East End
MOBILITY STUDY

Executive Summary

Prepared for:

Houston-Galveston Area Council

GREATER EAST END DISTRICT

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Executive Summary

The East End Mobility Study represents a significant opportunity to assess and define the mobility needs for the East End, a historic community near Downtown in the City of Houston. This study will develop mobility improvement opportunities to support and stimulate development in the area into the future.

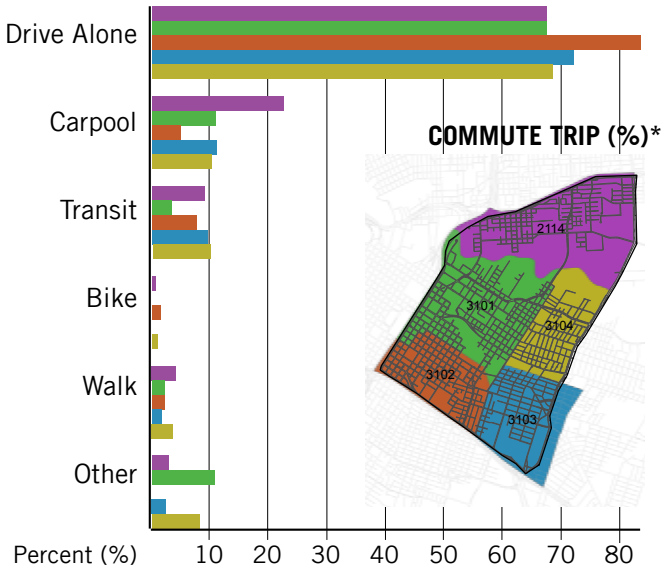
The study area is bounded by IH-10 on the north, US 59 on the west, IH-45 on the south, and Lockwood Drive on the East. It contains large sections of four Superneighborhoods: the Greater Fifth Ward, the Second Ward, Downtown/East Downtown and Greater Eastwood. Two management districts are also active in the study area.

The area has been the subject of several studies in the recent past, including the East End Livable Centers Study, the Greater East End Master Plan, the Downtown/EaDo Livable Centers Study, the Fifth Ward Pedestrian and Bicyclist Study, and the West Belt Rail Subdivision Study. This study builds on the findings of those reports to coordinate mobility planning regionally as well as to leverage funding and partnership opportunities.

This study is a component of the Subregional Planning Initiative Program (SPI) that has been developed by the Houston-Galveston Area Council (H-GAC) to create a holistic, strategic approach to transportation planning. The initiative is intended to provide an in-depth examination of the relationship of land-use and transportation infrastructure in an area and identify improvement opportunities to best meet the development and mobility goals of the community.

Several historic neighborhoods are located in the study area just outside Downtown and along Buffalo Bayou. The area has long been defined by its transportation network, including the Port of Houston and the rail lines that connect through the area to central Houston and nearby rail yards. Much of the early population of the area consisted of railroad and industrial workers and their families. From a population high of more than 42,000 in 1950, the population declined significantly until the 1990s and has now stabilized at approximately 20,000. The decline of population in the study area accompanied changing patterns and locations of work, the decline of the streetcar system, increases in automobile use, and the development of the interstate highway system, which significantly decreased population and traffic through the study area. This population decline creates opportunities to rethink use of the transportation infrastructure because of current excess capacity.

Today, significant infrastructure improvements are driving new development in the study area. Already an area of high transit usage and walking and biking, the East End will soon benefit from the expansion of the METRO light rail system. Bus ridership is high and many of the City's highest ridership bus lines pass through the study area. Several major off-road and on-road bicycle routes pass through the study area, supporting cycling trips. At the same time, significant barriers to mobility exist. Some barriers are tied to the very transportation infrastructure that has historically defined the area: the rail lines, freeways, and bayous. Other barriers exist in the form of gaps in bicycle, pedestrian, and automotive networks. This report has identified and quantified existing strengths and challenges; it has also identified improvement opportunities to boost and leverage the strengths and address the gaps.



A project Steering Committee was formed and included members from the Greater East End Management District, the City of Houston's Public Works Department and the Department of City Planning, the Gulf Coast Rail District, METRO, TxDOT, and H-GAC. With input from the Steering Committee, the following goals were developed and adopted for the study:

Goals for the East End Mobility Study

1. **Address short and long-term capacity constraints and opportunities** by assessing the traffic impacts of growth and development and developing recommendations

2. **Address barriers to mobility and increase connectivity** between neighborhoods and major activity centers and destinations

3. **Enhance multi-modal trip alternatives** (e.g., walking, biking and transit) by providing improved transportation choices

4. **Prioritize transportation infrastructure investments that support the development objectives** identified through previous neighborhood and regional plans

5. **Reduce safety concerns** within study area for all travel modes

To identify mobility gaps and opportunities to address them, a comprehensive picture of future mobility in 2035 was constructed. This picture was painted by heeding the theme of the Subregional Planning Initiative to analyze transportation and land-use jointly. Two land-use scenarios were constructed: a baseline scenario that continued existing development trends and a "high-growth" scenario that assumed the completion of higher density residential development as identified in previous planning studies as well as additional transit-oriented development around light rail stations and open space along Buffalo Bayou. The estimates of population and employment for these scenarios were used to develop and refine travel demand projections for the area. The results of this analysis showed that most of the roadways already have sufficient capacity to handle projected growth between the present and year 2035 (see Figure ES1; Roadways at LOS D or better (green) roads are projected to accommodate traffic at acceptable or better levels-of-service in 2035).

Figure ES1 Travel Demand Model
Level of Service Analysis for 2035
Scenario 2: Master Plan/TOD

The analysis of projected traffic operations in 2035 enabled a comparison of existing and projected mobility and development provisions against the project goals. Where gaps were evident, potential improvement opportunities were sought to address them. In the development of improvement opportunities, the transportation network was thought of as a nested network serving motorists, transit users, pedestrians, bicyclists, and the adjacent development. Each type of user requires a complete network to effectively utilize and take advantage of the public infrastructure; considering them separately ensured that each was accommodated. Categories and improvement opportunities are summarized below and shown on Figure ES2.

ROADWAY & INTERSECTION

These improvements primarily impact the mobility of passenger vehicles and trucks. They address capacity bottlenecks, intersection and roadway geometry, and network connectivity. The improvements identify opportunities to better align the roadway cross sections, operational characteristics, and capacity with the desired land use context and projected traffic volumes while maintaining acceptable roadway Level of Service (typically LOS D or better).

R1: Improve key intersection operations (e.g., Navigation at Sampson / York, Jensen/Runnels, and Canal; Dowling at IH-45 / Pease)

R2: Improve connectivity for all modes between the Second Ward / Fifth Ward neighborhoods and EaDo / Downtown

R3: Assess multi-modal mobility impacts of East End Master Plan recommendations on Navigation Boulevard and adjacent roadway network

R4: Assess Sampson/York one-way pair multi-modal operations including potential benefits and challenges of conversion to two-way operations

R5: Improve Chartres Street as both a gateway to the East End and Downtown and as a barrier to mobility

TRANSIT

These improvements support increased transit service levels and ridership within the study area. Potential improvements focus on both enhancing existing service and eliminating barriers to access for potential transit users.

T1: Develop Enhanced Transit Corridors for both east-west and north-south travel

T2: Identify mobility improvements that would support and integrate with East End Urban Circulator implementation

PEDESTRIAN & BICYCLING

These improvements primarily benefit walking and bicycling through the development of enhanced pedestrian and bicycle networks, including locations where shared or dedicated facilities would provide improved connections to activity centers or address the crossings of major barriers. Improvements were also identified to provide improved navigation and directions for people travelling in the study area and heading to major destinations.

PB1: Pedestrian improvements to support transit, address barriers and encourage more walking trips

PB2: Comprehensive area bicycle improvements that connect the Columbia Tap, MKT, Harrisburg and Buffalo Bayou Trails and Major Destinations

PB3: Implement a regional wayfinding system targeting pedestrian-bicyclist connections as well as automobiles

DEVELOPMENT

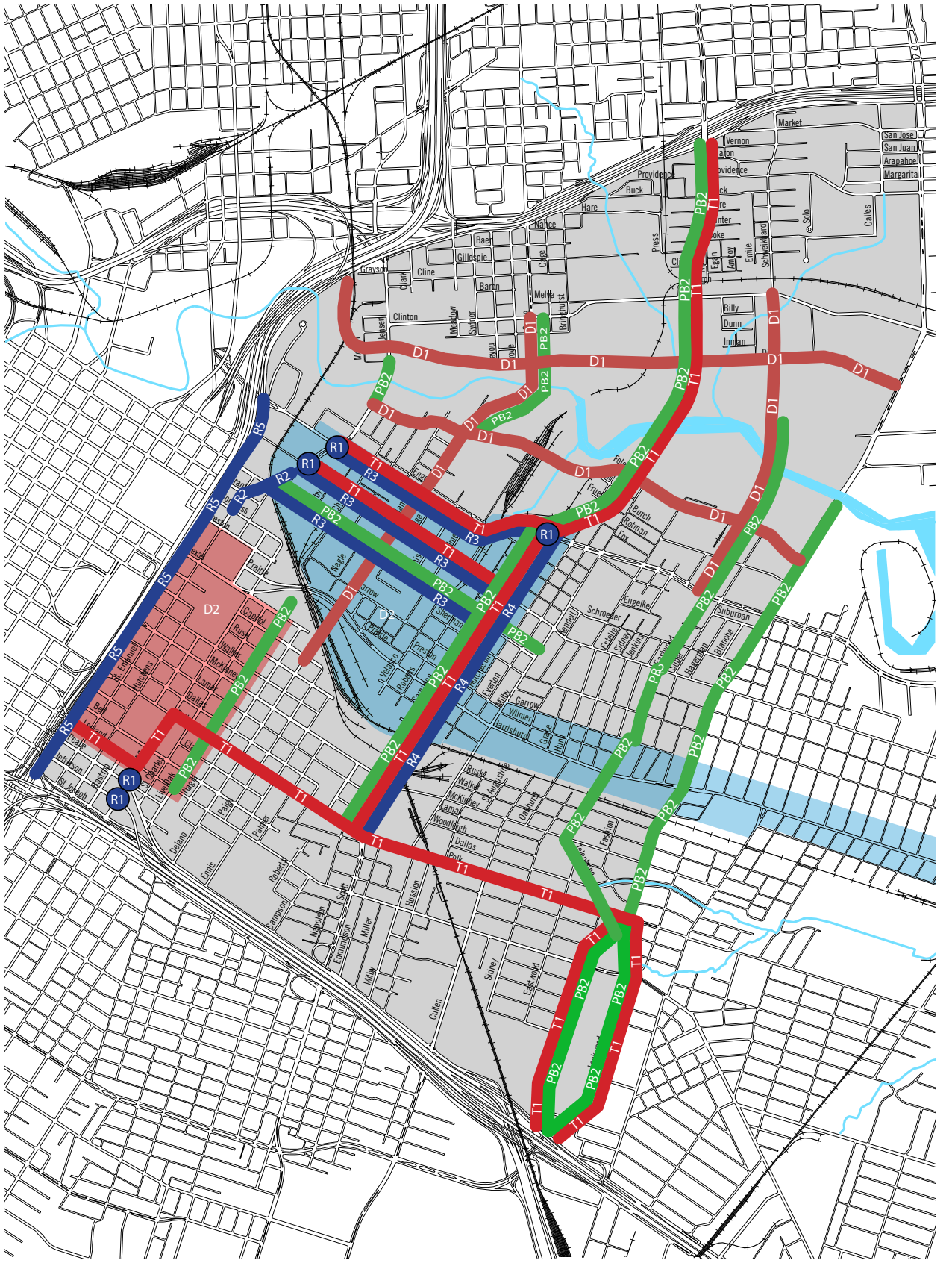
These improvements pro-actively support enhanced mobility and access to accommodate and support development as it occurs. Opportunities include enhancements to the roadway network as well as issues such as parking that may not be major mobility factors now but that will become more important as development and traffic increases.

D1: Support high level of connectivity in future roadway network (e.g., new collectors for thoroughfare plan)

D2: Develop parking management approach for activity centers

NOTE: Improvements T2, PB1, and PB3 do not show up on Figure ES2 as they are regional in nature. More specific figures addressing these improvements are provided in the detailed project descriptions in Chapter 4.

Figure ES2 Improvement Opportunities



Within each improvement opportunity, specific implementation projects were identified to fully realize the opportunity. Thirty-five implementation projects were identified. Various projects within a single improvement opportunity are sometimes complementary paths towards achievement of the improvement; other times they represent phases of implementation.

An implementation strategy was developed to define a clear path forward in terms of phasing and funding. The implementation strategy includes an estimate of project costs. It also includes a schedule for implementation based on a prioritization of projects. Priorities were established based on 1) project cost, 2) ability to satisfy project goals, and 3) local support.

Three priority categories have been utilized:

Short-term – Project with low-costs or previously identified funding that do not require extensive right-of-way or coordination with other projects and that can be implemented in **one to two years**. These are typically at or near "shovel-ready" project status.

Medium-term Medium-cost projects or higher-cost projects with particular importance to achieving the East End's mobility goals that can be implemented in **two to five years**.

Long-term – Typically higher-cost projects that will involve coordination with other projects and with several stakeholders and regulatory agencies. These projects are recommended for implementation in **five or more years**.

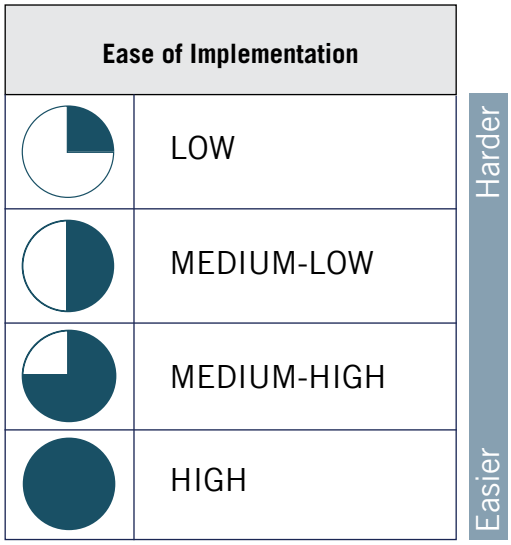
Tables ES1 (short-term), ES2 (medium-term), and ES3 (long-term) provide the complete prioritized list of projects and include the following information about each project:

Project description – A brief description of the major elements of each project.

Cost – Estimated cost of the implementation project based on planning-level conceptual designs.

Ease of implementation – A qualitative assessment of the overall ease of implementation for a project. This assessment includes consideration of cost, community support, right-of-way requirements, regulatory hurdles, coordination with other projects such as freight rail grade separations, and overall project scope. A project with high ease of implementation could theoretically be implemented quickly and inexpensively once a sponsor is identified.

Ease of implementation is represented as:



Goals Supported – Identifies the primary goals addressed by each project.

Benefits – Summarizes the mobility benefits associated with each implementation project and associated improvement opportunity.

The projects identified in this report have been developed to achieve of the project goals for the East End community. They are expected to improve mobility for all modes of travel, including vehicle, transit, walking, and biking and improve safety along roadways and at intersections. They are expected to support and accommodate economic development. If implemented according to the strategies and schedules presented in this report, the proposed set of improvement opportunities should bolster the natural benefits of the East End including:

- Proximity to Downtown, University of Houston, Texas Southern University, and other important regional employment centers
- Major transit investments in the East End and Southeast light rail lines along with strong existing bus service
- A relatively extensive network of on-street and off-street bicycle facilities
- A roadway network that was built for substantially higher population levels than exist today
- Major destinations such as BBVA Stadium and significant future development opportunity sites

The improvements will support and accommodate not only the existing residents and businesses, but also residents and businesses that will likely be attracted to the East End in the future.

Table ES1 Short-term Implementation Schedule

Improvement Opportunity	Project #	Project Description	Cost	Ease of Implementation	Goals Supported	Benefits
R1	R1-4	Close Westbound Pease at Dowling	$10,000		5 - Reduce Safety Concerns	Improve safety of intersection by removing unneeded movement from Pease Street at Dowling Street
R2	R2-1	Reconfigure the intersection of Navigation Boulevard / St. Emanuel Street / Franklin Street so that Navigation Boulevard is aligned with St. Emanuel Street	$485,000		2 - Address Barriers 5 - Reduce Safety Concerns 4 - Support Development	Create a continuous north-south connection between EaDo and the East End; improve comprehensibility of roadway network
R3	R3-1	Modify Navigation Boulevard cross section	$1,500,000		4 - Support Development 3 - Multimodal Trips 1 - Capacity Constraints/ Opportunities	Improve context-sensitivity of roadway; aligns with visions set out in East End Master Plan; maintains acceptable vehicular LOS; improves LOS of walking, biking, and transit
R3	R3-2	Modify cross sections of Canal Street and Commerce Street with pavement markings and minor pavement repair.	$155,000		4 - Support Development 3 - Multimodal Trips 1 - Capacity Constraints/ Opportunities	Improve context-sensitivity of roadway; maintains acceptable vehicular LOS; improves LOS of walking, biking, and transit
R4	R4-1	Modify cross sections on York Street and Sampson Street with pavement marking modifications	$42,900		1 - Capacity Constraints/ Opportunities 3 - Multimodal Trips	Improves mobility options in corridor for all modes; maintains acceptable LOS for vehicular traffic
T1	T1-1	Develop Canal Street, Polk Street, and Sampson Street / York Street as priority transit corridors	$379,000		2 - Address Barriers 3 - Multimodal Trips	Reinforces existing transit network; complements light rail construction; supports transit-oriented development
T2*	T2-1	Support East End urban circulator implementation	$0		2 - Address Barriers 4 - Support Development	Coordinates across projects for leverage and to minimize obstacles and disruption
PB1	PB1-1	Implement pedestrian realm improvements on Navigation Boulevard, Sampson Street, and York Street	$249,000		2 - Address Barriers 3 - Multimodal Trips	Improves mobility for pedestrians with consequential benefits to other modes; supports East End Master Plan recommendations; supports transit facilities
PB2	PB2-1	On-street bicycle facility improvements	$116,000		2 - Address Barriers 3 - Multimodal Trips	Connects the Eastwood Transit Center, Harrisburg Light Rail Line, Harrisburg Rails-to-Trail, Columbia-Tap Bike Rails-to-Trail, and Buffalo Bayou bike trails; improves access to UH
PB2	PB2-6	On-street bicycle improvements from Downtown/EaDo Livable Centers study and 5th Ward Special Districts study	$344,000		2 - Address Barriers 3 - Multimodal Trips	Bicycle proposals from other projects tie into the existing bicycle network and facilities proposed in this report
PB3	PB3-1	Implement a signage and wayfinding program for the area using standard signage from the MUTCD	$96,000		2 - Address Barriers 3 - Multimodal Trips	Low-cost option for improving bicycle access in the area; can encourage regional cohesion because of better ties between neighborhoods
D1	D1-1	Add corridors to MTFP to support high level of connectivity	$0		2 - Address Barriers 3 - Multimodal Trips	Enhances network connectivity and connection between East End and 5th Ward; supports coordination across future development, potentially creating value for impacted property owners
D2	D1-2	Create Parking Benefits Districts along St. Emanuel Street and Harrisburg Boulevard	$0		2 - Address Barriers 3 - Multimodal Trips	Can capture value of public parking for reinvestment in the area

* T2 is identified as a priorty project for short-term, medium-term and long-term priority.

Table ES2 Medium-term Implementation Schedule

Improvement Opportunity	Project #	Project Description	Cost	Ease of Implementation	Goals Supported	Benefits
R1	R1-1	Roundabout at intersection of Navigation and Jensen	$1,120,000		5 - Reduce Safety Concerns 1 - Capacity Constraints/ Opportunities	Improve safety of intersection; ease crossing of road by pedestrians; improved landscaping opportunities
R1	R1-5	Traffic signal or roundabout at intersection of Chartres and Runnels	$421,000		5 - Reduce Safety Concerns	Improve safety of intersection; ease crossing of road by pedestrians; improved landscaping opportunities
R3	R3-3	Reconstruct Canal Street with cross section that emphasizes vehicular mobility and parking (Navigation to York)	$2,000,000		4 - Support Development 3 - Multimodal Trips 1 - Capacity Constraints/ Opportunities	Improve context-sensitivity of roadway; maintains acceptable vehicular LOS; improves LOS of walking, biking, and transit
R3	R3-4	Reconstruct Commerce Street with cross section that emphasizes vehicular and bicycle mobility (US 59 to Harrisburg Rail to Trail)	$3,700,000		4 - Support Development 3 - Multimodal Trips 1 - Capacity Constraints/ Opportunities	Improve context-sensitivity of roadway; maintains acceptable vehicular LOS; improves LOS of walking, biking, and transit
R5	R5-1	Improvements to signage, wayfinding, and pavement markings along Chartres Street	$97,000		2 - Address Barriers 5 - Reduce Safety Concerns	Creates a gateway into Downtown, EaDo, and the East End; improves attractiveness of local destinations; reduces traffic speeds; improves safety; improves pedestrian crossings
T1	T1-2	Develop Navigation Boulevard as a priority transit corridor	$99,000		2 - Address Barriers 3 - Multimodal Trips	Reinforces existing transit network; complements light rail construction; supports transit-oriented development
PB1	PB1-2	Implement pedestrian realm improvements on the other Primary Corridors	$217,000		2 - Address Barriers 3 - Multimodal Trips	Improves mobility for pedestrians with consequential benefits to other modes; supports transit facilities
PB2	PB2-7	Off-street bicycle improvements identified in Downtown/EaDo Livable Centers study	$760,000		2 - Address Barriers 3 - Multimodal Trips	Provides family-friendly bike facilities near Dynamo Stadium and other destinations
PB3	PB3-2	Implement a district-branding signage and wayfinding program	$246,000		2 - Address Barriers 4 - Support Development	Can simultaneously offer direction to important destinations while also helping create an identifiable brand for the area
D2	D2-2	Create Parking Benefits Districts along Navigation Boulevard, Canal Street, and Sampson Street as development warrants them	$0		2 - Address Barriers 3 - Multimodal Trips	Can capture value of public parking for reinvestment in the area
D2	D2-3	Create a Parking Management District in the East End/ Third Ward and EaDo once development and parking demand warrants them	$0		2 - Address Barriers 3 - Multimodal Trips	Coordinated approach to parking that can satisfy parking needs with minimal parking infrastructure

Table ES3 Long-term Implementation Schedule

Improvement Opportunity	Project #	Project Description	Cost	Ease of Implementation	Goals Supported	Benefits
R1	R1-2	Improvements to intersection of Canal and Navigation	$146,300		5 - Reduce Safety Concerns	Improve safety of intersection; ease crossing of road by pedestrians; improved landscaping opportunities; decrease safety concerns related to vehicles accessing Hutchins Street
R1	R1-3	Intersection improvements or roundabout at intersection or Navigation and York	Costs are included in project R4-2		5 - Reduce Safety Concerns	Improve safety of intersection; ease crossing of road by pedestrians; improved landscaping opportunities
R2	R2-2	Extend Franklin Street east to join with the intersection of Dowling Street and Congress Street.	$3,000,000		2 - Address Barriers 4 - Support Development	Improve connectivity between Downtown, EaDo, and the East End; simplifies entering/exiting Downtown
R2	R2-3	Modify West Belt Rail Study proposal for a grade separation at the intersection of Navigation Boulevard and Commerce Street to align Navigation Boulevard with St. Emanuel Street.	$22,480,000*		2 - Address Barriers	With modification, will provide continuous north-south link along Jensen, Navigation, and St. Emanuel; will provide bicycle connections along Navigation and Commerce; will improve access between Downtown, EaDo, and the East End
R4	R4-2	Convert York Street and Sampson Street to two-way roads	$1,260,000 (with signal) $1,900,000 (with roundabout)		1 - Capacity Constraints / Opportunities 3 - Multimodal Trips	Improves mobility options in corridor for all modes; improves access to businesses and other destinations; maintains acceptable LOS for vehicular traffic
R5	R5-2	Enhance and potentially redesign Chartres Street to make it a safer and more attractive gateway into Downtown and the East End	$5,700,000		2 - Address Barriers 5 - Reduce Safety Concerns	Creates a gateway into Downtown, EaDo, and the East End; improves attractiveness of local destinations; reduces traffic speeds; improves safety; improves pedestrian crossings
PB1	PB1-3	Implement pedestrian realm improvements on the Secondary Corridors	$1,900,000		2 - Address Barriers 3 - Multimodal Trips	Improves local access between neighborhoods and primary corridors, including business-intense corridors and transit corridors
PB2	PB2-2	Include bicycle facilities along Lockwood Drive when the road is reconstructed	$500,000		2 - Address Barriers 3 - Multimodal Trips	Provides logical connection between Eastwood Transit Center, Harrisburg Light Rail, Harrisburg Rails-to-Trail, and Buffalo Bayou bike trails; if implemented during roadway reconstruction, costs would be minimized
PB2	PB2-3	Complete Buffalo Bayou trail network	$580,000		2 - Address Barriers 3 - Multimodal Trips	Completing the trail system along Buffalo Bayou will provide a dedicated "bicycle highway" that is comfortable for all users between the East End, Downtown, and the Heights.
PB2	PB2-4	Pedestrian and bicyclist bridges over Buffalo Bayou	$1,890,000		2 - Address Barriers 3 - Multimodal Trips	Will improve connectivity between the East End and the Fifth Ward; will support pedestrian- and bicycle-friendly development along Buffalo Bayou
PB2	PB2-5	Develop underpass designs at West Belt rail line to accommodate all levels of bicycle experience	$2,440,000		2 - Address Barriers 3 - Multimodal Trips	Consideration of bicycle facilities on grade separations that are already proposed can leverage construction money to provide quality bicycle improvements
PB2	PB2-8	Off-street bicycle improvements identified in Fifth Ward Special Districts study	$1,033,800		2 - Address Barriers 3 - Multimodal Trips	Provides family-friendly bike facilities to neighborhoods and schools north of Buffalo Bayou

* (cost is for original underpass design; proposed modifications may have marginal additional costs)