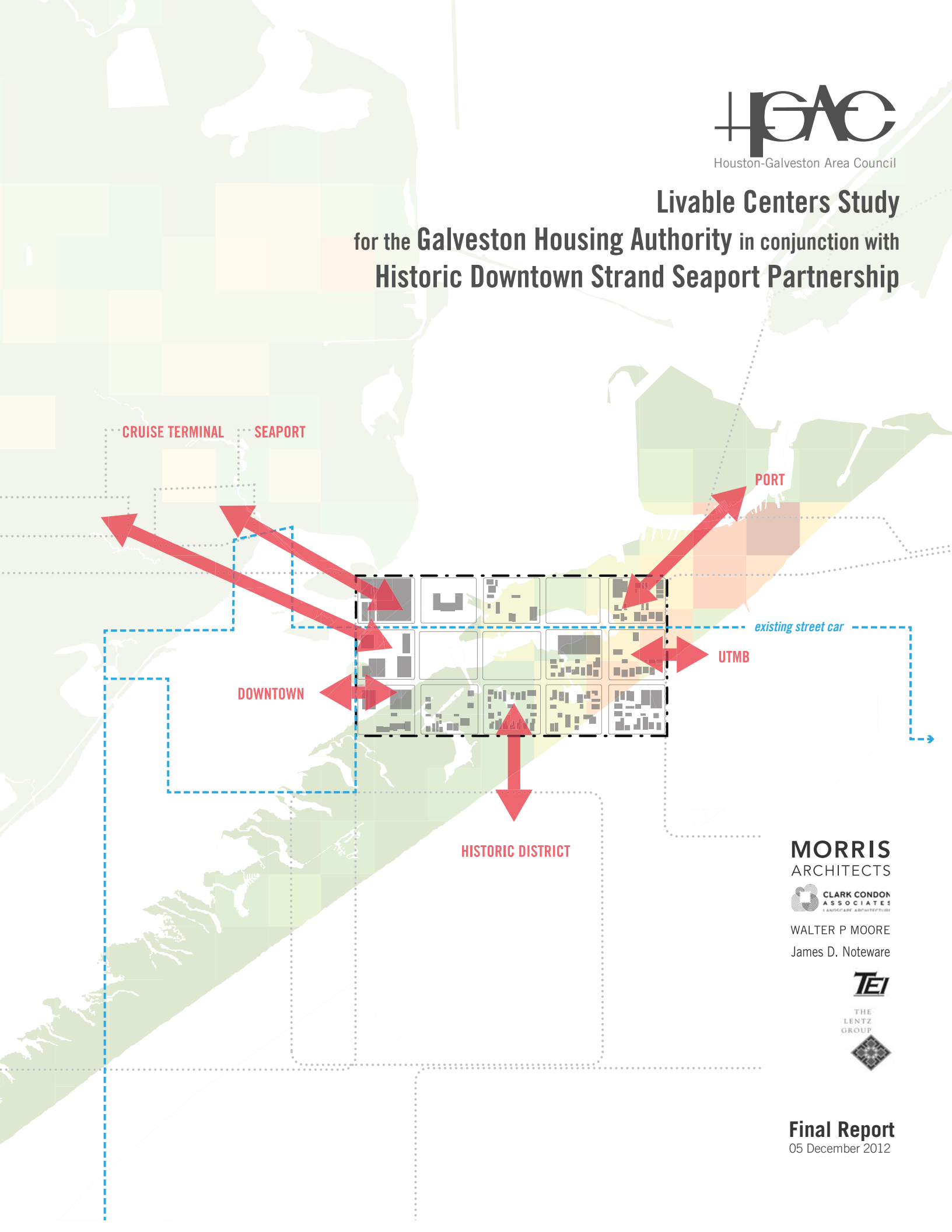
Houston-Galveston Area Council

Livable Centers Study

for the Galveston Housing Authority in conjunction with Historic Downtown Strand Seaport Partnership



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CLARK CONDON ASSOCIATES
LANDSCAPE ARCHITECTURE
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TEI
THE LENTZ GROUP

Final Report
05 December 2012

Houston-Galveston Area Council

Livable Centers Study for for the Galveston Housing Authority in conjunction with Historic Downtown Strand Seaport Partnership

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Final Report
December 5, 2012

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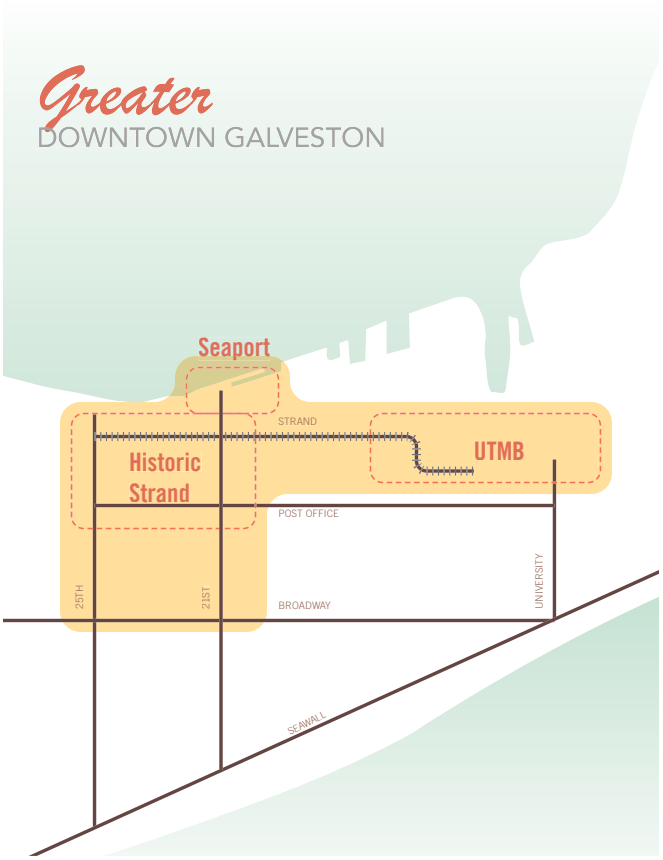
Executive Summary

Executive Summary

On the island of Galveston, between the restored historic Strand, the restaurants of the seaport, the working Port, the University of Texas Medical Branch, and the East End Historic District, there is a hole in the urban fabric. This 15-block area once contained Magnolia Homes, three blocks of public housing that were damaged in Hurricane Ike and demolished. Now those blocks are vacant, as are many of the privately owned lots around them. The remaining land uses are a mix of industrial, small commercial, and scattered houses. Many buildings are in poor disrepair. The streets are no better: the pavement is over scaled for the traffic volume, the sidewalks are discontinuous, and the street lighting is sporadic. Today, this is an area to pass through.



Greater Downtown Galveston Diagram

Building Use Study Area Map

However, this 15-block area presents a unique opportunity to create and rebuild critical connections. The area is surrounded by urban activity. The Downtown district and the Seaport bring thousands of visitors to the area for dining, entertainment, and jobs; the Port brings tourists embarking and disembarking from cruises and recreational activities. The working part of the Port provides important jobs and tax revenue for the City and serves as a gateway to the City. UTMB is a source of employment, research and development, education and healthcare services for the region. The Historic East End provides all-important housing and a strong sense of cultural and architectural heritage. The beach is only a mile away. These blocks also have great bones. The tight street grid is perfect for walking and biking. The wide streets and low traffic offer opportunities to rethink the public realm. A streetcar line links to UTMB and the Strand.

This study lays a vision in which these 15 blocks become part of a revitalized Greater Downtown Galveston, a place to live, work, and play that will attract new residents to the Island. This vision draws on the assets that are already here and enhances them with a revitalized public realm and new private development to create a great neighborhood. It combines the disparate places Galveston has today into a larger, coherent place made up of separate districts.

Greater Downtown Galveston, Live Downtown Signage

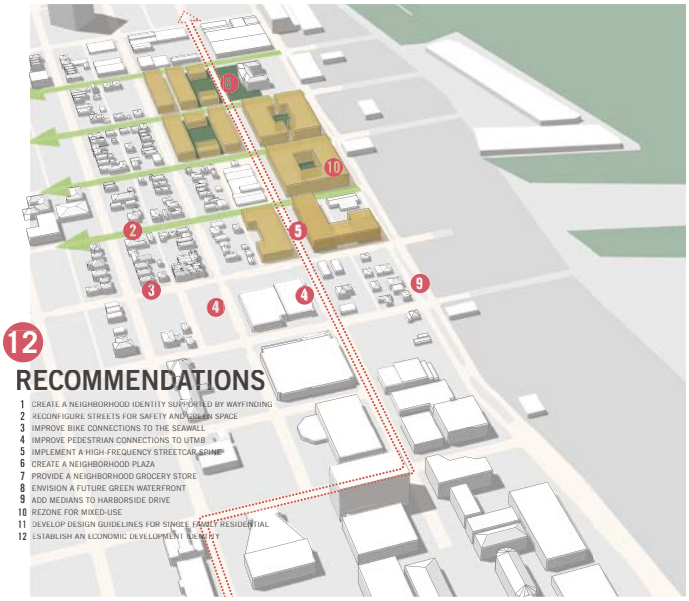
The study area itself would be infilled with new, medium-density mixed-use development, including residential, neighborhoods retail, and offices. The streets would be rebuilt with wider sidewalks and new greenspace. A new neighborhood plaza facing the historic Customs House would become a neighborhood gathering place, and a nearby grocery store would serve residents.

Twelve specific recommendations lay out a road map for achieving this vision. These include street reconstruction, improved pedestrian and bike connections, wayfinding signage, an enhanced streetcar line, a neighborhood plaza, a grocery store, new zoning, and a future vision for a green waterfront. Most importantly, we recommend a new management entity that can coordinate and oversee all these improvements.

These recommendations, and the study vision, were thoroughly vetted in stakeholder meetings and public presentations.

The opportunity exists to create a livable, sustainable, and economically prosperous place in Greater Downtown Galveston. The challenge will be in following through on that vision by gathering political will, finding funding, and coordinating implementation.

Project Public Meeting Presentations



Vision

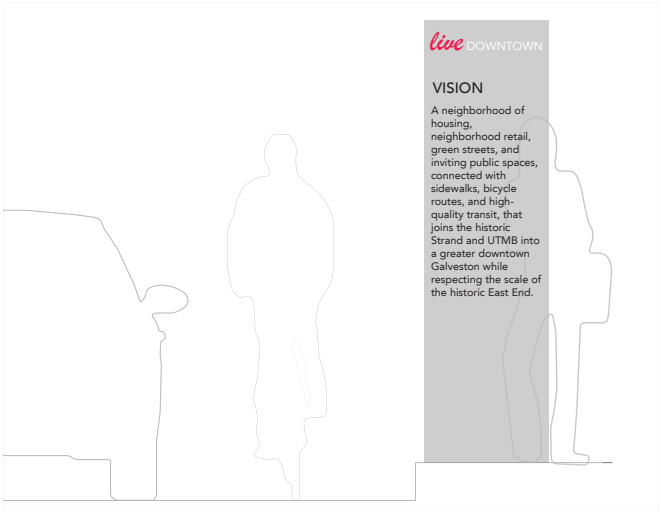
Greater Downtown Vision

Within a mile, Galveston has UTMB, the Seaport, the Strand, Post Office Street, and city hall -- a major medical school campus, a waterfront entertainment district, a beautifully preserved Victorian business district, a walkable Downtown business district, and a civic center. These places are separate, divided by a fractured urban fabric and by public perception.

All this -- an "L" shaped area from Broadway to the harbor and from University to 25th -- should be one Downtown, a neighborhood with different districts within. This Greater Downtown Galveston can be a place to live, work, study, and visit. It can serve students, residents, employees, and tourists. It can be linked by walkable streets, with the gaps between the districts filled with new development. It can be active every day, day or night.

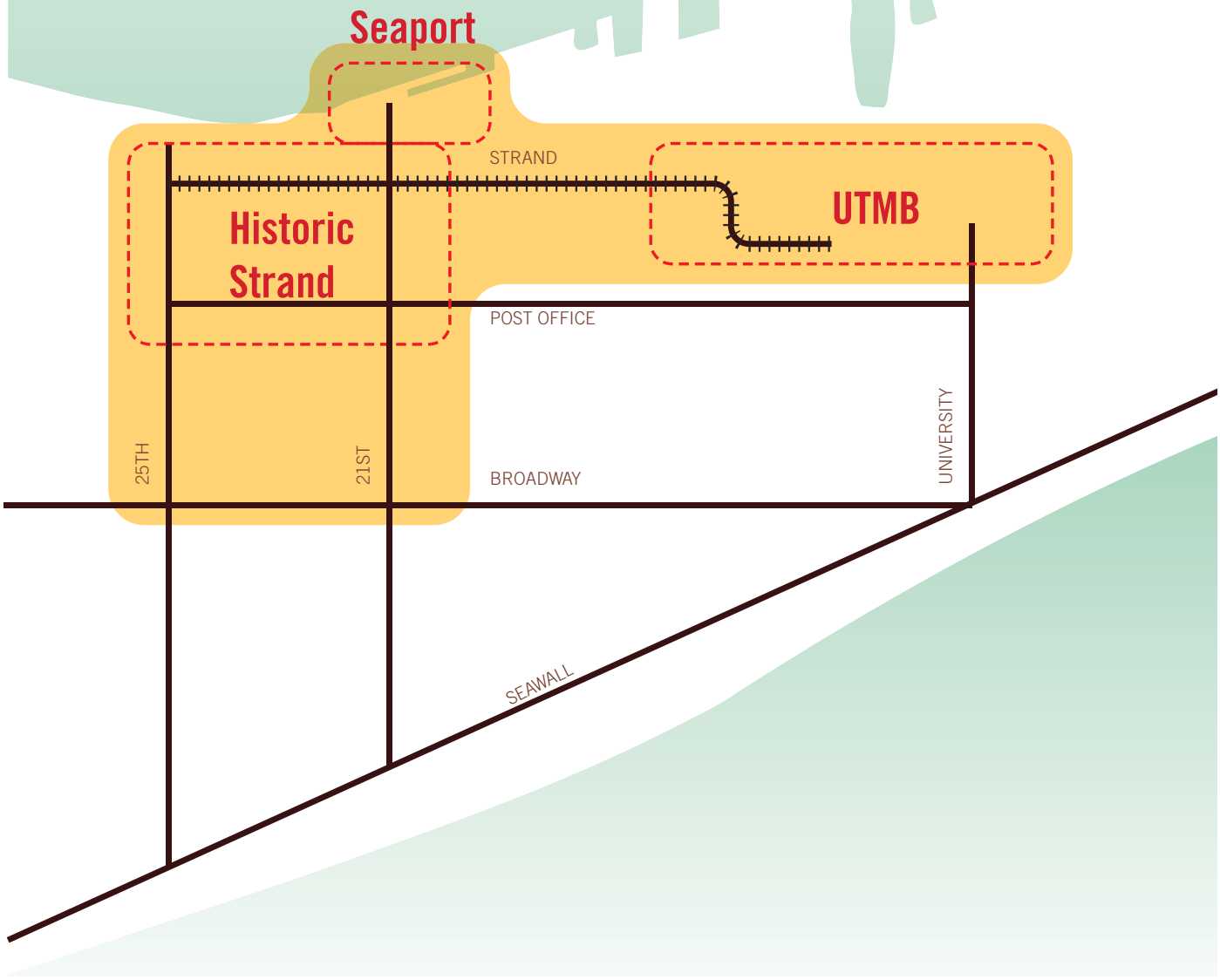
The key to achieving this vision is to attract more residents. Galveston is losing population, but it has a strong jobs base due to UTMB. If more UTMB students, faculty, and employees choose to live on the Island, the population decline can be reversed and Greater Downtown can be populated. Galveston has a collection of assets unlike any other place in the Houston Region. No place else has the history of the Strand and the East End, and no place else can offer Downtown living on the shores of the Gulf of Mexico. But Galveston needs to offer better places to live. National surveys, as well as surveys of Houston residents, show that more and more people want to live in walkable, denser neighborhoods. The best place on Galveston to offer that option is in Greater Downtown, where land is available for new development, jobs, and restarts. Furthermore, shopping already exist within walking distance and larger buildings will not impact existing neighborhoods.

Galveston has the opportunity to create a great place that builds on the Island's history and on the hard work that has already been done to restore and revitalize.



Signage Graphic Live Downtown proposed campaign

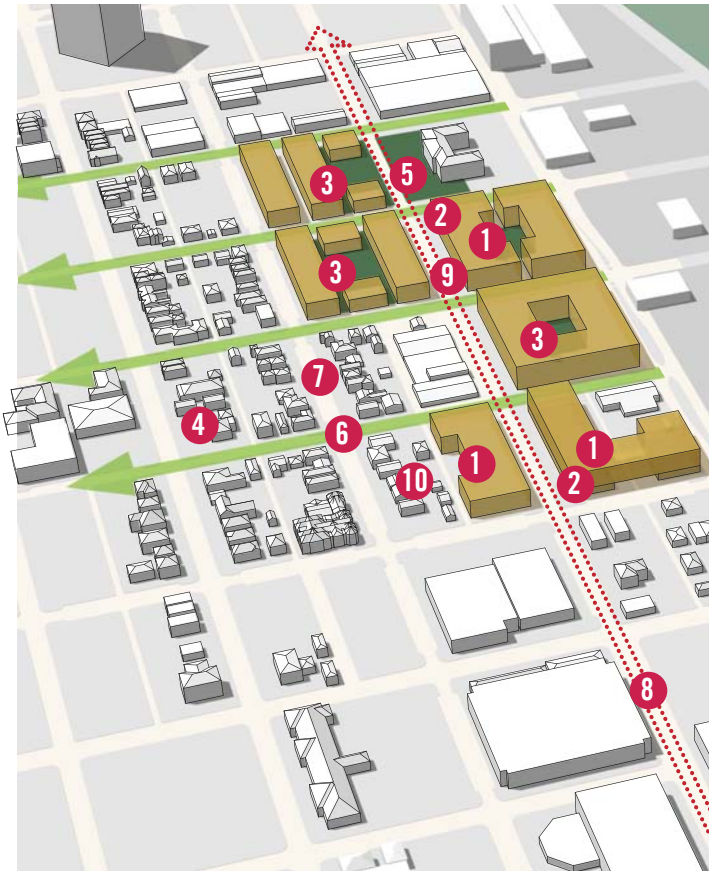
Greater
DOWNTOWN GALVESTON



Proposed Greater Downtown Galveston Diagram

Neighborhood Streetscape Vision

A neighborhood of housing, neighborhood retail, green streets and inviting public spaces, connected with sidewalks, bicycle routes and high-quality transit, that joins the historic Strand and UTMB into a greater Downtown Galveson while respecting the scale of the historic East End.



1. NEW PRIVATELY DEVELOPED MULTIFAMILY AND OFFICE
2. NEIGHBORHOOD RETAIL
3. GHA/MBS DEVELOPMENT
4. SINGLE FAMILY INFILL
5. NEIGHBORHOOD PLAZA
6. GREEN SPACE ALONG STREETS
7. PEDESTRIAN AND BIKE-FRIENDLY STREETS
8. STREETCAR
9. BUILDINGS LINE THE STREET
10. BUILDINGS SCALE DOWN TO THE NEIGHBORHOOD

Top Aerial diagram illustrating 12-Recommendations

Top Existing neighborhood street | **Bottom** Rendering of proposed green neighborhood street

12 Recommendations

1

Create a neighborhood identity supported by wayfinding

Develop a comprehensive and unique signage program for the study area. Decide on and reinforce a name for the district.

BENEFITS
Orients and directs pedestrians into and within the study area, while promoting the areas character and city wide presence.

RELATED RECOMMENDATIONS
3 Improve bike connections to the Seawall
4 Improve pedestrian connections to UTMB
5 Implement a high-frequency streetcar spine
6 Create a Neighborhood Plaza
12 Establish an economic development entity

GOALS SUPPORTED
8. Seamless transitions from UTMB to Downtown
9. Integration with surrounding neighborhoods
10. Recreate a sense of place

PROPOSED IMPLEMENTING AGENCY
Historic Downtown Strand Seaport Partnership
UTMB
Parks Department
Pubic Works

POSSIBLE FUNDING SOURCES
City funds
UTMB
Federal Grants
Foundations / Conservancies / Private Grants

APPROVAL REQUIRED FROM
COH - Public Works & Engineering

The study area would benefit from the development of an iconic signage and wayfinding system that distinguishing the area as a destination within the City of Galveston. Developing specific graphic signage that marks transit stops, wayfinding and directional systems and promotes a unique identity for the study area will reinforce physical improvements to the area. A comprehensive signage system would also reinforce city wide and regional connections into and out of the study area.

Since the study area is surrounded by four identifiable districts (seaport, Strand, UTMB, and East End) it can either develop its own distinct character or serve as an indistinct transition zone. A decision to develop a district name and reinforce it with signage, marketing, and naming of individual projects will tend to support a distinct identity.

Low-end sign
Pedestrian and bicycle wayfinding as well as branding can be accomplished using standard sign materials and posts. This minimizes up-front cost and maintenance.

Mid-range sign
Using nicer finishes and custom poles gives a more polished look, improving visitors' impressions of the area. This is a step above the low-end sign, both in appearance and price, however, more affordable than a full high-end package.

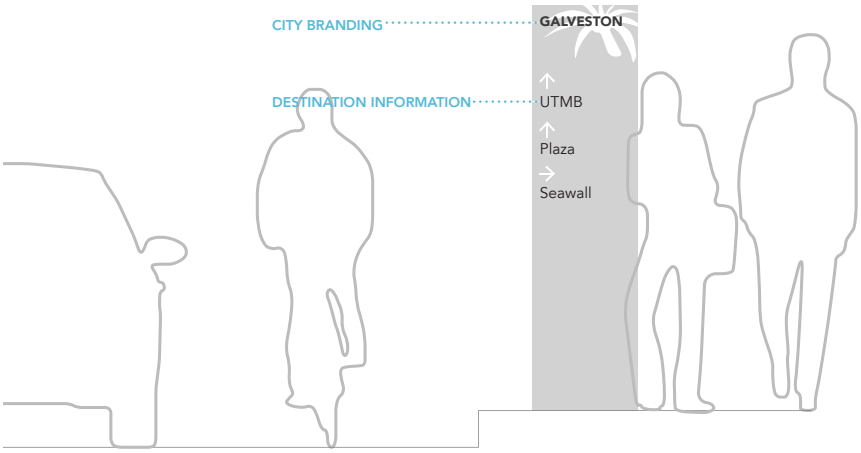
High-end sign
A signage program integrated with street furniture and lighting can have a powerful impact on the overall feel of an area. This is the strategy used by many high-end retail and tourism areas.

Top South Bend, IN (Paul Taylor, http://bikemichiana.org) | **Middle** Woodlands Township (Marek Hill) | **Bottom** Woodlands Waterway (Marek Hill)

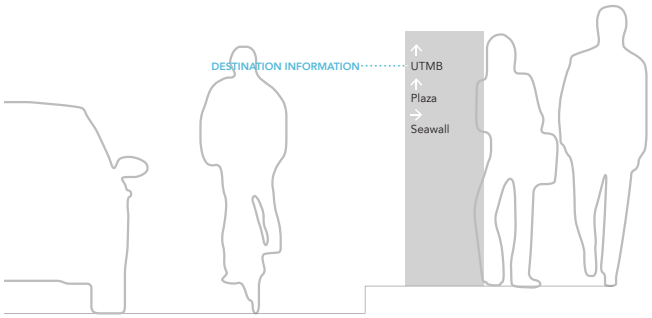
Options for integrating branding with wayfinding:
While the wayfinding purpose of signs must be primary, signs can also help brand a district or the city as a whole. These concept images illustrate four different approaches to this.

Preferred Package

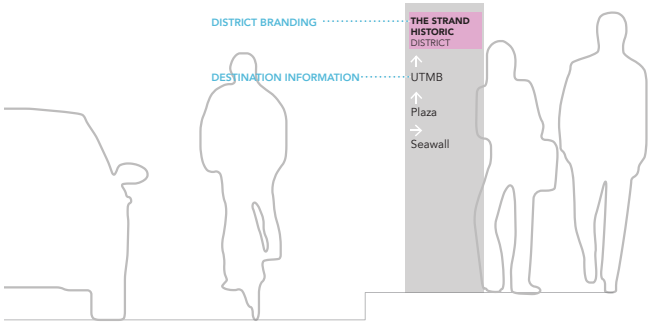
City Branding
Adding a graphic identity for the city as a whole supports a positive impression of the city while emphasizing continuity between adjacent areas. *This package was the preferred of the four, by our clients in the study.*



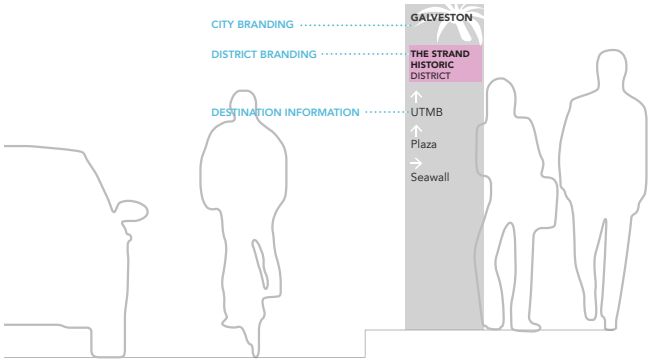
No branding
These signs have only wayfinding information and are identical across the city. Standardized signs simplify maintenance and reassures users.



District Branding
These signs are branded by districts, helping reinforce district identity. Taken too far, this can work against effective wayfinding by loosing continuity between districts and confusing users. Different sign designs can also increase maintenance cost. District branding is best done by keeping the overall sign standard and by adding district-specific elements.



City and District Branding
Combining the city identity with a district identity maintains continuity while still giving districts distinct identities.



Diagrams Signage package options

Cost Estimate
Signage Component

SIGNAGE PACKAGE					
	ITEM	**QTY**	**UNIT**	**UNIT COST**	**EXTENSION**
	CORNER SIGNS / KIOSKS	60	EA	$5,000.00	$300,000.00
	DIRECTIONAL SIGNAGE	16	EA	$3,000.00	$48,000.00
			TOTAL SIGNAGE		**$348,000.00**
			TOTAL		**$348,000.00**
			10% CONTINGENCY		**$34,800.00**
			TOTAL PROJECT		**$382,800.00**

2

Reconfigure streets for safety and green space

Rebuild streets with defined on-street parking, safer intersections, wide sidewalks, and public green space by reducing the number and width of traffic lanes.

BENEFITS
Supports business activity and new development by making walking safer and more comfortable, encouraging parking, slowing down traffic, creating community greens space, and beautifying the district.

RELATED RECOMMENDATIONS
3 Improve bike connections to the Seawall
4 Improve pedestrian connections to UTMB
5 Implement a high-frequency streetcar spine
6 Create a Neighborhood Plaza
12 Establish an economic development entity

GOALS SUPPORTED
1. Attract new residents
3. Green Space
4. Economic activity
7. Places that create community
8. Seamless transition from UTMB to Downtown
9. Integration with surrounding neighborhoods
10. Recreate a sense of place

PROPOSED IMPLEMENTING AGENCY
Public Works
Parks Department

POSSIBLE FUNDING SOURCES
Federal Grants
Foundations / Conservancies / Private Grants

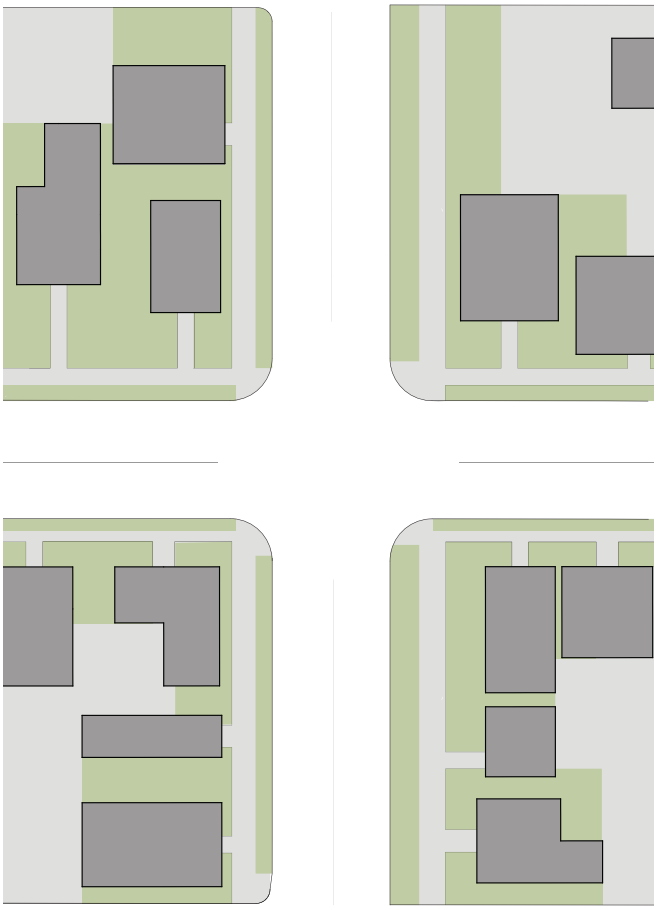
APPROVAL REQUIRED FROM
Public Works

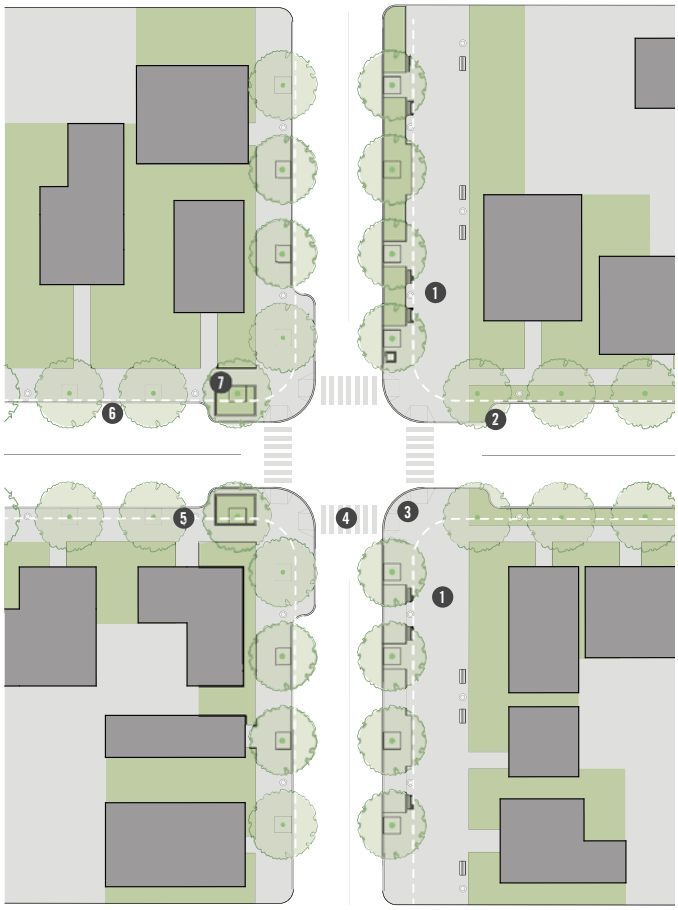
Roadway	R.O.W. Width (feet)	Estimated Pavement Width (feet)	Proposed Pavement Width (feet)
Harborside Drive	70	55	
Strand	80	46	42 w/ parking 26 w/o parking
Mechanic	70	36	
Market	70	36	
19th	80	46	46
18th	80	46	32
17th	80	46	32
16th	80	46	32
15th	80	46	32
14th	80	46	46

*Source Galveston GIS

As redevelopment occurs within the study area there is an opportunity to rethink how the public right-of-way is used to serve a variety of travel modes, as well as to enhance the sense of place and character of the neighborhood. Currently, the majority of the streets have been constructed with sufficient capacity for wide travel lanes with street parallel parking curb lines in both directions. The current traffic volumes within the study area are likely to remain low enough that two travel lanes would be adequate to maintain acceptable or better level of service on area roadways. This is particularly true of a grid street network that effectively distributes traffic and provides multiple routes between destination. On-street parking is prevalent in front of many of the residences for guest and residents that do not use the alley for access, but appears less prevalent on the north south streets with less property frontage. The current roadway widths also create wide intersections that may not be conducive to comfortable pedestrian crossings.

The recommendations develop potential alternate cross sections for area roadways that provide enhanced travel corridors for other modes such as pedestrians and bicycles as well as provide better access to transit stops. The construction of bulb outs, or curb extensions, at most intersections within the study area will provided shorter pedestrian crossing distances and provide an opportunity to implement improved curb ramps that are in line with American with Disabilities Act requirements. These should also serve as traffic calming to support slower travel speeds through the study area for motorists. Widened pedestrian realms will allow for enhanced sidewalks and green space and provide a distinctive, enhanced character to the study area. Designated bicycle corridors along roads such as 14th Street, 19th Street and Mechanic Street will serve to support increase cycling usage, enhance safety and provide wayfinding to major destinations such as the Strand, the Seawall and UTMB.





1 WIDEN PEDESTRIAN REALM TO 31' - 0" ALLOWING FOR ENHANCED SIDEWALKS AND ADJACENT GREEN SPACE

2 CONSTRUCT BULB OUTS AND CURB EXTENSIONS

3 IMPLEMENT IMPROVED CURB RAMPS TO MEET ADA REQUIREMENTS

4 PROVIDE SHORTER PEDESTRIAN CROSSWALKS

5 ADD PEDESTRIAN LIGHTING AND FURNISHINGS

6 PROVIDE ON-STREET PARKING

7 INFILL STREET TREES

0' 25' 50'

Typical Intersection Improvements (existing left, proposed right)

All intersections in the study area should be modified with bulb-outs. These decrease pedestrian crossing distances, making walking safer. Bulb-outs also discourage speed-by motorists without impeding traffic flow, as well as define on-street parking.

Mechanic Street

The cross section of Mechanic Street is proposed to remain unchanged between intersections. At intersections, bulb-outs are proposed to be constructed on either side of the intersection to ease pedestrian crossings, to provide definition for on-street parking and for protection for parked vehicles, as well as to encourage slower travel speeds by making the road feel narrower.

Market Street

The cross section of Market Street is proposed to remain unchanged. The current cross-section serves existing traffic and transit patterns well.

Top Diagrams showing existing and proposed neighborhood blocks | **Lower Right** Photo showing bulb-out s

The wide pedestrian realm that results on each of the four roads is envisioned to be transformed into a series of linear green spaces, from Avenue F to Harborside Drive – five blocks, altogether providing an additional 46,500 square feet of green space to the neighborhood. This additional linear green space could be used in a number of unique ways to define the area and its character and to make it a special destination within Galveston. Some examples for use of the space include:

- A fitness trail with exercise equipment, water stations, and rest areas.
- Nature trails with native vegetation and water features such as bioswales that can be functional, educational, and attractive.
- Open space with minimal vertical features for sports-related activities including volleyball, soccer, and tossing a football or baseball.
- A fenced dog run where dogs can be unleashed to get exercise and play with other dogs.
- A miniature-golf course with attractive landscaping, rest areas, and rental station for golf balls and clubs.

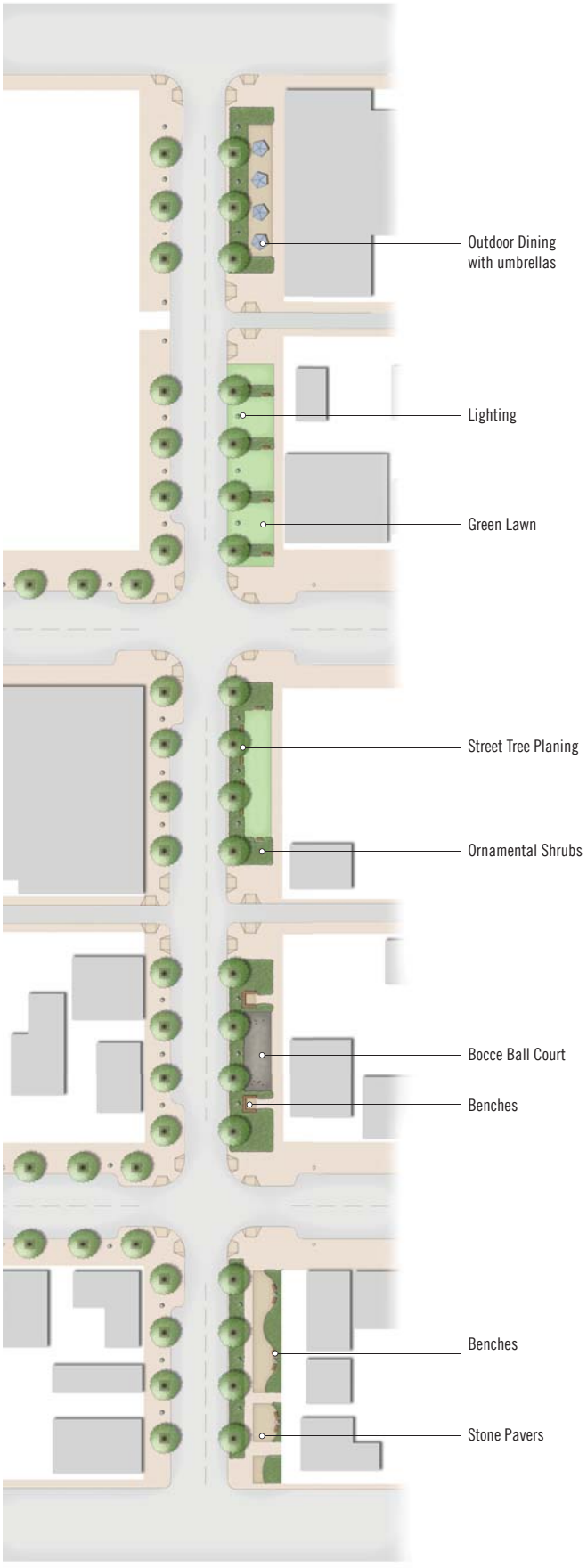
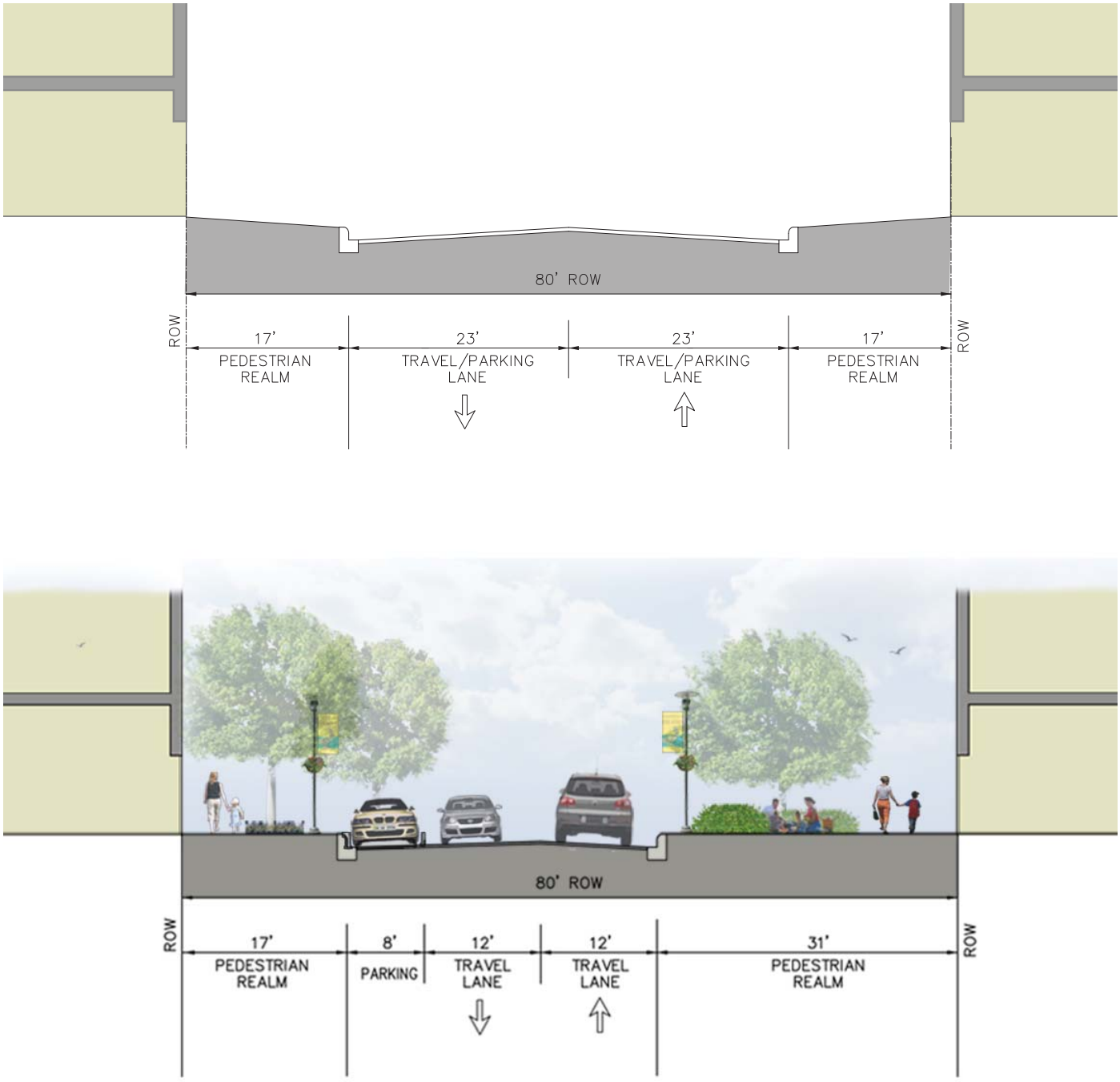


Diagram Proposed linear green space alongside street

15th, 16th, 17th, and 18th Streets

Identical modifications are proposed for 15th Street through 18th Street. The existing 46-feet of travel way is proposed to be narrowed to 32 feet by widening the pedestrian realm on one side of the road by 14 feet. The travel way cross-section is proposed to consist of a single lane of parallel parking and two travel lanes. At intersections, bulb-outs are proposed to be constructed on the same side as the parking lane to ease pedestrian crossings, provide definition for on-street parking, protect parked vehicles, and to encourage slower travel speeds by making the road feel narrower.



Top Existing 15th through 18th Street Sections | **Bottom** Proposed 15th through 18th Street Section

Cost Estimate
Reconfigure streets for safety and green space

15TH, 16TH, AND 18TH STREETS				
PRICES ARE PER CORRIDOR, BETWEEN HARBORSIDE DRIVE AND AVENUE F				
ITEM	**UNIT**	**UNIT PRICE**	**QTY**	**TOTAL PRICE**
STREET IMPROVEMENTS				
REMOVING STAB BASE AND ASPH PAV (2-inch to 8-inch)	SY	$3.32	9701	$32,185.71
CONCRETE PVMT (CONT REINF-CRCP)(10-inch)	SY	$30.87	6261.3	$193,270.33
LIME TRT (SUBGR)(DC)(6-inch)	SY	$2.15	6574.4	$14,134.96
LIME(HYD,COM OR QK)(SLRY)OR QK(DRY)	TON	$145.53	81.4	$11,840.11
CONCRETE CURB & GUTTER (TY II)	LF	$27.83	3700	$102,970.30
SUBTOTAL 1				**$354,401.41**
TCP AND MOBILIZATION (4.5%)				$15,948.06
CONTINGENCY (20%)				$70,880.28
SUBTOTAL 2				**$441,229.75**
ENGINEERING (10%)				$44,122.98
PROJECT MANAGEMENT (4%)				$17,649.19
CONSTRUCTION MANAGEMENT (6%)				$26,473.79
TOTAL FOR CORRIDOR				**$529,475.70**
PEDESTRIAN REALM IMPROVEMENTS				
REMOVING STAB BASE AND ASPH PAV (2-inch to 8-inch)	SY	$3.32	3022	$10,027.16
CONCRETE CURB & GUTTER (TY II)	LF	$27.83	2350	$65,400.05
DRAINAGE INLET MODIFICATIONS	EA	$5,000.00	2.3725	$11,862.50
CONCRETE SIDEWALKS (6-inch)	SY	$47.50	4622.2	$219,536.93
CURB RAMPS (TY 7)	EA	$1,197.44	40.0	$47,897.51
PEDESTRIAN LIGHTING	EA	$3,000.00	70.0	$210,000.00
PLANT MATERIAL (65 GAL) (TREE)	EA	$396.96	116.7	$46,312.13
SUBTOTAL 1				**$611,036.28**
TCP AND MOBILIZATION (4.5%)				$27,496.63
CONTINGENCY (20%)				$122,207.26
SUBTOTAL 2				**$760,740.17**
ENGINEERING (10%)				$76,074.02
PROJECT MANAGEMENT (4%)				$30,429.61
CONSTRUCTION MANAGEMENT (6%)				$45,644.41
TOTAL FOR CORRIDOR				**$912,888.20**
STREET IMPROVEMENT ASSUMPTIONS:				
All pavement is replaced with concrete pavement. All curbs are replaced.				
PEDESTRIAN REALM IMPROVEMENTS ASSUMPTIONS:				
8-foot sidewalks. Curbs are replaced where pavement width varies from existing width. 40-foot x 25-foot sidewalk plaza at all corners. 50-foot spacing for pedestrian lighting. 30-foot spacing of trees.				

Cost Estimate

Reconfigure streets for safety and green space

17TH STREET - BETWEEN HARBORSIDE DRIVE AND AVENUE F				
ITEM	**UNIT**	**UNIT PRICE**	**QTY**	**TOTAL PRICE**
ROADWAY IMPROVEMENTS				
EXCAVATION (ROADWAY)	CY	$5.94	1788.9	$10,619.11
REMOVING STAB BASE AND ASPH PAV (2-inch to 8-inch)	SY	$3.32	7912.0	$26,250.51
CONCRETE PVMT (CONT REINF-CRCP)(10-inch)	SY	$30.87	6261.3	$193,270.33
LIME TRT (SUBGR)(DC)(6-inch)	SY	$2.15	6574.4	$14,134.96
LIME(HYD,COM OR QK)(SLRY)OR QK(DRY)	TON	$145.53	81.4	$11,840.11
CONCRETE CURB & GUTTER (TY II)	LF	$27.83	3730.0	$103,805.19
DRAINAGE INLET MODIFICATIONS	EA	$5,000.00	0.4	$2,187.50
RC PIPE (CL III)(24 IN)	LF	$40.45	350.0	$14,155.81
CONCRETE SIDEWALKS (6-inch)	SY	$47.50	1013.3	$48,129.25
CURB RAMPS (TY 7)	EA	$1,197.44	8.0	$9,579.50
PLANT MATERIAL (65 GAL) (TREE)	EA	$396.96	23.3	$9,262.43
SUBTOTAL 1				**$443,234.71**
TCP AND MOBILIZATION (4.5%)				$19,945.56
CONTINGENCY (20%)				$88,646.94
SUBTOTAL 2				**$551,827.21**
ENGINEERING (10%)				$55,182.72
PROJECT MANAGEMENT (4%)				$22,073.09
CONSTRUCTION MANAGEMENT (6%)				$33,109.63
TOTAL FOR CORRIDOR				**$662,192.65**
SIDEWALK IMPROVEMENTS				
REMOVING STAB BASE AND ASPH PAV (2-inch to 8-inch)	SY	$3.32	2417.8	$8,021.73
CONCRETE CURB & GUTTER (TY II)	LF	$27.83	1880.0	$52,320.04
DRAINAGE INLET MODIFICATIONS	EA	$5,000.00	1.9	$9,675.00
CONCRETE SIDEWALKS (6-inch)	SY	$47.50	3697.8	$175,629.54
CURB RAMPS (TY 7)	EA	$1,197.44	32.0	$38,318.01
PEDESTRIAN LIGHTING	EA	$3,000.00	70.0	$210,000.00
PLANT MATERIAL (65 GAL) (TREE)	EA	$396.96	93.3	$37,049.70
SUBTOTAL 1				**$531,014.03**
TCP AND MOBILIZATION (4.5%)				$23,895.63
CONTINGENCY (20%)				$106,202.81
SUBTOTAL 2				**$661,112.46**
ENGINEERING (10%)				$66,111.25
PROJECT MANAGEMENT (4%)				$26,444.50
CONSTRUCTION MANAGEMENT (6%)				$39,666.75
TOTAL FOR CORRIDOR				**$793,334.95**
STREET IMPROVEMENT ASSUMPTIONS:				
All pavement is replaced with concrete pavement. All curbs are replaced. Install storm sewer line (24-inch concrete pipe) between Mechanic Street and Strand. New pavement and curbs are installed between Mechanic Street and Strand.				
PEDESTRIAN REALM IMPROVEMENTS ASSUMPTIONS:				
8-foot sidewalks. 40-foot x 25-foot sidewalk plaza at all corners. 50-foot spacing for pedestrian lighting. 30-foot spacing of trees. Curbs are replaced where pavement width varies from existing width.				

3

Improve bike connections to the Seawall

Rebuild streets with defined on-street parking, safer intersections, wide sidewalks, and public green space by reducing the number and width of traffic lanes.

BENEFITS
Better connections encourages bicycling by visitors and residents, provides better links from Seawall to the Strand, East End, and Seaport, and improves bicycles access to UTMB from south of Broadway.

RELATED RECOMMENDATIONS
1 Create a neighborhood identity supported by wayfinding
2 Reconfigure streets for safety and green space
12 Establish an economic development entity

GOALS SUPPORTED
1. Attract new residents
4. Economic activity
9. Integration with surrounding neighborhoods

PROPOSED IMPLEMENTING AGENCY
Public Works

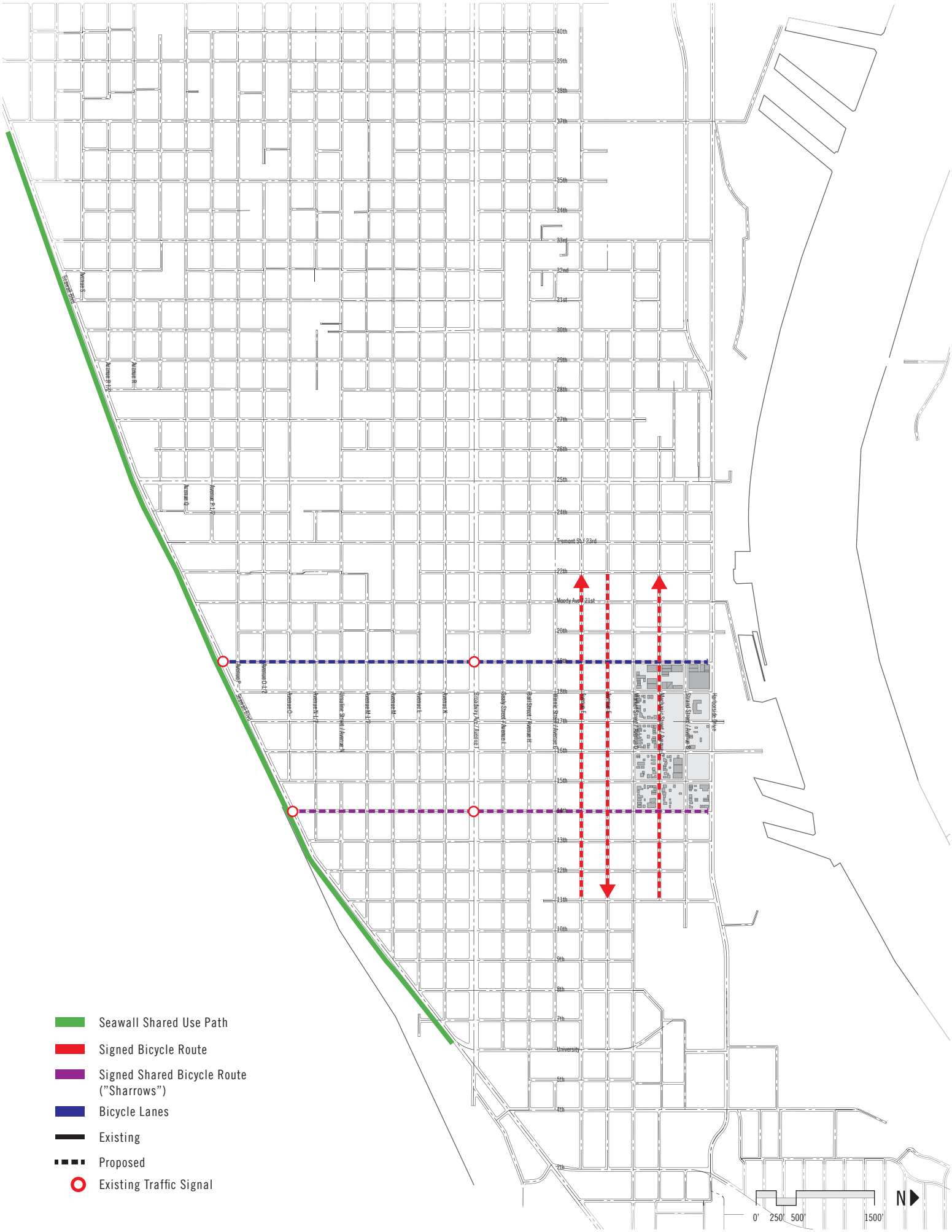
POSSIBLE FUNDING SOURCES
Federal Grants
UTMB
Foundations / Conservancies / Private Grants

APPROVAL REQUIRED FROM
Public Works

The Seawall is one of the primary recreational and tourist destinations in Galveston, and it effectively serves as a nearly 8-mile-long, grade-separated hike-and-bike trails that provides access to commercial retail, entertainment, employment, and other destinations. Therefore, providing convenient bicycle and pedestrian connections to the Seawall can dramatically increase the number and types of trips that can be made by walking and biking.

Although any of the north-south streets in the study area would make suitable routes between the study area and the Seawall, special emphasis for bicyclists and pedestrians is recommended for 14th and 19th Street. As indicated in the existing roads and right-of-ways section, these roads are largely free-flow at intersections in and around the study area, and as a result, bicyclists can travel several blocks without having to lose momentum to come to a stop. Additionally, existing traffic signals along both roads at Broadway Boulevard and Seawall Boulevard assist bicyclist and pedestrian crossings of these two busy arterial roadways. No other north-south road that passes through the study area is signalized at these two streets.

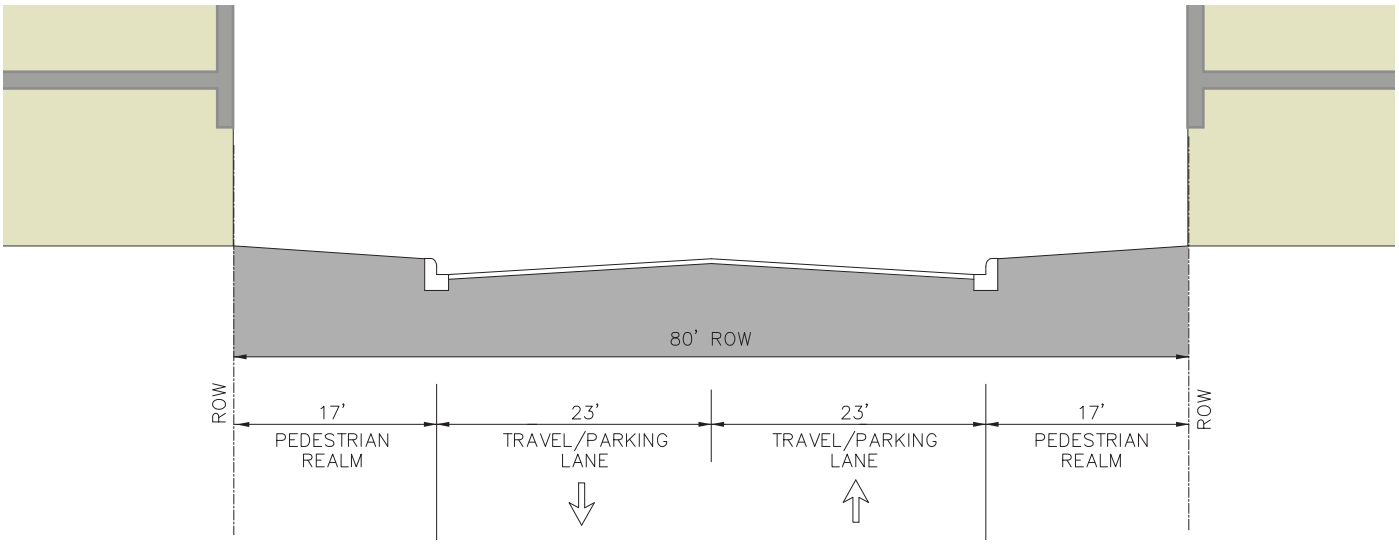
Top Photo showing sharrow | **Bottom** Photo showing bike lane

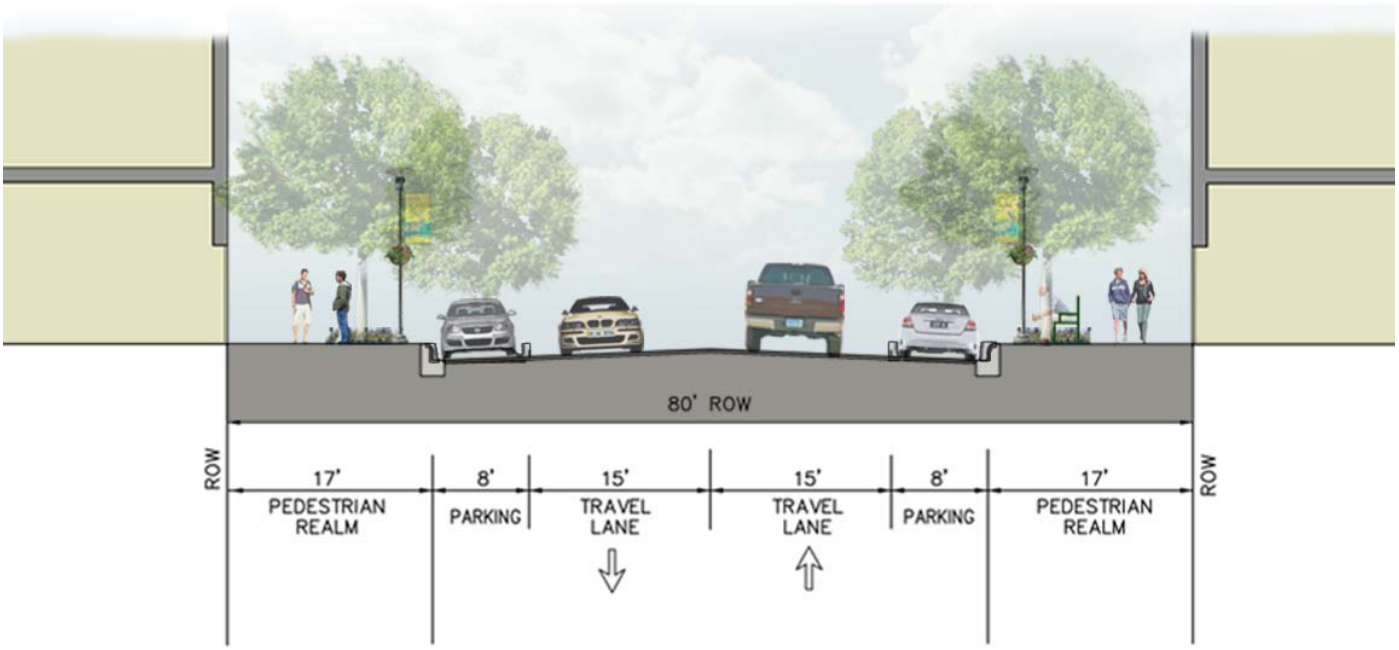

Seawall Shared Use Path
Signed Bicycle Route
Signed Shared Bicycle Route ("Sharrows")
Bicycle Lanes
Existing
Proposed
Existing Traffic Signal
0'
250'
500'
1500'
N
Seawall Blvd
Avenue S
Avenue P 1/2
Avenue P
Avenue O
Avenue O 1/2
Avenue N
Avenue N 1/2
Avenue M
Avenue L
Avenue K
Broadway Ave / Avenue J
Sealy Street / Avenue I
Post Street / Avenue H
Avenue G
Avenue F
Market Street / Avenue E
Strand Street / Avenue D
Harborside Drive
40th
39th
38th
37th
35th
34th
33rd
32nd
31st
30th
29th
28th
27th
26th
25th
24th
Tremont St. / 23rd
22nd
Moody Ave. / 21st
20th
19th
18th
17th
16th
15th
14th
13th
12th
11th
10th
9th
8th
7th
University
5th
4th
2th

14th Street

The travel way along 14th Street is proposed to remain unchanged, however, new striping is proposed to delineate a new cross-section consisting of parallel parking on both sides of the road and two wide travel lanes that can be shared by motor vehicles and bicycles. Shared-lane markings, sharrows, are proposed to be painted at regular intervals in the lanes to emphasize the shared nature of the lanes. 14th Street is particularly important for bicycle mobility because it provides signalized crossings at Broadway Avenue and Seawall Boulevard, however, there is insufficient existing pavement to provide parking, which is important to the many adjacent businesses, and to bicycle lanes.

Furthermore, maintaining the existing pedestrian realm is important for ensuring that the corridor remains friendly to pedestrians. At intersections, bulb-outs are proposed to be constructed on either side of the intersection to ease pedestrian crossings, provide definition for on-street parking and protection for parked vehicles, and to encourage slower travel speeds by making the road feel narrower.



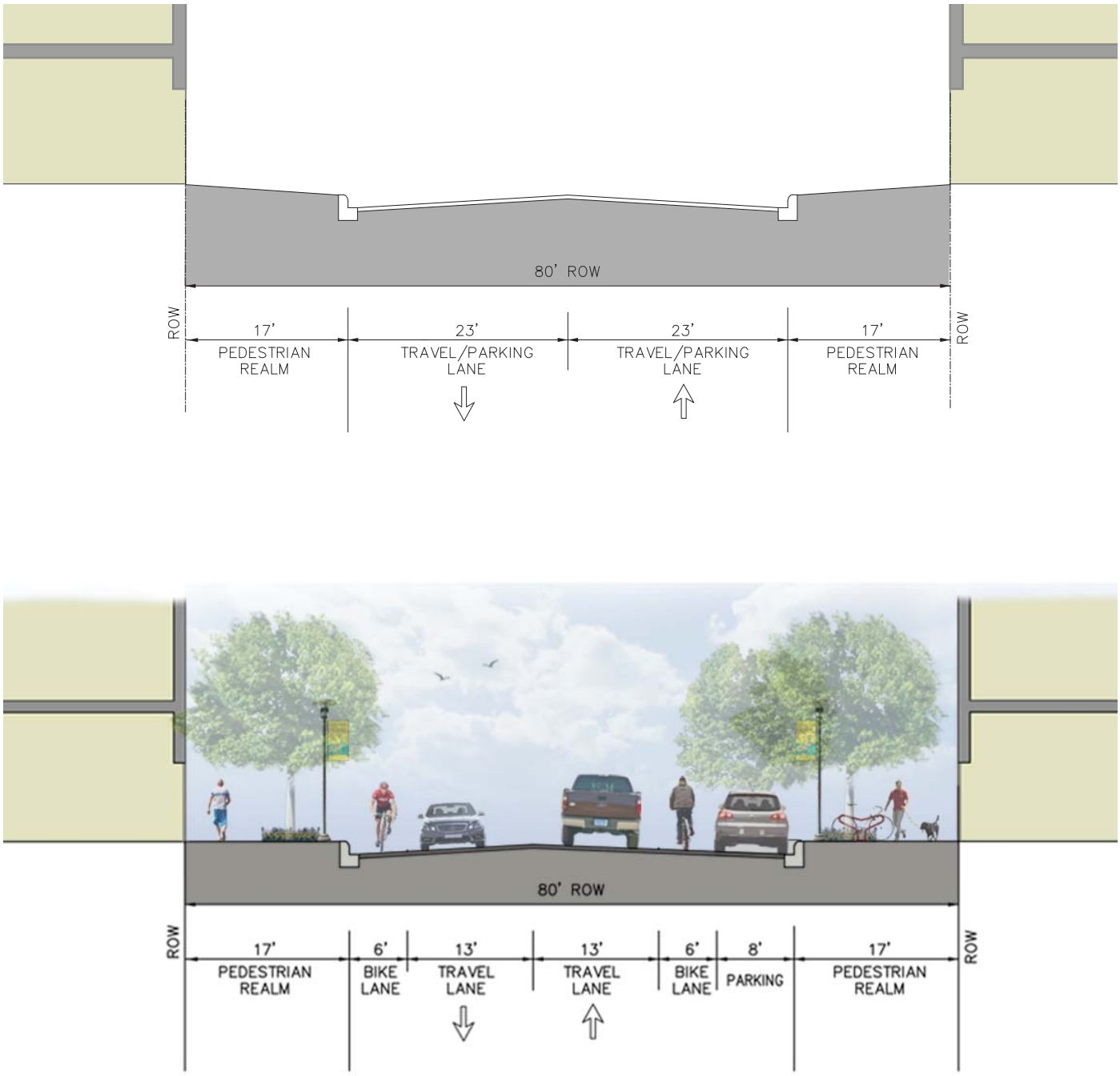


Top Existing 14th Street Section | **Bottom** Proposed 14th Street Section

19th Street

The travel way along 19th Street is proposed to remain unchanged, however, striping is proposed to be altered to delineate bike lanes and parallel parking lanes. 19th Street is particularly important for bicycle mobility because it provides signalized crossings at Broadway Avenue and Seawall Boulevard. Striping bike lanes will make the road feel safer for bicycling because bicyclists will feel they have a designated spot for riding. Two striping options are provided: Option 1, wider travel lanes and bicycle lanes with parallel parking on one side of the road, or Option 2, narrower travel lanes and bicycle lanes with parallel parking on both sides of the road.

Option 1, would be preferable for bicyclist and motorist comfort, however, providing on-street parking on both sides of the road may be necessary to support adjacent businesses and residences. At intersections, bulb-outs are proposed to accompany parking lanes on either side of the intersection to ease pedestrian crossings, to provide definition for on-street parking and protection for parked vehicles, and to encourage slower travel speeds by making the road feel narrower.



Top Existing 19th Street Section | **Bottom** Proposed 19th Street Section

Cost Estimate

Improve bike connections to the Seawall

14TH STREET - HARBORSIDE DRIVE TO AVENUE F				
ITEM	**UNIT**	**UNIT PRICE**	**QTY**	**TOTAL PRICE**
BIKE ROUTE				
PAVEMENT MARKINGS - LANE LINES	EA	$2,900.00	1	$2,900.00
PAVEMENT MARKINGS - SHARROWS	EA	$230.00	20	$4,600.00
SIGNAGE - BIKE ROUTE	EA	$425.00	10	$4,250.00
SUBTOTAL 1				**$11,750.00**
TCP AND MOBILIZATION (4.5%)				$528.75
CONTINGENCY (20%)				$2,350.00
SUBTOTAL 2				**$14,628.75**
ENGINEERING (10%)				$1,462.88
PROJECT MANAGEMENT (4%)				$585.15
CONSTRUCTION MANAGEMENT (6%)				$877.73
TOTAL FOR CORRIDOR				**$17,554.50**
BULB OUTS				
REMOVING STAB BASE AND ASPH PAV (2-inch to 8-inch)	SY	$3.32	600	$1,990.69
CONCRETE CURB & GUTTER (TY II)	LF	$27.83	1200	$33,395.77
DRAINAGE INLET MODIFICATIONS	EA	$5,000.00	2.3725	$11,862.50
CONCRETE SIDEWALKS (6-inch)	SY	$47.50	2222.2	$105,546.60
CURB RAMPS (TY 7)	EA	$1,197.44	40.0	$47,897.51
SUBTOTAL 1				**$200,693.07**
TCP AND MOBILIZATION (4.5%)				$9,031.19
CONTINGENCY (20%)				$40,138.61
SUBTOTAL 2				**$249,862.88**
ENGINEERING (10%)				$24,986.29
PROJECT MANAGEMENT (4%)				$9,994.52
CONSTRUCTION MANAGEMENT (6%)				$14,991.77
TOTAL FOR CORRIDOR				**$299,835.45**
BIKE ROUTE ASSUMPTIONS:				
Two sharrows per side of road per block. One bike route sign per side of road per block. New pavement markings (center line, parking stripe)				
BULB OUTS ASSUMPTIONS:				
New curb and gutter for bulb-outs. 40-foot x 25-foot sidewalk plaza on bulb-outs				

Cost Estimate

Improve bike connections to the Seawall

19TH STREET - BETWEEN HARBORSIDE DRIVE AND AVENUE F				
ITEM	**UNIT**	**UNIT PRICE**	**QTY**	**TOTAL PRICE**
BIKE ROUTE				
PAVEMENT MARKINGS - LANE LINES	EA	$5,200.00	1	$5,200.00
PAVEMENT MARKINGS - BIKE SYMBOLS	EA	$390.00	20	$7,800.00
SIGNAGE - BIKE ROUTE	EA	$425.00	10	$4,250.00
SUBTOTAL 1				**$17,250.00**
TCP AND MOBILIZATION (4.5%)				$776.25
CONTINGENCY (20%)				$3,450.00
SUBTOTAL 2				**$21,476.25**
ENGINEERING (10%)				$2,147.63
PROJECT MANAGEMENT (4%)				$859.05
CONSTRUCTION MANAGEMENT (6%)				$1,288.58
TOTAL FOR CORRIDOR				**$25,771.50**
BULB OUTS				
REMOVING STAB BASE AND ASPH PAV (2-inch to 8-inch)	SY	$3.32	300	$995.34
CONCRETE CURB & GUTTER (TY II)	LF	$27.83	600	$16,697.89
DRAINAGE INLET MODIFICATIONS	EA	$5,000.00	2.3725	$11,862.50
CONCRETE SIDEWALKS (6-inch)	SY	$47.50	1111.1	$52,773.30
CURB RAMPS (TY 7)	EA	$1,197.44	40.0	$47,897.51
SUBTOTAL 1				**$130,226.54**
TCP AND MOBILIZATION (4.5%)				$5,860.19
CONTINGENCY (20%)				$26,045.31
SUBTOTAL 2				**$162,132.05**
ENGINEERING (10%)				$16,213.20
PROJECT MANAGEMENT (4%)				$6,485.28
CONSTRUCTION MANAGEMENT (6%)				$9,727.92
TOTAL FOR CORRIDOR				**$194,558.46**
BIKE ROUTE ASSUMPTIONS:				
Two bike symbols per side of road per block. One bike route sign per side of road per block. New pavement markings (center line, parking stripe)				
BULB OUTS ASSUMPTIONS:				
New curb and gutter for bulb-outs. 40-foot x 25-foot sidewalk plaza on bulb outs				

4

Improve pedestrian connections to UTMB

Improve streets between UTMB and the study area with wider sidewalks, new pedestrian-friendly, development, and retrofits to existing buildings.

BENEFITS
Encourages pedestrian access to UTMB for faculty, staff and patients and supports new development serving UTMB.

RELATED RECOMMENDATIONS
1 Create a neighborhood identity supported by wayfinding
2 Reconfigure streets for safety and green space
12 Establish an economic development entity

GOALS SUPPORTED
1. Attract new residents
4. Economic activity
9. Seamless transition from UTMB to Downtown

PROPOSED IMPLEMENTING AGENCY
UTMB

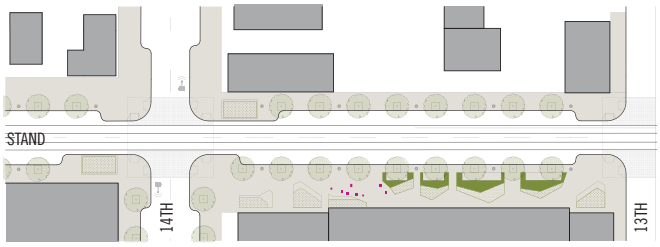
POSSIBLE FUNDING SOURCES
UTMB
Federal Grants
Foundations / Conservancies / Private Grants

APPROVAL REQUIRED FROM
Public Works, UTMB

The Strand and Mechanic Street will play a key role in linking pedestrians across the study area. Today, most blocks on these streets linking the study area to UTMB have substandard pedestrian environments that discourage walking.

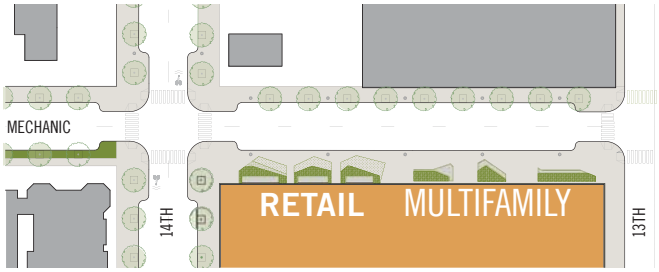
1. Improve the public realm

Most blocks in this area do not meet minimum sidewalk standards. Improvements are recommended within the pedestrian realm including widening sidewalks, adding bulb-outs, planting street trees, and adding appropriate lighting and furnishings. These improvements will be a continuation of the street improvements within the study area.



2. Make new development pedestrian-friendly

On Market Street, surface parking lots currently leave a gap between UTMB and the adjacent neighborhood. Smaller lots on the Strand leave similar gaps. These holes in the urban fabric reduce activity and discourage pedestrians by leaving them exposed. UTMB should look to use these parcels for new buildings and design those building with active uses on the ground floor to support pedestrian activity.



3. Improve existing buildings

The buildings that do exist in this area often consist of blank walls and exposed parking. These buildings serve important functions that cannot easily be relocated, but the buildings can be improved to be friendlier to pedestrians by adding new architectural elements or artwork. These improvements will create a visual pedestrian friendly connection that will encourage and enhance the walking experience.

Top Possible public realm plan | **Center** Possible development plan | **Bottom** Precedent image of University of Minnesota Scholars walk

1. Reconfigure streets and improve pedestrian realm
2. New Development with active ground floors
3. Architectural improvements to existing buildings

Cost Estimate
Improve pedestrian connections to UTMB

MECHANIC STREET, MARKET STREET				
PRICES ARE PER CORRIDOR, BETWEEN 19TH STREET AND 11TH STREET				
ITEM	**UNIT**	**UNIT PRICE**	**QTY**	**TOTAL PRICE**
STREET IMPROVEMENTS				
REMOVING STAB BASE AND ASPH PAV (2-inch to 8-inch)	SY	$3.32	11511	$38,191.68
CONCRETE PVMT (CONT REINF-CRCP)(10-inch)	SY	$30.87	10515.6	$324,586.60
LIME TRT (SUBGR)(DC)(6-inch)	SY	$2.15	11041.3	$23,738.87
LIME(HYD,COM OR QK)(SLRY)OR QK(DRY)	TON	$145.53	136.6	$19,884.80
CONCRETE CURB & GUTTER (TY II)	LF	$27.83	5920	$164,752.48
SUBTOTAL 1				**$571,154.42**
TCP AND MOBILIZATION (4.5%)				$25,701.95
CONTINGENCY (20%)				$114,230.88
SUBTOTAL 2				$711,087.26
ENGINEERING (10%)				$71,108.73
PROJECT MANAGEMENT (4%)				$28,443.49
CONSTRUCTION MANAGEMENT (6%)				$42,665.24
TOTAL FOR CORRIDOR				**$853,304.71**
PEDESTRIAN REALM IMPROVEMENTS				
REMOVING STAB BASE AND ASPH PAV (2-inch to 8-inch)	SY	$3.32	960	$3,185.10
CONCRETE CURB & GUTTER (TY II)	LF	$27.83	1920	$53,433.24
DRAINAGE INLET MODIFICATIONS	EA	$5,000.00	3.71	$18,550.00
CONCRETE SIDEWALKS (6-inch)	SY	$47.50	5084.4	$241,490.62
CURB RAMPS (TY 7)	EA	$1,197.44	32.0	$38,318.01
PEDESTRIAN LIGHTING	EA	$3,000.00	112.0	$336,000.00
PLANT MATERIAL (65 GAL) (TREE)	EA	$396.96	186.7	$74,099.40
SUBTOTAL 1				**$765,076.37**
TCP AND MOBILIZATION (4.5%)				$34,428.44
CONTINGENCY (20%)				$153,015.27
SUBTOTAL 2				**$952,520.08**
ENGINEERING (10%)				$95,252.01
PROJECT MANAGEMENT (4%)				$38,100.80
CONSTRUCTION MANAGEMENT (6%)				$57,151.20
TOTAL FOR CORRIDOR				**$1,143,024.09**
STREET IMPROVEMENT ASSUMPTIONS:				
All pavement is replaced with concrete pavement. All curbs are replaced.				
PEDESTRIAN REALM IMPROVEMENTS ASSUMPTIONS:				
8-foot sidewalks. 25-foot x 14-foot sidewalk plaza at all corners. 50-foot spacing for pedestrian lighting. 30-foot spacing of trees. Curbs are replaced where pavement width varies from existing width.				

Cost Estimate

Improve pedestrian connections to UTMB

STRAND - BETWEEN 19TH STREET AND 11TH STREET (COST ESTIMATE ALSO SHOW FOR RECOMMENDATION 5)				
ITEM	UNIT	UNIT PRICE	QTY	TOTAL PRICE
PEDESTRIAN REALM IMPROVEMENTS				
REMOVING STAB BASE AND ASPH PAV (2-inch to 8-inch)	SY	$3.32	4861	$16,128.24
EXCAVATION (ROADWAY)	CY	$5.94	324	$1,923.75
REMOVING CONCRETE (CURB)	LF	$3.10	3150	$9,754.13
CONCRETE CURB & GUTTER (TY II)	LF	$27.83	7280	$202,601.02
DRAINAGE INLET MODIFICATIONS	EA	$5,000.00	3.68	$18,400.00
CONCRETE SIDEWALKS (6-inch)	SY	$47.50	5084.4	$241,490.62
CURB RAMPS (TY 7)	EA	$1,197.44	32.0	$38,318.01
PEDESTRIAN LIGHTING	EA	$3,000.00	112.0	$336,000.00
PLANT MATERIAL (65 GAL) (TREE)	EA	$396.96	186.7	$74,099.40
SUBTOTAL 1				**$938,715.18**
TCP AND MOBILIZATION (4.5%)				$42,242.18
CONTINGENCY (20%)				$187,743.04
SUBTOTAL 2				**$1,168,700.40**
ENGINEERING (10%)				$116,870.04
PROJECT MANAGEMENT (4%)				$46,748.02
CONSTRUCTION MANAGEMENT (6%)				$70,122.02
TOTAL FOR CORRIDOR				**$1,402,440.48**
PEDESTRIAN REALM IMPROVEMENTS ASSUMPTIONS:				
8 foot sidewalks on either side of road.				
25-foot x 14-foot sidewalk plaza at all corners.				
50-foot spacing for pedestrian lighting.				
30-foot spacing of trees.				
Curb are replaced where pavement width varies from existing width.				

5

Implement a high-frequency streetcar spine

Reopen the UTMB-Downtown streetcar as a high-frequency service that is designed to connect to bus routes at the new Downtown transit center. Extend the line to the Seawall on the east to serve more residents and retail.

BENEFITS
Links local residents to jobs, retail, and services and improves transit access to UTMB from all of Galveston.

RELATED RECOMMENDATIONS
1 Create a neighborhood identity supported by wayfinding
2 Reconfigure streets for safety and green space
7 Provide a neighborhood grocery store
12 Establish an economic development entity

GOALS SUPPORTED
1. Attract new residents
4. Economic activity
5. Provide neighborhood services
8. Seamless transition from UTMB to Downtown
9. Integration with surrounding neighborhoods

PROPOSED IMPLEMENTING AGENCY
Island Transit

POSSIBLE FUNDING SOURCES
Federal Grants

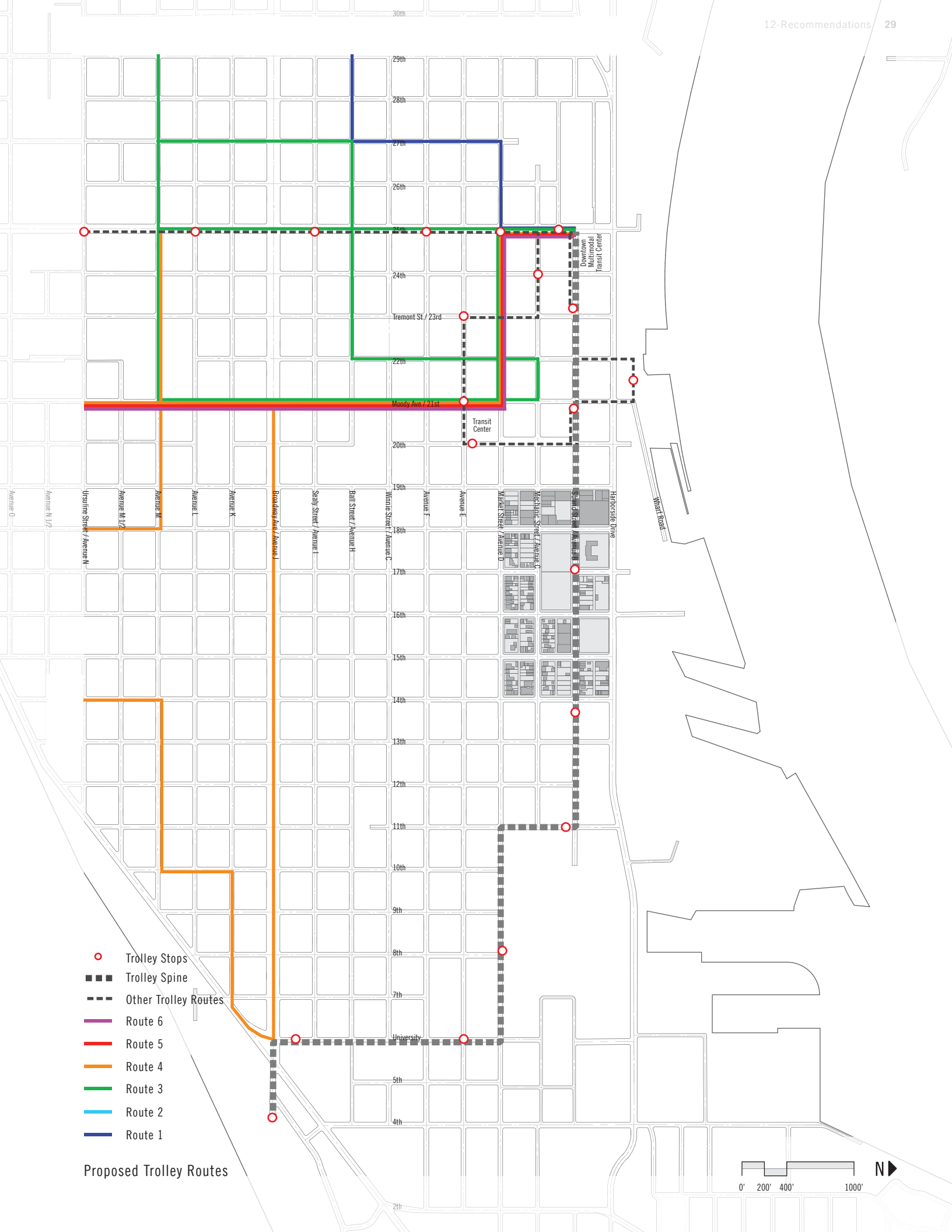
APPROVAL REQUIRED FROM
Public Works

The Galveston streetcar should be integrated with the bus system to create a high-frequency, high-quality transit service with simple connections to the bus network.

The UTMB streetcar branch should be rebuilt and extended to create a direct route from the new transit center at 45th Street and Strand via strand, 11th Street, D, Market, and University to the Seawall and Stewart Beach. This should be operated at 10-minute headways all day, with scheduled connections to all Island Transit bus routes. The 25th Street streetcar and the Downtown loop should continue to operate as they did before the storm. Stops should be built to allow riders to board directly from the sidewalk for safety and to facilitate ADA access.

This new transit spine would create a convenient link between UTMB and Downtown, between the Strand and the beach, and between housing and retail. It would also connect all of these destinations to the bus system as whole.

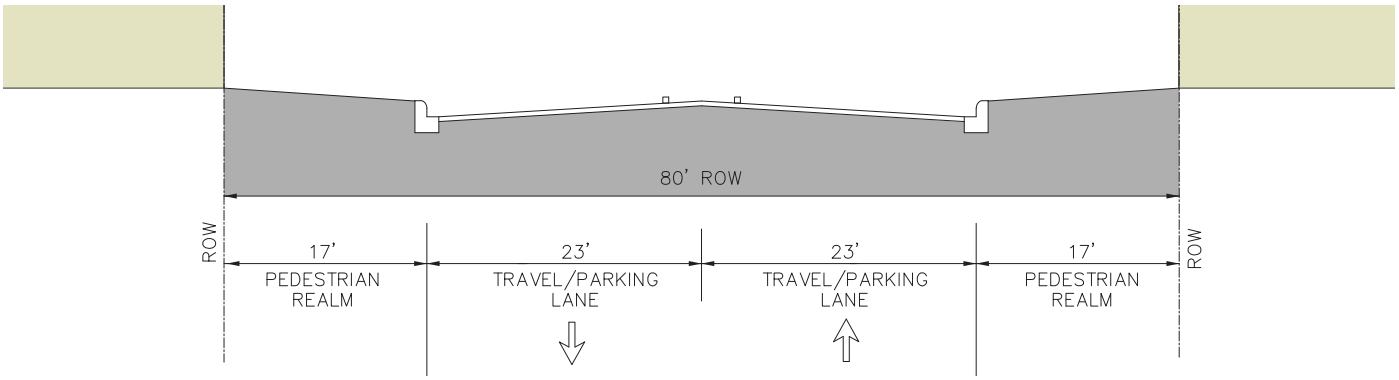
Top New Orleans streetcar | **Bottom** Seattle streetcar

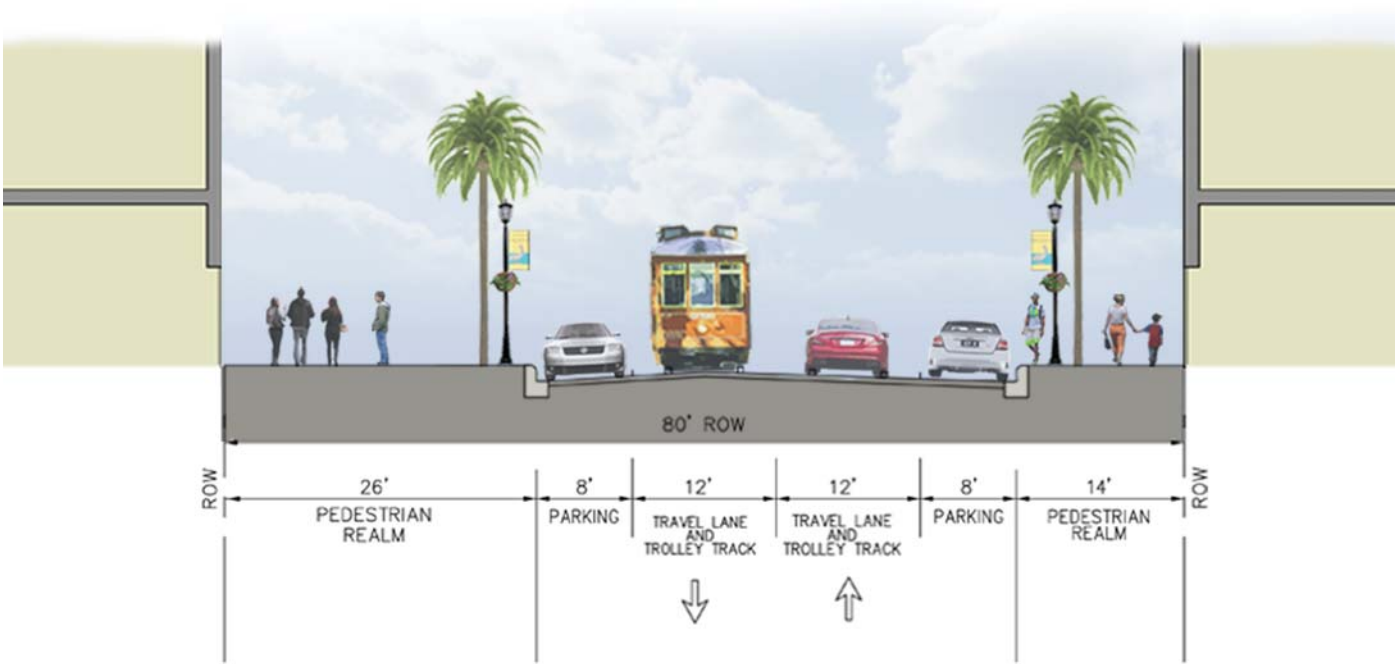


Proposed Trolley Routes

The Strand typical section

To accommodate frequent service and to keep schedules, The Strand needs two streetcar tracks. This can be accommodated by keeping the existing track, adding a second track alongside, and shifting traffic to share lanes with these two tracks. The travel way along Strand is proposed to be narrowed from 46 feet to 40 feet to provide a wider pedestrian realm. Additionally, a second trolley track is proposed to be added so that bi-directional trolley service can be provided between the Strand District and UTMB. Vehicular traffic is proposed to share lanes with trolley traffic. Parallel parking is proposed to support adjacent businesses and to compensate for proposed reductions in parking on the north-south streets. At intersections, bulb-outs are proposed to be constructed on either side of the intersection to ease pedestrian crossings, to provide definition for on-street parking and protection for parked vehicles, and to encourage slower travel speeds by making the road feel narrower. At streetcar stops, bulb-outs extend out to the track so riders can board from the sidewalk.





Top Right Proposed Strand Section at trolley stop | **Middle** Existing Strand Section | **Bottom** Proposed Strand Section

The Strand at Customs House

To support a cohesive, park-like environment on Strand in front of the former Customs House and the planned Galveston Housing Authority development, the travel way is proposed to be narrowed to 24 feet to provide two shared vehicular / trolley lanes. This narrower cross section will serve to unite both sides of the road into a common place by making the road safer and easier for pedestrians to cross. A trolley stop is proposed for the center of the block to further emphasize the walkability of the park space.

Top Existing Strand Section between 17th and 18th Street | **Bottom** Proposed Strand Section between 17th and 18th Street

Cost Estimate
High-frequency streetcar spine

STRAND - BETWEEN 19TH STREET AND 11TH STREET				
ITEM	**UNIT**	**UNIT PRICE**	**QTY**	**TOTAL PRICE**
STREET IMPROVEMENTS				
REMOVING STAB BASE AND ASPH PAV (2-inch to 8-inch)	SY	$3.32	7856	$26,063.24
CONCRETE PVMT (CONT REINF-CRCP)(10-inch)	SY	$30.87	3873.3	$119,559.26
LIME TRT (SUBGR)(DC)(6-inch)	SY	$2.15	4067.0	$8,744.05
LIME(HYD,COM OR QK)(SLRY)OR QK(DRY)	TON	$145.53	50.3	$7,324.43
CONCRETE CURB & GUTTER (TY II)	LF	$27.83	7280	$202,601.02
CURB RAMPS (TY 7)	EA	$1,197.44	32	$38,318.01
SUBTOTAL 1				**$402,610.02**
TCP AND MOBILIZATION (4.5%)				$18,117.45
CONTINGENCY (20%)				$80,522.00
SUBTOTAL 2				**$501,249.47**
ENGINEERING (10%)				$50,124.95
PROJECT MANAGEMENT (4%)				$20,049.98
CONSTRUCTION MANAGEMENT (6%)				$30,074.97
TOTAL FOR CORRIDOR				**$601,499.36**
STREET IMPROVEMENT ASSUMPTIONS:				
All pavement is replaced with concrete pavement.				
All curbs are replaced.				
Pavement construction associated with additional track is included in separate rail estimate.				

STRAND				
ITEM	**UNIT**	**UNIT PRICE**	**QTY**	**TOTAL PRICE**
STREETCAR SYSTEM				
STREETCAR TRACK	LF	$750	12000	$9,000,000.00
STREETCAR VEHICLES	EA	$1,500,000	4	$6,000,000 .00
SUBTOTAL 1				**$15,000,000.00**
TOTAL				**$15,000,000.00**

Cost Estimate

Improvements to pedestrian connections to UTMB

STRAND - BETWEEN 19TH STREET AND 11TH STREET (COST ESTIMATE ALSO SHOWN FOR RECOMMENDATION 4)				
ITEM	UNIT	UNIT PRICE	QTY	TOTAL PRICE
PEDESTRIAN REALM IMPROVEMENTS				
REMOVING STAB BASE AND ASPH PAV (2-inch to 8-inch)	SY	$3.32	4861	$16,128.24
EXCAVATION (ROADWAY)	CY	$5.94	324	$1,923.75
REMOVING CONCRETE (CURB)	LF	$3.10	3150	$9,754.13
CONCRETE CURB & GUTTER (TY II)	LF	$27.83	7280	$202,601.02
DRAINAGE INLET MODIFICATIONS	EA	$5,000.00	3.68	$18,400.00
CONCRETE SIDEWALKS (6-inch)	SY	$47.50	5084.4	$241,490.62
CURB RAMPS (TY 7)	EA	$1,197.44	32.0	$38,318.01
PEDESTRIAN LIGHTING	EA	$3,000.00	112.0	$336,000.00
PLANT MATERIAL (65 GAL) (TREE)	EA	$396.96	186.7	$74,099.40
SUBTOTAL 1				**$938,715.18**
TCP AND MOBILIZATION (4.5%)				$42,242.18
CONTINGENCY (20%)				$187,743.04
SUBTOTAL 2				**$1,168,700.40**
ENGINEERING (10%)				$116,870.04
PROJECT MANAGEMENT (4%)				$46,748.02
CONSTRUCTION MANAGEMENT (6%)				$70,122.02
TOTAL FOR CORRIDOR				**$1,402,440.48**
PEDESTRIAN REALM IMPROVEMENTS ASSUMPTIONS:				
8-foot sidewalks				
25-foot x 14-foot sidewalk plaza at all corners.				
50-foot spacing for pedestrian lighting.				
30-foot spacing of trees.				
Curbs are replaced where pavement width varies from existing width.				

6

Create a Neighborhood Plaza

Create a new neighborhood plaza that supports the cultural identity and demographic of the existing neighborhood and planned development.

BENEFITS
Provide social gathering space for the community and provide areas for both passive and active recreation.

RELATED RECOMMENDATIONS
1 Create a neighborhood identity supported by wayfinding
2 Reconfigure streets for safety and green space
12 Establish an economic development entity

GOALS SUPPORTED
1. Attract new residents
3. Green Space
7. Places the create community
10. Recreate a sense of place

PROPOSED IMPLEMENTING AGENCY
Downtown-Strand-Seaport Partnership, UTMB, and / or MBS

POSSIBLE FUNDING SOURCES
UTMB, MBS, local foundations

APPROVAL REQUIRED FROM
Public Works, UTMB, MBS

A neighborhood plaza would offer program to serve many age groups from the very young to the elderly. Including elements such as shelters, play structures, seating areas, pathways, and shade trees are just a few of the essential components that will build a successful neighborhood plaza.

Adding in unique elements that are not included in other neighboring parks, like a spray ground or carousel, would draw users from different parts of Galveston and create an identifiable feature for the neighborhood. The unique elements would foster a sense of place and neighborhood identity.

Access to the plaza via public transportation, regional bike trails, or proximity to larger park systems will play a vital role in the long term success of the plaza.

The proposed location for the plaza combines a block of The Strand, the front lawn of the UTMB-owned customs house, and open space on the MBS development of the former Magnolia Homes Site. These areas would be combined into a single, integrated plaza managed and maintained by a single entity. The Strand would remain open to traffic but would be narrowed to two lanes with no on-street parking in this block. Streetcar stops would directly serve the plaza.

Permanent Activities	**Temporary Activities**	**Seasonal Activities**
Historic Exhibits	Food Cart Festival	Dickens on the Strand
Sidewalk Board Game	Outdoor Art Show	Mardi gras
Stage	Cooking Classes	Arbor Day
Farmer's Market	Craft Fair	Easter Egg Hunt
Spray Fountains	Clubs and Trade Group Mtgs	4th of July
Ice Cream Stand		
Carousel		

Left Proposed plaza location

Top Rendering of proposed plaza | **Bottom** Plan of proposed plaza

Cost Estimate
Neighborhood Plaza

(BOTH SIDES OF THE STREET)					
111-039					
	ITEM	**QTY**	**UNIT**	**UNIT COST**	**EXTENSION**
DEMOLITION					
	EXISTING WALK	7,020	SF	$3.00	$21,060.00
	TREES	14	EA	$200.00	$2,800.00
	SMALL TREES	17	EA	$100.00	$1,700.00
			TOTAL DEMOLITION		**$23,860.00**
HARDSCAPE					
	SPECIAL PAVING ON CONCRETE (PEDESTRIAN)	45,200	SF	$20.00	$904,000.00
	SPECIAL PAVING ON CONCRETE (VEHICULAR)	10,850	SF	$25.00	$271,250.00
	INTERACTIVE WATER FEATURE	1	LS	$500,000.00	$500,000.00
	WATER SPRAYGROUND	1	LS	$750,000.00	$750,000.00
	SEAT WALL	320	LF	$50.00	$16,000.00
	STREET LIGHTS	4	EA	$5,000.00	$20,000.00
	TRANSIT STOPS	2	EA	$25,000.00	$50,000.00
			TOTAL HARDSCAPE		**$2,511,250.00**
SOFTSCAPE					
	SHADE TREE-100 GAL.	36	EA	$800.00	$28,800.00
	PALMS	18	EA	$2,500.00	$45,000.00
	SHRUB / GROUNDCOVER.	5,000	SF	$5.00	$25,000.00
	FINE GRADE AND SOD	28,000	SF	$0.50	$14,000.00
	IRRIGATION SYSTEM	33,000	SF	$0.50	$16,500.00
			TOTAL SOFTSCAPE		**$129,300.00**
			TOTAL		**$2,664,410.00**
			10% CONTINGENCY		**$266,441.00**
			TOTAL PROJECT		**$2,930,851.00**

7

Provide a neighborhood grocery store

Build a new grocery store within walking distance of Downtown and UTMB, on the streetcar line, with easy car access from Harborside Drive, selling basic staples, high-quality meats and produce, prepared foods, and household products.

BENEFITS
Provides affordable, high quality, healthy food to local residents, provides new food options for UTMB employees, students, and patients, and supports new Downtown residents.

RELATED RECOMMENDATIONS
5 Implement a high-frequency streetcar spine
10 Rezone for mixed-use
12 Establish an economic development entity

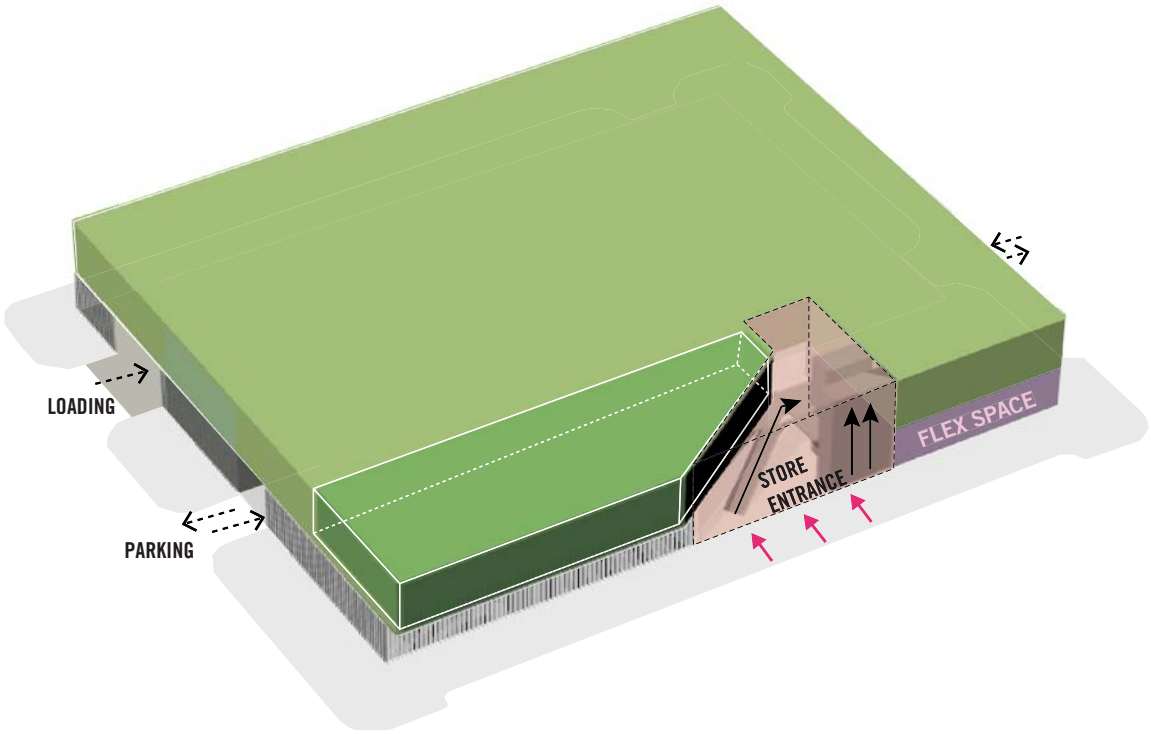
GOALS SUPPORTED
1. Attract new residents
2. Generate tax revenue
4. Economic activity
5. Provide neighborhood services
6. Additional retail should not compete with Downtown

PROPOSED IMPLEMENTING AGENCY
Private operator

POSSIBLE FUNDING SOURCES
City economic development funds

APPROVAL REQUIRED FROM
City Council

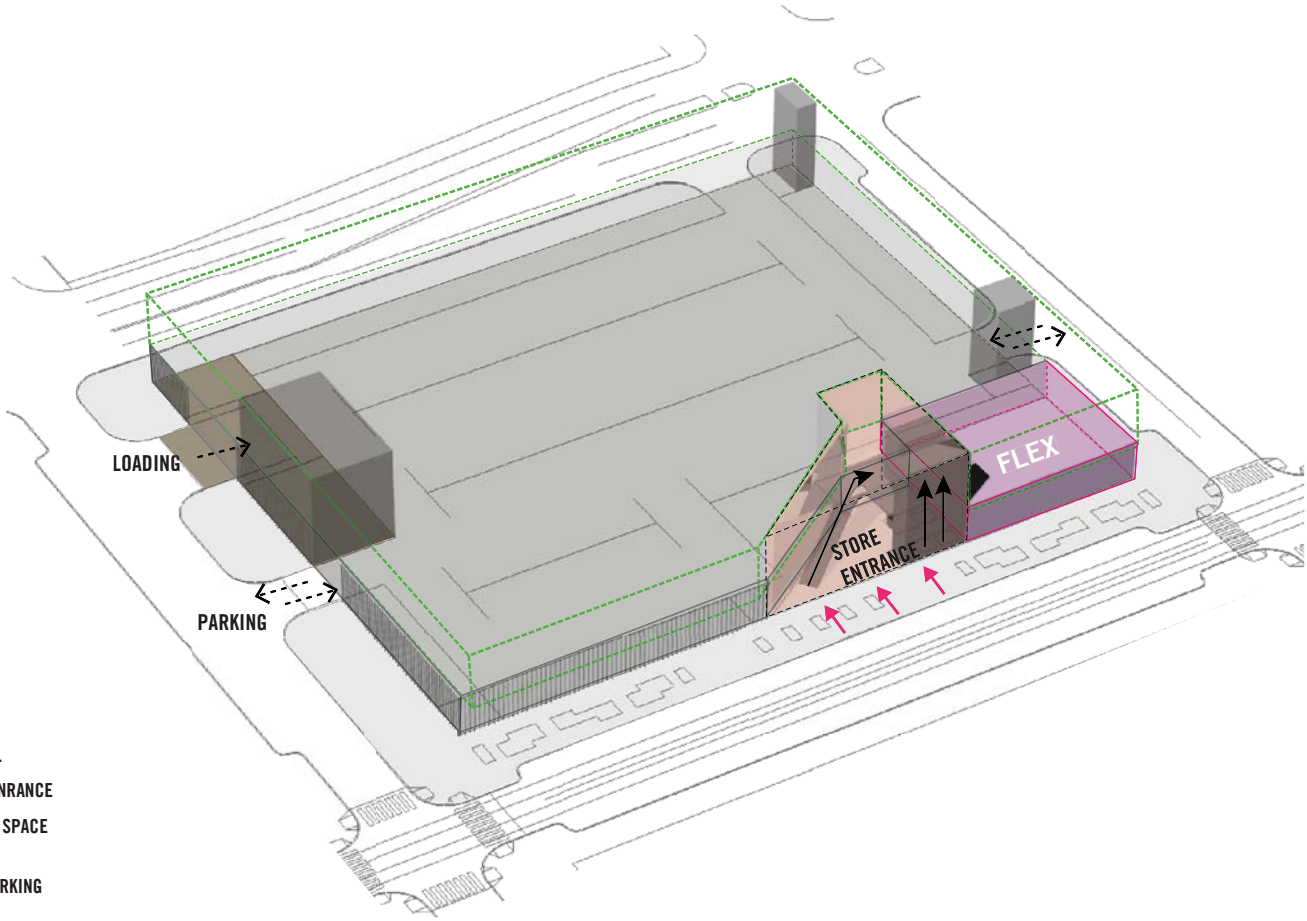
Top Safeway, Georgetown, Maryland | **Middle** Urban Fare, Vancouver, Canada | **Bottom** Fresh and Easy, Los Angeles, CA



LEVEL 2

GROCERY SPACE
55,000 SF

GROCERY TERRACE
10,000 SF



GROUND LEVEL

GROCERY ENRANCE

FLEX LEASE SPACE
4,800 SF

GROUND PARKING
190 SPACES

Top Diagram of grocery store, Level 2 | **Bottom** Diagram of Grocery Store, Ground Level

8

Envision a future green waterfront

Create a new regional park and Port side promenade that provides public access to the waterfront and improved connections and access to natural habitat and recreational activities.

BENEFITS
Increase public access to bay side habitat, recreation and leisure and provide a regional tourist destination.

RELATED RECOMMENDATIONS
9 Add medians to Harborside Drive
10 Rezone for mixed-use
12 Establish an economic development entity

GOALS SUPPORTED
1. Attract new residents
2. Generate tax revenue
3. Green Space
7. Places that create community
10. Recreate a sense of place

PROPOSED IMPLEMENTING AGENCY
TBD

POSSIBLE FUNDING SOURCES
TBD

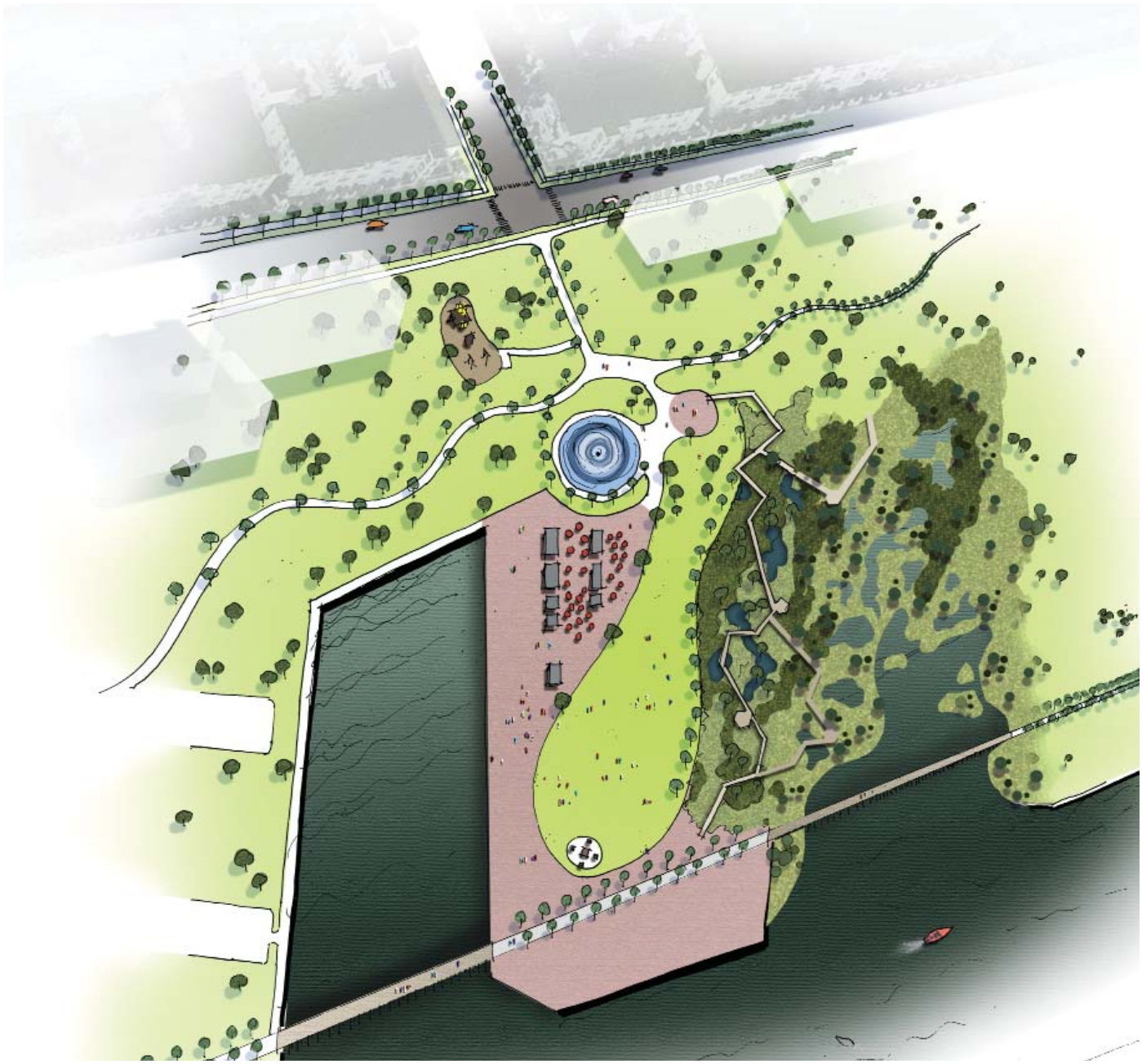
APPROVAL REQUIRED FROM
Only possible if Port uses shift away from the area in the longer term.

Adding a regional park to the northeast bay side waterfront, currently home to a portion of Galveston's working Port, would provide an opportunity to animate the north side of the Island. A new regional open space system would drawn in visitors and directly serve the Strand District, Downtown, UTMB and other uses and residences within the study area. Coupled with the park, a bay side promenade would activate the north-side of the Island and allow visitors the opportunity to experience bay side ecologies including access to natural areas, birding and programmed waterfront activity.

The new regional park would be programmed with elements that serve both the visitor and permanent inhabitants with amenities such as cafes, open space, areas for large and small events, and access to transportation (water and land). A new north Galveston Island Promenade would provide access to the north-side of the Island. Located along the Port of Galveston, a bay side promenade would allow exposure to bay side habitat, and provide views to Galveston's historic Port.

This recommendation is prefaced on Port activity shifting away from the study area, likely to the west, where rail and road links are better and impacts on neighborhoods and tourism is less. Moving Port activity would provide an opportunity for public access to the waterfront, drive tourism and new development, and decrease pedestrian vehicular conflict across Harborside Drive. However, the Port provides critical jobs, and keeping that economic activity on the Island is critical.

Top Sugar Beach, Toronto | **Bottom** Oakland Middle Harbor Park



Top Diagram showing potential for Port redevelopment into park land | **Bottom** Crissy Field, San Francisco, CA

Sketch Existing

1. NEW PARK SPACE
2. NEW WATERFRONT PROMENADE
3. PEDESTRIAN/BIKE CONNECTIONS TO SEAPORT AND HISTORIC STRAND
4. "GREEN FINGERS" IN NORTH-SOUTH STREETS LINK WATEFRONT TO NEIGHBORHOOD (SEE RECOMMENDATION 2)
5. PEDESTRIAN/BIKE CONNECTIONS TO UTMB
6. PEDESTRIAN/BIKE CONNECTIONS TO FISH VILLAGE
7. NEW DEVELOPMENT NORTH OF HARBORSIDE

Sketch Proposed

9

Add Medians to Harborside

Add medians to Harborside Drive to make the roadway safer and beautify a major gateway to the Island.

BENEFITS
Increased safety and making the area more attractive.

RELATED RECOMMENDATIONS
8 Envision a future green waterfront
12 Establish an economic development entity

GOALS SUPPORTED
1. Attract new residents
3. Green space
10. Recreate a sense of place

PROPOSED IMPLEMENTING AGENCY
Public Works

POSSIBLE FUNDING SOURCES
Public Works
Port
Federal grants

APPROVAL REQUIRED FROM
TxDOT

Harborside Drive is the major east-west arterial serving vehicle traffic on the north side of the Island. As reported in the existing conditions in roads and right-of-ways section, the Average Annual Daily Traffic (AADT) volume along Harborside Drive for 2010 is approximately 12,600 based on TxDOT planning estimates. This represents the highest volume roadway in the area, but it has seen steady decline in volume since 2006 when traffic was estimated at 17,600 AADT. It is also the major east-west route for truck traffic serving the Galveston Port and other industry on the north side of the Island, as well as access to UTMB for IH 45. To accommodate these relatively high traffic volumes, Harborside Drive is the widest road in the study area with five, 11-foot travel lanes (55 feet total).

Through this Livable Centers Study as well as the previous Galveston Historic Downtown Seaport Master Plan, Harborside Drive has been identified as a gateway corridor that would greatly benefit from enhancements and access management strategies. Access management is a set of traffic engineering tools that can make roads simultaneously safer for vehicles and pedestrians and can provide opportunities for landscaping and other improvements to increase the aesthetic appeal of the corridor. In particular, the use of roadway medians along Harborside Drive has the potential to make it more complementary with the activities, land uses, and travel modes that may be prevalent in the study area as redevelopment occurs. An access management recommendation could also include the consolidation and elimination of driveways along the corridor, improving roadway capacity and safety by reducing conflict points. Pedestrian improvements including wider sidewalks and improved roadway crossings would benefit the study area and the Downtown Historic Strand and create a better connection to the Cruise Ship Terminal and the Mitchell Historic Properties development on Piers 19-22

The fact that Harborside Drive is the widest roadway in the study area (55 feet) in the narrowest right-of-way (70 feet) limits the options for improvements in the short-term. Although some short-term improvements have been identified, improvements that would truly transform the road and fully serves vehicles, pedestrians, and adjacent businesses would require increases in right-of-way and are considered long-term. The pavement width and lack of a refuge point also makes crossing Harborside Drive a challenge for pedestrians. Additionally, the road is visually unappealing, with more unbroken pavement and fewer trees and plants than most other roads in Galveston.

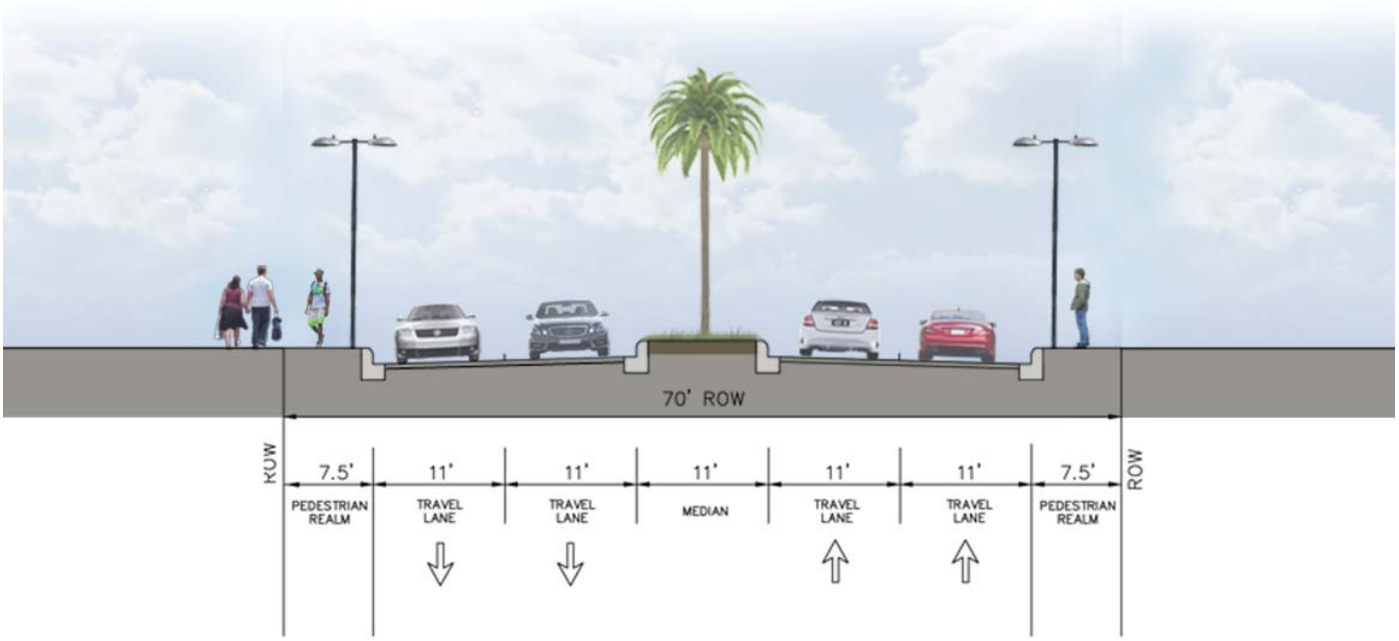
Photo Raised median with pedestrian safe-zone

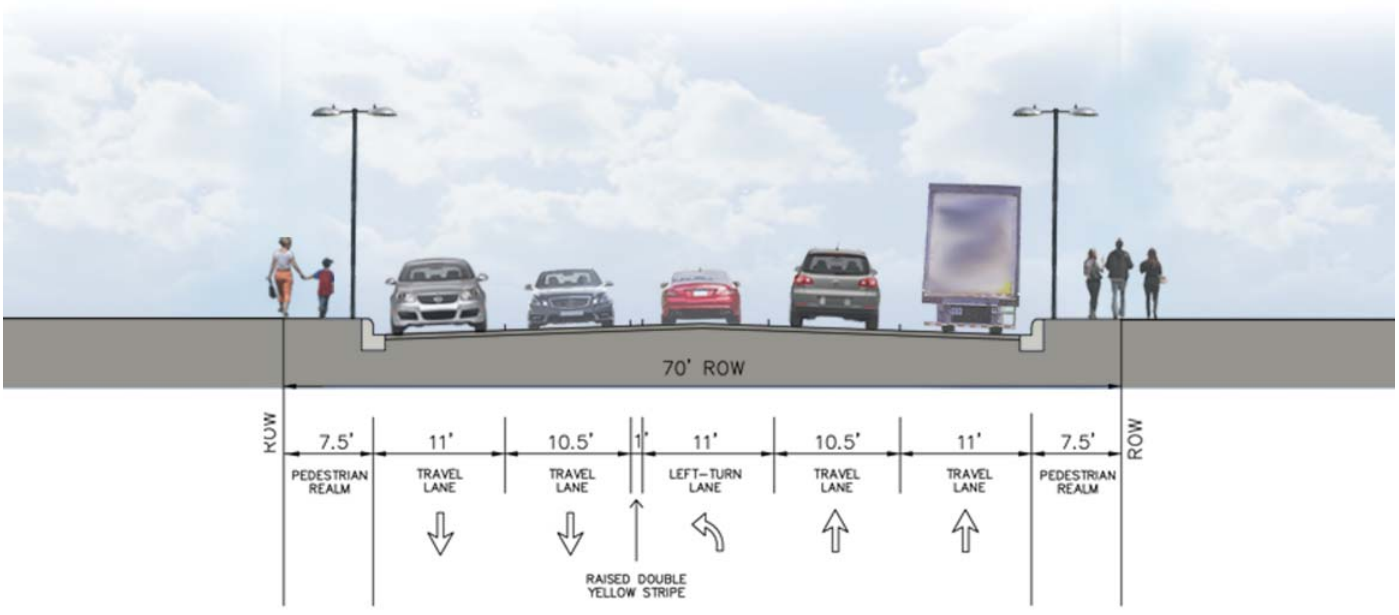
Left Existing conditions on Harborside Drive | **Middle** Short Term raised median with pedestrian safe-zone | **Right** Long Term Harborside Drive 90-foot R.O.W.

Short Term

Working within the constraint of the existing right of way limits the width of medians that can currently be constructed on Harborside Drive. Most sections of the road can only accommodate a narrow curbed median or enhanced striping to distinguish the left-turn lanes on either side of the block. However, at two locations, the eastbound approach at 19th Street and the eastbound approach at 15th Street – left-turn lanes are not needed because there is no southbound approach, and a wider median can be provided.

These medians can provide opportunities for landscaping, trees, and wayfinding – the proposed median at 19th Street is particularly well-suited for gateway signage into the study area. Medians have been seen to slow traffic speeds and reduce crash rate on corridors where they have been installed. Well-designed medians can also provide pedestrian refuges in the center of the roadway so that they can cross one half of the road at a time and not have to find a gap in both directions of traffic simultaneously or be exposed while waiting in the center turn lane.



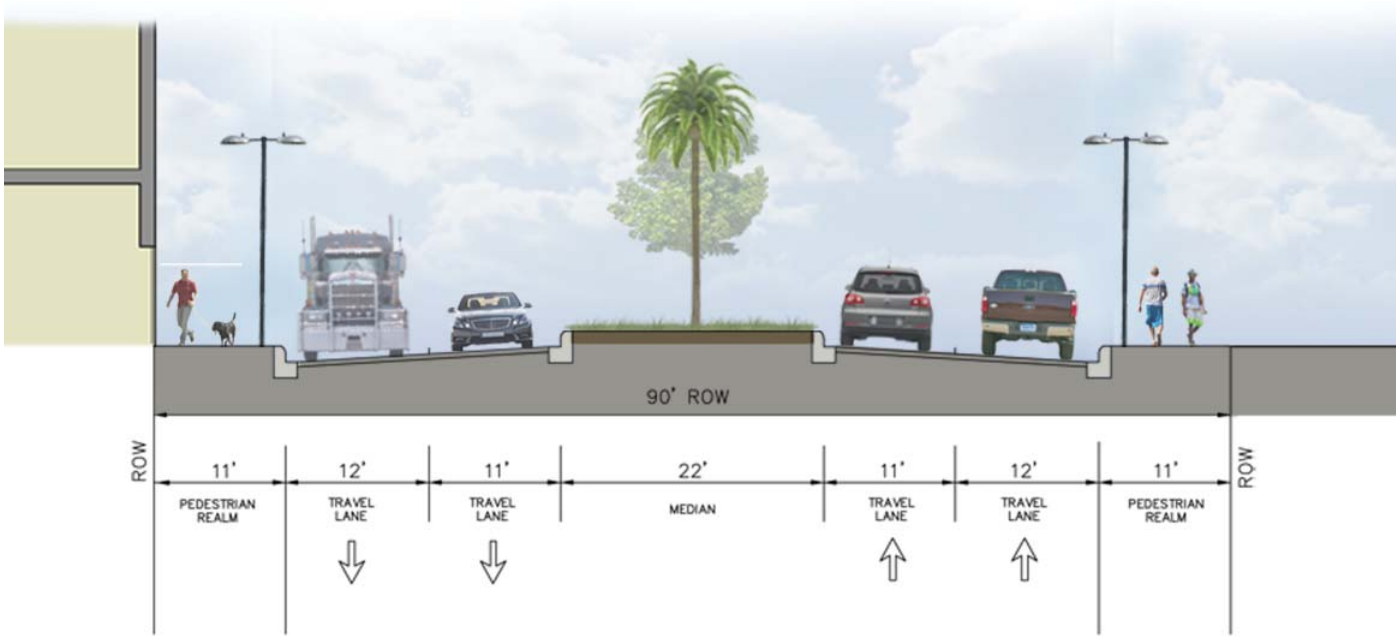


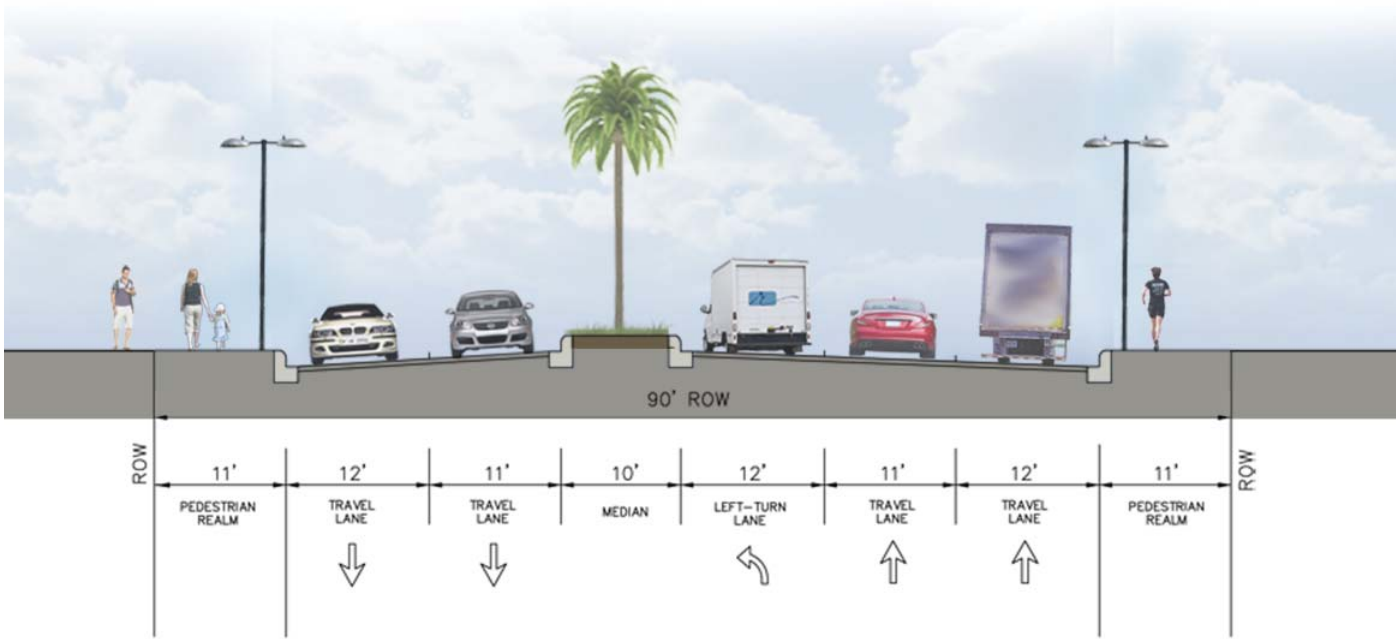
Top Short Term Harborside Drive Street Section at Intersection - No Left Turn Lane | **Bottom** Short Term Harborside Drive Street Section with Left Turn Lane

Long Term

In the future, Harborside Drive will likely need to be reconstructed due to maintenance issues as well as to better fulfill its dual purpose of providing mobility for through-traffic and providing access to adjacent properties and communities. This need will be greater if adjacent development activity increases, both within the study area as well as along the Port side of the roadway. As there are limited existing buildings along the north side of the roadway, there may be potential to acquire right-of-way to widen the roadway.

It is recommended that at that time a wider roadway with a full, landscaped median be constructed for the full length of Harborside Drive from west of the existing medians at 12th Street to 25th Street. This will allow Harborside Drive to function as a safer, more aesthetically pleasing gateway corridor for all potential users.





Top Long Term Harborside Drive Street Section between Intersections | **Bottom** Long Term Harborside Drive Street Section at Intersection with Left Turn Lane

Cost Estimate
Add Medians to Harborside Drive

SHORT TERM				
ITEM	**UNIT**	**UNIT PRICE**	**QTY**	**TOTAL PRICE**
REMOVING CONCRETE (PAV)	SY	$10.83	302.1	$3,273.41
CONCRETE CURB & GUTTER (TY II)	LF	$27.83	526.0	$14,638.48
EMBANKMENT (FINAL)(DENS CONT)(TY C)	CY	$3.95	45.8	$180.70
FURNISHING AND PLACING TOPSOIL (4-inch)	SY	$0.61	2472.0	$1,497.74
BLOCK SODDING	SY	$2.90	274.7	$795.58
PLANT MATERIAL (65 GAL) (TREE)	EA	$396.96	7.2	$2,858.12
PAVEMENT MARKINGS	EA	$500	2.0	$1,000.00
SUBTOTAL 1				**$24,244.03**
TCP AND MOBILIZATION (4.5%)				$1,090.98
CONTINGENCY (20%)				$4,848.81
SUBTOTAL 2				**$30,183.82**
ENGINEERING (10%)				$3,018.38
PROJECT MANAGEMENT (4%)				$1,207.35
CONSTRUCTION MANAGEMENT (6%)				$1,811.03
TOTAL FOR CORRIDOR				**$36,220.58**
ASSUMPTIONS:				
New medians on Harborside Drive at 19th Street and 15th Street.				
New curbs for medians.				
New pavement markings around medians.				
Landscaping on medians.				

Cost Estimate
Add Medians to Harborside Drive

LONG TERM				
ITEM	**UNIT**	**UNIT PRICE**	**QTY**	**TOTAL PRICE**
STREET REBUILD				
REMOVING CONCRETE (PAV)	SY	$10.83	29717	$321,967.10
REMOVING CONCRETE (RIPRAP)	SY	$9.86	1706	$16,829.97
REMOVING CONCRETE (SIDEWALKS)	SY	$10.51	4800	$50,426.74
EMBANKMENT (FINAL)(DENS CONT)(TY C)	CY	$3.95	729	$2,878.76
BLOCK SODDING	SY	$2.90	4376	$12,674.29
CONCRETE PVMT (CONT REINF-CRCP)(10-inch)	SY	$30.87	28402.1	$876,695.92
LIME TRT (SUBGR)(DC)(6-inch)	SY	$2.15	29822.2	$64,117.77
LIME(HYD,COM OR QK)(SLRY)OR QK(DRY)	TON	$145.53	369.0	$53,708.09
CONCRETE SIDEWALKS (6-inch)	SY	$47.50	15360.0	$729,538.10
CURB RAMPS (TY 7)	EA	$1,197.44	88.0	$105,374.53
DRAINAGE INLET MODIFICATIONS	EA	$5,000.00	27.3	$136,457.14
PAVEMENT MARKINGS	EA	$20,000.00	1.0	$20,000.00
PEDESTRIAN LIGHTING	EA	$3,000.00	172.8	$518,400.00
PLANT MATERIAL (65 GAL) (TREE)	EA	$396.96	419	$166,433.87
CONCRETE CURB (TY II)	LF	$4.79	14704	$70,486.12
SUBTOTAL 1				**$3,145,988.40**
TCP AND MOBILIZATION (4.5%)				$141,569.48
CONTINGENCY (20%)				$629,197.68
SUBTOTAL 2				**$3,916,755.55**
ENGINEERING (10%)				$391,675.56
PROJECT MANAGEMENT (4%)				$156,670.22
CONSTRUCTION MANAGEMENT (6%)				$235,005.33
TOTAL FOR CORRIDOR				**$4,700,106.67**
ASSUMPTIONS:				
All pavement is replaced with concrete pavement.				
All curbs are replaced.				
8-foot sidewalks.				
40-feet x 25-feet sidewalk plaza at all corners.				
50-foot spacing for pedestrian lighting.				
30-foott spacing of trees.				

10

Rezone for mixed-use

Zone the commercial and industrial portions of the study area for higher-density mixed-use development. Enact design guidelines to ensure buildings relate well to the street.

BENEFITS
New pedestrian-friendly development, more economic activity, more residents on the Island.

RELATED RECOMMENDATIONS
7 Provide a neighborhood grocery store
8 Envision a future green waterfront
11 Develop design guidelines for single family residential
12 Establish an economic development entity

GOALS SUPPORTED
1. Attract new residents
2. Generate tax revenue
4. Economic activity
5. Provide neighborhood services
10. Recreate a sense of place

PROPOSED IMPLEMENTING AGENCY
Planning

POSSIBLE FUNDING SOURCES
N/A

APPROVAL REQUIRED FROM
City Council

Zoning within the study area follows the accidental patterns of historic land use. The parcels within the historic district are zoned as residential and multifamily residential; the parcels not in the historic district are zoned industrial, commercial, and multifamily residential.

The Galveston Historic Downtown Seaport Master Plan identifies the northern part of the study area (outside the historic district) as a "high-quality, mixed-income neighborhood that will provide workforce housing as well as student and faculty housing opportunities for UTMB".

Zoning should be adjusted to reflect this goal. The portion of the study area outside the historic district should be rezoned as mixed-use, permitting all residential, commercial, and institutional uses with no density limits but prohibiting industrial uses. Existing land uses would, of course, be grand-fathered, but no construction of new industrial facilities would be permitted.

To ensure that the area provides a high-quality pedestrian environment, the zoning code should also include form-based code features that regulate how buildings meet the sidewalk. This is complicated by the flood regulations, which prohibit permanently occupied spaces on the ground floor.

These requirements should include:
Buildings may not be set back behind parking lots and all parking must be provided under buildings or on the alleys. All buildings must have an entry directly onto the sidewalk. This can be an enclosed ground floor vestibule with a door to the sidewalk or a second floor porch with steps down to the sidewalk. Any parking on the ground floor must be screened from the street.

Existing Zoning for the Study Area

Single Family
Multi Family One Dwelling
Multi Family Two Dwelling
Commercial
Neighborhood Services
Institutional
Mixed-Use

Proposed Zoning for the Study Area

0' 50' 100' 250'

N

11

Develop design guidelines for single family residential

A new form based code should be put in place in single family residential areas to ensure that any new infill construction built to current flood standards would fit into the existing neighborhood fabric.

BENEFITS
Preserving the character of existing neighborhoods while allowing for new infill houses that comply with FEMA requirements.

RELATED RECOMMENDATIONS
10 Re-zone for mixed-use
12 Establish an economic development entity

GOALS SUPPORTED
1. Attract new residents
2. Generate tax revenue
4. Economic activity
9. Integration with surrounding neighborhoods
10. Recreate a sense of place

PROPOSED IMPLEMENTING AGENCY
Planning

POSSIBLE FUNDING SOURCES
N/A

APPROVAL REQUIRED FROM
City Council

As new homes are built in existing single family neighborhoods, the new homes must meet FEMA standards. This results in an elevated structure with parking or storage on the ground floor. If these are built like houses on the beach -- houses on stilts with exposed columns and an entry in the center -- they will disrupt the same of the neighborhood and destroy the traditional connection between *house, porch, and street*. A form based code should be put in place to ensure that the house be treated as a single architectural unit that extends to the ground, that parking and storage be screened from the street, and that the front entry be off the street, either by having an eclipsed ground floor vestibule or by having external stairs to a second floor porch.

❶ FEMA REQUIRES THAT NO OCCUPIED SPACES BE LOCATED BELOW FLOOD LEVEL

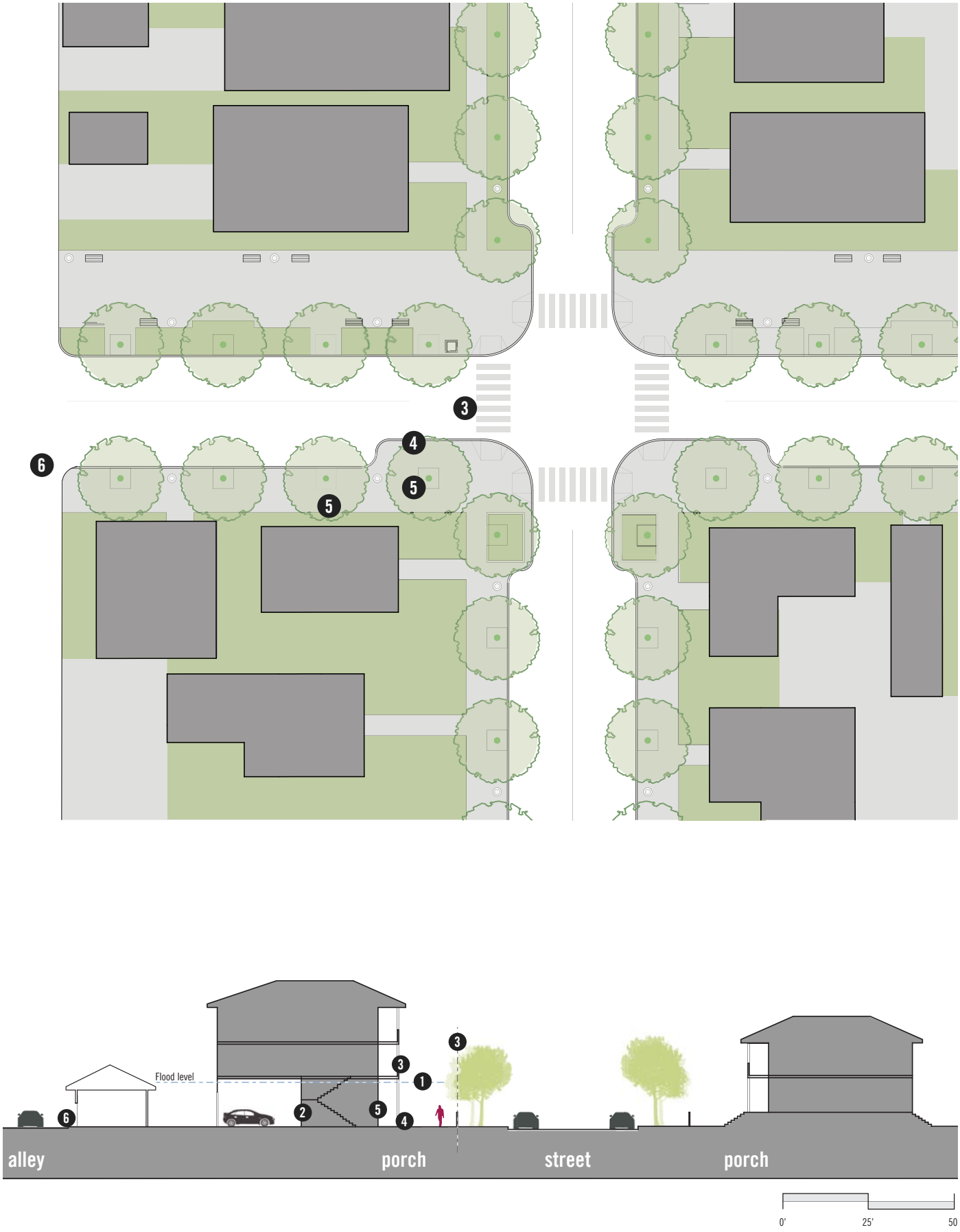
❷ GROUND FLOOR CAN CONTAIN ONLY PARKING AND STORAGE

❸ REQUIRE SETBACK FROM THE STREET

❹ REQUIRE THAT A GROUND FLOOR FRONT DOOR FACE THE SIDEWALK

❺ REQUIRE THAT ALL SIDES OF THE GROUND FLOOR FACING THE STREET BE CLAD

❻ REQUIRE THAT ALL PARKING BE ACCESSED FROM ALLEY, NOT STREET



Top Plan Diagram | **Bottom** Section Diagram

12

Establish an economic development entity

Create an entity that can combine public and private funds to promote new development in the study area.

BENEFITS
This entity should implement the projects described in this plan and work with private developers to create new projects that will achieve the area's economic and quality of life potential.

RELATED RECOMMENDATIONS
All

GOALS SUPPORTED
1. Attract new residents
2. Generate tax revenue
3. Green space
4. Economic activity
5. Provide neighborhood services
6. Additional retail should not compete with Downtown
7. Places that create community
8. Seamless transition from UTMB to Downtown
9. Integration with surrounding neighborhoods
10. Recreate a sense of place

PROPOSED IMPLEMENTING AGENCY
City Manager's Office
Galveston Economic Development Partnership
To be created private or public entity(ies)

POSSIBLE FUNDING SOURCES
Disaster Recovery Grants
City of Galveston Capital Improvements Budget
Adjacent Tax Increment Reinvestment Zones
New Market Tax Credits
Private Developers
Private Foundations

APPROVAL REQUIRED FROM
City of Galveston
Private sources - TBD

The area would greatly benefit from the creation of a management entity – either a public agency or a private nonprofit – that could coordinate public projects with private developments. Such entities have proven critical to urban revitalization across the country: New York City's Business Improvement Districts helped nurture new business and residential districts while Houston's management districts have been much more agile than the city at working with private developers. This entity should implement the projects described in this plan and work with private developers to create new projects that will achieve the area's economic and quality of life potential.

The new entity can do the following:

- Attract new residents through development of new market-oriented housing.
- Support these new residences and existing neighborhoods through development of new neighborhood retail space and related amenities.
- Promote economic growth through creation of new commercial (incubator) space.
- Provide financial support for important neighborhood services, such as transit service, and maintenance of open space.
- Provide development, pedestrian, infrastructure, "public realm" and "wayfinding" continuity between Downtown and UTMB.
- Guide the design of new buildings, infrastructure and "public realm" to create sense of place, promote the integration of new and existing neighborhoods, etc.
- Generate enhanced property and sales tax revenue to facilitate funding of infrastructure capital requirements and operating / maintenance expenses.
- New development will create new identity and civic enthusiasm for Galveston
- Provide singular responsibility / accountability for implementation of study recommendations and promotion of development in the area.
- Provide focus for creation of other mechanisms supportive of implementation.

Implementation

Implementation

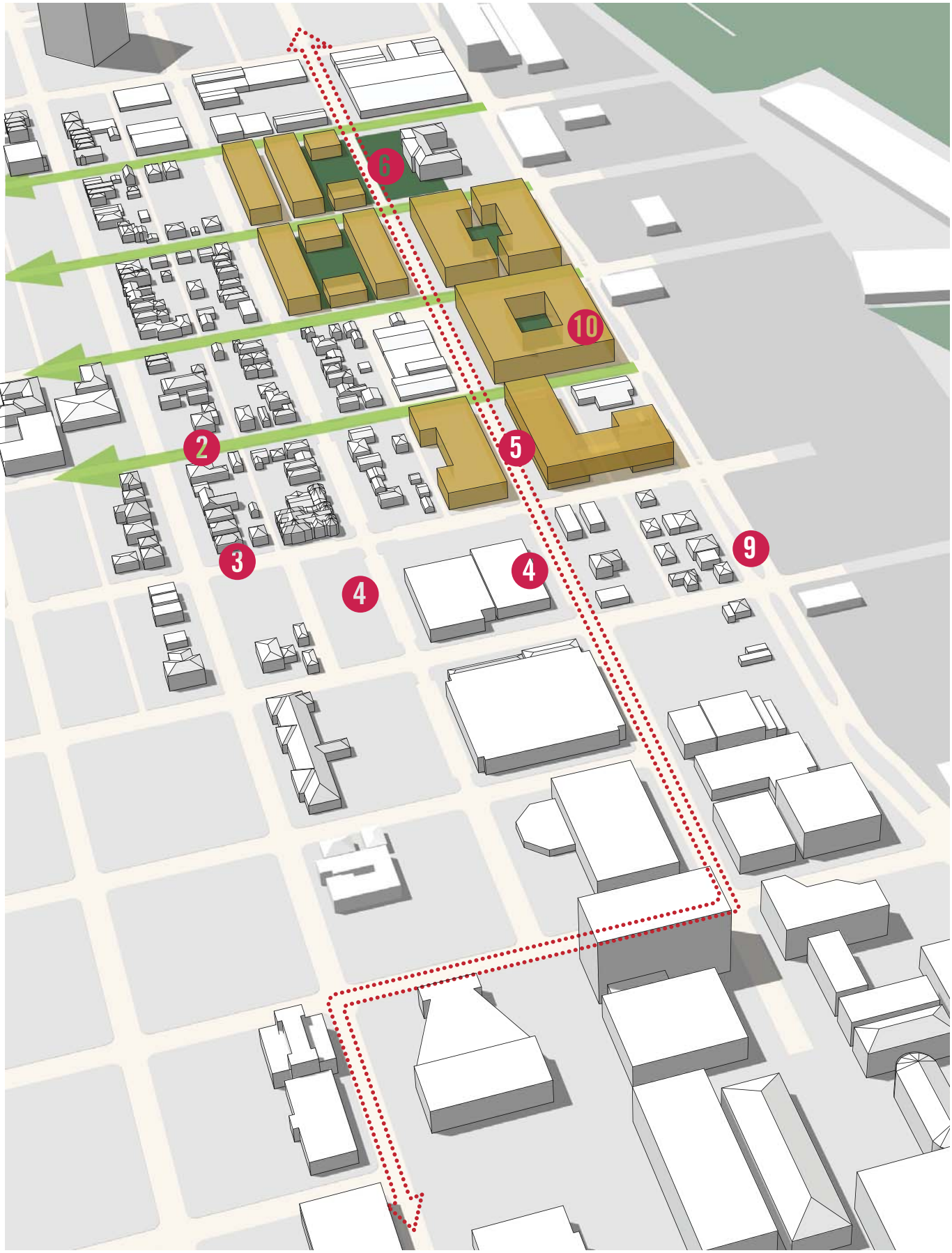
The 12 Recommendations are all interrelated and work together to transform the district. However, it is unlikely they will be implemented all at once. Implementation of projects is dependent on funding, the priorities of elected officials and government agencies, and decisions by private landowners. Some recommendations require only policy action while others require funding, and some are contingent on other projects outside the study area.

On the following pages, the recommendations are grouped by type as a roadmap for how implementation can occur.

12

RECOMMENDATIONS

1 CREATE A NEIGHBORHOOD IDENTITY SUPPORTED BY WAYFINDING
2 RECONFIGURE STREETS FOR SAFETY AND GREEN SPACE
3 IMPROVE BIKE CONNECTIONS TO THE SEAWALL
4 IMPROVE PEDESTRIAN CONNECTIONS TO UTMB
5 IMPLEMENT A HIGH-FREQUENCY STREETCAR SPINE
6 CREATE A NEIGHBORHOOD PLAZA
7 PROVIDE A NEIGHBORHOOD GROCERY STORE
8 ENVISION A FUTURE GREEN WATERFRONT
9 ADD MEDIANS TO HARBORSIDE DRIVE
10 REZONE FOR MIXED-USE
11 DEVELOP DESIGN GUIDELINES FOR SINGLE FAMILY RESIDENTIAL
12 ESTABLISH AN ECONOMIC DEVELOPMENT IDENTITY



Proposed Recommendations Diagram

Regulatory

Cost : **Minimal**

Phasing : **Near Term**

Funding : **N/A**

Implementation : **City**

Approval : **City Council**

Recommendations 10 and 11 are policy actions to change zoning codes. These recommendations do not require capital funding and they will not increase operating costs since city code review is already in place. The only action required is city staff work and an approval by Galveston City Council. We recommend that this be done in the near term.

12 RECOMMENDATIONS

10 REZONE FOR MIXED-USE
11 DEVELOP DESIGN GUIDELINES FOR SINGLE FAMILY RESIDENTIAL
12 ESTABLISH AN ECONOMIC DEVELOPMENT IDENTITY

Public Realm

Cost : **Moderate**

Phasing : **Incremental**

Funding : **Local**
Federal
Private

Implementation : **City**

Approval : **City**

Recommendations 2, 3, 4, and 9 are physical improvements to the public realm. These require capital costs, though these costs are in the typical range funded by local governments. Possible public funding sources include city general revenue, TxDOT, and federal grants. Public realm projects can also be funded by private developers as a condition of zoning approval, or through 380-agreements, which provide long-term tax rebates in exchange for developer funding of street improvements. These projects should be done as funding is available and as development occurs.

UTMB

Cost : **Moderate / Low**

Phasing : **Incremental**

Funding : **Local**
Federal
UTMB

Implementation : **UTMB**

Approval : **City**

Recommendation 4 affects streets maintained by UTMB, buildings owned by UTMB, and new buildings on property owned by UTMB. These improvements should be done by UTMB as funding permits.

12 RECOMMENDATIONS

4 IMPROVE PEDESTRIAN CONNECTIONS TO UTMB

Development

Cost : **Moderate**

Phasing : **High Priority**

Funding : **Private**
TBD

Implementation : **Private**
TBD

Approval : **TBD**

Recommendation 7 will require a private grocery store operator and likely a private landowner and developer, though public agencies may prove economic incentives such as tax rebates. Thus, implementation is dependent on a willing developer and operator.

12 RECOMMENDATIONS

7 PROVIDE A NEIGHBORHOOD GROCERY STORE

Long Term

Cost	:	**High**
Phasing	:	**Low-Term**
Funding	:	**TBD**
Implementation	:	**TBD**
Approval	:	**TBD**

Recommendation 8 foresees the future uses of Port property once Port operations have shifted elsewhere. Thus, it is dependent on the Port's overall operations plan and its development of alternate facilities, with better highway and rail connections to the west. Furthermore, even with the land available, developing a large waterfront park will require significant funding, which could come from the federal or state government, private foundations, or the Port.

12 RECOMMENDATIONS

Organizational

Cost : **Low**

Phasing : **High Priority**

Funding : **TBD**

Implementation : **TBD**

Approval : **TBD**

Recommendations 12 is organizational. It is possibly the most important recommendation, since a management entity would make many of the other recommendations easier to implement.

12 RECOMMENDATIONS

12 ESTABLISH AN ECONOMIC DEVELOPMENT IDENTITY

Existing Conditions

Overview: Relationship to the City and History

Galveston was founded on the shores of the Gulf of Mexico in 1838 and quickly became the leading city in Texas. Its excellent natural harbor, which used in turn by Mexican rebels, French pilots, and the Republic of Texas, became the place where cotton was exported out of Texas and immigrants came in. In 1870, Galveston was the largest city in Texas with a population of nearly 14,000. A birds eye map shows bustling wharves, blocks of three-story commercial buildings, stone churches, Victorian mansions, and a network of horse-drawn streetcars. Galveston was home to numerous Texas firsts: the first cathedral, the first telegraph, the first private bank, the first opera performance in Texas, the first newspaper, the first gas lights, the first telephone, the first electric lights, the first opera house, and the first electric streetcars. In 1881, Texas voters chose Galveston as the site of the state's first medical school, now the University of Texas Medical Branch (UTMB).

The new century, however, saw a prolonged economic decline. In 1900, the city was nearly destroyed by a hurricane that killed 6,000 residents. The city rallied and rebuilt, raising the land with fill and building a Seawall along the Gulf of Mexico, but it would never be as important again. Even before the storm, it was only the fourth largest city in the state. New networks of commerce had passed the island by; Houston boasted 17 railroad lines while Galveston only had 2, and the opening of the Ship Channel in 1914 brought deepwater ships to Houston. Within a decade, it was Houston that was the nation's leading cotton port, and the discovery of oil in Beaumont brought new money to Houston and Dallas while Galveston remained largely unchanged.

Tourism took up some of the slack. Galveston was one of Texas' first tourist destinations. The coming of railroads brought visitors from across Texas and the mid west. During prohibition, Galveston was famous for its saloons and casinos. By the 1950s, though, stiffened law enforcement closed down some of those attractions, and interstate highways and jet airliners put alternatives like Florida and Las Vegas in easy reach.

But Galveston has never lost its essential character. Its identity has always remained distinct from its larger neighbor to the north; it still means something to be "born on the Island". The city's historic structures, preserved by a lack of demand, have become an asset. In 1955, the Galveston Historical Foundation began to purchase, protect, and restore historic homes, and in the 1970s the GHF began the revitalization of the old commercial structures of The Strand. Old Galveston is surprisingly intact, and no other Texas city gives as good an impression of urban life a century ago.

Today, Galveston is sustained by its tourism, the Port, and UTMB. While the Port is only 8th largest in Texas by tonnage shipped (outranked even by Texas City) it is an important support center for the offshore oil industry and the only cruise ship port in Texas. Tourism is driven by the beaches, The Strand, and Moody Gardens. UTMB, with more that 13,000 employees and 3,100 students, is the largest employer on Galveston Island.

On September 13, 2008, Hurricane Ike made landfall in Galveston. A 13-foot storm surge flooded nearly the entire island, including The Strand, the Port, and UTMB. In the immediate aftermath, the City's population (which peaked at 67,000 in 1960) dropped from 57,000 to 48,000. UTMB did not reopen its emergency room for nearly a year and laid off 2,400 employees in the aftermath of the storm. Businesses on The Strand were devastated, and Moody Gardens faced major cleanup.

Map Old Galveston, Texas map

1817
French pirate Jean Lafitte occupied the island

1821
Jean Lafitte was forced out of the island

1825
Port of Galveston was established

1836
The first post office in Texas

1836
The first naval base in Texas

1838
The first bakery in Texas

1839
City was incorporated

The Strand "Wall Street of the Southwest"

1841
First military company in Texas

1842
The Galveston News founded

1842
First cotton press in Texas

1847
Saint Mary's Cathedral

1852
First railroad locomotive in Texas

1854
First private bank in Texas

1860
A bridge to the mainland was finished

1861
Union blockade shuts down Galveston port

1863
Battle of Galveston drives Union troops out of city

1886
First drug store in Texas

1891
First Medical College in Texas

1894
First Opera House in Texas

Storm of 1900

1904
Seawall completed in

1907-1911
Galveston Movement drives Jewish immigration

1911
Galveston-Houston interurban opens

1920
Balinese Room

1926
Hollywood Dinner Club

1936
Galveston-Houston interurban stops operation

1939
New Causeway opens

1952
Gulf Freeway connects Houston and Galveston

1954
Galveston Historical Foundation created to retire old buildings

1957
Crackdown on gambling and prostitution

1962
Texas A&M Galveston established as Texas Maritime Academy

1970
Strand Historic District created

1973
First Dickens on the Strand

1985
Restored Elissa makes first voyage

1985
Moody Gardens master plan adopted

1988
Galveston Island Trolley begins operation

2005
Trolley extended to UTMB

2008
Hurricane Ike

2009
UTMB commits to rebuilding

2011
Moody Gardens reopens Rainforest Pyramid

1800 1850 1900 1950 2000

Graphic Time line of important historic events

Neighborhood Identity

The 15-block study area is between four distinct areas; The Strand Historic District, the University of Texas Medical Branch Galveston, the Port of Galveston and the East End Historical District.

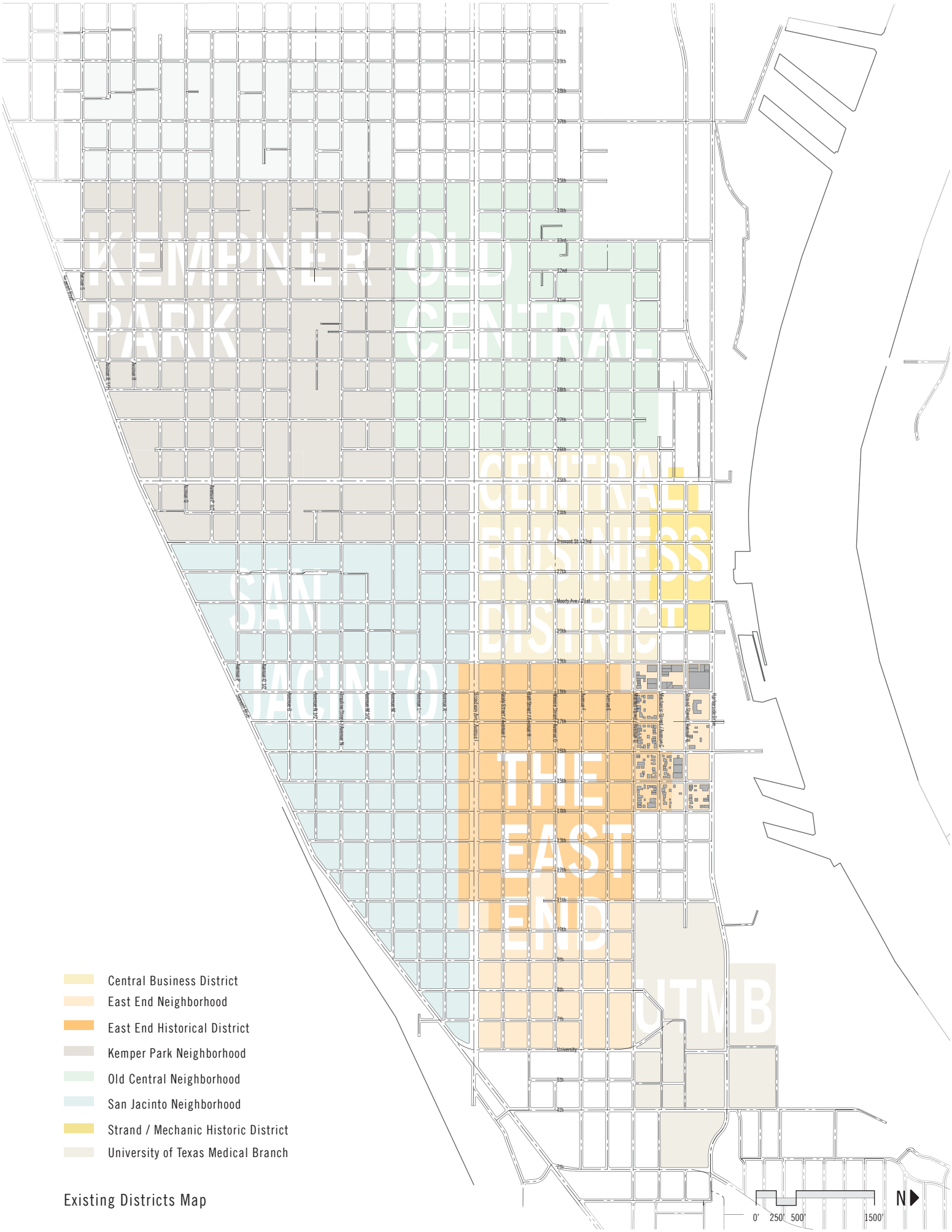
The Strand Historic District is located to the west of the study area in Downtown Galveston. The strand offers a variety of shops, restaurants, galleries, museums and many are housed in historical buildings. Many festivals are held on The Strand, like the famous Mardi Gras Galveston.

To the north-east of the study area is the University of Texas Medical Branch (UTMB). This campus contains 85 acres of land and over 70 buildings that include seven hospitals, four schools, three institutes a medical library and specialized clinics and centers. The campus contains several landscaped plazas which are used by employees and visitors of UTMB. The oldest building on campus is the Old Red and it is the oldest medical school west of the Mississippi River.

The Port is located north of Harborside Drive. It consists of industrial scale facilities including many surface parking lots and storage facilities. The Port is fenced off from the surrounding area. The container crates are a local landmark of the Port. The oil rigs are also visible in the skyline of the city.

The East End neighborhood is one of nine primary neighborhoods in the center of Galveston. The majority of the neighborhood is made up of small-scale residential. This area attracted early settlers because of its higher land elevation and its proximity to Downtown. The character and the architecture of the residences reflects a range of styles and periods, as well as a range of social and economic levels. In the early 1970s, about 40 blocks of the East End neighborhood became the City's first historic district. Today, the East End Historical District is made up of over 50 blocks and contains more than 120 historic landmarks. The district was recognized and placed on the National Register of Historic Places in 1976, and has been designated a National Historic Landmark. Several agencies in Galveston offer riding and walking guided tours of the East End Historic District.

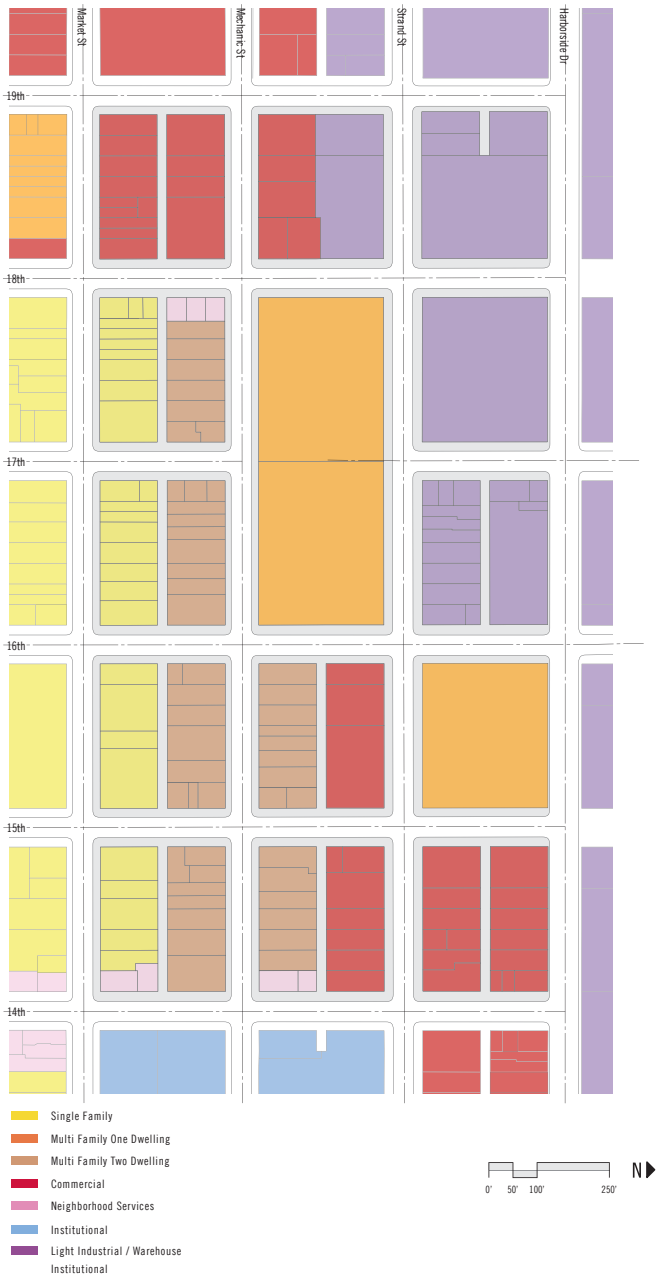
Top Left Shops on The Strand Historic District | **Bottom Left** UTMB | **Top Right** The Port of Galveston | **Bottom Right** Jacob Sonnentheil House 1887



Existing Districts Map

Building Use / Zoning

The study area is at the confluence of multiple land uses. The southern half of the study area, adjacent to the East End Historic District, is single family residential, with isolated neighborhood commercial structures (the traditional corner store). On the northern side, warehouses extend across Harborside Drive from the Port; these also form a buffer between the study area and The Strand. The UTMB campus to the east is represented by the Customs House and the Ronald McDonald House. Current zoning includes industrial, commercial, multifamily, and multiple family historic, reflecting these land uses.



Left Existing Land Use Diagram | **Photos Above** Study area mix of uses

- Residential: Single Family
- Residential: Multi Family
- Commercial
- Office
- Light Industrial / Warehouse
- Institutional

Existing Building Use

Activity Generators / Public Realm Activity

The study area is surrounded by activity centers that will contribute to the realization of a true livable community. There are jobs, entertainment and dining destinations, services, housing and lots of history within a short walk. There is a great urban grid and good transit connections.

What is still missing is much of the old fabric that held this particular area together physically, socially, and economically.

The 15-block study area can be a whole community with intact fabric and internal connections, and a link between the surrounding activity centers. It can be a place to live in close proximity to a range of employment opportunities; and it can be a shared community with local services and small businesses. The study area can also be home to many more residents and offer a range of housing options.

Utilizing the existing block structure and variations of typical Galveston housing and street typologies, the fabric, sidewalks, streetscape, and community can be rebuilt. This area can become a true livable center and a model for other Galveston neighborhoods.

Events:

Arts and Entertainment

- Art Galleries in Arts & Entertainment District
- Dickens on the Strand
- Galveston ArtWalk
- Island Etc East-end Theater Company
- Mardi Gras
- Pier 21 Theater
- The Grand 1984 Opera House

Outdoor Recreation & Nature Appreciation

- Bay Fishing
- Beaches
- Birding Locations - Kemper Park

Sites & Attractions

- Railroad Museum
- Bishop's Palace
- Ashton Villa & Galveston Island Visitor's center
- Moody Mansion Museum
- Custom House and Galveston Historical Foundation
- Ocean Star Offshore Drilling Rig & Museum

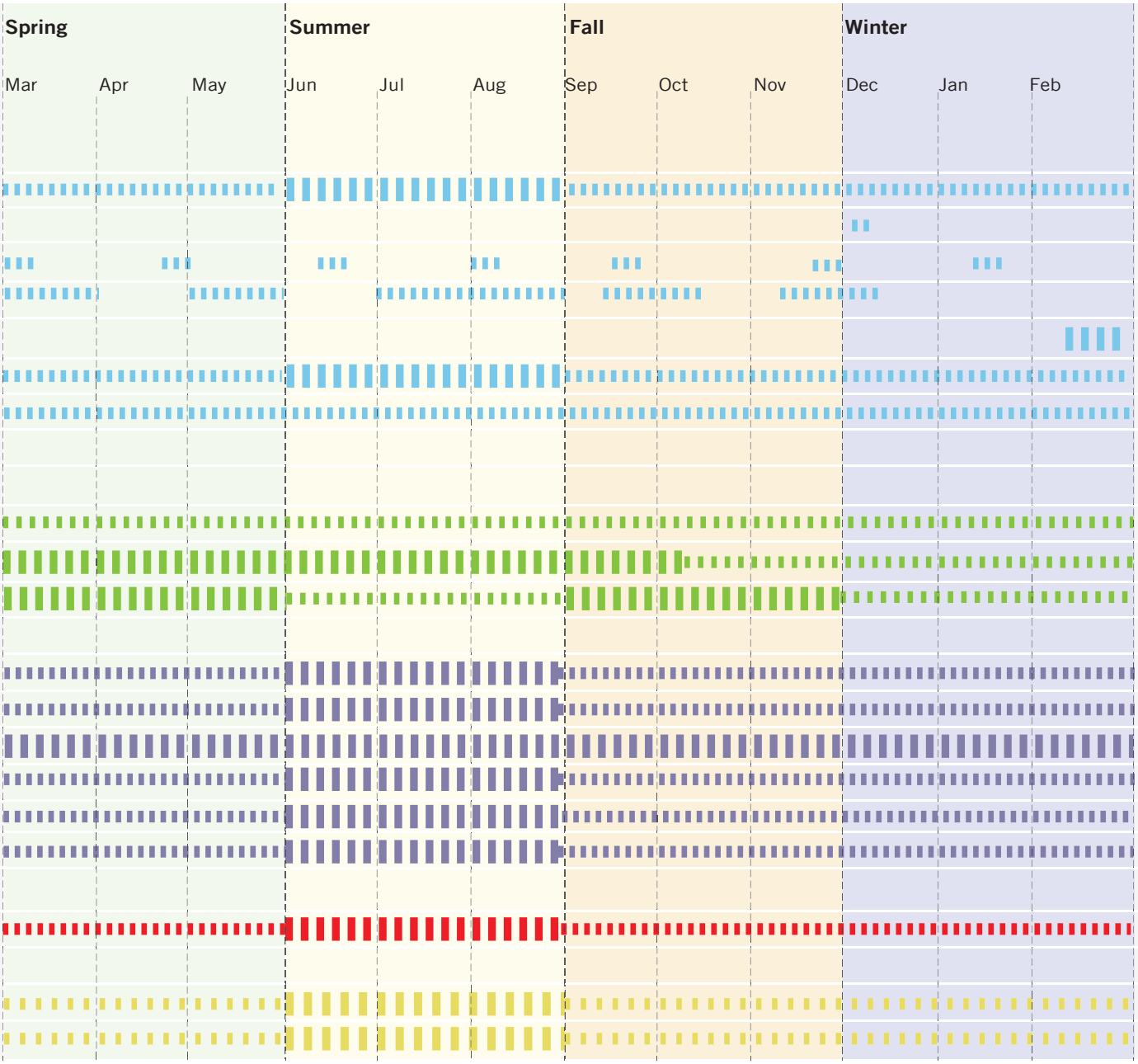
Shopping

- Antique Shops

Tours

- East End Historical District Tour
- Post Office Street Tour

Left Summer day at the beach | **Right** Enjoyment of an afternoon event



Top Year-round program events time line | **Left** Fishing in Galveston | **Right** Festival of Lights at Moody Gardens

Building Potential for Change / Historic Preservation

To the south and west of the study area are two of Galveston's great historic neighborhoods: The Strand and the East End. Each has a distinctive and relatively intact historical fabric and a history of dedicated historic preservation work. By contrast, the study area is an uneven mix of historic buildings, some restored, but many in very bad condition, buildings remodeled beyond recognition, modern construction, and vacant lots. Standing on The Strand today, it is hard to imagine this as a historic neighborhood. The southernmost blocks of the study area, between Mechanic and Market Streets, are part of the East End Historic District; the block-faces on Market Street are relatively intact while the block-faces on Mechanic Street include multiple vacant lots and deteriorated buildings. Only scattered historic structures remain on Strand and Harborside Drive. The most notable of these is the 1933 Customs House, now being restored by UTMB.

Top Great Condition | **Middle** Good Condition | **Bottom** Poor Condition

Historic District Boundary
Unlikely
Potential
Probable

Building Potential for Change

Locations and Use of Neighborhood and Community Services, Including Commercial Services

Few social services exist within the study area. There are no schools, churches or community centers within the study area. The nearest pre-school is four blocks away. There are no basic medical facilities within the area, however, UTMB to the east of the study area is readily accessible. Only small retail establishments are in or near the study area; supermarkets and other essentials are a mile or more away.

Medical Related

1. Transitional Learning Center
   1528 Avenue East
   Galveston, TX 77550-4865
   (409) 762-6661
   www.tlcrehab.org
   (post-acute care for patients with acquired brain injury)

2. The Ronald McDonald House
   301 14th Street
   Galveston, TX 77550-2611
   (409) 762-8770
   www.rmhg.org
   (lodging for families of children being treated at UTMB)

3. Andro Diagnostics
   101 14th Street
   Galveston, TX 77550-2607
   (409) 762-0422
   www.androdx.com
   (conducts clinical trials related to prostate cancer)

Pre-Schools

4. East End Preschool

Churches

5. Galveston Friends Church

6. Galveston Bible Church
   424 19th Street
   Galveston, TX 77550
   (409)765-5007

Schools

7. University of Texas Medical Branch

8. Trinity Episcopal School

9. Aim High School

10. KIPP Coastal Village

11. Satori Elementary School

12. Ball High

13. Central Middle

14. Austin Middle

Hospitals

15. Shriners Hospital

16. University of Texas Medical Branch

Essentials

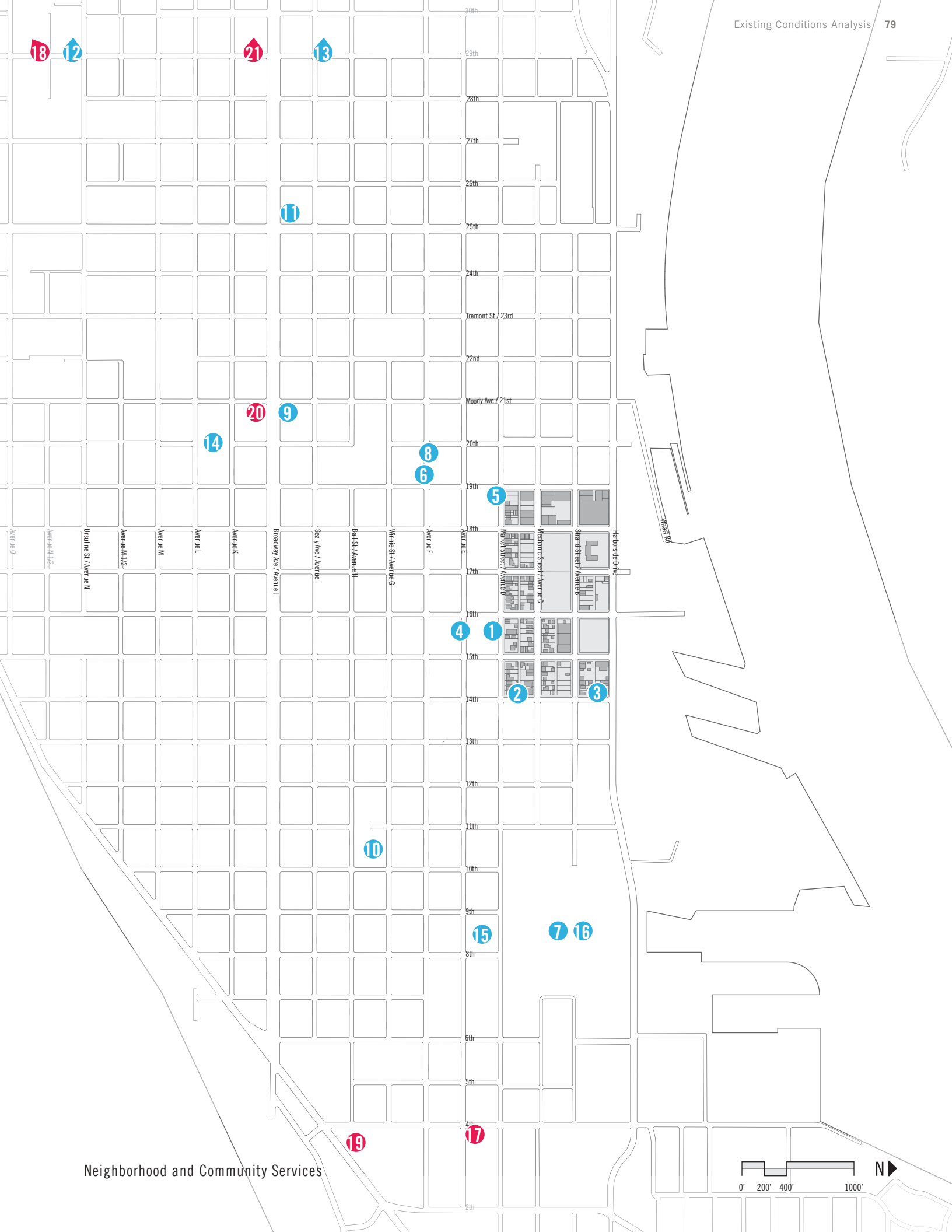
17. Arlen's Market

18. Wal-Mart

19. Walgreens

20. CVS

21. Target



Neighborhood and Community Services

Parcel Level Land Ownership

Most of the study area consists of the traditional Galveston single family lots. This has resulted in many small property owners. Some owners have assembled multiple single parcels. In some places, lots have been re-platted into larger parcels. These include the three blocks owned by the Galveston Housing Authority which were the site of Magnolia Homes, as well as privately owned warehouses. The University of Texas has been acquiring property around its campus as the opportunity arises; it owns several parcels at the east end of the study area.

Land owners that own 1/3 - 1 block

John Bannon
Marina Decker
ECM Properties, LLC
Christoper Federickson
Douglas & Alisa Godinich
Hang Thi & Nguyen
Mary Sheppard
State-Board of Regents

Land owners that own more than 1 block (Highlighted)

City of Galveston Housing Authority
Four Winds Investment, Inc.
USA-US Customs

Parcel Label	Land Owner	Acreage
554-1-1	Luna, Lois	0.062
554-1-2	Huesca, Crystal & Cesar D Ramirez	0.069
554-1-3	Sanchez, Alma	0.075
554-3-1	Biderback, Kevin & Kim	0.073
554-3-2	UT Board of Regents	0.076
554-4	UT Board of Regents	0.115
554-5	UT Board of Regents	0.148
554-7	UT Board of Regents	0.205
554-8-1	Guajardo, Aaron Jr	0.076
554-8-2	Guajardo, Aaron & Renee L	0.058
554-9-1	Kislingbury, Karen W	0.101
554-10	Hauschel, Daniel R & Elaine M	0.118
554-11-1	Olsen, Otto J, III	0.177
554-12-1	Gilroy, Ronald A & Cynthia Z	0.103
554-14	Gilroy, Ronald A & Cynthia Z	0.192
555-1-1	Evans, Robert S	0.087
555-1-2	Bannon, John F, Jr.	0.03
555-2	Denson, Richard & Linda	0.118
555-3	Castillo, Margarita Gaona	0.118
555-4	Dinh, Nu Thi	0.194
555-5-2	Blasko, R Geri & Sandra L	0.128
555-7-1	Bresenhan, Charlie C	0.053
555-7-2	Smith, Madaeline Milina	0.07
555-7-3	Sheffield, Philip C	0.023
555-8	Simpson, William R & Glenda K	0.341
555-11-1	Simpson, William R & Glenda K	0.101
555-12	Hughes, David Gelert	0.261
555-14	Hughes, David Gelert	0.118
556-1-1	Bocarando, Irineo	0.037
556-1-2	Bond, Martha A	0.046
556-1-3	Henley, Charles H & Teresa	0.034
556-2-1	Duran, Mike R	0.074
556-3-1	Heckathorn, Elizabeth Scott	0.073
556-3-2	Castorina, V & WF	0.074
556-4	Roque, Malinda	0.134
556-5-1	Carrillo, Odessa M	0.089
556-5-2	Salinas, David & Diana	0.088
556-7	Schmidt, Joseph H	0.117
556-8	Talbert, Paul	0.14
556-9-1	Stroud, William F & Victoria	0.105
556-10-1	Grenland Co	0.104
556-11	Funk, Brian A &	0.118
556-12	Mullican, Gerri A	0.118
556-13-1	Villarreal, Linda	0.059
556-13-2	Mullican, David E	0.059
556-14-1	Cutler, Casey & Sara E	0.036
556-14-2	Cutler, Casey & Sara E	0.081
557-1-1	George, William Kelley, MD	0.044
557-1-2	Perez, Jose R & Sanjuana	0.044
557-1-3	Shields, John C Jr & Jo Beth	0.044
557-2-1	Eighteenth Street Incorporated	0.101
557-3	Martin, Christi	0.118
557-4	Martin, Christi	0.117
557-5	Powers, Gary L	0.118
557-6	Powers, Gary L	0.118
557-7	Galveston Community Dev Corp	0.054
557-7-1	Rubio, Cesar F, Jr.	0.064
557-8	Davidson, Claude E & Raffaella	0.236
557-10	Skyline Partnership Holdings Inc.	0.118
557-11	Armstrong, Thomas D & Thelma	0.117
557-12-1	Delgado, Constantine	0.059
557-12-2	Zakrzewska-Nikiporczyk, Barbara	0.059
557-13-1	Crorey, Steve	0.059
557-13-2	Vela, Larry G	0.059
557-14-1	Vela, Larry G	0.029
557-14-2	Vela, Larry G	0.059
557-14-3	Turner, W Hardee & N C	0.029
558-1	ECM Properties, LLC	0.237
558-3	ECM Properties, LLC	0.118
558-4	Ramirez, Aureliano & Humberto	0.118
558-5	Island Woodworking Co Trust Dept	0.356
558-8	George, William Kelley, MD	0.118
558-9-1	Ramirez, Humberto F	0.059
558-9-2	Watson, Mary	0.059
558-10-1	Gonzales, Bennett & Josefina	0.038
558-10-2	Moya, Joe	0.038
558-10-3	Gonzales, Bennett & Josefina	0.039
558-11	Campbell, Barbara & Justin	0.118
558-12	ECM Properties, LLC	0.118
558-13	American National Insurance Co	0.118
558-14	American National Insurance Co	0.118
614-1-1	Flores, Juan D, Jr.	0.105
614-1-2	Tsetsarkin, Konstantin A	0.041
614-3	Godinich, Douglas T & Alisa G	0.205
614-4	Bannon, John	0.118
614-5	Bannon, John	0.118
614-6	Bannon, John	0.118
614-7	Bannon, John F, Jr.	0.118
614-8-1	Williams, Barbara J	0.037
614-8-2	Flores, Juan D, Jr.	0.077
614-9	Rodriguez, Eunice	0.118
614-10	Zakrzewska-Nikiporczyk, Barbara	0.118
614-11	Guzman, Jose L	0.118
614-12-1	Fortenberry, Concepcion G	0.099
614-12-2	Bonomo, Julie	0.127
614-14	Grasso, Giuseppe & Giovannin	0.123
615-1	Decker, Marina	0.118
615-2	Decker, Marina	0.236
615-4	Decker, Marina	0.471
615-8-1	Union Boatman And Line Handlers Inc.	0.06
615-8-2	Walker, Jack & Anita L	0.055
615-9	Riffle, Kimberly	0.118
615-10-1	Sanches, Luis Miguel	0.093
615-10-2	Carranza, Cecilio Eliseo	0.123
615-11-1	Velazquez, Cirilo & Et Ux	0.059
615-12	Velasquez, Cirelo & Paula	0.118
615-13	Biggs, William Henry	0.118
615-14	Papavasiliou, Vasilios A	0.118
616-1	City of Galveston Housing Authority	2.029
617-1	City of Galveston Housing Authority	2.029
618-1	Kassouff, Mark	0.276
618-3	Farmer's Industrial Properties	0.656
618-8	Montemayor, Alejandro	0.136
618-8-1	Holmes, Bob & Paul Lopez	0.12
618-10	Farmer's Industrial Properties	0.204
618-12	Ramirez, Aureliano & Humberto	0.145
618-13	Twelve M Company	0.237
674-1	Brady, Theresa Le Tulle	0.236
674-3	Olson, Dale R Co Tr	0.118
674-4	Frederickson, Christopher J	0.118
674-5	Frederickson, Christopher J	0.118
674-6	Frederickson, Christopher J	0.118
674-7-1	Frederickson, Christopher J	0.069
674-7-2	Young, Floyd R	0.024
674-7-3	Riley Joseph	0.024
674-8	Everts, Byron A III & Betty J	0.137
674-9-1	Riles, Kevin	0.095
674-10-1	Sheppard, Mary G	0.064
674-10-2	Wyatt, Dana L	0.052
674-11	Sheppard, Mary G	0.118
674-12	Sheppard, Mary G	0.118
674-13	Sheppard, Mary G	0.236
675-0	City of Galveston Housing Authority	1.79
676-1-1	Rice, J B & Elizabeth	0.081
676-1-2	Diaz, Daniel	0.037
676-2-2	Rice, Jarid B & Elizabeth	0.025
676-3	Rice, J B & Elizabeth	0.68
676-8-1	Nguyen, Hang Thi	0.03
676-8-2	Nguyen, Hang Thi	0.087
676-9	Nguyen, Hang Thi	0.118
676-10	Nguyen, Hang Thi	0.118
676-11	Godinich, Mary Louise	0.118
676-12-3	Godinich, Douglas T & Alisa G	0.068
676-12-4	Godinich, Douglas T & Alisa G	0.074
676-13-1	Fisher, Jane	0.04
676-13-2	Godinich, Douglas T & Alisa G	0.07
676-13-3	Godinich, Douglas T & Alisa G	0.037
676-13-4	Diaz, Victor A, Jr.	0.065
677-0	USA-US Customs	1.79
678-1	Electrical Troubleshooters Inc.	0.25
678-3	Four Winds Investments Inc.	1.281
678-13	Floral Concepts LLC	0.126
678-14-1	Hopper, Randall L	0.124

Matrix Land Ownership in the Study Area

Land owners 1/3 up to 1 block

Land owners 1 block or greater

Existing Parcel Level Land Ownership

0' 50' 100' 250'

N

Undeveloped vs. Developed Land

Current land use patterns reflect the devastation of Hurricane Ike. Before the storm, the study area was largely built up, though there were some vacant lots, especially near Harborside Drive. Hurricane Ike lead to the demolition of Magnolia Homes, leaving three vacant blocks in the heart of the study area.

Photos Vacant blocks in the study area

Vacant Parcels

Existing Vacant Parcels

0' 50' 100' 250'

N

Environmental and Infrastructure: Water Mains

The actual fire and domestic flow and availability has not been determined. A program of proposed block densities and usages should be provided to the City of Galveston Public Works group to ensure that there is sufficient fire and domestic flow, availability and capacity for the proposed developments, densities, and land usages.

The existing water line system for the specified study area is served primarily by looped 6 and 10-inch waterlines that connect into the existing City's waterline grid. A review of the City of Galveston's geographic information system for public water lines shows that all blocks within this study area are currently served by lines 6-inch diameter or greater on at least two block sides.

The City of Galveston receives its water from the Gulf Coast Water Authority. 14th to 19th Streets in the study area are served by a pump station at 30th Street.

General Information on the Water System:

Age
Most of the existing utilities were installed in the early to mid 1900s. Much of the existing water system is cast iron pipes.

Capacity / Size
In the process of receiving information from Eric Wilson and David Van Riper, who have more extensive information on the sanitary sewer system.

Complete Removal / Replacement Issue
In the process of receiving information from Eric Wilson and David Van Riper, who have more extensive information on the sanitary sewer system.

Existing Water Main Lines

Environmental and Infrastructure: Storm Mains

The study area's topography is considered to be flat. The study area elevation ranges from an elevation of 4 to 8 feet. In general, overland surface sheet flow occurs from the currently undeveloped and developed blocks to their adjacent streets, from the south of the study area to the north, and into the ship channel north of Harborside Drive.

The existing drainage systems within the specified area falls within the Galveston channel watershed. The study area is currently divided into several small drainage systems flowing north along each street into the Galveston channel. The division of the drainage areas occur along the mid-blocks flowing east and west and being routed northward in the storm sewer trunk lines. These lines range in size from 24-inch reinforced concrete pipe to 8-foot by 3-foot box culverts.

Currently, the City of Galveston will not allow any private storm connections to a public storm sewer that are smaller than 24-inches in diameter.

General Information on the Storm Sewer System:

Age
Most of the storm sewer system was installed in the early to mid 1900s.

Capacity / Size
There have been previous drainage studies that recommend various storm sewers in this area be replaced with larger storm sewer systems. The 2007 LAN Drainage Study of the Ferry Road to 34th street drainage system made recommendations that the following systems be replaced:

18th Street storm sewer system: Existing 36-inch storm sewer be replaced with a 9-inch by 5-inch storm sewer.

15th Street Storm Sewer System: Existing 30-inch storm sewer be replaced with a 8-inch by 5-inch Storm Sewer.

13th Street Storm Sewer System: Proposed 60-inch storm sewer be installed.

Complete Removal / Replacement Issue
Based on the capacity issues, I would recommend the replacement of the storm sewer system.

Flood Insurance Rate Map (FIRM)
The Flood Rate Insurance Maps for City of Galveston, Galveston County, Texas, Community Panel Number 4854690026E, Panel Number 26 of 83, with map revision of December 6, 2002, depicts the specified study area as shaded "Zone AE", which is to be inside the 100-year flood zone up to elevation 11.00.

Detention
The City of Galveston currently does not require detention in the study area, per conversations with City of Galveston officials.

Storm Manhole

Storm Main

Existing Storm Main Lines

0' 50' 100' 250'

N

Environmental and Infrastructure: Sewer Mains

To date, the actual availability and capacity of the sanitary sewer plant and infrastructure has not been determined. A program of proposed block densities and usages should be provided to the City's utility analysis group to ensure that there is sufficient availability and capacity for the proposed developments, densities, and land usages, each time a parcel is developed.

The existing wastewater system for the specified study area is served by a 36-inch trunk line on Harborside Drive. A sanitary sewer collector, 18-inch to 24-inch, runs north through the study area on 16th Street.

The specified study area is comprised of sanitary sewer lines that range from as small as 8-inches to as large as 36-inches. Connections to sanitary sewer lines that are larger than 36-inches in diameter require City of Galveston Public Works and Engineering approval and may not be granted if there are other lines within the vicinity.

The sanitary sewer system in the 14th to 19th Street area is treated at the main sewer treatment plant, which is located at 5200 Port Industrial Road. The capacity of the sewer treatment plant is approximately 10 MGD.

General Information on the Sanitary Sewer System:

Age
Most of the existing utilities were installed in the early to mid 1900s. Much of the existing sanitary sewer system is clay pipe.

Capacity / Size
Complete Removal / Replacement Issue: In the process of receiving information from Eric Wilson and David Van Riper, who have more extensive information on the sanitary sewer system.

Challenges
Maintaining minimum clearances from utilities is a parameter re-development projects must consider. The capacity for private utilities to serve specific redevelopment projects must be determined on a case-by-case basis.

Detention
The City of Galveston currently does not require detention in the study area, per conversations with City of Galveston officials.

Sewer Manhole

Sewer Main

Existing Sewer Main Lines

0' 50' 100' 250'

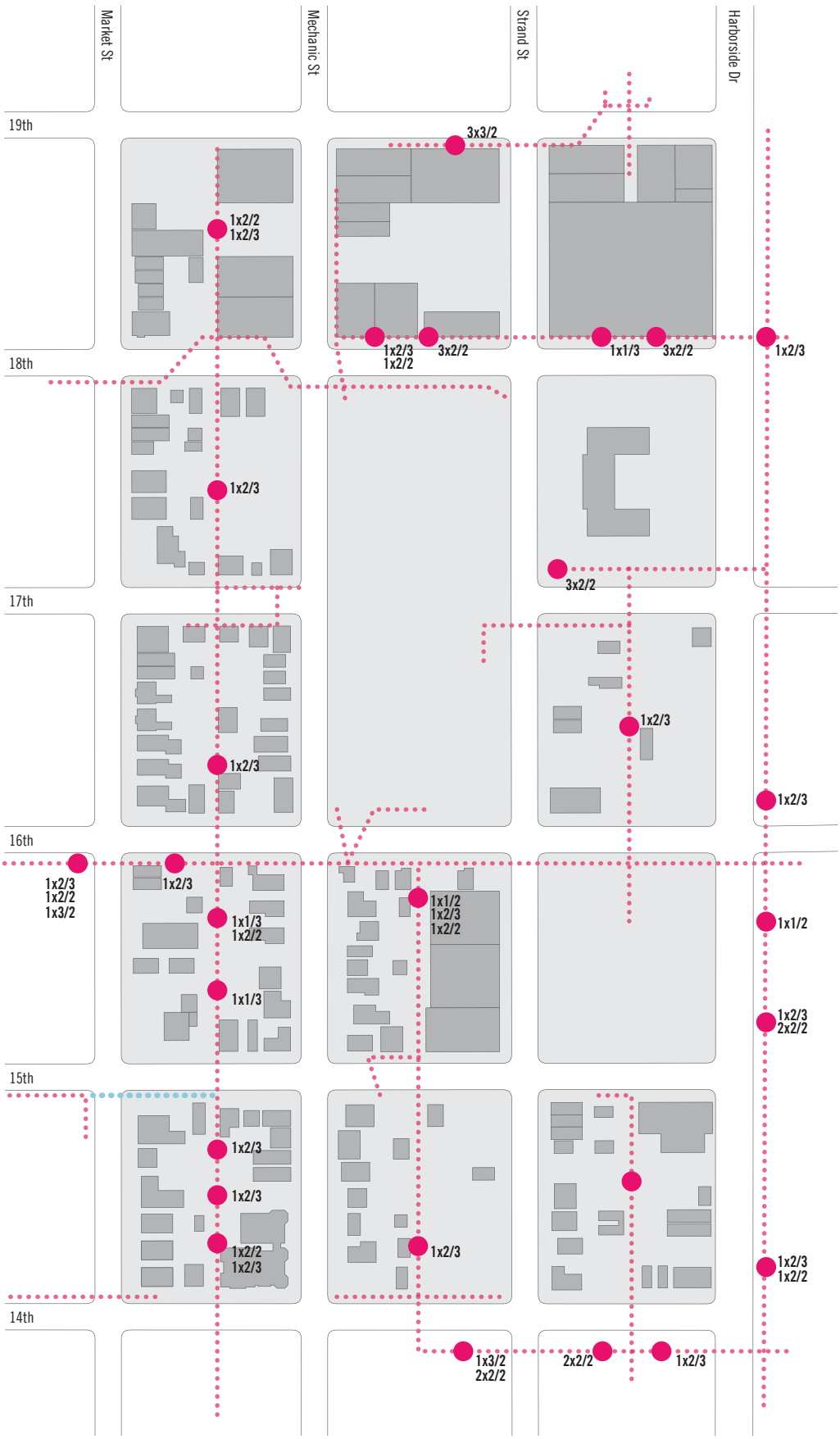
N

Environmental and Infrastructure: Overhead Utilities

The power is delivered to the island through means of large overhead transmission lines. Once it reaches the local substation, it is then distributed to the project area via local overhead power lines.

The diagram on page 91, shows the overhead power lines and pole mounted transformers in our study area.

Photos Overhead utilities in the study area



Pole with transformer

Power Lines

Power Lines no pole

Existing Overhead Utility Lines

0' 50' 100' 250'

N

Branding, Way-finding, and Identity

Existing branding and wayfinding is sparse across the study area. The most consistent of these, as far as a theme, are the signs and furnishings located at the trolley stops along The Strand that reflect the Victorian style architecture of the Island. The southern part of the study area presents a more residential feel with small home lots whose front yards are fenced.

The study area is surrounded by the Port of Galveston, UTMB, the famous Strand, and the Historic District. Each of these areas have a distinct identity of their own, created by various forms of branding and environmental graphics.

The working Port to the north of this study area has few sidewalks, if at all. Industrial grade lighting illuminates the north side of Harborside Drive and cargo and truck parking fills the asphalt-paved lots.

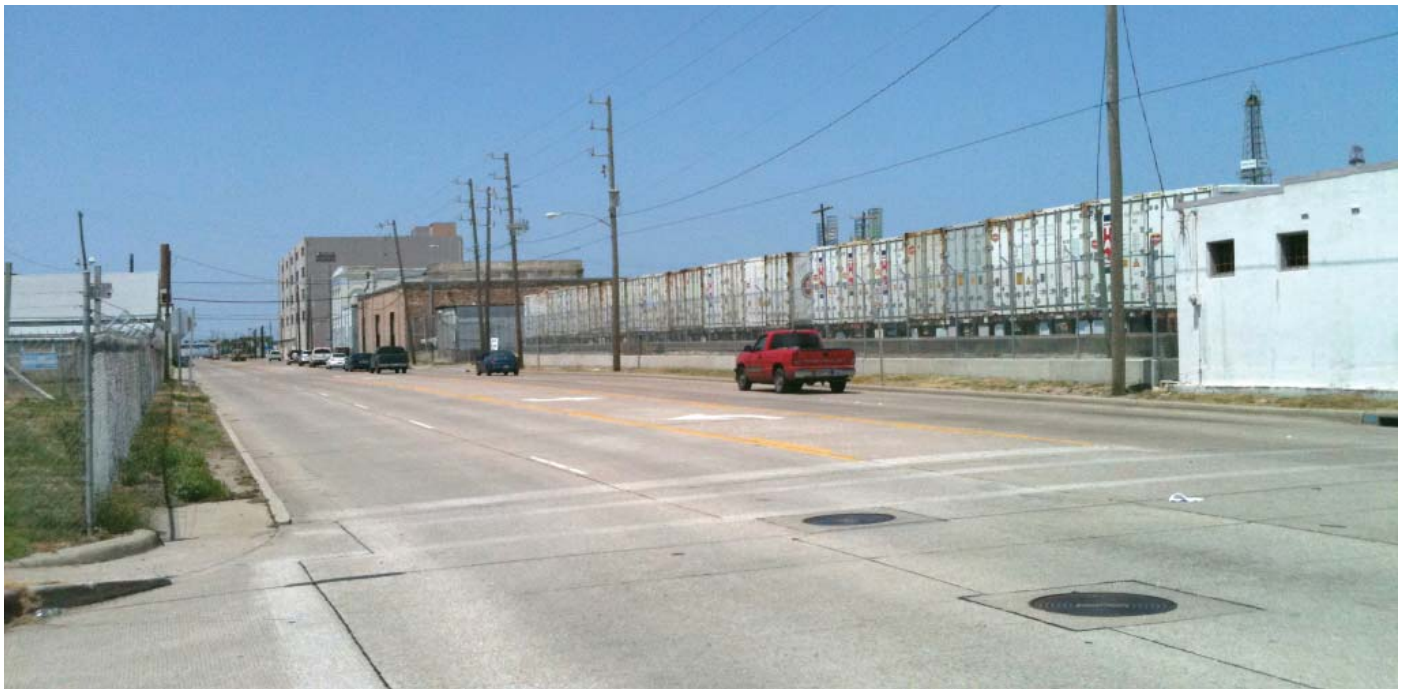
UTMB has a palette of materials including pavers, lighting and planting, that make it identifiable and in many ways a harsh abrupt transition into the study area.

The Strand is a vibrant tourist area that has recognizable signage, street enhancements and site furnishings. These also support a Victorian style theme. As a heavily traveled pedestrian area, many buildings have incorporated awnings that provide shade and give continuity to the look of the street.

The residential areas of the Historic District gives rise to charming Victorian homes and manicured yards. These residential streets experience low volume as far as vehicular traffic, and many of those east-west streets could become key connections from the study area to the Seawall and to the beach.

With the better influences of each of these surrounding areas, and the enhancement of the study area, there is an opportunity to create an identity program that is cohesive, while defining the study corridor as a quaint destination of its own.

Photos Signage and Wayfinding within study area



Photos Signage and Wayfinding within study area

Pedestrian Access, Comfort, and Safety: Street Trees and Shade

The study area is located in Zone 9 on the southern coast of Texas with yearly temperatures ranging from 102 degree F to 14 degree F, and with an average yearly temperature in the 70s. Providing relief from direct sun and wind is critical to daily life on the Island, especially in the summer months.

After a direct hit by the Category 2 Hurricane Ike in 2008, most of the large trees were destroyed or died from the salt damage as a result of the initial storm surge. Some of the larger dead Live Oak trees were turned into whimsical sculptures in the surrounding neighborhoods.

Minimum opportunity for shade currently exists within the study area. A couple of struggling mature Live Oaks remain in the residential areas and a variety of small palm species dot the study area providing little reprieve from the blistering summer sun. Two shade structures along Strand provide shelter for the now inactive trolley line.

Overall, there is great opportunity to provide new shade solutions, both short term and longer term. Shaded walks are needed to weave together the existing island fabric; connecting the Historic neighborhoods, Strand and UTMB campus to the study area.

Photos Current shade solutions in the study area

Good Coverage
Fair
Poor

Existing Shade Coverage

0' 50' 100' 250'

N

Pedestrian Access, Comfort, and Safety: Lighting

Currently, public spaces within the study area are illuminated with low sodium lighting. The vehicular scale fixtures are mounted on standard utility grade poles. The pole lights are located at four-way-stop intersections and at signaled intersections.

The current locations of the lights provide minimal lighting for the pedestrian. Overall, the quality of light and physical character of the poles and fixtures do not add to the pedestrian experience.

The study area is surrounded by a mix of distinct lighting types. To the east, the pedestrian scale lighting extends from the UTMB campus and stops at 14th Street. To the west, historic pole and fixtures are associated with the Historic Strand District. North of the study area, the Port of Galveston has large utility grade lighting that provides heavy illumination for the industrial uses.

Photos Lighting fixture variations within the study area

Vehicular Lighting

Industrial Lighting

Pedestrian Lighting

Existing Lighting Diagram

0' 50' 100' 250'

N

Pedestrian Access, Comfort, and Safety: Sidewalks

The study area is situated between two of the most active areas of the City, The Strand and UTMB Campus. The need for high quality sidewalks is essential to encourage pedestrian activity into, within and through the area. The southern edge of the site is framed by charming Victorian homes and would benefit from repair and completion of the existing sidewalk network to celebrate the historic charm.

The north edge of the study area is cut off from the Port of Galveston because of connectivity across Harborside Drive and access to the Port.

The sidewalk diagram outlines three distinct categories for assessing sidewalks conditions.

Good – Sidewalks that meet ADA requirements and provide flexible systems facilitating movement and connectivity.

Fair – Sidewalks that meet ADA requirements but fall short of "good" due to the following: too narrow, not well drained, not maintained, and or disconnected from the greater district pedestrian circulation network.

Poor – This category includes sidewalks that do not meet ADA requirements, do not exist, or are isolated from the greater pedestrian grid.

Photos Existing sidewalk conditions in the study

Existing Sidewalk Conditions

Open Space Use, Functionality, and Access: Walking Distances

Open space plays a vital role on Galveston Island, helping draw nearly 5 million people to Galveston Island each year, according to Galveston Island Convention Visitors Bureau.

Although there are no existing parks located within the study area, four specific types of open space work together on the northeast side of the Island to form the existing open space framework.

The framework is comprised of neighborhood parks, civic plazas, beach parks and institutional and private open space.

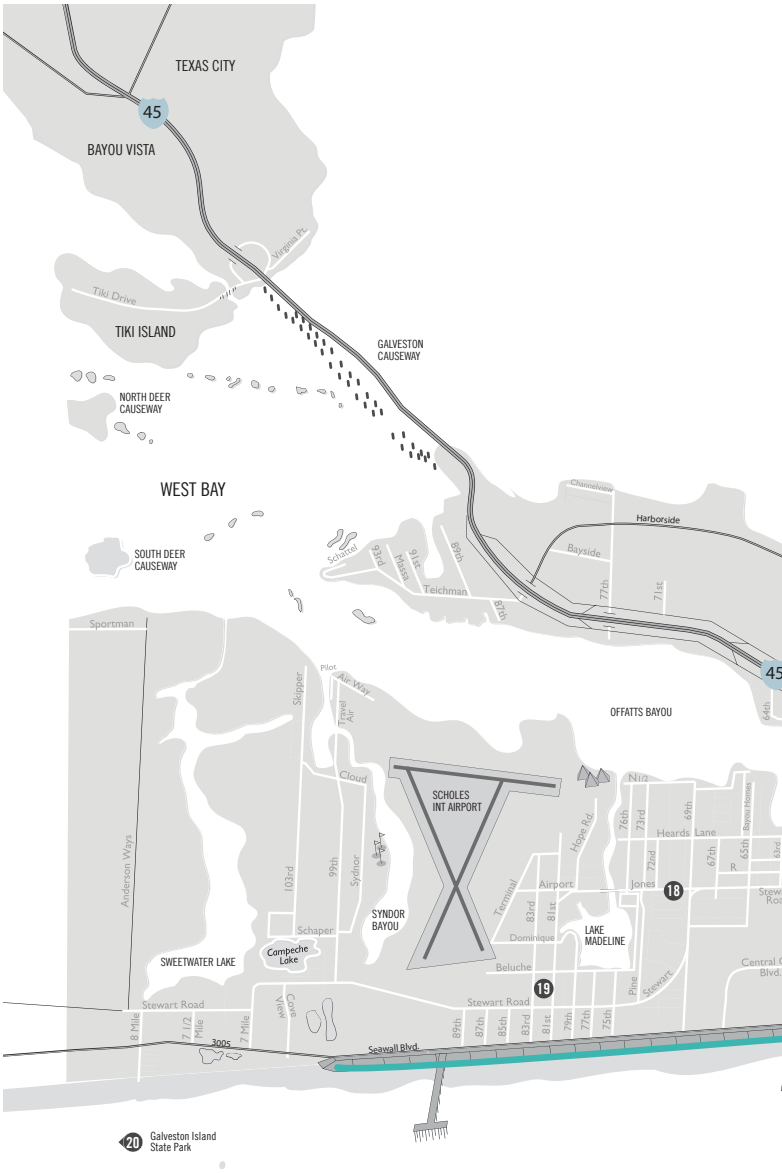
Neighborhood parks in the surrounding area, such as Adoue Park, are programmed with playground equipment, shade structures, drinking fountains, benches, and other park amenities supporting activities for many different age levels.

Civic plazas, such as the space located outside the Galveston County Courthouse are key to the urban framework of the City providing important public spaces for the island community. Semi-public areas such as the open space within UTMB feed into the open space framework and level of activity. Connecting the green dots on the north-east side of the Island includes adding a green space.

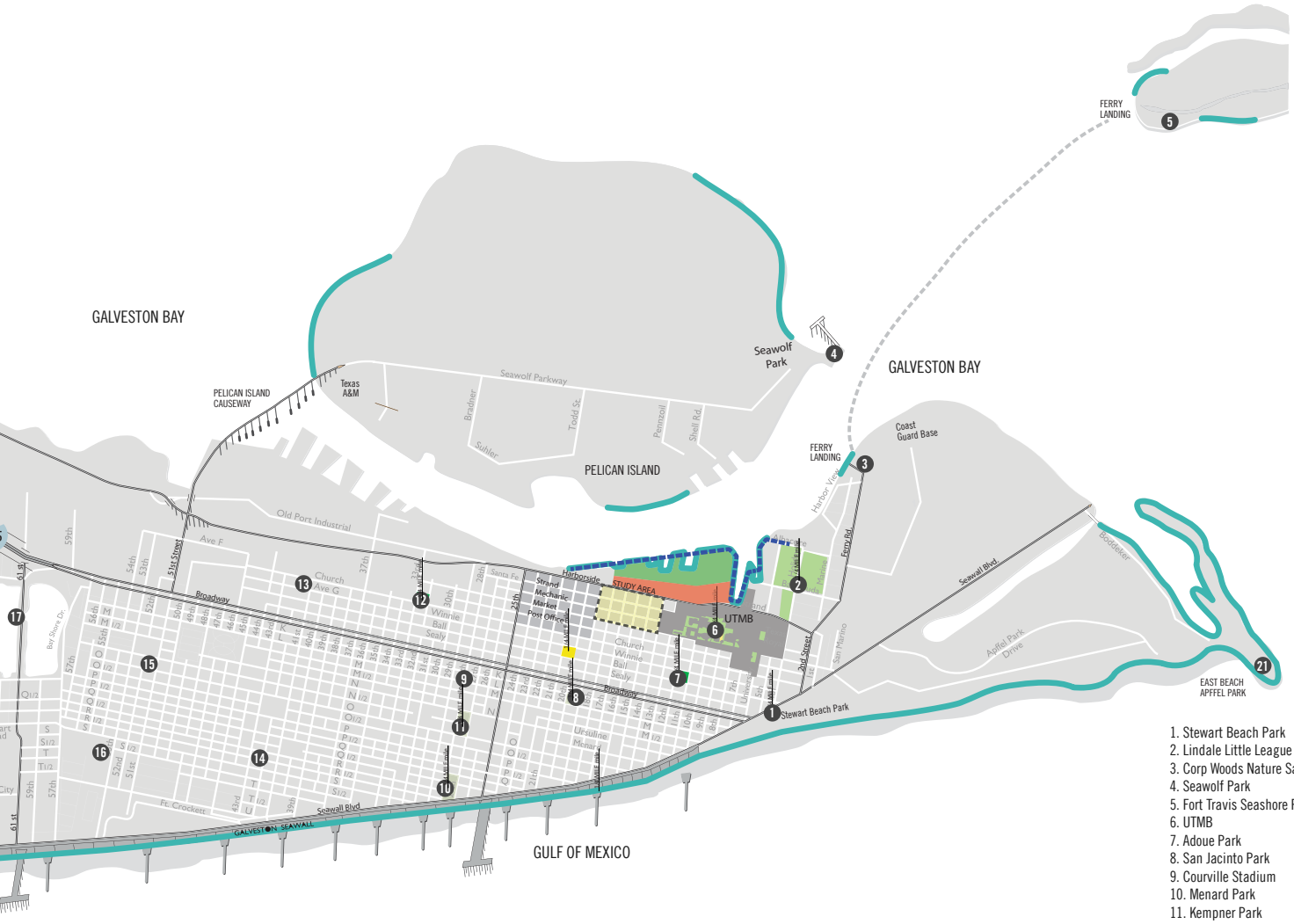
Beach parks are in biking distance from the study area connecting the residential community and entire study area to nearly 32-miles of beach and associated recreational activity. Also, the proximity of the study area to the Port of Galveston offers great opportunity for walkable access to a waterway.

Institutional / Private – UTMB provides an extensive system of improved streets, crosswalks, and open space areas with the core open space terminating into 11th Street and Mechanic / Avenue C.

There is potential for connecting to the existing framework found in many of these existing conditions.



Left Regional Park | **Right** Community Park



1. Stewart Beach Park
2. Lindale Little League Park
3. Corp Woods Nature Sanctuary
4. Seawolf Park
5. Fort Travis Seashore Park
6. UTMB
7. Adoue Park
8. San Jacinto Park
9. Courville Stadium
10. Menard Park
11. Kempner Park
12. Sheppard Park
13. Wright Cuney Park
14. Lasker Park
15. Alamo Park
16. Crockett Park
17. Washington Park
18. Jones Park
19. Schreiber Park
20. Galveston Island State Park
21. East Beach Apffel Park

Top Existing Parks Map | **Left** Neighborhood Park | **Right** Mini Park

Bike Connectivity and Conditions

The City of Galveston developed a Pedestrian and Bicyclist Plan in 2006, which recommended improved sidewalks connecting to and around the Magnolia Homes housing development. Only one bicyclist recommendation affected the study area directly: designating Market Street as a signed bicycle route along the southern edge of the study area. This designation implicitly acknowledges that Market Street, like most of the streets within the study area, is highly suitable for cycling. Suitability is a way to look at a roadway network and determine how friendly it is for cyclists based on factors such as pavement width and quality, traffic volumes and speeds, and existing bicycle infrastructure such as bike lanes.

As shown in the adjacent map, all roads within the study area would be highly suitable for bicycle travel with the exception of Harborside Drive, which has higher traffic volumes, traffic speeds and a greater percentage of larger trucks than the local roads. As Market Street is currently planned to be reconstructed through a CDBG program, this road should continue to be an excellent connector to the proposed north-south bike lanes at 23rd Street and at 8th Street. Future recommendations to the street network should be made with a goal of maintaining a high degree of bike suitability on critical roadways.

Photo Bicyclist commuter in the study area

Existing Bicycle Conditions

Roads and Right-of-Ways

With the exception of Harborside Drive, the roads within the study area are designated as local streets, meaning they are designed to carry low volume and low speed traffic. The traffic control on these roads is primarily two-way stop controlled at the intersections, which is appropriate for the traffic volumes. Traffic volumes shown are based on 2006 TxDOT saturation counts for area roadways and therefore occurred prior to Hurricane Ike. Given the loss of development in the study area due to that storm, these counts are likely to be conservative versus current traffic volumes. Based on 2006 counts, the area roadways should operate at a good to excellent level of service. 14th Street and 19th Street have relatively few stops north of Winnie Street, Avenue G, while 15th, 16th, 17th, and 18th Street are forced to stop frequently. East-west streets must also stop every block or two, which promotes low driving speeds through the study area. Just south of the study area, Post Office, Avenue E, and Church Street, Avenue F, operate as a one way pair with limited required stops. To the north of the study area, Harborside Drive provided unimpeded east-west traffic flow when traffic signals are properly coordinated. Market Street on the south side of the study area also potentially provides high-through capacity when its signals are properly coordinated.

The study area is nearly a perfect grid system with east-west block lengths of approximately 375 feet and north-south block lengths of 350 feet. The exception to the grid is on 17th Street, which is discontinuous between Strand and Mechanic Street, where the site of the former Magnolia Homes development created a superblock from 16th Street to 18th Street. The grid allows access to each development parcel and distributes traffic flow throughout the study area.

Photos Existing street conditions in the Study Area

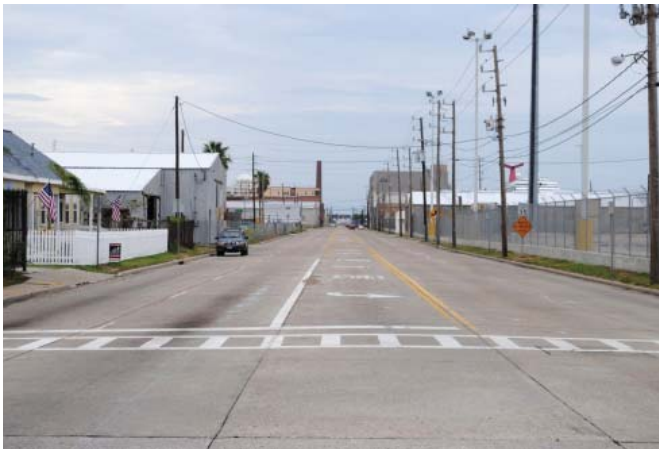
Existing Traffic Control

Roadway	R.O.W. Width (feet)	Estimated Pavement Width (feet)
Harborside Drive	70	55
Strand	80	46
Mechanic	70	36
Market	70	36
19th	80	46
18th	80	46
17th	80	46
16th	80	46
15th	80	46
14th	80	46

*Source Galveston GIS

East West Roads
Harborside Drive

Harborside Drive is the principal east-west roadway on the north side of the Island. It is a two-way road that provides a connection from IH-45 on the west to Bolivar-Galveston ferry on the east. It also provides access to port-related industry on the north side of the Island, the Carnival cruise line, and tourism-related activities along the Strand. In the vicinity of the study area, intersections along Harborside Drive are frequently signalized, and those that are un-signalized are stop-controlled on the intersecting street. On-street parking is not explicitly forbidden by signage, but because of the relatively high traffic volumes and speeds, parked vehicles are rarely encountered. Sidewalks line both sides of the roads in some places, one side of the road in other places, and neither side of the street in other places such as between 13th Street and 15th Street. In the vicinity of the study area, Harborside Drive provides two through lanes in either direction and a center two-way left-turn lane. Limited right-of way makes future widening unlikely for Harborside Drive adjacent to the study area..



Strand

Strand is a two-way street that runs east-west through the study area. Sidewalks variably line both sides of the road, one side of the road, or neither side of the road. A trolley track, which is currently not operational, runs down the center of the road. Adjacent land uses are a mix of residential, commercial, and vacant. The Magnolia Homes housing development was situated on the south side of Strand between 18th Street and 16th Street, until it was destroyed by Hurricane Ike in 2008. On-street parking is permitted without restriction for at least one side of the road in the study area. On the other side, parking is variably permitted without restriction, permitted with restrictions, or not permitted. The intersection of Strand at 20th Street is signalized. All other intersections along Strand in the vicinity of the study area are stop-controlled, with the stops sometimes being for Strand, other times for the intersecting street, and sometimes all-way.

Mechanic Street

Mechanic Street is a two-way road that runs east-west through the middle of the study area. Sidewalks variably line both sides of the road, one side of the road, or neither side of the road. Adjacent land uses are primarily residential, though there is some commercial development on the west side of the study area. A low-income housing development was situated on the north side of Mechanic Street between 18th Street and 16th Street, until it was destroyed by Hurricane Ike in 2008. On-street parking is variably permitted without restriction, permitted with restrictions, or not permitted. The intersection of Mechanic Street at 20th Street is signalized. All other intersections along Mechanic Street in the vicinity of the study area are stop-controlled. Most stops are either along Mechanic Street or are all-way stops. Only two intersections near the study area are free-flow along Mechanic Street.

Market Street

Market Street is a two-way road that runs east-west on the southern edge of the study area. The intersections of Market Street with 22nd Street, 21st Street, 20th Street, 19th Street, 16th Street, and 14th Street are signalized. All other intersections along Market Street in the vicinity of the study area are stop-controlled on the cross street. This combination of traffic signals and free-flow approaches at un-signalized intersections, as well as the fact that the next two roads south of Market Street are one-way pairs, makes Market Street an important east-west route. Sidewalks along the parts of Market Street that are adjacent to the study area exist on at least one side of the road and usually both sides. Adjacent land uses are primarily residential, with some commercial and a medical-related facility between 15th and 16th Streets. On-street parking is variably permitted without restriction, permitted with restrictions, and not permitted.

North South Roads
19th Street

19th Street is a two-way road that runs north-south along the western edge of the study area. Sidewalks variably line both sides of the road or one side of the road. Near Harborside Drive, a sidewalk is provided on the east side of 19th Street, but it is interrupted by pull-in parking spaces. In the vicinity of the study area, neither side of the road provides a continuous sidewalk. Adjacent land uses are commercial. On street parking is mostly permitted in the vicinity of the study area; the pull-in parking near Harborside Drive in restricted to customers of the adjacent business. The intersection of 19th Street at Market Street is signalized; all other intersections along 19th Street in the vicinity of the study area are stop-controlled. The un-signalized intersections provide free-flow conditions for 19th Street except at Harborside Drive and Strand. This combination of largely signalized and free-flow intersections makes 19th Street an attractive through street.

18th Street

18th Street is a two-way road that runs north-south inside the study area. It runs along the superblock that once was the site of the Magnolia Homes development. As such, it provides an important alternate route to 17th Street, which is interrupted by the superblock. Sidewalks variably line both sides of the road, one side of the road, or neither side of the road. In the vicinity of the study area, neither side of the road provides a continuous sidewalk. Sidewalks are not provided adjacent to the vacant lot that was the former site of the Magnolia Homes development. Adjacent land uses are commercial and residential. On-street parking is permitted and permitted with restrictions in the vicinity of the study area. All intersections along 18th Street in the vicinity of the study area are un-signalized. The un-signalized intersections provide stop conditions for 18th Street except at Mechanic Street.

17th Street

17th Street is a two-way road that runs north-south inside the study area. It is interrupted between Mechanic Street and Strand by the vacant superblock that used to be the site of the Magnolia Homes low-income development. Because of this interruption, 17th Street primarily serves local traffic. Sidewalks variably line both sides of the road, one side of the road, or neither side of the road. In the vicinity of the study area, neither side of the road provides a continuous sidewalk, and no pedestrian facilities are provided across the former site of Magnolia Homes. Adjacent land uses are primarily residential. On-street parking is permitted and permitted with restrictions in the vicinity of the study area. All intersections along 17th Street in the vicinity of the study area provide stop-control for the 17th Street approaches.

16th Street

16th Street is a two-way road that runs north-south inside the study area. It runs along the superblock that once was the site of the Magnolia Homes development. As such, it provides an important alternate route to 17th Street, which is interrupted by the superblock. 16th Street also runs along a vacant block between Harborside Drive and Strand. Sidewalks variably line both sides of the road, one side of the road, or neither side of the road. No sidewalks are provided along the former site of the Magnolia Homes development or the vacant block. In the vicinity of the study area, neither side of the road provides a continuous sidewalk. Adjacent land uses are primarily residential and commercial. On-street parking is permitted without restriction for most of the 16th Street, although it is permitted with restrictions on the section adjacent to the former site of Magnolia Homes; this restriction may be outdated with the demolition of Magnolia Homes. The intersections along 16th Street are signalized at Harborside Drive and Market Street and un-signalized at all other cross streets in the vicinity of the study area. The un-signalized intersections variably provide free-flow and stop-control conditions for 16th Street.

15th Street

15th Street is a two-way road that runs north-south inside the study area. It runs adjacent to the east side of a vacant lot between Harborside Drive and Strand. Sidewalks variably line one side of the road or neither side of the road. No sidewalks are provided along the vacant block. In the vicinity of the study area, neither side of the road provides a continuous sidewalk. Adjacent land uses are primarily residential and commercial. On-street parking is variably permitted without restriction or permitted with restrictions. The intersections along 15th Street are all un-signalized with stop-control provided for the approaches along 15th Street. Because traffic must stop at each block along 15th Street, it does not provide an attractive through route and likely serves mostly local traffic.

14th Street

14th Street is a two-way road that runs north-south inside the study area. It runs adjacent to the east side of a vacant lot between Harborside Drive and Strand. Sidewalks variably line both sides of the road, one side of the road, or neither side of the road. In the vicinity of the study area, neither side of the road provides a continuous sidewalk. Adjacent land uses are primarily residential with some commercial. On-street parking is permitted with restrictions. The intersections along 14th Street are signalized at Harborside Drive and Market Street and un-signalized at all other cross streets. The majority of un-signalized intersections provide free-flow conditions for 14th Street; the intersection with Avenue E, provides stop-control for the southbound approach of 14th Street but free-flow for the northbound approach. The presence of signals and largely free-flow intersections make 14th Street an attractive north-south route.

Roads and Right-of-Ways: Safety

Crash data was provided by H-GAC for the roads and intersections in the vicinity of the study area, including 24 intersections within and immediately adjacent to the study area and 54 intersections outside the study area. The locations of the identified crashes are shown on the map on page 113. The table below, summarizes characteristics of the crashes within and around the study area.

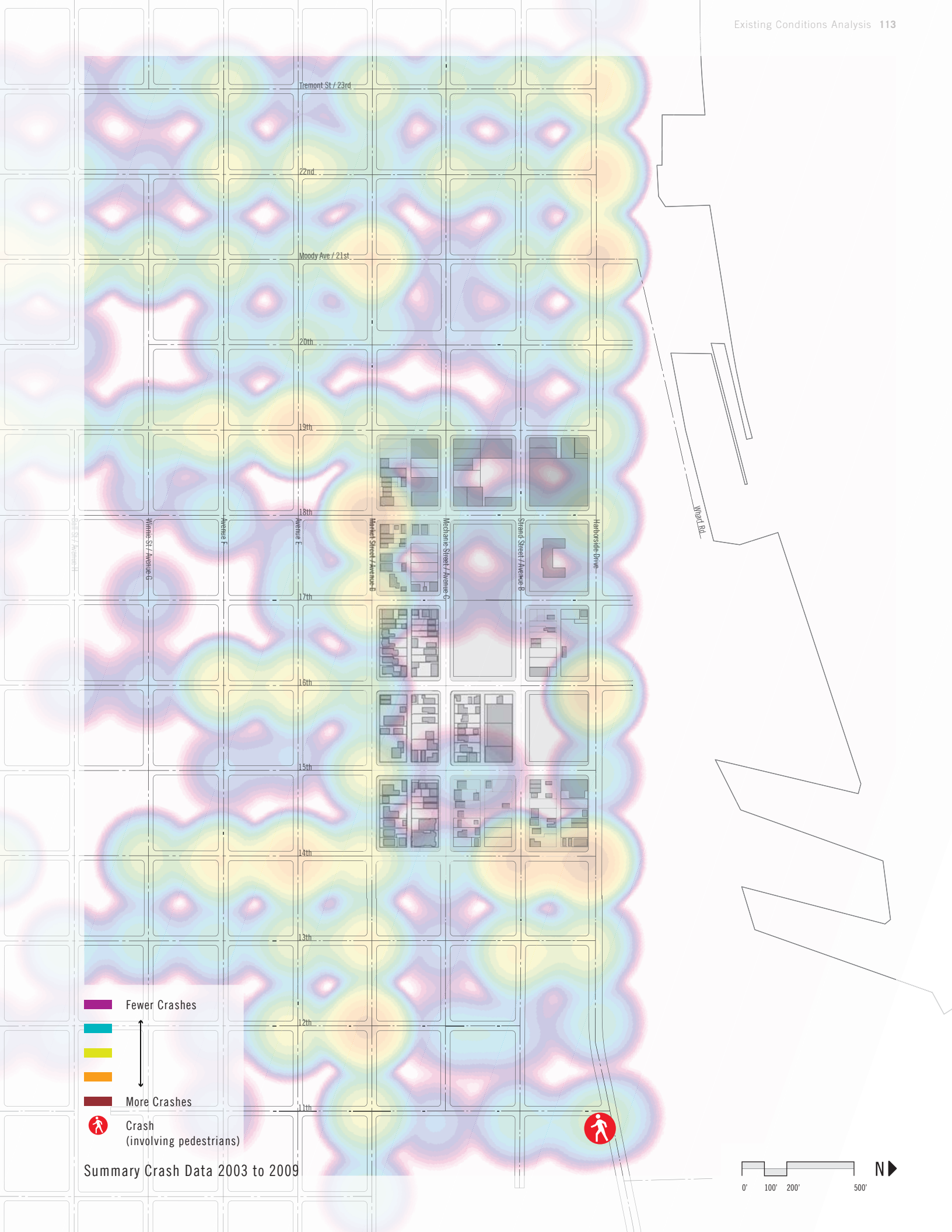
	Inside Study Area	Outside Study Area
Total crashes	100	216
Crashes per intersection	4.2	3.9
Pedestrian / bike crashes	0	1
Injury crashes	40	58
Injury crashes per intersection	1.7	1.1

According to data, a total of 100 crashes occurred within the study area between 2003 and 2009. At least one crash occurred at 21 out of the 24 intersections within and adjacent to the study area. On average, each intersection in the study area experienced 4.2 crashes. A total of 216 crashed occurred on the roads and intersections outside the study area within the same time period. The number of crashes per intersection outside of the study area was very similar to that within the study: approximately 3.9.

Only one crash involving a bicyclist or pedestrian was report between 2003 and 2009, and it occurred at or near the intersection of 11th Street at Harborside Drive. Forty crashes involving injuries or possible injuries were reported for roads within the study area, or approximately 1.7 per intersection. Fifty-eight such crashes were reported outside the study area, or approximately 1.1 per intersection. This disparity in injury rate does not appear to be attributable to any one factor and may simply be a statistical effect.

As indicated by the heat map on the opposite page, roads with higher-than-average numbers of crashes include Harborside Drive, Market Street / Avenue D, 14th Street, and 19th Street. Forty-five crashes occurred on 14th Street between Harborside Drive and Avenue E, or approximately 9 per intersection. Fourteen crashes occurred at the intersection of Avenue D at 18th Street, and eleven crashes occurred at the intersection of Avenue E at 19th Street. The elevated crash rates at these locations may simply be a reflection of the importance of 14th, 18th, and 19th Streets as north-south thoroughfares, and Market Street as an east-west thoroughfare, as discussed in the existing conditions roads and right-of-ways section.

Eighty-two crashes occurred along Harborside Drive between 23rd / Tremont Street and 11th Street, or approximately 6 crashes per intersection. Harborside Drive is the principal east-west arterial on the north side of Galveston Island and carries significantly more traffic than most other roads in the vicinity. Because of the higher amount of traffic, a corresponding higher number of crashes is predictable and not necessarily indicative of any particular safety issues.



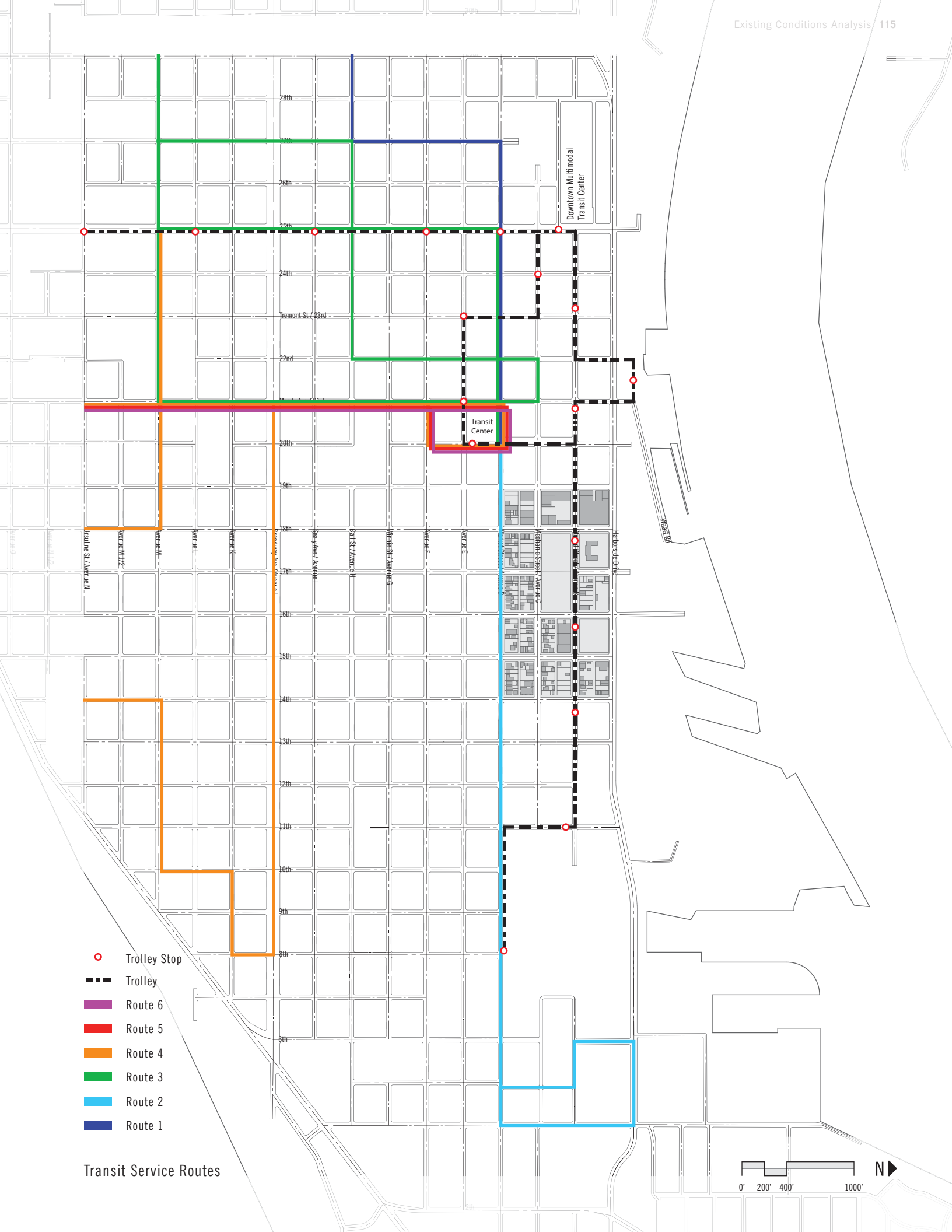
Summary Crash Data 2003 to 2009

Transit Use and Safety Conditions

Island Transit is the City of Galveston's transit system. It provides seven fixed-route bus systems, operating at 30 minute (routes 1, 2, 4, 6 and 7) or 1 hour (routes 3 and 5) headways. Saturday and Sunday service is also available, typically with longer headways or combined routes. As shown on the map on page 115, Route 2 provides service directly adjacent to the Livable Centers Study Area along Market Street. Full fares are $1 for a one way trip and $37.50 for a monthly pass. Reduced fares are available for students, seniors (over 65) and disabled passengers. Island Transit also operates a demand response Dial-a-Ride Transit (DART) system for reserved rides within the study area. The City is also in the process of developing a downtown multi-modal transit center at 25th Street and the western end of Strand. This will serve as a central hub for the various transit routes upon its completion and would potentially serve as a distribution point from the proposed Galveston commuter rail to Houston, which would drop passengers less than one block west of the transit center. An existing transit terminal is located on 20th Street between Market Street and Avenue E (Post Office), which serves as a central transfer point between bus routes 3, 4, 5 and 6 as well as the Seawall to Strand trolley when it is in operation. Its location, one block (350 feet) from the Livable Center Study area, provides excellent access between the study area and the majority of the Island Transit's service area. The transit terminal is approximately ½-mile from the farthest point within the study area, which is within walking distance for a large percentage of transit users.

Beginning in 1988, the City of Galveston operated a single-track, fixed rail trolley which was damaged during Hurricane Ike in 2008, and has been out of operation ever since. When operating, the trolley provides two routes: one connecting Seawall Boulevard and 25th Street to the planned downtown transit center at 25th Street at the Strand, and the other connecting a loop around the Historic Strand District to UTMB. The City has made efforts to repair the trolley system, though the current City Council has expressed mixed opinions on reviving the trolley system. UTMB has expressed a desire to have the route between the Strand and UTMB restored and double tracked in places to provide more frequent, more reliable, direct service between these destinations. This route would provide direct service to the Livable Centers Study Area and several attractive, sheltered trolley stops that exist along Strand.

Photos Island Transit operating buses



Transit Service Routes

Parking: On-street

Currently the on-street parking network is made up of a patchwork of unrestricted parking and a variety of parking restrictions for students and residents. These restrictions are based on the adjacent land uses and the various peak periods for different types of parking. Along several streets, parking is restricted to two hours, along others, it is restricted to residents with hang-tags. There is no evidence of an existing shortage of parking in the vicinity of the study area.

Existing Parking Supply

On-Street Parking Management Policies and Enforcement

On-street parking in the study area is controlled via signage. There are currently no parking meters in the study area. The on-street supply includes 670 non-metered spaces.

Surface Parking Occupancy Survey 1

The study team conducted a parking occupancy survey in the study area on Thursday, August 18, 2011, between the hours of 10:30 a.m. and 12:00 p.m. The survey included only on-street parking. The total occupancy recorded during the timeframe was 147 cars (22%).

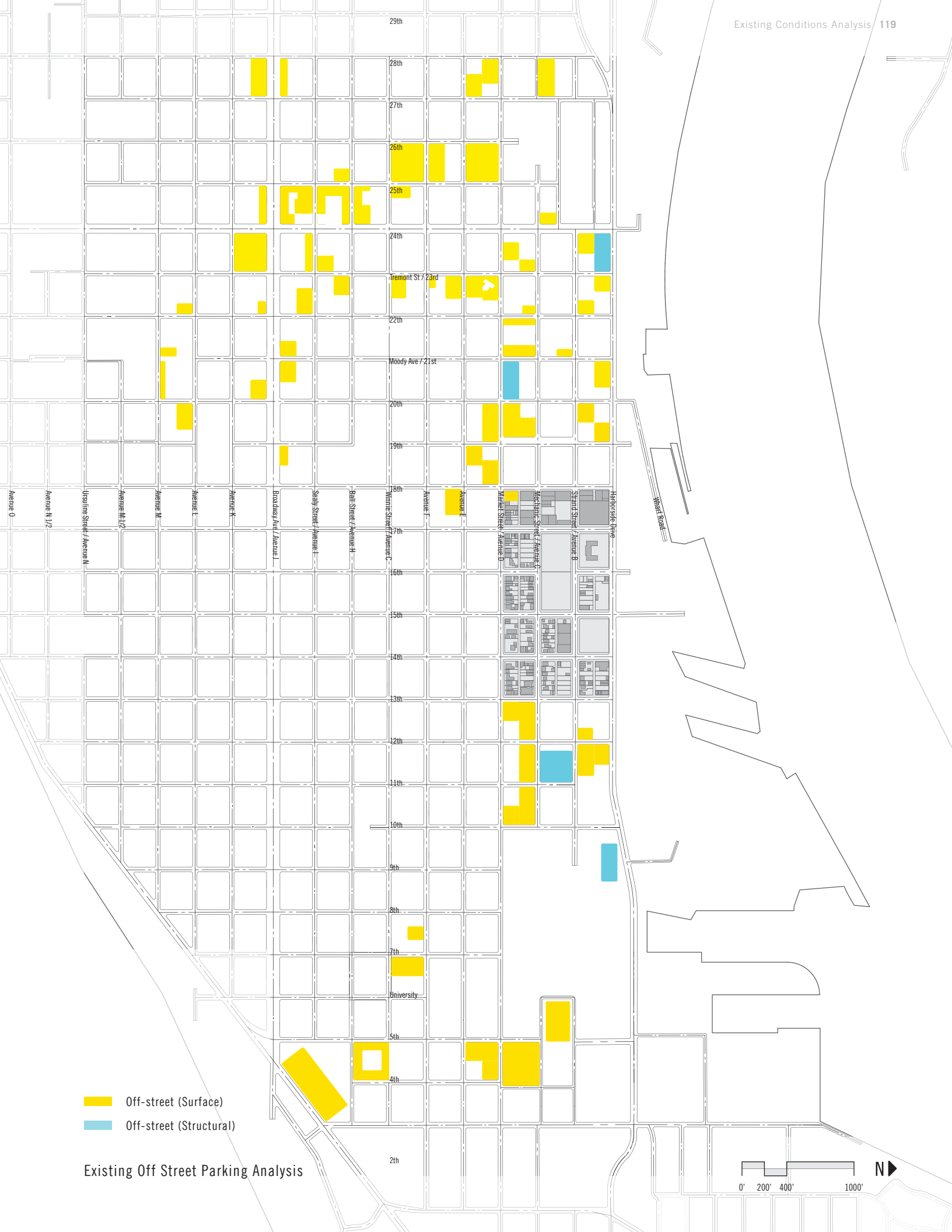
On-Street Parking Occupancy Survey

On-Street Parking Conditions

Parking: Off Street

There is significant off-street parking located around the two main activity centers on either side of the study area, the Downtown Strand retail and commercial center and UTMB. These facilities appear to have adequate capacity to handle the parking demand except during the highest peak occasions for the existing land use demand. Managing parking supply as redevelopment occurs will likely be necessary given the high degree of regulated on-street parking that is already in place.

Photos Off-street parking near the Study Area



Existing Off Street Parking Analysis

Urban / Architectural Typologies

The original street grid and block configuration on which Galveston was planned and developed is fundamental to understanding unique qualities that define both the commercial and residential neighborhoods of the city. The street and avenue grid laid out by John Groesbeck in 1938, biases certain orientations and configurations, but has shown itself remarkably flexible in its adaptation of functional and formal typologies for over 170 years.

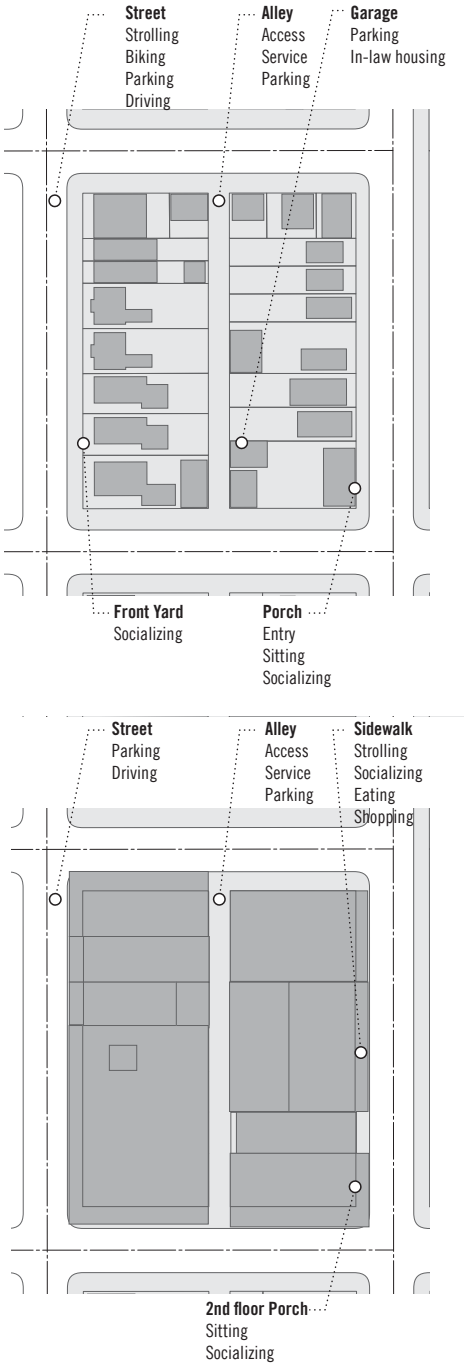
The *Typical Galveston block* is 300 foot by 260 feet, divided into seven 42-foot -10-inches by 120-foot - 0-inches plots oriented north and south. This holds through the old part of the city. It is constraint between land uses and remained steady as the city developed from simples shacks to palatial mansions.

In residential areas like the East End, these long narrow plots necessitated that the yards be minimal with the building's 'footprint' covering most of the ground area. This created very small side yards and front yards that are minimal resulting in the residential neighborhoods, in a denser configuration than what was typical of the time. This density created a streetscape that is more typically considered 'urban' than domestic. Broad sidewalks are typically bounded by landscaping and trees on the street side and low and porous fences on the other. A small front yard leads to gracious stairs that loads to what is typically a covered porch. The street is a public space, the house is private, and the yard and porch form a transition between the two. The change in elevation from the street at grade to the porch on pier and beam marks a transition between the public and private zone. This layered sectional promenade from street to front door creates a very rich and unique social space that is surprisingly domestic and urban. It is the streetscapes enabled by this specific typology that are the hallmark of the uniqueness of Galveston's historic neighborhoods.

On The Strand, lots were combined to build three-story warehouses and commercial buildings that occupied the full lot from street to alley. Here, elevated wooden sidewalks shaded by porches protected pedestrians from the elements and the dirt of the streets. These commercial porches, too, function as a transitional space, where the public street meets the store, the café, the office, or the hotel, with goods or seating spilling out from the building to the sidewalk. On the second story, the tops of the porches could function as balconies and social spaces that overlooked the street and were communicated from one block to another.

The twenty foot wide alley called for in Groesbeck's plan created a service zone at mid-block which has its own definitive spatial and social qualities. Originally intended as a place to visually screen horses and carriages, the alley also typically contained housing for domestic servants. They alleys of Galveston adapted easily to the car and provided much needed low cost rental housing for many Galvestonians.

These 'secondary' streets developed their own unique ethnic and social dynamics with a very rich and important history. The apparent simplicity of the layout of the Galveston block is belied by the incredible diversity and sophistication with which it has evolved over the history of the city. The future redevelopment of the historic core of the Island is hinging on the thoughtful mining of this very distinct morphology and allowing it to continue to enable and foster the social diversity that has been a part of Galveston since its inception.



Top Residential Block | **Bottom** Commercial Block

Top Residential Street Section | **Bottom** Commercial Street Section

Environmental

Galveston is located on a barrier island where Galveston Bay meets the Gulf of Mexico. The meeting of ocean, estuary, and land creates an extraordinary ecosystem and unique landscapes; it also comes with its own set of geological hazards.

Galveston Bay, nearly 600 miles in area, extends 30 miles inland and is 17 miles wide at its widest point. Three openings to the Gulf of Mexico, the Trinity River, the San Jacinto River, and numerous bayous create a mix of saltwater and freshwater that supports fish, shellfish, seabirds, and dolphins. The bay is an important stopover for migratory birds on the Central Flyway. Its fisheries produce more seafood than any other U.S. Estuary except Chesapeake Bay.

While the east side of Galveston Bay is relatively undeveloped, the west and north sides are ringed with industry and urban development. The resulting pollutions, including sewage, storm water runoff, and industrial point sources, has degraded the ecosystem, lowering dissolved oxygen, enabling bacterial growth, and introducing heavy metals. As a result, close to half the bay's shellfish harvesting areas have been closed. However, efforts to improve sewage treatment, eliminate storm water overflows, and treat industrial pollution have made some headway.

Galveston Island itself is a typical Texas Barrier island, 27 miles long and 1 to 3 miles wide, built up of sand and silt with no natural bedrock. Natural elevations were less than 10 feet above sea level; man-made fill (especially after the 1910 Hurricane) has raised part up to 20 feet. Like all barrier islands, Galveston tends to shift over time dues to beach erosion and sand redeposit. The construction of Seawall and breakwaters and beach restoration programs have arrested these natural processes, but storms can still cause dramatic changes to Island's topography.

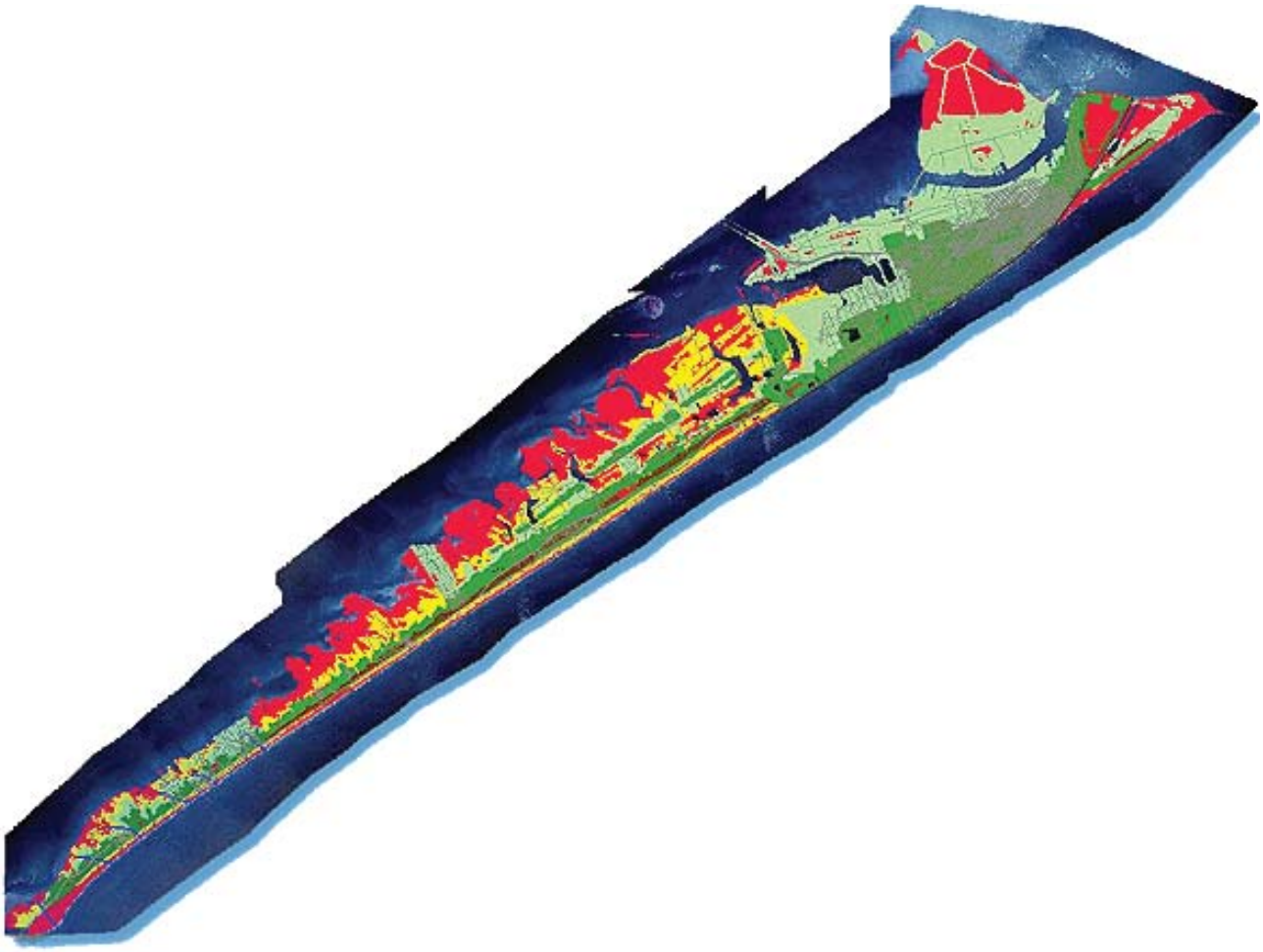
The most dramatic environmental threat on the island is hurricanes. The 1900 Hurricane, with 145 mph winds and a 15-foot storm surge that submerged the entire island, was the deadliest is U.S. History, killing 6,000 to 12,000 people. Other major storms hit in 1891, 1909, 1915, 1932, 1934, 1942, 1943, 1945, 1947, 1949, 1957, 1959, 1963, 1983 (Alicia), 1989 (Jerry), and 2008 (Ike.) Weather forecasting and evacuation procedures put in place after 1900, have dramatically reduced the death toll, but property damage remains a major risk. However, Ike proved that buildings, whether wood-framed residential buildings or commercial, built to modern building codes can withstand a storm.

The greatest threat from hurricanes remains the storm surge. The Galveston Seawall takes the brunt of waves from the ocean, but it does not circle the Island, so the water rises up from the bay side and the city floods starting from Harborside Drive. In the worst case situation — a Category 5 hurricane whose eye passes just to the west — the entire island will be under water. Current National Flood Insurance Program FIRM maps place the study area in zone "AE" (floodplain without high-velocity wave action) with a flood elevation of 11, some 7 to 9 feet above grade. This is expected to be increased in the next FIRM release. Galveston building codes as well as national flood insurance regulations require that the lowest occupied floors of all buildings be raised above the flood elevation. Historic structures are exempted from these requirements, but new buildings in historic areas are not. This a major challenge in integrating new construction in existing neighborhoods and in creating walkable urban streets in flood areas.

Groundwater aquifers are present below the city. Historically, excess groundwater withdrawals resulted in extensive subsidence around Galveston Bay, so most wearer uses have been converted to surface sources.

The study area has historically had a mix of residential, industrial, and commercial uses. As a result, soil contamination from past uses may be present. An investigation of this is not within the scope of this study.

Photo Port of Galveston and City of Galveston seen from the Bolivar Ferry



- Open Water: Bay, ocean, natural or excavated ponds and swales that are always inundated.
- Imminent Geohazard Potential—Present Critical Environments: Salt and freshwater wetlands, including beaches, tidal flats, and marshes. Along Gulf of Mexico shoreline, including beaches and foredunes.
- High Geohazard Potential—Future Critical Environments: Areas expected to become critical environments (see above) in 60 years' time (2062) if historical rates of relative sea-level rise and shoreline change continue and if development or restoration projects do not affect natural processes.
- Moderate Geohazard Potential—Upland: Upland areas generally less than 5 feet above sea level that are not expected to become critical environments during the next 60 years (2062) (see above) but may be affected by storm surge caused by typical tropical storms or category-one hurricanes.
- Low Geohazard Potential—Island Core Upland: Centrally located upland areas generally more than 5 feet above sea level and not expected to become critical environments in 60 years' time (2062).
- Special Hazard Zone Washover Area—Area with Enhanced Potential for Washover: Particularly susceptible to storm surge completely washing over the island during a hurricane.
- Special Hazard Zone Washover Path—Past and Potential Future Washover Pathways: Places where Hurricane Carla (1961) cross-island storm-surge flow was concentrated and where it may be concentrated during future hurricanes.
- Natural Protective Beach/Dune Ridge—Relatively high beach/dune ridge complex set in a seaward location, forming a natural barrier to storm surge from the Gulf. Generally greater than 6.5 feet above sea level but may encompass lower areas, including marsh and open water, as part of the complex.
- Galveston Seawall: Seawall with top approximately 14 feet above sea level, forming an effective barrier to shoreline retreat and storm-surge flow from the Gulf

Bureau of Economic Geology
Galveston Island Geohazard Map

Appendix

Record of Public Outreach

Public Involvement Plan

As part of Houston-Galveston Area Council (H-GAC) initiatives to address mobility challenges and quality of life within the eight-county region, a study was conducted to develop a plan for a Livable Center of a 15-block area in Downtown Galveston. The study seeks to create walkable, mixed-use places that provide multi-modal transportation, improve environmental quality and promote economic development.

In conjunction with H-GAC, the project sponsors included the Galveston Housing Authority and Historic Downtown Strand Seaport Partnership. The goal of the Livable Centers Study: *to create a plan that analyzes the safety and quality of life of the pedestrian environment and identifies existing and potential pedestrian generators to provide solutions for implementing a successful pedestrian environment.*

- Actively engaging the public in the decision-making process was an integral part of the study, with key initiatives providing invaluable guidance.
- Present options to the public in a clear and objective manner.
- Allow the public the opportunity to debate issues.
- Frame alternative solutions that will affect the final decision.
- Maintain dialogue during the decision-making process between agency and non-agency partners.
- Use a variety of techniques to target different groups and ensure people are not left out of the process.
- Engage in communication and approaches that elicit comments, participation and feedback from the public.
- Consider and evaluate all suggestions from the community.

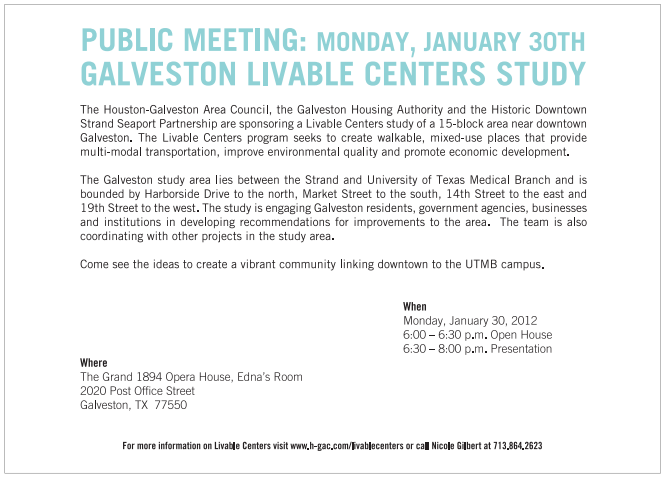
Public Involvement Approach

A primary group was targeted for this study, the group providing unique perspectives in relation to the project:

Stakeholder Advisory Committee:
This team provided leadership on the direction of the study and many may be responsible for moving the final recommendations and projects forward after the study is complete. This group also provided guidance for suggested stakeholder focus groups.

Members included representatives of the following groups:

- American National Insurance Company
- Andro Diagnostics
- Beck Disaster Recovery
- CDM
- City of Galveston, Assistant City Manager
- City of Galveston, City Engineer, Construction Manager
- City of Galveston, Council Member, District 3
- City of Galveston, Director of Public Works
- City of Galveston, Director Parks and Recreation
- City of Galveston, Economic Development
- City of Galveston, Interim City Manager
- City of Galveston, Mayor
- City of Galveston, Planning & Development
- East End Historic District Association
- East End Preschool
- EJP Consulting Group, LLC
- First Presbyterian Church Galveston
- Floors and Tops
- Galveston County African American Coalition
- Galveston Alliance of Island Neighborhoods
- Galveston Bible Church
- Galveston College
- Galveston County, Commissioner, Precinct 3
- Galveston County, Judge
- Galveston County Daily News, Editor
- Galveston Economic Development Partnership
- Galveston Friends Church
- Galveston Historic Foundation
- Galveston Housing Authority
- Galveston ISD
- Galveston Open Government Project
- Harris & Eliza Kempner Fund
- Historic Downtown Strand Seaport Partnership
- H-GAC
- Housing and Urban Development (HUD)
- Island Transit
- Joe Tramonte Realty



PUBLIC MEETING: MONDAY, JANUARY 30TH
GALVESTON LIVABLE CENTERS STUDY

The Houston-Galveston Area Council, the Galveston Housing Authority and the Historic Downtown Strand Seaport Partnership are sponsoring a Livable Centers study of a 15-block area near downtown Galveston. The Livable Centers program seeks to create walkable, mixed-use places that provide multi-modal transportation, improve environmental quality and promote economic development.

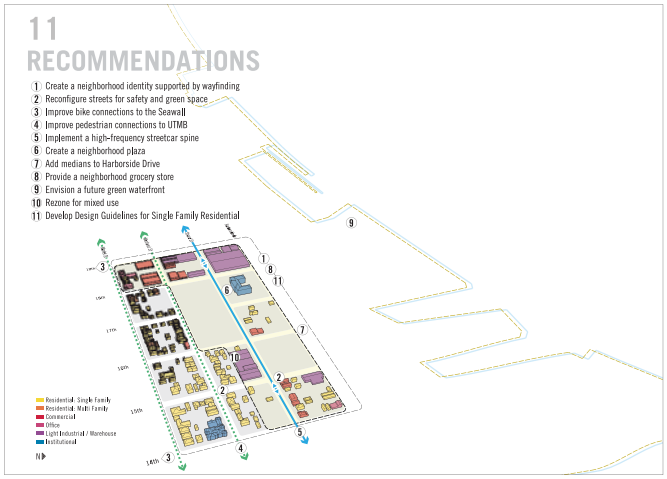
The Galveston study area lies between the Strand and University of Texas Medical Branch and is bounded by Harborside Drive to the north, Market Street to the south, 14th Street to the east and 19th Street to the west. The study is engaging Galveston residents, government agencies, businesses and institutions in developing recommendations for improvements to the area. The team is also coordinating with other projects in the study area.

Come see the ideas to create a vibrant community linking downtown to the UTMB campus.

When
Monday, January 30, 2012
6:00 – 6:30 p.m. Open House
6:30 – 8:00 p.m. Presentation

Where
The Grand 1894 Opera House, Edna's Room
2020 Post Office Street
Galveston, TX 77550

For more information on Livable Centers visit www.h-gac.com/livablecenters or call Nicole Gilbert at 713.864.2623



Flyer Invitation to Workshop and Public Meeting No. 1

CONT. Members included representatives of the following groups:

- Port of Galveston
- Purpose Built Communities
- Ronald McDonald House
- Taqueria Juarez
- The Goodman Corporation
- The Moody Foundation
- The Original Mexican Cafe
- Transitional Learning Center
- Texas Department of Housing & Community Affairs
- US Army Corps of Engineers
- University of Texas Medical Branch UTMB

It is essential to promote honest, educational and active two-way communication with the public, listening to their comments and concerns, keeping them informed while addressing their concerns and giving them an opportunity to participate in the study. This includes all parties interested in the study, regardless of whether or not they have a direct connection to the study area.

Public Involvement Events

To adequately involve the general public, area stakeholders and local citizens, various meetings were held for different targeted audiences to gain informative and productive feedback.

Stakeholder Advisory Committee Meetings:
The SAC participated in meetings that were scheduled throughout the project duration as focus groups as well as individually to cover topics of interest to specific groups and to coordinate with other projects active in the study area.

One-Day Workshop:
The project team orchestrated a one-day workshop on October 24th, 2011, to identify the study's core principles, seek input and ideas, and develop design solutions and concepts. Key stakeholders were invited to participate in targeted discussions according to these four topics:

1. Transportation
2. Place and Identity
3. Commercial Services / Community Services / Economics
4. Green Infrastructure

The results of the workshop provided the basis for outlining projects and recommendations.

Public Open House / Public Meeting:
A three-hour open house format meeting was held on January 30, 2012, to introduce the project and present existing conditions as well as to display the outcomes of the workshop to the general public. Many individuals who had participated in the workshops attended the public meeting to learn the outcome of their input, as well as area residents, real estate agents and business owners.

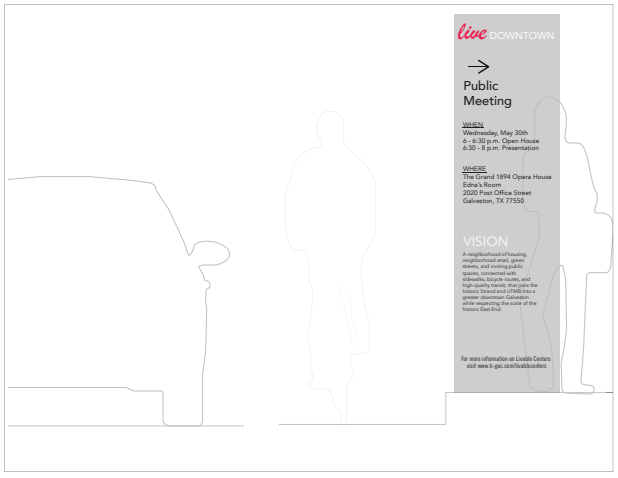
Final Public Meeting:
The final public meeting was held at The Grand 1894 Opera House, Edna's Room in Galveston, Texas. The meeting was held on May 30, 2012, to present final draft recommendations and collect comments and feedback.

Publicity Approach

To ensure adequate attendance from the public, a variety of methods were used to publicize the meetings to the community. The goal was to reach people of all socioeconomic and cultural backgrounds in providing awareness of the project as well as to maximize input to direct future implementation. H-GAC, the City of Galveston and UTMB played an active role in publicizing the events through their newsletters and e-mail communications. Meeting notifications included postcards mailed and distributed to area residential complexes and at community meetings.

Meeting Summary

After each meeting, a brief report was provided to all team members summarizing information gained from the meeting and utilized as a tool to develop and / or revise recommendations and shape the study's progress.



Flyer Invitation to Public Meeting No. 2

Stakeholder Advisory Committee (SAC)

NAME	POSITION	COMPANY	CATEGORY	E-MAIL
Moody, Robert	Chairman and CEO	American National Insurance Company	Business / Chamber	
Frederickson, Cathleen	CEO	Andro Diagnostics	Business / Chamber	
Buri, John		Beck Disaster Recovery	Parallel Project	jburi@BeckDR.com
Cloutier, Rick	Senior VP	CDM	Parallel Project	
Beeton, Elizabeth	Council Member, District 3	City of Galveston	Elected Official	
Bowling, Justin	City Engineer, Construction Manager	City of Galveston	Agency	
Grasso, Angelo	Director of Public Works	City of Galveston	Agency	
Jaworski, Joe	Mayor	City of Galveston	Elected Official	
Maxwell, Brian	Assistant City Manager	City of Galveston	Agency	
Muehlenbeck, Tom	Interim City Manager	City of Galveston	Agency	
Sanderson, Barbara	Director, Parks and Recreation	City of Galveston	Agency	
Schwarz, Lori	Assistant Director of Planning and Special Projects	City of Galveston	Agency	SchwarzLor@cityofgalveston.org
Yarborough, Jim	Economic Development Officer	City of Galveson, Economic Development	Agency	
Wilson, Eric		City of Galveston, Public Works	Agency	
Smelker, Mary	2011 President	East End Historic District Association	Homeowner Assoc	president@eastendhistoricaldistrict.org
Spence, Sara	Director	East End Preschool	Education	
Jepsen, Scott	Partner	EJP Consulting Group, LLC		jepsen@ejpconsultinggroup.com
Green, David	Pastor	First Presbyterian Church Galveston	Church, Venue	green@galvpres.net
Poretto, Mark	Owner	Floors and Tops	Business / Chamber	mark@galvestonfloorsandtops.com
Walters, Marvin	President	Galveston County African-American Coalition	Special Interest	galctyaac2010@aol.com
McMorris, Ralph	President	Galveston Alliance of Island Neighborhoods	Homeowner Assoc	info@gaingalveston.org
Galveston Bible Church		Galveston Bible Church	Church	
Shelton, Myles	President	Galveston College	Education	
Henry, Mark	Judge	Galveston County	Elected Official	Mark.Henry@co.galveston.tx.us
Holmes, Stephen D.	Commissioner, Precinct 3	Galveston County	Elected Official	holmess@co.galveston.tx.us
Taylor, Heber	Editor	Galveston County Daily News	Media	
Park, Leigh		Galveston Economic Development Partnership	Business / Chamber	park@gedp.org
Sjostrom, Jeff	President	Galveston Economic Development Partnership	Business / Chamber	sjostrom@gedp.org
Galveston Friends Church		Galveston Friends Church	Church	
Jones, Dwayne		Galveston Historical Foundation	Special Interest	dwayne.jones@galvestonhistory.org
Babalola, Samson	Development Manager	Galveston Housing Authority	Agency, Client	redm@ghatx.org
Banuelos, Teresa	Commissioner	Galveston Housing Authority	Agency, Client	tbanuelos@ghatx.org
Dennis, James	Vice Chairperson	Galveston Housing Authority	Agency, Client	JamesDennis@ghatx.org
Galveston Housing Authority		Galveston Housing Authority	Agency, Client	

NAME	POSITION	COMPANY	CATEGORY	E-MAIL
LaRue, Tom	Commissioner	Galveston Housing Authority	Agency, Client	TomLaRue@ghatx.org
Massey, Betty	Commissioner	Galveston Housing Authority	Agency, Client	BettyMassey@ghatx.org
Neff, Paula	Chairperson	Galveston Housing Authority	Agency, Client	paulaneff@ghatx.org
Purgeson, Mona	Interim Executive Director	Galveston Housing Authority	Agency, Client	
Nichols, Larry	Superintendent	Galveston Independent School District	Education	
Stanowski, David		Galveston Open Government Project	Special Interest	gogp@att.net
Thomas, Lyda Ann	President	Harris & Eliza Kempner Fund	Foundation	
Crews, Barbara K.		Historic Downtown Strand Seaport Partnership	Business / Chamber, Client	bkcrews@swbell.net
Sommer, Lesley	Executive Director	Historic Downtown Strand Seaport Partnership	Business / Chamber, Client	
Mergo, Cheryl	Sustainable Development Program Manager	Houston-Galveston Area Council	Client	cheryl.mergo@h-gac.com
Worthy, Michael	Director of Transportation	Island Transit	Agency	
Tramonte, Vincent		Joe Tramonte Realty	Realtor	
Barnes, Lynn	Principal	KIPP Coastal Village	Education	lynn_barnes@gisd.org
La Mixteca Mexican Restaurant		La Mixteca Mexican Restaurant	Business / Chamber	
Greenberg, Steve	Vice President Gov Affairs	Landry's Restaurants	Developer, Elected Official	stevegreenberg@cityofgalveston.org
Protz, Edward	President	Mary Moody Northen Endowment	Foundation	
DeGraaf Velazquez, Julie	Vice President	McCormack Baron Salazar	Parallel Project	julie.degraaf@mccormackbaron.com
Saunders, Michael	Vice President	McCormack Baron Salazar	Developer	mike.saunders@mccormackbaron.com
Adame, Renee	Dir of Mktg and Special Projects	Mitchell Historic Properties	Developer	radame@mitchellfamilycorp.com
Sernak, Steve	Port Director	Port of Galveston	Business / Chamber	scernak@portofgalveston.com
Murray, Anne	President	Ronald McDonald House	Medical	
Taqueria Juarez		Taqueria Juarez	Business / Chamber	
Carrara, John	Vice President	The Goodman Corporation	Agency, Parallel Project	jcarrara@thegoodmancorp.com
McLeod, Douglas	Director of Development	The Moody Foundation	Foundation	
Servos, Nicholas	Owner	The Original Mexican Café	Business / Chamber	
Masel, Brent	President and Medical Director	Transitional Learning Center	Medical	bmasel@tlcgalveston.org
Sallese, Christopher	District Engineer and Commanding Officer	U.S. Army Corps of Engineers	Agency	
Shriner, Mike	VP, Business Operations & Facilities	University of Texas Medical Branch at Galveston	Medical	mshriner@utmb.edu

Support for Recommendations in Previous Reports

PLAN / STUDY	1 Create a neighborhood identity supported by wayfinding	2 Reconfigure streets for safety and green space	3 Improve bike connections to the Seawall	4 Improve pedestrian connections to UTMB	5 Implement a high-frequency streetcar spine
City of Galveston 2010-2012 3-Year Consolidated Plan Community Development Block Grant (CDBG) & HOME Investment Partnership Program (HOME)		Projects for street improvements and sidewalks	More ped and bike infrastructure primarily around schools and along Seawall	More ped and bike infrastructure primarily around schools and along Seawall	
Comprehensive Housing Market Study					
City of Galveston Comprehensive Plan	The City needs to establish a master plan to identify a wayfinding network for visitors and tourists on the Island. This network should be unified for all attractions and eliminate the need for individual signage. The network should be designed around color-coding elements and provide clear directional information. Appropriate sign locations should be coordinated with the respective neighborhood associations. Any new signage program should include a comprehensive review of existing signs and the identification of signs that can be consolidated or removed.	Encourage the creation of scenic corridor buffers, particularly along the northern edge of new centers, with the setback area planted with a palette of landscape materials typically found on the Island. The City should review the current program of public infrastructure to improve and bring up to standard pedestrian sidewalks and street crossings and boost handicap accessibility and compliance with the Americans with Disabilities Act (ADA).	Identify strategies to connect the proposed commercial centers to pedestrian and bicycle facilities along FM 3005 and Stewart Road, and by designing such centers to be pedestrian-friendly. The City should work to create an island-wide hike and bike network to provide safe pedestrian and bicycle transport for the length of the Galveston Island and a connection to Pelican Island.		T-2.3 Improve Efficiency and Access to Public Transit. The trolley service was halted by Hurricane Ike as the original trolleys were severely damaged and will need to be repaired or replaced. This is an opportunity to increase efficiency by making them lighter and faster than the original trolleys.

6 Create a Neighborhood Plaza	7 Provide a neighborhood grocery store	8 Envision a future green waterfront	9 Add medians to Harborside	10 Rezone for mixed-use	11 Develop design guidelines for single family residential	12 Establish an economic development entity
Improve and enhance connections to parks and green spaces						Identify specific long-term and short-term community development objectives including economic development activities that create jobs
	By redeveloping comprehensively, developers can redesign walkable areas with sufficient open space and support services; and by ensuring that residents have access to basic goods and services, as well as transportation, the city can ensure that these units are in demand.			Transportation corridor overlays, mixed-use guidelines and conservation districts would entail additional provisions specific to those goals. Zoning can often be overly permissive in scale and design to effectively maintain community character since use is the primary consideration. Formbased codes are an effective tool for guiding various design aspect such as scale and massing of structures to be contextually appropriate without mandating specific uses.		
	Island Transit should study how to provide efficient transportation to grocery stores for those neighborhoods that do not have ready access to a full-service grocery store. The City should promote convenient access to fresh food for all residents with an ideal walk of no more than one-half mile to fresh food through development of community gardens, farmers' market, smaller grocery stores, and home gardens.		Enhance Harborside Drive as a Highly Visible Entrance Corridor to the Cruise Ship Terminal, Downtown, and UTMB Prepare and support implementation of streetscape and public space improvement plans for 25th Street/ Rosenberg and Harborside Drive to provide lighting, trees, pedestrian amenities, and safe crosswalks.		The plan should address design guidelines and standards, to ensure Galveston's community character is maintained.	

PLAN / STUDY	1 Create a neighborhood identity supported by wayfinding	2 Reconfigure streets for safety and green space	3 Improve bike connections to the Seawall	4 Improve pedestrian connections to UTMB	5 Implement a high-frequency streetcar spine
	RECOMMENDATIONS				
Galveston Economics Reports	Wayfinding – cohesive signage strategy (brick roads)	Alleyway improvements, Street beautification Reintroduce street grid at 20th street Improve Downtown streets to improve connectivity	Need to create pedestrian-friendly sidewalks and bike trails Protect pedestrian and provide safe walk and bicycle paths	Enhance and encourage pedestrian traffic through landscape and amenities Need to create pedestrian-friendly sidewalks and bike trails	Trolley service between UTMB and cruise terminals critical Fun, fast, reliable, convenient public transit system
Galveston Historic Downtown Seaport Master Plan	Downtown Streetscapes & Wayfinding (6 Primary streets, 6 blocks each). Rosenberg Street to 19th Street and Harborside Drive to Winnie Street.	Downtown Streetscapes & Wayfinding (6 Primary streets, 6 blocks each). Rosenberg Street to 19th Street and Harborside Drive to Winnie Street. Convert barren, inhospitable streets into tree lined avenues and boulevards with lush landscaping and street activities.	Create a Downtown Transportation Plan that integrates pedestrians, bikes, and trolleys.	Create a Downtown Transportation Plan that integrates pedestrians, bikes, and trolleys.	Create an alternative transportation system connecting the gulf Seawall area, adjacent neighborhoods, UTMB, UTMF, Moody Gardens and other island attractions. Create a Downtown Transportation Plan that integrates pedestrians, bikes, and trolleys.
Galveston Hurricane & Healthy Neighborhoods Scenarios			Proportion of households without a motor vehicle Galveston may consider adopting a modified standard of encouraging car ownership, but also creating a built environment that favors walking / bicycling / public transportation over single car transportation for routine daily activities. Pursuing policies such as increasing the walkability of neighborhoods, promoting mixed-use zoning, installing bike lanes and paths, and evaluating the efficiency of public transportation may be worthwhile considerations.	Proportion of households without a motor vehicle Galveston may consider adopting a modified standard of encouraging car ownership, but also creating a built environment that favors walking / bicycling / public transportation over single car transportation for routine daily activities. Pursuing policies such as increasing the walkability of neighborhoods, promoting mixed-use zoning, installing bike lanes and paths, and evaluating the efficiency of public transportation may be worthwhile considerations.	Proportion of households without a motor vehicle Galveston, or having access to one, is an important safety and resources concern with the threat of evacuation due to an approaching storm. As such, Galveston may consider adopting a modified standard of encouraging car ownership, but also creating a built environment that favors walking / bicycling / public transportation over single car transportation for routine daily activities. Pursuing policies such as increasing the walkability of neighborhoods, promoting mixed-use zoning, installing bike lanes and paths, and evaluating the efficiency of public transportation may be worthwhile considerations.

6 Create a Neighborhood Plaza	7 Provide a neighborhood grocery store	8 Envision a future green waterfront	9 Add medians to Harborside	10 Rezone for mixed-use	11 Develop design guidelines for single family residential	12 Establish an economic development entity
Parks (dog walking areas), 19th St. and Post Office	Retail to support residents (grocery, pharmacy, etc.)					Economic Development Authority and advertising campaign events promotions
Transform parking lots in strategic locations into parks and outdoor recreation areas. Convert barren, inhospitable streets into tree lined avenues and boulevards with lush landscaping and street activities.		Create an accessible waterfront for pedestrians and visitors to the island by providing a continuous promenade along the waterfront.	Harborside Drive Improvements from 26th Street to UTMB campus	Create an upper floor mixed-use strategy plan to integrate a diverse variety of uses (i.e. workplace, educational, institutional, government, hospitality, housing, cultural, entertainment, medical, and support services).		Redevelopment Management
Proportion of population within ¼ mile of a neighborhood or regional park Identify potential vacant and / or abandoned tracts of land within neighborhoods that could be developed into public open space. Develop long-term plan for improving amenities across all parks to include outdoor recreational facilities, picnicking facilities, comfort amenities such as access to water and public restrooms, parking, sports fields, fishing / crabbing, and other outdoor activities.	Proportion of population within ½ mile of a supermarket Encourage the recruitment of additional full service grocery stores at strategic locations, development of new or enhancing existing corner markets and other related stores to carry a more broad range of affordable and healthy foods, or improving the accessibility to existing grocery stores. Proportion of retail food establishments that accept state / federal food assistance programs This could include addressing where these resources are located or the means in which people can access them (such as evaluating the role of public transportation).			Proportion of land zoned for commercial and residential uses Promote mixed-use zoning as recovery and development efforts continue to encourage locating amenities conducive to improved health and quality of life closer to where people live, work, and play. This could include leveraging the development of vacant and / or abandoned areas for development.		Income inequality Encourage the development of economic drivers to promote the creation of new jobs with salaries compatible with a living wage for the area.

PLAN / STUDY	1 Create a neighborhood identity supported by wayfinding	2 Reconfigure streets for safety and green space	3 Improve bike connections to the Seawall	4 Improve pedestrian connections to UTMB	5 Implement a high-frequency streetcar spine
Galveston Pedestrian and Bicyclist Plan		Curb extensions on Seawall Boulevard. These areas would allow pedestrians waiting for the traffic signal to queue out of the way of bicyclists and other users of the Seawall. It also reduces the distance and time required for pedestrians to cross Seawall Boulevard, improving safety. 4 extensions at each of 4 intersections—Seawall at 6th, 25th, 45th, and 53rd.	Develop Bikeway Network A network of bicycle facilities would be developed on the Island, with a grid pattern providing access throughout the study area. Bicycle Lanes on North-South Streets—these streets have wider pavements and would have separate, delineated bicycle lanes. 5.6 linear miles on 5 streets (4th, 8th, 23rd, 37th, 51st) Bicycle Routes on East-West Streets—these streets have narrower pavements and would have signage and pavement markings identifying them as bicycle routes. 9.4 linear miles on 4 streets (Market / Post Office / Church, Ave. L, Ave. R, Ft. Crockett)	Pedestrian Improvements between Downtown to UTMB (including Magnolia Homes) To provide another pedestrian route from the transit center at 20th Street to the western edge of UTMB, and to improve pedestrian access to the Magnolia Homes public housing complex, repair sidewalks and install curb ramps along the following routes: Mechanic Street—10th to 20th 16th Street—Strand to Market 18th Street—Strand to Market The Strand—16th to 18th	
Galveston Rail Study					Commuter Rail Alternative. Construct parallel commuter rail tracks at selected locations (sidings) in existing GH&H railroad Right of Way from UTMB to a station in the vicinity of IH-610 / Lawdale Street. Station stops at UTMB, the proposed Galveston transit terminal, Texas City / La Marque, Dickinson, Webster, Ellington, South Houston, IH-610 / Lawdale, Congress Yard and Burnett Plaza. Three options being evaluated from IH-610 / Lawdale Station to Congress Yard. 1 Extend commuter tracks on new R.O.W. to Harrisburg Blvd to connect to extended East End light rail line. 2 Continue in existing GH&H R.O.W. to proposed Congress Yard. 3 Turn south on UP R.O.W. parallel to Griggs Rd then north on BNSF R.O.W. to Congress Yard. Twenty-minute peak-period headways at each station

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Envision a future green waterfront

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Establish an economic development entity

PLAN / STUDY	1 Create a neighborhood identity supported by wayfinding	2 Reconfigure streets for safety and green space	3 Improve bike connections to the Seawall	4 Improve pedestrian connections to UTMB	5 Implement a high-frequency streetcar spine
RECOMMENDATIONS					
Housing Galveston's Future: An Assessment of Trends and Post-Ike Plans					
Trolley Extension Street Car Extension Study					Propose a 1.5 mile extension of the existing fixed rail trolley system from Downtown to UTMB and farther to Stewart Beach on the Gulf of Mexico. The city has identified two phases for construction purposes. The first phase is a 0.8-mile minimum operable segment that is a single-track extension with passing track. Phase 2, 0.7 miles in length, will complete the extension to Stewart Beach. The proposal incorporates transit-oriented pedestrian and ADA improvements between the trolley system and Magnolia Homes, a public housing project for low-income persons along the corridor, and to the UTMB campus.

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					New, diverse housing stock accessible to all income levels is needed on the Island. 1 An analysis of housing preferences among the middle class population the city would like to attract to the island is needed to determine the correct mix of old and new housing. 3 To address the existing housing shortage on the Island, partner with developers and the housing authority to build a mix of both rental and owner-occupied low, moderate, and middle income housing.	

PLAN / STUDY	RECOMMENDATIONS 1 Create a neighborhood identity supported by wayfinding	2 Reconfigure streets for safety and green space	3 Improve bike connections to the Seawall	4 Improve pedestrian connections to UTMB	5 Implement a high-frequency streetcar spine
ULI National Report / Ike Recovery Plan	Establish a complete street ordinance for all roads and a hierarchy and design standard including build to lines, signage, and tree and sidewalk standards for all corridor and connector roads.	Establish a complete street ordinance for all roads and a hierarchy and design standard including build to lines, signage, and tree and sidewalk standards for all corridor and connector roads. The panel envisions implementing the streetscape enhancement already called for in the recovery plan—landscaping, street furniture, lighting, signage, and public art.	Develop better physical connections within the historic core neighborhoods—especially the Strand, UTMB, and the Seawall—for pedestrians, cyclists, transit passengers, and vehicles;	Develop better physical connections within the historic core neighborhoods—especially the Strand, UTMB, and the Seawall—for pedestrians, cyclists, transit passengers, and vehicles;	
ULI Sustainable Neighborhoods for Galveston	Signage and lighting should reflect the design / architecture standards of Galveston.	Street improvements should include curbs, gutters and sidewalks Greening of areas adjacent to streets is important in that it provides visual and environmental enhancements as well as an overall quality of life improvement			
UTMB Master Facilities Plan 2010-2035	Standardized site signage and wayfinding on UTMB campus		Growth corridor on University Blvd.	Growth corridor on The Strand. Sidewalks should be a minimum 6-feet wide with enhanced pedestrian lighting on UTMB campus.	

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	Nodes that will develop at the intersection of these corridors. The nodes will build on Galveston's vernacular of corner stores. Currently vacant corner properties will house uses ranging from groceries to cafes to galleries that will provide neighborhood services and create moments of vitality throughout Galveston's neighborhoods.			Establish special mixed-use overlay zones for each target development area including form-based codes. The panel recommends developing vacant parcels and brownfields east of the Strand into a thriving, mixed-use district linking the Strand to UTMB.	Establish a housing design program for restored and new housing development that creates the design and quality control to support and revitalize sustainable neighborhoods in the urban core Consider establishing design standards that re-create the historic tile sidewalks as a unique place-making statement.	Explore the possibility of using Economic Development Administration and other federal funds to support renovation in historic districts. Create a neighborhood business improvement district for historic districts with the funds to be invested in sidewalk and streetscape enhancements, lighting, and signage
Providing recreation and open space in support of housing				Providing regulatory and land use / zoning controls to limit the impact of incompatible land uses on residential neighborhoods. Plan and encourage mixed-use neighborhoods of the highest standards in terms of attractiveness, stability and viability.	Providing regulatory and land use / zoning controls to limit the impact of incompatible land uses on residential neighborhoods.	
				Program uses on ground floor where possible on UTMB campus		

Previous, On-going and Proposed Projects

PLAN / STUDY	STUDY TEAM	CLIENT	DATE COMPLETED	LINK
City of Galveston 2010-2012 3-Year Consolidated Plan Community Development Block Grant (BDBG) & HOME Investment Partnership Program (HOME)	City of Galveston Grants & Housing Department		April 2010	http://www.ghatx.org/Documents/2010%20Consolidated%20Plan%202010-2012.pdf
Comprehensive Housing Market Study	CDM (Camp Dresser & McKee)	City of Galveston Grants & Housing Department	June 2010	http://www.cityofgalveston.org/_private/newstool/newsdoc/10.06.29_FINAL_Housing%20Study%20Report.pdf
City of Galveston Comprehensive Plan	Comprehensive Plan Steering Committee		March 2011	http://progressgalveston.com/documents
Galveston Economics Reports	H&A Architects, Ewert & Company, Divaris Real Estate, Stephen Fuller	Galveston County, Historic Downtown Strand Seaport Partnership	December 2010	http://www.downtowngalveston.org/files/110124_galveston_economic_report.pdf
Galveston Historic Downtown Seaport Master Plan	H&A Architects, Ewert & Company	Historic Downtown Strand Seaport Partnership	November 2010	http://www.downtowngalveston.org/files/galveston_plan_book_final.pdf
Galveston Hurricane & Healthy Neighborhoods Scenarios	UTMB Center to Eliminate Health Disparities, Institute for Alternative Futures	Texas Department of Health and Human Services and H-GAC	June 2010	http://www.utmb.edu/cehd/Resources/UTM%20-CEHD-Hurricane-Scenarios-and-Maps%20Workbook.pdf
Galveston Pedestrian and Bicyclist Plan	Lockwood, Andrews, & Newman	H-GAC	September 2006	http://www.h-gac.com/community/qualityplaces/pedbike/publications/pedbike_galveston_island_study.pdf
Galveston Rail Study	The Goodman Corporation	City of Galveston		http://www.galvestonrailstudy.com/
Housing Galveston's Future: An Assessment of Trends and Post-Ike Plans	Georgia State University	Galveston Housing Authority	September 2010	www.ghatx.org/ORR.../Interim%20Report_One_updated.pdf
Trolley Extension **Street Car Extension Study**	The Goodman Corporation	Island Transit	November 2003	www.fta.dot.gov/documents/Galv1AA.doc http://www.thegoodmancorp.com/projects/project-list-2-2/trolley-extension/
ULI National Report / Ike Recovery Plan	Urban Land Institute		June 2009	http://www.uli-houston.org/PDF/090605GalvestonULINationalReport.pdf
ULI Sustainable Neighborhoods for Galveston	ULI Technical Assistance Panel		January 2010	http://www.uli-houston.org/PDF/1004SustainableNeighborhoodsTAPReport.pdf
UTMB Master Facilities Plan 2010-2035	Ford, Powell & Carson	UT System Board of Regents	February 2010	http://www.utmb.edu/construction/docs/2010-2035%20UTMB%20Facilities%20Master%20Plan.pdf

Air Quality

A significant outcome of the implementation of the study recommendations and the buildout of the study area would be an improvement in air quality. Air quality is a function of emissions from a variety of sources, including transportation, the ability of natural systems to absorb pollutants, and atmospheric chemistry. The latter two factors will not be significantly impacted by the study recommendations (though additional street trees may lead to localized benefits), but emissions can be reduced. Improved air quality benefits natural systems and reduces the health impacts of pollution.

The air quality benefits derived from implementation of the recommended improvements for the Greater Downtown Galveston study area were estimated based on the following methodology:

Population Shift

New market rate apartments in the study area are targeted at UTMB employees and students looking for higher quality housing than is currently available on the Island. These employees and students are currently choosing to live on the mainland. Nearly all currently commute by car. With the new housing, they will live closer to work, reducing their commute distance. With pedestrian, bicycle, and transit improvements, most will chose not to drive to work.

Trips Affected

The following assumptions were used to estimate the total trips produced in the catchment area:

- 2 trips per day, 5 days a week
- One-way commute distance of 30 miles (League City to Galveston)

Mode Shift

There are currently two travel options for the 8,000 UTMB employees who live on the Island: vehicles and the Victory Lakes park-and-ride. The park-and-ride carries 350 people per day (based on May 2012 figures). This is a transit modal share of under 5%. National data indicates that TODs can have transit work trip modal share of over 50% (Transit Cooperative Research Program Report 95, Transportation Research Board, 1997.

http://www.fta.dot.gov/documents/Transit_Oriented_Development_-_Traveler_Response_to_Transportation_System_Changes_TCRP_Report_95.pdf)

For trips under 1 mile nationally the walking / biking modal share is 30%. Thus, a 25% modal share for automobile trips from the study area to UTMB is reasonable.

http://www.railstotrails.org/resources/documents/whatwedo/atfa/atfa_20081020.pdf

VMT Reduction

The total vehicle miles traveled (VMT) were calculated based solely on daily commute; it was assumed that other daily trips would remain the same in distance and modal share. (This is a conservative assumption.)

Air Quality Benefits

The MOSERS 11.1 methodology was used to estimate emissions reductions. The estimates for the emissions per mile were used for the following air quality factors:

- NOx – 0.239 grams per mile
- VOC – 0.315 grams per mile
- CO – 3.732 grams per mile

Total emissions were annualized to determine the reduction in annual kilograms (kg) resulting from implementation of the vision that will result in a shift in mode share from vehicular trips to bike, ped, and transit trips, and from trip length reductions. Total estimated air quality benefits are provided on page 142, Table A.

Air Quality - Table A

New Residents				
Based on Full Buildout				
	new market rate apartment units in the study area	a	300	units
	residents per unit	b	1.5	people / unit
	total new residents on island	c=a*b	450	people

Former commute trip of new residents				
Based on UTMB employees and students currently living on the mainland				
	single occupant vehicle modal share	d	95%	
	daily average commute distance (one way)	e	30	miles
	average automobile occupancy	f	1.2	people
	daily car trips	g=c*d / f	356.25	trips
	daily vehicle miles	h=g*(e*2)	21375	miles
Emissions Factors	NOx	i	0.24	gm / mile
	VOC	j	0.32	gm / mile
	CO	k	3.73	gm / mile
Total Daily Emissions	NOx	h*i	5,117.39	gm / workday
	VOC	h*j	6,733.92	gm / workday
	CO	h*k	79,781.49	gm / workday

New commute trip of new residents				
Based on the same UTMB employees and students moving to multifamily adjacent to UTMB				
	single occupant vehicle modal share	d	25%	
	daily average commute distance (one way)	e	1	miles
	average automobile occupancy	f	1.2	people
	daily car trips	g=c*d / f	93.75	trips
	daily vehicle miles	h=g*(e*2)	187.5	miles
Emissions Factors	NOx	i	0.24	gm / mile
	VOC	j	0.32	gm / mile
	CO	k	3.73	gm / mile
Total Daily Emissions	NOx	h*i	44.89	gm / workday
	VOC	h*j	59.07	gm / workday
	CO	h*k	699.84	gm / workday

Emissions Benefits				
Daily Emissions	NOx		5,072.50	gm / workday
Reductions	VOC		6,674.85	gm / workday
	CO		79,081.66	gm / workday
	assumed annual weekdays		260	days
Annual Emissions	NOx		1,318.85	kg / year
Reductions	VOC		1,735.46	kg / year
	CO		20,561.23	kg / year