

Appendix A – Summary of Means to Avoid, Minimize, and Mitigate Effects

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Impacts/Action	Mitigation and Commitments	Timing/phase of construction
Affordable Housing		
Residential displacements (residents in low-income areas)	TxDOT is committing \$27 million to support affordable housing initiatives in the neighborhoods most affected by the project in addition to the individual acquisition and relocation compensation provided to homeowners, renters and businesses that would be displaced. This commitment will provide financial assistance to support specific affordable housing initiatives. The eligible initiatives include construction of affordable single-family or multi-family housing, and support of programs that provide assistance and outreach related to affordable housing. This \$27 million affordable housing commitment is separate and apart from, and is above and beyond the funding for the acquisition, relocation and enhanced relocation services for the directly impacted residential properties. Please refer to section below labelled “Displacement and Relocations” for additional information about the enhanced relocation services.	During property acquisition
Pedestrian and Bicycle Paths		
Temporary impacts to pedestrian and bicycle access to schools	Ensure safe pedestrian and bicycle routes to schools are provided during construction.	Final design/during construction
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/during construction
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/during construction
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
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/during construction
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/during construction
Removal of the North Street bridge across I-45	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.	Final design/during construction

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	<p>Maintain communication with Near Northside neighborhood and Travis Elementary School regarding schedule for demolition of North Street bridge.</p> <p>Ensure safe pedestrian-bicycle facilities are provided at North Main Street during construction.</p>	
<p>Improve greenspace along Little White Oak Bayou with connecting trails to Woodland Park and Moody Park</p>	<p>Provide an opening at Little White Oak Bayou under I-45 north of Quitman Street for a trail to connect Woodland Park and Moody Park.</p>	<p>Final design/during construction</p>
<p>Aesthetic improvements along bicycle and pedestrian pathways</p>	<p>Provide aesthetic improvements along Heights Bike Trail between Taylor Street and Main Street. Coordinate with City of Houston to determine improvements.</p>	<p>Final design/during construction</p>
<p>Connect the Polk Street bike trail to the Columbia Tap Rail-Trail</p>	<p>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.</p>	<p>Final design/during construction</p>
<p>Improve bike/pedestrian access between Fourth Ward and Downtown</p>	<p>Depress the Downtown connectors on the west side of Downtown from West Dallas Street to south of Andrews Street.</p> <p>Add at-grade crossings over the proposed depressed direct connectors at Andrews Street for bike/pedestrian access from the Fourth Ward to Downtown.</p>	<p>Final design/during construction</p>
<p>Build the pedestrian-bike realm on streets that cross the freeways of the NHHIP.</p>	<p>With confirmation with the City of Houston, build all or varying combination of a buffer space, bike path and sidewalk on all streets that cross the freeways of the NHHIP.</p>	<p>Final design/during construction</p>
<p>Displacements and Relocations</p>		
<p>All Displacements</p>	<p>Provide language translation services for displaced individuals, families, businesses, and nonprofit organizations.</p>	<p>During property acquisition</p>
<p>All Displacements</p>	<p>Relocation Assistance</p> <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. 	<p>During property acquisition</p>
<p>Owner occupants and tenants of less than 90 days</p>	<p>Compensation</p> <p>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.</p>	<p>During property acquisition</p>
<p>All owner occupant displacements (residences, businesses, schools, places of worship and other nonprofit facilities)</p>	<p>Notification</p> <p>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.</p>	<p>During property acquisition</p>

Appendix A – Summary of Means to Avoid, Minimize, and Mitigate Effects

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	<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 	
<p>All tenant occupant displacements (residences, businesses, schools, places of worship and other nonprofit facilities)</p>	<p>Notification Provide tenant occupants with relocation notification package. Assign relocation assistance counselor. Provide a relocation booklet explaining tenant entitlements under the relocation assistance program.</p> <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. 	<p>During property acquisition</p>
<p>Residential displacements-owner and tenant occupants</p>	<p>Relocation Assistance Ensure residents will not be required to move unless at least one comparable replacement dwelling is available.</p>	<p>During property acquisition</p>
<p>Residential displacements-owner occupants</p>	<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; 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.</p> <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. 	<p>During property acquisition</p>
<p>Residential Displacements tenant occupants</p>	<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; 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.</p> <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. 	<p>During property acquisition</p>
<p>Residential displacements-Public Housing Units</p>	<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>Ensure tenant occupants will not be required to move unless at least one comparable replacement dwelling is available.</p>	<p>During property acquisition</p>

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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>Ensure tenant occupants will not be required to move unless at least one comparable replacement dwelling is available.</p>	During property acquisition
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
Non-Residential Displacements (businesses, schools, places of worship and other nonprofit facilities)	<p>Relocation Assistance</p> <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
Medical facilities Displacements	Reimburse cost of relicensing fees and medical licenses at new location.	During property acquisition
Billboards and Advertisement Sign Displacements	<p>Compensation</p> <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
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
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

Appendix A – Summary of Means to Avoid, Minimize, and Mitigate Effects

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Housing units at Clayton Homes and Kelly Village	<p>TxDOT is in coordination with the Houston Housing Authority (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.</p> <p>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.</p> <p>At Kelly Village, remove four additional buildings to allow more green space at the facility, as requested by the HHA.</p>	During property acquisition
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
Displacement of places of worship that own their property and serve high-minority or low-income populations	<p>In addition to the mitigation measures listed in this table, TxDOT will:</p> <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
Greater Mount Olive Missionary Baptist Church	<p>TxDOT is proceeding with advance acquisition of this property; advance acquisition would provide additional time for relocation of the place of worship.</p> <p>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.</p>	During property acquisition/during construction
Displacement of non-profit organizations and service providers that serve high-minority or low-income populations	<p>In addition to the mitigation measures listed in this table, TxDOT will:</p> <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
<p>Displacement of medical offices that serve low-income or minority populations located in the building at 7007 North Freeway.</p> <p>Tenants include: North Houston Birth Center, LLC**, Unicare MRI & Diagnostic Center Houston Children’s Dental Center and other medical offices</p>	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
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

Appendix A – Summary of Means to Avoid, Minimize, and Mitigate Effects

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Group/Program Informational Workshops	Implement enhanced relocation services by conducting workshops with residential property owners and renters who would be displaced to provide information: <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
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
Huynh Vietnamese Restaurant	TxDOT advised owner of an option to apply to TxDOT for advance acquisition of their property; owner has not responded.	
Kim Son Restaurant/Downtown	TxDOT advised owner of an option to apply to TxDOT for advance acquisition of their property; owner has not responded.	
Yen Huong Bakery	TxDOT advised owner of an option to apply to TxDOT for advance acquisition of their property; owner has not responded.	
Transportation Facilities		
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
Temporary displacement of bus stops during construction	In cooperation with the Metropolitan Transit Authority of Harris County (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
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/during construction

Appendix A – Summary of Means to Avoid, Minimize, and Mitigate Effects

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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.	Final design/pre-construction/during construction
Temporary road closures and traffic detours may have impacts on access to public transit services	<p>Coordinate with METRO for phasing of improvements to minimize disruptions to transit operations.</p> <p>Limit periods of disruption to the existing high-occupancy vehicle (HOV) lane and coordinate with METRO to define the limits so they can be planned for and communicated with the public.</p> <p>Maintain transit services by utilizing shoofly and temporary track alignments with very limited outages for connections and cut-overs.</p>	Final design/pre-construction/during construction
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
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>	Final design/pre-construction/during construction
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>	Final design/pre-construction/during construction
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.	Final design/during construction

Appendix A – Summary of Means to Avoid, Minimize, and Mitigate Effects

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Temporary road closures and traffic detours may impact access to businesses and service providers that serve environmental justice populations	Public Involvement Officer will conduct public outreach and provide notification of temporary road closures and traffic detours via social media and/or other appropriate outreach methods. Maintain access to properties during construction.	Pre-construction/during construction
Allow for expanded bus service in the I-45 corridor	Include four managed express (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/during construction
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/during construction
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.	Final design/during construction
Reduce cut-through traffic in Independence Heights neighborhood	<ul style="list-style-type: none"> - Remove the METRO HOV T-ramp between Crosstimbers Street and the HB&T railroad tracks and replace the T-ramp with northbound and southbound MaX lanes direct connectors to I-610. - Connect the I-45 frontage roads and the I-610 frontage roads at the I-45/I-610 interchange. 	Final design/during construction
Reduce truck traffic in Near Northside residential areas	Acquire Love’s Truck Stop property for storm water detention area.	During property acquisition
Maintain connectivity between Near Northside and Central Business District and reduce at-grade railroad crossings	Reconstruct Rothwell Street and Providence Street as grade-separated underpasses at the railroad tracks between McKee Street and Jensen Drive.	Final design/during construction
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/during construction
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/during construction
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/during construction
Improve highway signage	Supplement existing southbound guide signs for the Quitman Street/Lyons Avenue exit (Exit 133A).	Final design/during construction
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.	Final design/during construction
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.	Final design/during construction
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

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Air Quality		
Temporary increases in particulate matter (PM) emissions	Use fugitive dust control measures contained in TxDOT standard specifications, as appropriate.	During construction
Temporary increases in mobile source air toxics (MSAT) emissions	Encourage construction contractors to use Texas Emissions Reduction Plan (TERP) and other local and federal incentive programs to the fullest extent possible to minimize diesel emissions.	During construction
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 measures for qualifying low-income single-family residences.	Pre-construction/during construction
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
Dust Control Measures	The potential impacts of PM emissions will be minimized by using fugitive dust control measures contained in standard specifications.	During construction
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.	Pre-construction/during construction
Traffic and Construction 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
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
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 been quantified for this project and are not accounted for in the analysis included in the Traffic Noise Technical Report.	Final design/during construction
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 measures for qualifying low-income single-family residences.	Pre-construction/during construction
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

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Water Resources and Wetlands		
Impacts to public or private water wells	<p>Evaluate minor alignment shifts to minimize or avoid impacts to public or private water wells.</p> <p>Develop and implement stormwater management plan.</p> <p>Plug wells during construction per Texas Commission on Environmental Quality (TCEQ) regulations.</p>	Final design/during construction
Increase in sediment or pollutants to surface water resources due to storm water runoff	<p>Implement storm water BMPs (e.g., in-line detention within upsized storm sewers and off-line detention basins) to mitigate the changes in storm water runoff.</p> <p>Prepare and implement a storm water pollution prevention plan.</p> <p>Remove and dispose of waste materials in compliance with applicable federal and state guidelines and laws.</p>	Final design/during construction
Fill in jurisdictional waters of the United States, including wetlands	<p>Obtain any necessary U.S. Army Corps of Engineers (USACE) permits; comply with permit conditions.</p> <p>Develop and implement a compensatory mitigation plan, as appropriate, based on the level of impact determined for project impacts and permitting.</p> <p>Implement BMPs that may be required by TCEQ Section 401 water quality certification.</p>	Final design/during construction
Work or structures constructed within navigable waters of the United States	Obtain any necessary U.S. Coast Guard (USCG) permits; comply with permit conditions.	Final design/during construction
Floodplains and Flooding		
Encroachments in a regulated floodway	Conduct a hydraulic analysis to the more stringent of City of Houston, HCFCD, and Federal Emergency Management Agency (FEMA) floodplain standards, defined at the time of study and obtain a letter of no objection from the local authorities.	Final design/during construction
Vegetation, Wildlife, and Threatened and Endangered Species		
Disturbance of vegetation	Utilize native species for revegetation, to the extent practicable.	Final design/during construction
Impacts to non-rare fish and wildlife	<p>Avoid and minimize vegetation removal and stream channel disturbance.</p> <p>Disturb only that which is necessary to construct the proposed project, including minimizing disturbance to inert microhabitats (e.g., snags, brush piles).</p> <p>Utilize BMPs to avoid impacts to fish and wildlife within the project area.</p> <p>Obtain Aquatic Resource Relocation Permit from Texas Parks and Wildlife Department (TPWD) and coordinate with the TPWD Kills and Spills Team (KAST) prior to construction for</p>	Final design/during construction

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	temporary division of water or dewatering of construction areas.	
Impacts to threatened and endangered species	Implement BMPs to minimize impacts to federally and state-listed species and species of greatest conservation need (SGCN).	Final design/during construction
Historic Resources		
Impacts to historic properties in project areas delivered via design-build contracts	<p>For these types of projects, TxDOT provides the schematics to the bidding contractor with restrictions and special commitments, referred to as “prescriptives”. Several prescriptives regarding treatment and consideration for historic properties have been documented in Section 12.7 of the “Special Provision to Item 12: Environmental” document to be included in the design-build contract specifications.</p> <p>The contractor must commit to building the project according to the NHHIP schematic design as shown in the Final EIS. The design-build office will notify TxDOT Environmental Affairs Division of any changes to these schematics in the vicinity of historic properties so that proper coordination with consulting parties and Texas State Historic Preservation Officer (SHPO) occurs as warranted. A copy of the design-build contract and the prescriptives contained therein for historic properties will be provided to the Texas SHPO.</p>	Final design/during construction
Adverse impacts to Houston Warehouse Historic District	Windshield-level survey and other documentation of East Downtown Houston warehouse area, allowing future preservation enhancements by private owners or City of Houston Certified Local Government (CLG) program.	During construction/post-construction
Adverse impacts to Readers Distributors Warehouse (1201 Naylor Street)	Historic American Buildings Survey (HABS)-like Level I/Level II archival documentation of property, possibly including interior.	Pre-construction
Adverse impacts to Carlisle Plastics Building, north building (1133 Providence Street)	HABS-like Level I/Level II archival documentation of property, possibly including interior.	Pre-construction
Adverse impacts to Cheek-Neal Coffee Company (2017 Preston Avenue)	Windshield-level survey and other documentation of the East Downtown warehouse area, allowing future preservation enhancements by private owners or City of Houston CLG program.	During construction/post-construction
Adverse impacts to Rossonian Cleaners (3921 Almeda Road)	HABS-like Level I/Level II archival documentation of property prior to demolition. Reconnaissance-level survey of Almeda Road commercial corridor of Houston, allowing future preservation enhancements by private owners or City of Houston CLG program. Possible retention of 1920s portion of Rossonian Cleaners building, pending engineering analysis and owner acceptance.	Pre-construction
Archeological Resources		
Impacts to archeological resources	In the event that unanticipated archeological resources encountered during construction, work in the immediate area shall cease, and TxDOT archeological staff shall be contacted immediately to initiate post-review discovery procedures.	During construction

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Soils		
Soil erosion	Minimize soil erosion with implementation of management of soils and dust in compliance with applicable federal and state guidelines and in conformance with specific requirements of project permits.	During construction
Hazardous Materials		
Impacts from hazardous materials	<p>If hazardous constituents are unexpectedly encountered in the soil and/or shallow groundwater during construction operations, appropriate measures for the proper assessment, remediation, and management of the contamination would be initiated in accordance with applicable federal, state, and local regulations. In the event of an accidental spill of hazardous materials, TxDOT would work with other agencies and its contractors to secure the scene and implement appropriate spill response measures. Standard spill response procedures are outlined in 30 T.A.C. Chapter 327. The following general recommendations were made relating to the project corridor.</p> <ul style="list-style-type: none"> - An American Society for Testing Materials (ASTM)-conforming Phase I environmental site assessment would be conducted prior to property acquisition. - All construction contractors would be instructed to immediately stop all subsurface activities in the event that potentially hazardous materials are encountered, an odor is identified, or significantly stained soil is visible. Contractors and maintenance personnel would be instructed to follow all applicable regulations regarding discovery and response for hazardous materials encountered during the construction process. - Special provisions or contingency language would be included in the proposed project's Plans, Specifications, and Estimate to handle hazardous materials and/or petroleum contamination according to applicable state, federal, and local regulations per TxDOT Standard Specifications. Hazardous items that require special handling would be removed only by certified and licensed abatement contractors having documentation of prior acceptable work. - Further analysis of identified potential sites of concern and their proximity in the project area would occur during design development. 	Final design/ pre-construction/during construction
Visual and Aesthetic Qualities		
Visual and aesthetic impacts	<p>Where practicable, include landscape plantings and revegetation per TxDOT's Green Ribbon Landscape Improvement Program</p> <p>Coordinate with local groups and agencies to accommodate enhancements to standard landscaping and recreational use of open space in and around storm water detention areas, where feasible. Wet bottom detention basins will be considered if a partner entity agrees to maintain them.</p> <p>Provide miscellaneous aesthetic improvements along Heights Bike Trail between Taylor Street and Main Street</p>	Final design/during construction

Appendix A – Summary of Means to Avoid, Minimize, and Mitigate Effects

Impacts/Action	Mitigation and Commitments	Timing/phase of construction
	<p>(coordinated by TxDOT with Houston Parks Board and other entities).</p> <p>In landscaping, include regionally native plants for landscaping and implement design and construction practices that minimize adverse effects on the natural habitat.</p> <p>To the extent possible, the project would be designed to create an aesthetically and visually pleasing experience for both roadway users and roadway viewers.</p> <p>The Mayor of Houston has appointed a committee to oversee the potential designs and funding options for uses for the open space areas in Segment 3 and TxDOT will consider its recommendations.</p> <p>All lighting would be in accordance with the Texas Health and Safety Code Title 5 425.002 regarding light pollution. To the extent possible, outdoor lighting fixtures would only be installed and operated if the purpose of the lighting cannot be achieved by the installation of reflective road markers, lines, warning, or informational signs, or other effective passive methods.</p> <p>Give full consideration to energy conservation, reduction of glare, minimizing light pollution, and preserving the natural light environment.</p>	
Visual and aesthetic 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.	Final design/during construction
Visual and aesthetic impacts	<p>Design bridges in consideration of visual aesthetics and minimize the number of support columns for elevated roads.</p> <p>Coordinate with the community to integrate aesthetic enhancements in the project design.</p>	Final Design/during construction
Impaired view of Downtown skyline from greenway area near Hogg Park, due to proposed elevated highways	<p>Design bridges in consideration of visual aesthetics.</p> <p>Optimize open space by aligning substructure for multiple roadways where feasible.</p>	Final design/during construction
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
Impaired views of the Downtown skyline from White Oak Bayou Greenway, due to proposed elevated highways	<p>Design bridges in consideration of visual aesthetics.</p> <p>Evaluate the use of the proposed storm water detention areas in the area as potential open spaces with opportunities for aesthetic enhancements under the elevated sections of the roadways in this area.</p> <p>Improve viewshed from University of Houston campus to Downtown skyline by moving I-10 to north of campus.</p>	Final design/during construction

Appendix A – Summary of Means to Avoid, Minimize, and Mitigate Effects

Impacts/Action	Mitigation and Commitments	Timing/phase of construction
Aesthetic improvements along highways	Replace Montrose Street bridge LED lighting.	Final design/during construction
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
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/during construction