



design standards + streetscape guidelines

ENERGY CORRIDOR DISTRICT
March 2022

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An architectural line drawing of a city street scene. The drawing is in a light blue color. It shows a multi-lane street with a dedicated bus lane on the right side, marked with 'BUS' and a right-turn arrow. A bus is driving in the bus lane. There are several cars on the street. On the left side, there is a sidewalk with pedestrians, including a person pushing a stroller and a person in a wheelchair. There are trees and buildings in the background. A large white box with a blue border is overlaid on the right side of the drawing, containing the text 'design standards + streetscape guidelines'.

design standards + streetscape guidelines

PREPARED FOR THE ENERGY CORRIDOR DISTRICT
March 2022

contents

A. Introduction	7
Overview	
How to Use Guide	
Critical Success Factors	
Key Principles	
Administered District Boundary	
Property Owners' Association	
B. District Context	19
District Context	
Major Thoroughfares and Corridors	
Inventory of Streetscape Conditions	
Multimodal Conditions	
Existing Sidewalks and Esplanades	
Roadway Capacity	
Crash Analysis	
Key Nodes and Destinations	
C. Streetscape Opportunities	43
The Public Realm Toolkit	
Levels of Improvements	
Public versus Private Realm	
Impacts of Improvements	

North Eldridge Scenario	
Park Row Scenario	
Grisby Rd Scenario	
Mobility Opportunities and Constraints	
Priority Improvements based on Key Connections to Destinations	
D. Design Standards and Guidelines	63
Standards and Guidelines List of Elements	
Standards Classification Index	
PUB - Sidewalk Zone (S)/ Back of curb Zones	
PUB - Utility Zone (U)	
PUB - Roadway Zone (RD)	
PUB - Street Amenities Zone (A)	
PUB - Green Space Zone (G)	
PUB - Transit Amenities (TA)	
PUB - Streetlighting (L)	
PUB - Signage (PS)	
PRV - Building Frontage (BF)	
PRV - Fences, Screening and Walls (SC)	
PRV - Off-street Parking (PP)	
E. Appendices	99





introduction

The Design Standards and Streetscape Guidelines document is a multi-purpose tool and reference for all public realm improvements in the Energy Corridor as well as a guide for private development improvements. The Energy Corridor already has an impressive collection of assets, with a recognized potential for enhancing the public realm and urban design to achieve the District vision and goals. The targeted recommendations and stakeholder-led process provide the baseline for development excellence and the vitality needed to distinguish this neighborhood as a key epicenter in the City. Section A of the document provides an overview of the project as well as a guide to navigate the Standards and Guidelines in Section D.

SECTION A

PROJECT VISION

“the project vision asserts that the District must be a hub for mixed-use development, create consistency in the public realm, promote multimodal access and revitalize streets to be safe, and walkable”



Proposed development at Grisby Square/Energy Corridor District + Sasaki Associates, Inc.

The Design Standards and Streetscape Guidelines (DSG) gives The Energy Corridor District (ECD) a framework for enhancing a sense of place throughout the Energy Corridor. As projects arise, this document is a roadmap for agencies, real estate stakeholders, and urban designers. The Design Standards and Streetscape Guidelines can lead to a walkable environment, consistent public realm, and mix of uses.

Collectively, these improvements provide the visual impact and aesthetic appeal that help define the characteristics and the brand of the ECD. The goal is to not only build long-term economic vitality but also overcome the fragmentation associated with varying maintenance responsibilities amongst public and private entities. Creating consistency in the public realm will not only elevate the quality of the neighborhood and district character, but also improve and increase the property values.

The Standards and Guidelines established in this document, and the associated enhancements with implementation projects, rely heavily on several guiding principles, and various resources throughout the City of Houston. The content of this document has been assembled through an extensive analytical investigation of the physical environment, review and analysis of previous planning documents, collaboration with a Stakeholder Advisory Committee (SAC), coordination with the District's Property Ownership Associations (POAs), and through the leadership and guidance of the ECD staff and Board of Directors. This participatory process is critical in ensuring the recommendations herein are fully supported by the District, the Board, the SAC and the community at large.

The year-long process entailed a series of steps to reach the final set of Standards and Guidelines that included several meetings with the SAC, key meetings with the public and engagement with numerous POAs across the District. A detailed schedule is as follows:

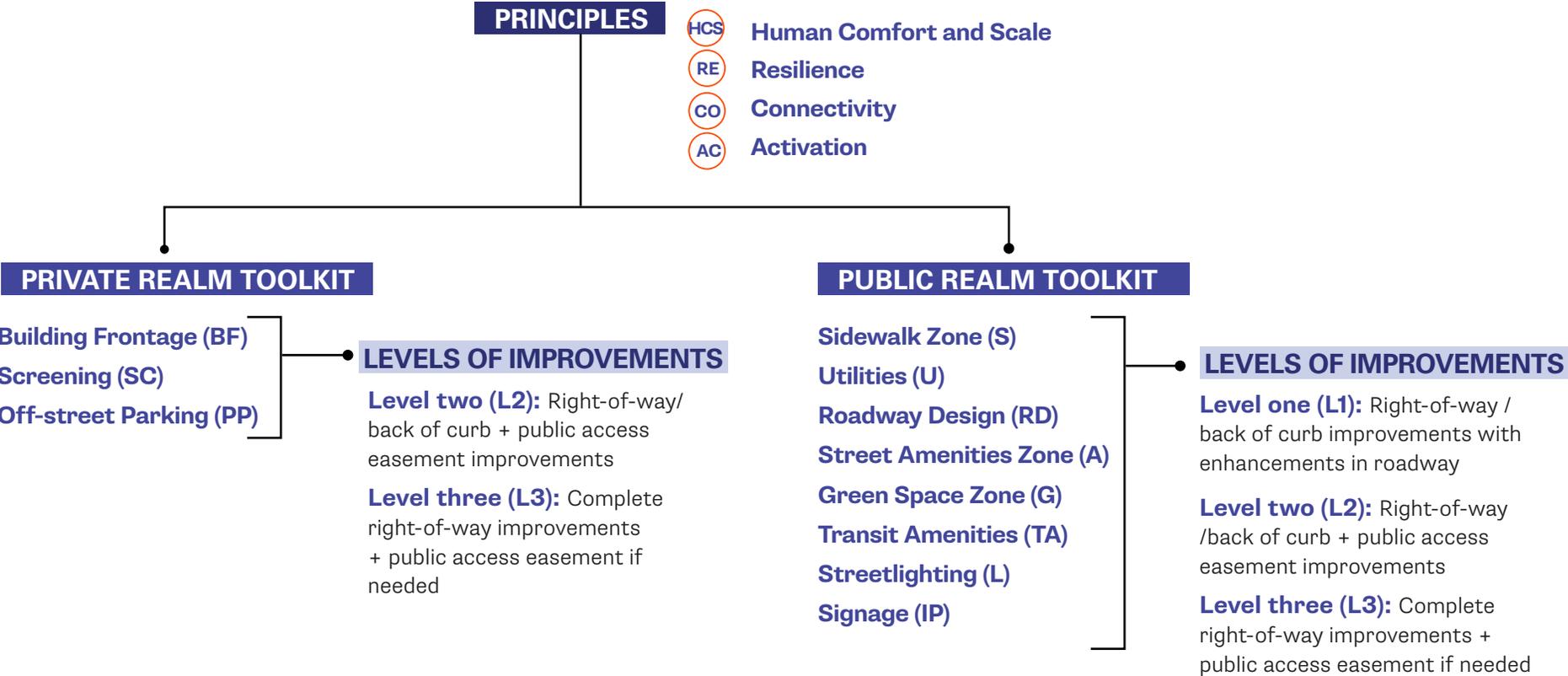
- **Month 1-2 *Project Kick-off and Site Tour*:** The team conducts a strategic kickoff to confirm the vision and goals for the project.
- **Month 2-4 *Research + Existing Conditions*:** The team establishes an effective and extensive process for analyzing previous plans and existing baseline conditions along streetscapes. An initial public meeting (Values Workshop) is held virtually to engage in a dialogue about goals, opportunities and challenges for the project.
- **Month 4-6 *Design Concepts*:** The team derives a framework strategy to identify streets that are vital improvement projects in the near future and applies a method of improvements.
- **Month 6-9 *Draft Standards and Guidelines Document*:** The team creates an initial structure to outline key toolkit elements that impact the public (and private) realm and which require standardization. A second workshop (Vision Workshop) is held as an open house to gather input on framework strategy, draft DSG structure and furnishings.
- **Month 9-12 *Final Standards and Guidelines Document*:** The team develops a final set of recommendations for review and adoption.

The Design Standards and Streetscape Guidelines document is primarily focused on public right-of-way improvements, but when physical space limitations are encountered, recommendations for utilizing Public Access Easements have been developed. These easements encourage the coordination and use of private property to realize the full potential of the existing streetscape corridors throughout the ECD. With mutual compliance, this arrangement provides maximum flexibility that can accommodate the varying street and land use conditions seen throughout the District. It is critical in this process that context sensitive design solutions are choreographed for the various streetscape conditions on each of the ECD corridors in order to activate and promote multimodal transportation throughout the District and create a safe, comfortable environment for pedestrians.

HOW TO USE GUIDE

The creation of design standards and streetscape guidelines for The Energy Corridor District represents a decisive moment for the residents, businesses, employees, and stakeholders in one of Houston’s prominent employment centers. This document is broken down into four (4) major sections that allow the user to quickly pinpoint the information they seek. The first section (A) provides an introduction and overview, while outlining the key principles and goals for which the Standards and Guidelines are based. The second section (B) provides a detailed synopsis of the existing conditions of the Energy Corridor using a series of maps and a streetscape characteristics inventory. The third (C) and fourth (D) sections of this document define the streetscape opportunities and outline the methodology of how improvements may be applied across the District. Further, the Standards and Guidelines articulate and illustrate how public realm improvements may be implemented. A navigation structure followed by examples of reader navigation is provided below.

Navigation Framework



Reader Navigation Examples

Example 1 – The reader is interested in better understanding recommended setbacks for a segment of properties set for redevelopment along Eldridge Parkway South.

Step 1 The reader would consult the Standards Classification Index on pages [65-67](#) and identify that Eldridge Parkway South under column ‘1’ is recommended for a Level three improvement.

Step 2 The reader would then refer to the row entitled “Adjacent Uses” against column ‘1’ to confirm the types of land uses that are predominant along Eldridge Parkway South. In this case, “MU/R/O” (Mixed use Commercial or Commercial, Residential, and Office Commercial) are all present, and the reader will need to determine the primary land use of the proposed development.

Step 3 The reader would then consult detailed Standards and Guidelines for frontage setbacks found on page [92](#). If proposed properties are primarily retail, the reader will refer to the row entitled “Mixed use commercial.” In this case, the reader would also need to consider providing a transition zone and would refer to requirements under “BF2. Transition Zone” to promote an active frontage. Finally, the reader could refer to the section, “BF5. Activated ground floor” for guidelines on promoting a robust public edge in retail zones.

Example 2 – The reader is interested in better understanding sidewalk expansion and improvement recommendations that may be implemented along Eldridge Parkway South.

Step 1 The reader would consult the Standards Classification Index on pages [65-67](#) and identify that Eldridge Parkway South under column ‘1’ is recommended for a Level three improvement. The reader would then refer to rows under ‘Sidewalk Zone (S)’ against column ‘1’ to confirm recommended width, paving treatment and whether Eldridge Parkway South falls in a Safe Schools Sidewalks Program (SRTS).

Step 2 The reader would then consult detailed Standards and Guidelines for the Sidewalk Zone found on pages [69-70](#) under Level 3 or L3.



Eldridge Parkway South

CRITICAL SUCCESS FACTORS



Eldridge Parkway and Interstate 10, Energy Corridor

Critical Success Factors (CSFs) are the features or results that must be accomplished in order for the project to be considered a successful process. The Design Standards and Streetscape Guidelines must:

- Create consistency in the public realm.
- Enhance the qualities of a neighborhood character.
- Protect community from incompatible development or improvements.
- Increase property values by improving quality of the public realm.

The project, secondarily must also:

- Build upon past investments and existing public realm elements.
- Create a systematic framework by which segments of the community are identifiable, and contribute to the comprehensive “brand” of the District.
- Develop recommendations that are rooted in resiliency and innovation and are on par with design and development benchmarks of similarly sized districts.
- The guidelines should be fully supported by District participants, the Stakeholder Advisory Steering Committee (SAC) and the public.

KEY PRINCIPLES

A series of key principles and respective goals helped shape and guide the Standards and Guidelines recommendations. The principles and goals lay the common foundation for the project and specify targeted design narratives that form benchmarks for the Standards and Guidelines.



Human Comfort and Scale (HCS)

Spaces between buildings should be designed to accommodate people of all ages and physical abilities. Frontages should incorporate architectural features alongside public rights-of-way that add visual interest.

- **Goal 1:** Minimize visual obstructions from utility infrastructure.
- **Goal 2:** Seek traffic-calming ideas to create safe pedestrian areas.
- **Goal 3:** Delineate a clear pedestrian corridor for projected flow and activity.



Resilience (RE)

Site design should consider a project's full life cycle to ensure that the private realm is both adaptable to changes in market needs and aligned with the functionality and environmental effects of the public realm.

- **Goal 1:** Plant water-efficient landscape materials to minimize stormwater impacts.
- **Goal 2:** Construct infrastructure with locally-sourced materials.
- **Goal 3:** Design sites to achieve high efficiency in energy, water usage and air quality.



Connectivity (CO)

The convenience of pedestrians should take precedence over the needs of vehicles. Development should create direct and convenient access by siting entrances to interact seamlessly with adjoining sidewalks, streets and open spaces.

- **Goal 1:** Incorporate opportunities for mid-block crossings for large blocks.
- **Goal 2:** Coordinate clear access to various modes of transportation.
- **Goal 3:** Preserve visibility of key landmarks and wayfinding.



Activation (AC)

Improving the wellbeing and quality of life of people requires that the public realm encourages pedestrians to be active participants in the day-to-day experience of the District.

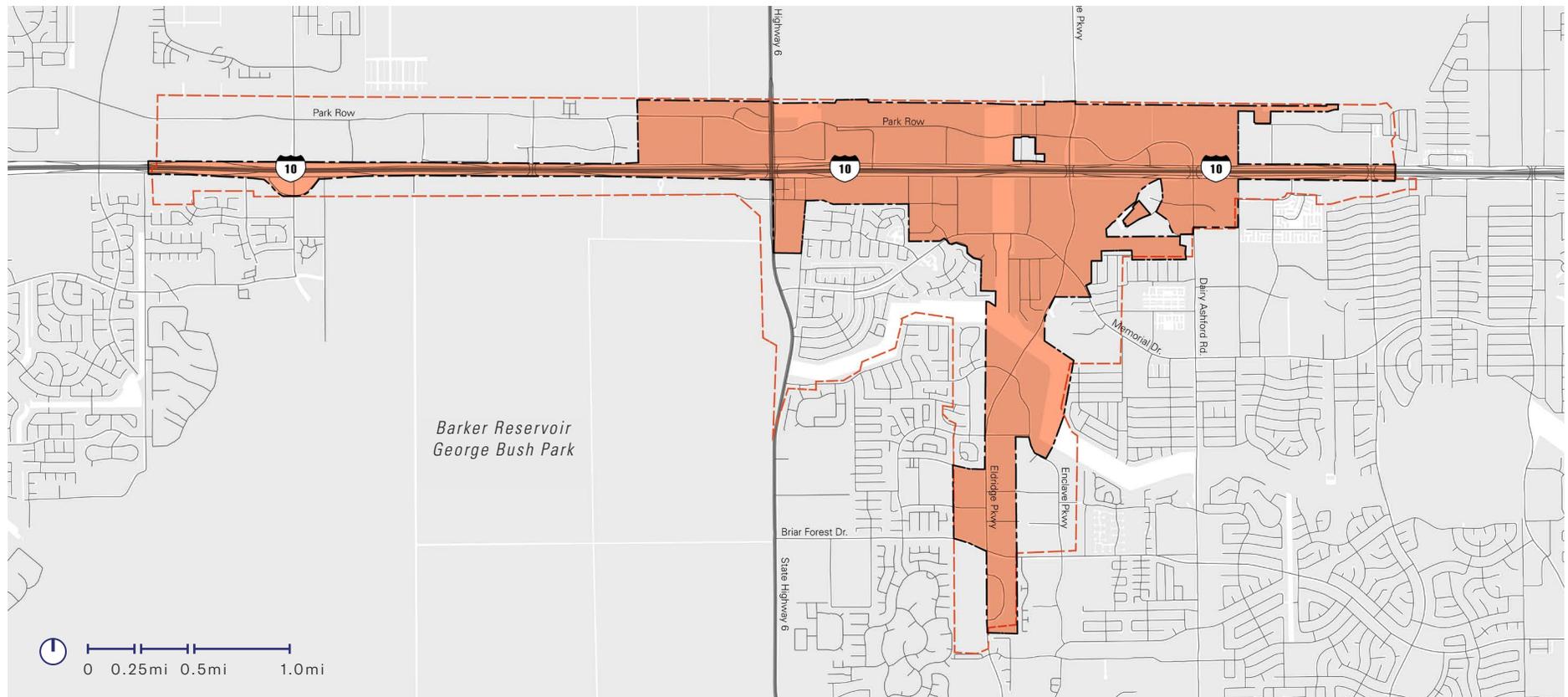
- **Goal 1:** Develop ground floor activation through façade transparency, public entries, café spaces, lighting and signage.
- **Goal 2:** Incorporate passive and active recreational opportunities within accompanying private realm spaces.
- **Goal 3:** Limit the use of large parking lots and empty facades adjacent to active corridors.

ADMINISTERED DISTRICT BOUNDARY

The accompanying map below depicts the administered boundaries for the Design Standards and Streetscape Guidelines, assigned in part to The Energy Corridor District. The boundary highlighted in orange represents the municipal jurisdiction of the District whereby the Standards and Guidelines produced in this document will directly apply in partnership between the District, Property Owners' Associations and other public agencies. The extension of the Energy Corridor community is depicted in the red outline to suggest future application of these Standards and Guidelines. In addition, the areas that fall outside the purview of the District may present opportunities for annexation based on necessary improvements in the future.

Legend | District boundaries

-  Energy Corridor District boundary
-  Energy Corridor community boundary

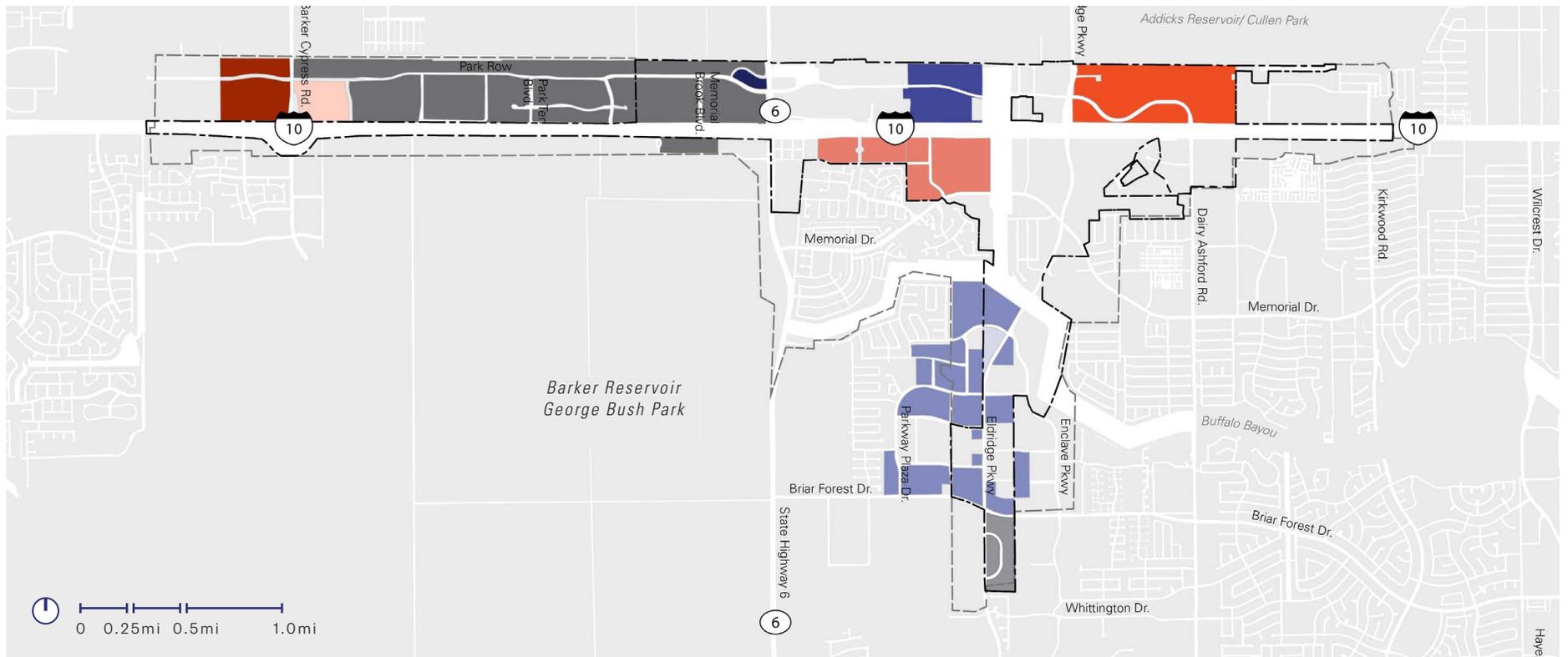


PROPERTY OWNERS' ASSOCIATION

The management, operations and maintenance of streetscape improvements and adjacent to the public realm are shared between the District, public partners and agencies such as Harris County and the City of Houston as well as private entities such as the Property Owners' Association (POA). There are numerous POAs listed below, governing improvements for a mix of properties across the Energy Corridor (ie: condos, businesses or commercial property). Many of the POAs manage and maintain the back of curb and median landscaping along their abutting roads. The unclear and inconsistent rulebook for roles and responsibilities are the biggest challenge faced in the implementation of the Design Standards and Streetscape Guidelines. Additional key issues require reaching consensus between all decision-making parties, creating a brand that is reflective of the District's character and sense of place, and ensuring the District is able to effectively monitor and administer these Design Standards and Streetscape Guidelines.

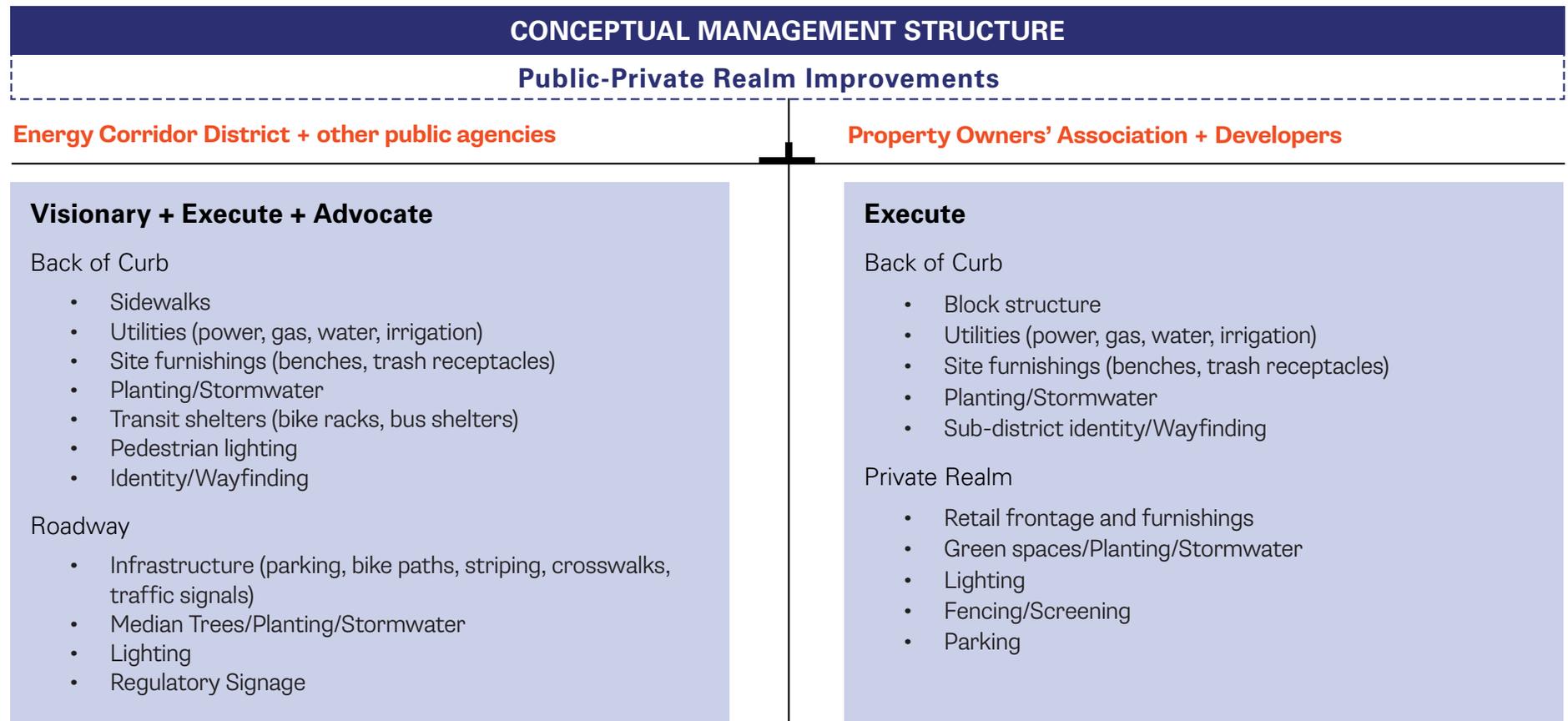
Legend | Property Management Associations

- Ten Oaks
- Park Ten
- Gateway at Park Ten
- Central Park West
- Woodcreek Park
- Westlake
- Ten West
- Parkway Plaza & Parkway Villages
- Crescent at Parkway



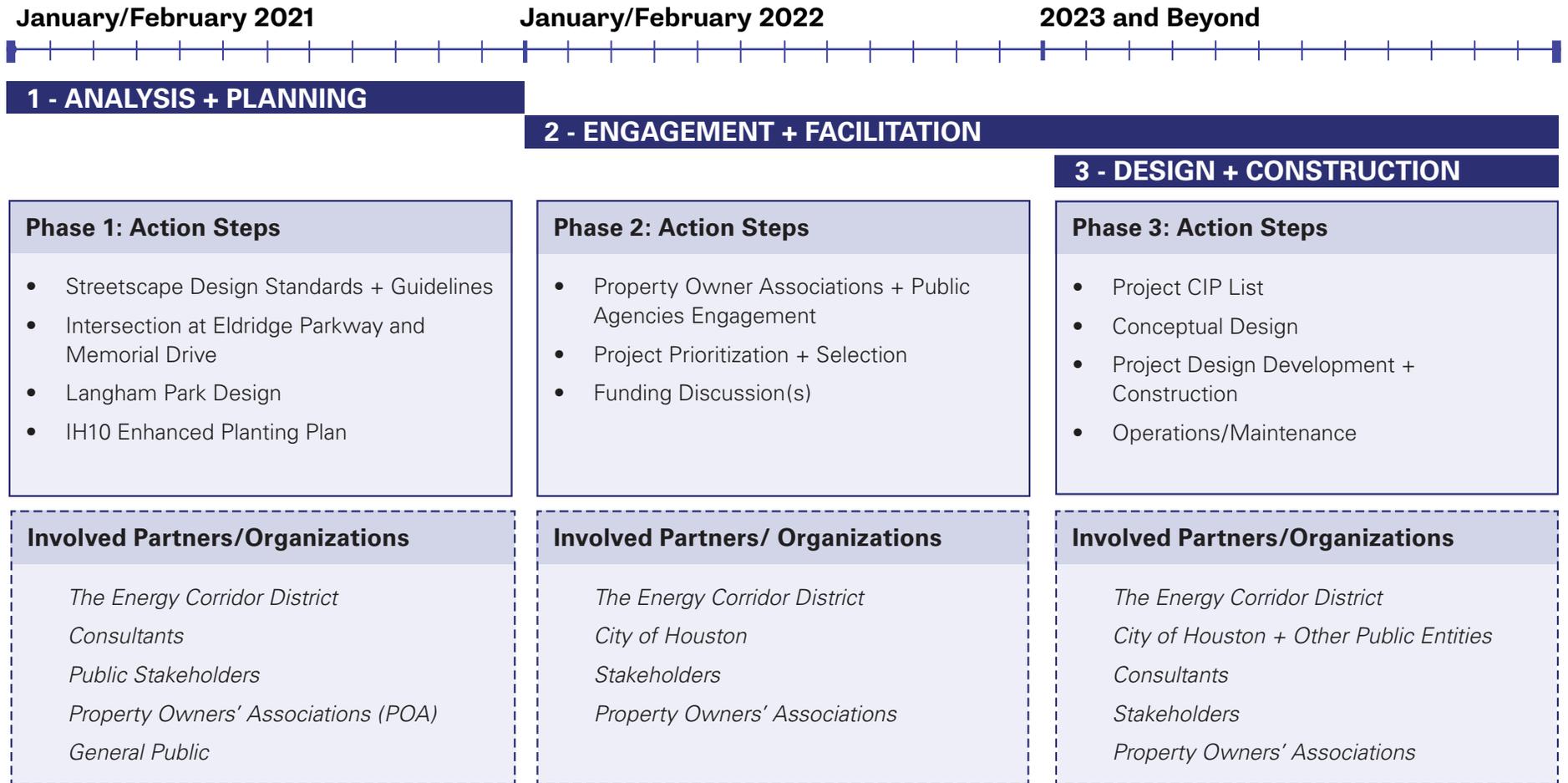
IMPLEMENTATION

As a management district, the ECD may not have the full fiscal capacity to implement significant public improvements on its own, and it has limited ability to develop and administer regulations to prohibit undesirable developments. However, the ECD is in a unique position **to advocate** for projects that align with the District’s overall vision and brand; **to leverage** resources and funding mechanisms from strategic partners [public agencies -City of Houston and private entities -the POAs and developers] for key streetscape improvements; **to incentivize** a common level of streetscape standards that uphold Complete Streets and its benefits to patrons of the District; **and inform** partners (POAs/developers/other partners) of benefits. In addition, the premise for the Design Standards and Streetscape Guidelines is to ensure the District overcomes the fragmentation associated with varying operations and maintenance responsibilities of improvements in the right-of-way (and adjacencies). To be clear, a Conceptual Management Structure is provided below to help segment and clarify parts of the built environment the District other public agencies will manage/operate AND parts of which entities such as POAs may manage/operate.



SUGGESTED IMPLEMENTATION TIMELINE

During the process, the District and the design team conducted two public meetings with the community, numerous stakeholder meetings with the SAC and initial conversations with the Property Owners' Association/developers. The importance of implementing a set of Standards and Guidelines that improve the overall quality of the streetscape realm relies on continued conversations with partners in both the public and private sector over the next few years to ensure projects are effectively identified, funded, designed and constructed to align with recommendations set forth in this document. Below is a timeline that projects next steps for priority improvements listed on [page 61](#) as well as the Standards and Guidelines in Section D.





An aerial photograph of a cityscape, featuring several tall, modern glass skyscrapers and a large, multi-story parking garage. The foreground shows a mix of greenery and lower-rise buildings. The sky is filled with soft, white clouds. The entire image has a blue color cast.

district context

Inventory and analysis are critical stages in every project and underscore opportunities and challenges endemic to each scope and site. It is also important that this project takes into consideration recommendations from previous studies, which have established a baseline, and that this effort builds on the momentum from the 2015 Master Plan as well as the work completed city-wide. This section of the report includes a complete inventory of roadway conditions for all thoroughfare, arterial and collector streets identified in the City's Major Thoroughfares Plan and maps multimodal conditions to highlight deficiencies in the public realm.

SECTION B

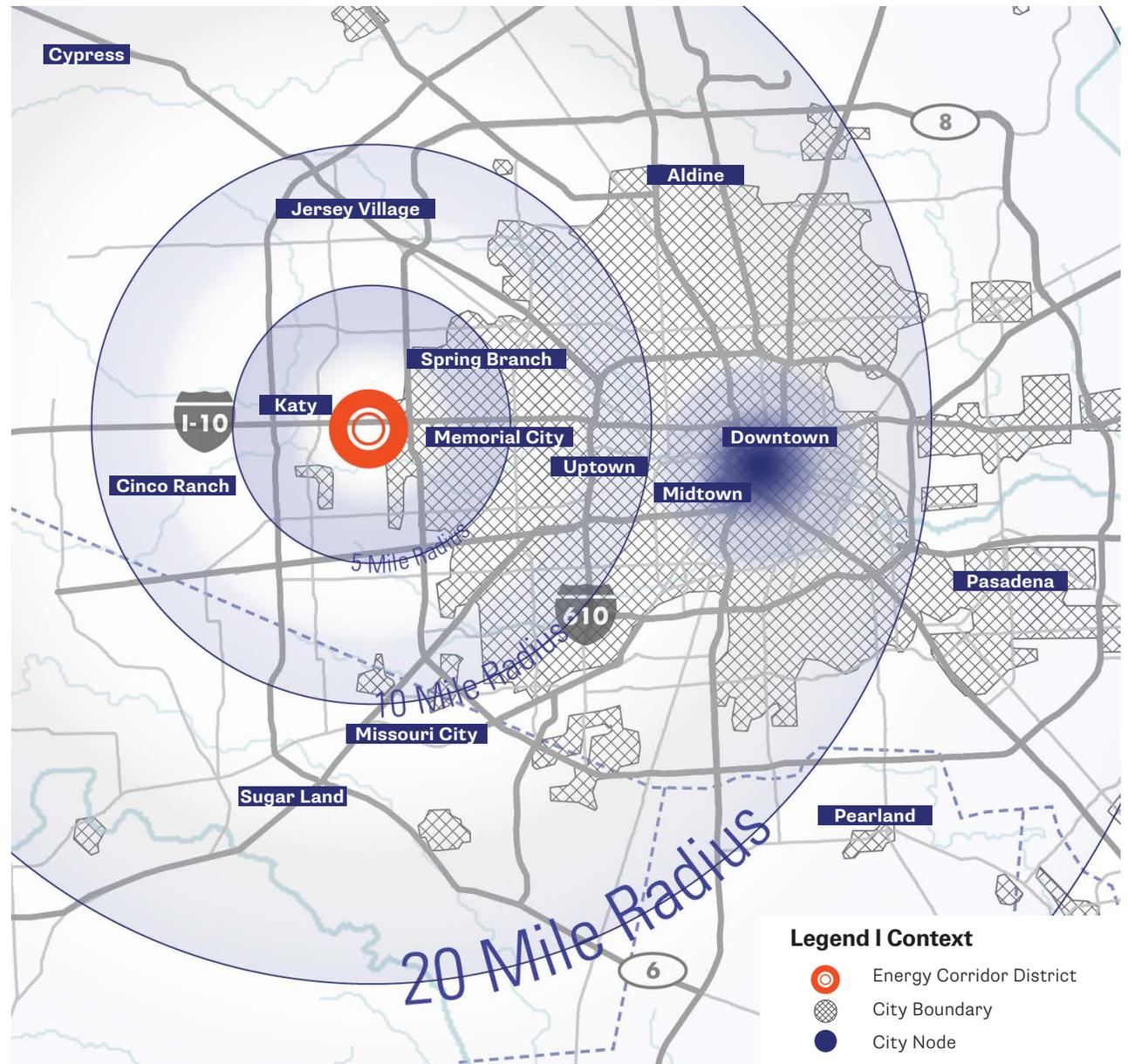
DISTRICT CONTEXT

Located along Interstate 10 (I-10) at the nexus between Beltway 8 and the Grand Parkway, the Energy Corridor District is conveniently located about sixteen miles west from downtown Houston.

The District's population is estimated to be 23,133 in 2020 with a growth rate of 22% in the last decade and is projected to continue to increase. In addition to its attractive residential neighborhoods, it is a hive for employers and employees, pulling users in from across the region. As one of the largest employment centers in the city, the District is home to several Fortune 500 firms and multinational, national and local companies making it a key destination for commuters.

The expected increase in growth to nearly 8 million people in the greater Houston area by 2035 warrants the need for both residential and commercial/mixed-use uses and an increase in level of services, streetscape amenities, and access.

Energy Corridor is a magnet for commuters as one of the largest employment centers in the region



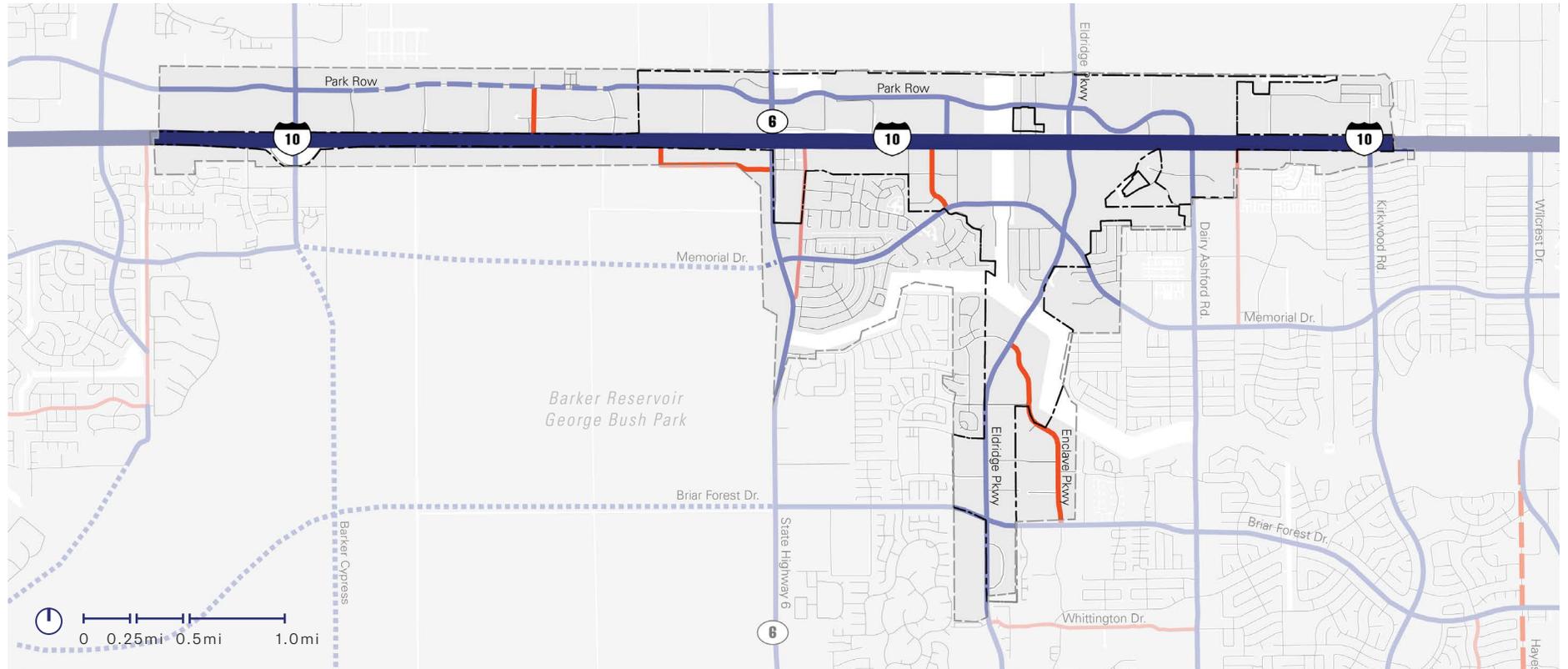
MAJOR THOROUGHFARES AND CORRIDORS

There are a number of prominent corridors that are vital connections within the District and to surrounding areas. The illustration below documents the City of Houston’s Major Thoroughfares Plan. Energy Corridor is bisected by I-10 creating a well-established and developed community in the south and a blank slate with numerous empty parcels ripe for future development in the north. Key arterial roads that serve as entry and exit points into Energy Corridor include Eldridge Parkway, Park Row and Dairy Ashford. Other corridors of note that serve as supportive connectors to major roads or destinations are Memorial Drive, Enclave Parkway and Grisby Road.

Future improvements to extend Memorial Drive and Briar Forest Drive through George Bush Park to enhance east-west connections have been identified by the City. With potential improvements on the horizon, in lieu of expanding roads to filter added vehicular traffic, it is more important than ever to ensure future street enhancements cater to the safety and comfort of all modes of mobility.

Legend | MTFP

-  Existing Freeway
-  Existing Major Thoroughfare
-  Existing Major Thoroughfare to be Widened
-  Proposed Major Thoroughfare
-  Existing Major Collector
-  Existing Major Collector to be Widened
-  Existing Minor Collector



INVENTORY OF STREETScape CONDITIONS

The table below lists the characteristics of identified roads within the District that include dimensions for the right-of-way, lanes, medians and whether or not roads are accompanied by elements such as bus stops, powerlines, bike lanes or parking. The information presented in the table below establishes an assessment of existing conditions and provides the baseline information needed to explore opportunities and limitations in section D: Standards and Guidelines (ie: Is a current sidewalk width meeting City of Houston standards and does it need to expand based on the demand for pedestrian access to key destinations? Is adequate buffer provided between sidewalk and curb?).

streets	MTFP	right of way width	number of lanes	lane width	median width	median tree
	City of Houston Classification*	X' (feet)	X (# of lanes)	X' (feet)	X' (feet)	Yes/No; Predominant tree type
1. Highway 6 South	P	160'	8	13-14'	-	-
2. Highway 6 North	P	120'	6	13'	-	-
3. Eldridge Parkway South	P	100-110'	6	12'	14-30'	Yes; Oak + Crepe Myrtle
4. N. Eldridge Parkway	P	100'	6	12'	12'	Yes; Oak
5. Enclave Parkway	MJ	90'	4	12'	20'	Yes; Oak

***Note:** P: Principal Thoroughfare; T: Major Thoroughfare; MJ: Major Collector; MN: Minor Collector

Baseline conditions are important to establish and assert future opportunities and current limitations

bike lane	sidewalk	street trees	powerline	bus stops	property owners' association	on-street parking	site character	average daily trips
Yes/No	X' (feet wide)/ Yes/No/One Side	Yes/No; Predominant Type	Yes/No	Yes/No; Route	Yes/No	Yes/No	Land Use	ADT
None	5-6'	Yes; Oak along/ under overpass	Yes	Yes; Route 75	No	No	Commercial/ Residential/ Industrial/ Parking	87,529
None	5-6'; One Side	Yes; Oak along/ under overpass	Yes	Yes; Route 75 + 162	No (small part in Ten Oaks)	No	Commercial	26,532
Existing Off- Street	4-5'	Yes; Oak	No	Yes; Route 75	Yes; Parkway Plaza + Parkway Villages	No	Commercial, Multi-Family Residential	27,730 South of Enclave 46,624 Between Enclave and Memorial 39,709 between Memorial and I-10
Existing On-Street	5-10'	Yes; Oak	No	No	Yes; Woodcreek Park	No	Commercial	29,625
Existing On-Street	5-6'	Yes; Oak	Yes	Yes; Route 153	No	No	Commercial	10,708

INVENTORY OF STREETScape CONDITIONS

streets	MTFP	right of way width	number of lanes	lane width	median width	median tree
	City of Houston Classification*	X' (feet)	X (# of lanes)	X' (feet)	X' (feet)	Yes/No; Predominant tree type
6. N. Dairy Ashford Road	T	100'	4-6	12'	12'	Yes; Oak
7. Interstate 10 Frontage Road (include Old Katy Road)	Freeway	500' (typical of I-10)	3-4	13-14'	-	-
8. Barker Cypress	T	100'	4	13'	17'	Yes; Oak
9. Park Row	T	70'-120'	4	12'	32'	Yes; Oak, Pine, Ash
10. Park Ten Boulevard	T	100'	4	12'	26'	Yes; Oak
11. Memorial Brook Boulevard	Local	100'	4	11-12'	14'	Yes; Oak
12. Central Park West Boulevard	T	100'	4	11'	14'	Yes; Oak
13. Wood Branch Park Drive	Local	80'	2	20'	-	-
14. St. Marys Lane	Local	60'	2	20'	-	-

***Note:** P: Principal Thoroughfare; T: Major Thoroughfare; MJ: Major Collector; MN: Minor Collector

bike lane	sidewalk	street trees	powerline	bus stops	property owners' association	on-street parking	site character	average daily trips
Yes/No	X' (feet wide)/ Yes/No/One Side	Yes/No; Predominant Type	Yes/No	Yes/No; Route	Yes/No	Yes/No	Land Use	ADT
Proposed On-Street	5-6'	Yes; Oak	Yes; I-10 to Barryknoll	Yes; Route 228	Yes, Woodcreek Park	No	Commercial	9,393
Proposed Off-Street	5-6'; One Side	Yes, Inconsistent; Oak, Crepe Myrtle, Ash, Elm	Yes	Yes; Route 39 + 298	Yes; Park Ten, Central Park West, Westlake, Woodcreek Park	No	Commercial	-
None	8'	Yes; Oak	No	No	Yes; Park Ten	No	Parking/Vacant	27,637
None	4-6'	Yes, Oak	No	No	Yes, Park Ten, Ten Oaks Central Park West	No	Commercial/ Vacant	13,438 west of Hwy 6; 4,808 at Dairy Ashford
None	5'	Yes; Ash, Pine, Oak	Yes; on I-10	No	Yes; Park Ten	No	Commercial	No Counts
None	4-6'	Yes; Oak	Yes	No	Yes; Park Ten	Yes; Parallel	Commercial/ Multi-Family Residential	No Counts
None	6'; One Side	Yes; Oak	Yes	No	Yes; Central Park West	No	Commercial/ Vacant	No Counts
None	4'; 320' south of Wickchester only	Yes; Pine, Oak	Yes	No	Yes; Woodcreek Park	No	Commercial	No Counts
None	4'	Yes; Pine, Oak	No	Yes; Route 67	No	No	Commercial	No Counts

INVENTORY OF STREETScape CONDITIONS

streets	MTFP	right of way width	number of lanes	lane width	median width	median tree
	City of Houston Classification*	X' (feet)	X (# of lanes)	X' (feet)	X' (feet)	Yes/No; Predominant tree type
15. Memorial Drive	T	100'	4	11'	12'	Yes; Oak
16. Memorial View Drive	Local	60'	2	20'	-	-
17. Memorial Mew Street	Local	-	2	17.5'	22' (for 330' south of Memorial Drive)	Yes; Crepe Myrtle
18. S Mayde Creek Drive	Local	-	4	10'	28' (220' south of Memorial Drive)	Yes; Cypress + Oak
19. Westlake Park Boulevard	MJ	80-90'	4	12'	14'	Yes; Oak
20. Grisby Road	Local	50-80'	2-4	10-12'	14'	Yes; Oak
21. Addicks Howell Road	Local	60'	2	10'	-	-

*Note: P: Principal Thoroughfare; T: Major Thoroughfare; MJ: Major Collector; MN: Minor Collector

bike lane	sidewalk	street trees	powerline	bus stops	property owners' association	on-street parking	site character	average daily trips
Yes/No	X' (feet wide)/ Yes/No/One Side	Yes/No; Predominant Type	Yes/No	Yes/No; Route	Yes/No	Yes/No	Land Use	ADT
Existing Off-Street	6'	Yes; Pine, Oak	Yes	Yes; Route 75	Yes; Westlake	No	Commercial/ Multi-Family/ Single Family	10,778 in 2019 while under construction; 19,407 in 2011
None	4'	Yes; Pine, Oak	No	No	No	Yes; Parallel	Commercial/ Multi-Family	No Counts
None	5'; east side south of Turkey Street	Yes; Oak	Yes	No	No	Yes; Parallel	Residential	No Counts
None	4-5'; east side	Yes; Oak	Yes	No	No	Yes; Parallel	Commercial/ Multi-Family	No Counts
Proposed Off-Street	8-9'	Yes; Oak	No	Yes; Route 162	Yes; Westlake	No	Commercial	No Counts
None	4-9'; north side Addicks Howell to BP	Yes; Oak	Yes; west of Addicks	Yes; Route 162	Yes; Westlake	Yes; west of Addicks Howell	Commercial	No Counts
Proposed Off-Street	6-7': west side	Yes; Oak	Yes	Yes; Route 162	No	No	Commercial	No Counts

INVENTORY OF STREETScape CONDITIONS

streets	MTFP	right of way width	number of lanes	lane width	median width	median tree
	City of Houston Classification*	X' (feet)	X (# of lanes)	X' (feet)	X' (feet)	Yes/No; Predominant tree type
22. Stafford Street	Local	70'	2	12'	-	-
23. Grasshopper Lane/ Jackson Street	Local	70'	2	12'	-	-
24. Fortsmith Street	Local	50'	1-2	12-15'	-	-
25. Parkway Plaza Drive/ Sandbridge Drive	Local	80-120'	4	10-11'	22'	Yes; Crepe Myrtle
26. Brimhurst Drive	Local	100-110'	4	10-11'	22'	Yes; Oak
27. Forkland Drive	Local	60-100'	2-4	10-11'	22'	No
28. Park Bayou Drive	Local	85-100'	2	11-20'	22'	Yes; Oak
29. Westerloch Drive	Local	100'	4	11'	22'	Yes; Oak
30. Briar Forest Drive	T	100'	4	11'	30'	Yes; Oak

*Note: P: Principal Thoroughfare; T: Major Thoroughfare; MJ: Major Collector; MN: Minor Collector

bike lane	sidewalk	street trees	powerline	bus stops	property owners' association	on-street parking	site character	average daily trips
Yes/No	X' (feet wide)/ Yes/No/One Side	Yes/No; Predominant Type	Yes/No	Yes/No; Route	Yes/No	Yes/No	Land Use	ADT
None	No	Yes; Oak	Yes	No	No	Yes; Head-in	Commercial	No Counts
None	No	Yes; Oak	No	No	No	Yes, Head-in	Commercial/ Parking	No Counts
None	6'; north side Addicks Howell	Yes; Oak	Yes	No	No	Yes; Head-in, Back-in	Commercial	No Counts
None	4-6'	Yes; Oak	Yes	Yes; Route 153	Yes; Parkway Plaza + Parkway Villages	No	Commercial/ Multi-Family	No Counts
None	4-5'	No	Yes	No	Yes; Parkway Plaza + Parkway Village	No	Commercial/ Single-Family	No Counts
None	4-5'	Yes; Oak	Yes	No	Yes; Parkway Plaza + Parkway Village	Yes	Commercial/ Multi-Family	No Counts
None	4-5'	No	Yes	No	Yes; Parkway Plaza + Parkway Villages	No	Single-Family	No Counts
None	4-5'	No	Yes	No	Yes; Parkway Plaza + Parkway Villages	No	Commercial/ Multi-Family/ Single Family	No Counts
Existing On-Street	5'	Yes; Oak	Yes	Yes; Route 153	Yes; Parkway Plaza + Parkway Villages + Crescent at Parkway	No	Commercial/ Multi-Family/ Single Family	18,197

INVENTORY OF STREETScape CONDITIONS

streets	MTFP	right of way width	number of lanes	lane width	median width	median tree
	City of Houston Classification*	X' (feet)	X (# of lanes)	X' (feet)	X' (feet)	Yes/No; Predominant tree type
31. Crescent Plaza Drive	Local	100'	4	11'	22'	Yes; Cypress + Crepe Myrtle
32. Olive Hill Drive	Local	60'	4	11'	-	-
33. Threadneedle Street	Local	60'	2	20'	-	-
34. Spirit Way	Local	60'	4	11'	-	-
35. Blackhaw Street	Local	60'	2	11'	-	-
36. Redhaw Street	Local	60'	2	10'	-	-
37. Park + Ride Drive	Local	70'	3	13'	-	-

***Note:** P: Principal Thoroughfare; T: Major Thoroughfare; MJ: Major Collector; MN: Minor Collector

bike lane	sidewalk	street trees	powerline	bus stops	property owners' association	on-street parking	site character	average daily trips
Yes/No	X' (feet wide)/ Yes/No/One Side	Yes/No; Predominant Type	Yes/No	Yes/No; Route	Yes/No	Yes/No	Land Use	ADT
None	4-5'	Yes; Oak	Yes	No	Yes; Crescent at Parkway	No	Commercial/ Multi-Family/ Single Family	No Counts
None	4-5'; south side	Yes; Oak, Magnolia, Cypress	Yes	No	Yes; Parkway Plaza + Parkway Villages	No	Commercial/ Multi-Family	No Counts
None	4-5'	Yes; Oak	No	Yes; Route 67	No	No	Commercial	No Counts
None	5-6'	Yes; Oak	No	No	Yes; Woodcreek Park	No	Commercial/ Vacant	No Counts
None	No	No	No	No	No	No	Residential/ Vacant	No Counts
None	No	No	No	No	No	No	Residential/ Vacant	No Counts
Proposed Off- Street	5-6'	Yes; Oak + Ash	Yes	Yes; Route 298	No	No	Commercial	No Counts

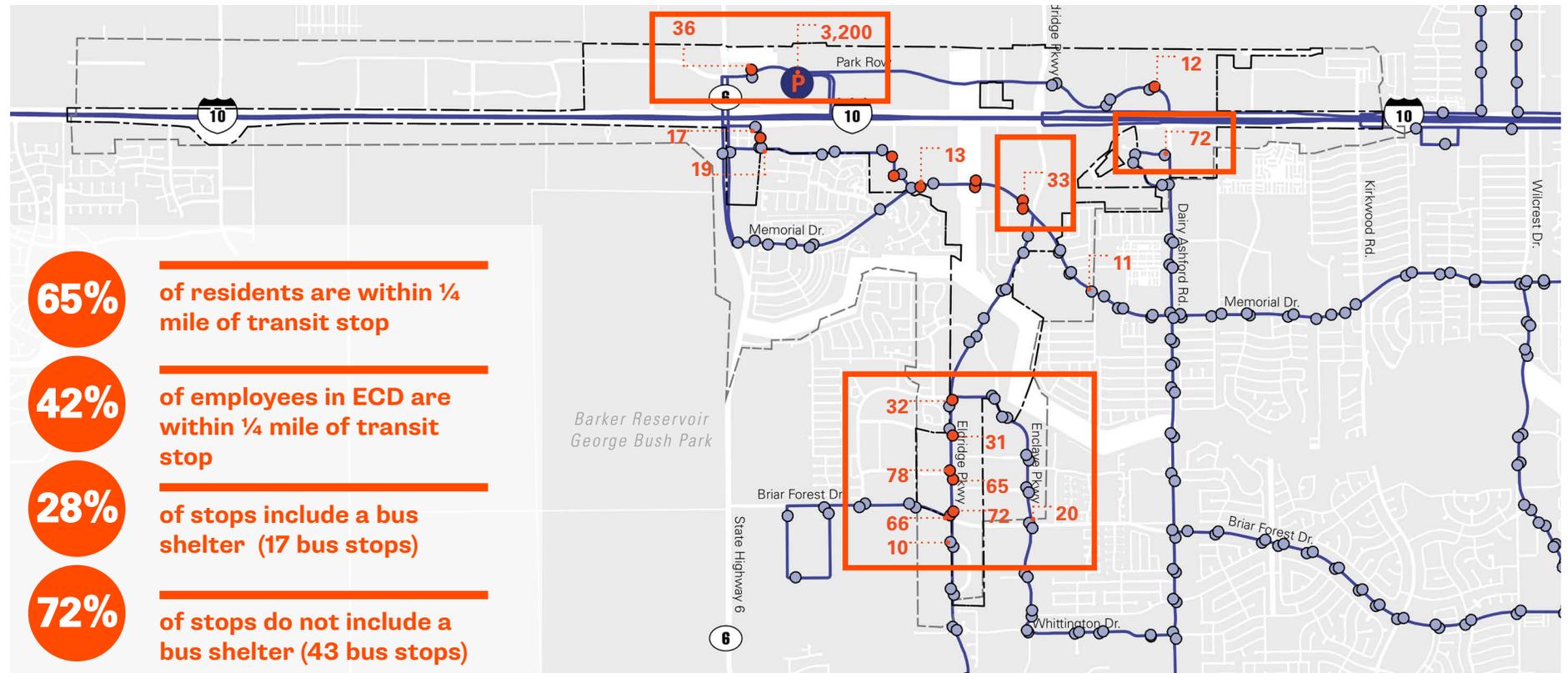
MULTIMODAL CONDITIONS

METRO Bus Network and Facilities

As the District sees additional prospects for growth, close attention needs to be paid to equipping commuters with a variety of multimodal transit options. Although a majority of residents and employees travel via car, many have an appetite to use METRO if designed for adequate access and high comfort. And, with the [METRONext Plan](#) completed to advocate for additional capacity and frequency on existing and proposed routes, Standards and Guidelines will need to accommodate better bus stop conditions and routes that are easily recognizable and accessible. The District has already started taking steps to improve some transit shelters. METRO has also identified a future route along State Highway 6 that will reach additional users. High level recommendations on the placement of transit amenities and their aesthetics in addition to appropriate transit roadway markings are integrated as part of the Standards and Guidelines.

Legend | Metro Facilities

- Existing Metro Bus Route
- Existing Bus Stop
- Existing Bus Stop with a Shelter
- P Park and Ride
- X Ridership Counts per stop
- High Ridership Bus Stop(s) (relative to District)

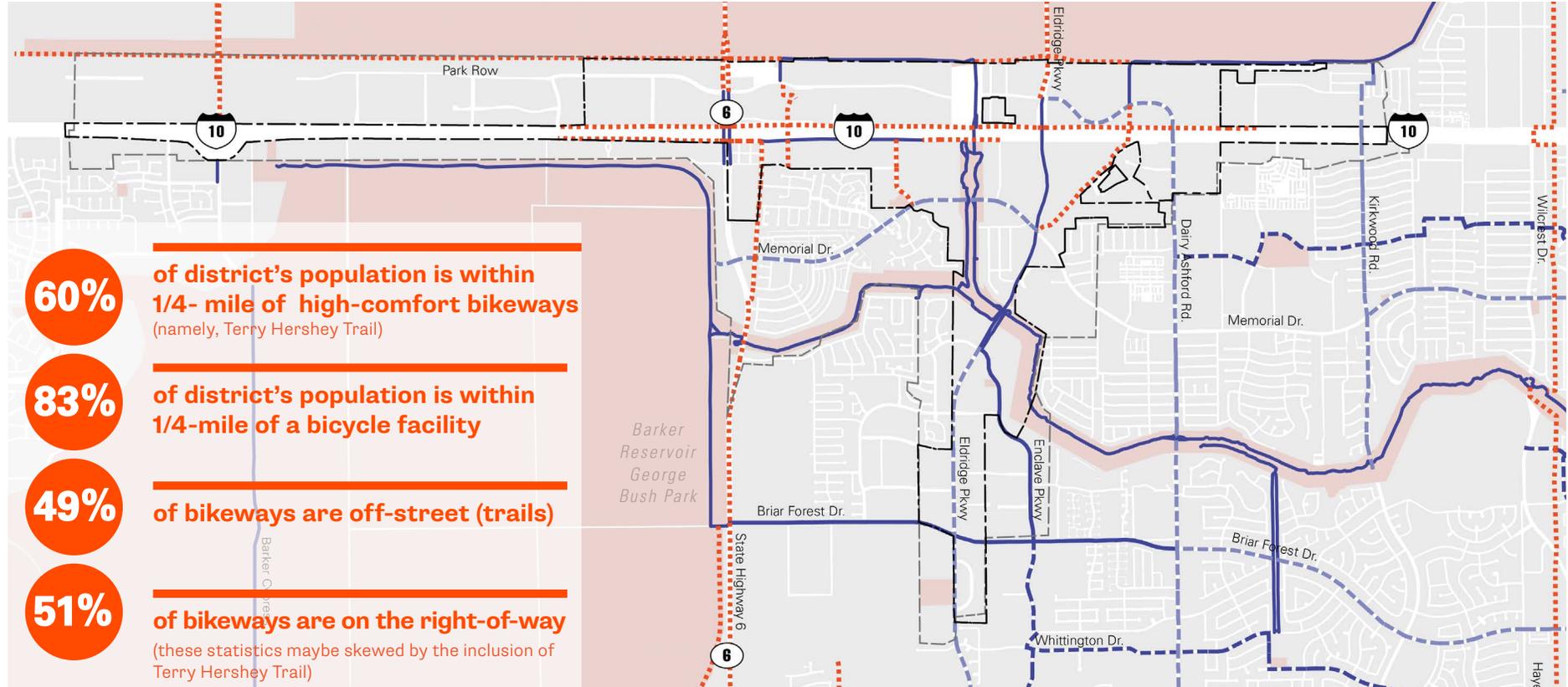


Houston Bikeways and Existing Conditions

A major benefit of the District is its access to a high-quality trail system along both Addicks and Barker Reservoirs as well as within Terry Hershey Park. There are also several low-comfort on-street bike lanes located along Enclave Parkway, Briar Forest and Dairy Ashford that are separated from vehicular travel lanes by a simple white stripe. Many of these paths are often narrow lanes with little to no buffer to fast-moving vehicles. Others are simply out-of-date in terms of their aesthetics and function when compared to current best practices. Enhancements to these low-comfort facilities should consider retrofit opportunities such as shared use paths along sidewalks to decrease conflicts with vehicles. The Standards and Guidelines presented in this plan identify additional best practices in the context of Energy Corridor to better accommodate safety and access along the street network (wide lanes, buffer or bollards separating lanes from vehicles) to destinations in the District.

Legend | Houston Bikeway Plan

-  Existing Bike Route
-  Short-Term Future Bike Route
-  Long-Term Future Dedicated + Shared On-Street
-  Long-Term Future Off-Street
-  Parks + Open Space



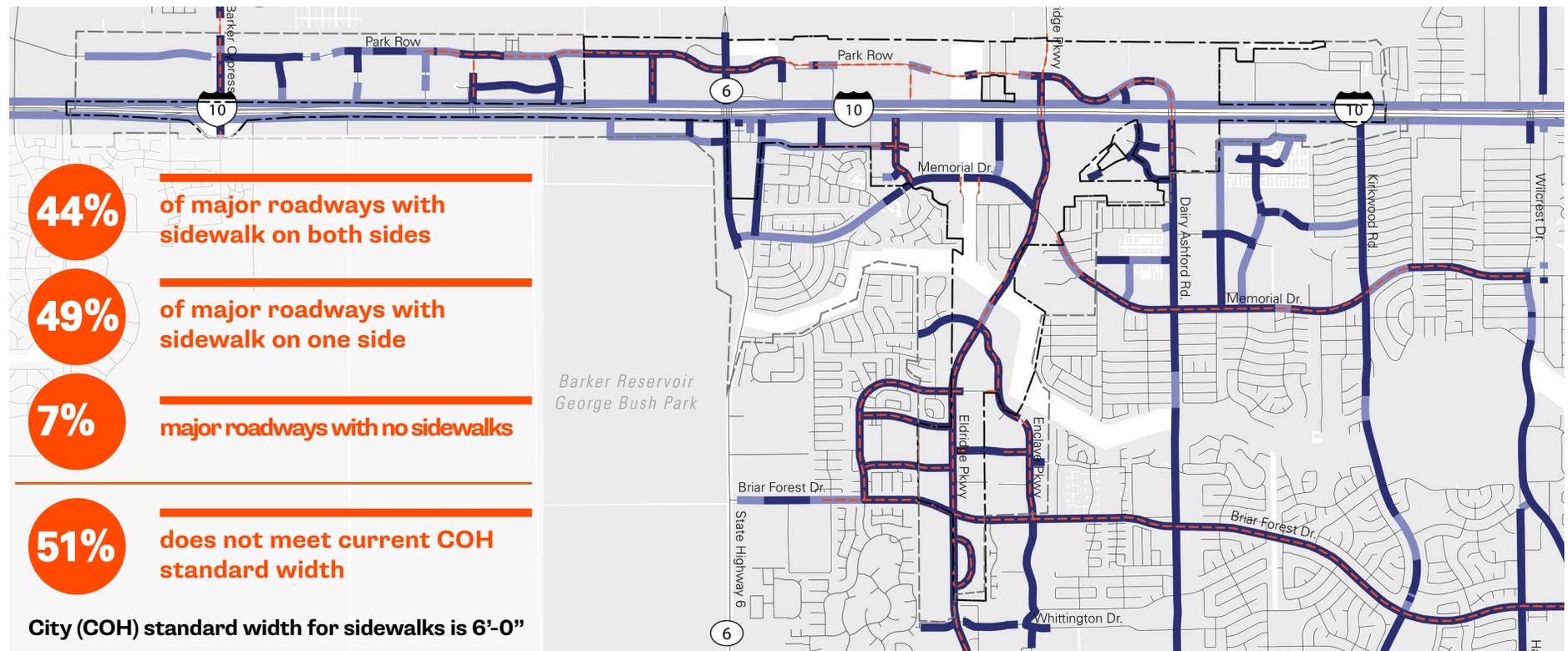
EXISTING SIDEWALKS AND ESPLANADES

With a Walk Score of 32, Energy Corridor is considered predominantly car-dependent, with the pedestrian network disconnected, unsafe and inconsistent. Pedestrians can be found walking along the shoulder of the road or up against high-speed traffic due to a lack of adequate vegetative buffer. At times, sidewalks may be limited to one side of the roadway as illustrated in the map below. The DSG will address these needs as well as the comfort and level of service for pedestrians.

Esplanades, or medians, are commonplace in the Corridor providing ample tree shade along streets such as Eldridge and Park Row. The Design Standards and Streetscape Guidelines will require medians to be upgraded particularly at intersections and in regards to green infrastructure and tree maintenance. Opportunities to potentially minimize vehicular lane widths and accommodate other multimodal functions in the right-of-way are optimal to increase level of service and access.

Legend | Sidewalks + Esplanades

- Sidewalk on Both Sides
- Sidewalk on One Side
- - - Esplanade

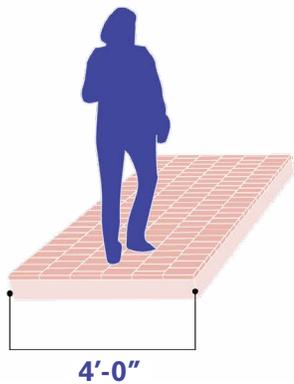




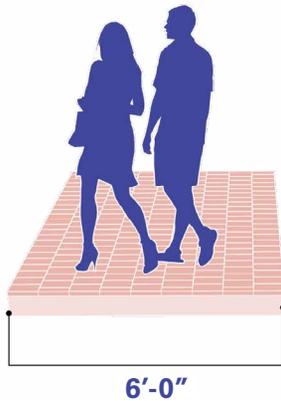
City of Houston standard width for sidewalks is 6'-0"



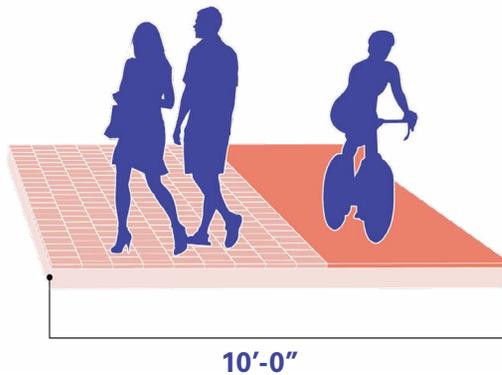
Previous City of Houston sidewalk Minimum



Today's City of Houston sidewalk Minimum



Optimal Sidewalk Minimum for a shared use path



Spatial Opportunities for Sidewalk Capacity

More than half of the sidewalks along arterial roads and collectors (identified in the baseline inventory) do not meet current City standards of 6'-0" or more. A 4'-0" width sidewalk (permitted as AASHTO minimum and previously a COH standard) often force pedestrian near or on roadways. The minimum width of 6'-0" allows pedestrian traffic to flow continually in either direction. In areas with high foot traffic, an 8'-0" is optimal particularly near retail, schools or parks. On high speed roadways, a shared use path is also an opportunity to accommodate a bike route behind the curb rather than on-street; the recommended minimum width is 10'-0". See page 69 for *Sidewalk Zone Standards and Guidelines*.

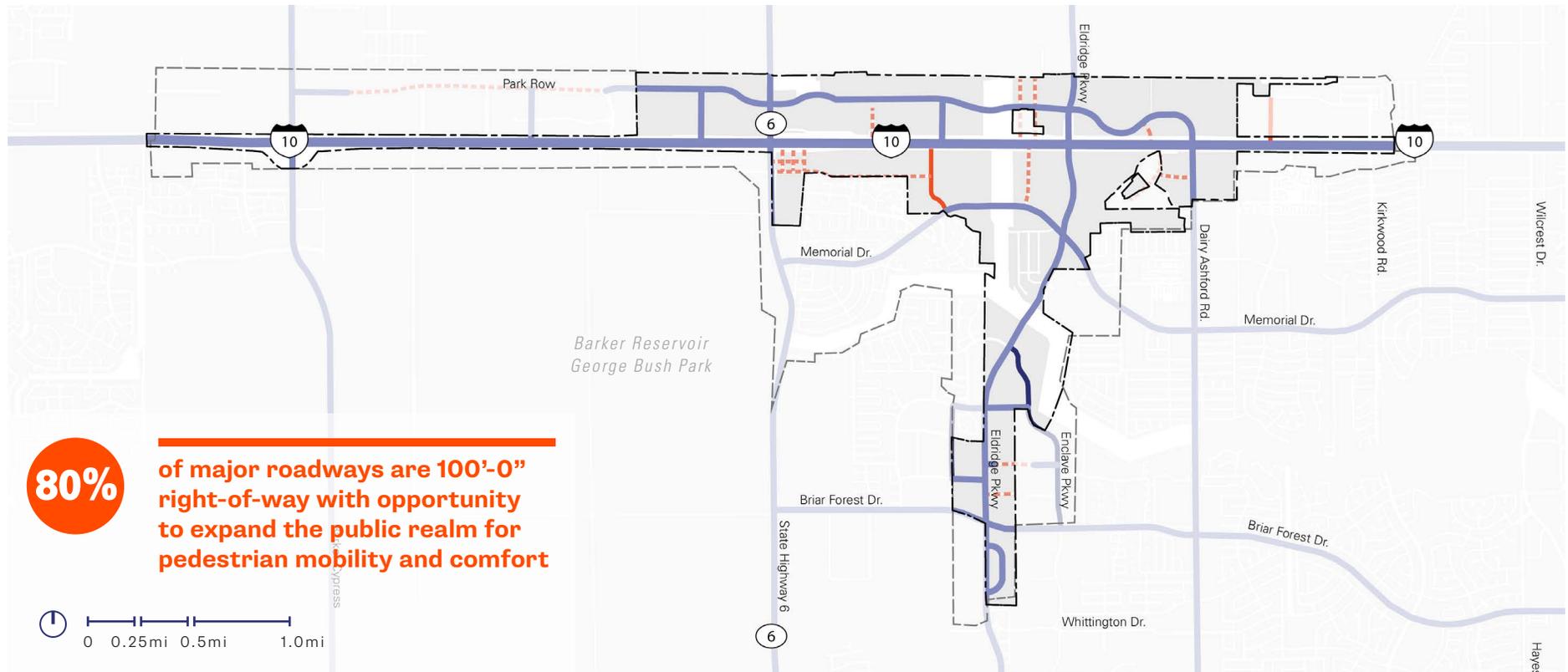
ROADWAY CAPACITY

Right-of-way (ROW) Widths

The right-of-way (ROW) widths are essential in understanding capacity for vehicles and its balance with the pedestrian public realm (namely the space between the curb and private property). Being able to design streets that better prioritize safe mobility and access for residents and visitors in the District warrants exploring opportunities in the right-of-way. Not all streets are one-size-fits-all, and as a part of the inventory, the team documented the right-of-way widths for all major arterial roads, thoroughfares and collectors. This, paired with capacity and constraints in the current multimodal systems, will inform Standards and Guidelines that characterize commercial roads differently than residential roads, or characterize a 60'-0" right-of-way (ie: Grisby Road) differently than a 100'-0" right-of-way (ie: Eldridge Parkway).

Legend | ROW widths

- 60' - 80'
- 80' - 90'
- 90' - 100'
- 100' and More



Average Daily Trips (ADT) + Traffic Capacity

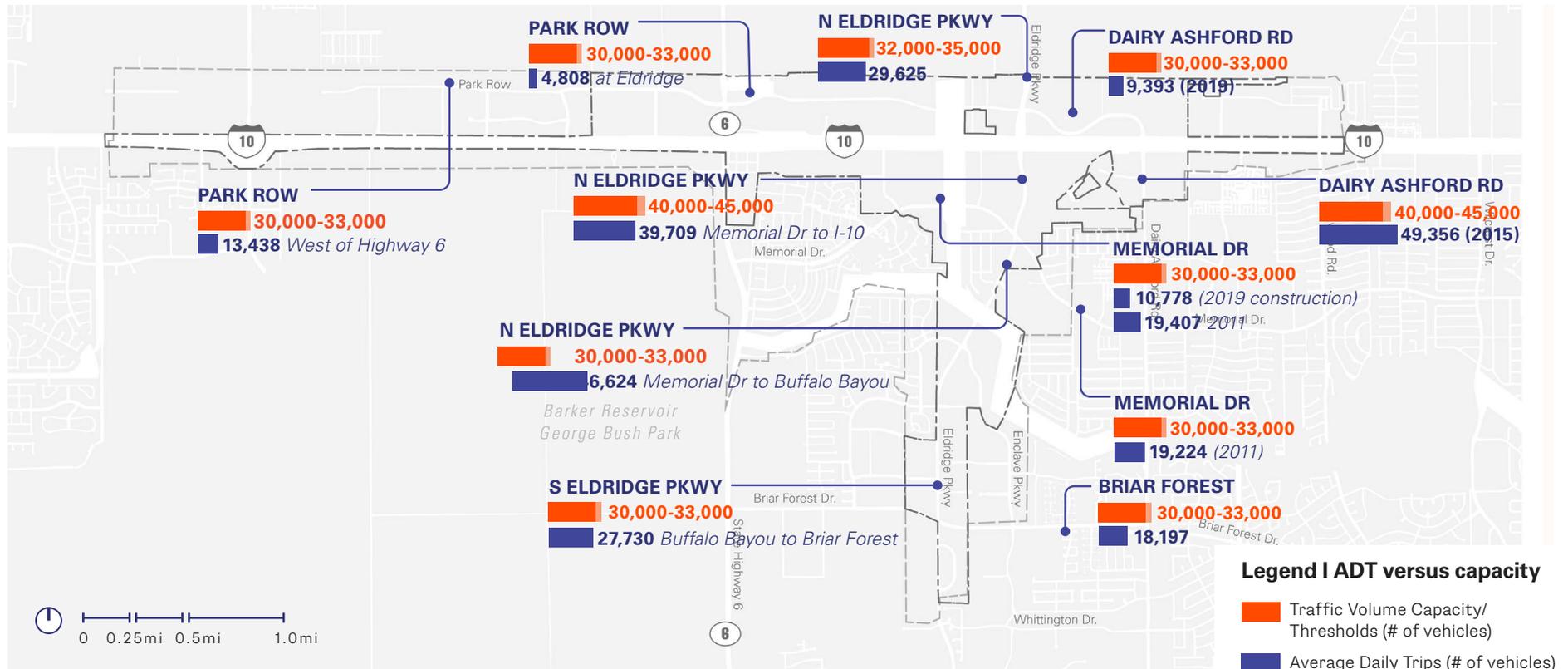
Review of traffic counts along major thoroughfares compared to the capacity of each roadway shows that several roadways have excess capacity (counts gathered pre-COVID). The team found that with the exceptions of Eldridge Parkway and Dairy Ashford Road (St. Marys Lane to Interstate 10), the capacities of the roadways within Energy Corridor are greater than the ADT. This excess capacity supports right-sizing the roadway and repurposing the reclaimed vehicular space for pedestrians and cyclists when appropriate.

City of Houston Volume Thresholds

Based on national research and observations in the Houston area, the following volume thresholds have been established to determine capacity needs for planning purposes.

ADT, veh/day	2-Lane Road	4-Lane Road	6-Lane Road
Maximum Throughput to maintain reasonable LOS (level of service)	14,000-16,000	30,000-33,000	40,000-45,000

The provided volume thresholds are used as a guideline to ensure adequate number of lanes is planned for a corridor. For example, if the projected Average Daily Traffic (ADT) for a new roadway connection is 18,000 vehicles per day, the table above indicates that a 4-lane cross section will be required.



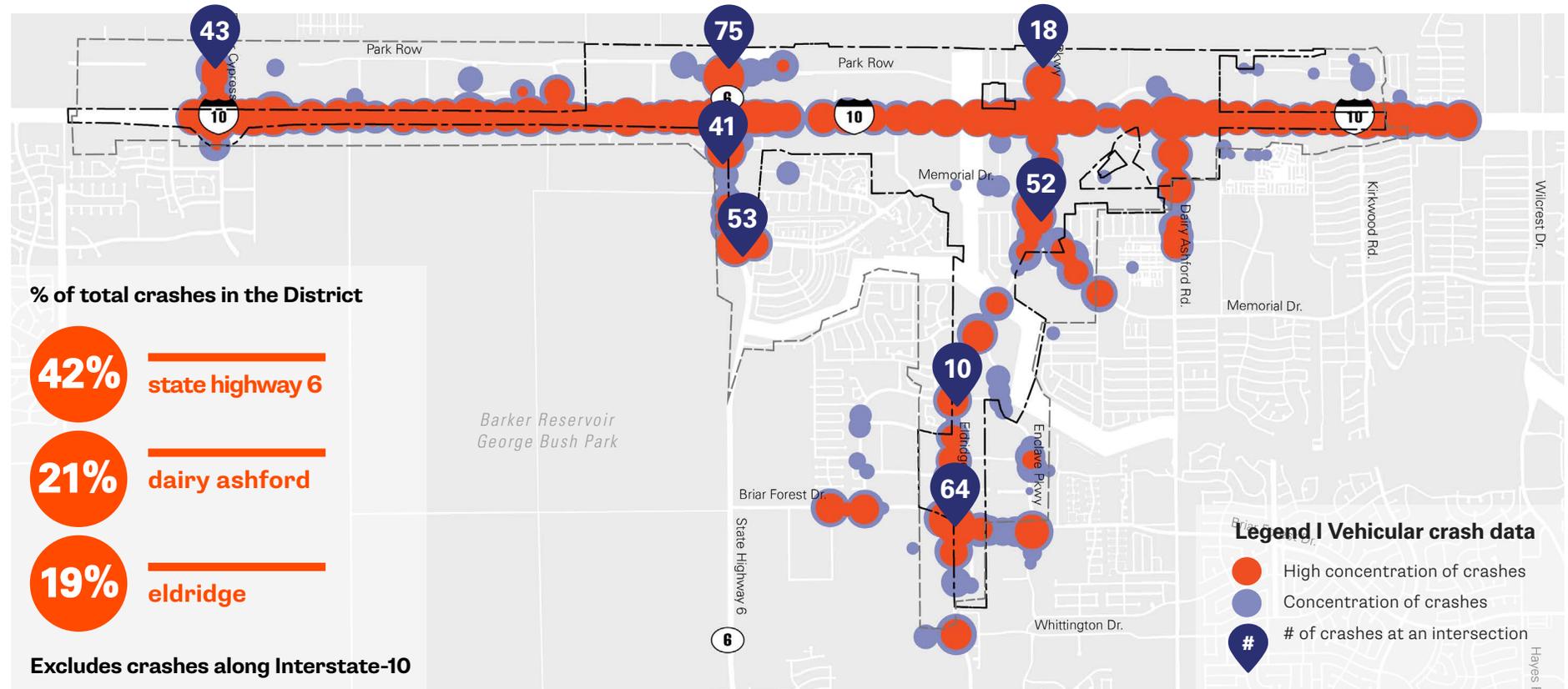
CRASH ANALYSIS

Vehicular Crash Data (2019-2021)

Review of vehicular crash data shows several hot spots for crashes throughout the Energy Corridor. These locations include State Highway 6, Eldridge Parkway, and Dairy Ashford. The majority of crashes are rear-end collisions, crashes at intersections, crashes at driveways, and side-swipes that are consistent with speeding and weaving. These crashes resulted in 7 fatalities across Energy Corridor during the time spanning 2019 to 2021. Aligning with the goals of City of Houston's Vision Zero planning, improvements are needed to help make intersections more visible and reduce collisions.



Memorial/Eldridge intersection, Energy Corridor

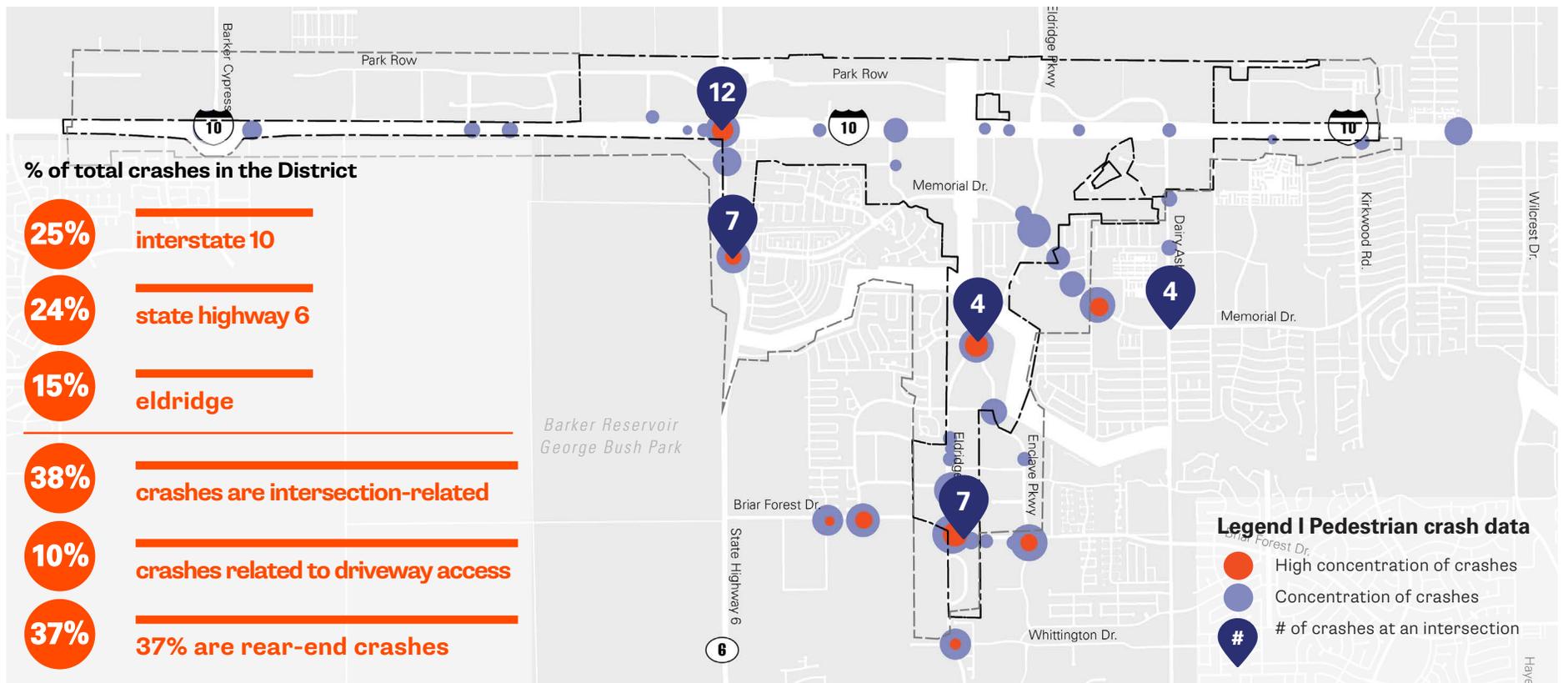


Pedestrian + Bicycle Crash Data (2011-2021)

In our review of vehicular crashes, the team also looked at crashes involving cyclists and pedestrians. For the period between 2011 and 2021, there were nearly 50 crashes involving pedestrians and nearly 30 crashes involving cyclists and are primarily focused along Interstate 10 frontage roads, Eldridge Parkway and State Highway 6. The lack of dedicated facilities for cyclists' contributes to this number of crashes by forcing cyclists into the street or in to shared spaces with pedestrians that are not adequately sized. Crashes involving pedestrians can be related to the condition of sidewalks in the area and lack of adequate pedestrian facilities at signalized intersections.



Sharrow, Memorial and paved paths, Grisby Square, Energy Corridor



KEY NODES AND DESTINATIONS

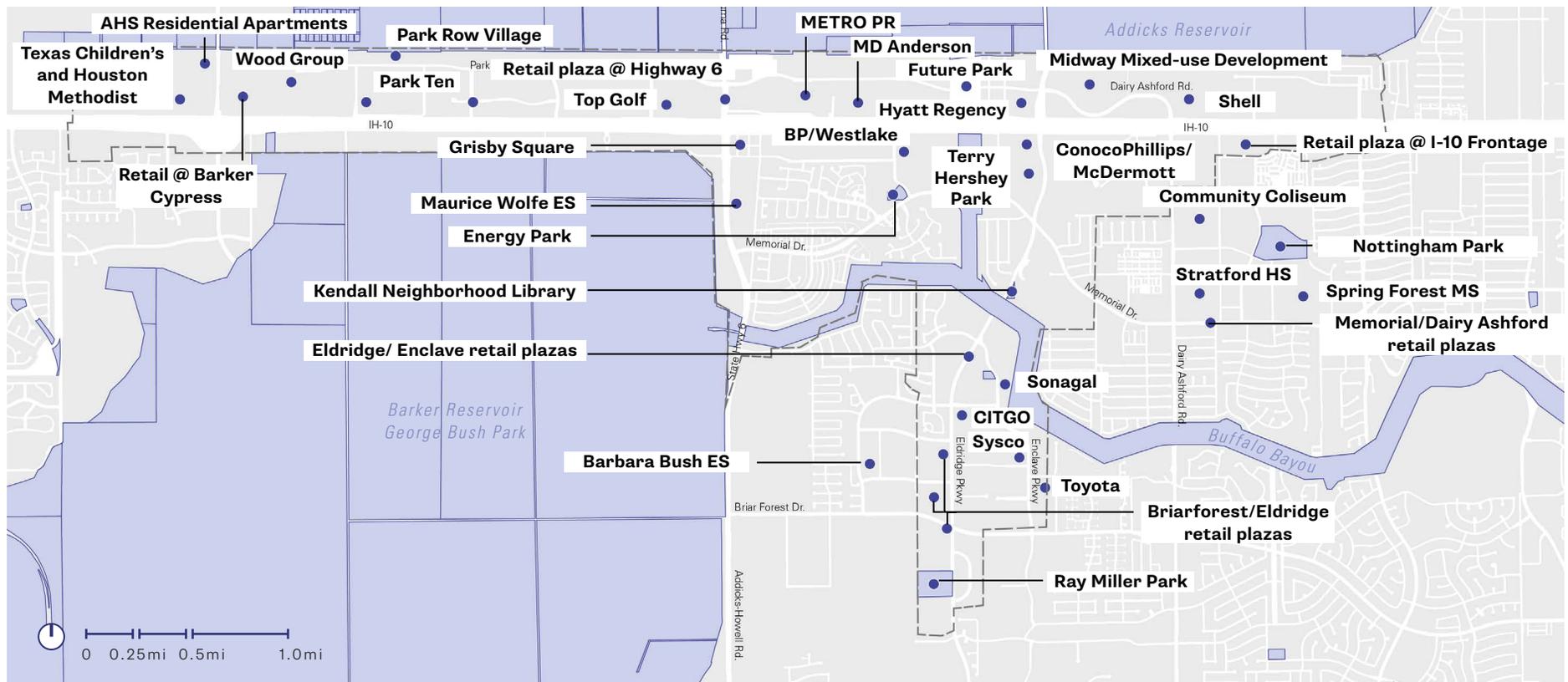
The District has the benefit of a central trail system that provides residents and employees with an off-street pedestrian refuge and recreation. Additionally, there are destinations that fulfill everyday needs such as grocery stores, retail, and schools. Most notable destinations include the METRO Park and Ride, Grisby Square, retail plaza at Briarforest and Eldridge, Terry Hershey Park and Kendall Neighborhood Library.



Terry Hershey Trail, Energy Corridor



Retail at Grisby Square, Energy Corridor

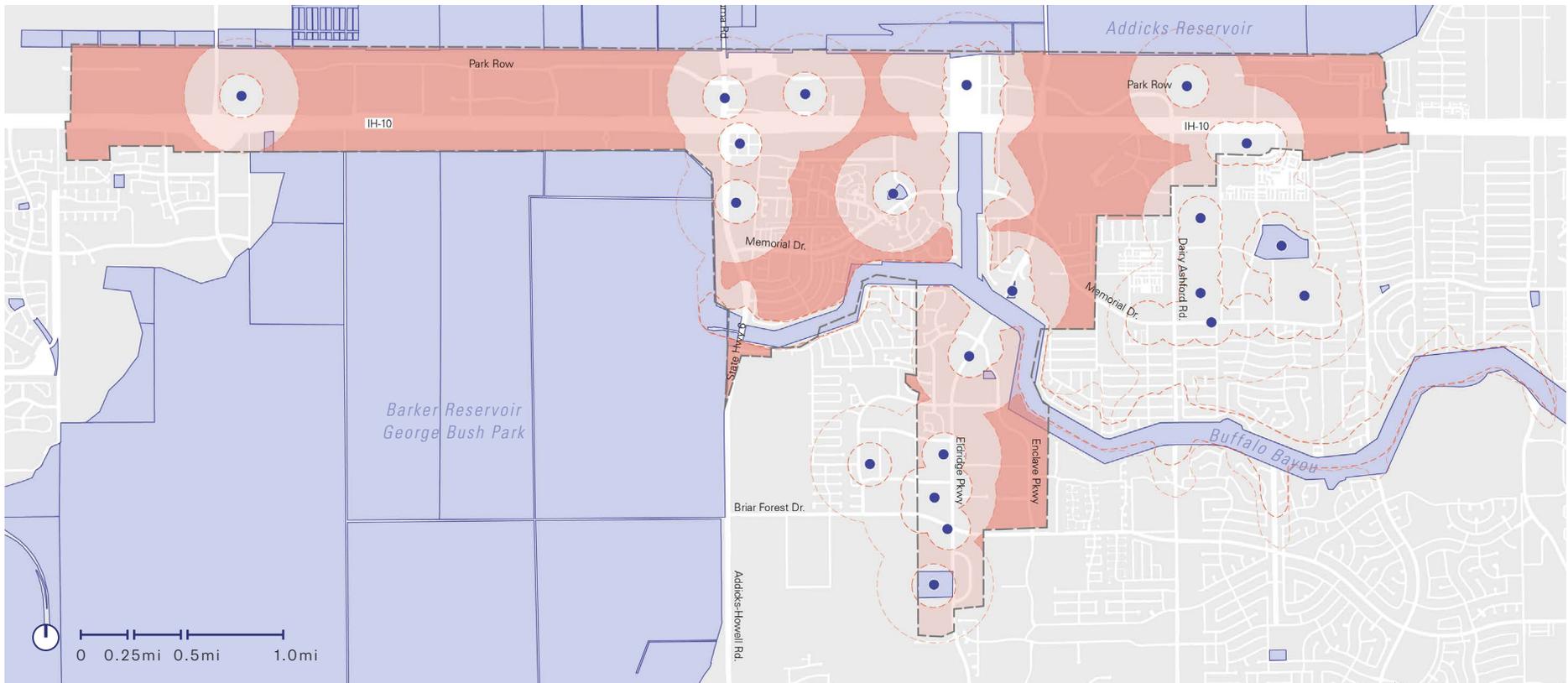


2+5-minute Walking Radius Deficit

From locating notable destinations, the next step is to better understand the level of service within a walking radius. In the context of Houston, a 2- and 5-minute walking radius is a reasonable gauge for pedestrian activity and access. It is clear that most destinations and walking radii are centrally located in the District, making corridors like Eldridge, Memorial, Grisby and Park Row important connectors. The goal is to provide a high level of service and promote access to these nodes via key streets that are critical to minimizing current gaps in the pedestrian network. Standards and Guidelines will consider steps to provide shade, widen sidewalks, promote activated frontages, foster low impact development and encourage better transit conditions along identified connectors.

Legend | Walking radius

- 5-minute walking radius deficit
- 2-minute walking radius deficit
- Parks and open space
- Destinations







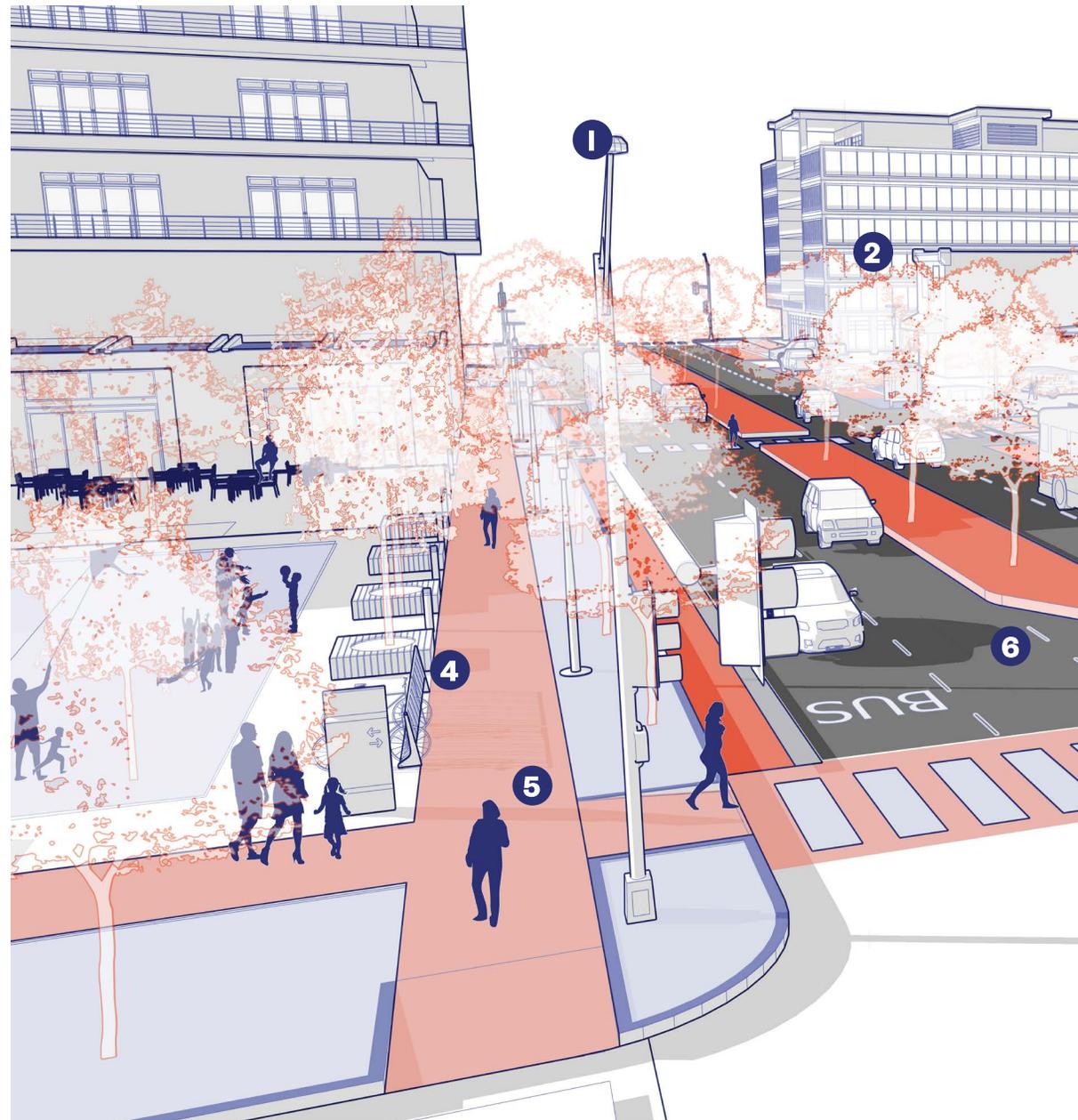
streetscape opportunities

Building on the baseline analysis, this chapter outlines the approach and methodology for the Design Standards and Streetscape Guidelines. This framework will not only start to guide the standardization for each toolkit element referred to on page 44-45 (ie: sidewalks, green spaces, etc) but it is critical to develop a structure that specifies which streets receive what treatments. The method first identifies destinations in the District that are currently inaccessible or requires improved pedestrian access. Streets that link these nodes are then prioritized according to their existing assets and level of importance. In subsequent sections, Standards and Guidelines are applied according to their level of improvement and ease of implementation (basic - recommended - best practice).

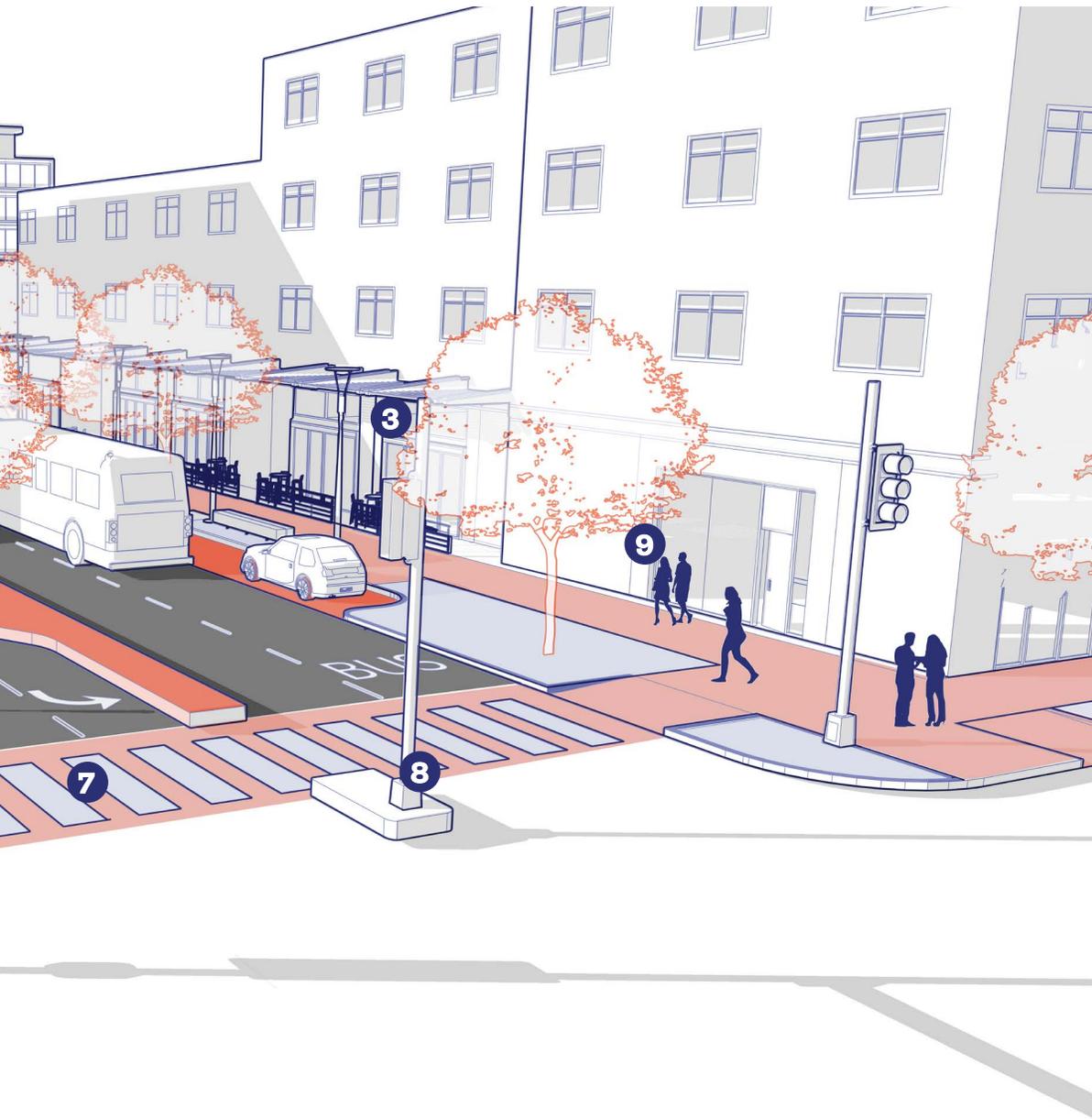
SECTION C

THE PUBLIC REALM TOOLKIT

The public realm toolkit defines elements in the right-of-way and adjacent to the right-of-way that are subject to improvements and standardization. These elements include everything from lighting, roadway design and sidewalks to street amenities and planting/green spaces. The goal is to design and position these elements within the public realm to build consistency, create that sense of place for the District and establish a safe environment for all streetscape users. The depicted image illustrates best practices in streetscape standards that determine the size, type, location and character of each element in relation to other elements in the public and private realm. And, although much of the toolkit speaks to the public realm, guidelines for private realm are suggested.



The image to the right is a stylistic representation of Complete Streets and does not reflect any one particular street in the District.



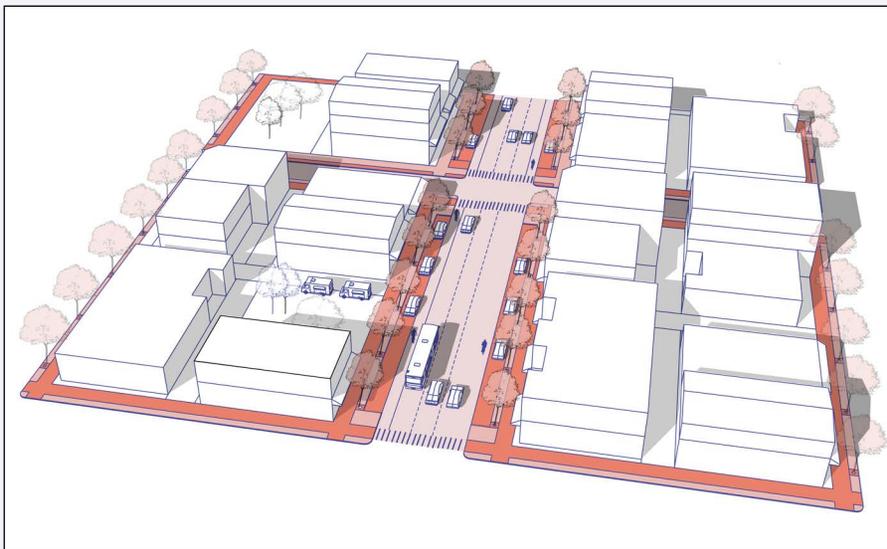
- 
1 Lighting
 Appropriately-spaced lighting, scalable lighting for pedestrians and motorists; use of timed, LED or low energy fixtures.
- 
2 Green Spaces
 Low-impact standards, appropriate soil volume for plantings; sufficient tree coverage.
- 
3 Building Frontage
 Access to ground floor retail; architectural features to activate empty building facades.
- 
4 Street Amenities
 Placement of cafe furniture fronting retail; bike racks; seating and trash bins; tactical pedestrian plazas and parklettes.
- 
5 Sidewalk
 Clear, wide access to various modes of transit; connected sidewalks to building entrances.
- 
6 Roadway Design
 Appropriate roadway widths with clear markings for bike and bus routes and on-street parking; ample buffer to sidewalks.
- 
7 Safe Crossing
 Distinct roadway markings; potential mid-block crossings for large parcels; synchronized traffic signalization.
- 
8 Utilities
 Grounding utilities; clearing sidewalks of obstructions; safer pedestrian transitions.
- 
9 Transit Amenities
 Shaded bus stops with seating, clear wayfinding systems and branded signage.

PUBLIC VERSUS PRIVATE REALM

Smart, appropriately-scaled upgrades are important to realizing high-functioning streetscape environments. The implementation of these efforts enhance the economic, physical and environmental vitality of the District. The implementation process is also key when distinguishing between types of improvements in the public realm versus those in the private realm. It is critical that aesthetic and functional upgrades, multimodal access and safety are achieved throughout the District such that there is a clear symbiotic relationship between the *public* street and *private* development parcels. Below is a description distinguishing parameters in the public and private realm environment.

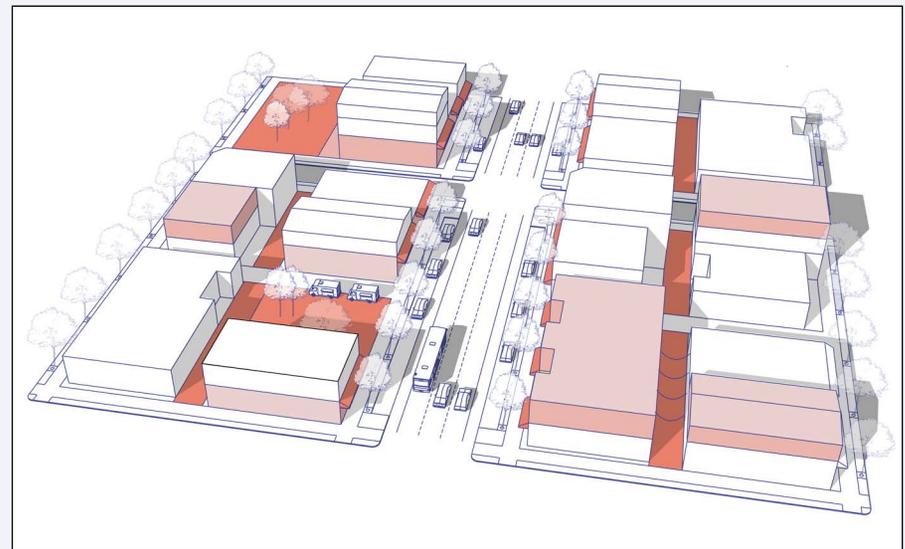
public realm

Public realm investments typically use municipal resources to provide services such as utilities, sidewalks and roads. However, this can be expanded to include vital infrastructure within the right-of-way or public realm; such as bike lanes, bus stops, trails, street trees and parks. Public realm improvements are essential for attracting new development and ensuring that safety, human comfort and emergency access are provided. Both standards that are prescriptive and guidelines that are recommended can be applied. (See [page 64](#) for Standards and Guidelines description).



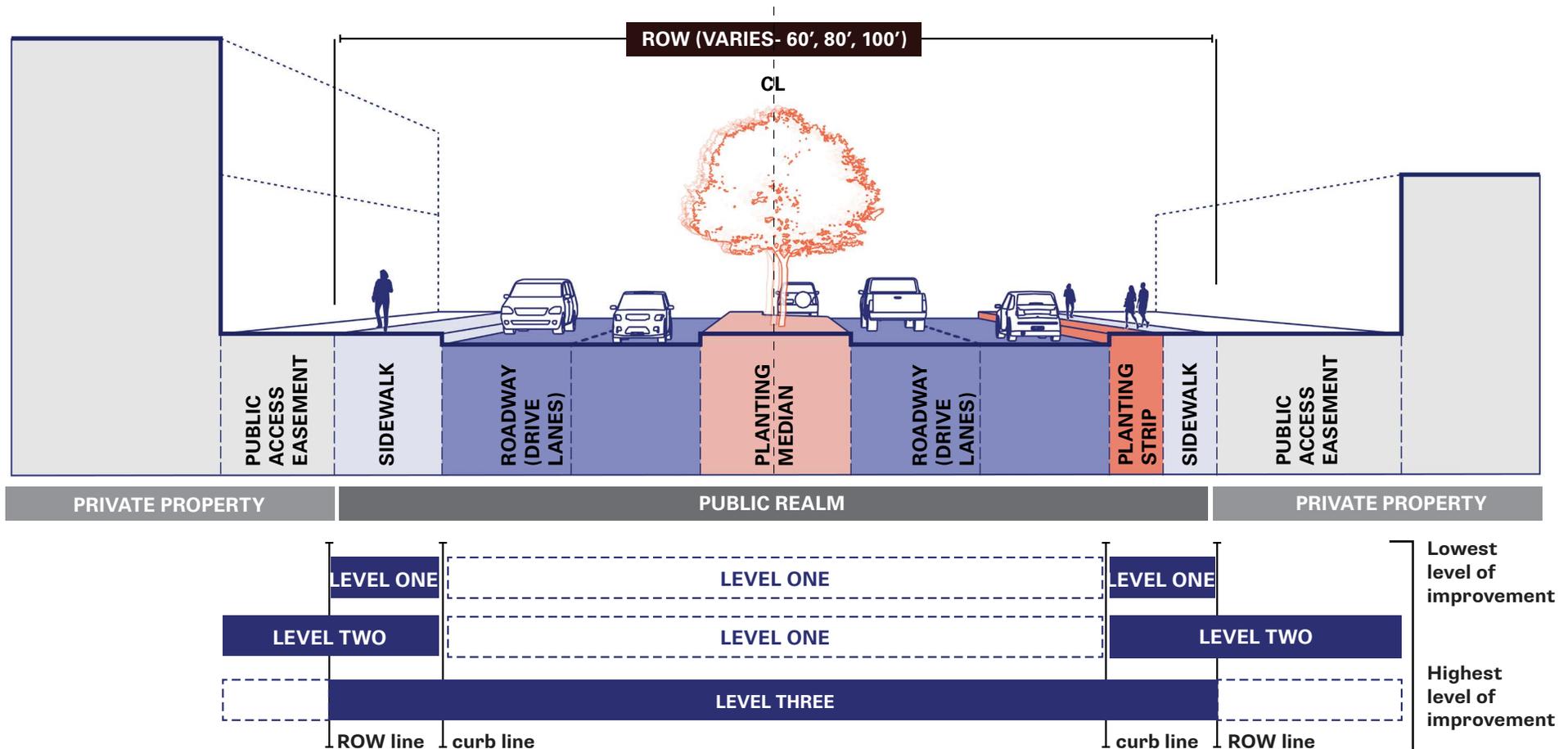
private realm

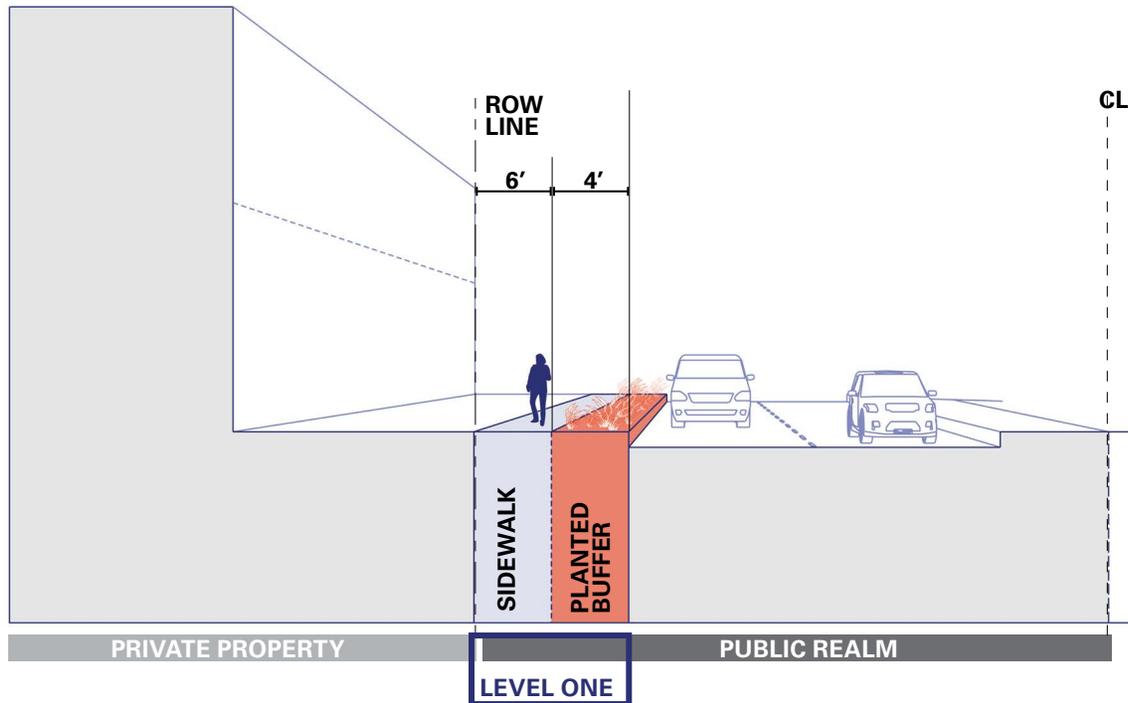
The private realm is often characterized by retail, commercial and residential land uses, and is paid for through private property (developers, private owners, POAs/HOAs). Without a guideline framework, appropriate improvements that respond to population needs and is well-coordinated with the District may not be achieved. In this document, some standards may be applied, but a majority of the recommendations are guideline-driven. (See [page 64](#) for Standards and Guidelines description).



LEVELS OF IMPROVEMENT

The Standards and Guidelines have been developed with consideration to ease of implementation. With a three-level improvement process, a clear, multi-tiered structure gives way to the flexible use of this document. Understanding that one-size does NOT fit all for every streetscape, the levels of improvements approach considers changing conditions in the right-of-way and tools needed for improvements (available funding, partnerships, areas/types of improvements). Level one (L1) is the most basic set of upgrades needed to have a functioning public realm in the back of curb. Level two (L2) considers a set of recommended or moderate upgrades, involving public access easements in agreement with developers or POAs to create a well-balanced, well connected pedestrian-friendly environment. Level three (L3) improvements includes Complete Streets best practices to achieve a high-functioning, multimodal environment using the reconfiguration of the entire right-of-way (including roadway) to gain full access to services and amenities. Note that the eventual design outcome may be the same for L2 and L3 and the differing factor is the scale of investment and types of partnerships involved.





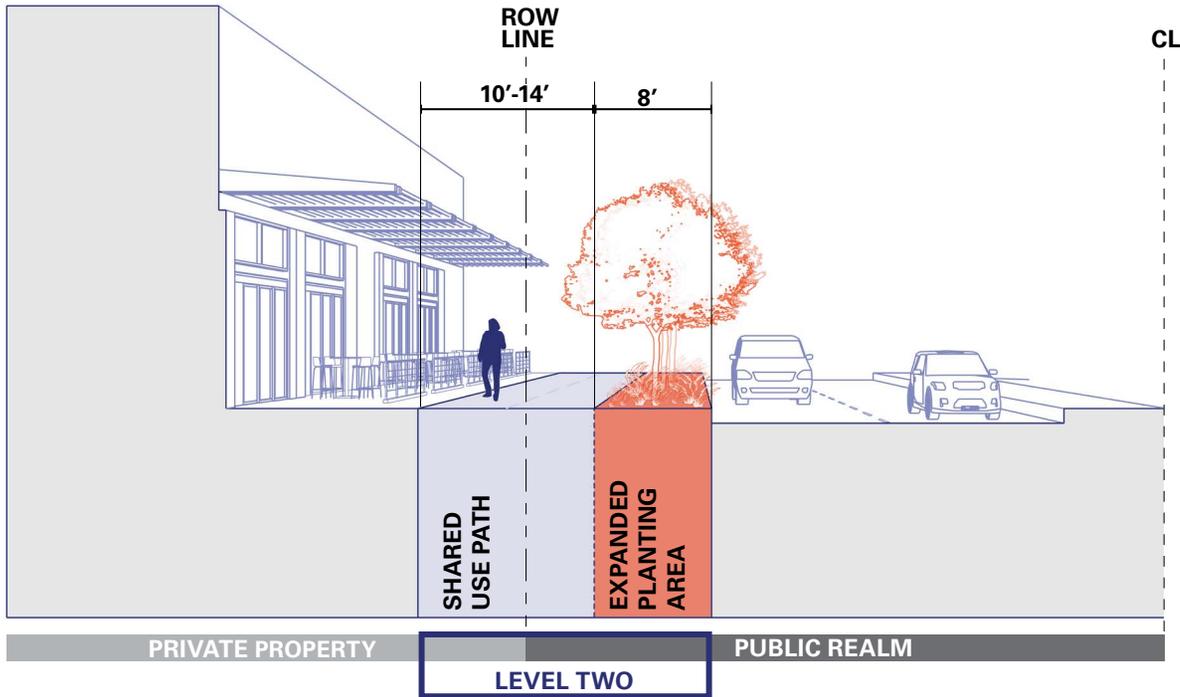
Post Oak Boulevard, Houston, TX

LEVEL ONE (L1) CRITERIA

AREA OF IMPROVEMENT: Back of curb improvements + aesthetic upgrade to road

PARTNER ORGANIZATIONS: District + City

- CRITERIA/GOALS ACHIEVED:**
- 
Sidewalks: Sidewalks on a level one improvement must be expanded to at least 6'-0" as per City standards.
 - 
Green spaces: Planted buffers behind the curb should be enhanced to include diverse trees, native plants and groundcover. The zone should also be expanded to a minimum of 6'-0" if possible. If not possible, expand the sidewalk zone to the curb line and provide low vertical elements such as hard curbs to demarcate pedestrian zone from vehicular traffic.
 - 
Utilities: Utility lines and pipes as well as surface-mounted utilities, if above ground, should align in the planted buffer zone where possible. Sidewalks should be clear of any obstructions.
 - 
Lighting: Roadway lighting should be spaced appropriately and coordinated with the City to utilize LED fixtures; fixtures must also align with utilities and tree lines in the planted buffer zone.
 - 
Roadway Design: Roadway design should ensure roadway markings are clearly defined; this includes pedestrian crossing in school zones and at intersections. If a median is present, additional native trees and groundcover may be planted for aesthetic and functional appeal.



Shared Use Path, Lafitte Greenway, New Orleans, LA

LEVEL TWO (L2) CRITERIA

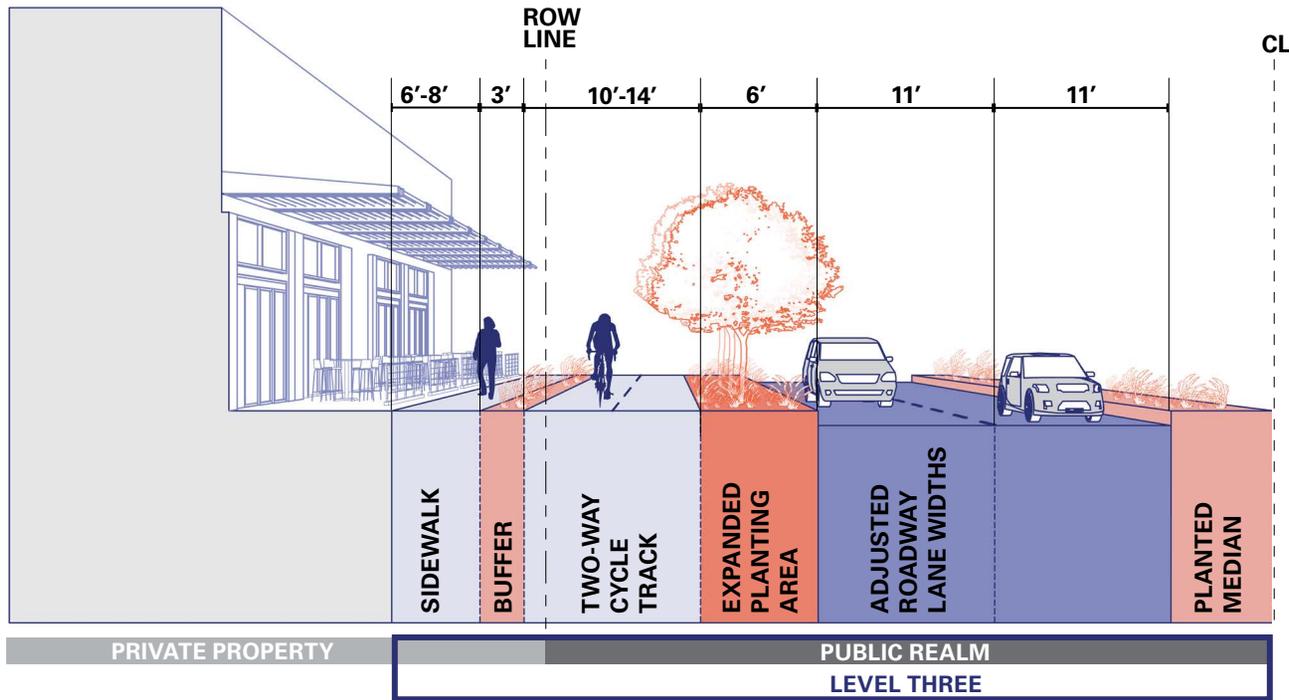
AREA OF IMPROVEMENT: Back of curb + public access easement improvements

PARTNER ORGANIZATIONS: District, City + Developers/POAs

CRITERIA/GOALS ACHIEVED:

General: Level two improvements **include criteria from level one and promote additional enhancements listed below.**

-  Sidewalks: Sidewalks should be widened to a minimum of 8'-0" to accommodate two-way pedestrian traffic. Where applicable, additional widening must occur to house a shared use path for bike routes and pedestrian trails behind the curb.
-  Green spaces: Planting areas should be widened to incorporate stormwater planting, rain gardens, bioswales and additional shade (native) trees with appropriate soil volumes.
-  Lighting: Lighting should consider incorporating pedestrian lighting adjacent to sidewalks that is appropriately spaced.
-  Activated frontage: Where applicable along commercial streets, buildings should be brought closer to the right-of-way line; retail should provide outdoor furniture in the building transition zone to activate frontage and bring visual and social interest to the public realm.
-  Street amenities: Amenities such as benches and trash receptacles should be allocated in the expanded planting zone or along the front or back edges of the expanded sidewalk zone, improving the pedestrian experience.
-  Transit amenities: Transit amenities such as bike racks and enhanced bus shelters should be housed along transit or bikeway corridors.



***Notes:** Some improvements noted in level two maybe more applicable to level three improvements. Level three improvements may not always require participation from private development partners if best practice is achieved in the right-of-way, or if a public access easement is not possible.

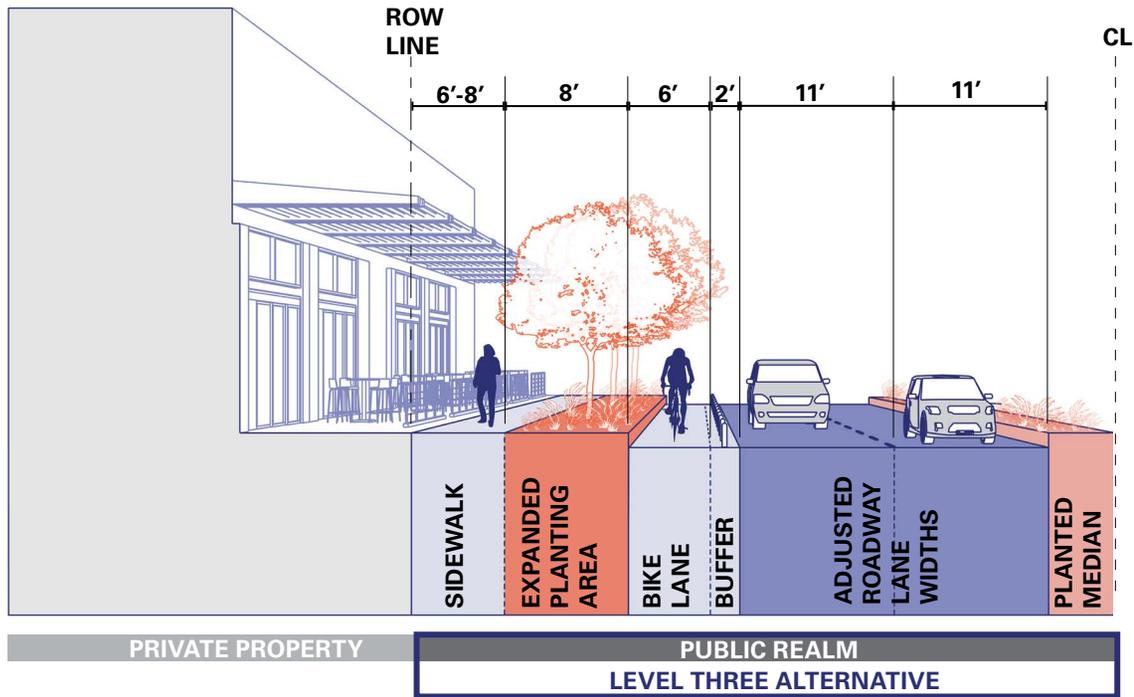
LEVEL THREE (L3) CRITERIA

AREA OF IMPROVEMENT: Roadway, back of curb + public access easement improvements (if and when applicable)

PARTNER ORGANIZATIONS: District + Developers/POAs + City (if and when applicable)

CRITERIA/GOALS ACHIEVED: General: Level three improvements **include criteria from level one + two and promote additional enhancements listed below.**

-  **Sidewalks:** Sidewalks should be widened to a minimum of 8'-0" to accommodate two-way pedestrian traffic. Where applicable, additional widening must occur to house a shared use path for two-way bike routes and pedestrian trails behind the curb.
-  **Utilities:** Above ground utilities should be buried when possible for additional tree coverage, access and human comfort. Where applicable, additional widening must occur to house a shared use path for two-way bike routes and pedestrian trails behind the curb.
-  **Roadway Design:** Roadway design will promote structural and dimensional change that could result in reduced lane widths and reduced median widths to accommodate other multimodal functions such as a designated bike lane, dedicated on-street parking, bus lane, shared use path or additional sidewalk space.
-  **Green spaces:** As a result of roadway adjustments, space may be available to create pocket parks or plazas in the sidewalk space to promote pedestrian leisure and activity particularly at District destinations or points of interest.
-  **Street amenities:** Enhanced signage for pedestrian navigation and District branding should be applied along major, notable thoroughfares.



Boston Complete Streets, MA

LEVEL THREE (L3) ALTERNATIVE CRITERIA

AREA OF IMPROVEMENT: **Public Right-of-way only**

PARTNER ORGANIZATIONS: **District + City or other public agencies**

CRITERIA/GOALS ACHIEVED: **General:** Level three alternative improvements **include criteria from level one + two and promote additional enhancements listed below.** However, improvements only occur in the right-of-way with public partners. In addition, the space between the curb and adjustments of curbs to accommodate amenities and alternative modes of transport are likely to occur.



Utilities: Above ground utilities should be buried when possible for additional tree coverage, access and human comfort.



Roadway Design: Roadway design will promote structural and dimensional change that could result in reduced lane widths and reduced median widths to accommodate other multimodal functions such as a designated bike lane, dedicated on-street parking, bus lane, shared use path or additional sidewalk space.



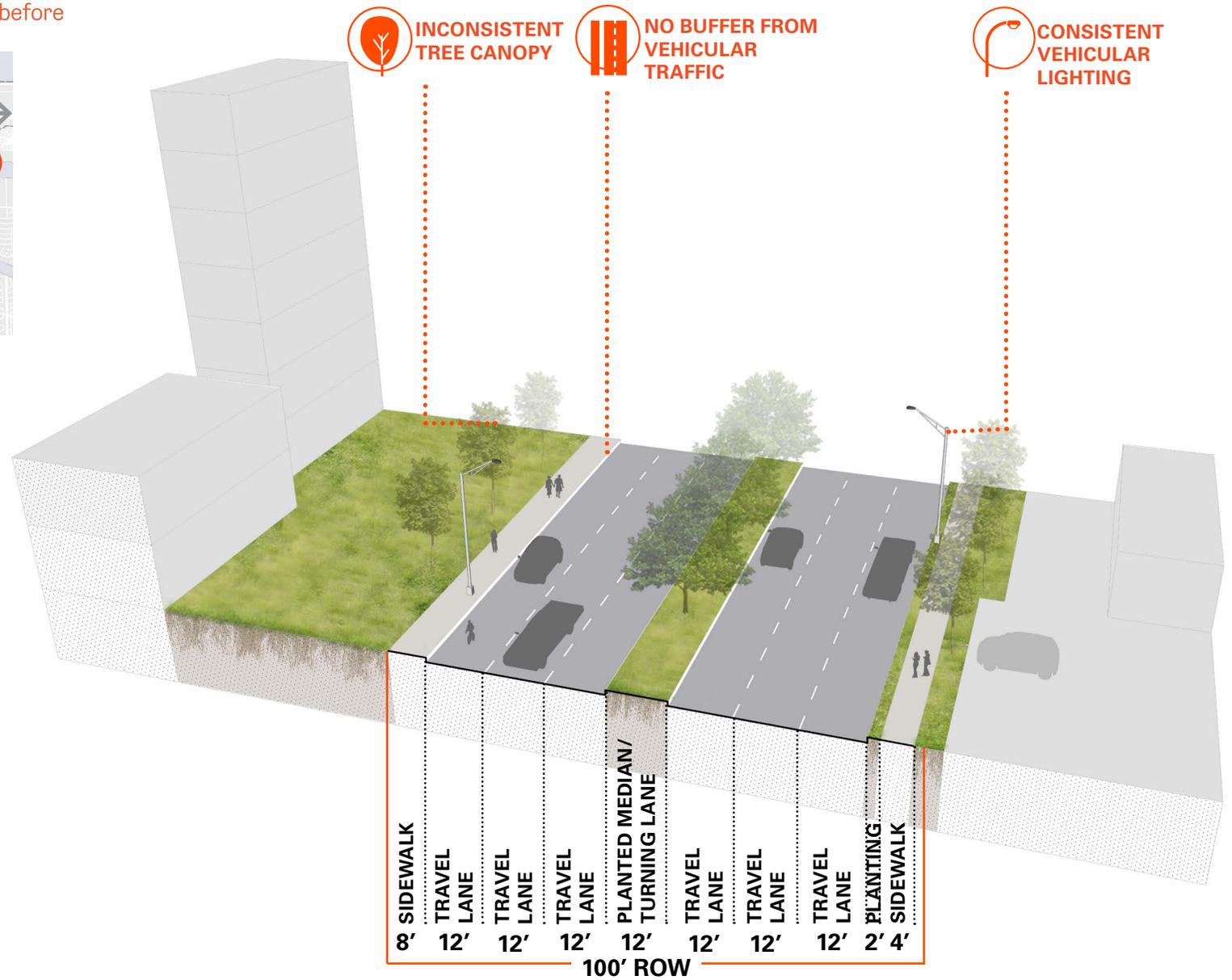
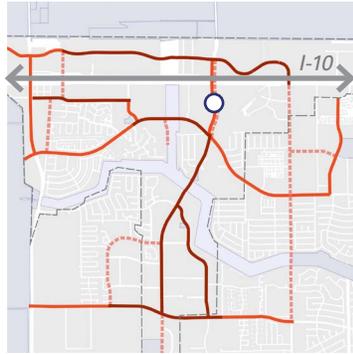
Green spaces: As a result of roadway adjustments, space may be available to create pocket parks or plazas in the sidewalk space to promote pedestrian leisure and activity particularly at District destinations or points of interest.



Street amenities: Enhanced signage for pedestrian navigation and District branding should be applied along major, notable thoroughfares.

IMPACTS OF IMPROVEMENTS: NORTH ELDRIDGE SCENARIO

North Eldridge Parkway *before*

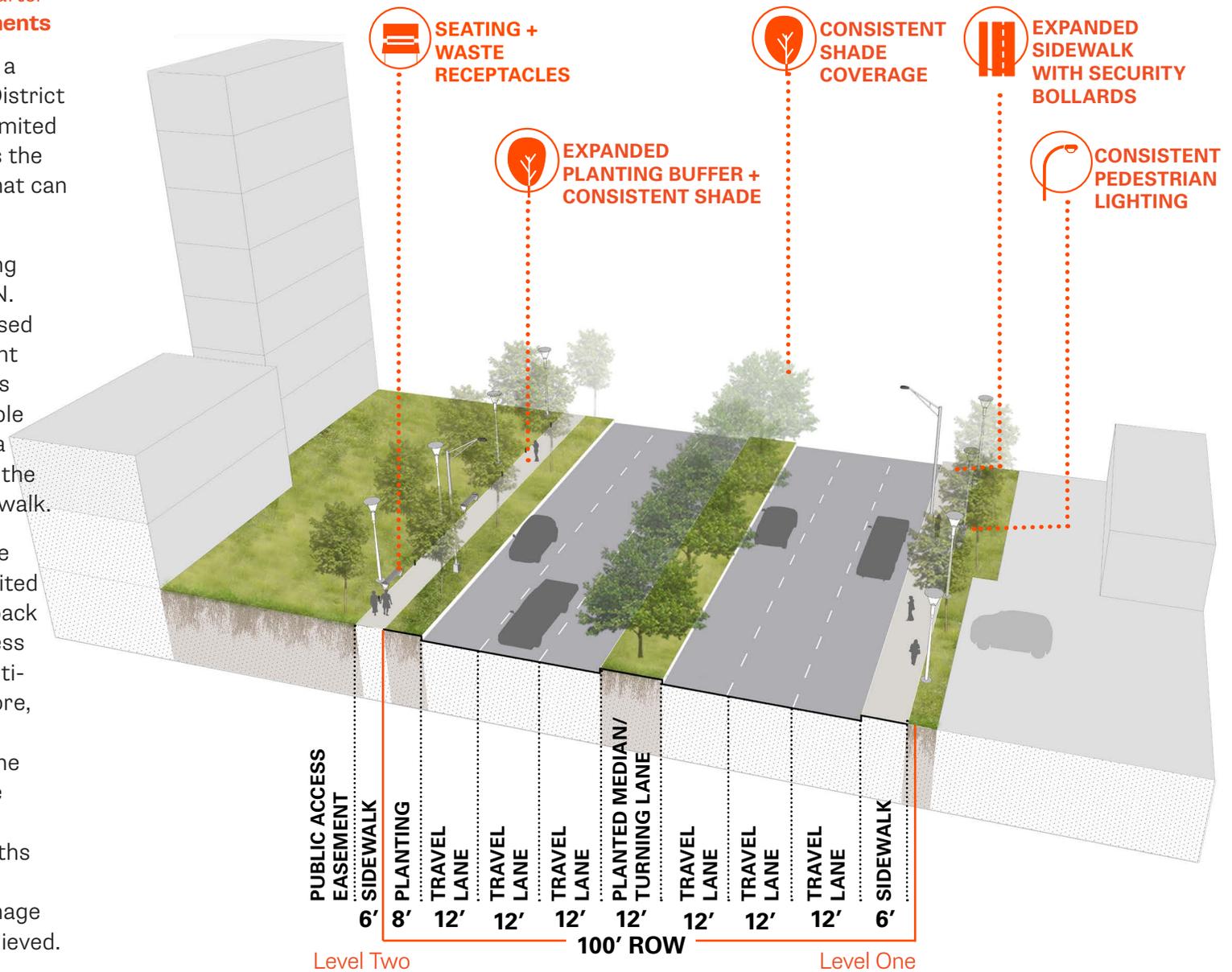


North Eldridge Parkway after Level One/Two Improvements

North Eldridge Parkway is a major arterial linking the District to the I-10 Freeway. The limited back of curb space affects the extent of improvements that can be adopted.

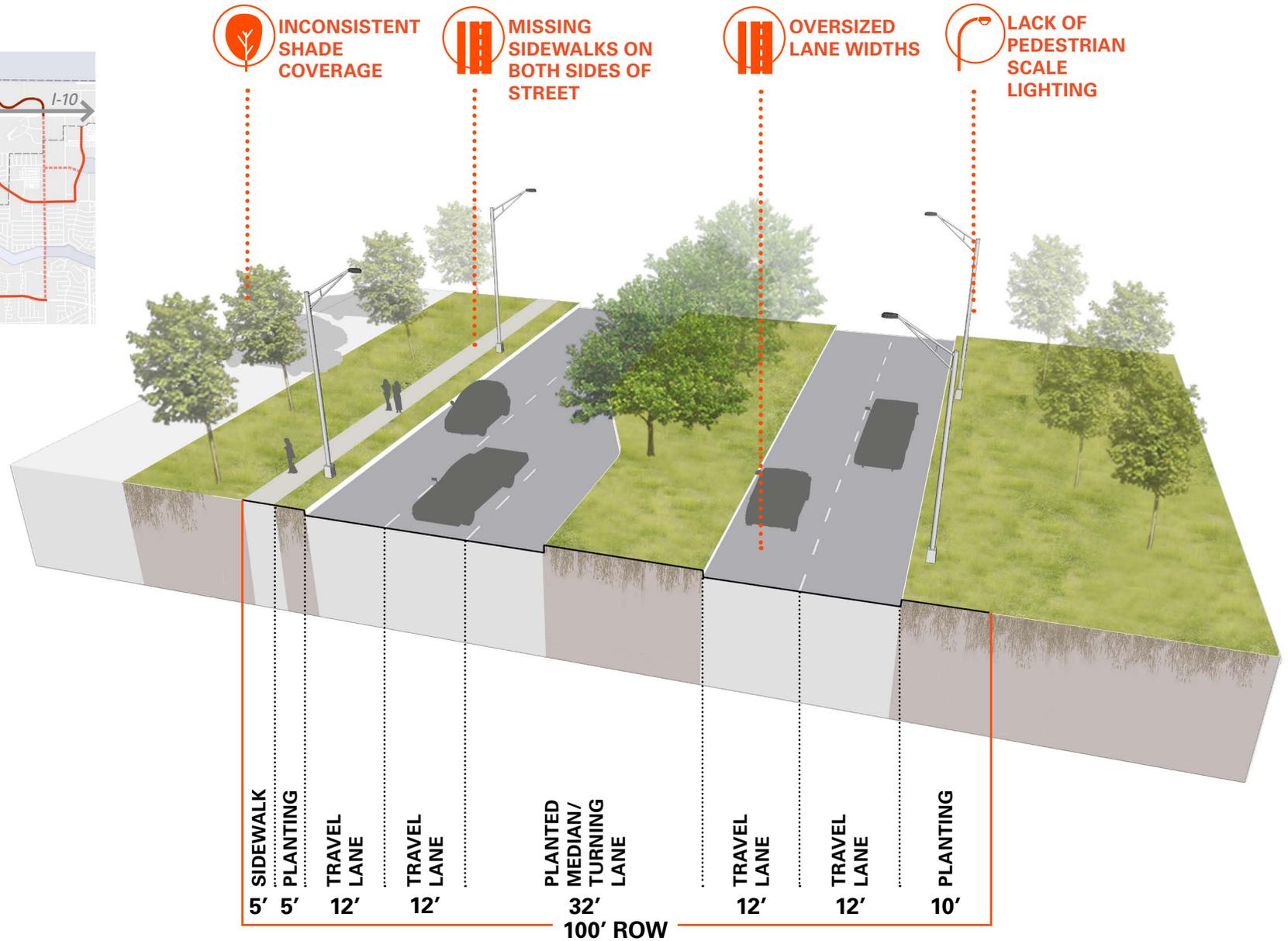
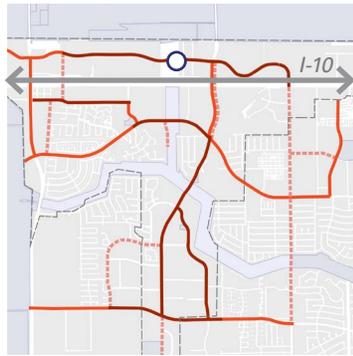
With a considerable building setback, the west side of N. Eldridge Parkway is proposed as a Level two improvement allowing for a public access easement. This would enable the District to implement a planting buffer protecting the pedestrians along the sidewalk.

The east side of N. Eldridge Parkway, however, has limited opportunities both in the back of curb and for public access easements in adjacent multi-owned properties. Therefore, this side of the roadway is better suited for a Level one improvement where at the very least, City standards for adequate sidewalk widths would need to be met. Additional lighting and signage enhancements may be achieved.



IMPACTS OF IMPROVEMENTS: PARK ROW SCENARIO

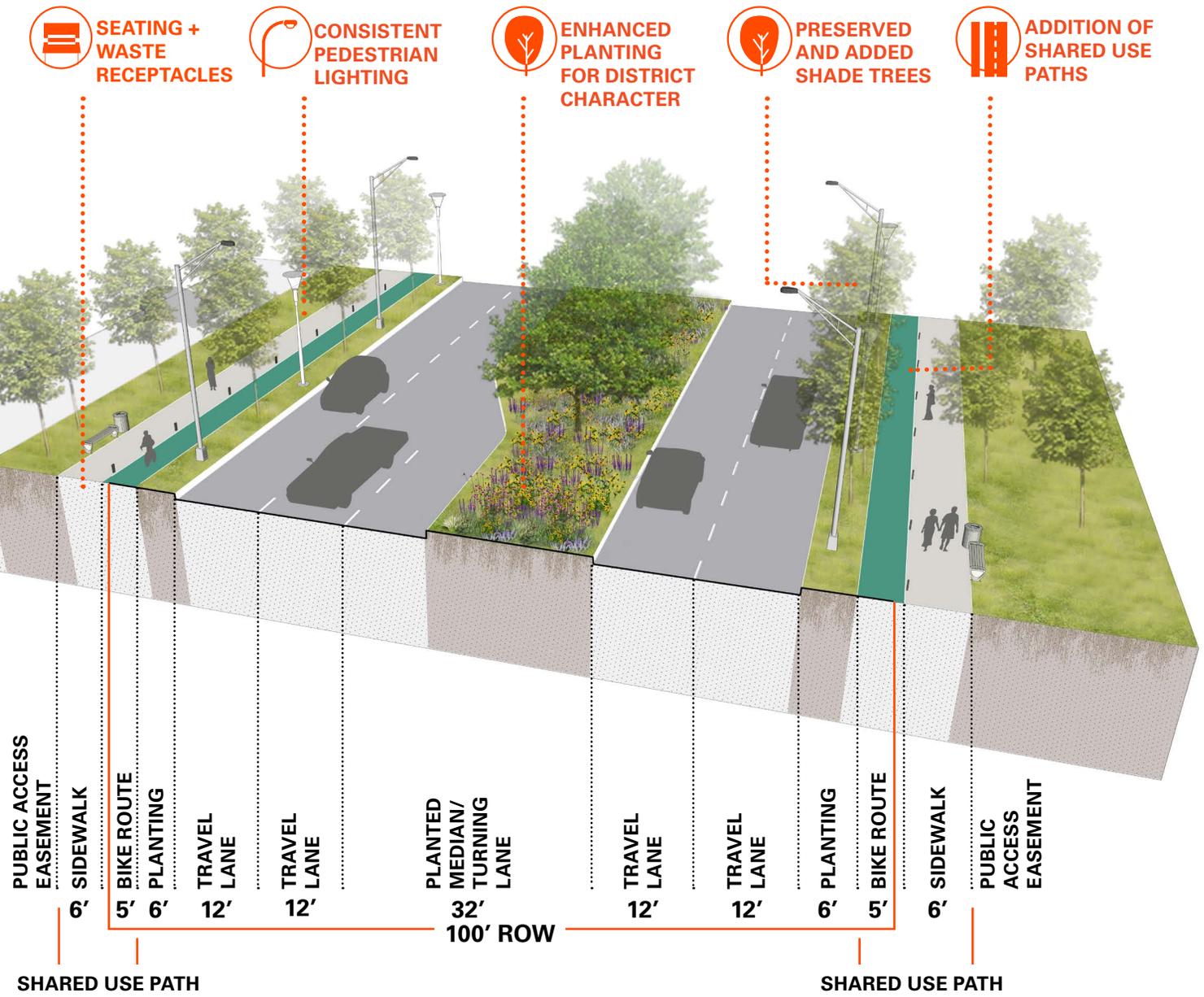
Park Row *before*



**Park Row after
Level Two Improvements**

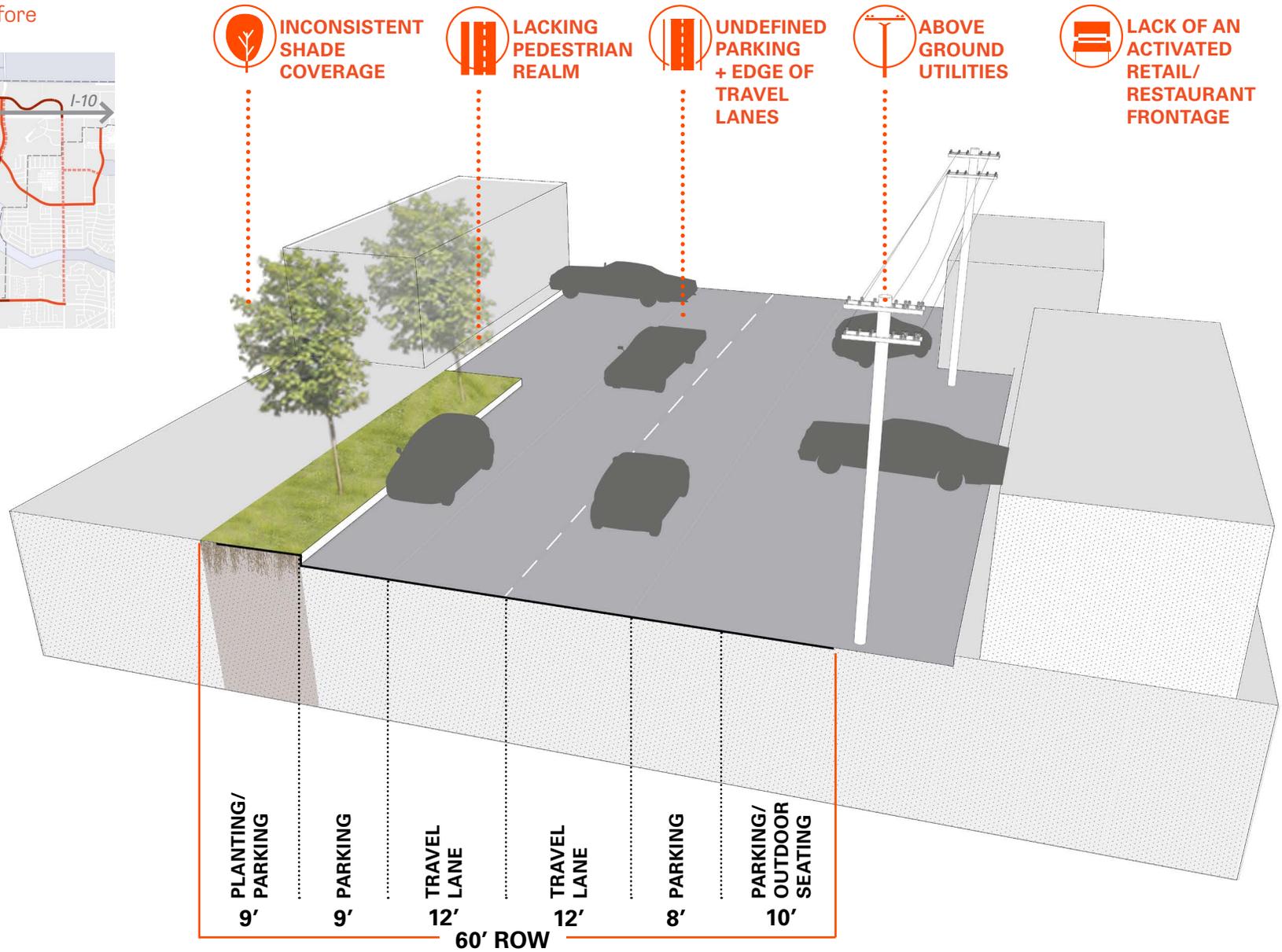
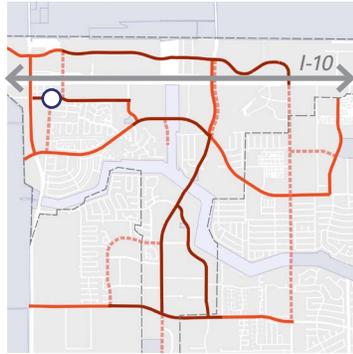
Recently-completed Park Row implemented improvements to create some consistency in basic streetscape amenities. Adjacent uses on Park Row have setbacks that allow for a potential public access easement.

A Level two improvement is recommended for Park Row to accommodate an active pedestrian realm via a shared use path, improved signage, lighting and green space and added street amenities (ie: trash receptacles, bike racks, benches, median bioswales, etc).



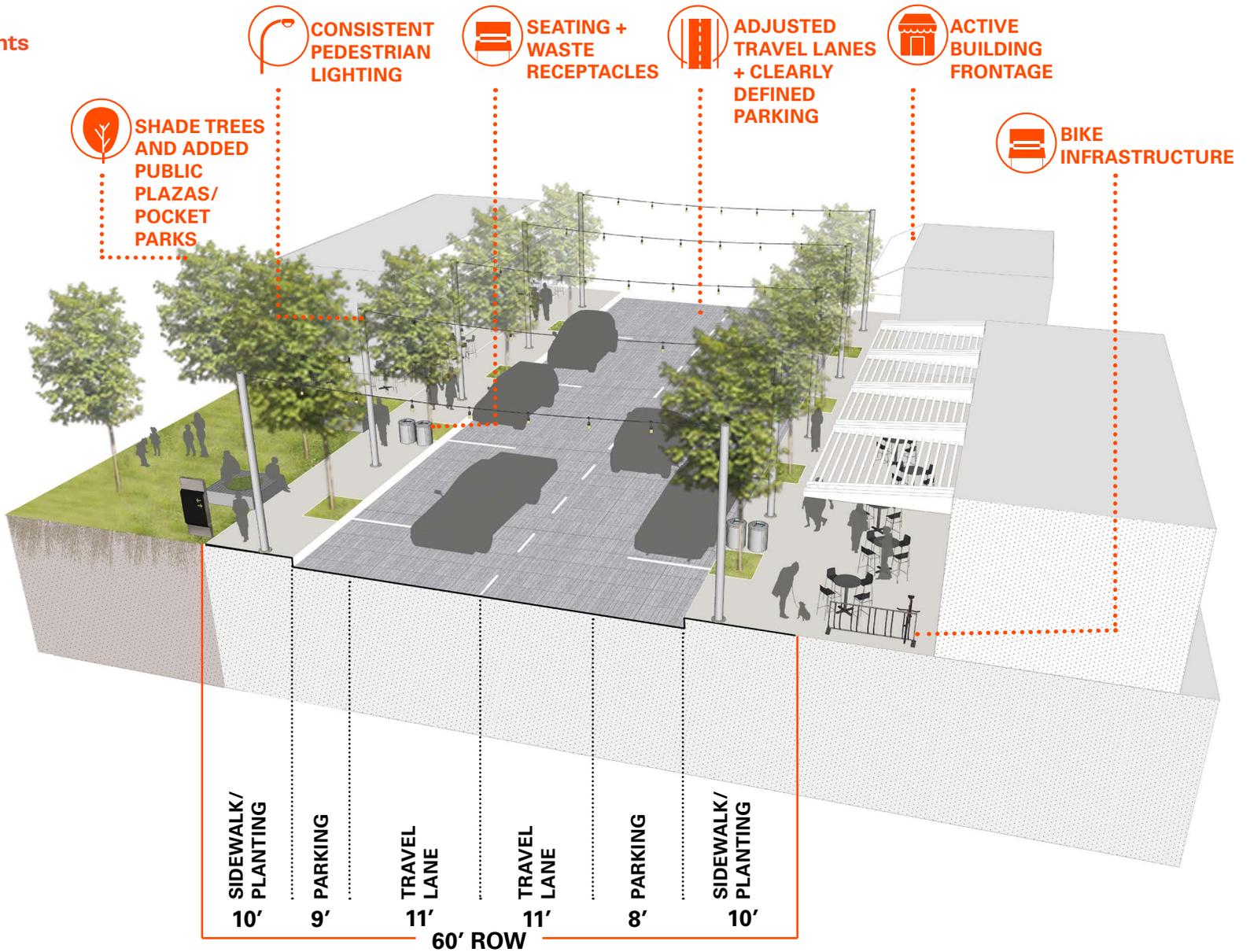
IMPACTS OF IMPROVEMENTS: GRISBY ROAD SCENARIO

Grisby Road *before*



**Grisby Road after
Level Three Improvements**

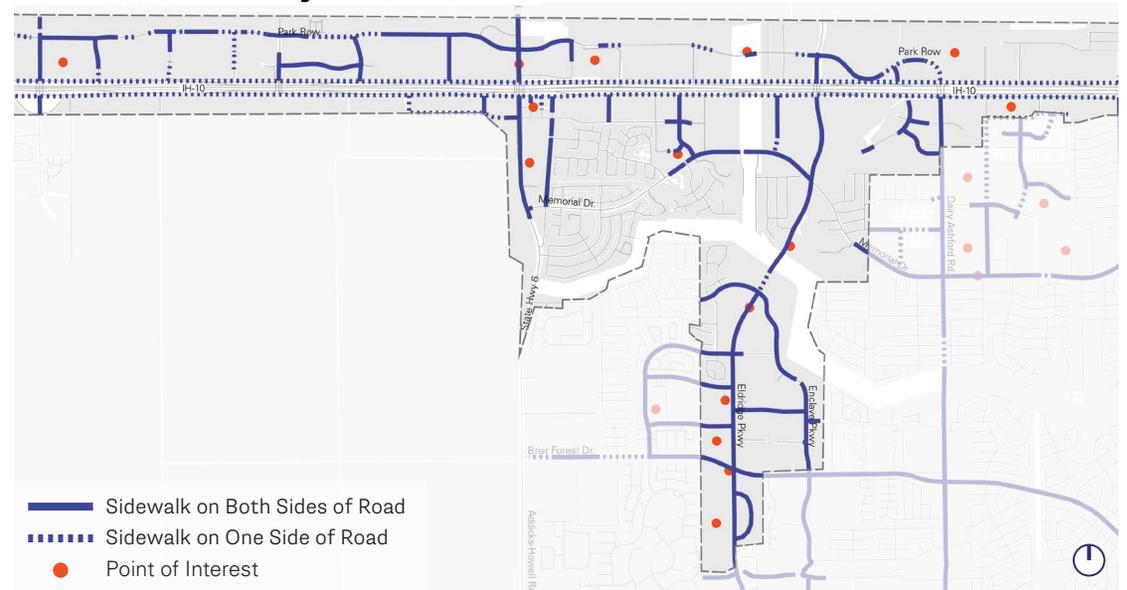
Grisby Road provides access to Grisby Square. As a prime community destination, enhancements in the public realm should be substantial (a Level three) to better accommodate pedestrian foot traffic, make clear demarcations for vehicular flow, limit vehicular access, promote a safe, well-lit environment and provide an active edge fronting restaurants already present.



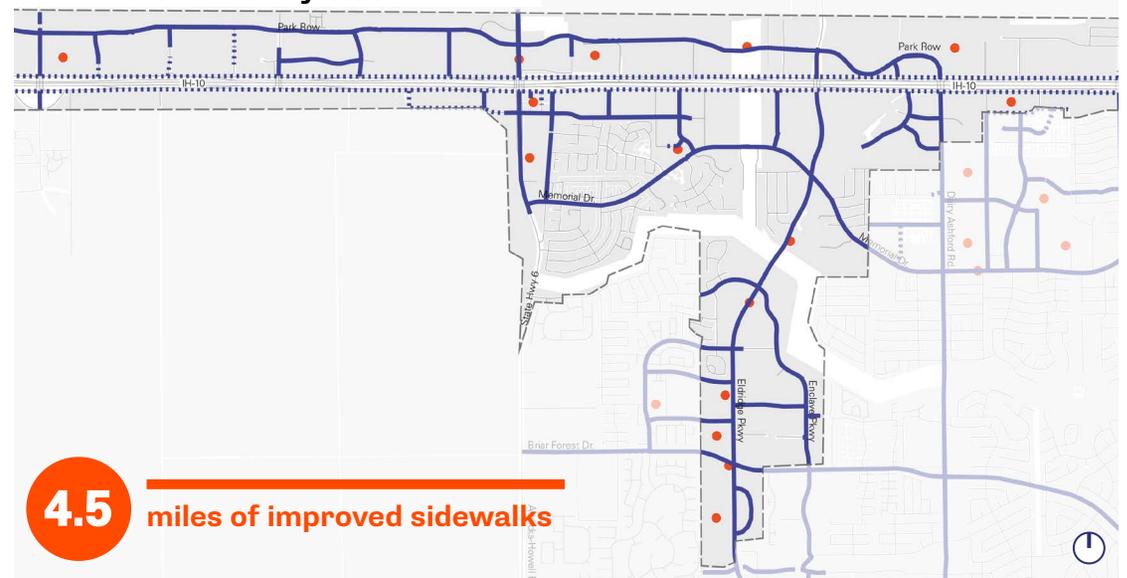
MOBILITY OPPORTUNITIES + CONSTRAINTS

Overlaying the locations of key points of interest with each of the current multimodal systems begins to magnify and highlight deficits in the respective sidewalk, bike network and bus network connections that are essential to improving connectivity across the District. Where and what are the needs for pedestrian activity that are most prevalent? Sidewalks, for example, need to expand to both sides of important arterial streets and those streets should connect to one another via points of interest. Additionally, safe crossings are needed to access destination and support bus stop access. Application of the Design Standards and Streetscape Guidelines for the sidewalk, bike and bus networks can result in significant expansion, quality and safety between these systems.

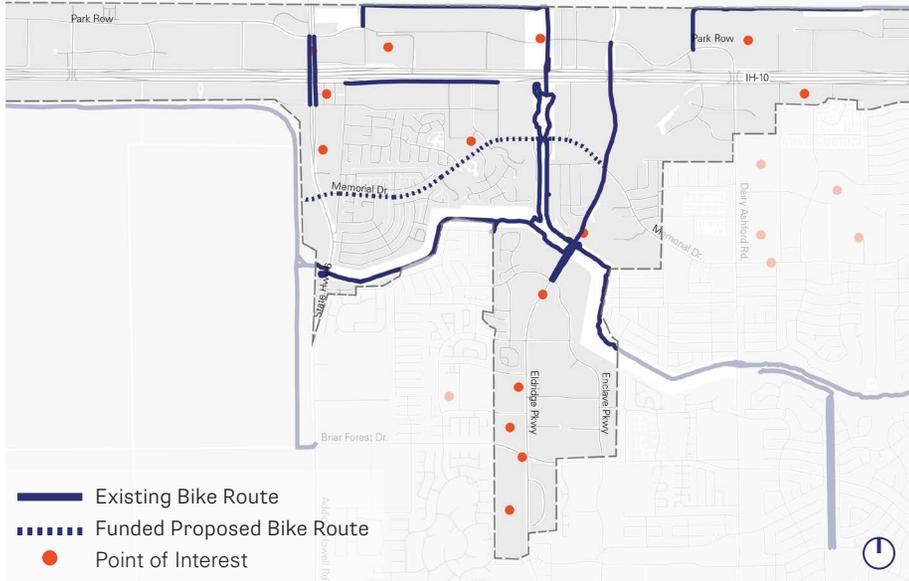
Sidewalk Connectivity Deficit



Sidewalk Connectivity Potential



Bike Network Connectivity Deficit



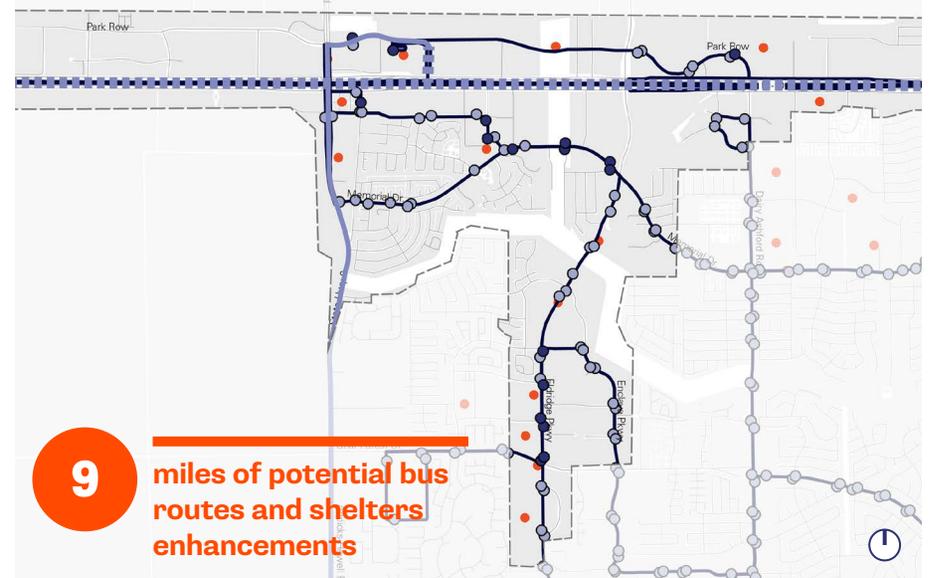
Bus Network Connectivity Deficit



Bike Network Connectivity Potential



Bus Network Connectivity Potential

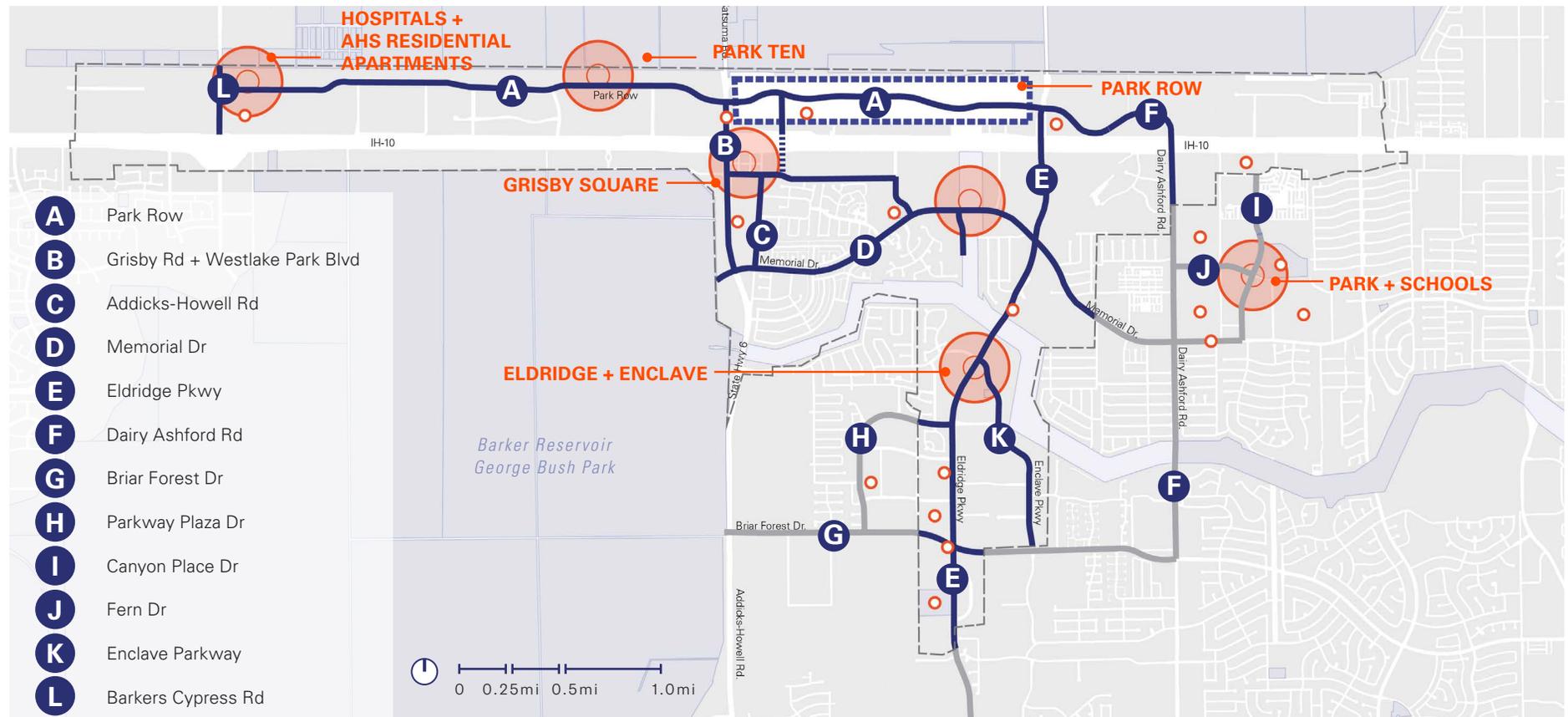


PRIORITY IMPROVEMENTS BASED ON KEY CONNECTIONS TO DESTINATIONS

Based on the result of the ‘Mobility Opportunities and Constraints’ map, a number of arterial roads have been identified as “key connector streets” that are vital to creating an integrated multimodal system around the District. The prioritization of these twelve (12) streets is a roadmap for future District planning and capital improvements that not only connect the existing community to key destinations but establish a safe environment for pedestrian travel.

Legend | Priority Connectors

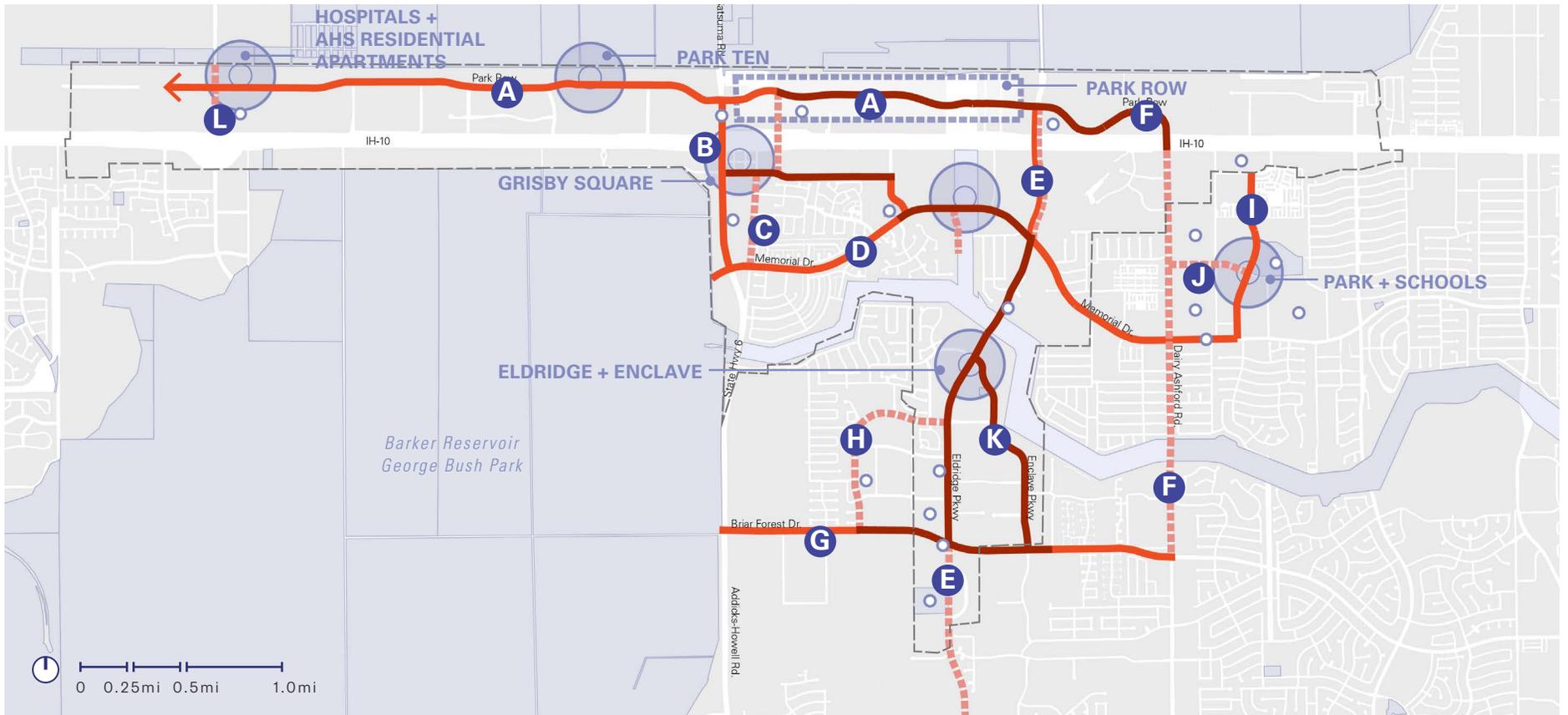
-  Area of Future Destinations
-  Existing Destination
-  Points of Interest
-  Priority Connector within District
-  Priority Connector Outside of District
-  Parks + Open Space



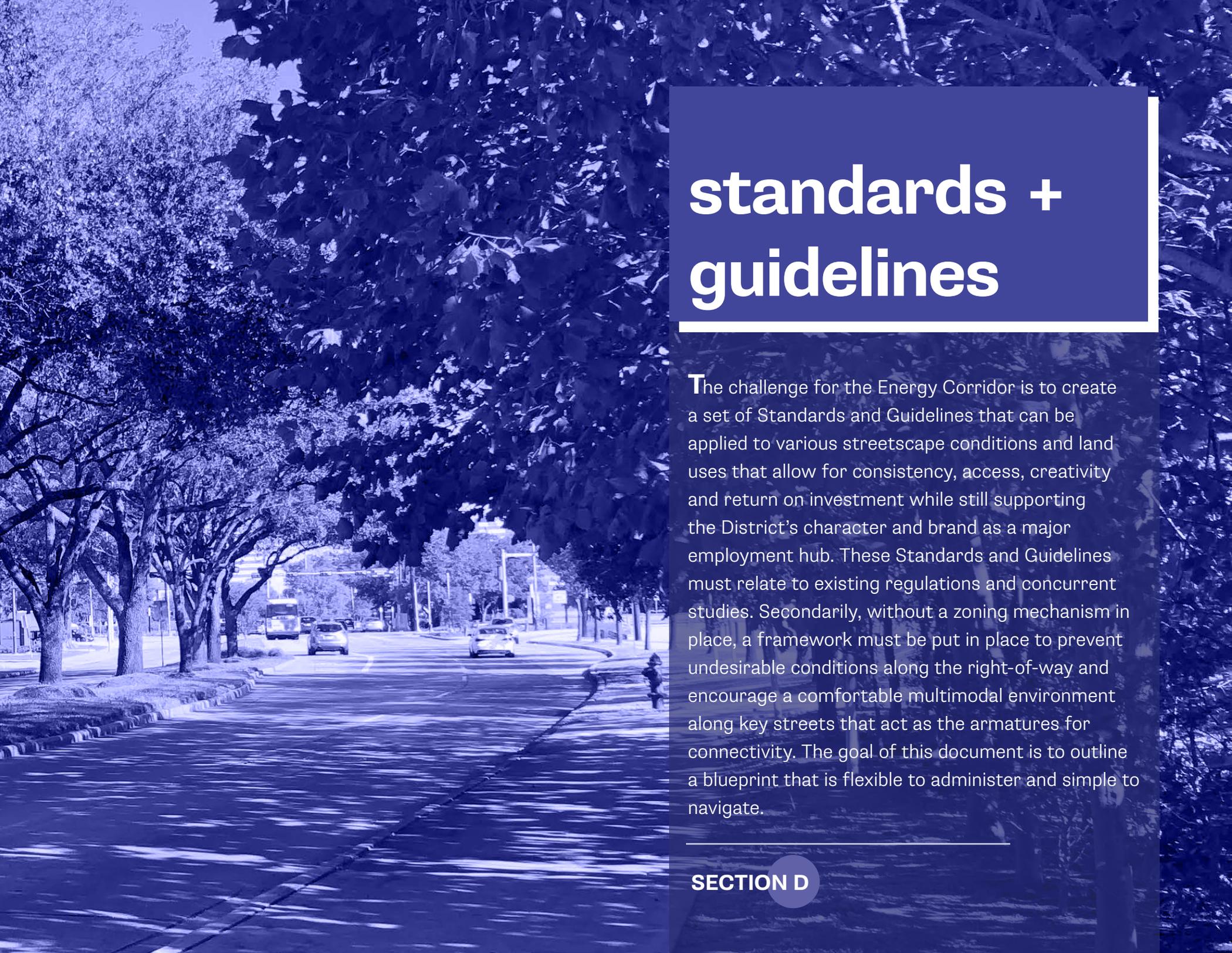
Each key connector street varies in right-of-way width, traffic capacity and proximity to destinations. In essence, Levels of Improvements (Level 1-3) have been applied to key connector streets based on these conditions. For example, an L3 improvement is perhaps more suitable for notable District streets such as Eldridge or Grisby that link people to important community and commercial hubs. In this case, reconfiguration of the right-of-way to house amenities such as a shared use path is conducive to a high-functioning, pedestrian streetscape. Other key connectors that are either less of a priority in linking destinations or have size constraints for an L3 or L2, are assigned an L1. As such, the framework for future projects in the map below starts to provide the District with a blueprint for project implementation. It is important to note that this framework is subject to change depending on prioritization, future development, available funding and partnership opportunities.

Legend | Level of Improvements

-  Area of Future Destinations
-  Existing Destination
-  Point of Interest
-  Priority Connector: L3 Improvement
-  Priority Connector: L2 Improvement
-  Priority Connector: L1 Improvement
-  Parks + Open Space





A blue-tinted photograph of a tree-lined street. The street is wide and paved, with a sidewalk on the right. Several cars are visible in the distance, and a person is walking on the sidewalk. The trees are large and leafy, creating a canopy over the street. The overall scene is bright and clear, with a strong blue color cast.

standards + guidelines

The challenge for the Energy Corridor is to create a set of Standards and Guidelines that can be applied to various streetscape conditions and land uses that allow for consistency, access, creativity and return on investment while still supporting the District's character and brand as a major employment hub. These Standards and Guidelines must relate to existing regulations and concurrent studies. Secondly, without a zoning mechanism in place, a framework must be put in place to prevent undesirable conditions along the right-of-way and encourage a comfortable multimodal environment along key streets that act as the armatures for connectivity. The goal of this document is to outline a blueprint that is flexible to administer and simple to navigate.

SECTION D

STANDARDS AND GUIDELINES LIST OF ELEMENTS

What are Standards? What are Guidelines? Standards are mandatory design requirements that are typically administered in the public realm with phrases that incorporate “shall” or “required”. Standards should not waive compliance during the design review process. Guidelines, on the other hand, are descriptive in its language, often best practice design principles and are recommended frameworks. Guidelines are used to evaluate the acceptability of a project during the design review process and can be administered in both the public and private realm. Phrases such as “should” or “may” are typically used as adopted public statements of intent.

An outline of responsibilities in operations, maintenance and management of improvement projects is vital to the implementation and administration of these Standards and Guidelines. Roles need to be clear between The Energy Corridor District, the POAs and other public agencies. In this case, a successful management matrix of the Standards and Guidelines will call for The Energy Corridor District to continue their efforts as visionary advocates towards improvements across the community, liaise between multiple agencies to implement these Standards and Guidelines, and guide funding opportunities from public agencies (in the public realm) and POAs/developers (in the private realm).

PUBLIC REALM: Energy Corridor District + other public agencies

PRIVATE REALM: Property Owners’ Association/Developers

- Visionary/ Execute/ Advocate**
- Sidewalk Zone (sidewalk, shared-use path)
 - Utility Zone
 - Roadway Design (travel lanes, bike paths, parking, crosswalks)
 - Street Amenities Zone (benches, waste receptacles, planters)
 - Green Space Zone (trees, planters, irrigation)
 - Transit Amenities
 - Street Lighting (vehicular, pedestrian, path)
 - Signage (regulatory, directional, gateway markers)

- Execute**
- Building Frontage + Transition Zone (setbacks, building placement, activated ground floor, massing/articulation)
 - Fences, Screening + Walls
 - Off-street Parking (lot + garage parking)
 - Signage (directional, gateway markers)*
 - Street Lighting (pedestrian, path)*

*Notes: *Signage* (IP) and *Street Lighting* (L) elements of the Design Standards and Guidelines are developed primarily for the public realm, but they should be used as a reference for private development elements to that ensure a consistent “family,” brand and function is achieved in tandem with District improvements. In addition, POAs may have their own set of guidelines that are enforceable and could supersede guidelines prescribed herein.

STANDARDS CLASSIFICATION INDEX

These Design Standards and Streetscape Guidelines should be referenced in tandem with updates to the American Association of State Highway and Transportation Officials (AASHTO), National Association of City Transportation Officials (NACTO), City of Houston codes and COH Public Works Infrastructure Design Manual (IDM). The Energy Corridor Design Standards and Streetscape Guidelines do not replace regulatory referencing of the Infrastructure Design Manual.

***Notes:** 1. Shared use paths refer to routes that are located back of the curb and share more than one use (pedestrian sidewalk and bike route). A safe alternative may be the separated buffer between a sidewalk and a one or two-way cycle track. Dedicated bike routes are located along roadway lanes.

		key connector streets																	
		1 - Eldridge Parkway S	2 - N Eldridge Parkway	3 - Enclave Parkway	4 - N Dairy Ashford	5 - S Dairy Ashford	6 - Memorial	7 - Park Row east of Highway 6	7 - Park Row west of Highway 6	8 - Grisby (west of Captain's Walk Rd)	9 - Grisby (east of Captain's Walk Rd)	10 - Westlake Park	11 - Addicks Howell	12 - Parkway Plaza	13 - Briarforest	14 - Fern	15 - Park & Ride	16 - Barkers Cypress	
level of improvements	L1																		
	L2																		
	L3																		
public realm	Sidewalk Zone (S)	page 69-70																	
	Width > or = 6'-0" (>/=)	>	=	>	>	=	=	>	>	>	=	=	=	=	>	=	=	=	
	Safe Schools					x	x	x	x				x	x	x	x			
	Basic/ Special paving (B/S)	B	B	S	S	B	B	S	S	S	B	B	S	S	B	S	B	B	

Index is continued on next page

The Standards Classification Index is a comprehensive matrix of suggested improvements along key connector streets. With each street receiving varying levels of improvements (depending on available funding and ease of implementation) for public and private realm elements, the Classification Index provides an itemized chart for toolkit element treatments. The goal is to design and position these elements along the street according to their respective improvement levels to build consistency, create that sense of place for the District and establish a safe environment for all streetscape users. The Index, consequently, is a one-stop library of proposed improvements per key connector street. Detailed Standards and Guidelines can then be referenced according to the element in question.

STANDARDS CLASSIFICATION INDEX

		key connector streets																
		1 - Eldridge Parkway S	2 - N Eldridge Parkway	3 - Enclave Parkway	4 - N Dairy Ashford	5 - S Dairy Ashford	6 - Memorial	7 - Park Row east of Highway 6	7 - Park Row west of Highway 6	8 - Grisby (west of Captain's Walk Rd)	9 - Grisby (east of Captain's Walk Rd)	10 - Westlake Park	11 - Addicks Howell	12 - Parkway Plaza	13 - Briarforest	14 - Fern	15 - Park & Ride	16 - Barkers Cypress
level of improvements	L1																	
	L2																	
	L3																	
public realm	Utilities (U)	page 71																
	Organization only		x			x		x	x		x		x				x	x
	Buried utility poles	x		x	x		x			x		x		x	x	x		
	Roadway Design (RD)	page 72-75																
	Lane adjustments	x		x	x					x					x			
	Shared use vs. dedicated (S/D) ¹	S	S	S	S		S	S	S	D	D		S		S			
	Median adjustment	x		x	x					x					x			
	Traffic signal improvements	x		x	x		x	x	x	x	x	x			x		x	x
	On-street parking			x						x								
	Improved crosswalks	x	x	x	x	x	x	x	x	x	x	x			x		x	x
	Street Amenities Zone (A)	page 76-77																
	Benches	x		x	x	x	x	x	x	x	x	x		x	x			
	Trash receptacles	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Bollards	x			x		x	x	x	x	x					x		
	Green Space Zone (G)	page 78-83																
	Additional tree planting		x		x	x	x	x	x	x	x		x	x	x	x	x	x
	Groundcover enhancement	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Additional median planting	x	x	x	x	x		x			x			x	x			x
	Transit Amenities (TA)	page 84-85																
	Bike racks	x	x	x	x	x	x	x	x	x	x		x		x			
Bus shelters enhancement	x	x		x	x	x	x	x	x	x				x				

Index is continued on next page

***Notes:** 2. For adjacent land uses, R-Residential includes multi-family units, single-family and townhomes; MU- Mixed use Commercial includes retail only lots as well as ground floor retail with other uses above; Office Commercial includes office only zones.

		key connector streets																	
		1 - Eldridge Parkway S	2 - N Eldridge Parkway	3 - Enclave Parkway	4 - N Dairy Ashford	5 - S Dairy Ashford	6 - Memorial	7 - Park Row east of Highway 6	7 - Park Row west of Highway 6	8 - Grisby (west of Captain's Walk Rd)	9 - Grisby (east of Captain's Walk Rd)	10 - Westlake Park	11 - Addicks Howell	12 - Parkway Plaza	13 - Briarforest	14 - Fern	15 - Park & Ride	16 - Barkers Cypress	
level of improvements	L1																		
	L2																		
	L3																		
public realm	Streetlighting (L)	page 86-87																	
	Roadway lighting enhancements/ upgrades	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	Pedestrian lighting	x	x	x	x		x	x	x	x	x				x		x	x	
	Path/ Accent lighting	x		x	x		x	x	x	x	x				x				
	Signage (public) (PS)	page 88-91																	
	Regulatory signage enhancements	x	x	x	x		x	x	x	x	x	x			x		x	x	
	Directional signage	x	x	x	x		x	x	x	x	x	x			x		x	x	
Monuments/ markers	x	x		x	x	x	x	x	x					x			x		
private realm	Building Frontage (BF)	page 92-94																	
	Active building frontage	x		x	x	x				x					x				
	Parks and plazas	x		x	x			x		x					x				
	Adjacent Uses ² (R-residential/ MU-mixed use commercial/ O-office commercial)	MU/ R/ O	MU /O	MU/ O	R/ O	MU/ R/ O	MU/ R/ O	R/ O	MU/ R/ O	MU/ R/ O	MU/ R/ O	MU/ R/ O	MU	R	MU/ R/ O	R	MU/ O	MU/ R/ O	
	Screening (SC)	page 95																	
	Screening enhancements	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Off-street Parking (PP)	page 96-97																	
Parking garage	x	x	x	x	x	x	x	x	x	x	x			x		x	x		
Parking lots	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		

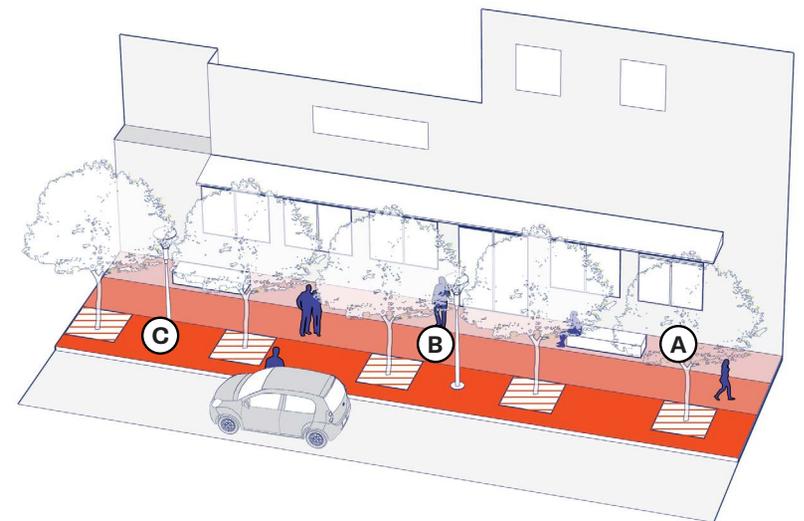
PUBLIC REALM STANDARDS + GUIDELINES



Midtown Houston, TX

back of curb zones

The pedestrian realm includes the area from back of curb to the building facade. It is made up of four zones: the Building Transition or Frontage Zone, the Sidewalk Zone, the Green space Zone and the Amenities Zone. The Building Transition/ Frontage Zone address the area directly adjacent to the building that buffer shoppers or lingering pedestrians from the flow of pedestrian traffic in the Sidewalk Zone. Green space Zone should share the same space as the Amenities Zone where elements such as lighting and benches align with tree canopies and groundcover vegetation. Elements such as benches and trash receptacles may also appear in the Frontage Zone, but only when adequate space cannot be reached in the Green space/Amenities Zone. Proportioning each of these areas for human comfort and pedestrian traffic is critical to a well-connected, efficient public realm environment. See Sidewalk Zone (S), Street Amenities Zone (A), Transit Amenities Zone (TA), and Green space Zone (G) for additional Standards and Guidelines criteria.



sidewalk zone

Sidewalks are paved linear areas where pedestrians travel and gather. Sidewalks function as conduits for pedestrian flow, and enhance connectivity and promote walking.

HCS Sidewalks should facilitate a steady flow of pedestrian movement and be accessible by individuals of all abilities and ages. Sidewalks should be scaled appropriately to accommodate a multitude of pedestrians.

RE Sidewalks should be constructed out of durable materials. A well-maintained sidewalk promotes stewardship and offers longevity.

CO A pedestrian network should efficiently and effectively link people to places. Enhanced sidewalk design and connection can encourage walking over driving promoting public health.

AC Safe, accessible sidewalks are fundamental investments. They serve as “front steps” to the city, activating streets socially and economically.

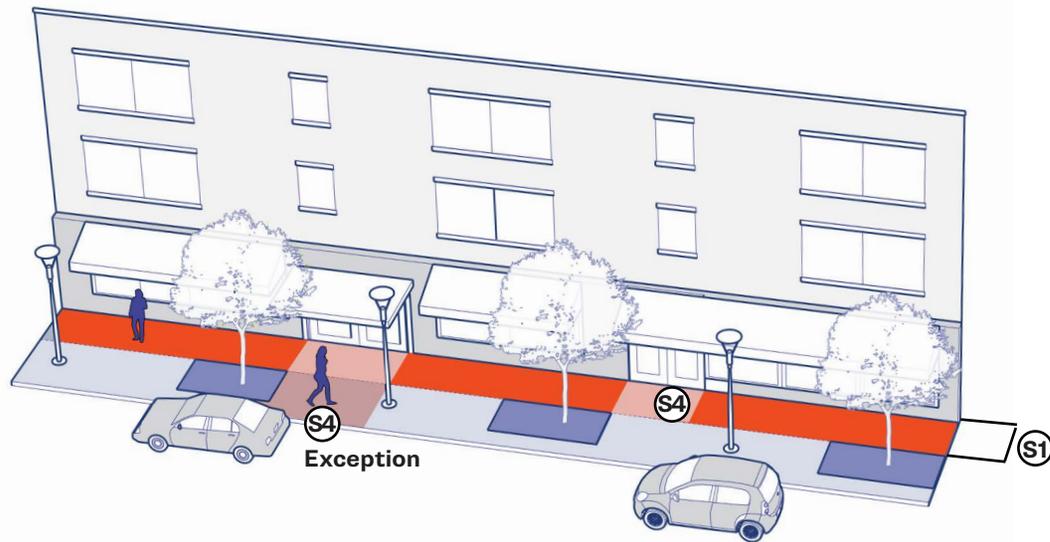
sidewalk zone standards

	Level 1	Level 2	Level 3
S1. Width	min. 6'-0"	min. 6'-0"; max. 8'-0"	min. 6'-0"; max. 10'-0"
S2. Materiality	concrete only (Basic)	unit paving or concrete	stone, concrete or unit paving
S3. Shared use path + One/Two-way cycle track	if min. green space is not viable, consider expansion for a shared use path	min. width 10'-0" with a preference of 12' to 14'-0" for shared use path; min. 6'-0" for one-way track with buffer or 12'-0" with buffer separating sidewalk from bikeways	
S4. Access	Clear, unobstructed access across building frontage must not be less than building entry opening or 6'-0" in width, whichever is greater. Extension of access to curb may be allowed only if main sidewalk width is less than 6 feet, at bus stop locations, adjacent to on-street parking, or along small, residential streets.		
S5. SRTS	Texas Safe Schools Sidewalks Program (SRTS) within 0.25 miles of a school		
S6. ADA curb ramp + Sidewalk grading	Ramp slopes shall not to exceed 1:15. Ramps must have a landing for each 30 inches of rise; Grade shall not exceed 2% cross slope and 5% longitudinal per City standards.		

sidewalk zone guidelines

S2. Materiality	Pavers, if used should be pre-cast, non-clay and placed on concrete sub-slab.
S3. Shared use path + One/Two-way cycle track	<ul style="list-style-type: none"> Shared use paths are encouraged over on-street bike paths. If minimum green space width is not possible, consider expanding the sidewalk zone to the curb line with vertical elements (a 4-6 inch hard vertical curb or 30 inch separators) separating the sidewalk or shared use path from the roadway. Bicycle lane words or symbols should be placed at the beginning of a track and at periodic intervals. A one- or two-way sign should be posted to indicate track numbers. For one- or two way cycle tracks that are separated from sidewalks, ensure planted space, markings or bollard space of 3'-0" (4'-0" for planted trees) is used (separated bikeways behind the curb). Shared use paths may act as a pedestrian-only decomposed granite trail. Separation elements between the pedestrian zone and the cyclist zone in a shared use path prevent incursions. Recommended options include tactile strips, rumble strips, low concrete domes or planting strips. Other options include hard vertical curbs (4-6 inches in height), stop or lit bollards.
S4. Access	Implement sidewalk pedestrian refuges at intersections when possible to shorten pedestrian crossing time in areas of high pedestrian traffic. See <i>Roadway Design (RD)</i> .

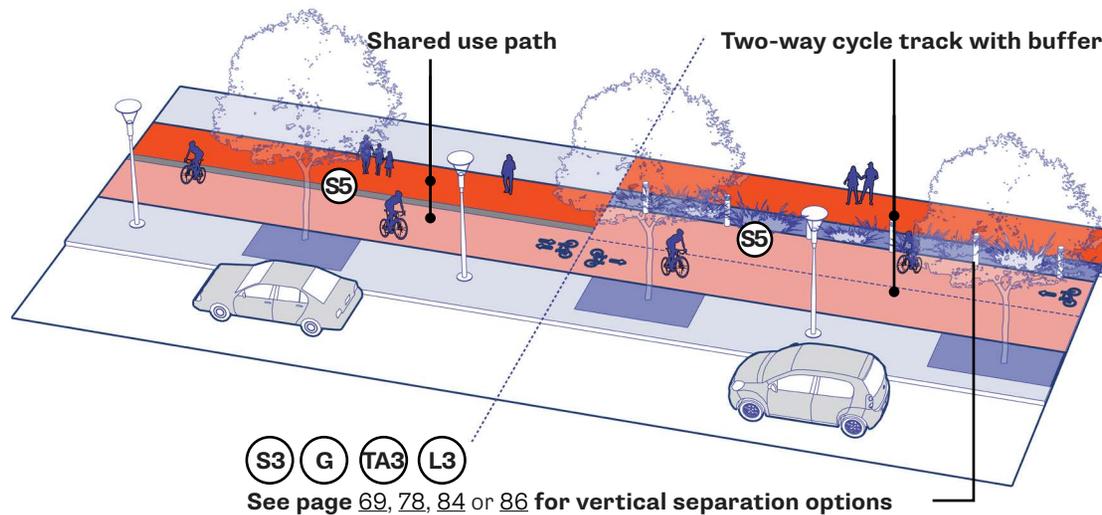
PUBLIC REALM STANDARDS + GUIDELINES



Sidewalk Zone: The sidewalk zone should be void of obstructions that impede the flow of pedestrian traffic. The minimum clearance of 6'-0" per City standards must be achieved.



Bagby Street, Midtown, Houston, TX



Shared use paths and separated cycle tracks in back of curb: See S3 on page 69 for specific features (planting, striping, vertical elements) separating walking paths from bike paths.



Baton Rouge Greenway, Baton Rouge, LA

Note: The location, aesthetics and functionality of a shared use path may require additional considerations during the project design phase. In addition, they will be designed based on the context of the roadway segment and surrounding land use.

utility zone

Utilities addressed in this section includes those typically found in the public realm as it relates to water, communications, electricity and gas.

- HCS** Properly sited utilities provide infrastructure services without obstructing the pedestrian realm accessibility (ie: sidewalks).
- RE** Buried utilities offer better protection from potential weather damage and longevity of systems.
- CO** Locating utilities in unobtrusive places maintains the visual links between District destinations and creates a safe, walkable environment.
- AC** Well-built and unobtrusive utilities creates opportunities for safe gathering spaces. They also promote opportunities to meeting additional and emerging community infrastructure needs.

utility zone standards

	Level 1	Level 2	Level 3
U1. Location	overhead and along utility corridor		buried or consolidated overhead utilities
U2. Off-set	Consult City of Houston requirements; min. 1000'-0" offset is preferred		
U3. Organization	Centerline of all utilities and amenities in the amenity zone must align and be located at least 36" from the face of curb to center line of fixtures.		
U4. Ground floor	"Back of house" utilities shall not be located along an activated ground floor.		

utility zone guidelines

U3. Organization	<ul style="list-style-type: none"> • Mitigate the impact of surface mounted utilities in the pedestrian realm by siting them in softscape areas and avoiding areas where tree roots are located. • When possible, overhead utilities should be consolidated on one side of the street or the other, as to remove redundancies and based on the requirements of the project.
U5. Energy use	Reduce environmental impacts from energy used to operate public utilities like traffic lights, etc. A 15% annual reduction below baseline energy consumption is an effective target.



PUBLIC REALM STANDARDS + GUIDELINES

roadway design

Roadway is the space between curbs. The roadway space includes travel lanes for transit, bicycles and motorists as well as crossings for pedestrians. It is vital that design of this segment safely accommodate relevant multimodal roadway users.

HCS Traffic-calming measures with minimal travel lane widths, safety islands, clear markings and adequate buffers between all modes should be considered when designing for pedestrian comfort, scale and safety. Roadway conditions between residential areas, large commercial areas or small retail streets are also important distinctions when considering speed, vehicular capacity and pedestrian access.

RE Materials used in the enhancement of the roadway should be sustainable, local, durable and long-lasting. Roadways should be consistently paved, and integrate traffic synchronization/signalization that responds to pedestrians and cyclists as well as power outages.

roadway design zone standards (per current City Infrastructure Design Manual)

	Level 1	Level 2	Level 3
RD1. Lanes	n/a	max. 11'-0" wide	max. 10'-0" wide; 11'-0" max. on outer lanes (for bus routes)
RD2. On-street Bike Routes/Paths	n/a	min. 8'-0" wide, 6'-0" with a 2'-0" striped buffer or 5'-0" with a 3'-0" physical buffer (stop bollard, hard curbs)	
RD3. Medians	n/a	max. 14'-0" wide (remainder space to be allocated to public realm amenities when possible)	
RD4. Traffic signals + Signalization	upgrade recommended; poles and mast arms only (no span wires)	upgrade required to match materiality of street amenities; fixed signalization recommended in areas of high traffic flow; poles and mast arms only (no span wires)	
RD5. On-street parking	n/a	recommended where possible; min. 9'-0" wide	
RD6. Crosswalks	zebra, ladder or zebra-marked crossing required	distinct paved crossing recommended (see S2. Materiality)	pedestrian refuges recommended; raised crossing recommended on narrow roads
RD7. Curb cuts	max. 12'-0" wide for one-way entrance; max. 25'-0" for two-way entrances; curb cut spacing: 35 mph=150'-0 min. / 50+ mph =250'-0" min.; corner curb cuts within 150'-0" are prohibited. Design radii to appropriate design vehicle and turning speeds.		

roadway design zone guidelines (per current City Infrastructure Design Manual)

RD1. Lanes	<ul style="list-style-type: none"> Lane widths should be studied further to correlate to vehicular capacity and primary intended street usage (vehicular throughput versus retail street). Narrower lane widths help promote slower driving speeds which, in turn, reduce the severity of crashes. Wider lanes for bus lanes or truck access should be located in the outer lane (curbside). On-street parking lanes should not be shared with a travel lane. Travel lanes should be marked clearly. Use of fly-ash and other environmentally friendly products is encouraged in the concrete mix.
RD2. On-street Bike Routes/Paths	<ul style="list-style-type: none"> Bike lanes signs/roadway markings should be appropriately delineated at intersections, driveways and merging areas. A bike lane may be provided on either side of a roadway (min. 6'-0" wide).



Roadways, particularly arterial and collectors, should consider ease of transition and consistency in enhancements between all streets. Ensuring improvements such as traffic signal synchronization and continued clear crosswalk markings will help establish a well-connected public realm across the District.

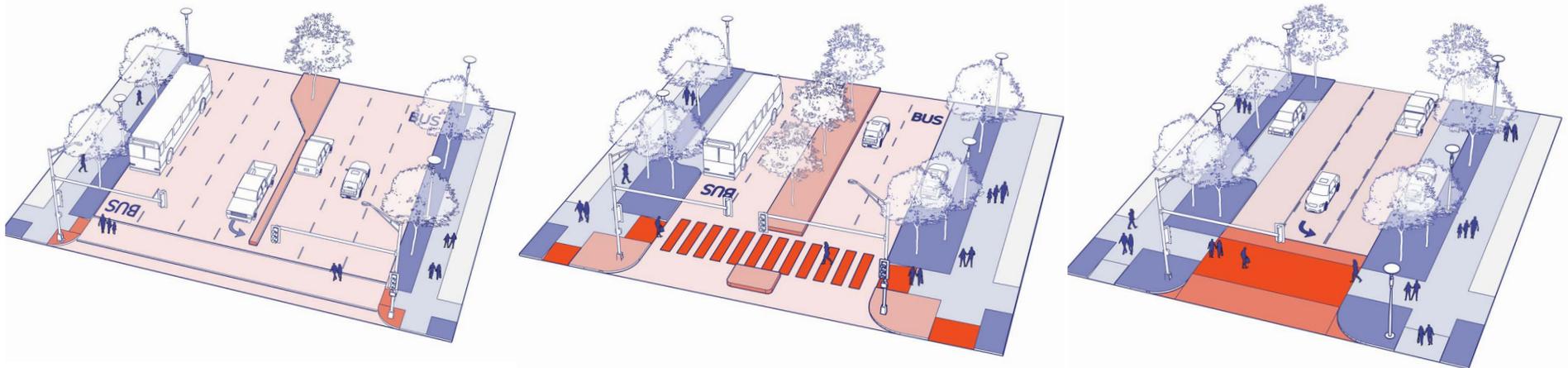


Ensuring community, retail or park patrons have safe, multimodal access across District streets will ensure prioritized roadway activation for pedestrians and cyclists.

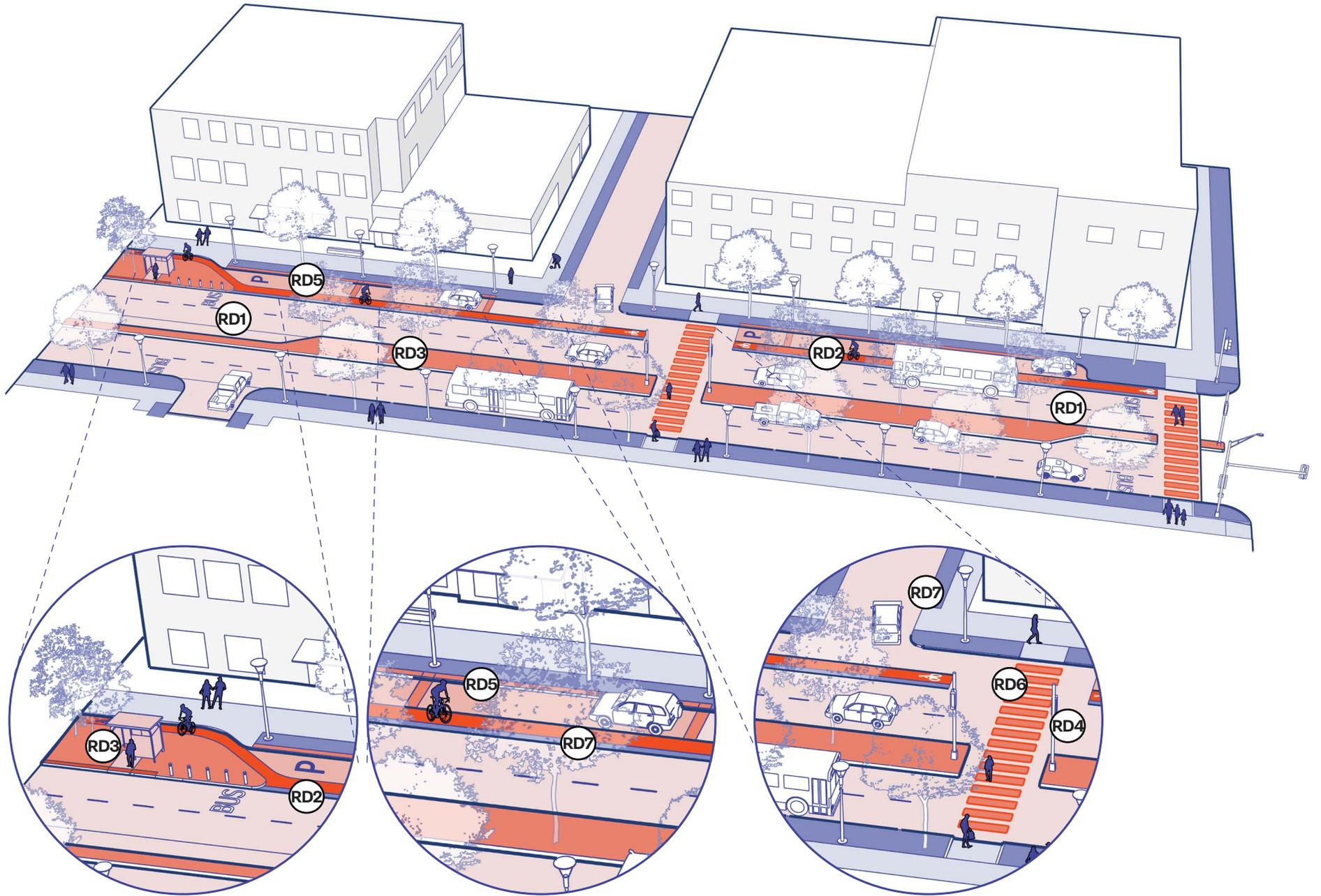
RD2. On-street Bike Routes/Paths (continued)	<ul style="list-style-type: none"> When placed adjacent to a parking lane, desirable reach from curb face to edge of bike lane (including parking lanes, bike lane and buffer stripe) is 14'-6" max., 12'-0" min. When bollards or guardrails are used to separate a bike lane, 1'-6" should be added to the bike lane. Alternative separators to consider are low risers, rumble type strips, planting or painted strips and low concrete domes. An on-street bike lane should jog around transit-based pedestrian refuges (bus stop bulb-outs or islands) to limit conflicts between bus commuters and cyclists.
RD3. Medians	<ul style="list-style-type: none"> Medians more than 3'-0" wide should be landscaped. When street trees are desired, a median should be 8'-0" min. When possible, at crossings, medians should be flush with the edge of the crosswalk with minimal rounding. A raised island on the intersection side of the crosswalk should be provided in medians that function as pedestrian refuge islands. Landscaped medians should be configured to allow maintenance personnel adequate access without encroaching traffic lanes; provide a 5'-0" min. clear zone along the edge of the median at curb height. Design and landscaping of medians should emphasize continuity on through-ways and ceremonial streets. Landscaping, lighting and street furnishings should maintain a similar look and feel even as the corridor varies in land use, scale and intensity. Pedestrian refuges should be provided for bus stops adjoining an on-street bike lane.
RD4. Traffic signals	<ul style="list-style-type: none"> Upgrade traffic poles to reflect design and materiality of District brand and family of elements (See <i>Street Amenities</i>). Traffic signalization should be synchronized to allow for the smooth transition between pedestrian crossings and vehicular traffic flow (See <i>RD6. Crosswalks</i>). Reduce long signal cycles in coordinated signalization and increase permissive window during certain times of the day. A free setting is preferable. Fixed-time signals are recommended in areas of high pedestrian traffic. Where used, actuated signals should be timed to be as responsive to activation as possible, with delay kept to a minimum.
RD5. On-street parking	<ul style="list-style-type: none"> Locate on-street multimodal parking along curbs in areas with high retail activity. Emphasize parallel parking over angled-parking. Parking should be clearly marked. Allow at least 3'-0" of clearance between on-street parking and vertical elements such as trees, poles, hydrants, etc. Pedestrian access linking the parking lanes to the sidewalk should be located approximately every 22'-0" based on modular of street parking. These connections should be at least 4'-0" in width. When possible, emphasize the use of smart parking meters with personal devices to allow notifications of vacant parking and added District capital.

PUBLIC REALM STANDARDS + GUIDELINES

<p>RD6. Crosswalks</p>	<ul style="list-style-type: none"> • When using paving to distinguish crosswalks, a combination of brick, stone, pavers or finished concrete should be provided as long as the sub base is reinforced concrete. • Avoid the use of slip lanes for right-turn volumes, which can be a hazard to pedestrian mobility. If used, integrate design features such as pedestrian refuges, max. turning radius of 35'-0", signalization of right turns, raised crosswalks connecting sidewalk to refuge island or special paving. • A pedestrian crossing should be at least as wide as the sidewalks it connects to (min. 9'-0" wide). • Provide pedestrian crossings at all legs of intersections. • When possible install a pedestrian crossing where there is a significant pedestrian desire line (mid-blocks, parks and plazas, transit stations, etc) particularly on large parcels. • Mid-block crossings should be paired with traffic analysis to determine if a signal or hybrid signal could be installed. If not, consider installing Rectangular Rapid Flashing Beacons (RRFB) that should be activated only when pedestrians wish to cross. • Keep crossing distances as short as possible using tight corner radii, curb extensions, pedestrian refuge islands, and medians. Provide signalized crossings on roads with speeds greater than 25mph.
<p>RD8. Block structure</p>	<ul style="list-style-type: none"> • For large or irregular-shaped parcels, ensure the block perimeter is no more than 2400'-0". Implement interior pedestrian cut-throughs to achieve this if necessary. • For large or irregular-shaped parcels, locate a street, alley or pedestrian cut-through between buildings to ensure a block width no greater than 400'-0". • Consider providing vehicular access to adjacent buildings through an alley or shared driveway. • Locate vehicle access where conflicts with pedestrian circulation will be minimized.



Intersection examples (left to right): Conventional crossing, pedestrian refuges, median refuge and ladder marked crossing, raised crossing



(Left to right) Transit islands for bus stops adjoining on-street bike lanes, on-street parking adjoining on-street bike lanes, mid-block crossings, traffic signalization and curb cuts.

PUBLIC REALM STANDARDS + GUIDELINES

street amenities zone

Street furnishings provide a level of comfort for pedestrians and cyclists that make circulation welcoming and experiential. Furnishings can include benches, tables, chairs, waste receptacles, planters, water fountains, etc.

- HCS** Streetscape furnishings offer opportunities for rest and recharge. Furniture also break up large-scaled streets and allow spaces to feel welcoming.
- RE** Streetscape furnishings that are durable, recycled and weather-proof offer longevity in use and provide cost-savings in long-term maintenance.
- CO** A cohesive collection of street amenities unify the brand of the Energy Corridor, making navigation easier for pedestrians.
- AC** Providing moments of respite and pause for pedestrians and cyclists activates the public realm.

street amenities zone standards

	Level 1	Level 2	Level 3
A1. Amenities zone	min. 4'-0" wide when possible	min. 6'-0" wide	min. 8'-0" wide
A2. Benches ¹	min. 17-19" H x 43" L x 20-24" W; back support if provided should be min. of 2'-6" high		
A3. Waste receptacles	min. of 1 every 500 ft	min. of 1 every 300 ft	
A4. Planters	see additional information for planting standards on page 78		

street amenities zone guidelines

A2. Benches	<ul style="list-style-type: none"> • Provide comfortable seating at transit stops and resting spots near pocket parks and adjacent to ground floor retail; ensure they are designed to prevent accumulation of water; avoid material that retain heat or locate under shade when possible. • At small stops provide several individual seats or a bench with raised separation between seats. Site 50% of benches and seating in areas with mid-day shade.
A3. Trash receptacles	<ul style="list-style-type: none"> • Trash receptacles should be located near street crossings, intersections, and other high- traffic areas such as plazas and points of egress and ingress. • Use smart trash cans and recycling that are solar powered when possible with enabled fill-level sensors.
General guidelines	<ul style="list-style-type: none"> • Ensure furnishing are made from durable, weather-proof materials such as concrete, stone, wood or powder-coated metals. • All furnishings should be reflective of the District brand. • The use of smart technology and interactive amenities is encouraged particularly along key arterial streets (ie: Eldridge, Grisby, Memorial, Park Row, Briarforest). <ol style="list-style-type: none"> 1. Solar-powered trash cans with fill-level sensors 2. Solar-powered benches 3. Self-watering planters

*Notes:

1. Bench dimensions will depend on specifications from manufacturer. Dimensions highlighted are typical or minimum only.
- Street amenities specified in the public realm could be applied in the private realm. Alternative furnishings must be part of the same family aesthetically and functionally to that of public realm amenities specified in these Standards and Guidelines. See Appendices for Cost Worksheet for full range of options.



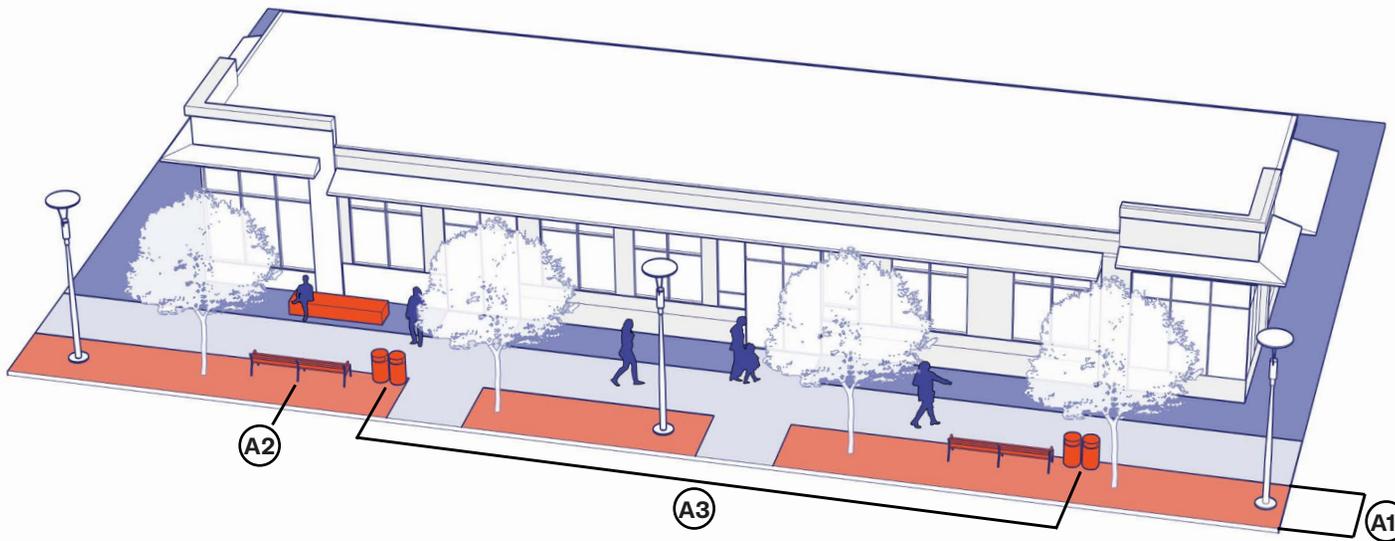
Specifications: Landscape Forms **Santa & Cole** “Neocombo bench”; Finish- Aluminum. Backless options may also be used in the zone.



Specifications: Forms&Surfaces “Dispatch Litter & Recycling Receptacle”; Finish- Powder Coat, Color Bright Silver Gloss. For smart and solar alternatives, see “Big Belly Smart Waste & Recycling” products.



Specifications: Form and Fiber Box Planter Series; Finish- Stock Powder Coat, Color Gray Matte.



All furnishings listed herein for street amenities, lighting and transit amenities reflect a ‘light traditional’ aesthetic that is cost-effective and modern for the District. Materials are predominantly aluminum or powder coated finishes.

Standards should consider the use of smart technologies such as solar powered elements or interactive sensors when possible.

PUBLIC REALM STANDARDS + GUIDELINES

green space zone

Green space zones refer to areas where plants are used in the pedestrian realm including tree wells, garden beds and planters. Green spaces serve a number of functions related to buffers, aesthetic and seasonal appeal, habitat creation, water quality and stormwater management.

HCS Vegetation and green spaces promote benefits such as shade, seasonal interest, visual and sound buffer from vehicles and added texture in the public realm. They soften streetscapes, noise pollution and effects of adjacent building structures.

RE Green spaces promote areas of refuge for native wildlife. Once established, native vegetation requires less maintenance and irrigation over a period of time. Green spaces are critical in stormwater management by removing pollutants and adding detention capacity and reduces air temperature.

CO Coordinated vegetative strategies promote District branding and environmental navigation.

AC Promoting green space strategies such as tree canopy shade, plazas or pocket parks encourage pedestrian leisure and activation.

green space zone standards (see also City Infrastructure Design Manual)

	Level 1	Level 2	Level 3
G1. Tree spacing	<ul style="list-style-type: none"> 35'-0" max. on center (OC) for large trees (>35' crown diameter at maturity); Large trees planted in clusters maybe planted as close as 10'-0" OC. 25'-0" max. OC for medium trees (20-35' crown diameter at maturity); Medium trees planted in cluster maybe planted as close as 8'-0" OC. 20'-0 max. OC for small trees (<20' crown diameter at maturity) 		
G2. Tree types	Southeast Texas natives or non-invasive exotics - See City of Houston Shrub Ordinance - List of Trees for Streets)		
G3. Tree planting width	6'-0" min. wide		8'-0" min. wide
G4. Soil area	75 square feet (sf) of surface area min.		
G5. Landscaping	trees and turf only with periodic shrubs/perennial beds to coordinate with adjacent work and when in close proximity to intersections	trees, shrub/perennial beds, groundcovers, and turf to coordinate with adjacent work and when in close proximity to intersections	trees, shrub/perennial beds (annuals replaced seasonally), groundcovers, and turf throughout the projects to coordinate with adjacent work
G6. Irrigation	temp irrigation mandatory in establishment period (EP); permanent drip irrigation required for plants and trees after EP		
G7. Plazas + Pocket Parks	optional	required where possible along key connector roads and where easement is available	

green space zone guidelines

G1. Tree spacing	<ul style="list-style-type: none"> Trees and plants should meet the City's Parks Department requirements. Trees should be placed a minimum of 25'-0" from the crosswalk edge at intersections to avoid motorist and pedestrian sight line interference (visibility triangle); a minimum of 3'-0" from the curb; a minimum of 10'-0" from driveways, hydrants and loading zones; and 15'-0" from streetlights or signage poles. Trees may be clustered or planted in groups of three (3) and four (4) to allow resistance against wind. See <i>G1. Tree Spacing</i> note of clusters. In high traffic areas, install physical measures such as curbs, seatwalls or steel railing to protect the planting zone.
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<p>G2. Tree types/ G3. Tree planting width/ G4. Soil area</p>	<ul style="list-style-type: none"> • A key connector, corridor or street should have a diversity of tree species to support a resilient urban forest. The same tree species should not be utilized sequentially more than three (3) times in a row. • Low growing trees should be planted in areas where existing utility lines are present. Tree height near utilities should not exceed the height of 16'-0". • Open planters are preferred over tree grates except in narrow or urban areas where considerable foot traffic is present. Ensure that tree openings for grates can accommodate large tree trunk diameter. • Preserve existing native trees. Native trees that are in poor health (as determined by a certified arborist) may be removed. Replacement trees must be native with a min. caliper size of 3-inches and a max. caliper size of 8-inches. Exotic trees may be removed as long as each specimen is replaced with a native tree of at least 3-inch caliper. • If adjacent hardscape restricts the amount of soil volume needed for long-term healthy tree growth, use techniques such as engineered structural soil or Silva Cells to engineer soil profiles for support. • Provide landscape and tree species that not only promote seasonal color but provide a high-quality habitat for native insects and animals.
<p>G5. Landscaping</p>	<ul style="list-style-type: none"> • Plants should not interfere with sight lines to traffic, intersections and signs when placed near roadways. • No more than 60% of a planting area of a corridor shall be dedicated to turf as an understory; emphasize variety in site-wide planting strategies in a logical rhythm.
<p>G7. Plazas + Pocket Parks</p>	<ul style="list-style-type: none"> • Provide opportunities for plazas and pocket parks (accessible to public) along streetscapes or within development parcels. Provide entry into these spaces from the primary adjacent sidewalk. • Plazas and pocket parks should be at the same or above elevation as adjacent sidewalk (+/- 2'-0" above roadway) with clear views between sidewalks and all areas of the plazas. • At least 50% of the park or plaza should have open access to the sky. Orient parks and plazas to maximize solar exposure, but create opportunities for shade through pavilion structures or trees. • Ensure utilities such as vents and power grids are located away from parks and plazas. All plazas and pocket parks located adjacent or near another should be seamlessly connected. • Promote the use of program elements and features such as public art, comfortable seating, vending/retail opportunities, digital interactive elements, water features and green spaces to enhance user experience. Activate ground floor of buildings surrounding internal publicly accessible pocket parks or plazas. • See G1-6,8 of <i>Green spaces</i>, <i>Lighting</i> (L) and <i>Amenities</i> (A) section for additional design provisions.
<p>G8. Stormwater</p>	<ul style="list-style-type: none"> • Stormwater management best practices are key to detaining and cleansing runoff volumes. Incorporate elements such as rain gardens, planting strips and bioswales along streetscapes and plazas to detain and cleanse the 80th percentile storm event. Ensure plant material in rain gardens/bioswales are appropriate for inundation and drought. • Use rainwater harvesting when feasible to irrigate plant areas. Include groundcover layer in all planted areas to help with long-term maintenance and conservation. • Provide Water Quality Capture Volume (WQCV) with slow release technologies to reduce peak runoff.

PUBLIC REALM STANDARDS + GUIDELINES

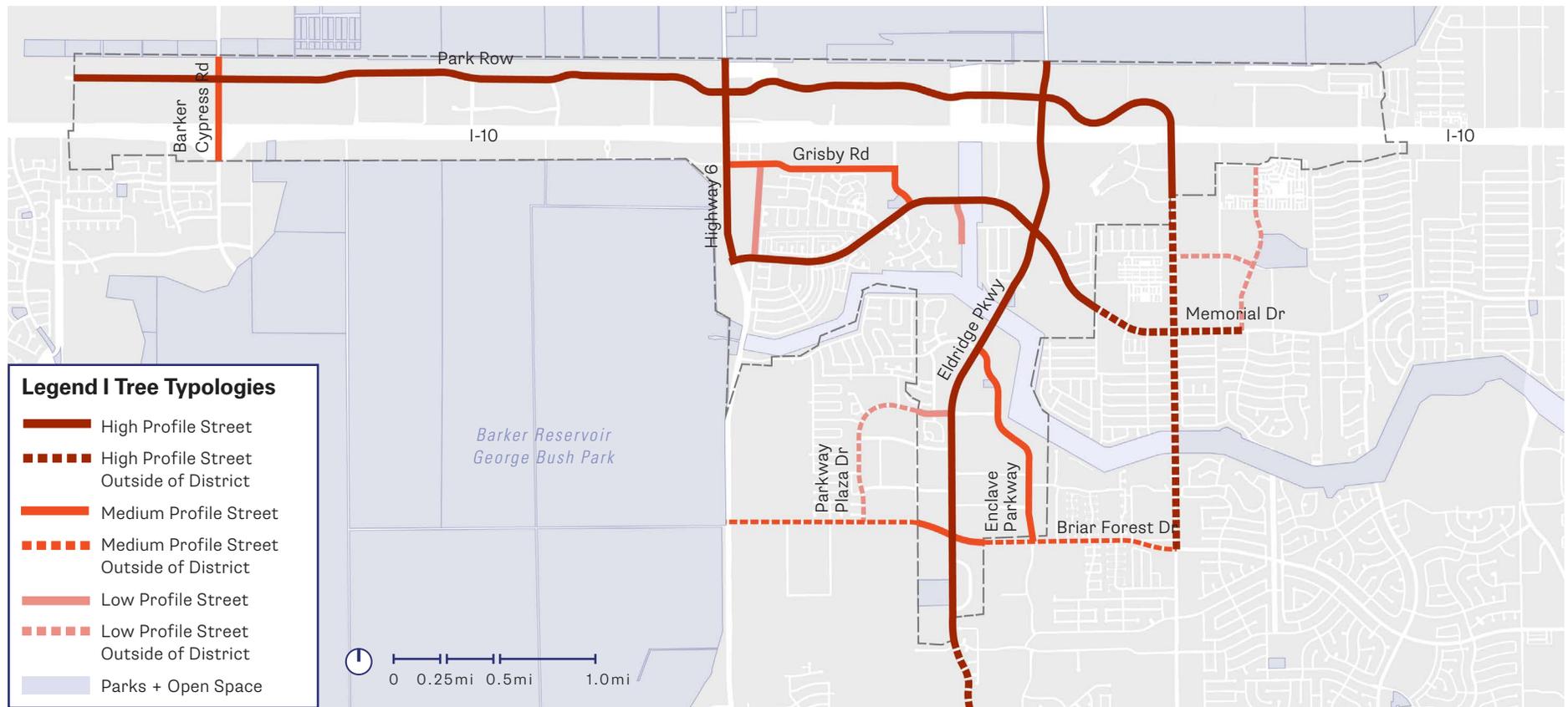
Street Tree Typologies

Street tree selection needs to address functional needs while enhancing the character of the district and considering resiliency. The following diagram shows the street tree typologies based on the level of activity that occurs along the street.

High Profile Street: Characterized by fast interactions with an emphasis on vehicular travel. Tree palette needs to be a strong, bold statement to create a district character.

Medium Profile Street: A mix between the high and low profile streets.

Low Profile Street: Neighborhood streets that are used daily and have the potential for more seasonal interest.



High Profile Street Trees

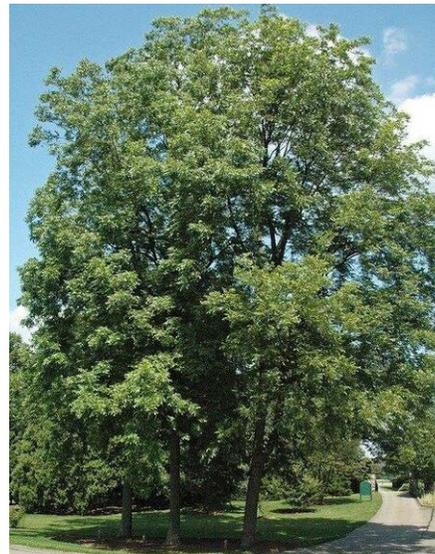


Function: Provide a continuous canopy of shade. Create distinct moments at key destinations and intersections.

Form: Large, shade trees.

Suggested Tree Species: American Elm, Bald Cypress, American Sycamore, Nuttall Oak, Overcup Oak, Loblolly Pine.

Medium Profile Street Trees



Function: Provide shade, seasonal interest and screening for adjacent uses.

Form: Large to medium shade trees with more variation and diversity than the high profile typology.

Suggested Tree Species: Southern Magnolia, American Holly, Southern Red Cedar, Water Hickory, Japanese Blueberry.

Note: Trees listed in the high profile typology may be utilized here but can result in a be smaller tree if minimal soil volume is not reached.

PUBLIC REALM STANDARDS + GUIDELINES

Low Profile Street Trees



Function: Provide shade and seasonal interest. Emphasize the pedestrian scale and encourage vehicular traffic to slow down.

Form: Medium trees that have more seasonal characteristics.

Suggested Tree Species: Parsley Hawthorn, Dwarf Southern Magnolia, Sweetbay Magnolia, Two-Wing Silverbell, Crape Myrtle, Chinese Pistache, Chinese Fringe, Lacebark Elm.

Groundcover Plantings



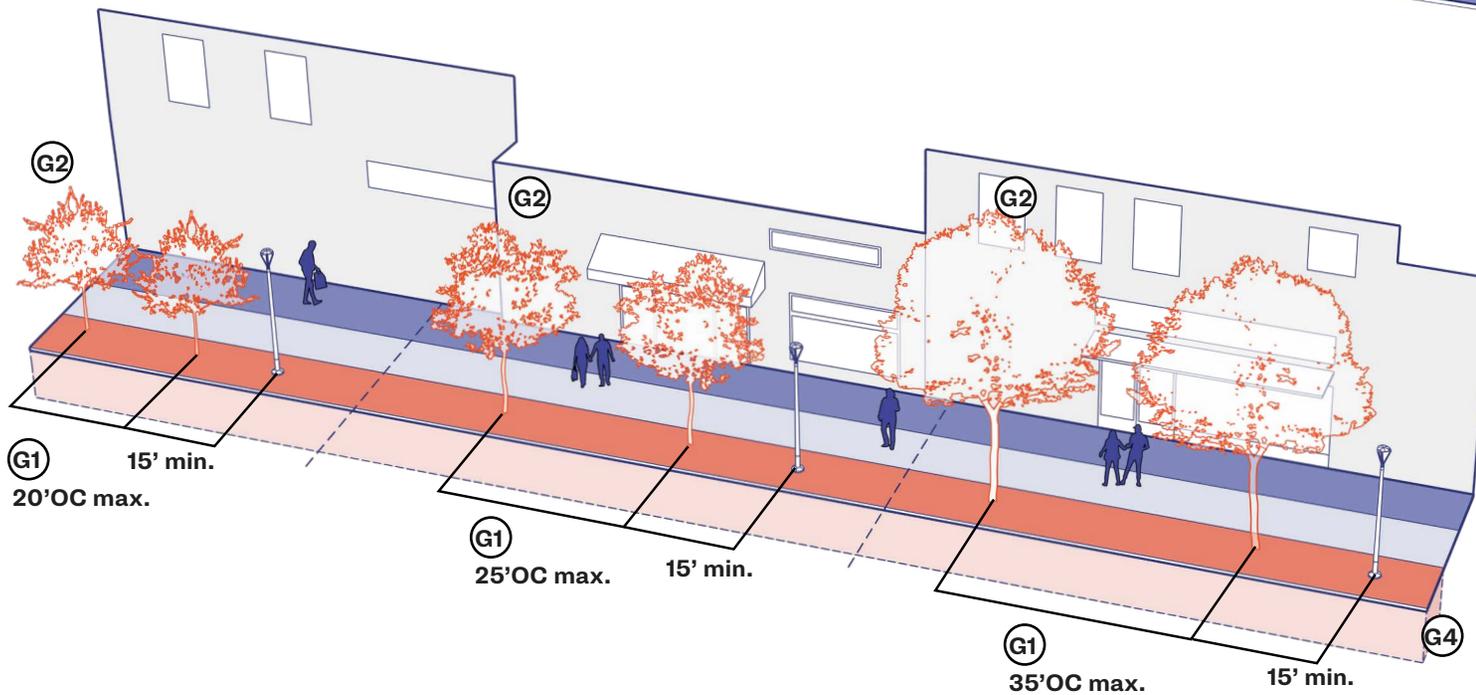
Function: Provide interest and a buffer between pedestrian and vehicular travel while enhancing identity and character.

Maintenance: Plantings should be resilient to increase longevity and decrease care.

Suggested Species: Boston Sword Fern, Muhly Grass, Cast Iron Plant, Liriope, Western Yarrow, Cardinal's Feather, Lazy Daisy, Wild Indigo, Smooth Bur Marigold, Indian Paintbrush.



Note: Publicly-accessible pocket parks and plazas may be located within the private realm, along easement properties or adjacent to sidewalks on street corners. A combination of planting and hardscapes may be used in addition to amenities cited in **Street Amenities (A)**.



Note: A logical pattern and diversity of species should be placed along the streetscape to signify an obvious street character and support a resilient urban forest.

PUBLIC REALM STANDARDS + GUIDELINES

transit amenities

Transit facilities provide comfort for people using bus transit or bike routes for recreation or work. Furnishings could include bike racks, enhanced bus shelters that include digital maps and timetables, trash receptacles, charging stations, transit curbs, ticket vending machines, access to Wi-fi and comfortable seating.

- HCS** Transit-oriented amenities provide opportunities for commuter-rest, accessibility and performance. High quality shelters and furniture expand commuter capacity and promote transit streets as desirable urban environments.
- RE** Using transit elements such as bike racks, digital timetables and on-site access to METROcards and Wi-Fi create efficiencies, cost savings and equity in commuter journeys.
- CO** Providing transit elements and creating legible travel experiences effectively connects commuters to travel information and boost levels of service to destinations.
- AC** Transit amenities encourage transit usage, minimizes reliance on cars and activates key stops, streets and nodes, creating higher access opportunities.

transit amenities zone standards

	Level 1	Level 2	Level 3
TA1. Bike racks	within 10'-0" of trailheads, 50'-0" a bus shelter only	within 10'-0" of trailheads, 50'-0" of a bus shelter and stop or every 0.5 miles along designated bike route	
TA2. Bus shelters	existing shelter	shelter enhancement/addition required	
TA3. Bollards ¹	typ. 28" H x 3" L x 3" D (cylindrical or cantilevered); spaced a max. of 5'-0"		

transit amenities zone guidelines

TA1. Bike racks	Install bike racks 3'-0" apart in well-lit areas in full view of sidewalks and shared use paths. Ensure there is a clear zone around racks to avoid impeding pedestrians traffic.
TA2. Bus shelters	<ul style="list-style-type: none"> • All bus shelter/stop improvements (including signage and wayfinding) should be coordinated with METRO guidelines. • The landing zone at bus doors should be a clear zone that is a min. 5'Lx8'W and parallel to the curb. Landing zones should be provided at all doors. Trees, if used should be offset a minimum of 10'-0" from landing zones. • The length of the stop depends on vehicle type as well as the location of the stop (near side, far-side, mid-block), and improvements should coordinate with METRO. • If a sidewalk is not wide enough, acquire an easement from adjacent property or consider a curb extension. There should be a minimum of a 6'-0" clearance behind shelter to ensure there is a continuous sidewalk zone.
TA3. Bollards	<ul style="list-style-type: none"> • Vertical elements such as bollards can be used to separate pedestrian walkways or sidewalks from back of curb bike paths (cycle tracks) or other spatial dividers in the public and private realm (ie: emergency vehicular paths, food truck aisles, parks and plazas). See also path lighting options on page 86. • Ideal vertical options include vertical curbs that are 4"-6" in height, rumble strips, low concrete domes (should only be used between transit lanes and vehicle lanes) or planting strips. Rumble or planting strips are preferable to vertical curbs like stop bollards.
General	Stop bollard and bike rack products specified for the public realm may be integrated in the private realm (ie: offices, commercial, civic). Alternatively, a similar product in the same family/collection should be used in the private realm to ensure a consistent look and brand throughout the District.



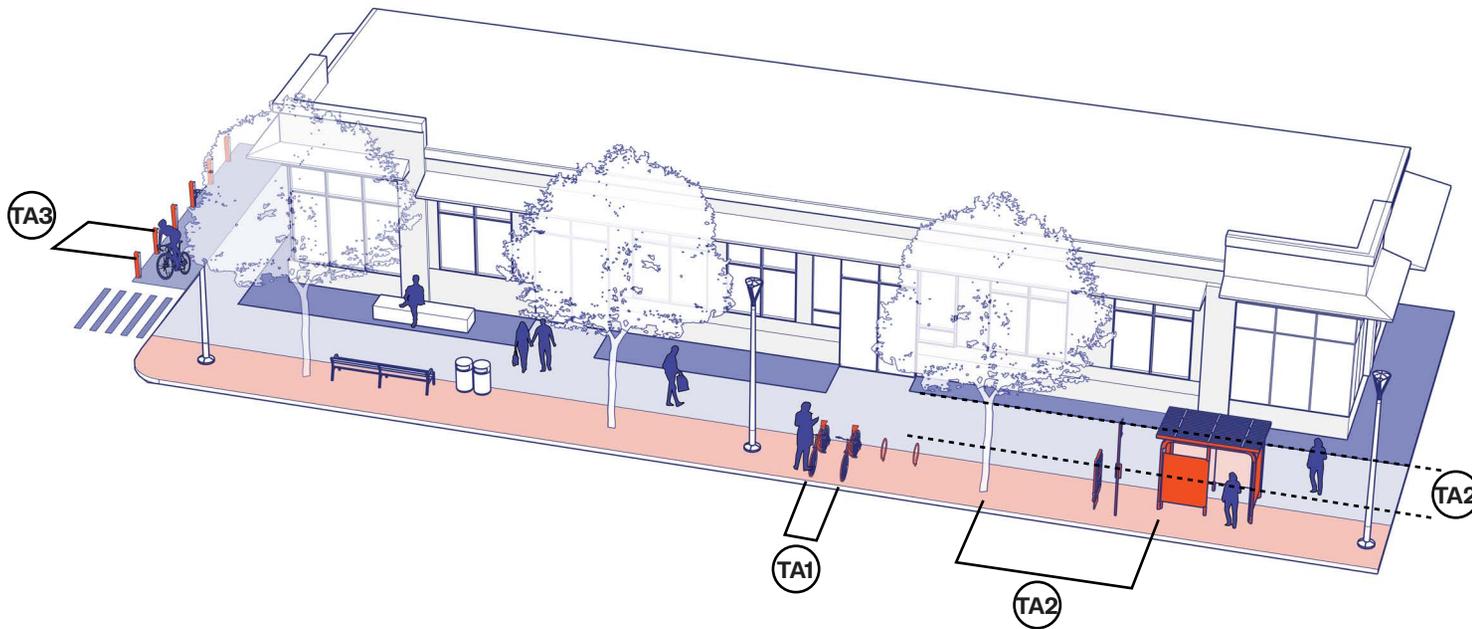
Bike rack specifications: Landscape Forms **FGP Bike Rack**; Finish- Metal Polyester Powder Coat Finish, Silver (single tone/color).



Bus shelter specifications: Landscape Forms **Connect 2.0**; Finish- Metal Polyester Powder Coat Finish, Silver.



Stop bollards specifications: **Bega** without lighting/ Impact bollard installation options; Finish- Powder Coated Silver.



***Notes:** Transit amenities such as bike racks specified in the public realm could be applied in the private realm. Alternative furnishings must be part of the same family aesthetically and functionally to that of public realm amenities specified in these Standards and Guidelines. See Appendices for Cost Worksheet for full range of options.

PUBLIC REALM STANDARDS + GUIDELINES

street lighting

Lighting for the purposes of these Standards and Guidelines includes equipment used to produce light in the public realm -street lights, accent lights, bollard lights, path lights, roadway lights, etc. Prescriptions address arrangement and look of lighting in the public realm.

- HCS** Lighting is integral to creating a safe nighttime environment for both pedestrians and vehicles. Brighting and sizing of these elements should reflect the intensity of use in the public realm.
- RE** Lighting devices that withstand heavy outdoor use should reflect permanence and longevity of products specified. Light levels should be properly matched to usage zones, time and vehicular/pedestrian traffic with the added goal of energy efficiency and long-term sustainability.
- CO** Creating a consistent lighting system promotes ease of navigation, and additionally, increases the perception of a collective District.
- AC** Distinctive lighting creates special experiences in the public realm, manifesting in a desirable, activated space and destination.

street lighting zone standards

	Level 1	Level 2	Level 3
L1. Roadway	Refer to the City of Houston Guidelines and Infrastructure Design Manual		
L2. Pedestrian	consistent illumination of at least one foot-candle; spacing should be 2.5-3X the height of pole		
L3. Path	10' to 15'-0" on center		

street lighting zone guidelines

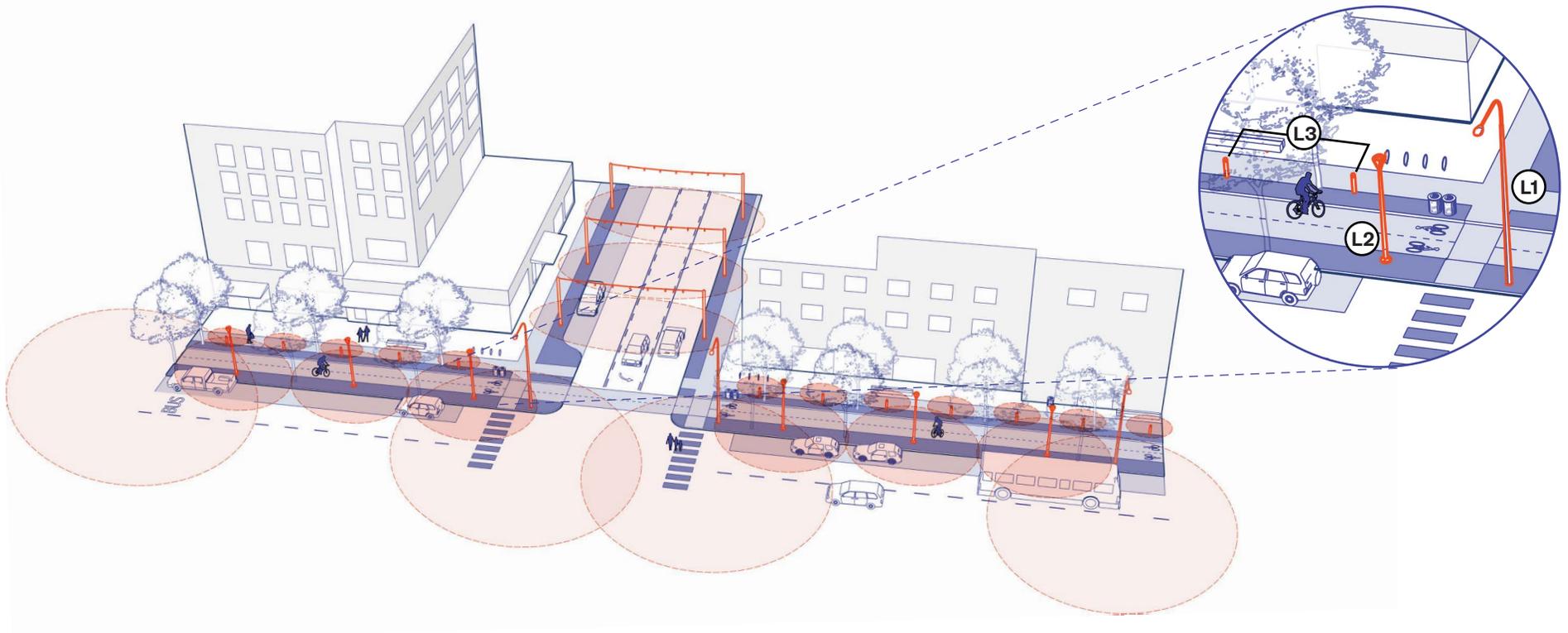
L1. Roadway	<ul style="list-style-type: none"> Consult with the City of Houston and CenterPoint to replace traditional lighting with LED roadway lighting. For brand consistency, roadway lights should have similar features and materiality to that of pedestrian and path lighting highlighted in L2.
L2. Pedestrian	<ul style="list-style-type: none"> Ensure lighting is full cut-off with a consistent, familiar color temperature of 2500K-4500K throughout the public realm (the average foot candle reading along a given corridor shall be no less that one half of a foot candle [0.5 fc]). Provide continuous lighting along all streets that is focused on the pedestrian sidewalk. Poles should be able to accommodate decorative accessories such as hanging catenaries, banners and seasonal schemes. Lighting poles should be spaced evenly between trees (see page 78 Green space zone).
L3. Path	<p>Path lighting should not hinder the flow of circulation, but guide the flow of circulation. Ground-mounted uplighting maybe used for vegetative areas or water features.</p>
General	<ul style="list-style-type: none"> Pedestrian lighting and accent lighting products specified for the public realm may be integrated in the private realm (ie: offices/civic common spaces/paths, commercial areas, etc). Alternatively, a similar product in the same family/collection should be used in the private realm to ensure a consistent look throughout the District. Use smart technology (sensors for dimming, cameras, solar panels, noise detection) where possible to provide a sense of security and long term cost savings on energy. Mercury vapor, low-pressure sodium, high-pressure sodium and metal halide lighting should not be used. Provide LED, dark sky lighting or low energy lighting that create true color rendering and reduce light pollution should be used. Avoid uplighting that is not ground-mounted, and exposed bulbs or “drop” lenses. Lighting should not interfere with residential buildings. Transition lighting intensity between residential areas, 9-5 office parks and high-intensity commercial zones.



See [Appendices for Cost Worksheet](#) for full range of lighting options and costs.

Pedestrian light specifications: Landscape Forms **FGP Area Light Single Mount**; Finish- Metal Polyester Powder Coat Finish, Titanium.

Accent/Path/Bollard lighting specifications: **Bega**; Finish- Powder Coated, Silver.



PUBLIC REALM STANDARDS + GUIDELINES

signage

Signage refers to wayfinding elements that provide an overall image of a district, mark entry/exit points and provide informational cues about directions and destinations. These are vital in orienting pedestrians, cyclists and motorists, and limiting potential clashes.

- HCS** Signage should have appropriate hierarchy of information and should be scaled to their intended audience. Consolidating information on signage will also help in limiting clutter in the public realm.
- RE** Signage that is developed from durable, sustainable materials will help in withstanding heavy outdoor use and overall reducing long-term maintenance costs.
- CO** A clear, coherent signage system helps visitors and residents navigate the District effectively and efficiently.
- AC** An effective signage and wayfinding structure particularly for pedestrians will activate the public realm through usership. Consolidating information on signage will also help in limiting clutter for circulation.

signage standards

	Level 1	Level 2	Level 3
PS1. Regulatory	Refer to City of Houston Infrastructure Design Manual		
PS2. Directional	required along all Major Thoroughfares ¹		required along all Major Thoroughfares and Collectors ¹
PS3. Monuments/Markers	optional along all Major Thoroughfares ¹		required along all Major Thoroughfares ¹

signage guidelines

PS1. Regulatory	<ul style="list-style-type: none"> • Ensure regulatory signage (posted speed, bike routes, roadway indicators) are located near intersections and gateways into the District or sub-districts. Consolidate information onto one sign every 0.25 miles to limit clutter along the right-of-way where possible. • Bike wayfinding signage and pavement markings should be included along bike paths or shared use paths. • Markings should be large enough to be visible to all roadway users (112”X40” min.). • Warning or notice signage prompting vehicular turns (right or left only) should be posted at least 400 yards from intersection.
PS2. Directional	<ul style="list-style-type: none"> • Consider ranking destinations to determine which should be listed on a sign where more than three (3) destinations are nearby. • Refer to METRO guidelines for specific standards associated with transit wayfinding. • Colors representative of the District are encouraged for subdistrict identity. • Signs located at key intersections and focal points should direct people to major streets and attractions. Signs located along major shared use paths or bikeways should give distances and directions to community destinations. • Align wayfinding in the public realm with adopted city-wide signage standards. • Banners can be attached to light-poles with a sign no larger than 100sf. Refer to City of Houston Banner District Guidelines on additional information. • Consider creative features such as outdoor interactive technology that connects patrons to the District through real-time information at parks, transit destinations, community nodes and at entrances/exits to trails. • Emerging centers or gateways should be identified through the use of special lighting, banners, monuments, or small plazas.

PS3. Monuments/ Markers	<ul style="list-style-type: none"> • Refer to PS2 and PS4 for additional details and guidelines. • Emerging centers and gateways into and out of the District should be identified as ideal locations for branded District markers and monuments (major intersections, public parks, etc). District monuments and markers should not be obstructed or overwhelmed by nearby private signage/markers. • District monuments and markers should emphasize the brand and character of the District, scaled appropriately to be seen by both vehicles and pedestrians. • District monuments should be located away from areas of pedestrian traffic.
PS4. Private realm Signage	<ul style="list-style-type: none"> • Use signage materials that are human scale and are durable. Use natural or authentic materials with color and finishes to support the overall brand of the District and subdistrict. • Color should be in character with the surrounding neighborhood and context. Avoid signage that is temporary or blinking/strobing (neon). • Avoid the use of repetitive signage along one facade of building in addition to advertisements above the second floor (excluding building name). • Scale and position wall signage in proportion to the wall on which they are placed. Limit wall signs to 75% of the linear footage of the wall area. Mount letters and graphics directly on the wall and conceal electrical raceways from view. • Hanging or projecting signage may be used and must be scaled for pedestrian legibility rather than vehicular wayfinding. Projecting signage should not hang over pedestrian rights-of-way or paths nor obscure major architectural details. • Emphasize legibility, simplicity, consistency and alignment. Subordinate signage to the overall building or streetscape composition. • Externally illuminated signage should be done so from the top of the sign; use shielded or focused light fixtures. Avoid internally-illuminated cabinet signs. • In the use of freestanding signage, limit element to 50% of the height of the first story of the building. Avoid monolithic structures, exposed pole supports and pylon signs.

***Notes:** 1. Refer to the *Major Thoroughfares Plan* on [page 21](#) for street designations and hierarchy. Additional study of signage and wayfinding design is needed.

PUBLIC REALM STANDARDS + GUIDELINES



Regulatory signage

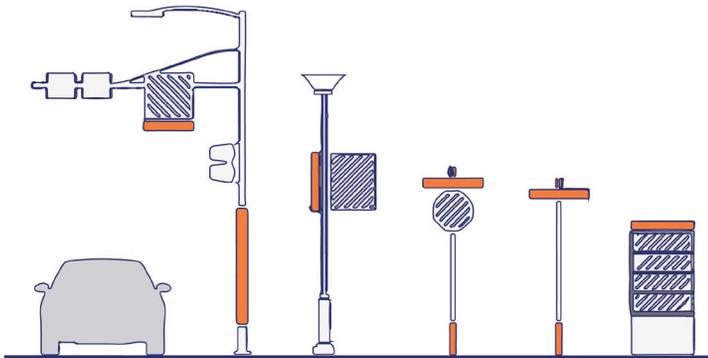


Directional signage



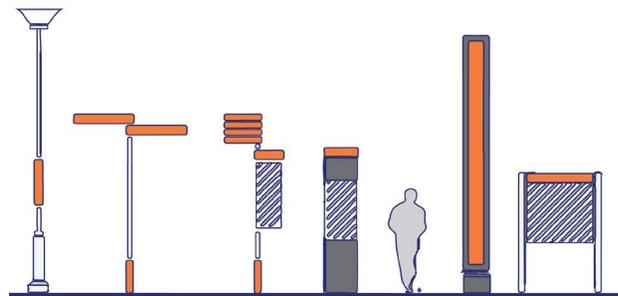
Regulatory signage (public realm)

Regulatory signs describe a range of signs that are used to indicate or reinforce traffic laws, regulations or requirements which apply either at all times or at specified times of the day (ie: stop, yield, right/left turn signs).



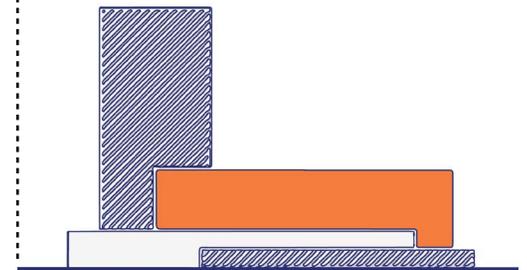
Directional/Informational signage (public realm)

Directional and informational signage display location information about points of interests in an area and distances to reach them. These can be placed along trails, key points of entry/exit along a sidewalk, etc.



Gateway monuments/markers (public and public realm)

Monumentation helps define a place. They are structures that are built not only to serve a purpose, but be an iconic symbol that is easily recognizable and representative of a place.





Monumentation/markers



Notes: For private realm signage (subdistrict), a family of items may be derived to complement public realm signage elements. Additional study and design of signage elements is required.



PRIVATE REALM GUIDELINES

building frontage + transition zone

The building frontage and transition zone addresses the area directly adjacent to the building. This space is key to providing a buffer and refuge where retail shoppers and pedestrians can escape the flow of pedestrians traffic in the sidewalk zone.

HCS Programs within the building transition zone can help break up building facades that might otherwise feel large and uninviting. Additionally, allocating sufficient space for the transition zone ensures potential spillover for free pedestrian movement in the public realm.

RE Transition spaces can inhabit planting that enhances the building environment. Also ensuring materials are durable and flexible help maintain longevity in use.

CO The transition zone establishes an active edge on vital commercial corridors that help promote continuity and a rich pedestrian experience.

AC Activities such as outdoor dining, retail displays and plantings that take place within the building transition zone animate the public realm with visual and social interest.

building frontage and transition zone standards

	Level 2	Level 3
BF1. Front setbacks along key connectors/corridors		
Mixed use commercial	0'-0" - 15'-0" max; include elements such as cafe spaces, seating or pocket parks if maximum setback along major corridors is achieved.	
Office commercial	10'-0" - 20'-0" max / 72'-0" max if parking is along frontage of key connectors (avoid parking in front when possible).	
Residential	5'-0" - 20'-0" max (includes multifamily and single-family properties)	
BF2. Transition zone	3'-0" - 10'-0" max when applicable (mixed use commercial only zones)	
BF3. Building Placement along key connectors/corridors		
Mixed use commercial	75% min. along key connector frontage; 75% min. along remaining streets	
Office commercial	50% min. along key connector frontage; 50% min. along remaining streets	
Residential	75% min. along key connector frontage	
BF4. Building materials on ground and second floor		
Mixed use commercial	Masonry/stone, wood, non-reflective metal, stucco and glass are acceptable; Vinyl siding and synthetic stone are discouraged.	
Office commercial	Masonry/stone, architectural concrete/CMU, wood, non-reflective metal, stucco and glass are acceptable; Vinyl siding is discouraged.	
Residential	Masonry/stone, architectural concrete/CMU, wood, stucco and glass are acceptable; Vinyl siding and synthetic stone are discouraged.	

building frontage and transition zone guidelines

BF2. Transition zone	<ul style="list-style-type: none"> Maintain access to building entrances. In commercial or mixed use areas, the building frontage should have a transition zone that is a continuation of the sidewalk with connected paving, cafe/dining seating, retail displays, flexible open space, etc. In office commercial zones, the building frontage should have a transition zone that provides flexible open spaces, adequate buffering to parking, seating and lobby extensions. In residential areas, low risers, additional plantings or balconies may encroach the building transition zone.
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<p>BF2. Transition Zone (continued)</p>	<ul style="list-style-type: none"> • When establishing cafe seating in the Transition Zone of commercial mixed use areas, consider separating seating areas from the Sidewalk Zone with movable barriers. Fencing, if used, should be constructed of durable materials like iron or wood, be at least 50 percent opaque and between 36-42 inches high (See <i>Street Amenities Zone</i> on page 76). • Seating area barriers may be composed exclusively of planters; planters must be between 25-30 inches high (plants may exceed this height). If canopies/umbrellas are used, they should not encroach the sidewalk or entrances, and must be firmly secured to withstand wind. • Emphasize durable, lightweight and smaller furnishings that can be easily moved to maximize layout flexibility and user customization.
<p>BF5. Activated ground floor</p>	<ul style="list-style-type: none"> • Activated ground floor should align with section BF2 <i>Transition Zone</i> Standards and Guidelines in commercial mixed use areas particularly fronting key connector streets/ corridors. • Locate publicly accessible commercial spaces instead of private spaces, along the ground floor fronting key connectors. • Maximize the transparency of the ground floor to the street level to allow views of the use and activity within the building; use of darkly tinted and/or reflective glass is discouraged. • Maintain simple access to commercial and retail areas to avoid unnecessary or circuitous travel. • Facade on ground floor should be 75% transparent with maximum of 20'-0" interval between transparent openings. • Corner buildings have at least two façades visibly exposed to the street.
<p>BF6. Massing + Articulation</p>	<ul style="list-style-type: none"> • Ensure building mass, scale, form, floor-to-floor height and horizontal alignment is not in stark contrast to its surrounding context (within one block). • Use lower scale buildings or building elements to transition taller buildings towards lower scale buildings on adjacent properties. • Avoid large, monotonous façades and articulate buildings with dimensions that promote a sense of human scale particularly on the ground floor. • Articulation should be provided along facades visible from streets and residential areas. A combination of balconies, recesses, and terracing should be used. • When possible, highlight elements such as chamfered corners, floor-to-ceiling windows, display windows or embellished doorways on corner lot structures.

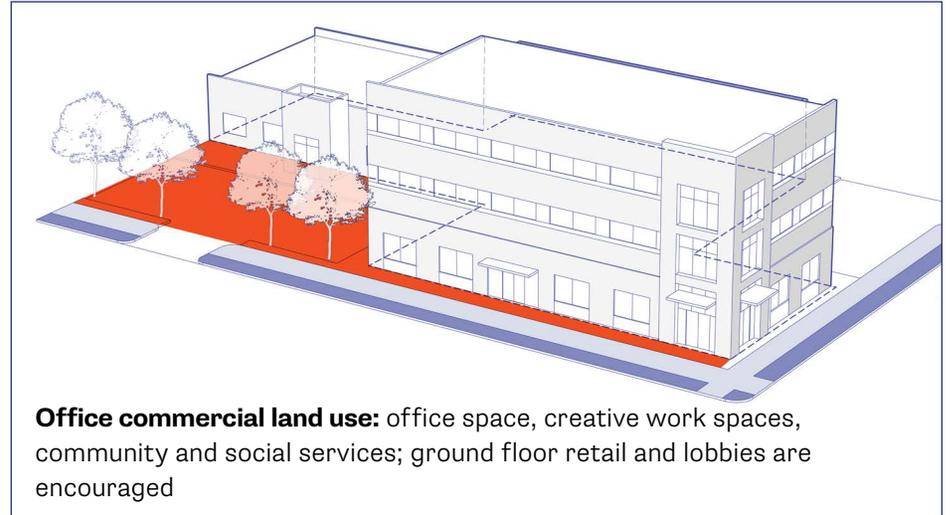


PRIVATE REALM GUIDELINES

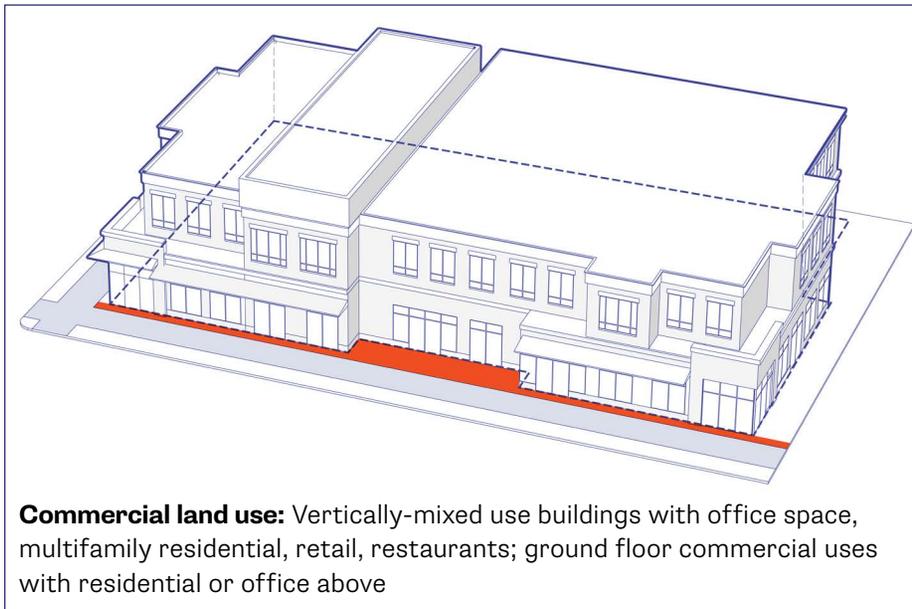
Setbacks based on land use



Residential land use: Multifamily townhomes and brownstones, apartment complexes, single-family and duplexes

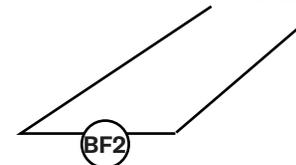


Office commercial land use: office space, creative work spaces, community and social services; ground floor retail and lobbies are encouraged



Commercial land use: Vertically-mixed use buildings with office space, multifamily residential, retail, restaurants; ground floor commercial uses with residential or office above

Activated Frontage



fences, screening + walls

Fences, screening and walls may be used as barriers that enclose or separate an area. Examples of this may include greening elements such as tall shrubs or vegetative screens or fences and walls. Guidelines in this section address fences, screening and wall attributes that are functional, aesthetic and characteristic of the District.

HCS Walls, fencing and screening protect pedestrians from dangerous, unappealing areas that negatively impact pedestrian walkability. Effective fences and walls are proportional to the urban elements it is designed to screen.

RE Walls, fencing and screening should withstand heavy outdoor use, be cost-effective long-term and promote low-impact greening solutions when possible.

CO Appropriately located and designed screening elements promote privacy without visually or physically disrupting the District context.

AC Walls, fences and screening, when designed effectively, can enhance the pedestrian environment by providing seating, art or shade. Their use should be limited along active retail edges.

fences, screening and wall standards

	Level 2	Level 3
SC1. Seatwalls	min. of 16”H X12” in depth	
SC2. Fences	chainlink, vinyl or plastic fencing is prohibited; maximum height of 8’-0” in residential areas; maximum height of 48” for non-residential areas.	

fences, screening and wall guidelines

SC1. Seatwalls	<ul style="list-style-type: none"> Provide seatwalls in places of high pedestrian usage.
SC2. Fences	<ul style="list-style-type: none"> When designing perimeter/boundary fences, walls or screening, ensure they complement the architectural character of adjacent buildings. Fences should not be used adjacent to the right-of-way unless it is a residential property, in which case, a masonry wall or green screens should be used to create a welcoming street environment for pedestrians.
SC3. Green screens	<ul style="list-style-type: none"> Vegetative screening should be provided on blank facades of non-residential properties where appropriate or possible (ie: parking garages). For vegetative screening, use plant species that are native to Houston.
General guidelines	<ul style="list-style-type: none"> Create spaces to capture views of surrounding landscapes and District views. Screening features should not block these views. Screening features adjacent to public outdoor spaces should be developed with high-quality stone, wood, concrete, outdoor fabric or weather-proof metal. Limit the use of fences or barriers along the perimeter of a public park.



Green screens



Fences

off-street parking

Off-street parking refers to on-site parking areas in the privately-held properties, namely, surface parking or garage parking. Design of lots and structured parking must consider convenience of access for pedestrians and interactions with the public realm.

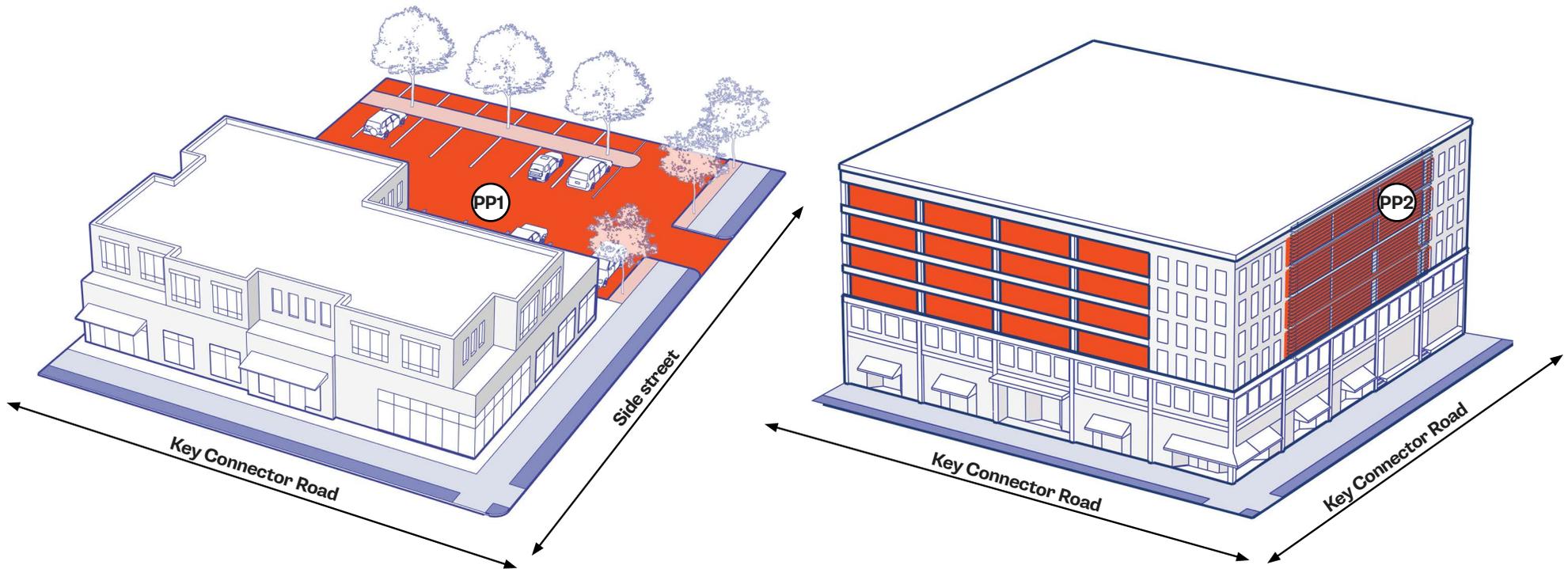
- HCS** Off-street parking should be minimally sized and located to the rear of buildings to prevent motorist obstructions and the intended flow of pedestrians.
- RE** Parking structures and lots should incorporate on-site stormwater management features into landscaping to limit the impact of the large amounts impervious surfaces.
- CO** Lots and garages when designed to be located to the rear of buildings, allows easy access to the entrances and exits and sidewalks are uninterrupted from vehicular curb cuts.
- AC** Incorporating multimodal options, amenities and design features to accommodate multimodal transportation and limiting parking adjacent to the public realm will allow access to buildings, and promote an active, safe street frontage.

off-street parking guidelines

	Level 2	Level 3
PP1. Lot parking	lot parking along key connector frontage is allowed	lot parking along key connector frontage is strongly discouraged
	<ul style="list-style-type: none"> • Where there is a view of parking lots from streets and/or private access way, the parking lot/spaces must be buffered with landscaping or low walls that is 50% opaque, non-reflective surfaces (see SC2/SC3 Fences, Screening + Walls). • Screen parking areas from public view. A minimum of 3'-0" wide vegetative buffer with plantings up to 30" in height and shade trees at least 30'-0" OC should be used (see Green space zone). • Replacing existing buildings with on-site parking lots is strongly discouraged. • Parking lots on corners is discouraged. Access from side streets and alleys with minimal curb cuts is strongly recommended. • Incorporate low-impact site development features and materials to make efficient use of land and natural resources. In addition, use of intelligent lighting, motion sensors, security cameras and smart parking technologies are encouraged for added sense of safety and user ease of access. • Access from alleys and side streets is preferred. Minimize the number and dimensions of curb cuts and driveways to maintain the continuity of sidewalks. • Surface lots should be located in the rear of the building and not between the primary road and building in order to encourage an urban form. 	
PP2. Structured parking	garage parking is allowed with appropriate screening along key connector frontages	structured parking is preferred to lot parking; garage parking fronting key connectors should have ground-level storefronts or lobby spaces with building articulations that are pedestrian scaled
	<ul style="list-style-type: none"> • Limit the presence of large facade openings to 30% of total facade area along active street fronts unless screened via green screens or architectural details. Locate short dimension of parking structures along street edge. • Locate active, pedestrian spaces such as shops, offices or public art along the ground-level street frontage when possible. Otherwise, provide an activated pedestrian space in the Building Transition Zone using landscaping and seatings. • All visible facades of parking structures must reflect the character, use of materials, and articulation of its surrounding architecture. 	

PP2. Structured parking (continued)

- Place parking structures only in areas where they can be integrated into the surrounding neighborhood context.
- Vertical circulation cores (elevator and stairs) shall be located near primary pedestrian corners and be highlighted architecturally so visitors can easily find and access these entry points.
- Integrate the design of public art and lighting with the architecture of the structure to reinforce its unique identity, particularly for public parking structures.
- Locate structures so that they are not visible from the road at important gateways in/out of the District.
- Garages shall have clearly marked, multiple access points for pedestrians. Vehicular access along a side street or one key location along the main corridor is encouraged.
- At least one block of structure should have conditioned space.
- Use of smart parking technologies is preferred to allow mobile travelers access to real-time parking status before arrival.



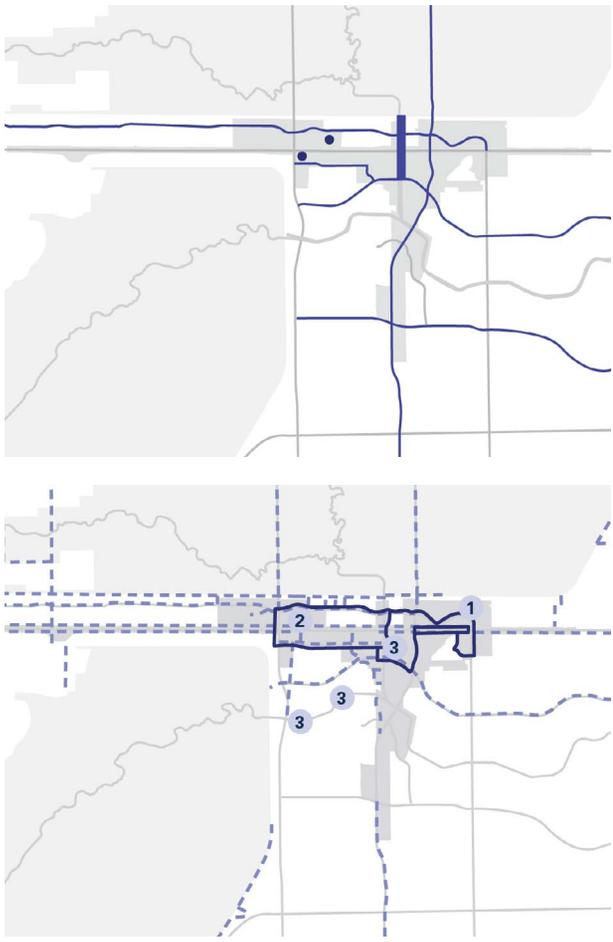


appendices

Appendix 1: Understanding the Baseline	100
Appendix 2: Site Visit	110
Appendix 3: Toolkit Benchmarks	112
Appendix 4: Toolkit Assessed	115
Appendix 5: Stakeholder Engagement	117
Appendix 6: Opinion of Probably Cost	141
Appendix 7: Glossary	142
Sources	147

APPENDIX 1: UNDERSTANDING THE BASELINE

A matrix of previous plans have been studied to build off the momentum and better understand recommendations that would impact the outcome of the Design Standards and Streetscape Guidelines.

previous plan (and weblink)	summary	synthesis maps
<p>Energy Corridor District 2015 Master Plan (ECD Plan)</p>	<p>The Energy Corridor District Master Plan was developed through a collaborative effort during 2014 and 2015. The Vision provides a foundation for the District from 2015 to 2024. It addresses different framework elements at a District level and provides design concepts for key areas and corridors within the District.</p> <p>The Master Plan aims to provide guidance for future development and enhancements made within the District with the purpose of bringing the District’s vision to life.</p>	

key findings / needs

Guiding Principles:

- Embrace Natural Landscapes: Build upon and enhance existing infrastructure to increase recreational opportunities and connections.
- Create Vibrant Destinations: Develop centers within the District that encourage mixed-use and entertainment while being pedestrian centric.
- Build Great Public Spaces: Improve the trails and park system through connections and providing a diversity of spaces.
- Enhance Circulation Networks: Increase connectivity, comfort, and safety for the pedestrian realm.
- Develop Complete Streets: Provide increased opportunities for multiple modes of mobility while improving the experiences of all users.
- Integrate Transit Service: Encourage the use of public transit through improved amenities, connections, and policies.
- Encourage Bicycle Use: Enhance the existing trail network to provide safe bicycle travel and connections.
- Invest in Transit Infrastructure: Provide improved amenities for transit users.
- Promote Environmental Design: Increase and enhance the public realm through environmental streetscape practices to reduce impacts on the environment and infrastructure.
- Activate Neighborhood Streets: Create vibrant streets and pedestrian environments by activating ground-level activities.

opportunities / recommendations

Land Use Framework Plan: Proposes mixed-use neighborhoods to create walkable, active spaces.

Proposed Retail Centers: Proposes changing the current retail from being auto-oriented to pedestrian oriented to develop social, vibrant spaces.

Parks and Open Space Framework Plan: Identifies opportunities to create a network of neighborhood parks to enhance quality of life and walkability.

Mobility Framework Plan: Aims to increase vibrancy and decrease traffic volume through introduction of proposed circulation routes, adjustments to existing routes, and increased connectivity for multiple modes of mobility.

1. Circulator Route

2. Transit Center

3. Pedestrian/Bicycle Bridge

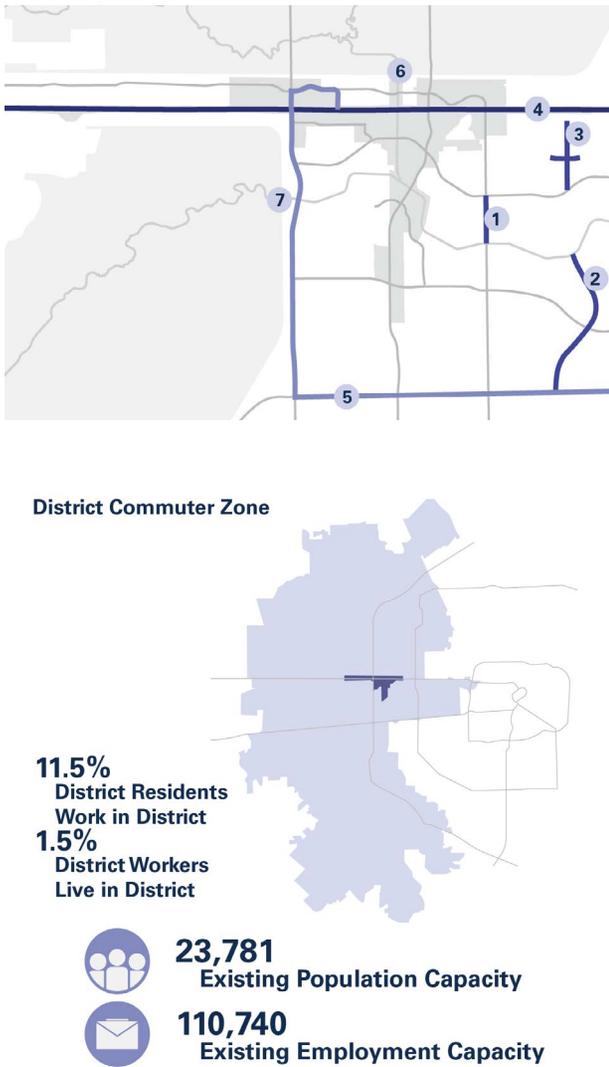
Transit Center Design: Proposes the design of a transit center and the surrounding development. Identifies the street network, circulation, parking considerations, an urban plaza, the parcelization and use of the blocks.

Terry Hershey Park: Proposes two design concepts for the park, developing a central park that is responsive to the guiding principles.

Grisby Square: Proposes the concept plan for Grisby Square to develop a pedestrian centric destination for the District. It proposes land use and development, streetscape characteristics, and community opportunities.

Street Design: Proposes street design for the following roads; Eldridge Parkway, Park Row, Memorial Drive, Briar Forest Drive, Grisby Road.

APPENDIX 1: UNDERSTANDING THE BASELINE

previous plan (and weblink)	summary	synthesis maps
<p><u>The Energy Corridor 2020 Land Use and Demographics Report (ECD Plan)</u></p>	<p>The Energy Corridor 2020 Land Use and Demographics Report presents the existing land use, development, and demographic information for the Energy Corridor District. The population is made largely of well-educated and above-average earning individuals. In addition to its residential population, the District is home to major regional companies and employers, pulling employees in from throughout the Houston area.</p> <p>The Report describes the major infrastructure projects and services that have or will affect the District based upon the existing information provided throughout the document and City of Houston decisions.</p> <p>As part of the Report, the District conducted stakeholder interviews in the fall of 2020 to understand the opportunities and challenges within the District. The 15 interviewees identified strengths and issues the District faces. Based upon the results, the Developmental Outlook report presents the future developmental opportunities and goals the District has.</p>	 <p>District Commuter Zone</p> <p>11.5% District Residents Work in District 1.5% District Workers Live in District</p> <p>23,781 Existing Population Capacity</p> <p>110,740 Existing Employment Capacity</p>

key findings / needs

opportunities / recommendations

Stakeholder Interviews:

- **Assets:** The consistent top assets of the Energy Corridor are its location and access. The proximity to the freeway provides access for the workforce and to the greater Houston area. Other strong assets include the access to the Park & Ride service, the region, and desirable suburban housing outside of the District. Other assets, but not listed as strongly, included the safety, diverse demographics, value of office space, proximity to medical services and parks and open space.
- Retail and dining were identified as adequate for some but not as desirable as other locations outside of the District. Because of COVID, many local businesses started to cater to the local residents more.
- The top short-term challenge identified was the reduced occupancy of office space because of COVID. The top long-term challenges identified were the traffic issues along main thoroughfares during peak times, flood safety during major events, and security issues particularly pertaining to automobile burglaries. Additional issues identified were homelessness, park space, broadening of the economic base, and the lack of communication between neighboring entities.

The Developmental Outlook:

- The developmental opportunities for the District include diversifying office-using industries, access to quality workforce, workplace changes, and developing mixed-use development models to build a more resilient community and economy.
- There is the desire to build mixed-use, walkable spaces within the District to brand the District as an ‘active public destination.’ The District proposes creating spaces that encourage outdoor activities and public space.

Major infrastructure Improvements:

- Dairy Ashford Paving and Drainage: The COH will reconstruct the road in 2021 to go from four lanes to 6. They expect to upgrade the storm sewer infrastructure as well as utilities, sidewalks and streetlights as needed.
- Kirkwood: Reconstruct the streetscape infrastructure.
- Nottingham: Reconstruct the streetscape and provide detention. Estimated for 2025

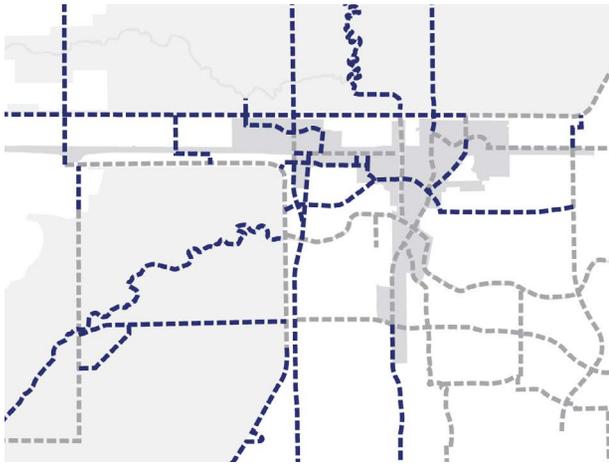
Transit Projects:

- METRONext 1-10 Regional Express: Provide transit infrastructure to major job centers and destinations. This includes two-way HOV lanes with access to the park & rides and the future transit center. This runs along I-10.
- METRONext SH6 and Westheimer BOOST Corridor: This project will provide improvements to bus stop locations and infrastructure and transit signal priority.

Drainage Projects:

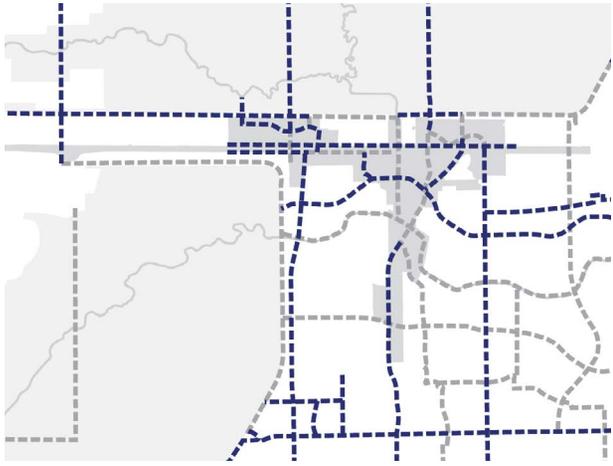
- Addicks drainage: A series of drainage improvements throughout the reservoir.
- Addicks and Barker Dam Safety Program: This project began in 2015 and updated the outlet control structures for both reservoirs.

APPENDIX 1: UNDERSTANDING THE BASELINE

previous plan (and weblink)	summary	synthesis maps
<p><u>The Energy Corridor District Service Plan (ECD Plan)</u></p>	<p>The Energy Corridor District Service Plan lays out the intent, services, and the vision of the District. The vision of the District is as follows: “to help The Energy Corridor District be internationally recognized as a high-quality place in which to work, live and invest.” The District aims to improve the quality of life for the residents, businesses, and visitors through various projects that enhance mobility, safety, beautification, recreation opportunities and connections, and identity.</p>	
<p><u>West Houston Trails Master Plan (ECD + National Park Service Plan)</u></p>	<p>The West Houston Trails Master Plan was produced in 2011 through community engagement and involvement of multiple community organizations. It proposes an improved trails network system through enhancing mobility opportunities, outdoor recreation, and environmental practices. The master plan builds upon the existing infrastructure and recommends future connections and improvements to design and maintenance with the intent of relinking residents throughout the City of Houston.</p>	

key findings / needs	opportunities / recommendations
<p>The District aims to be “the nation’s most desirable place to work and live” through the principles of:</p> <ul style="list-style-type: none"> • Leadership • Mobility • Beautification • Public safety • Safe multimodal network • Connecting the community • Business development • Planning for future growth 	<p>Goals for mobility:</p> <ul style="list-style-type: none"> • Create safer pedestrian, bicyclist, and vehicular experiences. • Promote cleaner air quality and a healthy lifestyle. • Enhance public transit and commuter services. <p>Goals for Improving Livability</p> <ul style="list-style-type: none"> • Enhance the pedestrian realm and curb appeal. • Maintain esplanades and public right-of-way. • Develop a Livable Center. <p>Goals for Business Development</p> <ul style="list-style-type: none"> • Develop a brand and identity. • Connect the members of the community through communication. <p>Goals for Security and Public Safety</p> <ul style="list-style-type: none"> • Encourage communication between safety entity and the community. • Advocate for public safety.
<p>The master plan proposes greater connections within the District and guidelines for different types of trails.</p> <p>Key Recommendations</p> <ul style="list-style-type: none"> • Develop recreational-use easements • Include a minimum of an 8’ wide multi-use trail along a new road on at least one side of the street. <p>Types of Trails:</p> <ul style="list-style-type: none"> • Spine: Generally 10’ min. The backbone of the trail system and main trial. • Spur: 6-8’ wide. A trial that typically provides access to a point of interest. Not a lengthy trail. • Loop: 6-10’ wide. Loops back to starting point to provide a circulatory path. • Gap: Width varies. Trails that provide connections between main trials. 	<p>George Bush Park Spine Trail: About 4 miles of additional trail with a connection to the Energy Corridor through the Grisby Spine Trail.</p> <p>Grisby-IH-10 Spine Trail: About 1 mile of additional trail connecting the George Bush Park Spine Trail, SH-6 North Spine Trail, Terry Hershey Park Spine Trail and the Eldridge/Energy Corridor Spine Trail. This proposes improvements to street crossings for safety.</p> <p>Eldridge/Energy Corridor Spine Trail: Continuation of the existing trail and connections to Terry Hershey Park Spin trail and Buffalo Bayou.</p> <p>Terry Hershey Spine Trail: Identifies potential extensions of existing trail and bridge connections.</p> <p>Patterson/N. Eldridge Spine Trail: Proposes a trail through the 3.5 mile corridor that connects to the Energy Corridor and goes through Addicks reservoir.</p>

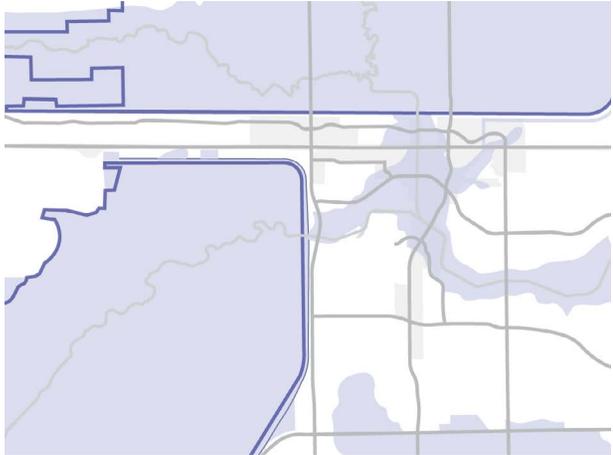
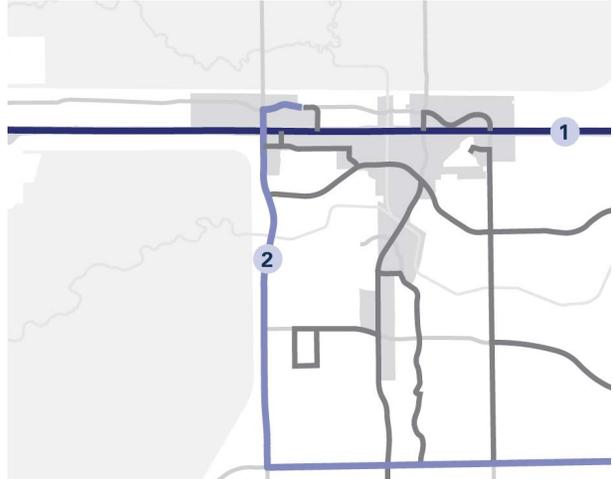
APPENDIX 1: UNDERSTANDING THE BASELINE

previous plan (and weblink)	summary	synthesis maps
<p><u>Houston Bike Plan (COH Plan)</u></p>	<p>The Houston Bike Plan is a master plan of the bicycle network of the City of Houston and was adopted in 2017. It presents recommendations and a long range vision with the intent of providing increased safety, affordability, and access to improve the quality of life for the City. The plan aims to benefit all modes of mobility and to have the City become a Gold-level Bicycle Friendly City by 2027. It provides a toolbox for designing bicycle paths and intersections and proposing trails to develop a connected bicycle network.</p>	
<p><u>Langham Park Master Plan (ECD Plan)</u></p>	<p>The Langham Park Master Plan proposes a design for the identified Langham Park in the Energy Corridor District 2015 Master Plan. The existing site is at the gates of the Addicks Reservoir and connects to the Buffalo Bayou. The proposed design aims to enhance connections for multiple modes of mobility, create a unique, regional experience, engage users from throughout the District, and celebrate the history of the site and District while planning for future weather events.</p>	

key findings / needs	opportunities / recommendations
<p>Through community engagement the plan identified that users prefer separated bike lanes.</p>	<p>The Plan developed a Bicycle Toolbox which provides:</p> <ul style="list-style-type: none"> • Preferred widths depending on roadway and speed. • Diagrams of different types of Bicycle lanes. • Roadway sections of a typical roadway condition depending on right-of-way and number of lanes • Diagrams of intersection treatments.
<p>In the aftermath of Hurricane Harvey, the outlet for the Addicks dam was reconstructed and rerouted to provide a more resilient structure in the occurrence of similar events. This opened the opportunity of an open space alongside the new outlet and Langham Creek.</p> <p>The master plan was designed to be cognizant of the multiple entities and cultural and environmentally sensitive aspects of the site.</p>	<p>The Master Plan proposes the following park amenities:</p> <ol style="list-style-type: none"> 1. Channel Plaza 2. Pedestrian Bridge 3. Overlook 4. Event Lawn 5. Playground 6. Kayak Launch 7. Trail 8. Parking 9. Preserve



APPENDIX 1: UNDERSTANDING THE BASELINE

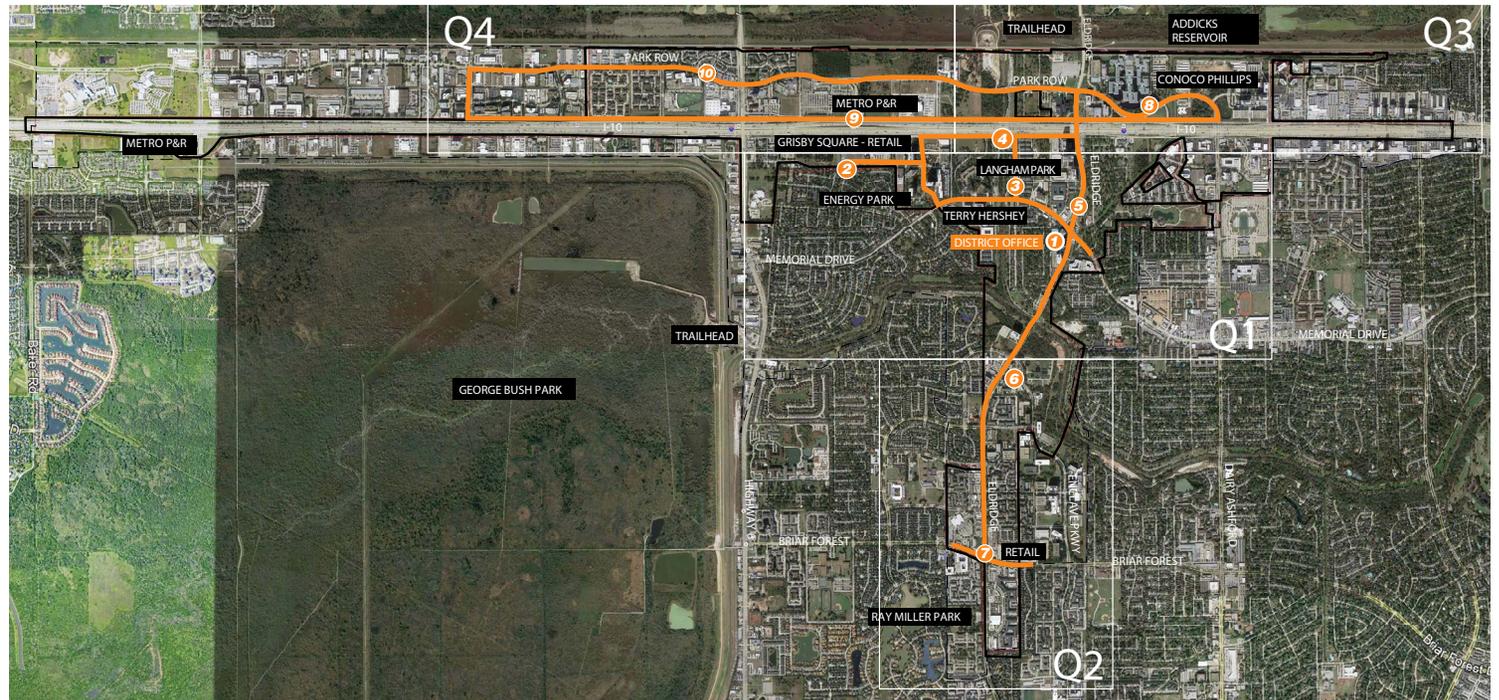
previous plan (and weblink)	summary	synthesis maps
<p><u>Post Hurricane Harvey Stormwater and Drainage Impact Audit (ECD Plan)</u></p>	<p>The Post Hurricane Harvey Stormwater and Drainage Impact Audit evaluates the conditions of Buffalo Bayou and operations of Barker and Addicks Reservoirs during the Hurricane Harvey event in 2017. The communities above and below the reservoirs were flooded during and after the event. The effects within the operation of the reservoirs were felt for 2 weeks while it took over a month for the reservoirs to fully drain. The Study proposes improvements to the channel of Buffalo Bayou to increasing capacity and water flow with the intent of improving the function of the system and the safety of the community.</p>	 <p>A synthesis map showing the Buffalo Bayou area. The map features a grid of streets and a prominent blue-shaded area representing the bayou and reservoirs. The map is oriented horizontally, with the bayou flowing from left to right.</p>
<p><u>The Moving Forward Plan: A plan for traffic. A plan for the future. (COH METRO Plan)</u></p>	<p>The Moving Forward Plan is the proposed direction for future improvements to the METRO network for the City of Houston. The City currently provides numerous transit options, which are expanded through the improvements.</p> <p>The plan proposes 500 miles of improvements by enhancing existing routes and proposing new routes and amenities. These enhancements will provide residents decreased congestion, increased comfort and accessibility.</p>	 <p>A synthesis map showing transit routes in the Houston area. The map features a grid of streets and a prominent blue-shaded area representing the transit network. The map is oriented horizontally, with a thick blue line representing a major transit route. Two circular markers with the numbers '1' and '2' are placed on the map to indicate specific locations or routes.</p>

key findings / needs	opportunities / recommendations
<p>The Report identified 44 homes in the District that had flood damages.</p> <p>Major roadways that were deemed impassable during and after the event were Memorial Drive, SH 6, N. Eldridge Parkway, Dairy Ashford, as well as feeder lanes to I-10.</p> <p>The report calls for the need of additional detention storage.</p>	<p>The analysis proposes widening the channel of Buffalo Bayou. This would improve the channel capacity which would in turn improve the drainage time of the reservoirs.</p> <p>The study offers recommendations for individual structure improvements throughout the District:</p> <ul style="list-style-type: none"> • Barriers; levees, floodwalls • Wet Flood-proofing • Dry Flood-proofing • Shields
<p>The plan is projected through to year 2040.</p> <p>The Energy Corridor will be located along the proposed regional express lane and will have access to the proposed boost corridor.</p>	<p>Proposed Regional Express Lane: A two-way HOV lane dedicated to provide improved access to major job centers and destinations. It will connect to the transit center and Park & Rides.</p> <p>Proposed Boost Corridor: Proposes improved reliability, access, and frequency of transit services. This includes enhancing existing bus stops, providing new bus stops, and improving traffic control.</p>

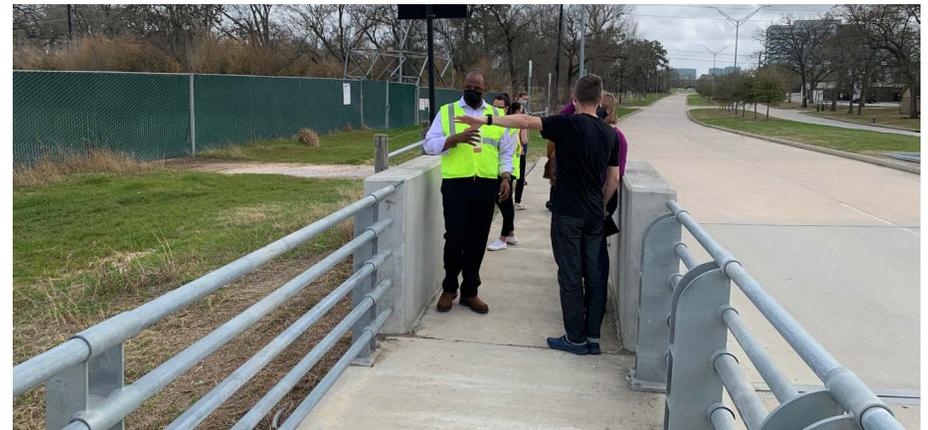


APPENDIX 2: SITE VISIT

In March of 2021, the design team and members of the Energy Corridor District toured the community to better gauge opportunities and challenges on the field. The established tour route, highlighted in the map, covers the review of key arterial streetscape conditions, back of curb amenities, intersections, and surrounding communities to understand the existing characteristics, opportunities and challenges of the District.



Walking along Terry Hershey trail and easement



View from Park Row and future site of Langham Park



Bus shelter and other transit amenities in the District



Recent improvements at the intersection of Memorial Drive and Eldridge Parkway



At grade sidewalks, retail and lot parking at Grisby Square



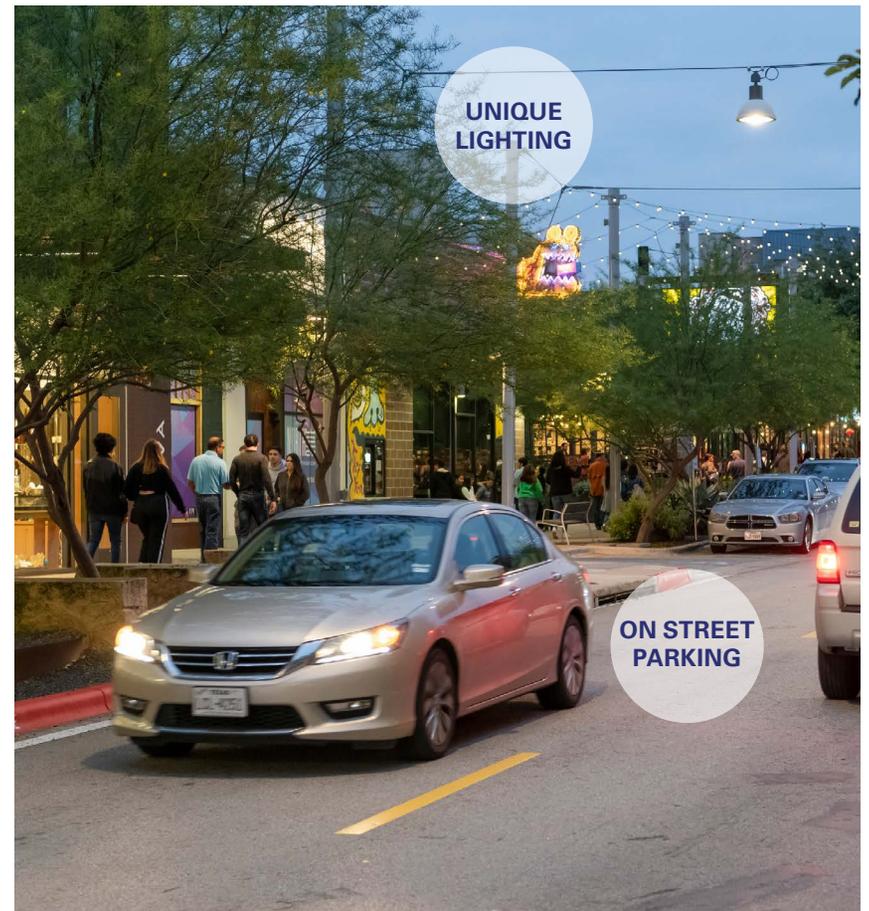
Missed opportunities for extended sidewalk connections in the District



APPENDIX 3: TOOLKIT BENCHMARKS

Benchmark national and local streetscape and public space projects were studied to gauge elements in the streetscape that meet the needs of the community and are best practices for pedestrian access, comfort, safety and performance. Each example provides amenities and design elements that encourage activity and create a consistent function for multimodal connectivity. The following streets provide a foundation for the toolkit elements identified in Section C: Streetscape Opportunities.

DOMAIN,
AUSTIN, TX



**BAGBY STREET,
HOUSTON, TX**

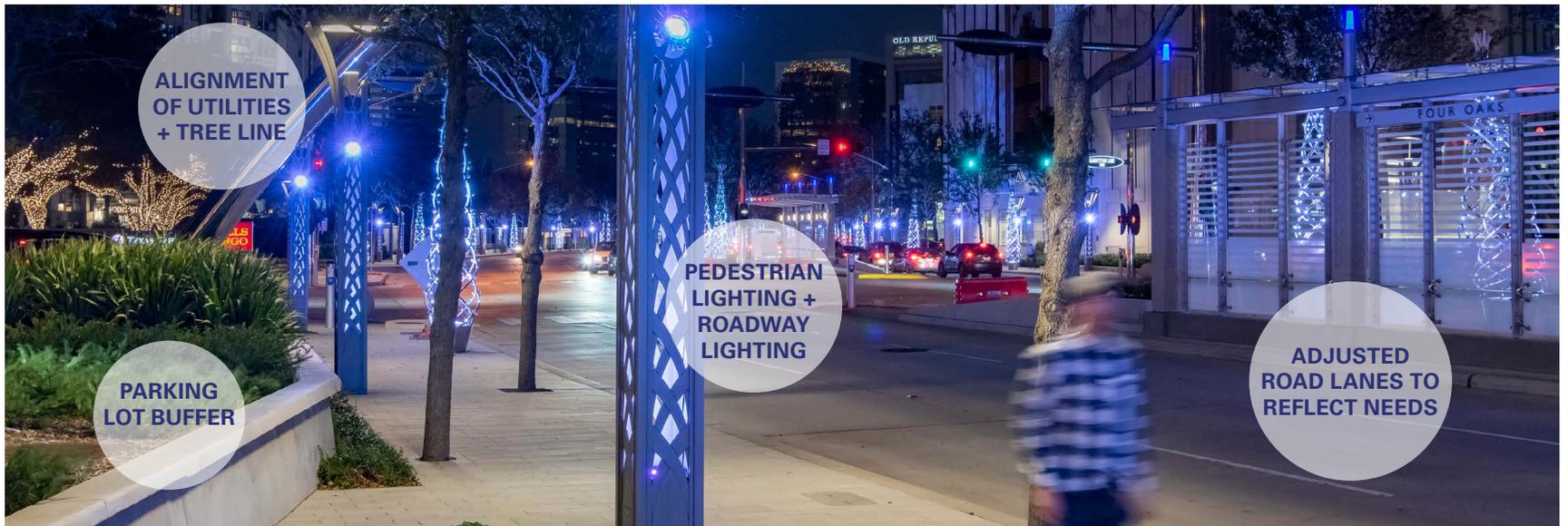


**CHERRY CREEK,
DENVER, CO**

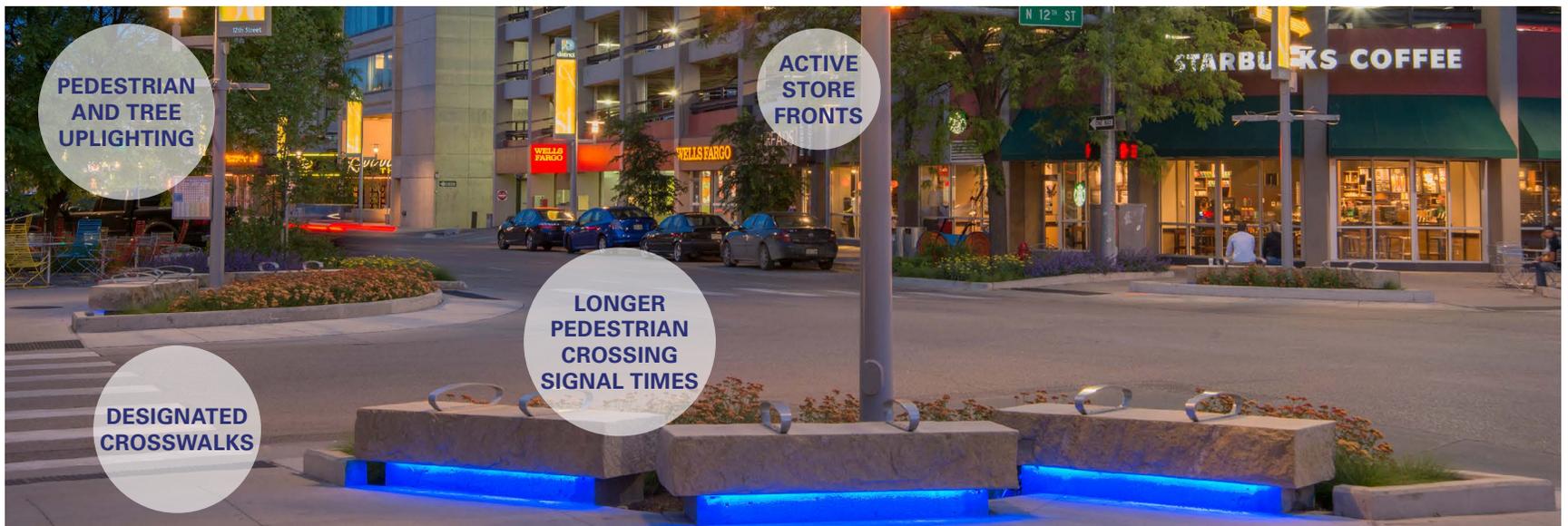


APPENDIX 3: TOOLKIT BENCHMARKS

POST OAK BLVD,
HOUSTON, TX

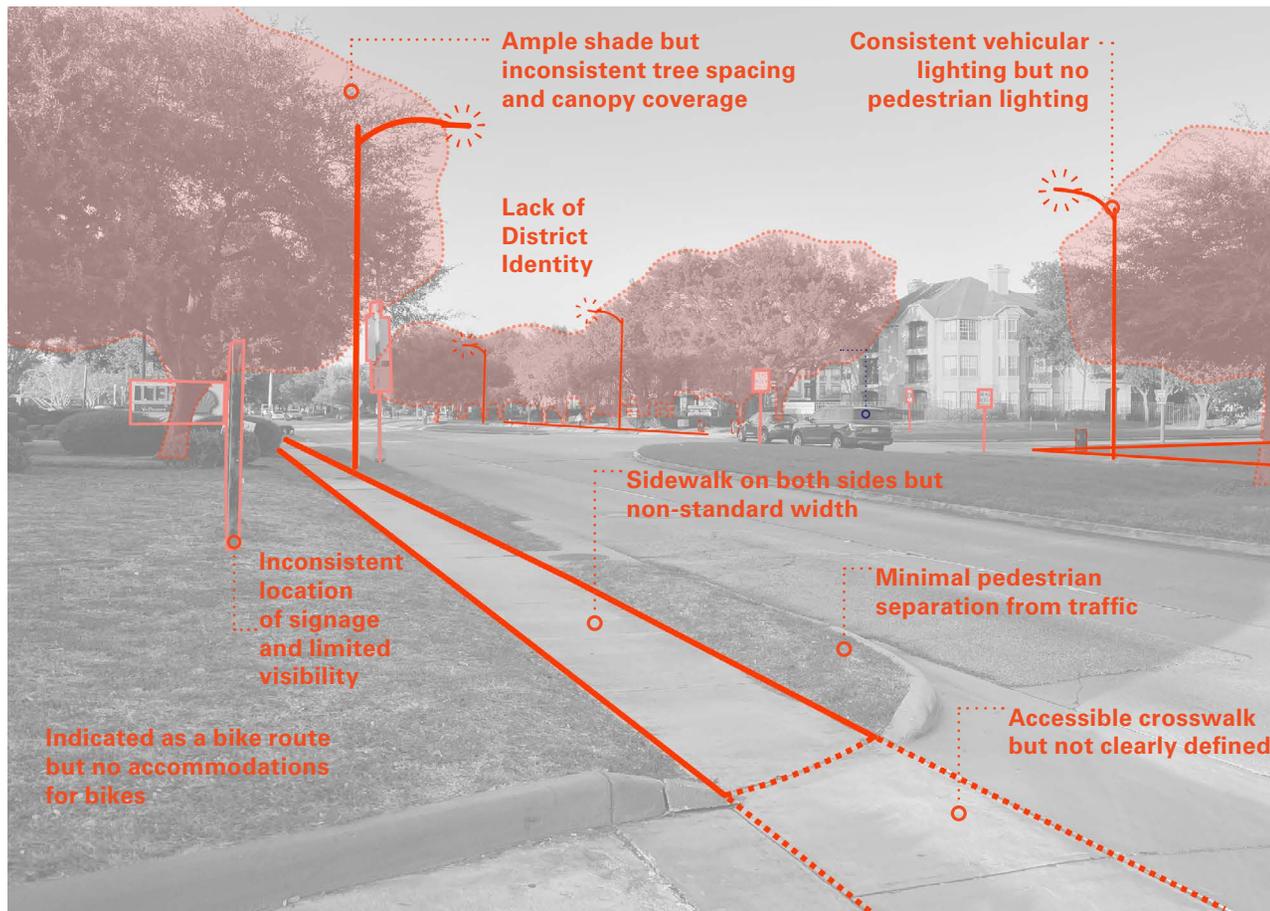


LINCOLN P STREET,
LINCOLN, NE



APPENDIX 4: TOOLKIT ASSESSED

As part of the project process of understanding the existing conditions, the toolkit elements were assessed across several major arterial roadways in the District. What are opportunities for improvements in the right-of-way? What elements in the toolkit requires consistency? What are the constraints that inhibit pedestrians and cyclists from safe access? A number of baseline circumstances were documented before standards and guidelines were applied.



Eldridge Parkway South example

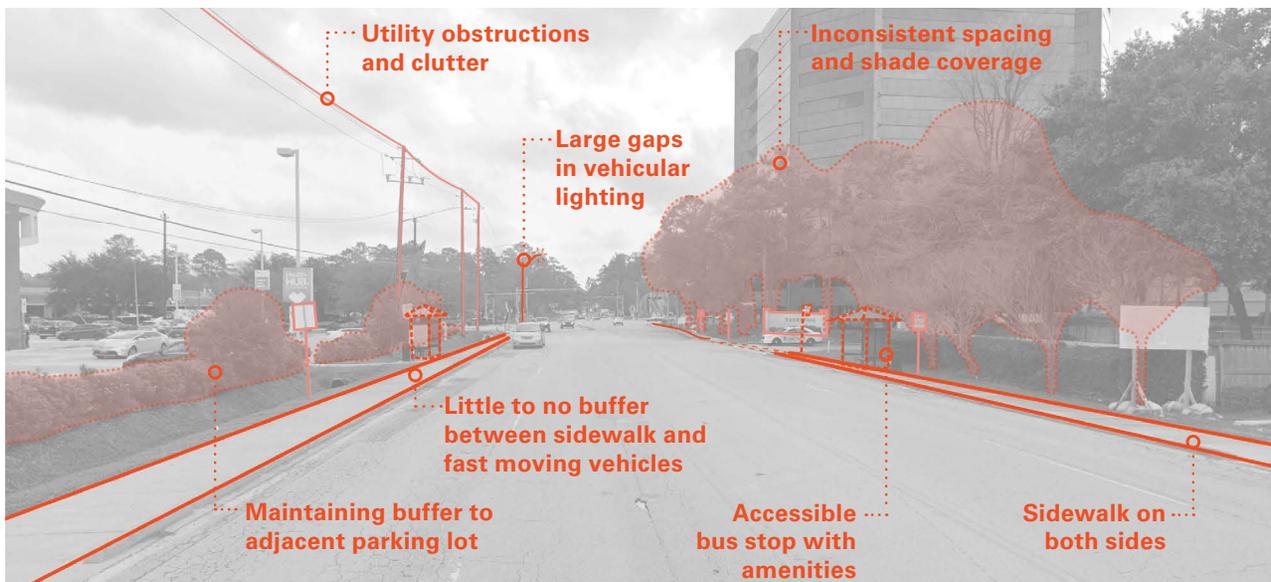
Eldridge Parkway South is a prominent roadway in the District and provides access to many neighborhoods and commercial areas. The existing conditions show the need for defining a sense of identity and providing an increased level of service to promote a healthy and accessible public realm.

APPENDIX 4: TOOLKIT ASSESSED



Park Row example

Park Row is multifaceted with segments that present numerous opportunities for expansion, improvement and clarity. With its recent improvements, Park Row still requires greater access for other modes of mobility. Expanding the sidewalk network along both sides of the rights-of-way, for example, or providing a consistent location for directional signage and adding a shared use path will help encourage pedestrian navigation and promote cyclist access to Langham Park and Langham Creek Trail.



Memorial Drive example

Memorial Drive provides vital east-west access across the District. Like Eldridge Parkway, Memorial Drive is an important bus route connecting the District to Memorial City and Westchase. Memorial is also designated as a future bikeway according to the Houston Bike Plan. However, existing conditions provide little accommodation for commuters, cyclists and the community to safely access and navigate the streets amidst fast-moving vehicles and a limited back of curb space.

APPENDIX 5: STAKEHOLDER ENGAGEMENT

Public Workshop 1: Values Workshop

The first public workshop held in June of 2021, provided key stakeholders and the public an introduction to the project and elicited feedback on existing conditions, project goals and opportunities and challenges relating to the streetscapes in the District.

The first of the two-part meeting involved a focus group session with select POA members and stakeholders. The workshop was conducted virtually and included live polling. The second meeting involved the public and an online survey was provided for participants unable to attend the workshop.

2

meetings (focus group + community)

4

weeks

online survey timeline

100+

participants

Focus Group Key Takeaways

- [1] **Connections** to key destinations are **not walkable** and comfortable.
- [2] Seek **opportunities** to promote businesses **along Terry Hershey Park and trail.**
- [3] There is **more than just one activity center** in the District.
- [4] People are **less likely to walk on streets** during the summer.
- [5] Challenge **pulling people** into the District **from I-10 and service road.**
- [6] **Flooding** issues **affect street use** and retail areas.

Public Meeting Key Takeaways

- [1] Seek opportunities to **extend improvements beyond** District's **eastern boundary.**
- [2] District **lacks safe ped/bike infrastructure** connecting retail/trails to neighborhoods.
- [3] How do we **balance** existing **built conditions with future improvements?**
- [4] Poor-quality **sharrows are unsafe** for cyclists along roads **with high speed vehicles.**
- [5] **Grisby Square is difficult to access** due to lack of pedestrian connections and ADA accessibility.
- [6] **Terry Hershey Park** and trail system **is isolated from the street** network.

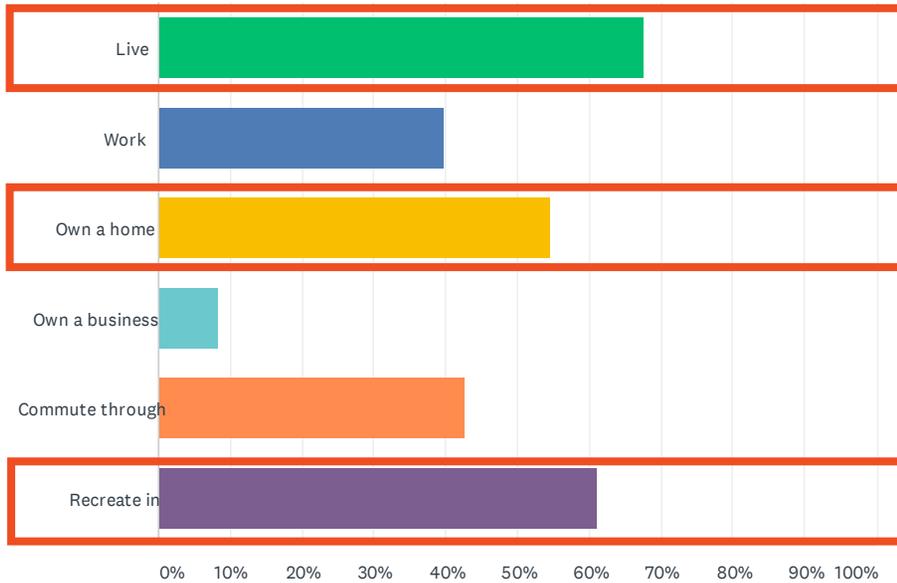
APPENDIX 5: STAKEHOLDER ENGAGEMENT

Public Workshop 1: Values Workshop

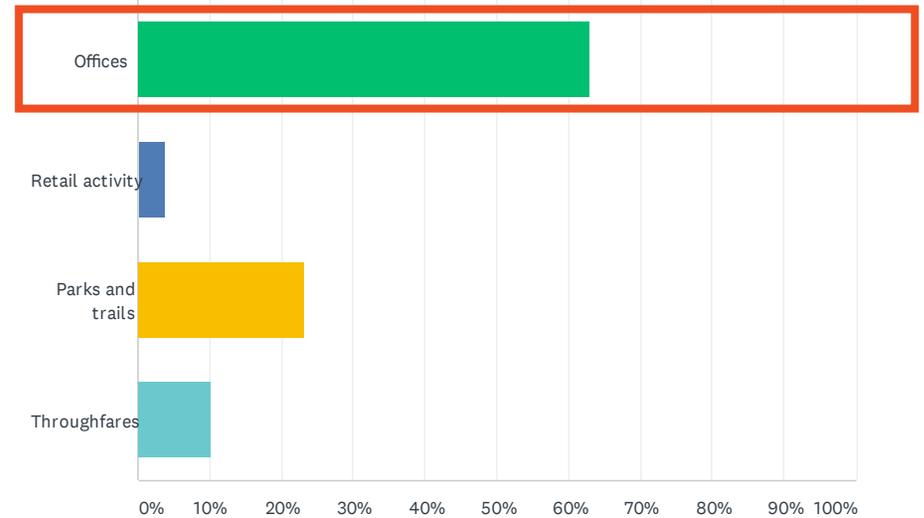
Survey Results

“Traffic has been a challenge in pulling people from I-10 through Eldridge Parkway to Enclave.”

1: In what ways do you use the Energy Corridor District?
(check all that apply)

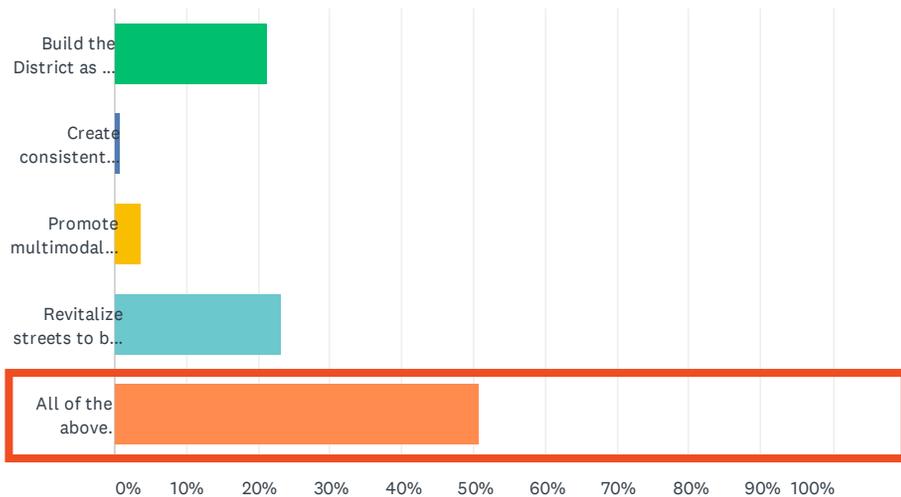


2: Which image best describes the Energy Corridor? (choose one)



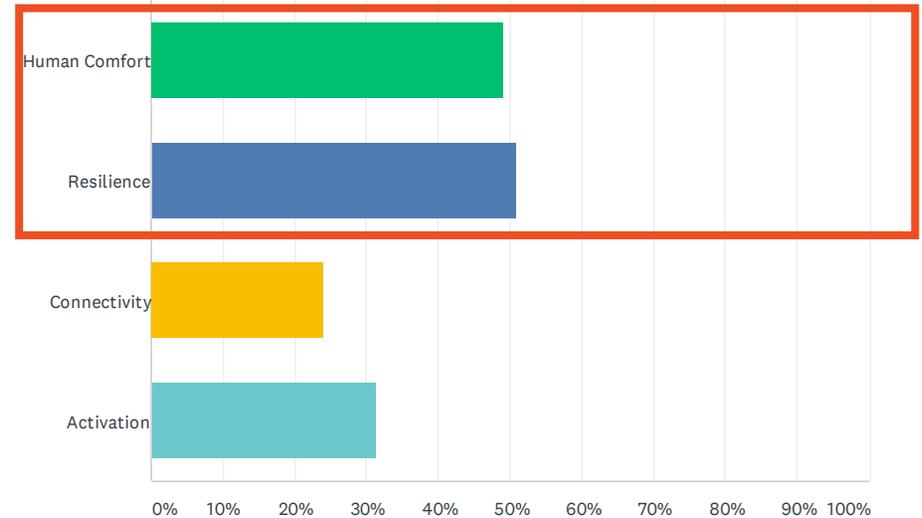
3: Which parts of the vision do you agree with most? (choose one)

- Build the District as a hub for mixed use development.
- Create consistent public realm standards.
- Promote multimodal access.
- Revitalize streets to be safe, vibrant and walkable.
- **All of the above.**



“The power of the Energy Corridor District is shown along I-10 as that is where investment has been put in”

4: Which principle is most important to you? (pick your top 2)



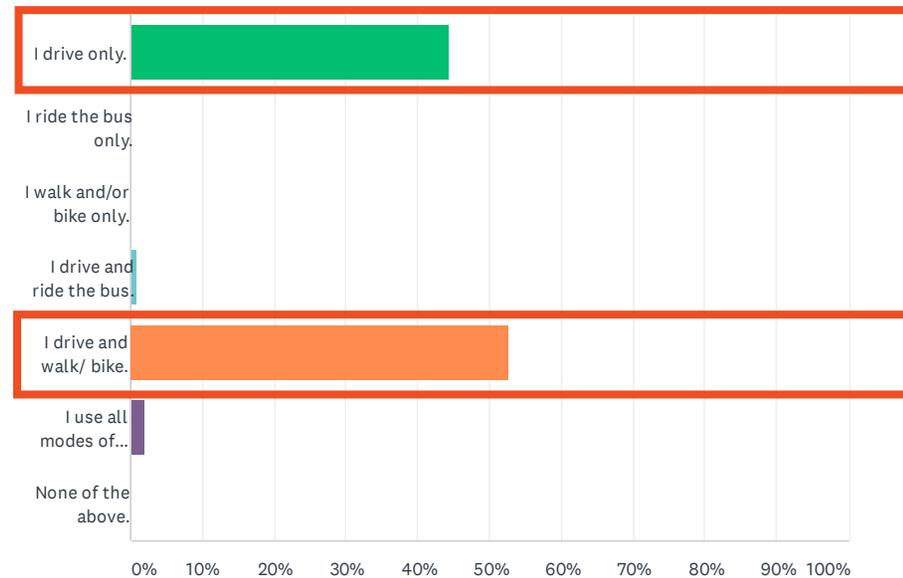
APPENDIX 5: STAKEHOLDER ENGAGEMENT

Public Workshop 1: Values Workshop

Survey Results

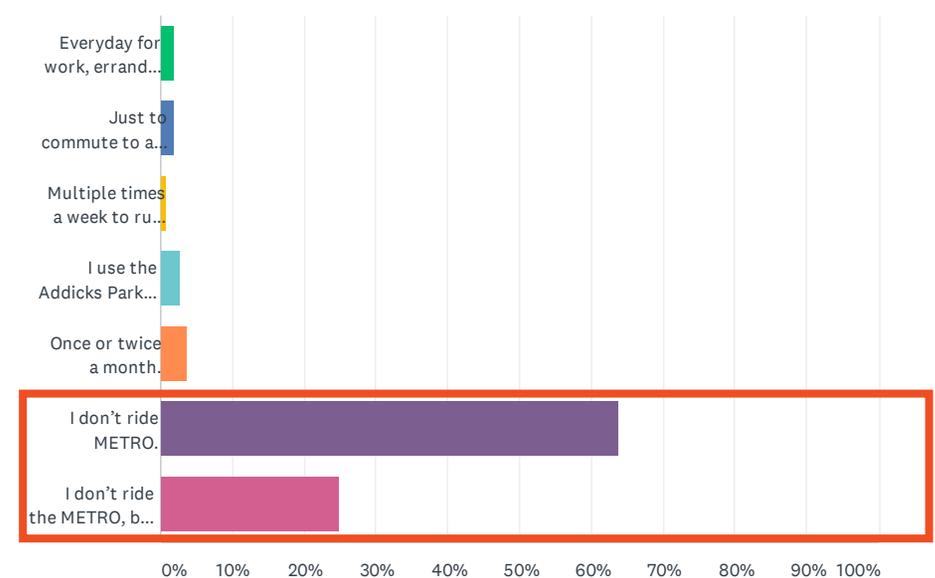
5: How do you mostly travel to, in and around the District?
(choose one)

- **I drive only.**
- I ride the bus only.
- I walk and/or bike only.
- I drive and ride the bus.
- **I drive and walk/bike.**
- I use all modes of transportation.
- None of the above.



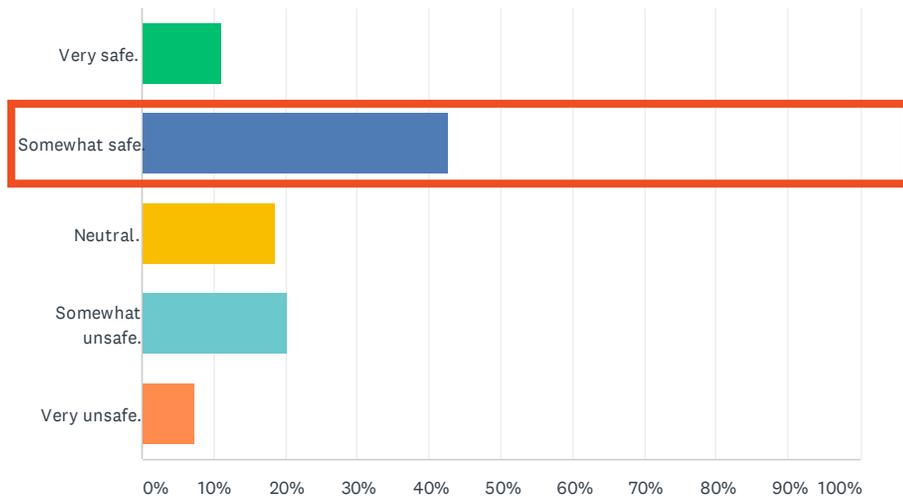
6: How often do you use METRO bus system to get to and from destinations? To/from work? (choose one)

- Everyday for work, errands and/or recreational activities.
- Just to commute to and from work.
- Multiple times a week to run errands.
- I use the Addicks Park and Ride.
- Once or twice a month.
- **I don't ride METRO.**
- **I don't the METRO, but would like to.**



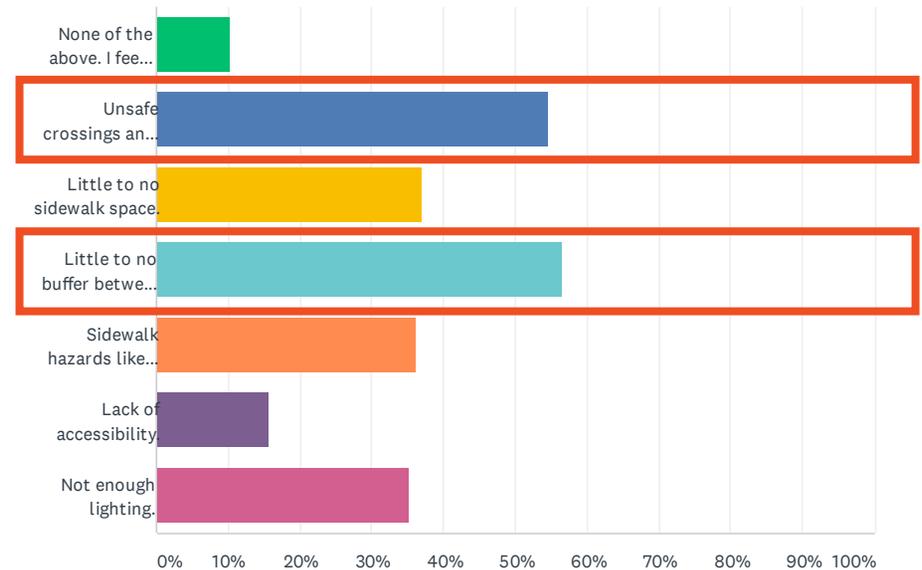
There are several neighborhoods surrounding major retail and trail areas but connections to them are poor. Generally, the District lacks supporting infrastructure.

7: How safe do you feel walking in the District? (choose one)



8: Why do you feel unsafe walking? (check all that apply)

- None of the above. I feel safe walking in the District.
- **Unsafe crossings and intersections.**
- Little to no sidewalk space.
- **Little to no buffer between roadway and sidewalk.**
- Sidewalk hazards like potholes or uneven surfaces.
- Lack of accessibility.
- Not enough lighting.



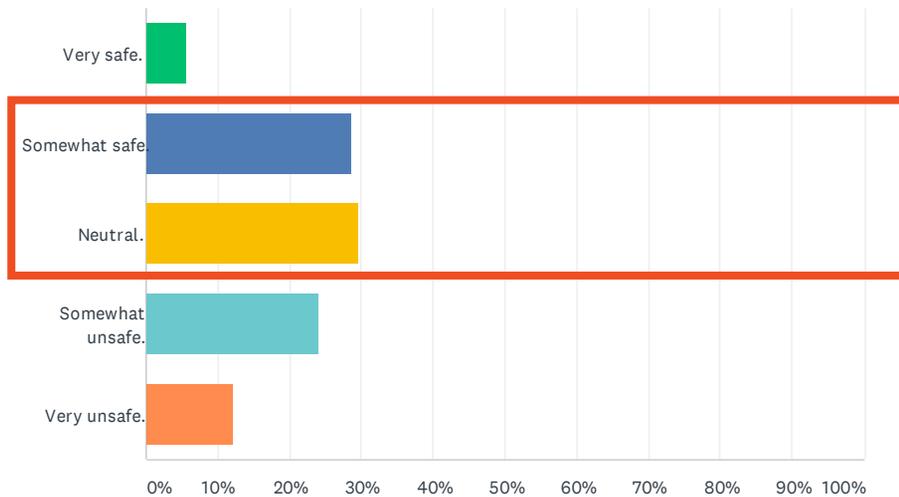
APPENDIX 5: STAKEHOLDER ENGAGEMENT

Public Workshop 1: Values Workshop

Survey Results

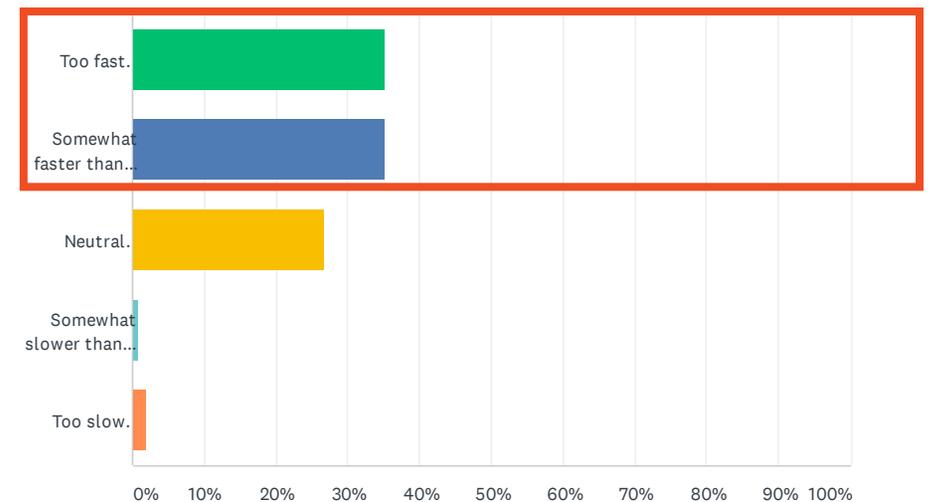
“The sharrows in the District are not maintained well. Pair that with the speed of vehicles along these roadways, it makes for very unsafe conditions for cyclists. If these lanes become separated bike paths, it would encourage people to bike as a viable mode of transportation.”

9: How safe do you feel biking in the District? (choose one)



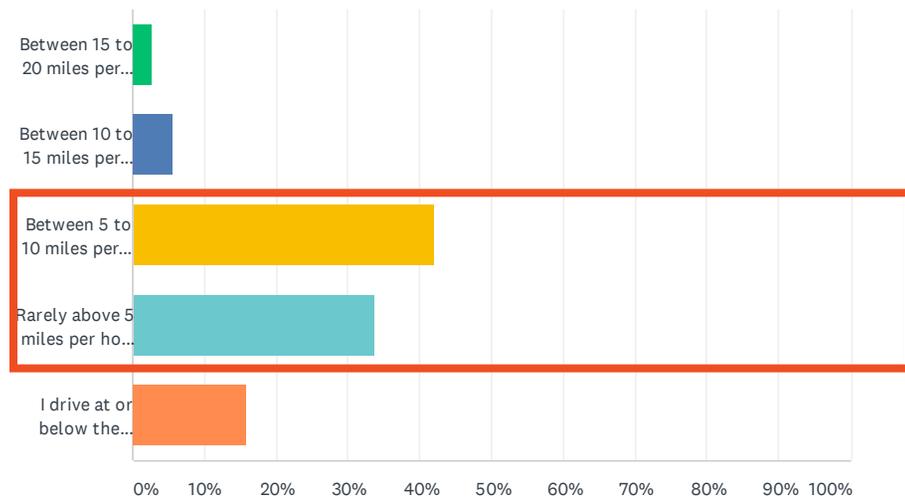
10: How do you feel about the speed of traffic along roads such as Eldridge, Dairy Ashford and Memorial Drive? (choose one)

- **Too fast.**
- **Somewhat faster than posted.**
- Neutral.
- Somewhat slower than posted.
- Too slow.



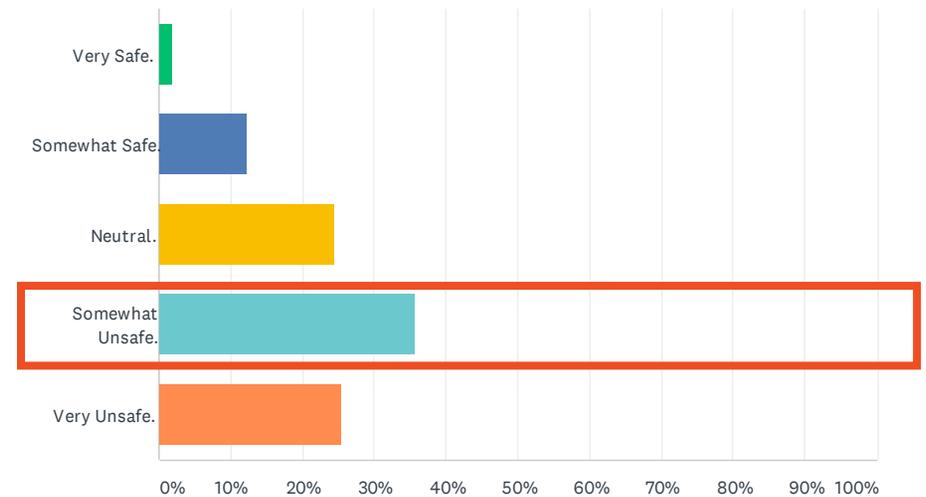
11: How fast do you typically drive along key corridors like Eldridge, Memorial, Dairy Ashford or Park Row?

- Between 15 to 20 miles per hour above the posted speed limit.
- Between 10 to 15 miles per hour above the posted speed limit.
- Between 5 to 10 miles per hour above the posted speed limit.
- Rarely above 5 miles per hour above the posted speed limit.
- I drive at or below the posted speed limit.



Walkable retail would be ideal, but with there being large swaths of parking abutting sidewalks, it is difficult to imagine a human scale environment. How do we balance existing conditions with future improvements noted in the case studies/precedents?

12: How safe is it for you to navigate the District at night as a pedestrian or cyclist? (choose one)



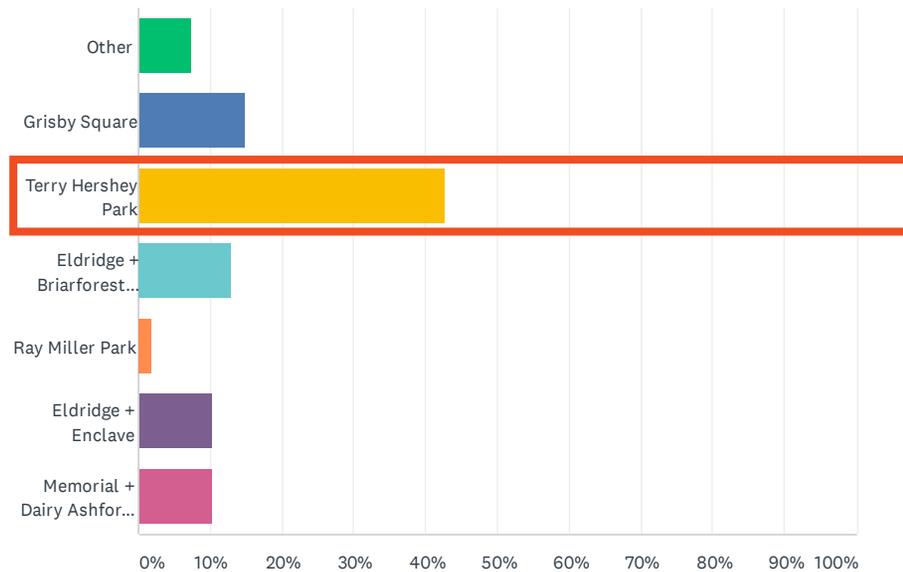
APPENDIX 5: STAKEHOLDER ENGAGEMENT

Public Workshop 1: Values Workshop

Survey Results

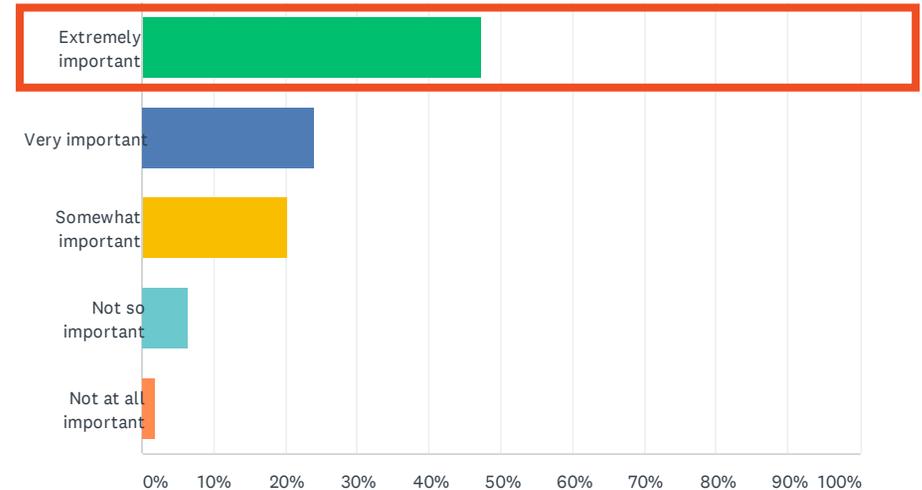
13: Where do you think is the heart of the District? (choose one)

- Other.
- Grisby Square.
- **Terry Hershey Park.**
- Eldridge + Briar Forest retail.
- Ray Miller Park.
- Eldridge + Enclave.
- Memorial + Dairy Ashford retail.



“There is more than one heart in the District. Consider the potential of the areas that are not yet fully developed; land around the Park and Ride, the hospitals, Park Row.”

14: How important is creating additional trails, sidewalks and pedestrian/bicycle linkages throughout the District? (choose one)

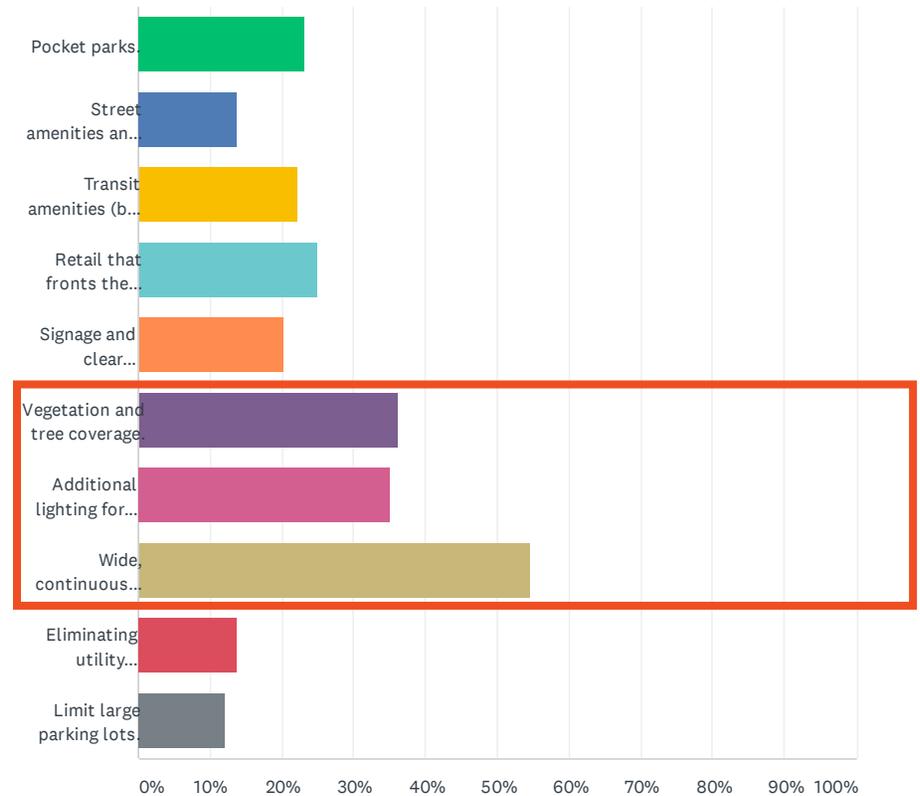


Survey Results

15: What is the most important improvement for you as a pedestrian, cyclist or driver? (pick your top 3)

- Pocket parks.
- Street amenities and furniture.
- Transit amenities (bike racks, additional bike lanes, bus shelters, maps).
- Retail that fronts the street.
- Signage that fronts the street.
- **Vegetation and tree coverage.**
- **Additional lighting for navigation and safety.**
- **Wide, continuous sidewalk access to destinations.**
- Eliminating utility obstructions.
- Limit large parking lots.

“It’s important to capture the space between Kirkwood and Dairy Ashford along Memorial Drive even though it is not located within the District’s boundary lines. Many of the residents that live here consider themselves a part of the District, but they miss out on improvements the District makes along Memorial Drive, for example the sharrow west of Dairy Ashford. It would be beneficial to extend future improvements to this area or annex this area.”



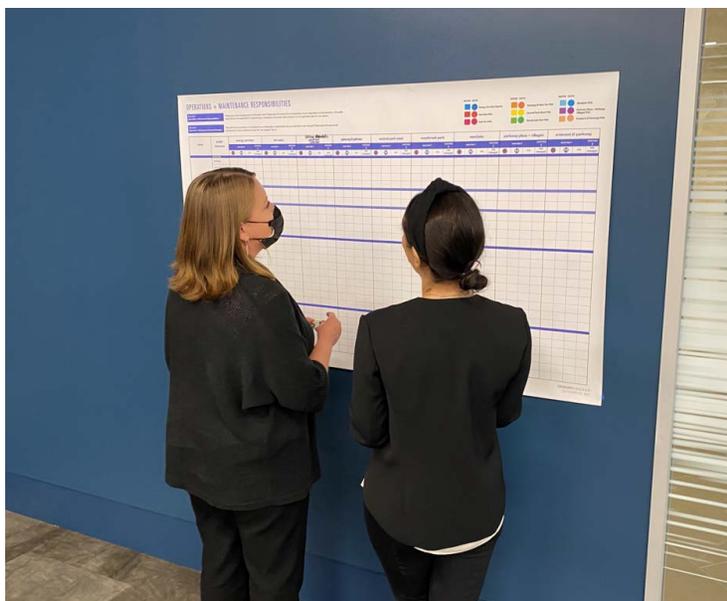
APPENDIX 5: STAKEHOLDER ENGAGEMENT

Property Owners' Association + Developer Charette

As the standards and guidelines were being developed, it became vital to connect and discuss the project with the POAs and developers. These organizations have an important role and influence in the operations and maintenance of improvements along streetscapes. The on-site meeting was held September of 2021, providing an initial platform for POAs to discuss improvements needed and synergies/partnerships with the District to implement the Design Standards and Streetscape Guidelines.

Key Takeaways

- [1] There is a desire to **redefine the responsibilities** of operations and maintenance of the public realm.
- [2] The standards and guidelines need to be **designed to allow for flexibility** to account **for different conditions** and requirements POAs or developers are required to meet.
- [3] There is a desire to **improve communication** between the District and POAs/developers and **between the different organizations**.
- [4] The Design Standards and Streetscape Guidelines need to **consider future use, maintenance and care**.



APPENDIX 5: STAKEHOLDER ENGAGEMENT

Public Workshop 2: Vision Workshop

The second workshop, conducted in October of 2021, provided both the community, SAC and POAs/developers the opportunity to view and weigh in on the proposed streetscape character, methodology (level of improvements) and framework for the Design Standards and Streetscape Guidelines.

The first of the two-part meeting involved a virtual focus group session with select POA members and stakeholders. The second meeting was a public open house held at Gridby Square with visual preference and comment boards. An online survey was provided for participants unable to attend the in-person workshop.

2

meetings (focus group + community)

4

weeks

online survey timeline

85+

participants

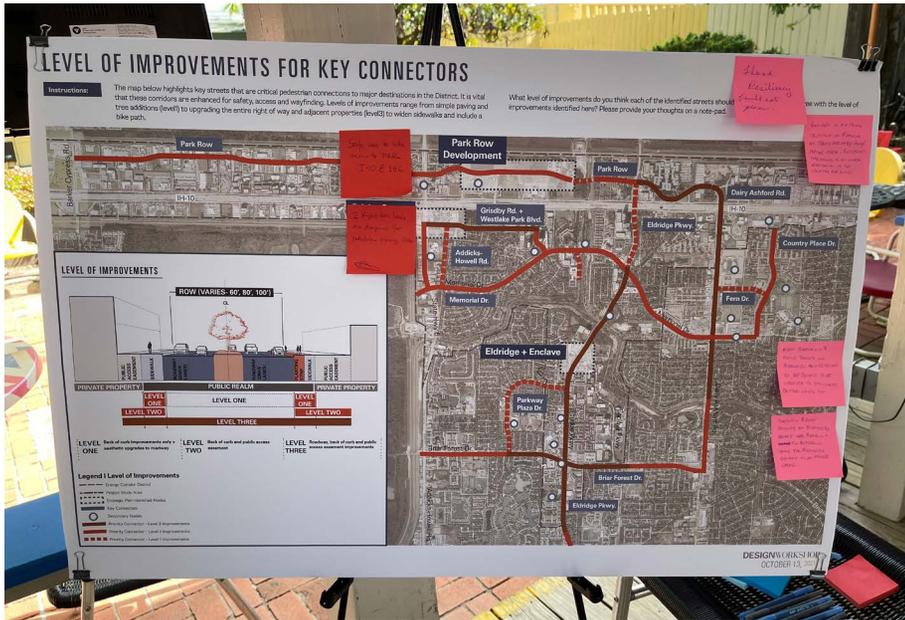
Focus Group Key Takeaways

- [1] Include **future destinations** in addition to the existing to capture a long-term implementation.
- [2] Include **connections across I-10.**
- [3] The **preferred bike approach is an elevated bike lane** instead of a dedicated bike lane on the street so that bicyclists are sufficiently protected.

Public Meeting Key Takeaways

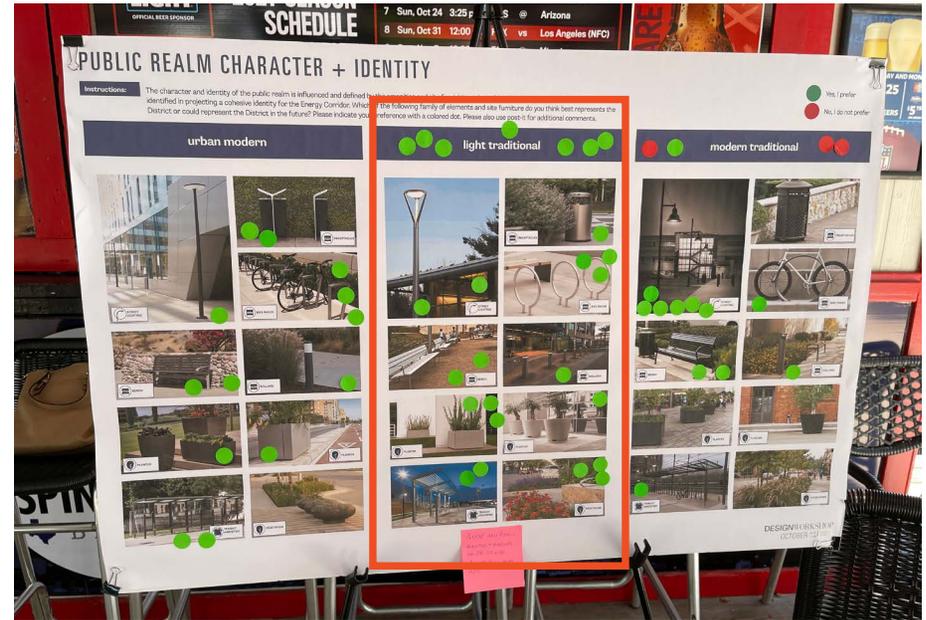
- [1] Consider **mid-block crossings and elevated bike lanes/shared-use paths.**
- [2] It is important to **create connections that are consistent** across the District (bike, pedestrian).
- [3] Create **connections and access to other modes of mobility** and to activated frontages
- [4] Build on the **existing green space network** to reinforce the character of the District as a recreational hub.





Level of Improvements for Key Connectors

Understanding that one-size does NOT fit all for every streetscape, the levels of improvements approach considers changing conditions in the right-of-way and tools needed for improvements (available funding, partnerships, areas/types of improvements). The public provided feedback on level of improvement designations for each key connector identified as future projects. Comments revealed the need for amenities such as bike infrastructure, additional lighting, vegetation and safe crossings across Interstate 10.



Public Realm Character + Identity

The public realm character + identity proposed three furniture families for the public to comment and vote on. Each family included site furniture elements that create a comfortable public realm, activate the street right-of-way and promote a sense of place for the District as a whole. The three families had a different character and look to provide the public with a range of options for the character of the public realm. Based on the in-person discussion and the digital survey, the light traditional family was selected as the preferred brand of fixtures. These furnishings and fixtures are cost-effective and modern with materiality that is predominantly stainless steel finishes with rounded edges.

APPENDIX 5: STAKEHOLDER ENGAGEMENT

Public Workshop 2: Vision Workshop



Conceptual Streetscape Improvements 1 + 2

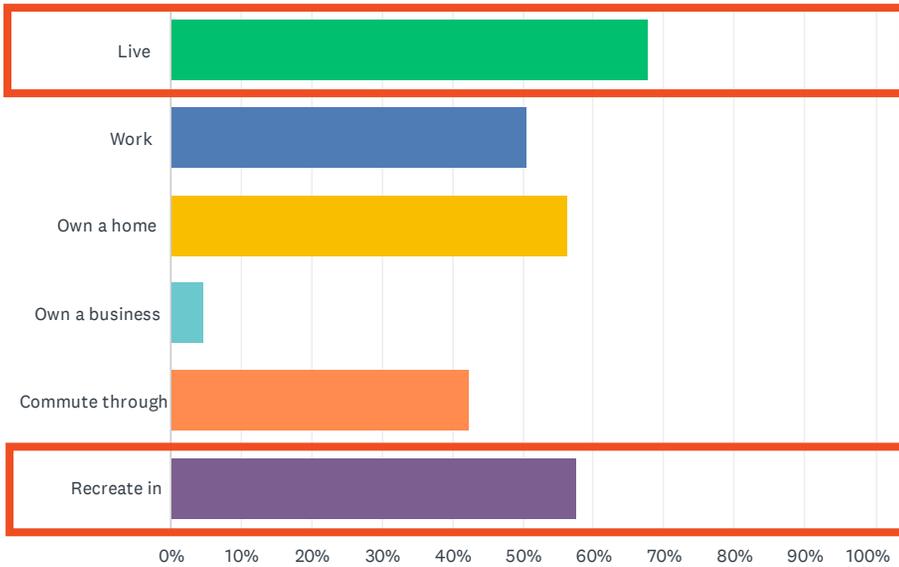
As part of the open house, a number of improvements from the Design Standards and Streetscape Guidelines were applied to several key connector roads. 'Before' and 'after' renderings of each displayed existing conditions against improvements that range from a Level one to a Level three.

"Speed of this project is important! Let's do this!"

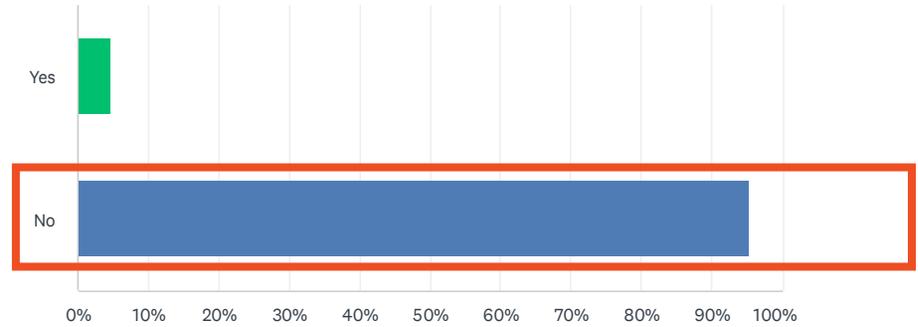
"Along Eldridge Parkway South, the bike lane should be a shared-use path and not on the street."

Survey Results

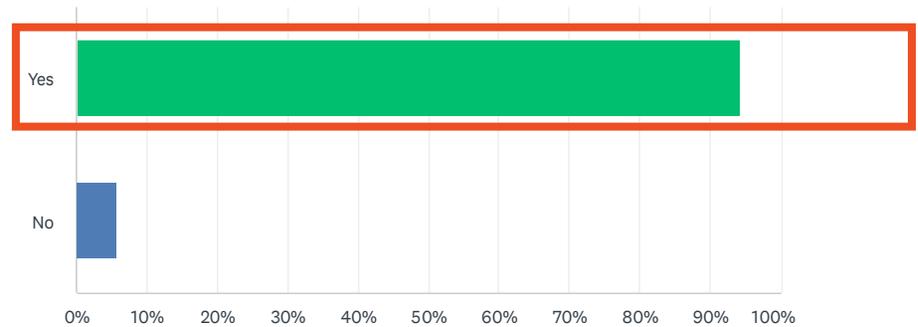
1: In what ways do you use the Energy Corridor District? (check all that apply)



2: Did you participate in the Values Workshop (either the virtual or online survey) held in June-July? (Select One)



3: Do you agree with the key takeaways from the Focus Group and/or Public Workshop? What would you add? (Select One)



APPENDIX 5: STAKEHOLDER ENGAGEMENT

Public Workshop 2: Vision Workshop

Survey Results

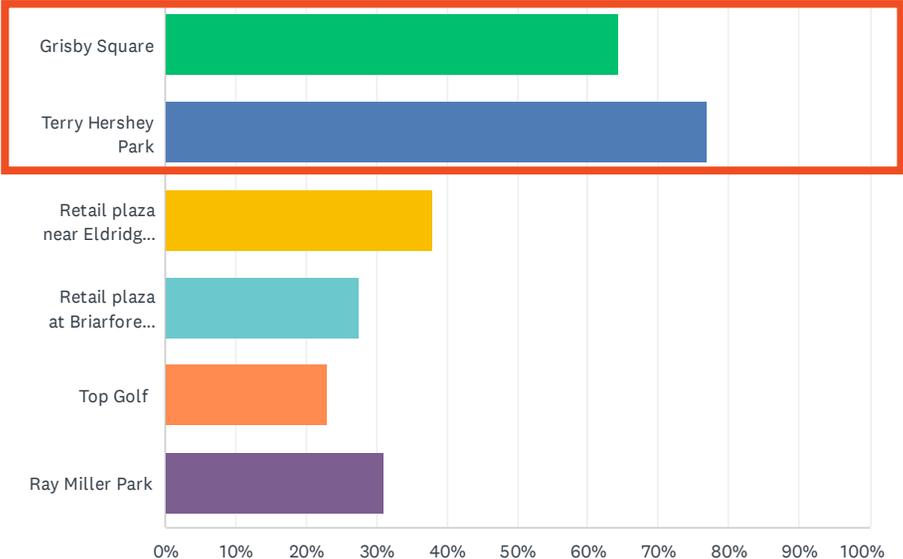
“Consider a mid-block crossing on Memorial Drive at Terry Hershey park and Mayde Creek. The accessible ramps that are a part of Terry Hershey trail and go under Memorial Drive are too far for some to travel to. A mid-block crossing would provide residents and the nearby businesses a better connection to Terry Hershey park.”

4: Which of the following criteria is most important to you? (Rank 1 for most important to 4 being the least important)

Option	1	2	3	4
Creating consistency in the public realm.	16%	14%	18%	52%
Enhancing the qualities of the neighborhood character.	34%	36%	25%	5%
Protecting community from incompatible development or improvements.	27%	18%	38%	17%
Increasing property values by improving quality of public realm, thereby quality of life.	23%	32%	18%	27%

5: What are key destination in the District that you would prefer better pedestrian connections to? (Select all that apply)

- **Grisby Square.**
- **Terry Hershey Park.**
- Retail plaza near Eldridge/Enclave.
- Retail plaza at Briar Forest/Eldridge.
- Top Golf.
- Ray Miller Park.



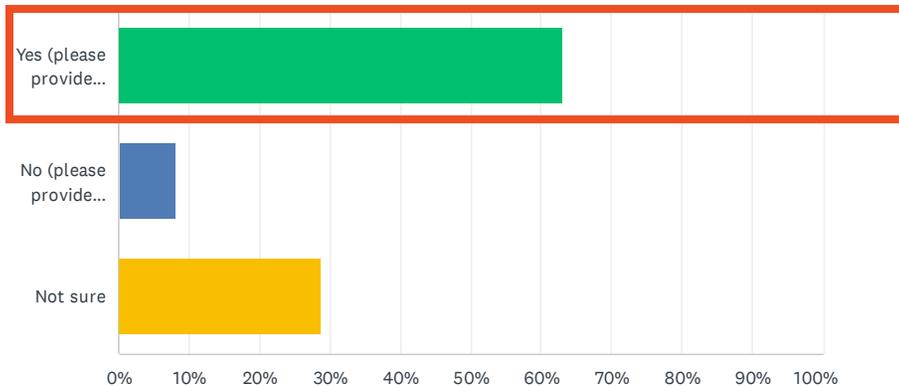
PRIORITY IMPROVEMENTS BASED ON KEY CONNECTIONS TO DESTINATIONS



“Provide a safe way to bike across the District to the Park and Ride, especially across I-10 and Highway 6.”

“Provide an accessible and safe pedestrian/cyclist connection west of Highway 6 particularly underneath the highway at I-10. We need more connections from north to south to tie together the areas of the District that are separated by I-10.”

6: In order to create a well-connected pedestrian network in the District, have we correctly identified streets that require improvements in the above graphic? (Select One)



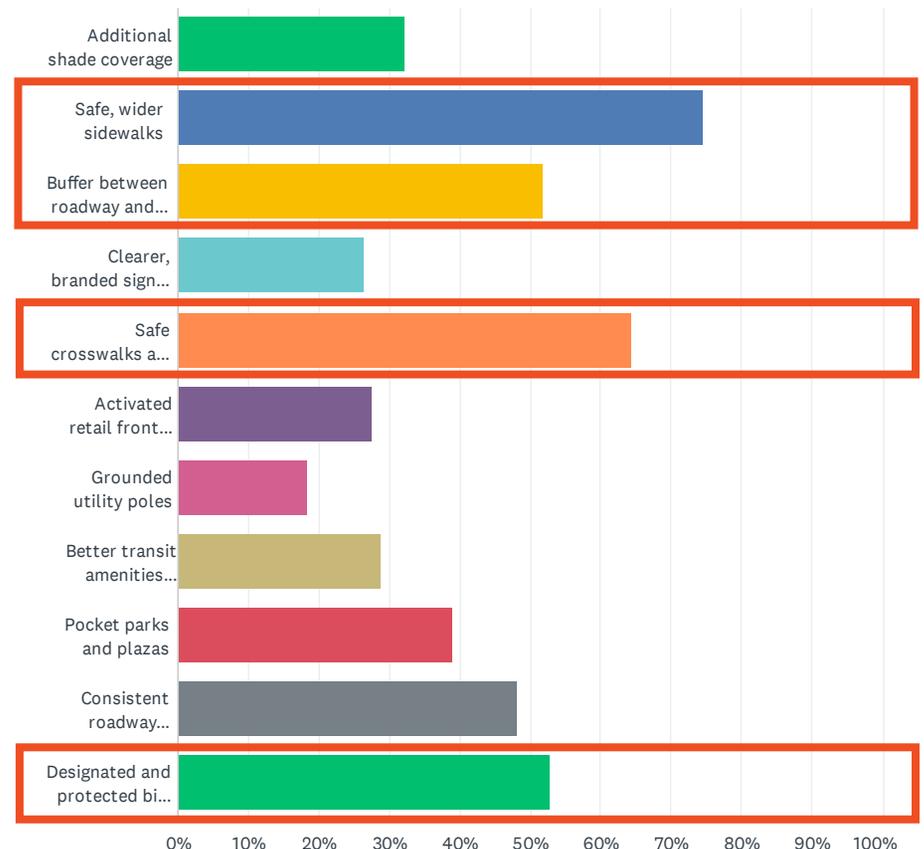
APPENDIX 5: STAKEHOLDER ENGAGEMENT

Public Workshop 2: Vision Workshop

Survey Results

8: What type of improvements would you want to see on your priority street #1? (Select all that apply)

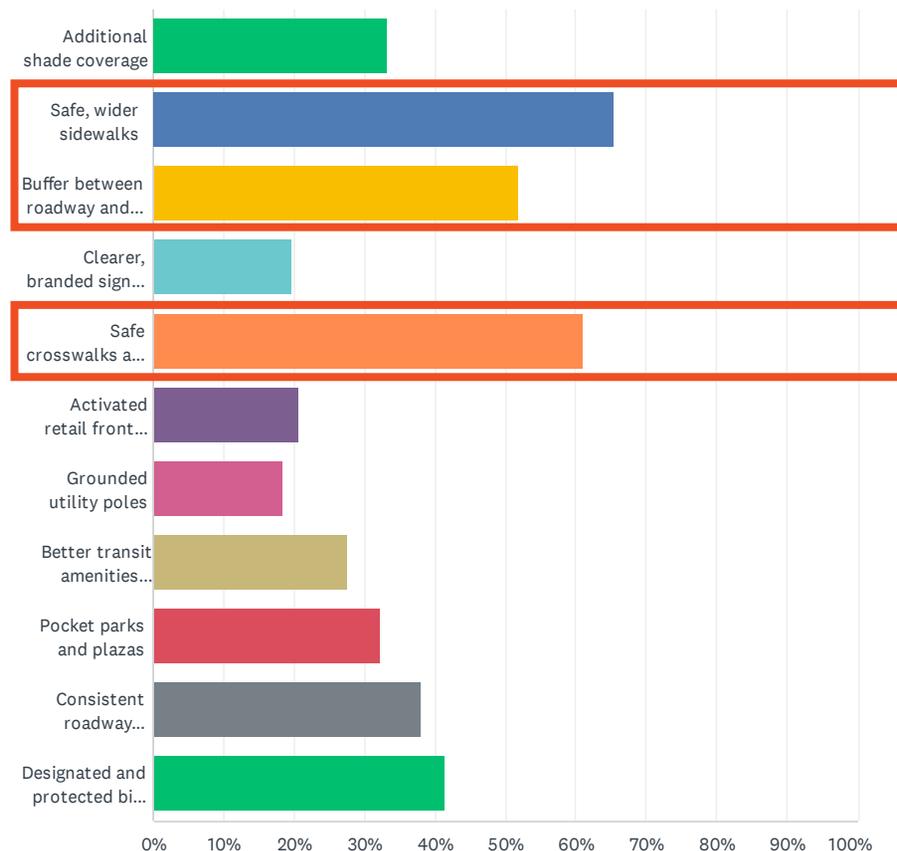
- Additional shade coverage.
- **Safe, wider sidewalks.**
- **Buffer between roadway and sidewalk.**
- Clearer, branded signage and wayfinding.
- **Safe crosswalks and synchronized signalization.**
- Activated retail frontage adjacent to sidewalks.
- Grounded utility poles.
- Better transit amenities (shelters, bike racks).
- Pocket parks and places.
- Consistent roadway lighting and additional pedestrian lighting.
- **Designated and protected bike routes.**



“We need sidewalks and cycle tracks on Memorial Drive from Eldridge Parkway to BP campus. The improvements should include the amenities listed in the Standards and Guidelines particularly pedestrian lighting.”

9: What type of improvements would you want to see on your priority street #2? (Select all that apply)

- Additional shade coverage.
- **Safe, wider sidewalks.**
- **Buffer between roadway and sidewalk.**
- Clearer, branded signage and wayfinding.
- **Safe crosswalks and synchronized signalization.**
- Activated retail frontage adjacent to sidewalks.
- Grounded utility poles.
- Better transit amenities (shelters, bike racks).
- Pocket parks and places.
- Consistent roadway lighting and additional pedestrian lighting.
- Designated and protected bike routes.



“It is important to build flood resiliency into the Standards and Guidelines as the District experiences frequent flooding.”

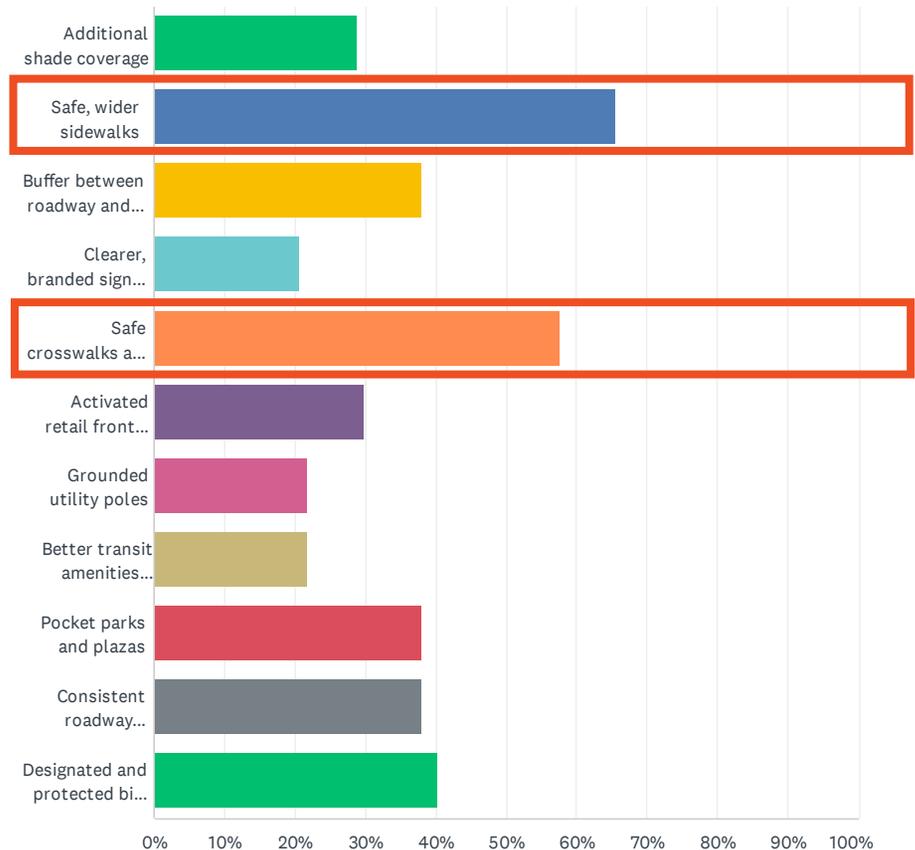
APPENDIX 5: STAKEHOLDER ENGAGEMENT

Public Workshop 2: Vision Workshop

Survey Results

10: What type of improvements would you want to see on your priority street #3? (Select all that apply)

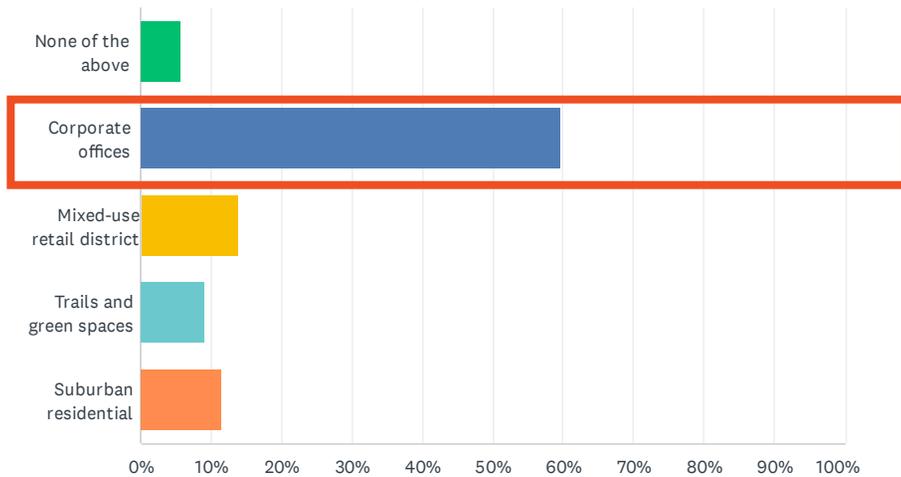
- Additional shade coverage.
- **Safe, wider sidewalks.**
- Buffer between roadway and sidewalk.
- Clearer, branded signage and wayfinding.
- **Safe crosswalks and synchronized signalization.**
- Activated retail frontage adjacent to sidewalks.
- Grounded utility poles.
- Better transit amenities (shelters, bike racks).
- Pocket parks and places.
- Consistent roadway lighting and additional pedestrian lighting.
- Designated and protected bike routes.



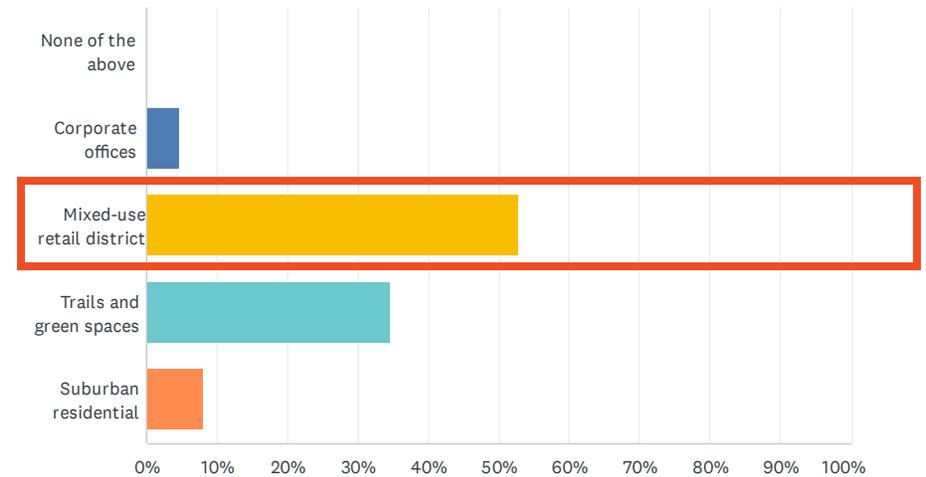
“We need to distinguish more clearly about where the dollars are going. We need to include destinations that are in the long-term so we are not shaping the Standards and Guidelines to just what is existing.”

“The sidewalk and bike facility on Eldridge Parkway over the bridge across Buffalo Bayou is too narrow. It’s a similar condition at the bridge under Memorial Drive at Mayde Creek.”

11: Which of the following best describes the predominant character of the Energy Corridor currently (Select one)



12: Which of the following would you like to see be the predominant character for the Energy Corridor? (Select one)

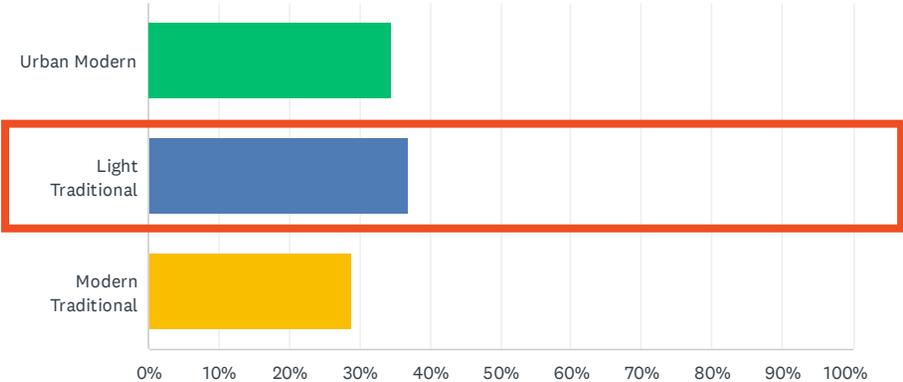


APPENDIX 5: STAKEHOLDER ENGAGEMENT

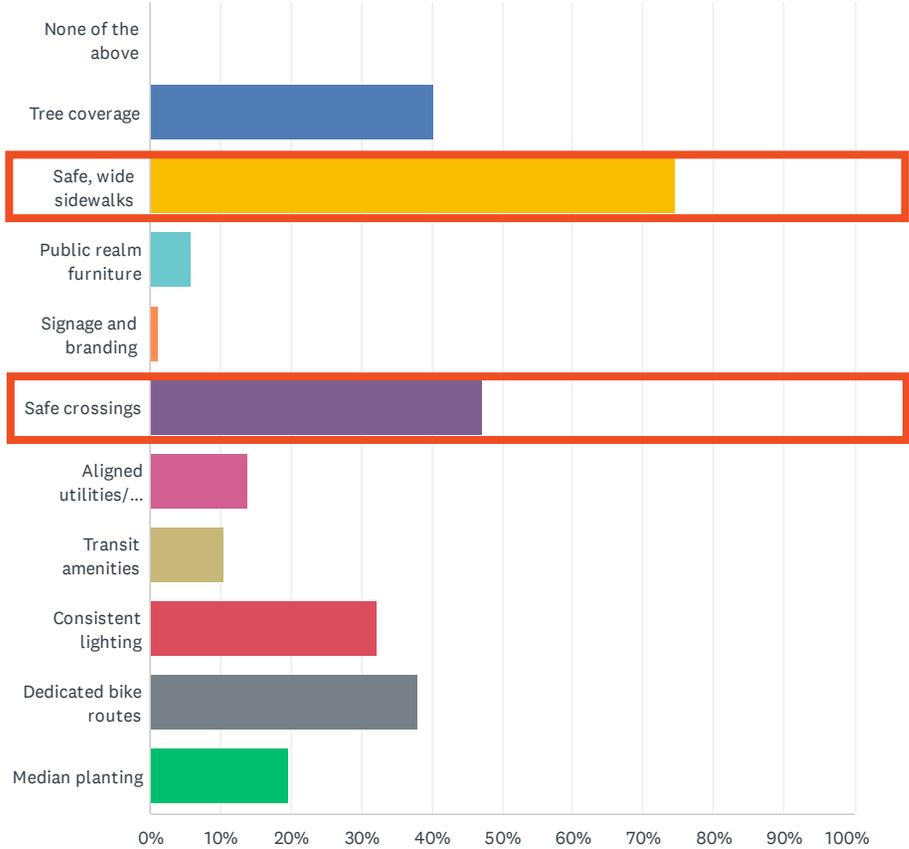
Public Workshop 2: Vision Workshop

Survey Results

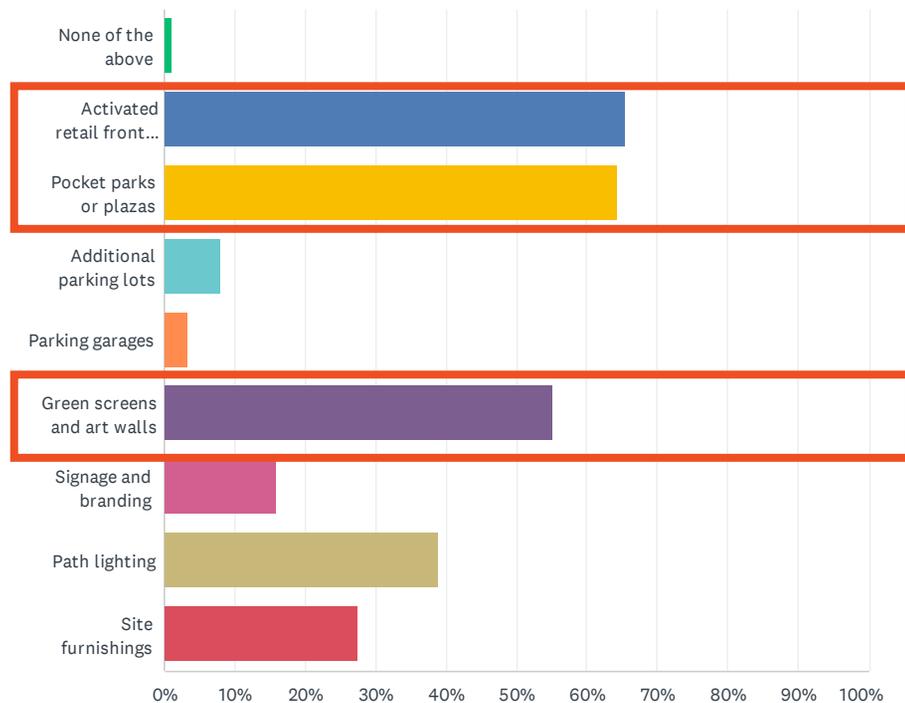
13: One of the goals of the project is to deliver a consistent standard across the District’s public realm through a library of street elements best representative of Energy Corridor. Elements include lighting, transit amenities, sidewalk furniture such as benches, etc. Which of the above District character profiles do you think is best suited for the Energy Corridor? (Select one)



14: ‘Public Realm’ refers to any publicly owned streets, pathways, sidewalks, parks and open spaces where the public has access. Overall and across the District, what are priority improvements for you in the public realm? (Select top 3)

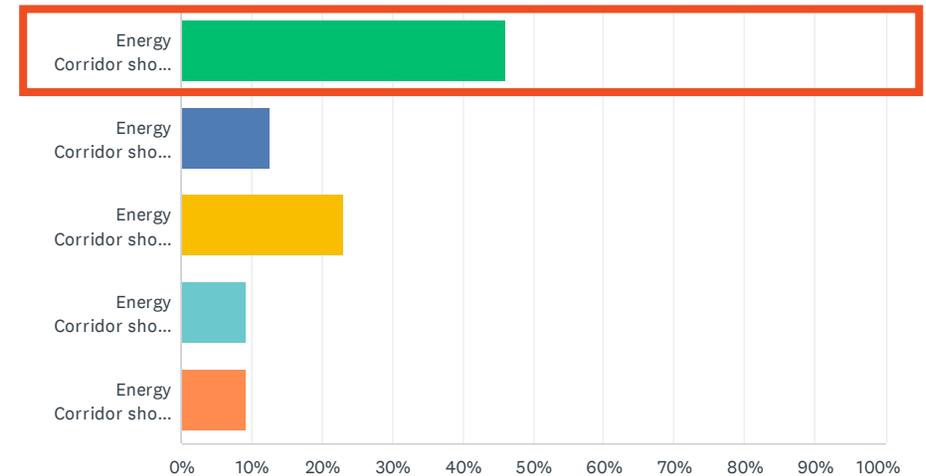


15: 'Private Realm' refers to privately-held properties where the public has limited access. This space often abuts the public realm via streets (sidewalks, roads, etc). Overall and across the District, what are your priority improvements in the private realm? (Select top 3)



16: Which of the following statements do you agree most with? (Select one)

- **Energy Corridor should be a more mixed-use District with additional ground-floor retail activity, community facilities (medical offices, grocers, and educational) and diverse housing options (single-family, town homes, condos).**
- Energy Corridor should be more of a regional hub for large employers, startups and innovation.
- Energy Corridor should be a strong-knit urban community with smaller businesses, retail (local markets, restaurants) and makerspaces.
- Energy Corridor should be a civic hub for social, recreational and cultural spaces such museums, higher education, art facilities and local sporting events.
- Energy Corridor should be a strong-knit suburban community with more single-family homes and supporting retail.



PUBLIC REALM AMENITIES

Instructions:

The list of streets below are identified as priority connectors for key destinations in the District. Please mark which amenities are most important for each street to function safely and aesthetically.

toolkit elements	park row	grisby road + westlake park boulevard	addicks-howell road	memorial drive	eldridge park-way	dairy ashford road	briar forest drive	parkway plaza drive	canyon place drive	fern drive
 wider sidewalk										
 additional trees + vegetation										
 pocket park/plaza										
 pedestrian lighting										
 accent lighting (bollards, catenary)										
 parking lot screening (green screen, art wall)										
 mid-block crossings										
 on-street parking										
 signage + wayfinding										
 designated bike paths										
 branded bus shelters										
 seating + benches										
 trash/recycle receptacles										
 active frontage - cafe furniture										
 grounded utilities										
 clearly marked crosswalks + synchronized signals										
 bioswales + green stormwater filtration systems										
 shade structures										
 ADA ramps and accessibility										



TAKE THE ONLINE SURVEY TO PROVIDE FURTHER FEEDBACK!

The worksheet above was used during the second public workshop to gain the public opinion of toolkit elements that are essential on each key connector street.

APPENDIX 6: OPINION OF PROBABLE COST

The following Excel file was developed as a working document that the District can utilize to estimate the cost of a project. This will allow the District to plan and prioritize streetscape projects.

Energy Corridor District Streetscapes										
Opinion of Probable Cost Worksheet										
Design Workshop										
Streetscape Elements	WIDTH	SF COST	LF COST	TOTAL LENGTH OF STREET (FEET)	QUANTITY	SF COST	LF COST	QUANTITY		
Roadway										
Back of Curb Improvements - Right Side										
Sidewalk Basic	1	\$8.00	\$8.00	900	\$7,200.00	\$12.00	\$12.00	\$10,800.00		
Sidewalk Elevated	0	\$15.00	\$0.00	900	\$0.00	\$25.00	\$0.00	\$0.00		
Bike Lane - Basic	0	\$8.00	\$0.00	900	\$0.00	\$25.00	\$0.00	\$0.00		
Planting Area	0	\$40.00	\$0.00	900	\$0.00	\$60.00	\$0.00	\$0.00		
Trees (assumes 1 tree every 25')	0	\$3,000.00	\$0.00	900	\$0.00	\$5,000.00	\$0.00	\$0.00		
Lighting (assumes 1 Pedestrian light ever 30')	0	\$4,000.00	\$0.00	900	\$0.00	\$6,000.00	\$0.00	\$0.00		
Site Furnishings (Trash, Bench, Bike Rack) assume twice per block	0	\$11,500.00	\$0.00	900	\$0.00	\$16,500.00	\$0.00	\$0.00		
Roadway	0	\$50.00	\$0.00	900	\$0.00	\$75.00	\$0.00	\$0.00		
Parking Lane	0	\$50.00	\$0.00	900	\$0.00	\$75.00	\$0.00	\$0.00		
Utilities	0	\$500.00	\$0.00	900	\$0.00	\$1,000.00	\$0.00	\$0.00		
Traffic Signalization at Intersections	0	\$250,000.00	\$0.00	900	\$0.00	\$500,000.00	\$0.00	\$0.00		
Subtotal: Landscape - Pavements, Ramps, Curbs					Subtotal Low	\$7,200	Subtotal High	\$10,800		
Back of Curb Improvements - Right Side										
Sidewalk Basic	0	\$8.00	\$0.00	900	\$0.00	\$12.00	\$0.00	\$0.00		
Sidewalk Elevated	0	\$15.00	\$0.00	900	\$0.00	\$25.00	\$0.00	\$0.00		
Bike Lane - Basic	0	\$8.00	\$0.00	900	\$0.00	\$25.00	\$0.00	\$0.00		
Planting Area	0	\$40.00	\$0.00	900	\$0.00	\$60.00	\$0.00	\$0.00		
Trees (assumes 1 tree every 25')	0	\$3,000.00	\$0.00	900	\$0.00	\$5,000.00	\$0.00	\$0.00		
Lighting (assumes 1 Pedestrian light ever 30')	0	\$4,000.00	\$0.00	900	\$0.00	\$6,000.00	\$0.00	\$0.00		
Site Furnishings (Trash, Bench, Bike Rack) assume twice per block	0	\$11,500.00	\$0.00	900	\$0.00	\$16,500.00	\$0.00	\$0.00		
Roadway	0	\$50.00	\$0.00	900	\$0.00	\$75.00	\$0.00	\$0.00		
Parking Lane	0	\$50.00	\$0.00	900	\$0.00	\$75.00	\$0.00	\$0.00		
Utilities	0	\$500.00	\$0.00	900	\$0.00	\$1,000.00	\$0.00	\$0.00		
Traffic Signalization at Intersections	0	\$250,000.00	\$0.00	900	\$0.00	\$500,000.00	\$0.00	\$0.00		
Subtotal: Landscape - Pavements, Ramps, Curbs					Subtotal Low	\$0	Subtotal High	\$0		
Median Improvments										
Planting Area	0	\$40.00	\$0.00	900	\$0.00	\$60.00	\$0.00	\$0.00		
Trees (assumes 1 tree every 25')	0	\$3,000.00	\$0.00	900	\$0.00	\$5,000.00	\$0.00	\$0.00		
Lighting (assumes 1 Pedestrian light ever 30')	0	\$2,000.00	\$0.00	900	\$0.00	\$4,000.00	\$0.00	\$0.00		
Subtotal: Landscape - Pavements, Ramps, Curbs					Subtotal Low	\$0	Subtotal High	\$0		
Project Subtotal				Subtotal Low	\$7,200	Subtotal High	\$10,800			
Contingencies 20%				Subtotal Low	\$1,440	Subtotal High	\$2,160			
Year contingency 5% per year after 2022										
Total Project Cost				Subtotal Low	\$8,640	Subtotal High	\$12,960			

APPENDIX 7: GLOSSARY

- **Above Ground Utilities:** Utility infrastructure that is stored above ground (ie: utility poles for uses like telephone or power, utility boxes).
- **Activation:** Improving conditions in the public realm and private realm that encourages people to actively participate in the use of a space. This can be accomplished through ground floor development and green spaces by providing opportunities for cafe space and street amenities like benches and bike racks.
- **Arterial Road:** A roadway that is designed for fast and heavy traffic. These are major roadways within the District that get people between major destinations like downtown Houston.
- **Average Daily Trips (ADT):** The annual average daily traffic on a roadway. ADT is one of the criteria used by roadway designers and engineers in determining the dimensions and function of proposed roadways.
- **Baseline:** A minimum or starting point used for comparisons.
- **Benchmark:** An indicator used to evaluate or check something by comparing with a standard.
- **Bioswales:** Are vegetated channels that convey storm water runoff and serve as an alternative to storm sewers. They absorb low flow events. Bioswales improve water quality by infiltrating the first flush of storm water runoff.
- **Bulb-outs:** See pedestrian refuge.
- **Building Articulation:** referring to street frontage design elements both horizontal and vertical, such as doorways, balconies, facade modulation, corner treatments, etc.
- **Bus BOOST Route:** A route that has been designated for service improvements by METRO.
- **Bus Express Route:** Bus routes that make limited stops and connect between key destinations.
- **Bus Lane:** A lane of traffic that is designated for bus traffic only. It is used as a tool to boost reliability of transit and ease traffic conflicts between buses and private vehicles.
- **Bus Stop Landing Zone:** The area of a bus stop that is dedicated to the loading and unloading of riders. It is important for this to be a clear area to allow for access of individuals of all abilities.
- **Collector Road:** A roadway that gathers/collects traffic from adjacent local street and connects to other collectors or arterial roads with the intention of minimizing traffic on local roads and provide mobility between destinations.
- **Critical Success Factor (s):** Features or results that must be accomplished for the standards and guidelines to be considered a successful process.
- **Designated Bike Lane:** Defined as a portion of the roadway that has been designated using striping, signage and pavement markings for preferential or exclusive use by cyclists.
- **Directional Signage:** Directional and informational signage that provides location information about points of interests in an area and distances to reach them. These can be placed along trails, key points of entry/exit along a sidewalk, etc.
- **Easement:** a section of the landscape that has a legal designation that allows use to someone else's land for a

specified purpose.

- **Facade, Building:** The exterior of a building. The design and articulation of a buildings' facade impacts that sense of place and comfort of the adjacent public realm.
- **Frontage Zone:** The side of a building or space that is adjacent to a streetscape (ie: ground retail or office space).
- **Green Space:** Areas where plants are used in the pedestrian realm to provide buffers, aesthetic appeal, habitat creation, water quality and storm water management.
- **Grounded Utilities:** Utility infrastructure that is stored underground to protect against weather and decrease conflicts with other streetscape elements above ground.
- **Hard Vertical Curb:** A vertical curb that is installed between a bike pathway and vehicular lanes to delineate and protect the bike route and users. Refer to [NACTO for an example](#).
- **Human Comfort:** The level of satisfaction and comfort of an individual which is affected by the design of a space. Spaces with higher human comfort are designed for people of all ages and physical abilities, have increased safety and minimize conflict with other uses.
- **Human Scale:** The perception of a space being designed for a person instead of a vehicular scale. The size and proportion of different elements and features along the streetscape are designed for the person and increase comfort of the individual.
- **Impervious Surface:** Any hard-surfaced, man-made area that does not readily absorb or retain water, including but not limited to building roofs, parking and driveway areas, graveled

areas, sidewalks, and paved recreation areas.

- **Infrastructure:** Facilities and services needed to sustain industry, residential, commercial, and all other land-use activities, including water, sewer lines, and other utilities, streets and roads, communications, and public facilities such as fire stations, parks, and schools.
- **Key Connector:** Roadways within the District that are vital to connecting prominent destinations.
- **Land Use:** The type of use activity occurring on a land parcel or within a building situated upon a land parcel.
- **Level of Improvement:** The framework for organizing the streetscape improvements based upon the considerations like the roadway capacity (ADT), importance of connecting destinations in the District and adjacent conditions. This project provides three levels of improvements which involve different levels of change, goals and partnerships.
- **Local Road:** A roadway that provides access to residential units.
- **Lot-line:** The boundary between the different properties.
- **Low Concrete Domes:** A low, concrete divider that is installed between a bike pathway and vehicular lanes to delineate and protect the bike route and users. Refer to [NACTO for an example](#).
- **Low-impact Development:** Design and management practices that utilizes natural processes and systems to manage storm water and increase water quality and habitat.

APPENDIX 7: GLOSSARY

- **Massing, Building:** The configuration and size of a building. This impacts that adjacent public realm and comfortability of the pedestrian realm.
- **Mid-block crossing:** See pedestrian refugee
- **Mixed-use:** Development that is used or suitable for several different functions including commercial, residential and office.
- **Mobility:** The quality or state of being mobile or movable.
- **Monuments/Markers:** Signage/structures that help to define a place. They are built not only to serve a purpose, but be an iconic symbol that is easily recognizable and representative of a place.
- **Multimodal:** Accommodates various modes of travel such as walking, cycling, automobile, public transit, and connections among modes.
- **Native Plants:** Vegetation that was found in the United States and geography prior to European settlement.
- **Non-invasive Exotics**
- **On-street Bike Route:** A designated space on a roadway that is dedicated to bicycle use (ie: sharrows and dedicated bike lane).
- **Open Space:** Outdoor space that is publicly or privately owned that has value for public access (ie: plazas, parks, landscape areas).
- **Pedestrian Realm:** The area from the back of curb that is dedicated to pedestrian use.
- **Pedestrian Refugee:** An area designed to decrease the exposure of pedestrians to traffic at an intersection or crossing (ie: bulb out, mid-block crossing, safety island).
- **Pervious Surface:** A surface that presents an opportunity for precipitation to infiltrate into the ground.
- **Planting Buffer:** Trees, shrubs and groundcover plants that serve to catch sediment and other pollution before it reaches water resources. They also serve to provide separation between motorized vehicles and pedestrians or cyclists.
- **Plaza:** a public space in a city or town. Usually located near urban buildings featuring walkways, plantings and places to sit.
- **Pocket Park:** A small park accessible to the public that provides a refuge for pedestrians and can link larger parks, trails and community destinations.
- **Priority Connector:** See key connections
- **Private Realm:** The parts of the District that are privately owned that may or may not be accessed by the public.
- **Property Owners' Association (POA):** A private entity that manages and operates a designated area in the District. These govern the operations and maintenance of different aspects of the public right of way.
- **Public Access Easement:** A part of private property that is legally granted for public access. This creates opportunities for enlarging the pedestrian realm to increase the human comfort and access for different modes of mobility.
- **Public Realm:** The parts of the District that are publicly owned and available to everyone to use (ie: streetscapes from back of

curb to back of curb, bus stops, plazas, parks and trail systems).

- **Public Realm Toolkit:** A collection of elements in the right of way and adjacent to the right of way that affect the quality and character of the public realm (ie: lighting, planting, hardscape materials).
- **Rain Garden:** A depression formed on a natural slope and planted with deep-rooted native plants and grasses designed to hold and absorb rainwater from nearby impervious surfaces such as roofs, drives, walkways, parking lots, or compacted lawn areas.
- **Rainwater Harvesting:** to capture, divert, and store rainwater for later use.
- **Regulatory Signage:** A range of signs that are used to indicate or reinforce traffic laws, regulations or requirements which apply either at all times or at specified times of the day (ie: posted speed, bike routes, roadway indicators, bike infrastructure).
- **Resilience:** The ability for a system to undergo change while retaining the integrity of the resource for future generations to enjoy.
- **Right of Way:** Space that is publicly owned and lies between property lines.
- **Rumble Strips:** A textured strip of pavement that alerts users through noise and vibration. These can be used alongside bike lanes to notify both bicyclists and other forms of mobility that they are crossing in or out of the bike lane. Refer to [NACTO for an example](#).
- **Screening:** A covering/barrier between the public and private realms with the purpose of providing privacy without visually or physically disrupting the District context.
- **Seatwall:** A wall that is design for comfortable seating.
- **Setback, Building:** The minimum distance that a building/ structure can be built to the property line or adjacent feature like a river or road.
- **Shared Use Path:** A walkway located back of the curb that accommodates more than one use (pedestrian sidewalk and bike route).
- **Slip Lanes:** A road at a junction that allows people to change roads without actually entering an intersection.
- **Smart Technology:** “Self-monitoring analysis and reporting technology” that provides information about a feature. (ie: the capacity of a trash receptacle).
- **Solar Exposure:** orienting buildings or built elements so that the sun can be utilized to reduce heating and cooling energy needs.
- **Stakeholder Advisory Committee (SAC):** A committee of selected individuals and organizations with an interest because they will be affected or may have influence. These individuals provided input and guided the development of the standards and guidelines.
- **Stormwater:** The flow of water which results from precipitation and which occurs immediately following rainfall or a snow-melt.

APPENDIX 7: GLOSSARY

- **Stormwater Management:** Water practices that foster resiliency and transform land development towards regenerative design.
- **Stormwater Planting:** Vegetation within a swale or basin that collects rain run-off. This vegetation is adapted to grow in areas that experience regular inundation and higher volumes of water.
- **Street Amenities:** Site furniture and features that provide for different needs of users of the public realm (ie: bike racks, benches and trash receptacles).
- **Structured Parking:** A structure that provides space for parking either above or below ground. These consolidate land dedicated to parking allowing for more land to be utilized for other uses.
- **Surface Parking:** Land dedicated for the use of off-street parking.
- **Sustainable:** The design/best practices of an element which fosters resiliency and transforms land development towards regenerative design.
- **Tactical Pedestrian Plazas:** a city, organizational, and/or citizen-led approach to installing plazas using short-term, low-cost, and scalable interventions to catalyze long-term change.
- **Tactile Strip:** Raised surfaces with distinct textures that are detectable by touch of a foot or sweep of a cane to indicate upcoming hazards or changes in the pedestrian environment. These can be used to separate a bike pathway from a pedestrian pathway.
- **Texas Safe Schools Sidewalks Program (SRTS):** An initiative that provides guidelines for improving the conditions of sidewalks along school routes to increase safety, the number of students that walk or bike to school and health of students.
- **Traffic-calming:** Is the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior and improve safety for non-motorized street users alike. Resulting in reduced frequency and severity of collisions and reduction of traffic congestion.
- **Transition Zone:** The area of between the public right of way to the front of a building. This space affects the quality of the pedestrian realm and can be utilized for activation.
- **Vehicular Capacity:** The maximum traffic flow obtainable on a given roadway.
- **Water quality capture volume:** The storage required to capture and treat 90% of water prior to discharge from site.
- **Wayfinding:** Availability and quality of signs, maps and visitor information services that increase the readability and ease of travel throughout the District.
- **Zoning:** The act or process of partitioning a city, town, or borough into zones reserved for different purposes.

Sources:

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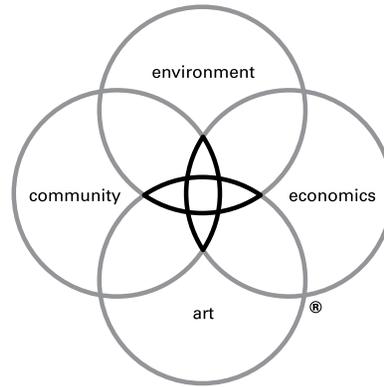
Safe Routes to School:

<https://www.saferoutespartnership.org/>

Scenic Houston:

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