



Cumulative Impacts Technical Report

North Houston Highway Improvement Project
From US 59/I-69 at Spur 527 to I-45 at Beltway 8 North,
Harris County, Texas
CSJ: 0912-00-146

Prepared by: TxDOT Houston District

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The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 9, 2019, and executed by FHWA and TxDOT.

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1.0 INTRODUCTION

1.1 Definition of Cumulative Impacts

Cumulative effects are defined by the Council on Environmental Quality (CEQ) as effects “on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 Code of Federal Regulations [CFR] §1508.7).

1.2 Guidance

Section 3 of the Final EIS describes the proposed project and its potential direct effects on the environment. Direct effects are predictable and are a direct result of the project. The potential induced growth indirect impacts of the proposed project are assessed in Section 5 of the Final EIS, and the encroachment alteration indirect impacts are assessed in Section 3 of the Final EIS. The cumulative impacts analysis presented in this section builds on those two analyses.

The approach for conducting cumulative impacts analyses is ultimately guided by the following Texas Department of Transportation (TxDOT) publications, which are available online in the TxDOT Indirect and Cumulative Impacts Toolkit: *Risk Assessment for Cumulative Impacts* (TxDOT 2014) and *Cumulative Impacts Analysis Guidelines* (TxDOT 2019a).

Additional guidance was published in 2011 and updated in 2016 by the American Association of State Highway and Transportation Officials (AASHTO), and those guidelines were followed in this analysis. Practitioners Handbook — 12, “Assessing Indirect Effects and Cumulative Impacts under NEPA (AASHTO 2016),” emphasizes the following key tasks:

1. Describe Resource Conditions and Trends
2. Summarize Effects of the Proposed Action on Key Resources
3. Describe Other Actions and Their Effects on Key Resources
4. Estimate Combined Effects on Key Resources
5. Consider Minimization and Mitigation

1.3 Cumulative Impacts Analysis

As stated previously, cumulative impacts can result from “individually minor but collectively significant actions taking place over a period of time” (40 CFR §1508.7). As this regulation suggests, the purpose of a cumulative impacts analysis is to view the direct and indirect impacts of the proposed project within the larger context of past, present, and future activities that are independent of the proposed project, but which are likely to affect the same resources in the future. Environmental and social resources are evaluated from the standpoint of relative abundance among similar resources within a larger geographic area. Broadening the view of resource impacts in this way allows the decision maker an insight into the magnitude of project-related impacts in light of the overall health and abundance of selected resources. A cumulative impacts evaluation first provides a conceptual overview of the existing or “baseline” condition of each resource, which is based on historical information and an assessment of the current condition of the resource. Second, the analysis inventories past, present, and reasonably foreseeable future projects in the vicinity that are planned and financed, but unrelated to the proposed project, and assesses the likely collective impacts of those projects for each resource. Third, the analysis describes the expected future status of the resource (i.e., in terms of quantity and

condition) after the combined (i.e., cumulative) effects of the proposed project and other foreseeable projects are fully realized. Finally, the cumulative impacts analysis assesses the level of concern that should be associated with the expected cumulative impacts to a resource based on the scarcity or current condition of that resource.

The evaluation of cumulative impacts follows TxDOT's Cumulative Impacts Analysis Guidelines (TxDOT 2019a). According to TxDOT's Guidance, a cumulative effects analysis for a TxDOT project has five steps:

1. Identify the resource study area, conditions, and trends.
2. Assess the direct and indirect effects on each resource from the proposed project.
3. Identify other actions—past, present, and reasonably foreseeable—and their effects on each resource.
4. Analyze the overall effects of the proposed project combined with other actions.
5. Mitigate cumulative effects.

To determine which resources will be assessed in detail in the cumulative impact analysis, a screening table was prepared to summarize the direct and indirect impacts of the North Houston Highway Improvement Project (NHHIP) Preferred Alternative based on information available to date (Table 1). This information represents a broad look at potential cumulative impacts.

2.0 STEP 1: RESOURCE STUDY AREA, CONDITIONS, AND TRENDS

2.1 Identification of Resources

According to TxDOT's Cumulative Impacts Analysis Guidelines (TxDOT 2019a), if a project does not cause direct or indirect impacts on a resource, it will not contribute to a cumulative impact on that resource. Table 1 describes direct and indirect impacts for each resource category based on the Preferred Alternative and whether the resource is in poor or declining health or at risk. For specific direct impacts from the Preferred Alternative on each resource, see Section 3 of the Final EIS and the technical reports appended to the Final EIS.

With regard to indirect impacts and the potential for induced development in the Area of Influence, this general statement is applicable to all resources: Most of the area of influence (AOI) is already developed, and developable land within the AOI is relatively limited. The proposed project is expected to induce redevelopment in two general locations: within a 0.25-mile buffer along I-45 from I-610 to Beltway 8 and the Downtown Management District. The proposed project may also slow development rates in areas that would experience access changes or access limitations resulting from the proposed improvements or in areas that would be physically impacted (e.g., proposed displacements). Such slowdowns may be compounded by recent flooding-event redevelopment and increasing floodplain regulations. The proposed project would not induce development to the same degree as a new roadway.

This cumulative impacts analysis focuses on those resources substantially impacted by the proposed project or those that are currently in poor or declining health or at risk, even if proposed project impacts (either direct or indirect) are relatively small; only those resources meeting these criteria are brought forward for further analysis of cumulative effects. The topics of greenhouse gas emissions and climate change are addressed separately in the Final EIS. The following table includes specific information fully documented in the discipline specific Technical Reports.

Table 1. Resources/Issues Considered for Cumulative Impacts Analysis—Preferred Alternative

Resource		Direct Impacts	Indirect Impacts (Induced Growth and Encroachment Alteration)	Is the Resource in Poor or Declining Health?	Included in the Cumulative Impacts Analysis? Reason for Inclusion/Exclusion
Community Resources	Neighborhoods and Public Facilities (including potential displacement impacts)	<p>The Preferred Alternative would displace:</p> <ul style="list-style-type: none">160 single-family residences433 multi-family residential units486 public and low-income housing multi-family residential units344 businesses58 billboards5 places of worship2 schools/universities5 parking businesses11 other structures <p>The Preferred Alternative would result in residential displacements in the Northside/Northline, Independence Heights, Near Northside, Greater Heights, Downtown, Midtown, Second Ward, Greater Third Ward, Greater Fifth Ward, and Museum Park super neighborhoods. The Community Impact Assessment (CIA) Technical Report (TxDOT 2019b) details direct impacts to residences and proposed mitigation measures.</p> <p>Community cohesion was addressed by super neighborhood in detail in the CIA Technical Report. Community cohesion can be affected by displacement of businesses, community facilities, and residences; disruption associated with moving outside a social structure; and indirect or ambient impacts that can occur to communities that remain after project development, such as noise, air quality, and changes in travel patterns. In general, efforts have been made throughout project development to interface with community representatives to address their concerns through avoidance, minimization, and mitigation where possible.</p> <p><u>Segment 1:</u> Where there are few or no displacements, the CIA Technical Report concluded that the community cohesion in Greater Greenspoint, Hidden Valley, or Acres Home would not be negatively affected, and no specific mitigation is proposed for impacts to community cohesion. In Northside/Northline, single-family and multi-family residences plus several facilities that assist low-income families or others in need would be displaced. There is potential for some negative impacts to community cohesion in the Northside/Northline super neighborhood due to a loss of some services. No mitigation measures specifically for community cohesion impacts are proposed, but numerous direct mitigation measures are proposed for Northside/Northline. In Independence Heights, TxDOT’s relocation assistance program for the NHHIP will provide the opportunity for residents to relocate within the community if they so choose. TxDOT is working closely with Greater Mount Olive Missionary Baptist Church to identify a mitigation solution.</p> <p><u>Segment 2:</u> Numerous residential and business displacements would take place in Near Northside, and those would be mitigated appropriately. Between these super neighborhoods, TxDOT will provide a highway “cap” over the proposed depressed lanes of I-45. This configuration would create the opportunity for improved connectivity between the Near Northside and the Greater Heights neighborhoods.</p> <p><u>Segment 3:</u> No residential displacements would occur in the Washington Avenue Coalition/Memorial Park super neighborhood. The Preferred Alternative’s proposed right-of-way would not divide or isolate this super neighborhood from adjacent communities. No risks or impacts to community cohesion are anticipated. Beyond minimizing the potential displacements and impacts on neighborhoods, TxDOT has revised the project design for the alternatives considered in the Downtown super neighborhood. Additional design measures have been taken in this urbanized area to</p>	<p>Most of the AOI is already developed, and developable land within the AOI is relatively limited. The proposed project is expected to induce redevelopment in two general locations: within a 0.25-mile buffer along I-45 from I-610 to Beltway 8 and the Downtown Management District. The proposed project may also slow development rates in areas that would experience access changes or access limitations resulting from the proposed improvements or in areas that would be physically impacted (e.g., proposed displacements). Such slowdowns may be compounded by recent flooding-event redevelopment and increasing floodplain regulations. The proposed project would not induce development to the same degree as a new roadway. (NOTE: this statement is applicable for all resources discussed in this table.) TxDOT 2018a.</p> <p>Changes in visual conditions could result in encroachment alteration impacts to neighborhoods. Elevated structures may create visual and physical barriers that disconnect neighboring communities, while removal of elevated roadways and depressing roadways would result in the removal of visual barriers that would improve connectivity. These visual impacts and how they affect development or redevelopment patterns could extend farther in time and distance from the footprint of the project and would therefore be considered an encroachment alteration impact on community resources.</p> <p>Displacement of community facilities could result in encroachment alteration impacts to individuals or groups of individuals within the AOI. Loss of these facilities or disruption of services could result in adverse impacts on populations who are dependent on services provided by these facilities; however, if these facilities and service providers are able to relocate within their current neighborhoods, with assistance, then adverse impacts may be limited in terms of duration.</p> <p>Encroachment alteration impacts due to relocations and displacements could include a reduction in the supply of affordable housing, changes in residential and commercial property values due to the proposed increase in access and mobility, changes in the local tax base due to the anticipated displacements and impacts to employees (such as potential increased commuting time) who could be displaced by the proposed project. Residential and commercial properties located near the project area that are not physically impacted by the proposed project may experience a change in market value, either positive or negative.</p>	Communities are not declining, although affordable housing is a concern; also see Environmental Justice summary for details related to communities of concern.	Yes. The cumulative effects to neighborhoods and community facilities are analyzed in the cumulative impacts analysis because the Preferred Alternative would have primarily direct and some indirect impacts. In addition, community cohesion, displacements and relocations, aspects of transportation, economics, parks, open space, visual resources, and traffic noise are discussed as components of community resources.

Resource		Direct Impacts	Indirect Impacts (Induced Growth and Encroachment Alteration)	Is the Resource in Poor or Declining Health?	Included in the Cumulative Impacts Analysis? Reason for Inclusion/Exclusion
		<p>improve traffic operations and allow for a capped section or open space (developed by others) over I-45 and US 59/I-69 in the vicinity of the George R. Brown Convention Center.</p> <p>Kelly Village in the Fifth Ward would experience numerous displacements which will be mitigated through advance acquisition by TxDOT in coordination with the Houston Housing Authority (HHA). The Fifth Ward was impacted by the construction of I-10, which divided the community, and again with the construction of US 59/I-69, which further divided the community. TxDOT worked with stakeholders to eliminate an at-grade railroad crossing. Although the proposed improvements to I-10 would widen the separation between the north and south side of the highway, the proposed improvements to I-10 would not create a new barrier in the Greater Fifth Ward. In the Greater Second Ward, TxDOT is coordinating with the HHA for advance acquisition/mitigation of displacements at the Clayton Homes property. TxDOT worked with stakeholders on the configuration of the design to create the opportunity for improved connectivity in the area of the depressed section of the freeway between east Downtown and central Downtown.</p> <p>Displacements that would occur in the Greater Third Ward would be mitigated. TxDOT worked with the neighborhood to reduce anticipated cut-through traffic in neighborhoods adjacent to the highway. In Midtown, because of opposition to design plans in a particular area, the plans were revised to maintain local street connectivity and some one-way routes. While residential displacements at Midtown Terrace would be mitigated, no additional mitigation measures are proposed that are specifically linked to community cohesion impacts. The Fourth Ward community and the I-45 Coalition expressed concerns that proposed elevated direct connectors on the west side of Downtown would create a visual barrier between the Fourth Ward and Downtown. In response to public comments, TxDOT revised the design plans after the 2017 public hearing. Mitigation measures have been presented to improve the bike/pedestrian access between the Fourth Ward super neighborhood and Downtown. Since no displacements are proposed, and because the Preferred Alternative would not divide or isolate the Neartown/Montrose super neighborhood from adjacent communities, there is no effect on or risk related to community cohesion for this super neighborhood. Displacements that would occur in Museum Park would be mitigated. At-grade highway caps would be constructed at three bridged areas to support pedestrian activity in the area. TxDOT met with the Post Oak School to discuss potential impacts and then made changes to the design to avoid impacts to the parking lot. There do not appear to be risks to community cohesion in University Place or MacGregor. Though direct impacts to these super neighborhoods would be mitigated, no mitigation that is specific to community cohesion impacts is proposed.</p> <p>Changes in travel patterns and access are discussed in detail in the CIA Technical Report. Development of the proposed project could benefit adjacent neighborhoods and communities by improving mobility and safety in the study area. The Preferred Alternative is not anticipated to change access or impact the use of local roads that may serve as emergency response routes to neighborhoods.</p> <p>The Preferred Alternative would require new right-of-way in existing bicycle routes. During construction, access to bike routes could be limited or redirected; however, impacts would be minimized as much as possible. Sidewalks would not be eliminated; the proposed project would include sidewalks along I-45 and at the major intersections. The proposed project would also provide continuity of sidewalks and shared use lanes along the frontage roads by adding sidewalks and pathways in areas as needed.</p>			

Resource		Direct Impacts	Indirect Impacts (Induced Growth and Encroachment Alteration)	Is the Resource in Poor or Declining Health?	Included in the Cumulative Impacts Analysis? Reason for Inclusion/Exclusion
		<p>The Preferred Alternative would reduce some open space along the bayou greenways; however, visibility and open space along the greenways would be improved in other locations where the freeway overpasses are eliminated.</p> <p>The noise barriers that have been identified throughout the project area are shown in Appendix C of the CIA Technical Report, as well as the Traffic Noise Technical Report (TxDOT 2019c). TxDOT’s standard noise workshop protocols would be followed for those public engagement activities, and that process would determine which proposed reasonable and feasible noise barriers would be constructed.</p>			
Community Resources	Environmental Justice	<p>Numerous single-family and multi-family residential displacements would occur; socioeconomic data presented in detail in the CIA Technical Report indicate that the project area largely comprises minority and/or low-income communities.</p> <p>Displacements or relocations of the following community organizations or businesses utilized by Environmental Justice populations are listed below.</p> <ul style="list-style-type: none">▪ Displacement of AVANCE Training Center, a non-profit organization that assists low-income and at-risk families with workforce training and family therapy▪ Displacement of Texas Department of Health and Human Services, which serves low-income communities▪ Displacement and Relocation of Loaves and Fishes Magnificat Houses Ministries, SEARCH Homeless Services, and Fatima House, which all service low-income and homeless populations▪ Displacement of medical offices that serve low-income and high-minority communities▪ Displacement of 2 places of worship and 1 school that serve Spanish-speaking populations▪ Displacement of 3 places of worship with predominantly African American members and the Helping Hands Charity (operated by Sloan Memorial United Methodist Church), an organization that supports children and other low-income individuals in the surrounding community▪ Parking impacts at a variety of facilities▪ Construction-phase effects▪ Impacts to various entities that serve sensitive populations (such as Limited English Proficiency populations) <p>Additional community outreach was initiated to reach out to the facilities mentioned above or in the general area of the proposed project. Mitigation for impacted residences, organizations and businesses is being coordinated on a site-by-site basis, as discussed in Section 6.0 in the <i>Community Impact Assessment Technical Report</i> (TxDOT 2019b). TxDOT would continue to coordinate with organizations and businesses that provide services to Environmental Justice populations.</p> <p>Although numerous noise barriers are proposed for residential areas where minority and low-income populations reside, there could be some areas where barriers are not feasible or reasonable in accordance with TxDOT’s Federal Highway Administration (FHWA)-approved Guidelines for Analysis and Abatement of Roadway Traffic Noise. TxDOT has also committed to utilize longitudinally tined pavement on the mainlanes and frontage roads, which decreases noise more efficiently than traditional concrete pavement.</p> <p>Numerous aesthetic walls have been proposed adjacent to Environmental Justice areas. These walls, along with possible aesthetic improvements, would be discussed with the community members who may benefit from them.</p>	<p>Environmental Justice individuals/populations could be adversely impacted by increased traffic noise, permanent and temporary visual impacts due to roadway design, construction activities, and displacement of homes, businesses, and places of worship in their communities. The proposed project would result in numerous displacements, including residences of members of minority and low-income communities, businesses, and community facilities that primarily serve Environmental Justice individuals/populations. To the extent that the services provided by these community facilities and public housing organizations could be relocated within their original service area, it is possible that these services would only be lost temporarily and could be replaced to again serve their original populations as well as persons in surrounding communities. If not, services to Environmental Justice populations may be reduced in the community.</p> <p>The degree to which encroachment alteration impacts could occur to Environmental Justice communities of concern is tied to the effectiveness of any mitigation efforts employed to reduce direct adverse impacts to community members and those served by the community facilities that would be directly affected.</p>	<p>Yes. Environmental Justice populations are vulnerable populations and include minorities and low-income persons. Executive Order 12898 and Title VI provide protections for Environmental Justice populations. Data collected for direct impacts indicated the presence of Environmental Justice populations in the Census profile areas for the Preferred Alternative.</p>	<p>Yes. The cumulative effects to Environmental Justice populations are analyzed in the cumulative impacts analysis because the Preferred Alternative would have direct and indirect impacts.</p>

	Resource	Direct Impacts	Indirect Impacts (Induced Growth and Encroachment Alteration)	Is the Resource in Poor or Declining Health?	Included in the Cumulative Impacts Analysis? Reason for Inclusion/Exclusion
		<p>Multiple bus stops located in high-minority and low-income Census areas could require relocation. TxDOT will coordinate with METRO to facilitate timely planning for bus stop relocations and bus route detours. TxDOT will coordinate with METRO for review of the 30-percent design plans, and additional follow-up meetings would be conducted as requested by METRO. METRO would notify riders at least one week in advance of any temporary bus stop relocations or closures and bus route changes. METRO would install temporary bus stops out of the proposed right-of-way as close as possible to the original bus stop locations.</p> <p>In addition to adverse impacts, the proposed project would also provide benefits such as decreased congestion and improved traffic safety on both community and regional levels.</p>			
	Economic Conditions	<p>TxDOT would attempt to maintain access to all businesses during construction. Loss of customers due to temporary changes in access could result in temporary loss of income to businesses affected by the proposed construction. Roadway construction activities would create new job opportunities and income potential in the area in the short term. The number of construction-related jobs would vary depending on the phasing of project construction.</p> <p>Conversion of taxable property to roadway right-of-way and displacements of businesses that are sources of sales tax revenue would have a negative impact on the local economy. Based on October 2017 Harris County Appraisal District (HCAD) data, estimated annual property tax loss would be approximately \$13.6 million (as documented in the CIA Technical Report).</p> <p>Assuming a worse-case scenario, where businesses would not be able to relocate in the Houston area, the estimated sales tax loss could be between \$139.3 and \$300.3 million. The sales tax loss is based on sales tax revenues collected by Reference USA; the sales tax losses are based on the revenue multiplied by the current sales tax rate.</p> <p>Loss of jobs (a worst-case employment loss analysis estimated that approximately 4,840 to 13,713 jobs could be in jeopardy) could be partially offset, during construction, by the jobs created by the proposed project. Construction of the proposed project would have direct and indirect positive effects on local, regional, and state employment, output, and income based on the economic multipliers from the Texas State Office of the Comptroller and the Regional Economic Model Inc. (REMI). The estimated construction cost of the proposed project is \$7 billion in 2019 dollars. When multiplied by the total construction cost of the proposed project, the direct effect to income is estimated to be \$2.0 billion, with statewide final demand of \$19.2 billion. The construction employment impact would be 92,064 jobs.</p>	<p>Potentially adverse economic impacts could include loss of tax revenue by displaced businesses. Travel pattern changes could result in more circuitous routes that could adversely affect some businesses. Job loss and related reductions in indirect and induced economic impacts from spending is an adverse encroachment alteration impact.</p> <p>A beneficial impact related to construction of the proposed project includes expansion of modal choices for individuals traveling along I-45 or local streets and expedited and localized economic growth due mainly to increases in land rents, market capture, and possible redevelopment activities associated with increased visibility and improved access.</p> <p>Based on an estimated \$7 billion construction cost, the indirect positive effect to income would be approximately \$4.1 billion and indirect impact to employment would be approximately 89,323 jobs.</p>	No	No. The totality of impacts to economic conditions is not anticipated to result in significant adverse impacts. However, specific economic topics related to community resources are addressed.
	Transportation Facilities	<ul style="list-style-type: none">Segment 1 would not affect access to transit centers, Park & Ride facilities, or Light Rail Transit (LRT) servicesSegment 2 would not affect existing bus service routes; no Park & Ride facilities are located in Segment 2Segment 3 would not permanently affect bus service; Wheeler Transit Center access is being coordinated with TxDOTDisplacement of bus stops could affect people that do not have access to automobiles or that are dependent on public transportationClose coordination between TxDOT and METRO would facilitate proactive communications with transit users for schedules, routes, and service changes, and for compliance with Americans with Disabilities Act of 1990 (ADA) requirements	I-45 is an established interstate that is highly interconnected with multi-modal transportation facilities throughout the City of Houston; therefore, substantial adverse encroachment alteration impacts to transportation facilities would not be anticipated. To the extent that providing connectivity to intermodal facilities is increasingly a priority of transportation agencies, and to the extent that multi-modal connectivity is a stronger focus of planning at all levels of government, encroachment alteration effects on transportation facilities could be beneficial and could take the form of improved service to drivers and transit riders.	No	No. The H-GAC's 2040 Regional Transportation Plan (RTP) is developed in a multi-phased process to provide for the effective management of new and existing multi-modal transportation facilities (H-GAC 2016). This resource on its own is not analyzed in the detailed cumulative impacts analysis. However, specific transportation topics in relation to community resources are addressed.

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		During construction, the proposed project may require re-routing or redirecting of existing rail lines and infrastructure. Relocation or rerouting of existing rail lines could temporarily disrupt operations and result in delays for rail traffic that is rerouted as well as rail traffic on rail lines to which traffic is rerouted. TxDOT will continue to coordinate with Houston Belt & Terminal Railway (HB&T), BNSF Railway, and Union Pacific Railroad (UPRR) representatives, and TxDOT does not anticipate permanently affecting current operations and rail locations.			
	Air Quality	<p>Traffic air quality analysis results for each segment of the project indicate that CO concentrations are not expected to exceed the national standard and would remain relatively consistent from the ETC to the design year.</p> <p>Based on regulations now in effect, overall mobile source air toxic (MSAT) emissions are projected to decline by over 70% between 2018 and 2040. An analysis of national trends with EPA's MOVES model forecasts a combined reduction of over 80 percent in the total annual emission rate for the priority MSAT from 2010 to 2050, even as vehicle miles travelled (VMT) are projected to increase by over 100 percent. This will reduce both the background level of MSAT as well as the possibility of even minor MSAT emissions from this project (TxDOT 2019c).</p> <p>Congestion Management Process Strategies are in place in the travel corridor.</p> <p>TxDOT received a project-level conformity determination from FHWA on June 25, 2020.</p>	Encroachment alteration effects to air quality have been accounted in the regional conformity analysis, traffic air quality analysis, and quantitative MSAT analyses.	Yes. The proposed project is located within the EPA designated serious and marginal nonattainment areas for 2008 and 2015 Ozone National Ambient Air Quality Standard (NAAQS), respectively.	<p>No. The CAA, as amended, provides the framework for federal, state, tribal, and local rules and regulations to protect air quality. The State Implementation Plan (SIP) and conformity process are two aspects of this framework that encompass transportation activities. The cumulative impact on air quality from the proposed project and other reasonably foreseeable transportation projects are addressed through conformity at the regional level by analyzing the air quality impacts of transportation projects in the 2045 RTP and the 2019-2022 TIP. The proposed project and the other reasonably foreseeable transportation projects are included in the 2045 RTP and the 2019-2022 TIP, which have been determined to conform to the SIP.</p> <p>Any increased air pollutant or MSAT emissions resulting from increased capacity, accessibility and development are projected to be more than offset by emissions reductions from EPA's fuel and vehicle standards or addressed by EPA's and TCEQ's regulatory emissions limits programs. Improved mobility and circulation may also benefit air quality. Increases in urbanization would likely have a negative impact on air quality. However, when combined, planned transportation improvements, EPA fuel and vehicle regulations, and fleet turnover are anticipated to have a cumulatively beneficial impact on air quality.</p> <p>A variety of federal, state, and local regulatory controls as well as local plans and projects have had a beneficial impact on regional air quality, such as, but not limited to: TCEQ's Air Pollutant Watch List (APWL), air toxics monitoring, permitting programs, and Texas Emission Reduction Program (TERP). For example, according to EPA in their document titled, Our Nation's Air 2019, ozone and PM2.5 days reaching unhealthy levels fluctuates from year-to-year but shows marked declines between 2000 and 2018 for Houston, 87 days versus 37</p>

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						days, less than half on average. As documented in the CO TAQA and MSAT technical reports and appendices, historical air monitoring also shows yearly fluctuations but overall continuing improvement trends in the region for both criteria pollutants and MSAT even though VMT has increased over that same historical period. Improvements to air quality in the region demonstrate the success of the CAA framework, and since the project is addressed through this framework, air quality is not analyzed further in the detailed cumulative impacts analysis.
	Water Resources	Ground Water	Potential impacts to groundwater quality from the proposed project would be primarily related to storm water discharges from both construction and operation. Impacts to groundwater quality because of surface spills would be minimized by the implementation of spill prevention measures. Within the area of the Preferred Alternative, wells that would be unavoidably impacted by the proposed project would be plugged and abandoned according to Texas Commission on Environmental Quality (TCEQ) regulations to eliminate the potential for impacts to groundwater resources. (TxDOT 2019e).	The proposed project area includes existing roadway located in an urban area; therefore, encroachment alteration effects to water quality would be minor. Adverse ecological effects could occur if highway runoff reaches the water table due to infiltration of overland flow, or if water quality impairment precludes additional development of the water table, which could result in freshwater shortages. Use of best management practices (BMPs) within the project area would minimize potential adverse impacts to groundwater quality.	No	No. No permanent groundwater quality impacts are expected from the proposed project or from potential induced growth, and required permits to control erosion during construction are expected to result in minimal temporary degradation of water quality.
	Water Resources	Surface Water Quality	<p>Potential impacts to surface water quality from the proposed project would be primarily related to the streams that traverse the project segments. The crossings of streams by the proposed project within the area of the Preferred Alternative would be unavoidable. Impacts to surface water quality because of surface spills during construction would be minimized by the implementation of spill prevention measures set by the storm water pollution prevention plan.</p> <p>Several impaired streams would be traversed by the Preferred Alternative: Halls Bayou, unnamed tributary to Greens Bayou, Little White Oak Bayou, Buffalo Bayou, and White Oak Bayou.</p>	The proposed project area includes existing roadway located in an urban area; therefore, encroachment alteration effects to water quality would be minor. Encroachment alteration effects could occur primarily due to increased impervious surface area, which could result in increased non-point source runoff, altered recharge (flow and quality) into the aquifer, increased localized erosion, and degraded water quality downstream, and due to the clearing of vegetation during construction, which could accelerate off-site erosion due to runoff. Construction of the proposed project could encroach into surface or subsurface drainage areas of adjacent aquatic features, altering the hydrologic regime in those features. Use of BMPs within the project area would minimize water quality effects downstream.	Yes. According to the TCEQ 2014 Water Quality Index list, six impaired streams are traversed by the Preferred Alternative.	No. With various levels of regulatory protections in place, and with measures to be undertaken to substantially reduce potential adverse impacts to surface waters through BMPs and design elements before, during, and after construction, this resource is not analyzed further in the detailed cumulative impacts analysis.
	Water Resources	Coastal Zone and Barriers	A Section 9 permit from the USCG would be anticipated for bridges or other structures constructed in or over Buffalo Bayou and the portion of White Oak Bayou subject to tidal influence. A Section 10 permit from the USACE would be anticipated for project construction activities that would involve the discharge of dredged or fill material within the jurisdictional limits of Buffalo Bayou and the portion of White Oak Bayou subject to tidal influence.	There are no Coastal Barrier Resources Act areas present in the immediate vicinity of the proposed project area; therefore, encroachment alteration effects relative to Coastal Barriers would not occur. A portion of the Texas Coastal Management Zone is present in Segment 3. Encroachment alteration effects would be minimized through coordination with the General Land Office and the USCG.	No	<p>No. Coastal Barrier Resources Act areas are not present in the immediate vicinity of the proposed project alternatives. Therefore, the resource will not be carried forward in the detailed cumulative impacts analysis.</p> <p>Coordination between TxDOT, the General Land Office, and the USCG would minimize potential direct impacts to the Coastal Management Zone surrounding the Buffalo Bayou Tidal stream segment that occurs within Segment 3.</p>
	Floodplains		Portions of the Preferred Alternative would occur within floodplain Zones A and AE mapped by the Federal Emergency Management Agency (FEMA); therefore, construction activities would occur within the mapped 100-year and 500-year floodplains. The FEMA Flood Insurance Rate Maps indicate that approximately 70 percent of the project area is outside the 100-year floodplain, or other flood hazard areas as determined by FEMA.). In 2018, revised precipitation-frequency data for Texas, termed “Atlas 14” data, was released. The remapping of the floodplains within Harris County based on Atlas 14 data is ongoing at the time of this analysis. TxDOT has performed a preliminary drainage study for the proposed project, detailed	The proposed project would result in encroachment within regulatory floodplains. The proposed project would increase the area of impermeable surfaces and have the potential to indirectly affect sediment and pollutant loading in the flood hazard areas as mapped by FEMA. However, the resulting increased volume and velocity of storm water runoff from impervious surfaces will be mitigated by the proposed detention basins such that there is no change to the flood risk within the project area and the project would not cause adverse flood impacts to upstream or downstream properties. The proposed drainage improvements and floodplain mitigation will help address	No	No. Excluded because the hydraulic design of the project would permit conveyance of the 100-year storm event. Plans and specifications will include temporary drainage measures and facilities during construction so that construction will not increase the flood risk and will maintain positive drainage during storm events.

	Resource	Direct Impacts	Indirect Impacts (Induced Growth and Encroachment Alteration)	Is the Resource in Poor or Declining Health?	Included in the Cumulative Impacts Analysis? Reason for Inclusion/Exclusion
		drainage studies for Segments 2 and 3 of the proposed project, and will perform a detailed drainage study for Segment 1 to determine the appropriate locations and sizes of bridges, culverts, or other drainage structures that would be required for the Preferred Alternative. Federal, state, and local authorities would have the opportunity to review the hydrologic and hydraulic study to verify that appropriate measures have been proposed such that the project would not increase the flood risk to adjacent properties. Bridges, culverts, and cross-drainage structures would be designed to FHWA and TxDOT standards for design events up to the 100-year storm event. The studies would also confirm that the project would not adversely impact existing floodplain conditions within the vicinity of the project for extreme events, (i.e., storm events in excess of a 100-year storm event). Best Management Practices (BMPs), such as the construction of detention facilities, would be incorporated into the final design of the proposed project to offset increased flows from areas of impervious surface. Construction of the proposed project would be in compliance with city and county floodplain guidelines and policies.	many of the drainage issues in the immediate vicinity of the proposed project. However, it is unreasonable to expect that the project would resolve flooding issues beyond the project's limits. TxDOT is working with the City of Houston, HCFCD and local partners to develop improvements that will add resiliency to the drainage systems. These systems are planned to meet or exceed the most recent drainage system guidelines and criteria established by HCFCD. Overall, the proposed roadway and storm drainage improvements will not adversely impact existing conditions for storm events up to and including the 100-year storm (Atlas 14) and the 500-year storm (pre-Atlas 14).		Additionally, maintenance crews will routinely check drainage outlets and clear debris along the roadway system to make sure runoff drains properly during major rainfall events. This resource is not analyzed further in the detailed cumulative impacts analysis.
	Wetlands and Other Waters of the U.S.	<p>The Preferred Alternative would cross water courses preliminarily identified as potentially jurisdictional waters of the United States. Approximately 26 acres of potentially jurisdictional waters of the United States were identified within the Preferred Alternative. The water courses are currently bridged, and the Preferred Alternative is expected to bridge these waters in a similar manner. The sections of Buffalo Bayou and White Oak Bayou that are within the proposed project area are navigable waterways (i.e., waters that are tidally influenced or are presently used, have been used in the past, or may be susceptible for use to transport interstate or foreign commerce). (TxDOT 2019f).</p> <p>The preliminary design of the roadway would avoid or minimize impacts to waters of the United States, including wetlands, to the extent practicable. Until final design is completed and the U.S. Army Corps of Engineers (USACE) has finalized the jurisdictional determination, impacts to waters of the United States can only be estimated. Section 404 permits would be obtained from the USACE as necessary. A Section 9 permit from the USCG and/or a Section 10 permit from the USACE would be anticipated for the navigable waters in Segment 3. Per the requirements of 33 U.S. Code (U.S.C.), Chapter 9, Section 408, TxDOT will coordinate with the USACE and HCFCD to determine if the occupation or alteration of the White Oak Bayou federal project, a portion of which occurs within the proposed project area, would be injurious to the public interest or would impair the usefulness of the federal project.</p>	Anticipated fill impacts to waters of the United States, including wetlands, would generally be limited to the project footprint. Temporary and permanent impacts to waters of the United States would not be expected to disrupt any natural processes in the project area. Because induced redevelopment is anticipated as a result of the proposed project, encroachment alteration impacts to wetlands and other waters of the United States that are farther removed in distance could occur but are unlikely due to the highly urbanized nature of the project area.	Yes	No. Aquatic resources in the vicinity of the proposed project are limited because of the existing developed, urban conditions. During the preliminary and final design phases of the proposed project, efforts would be made to avoid or minimize impacts to waters of the United States, including wetlands (e.g., bridge structures spanning streams, minimized bank stabilization, etc.). The proposed project is anticipated to induce redevelopment; however, aquatic resources occurring outside the project area would be protected by a strong regulatory program.
	Vegetation and Wildlife	<p>Approximately 480 acres of observed vegetation types could be affected by the Preferred Alternative; 98 percent of the project area is transportation infrastructure or urban development. (TxDOT 2018b).</p> <p>Vegetation within the proposed project area is primarily ornamental plantings in the roadway rights-of-way, and residential, commercial, and industrial areas that are routinely mowed and maintained. Limited intact vegetation communities exist along Buffalo Bayou, Little White Oak Bayou, and White Oak Bayou, along fencelines, and in unmaintained or undeveloped parcels. Construction of the Preferred Alternative would impact herbaceous, shrub, tree, and other plantings through site preparation activities. Clearing and grading would remove existing vegetative cover and replace it with mostly impervious cover associated with travel lanes, entrance and exit ramps, and frontage roads.</p> <p>The conversion of undeveloped and landscaped conditions to roadway right-of-way would result in a loss of habitat and could possibly cause further fragmentation of remaining habitat areas. Wildlife occurring within the project area has adapted to the existing urban developed conditions and would be expected to adapt to the changed</p>	The effects of removing areas that are of particular importance as wildlife habitat would not extend beyond the existing predominantly urban, developed conditions present within the proposed project construction footprint. Development, in general, encroaches on vegetation, and reductions in vegetation typically equate to reduced wildlife habitat. For this project located in a highly urbanized area, however, impacts to habitat would be limited to the area of direct impacts and no encroachment impacts would be expected.	No	No. Due to the dense urban nature of the project area, the proposed project would have minimal direct and indirect impacts to vegetation and wildlife.

	Resource	Direct Impacts	Indirect Impacts (Induced Growth and Encroachment Alteration)	Is the Resource in Poor or Declining Health?	Included in the Cumulative Impacts Analysis? Reason for Inclusion/Exclusion
		conditions (e.g., increased traffic movements and noise levels) or relocate to less developed areas adjacent to the right-of-way.			
	Threatened and Endangered Species	No suitable habitat for any federally listed threatened or endangered species was identified within or adjacent to the proposed project area; therefore, no effect to any federally listed species is anticipated as a result of the proposed project. Potential habitat for eight state-listed threatened species (Alligator snapping turtle, timber rattlesnake, Louisiana pigtoe, sandbank pocketbook, Texas pigtoe, Rafinesque’s big-eared bat, Wood stork, and creek chubsucker), and six SGCN (American eel, plains spotted skunk, Southeastern myotis bat, Texas meadow-rue, Texas tauschia, and Texas windmill-grass) may be present within the proposed project area; however, field reconnaissance did not identify the presence of these species.. Potential impacts to state-listed species or SGCNs would be possible, but the potential for encountering these species during construction is low. Any impacts to species would be limited to individuals within the construction area and would not be expected to affect the species as a whole.	Based on observations from field reconnaissance, there would be no anticipated encroachment alteration impacts to the federally or state-listed species because of the existing dense urbanization of the project area and its surroundings.	Yes	No. The proposed project is expected to have minimal direct and indirect impacts on protected species. Due to the developed urban character of the proposed project area, suitable habitat to support listed species is generally absent.
	Soils and Geology	The proposed project would include construction of at-grade, elevated and depressed roadways; construction of access roads; and installation of utilities that would require excavation, mixing, stockpiling, testing, and management of excavated soils and fill material. Mitigation or management activities such as erosion controls would be included in the construction control or management plans and performed during construction of the proposed project to reduce potential impacts.	I-45 is an established interstate that traverses highly urbanized and developed areas throughout northern Houston; therefore, encroachment alteration impacts to soils and geology would be limited as a result of the proposed project. Development of varying intensities has already occurred throughout the limits of the project area, and in the general vicinity of the proposed project. Use of BMPs during construction would minimize erosion and sedimentation, with particular attention paid to water crossings and areas with steep embankments.	No	No. Due to the dense urban nature of the proposed project area and the exemption of Farm Protection Policy Act requirements (no cultivated lands would be disturbed by potential induced development), this resource is not analyzed further in the detailed cumulative impacts analysis.
	Wild and Scenic Rivers	No rivers or river segments listed in the National Wild and Scenic Rivers System are located within or near the proposed project area; therefore, no impacts to a wild and scenic river would occur as a result of the proposed project.	No rivers or river segments listed in the National Wild and Scenic Rivers System are located within or near the project area; therefore, encroachment alteration effects relative to wild and scenic rivers would not occur as a result of the proposed project.	No	No. Because this resource is not located within or near the project area, this resource will not be analyzed further in the detailed cumulative impacts analysis.
	Archeological Resources	Archeological probability analysis and limited survey was conducted by Raba-Kistner Environmental, Inc. (RKEI) in 2016. Follow-up background studies were conducted by TxDOT Environmental (ENV) in 2017–2018. CMEC conducted survey and testing in 2018. (TxDOT 2018g). Segment 1: Desktop probability analysis indicated no areas with high probability for preserved archeological deposits in Segment 1. One area of moderate probability was identified at the north end of the project. CMEC received Antiquities Permit 8256 to conduct survey investigations in this area but access was not available, and the permit was cancelled. Survey with backhoe trenching will be conducted following right-of-way acquisition, as is standard TxDOT practice when right of entry is denied. Segment 2: No areas of moderate or high archeological probability were identified in this segment. No further investigations are required. Segment 3: Multiple areas of high archeological probability were identified near Buffalo Bayou, with the highest-priority portions located in and near 41HR982 and 41HR1037 (the nineteenth- and early twentieth-century Frost Town community). CMEC conducted survey and testing investigations in late 2018 under Antiquities Permit 8613. The results of these investigations were coordinated with TxDOT ENV and THC. No further investigations will be required in the Frost Town area. On February 25, 2019, the THC/TSHPO concurred with TxDOT recommendations that no further work or consultation is required for the surveyed portions of the APE. TxDOT shall ensure that all archeological assessments as well as Section 106 and Antiquities Code of Texas consultation are completed prior to the commencement of	The Section 106 compliance process would govern any development with compliance requirements, providing some level of protection for archeological resources that could be affected by encroachment.	Yes	No. TxDOT is committed to ensuring that survey occurs upon ROW acquisition for any high potential parcels that have yet to be evaluated. Accidental discovery procedures would apply; it is assumed that testing and data recovery would be an option if appropriate; preservation in place is unlikely, so there is an existing procedural path to mitigation that would be followed such that direct impacts would be mitigated if needed, indirect impacts would be limited due to the high level of development in the AOI, and cumulative impacts from projects subject to federal regulation would undergo their own compliance process for resource protection.

	Resource	Direct Impacts	Indirect Impacts (Induced Growth and Encroachment Alteration)	Is the Resource in Poor or Declining Health?	Included in the Cumulative Impacts Analysis? Reason for Inclusion/Exclusion
		construction within the remaining unsurveyed acres of proposed right-of-way/easements. The remaining portions of the project's APE that require further investigation, including medium probability areas located near the northern terminus of the project and the high probability area located within Clayton Homes apartment complex, are defined in Appendix B of the 2017 RKEI survey report. On February 25, 2019, the THC concurred with TxDOT's commitment to complete survey of these areas.			
	Historic Resources [including Section 106 and Section 4(f) resources]	<p>TxDOT used a phased approach to identify, document, and evaluate historic properties in the project area, with an initial Historic Resources Research Design, four reconnaissance-level Report for Historic Studies Survey (Report) documents, and two focused intensive-level survey reports prepared between 2015 and 2018. A Historic Resources Survey Report Update (TxDOT 2019h) consolidated findings and addressed Texas SHPO concerns. The September 2019 Report was utilized for Section 106 consultation. Per Section 106 and 36 CFR 800, TxDOT conducted public involvement and outreach efforts focused on historic resources. The Texas SHPO concurred with TxDOT's determinations of effect on September 9, 2019, on the condition that design prescriptives to avoid or minimize adverse effects are incorporated into the design/build contract.</p> <ul style="list-style-type: none">▪ In Segment 1, one historic district and one individual historic property were located in the APE; no adverse direct or indirect effects would occur.▪ In Segment 2, two historic districts were in the APE; design revisions were made to avoid impacts to the historic districts and contributing properties; no direct or indirect adverse effects would occur.▪ In Segment 3, 10 historic properties and two historic districts would be directly affected. Design refinements were made where possible; design prescriptives to be undertaken by the design/build contractor were incorporated into the SHPO conditional concurrence.	Section 106 requires consideration of direct and indirect effects to historic resources. For the majority of properties that were not adversely affected but were located in the APE, prescriptives were developed with Texas Historical Commission to ensure those properties would be protected during the construction phase. These prescriptives include options to avoid, minimize, and mitigate (through documentation) some historic resources.	Yes	Cumulative Impacts to historic resources were addressed under Section 106 as an Addendum to the Historic Resources Survey Report. The approach for the addendum was guided by the regulations for Section 106 of the National Historic Preservation Act (NHPA) provided by the Advisory Council on Historic Preservation (ACHP) (36 CFR 800). Adverse effects include "reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative." (36 CFR Section 800.5(a)(1)). According to TxDOT's Cumulative Impacts Analysis Guidelines (TxDOT 2019a), if a project does not cause direct or indirect impacts on a resource, it will not contribute to a cumulative impact on that resource. The Historic Resources Survey Report addendum is incorporated to this Technical Report by reference. Historic Resources will not be discussed further.
	Visual and Aesthetic Resources	<p>The visual impacts of the Segment 1 Preferred Alternative are expected to be neutral. The proposed project would be compatible with the environment and would not degrade the visual quality of the area. Although some residential viewers closest to the proposed project would experience degradation in visual quality, the majority of residential and recreational viewers would not have a prominent view of the proposed project area. In specific views with high pedestrian activity, no significant visual resources, including community facilities and parks, would experience degradation in visual quality. The project will be developed under TxDOT's Green Ribbon Program, which allocates funds for trees and plants within roadway right-of-way. A detailed landscaping plan will be developed as part of the final design process, in coordination with local groups and agencies.</p> <p>The visual impacts of the Segment 2 Preferred Alternative are expected to be neutral. The proposed project would be compatible with the environment and would not degrade the visual quality of the area. The viewers most impacted by changes to the proposed project would be recreational and residential viewers closest to the new detention basins. The visual quality of the detention basins could become a benefit for all viewers. The project will be developed under TxDOT's Green Ribbon Program, which allocates funds for trees and plants within roadway right-of-way. A detailed landscaping plan will be developed as part of the final design process, in coordination with local groups and agencies</p> <p>The overall visual quality impact would be neutral for Segment 3. The visual quality would be reduced for viewer groups north of Downtown and for some residential and other viewers outside of Downtown with views of the skyline; however, the majority of viewsheds in the Segment 3 area would have improved views or neutral visual</p>	No project-related encroachment alteration impacts to visual and aesthetic resources in Segments 1 and 2 would be anticipated as a result of the Preferred Alternative. Encroachment alteration effects to visual and aesthetic resources in Segment 3 may include changes beyond the footprint of the Preferred Alternative where elevated sections are removed or depressed sections are constructed. Landscaping and aesthetic mitigation measures would offset such effects and are included as the Addendum 1 to the Visual Impact Assessment Technical Report provided in the Final EIS.	No	No. Because significant adverse impacts are not anticipated, this resource on its own is not anticipated to be analyzed further in the detailed cumulative impacts analysis. However, visual and aesthetic resources as a component of community resources are considered.

	Resource	Direct Impacts	Indirect Impacts (Induced Growth and Encroachment Alteration)	Is the Resource in Poor or Declining Health?	Included in the Cumulative Impacts Analysis? Reason for Inclusion/Exclusion
		impacts as a result of the proposed project, and visual quality would remain moderate. Specific areas where adverse impacts could occur (North Downtown) could be mitigated to minimize the impact (see TxDOT's Green Ribbon Program). Additionally, the form and materials of the proposed project would remain compatible with the existing environment. (TxDOT 2019i).			
	Section 4(f) Resources (limited to parks and publicly owned recreational resources)	<p>Section 4(f) parks resources are fully assessed including alternatives analysis in the Section 4(f) Evaluation under separate cover. The Preferred Alternative would not result in a use of or adverse impact to any Section 4(f) park properties. (TxDOT 2019j).</p> <p>Although there would be no use and no adverse impact to Sam Houston Park, it bears mentioning for beneficial impacts. The proposed action would substantially reduce the highway footprint in the area of Sam Houston Park. With the proposed project, noise levels are predicted to decrease by 3 decibels at approximately the center of the park.</p>	The potential for induced development is low; nonetheless, development by others in the future in the AOI could be subject to compliance with Section 4(f) protections if federal transportation dollars are utilized.	Yes	No. Due to extensive efforts to avoid direct impacts and uses to park resources, there are no direct impacts to parks. There is low potential for induced development from the project, and Section 4(f) regulations would provide some protection to park resources (depending on the project funding pool.) In addition, project designers worked to improve and optimize open space resources throughout the project corridor. Therefore, this resource is not included for additional detailed analysis in the cumulative impacts report.

Based on the results of TxDOT's cumulative impacts risk assessment, supported by the information presented in Table 1 and related analyses documented in the Final EIS and associated technical reports, a cumulative impacts analysis is required and is included in this report using the information currently available at the Final EIS stage.

As shown in Table 1 the resources for which the proposed project may potentially have cumulative impacts include community resources (neighborhoods/public facilities and Environmental Justice). Community resources are carried forward in this report for cumulative impacts analysis for the NHHIP Preferred Alternative.

2.2 Resource Study Areas and Temporal Boundaries for Analysis

A cumulative impacts analysis requires an evaluation of the sustainability of each resource of interest as viewed from the perspective of a geographic context that is larger than the project area. The spatial frame of reference for evaluating the cumulative impacts of the resource is referred to as a "resource study area" (RSA). The RSAs for the resources to be evaluated for cumulative impacts have been established using criteria in the CEQ and TxDOT guidance and will be verified through planner interviews, as well as public and stakeholder involvement for the Final EIS. The RSA represents a geographic area of sufficient size to sustain the long-term vitality of a given resource, and defining the RSA is largely a function of the nature of each resource as defined on a case-by-case basis after considering the unique aspects of a particular proposed project.

2.2.1 COMMUNITY RESOURCES

2.2.1.1 Resource Study Area

The Community Resources RSA is shown on Exhibit 1. The areas where direct effects would occur were the focus of defining an appropriate RSA. "Super neighborhoods" surrounding the alignment of the Preferred Alternative were used for consistency with the analysis in the *Community Impact Assessment Technical Report* (TxDOT 2019b). Super neighborhoods are geographically designated areas that are bounded by major physical features and share common characteristics. Each super neighborhood has an elected council and guiding by-laws that create a framework to prioritize and address issues of concern for their community. Note that not all super neighborhoods are equally active. The super neighborhoods that are represented within the Community Resources RSA include:

- Acres Home
- Downtown
- Fourth Ward
- Greater Greenspoint
- Greater Heights
- Greater Third Ward
- Greater Fifth Ward
- Hidden Valley
- Independence Heights
- MacGregor
- Museum Park
- Near Northside
- Neartown-Montrose
- Northside/Northline
- Second Ward
- University Place
- Washington Avenue Coalition/Memorial Park

The Community Resources RSA boundary is also reflective of “management districts.” Management districts (MDs) are special districts created by the Texas legislature, and are empowered to promote, develop, encourage, and maintain employment, commerce, transportation, housing, tourism, recreation, arts, entertainment, economic development, safety, and the public welfare in specific geographic areas. The MDs located within the Community Resources RSA include:

- Airline Improvement District
- Aldine North Expansion Tract 3
- Aldine Public Improvement District (PID)
- East Downtown MD
- East End MD
- Greater Greenspoint MD
- Greater Northside MD
- Greater Southeast MD
- Houston Downtown
- Midtown MD
- Montrose MD

Zip code boundaries were considered and a boundary was delineated where either a super neighborhood or MD geographic boundary did not exist (specifically, zip code 77038 was used to capture an area between Greater Greenspoint and Acres Home). The resulting RSA is an area presumed to include the basic service areas for services provided by the community facilities that would be displaced by the Preferred Alternative, along with the neighborhoods within which other displacements would occur. Both public outreach and mitigation considerations are important concepts for assessing cumulative impacts to community resources, and this RSA allows for the analysis to focus on those factors as well. Finally, this is an area within which past, present, and reasonably foreseeable future actions may be ascertained. The total acreage of the Community Resources RSA is approximately 86,087 acres.

2.2.1.2 Temporal Boundaries

TxDOT’s guidance also requires the setting of general temporal boundaries to better define the time period considered. The temporal boundary for the community resources cumulative impacts analysis is from 1970 to 2040. The year 1970 was chosen to include a full decennial population census, it was the year after NEPA was enacted, and it preceded the creation of the Houston-Galveston Area Council (H-GAC), the metropolitan planning organization (MPO).

This timeframe captures a period of substantial population and residential growth surrounding the Houston metropolitan area that has been a result of residential, commercial, and transportation-based development. This timeframe captures the 2040 planning horizon for the H-GAC’s 2040 RTP (H-GAC 2016).

2.3 Conditions and Trends

2.3.1 COMMUNITY RESOURCES

2.3.1.1 Past Trends—Population Growth

Table 2 shows historical population growth from 1970 to 2010 in the City of Houston and Harris County, Texas. Houston grew from the 6th largest city in 1970 to the 4th largest city in 2010 according to historical data maintained by the U.S. Census Bureau. The City of Houston’s population grew by 70 percent between 1970 and 2010 (from 1,232,802 persons to 2,099,451 persons). Harris County grew by even more—135 percent from 1970 to 2010 (from 1,741,912 persons to 4,092,459). The City’s land area grew from 433.9 square

miles in 1970 to 599.6 square miles in 2010, with density increasing from 2,841 persons per square mile in 1970 to 3,502 persons per square mile in 2010.

Table 2. Historical Population—City of Houston and Harris County, Texas (1970–2010)

Harris County		City of Houston					
Year	Population	Year	Rank (largest urban areas in U.S. by population)	Population	Land area (sq. miles)	Density (avg. population per sq. mile)	
1970	1,741,912	1970	6	1,232,802	433.9	2,841	
1980	2,409,547	1980	5	1,595,138	556.4	2,867	
1990	2,818,199	1990	4	1,630,553	539.9	3,020	
2000	3,400,578	2000	4	1,953,631	579.4	3,372	
2010	4,092,459	2010	4	2,099,451	599.6	3,502	
% change 1970–2010	135%	% change 1970–2010		70%	38%	23%	

Sources: City Mayors Statistics 2012; Demographia 2004; Gibson 1998; U.S. Census Bureau Decennial Census 1970, 1980, 1990, 2000, 2010.

The greater Houston metropolitan area has experienced substantial urban growth since 1970. While growth in the region as a whole has recently slowed compared to previously rapid growth rates, the shifting patterns of housing and job locations have resulted in newly emerging travel patterns that have influenced the urban growth pattern for the region. A multi-nucleated urban growth pattern has evolved throughout greater Houston, which is characterized by a high amount of travel to and from suburban locations in Harris County and among adjacent counties. Residential, commercial, and industrial developments, along with transportation improvements, have taken place within the Community Resources RSA since the 1970s and are forecasted to continue through 2040.

The establishment of the H-GAC as the designated MPO in 1973 created an entity responsible for regional planning decisions. The H-GAC has provided guidance on a whole range of regional issues, including transportation.

Housing affordability has been a historical challenge in the Houston area, exacerbated by natural events such as Hurricane Harvey. These past trends and events connect directly to current (and potentially future) conditions and trends and are therefore woven into the discussion in Section 2.3.1.2.

2.3.1.2 Current Conditions and Trends

Planning entities such as the H-GAC have tracked population and employment growth and use that data to help plan for infrastructure needs in the future. Data sets from various H-GAC documents are used in this section to describe current conditions. Planning efforts such as the Livable Centers studies reflect neighborhood-scale efforts to make communities more walkable, compact, and accessible, which generally can be regarded as more sustainable. These studies are important for understanding the “health” of the Community Resources RSA and its potential for resilience after major infrastructure projects such as the NHHIP are undertaken.

Population growth and densification of development in Houston have continued since the 1970s (generally from the time that environmental protection regulations were passed to help protect natural and human resources during the development process). Ample data is available about growth in Houston that sets the backdrop for the current proposed project (H-GAC 2016).

Environmental Justice

One current condition in the RSA is the prevalence of Environmental Justice communities of concern. Figure 1 depicts overlapping minority and low-income areas (as defined in the 2040 RTP, based on American Community Survey data from 2007 to 2011; H-GAC 2016) within the H-GAC planning area. Major portions of the Preferred Alternative traverse predominantly Environmental Justice communities of concern.

Planned highway expansions and proposed transit investments within the Community Resources RSA could result in both beneficial and adverse impacts to communities. Adverse impacts could include displacements at the project level, such as would occur from the Preferred Alternative, but also beneficial impacts, such as access to employment centers, hospitals, and institutions of higher education along with congestion reduction and mobility benefits.

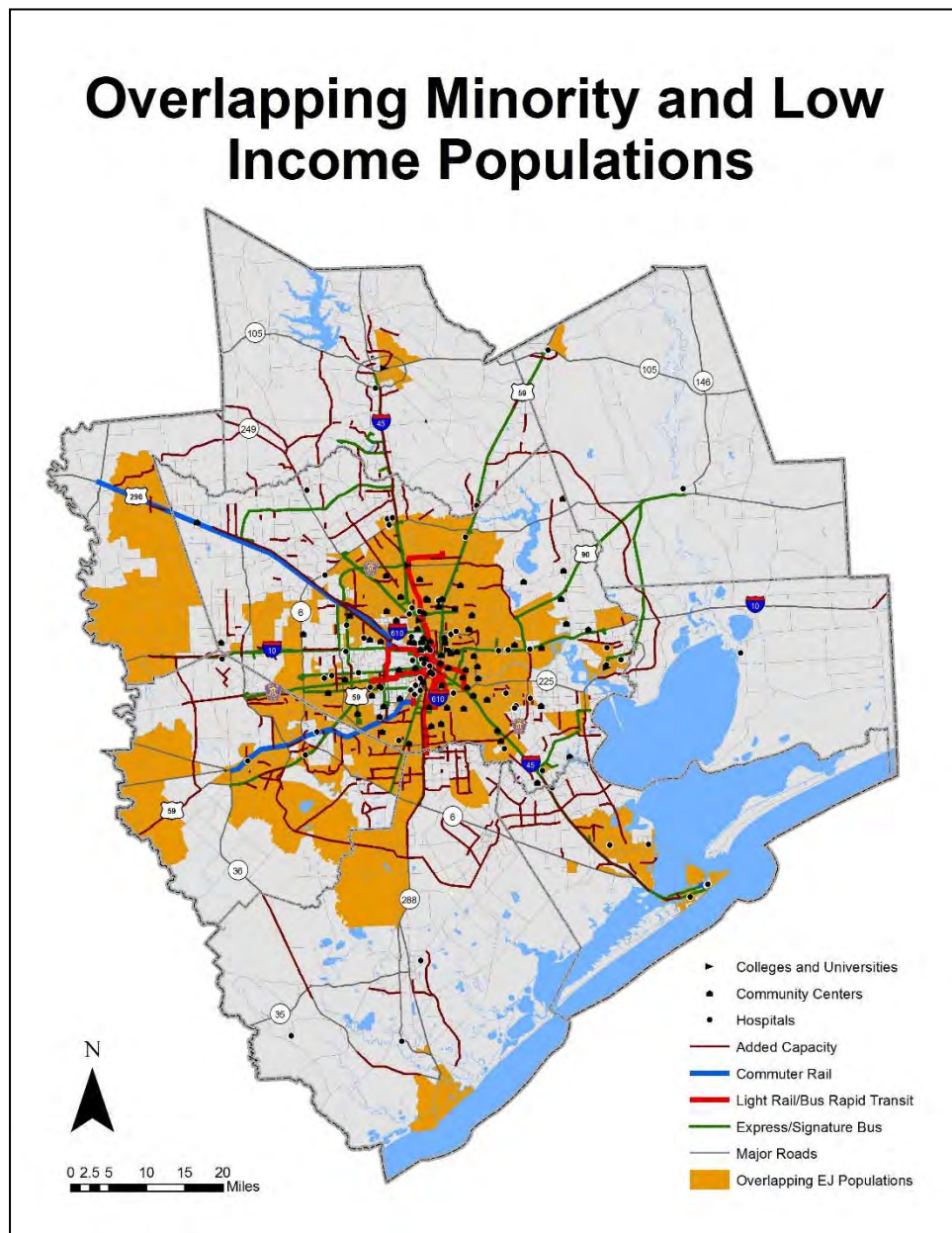
Federal guidelines, as well as H-GAC policies, include proactively coordinating with Environmental Justice communities of concern and aiming for meaningful public involvement during the planning process. In surveys conducted by H-GAC, Environmental Justice communities of concern identified specific priorities, including increased investment in transit projects followed by highway improvements. The NHHIP development process has been undertaken with a similar commitment to community engagement and outreach, recognizing that both adverse and beneficial impacts could occur at the project level (See the *Community Impacts Assessment Technical Report – Appendix A, Stakeholder and Community Outreach*).

The NHHIP aims to provide congestion relief and added capacity to I-45 in addition to supporting transit operations. Project objectives include to (1) provide expanded transit and carpool opportunities with two-way, all-day service on MaX lanes, and access to METRO Park & Ride facilities; and (2) provide a facility with additional capacity for projected travel demand by incorporating transit opportunities, travel demand and management strategies, and flexible operations. Such a facility would help manage congestion, improve mobility, enhance safety, and provide travelers with options to reach their destinations. (See Final EIS *Project Need and Purpose*.) This transit-supportive focus is consistent with the Livable Centers studies undertaken in the RSA.

Livable Centers Studies

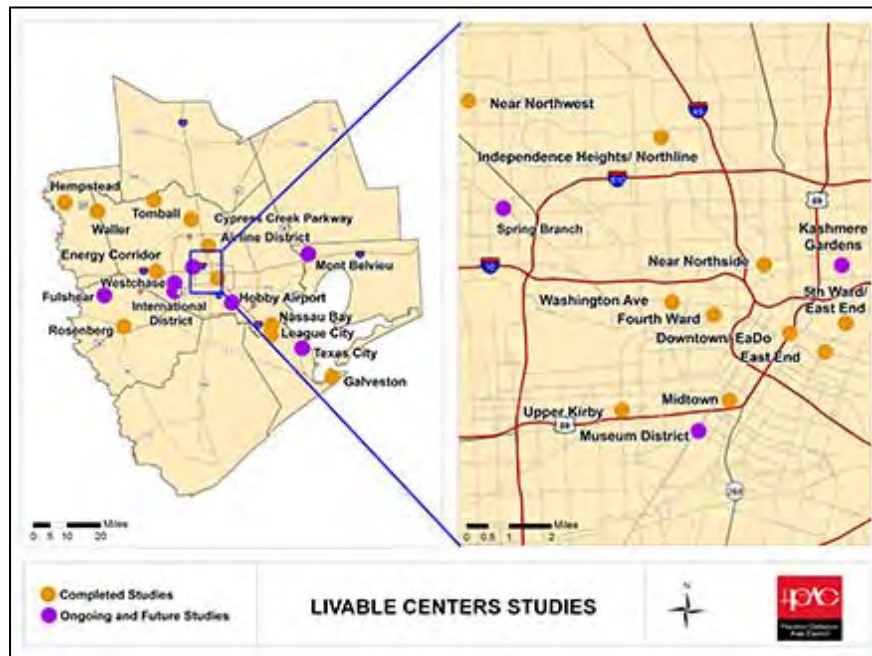
Numerous studies have been initiated in the Houston area to help the city grow and develop in a sustainable and intentional manner. H-GAC has prepared an ongoing series of planning studies called the “Livable Centers Studies” that include neighborhoods that are within the Community Resources RSA (Figure 2).

1 Figure 1. Overlapping Minority and Low-Income Populations—H-GAC Environmental Justice Analysis.



2

Figure 2. H-GAC Livable Centers Studies.



The program was developed with a goal of creating neighborhoods that are:

- Compact and mixed use
- Designed to be walkable
- Connected and accessible

The Livable Centers Studies demonstrate that (1) planning agencies are investing resources to understand how they can change some current conditions to more desirable outcomes, and (2) development of multiple transportation modes is necessary to accommodate drivers, bicyclists, pedestrians, and other travel modes that support diverse and healthy communities. Two of the Livable Centers are within the Community Resources RSA, and several others intersect portions of the RSA or are nearby. The *Indirect Impacts Technical Report* provides summaries of the Livable Centers studies pertinent to the NHHIP project area.

Current conditions and trends are described in the two most relevant studies, which are summarized below.

Livable Centers: Downtown/EaDo

Published in September 2011, the Downtown/EaDo Livable Centers study examines the existing conditions for housing and jobs Downtown and EaDo and provides recommendations for land use, pedestrian, bicycle, transit, and vehicular traffic development projects. The central question of the study was how to provide housing options close to Downtown jobs for a diverse range of incomes and households (H-GAC 2011: Executive Summary). The Downtown District is characterized by large public venues (such as Discovery Green, the George R. Brown Convention Center, and the now-operational Houston Dynamo soccer stadium that was under construction during the study) and large office towers with some high-rise residential developments. EaDo east of US 59/I-69, was an area in transition at the time of the study, with numerous apartment and townhouse developments under construction along with redeveloped warehouses. The study examines the elements that characterize these districts and lays out recommendations to help community members and policymakers take steps to help this area make progress toward becoming a “Livable Center.” In the Downtown/EaDo area, transit options have a higher potential for being feasible than in more outlying areas.

Land use recommendations include increasing residential housing options, along with increasing street-level retail for community visibility and safety benefits. According to the report, “without significant expansion of housing options and the corresponding increase in economic/human activity, Downtown and EaDo will remain fundamentally unchanged and a ‘livable center’ largely unrealized” (H-GAC 2011: Executive Summary, 8). The study is accompanied by an Implementation Matrix and encourages taking small, incremental steps toward achieving this larger vision for the area. It concludes by stating that “there is a tremendous opportunity in Downtown and EaDo to create a Livable Center that will support existing venues and draw new residents, businesses, and visitors. The key to realizing that opportunity is a coordinated set of policies and projects that will encourage development, improve the public realm, and reconnect the area” (H-GAC 2011).

Livable Centers: Northside

The Northside neighborhood is located north of Houston’s Downtown and is easily accessible from I-45 and I-10. Northside is centrally located and bordered by major freeways. The eastern portion is characterized by industrial use and is bordered by a railroad, and to the west is the Greater Heights neighborhood, a residential area with “considerable redevelopment and property value increases in recent years” (H-GAC 2010: 12). The south end of the Northside neighborhood is defined by limited direct access to Downtown. Transportation improvements are proposed for the area, such as the San Jacinto Street extension that may be added to the Main Street underpass and improvements to the Hardy Street/Elysian Street overpass connections.

This Livable Centers study documents existing conditions within Northside and compares the area to Houston and the greater region. Population change, residential densities and growth rates, and employment characteristics are described in detail, and historical information about development in the neighborhood is provided.

The vision for Northside, according to the study, is as follows, “The overall vision for the neighborhood is to create a place with a strong local identity that is safe, connected, walkable, vibrant and green while preserving and enhancing existing historic and cultural resources” (H-GAC 2010: 6). Through stakeholder involvement and visioning exercises, the priority projects identified through the Livable Centers study include:

- Create a stronger pedestrian connection at the Burnett Street/North Main Street Tunnel while implementing “Parkway” upgrades to Burnett Street
- Support efforts to ensure existing businesses and residents benefit from the new transit service
- Create “Festival Streets” at Fulton Street and Quitman Street; identify the best location for a “Better Block” Project
- Create streetscape improvements along the east-west Hogan Street/Lorraine Street corridor
- Establish plazas and small open spaces within publicly owned METRO remnant properties along the rail corridor
- Establish a hike and bike trail along Little White Oak Bayou, including connections into the neighborhood

These priority projects clearly demonstrate that the Northside area could benefit from community building through redevelopment and increased connectivity. The Livable City vision for Northside provides a framework for potential NHHIP community development efforts within the Community Resources RSA. The vision articulated within the Livable City study supports potential mitigation measures that would help offset direct impacts anticipated from the NHHIP and sets the tone for continued stakeholder outreach, community involvement, and additional efforts to develop mitigation plans consistent with the Livable City vision (H-GAC 2010).

Downtown Redevelopment

The George R. Brown Convention Center 2025 Master Plan prepared in December 2011 called for development of a true district to enable Houston to realize the potential multi-faceted benefits of its Downtown convention center (Gensler Associates 2011). According to the vision in the plan,

activating the streets with local residents, downtown workers, conventioners and visitors attracted by shops, restaurants and entertainment venues will create a vibrant, safe convention district that appeals to meeting planners and exhibitors... The George R. Brown Convention Center 2025 Master Plan recognizes the need for the City of Houston to adopt a more aggressive, development-friendly strategy in the form of policy changes, private investment incentives and infrastructure improvements... (Gensler Associates 2011: 5)

The Preferred Alternative is expected to cause numerous displacements on the east side of US 59/I-69; therefore, TxDOT has coordinated with the City of Houston, the Houston Housing Authority (HHA), and other local planning officials to identify mitigation to potentially offset some direct impacts in a manner consistent with the 2025 George R. Brown Convention Center Master Plan. The stakeholder area discussed in the Master Plan overlaps the EaDo “core” livable center planning area, which includes areas of potential NHHIP displacements.

In November 2017, the Houston Downtown MD (Downtown District) and Central Houston, Inc. released a master plan for Downtown Houston entitled *Plan Downtown: Converging Culture, Lifestyle & Commerce*. The plan provides a 20-year vision for the area and outlines recommendations for both short-term and long-term planning, development, and design that will improve the visitor appeal, business climate, livability, and connectivity within and around Downtown Houston leading up to the city’s bicentennial in 2036 (Downtown District, et al. 2017).

Plan Downtown is organized into the following four categories: (1) Downtown is Houston’s greatest place to be, (2) Downtown is the premier business and government location, (3) Downtown is the standard for urban livability, and (4) Downtown is the innovative leader in connectivity. The Plan also supplies short-term and long-term priorities for implementation of the plan’s vision, values, and goals to improve the quality of urban life (Downtown District, et al. 2017).

The Plan’s strategies include:

- Creating a Green Loop, a 5-mile transportation and recreation circuit that connects Downtown to adjacent neighborhoods.
- Enhancing walkability of Downtown through the development of Downtown Design Guidelines and the addition of new destinations.
- Establishing an Innovation District as the center for technology and entrepreneurship in the Houston region by strengthening connections between businesses/funders and entrepreneurs and pursuing partnerships with area universities.
- Building 12,000 additional Downtown residential units to support population growth from 7,500 to 30,000 over the next 20 years and enhancing the area amenities available to current and future residents.
- Adapting to autonomous vehicles by positioning Downtown to benefit from new technologies.

In addition to a core leadership team that included local government representatives and representatives from East Downtown, Greater East End, Greater Northside and Midtown MDs, a larger 166-member steering

committee of elected officials, community leaders, and area residents was also included to provide input to frame plan recommendations.

Plan Downtown representatives engaged stakeholders in a series of topic-focused meetings, public workshops, online surveys, and text campaigns. A year and a half of public input and expert analysis led to a detailed and adaptable roadmap that identifies stakeholders' areas of responsibility, designates a phasing strategy, and pinpoints funding opportunities for projects and concepts. Findings relate to the implementation matrix of the Downtown/EaDo Livable Center, as well as the core principles of *Plan Houston*, the city's first General Plan, adopted by Houston City Council in the fall of 2015 (Downtown District, et al. 2017).

Planning and Redevelopment

Each year, the City of Houston produces an Annual Report to discuss the City's goals and achievements over the past year (City of Houston 2016a). In 2015, the City of Houston adopted its first general plan, *Plan Houston*, as a tool to guide future growth and establish long-range planning policies (City of Houston 2015a). According to the 2016 Annual Report, one major change for the City had been the "active utilization" of *Plan Houston* during that year. *Plan Houston* continued to guide City plans and policies in 2017, as the City departments worked on projects that aligned to the plan's core strategies, such as the Complete Communities program, the Walkable Places project, Plan Downtown, and the Houston Bike Plan (City of Houston 2017a).

In 2016, the opinions of survey respondents were taken into consideration when the City established its priorities. The City identified traffic congestion as the fourth-highest priority, transportation options (rail, buses, and bike lanes) as the fifth-highest priority, and affordable housing as the seventh-highest priority for the City.

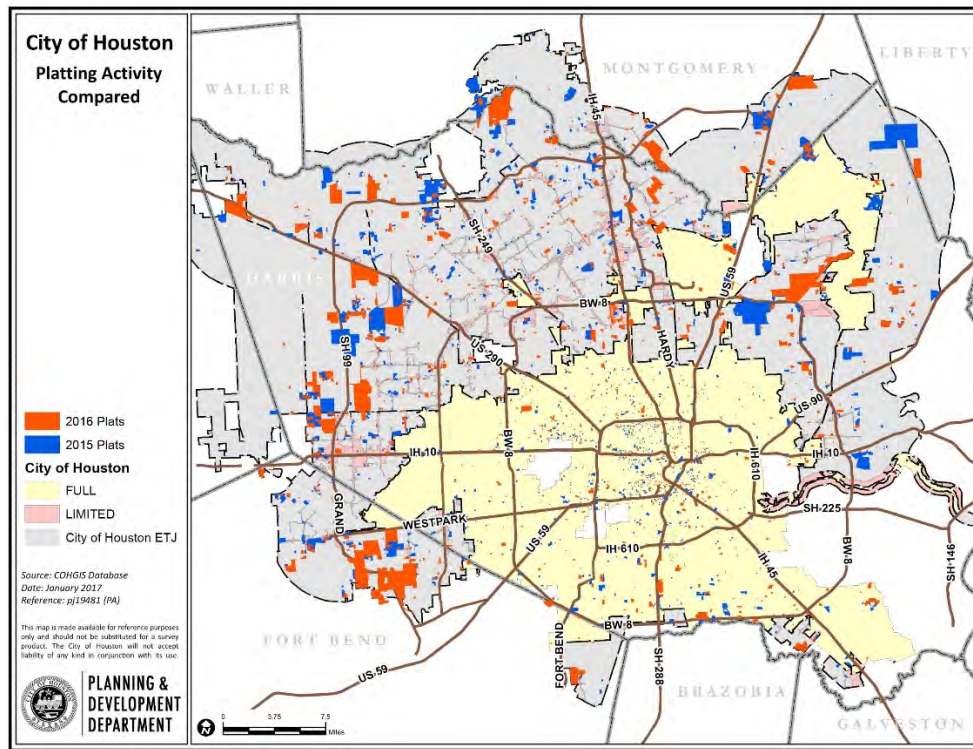
The City also provided updates on the Livable Cities initiative, with additional areas completing their plans to achieve more of the livable city goals of creating more walkable, sustainable communities. Other visioning and redevelopment efforts, such as the Houston Mayor's 2017 Complete Communities Initiative to increase access to quality services and amenities for all Houston residents, are beginning to report progress as well.

For many projects, the City cooperates with a non-profit organization called the Houston Land Bank (HLB), formerly the Land Assemblage Redevelopment Authority (LARA). In 2000 LARA was created in conjunction with the City of Houston, Harris County, and the Houston Independent School District to improve the quality of life for citizens residing in disadvantaged/deteriorating neighborhoods. Projects include developing and redeveloping housing, commerce, parks, and education in a manner that reflects a neighborhood's vision and individual character. In 2018, LARA changed its name to the HLB and updated its bylaws. HLB is housed within the City of Houston Housing and Community Development Department and its planning efforts are supported by the City of Houston Planning and Development Department. As a non-profit, City partner HLB works in conjunction with non-profit and for-profit development communities to further neighborhood revitalization efforts. In 2016, HLB (then still referred to as LARA) acquired 13 lots and sold 77 lots to builders or adjacent owners; those builders sold 9 completed houses to new homeowners for an overall total of 354 new homes in 8 communities throughout the Houston area since its inception (City of Houston 2016a).

Figure 3 and Figure 4 show platting activity changes between 2015 and 2017, identifying several projects that have been platted and are currently underway along the existing I-45 corridor and within the Community Resources RSA.

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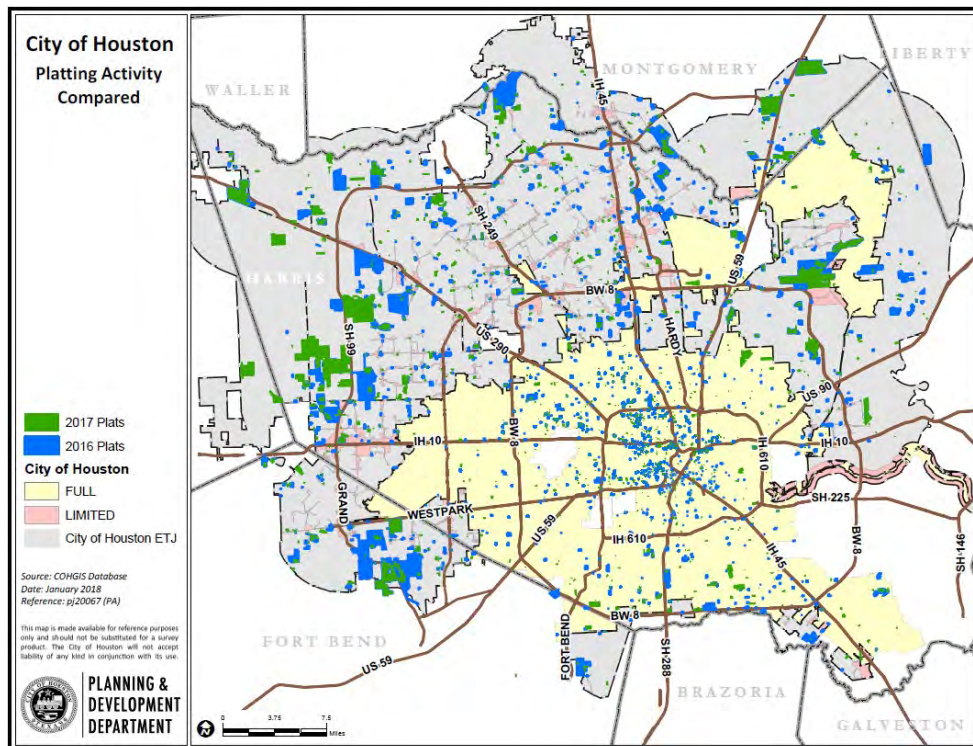
Figure 3. Houston Platting Activity 2015, 2016.



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3

Figure 4. Houston Platting Activity 2016, 2017.



4

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The City's annual reports state that Houston is working to support and develop livable, complete communities and neighborhoods; provide for its diverse population; encourage sustainable redevelopment, especially in central Houston; and improve transportation facilities, including transit to improve access to and from a healthy variety of options for places to live and work.

Housing Affordability

In Houston, as in many other urban areas, there is a need for affordable housing. Often, service area jobs are located in the central city where there may be a lack of affordable housing for low- and modest-income workers. In outlying areas, lower housing costs may be offset by higher transportation and related costs. Approximately 11.3 percent of the housing in Houston is vacant; the other 88.7 percent is 43.2 percent owner-occupied and 58.6 percent renter-occupied (U.S. Census Bureau American Community Survey [ACS] 2016a; 2016b). According to a 2017 report by the National Low-Income Housing Coalition (NLIHC), Houston faces the third-worst housing shortage of the country's 50 largest metropolitan areas. Only approximately 18 affordable rental homes are available for every 100 extremely low-income renter households (NLIHC 2017). Extremely low-income households are those with income at or below the federal poverty guideline or below 30 percent of area median income, whichever is higher.

The Houston and Harris County Housing Authorities have historically provided affordable housing options for low-income Houston residents, including the construction and operation of public housing developments and the distribution of the Housing Choice Voucher Program, the largest federal affordable housing program for rental assistance. In September 2016, the HHA briefly re-opened its waiting list for the Housing Choice Voucher program for the first time in four years due to the lower number of previous applicants waiting for housing. After one week, 68,831 families applied for the program, and 30,000 were randomly selected via a lottery to be added to the waiting list (HHA 2016). Special preference was given to applicants who were homeless or aging out of foster care. Applicants had to pass a criminal background check and demonstrate eligibility to qualify for the program, either by meeting the special preferences as previously stated or meeting income limits specified by the U.S. Department of Housing and Urban Development. One month later in October of 2016, the Harris County Housing Authority re-opened its waiting list for its Housing Choice Voucher program for the first time in eight years. In 2008, more than 21,000 applications to participate in the Harris County Housing Choice Voucher program were filed. In 2016, when the number of applicants on the waiting list dropped to fewer than 600, the program was briefly re-opened, allowing people the opportunity to apply to be on the waiting list. Approximately 5,000 applications were randomly selected via a lottery to be added to the waiting list (Feuk 2016).

Under the Housing Choice Voucher program, qualified applicants receive a voucher to subsidize their income in order to obtain rental housing in the private market. This broadens options for low-income and very low-income families beyond traditional public housing units or facilities to apartments and rental houses in the private market. However, with the passage of Senate Bill 267 in June of 2015 the State of Texas formally allowed landlords to deny applicants based on source of income (i.e., those paying rent with vouchers). Due in part to this law, not all private landlords will accept vouchers as part of rental payments, even though the amount they would receive in rental payments would be the same. Because of this law, housing for voucher recipients in Houston and other cities across Texas is restricted to locations where landlords have agreed to opt in to the program. These locations are usually characterized by higher poverty and lower opportunities for overall life enhancement.

Additionally, a large number of affordable homes are located in the floodplain. Specifically, the Glenburnie and Cashiola neighborhoods in the Independence Heights super neighborhood were affected by floods in 2015. Hurricane Harvey inundated Houston after a July 2017 Finding of No Significant Impact (FONSI) for a federally

1 funded voluntary buyout program for homes in Glenburnie and Cashiola in the Independence Heights super
2 neighborhood that were affected by the 2015 floods (City of Houston 2017b; Ortiz 2017).

3 When Hurricane Harvey struck Houston in August of 2017, it caused massive amounts of damage to
4 communities and homes in the area. The hurricane yielded almost a year's worth of rainfall in a matter of days.
5 By September 1, 2017, one-third of Houston was underwater, and by September 22, approximately 27,812
6 households in the Houston area had registered for assistance with FEMA (FEMA 2017). Overall, within the first
7 several weeks following the disaster, nearly 800,000 applications for disaster assistance were submitted
8 across the state and more than \$1.5 billion in federal funds was paid to Texas residents who were impacted by
9 the disaster, which included assistance grants, low-interest disaster loans, and flood insurance advance
10 payments (FEMA 2017). Later, long-term federal housing aid was distributed, including Community
11 Development Block Grants for Disaster Recovery (CDBG-DR), with approximately \$1.2 billion allocated to the
12 City of Houston and \$1.1 billion allocated to Harris County (Morris 2018). However, there is still a significant
13 unmet need as many households outside of the 100-year floodplain (i.e., those not required to purchase flood
14 insurance) were seriously affected by the storm and unprepared to deal with its consequences. Additionally,
15 many studies note that the most socially vulnerable populations do not have access to or the capability to
16 apply for and receive federal funding, and such groups are also hit harder than others by disaster events,
17 making it more difficult to recover (Blaikie et al. 1994; Cutter et al. 2000; Peacock et al. 2011; Van Zandt et al.
18 2012).

19 As Houston was already facing an affordable housing shortage before Harvey hit, the problem was exacerbated
20 by the flooding since several of the city's largest affordable housing complexes were in the floodplain (Johnson
21 and Dharani 2017). Several HHA developments had to be evacuated, and some are in need of repair or
22 reconstruction due to flood damage. The impact of Harvey has worsened Houston's affordable housing crisis
23 by diminishing the already short supply of affordable units and leaving the city's low-income households to face
24 more uncertainty and instability.

25 Just after Harvey, in the summer of 2018, HHA finished constructing its first subsidized housing development
26 in a decade; the complex is in the Independence Heights neighborhood north of I-610 and west of I-45
27 (Takahashi 2017). The mixed-income complex, Independence Heights Apartments, offers 154 units with a
28 portion (37 units) available to renters earning an annual income at 30 percent of the area median income or
29 less, and the rest of the units (117 units) available to renters earning an annual income at 60 percent of the
30 area median income or less (HHA 2017).

31 With over a billion dollars in federal funding available to the Houston area for the reconstruction of the
32 affordable housing stock damaged by Hurricane Harvey, coordination between public and private entities has
33 already started. Planning efforts are focusing on rebuilding communities in a more holistic way, concentrating
34 not only on housing, but also on access to transportation, good schools, and other essential services. As
35 mentioned previously, the Houston area has received CDBG-DR funds from the U.S. Department of Housing
36 and Urban Development (HUD) for Hurricane Harvey recovery efforts. Applications for CDBG-DR funds are
37 currently being accepted and require affordable housing to be part of the proposed development in order to
38 receive funding. CDBG-DR funds have allowed the City of Houston Housing and Community Development
39 Department (HCDD) to develop a program to provide newly constructed, affordable single-family homes in
40 Complete Community areas of Houston for qualified low- and moderate-income homebuyers (City of Houston
41 HCDD 2019). Using the CDBG-DR funds, HCDD will act as the developer of properties and will cover all eligible
42 costs associated with the development and construction of new single-family homes. Homebuyers eligible for
43 the New Home Development Program must have household incomes that do not exceed 80% of the area
44 median income. These income-eligible homebuyers may receive assistance from the City in the form of a New

Home Development Program Loan, which would not bear interest and the payments of which would be made affordable to the homebuyer “based on HCDD’s application of the HUD guidelines for housing affordability” (City of Houston HCDD 2018a:4). As of Spring 2019, HCDD has started the program only in the Acres Homes neighborhood but plans to expand to other communities in the future (AECOM 2019).

The extent of applications and long waiting lists for the Housing Choice Voucher program, the devastation caused by Hurricane Harvey, and the gradual development of new affordable housing are indications that housing affordability continues to be a challenge for Houston even though there are programs and development projects in place that are attempting to address this issue. As discussed later in this section, displacements that would be caused by the proposed project are required to be appropriately mitigated (through relocation or in some cases housing construction), in accordance with federal regulations.

Displacements

The Preferred Alternative would result in significant displacements. The Preferred Alternative would have direct impacts on low-income and/or minority neighborhoods, including the anticipated displacement of several community facilities. These displacements are discussed in detail in the *Community Impact Assessment Technical Report* (TxDOT 2019b).

As discussed in the *Community Impact Assessment Technical Report*, TxDOT is coordinating with the HHA regarding potential impacts to low-income housing. In May 2017, the HHA met with residents at the potentially displaced housing facilities, Clayton Homes and Kelly Village, to discuss potential impacts and relocation options. The agency plans to build new subsidized housing in the general area and is investigating possible locations nearby (HHA 2017, 2019). Subsequent coordination has occurred regarding these properties and detailed discussions of the status of these efforts are discussed in Sections 5.1 and 5.2 of the CIA Technical Report. TxDOT is committed to continuing to work with the HHA and representatives of other community facilities, housing, and businesses used by Environmental Justice communities of concern to support the implementation of drafted mitigation measures.

Within the Community Resources RSA, efforts have been made by planning entities to involve Environmental Justice communities of concern in the planning process to ensure that their priorities are addressed from the system-planning stage through the project-development stage. TxDOT’s role in supporting proactive engagement in meaningful public involvement is central to the NHHIP project development process and assessment of the significance of cumulative impacts within the Community Resources RSA.

3.0 STEP 2: DIRECT AND INDIRECT EFFECTS ON EACH RESOURCE FROM THE PROPOSED PROJECT

Table 1 summarizes the potential direct and indirect effects to the Community Resources (neighborhoods and public facilities/Environmental Justice) and Historic Resources. The table was used as a screening tool to identify resources studied in detail in this cumulative analysis. Steps 3 through 5 focus on the resources identified.

4.0 STEP 3: OTHER ACTIONS—PAST, PRESENT, AND REASONABLY FORESEEABLE—AND THEIR EFFECTS ON EACH RESOURCE

According to TxDOT's guidance, the cumulative effects analysis should include "the full range of other actions, not just transportation projects" with a focus on activities "that are likely or probable, rather than merely possible" (TxDOT 2019a: 10). Land use changes associated with the H-GAC's 2045 RTP; planned development tracked by individual municipalities, counties, and/or the H-GAC; and other large-scale residential and commercial projects could contribute to cumulative impacts on sensitive resources. Cartographic analysis using a geographic information system (GIS) attempts to identify the prevalence and health of the community and historic resources within the RSA and the level of impact potentially caused by the Preferred Alternative, in addition to other actions.

The next sections include discussions of past actions, followed by a discussion of the H-GAC Regional Growth Forecast along with some development data prepared by H-GAC. The discussion then provides quantitative information about transportation and development projects within the Community Resources RSA. Finally, this section discusses a few examples of major development projects within the Community Resources RSA based on feedback provided from interviews with local land use and planning experts plus supplemental research.

4.1 Community Resources

4.1.1 PAST ACTIONS

The history of the project area is discussed by Segment in the Historic Resources Survey Report. This section will briefly discuss major past actions that have occurred in the Community Resources RSA that would likely contribute to cumulative impacts. Overall, the City of Houston was shaped by early infrastructure development, including the establishment of trade routes along waterways and related port activity, regional rail line development, and construction of highways in concentric ring configurations. The invention of the automobile and air conditioning fostered the explosive growth of cities like Houston in the Sunbelt Region over the last sixty years (Fisher 1989). Houston's transition from a small to a major city between 1900 and 1950 means that the majority of its infrastructure took shape following the rise of the automobile, with highways providing the foundation for the City's built form (Shelton 2017a). Highways have been built in segments as economic conditions allow, but generally, construction started on the I-610 loop in the 1950s, the Beltway 8 loop in the 1980s, and Grand Parkway in the 1990s. These infrastructure projects continue to define the shape and character of Houston.

The growth of the oil industry distinguished Houston from other Sunbelt cities, continually stimulating the economy and creating a "boomtown" atmosphere. Through the 1960s and 1970s, Houston became internationally prominent in the oil and petrochemical industries (Fisher 1989). Accompanying this was an increase in people as well as office buildings. From 1970 to 1983, a total of 205 large (over 100,000 square feet of floor space) office buildings were built, which quadrupled the number of large office buildings available in Houston prior to 1970 (Fisher 1989). Most of these served as the administrative centers for the oil, gas, and petrochemical industries. In addition to population growth, the City experienced a notable expansion of land area and development of the built environment. From 1900 to 1980, the City of Houston expanded from 9 square miles to 556 square miles through annexation. Today, the City has expanded to approximately 667 square miles (City of Houston 2014).

The 1950s brought the construction of freeways and the corresponding right-of-way clearance through some of Houston's downtown neighborhoods. It is important to note that the prosperity Houston experienced during the

1 mid-to-late twentieth century did not extend to all Houstonians. During the booming 1950s, parts of the
2 Community RSA, particularly the Third, Fourth, and Fifth Wards, remained without adequate paving and
3 drainage (Shelton 2017b). These predominantly black communities received little public support, if any, for
4 improvements to their parks, schools, or hospitals, and the construction of freeways threatened their already
5 vulnerable communities. The construction of I-45 through downtown Houston started in the 1950s, with the
6 Pierce Elevated opening in 1967. This section of I-45 displaced nearly 560 residences and businesses through
7 Downtown and parts of the Third Ward, in addition to causing widespread turnover of neighborhood land uses
8 (Shelton 2017b). Most of the displaced residents in the Third Ward were renters with little legal power to
9 contest the displacements. Overall, much of the right-of-way for Houston's downtown freeways consisted of
10 residential structures, with smaller impacts on commercial and industrial enterprises (Slotboom 2013).

11 Across the county, large urban freeway projects requiring extensive displacements advanced without much
12 opposition until the mid-1960s. Opposition to Houston's freeway construction did not arise until the 1970s.
13 (Slotboom 2013). The proposed expansion of I-45 was one of several freeway projects that became the focus
14 of newly organized community opposition. In 1972, the Texas Highway Department proposed the expansion of
15 I-45 from six to eight lanes along a 4.8-mile stretch through the Third Ward. While projected to lead to a
16 smaller number of displacements than the construction of the Pierce Elevated a decade earlier, residents of
17 the Third Ward rejected the widening plans and accused officials of intentionally underfunding infrastructure in
18 their community in order to justify the displacements (Shelton 2017a). Despite the opposition, the Texas
19 Highway Department passed an order approving the widening in 1973 (though construction did not begin until
20 10 years later due to funding shortfalls). The anti-freeway movement in Houston mainly consisted of localized
21 groups protesting the impacts of projects occurring in their neighborhoods, as opposed to a city-wide sentiment
22 against the projects. Due to this localized form of opposition, the movement was weak compared to similar
23 movements in most cities in the U.S. (Slotboom 2013). Overall, the construction of I-45 through downtown
24 Houston in the latter half of the twentieth century had a significant impact on surrounding neighborhoods.

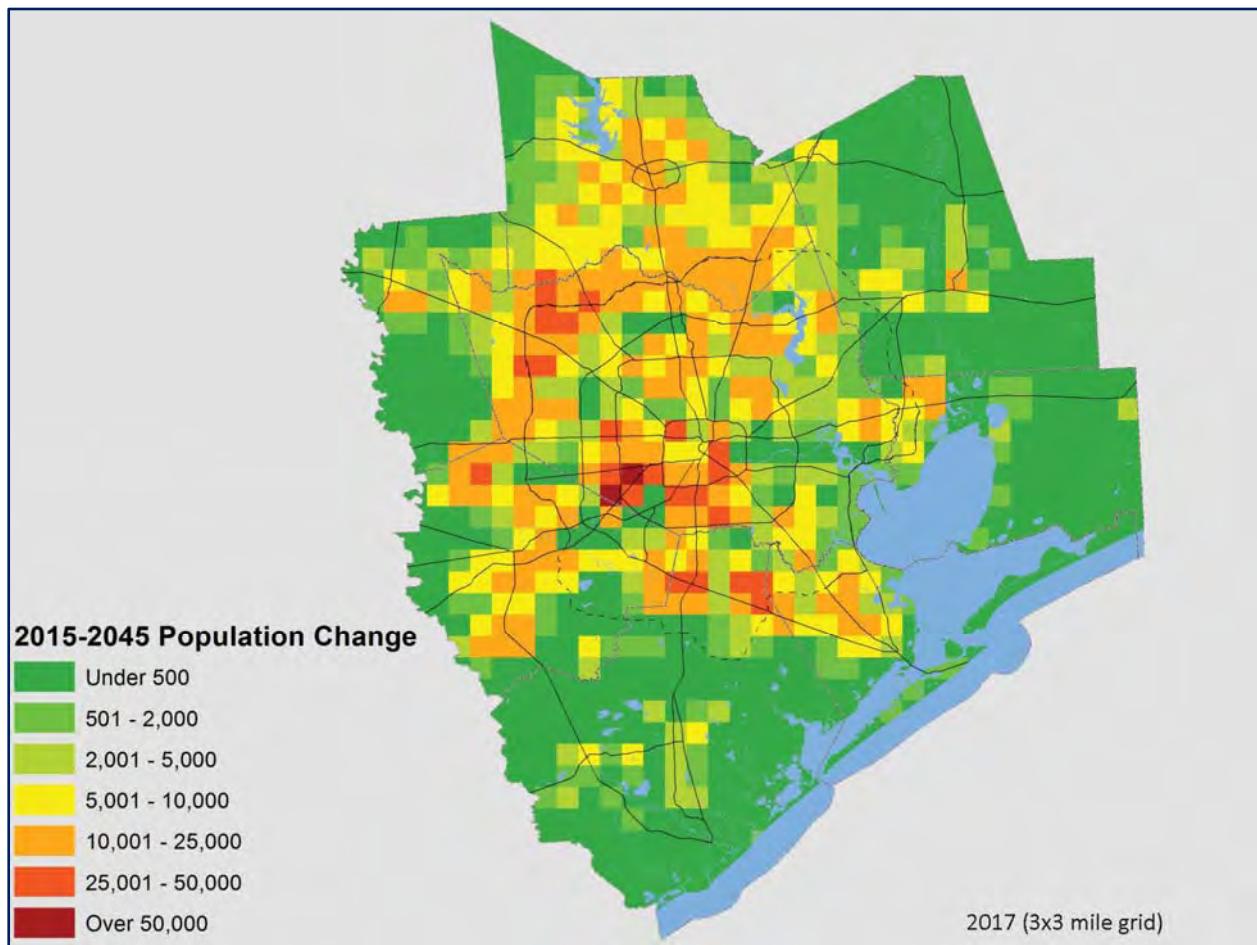
25 More recently, many major construction projects have taken place in Downtown Houston, including the George
26 R. Brown Convention Center in the 1980s, Discovery Green and Minute Maid Stadium in the 2000s, and the
27 Houston Dynamo Stadium, which opened in 2012. Buffalo Bayou Park, a 160-acre park that runs through
28 Houston's inner core, was completed in 2015. Since 2004, more than \$6 billion has been invested in
29 Downtown Houston's parks and public spaces, hotels, multi-family residential buildings, office towers,
30 convention and theater facilities, government facilities, infrastructure, and transit (Downtown District 2018).

31 **4.1.2 REGIONAL GROWTH FORECAST**

32 The H-GAC forecasts growth and infrastructure needs for an area that includes 13 counties and 105 cities.
33 Their information is provided on a regional level. According to the H-GAC regional growth forecast, population
34 will continue to grow and diversify through 2045. In 2015, the region had approximately 6.5 million people and
35 approximately 3.2 million jobs. By 2045, population is projected to be approximately 10.8 million people and
36 the area is projected to have 4.8 million jobs (Figure 5 and Figure 6; H-GAC 2017a). Growth for both is
37 expected to be substantial.

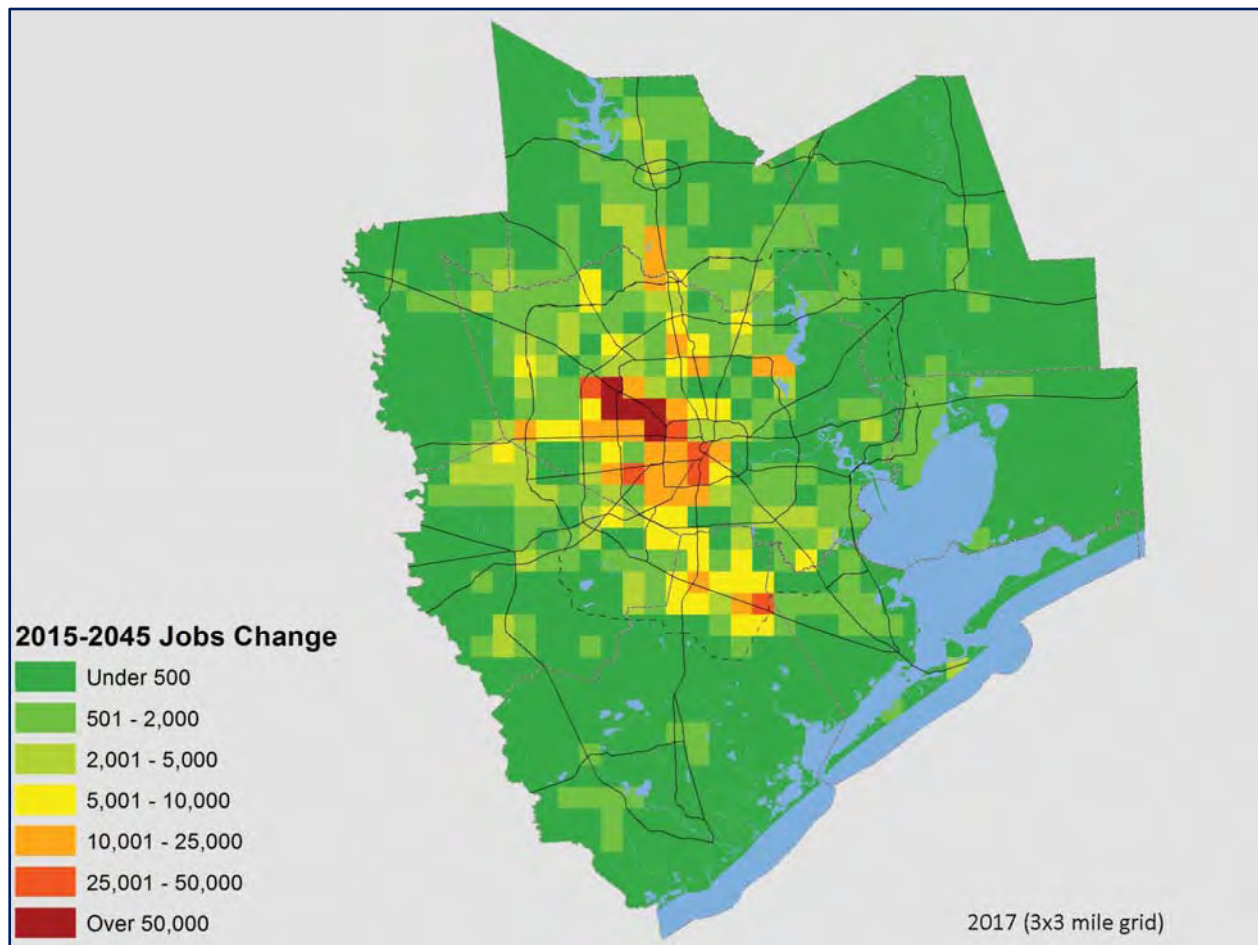
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Figure 5. Greater Houston Area Projected Population Change 2015–2045.



2

Figure 6. Greater Houston Area Projected Jobs Change 2015–2045.



4.1.3 TRANSPORTATION PROJECTS IN THE COMMUNITY RESOURCES RSA

Transportation projects within the Community Resources RSA have been identified using GIS resources provided by the City of Houston. Exhibit 2a depicts the Major Thoroughfare and Freeway Plan, including roadways by capacity (City of Houston 2017c). Note that several data layers show where roadways are “of sufficient width” for certain transportation facility types, including routes that would be suitable for transit corridors. This map shows that the City of Houston aims to provide adequate roadways and plan ahead for other modes, especially to serve downtown.

Exhibit 2b shows only the transportation facilities that are proposed for construction or widening. This figure also depicts the extent to which the Community Resources RSA is built out and urbanized. Table 3 shows miles of roadway types within the Community Resources RSA.

Attachment B lists TxDOT roadway projects in the RSA with a letting date between 1984 and 2032. While 1984 does not specifically align with the temporal boundary for the Community Resources RSA, this was the best available data that TxDOT was able to provide for this analysis. Since 1984, TxDOT has spent over \$2.5 billion on roadway projects within the RSA. TxDOT let 92 projects from 1984 to 2017. Through 2032, the agency expects to spend an additional \$7.1 billion on roadway projects within the RSA. From 2018 to 2032, TxDOT plans to let an additional 30 projects.

Table 3. Length in Miles of Transportation Project Types in the Community Resources RSA

Status	Miles
Proposed Freeway	6.7
Major Thoroughfare to Be Widened	53.5
Proposed Major Thoroughfare	9.7
Major Collector to Be Widened	18.0
Proposed Major Collector	2.3
Minor Collector to Be Widened	14.1
Proposed Minor Collector	1.3

Source: NHHIP Study Team (City of Houston 2017c)

4.1.4 LAND USE AND DEVELOPMENT IN THE COMMUNITY RESOURCES RSA

H-GAC planning documents have been queried for future land use within the Community Resources RSA. Exhibit 3 and Table 4 show current land use types in the Community Resources RSA. Approximately 1,685 acres of land in the Community Resources RSA are developable, which constitutes approximately 2 percent of the total RSA, emphasizing the high degree of existing development in the RSA.

Table 4. Current Land Use in the Community Resources RSA

Current Land Use	Acres
Commercial	11,410
Government/Medical/Education	2,400
Industrial	5,614
Multiple	6,207
Other	1,034
Parks/Open Spaces	3,676
Residential	29,224
Undevelopable	4,211
Unknown	505
Vacant Developable (includes Farming)	1,685
Right-of-Way	20,121
TOTAL RSA	86,087

Source: NHHIP Study Team, H-GAC Current Land Use Data (H-GAC 2017b)

Exhibit 4 and Table 5 show the allocation of land use types in the Community Resources RSA for 2045 future land use.¹ According to the H-GAC data, by 2045 only 757 acres of land will be developable in the RSA, which constitutes less than one percent of the total RSA. Over the planning horizon, development is expected to continue and densify. Parks and open space land are expected to remain preserved.

Table 5. Future Land Use in the Community Resources RSA

2045 Land Use	Acres
Commercial	11,052
Government/Medical/Education	2,196
Industrial	4,378
Multiple	7,930
Other	1,020
Parks/Open Spaces	3,676
Residential	30,384
Undevelopable	4,112
Unknown	462
Vacant Developable (includes Farming)	757
Right-of-Way	20,121
TOTAL RSA	86,087

Source: CMEC GIS; H-GAC Future Land Use Data (H-GAC 2017c)

The comparison of current and future vacant developable acreages suggests approximately 928 acres (1,685 minus 757 acres) of vacant land are expected to develop in the Community Resources RSA between the current time and 2045 (H-GAC 2017c). These figures affirm that development and redevelopment trends would continue within the RSA and are not necessarily associated with the proposed NHHIP.

4.1.4.1 Examples of Major Projects in the Community Resources RSA

Many development and redevelopment projects are underway in the Community Resources RSA. The following table provides a brief overview of projects that were recently completed or are ongoing, based on feedback provided during interviews with local land use experts conducted by project team members during the preparation of the *Indirect Impacts Technical Report*. In particular, the City of Houston's Planning and Development department compiled a number of substantial developments within the AOI, focusing on hospitals and schools, which indicate significant capital improvements occurring in the area. These developments are accompanied by recently completed or emerging developments mentioned by representatives of the Greater Northside MD, H-GAC, Harris County Engineering, North Houston District, Aldine Independent School District (ISD), Greater East End MD, Greater Northside MD, and the Downtown MD. Additional research was conducted to provide development context details. This table is not intended to be comprehensive but shows that dynamic change has been underway for some years and is expected to

¹ The current future land use data available from the H-GAC was released in early 2018 and forecasts through the year 2045. The data set extends past the temporal boundary for this analysis (2040) but is considered the best available source for this type of data.

1 continue throughout the temporal period used for this analysis. These major projects include a mix of
2 commercial, office, industrial, residential, and community facility developments. In general, these projects
3 represent signs of healthy economic growth and land use development in an urban city. Exhibit 5 illustrates the
4 locations of the projects listed in Table 6.

5 Additionally, the Houston area is also adding developments to the affordable housing stock due in part to
6 funding from the Low-Income Housing Tax Credit (LIHTC), a federal program which provides financial incentives
7 for private developers to build and preserve rental housing that will be reserved and kept affordable for low-
8 income residents. The LIHTC is an effective incentive for private developers because it allows them to reduce
9 their federal income taxes by one dollar for every dollar received in tax credit. The credit is good for ten years
10 and the approved allotted units must be occupied by low-income residents for at least 15 years. Rental
11 housing developments are eligible for the tax credit if at least 20 percent of their units are affordable to
12 households earning up to 50 percent of the metropolitan area's median family income (MFI) or if at least 40
13 percent of the units are affordable to households earning 60 percent of the MFI. The maximum allowable rent
14 is set at 30 percent of 50 or 60 percent of MFI, depending on the proportion of tax credit units within the
15 development (Buckley and Schwartz 2011). Additionally, all LIHTC developments are required to accept
16 Housing Choice Vouchers, unless they already provide a rental assistance subsidy, which can supplement the
17 rents to those with incomes lower than 50 or 60 percent MFI.

18 The LIHTC program is the single largest subsidy for low-income rental housing construction and has produced
19 the greatest number of affordable housing units since its inception compared to other federal affordable
20 housing production programs (Wegmann 2018). Information obtained from the Texas Department of Housing
21 and Community Affairs (TDHCA) in 2019 provided a property inventory of the developments that have applied
22 and been approved for LIHTC from 2015–2018. Based on this information, approximately 872 affordable
23 housing units are under construction or newly available in the RSA that could partially meet the needs
24 associated with displacements associated with current or future development projects in the RSA. Table 7 lists
25 the LIHTC projects recently completed or currently underway in the RSA. The locations of the projects are also
26 illustrated on Exhibit 5.

Table 6. Major Projects in the Community Resources RSA

	Source	Exhibit 6 Reference	Project	Details	Estimated Completion
	City of Houston Planning and Development	1	Memorial Hermann Hospital expansion	A \$650 million project that will add 1.34 million square feet to the hospital at 6411 Fannin Street.	March 2019
		2	Young Women's College Preparatory Academy expansion	A 48,000 square-foot building at 1906 Cleburne Street that will contain a new gymnasium and classrooms.	August 2018
		3	Energy Institute High School	A \$37 million 114,000-square-foot facility comprised of three separate buildings that will accommodate up to 800 students.	April 2018
		4	Jack Yates High School	A \$65 million 208,000-square-foot new school building that will accommodate 1,300 to 1,500 students.	August 2018
		5	Saint Thomas High School addition	Over 9,000 square feet of new classroom and lab space.	August 2018
		6	Simms Woods extension	173-home subdivision on a 11.9-acre former warehouse site, part of the Simms Woods subdivision.	Unknown
		7	Austin High School Extension	\$79.6 million new facility that can accommodate up to 2,000 students and preserves the 80-year-old high school's original architecturally significant building structure.	Winter 2019
		8	CEMEX	82,000-square-foot new office headquarters of CEMEX USA, a building materials company, at 10100 Katy Freeway.	January 2017
		9	Sheffield Green	New 150-home subdivision on 10.4 acres northeast of downtown, between Buffalo Bayou and Jensen Drive.	Unknown
		10	Booker T. Washington High School	\$51.7 million new 180,000-square-foot facility that can accommodate up to 1,300 students.	August 2018
		11	Bayou Fifth Sections 1-3	35-acre property and EPA Superfund site off I-10 in East End neighborhood that formerly housed a foundry. Current plans are to rehabilitate the site and develop it for residential use.	Unknown
		13	Lower Heights District Addition	Commercial redevelopment of the former Tarkett tile manufacturing facility on a 21-acre site south of I-10 between Sawyer and Studemont Streets.	Unknown
		15	Pinto Business Park Development at Ella	A 31.25-acre industrial facility that would include a 601,426-square-foot warehouse located in the Greater Greenspoint neighborhood at 10433 Ella	June 2018

	Source	Exhibit 6 Reference	Project	Details	Estimated Completion
				Boulevard. The facility is 100% leased to Emser Tile, the largest privately held designer and marketer of tile and natural stone in the United States.	
	City of Houston Planning and Development, Greater Northside MD	12	Hardy Yards/Residences at Hardy Yards	The former Union Pacific railyard, located two blocks north of I-10 near the corner of N. Main Street and Burnett Street, is proposed to be converted to a mixed-use development known as the Hardy Yards. The Hardy Yards will include residential units, retail, and office space on a 43-acre site. The Residences at Hardy Yards, a 5-acre component of the project, will have approximately 350 apartments, including a dedicated number of affordable units.	In development 2020 (The Residences at Hardy Yards was completed in 2018.)
	H-GAC	20	Rice University expansion	Construction of new 67,000-square-foot office building and 159,500-square-foot parking garage.	Fall 2017
		21	Post Houston	Barbara Jordan Post Office, which closed in 2015, is planned to be redeveloped into a mixed-use commercial hub made up of a 400,000-square-foot building on 16 acres of land.	Unknown
	City of Houston, Harris County Engineering, H-GAC, North Houston District	14	Pinto Business Park	971-acre industrial park that will accommodate up to 7,000,000 square feet of distribution, light manufacturing, and corporate campus space at the southwest corner of Beltway 8 and I-45. Home to a large Amazon distribution warehouse that opened in 2017.	Unknown
		16	Ella Boulevard Street Dedication Sec 1, 2	Pinto Business Park, a 1,000-acre industrial park, will continue development. As part of that development, Ella Boulevard (north/south corridor) has been extended through the site and will be connected to West Road in the future.	Fall 2018
		17	Fallbrook Drive Street Dedication Sec 1, 2	Pinto Business Park, a 1,000-acre industrial park, will continue development. As part of that development, Fallbrook Drive (east/west corridor) has been extended through the site.	2017
	North Houston District	18	Aldine ISD Senior High School	Major renovation and expansion of high school located at West Road and Airline Drive, including the construction of new wing and reconstruction of another wing.	August 2018
		22	Blanson Career and Technical Education High School	The construction of a new 227,000-square-foot facility on a 44-acre site near the intersection of West Road and Deer Trail Drive.	August 2018
	City of Houston, Harris County Engineering	19	Willow Springs	292-acre subdivision.	Unknown

	Source	Exhibit 6 Reference	Project	Details	Estimated Completion
	Aldine ISD	23	Garcia Middle School (formally West Mount Houston Middle School)	New middle school construction at 11000 Rosslyn Road.	August 2018
	Greater East End MD	24	East River Midway Development	Mixed-use development project on 150 acres in the northeast quadrant of Jensen Drive and Buffalo Bayou.	Unknown
	Greater Northside MD	25	Fulton Station on Cavalcade	3.4-acre urban residential project at the intersection of Fulton and Cavalcade Streets.	Unknown
		26	Saint Arnold's Brewing Company Beer Garden	New restaurant and beer garden/entertainment venue at 2000 Lyons Avenue across from existing brewery.	July 2018
		27	Holiday Inn Express at N. Main	New Holiday Inn Express at North Main and I-45; proposed and in permitting process.	Unknown
		28	Forty-Five Parker Plaza	Planned subdivision of 6.913 acres where former Doctors Hospital was located.	Unknown
		29	Airline Farmer's Market redevelopment	Redevelopment of 18-acre farmers market at 2520 Airline into high-end culinary market, including the addition of 60,000 square feet of additional space.	Unknown
	Greater Northside MD, H-GAC	30	University of Houston Downtown expansion	Construction of \$60 million, 115,000-square-foot new science and technology building at the University of Houston downtown campus.	Summer 2019
	Downtown MD	31	Camden Downtown	21-story, 271-unit residential building, block one of two-phase 550-unit development.	2020
		32	The Rustic	25,000-square-foot restaurant, bar, and live music venue.	October 2018
		33	Planned Residential	21-story, 279-unit residential building, block two of two-phase, 550-unit development.	2023
		34	1810 Main	10-story, 286-unit residential building.	2020
		35	Cambria Tower Petroleum	Redevelopment of the Great Southwest building into a 21-story hotel.	Unknown
		36	6 Houston Center	30-story, 600,000-square-foot office tower.	Unknown
		37	Joint Processing Center	Three-story, 250,000-square-foot facility.	March 2018
		38	Chevron Office Tower	50-story, 1.7-million square-foot office tower.	2024

	Source	Exhibit 6 Reference	Project	Details	Estimated Completion
	Downtown MD	39	Planned Residential	24-story, 304-unit residential building.	2020
		40	Parking Garage	300-car parking facility for Incarnate Word Academy and Annunciation Catholic Church.	Unknown

Additional sources: Aldine ISD (2018); Axford (2018); Baddour (2017); Baker (2018); CEMEX USA (2017); City of Houston (2015b, 2016b, 2017d); Commercial Café (2019); Design Workshop (2018); Downton District (2018); Fewer (2017); Hines (2018); Holliday, Fenoglio, Fowler (HFF) (2018); Houston Business Journal (2018); Houston ISD (2016, 2018a, 2018b, 2018c); Lovett Commercial (2018); Midway Companies (2018); Olsen (2018); Rice University (2018); Sarnoff (2017a, 2017b); Smith (2017); St. Thomas High School (2018); Swamplot (2014); TxDOT (2018); University of Houston (2018); Zieben Group (2017).

Table 7. LIHTC Housing Developments in the Community Resources RSA

	Source	Exhibit 6 Reference	LIHTC Development Name	Total Units	LIHTC Affordable Units	Population Served	Details	Estimated Completion
	TDHCA	A	Campanile on Commerce	120	105	Elderly Limitation	A 120-unit multi-family development for seniors ages 55 and older located on 2929 Commerce St. in the historic Second Ward offering luxury style apartment homes where residents will benefit from proximity to shopping, restaurants, and public transportation. Residents will also benefit from attributive onsite services such as shuttle transportation, nutrition classes, and credit counseling.	Unknown
	TDHCA	B	EaDo Lofts	80	80	General	A new 80-unit, four-story building offering only affordable apartments at the corner of Coyle and Napoleon streets in East Downtown, across the street from the new High School for Law and Justice and walking distance to the MetroRail Purple Line.	August 2019
	TDHCA	C	Fenix Estates	200	180	Supportive Housing	A mixed-use development, which includes space for HCHA's central offices, affordable housing units, integrated offices for social service providers, and commercial spaces and provides permanent supportive housing for the formerly homeless households.	January 2019
	TDHCA	D	Fulton Lofts	80	76	General	A 1.46-acre site on a lot that has been vacant for many years at the southwest corner of Fulton Street and Robert Lee Road and directly adjacent to a light rail line will be a new 80-unit	Unknown

	Source	Exhibit 6 Reference	LIHTC Development Name	Total Units	LIHTC Affordable Units	Population Served	Details	Estimated Completion
							affordable housing multi-family community. 95% of the 80 units will be filled with families that make 60% of the area median income or less, many of which might benefit from the Graceland St. METRO Red Line station just east of the building on Fulton.	
	TDHCA	E	Independence Heights Apartments	154	154	General	An affordable housing community on the southeast corner of Crosstimbers and North Main Street in the Independence Heights neighborhood provides housing for mixed-income families, the elderly, disabled and military veterans.	May 2018
	TDHCA	F	New Hope Housing at Harrisburg	175	175	Supportive Housing	A 175-unit single-room occupancy (SRO) apartment community serving single adults, including people who were displaced by Hurricane Harvey and others on a limited income, has opened in Houston's East End. Each apartment is a fully furnished efficiency and includes a private bath and small kitchenette with a microwave and a refrigerator. Residents have access to communal spaces, such as a kitchen, a business center, a library, and a theater/dining room. The development is on the rail line and includes 4,000 square feet of retail space on the first floor and 7,000 square feet of office space on the fourth floor, which will soon house New Hope Housing's corporate headquarters. All of New Hope Housing's properties provide on-site support and recovery services to help residents gain stability and remain healthy in housing. Support services include case management, access to primary and mental health care, legal assistance, health and nutritional counseling, financial education and life-skills training, and in some instances, rental support.	April 2018
	TDHCA	G	Oasis on Ella	135	102	General	A 135-unit project, with 102 affordable and 33 market rate apartments. The location is outside of the 100- and 500-year floodplain, whereas 72% of all multi-family units in the Greenspoint area are located in the floodplain or floodway.	Summer 2019

Additional sources: Affordable Housing Finance (2018); City of Houston HCDD (2018b); Evilm (2018); HCHA (2019); Huet (2018); Pesquera (2018); Rahman (2018); Singer (2018)

5.0 STEP 4: THE OVERALL EFFECTS OF THE PROPOSED PROJECT COMBINED WITH OTHER ACTIONS

5.1 Community Resources

As summarized in Table 1, the Preferred Alternative would directly impact communities, including neighborhoods, public facilities, and Environmental Justice communities of concern. The largest direct impacts to communities would be displacements. Overall, the Preferred Alternative would potentially displace the following:

- 160 single-family residences
- 433 multi-family residential units
- 486 public and low-income housing multi-family residential units
- 344 businesses affecting 4,840 to 13,713 potential employees
- 58 billboards
- 5 places of worship
- 2 schools
- 5 parking businesses

Indirect impacts (induced growth and encroachment alteration impacts) are closely connected to direct impacts. Displacement of community facilities could result in encroachment alteration impacts to individuals or groups of individuals within the indirect impacts area of influence. Loss of these facilities could result in adverse impacts on populations who are dependent on services provided by these facilities. If these facilities and service providers can relocate within their current neighborhoods, with assistance, then adverse impacts may be limited in terms of duration.

As discussed in Table 1, encroachment alteration impacts due to relocations and displacements could include a reduction in the supply of affordable housing, changes in residential and commercial property values due to the proposed increases in access and mobility, changes in the local tax base due to the anticipated displacements, and impacts to employees (such as potential increased commuting time) who could be displaced by the proposed project. Residential and commercial properties located near the project area that are not physically impacted by the proposed project may experience a change in market value, either positive or negative.

As previously discussed, the Community Resources RSA was primarily based on Super Neighborhood and MD boundaries affected by the Preferred Alternative. The Community Resources RSA was presumed to include the basic service area for services provided by the community facilities that would be displaced by the Preferred Alternative, along with the neighborhoods within which other displacements would occur.

Within the temporal analysis timeframe, there have been trends of infrastructure growth and development, the initiation of planning and regulatory compliance, the emergence of community activism in response to infrastructure projects, economic downturns and upswings, and cycles of disinvestment and reinvestment in Downtown. While displacements have occurred from infrastructure development over time, there has also been an increase in community engagement that followed the inception of the NEPA process and subsequent federal Executive Orders such that Environmental Justice communities of concern are now routinely identified and included in the project development process. While affordable housing concerns have continued to rise, planning initiatives and non-profit activities are currently addressing those issues. The efforts toward more sustainable development patterns that have emerged as a result of air quality regulation and livable cities initiatives call for multi-modal transportation options, better access to jobs, and walkable environments that

may better serve residents, including low-income and/or zero car households. Both positive and negative trends are observable in the Community Resources RSA.

Throughout the Community Resources RSA, transportation projects are expected to continue but with additional emphasis on transit projects. Land use development and redevelopment projects are underway and expected to progress with or without the proposed NHHIP. Where development projects are proposed, depending on the funding mechanism involved, those projects may require their own environmental compliance processes. There is a regulatory framework in place with mitigation requirements that may apply to at least some of the reasonably foreseeable development projects within the RSA.

The following sections break down and discuss the overall impacts and effects caused by the proposed project in combination with other ongoing trends and activities in the region.

5.1.1 RESIDENTIAL RESOURCES

The Preferred Alternative would directly result in approximately 1,079 residential displacements in Northside/Northline, Independence Heights, Near Northside, Greater Heights, Downtown, Midtown, Second Ward, Greater Third Ward, Greater Fifth Ward, and Museum Park super neighborhoods. Single-family residential displacements account for approximately 15 percent of the total housing displacements due to the NHHIP. Market-rate multi-family housing units are approximately 40 percent of the residential displacements. Approximately 45 percent of the housing displacements are public and low-income housing developments. For more information on displacements and relocations, see the *Community Impact Assessment Technical Report*.

Among these residential displacements are two public housing developments, which are part of the limited affordable housing supply for extremely low-income populations. By and large, HHA lacks the housing supply necessary to meet the current demand for public housing units. Additionally, the proposed project would displace private housing developments that provide housing for low-income individuals and families—Temenos Place Apartments II and the Midtown Terrace Suites. These two developments are also part of the limited affordable housing supply and also serve special populations like persons with disabilities and veterans. Moreover, three private apartment complexes—Isabella Apartments, Midtown Apartments, and Ventana Apartments—would also be displaced by the proposed project; these complexes contain units that cater to Housing Choice Voucher recipients. As discussed in Section 2.3.1.2, the options for Housing Choice Voucher recipients are limited as not all private landlords will accept vouchers. Thus, the displacement of these units would decrease the already limited housing supply for voucher holders.

In response to these direct impacts, TxDOT would facilitate the relocations and provide assistance with allocating adequate replacement housing, subsidized or unsubsidized, in accordance with federal regulations. Additionally, TxDOT plans to complete advance acquisition of Clayton Homes and a portion of Kelly Village and is coordinating with HHA to develop an agreement relative to the development of new housing in the vicinity of the existing housing communities. TxDOT would also provide relocation assistance and payment for reasonable moving and related expenses for residents of these public housing developments. If public housing is not available to all displaced residents of Clayton Homes and Kelly Village, or if a displaced resident chooses not to relocate to another public housing community, the displaced resident(s) would receive housing choice vouchers. TxDOT has approved Temenos Place Apartments II and Midtown Terrace Suites for advanced acquisition and negotiations are underway. If advance acquisition is finalized, it would allow these affordable housing developments to build new facilities in the same area or zip code and would provide additional time for relocation and reestablishment. During the relocation process, tenants of Temenos Place Apartments II and Midtown Terrace Suites would be able to remain in the existing facilities for the agreed amount of time.

negotiated between the property owners and TxDOT. For more detailed information on mitigation, see the *Community Impact Assessment Technical Report*.

Currently, Houston is facing population growth; many people are moving to the area and more are expected in the future. The region is also facing an affordable housing shortage; many affordable and public housing developments have been affected by Hurricane Harvey, and the remaining affordable housing stock is too sparse to meet the growing demand. Repairs and rebuilding efforts for housing in Houston are still ongoing, but these efforts are running months behind the pace of other comparable disaster recovery work, such as in New York after the 2012 Super Storm Sandy and in Baton Rouge after the flooding in 2016. There is still a significant need for repairs, reconstruction, and more affordable housing (particularly for renters and low-income families).

The City of Houston and other planning entities have devised strategies to address these trends of population growth and affordable housing decline. The Downtown/EaDo Livable Center Study and Plan Downtown both advocate for the construction of numerous additional residential units downtown to support the current and future population growth the area is experiencing and will continue to experience. Additionally, several organizations, such as HLB, are committed to developing housing and improving quality of life for citizens in vulnerable communities. Affordable housing stakeholders in the Houston area are currently focusing on rebuilding the affordable housing stock in response to Hurricane Harvey in a way that aligns with the City's goals for sustainable, walkable, complete communities. As mentioned earlier, TxDOT would appropriately mitigate the displacements caused by the proposed project in accordance with federal regulations and will continue to work with the HHA and representatives of other housing and community organizations.

The information from interviews with local land use experts provided in Table 6 above and Exhibit 5 illustrate the many planned or recently constructed subdivisions and residential housing developments within the RSA. The substantial proposed land developments cited during these interviews revealed a selection of 10 new subdivisions or large-scale residential housing developments in the area and 2 mixed-use residential/commercial developments, one of which contains a set number of affordable units. Hardy Yards used CDBG-DR funds from Hurricane Ike (2008) to construct the project. CDBG-DR applications require affordable housing to be part of the proposed development in order to receive funding. Additionally, data from TDHCA revealed that seven new LIHTC developments were recently constructed or are coming soon to the RSA, which would increase the amount of affordable housing stock and Housing Choice Voucher-accepted units in the area. Based on this information, it can be reasonably assumed that the development and redevelopment of new housing, including affordable housing, would continue to occur within the RSA. Additionally, with the billions of dollars of federal funding expected to come to the area in the coming years to reconstruct the affordable housing that was lost or damaged by Hurricane Harvey, it is also anticipated that more affordable housing will be constructed within the Community Resources RSA over the coming years (Schuetz 2018; Click2Houston 2018; Witthaus 2017).

Within the temporal analysis timeframe, Houston has seen a continued trend of population and economic growth that has generated infrastructure construction and urban development. Such development prompted the gradual mobilization of community activism in opposition to past unjust development practices and inequitable infrastructure projects. Additionally, while affordable housing concerns have continued to rise, planning initiatives and non-profit activities are currently focused on addressing those issues. The efforts toward more sustainable development patterns have emerged as a result of federal regulation, disaster recovery and resiliency, and regional and local policies. Relevant policies include the livable cities and complete communities initiatives, which call for multi-modal transportation options; better access to schools,

jobs, and essential services; and walkable environments that may better serve residents, including low-income and/or zero car households.

Past events and population growth have combined to exacerbate the affordable housing problem in Houston. The incremental contribution of the proposed project to housing affordability would be offset by TxDOT's compliance with the Uniform Relocation Act, including the requirement to assure that displaced residents are provided comparable replacement housing. Further offsetting the adverse effects on affordable housing, owners of affordable housing properties affected by the project (e.g., Clayton Homes, Temenos Place Apartments II) have indicated their intention to relocate and construct replacement facilities thereby resulting in no net loss of available housing in these situations. Additionally, TxDOT is proposing to provide funding to construct new affordable housing (see the Community Impact Analysis Technical Report and Final EIS for more information on affordable housing mitigation).

The City of Houston is experiencing an affordability gap (the difference between available housing and the affordable price for owners and renters) according to *The 2020 State of Housing in Harris County and Houston* (Rice | Kinder Institute for Urban Research, June 2020). Still, in addition to the 872 affordable units identified in this current analysis (see Table 6), within the City of Houston as a whole, there were more than 56,700 subsidized units (including Housing Choice Voucher and all other HUD programs) in 2018. With these affordable housing resources, the affordable housing initiatives being proposed by others in the city, and mitigation proposed by TxDOT, the incremental effect of displacements associated with the proposed project would likely have only negligible effects, if any, in worsening the affordable housing problem in the study area.

5.1.2 COMMERCIAL RESOURCES

Construction of the proposed project would result in both negative and positive effects. Approximately 344 businesses would potentially be displaced, and the employment loss analysis estimated that approximately 4,840 to 13,713 jobs could be affected. The analysis presented in the *Community Impact Assessment Technical Report* revealed that the availability of existing properties for sale or lease within ZIP codes near the project corridor is not sufficient to accommodate the relocation of all potential business displacements; however, redevelopment of commercial properties does have the potential to accommodate those businesses interested in relocating. The planned commercial developments have the potential to help accommodate displacements; these developments are discussed below.

With regards to benefits, the proposed NHHIP would improve access to employment centers while also reducing congestion, enhancing mobility, and improving safety. Such benefits to access and mobility could also increase residential and commercial property values, which would in turn increase the local tax base. However, market values of properties could either increase or decrease based on location and proximity to the proposed project. Additionally, the commercial displacements caused by the proposed project would decrease the local tax base. Displaced employees could see increased commuting times if they are not able to relocate nearby.

Houston's ongoing trend of economic growth suggests that increased commercial development and employment opportunities are expected to continue in the region. Additionally, as H-GAC has projected, job growth over the temporal analysis timeframe is expected to be substantial. As previously mentioned, the H-GAC's Regional Growth Forecast expects substantial population and employment growth by 2045. This forecasted growth includes a 50 percent increase in jobs between 2015 and 2045 (3.2 million to 4.8 million jobs).

Other planned commercial resource influences, or "other actions," within the Community Resources RSA include large-scale redevelopment strategies or economic development initiatives initiated by both the public and private sectors. Three key examples demonstrate this upward trend of commercial growth within the

Community Resources RSA. The previously mentioned Downtown Houston master plan known as *Plan Downtown: Converting Culture, Lifestyle & Commerce* provides recommendations for short and long-term planning, development, and design. This plan includes a strategy to establish an Innovation District to create a center for entrepreneurship. The H-GAC's Livable Centers Studies initiative promotes walkable, sustainable commercial developments. To a degree, this would include employment options mixed with residential land uses. The George R. Brown Convention Center 2025 Master Plan calls for additional economic development (stores, restaurants, entertainment venues) to complement the many benefits of the Downtown convention center.

The information from interviews with local land use experts provided in Table 6 above illustrates the many planned or recently constructed offices and commercial developments within the Community Resources RSA. The substantial proposed land developments cited during these interviews revealed that 13 new office buildings or large-scale commercial developments are planned in the area, as well as 2 mixed-use residential/commercial developments. Based on this information, it can be reasonably assumed that the redevelopment of existing properties plus new commercial developments would continue to occur within the Community Resources RSA.

In combination, the past, present, and reasonably foreseeable future projects would have limited adverse impacts on commercial resources. For this project, TxDOT would comply with the Uniform Relocation Act for potentially displaced businesses. TxDOT is also committed to facilitating opportunities to promote hiring individuals from local communities for general employment and project construction, such as through job fairs. TxDOT will research opportunities to invest funds in a local workforce development program aimed at job readiness training prior to construction. Additional mitigation to consider could involve a partnership with the Texas Workforce Commission and the appropriate Workforce Solutions affiliate, Gulf Coast Workforce Board, to mitigate the potential employment impacts associated with the NHHIP improvements. See Section 6.0 for more details.

5.1.3 PARKS, TRAILS, AND OPEN SPACE

The Preferred Alternative would reduce some open space along parks and the bayou greenways. Initially, impacts to parks were anticipated to be considered *de minimis* impacts (coordination continues with the Official with Jurisdiction). However, designers worked to avoid impacts wherever possible. As a result, the Preferred Alternative would not result in a use of or adverse impact to any Section 4(f) park properties. Section 4(f) parks resources are fully assessed including alternatives analysis in the Section 4(f) Evaluation under separate cover.

Visibility and open space along the greenways would be improved in other locations where the freeway overpasses are eliminated. Additionally, TxDOT would utilize proposed storm water detention areas as green spaces where possible. TxDOT would also accommodate or replace existing trails that are impacted by the proposed project, as well as allow for future planned hike and bike trails as a recreational resource. Although not proposed for construction by TxDOT, the proposed project provides an additional opportunity for the development of green space over the structural "cap" over some areas of depressed roadways, as shown on the plans. Future use of the structural cap for open space or other purposes would require additional development and funding by entities other than TxDOT. For more information on parks, trails, and open space impacts and benefits, see the *Community Impact Assessment Technical Report*.

In 2007, the City of Houston passed the Parks and Open Space Ordinance, which divided the City into 21 Parks Sectors bounded by freeways and city limits. The Ordinance gives developers the option to either dedicate land for private or public park purposes or pay a fee-in-lieu of dedication in order to develop residential properties in

Houston. The fee-in-lieu dedication must be used for improvements in existing parks or acquisitions of land for park purposes within the same Park Sector as the new development (Houston Parks and Recreation Department [HPARD] 2015).

In the summer of 2017, Buffalo Bayou Partnership launched the East Sector Master Plan to revitalize 140 acres along the waterway east of Downtown from US 59/I-69 to the Port of Houston Turning Basin (Buffalo Bayou Partnership 2017). Plans include linking the bayou to adjacent neighborhoods and improving underutilized and undeveloped park areas along the bayou (Buffalo Bayou Partnership 2002).

The City's long-term bikeway vision plan includes future bike paths along Halls Bayou and Little White Oak Bayou, as well as future off-street bike paths that connect to existing bayou trail segments and to several parks in Downtown (City of Houston 2018). Additionally, the Houston Parks Board is currently proposing to expand the bayou greenway network and capitalize on the opportunity to extend open space at Little White Bayou (Houston Parks Board 2017).

The Downtown District's 20-year vision plan, "Plan Downtown," includes conceptual plans for a five-mile "Green Loop" comprising green spaces and expansive trails around the edges of central Downtown and multi-functional open spaces that would provide recreational and public assembly opportunities (Downtown District et al. 2017).

Based on this information, it can be reasonably assumed that the development of new parks, trails, and open space would continue to occur within the Community Resources RSA, and the cumulative impacts to parks, trails, and open space as a result of this project would be minimal given TxDOT's effort to create, coordinate, and provide opportunities for more parks, trails, and open space in the development of this project.

5.1.4 TRANSPORTATION AND MOBILITY

This section briefly discusses transportation resources as a component of community resources. As detailed in the *Community Impact Assessment Technical Report*, the NHHIP project would impact transportation facilities, travel patterns, and accessibility and would also temporarily re-route or redirect existing rail lines and infrastructure. The relocation of bus stops and changes in routes could affect populations that do not have access to automobiles or that are dependent on public transportation. Route deviation during construction and relocations of bus stops would temporarily affect bus circulation and travel times. TxDOT would coordinate with METRO to facilitate timely planning for bus stop relocations and bus route detours. TxDOT would also continue to coordinate with METRO during design and construction to minimize impacts to existing transit operations.

Changes in access associated with the NHHIP project may affect future development and revitalization, increase travel time, and have economic impacts on local businesses. Design considerations include a balance of local connections and movement to allow for as much access as possible. Focused design considerations include the removal of Pierce Elevated, the cross bridges at Travis Elementary School and the Glen Park subdivision, a greenspace connection at Little White Oak Bayou with connecting trails to Woodland and Moody Parks, and improving mobility and circulation on local streets in the Downtown area.

New sidewalks are proposed along I-45 and major intersections; these sidewalks would be designed in accordance with the Americans with Disabilities Act requirements. Proposed mitigation for transportation facilities and travel patterns and accessibility are further described in Section 6.0 of the *Community Impact Assessment Technical Report*.

Other past, ongoing, and future transportation projects have been discussed in Section 4.1.3 of this report. The City of Houston's Major Thoroughfare and Freeway Plan indicates the City of Houston aims to provide adequate roadways and other modes of transportation, especially to serve the Downtown area. Additionally, TxDOT plans to spend approximately \$7.1 billion on roadway projects within the Community Resources RSA through 2032. Between 2018 and 2032, TxDOT plans to let an additional 30 projects in the Community Resources RSA.

Based on these trends, it can be reasonably assumed that transportation improvements will continue to occur within the Community Resources RSA. Exhibit 2b illustrates the extent of locally funded projects (reflected in the City of Houston Major Thoroughfare and Freeway Plan), and Attachment B provides a detailed listing of the TxDOT roadway projects with letting dates from 1984 to 2032.

5.1.5 VISUAL RESOURCES

Visual Resources were not assessed in detail in this cumulative impacts analysis because direct and indirect impacts were determined to be neutral. This section briefly summarizes impacts because the visual environment is considered a component of community resources.

As discussed in Table 1, the visual impacts of the Segments 1 and 2 Preferred Alternatives are expected to be neutral. The project would be developed under TxDOT's Green Ribbon Program, which allocates funds for trees and plants within roadway right-of-way. The overall visual quality impact would be neutral for Segment 3. The visual quality would be reduced for viewer groups north of Downtown and for some residential and other viewers outside of Downtown with views of the skyline; however, the majority of viewsheds in the Segment 3 area would have improved views or neutral visual impacts as a result of the proposed project, and visual quality would remain moderate. Specific areas where adverse impacts could occur (North Downtown) could be mitigated to minimize the impact (see TxDOT's Green Ribbon Program). Additionally, the form and materials of the proposed project would remain compatible with the existing environment.

No project-related encroachment alteration impacts to visual and aesthetic resources in Segments 1 and 2 would be anticipated as a result of the Preferred Alternative. Encroachment alteration effects to visual and aesthetic resources in Segment 3 may include changes beyond the footprint of the Preferred Alternative where elevated sections are removed, or depressed sections are constructed.

Landscaping and aesthetic mitigation measures would offset such effects and are included as Addendum 1 to the Visual Impact Assessment Technical Report. Where practicable, mitigation to improve the visual and aesthetic qualities of the project area would include the following features:

- Landscape plantings and re-vegetation per TxDOT's Green Ribbon Landscape Improvement Program, which allocates funds for trees and plants within roadway ROW.
- Promotion of roadside native wildflower planting programs.
- Noise barriers where some paint color and texture choices could be voted on by affected persons
- Adequate signage and easy access to roadway facilities.
- Treatment of the side surfaces and columns of the project using façade materials of varying textures, colors, etc.
- Installation of landscaping and maintenance of the detention basins.
- Proposed detention areas are being evaluated as potential green spaces. TxDOT will coordinate with local groups and agencies to accommodate enhancements to standard landscaping and recreational use of green space in and around storm water detention areas, where feasible. Wet bottom detention basins would be considered if a partner entity agrees to maintain them.

- Miscellaneous aesthetic improvements along Heights Bike Trail between Taylor Street and Main Street would be provided (coordinated by TxDOT with Houston Parks Board and other entities).
 - There are numerous aesthetic walls that are proposed in environmental justice areas. These walls are intended to protect environmental justice communities of concern from noise and visual impacts, although these specific areas did not warrant construction of noise barriers based on federal requirements. Before any such walls are constructed, TxDOT would conduct workshops to inform affected communities of the potential risks and benefits associated with aesthetic walls before they proceed to vote about whether or not to accept them.
- These visual mitigation measures would be assets to the communities and neighborhoods where they are placed.

5.1.6 COMMUNITY FACILITIES

In this discussion, community facilities are non-profit organizations, places of worship, schools, community centers, and other entities that serve the community. Past actions in the Community Resources RSA were previously discussed as trends (rather than with regard to specific community facilities) and include major construction of infrastructure in downtown areas that may have created adverse impacts on community facilities. In the Community Resources RSA, along with other construction (development and redevelopment), community facilities have been established to benefit the present-day community. The need for community facilities is the result of previous patterns of infrastructure development; the challenges of homelessness and housing affordability run parallel to the establishment of community facilities, service organizations, and public agencies working to address those challenges.

The impacts of past, present, and reasonably foreseeable future projects are tied closely to TxDOT's documented commitment to mitigate direct impacts to community facilities. With regard to direct impacts in the project area, direct impacts to community facilities (and indirect impacts, including community cohesion) are substantial and are discussed in detail in the *Community Impact Assessment Technical Report*. Table 8 in Section 6.1 summarizes direct impacts and mitigation within super neighborhoods in the context of the RSA.

In the RSA, many present and potential future development projects have been identified by coordinating with local experts during the preparation of the *Indirect Impacts Technical Report*, by examining mapped resources from H-GAC and the City of Houston, and by conducting some additional project-area research. This subset of projects discussed in more detail in Table 6 is intended to provide a snapshot of what is happening in the Community Resources RSA but does not presume to be comprehensive.

The major projects that can be considered "community facilities" identified for current and future construction in the RSA include a hospital expansion and school renovation/expansion/new construction projects:

- Memorial Hermann Hospital
- Young Women's College Preparatory Academy expansion
- Energy Institute High School (new in 2018)
- Jack Yates High School (new building in 2018)
- Saint Thomas High School addition
- Austin High School Extension (new facility construction underway in 2019)
- Booker T. Washington High School (new building in 2018)
- Rice University Expansion
- Aldine ISD Senior High School expansion and reconstruction
- Blanson Career and Technical Education High School (new in 2018)
- Garcia Middle School (formally West Mount Houston Middle School)—Aldine ISD (new in 2018)

1 ▪ University of Houston Downtown Expansion (new technology building construction underway in 2019).
2 Given the limited developable land area within the Community Resources RSA, the major project types that are
3 proposed are primarily development projects that are localized and that would be constructed on land
4 available for development or redevelopment; therefore, these projects are unlikely to displace existing
5 community facilities.

6 Anticipated transportation improvement projects will always be underway in an urban setting such as Houston
7 (see Exhibit 3 and Attachment B). Transportation projects are publicly funded, and those with federal funding
8 are required to comply with environmental regulatory protections under the umbrella of NEPA; therefore,
9 potential impacts to community facilities would be evaluated as part of the project development and permitting
10 processes for those projects.

11 To determine impacts of past, present, and reasonably foreseeable future construction projects on community
12 facilities, known direct impacts are reviewed with respect to whether or not those community facilities would
13 relocate within their service area within the Community Resources RSA. Due to extensive outreach efforts and
14 one-on-one communications with TxDOT project staff and community facility representatives, efforts are
15 underway to help support community facilities facing displacement. Particular attention has been given to
16 community facilities that provide services for Environmental Justice populations. Detailed information about
17 those individualized mitigation efforts is found in Appendix C.

18 Community resources are further discussed under 6.0 Mitigation Measures because evaluating cumulative
19 effects on community resources is closely intertwined with mitigation for direct effects.

20 **6.0 STEP 5: MITIGATION MEASURES AND REGULATORY** 21 **FRAMEWORK**

22 **6.1 Community Resources**

23 The trend of population growth in the Houston area since 1970 coincides with the trend of increased
24 regulatory protection for environmental resources under NEPA and specific resource-protection regulations
25 such as the Clean Water Act, the Clean Air Act, Executive Order 12898, and Title VI of the Civil Rights Act of
26 1964. The extent to which the Preferred Alternative, along with other past, present, and reasonably
27 foreseeable future actions, would contribute to cumulative impacts to resources has been studied in this
28 technical report.

29 Minimization of impacts to community resources would be achieved through specific design measures and
30 coordination with public and private entities that lead planning initiatives and/or serve the sensitive
31 populations that reside and work within the Community Resources RSA. The project study area is mostly
32 located within the City of Houston jurisdiction. The city is not zoned for different types of development;
33 however, the City of Houston Legal Department assists with the “enforcement of recorded deed restrictions for
34 the protection of neighborhoods, for the benefit of all residents, citizens, and taxpayers of the City, and to
35 promote the health, safety, morals, and general welfare of the City” (City of Houston 2019).

36 Additionally, specific mitigation is planned for the direct impacts to community resources due to the proposed
37 project. Mitigation discussions and commitments for impacts to community resources are presented in
38 Attachment C, Mitigation Tables. Tables 6-1, 6-2, and 6-3 are discussed in the *Community Impacts*
39 *Assessment Technical Report* and are reproduced here.

1 Direct impacts to community facilities and corresponding proposed mitigation were further analyzed as a
2 measure of the overall health of community resources. Table 8 shows community facility and service provider
3 displacements by super neighborhood by segment and briefly summarizes mitigation commitments made to
4 date. As discussed in the *Community Impact Assessment Technical Report*, there are many types of impacts to
5 community facilities, including impacts to facilities that are proximate to the proposed construction, impacts to
6 community cohesion and neighborhoods, and various kinds of displacements that could compound the
7 impacts to neighborhoods and communities. Nonetheless, because direct displacements of community
8 facilities and related mitigation commitments can be viewed as a guide to whether or not communities will
9 respond with resiliency to a project of this magnitude, they are the focus of this discussion. Note that this
10 discussion does not include all facilities that may provide some benefit to communities. Despite the overall
11 scale of this particular project, designers have worked diligently to avoid, minimize, and mitigate impacts
12 throughout the project corridor, and a selection of those efforts are highlighted here. Exhibit 7 shows
13 community facilities that would be displaced. For these sites, customized mitigation plans are underway to
14 help ensure they are able to relocate within the RSA. The table also provides some information about other
15 community facilities that may provide similar services nearby while displaced community facilities transition to
16 new locations, although efforts are being made to reduce or eliminate interruptions to services provided. See
17 also super neighborhood maps in the CIA Technical Report for additional information about community
18 resources.

Table 8. Summary of Impacts to Community Facilities and Mitigation Efforts in the RSA

Segment/Super Neighborhood	Community Facility Displacement	Customized Mitigation Commitment	Wishes to Relocate Nearby/ within the RSA?	Comparable Facilities in Reasonable Proximity	In Combination with Other Anticipated Development, Will Impacts to Community Facilities be Significant and Adverse After Mitigation?
Segment 1/ Acres Home, Hidden Valley	0 ^a	N/A	N/A	N/A	No community facilities would be directly adversely impacted in these super neighborhoods; community facilities have a low likelihood of being adversely impacted by other major projects or transportation improvements due to the need for compatible land uses and compliance with environmental protection regulations; therefore, significant adverse impacts to community facilities are unlikely in these super neighborhoods.
Segment 1/ Greater Greenspoint,	Planned Parenthood	Businesses that perform medical procedures would be required to amend medical licensing to perform medical procedures in a new location and TxDOT will pay for relicensing fees.	Unknown	Planned Parenthood Northwest Health Center is approximately 11 miles southwest and Planned Parenthood Spring Health Center is approximately 13 miles north of the Northville location.	It may potentially be inconvenient for patients of this clinic, but there would likely not be a negative impact to cohesion in the Greenspoint neighborhood due to the displacement of this facility.
Segment 1/ Northside/Northline	Centro Cristiano Church*	TxDOT is proceeding with advance acquisition package.	Yes	~5 Christian places of worship within 1 mile	Three churches and two schools would be directly adversely impacted in this super neighborhood—customized mitigation discussions are underway with all facilities except Iglesia Evangelica Vida, the representatives and staff of which have been unresponsive to repeated contact attempts. As discussed in the CIA Tech Report, additional guidance would be available to community facilities through the relocation process.
	Iglesia Evangelica Vida*	This place of worship leases their space in the office building. Numerous attempts have been made to communicate with the staff, including bilingual letters and two site visits, but TxDOT has been unable to reach anyone at this church.TxDOT offered the opportunity for advance acquisition. TxDOT will assign a relocation assistance counselor who will provide current listings of other available properties (if requested).	Unknown (unresponsive to date)	~17 Christian places of worship within 1 mile (not limited to churches that provide Spanish language services)	
	Faith Tabernacle Church*	This place of worship leases the building. TxDOT will assign a relocation assistance counselor who will provide current listings of other available properties (if requested).	Yes	~17 Christian places of worship within 1 mile	
	Alpha and Omega Christian Academy*	TxDOT is proceeding with advance acquisition of the property; advance acquisition would provide additional time for renovation or relocation of the school. TxDOT will assign a relocation assistance counselor who will provide current listings of other available properties (if requested).	Yes	Students at Alpha and Omega Christian Academy may attend another school if a new facility is not built. Relocation could result in increased travel distance, and other schools that provide equivalent classes may not be easily accessible for students in this community.	
	Culinary Institute LeNotre	TxDOT is proceeding with advanced acquisition of the Culinary Institute LeNotre. Classes would continue at the current location until the new building has been acquired and prepared for classes. This would ensure that there would be no interruption of scheduled classes for students. It is possible that the Institute would need to relocate outside of the Northside/Northline neighborhood, but the	Wants proximity to I-45 for exposure/ advertisement purposes	Schools that offer culinary programs include The Art Institute of Houston ~12 miles southwest and Houston Community College ~7 miles south. Culinary Institute Le Notre is the only school in Houston that focuses strictly on culinary arts.	For all impacts in the Northside/Northline super neighborhood, TxDOT intends to facilitate relocation within the neighborhood to the maximum extent practicable to minimize adverse impacts in this super neighborhood and to Environmental Justice populations..

Segment/Super Neighborhood	Community Facility Displacement	Customized Mitigation Commitment	Wishes to Relocate Nearby/ within the RSA?	Comparable Facilities in Reasonable Proximity	In Combination with Other Anticipated Development, Will Impacts to Community Facilities be Significant and Adverse After Mitigation?
		school appears to serve students from across Houston.			
	North Houston Birth Center and Medical Offices; Unicare MRI and Diagnostic Center, Houston Children’s Dental Center (Medicaid)*	TxDOT is proceeding with advance acquisition package. Moving expenses within 50 miles are included; assistance will be aimed at encouraging medical facilities that serve low-income and minority populations to relocate in the same area. Businesses that perform medical procedures would be required to amend medical licensing to perform medical procedures in a new location and TxDOT will pay for relicensing fees.	Regarding North Houston Birth Center, yes, prefers current location for access; needs licensed facility. Regarding Unicare: yes, populations served need access to public transportation. Direct communications have not taken place with all facilities in the building; according to the Birth Center, medical offices in the building serve patients who use Medicaid or CHIP and those patients may also need access to public transportation.	North Houston Birth Center is one of the only birth centers in Houston that is not part of a hospital and that accepts Medicaid. Unicare MRI and Diagnostic Center provides medical imaging services primarily to patients who use Medicaid. The business owner stated that many of his patients use the local bus stop to get to his business.	These medical facilities serve specific Environmental Justice/low-income clientele. TxDOT is proceeding with advance acquisition of the property containing medical offices and facilitating relocation within a 50-mile area.
	Texas Health and Human Services Offices*	Reimbursement of moving costs, if necessary.	Not necessary; services can be provided over the telephone. The agency has indicated it is likely the office would not reestablish if it is displaced because there is another office approximately 10 miles away and they are moving serving more clients online and by phone.	Most clients use online or telephone services. Another Texas Health and Human Services office is located at 220 Meadowfern Drive (~1 mile north of Beltway 8 on the west side of I-45).	In addition to other office locations for this agency, services provided would be available to any clients over the telephone, therefore impacts to the facility would not likely contribute to adverse cumulative impacts after mitigation.
	Kindred Healthcare (contains Houston Pediatric Clinic)	Businesses that perform medical procedures would be required to amend medical licensing to perform medical procedures in a new location and TxDOT will pay for relicensing fees.	Unknown (facility is within a building with multiple tenants and was identified in 2019; occupants would benefit from relocation support services).	There are at least three other pediatrician offices within 5 miles of the Kindred Healthcare if patients of Houston Pediatric Clinic need to find an alternate doctor.	These medical facilities do not appear to specifically serve Environmental Justice populations. Because similar services are located relatively nearby, the loss of these facilities would not likely contribute to adverse cumulative impacts after mitigation.
	Convenient Urgent Care Plus and MRI	Businesses that perform medical procedures would be required to amend medical licensing to perform medical procedures in a new location and TxDOT will pay for relicensing fees	Unknown (facility is within a building with multiple tenants and was identified in 2019; occupants would benefit from relocation support services).	There are at least three alternate urgent care and MRI locations within a 5-mile radius of the Convenient Urgent Care.	
	AVANCE Training Center	This non-profit organization leases space in an office building and TxDOT will assign a relocation assistance counselor who will provide current listings of other available properties if requested.	Unknown (facility is within a building with multiple tenants and was identified in 2019; occupants would benefit from relocation support services).	AVANCE does have other services but this is its only training center in Houston.	
Segment 1/ Independence Heights	Greater Mount Olive Missionary Baptist church (in Segment 2, but within Independence Heights so discussed with Segment 1)*	TxDOT is proceeding with advance acquisition of this property; advance acquisition would provide additional time for relocation of the place of worship. TxDOT will work with the community to provide a “pocket park” near the current location of the Greater Mount Olive Missionary Baptist Church along with a plaque or other suitable commemoration of the church’s history in the neighborhood.	Current building cannot be relocated due to structural and foundation issues; however, the church prefers to relocate to a new area and continue to serve the populations it has served historically.	There are at least 3 other Baptist churches within a few blocks of Greater Mount Olive Missionary Baptist Church	One church would be directly adversely impacted in this super neighborhood. TxDOT has met with the Independence Heights Redevelopment Council and the pastor of the Greater Mount Olive Missionary Baptist Church to discuss relocation options for the church with the goal of finding a new location in the community. This impacted church serves specific Environmental Justice populations and wishes to reestablish. TxDOT intends to facilitate relocation within the neighborhood to the maximum extent practicable to minimize adverse impacts in this super neighborhood and to Environmental Justice populations.

Segment/Super Neighborhood	Community Facility Displacement	Customized Mitigation Commitment	Wishes to Relocate Nearby/ within the RSA?	Comparable Facilities in Reasonable Proximity	In Combination with Other Anticipated Development, Will Impacts to Community Facilities be Significant and Adverse After Mitigation?
Segment 2/ Near Northside	Urbana Recording Studio (located in a home) [identified as a community facility in public comments]	TxDOT would comply with the Uniform Act for displacing this recording studio.	No additional community association with this entity other than that it provides recording opportunities for culturally important (Houston Tejano) music	Other music recording studios exist in 77022 ZIP code	TxDOT would comply with the Uniform Act to relocate this business, which appears to operate out of a home. Public comments indicated that this facility offers unique recording services important to the community. After mitigation is complete, it is anticipated that the recording studio would be able to relocate nearby should they choose to do so, and cumulative impacts would not be significant.
Segment 2/ Greater Heights	0 ^a	N/A	N/A	N/A	No community facilities would be directly adversely impacted in this super neighborhood; community facilities have a low likelihood of being adversely impacted by other major projects or transportation improvements due to the need for compatible land uses and compliance with environmental protection regulations; therefore, significant adverse impacts to community facilities are unlikely in this super neighborhood.
Segment 3/ Downtown	Loaves and Fishes Magnificat Houses Ministries*	TxDOT is proceeding with advance acquisition of the property, including providing additional time for relocation and reestablishment (to be negotiated with TxDOT).	Wants to remain open/in place during construction; need to remain in area with homeless population; facility representatives are concerned about finding a suitable location in the Downtown area and the expense of refurbishing a new location. Loaves and Fishes serves a high number of people; client population cannot withstand interruption or loss of services they provide.	No other facilities serve this exact population at the volume that Loaves and Fishes does. A limited number of facilities offer similar services in the area; these populations may not have resources for food, shelter, and medical care if the facilities were displaced.	Three community facilities would be directly adversely impacted in this super neighborhood. As discussed in the CIA Technical Report, advance acquisition and customized mitigation discussions (such as additional time for relocation and reestablishment) are underway with these facilities, all of which provide essential services to homeless populations in downtown Houston. These non-profit organizations serve specific Environmental Justice/low-income clientele (homeless communities, in particular). For all impacts in the Downtown super neighborhood. TxDOT intends to follow through with discussions with these organizations to avoid or minimize interruptions to services and to minimize adverse impacts in this super neighborhood and to Environmental Justice populations.
	Fatima House*	TxDOT has offered the opportunity to request advance acquisition of the property. Counselor may provide current listings of available properties.	No direct contact accomplished after multiple means and attempts; needs to remain in area with population served.	Similar facilities are located in the downtown loop area but may not provide exactly the same services. One facility in 77002, the Beacon, is a nonprofit that serves homeless populations and is located less than one mile from Loaves and Fishes Magnificat House Ministries. Other facilities that may offer some similar services in the downtown “loop” area include Star of Hope, Bread of Life, Coalition for the Homeless, Healthcare for the Homeless, and Salvation Army. Harmony House could be affected by current project through changes in bus stops; also provides relevant similar services.	
	SEARCH Homeless Services*	TxDOT is proceeding with advance acquisition of the property, including providing additional time for relocation and reestablishment (to be negotiated with TxDOT).	Displacement would cause disruption of clients’ access to services; need to relocate downtown where clients are located; concern about communicating relocation to clients; need status of advance acquisition to plan for relocation	Similar facilities are located in the downtown loop area but may not provide exactly the same services. One facility in 77002, the Beacon, is a nonprofit that serves homeless populations and is located less than one mile from Loaves and Fishes Magnificat House Ministries. Other facilities that may offer some similar services in the downtown “loop” area include Star of Hope, Bread of Life, Coalition for the Homeless, Healthcare for the Homeless, and Salvation Army. Harmony House could be affected by current project through changes in bus stops; also provides relevant similar services.	
Segment 3/ Midtown, Neartown/Montrose,	0 ^a	N/A	N/A	N/A	No community facilities would be directly adversely impacted in these super neighborhoods; community facilities have a low likelihood of being adversely impacted by other major projects or transportation improvements due to the need for compatible land uses and compliance with environmental protection regulations;

Segment/Super Neighborhood	Community Facility Displacement	Customized Mitigation Commitment	Wishes to Relocate Nearby/ within the RSA?	Comparable Facilities in Reasonable Proximity	In Combination with Other Anticipated Development, Will Impacts to Community Facilities be Significant and Adverse After Mitigation?
Second Ward, Greater Third Ward, Fourth Ward, University Place, Washington Avenue Coalitions/Memorial Park					therefore, significant adverse impacts to community facilities are unlikely in these super neighborhoods.
Segment 3/ Greater Fifth Ward	Goodwill Missionary Baptist Church*	TxDOT is proceeding with advance acquisition of the property, including providing additional time for relocation and reestablishment.	Yes; church founded in Fifth Ward; prefer location with better parking; previously impacted by expansion of I-10, which affected parking and square footage of church.	There are several additional Baptist churches in the Fifth Ward (First Shiloh Baptist; Fifth Ward Missionary Baptist; Pleasant Hill Missionary Baptist).	
	Helping Hands Charity (Sloan Memorial United Methodist Church)*	TxDOT is proceeding with advance acquisition of the property, including providing additional time for relocation and reestablishment. Center will be able to remain in the existing facility for an amount of time to be negotiated with TxDOT. Sloan Memorial United Methodist Church is planning to rebuild the church on a portion of the property that would not be acquired by TxDOT. Consequently, the Helping Hands Charity could relocate to the new church building or move its building to a location on the property that would not be impacted by right-of-way acquisition.	Historic church was previously demolished and congregation was meeting elsewhere; want to get back to the Fifth Ward to continue ministry work.	Helping Hands Charity collects donations for the local community and schools in the Greater Fifth Ward. Sloan Memorial United Methodist Church administers services provided by Helping Hands Charity.	Two community facilities would be directly adversely impacted in this super neighborhood—customized mitigation discussions including advance acquisition and additional time to relocate and reestablish are underway as described in the CIA Technical Report. These impacted churches serve specific Environmental Justice populations. In addition, Goodwill Missionary Baptist Church was previously impacted by I-10 improvements. Helping Hands Charity would be able to remobilize its services essentially at the same location when Sloan Memorial United Methodist Church builds its new building on a different portion of its property. TxDOT intends to facilitate relocation within the neighborhood to the maximum extent practicable to minimize adverse impacts in this super neighborhood and to Environmental Justice populations..
Segment 3/ Museum Park	Consulate General of Mexico*	TxDOT is proceeding with advance acquisition and has assisted with relocating the Consulate General in the same area of Houston. Relocation assistance would be provided.	Current plans are to relocate the consulate within the Resources Study Area.	No	Development of other projects would not affect the unique services provided by the Consulate General. Customized mitigation is underway for the Consulate General of Mexico. TxDOT is committed to relocating the Consulate within the RSA such that no adverse cumulative impacts would occur to those served by the Consulate. Significant adverse impacts to the super neighborhood are not anticipated.
Segment 3/ MacGregor	0 ^a	N/A	N/A	N/A	No community facilities would be directly adversely impacted in this super neighborhood; community facilities have a low likelihood of being adversely impacted by other major projects or transportation improvements due to the need for compatible land uses and compliance with environmental protection regulations; therefore, significant adverse impacts to community facilities are unlikely in this super neighborhood.

*Serves Environmental Justice Populations

Notes: ^a “0” indicates that no community facilities would be completely displaced by the project; this list does not include non-displacement impacts to nearby properties.

“TxDOT is proceeding with advance acquisition package” includes an advance acquisition offer, the option to remain in place during construction, provision of a relocation assistance counselor, and eligibility for some reimbursement for reestablishment expenses. See Table 5.18 in the *Community Impact Assessment Technical Report* (TxDOT 2019b) for more detail. For more detailed information about mitigation, see Appendix C.

This review of impacts to community facilities is intended to portray potential cumulative impacts by super neighborhood by focusing on community facilities and mitigation for impacts to them. The proposed NHHIP would not displace community facilities in several super neighborhoods. Most of the community facilities displacements would occur in a few of the super neighborhoods. The most impacts would occur in **Northside/Northline**; this is a fairly large super neighborhood on the east side of I-45 north of I-610. **Downtown** (along US 59 in the city center), several community facilities that specialize in providing essential services to homeless populations would be displaced. **Greater Fifth Ward** would be impacted by the displacement of two community facilities. **Independence Heights** would have one community facility displaced; representatives were proactively engaged and working closely with TxDOT to develop a plan to minimize adverse effects in their super neighborhood. As discussed in Table 8, customized mitigation for these community facilities has been designed to minimize adverse cumulative impacts to super neighborhoods and to the RSA as a whole. A concerted effort will be made by TxDOT to ensure that community facilities—particularly the ones that provide services to Environmental Justice communities—would be able to relocate within the service area to reduce the incremental effects from the project.

Taken together, past, present, and reasonably foreseeable future projects have had and may continue to have limited adverse impacts on Community Resources. To the extent that a concerted effort has been made by TxDOT to ensure that community facilities—particularly the ones that provide services to Environmental Justice communities—would be able to relocate within the service area, the incremental effects from the project have been reduced. In addition, commitments have been made by TxDOT to avoid inhibiting operations during the construction phase.

Based on this analysis, direct impacts from the project would be mitigated for sensitive populations. Adverse indirect impacts (encroachment alteration and induced development) could result from the proposed project. Other past, present, and reasonably foreseeable projects would continue to contribute to the local and regional trends of development within the Community Resources RSA. Such development is expected to continue, accompanied by the continuing and parallel socioeconomic challenges of homelessness and housing affordability that established agencies and organizations are working to address.

7.0 CONCLUSION

This analysis considered Community Resources (specifically neighborhoods/community facilities and Environmental Justice populations), discussed the health of these resources and relevant trends, and identified a specific RSA boundary and appropriate temporal boundary for the analysis. Direct and potential indirect impacts were summarized for this resource. Past, present, and reasonably foreseeable future actions were identified through research, interviews, and cartographic analysis. The construction of the proposed project was considered in conjunction with these other actions to consider cumulative impacts. This analysis provided detailed information about Community Resources within the RSA for the proposed NHHIP project and described the extensive public and private activities that have evolved over time to help protect these resources.

The incremental effects from the proposed project would contribute to the trends and future condition of community resources in the study area. As indicated in this analysis, community resources have been adversely affected by a range of projects and events. The incremental effects from the proposed project would contribute positive and adverse impacts to the overall cumulative effects to community resources in the study area. The adverse effects would be minimized by the mitigation proposed for the project. The Community Impact Analysis Technical Report provides additional information on effects and mitigation related to community resources.

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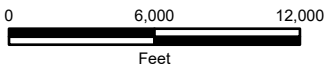
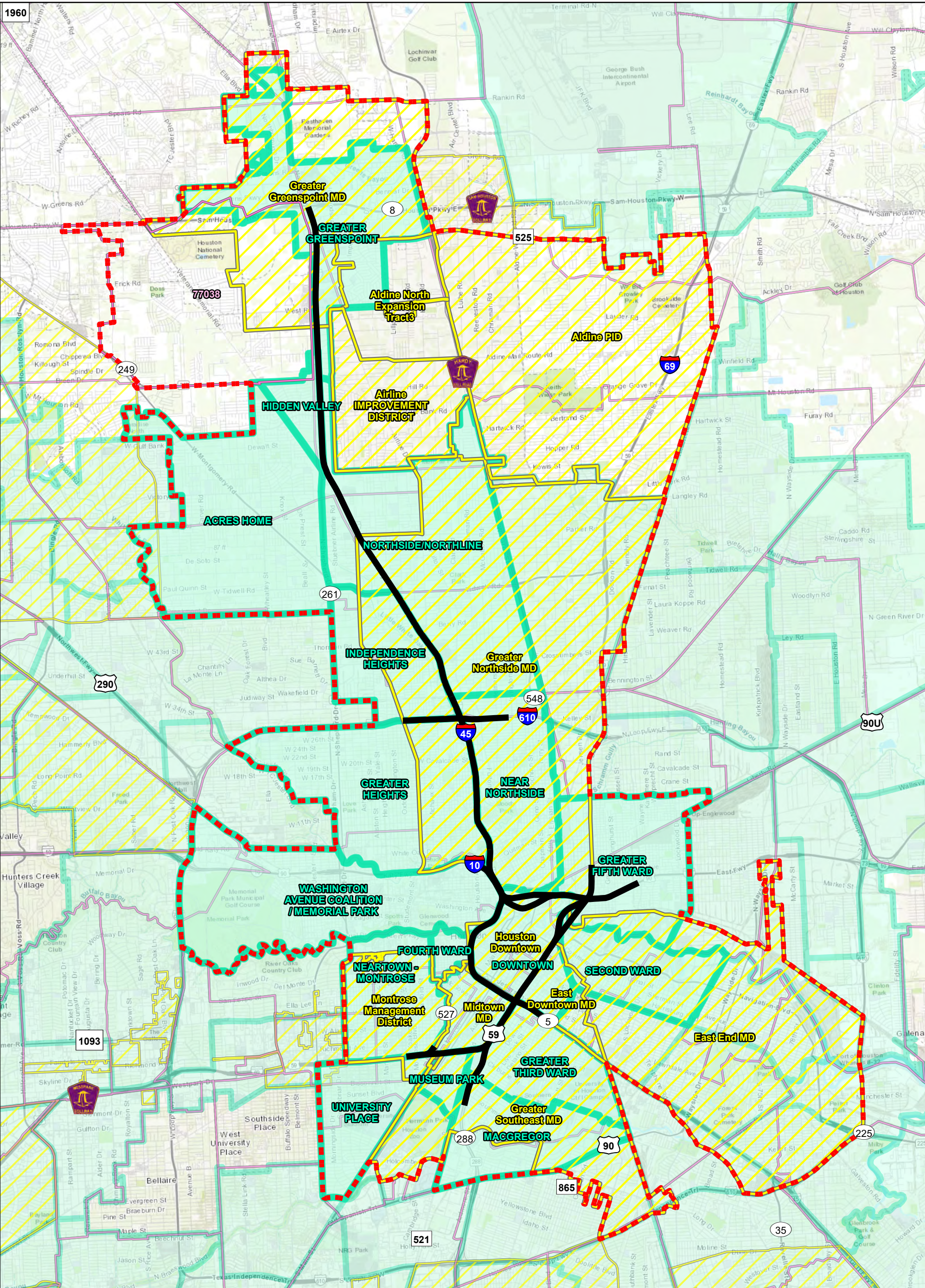
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Attachment A

Exhibits



- Preferred Alternative
- Resource Study Area (RSA)
- Zip Codes
- Management Districts
- Super Neighborhoods

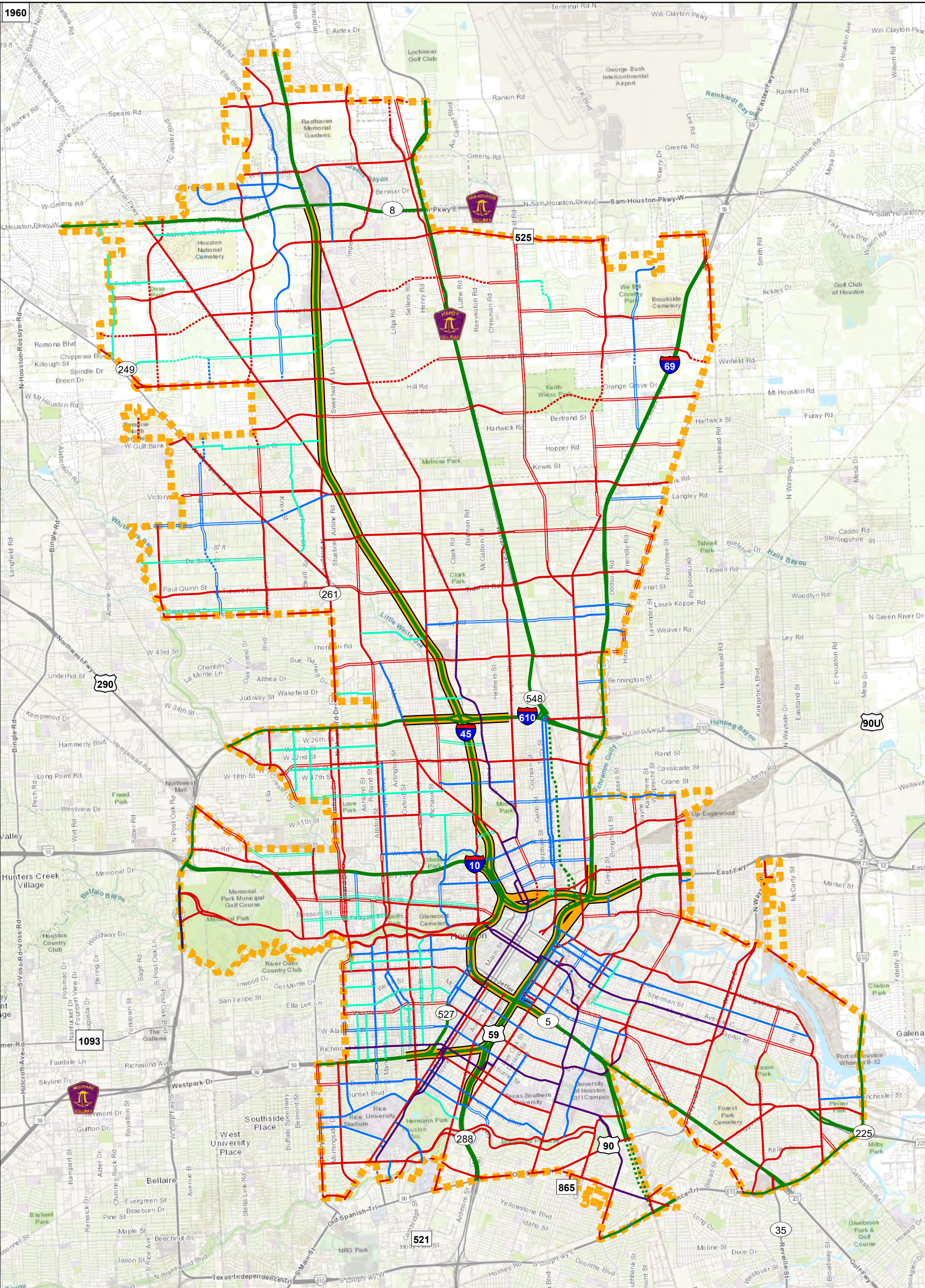
**North Houston
Highway Improvement Project**

**Resource Study Area -
Community Resources**



Date: February 2019

Exhibit 1



- NHHIP Preferred Alternative

Community Resources RSA

MTFP 2017

Proposed Freeway

Freeway

Major Thoroughfare

Major Thoroughfare to Be Widened

Proposed Major Thoroughfare

Major Collector

Major Collector to Be Widened

Proposed Major Collector

Minor Collector

Minor Collector to Be Widened

Proposed Minor Collector

Transit Corridor Street
- North Houston

Highway Improvement Project

City of Houston 2017

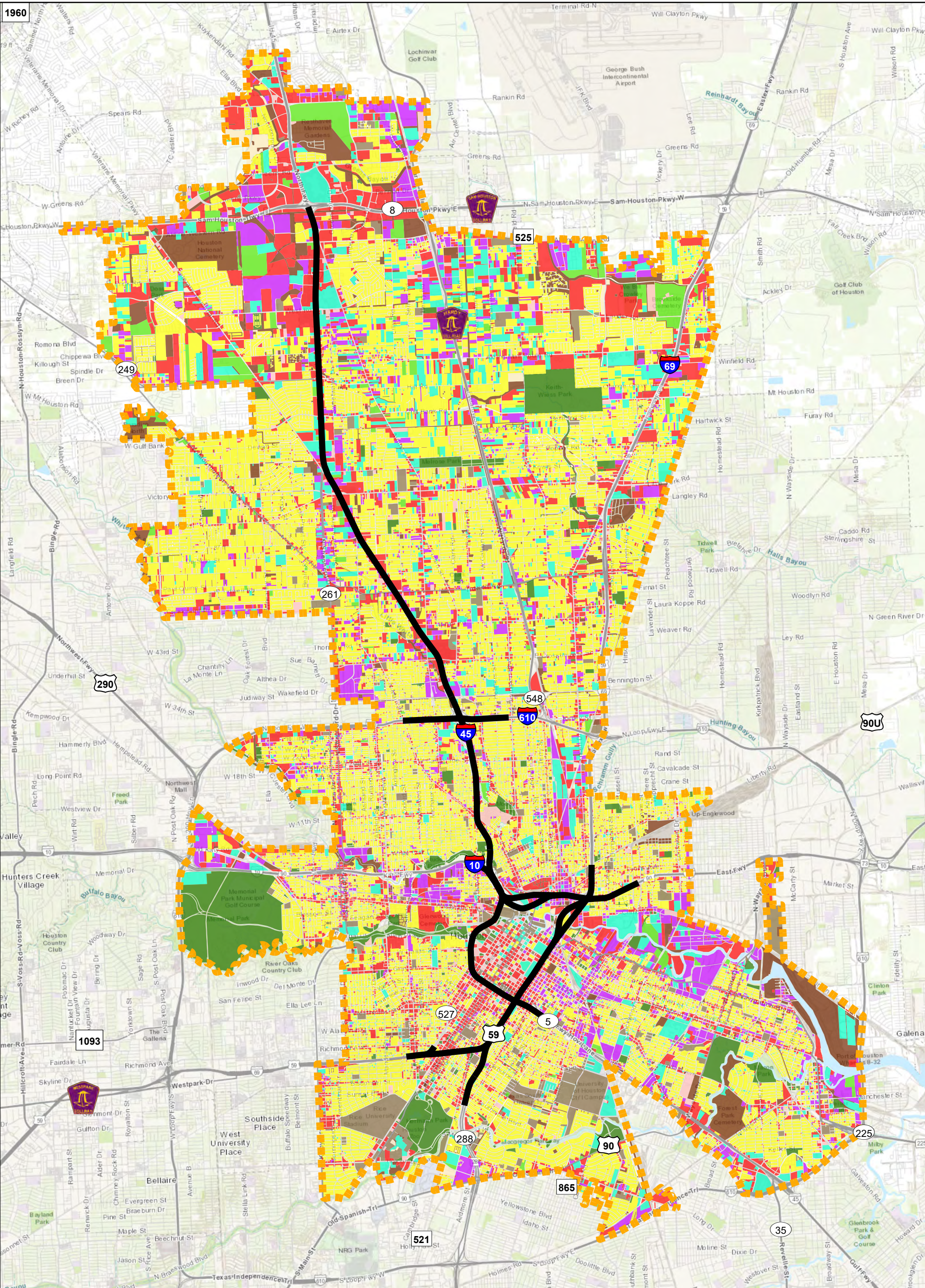
Major Thoroughfare and Freeway Plan

Texas Department of Transportation

© 2018

Date: February 2019

Exhibit 2a



- Preferred Alternative

Community Resources RSA

H-GAC Current (2018) Land Use

Commercial

Gov/Med/Edu

Industrial

Multiple

Other

Parks/Open Spaces

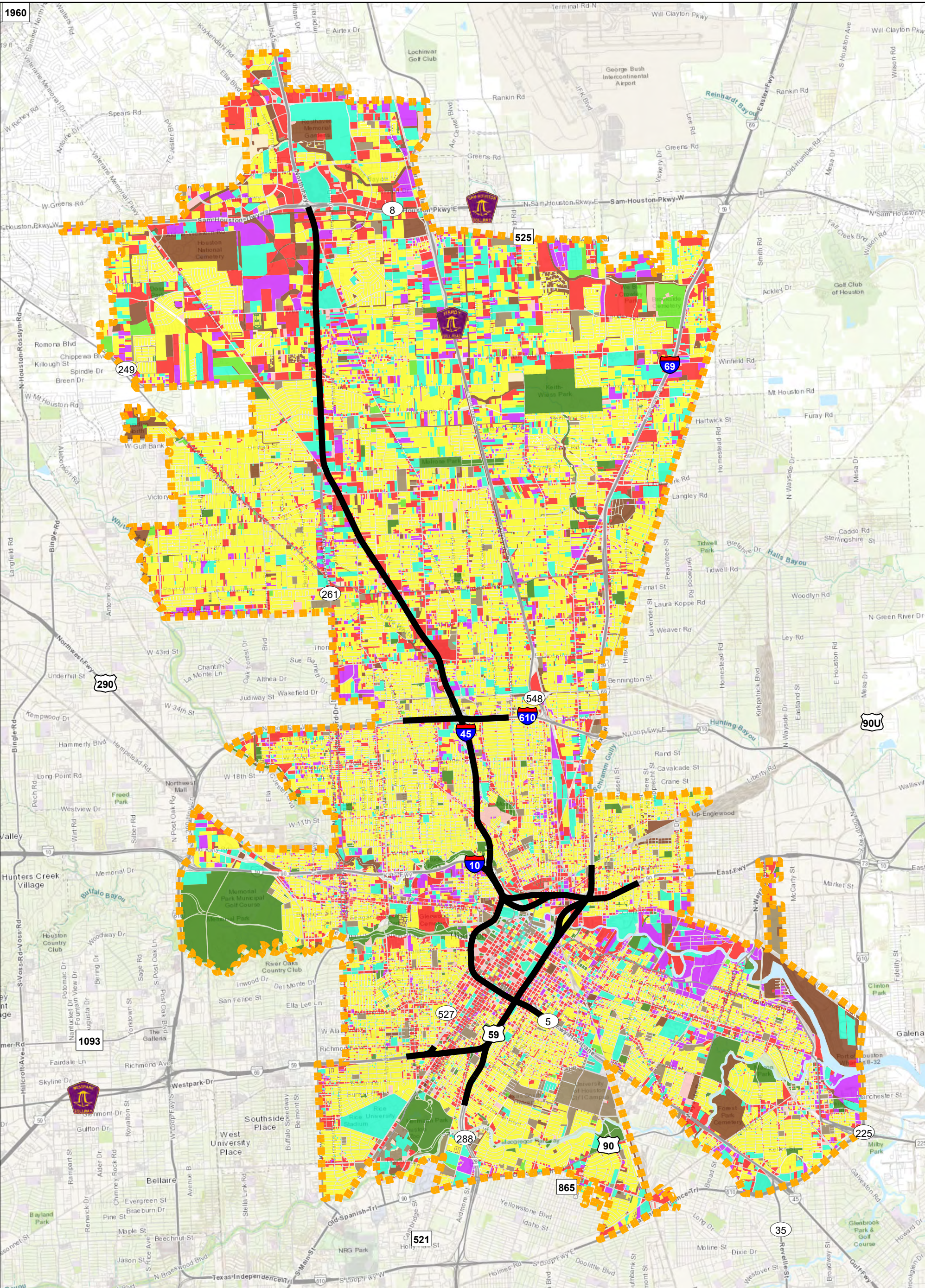
Residential

Undevelopable

Unknown

Vacant Developable (includes Farming)
- North Houston
Highway Improvement Project
- Current Land Use
-
- Date: February 2019

Exhibit 3



- Preferred Alternative

Community Resources RSA

H-GAC 2045 Land Use

Commercial

Gov/Med/Edu

Industrial

Multiple

Other

Parks/Open Spaces

Residential

Undevelopable

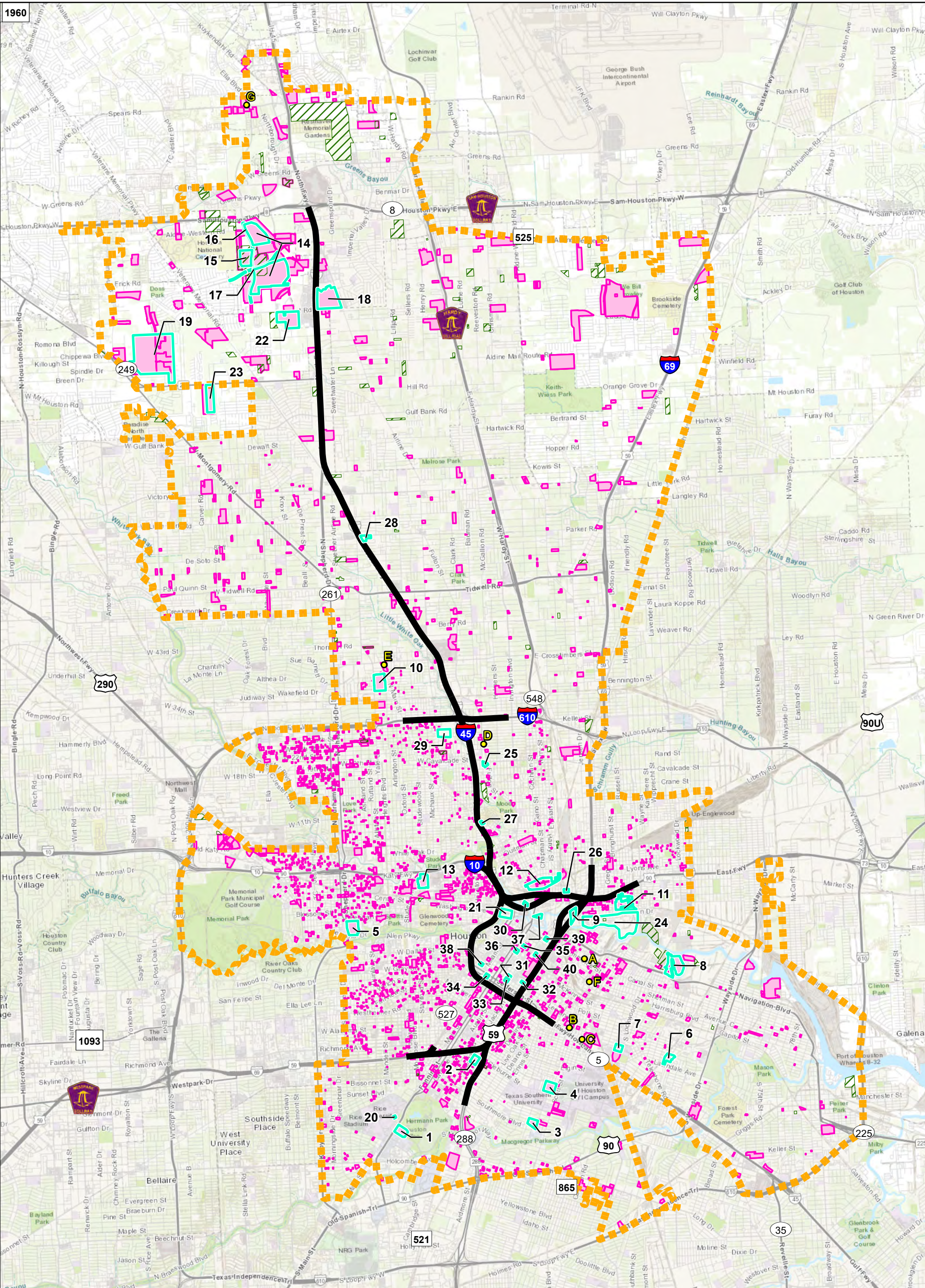
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Vacant Developable (includes Farming)

North Houston
Highway Improvement Project

2045 Land Use

Date: February 2019 Exhibit 4



Preferred Alternative

Community Resources RSA

Projected 2045 Development (H-GAC)

Projected Near-Future Development (City of Houston)

Substantial Proposed Land Development

Low-Income Housing Tax Credit (LIHTC) Project

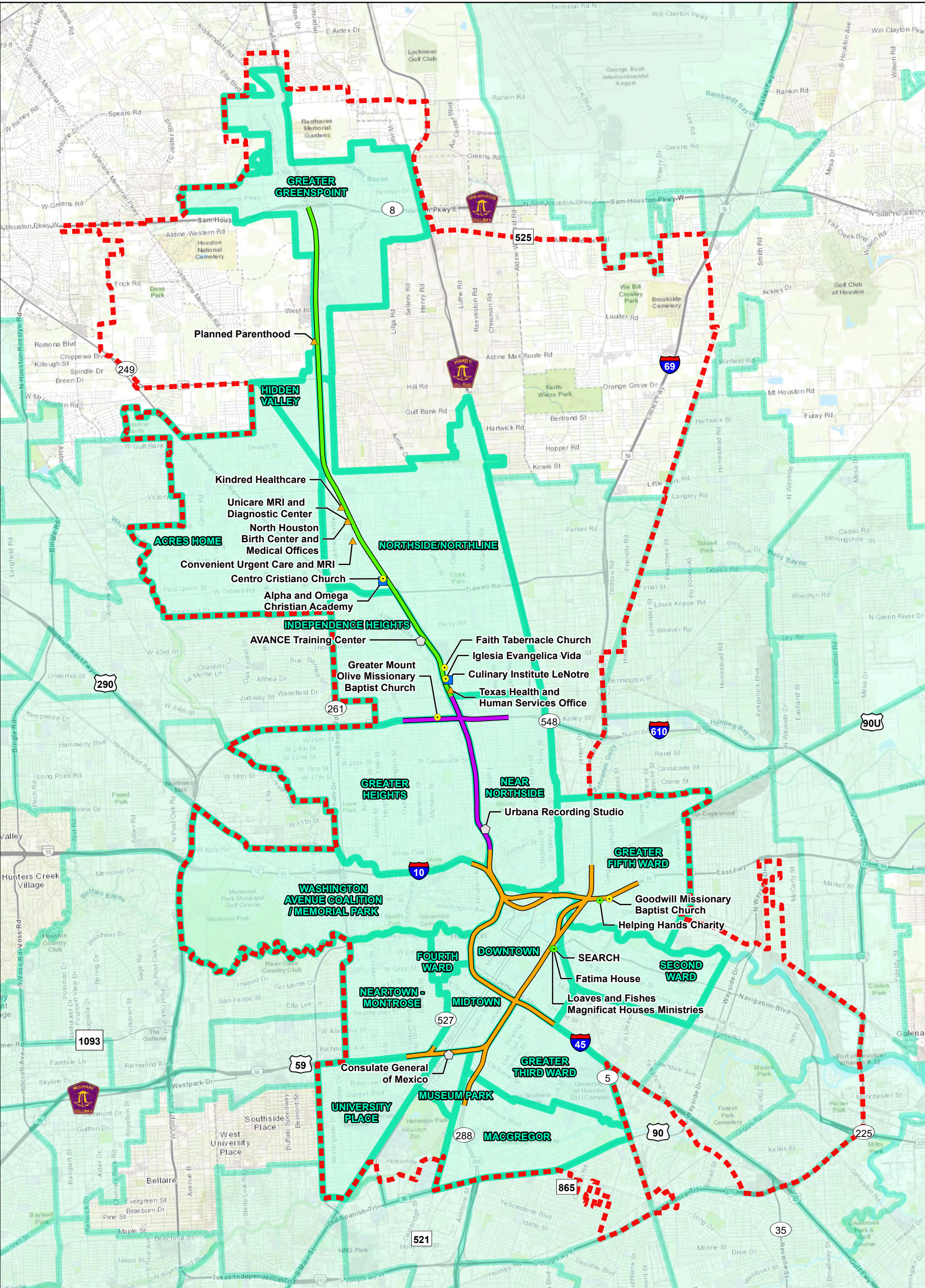
North Houston Highway Improvement Project

Projected Future Development

Texas Department of Transportation

Date: February 2019

Exhibit 5



- Segment 1
- Segment 2
- Segment 3
- Resource Study Area (RSA)
- Super Neighborhood
- Health/Medical
- Homeless Services
- Other
- Place of Worship
- School

Attachment B

TxDOT Roadway Projects in the RSA with a Letting Date between 1984 and 2032

Highway Name	CSJ Number	Limits	Scope of Work Description	Let Date
BW 8	325602030	0.1 MI E OF STUEBNER-AIRLINE RD TO ELLA BLVD	CONSTRUCT TWO 3-LANE FRONTAGE ROADS	01-May-87
BW 8	325602029	0.3 MI E OF FM 149 TO 0.1 MI E OF STUEBNER-AIRLINE	CONST TWO 3-LN FRONTAGE ROADS	01-May-87
BW 8	325602037	E OF ELLA BLVD TO WEST OF IMPERIAL VALLEY	CONSTRUCT SIX MAIN LANES	01-Jan-89
BW 8	325602060	@ HARDY TOLL ROAD	CONSTRUCT EAST BOUND TO NORTH BOUND HARDY TOLLROAD CONNECTOR	01-Apr-00
BW 8	325602061	WEST OF GREENSPPOINT DR. TO WEST HARDY ROAD	TSM IMPROVEMENTS (CONTINUOUS RIGHT TURN LANES)	01-Mar-09
FM 149	072003058	WEST MOUNT HOUSTON TO IH 45	WIDEN FROM 4 LANES TO 6-LANE DIVIDED CURB AND GUTTER SECTION	01-Sep-87
FM 149	072003062	1.0 MI S OF BW 8 TO WEST MOUNT HOUSTON	WIDEN 4 LANES TO 6-LANE DIVIDED RURAL SECTION	01-Mar-89
FM 525	100501023	IH 45(N) TO JFK BLVD	WIDEN TO 6 LANE URBAN DIVIDED SECTION	01-Oct-90
FM 525	100501027	JFK BLVD TO US 59	WIDEN TO 6 LANE DIVIDED URBAN SECTION & TRAFFIC M SYSTEM	01-Nov-90
FM 525	100502001	LEE ROAD TO US 59	REMOVE BOTTLENECK BY WIDENING FROM 2 TO 4 LANES DIVIDED W/CURB AND GUTTER FOR APPROX. 950 FEET	01-May-18
IH 10	050801209	WAYSIDE DR TO OATES RD IN HOUSTON	WIDEN, CONCRETE OVERLAY AND ILLUMINATION	01-Feb-90
IH 10	027107204	TAYLOR ST I/C TO IH 45(N)	WIDEN CONNECTOR "L"	01-Oct-91
IH 10	027107210	0.5 MI. W. OF IH 610(W) TO 0.5 MI. W. OF IH 45 (N)	REHABILITATE PAVEMENT	01-Aug-95
IH 10	050801302	E OF LOCKWOOD(E OF SPRR) TO GELLHORN DR.	CONCRETE OVERLAY AND SHOULDER RECONSTRUCTION	01-Mar-03
IH 10	027107244	E OF SILBER TO E OF IH 10/610 INTERCHANGE	RECONSTRUCT AND WIDEN DIRECT CONNECTOR RAMPS TO ACCOMODATE HOV LANE_(TOLL)	01-Jul-03
IH 10	027107274	EAST OF IH 10/IH 610 INTERCHANGE TO WEST OF WASHINGTON AVE	RECONSTRUCTION OF FREEWAY FACILITY AND UPRR BRIDGE	01-Jan-07
IH 10	027107301	IH 45 NORTH TO WHITE OAK BAYOU BRIDGE	RECONSTRUCT ROADWAY	01-Aug-09
IH 10	050801329	WHITE OAK BAYOU BRIDGE TO US 59	RECONSTRUCT ROADWAY	01-Aug-09
IH 10	027107242	WASHINGTON AVE. TO TAYLOR ST.	WIDEN AND RECONSTRUCT TO 2 3-LANE FRONTAGE ROADS WITH BRIDGES AT WHITE OAK BAYOU	01-Jan-10
IH 10	027107314	AT OLIVER STREET	CONSTRUCT OLIVER STREET BRIDGE & WIDEN EASBOUND FRONTAGE RD	01-Apr-18

IH 45	050003339	IN HOUSTON FR QUITMAN ST TO GULFBANK RD	FRWY WIDENING, ROADWAY & BRIDGE OVERLAY - PHASE II	01-Dec-84
IH 45	050003320	IN HOUSTON FR HUTCHINS TO CALHOUN	AVL, MN LN WDN & OVERLAY, RECONST 3 STR, BUILD 2 NEW STR	01-Jun-85
IH 45	050003385	HOUSTON (AT LOCKWOODTRANSIT CENTER)	COMPLETION OF LOCKWOOD INTERSECTION	01-Aug-85
IH 45	050003327	IN HOUSTON FROM TELEPHONE TO BROADWAY	TRANSITWAY	01-Aug-85
IH 45	050003333	IN HOUSTON FR LOCKWOOD ST TO DUMBLE ST	COMPLETION OF LOCKWOOD INTERSECTION	01-Aug-85
IH 45	011006089	N SHEPHERD DR TO BELTWAY 8	TRANSITWAY, FREEWAY WIDENING (5 STRUCTURES) & OVERLAY	01-Jan-86
IH 45	011006104	AT BELTWAY 8	CONSTRUCT BELTWAY 8 MAIN LANES	01-Jan-89
IH 45	011006102	S OF ALDINE-BENDER RD TO N OF GREENS BAYOU	WDN/RECONST TO 8 & 10 M.L. W/ AVL, FR RDS, TMS & 2 NW DIRECTCONNECTORS AT BW 8	01-Mar-93
IH 45	011006117	KUYKENDAHL RD TO N OF GREENS BAYOU	REHABILITATE EXISTING MAIN LANES	01-Nov-93
IH 45	011006107	KUYKENDAHL RD TO N OF GREENS BAYOU	RECONST TO 10 M.L. W/ HOV, FR RDS, & TMS	01-Nov-93
IH 45	011006105	AT BELTWAY 8 (NORTH)	CONSTRUCT 4 DIRECT CONNECTORS (NE & SW QUADRANTS)	01-Jan-00
IH 45	050003539	LOCKWOOD TO GRIGGS STREET TO (IN SECTIONS)	RECONSTRUCTION OF FRONTAGE ROADS	01-Jun-06
IH 45	011006137	NORTH OF WEST ROAD TO NORTH OF SHEPHERD DRIVE	TRANSPORTATION MANAGEMENT SYSTEM IMPROVEMENTS RECONFIGURE AND RESTRIPE TO CREATE AUXILIARY LANES	01-Feb-13
IH 45	050003577	AT SHEPHERD	TRANSPORTATION MANAGEMENT SYSTEM IMPROVEMENTS CONSTRUCT NORTHBOUND AND SOUTHBOUND DIRECT CONNECTORS	01-Feb-13
IH 45	050003571	ALLEN PARKWAY TO JEFFERSON STREET	RECONFIGURE EXISTING ALLEN PARKWAY SOUTHBOUND ENTRANCE RAMP	01-Aug-15
IH 45	050003580	NB & SB FRONTAGE RD FROM SCOTT ST TO WAYSIDE DR	FAST TRACK CONCRETE PAVEMENT, CONCRETE CURB AND SIDEWALK	01-Mar-16
IH 45	050003607	AT IH 610 S	CONSTRUCT DIRECT CONNECTOR IH 45 SB TO IH 610 WB	01-Aug-16
IH 45	050003606	AT IH 610 E	CONSTRUCT DIRECT CONNECTOR IH 610 EB TO IH 45 NB	01-Aug-16
IH 45	050003605	SP 5 TO IH 69	CONSTRUCT ENTRANCE AND EXIT RAMPS, REMOVE AND REPLACE EXISTING IH 69 NB AND SB DIRECT CONNECTORS	01-Jan-17

IH 45	050003588	IH 45 NB FROM DETROIT TO BERKLEY TO AND IH 610 WB FROM BERKLEY TO BROAD	RECONSTRUCT FRONTAGE ROADS (IH 45 NB TO EB IH 610; DETROIT TO BERKLEY) AND (WB IH 610 TO NB IH 45; BERKLEY TO BROAD)	01-Apr-18
IH 45	050003601	AT IH 69 SOUTH	RECONSTRUCT INTERCHANGE INCLUDING IH 45 & IH 69 MAINLANES	01-Mar-21
IH 45	050008001	AT IH 69 NORTH AND IH 10 EAST	RECONSTRUCT INTERCHANGE INCLUDING IH 45, IH 10 & IH 69 MAINLANES AND IH 10 EXPRESS LANES	01-Nov-22
IH 45	050003599	AT IH 10 WEST	RECONSTRUCT INTERCHANGE INCLUDING IH 10 EXPRESS LANES (NON- TOLLED)	01-Nov-23
IH 45	050003597	AT IH 610	RECONSTRUCT INTERCHANGE	01-Aug-26
IH 45	050003596	IH 610 TO TIDWELL	RECONSTRUCT MAIN LANES, FRONTAGE LANES AND CONSTRUCT 4 ADDITIONAL MANAGED LANES	01-Aug-26
IH 45	050003560	IH 10 TO IH 610	RECONSTRUCT MAIN LANES, FRONTAGE LANES AND CONSTRUCT 4 ADDITIONAL MANAGED LANES	01-Aug-26
IH 45	050003446	TIDWELL ROAD TO SOUTH OF SHEPHERD DRIVE	RECONSTRUCT MAIN LANES, FRONTAGE LANES AND CONSTRUCT 4 ADDITIONAL MANAGED LANES	01-Aug-26
IH 45	011006132	SOUTH OF WEST ROAD TO N OF BW 8	RECONSTRUCT MAIN LANES, FRONTAGE LANES AND CONSTRUCT 4 ADDITIONAL MANAGED LANES	01-Aug-26
IH 45	011006139	SOUTH OF SHEPHERD DRIVE TO SOUTH OF WEST ROAD	RECONSTRUCT MAIN LANES, FRONTAGE LANES AND CONSTRUCT 4 ADDITIONAL MANAGED LANES	01-Aug-26
IH 45	050003598	IH 69 SOUTH TO IH 10	REMOVE EXISTING PIERCE ELEVATED AND CONSTRUCT PARKWAY CONNECTORS INTO DOWMTOWN HOUSTON	01-Aug-26
IH 45	011006133	BW 8 TO SOUTH OF RANKIN RD	RECONFIGURE TO REMOVE BI- DIRECTIONAL HOV LANES AND CREATE 2 MANAGED LANES	01-Aug-30
IH 610	027114145	IN HOUSTON FR IRVINGTON TO US 59	FREEWAY WIDENING, PAVEMENT REHABILITATION, AND SIGNING	01-Nov-86
IH 610	027114159	IN HOUSTON FR IH 45 TO HARDY ST	FREEWAY WIDENING TO ACCOMMODATE HARDY TOLLWAY JBD	01-Aug-87
IH 610	027116075	IN HOUSTON, FROM SH 288, EAST TO IH 45	THIN BONDED CONCRETE OVERLAY ON MAIN LANES	01-Jul-88
IH 610	027114105	IN HOUSTON FR N END IH 10 O/P (W) TO W T C JESTER BLVD	FREEWAY AND STRUCTURE WIDENING	01-Apr-89

IH 610	027116117	HOLMES ROAD TO MYKAWA	GRIND EXIST PAVEMENT ADD BONDED CONCRETE O/L, RECONSTRUCT 3 INTERSECTIONS, SIDEWALKS, WHEELCHAIR RAMPS AND SMALL SIGNS	01-Apr-02
IH 610	027116115	LONG RD TO SH 35	GRIND EXIST PAVEMENT,ADD BONDED CONC OVERLAY, RECONSTR 5 INTERSECTION, SIDEWALKS, WHEELCHAIR RAMPS AND SMALL SIGNS	01-Jul-02
IH 610	027117127	S. OF POST OAK BLVD. TO IH 10 W.	RECONSTRUCT 8-LANE FREEWAY, TMS & PROVISION FOR FUTURE HOV_(TOLL)	01-Jul-03
IH 610	027115074	S OF GELLHORN TO S OF SHIP CHANNEL BRIDGE (IN SECTIO	CONCRETE OVERLAY OF MAINLANES AND RECONSTRUCT SHOULDERS	01-Nov-03
IH 610	027114201	IH 45 TO HARDY	FULL DEPTH REPAIR OF INTERSECTION AND RECONSTRUCTION OF FRONTAGE ROADS (IN SECTIONS)	01-Apr-05
IH 610	027114223	EAST OF ELLA TO IH 45	RECONSTRUCT ROADWAY	01-Jul-09
IH 610	027114222	ELLA BLVD. TO E.T.C. JESTER	RECONSTRUCT ROADWAY WITH REGARD TO US 290 RECONSTRUCTION	01-May-11
IH 610	027114217	TC JESTER TO N OF IH 10 ON IH 610 TO AND TO 34TH ST ON US 290	RECONSTRUCT US 290/IH 610 IC, CONSTRUCT INTERCHANGE WITH DC'S WITH TWO 2-LANE FRONTAGE ROADS (PHASE 1)	01-May-11
IH 610	027114228	W OF W 34TH ST ON US 290 (SEG 3) TO N AND S OF US 290 ON IH 610	RECONSTRUCT US 290/IH 610 INCLUDING IH 10 TO US 290 OUTBOUNDDIRECT CONNECTORS	01-Oct-12
IH 610	027114213	W OF W 34TH ST ON US 290 (SEG 3) TO ON IH 610	RECONSTRUCT US 290/IH 610 INTERCHANGE WITH DIRECT CONNECTORSAND 3-LANE REVERSIBLE MANAGED LANE DIRECT CONNECTOR	01-Nov-13
IH 610	027114231	SHEPHERD DRIVE TO EAST OF AIRLINE DRIVE	RECONSTRUCTION OF FRONTAGE ROADS	01-Jul-17
IH 610	027117162	IH 69 TO IH 10(W)	CONSTRUCT 4 EXPRESS LANES	01-Feb-22
IH 610	027114218	W OF MANGUM/18TH ST ON HEMPSTEAD TO S OF OLD KATY RD ON IH 610 (SEG 1)	CONSTRUCT INTERCHANGE WITH MANAGED LANES AND DC'S WITH TWO 2-LANE FRONTAGE ROADS	01-Aug-26
IH 610	027116900	HOLMES RD TO SH 35	RECONSTRUCT FRONTAGE ROADS	01-Aug-28
IH 610	027116111	0.582 MILES EAST OF SH 35 TO 0.718 MILES WEST OF SH 35	CONSTRUCT INTERCHANGE WITH SH 35	01-Aug-30
IH 69	002713221	AT MCGOWEN, TUAM AND ELGIN	CONSTRUCT 3 BRIDGES	01-Aug-20
IH 69	002713201	SH 288 TO SP 527	RECONSTRUCT TO 10 MAIN LANES	01-Aug-20
IH 69	002713200	IH 45 TO SH 288	RECONSTRUCT AND WIDEN TO 12 MAIN LANES AND RECONSTRUCT IH69/SH 288 INTERCHANGE	01-Aug-21

IH 69	002713903	SS 527 TO BW 8	RECONSTRUCT & WIDEN FROM 8 TO 10 LANES	01-Aug-30
SH 225	050201900	IH 610 TO RED BLUFF	WIDEN FREEWAY FROM 6 TO 8 LANES INCLUDING SH 225/IH 610 INTERCHANGE	01-Aug-32
SH 249	072003131	BW 8 TO IH 45	RECONSTRUCT FREEWAY (SUPER STREET)	01-Aug-23
SH 288	059801095	AT TEXAS MEDICAL CENTER	CONSTRUCT NB AND SB DIRECT CONNECTORS	01-Aug-16
SH 288	059801090	US 59 TO IH 610	CONSTRUCT 4 TOLL LANES & RECONSTRUCT DIRECT CONNERS AT IH 610	01-Aug-16
SH 35	050003299	LIVE OAK TO CALHOUN	NEW 3-LN ELEVATED FRWY & CONNECTIONS TO IH 45S	01-Jun-85
SH 35	017809025	IN HOUSTON FROM IH 45 TO O.S.T.	CONSTRUCT MAIN LANE BRIDGES, FRONTAGE ROADS & CONNECTORS	01-Jun-96
SH 35	017809018	IH 45 TO GRIGGS RD	8-LANE TOLLWAY ON NEW LOCATION AND TRAFFIC MANAGEMENT SYSTEM (MOST FEASIBLE TOLL ALTERNATIVE)	01-Aug-30
SH 35	017809020	SOUTH OF WAYSIDE DR TO BELLFORT	8-LANE TOLLWAY ON NEW LOCATION WITH 2-2 LANE FRONTAGE ROADS	01-Aug-30
SH 35	017809028	NORTH OF GRIGGS TO 0.270 MILES NORTH OF WAYSIDE	CONSTRUCT 8-LANE TOLLWAY ON A NEW LOCATION	01-Aug-30
SH 35	017809019	0.27 MI N OF WAYSIDE DR TO 0.13 MI S OF WAYSIDE DR	CONSTRUCT 8-LANE TOLLWAY ON NEW LOCATION WITH GRADE SEPARATION	01-Aug-30
SL 8	325602093	0.10 MI E OF HARDY TOLL RD TO 0.14 MI E OF ALDINE WESTFIELD RD	RECONSTRUCT EB AND WB FRONTAGE ROADS	01-Sep-18
SP 261	011006100	IH 45N TO CROSSTIMBERS	WIDEN TO 6-LANE DIVIDED CURB AND GUTTER SECTION	01-Aug-87
SP 261	011007015	W 43RD ST TO 38TH ST	WIDEN FROM 4 LANES TO 6-LANE DIVIDED	01-Jul-89
SP 261	011007016	IN HOUSTON ON N SHEPHERD DR AT RR FR DURHAM ST TO 38TH ST	6 LANE ROADWAY AND NEW RAILROAD BRIDGE	01-Jul-89
SP 527	002715020	US 59 INTERCHANGE TO SMITH STREET	RECONSTRUCT ROADWAY AND EXTEND HOV LANES	01-Aug-02
SP 548	248301001	0.47 MI N OF IH 610 TO 0.76 MI N OF IH 610	MULTIPLE LANE BRIDGE OVER HB&T RAILROAD	01-Mar-86
SP 548	248301006	IN HOUSTON FR IH 610 TO S ABUT OF CONN "B"	CONNECTIONS OVER IH 610 AND OVER HARDY-HB&T RAILROAD	01-Nov-86
SP 548	248301005	IN HOUSTON FR IH 610 TO 0.178 MI N OF IH 610	CONNECTIONS OVER HARDY AND OVER IH 610-HB&T RAILROAD	01-Nov-86
SP 548	248301004	IN HOUSTON FR 0.15 MI N OF IH 610 TO 0.47 MI N OF IH 610	THE GAP AND CONNECTION "F"	01-Jan-87
SP 548	248301003	IN HOUSTON FR 0.76 MI N OF IH 610 TO 1.26 MI N OF IH 610 AT CROSSTIMBERS	RAMP "A" BRIDGE OVER HB&T RAILROAD	01-Jan-87

SP 548	248301011	IN HOUSTON FR IH 610 TO 0.15 MI N OF IH 610	CONNECTION "A" BRIDGE AND TIE IN TO IH 610	01-Aug-87
SS 527	002715026	NB & SB FRONTAGE RDS FROM ALABAMA TO RICHMOND AVE	CONCRETE PAVEMENT, ASPHALT STABILIZED BASE, CEMENT TREATED BASE, CONCRETE CURB AND SIDEWALK	01-May-16
US 59	017707090	LAUDER RD TO 0.3 MI S OF ALDINE MAIL RD	CONSTRUCT SOUTHBOUND FRONTAGE ROAD	01-Sep-89
US 59	017711115	SOUTH OF PARKER RD TO N OF CROSSTIMBERS ST IN HOUSTON	CONSTRUCT NORTHBOUND FRONTAGE ROAD	01-Sep-89
US 59	017707085	0.3 MI S OF ALDINE MAIL RD TO 0.20 MI N OF LITTLE YORK RD	CONSTRUCT SOUTHBOUND FRONTAGE ROAD	01-Sep-89
US 59	002713133	WEST OF NEWCASTLE TO 0.2 MILES EAST OF SHEPHERD	WIDEN TO 10-LANE FREEWAY WITH AVL	01-Jan-90
US 59	017711116	0.04 MI N. OF PARKER RD TO 0.1 MI S OF SAUNDERS RD	CONSTRUCT NORTHBOUND FRONTAGE ROAD	01-Feb-90
US 59	017711117	0.04 MI N. OF PARKER RD TO 0.1 MI S OF SAUNDERS RD	CONSTRUCT SOUTHBOUND FRONTAGE ROAD	01-Feb-90
US 59	017707087	0.312 MI N OF GREENS BAYOU TO 0.157 MI S OF GREENS BAYOU	CONSTRUCT NORTHBOUND FRONTAGE ROAD	01-Feb-90
US 59	017707086	0.28 MI N OF GREENS BAYOU TO 0.379 MI S OF GREENS BAYOU	CONSTRUCT SOUTHBOUND FRONTAGE ROAD	01-Feb-90
US 59	017711066	0.52 MI N OF CROSSTIMBERS TO 0.16 MI N OF IH 610	WIDEN TO 10 MAIN LANES WITH AVL AND FRONTAGE ROADS AND TMS	01-Feb-91
US 59	017711083	0.52 MI N OF CROSSTIMBERS TO 0.16 MI S OF PARKER	WIDEN TO 10 MAIN LANES WITH AVL AND SB FRONTAGE ROAD & TMS	01-Apr-91
US 59	017707083	0.45 MI N OF LITTLE YORK RD TO 0.12 MI N OF LANGLEYRD	WIDEN TO 10 MAIN LANES WITH AVL AND FRONTAGE ROADS & TMS	01-Jun-91
US 59	017711084	0.12 MI N OF LANGLEY RD TO 0.16 MI S OF PARKER	WIDEN TO 10 MAIN LANES WITH AVL AND FRONTAGE ROADS & TMS	01-Jun-91
US 59	017707074	0.29 MI N OF GREENS BAYOU TO 0.3 MI S OF ALDINE MAIL RD	WIDEN TO 8 M.L. W/ AVL, FR RDS (FR RDS IN SECTS)	01-Sep-91
US 59	017707088	0.29 MI N OF GREENS BAYOU TO 0.24 MI N OF ALDINE-BENDER	WIDEN TO 8 & 10 MAIN LANES WITH AVL & FRONTAGE ROADS & TMS	01-May-92
US 59	017707057	0.3 MI S OF ALDINE MAIL ROUTE TO 0.45 MI N OF LITTLE YORK	WIDEN TO 10 MAIN LANES WITH NB FRONTAGE ROAD & AVL & TMS	01-Jun-92
US 59	017711122	AT HB&T RR RELOC AT IH 10	RELOCATE RAILROAD OVERPASS	01-Sep-92
US 59	017711118	CHRISTIE ST TO IH 10	CONSTRUCT 10 MAIN LANES WITH HOV AND 6-LANE FRONTAGE ROADS	01-Jul-94
US 59	017711105	IN HOUSTON FR 0.16 MI N OF IH 610 TO 0.25 MI N OF COLLINGSWORTH	WIDEN TO 10 MAIN LANES W/ HOV LANE & FRONTAGE ROADS & TMS	01-Jun-95
US 59	017711085	IN HOUSTON FROM FRANKLIN ST TO CLAY ST	RECONSTRUCTION & WIDENING OF STRUCTURE & TMS	01-Jul-95
US 59	017711119	FRANKLIN ST TO S OF JENSEN ST	CONSTRUCT DIRECT CONNECTORS	01-Jun-97

US 59	017711091	IN HOUSTON FR FRANKLIN ST TO S OF LYONS ST	CONSTRUCT 10 MAIN LANES WITH HOV LANE AND TMS* (*0.25 MI N OF COLLINGSWORTH TO FRANKLIN ST, 3.050 MILES)	01-Mar-99
US 59	002713165	E OF SHEPHERD TO E OF MANDELL	WIDEN AND RECONSTRUCT AND EXTEND HOV	01-May-99
US 59	002713171	MANDELL, NORTH 1.032 MI TO SP 527	RECONSTRUCT ROADWAY AND EXTEND HOV LANE	01-Aug-02
US 59	002713190	LANCASHIRE STREET (W. OF NEWCASTLE) TO SHEPHERD DRIVE	RECONSTRUCT FRONTAGE ROADS AND INTERSECTIONS	01-Nov-12
US 90A	002710069	IH 45 TO AVENUE W	RECONSTRUCT INTERSECTION AT IH45, FLEXIBLE PAVEMENT REPAIR, CURB REPAIR AND FULL DEPTH REPAIR	01-Apr-13
US 90A	002709105	ST AUGUSTINE TO EAST OF GRIGGS RD	RECONSTRUCTION OF FRONTAGE ROADS AND INTERSECTIONS	01-Sep-20
Navigation Boulevard Underpass Bridge	091272388	Underpass at Navigation Boulevard under the Houston Belt & Terminal (HB&T) West Belt Subdivision rail line; grade separation at the intersection of Commerce Street and Navigation Boulevard.	Replace an existing at-grade railroad crossing east of downtown Houston. Modifications to the at-grade crossing will consist of depressing Commerce Street and reconstructing the underpass at Navigation Boulevard under the Houston Belt & Terminal (HB&T) West Belt Subdivision rail line. The proposed project also includes a pump station, storm water detention basin, pavement removal on several city streets, and closure of Hutchins Street at Commerce Street. The grade separation will take place at the intersection of Commerce Street and Navigation Boulevard. The proposed grade separation will provide divided roadways along Commerce Street and Navigation Boulevard with 12-foot inside lanes, 5.5-foot wide bike lanes, and 6.5-foot wide sidewalks in each direction.	N/A

Attachment C

CIA Mitigation Table

Table 6-1: Mitigation and Commitments Required by Policy/Regulation

	Category	Impacts	Mitigation and Commitments	Timing/phase of construction
1.	Community Impacts- Travel Patterns and Access	Temporary road closures and traffic detours	Provide safe and efficient connections to and around neighborhoods during construction for all modes of transportation, including bicycles and pedestrians. Provide advanced notice of temporary road closures and traffic detours. Maintain access to properties during construction.	Final design/during construction
2.	Community Impacts-Travel Patterns and Access	Temporary impacts to pedestrian and bicycle access to schools	Ensure safe pedestrian and bicycle routes to schools are provided during construction.	During construction
3.	Community Impacts- Traffic Noise	Traffic noise impacts near residential areas, parks, open spaces, and recreational areas	Construct noise barriers, where feasible, reasonable, and approved by landowners adjacent to the proposed noise barriers. Any subsequent project design changes may require a re-evaluation of preliminary noise barrier proposals. The final decision to construct the proposed noise barriers will not be made until completion of the proposed project design, utility evaluation, and polling of adjacent property owners during traffic noise workshops.	Final design/during construction
4.	Community Impacts- Construction Noise	Temporary noise impacts during construction	Implement best management practices (BMPs) to minimize noise during construction, as per FHWA's Highway Construction Noise Handbook (2006). Minimize construction noise through abatement measures such as work-hour controls and proper maintenance of muffler systems.	During construction
5.	Transportation- Hike and Bike Trails	Temporary trail closures and detours during construction	Accommodate or replace existing trails and allow for planned future trails. Coordinate with the City of Houston to provide advanced notice of temporary trail closures and detours during construction.	Final design/pre-construction/during construction
6.	Transportation- Bus Services	Temporary displacement of bus stops during construction	In cooperation with METRO, install temporary bus stops outside of the proposed right-of-way and as close as possible to the original bus stop location. In cooperation with METRO, notify riders at least one week in advance of temporary relocation or closure of bus stop.	Pre-construction/ during construction

	Category	Impacts	Mitigation and Commitments	Timing/phase of construction
7.	Transportation-Bus Services	Bus stop displacements and relocations	In cooperation with METRO and City of Houston, design new and re-established bus stop locations in accordance with the Americans with Disabilities Act requirements.	Final design
8.	Transportation-Railroad Operations	Temporary impacts to freight rail service from the construction of railroad bridge structures and/or the temporary relocation of track operations	Coordinate with UPRR, BNSF, and HB&T for phasing of improvements to minimize disruptions to railroad operations.	Planning Pre-construction/ during construction
9.	Safety	Potential temporary impacts to emergency response travel time during construction	Coordinate with city and county officials to minimize disruptions to emergency services during construction.	Final design/pre-construction/during construction
10.	Relocations and Displacements	All Displacements	Provide language translation services for displaced individuals, families, businesses, and nonprofit organizations.	During property acquisition
11.	Relocations and Displacements	All Displacements	Relocation Assistance <ul style="list-style-type: none"> - Assign relocation assistance counselor that will 1) determine need for assistance and 2) provide current listings of other available replacement housing. - Provide counseling to get assistance from other available sources to minimize hardships in adjusting to new location. - Provide information concerning other federal, state and local housing programs offering assistance. 	During property acquisition
12.	Relocations and Displacements	Owner occupants and tenants of less than 90 days	Compensation Owner-occupants of less than 90 days and tenants may be eligible for down-payment assistance and related incidental expenses, not to exceed the amount of the approved rental assistance supplement. Incidental expenses for replacement housing include the reasonable costs of loan applications, recording fees and certain other closing costs.	During property acquisition
13.	Relocations and Displacements	All owner occupant displacements (residences, businesses, schools, places of worship and other nonprofit facilities)	Notification Provide property owners with notification of TxDOT's intent to acquire an interest in their property, including a written offer letter of just compensation specifically describing those property interests. <ul style="list-style-type: none"> - To the greatest extent possible, property owners have a minimum of 90 days from date of written notice before TxDOT will acquire property 	During property acquisition

	Category	Impacts	Mitigation and Commitments	Timing/phase of construction
14.	Relocations and Displacements	All tenant occupant displacements (residences, businesses, schools, places of worship and other nonprofit facilities)	Notification Provide tenant occupants with relocation notification package. Assign relocation assistance counselor. Provide a relocation booklet explaining tenant entitlements under the relocation assistance program. <ul style="list-style-type: none"> - To the greatest extent possible, tenants have a minimum of 90 days from date of written notice before TxDOT will acquire property. 	During property acquisition
15.	Relocations and Displacements	Residential displacements- owner and tenant occupants	Relocation Assistance Assure residents will not be required to move unless at least one comparable replacement dwelling is available.	During property acquisition
16.	Relocations and Displacements	Residential displacements- owner occupants	Compensation Compensate any person(s) whose property needs to be acquired, in accordance with the Uniform Relocation and Real Property Acquisition Policies Act of 1970, as amended; 49 CFR Part 24, Subparts C through F; Title VIII of the Civil Rights Act of 1968 (Federal Fair Housing Act); Housing and Urban Development (HUD) Amendment Act of 1974, and TxDOT policies and procedures. <ul style="list-style-type: none"> - Provide reimbursement of moving costs and certain related expenses incurred in moving. - Provide just compensation for property. - Provide Replacement Housing Payments as Purchase Supplements or Down Payment Assistance to purchase comparable decent, safe, and sanitary replacement dwelling. 	During property acquisition
17.	Relocations and Displacements	Residential Displacements tenant occupants	Compensation Compensate any person(s) whose property needs to be acquired, in accordance with the Uniform Relocation and Real Property Acquisition Policies Act of 1970, as amended; 49 CFR Part 24, Subparts C through F; Title VIII of the Civil Rights Act of 1968 (Federal Fair Housing Act); Housing and Urban Development (HUD) Amendment Act of 1974, and TxDOT policies and procedures. <ul style="list-style-type: none"> - Provide reimbursement of moving costs and certain related expenses incurred in moving. - Provide compensation for comparable replacement dwelling that is decent, safe, and sanitary. - Provide Rental Assistance Supplement to eligible persons for the increased cost of renting and occupying a decent, safe and sanitary replacement dwelling. 	During property acquisition

	Category	Impacts	Mitigation and Commitments	Timing/phase of construction
18.	Relocations and Displacements	Residential displacements- Public Housing Units	<p>Relocation Assistance Assist residents at public housing, as defined by the Uniform Relocation and Real Property Acquisition Policies Act of 1970, as amended; 49 CFR Part 24, Subparts C through F, to find comparable replacement housing.</p> <p>Assure tenant occupant will not be required to move unless at least one comparable replacement dwelling is available.</p>	During property acquisition
19.	Relocations and Displacements	Residential displacements Tenants using HHA Housing Choice Voucher Program	<p>Relocation Assistance Assist residents at public housing, as defined by the Uniform Relocation and Real Property Acquisition Policies Act of 1970, as amended; 49 CFR Part 24, Subparts C through F, to find comparable replacement housing.</p> <p>Assure tenant occupant will not be required to move unless at least one comparable replacement dwelling is available.</p>	During property acquisition
20.	Relocations and Displacements	Non-Residential Displacements (businesses, schools, places of worship and other nonprofit facilities)	<p>Compensation Compensate any person(s) whose property needs to be acquired, in accordance with the Uniform Relocation and Real Property Acquisition Policies Act of 1970, as amended; 49 CFR Part 24, Subparts C through F; and, TxDOT policies and procedures.</p> <ul style="list-style-type: none"> - Provide reimbursement of moving costs and certain related expenses incurred in moving. - Personal Property- Provide payment for the actual direct loss of tangible personal property or the purchase of substitute personal property that is incurred as a result of the move or discontinuance of the operation. - Searching Expenses for Replacement Property- Reimburse for actual reasonable expenses incurred in searching for a replacement property, not to exceed \$2,500. - Reestablishment Expenses for Replacement Site- A small business (not more than 500 employees), may be eligible to receive a payment, not to exceed \$25,000 for expenses actually incurred in relocating and reestablishing at a replacement site. 	During property acquisition

	Category	Impacts	Mitigation and Commitments	Timing/phase of construction
21.	Relocations and Displacements	Non-Residential Displacements (businesses, schools, places of worship and other nonprofit facilities)	Relocation Assistance <ul style="list-style-type: none"> - Assign relocation assistance counselor to help with relocation planning. - Explore and provide advice about possible sources of funding and assistance from other local, state and federal agencies. 	During property acquisition
22.	Relocations and Displacements	Medical facilities Displacements	Reimburse cost of relicensing fees and medical licenses at new location.	During property acquisition
23.	Relocations and Displacements	Billboards and Advertisement Sign Displacements	Compensation <ul style="list-style-type: none"> - Provide relocation payment for moving and related expenses. - Reimburse for actual reasonable expenses incurred in searching for a replacement sign site, not to exceed \$2,500. 	During property acquisition

Table 6-2: Mitigation and Commitments Not Required by Policy/Regulation

	Category	Impacts	Mitigation and Commitments*	Timing/phase of construction
1.	Community Impacts	Long-term traffic noise impacts	TxDOT plans to use longitudinal tining on all main lanes and frontage roads. Longitudinal tining creates shallow grooves in a roadway surface, running lengthwise, which decreases noise compared to transverse tining. Potential noise reductions from use of longitudinally-tined pavement have not be quantified for this project and are not accounted for in the analysis included in the Traffic Noise Technical Report.	During construction
2.	Community Impacts	Visual and aesthetic impacts	Design bridges in consideration of visual aesthetics and minimize the number of support columns for elevated roads. Coordinate with the community to integrate aesthetic enhancements in the project design.	Final Design
3.	Recreational Resources- Open Spaces	Impaired view of Downtown skyline from greenway area near Hogg Park, due to proposed elevated highways	Design bridges in consideration of visual aesthetics. Optimize open space by aligning substructure for multiple roadways where feasible.	Final design
4.	Recreational Resources- Open Spaces	Impaired views of the Downtown skyline from White Oak Bayou Greenway, due to proposed elevated highways	Design bridges in consideration of visual aesthetics. Evaluate the use of the proposed storm water detention areas in the area as potential green spaces with opportunities for aesthetic enhancements under the elevated sections of the roadways in this area. Improve viewshed from University of Houston campus to Downtown skyline by moving I-10 to north of campus.	Final design
5.	Transportation— Hike and Bike Trails	Relocate portion of the proposed hike and bike trail along Little White Bayou	Modify alignment of existing pedestrian/bicycle trail along the west side of I-45 south of Link Road to provide a connection to the proposed sidewalk/trail adjacent to the southbound I-45 frontage road.	Final design
6.	Transportation- Transit Services	Temporary road closures and traffic detours may have impacts on access to public transit services	Coordinate with METRO for phasing of improvements to minimize disruptions to transit operations. Limit periods of disruption to the existing HOV lane and coordinate with METRO to define the limits so they can be planned for and communicated with the public. Maintain transit services by utilizing shoofly and temporary track alignments with very limited outages for connections and cut-overs.	Final design/pre-construction/ during construction

	Category	Impacts	Mitigation and Commitments*	Timing/phase of construction
7.	Transportation-Bus Services	Temporary road closures and traffic detours may have impacts on access to bus services and bus stops	<p>Coordinate with METRO for review of the 30 percent design plans.</p> <p>Coordinate with METRO at least 2 to 3 weeks in advance of construction to minimize disruptions to services and schedules.</p> <p>Conduct follow-up meetings with METRO as requested.</p> <p>METRO will install temporary bus stops outside of the proposed right-of-way and as close as possible to the original bus stop location.</p>	Final design/pre-construction/during construction
8.	Transportation-Bus Services	Temporary road closures and traffic detours may have impacts on access to bus services	<p>Coordinate with METRO for notification to riders at least one week in advance of any closures, delays, or modifications in bus routes, and bus stop relocations or closures. Additional public notifications by METRO would include:</p> <ul style="list-style-type: none"> - A list of detours and changes to bus stops posted on METRO's website - Notices at bus stops with new bus stop location and bus route map - Information on social media (Twitter, Facebook); notifications on social media are typically posted one month in advance - Mail-out to riders registered to receive notifications <p>Conduct follow-up meetings with METRO as requested.</p>	Pre-construction/during construction
9.	Transportation-Railroad Operations	Temporary impacts to railroad tracks that parallel Winter Street and bridge over I-10/I-45 and White Oak Bayou	<p>Construct a shoofly (a temporary track) that offsets the existing bridge and serves as a detour route for rail traffic during construction.</p> <p>Schedule tie in connections to rail mainline with sufficient advance notice to allow railroad companies to plan for alternative routes.</p>	Pre-construction/during construction
10.	Transportation- Accessibility	Removal of the North Street bridge across I-45	<p>Provide improved pedestrian-bicycle accommodations on the North Main Street bridge for travel between Near Northside and Greater Heights. Sidewalks would be added along the I-45 frontage roads.</p> <p>Maintain communication with Near Northside neighborhood and Travis Elementary School regarding schedule for demolition of North Street bridge.</p>	During construction

	Category	Impacts	Mitigation and Commitments*	Timing/phase of construction
			Ensure safe pedestrian-bicycle facilities are provided at North Main Street during construction.	
11.	Transportation - Accessibility	Loss of direct access from East Downtown to central Downtown via Polk Street at US 59/I-69	Reconstruct Hamilton Street to be a continuous southbound street adjacent to US 59/I-69 between Commerce Street and Leeland Street, which would reestablish connectivity across US 59/I-69 on other streets between central Downtown and the east side of Downtown: Dallas, Lamar, McKinney, and Walker streets.	During construction
12.	Community Impacts - <i>Environmental Justice</i>	Noise and air quality impacts (residents in minority and low-income areas)	To mitigate for potential short-term construction dust and/or noise impacts, TxDOT will develop a program to provide weatherization and energy efficiency for qualifying low-income single-family residences.	Pre-construction/during construction
13.	Community Impacts - <i>Environmental Justice</i>	Noise and air quality impacts (schools)	Coordinate with schools to address construction phasing and effects during STAAR testing and other sensitive times.	Pre-construction/during construction
14.	Relocations and Displacements- <i>Environmental Justice</i>	Residential displacements (residents in low-income areas)	Coordinate with the City of Houston and affordable housing providers to identify opportunities to build affordable housing in same neighborhoods where residents would be displaced. TxDOT is committing an amount of no less than \$27 million towards developing affordable housing in the neighborhoods most affected by the proposed project.	During property acquisition
15.	Relocations and Displacements- <i>Environmental Justice</i>	Midtown Terrace Suites – 60- multi-family residential units would be displaced	TxDOT is proceeding with advance acquisition of the property. During the relocation process, residents will be able to remain in the existing facility for an agreed amount of time negotiated between the property owner and TxDOT. Replacement units will be built in the same complex.	During property acquisition
16.	Relocations and Displacements- <i>Environmental Justice</i>	Temenos Place Apartments II	TxDOT is proceeding with advance acquisition of the property. During the relocation process, residents will be able to remain in the existing facility for an agreed amount of time negotiated between TxDOT and the property owner. TxDOT has executed an agreement with the Temenos Place Apartments II management so that all reasonable efforts will be made to replace the 80 residential units affected by the project within a one-mile radius of the existing Temenos II facility.	During property acquisition
17.	Relocations and Displacements- <i>Environmental Justice</i>	Housing units at Clayton Homes and Kelly Village	TxDOT is in coordination with the HHA on acquisition of the property and relocation of the residents of Clayton Homes with the intent of constructing over 70 percent of replacement housing within one mile of the existing Clayton Homes location.	During property acquisition

	Category	Impacts	Mitigation and Commitments*	Timing/phase of construction
			TxDOT is in coordination with the HHA on acquisition of the property and relocation of the residents of Kelly Village with the intent of constructing new housing in the vicinity of the existing Kelly Village.	
18.	Relocations and Displacements- <i>Environmental Justice</i>	Displacement of homeless persons living in project right-of-way	Coordinate with the City of Houston and homeless services providers to develop a plan to assist in the relocation of the homeless in a sensitive way.	Pre-construction
19.	Relocations and Displacements- <i>Environmental Justice</i>	Displacement of places of worship that own their property and serve high-minority or low-income populations	In addition to the required mitigation measures listed in Table 6-1, TxDOT will: <ul style="list-style-type: none"> - Offer the opportunity to request advance acquisition of property. - Allow occupants, during the relocation process, to remain in the existing facility for an agreed amount of time negotiated between the property owner and TxDOT. 	During property acquisition
20.	Relocations and Displacements- <i>Environmental Justice</i>	Greater Mount Olive Missionary Baptist Church	TxDOT is proceeding with advance acquisition of this property; advance acquisition would provide additional time for relocation of the place of worship. TxDOT will work with the community to provide a “pocket park” near the current location of the Greater Mount Olive Missionary Baptist Church along with a plaque or other suitable commemoration of the church’s history in the neighborhood.	During property acquisition; During construction
21.	Relocations and Displacements- <i>Environmental Justice</i>	Displacement of non-profit organizations and service providers that serve high-minority or low-income populations	In addition to the required mitigation measures listed in Table 6-1, TxDOT will: <ul style="list-style-type: none"> - Offer the opportunity to request advance acquisition of property. - Allow occupants, during the relocation process, to remain in the existing facility for an agreed amount of time negotiated between the property owner and TxDOT. 	During property acquisition

	Category	Impacts	Mitigation and Commitments*	Timing/phase of construction
22.	Relocations and Displacements- <i>Environmental Justice</i>	Displacement of medical offices that serve low-income or minority populations located in the building at 7007 North Freeway. Tenants include: North Houston Birth Center, LLC**, Unicare MRI & Diagnostic Center Houston Children's Dental Center and other medical offices	TxDOT is proceeding with advance acquisition of the property. Tenants will be assigned a relocation assistance counselor who will provide relocation information and assistance including tenant entitlements under TxDOT relocation assistance program.	During property acquisition
23.	Relocations and Displacements- <i>Environmental Justice</i>	Displacement of the Consulate General of Mexico (Mexican Consulate)	TxDOT is proceeding with advance acquisition of the Mexican Consulate property, and has assisted the Consulate to find a place to relocate.	Prior to construction
24.	Environmental Justice	Temporary road closures and traffic detours may impact access to businesses and service providers that serve environmental justice facilities	Public Involvement Officer will conduct public outreach and provide notification of temporary road closures and traffic detours via social media. Maintain access to properties during construction.	Pre-construction/during construction
25.	Environmental Justice	Noise impacts	Aesthetic walls are tentatively proposed in environmental justice areas where they would be effective for noise mitigation (reduce traffic noise levels by at least 3 dB(A)). Proposed locations may change during final design of the facility. Ultimately, the decision whether to construct the walls will be determined by a vote of the adjacent property owners.	During construction
26.	Economic Conditions- Employment and Income	Business displacements and employment loss	Facilitate opportunities to promote hiring individuals from the local communities, for general employment and for project construction, such as job fairs. Conduct at least two job fairs in each segment during the construction phase.	Pre-construction/during construction
27.	Economic Conditions- Employment and Income	Huynh Vietnamese Restaurant	TxDOT has offered the opportunity for advance acquisition of property; owner has not responded.	
28.	Economic Conditions- Employment and Income	Kim Son Restaurant/Downtown	TxDOT has offered the opportunity for advance acquisition of property; owner has not responded.	
29.	Economic Conditions- Employment and Income	Yen Huong Bakery	TxDOT has offered the opportunity for advance acquisition of property; owner has not responded.	

1 *Some of these items will be subject to changes and updates as project development and coordination continues. The most updated version of the project mitigation and
2 commitments will be found in the Record of Decision.

3 * *The owner of North Houston Birth Center plans to relocate a new location in the Independence Heights neighborhood in November 2020.

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Table 6-3: Other Beneficial Commitments

	Category	Action	Commitments*	Timing/phase of construction
1.	Transportation-Hike and Bike Trails	Accommodate future bike trails	Coordinate with the City of Houston to accommodate space for future bike trails as shown on the City of Houston Bike Plan.	Final design
2.	Transportation-Hike and Bike Trails	Improve pedestrian access from Independence Heights neighborhood to Roosevelt Elementary School	Include a sidewalk within the right-of-way on the south side of Stokes Street to accommodate a trail connection.	Final design
3.	Transportation-Hike and Bike Trails	Improve greenspace along Little White Oak Bayou with connecting trails to Woodland Park and Moody Park	Provide an opening at Little White Oak Bayou for a trail to connect Woodland Park and Moody Park.	Final design
4.	Transportation-Hike and Bike Trails	Accommodate future trails along Little White Oak Bayou	TxDOT will propose an opening conducive to bicycle/pedestrian crossings at Little White Oak Bayou under I-45 just north of Patton St. TxDOT will propose an opening conducive to bicycle/pedestrian crossings at Little White Oak Bayou under I-610. The size of the openings will be coordinated with Harris County Flood Control District (HCFCD), taking into account upstream and downstream impacts. TxDOT will continue to work with HCFCD on these elements during detailed design.	Final design
5.	Transportation-Hike and Bike Trails	Aesthetic improvements along bicycle and pedestrian pathways	Provide aesthetic improvements along Heights Bike Trail between Taylor Street and Main Street. Coordinate with City of Houston to determine improvements.	Final design/during construction
6.	Transportation-Bus Services	Allow for expanded bus service in the I-45 corridor	Include four MaX lanes on I-45 (two lanes in each direction) that would provide the opportunity for METRO to expand bus service in the corridor.	Final design
7.	Transportation-Bus Services	Allow for improved bus service in the I-45 corridor	Add two-way METRO T-ramp north of the Shepherd Drive and Veteran's Memorial Drive intersection that would connect directly to the Shepherd Park & Ride facility.	Final design
8.	Transportation - Accessibility	Improve east-west access across I-45	Add overpass at the I-45 and Blue Bell Road intersection to allow for connectivity of Blue Bell Road under I-45.	During construction
9.	Transportation - Accessibility	Reduce cut-through traffic in Independence Heights neighborhood	Remove the METRO HOV T-ramp between Crosstimbers Street and the HB&T railroad tracks. Replace the METRO HOV T-ramp with northbound and southbound MaX lanes direct connectors to I-610.	During construction
10.	Transportation - Accessibility	Reduce truck traffic in Near Northside residential areas	Acquire Love's Truck Stop property for storm water detention area.	During property acquisition

	Category	Action	Commitments*	Timing/phase of construction
11.	Transportation - Accessibility	Maintain connectivity between Near Northside and Central Business District and reduce at-grade railroads railroad crossings	Reconstruct Rothwell Street and Providence Street as grade-separated underpasses at the railroad tracks between McKee Street and Jensen Drive.	During construction
12.	Transportation - Accessibility	Accommodate the City of Houston's future plan for the extension of San Jacinto Street	Coordinate with the City of Houston so that the NHHIP allows for the future extension of San Jacinto Street to the north.	Final design
13.	Transportation - Accessibility	Improve local connectivity in Midtown	Maintain Chenevert Street as a one-way southbound street between Stuart Street and Holman Street. Maintain local street connectivity at Francis Street.	Final design
14.	Transportation - Accessibility	Connect the Polk Street bike trail to the Columbia Tap Rail-Trail	Reroute dedicated bike lanes on Polk Street to follow the proposed Hamilton Street and connect to the Columbia Tap Rail-Trail via Walker Street. Reserve 20-foot wide footprint for rerouted Polk Street bike lane.	Final design/during construction
15.	Transportation - Accessibility	Improve bike/pedestrian access between Fourth Ward and Downtown	Depress the Downtown connectors on the west side of Downtown from West Dallas Street to south of Andrews Street. Add at-grade crossings over the proposed depressed direct connectors at Andrews Street for bike/pedestrian access from the Fourth Ward to Downtown.	During construction
16.	Transportation - Accessibility	Maintain Bus/HOV lane connection to Downtown	Add dedicated bus/HOV lane to the I-10 express lanes with direct access to Smith Street and Louisiana Street to replace the existing Downtown HOV connector to Heiner from I-10.	Final design
17.	Transportation - Accessibility	Improve highway signage	Supplement existing southbound guide signs for the Quitman Street/Lyons Avenue exit (Exit 133A).	Final design/during construction
18.	Transportation - Accessibility	Improve highway signage	Improve approach signing and driver communication heading northbound on US 59/I-69 in the area approaching the exit to Spur 527.	During construction
19.	Transportation - Accessibility	Improved access and connectivity between Midtown and Museum Park	Construct at-grade highway caps at three bridged areas to support pedestrian activity in the area. Bridged area will include wider sidewalks and bicycle lanes.	During construction
20.	Visual and Aesthetics	Aesthetic improvements along highways	Replace Montrose Street bridge LED lighting.	During construction
21.	Visual and Aesthetics	Aesthetic improvements along highways	Coordinate with Greater Northside Management District to incorporate Texas Logo and Directional Sign Program for the Quitman Street/Lyons Avenue exit and south of Quitman Street on the I-69 southbound frontage road.	Final design/during construction

	Category	Action	Commitments*	Timing/phase of construction
22.	Visual and Aesthetics	Aesthetic improvements along highways	Conduct the design of bridges over Sam Houston Park and Buffalo Bayou as a collaboration between the management districts or neighborhood groups and TxDOT.	Final design
23.	Community Impacts – Environmental Justice	Monitoring/Reporting	For a minimum of five years during construction, fund ambient air monitoring near the right-of-way at one location in Segment 2 and one location in Segment 3.	During construction
24.	Air Quality	Dust Control Measures	The potential impacts of PM emissions will be minimized by using fugitive dust control measures contained in standard specifications.	During construction
25.	Relocations and Displacements	Group/Program Informational Workshops	<p>Conduct workshops with residential property owners and renters who would be displaced to provide information:</p> <ul style="list-style-type: none"> • Explaining the acquisition process • Explaining the relocation process • Explaining the appraisal process • Title Information and review of documents • Property tax & exemption impacts • Moving and move planning • First Time Homebuyer seminars • Escrow process and title clearing • How to get social services and benefits • How to select a real estate agent • How to check your credit and improve your score • Household budgeting • Household maintenance 	During property acquisition

*Some of these items will be subject to changes and updates as project development and coordination continues. The most updated version of the project mitigation and commitments will be found in the Record of Decision.