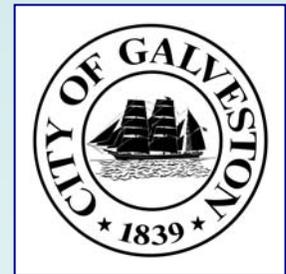


# Galveston Pedestrian and Bicyclist Special Districts Study September 2006



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THE  
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GROUP



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## Executive Summary

### Introduction

In 2004, H-GAC conducted a study to identify districts where there were high levels of existing or potential pedestrian and bicyclist activity, and where there were significant opportunities to replace vehicle trips with pedestrian or bicycle trips, and to improve pedestrian and bicyclist safety. Fifteen districts were identified throughout the region, with two of the top districts located on Galveston Island. H-GAC decided to treat these two districts together, and defined the Study Area as the urban portion of the island, from 1<sup>st</sup> to 53<sup>rd</sup> Streets, and from Harborside Drive to the Seawall. On the map at right, the circles represent the two districts, with the triangular shaded region representing the study area.



The study area covers Galveston Island from 1<sup>st</sup> to 53<sup>rd</sup> Streets.

### Study Process

The Project team used a charrette process to solicit input from the public, city, county and state representatives. Introductory meetings were held in May 2006 to explain the purpose of the plan and solicit general comments. The presentation included initial data such as traffic counts, locations of schools and other attractors, as well as the location and severity of motor vehicle crashes involving pedestrians and bicyclists. A second series of public input workshops were held in June. Workshop attendees were presented additional data, such as other planned and proposed projects under development within the project study area, as well as examples of best practices to accommodate pedestrians and bicyclists. Meeting attendees worked together to assemble their ideas and illustrate maps with common routes and destinations, problem areas, and potential improvements.

After more field observations and investigations of the issues raised at the prior public meetings, the project team performed additional fieldwork, including a bicycling “test drive” of the proposed routes, the project team developed recommendations for potential improvements. These recommended projects were presented to the public in August, at which the public were able to vote on the recommendations and offer comments and suggest refinements. Voting also took place through the website. A total of 219 votes were collected throughout this process. A rating system was developed to prioritize the public selections by feasibility, cost, safety benefit, and user demand. In general, projects that were less expensive, more easily coordinated, or already begun in some manner were given higher scores. The final plan was presented to the public at an open house in September 2006.

### Summary of Recommendations

The vote totals from project ranking survey posted on the web, together with the assessments of probable cost and implementation time, were used to prioritize the most popular projects. The priority order of those projects was determined by the consultant team, who ranked the projects, based on votes, feasibility, cost, and relative demand, for the list of recommendations. A full description of the ranking system is located in Appendix F.



The project team presented updates throughout the public process. After the voting and ranking process was complete, the Mayor of Galveston and City Council indicated a willingness to fund the entire range of improvements identified in this report, with a commitment of \$300,000 to \$400,000. At their September 26, 2006 meeting, Council voted to fund the 20% local match required by H-GAC. A copy of the approved resolution can be found in the main body of this report.

**Final Rankings of Potential Improvements**

Code Number	POTENTIAL IMPROVEMENT	Relative Feasibility A	Relative Cost B	Safety Benefit C	Relative Demand D	Composite Rating E=A+B+C+D	Vote Count V	Overall Score E * V	Ranking
1	Develop Bikeway Network	3	1	1	3	8	149	1192	1
3	Bike Racks at Businesses/Destinations	3	3	1	2	9	98	882	2
12	Pedestrian Improvements around Downtown	2	2	1	3	8	73	584	3
17	Curb extensions on Seawall Boulevard	2	3	2	1	8	68	544	4
4	Broadway Crossing Improvements — Group 1	1	2	2	1	6	67	402	5
5	Broadway Crossing Improvements — Group 2	1	2	2	1	6	61	366	6
11	Pedestrian Improvements - Downtown to UTMB (including Magnolia Homes)	2	2	1	2	7	44	308	7
15	Pedestrian Improvements - Galveston College, Ball High, Scott Elementary	2	2	1	2	7	38	266	8
2	Bike Racks on Buses	3	3	1	1	8	24	192	9
16	Pedestrian Improvements on 45th Street	2	2	1	2	7	27	189	10
10	Pedestrian Improvements - Menard Park (new transit center)	2	1	1	1	5	28	140	11
6	Broadway Crossing Improvements — Group 3	1	3	2	2	8	17	136	12
13	Pedestrian Improvements - San Jacinto Elementary and Gulf Breeze Homes	2	3	1	3	9	14	126	13
14	Pedestrian Improvements around Social Services Center	2	2	1	1	6	18	108	14
8	Selected Renaissance Zone #2 Improvements: San Jacinto Elementary	2	2	1	3	8	12	96	15
7	Selected Renaissance Zone #1 Improvements: Rosenberg Elementary	2	2	1	2	7	9	63	16
9	Selected Renaissance Zone #3 Improvements: Morgan Elementary	2	2	1	3	8	4	32	17

A: 3=Easy, 2=Average, 1=Difficult

B: 3=Inexpensive (under \$100K), 2=Average (\$100-160K), 1=Expensive (over \$160K)

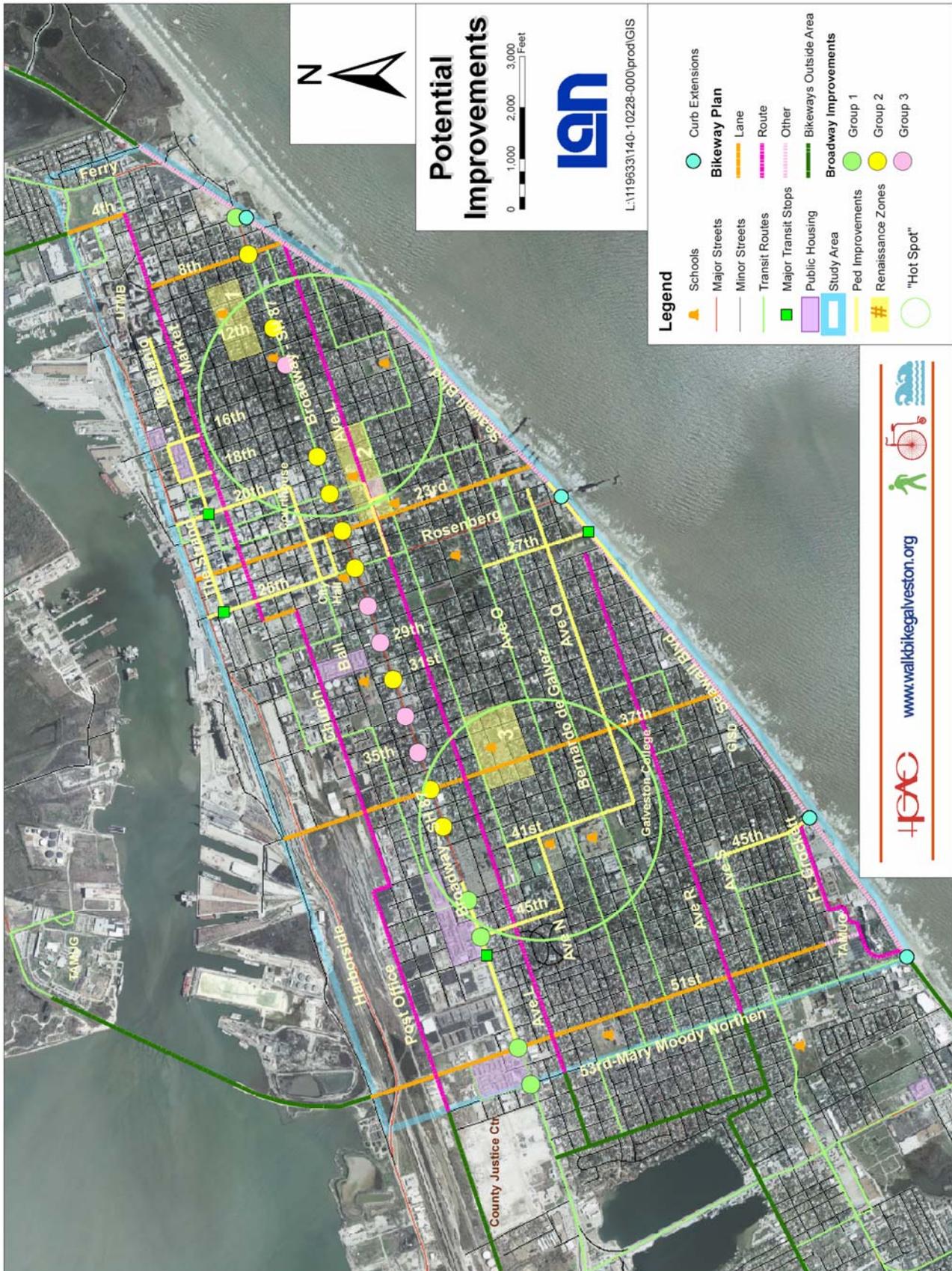
C: 2=Improved Safety, 1=No Impact

D: 3=Higher, 2=Average, 1=Lower (see full analysis in Appendix J)

Note that bicyclist improvements were not analyzed with the same methodology as pedestrian improvements.

Bicyclist improvements were assigned a relative demand based on subjective judgement.

The map on the following page illustrates the complete set of recommendations. After it are descriptions of the types of improvements suggested.





## **Recommended Bikeway Network**

The recommended bicycle network would provide a basic framework of direct, cross-town routes to key destinations. Streets were chosen for these facilities based on street width and feasibility, existing traffic levels, traffic control, directness, and connections to key destinations. The resulting network would provide for six north-south bikeways and three east-west bikeways (not counting the Seawall) as well as connections to destinations outside of the City of Galveston.

North-south bikeways are proposed as striped lanes, while east-west bikeways are to be shared lanes, or bicycle “routes.” This distinction is made because north-south streets on the Island typically have 48 feet of pavement, which provides more space for separate travel lanes without removing parallel parking. East-west streets are typically only 38 feet wide.

Please note that it will be necessary to request a design exception from TxDOT to use federal funds to stripe a “mixed travel” lane narrower than 14 feet. In this case, the exception is justified by the extremely low traffic volumes on the local streets proposed for bicycle routes, and the desire to avoid removing on-street parking or relocating the edge of pavement.

## **Priority Pedestrian Streets**

This plan proposes the top priority roadways for improvement based on needs surrounding specific key destinations. Key destinations include public housing, civic buildings, and access to transit. For those key destinations with specific origins and destinations, routes were prioritized based on directness as well as providing access to secondary destinations along the route. In a few cases the feasibility of constructing sidewalks due to street width and the existence of facilities such as traffic signals to aid pedestrians crossing major roads, were considered.

For those key destinations with non-specific origins, such as transit centers, a one-third mile radius was circumscribed around each key destination. One-third mile is the typical distance a person is willing to walk to their destination. Various routes were then determined for each direction from the destination node.

In some circumstances the one-third mile was extended to connect with other priority pedestrian routes. All segments of the resulting network are contiguous and provide access to schools, Galveston College, UTMB, the Community Center, senior and public housing, downtown civic buildings and transit centers.

Each priority pedestrian street should have full pedestrian facilities compliant with the Americans with Disabilities Act (ADA). Compliance with the ADA includes the following features:

- A clear travel path 5 feet wide
- Curb ramps and crosswalks (specifically designed to be ADA-compliant)
- Detectable warning that a person is entering the roadway
- Pedestrian signals with audible warnings, at signalized intersections
- Audible and tactical warnings at signalized intersections

## **Bicycle Racks on Buses**

Providing bicycle racks on transit vehicles is a simple way to reinforce both modes of travel. By combining the accessibility to individual locations provided by a bicycle with the fixed route and shelter of a vehicle, commuters can extend the comfortable range of travel distance beyond what may be easily achievable for either mode alone. The Goodman Corporation, who is involved in numerous infrastructure projects for the City of Galveston, is working with Island Transit on the approval and installation of bicycle racks.



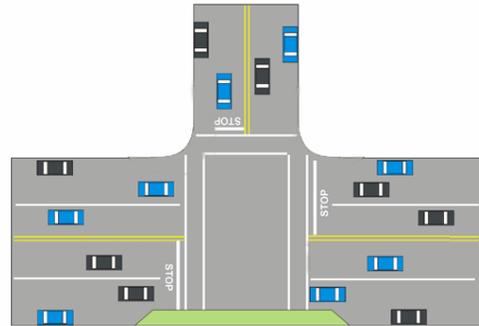
**Bicycle Racks at Businesses**

Providing safe, accessible locations for bicycle parking is another way to encourage bicycle usage. This recommendation is for the purchase of an allotment of U-type bicycle racks, described in the previous chapter, that the City would then install at the request of businesses or other property owners.

**Seawall Boulevard Curb Extensions**

Curb extensions (also known as sidewalk bulbs) improve pedestrian safety by making pedestrians more visible and reduce crossing distance by extending the sidewalk into the parking lane. Landscaping, benches, public art and street vendors can make the areas enjoyable meeting and resting points along the promenade.

As part of the STEP grant proposed by the Goodman Corporation, curb extensions are proposed at 6<sup>th</sup>, 25<sup>th</sup>, 45<sup>th</sup>, and 53<sup>rd</sup> Streets. These extensions would be similar in style to the illustration above and to right, extending into the parking area on the south side of the roadway.



The green area at the bottom of this image shows where a curb extension could be installed at a typical Seawall intersection.

**Cost Estimates**

The total, shown below, is for all priced projects. By the terms of the federal grant by which H-GAC funds the Pedestrian and Bicycle Districts improvements, the sponsoring agency (in this case the City of Galveston) must pay for 20% of the cost of improvements. In-kind services are not countable towards this total; it must be actual dollars spent.

<b>Galveston Pedestrian/Bicyclist Plan</b>		
<b>Overall Cost Estimates</b>		
Broadway Intersections Group 1	\$	106,000.00
Broadway Intersections Group 2	\$	131,000.00
Broadway Intersections Group 3	\$	74,000.00
Bikeway Plan	\$	203,000.00
200 Bike Racks	\$	21,000.00
Pedestrian Routes	\$	858,000.00
Seawall Curb Extensions	\$	17,000.00
<b>SUB-TOTAL</b>	<b>\$</b>	<b>1,409,000.00</b>
20% Contingency	\$	282,000.00
<b>GRAND TOTAL</b>	<b>\$</b>	<b>1,691,000.00</b>
FEDERAL SHARE (80%)	\$	1,353,000.00
<b>LOCAL MATCH (20%)</b>	<b>\$</b>	<b>338,000.00</b>

**City Council Commitment**

The Galveston City Council, at its August 24, 2006, indicated a willingness to fund the entire range of improvements identified in this report, with a commitment of \$300,000 to \$400,000. Subsequently, at the September 26, 2006 meeting, Council voted to fund the 20% local match required by H-GAC.



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## **Chapter 1** **Study Overview**

### **Introduction**

The Houston-Galveston Area Council (H-GAC) is a voluntary association of local governments and local elected officials in the 13-county Gulf Coast Planning Region, an area of 12,500 square miles with almost 5.4 million people. Organized in 1966 by local elected officials after authorization by State enabling legislation, H-GAC now has 132 local government members, including all major general-purpose local governments in the 13-county region: 105 cities and 14 school districts.

In 2004, H-GAC conducted a study to identify districts where there were high levels of existing or potential pedestrian and bicyclist activity, and where there were significant opportunities to replace vehicle trips with pedestrian or bicycle trips, and to improve pedestrian and bicyclist safety. Fifteen districts were identified throughout the region, with two of the top districts located on Galveston Island. H-GAC decided to treat these two districts together, and defined the Study Area as the urban portion of the island, from 1<sup>st</sup> to 53<sup>rd</sup> Streets, and from Harborside Drive to the Seawall. On the map at right, the circles represent the two districts, with the triangular shaded region representing the study area.



The study area covers Galveston Island from 1<sup>st</sup> to 53<sup>rd</sup> Streets.

H-GAC selected consultant Lockwood, Andrews & Newnam, Inc. (LAN), in association with sub-consultants Nelson\Nygaard Consulting Associates and The Lentz Group, to develop a conceptual master plan for comprehensive pedestrian and bicyclist improvements in the Galveston Study Area. The consultant team worked closely with the Galveston community to define the best possible overall plan that fits the needs of the residents, businesses and visitors.

### **Study Area Characteristics**

Galveston Island is a unique place on the Texas Gulf Coast and within the Houston-Galveston region. Founded at the same time as Houston (established 1836, incorporated 1839), Galveston grew much more quickly at first and was the site of numerous “Texas firsts”, including the first post office, navy base, Catholic cathedral, telephone system, gas (and later electric) lights, insurance company, and medical school in the state. Although the great storm of 1900 halted the City’s commercial dominance, Galveston remains a city of 60,000, is the seat of county government for a county of over 250,000, and has turned itself into a resort and tourism destination, featuring not only beaches and recreation, but over 550 National Register of Historic Places landmarks and over 1,500 historic homes.

Galveston has a very high population density, with the H-GAC project study area (the core of the City, from 1st to 53rd Streets) housing over 40,000 residents according to the 2000 Census. The Census also reported that 3.3% of study area workers bicycled to work, 8.8% walked, and 3.4%



took transit (a trip type which includes some walking). This total share of 15.5%, or about one-sixth of all work trips, is more than triple the regional average rate of 5.1% for the same modes.

There are several areas of concentration for the study including Downtown, two universities, and numerous public schools. Downtown contains City Hall, the County Courthouse, the Federal Office building, and the main public library, as well as shops, bars, restaurants, and museums catering to tourists. Downtown extends roughly from 19<sup>th</sup> to 26<sup>th</sup> Streets and from Harborside Drive to Broadway.



The University of Texas Medical Branch (UTMB - the medical school) has been located on the island for over 100 years, and with over 12,000 employees, is the City's largest employer. UTMB occupies 54 buildings on 85 acres at the extreme eastern end of the study area.



Texas A&M University-Galveston (TAMUG) opened in 1962 and today has over 1,700 students. The main campus, 135 acres on Pelican Island, is outside the H-GAC study area but the causeway serving it is a major external connection, entering the study area on 51<sup>st</sup> Street. TAMUG also operates the Fort Crockett Campus, a former U.S. Army base, on the Seawall at the opposite end of 51<sup>st</sup> Street.

Seawall Boulevard and the western half of Broadway are lined with businesses, as are 23<sup>rd</sup> Street south of Downtown, and the southern end of 45<sup>th</sup> Street. There are public schools throughout the study area, with a major focus of pedestrian and bicyclist activity in the western portion; Scott Elementary

and Ball High School sit next from each other along 41<sup>st</sup> Street near Avenue N, and Galveston College is a few blocks to the southeast.

**Pedestrian Conditions—Sidewalks**

Galveston is an excellent walking city, with potential to be even more so, and it is highly desirable that the pedestrian infrastructure match that. Currently the only fully accessible pedestrian routes are the Strand within Downtown and the Seawall. Elsewhere the existence and condition of sidewalks depends on the adjacent property owners. The most basic improvement to encourage walking is the installation of sidewalks and curb ramps throughout the entire city. Providing basic ADA-compliant pedestrian infrastructure in Galveston will be a major undertaking.

The study area has an extremely interconnected street network, nearly all of which is part of the original City grid of the 1830s. Blocks are small (roughly 300x350 feet) and there are only a few discontinuous streets. This is a great benefit to pedestrians and bicyclists, as it provides a vast selection of alternative travel paths, but it also entrusts the City of Galveston with the challenge of maintaining a large amount of sidewalk and street facilities in relation to the properties they serve. On any particular route there are frequent intersections and unlimited street access. As is common in older cities everywhere, Galveston's sidewalks vary widely in their state of repair, and some blocks or portions of blocks do not have continuous sidewalks.

Sidewalks in commercial areas are generally in good condition. It is more common in residential areas to have sidewalks with missing sections, sometimes extending for whole city blocks. Curb ramps are provided at some locations, but not in others. Many existing ramps do not meet current ADA standards. In particular, sidewalks downtown generally have



This sidewalk is in good condition, but has a gap where it intersects the alley.



ramps at street corners, but frequently lack ramps where an alley exits into the street.

The City of Galveston’s Families, Children, and Youth Board has instituted a program known as “Renaissance Zones.” Around schools, inventories have been conducted of missing sidewalk sections, missing curb ramps, and recommended locations for crosswalks. This is an important step to improving pedestrian conditions on the island, and these Renaissance Zones are included in the potential improvements discussed in Chapter 3.

**Pedestrian Conditions—Crossings**

Pedestrian safety has become a concern, with the increasing number of visitors and traffic on the Island. Of particular importance is the treatment of Broadway, also known as State Highway 87, which is the continuation of Interstate 45. This six-lane urban boulevard is the site of numerous businesses and historic landmarks, and schoolchildren cross it at numerous locations where schools are nearby. Broadway is the widest thoroughfare on the island, one of the most heavily traveled, and the site of the greatest concentration of crashes (see Appendix A). However, it is a state-owned facility and there is the potential for partnering with TxDOT to help fund improvements as well as federal funding available under TEA-LU. Seawall Boulevard is another location where pedestrian safety is an issue. The roadway has four travel lanes, with parallel parking all along the south side and at scattered locations on the north side. In addition to a major east-west route for high-speed traffic, Seawall Boulevard also serves as a linear park and a tourist attraction. Patrons of numerous hotels, restaurants, shops, recreational rentals (bicycles, surreys, watercraft), and other users all vie for space and passage along and across the roadway and sidewalks.

**State of the Practice**

Development of a comprehensive bicycle and pedestrian plan is essential to increasing bicycling and walking within the City of Galveston. Research shows that “where, or when, more people walk or bicycle, the less likely any of them are to be injured by motorists. There is safety in numbers” (Jacobsen: Injury Prevention 2003;9:205–209). Developing policies and programs that increase walking and bicycling mode share are effective ways to improve the safety of those walking and bicycling. Focusing walking and bicycling on specific roadways through the development of a bicycle and pedestrian network is not likely to significantly decrease safety on other roadways, because overall biking and walking mode share will increase, using other roadways to access the network to and from their origins and destinations.

Flat terrain, low traffic levels, and wide streets make Galveston an excellent city for bicycling. However, bicycling infrastructure is extremely limited, except for scattered bike racks provided mostly by private entities. The great potential of Galveston means that with encouragement and low-cost strategic improvements, Galveston can become a place that is easy and safe to bike in for both recreation and transportation. The following examples provide a basic bicycle network of facilities that cross the City.

**Proposed Facility Types**

The bicycle facility types discussed in Chapter 3 fall under three main classifications: bicycle routes and boulevards (Class III bikeway), bicycle lanes (Class II bikeway), and multi-use paths (Class I bikeways). Complementary facilities such as bike parking and bicycle oriented signage are discussed below.

Modifying the striping or lane configuration can often provide space for bike lanes or shared use facilities on an existing roadway.



Examples of pavement markings and signage for a shared lane.



Minimum widths for vehicle lanes are generally 11 feet. Parking lanes can also often be reduced to a minimum of 7 ft, or 8 ft for loading zones or locations where large vehicles park.

**Shared-use facility**

Constrained street widths sometimes require the provision of a shared use facility. Wide outside (curb) lanes on these facilities provide space for bicyclists adjacent to traffic. These are typically marked with the “bicycle chevron” symbol, shown in the example above and to the right, indicating that it is a shared facility with bicycles and showing where bicyclists should ride within the travel lane. Reinforcing signage is also sometimes employed, as shown in the photograph at the bottom right. The minimum width for ‘shared-use’ facilities is 13 feet, with 15 feet optimal, in order to maintain enough lane width for motor vehicles. If 13 feet is not attainable, then the lanes should be narrowed to 11 feet and cyclists should ride in the standard traffic lane, so that drivers do not try and squeeze cyclists. Twelve feet is not wide enough to pass, but not narrow enough to engender yielding.



Examples of signage and pavement markings for bicycle boulevards.

**Bicycle boulevards**

Bicycle boulevards are usually residential streets that parallel major arterials, providing an alternative route to main destinations. Often too narrow or low volume to install bike lanes, bicycle boulevards permit auto traffic but prioritize bicycles. These routes are designed to make bicycling easier and safer by slowing automobile traffic to bicycle speeds, creating an uninterrupted route for bicycles to the extent possible, facilitating the crossing of major roads, and providing wayfinding signage for bicyclists

. Lane configurations are not usually adjusted but pavement markings or other means of clearly demarcating the route should be used as in the figure shown. Currently, no bicycle boulevards are being proposed for Galveston.

**Bicycle lanes**

Bicycle lanes designate a portion of the street for bicycle use. They indicate where bicyclists should position themselves on the roadway and provide a space for them outside of the vehicle path. While bike lanes have not been shown to increase or decrease bicycle safety, they do provide a more comfortable alternative for bicyclists, than riding in the vehicle lane, particularly on streets with medium to high traffic volumes.

This increased comfort level contributes to increased bicycle volumes. Two additional benefits are not often recognized of bike lanes: 1) Bike lanes are among the best ways to indicate continuity of a bike route; and 2) Wayfinding directions to bicyclists. Where wide street widths contribute to high vehicle speeds, bike lanes narrow lane widths, encouraging slower driving.

Curb lane widths, not including parking, of 16 feet or more are required to install bike lanes, with 11 feet



Striped bike lanes with and without wording



allocated to the vehicle lane and 5 feet for the bike lane. Bike lane widths should increase, if possible, where traffic volumes and especially large vehicle volumes, and speeds are high, to allow for a greater buffer between vehicles and bicyclists. “No right turn on red” signs should also be installed where right turn volumes are high.

**Multi-use paths**

Multi-use paths are off-street facilities for non-motorized vehicles and pedestrians. They provide the highest level of service for bicyclists because they are completely separate from vehicular traffic. Off-street paths are best located where there is little cross traffic, so as to minimize conflicts. Paths should be seen as complements to the on-street network; not as a substitute, as they are typically found in parkland, wilderness areas, or other less-developed areas. As such, they do not provide the connectivity to schools, places of business, or entertainment facilities, and act primarily as recreational amenities.

Throughout the public meetings, however, numerous citizens expressed their wishes for off-street paths in the west end of the Island, particularly along Stewart Road and FM 3005 (the extension of Seawall Boulevard), connecting to Galveston Island State Park and points further west. It may also be possible to develop such paths at the east end of the Island, connecting to Apffel Park and East Beach.

**Bicycle parking**

Lack of secure bicycle parking is a chief obstacle to bicycling. People will often not bicycle somewhere or commute via bicycle if they think there is a reasonable chance their bicycle will not be there when they return. Finding a bike rack that does not allow one to properly secure the bike or is inconveniently located can discourage future bike use. In addition to creating a basic network of bikeways, development of a program to install bicycle racks and other secure bicycle parking facilities throughout the city is essential.

Best practices to accommodate and encourage bicycle commuting include special zoning or permitting requirements for the provision of bike storage for new developments, including locker shower facilities at large centers of employment. Effective bicycle racks provide direct contact between the bicycle frame and the rack at two points for stability such as those shown.



U-type racks like these can be installed singly or in arrays of any number. They provide easier and more secure attachment of bicycles than other designs. U-type racks are available from numerous manufacturers throughout the country.



### Bicycle oriented signage

There are three types of bicycle oriented signage:

- Signage directed towards drivers with instructions related to bicycles. These may include signs such as “Share the Road,” “Bicycles Allowed Use of Full Lane,” or “Yield to Bicycles.” These should be used sparingly in key locations such as the Pelican Island Causeway and the overpass at 51<sup>st</sup> Street and Harborside. Overuse of warning signs such as these lead motorists to eventually ignore them.
- Numbered bicycle route signage should be used on all bikeways for designation and identification. These are essentially the bicycle equivalent of numbered highway systems, shown in the photo at right.
- Wayfinding signage provides directions for bicyclists to key destinations such as business districts, schools, parks, and civic buildings, with the option to include distances for improved information. Wayfinding information can be included as part of the numbered bike route signage system.



Examples of bicycle route signage with route names and numbers.

### The Four “E”s of Planning

**Education, encouragement, enforcement** and good **engineering** are the foundation for pedestrian and bicycle planning. Combined they take the concept from mere theory to good practice. **Education** provides pedestrians and potential riders with substantial knowledge of network usage. It provides the when, where, and how of the network. **Encouragement** increases the usage of the network by providing incentives and programs that promote safe and well informed usage. **Enforcement**, often thought of as pointing out bad cycling and pedestrian behavior ensures safe riding habits, understanding of the signage, personal responsibility as well as abiding by the rules are taught and maintained. It also includes motorist behavior that disregards cycling and pedestrian activity. This often causes a dangerous potential for conflict.

Most important of all the “four E’s” is **engineering**. It supports education, encouragement and enforcement with good design. Good design can educate people to bicycle properly with traffic, cross streets safely, encourage people to walk in the public right-of-way and provides a physical framework for proper enforcement.

Many engineering and design practices have been tried and tested throughout the country successfully. The most frequently used are pedestrian corridors, pedestrian signals, unsignalized pedestrian crossing treatments, Americans with Disabilities requirements and on-road bicycling.

### Pedestrian Corridors

The most common pedestrian corridors are sidewalks. Sidewalks are also the preferred method of choice in an urban environment to accommodate pedestrian activity. However, in many areas of the city, traffic volumes and speeds are so low pedestrians share the street with motor vehicles, especially where discontinuous sidewalks make it simpler to walk in the street. In areas of high traffic



These sidewalks transition directly into the street, without ramps or detectable edge markings.



volumes, buffers along sidewalks should be used to protect pedestrians from moving traffic. Planter strips, on-street parking, or a bike lane can act as buffers. This increases pedestrian comfort and some buffers such as, planter strips help meet ADA cross-slope requirements at ramps, around posts and at other designations.

Sidewalks should be modified and prioritized based on traffic conditions. Separated sidewalks should be 5 feet wide or greater and 6 feet is desirable for curbside sidewalks at the minimum. Along commercial streets with paved furniture zones within the sidewalk, curbside sidewalks should be at least 10 feet. On curbside sidewalks a 6 feet wide clearance is desirable. Obstructions should be placed behind the sidewalk if this cannot be achieved. Mountable curbs, meaning curbs whose vertical face is at an angle of 45 degrees or less, facilitating vehicle access across them, are not recommended.

Continuous and connected sidewalks are generally needed along both sides of the street to prevent unnecessary crossing.

**Pedestrian Signals**

Pedestrian signals provide safety and security from motor vehicles in the form of pedestrian signal heads, marked crosswalks, a WALK signal and push buttons. High volume multi-lane highways may benefit from a signal mid-block or at an existing unsignalized intersection for pedestrian crossing. High pedestrian crossing counts are needed for MUTCD to warrant a signal installation. Pedestrians are more likely to cross when there is a signal. Estimating these counts will make it easier to meet MUTCD requirements. Signal operation and safety concerns must also be addressed as well as the distance to adjacent signals.



This pedestrian signal at 25<sup>th</sup> and Broadway features a timer to indicate how much crossing time remains.

Pedestrian signal heads give the appropriate time to cross the street within a signal cycle. Without these signals, pedestrians may have a difficult time determining the safety of crossing the street especially at busy intersections, unusual geometry, or with complex signal phasing like split phasing. Pedestrian signals ensure a timely crossing before conflicting traffic proceeds.

Marked crosswalks at each leg of the intersection help warn motorists of possible pedestrian crossing and keep the crossing clear of vehicles. Closing a crosswalk to improve traffic flow degrades pedestrian safety. Pedestrians crossing without a signal not only increase endangerment but also actually increase exposure and delay. To enhance visibility, crosswalks can be marked with ladder markings that are spaced to avoid the wheel paths of vehicles.

A WALK signal can provide pedestrians with a long enough clearance interval to get pedestrians started and crossed.

Push buttons placed where all pedestrians can access them, including those with disabilities should clearly indicate which crosswalk the button regulates. Mounting push buttons on separate pedestals is often necessary to achieve proper placement, rather than on signal poles.

In areas of high pedestrian use such as downtowns and central business districts, push buttons are rarely needed except as part of an audible pedestrian signal. The pedestrian phase of the signal should occur every cycle. Traffic delays can be reduced by using a median island and a 2-step pedestrian crossing where the push button stops only one direction of traffic.

Even with the above safety crossing measures, pedestrian crashes occur frequently at signalized intersections, most often when vehicles turn on red as pedestrians are crossing the intersection. The following is a list of timing techniques and other treatment to reduce pedestrian-traffic conflict.



- Protected-only left-turn phasing allows pedestrians to cross without conflicts from left-turning drivers. Red arrows are displayed that prohibit left turns during the pedestrian WALK and clearance intervals.
- 1-2 second all red interval can help prevent deadly crashes caused by high speed red light runners
- Leading pedestrian intervals provide WALK indication 2 to 5 seconds prior to the concurrent green indication. This allows pedestrians to enter the crosswalk before drivers. This increases the visibility of pedestrians and reduces conflicts with turning vehicles.
- Countdown Pedestrian Signals tell pedestrians how much time is left in the pedestrian clearance interval. Studies show that countdown signals reduce the number of pedestrians left in the street when conflicting traffic receives a green indication.

### Unsignalized Pedestrian Crossing Treatments

Crossing at unsignalized locations presents its share of problems for pedestrians, especially at multi-lane corridors. Pedestrians will cross at locations where there is an opportunity regardless of the nearest signal which may be quite a distance away. It is necessary to provide alternatives to assist pedestrians in safely crossing unsignalized intersections.

- Continuous raised medians or pedestrian crossing islands on two-way streets have been shown to reduce crashes up to 40%. They allow pedestrians to “cross and wait then cross again” instead of waiting for a break in traffic long enough to clear the lanes. At intersections the median or median nose should extend past the crosswalk to provide a refuge for pedestrians as left turning vehicles are approaching.
- Curb extensions can be used where there is on-street parking to reduce the total crossing distance and improve visibility between motorist and pedestrians waiting to cross. They should extend the full width of the parking lane to ensure that sight lines are not obstructed. At intersections, curb extensions can be used to bring the crosswalk closer to the intersection, improve accessibility with additional space, and slow right turning vehicles on tight corners.



This median nose on 25<sup>th</sup> Street (Rosenberg) illustrates the refuge area (paved in red brick). The crosswalks connect to either end of this refuge area, but they are difficult to see and should be replaced with new thermoplastic markings.



- Pedestrian crashes occur predominately at dusk and night. Illumination should be used at crossing to significantly increase the driver's and pedestrian visibility.
- An advance yield sign should be used at unsignalized crosswalks on multi-lane streets to reduce the occurrence of "multiple-threat" crashes. These are the most common and often fatal pedestrian crashes. It occurs when a driver in the outside lane stops to let a pedestrian cross unaware of the blocked sight line he has caused between the pedestrian and the driver in the next lane. The 2<sup>nd</sup> driver without enough time to react potentially strikes the pedestrian at high speed. The advance yield sign should be placed 20 to 50 feet from the crosswalk. This encourages drivers to stop further back, maintaining better sight lines and giving the 2<sup>nd</sup> driver and pedestrian time to react if necessary.
- At designated unsignalized crossings, high-visibility crosswalk marking should generally be used since there is no active control to stop motor vehicles. Longitudinal lines (ladder or continental style crosswalk markings) are preferred and the markings should be spaced to avoid the wheel paths of vehicles, significantly reducing maintenance needs.
- Pedestrians face additional challenges at unsignalized intersections due to right and left-turning vehicles. The following issues and design features affect pedestrians:
  - Skewed intersections result in longer crosswalks, longer walking distance, poor visibility for both pedestrians and motorists, and allow drivers to turn at high speeds. Whenever possible they should be realigned to reduce or eliminate skews and pedestrian exposure to traffic.
  - Pedestrians benefit greatly from small corner radii. Small corner radii shorten the crossing distance, allow for well-placed crosswalks, slow right turning vehicles and increase visibility of pedestrians. The size of the corner radius is determined by the appropriately-chosen design vehicle, and the street designation- residential, collector, or an arterial. An appropriate radius for each intersection corner should be design even if the results are different size radii at the same intersection. It is not necessary to design for large vehicle turns but it is appropriate to design so that some rare large vehicles must use multiple same direction or even oncoming traffic lanes to make their turns.
  - At locations where an exclusive right-turn lane is provided, a right turn channelized island between the right turn lane and the through lanes shortens the distance across the through lanes. There is less pedestrian exposure and improved signal timing. The island allows pedestrians and drivers to negotiate one conflict separate from another. A channelized island is asymmetrical with a longer tail pointing upstream toward the approaching driver turning right. The approaching driver is brought closer to a 90-degree angle at the cross street. The crosswalk should be placed one car length back from the edge of the cross street, to separate interactions between pedestrian-vehicle and vehicle-vehicle traffic.
  - Crosswalk placement can accomplish several competing goals: short crosswalks, crosswalks as close as possible to the intersection for better visibility by turning vehicles, and the need to properly locate two sidewalk ramps. Good crosswalk placement can be a challenge, especially at intersections with large corner radii. Sidewalk ramps must be contained within the marked crosswalk area. Poorly placed sidewalk ramps and design can make a street crossing more difficult since they may require wheelchair users to make long detours while crossing or where drivers won't expect them.

### **Americans with Disabilities (ADA) requirements**

ADA requirements must be met to ensure the safety and convenience of travel by all pedestrians. The requirements that present challenges for this area are smooth surfacing, clear width, maximum



cross slope, and proper ramp design and placement. These are absolute requirements by the ADA; they are not suggestions, recommendations, or guidelines.

ADA requires a smooth surface, with vertical changes in the level not exceeding ¼". New concrete sidewalks are the best way to ensure this. Decorative surfaces such as brick or stamped concrete can be used, but may be difficult to maintain a smooth surface overtime. If decorative surfaces are requested, it is best to place them out of the primary walking area of the sidewalk, in the "furnishing zone" near the curb, or in the "frontage zone" at the back of the sidewalk.

ADA standards currently require a minimum clear width of 3 feet but future requirements may add an additional foot. To provide the maximum convenience, a clear width of 5' feet is the best dimension. This ensures that all pedestrians, including those with disabilities, can walk side-by-side or pass each other with little interaction. Sidewalks that include a planter strip or furnishing zone make it easier to meet clear width requirements by providing a place where pools, posts, mailboxes, trees, and other obstructions can be placed.

A cross-slope not to exceed 2% (1:50) must be provided for the required clear width of the entire accessible route including all driveways, sidewalk ramps, and intersections. Separated sidewalks that allows sloped driveway apron and sidewalk ramps to be placed in the planter are the easiest way to achieve this requirement. Sidewalks directly adjacent to curbs require special techniques to maintain a level passage across driveways.

Maximum grade in the direction of travel cannot be steeper than 5% (1:20). Sidewalk ramps cannot exceed a maximum slope of 8.3% (1:12) and a 5x5 foot level (2% maximum slope) landing must be provided at the top of every ramp. At the bottom of each ramp truncated domes must be placed at a 2-foot depth, 6-8 inches from the face of the curb, and extending the full width of the ramp. The enables blind pedestrians to determine where the sidewalks ends and the street begins.

Each ramp must be placed completely within the crosswalk at intersections. Two ramps placed at each corner, one for each crosswalk, are generally recommended. This is easiest to achieve when the corner radius is relatively small. On large radius corners of 30 feet and above, placing 2 ramps may be disadvantageous. It will move the crosswalk too far from the intersection itself, forcing disabled pedestrians to make a detour and cross at locations where drivers may not expect them. Designing an intersection with good crosswalk placement is foremost; then decide the necessity of one or two ramps.



This corner of Broadway and 19<sup>th</sup> is a good example of an intersection not meeting ADA. There are no curb ramps at all, and the gutter is very deep, producing a tripping hazard.

### **On-road Bicycling**

Bicyclists are roadway users, and fare best when operating according to motor vehicle laws, so that motorists can anticipate predictable bicyclist behavior. In urban environments with low traffic volumes and speeds shared bicyclist and motor vehicle roadways are acceptable. There are no specific dimensions. There is also no special signage or road marking. However, local streets have a major disadvantage for bicyclists when crossing major arterial streets with no protection or warnings such as islands and traffic signals. Signed shared roadways can be created by adding bike route signs but to be more effective, signage must include destination signing or named and numbered bike route destinations.

Bike lanes are an effective way to travel with faster moving traffic. They also allow bicyclists to move at a constant speed when traffic is congested and moves at stop and go pace. They are often developed on existing streets by narrowing travel lanes or removing a lane. They should be 5-6 feet wide with a minimum clear width of 5 feet from the center of the lane stripe to the curb or edge of



pavement. In areas where bike lane continuity can not be provided, a wide outside lane of 13 to 15 feet will suffice. This also allows motorist to pass cyclist without changing lanes.

Bicycle boulevards accommodate bicyclists by providing an alternative to arterial streets. It turns a local street into a thoroughfare for bicyclists without encouraging motorists to use it as a through route. They work best in a system of connected streets such as a grid pattern. It enables a bicyclist to travel several blocks without arterial street usage. Many existing bike routes can be converted into bike boulevards while many bike boulevards can be created on other street as an alternative. Traffic calming techniques can be used to reduce motor vehicle speeds and through traffic. Priority is given to through bicycle movement at intersections with local streets. Special signage is used to increase street usage. Arterial streets are marked with traffic signals for bicyclist, median islands and other measures.

Shoulders, while not recommended in the Galveston study area, are great locations for bicycling, as long as they are kept reasonably free of debris. Shoulders provide a continuous pathway further out of the way of motor vehicles, a benefit when bicycling along high-speed or rural roadways. The west end of Galveston Island, in particular along Stewart Road and FM 3005, is an area where shoulders would benefit long-distance bicyclists.



Two cyclists riding correctly: with the flow of traffic and to the right-hand side of the travel lane. This photo is of Church Street just west of 27<sup>th</sup>. Church is identified in Chapter 3 as a proposed bicycle route.



## **Chapter 2** **Public Input and Project Selection**

### **Summary of Public Process**

Public input was solicited throughout the study process, through public meetings, the internet, and paper mail. At the beginning of the study, a project website ([www.walkbikegalveston.org](http://www.walkbikegalveston.org)) was developed, to collect and display information relative to meetings and other scheduled events, public feedback opportunities, and analysis products. A series of three introductory meetings were held, one in the afternoon for public officials and two in the evening for the general public. Surveys were developed and posted to the website, forwarded to officials and organizations for their distribution, and mailed to persons who had attended any of the introductory meetings.

Two public input workshops were held to solicit improvement recommendations from the community. Following the development of potential improvements, a meeting was held to present these improvements, as well as provide an initial opportunity for the public to vote on their preferred choices. In addition, another web-based survey was set up for the public to vote (select) their preferred improvements. Finally, a draft plan was presented to the public. These efforts are detailed in the following sections.

### **Project Introduction—Public Officials and Citizens**

To kick off the project, H-GAC and the consultant team conducted a series of meetings in May 2006, to explain the background of the Pedestrian and Bicyclist Special Districts program, convey the schedule and scope of the project, define what the desired products would be, including the range of potential recommendations, and solicit general input.

An afternoon meeting was held Monday, May 1, 2006, to which were invited officials and representatives of the City of Galveston, Galveston County, the Texas Department of Transportation, Island Transit, the Galveston Independent School District, the University of Texas Medical Branch, the Convention & Visitors' Bureau, and the Galveston Housing Authority.

Two evening meetings were held Monday May 1, and Wednesday, May 3, 2006. Invitees included bicycle and disabled persons advocates; representatives of neighborhood and community organizations, including the Families, Children and Youth Board, the Galveston Association of Island Neighborhoods (GAIN), and the Intermodal Transportation Committee; and numerous study area businesses, schools, and churches.

Full detail of the comments from these three meetings is located in Appendix B.

### **Initial Project Survey**

At the beginning of the project, a survey was developed to gauge initial public interest, including generalized problem areas, relative levels of concern over wayfinding, accessibility, safety and other issues. Printed surveys were made available at the introductory meetings. In addition, the project website offered automated versions of the survey in four different formats based on whether a visitor indicated their main interest as ADA, pedestrian, or bicyclist issues, or did not indicate a preference. This initial public input survey was closed at the end of June 2006, to allow the results to be distributed at the Public Input Workshops, described below. A sample of the survey and the full compilation of results are located in Appendix C.

### **Public Input Workshop**

On Monday, June 26, 2006, and Wednesday, June 28, 2006, H-GAC and the consultant team conducted public input workshops to obtain specific and detailed recommendations from the public about their perception of problem areas, good examples, and potential improvements. The ideas and themes from the project introduction meetings, the public surveys, and the initial field data



collections were presented and the attendees were asked to illustrate on maps problems and potential improvement projects. Full details of the public input from this meeting are located in Appendix D.

**Survey of Potential Improvements**

Using the input from the public meetings in June, a series of projects was developed based on the maps drawn at that meeting and the responses to the first public survey received over the previous month. These projects included sidewalk construction, lane and crosswalk striping, as well as a bikeway network and bike racks. This list became the basis for the second survey posted to the project website. Seventeen projects developed from the public input were presented, as shown below.

<b>1</b>	<p><b>Develop Bikeway Network</b></p> <p>A network of bicycle facilities would be developed on the Island, with a grid pattern providing access throughout the study area.</p> <p>Bicycle Lanes on North-South Streets—these streets have wider pavements and would have separate, delineated bicycle lanes. <i>5.6 linear miles on 5 streets (4<sup>th</sup>, 8<sup>th</sup>, 23<sup>rd</sup>, 37<sup>th</sup>, 51<sup>st</sup>)</i></p> <p>Bicycle Routes on East-West Streets—these streets have narrower pavements and would have signage and pavement markings identifying them as bicycle routes. <i>9.4 linear miles on 4 streets (Market/Post Office/Church, Ave. L, Ave. R, Ft. Crockett)</i></p>
<b>2</b>	<p><b>Bike Racks on Buses</b></p> <p>Island Transit vehicles would be equipped by front-mounted bicycle racks, allowing bicyclists to take their bicycle on transit. Island Transit currently operates 27 buses (including 3 electric), and 4 trolleys.</p>
<b>3</b>	<p><b>Bike Racks at Businesses/Destinations</b></p> <p>The City would purchase an allotment of bicycle racks, to be installed by City staff at the request of businesses/citizens throughout the island. We recommend the U-type rack for better theft deterrence and a smaller footprint.</p>
<b>4</b>	<p><b>Broadway Crossing Improvements: Group 1</b></p> <p>New crosswalks, curb ramps, stop bars, and pedestrian signals at 5 signalized intersections where existing sidewalks cross the median; improvements here would allow the Broadway Beautification project to proceed. <i>Broadway at 6<sup>th</sup>, 43<sup>rd</sup>, 45<sup>th</sup>, 51<sup>st</sup>, and 53<sup>rd</sup>. Each intersection has 6 crosswalks, 6 stop bars, and 12 curb ramps.</i></p>
<b>5</b>	<p><b>Broadway Crossing Improvements: Group 2</b></p> <p>New crosswalks, curb ramps, stop bars, and pedestrian signals at 9 signalized intersections near schools, downtown, and other high-activity locations. <i>Broadway at 8<sup>th</sup>, 12<sup>th</sup>, 19<sup>th</sup>, 21<sup>st</sup>, 23<sup>rd</sup>, 25<sup>th</sup>, 31<sup>st</sup>, 37<sup>th</sup>, and 39<sup>th</sup>. Each intersection has 4 crosswalks, 6 stop bars, and 8 curb ramps.</i></p>



<p><b>6</b></p>	<p><b>Broadway Crossing Improvements: Group 3</b></p> <p>New crosswalks, curb ramps, stop bars, and pedestrian signals at 5 signalized intersections not identified in groups 1 or 2.  <i>Broadway at 14<sup>th</sup>, 27<sup>th</sup>, 29<sup>th</sup>, 33<sup>rd</sup>, and 35<sup>th</sup>. Each intersection has 4 crosswalks, 6 stop bars, and 8 curb ramps.</i></p>
<p><b>7</b></p>	<p><b>Selected Renaissance Zone #1 Improvements: Rosenberg Elementary</b></p> <p>Construct the following items/improvements identified by the Families, Children, and Youth Board, for the area from 9<sup>th</sup> to 13<sup>th</sup> and Winnie to Sealy:  <i>49 crosswalks, 42 stop bars, 9 curb ramps</i></p>
<p><b>8</b></p>	<p><b>Selected Renaissance Zone #2 Improvements: San Jacinto Elementary</b></p> <p>Construct the following items/improvements identified by the Families, Children, and Youth Board, for the area from 18<sup>th</sup> to 23<sup>rd</sup> and Avenue K to Avenue M:  <i>20 crosswalks, 18 stop bars, 45 curb ramps</i></p>
<p><b>9</b></p>	<p><b>Selected Renaissance Zone #3 Improvements: Morgan Elementary</b></p> <p>Construct the following items/improvements identified by the Families, Children, and Youth Board, for the area from 34<sup>th</sup> to 38<sup>th</sup> and Avenue M to Avenue N½:  <i>34 crosswalks, 23 stop bars, 34 curb ramps</i></p>
<p><b>10</b></p>	<p><b>Pedestrian Improvements near Menard Park (new transit center)</b></p> <p>Island Transit plans to construct a new transit center just off the Seawall at 27<sup>th</sup>/28<sup>th</sup> Streets. Within 1/3 mile of this new terminal, repair sidewalks and install curb ramps along the following routes:  <i>Seawall Boulevard—24<sup>th</sup> to 32<sup>nd</sup></i>  <i>27<sup>th</sup> Street—Avenue O to Seawall</i>  <i>Avenue Q—24<sup>th</sup> to 32<sup>nd</sup></i></p>
<p><b>11</b></p>	<p><b>Pedestrian Improvements between Downtown to UTMB (including Magnolia Homes)</b></p> <p>To provide another pedestrian route from the transit center at 20<sup>th</sup> Street to the western edge of UTMB, and to improve pedestrian access to the Magnolia Homes public housing complex, repair sidewalks and install curb ramps along the following routes:  <i>Mechanic Street—10<sup>th</sup> to 20<sup>th</sup></i>  <i>16<sup>th</sup> Street—Strand to Market</i>  <i>18<sup>th</sup> Street—Strand to Market</i>  <i>The Strand—16<sup>th</sup> to 18<sup>th</sup></i></p>



<p><b>12</b></p>	<p><b>Pedestrian Improvements around Downtown</b></p> <p>Numerous destinations including the existing transit center at 20<sup>th</sup> and Market, the proposed transit center at 25<sup>th</sup> and Strand, City Hall, the Rosenberg Library, the County Courthouse, and the Strand Historic District, can have improved pedestrian access with repairs to sidewalks and installation of curb ramps along the following routes:</p> <p><i>The Strand—20<sup>th</sup> to 25<sup>th</sup></i>  <i>Ball Avenue—20<sup>th</sup> to 25<sup>th</sup></i>  <i>Sealy Avenue—23<sup>rd</sup> to 25<sup>th</sup></i>  <i>20<sup>th</sup> Street—Harborside to Ball</i>  <i>23<sup>rd</sup> Street—Ball to Sealy</i>  <i>25<sup>th</sup> Street—Harborside to Sealy</i></p>
<p><b>13</b></p>	<p><b>Pedestrian Improvements near San Jacinto Elementary and Gulf Breeze Homes</b></p> <p>To provide accessible routes from the Gulf Breeze seniors’ housing complex and from San Jacinto Elementary to nearby transit routes, repair sidewalks and install curb ramps along the following routes:</p> <p><i>Avenue L—21<sup>st</sup> to 25<sup>th</sup></i>  <i>22<sup>nd</sup> Street—Avenue L to Avenue M</i></p>
<p><b>14</b></p>	<p><b>Pedestrian Improvements around Social Services Center</b></p> <p>A busy transit stop with a shelter is located at 46<sup>th</sup> and Broadway, where numerous social service agencies have offices. The Oleander Homes public housing project is just to the west, between 51<sup>st</sup> and 53<sup>rd</sup>. Within 1/3 mile of this transit stop, repair sidewalks and install curb ramps along the following routes:</p> <p><i>Broadway—42<sup>nd</sup> to 51<sup>st</sup></i>  <i>45<sup>th</sup> Street—Broadway to Avenue N</i></p>
<p><b>15</b></p>	<p><b>Pedestrian Improvements around Galveston College, Ball High, and Scott Elementary</b></p> <p>These three destinations are in close proximity along 41<sup>st</sup> Street. To improve access to them, and to create connections to nearby transit routes and the Social Services Center area and Menard Park (2 other potential projects), repair sidewalks and install curb ramps along the following routes:</p> <p><i>41<sup>st</sup> Street—Avenue M to Avenue Q</i>  <i>Avenue N—41<sup>st</sup> to 45<sup>th</sup></i>  <i>Avenue Q—32<sup>nd</sup> to 41<sup>st</sup></i></p>
<p><b>16</b></p>	<p><b>Pedestrian Improvements on 45<sup>th</sup> Street</b></p> <p>Denver Court residents expressed a desire for an accessible route out to the Seawall. This project would construct sidewalks and curb ramps along the following route:</p> <p><i>45<sup>th</sup> Street—Avenue S to Seawall Boulevard</i></p>



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**Curb extensions on Seawall Boulevard**

These areas would allow pedestrians waiting for the traffic signal to queue out of the way of bicyclists and other users of the Seawall. It also reduces the distance and time required for pedestrians to cross Seawall Boulevard, improving safety.

*4 extensions at each of 4 intersections—Seawall at 6<sup>th</sup>, 25<sup>th</sup>, 45<sup>th</sup>, and 53<sup>rd</sup>.*

All persons who had left contact information at the website or a workshop or meeting were contacted and asked to select their five highest-priority projects, using the second survey form which was added to the website and replaced the introductory survey. Cost estimates were not included at this time, as the project team felt it would be more beneficial to select the true preferences of the public, and let cost be used later by the funding agencies when deciding the number and scope of improvements to be undertaken. If, for example, the public's number-one preference was so expensive that it precluded other investments, the City may decide to forego that one item in favor of lower-ranked preferences.

The website survey received 166 responses, and 53 paper responses were received at the August public meeting. One point was given to each of the five projects that each respondent selected. The projects receiving the largest number of points were deemed to be the ones respondents felt were the highest priority. A full listing of the statistics for this survey is located in Appendix F.

In order to prioritize the recommendations, a rating system was developed to arrange the public selections by feasibility, cost, safety benefit, and user demand. In general, projects that were less expensive, more easily coordinated, or already begun in some manner were given higher scores. A description of the rating mechanism is located in Appendix F. The recommendations are listed in the following chapter.

**Final Public Meeting—Public Response to Draft Plan**

H-GAC and the consultant team held a final public meeting on September 15, 2005, to present the results of the website survey and the project prioritization, and to discuss the draft pedestrian and bicyclist plan for the Montrose area. Full details of the public input from this meeting are located in Appendix G.



## **Chapter 3** **Recommendations**

### **Summary of Recommendations**

The vote totals from project ranking survey posted on the web, together with the assessments of probable cost and implementation time, were used to prioritize the most popular projects. The priority order of those projects was determined by the consultant team, who ranked the projects, based on votes, feasibility, cost, and relative demand, for the list of recommendations. A full description of the ranking system is located in Appendix F.

Code Number	POTENTIAL IMPROVEMENT	Relative Feasibility A	Relative Cost B	Safety Benefit C	Relative Demand D	Composite Rating E=A+B+C+D	Vote Count V	Overall Score E * V	Ranking
1	Develop Bikeway Network	3	1	1	3	8	149	1192	1
3	Bike Racks at Businesses/Destinations	3	3	1	2	9	98	882	2
12	Pedestrian Improvements around Downtown	2	2	1	3	8	73	584	3
17	Curb extensions on Seawall Boulevard	2	3	2	1	8	68	544	4
4	Broadway Crossing Improvements — Group 1	1	2	2	1	6	67	402	5
5	Broadway Crossing Improvements — Group 2	1	2	2	1	6	61	366	6
11	Pedestrian Improvements - Downtown to UTMB (including Magnolia Homes)	2	2	1	2	7	44	308	7
15	Pedestrian Improvements - Galveston College, Ball High, Scott Elementary	2	2	1	2	7	38	266	8
2	Bike Racks on Buses	3	3	1	1	8	24	192	9
16	Pedestrian Improvements on 45th Street	2	2	1	2	7	27	189	10
10	Pedestrian Improvements - Menard Park (new transit center)	2	1	1	1	5	28	140	11
6	Broadway Crossing Improvements — Group 3	1	3	2	2	8	17	136	12
13	Pedestrian Improvements - San Jacinto Elementary and Gulf Breeze Homes	2	3	1	3	9	14	126	13
14	Pedestrian Improvements around Social Services Center	2	2	1	1	6	18	108	14
8	Selected Renaissance Zone #2 Improvements: San Jacinto Elementary	2	2	1	3	8	12	96	15
7	Selected Renaissance Zone #1 Improvements: Rosenberg Elementary	2	2	1	2	7	9	63	16
9	Selected Renaissance Zone #3 Improvements: Morgan Elementary	2	2	1	3	8	4	32	17

The map on the following page illustrates the complete set of recommendations.



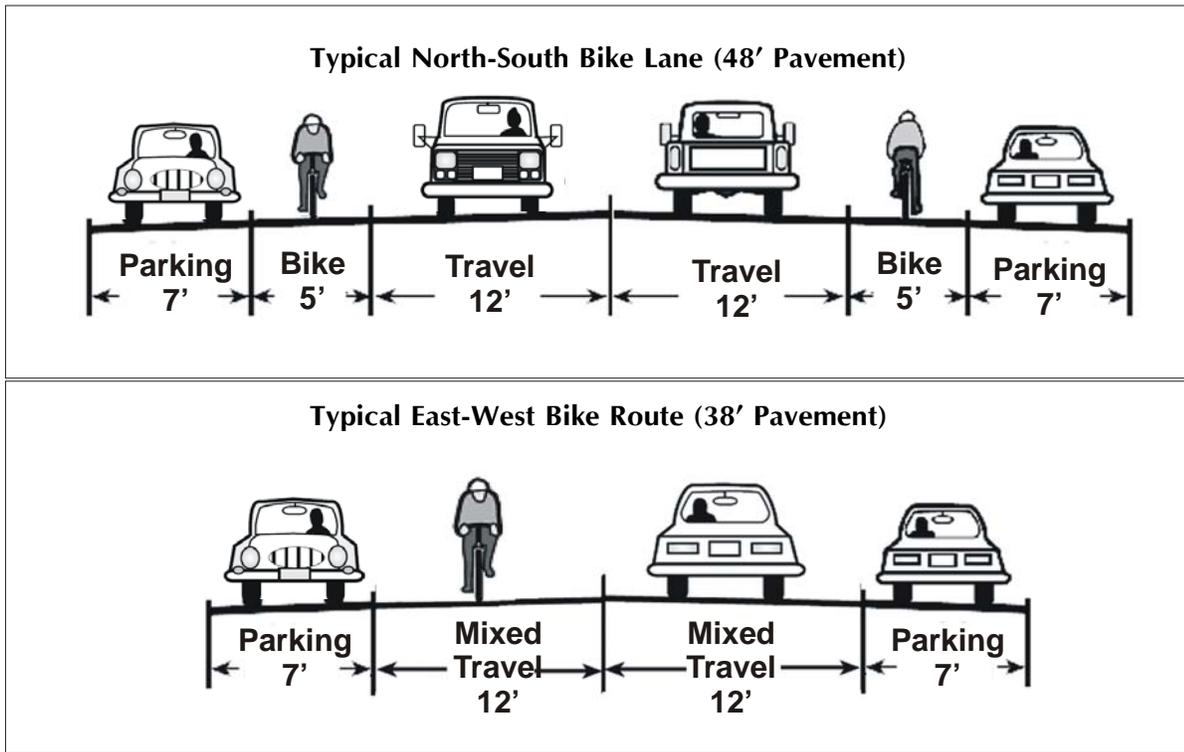


**Recommended Bikeway Network**

The recommended bicycle network would provide a basic framework of direct, cross-town routes to key destinations. Streets were chosen for these facilities based on street width and feasibility, existing traffic levels, traffic control, directness, and connections to key destinations. The resulting network would provide for six north-south bikeways and three east-west bikeways (not counting the Seawall) as well as connections to destinations outside of the City of Galveston.

North-south bikeways are proposed as striped lanes, while east-west bikeways are to be shared lanes, or bicycle “routes.” This distinction is made because north-south streets on the Island typically have 48 feet of pavement, which provides more space for separate travel lanes without removing parallel parking. East-west streets are typically only 38 feet wide. The illustrations below show a conceptual arrangement of travel and parking lanes on each type of roadway.

Please note that it will be necessary to request a design exception from TxDOT to use federal funds to stripe a “mixed travel” lane narrower than 14 feet. In this case, the exception is justified by the extremely low traffic volumes on the local streets proposed for bicycle routes, and the desire to avoid removing on-street parking or relocating the edge of pavement.



*(Figures adapted from the Oregon Statewide Bicycle and Pedestrian Plan, 1995)*

On streets designated with lanes or routes, it is recommended that two-way stops be rotated off the bikeway as frequently as possible, to provide the right-of-way to the street used. This change will require coordination with the City of Galveston, and may also require a traffic engineering study to confirm the feasibility of changing the stop patterns.

**Route 1: Post Office St. - 46<sup>th</sup> St. - Church St. – 26<sup>th</sup> St. – Market St.**

This route was chosen as the northernmost bikeway because it provides access to key destinations along the length of the City and has low traffic levels. Old Port Industrial was also considered for this route, however connections to other bikeways are more difficult, and there is a non-perpendicular railroad crossing which can be unsafe for novice cyclists, as well as high levels of heavy truck



traffic. Post Office St. west of 46<sup>th</sup> St has low traffic volumes and provides excellent connections to the County Justice Center and the overpass at 51<sup>st</sup> St. and Harborside. This portion of the bikeway is 20 ft wide, and could be designed either as a bike route or an off-street bike path directly adjacent to Post Office St. At 46<sup>th</sup> St., bicyclists can easily access the Social Services Center and the major transit stop at 46<sup>th</sup> and Broadway. This bikeway would continue east on Church St. providing access to several public housing complexes and to Downtown. Church becomes one way at 26<sup>th</sup> St. where the bikeway turns to continue on Market. For improved wayfinding, bike lanes are proposed for 26<sup>th</sup> St. Market St avoids the one-way streets and trolley tracks on Church and Post Office Streets, and also provides direct access between the downtown area, UTMB and Ferry Road.

### **Route 3: Avenue L**

Avenue L serves as the middle east-west bikeway in Galveston. This bikeway would serve as an alternative route for destinations on Broadway. Avenue K was considered for this route but there are a few locations that would require the route to turn. In addition, providing traffic control at major streets may be problematic due to its proximity to Broadway. Avenue L crosses the city with no turning required. At 9<sup>th</sup> St, the “No Entry” sign should be augmented with a sign excepting bicycles on the last block of Avenue L, connecting it to the 8<sup>th</sup> St bikeway. This bikeway is proposed as a bike route or bike boulevard because it has low traffic volumes and is too narrow to install bike lanes.

### **Route 5: Avenue R – Saladia – Heards Ln. – 69<sup>th</sup> St.**

Avenue R is the southernmost east-west bikeway, connecting to the Seawall at Menard Park, site of a future transit center, with connections to Stewart Road and recreational bicycling opportunities on the western portion of Galveston Island. To avoid the high-volume portions of Avenue S and Stewart Rd, the bikeway jogs north on Saladia to Heards Ln. Bicyclists can then join Stewart Rd at its north-south portion by following the bikeway onto 69<sup>th</sup> St.

### **Unmarked Route 7: Seawall Blvd.**

Seawall Blvd. is an important facility for its recreational opportunities, the extensive number of businesses and other destinations along it, and its potential as a key commuter route. Seawall, however, also has a tremendous number of conflicting uses, and due to its visibility and heavy use, is a contentious facility to propose changes to. With the exception of the extension of “no parking” hours described elsewhere in this chapter, no changes are proposed for the Seawall. Outside the study area to the east and west, the potential exists for off-street multi-use paths to be developed.

### **Route 2: Ferry via Holiday Drive (4<sup>th</sup> Street)**

As one of the routes off the Island, it is important to provide safe bicycle access to the Bolivar Ferry. Ferry Road itself, between Seawall Blvd and the Ferry, currently has two 12 foot lanes in each direction, but has high-speed traffic, some heavy vehicles, and several reverse curves. Instead of attempting to add bicyclists to this facility, it is proposed that bike lanes be installed on 4<sup>th</sup> St (Holiday Drive), two blocks to the west. 4<sup>th</sup> St has 48 feet of pavement, ample space for a striped lane. Transition of the route back to Ferry Road would occur outside the study area to the north. This route would connect to the Market St. route providing access to UTMB, downtown, and other important destinations.



**Route 4: 8<sup>th</sup> Street**

Eighth St would connect the Market St. bikeway and UTMB directly with Seawall Blvd and the Avenue L bikeway. This, like the other north-south bikeways, is proposed as a bike lane since the street width allows for it.



8<sup>th</sup> Street north of Broadway. Like other north-south streets, 8<sup>th</sup> has a very wide pavement section of 48 feet.

**Route 6: 23<sup>rd</sup> Street (Tremont)**

23<sup>rd</sup> St. is a key route connecting the downtown area with the beach and Seawall Blvd. Numerous businesses are located along it, where bike racks could be installed. Bike lanes are proposed for 23<sup>rd</sup> St between the parking and travel lanes.

**Route 8: 37<sup>th</sup> Street**

37<sup>th</sup> St. was selected as a bikeway for its location approximately halfway between 25<sup>th</sup> St and 51<sup>st</sup> St. The street continues along its entire length without breaks and is one of only a few roads to reach as far north as Harborside Drive and Old Port Industrial Boulevard. Old Port Industrial could be a connection to the proposed multi-use path on the Pelican Island Bridge, even though it is currently not on the bikeway network. 37<sup>th</sup> street also is directly adjacent to Morgan Elementary School.

**Route 10: 51<sup>st</sup> Street – Pelican Island Causeway**

51<sup>st</sup> St is an essential route for its connection between the TAMUG campuses on Pelican Island and at Fort Crockett. The route also connects to the Post Office St., Avenue L, and Avenue R bikeways, as well as Alamo Elementary School. This route would begin with a multi-use path on the existing railroad bridge to Pelican Island. This path would end at Old Port Industrial, and a lighted crossing would also be constructed to allow bicyclists to enter 51<sup>st</sup> St. to the north of the 51<sup>st</sup> St and Harborside Drive viaduct. The existing viaduct is shown at right, viewed from its southern end. Note the bicyclist at right, with there still being room for two motorists to pass each other. The curb-to-curb width of this portion of the viaduct is 26' (two 13' lanes and no shoulders).



The 51<sup>st</sup> Street – Harborside Drive viaduct, looking north from 51<sup>st</sup>.

On the viaduct, the bikeway would be a shared use facility, with a standard W11-1 sign at the bottom of both ramps directing drivers to “Share the Road” with bicycles. Pavement stencils with the Bicycle Chevron symbol should also be used, and possibly a pavement stripe 1 foot from the curb to discourage bicyclists from riding too close to the edge. This inset stripe would still allow for two 12' travel lanes. On the southern side of the 51<sup>st</sup> St and Harborside Drive viaduct, the bikeway would continue down 51<sup>st</sup> to Avenue U as a bike lane, striped in a similar manner as on the other north-south roadways. A path would connect through the school between Avenue U and Fort Crockett Boulevard, with a signed bike route on Fort Crockett directing bicyclists to Seawall Blvd.

**Route 12: 57<sup>th</sup> Street (outside study area)**

57<sup>th</sup> Street is the westernmost north-south route in the proposed bike network, and is also the westernmost limit of the regular street grid. This route would serve as the connection between Broadway, and the bikeways on Avenue L and Avenue R and points west. Although it is outside the study area, it would serve as a termination of the Avenue L bikeway and a connection to external destinations such as the Causeway and the West End.



## **Priority Pedestrian Streets**

### **Selection of Priority Streets**

This plan proposes the top priority roadways for improvement based on needs surrounding specific key destinations. Key destinations include public housing, civic buildings, and access to transit. The following specific key destinations or areas were identified for priority improvements:

- Galveston College to nearby transit routes
- Gulf Breeze Senior Housing to nearby transit routes
- Magnolia Gardens Public Housing to nearby transit routes
- Downtown area to Seawall and to UTMB
- Existing transit center: 20<sup>th</sup> St between Market and Post Office
- Future transit center: 25<sup>th</sup> St and The Strand
- Key downtown destinations including: city hall, courthouse, library, post office
- Future transit center: Seawall between 27th and 28th
- Community center and future transit center: 46<sup>th</sup> and Broadway

For those key destinations with specific origins and destinations, routes were prioritized based on directness as well as providing access to secondary destinations along the route. In a few cases feasibility of constructing sidewalks due to street width and the existence of facilities such as traffic signals to aid pedestrians crossing major roads, were considered.

For those key destinations with non-specific origins, such as the transit centers, a one-third mile radius was circumscribed around each key destination, to show typical walking radii. One-third mile is the standard distance a person would walk to their destination. A route was then determined for each direction from this node. Routes were initially laid out straight north, south, east and west of each key destination and then adjusted if needed based on several factors including:

- Continuity and directness
- Ease of street crossing
- Possible connections to other pedestrian priority routes and destinations

In some circumstances the one-third mile was extended to connect with other priority pedestrian routes. All segments of the resulting network are contiguous and provide access to five schools, Galveston College, UTMB, the Community Center, senior and public housing, downtown civic buildings and transit centers. (See the map of recommended improvements on page 25.)

### **Proposed Improvements for Priority Streets**

Each priority pedestrian street should have full pedestrian facilities compliant with the Americans with Disabilities Act (ADA). Compliance with the ADA includes the following features:

- A clear travel path 5 feet wide
- Curb ramps and crosswalks (specifically designed to be ADA-compliant)
- Detectable warning that a person is entering the roadway
- Pedestrian signals with audible warnings, at signalized intersections
- Audible and tactical warnings at signalized intersections



### **Bicycle Racks on Buses**

Providing bicycle racks on transit vehicles is a simple way to reinforce both modes of travel. By combining the accessibility to individual locations provided by a bicycle with the fixed route and shelter of a vehicle, commuters can extend the comfortable range of travel distance beyond what may be easily achievable for either mode alone. The Goodman Corporation, who is involved in numerous infrastructure projects for the City of Galveston, is working with Island Transit on the approval and installation of bicycle racks. As of the time of this report writing (September 2006), the City was soliciting bids from bike rack providers.



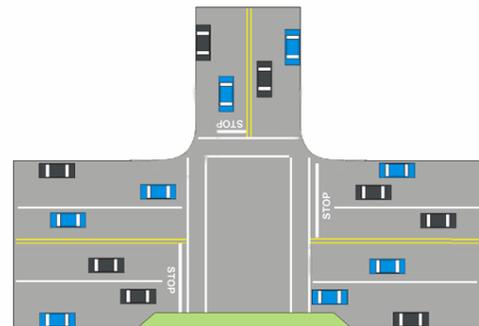
A cyclist places her bike in a rack on the front of a large city bus in San Francisco.

### **Bicycle Racks at Businesses**

Providing safe, accessible locations for bicycle parking is another way to encourage bicycle usage. This recommendation is for the purchase of an allotment of U-type bicycle racks, described in the previous chapter, that the City would then install at the request of businesses or other property owners. While some institutions, like UTMB and TAMUG, already provide large numbers of bicycle racks, it is not always clear to the public where they are located. A further refinement of this recommendation could be for institutions or other property owners to install additional signage identifying bicycle parking, like is frequently done with motor vehicle parking, or to make pointing out those locations part of routine advertising.

### **Seawall Boulevard Curb Extensions**

Curb extensions (also known as sidewalk bulbs) improve pedestrian safety by making pedestrians more visible and reduce crossing distance by extending the sidewalk into the parking lane. On Seawall Blvd, this could reduce the crossing distance by up to 8 feet on each side of the roadway. With shorter crossing distances, signal cycle times can also be reduced. On the beach side of Seawall Blvd, these sidewalk bulbs can also serve as mini pedestrian plazas. Landscaping, benches, public art and street vendors can make the plazas enjoyable meeting and resting points along the promenade.



The green area at the bottom of this image shows where a curb extension could be installed at a typical Seawall intersection.

As part of the STEP grant proposed by the Goodman Corporation, curb extensions are proposed at 6<sup>th</sup>, 25<sup>th</sup>, 45<sup>th</sup>, and 53<sup>rd</sup> Streets. These extensions would be similar in style to the illustration above and to right, extending into the parking area on the south side of the roadway.

Additional sidewalk bulbs can be constructed to increase the protection from vehicles and the setback of the portable toilets currently located along the promenade. Currently they are unprotected and the doors swing directly into the travel path of the promenade, as shown in the photograph at right.



Parked cars and toilet facilities along Seawall Boulevard. The beach is to the right.



## Estimated Costs for Proposed Improvements

Planning-level cost estimates were developed for the potential improvements, based on the TxDOT Construction Average Unit Prices, compiled July 2006. The project team evaluated the sidewalks, crosswalks, and curb ramps along the priority pedestrian routes. Those cost estimates are based on installing curb ramps where they are missing, refreshing striping of crosswalks at signalized intersections along Broadway, constructing new sections of sidewalks where they are missing, and where existing ones rated "fair" or "poor" based on the subjective judgment during a field survey, and marking new bikeways as per the stated plan. Note once again that it will be necessary to request a design exception from TxDOT to stripe a "mixed travel" lane narrower than 14 feet. In this case, the exception is justified by the extremely low traffic volumes on the local streets proposed for bicycle routes, and the desire to avoid removing on-street parking or relocating the edge of pavement.

Improvements in the Renaissance Zones were not priced, and neither were the installation of bicycle racks on Island Transit vehicles, as those projects are already underway.

Galveston Pedestrian/Bicyclist Plan				
Cost Estimates--Unit Prices				
All item descriptions are taken from the TxDOT Construction Average Unit Price, July 2006 <a href="http://www.dot.state.tx.us/business/avgd.htm">http://www.dot.state.tx.us/business/avgd.htm</a>				
TxDOT Description	QTY	Unit	Unit Price	Total Price
<b>Signage:</b>				
Bike Route sign	3	SF	\$ 13.50	\$ 40.50 /EA
Bike Lane sign	5	SF	\$ 13.50	\$ 67.50 /EA
<b>Striping:</b>				
Stop Bars		LF	\$ 10.00	\$ 10.00 /LF
Standard Crosswalk Edges (but see below)		LF	\$ 3.50	\$ 2.16 /LF
Bicycle arrow on street		EA	\$ 105.00	\$ 105.00 /EA
Bicycle stencil on street		EA	\$ 162.00	\$ 162.00 /EA
8" White Edgeline		LF	\$ 3.50	\$ 3.50 /LF
<b>Concrete Demolition:</b>				
Sidewalks		SY	\$ 7.00	\$ 7.00 /SY
<b>Concrete Installation:</b>				
Sidewalks:		SY	\$ 50.00	\$ 50.00 /SY
Curb Ramp: 6" curb		EA	\$ 1,400.00	\$ 1,400.00 /EA
Curb Ramp: 12" curb		EA		\$ 2,800.00 /EA
<b>Other:</b>				
Ped Pole		EA	\$ 1,000.00	\$ 1,000.00 /EA
Push Button		EA	\$ 150.00	\$ 150.00 /EA
Ped Signal Heads	2	EA	\$ 425.00	\$ 850.00 /EA
			PACKAGE TOTAL	\$ 2,000.00 /EA
<b>High-Visibility Crosswalk</b>				
For a ladder-style crosswalk, assume 24" striping 6' wide: 24" stripe followed by a 24" space means each 24" stripe serves 4' of crossing distance. For 1' of linear crossing distance, divide the stripe price by 4:	6	LF	\$ 10.00	\$ 60.00 /EA
This is the price for the "ladder rungs." The sides are standard 12" stripes (2 sides)	4	LF/EA		\$ 15.00 /LF
Price per linear foot of crosswalk is the sum of the "rungs" and sides:	2	LF/EA	\$ 3.50	\$ 7.00 /LF
				\$ 22.00 /LF



### Broadway Crossing Improvements

New crosswalks, curb ramps, stop bars, and pedestrian signals

<b>Intersection Type 1</b>					
<b>Crosswalk Into Median</b>					
<b>Item</b>	<b>Number</b>	<b>Ft. Each</b>	<b>Total</b>	<b>\$ Each</b>	<b>\$ Total</b>
New Curb Ramp (count)			8	\$ 1,400.00	\$ 11,200.00
New Sidewalk (linear ft)	2	20	40	\$ 31.80	\$ 1,272.00 *
New Crosswalks across Broadway	4	40	160	\$ 22.00	\$ 3,520.00 **
New Crosswalks across side street	2	48	96	\$ 22.00	\$ 2,112.00 **
Stop Bars across Broadway	2	40	80	\$ 10.00	\$ 800.00
Stop Bars across side street	4	24	96	\$ 10.00	\$ 960.00
<b>TOTAL per intersection</b>					<b>\$ 19,864.00</b>
				<b>Rounded Total</b>	<b>\$ 19,900.00</b>

The primary difference between Type 1 and Type 2 intersections is the location of the crosswalks relative to the ends of the median. A crosswalk that leads to the median means slightly less striping, but additional curb ramps and a short length of sidewalk crossing the median.

<b>Intersection Type 2</b>					
<b>Crosswalk Beyond Median</b>					
<b>Item</b>	<b>Number</b>	<b>Ft. Each</b>	<b>Total</b>	<b>\$ Each</b>	<b>\$ Total</b>
New Curb Ramp (count)			4	\$ 1,400.00	\$ 5,600.00
New Sidewalk (linear ft)	0		0	\$ 31.80	\$ -
New Crosswalks across Broadway	2	110	220	\$ 22.00	\$ 4,840.00 **
New Crosswalks across side street	2	48	96	\$ 22.00	\$ 2,112.00 **
Stop Bars across Broadway	2	40	80	\$ 10.00	\$ 800.00
Stop Bars across side street	4	24	96	\$ 10.00	\$ 960.00
<b>TOTAL per intersection</b>					<b>\$ 14,312.00</b>
				<b>Rounded Total</b>	<b>\$ 14,300.00</b>

Ped Poles with Buttons and Signal Heads (if needed) are an additional \$1,938.35 each.

Curb Ramps are one per corner (similar to existing placement)

All Stop Bars are 24" thermoplastic striping

\*\$0.78/sf for demolition of existing + \$5.56/sf for new = \$6.36/sf total

sidewalks 5' wide, so 5 SF = 1 linear foot = \$6.36 \* 5 = \$31.80/ft

Linear crossing of median = 30' - 2 x 5' (subtraction for ramp areas) = 20'

\*\*24" striping, 6' wide = \$10.00 \* 6 = \$60.00/stripe

24" stripe followed by a 24" space means each 24" stripe serves 4' of crossing distance.

For 1' of linear crossing distance, divide the stripe price by 4. \$60.00 / 4 = \$15.00/ft

\$15.00/ft for the "ladder rungs."

The "ladder sides" are standard 12" stripes at \$3.50/ft, so \$7.00/ft for both sides.

\$15.00 (rungs) + \$7.00 (sides) = \$22.00/linear ft



**Broadway Crossing Improvements**

New crosswalks, curb ramps, stop bars, and pedestrian signals

**Unit Costs to nearest \$100**

<b>Cost with Bullnose</b>	\$ 19,900.00
<b>Cost without Bullnose</b>	\$ 14,300.00
<b>Ped Pole with Button and 2 Signals</b>	\$ 2,000.00

**Group 1**

5 signalized intersections where existing sidewalks cross the median; improvements here would allow the Broadway Beautification project to proceed.

Intersection	Bullnose	New Ped Poles	Cost
6th	yes	1	\$ 21,900.00
43rd	yes	0	\$ 19,900.00 *
45th	yes	0	\$ 19,900.00
51st	yes	2	\$ 23,900.00
53rd	yes	0	\$ 19,900.00
<b>Group Total</b>			<b>\$105,500.00</b>

**Group 2**

9 signalized intersections near schools, downtown, and other high-activity locations.

Intersection	Bullnose	New Ped Poles	Cost
8th	no	0	\$ 14,300.00 *
12th	no	1	\$ 16,300.00 *
19th	no	0	\$ 14,300.00
21st	no	0	\$ 14,300.00
23rd	no	0	\$ 14,300.00
25th	no	0	\$ 14,300.00
31st	no	0	\$ 14,300.00 *
37th	no	0	\$ 14,300.00
39th	no	0	\$ 14,300.00
<b>Group Total</b>			<b>\$130,700.00</b>

**Group 3**

5 signalized intersections not identified in groups 1 or 2.

Intersection	Bullnose	New Ped Poles	Cost
14th	no	0	\$ 14,300.00
27th	no	0	\$ 14,300.00
29th	no	0	\$ 14,300.00
33rd	no	0	\$ 14,300.00
35th	no	1	\$ 16,300.00 *
<b>Group Total</b>			<b>\$ 73,500.00</b>

\* All shaded intersections are under consideration for removal of traffic signals. A study is currently underway to determine whether these locations still warrant a signal. In the event traffic signals are removed from an intersection, it would no longer be included in this program as we do not wish to encourage pedestrians to cross Broadway at unsignalized intersections,


**Bikeway Plan**
**East-West Shared Route (per mile)**

Item	Total	\$ Each	\$ Total	Notes
Bike "sharrow" with chevron	17.6	\$ 162.00	\$ 2,851.20	1 per block (300')
Bike Route Sign	8.8	\$ 40.50	\$ 356.40	1 per 2 blocks (600')
<b>TOTAL</b>			<b>\$ 3,207.60</b>	

**North-South Striped Lane (per mile)**

Item	Total	\$ Each	\$ Total	Notes
Inner Edge Striping (linear ft)	5280	\$ 3.50	\$ 18,480.00	outside edge of parking lane
Outer Edge Striping (linear ft)	5280	\$ 3.50	\$ 18,480.00	outside edge of bike lane
Bike Stencil	20.3	\$ 162.00	\$ 3,289.85	1 per block (260')
Arrow	20.3	\$ 105.00	\$ 2,132.31	1 per block (260')
Bike Lane Sign	10.2	\$ 67.50	\$ 685.38	1 per 2 blocks (520')
<b>TOTAL</b>			<b>\$ 43,067.54</b>	

All Edge Striping is 8" thermoplastic. All symbols are thermoplastic. All signage is aluminum.

Overall Cost	Miles*	\$ / Mile	\$ Overall
Routes--Market/Post Office/Church, Ave. L, Ave. R, Ft. Crockett E	7.42	\$ 3,207.60	\$ 23,800.39
Lanes--4th, 8th, 23rd, 37th, 51st	4.16	\$ 43,067.54	\$ 179,160.96
<b>TOTAL</b>			<b>\$ 202,961.35</b>
		<b>Rounded Total</b>	<b>\$ 203,000.00</b>

\*

Typical east-west blocks are 300' with 80' gaps for ROW of north-south streets. Thus for every 380' (300+80) of linear distance, only 300' is marked.  $300/380 = 0.7895$ . So the 9.4 miles of routes specified in the project description translates into  $9.4 * 0.7895 = 7.42$  miles to be marked.

Typical north-south blocks are 260' with 70' gaps for ROW of east-west streets. Thus for every 350' (260+70) of linear distance, only 260' is marked.  $260/350 = 0.7429$ . So the 5.6 miles of lanes specified in the project description translates into  $5.6 * 0.7429 = 4.16$  miles to be marked.

Streets should be resurfaced before putting down pavement markings.



<b>Bicycle Racks</b>	
<b>U-Type Racks</b>	
Also referred to as "hoops" or "arches."	
<a href="http://www.dero.com">www.dero.com</a>	Nick Mason 888-337-6729
25% off 100 or more	
Shipping costs \$1,200 per lot of 100 (calculated Minneapolis to zip 77550)	
	U-type
standard galvanized	\$ 95.00
black rubber-coated	\$ 135.00
For 100 Racks:	Racks: \$ 9,500.00
	Shipping \$ 1,200.00
	TOTAL \$ 10,700.00
<b>For 200 Racks:</b>	<b>\$ 21,400.00</b>
For 300 Racks:	\$ 32,100.00
For 400 Racks:	\$ 42,800.00
For 500 Racks:	\$ 53,500.00

<b>Priority Pedestrian Routes</b>				
<b>Typical East-West Block Face</b>				
Item	Number	Unit	\$ Each	\$ Total
New sidewalk (with demolition of old)	290	linear ft	\$ 31.67	\$ 9,183.33 *
New sidewalk on new location		linear ft	\$ 27.78	\$ - **
Curb Ramp: 6" curb	2	each	\$ 1,400.00	\$ 2,800.00
<b>TOTAL</b>				<b>\$ 11,983.33</b>
			<b>Rounded Total</b>	<b>\$ 12,000.00</b>
<b>Typical North-South Block Face</b>				
Item	Number	Unit	\$ Each	\$ Total
New sidewalk (with demolition of old)	250	linear ft	\$ 31.67	\$ 7,916.67 *
New sidewalk on new location		linear ft	\$ 27.78	\$ - **
Curb Ramp: 6" curb	2	each	\$ 1,400.00	\$ 2,800.00
<b>TOTAL</b>				<b>\$ 10,716.67</b>
			<b>Rounded Total</b>	<b>\$ 10,700.00</b>

\*\$0.76/sf for demolition of existing + \$4.74/sf for new = \$5.50/sf total  
sidewalks 5' wide, so 5 SF = 1 linear foot = \$5.50 \* 5 = \$27.50/ft

\*\*\$4.74/sf \* 5' wide = \$23.70/linear foot

Typical east-west blocks are 300'. Typical north-south blocks are 260'.  
Each block will have a curb ramp at either end, occupying roughly 5' each (linear).  
Thus an east-west block face has roughly 290' of sidewalk and 2 ramps.  
A north-south block face has roughly 250' of sidewalk and 2 ramps.  
Note that this refers to each side of the street. A physical block would thus consist of 520' or 580' of sidewalk and 4 ramps.


**Priority Pedestrian Routes**
**Unit Prices**

New sidewalk on new location	linear ft	\$ 27.80	*
New sidewalk (with demolition of old)	linear ft	\$ 31.80	**
Curb Ramp: 6" curb	each	\$ 1,400.00	
Curb Ramp: 12" curb	each	\$ 2,800.00	

Routes Grouped by Improvement Number											
	Ramps Needed		New Sidewalks (none existing)			New Sidewalks (w/ demolition)			Ramps Cost	Sidewalk Cost	TOTAL COST
	6" Curb	12" Curb	Blocks	Ft/Block	Total Ft	Blocks	Ft/Block	Total Ft			
<b>Group 10: Menard Park Area</b>											
Seawall--24th to 32nd	-	-	-	290	-	-	290	-	\$ -	\$ -	\$ -
27th--Ave O to Seawall	12	-	4	250	1,000	-	250	-	\$ 16,800.00	\$ 27,800.00	\$ 44,600.00
Ave Q--24th to 32nd	28	-	9	290	2,610	3.5	290	1,015	\$ 39,200.00	\$ 104,800.00	\$ 144,000.00
<b>Group 10 Total</b>	<b>40</b>	<b>-</b>	<b>13</b>		<b>3,610</b>	<b>4</b>		<b>1,015</b>	<b>\$ 56,000.00</b>	<b>\$ 132,600.00</b>	<b>\$ 188,600.00</b>
<b>Group 11: Downtown to UTMB</b>											
Mechanic--10th to 20th	21	-	5	290	1,450	1	290	290	\$ 29,400.00	\$ 49,500.00	\$ 78,900.00
16th--Strand to Market	5	-	1.5	250	375	0.5	250	125	\$ 7,000.00	\$ 14,400.00	\$ 21,400.00
18th--Strand to Market	8	-	2	250	500	2	250	500	\$ 11,200.00	\$ 29,800.00	\$ 41,000.00
Strand--16th to 18th	2	-	1	290	290	-	290	-	\$ 2,800.00	\$ 8,100.00	\$ 10,900.00
<b>Group 11 Total</b>	<b>36</b>	<b>-</b>	<b>10</b>		<b>2,615</b>	<b>4</b>		<b>915</b>	<b>\$ 50,400.00</b>	<b>\$ 101,800.00</b>	<b>\$ 152,200.00</b>
<b>Group 12: Around Downtown</b>											
Strand--20th to 25th	-	2	-	290	-	-	290	-	\$ 5,600.00	\$ -	\$ 5,600.00
Ball--20th to 25th	11	-	0.5	290	145	1.5	290	435	\$ 15,400.00	\$ 17,900.00	\$ 33,300.00
Sealy--23rd to 25th	7	-	1	290	290	-	290	-	\$ 9,800.00	\$ 8,100.00	\$ 17,900.00
20th--Harborside to Ball	19	3	-	250	-	1	250	250	\$ 35,000.00	\$ 8,000.00	\$ 43,000.00
23rd--Ball to Sealy	1	-	-	250	-	-	250	-	\$ 1,400.00	\$ -	\$ 1,400.00
25th--Harborside to Sealy	12	6	-	250	-	-	250	-	\$ 33,600.00	\$ -	\$ 33,600.00
<b>Group 12 Total</b>	<b>50</b>	<b>11</b>	<b>2</b>		<b>435</b>	<b>3</b>		<b>685</b>	<b>\$ 100,800.00</b>	<b>\$ 34,000.00</b>	<b>\$ 134,800.00</b>
<b>Group 13: Near San Jacinto and Gulf Breeze</b>											
Ave L--21st to 25th	9	-	2	290	580	-	290	-	\$ 12,600.00	\$ 16,100.00	\$ 28,700.00
22nd--Ave L to Ave M	2	-	-	250	-	-	250	-	\$ 2,800.00	\$ -	\$ 2,800.00
<b>Group 13 Total</b>	<b>11</b>	<b>-</b>	<b>2</b>		<b>580</b>	<b>-</b>		<b>-</b>	<b>\$ 15,400.00</b>	<b>\$ 16,100.00</b>	<b>\$ 31,500.00</b>
<b>Group 14: Social Services Center</b>											
Broadway--42nd to 51st	4	-	3.5	290	1,015	2	290	580	\$ 5,600.00	\$ 46,700.00	\$ 52,300.00
45th--Broadway to Ave N	14	-	5.5	250	1,375	-	250	-	\$ 19,600.00	\$ 38,200.00	\$ 57,800.00
<b>Group 14 Total</b>	<b>18</b>	<b>-</b>	<b>9</b>		<b>2,390</b>	<b>2</b>		<b>580</b>	<b>\$ 25,200.00</b>	<b>\$ 84,900.00</b>	<b>\$ 110,100.00</b>
<b>Group 15: Galveston College, Ball High, Scott Elem.</b>											
41st--Ave M to Ave Q	9	-	4	250	1,000	-	250	-	\$ 12,600.00	\$ 27,800.00	\$ 40,400.00
Ave N--41st to 45th	10	-	2.5	290	725	-	290	-	\$ 14,000.00	\$ 20,200.00	\$ 34,200.00
Ave Q--42nd to 41st	16	-	3.5	290	1,015	-	290	-	\$ 22,400.00	\$ 28,200.00	\$ 50,600.00
<b>Group 15 Total</b>	<b>35</b>	<b>-</b>	<b>10</b>		<b>2,740</b>	<b>-</b>		<b>-</b>	<b>\$ 49,000.00</b>	<b>\$ 76,200.00</b>	<b>\$ 125,200.00</b>
<b>Group 16: 45th Street (Denver Court)</b>											
45th--Ave S to Seawall	28	-	11	250	2,750	-	250	-	\$ 39,200.00	\$ 76,500.00	\$ 115,700.00
<b>Group 16 Total</b>	<b>28</b>	<b>-</b>	<b>11</b>		<b>2,750</b>	<b>-</b>		<b>-</b>	<b>\$ 39,200.00</b>	<b>\$ 76,500.00</b>	<b>\$ 115,700.00</b>
<b>OVERALL PED ROUTES TOTAL</b>									<b>\$ 336,000.00</b>	<b>\$ 522,100.00</b>	<b>\$ 858,100.00</b>

\*\$4.74/sf \* 5' wide = \$23.70/linear foot

\*\*\$0.76/sf for demolition of existing + \$4.74/sf for new = \$5.50/sf total sidewalks 5' wide, so 5 SF = 1 linear foot = \$5.50 \* 5 = \$27.50/ft

Typical east-west blocks are 300'. Typical north-south blocks are 260'.

Each block will have a curb ramp at either end, occupying roughly 5' each (linear).

Thus an east-west block has roughly 290' of sidewalk and 2 ramps.

A north-south block has roughly 250' of sidewalk and 2 ramps.

Note that this refers to each side of the street. A physical block would thus consist of 520' or 580' of sidewalk and 4 ramps.



<b>Seawall Boulevard Curb Extensions</b>		
<b>Unit Prices</b>		
<b>Item</b>	<b>Unit</b>	<b>\$ Each</b>
New sidewalk on new location	Square Ft.	\$ 5.56
Curb Ramp: 6" curb	each	\$ 1,400.00

	<b>Width (ft)</b>	<b>Length (ft)</b>	<b>Area (SF)</b>	<b>Cost</b>	<b>Ramp Cost</b>	<b>TOTAL</b>
<b>Typical Price for Curb Extension</b>	8	16	128	\$ 711.11	\$ 1,400.00	\$ 2,111.11
8x16 feet is one typical parking space. Each intersection will require removing 2 spaces, totaling:						\$ 4,222.22

<b>Intersection Improved</b>	<b>Cost</b>
6th Street	\$ 4,222.22
25th Street (Rosenberg)	\$ 4,222.22
45th Street	\$ 4,222.22
53rd Street	\$ 4,222.22
<b>TOTAL</b>	<b>\$ 16,888.89</b>
<b>Rounded Total</b>	<b>\$ 16,900.00</b>

The total, shown below, is for all priced projects. By the terms of the federal grant by which H-GAC funds the Pedestrian and Bicycle Districts improvements, the sponsoring agency (in this case the City of Galveston) must pay for 20% of the cost of improvements. In-kind services are not countable towards this total; it must be actual dollars spent.

<b>Galveston Pedestrian/Bicyclist Plan</b>	
<b>Overall Cost Estimates</b>	
Broadway Intersections Group 1	\$ 106,000.00
Broadway Intersections Group 2	\$ 131,000.00
Broadway Intersections Group 3	\$ 74,000.00
Bikeway Plan	\$ 203,000.00
200 Bike Racks	\$ 21,000.00
Pedestrian Routes	\$ 858,000.00
Seawall Curb Extensions	\$ 17,000.00
<b>SUB-TOTAL</b>	<b>\$ 1,409,000.00</b>
20% Contingency	\$ 282,000.00
<b>GRAND TOTAL</b>	<b>\$ 1,691,000.00</b>
FEDERAL SHARE (80%)	\$ 1,353,000.00
<b>LOCAL MATCH (20%)</b>	<b>\$ 338,000.00</b>

The Galveston City Council, at its August 24, 2006 meeting, indicated a willingness to fund the entire range of improvements identified in this report, with a commitment of \$300,000 to \$400,000. Subsequently, at the September 26, 2006 meeting, Council voted to fund the 20% local match required by H-GAC. The two pages following this one are a copy of the City Council resolution.



RESOLUTION NO. 06-037

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF GALVESTON, TEXAS, ACKNOWLEDGING THE CITY'S INTENT TO SPONSOR PEDESTRIAN AND BICYCLE IMPROVEMENTS AS IDENTIFIED IN THE HOUSTON-GALVESTON AREA COUNCIL PEDESTRIAN-BICYCLIST SPECIAL DISTRICT STUDY OF GALVESTON ISLAND; PROVIDING FINDINGS OF FACT AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the Houston-Galveston Area Council (H-GAC) has studied and met with the public to identify potential projects within the City of Galveston to improve safety and mobility for pedestrians and bicyclists on the Island; and,

WHEREAS, the H-GAC study has identified seventeen (17) potential; and,

WHEREAS, the proposed projects have undergone public outreach, public comment and meetings, and a public vote on preferred improvements; and,

WHEREAS, the potential projects include improving pedestrian/bicyclist plans, Broadway Avenue crossing improvements, a network bikeway plan, bicycle racks, pedestrian routes, and Seawall Boulevard curb extensions; and,

WHEREAS, the City's local match is 20% for these potential improvement projects and currently the local match is listed as \$338,000.00; and,

WHEREAS, the City is currently in the budget process and is considering funding projects for the Fiscal Years 2006-2007 and 2007-2008; and,

WHEREAS, the City Council of the City of Galveston, Texas hereby respectfully requests that H-GAC reserve funding for \$1,353,000 of the Federal project share for Galveston, Texas;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF GALVESTON, TEXAS:

SECTION 1. The findings and recitations set out in the preamble to this Resolution are found to be true and correct and are hereby adopted by the City Council and made a part hereof for all purposes.

SECTION 2. The City Council of the City of Galveston, Texas hereby respectfully requests that H-GAC reserve funding for \$1,353,000 of the Federal project share for Galveston, Texas.

SECTION 3. The City Council of the City of Galveston, Texas, hereby expresses its intent to consider sponsoring Houston Galveston Area Commission (H-GAC) identified potential



projects within the City of Galveston to improve safety and mobility for pedestrians and bicyclists on the Island.

SECTION 4. The City of Galveston, Texas intends to provide the 20% local match in Fiscal Years 2006-2007 and 2007-2008 for selected projects.

SECTION 5. This Resolution shall be and become effective from and after its adoption.

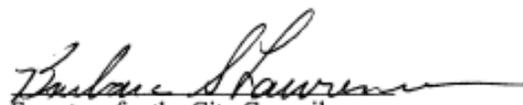
APPROVED AS TO FORM:



SUSIE GREEN  
CITY ATTORNEY

I, Barbara S. Lawrence, Secretary of the City Council of the City of Galveston, do hereby certify that the foregoing is a true and correct copy of an Resolution adopted by the City Council of the City of Galveston at a regular meeting held on the 14th day of September, 2006, as the same appears in records of this office.

IN TESTIMONY WHEREOF, I subscribe my name hereto officially under the corporate seal of the City of Galveston this 26<sup>th</sup> day of September, 2006



Secretary for the City Council  
of the City of Galveston



## **Additional Potential Improvements**

Beyond the seventeen projects discussed in this and previous chapters, the project team identified additional issues that could be addressed in the long term, to continue to improve pedestrian and bicyclist conditions on the island. Some of these are discussed in the following sections.

### **Additional Seawall Boulevard Pedestrian Improvements**

As the main tourist attraction in Galveston, Seawall Blvd is an important focus for pedestrian improvements. Pedestrians must be able to cross easily between the hotels, restaurants, shops and other businesses on the north side of Seawall Blvd, and the beach and promenade on the south side.

#### **Crossing Seawall Blvd**

Currently Seawall Blvd is difficult to cross. There are few gaps in fast moving traffic, the roadway is wide, signals are far from each other, and signal cycles are long. The following improvements are suggested to improve the safety and ease of crossing Seawall Blvd.

**Improve signal timing:** using the techniques described below in “Policy and Planning Recommendations,” signal timing should be improved to make it easier for pedestrians to cross the roadway.

**Install additional crosswalks:** Seawall Boulevard currently has relatively few traffic signals, which means that pedestrians frequently cross fast-moving traffic at unpredictable locations. It is suggested that additional crosswalks be installed at locations where heavy pedestrian activity occurs. This will reduce the need for pedestrians to sprint across the road mid-block, and would provide locations where they would have the right-of-way. The photo at right shows pedestrians currently crossing Seawall Blvd. at a location without a crosswalk.



Pedestrians dodge traffic while crossing Seawall Boulevard away from a signal.

**Construct refuge islands at crosswalk locations:**

Refuge islands improve pedestrian safety, comfort, and ease of crossing by providing a physical and protected separation between the two directions of traffic. This allows pedestrians to cross one direction of traffic at a time. On Seawall Blvd, instead of constructing a median along the entire existing two-way left-turn lane (TWLTL), landscaped refuge islands could be constructed at all signalized and unsignalized crosswalks. These would be installed on the east side of the intersection, since there is no need for a westbound left turn.

**Conduct gap analysis:** pedestrians find crossing busy roads at non-signalized crosswalks easier and safer when there are gaps in traffic. These can be developed through adjusting signal timing. It is suggested that a gap analysis be conducted to determine where improvements can be made.

## **Policy and Planning Recommendations**

### **Vegetation Management**

Trees, shrubs and landscaping can contribute greatly to pedestrian activity, especially in a hot climate, by creating shade; however, that same landscaping can become problematic if it becomes overgrown. Pedestrians may be forced off the sidewalk by low-hanging branches or shrubs that extend into the pathway. Motorists may stop abruptly if stop signs are obscured, and they may encroach into crosswalks if they cannot easily see cross traffic.



The City’s current policy does require property owners to maintain their landscaping, but the City will trim vegetation and bill the owner if it is necessary to keep stop signs and other traffic controls clearly visible, or to mitigate a pedestrian hazard. It is recommended that this policy continue.

**School Passenger Zones**

While conducting field observations throughout the project, the consultant team noted that at many schools, especially the adjacent Ball High and Scott Elementary, that vehicle activity is not clearly programmed. Motorists dropping off students approach from multiple directions, and the schoolchildren leaving the vehicles cross the streets at multiple locations. It is recommended that GISD establish specific locations at each school for student drop-off; this will increase pedestrian safety by reducing the number of conflict points, as well as by making nearby vehicle traffic more predictable.



Schoolchildren crossing the street near Ball High.

H-GAC has made preliminary contact with GISD (as of the fall 2006 semester), and this potential improvement is under discussion.

**Animal Control**

Throughout the public meetings, the project team received numerous comments from the public about being chased or attacked by loose dogs. In one instance, a table of eight persons all related incidents of dog bites. Pedestrian and bicyclist travel is discouraged by threats of bodily harm from aggressive animals. The City has recently adopted a new dangerous-dog ordinance, and transferred the animal-control officers to the city police department.

According to the Galveston Daily News, the new ordinance defines a dog as “dangerous” if it makes an unprovoked attack on a person or another animal. It requires the owner of such a dog to restrain it within 30 days. It also requires the owner to obtain liability coverage of at least \$100,000 to cover any damage the dog might cause, provide written notice to property owners within 300 feet, and post signs at the front and rear of the property. This recommendation is for the City to actively enforce the new ordinance, and to publicize that enforcement, to address the concerns expressed by the public.

**“No Parking” Hours on Seawall**

Currently, Seawall Boulevard restricts parking from 3:00 to 6:00 AM every morning (verify with City), so that the street may be swept. The project team recommends extending that “no parking” time to 8:00 AM, so that bicyclist commuters coming into the city from the west may avoid conflicts with cars parked on the south side of the street for other recreational uses.

**Citywide Signal Improvements**

Throughout the City, signalized intersections should be improved to aid pedestrian crossing. These improvements include:

- Installation of countdown pedestrian signal heads
- Installation of accessible curb ramps
- Installation and maintenance of crosswalks where they do not currently exist or are faded
- Signal retiming to give priority to pedestrians, including:



*Timed vs. Actuated:* If the signal is timed, the pedestrian signal should also be timed. The pedestrian signal should only be actuated if the vehicle signal is. Often pedestrians do not realize a signal is actuated and wait through an entire cycle waiting for the pedestrian light to turn to “Walk.”

*Actuate both crosswalks:* At actuated signals, all pedestrian signals for an approach should be actuated if one button is actuated. For example, it was observed at some signals on Seawall Blvd, that even if the west crosswalk pedestrian signal was activated, the east crosswalk signal would not necessarily change.

*Pedestrian crossing time:* The pedestrian phase meet the minimum requirements of the federal Manual for Uniform Traffic Control Devices: 3.5 feet/second for the clearance interval and 3.0 feet/second for the entire phase. The WALK phase should be timed at 5.0 feet/second so that faster paced pedestrians can cross before it starts to flash.

*Lead pedestrian and lag turn signal timing:* This standard signal timing technique improves pedestrian safety by allowing pedestrians to enter the sidewalk where they are more visible, before vehicles are permitted to proceed. This is accomplished by providing the “Walk” signal about five seconds before the green phase for vehicles begins. If there is a dedicated turn signal, this should be at the end of the green phase to allow pedestrians to clear the crosswalk or at least be more visible to turning vehicles.

## Transit

Trolley and bus routes provide significant transit capacity to the Study Area. The effectiveness is limited however, by lack of information provided to the public. Bus- and trolley-stop signage is minimal, as are shelters, benches, schedules, and route maps. One resident remarked, “I think the trolley runs every 20 minutes, but I haven’t seen it for a while and don’t know when it’s supposed to come by.”

### Ideas to Consider

- Improve signage/amenities along transit routes with maps, schedules, shelters, and benches, and provide information on routes to all businesses along the routes.
- Allow hotels and other downtown businesses to purchase blocks of transit passes (and/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 25<sup>th</sup> Street trolley, or a dedicated bus line.

## General Parking

Increasingly cities are finding that parking and transit, and the management thereof, is directly related to circulation, land use and mode choice. If parking is free, abundant, and readily available there is little incentive for people to not drive. With this disincentive, transit use, walking and cycling suffer. To that end, Nelson\Nygaard made a cursory analysis of the parking conditions in the study area on a Saturday, midday in July (peak season). Below are some ideas to consider as Galveston moves forward with this project.

The streets observed included:

- Seawall Boulevard from 29<sup>th</sup> to 58<sup>th</sup> Streets
- 29<sup>th</sup> Street from Seawall Boulevard to The Strand
- The Strand from 6<sup>th</sup> to 29<sup>th</sup> Streets
- 6<sup>th</sup> Street from The Strand to Seawall



- Other locations including 8<sup>th</sup> Street, 11<sup>th</sup> Street, and Broadway

### **Seawall Parking**

There is plenty of available parking along Seawall Boulevard, and on the day the project team observed, side streets near the Seawall were nearly empty. Most businesses provide on-site parking, so minimal demand spills over to the streets. On-street parking demand is therefore generated primarily by beachgoers.

Currently, further regulation of parking appears unnecessary. Although parking is sometimes scarce along the beach itself, overall demand is well below supply. If, at some point in the future, parking becomes more of an issue, from increased demand or higher density development, the City of Galveston could manage this demand and generate additional revenue by implementing parking fees similar to what is currently done in Downtown.

#### Ideas to Consider

- Long-term monitoring of parking conditions. As demand approaches supply (either through more cars arriving or parking spaces eliminated), implementation of parking fees (multi-space meters) with a Residential Parking Permit program to ensure supply for local residents. Revenue generated from meters/fines should be returned to the district where collected, to offer a direct benefit for the community.
- Allow businesses to pay in-lieu parking fees to the City of Galveston instead of building parking for each site. The City could consolidate these fees and construct shared parking (with fees). This minimizes the amount of land required for individual on-site parking, encourages reuse of sites that may be limited by parking requirements, and increases the density of the areas supporting transit.

Note: The Texas Open Beaches Act mandates “that the public, individually and collectively, shall have the free and unrestricted right of ingress and egress to and from the state-owned beaches.” However, the act does not “prohibit the assessment of a reasonable fee for off-beach parking or for the use of facilities provided for the use and convenience of the public.”

### **Downtown Parking**

Downtown streets already have parking meters with four-hour time limits. Certain streets have multi-space meters. There are numerous off-street lots and some structured parking.

#### Ideas to Consider

- Continue to replace stand alone meters with computerized multi-space meters.
- Eliminate time restrictions and 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 and take the trolley to the Seawall, or vice-versa. This will decrease trips between the two.



**Appendix A**  
**Background Statistics and Demographics**

**Demographics and Employment**

According to the 2000 Census, the Study Area overlays sixteen census tracts. Not all the tracts are completely within the Study Area; these are indicated in the list below by an asterisk.

**List of 2000 Census Tracts: Galveston Study Area**

7240*	7244	7248	7252*
7241*	7245	7249	7253*
7242	7246	7250	7254*
7243	7247	7251	7255*

\*partially outside study area boundary.

The total population of these sixteen census tracts is 40,833, or about 71% of the 2000 Census population of the City of Galveston (57,247). Table 1 on the following page shows comparisons between the Galveston Study Area, the City of Galveston, H-GAC’s eight-county planning region, and the state of Texas as a whole, for various 2000 Census statistics.

The 8-county region consists of the following counties:

- |           |            |
|-----------|------------|
| Harris    | Waller     |
| Galveston | Montgomery |
| Brazoria  | Liberty    |
| Fort Bend | Chambers   |

Note that many of the Study Area’s characteristics are similar to the City of Galveston as a whole, as the Study Area is almost three-fourths of the City. Galveston’s median household income is lower than the median income for the region and the state. The unemployment rate is roughly double that of the larger areas, and the poverty rate is higher. Roughly one-fourth of Study Area residents have incomes below the poverty level.

Housing unit types reflect a style of moderate-density urban development. Single-family homes make up a little more than half the Study Area and the City, compared to roughly 60% in the region and 64% in the whole state. Small apartment complexes (nine units or less) are the next most common housing type. Housing ownership rates in the Study Area and the City are about half that in the region and state, and vacancy rates are roughly double.

The Study Area has roughly equal percentages of Hispanics, non-Hispanic Whites, and non-Hispanic Whites. The City as a whole is similar, but with a larger proportion of non-Hispanic Whites. Compared to the region and the state, the Study Area and the City have more blacks, fewer Asians, and slightly fewer whites and Hispanics.

The age breakdown of the Study Area and City are similar to the region and state as a whole, except that there are more senior citizens, and fewer persons of other age categories.

Educational attainment in the Study Area and City are somewhat different than the region and state; there are proportionately more people at the higher and lower ends of the spectrum and fewer in the middle. Nearly one-third of study area adults have not finished high school, which is higher than the regional average, but nearly 10% have graduate degrees, which is also higher than the regional average.

Finally, and most significant for this study, residents of the Study Area and the City of Galveston were much more likely to use alternative transportation. Twenty percent of workers (one out of five) walked, rode bicycles, or took transit to work. In particular, 8.4%, or one out



of twelve, walked. The twenty percent total for non-automobile work trips is more than double the rate of the region and state.

**Table 1: Galveston Study Area vs. Other Areas  
Comparative Demographics**

STATISTIC	Galveston Study Area	City of Galveston	H-GAC	Texas
<b>Population</b>	40,833	57,247	4,669,571	20,851,820
<b>Households</b>	16,447	23,842	1,639,401	7,393,354
<b>Persons per Household</b>	2.48	2.40	2.85	2.82
<b>Income-Related</b>				
Median Household Income	\$ 26,230	\$ 28,895	\$ 44,788	\$ 39,927
Unemployment	12%	10%	6%	7%
Below Poverty Level	26%	22%	14%	15%
<b>Housing Units by Occupancy</b>				
Owner-Occupied	36.4%	34.6%	60.9%	63.8%
Renter-Occupied	49.0%	44.8%	39.1%	36.2%
Housing Vacancy Rate	14.6%	20.6%	7.8%	9.4%
<b>Housing Units by Type</b>				
Single-Family Detached	54.2%	52.2%	59.9%	63.4%
Single-Family Attached	3.7%	3.4%	3.5%	3.1%
Apartments/Condos 2-9 units	23.7%	18.9%	8.7%	9.8%
Apartments/Condos 10-49 units	9.0%	11.6%	8.8%	7.0%
Apartments/Condos 50+ units	8.6%	12.9%	12.7%	7.3%
Other	0.8%	1.1%	6.4%	9.4%
<b>Race/Ethnicity</b>				
Non-Hispanic White	35.9%	44.2%	47.9%	52.4%
Non-Hispanic Black	31.4%	25.2%	16.6%	11.3%
Non-Hispanic Asian/Other	4.5%	4.9%	6.6%	4.3%
Hispanics of any race	28.2%	25.8%	28.9%	32.0%
<b>Age</b>				
Children/Adolescents (0-17)	23.5%	23.4%	28.8%	28.2%
Young Adults (18-34)	26.8%	25.8%	25.6%	25.5%
Adults (35-64)	35.8%	37.1%	37.8%	36.4%
Seniors (65+)	13.9%	13.7%	7.8%	9.9%
<b>Education</b>				
No High School	30.3%	25.6%	23.8%	24.3%
High School Only	44.4%	45.5%	45.1%	47.2%
Finished College	16.3%	18.3%	22.5%	20.8%
Graduate Degree	9.0%	10.6%	8.6%	7.6%
<b>Journey to Work</b>				
Private Vehicle	75.7%	81.3%	91.3%	92.2%
Transit	8.5%	6.5%	3.2%	1.9%
Bicycle	3.2%	2.3%	0.3%	0.2%
Walked	8.4%	6.3%	1.6%	1.9%
Other/Work at Home	4.2%	3.6%	3.5%	3.8%

Source: U.S. Census Bureau, Census 2000



**Land Use**

The predominant land use in the Study Area is residential, with single- and multi-family uses intermingled. There are concentrations of multi-family uses near Holiday Drive (4<sup>th</sup> Street) and Fort Crockett. The Downtown area, roughly 19<sup>th</sup> to 26<sup>th</sup> and Harborside to Broadway, has commercial uses dominating the northern half and institutional uses, including City Hall, the Federal Building, the County Courthouse, and the Rosenberg Library, dominating the southern half.

Commercial uses line Broadway from 19<sup>th</sup> Street westward, and all along the Seawall. Smaller, neighborhood-scale commercial is located along 23<sup>rd</sup>, 39<sup>th</sup>, and 45<sup>th</sup> Streets. Institutional uses dominate the harborfront, including the Port facilities, Cruise Ship Terminal, and UTMB, which covers an area nearly as large as Downtown. Institutional uses (mostly schools) are scattered throughout the rest of the study area, including a stretch of 41<sup>st</sup> Street adjacent to Scott Elementary, Ball High, and Galveston College.

Table 2 below shows a land-use breakdown for the Study Area; the figure on the following page illustrates these uses over an aerial photo of Galveston.

**Table 2: Galveston Study Area Land Use**

Land Use	Square Feet	Acres	Percent
No Data	6,080,850	139.60	6.6%
Single-Family	38,296,294	879.16	41.8%
Multi-Family	8,710,942	199.98	9.5%
Commercial	15,872,940	364.39	17.3%
Institutional	14,461,463	331.99	15.8%
Industrial	988,444	22.69	1.1%
Vacant-Platted	6,584,920	151.17	7.2%
Vacant-Unplatted	296,800	6.81	0.3%
Utilities	323,334	7.42	0.4%
<b>TOTAL</b>	<b>91,615,986</b>	<b>2,103.21</b>	<b>100.0%</b>

Source: Galveston County Appraisal District

Note: Parks are not separately enumerated by GCAD. They are counted as "institutional" uses.

**Transit**

Transit services in Galveston are provided by Island Transit, an agency of the City of Galveston. Island Transit currently operates 27 buses on 7 routes extending mostly in an east-west direction throughout the island. Service is provided to the ferry terminal, to Pelican Island, and as far west as 103<sup>rd</sup> Street. Additionally, four historic trolleys (streetcars) operate on two routes, Downtown to UTMB and Downtown to the Seawall.

Currently, a transfer terminal operates at 20<sup>th</sup> and Market downtown. Island Transit indicated this terminal was planned to relocate one block northward, to 20<sup>th</sup> and Mechanic. New transfer stations are also planned at 25<sup>th</sup> and Strand, and 27<sup>th</sup> and Seawall (in Menard Park). Island Transit does not, as of the writing of this report, provide bicycle racks on its vehicles, although plans are currently being made to install them. This improvement was included in the public input survey, to further justify the program.

The map following the land use map illustrates the routes of Island Transit, as of summer 2006.







### **Traffic Signals**

The City of Galveston, having a population of over 50,000, operates all traffic signals within its city limits, including those on state-maintained roadways. In the study area, this includes Broadway and Ferry Road. The map on the previous page, in addition to the transit routes, illustrates the location of traffic signals in the study area.

### **Traffic Volumes**

Traffic volume counts for various streets were collected from the City of Galveston Public Works Department. Additional counts for Broadway (SH 87) were collected from TxDOT. These counts are shown in Table 3 on the following page.

Note that although many neighborhood streets showed reductions in traffic volumes between 1996 and 2001, most major arterials, such as Broadway, Harborside Drive, and 25<sup>th</sup> Street showed little change. Seawall Boulevard and Ferry Road showed increased traffic between 1996 and 2001. One possible explanation for this is an increase in tourist and beachgoing activity, while the background traffic attributable to residents and local business remained relatively unchanged.


**Table 3 – Galveston Traffic Counts**

Address	Street Name	Traffic Volumes			Address	Street Name	Traffic Volumes		
		1996	2001	Change			1996	2001	Change
100	4th St Holiday Dr	6,700	5,590	-17%	2400	Ave C Mechanic	1,160	850	-27%
600	4th St Holiday	6,300	5,360	-15%	2800	Ave C Mechanic	510	620	22%
300	6th St University	4,360	4,040	-7%	3000	Ave C Mechanic	40	80	100%
900	6th St University	8,110	6,680	-18%	3200	Ave C Mechanic	50	80	60%
900	8th St St Mary's	2,730	2,910	7%	200	Ave D Market	1,620	1,760	9%
1000	8th St St Mary's	1,190	840	-29%	1400	Ave D Market	3,390	2,900	-14%
1000	10th St	1,450	1,300	-10%	2400	Ave D Market	3,110	3,020	-3%
900	14th St	5,410	5,070	-6%	3200	Ave D Market	1,310	1,610	23%
1100	14th St	3,020	2,780	-8%	500	Ave E Postoffice	1,520	1,540	1%
500	19th St	3,750	-		1400	Ave E Postoffice	950	760	-20%
1000	19th St	3,580	-		4800	Ave E Postoffice	550	560	2%
800	21st St Moody	5,760	5,580	-3%	400	Ave F Church	680	530	-22%
1400	21st St Moody	4,380	4,310	-2%	600	Ave F Church	500	430	-14%
1000	23rd St Tremont	5,760	5,360	-7%	1400	Ave F Church	960	740	-23%
300	24th St Kempner	2,070	1,290	-38%	2400	Ave F Church	1,140	1,270	11%
100	25th St Rosenberg	3,490	3,130	-10%	3300	Ave F Church	1,250	960	-23%
300	25th St Rosenberg	4,380	-		1400	Ave G Winnie	570	440	-23%
900	25th St Rosenberg	5,630	5,210	-7%	2400	Ave G Winnie	970	1,440	48%
1700	25th St Rosenberg	-	5,870		1400	Ave H Ball	280	280	0%
2200	25th St Rosenberg	3,830	-		2500	Ave H Ball	1,160	-	
300	28th St	600	-		3300	Ave H Ball	3,060	3,610	18%
900	29th St MLK	2,310	2,260	-2%	3700	Ave H Ball	2,880	1,050	-64%
1000	29th St MLK	2,770	2,320	-16%	4500	Ave H Ball	1,420	1,410	-1%
2400	29th St MLK	1,130	1,000	-12%	2400	Ave I Sealy	930	800	-14%
300	30th St	20	40	100%	5000	Ave I Sealy	9,070	9,850	9%
500	30th St	180	160	-11%	500	Ave J Broadway	10,680	10,520	-1%
500	32nd St	-	140		600	Ave J Broadway	11,620	12,480	7%
100	33rd St	80	130	63%	3200	Ave J Broadway	40,000	39,910	0%
300	33rd St	920	970	5%	2400	Ave K	1,030	1,450	41%
900	33rd St	3,030	2,760	-9%	2400	Ave L	980	900	-8%
1000	33rd St	3,990	3,360	-16%	2400	Ave M	1,030	840	-18%
2500	33rd St	1,700	-		2400	Ave N Ursuline	1,220	-	
900	35th St	950	510	-46%	1700	Ave O	1,020	1,270	25%
1000	35th St	2,350	2,220	-6%	2400	Ave O	3,250	2,890	-11%
20	37th St	1,200	1,170	-3%	2500	Ave O	4,050	3,210	-21%
1000	37th St	3,550	2,980	-16%	2400	Ave O 1/2	560	640	14%
2500	37th St	2,050	1,680	-18%	2400	Ave P	3,540	-	
1000	39th St Mike Gaido	14,960	4,920	-67%	2500	Ave P	4,670	1,040	-78%
900	43rd St	2,340	2,500	7%	2400	Ave P 1/2	1,060	-	
1000	43rd St	2,760	2,670	-3%	2400	Ave Q	390	-	
400	44th St	100	530	430%	4200	Ave Q	4,170	-	
1000	45th St	5,060	5,370	6%	4200	Ave S	6,490	5,210	-20%
3000	45th St	4,200	4,640	10%	5100	Ave U	3,980	3,560	-11%
900	46th St	2,080	-		200	Apffel Park Dr	270	500	85%
100	51st St	6,360	-		200	E Beach Dr	490	270	-45%
300	51st St	13,680	13,700	0%	100	Ferry Rd	5,840	7,090	21%
1000	51st St	2,830	2,760	-2%	100	Ferry Rd N	9,260	9,570	3%
2800	51st St	910	710	-22%	600	Ferry Rd N	4,920	6,300	28%
3200	53rd St	4,640	4,230	-9%	1500	Fort Point Road	1,590	1,660	4%
200	Ave A Harborside Dr	5,240	5,260	0%	100	Mackerel	260	190	-27%
1200	Ave A Harborside Dr	14,980	14,290	-5%	300	Mackerel	5,220	3,890	-25%
2100	Ave A Harborside Dr	18,010	17,720	-2%	2900	Old Port Industrial	22,270	19,400	-13%
2300	Ave A Harborside Dr	18,070	18,270	1%	3200	Old Port Industrial	480	330	-31%
4800	Ave A Harborside Dr	17,790	17,690	-1%	3900	Old Port Industrial	300	440	47%
1900	Ave B Strand	1,760	1,590	-10%	4800	Old Port Industrial	19,080	-	
2800	Ave B Strand	470	850	81%	100	Seawall Blvd	4,310	5,810	35%
1400	Ave C Mechanic	570	-		2400	Seawall Blvd	-	18,560	



## **Appendix B** **Introductory Public Meetings—May 2006**

In 2004, H-GAC conducted a study to identify districts where there were high levels of existing or potential pedestrian and bicyclist activity, and where there were significant opportunities to replace vehicle trips with pedestrian or bicycle trips and improve pedestrian and bicyclist safety. Fifteen districts were identified throughout the region, including two in central Galveston.

H-GAC selected consultant Lockwood, Andrews & Newnam, Inc. (LAN), in association with sub-consultants Nelson\Nygaard Consulting Associates and The Lentz Group, to develop a conceptual master plan for comprehensive pedestrian and bicyclist improvements on Galveston Island. The consultant team is working closely with the Galveston community to define the best possible overall plan that fits the needs of the community's residents, businesses, and visitors.

### **Workshop Purpose and Locations**

To kick off the project, the consultant team conducted three public workshops to provide information about the study and obtain one-on-one input from citizens and community leaders. The workshops were held at the following locations:

- May 1, 2006, from 1:30-3:30 p.m. at Galveston Independent School District Administrative Building Board Room
- May 1, 2006, from 6-8 p.m. at Ball High School Room 1072
- May 3, 2006, from 6-8 p.m. at San Jacinto Elementary School Cafeteria

Invitees to the 1:30-3:30 p.m. meeting included county officials, city officials, GISD administration, Texas Department of Transportation, Island Transit, institutional representatives, and social service organization representatives.

For the evening meetings, the team additionally welcomed the general public as well as neighborhood and community association representatives, bike and disabled persons advocates, media, and other organizations.

### **Workshop Notification**

Meeting notice postcards and e-mail reminders were sent to area businesses, schools, churches, social service organizations, neighborhood and community associations, bicycle and disabled persons advocacy groups, and government and agency representatives.

Notices were hand-delivered to area businesses, universities, Rosenberg Library, and community centers for posting and distributing.

Additionally, workshop notices were posted on Island Transit buses and trolleys, GISD's TV channel, and the city Web site. Information about the workshop was publicized in The Galveston Daily News, The Houston Chronicle, and several community publications and Web sites.

### **Attendance**

A total of 46 people attended the first round of public workshops.

- May 1, 2006, from 1:30-3:30 p.m. — 11 people, including representatives from the city, GISD, and TxDOT



- May 1, 2006, from 6-8 p.m. — 17 people, including local bike shop owners, neighborhood association representatives, city officials, UTMB employees, GISD employees, social service representatives, and interested citizens.
- May 3, 2006, from 6-8 p.m. — 18 people, including community and neighborhood association representatives, city officials, UTMB employees, Galveston College employees, media, and interested citizens.

### **Workshop Format**

The workshops were conducted in an identical format. Dan Raine, AICP, Pedestrian-Bicycle Coordinator with H-GAC welcomed attendees and explained the purpose of the plan and why input from citizens is crucial to developing a successful plan that addresses the community's pedestrian and bicyclist needs. LAN team members David Manuel, EIT, AICP and Michael Feeney, PE joined Mr. Raine in facilitating the group's ideas and suggestions. Maps of the area were used to record comments regarding specific areas of concern. General comments concerning safety, parking, suggested routes, and goals were recorded on a flipchart.

At the end of the meeting, Mr. Raine thanked everyone for attending, encouraged them to direct others to [www.walkbikegalveston.org](http://www.walkbikegalveston.org) to give their suggestions and comments for the area, and informed them that the anticipated dates of the next round of workshops are in late June.

### **Comment Summary**

The following is a summary of the ideas and suggestions received from meeting attendees:

#### **General**

- What uses promote daily walking and biking vs. driving? Schools, churches, work, stores ... we need walking routes to these places
- Galveston bicyclists are at many different skill levels
- Develop a sign system that isn't obstructed
- It's hard to cross high-volume streets
- Showers are needed for people who commute by bicycle to work
- Need to make car drivers aware of bicyclists and pedestrians through an awareness campaign
- Use police bicycle activity for a safety and awareness campaign
- Galveston has a relaxed environment and people walk in the streets
- It's not always easy to ride a bike in Galveston because the weather influences the choice
- Broadway has been identified as a historical corridor
- New landscaping is coming to medians on Broadway (ADA requirements stalled completion)
- TxDOT, Galveston County, and the City of Galveston may close sections of medians along Broadway
- The Seawall needs to be better managed



- Dog walking and bicycling don't mix well on the Seawall
- Look at Pelican Island connectivity
- There is talk about moving Salvation Army to 51<sup>st</sup> Street
- Bus schedules need to be posted at stops

### **Bicycle Routes**

- Need safer routes if bicycles are going to be used as transportation
- Make bike paths to downtown
- Many bicyclists commute to tourist-related service jobs
- Need designated bike routes, especially east to west bike routes
- The Seawall is not a commuter route
- Stripe the shoulder as a bike lane
- Need bicycle links to TAMUG, UTMB, and Galveston College
- Church St. and Post Office St. are one-way streets that connect to UTMB
- Ave Q is a good east-west route
- Stripe the Seawall to split between pedestrians and bicyclists (like Alameda, Carmel, and San Diego, CA)
- Look at roads parallel to the Seawall like Ave U and Ave Q from 61<sup>st</sup> to 39<sup>th</sup> for bike route
- Do not put bike routes on streets that have trolley tracks
- Bicycle route from 19<sup>th</sup> to Post Office St.
- Is Harborside bikeable?
- Create a "rails to trails" program on Harborside — look at making unused railroad tracks a bicyclist and pedestrian bridge to Pelican Island
- Make routes to services that Salvation Army patrons use
- Shoulder on FM 3005 westward after state park is great for bicycling
- Make Ave O and Ave P two-way streets
- Stewart Road is impossible to bike; there are hike and bike trail plans for the future

### **Pedestrian Issues**

- Pedestrian facilities are inconsistent along Broadway
- Wide medians needed as pedestrian refuges along Broadway
- Pedestrian signal heads are inconsistent
- Courthouse area has high pedestrian traffic
- Add stop signs at highly-crossed intersections



- Seawall crosswalks are an issue

### Safety Issues

- Need to educate adults as well as children through schools and major employers — all skill levels need education
- Educate motorists — they can't be trusted on FM 3005, going 60-70 mph
- It currently is not safe to use bicycles as transportation — especially on the west end
- Kids walk all over ... not just around the schools
- Safety issues such as crime and drugs concern parents
- Pedestrian traffic areas are not accommodated — high speeds with no specific pedestrian safety provided
- Deep street gutters are a major issue
- Dogs are the main hazards behind 8 Mile Road and 10 Mile Road
- Vehicles with large side mirrors have injured bicyclists
- Stop signs are obstructed
- There are intersection dips (street crown vs. gutter)
- What happened to GISD's "E" kids' safety program?
- East end of Seawall is pretty but has many hazards and broken glass

### Parking Issues

- Can the city install bicycle racks at popular destinations and facilities?
- There aren't enough bike racks
- We need park and ride lots
- Shriner Hospital has a locking bike area

### Schools

- Most Morgan Elementary students walk, although few bike: 1/3 bike or walk, 1/3 ride cars, 1/3 ride bus
- Grade school kids are good at using sidewalks, but high school kids are not
- Ball High School students "own the streets"
- Need pedestrian wayfinding to schools
- Improvements are needed near schools to fight childhood obesity
- Look at main areas on Broadway where kids cross to get to/from school
- Educate teachers so they can teach bicycle and pedestrian safety to their students
- Make safe passageways from the schools to the kids' neighborhoods



## Sidewalks

- In most places it's easier to walk in the street than on the sidewalk
- There are gaps and obstructions in sidewalks — some private owners build sidewalks, others do not; it is the owners' responsibility
- Historical sidewalks/bricks/tree roots cannot be removed
- There is a lack of continuous sidewalks
- Sidewalks pass through driveways, and cars often block the sidewalk
- Landscaping blocks sidewalks
- Kids are ticketed for walking in the streets even when there are no sidewalks
- Kids don't use sidewalks because they are often blocked
- Stephen F. Austin school kids do not use the sidewalks because they are scared of homeowners' dogs

## Transit

- It's hard for people to get around on a bike every day because of the weather — that's why transit is probably more popular. That's why bike racks on buses are so important
- Bicyclists must have racks on buses for survival and to get home in inclement weather
- The city is looking at putting bike racks on buses
- Develop routes to bus stop locations
- Tie sidewalks and crosswalks to transit centers
- 46th and Broadway will be a transit "super stop"
- Tie sidewalks/crosswalks to transit
- County is working with the city and the state to potentially close intersections on Broadway

## Specific problem areas

- Kids cross Broadway between Rosenberg and 37<sup>th</sup>
- Broadway is difficult to cross because of fast vehicles and red light violations
- 21<sup>st</sup> and Broadway is difficult to cross for a competitive bicyclist (23<sup>rd</sup> is easier)
- Make Broadway passable at 61<sup>st</sup>
- Sidewalk on 15<sup>th</sup> between Broadway and Sealy is obstructed by small fence
- Please look at the Harborside/51<sup>st</sup> intersection
- Stop signs at side streets on Post Office St. and Church St. are difficult to see
- Pedestrian signal at Seawall and 25<sup>th</sup> does not work
- Call 409.797.3940 to report remains of sign posts that are along the Seawall



- 73<sup>rd</sup> to UTMB via the Seawall is difficult to cross
- 53<sup>rd</sup> at Ave O has ramps that lead nowhere
- There are drainage problems at Galveston College and Ave O and Ave P
- Ave O and Ave P have too many traffic lights
- There isn't any lighting on the Seawall's beach side

### Photographs

May 1, 2006 at GISD





**May 1, 2006 at Ball High School**



**May 3, 2006 at San Jacinto Elementary School**





## **Appendix C** **Initial Public Survey – Document and Results**

### Survey Mailer (front)

**Do you walk or bicycle around Galveston? Help us make it even better. The City of Galveston and the Houston-Galveston Area Council are sponsoring a study to identify policies and physical projects that will improve conditions for pedestrians and bicyclists. (See map on other side.)**

**Please share your thoughts and concerns, and join us for our next round of meetings: Monday June 26 at Ball High, and Wednesday June 28 at Rosenberg Library (both meetings 6:00-8:00 pm). Please mail survey by end of June.**

Where do you live?

- \_\_\_\_\_ East of 29th St.
- \_\_\_\_\_ Between 29th and 53rd Sts.
- \_\_\_\_\_ West of 53rd St.
- \_\_\_\_\_ Off the island

Where do you work?

- \_\_\_\_\_ Downtown/The Strand
- \_\_\_\_\_ UTMB
- \_\_\_\_\_ Along the Seawall
- \_\_\_\_\_ Other \_\_\_\_\_

How many times a week do you walk or bike to the following places?

Place	Walk	Bike
Work/School	_____	_____
Shopping	_____	_____
Entertainment	_____	_____
Other	_____	_____

How many people and vehicles are in your household? Adults \_\_\_\_\_ Cars \_\_\_\_\_  
Children \_\_\_\_\_ Bikes \_\_\_\_\_

How many times a week do you use transit?  
\_\_\_\_\_

Are there areas you specifically avoid when walking or bicycling? Where are they and why do you avoid them? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

What improvements would make you walk or bike more often?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**Survey Mailer (back)**

Please fold and tape this mailer with the address below showing.  
 You may also e-mail us by visiting the project website at:  
**www.walkbikegalveston.org**

**Dan Raine, AICP**  
**Pedestrian/Bicyclist Coordinator**

**832-681-2525**  
**dan.raine@h-gac.com**

From: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**PLACE  
 STAMP  
 HERE**

**David Manuel, Planning Manager**  
**Lockwood, Andrews, & Newnam, Inc.**  
**2925 Briarpark Drive**  
**Houston, Texas 77042**

The Study Area covers Galveston Island from 1st Street to 53rd Street.

The study will look at improving pedestrian and bicyclist safety, access for persons with disabilities, bicycle routes, and striping, signage, and signal treatments for pedestrians and bicyclists. The focus is on non-recreational trips (such as to work or school)





## Survey Results compiled July 10, 2006

Where do you Live?	Number	Percent
East of 29th	40	32%
Between 29th and 53rd	33	26%
West of 53rd	52	41%
Off the Island	1	1%
<b>TOTAL</b>	<b>126</b>	<b>100%</b>

Where do you Work?	Number	Percent
Downtown/Strand	26	21%
UTMB	28	22%
Along the Seawall	8	6%
Other	48	38%
Not Stated	16	13%
<b>TOTAL</b>	<b>126</b>	<b>100%</b>

How Many Times a Week do You Use Transit?	Number	Percent
Do Not Use	115	91%
Once	3	2%
Twice	1	1%
Three Times	3	2%
More than Three Times	4	3%
<b>TOTAL</b>	<b>126</b>	<b>100%</b>

"Other" Work Locations Cited		
Other Location	Number	Percent
Home	12	10%
Retired/Do not work	10	8%
Off the Island	6	5%
Galveston College	6	5%
Pelican Island	4	3%
Corps of Engineers	1	1%
7th & Broadway	1	1%
43rd & Ave O	1	1%
47th & Broadway	1	1%
61st & Stewart	1	1%
NOAA	1	1%
Offshore	1	1%
Schlitterbahn	1	1%
Jamaica Beach	1	1%
Gulf Health Care	1	1%
<b>Sub-Total</b>	<b>48</b>	<b>38%</b>

Average Number of Trips per Week	
Walk to Work	0.6
Bike to Work	1.1
Walk to Shop	0.7
Bike to Shop	0.6
Walk to Entertainment	1.0
Bike to Entertainment	1.0
Walk to Other	1.5
Bike to Other	1.4
<b>TOTAL Walk/Bike Trips</b>	<b>7.8</b>

Average Number of Persons per Household	
Adults	1.9
Children	0.6
<b>TOTAL Persons per HH</b>	<b>2.5</b>

Average Number of Vehicles per Household	
Cars	1.7
Bikes	2.4
<b>TOTAL Vehicles per HH</b>	<b>4.1</b>



## **Appendix D** **Public Input Workshop—June 2006**

In 2004, the Houston-Galveston Area Council (H-GAC) conducted a study to identify districts where there were high levels of existing or potential pedestrian and bicyclist activity, and where there were significant opportunities to replace vehicle trips with pedestrian or bicycle trips and improve pedestrian and bicyclist safety. Fifteen districts were identified throughout the region, including two in central Galveston.

H-GAC selected consultant Lockwood, Andrews & Newnam, Inc. (LAN), in association with sub-consultants Nelson\Nygaard Consulting Associates and The Lentz Group, to develop a conceptual master plan for comprehensive pedestrian and bicyclist improvements on Galveston Island. The consultant team is working closely with the Galveston community to define the best possible overall plan that fits the needs of the community's residents, businesses, and visitors.

### **Workshop Purpose and Locations**

H-GAC and the consultant team conducted an initial round of workshops in May 2006 to provide information about the study and obtain one-on-one input from citizens and community leaders. A second round of workshops was held to update the public on the project's status and to solicit input on specific needs and improvements that should be addressed by the new plan. The workshops were held at the following locations:

June 26, 2006, from 6-8 p.m. at Ball High School Cafeteria

June 28, 2006, from 1:30-3:30 p.m. at Rosenberg Library Wortham Auditorium

June 28, 2006, from 6-8 p.m. at Rosenberg Library Wortham Auditorium

Invitees to the June 28<sup>th</sup> 1:30-3:30 p.m. meeting included Galveston County and City officials, and representatives of Galveston Independent School District, Texas Department of Transportation, Island Transit, institutions, and social service organizations.

For the evening meetings, the team welcomed the general public as well as neighborhood and community association representatives, bike and disabled persons advocates, media, and other organizations.

### **Workshop Notification**

Meeting notice postcards and e-mail reminders were sent to area businesses, schools, churches, social service organizations, neighborhood and community associations, bicycle and disabled persons advocacy groups, and government and agency representatives.

Notices were hand-delivered to area businesses, universities, Rosenberg Library, and community centers for posting and distributing. Workshop notices were also posted on Island Transit buses and trolleys, the City's municipal channel, GISD's TV channel, and the city Web site. Information about the workshop was publicized in *The Galveston County Daily News*, *The Houston Chronicle*, and several community publications and Web sites.

### **Attendance**

A total of 78 people attended the second round of public workshops. (Three individuals attended multiple meetings.)

June 26, 2006, from 6-8 p.m. — 27 people, including representatives from the city, GISD, and local media.

June 28, 2006, from 1:30-3:30 p.m. — 5 people, including a local bike shop owner and representatives of the City, GISD, and TxDOT.



June 28, 2006, from 6-8 p.m. — 49 people, including community and neighborhood association representatives, City officials, University of Texas Medical Branch at Galveston (UTMB) employees, and interested citizens.

### **Workshop Format**

The workshops were conducted in an identical format. Dan Raine, AICP, Pedestrian-Bicycle Coordinator with H-GAC welcomed attendees and explained the purpose of the plan and why input from citizens is crucial to developing a successful plan that addresses the community's pedestrian and bicyclist needs. LAN team members David Manuel, EIT, AICP and Michael Feeney, PE continued the presentation with a recap of input collected at the first round of public meetings in May 2006 and by explaining some of the data the team has collected thus far in the project. The team asked attendees to use the maps and supplies provided at each table to identify problem issues, point out locations/facilities that currently worked well for pedestrians and bicyclists and that would be a good example to emulate, and make suggestions for improvements throughout the project area.

After attendees recorded their comments, each group was asked to present their suggestions. Following the group presentations, Mr. Raine explained the input given at this round of meetings will be used to prepare a list of proposed improvements. He closed the meetings by thanking everyone for attending, encouraging them to direct others to [www.walkbikegalveston.org](http://www.walkbikegalveston.org) to give their suggestions and comments for the area. He also informed participants that there will be two more meetings, one in August to allow attendees to vote on their favorite proposed improvements (voting will be on the web site, too) and one in September to present the results. An update to City Council is scheduled for August 10, 2006.

### **Comment Summary**

Following is a summary of the ideas and suggestions received from meeting attendees:

#### **Monday, June 26 meeting**

##### **Map M-1**

##### Routes

- Walking downtown is nice.
- Bike lane down Harborside.
- Bike lane down University Boulevard.
- Bike lane on Seawall, evenly paved sidewalks for pedestrians and skaters.
- Make south side on Seawall a bike lane. Restrict parking of cars to north side.
- Mountain bike trails!

##### Safety

- Bridge from Pelican Island — dangerous drawbridge texture for bicyclists.
- No crosswalks on 14<sup>th</sup> for kids going to school.
- From hotels to beach, lots of pedestrians crossing in the middle of the road because not enough crosswalks — not regularly spaced.
- Crazy drivers on 53<sup>rd</sup> and 45<sup>th</sup>, Avenue N 1/2.
- Pedestrian crossing at Stewart and 61<sup>st</sup>.



- Stoplight running along Avenue O and Bernardo de Galvez.
- Gravelly and broken sidewalks on Seawall.
- Kids getting hit crossing on Stewart curve without a crosswalk.

#### Maintenance

- More lights on Seawall. Slow traffic down! Make traffic lights for pedestrians only.
- Intermittent sidewalks on Avenue O and Bernardo de Galvez.

#### Information

- Educate public on rights of pedestrians and bicyclists.
- Are there any “Stop for me, it’s the law” signs around town?
- Promote biking events.
- Popularize good traffic etiquette on all sides.

#### Enforcement

- Enforcement by police!

### Map M-2

#### Routes

- Along Avenue Q and 41<sup>st</sup> — both walk and bike trails, cars park on one side of road only.
- Bike paths — along Avenue U from 39<sup>th</sup> to 53<sup>rd</sup>; along 51<sup>st</sup> from Avenue U down Avenue M around Cedar Lawn to Avenue L; down 41<sup>st</sup>; down 31<sup>st</sup> from Avenue M to Avenue I; along 24<sup>th</sup> from Avenue M to the Strand; along 23<sup>rd</sup> from Avenue M to Seawall; along 19<sup>th</sup>; along 14<sup>th</sup> from Avenue M to Post Office; and along Post Office from 14<sup>th</sup> to Ferry Road.
- Walking paths — down Seawall and Rosenberg.
- Bike routes — down 43<sup>rd</sup> and around Ball High School and Scott Elementary School; down 37<sup>th</sup> and around Morgan Elementary School; at 27<sup>th</sup> around Galveston Catholic School; down 21<sup>st</sup> from Avenue M to the Strand, down Avenue K and around San Jacinto Elementary School and Catholic High School; around Austin Middle School — down 15<sup>th</sup> and Avenue N ½; around Rosenberg Elementary down 10<sup>th</sup> and Avenue H; and around UTMB down University Boulevard and 8<sup>th</sup>.

#### Bike Parking

- Bike parking at Rosenberg and the Strand; 20<sup>th</sup> and Avenue D; Ferry and Seawall; and Seawall and Menard Park.

### Map M-3

- Two people work on 25<sup>th</sup> Street close to the Strand; four live between 53<sup>rd</sup> and Rosenberg south of Broadway.
- We can’t ignore the area north of Broadway between 25<sup>th</sup> and 53<sup>rd</sup>. This will be developed.

#### Routes



- We like Avenue Q for west of 25<sup>th</sup> to 57<sup>th</sup> Street.
- Love to walk along Seawall. No cross traffic.
- We need a bike path from 57<sup>th</sup> and Broadway to Target/Home Depot area.
- 26<sup>th</sup> Street north of Broadway going toward the Strand — good street, less traffic, no stop lights. Good for bicycles. A marked lane would be great.
- We need a shared lane that runs parallel on Broadway.
- Need bicycle lane the entire length of Seawall Boulevard.
- 25<sup>th</sup> Street to connect east and west.
- Winnie is an excellent route to see Victorian houses.
- Hike and bike system!

#### Safety

- Stewart Road around Homecut Donuts is extremely dangerous.
- Traffic light at 53<sup>rd</sup> and Avenue Q is way too short. Lasts for 2 cars. Not good for pedestrians or bicyclists.
- On 45<sup>th</sup>, no sidewalks. Trees and bushes in right-of-way (ROW).
- No sidewalks in many neighborhoods west to east.
- Storm drains are a tremendous problem. Bicycles must make very wide turns. Need appropriate grading. Too many corners to mention.
- Tourist crossing Seawall Blvd. at mid-block — dangerous.

#### Maintenance

- Sidewalk on Avenue O in bad shape. Beautiful walk from 25<sup>th</sup> to Ball High School.
- Seawall Boulevard east of 6<sup>th</sup> Street needs to be maintained. This is a beautiful ride except for glass.

#### Information

- Important: We need to replace/repair “Bikes present on bridge” sign over to Pelican Island until railway path is finished.

#### Bike Parking

- City ordinance requiring sidewalks and bike racks along Seawall.

#### Map M-4

- Residence — all six live west of 41<sup>st</sup> and south of Broadway. Work — four work close to Broadway and 25<sup>th</sup>, one works on Bolivar and three work near the Seawall.
- Mainly Seawall for all destinations.

#### Routes

- Problem areas — Broadway and 61<sup>st</sup>; 53<sup>rd</sup> and Avenue U; Harborside and 53<sup>rd</sup>; Broadway and 42<sup>nd</sup>; and Broadway and Seawall.



- Good areas — near Alamo Elementary School; Cedar Lawn; the Strand and 19<sup>th</sup>; 13<sup>th</sup> and Avenue G; and near Harborside and Ferry Road.
- Routes — down Avenue U from 48<sup>th</sup> to 56<sup>th</sup>; from City Hall, south on Rosenberg, west on Avenue Q, north on 43<sup>rd</sup>, west on Avenue O 1/2, north on 49<sup>th</sup>, west on Avenue N, north on 51<sup>st</sup>, west on M 1/2, north on 55<sup>th</sup> and then zigzag to 57<sup>th</sup>.

#### Safety

- Bells and light required.

#### Information

- Lots of signs for bicycle lanes.
- Bike to work programs.

#### Enforcement

- Enforce animal laws, loose dogs.

#### Map M-5

- Encouraging pedestrian walking and biking to businesses is good because it slows down consumers (i.e. more shopping downtown).
- Most-used regions — surrounding UTMB, Fish Village and Westwood area.

#### Routes

- No good way to get from Fish Village to west of UTMB.
- Market Street too congested.
- Harborside and Ferry too dangerous.
- Designated east/west routes (Church and Post Office work well now).
- East/west routes north Broadway, Post Office and Church; east/west route south of Broadway, Avenues O and P.
- Dream — remove parking on south side of Seawall. Focus parking in available lots, add large user-friendly crosswalks.
- Seawall is friendly.
- On Church Street, add bike lanes, signs, lighting, police patrol, and bike parking.
- Create a dedicated bike road east/west, maybe on old railway, alleys, or narrow road.
- Two-way bike lane down 43<sup>rd</sup>.
- One-way bike lanes down Avenue O and Bernardo de Galvez.
- On Church Street and Post Office, two-way bike lane.
- Two-way bike lane on 17<sup>th</sup> from Post Office to Seawall.
- Mixed-use priority lanes on Avenues O and P.
- Some drive north/south routes.

#### Safety



- Pedestrian needs — trim trees that are low overhanging; adequate lighting for night; crosswalks at busy intersections; pedestrian crosswalks at Seawall placed near hotels, restaurants, and shops.
- No bike crossings on west corner of 61<sup>st</sup> and Seawall.
- Market and 14<sup>th</sup> — trouble crossing 14<sup>th</sup> in the mornings.

#### Maintenance

- Maintain sidewalks and encourage mixed-use down Broadway.
- Giant pothole where asphalt is 4 inches taller than manhole cover — 16<sup>th</sup> and Post Office.

#### Information

- Signs where cars stop and bicycle cross traffic doesn't.
- Designate bike routes from UTMB to residential centers and educate students.
- Promote out of town bike and skating clubs like motorcycle rally does.
- Clearly mark lanes with "Drive & Bike Texas Friendly."

#### Bike Parking

- More bike parking downtown.

#### Enforcement

- No parking at corners.
- Enforce parking restrictions (15 feet from stop signs). Bike lanes encourage mutual respect.

### June 28 meetings

#### General comments

- Eliminating parking will be a problem. Many lots are just 25-foot-wide — with cars 20-foot-long and two-three cars per lot (including garage apartment residents), there will always be too many cars per lot.
- Publicity — when you have the meeting to present projects, put in the paper, "We heard you, now here's our feedback."

### Map W-1

#### Routes

- Put pedestrian crossings at busier streets with signals; bicycles on less busy streets.
- Even-numbered roadways are less traveled than odd, better routes. Have more stoplights and signs, but that is hard to avoid in an urban environment, and it is easier to cross at stop sign controlled intersections.
- Spider method of routing is appealing, but need to find the right streets to make it bicycle friendly.
- Alleys as express routes.



- Avenue U between 57<sup>th</sup> and 39<sup>th</sup> good for a short route, no need for parking on south side.
- South side of Seawall has enough space for both bicycle riders and pedestrians; it just needs to be designated. Goodwin Corporation is doing a study for a STEP application.
- Seawall has enforcement issues — during holidays and weekends, people put surfboards, lounge chairs, and cookers and awnings from RVs, plus there are lots of surreys.
- Could extend the current 2-6 a.m. no parking ordinance on Seawall, which is to aid streets cleanup, to designate Seawall as a morning bicycle commute route.
- Need more input from people on utility-based bicycle and pedestrian travel — such as errands to Arlen's, Kroger, and HEB — in addition to work commute and recreational travel. Restaurants are spread out along the Seawall and Harborside, so in most instances it's too far to bicycle or walk to restaurants.
- Post Office and Church Streets with shared lane a good idea, except sometimes bicycle tires get caught in the trolley tracks on Post Office at 23<sup>rd</sup>.
- O and P are too heavily traveled and have lots of parked cars, especially on P.

#### Safety

- North Broadway between 25<sup>th</sup> and 51<sup>st</sup> is not safe. Students cross Broadway to get to Morgan, Alamo, and Bell. One crossing guard on Broadway around 41<sup>st</sup> for both Morgan and Bell and one for Rosenberg. We have not yet received much input from people living in that area. Check with Oleander Homes.
- Crossings around schools are not as big a concern as on Broadway. Check with TxDOT about current signage and striping available to make more visible crossings. Bullnose crossings good, but the problem is that Broadway has different sized median cuts — on western end are narrower.
- Lights on Broadway are not easily visible. City is trying to replace the lights, but TxDOT requires replacing the poles at the same time. Check with Mike and Barbara Sanderson at the City about beautification projects.
- Fencing along Broadway medians shielded by shrubbery would prevent crossing between intersections, but the City might not consider this feasible.

#### Bike Parking

- Bike racks.
- Could Galveston have a program like Austin and Houston where a business asks the City to install a bicycle rack out front? Have to demonstrate a secure location and that no other racks are directly adjacent.

#### Map W-2

##### Routes

- For the primary route, chose Avenue L, not K, because people come off Broadway onto Avenue K too quickly. One car lane and one bike lane with cement lane divider. Mark the street with a car picture and a bike picture.
- Additional route along 25<sup>th</sup>.



- Two proposed north-south bikeways — 25<sup>th</sup> between The Strand and N, 26<sup>th</sup> between Broadway and N, then moving to 28<sup>th</sup> between N ½ and R, down R to 32<sup>nd</sup>.

#### Safety

- Sidewalks with curb cuts and crosswalks around all schools and across Broadway so children can cross safely.
- Sidewalks on 31<sup>st</sup> and 41<sup>st</sup>.
- Have clearly identified walking paths.
- Disabled person cannot cross Broadway within the time allowed.
- Need stoplight at 24<sup>th</sup> and Broadway.

#### Enforcement

- Five of the eight people at our table have been bitten by dogs while bicycling. Need better leash-law enforcement. More dog catchers — can pay salaries from extra fines. Dogcatcher on duty 24 hours.
- No cars parking on sidewalks.

#### Map W-3

- Dots noting places participants live.

#### Routes

- Continuous route from Texas A&M University Galveston (TAMUG) to Fort Crockett, including ramps and designated bike lanes, ideally serving both bicyclists and pedestrians (Charles Smith underpass viaduct).
- Identify connectivity needs re: UTMB as well.
- Avenue S.
- Broadway.
- Bike route on Seawall, extend through Stewart — it is a choke point because there are only three ways to get to the west.
- Broadway bicycle/pedestrian route with pedestrian crossover points, not shared with cars, and sufficient time to cross Broadway.

#### Safety

- Existing bike route on Seawall is dangerous to pedestrians.
- Dangerous obstacles on Seawall — trashcans, benches, poles, sawed-off poles, “Dangerous drop-off” signs, wheelchair ramp at Rosenberg is dangerous for bikes,
- Broadway at MacDonald’s has tangled traffic.
- Causeway to TAMUG is dangerous.
- 61<sup>st</sup> across Offatts Bayou.
- Seawall from 53<sup>rd</sup> to 45<sup>th</sup> has no stoplights, so it’s dangerous for pedestrians to cross to get to the beach. Need crossovers plus signage.



- No connectivity within Galveston — potholes and dangerous curb drops everywhere, even the signs are positioned to be dangerous to bicyclists.
- Avenue S, including dead man’s curve at soccer fields; 3005 from end of Seawall to Jamaica Beach; protected bike path.
- How to cross to mainland safely on bicycle? Negotiate with railroad for road on railroad bridge.
- Safe drainage grates for bicycles.
- Sensors at lights are needed to trip lights for bicyclists.
- Handicapped accessibility in medians — 25<sup>th</sup> and Broadway and wherever there are traffic lights, especially on Broadway.
- Connectivity for handicapped accessibility and children on bicycles, etc. from sidewalk to street to median.
- Major thoroughfares serving new developments should have sidewalks added, including Stewart Road and 8-Mile Road.

#### Maintenance

- Extend sidewalks into all City easements so that sidewalks are continuous rather than interrupted.
- Control vegetation at intersections.
- Improved street conditions downtown.
- Streetlight pedestrian crossing buttons don’t work anywhere.

#### Information

- Signage re: pedestrian ROW. Make an ordinance giving pedestrians the ROW. (Note: already a State of Texas ordinance.)

#### Enforcement

- Enforce City laws about vehicles in driveways blocking sidewalks.
- Do not allow homeowners to block access to sidewalks with their own landscaping.

#### Map W-4

##### Routes

- Old railroad track for Rails to Trails project for TAMUG commuters. Problem for TAMUG commuters coming home to cross Broadway at 51<sup>st</sup>.
- Broadway esplanade formerly had a trolley track that could be used as a pedestrian/bicycle path. Address historic issue with older-looking walkway. Eliminate left-hand turn on Broadway to increase safety.
- 59<sup>th</sup> from Broadway, turn on railroad, to 46<sup>th</sup> to Church to 35<sup>th</sup>.
- Eliminate parking on south side of Seawall to create bike lane.



### Safety

- Bike-friendly storm grates.
- Cyclists need to be good citizens and share with pedestrians — get a bell.
- Need more pedestrian crosswalks, especially at key beach areas.

### Information

- Better signs around school zones and designated school bike routes.
- Better bicycle route signage, especially at cross streets to O, P and Church.
- Police and public education about laws regarding pedestrians and bicyclists.

### Bike Parking

- Add bike racks on Seawall.

### Maintenance — Seawall issues

- Seawall not a good pedestrian/bicycle path because of debris and dogs.
- Glass debris punctures tires — need better clean-up.
- Signs in cement are dangerous to bicyclers.
- Cracks, holes in cement.
- Dog waste — need “poop stations” with bags and receptacles.

### Map W-5

#### Routes

- East-west — Avenue U from 39<sup>th</sup> to 57<sup>th</sup> because there is little parking, but it’s short; M goes all the way through; Broadway esplanade (and pedestrian path), if figure out a safe way to interact with people crossing; south side of Seawall.
- North-south — 51<sup>st</sup> and 41<sup>st</sup> both connect with colleges and schools; 25<sup>th</sup> esplanade; University esplanade.
- Eliminating parking on south side of Seawall Blvd. to put in a bicycle lane creates a safety problem for beachgoers crossing Seawall Blvd.
- East end — from UTMB to downtown, put bicycle lane on one-way streets. Many scooters driven by seniors, especially at Gulf Breeze; need better signs, post whether 2- or 4-way stop.
- West end — Jones Road from 53<sup>rd</sup> to 83<sup>rd</sup> (has little on-street parking) or Heards Lane from 57<sup>th</sup> to 73<sup>rd</sup> (less heavily traveled) both connect to schools.
- Alleys are problems because of dogs, curbs, downtown delivery trucks, and no ADA ramps.

#### Maintenance

- Inconsistent sidewalks everywhere.
- Pedestrian crossing signals on Seawall don’t work.
- Need streets with useable ADA ramps.



## Information

- Create a citywide public awareness campaign — hang banners on Broadway to remind people coming over the causeway that bicyclists have the ROW.

## Map W-6

- Bus stops/stations — Island Transit needs better bike handling abilities and better communications/signage to get around the entire island for people without cars. Elderly are particularly excluded by having inability or unsafe access to buses.
- Neat old courthouse, Strand, Historic District.

## Routes

- ROW available to convert railroad track into Rails to Trails to cross to TAMUG.
- Route bicycles along paved alleyways between one-way streets downtown.
- Avenue L.
- East-west — 51<sup>st</sup> from Seawall to Harborside to allow access down Harborside to bike in designated lane safely downtown to UTMB from Galveston College, TAMUG, Ball High.
- Seawall bike lanes designated so pedestrians are safer and bikes can “cruise” without hitting tourists.
- Circular route starting 45<sup>th</sup> at L along L to 25<sup>th</sup>, over to Post Office all the way to Ferry Road, then back along Seawall. Crossings at University Blvd. and 25<sup>th</sup>.
- Largest collection of “green” data shows 14<sup>th</sup> Street is evolving into a heavily trafficked area. The restaurant/retail row attracts out-of-towners and parking is limited. If bike routes were available, people who work at UTMB or live in the east end would be able to bike to this district without adding to the congestion.

## Safety

- Safety of leaving bike or easy parking for bikes without traffic crashing into bikers.
- Stewart Road safety with sidewalks/bike paths. Intersections and street signage need improvements for school traffic and getting to/from Galveston College.
- Broadway at 25<sup>th</sup> — crossing light not long enough to walk across without running.
- Better lighting around downtown for walking safely after dark. The Strand is good between 20<sup>th</sup> and 25<sup>th</sup>.
- People living on the street and frightening walkers.
- At each paved alley on east-west streets like O, P and Church, make a raised (almost a speed bump) lane across the north-south streets for safety and improve lighting at intersections.

## Maintenance

- Sidewalks around Market from Holiday to 6<sup>th</sup> University Blvd. are currently absent and many older people, students, and patients negotiate that area with great difficulty along UPRR track. Sidewalks from UTMB running south to Seawall Blvd. would help; pedestrians working at UTMB get up to Seawall safely for exercise breaks or commuting.



- Galveston College — flooded sidewalks and driveways during thunderstorms (not just major storms) make walking difficult.
- Parking is a problem without removing any spaces. Put in a sidewalk that is continuous and pedestrians, bikes, and scooters can use it.

#### Bike Parking

- Bicycle racks on the bus and major employment centers.

#### Enforcement

- Police should continue to ticket cars and trucks parked on pedestrian walks.

#### Funding issues

- Dots on map show typical start and destination points, resulting in a cluster on the Island's east end. Recommend focusing on a single project in downtown area, to continue all the good work that's been done there.
- CMAQ credits for local match.
- CDBG funding in District 3; alley okay.
- Optional funding from TIRZ districts.
- GISD Renaissance Zone for background on area plans. Coordinate information gained from GISD's May 3 and May 8 public forums.

#### **Additional exhibit provided by attendees**

5/15/05 draft of path research conducted by Phil Newton and Cindy Roberts-Gray, Proposed Hike and Bike Urban Pathways for Galveston Transportation Enhancement

- Phase I — begin at 6<sup>th</sup> Street entering alley between Sealy and Ball across the street from Emerald by the Sea and ending at City Hall.
- Phase II — begin at trolley stop on 25<sup>th</sup> Street entering alley between Avenues K and L, move to alley between M and M ½ at 28<sup>th</sup>, then to N and N ½ at 35<sup>th</sup>, moving at 41<sup>st</sup> to greensward between Ball High and Scott Elementary, moving at 42<sup>nd</sup> to alley between N ½ and O and ending at 53<sup>rd</sup>. Connects to Phase I by bike lane from City Hall across Broadway to Monument Square to trolley stop.



**Photographs**

**June 26, 2006, Ball High School**



**June 28, 2006, Rosenberg Library**





## **Appendix E** **Public Meeting on Draft Recommendations—August 2006**

In 2004, the Houston-Galveston Area Council (H-GAC) conducted a study to identify districts where there were high levels of existing or potential pedestrian and bicyclist activity, and where there were significant opportunities to replace vehicle trips with pedestrian or bicycle trips and improve pedestrian and bicyclist safety. Fifteen districts were identified throughout the region, including two in central Galveston.

H-GAC selected consultant Lockwood, Andrews & Newnam, Inc. (LAN), in association with sub-consultants Nelson\Nygaard Consulting Associates and The Lentz Group, to develop a conceptual master plan for comprehensive pedestrian and bicyclist improvements on Galveston Island. The consultant team is working closely with the Galveston community to define the best possible overall plan that fits the needs of the community's residents, businesses, and visitors.

### **Workshop Purpose and Location**

Using input gathered from two rounds of public workshops held in May and June 2006, the City of Galveston and Houston-Galveston Area Council (H-GAC) developed a list of potential projects to improve and enhance pedestrian and bicyclist safety and mobility. Ideas and issues on the maps drawn by the public were concretized into a physical description. For example, "poor sidewalk conditions" noted near the Gulf Breeze Seniors Complex became "repair sidewalks and install curb ramps near Gulf Breeze to provide accessible pedestrian routes." A public workshop was held on **August 16, 2006** at the **Rosenberg Library Wortham Auditorium** to present the proposed projects for discussion and comment.

At this workshop and via the project web site, [www.walkbikegalveston.org](http://www.walkbikegalveston.org), the public was given an opportunity to submit comments and vote for the five (5) projects they feel would be the most beneficial to the area. Voting began on the web site August 12 and ended September 4, 2006.

### **Workshop Notification**

Meeting notice postcards and e-mail reminders were sent to area businesses, schools, churches, social service organizations, neighborhood and community associations, bicycle and disabled persons advocacy groups, and government and agency representatives.

Notices were posted on Island Transit buses and trolleys, the City's municipal channel and web site, GISD's TV channel, and at area businesses, universities, Rosenberg Library, and community centers. Information about the workshop was publicized in *The Galveston County Daily News*.

### **Attendance**

A total of 65 people attended the workshop, including a Galveston councilmember and other city representatives, Galveston ISD, Texas Department of Transportation, University of Texas Medical Branch at Galveston, Texas A&M University at Galveston, and community and neighborhood association representatives.

### **Workshop Format**

Dan Raine, AICP, Pedestrian-Bicycle Coordinator with H-GAC welcomed attendees and explained the purpose of the plan and why input from citizens is crucial to developing a successful plan that addresses the community's pedestrian and bicyclist needs. Mr. Raine explained that the team used public input from workshops held in May and June to produce a list of seventeen (17) proposed projects that would benefit the area.



Mr. Raine along with LAN team members David Manuel, EIT, AICP and Michael Feeney, PE went through each project, pointing out their location and explaining details and their benefit. The projects are:

Develop Bikeway Network
Bike Racks on Buses — <b>(already in process)</b>
Bike Racks at Businesses/Destinations
Broadway Crossing Improvements — Group 1
Broadway Crossing Improvements — Group 2
Broadway Crossing Improvements — Group 3
Selected Renaissance Zone #1 Improvements: Rosenberg Elementary
Selected Renaissance Zone #2 Improvements: San Jacinto Elementary
Selected Renaissance Zone #3 Improvements: Morgan Elementary
Pedestrian Improvements near Menard Park (new transit center)
Pedestrian Improvements between Downtown to UTMB (including Magnolia Homes)
Pedestrian Improvements around Downtown
Pedestrian Improvements near San Jacinto Elementary and Gulf Breeze Homes
Pedestrian Improvements around Social Services Center
Pedestrian Improvements around Galveston College, Ball High, and Scott Elementary
Pedestrian Improvements on 45 <sup>th</sup> Street
Curb extensions on Seawall Boulevard

Following the presentation of the projects, Mr. Raine explained the voting process. Attendees would be given one ballot each to cast their vote, choosing the five (5) projects they feel would most benefit Galveston. Mr. Raine then opened up the floor for questions regarding the projects. Some of the topics discussed/comments included:

- **How many projects will be funded?** — Depends on City participation. The city must contribute 20% for each project and H-GAC will fund the remaining 80%.
- **Why wasn't cost data for each project presented?** — In an effort not to influence voting based on cost. The benefit is the focus.
- **Need better access to Texas A&M University at Galveston on Pelican Island.**
- **The City is working on the budget now. Would be good for them to have cost information quickly.**
- **Need to enforce illegal bike riding on sidewalks, especially along the Seawall.**



- Coordinating with the Historical Commission can be difficult.
- The area surrounding Scott Elementary needs improvements. Please try to include in the plan. This area also has an opportunity to include Ball High School.
- When choosing projects be realistic and think about the long-term and maintenance.

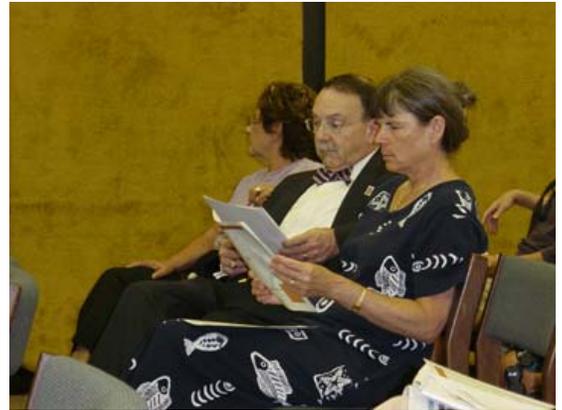
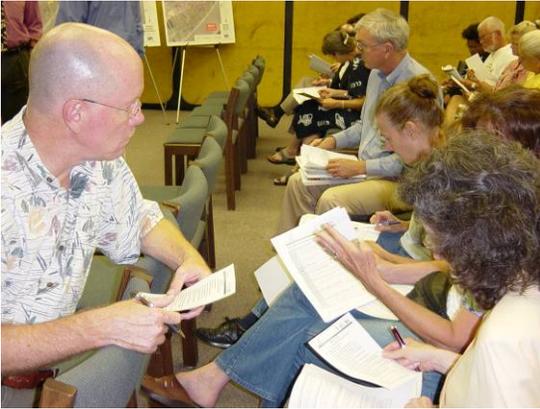
Before adjourning for voting, Mr. Raine thanked everyone for attending and encouraged them to direct others to vote for their favorite projects at [www.walkbikegalveston.org](http://www.walkbikegalveston.org). He explained that voting would be available until September 4 and that there will be a final public meeting to present the results of the vote and the final proposed plan.

### Project Voting

A total of 52 ballots were received at the public workshop. Following the close of web site voting on September 4, results will tabulated and a preferred list of projects will be developed and presented.

### Photographs







## **Appendix F** **Public Preference Survey**

### **Project Development**

Using input gathered from the two rounds of public workshops held in May and June 2006, the City of Galveston and the Houston-Galveston Area Council (H-GAC) developed a list of potential projects to improve and enhance pedestrian and bicyclist safety and mobility. Ideas and issues on the maps drawn by the public were concretized into a physical description. For example, “poor sidewalk conditions” noted near the Gulf Breeze Seniors’ Complex became “repair sidewalks and install curb ramps near Gulf Breeze to provide accessible pedestrian routes.” A public workshop was held on **August 16, 2006** at the **Rosenberg Library Wortham Auditorium** to present the proposed projects for discussion and comment.

At this workshop and via the project web site, [www.walkbikegalveston.org](http://www.walkbikegalveston.org), the public was given an opportunity to submit comments and vote for the five (5) projects they feel would be the most beneficial to the area. Voting began August 12 and ended September 4.

All persons that had left contact information either through website visits, previous meetings, or personal e-mails and phone calls, were notified of the survey and asked to select their top five projects. The text below is the introduction from the website.

#### **Vote on Potential Improvements**

*After two rounds of public meetings, over 100 survey responses, numerous field visits, and consultation with potential project sponsors, the project team has developed a list of potential improvements. We will evaluate them for feasibility, potential usage, and cost, but we want you, the public, to vote on which ones should be a priority. We will use each potential improvement’s number of votes as part of the evaluation criteria.*

*Potential improvements are listed below in no particular order. Please check the boxes of the five projects you feel should be the priority. Please do not vote for more than five. When you are finished, provide your e-mail address in the box at the bottom and press the “VOTE” button.*

166 responses were received through the website, in addition to 53 paper ballots at the August public meeting, for a total of 219. The results tallied as shown in the listing below.

### **Voting Results**

219 possible votes per item

Projects (Numbered in Order Presented) Sorted by Number of Votes

<b>Potential Improvement</b>	<b>Vote Count</b>
1. Develop Bikeway Network	149
3. Bike Racks at Businesses/Destinations	98
12. Pedestrian Improvements around Downtown	73
17. Curb extensions on Seawall Boulevard	68
4. Broadway Crossing Improvements — Group 1	67
5. Broadway Crossing Improvements — Group 2	61



11. Pedestrian Improvements - Downtown to UTMB (including Magnolia Homes)	44
15. Pedestrian Improvements - Galveston College, Ball High, Scott Elementary	38
10. Pedestrian Improvements - Menard Park (new transit center)	28
16. Pedestrian Improvements on 45th Street	27
2. Bike Racks on Buses	24
14. Pedestrian Improvements around Social Services Center	18
6. Broadway Crossing Improvements — Group 3	17
13. Pedestrian Improvements - San Jacinto Elementary and Gulf Breeze Homes	14
8. Selected Renaissance Zone #2 Improvements: San Jacinto Elementary	12
7. Selected Renaissance Zone #1 Improvements: Rosenberg Elementary	9
9. Selected Renaissance Zone #3 Improvements: Morgan Elementary	4

### Final Scored Ranking of Potential Improvements

Code Number	POTENTIAL IMPROVEMENT	Relative Feasibility A	Relative Cost B	Safety Benefit C	Relative Demand D	Composite Rating E=A+B+C+D	Vote Count V	Overall Score E * V
1	Develop Bikeway Network	3	1	1	3	8	149	1192
3	Bike Racks at Businesses/Destinations	3	3	1	2	9	98	882
12	Pedestrian Improvements around Downtown	2	2	1	3	8	73	584
17	Curb extensions on Seawall Boulevard	2	3	2	1	8	68	544
4	Broadway Crossing Improvements — Group 1	1	2	2	1	6	67	402
5	Broadway Crossing Improvements — Group 2	1	2	2	1	6	61	366
11	Pedestrian Improvements - Downtown to UTMB (including Magnolia Homes)	2	2	1	2	7	44	308
15	Pedestrian Improvements - Galveston College, Ball High, Scott Elementary	2	2	1	2	7	38	266
2	Bike Racks on Buses	3	3	1	1	8	24	192
16	Pedestrian Improvements on 45th Street	2	2	1	2	7	27	189
10	Pedestrian Improvements - Menard Park (new transit center)	2	1	1	1	5	28	140
6	Broadway Crossing Improvements — Group 3	1	3	2	2	8	17	136
13	Pedestrian Improvements - San Jacinto Elementary and Gulf Breeze Homes	2	3	1	3	9	14	126
14	Pedestrian Improvements around Social Services Center	2	2	1	1	6	18	108
8	Selected Renaissance Zone #2 Improvements: San Jacinto Elementary	2	3	1	3	9	12	108
7	Selected Renaissance Zone #1 Improvements: Rosenberg Elementary	2	3	1	2	8	9	72
9	Selected Renaissance Zone #3 Improvements: Morgan Elementary	2	3	1	3	9	4	36



The scoring mechanism used to rank the potential improvements used a score created by multiplying the number of votes by a weighting factor, called the “composite rating.” This rating was the sum of four qualitative factors measuring relative feasibility, relative cost, safety benefit and relative demand. These four factors received rankings of 1 to 3, where 3 was considered “best.” These are explained below.

A: Relative Feasibility: 3=Easy, 2=Average, 1=Difficult

B: Relative Cost: 3=Inexpensive (under \$100K), 2=Average (\$100-160K),  
1=Expensive (over \$160K)

C: Safety Benefit: 2=Improved Safety, 1=No Impact

D: Relative Demand: 3=Higher, 2=Average, 1=Lower (see full analysis in Appendix J)

E: Composite Rating: A+B+C+D

V: Vote Count (as detailed in previous section)

Overall Score: E multiplied by V

Feasibility is an assessment of relative administrative ease, as well as design and construction time. Bike racks received the highest rating of 3, indicating little more than a simple procurement process. Most pedestrian improvements involved crosswalk striping and sidewalk and curb ramp construction, and received a score of 2. Finally, improvements along Broadway, although similar in specifications to other pedestrian improvements, will require coordination between the City of Galveston, TxDOT, the Galveston Historical Commission, and the Texas Department of Licensing and Review (for ADA compliance). This additional coordination implies a longer time frame, and thus the lowest score of 1.

Cost scores were based on the estimated expense of each improvement. The bikeway plan is rated as most expensive, although striping and signage are typically low-cost. This is due to the total length of the routes and lanes (roughly 15 miles). Pedestrian improvements near Menard Park are expensive, because of the linear distance of missing sidewalks and number of missing curb ramps. Most other pedestrian improvements are of medium cost, involving some sidewalk construction as well as crosswalk striping. The Renaissance Zone improvements are more limited in geographic area, and the bike rack improvements involve simple purchasing agreements, and thus these are rated low-cost.

Safety benefit is relatively straightforward. Broadway and the Seawall are both streets with heavy traffic volumes moving at relatively high speeds, and improvements there will benefit pedestrians by increasing their safety. This was rated higher than improvements that affect convenience or accessibility.

Finally, relative demand measures the number of persons likely to use or benefit from each improvement. The Federal Highway Administration (FHWA) prescribes methodologies that are based on population density, location of destinations such as schools, offices, and transit stops, improvement over existing conditions, and travel demand modeling. The full detail of the FHWA methodology used is located in Appendix J. Note that bicyclist-related improvements were not analyzed in the same manner as pedestrian improvements. The three bicyclist improvements proposed (the bikeway plan, bike racks on buses, and bike racks at businesses) were assigned a relative demand based on subjective judgment.

These four criteria are summed, and the resulting number multiplied by the number of votes each improvement received from the public.



## **Appendix G** **Final Public Meeting—September 2006**

### **Public Input Workshop — September 2006**

In 2004, the Houston-Galveston Area Council (H-GAC) conducted a study to identify districts where there were high levels of existing or potential pedestrian and bicyclist activity, and where there were significant opportunities to replace vehicle trips with pedestrian or bicycle trips and improve pedestrian and bicyclist safety. Fifteen districts were identified throughout the region, including two in central Galveston.

H-GAC selected consultant Lockwood, Andrews & Newnam, Inc. (LAN), in association with sub-consultants Nelson\Nygaard Consulting Associates and The Lentz Group, to develop a conceptual master plan for comprehensive pedestrian and bicyclist improvements on Galveston Island. The consultant team is working closely with the Galveston community to define the best possible overall plan that fits the needs of the community's residents, businesses, and visitors.

Using input gathered from public workshops held in May and June 2006, the City of Galveston and Houston-Galveston Area Council (H-GAC) developed a list of potential projects to improve and enhance pedestrian and bicyclist safety and mobility. At a public workshop in August, the proposed projects were presented for discussion and comment, and the public was encouraged to vote for the five (5) projects they felt would be the most beneficial to the area. Voting was also available on the project web site, [www.walkbikegalveston.org](http://www.walkbikegalveston.org), from August 12 to September 4, 2006.

The purpose of the workshop held on **September 20, 2006** at the **Rosenberg Library Wortham Auditorium** was to present the final recommended plan and encourage and solicit public input on the proposed plan.

### **Workshop Notification**

Meeting notice postcards and e-mail reminders were sent to area businesses, schools, churches, social service organizations, neighborhood and community associations, bicycle and disabled persons advocacy groups, and government and agency representatives.

Notices were posted on Island Transit buses and trolleys, the City's municipal channel and web site, GISD's TV channel, and at area businesses, universities, Rosenberg Library, and community centers. Information about the workshop was publicized in *The Galveston County Daily News*.

### **Attendance**

A total of 29 people attended the workshop, including representatives from the City of Galveston, Island Transportation Committee, Texas Department of Transportation, University of Texas Medical Branch at Galveston and Texas A&M University at Galveston.

### **Workshop Format**

Dan Raine, AICP, Pedestrian-Bicycle Coordinator with H-GAC welcomed attendees and explained the purpose of the plan and gave a brief project recap, highlighting the input received at the three previous public workshops that produced the seventeen (17) proposed projects that are being recommended for the area.



The projects are:

Develop Bikeway Network
Bike Racks on Buses — (already in the process)
Bike Racks at Businesses/Destinations
Broadway Crossing Improvements — Group 1
Broadway Crossing Improvements — Group 2
Broadway Crossing Improvements — Group 3
Selected Renaissance Zone #1 Improvements: <i>Rosenberg Elementary</i>
Selected Renaissance Zone #2 Improvements: <i>San Jacinto Elementary</i>
Selected Renaissance Zone #3 Improvements: <i>Morgan Elementary</i>
Pedestrian Improvements near Menard Park ( <i>new transit center</i> )
Pedestrian Improvements between Downtown to UTMB ( <i>including Magnolia Homes</i> )
Pedestrian Improvements around Downtown
Pedestrian Improvements near San Jacinto Elementary and Gulf Breeze Homes
Pedestrian Improvements around Social Services Center
Pedestrian Improvements around Galveston College, Ball High, and Scott Elementary
Pedestrian Improvements on 45 <sup>th</sup> Street
Curb extensions on Seawall Boulevard

Mr. Raine announced that Galveston City Council has agreed to support and contribute the 20% of funding needed to construct the projects. The other 80% of funding will come from federal transportation funds that have been earmarked for these improvements. The total cost estimate for the 17 projects is approximately \$1.7 million — City of Galveston’s contribution would be approximately \$340,000.

David Manuel, EIT, AICP, Planning Manager with Lockwood, Andrews & Newnam, Inc. (LAN), discussed the project scoring matrix used to evaluate and prioritize the projects. He explained the criteria included safety, cost, access and number of votes received. Mr. Manuel also presented a board showing the preliminary cost estimates for each project. He explained the team will spend the next 12 months refining the plans and cost estimates for the projects to ready and speed them along toward implementation. Mr. Manuel commented on all of the exhibits and the project’s complete narrative report will be made available on the project web site.

Mr. Raine then opened up the floor for questions. Some of the topics discussed/comments included:

- **How long will it take to implement these projects?** — Over the next 12 months H-GAC and the consultant team will refine the projects and cost estimates to prepare



them for implementation. The projects must then go through a review process to assure they meet federal and state standards.

- **How can we keep up with the status of the projects?** — The team will be updating the web site with the most current information to keep the public informed.
- **Galveston is an old city. How are you able to put bike lanes on existing roadways?** Most streets in Galveston are 48 feet wide, which will allow enough room to reconfigure and add bike lanes. For East/West routes, we are utilizing streets with lower traffic volumes for added safety.
- **The City doesn't have the budget now, how will they be able to pay for these projects?** That is a question that must be answered by the City. They have voiced their support of these projects and have committed to pledge the 20% of funding needed to complete them.
- **Traffic would move much better if the signal lights were synchronized on Broadway and Seawall Boulevard.**
- **Putting a bikeway system in place does not guarantee safety for bicyclists. The public must be educated about pedestrian and bicyclist safety.** We will help spread awareness working with the City, Galveston ISD, the Galveston Daily News and major employers such as UTMB, among others.
- **Is there a time limit on the federal funds?** There is always a chance public projects could get tied up, but H-GAC is looking to set an example with this project on how a project of this nature can be kept on track.
- **Where is there an example of mixed traffic lanes?** I have never seen any. There are some in use in Houston.
- **What happened to the Pelican Island extension?** We recognize that route is much needed, but the size and scope is well outside our budgetary constraints. We will encourage TxDOT to pursue an option, maybe as part of the Bolivar Bridge project. As part of our plan, we do have a bike route down 51st that could connect with the Pelican Island causeway.
- **What parking restrictions are there on the Seawall?** There are early morning restrictions that allow for clean up that are mandated by the City. We are proposing to extend the restricted hours to allow for a safer commute for bicyclists along the Seawall.
- **Have you done any actual surveys of the project areas?** Yes, we did preliminary research and data collection prior to the first public meeting and have continued to gather and record data and public comments in order to develop the potential projects.
- **When will the first project begin?** The target is late 2007/early 2008 following the 12-month refinement process and governmental review.
- **I moved here from Tucson, Arizona, which has a fantastic bikeway plan. One suggestion that I would make is that, in addition to a public education program, good signage with flashing lights seems to work well as a warning to motorists of the presence of bicyclists.** Currently, we do not have plans for flashing lights. We have found that after a while people stop noticing the flashing lights. We have carefully planned bike route crossings on busy streets to occur at signalized intersections. Good signage is definitely part of the plan and we will help with a public awareness/education program.



- **How much were the consultants paid for this project?** The total fee was \$100,000, which was 100% paid by H-GAC. No City dollars were used.
- **You need to make sure you have enforcement for the restrictions that are necessary for this plan to work.**
- **Are you going to come back and take care of the West End?** The limits of our special districts project does not include the west side. However, H-GAC offers technical assistance to communities to explore opportunities and identify safety issues and potential improvements. If desired, the City of Galveston could make this request for H-GAC technical assistance to address specific issues on the West Side.

Before adjourning, Mr. Raine and Mr. Manuel thanked everyone for attending and encouraged them to keep checking the project web site for future updates and project status in the coming months.



**Photographs**





## **Appendix H** **Additional Public Comments**

Listed below are additional comments that were submitted through the project website. The initial public survey described in Appendix C asked for areas people avoid when walking or bicycling, and what would encourage people to walk or bike more than they do. It was also possible to submit general comments throughout the project duration.

### **Areas You Avoid While Walking or Bicycling**

- Loose dogs all over town
- North of Broadway
- Crossing Broadway is scary
- Ostermeyer Road, Ziegler Road, 10 Mile Road, Stewart Road between 8 Mile and 9 Mile
- DOGS! Dangerous curves
- Broadway - too many cars. North side of seawall blvd - too many businesses & traffic. Seawall sidewalk near East Beach - too much broken glass.
- Where I know there are dogs.
- I avoid riding my bike to get downtown, because of the traffic and there really are no bike lanes to get down there and I am just afraid with all the traffic. If there were more bike lanes I would definitely ride my bike more because it is great exercise and I would like to save money on gas.
- I bike along Seawall, but only on the beach (South) side of the street, so I don't have to cross traffic. Bikes should be able to continue moving as much as possible.
- Causeway; Seawall; Stewart Rd.; Harborside
- I wish my husband would not ride on Harborside between our home in fish village and the west side of UTMB...too scary but it's twice as far if he doesn't.
- I don't enjoy bicycling on Market between 11th and 14th because there are large cracks and bumps on the right-hand side of the lane where one can bike out of the way of cars. It is uncomfortable on a bike with no suspension
- My husband and I avoid the entire east end of the island because of the lack of bike lanes, and because we are worried that our bikes would be stolen off the UTMB campus. We do road rides on the weekends on the west end of the island, and occasionally the Seawall (sidewalk).
- All of Harborside, but would be nice to travel along to get to Pelican Island. Most of Broadway, as it has no bike lanes.
- Seawall during the tourist season. We need a bike lane marked off so pedestrians know to yield to bikers in that lane.
- West of 25th St. and north of Broadway. Unsafe.
- West of 61st Street---safety issues
- Riding a bike on FM 3005 or Stewart Road west of Seawall is a death sentence. A bike trail is desperately needed.



- 69th Street from Seawall to Stewart is busy and dangerous, Ave S from 53rd to 61st and crossing over to Stewart is very dangerous.
- Though we bike from 75th Street to either downtown or the 14th Street area on the weekends, we tend to avoid or carefully choose our route due to a loose dog problem on island. The problem exists virtually anywhere east of 61st Street, from the Seawall to Harborside Drive.
- Seawall on the weekends.
- Seawall during summer.
- 6th Street, anywhere riding on the sidewalk is not bike friendly. People have threatened to run me over because I didn't belong in the street. They require education as to the state laws regarding bicycles.
- 61st Street / Broadway/ Harborside Too much traffic. Not bike friendly.
- I avoid Broadway and Harborside because of the traffic and lack of pedestrian safety.
- High traffic areas; drivers are not biker friendly; streets with too many potholes
- Avenues P, Q, R, S, Stewart Rd., Jones Rd., 61st, 51st, 45th, 39th, 25th, 23rd, 21st, 19th, 14th, 6th, Ferry Rd., Harborside Dr., feeder to IH-45: too busy.
- Most areas of town—since the laws are such that you must ride with traffic, not facing the vehicles, I am limited to the seawall.
- Harborside, Port Industrial, Seawall east of 57th (only from Memorial Day – Labor Day), 61st St. (traffic)
- North of Broadway between 61st and 26th—you might get killed or worse, your bike stolen.
- 61st St – traffic; North of Broadway, east of 26th – crime
- Broadway, except to cross it.
- Broadway—DANGER, Sealy and Ball west of downtown—sketchy and dangerous.
- We do not bike The Seawall, the danger of dropoff, vehicles, walkers.
- 69th Street between Stewart and Seawall. A middle school student threw a rock and hit me in the face while I was riding my bicycle to work one morning.
- We do not walk/bike off Seawall Blvd. too many suspicious areas. We do not feel safe.
- Most of the time it is better to cross in the middle of 61st Street rather than crossing at intersections, because the people in cars do not respect pedestrians walking even if they have the walk light. One bad corner is at Seawall and 61st Street. I have had cars honk and yell at me to get out of their way even though I have the walk light to cross 61st Street.
- Trying to cross Broadway or any major intersection is life threatening. Cars are looking for other cars not bicyclists or trying to beat a light.
- 61st and Stewart intersection, Broadway, Seawall. All are extremely busy, and the drivers are either very inconsiderate or just don't pay attention to bicycles and pedestrians.
- I won't bike on beach after 9 am between 61st and 6th.
- I avoid 45th when going to beach with children.



- I avoid walking on streets where there are no sidewalks or where the sidewalks are not continuous.
- The business side of the seawall from 35th to 25th—too many homeless and prostitutes.
- 45th Street to the seawall doesn't have any sidewalks. It is dangerous due to heavy through traffic.
- 53rd St - busy street Ave O and Ave P - busy street Seawall - too many pedestrians
- 61st Street - avoid by using Road along Offats Bayou. Broadway - Too many stoplights and cross traffic. Avoid by using seawall and/or Avenue M (?).
- A lot of the east end in the historical area, there are no sidewalks or they are broken
- Areas w/ no sidewalk, poor lighting or visibility. We also try to avoid areas that look unkempt. Silk Stocking does not have sidewalks throughout (some parts do but they are in poor condition and dangerous for both walking and biking). I would walk or bike to the Strand more often if there sidewalks were consistent, safe, and well-lit and/or there was a designated path for pedestrians (including the always busy Broadway). Overall, safety is my number one concern and includes both safety with concern to vehicles and criminal activity.
- Avenue S, 45th St, Avenue O, Avenue P, Broadway. Too much traffic traveling too fast.
- I avoid riding bikes on the Seawall during weekends as it is too crowded with pedestrian, surrey, skating traffic. Need a bike lane.
- Broadway - due to traffic
- Broadway--too busy, too fast, dangerous even to cross on foot or bike
- Busier areas and areas that are not well lit / easy to travel.
- Crossing Broadway because the following traffic doesn't like bikes in the "go-straight" lane and if I pull off to the side, I block the right-turn lane.
- Daytime doesn't really matter, nighttime I stick to the historical district mostly, generally lit better.
- Down FM3005
- Harborside walking or bicycling, narrow; Broadway bicycling, crowded; O or P bicycling, crowded and narrow
- I avoid 61st and Stewart on bike or foot as often as possible because the lights take a very long time to change and most of the time I have to cross against the lights and traffic.
- I avoid bicycling the Seawall on the weekends during summer because pedestrian traffic makes the sidewalk so congested.
- Much of Broadway
- Only the bad parts of town.
- I generally avoid Broadway. Traffic is heavier and sidewalks vary from block to block. Other parts of the island its okay to ride a bit in the street - but Broadway no. Its partly why I have yet to bike to the Strand much which is often a shopping spot or eating spot for us.
- I only cross at the crosswalks when crossing the Seawall and even that is stressful



- I usually ride on the west end. Stewart Rd is difficult. When I ride east I tend to stay on the Seawall and avoid the side streets. Occasionally use 25th St or 45th St to cross the Island
- In general I try to stay on the bigger thoroughfares i.e. Ave O, Ave P, 25th, 27th, 23rd, 21st, Broadway and Seawall -
- Seawall Blvd. Too much traffic and pedestrians going in all directions.
- Seawall Boulevard/69th St. to Ferry Road during summers/pedestrians darting from between parked automobiles toward steps down to Gulf/people walking four and more abreast who get snotty if you ring a bell for them to break ranks. People sitting in chairs on Seawall sidewalk blocking bicycle riding.
- Stewart Rd and 69th St. Cars traveling fast around the corner
- Stewart Road. We live off Stewart and could walk to Oppe School, the baseball fields, the soccer fields, movie theater, and Schlitterbahn; but it is too dangerous. We have to drive a very short distance for safety.
- Stewart west of 69th. Too close to traffic
- We avoid both walking and bicycling on Church St. between 19th and 25th, doesn't feel safe and doesn't have any appeal. It is hard sometimes when we have older guest to take them for a walk on the East End district because of the sidewalks are very uneven.
- We avoid the area between Market and Harborside between 11th Street to downtown
- We would love to bicycle but feel fearful of the increased traffic around town. We have had encounters with less than friendly dogs and their owners who seem to feel that their animals have more rights than the citizens.
- West side of 69th, heading east from 69th on Stewart to shopping - only because sidewalks and crossing Stewart are awful.
- When biking, I specifically avoid the main busy roads- Broadway, Harborside, 61st St. - Primarily because of the high traffic volume, and lack of protected space for bikers. I also tend to avoid Seawall Blvd. when biking, unless it's early in the morning before there are too many cars parked on the side of the road. I NEVER actually ride on the Seawall because there are too many pedestrians not paying attention to where they are going. Also in the summer the outhouses are an accident waiting to happen because the doors just fly open in front of you without warning when someone comes out.
- Yes. Avenues O and P, too busy and with on street parking there is no room to get out of the way. I also avoid the streets that go through some of the more questionable neighborhoods
- I avoid Seawall on the weekends because of traffic.
- Area around UTMB - some of the streets don't have a sidewalk.
- Bike trails or lanes would help. If I need to walk, I usually walk down on the beach. To walk in summer, I would want shade. On the beach, one can get in the water to cool off. How about a covered walking path? Is that far-fetched? Probably.
- Broadway, Harborside Drive, 21st, 23rd, 25th, and 61st streets are busy and noisy; crossing the Seawall at any intersection with a bicycle or small children is difficult, the lights don't allow enough time. Taking a bike ride to the ferry and back is a challenge. Traffic on Ferry Road is deadly and the ferry employees are clueless about when the best time is to load people with bikes. That should be a pleasant ride but it's not. Once you're



across the ferry, pray that you can get to a side street before you get hit by an impatient driver gunning to get off the boat.

- Avoid dogs running loose.
- Stewart Road—Car traffic is heavy; no sidewalk or bike lane to ride in.
- North of Broadway when west of 25th — unsafe.
- Stewart Road, from Campeche Subdivision (around 99th St.) up until around Weiss Middle School, has no shoulder and there is often high grass along both sides, making walking and biking dangerous. Traffic on 99th St. has increased due to the Evia Subdivision, making walking and biking harder.
- Broadway.
- Avoid most of the Seawall for bicycling because of the risk of being hit or running into a door opening. Replacing parking on the seawall with bike path would be fantastic for Galveston.
- Seawall on busy weekends is bad for biking - too crowded.
- Difficult to cross Jones road by Moody Gardens when riding to GHRC or Schlitterbahn. Traffic fast at the curve -- THERE IS NO CROSSWALK FOR PEDISTRIANS OR BIKERS!
- McDonalds on the Seawall—People driving in and out of McDonalds do not pay attention to people on bikes. I’ve had a friend on a bike hit by a car there.
- Stewart Road due to the huge volume of traffic.
- My residence is in Campeche Cove. From a walking/biking standpoint, we are land-locked. No sane individual would venture onto Stewart Rd. on foot or by bike and mingle with the existing traffic.
- We have a hard time finding a safe route from our house near Fort Crocket to the Target and Home Depot shopping area. Crossing at 61st and 45 is very dangerous on foot or a bike.
- -Parking lots and strip malls -Dirty and unkempt streets -Boring and just plain ugly buildings and architecture, which offer nothing for those at street level (e.g. Bank of America and ANICO buildings)
- Stewart Road has no sidewalks.
- Broadway, to much traffic and no bike paths.
- The area around the Salvation Army and the public housing projects. They aren't safe. Also, we have very few sidewalks and have to walk in the street. I can't even walk in the easement by my house because of the dog dirt left by OTHER PEOPLE'S MANGY MUTTS. I avoid smokers and transients; they're all over.
- Stewart road west of ball fields....go east to Campeche then to Seawall...Stewart Road is a death trap
- Ave S, Broadway, causeway, Harborside — death or serious injury by auto
- Pelican Island Bridge and Smith Bridge with increasing traffic make biking too dangerous
- Ave S, Broadway, Teichman causeway, Pelican Island causeway, Harborside — sure death by auto sooner or later



- After dark, places near downtown and east end between 20th and 14th, plus at 23rd and Broadway, where people sleep near the curb or loiter
- Busy streets — Seawall in high season
- Broadway, some residential areas, Harborside, 61st Street, Strand east of 21st — traffic and it's not safe
- 14th St, 18th St, Harborside, Market past 14th St
- Broadway
- Dangerous neighborhood routes, Broadway; bus routes Ave O and P (one-way), 61st
- I avoid 61st St and Broadway, both for safety reasons. Unfortunately, since these main arteries are unusable, I am cut off from Galveston's businesses, services, and amenities.
- Broadway and 61st due to traffic, and 25th except early Saturday.

### **What Improvements Would Make You Walk or Bike More Often?**

- Safer paths to bike upon – cars and bikes should have their own lanes – then cars would not pass dangerously close to bikers.
- Sidewalks or bike lanes on Stewart!
- 3005 is very dangerous past “end of the world.” We ride on the beach to avoid traffic.
- No loose dogs! Catch loose dogs, fine the owners. Increase the cost of the fines so you can have more dog catchers on the streets.
- Any and all improvements would be great to make Galveston a more bike friendly community.
- Paths designed for bikes.
- Bike Lanes & signage to indicate bike vs. walk traffic. Seawall needs the most improvement - too dangerous with large amounts of tourists. Esp. having those car-bike vehicles people rent - they take up the entire sidewalk. Should be a sign or striping to indicate "walkers keep right" or something similar. More adequate lighting in residential areas. I cannot see without my bike light on 39th or 37th street.
- I don't think it would make any difference if I made a suggestion. The city always says they are listening - - - and then they ignore everything we say. Why should it be any different this time?
- We look forward to being able to ride our bikes safely to and from work and small shopping trips. Galveston is so small that using a car for everything seems senseless but drivers here run red lights and speed and it is scary to ride. We do it now but want to ride all the time. More room for us will make Galveston much better.
- If we had more bike lanes or bike trails to make it easier for bikers to get around without having to worry about the traffic, especially when it is summer time and there are a lot of tourists. At some points in time I have actually been scared because people zip around the Stewart road curve and it is difficult to cross the street to make it to seawall and other places.



- Bike lanes and right-of-ways. Again, these should be able to continue moving as much as possible. If I had to stop at every stoplight or battle cars to cross streets, I would not ride nearly as often.
- I would love to see bike lanes on the causeway. I would like to see the east end of the island (Cherry Hill area) cleaned up so I can ride out there w/o flatting. Also, I would like to see a shoulder put on Stewart Rd (near and west of Campeche).
- What Improvements Would Make You Walk or Bike More Often? (continued)
- Designated bike lanes, more bike racks, police officers who know the laws. I was told by one that bike riders must yield to cars at all times, even when car has red light and bike has green.
- Someplace at UTMB to air up tires. I've had to push my bike home with a flat tire many times.
- More bike racks! Cooler weather - there's not much that can be done about that. Safe bike lanes. Smoother roads (no potholes, large cracks, etc.)
- Bike Lanes!
- Fix the big potholes faster. Bike lanes and potentially concrete barriers. Charge for seawall parking to help fund some of this.
- A bicycle lane or path between Seawall and Harborside Drive at 4th Street. That's my path from home to work and that stretch is DANGEROUS to bike. I feel like I'm risking my life every time I do it. That one stretch keeps me from biking to work more often.
- Beautify Seawall promenade.
- Specific paths for bikes, motorized scooters, walkers
- Education of the public as to the treatment of bicycles on public rights of way according to state law. Prosecution of those who do not obey or threaten riders in any way. Make the parking lane on Seawall a bike lane and add bike lanes to public streets especially where they approach business districts and the university. Being bicycle friendly will encourage our personal and socially friendly behavior and attract large economically friendly sporting events. What a joy that would be.
- Bicycle lanes and paths especially if they're protected and if they are patrolled by police.
- The island does not have any bike lanes on streets nor does it have any bike or hike & bike trails. I would strongly like to see consideration for a hike-bike trail between the west end of the Seawall (or Moody Gardens area) and Galveston Island State Park.
- Seawall is great; only a couple of vehicle crossings/the Flagship light which could be improved and at least one loop from the Strand through the east end across Broadway and up to the Seawall should have a bike lane. The Broadway crossing should be Brick or cobblestone to make it stand out. The cross street (say 13th) should be made all 2 way stops so the bikes and cars moving towards the Seawall do not have to stop. The crossing at Seawall should also be brick. From the west end the loop should exit the Seawall and run to Moody Gardens once again with a bike lane. Getting the loop back to the Strand from Moody Gardens will require some real brainpower.
- Well-lit continuous jog/bike paths. Sky bridges across Seawall and Broadway to prevent crossing busy intersections.



- Paved bike trails or lanes along major arteries other than seawall. such as Harborside, 61st, 51st, 25th, Broadway, etc. “Rails to Trails”
- Do something about dogs!! Enforced leash laws! My wife, sister-in-law and myself have been attacked and bitten while on bikes.
- Educate the public on bicycle awareness.
- Safety lanes for bicyclists. Walk over bridges for pedestrians.
- More safe areas to lock your bike up.
- Bike racks on buses. Bike lanes. Shrubs and trees cut back around neighborhood stop signs. Pass a “no driving while on a cell phone” law – this is the #1 thing that will save lives for bikers, pedestrians, and drivers. Have a dedicated bike lane, if possible, on Seawall Blvd.
- I only walk or ride on the Island, unless I need to pick up large supplies.
- Designated bike paths.
- Better storm drains; safer traffic signals for crossing Broadway.
- More bike parking downtown. Better theft response – bike theft is crazy on East End! More designated bike space for commuting. Harborside Drive—seems like it would be good to get down to the west end but there are no shoulders.
- The pedestrian cross-walk signals seem to be non-functioning for the most part. Crossing Seawall at 14th Street takes 5 minutes for the signal to change once the button is pushed. The cross-walk signal at 61st and Stewart never will change to “walk”. On the other hand, the “cameras” at Seawall and 4th Street (Holiday) recognize a single bicyclist and change appropriately.
- Why not create a bike lane on Seawall and get the bikes off of the walks. It is not even fun anymore to walk on the Seawall because of the bikes flying down the walk. This way people could also use the bike lane to get to work.
- More awareness to the public, reminders that we have rights also. Bicycle lanes and signage reminding drivers of cyclists in the area.
- Why not create a bike lane on Seawall and get the bikes off of the walks. It is not even fun anymore to walk on the Seawall because of the bikes flying down the walk. This way people could also use the bike lane to get to work.
- Bike lanes, better quality and larger quantities of crosswalks, and more attentive, considerate motorists.
- I think we should eliminate parking on the beach between 61st and 6th and turn the parking lane into a pedestrian free biking lane all the time or periodically (from 6-9 am and from 4-6 pm)
- A CLEAN designated trail or path.
- Would like to see some streets (maybe only one or two) set up for bikes only, with cars having access only to parking.
- Although my wife and I are only island visitors 3-4 times a year, there seems to be a problem with walking from the Seawall to downtown via 25th Street. The sidewalks are incomplete and in very poor conditions in some areas. Rosenberg does seem to be traveled by a lot of local residents, so an up grade to this passage would be a great improvement.



- I live on Caduceus Place. Galveston NEEDS sidewalks for children's bikes and strollers. Would bike/stroll everyday if we had access to safe streets for children. Also, need sidewalk on 45th to safely walk to seawall. Great need for sidewalks so children can get exercise safely. I would walk my kids to Moody if I had sidewalks all the way there.
- Secure, made for walk/bike trails.
- A REAL sidewalk on the Pelican Island Bascule bridge would allow me to bike every day. With respect to the current situation, I have no desire to purchase a bicycle to travel to campus only to be precariously perched on the 18" sidewalk with the tip of my handle bar .5" from the railing and vehicle traffic going 45+ MPH only inches to my other side. If I could bike to classes, I would at a savings of about \$6 in gasoline each day (\$30 weekly, \$120 monthly, \$1440 annually).
- I'd like to see sidewalks on entire blocks. Currently, one house will have a sidewalks, the next will not, and so on. I'd also like to see more shade trees planted along sidewalks, especially in the downtown area.
- Add sidewalks and bike routes in the Denver Court Area. Add bike routes and sidewalks along 45th from Broadway to Seawall.
- Although it's not like to be feasible, I'd really like to see a park-and-ride lot on the far side of the new causeway and a walk/bike lane on the bridge. I'd gladly park my car and ride into Galveston to go to work, but I can't cross the bridge. I'd like to see more bike lanes between the various areas of Galveston (downtown, Moody Gardens, Strand, Seawall, etc.). I limit my recreational riding to the Seawall because I don't feel safe riding on a lot of the streets in town. I'd love to be able to bike to more areas of the city for shopping, entertainment, and relaxation.
- Better mass transit, i.e. better connections, less waiting. Who wants to take 2 hours to travel what you can drive in 10 minutes. Need bus shelters to protect from sun and rain. Could bike paths be put in the Broadway median without hurting the trees? More sidewalks where they aren't already and ramps at corners.
- Bike / pedestrian walk ways. Safety is my number one concern when walking or biking.
- Bike lane on 25th from Seawall to Strand area. Bike lane on Seawall to avoid foot traffic.
- Bike lanes are needed as well as bicycle friendly sidewalks everywhere.
- Completed sidewalk grid not blocked by cars. Designated bike lanes because many cars will always try to crowd out cyclists in the travel lanes.
- Dedicated bike/walk paths.
- Designated bike lanes SOMEWHERE on the Island. Preferably a stretch where there are no cross streets, no traffic lights, etc.
- I ride every day, rain or shine. However, keep the Seawall clear of dog droppings and broken glass.
- Designated walking and biking paths/lanes
- Enforce rules of the road; lay sidewalks; install street lamps
- Good sidewalks, crosswalks, BIKE LANES!!! I would walk or bike to my gym at least 3 times/week. I would also walk to the grocery store but don't because sidewalks and crossing Stewart are too hard. I would like to bike to work but traffic, crossings make it too inconvenient.



- Enforcement of our existing traffic laws. The speed limit appears to be 30 mph in many areas, but does not seem to be adhered to unless the synchronization of some signal lights force drivers to drive at the posted limit. Even slower than 30 mph would enable drivers to be watchful of those on bicycles. The enforced slowing of automobile/truck traffic would definitely encourage us to use our bikes and feel safer doing so. Hike and Bike paths would allow cyclists to ride safely. Designated paths linking the downtown/historical area to the central areas of town may encourage more bicycling around town. Animal Control would be a great support team member for this endeavor. People may listen to those who enforce our existing codes. We are hopeful that there will come a day when our town will become a community able to enjoy all aspects the beauty of living on a small island should afford its citizens.
- Having a safe sidewalk or bike path in this area which is flooded with kids. We could walk or bike daily!! And, save some gas and help the environment.
- I ride my bike to work at UTMB from 73rd Street several times a week. I have found that Heard's lane, Ave Q and the one way streets (Avenues O and P) are the best/easiest streets for me to take. Obviously bike lanes would be the best improvement, particularly on the busier roads. I would love to go riding out to the west end on Stewart Road for recreational purposes, but the lack of a shoulder or bike lane make it too dangerous at this point. Also, a simple improvement would be to sweep the streets more often to remove the glass -- I get at least 1 flat tire a month because I am forced to ride through broken glass on the roads. It is ridiculous!
- Bike Lanes!
- I used to ride the 12 miles from Spanish Grant to work but started to feel like a target for the part of it west of the Seawall, especially Stewart Rd where there is no shoulder and are at the mercy of the benevolence of the cars. Seawall is difficult but entertaining on crowded, summer weekends. I consider the area of your study--all the side streets difficult for a road bike due to road conditions, sidewalks, parking, etc.
- I would like to see a bike/walk lane down FM 3005.
- If I could walk or bike in safety without fear of being hit by a car or mugged. Well-defined and well-lit bike trails and footpaths. Possibly patrolled by law enforcement representatives on a regular basis.
- It would be great for the legion of Houston Bicycle riders to be able to get to Galveston by bicycle. Riding over the causeway was an experience before the construction.
- It would be nice to have some biking trails. I mostly ride on the Seawall now and when its busy with people I constantly have to stop for people taking up the sidewalk. I see a lot of people bike riding on the Seawall.
- More Bike Lanes. Places to Park Bikes. In general, compared to most places in the South, Galveston is a very bicycling friendly place already.
- More bike racks. Bicycle lanes. Better information on bicycle events.
- More sidewalks and ramps for the end of sidewalks for the disabled.
- My own time is my biggest constraint. Biking is a great way to get around the island and I love it. Bike lanes would help. Signs, or some other method to provide information and a heads up to drivers would be helpful. Kind of like the "be aware - children at play", "school crossing idea"...something like "caution - bike riders" concept. Also a public info campaign maybe on safety, rules of the road sharing the roads, etc. There are more and more riders -



families, individuals - recreational, and those using for transportation. We are going to have to co-exist and it would be good if we could build that foundation now.

- On intersections such as 61st and Stewart and 61st and Seawall (and other large intersections like them) there should be a time when traffic in all directions stops for a minute or two and pedestrians can walk across in any direction they need to.
- Sidewalks and paths are not always in good repair, well lit or available - many properties don't have esplanades. I would designate bike paths in these areas and work to make them safer to travel with better lighting and surfaces.
- Sidewalks missing or atrocious: large roots, broken pavement, "grass" sidewalks full of high weeds, making for very uneven surface for walking. Lack of code enforcement: cars constantly parked across sidewalks, forcing pedestrians into street. Bicycles: Possibly adding more bike racks in business district, Strand
- Sidewalks, designated walking paths, bike lanes Continuing education of drivers, bicyclist and walkers on rules of the road for all. Improved lighting
- Top 3: consistent, safe sidewalks and designated pedestrian paths in neighborhoods and commercial areas; highly visible and well-lit paths (this does not include tearing out more oleanders from the "Oleander City"); and working to ensure that both residents and tourists feel safe and are indeed safe to walk or bike around the Island.
- Walking lanes on the seawall and to and from the seawall
- Walking/biking trails along major streets
- We live in the East End District, so I'll talk about that area. 1. More even sidewalks on the East End District. 2. I'm afraid of bicycling because drivers do not share the road. 3. Facilities for parking bicycles in some places (i.e. downtown).
- Bike lanes
- When walking along my usual route, in many places I am forced to walk in the middle of the street due to overgrown shrubs and trees extending over the road at eye level.
- Would not ride in parts of town that are not considered safe. There are many of these in Galveston. Probably would not ride on Port Industrial or on the highway out to the west end although I might if there were bike trails that seemed safe.
- Lighting at night, specific lanes (away from opening car doors)
- More bike racks. They need to be something where it's easy to lock both the front wheel and the frame. Something that would only hold 4-5 bikes would be fine at most locations.
- Maybe some more "Share the Road" or "Galveston is Bike-Friendly" signs along major routes in/out of the island.
- Stricter laws for dogs to be on leash and stiffer fines. Example: First Offense \$100, Second Offense \$200, Third Offense \$400, Fourth Offense \$800 (Fines plus court costs)
- Would like to bike racks on the buses/gas trolley. More people would use the bikes and buses to get around town when needed. Would like to see some kind of safe bike or walking path in the middle of town from the beach to the strand areas. Not sure if the buses go on the Seawall or close to it but it would be a good idea for anyone riding and got tired the could use the bus with their bike to get back to where they started. Other states use the rack and are very easy to use buy the bikers and do not take any time to put them on the bus.



- BIKE LANES!!!! Not only bike lanes but well marked and maintained bike lanes, same goes for sidewalks. The City has an historic ordinance that sidewalks are the property owners' option, which was fine in the horse and buggy days. Now we have paved streets, storm drains, curbs, curb cuts and all kinds of impediments to a walkable, bikeable transition across intersections and property. There aren't any bike racks downtown. There aren't any bike racks in front of John Sealy Hospital - no doubt an effort to force patients and visitors alike to drive and pay the outrageous parking fees. The only grocery store that I know of that has bike racks is Arlan's at 25th Street. There are no bike racks on the Strand. For all the people that get around town with a bike or some type of wheeled contraption, this is a very unfriendly city for bike riders. Ironically the island is perfect for biking because it's flat. City leaders and managers are more than happy to have you do it for them.
- Curb cuts at alleys — the ones at the corners don't help when there is a drop-off at the alley. If sidewalks were continuous along Broadway and 25th from Seawall to the Strand, it would help for riding bikes or handicap scooters.
- A bike/walk path along Stewart Road, west of around 75th St., and also on 99th St. to serve the new Evia Subdivision.
- We need sidewalks. there is a lot of bike and pedestrian traffic on 45th Street to the Seawall which is in the street. This is a major artery and needs sidewalks to make it safer for children and others going to the Seawall.
- Galveston needs a paved bike-only lane that runs east/west from at least 63rd St to UTMB. One or two north/south lanes would be welcome as well. I know that's a tall order, but to me the Bike Route signs are pretty useless. Drivers who respect cyclists don't need them, and the others will ignore them. Should probably devise an optimum routes map for cyclists rather than put up more ugly signs.
- If we had bikepaths leading to the movie theatre, along Stewart road, to the Seawall, the soccer fields and downtown we would ride our bicycles to these venues. It is currently too unsafe to have kids (and adults) riding their bicycles along Stewart Road to access these venues
- If drivers were more considerate it would make it a lot easier. More sidewalks and crosswalks would be nice.
- Would bike much more often if there were bike paths. For example, the nature reserve in LeFette Cove is wonderful.
- Seawall too narrow and busy at times for both pedestrians to walk and bikers to bike on sidewalks. A bike lane would be great. Mile markers along the sidewalks on Seawall would be helpful too. More public bike racks would be nice -- places to lock bikes.
- 61st Street, especially crossing Offatts Bayou, could stand some improvement.
- Thank you for taking time to research bike lanes in Galveston. We have great biking weather most of the year. I'd like to see more people riding instead of driving. The stretch of Stewart Rd between 83rd and Cove View Blvd. is very dangerous for bikers. Many children live in Campeche Cove, off 99th Street or in the apartments on Cove View Blvd. Riding bikes to Oppe or Weis [Schools] is not an option because of the dangerous road.
- Streets need to be marked for bicycles and the side walks in Galveston are not at all consistent. One other thing is how unfriendly drivers are to bicyclists; some driver education is needed as well as bike safety.
- A bike lane and/or walking path paralleling Stewart Rd. between 81st and the Sandhill Crane soccer fields would be very attractive. This would facilitate bike and pedestrian



access to Seawall and other locales (eg. movie theater, soccer fields Oppe School, Moody Gardens and Schlitterbahn) for many residents.

- Sidewalks in all the east end, a shuttle bus to the seawall and no dog poop on the grass where I walk. I am under medical orders to walk and do what I can. The sidewalks which do exist are very uneven. Also, I have an artificial knee and the high curbs are very hard to get up & down, as I am short.
- More sidewalks and bike paths.
- A bike path on the seawall; currently there is none, forcing people that ride bikes to either ride on the sidewalk risking the danger of hitting a pedestrian, or riding on the street, risking being hit by a car or truck.
- Require more continuity with the sidewalks especially through residential areas: some sidewalks are ok, some don't exist, and some are frequently blocked by vehicles sticking out of driveways
- Bike lanes would be great, also police controlling speeding on 25th. We need places to get water. I have to stop at Harbour House or in yards to replenish water.
- Bike lane along Stewart road from ball fields to Galveston Island State Park
- Don't make Ave O and P two-way streets
- Pedestrian facilities inconsistent along Broadway
- In most places it's easier to walk in the street than on the sidewalk
- There are gaps and obstructions in sidewalks — some private owners build sidewalks, others do not; it is the owners' responsibility
- Historical sidewalks that cannot be removed are not a problem
- There is a lack of continuous sidewalks
- Sometimes on Ave O, sidewalks pass through driveways and cars often block the sidewalk
- Can kids really be ticketed for walking in the street?
- Ave O and Ave P are the only streets in Galveston that are well timed — if you go the speed limit, they are clear shots
- Put bike route on esplanade on Broadway.
- Interconnected sidewalks with ramps or routes that must be continuous — like Dickinson
- Remove "caution drip off" signs on Seawall — they are more dangerous than the drop off esplanade at night
- Wheelchair ramp at 25th and Seawall is dangerous (Flagship Hotel)
- Some lights do not activate for bikes.
- Neighborhood east and west routes are lost west of 61 Street — bikes must take Stewart, Seawall Blvd. and Heards Lane only. Avenue S is most dangerous all the way out to soccer fields.
- Avenues O and P are dangerous
- Many dangerous storm drain covers in streets



- Street poles and light boxes clog many sidewalks — block bike access
- Use alley between Avenues O and P for bike path
- Bike path needed along Avenue S to west end
- “Chuck” duct at 51st and Harborside is dangerous
- Seawall is dangerous to pedestrians from bikes, but no way am I going to ride on the Blvd.
- Galveston is a tourist destination for cyclist already, but continue to promote as a cyclist destination
- McDonalds at Seawall is dangerous
- I would “bike” more to downtown if they had specific lanes. I live in the east end (16th and Market) and walk to “restaurants” that are in “walking” distances — but some of the shopping is further away and would be more approachable by bicycles.
- A lot of condos are being developed in the downtown area and they have signage and lanes throughout. I think the people living in town would utilize those lanes.
- Curb cuts on sidewalks and in alleys
- Lanes on major streets devoid of autos — sidewalks!!!
- More and better sidewalks and better yet (and less expensive), designated (Market) public bike lanes and routes that would follow a basic grid of major routes, heavily trafficked by vehicles and bicyclists/pedestrians
- A realistic network of primary functional routes that cover the length and width of the island, utilizing primary main arteries, which are already used (Broadway, Seawall, Market, 45th, 39th, 25th, 8th and University Blvd) with cross sections (Seawall Blvd. to Broadway and Broadway to Market) at 61st St or any combination of these.
- Designated cycling lanes, ramps, wider sidewalks and continuous sidewalks.
- Remove signs in sidewalks (Broadway) Seawall
- Bicycle parking at restaurants and stores and grocery stores.
- Access to TAMUG
- Fix broken sidewalks and potholes
- Pedestrian walk sign comes on and so in a care makes a right turn into path of people crossing.
- Bike lanes on main streets, like 61st, Broadway, Seawall, and Stewart.
- Crosswalks at intersections of these roads, and across medians where they exit.
- Streamlined transit routes with bike accessibility.
- Bike racks on Seawall and downtown, near major business districts.
- Billboards on way to Galveston encouraging cycling and stressing driver awareness/safety.
- Established routes and continuity and safety
- Bike paths and more sidewalks



- Better lighting between 14th Street (between Broadway and the Strand) and 25th Street (like the Strand had done!)
- Better drainage to make driveways and entrances to business and school parking lots passable by foot (Galveston College at Ave. Q)
- I really do enjoy walking and riding my bike, but the Seawall is dangerous with all the little pole pieces sticking out and the potholes and cracks. Stewart Road has no access for pedestrians or bicyclists. And traffic is too fast for most of us. Thank you.

### **General Comments (Not from Survey)**

- I just added a link to your site on our web site! Keep us informed of your progress, and maybe we will do a whole page on your efforts!  
<http://www.therealgalveston.com/Links.html>
- Thank you for striving to make Galveston a better city for bikes and pedestrians! We fled Tucson because it was so dangerous to walk and bike there. We hope to relocate to your city in the next month or two, and one of the reasons for this move is that Galveston seems such a nice place for us to get around on foot and bike already. Bike lanes would be nice, more visible crosswalks, and public awareness campaigns to educate drivers about pedestrian and bike rules. Thanks again.
- This is more of a general cycling issue in Galveston and thus inseparable from the plan. Include signage informing cyclists of basic rules of the road, such as riding with traffic instead of against it and not riding the wrong way on one way streets. I'm a bike commuter and I can't tell you the number of times I've almost collided with cyclists who apparently don't know the rules of the road. Thanks.
- I have lived here two years and I frequently ride my bike along the seawall for recreational purposes. The main problem would be you cannot ride on one side of the seawall since there are trash cans on one side and signs on the other. It is very dangerous to maneuver between 14th - 61st due to the large amount of pedestrians - There should be a designated bike vs. walk lane. I have added a bell & flashing light to my bike, yet people still do not yield. I've nearly hit many children and dogs on long leashes. There is no where else in Galveston to safely ride my bike for long distances.
- I live in Bayou Vista and it would be great if they had a bicycle lane for the new causeway. Do you know if they are planning for that?
- I would love to ride my bike to work but I live off the island. It would be nice if Galveston had a bike route to UTMB that also had a parking lot for off island commuters. Is this something that could be considered? It would even be better if it was free parking...
- I think that Galveston will benefit greatly from this project, however I am a little disappointed that the west end of the island has been neglected in the planning. If 3005 or Old Stewart Road had a bike/walking path running alongside it, then pleasure riding around the west end would be much safer and more pleasurable than it is now. As it is pedestrians and bikers on the west end of the island are in grave danger of traffic accidents due to the lack of infrastructure.
- Bike path on FM 3005 west of seawall.
- My husband & I walk on the Seawall in the evening and it would be safer if there was a lane for bicyclists and the rental "multi-passenger 4-wheelers" to ride in. Currently we're all on the southern sidewalk with them hollering upon approaching walkers from the back...barring all else, horns on the cycles would be helpful, but the best thing would be a separate lane for them. Also, a hazard exists on the sidewalk for bicyclists—the uneven



pavement where the seawall itself ends and the sidewalk begins. In some places the wall is an inch, more or less, below the walk.

- What would happen with the parking lane along the seawall in this plan? From what I read in the Galveston Daily News a while back, it would no longer be available? The parking lane on the south side of the seawall is beach access parking.
- Here is the reason for low turnout. People ask for ideas - only so they can say they asked for ideas. No one really listens. And then they go and do what THEY want, NOT what WE asked for. They waste money. What they do takes years to complete and is never what the citizens wanted. This is more of the same. So why should we show up?
- I walk the Seawall a lot and have had a number of close calls with bike riders on the walkway going 20 to 25 miles an hour weaving in and out of people walking. Sometimes even motor bikes do this. It would be nice to get the bikes off the walkway and on to the street where they belong.
- Just wanted to say I'm very excited about this effort. I had to be out of town this week so I couldn't attend a meeting. I love biking on the island and I find myself choosing my bike over my car more and more. It seems that many others are doing the same. It's always better to be ahead of the curve than to address things after a problem comes up. Frankly I don't have any great ideas - except for some bike lanes on busier roads and some public info campaign to increase awareness of the number of bikers and how we can safely use the roads together.
- Many of us walk or ride bikes as a pleasant means of going about our daily business. Rather than create artificial bike routes, etc. it would be nice to see "the basics" improved for all: decent level sidewalks, covers over sewer holes, potholes repaired, trees trimmed from around stop signs, and longer light times on Broadway which would allow bikes and pedestrians time to cross. Also codes enforced requiring people to keep vehicles off the sidewalks.
- Anyone attempting to work as a consultant for the City of Galveston, its elected and appointed officials, has my heartfelt sympathy. Seventy years ago I was born on this Island. Lived most of my adult life on the east coast and then came back here. It was by choice I returned since I love the place with all its sins of omission and commission. Having lived elsewhere enhances my appreciation of Galveston's talent for shooting itself in the foot. This has been going on since at least the 1800s (lore handed down in my family lends substantial support to my theory) and I can testify to the talent as exhibited since 1936. Good luck and I hope you can manage to get us a decent bike lane somewhere on the Island.
- We just spent 2 weeks in the Snowmass/Aspen area of Colorado and they have a fantastic layout of biking and walking trails.
- I am a pedestrian because I do not drive a vehicle. One of my peeves is that Galveston motorists have no respect for pedestrian rules of the road. I often have to dodge cars who turn right on red even when I am clearly in the crosswalk. By the time I have waited for the cars to make their turn, the light has turned to red and now I am in violation of crossing against the light. I am aware that pedestrians too must respect the rules of the road and provide sufficient visual notice that we are stepping off of the curb, not jaywalk and in the downtown Strand area not keep walking across the street when it is the motorist's turn to move into the intersection. But PLEASE support pedestrian rights.
- I took the survey. Suggested safe bike and walk paths from the Seawall and Strand in the middle of town. Also bike racks on the buses, they are very easy to use and do not take any more time for a bike to get put on. Also more information on the paths now on the island



and the bus/gas trolleys routes. Not sure where a visitor would get a city bus schedule, might want to get this information to the hotels also.

- I would like to see a person with vision and energy appreciate the potential Galveston Island has for year round biking from San Luis Pass to the ship channel on the East end. Tourists, exercise, commuting, biking and nature trips. Box lunches delivered to the parks for biking groups, birding trips on bike, historic homes tours, commuting and so forth.
- I really do enjoy walking and riding my bike, but the seawall is dangerous with all the little pole pieces sticking out and the potholes and cracks. Stewart road has no access for pedestrians or bicyclists. And traffic is too fast for most of us. Thank you.
- Don't ride the bus because no bike racks.
- I am unfortunately not able to attend any of the meetings due to previous engagements. However, I filled out the survey and would like to add a few more comments.
- One quick improvement that would not be difficult to implement is clean the broken glass off the streets more frequently. This glass wreaks havoc on my bicycle tires-- causing flats at least once a month. I frequently find myself having to dart out from the shoulder of the road into traffic lanes to avoid glass-- which I find extremely annoying and dangerous. The roads I ride most frequently are Heards, Avenues O, P & Q, 19th street, Postoffice, and 14th street; This morning there was glass all along Heards and Ave Q (b/w 39th and 61st)and along Ave P and some parts of 19th st. It's ridiculous!!
- Also, I find riding along the Seawall a chore. If you're actually on the Seawall, you end up dodging pedestrians that aren't paying attention to where they are walking, children darting out of nowhere, and outhouse doors flying open in front of you!! If you decide to ride on the road, you run the risk of having a door from a parked car open in front of you. It is just to dangerous. The only times I will ride out there is early in the morning - and I usually will ride in the street. I have actually had pedestrians yell at me for riding a bike on the seawall - so a bike lane would be particularly useful here.
- Another road which I would love a bike lane is Stewart Road, heading out to the West End of the island. It is a great road for taking long rides, but the lack of sufficient shoulder space and narrow roads makes it very dangerous.
- In my ideal world I would like a bike route with low traffic volume and few stops. I find the one way streets (Aves O & P) to be pretty decent-- I can make it through 3-4 lights before getting stopped at a light. However, the traffic can be pretty heavy, particularly in the evenings on my way home from work. Parked cars line the roads most of the way, however, causing cars to have to maneuver into part of the other lane to drive past me. Unfortunately, I don't think much can be done to improve this situation, except to maybe restrict parking to one side of the road or the other.
- Thank you for all your hard work in Galveston a more pedestrian/bike friendly place. I moved here for 3 years now and the ignorance of a lot of drivers to pedestrian and bike laws was immediately apparent. My experience involves multiple instances of being cut-off in crosswalks and side streets (where no crosswalk is available) by cars who either do not see me or think that I see him and will (or should) allow him to continue. One particular instance involves a being cut-off early one morning while jogging south on 45th Street by a car turning right onto Sherman. Incidentally, within this car full of people was someone running for mayor at the time. He did not win. Another instance involves a pedestrian I stopped for on Harborside (the Galveston International Speedway). This medical student or doctor was waiting to cross between the Primary Care Pavilion and the rest of campus. I had just moved to Texas and still had my Washington State License plates on my car. In Seattle all traffic comes to an abrupt halt when someone is noticed waiting in a crosswalk



or corner to cross a street. Unaware of the customs in my new city, I stopped for her. She waved her hand and gave me an irritated look that said “Oh, just go!” so I said through my open window “I am waiting for you to cross, of course” to which she replied “You’re not supposed to do that. You could get rear-ended you know.” This thought had actually not occurred to me. “Sorry, I’m foreign” I said. Both of these instances illustrate one thing: education of the public to pedestrian and bike safety is extremely important. Here are a few suggestions: signs up at ALL crosswalks that say “Stop for me – it’s the law”; bilingual billboards all over the city saying the same thing; constant education of the public – articles in the media, “Pedestrian and Bicyclists Fair” sponsored by the police department; most importantly, enforcement of these laws by the police departments; a system by which a pedestrian or bicyclist can turn in the license plate number of someone who did not adhere to these laws resulting in the mailing of a letter and a pamphlet reminding Joe Citizen what the current pedestrian laws are. This incidentally is what happens in Seattle if you call the HERO line to report singly occupied vehicles driving in the HOV lane. Additionally, the number of dogs that are allowed to run free in the city is atrocious. I realize there must not be much funding in the "animal control" department - especially since they won't respond to animal calls after 5pm unless it is a violent dog- but something must be done. I see a lot of dogs running free in the early morning and evening hours on all days of the week. These are the times when one will be commuting on foot or on a bike. As important as a commuter's safety is, wouldn't this be a good time to also have animal control out there scanning the neighborhoods for dogs?

- I believe the school system should be responsible for the expense, or at least share in the expense, of any bicycle racks on school property. They should also be expected to maintain them.
- Involve the arts community in designing bike racks for downtown. See Louisville, KY bike racks, which are sculptures.
- Right now Boulder Colorado is in the media for unrelated things. I moved from Boulder back in 1996. One thing that really stands out for me in Boulder is the Bike Trails. Maybe the planning department can get some suggestions from Boulder Planning.
  - City of Boulder  
1777 Broadway  
Boulder, Colorado 80302  
(303) 441-3388  
[www.bouldercolorado.gov](http://www.bouldercolorado.gov) - go to search and hit bike trails and it brings up site that pertains to biking in Boulder.
- I live 15 minutes from UTMB - and currently drive. I don't find any safe paths to be able to ride to work on my bike. The entire city needs pot holes repaired. I live off of 43rd & O 1/2 - 43rd street is terrible when it comes to bumps, pot holes etc. It really should be repaired. I think there needs to be a separate bike trail on Seawall and Broadway. Also maybe a Pet park, exclusively for pets. Like in Houston and Colorado.
- If you need any help getting info from Boulder please don't hesitate to contact me. I used to work for the the planning department.
- Have you given any consideration to helping to make the downtown area handicap accessible? with the exception of The Strand, the streets are woefully inadequate, as witnessed by myself watching my brother having to roll his wheelchair down the street, having no access to the sidewalks.
- Bicycling around Galveston is one thing. But what about being able to get on the island by bicycle? Going down I-45 is not acceptable.



- I ride three to four thousand miles a year on the island, from Jamaica Beach to East Beach, primarily on the Seawall sidewalk, but also on the street on the weekends, year round. I have done this consistently for the past ten years, and off and on for thirty years before that. I also own property on 7th and beach and operated a business there for thirty years.
  - In my opinion, the city overall is a good place to bike ride. In the street you follow the rules of the road and there are no big problems. The newer streets that are narrow with not shoulder or park lane are the problem areas, i.e. Stewart, 61st, etc.
  - 3004 is also decent, with the four lane part and a small shoulder to each side. I ride there on weekends before noon. I avoid weekdays with the commercial vehicles going fast to the west end.
  - As I ride for exercise and fun, I pick and choose my times year round, avoiding the highest volume times.
  - The seawall sidewalk needs itself needs surface markings to indicate and suggest how to use the space. A center stripe perhaps, with icons showing walkers-bikers-runners-skate boarders and an arrow indicating the direction and encouraging users to stay to the right. Too many groups not familiar with the sidewalk activity walk in the center or all the way across. Most people dart across or well into the sidewalk space without even looking left or right. "Eyes Left" as they say in England.
  - This icon area should be done at all street crossings and near each stair way leading down to the beach, or at regular intervals from ferry road to the west end.
  - Jaywalking around the San Luis, Hilton, and Holiday Inn area is going from bad to worse, with families crossing the seawall all over the place, all times of the day. They need to be encouraged to use the street corner crossing areas, or perhaps add a ped.crossing area between the Holiday Inn and San Luis, with traffic lights.
  - Also on the seawall sidewalk, each traffic crossing area should be striped, perhaps with icons and road signs to warn motorists to yield to sidewalk users.
  - This needs to be done along the entire seawall blvd. area. All of us everyday users have had numerous near misses or actual hits over the years.
  - The comments of dangerous rusty poles on the west end of the seawall sidewalk, and numerous holes where the city or county had sign posts, and the broken glass, these comments are accurate. The beach park board does a good job of litter and trash can emptying, but no city group regularly cleans glass and other hazards off the sidewalk regularly. I know, for I swept the area around my business sidewalks for many years. Only Mother Nature regularly cleans the gutters and sidewalks.
  - The road traffic markings where Broadway meets the Seawall at 6th St. is really awful. Cars turn into the McDonalds parking lot unexpectedly and way too fast, crossing right in front of the stopped traffic at the signs on the Blvd. and crossing the sidewalk way too fast. All lanes from Broadway at this intersection should be allowed to turn left onto the Seawall Blvd. or go straight from the right lane only to Stewart Beach. The situation is very haphazard as it is marked right now. I can't believe TxDOT or the city allowed McDonalds to have an entrance to their parking lot from Broadway in that very dangerous manner.
  - Sorry to go on so long, these are some of my observations and pet peeves from many years of riding the seawall and the Island streets.
- Would love to ride my bike to work.
- I think there should have been more effort in allowing a protective bike lane over the causeway. There is a high increase in bike riders and the numbers are expected to continue



to rise. Having a protective bike lane would draw hundreds of bike riders and bike clubs to experience "biking over the causeway" Galveston would become a primer spot for Texas / national bike riders and bike rider tourism.

- It will help if sidewalks are linked so that they are fully connected and accessible to bicyclists and pedestrians. Ferry Rd, for example, has partial broken sidewalks that are not fully connected, so cycling on that main road can be a little dicey.
- I bike from Channelview to UTMB on Fri, Sat, Sun. (to at 0545 and from at 1930) Sidewalks are needed from McCoy's to the Old Weingarten's grocery store - Dollar General? My route to work utilizes Broadway. My return route is Seawall (Broadway is too busy with many people just milling about from Salvation Army until McDonalds), until Gaido's, then Ave. T. to the graveyard, then right. I usually ride one block off of main streets unless I am in an unsafe neighborhood.
- I think it is wonderful that something is finally being done, or at least talked about, to make Galveston safer for bicyclists and pedestrians.
- My husband and I use bikes or scooters as our only transport around Galveston and some of the things that we have noticed are:
  - Some drivers are absolutely oblivious to bicyclists. The rule seems to be "I'm bigger so I have the right of way." Public education would help on this matter, and if drivers were cited for infractions of the traffic laws against bicyclists it would send a clear message that bikes do have a place on Galveston streets.
  - I have seen many bicyclists peddling down the wrong side of the street, going the wrong direction. This is dangerous. Again, safety classes would solve this problem. I think many that are riding bikes just don't know the law. And if we as rides expect to be taken seriously, we must also follow the traffic rules, or be cited for not doing so.
  - I agree it is imperative that the buses install bike racks.
  - Unfortunately it is very difficult to get people to give up their cars, even to go short distances. Perhaps some sort of incentive program could be arranged.
  - Much of the roadway on Seawall Blvd. where bikes would be, and are ridden, are littered heavily with broken glass, apparently thrown out of vehicles. Again public awareness is the key. Folks in cars may feel that since they don't use that area of the road, it is a suitable receptacle for their empty bottles.
  - Just a few thoughts, and once again, I am very glad to at least see all this finally being discussed. The idea of rails to trails is wonderful. My husband and I have been traveling the US for the past several months in an RV and many towns and cities have implemented these rails to trails and they do bring tourists to the area. Also plainly marked bike lanes are needed.
- There is a wide right-of-way down Stewart Road west of 81st street that would be an ideal place for a walkway/bike trail. Stewart is narrow and dangerous and has no shoulder otherwise. A walking/bike trail would connect several neighborhoods and parks in that area. It would also serve as a tourist attraction if extended to the west end past Pirates Beach to 3005. An extension down 3005 would serve the biking community well.
- I live near the Seawall. Getting back and forth to the beach is a BIG problem. My idea is to close Seawall blvd. to car traffic. Until that happens, any improvement will be better than it is now.



- We live about 69th street, and would like to be able to bike at the west end. There are few sidewalks along Stewart Road, but 3005 would be a wonderful place for biking, if a blacktop path could be put in parallel to 3005. It is simply not safe for biking. Perhaps one of the county parks could be the anchor for parking and folks could take their bikes there.
- How about taking care of the west end? I would love to be able to ride my bike and for my kids to ride. However, both Stewart Rd. and FM 3005 are way too dangerous. I can't let my kids leave our neighborhood on their bikes. Why has the west end been completely left off? Doesn't our tax money count for anything?
- I support the bike-walk plan and believe the East End and Seawall should be a high priority. However, I believe it should be part of a larger plan such as a structured toll fee coming across the causeway to the island. I have lived on Pensacola Beach and they have used an "on-island" toll to pay for infrastructure. We could allow those who live on the island or operate a business on the island to obtain a free pass. Those who work on the island but do not live here would pay a nominal fee. Those just visiting would pay a higher fee. This would obviate the dreaded of seawall parking meters and generate a higher revenue than would be obtained by such meters.
- My only form of transportation is a bicycle and I am a student at A&M Galveston. I feel that biking the Pelican Island Bridge is very dangerous. I have had several near misses; motorists on bridge speed and stare at the water. I realize this would be an expensive project, but it is also one that needs to be implemented due to dangers to cyclists and to the pedestrians that fish around the bridge.
- Some of the reasons why we need to address the extent to which Galveston is pedestrian and bicycle friendly are:
  - We are a community and the more we encounter one another the stronger the ties that bind us together become. If we can agree that it is a good thing to get out and greet your neighbors, it can strengthen community.
  - We are blessed with fresh air and we want to keep it fresh. Walking and cycling can help to reduce the amount of automobile emissions we release into our fresh air.
  - We are more aware than ever of the need to conserve energy. The rising price of motor fuel, natural gas, and electricity draw our attention to this need. Walking or riding a bicycle or electric scooter to island destinations more often will help conserve energy.
  - We are more aware than ever of the need to take care of our health. The rising cost of healthcare and the fact that many who are poor do not have access to healthcare draw our attention to this need. Walking and riding bicycles can contribute to a healthy lifestyle.
  - We are conscious of the need to keep the level of criminal activity and truancy as low as possible. The rising number of people who are incarcerated and the high dropout rate in our schools draw our attention to this fact. Pedestrians and cyclists, equipped as most will be with mobile phones, can report possible criminal activity and truants immediately and more easily than motorists. When walking or cycling, we are able to be more observant. In addition, people who are where they are not supposed to be and doing things they are not supposed to be doing will be discouraged by the presence of a greater number of pedestrians and cyclists.
  - We are a tourist town. Tourists walk and cycle all over the island. If we are doing so as well, it provides us with another way to make every Galvestonian an ambassador, extending the island hospitality in ways that will make visitors want to come back because, "the people there are so friendly and helpful." Some of these visitors will eventually become our neighbors and we want them to know ahead of



time that showing hospitality to strangers is an important community value and one that is expected of our citizens.

- Listed below are several suggestions based on things that seem to be working in other cities where there is a high level of pedestrian and bicycle traffic. Many of these suggestions could be implemented right away at very little cost to the city. Some might be incorporated into a comprehensive strategic plan to be accomplished over a period of time. If the plan unfolds in the context of a community-wide movement to make Galveston a pedestrian and bicycle friendly city, the support of voters and taxpayers will come.
  - Several Streets were designed with wider-than-usual sidewalks. Avenue O and Avenue P are examples. The city could start with these two main arteries, which also serve as principal bus routes, and repair, replace, or install sections of sidewalk where it is incomplete. This would promote use of the sidewalk for longer distances by pedestrians. Cyclists should be discouraged from riding on the sidewalks. Although use of pavers and other attractive materials for sidewalks is nice, what people need most is clean concrete sidewalks that are in good repair. Attractive trash receptacles, benches, public art, fountains, and other amenities along the primary routes would also help. These could be included in a master plan and added over time as funds and public support became available.
  - Residents along some of our present walking routes already have some stunning gardens. More should be encouraged. Perhaps the local garden club could be involved and there could be contests for garden of the month, garden of the season, or garden of the year. Featuring these gardens in the Daily News would also help encourage everyone to improve their gardens, especially along walking routes.
  - Appropriate street lighting is necessary for pedestrians. Most of our street lighting is intended to benefit motorists. Getting light onto the pathway for pedestrians is highly important for their safety and their perception of their safety. Improvements to street lighting should be made along key pedestrian routes. Future installations around the city should take pedestrians into consideration as well as automobiles. In residential areas and historic districts, the lighting should be sufficiently bright to light the walkways but not garish and inconsistent with the character of the architectural environment. The Galveston Historical Foundation could provide valuable input to this part of the plan and campaign.
  - Galveston needs more green space for residents, especially in those areas where we are seeing high-density residential development, such as downtown. The city can consider city property, distressed property that could be bought at a low price, and donated property for development of green space. Leasing space in or adjacent to the green space for high quality, reasonably priced food and beverage concessions would help defray the cost of maintenance. Involve citizens in “friends of the park” groups to use, maintain, fund, and advocate for the long range future of the park. Equip our public parks and buildings with free WiFi.
  - Do something to get people who walk their dogs to clean up after them.
  - Is there an alley or abandoned right-of-way on either the north or south side of Broadway that can be paved, lighted, and landscaped to make it a useful corridor for pedestrian and bicycle traffic? At those points where the pedestrians or cyclists would have to cross north/south streets striping, flashing signals, and small signs in the middle of the roadway (similar to traffic cones) could be installed to slow traffic and caution motorists to watch for cross traffic. In some places, small flags are provided at crossings. The cyclist picks one up on one side or end of the path and deposits it at the other side or end. City ordinances requiring motorists to stop for pedestrians and cyclists may be necessary.
  - The final design for the Broadway Esplanade must include a pathway that is useable by both pedestrians and cyclists. It can be paved with crushed gravel, straight down the middle or winding down the middle, with landscape plantings on either side.



This would facilitate both pedestrian and bicycle use of the esplanade for at least 59 blocks from east to west.

- Designated bicycle lanes can be marked with paint on several north/south streets, spaced at regular intervals every ten blocks or so, and connecting Seawall Blvd., Broadway, and Harborside Drive. I noticed examples of this in Austin and Washington, D.C. recently on heavily traveled downtown streets. Some of our north/south streets might lend themselves better than others to this plan. A combination of street width, extent of on-street parking, signals, and stop signs would be necessary to make it work best for the safety of cyclists.
- Vehicular traffic needs to be calmed in high pedestrian and bicycle areas. This does not require the installation of speed bumps. Controlling the sense of a motorist having a “straightaway” or the careful timing of traffic signals in those places can contribute to calming the traffic.
- More bicycle racks are needed in our downtown area as well as around grocery stores and many businesses, hospitals, schools, places of worship, and restaurants. The more densely populated areas of our island especially will need this amenity. These entities can join the campaign by advertising the fact that they have bicycle racks. If there is some kind of slogan or graphic associated with the campaign to get Galveston walking and peddling, this would help the public begin to see how many places are joining in the effort.
- When a plan is announced, some kind of ongoing citywide campaign should be launched to promote walking and cycling. U.T.M.B. could help tout the benefits to our health and could actually provide some kind of incentives for its employees. Perhaps ANICO, Texas A&M, Galveston College, and numerous businesses could join the effort. Many businesses encourage or permit a day of less formal dress. “Walk or Bike to Work” days could also be encouraged, maybe in conjunction with the less formal dress days. Some companies have provided pedometers at little or no cost as a way of encouraging employees to walk a certain number of steps or miles per day for their health. Walkers Clubs and Bicycle Clubs could be formed or, if they already exist, asked to join the effort.
- Perspiration will be a deterrent on many warm days in Galveston. In light of our climate, it would be good to encourage wearing lighter clothing in warmer weather even in many business settings. Some employers already provide a place where those who walk or cycle to work may shower and change clothes.
- Somebody needs to have an all-out effort to educate cyclists about laws affecting them and the operation of their vehicle. The Galveston Police Department could take the lead in this aspect of the plan, providing bicycle safety programs for all school age children, then tapering off to elementary schools. They could also offer weekend bicycle safety training for people of all ages. If they make it fun and provide some kind of incentives people will come. In fact, this contact with the community could be very good for GPD. More GPD bicycle officers should be added to the force. Their example and their interaction with other cyclists will be a good thing.
- Cyclists and pedestrians need water. Most of us take our own along with us. Sometimes we forget or run out too soon. Some thought should be given to installation of water fountains or some kind of tastefully identified water source along primary walking/cycling routes. If water is dispensed in disposable containers, people should be encouraged to recycle them and receptacles for recycling should be highly visible.



## **Appendix I** **Air Quality Benefits**

### **Premise of Benefits**

Several of the project recommendations are to provide attractive and functional sidewalks in the areas in which they are most needed, namely where sidewalks do not exist, or where existing sidewalks have deteriorated and are in poor condition. This improvement in the pedestrian environment will make this travel mode more attractive. It will also increase the attractiveness of transit as a travel mode. Additionally, the recognition of bicycle travel through the network of marked lanes and signed routes, together with bicycle rack installation on buses and at visible locations near destinations, will make this travel mode more visible and more attractive. The net result anticipated is a modest decrease in automobile trips, vehicle miles traveled, and associated vehicle emissions.

### **Statement of Benefit**

#### **Key Data and Assumptions**

- 141,546 person-trips in Traffic Analysis Zones (see right)
- 1.31 average vehicle occupancy (person trips per vehicle trip)
- 0.9% reduction in vehicle trips due to projects
- 8.5 miles per vehicle trip
- local intrazonal vehicle type mix

#### **Results**

- VOC reduced: 4.133 kg/day
- NOx reduced: 8.514 kg/day

#### **Calculations**

There are very few studies on the effect of microscale pedestrian improvements on travel patterns. The "Making the Land Use, Transportation, Air Quality Connection" (LUTRAQ) demonstration project is one such study (1000 Friends of Oregon (1993). Making the Land Use Transportation Air Quality Connection -- The Pedestrian Environment -- Volume 4A. Available at: <http://ntl.bts.gov/DOCS/tped.html>) Special attention was given to the quality of the pedestrian environment as gauged by the Pedestrian Environment Factor (PEF), a composite measure of "pedestrian friendliness". The four variables included in the PEF are: ease of street crossings, sidewalk continuity, local street characteristics (grid vs. cul-de-sac) and topography. Each of these is given a score of 1-3, resulting in a maximum PEF score of 12. Most significant to this project was the finding that a higher PEF score for a zone was accompanied by a lower automobile mode share for that zone. A one-point increase in PEF was accompanied by a decrease in automobile mode share of 1.8 percent.

The sidewalk improvements proposed here will greatly increase sidewalk continuity along approximately 120 blocks of various neighborhood streets in the study area. Although PEF was not field-verified, this improvement is expected to increase the PEF score by 1 based on

<b>Table 1. TAZs included in Galveston study area</b>		
2535	2554	2570
2536	2555	2571
2537	2556	2572
2538	2557	2574
2539	2558	2575
2540	2559	2576
2541	2560	2578
2542	2561	2579
2543	2562	2580
2544	2563	2581
2545	2564	2584
2546	2565	2585
2547	2566	2586
2548	2567	2587
2549	2568	2588
2553	2569	2590



sidewalk continuity benefits. While the Portland study would suggest a 1.8 percent decrease in automobile mode share, H-GAC estimates a more conservative 0.9 percent decrease.

The number of automobile trips generated by these zones is estimated at 108,050 per day based on 141,546 person trips/day divided by the Galveston average vehicle occupancy of 1.31. The average vehicle trip distance of 8.5 miles is calculated using 2005 regional trip characteristics by trip type (e.g. home-based work) weighted by the distribution of work, non work and non-home trips modeled for the TAZs in the study area (See Tables 2 and 3 below). According to the 2000 census, work trip travel times for the region averaged 31 minutes, while in the City of Galveston the average was only 19 minutes, or 60.6% of the regional average. In order to calculate an average trip distance for Galveston, the regional trip distances were prorated by that same 60.6% figure, which assumes similar travel speeds. For example, the regional average trip distance for home-based work trips was 20.3 miles. Multiplying this figure by 60.6% yields 12.3 miles, as shown below.

Trip Purpose	2005 Galveston Avg Distance (mi)	Number of Trips in TAZs
Home-Based Work	12.3	34,202
Home-Based School	5.7	7,540
Home-Based Shopping	6.1	19,706
Home-Based Other	7.5	46,589
Non-Home-Based	7.9	28,863
Truck/Taxi Trips	7.9	4,646
<b>Weighted average</b>	<b>8.5</b>	<b>141,546</b>

Trip Purpose	2005 Galveston Avg Occupancy	Number of Trips in TAZs
Home-Based Work	1.13	34,202
Home-Based School	2.98	7,540
Home-Based Shopping	1.29	19,706
Home-Based Other	1.24	46,589
Non-Home-Based	1.21	28,863
Truck/Taxi Trips	-	4,646
<b>Weighted average</b>	<b>1.31</b>	<b>141,546</b>

Sources: Technical Memo RE: Houston-Galveston 1995 Household Travel Survey from David Pearson, Texas Transportation Institute to Jerry Bobo, H-GAC, December 20, 1996 and 2000 Person Trip Tables provided by H-GAC August 7, 2003. Home-based non work trips are assumed to be evenly distributed between school, shopping and other.

VMT reduced are calculated to be 8,266 per day based on multiplication of the average trip distance (8.5), number of vehicle trips in the zone (108,050) and the percentage of trips reduced by the project (0.9%).

$$8.5 \times 108,050 = 918,425$$

$$918,425 \times 0.009 = 8,266 \text{ mi/day}$$

Vehicle emissions are calculated by multiplying VMT by the weighted average emission rates by vehicle type (average emission rates by vehicle type multiplied by the fraction of such vehicles measured regionally on the Local (intrazonal) road type as shown in Table 4 below).

	LDGV	LDGT1	LDGT2	HdGV	LDDV	LDDT	HDDV	MC	All Vehicles
<b>Vehicle Type</b>									
<b>Local Roads</b>	59.0%	24.2%	7.2%	3.2%	0.2%	0.3%	5.9%	0.1%	<b>100.0%</b>
<b>Emissions</b>									
<b>VOC (g/mile)</b>	0.40	0.47	0.45	1.36	0.06	0.10	1.12	4.65	<b>0.50</b>
<b>NOx (g/mile)</b>	0.62	0.66	0.77	3.87	0.50	0.54	5.58	0.97	<b>1.03</b>

$$\text{VOC} = 8,266 \text{ mi/day} \times 0.5 \text{ g/mi} = 4,133 \text{ g/day} = 4.133 \text{ kg/day}$$

$$\text{NOx} = 8,266 \text{ mi/day} \times 1.03 \text{ g/mi} = 8,514 \text{ g/day} = 8.514 \text{ kg/day}$$



## **Appendix J** **Pedestrian Demand Analysis—FHWA Methodology**

### **Introduction**

Bicycle facility demand was projected through use of a demand estimator based on research summarized in National Highway Cooperative Research Program (NCHRP) Report 552: Guidelines for Analysis of Investments in Bicycle Facilities and implemented as an on-line “Costs-Demands-Benefits Analysis Tool” (see <http://www.bicyclinginfo.org/bikecost/>). The demand analysis included the following independent variables: residential density within 400, 400 to 800, and 800 to 1,600 meter bands of the facility; bicycle commute share in Galveston as of the 2000 Census; facility type (on-street bicycle lane with parking, on-street bicycle lane without parking; and off-street bicycle trail); facility length; and mid-year of facility construction.

Pedestrian facility demand was projected through use of the Pedestrian Potential Index and the Pedestrian Deficiency Index, both developed for the Portland, Oregon region. The demand analysis included the following independent variables: activity centers and locations; intersection density per acre; average parcel size; slope; number of households within .8 km of each activity center; employment within 0.8 km of each activity center; % zero vehicle households circa the 2000 US Census; walk to work commute share circa the 200 US Census; a sidewalk inventory (no sidewalk, sidewalk on one side, sidewalk on two sides); traffic speeds; traffic volumes; roadway widths; length of street segment; and pedestrian crash locations. Scores were assigned based on values of the independent variables. Pedestrian facility improvements in high volume pedestrian areas were weighted by applying a multiplier of 5 to the initial total score. The scoring consists of points according to street segment and factor. These are combined into two separate groups to comprise the Pedestrian Potential Index and the Deficiency Index. High- ranking projects would score well for both indices, so the priority projects for future funding would be projects that rank high for both indices.

<b>Unweighted Scores: Pedestrian Demand Analysis</b>								
<b>Project #</b>	<b>% Walk to Work</b>	<b>% Zero Vehicle Housing Units</b>	<b>Average Parcel Size</b>	<b>Activity Centers*</b>	<b>Heavy Pedestrian Area</b>	<b>Traffic Speed</b>	<b>Traffic Volume</b>	<b>Pedestrian Collisions</b>
4	2.3	4.4	1	2	0	3	1.4	4
5	4.1	4.3	2	5	0	3	1.7	1.8
6	3.5	4.4	2	4	0	3	1.2	5
7	4.5	3.9	2	2	0	4	5	5
8	4.8	3.7	2	4	1	4	4.5	4
9	3.3	3.9	2	3	1	4	5	5
10	3.3	3.8	2	2	0	3.7	4	1
11	2.3	4.9	1	3	0	4	5	5
12	5	5	1	5	1	4.2	4.6	2
13	5	4.5	2	4	1	4	5	5
14	2.5	3.1	1	3	0	3.5	2.5	5
15	2.5	3.1	2	3	1	4	5	5
16	3	2.5	2	2	0	4	4	5
17	3.4	3.3	1	2	0	2.5	2.3	4
<b>Relative Weight of Each Criterion</b>								
	<b>3</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>5</b>	<b>3</b>	<b>1</b>	<b>3</b>


**Weighted Scores: Pedestrian Demand Analysis**

Project #	% Walk to Work	% Zero Vehicle Housing Units	Average Parcel Size	Activity Centers*	Heavy Pedestrian Area	Traffic Speed	Traffic Volume	Pedestrian Collisions	TOTAL
4	6.9	8.8	1	2	0	9	1.4	12	41.1
5	12.3	8.6	2	5	0	9	1.7	5.4	44
6	10.5	8.8	2	4	0	9	1.2	15	50.5
7	13.5	7.8	2	2	0	12	5	15	57.3
8	14.4	7.4	2	4	5	12	4.5	12	61.3
9	9.9	7.8	2	3	5	12	5	15	59.7
10	9.9	7.6	2	2	0	11.1	4	3	39.6
11	6.9	9.8	1	3	0	12	5	15	52.7
12	15	10	1	5	5	12.6	4.6	6	59.2
13	15	9	2	4	5	12	5	15	67
14	7.5	6.2	1	3	0	10.5	2.5	15	45.7
15	7.5	6.2	2	3	5	12	5	15	55.7
16	9	5	2	2	0	12	4	15	49
17	10.2	6.6	1	2	0	7.5	2.3	12	41.6

**Sorted Scores and Ranking:**
**Pedestrian Demand Analysis**

Project #	Project	TOTAL	Ranking*
13	Pedestrian Improvements - San Jacinto Elementary and Gulf Breeze Homes	67	3
8	Selected Renaissance Zone #2 Improvements: San Jacinto Elementary	61.3	3
9	Selected Renaissance Zone #3 Improvements: Morgan Elementary	59.7	3
12	Pedestrian Improvements around Downtown	59.2	3
7	Selected Renaissance Zone #1 Improvements: Rosenberg Elementary	57.3	2
15	Pedestrian Improvements - Galveston College, Ball High, Scott Elementary	55.7	2
11	Pedestrian Improvements - Downtown to UTMB (including Magnolia Homes)	52.7	2
6	Broadway Crossing Improvements — Group 3	50.5	2
16	Pedestrian Improvements on 45th Street	49	2
14	Pedestrian Improvements around Social Services Center	45.7	1
5	Broadway Crossing Improvements — Group 2	44	1
17	Curb extensions on Seawall Boulevard	41.6	1
4	Broadway Crossing Improvements — Group 1	41.1	1
10	Pedestrian Improvements - Menard Park (new transit center)	39.6	1

\* 3=High  
2=Medium  
1=Low



The following two tables explain how the statistical criteria translated into scores.

<b>Demand Analysis Parameters</b>					
Score	% Walk to Work	% Zero Vehicle Housing Units	Average Parcel Size	Traffic Speed	Traffic Volume
1	0	0.00 - 0.04	7683 - 53201241	45 mph or greater	over 30000
2	0.01 - 0.03	0.05 - 0.11	5154 - 7682	40 mph	under 30000
3	0.04 - 0.06	0.12 - 0.20	4810- 5153	35 mph	under 20000
4	0.07 - 0.14	0.21 - 0.30	2626 4809	30 mph	under 10000
5	0.15 - 0.43	0.31 - 0.70	42 - 2625	25 mph or less	under 5000
Source	2000 Census	2000 Census	Galveston Parcel GIS files	Speed Limits	Traffic Volume GIS files
Notes	Block group directly adjacent to project; categories divided into quintiles	Block group directly adjacent to project; categories divided into quintiles	Average area of parcels within 1/3 mile of project; categories divided into quintiles	Values for intersection projects use the average of the speed limit category for the street and cross street. Projects along street segments use the speed limit of that segment.	

<b>Demand Analysis Parameters (continued)</b>		
Score	Pedestrian Collisions	Activity Centers*
1	More than one collision at intersection or along street segment	Zero
2	One collision at intersection or along street segment	1 to 3
3	More than one collision within 4 blocks of intersection or street segment	4 to 7
4	One collision within 4 blocks of intersection or street segment	7 to 10
5	No collisions within 4 blocks of intersection or street segment	more than 10
Source	Collision GIS files	# of Activity Centers within 1/3 mile
Notes	4 block designation only along cross streets (ie. If project location is at Broadway and 10th, this only includes collisions that took place on Broadway or 10th Street within 4 blocks.)	Includes civic buildings, transit centers, schools. Does not include business districts such as Downtown, Seawall Blvd, and Broadway. A category has been added to the weighted score matrix to account for these areas.