BUFFALO BAYOU EAST DESIGN CONCEPT

Connecting Buffalo Bayou East








FINAL REPORT

NOVEMBER 2026

Houston-Galveston Area Council

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The preparation of this document was financed in part through grants from the U.S. Department of Transportation under Section 112 of the Federal-Aid Highway Act of 1973 and Section 8(d) of the Federal Transit Act of 1964, as amended. The contents of this document do not necessarily reflect the official views or policies of the Federal Highway Administration, Federal Transit Administration, U.S. Department of Transportation, or Texas Department of Transportation.

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EXECUTIVE SUMMARY

CONNECTING
BUFFALO BAYOU EAST

PROJECT OVERVIEW

Building on the Buffalo Bayou East Master Plan and H-GAC's regional transportation planning efforts, the Buffalo Bayou East Design Concept Study was initiated to address mobility challenges across four East Houston neighborhoods: Greater Fifth Ward, Denver Harbor, Second Ward, and Magnolia Park. Led by H-GAC in partnership with Buffalo Bayou Partnership, the study aims to improve access to parks, schools, employment centers, transit, and regional trails while supporting long-term community development.

Despite their proximity to major destinations and transportation facilities, these neighborhoods face significant barriers to mobility. Gaps in sidewalk and bicycle networks, limited pedestrian crossings, and physical barriers such as highways, railroads, and industrial areas contribute to a fragmented transportation system. High traffic speeds, flooding, and limited shade further affect safety and comfort, particularly for residents who rely on walking, bicycling, and public transportation.

To address these challenges, the study includes two complementary planning efforts:

- Active Transportation Network: Focuses on improving pedestrian and bicycle connectivity among neighborhoods, parks, schools, businesses, transit, and the Buffalo Bayou trail system through safer, more continuous, and accessible routes.
- Fifth Ward/Denver Harbor Transit District: Explores opportunities to integrate transit access, public spaces, housing, and community-serving amenities around Lockwood Drive and Lyons Avenue to create a more connected and vibrant neighborhood center.

Together, these efforts provide a coordinated framework for future transportation investments, addressing existing mobility barriers and supporting more livable and resilient communities in East Houston.

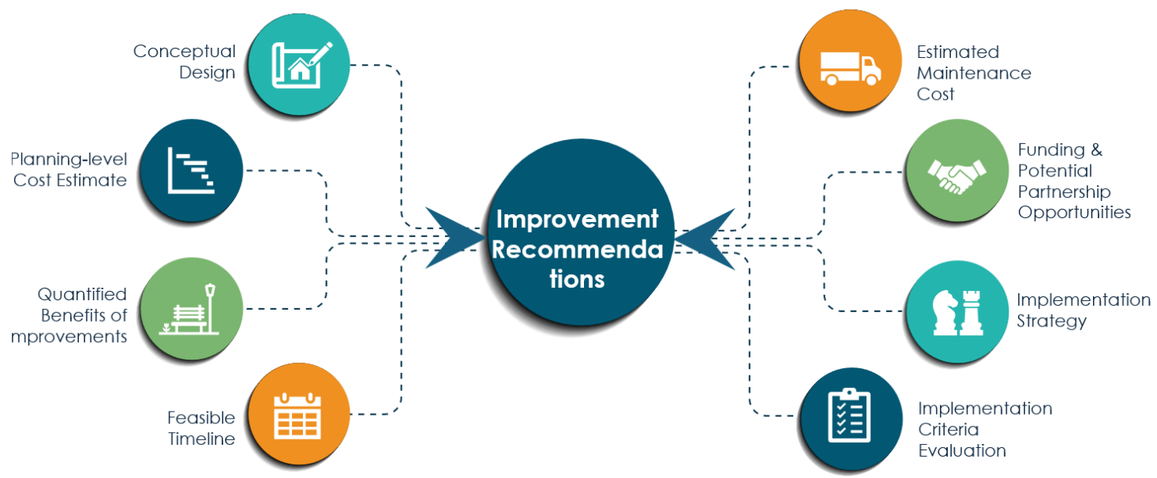


HIGHLIGHTED NEIGHBORHOODS

The study produced a set of recommendations and design concepts that can guide future transportation investments and support project development across the study area. Key deliverables include:

1. Proposed Active Transportation Network: A coordinated network of pedestrian and bicycle connections that addresses existing gaps and improves access to neighborhoods, parks, schools, transit, and regional trails.
2. Prioritized Corridor Improvements: A set of priority corridors and recommended improvements to address safety concerns, improve crossings, and strengthen connections between key destinations.
3. Phased Corridor Design Concepts: Planning-level design concepts illustrating potential improvements to pedestrian and bicycle facilities, streetscapes, and roadway configurations, with options for phased implementation.
4. Fifth Ward/Denver Harbor Transit District Concepts: Recommendations integrating transit access, pedestrian and bicycle connections, public spaces, housing, and community-serving amenities around Lockwood Drive and Lyons Avenue.
5. Implementation Strategy: Planning-level cost estimates, potential funding opportunities, and implementation considerations to help local agencies and partners advance recommended projects.

These deliverables provide H-GAC, local governments, Buffalo Bayou Partnership, and other partners with a basis for identifying projects, coordinating future investments, and pursuing funding for design and implementation.



RESULTS-ORIENTED DELIVERABLES

STUDY PROCESS

The Buffalo Bayou East Design Concept Study built on previous planning efforts and integrated technical analysis, field assessments, and community input to develop transportation recommendations. The study evaluated existing conditions, identified mobility barriers and opportunities, and developed network improvements, corridor design concepts, and implementation strategies.

The study was conducted into three phases:

Phase I – Existing Conditions Assessment

The study began with a review of previous plans, including the Buffalo Bayou East Master Plan, and an assessment of existing transportation, environmental, and community conditions. The analysis examined pedestrian and bicycle facilities, transit access, roadway characteristics, land use, and connections to major destinations.

The study team identified gaps in sidewalks and bicycle networks, limited crossing opportunities, and barriers created by highways, railroads, industrial areas, and flooding. These findings established a baseline for evaluating mobility needs and identifying areas for further study.

Phase II – Opportunity Identification

Building on the existing conditions assessment, the study team identified opportunities to improve pedestrian and bicycle connectivity, address safety concerns, and strengthen access to parks, schools, transit, trails, and other community destinations.

Community engagement was an important part of this phase. Through public meetings, workshops, stakeholder coordination, online and in-person surveys, and walk and bike audits, the team gathered feedback from residents, local agencies, and community organizations.

Phase III – Recommendations and Implementation Strategy

The final phase focused on translating the identified needs and opportunities into recommended improvements for the Active Transportation Network and Fifth Ward/Denver Harbor Transit District.

For the Active Transportation Network, the study team developed a proposed network of pedestrian and bicycle connections, identified priority corridors, and prepared planning-level design concepts. Recommendations included improvements to sidewalks, bicycle facilities, crossings, streetscapes, and off-street connections. Phased design options were developed for selected corridors to illustrate how improvements could be implemented over time.

For the Fifth Ward/Denver Harbor Transit District, the study examined opportunities to improve access to transit and coordinate transportation improvements with public spaces, housing, and community-serving amenities around Lockwood Drive and Lyons Avenue.

The study also developed planning-level cost estimates, identified potential funding opportunities, and outlined implementation considerations to help H-GAC and its partners advance recommended improvements through future planning, design, and construction.



PUBLIC ENGAGEMENT

Community engagement was integrated throughout the study to ensure that recommendations reflected the experiences, needs, and priorities of residents in Greater Fifth Ward, Denver Harbor, Second Ward, and Magnolia Park. Through community meetings, public workshops, stakeholder coordination, online and in-person surveys, and walk and bike audits, the study team gathered local perspectives and firsthand observations to identify transportation challenges and opportunities.

Community feedback emphasized safer crossings, lower vehicle speeds, improved lighting, increased shade and tree canopy, and better access to parks, schools, and transit. These priorities informed the opportunity framework, corridor selection, and recommended improvements.



First Stakeholder Meeting



First Steering Committee Meeting



Establish Context
Review existing conditions, prior studies, and data sources



Build Governance
Convene steering committee of agency partners for strategic guidance



Raise Awareness
Promote project goal and connect with residents in the community



Activate Community
Host meetings to gather early feedback from stakeholders and local voices



Ground-Truth Conditions
Conduct site audits along priority corridors to observe mobility challenges



Gather Insight
Collect and analyze surveys to understand lived experience and priorities

ACTIVE TRANSPORTATION - EXISTING CONDITION ASSESSMENT

Phase I established a comprehensive baseline understanding of the study area through GIS analysis, fieldwork, and community engagement.

Key Findings

1. Connectivity Gaps & Barriers
2. Discontinuous sidewalks and bicycle infrastructure
3. Physical barriers including railroads, highways, and industrial corridors
4. Limited access to Buffalo Bayou and regional trails

Equity & Mobility Needs

1. ~15% of households lack access to a vehicle, increasing reliance on walking, biking, and transit
2. Underserved communities face limited safe mobility options
3. Strong need for improved first- and last-mile connections to transit

Economic and Social Vulnerability

1. Study area neighborhoods include some of the lowest median income populations in Houston.
2. Many residents depend on affordable, reliable mobility options to access jobs, schools, and services.

Environmental & Resilience Challenges

1. High impervious coverage (~79%) contributes to flooding and street ponding
2. Extremely low tree canopy (~1.87%) intensifies urban heat island effects
3. Communities face compounded environmental stressors, including heat, flooding, and limited shade

Community Priorities

1. Safer crossings and reduced traffic speeds
2. Improved lighting and comfort
3. Increased tree canopy and shade
4. Better access to parks, schools, and transit

Safety Challenges

1. High vehicle speeds and unsafe crossings create significant risk
2. Conflicts with trucks and industrial traffic reduce comfort and accessibility



First Public Meeting

ACTIVE TRANSPORTATION - OPPORTUNITY IDENTIFICATION

Phase II translated technical analysis and community input into a coordinated framework for transportation improvements, emphasizing network-wide connectivity and addressing mobility challenges beyond individual projects.

Core Opportunity Themes

Four key themes emerged from technical analysis and community input:

- **Safety**: Address high vehicle speeds, unsafe crossings, and conflicts with truck traffic.
- **Connectivity**: Close gaps in pedestrian and bicycle networks and improve access to Buffalo Bayou and transit.
- **Comfort and Environment**: Increase shade, tree canopy, and buffering from industrial traffic.
- **Placemaking and Identity:** Enhance public spaces and reinforce neighborhood character.

Opportunity Framework

Opportunities were organized across three interconnected spatial scales to guide transportation improvements:

1. **Regional Integration**

- Strengthen Buffalo Bayou's role as a regional ecological and mobility corridor.
- Improve crossings and connections to the bayou trail system.

2. District Structuring Corridors

- Enhance key corridors, including Gregg Street, Lockwood Drive, and Navigation Boulevard, as major transportation connections.
- Support multimodal mobility, economic activity, and neighborhood identity.

3. Neighborhood Connectivity

- Close gaps in pedestrian and bicycle networks connecting homes, schools, parks, and services
- Improve accessibility for short, everyday trips.

Design Principles

A three-tiered design hierarchy was established to guide improvements, emphasizing safety, comfort, and quality of life.

- **Safety**: Improve crossings, ADA accessibility, and traffic calming.
- **Comfort**: Enhance shade, lighting, landscaping, and green infrastructure.
- **Quality of Life:** Strengthen placemaking, neighborhood identity, and public spaces.

Together, the opportunity framework and design principles guided the identification of priority corridors and the development of recommended improvements in Phase III.



Nodal Improvements

Corridor-Level Active Transportation Improvements

Regional Connection Framework

IMPROVEMENT STRATEGIES BY DESIGN SCALE

ACTIVE TRANSPORTATION - RECOMMENDATIONS & IMPLEMENTATION STRATEGY

Phase III translated opportunities into targeted, implementable corridor projects supported by community priorities and technical evaluation.

Priority corridors were classified into two priority levels to guide future investment and implementation.

High Priority

1. Navigation Boulevard (Segment 1)
2. Lockwood Drive (Segment 1)
3. Lockwood Drive Bridge
4. Velasco Street
5. Lyons Avenue
6. Gregg Street (Segment 2)

Moderate Priority

1. Navigation Boulevard (Segments 2)
2. Navigation Boulevard (Segments 3)
3. Gregg Street (Segment 1)
4. Neighborhood streets

Key Improvement Strategies

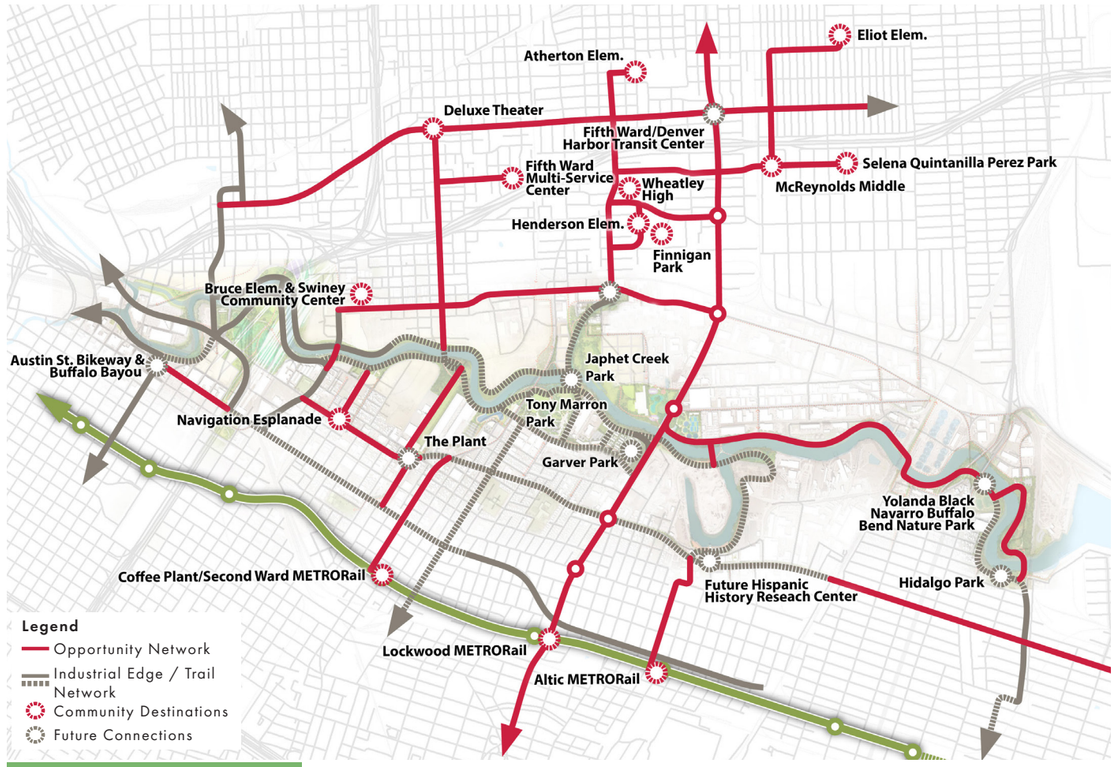
The proposed improvements are organized around four key themes to create safer, more connected, and comfortable streets:

- **Mobility and Safety:** Improve sidewalks, bicycle facilities, crossings, and intersections, supported by traffic calming measures.
- **Environment and Resilience:** Expand tree canopy and shade, incorporate green infrastructure for stormwater management, and reduce urban heat.
- **Connectivity:** Strengthen connections to Buffalo Bayou trails, regional networks, and transit facilities.
- **Public Realm and Placemaking:** Enhance streetscapes through lighting, seating, wayfinding, and elements that reflect neighborhood identity.

COMPREHENSIVE IMPROVEMENT RECOMMENDATIONS



ACTIVE TRANSPORTATION - RECOMMENDATIONS&IMPLEMENTATION STRATEGY



FOCUSED NETWORK OF IMPROVEMENTS

Implementation Approach

These improvements are implemented through a three-tiered approach, Basic, Retrofit, and Rebuild, with each successive level incorporating a greater depth and integration of these four perspectives, progressively transforming the street into a more complete, resilient, and people-centered environment.

Each corridor includes three tiers of intervention:

1. Basic Improvements – Essential safety and connectivity upgrades implemented at low cost, aligned with current city policies and existing permitting frameworks.
2. Retrofit Improvements – reallocation of right-of-way for multimodal use.
3. Reconstruction Improvements – full corridor transformation with highest long-term impact.

This tiered strategy allows for phased implementation, aligning with funding availability and project priorities.

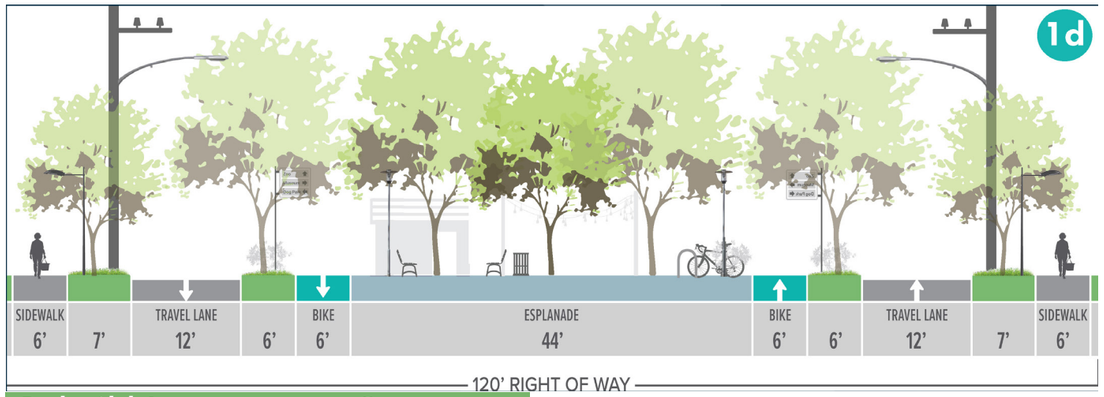
Overall Conclusions

The study establishes a clear, actionable roadmap for creating a more connected, resilient, and equitable transportation network in Buffalo Bayou East.

Key Takeaways:

- The primary challenge is not a lack of transportation assets, but limited connectivity between them.
- Safety, comfort, and equity must be addressed together.
- Buffalo Bayou should serve as a central organizing corridor rather than a barrier.
- Streets should function as both transportation corridors and community spaces.
- Investments should prioritize the mobility needs of historically underserved communities.

ACTIVE TRANSPORTATION RECOMMENDATIONS: NAVIGATION BLVD. SEGMENT 1 (HIGH PRIORITY, SHORT-TERM)



Rebuild Improvement Concept

Navigation Boulevard is a primary east–west corridor connecting the East End to downtown Houston. Between North Saint Charles Street and Delano Street, the corridor has been transformed into a vibrant cultural destination known as the Navigation Boulevard Esplanade. Extending the esplanade eastward to connect with the proposed Velasco Street shared-use path would establish an important link between existing destinations and the expanding Buffalo Bayou Greenway network.

Navigation Boulevard currently has four travel lanes and carries approximately 11,000 vehicles per day. This traffic volume suggests potential opportunities for roadway reconfiguration, subject to further traffic analysis. The wide roadway contributes to longer pedestrian crossings and higher vehicle speeds, creating safety concerns. Reallocating roadway space could shorten crossing distances, calm traffic, and improve multimodal accessibility.

The corridor presents an opportunity to expand the existing esplanade by widening sidewalks, improving curb ramps, and enhancing landscape elements to create a more continuous and accessible public space. Community feedback indicates strong support for enhanced bicycle facilities along the corridor.

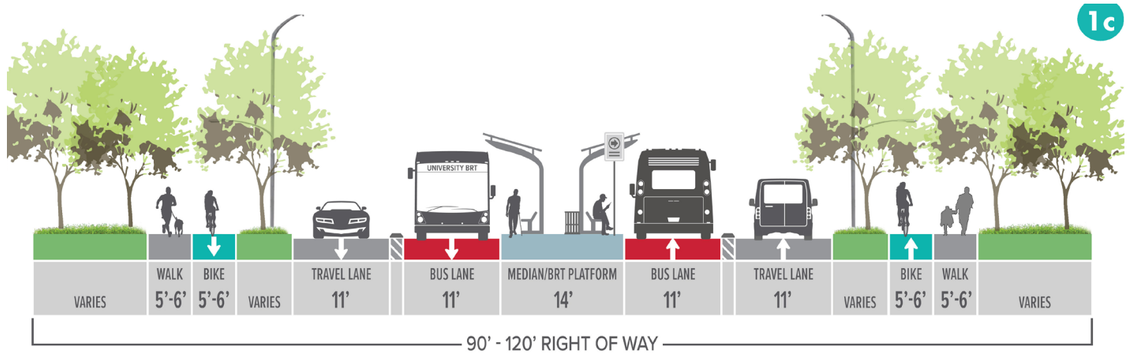


Navigation Blvd. Segment 1 Proposed Improvement
Illustration of Fully Integrated Improvement Scenario with Preliminary Conceptual Cost Estimate **$6,801,000**

Coordinating these improvements with the proposed Velasco Street shared-use path and potential connections along Jensen Drive would further strengthen regional connectivity.

Final design should be informed by detailed traffic, curb-use, and parking analyses to balance commercial activity, mobility needs, and public space enhancements.

ACTIVE TRANSPORTATION RECOMMENDATIONS: LOCKWOOD DR. (HIGH PRIORITY, LONG-TERM)



Rebuild Improvement Concept

Lockwood Drive serves as a major north–south arterial corridor connecting Fifth Ward, Denver Harbor, and surrounding neighborhoods to Buffalo Bayou, the East End, and areas farther south. Its role within the regional transportation network makes it an important corridor for improving multimodal connectivity and access to key destinations.

Recent improvements along Buffalo Bayou have strengthened connections near Navigation Boulevard and Lockwood Drive, including access to the bayou trail system, nearby residential developments, and Tony Marron Park. These investments provide a foundation for extending multimodal connections along the corridor.

Future improvements should build on these investments by extending multimodal connections both north and south of the bayou. The Lockwood Drive Bridge presents a key opportunity to incorporate protected bicycle facilities and wider pedestrian space. Dedicated bike lanes separated from vehicular traffic through physical buffers can improve safety and user comfort while maintaining corridor functionality.



Lockwood Drive Proposed Improvement
Illustration of Fully Integrated Improvement Scenario with Preliminary Conceptual Cost Estimate **$47,160,000**

Given Lockwood Drive's role in supporting bus transit and regional traffic, roadway modifications should carefully consider operational needs. However, existing conditions, including high vehicle speeds, limited visibility, and constrained pedestrian space, highlight opportunities to better balance the right-of-way. Improved pedestrian and bicycle facilities, along with streetscape enhancements, can create a safer, more comfortable, and accessible crossing of Buffalo Bayou.

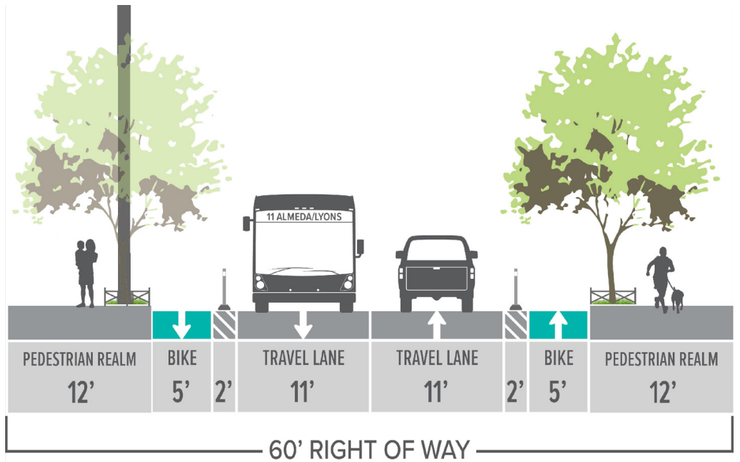
ACTIVE TRANSPORTATION RECOMMENDATIONS: LYONS AVE. (HIGH PRIORITY, SHORT-TERM)

Lyons Avenue is a key east–west corridor connecting Denver Harbor, Fifth Ward, Northside, and downtown Houston, with strong potential to serve as Fifth Ward's "Main Street." Beyond mobility, it serves as a center of cultural identity and daily community life.

Existing pedestrian infrastructure is inconsistent, with gaps in sidewalks, limited shade, and few spaces for gathering.

Improvements should focus on safer, more equitable mobility and an enhanced public realm. Narrowing travel lanes could help calm traffic and create space for protected bicycle lanes, wider sidewalks, and improved transit facilities. Sidewalk upgrades, ADA-compliant curb ramps, and enhanced crossings would further improve accessibility.

Streetscape enhancements, including trees, lighting, street furnishings, and public art, can create a more comfortable and inviting environment. Together, these strategies would position Lyons Avenue as a civic spine that supports local businesses, encourages social interaction, and celebrates Fifth Ward's cultural identity.



Rebuild Improvement Concept



Lyons Avenue Proposed Improvement
Illustration of Fully Integrated Improvement Scenario with Preliminary Conceptual Cost Estimate **$30,420,000**

ACTIVE TRANSPORTATION RECOMMENDATIONS: VELASCO ST. - THE PASEO (HIGH PRIORITY, SHORT-TERM)

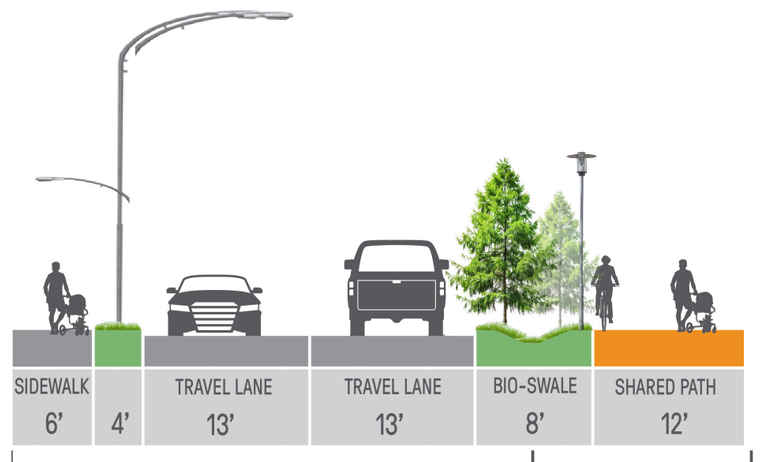
Velasco Street is a key north–south corridor connecting the East End, Fifth Ward, and Buffalo Bayou. It is identified as a Phase 1 project in the East End Bikeway Plan and will connect surrounding neighborhoods to trails, open spaces, and destinations such as The Plant.

Priority improvements include safe, clearly marked crossings at Navigation Boulevard, particularly near Engelke Street, to address potential conflicts and maintain network continuity.

North of Navigation, available right-of-way could accommodate a 10–12 ft shared-use path, offering opportunities for near-term multimodal improvements with minimal impacts on traffic.

As redevelopment occurs, Velasco Street could evolve into a primary frontage corridor supporting mixed-use development. Streetscape enhancements, including landscape buffers, lighting, and wayfinding, would strengthen corridor identity and improve user experience.

South of Navigation Boulevard, enhanced crossings will be essential to connect the corridor to the Navigation Boulevard Esplanade and nearby destinations. Coordination with adjacent property owners could provide additional right-of-way and support long-term improvements.



Rebuild Improvement Concept



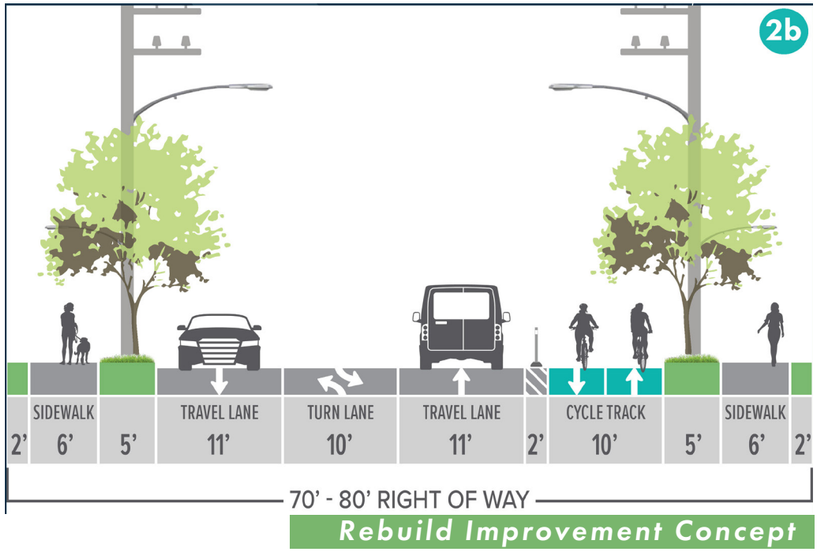
Velasco Street Proposed Improvement
Illustration of Fully Integrated Improvement Scenario with Preliminary Conceptual Cost Estimate **$3,738,000**

ACTIVE TRANSPORTATION RECOMMENDATIONS: GREGG ST. SEGMENT 2 (HIGH PRIORITY, SHORT-TERM)

Gregg Street Segment 2 currently operates as a four-lane roadway, with a divided median south of Interstate 10 and an undivided configuration to the north. The existing roadway width presents opportunities to improve pedestrian safety, reduce crossing distances, and manage vehicle speeds.

A potential road diet, reducing the roadway to two through lanes with a median or center turn lane, could create space for multimodal improvements while calming traffic. Depending on available right-of-way and operational needs, improvements could include a protected cycle track, wider sidewalks, and on-street parking where appropriate. Wider sidewalks and accessible curb ramps would further enhance pedestrian safety and comfort. Coordination with the Texas Department of Transportation (TxDOT) will be necessary to improve crossings at Interstate 10 and maintain corridor continuity.

In the long term, relocating bicycle and pedestrian facilities behind the curb could provide a more continuous and comfortable network with direct connections to Buffalo Bayou trails, while creating opportunities for landscaping and placemaking enhancements along the corridor.





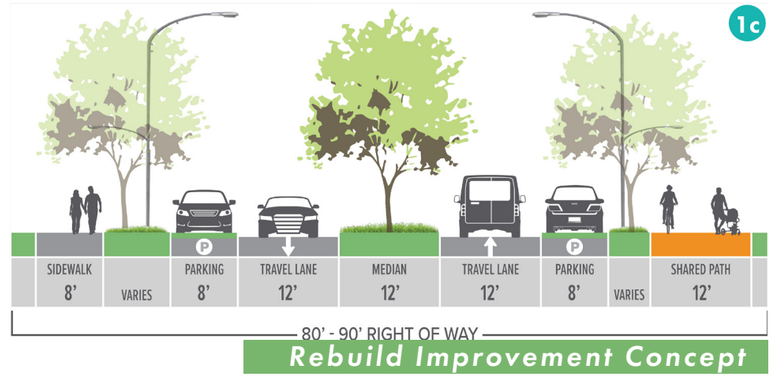
Gregg Street Segment 2 Proposed Improvement
Illustration of Fully Integrated Improvement Scenario with Preliminary Conceptual Cost Estimate **$5,882,000**

ACTIVE TRANSPORTATION RECOMMENDATIONS: GREGG ST. SEGMENT 1 (MODERATE PRIORITY, SHORT-TERM)

Gregg Street functions as a key north–south corridor within Fifth Ward, linking residential neighborhoods to Interstate 10 and Buffalo Bayou. Despite its strategic location, the corridor currently lacks safe and continuous pedestrian and bicycle infrastructure, limiting access to the bayou and surrounding destinations.

A proposed pedestrian and bicycle bridge across Buffalo Bayou would significantly enhance connectivity, linking the corridor to regional trail systems and expanding access to open space. However, the existing right-of-way allocation prioritizes vehicular movement, with limited space dedicated to multimodal use. Sidewalk gaps and the absence of bicycle facilities further constrain accessibility.

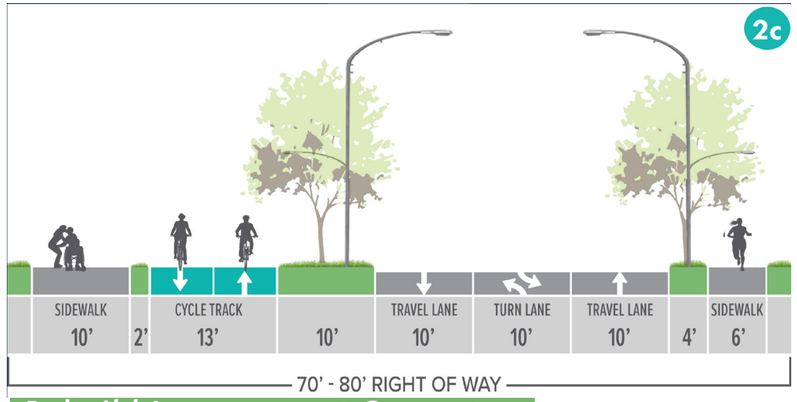
Enhancements to Gregg Street are intended to rebalance the corridor, improving safety and accessibility while supporting its role as a primary connection between neighborhoods and Buffalo Bayou. This segment is identified as a Phase 1 regional connection within the broader East End Bikeway Network.





Gregg Street Segment 1 Improvement
Illustration of Fully Integrated Improvement Scenario with Preliminary Conceptual Cost Estimate **$2,827,000**

ACTIVE TRANSPORTATION RECOMMENDATIONS: NAVIGATION BLVD. SEGMENT 2 (MODERATE PRIORITY, MID-TERM)



Rebuild Improvement Concept

Navigation Boulevard Segment 2 offers a key opportunity to strengthen east–west connectivity between neighborhoods, Buffalo Bayou, and regional destinations.

East of Velasco Street, the corridor can extend multimodal connections to the Navigation Boulevard Esplanade, future trails, and nearby parks.

Currently, the corridor is vehicle-oriented, with wide lanes, long crossings, and limited pedestrian and bicycle infrastructure. However, available right-of-way may provide opportunities for reallocation to support multimodal use.

Proposed improvements include protected on-street bicycle lanes (5.5–6.5 feet wide, with buffers), upgraded sidewalks, and enhanced lighting. These facilities would connect to key north–south corridors—Velasco Street, Sampson Street, and Lockwood Drive—linking neighborhoods to Tony Marron Park and the broader greenway network.

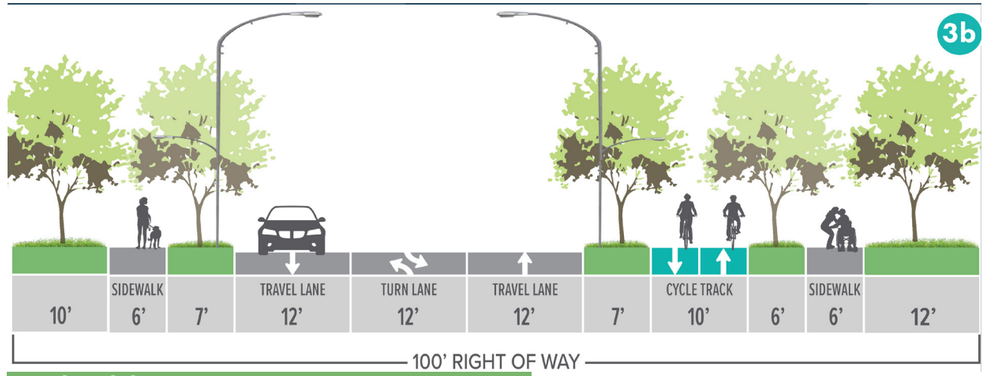
Additional upgrades, including improved curb ramps, driveway treatments, and safer crossings, would enhance accessibility. Curb use and parking strategies should balance access with multimodal needs.

As a Phase 1 priority, this segment would help establish a continuous, connected network supporting both local access and regional mobility.



Navigation Blvd. Segment 2 Proposed Improvement
Illustration of Fully Integrated Improvement Scenario with Preliminary Conceptual Cost Estimate **$19,794,000**

ACTIVE TRANSPORTATION RECOMMENDATIONS: NAVIGATION BLVD. SEGMENT 3 (MODERATE PRIORITY, LONG-TERM)



Rebuild Improvement Concept

Navigation Boulevard (East) Segment 3 presents an opportunity to extend multimodal connectivity beyond the existing esplanade and strengthen links to regional trails. Reallocating travel lanes could support protected on-street bicycle facilities, connecting to the Sunset Trail and forming a continuous east–west route.

At the western end, the corridor could link to proposed greenway improvements by Buffalo Bayou Partnership, with a typical cross section consisting of two travel lanes, a center turn lane, and buffered bicycle lanes. Intersection upgrades at Wayside Drive and South Street will be critical to improving safety.

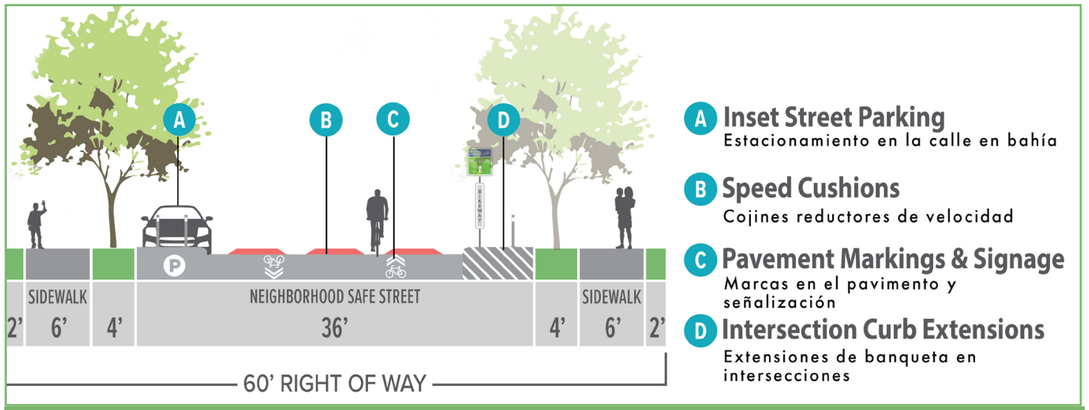
Additional improvements—including upgraded sidewalks, ADA-compliant curb ramps, and enhanced crossings—would improve accessibility for all users. Identified as a Phase 1 project, this segment plays a key role in building a connected network.

In the long term, corridor reconstruction could introduce wider sidewalks, expanded tree canopy, and dedicated bicycle facilities, strengthening its role as an extension of the Buffalo Bayou Greenway. Future extensions eastward could connect to the Brays Bayou Trail, expanding regional access.

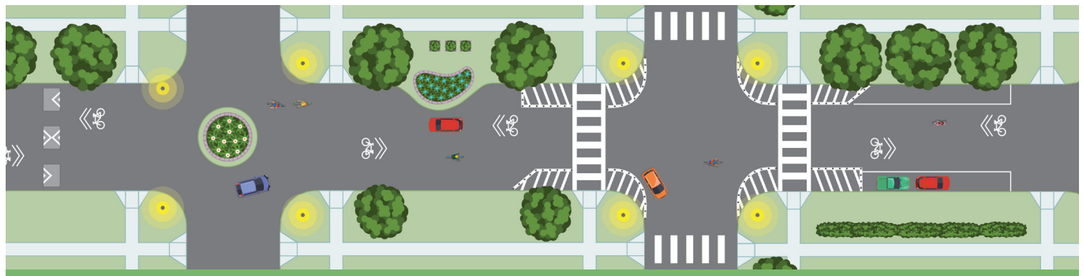


Navigation Blvd. Segment 3 Proposed Improvement
Illustration of Fully Integrated Improvement Scenario with Preliminary Conceptual Cost Estimate **$10,985,000**

ACTIVE TRANSPORTATION RECOMMENDATIONS: NEIGHBORHOOD STREETS (MODERATE PRIORITY, MID-TERM)



Right-of-Way Variability: Minimum Conditions of ROW



Neighborhood Street Improvements Plan View

On roads with exceptionally low traffic volumes (fewer than 1,500 vehicles per day) and posted speed limits below 25 mph, it may be appropriate for bicyclists to share the roadway with motor vehicles. Adding elements that alert drivers to the presence of bicyclists, such as shared-lane markings (sharrows), signage, and wayfinding, along with traffic calming measures, can improve safety and comfort for people bicycling.

Establishing a network of Neighborhood Safe Streets linking Japhet Creek Park, the Fifth Ward/Denver Harbor Transit Center, and Lyons Avenue would create opportunities to:

- Improve safety and accessibility for all roadway users.
- Provide safe, comfortable multimodal access to parks, schools, neighborhoods, businesses, and high-quality transit.
- Maintain existing vehicular and parking capacity.

The route could meander toward the future Buffalo Bayou East Greenway, using available space to incorporate additional landscaping and placemaking features.

ACTIVE TRANSPORTATION RECOMMENDATIONS: PRELIMINARY COST ESTIMATE SUMMARY

Investment Strategy and Phasing Considerations

The recommended improvements across Gregg Street, Navigation Boulevard, Lyons Avenue, Velasco Street, Lockwood Drive, and neighborhood streets can be implemented at different investment levels, depending on available funding and long-term goals.

Rather than treating each corridor as a fixed design, this study evaluates multiple implementation approaches to support decision-making.

Focused Connectivity Investment (Basic Improvements)

A minimum investment scenario focuses on essential connectivity improvements, such as sidewalks, basic crossings, and safety upgrades.

These improvements:
1. Address immediate gaps in the network.
2. Improve basic accessibility and safety.
3. Require relatively low capital investment.

However, this approach offers limited long-term benefits, as it does not fully address multimodal needs, environmental conditions, or broader corridor transformation.

Balanced Retrofit Strategy (Balanced Improvements)

A more balanced approach involves implementing retrofit improvements across key corridors.

This strategy:

1. Reallocates right-of-way for multimodal use.
2. Introduces bicycle infrastructure, traffic calming, and streetscape enhancements.
   Improves safety, comfort, and environmental performance.

This investment level offers a balance between cost and impact, delivering meaningful improvements without requiring full corridor reconstruction.

Full Reconstruction (Long-Term Vision)

Full reconstruction represents the ultimate build-out condition, transforming corridors into fully integrated multimodal streets.

These improvements:
1. Include complete street redesign, underground utility upgrades, and major infrastructure improvements.
2. Provide substantial long-term benefits.
3. Require the greatest level of investment and coordination.

Phased and Incremental Investment Approach

In some corridors, improvements can be implemented incrementally, allowing early investments to build toward a long-term vision.

For example, basic improvements can address immediate safety and accessibility needs, retrofit improvements can be introduced over time, and full reconstruction can be pursued when funding and coordination allow.

This phased approach allows agencies to:
1. Deliver near-term benefits.
2. Spread costs over time.
3. Adapt to funding opportunities.

Important Consideration: Avoid Redundant Investment

Not all corridors are suitable for incremental improvements. In some cases, basic or partial retrofit improvements may need to be replaced during future reconstruction, resulting in duplicated costs and reduced long-term cost-effectiveness.

For these corridors, a strategic evaluation is needed to determine whether to proceed with incremental improvements or prioritize a more comprehensive investment when funding becomes available.

ACTIVE TRANSPORTATION RECOMMENDATIONS: PRELIMINARY COST ESTIMATE SUMMARY

Strategic Recommendation

To maximize the effectiveness of future investments, the study recommends:

1. Prioritizing Retrofit Improvements as the primary implementation strategy.
2. Using Basic Improvements selectively for immediate needs.
3. Reserving Reconstruction for corridors where full transformation is necessary and feasible.

Next Steps

Further corridor-level evaluation is recommended to:

1. Refine planning-level cost estimates.
2. Identify project phasing and funding opportunities
3. Determine where incremental improvements are appropriate versus where full reconstruction may be more cost-effective.

The cost estimates presented in this report are intended to support future planning, design, and investment decisions.

Implementation Summary and Estimated Investment

The implementation summary chart below presents a combination of Rebuild and Retrofit improvements across key corridors, including Gregg Street, Navigation Boulevard, Lyons Avenue, Velasco Street, Lockwood Drive, and supporting neighborhood streets.

The total estimated investment is approximately $137 million, based on the selected combination of improvements. This planning-level estimate provides a benchmark for understanding the scale of proposed investments and guiding future funding and implementation decisions.

Rather than a single-phase project, the proposed improvements represent a coordinated program that can be implemented incrementally based on project priorities and funding availability. Together, these investments would enhance connectivity, safety, and accessibility across the study area, delivering network-wide benefits and supporting more connected, resilient, and equitable communities.

IMPLEMENTATION SUMMARY

Project Name	Street	Extents	Type of Improvement	Estimated Cost
G1a-Basic improvement	Gregg Street	Clinton Drive to I-10	Basic	$786,304
G1b-Retrofit improvement 1	Gregg Street	Clinton Drive to I-10	Intermediate (retrofit)	$3,039,980
G1c-Reconstruction improvement	Gregg Street	Clinton Drive to I-10	Ideal (reconstruction)	$2,826,803
G2a-Basic improvement	Gregg Street	I-10 to Lyons Avenue	Basic	$1,158,295
G2b- Retrofit improvement	Gregg Street	I-10 to Lyons Avenue	Intermediate (retrofit)	$5,882,029
LO1a-Basic improvement	Lockwood Drive	Harrisburg Blvd to Fifth Ward	Basic	$5,147,826
LO1b- Retrofit improvement	Lockwood Drive	Harrisburg Blvd to Fifth Ward	Intermediate (retrofit)	$35,406,710
LOc- Reconstruction improvement	Lockwood Drive	Harrisburg Blvd to Fifth Ward	Ideal (reconstruction)	$47,159,740
LOD1a - Basic improvement	Lockwood Drive	Lockwood Dr Bridge	Basic	$685,554
LOD1b - Retrofit improvement	Lockwood Drive	Lockwood Dr Bridge	Intermediate (retrofit)	$3,422,110
LOD1c - Retrofit improvement	Lockwood Drive	Lockwood Dr Bridge	Ideal (reconstruction)	$2,657,804
NA1a - Basic improvement	Navigation Blvd	Jensen Dr to N Palmer St	Basic	$1,281,197
NA1b - Retrofit improvement 1	Navigation Blvd	Jensen Dr to N Palmer St	Intermediate (retrofit)	$5,808,981
NA1c - Reconstruction improvement	Navigation Blvd	Jensen Dr to N Palmer St	Ideal (reconstruction)	$6,809,602
NA2a - Basic improvement	Navigation Blvd	Mack Street to N 77th St	Basic	$3,747,213
NA2b - Retrofit improvement	Navigation Blvd	Mack Street to N 77th St	Intermediate (retrofit)	$20,329,720
NA2c - Reconstruction improvement	Navigation Blvd	Mack Street to N 77th St	Ideal (reconstruction)	$19,793,310

ACTIVE TRANSPORTATION RECOMMENDATIONS: IMPLEMENTATION

Implementing the recommended active transportation corridor improvements will require a coordinated funding strategy that draws on local, regional, and federal resources. Given the scale and range of proposed projects, combining multiple funding sources will be important to support near-term improvements and long-term capital investments.

Local Funding Sources

1. Tax Increment Reinvestment Zones (TIRZ 18 and TIRZ 23): Potential funding for corridor improvements, streetscape enhancements, and public space investments within district boundaries.
2. City of Houston: Capital Improvement Plan (CIP), Complete Streets initiatives, and coordination with drainage and utility projects.
3. Harris County Precinct 2: Potential support for mobility, parks, and active transportation improvements.

Regional and Agency Partnerships

1. METRO: Transit integration, first- and last-mile connections, and station area improvements.
2. TxDOT: Coordination on major corridors, bridges, and state-maintained roadways.
3. H-GAC: Regional transportation funding programs and planning coordination.

Federal Funding Opportunities

1. Rebuilding American Infrastructure with Sustainability and Equity (RAISE): Potential funding for major multimodal transportation investments.
2. Safe Streets and Roads for All (SS4A): Supports projects that improve roadway safety and reduce serious crashes.
3. Transportation Alternatives Program (TAP): Supports pedestrian, bicycle, and other eligible active transportation infrastructure.
4. Congestion Mitigation and Air Quality Improvement Program (CMAQ): Supports eligible transportation projects that reduce emissions and improve air quality.

Funding Alignment with Implementation Phasing

Near-term projects will rely primarily on local funding, supplemented by eligible federal grants. Mid-term projects will combine local, regional, and federal resources to support larger corridor improvements, while long-term capital investments will require competitive federal funding, sustained local commitments, and multi-agency coordination. This phased approach supports incremental implementation as funding becomes available.

IMPLEMENTATION SUMMARY

Project #	Project Title	Lead Agency	Partners	Timeline	Priority
1	Gregg Street Segment 1	TIRZ 18	COH	Near-Term	High
2	Gregg Street Segment 2	PCT2	TIRZ 18, COH	Mid-Term	Medium
3	Lockwood Drive	METRO	COH, TIRZ 23	Long-Term	High
4	Lockwood Drive Bridge	METRO, TxDOT	COH, TIRZ 23	Long-Term	High
5	Navigation Boulevard Segment 1	COH	TIRZ 23	Near-Term	High
6	Navigation Boulevard Segment 2	COH	TIRZ 23	Mid-Term	Medium
7	Navigation Boulevard Segment 3	COH	UPRR	Long-Term	Medium
8	Lyons Avenue	TIRZ 18	METRO, COH	Near-Term	High
9	Velasco Street	TIRZ 23	UPRR, COH	Near-Term	High
10	Railroad Right-of-Way / The Plant	TIRZ 23	COH, UPRR	Near-Term	High
11	METRORail Connection	TIRZ 23	COH, METRO	Mid-Term	High
12-1	Schweikhardt Street	COH	TIRZ 18	Mid-Term	Medium
12-2	Coke Street	COH	TIRZ 18	Mid-Term	Medium
12-3	Solo Street	COH	TIRZ 18	Mid-Term	Medium
12-4	Providence Street	COH	TIRZ 18	Mid-Term	Medium
12-5	Sonora Street	COH	TIRZ 18	Mid-Term	Medium
12-6	Shotwell Street	COH	TIRZ 18	Mid-Term	Medium

TRANSIT DISTRICT CONNECTIVITY IMPROVEMENT - OVERVIEW



BEFORE TRANSIT DISTRICT
RECOMMENDED IMPROVEMENTS

The Transit District, centered around the Fifth Ward/ Denver Harbor Transit Center, serves as a critical mobility hub and community anchor within the study area. It has strong potential to connect surrounding neighborhoods to regional transit, Buffalo Bayou, and key destinations, but currently lacks safe and comfortable pedestrian and bicycle access.

Key characteristics

1. Major transit hub with significant daily ridership.
2. Centrally located between the Fifth Ward and Denver Harbor neighborhoods.
3. Close to key destinations, neighborhoods, and transportation corridors.

Existing challenges

1. Limited first- and last-mile connections.
2. Discontinuous sidewalks and inadequate bicycle infrastructure.
3. Unsafe crossings and high vehicle speeds.
4. Limited shade, lighting, and pedestrian amenities.
5. Poor connections to surrounding neighborhoods.

Opportunities for Improvement

1. Strengthen pedestrian and bicycle connections within a half-mile radius.
2. Improve crossing safety and intersection design.
3. Enhance shade, landscaping, lighting, and seating.
4. Improve access to Buffalo Bayou and regional trails.
5. Establish the transit center as a welcoming community gateway.

TRANSIT DISTRICT CONNECTIVITY IMPROVEMENT - OVERVIEW

Big Ideas

The Transit District is envisioned as more than a mobility hub — it is a central connection between surrounding neighborhoods, regional transit, and Buffalo Bayou. The goal is to transform the area from a car-oriented, disconnected environment into a safe, walkable district that reflects local identity.

Core ideas

1. Establish the transit center as a community gateway and civic anchor.
2. Strengthen first- and last-mile connections to surrounding neighborhoods.
3. Improve connections to Buffalo Bayou and regional trails.
4. Transform streets into people-centered corridors and public spaces.
5. Integrate mobility, ecology, and placemaking into a cohesive district.

Research & Analysis Steps

The study combined technical analysis, fieldwork, and community engagement to assess existing conditions in the Transit District and identify opportunities for improvement.

Key steps

1. Assess existing sidewalks, bicycle facilities, crossings, and transit connections.
2. Identify and map key barriers, such as railroads, highways, industrial edges, flood-prone areas, and vacant land.
3. Conduct walk and bike audits to evaluate on-the-ground conditions related to safety, comfort, and user experience.
4. Engage stakeholders and the community through meetings, workshops, outreach efforts, and surveys.
5. Define gaps and priority needs focused on improving safety, connectivity, comfort, and access to transit.



BEFORE TRANSIT DISTRICT
RECOMMENDED IMPROVEMENTS

TRANSIT DISTRICT CONNECTIVITY IMPROVEMENT - RECOMMENDATIONS

Opportunity Areas

Opportunities were identified across three integrated systems:

1. Transit, Mobility & Connectivity
Improve pedestrian crossings, expand sidewalks, enhance transit service, and strengthen connections to key destinations.

2. Land Development (Housing, Community, Commerce)
Support infill and redevelopment opportunities

that introduce diverse housing, local businesses, and community-serving facilities.

3. Public Realm & Identity
Enhance streetscapes, introduce green infrastructure, and create civic spaces that strengthen neighborhood identity and experience.

Together, these opportunities respond to community priorities and existing conditions to support a more connected, vibrant, and resilient district.

Scenario-Based Approach

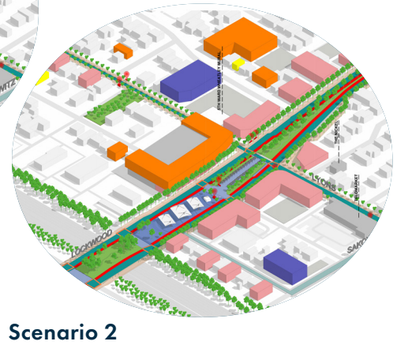
Three scenarios were developed to explore different levels of investment, physical transformation, and long-term impact.



Scenario 1
Central Community Core

Scenario 1 – Central Community Core

- Focus on near-term, achievable improvements within a quarter-mile radius of the transit center.
- Enhance pedestrian access, local streets, and community spaces.
- Support small-scale infill development and local businesses.
- Establish a neighborhood core anchored by a central plaza.



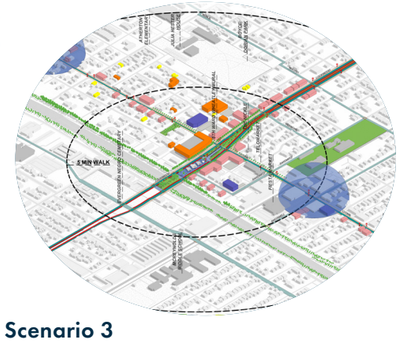
Scenario 2
Dense Core & Gateway

Scenario 2 – Dense Core & Gateway

- Expand improvements along major corridors, including Lyons Avenue and Lockwood Drive, within a half-mile radius of the transit center.
- Encourage higher-density, mixed-use development
- Explore a freeway cap over I-10 to create a gateway connection.
- Attract public-private partnerships and economic investment.

Scenario 3 – Expanded Connectivity & Activity Nodes

- Strengthen connectivity throughout the broader district.
- Introduce rapid transit and major infrastructure upgrades.
- Replace pedestrian bridges and improve highway crossings.
- Develop activity nodes along key corridors to support long-term growth.



Scenario 3
Expanded Connectivity
& Activity Nodes

TRANSIT DISTRICT CONNECTIVITY IMPROVEMENT - RECOMMENDATIONS

Transit District Improvement Recommended Projects

The recommended projects are organized into four key categories, each representing a coordinated set of strategies to improve mobility, connectivity, public space, and development within the Transit District.

S1 – Transit & Mobility Improvements

Enhance transit service, reliability, and passenger experience to strengthen the transit center as a major mobility hub.

Key Projects:

S1.1 - Increase transit service frequency along Lyons Avenue and Lockwood Drive
S1.2 - Expand service hours and improve route coverage
S1.3 - Upgrade bus stops and shelters with shade, seating, and lighting
S1.4 - Improve transit center design for safety and user comfort
S1.5 - Introduce rapid transit / BOOST or ART service corridors

S2 – Connectivity & Street Network Improvements

Create a safe, continuous, and accessible pedestrian and bicycle network that strengthens first- and last-mile connections.

Key Projects:

S2.1 - Fill sidewalk gaps and widen existing sidewalks
S2.2 - Improve pedestrian crossings at major corridors and barriers (I-10, railroads)
S2.3 - Add new rail crossing at Union Pacific Railroad (Hillsboro connection)
S2.4 - Enhance streetscapes with trees, lighting, and wayfinding
S2.5 - Develop a continuous green mobility spine along Lockwood
S2.6 - Replace outdated pedestrian bridges with safer, accessible crossings.

S3 – Public Realm & Placemaking

Transform underutilized spaces into vibrant, community-oriented environments that support identity, gathering, and daily activity.

Key Projects:

S3.1 - Create a central plaza at the transit center (convert parking to flexible civic space)
S3.2 - Develop community gathering spaces for markets, events, and recreation
S3.3 - Implement freeway cap park at Lockwood over I-10 as a gateway feature
S3.4 - Integrate public art, branding, and cultural identity elements
S3.5 - Introduce green infrastructure (bioswales, rain gardens, street trees)
S3.6 - Connect to greenway trails and Buffalo Bayou

S4 – Land Development & Economic Opportunities

Leverage vacant and underutilized land to support housing diversity, economic growth, and community-serving uses.

Key Projects:

S4.1 - Develop small-scale infill housing (duplexes, townhomes, small multifamily)
S4.2 - Support mixed-use redevelopment near the transit center
S4.3 - Introduce community-serving facilities (clinics, nonprofit centers, co-working spaces)
S4.4 - Activate commercial spaces (retail hubs, food markets, local businesses)
S4.5 - Encourage public-private partnerships for larger redevelopment sites
S4.6 - Implement TOD policies to support walkable, transit-oriented development



Final Recommendations

The implementation strategy adopts a flexible, phased approach that aligns transportation improvements with funding, policy, and development opportunities to create a more connected and accessible Transit District.

Short-Term: Low-cost upgrades such as sidewalks, crossings, lighting, and improved transit access to enhance safety and usability.

Mid-Term: Corridor enhancements including streetscape improvements, better transit service, and infill development to strengthen connectivity and activity.

Long-Term: major investments, including a potential freeway cap, rapid transit, and large-scale redevelopment, to support long-term growth and district transformation.

Implementation Approach

Successful implementation will require coordinated partnerships, supportive policies, strategic funding, and continued community engagement.

Key Enablers

Successful implementation relies on:

- Public-private partnerships to support redevelopment and large-scale projects.
- Policy alignment (TOD, zoning, and funding programs) to enable compact, walkable development.
- A phased funding strategy combining local, regional, and federal sources.
- Community engagement to reflect local needs and priorities.

These factors support coordinated, long-term implementation of the proposed improvements.



Implementation Timeline

Phase 1: Near-Term Infrastructure Improvements

Focus on foundational improvements within a ½-mile radius of the transit center, including filling sidewalk gaps on secondary streets, improving main streets, and enhancing pedestrian crossings along Lyons Avenue. This phase also includes pursuing Transit-Oriented Development (TOD) designation along Lockwood Drive and Lyons Avenue through the City of Houston Planning and Development Department to guide future walkable, transit-supportive development.

Phase 2: Near-Term Recreational and Public Space Development and Placemaking

Establish a green spine along Lockwood Drive on the north side of the transit center and implement placemaking improvement along Lyons Avenue. Key projects include greenway trails and a flexible community plaza. These improvements create recreational opportunities, strengthen connectivity, and establish a recognizable identity for the transit district serving Fifth Ward and Denver Harbor.

Phase 3: Mid-Term Gateway and Development

Support neighborhood revitalization and economic growth through mixed-income multifamily housing with a shared parking garage, a freeway cap park, and a job training center. These projects aim to promote equitable development, stimulate commercial activity, and strengthen neighborhood connections.

Phase 4: Long term Connectivity and Transit Expansion

Expand regional connectivity through the replacement and enhancement of pedestrian bridges, development of community activity nodes, and introduction of rapid transit service along key corridors. These investments will improve mobility and support long-term growth throughout the Transit District. The recommended projects represent transformation infrastructure investments that reconnect the communities of Fifth Ward and Denver Harbor, while improving mobility and access to transit. These initiatives strengthen connections to existing assets, introduce new civic and public spaces, and enhance transit services.

Together, the projects establish a stronger identity for the transit district while creating a pathway for future connectivity improvements and transit-oriented growth. By improving mobility and access, the recommendations support community vitality and create opportunities for economic development and long-term prosperity.

TRANSIT DISTRICT CONNECTIVITY IMPROVEMENT - COST ESTIMATES AND FUNDING OPPORTUNITIES

Projects within the Transit District can leverage a combination of federal grants, local funding, and public-private partnerships to support implementation. Smaller-scale improvements may be funded through targeted grants, while major infrastructure investments will likely require multiple funding sources and coordinated partnerships.

Potential Funding and Incentive Opportunities:

U.S. Department of Transportation (USDOT)

- Reconnecting Communities Pilot Program
- Safe Streets and Roads for All (SS4A) Grant Program
- Better Utilizing Investments to Leverage Development (BUILD) Grant
- Transit-Oriented Development (TOD) Financing
- Railroad Crossing Elimination Grant Program

State and Local Funding

- Transportation Alternatives Program (TAP) – TxDOT
- City of Houston Capital Improvement Program (CIP)
- Partnership with TIRZ 19 for public art, landscaping, and maintenance
- Opportunity Zone investment incentives

U.S. Department of Housing and Urban Development (HUD)

- Community Development Block Grant (CDBG) Program

COST ESTIMATE SUMMARY

PROJECT NUMBER	PROJECT TITLE	COST RANGE	
		SCENARIO 2 PROJECTS	SCENARIO 3 PROJECTS
S1.1	Transit Service Improvements	N/A	
S1.2	Shelter Improvements	>$1M - $10M	
S1.3	Transit Center Modernization	$1M - $4M	
S1.4	Rapid Transit		Non Incl.
S2.1	Flexible Transit Plaza	$8M - $30M	
S2.2	Median Greenway Trail	$1M - $10M	
S2.3	Freeway Cap Park	$40M - $100M	
S2.4	Freeway Landscape	>$1M	
S2.5	Streetscape Improvements	>$1M - $8M	
S2.6	Secondary Street Sidewalk Improvements	$3M - $10M	
S2.7	Main Street Improvements	$1M - $10M	
S2.8	Connectivity Street Improvements		$10M - $50M
S2.9	UPRR Crossings	Non Incl.	
S2.10	Pedestrian Bridge Improvements		$30M - $60M
S2.11	Lyon's Nodes		$1.5M - $10M
S3.1	TOD Street Designation	N/A	
S3.2	Mixed-Use Housing	$45M - $80M	
S3.3	Job Training Center	$8M - $15M	
S4.1	Community Programming	N/A	
S4.2	Community Services	Non Incl.	
TOTAL		$109M - $277M	$41.5M - $120M

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PART I:

ACTIVE TRANSPORTATION NETWORK

EXISTING CONDITIONS

PROJECT OVERVIEW

The Connecting Buffalo Bayou East Project Existing Conditions Assessment represents the first phase of a comprehensive planning effort to enhance pedestrian and bicycle connectivity across Houston's East Side. Building on the Buffalo Bayou East Master Plan and aligning with the Houston-Galveston Area Council's (H-GAC's) regional mobility goals, this foundational assessment provides a multidimensional, data-informed understanding of existing infrastructure, community needs, and environmental conditions across the historically underserved neighborhoods of Greater Fifth Ward, Denver Harbor, Second Ward, and Magnolia Park.

Anchored by Buffalo Bayou Partnership's long-term vision, the study focuses on three priority corridors:

- Gregg Street to Velasco Street connection;
- Japhet Creek Park to the Fifth Ward/Denver Harbor Transit Center connection;
- Northside Treatment Plant East Trail.

The assessment also lays the groundwork for reimagining the Fifth Ward / Denver Harbor Transit Center as a vibrant neighborhood anchor—enhancing placemaking, strengthening community identity, and supporting community-serving development.

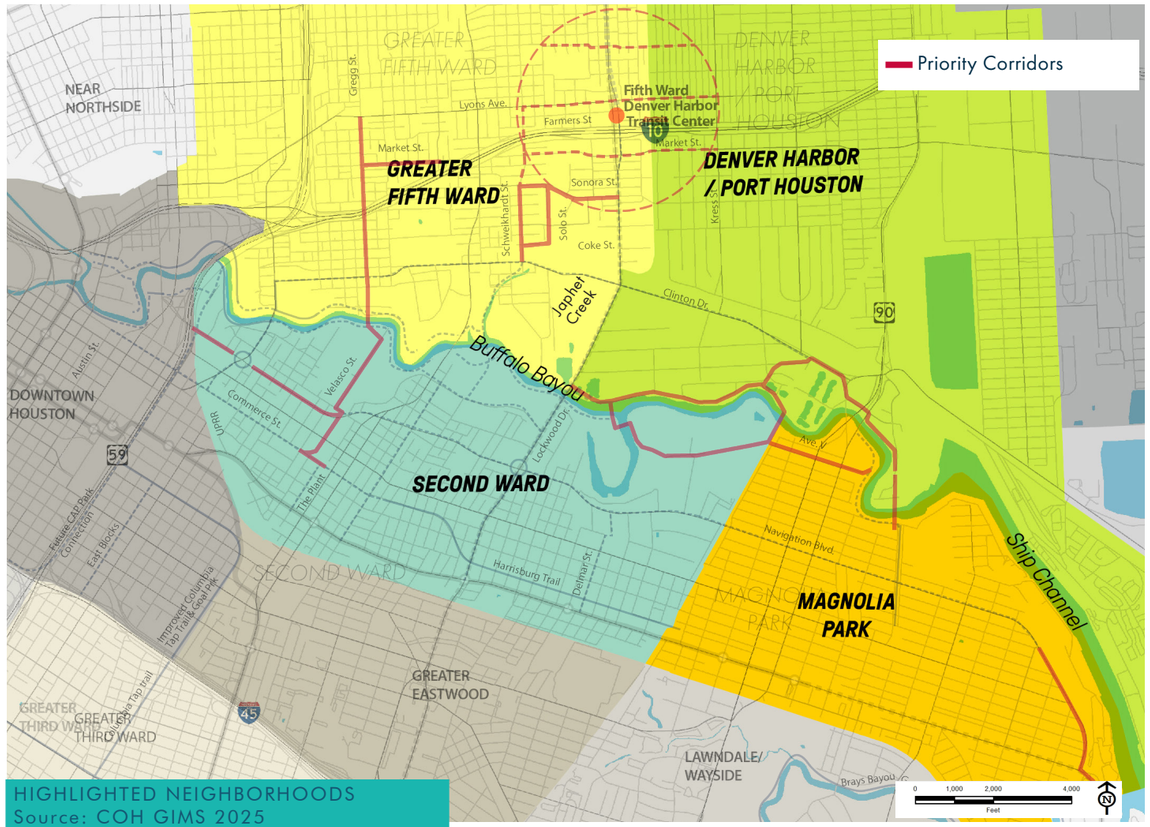
The assessment integrates multiple layers of analysis, including GIS-based mapping, crash and safety data, land-use and demographic analysis, and environmental-equity screening using H-GAC's Regional Equity Tool. It also synthesizes public input gathered through walk and bike audits, public surveys, site visits, and a series of meetings with the Steering Committee, Community Stakeholders and Neighborhood Focus Groups, and local residents. These inputs contribute to a holistic understanding of user experience and help identify key barriers to active mobility, gaps in infrastructure, and community-defined priorities.

Phase I findings highlight the need for safer crossings, more equitable access, improved first-and-last-mile connections to transit, and an active-mobility network that reflects local culture while supporting everyday pedestrian and bicycle travel. The outcomes of this phase will serve as the foundation for Transit District improvement scenario development and active transportation design strategies in Phase II, during which opportunity maps and conceptual frameworks will translate assessment insights into targeted, implementable solutions.



STUDY AREA AERIAL
Source: Google Earth 2025

FIGURE AT1 - BUFFALO BAYOU EAST AERIAL PHOTO



HIGHLIGHTED NEIGHBORHOODS
Source: COH GIMS 2025

FIGURE AT2 - CONNECTING BUFFALO BAYOU EAST NEIGHBORHOODS

The four neighborhoods within the Connecting Buffalo Bayou East study area, shown in Figure AT2, have unique histories and needs that make them strong candidates for active transportation improvements.

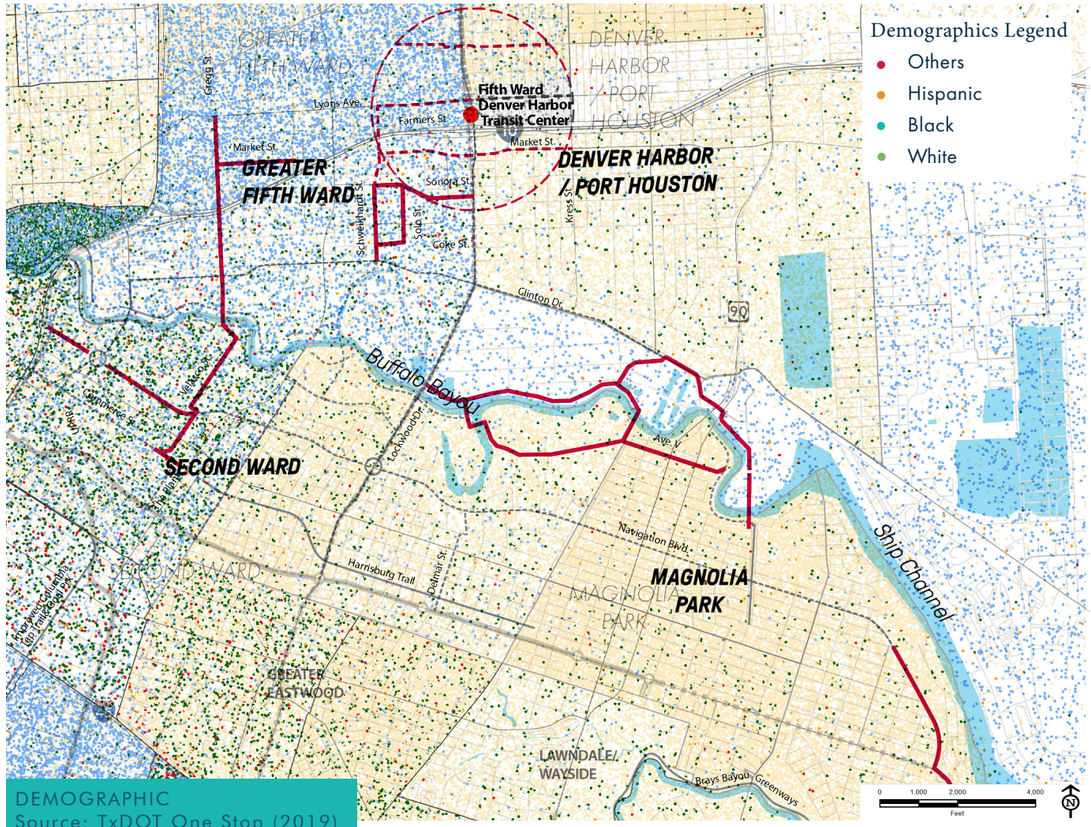
Greater Fifth Ward is a historically Black neighborhood with deep cultural roots and strong community pride. However, it faces aging infrastructure and limited safe options for walking and biking. Enhancing active transportation infrastructure here supports equitable redevelopment and improves access to schools, jobs, and local landmarks.

Denver Harbor is a working-class, transit-adjacent community with a strong multicultural identity, but it is constrained by physical barriers such as highways and rail lines that limit safe and direct connections.

In Second Ward, new development pressures and existing infrastructure gaps threaten walkability in a neighborhood rich in Latino heritage and local businesses. Investing in safe, inclusive mobility and stronger connections is essential to maintaining community stability. Areas along Buffalo Bayou and Japhet Creek are ecologically rich yet remain physically disconnected from the surrounding community.

Magnolia Park is a proud, historic neighborhood located within Houston's industrial corridor and faces some of the city's most significant infrastructure constraints. Surrounded by rail lines, freight routes, and heavy truck activity, residents are often isolated from nearby destinations. Improving pedestrian and bicycle connections would help reclaim public space and enhance overall quality of life.

AREA DEMOGRAPHICS



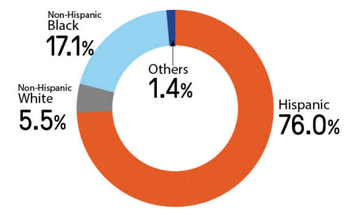
DEMOGRAPHIC
Source: TxDOT One Stop (2019)

FIGURE AT3 - DEMOGRAPHIC

Denver Harbor, Greater Fifth Ward, Second Ward, and Magnolia Park are predominantly Hispanic neighborhoods with distinct socioeconomic profiles. Greater Fifth Ward is the most racially diverse (47% Hispanic and 42% Black) and faces the greatest economic challenges, including the lowest median household income ($39,893) and lower levels of educational attainment.

Denver Harbor and Magnolia Park are over 90% Hispanic and have median household incomes near $49,000, with only about 5% of residents holding college degrees. Second Ward, while still experiencing economic hardship, shows somewhat greater economic stability with a higher median income ($53,238) and a larger share of residents with college degrees (18.5%).

POPULATION DISTRIBUTION BY RACE, SEX, AGE, POVERTY, AND ENGLISH PROFICIENCY



TOTAL POPULATION (2019)
57, 942

94.5% of the population is Minority, compared to the Texas minority population of 58%.

89.0% of the population under 65 years old

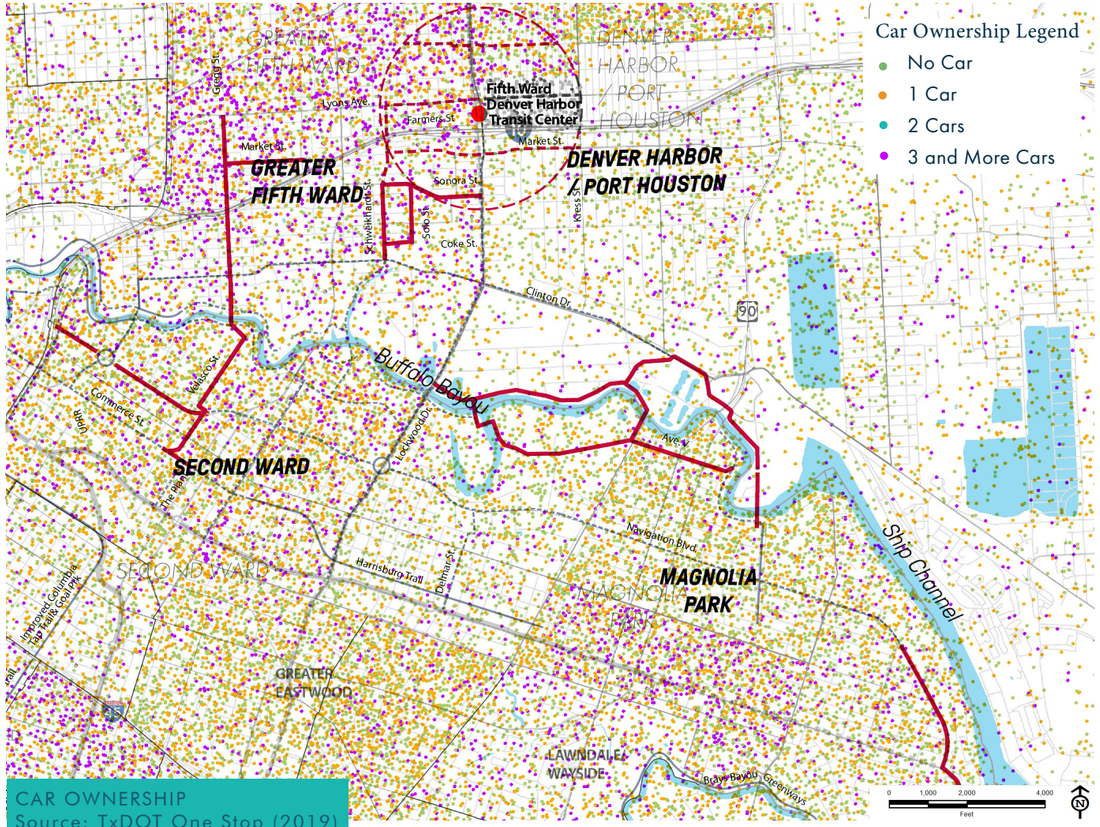
51.2% of the population is Male

26.1% of the total population has Limited English Proficiency (LEP), compared to the Texas LEP of 9%

32.5% of the total population is living below the federal poverty level ($12,490 for a single person), significantly higher than the Texas average of 14.41%

FIGURE AT4 - POPULATION DISTRIBUTION

CAR OWNERSHIP



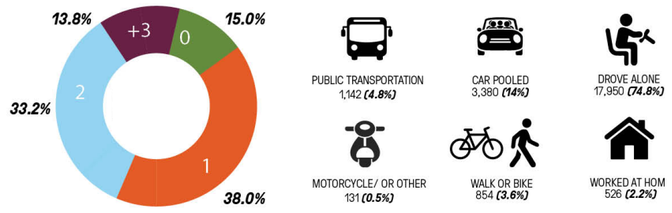
CAR OWNERSHIP
Source: TxDOT One Stop (2019)

FIGURE AT5 - CAR OWNERSHIP

Across the four neighborhoods, more than 85% of households own at least one vehicle; however, a significant 15% have no access to a car and rely entirely on alternative transportation modes. Even among the 38% of households with only one vehicle, competing travel needs within families often require individuals to depend on public transit, walking, or biking.

These patterns highlight the need for more equitable transportation options—particularly in areas where transit service is limited and active transportation infrastructure remains underdeveloped.

CAR OWNERSHIP AND TRAVEL MODES TO WORK



TRAVEL TIMES TO WORK (average minutes to work by census tract)

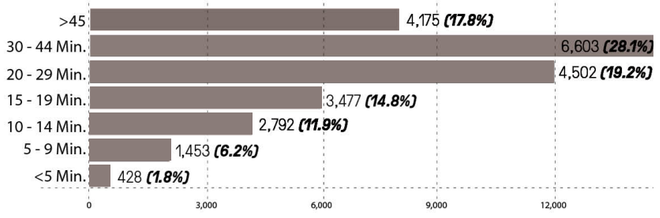


FIGURE AT6 - CAR OWNERSHIP AND TRAVEL MODES TO WORK

KEY COMMUNITY DESTINATIONS

There are multiple key community destinations that play an essential role in neighborhood life for the study area. Parks such as Tony Marron Park and Japhet Creek Park, along with regional trails like the Harrisburg Trail and Sunset Trail, provide significant recreational and mobility benefits.

However, access to these destinations is constrained by physical barriers, including railroads, heavy truck routes, highways, and bayou crossings. Strengthening pedestrian and bicycle connections between these assets would enhance equity, improve safety, and support community resilience—particularly for households without vehicles and neighborhoods with limited transit service.

Key Destinations Identified in Figure AT7 include:

- Fifth Ward/Denver Harbor Transit Center
- Bruce Elementary & Swiney Community Center
- Wheatley High School / Henderson Elementary / David Burnet Elementary
- Fifth Ward Multi-Service Center
- BBP East Gateway/ Tony Marron Park / Japhet Creek Park / Buffalo Bend Park / Hidalgo Park
- Lockwood on Buffalo Bayou/ East River / The Plant
- Lockwood METRORail / Altic METRORail
- Sunset Trail / Harrisburg Trail / Brays Bayou Greenway Trail / Lyons Bikeway

A connected trail and bikeway network linking these key community destinations:

- Reduces reliance on cars—especially for the 15% of households without one.
- Improves safety for youth, elderly, and transit riders.
- Strengthens social ties and economic participation across neighborhoods.
- Helps bridge historic divides caused by infrastructure and industrial land use.

COMMUNITY DESTINATIONS
Source: COH GIMS (2024), BUFFALO BAYOU EAST MASTER PLAN (2023)

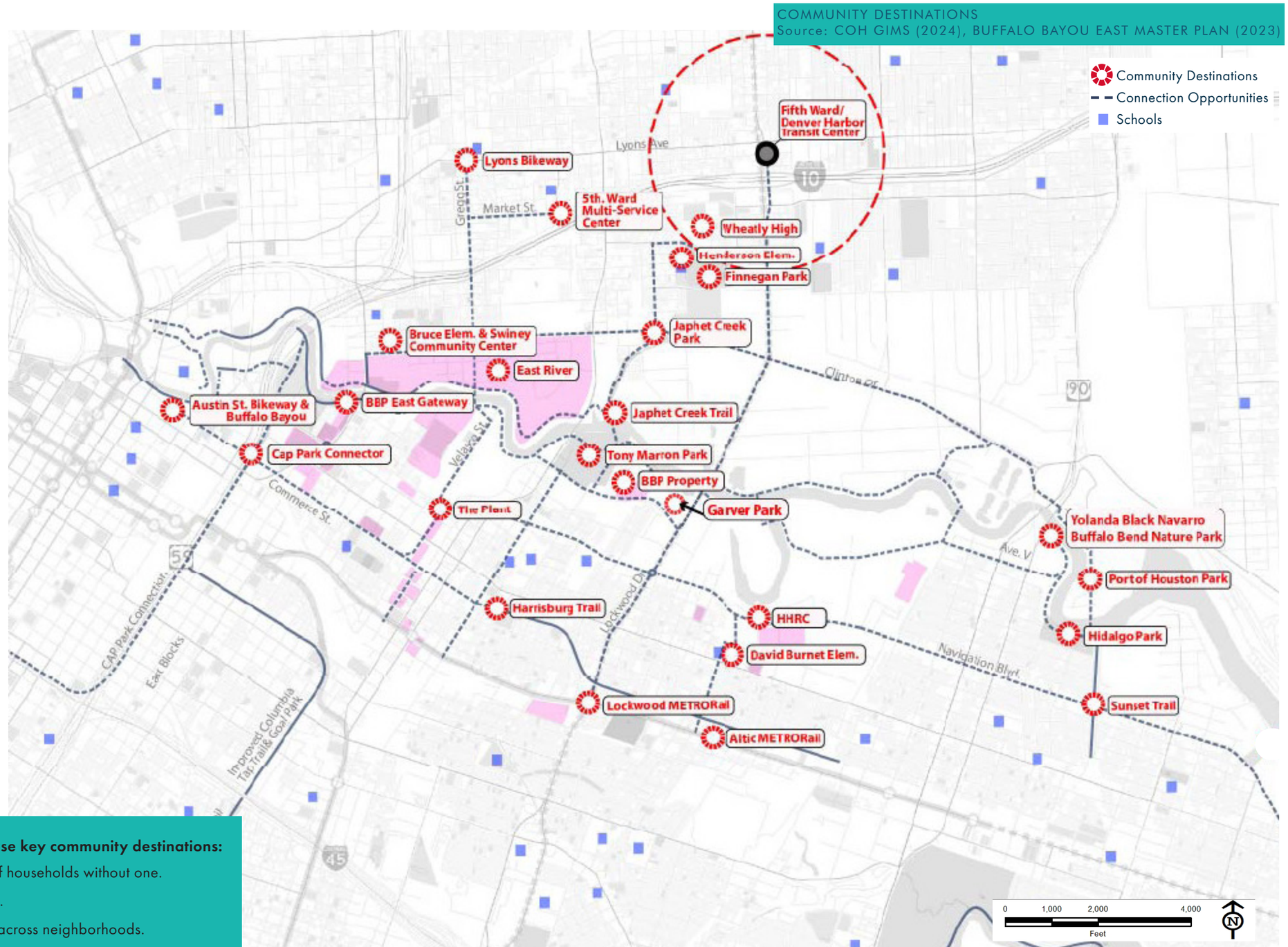


FIGURE AT7 - KEY COMMUNITY DESTINATIONS

BARRIERS, TREE CANOPY, FLOODING, LAND USE

Industrial land use patterns reveal extensive railroad networks, rail yards, and heavy truck corridors, particularly concentrated around Denver Harbor/ Port Houston, Magnolia Park, and portions of Second Ward (Figure AT8). These transportation and industrial systems intensify noise and air pollution and significantly limit opportunities to expand green space.

Flood-risk analysis shows substantial floodplain areas (blue) along Buffalo Bayou, as well as numerous street-ponding hotspots (brown), indicating elevated vulnerability to flooding—particularly in low-lying areas of Magnolia Park, Second Ward, and Greater Fifth Ward (Figure AT10).

Land cover data indicates that impervious surfaces (grey) dominate the study area, covering nearly 79% of all land, while tree canopy (green) is extremely limited at only 1.87% (Figure AT9). Plantable areas (light green) make up approximately 17%, and water bodies (dark red) account for 2.27%.

This distribution contributes to significant urban heat island effects, particularly in neighborhoods with dense infrastructure and limited vegetation. The severe lack of tree canopy, combined with the extent of impervious surface, leads to excessive heat retention, reduced air quality, and increased energy demand.

However, the presence of plantable areas provides meaningful opportunities for targeted greening and tree-planting strategies that could substantially improve thermal comfort, ecological function, and community resilience.

Vacancy patterns show clusters of unoccupied buildings and vacant land (grey), as well as concentrations of industrial uses (light purple), near major rail lines, heavy truck routes, and segments of the Buffalo Bayou corridor (Figure AT11). These patterns highlight both opportunities for reinvestment and the need to integrate environmental mitigation strategies into future planning efforts.

Source: COH RAILWAY & HEAVY TRUCK TRAFFIC ROUTE/H-GAC LANDUSE 2025

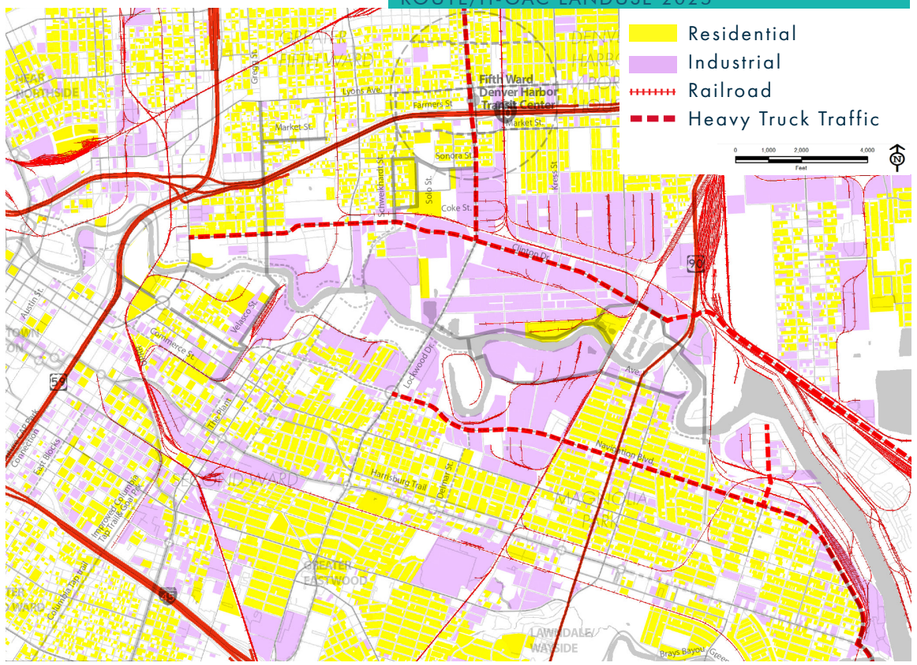


FIGURE AT8 - RAILROADS, HEAVY TRUCK TRAFFIC ROADS AND INDUSTRIAL LAND

Source: HCFCD FLOODPLAIN AND PONDING 2025

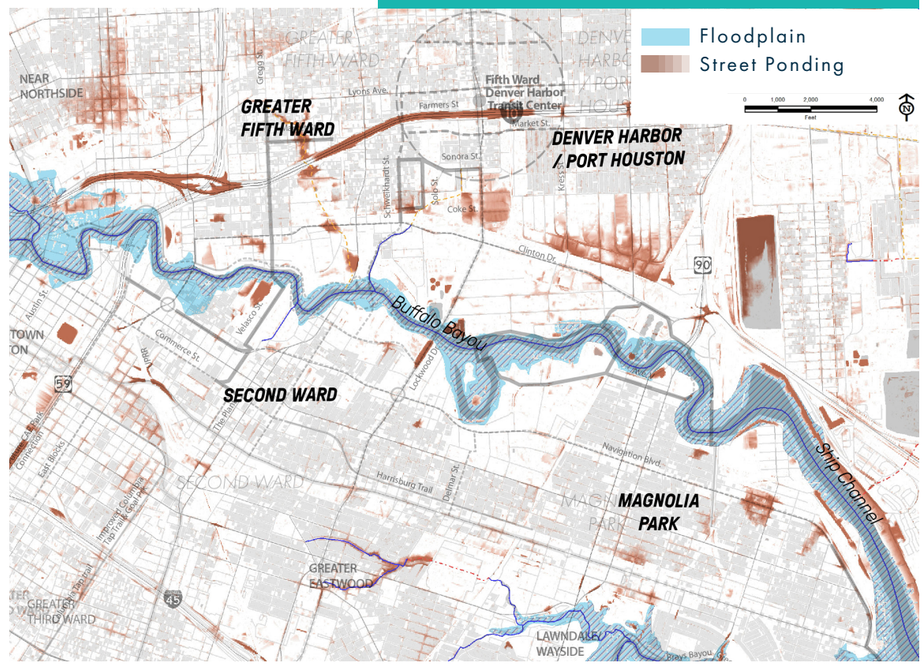


FIGURE AT10 - FLOODPLAIN AND STREET INUNDATION MAP

Source: H-GAC URBAN FORESTRY, 2024

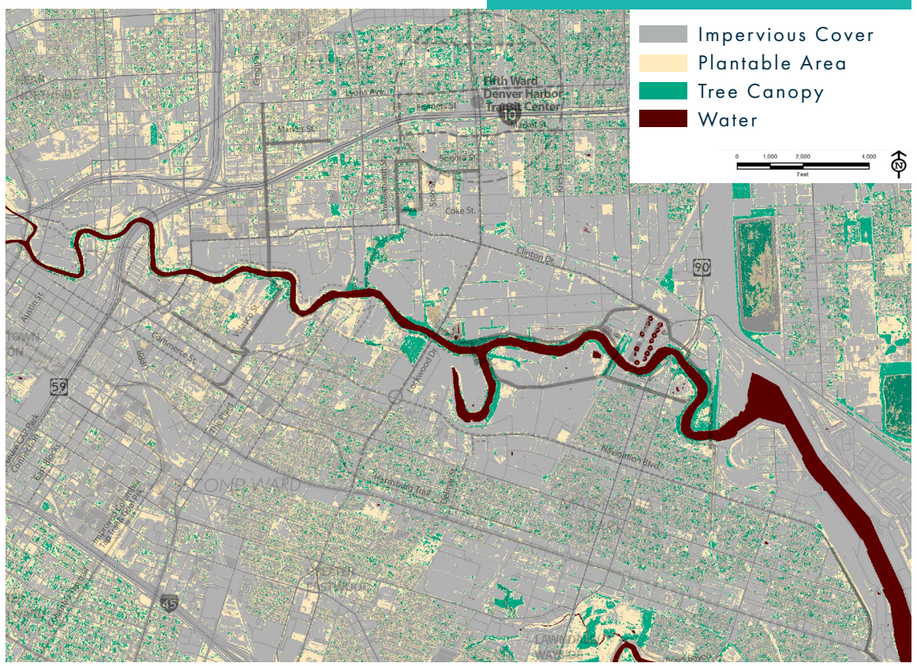


FIGURE AT9 - TREE CANOPY COVERAGE

Source: H-GAC LAND USE 2025

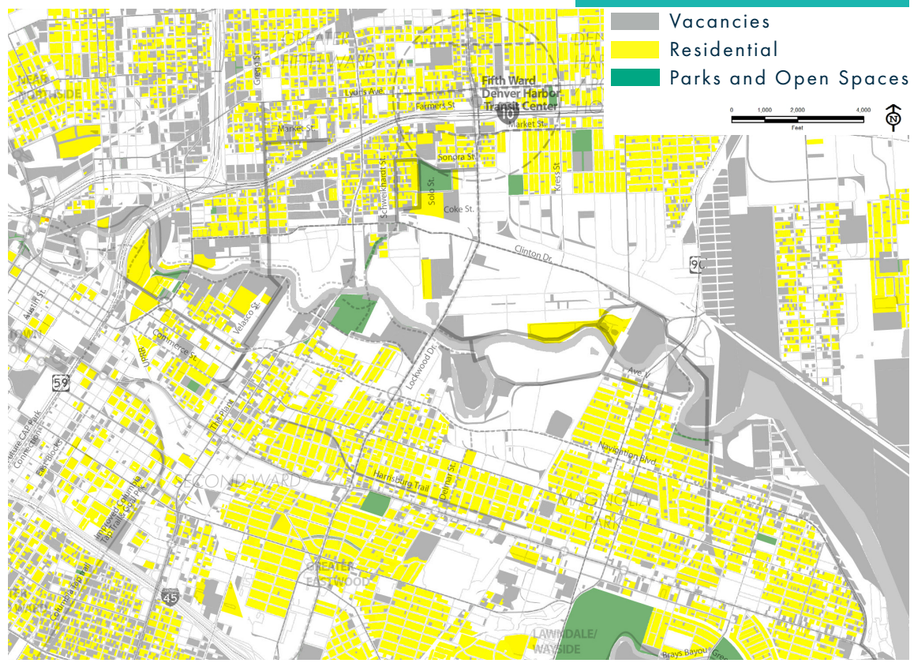


FIGURE AT11 - PARK AND OPEN SPACES, INDUSTRIAL AND VACANT LAND USE

RESILIENCE

This analysis reveals potential resilience gaps in post-storm power restoration, where residential neighborhoods—particularly majority Black and Hispanic communities—appear to have experienced prolonged outages compared to industrial areas. Figures AT12 and AT13 illustrate the impact and inequity in power restoration following a thunderstorm-related outage in April 2025. The heat maps show widespread outages across Greater Fifth Ward, Denver Harbor, Second Ward, and Magnolia Park immediately after the storm. However, one month later (May 2025), large portions of residential neighborhoods—particularly those in majority Black and Hispanic communities, still remained without power.

In contrast, industrial zones (Figure AT14, marked in purple on the land use map) appear to have regained electricity far more quickly. These areas, concentrated along rail corridors and major roadways, were prioritized for restoration, likely due to their economic role and infrastructure access. This spatial pattern reveals a stark disparity: residential neighborhoods (Figure AT15, marked in yellow and orange on land use map), especially lower-income and historically underserved ones, experienced prolonged vulnerability during the recovery period.

Critical improvements could include distributed energy systems, resilient microgrids in schools or community centers, and targeted infrastructure investment in neighborhoods consistently left behind. Aligning energy justice with land use and recovery planning will be essential for protecting vulnerable communities in future climate events.

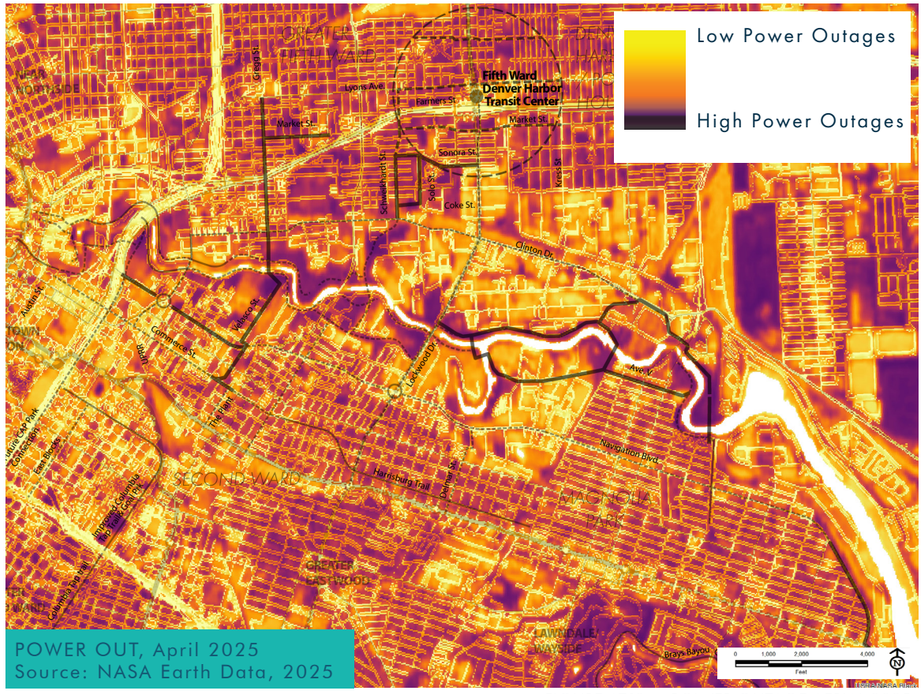


FIGURE AT12 - POWER OUTAGE AERIAL 2025

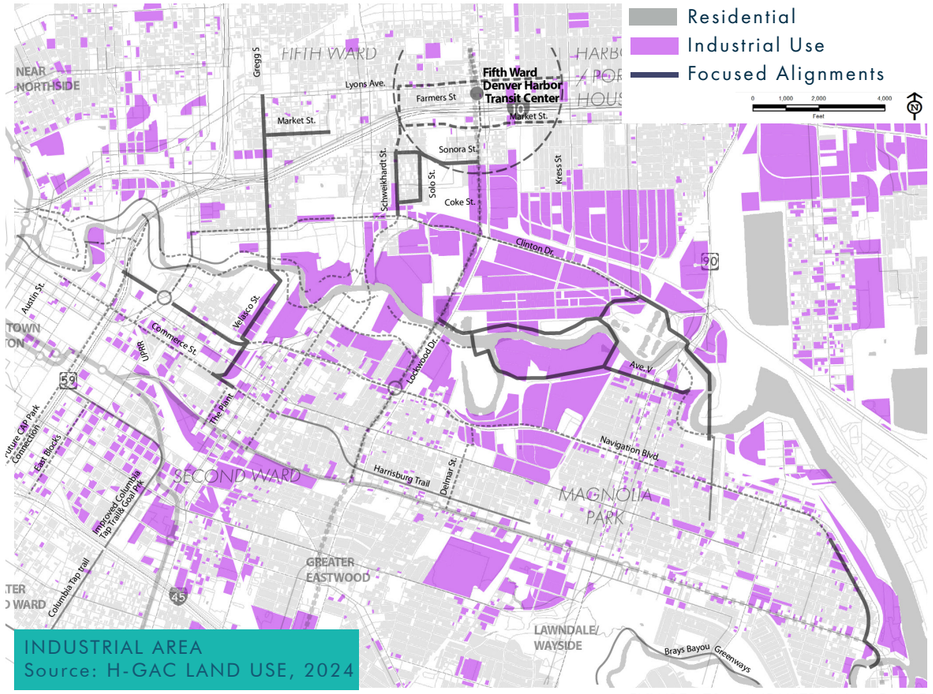


FIGURE AT14 - INDUSTRIAL LAND USE

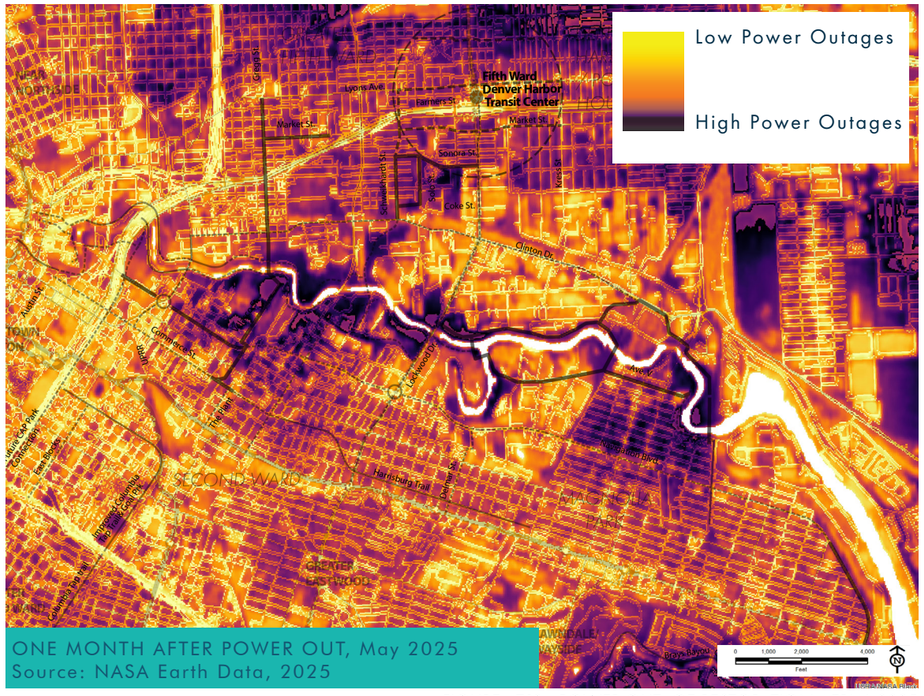


FIGURE AT13 - POWER OUTAGE RESTORATION AERIAL 2025

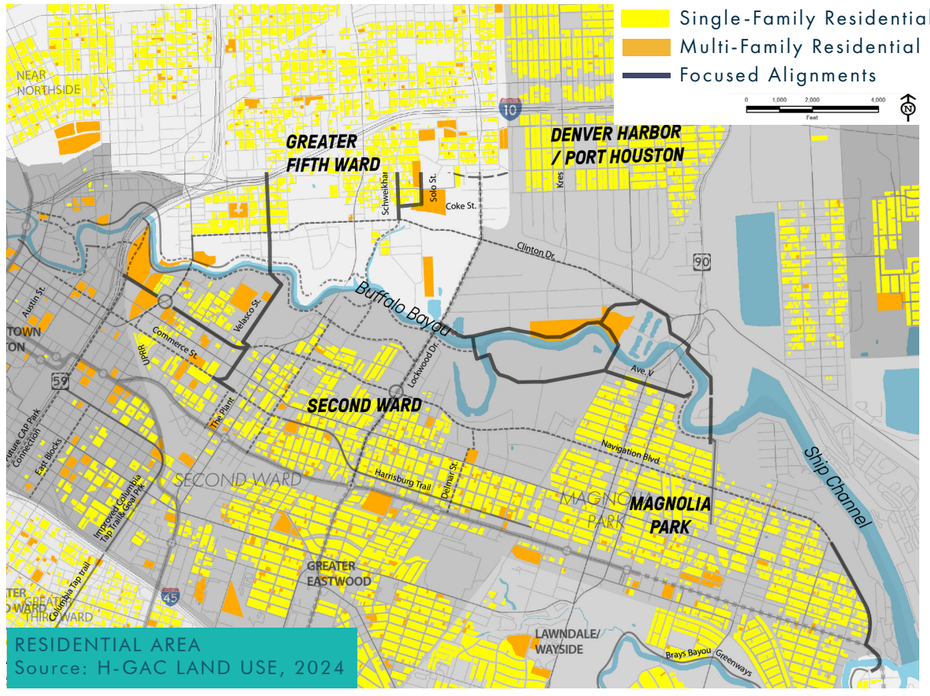


FIGURE AT15 - RESIDENTIAL AREA

COMMUNITY VULNERABILITY

Vulnerabilities are heavily clustered along Buffalo Bayou and the adjacent rail and industrial corridors, reflecting long-standing land-use patterns and historic disinvestment.

Connectivity improvements and resilience planning should prioritize the northeastern portion of the study area—particularly Greater Fifth Ward, Second Ward, and Denver Harbor, where concentrations of vulnerability are most pronounced. Environmental justice, equitable infrastructure investments, and multilingual outreach must be central components of future planning efforts.

Greater Fifth Ward

A historically underserved neighborhood characterized by high poverty rates, aging rental housing, and limited mobility options.

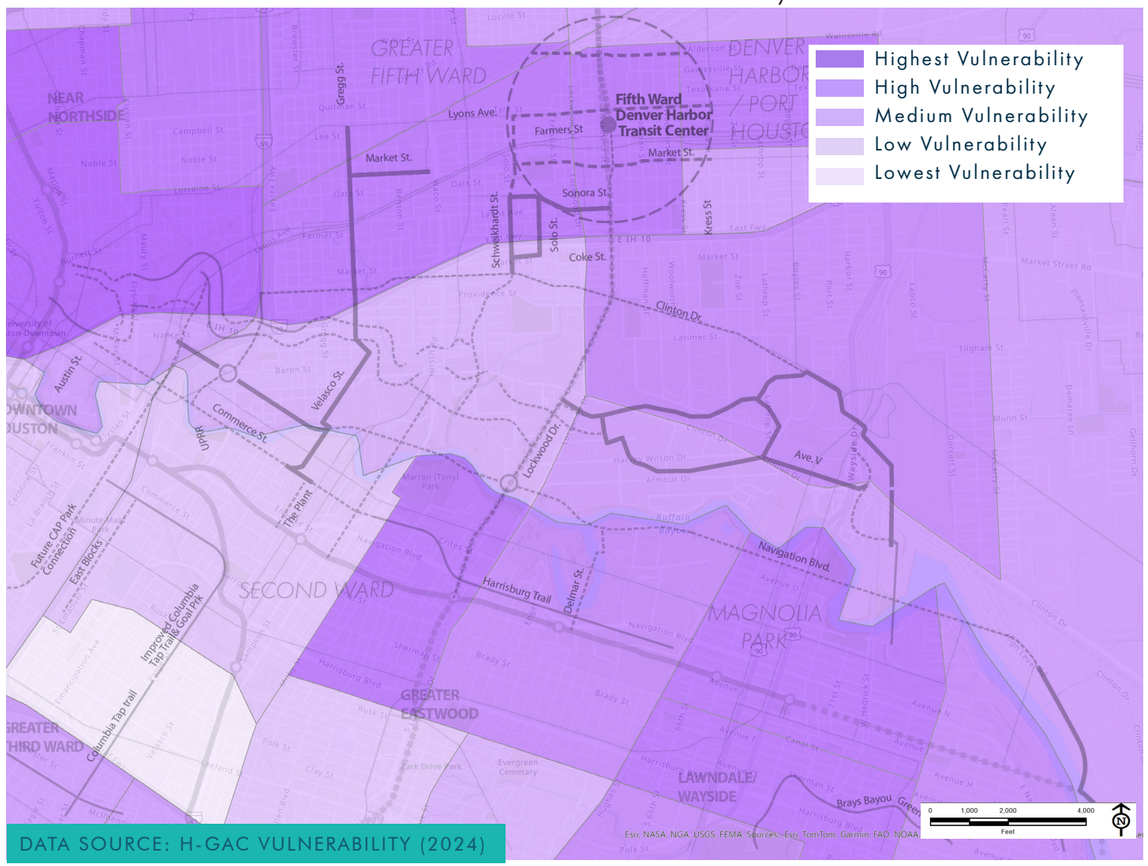
While the community benefits from strong social networks, it remains highly vulnerable to heat, flooding, and infrastructure disruptions.

Denver Harbor

A predominantly Latino, working-class community located near industrial uses and major freight corridors. These surrounding land uses and transportation facilities present potential environmental and mobility challenges, highlighting the importance of improving access to safe, accessible public spaces.

Second Ward

A neighborhood in transition, balancing redevelopment pressures with a long-standing industrial presence. A high renter population and limited tree canopy contribute to both housing and heat vulnerability.



DATA SOURCE: H-GAC VULNERABILITY (2024)

FIGURE AT16 - VULNERABILITY AND JUSTICE 40 MAP

TRIP ORIGIN/ DESTINATION

The Connecting Buffalo Bayou East study has the potential to reshape how people move, play, and connect across the bayou in this part of Houston. It represents an opportunity to link neighborhoods, bridge the bayou, and create spaces where walking, biking, and gathering feel natural and safe. Achieving this vision will require thoughtfully improving access to, from, and across the bayou.

Replica data from TxDOT shows that nearly 280,000 trips occur daily to, from, and within the Buffalo Bayou East Study Area. While just over a quarter of these trips start and end within the area, the majority connect to destinations beyond it. Most trips are made by private vehicle, but nearly one-third of travel within the study area occurs on foot.



FIGURE AT17 - TRIP ORIGIN/DESTINATION (REPLICA, 2024)

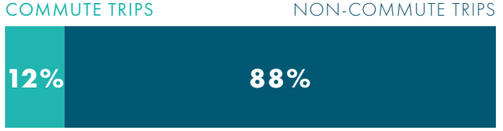


FIGURE AT18 - CITY OF HOUSTON TRIP TYPES (H-GAC TRAVEL DEMAND MODEL TRIP DISTANCE OUTPUTS, 2019)

As the Buffalo Bayou trail system extends into the area, walking and biking activity—both along the bayou trails and across the bayou and surrounding neighborhoods—is expected to grow, emphasizing the importance of safe, accessible pedestrian and bicycle infrastructure.

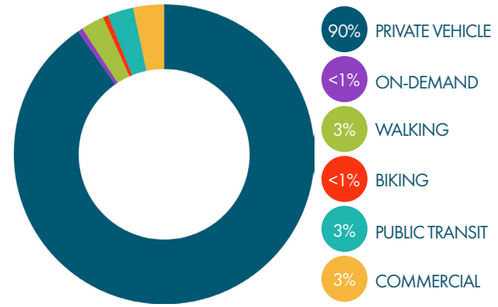


FIGURE AT19 -MODE CHOICE FOR INBOUND TRIPS (REPLICA 2024)

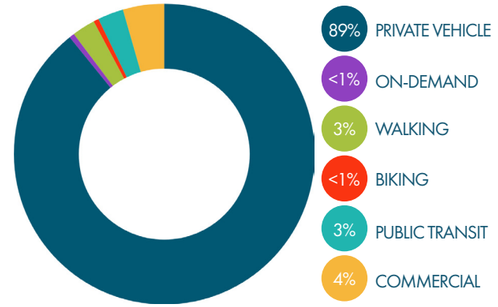


FIGURE AT20 - MODE CHOICE FOR OUTBOUND TRIPS (REPLICA 2024)

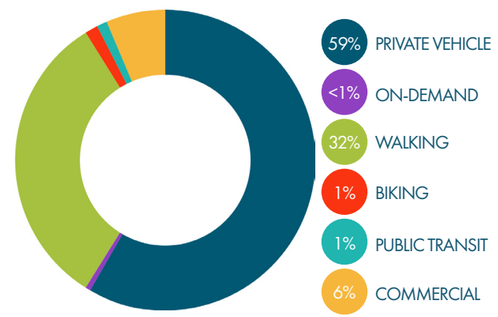


FIGURE AT21 - MODE CHOICE FOR INTRA-STUDY AREA TRIPS (REPLICA 2024)

STUDY AREA DEFINITION

Buffalo Bayou East was designed to prioritize pedestrian and bicycle access, with amenities that support walking, cycling, and recreational activities.

As Buffalo Bayou East's trail network and amenities expands eastward, ensuring connectivity from surrounding neighborhoods to the bayou will be critical to expanding residents' access to recreational opportunities and supporting community health.

To evaluate potential access improvements, a half-mile buffer was delineated around existing and programmed Bayou facilities. This buffer—representing an average ten-minute walk—defines the primary pedestrian catchment area.

From there, key destinations were identified within or immediately beyond these walk sheds. These features, including schools, community centers, parks, transit stops, and trailheads, act as anchors for mobility to, from, and across the Bayou.

After formalizing these destinations, the team reviewed existing conditions and planning documents—including the Houston Bike Plan, East End Bike Plan, and Buffalo Bayou East Master Plan—to identify the key mobility arteries that offer the most usable and feasible connections between Buffalo Bayou and the surrounding communities.

These focus corridors are highlighted in Figure AT22 at right.

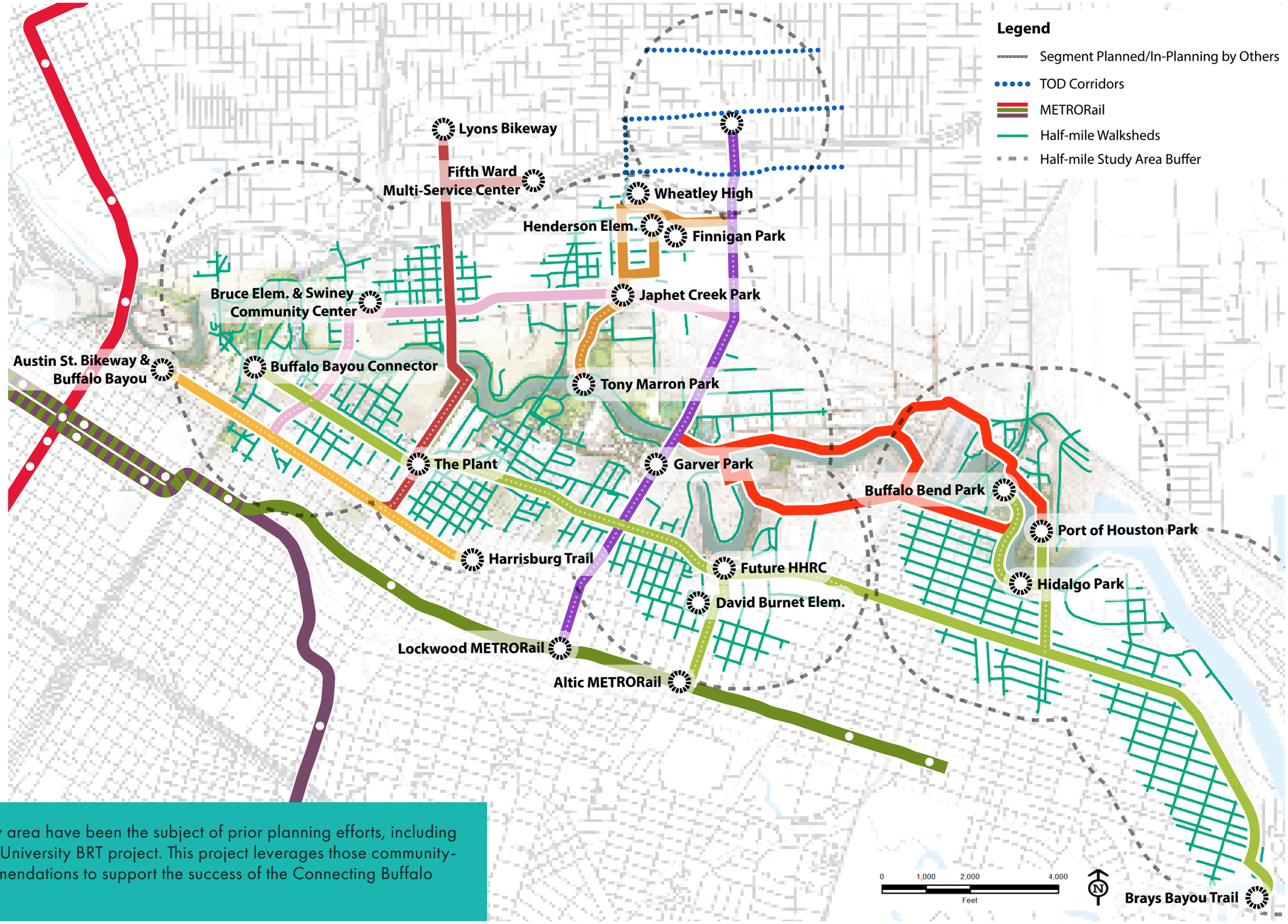


FIGURE AT22 - STUDY AREA DEFINED FOCUSED ALIGNMENTS

Many of the focus corridors in the study area have been the subject of prior planning efforts, including the East End Bike Plan and the METRO University BRT project. This project leverages those community-supported plans with additional recommendations to support the success of the Connecting Buffalo Bayou East Project.

CORRIDOR CHARACTERISTICS

The study area includes corridors that are the focus of the analysis conducted throughout the report.

The streets included in the study area range from local streets to major thoroughfares. Figure AT23 lists those streets, their segment ID, and significant data about their existing conditions, including traffic volumes, right of way and pavement widths, and planning designation. These streets correspond with those highlighted in maps throughout the report as primary examples of analysis.

The street segments summarized were abstracted from a range of past planning efforts and infrastructure studies completed across the Second Ward, Fifth Ward, and surrounding neighborhoods. These include major initiatives such as H-GAC's Livable Centers Studies (East End, Fifth Ward, EaDo), H-GAC's East End Mobility Plan, the East End Bike Plan, Vision Zero Action Plan, and the Houston Bike Plan, as well as capital projects like the Navigation Boulevard Reconstruction, East End Street Revitalization, and Harrisburg Boulevard improvements.

Additional references include resiliency and flood control studies by Harris County Flood Control District (HCFCD) and U.S. Army Corps of Engineers (USACE), along with METRO's light rail expansion and urban design guidelines. Together, these sources provide the foundation for identifying the twenty-one focus corridors, documenting their existing conditions, and defining proposed improvements.

See the full list of previous studies in Appendix.

Figure AT24 illustrates the 21 streets listed in the table. Each segment is categorized according to the existing road characteristics and its planning status.

Corridor	Segment ID	Planning Status	Street	From	To	MTFP Class	Average Daily Traffic Volume	Speed Limit (mph)	85th Percentile Speed	Right of Way (ft)	Pavement Width (ft)	Number of Lanes	Median
Commerce	CO1	Focus Corridor	Commerce St	Austin St	Union Pacific Railroad	Major Collector	4,291	30	26	80	30	2 - 3	N
	CO2	Planned by Others		Union Pacific Railroad	Velasco St		NA		NA	80	50 - 60	2	
	CO3			Velasco St	Harrisburg Trail		NA		NA	55 - 80	30 - 40	2	
Navigation	NA1	Focus Corridor	Runnels St	Buffalo Bayou Connector	Navigation Blvd/ Jensen Dr	Major Collector	NA	30	NA	70	45	2	Y
			Navigation Blvd	Navigation Blvd/ Jensen Dr	Velasco St	Major Thoroughfare	11,682	35	35.5	120	90	4	Y
	NA2	Planned by Others		Velasco St	Lockwood Dr		13,495		38.5	120	90	4	Y
	NA3			Lockwood Dr	Mack St		11,789-10,900		44.5	115	90	4 - 6	Y
	NA4			Mack St	N 78th St				40	70 - 80	60	4 - 6	N
	NA5	Focus Corridor		N 78th St	Brays Bayou		8,628		41.1	100	60	4	Y
	NA6	Planned by Others	Delmar St	Navigation Blvd	Harrisburg Blvd	Local	NA	30	NA	50 - 80	25	2	N
Clinton-Jensen	CJ1	Focus Corridor	Clinton Dr	Jensen Dr	Hirsch Rd	Major Thoroughfare	3,666-4,996	35	39.5-43	60 - 90	50	4	N
	CJ2			Hirsch Rd	Lockwood Dr		4808	35	42.5	60 - 80	50	4	
	CJ3	Planned by Others	Jensen Dr	Clinton Dr	Buffalo Bayou		11377	30	38	85	50	3	N
	CJ4	Focus Corridor		Commerce St	Buffalo Bayou		6,443	35	34.5	85 - 130	40 - 90	4	Y
Gregg-Velasco	GV1	Planned by Others	Gregg St	Buffalo Bayou	Lyons Ave	Major Collector	NA	30	NA	30 - 90	45 - 60	4	Y
	GV2	Focus Corridor	Market St	Gregg St	Benson St	Local	NA	30	NA	50 - 60	30 - 40	2	N
	GV3		Velasco St	Buffalo Bayou	Engelke St	Local	NA	30	NA	40	20	2	N
	GV4			Engelke St	Commerce St		NA		NA	NA	NA	NA	N
	NA			Commerce St	Middleton St		NA		NA	85	20	2	N
Japhet Creek	JF2	Planned by Others	Schweikhardt St	Japhet Creek Park	Providence/ Sonora St	Local	NA	30	NA	60	30	2	N
	NA	Focus Corridor		Farmer St	Providence/ Sonora St		NA		NA	60	40	2	N
	JF3		Sonora St	Schweikhardt St	Lockwood Dr	Local	NA	30	NA	50 - 60	25 - 40	2	N
	JF4		Solo St	Market St	Coke St	Local	NA	30	NA	50	25 - 30		N
	JF5		Coke St	Solo St	Schweikhardt St	Local	NA	30	NA	50 - 60	20 - 40	2	N
Lockwood	LO1	Focus Corridor	Lockwood Dr	Lyons Ave	Clinton Dr	Major Thoroughfare	12, 686-12,814	35	30.5-44.5	100 - 190	70 - 170	4 - 6	Y
	LO2	Planned by Others		Clinton Dr	Buffalo Bayou		12,951	35	52	110 - 130	60 - 80	4 - 6	Y
	LO3			Buffalo Bayou	Navigation Blvd					120 - 210	80 - 90	6 - 4	Y
	LO4	Planned by Others		Navigation Blvd	Harrisburg Blvd		9,847-13,001	35	36-34	100 - 200	80 - 200	4	Y
East Bayou	EB2	Focus Corridor	Industrial Way	Turkey Bend	Railroad/ Terminal St	Local	NA	25	NA	50	30	2	N
	EB3		Avenue V	Railroad/ Terminal St	Buffalo Bayou East Trail		NA	30	NA	55 - 60	20 - 30	2	N
	EB4		Mcfarland St	Industrial Way	Navigation Blvd		NA	30	NA	50 - 60	40	4	N
Transit Center	TC1	Focus Corridor	Mulvey St	Wipprecht St	Woolworth St	Local	NA	30	NA	55 - 60	20	2	N
	TC2		Farmer St	Lockwood Dr	Schweikhardt St	Local	NA	30	NA	50 - 60	25 - 35	2	N
	TC3		Lyons Ave	Lockwood Dr	Kress St	Major Thoroughfare	NA	30	NA	50 - 65	40	2	N
	TC4		Market St	Solo St	Kress St	Major Collector	NA	30	NA	50 - 85	35 - 45	4	N

FIGURE AT23 - FOCUSED ALIGNMENTS CHARACTERISTICS CHART

CORRIDOR CHARACTERISTICS

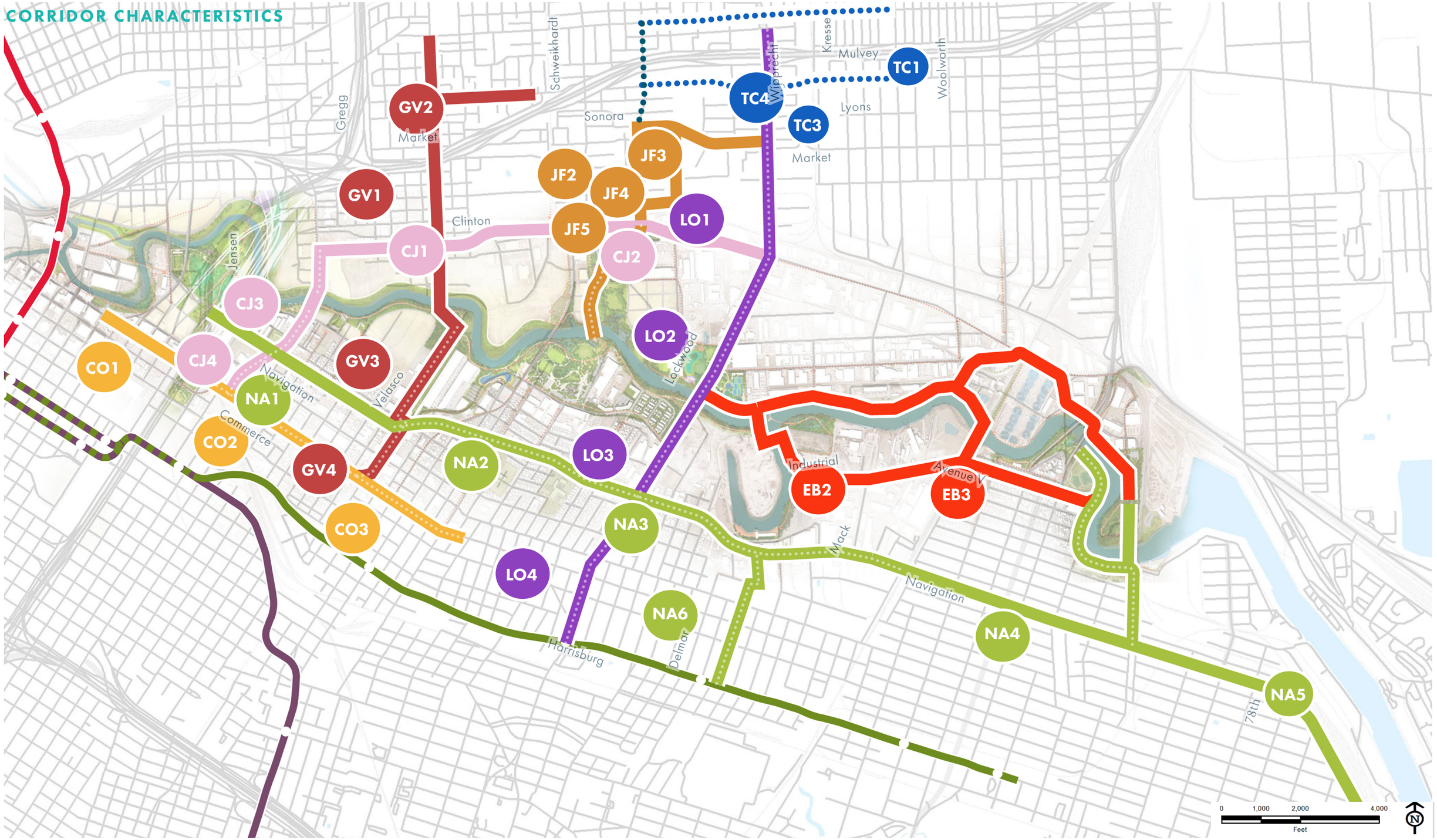
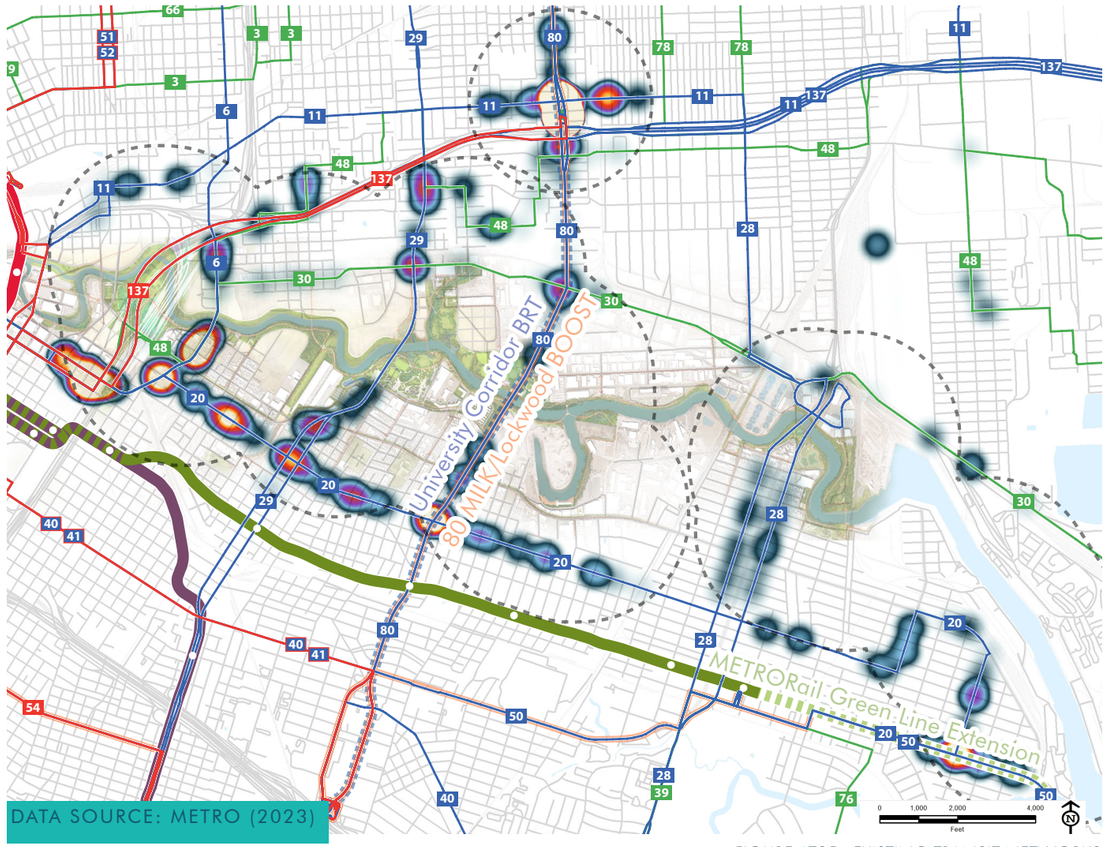


FIGURE AT24 - FOCUSED ALIMENTS CHARACTERISTICS MAP

TRANSIT NETWORK



DATA SOURCE: METRO (2023)

FIGURE AT25 - EXISTING TRANSIT NETWORKS

Legend

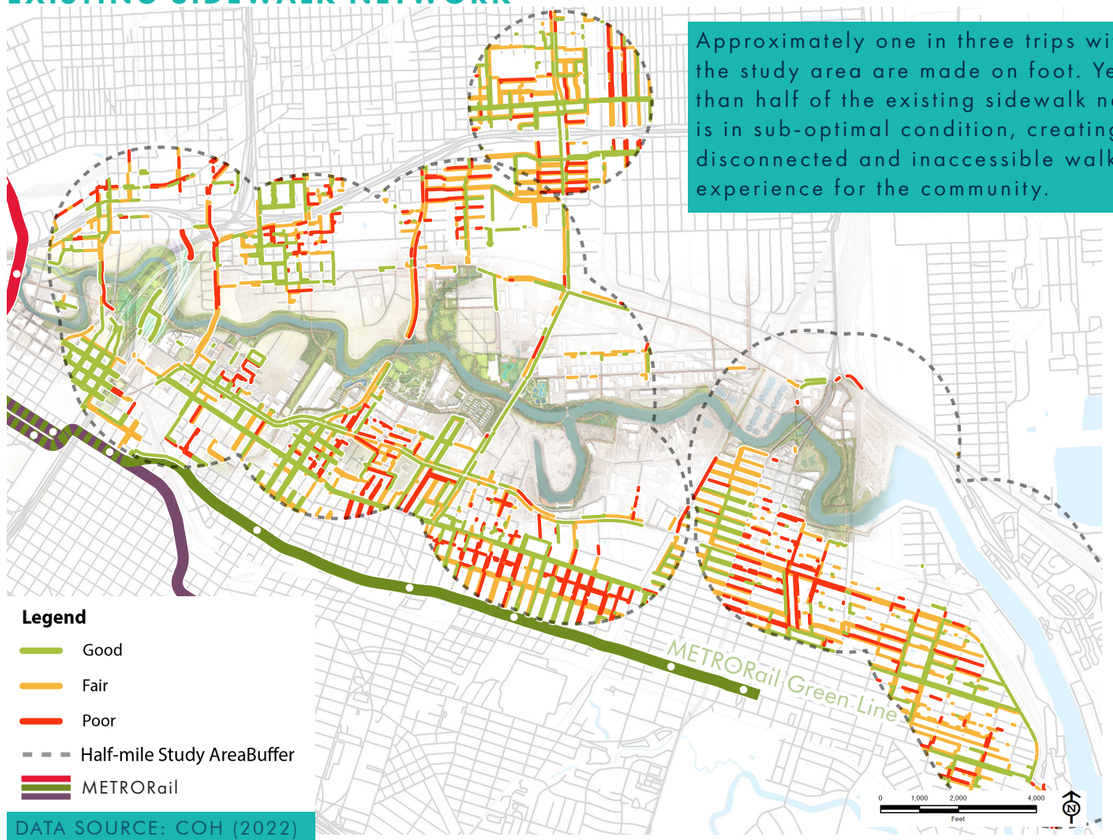
- METRORail
- Local Bus (≤15 Minute Headways)
- Local Bus (15-30 Minute Headways)
- Local Bus (>30 Minute Headways)
- Proposed Univeristy BRT
- Proposed BOOST Corridor
- Higher Transit Ridership
- Lower Transit Ridership
- Half-mile Study Area Buffer

Over 5,200 trips are made every weekday on METRO'S 12 bus routes that criss-cross the study area, shown in Figure AT25. Approved by nearly 70% of voters in 2019, the METRONext Moving Forward Plans proposes several projects in the area:

- The University Corridor BRT project will create a rapid transit line along Lockwood Drive.
- Route 80 has been designated as BOOST corridor. BOOST routes are slated to receive enhanced bus stops, transit signal priority, and improved first-last-mile connections to the route
- Just beyond the study area, the METRORail Green Line is proposed to be extended south to Hobby Airport.

EXISTING SIDEWALK NETWORK

Approximately one in three trips within the study area are made on foot. Yet more than half of the existing sidewalk network is in sub-optimal condition, creating a disconnected and inaccessible walking experience for the community.



Legend

- Good
- Fair
- Poor
- Half-mile Study AreaBuffer
- METRORail

DATA SOURCE: COH (2022)

FIGURE AT26 - EXISTING SIDEWALK CONDITIONS

Despite walking being a primary method of travel, 22% of sidewalks in the study area are in poor condition: broken, overgrown, and/or discontinuous. In 2022, the City of Houston commissioned a survey of the city's sidewalk network conditions. Results are shown in Figure AT28.

Sidewalks in poor condition create accessibility and safety challenges, particularly for older adults, children, individuals with mobility limitations, and those using strollers or mobility aids. With many sidewalks in the study area rated as poor or fair, these conditions limit pedestrian mobility and connectivity, particularly for residents who rely on walking as their primary mode of transportation.

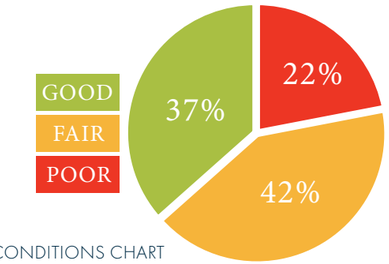
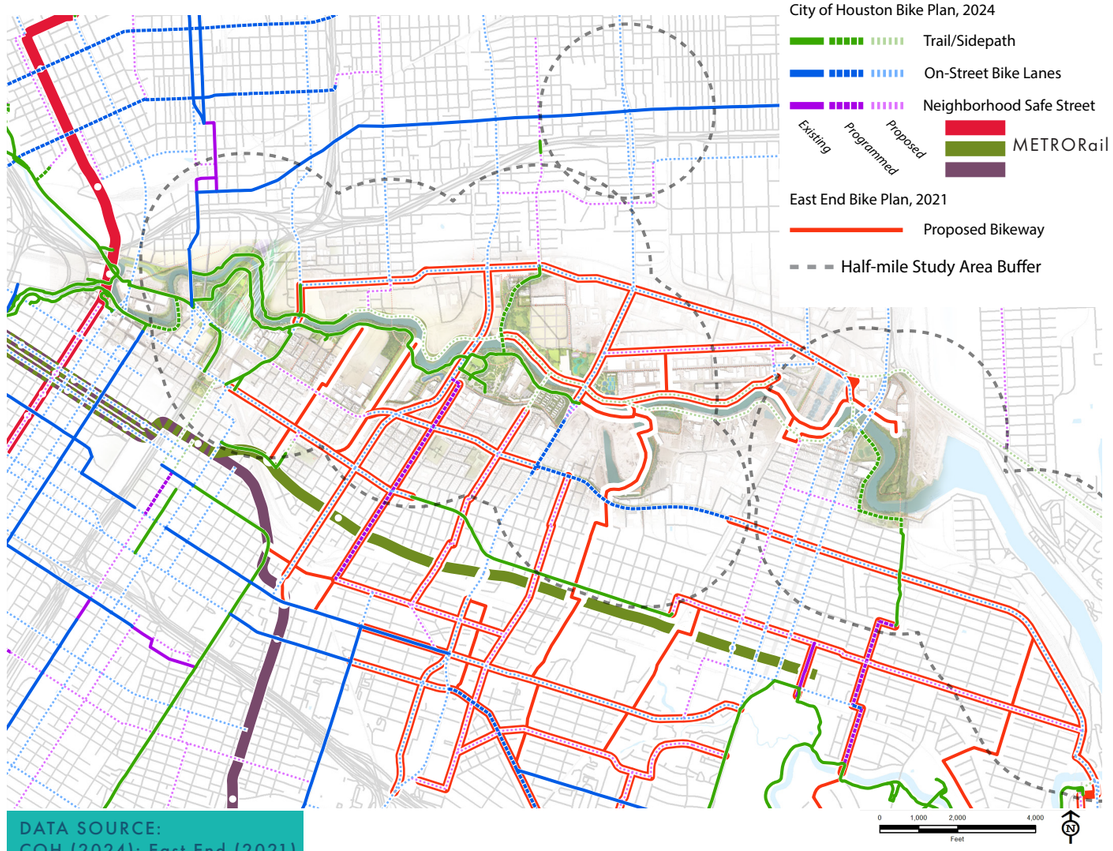


FIGURE AT27 - SIDEWALK CONDITIONS CHART



FIGURE AT28 - EXAMPLE PHOTOS OF SIDEWALK CONDITIONS

BICYCLE NETWORK



DATA SOURCE:
COH (2024); East End (2021)

FIGURE AT29 - BICYCLE NETWORK

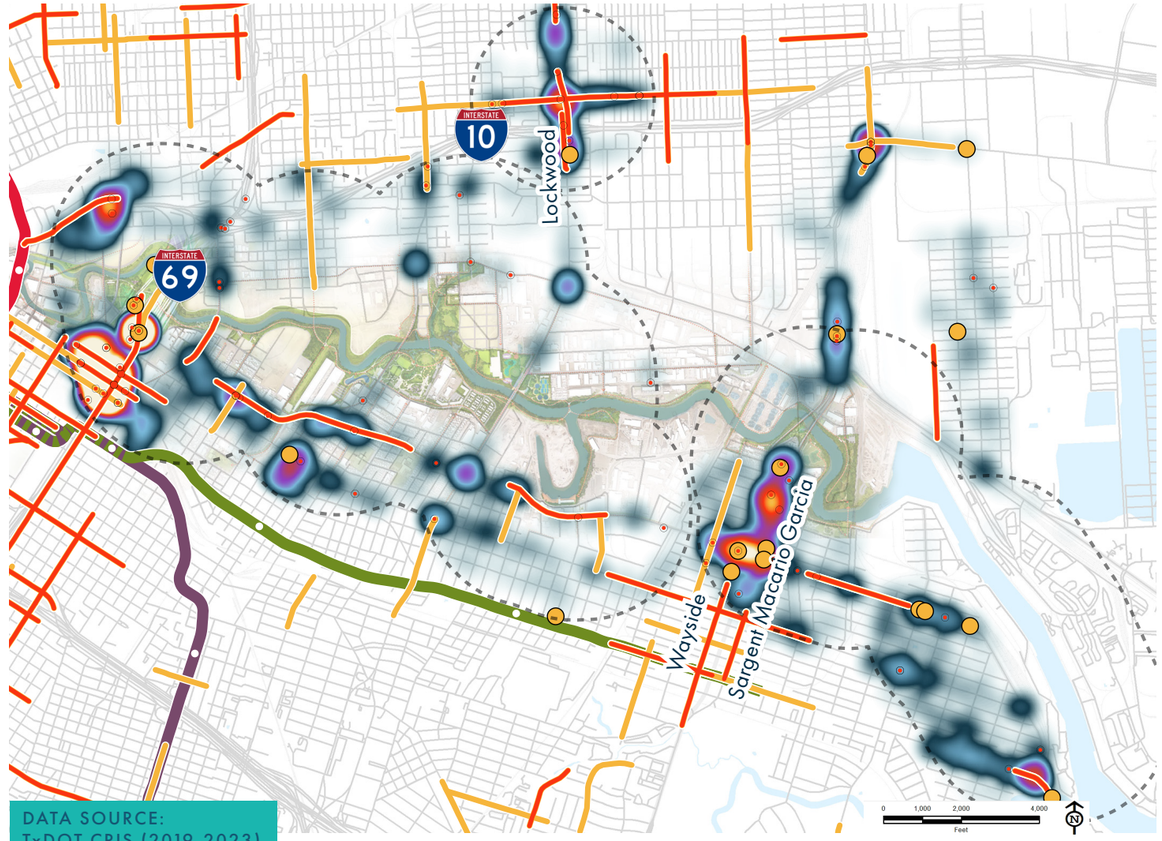
Connectivity for people walking and biking to the existing trail network is lacking. Establishing safe, comfortable biking corridors throughout the area will strengthen connections to both existing and planned greenways. This will expand access to green spaces and recreational opportunities, while also improving overall mobility across the region.

In 2017, the Houston Bike Plan was adopted, setting forth a vision for a comprehensive network of bikeways throughout the city. Building on this initiative, the East End District and Harris County Precinct 2 collaborated to create the East End Bike Plan in 2021. This plan identified specific streets and trails for future bikeways, with locations chosen based on community feedback, guiding principles for bikeway development, and an assessment of construction feasibility.

Input from the community and stakeholders also highlighted various programs and policies aimed at making the East End more bike-friendly. The proposed bikeways in this study will capitalize on these prior planning efforts, ensuring they align with the desires and needs of the local community.

Figure AT29 showcases the bicycle network identified by the Houston Bike Plan and the East End Bike Plan. It highlights existing bikeways, facilities scheduled for near-term implementation, and proposed projects that currently lack funding.

CRASH DENSITY AND SEVERITY



DATA SOURCE:
TxDOT CRIS (2019-2023)

FIGURE AT30 - CRASH DENSITY AND SEVERITY

Figure AT30 visualizes crashing ongoing in the study area between 2019 and 2023. In total, 4,010 crashes occurred, averaging over 800 crashes every year.

Crashes primarily occur where local roads intersect busy, higher-speed highways and interstates. This includes intersections with Wayside Drive and Sargent Macario Garcia Drive, the area surrounding the interchange between I-10 and Lockwood Drive, and access from I-69 into Downtown Houston.

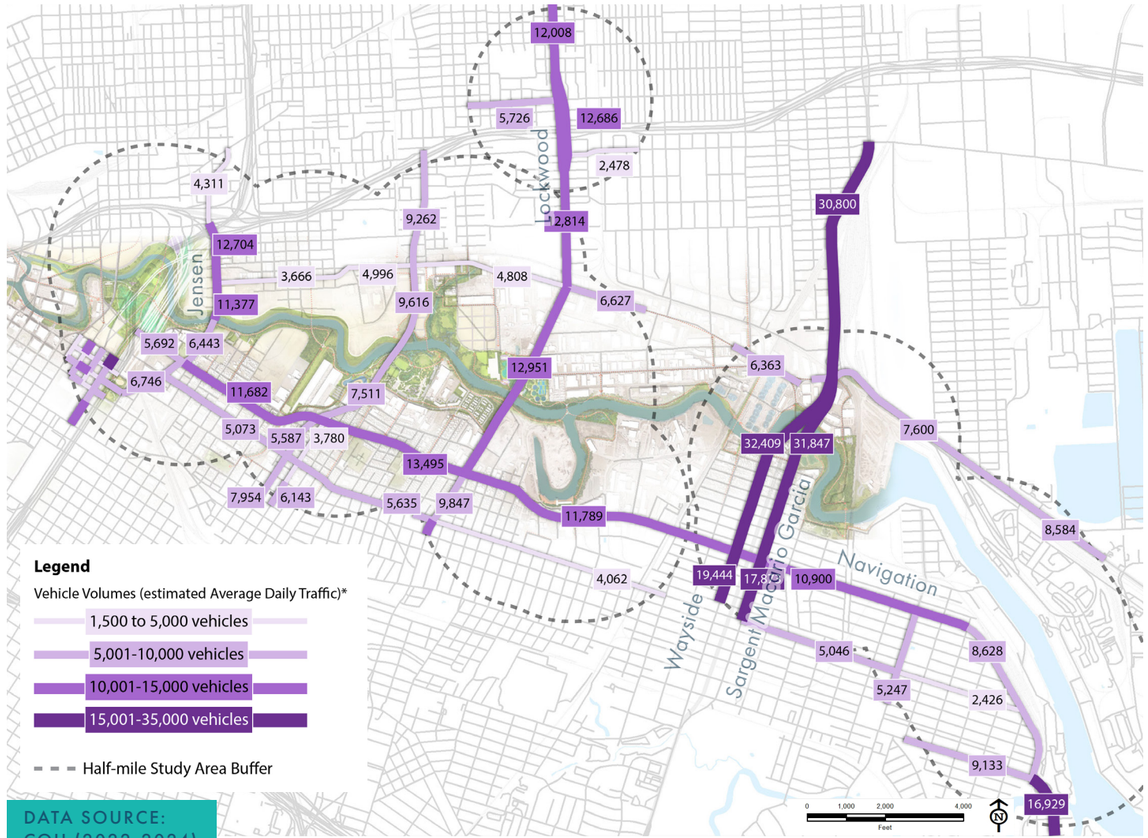
Eighty-one of the crashes in the study area resulted in at least one person involved receiving a severe injury. Another 20 resulted in the death of at least one person. Seventy-five percent of crashes that resulted in death involved a person walking or biking.

Legend

- Fatal Crash
- Serious Injury
- Higher Crash Density
- Lower Crash Density
- City of Houston High-Injury Network
- Harris County High-Injury Network
- Half-mile Study AreaBuffer

People walking and biking are disproportionately affected by traffic crashes. Although bicyclists and pedestrians are involved in only 3% (122 of 4,010) of crashes in the study area, they make up 23% (28 of 121) of all crash-related deaths and serious injuries.

TRAFFIC VOLUMES



DATA SOURCE:
COH (2022-2024)

FIGURE AT31 - EXISTING TRAFFIC VOLUMES

Roadways that connect communities across divisions such as bayous, railroads, and highways carry the highest volumes of vehicular traffic.

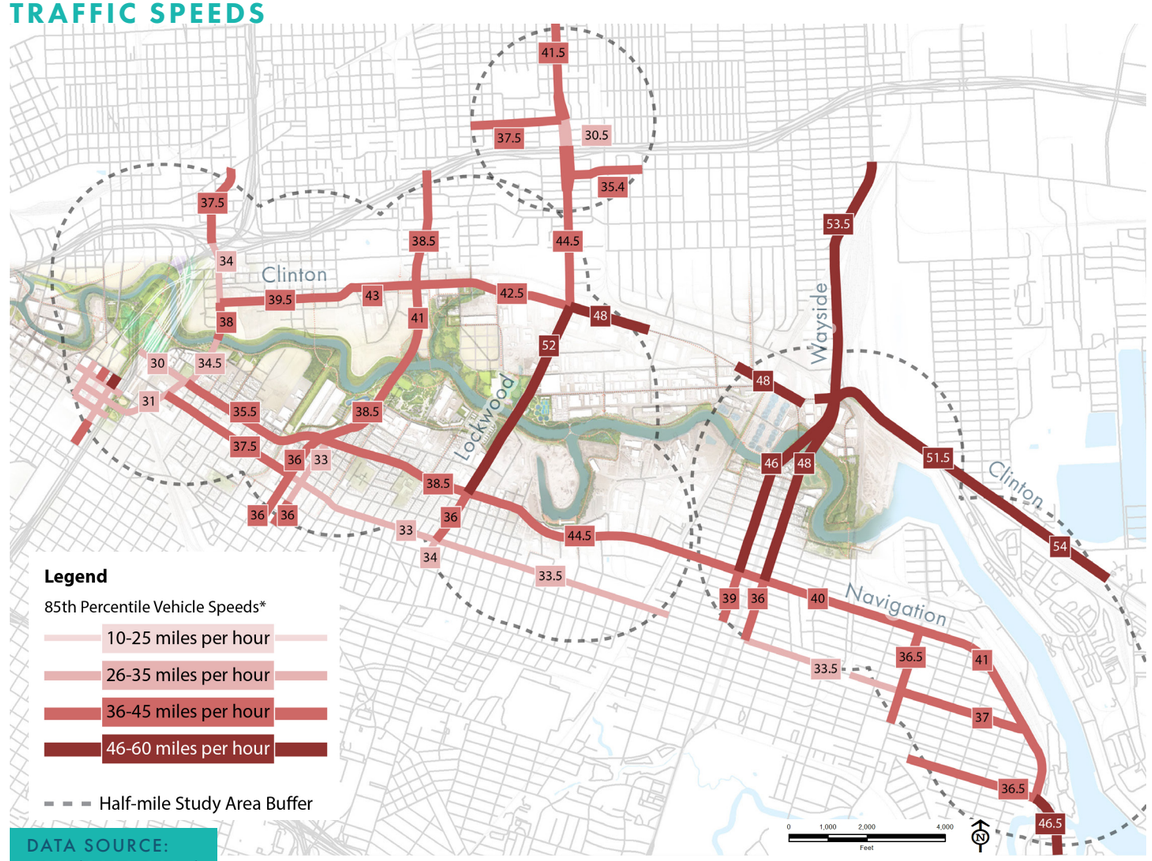
Volumes exceed 30,000 vehicles per day on Wayside drive and Sgt. Macario Drive, a busy U.S. highway that connects industries to the northeast of the study area towards the Port of Houston.

Volumes exceed 10,000 vehicles per day on other key arteries, including Lockwood Drive, Jensen Drive, and Navigation Boulevard. These streets are major thoroughfares that link local communities to the larger Houston region.

Higher vehicle volumes increase the risk of crashes occurring on a given corridor. Special attention should be paid to providing safe infrastructure on these corridors.

Alternatively, roadways such as Clinton and Lyons, have lower vehicle volumes than what they are designed for. These corridors present an opportunity to reallocate space from travel lanes to other uses, including, but not limited to, parking, landscaping, pedestrian facilities and/or bike lanes.

TRAFFIC SPEEDS



DATA SOURCE:
COH (2020-2024)

FIGURE AT32 - EXISTING TRAFFIC SPEEDS

Figure AT32 displays the 85th percentile speeds on key corridors in the study area.

The 85th percentile speed is generally considered the speed at which most drivers feel safe and comfortable during normal conditions, and it can be either greater or less than the posted speed limit. While 85 percent of drivers travel at or below this speed, the remaining 15 percent travel faster.

The posted speed limit on most roads in the study area is 30 MPH, with limits increasing to 35 MPH on major thoroughfares. Two roads, Wayside Drive (north of Buffalo Bayou) and Clinton Drive (east of Wayside Drive) have posted speed limits of 40 and 45 MPH respectively.

However, actual driving speeds on these roads often surpass the legal limits. In particular, certain sections of Clinton Drive, Lockwood Drive, and Navigation Boulevard show 85th percentile speeds that are 22% to 49% higher than the posted limits.

A combination of excessive speeds and heavy traffic raises significant safety issues for all users of these roadways, especially for more vulnerable groups, such as pedestrians and cyclists, who may be attempting to access local destinations or off-street trails such as the Buffalo Bayou trail system.

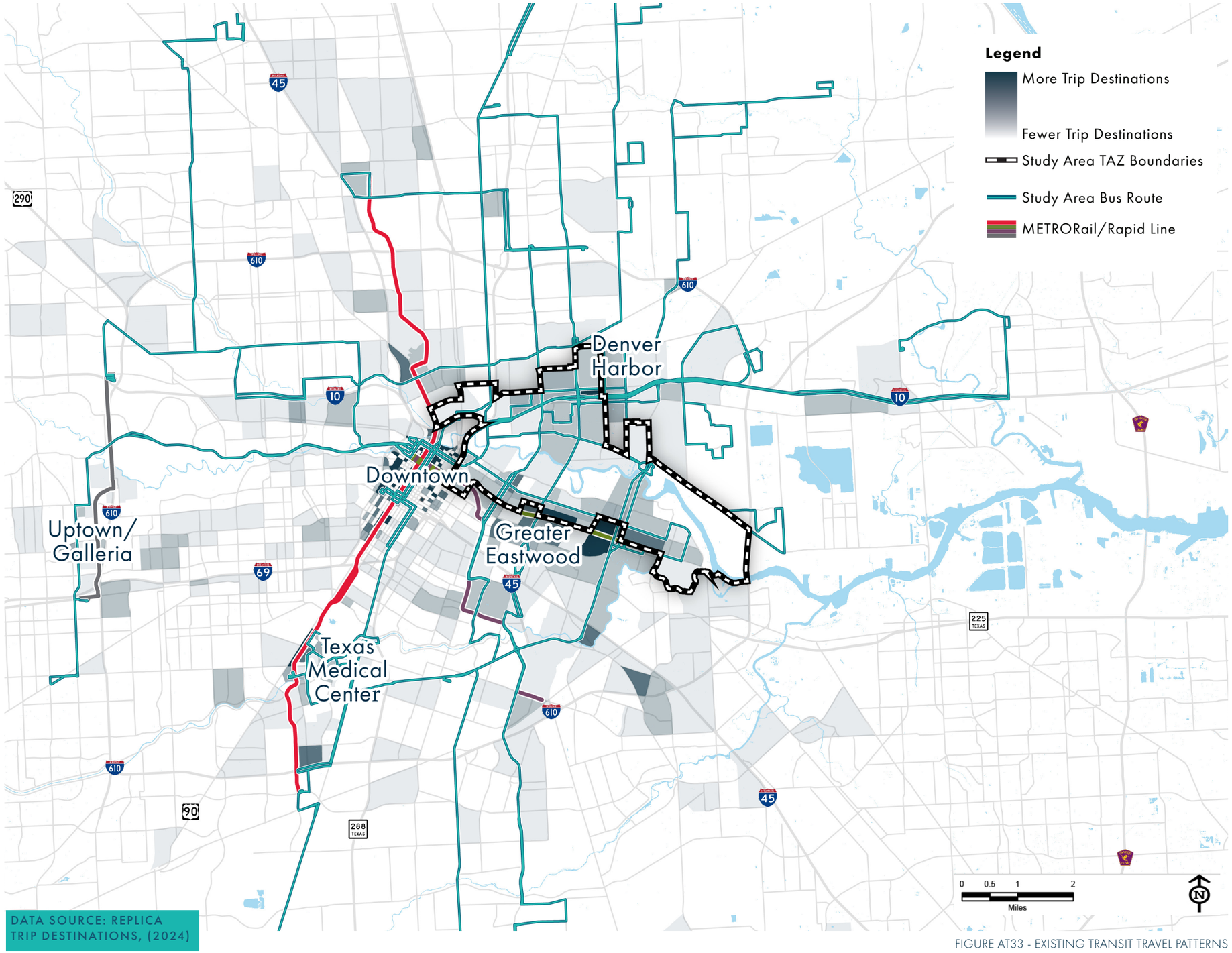
TRANSIT TRAVEL PATTERNS

METRO provides regional transit connectivity, serving trips between the study area and destinations throughout the Greater Houston region.

Figure AT33 shows where people are traveling to, from the study area via public transportation. Darker areas show more popular destinations while paler areas see fewer trips.

People are using transit for trips within the immediate area, and they are also traveling to neighborhoods and destinations across the city — from nearby places like Downtown and Greater Eastwood to major destinations farther away such as the Texas Medical Center and the Galleria in Uptown.

Expanding access to fast, frequent, reliable transit will provide people with more equitable, sustainable, and convenient options to access the study area, the Buffalo Bayou trail system, and important destinations across the Houston region.



DATA SOURCE: REPLICA TRIP DESTINATIONS, (2024)

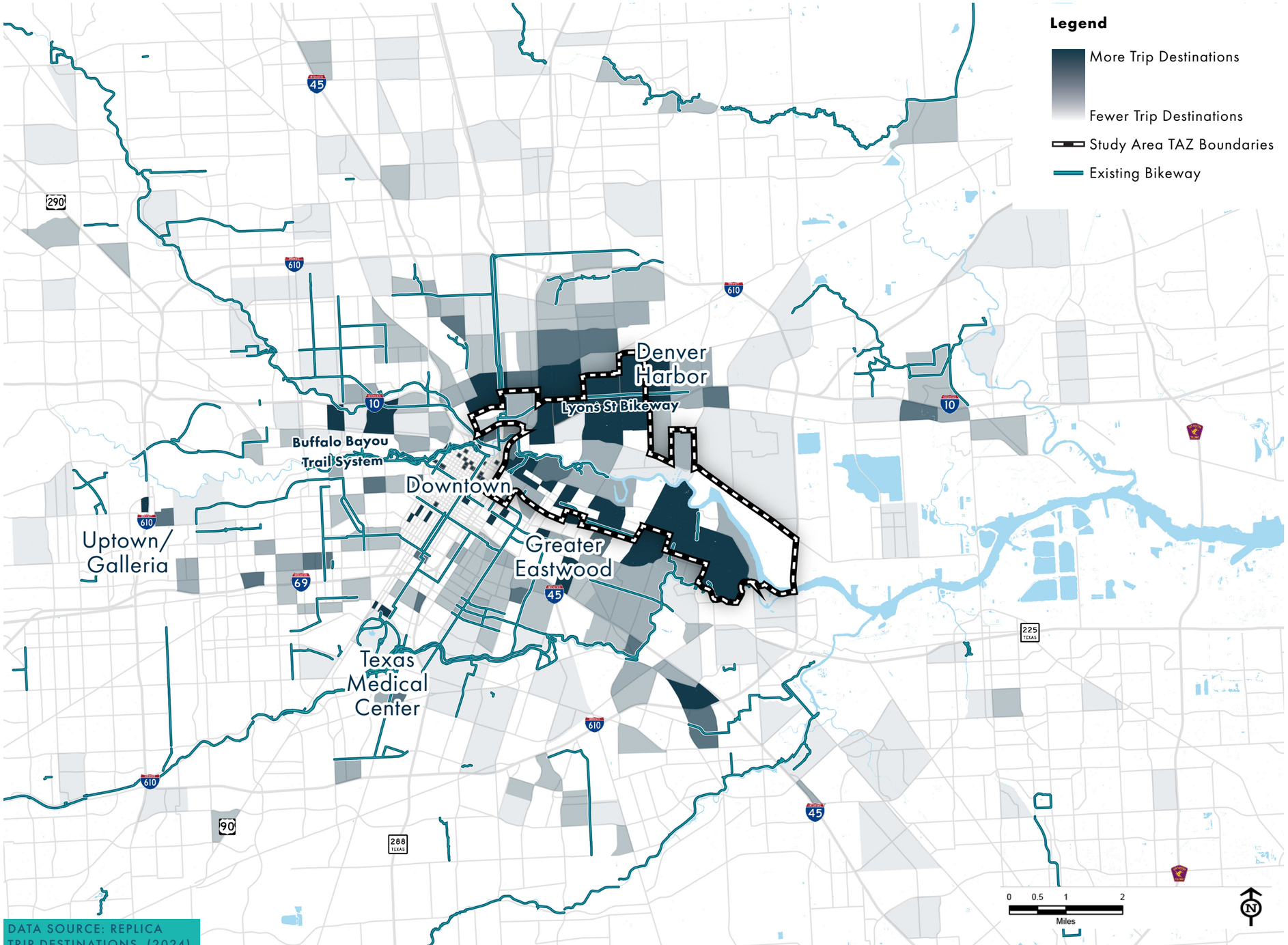
FIGURE AT33 - EXISTING TRANSIT TRAVEL PATTERNS

BICYCLE TRAVEL PATTERNS

Cycling provides an important transportation option for accessing the study area, with the Buffalo Bayou Trail supporting connections to the broader regional bicycle network.

People travel to and from the study area on bike from nearby areas like Denver Harbor and Greater Eastwood, but also from more distant areas including Texas Medical Center, and Uptown via the Buffalo Bayou trail system. The Harrisburg Trail and Lyons Street bike lanes are also popular nodes of bicycle activity.

Currently, there are a lack of north-south bike facilities in the study area. Bike facilities are also largely absent in the eastern portions of the study area, Expanding the network of safe, accessible bikeways will make biking in and around the area even more attractive to residents and visitors and increase usage of the already popular Buffalo Bayou and Brays Bayou trail systems.



DATA SOURCE: REPLICA TRIP DESTINATIONS, (2024)

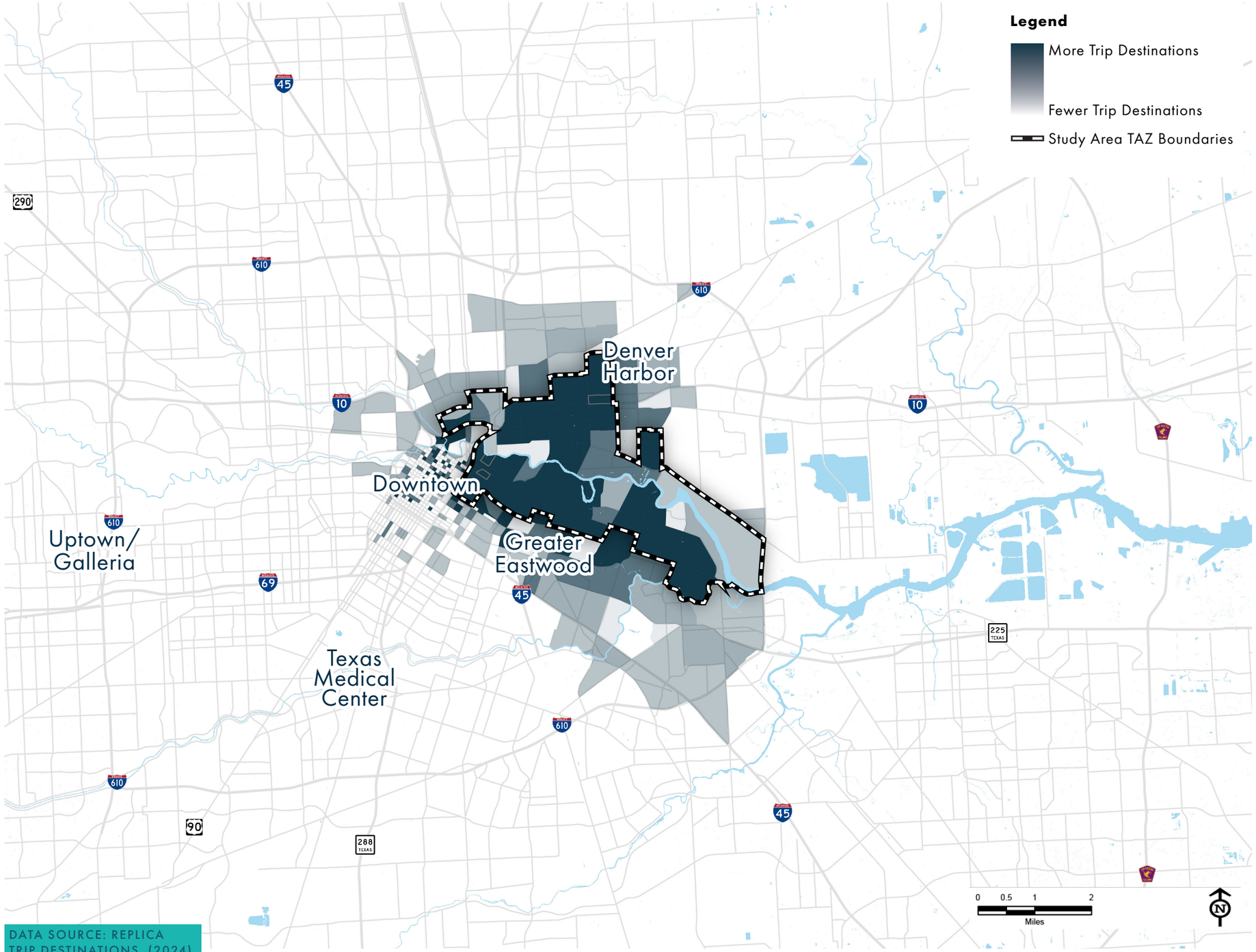
FIGURE AT34 - EXISTING BICYCLE TRAVEL PATTERNS

PEDESTRIAN TRAVEL PATTERNS

Accessible and comfortable pedestrian facilities enhance neighborhood connectivity, mobility, and quality of life.

Most trips made while walking stay within the study area or extend just outside its borders. This signals the importance of sidewalks as connectors of the community, their existence a gateway to supporting a neighborhood on a micro scale. When accessible and comfortable pedestrian facilities are available, walking is a desirable option, both expanding usage to more people and supporting those already walking. This makes walking a viable option to reach employment, amenities, and recreational opportunities.

Creating a fully accessible pedestrian network is critical to the vitality of the community. The ease of short and comfortable travel promotes healthy behavior, social connection, investment in local businesses, and a strong economy. A walkable neighborhood also creates an attractive destination for visitors and would align with an integrated vision for the Buffalo Bayou trail system.



DATA SOURCE: REPLICA TRIP DESTINATIONS, (2024)

FIGURE AT35 - EXISTING PEDESTRIAN TRAVEL PATTERNS

VEHICLE TRAVEL PATTERNS

Private vehicle trips within the study area account for 59% of all trips, while 33% of trips are made on foot.

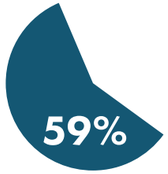
Private vehicle dependence increases significantly for trips that start or end outside the study area, where nearly 90% of trips are made by car, either as solo drivers or with passengers.

Figure AT36 highlights where a majority of vehicle trips are clustered, with many being short trips within or directly adjacent to the study area.

Due to their proximity, many of these vehicle trips could be converted to trips made on foot, on a bike, or by bus, if alternative accessible and safe modes of transportation were developed.

PERCENT OF TRIPS MADE IN PRIVATE VEHICLES:

59% within the study area

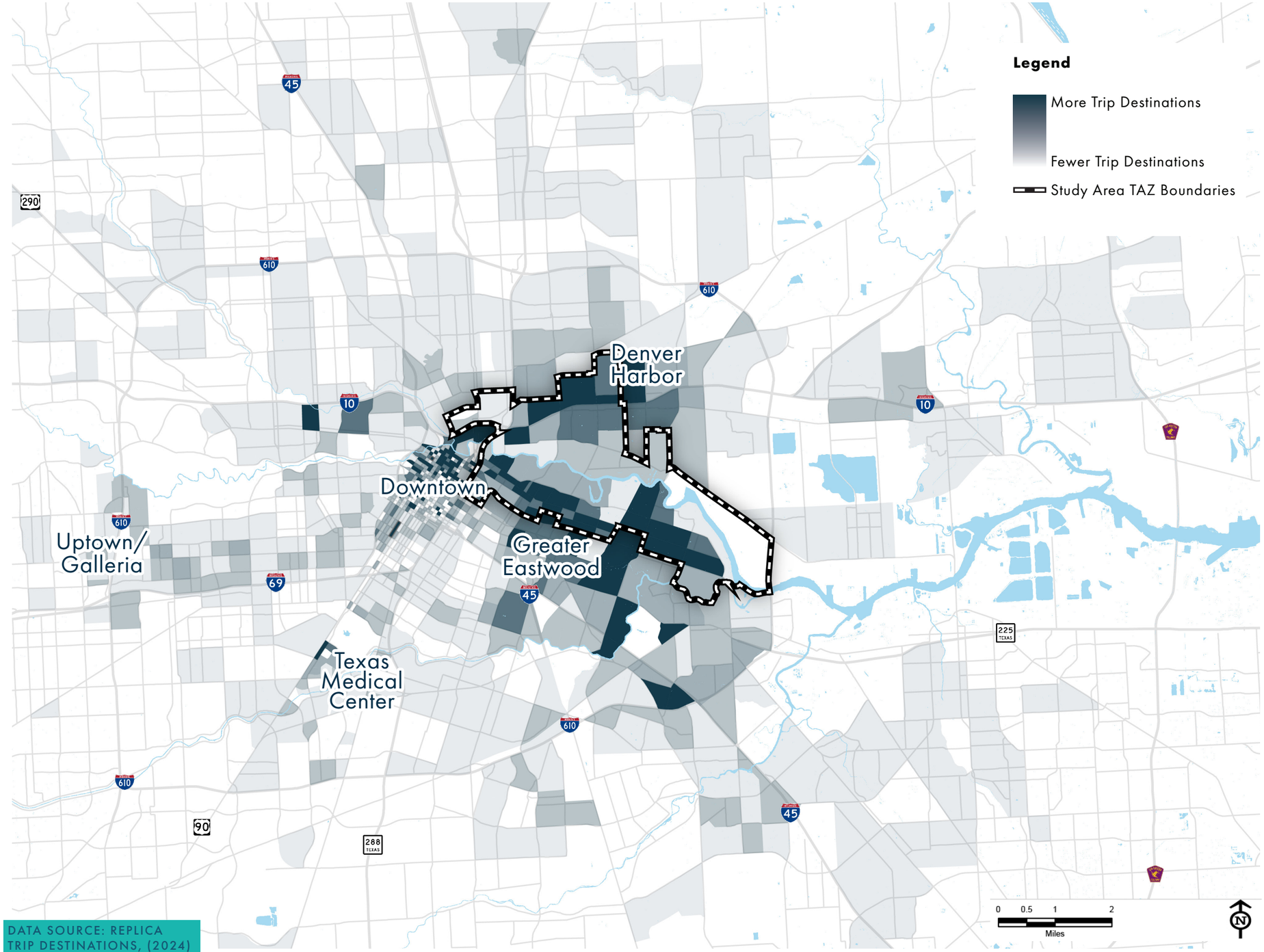


89% leaving the study area



90% entering the study area





DATA SOURCE: REPLICA TRIP DESTINATIONS, (2024)

FIGURE AT36 - EXISTING VEHICULAR TRAVEL PATTERNS

OPPORTUNITY IDENTIFICATION

FROM CONDITIONS TO OPPORTUNITIES

Following completion of the Existing Conditions and Site Assessment Report, the project advanced into a collaborative and data-informed engagement phase designed to validate findings, refine priorities, and identify implementable opportunities.

Technical Assessment Completion

The Site Assessment Report synthesized these findings and identified preliminary areas of concern and opportunity to ensure that subsequent engagement efforts were grounded in measurable conditions.

Field Verification & Walk/Bike Audits

Following the analytical assessment, the project team conducted on-site walk and bike audits to validate mapped data and observe real-time conditions.

These audits included corridor-level evaluations of:

- Sidewalk continuity
- Bicycle facility quality
- Intersection safety
- Lighting conditions
- Comfort factors such as shade and buffering
- Conflicts with truck traffic and industrial uses

For additional information on the walk and bike audits, please refer to the Appendix.

Stakeholder & Neighborhood Leader Engagement

Targeted meetings with agency partners, corridor stakeholders, neighborhood leaders, and community organizations helped refine corridor priorities and identify locations requiring additional analysis. These discussions provided local and technical perspectives on transportation needs and implementation considerations.

These discussions focused on understanding:

- Daily mobility challenges
- Community safety concerns
- Desired improvements
- Economic and development considerations
- Transit access priorities

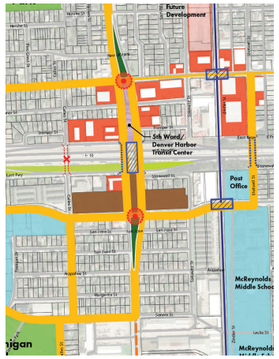
Stakeholder input helped confirm existing conditions, identify operational challenges, and provide context for issues not evident through data analysis. Feedback informed the development of corridor recommendations and helped prioritize improvements with the greatest potential community benefit.

Information was shared through community partners, digital platforms, and multilingual outreach materials. An online survey was distributed to collect additional feedback on travel patterns, improvement priorities, and perceived barriers.





On-site walk and bike audits allowed the project team to evaluate sidewalk continuity and comfort factors in the study area.





The project team conducted stakeholder meetings to confirm and refine project priorities.

PRIORITIES & FEEDBACK

Public Input & Community Workshops

Public workshops provided opportunities for residents to review draft findings, share firsthand experiences, and help shape the plan's recommendations. Participants explored corridor maps, commented on existing conditions, and identified barriers to walking, bicycling, and accessing transit.

Common themes included:

- Improving safety at major intersections and crossings
- Completing missing sidewalk and bicycle network connections
- Expanding tree canopy and shade along key routes
- Strengthening connections to parks, schools, neighborhoods, and the Transit Center
- Creating streets that feel comfortable, welcoming, and accessible for people of all ages and abilities

Interactive mapping activities, comment boards, and facilitated discussions helped capture neighborhood-specific concerns and validate the plan's proposed priorities.

Project Promotion & Survey Outreach

To ensure inclusive participation, project information was shared through community partners, digital platforms, and multilingual outreach materials. An online survey was distributed to collect additional feedback on travel patterns, improvement priorities, and perceived barriers.

Survey responses reinforced key themes from in-person engagement, particularly around safety, comfort, and connectivity to major destinations. The survey also provided quantitative support for prioritizing specific corridors and improvement types.

Integration of Findings

Data analysis, field audits, stakeholder discussions, public meetings, and survey results were synthesized to inform the Opportunity Identification framework. Safety was the primary concern, with participants citing high vehicle speeds, unsafe crossings, limited lighting, and truck conflicts as major barriers to walking and biking.



PUBLIC INPUT MEETING #1

Community members gathered to provide input on project priorities.

VALUE IN STREET DESIGN

Streets make up the majority of public space within the Buffalo Bayou East study area. As currently configured, many corridors prioritize vehicle movement while underperforming in safety, comfort, and community function.

In neighborhoods such as Magnolia Park, located within a heavily industrialized area, street conditions significantly shape daily mobility and quality of life.

Effective street design extends beyond transportation improvements. It strengthens connectivity between neighborhoods, parks, and transit; reduces crash risk through safer crossings and traffic calming; and improves comfort through shade, lighting, and buffering from industrial activity.

Streets also serve as essential civic space, supporting local businesses, encouraging social interaction, and reinforcing neighborhood identity in areas where dedicated open space is limited.

Investing in street design is therefore not only a mobility strategy—it is a public health, resilience, and equity strategy that reshapes how communities access opportunity and experience daily life.

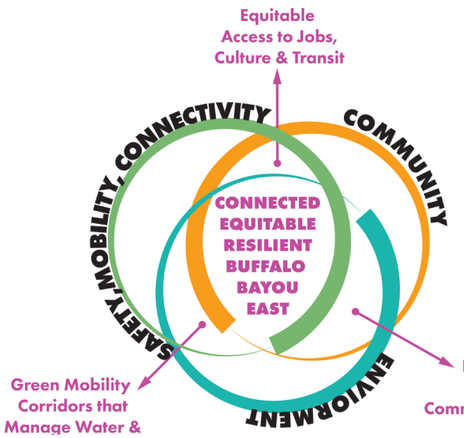




FIGURE AT37 - COMPLETE STREET COMPONENTS

GOALS AND OBJECTIVES

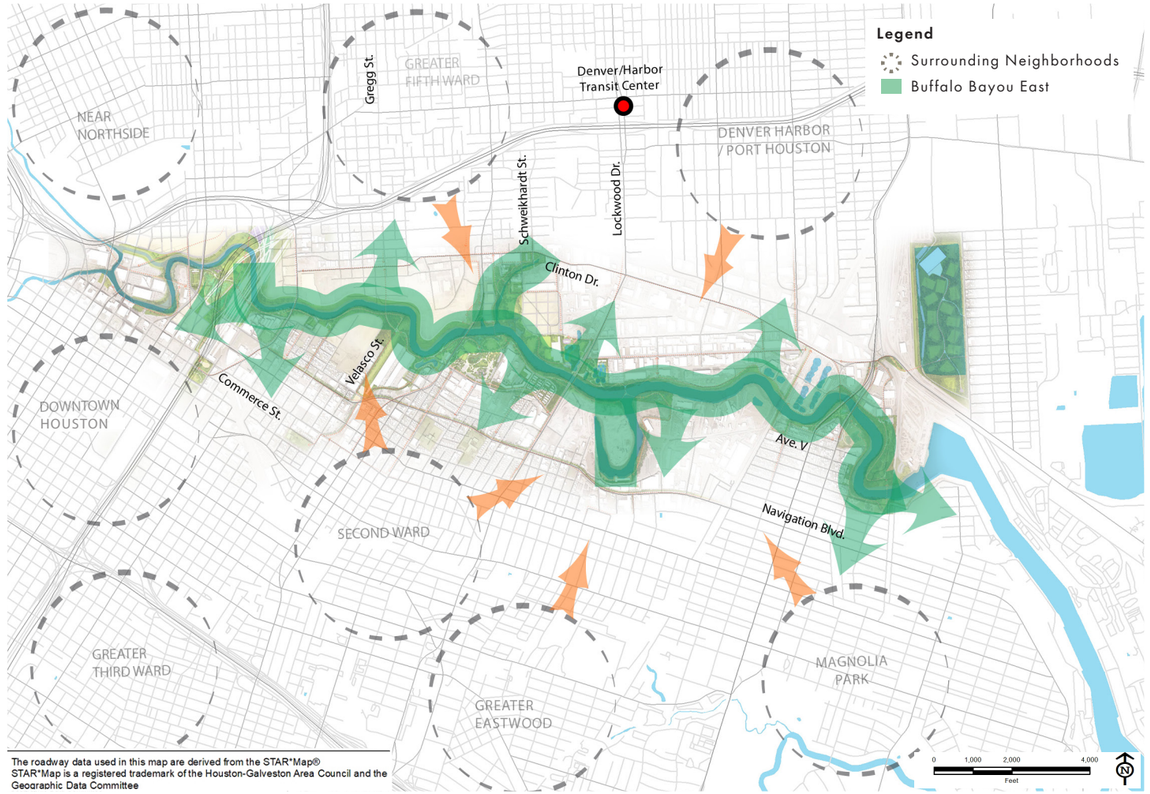


FIGURE AT38 - NEIGHBORHOOD CONNECTIVITY DIAGRAM

Figure AT38 illustrates the proposed active transportation network and highlights key connections between surrounding neighborhoods, Buffalo Bayou, regional trails, transit facilities, and other community destinations.

OBJECTIVES

1. Improve Safety
Enhance pedestrian and bicycle safety through intersection improvements, traffic calming, protected facilities, lighting, and clearer crossings—particularly along high-speed and industrial corridors.

2. Close Connectivity Gaps
Eliminate missing links in sidewalks, bike lanes, and trail connections to create a continuous network across neighborhoods and to the bayou.

3. Strengthen Access to Transit
Improve first- and last-mile connections to the Fifth Ward / Denver Harbor Transit Center and other transit corridors to support multimodal travel.

4. Enhance Comfort & Environmental Performance
Integrate shade canopy, green infrastructure, and drainage improvements to mitigate heat and flooding while improving the daily walking and biking experience.

5. Support Community Identity & Economic Vitality
Design corridors and nodes that reflect neighborhood character, support local businesses, and create welcoming public spaces.

6. Advance Equitable Investment
Prioritize improvements in historically underserved areas to ensure safe, reliable, and dignified mobility options for residents of all ages and abilities.

OPPORTUNITIES ANALYSIS

The opportunity corridors identified in this chapter are not simply routes for movement. They form the structural framework for connecting neighborhoods to the bayou, strengthening daily access to parks and transit, and establishing a resilient, comfortable, and identity-driven public realm network. As a result, they will create the foundation for a cohesive active mobility system that links local destinations to regional trails that form a "Big Loop," a "Green Link," and civic spines for the district.

Reframing the System

The study area contains significant assets, including Buffalo Bayou and its surrounding open spaces, emerging redevelopment areas, established neighborhoods, and the Fifth Ward/Denver Harbor Transit Center. However, despite these strengths, gaps in connectivity limit integration among these assets, resulting in a fragmented rather than cohesive transportation network.

Sidewalk gaps, discontinuous bike facilities, unsafe crossings, industrial buffers, flood-prone streets, and limited tree canopy reduce both physical connectivity and user comfort. These conditions reveal that the challenge is not simply adding infrastructure, but restructuring how the network performs.

This chapter identifies opportunities not as isolated projects, but as strategic interventions that strengthen the active transportation system across three interconnected dimensions: regional integration, district structuring, neighborhood connectivity, and transit access.

Regional Integration Opportunities

Buffalo Bayou functions as the ecological spine of the district and anchors the regional trail system. Strengthening access to and across the bayou presents the greatest opportunity to integrate local neighborhoods into the broader regional mobility framework.

Opportunities include:

- Completing trail gaps and strengthening north–south crossings.
- Enhancing connections between neighborhood streets and waterfront amenities.
- Reinforcing the bayou as a continuous green mobility corridor that links parks and open spaces across Magnolia Park, Second Ward, Fifth Ward, and Denver Harbor.

By strengthening these connections, the bayou shifts from being a boundary to becoming the central organizing armature of the network.

District Structuring Opportunities

Certain corridors carry greater structural importance within the study area.

These routes have the potential to:

- Organize movement across neighborhoods.
- Support economic vitality and redevelopment.
- Improve visibility, safety, and identity.
- Anchor community hubs such as the Fifth Ward/ Denver Harbor Transit Center (serving over 2,600 daily boardings)

CURRENT CONDITIONS SUMMARY



FIGURE AT39 - STREETSCAPE OPPORTUNITIES

Neighborhood Connectivity Opportunities

While district-level corridors structure the system, local street networks determine whether improvements are usable in daily life.

Opportunities at the neighborhood scale include:

- Closing sidewalk and bike lane gaps.
- Improving short-distance connections between homes, schools, parks, and small commercial nodes.
- Addressing unsafe intersections and high-speed crossings.
- Introducing shade canopy, lighting, and buffering from industrial or truck routes.

Transit Access & Intermodal Opportunities

The Fifth Ward / Denver Harbor Transit Center represents a critical mobility anchor within the study area. However, safe and comfortable walking and biking access to the transit hub remains inconsistent.

Opportunities include:

- Strengthening first- and last-mile connections.
- Integrating bike facilities and pedestrian improvements within a ½-mile radius.
- Improving intermodal transitions.
- Enhancing the transit center as a neighborhood gateway and civic space.

The improvements should reinforce equity, accessibility, and economic opportunity by linking transit riders directly to parks, services, and employment corridors.

OPPORTUNITY SCALES

To ensure that mobility investments are comprehensive rather than fragmented, opportunities are organized across three interconnected scales: Neighborhood, Corridor, and Nodal. This framework strengthens the pedestrian and bicycle network structurally, spatially, and experientially across Buffalo Bayou East.

Neighborhood Scale – System Integration

At the neighborhood scale, opportunities are evaluated across the full study area. This scale assesses the overall performance of the active mobility network and its integration with Buffalo Bayou, regional trails, and transit corridors.



NEIGHBORHOOD SCALE

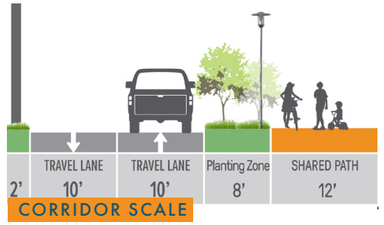
Key considerations include:

- Network continuity and gap closure
- Barriers such as highways, rail lines, industrial land uses, and flood-prone areas
- Equitable distribution of pedestrian and bicycle infrastructure
- Connections between neighborhoods and major destinations

The objective at this scale is to ensure the system functions as a cohesive, connected whole rather than a series of isolated improvements.

Corridor Scale – Right-of-Way Performance

At the corridor scale, opportunities focus on improving street right-of-way conditions to achieve multiple goals simultaneously. Improvements consider both mobility and public realm performance.



CORRIDOR SCALE

Strategies may include:

- Multimodal cross-sections and protected facilities
- Intersection safety enhancements
- Shade canopy and heat mitigation
- Green infrastructure and drainage improvements
- Lighting, buffering, and wayfinding

The corridor scale transforms streets into safe, comfortable, and resilient mobility environments that support daily use.

Nodal Scale – Civic & Social Anchors

At key nodes—such as transit interfaces, gateways, major intersections, and park access points—opportunities extend beyond circulation to create places of arrival and pause.



NODAL SCALE

Improvements may include:

- Enhanced transit connections
- Gateway treatments
- Expanded pedestrian spaces
- Active street edges and seating areas

Small open spaces for gathering and programming The nodal scale ensures that mobility infrastructure also contributes to social interaction, neighborhood identity, and daily community life.

DESIGN HIERARCHIES

	Amenities & Furnishings	Pedestrian Pavement	Lighting	Landscape	Technology	Identity & Wayfinding
SAFETY		• Detectable Strips • ADA Ramps • Bike Access • Bus Loading/ Unloading • Parking Access Path • Crosswalks/ Crossings • Islands/Bulb-outs/Refuge	• Pedestrian Lighting • Bollards • Parking Lighting • Platform Lighting	• Landscape Buffers • Stormwater Detention • Utility Integration	• Security Cameras • Centralized Control • Smart Infrastructure • Crossing Signals/HAWK Signals • Emergency Assistance	• Vehicular Wayfinding • Traffic Control Signage • Regulatory Signage
COMFORT	• Shelter • Seating • Bike Storage/ Repair	• Platform Bays • Waiting Areas • Permeable Pavements	• LED Lighting • Smart Lighting	• Bioretention • Rain Gardens • Tree Canopy	• Ticket Machines • Solar Panels/ Canopies • Real-time Arrival Signs • EV Charging • Electronic Info Systems	• Trip Planning Kiosk • Flagpoles • Pedestrian Wayfinding • Branded Entry Signs • Info Systems • Vending
QUALITY OF LIFE	• Planters • Event/Flexible Use Space • Recycling	• Branded Finishes • Cohesive Materials • Programmed Plaza Space • Gateway Paving	• Supplemental Lighting (color, accents, etc.) • Branded Luminaires • Selection Style	• Entry Garden • Urban Ecology • Green Roofs • Reclaimed Irrigation • Habitat Planting	• Mobile Charging Stations • Conduit for Future Capacity • Information Kiosks	• Public Art • Advertisement Kiosk • Visual Articulation of Entrances

FIGURE AT40 - STREET COMPONENTS

The Design Hierarchy establishes a clear framework for prioritizing street improvements based on performance outcomes rather than isolated elements. It organizes street components into three primary performance tiers, Safety, Comfort, and Quality of Life and aligns them with key design categories including amenities, pedestrian pavement, lighting, landscape, technology, and identity.

Safety (Foundational Layer)

Safety forms the base of the hierarchy. Before a street can function as a social or economic asset, it must provide safe and accessible conditions for all users. This includes detectable warnings, ADA ramps, protected crossings, lighting, traffic control elements, stormwater management, and wayfinding systems.

These interventions reduce crash risk, clarify movement, and create predictable interactions between pedestrians, cyclists, vehicles, and transit.

Comfort (Operational Layer)

Once safety is addressed, the next priority is comfort. Comfort improvements influence whether people choose to walk or bike daily.

Elements such as shade canopy, bioretention, rain gardens, pedestrian-scale lighting, waiting areas, shelters, and seating improve thermal conditions, reduce environmental stress, and enhance the user experience along corridors.

Quality of Life (Transformational Layer)

The highest tier focuses on placemaking and long-term identity. This includes public art, branded materials, programmed spaces, entry gardens, green roofs, habitat planting, and enhanced wayfinding systems. These elements transform streets from transportation corridors into civic spaces that support economic vitality, neighborhood character, and community pride.

DESIGN TOOLS

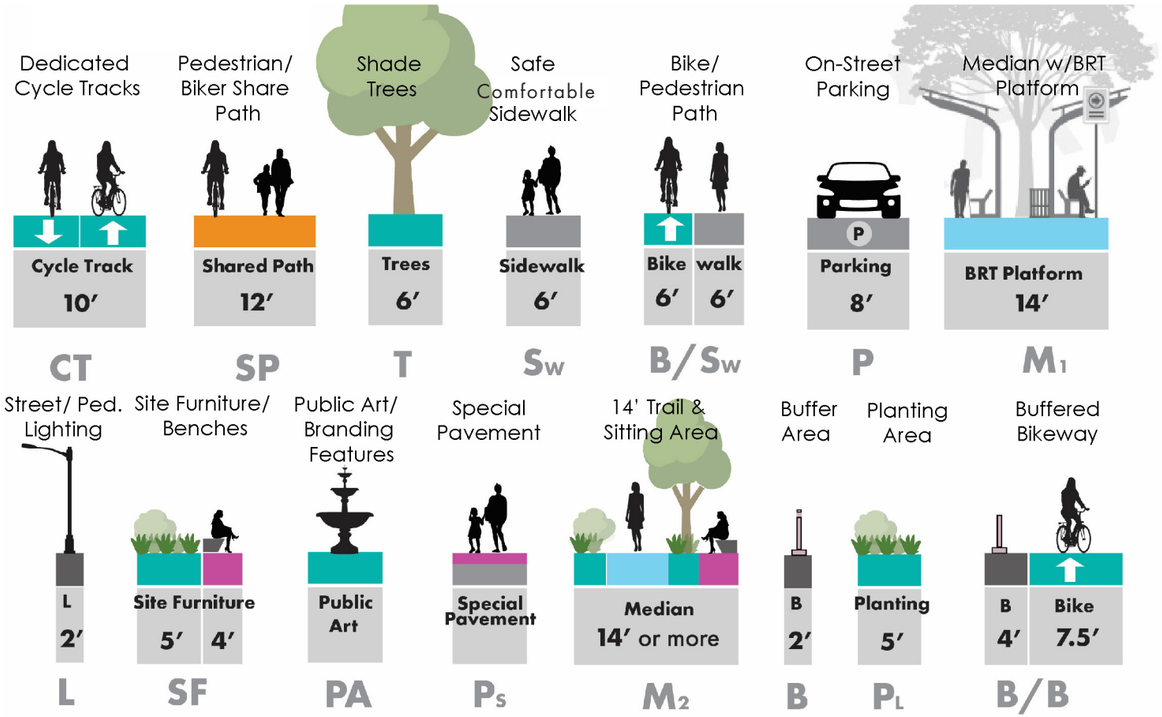


FIGURE AT41 - STREET DESIGN COMPONENTS

The Design Tools framework translates planning goals into implementable street components. These tools represent the physical building blocks available within the public right-of-way to improve safety, comfort, connectivity, and identity across the study area.

Core active transportation elements include cycle tracks, shared-use paths, sidewalks, dedicated bike lanes, and transit platforms. These components establish multimodal continuity and define clear space allocation for pedestrians, cyclists, transit users, and vehicles.

Supporting elements such as trees, planting zones, medians, lighting, and site furnishings enhance environmental performance and user comfort.

Landscape features provide shade, manage stormwater, and buffer users from traffic and industrial activity, while lighting and wayfinding improve visibility and clarity.

Additional components, which including public art, special paving, parking adjustments, and transit amenities, contribute to placemaking and corridor identity.

The design tools also serve as an educational framework, helping the public understand project priorities and the trade-offs associated with different street design options.

By illustrating variations in cross-sections, materials, and infrastructure components, the toolkit clarifies how design choices influence safety, comfort, and long-term performance. It also helps communicate the relative cost implications of different interventions, supporting informed discussion and realistic expectations around implementation.

IMPROVEMENT OPPORTUNITY FRAMEWORK

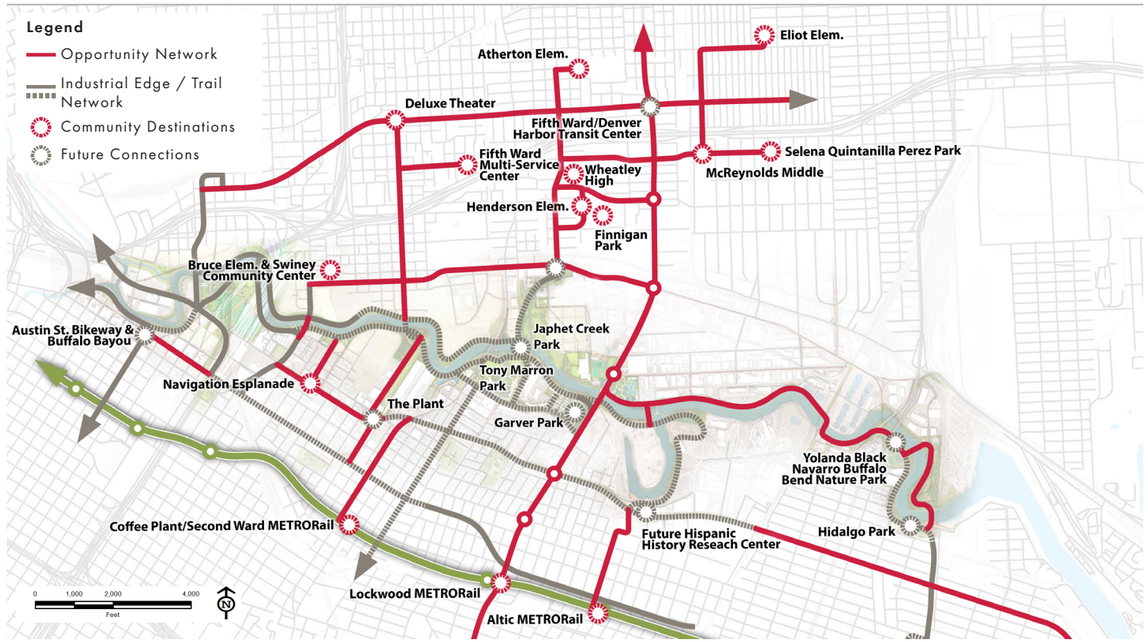


FIGURE AT42 - OPPORTUNITY MAP

The map above shows the evaluated corridors represent a mix of arterial streets, industrial connectors, neighborhood streets, and emerging trail segments. While several corridors have generous right-of-way widths, many under-perform in pedestrian comfort, crossing safety, and multimodal clarity.

Major Corridors (Navigation Boulevard, Lockwood Drive, Clinton Drive)

These high-capacity corridors are defined by wide lanes, long crossings, and minimal pedestrian buffering. Bridge segments are particularly exposed. Their scale provides opportunity to rebalance the right-of-way, enhance medians and canopy, improve intersection geometry, and introduce protected multimodal facilities—transforming them from traffic-dominated arterials into structured urban boulevards.

North–South Connectors (Velasco, Gregg, Schweikhardt, Solo)

These streets serve as critical neighborhood-to-bayou links but lack consistent sidewalks, shade, and streetscape identity. Completing pedestrian infrastructure, adding traffic calming, and integrating landscape buffering can redefine them as safe community connectors.

East–West Community Corridors (Lyons, Market, Sonora)

These corridors show moderate traffic and varying levels of canopy and neighborhood character. Standardized cross-sections, continuous sidewalks, bicycle facilities, and coordinated streetscape elements can strengthen their civic presence and improve orientation to the bayou and transit.

Industrial Edge & Trail Context (Buffalo Bayou Industrial Trail)

Industrial conditions and truck activity limit comfort and safety; however, proximity to the bayou creates opportunity to formalize trail connections, introduce green buffers, and establish gateway moments that improve legibility and access.

The following section analyzes each corridor through the lenses of safety, connectivity, comfort, resilience, and placemaking, identifying how targeted improvements can strengthen overall network performance and community benefit.

CURRENT CONDITIONS



Navigation Boulevard
West Segment At The Esplanade



Lockwood Drive



Navigation Boulevard
East Segment



Lockwood Drive @ Bridge



Navigation Boulevard
South Segment



Clinton Drive



Lyons Avenue

CURRENT CONDITIONS



Gregg Street
North Segment



Schweikhardt Street



Gregg Street
South Segment



Solo Street



Velasco Street



Sonora Street



Market Street



Buffalo Bayou Industrial Trail

SAFETY AND CONNECTIVITY



OPPORTUNITY FRAMEWORK (SAFETY AND CONNECTIVITY)

Enhance Safety and Connectivity

Creating a safer, more reliable transportation network around Buffalo Bayou East requires directly addressing vehicle speeds and aligning roadway design with surrounding context and travel demand. The following strategies focus on reducing crash risk, improving comfort for all users, and ensuring our street network supports access, health, and economic vitality.

This section identifies strategic interventions to improve safety, accessibility, and overall system performance by addressing excessive vehicle speeds and aligning roadway design with context and demand. Together, these focus areas present high-impact, implementable strategies that can reduce severe crashes, improve comfort for all users, and create a more balanced multimodal network.

Street Design Trade-offs and Safety

Street design decisions—lane widths, medians, sidewalks, bike facilities, landscaping, and transit amenities—are not neutral. They signal priorities and directly shape how people experience and move through a corridor each day.

At their core, corridor projects require trade-offs: how much space is dedicated to vehicular throughput versus safety, comfort, and accessibility for people walking, biking, and using transit. These choices influence speed, crash risk, and overall usability.

SAFETY AND CONNECTIVITY

The Inside-Out Approach

Prioritizes vehicular throughput, often preserving space for potential future growth, while constraining the pedestrian and bicycle environment. Typical characteristics include:

- Four 12-foot wide travel lanes
- Wide median reserved for future expansion
- Narrow pedestrian realm (e.g., 4-foot wide sidewalks)
- Limited space for trees and buffers

The Outside-In Approach

Prioritizes vulnerable users first and allocates remaining space to vehicular travel. Typical characteristics include:

- Narrower travel lanes
- Landscaped median with turn-lane flexibility
- Generous sidewalks and protected bicycle facilities
- Space for shade trees, transit stops, and utilities



FIGURE AT43 - INSIDE-OUT CROSS SECTION

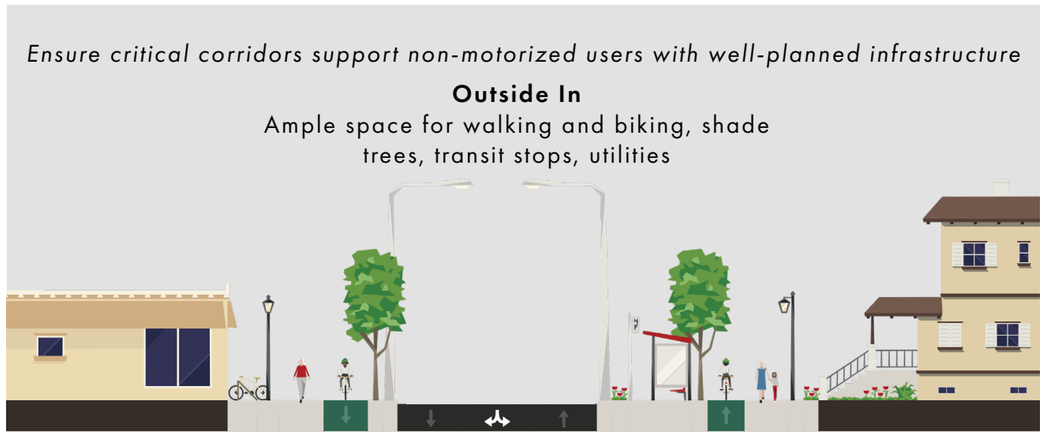


FIGURE AT44 - OUTSIDE-IN CROSS SECTION

SAFETY AND CONNECTIVITY



CURB EXTENSIONS
Source: Transportation Research and Education Center

The key distinction is not whether vehicles are accommodated, but whether they are the organizing principle of the design.

Speed and Safety: Designing for Outcomes

Observed operating speeds on several corridors exceed posted limits and are often inconsistent with surrounding land uses and pedestrian activity. Wide lanes, long uninterrupted segments, and minimal roadside friction encourage higher speeds—raising both crash risk and severity, particularly for people walking and biking.

Lowering posted speed limits alone has limited impact. Meaningful change requires proactive design that reinforces context-appropriate target speeds.

Design for Target Speeds

Reconfigure street elements to visually and physically cue lower operating speeds:

- Narrow lane widths where feasible
- Add curb extensions and pedestrian refuge islands
- Introduce raised crossings or vertical deflection in priority locations
- Increase street trees and edge friction to visually narrow roadways

SAFETY AND CONNECTIVITY

Focus initial investments where speed-related crashes and vulnerable users intersect:

- Near schools, transit stops, medical facilities, and neighborhood centers
- Along corridors identified through crash and speed data analysis
- In areas with documented community concerns

Pair Infrastructure with Communication

Physical changes should be supported by clear messaging about expectations, safety outcomes, and benefits to the broader community.

Right-Sizing as a Strategic Tool

Right-sizing aligns roadway design with actual traffic demand. By narrowing lanes and reallocating excess capacity, corridors can:

- **Reduce Operating Speeds -** Improve crash outcomes, expand space for walking and biking, enhance shade and environmental performance, and support placemaking and economic vitality.
- **Integrated Implementation Framework -** Addressing speeding and right-sizing roadways are mutually reinforcing strategies. Oversized streets contribute to higher speeds; reducing excess width supports speed management. Together, these interventions create self-enforcing, safer corridors without relying solely on enforcement.

Right-sizing offers a cost-effective path to advance safety and connectivity goals without requiring full reconstruction.

Priority Corridor Selection

Priority corridors presented in the next pages were identified based on:

- Proximity to Buffalo Bayou East
- Crash history and severity
- Speed data
- Proximity to vulnerable users
- Equity considerations
- Community input

By focusing on high-impact corridors and integrating improvements into planned capital investments, these strategies offer a cost-effective pathway to enhance safety and mobility while supporting broader community health, access, and resilience goals.

Opportunities for Buffalo Bayou East: The Connectivity Framework

The Connectivity Framework organizes opportunities into four tiers, ranging from short-term network completion projects to transformational capital investments. This set of projects aim to create safe, accessible pedestrian and bike pathways that link key areas within the Buffalo Bayou East study area.

The four tiers of opportunities included in the Connectivity Frame work are:

- **Gap Fillers –** Rapid implementation projects to close obvious gaps in the existing/programmed active mobility network connecting to Buffalo Bayou East.
- **Neighborhood Connectors –** Corridors that can be retrofit to link key community-oriented destinations and neighborhoods to each other and Buffalo Bayou East.
- **Navigation Vision –** A vision for Navigation Boulevard that creates an integrated and complementary mobility corridor, acting as an extension and partner to Buffalo Bayou East.
- **Big Moves –** Catalytic capital projects that aim to create transformational changes that address community needs and expand access to opportunity by reconstructing key corridors or creating new bridges over barriers in the community.

IMPROVING CONNECTIVITY - GAP FILLERS

Gap Fillers focus on rapid, near-term improvements that close critical breaks in the existing and planned pedestrian and bicycle network connecting to Buffalo Bayou East.

These projects prioritize safety by addressing missing sidewalks, discontinuous bike facilities, unsafe crossings, and poor lighting that currently discourage walking and biking. In the study area—where residents often rely on active transportation for daily trips—closing these gaps improves access to parks, transit stops, schools, and neighborhood destinations while reducing exposure to high-speed traffic. By delivering quick, visible safety upgrades, Gap Fillers help create a more reliable and comfortable network that supports everyday mobility for people of all ages and abilities.

- Lockwood Drive
- Lockwood Bridge
- Commerce Street
- Clinton Drive
- N Velasco Street
- N Live Oak Street
- Delmar Street

These projects offer visible early wins and strengthen network continuity with relatively low cost and short implementation timelines.

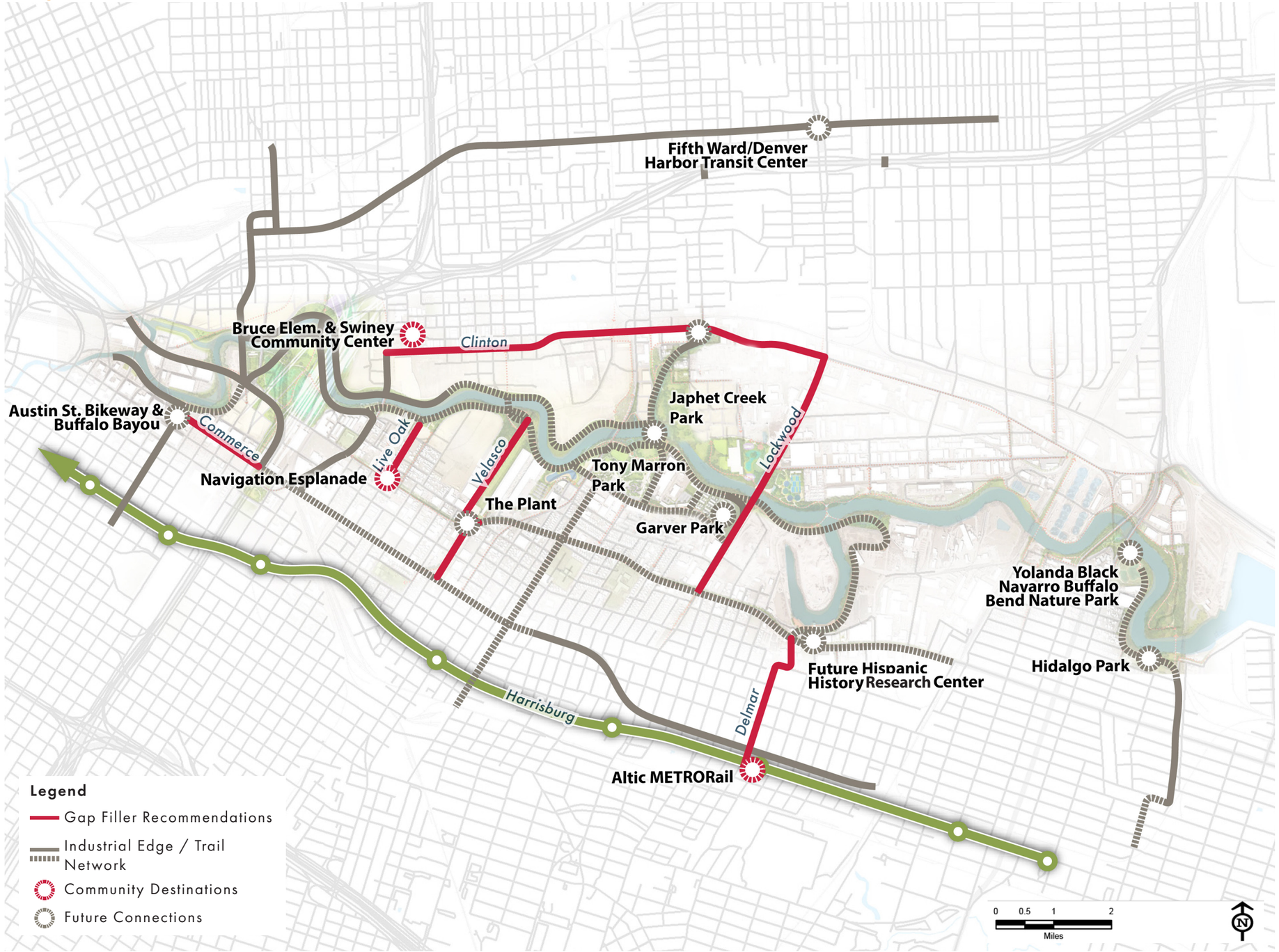


FIGURE AT46 - GAP FILLER OPPORTUNITIES

IMPROVING CONNECTIVITY - NEIGHBORHOOD CONNECTORS

Neighborhood Connectors are corridors that can be retrofitted to safely link East End neighborhoods with each other and with Buffalo Bayou East.

These routes emphasize people-first design by reallocating street space to support wider sidewalks, protected bike lanes, traffic calming, and safer intersections. In the study area, Neighborhood Connectors play a critical role in stitching together communities that have been historically divided by wide roadways, industrial land uses, and freight activity. By improving comfort and safety along these corridors, residents can more easily reach community-oriented destinations such as schools, libraries, neighborhood parks, and local businesses, strengthening social connections while reducing dependence on driving.

- Lyons Street
- Gregg Street (South)
- Gregg Street (North)
- Market Street
- Schweikhardt Street
- Coke Street / Solo Street
- Providence Street
- Sonora Street
- Shotwell Street
- Hillsboro Street

These corridors serve as everyday mobility routes connecting residents to schools, parks, commercial areas, and transit.

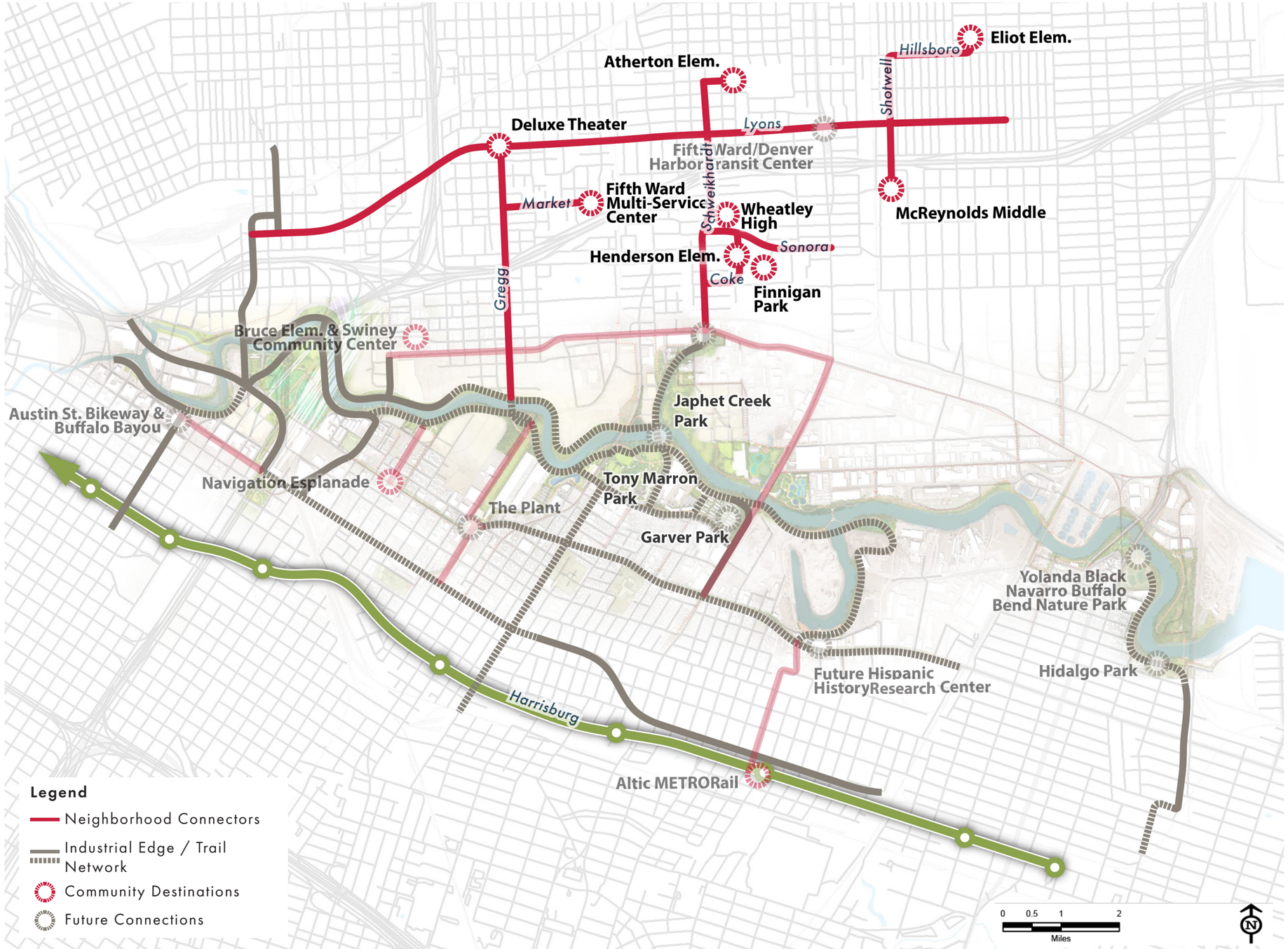


FIGURE AT47 - NEIGHBORHOOD CONNECTOR OPPORTUNITIES

IMPROVING CONNECTIVITY - NAVIGATION VISION

The Navigation Vision establishes a long-term, people-centered concept for Navigation Boulevard as an integrated and complementary mobility corridor that functions as an extension of Buffalo Bayou East.

This vision prioritizes safety by balancing all modes—walking, biking, transit, and vehicles—through context-sensitive design, improved crossings, and reduced conflicts with freight traffic. For study area residents, Navigation Boulevard has the potential to become a welcoming spine that supports daily movement, recreation, and economic activity. By aligning design, wayfinding, and public realm investments with Buffalo Bayou East, the corridor can enhance legibility, comfort, and connectivity while reinforcing Navigation Boulevard's role as a shared street that serves both neighborhood needs and regional access.

- Navigation Boulevard (St. Charles Street to Palmer Street)
- Navigation Boulevard (Mack Street to 77th Street)
- Navigation Boulevard (77th Street to Brays Bayou)

Both retrofit and full rebuild pathways were explored, offering flexibility based on funding, right-of-way, and long-term redevelopment goals.

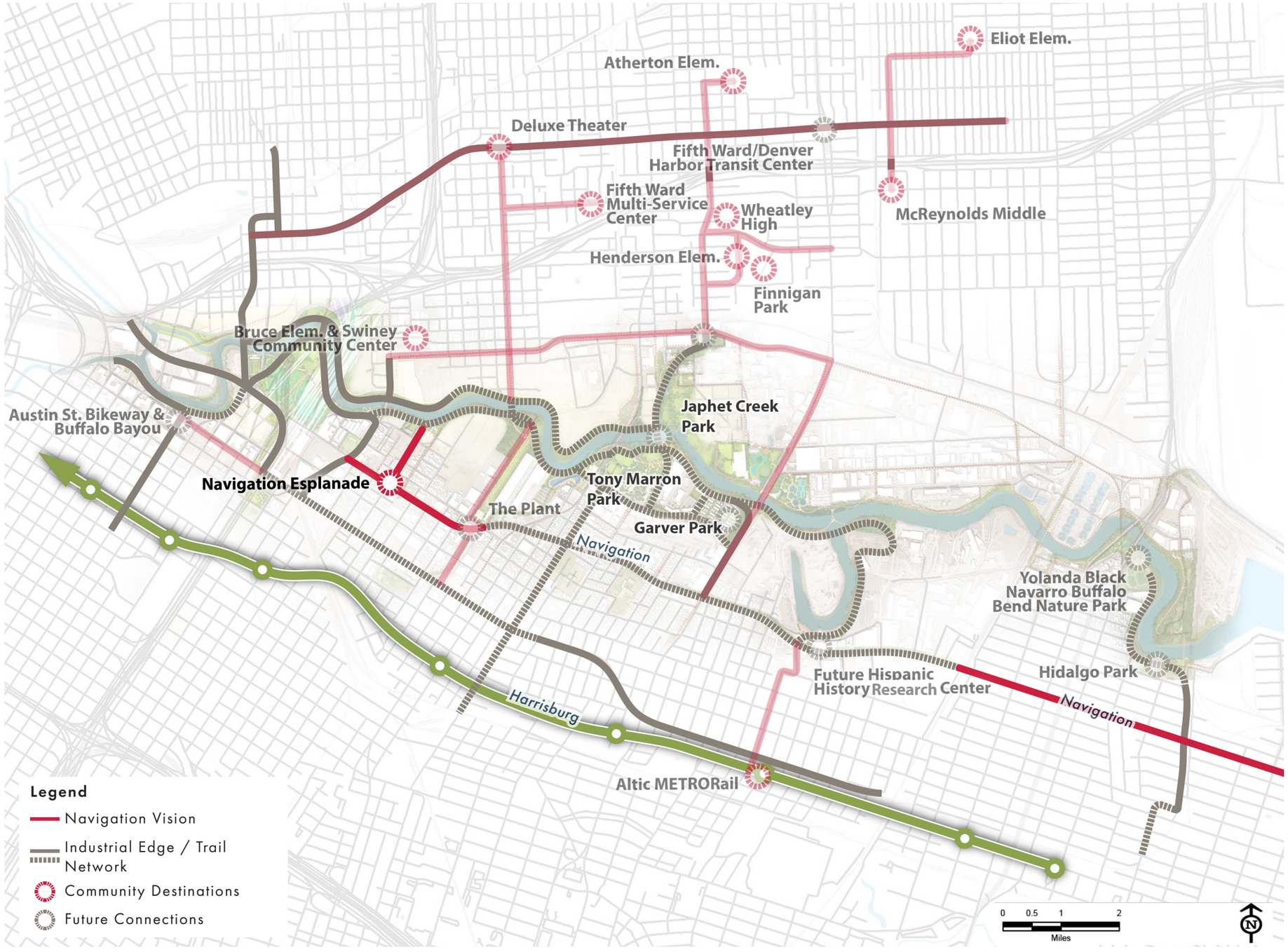


FIGURE AT48 - NAVIGATION VISION MAP

IMPROVING CONNECTIVITY - BIG MOVES

Big Moves are catalytic capital projects that aim to deliver transformational improvements to safety, connectivity, and access to opportunity in the study area.

These projects may include reconstructing major corridors, creating new bridges over physical barriers, or reimagining infrastructure that currently prioritizes vehicle movement over people. By addressing long-standing barriers—such as rail lines, highways, or wide industrial roadways—Big Moves expand safe and direct access to Buffalo Bayou East and surrounding neighborhoods. These investments have the potential to significantly improve mobility equity, reduce crash risk, and unlock new connections to jobs, education, and recreational spaces, supporting safer and more connected neighborhoods for current and future residents.

- Lockwood Drive
- Lockwood Bridge
- Velasco Street
- Gregg Street + Bridge
- Market Street (West)
- Market Street (East)
- Jensen Street Bridge
- Sampson Street
- I-10 Bike/Ped Bridges
- Buffalo Bayou East Extension

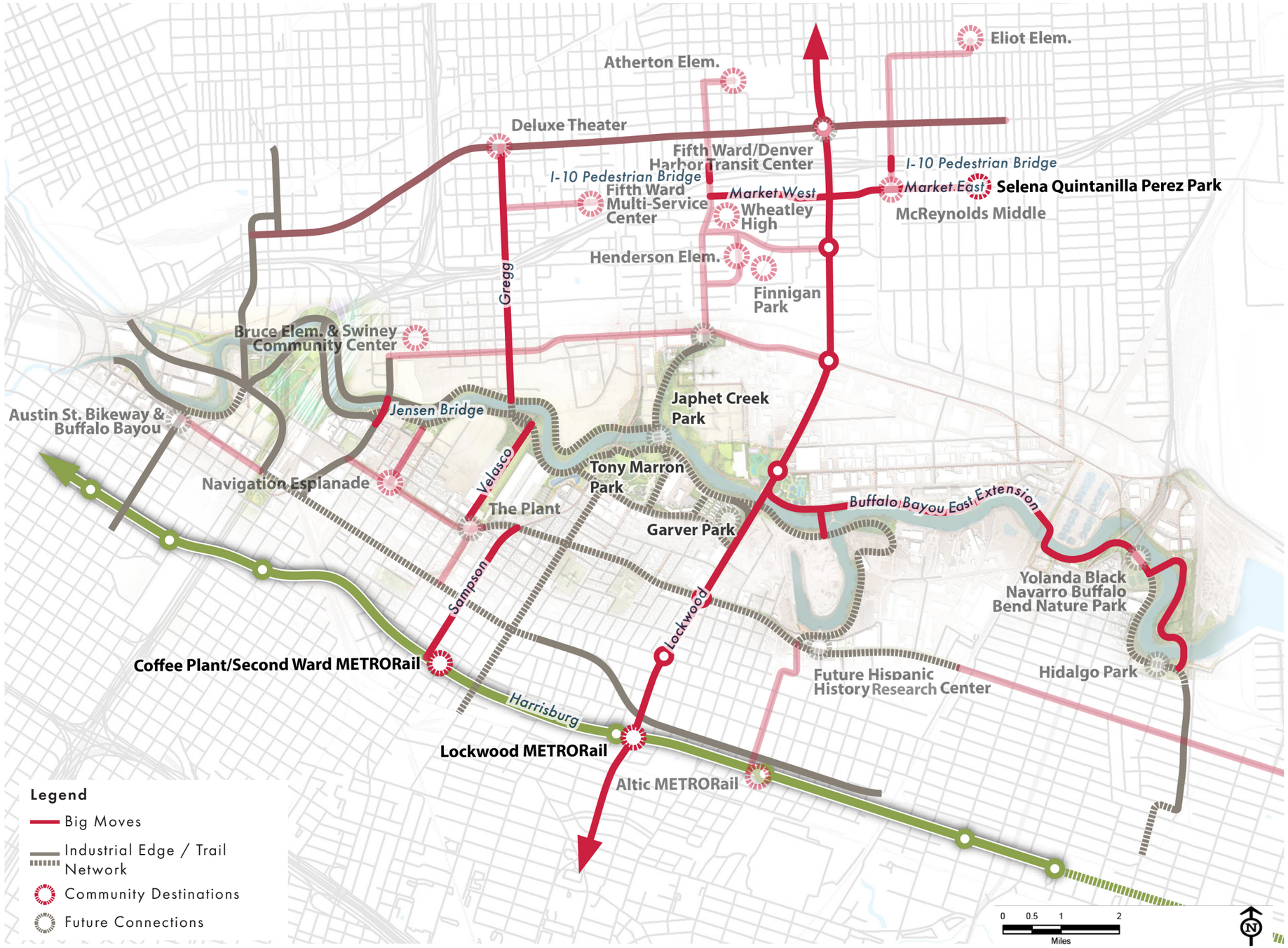


FIGURE AT49 - BIG MOVES MAP

IMPROVING CONNECTIVITY - OVERALL VISION

The Connectivity Framework presents a comprehensive, people-centered vision for improving safety, access, and mobility in the study area by layering near-term improvements with long-term transformational investments.

Through Gap Fillers, Neighborhood Connectors, the Navigation Vision, and Big Moves, the framework addresses both everyday mobility needs and structural barriers that limit access to Buffalo Bayou East and key community destinations. This layered approach prioritizes safe, comfortable walking and biking routes that connect neighborhoods to each other, to transit, and to regional open space, while also reimagining major corridors as places that serve people—not just vehicles.

Across all tiers of the Connectivity Framework, two implementation approaches are available: retrofit and rebuild.

The retrofit strategy includes re-striping and narrowing of lanes, the addition of bicycle facilities and buffers, and incremental safety and streetscape upgrades. Retrofits are often advantageous because they are lower cost, faster to deliver, and adaptable over time.

The rebuild strategy consists of comprehensive reconstruction of the roadway. It includes the integration of utilities and green infrastructure, permanent transformation of cross-sections. Reconstruction projects have a long-term durability, full realization of placemaking vision, stronger identity and economic development potential.

By integrating quick wins with bold, catalytic projects, the Connectivity Framework creates a cohesive network that enhances mobility equity, strengthens neighborhood connections, and expands access to opportunity for area residents. Combining quick-build retrofits with long-term reconstruction allows safety benefits to begin immediately while planning for generational change.

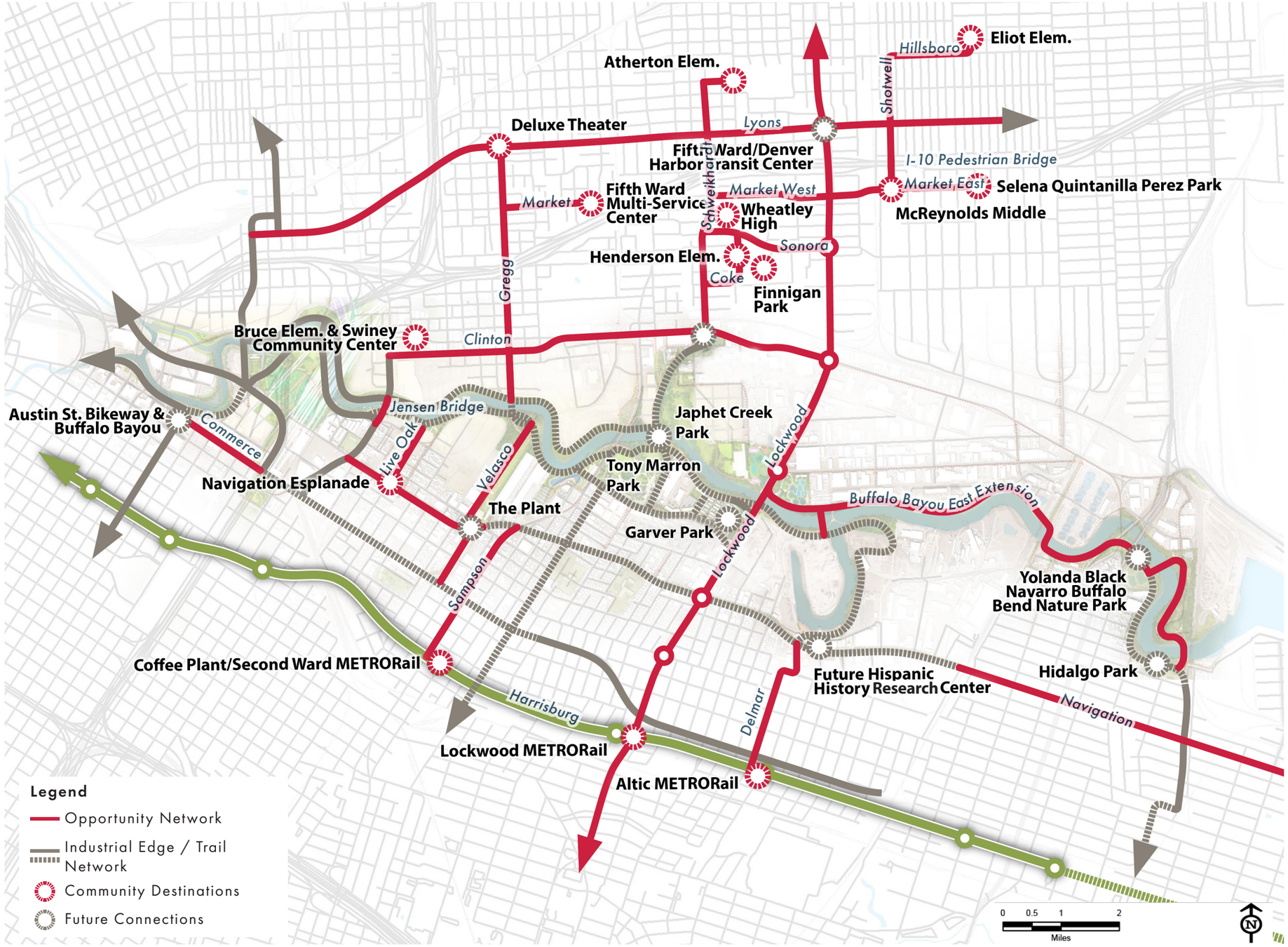


FIGURE AT50 - OVERALL VISION MAP

COMFORT AND RESILIENT

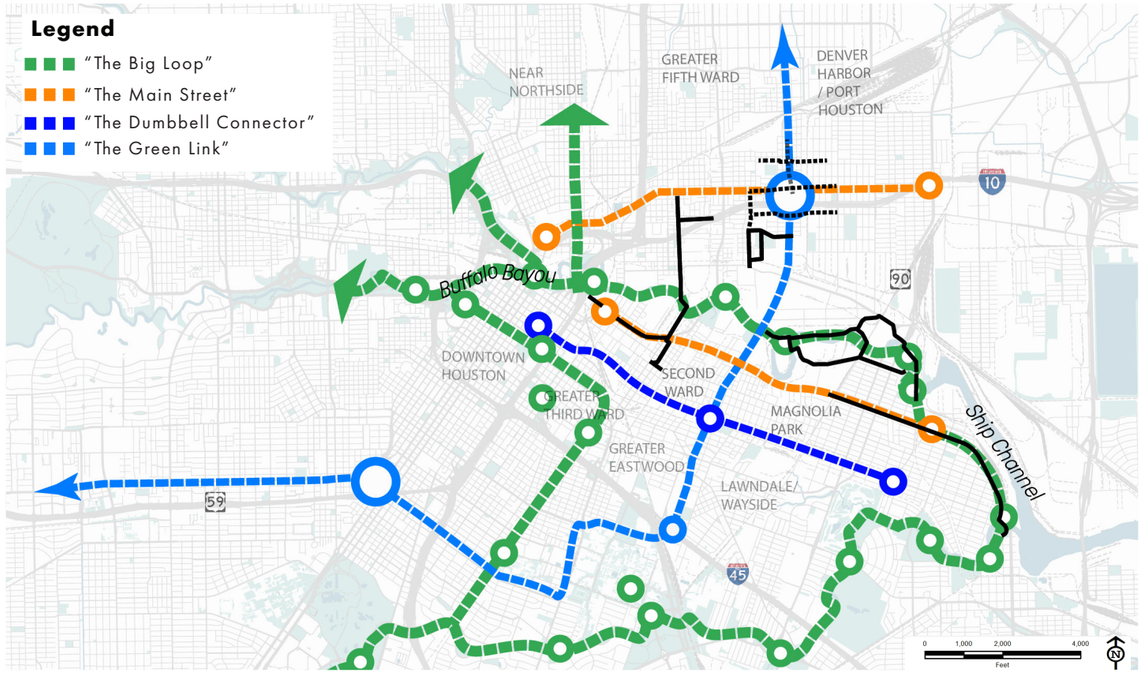


FIGURE AT51 - Network Hierarchy

Establishing a Network Hierarchy

The proposed opportunity framework organizes corridors by their role within the larger system. Not all routes serve the same purpose; some act as regional spines, while others function as neighborhood connectors or catalytic civic corridors.

"The Big Loop"– Regional Connector

Buffalo Bayou represents the largest open space system in the study area and serves as the backbone of the regional trail network. Strengthening connections to and along the bayou creates the foundation for a continuous "Big Loop" that links parks, waterfront amenities, and regional trails. This loop supports both recreational and commuter trips, enhances access to nature, and reinforces the bayou as the organizing ecological and civic spine of East Houston.

This corridor elevates Buffalo Bayou from an edge condition to a central connector—binding Magnolia Park, Second Ward, Fifth Ward, and Denver Harbor through shared access to open space.

"The Main Street" - Civic Spine & Economic Corridor

One primary north–south or east–west corridor is envisioned as the "Main Street" of the district. This corridor extends beyond mobility to support economic vitality, placemaking, and identity. By prioritizing wide pedestrian realms, shade canopy, and active storefront potential, this spine becomes both a transportation route and a civic space.

Its role is catalytic—supporting redevelopment momentum, strengthening neighborhood-serving businesses, and enhancing access to the Fifth Ward/Denver Harbor Transit Center.

"The Dumbbell Connector" - Destination-to-Destination Link

A secondary opportunity corridor functions as a "dumbbell" connection between two key destinations, such as parks, schools, new development, or community hubs. This corridor strengthens neighborhood cohesion and improves short, daily-use walking and biking trips.

Improvements focus on safety, traffic calming, continuity, and user comfort. Rather than pursuing large-scale transformation, the approach emphasizes targeted upgrades—such as rest stations and shaded pause points along the way—that create a more enjoyable urban strolling experience beyond simple travel. These routes help bridge local streets into the larger network and ensure connectivity improvements are distributed equitably across neighborhoods.

"The Green Link" – Transit-to-Park Connector

A critical opportunity lies in strengthening connections between the Fifth Ward/Denver Harbor Transit Center and nearby parks such as Finnigan Park and other neighborhood open spaces. This "Green Link" corridor may include both on-street and off-street options, evaluated through alignment feasibility, floodplain conditions, and land use compatibility.

This connector supports multimodal transitions, prioritizing walking and biking experiences rather than auto-dominated movement. It also creates opportunities for green infrastructure and expanded open space that can accommodate park programming—such as small playgrounds, seating areas, shaded lawns, and diverse tree and vegetation planting. The corridor can serve as a meaningful tree canopy expansion strategy while integrating placemaking elements that enhance daily comfort, safety, and neighborhood identity.



"The Big Loop"– Regional Connector
Connecting most of the off-street trails, including Sunset Trail, Buffalo Bayou East Trail, Brays Bayou Trail and Columbia Tap Trail.



"The Main Street" - Civic Spine & Economic Corridor
Lyons Ave. and Navigation Blvd. serve as Civic Spines for Fifth and Second Wards.

Across all corridors, improvements are guided by four primary themes: connectivity, safety, comfort, and resilience. The strategy focuses on closing missing links and creating transitions between the bayou, neighborhoods, parks, and transit. Comfort is enhanced through shade canopy, lighting, signage, seating, and buffering from industrial or high-traffic areas to elevate the walking and biking experience.

At the same time, green infrastructure and flood-adaptive design address drainage challenges, reduce urban heat, and strengthen ecological performance—reinforcing the project's commitment to public space and resilience.

Focused Areas vs. System-Wide Improvements

Opportunity corridors are organized into strategic nodes and continuous segments. Focused areas include key intersections, trailheads, and transit interfaces that require more detailed design attention. Secondary segments emphasize consistent cross-sections, safety standards, and scalable design tools that can be implemented efficiently across the study area. This approach balances catalytic investments with cost-effective, replicable improvements.

Together, these four themed connectors form a layered network linking neighborhoods to regional trails, transit hubs, and waterfront destinations—strengthening economic vitality, environmental resilience, and everyday quality of life.



"The Dumbbell Connector" Destination-to-Destination Link
Connecting the historic Deluxe Theater node to The Plant new development.



"The Green Link" – Transit-to-Park Connector
Along Neighborhood Streets, Off-Street Trails to Connect Japhet Creek Park, Finnigan Park, Fifth Ward Transit Center and Dorian Park

PLACEMAKING AND BRANDING







PLACEMAKING REFERENCE PHOTOS



Corridor improvements can extend beyond mobility upgrades to shape a vibrant, multifunctional public realm. Rather than treating the street as a linear transportation facility, this concept introduces a sequence of programmable spaces that reinforce community identity and daily activity.

Flexible Plaza/Park

At key intersections, the right-of-way expands into flexible civic spaces. These plazas provide room for informal gathering, seating, and small-scale events while maintaining multimodal circulation. The design supports adaptability, allowing the space to function as a neighborhood park during everyday use and as an event space during festivals or community gatherings.

Temporary Market Activation

Strategic nodes along the corridor are envisioned as temporary market zones. These spaces accommodate pop-up vendors, food trucks, and seasonal programming, strengthening local economic activity and reinforcing the corridor as a community destination rather than a pass-through route.

Greenway Trail Integration

The corridor integrates greenway trails within a continuous landscape spine. Enhanced canopy, planted buffers, and separated pedestrian and bicycle facilities create a safe and comfortable linear park experience, improving connectivity to Buffalo Bayou while elevating environmental performance.

Streetscape Enhancement

Streetscape improvements—including widened sidewalks, street trees, pedestrian lighting, and active frontages—support long-term transformation of the corridor into a recognizable civic spine. The design encourages walking, supports adjacent businesses, and improves first- and last-mile access to transit.

PLACEMAKING AND BRANDING

This corridor offers a significant opportunity to strengthen district identity by integrating cultural heritage, mobility investments, and public realm enhancements into a cohesive branding strategy.

Streetscape elements—such as lighting, wayfinding, paving patterns, gateway features, and public art—can establish a recognizable visual language that reinforces streets like Lyons Avenue as a signature civic corridor.

Alignment with broader initiatives further elevates this opportunity. Houston's "The Orbit" bike route and the proposed Big Nature Loop, connecting two bayous through a continuous greenway system, position the area as part of a regional cycling and recreation network.

By connecting to the regional network, these corridors become more than local streets, they emerge as signature neighborhood spines and visible gateways to larger key destinations.

At the local scale, cultural events such as the Renaissance Festival in Fifth Ward reinforce Lyons Avenue's role as the historic and social heart of the community. A coordinated branding strategy can build on this identity, enhancing street life, supporting local businesses, and creating a strong sense of place that seamlessly connects heritage, mobility, and recreation.







BRANDING OPPORTUNITIES



PROJECT RECOMMENDATIONS

FROM OPPORTUNITIES TO RECOMMENDATIONS

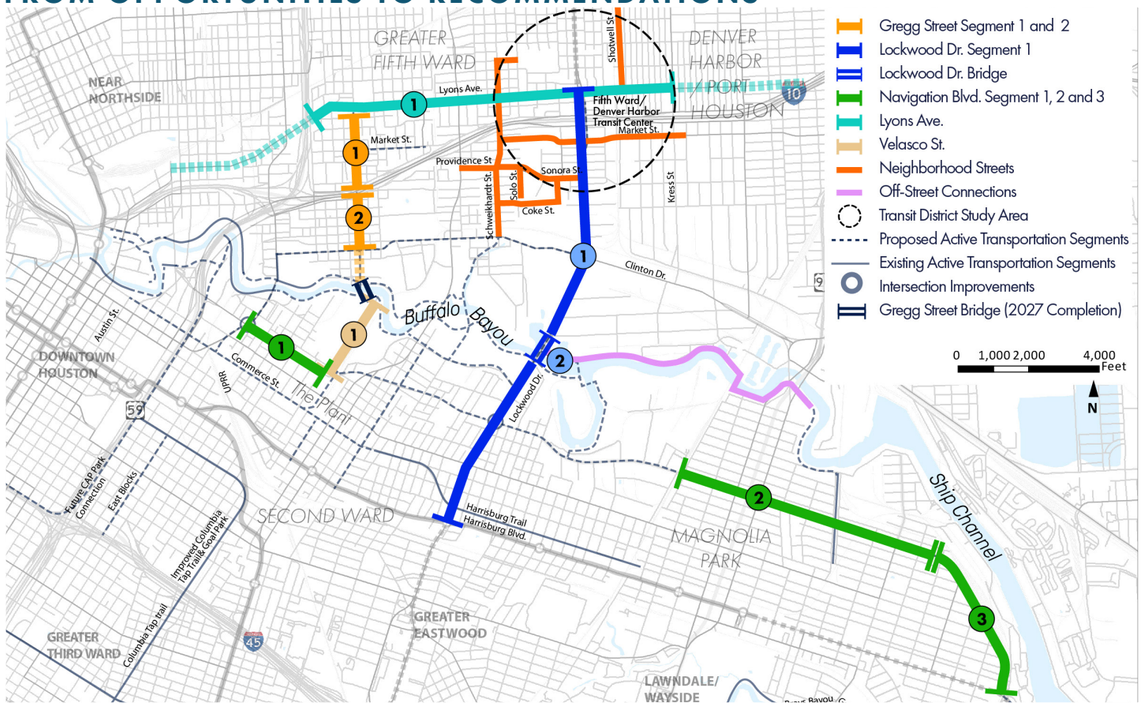


FIGURE AT52 - RECOMMENDED IMPROVEMENTS MAP

Following completion of the opportunity identification phase, corridor conditions, public feedback, stakeholder input, and network connectivity needs were systematically evaluated to determine where active transportation investments would provide the greatest benefit.

Opportunities were identified based on several key factors, including:

- Existing safety concerns;
- Gaps in pedestrian and bicycle infrastructure;
- Access to Buffalo Bayou trails;
- Connectivity to the Fifth Ward, Denver Harbor, and Second Ward neighborhoods;
- Key destinations such as Navigation Boulevard
- Planned developments and future growth areas.

These factors were used to assess and prioritize corridors based on community priorities, feasibility, and their potential to strengthen the overall multimodal transportation network.

The final recommended active transportation improvements focus on the following corridors:

- Gregg Street (Segments 1 and 2)
- Lockwood Drive (Segment 1, including the Lockwood Drive Bridge)
- Navigation Boulevard (Segments 1–3)
- Lyons Avenue
- Velasco Street
- Select neighborhood streets, including targeted intersection improvements and off-street connections.

Collectively, these improvements are intended to create a safer, more connected multimodal network that links neighborhoods to Buffalo Bayou, regional trails, transit facilities, and key destinations.

The potential eastern extension of the Buffalo Bayou trail, shown in pink above, presents an opportunity to improve future connectivity. Based on desktop review, this segment warrants further feasibility assessment and was not included among the recommendations in this plan.

PRIORITIES & FEEDBACK

Public feedback collected through the Connecting Buffalo Bayou East Second Public Meeting and Priority Improvements Survey indicates strong community support for enhancing safety, comfort, and multimodal connectivity throughout the study area. Respondents consistently emphasized the need for improved pedestrian and bicycle access, as well as stronger connections between neighborhoods and major corridors.

Community feedback highlights a strong preference for a transportation system that is inclusive, comfortable, and environmentally responsive. Respondents emphasized the importance of increased tree canopy and shading, as well as improved accessibility and equitable access to transportation and public spaces.

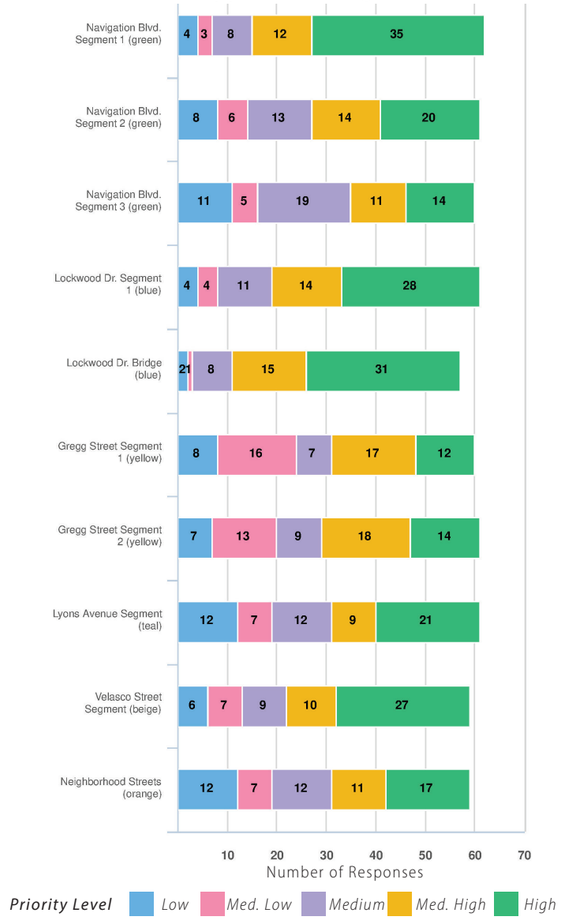


FIGURE AT53 - PUBLIC MEETING 2 & SURVEY FEEDBACK

Survey results identified several corridors as high priorities for improvement. The corridors receiving the highest number of "High Priority" ratings include:

- Navigation Boulevard (Segment 1)
- Lockwood Drive (Segment 1)
- Velasco Street
- Lyons Avenue
- Gregg Street (Segment 2)

Although Gregg Street Segments 1 and 2 ranked slightly lower in some categories, they present a strong opportunity to enhance corridor conditions. Proposed improvements include pedestrian- and bicycle-friendly design upgrades, traffic calming measures, and strengthened connections to key destinations such as Buffalo Bayou, Velasco Street, planned development sites, and community hubs. Maintaining Gregg Street as a high-priority corridor is therefore recommended.

Corridors identified as moderate priority include:

- Navigation Boulevard (Segments 2 and 3)
- Lockwood Drive Bridge
- Neighborhood streets

Across all corridors, survey responses consistently highlighted three primary types of desired improvements:

- Continuous and well-maintained sidewalks to support safe and accessible pedestrian travel
- Safe roadway crossings, including intersection improvements and enhanced crossing opportunities along major streets
- Trees and green infrastructure for shade, heat mitigation, and stormwater management

Overall, these findings reflect a strong community desire for a balanced, multimodal transportation network that enhances safety, comfort, and accessibility while improving connections to Buffalo Bayou and surrounding neighborhoods.

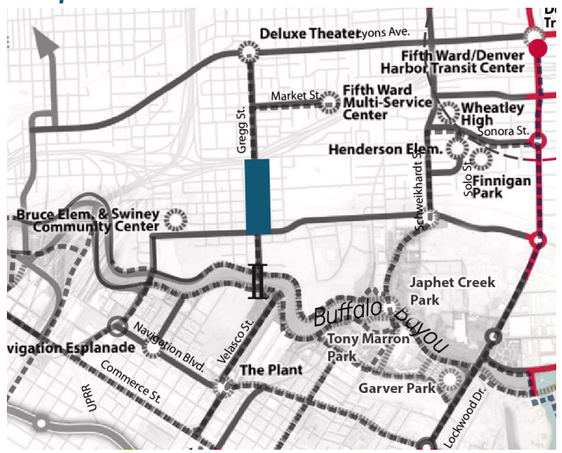
PROJECT 1 -GREGG STREET SEGMENT 1 CONNECTIVITY IMPROVEMENT

Gregg Street functions as a key north–south corridor within the Fifth Ward, linking residential neighborhoods to Interstate 10 and Buffalo Bayou. Despite its strategic location, the corridor currently lacks safe and continuous pedestrian and bicycle infrastructure, limiting access to the bayou and surrounding destinations.

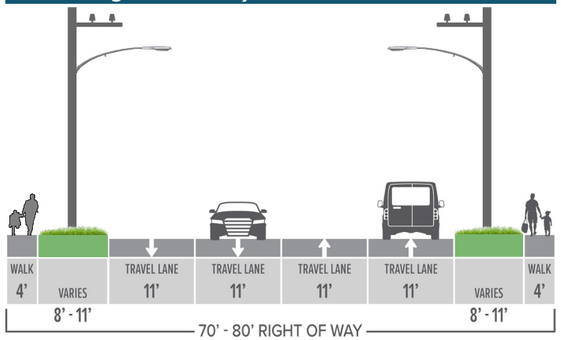
A proposed pedestrian and bicycle bridge at Buffalo Bayou will significantly enhance connectivity, linking the corridor to regional trail systems and expanding access to open space. However, existing right-of-way allocation prioritizes vehicular movement, with limited space dedicated to multimodal use. Sidewalk gaps and the absence of bicycle facilities further constrain accessibility.

Enhancements to Gregg Street are intended to rebalance the corridor, improving safety and accessibility while supporting its role as a primary connection between neighborhoods and Buffalo Bayou. This segment is identified as a Phase 1 regional connection within the broader East End Bikeway Network. Three levels of improvement are presented to guide future design and implementation on the facing page.

Project Location



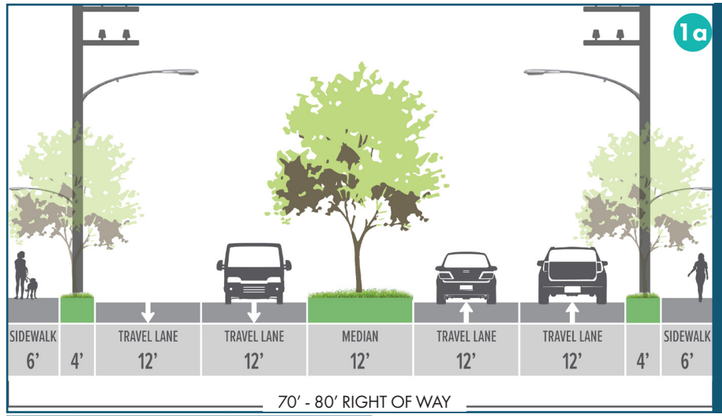
Existing Roadway Section



Components Included in Design to Achieve Improvement Goals

Across all options, the design framework incorporates key elements to support corridor performance. The level of implementation determines the extent to which these components are realized, with more comprehensive approaches delivering greater overall benefits.

	1a	1b	1c
01. Continuous sidewalks and safe crossings	X	X	X
02. Bicycle infrastructure		X	X
03. Streetscape and public realm enhancements		X	X
04. Drainage and stormwater improvements			
05. Tree canopy and environmental benefits		X	X
06. Transit access and operations			
07. Utility coordination and long-term resilience			X



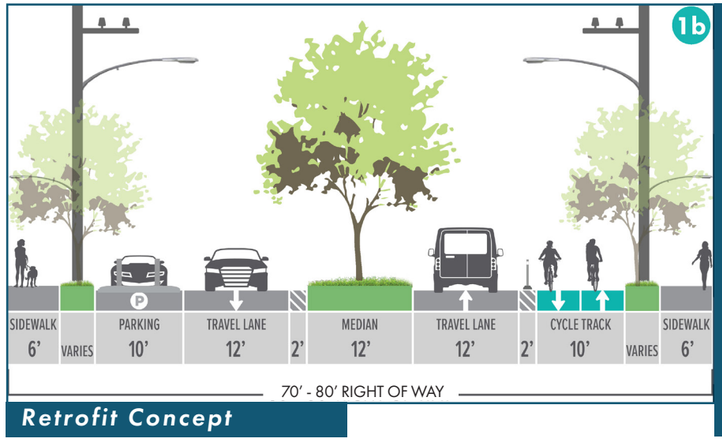
Basic Improvements

1a Basic Improvements

Basic improvements focus on low-impact near-term upgrades within the existing roadway configuration.

These include the addition of standard sidewalks on both sides of the street and minor safety enhancements.

This option maintains existing lane configurations and requires minimal changes to vehicular operations, but provides limited improvement to overall multimodal conditions.



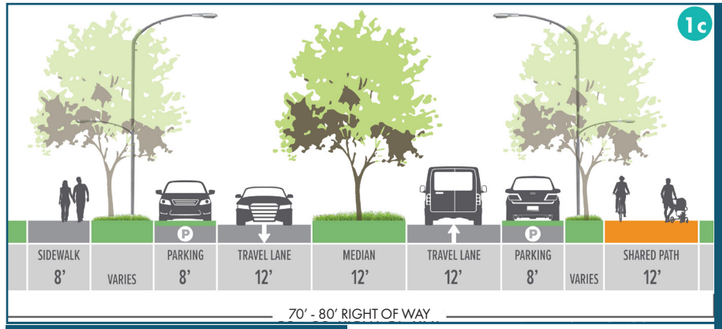
Retrofit Concept

1b Retrofit Improvements

The retrofit option introduces a dedicated, protected two-way cycle track, upgraded sidewalks, planting zones with street trees, enhanced street and trail lighting.

This approach reallocates roadway space to better balance multimodal needs, typically narrowing travel lanes and reducing excess capacity.

Retrofit improvements significantly improve safety and comfort for pedestrians and cyclists while maintaining overall corridor functionality.



Rebuild Concept

1c Reconstruction Improvements

The reconstruction option represents a comprehensive redesign of the corridor. It includes widened sidewalks, a shared-use path for pedestrians and bicyclists, expanded planting zones with street trees, and integrated pedestrian-scale lighting. Utility lines are relocated underground to improve safety and create a cleaner visual environment. Vehicular lanes are reduced and reconfigured to prioritize safety and multimodal access.

While this option requires the greatest level of investment and coordination, it delivers the highest long-term benefits in safety, connectivity, and placemaking.

PROJECT 2 -GREGG STREET SEGMENT 2 CONNECTIVITY IMPROVEMENT

Gregg Street Segment 2 currently operates as a four-lane roadway. South of I-10, travel lanes are divided by a median with turn lanes, while north of the interstate the roadway remains undivided. The existing configuration provides vehicular capacity that exceeds operational demand, resulting in wider crossing distances, reduced pedestrian safety, and travel speeds that are often higher than desired.

The excess roadway width presents an opportunity to reallocate space to better support multimodal use. A road diet—reducing travel lanes to two through lanes with a median or center turn lane—can shorten crossing distances, calm traffic, and improve overall safety. The available right-of-way also allows for the introduction of a protected cycle track, improved sidewalks, and designated parking where appropriate. Behind the curb, wider sidewalks and accessible curb ramps can enhance pedestrian comfort and accessibility.

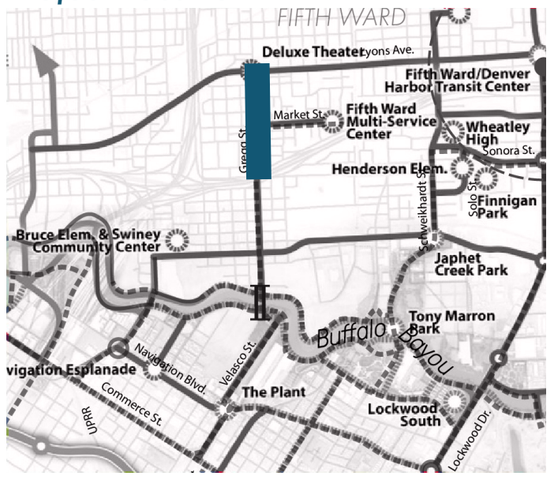
Coordination with TxDOT will be required to address safe and comfortable crossings at I-10, ensuring continuity of the corridor for all users.

In the long term, the corridor may support relocation of bicycle and pedestrian facilities behind the curb, creating a more continuous and comfortable experience that connects directly to Buffalo Bayou trails.

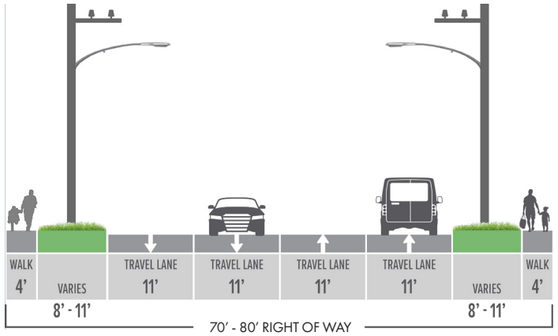
This approach would also provide opportunities for landscape enhancements and placemaking improvements, reinforcing Gregg Street's role as a key connector between neighborhoods and the bayou.

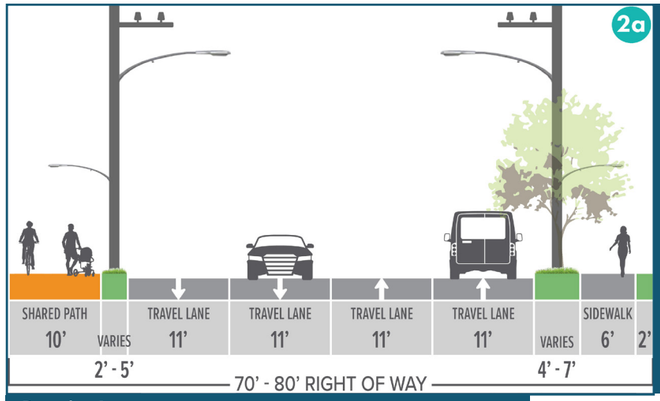
Two levels of improvement are presented to guide future design and implementation on the facing page.

Project Location



Existing Roadway Section



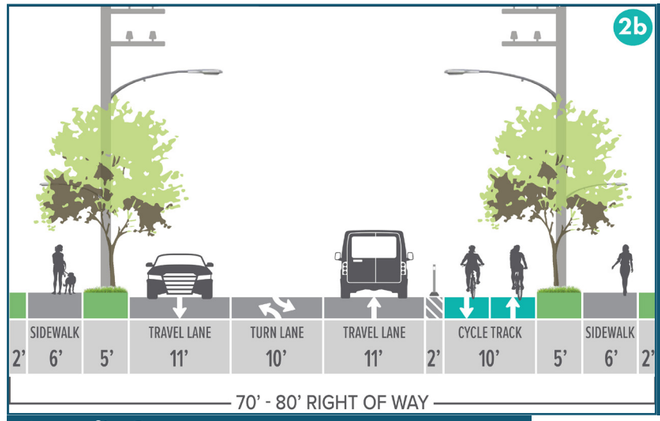


Basic Improvements

Basic Improvements

Basic improvements focus on maintaining the existing roadway configuration while introducing incremental safety upgrades. These include standard sidewalks on both sides and the addition of pedestrian lighting.

This option provides minimal disruption to traffic operations but offers limited improvements to overall multimodal conditions.



Retrofit Concept

Retrofit Improvements

The retrofit option reallocates roadway space to introduce protected bicycle lanes, upgraded sidewalks, and enhanced lighting.

This approach typically narrows travel lanes and reduces excess capacity to achieve a more balanced multimodal corridor.

Retrofit improvements significantly enhance safety and comfort for pedestrians and cyclists while maintaining corridor functionality.

Components Included in Design to Achieve Improvement Goals

Across both options, the design framework incorporates key elements to support corridor performance. The level of implementation determines the extent to which these components are realized, with more comprehensive approaches delivering greater overall benefits.

	2a	2b
01. Continuous sidewalks and safe crossings	X	X
02. Bicycle infrastructure	X	X
03. Streetscape and public realm enhancements	X	X
04. Drainage and stormwater improvements		
05. Tree canopy and environmental benefits		X
06. Transit access and operations		
07. Utility coordination and long-term resilience		

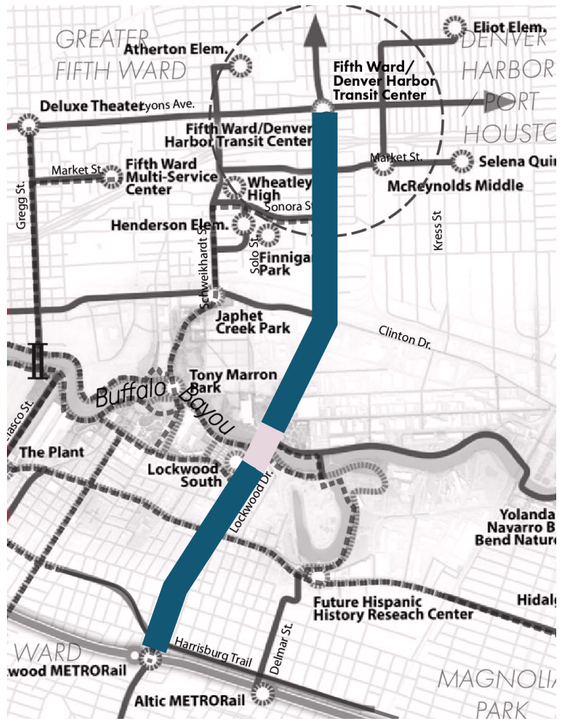
PROJECT 3 -LOCKWOOD DRIVE CONNECTIVITY IMPROVEMENT

Lockwood Drive is a critical north–south corridor connecting Fifth Ward, Denver Harbor, Buffalo Bayou, the East End, and destinations farther south. Its regional role makes it a key opportunity for improving multimodal connectivity.

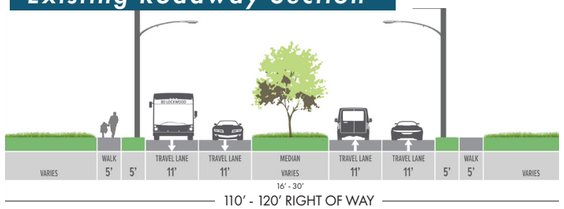
Recent improvements near Navigation Boulevard have strengthened access to the Buffalo Bayou trail system, nearby housing, and Tony Marron Park. Future investments should build on these efforts by extending bicycle and pedestrian connections north and south of the bayou, with the Lockwood Drive Bridge serving as a critical crossing.

Proposed improvements include protected bicycle facilities, enhanced pedestrian space, and streetscape upgrades that improve safety, accessibility, and user comfort while encouraging lower vehicle speeds. Given the corridor's importance for bus service and regional traffic, improvements should balance multimodal access with efficient roadway operations.

Project Location



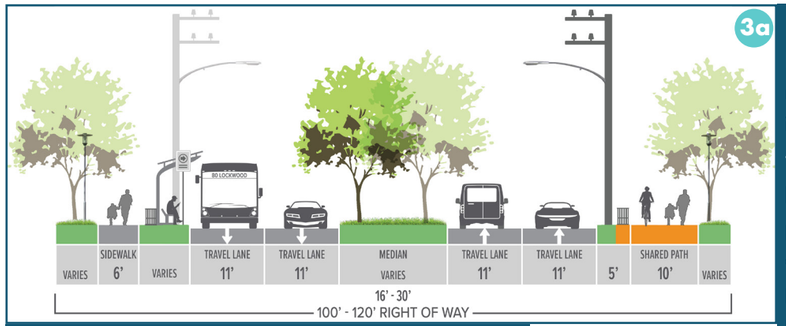
Existing Roadway Section



Components Included in Design to Achieve Improvement Goals

Across all options, the design framework incorporates key elements to support corridor performance. The level of implementation determines the extent to which these components are realized, with more comprehensive approaches delivering greater overall benefits.

	3a	3b	3c
01. Continuous sidewalks and safe crossings	X	X	X
02. Bicycle infrastructure	X	X	X
03. Streetscape and public realm enhancements	X	X	X
04. Drainage and stormwater improvements			X
05. Tree canopy and environmental benefits		X	X
06. Transit access and operations		X	X
07. Utility coordination and long-term resilience			X

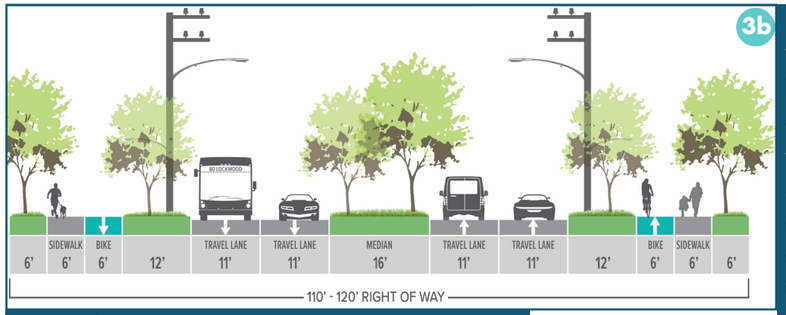


Basic Improvements

Basic Improvements

Basic improvements maintain the existing roadway configuration while introducing incremental safety upgrades.

These include standard sidewalks on both sides of the street and improved pedestrian lighting. This option minimizes changes to vehicular operations but provides limited improvement to overall multimodal conditions.

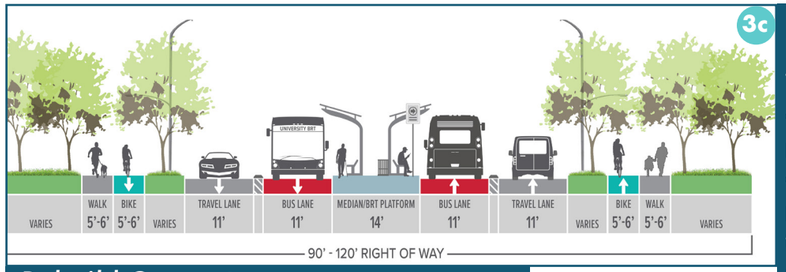


Retrofit Concept

Retrofit Improvements

The retrofit option introduces protected bicycle lanes, upgraded sidewalks, and enhanced street and trail lighting.

This approach reallocates roadway space by narrowing travel lanes and reducing excess capacity to better support multimodal use. Retrofit improvements significantly enhance safety and comfort while maintaining corridor performance.



Rebuild Concept

Reconstruction Improvements

This option provides a comprehensive corridor redesign with wider sidewalks, protected one-way cycle tracks, expanded planting zones, and pedestrian-scale lighting. Reconfigured travel lanes improve safety and multimodal access. While requiring greater investment, it delivers the greatest long-term benefits for connectivity, safety, and placemaking.

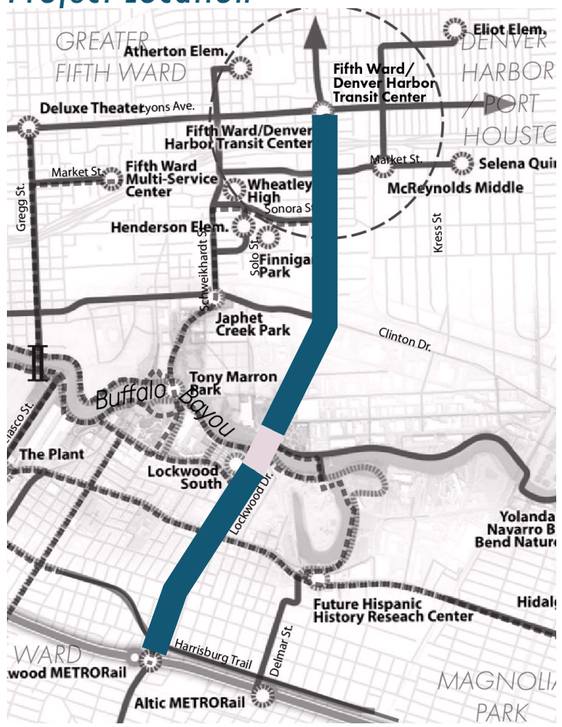
PROJECT 4 -LOCKWOOD DRIVE BRIDGE CONNECTIVITY IMPROVEMENT

The Lockwood Drive Bridge is a critical crossing over Buffalo Bayou, connecting neighborhoods and providing access to regional trail systems. Existing conditions prioritize vehicular traffic, with limited space for pedestrians and cyclists, resulting in constrained crossing conditions.

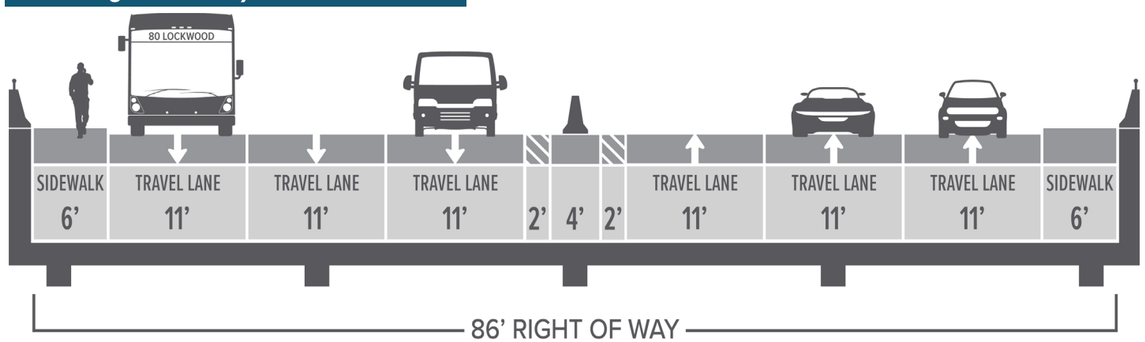
Proposed improvements include protected bicycle lanes, wider sidewalks separated from traffic by landscaped buffers, accessible curb ramps, improved driveway crossings, and pedestrian-scale lighting to create a safer and more comfortable crossing. Bicycle and pedestrian facilities would be separated from traffic using vertical elements such as flexible delineators or curbs.

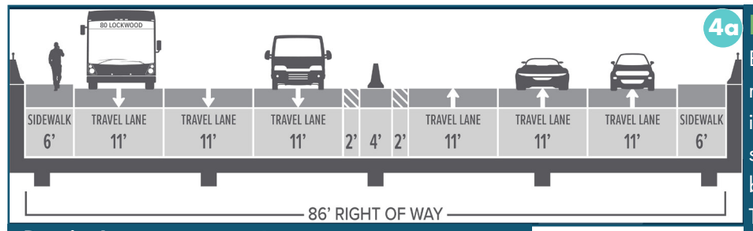
As a Phase 1 project in the East End Bikeway Network, the bridge will serve as a key multimodal link between Navigation Boulevard and the Fifth Ward/Denver Harbor Transit Center, with opportunities to extend improvements north and south through coordination with local agencies. Future corridor enhancements could also support transit improvements, including potential Bus Rapid Transit (BRT), providing faster, more reliable service while encouraging transit-oriented development.

Project Location



Existing Roadway Section

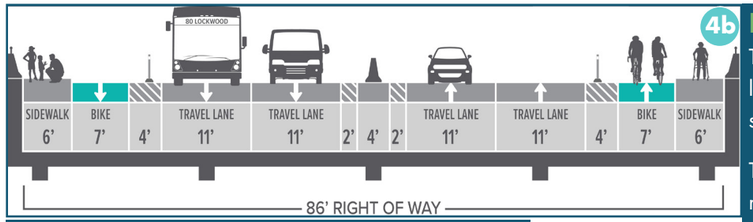




Basic Improvements

4a Basic Improvements

Basic improvements maintain the existing roadway configuration while introducing incremental safety upgrades. These include standard sidewalks on both sides of the bridge and the addition of pedestrian lighting. This option minimizes changes to vehicular operations but provides limited improvement to overall multimodal conditions.

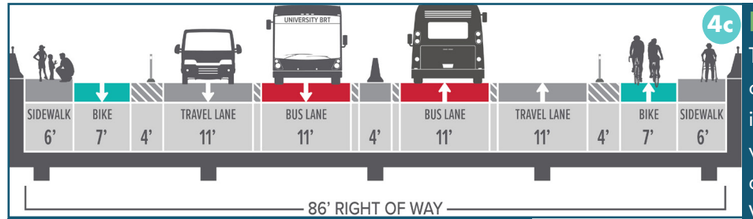


Retrofit Concept

4b Retrofit Improvements

The retrofit option introduces protected bicycle lanes, upgraded sidewalks, and enhanced street and trail lighting.

This approach reallocates roadway space by narrowing travel lanes to better accommodate multimodal users while maintaining overall corridor function.



Rebuild Concept

4c Reconstruction Improvements

The reconstruction option represents a comprehensive redesign of the bridge, including wider sidewalks, a dedicated two-way cycle track, expanded planting buffers, and integrated pedestrian-scale lighting. Vehicular lanes are reduced and reconfigured to prioritize safety and multimodal access. While this option requires greater investment and coordination, it delivers the highest long-term benefits in safety, connectivity, and user experience.

Components Included in Design to Achieve Improvement Goals

Across all options, the design framework incorporates key elements to support corridor performance. The level of implementation determines the extent to which these components are realized, with more comprehensive approaches delivering greater overall benefits.

	4a	4b	4c
01. Continuous sidewalks and safe crossings	X	X	X
02. Bicycle infrastructure		X	X
03. Streetscape and public realm enhancements			
04. Drainage and stormwater improvements			
05. Tree canopy and environmental benefits			
06. Transit access and operations			X
07. Utility coordination and long-term resilience			

PROJECT 5 -NAVIGATION BOULEVARD SEGMENT 1 CONNECTIVITY IMPROVEMENT

Navigation Boulevard is a primary east–west corridor connecting the East End to downtown Houston. Between North Saint Charles Street and Delano Street, the corridor has been transformed into a vibrant cultural destination known as the Navigation Boulevard Esplanade. Extending this esplanade eastward to connect with the proposed Velasco Street pathway will establish a critical link between established destinations and the expanding Buffalo Bayou trail system.

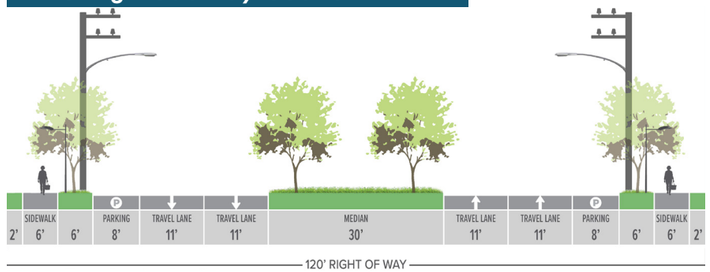
Currently, Navigation Boulevard consists of four travel lanes and carries approximately 11,000 vehicles per day. This level of traffic exceeds the threshold recommended for a two-lane roadway and results in excess roadway capacity. The wide roadway creates longer crossing distances, encourages higher vehicle speeds, and reduces overall pedestrian safety. Reallocating roadway space can improve safety by shortening crossings, calming traffic, and enhancing multimodal accessibility.

The corridor presents an opportunity to expand the existing esplanade by widening sidewalks, improving curb ramps, and enhancing landscape elements to create a more continuous and accessible public space. Community feedback indicates strong support for enhanced bicycle facilities along the corridor.

Project Location



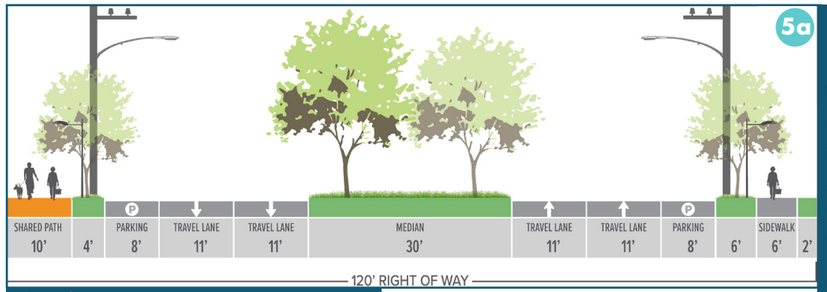
Existing Roadway Section



Components Included in Design to Achieve Improvement Goals

Across all options, the design framework incorporates key elements to support corridor performance. The level of implementation determines the extent to which these components are realized, with more comprehensive approaches delivering greater overall benefits.

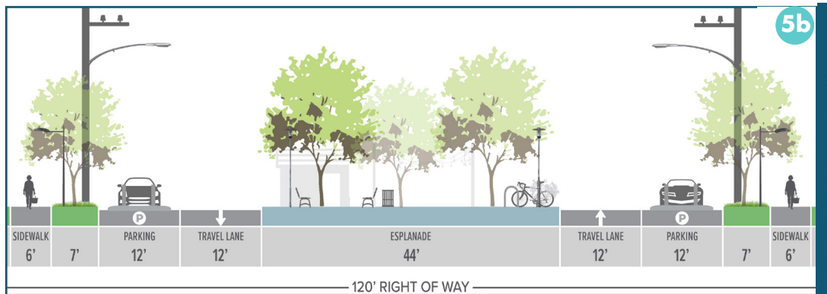
	5a	5b	5c	5d
01. Continuous sidewalks and safe crossings	X	X	X	X
02. Bicycle infrastructure		X	X	X
03. Streetscape and public realm enhancements		X	X	X
04. Drainage and stormwater improvements			X	X
05. Tree canopy and environmental benefits		X	X	X
06. Transit access and operations				
07. Utility coordination and long-term resilience			X	X



Basic Improvement

Basic Improvements

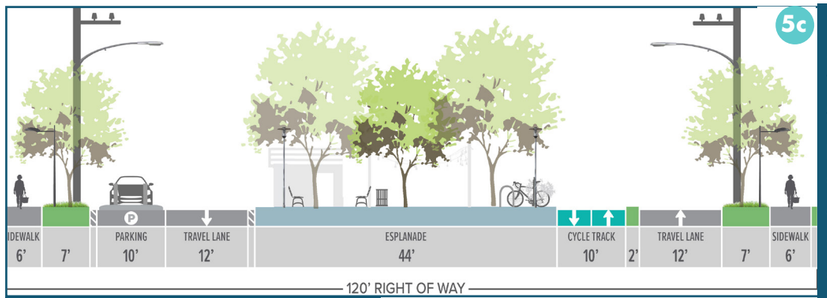
Basic improvements focus on maintaining the existing roadway configuration while introducing incremental upgrades. These include a shared-use path for pedestrians and cyclists on one side, improved sidewalks, and enhanced landscaping. This option retains existing travel lanes and parking, resulting in minimal changes to vehicular operations.



Retrofit 1

Retrofit Improvements – With Preserved Parking

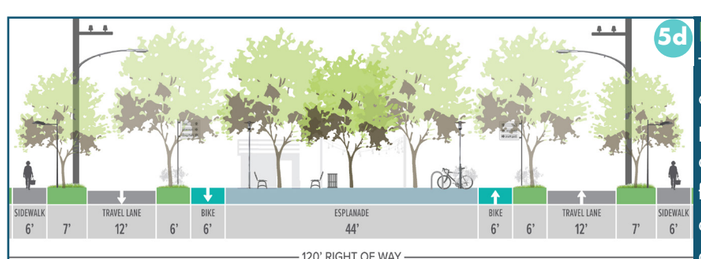
This option enhances the corridor while maintaining on-street parking. Improvements include a widened landscaped esplanade, expanded planting buffers with additional street trees, upgraded sidewalks, and reconfigured median space. Travel lanes are slightly reduced to accommodate these features while preserving parking on both sides.



Retrofit 2

Retrofit Improvements – With Parking and Bicycle Facilities

This option introduces protected bicycle facilities while maintaining partial on-street parking. Improvements include protected cycle tracks, an expanded esplanade with additional tree canopy, and upgraded sidewalks with landscape buffers. To accommodate these elements, one travel lane in each direction may be reduced, resulting in a more balanced multimodal corridor.



Reconstruction

Reconstruction

This option represents a comprehensive redesign of the corridor, including a widened esplanade, full-length protected bicycle lanes, expanded green space with additional tree canopy, and enhanced pedestrian facilities. On-street parking may be removed or reduced, and travel lanes are reconfigured to prioritize pedestrian and bicycle movement. While this option requires greater investment and coordination, it provides the highest long-term benefits in safety, connectivity, and placemaking.

PROJECT 6 - NAVIGATION BOULEVARD SEGMENT 2 CONNECTIVITY IMPROVEMENT

Navigation Boulevard Segment 2 presents an opportunity to strengthen east–west connectivity by expanding multimodal access between neighborhoods, Buffalo Bayou, and regional destinations. East of Velasco Street, the corridor can enhance bicycle and pedestrian connections to the existing Navigation Boulevard esplanade, future trail systems, and nearby parks.

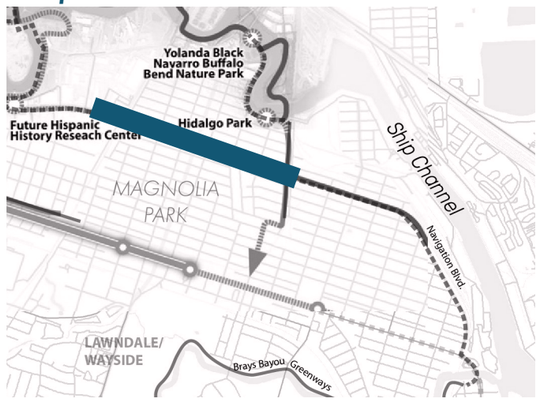
The corridor is currently designed primarily for vehicles, with limited infrastructure for pedestrians and cyclists. Wide travel lanes, long crossing distances, and minimal buffering reduce comfort and safety, but the available right-of-way offers opportunities to reallocate space for multimodal improvements.

Proposed enhancements include protected on-street bicycle lanes connecting existing and planned bikeways, with links to key north–south corridors such as Velasco, Sampson, and Lockwood Streets. Typical improvements include buffered bicycle lanes, upgraded sidewalks, enhanced street lighting, accessible curb ramps, improved crossings, and driveway treatments. In some locations, bicycle facilities may be accommodated through lane reconfiguration within the existing pavement.

These improvements align with broader plans, including the Buffalo Bayou Partnership greenway initiatives and the East End Bikeway Plan, and should incorporate curb-use and parking strategies that support both commercial access and multimodal travel.

As a Phase 1 priority corridor, this segment will help create a safer, more connected transportation network for local and regional users.

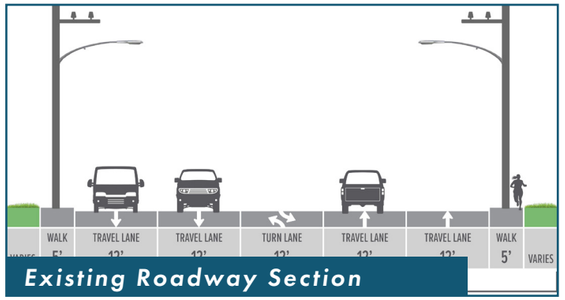
Project Location



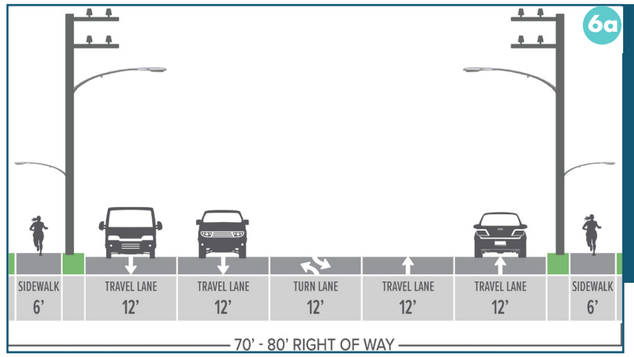
Components Included in Design to Achieve Improvement Goals

Across all options, the design framework incorporates key elements to support corridor performance. The level of implementation determines the extent to which these components are realized, with more comprehensive approaches delivering greater overall benefits.

	6a	6b	6c
01. Continuous sidewalks and safe crossings	X	X	X
02. Bicycle infrastructure		X	X
03. Streetscape and public realm enhancements		X	X
04. Drainage and stormwater improvements		X	X
05. Tree canopy and environmental benefits		X	X
06. Transit access and operations			
07. Utility coordination and long-term resilience			X



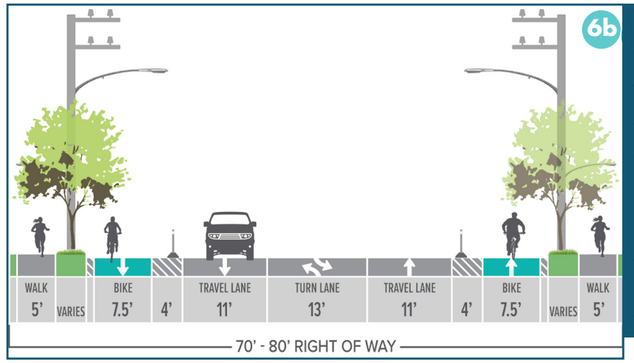
Existing Roadway Section



Basic Improvement

Basic Improvements

Basic improvements maintain the existing roadway configuration while introducing incremental safety upgrades. These include standard sidewalks on both sides and the addition of pedestrian lighting. This option minimizes disruption to traffic operations but provides limited improvement to multimodal conditions.

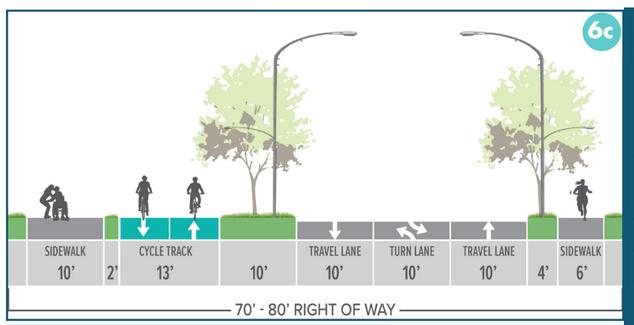


Retrofit 1

Retrofit Improvements

The retrofit option reallocates roadway space to introduce protected bicycle lanes, upgraded sidewalks, and enhanced street and trail lighting.

This approach typically involves narrowing travel lanes and reducing excess capacity to achieve a more balanced multimodal corridor. Retrofit improvements significantly enhance safety and comfort for pedestrians and cyclists while maintaining corridor functionality.



Reconstruction

Reconstruction Improvements

The reconstruction option represents a comprehensive redesign of the corridor. This includes widened sidewalks, a dedicated two-way cycle track, expanded planting buffers with street trees, and integrated pedestrian-scale lighting. Vehicular lanes are reduced and reconfigured to prioritize safety and multimodal access. While this option requires greater investment and coordination, it provides the highest long-term benefits in safety, connectivity, and placemaking.

PROJECT 7 - NAVIGATION BOULEVARD SEGMENT 3 CONNECTIVITY IMPROVEMENT

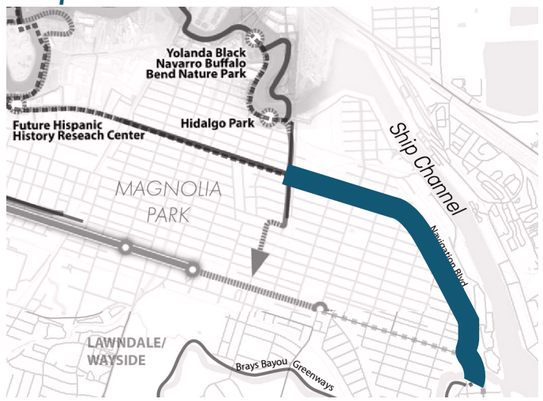
East Navigation Boulevard presents an opportunity to extend multimodal connectivity beyond the existing esplanade and strengthen connections to regional trail systems. Through the reallocation of existing travel lanes, the corridor can accommodate protected on-street bicycle facilities that connect to the Sunset Trail, creating a continuous east–west route.

The corridor also provides opportunities for placemaking elements such as seating, public art, and wayfinding, reinforcing its role as both a transportation corridor and community space. At its western end, it can connect to a proposed Buffalo Bayou Partnership greenway project, extending the Buffalo Bayou trail system eastward.

Proposed improvements include buffered bicycle lanes with vertical separation, upgraded sidewalks, accessible curb ramps, improved crossings, and intersection enhancements at key locations such as Wayside Drive and South Street. These improvements align with the East End Bikeway Plan, where the corridor is identified as a Phase 1 priority.

Over the long term, corridor reconstruction could introduce wider sidewalks, expanded landscaping, and dedicated bicycle facilities, creating a safer, more comfortable environment while supporting local access and regional mobility. Future improvements could also extend farther east to connect with the Brays Bayou Trail, expanding the regional trail network.

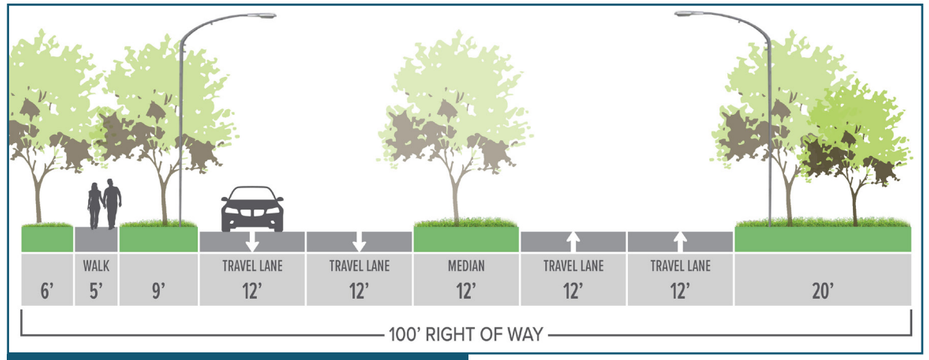
Project Location



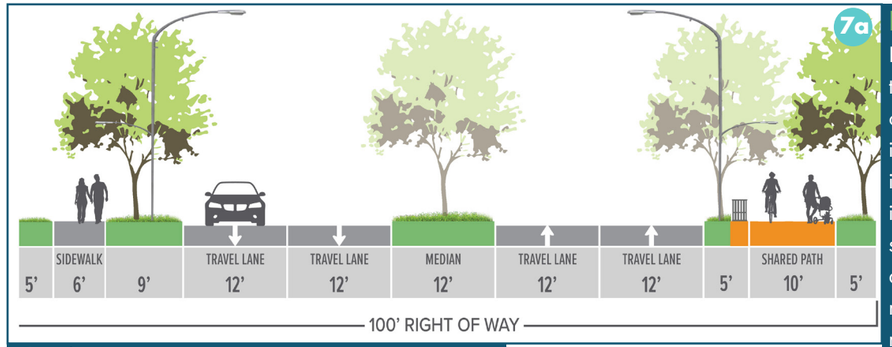
Components Included in Design to Achieve Improvement Goals

Across both options, the design framework incorporates key elements to support corridor performance. The level of implementation determines the extent to which these components are realized, with more comprehensive approaches delivering greater overall benefits.

	7a	7b
01. Continuous sidewalks and safe crossings	X	X
02. Bicycle infrastructure	X	X
03. Streetscape and public realm enhancements	X	X
04. Drainage and stormwater improvements		X
05. Tree canopy and environmental benefits	X	X
06. Transit access and operations		
07. Utility coordination and long-term resilience		X



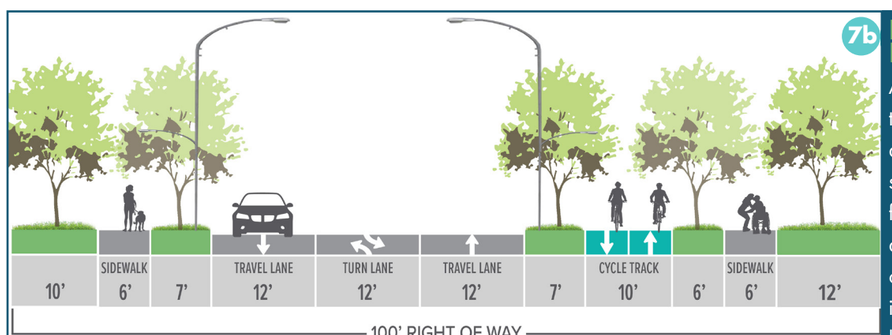
Existing Roadway Section



Basic Improvement

Basic Improvements

Basic improvements maintain the existing roadway configuration while introducing incremental upgrades. These include a shared-use path, improved sidewalks, additional street trees, enhanced lighting, and site furnishings. This option retains existing travel lanes and requires minimal changes to vehicular operations.



Rebuild Concept

Reconstruction Improvements

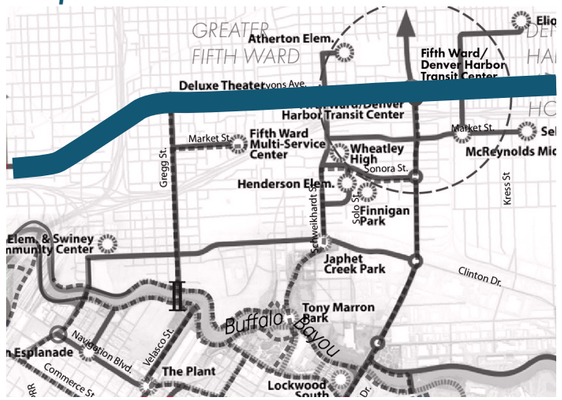
A full corridor reconstruction that prioritizes pedestrians and cyclists through wider sidewalks, protected bicycle facilities, landscaped buffers, and enhanced lighting. This option requires significant investment but provides the highest long-term value for connectivity, safety, resilience, and placemaking.

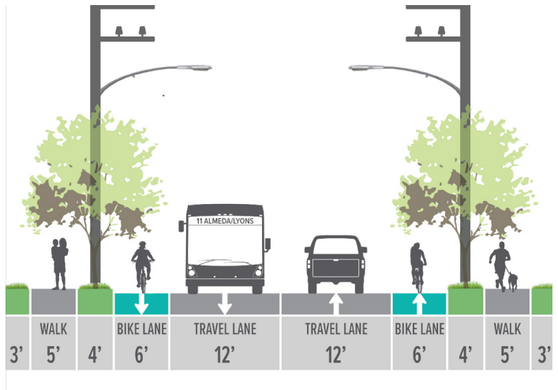
PROJECT 8 - LYONS AVENUE CONNECTIVITY IMPROVEMENT

Lyons Avenue is a key east–west corridor connecting Denver Harbor, the Fifth Ward, Northside, and Downtown Houston, with the potential to serve as the Fifth Ward's historic Main Street. Future improvements should enhance safe, accessible, and equitable mobility while supporting local businesses and reinforcing the corridor's cultural identity.

Recommended improvements include narrower travel lanes, protected bicycle facilities, wider ADA-compliant sidewalks, safer crossings, enhanced transit amenities, and streetscape features such as street trees, lighting, planting buffers, public art, and site furnishings. Opportunities for storefront activation, gathering spaces, and cultural elements can further strengthen Lyons Avenue as a vibrant community destination that balances mobility, placemaking, and historic character.

Project Location



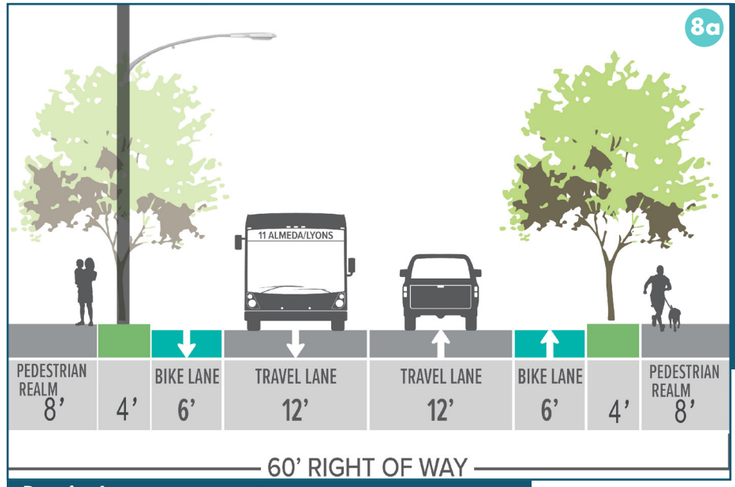


Existing Roadway Section

Components Included in Design to Achieve Improvement Goals

Across all options, the design framework incorporates key elements to support corridor performance. The level of implementation determines the extent to which these components are realized, with more comprehensive approaches delivering greater overall benefits.

	8a	8b
01. Continuous sidewalks and safe crossings	X	X
02. Bicycle infrastructure	X	X
03. Streetscape and public realm enhancements	X	X
04. Drainage and stormwater improvements		
05. Tree canopy and environmental benefits		X
06. Transit access and operations		
07. Utility coordination and long-term resilience		

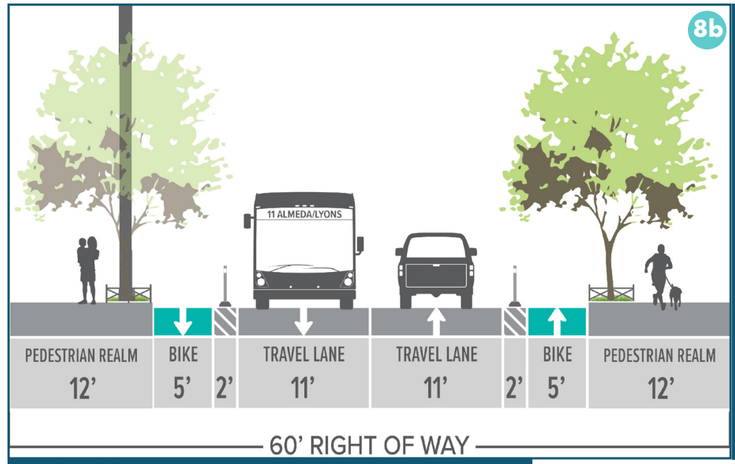


Basic Improvement

Basic Improvements

Basic improvements focus on maintaining the existing roadway configuration while introducing targeted pedestrian upgrades.

These include improved sidewalks, enhanced pedestrian lighting, and minor streetscape enhancements. This option provides incremental benefits with minimal changes to traffic operations.



Rebuild Concept

Reconstruction Improvements

The retrofit option introduces protected bicycle lanes, expanded planting buffers with street trees, upgraded sidewalks, and improved crossings.

Travel lanes are slightly narrowed to create space for pedestrian and bicycle infrastructure, resulting in a more balanced and comfortable street environment. This option significantly enhances safety and supports the corridor's role as a neighborhood main street.

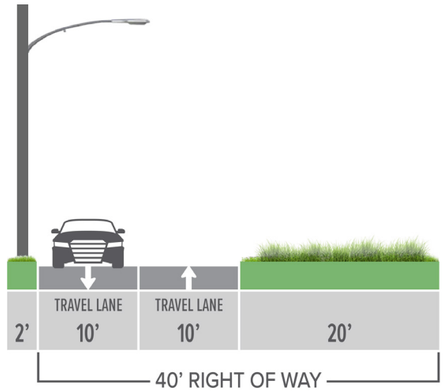
Project 9 - VELASCO STREET CONNECTIVITY IMPROVEMENT

Velasco Street is a key north–south corridor connecting the East End, Fifth Ward, Buffalo Bayou, and future destinations such as The Plant. Identified as a Phase 1 project in the East End Bikeway Plan, the corridor will improve multimodal access to neighborhoods, trails, parks, and the Navigation Esplanade.

Priority improvements include enhanced crossings at Navigation Boulevard and Engelke Street, a shared-use path north of Navigation Boulevard, and streetscape features such as landscape buffers, lighting, and wayfinding. As redevelopment occurs, Velasco Street can evolve into a mixed-use corridor that integrates transportation, public space, and new development while creating opportunities for expanded landscaping and multimodal facilities.

Project Location



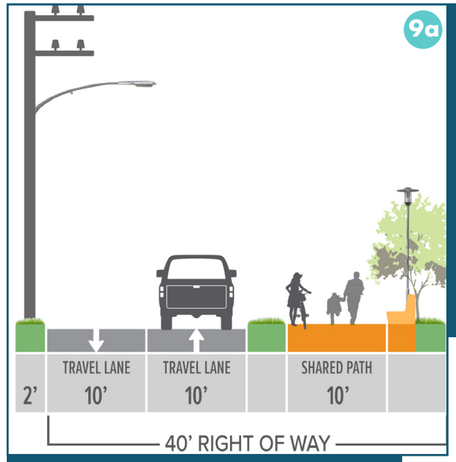


Existing Roadway Section

Components Included in Design to Achieve Improvement Goals

Across all options, the design framework incorporates key elements to support corridor performance. The level of implementation determines the extent to which these components are realized, with more comprehensive approaches delivering greater overall benefits.

	9a	9b	9c
01. Continuous sidewalks and safe crossings	X	X	X
02. Bicycle infrastructure	X	X	X
03. Streetscape and public realm enhancements	X	X	X
04. Drainage and stormwater improvements			X
05. Tree canopy and environmental benefits		X	X
06. Transit access and operations			
07. Utility coordination and long-term resilience			X

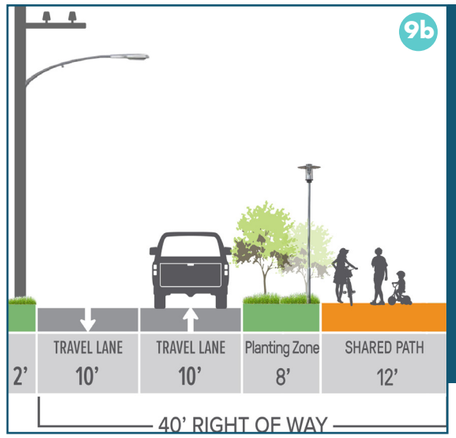


Basic Improvement

Basic Improvements

The basic improvement option focuses on maintaining the existing roadway configuration while introducing essential multimodal elements. This includes a 10-foot shared-use path for pedestrians and cyclists, minimal planting buffers, pedestrian-scale lighting, and site furnishings.

This approach provides immediate improvements to safety and accessibility with minimal disruption to existing traffic operations. However, it offers limited enhancement to overall comfort, environmental quality, and long-term placemaking potential.

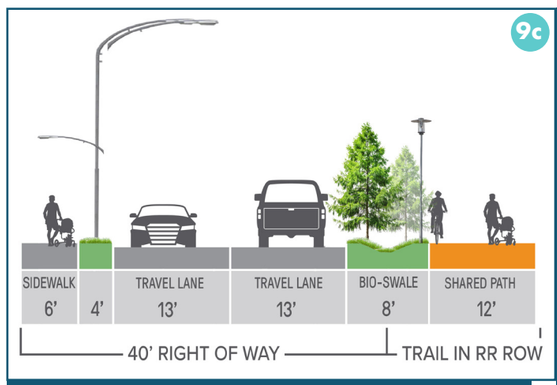


Retrofit Improvement

Retrofit Improvements

The retrofit option enhances the corridor by improving both functionality and user experience within the existing right-of-way. This includes a wider shared-use path (approximately 12 feet), expanded planting buffers with trees and shrubs, upgraded sidewalks, and enhanced lighting.

These improvements create a more comfortable and attractive environment for pedestrians and cyclists while maintaining the current roadway structure. The retrofit approach represents a balanced strategy, delivering meaningful safety and comfort upgrades without requiring significant reconstruction.



Reconstruction Improvement

Reconstruction Improvements

This option provides a comprehensive corridor redesign that may include coordination with adjacent landowners or rail corridors to expand the available right-of-way. Improvements include a 12-foot shared-use path, sidewalks, bioswales or other green infrastructure, expanded tree planting, and reconfigured travel lanes to create a more complete multimodal corridor. Although it requires the greatest investment and coordination, this option delivers the highest long-term benefits for safety, resilience, stormwater management, and overall corridor quality.

PROJECT 10 - RAILROAD RIGHT-OF-WAY/ THE PLANT CONNECTIVITY IMPROVEMENT

Velasco Street Extension – Railroad Right-of-Way Connectivity

The disused railroad right-of-way between Navigation Boulevard and Commerce Street offers an opportunity to create a continuous off-street multiuse trail identified as a Phase 1 project in the East End Bike Plan. The corridor would improve east–west connectivity for people walking, biking, and rolling.

The alignment crosses property owned by the developers of The Plant, providing an opportunity to integrate the trail with the mixed-use development and the Buffalo Bayou trail system. Coordination with the property owner will be needed to secure access and integrate the project into future development.

The corridor could accommodate either a 10- to 14-foot wide shared-use path or separated bicycle and pedestrian facilities, depending on projected demand.

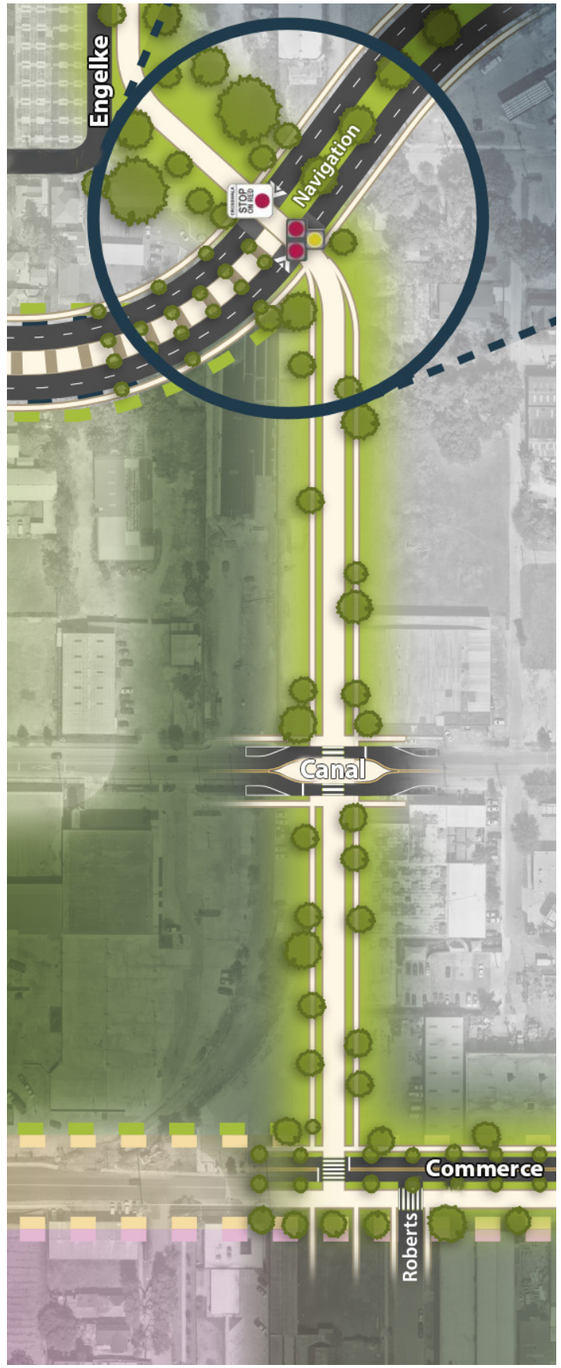
Safe crossings at Navigation Boulevard will be critical, with future studies evaluating potential alignments at Sampson Street and York Street. Additional improvements, including pedestrian lighting, enhanced crossings, and traffic-control measures, should be incorporated where needed.

At Commerce Street, the corridor will connect to planned Harris County Precinct 2 shared-use path improvements, strengthening regional trail connectivity.

Project Location



Enlargement Plan



PROJECT 11 - METRORAIL CONNECTIVITY IMPROVEMENT

METRORail Connection (Roberts Street/ Sampson Street)

Improving connections between Buffalo Bayou and the METRORail Green Line will expand access to destinations throughout the East End and strengthen multimodal connectivity. Identified as a Phase 2 project in the East End Bike Plan, this corridor includes both near- and long-term improvements.

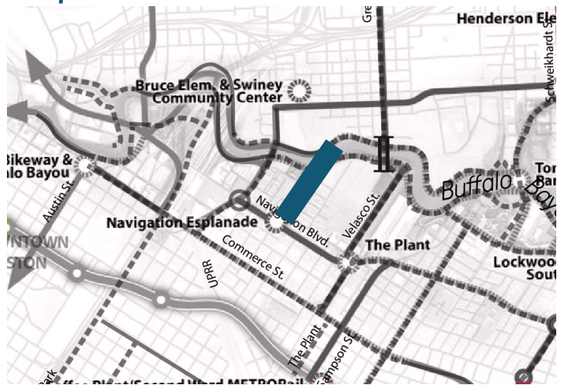
In the near term, Roberts Street between Commerce Street and Harrisburg Boulevard can serve as a low-stress bicycle route through shared lane markings, wayfinding, traffic calming, and upgraded sidewalks and ADA-compliant curb ramps.

Along Harrisburg Boulevard, roadway space could be reallocated to expand the pedestrian realm where existing conditions constrain access. Future redevelopment under the City of Houston's Transit-Oriented Development Ordinance will provide a 20-foot wide pedestrian realm, improving walkability and transit access.

Long-term opportunities associated with the West Belt Railroad Grade Separation Project include converting Sampson Street and York Street to two-way operation, with York Street providing the grade-separated railroad crossing. Reduced traffic on Sampson Street would create opportunities for expanded bicycle, pedestrian, and parking facilities.

Together, these improvements would create a continuous multimodal connection between Buffalo Bayou and the METRORail system, improving safety, accessibility, and regional connectivity.

Project Location



Enlargement Plan



Project 12 - SELECTED NEIGHBORHOOD STREET CONNECTIVITY IMPROVEMENT

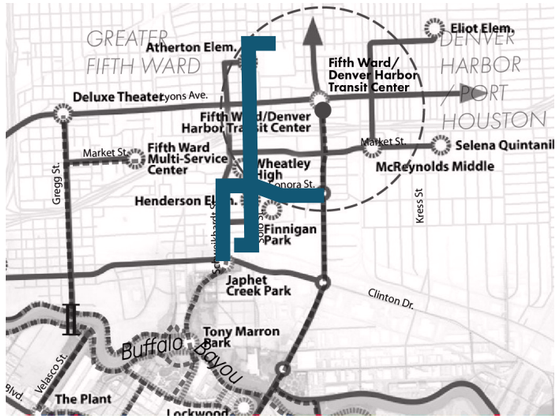
On roads with exceptionally low traffic volumes and speeds (fewer than 1,500 vehicles per day and posted speed limits under 25 mph), it can be appropriate to allow bicycle traffic to share space with other vehicles. Adding elements that alert drivers that bicycles are likely to be present, such as "sharrow" markings on the roadway and complementary signage, along with more detailed wayfinding components, and other speed-reducing strategies can make these spaces safe and comfortable for bicycle users of all ages and abilities.

Creating a network of Neighborhood Safe-Streets linking Japhet Creek Park and the Fifth Ward/ Denver Harbor Transit Center (connecting to Lyons Avenue) creates opportunities to:

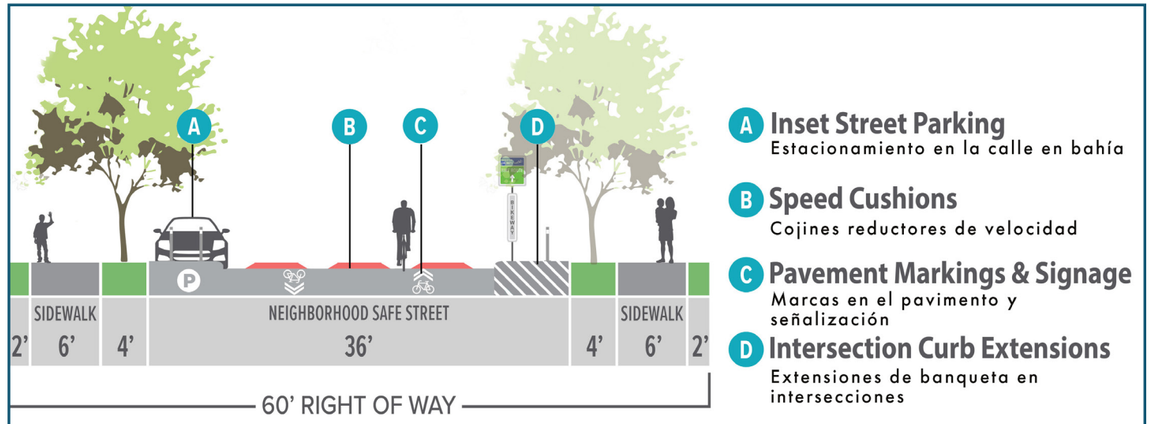
- Improve safety and accessibility for all corridor users
- Provide safe, comfortable multimodal access to parks, schools, neighborhoods, businesses, and high-quality transit
- Maintain existing vehicular and parking capacity

The path can meander towards the future Buffalo Bayou East trail system, making use of the extra available space to provide enhanced landscaping and placemaking features.

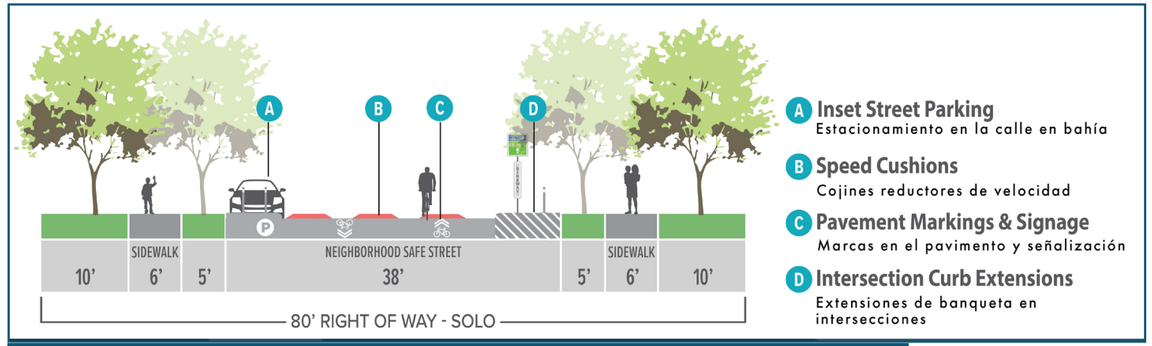
PROJECT LOCATION



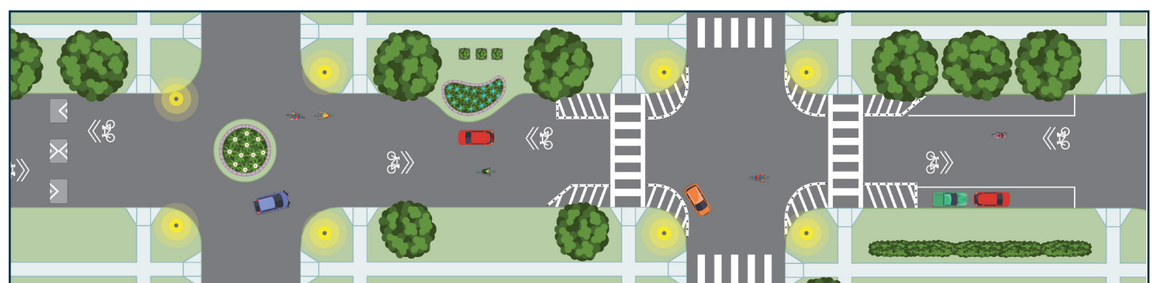
Focused Neighborhood Streets:	Project Number
1. Schweikhardt Street	12.1
2. Coke Street	12.2
3. Solo Street	12.3
4. Providence Street	12.4
5. Sonora Street	12.5
6. Shotwell Street	12.6



Right-of-Way Variability: Minimum Conditions of ROW



Right-of-Way Variability: Maximum Conditions of ROW



Neighborhood Street Improvements – Plan View

Project 13 - JAPHET CREEK PARK TO FINNIGAN PARK CONNECTIVITY IMPROVEMENTS

In addition to the Neighborhood Safe Streets recommendation linking Japhet Creek Park to Fifth Ward / Denver Harbor Transit Center, there are opportunities to create safe, accessible connections between Japhet Creek Park and Finnigan Park to improve mobility options for those living in southern Fifth Ward. The following pages outline seven alternatives for pedestrian and bicycle connectivity.

Option 1

The route follows Schweikhart Street, Edmund Street, and Coke Street before transitioning to an off-street trail, shown as segments 4, 5, and 7 in Figure AT54 below. Implementation of the off-street trail would require easement acquisition for segments 4 and 5 and private property acquisition for segment 7.

The proposed alignment would also include improvements to roadway intersections and rail crossings to create a continuous, safe, and accessible connection between Japhet Creek Park and Finnigan Park.

Together, these improvements would enhance pedestrian and bicycle connectivity between Japhet Creek Park and Finnigan Park while improving access to neighborhood destinations and the broader active transportation network. The feasibility of this option will depend on right-of-way availability, property acquisition, coordination with the railroad, and funding considerations.

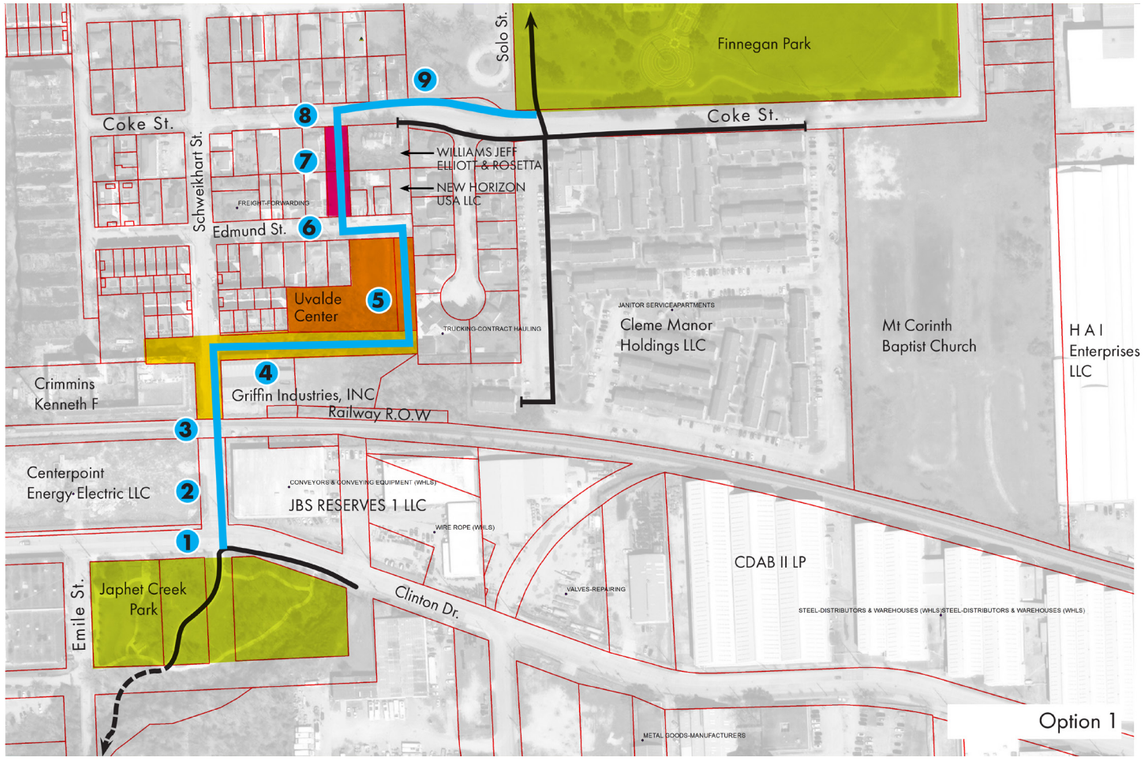


FIGURE AT54 - JAPHET CREEK PARK TO FINNEGAN PARK CONNECTIVITY OPTION 1

Option 2

Similar to Option 1, this route is proposed to follow Schweikart Street and Coke Street via sidewalk improvements. The route transitions to an off-street trail at segments 5 through 8 before crossing onto a sidewalk along Coke Street. Implementation of the off-street trail will require easement acquisition for segments 4 and 5 as well as private property acquisition for segment 8.

This alignment will also include improvements to roadway intersections and rail crossings to facilitate safe and accessible connectivity between Japhet Creek Park and Finnigan Park.

The improvements proposed in Option 2 will foster safe pedestrian and bicycle travel between Japhet Creek Park and Finnigan Park. This option provides a more direct route between the two parks than Option 1 but will similarly depend on right-of-way availability, negotiation with property owners, funding availability, and railroad coordination.

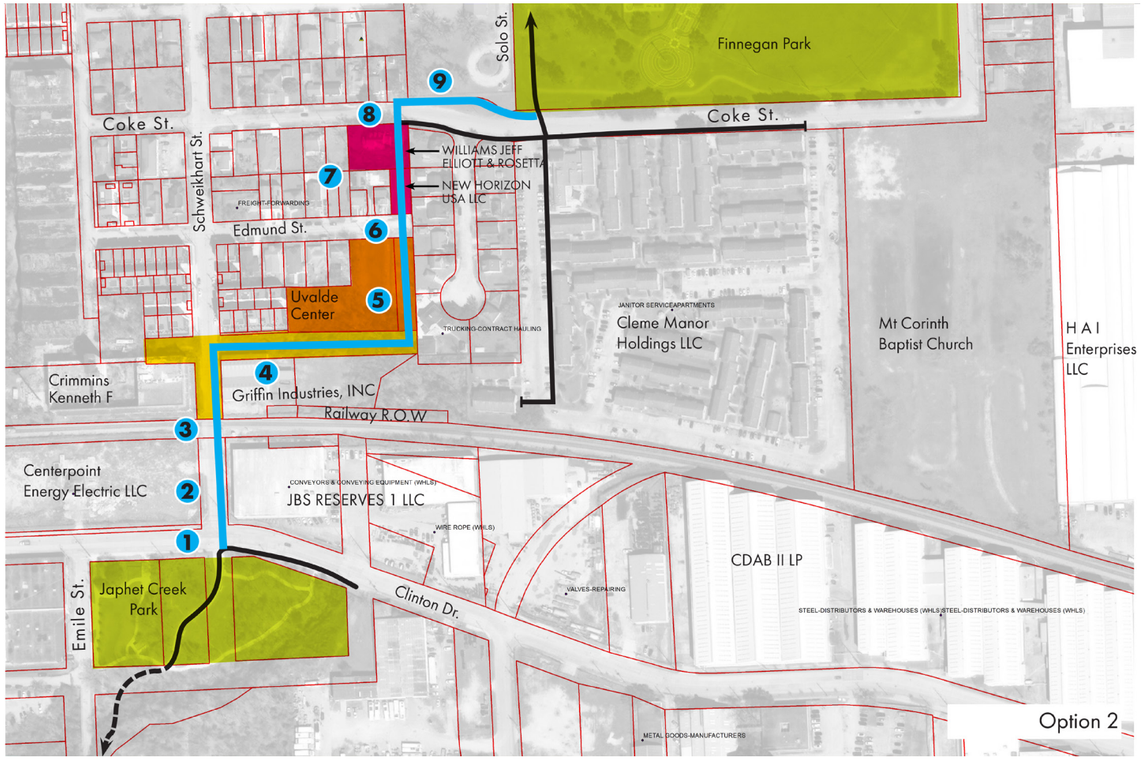


FIGURE AT55 - JAPHET CREEK PARK TO FINNEGAN PARK CONNECTIVITY OPTION 2

Option 3

This route follows Schweikhart Street from Japhet Creek Park via proposed sidewalk improvements, crossing the railroad before transitioning to an off-street trail along segments 4 and 5, as shown in Figure AT56 below At Edmund Street, the alignment turns east, continuing through private property adjacent to Finnigan Park Place Court before transitioning to a sidewalk along Finnigan Park Place Court. The route then crosses Coke Street and enters Finnigan Park. Implementation of this option would require easement acquisition for segments 4 and 5, as well as private property acquisition for the connection adjacent to Finnigan Park Place Court.

The proposed alignment would also include improvements to roadway intersections and the rail crossing to provide a continuous, safe, and accessible connection between Japhet Creek Park and Finnigan Park.

The improvements proposed in Option 3 would enhance pedestrian and bicycle connectivity between Japhet Creek Park and Finnigan Park while providing a more direct connection than Option 1. The feasibility of this option will depend on right-of-way availability, private property acquisition, coordination with the railroad, and funding considerations.

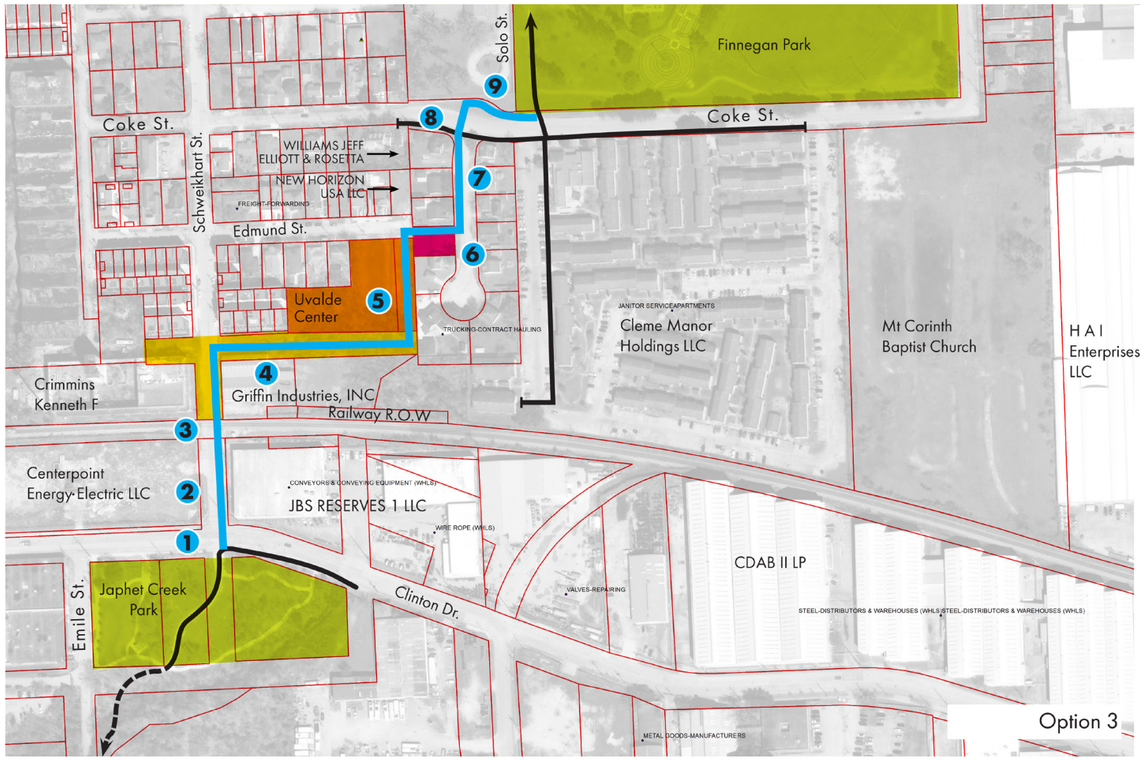


FIGURE AT56 - JAPHET CREEK PARK TO FINNEGAN PARK CONNECTIVITY OPTION 3

Option 4

Similar to Options 1 through 3, this route follows Schweikhart Street from Japhet Creek Park via proposed sidewalk improvements, crossing the railroad before transitioning to an off-street trail along segments 4 and 5, as shown in Figure AT57 below. At Edmund Street, the alignment crosses to continue through undeveloped private parcels before crossing Coke Street and entering Finnigan Park. Implementation of this option would require easement acquisition for segments 4 and 5, as well as private property acquisition to establish the connection through the undeveloped parcels.

The proposed alignment would also include improvements to roadway intersections and the rail crossing to provide a continuous, safe, and accessible connection between Japhet Creek Park and Finnigan Park.

The improvements proposed in Option 4 would enhance pedestrian and bicycle connectivity between Japhet Creek Park and Finnigan Park while providing a relatively direct off-street connection between the two parks. The feasibility of this option will depend on right-of-way availability, private property acquisition, coordination with the railroad, and funding considerations.

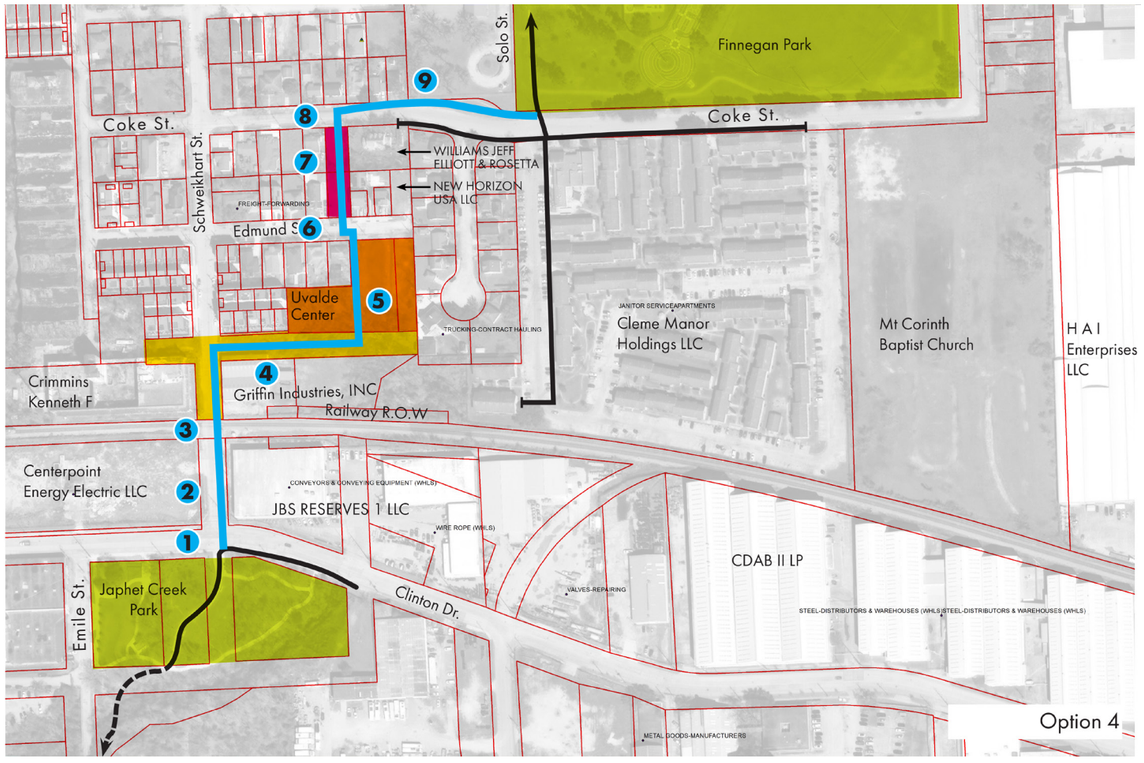


FIGURE AT57 - JAPHET CREEK PARK TO FINNEGAN PARK CONNECTIVITY OPTION 4

Option 5

Similar to the previous options, this route follows Schweikhart Street from Japhet Creek Park via proposed sidewalk improvements, crossing the railroad before transitioning to an off-street trail along segment 4, as shown in Figure AT58 below. The alignment then turns south through vacant private property adjacent to the railroad right-of-way before continuing east. From there, the route turns north through the Cleme Manor apartment complex, crosses Coke Street, and enters Finnigan Park. Implementation of this option would require easement acquisition for segment 4, as well as acquisition of or access across multiple private properties to establish the off-street connection.

The proposed alignment would also include improvements to roadway and rail crossings to provide a continuous, safe, and accessible connection between Japhet Creek Park and Finnigan Park.

The improvements proposed in Option 5 would enhance pedestrian and bicycle connectivity between Japhet Creek Park and Finnigan Park by providing an off-street connection between the two parks. However, the feasibility of this option may be more constrained than the other alternatives due to the need to traverse multiple private properties, including the Cleme Manor apartment complex, in addition to right-of-way availability, railroad coordination, and funding considerations.

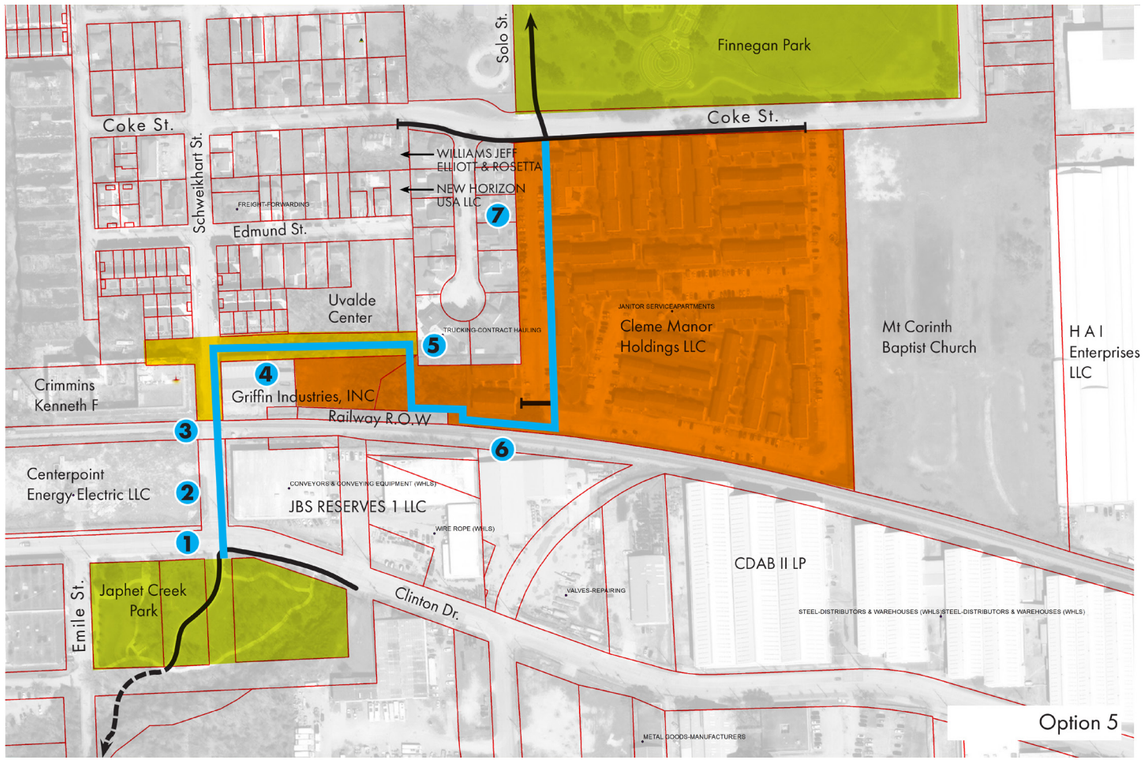


FIGURE AT58 - JAPHET CREEK PARK TO FINNEGAN PARK CONNECTIVITY OPTION 5

Option 6

Similar to the previous options, this route follows Schweikhart Street from Japhet Creek Park via proposed sidewalk improvements, crossing the railroad before transitioning to an off-street trail within the railroad right-of-way, as shown in Figure AT59 below. The trail continues east within the railroad right-of-way before turning north through the Cleme Manor apartment complex, crossing Coke Street, and entering Finnigan Park. Implementation of this option would require coordination and agreements with the railroad to accommodate a trail within the railroad right-of-way, as well as acquisition of or access across private property through the Cleme Manor apartment complex.

The proposed alignment would also include improvements to roadway intersections and the rail crossing to provide a continuous, safe, and accessible connection between Japhet Creek Park and Finnigan Park.

The improvements proposed in Option 6 would enhance pedestrian and bicycle connectivity between Japhet Creek Park and Finnigan Park by providing an off-street connection between the two parks. However, the feasibility of this option may be more constrained than the other alternatives due to the need for coordination with the railroad to accommodate a trail within the railroad right-of-way, in addition to private property access through the Cleme Manor apartment complex, right-of-way availability, and funding considerations.



FIGURE AT59 - JAPHET CREEK PARK TO FINNEGAN PARK CONNECTIVITY OPTION 6

Option 7

Unlike the previous options, this alternative proposes extending Solo Street to create a new roadway connection between Japhet Creek Park and Finnigan Park. The roadway extension would include sidewalks on both sides of the street to provide a continuous, safe, and accessible pedestrian connection between the two parks. The proposed extension would also require construction of a new bridge over the railroad and would traverse multiple privately owned parcels. Implementation of this option would require substantial right-of-way and private property acquisition, coordination with the railroad, and construction of the new bridge crossing.

The proposed alignment would create a new multimodal corridor that accommodates pedestrians, bicyclists, and motorists while improving connectivity between the surrounding neighborhoods and the two parks.

The improvements proposed in Option 7 would provide the most transformative long-term connectivity of the alternatives by establishing a new street connection between Japhet Creek Park and Finnigan Park. However, this option would also represent the most complex and costly alternative due to the need for extensive property acquisition, bridge construction, railroad coordination, utility coordination, and significant capital investment.

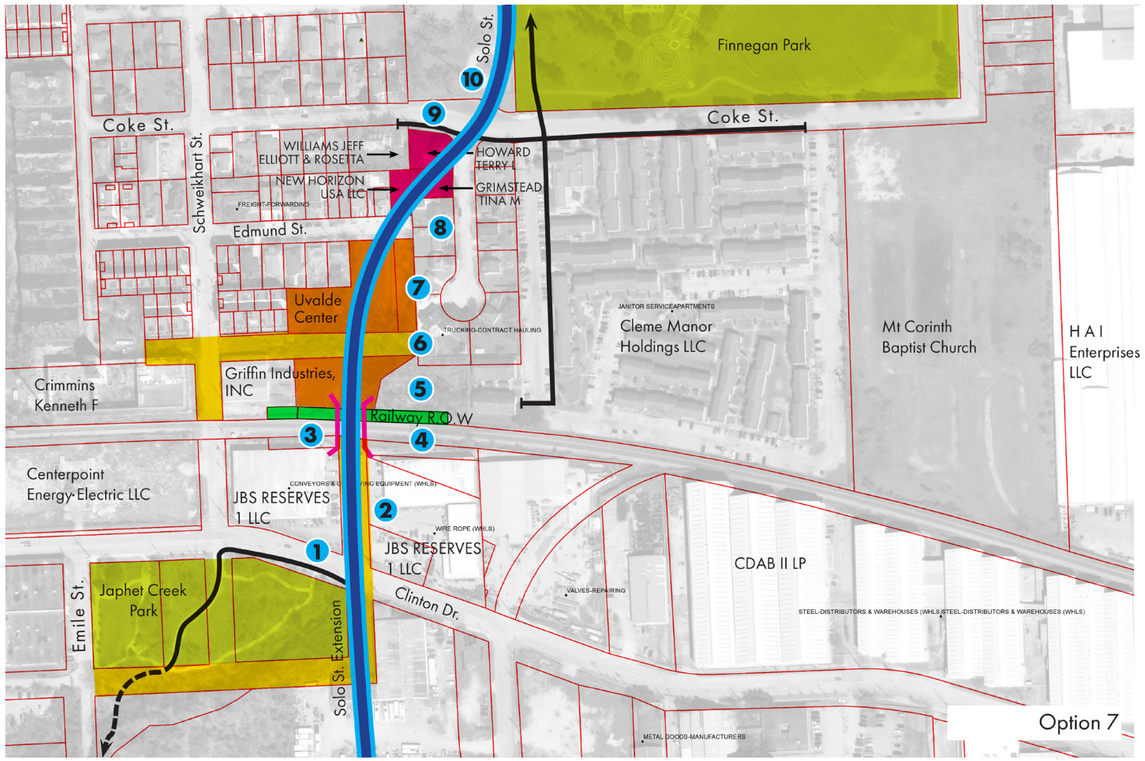


FIGURE AT60 - JAPHET CREEK PARK TO FINNEGAN PARK CONNECTIVITY OPTION 7

Summary of Options

The summary matrix below outlines the recommended improvements for each option by segment. It provides a high-level comparison of the infrastructure elements associated with each option and is intended to be used by stakeholders as a quick reference to determine the complexity of each option.

	SEGMENT									
	1	2	3	4	5	6	7	8	9	10
OPTION 1	●	●	●	●	●	●	●	●	●	N/A
OPTION 2	●	●	●	●	●	●	●	●	●	N/A
OPTION 3	●	●	●	●	●	●	●	●	●	N/A
OPTION 4	●	●	●	●	●	●	●	●	●	N/A
OPTION 5	●	●	●	●	●	●	●	N/A	N/A	N/A
OPTION 6	●	●	●	●	●	●	●	N/A	N/A	N/A
OPTION 7	●	●	●	●	●	●	●	●	●	●

● Road Crossing
● Ped. Infrastructure Improvement
● Rail Crossing
● Road ROW Improvement
● Land Acquisition
● Easement Acquisition

CORRIDOR IMPROVEMENT EVALUATION FRAMEWORK



Lockwood Drive Proposed Improvement



Lyons Street Proposed Improvement



Velasco Street Proposed Improvement



Navigation Blvd. Segment 1 Proposed Improvement

The study applies a structured framework to guide corridor improvement decisions, moving from analysis to implementation through clearly defined levels of intervention.

Existing conditions, including safety performance, connectivity gaps, right-of-way availability, and surrounding land use, are evaluated alongside input from stakeholders and the public. These factors inform a set of core evaluation criteria that shape the selection of appropriate design responses.

Based on this assessment, three tiers of improvement, including Basic, Retrofit, and Reconstruction, are developed to represent a range of potential interventions.

Basic improvements focus on low-cost, near-term safety enhancements within existing conditions, while Retrofit options reallocate space to better support multimodal use. Reconstruction represents a comprehensive redesign that integrates mobility, placemaking, and environmental performance.

Together, these options form a scalable decision framework, allowing each corridor to be matched with an appropriate level of investment based on need, feasibility, and long-term impact.

PRELIMINARY CONCEPTUAL LEVEL COST ESTIMATES

Project Name	Street	Extents	Type of Improvement	Description of Improvement Features	Estimated Cost
G1a-Basic improvement	Gregg Street	Clinton Drive to I-10	Basic	6' sidewalks	$786,304
G1b-Retrofit improvement 1	Gregg Street	Clinton Drive to I-10	Intermediate (retrofit)	Road resurfacing, parking lane, bulb outs, two-way cycle track, 6' sidewalks	$3,039,980
G1c-Reconstruction improvement	Gregg Street	Clinton Drive to I-10	Ideal (reconstruction)	Road resurfacing, parking lane with bulb outs, shared path, 8' sidewalk	$2,826,803
G2a-Basic improvement	Gregg Street	I-10 to Lyons Avenue	Basic	6' sidewalks	$1,158,295
G2b- Retrofit improvement	Gregg Street	I-10 to Lyons Avenue	Intermediate (retrofit)	Road resurfacing, two-way cycle track, 6' sidewalks	$5,882,029
LO1a-Basic improvement	Lockwood Drive	Harrisburg Boulevard to Fifth Ward/Denver Harbor Transit Center	Basic	6' sidewalks	$5,147,826
LO1b- Retrofit improvement	Lockwood Drive	Harrisburg Boulevard to Fifth Ward/Denver Harbor Transit Center	Intermediate (retrofit)	Underground utilities, lighting, 6' sidewalks, road resurfacing, striping, one way cycle track for either dimension	$35,406,710
LOc-Reconstruction improvement	Lockwood Drive	Harrisburg Boulevard to Fifth Ward/Denver Harbor Transit Center	Ideal (reconstruction)	BRT: https://www.transit.dot.gov/sites/fta.dot.gov/files/2024-03/TX-Houston-University-Corridor-Bus-Rapid-Transit-Project-AR25.pdf	$47,159,740
LOD1a - Basic improvement	Lockwood Drive	Lockwood Drive Bridge	Basic	6' sidewalks Bridge has not been estimated	$685,554
LOD1b - Retrofit improvement	Lockwood Drive	Lockwood Drive Bridge	Intermediate (retrofit)	Road resurfacing, one way cycle track for each direction, restriping Bridge has not been estimated	$3,422,110
LOD1c - Retrofit improvement	Lockwood Drive	Lockwood Drive Bridge	Ideal (reconstruction)	BRT: https://www.transit.dot.gov/sites/fta.dot.gov/files/2024-03/TX-Houston-University-Corridor-Bus-Rapid-Transit-Project-AR25.pdf	$2,657,804
NA1a - Basic improvement	Navigation Boulevard	Jensen Drive to N Palmer Street	Basic	6' sidewalks	$1,281,197
NA1b - Retrofit improvement 1	Navigation Boulevard	Jensen Drive to N Palmer Street	Intermediate (retrofit)	New road surface, continuation of esplanade, striping, parking lane with bulb-outs, landscaping, safe crossings	$5,808,981
NA1c - Reconstruction improvement	Navigation Boulevard	Jensen Drive to N Palmer Street	Ideal (reconstruction)	New road surface, continuation of esplanade, striping, landscaping, safe crossings, one way cycle-track for either direction	$6,809,602
NA2a - Basic improvement	Navigation Boulevard	Mack Street to N 77th Street	Basic	6' sidewalks	$3,747,213
NA2b - Retrofit improvement	Navigation Boulevard	Mack Street to N 77th Street	Intermediate (retrofit)	Underground utilities, new road surface, 6' sidewalks, striping, one way cycle track for each direction	$20,329,720
NA2c - Reconstruction improvement	Navigation Boulevard	Mack Street to N 77th Street	Ideal (reconstruction)	Underground utilities, new road surface, 6' sidewalk, 10' sidewalk, striping, two way cycle track	$19,793,310

FIGURE AT54 - PRELIMINARY COST ESTIMATES

PRELIMINARY CONCEPTUAL LEVEL COST ESTIMATES

Project Name	Street	Extents	Type of Improvement	Description of Improvement Features	Estimated Cost
NA3a - Basic improvement	Navigation Boulevard	Brays Bayou to N 77th Street	Basic	6' sidewalks	$1,888,260
NA3b - Retrofit improvement	Navigation Boulevard	Brays Bayou to N 77th Street	Intermediate (retrofit)		$9,332.687
NA3c - Reconstruction improvement	Navigation Boulevard	Brays Bayou to N 77th Street	Ideal (reconstruction)	New road surface, 6' sidewalks, striping, two-way cycle track	$10,984,760
L1a - Basic improvement	Lyons Avenue	I-69 to Port Street	Basic	6' sidewalks	$6,966,643
L1b - Retrofit improvement	Lyons Avenue	I-69 to Port Street	Intermediate (retrofit)	Road resurfacing, one-way cycle track for each direction, restriping, underground utilities, 6' sidewalk	$30,419,371
V1a - Basic improvement	Velasco Street	Engelke Street to Buffalo Bayou	Basic	6' sidewalks	$979,479
V1b - Retrofit improvement	Velasco Street	Engelke Street to Buffalo Bayou	Intermediate (retrofit)	Roadway resurfacing, shared use path	$4,160,949
V1c - Reconstruction	Velasco Street	Engelke Street to Buffalo Bayou	Ideal (reconstruction)	Roadway resurfacing, shared use path, parking lane, 6' sidewalk	$3,738,212

FIGURE AT54 - PRELIMINARY COST ESTIMATES, CONTINUED

Each corridor was evaluated using three levels of intervention—Basic, Retrofit, and Reconstruction—to support informed decision-making with input from the public, stakeholders, community leaders, and Steering Committee members. These options represent a spectrum of potential improvements, ranging from targeted safety upgrades to comprehensive street redesign, and provide a structured framework for future feasibility studies and detailed design.

Through the engagement process, participants were able to understand key trade-offs between investment levels and outcomes, and to express preferences based on desired street performance. Feedback consistently indicated a preference for more comprehensive solutions, recognizing that higher levels of intervention deliver greater benefits in safety, multimodal connectivity, comfort, and long-term resilience.

While higher levels of improvement require increased coordination and investment, they also offer the greatest opportunity to transform corridors into safe, connected, and vibrant public spaces. Following this study, recommended corridors and preferred improvement levels will advance into feasibility and preliminary design to further evaluate technical requirements, right-of-way constraints, drainage considerations, and coordination with ongoing infrastructure projects.

Future phases will refine the appropriate level of intervention for each corridor, develop cost estimates, and establish phasing strategies. Continued coordination with agencies, stakeholders, and community partners will be essential to align funding opportunities and implementation responsibilities. Additional public engagement will also be conducted to confirm design direction and ensure that improvements reflect community priorities.

PRELIMINARY CONCEPT-LEVEL IMPLEMENTATION SUMMARY

The implementation strategy prioritizes a phased approach to delivering active transportation improvements across the study area, focusing on near-term impact while establishing a foundation for long-term system connectivity.

Near-Term Improvements

Near-term projects focus on immediately impactful connections that address critical gaps in the network and enhance access to key destinations.

These include:

- Velasco Street
- Railroad Right-of-Way / The Plant Connection
- Gregg Street Segment 1
- Lyons Avenue
- Navigation Boulevard Segment 1

These projects prioritize corridors that can be implemented efficiently and provide high value in improving safety, connectivity, and access within the community.

Mid-Term Improvements

Mid-term projects build upon initial investments and expand connectivity within surrounding neighborhoods. These include:

- Gregg Street Segment 2
- Navigation Boulevard Segment 2
- METRORail Connections
- Neighborhood street improvements

These improvements strengthen local connections and extend the benefits of earlier phases into adjacent communities.

Long-Term Improvements

Long-term projects focus on larger capital investments and complex infrastructure coordination. These include:

- Lockwood Drive
- Lockwood Drive Bridge
- Navigation Boulevard Segment 3

These projects require coordination with multiple agencies, including METRO, TxDOT, Union Pacific Railroad (UPRR), and regional partners, and are intended to deliver transformative improvements to the transportation network.

Project #	Project Title	Lead Agency	Partners	Timeline	Priority
1	Gregg Street Segment 1	TIRZ 18	COH	Near-Term	High
2	Gregg Street Segment 2	PCT2	TIRZ 18, COH	Mid-Term	Medium
3	Lockwood Drive	METRO	COH, TIRZ 23	Long-Term	High
4	Lockwood Drive Bridge	METRO, TxDOT	COH, TIRZ 23	Long-Term	High
5	Navigation Boulevard Segment 1	COH	TIRZ 23	Near-Term	High
6	Navigation Boulevard Segment 2	COH	TIRZ 23	Mid-Term	Medium
7	Navigation Boulevard Segment 3	COH	UPRR	Long-Term	Medium
8	Lyons Avenue	TIRZ 18	METRO, COH	Near-Term	High
9	Velasco Street	TIRZ 23	UPRR, COH	Near-Term	High
10	Railroad Right-of-Way / The Plant	TIRZ 23	COH, UPRR	Near-Term	High
11	METRORail Connection	TIRZ 23	COH, METRO	Mid-Term	High
12-1	Schweikhardt Street	COH	TIRZ 18	Mid-Term	Medium
12-2	Coke Street	COH	TIRZ 18	Mid-Term	Medium
12-3	Solo Street	COH	TIRZ 18	Mid-Term	Medium
12-4	Providence Street	COH	TIRZ 18	Mid-Term	Medium
12-5	Sonora Street	COH	TIRZ 18	Mid-Term	Medium
12-6	Shotwell Street	COH	TIRZ 18	Mid-Term	Medium

FIGURE AT55 - IMPLEMENTATION SUMMARY

PRELIMINARY CONCEPT-LEVEL IMPLEMENTATION STRATEGY

Implementation Approach

Overall, the strategy emphasizes early delivery of high-impact corridors, followed by network expansion and long-term capital improvements. This phased approach supports the development of a comprehensive, connected, and multimodal transportation system.

The implementation summary chart identifies project priorities, responsible agencies, partners, and anticipated timelines. High-priority projects are generally concentrated in the near-term phase, reflecting strong community support and readiness for implementation. Mid- and long-term projects will require additional coordination, funding strategies, and detailed design.

Moving forward, recommended corridors and improvement levels will advance into feasibility studies and preliminary engineering to further evaluate right-of-way constraints, drainage and utility considerations, traffic operations, and constructability.

These studies will refine the appropriate level of intervention—Basic, Retrofit, or Reconstruction—for each segment and develop more detailed cost estimates and phasing strategies.

Continued coordination with agencies, stakeholders, and adjacent property owners will be critical to align funding opportunities, secure necessary easements, and define implementation responsibilities. Future phases should also include targeted public engagement to validate design priorities and ensure that improvements reflect community needs and preferences.

Together, these next steps will translate the conceptual framework into implementable projects, advancing a resilient and people-centered transportation network across the study area.

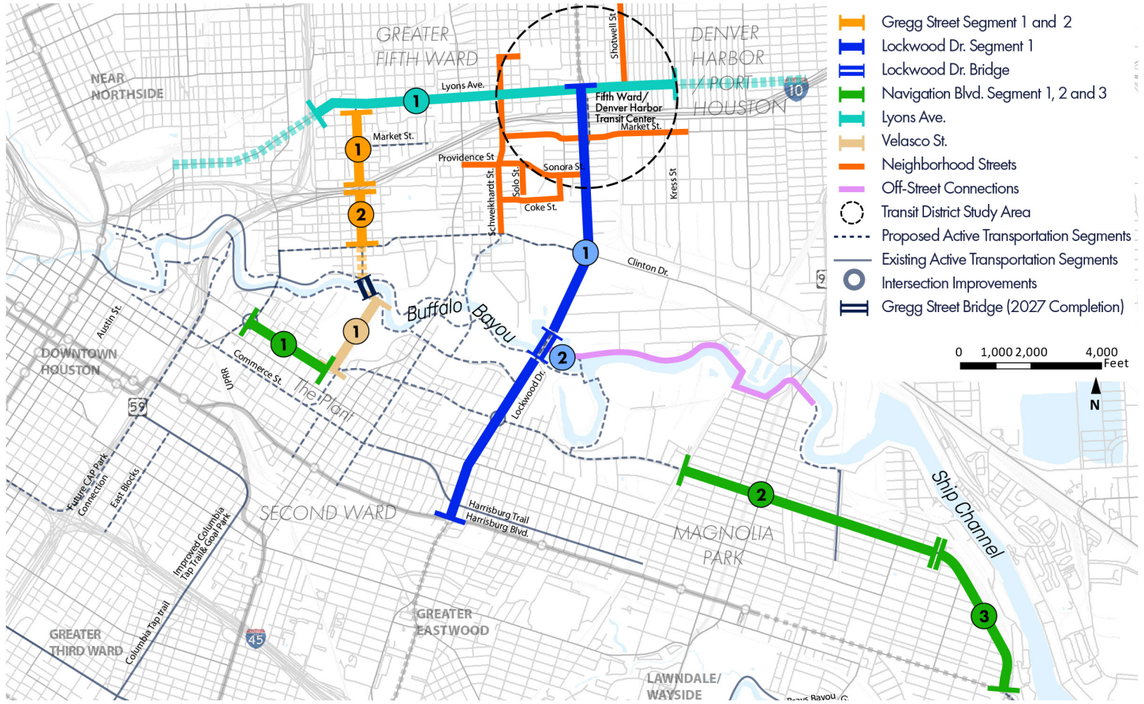


FIGURE AT56 - ACTIVE TRANSPORTATION SUMMARY MAP

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PART II:

FIFTH WARD/ DENVER HARBOR TRANSIT DISTRICT

EXISTING CONDITIONS

PROJECT BACKGROUND

Located just east of Downtown Houston at the intersection of Lockwood Drive and Lyons Avenue, the Fifth Ward/Denver Harbor Transit Center serves as a major mobility hub for the city and surrounding region. With eight local bus routes linking riders to key destinations across Houston, the transit center accommodates over 2,600 daily boardings and alightings and supports approximately 27 departures per hour. It provides essential access to jobs, schools, cultural institutions, and community services for residents throughout the area.

Given its critical role within the broader transportation network, this study focuses on strategies to strengthen safe, accessible, and well-connected first/last-mile connections. Enhancements to active transportation infrastructure—such as continuous sidewalks, protected bikeways, and safer crossings—will better link surrounding neighborhoods to the transit center and the Buffalo Bayou Trail Network, improving mobility choices and overall quality of life for the community.

A stronger active transportation network improves the health and well-being of the community by reducing conflicts between vehicles and vulnerable road users. It also boosts local economic vitality by connecting residents to jobs, businesses, and daily services, while making nearby commercial areas more accessible to customers. Importantly, these improvements lessen the dependence on car ownership, lowering transportation costs for households.

By investing in safe, accessible, and well-connected mobility choices, through continuous sidewalks, protected bikeways, universally accessible crossings, and intuitive wayfinding, the community gains far more than enhanced transportation. These improvements are essential for individuals with mobility challenges who rely on transit as their primary means of travel. Complete, barrier-free access ensures that everyone can move comfortably and independently throughout the neighborhood.

Ultimately, a fully connected active mobility network creates a safer, healthier, and more inclusive environment. It expands opportunity, supports economic growth, and elevates overall quality of life for all who live, work, and visit the transit district area.



STUDY AREA AERIAL, GOOGLE EARTH, 2025

FIGURE TC1 - EXISTING TRANSIT DISTRICT STUDY AREA

THE TRANSIT DISTRICT: A REGIONAL GATEWAY

At the heart of the study area lies the Fifth Ward / Denver Harbor Transit Center—an active mobility hub that connects residents to neighborhoods across Houston, as well as Downtown and major job centers throughout the region. Its strategic location makes it a vital gateway for the community, creating an opportunity to enhance access, safety, and mobility while strengthening connections to nearby homes, businesses, and civic destinations.

THE STUDY AREA & SCOPE

The study focuses on strengthening the transit district's and surrounding environment by improving access and safety, supporting community-driven priorities, and protecting the long-standing cultural and neighborhood character that defines the area. Enhancing first/last-mile infrastructure, expanding mobility choices, and creating more welcoming public spaces are central goals. These improvements aim to support local businesses, attract new investment that aligns with community goals/priorities.

By improving access and connectivity at this critical point in the region's transportation network, the study seeks to create a more inclusive, resilient, and opportunity-rich future for both Fifth Ward and Denver Harbor communities.

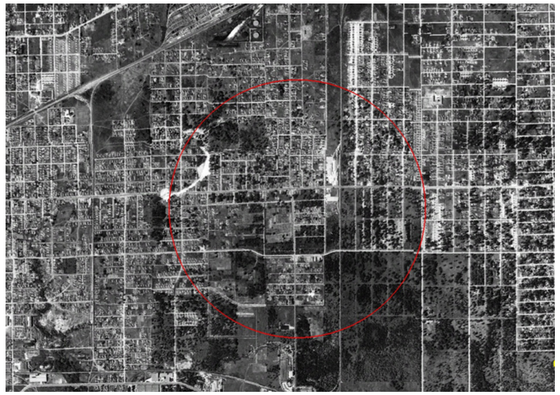


Fifth Ward / Denver Harbor Transit Center





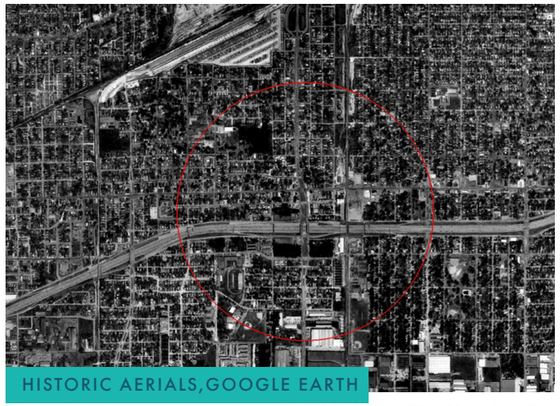
HISTORY OF FIFTH WARD AND DENVER HARBOR



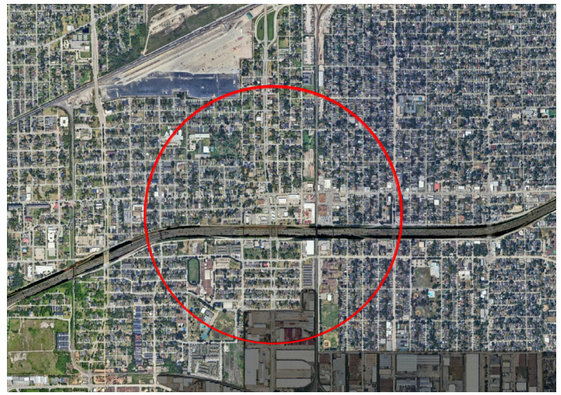
1944 FIGURE TC2 - 1944 AERIAL PHOTO



2002 FIGURE TC4 - 2002 AERIAL PHOTO



1978 FIGURE TC3 - 1978 AERIAL PHOTO



2024 FIGURE TC5 - 2024 AERIAL PHOTO

The Fifth Ward and Denver Harbor are two of Houston's most historic communities. Over time, highways and industrial expansion have physically divided the neighborhoods and disrupted traditional patterns of movement. Yet their cultural richness, community identity, and deep-rooted sense of place have remained remarkably resilient. Generations of families, local businesses, and shared traditions continue to reinforce a deep sense of belonging and identity.

The Transit District Improvement Study seeks to strengthen connections across long-standing physical barriers, enhancing access to key destinations, spirit of Fifth Ward and Denver Harbor.

Today, the Transit District Improvement Study builds on that resilience by focusing on restoring walkable and bike-friendly links between neighborhoods, supporting the continued vibrancy of local culture, while opening new pathways for opportunity, visibility, and future growth rooted in the neighborhoods' rich cultural heritage and enduring sense of community identity.

DEVELOPMENT IMPACT (REIMAGINE LYONS AVENUE)



LYONS AVENUE RENAISSANCE FESTIVAL

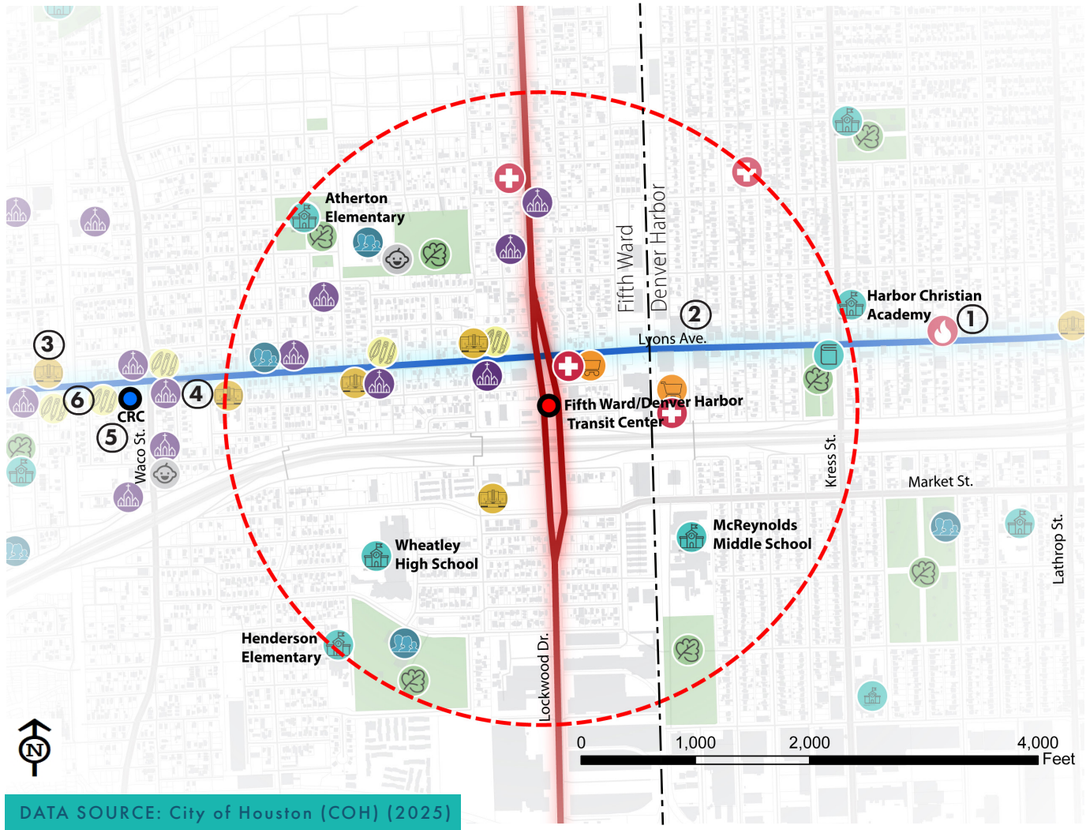
The Influence of Lyons Avenue and Surrounding Development

Lyons Avenue serves as the cultural and economic spine of the Fifth Ward. With recent redevelopment near Buffalo Bayou East and rising interest in the surrounding land, the area is at a critical juncture. Lyons Avenue's strategic position—connecting the Transit Center, Buffalo Bayou trail system, and nearby civic and commercial nodes—presents a unique opportunity to reimagine it as a main street for future investment, mobility, and placemaking.



2025 LYONS AVENUE RENAISSANCE FESTIVAL

POINTS OF INTEREST AND COMMUNITY ASSETS



DATA SOURCE: City of Houston (COH) (2025)

FIGURE TC6 - FIFTH WARD POINTS OF INTEREST AND COMMUNITY ASSETS

Figure TC11 shows public facilities and essential destinations within a half-mile radius of the Fifth Ward/Denver Harbor Transit Center. These include schools, clinics, parks, grocery stores, childcare centers, and community spaces. The distribution highlights key service gaps, particularly limited access to childcare and healthy food options. Because the freeway divides half of the community, pedestrian connectivity and access to key facilities is restricted.

- HERITAGE
- CHILD CARE
- ART
- LIBRARY
- PARKS
- SCHOOL
- FIRE STATION
- COMMUNITY
- GROCERY
- PLACE OF WORSHIP
- CLINIC
- 1/2 MILE RADIUS
- FIFTH WARD & DENVER HARBOR BOUNDARY LINE

POINTS OF INTEREST AND CULTURAL ASSETS



DENVER HARBOR FIRE STATION MURAL



DENVER HARBOR UTILITY BOX MURAL



FIFTH WARD LOUIS WHITE GROCERY HERITAGE SITE



HISTORIC FIRST SHILOH BAPTIST CHURCH



FIFTH WARD CULTURAL ARTS DISTRICT MURAL

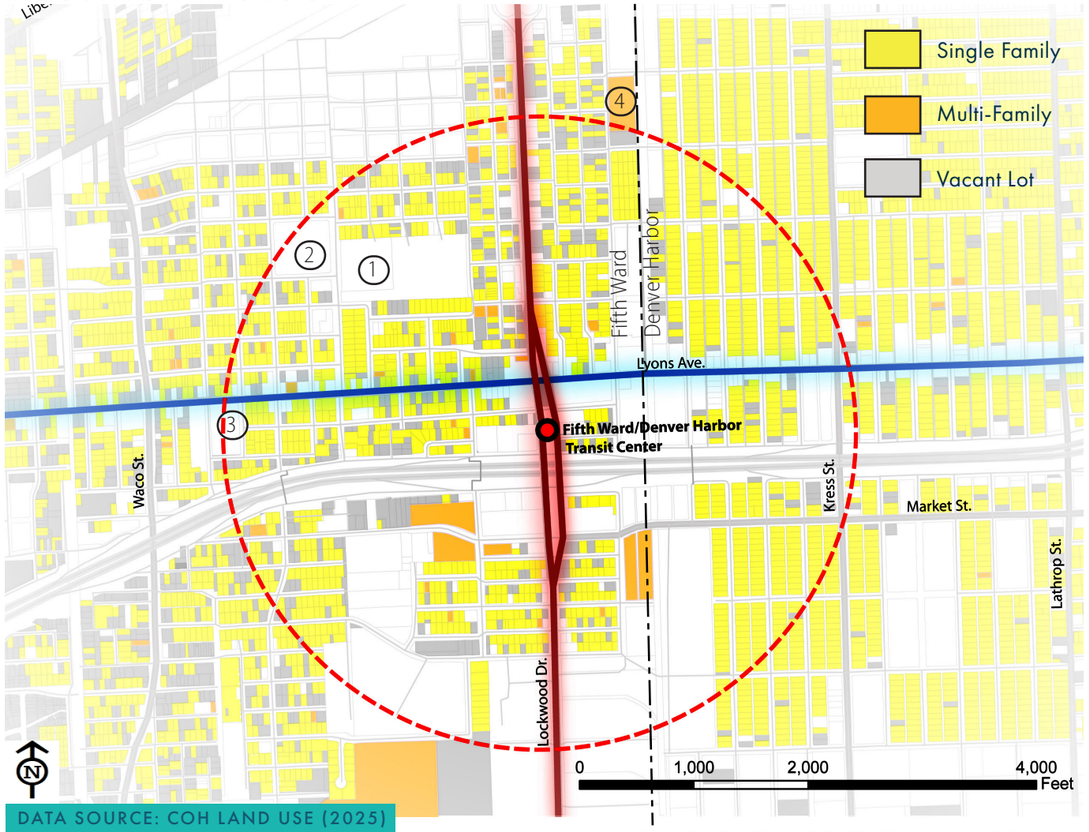


FIFTH WARD LYONS AVE RENAISSANCE CORRIDOR SIGN

In addition to essential services, several cultural and historic assets shape neighborhood identity. The photos above illustrate key sites. These landmarks, along with corridor signage and public art, strengthen community character and contribute to ongoing placemaking initiatives.

Together, the map and photos identify the community's key destinations, both service-based and cultural, that define daily life in the study area.

HOUSING TYPOLOGY



DATA SOURCE: COH LAND USE (2025)

FIGURE TC7 - TRANSIT DISTRICT HOUSING TYPOLOGY

The housing type within the Transit District study area is predominately single-family comprised of older bungalow or shotgun style houses. Within the Fifth Ward, clusters of newer two-story townhouse style housing are infilling within the neighborhood, concentrating around the Julia C. Hester House Community Center (1) and Atherton Elementary School (2) area.

There are pockets of small multi-family complexes, either consisting of multiple small structures or one single structure of one to two stories. These complexes are mainly located in the Fifth Ward. Multi-family complexes of larger scale are beginning to emerge in the area. An example is the adaptive reuse of St. Elizabeth Hospital, which opened July of 2025.

The 3 to 5 story multi-family development houses 179 units. This development includes mixed income housing, providing an affordable option for the community. Additionally, located just outside of the ½-mile radius is the three-story multi-family complex, New Hope Housing Sakowitz (4).

Approximately 17% of land in the study area are vacant lots. Vacant lots are concentrated in pockets along Lyons Ave, west of Lockwood Dr. and on Lockwood Dr., north of the transit center. Some are dispersed throughout residential neighborhoods. The vacant property impacts density and presents safety concerns due to illegal dumping and lack of maintenance. However, the undeveloped land can be an opportunity for infill to promote pedestrian activity through Transit-Oriented Development (TOD) street designation.

HOUSING TYPOLOGY



SINGLE-FAMILY HOUSING AT SHOTWELL STREET



SINGLE-FAMILY HOUSING AT SCHWEIKHARDT STREET



TOWNHOUSE STYLE SINGLE FAMILY HOUSING AT CARROLL OLIVER WAY



MULTI-FAMILY COMPLEX AT GAZIN STREET



MULTI-FAMILY COMPLEX AT HERSHE STREET



ST. ELIZABETH'S HOSPITAL ADAPTED INTO MULTI-FAMILY AT LYONS AVENUE

BUSINESS TYPOLOGY

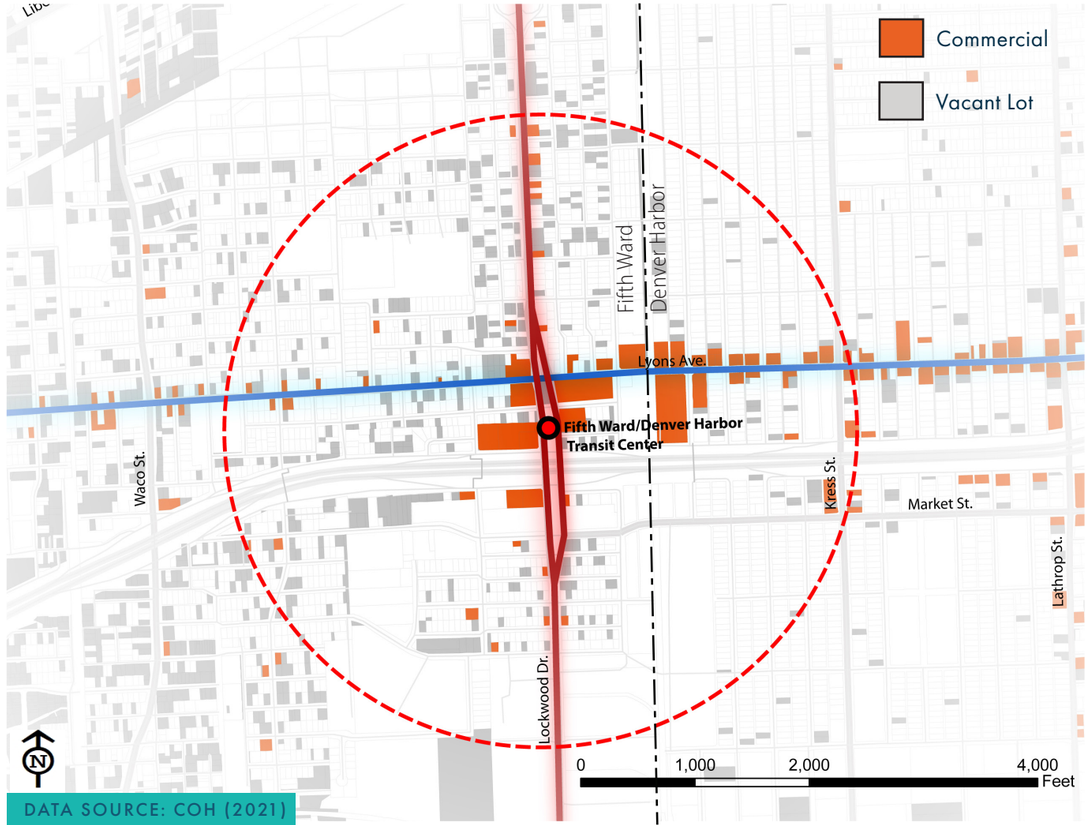


FIGURE TC8 - BUSINESS TYPOLOGY

As indicated in the map, a high concentration of commerce land use exists along the east side of Lyons, into Denver Harbor and around the transit center. This commercial typology of Denver Harbor includes small strip centers, 1-2 stories in scale with various single structure businesses and gas stations.

Additionally, a mix of building set back approaches are present, such as a providing a set back to include parking lots in front of the business entry or, in several instances along Lyons, set backs are minimized providing access storefronts directly off of or engaging the public sidewalk.

Additionally, there are several commercial structures that are vacant. Some buildings have been adapted into another use along Lyons, such as the Denver Harbor Tire Shop.

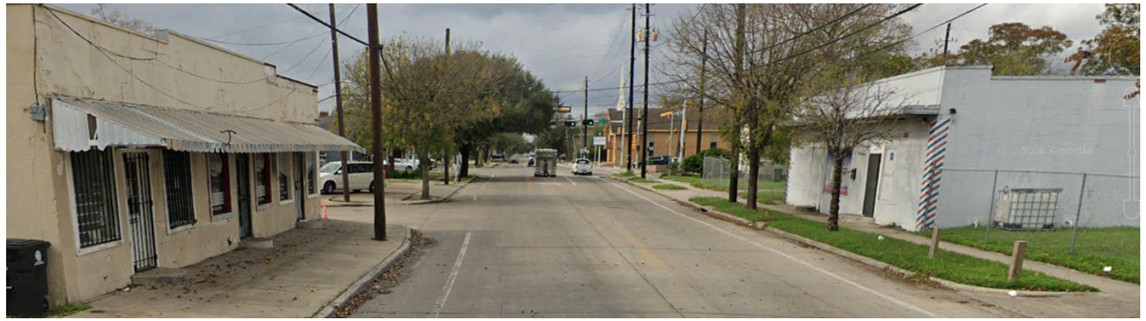
BUSINESS TYPOLOGY



FIFTH WARD MULTI-TENANT COMMERCIAL BUILDING AT LYONS AVENUE & SCHWEIKHARDT STREET



TELOMARKET GROCERY STORE AT LYONS AVENUE & SAKOWITZ STREET



FIFTH WARD COMMERCIAL STRUCTURES AT LYONS AVENUE



DENVER HARBOR RETAIL STRIP CENTER AT LYONS AVENUE & SHOTWELL STREET

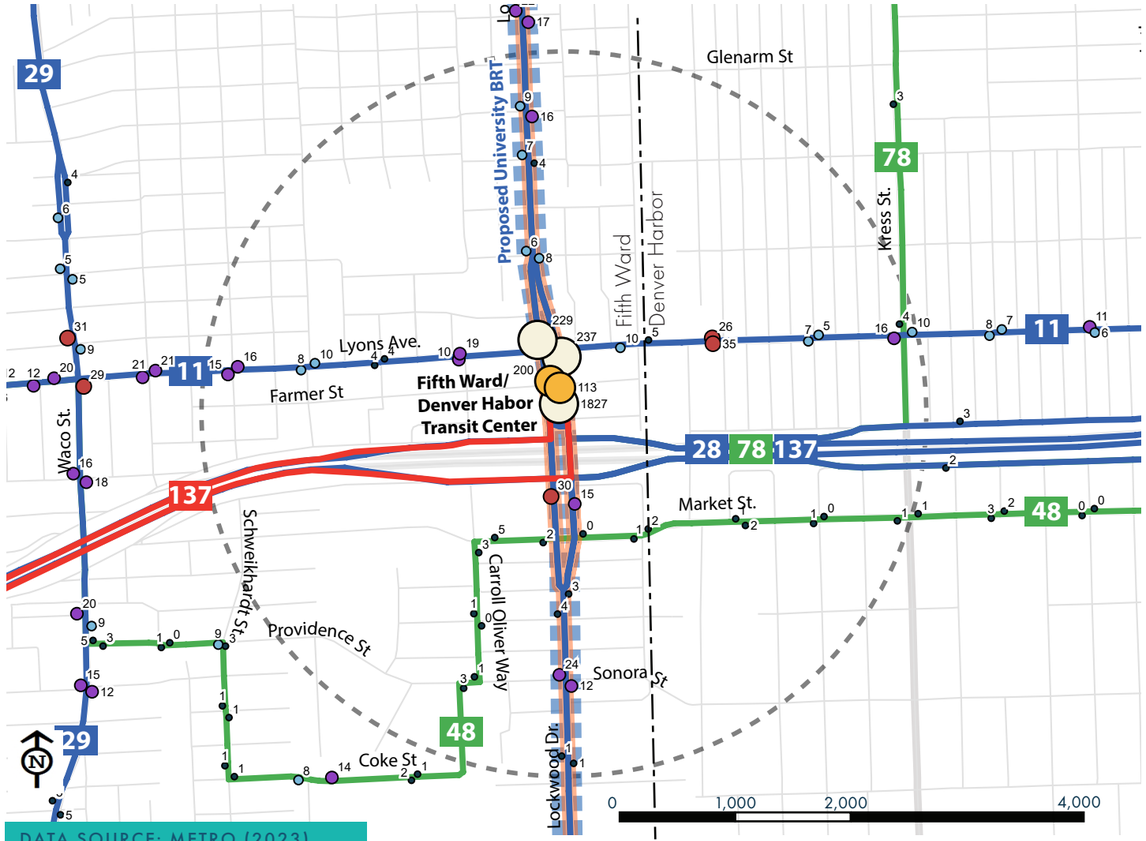


FIFTH WARD TRUE LEVEL LODGE BUILDING AT LYONS AVENUE & COPELAND STREET



DENVER HARBOR TIRE SHOP AT LYONS AVENUE & LATHROP STREET

TRANSIT NETWORK



DATA SOURCE: METRO (2023)

FIGURE TC9 - TRANSIT NETWORK

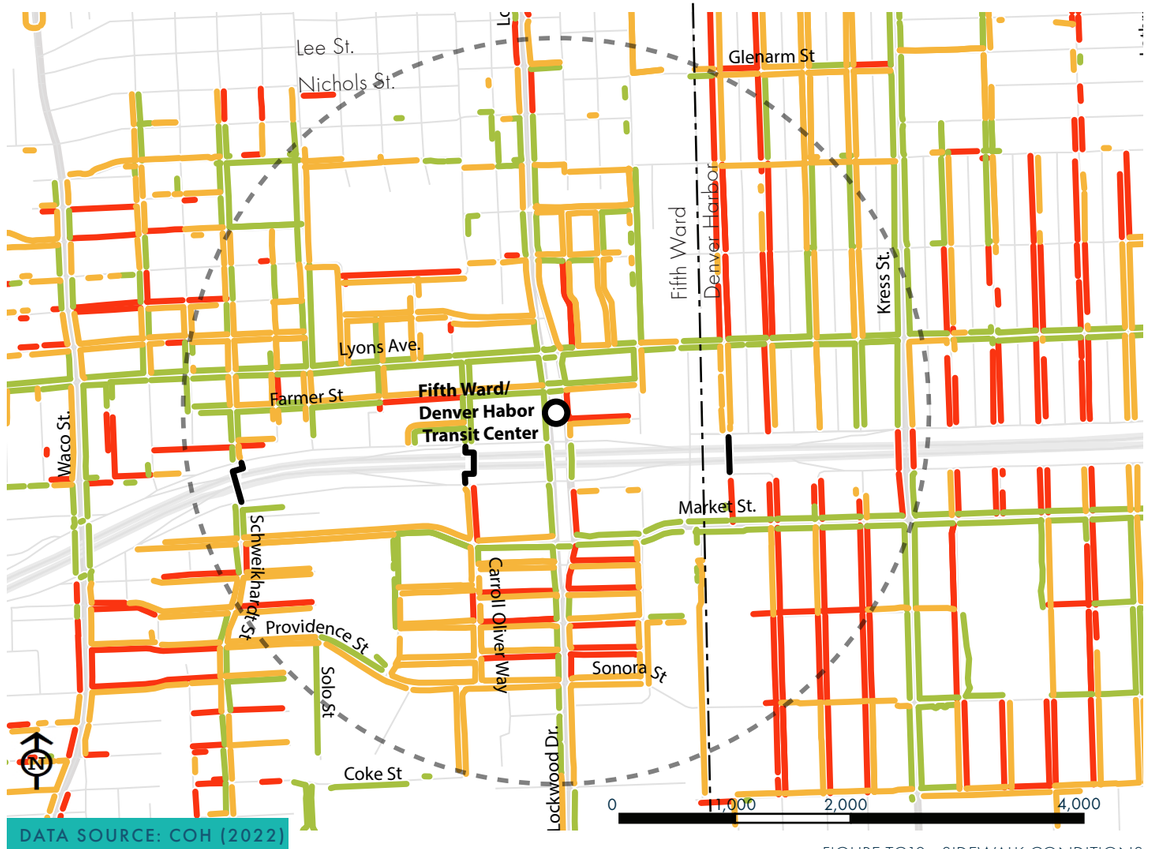
The Fifth Ward/Denver Harbor Transit Center, located at the intersection of Lockwood Drive and Lyons Avenue, is served by eight bus routes that serve over 2,600 riders every weekday.

Looking towards the future, there are also two planned transit projects, both along Lockwood Drive. First, METRO Route 80 MLK/Lockwood qualified as a BOOST route, which will see bus stop and sidewalk improvements. Additionally, the University Corridor BRT project is planned along Lockwood Drive providing high quality, frequent rapid transit for the area.

Legend

- Local Bus (≤15 Minute Headways)
- Local Bus (15-30 Minute Headways)
- Local Bus (>30 Minute Headways)
- Proposed Univeristy BRT
- Proposed BOOST Corridor
- Higher Ridership Transit Stop
- Lower Ridership Transit Stop
- Half-mile Study AreaBuffer

EXISTING SIDEWALK NETWORK



DATA SOURCE: COH (2022)

FIGURE TC10 - SIDEWALK CONDITIONS

Sidewalks are essential to a safe and accessible mobility network. For residents to comfortably reach transit, schools, parks, and neighborhood destinations, pedestrian routes must be continuous and barrier-free. While many study-area corridors include sidewalks, the network remains incomplete: more than 3 miles are in poor condition, and over 8 miles of block faces lack sidewalks entirely, especially along Lee Street and Nichols Street.

Where sidewalks do exist, surface defects and inadequate curb ramps create challenges for wheelchair users and individuals with limited mobility. Regional infrastructure also affects walkability. I-10 acts as a major physical divide, with only a few north–south crossings available at major roads or select pedestrian bridges such as Schweikhardt Street, Carroll Oliver Way, and Shotwell Street.

Legend

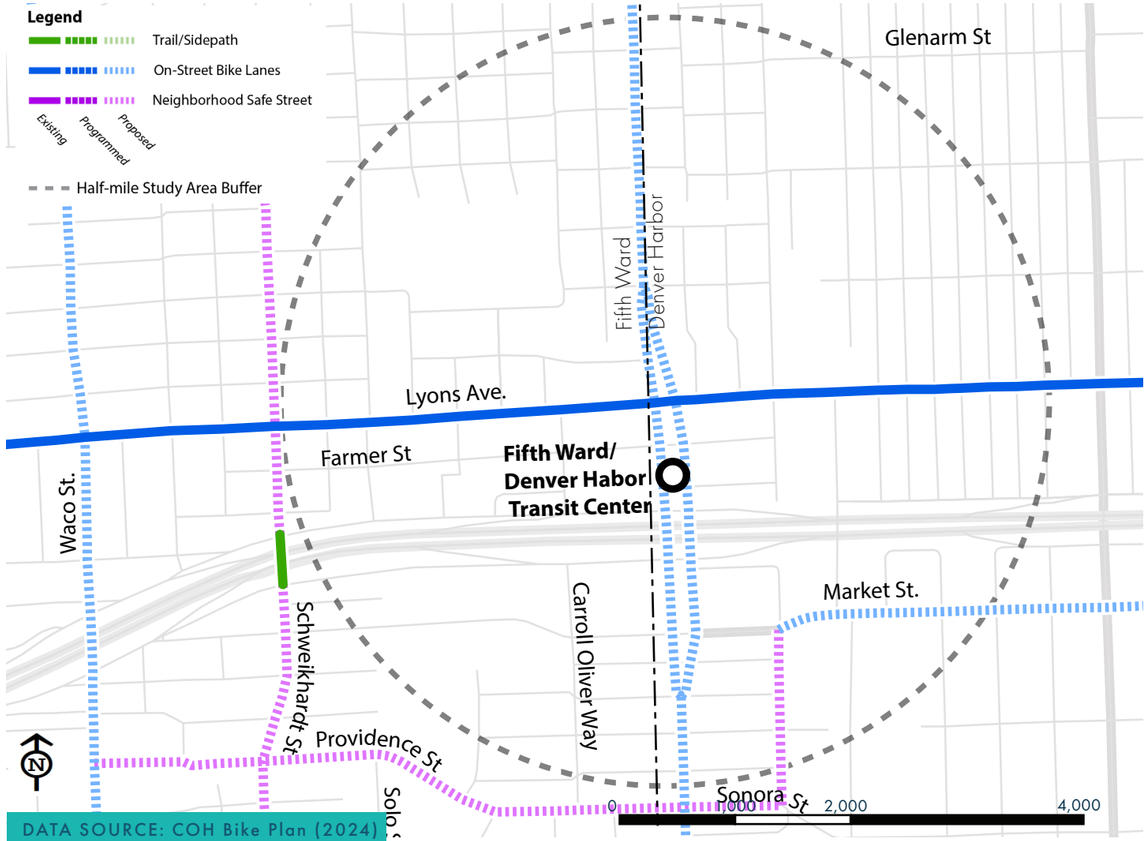
- Good
- Fair
- Poor
- Pedestrian Bridge
- Half-mile Study AreaBuffer

EXAMPLES OF SIDWALK CONDITIONS



EXAMPLE SIDEWALK PHOTOS

EXISTING AND PROPOSED BIKE NETWORK



DATA SOURCE: COH Bike Plan (2024)

FIGURE TC11 - EXISTING AND PROPOSED BICYCLE NETWORKS

The study area currently has very limited bicycle infrastructure, with no protected bike lanes or designated neighborhood streets that offer low-stress conditions for people biking. While Lyons Avenue includes an on-street bikeway, it is only separated from traffic by a painted line, an approach that no longer reflects best practices for corridors with comparable vehicle speeds and volumes.

Just south of the study area, the Buffalo Bayou Hike & Bike Trail provides a high-quality regional connection to Downtown and the White Oak Bayou Trail system. However, reaching this trail from the transit district is challenging due to gaps in safe, direct routes.

Opportunities exist to improve access through streets such as Schweikhardt Street and Solo Street, helping to better link residents to the broader trail network and expand mobility choices in the area.

The Houston Bike Plan identifies a long-term vision of on-street high comfort bikeways along Waco Street, Lockwood Drive, and Market Street. Neighborhood safe streets are recommended on Schweikhardt Street, Providence Street, Sonora Street, and Sakowitz Street. Improvements such as dedicated bike lanes and neighborhood safe streets would help to close gaps in the network, enhancing access to key destinations and improving safety and comfortability of people biking.

ALL CRASHES & HIGH-INJURY NETWORK



DATA SOURCE: TxDOT CRIS (2014-2018)

FIGURE TC12 - ALL CRASHES & HIGH-INJURY NETWORK

There were a total of 330 crashes in the study area from year 2014 - 2018. Both Lyons Avenue and Lockwood Drive are on the City of Houston High-Injury Network (HIN). Additional segments of Lyons Avenue are also on the Harris County HIN.

The HIN was identified by City officials based off concentrations of serious and fatal crashes along Houston roadway. In Houston, 6% of streets account for over 60% of traffic deaths and serious injuries occurred between 2014 and 2018. Targeted safety improvements along HIN corridors will help reduce the number of serious injury and/or fatal crashes.

Concentrations of crashes occur mostly at intersections, such as Lyons Avenue at Lockwood Drive, and Lockwood Drive at Market Street.

One fatal crash occurred at Market Street at Lockwood Drive. There were multiple locations of serious injury crashes, eight in total, occurring on the segments of Lockwood Drive and Lyons Avenue within the study area.

PEDESTRIAN & BICYCLE CRASHES & HIGH-INJURY NETWORK



DATA SOURCE: TxDOT (2014-2018)

FIGURE TC13 - PEDESTRIAN & BICYCLE CRASHES & HIGH-INJURY NETWORK

Pedestrian and bicyclist safety remains a major concern within the study area. Lyons Avenue has experienced multiple serious injury crashes involving people walking and biking, and a fatal crash occurred at Lockwood Drive and Market Street. The highest concentration of incidents is found near the Fifth Ward/ Denver Harbor Transit Center, where heavy foot traffic is generated by riders transferring between buses and walking to nearby destinations.

In total, 17 crashes involving pedestrians or bicyclists were reported within a half-mile of the transit center. Conditions along key corridors such as Lockwood Drive at Market Street and Lyons Avenue east of Lockwood Drive underscore the need for safer crossings, traffic calming measures, and more protective walking and biking facilities throughout the transit district.

EXISTING VEHICLE SPEEDS AND VOLUMES



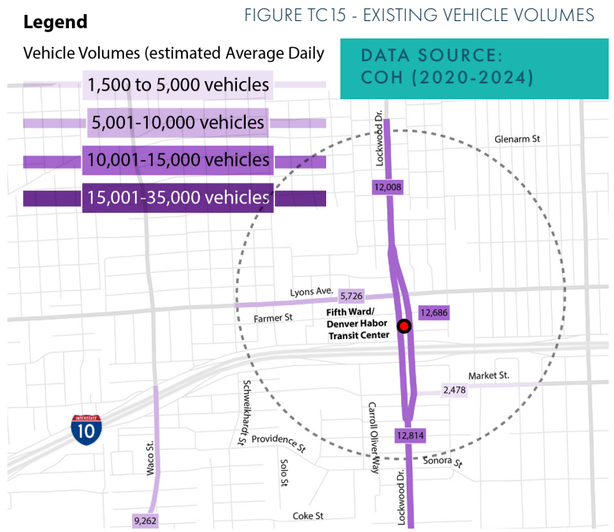
DATA SOURCE: COH (2020-2024)

FIGURE TC14 - EXISTING VEHICLE SPEEDS

The posted speed limit in most of the study area is 30 mph on local collectors, increasing to 35 mph on major thoroughfares. However, 85th percentile speeds, representing the speed at or below which 85% of vehicles travel, often exceed posted limits on key corridors, like Lyons Avenue, Lockwood Drive, and Market Street. These higher speeds, coupled with high traffic volumes, pose safety risks for pedestrians and cyclists, particularly near the transit center and major destinations.

Lockwood Drive carries the highest traffic volume in the study area, remaining consistent across both sides of I-10. Lyons Avenue carries about half that volume, while Market Street sees relatively low traffic. Although Lockwood Drive has more lanes (4 lanes) compared to Lyons Avenue (2 lanes), volume alone does not indicate congestion due to differences in street width, design, and function.

FIGURE TC15 - EXISTING VEHICLE VOLUMES



CITY OF HOUSTON TRANSIT ORIENTED DEVELOPMENT & WALKABLE PLACES

	Elements	Standards	
		Transit Corridor Streets and TOD Streets designated as a Major Thoroughfare	
1	Pedestrian Realm Width (42-621; 42-622)	Minimum 20, 15, or 10 feet	Minimum 15 or 10 feet
2	Sidewalk Width (40-555; IDM 17.06)	Minimum 8 feet	Minimum 6 feet
3	Safety Buffer Width (40-555; IDM 17.06)	Minimum 4 feet	
4	Maximum Softscape (42-621)	35%	
5	Street Trees	Minimum 2" or 3" caliper (42-621); Tree removal (33-152); Canopy preservation (33-161)	
6	Fences (42-621)	The maximum allowable height in the pedestrian realm is 48". A fence located between the back of curb and the building façade shall be a non-opaque fence.	
7	Auto-related Uses (42-622)	No auto-related uses, except: • Driveway(s) perpendicular with the Walkable Place Street; • Below-grade parking or auto-related uses; or • Approved pedestrian drop-off / loading area beyond minimum pedestrian realm	

COH TOD Standards (2022)

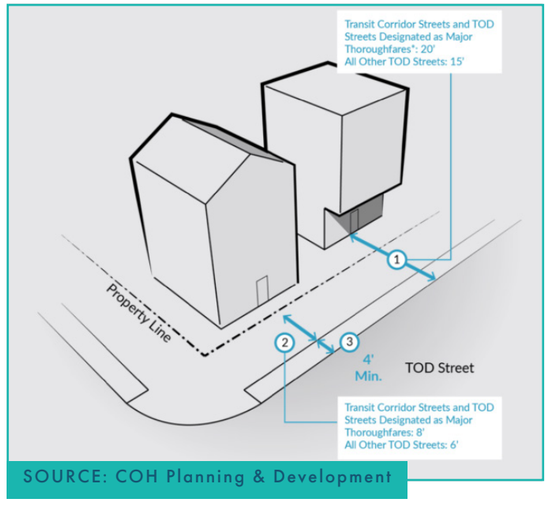
FIGURE TC16 - TOD PEDESTRIAN REALM STANDARDS

The User's Guide for Walkable Places and Transit Oriented Design Standards and COH TOD Ordinance clarifies the applicability for the variations in the pedestrian realm width and sidewalk width minimums as they apply to specific conditions.

These design references help ensure that recommended improvements in the Transit District align with the City's broader vision for safer, healthier, and more walkable transit environments.

Although the study area is not designated for specific development scales, densities, or program requirements, the City of Houston's Walkable Places and related design standards provide valuable guidance for enhancing mobility, safety, and accessibility around the transit center. These frameworks emphasize continuous sidewalks, active street edges, comfortable pedestrian environments, and safe multimodal access, all of which are essential to a thriving transit district.

By referencing these urban design principles, the study aims to strengthen walking and biking connections, improve access to transit, and create a more welcoming public realm for residents, workers, and visitors within the Transit District.



SOURCE: COH Planning & Development

FIGURE TC17 - TOD PEDESTRIAN REALM WIDTH

METRO GUIDELINES



Rendering from METRO Urban Design Manual

FIGURE TC18 - METRO URBAN DESIGN MANUAL

METRO's Joint Development / Transit Oriented Development (JD/TOD) program
Though not a design guideline, this program can be a development opportunity in implementation of the TOD. One of its goals is to create and promote equitable TOD, including affordable, workforce and market-rate housing around transit, as a strategy for placemaking, equity, sustainability, and smart growth.

The METRO Urban Design Manual provides guidelines to urban environments that involve access to transit facilities. Guidelines are also included for promoting Transit District within various scales in support and in reference to the City of Houston standards, including the following at neighborhood scale:

- Minimize driveways to reduce interruptions to pedestrian access
- Orient parking lots on the side or at the rear of the development rather than along the right-of-way
- Orient building facades adjacent to the right-of-way and place main building entries along the primary sidewalk
- Provide minimal building setbacks along the primary streetscape while providing adequate visibility; consider first floor corner clips to enhance pedestrian and vehicular visibility
- Consider designing one 30' wide two-way driveway or two 15' wide one-way driveways per 300' of development
- Pedestrian crossings should be provided every 500 - 700 feet for new development on large blocks
- Provide engaging ground-floor retail and restaurants with glass facades adjacent to the streetscape to invite pedestrians into development

CITY OF AUSTIN EQUITABLE TOD (ETOD) GUIDELINES



SOURCE: CapMetro

FIGURE TC19 - CAPMETRO'S ETOD SUMMARY

Traditional transit-oriented planning creates compact, walkable places with convenient access to rail and bus services. It supports housing choices, local jobs, and vibrant mixed-use destinations. But to truly serve the people who rely on transit the most, a transit district must intentionally improve access, comfort, and opportunity for everyone.

Equitable Transit-Oriented Development (ETOD) ensures that upgrades around stations with safer crossings, better sidewalks, shaded routes, and community-serving amenities are designed for those who face the greatest daily barriers: older adults, people with disabilities, students, and residents who depend on transit for work and essential trips. By shaping investment around real mobility needs, a transit district strengthens long-term housing stability, improves access to jobs and services, and helps neighborhood businesses thrive.

A. Walking, rolling & bike facilities that feel safe
B. High-frequency transit options
C. Walking & biking connections to transit
D. Affordable housing options for a diversity of families & individuals
E. Small businesses representative of communities they serve
F. Active public spaces that are useful to everyone in the community
G. Workforce development
H. Support for prospective & current communities
I. Access to essential needs
J. Support of legacy businesses

Focusing on equity in the Fifth Ward and Denver Harbor neighborhoods enables transit improvements to reinforce the character of each community, support residents who have built their lives here, and allow more people to benefit from growth rather than be displaced by it. A transit district centered on fairness and access creates a safer, more connected environment where every resident can move confidently and share in the neighborhood's future.

TOD GUIDELINES & CASE STUDIES



SOURCE: Mark Hiebert Photography

NEW HOPE HOUSING, HARRISBURG LOCATION

The following TOD case studies show what types of amenities and opportunities are possible around transit, including:

- Safer and more comfortable walking and biking.
- Better access to jobs, services, and community places.
- Support for local businesses and neighborhood identity.
- Housing options that fit the community.
- Public spaces and streets that feel inviting.

While this study is focused on transit-area improvements, the successes and lessons from TOD projects help inform opportunities for the study area without forcing large-scale redevelopment.

Harrisburg Boulevard Transit-Oriented Developments (Houston Second Ward)

Harrisburg is designed as a primary transit-oriented street, and location of METRORail's Green Line connecting into downtown. Several multi-family housing, small business, non-profits have now located off of Harrisburg.

Reduced parking requirements has enhanced the neighborhood's walkability and pedestrian presence. The following two developments—one multifamily residential and one commercial—illustrate different scales and approaches to development.

New Hope

New Hope Housing is a non-profit organization that provides affordable transitional housing consisting of single room occupancy units. The Harrisburg location is New Hope Housing's first mixed-use and transit-oriented development. This location provides 175 units, retail space on the ground floor and office space. New Hope Housing provides programs and services, including primary healthcare, case management, courses on financial management, and life-skill training.

TOD BENEFITS

- Access to multi-modal transit and providing retail at the ground floor engaging pedestrian access

EQUITY OUTCOMES

- Affordable transitional housing option for low-income and highly vulnerable individuals
- Community programs and services

CONSIDERATIONS

- Increase density through mixed- use development



SOURCE: Houston Chronicle

THE PLANT / SECOND WARD

The Plant

The Plant, located along Harrisburg at the intersection of Sampson, is a retail development with small local businesses. This development utilizes reduced parking in accordance with the city's TOD ordinance, which has allowed for an increase in density and enhanced pedestrian realm.

According to its master plan, The Plant / Second Ward's vision is to connect between the METRO light rail on Harrisburg to Buffalo Bayou East, creating a walkable corridor and repurposing underutilized buildings along the route. The plan, by the Houston real estate firm, Concept Neighborhood, aims to create a mixed-income urban village that includes office, retail, and mixed-income multi-family units. It's an equitable approach that provides an opportunity for business owners and people working in the business to live in proximity.

TOD BENEFITS

- Enhancing the public realm and providing a pedestrian-oriented facade
- Creating density and identity

EQUITY OUTCOMES

- Encouraging small business and walkability
- Mixed-income approach

CONSIDERATIONS

- Repurposing underutilized building
- Public-private effort and working with the COH Planning & Development department for TOD ordinance and reduced parking

GUIDELINES & REFERENCES
TOD GUIDELINES & CASE STUDIES



SOURCE: HUD

M STATION

City of Austin's TOD District

The City of Austin's TOD ordinance prohibits certain uses and provides reduced setback and parking requirements. The ordinance also set guidelines for the preparation of station area plans, including MLK station where M Station is adjacent to that would include affordable housing goals. The City offered incentives to encourage affordable developments, such as density bonuses to developers that meet the affordable housing goals.

M Station is a 150-unit multi-family development that includes mixed income housing that is walking distance from Cap MetroRail's MLK station in Austin. The development, by the nonprofit Foundation Communities, earned a 5-star ranking from Austin Energy Green Building for its sustainability building efforts. Ten percent of units are rented at market rate; while the remaining units are available at rents affordable to the city's low- and moderate-income families.

M Station includes several programs, such as free before- and after-school programs for residents and low-cost daycare for neighborhood children. Additionally, an adult learning center with computer lab, classrooms, and a large community meeting room are included. The center offers classes in personal finance, homeownership, income tax preparation, and English as a second language. In addition, residents can enroll in Foundation Communities' Matched Savings Program.

TOD BENEFITS

- Large sidewalks and enhanced public realm provide greater connectivity and mobility options for pedestrians.

EQUITY OUTCOMES

- Affordable, mixed-income housing option
- Several community and resident services and programs

CONSIDERATIONS

- TOD Policies implemented to encourage affordable housing development

OPPORTUNITY IDENTIFICATION



PRIORITY CHART

The assessment of opportunities for the Transit District is intended to address issues identified by the community and through the site condition assessment, while providing improvements that enhance the neighborhood vitality and respond to the community's priorities. The figure below is a summary of the priorities and feedback received by the public.

Opportunities based on the priorities fall into several key focus areas. Transit and mobility aim to address safety concerns while improving access to transit options and pedestrian connectivity. Land use opportunities encourage pedestrian activity and promote community equity by supporting a mix of uses, including housing, commercial spaces, recreational amenities, and essential community services. Equitable and economic opportunities focus on supporting local businesses, expanding vocational training, and increasing access to diverse housing options.

As part of the opportunity planning, the map on the following page overlays the vacant and undeveloped lots, underutilized sites (including properties with unoccupied buildings), existing community assets, existing transit and bus stations, and the TIRZ boundary. Together these layers aid in analysis of opportunities within the study area for development and pedestrian connectivity, which have been identified above.

Improving pedestrian access to transit:

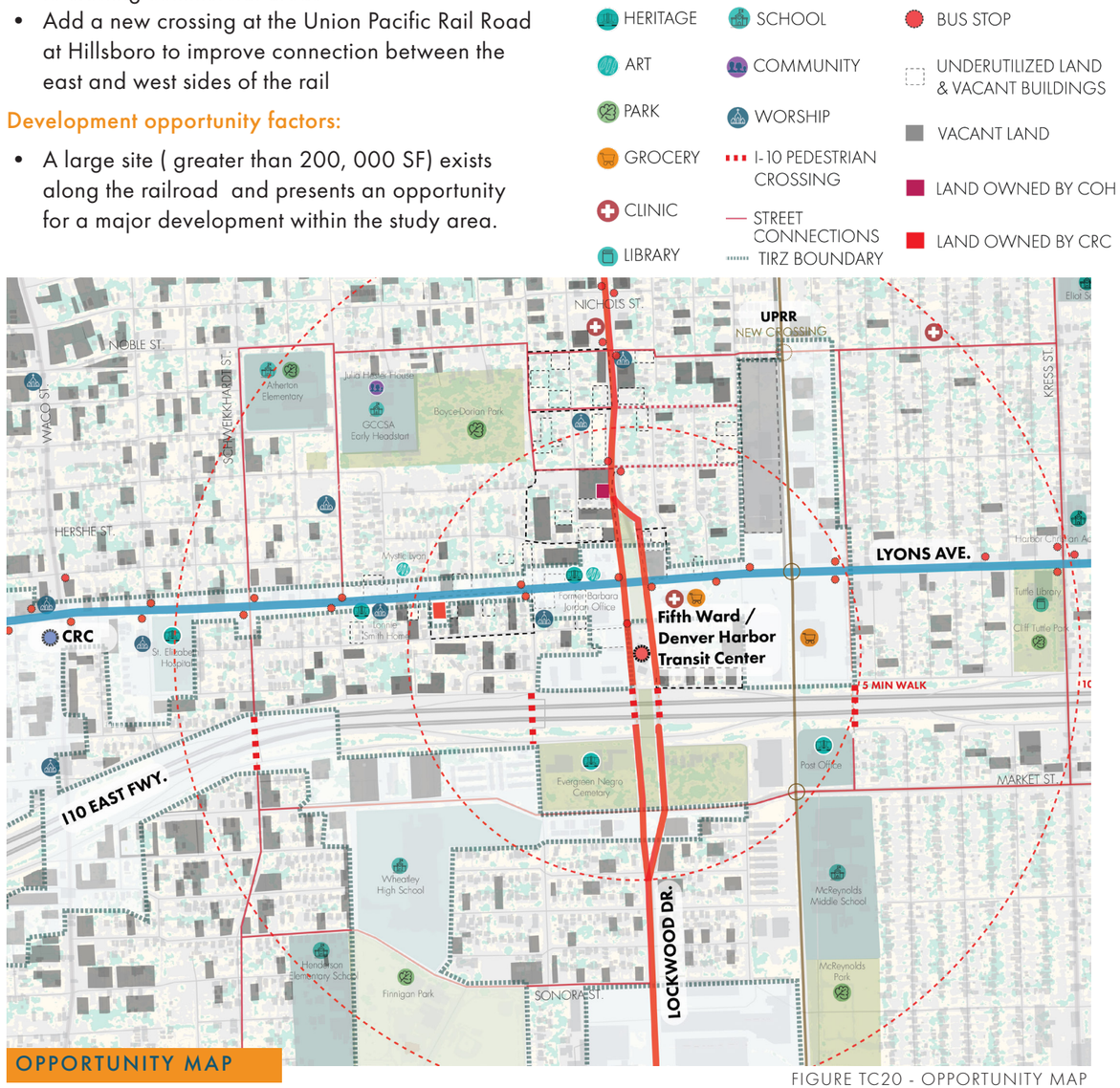
- Completing sidewalks on local streets to connect to major corridors and bus stations
- Improve access to the transit center
- Enhancing the pedestrian crossings at the I-10 freeway

Improve connectivity to existing community assets:

- Enhancements linking community centers, parks, schools to each other
- Enhancements to commercial streets and access to existing commercial areas
- Add a new crossing at the Union Pacific Rail Road at Hillsboro to improve connection between the east and west sides of the rail

Development opportunity factors:

- A large site (greater than 200, 000 SF) exists along the railroad and presents an opportunity for a major development within the study area.
- Other vacant and undeveloped sites vary in size. Parcels within residential areas average 5,000 SF. Blocks adjacent to Lockwood and Lyons vary from smaller sites (3,000-8,000 SF) to larger parcels, up to approximately 20,000 SF
- Majority of parcels are privately owned
- Opportunities for small-scale, infill development of vacant or underutilized sites and larger-scale redevelopment of existing sites adjacent to the transit center



OPPORTUNITY MAP

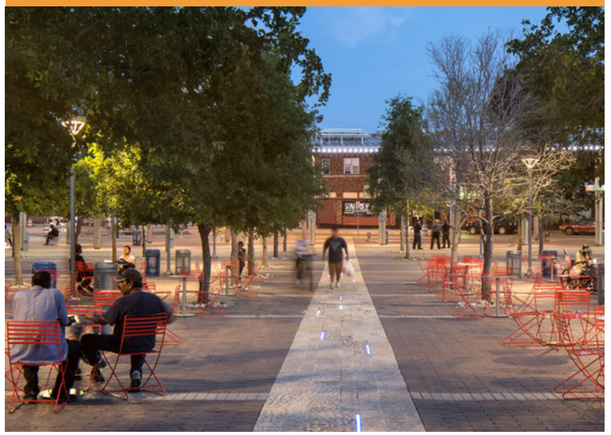
FIGURE TC20 - OPPORTUNITY MAP

TRANSIT, MOBILITY, & CONNECTIVITY

The opportunities analysis highlights a set of impactful initiatives that deliver multiple, meaningful benefits. These opportunities improve mobility, enhanced transit service and access to transit, and strengthen neighborhood connectivity. They also support local development within the Fifth Ward and Denver Harbor communities, while creating opportunities to strengthen community identity and placemaking, contributing to a more connected and resilient community.

CENTRAL PLAZA AT TRANSIT CENTER

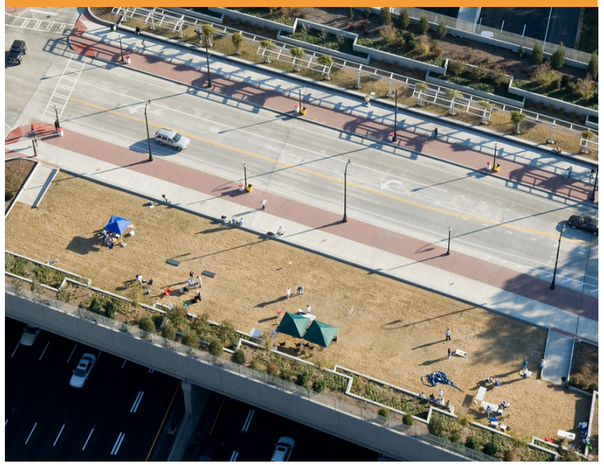
Conversion of the existing parking lot to a flexible park/ plaza that can host temporary markets, events, & leisure. Improvements prioritize user experience & provide a safe & comfortable route between the transit center & the community. Provides branding opportunities as a community hub & public art integration.



Source: VIA Centro Plaza, Perkins Eastman

LOCKWOOD GATEWAY FREEWAY CAP

Freeway cap park at the Lockwood overpass that reconnects the community south of I-10, reduces noise pollution, and provides an opportunity for creating a gateway and identity to the 5th Ward and Denver Harbor neighborhoods from the freeway.



Source: 5th Street Bridge, Georgia Institute of Tech

PEDESTRIAN BRIDGE REPLACEMENT

Replacement of existing pedestrian bridges, including the removal of the unsafe bridge at Calles Street to provide easier usage for both pedestrians and bikes, increase safety and security, while providing an opportunity for identity from I-10.



Source: Pedestrian Bridge over 5 Freeway Orange County Register

TRANSIT SERVICE

Rapid transit along Lockwood, improve express bus service along I-10, ART/BOOST along Lyons.



Source: METRO Boost Shelter

STREETSCAPE ENHANCEMENTS

Widen sidewalks, improve crossings, improved bus stops and shelters with integrated amenities, pedestrian lighting and wayfinding.



Source: Burlingame Avenue

ENVIRONMENTAL ENHANCEMENTS

Street trees for shade, green stormwater management along Lockwood - such as bioswales/rain gardens, freeway trees to improve sound and visual barrier.



Source: Bagby Street - Houston

LAND DEVELOPMENT - HOUSING

Land Development Opportunities

Land development opportunities were evaluated by comparing land use priorities with the availability of vacant and under utilized parcels. The opportunities analysis compares site capacity of various land use types in the Houston area to identify opportunities for infill development and redevelopment. Considerations include housing, commercial and community-based uses, as well as appropriate density and space requirements. The proposed housing development aims to increase housing diversity by supporting a range of densities and affordability options.

Infill Development Opportunities

Undeveloped and vacant parcels within the study area range in size, from 3,000 SF - 20,000 SF, with the exception of a large parcel adjacent the railroad. Based on these site conditions, the following opportunities are feasible for either infill or redevelopment.

Housing infill:

- Townhouses,
- Duplexes and Fourplexes
- Small multifamily buildings (fewer than 20 units)

Community infill:

- Pocket parks
- Community gardens
- Cultural art centers

Commercial infill:

- Mobile vendors and other flexible uses
- Single structure, small-scale businesses

Redevelopment Opportunities

Larger redevelopment opportunities may be achieved by combining multiple adjacent lots, allowing a wider range of development types with greater program flexibility.

Housing redevelopment:

- Medium to larger-scale multifamily or mixed use buildings with over 20 residential units

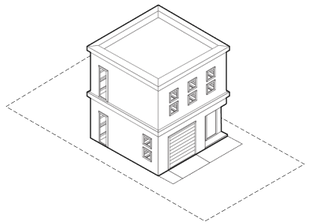
Community redevelopment:

- Co-working
- Non-profit centers
- Community, recreational, multi-service centers
- Clinics

Commercial infill:

- Multi-tenant buildings
- Food halls/retail hubs
- Small grocery stores

INFILL ..... REDEVELOPMENT



TYPE TOWNHOME
LOT SIZE 1,600 - 3,000
LEVELS 2 - 3
SQFT 1,500 - 2,500
UNITS N/A

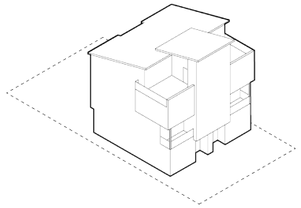
EXAMPLE



Townhomes on Noble St

1,600 SQ FT floor area (including yard) per housing unit

affordable, compact



TYPE DUPLEX/FOUR-PLEX
LOT SIZE 4,000 - 6,500
LEVELS 1 - 2
SQFT 2,500 - 6,000
UNITS 2 - 4

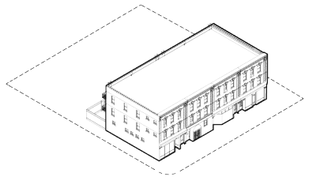
EXAMPLE



Duplexes on Drew St

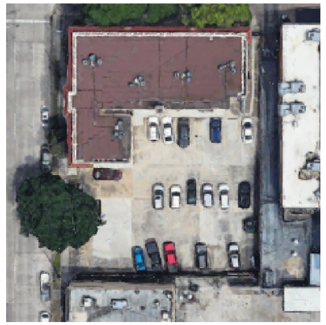
2,050 SQ FT floor area (including yard) per housing unit

affordable, compact



TYPE MULTI-FAMILY PLEX
LOT SIZE 8,000 - 20,000
LEVELS 2 - 3
SQFT 4,000 - 20,000
UNITS 5 - 19

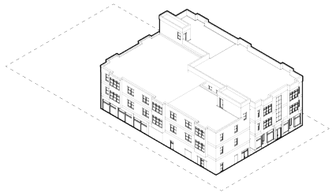
EXAMPLE



802 McGowen Apartment

17,000 SQ FT lot

20,000 SQ FT building
6,000 SQ FT floor area
historic, affordable
3 stories
15 units



TYPE MEDIUM MULTI-FAMILY
LOT SIZE 20,000 - 50,000
LEVELS 2 - 4
SQFT 20,000 - 45,000
UNITS 20 - 49

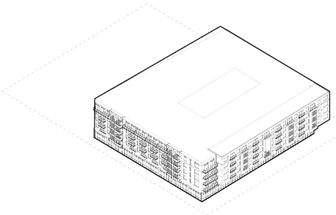
EXAMPLE



Fulton Garden Senior Apartments

41,000 SQ FT lot

44,257 SQ FT building
13,000 SQ FT floor area
4 stories
49 units
non-profit, affordable apartment



TYPE MIXED USE/ LARGE MULTIFAMILY
LOT SIZE 50,000 - 100,000
LEVELS 3 - 4
SQFT 45,000 - 95,000
UNITS 50+

EXAMPLE



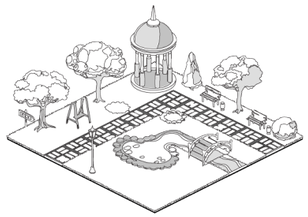
New Hope Housing

75,000 SQ lot

92,000 SQ FT building
28,500 SQ FT floor area
4 stories
175 studio units,
mixed use, affordable,
non-profit

LAND DEVELOPMENT - COMMUNITY

INFILL ..... REDEVELOPMENT



TYPE POCKET PARK/ COMMUNITY GARDEN

LOT SIZE 1,000 - 5,000

LEVELS N/A

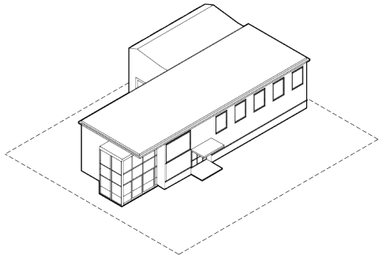
SQFT 500 - 1,000

EXAMPLE



3rd Ward Chess Park
4,900 SQ FT

chess club park, adaptive reuse, filled vacant lot, reused furniture and art



TYPE CULTURAL ARTS

LOT SIZE 10,000 - 30,000

LEVELS 1 - 2

SQFT 5,000 - 10,000

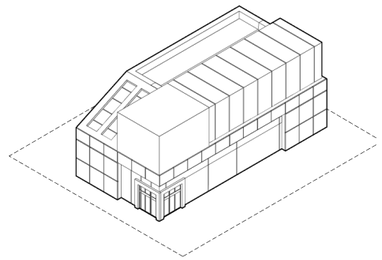
EXAMPLE



Lawndale Art Center
30,000 SQ FT lot

6,300 SQ FT building
2 stories

adaptive reuse, non-profit contemporary art, local Houston area artists



TYPE CO-WORKING & MAKERSPACE

LOT SIZE 30,000 - 60,000

LEVELS 1 - 2

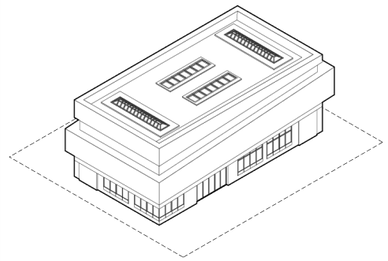
SQFT 25,000 - 40,000

EXAMPLE



Headquarters on Canal
49,000 SQ FT lot

35,000 SQ FT building
1 story
coworking spaces, private offices, communal networking opportunities



TYPE NON-PROFIT COMMUNITY SUPPORT PROGRAMS

LOT SIZE 35,000 - 50,000

LEVELS 1 - 2

SQFT 15,000 - 35,000

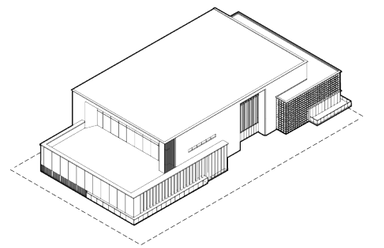
EXAMPLE



SERJobs
49,000 SQ FT lot

54,004 SQ FT building
15,100 SQ FT floor area
2 stories

workforce resource and job training center



TYPE COMMUNITY & MULTI-SERVICE

LOT SIZE 40,000- 100,000

LEVELS 1 - 3

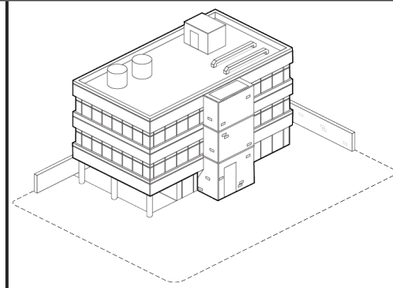
SQFT 20,000 - 40,000

EXAMPLE



Center for Civic & Public Improvement
60,000 SQ FT lot

61,000 SQ FT building
18,000 SQ FT floor area
5 stories
non-profit with areas of interest in affordable housing, immigrant issues, healthcare, & criminal justice



TYPE CLINIC

LOT SIZE 25,000 - 60,000

LEVELS 1 - 3

SQFT 15,000 - 40,000

EXAMPLE



Legacy Community Health Clinic
67,000 SQ lot (shared)

17,000 SQ FT floor area
40,000 SQ FT building
4 stories

primary care, dental, behavioral health in underserved communities

LAND DEVELOPMENT - COMMERCE

Redevelopment Opportunities

Larger redevelopment opportunities may be achieved by combining multiple adjacent lots, allowing a wider range of development types with greater program flexibility.

INFILL ..... REDEVELOPMENT



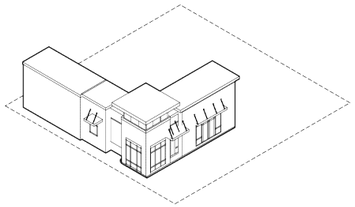
TYPE KIOSK/ MOBILE VENDORS
LOT SIZE 500 - 1,000
LEVELS N/A
SQFT 500 - 1,000

EXAMPLE



Esplanade at Navigation Market

rotating and permanent vendors



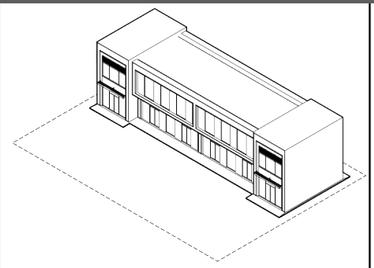
TYPE SINGLE BUSINESS
LOT SIZE 5,000 - 20,000
LEVELS 1
SQFT 2,500 - 5,000

EXAMPLE



Jeni's Ice cream
10,700 SQ FT lot
2,500 SQ FT building

ice cream chain with retail distributors



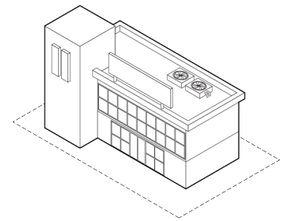
TYPE MULTI-TENANT
LOT SIZE 15,000 - 40,000
LEVELS 1 - 2
SQFT 8,000 - 20,000

EXAMPLE



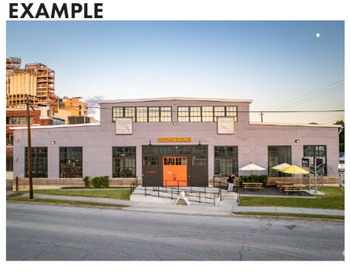
The Plant
31,500 SQ FT lot
23,900 SQ FT building

multi-tenant, creative small/ local business hub



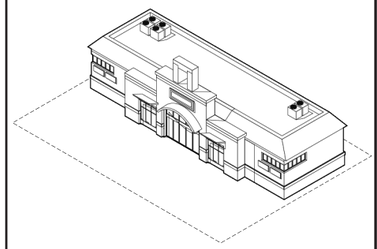
TYPE RETAIL HUB/FOOD HALL
LOT SIZE 25,000- 40,000
LEVELS 1 - 2
SQFT 15,000 - 35,000

EXAMPLE



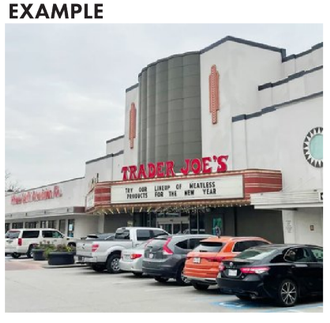
Iron Works
35,500 SQ FT

food hall, study area, creative and business hub



TYPE SMALL GROCERY STORE
LOT SIZE 35,000 - 60,000
LEVELS 1
SQFT 17,000 - 25,000

EXAMPLE



Trader Joes
17,000 SQ FT

neighborhood grocery store

OVERVIEW

Three scenario concepts have been developed, each building upon the previous to expand their overall impact. Together, they illustrate a progress of development over time, increasing density and long-term commitments to this area. Separately, they can provide improvements to the 5th Ward and Denver Harbor neighborhoods, at a varying scales. The following provides an overview and intent for each scenario concept.

SCENARIO 1

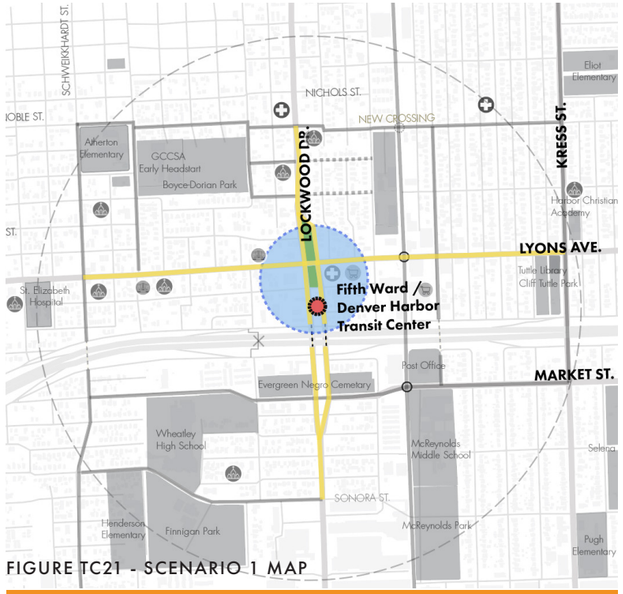


FIGURE TC21 - SCENARIO 1 MAP

COMMUNITY CORE & CENTRAL GATHERING

Scenario One focuses on concentrated improvements directly around the Fifth Ward/Denver Harbor Transit Center. By leveraging the existing activity at the transit center, establishing a central hub of community activity with targeted local improvements and enhancing access to and from transit.

This scenario is supported by smaller-scale infill development that accommodates community based programs and local businesses opportunities. Overall, this approach emphasizes obtainable improvements that can be implemented in a shorter timeframe.

SCENARIO 2



FIGURE TC22 - SCENARIO 2 MAP

DENSE CORE & COMMUNITY GATEWAY

Scenario Two builds upon Scenario One, by broadening its influence and reinforcing the district's core. Improvements extend along Lyons Avenue, strengthening connections to the existing main commercial street. A green connector across I-10 establishes a gateway into the area while reconnecting the neighborhoods south of the freeway.

These improvements provide opportunities to attract private investment, encourage public-private partnerships, and support increased density that enhances the vitality of the core and the long-term sustainability of the neighborhood.

SCENARIO 3

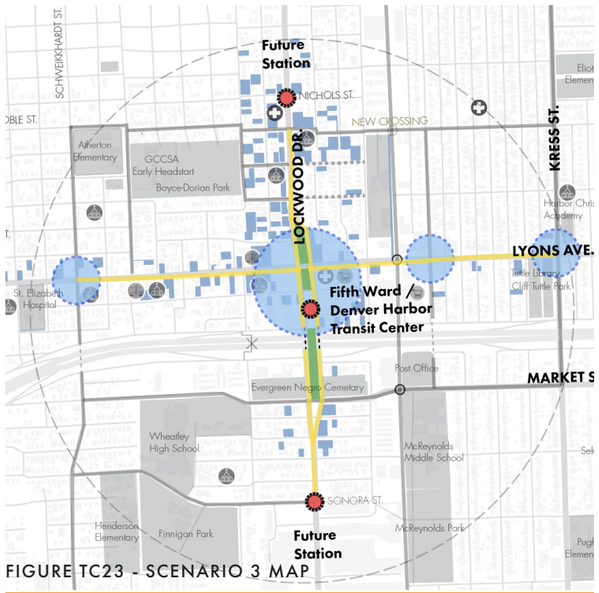


FIGURE TC23 - SCENARIO 3 MAP

LYONS ACTIVITY CENTERS & EXPANDED CONNECTIVITY

Scenario Three represents a long-term vision focused on expanded connectivity throughout both neighborhoods and increased opportunities for public-private partnerships. This scenario introduces strategies to significantly enhance mobility options with the integration of rapid transit. Improved pedestrian connectivity across I-10 is achieved by replacing the existing pedestrian bridges with enhanced crossing that connect to Lyons Avenue, creating activity centers at key intersections. The combination of major capital investments support the community through improved access to transit options, create new opportunities for development, and strengthens the area's identity experience from the I-10 freeway and along existing major thoroughfares.

DISTRICT SCENARIO CONCEPT 1

SCENARIO 1 - CENTRAL COMMUNITY CORE

Scenario 1 provides a green spine that connects the transit center back to the community to provide a comfortable and safe access for pedestrians. Proposed infill of existing vacant and undeveloped land, providing small-scale community-serving development. This scenario includes enhanced connectivity and improvements to strengthen community spaces and identity, while maintaining the existing character. Below are specific proposed as improvements part of the scenario, which are diagrammed in the following concept plans and imagery on the following pages.



Transit Improvements

- Improve and expand pedestrian access to the existing transit center by providing safe walking and bike access.
- Improve the user experience at the transit center by providing a modernized and refreshed facility that prioritizes customer experience and safety.
- Prioritize restoring route service levels to pre-COVID operations and promote existing service of the transit center.

Connectivity Improvements

- Local street improvements, including adding sidewalks where none exist or filling in where gaps in sidewalk occur. This enhancement to mobility gives better access to main roads and existing transit stations.
- Main street improvements within ¼ mile along Lyons and Lockwood, include sidewalk improvements, trees, pedestrian lighting and amenities.
- Provide a new railroad crossing at Hillsboro Street to improve neighborhood connectivity and access to Lockwood Drive, schools, parks, and community centers on both sides of the railroad.

Civic & Placemaking Improvements

- Provide a central gathering space for the community and improving the pedestrian access to the transit center by adapting the existing parking lot north of the transit center into a flexible, multi-use plaza to accommodate a variety of functions - such as markets, events, and recreation.
- Connecting to the new plaza, a park space that utilizes the existing large trees within the median and extends northward tying back into the community.

Economic Incentives & Partnership Opportunities

- Opportunities for small-scale infill development, including connectivity improvements, community-serving and nonprofit facilities, local business spaces, and smaller-scale multifamily housing.
- Obtaining Transit-Oriented Development (TOD) street designation through the City of Houston TOD Ordinance promotes pedestrian-friendly commercial development and allows for a more efficient use of land. Shared surface parking lots can further support small business while also serving the transit center. Together, these strategies enhance the pedestrian environment by creating a safer, more pleasant streetscape that improves pedestrian access businesses and local destinations.

Scenario 1 Framework Plan

A strengthened north–south spine along Lockwood Drive connects to Lyons Avenue and key east–west corridors, improving multimodal continuity within a five-minute walking radius.

- HERITAGE
- ART
- PARK
- GROCERY
- CLINIC
- LIBRARY
- SCHOOL
- COMMUNITY
- WORSHIP
- PROPOSED BRIDGES
- REMOVED BRIDGE
- STREET CONNECTIONS
- PEDESTRIAN OVERPASS
- RAPID TRANSIT
- BUS STOP
- UNDERUTILIZED LAND & VACANT BUILDINGS
- VACANT LAND
- REDEVELOPMENT OPPORTUNITY
- LAND OWNED BY COH
- LAND OWNED BY CRC

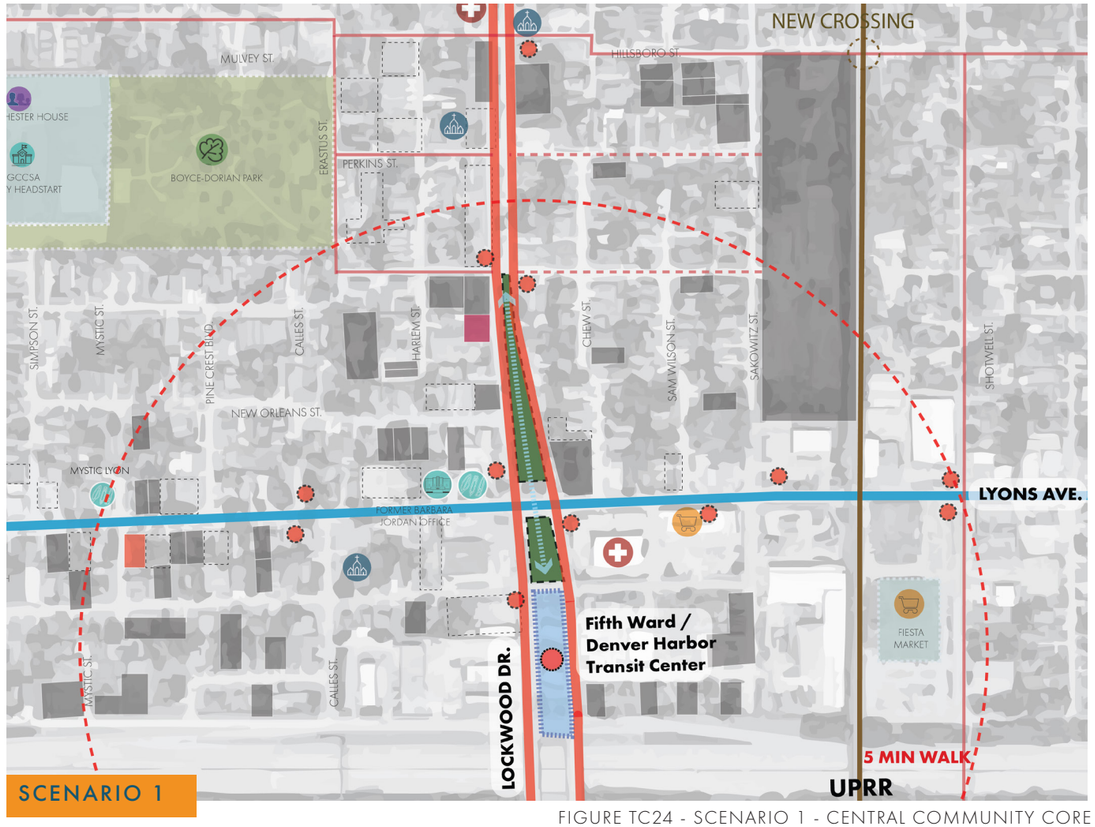


FIGURE TC24 - SCENARIO 1 - CENTRAL COMMUNITY CORE

SCENARIO 1 - CENTRAL COMMUNITY CORE

The scenario illustrates how corridor improvements can extend beyond mobility upgrades to shape a vibrant, multifunctional public realm. Rather than treating the street as a linear transportation facility, this concept introduces a sequence of programmable spaces that reinforce community identity and daily activity.

1. Flexible Plaza / Park

At key intersections, the right-of-way expands into flexible civic spaces. These plazas provide room for informal gathering, seating, and small-scale events while maintaining multimodal circulation. The design supports adaptability, allowing the space to function as a neighborhood park during everyday use and as an event space during festivals or community gatherings.

2. Temporary Market Activation

Strategic nodes along the corridor are envisioned as temporary market zones. These spaces accommodate pop-up vendors, food trucks, and seasonal programming, strengthening local economic activity and reinforcing the corridor as a community destination rather than a pass-through route.

3. Greenway Trail Integration

The corridor integrates greenway trails within a continuous landscape spine. Enhanced canopy, planted buffers, and separated pedestrian and bicycle facilities create a safe and comfortable linear park experience, improving connectivity to Buffalo Bayou while elevating environmental performance.

4. Streetscape Enhancement

Streetscape improvements, which include widened sidewalks, street trees, pedestrian lighting, and active frontages, these features support long-term transformation of the corridor into a recognizable civic spine. The design encourages walking, supports adjacent businesses, and improves first- and last-mile access to transit.

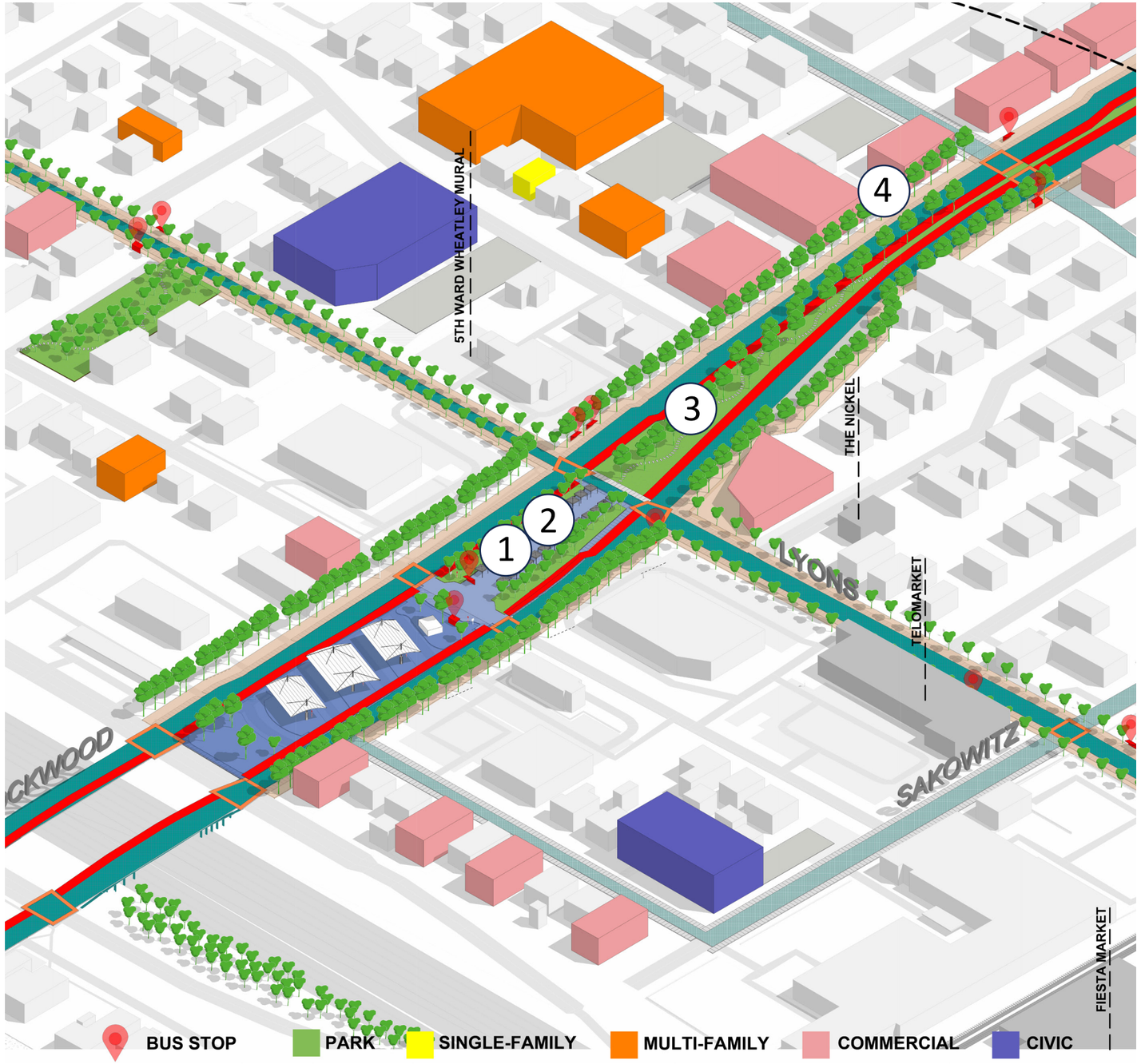


FIGURE TC25 - SCENARIO 1 - CENTRAL COMMUNITY CORE

SCENARIO FEATURES



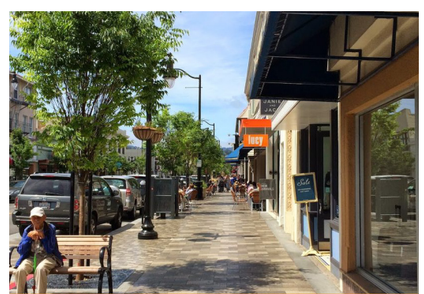
1. FLEXIBLE PLAZA/PARK



2. TEMP MARKETS



3. GREENWAY TRAILS

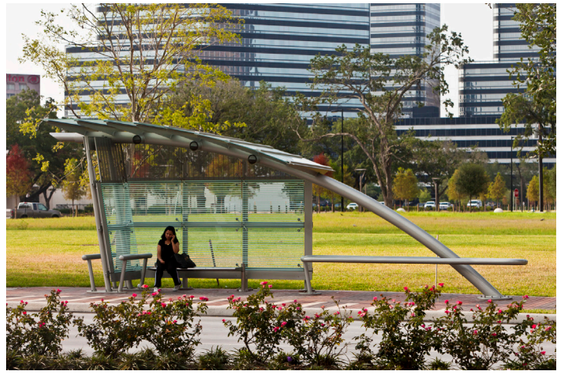


4. LOCKWOOD STREETSCAPE

DISTRICT SCENARIO CONCEPT 2

SCENARIO 2 - DENSE CORE & GATEWAY

Scenario 2 includes strategies from Scenario 1 and provides opportunities for larger scale development, increasing density and providing a greater impact to the community. Below are specific proposed improvements part of the scenario, which are diagrammed in the following concept plans and imagery on the following pages.







Transit Improvements

- Increase transit service available to and from the transit center
- Prioritize frequent transit service along Lyons and Lockwood, with service every 15 minutes or better
- Extend bus run times for off-peak jobs and recreation opportunities
- Extend service to low-density areas with community connectors and micro transit
- Improve shelters on Lyons & Lockwood and provide shelters where missing

Connectivity Improvements

- Extend street improvements on Lyons and Lockwood within ½ mile.
- A freeway cap park connecting across I-10 at Lockwood, connecting the community to the south and acting as a gateway to the community core around the transit center.
- Infill trees and landscaping along I-10 to provide sound and visual barrier
- Additional streetscape features and enhancements along Lyons Avenue, such as wayfinding, art, and amenities.

Economic Incentives & Partnership Opportunities

- Private and public partnerships to redevelop larger parcels adjacent to the transit center, including a mixed-use with shared use parking garage that support not only the facility but parking for the transit center.

Scenario 2 Framework Plan

This framework builds upon the connectivity spine by introducing a more concentrated development pattern around the Fifth Ward / Denver Harbor Transit Center. The plan strengthens Lockwood Drive as a primary urban corridor while establishing a denser mixed-use core within a 10 minute walk radius.

- HERITAGE
- ART
- PARK
- GROCERY
- CLINIC
- LIBRARY
- SCHOOL
- COMMUNITY
- WORSHIP
- PROPOSED BRIDGES
- REMOVED BRIDGE
- STREET CONNECTIONS
- PEDESTRIAN OVERPASS
- RAPID TRANSIT
- BUS STOP
- UNDERUTILIZED LAND & VACANT BUILDINGS
- VACANT LAND
- REDEVELOPMENT OPPORTUNITY
- LAND OWNED BY COH
- LAND OWNED BY CRC

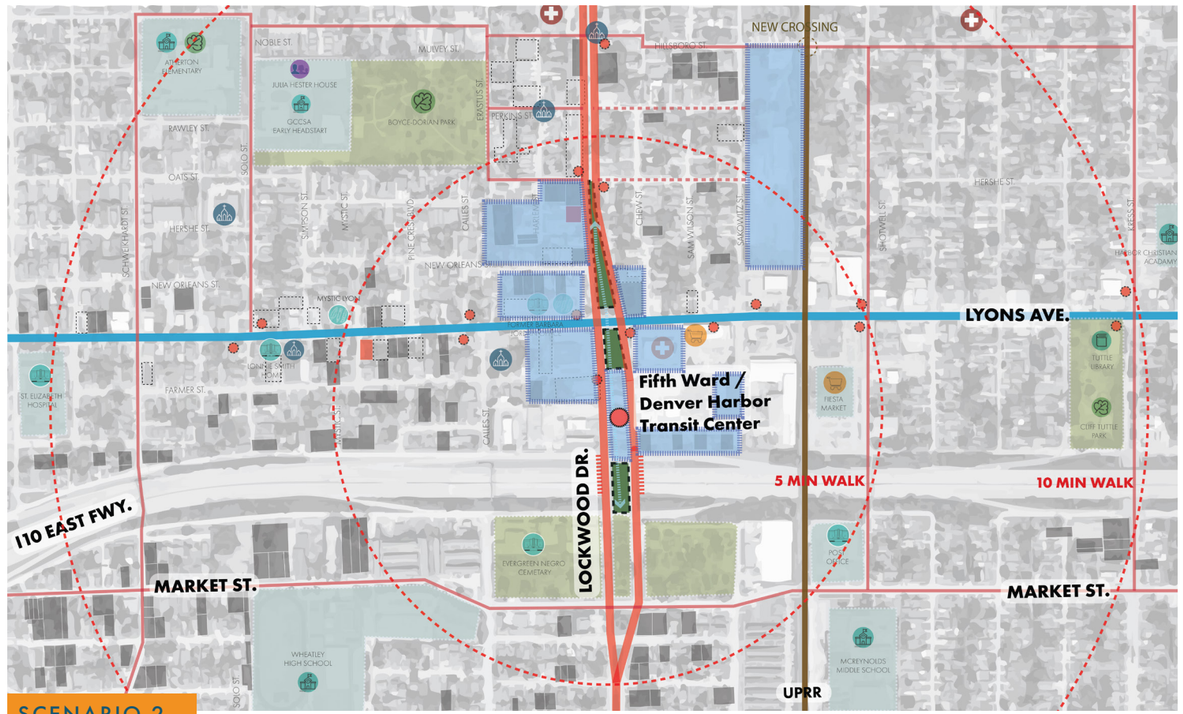


FIGURE TC26 - SCENARIO 2 - DENSE CORE & GATEWAY

SCENARIO 2 - DENSE CORE & GATEWAY

This scenario illustrates how mobility improvements can catalyze broader urban transformation. Rather than treating corridor upgrades as isolated infrastructure projects, the concept integrates land use intensity, public space creation, and streetscape enhancement to strengthen long-term district identity.

1. Freeway Cap Park

The freeway cap introduces a transformative civic space that reconnects neighborhoods previously divided by highway infrastructure. Beyond restoring physical continuity, the cap functions as a signature open space—supporting recreation, events, and ecological integration. This intervention reframes infrastructure from barrier to connector.

2. Lockwood Density & Parking Strategy

Targeted infill and structured parking along Lockwood support higher-density mixed-use development while consolidating surface parking. This approach strengthens the corridor as an urban edge, increases walkable activity, and supports transit-oriented growth. Development intensity reinforces the civic spine concept and creates a stronger street wall condition.

3. Lyons Placemaking

Enhancements along Lyons focus on human-scale improvements—widened sidewalks, canopy expansion, storefront activation, and streetscape detailing. These interventions reinforce the corridor as a neighborhood main street, supporting local business visibility and social interaction while improving pedestrian comfort.

Collectively, these features demonstrate corridor investment can repair fragmented urban fabric, introduce new civic space, strengthen transit accessibility and establish long-term identity for Buffalo Bayou East.

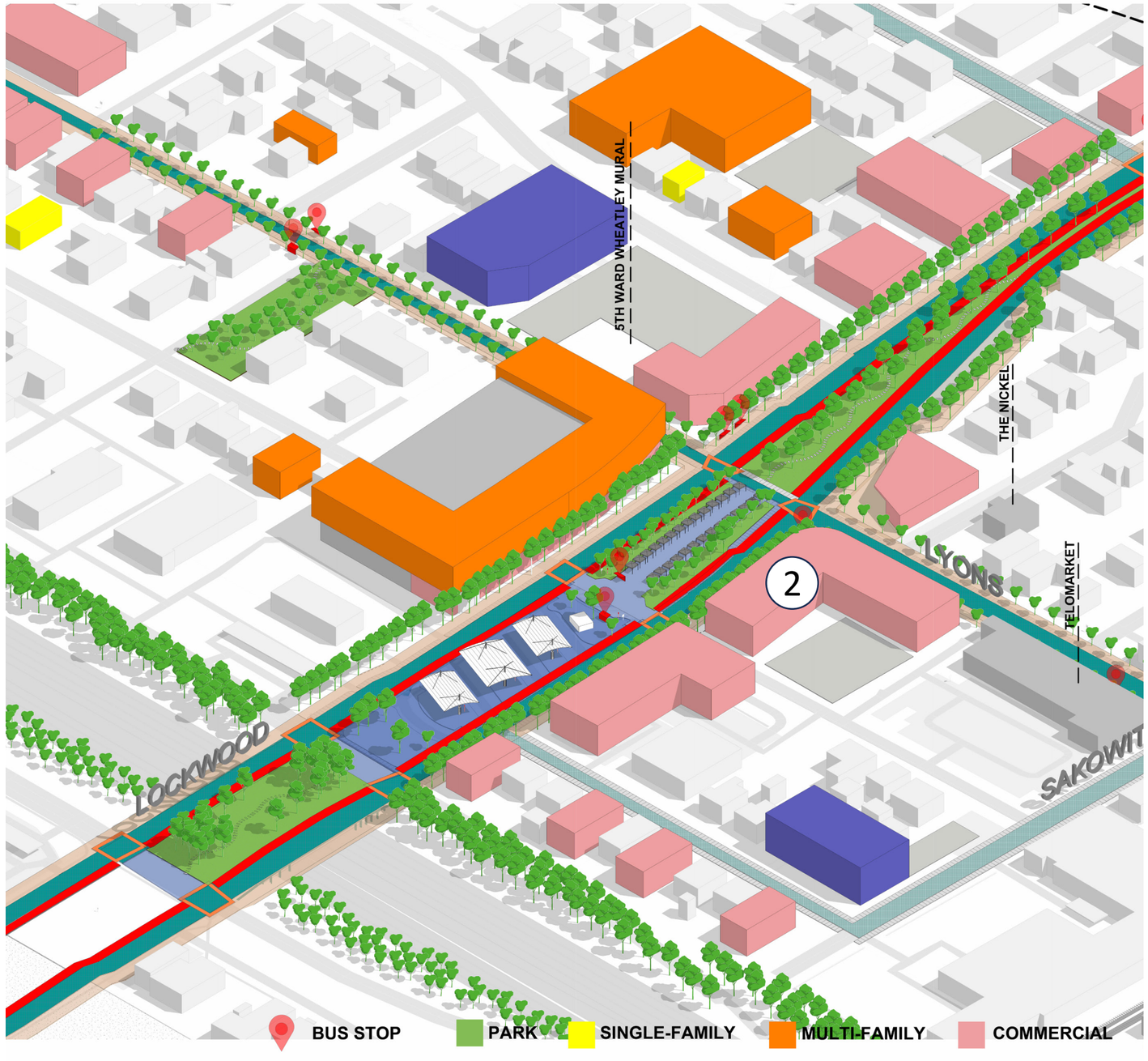


FIGURE TC27 - SCENARIO 2 - DENSE CORE & GATEWAY

SCENARIO FEATURES



1. FREEWAY CAP PARK



2. LOCKWOOD DENSITY & PARKING



3. LYONS PLACEMAKING

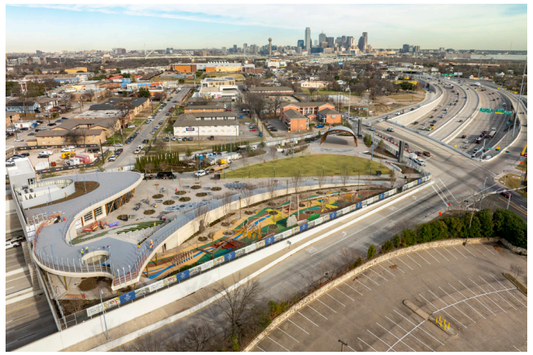
DISTRICT SCENARIO CONCEPT 3

SCENARIO 3 - LYONS NODES & EXPANDED CONNECTIVITY

Scenario 3 includes strategies from 1 & 2 and creates the largest impact to the community. New pedestrian bridges, freeway cap ties the community together, provides community identity from the freeway and creates opportunities for nodes along Lyons. Below are specific proposed improvements part of the scenario, which are diagrammed in the following concept plans and imagery on the following pages.







Transit Improvements

- Implement Rapid Transit with dedicated lanes and signal priority to provide fast trips to regional destinations, expanding access to opportunities across Greater-Houston.
- Leverage changes to I-10 as part of the NHHIP to provide access to MAX lanes for express buses traveling to/from Downtown and other regional centers.
- Further increase local bus services levels and expand hours of operation.

Connectivity & Placemaking Improvements

- Replacement of pedestrian bridges at Shotwell St. and Schweikhardt St. and removal of pedestrian bridge at Calles Street improving bike and pedestrian use and to improve safety and security.
- Streetscape enhancements and features at critical intersections with Lyons to support nodes of activity, such as unique pavements, lighting, amenities, pocket parks, art, and wayfinding.

Economic Incentives & Partnership Opportunities

- Encourage community essential development at nodes along Lyons.

Scenario 3 Framework Plan

This framework extends the primary connectivity spine by activating key intersections along Lyons Avenue as neighborhood nodes. While maintaining strong north–south access to the Transit Center, the plan strengthens east–west connectivity and expands walkable reach beyond the immediate core.

- HERITAGE
- ART
- PARK
- GROCERY
- CLINIC
- LIBRARY
- SCHOOL
- COMMUNITY
- WORSHIP
- PROPOSED BRIDGES
- REMOVED BRIDGE
- STREET CONNECTIONS
- PEDESTRIAN OVERPASS
- RAPID TRANSIT
- BUS STOP
- UNDERUTILIZED LAND & VACANT BUILDINGS
- VACANT LAND
- REDEVELOPMENT OPPORTUNITY
- LAND OWNED BY COH
- LAND OWNED BY CRC

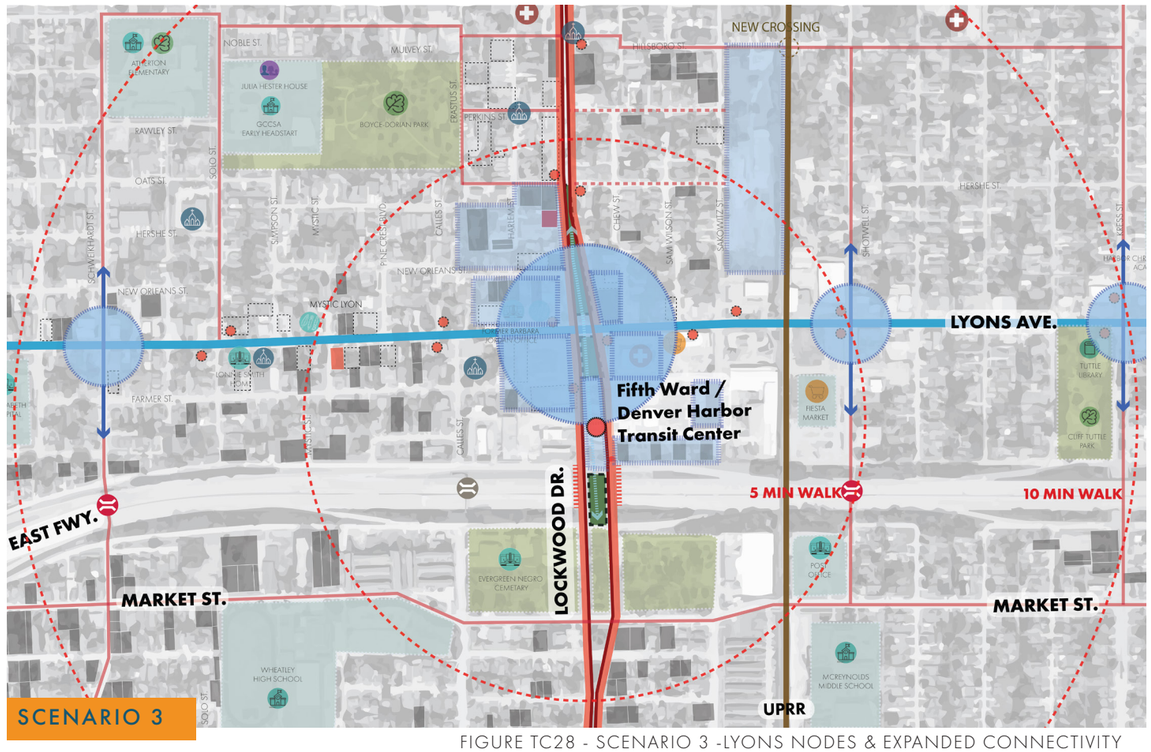


FIGURE TC28 - SCENARIO 3 -LYONS NODES & EXPANDED CONNECTIVITY

SCENARIO 3 - LYONS NODES & EXPANDED CONNECTIVITY

This scenario highlights how targeted investments can extend the functional reach of the corridor beyond linear improvements, reinforcing access within a 5–10 minute walk radius and strengthening neighborhood integration.

1. Neighborhood Nodes

Strategically located nodes concentrate activity at key intersections and transit-adjacent locations. These nodes serve as social anchors within walking distance of surrounding residential areas, supporting small-scale retail, seating, shade, and public gathering. By reinforcing identifiable centers, the corridor becomes a sequence of destinations rather than a continuous pass-through route.

2. Bridge Improvements

Bridges are treated as connective infrastructure rather than barriers. Enhancements prioritize protected pedestrian and bicycle space, improved lighting, and visual openness. These upgrades improve safety while strengthening continuity across physical obstacles, reinforcing seamless north–south and east–west connections.

3. Rapid Transit Integration

Transit improvements extend the corridor's accessibility beyond the immediate neighborhood. By strengthening first- and last-mile connections and enhancing station environments, the corridor becomes a multimodal spine that links local destinations to the broader regional system.

Collectively, these features emphasize that connectivity is not only measured by distance, but by quality, safety, and legibility within everyday walking radii.

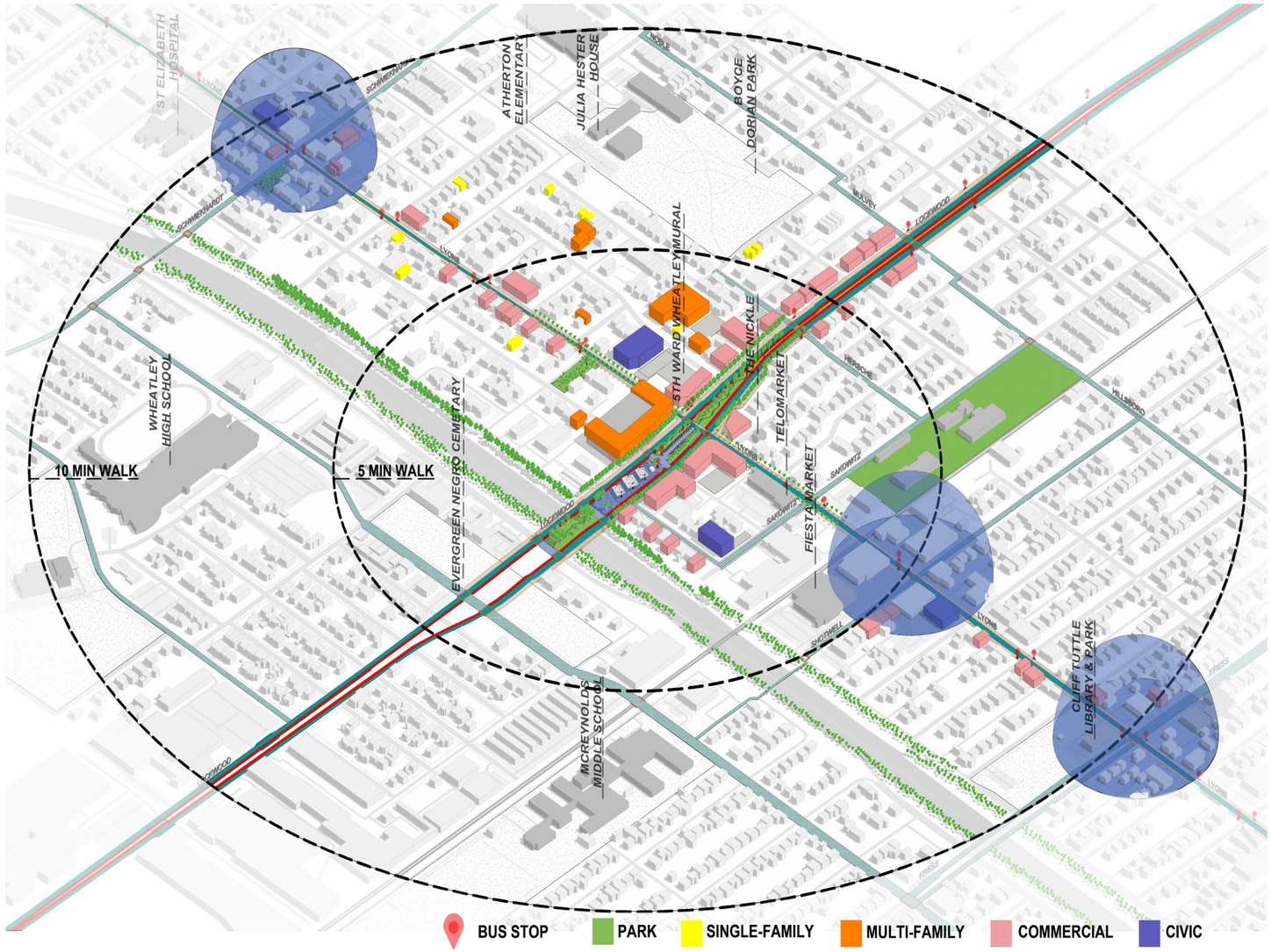


FIGURE TC29 - SCENARIO 3 -LYONS NODES & EXPANDED CONNECTIVITY

SCENARIO FEATURES



1. NEIGHBORHOOD NODES



2. BRIDGE IMPROVEMENTS



3. RAPID TRANSIT

SUMMARY OF THREE SCENARIOS

Essential Priorities	Scenario One	Scenario Two	Scenario Three
Transit Service	Restore Pre-Covid Service by METRO, Facility Improvements	Service Enhancements by METRO, Improve Bus Shelters	Rapid Transit and Enhancements as a unique METRO station & system
Placemaking and Branding	Placemaking for transit users and community north of I-10	Extended Placemaking across I-10 and along Lyons	Placemaking activity extended to other Lyons intersections. Unique place with commercial activity to be a local destination.
Connectivity and Access	Safe, Comfortable, convenient, walkable access to transit and place within ¼ mile	Expanded safe, comfortable, convenient, walkable access to transit to ½ mile	Further Expanded multimodal connectivity to transit and place
Economic Development Incentives	Smaller, local scale	More local and some larger scale	More variety of opportunities with a larger impact
Public/Private Partnership Opportunities	Low	Medium	High

FIGURE TC30 - SUMMARY OF THREE SCENARIOS

SUMMARY & COMPARISON CHART

The ability to spur private investment in this area is possible by the joint level of commitment to quality transit service and the opportunity for creation of a unique place or destination. Each of the three scenarios offers unique features for the neighborhood, varying in scale and required investment. Higher levels of investment create greater opportunities for impact and are more likely to draw interest from the private sector.

The chart above summarizes and compares all three scenarios and level of enhancement based on category of the essential priorities.

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IMPROVEMENT RECOMMENDATIONS

OVERVIEW

The recommendations and implementation plan serves as a foundation for change and reinvestment into the communities of Fifth Ward and Denver Harbor. The plan is grounded in community and stakeholder engagement to ensure that investments reflect the priorities and needs of the community.

Community feedback indicated a strong preference for Scenario 2, with Scenario 3 as close second. The most common response favored a combination of elements from both scenarios, incorporating moderate growth with added parks and development in Scenario 2 and long-term transformation strategies from Scenario 3, including rapid transit and the development of community nodes. A strong emphasis was placed on safety, providing green space, and improved multimodal connectivity for pedestrians, bicyclists, and transit users.

Scenario 1 received no votes and generated the lowest level of interest as it focused on smaller, near-term improvements. Community feedback clearly indicated that a more significant improvement to mobility, public space, and development opportunities should be prioritized.

Public Survey Outcomes

Most Favored	Second Favored	Least Favored
• Safer walking and biking connections • Parks, plazas, and green spaces	• Local businesses and job opportunities • Better transit service and reliability • Street safety and crossings	• New Housing Options • Neighborhood Character and Placemaking

Steps Forward

The Projects presented in this section focus primarily on Scenario 2, which introduces moderate growth, expanded public spaces, and strategic development opportunities. Elements from Scenario 3 are also incorporated as part of a long-term strategy, particularly related to enhanced transit infrastructure and a larger scale of connectivity improvements.

Projects are organized into four primary categories:

- Transportation & Mobility
- Connectivity & Placemaking
- Economic & Housing Development
- Community

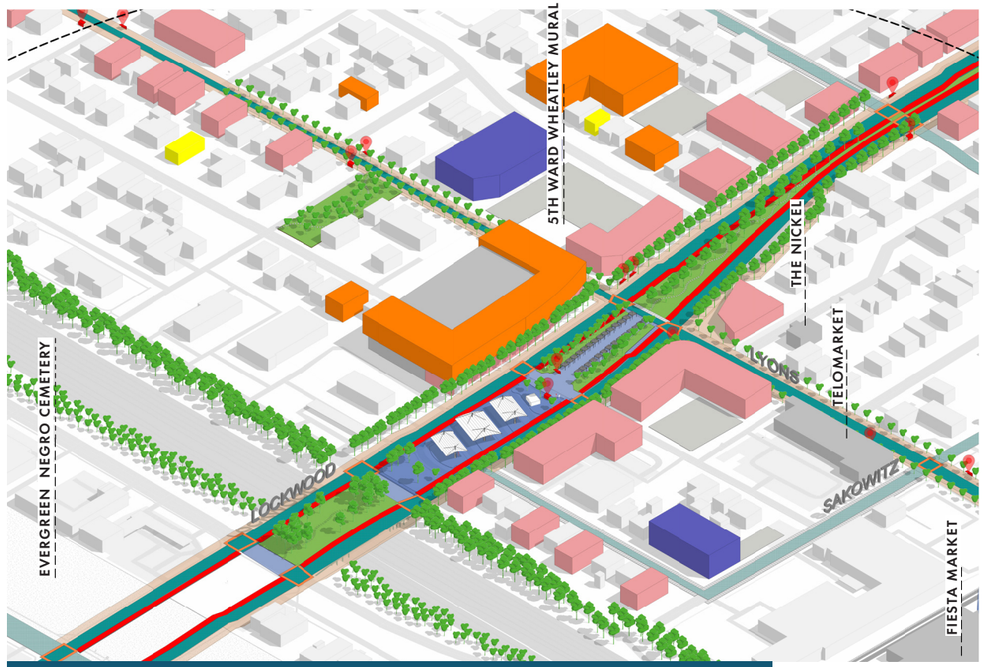
The recommendations range from smaller-scale connectivity improvements, and larger infrastructure projects. The strategy incorporates a mix of land uses, including recreational space, housing, commercial development, and community-supportive facilities that together contribute to a more vibrant and pedestrian-oriented transit district.

The implementation framework outlined identifies potential project leads, partnerships, funding opportunities, and cost estimates to guide realization of the vision for the transit district serving Fifth Ward and Denver Harbor. Through coordinated public, private, and community partnerships, these projects can help create safer, more connected, and economically supported corridor.

RECOMMENDATIONS



Before Transit District Recommended Improvements



After Transit District Recommended Improvements

FIGURE TC31

IMPLEMENTATION PARTNERS

PARTNERSHIP ABBREVIATIONS

Buffalo Bayou Partnership ..... BBP

City of Houston ..... COH

Fifth Ward Community Redevelopment Corporation ..... CRC

Houston-Galveston Area Council ..... H-GAC

City of Houston Park and Recreation ..... HPARD

Houston Planning and Development Department ..... HPDD

Houston Public Works and Engineering Department ..... HPWED

Local Business Owners ..... LBO

Local Community Organizations & Churches ..... LCO

Metropolitan Transit Authority of Harris County ..... METRO

Harris County Precinct 1 ..... PCT1

Harris County Precinct 2 ..... PCT2

Private or Non Profit Developer ..... PD

Private Owner ..... PO

TIRZ 18 - Fifth Ward TIRZ18

Texas Department of Transportation ..... TxDOT

PROJECT RECOMMENDATIONS

PROJECT TYPES



Transportation projects identified include both programmatic service improvements and physical transit facility improvement projects to enhance transit service improve access to regional destination access, and strengthen the overall ridership experience.



Connectivity & Placemaking projects range from small-scale to major infrastructure improvements, and together create a well connected, safe, and accessible environment. These projects aim to enhance pedestrian and bike mobility, activate public spaces, and strengthen community identity.



Economic & Housing Development projects support strategic redevelopment that strengthens the transit district as a mixed-use destination. These projects aim to expand housing and employment opportunities, encourage private investment, and promote transit-oriented development.



Community projects encourage partnership with non-profit organizations, local community organizations, public institutions and city departments to provide essential community serving facilities and programming.

TRANSPORTATION PROJECTS

S1.1

Transit Service Improvements

Description:

The following are recommended transit service upgrades to improve transit reliability and access:

- Increase transit service available to and from the transit center
- Prioritize frequent transit service along Lyons and Lockwood, with service every 15 minutes or better
- Extend bus run times for off-peak jobs and recreation opportunities
- Extend services with community connectors and micro transit

S1.2

Shelter Improvements

Description:

Improve shelters on Lyons & Lockwood and provide shelters where missing

Key Project Components:

- Conduct an initial assessment of existing bus stop conditions, including spatial constraints, shelter conditions, and opportunities for upgraded or new shelters.
- Determine appropriate upgrades for existing stops, such as, seating, lighting, and accessibility improvements.
- Coordinate with community organizations and local stakeholders to incorporate public art and community identity elements at stations.

Expected Outcomes

- Enhanced safety and accessibility
- Increase transit ridership and enhance customer experience
- Placemaking that promotes transit use and reflects community identity

S1.3

Transit Center Modernization

Description:

Modernization and refresh of the transit center facilities that prioritizes customer experience and safety

Key Project Components:

- Conduct an assessment of the existing conditions to identify physical improvements and strategies that create safer pedestrian routes and guide passengers to designated crossings, reducing mid-block crossings. The study should also evaluate the feasibility of adding a pedestrian crossing at Farmer Street.
- The assessment should further identify features and amenities that enhance comfort and safety, including improved signage, lighting, technology, and real-time information signage.

Expected Outcomes

- Enhanced safety
- Increases transit ridership and enhance customer experience

TRANSPORTATION PROJECTS

S1.4

Rapid Transit

Description:

Implement Rapid Transit corridor with dedicated lanes along Lockwood Drive with connections to the transit center. This recommendation provides faster and more reliable service while improving regional access to jobs, education, and service across the Greater Houston area.

Key Project Components:

- Dedicated lanes along Lockwood Drive and signal priority
- Unique station design with high-quality shelters and amenities
- Frequent, convenient, and high quality transit service

Expected Outcomes

- Enhanced connectivity within the community and regionally
- Increases access to jobs and education
- Increases transit ridership and customer experience
- Encourages development within the transit district
- Enhanced identity of the transit district

IMPLEMENTATION SUMMARY

PROJECT NUMBER	PROJECT TITLE	LEAD AGENCY	PARTNERS	TIMELINE	PRIORITY
S1.1	Transit Service Improvements	METRO		Varies	High
S1.2	Shelter Improvements	METRO	CRC, TIRZ18	Near-Term	High
S1.3	Transit Center Modernization	METRO	CRC, TIRZ18	Near-Term	High
S1.4	Rapid Transit	METRO	COH, TIRZ18, TXDOT	Long-Term	High

FIGURE TC32 - IMPLEMENTATION SUMMARY

S2.1

Flexible Transit Plaza

Description:

Repurpose METRO's existing surface parking lot into a flexible plaza and park that functions as both a community gathering space and a safe transition between the transit center and the neighborhood. The project will improve pedestrian access, support micromobility options, and provide amenities that encourage community socialization and local economic activity.

By creating a safe and welcoming pedestrian connection to the transit center, the project will reduce unsafe mid-block crossing and enhance multimodal access. The space will establish a recognizable public gathering area at a major intersection, strengthening the identity of the transit center.

Key Project Components:

- Multifunctional public plaza space that provides flexible space for community programming and temporary markets and incorporates amenities, such as shaded seating areas, landscape, and lighting
- Mobility features such as bike amenities and enhanced pedestrian connectivity to the transit center and street crossings
- Incorporated wayfinding signage, district kiosk, and branding opportunities for the transit center and METRO
- Opportunities for public art and design features that strengthen the community identity
- Encourages small-scale economic activity and community programming, such as food vendors, small kiosks, pop-up markets, community gatherings
- Determine relocation options of METRO parking with potential shared parking lot with the nearby church on Lyons Avenue, street parking, and future parking garage
- Opportunities to introduce green infrastructure

Expected Outcomes

- Enhanced safety and connectivity to the transit center that discourages mid-block crossings
- Improved customer experience
- Increased walking, biking, and transit use
- Placemaking and community activation
- Enhanced social and economic opportunity
- Enhanced sustainability

S2.2

Median Greenway Trail

Description:

Development of a linear trail along the median of Lockwood Drive, north of Lyons Avenue, leveraging the existing mature tree canopy to create a continuous recreational and pedestrian greenway. This project will utilize the wide median to connect between the neighborhood, Boyce-Dorian Park, and the transit center.

Key Project Components:

- Walking and jogging trails integrated within the existing median
- Shade seating areas and preservation of the existing mature trees with integrated lighting for safety
- Removal of the vehicular median crossing at Lockwood Drive and New Orleans Street to provide continuity of the median trail from Lyons Avenue to Hirsch Street

Expected Outcomes

- Enhanced connectivity
- Enhanced access to the transit center
- Encourages walking
- Enhanced transit district experience and identity

S2.3

Freeway Cap Park

Description:

Conceptual development of a freeway cap park over Interstate 10 at Lockwood Drive to improve pedestrian connectivity, safety, accessibility, and placemaking within the community. This potential transformative project could reconnect neighborhoods divided by the freeway while creating a civic gateway to the transit district and the Fifth Ward/Denver Harbor Transit Center, transforming existing infrastructure into a community asset. The cap park represents a long-term conceptual opportunity and is neither currently planned by TxDOT nor recommended in the IH 10 East PEL Study. Any future implementation would require coordination and concurrence with TxDOT.

Key Project Components:

- Concurrence with TxDOT and all utility providers / pipeline owners will be required before advancement of this recommendation
- Expansion of the pedestrian zones on the overpass edges to accommodate two-way pedestrian traffic, ADA compliance, bicyclist, and user comfort for all ages
- Structural cap spanning traffic lanes to create a landscaped park with trails, trees, and green infrastructure that softens the highway environment and improves environmental quality, introduces new green space into a vehicular prioritized corridor
- Safety improvements for pedestrians and bikes, including lighting and clear circulation paths
- Incorporate community engagement and placemaking features to establish a unified identity for the transit district, incorporating public art, artistic railings, and design features visible from both Lockwood Drive and I-10
- Provide feasibility and traffic studies to evaluate impacts on existing lanes, structural viability, engineering constraints, and phased construction strategies that minimize disruption

CONNECTIVITY & PLACEMAKING PROJECTS

Expected Outcomes

- Improved safety
- Accommodates ADA, universal accessibility, multi-modal use
- Encourages walking and biking
- Reconnection of neighborhoods
- Increased access to transit
- Creates a memorable experience of the transit district
- Encourages development
- Engages the community and enhances community identity
- Improves environmental quality

S2.4

Freeway Landscape

Description:

Infilling trees and landscaping along I-10 Freeway to provide a visual and sound buffer, greatly improving the community's interface with the freeway, which is a major producer of noise. This project enhances neighborhood aesthetics and environmental quality. Such enhancement would require installation and maintenance partnerships.

Key Project Components:

- Identify strategic locations for infill trees and landscaping along within the proximity of the ½ mile east and west of Lockwood Drive.
- Use dense vegetation and native planting to create effective noise and visual buffers with minimal maintenance.

Expected Outcomes

- Improves environmental quality

S2.5

Lyon's Placemaking and Streetscape Improvements

Description:
Implementation of placemaking features and streetscape enhancements along Lyons Avenue within ½ mile of the transit center to strengthen neighborhood identity, improve navigation, and highlight the emerging transit district. These improvements aim to reinforce Lyons Avenue as a key corridor to Fifth Ward and Denver Harbor.

Key Project Components:

- Implement pedestrian amenities, such as seating, lighting, wayfinding, and landscaping
- Public art installations coordinated with the Fifth Ward and Denver Harbor communities
- Coordination with Fifth Ward CRC planned wayfinding initiative for consistent design and messaging

Expected Outcomes

- Strengthened neighborhood identity and district recognition
- Encourages walking
- Improved pedestrian comfort
- Supports economic activation along Lyons Avenue

CONNECTIVITY & PLACEMAKING PROJECTS

S2.6

Secondary Street Sidewalk Improvements

Description:

This project focuses on enhancing pedestrian mobility by installing sidewalks where missing, improving conditions of existing sidewalks, and closing gaps in sidewalks within secondary streets of the Transit District. This project aims to create continuous, safe, and accessible pathways to access major corridors, such as Lyons Avenue and Lockwood Drive. This improves walkability and access to nearby bus stops and transit facilities.

Key Project Components:

- Conduct a survey of existing conditions to identify missing sidewalks, gaps, deteriorated areas, accessibility barriers, and unsafe conditions.
- Develop a priority sidewalk network plan targeting improvements that enhance access to main streets and transit stations
- Identify drainage concerns, utility conflicts, and safe intersection connections

Expected Outcomes

- Improves safety and accessibility
- Encourages walking
- Improves connectivity
- Increases access to transit and local destinations

S2.7

Main Street Improvements

Description:

Implement streetscape improvements along Lyons Avenue and Lockwood drive, with ½ mile of the transit center to enhance pedestrian comfort, connectivity, and safety. These improvements include improving sidewalk conditions, sidewalk widening, adding trees for shade, and landscape buffers from the street. Refer to the Active Transportation section for specific project details, recommendations, and benefits.

S2.8

Connectivity Street Improvements

Description:

Enhancements to additional connectivity streets within the transit district to improve streetscape conditions, such as improving sidewalk conditions, sidewalk widths, landscape buffers to improve accessibility, safety, and neighborhood connectivity. These improvements support connectivity between residential areas to community designations, existing community assets, and transit stations.

Refer to the Active Transportation section for specific recommendations, and benefits based on type of street:

- Schweikhardt Street (From Market Street to Noble Street) - Neighborhood Connector
- Shotwell (From Market Street to Hillsboro Street) - Neighborhood Connector
- Market Street (from Schweikhardt Street to Selena Quintanilla Perez Park) - Big Move Connectivity

CONNECTIVITY & PLACEMAKING PROJECTS

Additional Recommended Connectivity Streets identified for the transit district area beyond the Active Transportation recommendations:

- Running East to West- from the intersection of Noble Street and Schweikhardt Street to Hillsboro Street and Kress Street - Neighborhood Connector
- Solo Street (from Noble to Lyons)
- Erastus Street (from Mulvey Street to Hershe Street) and Hershe Street (from Erastus Street to Lockwood Drive)

S2.9

Union Pacific Rail Road (UPRR) Crossings

Description:

This recommendation entails performing a feasibility study to improve existing crossings at Lyons Avenue, Market Street, and add an additional crossing at Hillsboro Street to address safety and access concerns of the community. This aims to address the challenge of frequently stopped trains that disconnect the neighborhood, creating barriers and access issues for residences to schools, and other community facilities.

Key Project Components:

- Conduct a comprehensive study to improve rail crossing along the UPRR at intersection with Market Street and Lyons Avenue, and to provide a new crossing at Hillsboro Street.
- Include improved safety features and determine feasibility of grade separation options

Expected Outcomes

- Improved safety
- Improves connectivity to existing neighborhood assets and destinations

S2.10

Pedestrian Bridge Improvements

Description:

Replacement and modernization of the pedestrian bridges at Shotwell Street and Schweikhardt Street, while removing the pedestrian bridge at Carroll Oliver Way following the implementation of the recommended freeway cap park at Lockwood Drive. Removal of bridges will require concurrence from TxDOT and utility providers before advancing.

The project aims to improve connectivity between the neighborhoods on the north and south sides of I-10 while enhancing pedestrian and bicycle mobility across the freeway.

Key Project Components:

- Improved lighting, railing, and safety barriers
- New bridge designs to provide wider pathways that are safe, comfortable, ADA compliant and designed for shared use. ADA compliant access ramps to access bridges.
- Opportunity to create architectural feature structures visible from the I-10 freeway
- Evaluation of optimal bridge alignment, landing locations to potentially bypass the feeder road and improve connections to neighborhood streets and destinations.
- Assessment of construction phasing, bridge prefabrication, and strategies to minimize impacts to I-10 during construction

CONNECTIVITY & PLACEMAKING PROJECTS

Expected Outcomes

- Improved safety and accessibility
- Improved connectivity to community destinations
- Encourages walking and biking
- Strengthen community identity and placemaking

S2.11

Nodes of Activity

Description:

Implement streetscape enhancements and features at key intersections along Lyons Avenue to strengthen neighborhood connectivity, improve safety, and support activity nodes. Improvements will focus on intersections aligned with critical north-south connections, including links to pedestrian bridges and neighborhood connectivity streets. Priority intersections include: Schweikhardt Street and Lyons Avenue in Fifth Ward, Shotwell Street and Lyons Avenue in Denver Harbor, and Kress Street and Lyons Avenue in Denver Harbor.

Key Project Components:

- Streetscape features to create unique experiences such as specialty paving, pedestrian lighting, street furniture, bike racks, landscaping, public art, and wayfinding. Incorporate pocket parks or small community gathering areas where space allows.
- Coordination with Fifth Ward CRC to align with wayfinding initiatives.
- Community and stakeholders engagement to ensure design element reflect local neighborhood identity

Expected Outcomes

- Improved safety
- Community activation and enhanced neighborhood identity
- Strengthened connections to transit
- Encourages walking and biking
- Encourages local development

IMPLEMENTATION SUMMARY

PROJECT NUMBER	PROJECT TITLE	LEAD AGENCY	PARTNERS	TIMELINE	PRIORITY
S2.1	Flexible Transit Plaza	METRO	TIRZ18, HPDD	Near-Term	High
S2.2	Median Greenway Trail	TIRZ18	HPDD	Near-Term	Medium
S2.3	Freeway Cap Park	TxDOT	TIRZ18, METRO, HPDD	Mid-Term	High
S2.4	Freeway Landscape	TxDOT		Mid-Term	Medium
S2.5	Lyon's Placemaking & Streetscape Improvements	TIRZ18		Near-Term	Medium
S2.6	Secondary Street Sidewalk Improvements	TIRZ18, COH	TxDOT, HPDD	Near-Term	High
S2.7	Main Street Improvements	TIRZ18, COH	TxDOT, HPDD	Near-Term	High
S2.8	Connectivity Street Improvements	TIRZ18, COH	TxDOT, HPDD	Long-Term	High
S2.9	UPRR Crossings	TIRZ18, COH	UPRR	Long-Term	High
S2.10	Pedestrian Bridge Improvements	TxDOT	TIRZ18	Long-Term	High
S2.11	Nodes of Activity	TIRZ18, COH	CRC, HPDD	Long-Term	Medium

FIGURE TC33 - IMPLEMENTATION SUMMARY

ECONOMIC & HOUSING DEVELOPMENT PROJECTS

S3.1

TOD Street Designation

Description:

Apply for TOD street designation of sections of Lockwood, ½ mile north of the transit center and Lyons Avenue ½ mile east and west of the transit center pursued through the City of Houston Planning and Development Department.

Establishing this designation will guide future development to prioritize pedestrian access to building entrances directly along the street, minimize barriers between buildings and sidewalks, encourage walkable streetscapes with larger pedestrian realms, locating parking behind buildings, and encouraging ground floor storefronts. TOD designation allows for reduced off-street parking requirements, which can be beneficial for small business and infill development, making local commercial projects more feasible. Improvements will create a more active, safe, and accessible public realm.

S3.2

Mixed-Use Housing Development

Description:

This project supports transit use, economic development, housing options, and the creation of denser, more urban streetscape within the transit district. The recommendation encourages public-private partnerships to redevelop larger parcels adjacent to the transit center with a mixed-income, multifamily development up to four stories integrated with a shared-use parking garage.

The development would activate the intersection near the transit center while providing direct access to transportation options for residence. The shared parking facility could support residence, transit riders, and visitors.

Key Project Components:

- Coordinate redevelopment of underutilized parcels to support walkablility, ridership, housing, and ground floor commercial spaces
- Provide ground floor retail or tenant space that activates the street
- Explore land acquisition strategies, including partnerships, land swaps, or development agreement involving privately owned properties
- Potential redevelopment proposed incorporates an underutilized industrial site, vacant and underutilized residential lots, and commercial properties, and would involve selective street closure or reconfiguration.
- Explore strategies for mixed-income housing that ensures redevelopment benefits a diverse range of residence, such as incorporating affordable, workforce, or low-income housing
- Leverage incentives, such as the area's Opportunity Zone designation and explore potential housing and community development funding opportunities

Expected Outcomes

- Increased housing options
- Increased transit ridership
- Support for local retail and neighborhood services
- Community activation
- Further economic investment and development in the transit district

ECONOMIC & HOUSING DEVELOPMENT PROJECTS

S3.3

Job Training Center

Description:

Development of a Job Training and Workforce Development Center that provides workforce training, education programs, and employment services to residents. Locating the facility in the transit district improves access for residents who rely on public transportation while connecting residents to employment opportunities across the region.

Key Project Components:

- Job Training center that provides education, certification programs, and workforce services.
- Components may include training classrooms, workshops, computer labs, career counseling, vocational training programs, community meeting spaces.
- Partnerships with public agencies, educational institutions such as community colleges or trade schools, local business owners, and non-profit organizations
- Conduct a feasibility and site identification study to evaluate the potential to redevelop underutilized and vacant land for the facility

Expected Outcomes

- Expanded access to workforce training and career opportunities
- Increased job readiness
- Enhanced community support service within the transit district
- Skilled workforce that attracts new business and support local economic growth
- Redevelopment of underutilized land transformed into valuable community asset

IMPLEMENTATION SUMMARY

PROJECT NUMBER	PROJECT TITLE	LEAD AGENCY	PARTNERS	TIMELINE	PRIORITY
S3.1	TOD Street Designation	CRC / TIRZ18	HPDD	Near-Term	High
S3.2	Mixed-Use Housing	PD	METRO, HPDD, COH, CRC	Mid-Term	High
S3.3	Job Training Center	PD	CRC, LBO, LCO	Mid-Term	High

FIGURE TC34 - IMPLEMENTATION SUMMARY

COMMUNITY PROJECTS

S4.1

Community Programming

Description:

Activate the transit plaza next to the transit center through temporary markets and community programming, including farmers markets, community events, mobile vendors, and mobile community services, such as health screening and educational outreach.

Temporary markets and community programming can create regular opportunities for residents to access fresh food, local goods, and community resources, while providing social opportunities for residents.

Key Project Components:

- Opportunity to establish partnerships with local organizations, local churches, and neighborhood groups to coordinate programming
- Support and participation from local entrepreneurs and small businesses

S4.2

Optional Multi-Services and Community Facilities

Description:

Partner with non-profit organizations, community organizations, and public institutions to establish community service facilities within the transit district. These facilities may provide essential services such as health clinic, small neighborhood grocers, affordable child-care, and social support resources.

Key Project Components:

- Collaboration with non-profit organizations, healthcare providers, and public or community institutions. Additional partnership with organizations may include Harris Health System, Faith-based organizations and local churches
- Redevelopment of underutilized parcels to provide new facilities or integration with existing community organization facilities, however with the location within walking distance of transit to improve accessibility for residents.

IMPLEMENTATION SUMMARY

PROJECT NUMBER	PROJECT TITLE	LEAD AGENCY	PARTNERS	TIMELINE	PRIORITY
S4.1	Community Programming	CRC / TIRZ18	LBO, LCO, PO, METRO, COH	Near-Term	Medium
S4.2	Community Services	PD	CRC, COH, PCT1, PCT2, LCO	Long-Term	Medium

FIGURE TC35 - IMPLEMENTATION SUMMARY

FUNDING OPPORTUNITIES & COST ESTIMATES

Projects within the transit district can leverage a combination of grant opportunities, public funding, and partnerships to support implementation. Smaller-scale projects may be fully funded through targeted grants, while larger infrastructure investments will require multiple funding sources to ensure feasibility.

Potential Funding and Intensive Opportunities:

U.S. Department of Transportation

- Reconnecting Communities Pilot (RCP) Grant
- Safe Streets and Roads for All (SS4A) Grant
- Better Utilizing Investments to Leverage Development (BUILD) Grant
- Transit Oriented Development Financing
- Railroad Crossing Elimination Grant

Texas Department of Transportation (TxDOT)

- Transportation Alternative Program Funding
- Surface Transportation Block Grant (STBG)
- State Infrastructure Bank (SIB)

City of Houston

- Capital Improvement Plan (CIP)
- Partnership with TIRZ 19 to support public art, landscape, and maintenance
- City of Houston Opportunity Zone Investment

Other Opportunities

- Community Development Block Grants (CDBG) - HUD
- Enhanced Mobility of Seniors and Individuals with Disabilities - FTA

COST ESTIMATES

PROJECT NUMBER	PROJECT TITLE	COST RANGE	
		SCENARIO 2 PROJECTS	SCENARIO 3 PROJECTS
S1.1	Transit Service Improvements	N/A	
S1.2	Shelter Improvements	>$1M - $10M	
S1.3	Transit Center Modernization	$1M - $4M	
S1.4	Rapid Transit		Non Incl.
S2.1	Flexible Transit Plaza	$8M - $30M	
S2.2	Median Greenway Trail	$1M - $10M	
S2.3	Freeway Cap Park	$40M - $100M	
S2.4	Freeway Landscape	>$1M	
S2.5	Streetscape Improvements	>$1M - $8M	
S2.6	Secondary Street Sidewalk Improvements	$3M - $10M	
S2.7	Main Street Improvements	$1M - $10M	
S2.8	Connectivity Street Improvements		$10M - $50M
S2.9	UPRR Crossings	Non Incl.	
S2.10	Pedestrian Bridge Improvements		$30M - $60M
S2.11	Lyon's Nodes		$1.5M - $10M
S3.1	TOD Street Designation	N/A	
S3.2	Mixed-Use Housing	$45M - $80M	
S3.3	Job Training Center	$8M - $15M	
S4.1	Community Programming	N/A	
S4.2	Community Services	Non Incl.	
TOTAL		$109M - $277M	$41.5M - $120M

FIGURE TC36 - COST ESTIMATES

TIMELINE & SUMMARY

Implementation Phasing:

Phase 1: Near-Term Infrastructure Improvements

Focus on foundational improvements within a ½-mile radius of the transit center, including filling sidewalk gaps on secondary streets, main street improvements, and enhanced pedestrian crossings along Lyons Avenue. This phase also includes pursuing Transit-Oriented Development (TOD) designation along Lockwood Drive and Lyons Avenue through the City of Houston Planning and Development Department to guide future development to be walkable and transit-supportive.

Phase 2: Near-Term Recreational and Public Space Development and Placemaking

Establish a green spine along Lockwood Drive on the north side of the transit center and implement placemaking improvement along Lyons Avenue. Key projects include greenway trails and a flexible community plaza. These improvements create recreational opportunities, strengthen connectivity, and establish a recognizable identity for the transit district serving Fifth Ward and Denver Harbor.

Phase 3: Mid-Term Gateway and Development

Support neighborhood activation and economic growth through mixed-income multifamily housing with a shared parking garage, a freeway cap park, and a job training center. These projects promote community equity, stimulate commercial activity, and strengthen neighborhood identity and connectivity.

Phase 4: Long term Connectivity and Transit Expansion

Expand regional connectivity through the replacement and enhancement of pedestrian bridges, development of community activity nodes, and the implementation of rapid transit service along the corridor. These long-term investments will further strengthen mobility and support sustained growth within the transit district.

Summary:

The recommended projects transformative infrastructure investments that reconnect the communities of Fifth Ward and Denver Harbor, while improving mobility and access to transit. These initiatives strengthen connections to existing assets, introduce new civic and public spaces, and enhance transit services.

Together, the projects establish a stronger identity for the transit district while creating a pathway for future connectivity improvements and transit-oriented growth. By improving mobility and access, the recommendations support community vitality and create opportunities for economic development and long-term prosperity.

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Houston-Galveston Area Council