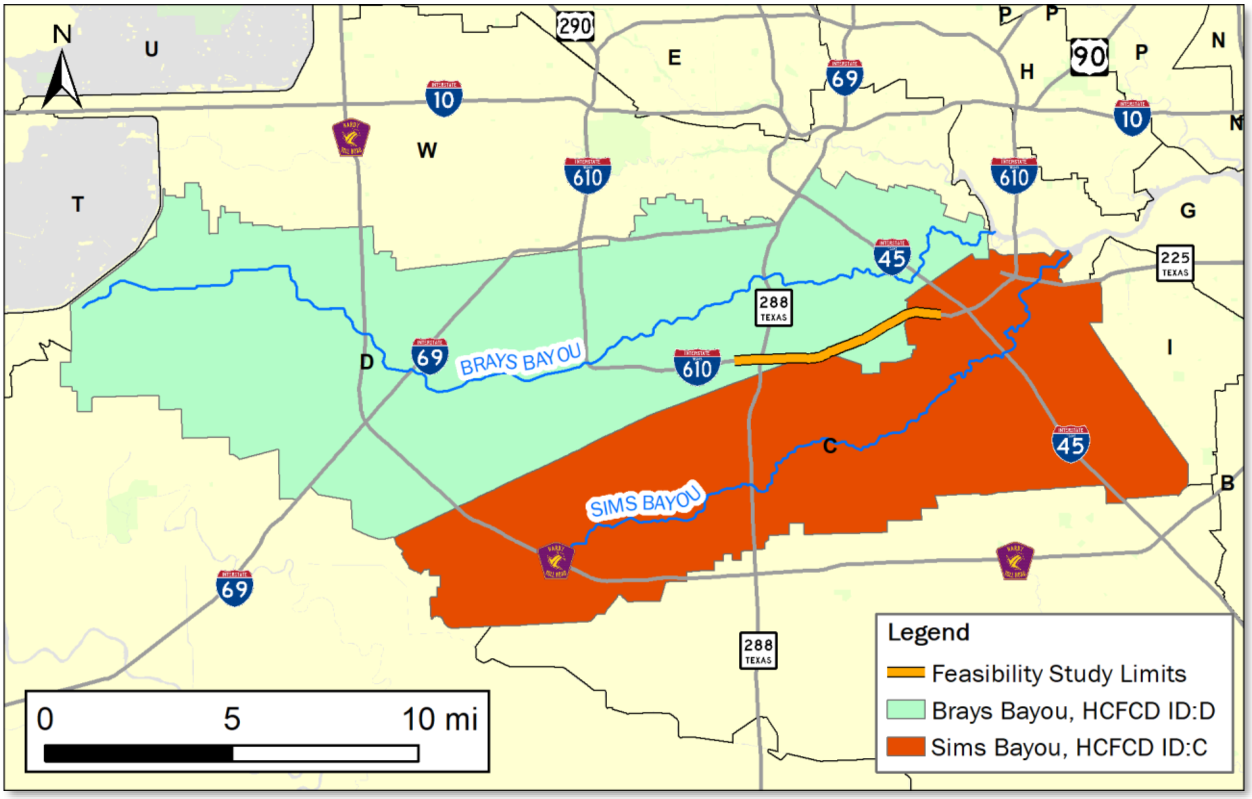

Figure 2: Watershed Overview

There are two locations where a HCFCD named stream intersects the study corridor: Salt Water Ditch (Outfall D) and Plum Creek (Outfall I) as summarized in **Table 1**. Both of these HCFCD stream crossings are in Sims Bayou and are "un-studied" and therefore have no existing hydrology and hydraulic (H&H) study information available from HCFCD.

Table 1: Named Streams (HCFCD) Crossing Study Area

Watershed	HCFCD Named Stream	
	Name	ID
Sims Bayou	Salt Water Ditch	C118-00-00*
Sims Bayou	Plum Creek	C102-00-00*

** Unstudied streams*

3 EXISTING DRAINAGE CROSSINGS AND OUTFALLS

The study corridor is close to the watershed drainage divide between Brays and Sims Watersheds. Therefore, only relatively minor offsite drainage areas flow across the corridor. Most of the study area outfalls towards the Brays Bayou Watershed through storm drain connections at the northern ROW boundary. A total of twelve (12) outfall locations were identified. An "outfall" is where drainage discharges from the study segment at the ROW into a City of Houston (COH) Storm Drain System or HCFCD open channel. These outfall locations are illustrated in **Figure 3** and summarized in **Table 2** below. Only Outfall E1 discharges to an open channel. The rest of the outfalls discharge into a closed system COH storm drain.

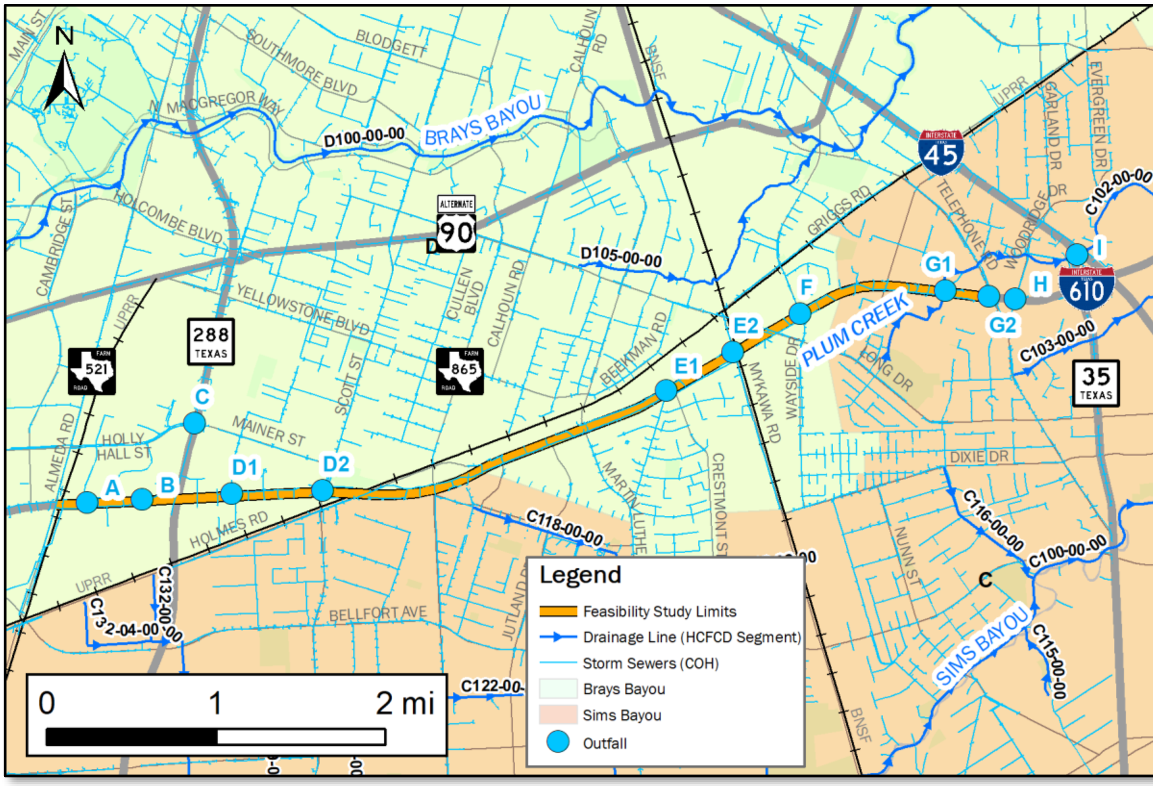

Figure 3: Existing Outfall Locations

Table 2: Existing Outfall Summary

Count	System ID	Outfall ID	Watershed	Receiving Stream	Existing Outfall Size
1	A	A	Brays Bayou	Brays Bayou	1-102″ RCP
2	B	B	Brays Bayou	Brays Bayou	1-102″ RCP
3	C	C	Brays Bayou	Brays Bayou	1-12′x12′ SBC
4	D	D1	Brays Bayou	Brays Bayou	1-90" RCP
5	D	D2	Brays Bayou	Brays Bayou	1-48″ RCP
6	E	E1	Brays Bayou	Kuhlman/Belmont Gully	1-12'x10'
7	E	E2	Brays Bayou	Kuhlman/Belmont Gully	1-60″ RCP
8	F	F	Brays Bayou	Kuhlman/Belmont Gully	1-114″ RCP
9	G	G1	Sims Bayou	Plum Creek	2-8′X8′ SBC
10	G	G2	Sims Bayou	Plum Creek	1-42" RCP
11	H	H	Sims Bayou	Plum Creek	1-36″ RCP
12	I	I	Sims Bayou	Plum Creek	12′X10.5′ SBC

4 EXISTING FLOODPLAIN

There are no existing FEMA floodplains mapped within the study corridor. The study area is located on FEMA map panels 48201C0870M, 48201C0890M, 48201C0880M, and 48201C0885N. The closest mapped floodplains are Brays Bayou and Sims Bayou. Additionally, there are no FEMA base flood elevations shown on the FEMA map. See **Figure 4** for the FEMA boundary.

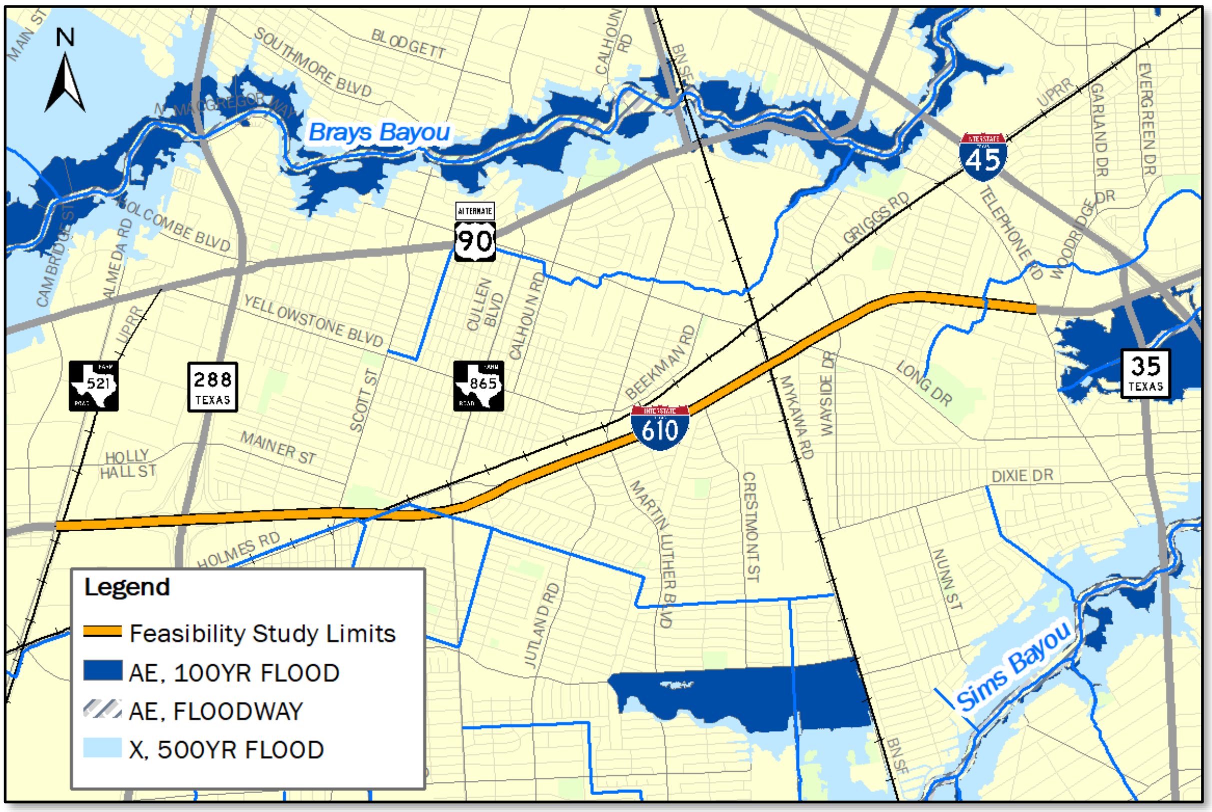

Figure 4: Effective FEMA Floodplain

5 EXISTING DRAINAGE INFRASTRUCTURE

Information about existing drainage infrastructure was gleaned from: record drawings, land survey, field investigation, and public input, as discussed below.

5.1 Record Drawings and Survey

Approximately 40 different record plan sets and any available survey provided by TxDOT were used to approximate the size and location of the existing storm drain system. A plan set for SH 288/I-610 interchange shows significant improvements with new storm drain lines added and old lines taken out. There is an ongoing SH 35/I-610 interchange project that adds new detention ponds and drain lines nearby at I-610 at Mykawa Road.

5.2 Site Visit Investigation

A site visit was conducted in August of 2023. At that time, the study area was driven and outfall locations were investigated. The majority of the outfalls are underground in storm drains and could not be verified. However, the 2- 8'X 8' box culvert at Plum Creek (Outfall G1) and the 12' X 10.5' box culvert (Outfall I), also at Plum Creek, were verified. The entire study corridor was found to be drained by storm drain inlets and storm drainpipes. No significant roadside ditches (parallel to the roadway) were observed.

5.3 Public Meeting Survey

TxDOT held one virtual and two in-person meetings for the I-610 South Feasibility Study in June 2023. One online survey respondent stated that "a lot of water collects on the frontage roads when it rains" at the intersection of FM 521/Almeda Road and I-610 (near Outfall B). Another commented "flooding along this section of the feeder road has increased over time" in this same area. This may indicate that the drainage system at Outfall B may surcharge into the frontage roads resulting in street flooding. See **Figure 5** showing this area upstream of Outfall B on the south side of I-610.

Figure 5: Drainage Crossing at FM 521/Almeda Road

5.4 Other Data

Other best available data was gleaned from the City of Houston and Harris County databases. Storm drainage infrastructure information was downloaded from the City of Houston Public Works database (known as GeoHub). Land use was identified using parcel data generated by the Harris County Appraisal District.

6 ONGOING ADJACENT PROJECTS

There are two TxDOT projects adjacent to the study including the recently completed SH 288/I-610S interchange project and the ongoing SH 35 project. Both projects have recently modified drainage structures and detention storage improvements. See **Figure 6** for the location of these recently built and/or proposed detention ponds.

Figure 6: Future Detention Ponds

7 HISTORIC FLOODING EVENTS

The Houston area has experienced several flooding events in recent years, including Tropical Storm Allison (2001), Memorial Day Flood (2015), Tax Day Flood (2016), and Hurricane Harvey (2017). No highwater marks were available from HCFCD that were considered relevant to the I-610S study area.