

# GALVESTON

ISLAND

## Park Board of Trustees



Tourism Transportation Study

December 2015

Prepared by:  
Knudson, LP  
Co-PLAN, LLC



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Tourist crossing at crosswalk on Seawall Boulevard at 25th Street



Tourist crossing Stand Street between 21st Street and 22nd Street



## Recent Accolades for Galveston Island:

Galveston listed No. 2 on "Best Spring Break Destination" - *USA Today's 10 Best Readers' Choice Travel Awards* (2014)

Galveston featured as *Coastal Living's* March 2013 "Dream Town" (2013)

Stewart Beach named No. 10 on "10 Best Beaches for Families" by *Family Vacation Critic* (2013)

Galveston listed No. 7 on "Top 10 Destinations on the Rise in the U.S." by *Trip Advisor* (2013)

Galveston named among Top 3 "Southern Hot Spots for Winter Meetings & Events" by *Convention South Magazine* (2013)

Rudy & Paco named one of the "Top 100 Best Restaurants in America" by *OpenTable* (2013)

Galveston listed No. 5 on "Top 10 Family Vacations in 2013" by *Family Critic* (2013)

Galveston Island State Park listed No. 2 on "Best Gulf Coast Beaches" list by *Travel Channel* (2013)

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# PROFILES

TRANSPORTATION - TOURISM - EXISTING CONDITIONS





# Purpose of the Tourism Transportation Study:

The transportation system of a tourist destination has an impact on the tourism experience which explains how people travel and why they choose different forms of holiday, destination, and transport. Accessibility can make or break a destination.

Transportation and travel can be discussed without taking tourism into consideration, but tourism cannot thrive without travel. Transportation is an integral part of the tourism industry. It is largely due to the improvement of transportation that tourism has expanded. The impacts on the ecology, degradation of destination sites, tourist experience, and economy has called for a better management of resources. In biodiversity-rich areas, opening of sensitive and fragile areas through improved infrastructure and service may prove detrimental to the ecology of the place. In the light of such issues, it is important to re-think the role of transportation in areas such as these. Though careful planning of the components of the destination is done to ensure sustainability, transportation is seldom considered in the process and due to this a number of biodiversity-rich areas have been destroyed due to the easy access.

Transportation links the various destinations and ferries people, goods, and services. Tourism is all about travel; and the role of transportation in its operation is vital. It is largely due to the improvement of transportation that tourism has expanded.

More than a dozen transportation studies were performed for the City of Galveston in the years preceding and since Hurricane Ike devastated Galveston Island in 2008. Numerous transportation improvement projects have been identified and recommended in those studies. Agencies including the City of Galveston, Galveston County, Galveston Wharves, Island Transit, Houston-Galveston Area Council (H-GAC), Texas Department of Transportation (TxDOT), and the Galveston Park Board have responsibilities for planning and implementation of improvements.

The City of Galveston is currently implementing a number of important transportation improvements that respond to the transportation needs and challenges on the island. Thoroughfare improvements include repaving of Seawall Boulevard in 3 phases, the repaving of 43rd and 45th Streets, along with the recent repaving of Boddeker Drive. Sidewalk repairs are being made along Broadway. A new bike route is installed along Stewart Road. The City is continuing the installation of pay stations for on-street parking. A downtown wayfinding system for pedestrians is enhancing walkability for downtown destinations. A new Downtown Intermodal Center is under construction by the Port of Galveston and will serve and promote passenger transfers between Island Transit buses, Cruise Terminal parking, rail trolley, and pedestrians. The City has committed to the restoration of the Galveston Trolley, connecting downtown, University of Texas Medical Branch (UTMB) and the seawall.

The purpose of this Tourism Transportation Study is to review previous plans and studies, summarize their recommendations and current status, and identify potential traffic relief solutions from existing traffic congestion issues that impact tourism and economic development. This Study is not a detailed mobility plan; it is intended to guide the Park Board of Trustees and the City of Galveston in prioritizing recommended solutions from previous studies that includes short-range improvements capable of implementation within 3 years and at relatively low cost and long-term recommended solutions that need further review and design to relieve congestion.



Passenger debarking from cruise terminal



Tourist riding bicycles and surreys on the seawall





# Visitor and Economic Profile:

Galveston is 60 miles from the 4th largest city in the United States. Galveston County and Galveston Island specifically with its proximity to Houston and the surrounding area, historical legacy and architecture, and natural features is primed to continue to draw millions of visitors and as well as new residents. These residents and visitors will undoubtedly desire improved quality of life enhancements including access to recreational elements. Galveston Island is poised to become the next great beach community and has the groundwork in place with its vast beaches, historical character, and proximity to a large population center.

The City has traditionally been a tourist destination due to its beaches and natural areas. However the City has expanded its offerings as a tourist attraction to include private recreational areas such as Moody Gardens and Schlitterbahn, large special events, cruise ship terminal as well as a convention center on Seawall Boulevard. In order to continue to see growth in the tourism industry, the City must provide the necessary framework to attract additional investments and visitors to Galveston Island.

The economy of Galveston Island should be strengthened and diversified by improving the competitive strength of traditional mainstays of the local economy, while developing new strengths by capitalizing on its assets of regional location, and its institutional and human resources. Tourist can be defined as a person, who makes a tour away from home for leisure, business or other purposes for more than 1 day but less than a year. The impact of the tourism industry can be classified into social and cultural impact, economic impact and environmental impact.

Social and cultural impact signifies the impact which it creates in terms of social changes in the lives of local people, improvements in infrastructure, lifestyle changes etc. Economic impact can be quantified in terms of monetary benefits and overall economic development of the society. Environmental impact refers to the impact on nature and surrounding areas.

### Positive Impact of Tourism:

To boost tourism huge money is invested to preserve the local heritage, to improve infrastructure, to provide better local facilities which in turn creates better education, better leisure facilities, organizing frequent social events and thus a better lifestyle for the local people. Due to the demand for better services, varied employment opportunities are created within the region and therefore people do not feel the need to migrate to other cities to earn their living.

The tourism industry contributes to the economic growth through factors like higher number of qualified professionals and better advertising and strategic marketing. Earning revenue through hotel occupancy tax (HOT) and sales tax on goods and services purchased by the tourists help the Island's economy.

source: *Types of Tourist and Profiles* by Samukelo Innocent Lyanda Nkonyeni

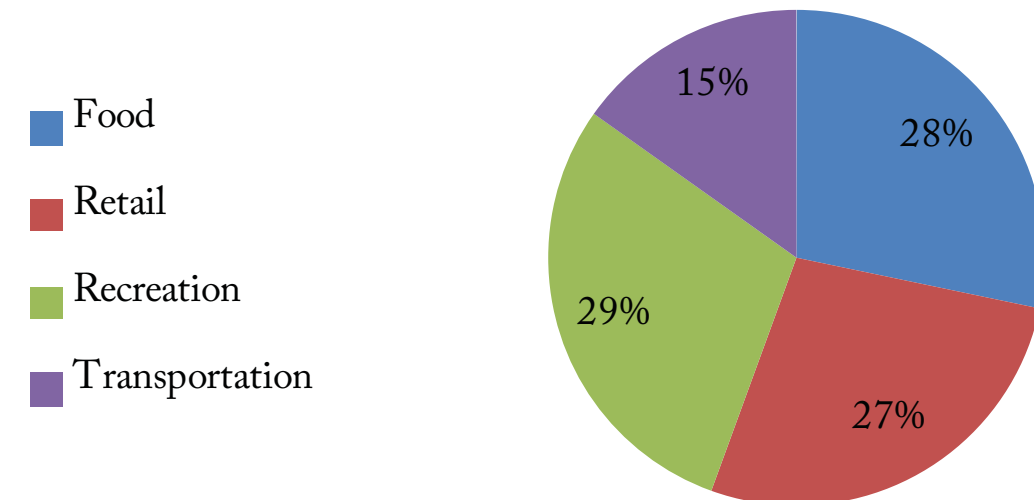
### Visitor Profile:

There are 4 main types of visitors to Galveston Island; day trippers, overnights, cruise passengers, and conventioners. The seasonal distribution of visitors helps understand the flow of travelers through the state.

Overnights were more likely to visit during the summer, while day trippers, cruise passengers, and conventioners seasonal distribution is more consistent throughout the year. Not surprisingly, auto transportation was the primary use of travel by both overnights and day-trippers.

Visitors to Galveston Island spent \$687.2 million in 2013, which generated \$951.8 million in economic activity to the Island's economy. The charts below identify spending by category for day trippers and overnights. An estimated 56.1% of all visitors were day trippers in 2013.

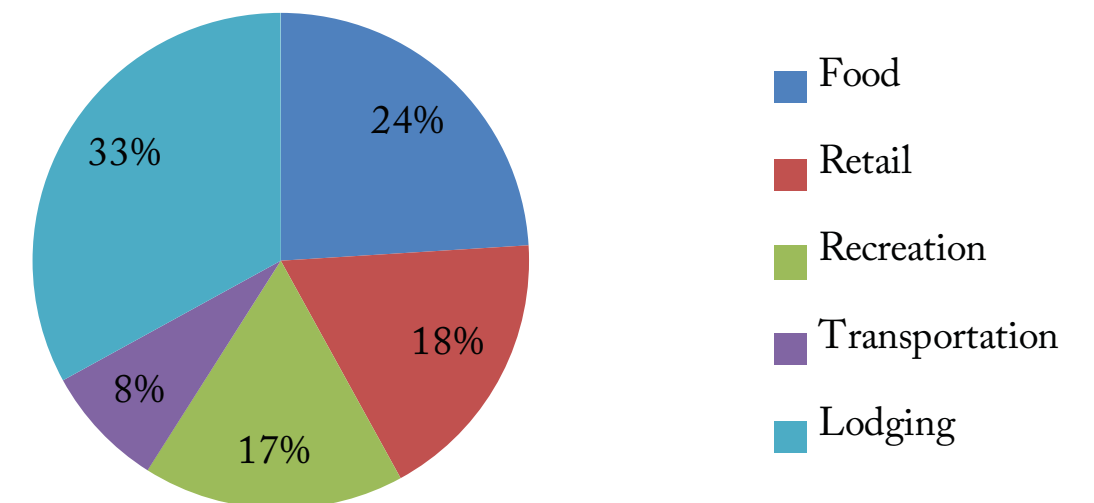
## Day Visitor Spending by Category



Source: *Tourism Economics*

Average per person per day = \$52.00

## Overnight Visitor Spending by Category



Average per person per day = \$110.00

Source: *Tourism Economics*





# Transportation & Tourism by Kelly de Schaun:

Travel and tourism is one of the world's largest economic activities. The movement, accommodation, entertainment and nourishment of hundreds of millions of visitors a year makes the industry an attractive opportunity for communities around the globe.

Like all economic and human activity, the production or servicing of tourism goods has an impact on the local host community. Traditionally cited impacts are largely economic or employment related, but the management of the industry within a community can have significant impacts on the local municipal infrastructure and quality of life. Impacts are both positive and negative. A robust tourism economy may result in enhanced opportunities and funding for access and protection of recreational, cultural or ecological assets within the community. Likewise, it can place an additional burden on the local municipality to service community and visitor needs for health and safety services. A well-managed tourism destination seeks to leverage opportunities for sustainable growth while minimizing or controlling adverse effects.

Galveston Island grapples with the same challenges that many successful tourism destinations face. Located 1 hour from the country's 4th largest metropolitan area, the Island benefits from significant patronage from the region's population. Houston is the Island's major market for leisure based tourism, followed by Dallas, Austin and San Antonio. Marketing efforts target Texas and the Midwest corridor for leisure tourists while sales forces are deployed by industry segment organized in state, association, corporate and SMERF (Social, Military, Education, Religious and Fraternal). Galveston is home to the country's 4th busiest cruise port facility, embarking approximately 600,000 passengers in 2014.

While spring and summer are by far the most popular months for visitors, the Galveston Convention and Visitors Bureau and the City of Galveston partner with third party event promoters to host seasonal events. Fall on the Island is marked by the rumble of motorcycles as thousands gather for the Lone Star Motorcycle Rally, the country's 2nd most popular rally. The winter holiday season has become increasingly busier with the offering of additional events, exhibits and festivals. Dickens on the Strand, a Victorian era street festival, kicks off 50 days of events over the holiday season. Lent marks the beginning of Mardi Gras on the Island, an annual Galveston tradition which entices 300,000 party revelers to the Island each year.

Total visitation to Galveston Island has been on the upswing since Hurricane Ike in 2008, reaching a new peak of 6 million visitors in 2014. Of those 6 million visitors, there is estimated to be an equal split of overnight visitors and day visitors. Overnight visitors contribute an estimated \$112 per person per day, while day visitors are estimated to spend \$52 per day per person. In 2014, these visitors generated \$69.4 million dollars in State and local taxes. For the local municipality, sales (\$6.3 million) and property taxes (\$15.8 million) are the most significant revenue streams available to address increased demand and consumption of city services. Hotel occupancy taxes generated an additional \$14.9 million and beach user fees produced \$1.7 million in restricted use funding in 2014. These 'limited use' revenues are specially earmarked for specific activities.

Connectivity to the Island is predominately dependent on drive-in visitation. Interstate Highway (IH)-45 is the principal connector for most markets, although the Bolivar Ferry transports visitors coming from Beaumont and the Louisiana area. A third access point is afforded by the San Luis Bridge which facilitates arrival from the southern Texas coast. Peak demand by tourists is generated around special events, summer weekends, and summer holidays. Cruise passengers also generate demand travel times on embark and debarkation days (every Sunday and every other

Monday, Thursday and Saturday). Once on the Island, visitors are not clearly routed to downtown, east end, west end and seawall attractions.

The Scholes International Airport services off coast oil production and does not offer commercial flights. George Bush Intercontinental (IAH) and Houston Hobby Airport (HOU) are relatively close, but the lack of an on Island commercial airport is considered a limiting factor for group and leisure business development. The Island has a limited number of marinas and serves as a home port of embark and debarkation for three cruise lines.

The availability and type of access, combined with the Island's geographic location next to a major metropolitan area, influences 'how' visitors arrive to the Island. The tourism product and offering, determines 'when' they arrive. The combination of these factors conspire to produce a series of challenges for local authorities related to the management of traffic flow and congestion.

Principle among the challenges are the need for short term and long term parking, significant congestion during peak seasons and at peak times and poor traffic circulation for residents during special events. Opportunities for improvements exist through the leveraging of funding generated from parking revenues, the development of supporting amenities for alternate modes of transport such as bike and pedestrian paths and the implementation of a City branded way finding and signage system.

Galveston is at a critical juncture. As an Island community of fewer than 50,000 residents, we must seek to appropriately plan for, manage and fund the increasing number of visitors who flock to Galveston each year. Residents are already vocal about congestion caused by visitors on Seawall Boulevard and lack of east-west transit during major events and parades.

Lack of action in responding to increasing congestion has already affected visitor perceptions of the destination. In a 2013 image survey conducted by the Galveston Island Convention and Visitors Bureau, survey respondents identified traffic and congestion as a notable 'poor' characteristic of the destination. But perhaps the impact of overcrowding on Galveston roadways is best summed up by Steve Cunningham, General Manager for the Wyndham Galvez, Tremont House and Harbor House properties, said "Improving traffic flow and transportation will benefit both our visitors and our residents as our Island continues to grow. We don't want our guests frustrated with traffic jams and problems moving about the Island and we sure don't want their last Island memory being how long it took them to get off the Island on their way home; every resident will benefit as we improve our transportation and traffic flow. On the Sunday of Memorial Day weekend (May 25) 2015, we had over 100 no shows for our Sunday Brunch at Hotel Galvez. We also had numerous calls from guests who were trying to get here but because of traffic on IH-45 as well as congestion on the Island they were frustrated and late. Many of the callers told us they were turning around and going back home. The 100 no-shows obviously just gave up and never called us." What this so pragmatically exemplifies is that in order to maintain or increase daily average spending by visitors, we must get them out of their cars and into local attractions and businesses.

At the same time, current investments in bike routes, trolleys and parking programs are expected to help alleviate some of the pressures, while branding the destination and creating funding opportunities. Be it through historic Galveston walkable streets, transit and view corridors to the Gulf of Mexico or branded wayfinding signage, Galveston can improve on-Island transit, increase the economic impact of tourism, improve the quality of life and create a unique visitor experience.

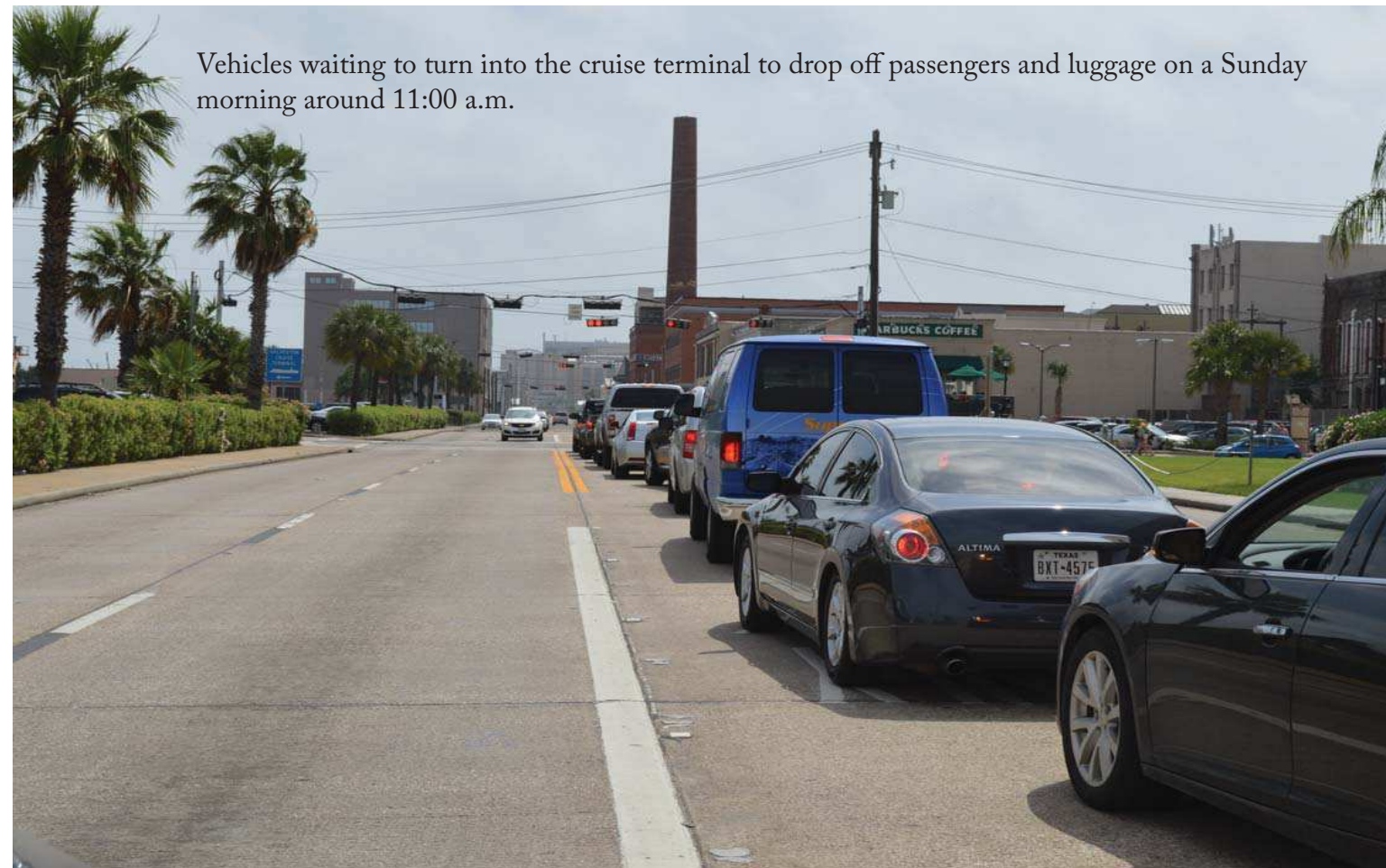
by: Kelly de Schaun, Executive Director, Galveston Island Park Board of Trustees



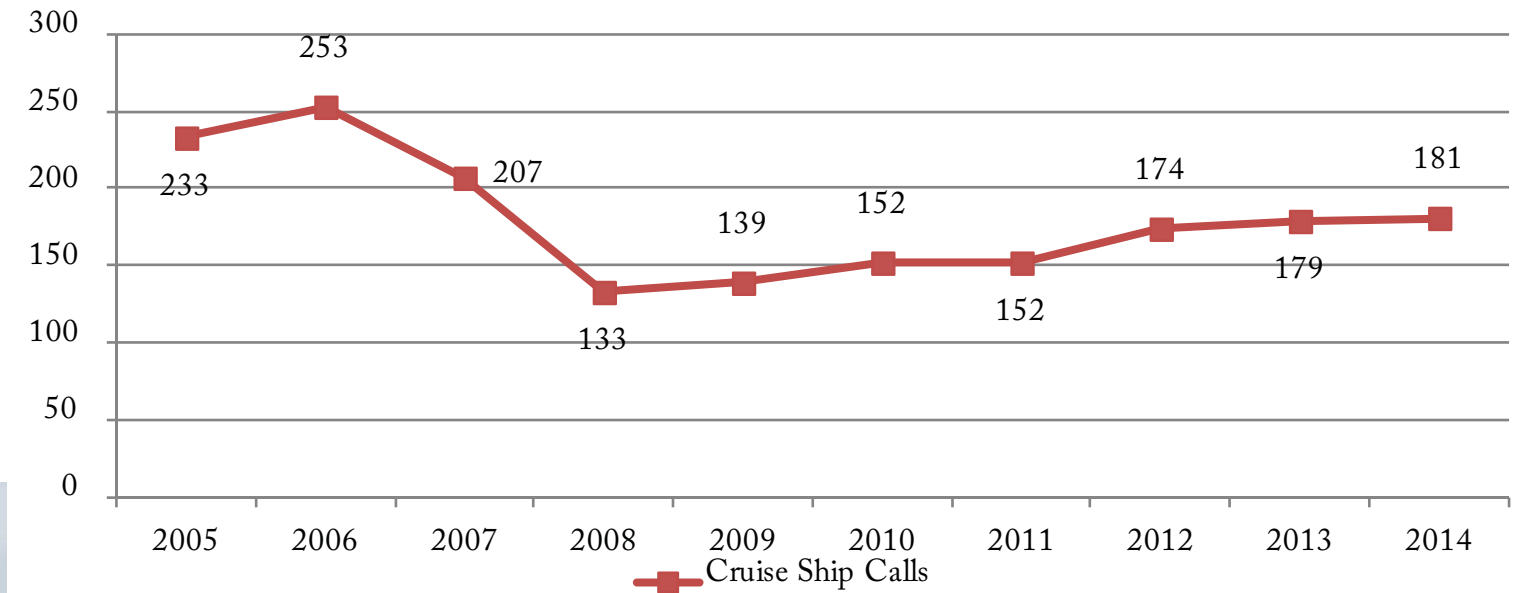
# Cruise Ship Conditions:

Galveston is the home port of several cruise ship lines making the “cruise-lifestyle” easy and convenient especially for those that live in the Houston Metropolitan Area. The graphs to the right illustrate the relationship between cruise ship calls and vehicles parked related to the number of passengers each year. Cruise ship calls peaked in 2006 with 253 cruise ships at the Port of Galveston Cruise Ship Terminal. The number of vehicles parked, cruise passengers, and cruise ship calls have steadily risen since 2008. Carnival and Royal Caribbean were forced to use the Bayport Cruise Terminal temporarily while Galveston recovered from the destruction of Hurricane Ike in 2008.

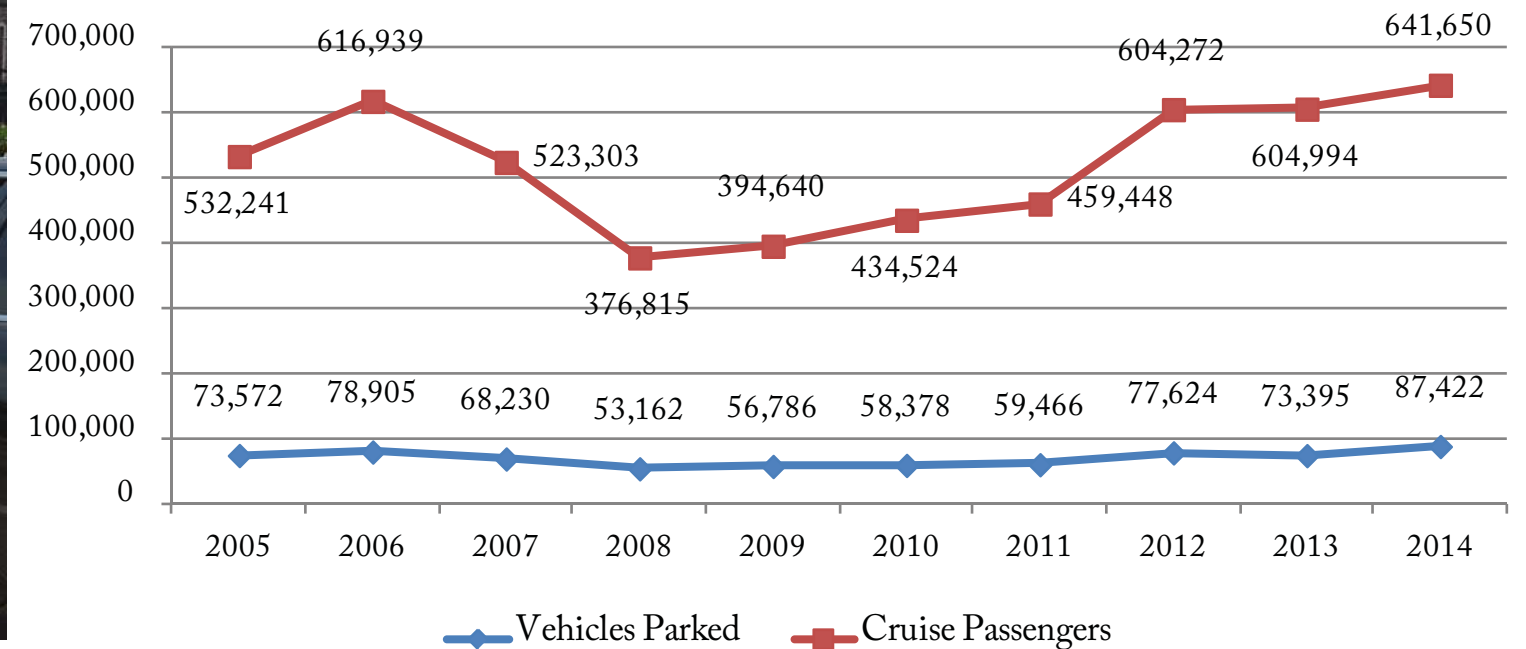
The Port of Galveston parking lots are the only official cruise parking lots of the Port of Galveston. They are identified as Parking Lot A and Parking Lot B and are located at the intersection of 33rd Street and Harborside Drive. There are blue pole banners along the fence lines that read "Port of Galveston/Cruise Parking" to indicate the port's official cruise parking lots.



### 2005 - 2014 Cruise Ship Calls

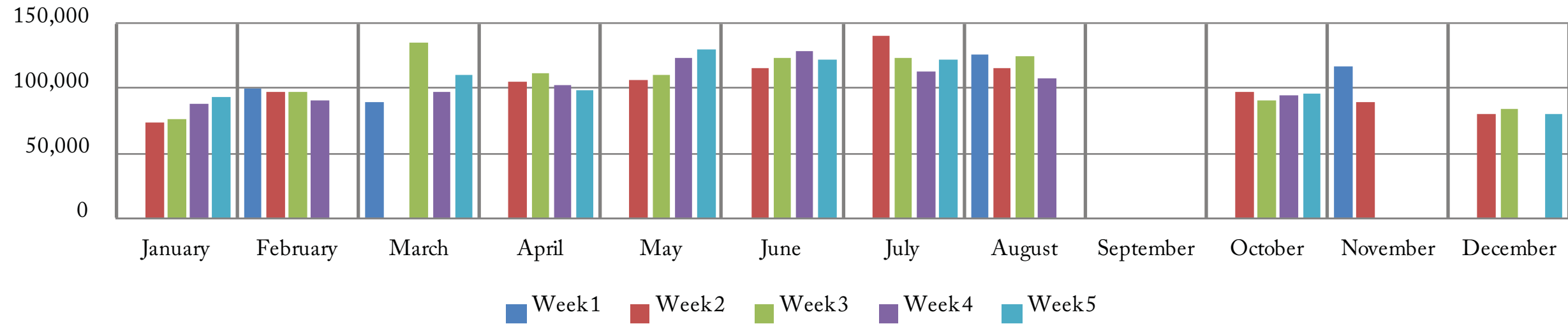


### 2005 - 2014 Vehicles Parked Related to Passengers

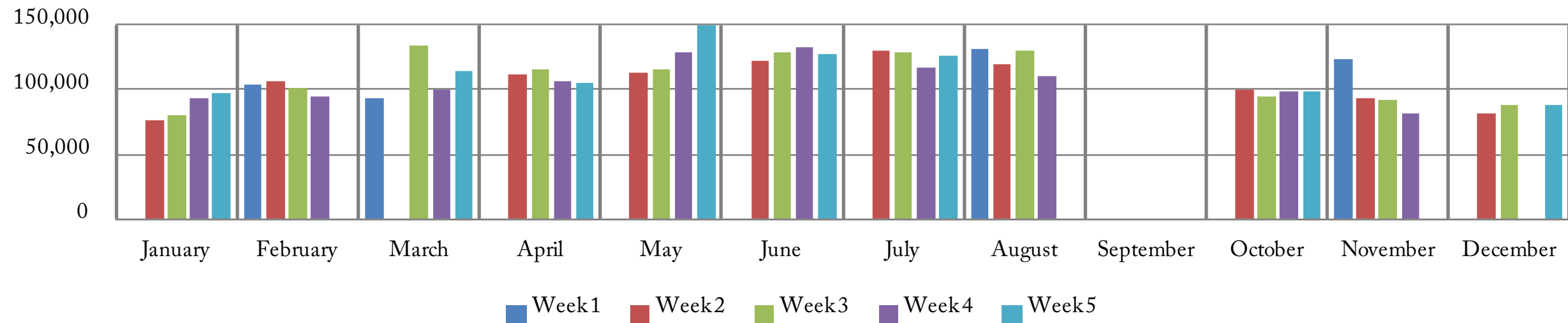




## 2013 Weekend Traffic Volume - Northbound



## 2013 Weekend Traffic Volume - Southbound



NOTE: Missing data is due to the TxDOT traffic counters located at the base of the Galveston Causeway not working that particular weekend. The month of September, the counters were completely down.  
A weekend consist of Friday, Saturday, and Sunday.



# Travel Patterns:

Traffic volumes on Galveston Island are highly variable on a seasonal basis. During the 2013 peak season, from March to September, Galveston Island celebrates record crowds with traffic counts of more than 245,000 vehicles from Friday through Sunday.

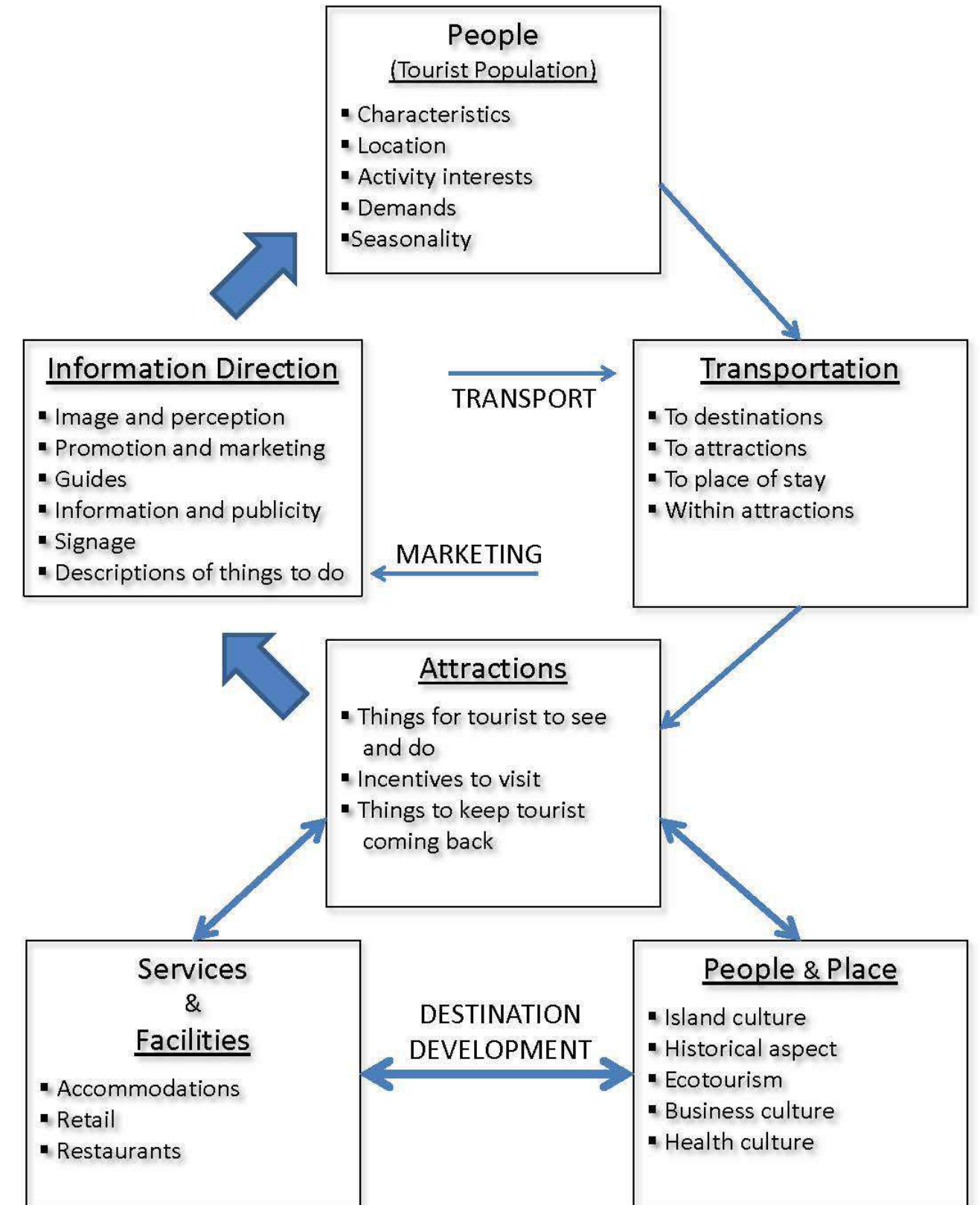
TxDOT maintains a permanent traffic count station at the south end of the Galveston Island Causeway. The automatic counter provides hourly traffic volume counts for northbound and southbound traffic, 24 hours per day and 7 days per week as shown in the graphs on the opposite page. Traffic volumes differ greatly depending on the day of the week and the month of the year. The south bound lanes of the Galveston Island Causeway range from 15,500 vehicles per day (VPD) on a Tuesday in January 2013, to 54,500 VPD on a Friday in May 2013 (Memorial Day weekend). The peak day in summer is Saturday. The peak hour is 5:00 to 6:00 p.m.

Visitors arriving onto the Island via the Galveston Island Causeway typically travel 3 major routes:

- 1) Exiting and driving south on 61st Street to Seawall Boulevard, where they either turn left to the Seawall beaches, or turn right and continue to the west end beaches.
- 2) Continuing along Broadway to Downtown, to Stewart Beach and Apffel Beach Parks, or turning back along Seawall Boulevard to reach other beaches and destinations.
- 3) Exiting Harborside Drive and continuing towards the Port of Galveston/UTMB and the TxDOT Galveston/Bolivar Ferry.

Visitors who are unfamiliar with Galveston Island's roadway network use these 3 primary routes in spite of experiencing traffic congestion and delay.

Public transit service provided by Island Transit primarily serves workers and residents, with routes connecting employment and residential areas. The City recently decided to restore the Galveston Trolley, which will operate streetcars along routes connecting the Strand, UTMB and Seawall Boulevard. A rubber-tired bus shuttle is proposed to extend transit service to destinations along Seawall Boulevard.



Source: *The Tourist Route System - Models of Traveling Patterns* by Thor Flognfeldt Jr.





# Major Annual Events and Areas of Interest:

Galveston is home to 6 historic districts with over 60 structures listed representing architectural significance in the National Register of Historic Places.

- The Silk Stocking National Historic District, located between Broadway Boulevard and Seawall Boulevard and bounded by Avenue K, 23rd Street, Avenue P, and 26th Street, contains a collection of historic homes constructed from the Civil War through World War II.
- The East End Historic District, located on both sides of Broadway Boulevard and Market Street, contains 463 structures and homes.
- The Strand National Historic Landmark District is a National Historic Landmark District of mainly Victorian era buildings that have been adapted for use as restaurants, antique stores, historical exhibits, museums and art galleries. The area is a major tourist attraction for the island city.
- Cedar Lawn is Galveston's first fully planned residential community and the island's most intact early-to-mid-twentieth century neighborhood. This unique neighborhood has one entry/exit point. From small homes to sprawling mansions, this neighborhood has retained its historic integrity.
- Denver Court is located a few blocks from the Seawall and spans approximately 30 blocks. The neighborhood is comprised of mainly revival style homes.
- Fort Travis

With 14 museums, 20 art galleries, and with Moody Gardens®, Galveston Island Pleasure Pier, Schlitterbahn Waterpark, and year-around special events there is plenty of culture, learning, fun, and activities for the whole family. Galveston has numerous annual events that are held during the peak and off-peak season.

January - Galveston Restaurant Week, Yaga's Chili Quest & Beer Fest, Mardi Gras Balls

February - Mardi Gras Balls, Mardi Gras

March - Galveston Home & Garden Show, Gulf Coast Volleyball Association (GCVA) Tournament, Spring Break

April - FeatherFest Birding & Nature Photography Festival, GCVA Tournament, Ja-Ga-Reggae Festival, Crazy Crawfish Weekend, Galveston Island Food & Wine Festival, Adopt-A-Beach Cleanup, IRONMAN 70.3

May - Crazy Crawfish Weekend, Red Cat Jazz Festival, Texas Crab Festival, Yaga's Wild Game & BBQ Cook-off, GCVA Tournament, Memorial Day, Ohana Surf Camp, Corvettes Cruising Galveston, Galveston Historical Foundation Historic Homes Tour

June - AIA Sandcastle Competition, Ohana Surf Camp, GCVA Tournament, Juneteenth Celebration

July - Ohana Surf Camp, 4th of July, GCVA Tournament

August - Ohana Surf Camp

September - Brewmaster Craft Beer Festival, Galveston Island Shrimp Festival

October - Bike Around the Bay, Causeway Run, Gritty Goddess Festival, Oktoberfest, ARToberFEST, Greek Festival

November - Lone Star Bike Rally, Festival of Lights, Home for the Holidays Gift Market

December - Dickens on the Strand, Festival of Lights



Lone Star Bike Rally



Dickens of the Strand



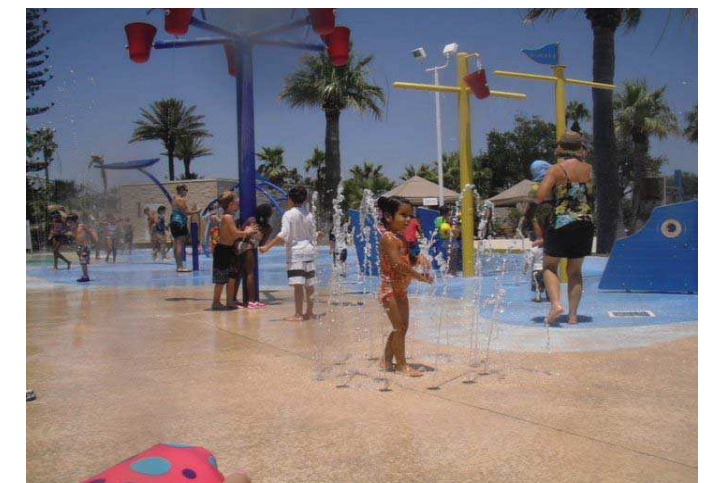
AIA Sandcastle Competition



Mardi Gras



Galveston Island IRONMAN 70.3



Moody Gardens® Palm Beach

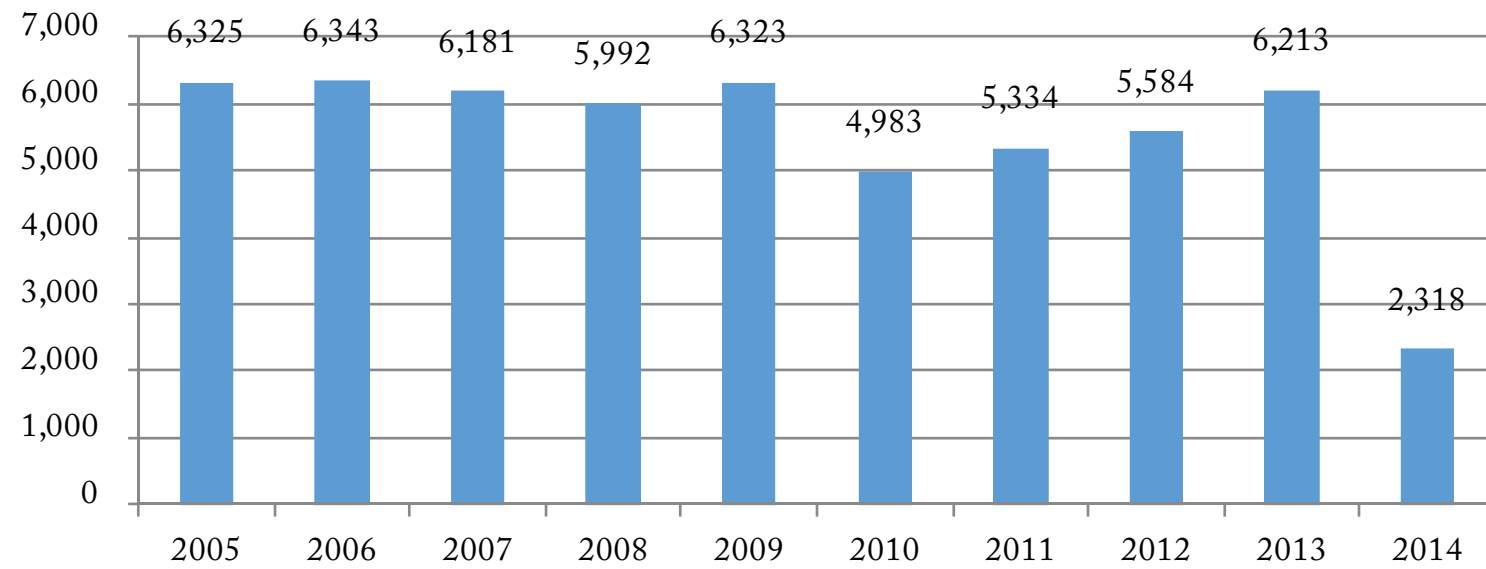




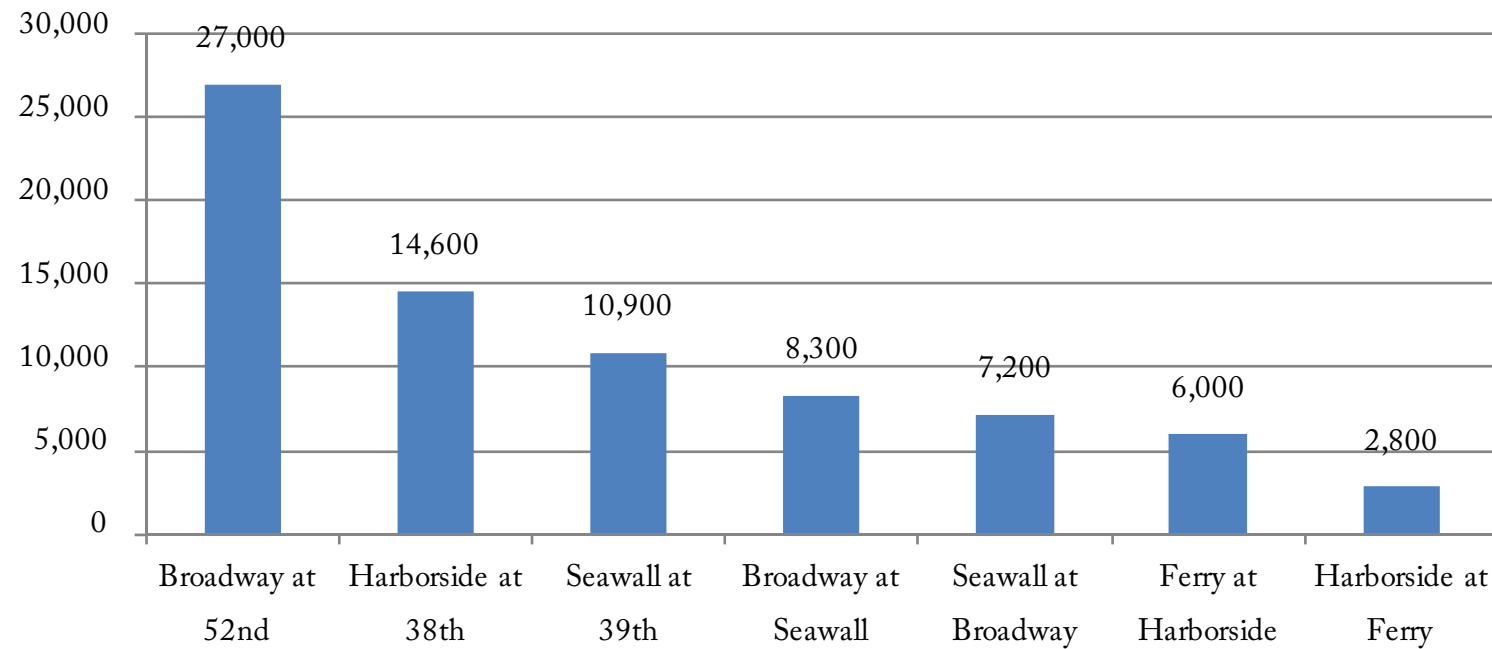
# Major Annual Events:

## 2005 - 2014 AIA Sandcastle Competition

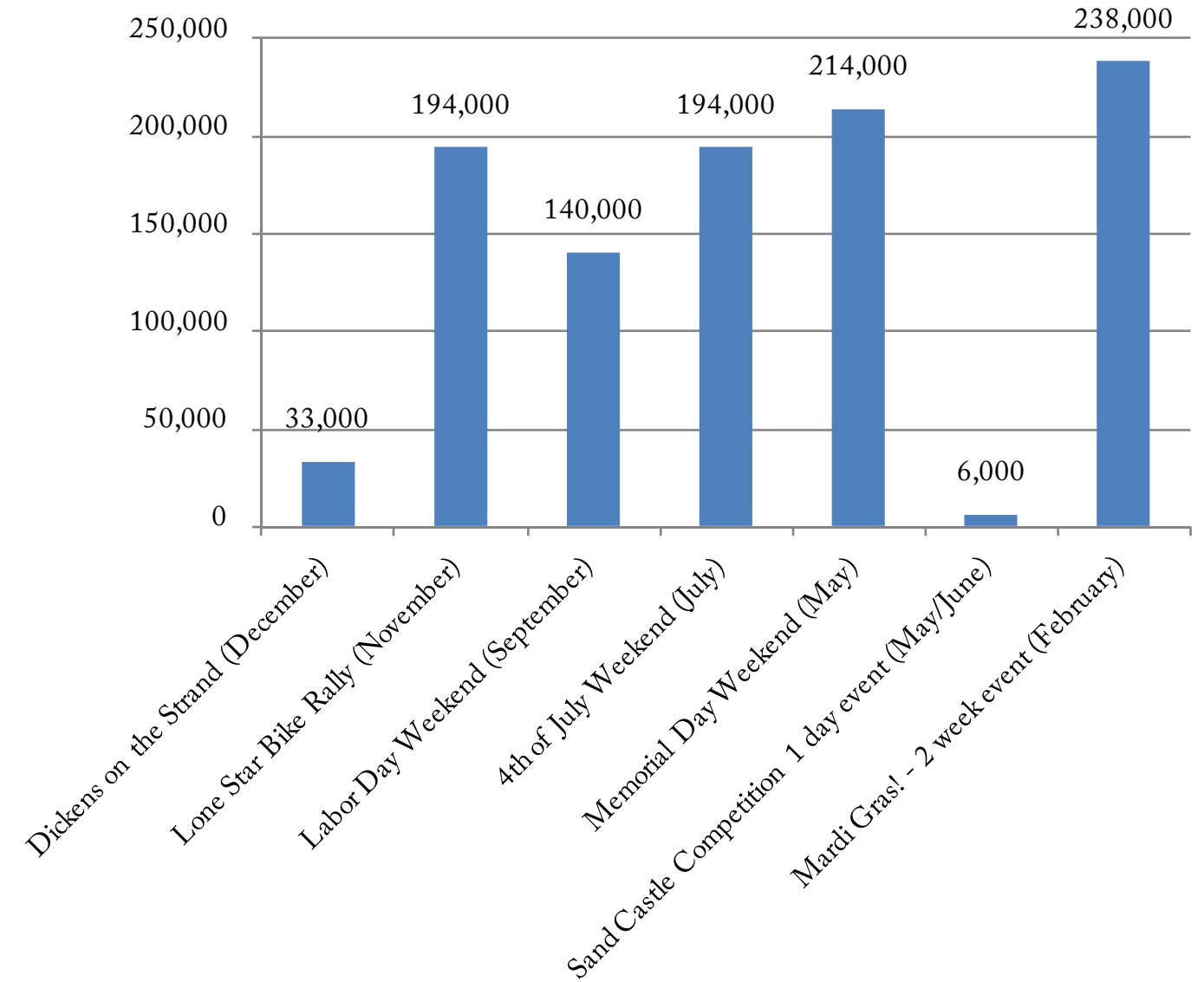
### Car Count for East Beach



### 2014 Peak Season Average Traffic Volumes per Day



## 2014 Car Counts for Major Annual Events





## Land Use Profile:

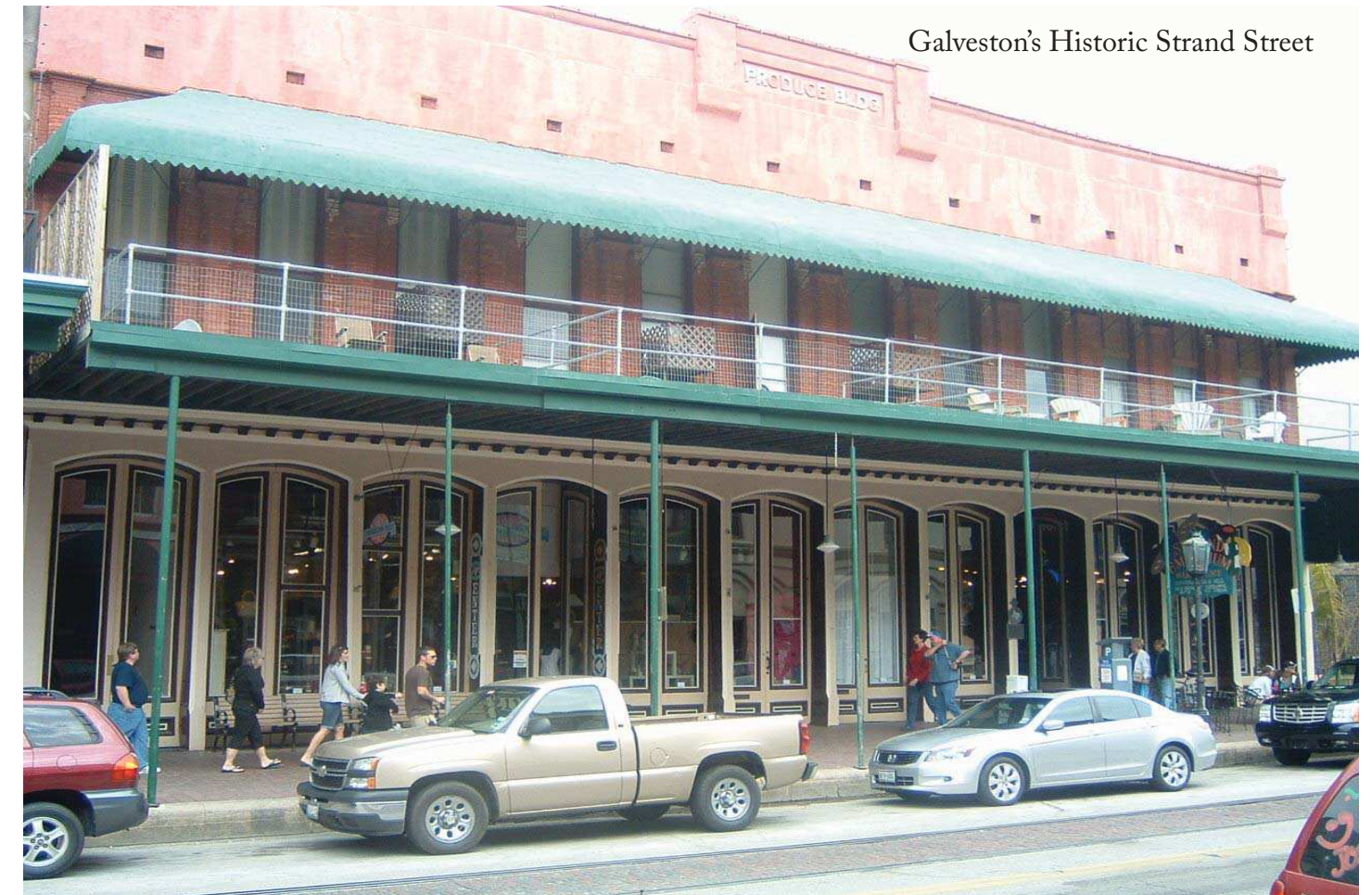
The pattern of development on the Island is historically well-established and strongly influenced by the barrier island setting. In the urbanized core, well served by roads and infrastructure and protected behind the Seawall, planning and land use policy focuses on the stabilization and revitalization of residential, commercial and industrial areas, as well as targeted redevelopment to remove blight and introduce needed new activities and amenities. Significant actions are required to ensure the long-term stabilization of older neighborhoods and retention of the City's inventory of older structures.

On Galveston Island's east and west ends, there are large tracts of undeveloped land, but there are also significant constraints, including non buildable areas such as wetlands and dune systems and limited infrastructure for water and sewer services. The City's plans and policies are designed to balance interests through responsible growth and resource conservation. The future intensity and pattern of development in these areas will be affected by several factors, including decisions regarding planned street improvements and sewer service, the management of commercial and residential development, and the need to balance demands for development with desires to retain natural and scenic resources.

Seawall Boulevard is the most well-known and traveled area by visitors to the City, and as the primary feature tying together destinations along the beach; hotels, restaurants, entertainment venues, shops, and services. Seawall Boulevard has a powerful influence on resident quality of life, the vitality of Seawall businesses, and visitor perceptions of the community. Although still auto-oriented in places, recent projects have been designed to promote pedestrian activity, encourage strolling and people-watching, and improve connections among related destinations.

The 61st Street corridor is ideally located to serve the basic convenience shopping needs of Galveston residents, guests to the West End of Galveston Island, and an important evacuation route. However, the current form of development is fragmented, proximate uses are poorly connected, pedestrian linkages are limited, and landscape and streetscape improvements are minimal. Additionally, as this corridor experiences redevelopment of older, less competitive shopping centers, care must be taken to ensure that the land use mix serves local resident needs and does not overburden the roadway network. Planning for improvements also should recognize distinctions between the character of areas north and south of Heards Lane. The area north of Heards Lane is characterized by less dense development and extensive water views, especially where 61st Street crosses Offats and English Bayous. The area south of Heards Lane is developed along standard suburban patterns with large areas of surface parking and pole signage.

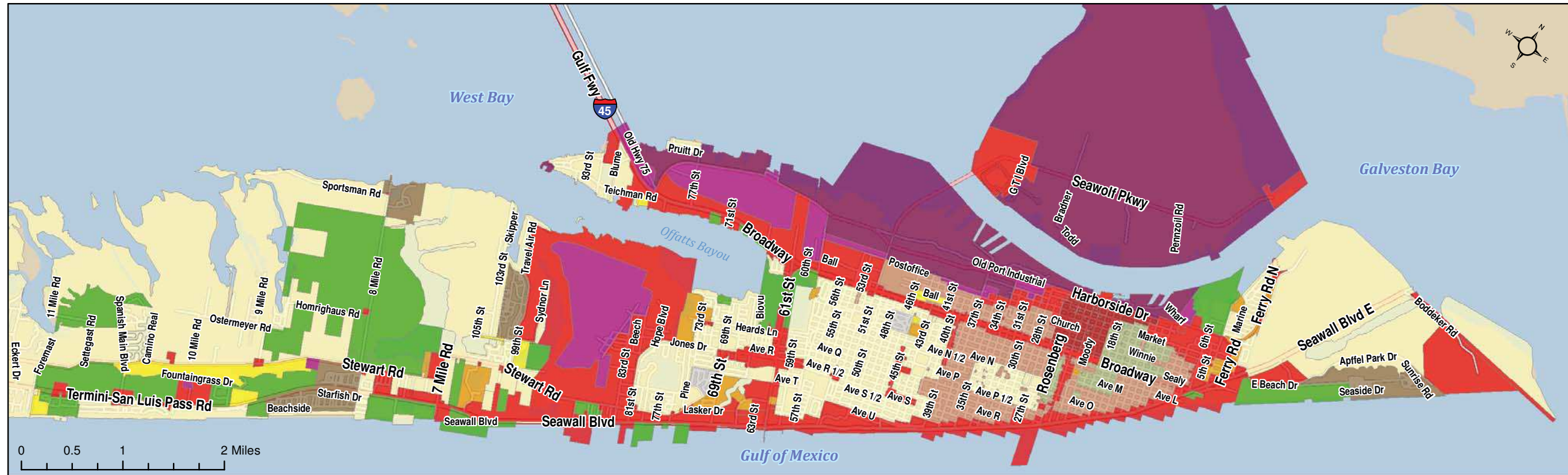
With the increase in cruise ship activity, Harborside Drive has become a gateway for visitors and an important entrance into Downtown and UTMB. Harborside Drive is limited in redevelopment opportunities; it is bounded by working rail yards on the north and south of the street between 33rd Street and 51st Street. There are opportunities for revitalization along the north and south side of Harborside Drive from 77th Street to Port Industrial Road. There is also revitalization opportunities for the south side of Harborside Drive from 13th Street to 17th Street. Although Harborside Drive does not accommodate the magnitude of development or traffic that exists along the three principal corridors of Broadway Boulevard, Seawall Boulevard, and 61st Street, this corridor along Galveston's working waterfront is an essential part of the City's history and identity. It also remains an important traffic artery, particularly for industrial truck traffic, cruise ship passengers, and as an alternative access route into Downtown and UTMB.





# Land Use Map - Galveston Island:

## Land Development Regulations Zoning Map





# Galveston's Mobility Challenges Today:

While Galveston has an existing transportation network and a range of available transportation options, there is room for improvement.

## Specific Mobility Challenges to Tourist

- Limited access and roadway conditions
- Traffic loads and congestion
- Traffic circulation and connectivity
- Poor wayfinding
- Lack of available additional right-of-way (ROW)
- Limited public transportation
- Peak demand and event driven traffic
- Locating available parking
- Emergency Evacuation
- Limited Federal and State Funding

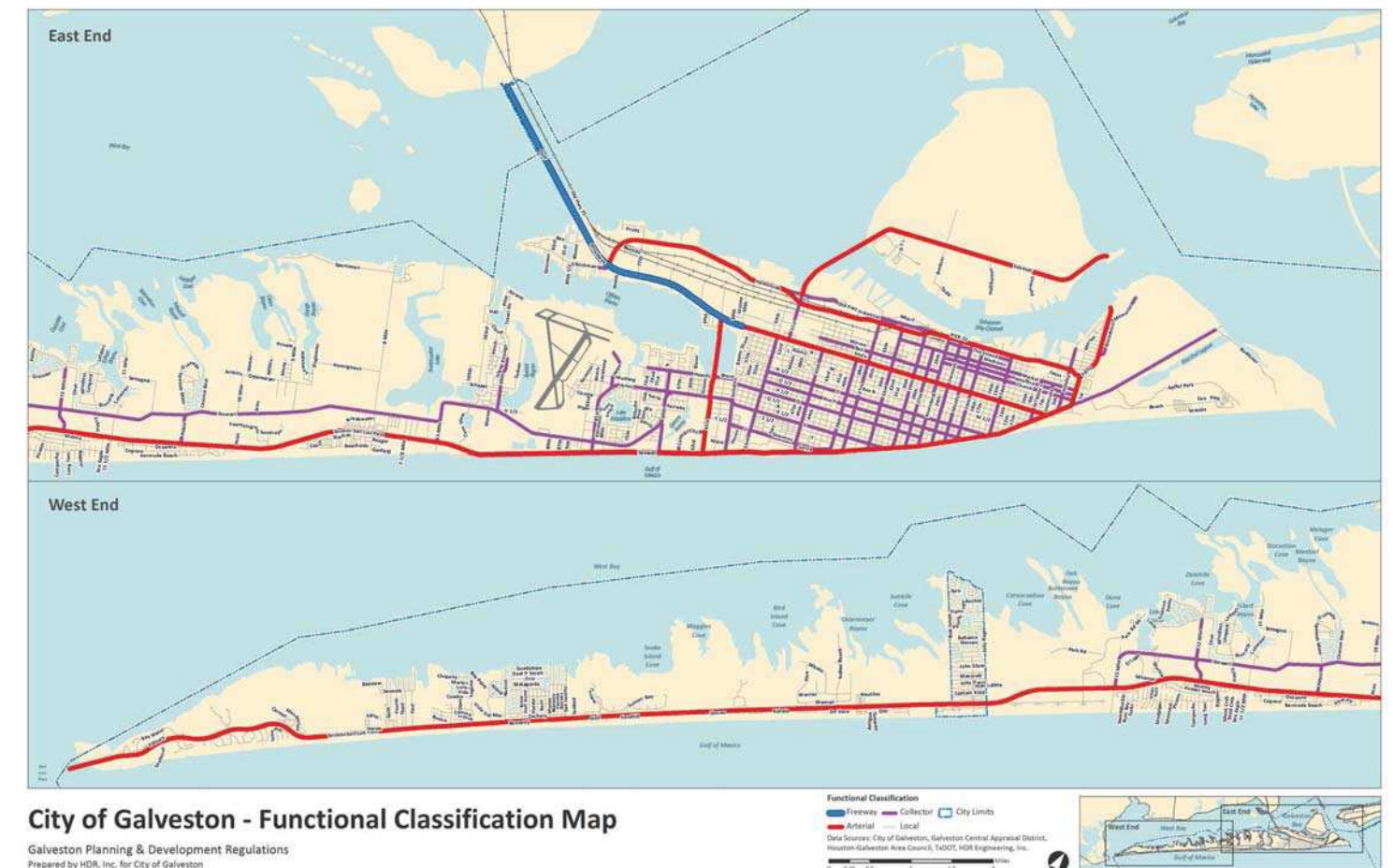
Seawall Boulevard east bound at 61st Street on a Friday morning in June 2015



## Access / Roadways

Congested streets and highways during peak tourism times can cause difficulties for the mobility of Galveston residents and visitors alike. Growing development pressures and providing a safe and efficient thoroughfare system to adequately serve the daily, seasonal, and emergency needs of Galveston Island is a priority.

There are limited transportation options to the West End and on to and off of Galveston Island. There are 2 roadway systems, IH-45 and Farm-to-Market (FM) 3005 and 1 water system, the Galveston/Bolivar Ferry owned and operated by TxDOT for automobile traffic. The TxDOT ferry had 9 million riders in 2014. If any of the 3 are disabled for whatever reason, there is at least 2 hours of additional travel time to travel an alternative route. The only access to Galveston Island for pedestrians or cyclists is on the Galveston/Bolivar Ferry. Scholes International Airport is a city owned, public use airport. The airport currently provides charter service and does not provide any commercial service. The Port of Galveston is accessible by cruise ships, cargo ships, freight rail, and private boat.





# Galveston's Mobility Challenges Today:

## Traffic Loads and Congestion

Galveston's roads typically experience heavy daily traffic from residents and commuters, but they are also subject to significant load increases from visitor traffic during the summer months, weekends, and holidays. The City's most heavily trafficked thoroughfares are Seawall Boulevard, Broadway Boulevard, and 61st Street. Seawall Boulevard provides an east/west connection for Galveston Island residents and experiences heavy tourist-related pedestrian and vehicular traffic. Broadway Boulevard is the primary access corridor into Downtown from the mainland. 61st Street serves as the conduit for travel from IH-45 to the West End, and can experience significant traffic in the summertime and on holiday weekends. 61st Street is also a major evacuation route for the West End.

## Traffic Circulation and Connectivity

Traffic circulation and connectivity on the Island is restricted by the narrow width of the island, 30 miles in length by ½ mile to 3 miles in width. Galveston Island is also challenged by 2 types of street pattern development. Behind the seawall and within the original geography of Galveston Island there is a grid street system pattern with 300 feet by 260 feet block lengths with a 20 foot alley in the middle. This robust grid system of existing roadways affords opportunities for alternate routing of traffic. Proposals for rerouting of traffic are a potentially controversial subject, particularly if they involve traversing predominantly residential neighborhoods. Galveston Island's West End has block lengths as long as 1 mile in separation. Galveston Island's East End blocks were not developed due to the East End Lagoon and Nature Preserve.

## Poor Wayfinding

Directional signage for motorists is needed to aid visitors who are not familiar with traffic routes for convenient access and mobility on the island. Old directional signs that are no longer needed should be removed and replaced by a new uniform, readable and attractive wayfinding sign system.

## Lack of Additional ROW

Opportunities for expansion of the existing roadway network are limited because there is little land area available for construction of new arterial streets without acquisition of private property. Little vacant land area is available for roadway expansion and new thoroughfares. Additional ROW will likely need to be acquired from private land owners to accommodate additional travel and turning lanes in most conditions. There are geographic restrictions to traffic circulation on a barrier island. Traffic circulation on the island is restricted by the natural geography of the island, 30 miles in length by ½ mile to 3 miles in width.

## Limited Public Transportation

There is limited public transportation to Galveston Island. Galveston Island is accessible by private car, limited park-and-ride service provided by Island Transit from UTMB Victory Lakes to the Justice Center on 59th Street, and by commercial bus service, including airport shuttles such as Galveston Limousine and Super Shuttle.

## Peak Demand and Event Driven Traffic

Major annual events increase traffic congestion on Galveston Island. These events are a special case of demand fluctuations whereby traffic flow in the vicinity of the event will be radically different from "typical" patterns. These annual events cause "surges" in traffic demand that overwhelm the street system.





# Galveston's Mobility Challenges Today:

## Locating Available Parking

Ample parking is available but it is not located in areas of greatest need. Tourist are not familiar with the location of public parking with the exception of Seawall Boulevard. Tourist drive up and down Seawall Boulevard looking for available parking.

## Emergency Evacuation

Like event driven traffic, emergency evacuations for hurricanes and tropical storms are difficult to plan for. These types of evacuations cause gridlock on the Island's street system.

## Limited Federal and State Funding

The magnitude of transportation funding needs for the City of Galveston and Galveston County are greater than other similar size communities due to the 6 million annual visitors attracted to the island as a travel destination. Tourism adds significantly to Galveston's transportation needs and generates increased justification for use of Federal and State funds. Available funding has not kept pace with growing travel demand and improvement needs. Galveston competes with other communities to obtain funding from available Federal and State sources. Due to Hurricane Ike in 2008, Galveston's population decreased and has limited the Island's Federal funding sources.



Seawall Boulevard on July 4, 2013



Galveston residents returning from Hurricane Ike evacuation



Seawall Boulevard Mardi Gras 2012





# Galveston's Mobility Challenges Today:



Clusters of Tourism Activities





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# PREVIOUS PLANS & STUDIES

ANALYSIS OF PREVIOUS STUDIES





## Previous Plans and Studies:

Agency Responsible	Consultant	Name of Project	Year Completed or Adopted
H-GAC	The Goodman Corporation	Galveston Five-Year Mobility Plan Update 2004	Jul-04
H-GAC	Lockwood, Andrews & Newnam, Inc. (LAN)	Galveston Pedestrian and Bicyclist Special Districts Study	Sep-06
TxDOT	Brown & Gay	Traffic Engineering Study - Spur 342 (61st Street) at FM 3005 (Seawall Boulevard)	Oct-07
City of Galveston	The Goodman Corporation	Galveston-Houston ITS Commuter Rail Study	Dec-07
City of Galveston		Community Recovery Project	2008
METRO Solutions		Galveston Corridor Screen Line Study	Nov-10
City of Galveston	HDR	City of Galveston Comprehensive Plan Update	Oct-11
City of Galveston	HDR	City of Galveston Thoroughfare Plan	Dec-12
H-GAC	Morris Architects	Livable Centers Study for the Galveston Housing Authority	Dec-12
Texas APA 2013 Conference	The Goodman Corporation	Evaluating Transit Sustainability for Houston-Galveston Corridor Alternative Analysis	Oct-13
City of Galveston	CobbFendley	Harborside Drive Corridor Study - Intersection of Pelican Island Causeway (51st Street) to Second (2nd) Street	Oct-14
Island Transit	The Goodman Corporation	Island Transit Comprehensive Plan	Current
Board of Trustees of the Galveston Wharves	Powers Brown Architecture	Galveston Downtown Transit Terminal	Current
City of Galveston	The Goodman Company	Seawall Boulevard Rubber Tire Tourist Shuttle	Current
City of Galveston	The Goodman Corporation	Restoration of the Galveston Rail Trolley	Current



# Galveston 5-year Mobility Plan Update:

Added Capacity Roadway Projects				
	Description	Estimated Cost	2025 RTP Status	Funding Candidate
Tier One	Extension of 61st Street	\$ 16,500,000	Included in RTP	STP
	Ave H Extension (59th Street to 61st Street)	\$ 25,000,000	RTP Short-Range	STP/CMAQ
	Harborside Drive Extension to East End Flats	\$ 500,000	Not included in RTP	Local
	61st Street Flyover	\$ 3,500,000	New Project - needs to be submitted	STP/Local
Tier Two	Widening Stewart Road	\$ 8,000,000	RTP Short-Range	STP/CMAQ
	Stewart Road (Dead man's Curve)	\$ 4,000,000	Resurfacing only in RTP	STP/Local
	Widening 81st Street & 83rd Street	\$ 2,000,000	Resurfacing only in RTP	STP/Local
		\$ 3,600,000	Resurfacing only in RTP	STP/Local

Hurricane Evacuation & Flood Improvement Projects				
	Description	Estimated Cost	2025 RTP Status	Funding Candidate
Tier One	DPS Lane Reversal Policy	N/A	Under Review by TxDOT	N/A
	FM 3005 Flooding	TBD	Submitted	STP
	Harborside Drive Flooding	TBD	Submitted	STP
	Study Causes of FM 3005 & Harborside Drive Flooding	\$ 200,000	Submitted	STP

Transportation System Management (TSM) Projects				
	Description	Estimated Cost	2025 RTP Status	Funding Candidate
Tier One	Harborside Drive	\$ 2,000,000	Included in RTP	CMAQ
	Broadway Boulevard	\$ 3,528,000	Included in RTP	CMAQ
	61st Street	\$ 800,000	Included in RTP	CMAQ
Tier Two	Ave S / Steward Road	\$ 2,000,000	Included in RTP	CMAQ
	53rd Street, 45th Street, 39th Street, & 33rd Street	\$ 3,000,000	Included in RTP	CMAQ

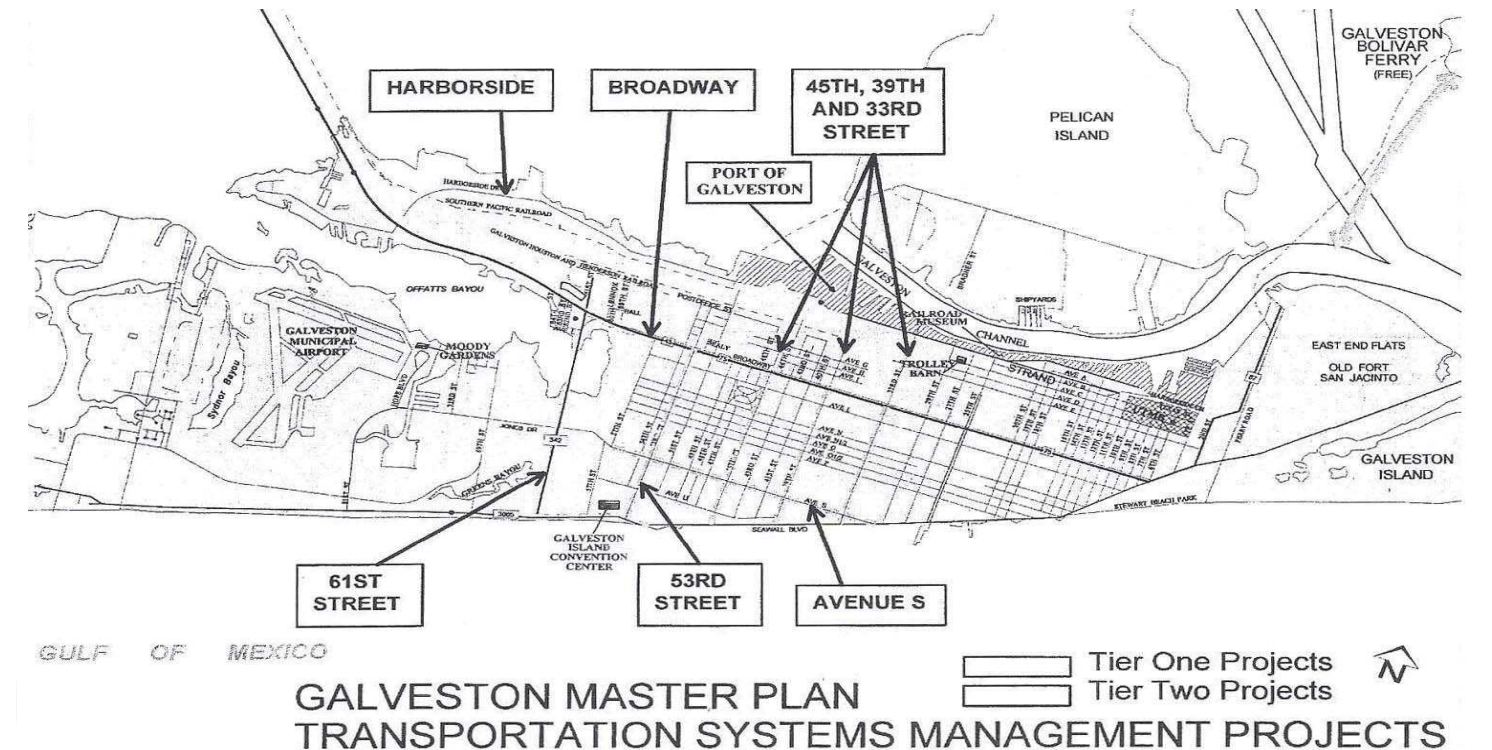
## Summary of Recommendations

In 2004, the City completed a review and update of its five-year Mobility Plan, which was first completed in 1999. The 2004 updated plan includes an overview of improvements completed between 1999 and 2004 information regarding a range of specific mobility topics, including evacuation, major activity centers, passenger rail, port activities, and airport improvements. The plan includes a list of prioritized projects identified and reviewed during the planning process by the plan's steering committee, comprised of members from the City of Galveston, the Port of Galveston, Galveston County, the Galveston Economic Development Partnership, and private and institutional agencies. The 2004 updated plan includes a list of candidate projects that the steering committee categorized into two categories:

- 1) "Tier 1" (higher-priority)
- 2) "Tier 2" (lower-priority).

The plan identified potential funding sources and is intended to serve as a template for project planning and implementation.

CMAQ = Congestion Mitigation and Air Quality  
 ITS = Intelligent transportation System  
 RTP = Regional Transportation Plan  
 STP = Surface Transportation Program  
 STEP = Statewide Transportation Enhancement Program  
 TSM = Transportation Systems Management





# Galveston Pedestrian & Bicyclist Study:

## Summary of Recommendations

### Recommendations:

Providing bicycle racks on transit vehicles is a simple way to reinforce both modes of travel.

Purchase an allotment of U-type bicycle racks that the City would then install at the request of businesses or other property owners.

Curb extensions improve pedestrian safety by making pedestrians more visible & reduce crossing distance by extending the sidewalk into the parking lane. on Seawall Blvd.

Improve signal timing: signal timing should be improved to make it easier for pedestrians to cross the roadway.

Install additional crosswalks: additional crosswalks be installed at locations where heavy pedestrian activity occurs.

Construct refuge islands at crosswalk locations: improve pedestrian safety, comfort, & ease of crossing by providing a physical & protected separation between the 2 directions of traffic.

Citywide Signal Improvements: Installation of countdown pedestrian signal heads, accessible curb ramps, maintenance of crosswalks (new & faded), & signal re-timing to give priority to pedestrians.

Improve signage/amenities along transit routes with maps, schedules, shelters, and benches, & provide information on routes to all businesses along the routes.

Allow hotels & other downtown businesses to purchase blocks of transit passes (&/or bicycle rentals) at discount prices for guests, to encourage fewer nearby vehicular trips that can be accommodated through excess transit capacity.

Transit service along the Seawall. This would either be an extension of the 25th Street trolley, or a dedicated bus line.

Continue to replace stand alone meters with computerized multi-space meters.

Eliminate time restrictions & replace with parking rates that increase with each hour parked, to discourage longer on-street parking in front of key sites.

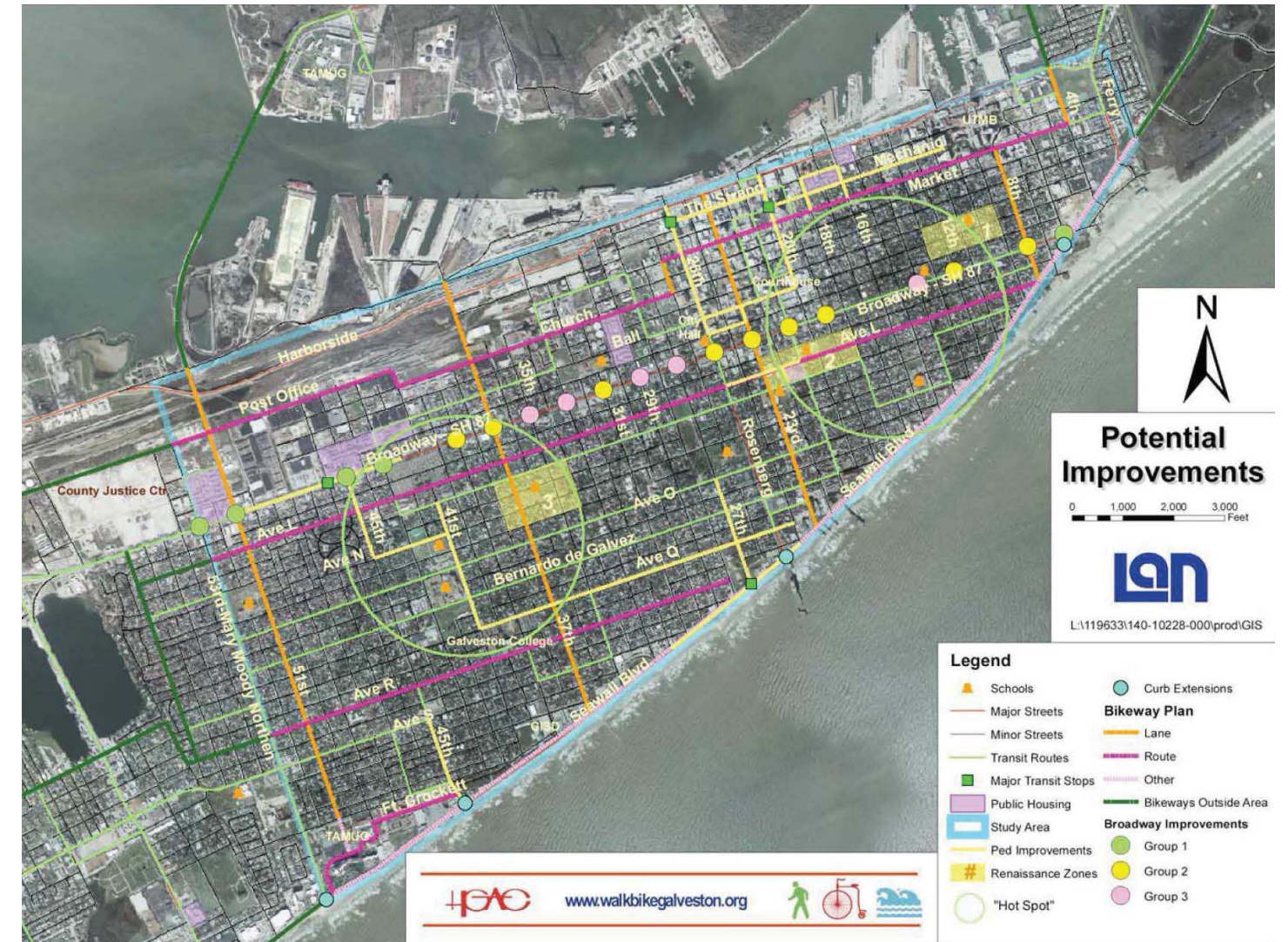
Set fees for on-street parking to encourage longer-term parking in the garages (Park Once).

Coordinate parking with transit so that people will be encouraged to park Downtown & take the trolley to the Seawall, or vice-versa. This will decrease trips between the 2.

Create a bicycle network: would provide a basic framework of direct, cross-town routes to key destinations. The resulting network would provide for 6 north-south bikeways & 3 east-west bikeways (not counting the Seawall) as well as connections to destinations outside of the City of Galveston.

Create top priority roadways for improvement based on needs surrounding specific key destinations. Key destinations include public housing, civic buildings, & access to transit.

Each priority pedestrian street should have full pedestrian facilities compliant with the Americans with Disabilities Act (ADA): clear travel path of at least 5 feet, curb ramps & crosswalks, detectable warning that a person is entering the roadway, pedestrian signals with audible warnings (at signalized intersections) & audible & tactical warnings.



Streets were chosen for these facilities based on street width and feasibility, existing traffic levels, traffic control, directness, & connections to key destinations. Below are a list of bicycle routes identified through the outreach process.

1. Post Office St. - 46th St. - Church St. - 26th St. - Market St.
2. Avenue R - Saladia - Heards Ln. - 69th St.
3. Ferry via Holiday Drive (4th Street).
4. 23rd Street (Tremont).
5. 51st Street - Pelican Island Causeway.
6. Avenue L.
7. Seawall Blvd.
8. 8th Street.
9. 37th Street.
10. 57th Street.





# Traffic Engineering Study - 61st at Seawall:

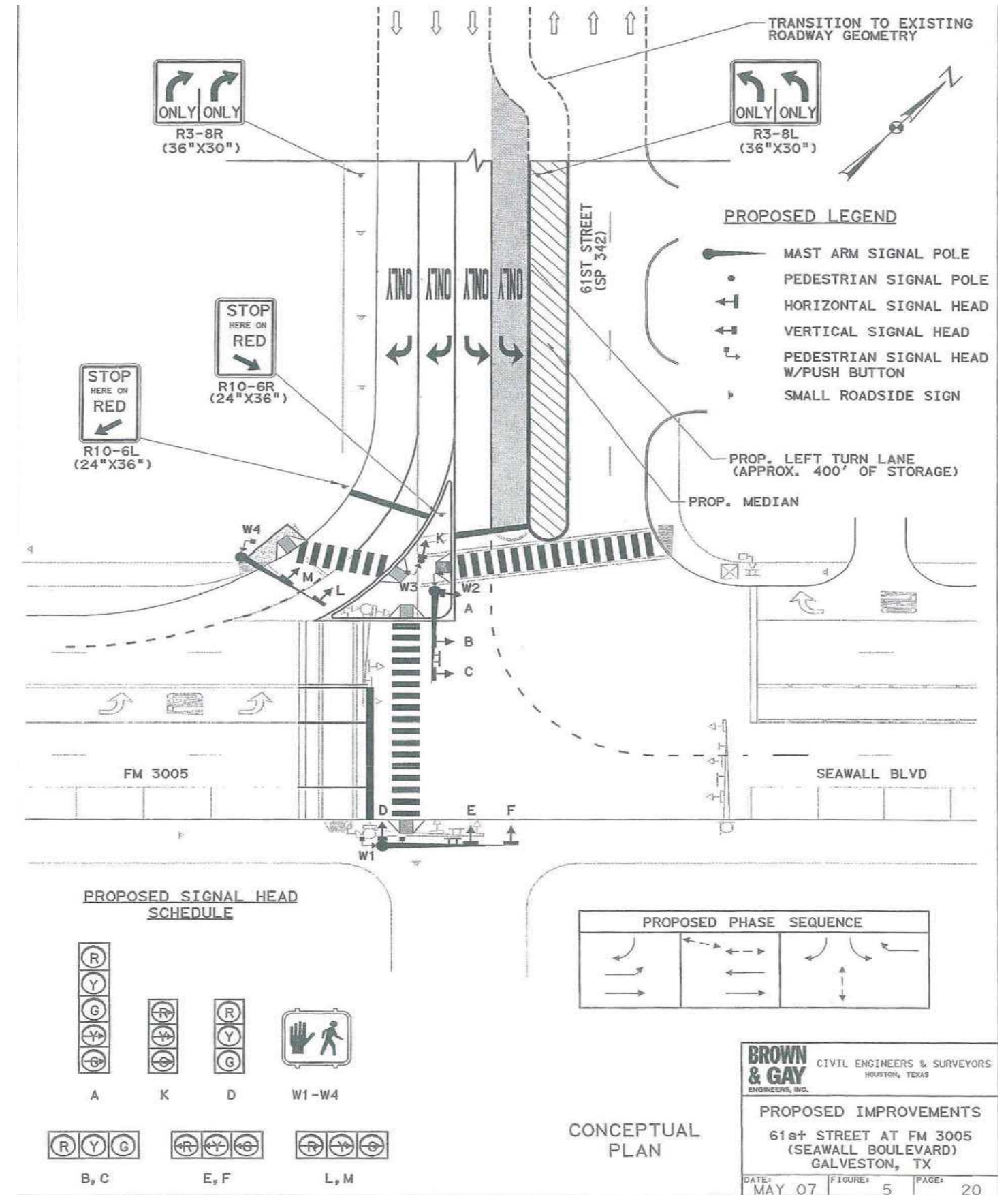
## Summary of Recommendations

### Recommendations:

1. Consider the installation of more effective advance directional signing that may reduce the sideswipe crashes on Seawall Blvd. Since 61st Street is a primary roadway leading to IH-45, advanced signing should be adequate to alert drivers of the approaching intersection. This can preferably be accomplished with an overhead sign structure on Seawall Blvd. informing drivers of the approaching 61st Street intersection with an IH-45 plaque, a left (or right) arrow plaque & a "To Houston" plaque. Overhead signs provide superior visibility compared to standard ground-mounted signs on the sidewalk adjoining the shoulder (parking) lane, which are easily blocked by large vehicles
2. As the traffic counts revealed, during the Saturday peak hour the southbound vehicles on 61st Street were almost evenly divided among left & right turns, with 52% of the approaching vehicles making right turns. The increase in residential development on Galveston's West End has contributed to increasing right turn movements from 61st Street onto westbound FM 3005 (Seawall Blvd) in recent years. Although the single right turn lane on the southbound 61st Street approach works adequately during the weekday AM & PM peak traffic periods, the weekend peak period & special event traffic volumes require a 2nd right turn lane for this approach. With an additional right turn lane, the southbound 61st Street approach would consist of 4 lanes: dual left turn & dual right turn lanes.

## Level of Service Summary

Peak	Condition	Seawall Blvd / 61st Street Intersection LOS/Delay		Southbound Approach LOS/Delay	
		LOS	Delay	LOS	Delay
AM	Existing AM Volumes	B	14.1	B	18.3
	Proposals 1 & 2	B	12.8	B	19.6
PM	Existing PM Volumes	B	18.8	C	22.2
	Proposals 1 & 2	B	18.3	C	22.9
Weekend	Existing Weekend Volume	<b>E</b>	<b>69.4</b>	<b>F</b>	<b>101.6</b>
	Proposals 1	<b>E</b>	<b>56.2</b>	<b>E</b>	<b>71.5</b>
	Proposals 1 & 2	<b>D</b>	<b>45.8</b>	<b>D</b>	<b>37.6</b>
NOTES: Intersection delay is provided in seconds per vehicle (sec\veh).					
Geometric & operation improvements:					
<b>Proposal 1:</b> Southbound right-turn overlap phase.					
<b>Proposal 2:</b> Southbound dual right-turn lanes.					





# Galveston-Houston ITS Commuter Rail Study:

## Summary of Recommendations

### Objective to Investigate the Following Mobility Issues:

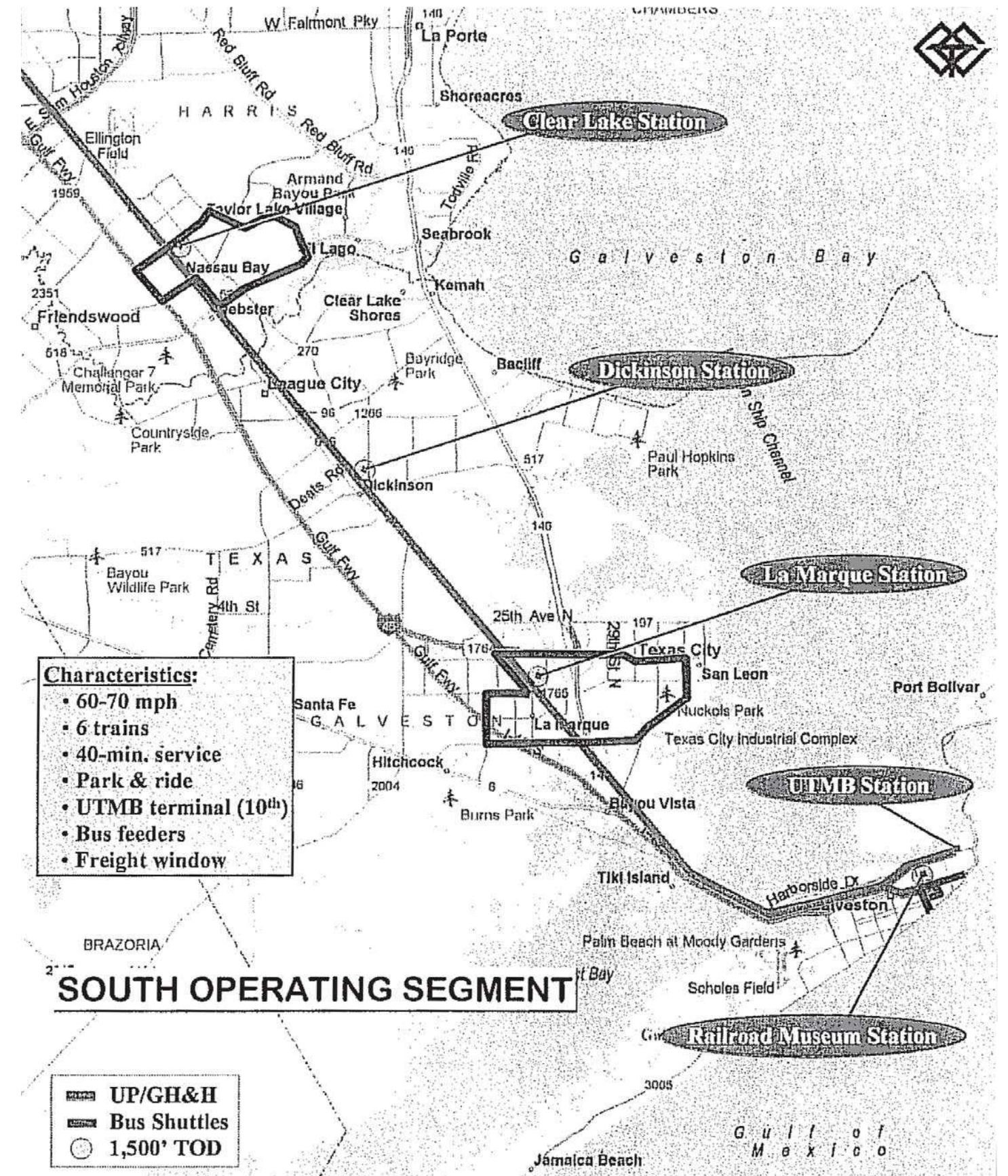
1. Creation of an efficient alternative to IH-45 for: relief of commuter congestion, better accommodation of freight from 3 ports, added surface transportation capacity to absorb substantial new growth, emergency evacuation, & most cost-effective development of infrastructure.
2. Best use of Union Pacific (UP) Railroad (RR) right-of-way (ROW) from a regional mobility perspective.
3. Passenger connectivity between Galveston & downtown Houston.
4. Developing consensus & commitment among multiple jurisdictions.
5. Designation or creation of an implementing & operating agency.
6. Potential to phase improvements in a meaningful & cost-effective manner.

### Project Benefits:

1. Congestion Relief & Improve Air Quality.
2. Economic Development / Redevelopment.
3. Hurricane Evacuation.

Two alignment choices in Galveston were examined to determine the most successful alignment for commuter rail. These alternatives were examined in an attempt to provide the best accommodation for freight while providing the best service to needed passenger destinations along this most heavily used section.

On Galveston Island weekday passenger demand to University of Texas Medical Branch (UTMB) potential could be served by utilizing other UP or Burlington Northern Santa Fe (BNSF) railways on-Island track to access the Port of Galveston track, north of Harborside Drive, to ultimately terminate near UTMB at 10th Street. Similarly, weekend tourist demand to The Strand area would benefit from direct access to the Galveston Railroad Museum & Terminal.





# Community Recovery Project:

## Summary of Recommendations

### Galveston-Houston Rail

#### Transportation

1. Central hub at 61st Street containing parking, bus terminal, taxi's, & bicycles.
2. Rail should include 3 stations on the Island (UTMB, 25th Street, & 61st Street) with improvements & amenities including ticketing, lockers, cafe, vending, toilets, bike racks, & news stand.
3. Parking should be provided at each station.
4. Improve rail bridge at ICW to 300 foot span, high clearance lift bridge.

#### Business District Plan

1. Terminal at 25th Street should be part of the Downtown Plan & should be integrated with Island Transit.

### Streets, Thoroughfare, & Bridges

#### Transportation

1. 61st Street flyover for northbound traffic to aid in lowering traffic congestion, ease of mobility, & evacuation of the West End.
2. Extension of 61st Street to Harborside Drive.
3. Elevate FM 3005 on the West End to aid in evacuation time.
4. Construct a West Bay crossing to improve Island connectivity. This is proposed to connect to SH 288 or SH 35 to traffic on IH-45 & provide an additional ingress/egress Island route for daily & evacuation traffic.
5. Raise low areas & improve drainage in flood prone areas on Harborside Drive.
6. Improve Pelican Island causeway.
7. Repair / reconstruct the 51st Street bridge.
8. Connect Pelican Island industrial bridge railroad track from the north side of Pelican Island to Loop 197.

### Smart Streets - Design Guidelines

#### Transportation

1. Upgrade visibility & enforcement of all crosswalks.
2. Establish a "clear site triangle" at all intersections, alleyways, & driveways.
3. Implement street beautification.
4. Limit parking to one side of all thoroughfares & "one-ways", restrict parking of large trucks, trailers, & boats on these streets, use the open lane for bicycles.

### Bus & Trolley

#### Transportation

1. Establish a system of hubs across the Island including 61st Street, Airport, UTMB, & 25th Street that connect to trunk lines such as the Seawall & potential commuter rail.
2. Ensure bus/trolley stops are clean, safe, well lighted, & evoke civic pride.
3. Create a "cool" consistent marketing campaign to promote wide scale usage including special events to increase awareness & ridership.
4. Explore ways to offer free bus service via federal funding & incentive programs.
5. Equip buses with bike & surfboard racks that are recreational friendly. Configure interior seating to accommodate luggage & packages.
6. Establish system of standards to ensure system remains world class.
7. Explore water taxi system from downtown/Pier 21 area up to Houston.

### Pedestrian / Bike Trails

#### Transportation

1. Establish an Island wide accommodation for bikes, hikers, & pedestrians.
2. Clearly mark & enforce crosswalks in downtown, Seawall, UTMB, & public areas.
3. Construct bike/pedestrian interconnections between downtown, Texas A&M, UTMB, & Seawall.
4. Establish bike racks in all of the above areas & on buses.
5. Create better definition for bikes & pedestrians along the Seawall utilizing the south side parking lane & planters to separate traffic from pedestrians & bicyclist.
6. Develop parking garages on the north side of the Seawall.
7. Create hike & bike trails to parks, nature preserves, & other public places.

### Smart Streets - Design Guidelines

#### Transportation

1. Make all intersections & grade changes ADA compliant.
2. Install proper signage at all crosswalks & intersections.
3. Enforce pedestrian right-of-walk to make Galveston "Pedestrian Friendly".
4. Upgrade all street lighting to make it safe, beautiful, & "dark sky" compliant & energy efficient.
5. Improve lighting for pedestrians on the Seawall.
6. Establish trash & recycling containers along all major streets, downtown, Seawall, UTMB, & A&M.





# Galveston Corridor Screen Line Study:

## Summary of Recommendations

### Purpose & Need for Transportation Improvements

1. Enhancing the quality & reliability of the transportation by decreasing travel delay.
2. Providing more travel choices from residential areas to activity centers, employment centers, & other major destinations.
3. Improving interregional connection to the existing & planned METRORail system.
4. Providing additional transit capacity in the corridor.
5. Changing modes of travel & reducing the existing dependence on the automobile, improving air quality.
6. Reducing travel delay, improving air quality.
7. Creating new commercial, retail, employment, & residential opportunities by facilitating transit-oriented development.
8. Enhancing travel & accessibility to jobs, activity centers, medical, & community facilities in Downtown Galveston, Downtown Houston, & other areas to be connected by the proposed METRORail corridors.

### Goals & Objectives:

Goal: Develop a multimodal transportation system

Objectives:

1. Improve transportation system accessibility & connectivity.
2. Reduce the time necessary to travel to & between the primary job markets & activity centers.
3. Improve transportation options for socially, economically, & physically disadvantaged groups.
4. Reduce dependency on automobiles.
5. Provide an alternative to highway travel delays & congestion by means of additional transit capacity & quality.

Goal: Improve the efficiency, reliability, capacity, & safety of existing transportation facilities.

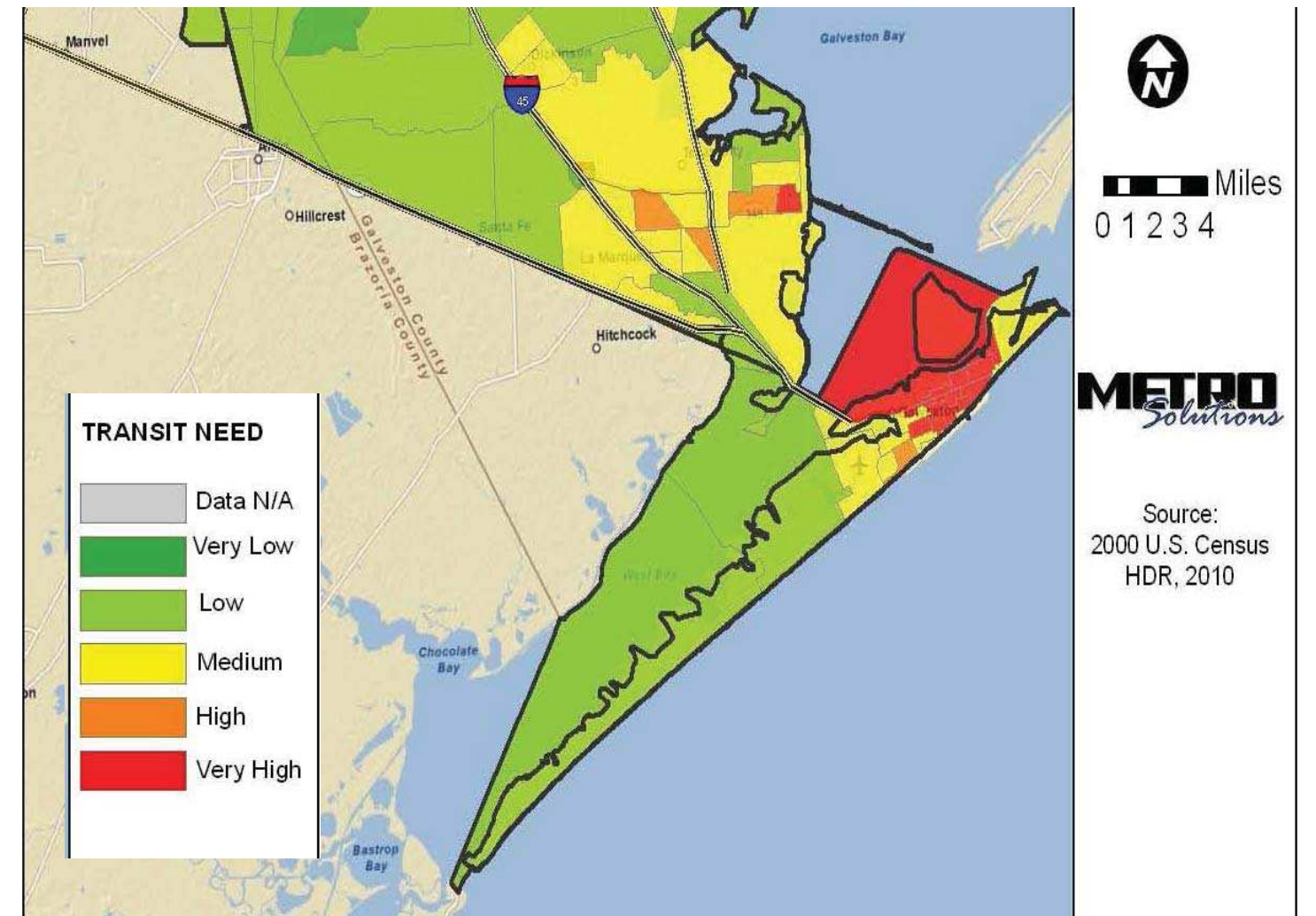
Objectives:

1. Provide direct transit connections to major activity centers.
2. Provide area residents with enhanced transit options for a variety of trips within the corridor and region.
3. Provide more direct connections between residential and commercial activities.
4. Provide safe, reliable, and secure transit services.

Goal: Preserve social integrity and support of urban communities

Objectives:

1. Connect high volume pedestrian activity center.
2. Serve existing and future high-density residential populations.
3. Provide transit investment supportive of redevelopment/development & land use plans.
4. Minimize traffic impacts on local streets within the study area.
5. Minimize impacts during construction.
6. Minimize right-of-way requirements.



Goal: Plan for transportation projects that enhance the quality of the environment

Objectives:

1. Improve air quality by reducing automobile emissions and pollutants.
2. Protect sensitive area such as wildlife habitats, wetlands, floodplains, & historic and cultural sites.
3. Provide a transit option to the amount of land used for parking & encourage a sense of place & neighborhood..

Goal: Develop projects that are financially feasible

Objectives:

1. Provide equitable transportation services & benefits to all geographic areas & constituencies.
2. Provide for equitable sharing of the costs of transportation improvements among those who benefit from them.
3. Maximize the economic benefits gained from transit capital investments.
4. Be affordable to construct and operate.





# City of Galveston Comprehensive Plan:

## Summary of Recommendations

### Transportation Goal - Establish the City of Galveston as a Model City for Connectivity, Mobility, and Accessibility through Expanded Transportation Links and Choices.

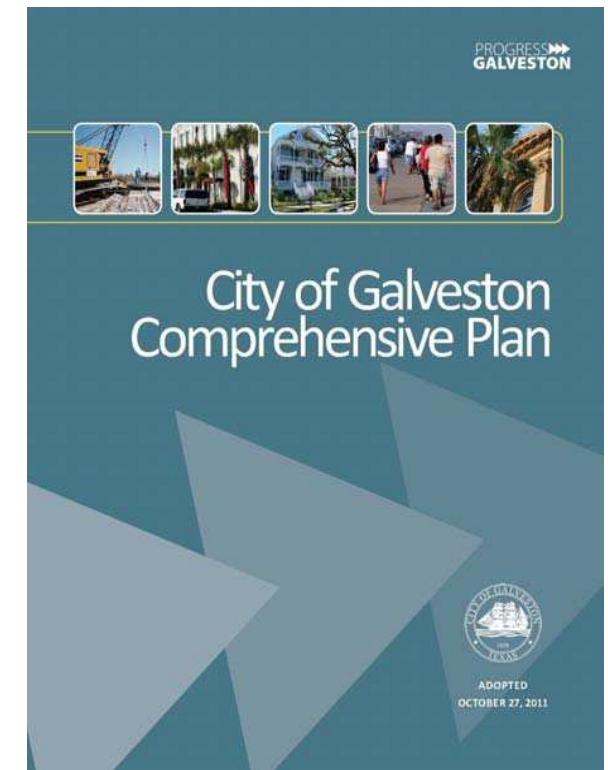
#### Objectives:

1. Improve access to the island for our residents, commuters, and visitors by providing transportation options.
2. Improve mobility and connectivity of the island's inter-modal transportation system.
3. Partner with regional municipalities and transportation entities to further regional transportation goals and fund improvements to develop an inter-modal transportation system.
4. Improve internal city organization, policies, and planning to provide better transportation opportunities.

#### Recommendations:

1. Continue to improve & expand the local public transportation system, bicycle paths, & explore the establishment of car-sharing programs.
2. Explore feasibility of an additional bridge crossing from Pelican Island to the mainland.
3. Make improvements to Harborside Drive to accommodate the increased truck load, provide a direct connection from the port to IH-45 via Harborside Drive, & raise the roadway to alleviate flooding problems.
4. Work with the TxDOT to improve pedestrian access across Harborside Drive.
5. Improve access to the ferry by ensuring that Island Transit provides bus service to the ferry landing, extending sidewalks, & establishing bicycle routes.
6. Expand the use of ITS to ease congestion & improve the flow of traffic. ITS technologies help manage traffic through surveillance, signal control, lane management, parking management, information dissemination, & enforcement.
7. Identify streets that serve as alternatives to Seawall Boulevard to provide efficient circulation and reduce the local perception of Seawall as a transportation thoroughfare, thereby allowing the redevelopment and beautification of the coastal boulevard.
8. Explore options for alleviating traffic on 61st Street, separating local & through traffic, & providing an additional evacuation route. Short-term improvements could include a flyover to connect 61st Street & IH-45. Long-term options include additional access points to the West End including a new bridge or water transportation. The connection to the mainland should focus on the SH 288/35 corridor & the Grand Parkway, rather than IH-45.
9. Study the feasibility of public or private water transportation between the mainland & Galveston Island, as well as within the Island.
10. Consider reducing the speed limit on Seawall Boulevard to increase pedestrian safety while further reducing the local perception of the Seawall as a thoroughfare.

Project Name	Description	Project Status	Lead Entity
Complete Street Policy	Development of a Complete Streets Policy will be completed as part of the Mobility and Thoroughfare Plan as part of Progress Galveston initiative.	Funded	PCD, PW, ITC
Mobility & Thoroughfare Plan	Plan to be completed as part of Progress Galveston initiative to assess capacity, identify transportation improvements, partnerships with regional and state partners, neighborhood impacts, linkages to regional network, public outreach, and develop a 5-year capital improvement program.	Funded	PCD, PW, ITC
Way-finding Signage Program	Program to develop directional signage for visitors.	Expanded Program	PW





# City of Galveston Thoroughfare Plan:

## Summary of Recommendations

The City of Galveston Thoroughfare Plan, adopted December 13, 2012 as an addendum to the 2011 Comprehensive Plan, provides a foundation for the City's ongoing efforts to improve mobility, access, and circulation on Galveston Island. The Thoroughfare Plan includes a statement of purpose, a review of the plan's relationship to the Comprehensive Plan, a review of important resources and references, a list and map indicating locally-determined designations of functional classifications for streets in the City's thoroughfare network, and a list and map describing planned improvements to existing thoroughfares and the general location of new thoroughfares recommended to address access and circulation challenges.

### Recommendations:

The City has also prepared an updated list of planned improvements designed to address long-standing access, circulation, evacuation, congestion, and condition issues as well as advance the community's economic development and livability goals. Projects on the list, drawn from previous plans prepared by the City, County, and H-GAC, are identified by type as follows:

**New Facilities.** New facility projects include major investments to address issues such as access to the West End and congestion along the 61st St corridor. To move such projects forward and seek support for more detailed design and engineering, the City will likely need to complete additional feasibility studies and cost-and-benefit analyses.

**Capacity Improvements.** Capacity improvement projects are those designed to address deficiencies along existing roadways or travel corridors, including capacity deficiencies at I-45 interchanges with Harborside Dr and 61st St and access to Pelican Island and the Port of Galveston.

**Traffic System Management.** Traffic System Management (TSM) projects are those designed to address roadway congestion through signalization, signage, intersection, access management, and other improvements. Projects listed include traffic signal system improvement along Harborside, Seawall, and 61st St as well as an item calling for a study of signalization of north-south streets connecting Broadway and Seawall Blvd.

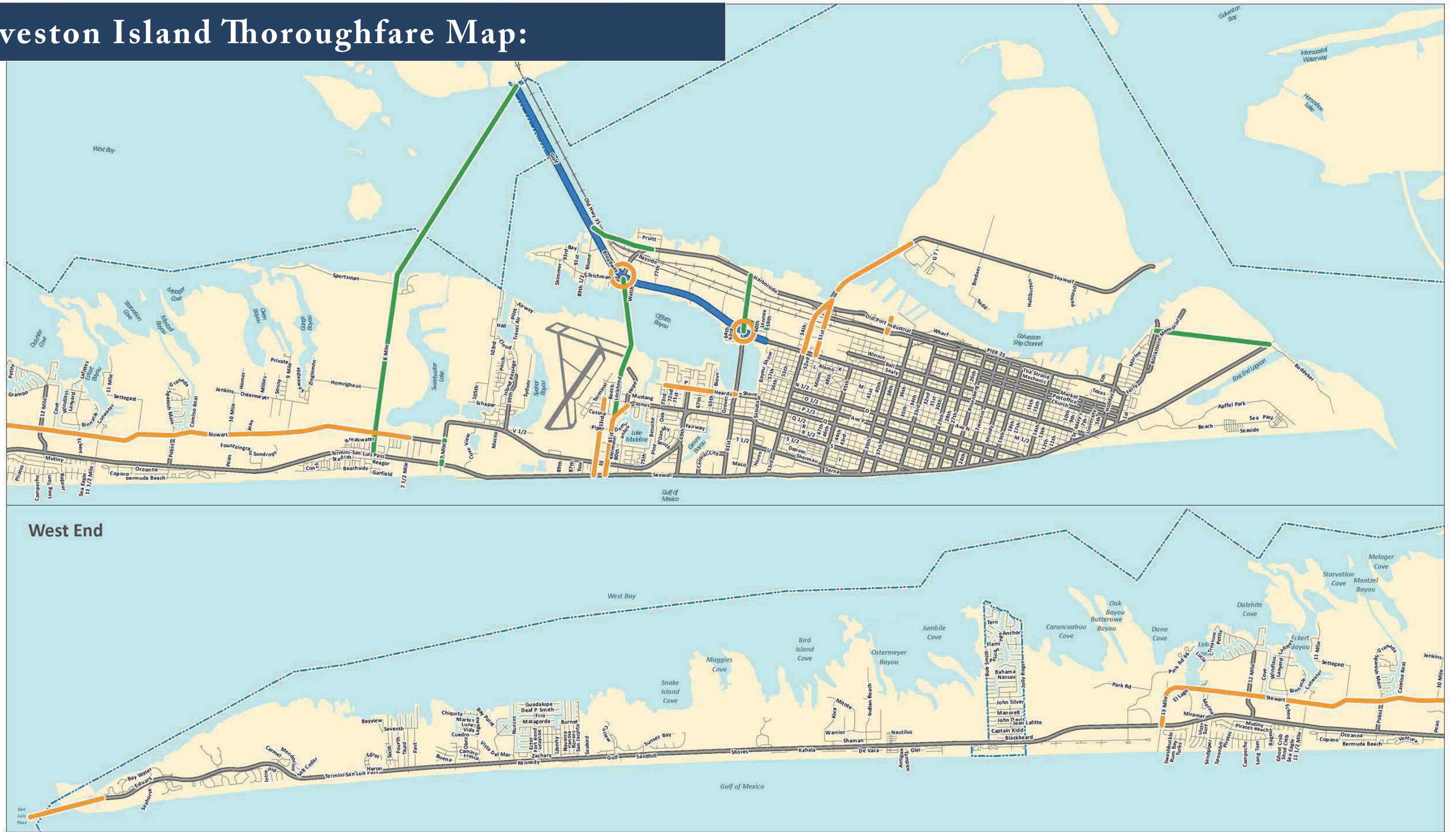
**Mitigation.** The project list and map also includes two projects designed to address flooding and the potential for storm related damage to FM 3005 and Harborside Dr.

Thoroughfare Plan - Planned Improvements			
Project	Type	Jurisdiction	Description
61st Street - IH-45 to Seawall Blvd	TSM	TxDOT	Improve signalization & access management to address congestion.
61st Street / IH-45 Flyover	Capacity	TxDOT	Increase capacity, address 61st Street congestion, & improve access to West End.
61st Street Extension - Harborside Drive to Broadway Blvd	New Facility	TxDOT	Create connection between Harborside Drive & Broadway Blvd. Feasibility study completed in 2005.
Ave H Extension - 59th Street to 61st Street	New Facility	Local	Extend Ave H to 61st Street & address environmental issues. Preliminary studies completed.
Stewart Road - 7½ Mile Road to FM 3005	Capacity	Local	Extend improvements west to FM 3005 at 13 Mile Road.
7 Mile Road - Stewart Road to FM 3005	Capacity	Local	Improve connection to FM 3005
Pelican Island Causeway Bridge	Capacity	Local	Improve access to Pelican Island & the Port of Galveston
81st Street - Hope Blvd to Seawall Blvd 83rd Street - Airport Road to Seawall Blvd	Capacity	Local	Improve access to tourist destinations.
Harborside Drive / IH-45 Flyover	Capacity	TxDOT	Increase capacity & address congestion.
53rd Street / 51st Street Connector - Broadway Blvd to Causeway	Capacity	Local	Improve connection between Pelican Island Causeway Bridge & Broadway Blvd.
Harborside Drive Flood Mitigation	Mitigation	TxDOT	Address flooding & improve as evacuation route.
FM 3005 Elevation & Flood Mitigation - Seawall to San Luis Pass	Mitigation	TxDOT	Increase resilience & improve as evacuation route.
Offats Bayou Crossing - IH-45 to Seawall Blvd	New Facility	Local	Increase capacity, relieve 61st Street congestion, & improve access to West End.
West End Bridge - IH-45 to 8 Mile Road to FM 3005	New Facility	Local	Increase capacity, relieve 61st Street congestion, & improve access to West End.
Harborside Drive - IH-45 to Ferry Road	TSM	TxDOT	Improve signalization to address congestion.
Ave S / Stewart Road	TSM	Local	Improve signalization to address congestion.
Broadway Blvd to Seawall Blvd Connectors - 33rd Street, 39th Street, 45th Street, & 53rd Street	TSM	Local	Improve signalization to address congestion & mitigate impact on neighborhood.
Seawall Blvd TSM - 61st Street to 82nd Street	TSM	TxDOT	Improve signalization & signage to address congestion.
Heards Lane - 61st Street to 73rd Street	Capacity	Local	Extend Heards Lane to west as alternative to Jones. May be infeasible given recent construction at Moody Gardens.
41st Street at Harborside Drive	Capacity	Local	Galveston Wharves Project to increase capacity.
Pelican Island / Mainland Causeway & Bridge	New Facility	TBD	New causeway & bridge to provide alternative access from the Mainland to Port of Galveston.
Bluewater Highway San Luis Pass Bridge Improvement & Elevation to Surfside with Connection to SH-288	Mitigation	TxDOT	Increase resilience & improve as evacuation route.





# Galveston Island Thoroughfare Map:



## City of Galveston - Thoroughfare Map

Galveston Planning & Development Regulations  
Prepared by HDR, Inc. for City of Galveston

Existing Freeway	Planned Improvement	City Limits
Existing Thoroughfare	Capacity Improvement	
Existing Local Road	New Facility	

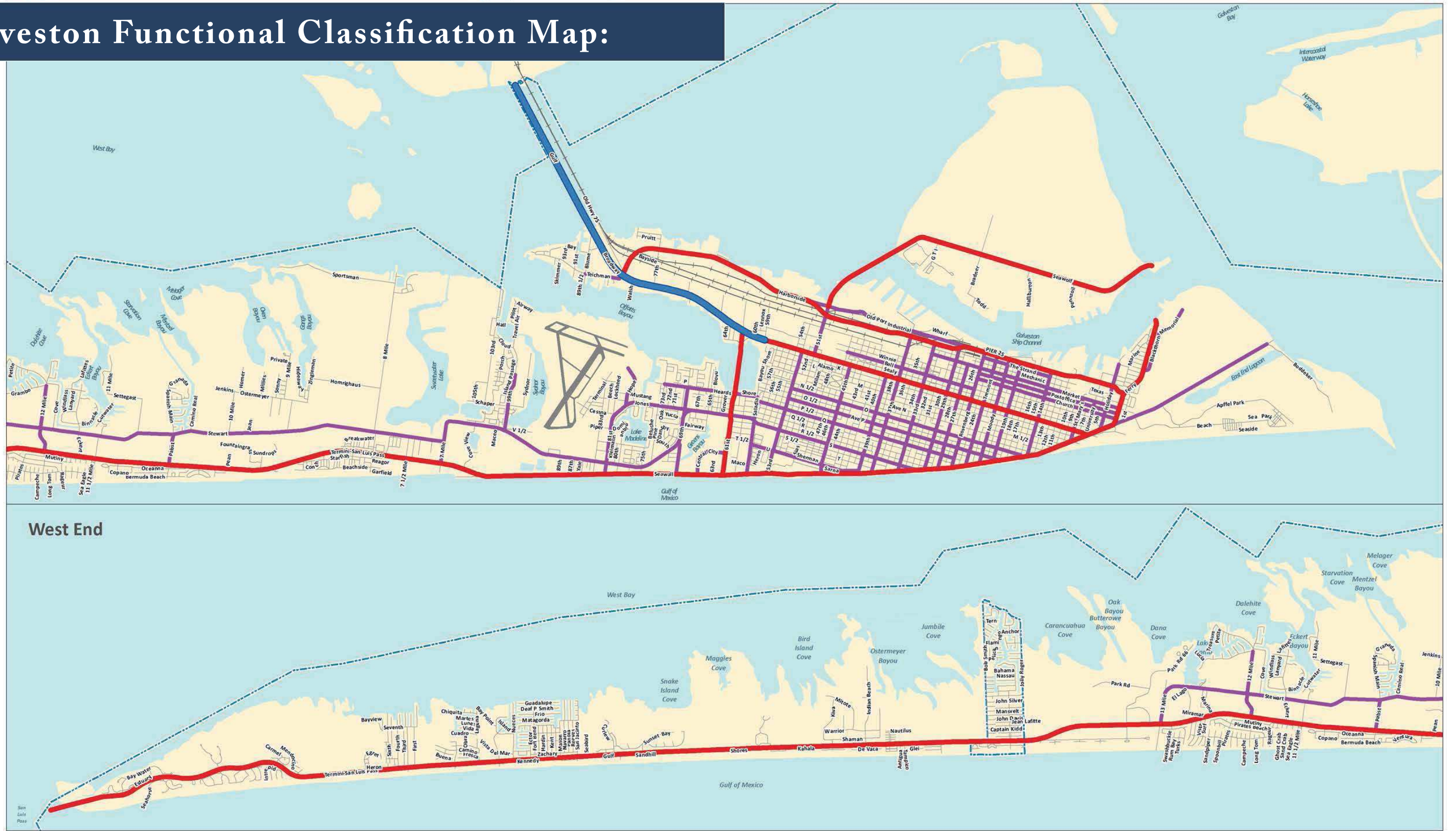
Data Sources: City of Galveston, Galveston Central Appraisal District, Houston-Galveston Area Council, TxDOT, HDR Engineering, Inc.

0 0.25 0.5 1 1.5 2 Miles





# Galveston Functional Classification Map:



## City of Galveston - Functional Classification Map

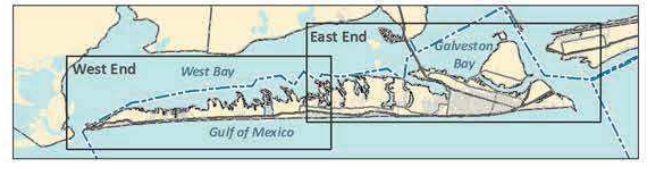
Galveston Planning & Development Regulations  
for City of Galveston

**Functional Classification**

- Freeway
- Arterial
- Collector
- City Limits
- Local

Data Sources: City of Galveston, Galveston Central Appraisal District, Houston-Galveston Area Council, TxDOT, HDR Engineering, Inc.

0 0.25 0.5 1 1.5 2 Miles

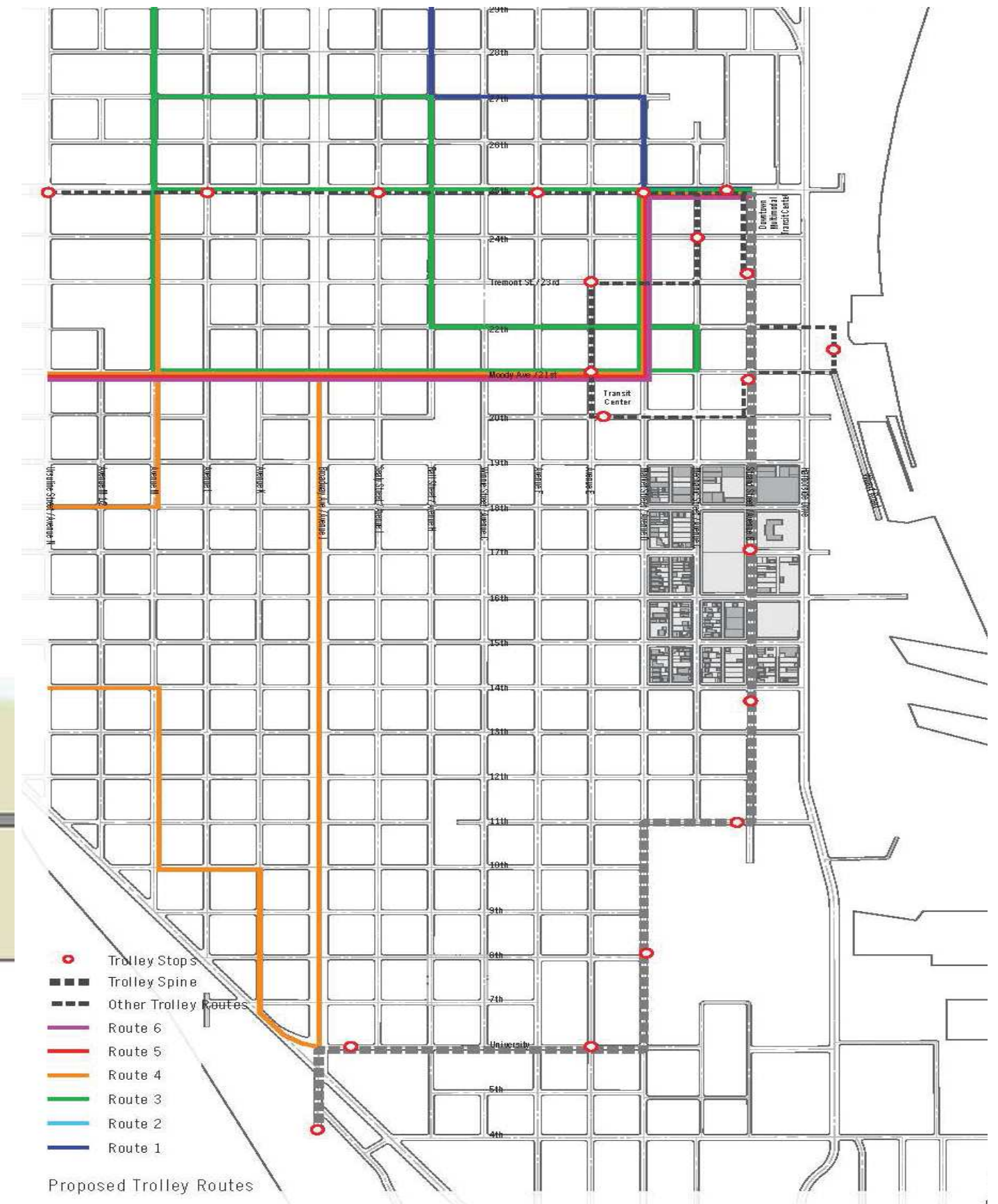
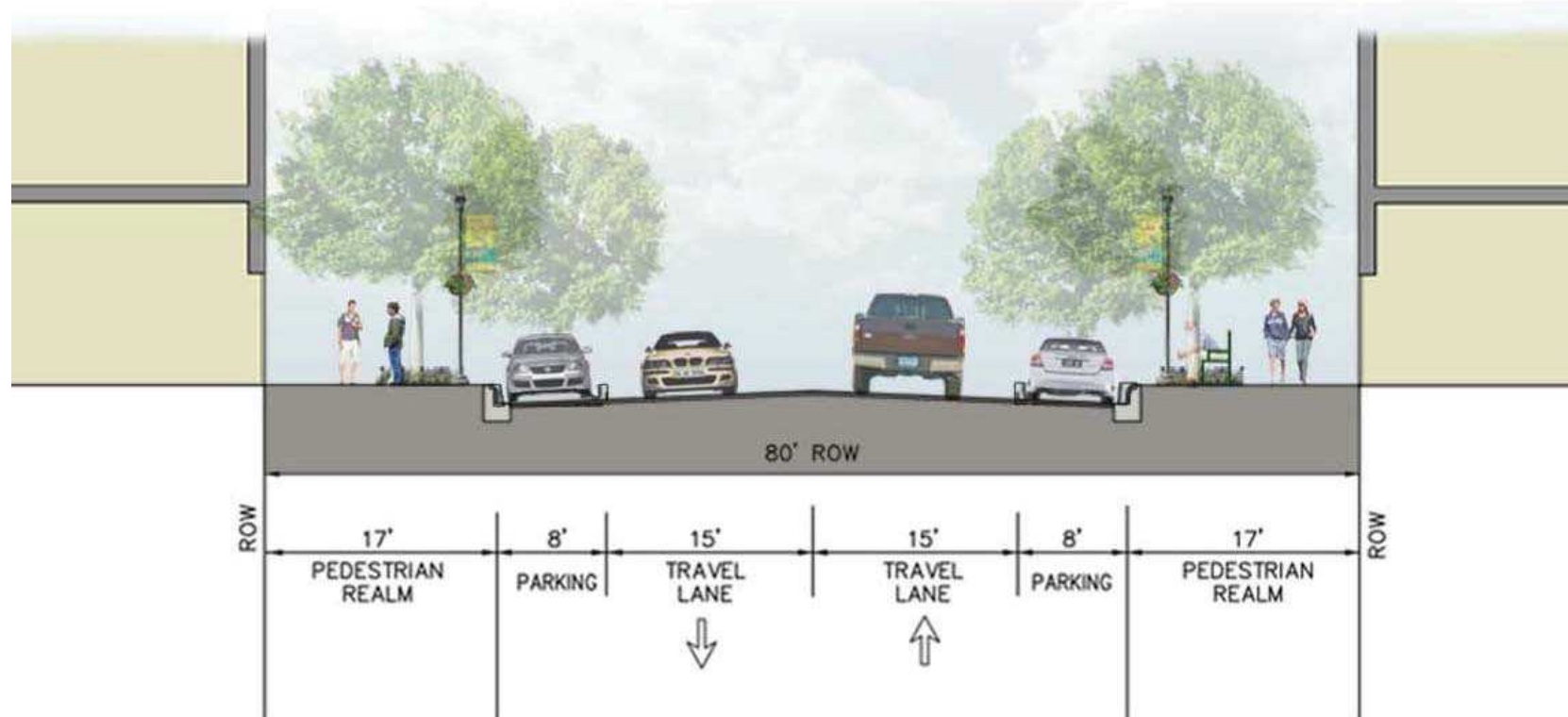




# Livable Centers Study - Galveston Housing:

## Summary of Recommendations

1. Create a neighborhood identity supported by wayfinding.
2. Reconfigure streets for safety & green space.
3. Create a Neighborhood Plaza.
4. Improve bike connections to the Seawall.
5. Improve pedestrian connections to UTMB.
6. Implement a high-frequency streetcar spine.
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.





# Evaluating Transit Sustainability:

## Summary of Recommendations

### Purpose:

Present methodologies and tools used to evaluate public transportation alternatives within the context of different sustainability principles.

### Transit Alternatives Evaluated:

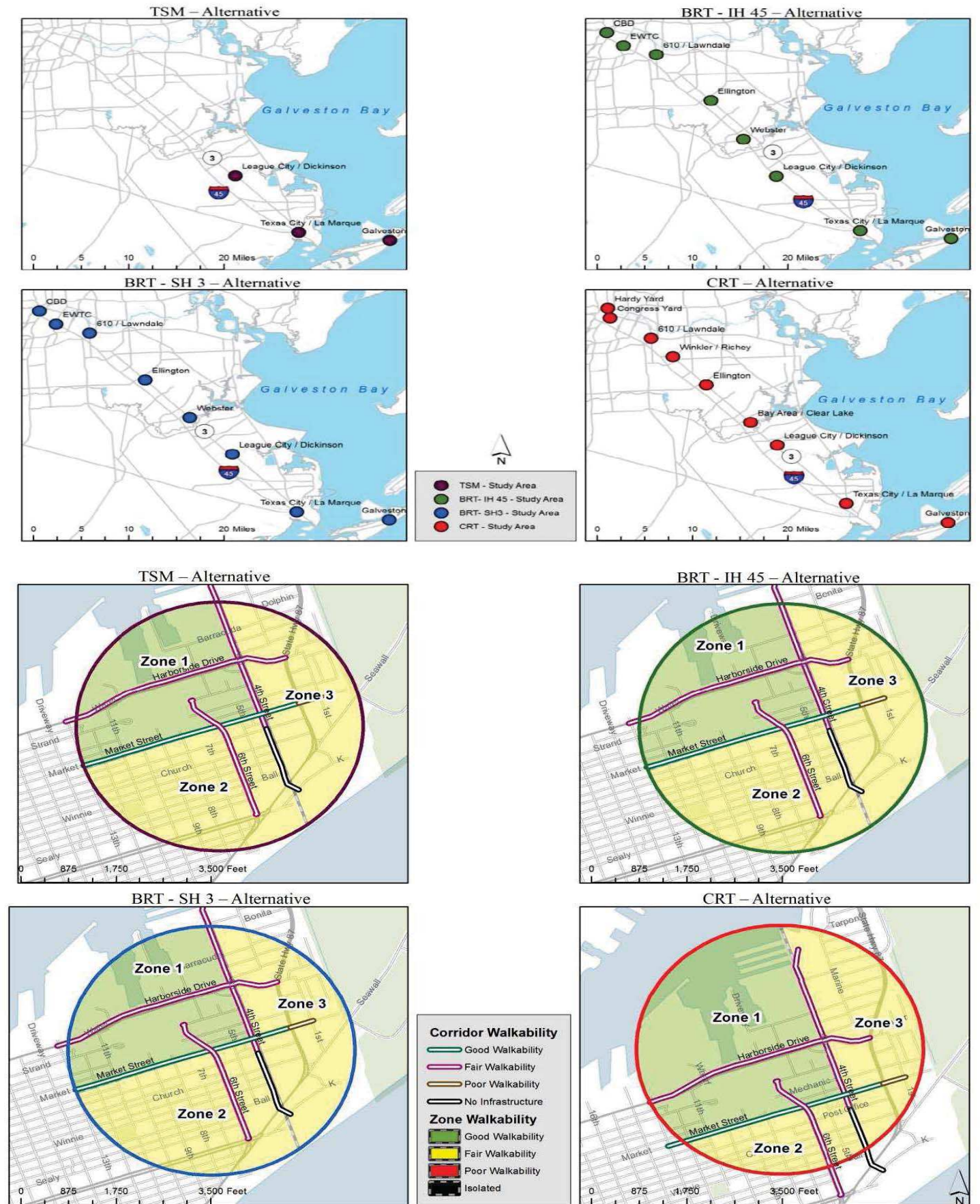
1. The Transportation System Management (TSM) alternative would involve expanding existing park & ride bus service operating on IH-45 to SH 3 and Galveston Island.
2. The Bus Rapid Transit (BRT) IH 45 alternative would include installing a two-way transit way on IH-45 right-of-way (ROW) from Dowling to the Galveston Causeway Bridge.
3. BRT on SH 3 would operate primarily using an HOV/diamond lane on SH 3 to provide a 2-way exclusive transit facility from Galveston to Houston operating on portions of SH 3, Old Galveston Road, & IH-45 depending on which portion of the corridor.
4. The Commuter Rail Transit (CRT) alternative would link downtown Galveston with downtown Houston. The alignment would operate on the existing Galveston Houston and Henderson (GH&H) railroad ROW, which is parallel to SH 3/Old Galveston Road.

### Outcomes:

1. Will provide more transportation choices by decrease household transportation cost, reduce fuel & oil consumption improve air quality, reduce green house gas, & promote public health.
2. Will promote equitable, affordable housing by expanding mixed-income & affordable housing choices, preserve existing affordable housing, & develop a more comprehensive approach to address household expenditures on housing & transportation.
3. Will enhance economic competitiveness by travel time savings in both automobile & transit, improving access to jobs, secondary education, shopping centers, & health facilities.
4. Will support existing communities by enhancing & providing the market for mixed-use development & increasing property tax valuation.

### Conclusions:

1. Sustainably is more than quantifiable data.
2. Examining four alternatives in the context of sustainably will provide stakeholders with an in-depth analysis.
3. Planners need to consider sustainability principles when developing transit or other related plans.



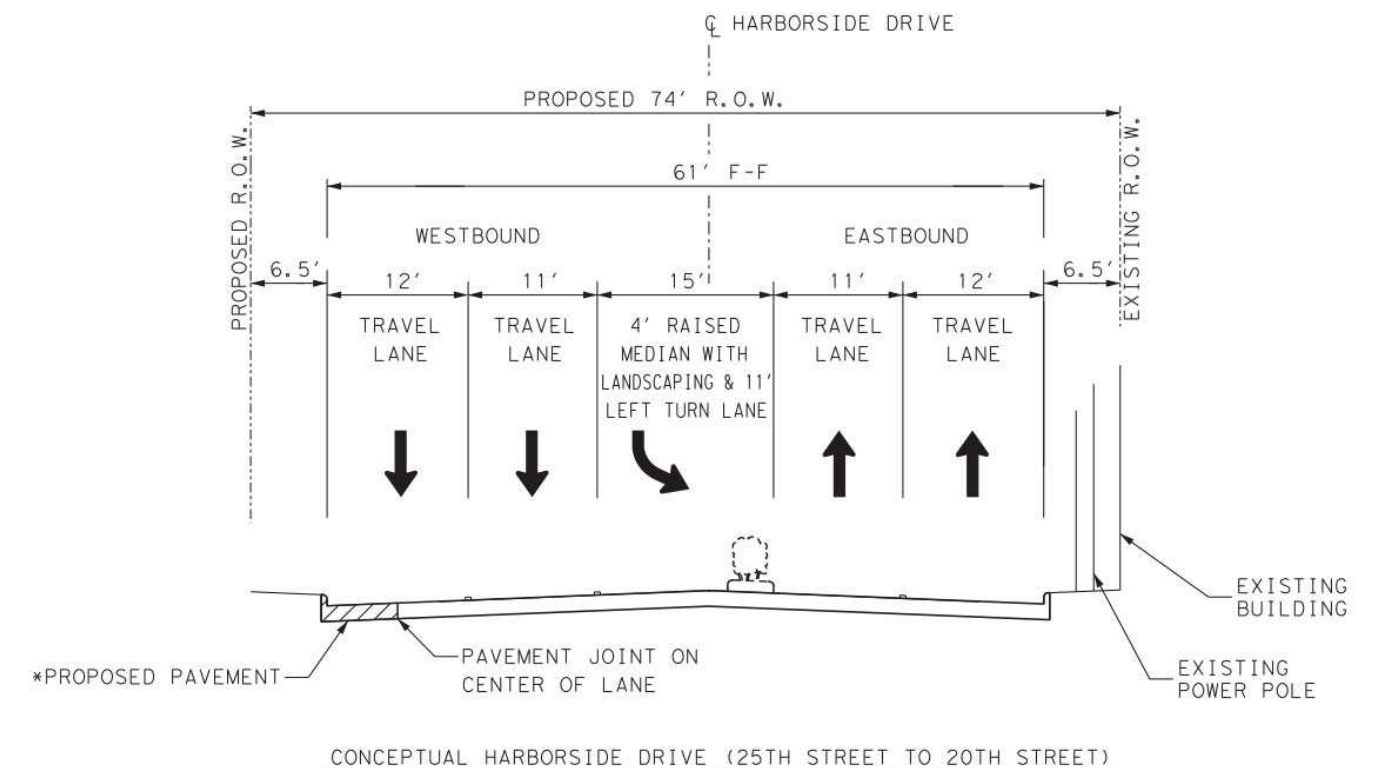
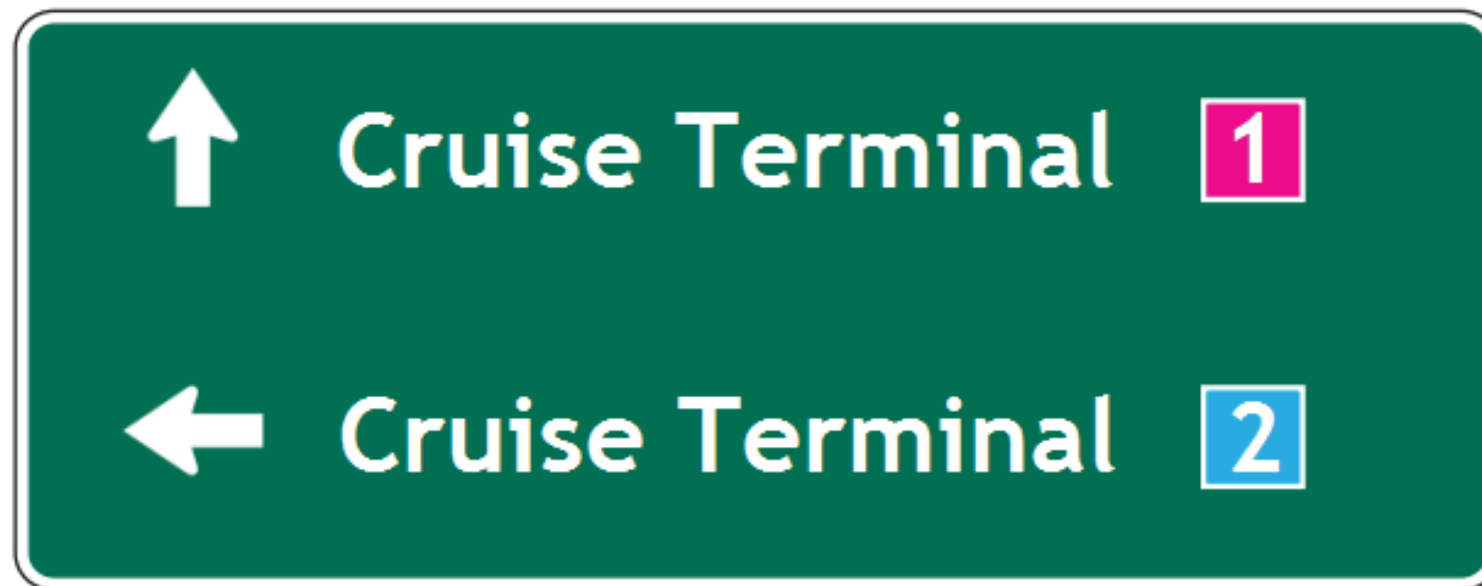
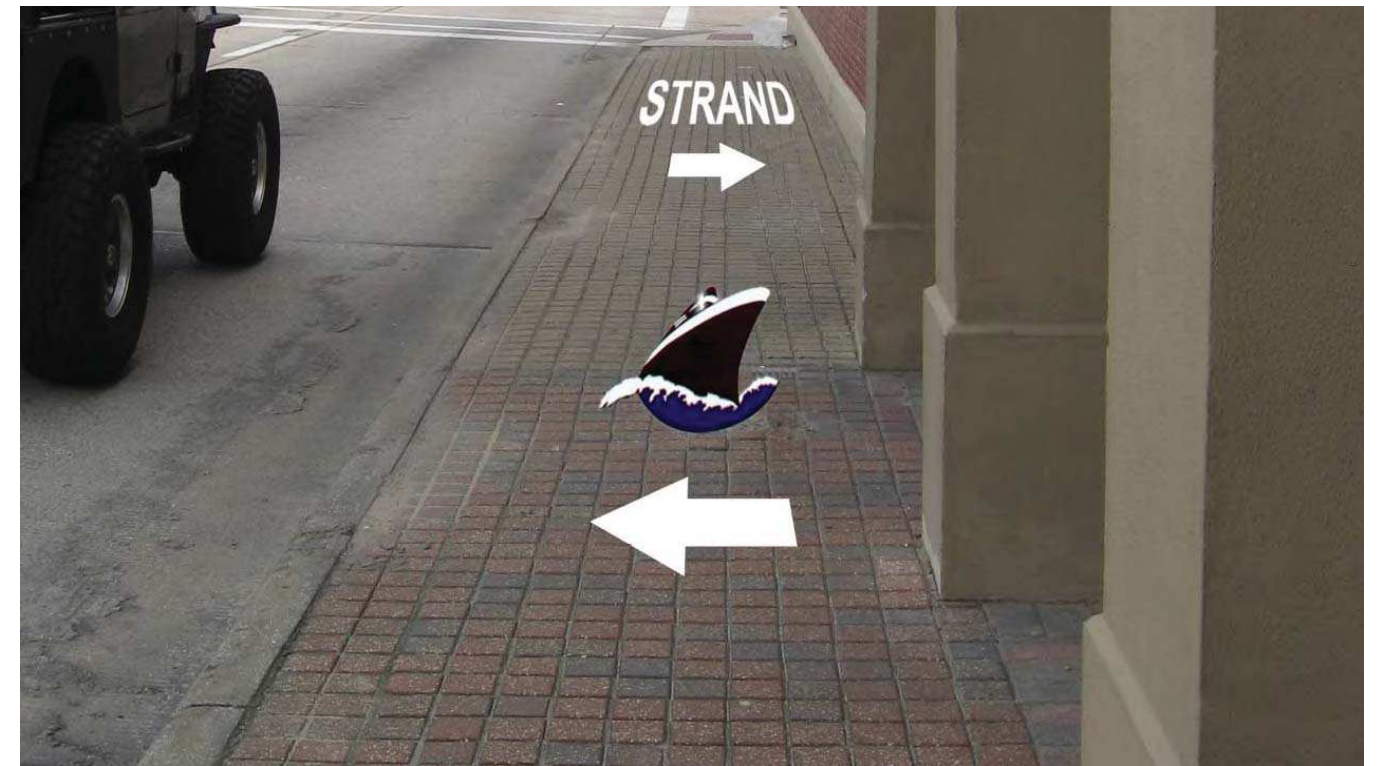


# Harborside Drive Corridor Study - 51st to 2nd:

## Summary of Recommendations

This report centers on vehicular, pedestrian, accident and access management components and overall operations along the 3.6 mile segment of Harborside Drive from 51st Street to Ferry Road (2nd Street). Potential improvements were developed through three (3) Steering Committee meetings and analysis in this report. In order to improve operations and safety along the corridor, it is recommended to implement the improvements discussed in the report which include:

- Proposed signal timing plan for AM peak hour and PM peak hour
- Install GPS clocks in each signal controller to sync offsets
- Raised medians east of 33rd Street to 20th Street
- Eliminate northbound left turns at 29th Street and 28th Street
- Relocate Cruise Terminal 1 entrance to 23rd Street and Cruise Terminal 2 entrance to 33rd Street
- Proposed sidewalk plan including landscaping features to help control pedestrians
- Improvements at 51st Street
- Wayfinding signs for vehicular traffic and sidewalk markings for pedestrians





# Island Transit Comprehensive Plan:

Island Transit is developing a Comprehensive Plan to guide the agency for the next 5-10 years.

- Studying the entire transit system to identify opportunities for improvement
- Island Transit is already one of the top performing small transit systems in the state, and serves Galveston Island extremely well. Thus, recommendations are more likely to be “tweaks” to the system rather than wholesale changes
- Potential improvements include (but are not limited to) route changes, schedule changes, serving new destinations, bus stop improvements (new shelters, handicap accessibility, etc.)

## Operational Findings:

- Excellent coverage overall
- Ridecheck
  - Comprehensive understanding of how, where, and when riders are using the system
  - All 279 weekly bus trips ridden by data collectors, noting passenger boarding/de-boarding activity
  - No identified “peak” (e.g., commuter hours) – rather, IT is an “all day” system
  - Highest productivity: Rt 6 (27 passengers/trip, weekdays)
  - Lowest productivity: Rt 4 (7.6 passengers/trip, weekdays)
  - Some schedule adherence issues
- All recommended schedule/route changes developed in context of ridecheck results
  - Maximize riders positively affected, minimize riders negatively affected

## Operational Alternatives:

- No capital, cost impacts:
  - Re-route and re-time all routes to move to new Downtown Transit Terminal
  - Minor Route 5 re-routing and re-scheduling in Fort Crockett area
- Extend late night service by one hour, operate Sunday service one hour earlier and one hour later
  - Additional 765 weekday, 156 Saturday, 336 Sunday annual revenue hours (1,257 total)
  - No additional buses required
- Combine Routes 1 and 7, alter Route 1 for more Broadway coverage
  - One-seat ride between Route 7 area and Downtown
  - Net savings of 418 annual revenue hours
- Extend Route 3 to Galveston College on Broadway
  - Running time ∅ from 45 minutes to 60 minutes
- Add new Route 8
  - Increased service to TAMU
  - One additional bus required
  - ~ 3,692 additional annual revenue hours
- Redesign and re-schedule Route 1/3/4/2 combination route
  - ~ 1,965 additional annual revenue hours
- Restore Routes 1, 3, 5, and 6 to 30-minute headways
  - Four (4) additional buses required
  - ~ 13,260 additional annual revenue hours
- Cost effectiveness of all options currently being evaluated

## Desirable Service Adjustments:

- Headways
- Span of Service
- Limited service on Seawall and Broadway
- Direct service between Route 7 and Downtown
- Route 7 transfers
  - Depending on final destination, some Route 7 passengers must transfer twice
- Travel time on “combination” routes
- Temporal service gaps
  - E.g., Target/Texas A&M University (TAMU) Galveston on Rt 1, DPS on Rt 3, Fort Crockett on Rt 5
- Limited service to TAMU Galveston
- Service to new Galveston College campus

## Bus Stop Infrastructure

### Shelters

- Approximately 290 bus stops system wide; 22 currently have shelters
- Recommendation: install shelter in locations with 10+ daily boardings
  - 13 locations (based on ridecheck data)
  - Will bring total to 35 stops with shelters (~12%), but 56% of boardings would occur from sheltered stop

### Benches

- Recommendation: install bench in locations with 5-9 daily boardings
- 31 locations
- At least 75% of boardings would occur from a stop with a shelter or a bench

### Bus Stop Signs

- Current signs are inconspicuous “No Parking” signs with bus icon
- Recommendation: Better signs
  - Route #
  - Island Transit phone #, website
  - Route, schedule info at busiest stops
  - Island Transit branding

### Other signage

- On par with new CVB signage

## Marketing Recommendations

- Full roll-out of 2012 re-branding components
- Website overhaul
  - Existing site not favorably regarded by public
- Route Maps/Schedules
  - Update when route/schedule changes implemented
  - Add major destinations, activity centers
  - Make more widely available
- Social Media



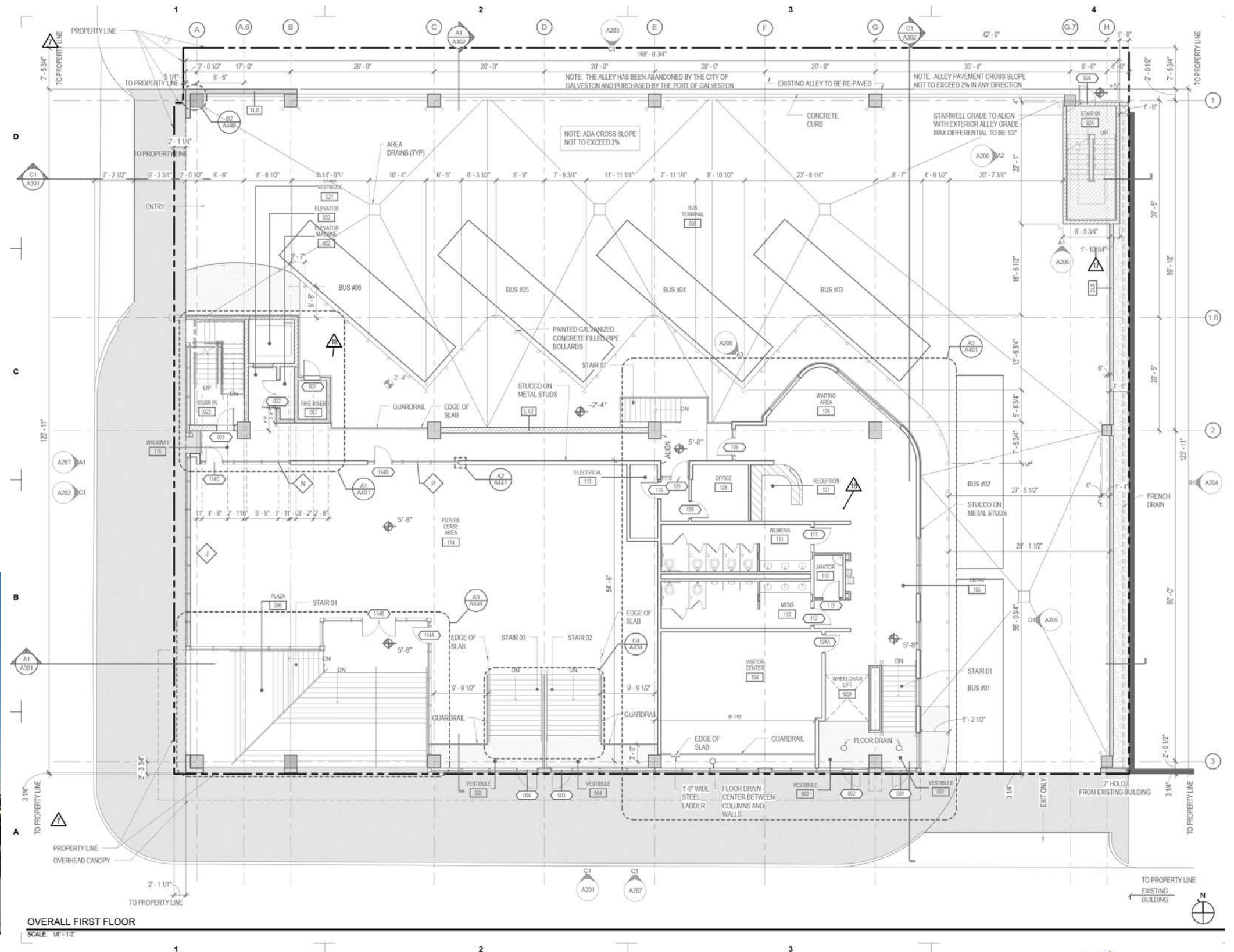


# Galveston Downtown Transit Terminal:

The Galveston Downtown Transit Terminal is set to open this Fall 2015. The Federal Transit Administration (FTA), the Texas Department of Transportation (TxDOT), and the City of Galveston jointly funded the facility, located at the northeast corner of The Strand and 25th Street. The terminal will be a transit hub for all Island Transit bus routes and services. The League City Park and Ride will also operate from the terminal. In addition to the bus connectivity at the terminal, there will be a stop across the street for easy access to the Galveston Rail Trolley when operations resume. Powers Brown Architecture designed a new transit terminal along the historic Strand District in Galveston. The three-story garage will provide parking for approximately 160 cars. This project is in result of the Livable Centers Study for the Galveston Housing Authority.

## Specific features:

1. Off-street bus transfer terminal with 4 diagonal bus bays
2. On-street rail trolley stop
3. Retail space on the 2nd level
4. Two levels of off-street structural public parking
5. Sky-walk to Cruise Ship Terminal #1
6. Public restrooms





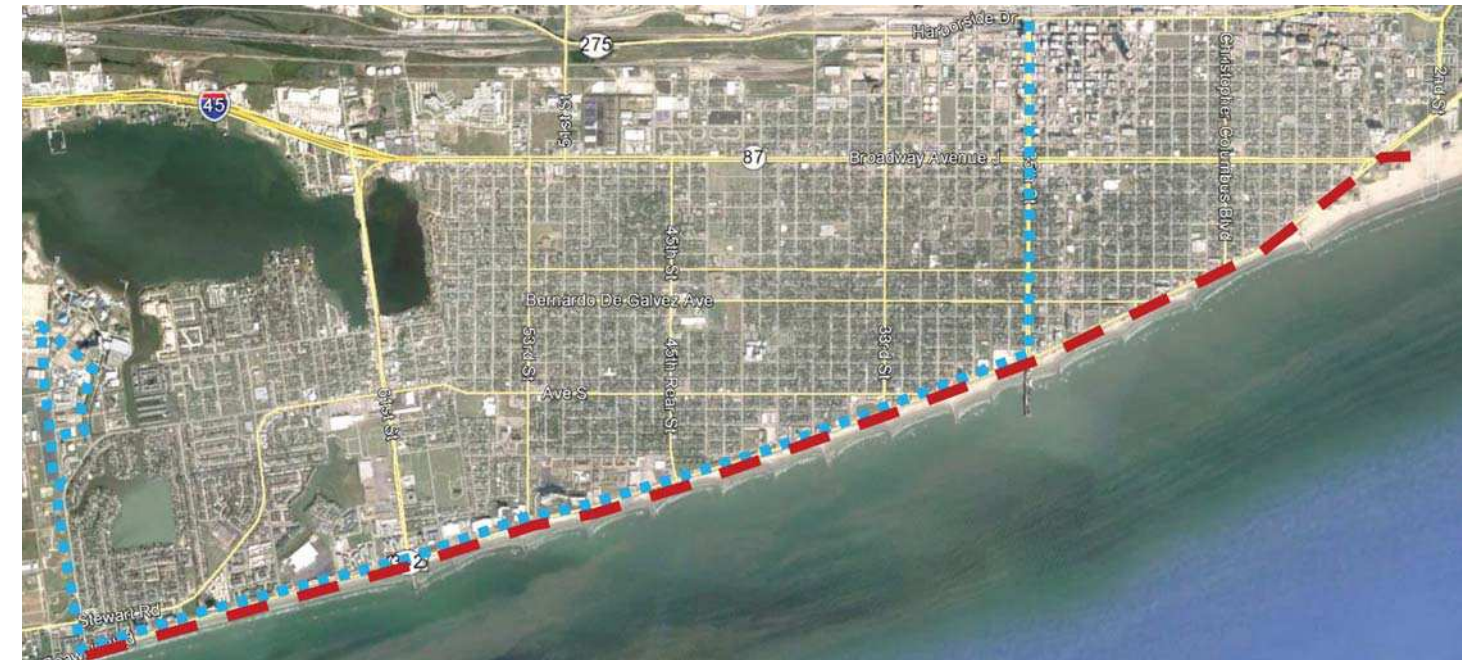
# Seawall Boulevard Rubber Tire Tourist Shuttle:

## Summary of Recommendations

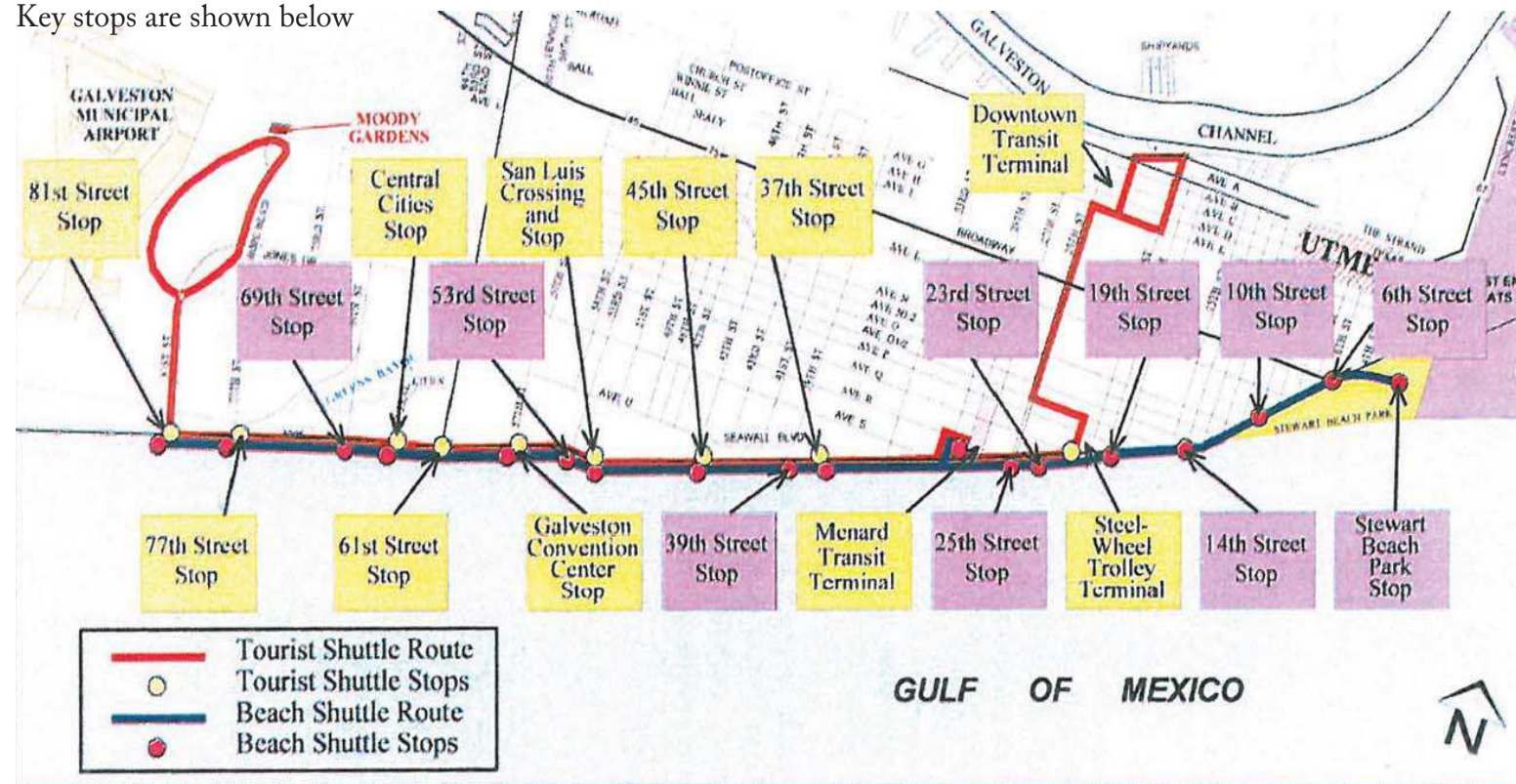
1. 15 Seawall Boulevard stop locations, activity nodes, restrooms, landscaping, etc.
2. Service Friday evenings (5 hours), Saturdays (10 hours), and Sundays (10 hours) - 40 weeks per year - 4,000 hours per year.
3. 15 minute headways with 4 buses in operation.
4. \$240,000 operating cost per year (\$200,000 from Hotel Occupancy Tax and \$40,000 from rider fares).

### Recommended Required Bus Service:

- Tourist Shuttle (Downtown to Seawall Boulevard to Scholes International Airport/)
- Beach Shuttle (Stewart Beach to 93rd Street)
- Stops at key businesses
- Stops at key attractions
- Stops at key beaches
- Stops at visitor stations
- Rearranged parking spaces to accommodate stops
- Operating seasons
- Operating funds



Key stops are shown below



Proposed Tourist Shuttle and Beach Shuttle Transit Services with Proposed Seawall Boulevard Stops





# Restoration of the Galveston Rail Trolley:

## Summary of Recommendations

(Plan was approved in February 2015 by the City of Galveston and is scheduled to begin operating in 2017)

### 1. Startup Operating Plan and Budget

a. Begin with 2 routes (*Beach and UTMB*) for a total of 10,400 total annual operating hours

b. \$624,000 annual operating cost - possible funding sources to offset these operating costs

i. \$285,000 annual operating revenue from the following sources

- \$225,000 fare revenue (*150,000 paid boardings at \$1.50 average*)

- \$60,000 UTMB increased annual compensation

- \$0 Federal, State, General Fund

v. \$339,000 annual operating deficit

- Possible additional revenue sources

\* Hotel Occupancy Tax

\* Advertising, sponsorship, charter revenue

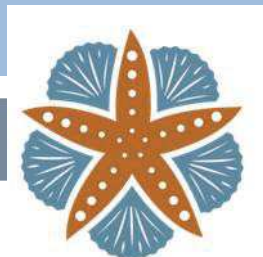
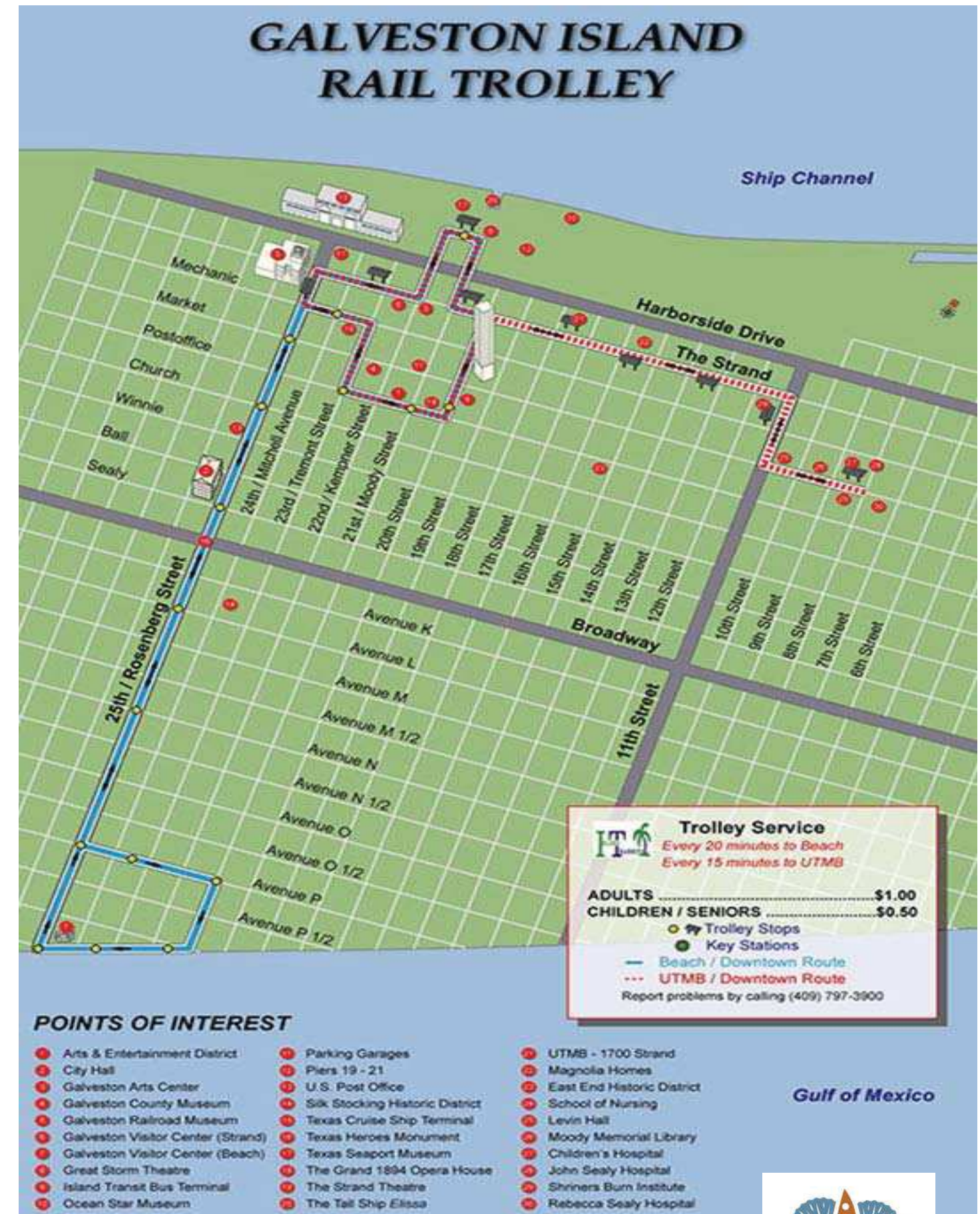
\* Other local funding partners

### 2. Time frame for completion of restoration of the Galveston Trolley:

a. Vehicle Restoration and Repair - May 2015 to July 2017 (*reopen service*)

b. Track Restoration and Repair - February 2015 to May 2016 (*complete track construction*)

c. Trolley Maintenance Facility Repair - August 2015 to September 2016 (*complete building repairs*)





# Completed Projects from Previous Studies:

## Tourist and Transportation Accomplishments

- Transportation Systems Management (TSM) - Broadway Boulevard.
- Coordinated installation of Synchrogreen Traffic Signal Coordination system on Seawall Boulevard between 19th and 57th Street.
- Worked on maintaining the fiber optic communications system for traffic signal systems on Broadway Boulevard, Seawall Boulevard, Avenue O and Avenue P.
- Extension of Avenue H, from 59th Street to 61st Street.
- Widened Stewart Road.
- Completion of the new IH-45 Causeway bridges in November 2008 behind schedule due to Hurricane Ike.
- Improved, paved / re-paved the following roadways:
  - 53rd Street from Broadway Boulevard and Avenue U.
  - 45th Street from Broadway Boulevard and Avenue U.
  - 75th Street from Stewart Road and Seawall Boulevard.
  - 80th Street from Stewart Road and Beluche Drive.
  - 81st Street from Stewart Road and Beluche Drive.
  - 7 mile Road from Stewart Road to FM 3005.
  - 9 Mile Road from Ostermeyer Road and Stewart Road.
  - Heards Lane from 61st Street and 73rd Street.
  - Stewart Road from 7 1/2 Mile Road to FM 3005.
  - Avenue U from 43rd and 45th Street.
  - Avenue U from 51st and 53rd Street.
  - Boddeker Drive from Seawall Boulevard to Afppel Park (East Beach)
- Graded west end beach access roadways and alleys located within the area behind the Seawall.
- Installed signage for Seawall Boulevard Residential Parking District.
- Provided for the replacement of traffic signal light fixtures with LED light fixtures.
- Worked on restoring/maintaining street lighting on Broadway and IH-45 between 6th Street and the Causeway.
- Provided traffic control for various special events, including, Dickens on the Strand, Mardi Gras, the Lonestar Motorcycle Rally, etc.
- Create the Victory Lakes Island Transit Mainland Park-and-Ride.
- Repaired sidewalks at 35 locations using Community Development Block Grant (CDBG) funds.
- Paved alleys at 19 locations using CDBG funds.
- Provided street sweeping for City roadways located between Ferry Road and Cove View Boulevard.

## Active Public Works Construction Projects:

- Pave City roadways using available City and FEMA funds.
- Pave alleys as funding becomes available.
- Repair sidewalks as funding becomes available.
- Maintain west end beach access roadways and bollards located between 7 Mile Road and San Luis Pass Bridge.
- Maintain and grade alleys located within the area behind the Seawall.
- Provide repairs to the City's roadway system.
- Provide utility cut repairs within City roadways.
- Provide slope mowing for large drainage ditch systems.
- Re-establish drainage-ditch systems in various west end subdivisions.
- Continue providing street sweeping for City roadways located between Ferry Road and Cove View Boulevard.
- Maintain the City's drainage system
- Continue reinstalling and replacing missing or faded regulatory, street name and beach access signage.
- Continue implementation of Traffic LED Retro Fit Program in accordance with the City's Energy Saving goal.
- Identify poorly striped roadways and intersections.
- Purchase pavement striping equipment so the identified roadways and intersections can be striped.
- Continue providing for the repair of the City's traffic signal system, including pedestrian signals.
- Continue traffic safety training, traffic control and traffic signal repair training for City Traffic Division employees.
- Roadway Construction 14th to 33rd Market.



Boddeker Drive from Seawall Boulevard to Afppel Park (East Beach) has been repaved with asphalt





# RECOMMENDED IMPROVEMENTS

ASSESSMENTS - IMPROVEMENTS - PRIORITIES





# Assessment of Recommended Improvements:

## Overall Review of Recommended Projects

This study lays out an overarching vision for Galveston Island that goes beyond “traffic and parking” but rather focuses on multimodal mobility for both visitors and residents. This can tie into a larger vision for economic growth, health, livability, and public safety, or stand on its own.

The study focuses on projects identified in previous plans and studies, which have short-term, medium-term, and long-term strategies for implementation:

- **Short-term:** This is intended to show progress and physical changes on the street. To test the concept, inexpensive pilot programs could be used to innovate, letting the public know that these are trials that they are invited to participate in and also to give valuable feedback. projects like bicycle facilities, streetscape enhancements, traffic signal coordination can be done relatively quickly, ideally in the next 3 years.
- **Medium-term:** Projects like implementing Seawall Shuttle Bus service and overhauling the parking system can be done relatively quickly, ideally in the next 4 to 6 years. Planning for larger projects can also kickoff.
- **Long-term:** These are larger, more expensive projects that will take a long-term period for implementation, and may have multiple phases. These projects will likely require Federal Funding that has not been allocated and public input.

## Projects Requiring Additional Review

All of the recommended tourism transportation improvements in this Study will require further study and design in order to be implemented.

Major transportation projects typically require a period of 7 to 10 years for planning, design, construction and beginning operation.

For **medium-term** and **long-term** projects, the ideas are very conceptual at this time and further study will be required as those projects advance toward implementation.

## Prioritization of Recommendations

Recommended tourism transportation improvement projects described on the following pages are categorized by type of improvement (roadway, transit, etc.) and prioritized as short-, medium- and long-term.

Prioritization is based upon the recommendations included in the previous plans and studies, and also takes into consideration the projects which are capable of short-term implementation.

## Development of a Multimodal Transportation System

Multimodal transportation planning refers to planning that considers various modes of travel including walking, cycling, private automobile, public transit, etc. and the connections among these modes of travel. Multimodal transportation systems provide users with a variety of modal options, which is particularly relevant for those who are unable to drive, would prefer not to drive, or cannot afford the costs associated with automobile ownership. Multimodal transportation systems help to reduce the stress often caused on roadways by over-reliance on private vehicular access.

Galveston must continue to develop alternatives to driving and parking, such as increasing use of different modes of travel such as trolley (fixed rail and rubber tire), surries, cycling, walking, etc. Sustainable growth and economic development of Galveston Island will require transportation alternatives to be developed over the future years. Strategies include creating more viable alternatives to driving, offering more ways for visitors to reach popular destinations by means other than the automobile, and following a strategic parking plan that includes more remote parking and facilitates public transit. The high volume of visitor trips to Galveston Island should be used as a catalyst to develop transportation options which most cities this size cannot afford.

With greater numbers of workers, students at 2 major universities, Texas A&M University Galveston (TAMUG) and University of Texas Medical Branch (UTMB) and 1 junior college, Galveston College, tourists, residents, greater activity in and out of the Port of Galveston and Scholes International Airport, additional demand on the City’s transportation system will increase problems of congestion and traffic conflicts on Galveston Island. The existing transportation options on Galveston Island should be improved and expanded to serve the needs of all residents, commuters, and visitors. By building on the City’s strengths of an established public transportation system and efficient street grid pattern, the City of Galveston could encourage increased use of alternatives to the private automobile.

The most crucial element of sidewalks and bike lanes is connectivity to the multimodal transportation system. A quarter-mile stretch of bike lane is a great first step, but for trips where the origin or destination is outside of that quarter-mile, cyclists would be placed back into danger. Sidewalks should connect to transit stops and provide a safe place to wait for the bus.

A multimodal corridor phase operations plan can be implemented over time across multiple aspects of transportation planning, safety, land use, and operations.

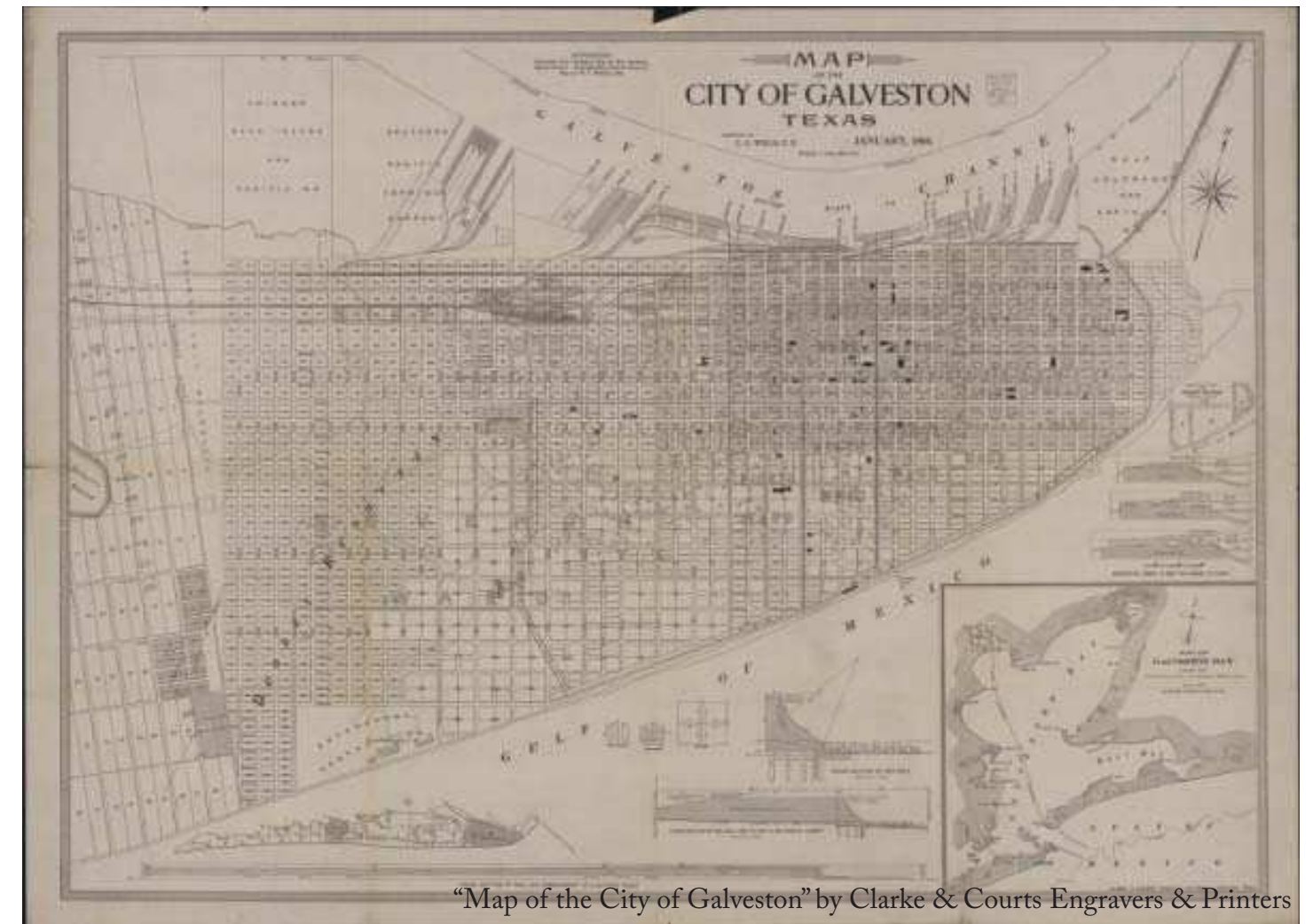




# New Corridors and Alignments:

Due to the excellent grid system illustrated in the “Map of City of Galveston” by Clarke & Courts, Engravers & Printers, Galveston, Texas in 1904 to the right, there are not many corridors that can be added with the exception of those previously identified in the 2012 Thoroughfare Plan developed by HDR, Inc. The improvements that still need to be implemented include the following:

<u>Project</u>	<u>Jurisdiction</u>	<u>Description</u>
1. Seawall Boulevard (61st to 82nd Street)	TxDOT	Improve signalization timing to address congestion
2. Harborside Drive (IH-45 to Ferry Road)	TxDOT	Improve signalization timing to address congestion
3. Avenue S / Stewart Road	Galveston	Improve signalization timing to address congestion
4. 81st Street (Lockheed Road to Seawall Boulevard)	Galveston	Improve access to tourist destinations
5. Harborside Drive Flood Mitigation	TxDOT	Address flooding and improve as an evacuation route
6. 41st Street at Harborside Drive	Galveston	Galveston Wharves Project to increase capacity
7. Pelican Island Causeway Bridge	Galveston	Improve access to Pelican Island and the Port of Galveston
8. 61st Street Extension to Harborside	TxDOT	Create a connections between Harborside and Broadway Boulevard. Feasibility study was completed in 2005
9. 51st and 53rd Street Connection (Broadway Boulevard to Causeway)	Galveston	Improve connection between Pelican Island Causeway to Broadway Boulevard
10. FM 3005 Elevation and Flood Mitigation (Seawall Boulevard to San Luis Pass)	TxDOT	Increase resilience and improve as an evacuation route
11. Harborside Drive to IH-45 Flyover	TxDOT	Increase capacity and address congestion
12. 61st Street to IH-45 Flyover	TxDOT	Increase capacity, address 61st Street congestion, and improve access to the West End
13. Offats Bayou Crossing (IH-45 to Seawall Boulevard)	Galveston	Increase capacity, relieve 61st Street congestion, and improve access to the West End
14. West End Bridge (IH-45 to 8 Mile Road to FM 3005)	Galveston	Increase capacity, relieve 61st Street congestion, and improve access to the West End
15. Pelican Island / Mainland Causeway and Bridge	TBD	New causeway and bridge to provide alternative access from the mainland to the Port of Galveston
16. Bluewater Highway San Luis Pass Bridge Improvement and Elevation to Surfside with a Connection to SH 288	TxDOT	Increase resilience and improve as an evacuation route



“Map of the City of Galveston” by Clarke & Courts Engravers & Printers



Harborside Drive has water ponding four days after a rain fall





# Roadway Improvements:

Like most American cities, Galveston Island's transportation system is based on automobile-oriented land development. The idea of "Complete Streets" is to move toward a form of development that is more walkable, bikable and served by public transit. Galveston's existing street network provides a grid system that can be transformed into a multimodal transportation system. "Complete Streets" takes into consideration a combination of auto, pedestrian, bicycle and transit design components. Context Sensitive Design turns proposed transportation projects to be planned not only for its physical aspects as a facility serving specific transportation objectives, but also for its effects on the aesthetic, social, economic and environmental values, needs, constraints and opportunities in a larger community setting.

There are roadways in need of repair from flooding and/or surfacing issues (potholes, cracks, etc.) that can hinder use of those roadways as important evacuation routes during major storm systems. It is suggested a road log be maintained to determine the quality of each major roadway and determine what improvements are needed to ensure funds are available through the City's capital improvement funds.

## Short-term:

- Implement Seawall Boulevard Streetscape Enhancements such as bulb-outs every 15 to 20 spaces to allow landscaping, benches, public art, and street vendors without hindering bicycle and pedestrian flow on the Seawall
- Seawall Boulevard Repaving Phase 3
- Implement 61st Street enhancements from IH-45 to Seawall Boulevard that include connected sidewalks, raised medians with landscaping, and signal timing



## Medium-term:

- Implement Harborside Drive enhancements from 53rd Street to Ferry Road that include better connectivity between cruise parking and the cruise terminal, raised medians with landscaping, wider sidewalks where ROW is available, and signal timing
- Implement Downtown Livable Communities Streetscape Enhancements that include green streets, inviting public spaces, connected sidewalks, bicycle routes, and high-quality transit that joins the Strand and UTMB
- Raise low areas and improve drainage in flood prone areas on Harborside Drive
- 61st Street extension from IH-45 to Harborside Drive
- 33rd Street and 39th Street Repaving
- Improve Pelican Island Causeway

## Long-term:

- Harborside Drive extension to East End Flats
- Widening Stewart Road
- Widening 81st Street and 83rd Street
- Avenue S/Stewart Road Intersection Improvements
- IH-45 Connector to Harborside Drive
- West Bay Crossing connecting to SH 288 or SH 35
- Offats Bayou Crossing
- Direct connector ramps at IH-45 and 61st Street





# Intelligent Transportation Systems (ITS):

In recent years, transportation engineers and planners have increasingly embraced strategies that deal with the operation of existing highways, rather than just building new infrastructure. The philosophy behind Transportation System Management and Operations (TSM&O) is to mitigate the effects of roadway events and to manage short-term demand for existing roadway capacity. TSM&O includes the application of advanced technologies using real-time information about highway conditions to implement control strategies. Collectively referred to as Intelligent Transportation Systems (ITS), real-time control of highway operations through a transportation management center (TMC) has become a major activity undertaken by transportation agencies. ITS control strategies take many forms: metering flow onto freeways, dynamically re-timing traffic signals, managing traffic incidents, and providing travelers with information about travel conditions, alternative routes, and other modes. ITS is also used to improve transit service and freight activities. In addition to ITS, other TSM&O strategies to improve the efficiency of the existing road system have been implemented, including reversible commuter lanes, movable median barriers to add capacity during peak periods, and restricting turns at key intersections. There are numerous congestion mitigation strategies that are enhanced by the use of advanced technologies or ITS. There are several other effective strategies that do not rely on advanced technology, including geometric improvements to roads and intersections, converting streets to one-way operations and access management.

The idea behind TSM&O strategies is to increase the efficiency of the existing transportation infrastructure. That is, roadway events essentially "steal" roadway capacity and TSM&O seeks to get it back. The deployment of TSM&O strategies and technologies is increasing and evaluations have shown their impact to be highly cost-effective. However, relying on TSM&O alone is a limited approach to addressing the congestion problem. A sound base infrastructure already must exist before TSM&O can be used. Also, only so much extra efficiency can be squeezed out of an already stressed highway system.

Improving the efficiency and reliability of the freeway, street, transit, and freight systems is an aspect of the transportation program that in many cases can be accomplished in shorter time, with more public support and at a lower cost than some other strategy groups. The size of the benefits from any single project may not be of the magnitude of a new freeway lane or rail transit line, but the cost and implementation time also are not as high. One key to understanding the benefits from operational projects is to think of these strategies as enhancing the return on investment in the infrastructure projects.

ITS strategies and applications such as traffic surveillance systems, ramp meters, lane management applications, special event transportation management systems, advanced communications, and automated speed limit enforcement are being used to actively manage traffic on our roadways today to influence traveler behavior in real-time improving safety, reducing emissions and improving system efficiency and reliability.

source: U.S. Department of Transportation Federal Highway Administration



A billboard similar to the one above could be placed prior to crossing the Galveston Island Causeway to inform visitors, both day trippers and overnighters of the different options there are to go to popular locations on the Island and the approximate amount of time it takes to get to those locations using the suggested routes.

## Short-term:

- It is recommended the City of Galveston, CVB, and/or the Park Board develop a partnership with Clear Channel to identify alternative and reliever routes during peak season and special events while TxDOT continues to manage the Dynamic Message Sign (DMS) on IH-45

## Medium-term:

- It is recommended to implement additional ITS signs along IH-45, Harborside Drive, 61st Street, and FM 3005 on the West End to identify alternative and reliever routes





# Traffic Signal Coordination / Capacity Improvements:

Capacity improvements are sometimes difficult to implement without the acquisition of private property. There are options to provide additional capacity within existing public ROW without needing to acquire personal property. Lane management applications can promote the most effective use of available capacity on roadways and encourage the use of high-occupancy commute modes. Advanced communications have improved the dissemination of information to the traveling public.

## Signal Timing

Poor traffic signal timing contributes to traffic congestion and delay. Conventional signal systems use pre-programmed, daily signal timing schedules. Adaptive signal control technology adjusts the timing of red, yellow and green lights to accommodate changing traffic patterns and ease traffic congestion. The main benefits of adaptive signal control technology over conventional signal systems are that it can:

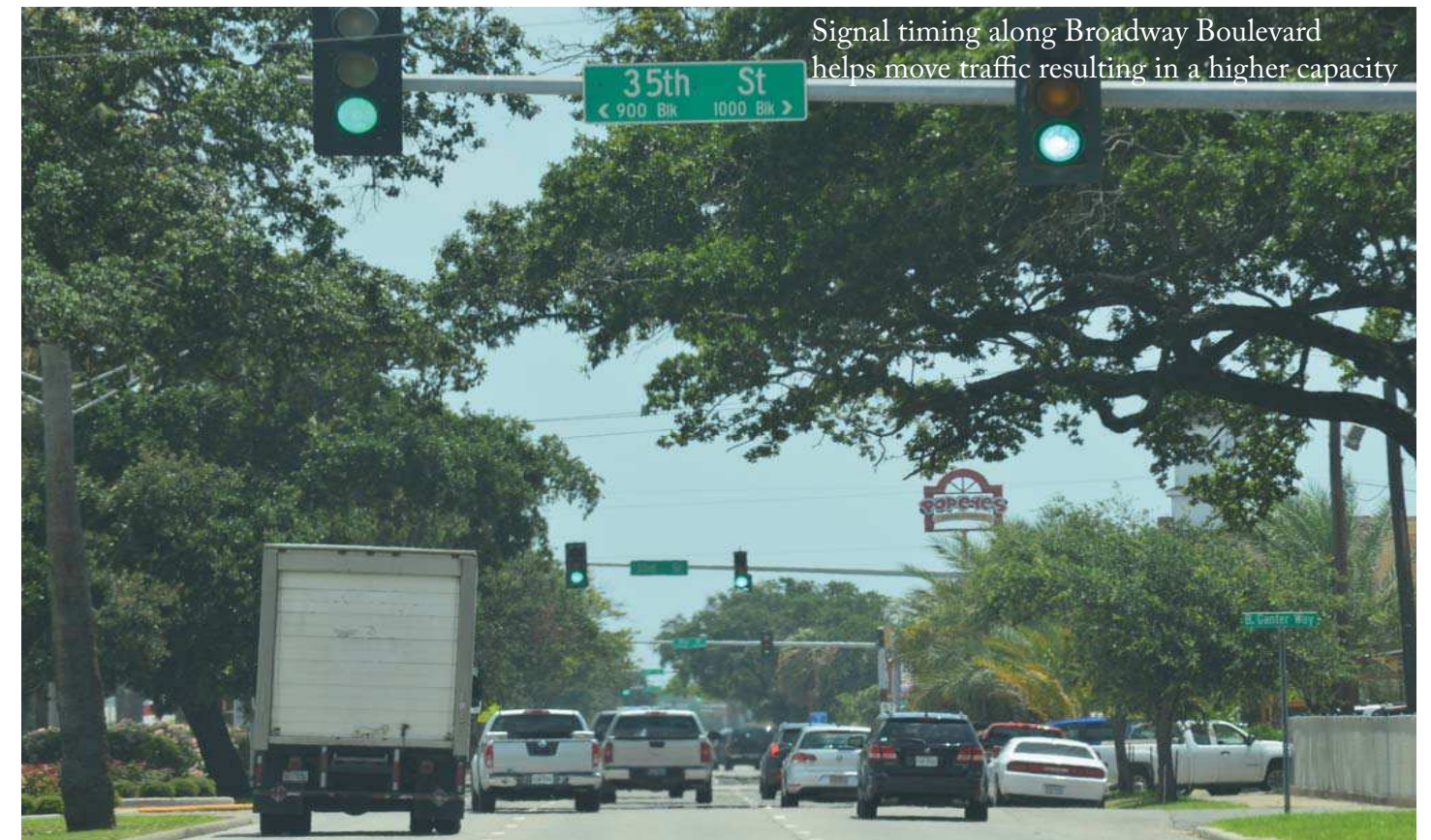
- Continuously distribute green light time equitably for all traffic movements.
- Improve travel time reliability by progressively moving vehicles through green lights.
- Reduce congestion by creating smoother flow.
- Prolong the effectiveness of traffic signal timing.

There are more than 260,000 traffic signals in the United States. It is estimated that over 75% of these signals could be improved by updating equipment or by simply adjusting and updating the timing plans. It is further estimated that poor traffic signal timing accounts for 5% to 10% of all traffic delay or 295 million vehicle-hours of delay on major roadways alone. Traffic signal re-timing is one of the most cost effective ways to help traffic move and is one of the most basic strategies to help mitigate congestion. Optimizing traffic signals can produce benefit cost ratios as high as 40 to 1. The costs for re-timing traffic signals generally range from around \$500 to \$3,000 per intersection. There are tools and resources available to create an awareness of the benefits of improved signal timing and to improve the knowledge base through education, training and guidance or technical assistance.

source: U.S. Department of Transportation Federal Highway Administration

Broadway Boulevard from IH-45 to Seawall Boulevard is the only existing interconnected traffic signal system on Galveston Island. Fiber optic cable is buried along the corridor and used to coordinate the signal timing at different times throughout weekdays and weekends. The top right photo is taken at 35th Street and Broadway Boulevard to illustrate the signal timing that the City of Galveston has completed.

The 61st Street signal timing study that is currently underway will lead to creation of a second coordinated traffic signal corridor, improving traffic flow along this important connection between IH-45 and Seawall Boulevard. Harborside Drive improvements will include coordinated traffic signals using GPS clocks at each intersection.



Signal timing along Broadway Boulevard helps move traffic resulting in a higher capacity

### Short-term:

- It is recommended to implement signal coordination and intersection improvements for 61st Street, Seawall Boulevard, Avenue S / Stewart Road, and Harborside Drive corridor.

### Medium-term:

- New development and redevelopment can allow for additional ROW to be dedicated to the public to add channelized turn lanes, pedestrian islands, and connection of sidewalks to adjacent developments. It is recommended the City look at major roadway ROW to determine if additional ROW is needed to improve mobility; such as inserting left or right turn lanes to accommodate the additional traffic the new development will be generating on existing roadways.





# Wayfinding and Signage:

Wayfinding directional signage can direct visitors to avoid traffic congestion and delay. Wayfinding Expansion can include signage, gateways, landscaping, and lighting to announce its importance. Using monument type signs that can be installed in the ROW announcing the major thoroughfares to use to get to beach parks can help maintain the traffic flow. Similar signage should be placed at 61st Street and Stewart Road to advise travelers heading to Jamaica Beach, Pirates Beach, and other destinations on the West End to use Stewart Road versus Seawall Boulevard to alleviate congestion at the intersection of Seawall Boulevard and 61st Street.

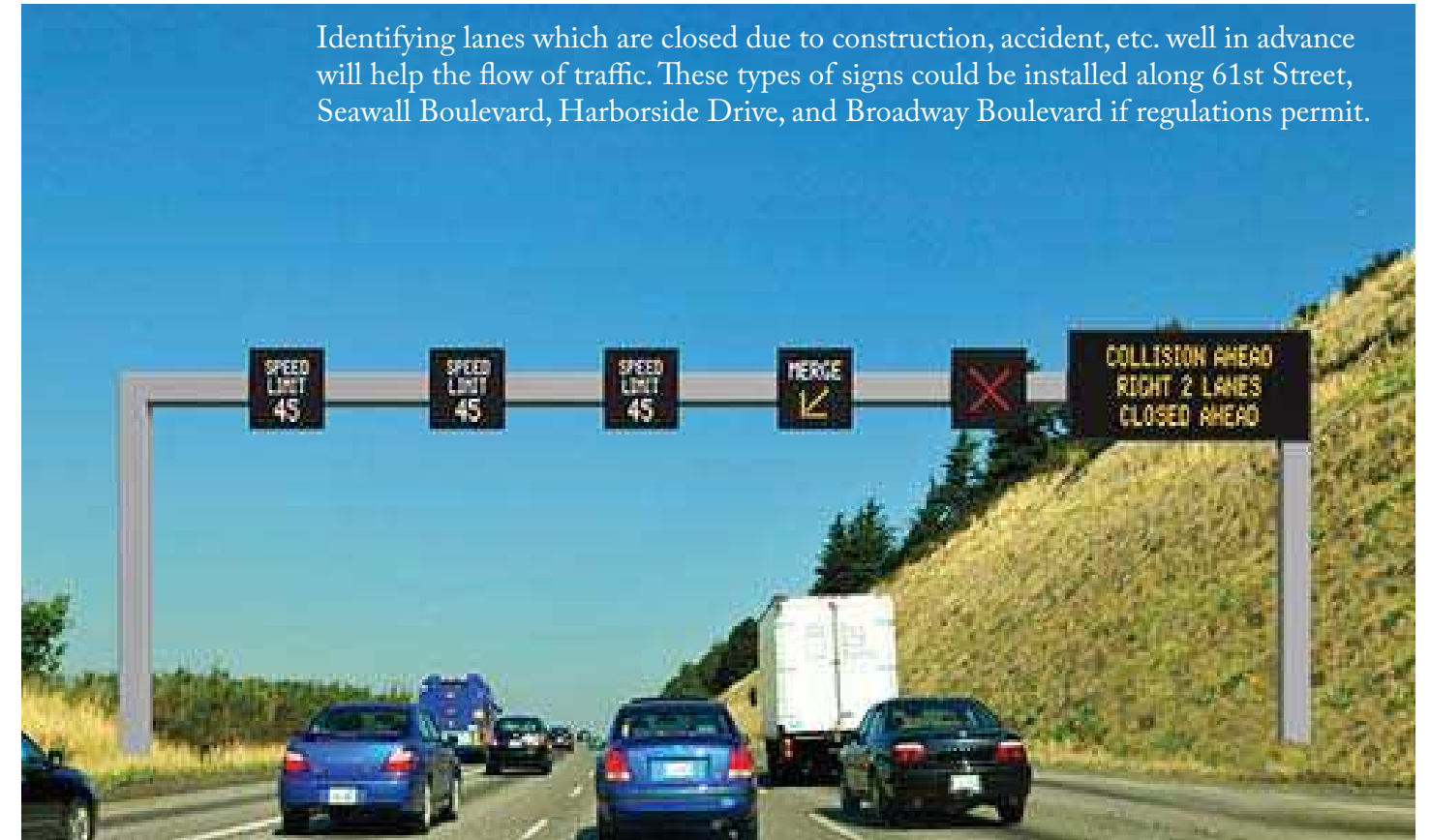
## Short-term:

- Implement recommendations from the H-GAC Livable Centers Study that include developing a comprehensive and unique signage program for the different districts
- Develop a comprehensive vehicular wayfinding plan specific to providing tourism travel information for visitors
- Coordinate with TxDOT to utilize changeable message signs on IH-45 approaching Galveston Island to direct motorists to utilize alternative routes, avoid congestion, and for special event information for access, alternative routes, and parking locations
- Utilize FaceBook, Twitter, and other social media to provide current information to visitors about access, parking, transit, bicycling, and pedestrian travel on Galveston Island, especially during major tourism events
- Install more effective overhead directional signing that may reduce sideswipe crashes on Seawall Boulevard and allow visitors
- Construct 61st Street and Seawall Boulevard intersection improvements to add an additional right-turn lane on southbound 61st Street approach, resulting in 4 lanes with dual left turn and dual right turn lanes

## Medium-term:

- Advance signing should be adequate to alert drivers of the approaching intersection, including an IH-45 plaque, a left (or right) arrow plaque, and a "to Houston" plaque
- Install wayfinding signage, landscaping and lighting along Broadway Boulevard, 61st Street, Seawall Boulevard, Harborside Drive, and along other major thoroughfares that are commercial in nature or low residential land uses
- Install uniform street-name signs and neighborhood markers throughout the City of Galveston
- Install advance signing to alert drivers of approaching intersections, including an IH-45 plaque, a left (or right) arrow plaque, and a "to Houston" plaque

Identifying lanes which are closed due to construction, accident, etc. well in advance will help the flow of traffic. These types of signs could be installed along 61st Street, Seawall Boulevard, Harborside Drive, and Broadway Boulevard if regulations permit.



Recommended advanced elevated signage to let vehicular drivers know what lane of traffic to be in





# Access Management:

Access Management is the proactive management of vehicular access points to land parcels adjacent to all manner of roadways. Good access management promotes safe and efficient use of the transportation network. Access Management encompasses a set of techniques that state and local governments can use to control access to highways, major arterials, and other roadways. These techniques include:

- Access Spacing: increasing the distance between traffic signals improves the flow of traffic on major arterials, reduces congestion, and improves air quality for heavily traveled corridors
- Driveway Spacing: Fewer driveways spaced further apart allows for more orderly merging of traffic and presents fewer challenges to drivers
- Safe Turning Lanes: dedicated left- and right-turn, indirect left-turns and U-turns, and roundabouts keep through traffic flowing
- Roundabouts represent an opportunity to reduce an intersection with many conflict points or a severe crash history (T-bone crashes) to one that operates with fewer conflict points and less severe crashes (sideswipes) if they occur
- Median Treatments: two-way left-turn lanes (TWLTL) and nontraversable, raised medians are examples of some of the most effective means to regulate access and reduce crashes
- ROW Management: as it pertains to ROW reservation for future widening, good sight distance, access location, and other access-related issues

Access Management provides an important means of maintaining mobility. It calls for effective ingress and egress to a facility, efficient spacing and design to preserve the functional integrity, and overall operational viability of street and road systems.

Access Management should address the following areas:

- Facility Hierarchy
- Intersection and Interchange Spacing
- Driveway spacing
- Traffic signal spacing
- Median treatments and median openings
- Turning lanes and auxiliary lanes
- Street connections

In areas of dynamic land development, it is important for jurisdictions to develop access standards that achieve a balance between property access and functional integrity of the road system. Studies show that implementing access management provides 3 major benefits to transportation systems:

- Increased roadway capacity
- Reduced crashes
- Shortened travel time for motorists

Access Management is achieved through the application of these planning, regulatory, and design strategies.

- Policies, directives, and guidelines issued by state and local agencies having permit authority on development and roadway infrastructure improvements
- Regulations, codes, and guidelines that are enforceable
- Acquisition of access rights by states and local jurisdictions that serve to protect transportation interests and enable sufficient infrastructure is built
- Land development regulations by state and local jurisdictions that address property access and related issues
- Development review and impact assessments by state and local jurisdictions
- Good geometric design of transportation facilities
- Understanding of access implications by businesses and property owners

Some property owners and some local planners or permit agencies do not always consider the full effects of introducing driveways or minor streets. Further, local entities often perceive economic damage when some access management techniques are proposed, i.e., closing median breaks, relocating driveways, or limiting the number of access points. Continuous education, case studies and examples are needed to show that carefully planned development can coexist with good access management. It is important to show that well-planned access helps maintain property values while fulfilling the FHWA role of promoting safe and efficient transportation for the general public. Public and business community involvement is essential. Effective interaction is crucial to the success of the implementation of the project.

A 2nd challenge to implementing Access Management is its low tech/low cost nature. It is often overlooked in favor of costlier solutions. An effective new activity herein would be to market Access Management strategies to national and local business associations, thereby educating them that good practice can coexist with healthy businesses, and increasing their acceptance and demand for such applications.

source: U.S. Department of Transportation Federal Highway Administration

## Short-term:

- Improve intersections along Broadway Boulevard by striping right turn lanes at major intersections

## Medium-term:

- As redevelopment and new development occur, it is suggested to create access easements between adjacent property owners to combine driveways and add sidewalks to alleviate potential conflicts between bicyclist, pedestrians, and vehicles
- When there is planned resurfacing and reconstruction, it is suggested to create a new cross-section with striping, replacing a 5-lane undivided facility with four lanes, a landscaped median, and bicycle lanes throughout part of Seawall Boulevard

## Long-term:

- A study is suggested for a roundabout at Broadway Boulevard and Seawall Boulevard similar to the illustration shown to the right





# Access Management:

A roundabout could resolve the capacity bottleneck and serve as a gateway to the revitalized beach parks



Example of Access Management solutions that can be used

Source: Houston-Galveston Area Council





# Alternative Modes of Transit:

There are multiple modes of transportation that tourist and visitors to Galveston Island are able to use once they arrive on the Island. Those alternative modes include bicycles, horse carriage, Island Transit (public transit) rail trolley, segways, shuttles, surrey bicycle, taxis, rubber tire trolley buses, and walking. Additional transportation modes that can be established on Galveston Island include streetcars, tourist shuttle buses, and water taxis.

While there are a variety of reasons for public transportation use, the reasons for non-use are more straightforward. The 2 most common reasons were found to be personal preferences “stigma of public transportation” and a lack of information. Although it is difficult to change visitors’ “personal preferences” as this requires behavior and attitude change, a lack of information is relatively easy to overcome. Public transport providers clearly need to understand what kind of information should be provided and who to target. Therefore, knowledge of the factors influencing visitor public transportation choice and satisfaction is thus of great importance. The Park Board can use different types of “incentives and motivations” for visitors to use public transit once on the Island.

Tourist preferences for trip mode differ from that of daily transport. Tourists are also different from local residents in their transport motivation and behavior. Local residents are concerned about reliability, frequency and headway times for public transit, whereas the provision of information is most important for tourist. A high-quality public transportation system motivates use by tourist.

source: “Tourist Use of Public Transport at Destinations” C. Micael Hall

## Short-term

- Improve bicycle connection from the Strand to the Seawall
- Provide bicycle racks on all transit vehicles to reinforce both modes of travel
- Provide bicycle racks in strategic locations at major tourist destinations such as Moody Gardens, Schlitterbahn, Pleasure Pier, the Strand, Stewart Beach, and East Beach

## Medium-term

- Improve lighting along major bikeway connection to allow increased visibility for bicyclist and pedestrians in the early morning hours and late evening hours; specifically Post Office Street, Church Street, Avenue L, Avenue R, Heard's Lane, Stewart Road, Seawall Boulevard, Ferry Road, Holiday Drive, 8th Street, 15th Street, 26th Street, 37th Street, 46th Street, 51st Street, the Pelican Island Causeway, 57th Street, and 81st Street

## Long-term:

- Implement a high-frequency street car (rubber tire) to connect with hotel clusters, major tourist destinations including Moody Gardens, Pleasure Pier, Stewart Beach, and East Beach with the fixed rail trolley car so tourist can visit these locations without ever getting in their vehicle once they arrive to the Island

Example of bicycle racks that can be installed along the seawall and on the beach



Source: Ultracj's Photos of the Day





# Public Transportation Improvements:

## Enhanced Transit

Currently, the Island Connect service operated by Island Transit offers a transit connection between the park-and-ride facility at Victory Lakes in League City and the Island's major employers, including University of Texas Medical Branch (UTMB) and the Justice Center. To ensure these and other planned services provide for the needs of Island residents, the City should continue to work with Metropolitan Transit Authority of Harris County (METRO), Galveston County, other Galveston County municipalities, and major employers to improve regional access and connectivity.

### Short-term:

- Complete construction of the Downtown Transit Terminal, including a kiosk information station for providing transit information to visitors and residents
- Implement a rubber tire Seawall Boulevard Shuttle serving tourist destinations and connecting to the rail trolley
- Allow hotels and other downtown businesses to purchase blocks of transit passes for guests, to encourage fewer nearby vehicular trips that can be accommodated by transit
- Initiate a Transit App for providing real time bus & trolley tracking information
- Market park-and-ride rapid bus service between the mainland and downtown, UTMB, and TAMUG
- It is recommended that the City continue working with METRO to establish a regional transit system, including passenger rail and park-and-ride facilities, to move tourists, business visitors, and residents to and from regional destinations

### Medium-term:

- Develop a transit transfer hub at 61st Street including bus terminal, parking, taxi's and bicycles
- Develop public-private partnership for providing water taxi passenger service between Pier 21 and Seawolf Park
- Install more bus and transit shelters and amenities at tourism-oriented stops and transfer points. This should include route maps, schedules, and real-time next arrival electronic signs
- Develop a marketing plan to educate tourist and visitors to Galveston Island about the convenience of public transit and tourist shuttles to major destinations on Galveston Island
- Restore the Galveston Rail Trolley Including Enhanced Stops with Passenger Benches, Shelters, Next Streetcar Arrival Signs, and Other Amenities
- Purchase Additional Transit Vehicles to operate Seawall Shuttle (Rubber Tire Trolley)

### Long-term:

- It is recommended Island Transit system rely on signal preference technology to maintain schedule, with traveler information provided to customers via next-bus signs at each stop, and via web and smartphone
- Consider feasibility of Galveston-Houston commuter rail service for congestion relief, air quality improvement, economic development/redevelopment, and hurricane evacuation
- Expand rail trolley system to extend along Seawall Boulevard from Historic Pleasure Pier to East Beach and Stewart Beach

Example of kiosk that included estimated time of arrival at station and what time of arrival to next stations



Example of a rubber tire trolley





# Event Traffic Management:

Special events cause high levels of congestion as attendees overload street and highway networks adjacent to the venue. This sudden spike of traffic can negatively affect surrounding traffic operations. Unlike unplanned events, agencies and organizers can easily coordinate a mitigation plan and deploy the proper resources to minimize the effects on normal traffic operation. Special events cause overcrowded primary routes, as people consider those to be the fastest and easiest way to reach their destination. Spreading the traffic over the entire network, however, is the best way to reduce congestion on all roads. Planners often distribute traffic onto alternate routes with the use of pre-event publicity, dynamic message boards, or road closures.

The goal of successful event management is to transfer as much event traffic onto alternate underutilized routes or modes, allowing normal traffic flow on primary routes. This requires route information to be distributed as thoroughly as possible.

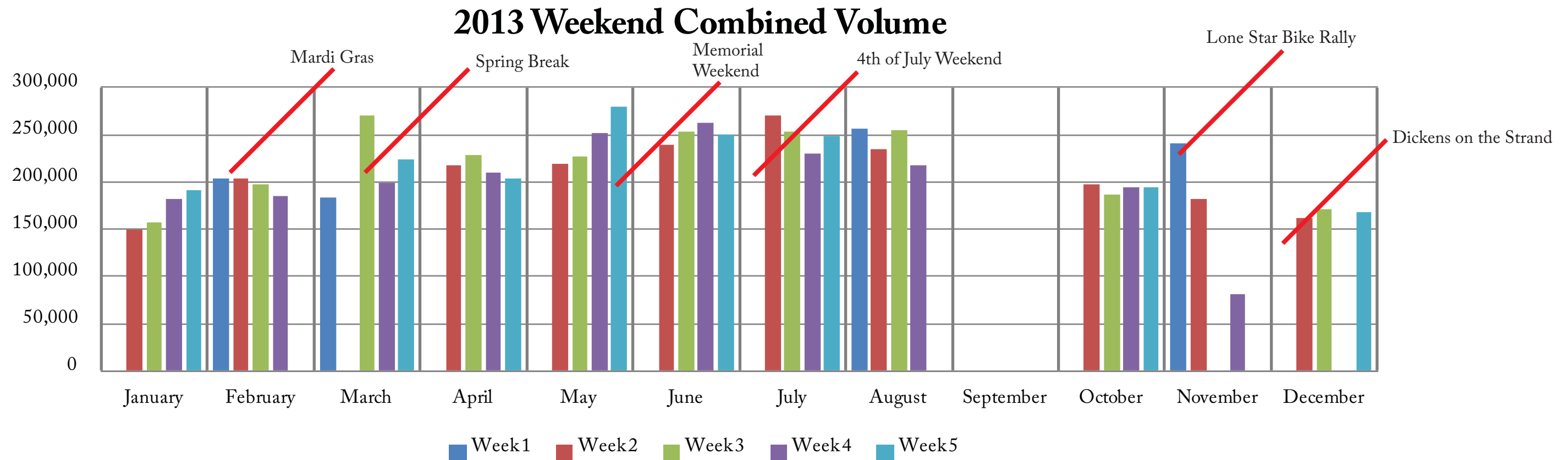
It is recommended that agencies monitor the roadways with mobile devices such as video cameras and portable traffic signals. The local officials should also utilize automated information systems like dynamic message boards, lane control, and parking management. Typical programs include planned road closures to guide vehicles onto roads that can handle large volumes, manual traffic controls to adjust to changing traffic characteristics, and signal retiming to increase intersection capacity. The plan may also incorporate temporary capacity improvements such as left-turn restrictions and reversible lanes to improve the capacity of the roads used to access and exit the venue.

## How Will This Help?

- Decreased congestion can increase safety at the event location and on the surrounding street network. Large speed variations can cause crashes on congested roads. Redistributing the traffic onto other routes and encouraging patrons to use public transit increases the person-moving capability on all roads and decreases the likelihood of a crash caused by differential speeds between the vehicles on the road.
- Special event management can improve traffic flow for both event and regular traffic. Directing traffic onto alternate routes limits the traffic entering the primary route in the area. Dispersing the traffic onto other roads and routes distributes the traffic evenly on the surrounding network.
- Planning and spreading the traffic onto different roads can decrease delay for all users. The improved traffic flow created by redistributing the event traffic on other routes reduces congestion.

## Short-term:

- Develop and Implement Traffic Management Plans to accommodate event traffic for Special Events including designation of traffic ingress and egress routes, reversible traffic lanes, temporary one-way streets, parking areas, pedestrian routes, changeable message signs, temporary directional and traffic control signage, broadcast and print media information for motorists and pedestrians, park-and-ride lots and shuttle bus service, traffic signal preemption, traffic officers providing direction at key intersections, and use of social media to provide information to attendees



NOTE: Missing data is due to the TxDOT traffic counters located at the base of the Galveston Island Causeway not working that particular weekend. The month of September, the counters were completely down.





# Pedestrian and Bicycle Improvements:

Continuous networks of sidewalks, bicycle facilities, and trails are essential components of a multimodal transportation system. Sidewalks that tend to be the most inviting are ones that are buffered from vehicular traffic (by parked cars, trees, or lateral distance), wide enough to accommodate all users (recommended to be 8 feet width when possible), and that provide direct access to building entrances. Bicycle lanes or paved shoulders are necessary on high volume or high speed roads where it is uncomfortable and unsafe for bicyclists to ride in the lane with vehicular traffic. Bicycle lanes are recommended to have a minimum width of 5 feet. Paved shoulders are recommended to have a minimum width of 4 feet to accommodate bicyclists, however where 4 feet cannot be achieved, any additional shoulder is better than none at all.

Sidewalks are recommended to be supported by curb ramps at intersections and driveways, and crosswalks and pedestrian signals at intersections, as required by federal ADA guidelines. In addition to bike lanes, bike racks or lockers encourage bicycle activity because of the safety of storing bikes. Bike racks on buses and other transit facilities for bicyclist encourage the use of bicycle transportation for longer trips. For roads that do not have enough extra-width for a bike lane, wide outside lanes and "Share the road" signs give bicyclists room on the side of a road and alert drivers to the possible presence of cyclists.

## Short-term:

- Add painted bicycle lanes or sharrows when a resurfacing project is planned
- Coordinate with bike rental businesses along Seawall Boulevard to operate bike-share programs
- Improve pedestrian crossings and sidewalks at key intersections along Seawall Boulevard, along Harborside Drive from the Cruise Terminal parking lots to Ferry Road, and major intersections throughout the Island

## Medium-term:

- Create a bicycle network to provide a basic framework of direct cross-town routes to key destinations.
- Purchase an allotment of U-type bicycle racks that the City would then install at the request of businesses or other property owners
- Install median retreats, curb bulb-outs, textured surface for crosswalks, and pedestrian signs with count-down indicators at major intersections on the east side
- Integrate connections from older developments with new east and west end development that will link to the Island's existing bike system that will also connect with transit service such as the rubber trolley system, added to serve the corridor

## Long-term:

- Sidewalk and crosswalk improvements for all major thoroughfares that link to beach parks and hotels with way finding etc and bike trails
- Citywide signal improvements to include installation of countdown pedestrian signal heads, accessible curb ramps, maintenance of crosswalks (new & faded), and signal re-timing to give priority to pedestrians
- Create mid-block pedestrian and bicycle crossings when signalized intersection spacing is more than 1/2 mile
- It is recommended repairing critical intersection problem by installing new signal system technology and improving intersections to Americans with Disabilities Act (ADA) standard





# Parking:

People do not go to the Seawall beaches or to downtown because there is ample parking, they go to play, to work, to shop, for dining and entertainment, to attend events, and for services including institutional, financial and governmental. Parking needs to be located within convenient walking distance of motorists ultimate destinations, in order to support a compact, walkable downtown with a collective sense of place. Replacing surface parking lots with multi-level parking structures may allow higher density development. Shared Parking can replace individual parking facilities and provide efficient parking located within a comfortable walking distance of the uses served. Parking is a tool that is subservient to the main function of downtown, the Seawall and other Island destinations. The economic viability of off-street parking lots and garages is based on its ability to generate revenue to offset estimated capital and operating costs.

It is frequently said “There’s no such thing as free parking.” It’s not just a question of should parking be free, but who will pay for it. Typically not an all-or-nothing scenario, but a well-thought out plan – no one size fits all. The cost of parking may be paid by:

- Property owners
- Developers
- Retailers
- Office users
- TIRZ, BID, PID or other incentive
- City or other governmental entities
- End users
- Typically some combination of these

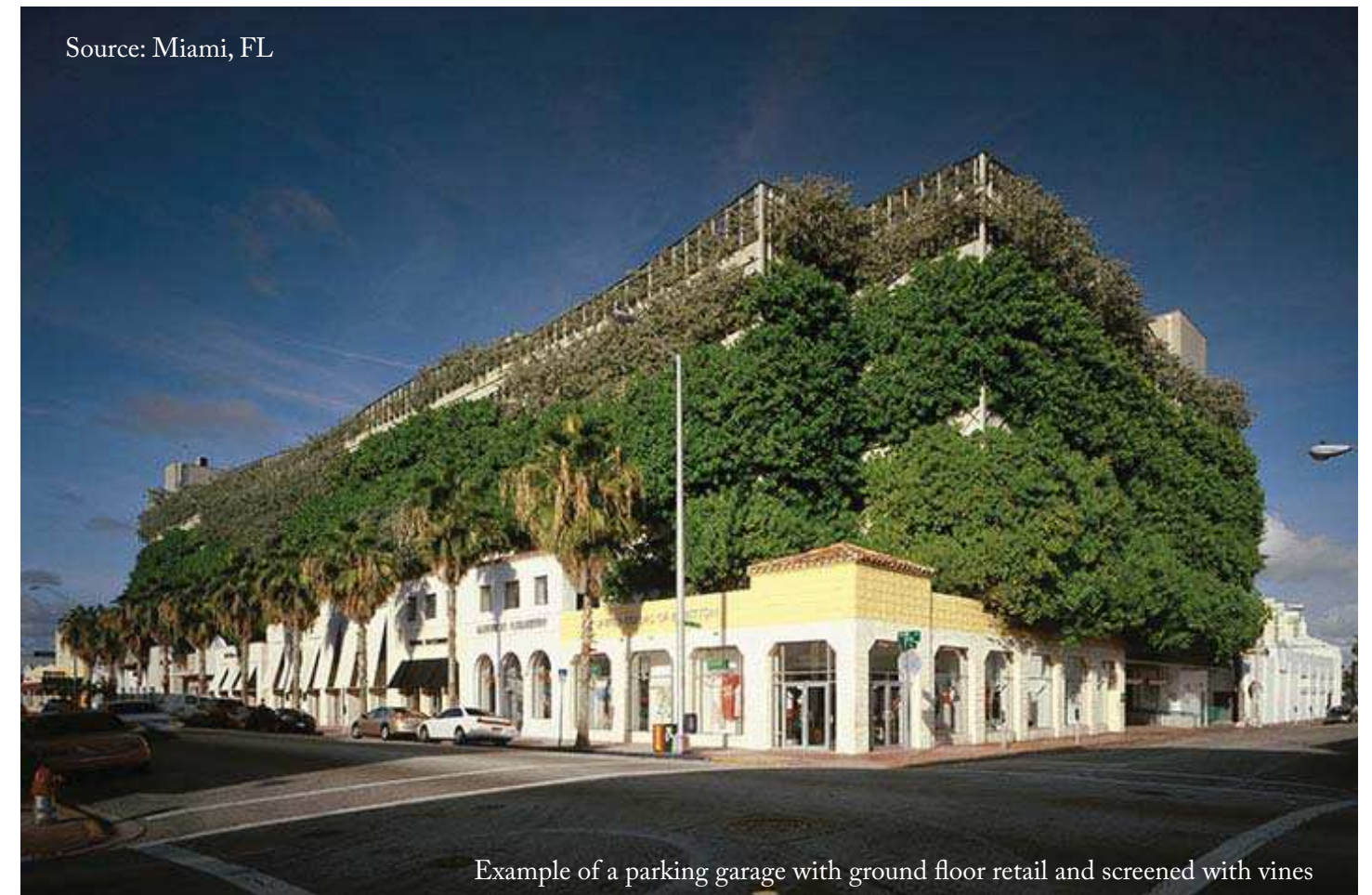
Although there is an overall surplus of parking in Galveston, many of the excess spaces are not located in desired locations near high activity areas and destinations where land use and employment generate high activity and parking demand. Workers, customers and visitors compete for available spaces in desired locations. Workers utilize spaces for long-term, all-day parking. Customers and visitors seek short-term spaces with higher turn-over located close to their destinations.

Galveston has the largest utilization of pay-by-phone parking of any city in the United States. The primary purpose and intent for adopting pay parking is to encourage turnover of on-street spaces. Pay parking also generates revenue for improvement and maintenance of public parking and streetscapes. Cities have pay parking in their downtowns to better manage parking use and utilize parking revenues to pay for improved parking, sidewalks, curb ramps and street trees.

Parking supply and utilization are important components of Event Traffic Management planning. Shared parking in private parking lots and garages may be utilized during special events and on weekends and at times when the parking spaces are not needed for business use.

Wayfinding for public parking is important. Studies show that a significant portion of traffic in downtown and other high activity areas is caused by motorists searching for an available place to park. Wayfinding is a uniform and attractive system of directional signage to guide visitors and residents to available public parking near major destinations. As more public use off-street parking is developed, wayfinding will become even more important.

Source: Miami, FL



Example of a parking garage with ground floor retail and screened with vines





# Parking:

The objective of parking management is to maximize availability and use of on-street and off-street parking spaces. Curb parking has a perceived advantage in visibility, accessibility and heightened sense of personal safety. On-street parking is very good for pedestrians – it serves as a buffer between traffic and the sidewalk. It also slows the speed of traffic and provides a pedestrian-friendly environment. Encouraging space turnover will increase the availability of on-street spaces for short-term use by customers and visitors. Long-term parking should be served by off-street lots and garages. Parking lots are a temporary land use that can be converted to other uses in the future. As surface parking is replaced by downtown development, multi-level parking garages may be needed to serve parking demand. High activity areas along Seawall Boulevard present opportunity for developing parking lots and garages located in acceptable walking distances for major destinations. Off-street parking may be developed by private developers or by building public parking on public property, using revenue from parking improvement in business improvement districts or special assessment districts. Cruise Terminal parking in and near downtown is an excellent example of off-street public parking improvements.

More off-street parking is needed in lots and multi-level parking structures, located a convenient walking distance from destinations. On-street parking along Seawall Boulevard should remain unless public parking is provided within acceptable walking distances. Future development should include off-street parking facilities including surface lots or parking structures, spaced out along high traffic portions of Seawall Boulevard.

## Short-term:

- It is suggested to add signage that directs visitors to surface parking lots
- Encourage employee parking to be stacked parking 2 or 3 cars deep in a private lot versus areas in which tourist can use

## Medium-term:

- It is recommended to install standardized signage to public parking garages in the Strand area

## Long-term:

- It is suggest the City, CVB, and Park Board along with the Galveston Economic Development Partnership look into public private partnerships to construct low-rise to mid-rise public parking garages strategically placed along Seawall Boulevard. These garages should contain retail and tourist related shops along the ground floor to maintain the street activity on the Seawall. The garage floors should have a green screen or other type of screening to beautify Seawall Boulevard
- It is recommended the City study removing the center turn lane along Seawall Boulevard to have additional back-in angled parking along the south side of the Seawall and continue to have parallel parking on the north side. By doing this, it could alleviate larger recreational vehicles from taking 2 to 3 spaces. Removing the center turn lane would decrease the apparent overly wide lane width of this street, and will thus slow traffic speed on the Seawall. This will enhance pedestrian safety while it increases parking for Seawall Boulevard



Potential locations identified for shared parking structures





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# IMPLEMENTATION

RESPONSIBILITY - FUNDING - NEXT STEPS





# Summary of Recommendations:

Implementation of the **short-term** recommendations identified in this Study will require coordination and partnership among several agencies. Focusing on a three-year window of transportation needs will seek to achieve the immediate needs, while recognizing the overall vision for **medium-term** and **long-term** priorities.

Traffic signal coordination results in more efficient movement along arterial streets. There are significant seasonal variations in levels of tourism and travel demand, resulting in changing needs for services. Peak demands for tourist transportation far exceed the normal needs for other cities of Galveston's population size. Paying for future transportation improvements is another mobility challenge. Federal and State funding for transportation is insufficient to meet all future needs, and obtaining funding is highly competitive. Innovative funding sources such as grants, tolling, public-private partnerships should be explored but are uncertain.

It is recommended the City take an active role in coordinating planned roadway improvements with TxDOT to address the access and parking needs of existing and prospective major employers. Additionally, it is recommended the City seek to link all modes of transportation with appropriate multimodal opportunities and actively promote transit and other alternatives to vehicular circulation. Intercepting visitors to Galveston Island at the Causeway can divert traffic to a less traveled thoroughfare such as Harborside Drive. This will open up traffic to the Strand and easier access to East Beach. In addition, diverting traffic to Harborside Drive can also provide a feeder to the new Transit Center at 25th Street and Strand Street to provide transit options to tourists. By implementing a "Complete Streets" program and other streetscape improvements, the existing street network could be made friendlier to pedestrians and bicyclists, while reducing automobile congestion.

In an effort to make the City more accessible to residents and visitors and accommodate different transit types, it is recommended the City establish "Complete Streets" policies and an implementation program to retrofit City streets and avenues. "Complete Streets" principles reinforce the active, inter-modal transportation choices made by Galvestonians historically. Walkability, integrated multimodal systems, context sensitivity, safety, and clear paths of travel should be requirements for appropriate streets. The City should set goals to reduce single-occupancy vehicle trips, with a 15 percent modal shift over the next 10 years. The City should continue the Thoroughfare and Mobility Plan that identifies potential locations for "Complete Streets" improvements.

## Low cost improvements that do not require major ROW acquisition

- Encourage Development of Off-Street Parking at Strategic Locations Along Seawall Boulevard
- Feasibility Study of Traffic Roundabout at Broadway and Seawall Blvd. Intersection
- Widening Boddeker Drive and Apffel Park Road from Seawall Boulevard to Apffel Park (East Beach)
- Develop a vehicular wayfinding plan identifying uniform new directional signage and designating old signs to be removed
- Coordinate with TxDOT to effectively utilize changeable message signs on IH-45
- Utilize Facebook, Twitter and other social media to provide real time information about access and parking for beach parks and special events
- Install vehicular wayfinding signage, landscaping and lighting along Broadway Boulevard, 61st Street, Seawall Boulevard, Stewart Road, Avenue O, Avenue P, Harborside Drive, and other major thoroughfares that are commercial or low residential land use in nature
- Develop/Implement Traffic Management Plans for Special Events
- Utilize Access Management techniques to preserve traffic carrying capacity of major roadways
- Develop Tourist Transit Brochure explaining how to use the rail trolley and future Seawall Boulevard rubber tire shuttle for distribution in hotels, restaurants and visitor centers
- Complete construction of the Downtown Transportation Terminal including a kiosk information station for providing transit information to visitors and residents
- Initiate a Transit App to provide real-time bus and trolley tracking information
- Close the gap between the METRO Park-and-Ride Lot and Island Transit Park-and-Ride Lot
- Market Park-and-Ride Rapid Bus Service (RBS) between the Mainland, Downtown, UTMB and TAMUG
- Develop a Marketing Plan for Capturing More Choice Riders
- Establish a Galveston bike-share program with bike share stations located at major tourist destinations
- Coordinate with bike rental businesses on the Island to operate the bike-share program
- Improve pedestrian crossings at key intersections along Harborside Drive from the cruise parking lots to the cruise terminals
- Create a bikeway network serving tourist destinations, as a component of a City-wide Bikeway Plan





# Partnerships and Agency Responsibilities:

## Partnerships:

### City of Galveston

May provide operational funds, bond funds, contribute to road improvements and/or acquire additional ROW

### County of Galveston

May provide a funding source, or road improvements, or ROW acquisition

### Galveston Industrial Development Corporation (IDC)

An economic development corporation formed under the authority of Texas Local Government Code Chapters 501-505, may statutorily contribute to economic development, local business development and retention, tourism and related activities, including funding plans for these activities. One of the 4 base goals of the IDC is beach remediation.

### Galveston Redevelopment Authority (RDA)

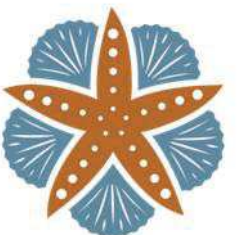
A redevelopment authority created to oversee the Tax Increment Financing Zone (TIRZ) boards. This entity has the capability to provide a unified approach to funding improvements. A large untapped source of funding is Public/Private Partnerships (P3), and as well as Public to Public Partnerships, and Public to Not for Profit Partnerships. The RDA facilitates interaction of the TIRZ with the City of Galveston and with tax payer dollars.

## Agency Responsibilities:

A number of governmental agencies at Federal, State and Local levels share responsibility for planning, design, constructing, operating and funding transportation facilities and services. At the local level, primary responsibility for transportation improvements rests with the City of Galveston and Galveston County. State-owned and maintained transportation facilities are the responsibility of the TxDOT. Federal funding is provided through the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). H-GAC is the MPO for the Houston-Galveston Region.

The Galveston Park Board has important responsibilities relating to tourism transportation. The Park Board is responsible for 7 beach parks along Galveston Island, and also manages the pay-by-phone on-street parking along Seawall Boulevard.

Tourist information about transportation both to and on Galveston Island is responsibility of the CVB, housed within the Park Board. Access to the beach parks is an important concern for the Park Board. The City of Galveston is represented in the membership of the Transportation Policy Committee (TPC) and Technical Advisory Committee (TAC) of H-GAC, which is an important means of regional coordination for desired transportation improvements for Galveston Island. Active participation will help to ensure appropriate regional recognition of the transportation needs for the City of Galveston and Galveston Island.





# Funding Options:

Funding can be leveraged from several sources for transportation in the City of Galveston. The most basic funding may come from those developers that construct residential subdivisions and commercial developments in the City. Those developments are responsible to fund and construct the roadway improvements that are required to serve their development, as well as sometimes participating in funding thoroughfares to which their developments contribute traffic. The City sells municipal bonds that are approved by the voters to provide the City's portion of the cost of major transportation projects. In a few cases, the City pays the entire cost of a project. But in most cases, the City partners with TxDOT, Galveston County, H-GAC, or the cities to utilize federal, state and city funds. In these cases the City's portion of the funding is anywhere from 10% to 50% of the cost of the projects. The resulting funding follows the priorities set collectively by the various entities involved in the projects.

Funding for transportation facilities comes from a variety of sources including Federal, State and Local governments, and the private sector. Research focuses on methods to bridge the gap between the cost of transport and the revenue to be generated from operation of transport systems. This includes pricing and taxation instruments that provide the capital up front for the construction and renewal of infrastructure as well as cash management tools and credit enhancement and/ or investment tools. Financing tools include the creation of suitable organizational structures with the capacity to manage new approaches in financing. In some cases, a public-private partnership or a special district may provide funds to build or operate transportation facilities in a particular area. In this case, funding comes from the property owners in the area that benefit from the facilities.

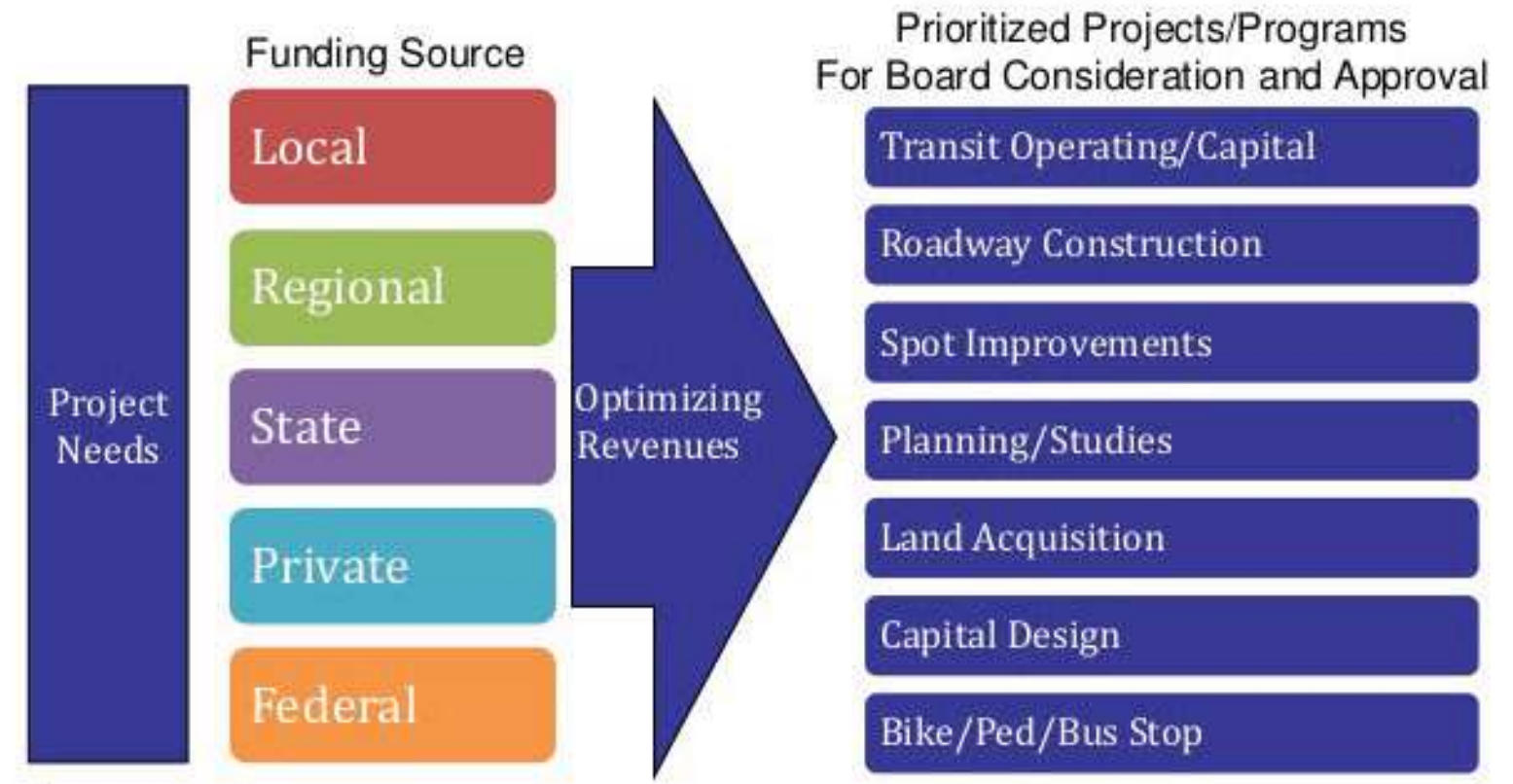
A number of funding sources relate to use of the transportation system – people pay for the facilities because they are using them. Drivers of cars and trucks pay part of the cost of roads and other facilities through the gas tax they pay at the pump. Part of the revenue from vehicle registration fees is used to pay for transportation facilities. Users of tolled roads pay a toll each time they use a facility. Users of public transportation pay fares when they use transit.

These payments by the users of the transportation system do not cover the full cost of building, operating and maintaining transportation facilities. Other transportation funding sources result from local government decisions. The State, County and City may decide to build transportation facilities to meet the needs of their residents and businesses. A bond program contains a listing of such needed facilities. If the voters approve the bond program, then the government can issue bonds to raise money to build facilities. General tax revenues (*such as property tax*) are used to pay for the bonds.

Localities are most often responsible for the construction of sidewalks. It is common to require these facilities to be provided on-site as a condition for development, with additional off-site facilities supported by general funds, tax-increment financing, impact fees, grants, or parking fees. Local governments can also use these mechanisms for bicycle facilities as well.

Local funding sources for transportation improvements are dependent on City of Galveston and Galveston County general budget expenditures, along with funds from State and Federal sources. As the MPO for the Houston-Galveston urbanized area, H-GAC administers regional and local planning programs and develops the Transportation Improvement Program (TIP) to prioritize expenditures using available funding sources. Galveston's participation in regional programs is essential for obtaining future funding commitments for the benefit of Galveston Island.

## Matching Projects to a Funding Source



Source: Transportation Funding: Implementing HB 2313





# Funding Options:

Traditional transportation funding sources—primarily motor fuels taxes and registration fees—have not kept pace with mounting transportation demands in Texas. Determining acceptable methods to fund future transportation needs will be difficult, and no single action is likely to address all of the state’s transportation requirements.

Arterial and street projects that are not developed using Federal and State funding allocations may be financed through General Fund allocations or by a General Obligation (G.O.) bond issued by the City of Galveston or Galveston County. The City could use a variety of funding sources depending on availability. These include, but are not limited to, bonds, general fund, and other financial resources.

Economic development projects for cities and counties may include the following options:

- Type A and B Economic Development Corporations
- Municipal Development Districts
- Event Trust Funds
- Tax Increment Financing Act (Tax Code Chapter 311)
- Tax Abatement Act (Tax Code Chapter 312)
- Chapter 380/381 Economic Development Agreements
- County Assistance Districts
- Enterprise Zones
- Manufacturing Exemptions
- The Freeport and Goods in Transit Exemptions

The State Legislature has helped establish state and local financing tools to assist local governments with transportation projects. TxDOT is a resource for local governments to explore these and other available options.

- State Infrastructure Bank Loans: The State Infrastructure Bank (SIB) is a revolving loan fund that allows borrowers to access capital funds at or lower-than market interest rates. SIB financial assistance can be granted to any public or private entity authorized to construct, maintain or finance an eligible transportation project.
- Transportation Reinvestment Zones: A transportation reinvestment zone (TRZ) is an innovative financing mechanism in which captured ad valorem tax increments are set aside to finance transportation projects.
- Regional Mobility Authority: A regional mobility authority (RMA) is a political subdivision formed by one or more counties to finance, acquire, design, construct, operate, maintain, expand or extend transportation projects. These projects may be tolled or non-tolled. The Texas Legislature authorized RMAs in 2001 to provide a flexible way to address local transportation needs and to develop projects quickly. Individual counties or multiple counties can create a single RMA entity. They receive funding for initial project development from the sale of bonds. They may also seek a loan or grant from TxDOT. There is not an existing RMA that includes Galveston Island.
- Local Funds and Fees: Local governments collect various fees and taxes to generate revenue for transportation projects. This local revenue in combination with state and federal funds can finance eligible transportation projects.

TxDOT Project Development Process





# Funding Options:

**Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grants:** This U.S. Department of Transportation program provides an opportunity for state and local governments, metropolitan planning organizations, transit agencies and port authorities to invest in road, rail, transit and port projects that promise to achieve critical national objectives. Each round of the TIGER program is different, but grants are generally awarded for capital investments in surface transportation infrastructure on a competitive basis.

**Comprehensive Development Agreements (CDAs) and P3s:** These are agreements with private entities that allow for greater private sector participation in the delivery and financing of transportation projects. A CDA is the tool TxDOT uses to enable private development by sharing the risks and responsibilities of design and construction.

**Transportation Development Credits:** Toll or transportation development credits are a federal transportation funding tool that states can use to meet federal funding matching requirements.

**Note:** This site does not describe all financing options that may be available to local governments for transportation projects, and not all options described are applicable to all projects or all local governments. Local governments are encouraged to discuss options with local counsel.

H-GAC, as the MPO policy board, is responsible for programming projects in the following federal funding categories:

- Surface Transportation Program-Metropolitan Mobility (STP-MM),
- Congestion Mitigation and Air Quality Improvement Program (CMAQ) – for the designated air quality non-attainment area,
- Transit Funding (e.g., FTA Section 5307 Urbanized Area Formula Program) as applicable.

TxDOT administers the federally funded Transportation Enhancements program, which provides opportunities for non-traditional transportation related activities.

The Highway Bridge Program (HBP) is a federal-aid program that provides funding to enable states to improve the condition of highway bridges through replacement, rehabilitation and systematic preventive maintenance. The Participation-Waived/Equivalent-Match Project Program (PWP/EMP) allows a local government to waive its 10 percent cost participation requirement in a federal HBP off-system bridge project if it agrees to use an equivalent dollar amount to improve other deficient structures in its jurisdiction.

The Landscape Partnership Program was created to allow local governments, civic organizations or private businesses an opportunity to support the aesthetic improvement of the state highway system by donating 100 percent of the development, establishment, and maintenance of a landscape project on State right of way.

Below is an example of the steps the City of Galveston would go through for the RTP process.

## RTP Development Process

<b>Phase 1: Initial Assessment (2012)</b>	<ul style="list-style-type: none"> <li>▪ Gather Information on Current and Future Conditions</li> <li>▪ Assess Current RTP</li> <li>▪ Revise Vision and Goals</li> </ul> <p>▶ <b>Public Outreach (Early 2013)</b></p>
<b>Phase 2: Corridor Analysis (2013-14)</b>	<ul style="list-style-type: none"> <li>▪ Revise Congestion Management Process</li> <li>▪ Develop Performance Monitoring Plan</li> <li>▪ Assess and Prioritize Needs</li> <li>▪ Identify Major Investment Priorities</li> </ul> <p>▶ <b>Public Outreach (Early 2014)</b></p>
<b>Phase 3: Regional Analysis (2014)</b>	<ul style="list-style-type: none"> <li>▪ Finalize Investment Priorities</li> <li>▪ Finalize Financial Plan/Demonstrate Fiscal Constraint</li> <li>▪ Perform Travel Demand Modeling</li> <li>▪ Determine Regional Impacts (Air Quality, Environment, Social)</li> <li>▪ Prepare Final Plan</li> </ul> <p>▶ <b>Final Public Comment (Fall 2014)</b></p>

Source: H-GAC RTP Process





# Funding Options:

TxDOT's Public Transportation Division administers transit funds to ensure operation within the legal requirements in accordance with FTA regulations.

Inflation, population growth, aging infrastructure and more fuel-efficient vehicles have stretched available transportation funds beyond their limits. Several proposals for creating new capital funding sources on a statewide level are part of the public dialogue:

## Motor Vehicle Sales Tax

Some legislative leaders have suggested using a portion of vehicle sales tax revenue for transportation. Such revenue is projected to reach \$3.8 billion in 2014 and 2015 for the General Revenue Fund.  
source: [http://www.texastransparency.org/State\\_Finance/Budget\\_Finance/Reports/Certification\\_Revenue\\_Estimate/cre1415/CRE2014-15.pdf](http://www.texastransparency.org/State_Finance/Budget_Finance/Reports/Certification_Revenue_Estimate/cre1415/CRE2014-15.pdf)

## Public-Private Partnerships

Partnering with the private sector brings in additional money. It allows projects to be built sooner rather than waiting until traditional funding becomes available.

## Texas Mobility Fund

Any new revenue sources for the Texas Mobility Fund could help retire debt or expand the capacity of the fund to accelerate new projects.

## Transportation Reinvestment Zones (TRZ)

TRZs provide another local funding option for entities that choose to participate. Increased property values generate revenue within the improved zone to finance transportation projects.

## Vehicle Miles Traveled (VMT) Tax

Replacing the current per gallon fuel tax with a VMT system would accurately reflect road usage and could compensate for increasing fuel efficiency.

## Index or Increase the Motor Fuel Tax

A one cent increase in the tax would generate about \$110 million a year in revenue for the SHF. Any additional gains, however, will eventually be tempered by higher fuel efficiency and inflation.

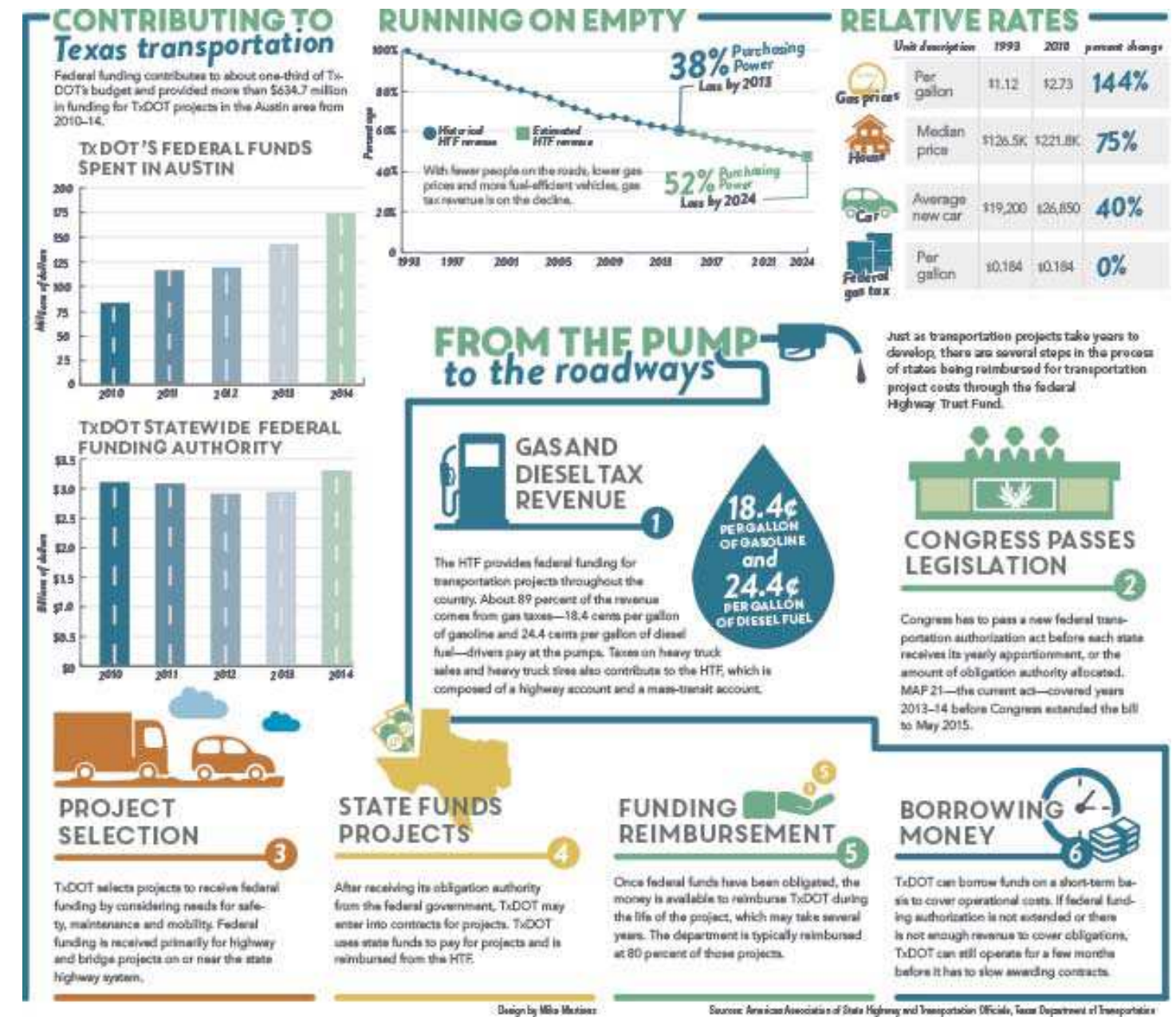
## Increase Vehicle Registration Fees

Each \$10 increase in motor vehicle registration fees should yield almost \$210 million annually statewide in additional revenues.

## Tolling

Toll roads play a significant role in providing transportation solutions. While toll roads cannot be the only approach to providing new roadways, they offer drivers alternative routes and more time-saving choices.

**NOTE:** These funding sources are not all-inclusive and there is not any particular solution advocated by local, state or federal entities. Final decisions about transportation funding options are made by state legislators and members of Congress.



Source: Community Impact

