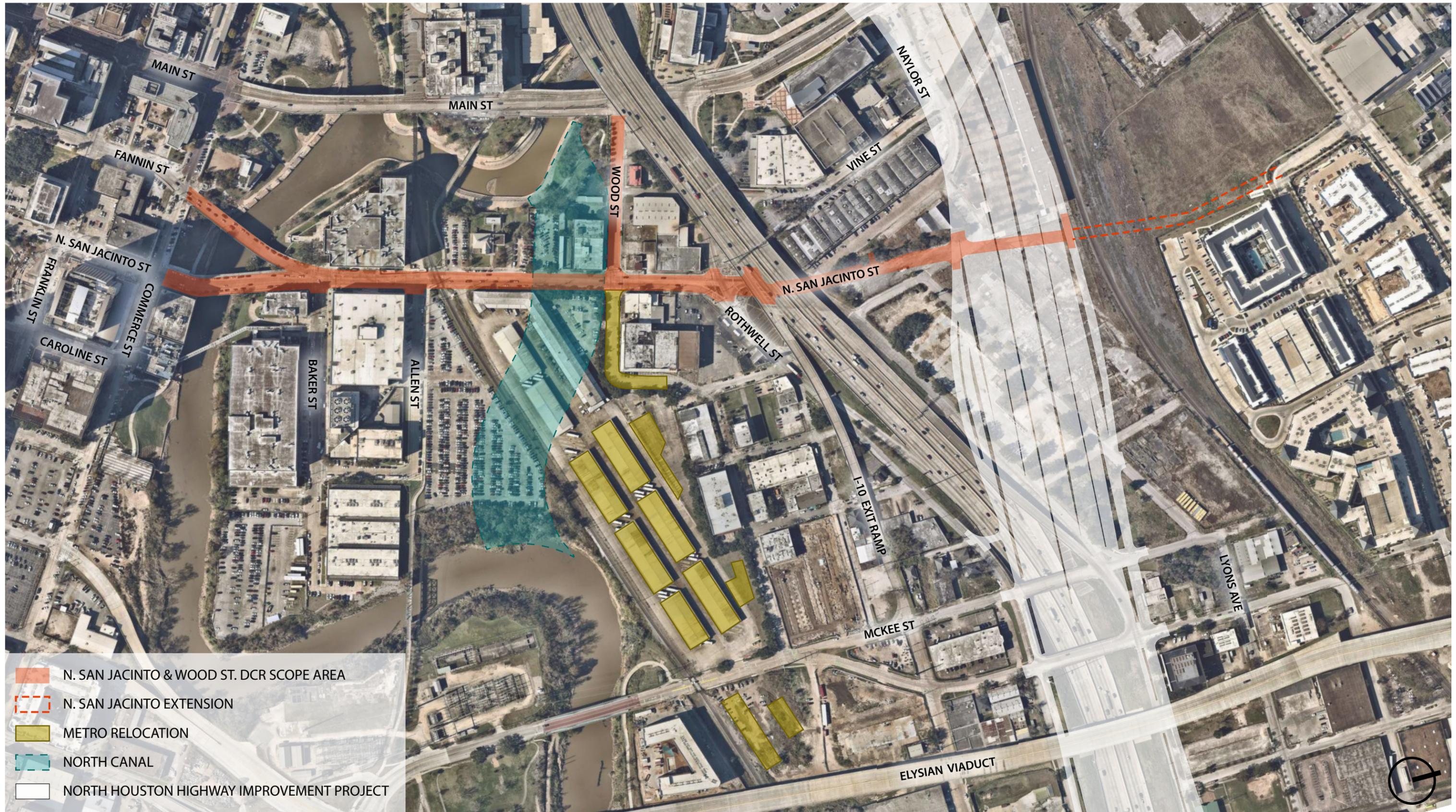
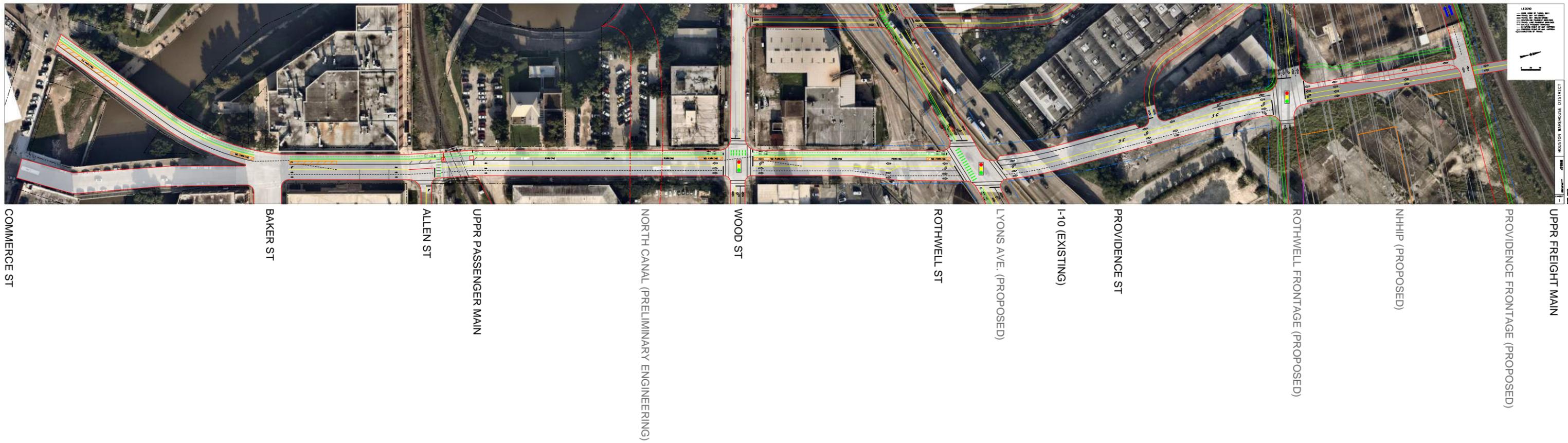


N. SAN JACINTO & WOOD ST. DCR SCOPE AREA



N. San Jacinto Conceptual Lane Configuration



N. San Jacinto Capital Project Partners



ACRONYM KEY

HDMD	HOUSTON DOWNTOWN MANAGEMENT DISTRICT
DRA	DOWNTOWN REDEVELOPMENT AUTHORITY
TIRZ	TAX INCREMENT REINVESTMENT ZONE
COH	CITY OF HOUSTON
HCFCD	HARRIS COUNTY FLOOD CONTROL DISTRICT
TXDOT	TEXAS DEPARTMENT OF TRANSPORTATION
NHHIP	NORTH HOUSTON HIGHWAY IMPROVEMENT PROJECT
HNNSRA	HARDY NEAR NORTH SIDE REDEVELOPMENT AUTHORITY



North:

Across the northern edge of Downtown, additional opportunities are created by Union Pacific (UP) freight rail relocation, the growth of UH-Downtown, the location of significant County assets, and the unique character of the Historic and Warehouse Districts.

- 1 Plan for UH-Downtown campus expansion including student housing.
- 2 Connect Buffalo Bayou East Sector with Allen's Landing by building trails and open spaces through City, County and CenterPoint Energy properties.
- 3 Develop a North Downtown Transit Center that serves light rail, bus, and transit investments.
- 4 Transform Commerce Street into a historically authentic "produce row" which serves as a gateway to the east and north.
- 5 Build the North Canal (White Oak Bayou bypass), as recommended in the 2002 Buffalo Bayou Master Plan, as an enriched waterfront amenity with storm water conveyance benefits. Relocate METRO's bus facility to the area vacated by the NHHIP.
- 6 Evaluate, with public input and in tandem with the NHHIP, the realignment of the UP freight and passenger rail lines with a new passenger rail station adjacent to METRO's Burnett Plaza Transit Center.
- 7 Extend Dart Street from the First Ward to Main Street, with connections to Bagby, Rothwell and Providence Streets.
- 8 **Extend North San Jacinto Street to connect to Fulton Street in the Near Northside.**
- 9 Preserve Nance and Sterrett Streets as the historic core of warehouse structures and existing art studios.
- 10 Explore development options for additional live/work spaces for artists to build upon the character of the Warehouse District.
- 11 Utilize public land vacated by the NHHIP to support Downtown's population growth goals and workforce housing opportunities at new development sites.
- 12 Establish enhanced storm water detention areas and natural open space amenities in the areas vacated by the NHHIP.



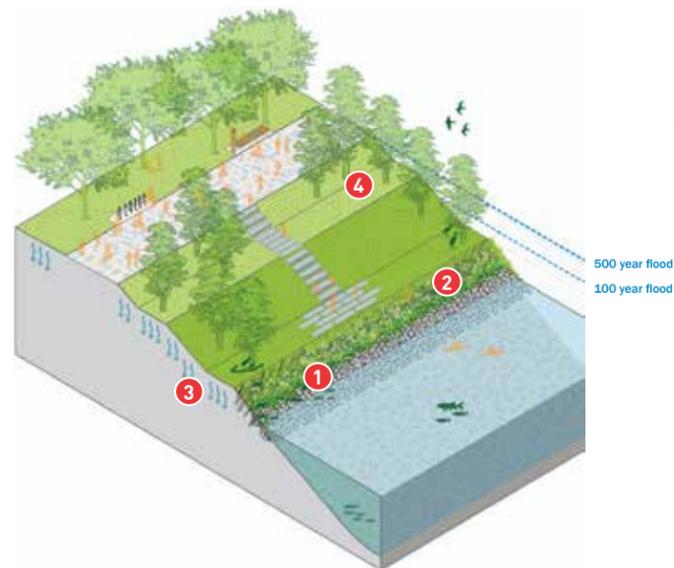
2A

CREATE DOWNTOWN'S GREEN LOOP AS A TRANSFORMATIVE TRAIL, PARK, AND PUBLIC SPACE SYSTEM THAT OFFERS CONNECTIVITY, ATTRACTIONS, AND SIGNATURE OPEN SPACES.

The NHHIP will fully remove or trench many of the elevated highways that surround Downtown. Where a gray loop of 20th century infrastructure currently defines these edges, a "green loop" comprised of green spaces and trails will stimulate development of prime opportunity sites, offer new multi-functional open spaces that manage water, and provide recreational and public assembly opportunities. The 5-mile Green Loop will present a 21st century image of Houston's core, both from the air and on the ground.

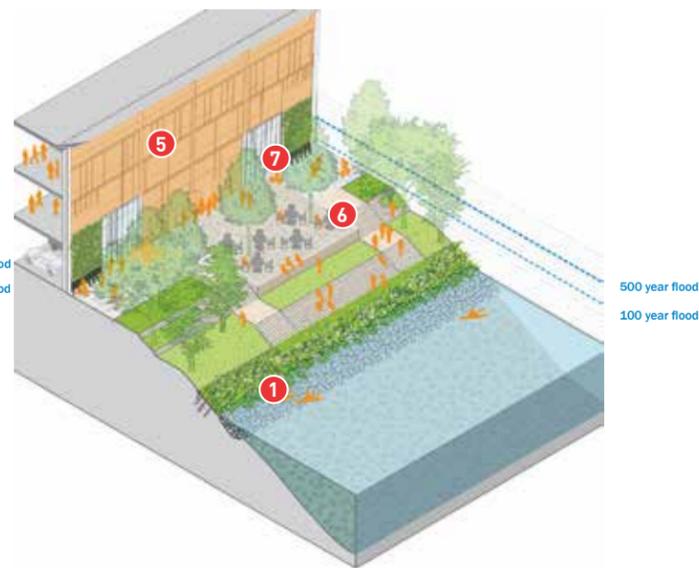
- Develop a connected system of parks, trails, and public spaces, with key connections to Downtown and adjacent neighborhoods.
- Conceive the Green Loop as the center of the Bayou Greenways, to be used as the trailhead for visitors to discover Houston's bayous and trails.
- Engage the Green Loop and Buffalo Bayou architecturally through activated ground floors and an inviting public realm while also ensuring development is resilient to flood events and supportive of the region's unique ecology.
- Develop civic spaces such as libraries, schools, and community centers that front the Green Loop in support of the central city, and to support resilience and disaster recovery goals (See diagram below).
- Restore the city's street grid and vital infrastructure around the Green Loop, strengthening connections and utility services between Downtown and central city neighborhoods.
- Design signature attractions such as bridges over Buffalo and White Oak Bayous to present new skyline panoramas of Downtown.

RESILIENT EDGE

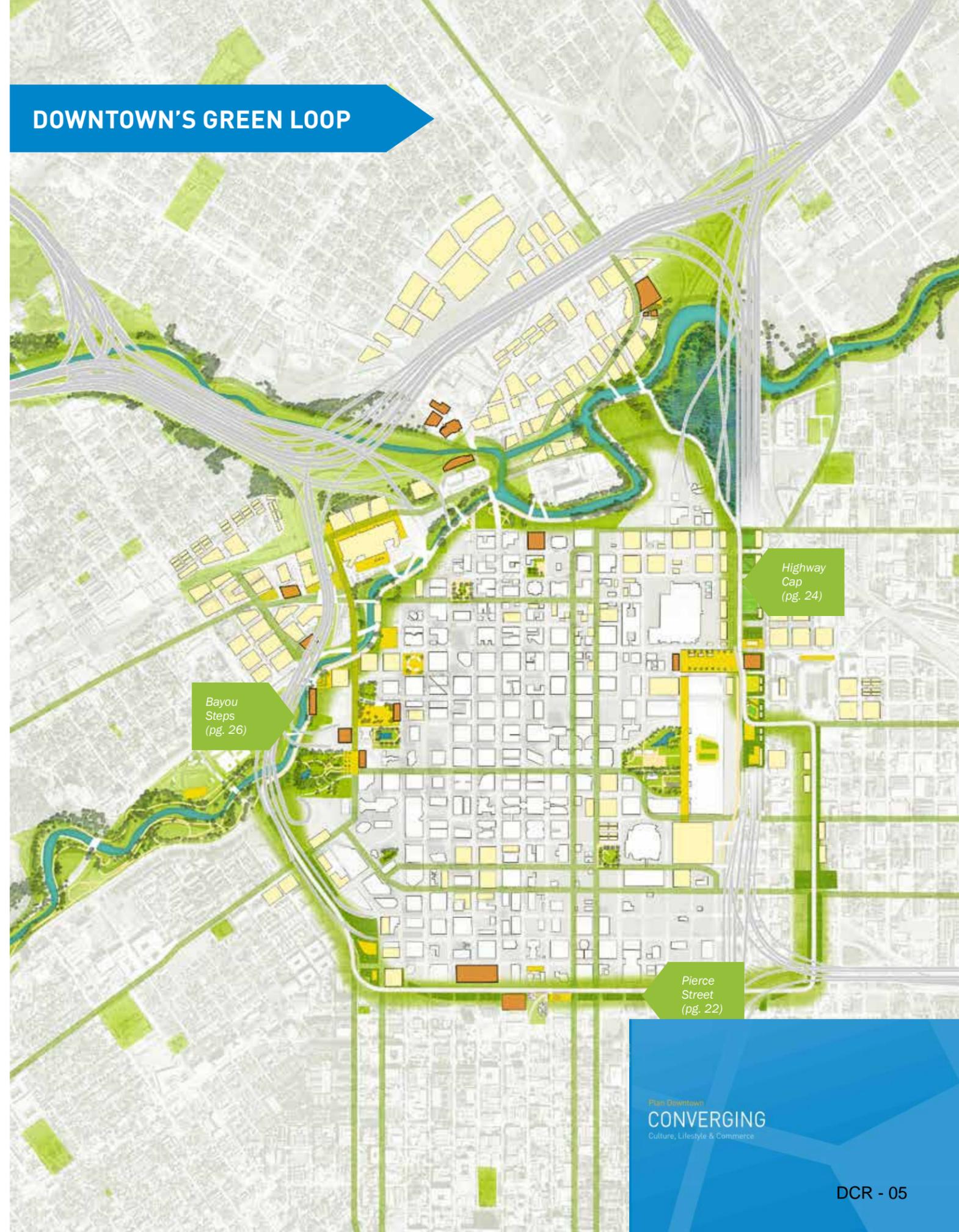


- 1 Provide active access to the Bayou with minimal impact to the ecological systems.
- 2 Control erosion to support the riparian habitat.
- 3 Absorb stormwater to reduce flooding.
- 4 Plan diverse, adaptive vegetation.
- 5 Engage the bayou architecturally.
- 6 Create waterfront gathering spaces and trail linkages.

ACTIVE EDGE



- 7 Elevate building systems to protect from flooding.



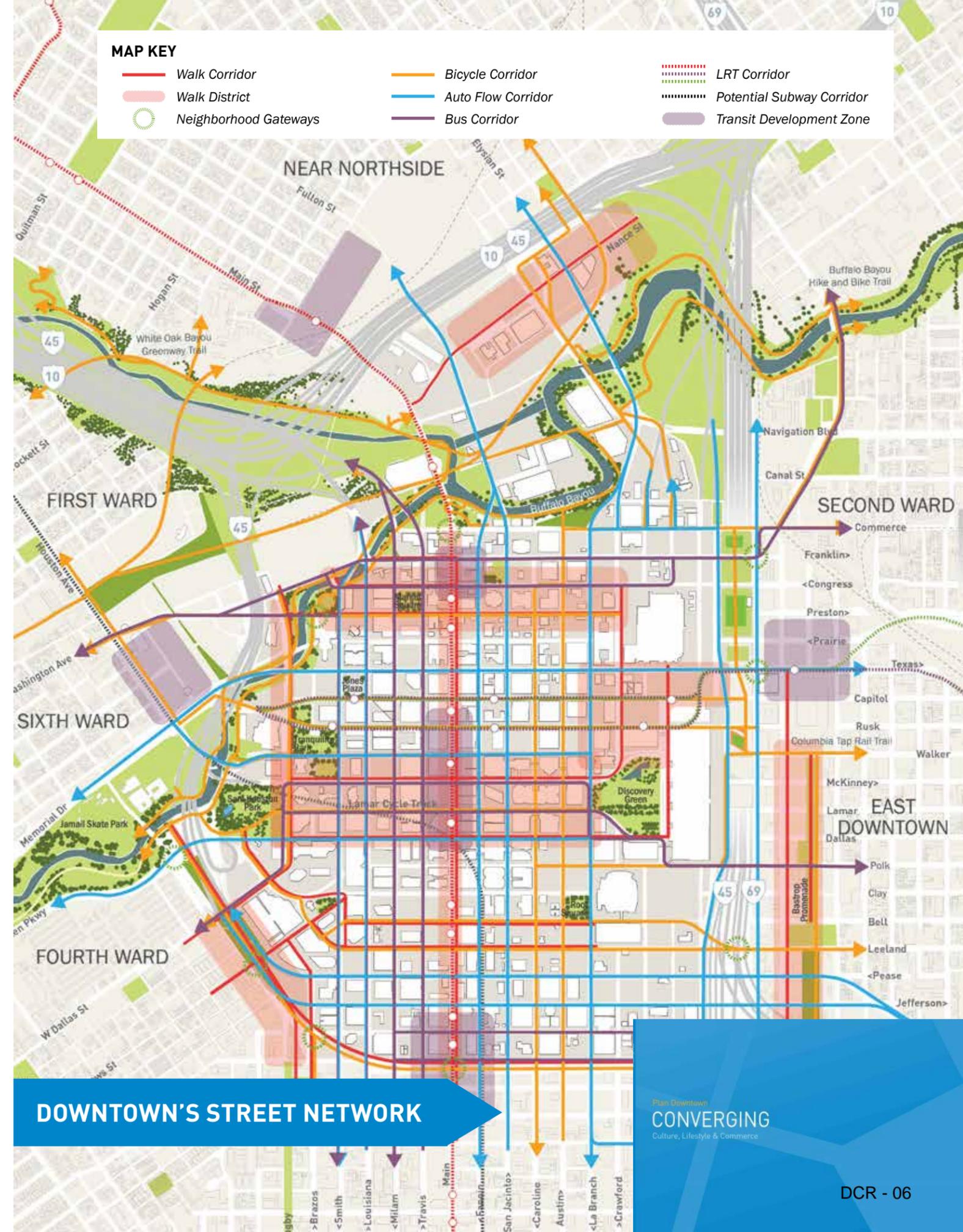
9A

RETHINK THE STREET NETWORK TO SUPPORT EXPANDED MOBILITY CHOICES AND IMPROVED OPERATIONS.

Expansion and improvement of the regional transit, bike, and trail networks in recent years has created significant opportunities to connect and improve travel choices through Downtown. Creating specific networks for all modes of transportation – by providing prioritized mobility choices for transit, biking, and walking within Downtown while meeting the needs of commuters – will balance the Downtown street network and support development goals. Each mode of transportation should be developed as a complete network that allows for full mobility throughout Downtown with strong connections to adjacent neighborhoods. Priorities should be determined for each street based on its role in the larger mobility network and the development context along the respective corridor.

- Develop prioritized, integrated mobility networks throughout Downtown linked to regional and neighborhood connectivity, traffic demand, development context, transit and active transportation priorities and safety goals.
- Develop a Great Streets Program to specifically redesign, retrofit and reconstruct streets as enhanced multimodal corridors aligned with mobility priorities.
- Implement a well-connected, protected bikeway and trail network of 3 to 4 east/west and 3 to 4 north/south corridors.
- Partner with METRO to enhance prioritized transit streets through speed and reliability improvements, improved passenger amenities, and information systems.
- As streets are reconstructed, utilize low impact development and design standards that integrate storm water management and landscape best practices for enhanced water quality, drainage, and aesthetics.
- Lead the region with a Vision Zero policy, the elimination of traffic fatalities and severe injuries, to improve safety based on detailed study of safety data.
- Expand wayfinding systems and prioritize gateway connections to adjacent neighborhoods and new destinations as prompted by the NHHIP and related developments.
- Review mobility lanes and on-street parking strategies, including pricing and time periods, to simplify street operations. Provide continuous parking adjacent to active street fronts such as those in the Historic District.
- Study and implement two-way conversions on lower volume streets to support connectivity and redevelopment strategies.
- Pilot projects and technologies to improve signal timings and achieve more balanced synchronization for north/south and east/west movements.

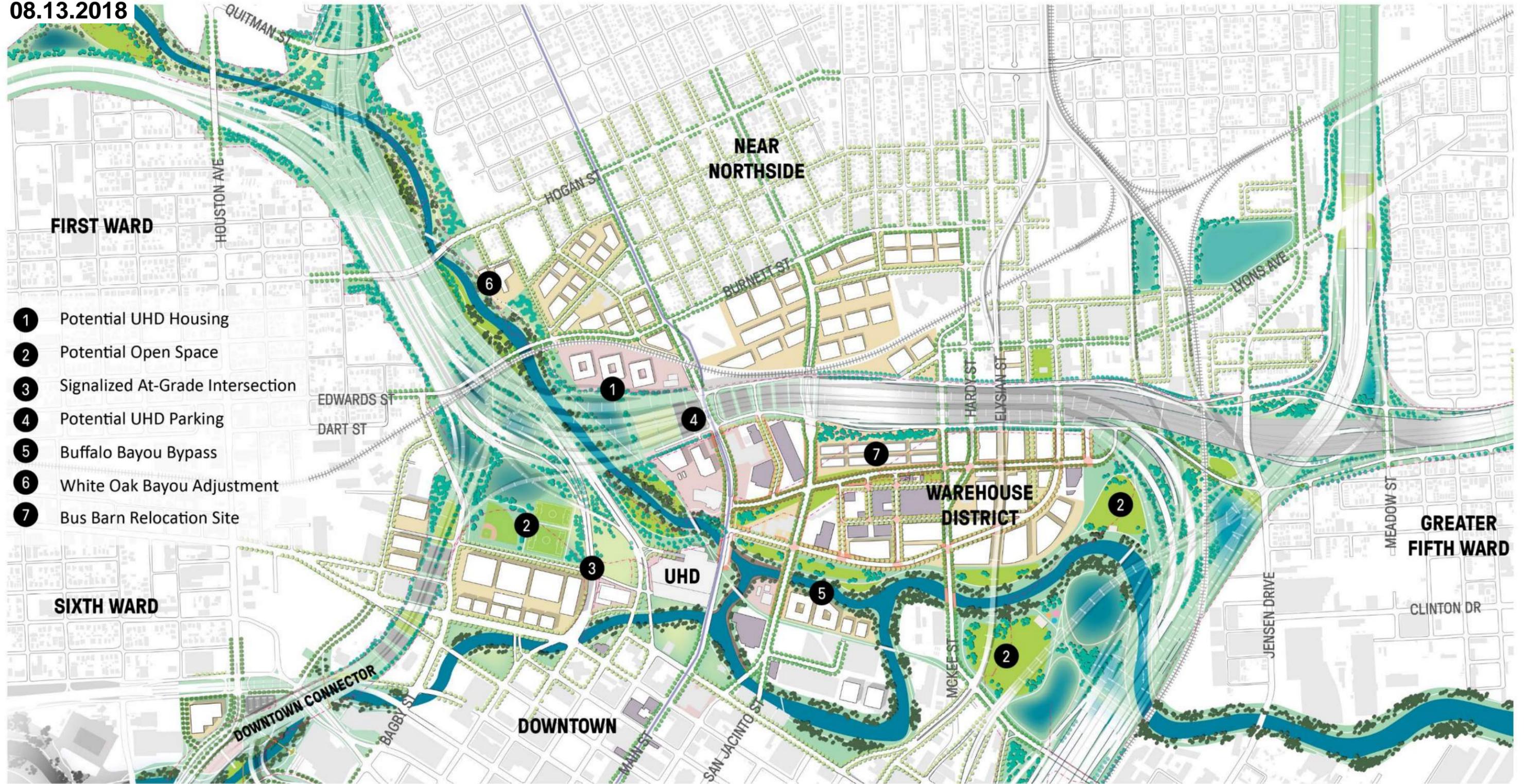
BAGBY STREET



NORTH DOWNTOWN/NORTHSIDE AGENCY & STAKEHOLDER WORKSHOP

08.13.2018

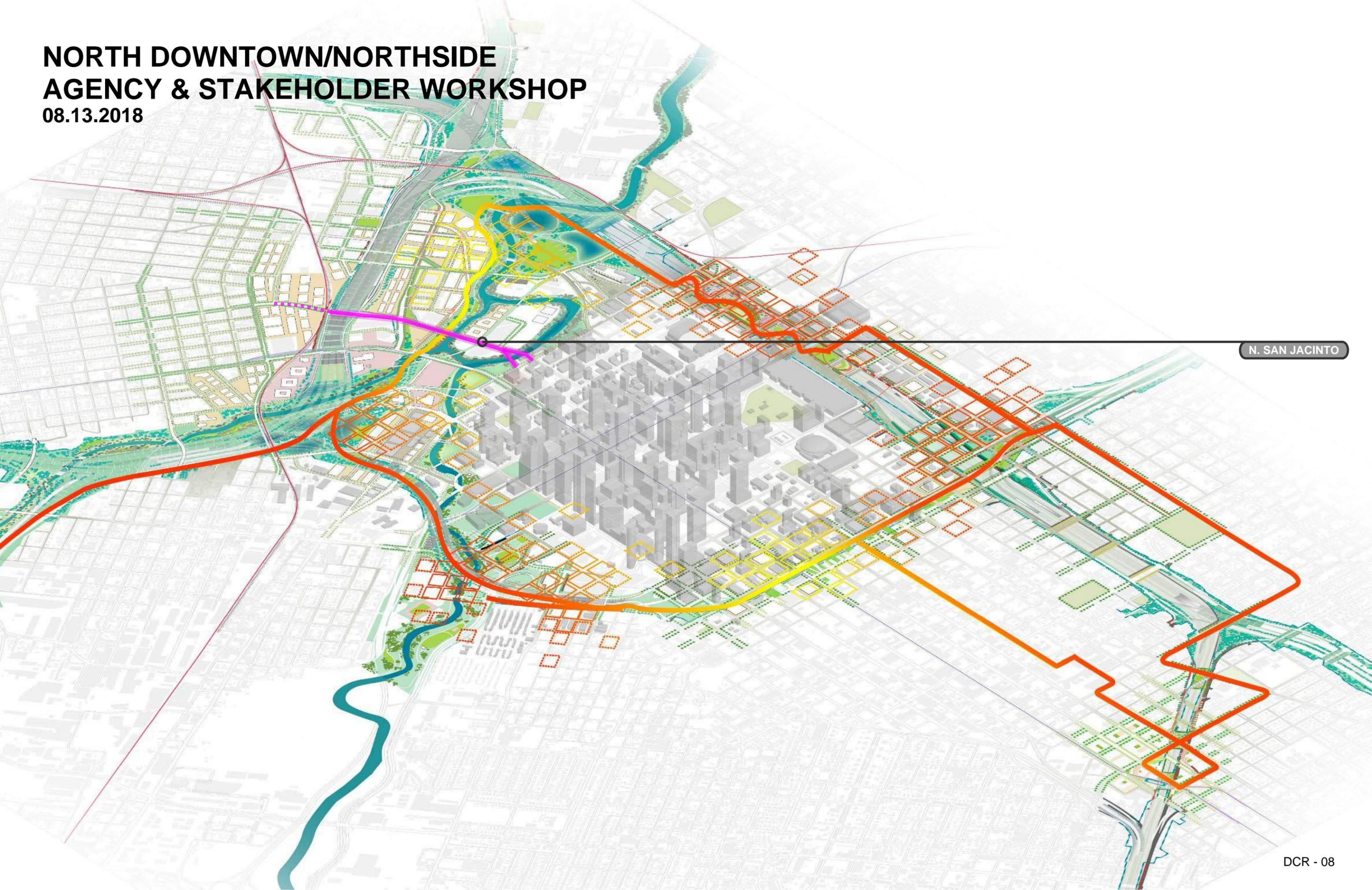
Vision Plan



- Right-of-way
- District Development Opportunity
- Multi-Modal Intersections
- Proposed Rail Realignment
- Open Green Space
- Water Detention
- New Buildings
- Existing METRO Rail

NORTH DOWNTOWN/NORTHSIDE AGENCY & STAKEHOLDER WORKSHOP

08.13.2018

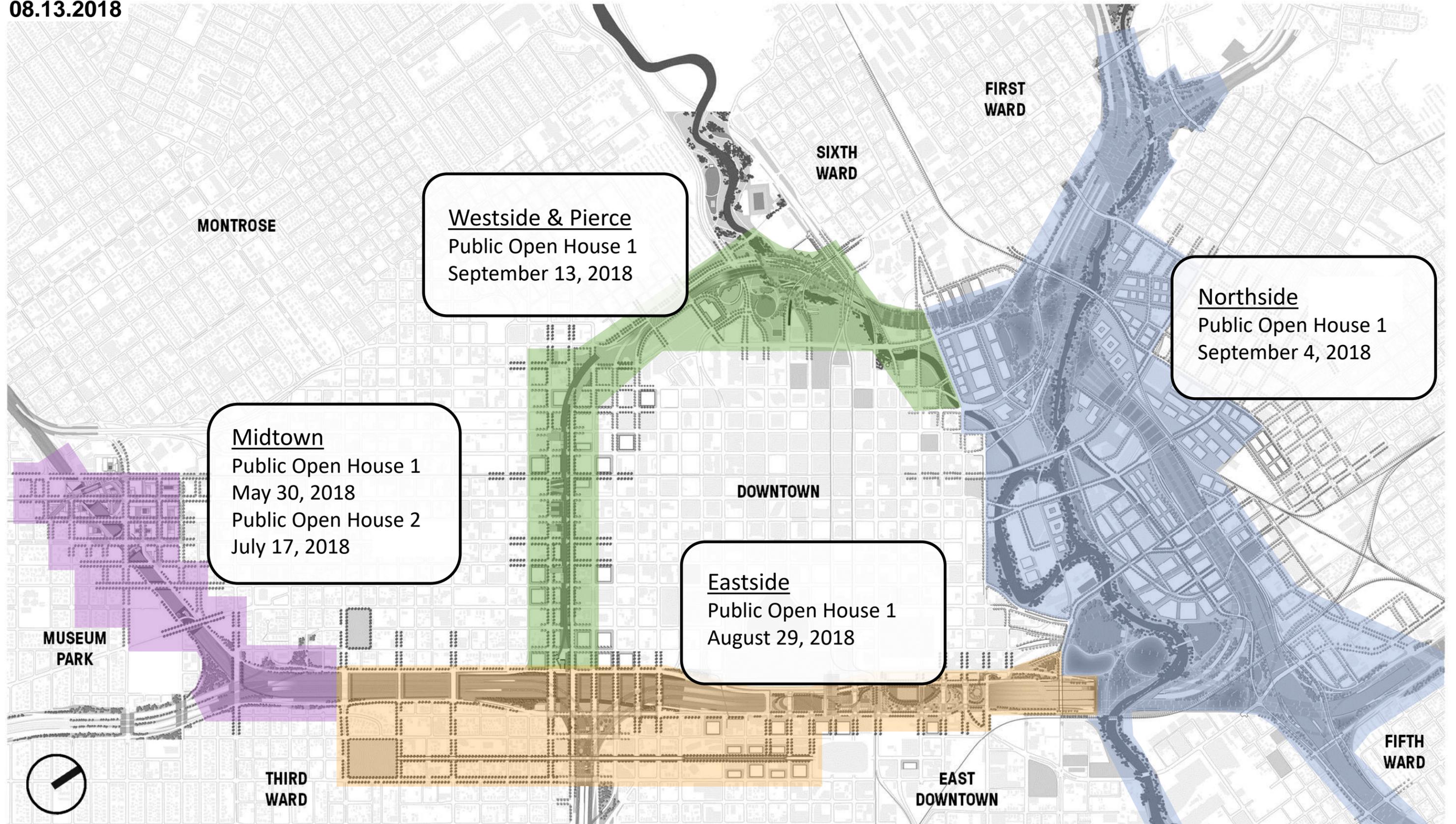


N. SAN JACINTO

NORTH DOWNTOWN/NORTHSIDE AGENCY & STAKEHOLDER WORKSHOP

08.13.2018

Public Workshop Schedule



31: Fifth Ward / Lyons Avenue Connectivity To Downtown

Conectividad de la Avenida Lyons y Fifth Ward

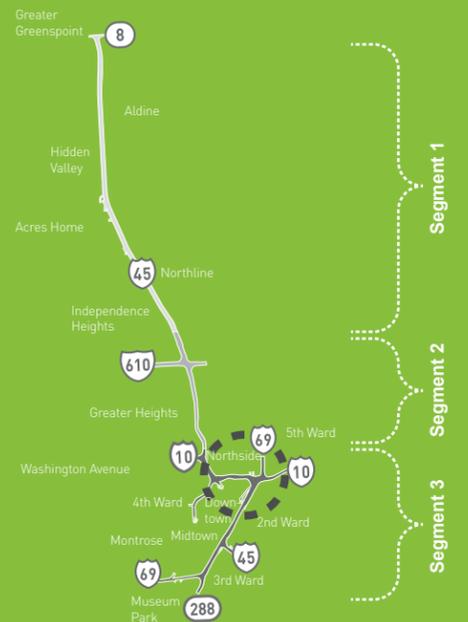
Description:

Lyons Avenue is the main street of historic Fifth Ward, a neighborhood impacted by the NHHIP. The Fifth Ward connectivity to Downtown is limited, impacted by prior freeway construction. Currently, Lyons Avenue dead-ends abruptly in an obscure area without a direct connection across I-10. Three alternatives have been developed to enhance the connection of Lyons Avenue to Downtown.

Also Addresses:

Traffic

Key:



We Heard:

Lyons Avenue is the main thoroughfare that runs east and west through our historic community. It is frequently used to drive into the downtown area by residents and other stakeholders

...Evaluate the option to clean up transition from Lyons to McKee to make smoother and more legible.

TxDOT Proposed

The TxDOT NHHIP project maintains all connections across I-10 and the proposed re-aligned I-45 from Lyons Avenue to the south.

PROS

- Maintains existing conditions and connections

CONS

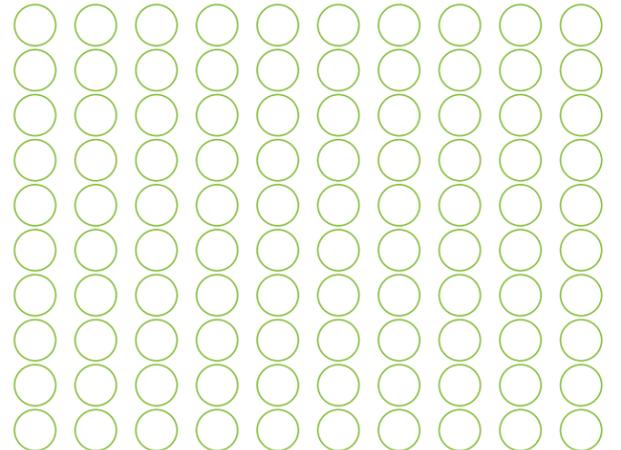
- Re-alignment of I-45 creates a greater visual and symbolic barrier between areas north of the I-10 and I-45 alignment, including Fifth Ward, Lyons Avenue, and Downtown



Give us your input.

Put your #31 sticker on the alternative you prefer.

TxDOT Proposal



Alternative 31.1: Extend Lyons Avenue West to Main Street

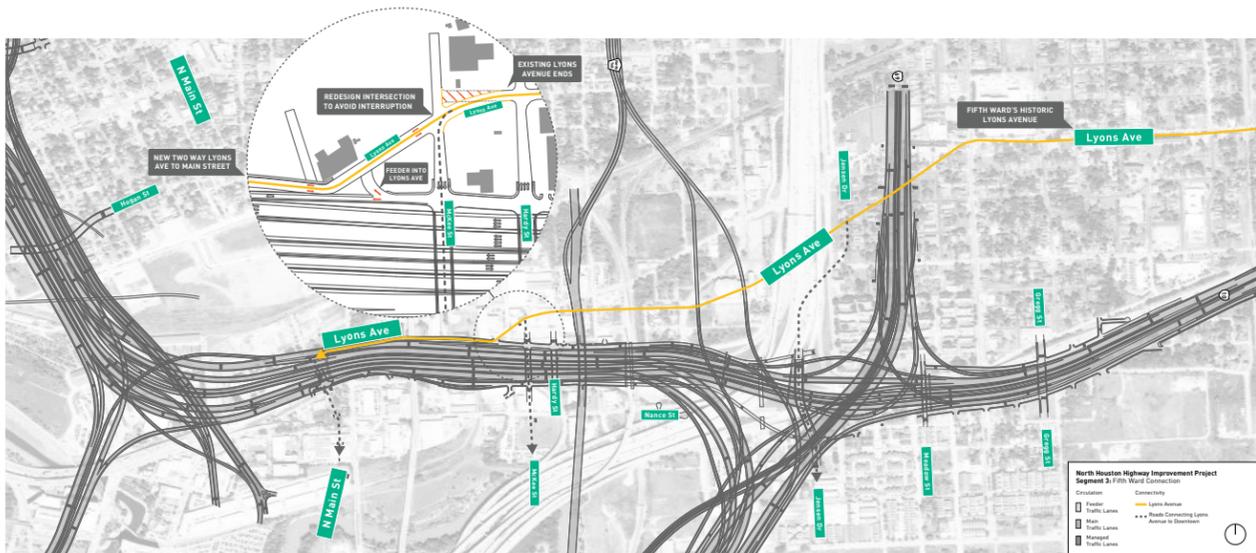
Alternative 31.1 proposes the extension of Lyons Avenue west to North Main Street, with a direct connection to Lyons Avenue from the I-10/I-45 frontage road just west of McKee Street.

PROS

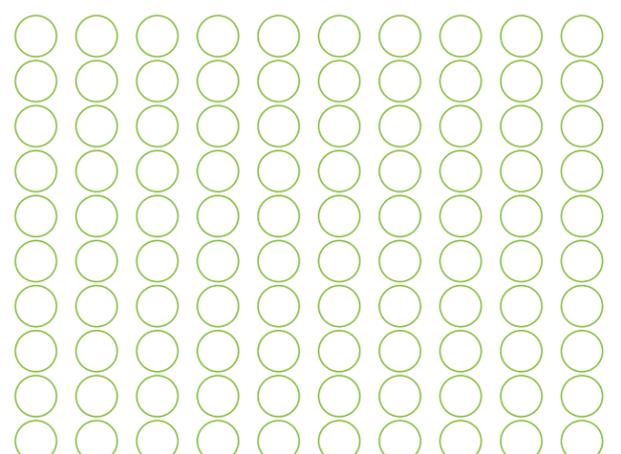
- Extends Lyons Avenue (two-way street) west to Main Street
- Improves the symbolic and physical connectivity between Fifth Ward and Downtown
- Makes the process of accessing Downtown via Lyons Avenue less complicated
- Improves the dead end intersection at Lyons Avenue and McKee Street

CONS

- Introduces potentially dangerous two-way traffic to the frontage road between McKee Street and N Main Street



Alternative 31.1 - Extend Lyons Ave. West to Main Street



31 : Fifth Ward / Lyons Avenue Connectivity To Downtown (Cont.)

Conectividad de la Avenida Lyons y Fifth Ward (Continuación)

Alternative 31.2: Extend Lyons Avenue South

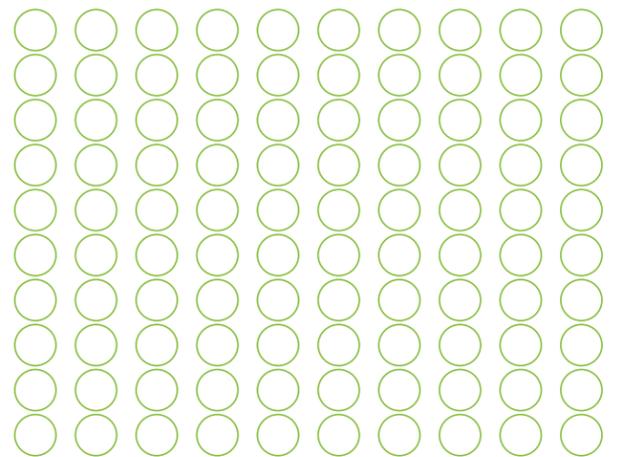
Alternative 31.2 proposes a re-designed intersection at Lyons Avenue and McKee Street, and the extension of Lyons Avenue (along the current McKee Street alignment) south to Downtown. The proposed Lyons Avenue extension south and the McKee/Hardy alignment become two-way streets.

- PROS**
- Extends Lyons Avenue (two-way street) south along the McKee Street alignment directly into Downtown
 - Improves the symbolic and physical connectivity between Fifth Ward and Downtown
 - Makes the process of accessing Downtown via Lyons Avenue as direct as possible
 - Improves the dead end intersection at Lyons Avenue and McKee Street

- CONS**
- Process and potential impacts of changing street names and addresses
 - Transforms McKee Street and Hardy Street from one-way streets into a combined two-way street



Alternative 31.2 - Extend Lyons Ave. South

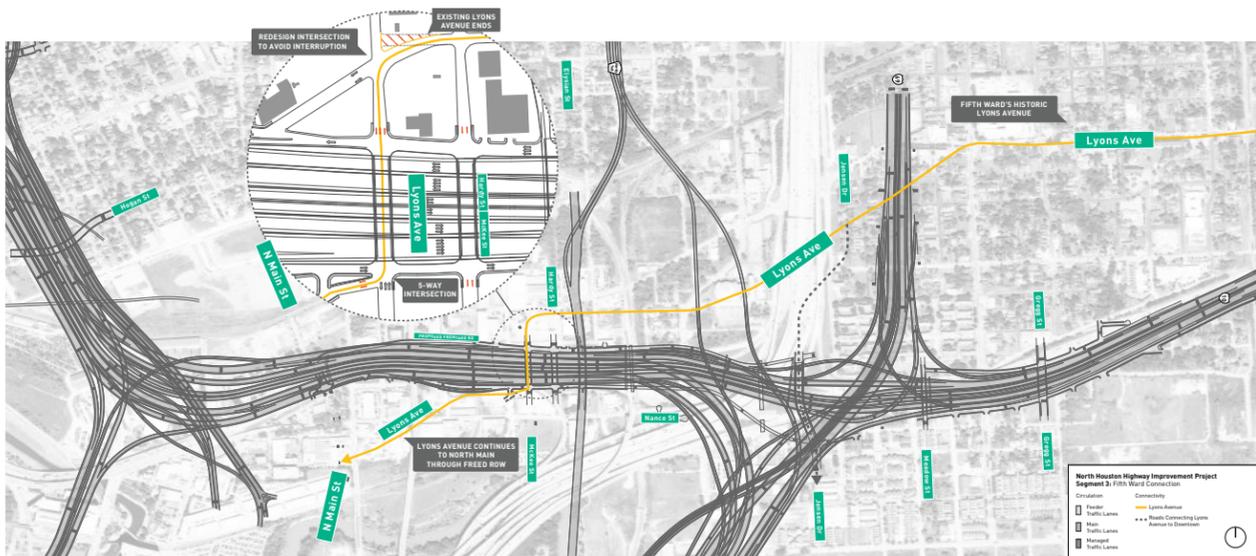


Alternative 31.3: Extend Lyons Avenue South and West

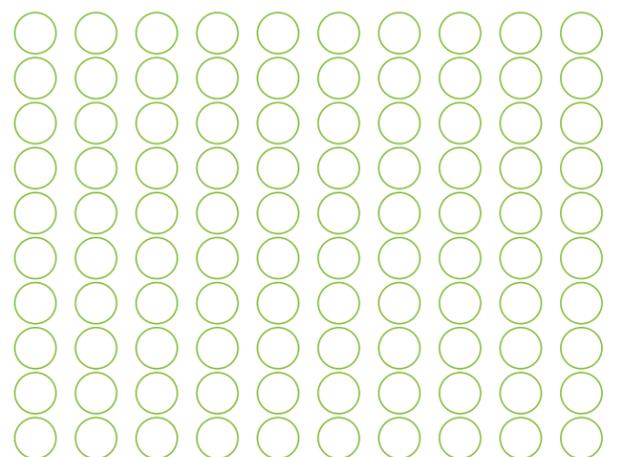
Alternative 31.3 proposes a re-designed intersection at Lyons Avenue and McKee Street, extending Lyons Avenue south along the McKee Street. Alignment into Downtown and then west to Main Street in the "north island" area of Downtown where the prior I-10 right-of-way was located.

- PROS**
- Extends Lyons Avenue south along the McKee Street alignment directly into Downtown
 - Improves the symbolic and physical connectivity between Fifth Ward and Downtown
 - Improves the dead end intersection at Lyons Avenue and McKee Street
 - Utilizes prior freeway right-of-way for new connections
 - Lyons Avenue crosses the freeway into Downtown.

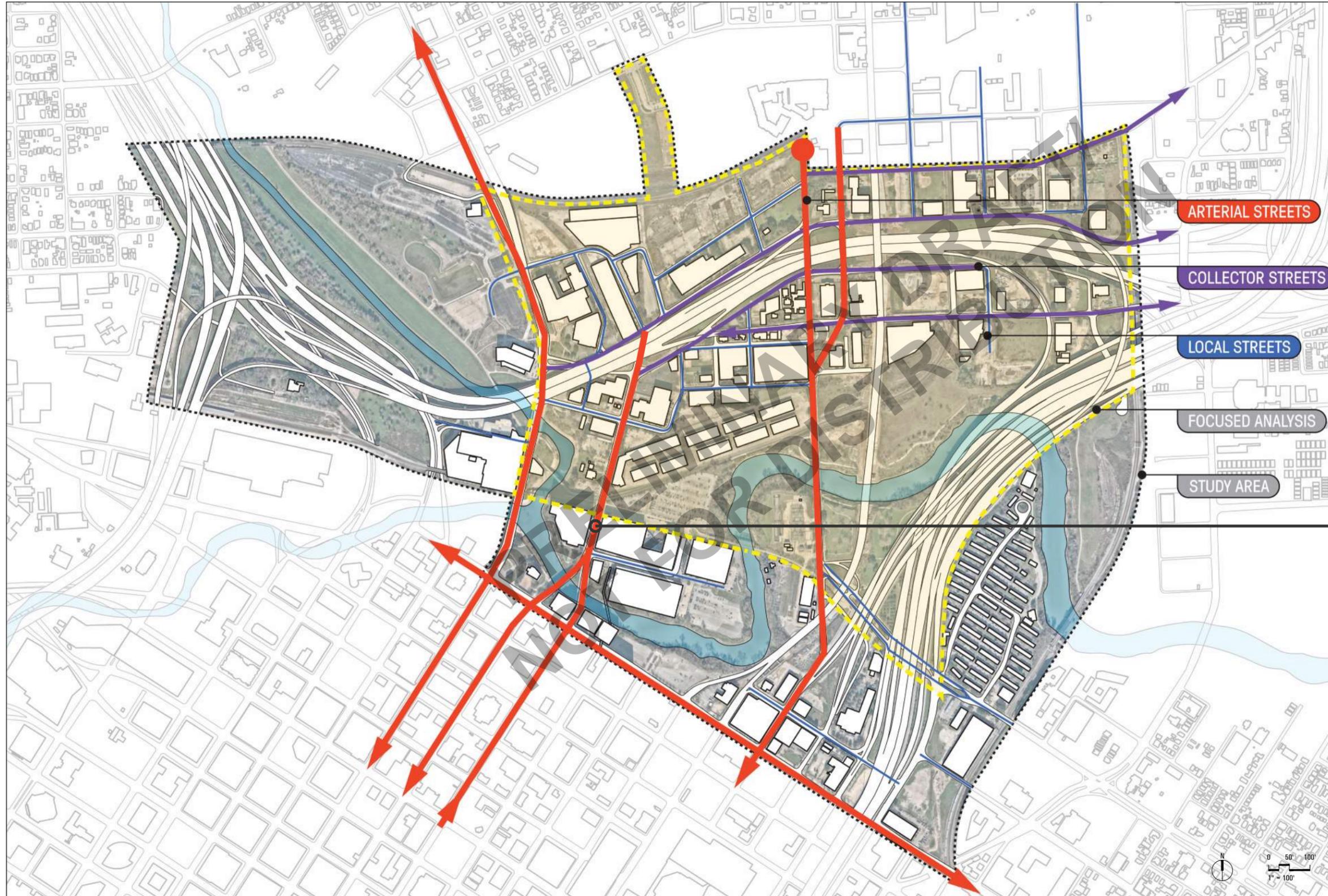
- CONS**
- Process and potential impacts of changing street names and addresses
 - 5-way intersection at McKee Street and I-10/ I-45 Frontage Road



Alternative 31.3 - Extend Lyons Ave. South and West



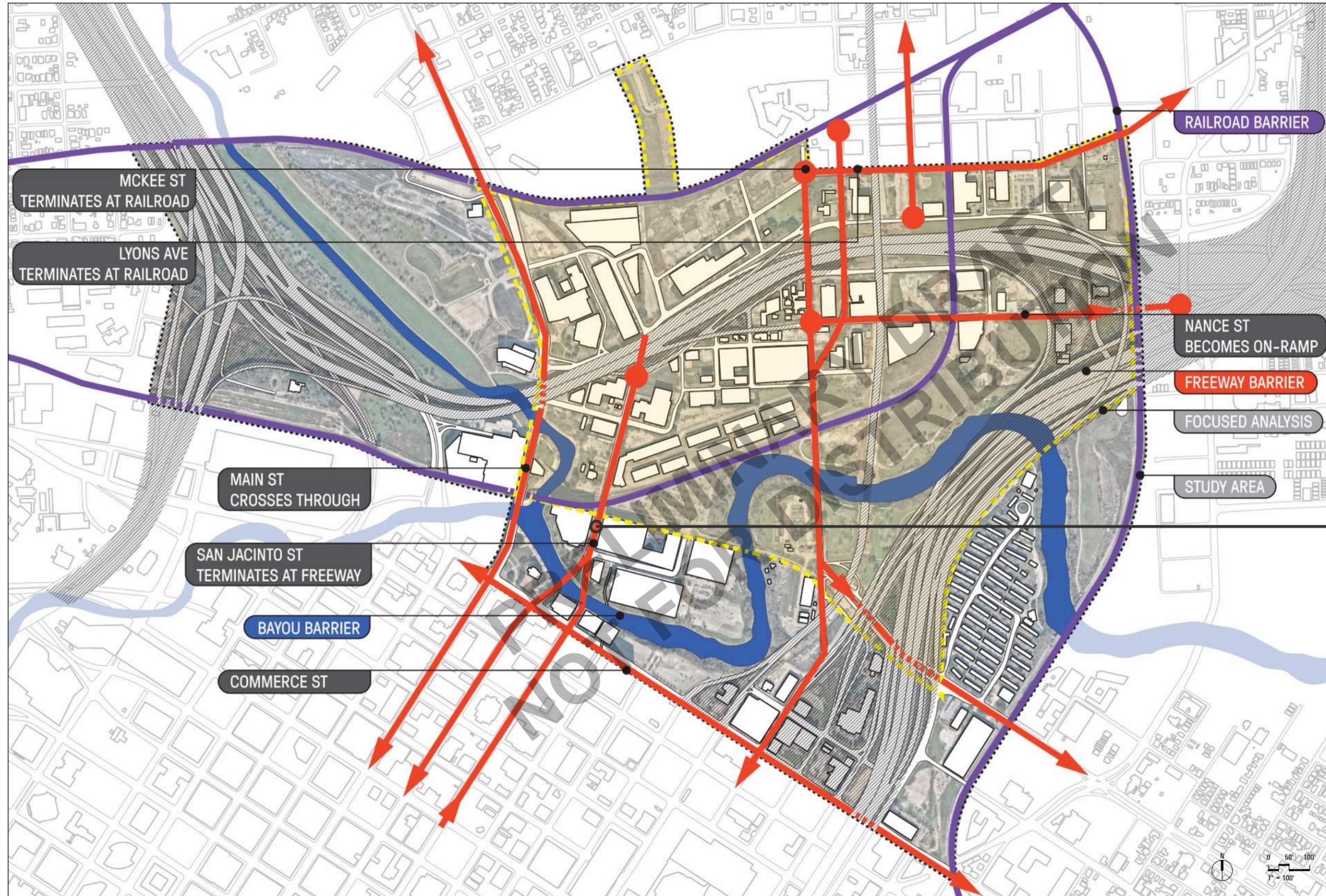
Street Hierarchy



STREET TYPOLOGIES

There are three primary typologies for streets within the Warehouse district, while each street is unique in character. The primary arterial streets, mainly run north south to bring people to and from downtown Houston. Collector streets bring traffic from the local streets to the arterial streets and lastly local streets serves as both ancillary and service streets. Streets often change in lane width, access to street parking, sidewalks, trees or lighting. A thorough analysis of individual streets is included in this chapter to give light to the unique conditions.

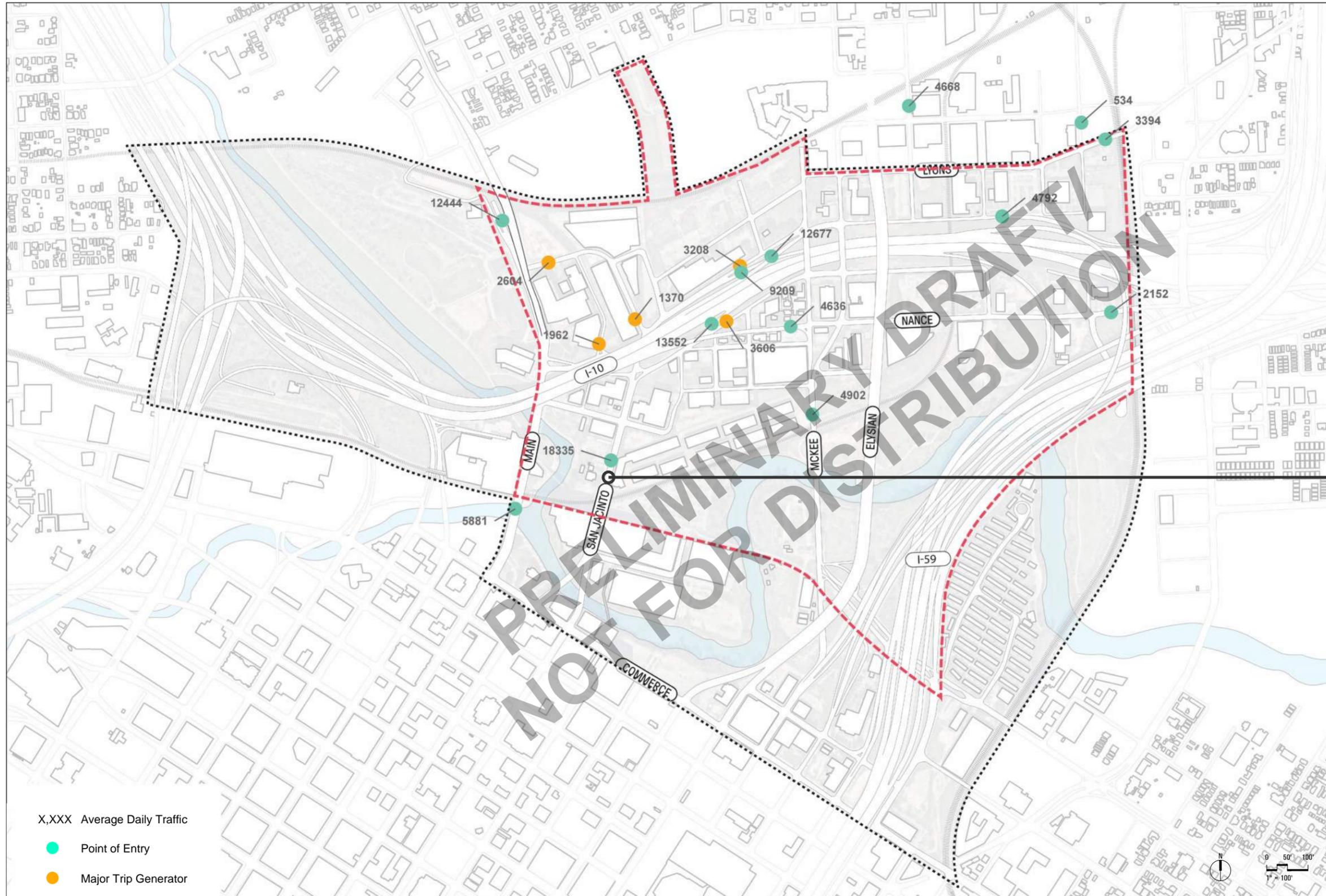
Barriers and Connections



ASSESSING CONNECTIVITY
There is limited connectivity to nearby neighborhoods and within the district. Several natural and infrastructural elements create barriers around and through the district such as the Bayous, Railroads and Freeways.

DRAFT

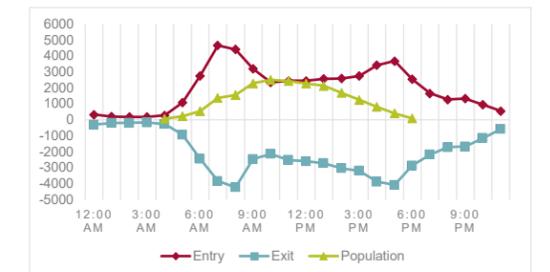
Traffic Volumes



24HR TRAFFIC COUNTS

Most roadways within the Warehouse District have low traffic volumes, partly due to deficient transportation infrastructure. 24-hour traffic counts were collected on March 3, 2020 at each entry/exit point to understand the hourly variation of traffic volumes within the Warehouse District. Hourly variation of 24-hour traffic counts is provided as Figure 1. The cumulative difference of entry and exit volumes can be used to estimate the number (population) of vehicles within the district. As shown in Figure 1, most vehicle activity within the district is from 4:30am to 7:00pm.

Figure 1: Hourly Variation of 24-Hour Traffic Counts



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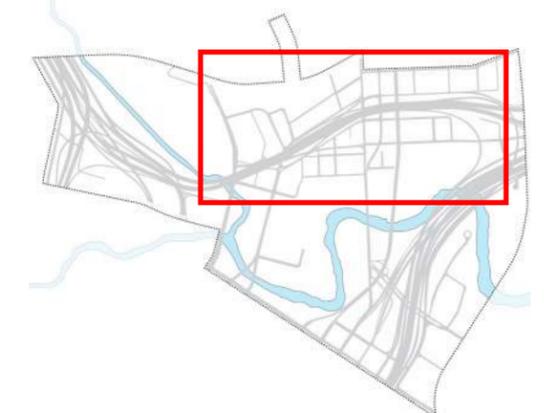
Peak Volumes



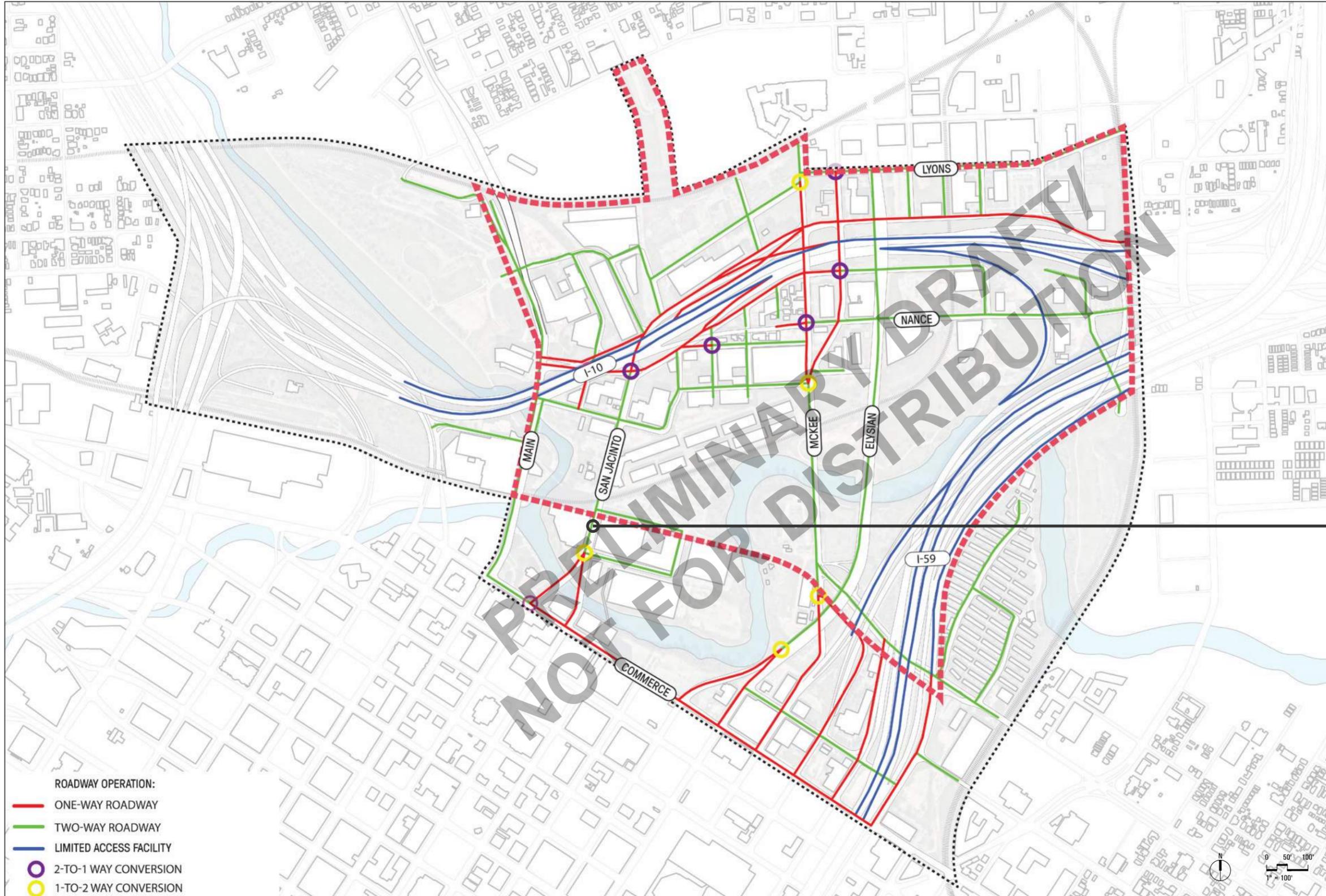
PM PEAK HOUR VOLUMES
As traffic volumes are low within the district, only three intersections are signalized, and the remaining intersections (approximately 50) are two-way stop controlled. Peak hour turning movement counts were collected at signalized intersections and major stop-controlled intersections. These counts were checked against adjacent intersection volumes and 24-hour counts for accuracy and, where data was not collected, traffic volumes were estimated based on traffic patterns. Year 2020 existing PM peak hour turning movement counts (adjusted) at focused study area intersections are provided.

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ENLARGEMENT KEY



Roadway Operation

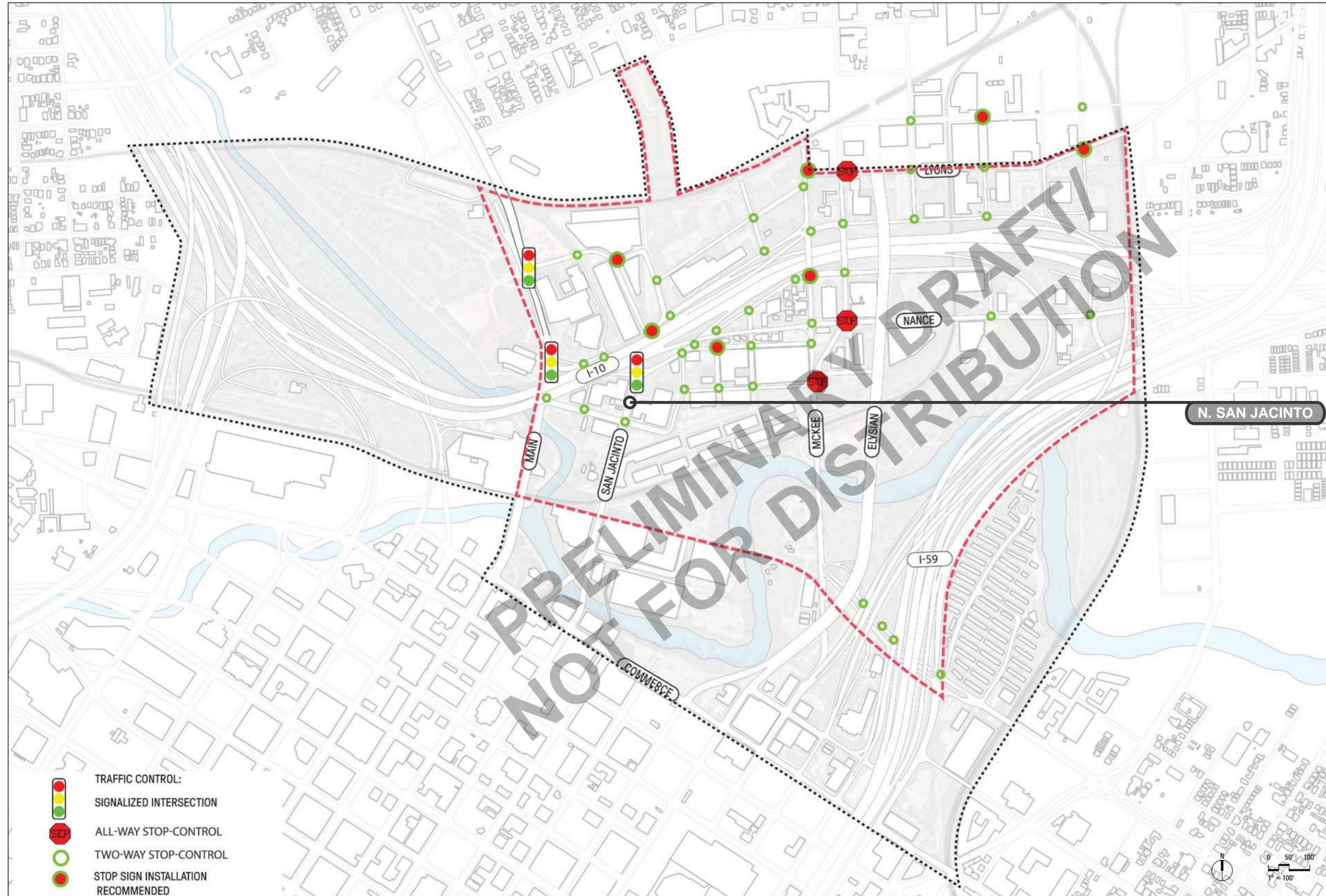


ROADWAY OPERATION

The district is bisected by the IH 10 freeway which limits north-south connectivity as few roadways cross IH 10. From west to east, IH 10 is above-grade crossing Main, Vine, and San Jacinto/Providence. IH 10 is then briefly at-grade allowing on- and off-ramp connections and terminates Walnut, Richey, William, and Chapman. IH 10 is then below-grade crossing McKee and Hardy. The other two roadway crossing IH 10 are Elysian, which bridges over IH 10 and Buffalo Bayou, and Jensen, located east of the study area.

In addition to IH 10, Main street also changes grade. From south to north, Main street begins at-grade at Commerce. Main bridges over Buffalo Bayou, continues elevated adjacent to UH Downtown, and returns to grade at Wood. Main remains at-grade until crossing the railroad below grade north of Naylor. Additionally, Providence is below grade crossing a railroad along the eastern boundary of the site.

Intersection Traffic Control



TRAFFIC CONTROL

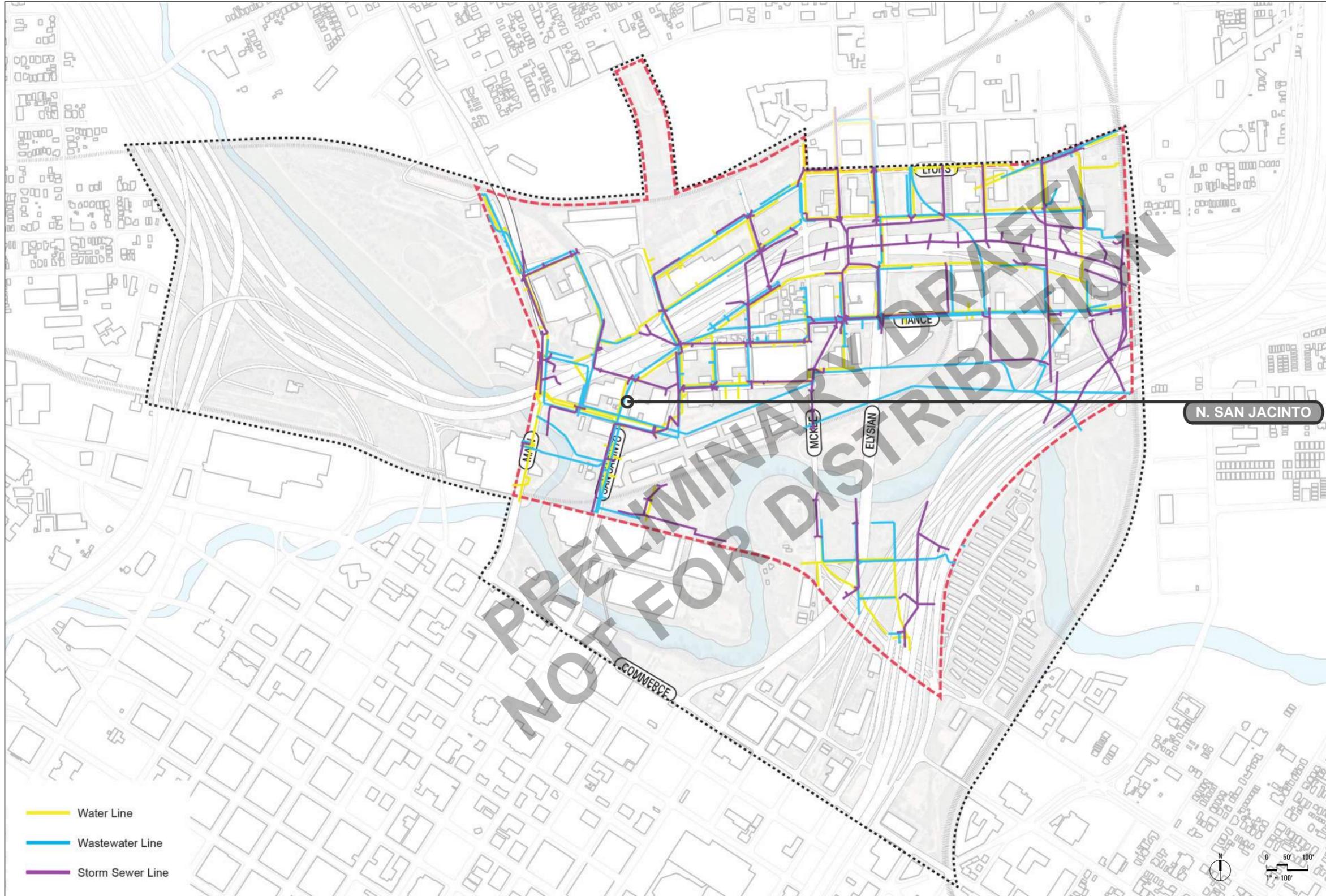
For purposes of this section, intersection traffic control refers to classification of devices used to control traffic at intersections as either two-way stop controlled, all-way stop controlled, or traffic signal controlled. An intersection is two-way stop controlled when one intersecting roadway is stopped while the other roadway is uncontrolled (free to keep moving). An intersection is all-way stop controlled when both intersecting roadways are stopped. An intersection is traffic signal controlled if a traffic signal directs traffic. Of the 54 intersections in the study area, three are traffic signal controlled (Main Street & Naylor Street, Main Street & Rothwell Street & Providence Street, N San Jacinto Street & Rothwell Street), three are all-way stop controlled (Hardy Street & Lyons Avenue, Hardy Street & Nance Street, McKee Street & Sterrett Street), and the remaining 44 intersections are two-way stop controlled.

Stop signs were absent at five intersections in the study area and are recommended to be installed:

- Jackson Street/Naylor Street & Conti Street – Add stop sign to northbound approach
- Lyons Avenue & McKee Street – Add stop sign to westbound approach
- West Street & Lyons Avenue – Add stop sign to northbound approach
- Providence Street & Jackson Street – Add stop sign to southbound approach
- Semmes Street & Opelousas Street – Add stop sign to eastbound approach

Additionally, stop signs should be considered at two other locations as currently, varying traffic control is used at opposing approaches of the same intersection. This configuration is atypical although is not an explicit violation of the Texas Manual on Uniform Traffic Control Devices.

- Richey Street & Nance Street – Add stop sign to eastbound approach
- McKee Street & IH 10 Off-Ramp/Nance Street – Add stop sign to eastbound approach



EXISTING UTILITY INVENTORY

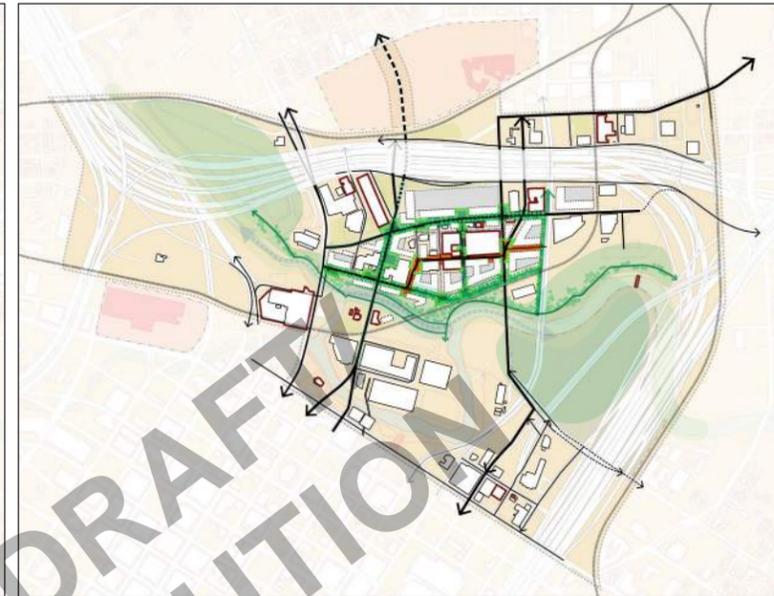
Warehouse District existing utilities services are comprised of water, wastewater and stormwater lines, all of which are shown in Exhibit B. In total, there are 122,138 linear feet (LF) of pipelines of various sizes and 542 manholes throughout the area (see Table 2). The northern portion of the district and the undeveloped area near the bayou appear either sparsely serviced or unserved by these systems. Further analysis determined that the existing systems are not adequate for all current and future infrastructure needs.

Table 2: Warehouse District Existing Utility Inventory

Utility Type	Existing Conditions Utilities	
	Pipe Length Linear Feet	Manhole Count No.
Water Line	37,883	229
Wastewater Line	43,321	175
Storm Sewer Line	40,934	142
Total	122,138	542

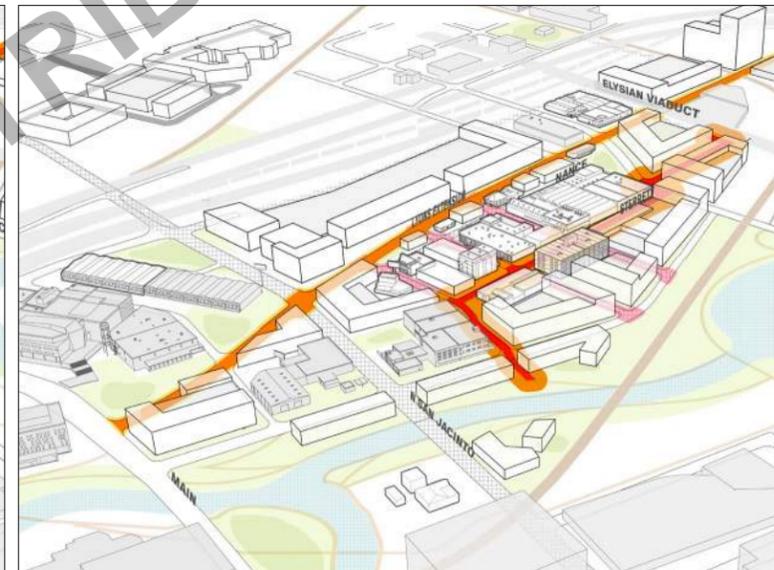
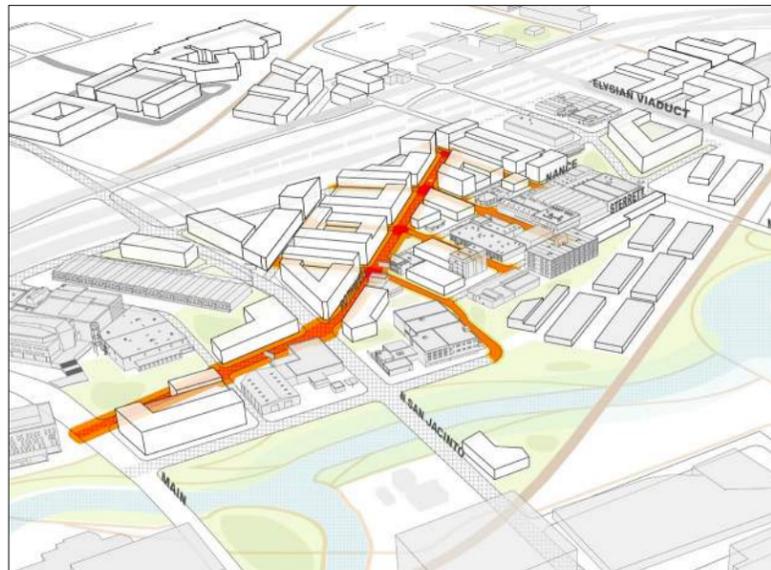
Framework Planning Scenarios

Three framework planning scenarios accommodate different street connectivity and development options based on the disposition of TXDOT surplus right-of-way.



FRAMEWORK OPTIONS
All frameworks aim to densify activity within the core of the Warehouse District. The frameworks consider planning scenarios that improve neighborhood connectivity and identity.

DRAFT



ROTHWELL ROW

Rothwell Row framework looks at a scenario prior to highway construction in which TxDOT will hand over to the City the original rows prior to highway construction. This would occur when TxDOT's surplus right-of-way is abandoned, in which case the 1940s rows would then merge with existing right-of-way alignments outside of the TxDOT surplus right-of-way.

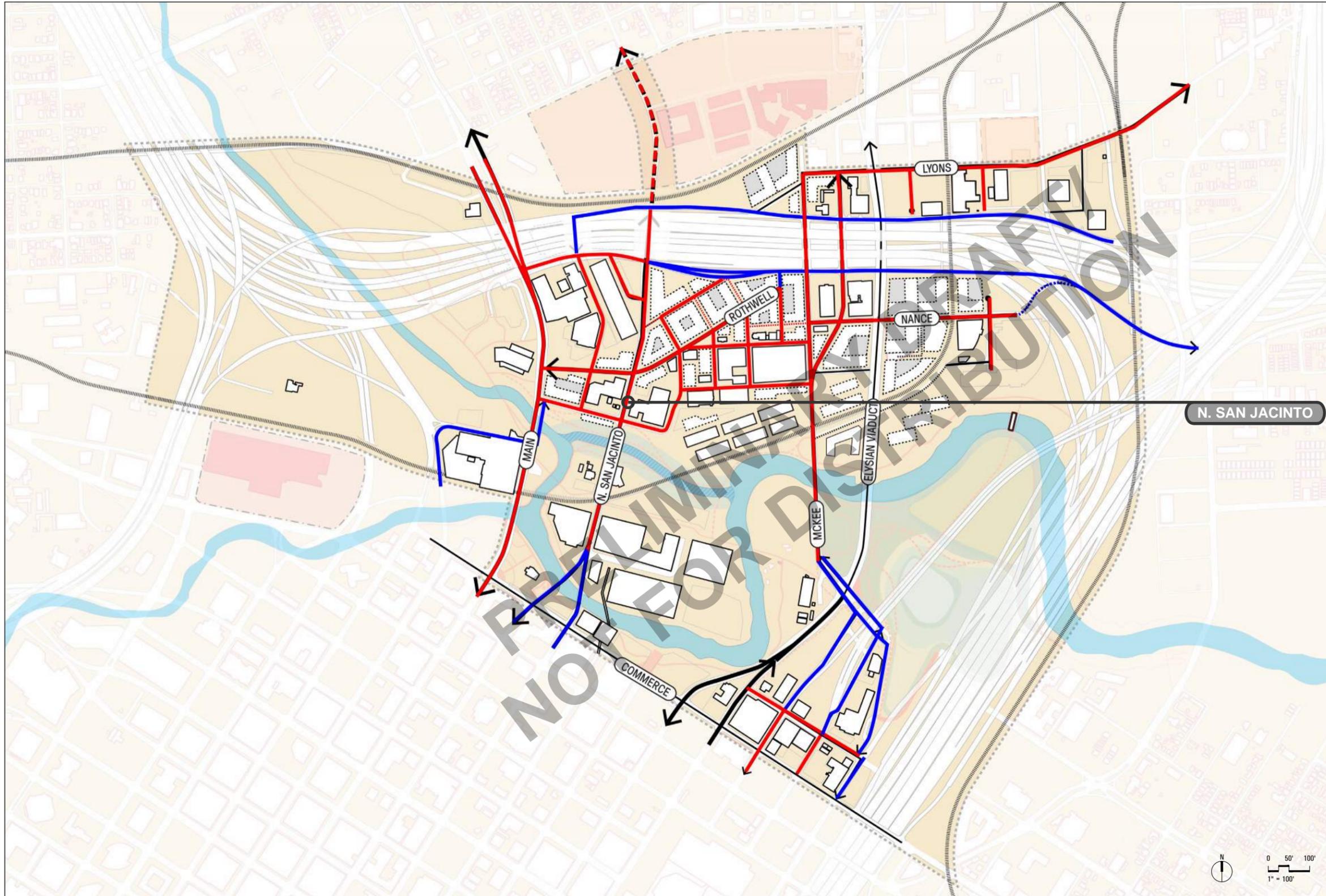
NANCE/LYONS PROMENADE

Nance / Lyons Promenade framework proposes an alignment that continues down on McKee St. and starts a New Lyons along the corridor where the exit ramp currently is. This creates new development potential north of New Lyons in between North San Jacinto Street and McKee St. This framework creates an active promenade at core of the district providing strong neighborhood connectivity.

Sterrett Stroll Framework Plan

Sterrett Stroll framework proposes to relocate METRO's facility using the same framework base as Lyons/Nance Promenade - which proposes private development in the same parcel. Here, a liner mixed use program along METRO's facility is proposed to maintain street activity. METRO's relocation allows for new development opportunities and improvements along North Canal, bayou's edge, and Sterrett St.

Rothwell Row Traffic



TRAFFIC NOTES

Two connections are proposed, San Jacinto underpass and Nance-Jensen connection. The San Jacinto underpass connects downtown, Warehouse District, and Near Northside neighborhood. A key benefit of the underpass is that it provides access to I-10 from Near Northside. The at-grade connection allows westbound traffic from I-10 to enter the Warehouse District at San Jacinto, similar to the current configuration. As part of this extension/underpass, an eastbound-to-westbound U-turn should be considered at McKee between frontage roads to provide capacity for added traffic as a result of the San Jacinto underpass. The framework also proposes a one-way, eastbound, below-grade connection from Nance to Jensen. East of Semmes, Nance will be a de facto one-way entrance ramp and merge with I-10 EBFR below grade. The I-10 EBFR is a two-lane, one-way facility and is depressed east of Elysian. The one-lane Jensen connection will merge with the two-lane EBFR similar to an on-ramp. The proposed Nance-Jensen connection will be adjacent to the I-10 EBFR before the BNSF railroad. The proposed Nance-Jensen connection would pass beneath freeway main lanes and direct connectors; a reverse curve is required to circumvent the embankment of proposed roadways.

Within this framework the McKee-Hardy one-way couplet is proposed to be converted to two two-way roadways. In this configuration:

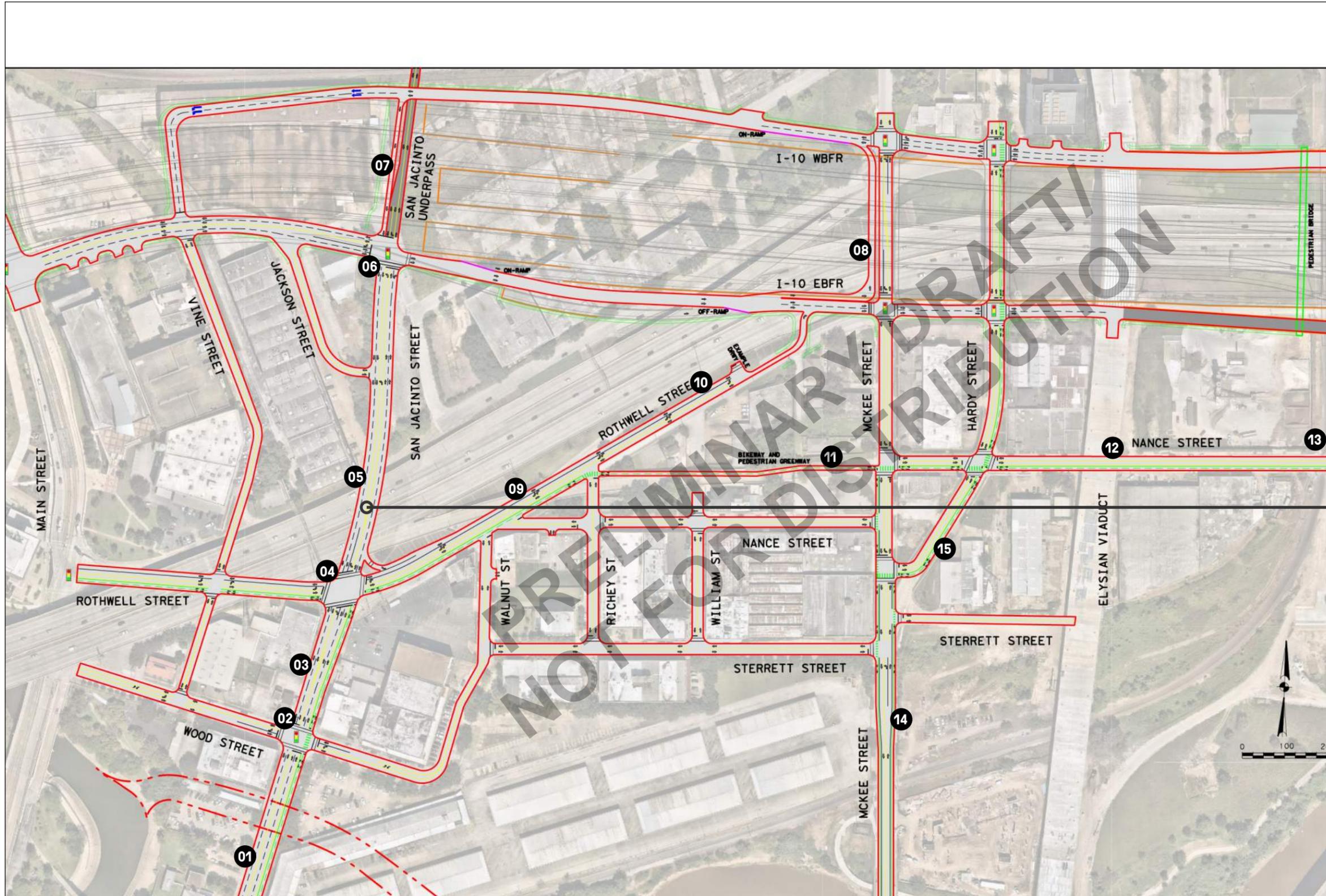
- McKee will be the primary north-south connection for vehicles.
- Existing bicycle facilities will be maintained along Hardy.
- And Hardy will be used primarily for access to adjacent development.

The roadway network along this framework is oriented along existing I-10:

- In this framework, instead of Lyons, Rothwell is the major east-west connection.
- Rothwell will connect Main to Charles, and Charles will intersect the EBFR.

- ONE-WAY
- TWO-WAY

Rothwell Row



TRANSPORTATION NOTES

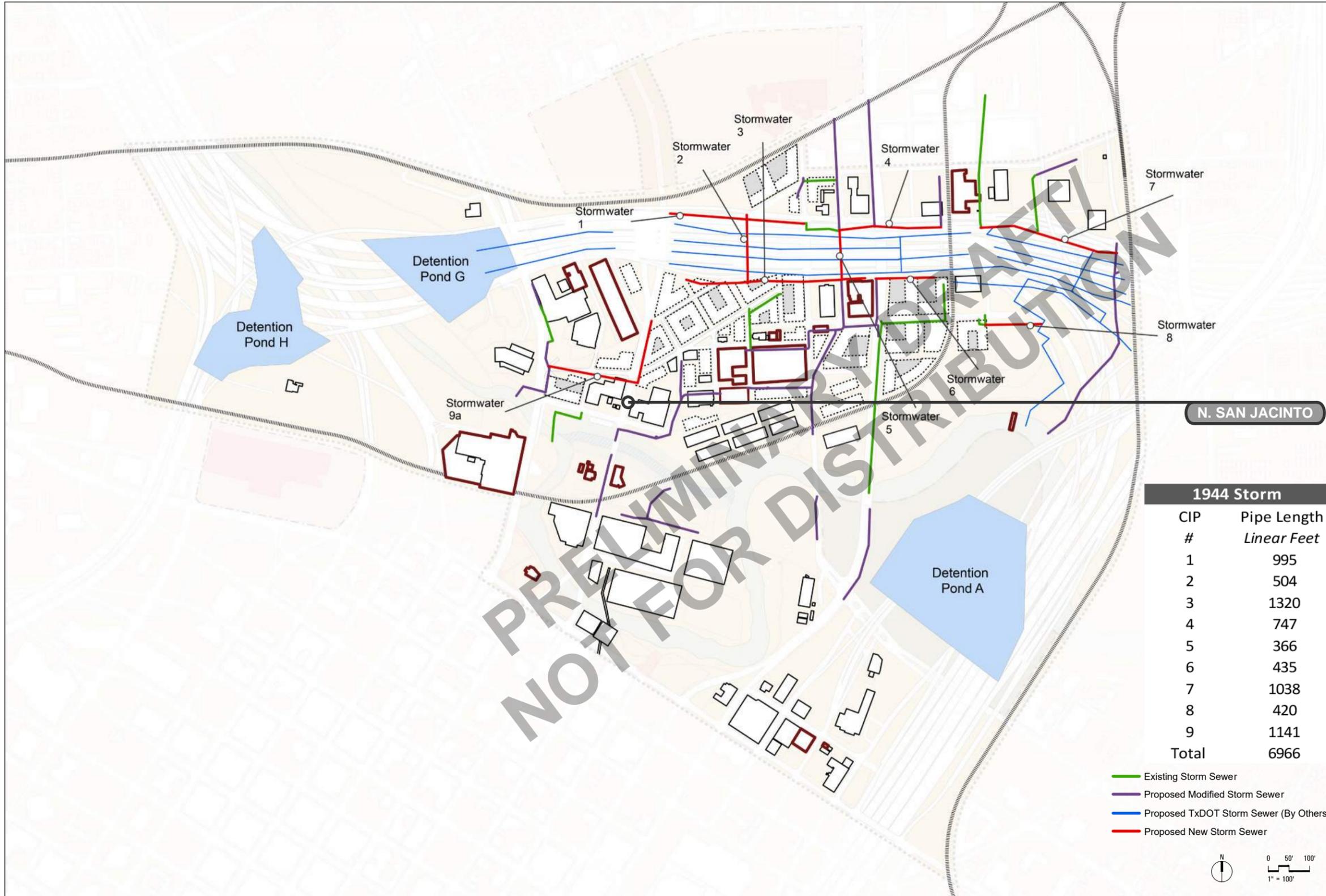
Transportation CIP List numbered on this exhibit is outlined on the CIP List exhibit.

- 01 Reconstruct San Jacinto
- 02 Traffic Signal
- 03 Widen San Jacinto
- 04 Traffic Signal
- 05 Construct San Jacinto Extension
- 06 Traffic Signal
- 07 Construct San Jacinto Underpass
- 08 Construct U-turn
- 09 Reconstruct Rothwell
- 10 Reconstruct Rothwell
- 11 Construct Nance Greenway
- 12 Widen Nance
- 13 Construct Nance-Jensen Connection
- 14 Widen McKee
- 15 Widen Hardy

N. SAN JACINTO

- CURB (EDGE OF TRAVEL WAY)
- TRAVEL WAY (AT-GRADE)
- TRAVEL WAY (BELOW-GRADE)
- CENTERLINE PAVEMENT MARKINGS
- TRAVEL LANE PAVEMENT MARKINGS
- BICYCLE PAVEMENT MARKINGS
- EXISTING RIGHT-OF-WAY (APPROX)
- PROPOSED RIGHT-OF-WAY (APPROX)
- ← DIRECTION OF TRAVEL

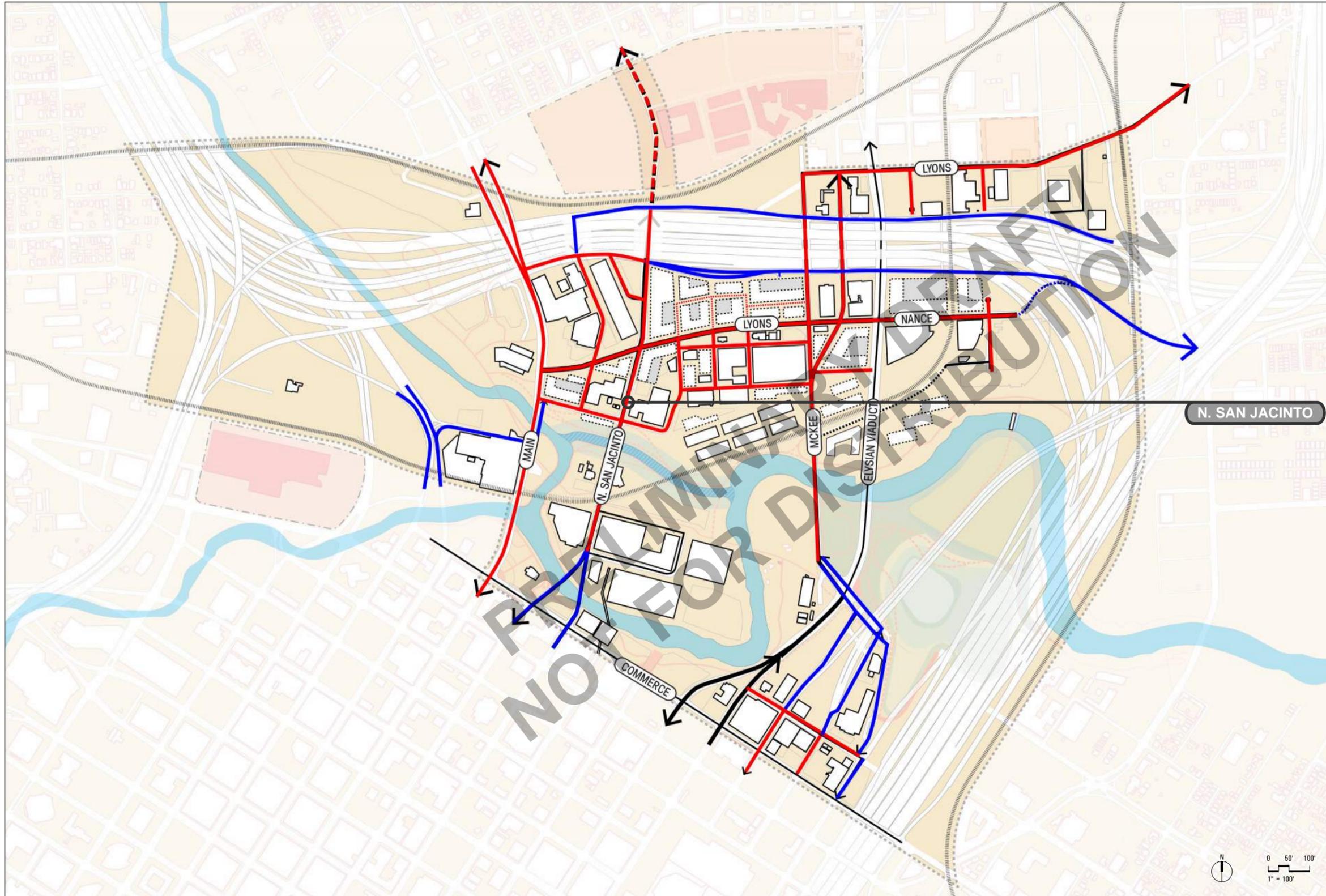
Stormwater Assessment - Rothwell Row



UTILITY NOTES

- Stormwater 1944 #1: This proposed storm sewer will collect stormwater on the north side of the Interstate-10 expansion, west of McKee Street.
- Stormwater 1944 #2: This proposed storm sewer will connect Stormwater 1944 #1 and Stormwater 1944 #3 to convey stormwater beneath Interstate-10 to eventually outfall into Buffalo Bayou at the Elysian Street outfall.
- Stormwater 1944 #3: This proposed storm sewer will collect stormwater on the south side of the Interstate-10 expansion, between San Jacinto Street and Elysian Street.
- Stormwater 1944 #4: This proposed storm sewer will collect stormwater on the north side of the Interstate-10 expansion, between Hardy Street and the railroad east of Maury Street.
- Stormwater 1944 #5: This proposed storm sewer will connect Stormwater 1944 #4 and Stormwater 1944 #6 to convey stormwater beneath Interstate-10 along Hardy Street. This storm sewer will allow for the eventual conveyance of stormwater to Buffalo Bayou at Elysian Street.
- Stormwater 1944 #6: This proposed storm sewer will collect water on the south side of the Interstate-10 expansion between Elysian Street and the railroad east of Maury Street.
- Stormwater 1944 #7: This proposed storm sewer will collect stormwater on the north side of the Interstate-10 expansion, between Semmes Street and the eastern border of the Warehouse District.
- Stormwater 1944 #8: This proposed storm sewer will connect an existing storm sewer to the proposed TxDOT storm sewer designed by others.
- Stormwater 1944 #9: This proposed storm sewer will connect to an existing storm sewer on Main Street and collect stormwater along Rothwell Street and San Jacinto Street.

Lyons/Nance Promenade Traffic

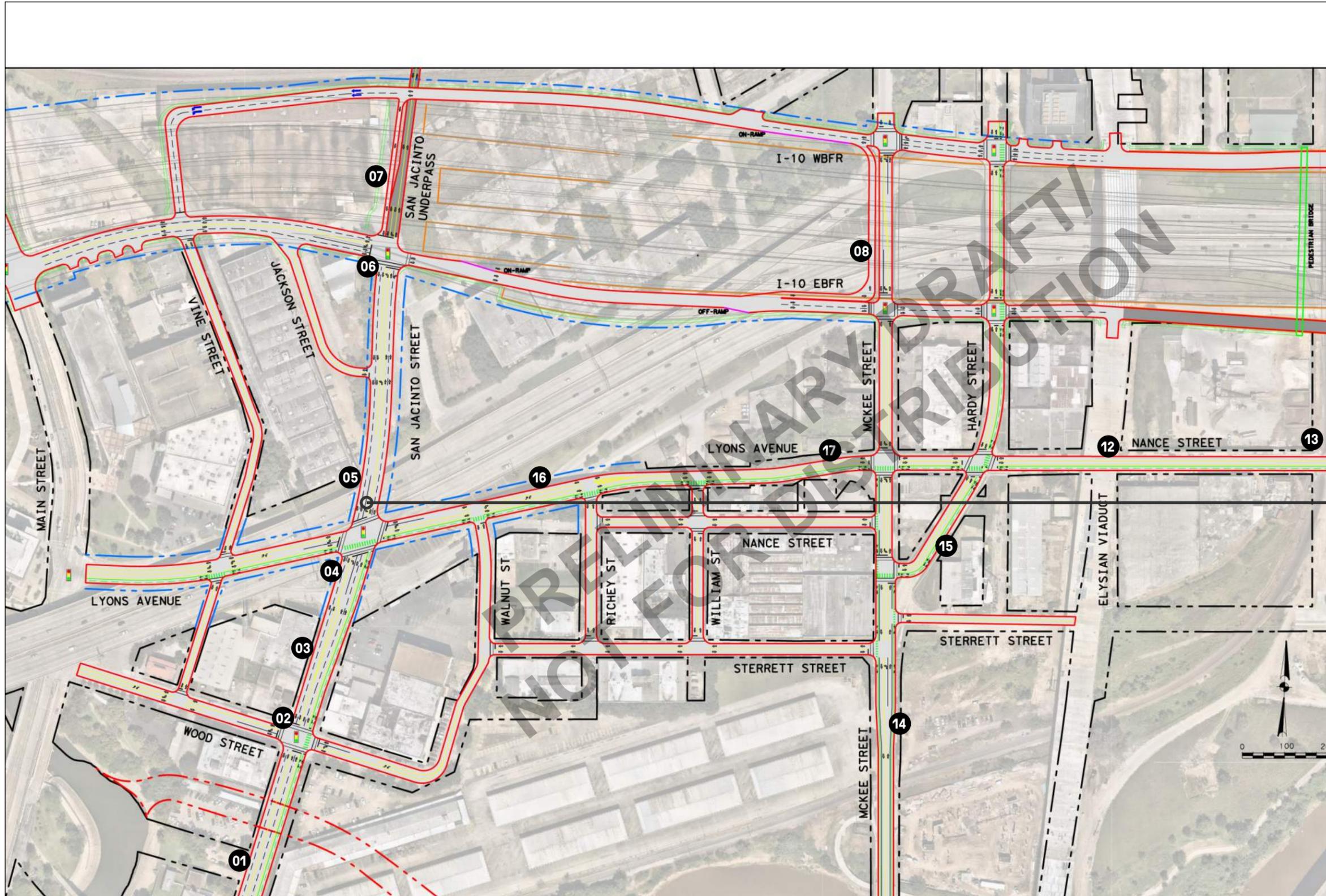


TRAFFIC NOTES

Two connections are proposed, San Jacinto underpass and Nance-Jensen connection. The San Jacinto underpass connects downtown, Warehouse District, and Near Northside neighborhood. A key benefit of the underpass is that it provides access to I-10 from Near Northside. The at-grade connection allows westbound traffic from I-10 to enter the Warehouse District at San Jacinto, similar to the current configuration. As part of this extension/underpass, an eastbound-to-westbound U-turn should be considered at McKee between frontage roads to provide capacity for added traffic as a result of the San Jacinto underpass. The framework also proposes a one-way, eastbound, below-grade connection from Nance to Jensen. East of Semmes, Nance will be a de facto one-way entrance ramp and merge with I-10 EBFR below grade. The I-10 EBFR is a two-lane, one-way facility and is depressed east of Elysian. The one-lane Jensen connection will merge with the two-lane EBFR similar to an on-ramp. The proposed Nance-Jensen connection will be adjacent to the I-10 EBFR before the BNSF railroad. The proposed Nance-Jensen connection would pass beneath freeway main lanes and direct connectors; a reverse curve is required to circumvent the embankment of proposed roadways.

Within this framework Lyons is proposed within existing I-10 ROW which will connect Main to McKee. This framework configuration also creates development potential between I-10 and Lyons.

Lyons/Nance Promenade



TRANSPORTATION NOTES

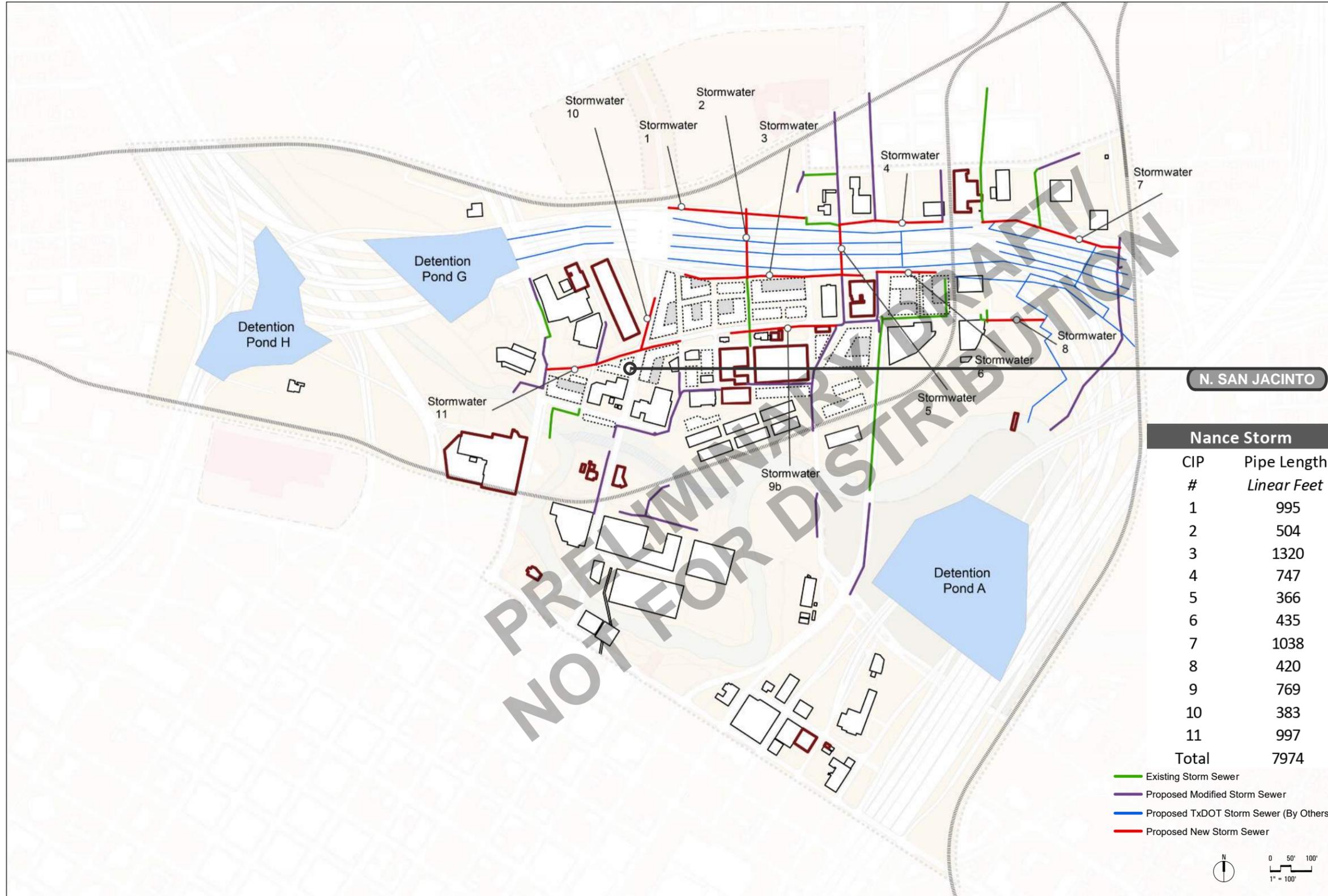
Transportation CIP List numbered on this exhibit is outlined on the CIP List exhibit.

- 01 Reconstruct San Jacinto
- 02 Traffic Signal
- 03 Widen San Jacinto
- 04 Traffic Signal
- 05 Construct San Jacinto Extension
- 06 Traffic Signal
- 07 Construct San Jacinto Underpass
- 08 Construct U-turn
- 12 Widen Nance
- 13 Construct Nance-Jensen Connection
- 14 Widen McKee
- 15 Widen Hardy
- 16 Construct Lyons
- 17 Widen Lyons

N. SAN JACINTO

- CURB (EDGE OF TRAVEL WAY)
- TRAVEL WAY (AT-GRADE)
- TRAVEL WAY (BELOW-GRADE)
- CENTERLINE PAVEMENT MARKINGS
- TRAVEL LANE PAVEMENT MARKINGS
- BICYCLE PAVEMENT MARKINGS
- EXISTING RIGHT-OF-WAY (APPROX)
- PROPOSED RIGHT-OF-WAY (APPROX)
- ← DIRECTION OF TRAVEL

Stormwater Assessment - Lyons/Nance Promenade

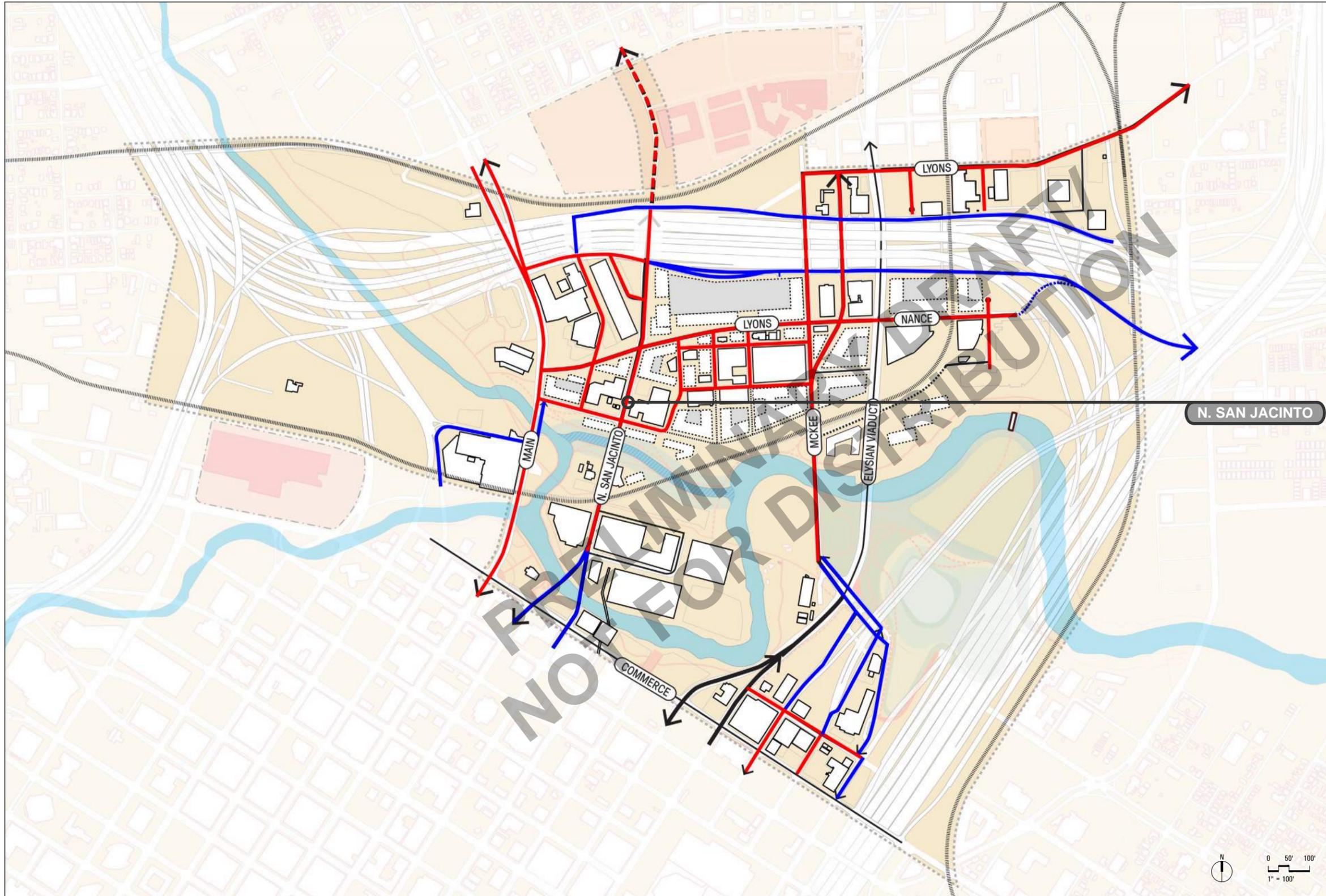


Nance Storm	
CIP #	Pipe Length Linear Feet
1	995
2	504
3	1320
4	747
5	366
6	435
7	1038
8	420
9	769
10	383
11	997
Total	7974

UTILITY NOTES

- Stormwater Nance #1: This proposed storm sewer will collect stormwater on the north side of the Interstate-10 expansion, west of McKee Street.
- Stormwater Nance #2: This proposed storm sewer will connect Stormwater Nance #1 and Stormwater Nance #3 to convey stormwater beneath Interstate-10 to eventually outfall into Buffalo Bayou at the Elysian Street outfall.
- Stormwater Nance #3: This proposed storm sewer will collect stormwater on the south side of the Interstate-10 expansion, between San Jacinto Street and Elysian Street.
- Stormwater Nance #4: This proposed storm sewer will collect stormwater on the north side of the Interstate-10 expansion, between Hardy Street and the railroad east of Maury Street.
- Stormwater Nance #5: This proposed storm sewer will connect Stormwater Nance #4 and Stormwater Nance #6 to convey stormwater beneath Interstate-10 along Hardy Street. This storm sewer will allow for the eventual conveyance of stormwater to Buffalo Bayou at Elysian Street.
- Stormwater Nance #6: This proposed storm sewer will collect water on the south side of the Interstate-10 expansion between Elysian Street and the railroad east of Maury Street.
- Stormwater Nance #7: This proposed storm sewer will collect stormwater on the north side of the Interstate-10 expansion, between Semmes Street and the eastern border of the Warehouse District.
- Stormwater Nance #8: This proposed storm sewer will connect an existing storm sewer to the proposed TxDOT storm sewer designed by others.
- Stormwater Nance #9: This proposed storm sewer will connect to two existing storm sewers, one along William Street, and another along Hardy Street, to collect stormwater along Nance Street and eventually convey stormwater to Buffalo Bayou via Elysian Street.
- Stormwater Nance #10: This proposed storm sewer will connect to Stormwater Nance #11 to collect stormwater on San Jacinto Street.

Sterrett Stroll Traffic

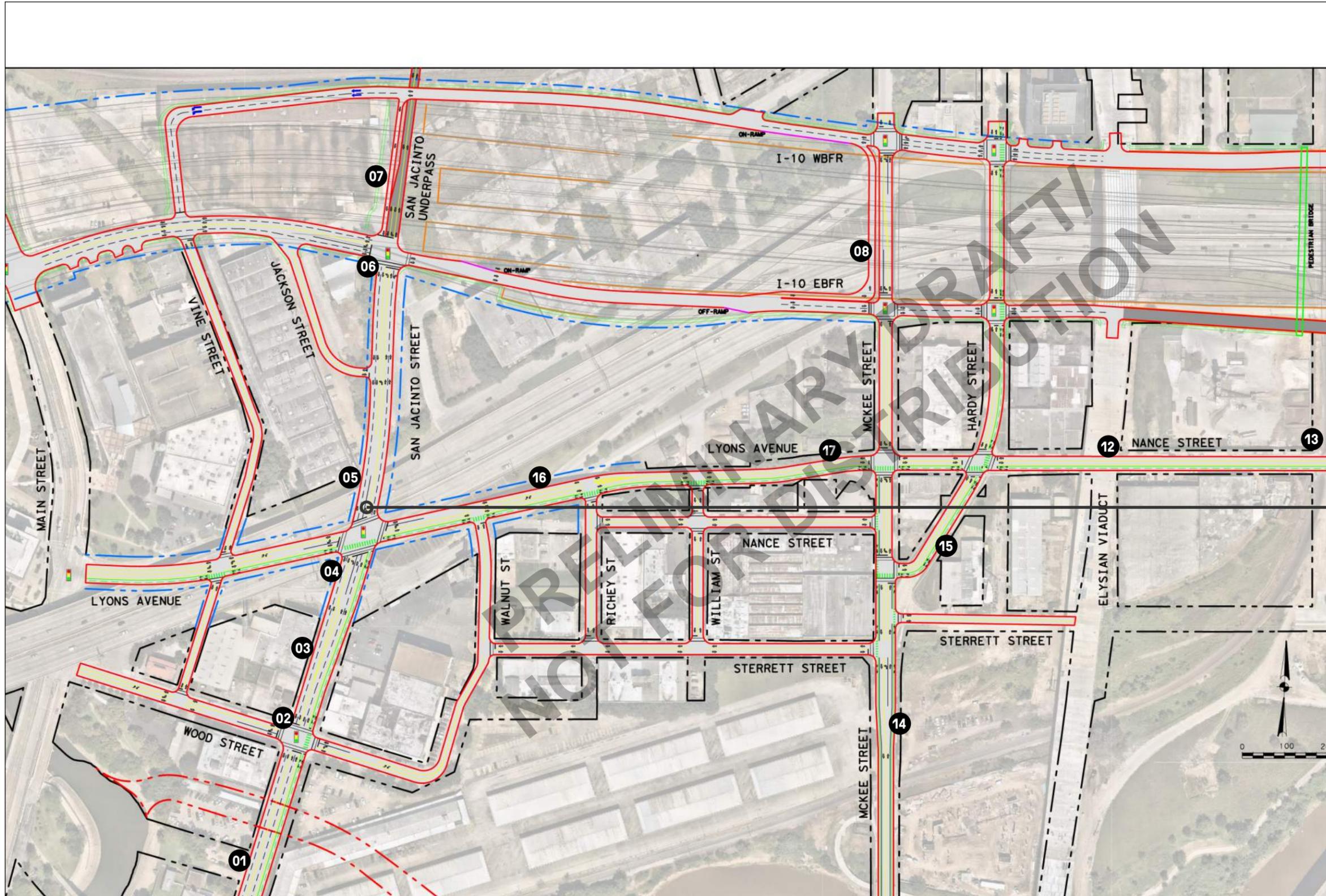


TRAFFIC NOTES

Two connections are proposed, San Jacinto underpass and Nance-Jensen connection. The San Jacinto underpass connects downtown, Warehouse District, and Near Northside neighborhood. A key benefit of the underpass is that it provides access to I-10 from Near Northside. The at-grade connection allows westbound traffic from I-10 to enter the Warehouse District at San Jacinto, similar to the current configuration. As part of this extension/underpass, an eastbound-to-westbound U-turn should be considered at McKee between frontage roads to provide capacity for added traffic as a result of the San Jacinto underpass. The framework also proposes a one-way, eastbound, below-grade connection from Nance to Jensen. East of Semmes, Nance will be a de facto one-way entrance ramp and merge with I-10 EBFR below grade. The I-10 EBFR is a two-lane, one-way facility and is depressed east of Elysian. The one-lane Jensen connection will merge with the two-lane EBFR similar to an on-ramp. The proposed Nance-Jensen connection will be adjacent to the I-10 EBFR before the BNSF railroad. The proposed Nance-Jensen connection would pass beneath freeway main lanes and direct connectors; a reverse curve is required to circumvent the embankment of proposed roadways.

Within this framework Lyons is proposed within existing I-10 ROW which will connect Main to McKee. This framework configuration also creates development potential between I-10 and Lyons.

Sterrett Stroll



TRANSPORTATION NOTES

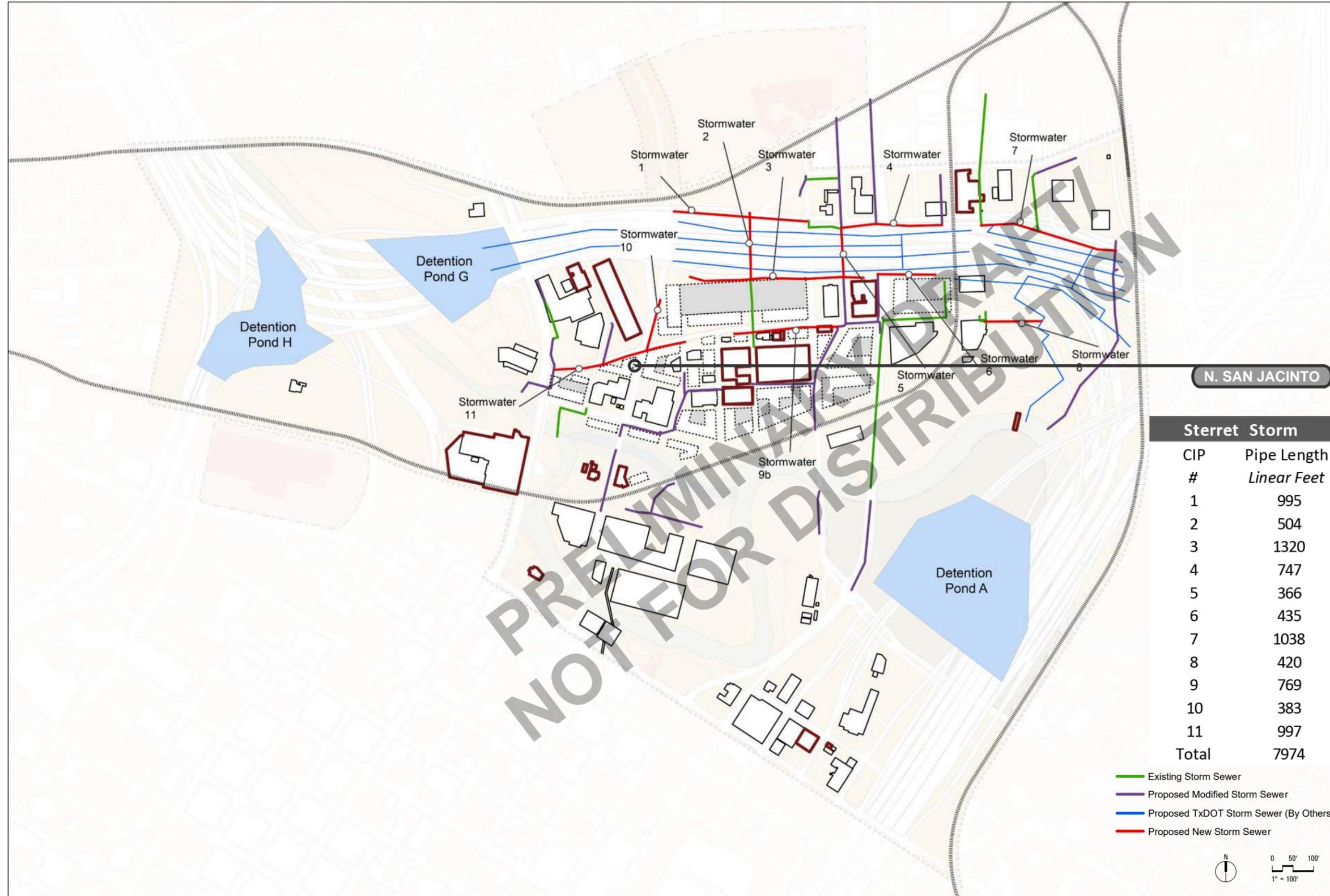
Transportation CIP List numbered on this exhibit is outlined on the CIP List exhibit.

- 01 Reconstruct San Jacinto
- 02 Traffic Signal
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- 17 Widen Lyons

N. SAN JACINTO

- CURB (EDGE OF TRAVEL WAY)
- TRAVEL WAY (AT-GRADE)
- TRAVEL WAY (BELOW-GRADE)
- CENTERLINE PAVEMENT MARKINGS
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- BICYCLE PAVEMENT MARKINGS
- EXISTING RIGHT-OF-WAY (APPROX)
- PROPOSED RIGHT-OF-WAY (APPROX)
- ← DIRECTION OF TRAVEL

Stormwater Assessment - Sterrett Stroll



UTILITY NOTES

- Stormwater Sterrett #1: This proposed storm sewer will collect stormwater on the north side of the Interstate-10 expansion, west of McKee Street.
- Stormwater Sterrett #2: This proposed storm sewer will connect Stormwater Sterrett #1 and Stormwater Sterrett #3 to convey stormwater beneath Interstate-10 to eventually outfall into Buffalo Bayou at the Elysian Street outfall.
- Stormwater Sterrett #3: This proposed storm sewer will collect stormwater on the south side of the Interstate-10 expansion, between San Jacinto Street and Elysian Street.
- Stormwater Sterrett #4: This proposed storm sewer will collect stormwater on the north side of the Interstate-10 expansion, between Hardy Street and the railroad east of Maury Street.
- Stormwater Sterrett #5: This proposed storm sewer will connect Stormwater Sterrett #4 and Stormwater Sterrett #6 to convey stormwater beneath Interstate-10 along Hardy Street. This storm sewer will allow for the eventual conveyance of stormwater to Buffalo Bayou at Elysian Street.
- Stormwater Sterrett #6: This proposed storm sewer will collect water on the south side of the Interstate-10 expansion between Elysian Street and the railroad east of Maury Street.
- Stormwater Sterrett #7: This proposed storm sewer will collect stormwater on the north side of the Interstate-10 expansion, between Semmes Street and the eastern border of the Warehouse District.
- Stormwater Sterrett #8: This proposed storm sewer will connect an existing storm sewer to the proposed TxDOT storm sewer designed by others.
- Stormwater Sterrett #9: This proposed storm sewer will connect to two existing storm sewers, one along William Street, and another along Hardy Street, to collect stormwater along Nance Street and eventually convey stormwater to Buffalo Bayou via Elysian Street.
- Stormwater Sterrett #10: This proposed storm sewer will connect to Stormwater Sterrett #11 to collect stormwater on San Jacinto Street.
- Stormwater Sterrett #11: This proposed storm sewer will connect to an existing storm sewer on Main Street and Stormwater Sterrett #10 in order to collect stormwater along Nance Street. This storm sewer will convey stormwater into Buffalo Bayou through the existing storm sewer on Main Street.

Section: San Jacinto St.



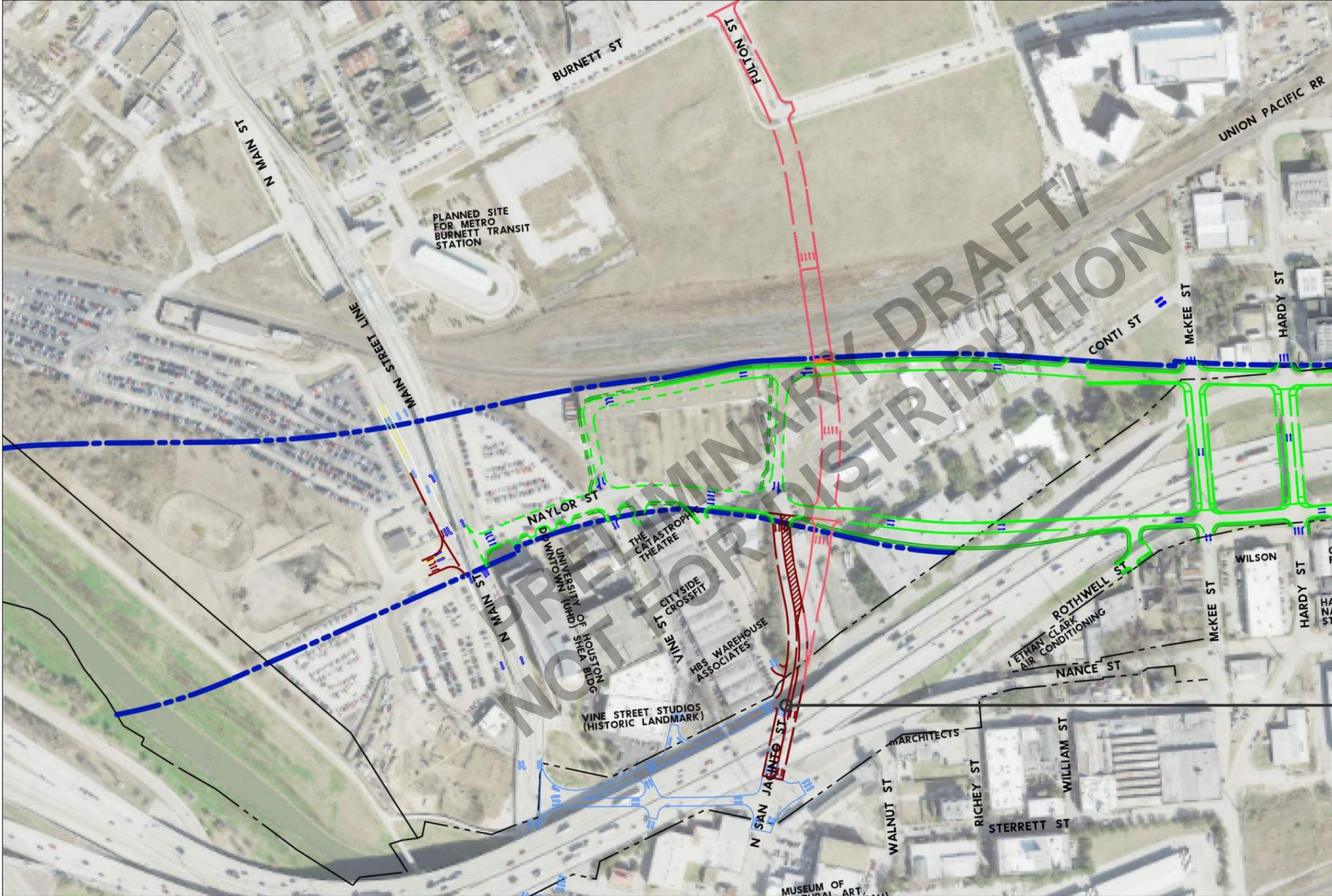
SECTION

This section is taken at N.San Jacinto Street close to Allen Street and looking towards Downtown Houston.

Note: Street section precedes COH Planning & Development Department decision to locate cycle track on west side of N. San Jacinto.

Framework	
Rothwell Row	■
Lyons/Nance Promenade	■
Sterrett Stroll	■

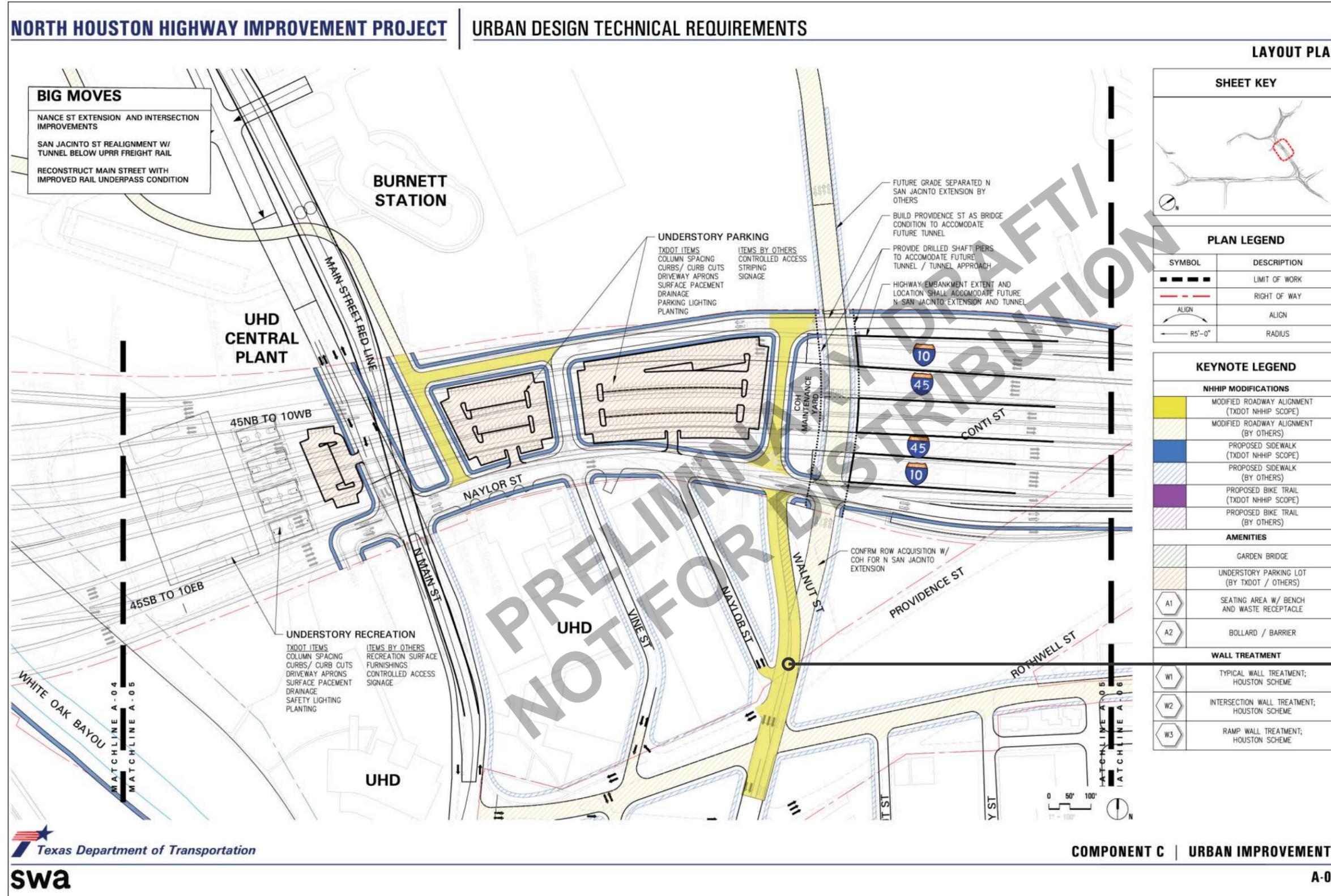
San Jacinto Underpass Study Reference



TRAFFIC NOTES

San Jacinto alignment and extension
Latest drawing provided by HNTB
January 2020

San Jacinto Underpass Study Reference



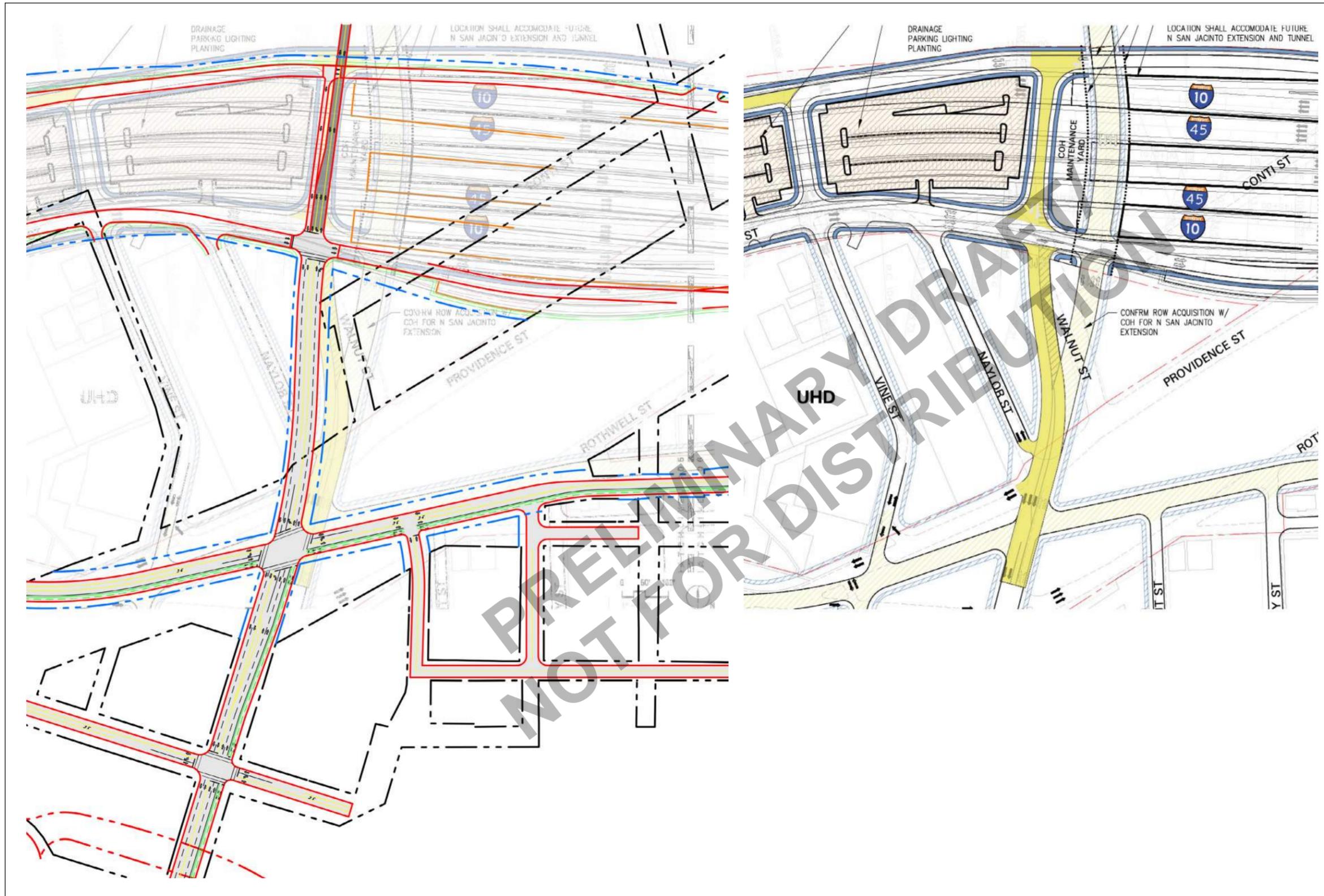
TRAFFIC NOTES

Exhibit provided by SWA.

Existing:
 Currently, direct access is provided to/from the district to I-10 toward Baytown via San Jacinto. From Baytown, a two-lane westbound exit ramp merges with Providence which curves into San Jacinto southbound. To Baytown, San Jacinto northbound curves into the Rothwell on-ramp to I 10 eastbound. This is the primary connection between central downtown and Baytown.

NHHIP:
 Warehouse District traffic patterns are expected to change as a result of the NHHIP. From Baytown, a one-lane westbound exit ramp is provided east of Meadow (1 mile east of San Jacinto) to access the I-10 WBFR. The frontage road does not intersect Jensen but does intersect Hardy/McKee and continuous to Main, where a U-turn lane returns patrons eastbound. To Baytown, an on-ramp to I 10 eastbound is provided 150 feet east of Walnut. TXDOT has informally modified its scope to include a San Jacinto extension which will intersect the I-10 EBFR near Walnut to access this on-ramp.

San Jacinto Underpass Study - Proposed

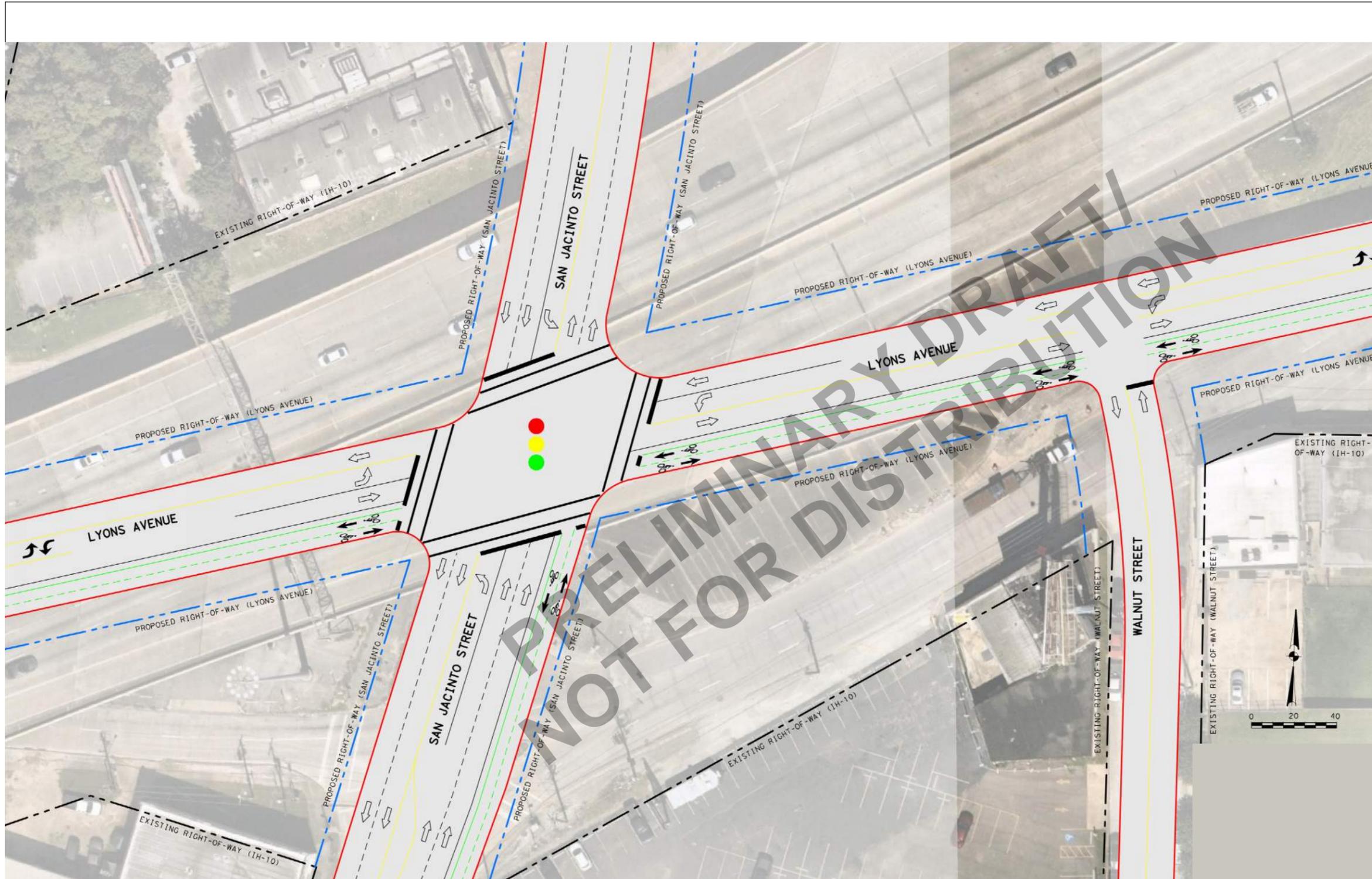


PROPOSED UNDERPASS

The proposed San Jacinto underpass provides a one-way, southbound, at-grade connection between frontage roads as well as an underpass beneath the I-10 WBFR. The San Jacinto underpass would connect downtown, Warehouse District, and Near Northside neighborhood and can be accomplished within either framework (Nance Promenade, Sterrett and Bayou Stroll, or Historic Grid). A key benefit of the underpass is that it provides access to I-10 from Near Northside. The at-grade connection would allow westbound traffic from I-10 to enter the Warehouse District at San Jacinto, similar to the current configuration. Without this connection, westbound traffic must use Lyons via McKee to access San Jacinto. As part of this extension/underpass, an eastbound-to-westbound U-turn should be considered at McKee between frontage roads to provide capacity for added traffic as a result of the San Jacinto underpass.

- CURB (EDGE OF TRAVEL WAY)
- TRAVEL WAY (AT-GRADE)
- TRAVEL WAY (BELOW-GRADE)
- CENTERLINE PAVEMENT MARKINGS
- TRAVEL LANE PAVEMENT MARKINGS
- BICYCLE PAVEMENT MARKINGS
- EXISTING RIGHT-OF-WAY (APPROX)
- PROPOSED RIGHT-OF-WAY (APPROX)
- ← DIRECTION OF TRAVEL

San Jacinto St. at Lyons Ave. Study



Note: Street configuration precedes COH Planning & Development Department decision to locate cycle track on west side of N. San Jacinto.

TRAFFIC NOTES

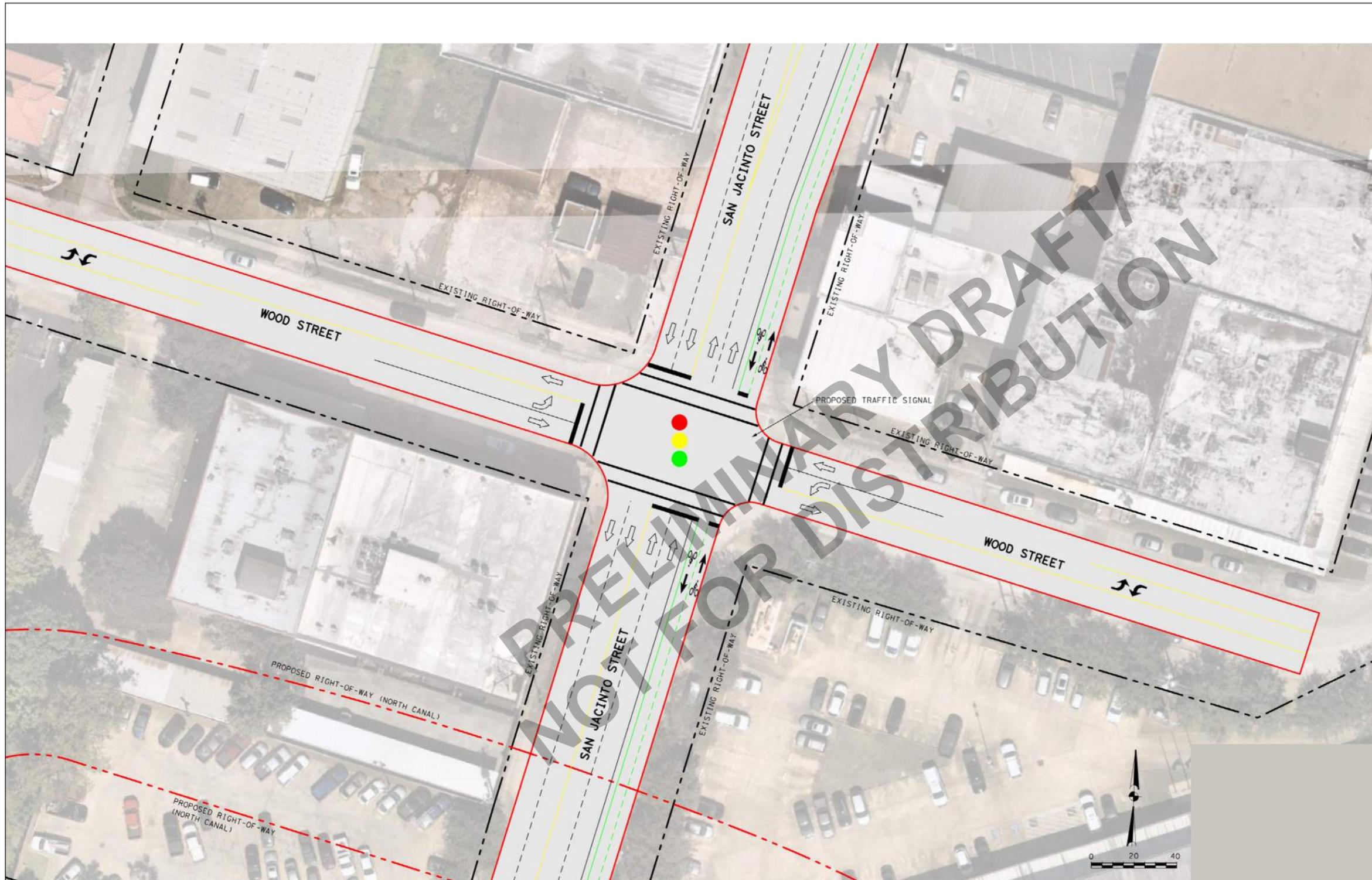
North of Wood, San Jacinto will widen to a five-lane section before intersecting Lyons. The proposed typical section includes two travel lanes each direction separated by a center turn lane and a two-way separated bike lane. This cross section can be accommodated within existing ROW (COH and TxDOT) but less than ten feet on either side of San Jacinto would remain for sidewalk, illumination, and/or other utilities. The proposed two-way separated bike lane along the eastside of San Jacinto will terminate at Lyons. San Jacinto will continue north as a five-lane section between Lyons and I-10 EBFR.

Lyons is a proposed east-west roadway within TxDOT ROW which resembles the alignment of existing I-10 and I-10 eastbound off-ramp to McKee/Hardy. From Main to Richey, proposed Lyons would be a three-lane roadway with 80' of ROW and a pavement width of 43'. The proposed typical section includes one travel lane each direction separated by a center turn lane and a two-way separated bike lane on the southside. East of Richey to Semmes, the center turn lane terminates, reducing the pavement width to 33' to fit within existing ROW (45' at the narrowest point).

A traffic signal would be proposed at the intersection of San Jacinto at Lyons, if it meets warrants. Exclusive right-turn lanes were considered at all intersection approaches but are not recommended to reduce pedestrian crossing distance and conflicts with bike lanes.

- CURB (EDGE OF TRAVEL WAY)
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- CENTERLINE PAVEMENT MARKINGS
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- EXISTING RIGHT-OF-WAY (APPROX)
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- ← DIRECTION OF TRAVEL

San Jacinto St. at Wood St. Study



Note: Street configuration precedes COH Planning & Development Department decision to locate cycle track on west side of N. San Jacinto.

TRAFFIC NOTES

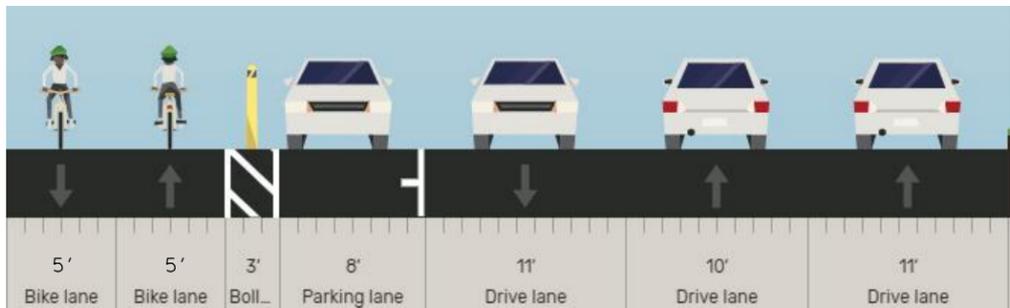
San Jacinto is a four-lane roadway with approximately 75' of ROW and a pavement width of approximately 55'. The existing typical section includes two-travel lanes each direction separated by a center turn lane; all lanes are 11' wide. During off-peak periods, on-street parking is permitted within the outside travel lane.

A two-way separated bike lane is proposed along the eastside of San Jacinto between Commerce and Lyons. Along San Jacinto between Commerce and Wood, the proposed typical section would include two travel lanes each direction and two-way separated bike lane. As in the existing condition, parking will be permitted during off-peak periods. Per City of Houston's IDM, travel lanes will be 10' wide, bike lane buffer will be 3', and two-way bike lane will be 10'. The remaining 2' can be added to outside lanes to accommodate gutter or transit. No ROW acquisition or pavement widening is proposed along San Jacinto between Commerce and Wood.

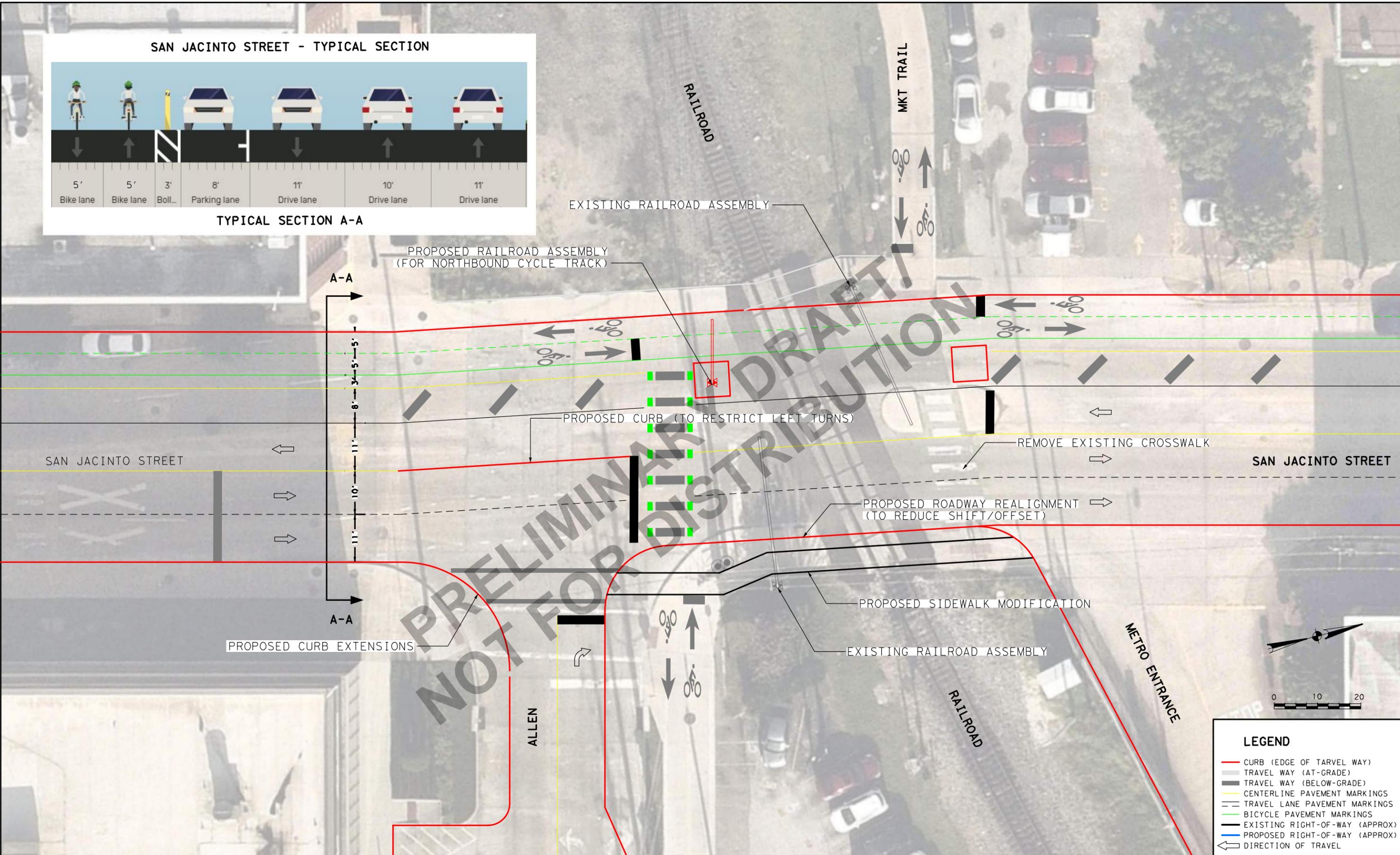
A center turn lane is proposed along Wood between 1st and Walnut. Excess pavement can be striped for on-street parking or the pavement section can be narrowed to increase the pedestrian realm. A traffic signal would be proposed at the intersection of San Jacinto and Wood, if it meets warrants.

- CURB (EDGE OF TRAVEL WAY)
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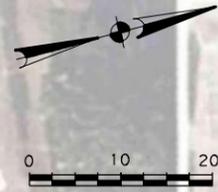
SAN JACINTO STREET - TYPICAL SECTION



TYPICAL SECTION A-A



PRELIMINARY DRAFT NOT FOR DISTRIBUTION



LEGEND	
—	CURB (EDGE OF TRAVEL WAY)
—	TRAVEL WAY (AT-GRADE)
—	TRAVEL WAY (BELOW-GRADE)
—	CENTERLINE PAVEMENT MARKINGS
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—	BICYCLE PAVEMENT MARKINGS
—	EXISTING RIGHT-OF-WAY (APPROX)
—	PROPOSED RIGHT-OF-WAY (APPROX)
→	DIRECTION OF TRAVEL

10/6/2021 3:58:11 PM

N. SAN JACINTO DESIGN COORDINATION FOR BRIDGE OVER N. CANAL

Lonnie Hoogeboom

From: Eccles, Peter - PD <Peter.Eccles@houstontx.gov>
Sent: Friday, February 4, 2022 12:10 PM
To: Lonnie Hoogeboom
Cc: Fields, David - PD; Nguyen, Khang M. - HPW
Subject: RE: North Canal: Updated street programming

Lonnie,
City of Houston transportation staff concur that this design concept is preferable to serve trail connectivity, comply with railroad crossing standards, meet travel demand and other factors.

Best,

Peter Eccles, AICP
City of Houston Planning and Development Department
832.393.6591

From: Hammond, Kevin - HPW <Kevin.Hammond@houstontx.gov>
Sent: Tuesday, October 26, 2021 5:09 PM
To: Fields, David - PD <David.Fields@houstontx.gov>; Nguyen, Khang M. - HPW <Khang.Nguyen@houstontx.gov>; Eccles, Peter - PD <Peter.Eccles@houstontx.gov>
Cc: Lim, HoJin - HPW <HoJin.Lim@houstontx.gov>; Brown, John - HPW-TDO <John.Brown@houstontx.gov>
Subject: FW: North Canal: Updated street programming

-saw that Lonnie's attachment was missing from the prior email, that's now attached.

Looks to me like SB lane is wrong where the expectation was to keep the protective center island north of the tracks and shift SB to the outside (parking) lane.

Correct, anything else? Feel free to communicate directly with all.



1

Regards,

Kevin Hammond, PE, CCM, CFM
Supervising Engineer, Capital Projects
832.395.2275 | Cell 832.627.3450



From: Hammond, Kevin - HPW
Sent: Tuesday, October 26, 2021 4:02 PM
To: Lonnie Hoogeboom <lonnie@downtowndistrict.org>
Cc: Lim, HoJin - HPW <HoJin.Lim@houstontx.gov>; Aaron Hargrove <ahargrove@ejesinc.com>; Fields, David - PD <David.Fields@houstontx.gov>; Nguyen, Khang M. - HPW <Khang.Nguyen@houstontx.gov>; Eccles, Peter - PD <Peter.Eccles@houstontx.gov>; Mitchell, Jeff <Jeff.Mitchell@hdrinc.com>
Subject: RE: North Canal: Updated street programming

Lonnie-

I now see your response on the traffic [signal](#) warrant analysis study, thanks.

Regards,

Kevin Hammond, PE, CCM, CFM
Supervising Engineer, Capital Projects
832.395.2275 | Cell 832.627.3450



From: Lonnie Hoogeboom <lonnie@downtowndistrict.org>
Sent: Tuesday, October 26, 2021 3:55 PM
To: Mitchell, Jeff <Jeff.Mitchell@hdrinc.com>; Hammond, Kevin - HPW <Kevin.Hammond@houstontx.gov>
Cc: Lim, HoJin - HPW <HoJin.Lim@houstontx.gov>; Aaron Hargrove <ahargrove@ejesinc.com>
Subject: RE: North Canal: Updated street programming

[Message Came from Outside the City of Houston Mail System]
All

See my redline comments below.

Lonnie Hoogeboom, AIA, NCARB, LEED AP
Director of Planning & Design
Houston Downtown Management District
1221 McKinney Street, Suite 4250
Houston, TX 77010
T: 713-650-3022
F: 713-650-1484
C: 713-562-1667

2

From: Mitchell, Jeff <Jeff.Mitchell@hdrinc.com>
Sent: Tuesday, October 26, 2021 2:33 PM
To: Hammond, Kevin - HPW <Kevin.Hammond@houstontx.gov>; Lonnie Hoogeboom <lonnie@downtowndistrict.org>
Cc: Lim, HoJin - HPW <HoJin.Lim@houstontx.gov>; Aaron Hargrove <ahargrove@ejesinc.com>
Subject: North Canal: Updated street programming
Importance: High

Kevin/Lonnie:

Back on October 5th we attended a meeting between BBP/DTMD and the COH to discuss preferences for future programming of the roadways in the North Canal project area. There were some action items coming out of that meeting, including but perhaps not limited to:

- Kimley-Horn was going to work on the preferred roadway lane configuration coming out of that meeting discussion. [Attached is Kimley-Horn strip map of San Jacinto from Commerce to future NHHIP, with bike facilities and parking on western side of roadway, and a ped / bike crossing south of UPRR tracks. At this stage, Downtown District makes no obligations to deliver the bike lane or rail crossing infrastructure projects; rather Downtown District is providing HPW & HDR a conceptual schema as a working graphic for North Canal purposes.]
- DTMD was I think going to obtain traffic records, perhaps including pre-covid METRO traffic (unless I am getting meetings blended). [The meeting discussion requested that METRO – Andy Skabowski, specifically – provide bus volume data in pre-covid, current and projected states. District consultants would only pull GIMS historic data from City resources (METRO vehicles are not isolated). Kimley-Horn did not install traffic counting devices during planning process for Warehouse District. So I think it more appropriate for HPW to provide HDR the traffic volumes for San Jacinto/ Fannin, and perhaps Wood St., Rothwell and Providence Streets; likewise, HPW should obtain the METRO volumes from Andy and his planning staff.]
- Data and proposed decision for a future signal at Wood/San Jacinto. [Today, I have requested a proposal from Kimley-Horn to prepare a traffic warrant study for San Jacinto / Wood; estimated issuance in 1Q2022.]
- The SWA team was going to update their programming plans and make them available in context of the options shown in the meeting. [SWA is regularly updating the N. Canal plans as their design progresses with Buffalo Bayou Partnership. I recommend Kevin or HoJin confirm with Ian Rosenberg of BBP the delivery up current SWA plans at appropriate time. Since our next meeting is NOV.3 where an update may be provided by BBP, that precedes Kevin's "need it on or before 11/5/2021."]

Just a clarification that our schedule for North Canal has us developing drawings and narrative for QC by 11/19 which is coming up fast. If we are to consider any of this proposed future programming information for inclusion with the North Canal PER, we will need to receive it on or before 11/5/2021 – in order to review and incorporate by 11/19.

Let me know if an additional meeting needs to be scheduled relative to transmitting any information that may be made available.

Regards,

Jeff Mitchell, PE
HDR
4828 Loop Central Drive, Suite 800
Houston, TX 77081
M 210.317.7731 T 713.622.9264
jeff.mitchell@hdrinc.com

hdrinc.com/follow-us

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