



City Mobility Planning

Houston

Inner West Loop Sub-Area Study



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Inner West Loop Sub-Area Study
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Prepared for:
City of Houston



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City Mobility Planning

Inner West Loop Sub-Area Study

Special thanks to:

all the residents and stakeholders within the study area that attended the meetings and provided feedback throughout the process.

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I. Introduction

In 2009 the City of Houston adopted the City Mobility Plan (CMP), which proposed a new process for developing mobility solutions. These solutions focus on capitalizing on current transportation infrastructure by emphasizing Multi-Modal mobility options and system improvements with a higher than average benefit-cost ratio. Historically, we have addressed increased traffic by simply expanding our streets or network capacity. This methodology simply isn't sustainable given limited funding sources, quality of life factors, and constraints on land development.

The City of Houston is taking the CMP process a step further by establishing sub-area analyses for several different locations in the City. The purpose is to determine the appropriate mobility solutions that are needed in the short and long-term. This analysis is looking specifically at the Inner West Loop area.

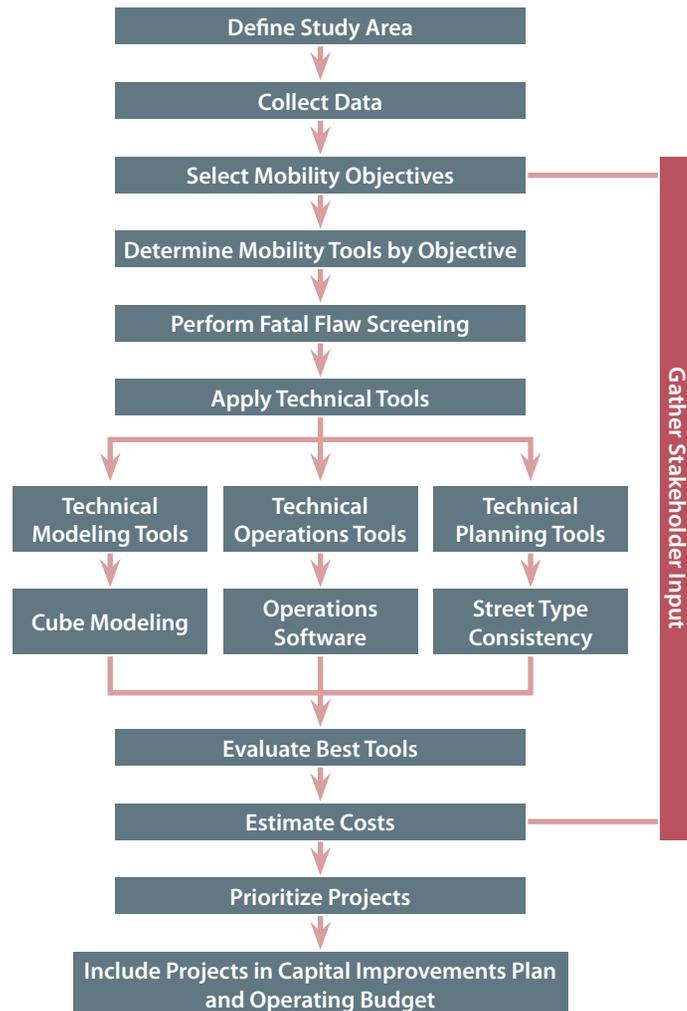
One of the largest challenges within the Study Area is the fact that the Right-of-Way (ROW) is significantly limited in many of the corridors. Several of the corridors will continue to see increased congestion within the next 25 years, and the limited ROW will preclude several corridors from increasing their through-put capacity by simply widening the street. As such, the City of Houston is taking a holistic approach to defining a vision for these corridors. All modes of travel will need to be accommodated in some form or fashion within the Inner West Loop, and by using the concepts defined within the Infrastructure Design Manual, Chapter 10, Appendix 2, the City is taking its first step in trying to create a Multi-Modal vision for the corridors within the Inner West Loop. The document that follows describes the process that was undertaken, the analysis that helped to form the basis of the recommendations, and a vision for the roadways that are currently designated within the Major Thoroughfare and Freeway Plan (MTFP).



Feedback was sought from various stakeholders throughout the planning process.

Major Study Area Topics:

- Limited Right-of-Way
- Limited Funding Sources
- Congestion - Traffic Growth
- Multi-Modal Connectivity



The flow chart on the left specifies the process that was undertaken to identify specific mobility projects within the Inner West Loop Study Area. The process goes from defining the Study Area to data collection; once those are complete the process moves to selecting mobility objectives and mobility tools; this is followed up by performing a fatal flaw screening of the selected objectives and tools. This is all done with input from the public and stakeholders throughout the process. Once the fatal flaw screening is complete; technical modeling tools, technical operations tools and technical planning tools will be utilized to develop a series of mobility options. These tools provide an opportunity to evaluate the mobility needs in the sub-area as well as provide additional analysis that can be used to prioritize preliminary intersection projects with respect to cost and benefit. The direct output from this process is a prioritized list of intersection improvement projects and vision of the major thoroughfares for the sub-area that can be integrated into the Capital Improvements Plan and operating budget.

The overall project development process does not stop once funding has been programmed, rather a new process for design and construction of the corridor improvements takes control of the specifics for each project. That information is beyond the scope of this planning study, however, guidelines are established later in this document that demonstrate appropriate points of stakeholder involvement in that design process.

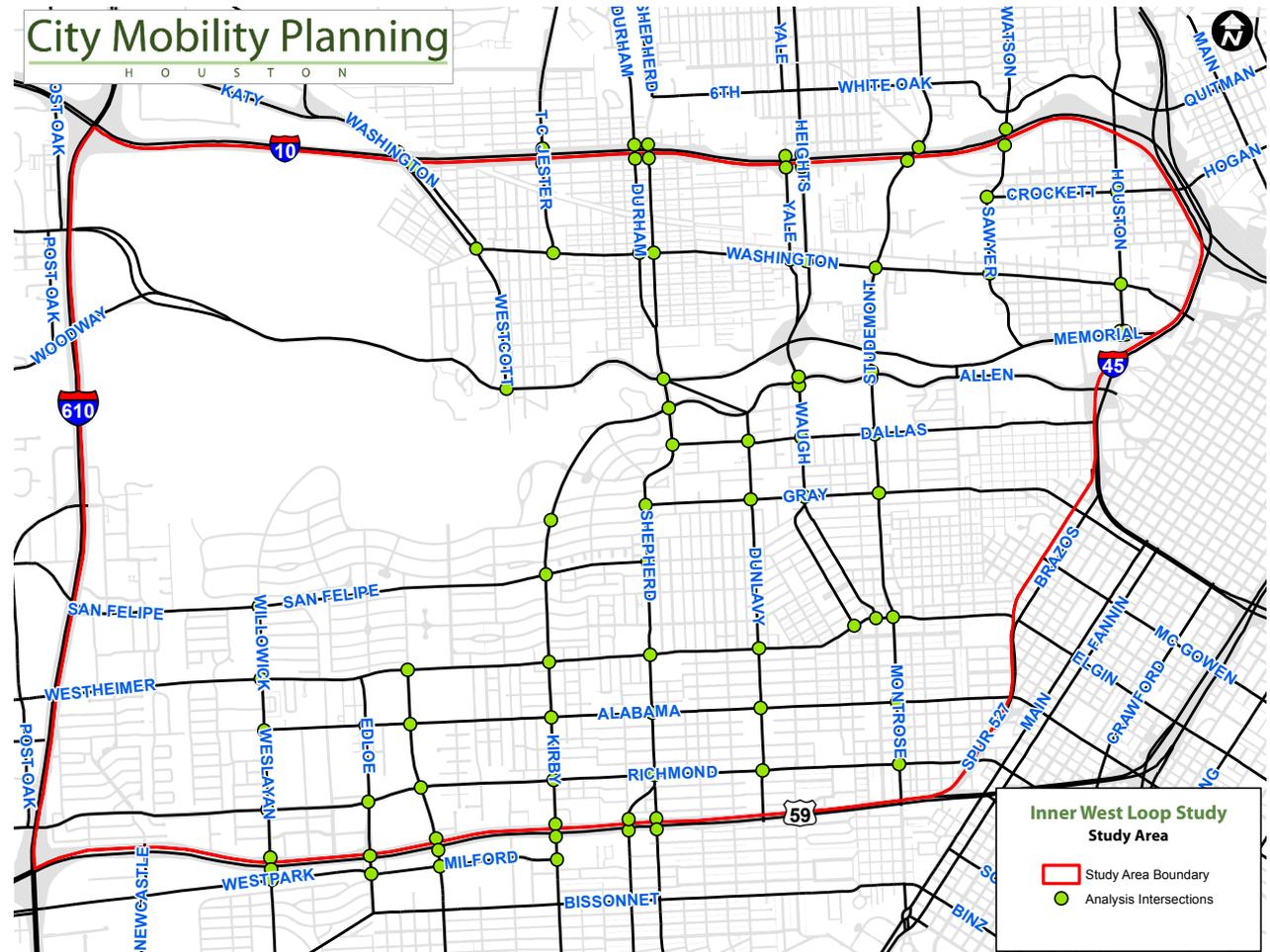
Study Area

The Inner West Loop Study Area has a substantially built-out street network system. The acquisition of additional ROW for the purpose of increasing capacity within the Study Area is possible however, may be cost prohibitive since there is a substantial amount of existing development. In that regard, it is important to evaluate the overall system network to improve efficiency while addressing the current and future needs.

The area of focus to analyze short and long-term mobility improvements is located west of downtown Houston. As represented in **Figure 1**, the Study Area is bounded on the east by Spur 527 and Bagby Street, on the west by Interstate Highway 610 (West Loop), on the north by Interstate Highway 10 (Katy Freeway), and on the south by U.S. Highway 59 (Southwest Freeway).

Certain projects that were examined through the study process brought to light improvements outside of the Study Area. This was done to ensure that logical connections could be made within the various transportation networks that exist within the City of Houston. The most notable type of project that would require a broader purview was the implementation of more frequent transit services along several of the corridors including: Richmond, Westheimer, Washington, Shepherd, and Montrose.

Figure 1 – Study Area Map





Study Area Objectives and Tools

There are a number of mobility objectives that resulted from the 2009 City Mobility Plan. Although not all of the objectives generated from the 2009 CMP will relate to the needs of the Inner West Loop Study Area, one of the first tasks of this planning process is to determine which ones relate here. **CMP Goals and Objectives** include:

- Increased access to transit facilities
- Increased access to pedestrian facilities
- Increased access to bicycle facilities
- Improve connectivity of the system
- Better accommodations the movement of freight
- Cost efficiency
- Minimize travel times
- Reliable commuting options
- Reduce increase in congestion
- Minimizing conflict points within the network
- Provide a safe and secure environment for pedestrians and bicyclists
- Neighborhood traffic
- Air quality conformity
- Ability to maintain infrastructure
- Maintain a system that is energy efficient
- Improve corridor aesthetics
- Expand pedestrian amenities
- Streets that are pedestrian scale
- Facilitate all modes of travel

During the outreach process undertaken as a component of the Inner West Loop Study, the following Goals were specifically mentioned several times by various stakeholder groups:

- Increased general mobility
- Increased safety
- Expanded Multi-Modal alternatives
- Improved access to amenities from the existing neighborhoods

By addressing the goals mentioned above, the choice regarding the appropriate tools for the Study Area becomes clearer. Not all mobility tools will be needed or appropriate to solve the mobility issues in the Inner West Loop Study Area and the list of relevant tools will be refined through the planning process.

The tools selected and utilized will be sorted into three separate categories:

- Technical Modeling Solutions – those that can be analyzed using the Regional Travel Demand Model,
- Technical Operations Solutions – those that can be analyzed using traffic analysis software such as SYNCHRO, and
- Technical Planning Solutions – those that are not represented well within either modeling platform whose results are often qualitative in nature.

The list of tools used in this analysis is selected from those displayed in **Figure 2**.

Figure 2 – City Mobility Planning Toolbox

City Mobility Planning

H O U S T O N



TOOLBOX

Motorized Tools

Non-Motorized Tools

Alternative Transport Tools



Traffic calming slows or reduces automobile traffic, improving safety for pedestrians and cyclists. Techniques include speed humps, textured paving, curb extensions, pedestrian crossing islands, traffic circles, and reduced turning radii.



Intersection design controls traffic movement where two or more streets cross. Improvements include left-turn bays, right-turn slip lanes, flared lanes to increase intersection capacity, reduced turning radii to increase intersection awareness, and protected bicycle turn spaces.



Signal timing is coordinating the sequence and timing of traffic signal phases. Signal timing can increase the efficiency of the street of by allowing for the greatest number of vehicles to cross the intersection in the shortest time.



Access management techniques help increase the mobility and safety of a particular corridor by consolidating driveways and controlling access to adjacent land uses by influencing access location, design, spacing and operation.



Medians are traffic islands installed to prevent or ensure certain turning movements at intersections. They also provide a separation between opposing traffic lanes of traffic. Medians eliminate cut-through traffic, change driving patterns, beautify streets with greenery and increase pedestrian safety for crossing streets.



Sidewalks are important to the pedestrian traveler. Wider sidewalks in commercial areas facilitate a mix of uses, and the addition of streetscaping can promote pedestrian use.



Bike Lanes are located on the edge of a street or between the travel lanes and parking lanes. Typically, they are 5-6 feet wide and allow cyclist to have a protected space on the street.



Streetscaping refers to the use of planted areas and other beautifying techniques along transit corridors that can attract pedestrians and make pedestrian and bicycle use more pleasant.



Pedestrian Crossings connect neighborhoods and can be at intersections or mid-block. Signal timing and pedestrian "islands" can improve safety for walkers.



Sharrows are special lane markings for roads too narrow to accommodate a separate bike lane. These markings alert drivers to the likelihood of encountering bicyclists.



Rapid Transit comes in two forms: Light Rail Transit (LRT) and Bus Rapid Transit (BRT). Bus Rapid Transit has the unique ability to function in either an exclusive right-of-way (ROW) or in mixed traffic, however, the most common application assumes an exclusive ROW for operational efficiency and safety.



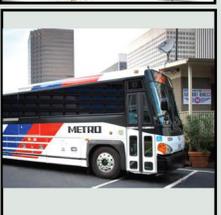
Commuter Rail service connects the large master planned communities around the region, the surrounding towns and even nearby cities with the urban core.



Road space rationing or reallocation reserves parking and other road uses for preferred modes such as carpools, vanpools, energy-efficient vehicles, and public transit vehicles.



Travel Demand management refers to a set of strategies to reduce the use of city roadways to decrease congestion and the infrastructural burden of intense use, especially by single-occupancy vehicles.



Park and Ride lots encourage transit usage for people who are not within walking distance of a transit station. These lots typically adjoin suburban bus and rail stations to reduce the number of cars in the urban core.

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II. Existing Conditions



The purpose of this plan is to develop mobility solutions that address the challenges facing people that live, work and travel through the Inner West Loop. To determine the mobility needs and solutions in this area it is important to first identify the current conditions and challenges that are present. Through this study, the mobility needs and challenges have been determined by using quantitative data through travel demand modeling and intersection analysis, together with qualitative data acquired through community feedback. This section will focus on the empirical or quantitative data surrounding the mobility issues in the Inner West Loop area, while the following chapter will provide a summary of the stakeholder and community input (qualitative data) provided through the planning process.



Major Thoroughfare and Freeway Plan

With regard to thoroughfares in the Study Area, the Inner West Loop Area consists of a number of Major Thoroughfares and Minor Collectors that bisect the sub-area. Buffalo Bayou and Memorial Park provide a divide in the area where only a few crossings are provided at Shepherd Drive, Waugh Drive, and Studemont Street/ Montrose Boulevard. It is important to note that these corridors are all within one mile of each other along Buffalo Bayou. This means, sections of the Study Area are without direct north/south connections between I-10 and US-59.

In the east/west direction, there are a number of thoroughfares that provide access within the area. Memorial Drive, Allen Parkway, and Washington Avenue provide important connections on the north side of the area, while Westheimer Road and Richmond Avenue provide connectivity on the south side of the area. These thoroughfares are extremely important for the area but have limited right-of-way that limits the tools that can be used to improve corridor capacity.

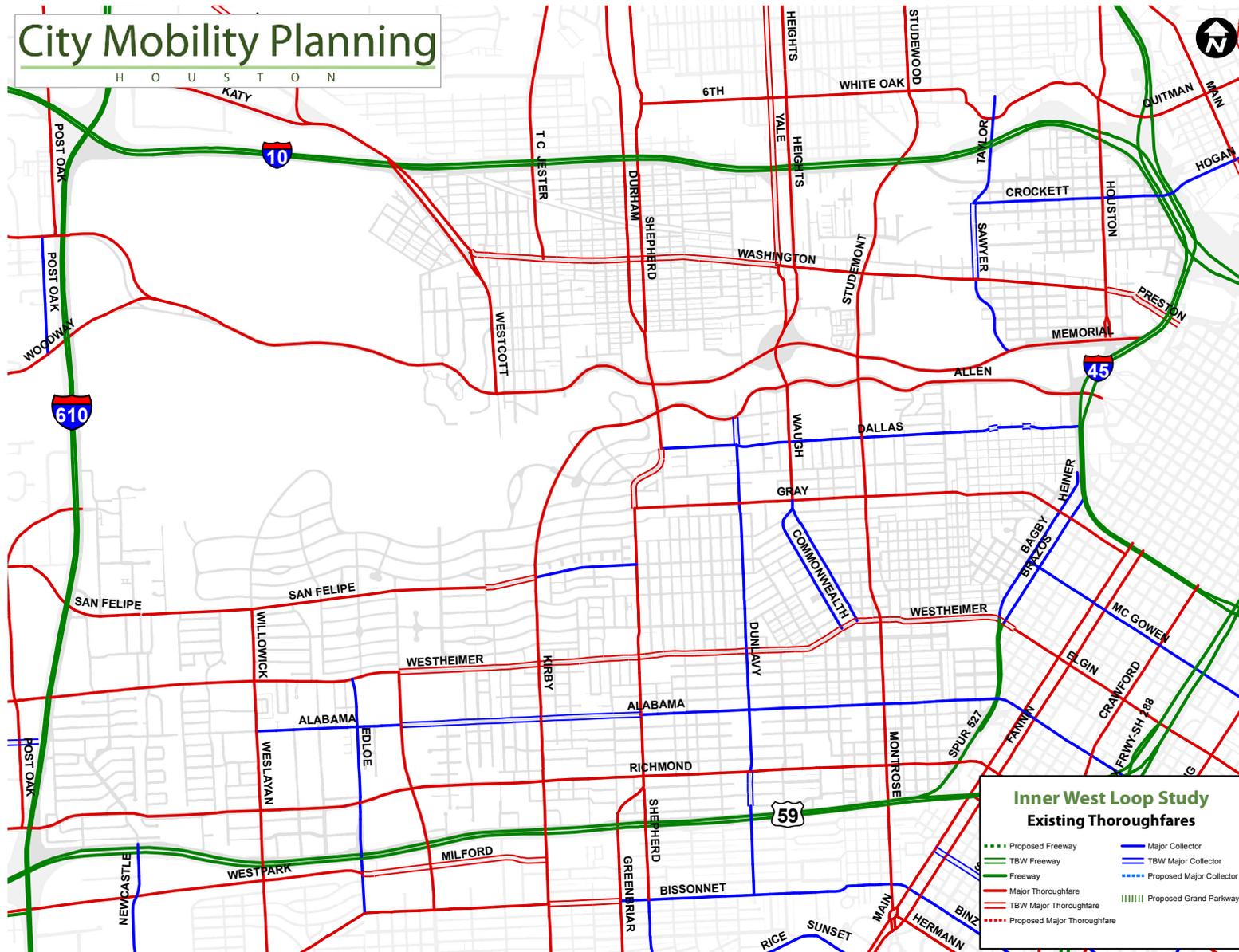
The City of Houston Thoroughfare Plan, as depicted in **Figure 3**, identifies the freeways, major thoroughfares and major collectors within the Inner West Loop Area that have sufficient width (solid line), need to be widened (double solid line), or need to be acquired (dashed). The majority of the thoroughfares in the area have sufficient widths, however a few roads require additional Right-of-Way including:

- **Westheimer** - **Washington** - **Alabama**

There are also a number of segments in the area requiring addition right-of-way including:

- **Yale** - **Dunlavy** - **San Felipe**
- **Sawyer** - **Shepherd** - **Dallas**

Figure 3 – City of Houston Thoroughfare Plan for the Inner West Loop Area



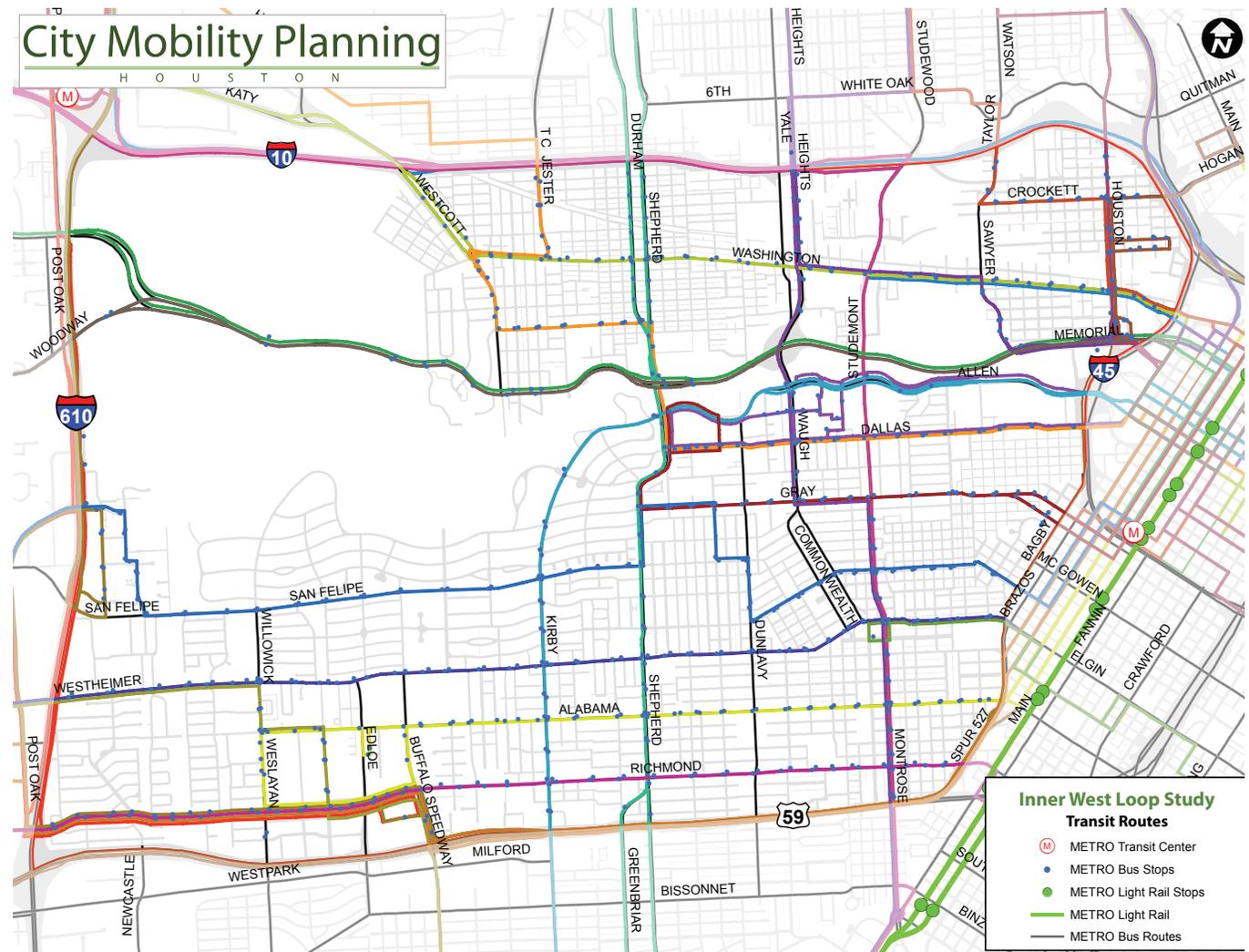
Existing Transit Routes

The Metropolitan Transit Authority of Harris County (METRO) is the transit service provider for the Houston Metropolitan area. There are currently 27 bus routes that have bus stops within the Study Area of the Inner West Loop Area (**Figure 4**). These transit routes provide local service that primarily provide access to Downtown Houston and the METRO Rail transit service. The core bus routes in the Study Area utilize the Richmond, Washington, and Westheimer corridors.

Additionally, METRO has begun the process of building out a light-rail system that will serve the City of Houston through various sub-areas. A key component of that system is the implementation of the University Line. The University Corridor extends along Richmond Avenue in the southeastern quadrant of the Study Area and providing logical transit, bicycle, and pedestrian connections to that route is essential to helping create a modal shift that will lessen the peak period traffic concerns discussed later in this document.

While the construction of the University Line has been delayed, it is still a crucial element in the overall transportation network concepts that are presented in latter sections of this Report.

Figure 4 – Existing Transit Service in Inner West Loop Area



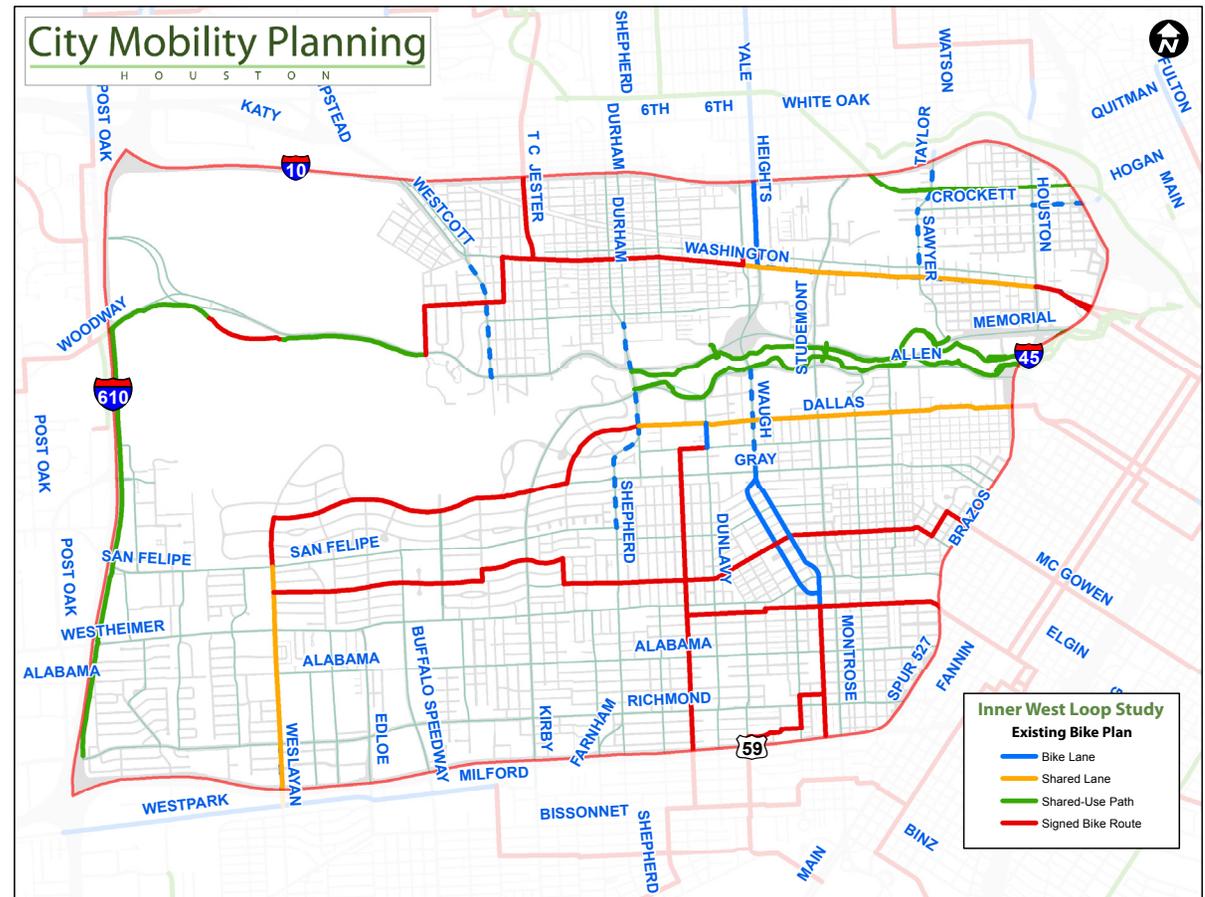
Bicycle Facilities

The Inner West Loop Study Area has a variety of different bicycle facility types that connect cyclists throughout the area. A number of bike lanes, both existing and proposed, connect throughout the area with an extensive network of existing shared use paths that run adjacent to Buffalo Bayou and Memorial Park. These trails are home to recreational users, as well as commuters, as it provides excellent access to Downtown Houston.

Together with bike lanes and shared paths, shared lanes are also present along Dallas Street, Washington Avenue, and Wesleyan Street. The on-street network will need to be expanded as the area continues to develop more multi-modal options, however, the current infrastructure provides a good sense of how and why people are using the facilities.

Most notable within the map at the right is the fact that there are significant gaps within the on-street network for large portions of the Study Area. While gaps are prevalent, cyclists continue to use the facilities, but there is not a clearly defined route for those cyclists that are less experienced or less comfortable.

Figure 5 – Planned Bikeways in the Inner West Loop Area



Existing Travel Conditions by Period of Day (Intersection Congestion)

With the majority of the thoroughfares built out in this Study Area and with limited right-of-way, improving congestion does not have a simple solution. Utilizing current traffic counts and SYNCHRO traffic analysis software, 87 intersections within the Study Area were analyzed including signalized, stop-controlled and roundabout intersections. This analysis broke out the intersections into two periods during the day: the morning peak period and the evening peak period. **Figures 6 and 7** shows the AM and PM level of service (LOS) at each intersection. Level of service is a measurement scale that gauges congestion on a grading similar to scholastic grading; A is a good rating with little or no congestion and F is poor rating with high levels of congestion.

The existing level of service indicates that a number of intersections have higher than desired levels of congestion. **Congested intersections include:**

- Allen Parkway at Waugh Drive
- Allen Parkway at Montrose Boulevard
- I-10 Access Road at Yale and Durham
- US 59 Access Road at Kirby and Greenbriar
- Shepherd Drive at Memorial Drive
- Shepherd Drive at Allen Parkway
- Shepherd Drive at Alabama Street
- Shepherd Drive at Richmond Avenue
- San Felipe Street at Kirby Drive
- Memorial Drive at Westcott Street

Figure 6 – AM Level of Service (LOS)

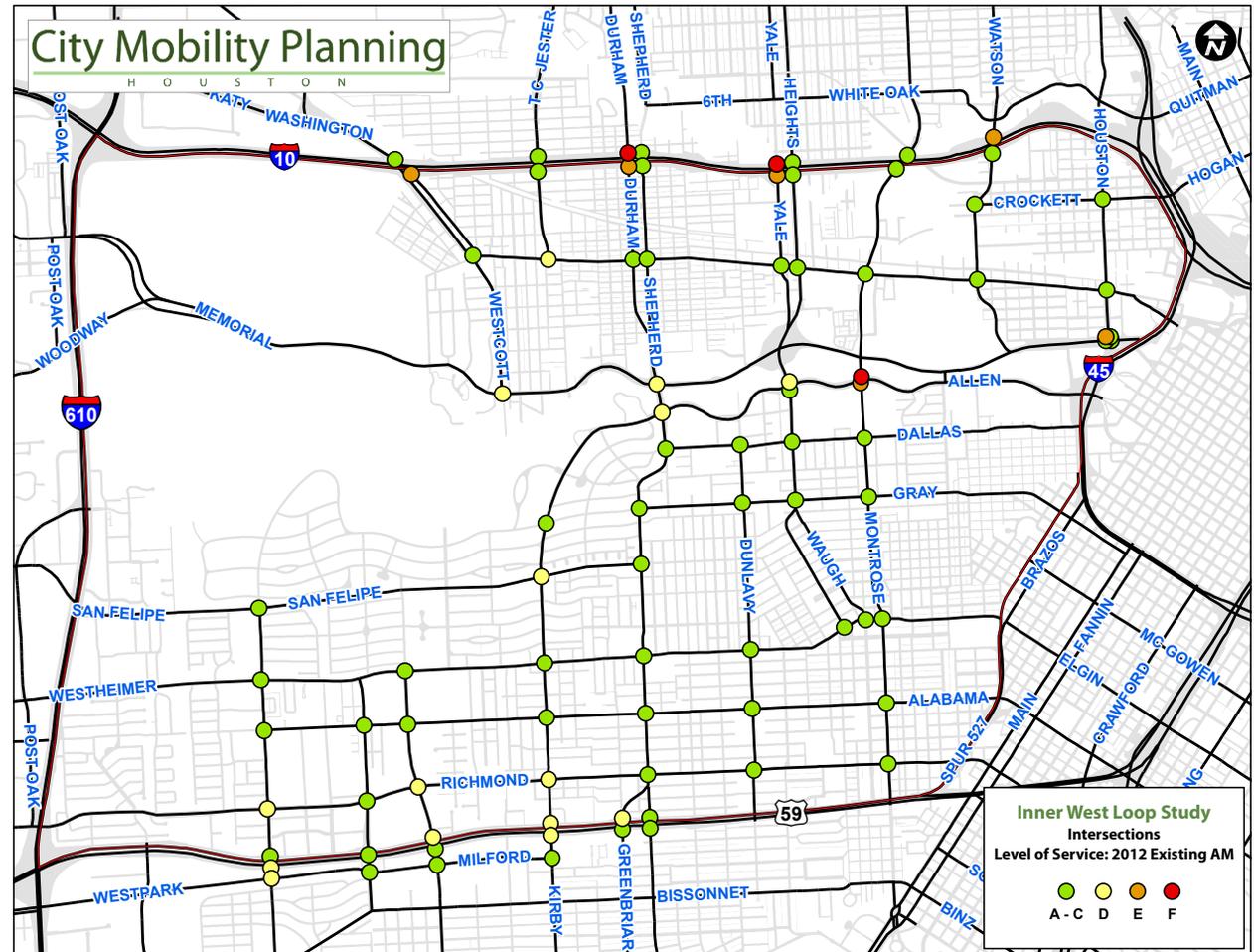
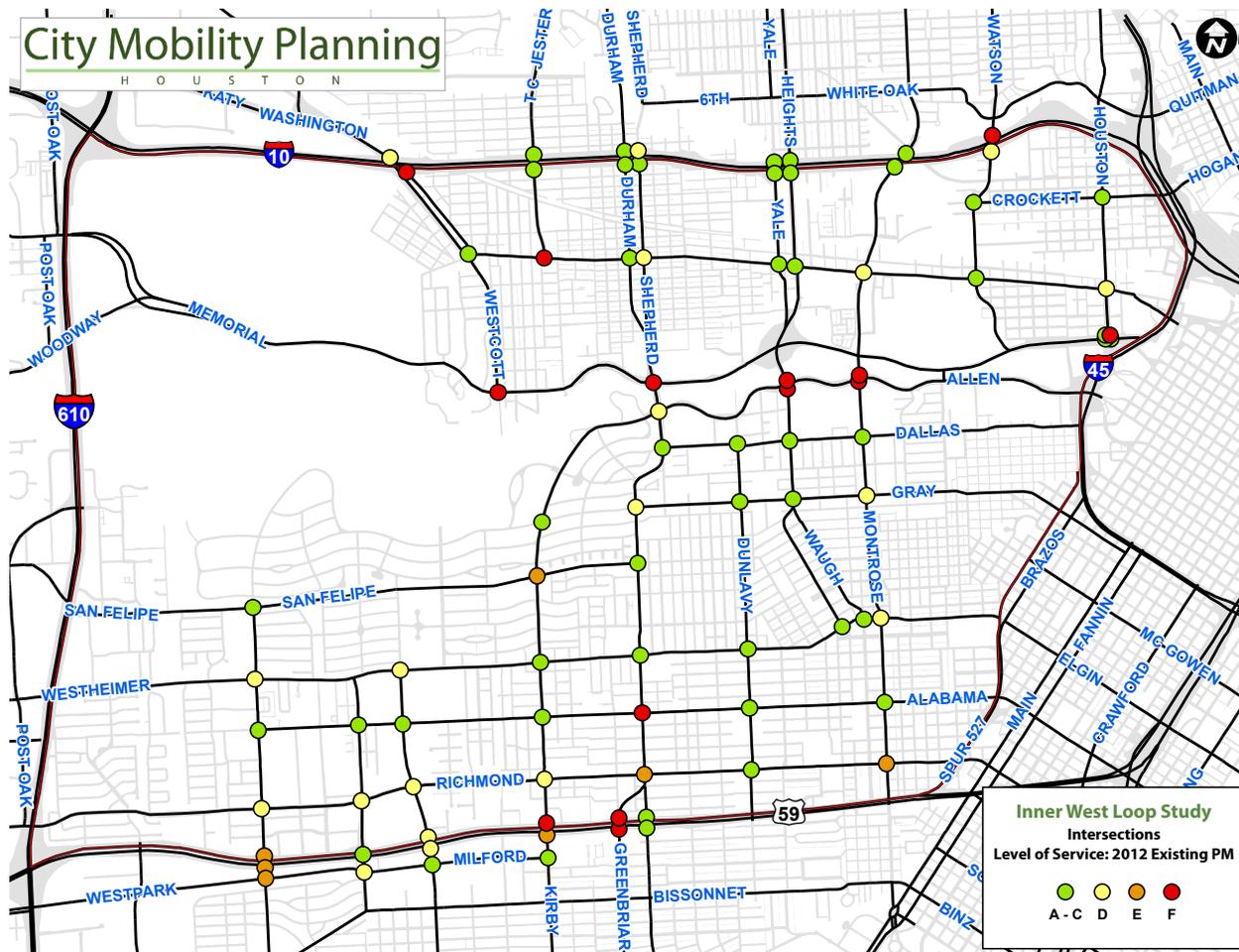


Figure 7 – PM Level of Service (LOS)



Mitigating Near-Term Peak Hour Congestion

One of the most critical elements of conducting this study was the development of a series of intersection improvement projects that could help to alleviate congestion within the corridors. Excessive levels of vehicular congestion can actually exacerbate small problems that currently exist within the bicycle and pedestrian networks by making segments of the roadway untenable for non-automobile users. As such, intersection related improvements were examined throughout the Study Area for the base year, 2012, and the forecast year 2035.

The future conditions are described in a later section of this document, however, the next few pages are dedicated to specific projects that have been developed to **mitigate congestion that exists today**. While the improvements discussed are highlighted because of a specific need identified during one peak period or the other, these projects will provide a congestion relief benefit throughout the day.

Planning-level costs for these projects are shown along with the specific recommendations. While all intersections that have been identified as having congestion were analyzed for improvements, several locations had very limited right-of-way, thus short-term improvements were not feasible.

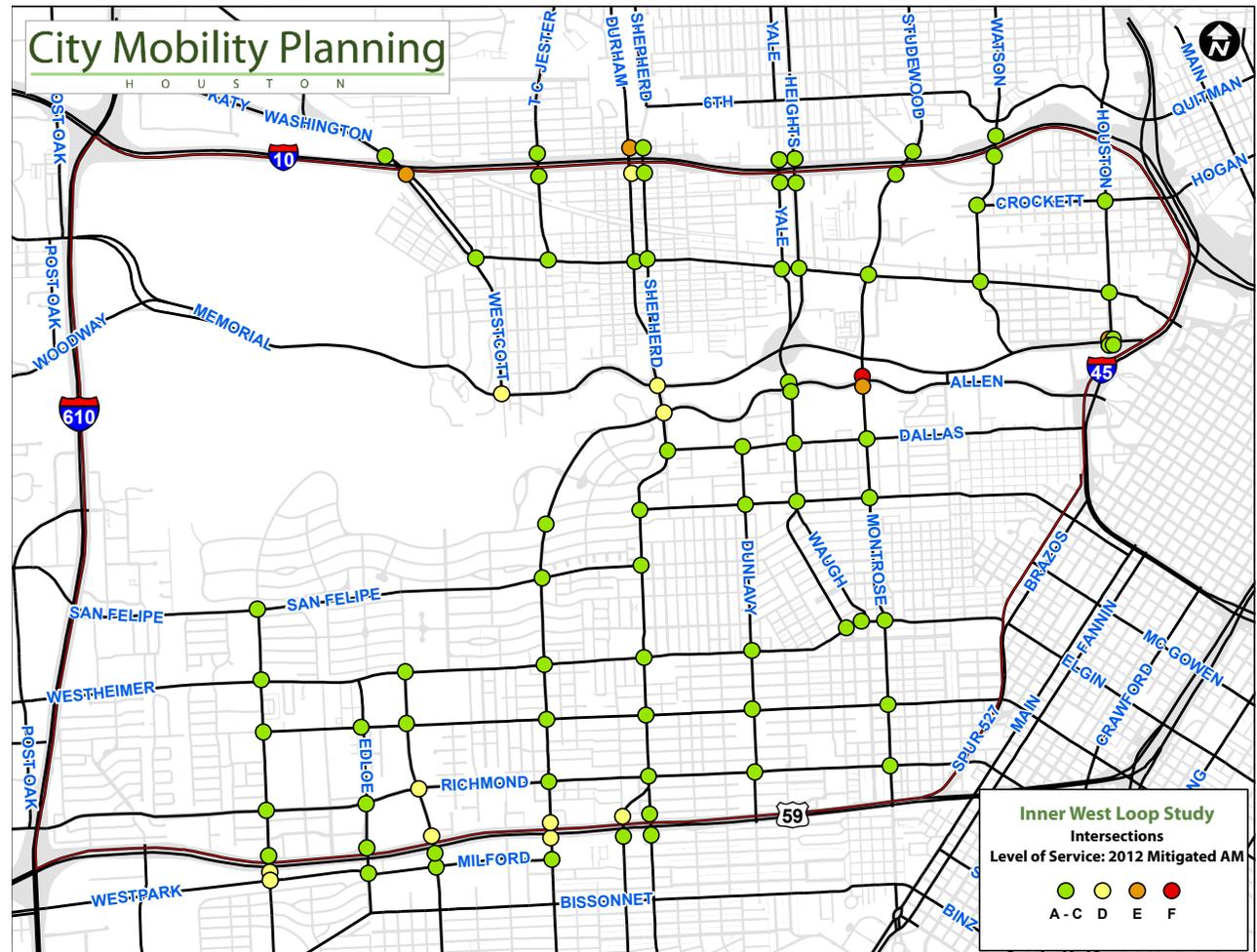
Another important policy discussion during this planning process was the necessity to **maintain all existing ROW at intersections**, and protect that ROW as redevelopment occurs.

Mitigating Near-Term Peak Hour Congestion

The following intersection level projects have been identified as potential infrastructure improvements that can be constructed to improve the **peak period congestion** within the Study Area. These improvements will help to alleviate congested movements at the intersections, thereby improving the overall carrying capacity of the corridors. Specific projects include:

- I-10 eastbound frontage road at Durham - Add one southbound right turn lane 150-feet - \$58,000
- I-10 westbound frontage road at Durham - Add one westbound right turn lane 150-feet - \$35,000
- I-10 westbound frontage road at Yale - Add one westbound right turn lane 150-feet - \$58,000
- I-10 westbound frontage road at Taylor - Add northbound right turn lane 100-feet - \$25,000
- Allen Parkway at Shepherd - Increase the westbound left storage to 250-feet - \$25,000
- San Felipe at Kirby - Add One north bound through lane on Kirby, and add one northbound right turn lane 75-feet on San Felipe - \$190,000
 - *Additional right-of-way required for both.*
- Westheimer at Buffalo Speedway - Increase: eastbound left to 125-feet and westbound left to 175-feet and northbound left to 175-feet - \$65,000
- Westheimer at Montrose - Increase: eastbound left to 125-feet, westbound left to 200-feet, and northbound left to 200-feet - \$35,000
- Richmond at Wesleyan - Increase: eastbound left to 250-feet, westbound left to 200-feet, and southbound left to 200-feet - \$80,000

Figure 8 – Mitigated AM Level of Service (LOS)



A Long-Term Design Process

This document presents a hybrid between what the public wants, what the models are predicting, and what is possible given planning level costs and right-of-way constraints. It is intended to act as a platform for setting the **groundwork for a vision** that helps to guide the next steps in the **project delivery process**. As such, this outreach and engagement process will help to ensure continuing efforts are made to understand community desires and concerns as segments of this corridor are taken through preliminary design, engineering, programming and ultimately built.

The high-level nature of the study precluded certain elements from consideration when developing a vision for the transportation facilities that would ultimately be built within a given corridor. Some of these elements include:

- A topographic and boundary survey of the entire corridor,
- Detailed examination of sidewalk gaps, and
- An inventory of specific right-of-way needs.

These pieces of additional data will be instrumental to the next steps of any Corridor Study, involving the completion of preliminary engineering plans that refine the Vision of the transportation facilities presented in this report. This refinement will be based upon engineering principles that are established throughout the City to ensure that the facilities designed for the corridor are safe, well-constructed, drain properly, and ultimately meet the needs of the traveling public.

The City of Houston has developed a **Capital Improvement Plan Process for Infrastructure Projects** that ultimately guides the development of all capital projects. This guiding document highlights the steps needed to move any of the project recommendations from this report forward. The preliminary engineering and environmental clearance phase of a given project, and subsequent detailed design phases for selected segments, will require additional efforts be taken to coordinate with landowners, businesses, and residents throughout the corridor. There are several discussion topics that should be included within this phase of effort, some of which are governed by local, state, and federal statutes depending upon the segment of the corridor that is being designed.

The governing laws and local regulations that encapsulate the regulatory environment associated with transportation facilities are constantly evolving, as new techniques and information pertaining to a project's impact become available. This document will not attempt to recreate the exact requirements that will be necessary for approvals during the preliminary engineering and environmental clearance phase of the project development process. Rather, this report will highlight additional coordination steps that will help to ensure that there is a common understanding of the benefits and drawbacks associated with the proposed design options. This will also serve to facilitate a discussion about project sequencing and construction.

Some of the items to be discussed during the **Design Phase** of the development process include:

- Site Specific design considerations such as Driveway Modifications/Closures
- Drainage and Ponding Considerations
- Median Opening Locations
- Trip Generation and Planned Redevelopment
- Cross and Shared Access Agreements
- Modifications to the Pedestrian Crossings
- Construction Sequencing

Ultimately, these topics will drive the recommendations that are designed as a part of the final design process, and a review of these elements is critical at each design stage for each segment of the corridor under consideration.

The final design process should take into account specific construction needs and phasing for the corridor, allowing for minimal disruption of local businesses and residents while maintaining a safe construction zone for the traveling public. In most cases, it will not be possible to completely work around the considerations of all of the local businesses. However, efforts to make accommodations should be reasonably attempted in order to minimize the construction impacts upon the local business fabric. Certain times of the year may prove better for construction than others for a significant portion of the corridor, and identifying those construction seasons early in the design process should help to set expectations and define alternatives.



Public open house #1



Public open house #1

III. Community Involvement

Ongoing community and stakeholder involvement throughout the planning process was essential to ensure that the mobility goals and objectives considers the local values, preferences and desires. The community involvement included a combination of public meetings and stakeholder meetings to generate feedback on mobility issues and solutions within the Inner West Loop Study Area. Through this process, feedback was received from numerous citizens and stakeholders to guide and direct this Plan in the direction that it needed to go. The success of this plan is enhanced by the continued engagement by the citizens and stakeholders of the area.

A series of **5 meetings** occurred throughout the planning process:

- A community meeting at the beginning of the process to collect input regarding existing mobility issues within the Study Area,
- A stakeholder meeting at the beginning of the process to review the mobility issues expressed by the public and to refine the mobility objectives and solutions that are appropriate for the area,
- A second and third stakeholder meeting to discuss the outcomes of the specific mobility solutions, and lastly,
- A second community meeting to present the public with a draft recommendation and collect additional input

Public Meeting #1: March 29, 2012

The first public meeting was held on March 29th, 2012 in which 42 attendees were present from the general area. A presentation was given to identify the purpose of the project to identify the role of the community in steering this project. A number of maps were presented to allow for specific area comments and comment cards were provided to allow for more general feedback on mobility issues in the area. A summary of the comments are shown in **Table 1**.

Table 1: March 29 Public Comments

Comment	Project Interest	Primary Area of Focus:	What Works Well	What Needs Improvement	What is Lacking	Additional comments
1	Property Owner/ Resident	Pedestrian	High Speed traffic on Montrose.	Sidewalks - reconstruct without roadway improvements. My neighborhood roads Kyle @ Woodrow	Independent assessment of sidewalk conditions in Montrose	Problems with commercial parking encroachment on sidewalk Timms Wine Bar Oakley & Kyle. Cut through traffic from east on Woodrow/& Oakley endanger walkers in neighborhood.
2	Property Owner/ Resident	Auto/ Pedestrian	Metro buses	Sidewalks - south side Westheimer between Mid Lane and West Loop	Traffic control - especially in Highland Village	Utility poles - visual pollution Centerpoint boxes impede ped. Traffic on /Mid / Westheimer (south) and Westheimer / Suffolk (north side)
3	Property Owner/ Business Owner/ Resident	Auto	There is no consistency Go to Dallas and observe traffic signals	<ul style="list-style-type: none"> Traffic signal upgrades - left turn signals needed at Willowick/San Felipe; Shepherd/San Felipe; Shepherd/Westheimer; Shepherd/Alabama; West Gray/Waugh Vermont St from Shepherd to Dunlavy: There is no need for 90% of the left turn signal to be green on arrow only. Southbound Shepherd @W. Gray is a perfect example of the continuous back-ups. Shepherd Dr. from US 59 to Memorial is a disaster. Left turn banned at Richmond, Alabama, Westheimer & Fairview- these should have allowable left turn in both directions. Traffic lights necessary on Waugh/Commonwealth between Westheimer & W. Gray Traffic Signal not timed on Westheimer between IH 610 & Montrose There is enough ROW to add left turn lanes on Shepherd between W. Dallas & US 59 and Westheimer between Kirby & Buffalo Speedway. 	Dedicated left lane turn signals (cut into the esplanades on Richmond, Memorial Dr, Kirby north of San Felipe. Look at memorial at Ashbury near Starbucks in rush hour. Houston is flat - most streets are straight and sightlines are evident.	No U-turns on Richmond - unnecessary at Newcastle
4	Property Owner/ Resident	Pedestrian	Transit, Alabama reverse lane, Kirby Drive, Alabama, Westheimer	San Felipe rail crossing median is ugly. Use Montrose over 59 as a model. Better standards for underground utility street patching	Sidewalks gaps Wheelchair ramps Bus pads in curb lanes or all concrete pavement curb to curb.	Put bike lanes on local & collectors not busy thoroughfares. Pavement condition map does not ring true. TIP map is very hard to read - redo legend
5	Bike Commuter	Bicycle		Critical lack of connectivity across 610 to Uptown District and Tangelwood. Railroad crossings rough. Bridges over Bayou require extreme level biking skill and temperament. Waugh and Shepherd		
6	Other	Pedestrian/ Transit		Transit routes have good coverage but need greater frequency. Even if with smaller buses.	Need to do sidewalk assessment and fix and build where needed - separate from street work	
7	Other	Auto/ Bicycle	Bike lane	Bike lane		
8	Property Owner/ Resident	Pedestrian		Ped access to Buffalo Bayou from south Allen Pkwy is huge barrier. Allen Pkwy Village is fenced off.		
9	Property Owner			The ability to see everyones comments/input and respond/agree/disagree to them		Use Facebook to gather and post comments and let people like and comment on them
10	Resident		Sunday morning @ 8:00a traffic flow is outstanding on Westheimer, Richmond & San Felipe - every day should be Sunday morning!!	Richmond Ave Wesleyan to Railroad is in terrible condition. Train crossing on Richmond, Westheimer, San Felipe creates terrible traffic jams (east & west) at all hours of the day		Traffic police @ Highland Village creates traffic jam late in afternoon & one day will cause a train/car accident
11	Resident	Bicycle/ Pedestrian/ Transit	Enjoy small stores, small parking lots, permitting density	Traffic calming & improved sidewalks so people feel SAFE taking advantage of the walkability of this area. Improved flooding management would be good - is my neighborhood an unofficial detention pond?	Speed humps; sidewalks; traffic calming; "NO THRU TRUCKS", SPEED, and parking (NO BLOCKED SIDEWALKS) enforcements	Thanks for your good work -
12	Property Owner/ Resident	Bicycle/ Pedestrian/ Transit		City's interaction with CenterPoint should be improved to prevent placement of poles in middle of sidewalks and handicap ramps	Bike trail connection from Mkt into Memorial Park. Local transit option on Washington Avenue	I hope the outcome of this study will be to encourage the City to adopt a complete streets policy
13	Property Owner		Since Mayor Parker is planning on promoting better mobility in the inner loop- I would like to know how much effort / resources will be placed on improving the current awful state of our roads. I believe this is a pivotal point because if you pay attention, many pot holes slow traffic considerable. We all want to go over them as slowly as possible to minimize damage to our cars and tires- thereby creating congestion.			
14	Property Owner	Pedestrian	During the times of day I travel the area streets, traffic flow along the major streets; e.g., Westheimer, West Alabama & Richmond, West Gray, all flow nicely. Seems like the no turn intersections coupled with well-timed signal lights is great.	I cannot access public transportation in my powerchair. The bus stops are within 2 blocks of my home. While there are ample handicap ramps from sidewalks to the streets, neither the sidewalks can be used nor can one get from the ramp to the street. Over the years, patching to the streets has caused a trough so deep between the sidewalk ramp and the street that no wheeled chair, powered or manual, can get across. Therefore, I must drive everywhere and haul my chair with me whereas, if even a small area were ADA accessible, I could do most of my errands via public transit.		<ol style="list-style-type: none"> Calling 311 doesn't work to report sidewalks. They insist that sidewalks are the owner's responsibility and report it to the HOA. There is no HOA. I live at 408 Avondale St. 77006. You may be able to get handicap demographics by contacting Social Security Making small maps available online and notifying everyone in the West Loop Study Area how to access them for printing would enable interested parties to print and pass out these proposed maps to pedestrians and bicyclists to mark with problems and return.

Stakeholder Meeting #1: May 9th, 2012

The first stakeholder meeting was held on May 9th to review the feedback on mobility issues and challenges that was gathered during the public meeting. The purpose of this meeting was to engage stakeholders in a conversation about the Study Area, existing conditions, future conditions, and potential solutions to help alleviate some of the anticipated congestion in the area which, today, is already at a degraded levels.

Feedback regarding the presentation given was not anticipated during the allotted time of the meeting, and instead was expected only after committee members had presented the provided materials to related constituents. To assist in conveying the overall purpose of the project, six questions were developed to help guide the conversation in a manner that is beneficial to the outcomes of the project.

These questions were:

1. Based on the current Houston Thoroughfare Plan, are roadways properly classified?
2. Where transit trips are most needed? How should transit trips be viewed?
3. What objectives should be carried forward and highlighted by this plan?
4. Where should truck routes be allotted? How can truck access be enhanced in terms of local streets?
5. Should we fix congestion issues if we are trying to encourage people to change the way they are doing things?
6. How should parking be evaluated in terms of congestion and transit use? Where is parking conceived as vital and why?

Stakeholder Meeting #2: July 25th, 2012

The second stakeholder meeting was held on July 25th to review the mobility solutions that had been developed as a part of the Inner West Loop Study. The purpose of this meeting was to engage stakeholders in a conversation about the Study Area, future conditions, to develop a list of priorities for the corridors based on the projected traffic needs and non-motorized transportation options within the network.

Acknowledging that complete, innovative street treatments would not be ideal for many of the corridors throughout the Study Area because of the **costs associated with completely reconstructing the roadways**, participants were encouraged to think outside the box for corridors at highly degraded level of service, particularly corridors with right-of-way constraints.



Stakeholder meeting #2



Stakeholder meeting #2

The second stakeholder meeting also highlighted some of the big ideas that were developed throughout the planning process. Many ideas that were put forward by members of the public, the technical team, or the stakeholders were met with immediate fatal flaws, however, some of the ideas held significant merit and could be achieved over a long-term planning horizon. A few of those **Long-Term Planning Topics** include:

- Frequent High Capacity Transit on Westheimer
- Urban Interchange at Shepherd/Memorial/Allen
- Reconfigured West Alabama
- On-Street Bike connections to Bayou Trails

Stakeholder Meeting #3: Nov. 27th, 2012

The third stakeholder meeting included a review of the draft Report and Recommendations that were going to be presented at the Public Meeting in December of 2012. The stakeholders provided commentary on the written report, reviewed the concepts for the project corridors, and provided feedback on the project findings.

Public Meeting #2: Dec. 12th, 2012

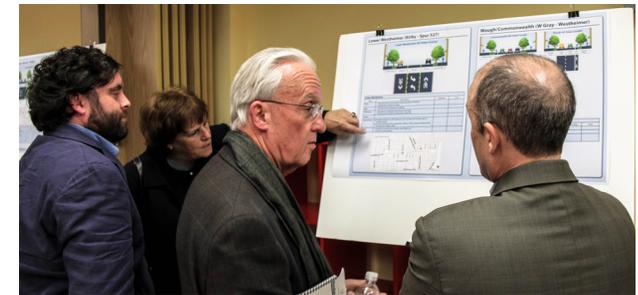
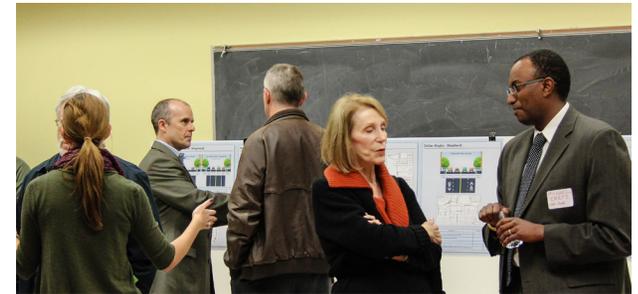
The purpose of Public Meeting #2 was to illustrate the findings of the study and validate that the overall findings and project concepts that have been developed throughout this study. The participants were shown a variety of concepts ranging from:

- System-wide analysis of the transit, roadway, and bicycle options
- Design Concepts without the benefit of detailed survey and ROW constraints
- Specific needs that have been identified within the corridors such as sidewalk gaps and ADA compliant access ramps
- Intersection improvements for locations where preliminary level right-of-way analysis would allow it
- Intersection level improvements including costs and prioritization

These concepts were all validated with the Stakeholder Group in advance of being shown to the public, and are intended to be the ideas set forth by this plan. The information that follows describes:

- The manner in which those concepts were developed.
- What the future needs will be for the overall transportation network.
- What the overall recommendations are to provide a Multi-Modal network of streets that meets the needs of the traveling public.

Public comments were accepted until January 11, 2013. A summary of the public comments that were received regarding the concepts presented is included in this document as Appendix C.



IV. Defining Future Mobility Conditions

Travel Demand Forecasting

The City of Houston and the Houston-Galveston Area Council (H-GAC), through an inter-local agreement, conducted the travel demand forecasting within the Study Area. The Travel Demand Model (the model) is a useful tool for comparing alternative scenarios within a given planning horizon and understanding the manner in which future population and employment growth will cause traffic to grow. The City and H-GAC have undertaken several modeling initiatives similar to the activities undertaken during this study to better understand the dynamics of the overall network and the manner in which infrastructure modifications might affect the overall system.

The City, H-GAC's forecasters, and the consultant team determined that an update to the baseline demographic information would prove useful. Additionally, modifications were made to the interim year, 2018, and forecast year, 2035, demographic forecasts based on information pertaining to existing building permits, development trends, and traffic studies as they relate to density and land value within the Study Area.

These updated demographic forecasts projected significantly more growth within the Inner West Loop Study Area than was previously forecasted. This type of redevelopment is not at all uncommon as the price of available land, and infrastructure continues to rise, the concentration of higher density development near a major Urban Center becomes more and more feasible from the market perspective.

This updated demographic information was then processed using a scenario approach within the existing H-GAC travel demand forecasting methodology, and results were produced based on the existing network assumptions for each of the model years. Each of the network scenarios developed utilized the same baseline demographic information to ensure that the comparison between the network alternatives would be an even comparison.

Forecast Results - How to Apply the Projections

Travel Demand Forecasting is less science and more art. Interpreting the results of the model is subject to perspective and understanding of the overall network conditions. Another consideration within the travel demand model limitations, is the inability to assess the impacts of bicycle and pedestrian improvements.

In the case of the Inner West Loop Study, the study team created and reviewed a number of modeling scenarios of the network to determine what amount

of congestion could be projected for each of the scenarios. The network alternatives included:

- Options for increased transit availability,
- Reconfigured regional highway connections, and
- The creation of a direct interchange at the Memorial/Allen Pkwy/Shepherd/Kirby intersection.

These improvements were analyzed individually to allow for a comparison between the different concepts. Ultimately, a combined scenario was developed that included greater transit availability and the revised urban interchange. The regional highway reconfiguration was found to not affect travel patterns within the Study Area, and therefore were precluded from further analysis in this study effort. That is not to say that they lacked validity, rather that their impact was broader in scope.

Given the saturation of congestion that is forecast to exist within the Study Area by 2035, it is important to examine the latent demand aspects of any alternative improvements that are analyzed. Latent demand exists throughout the regional network that bounds this Study Area by 2035, and as such capacity improvements that are made within the travel demand forecast seem to cause worse traffic than previously forecasted. This is not likely to occur in a broad sweeping fashion, but rather a result of the model's assessment of the overall need for additional capacity throughout the area and along the regional highway network that bounds the Study Area.

Development of Future Intersection Conditions

The traditional traffic engineering approach for growing traffic volumes across a network of streets is to simply start from a point in time at which intersection-specific information is collected, and then grow the volumes at a consistent growth rate over the planning horizon. The largest challenge to this approach - within a study area of this larger size - is that over time redevelopment and traffic patterns shift causing the steady rate of growth to be over/under estimated for more localized conditions. By using the existing traffic counts as a baseline, and growing them based upon the growth witnessed in the travel demand model; this study attempts to estimate the future operating conditions at the intersections, which may allow for intersection improvements to be made to meet future needs.

Analyzing Future Conditions

The general level of congestion within the larger corridors suggests that overall intersection level of service will be severely degraded by 2035. The analysis presented in the following pages (**Figures 10 and 11**) supports that conclusion and presents a few mitigation strategies that might provide limited relief. The map at right illustrates the intersection congestion levels for the AM peak in 2035 based on the growth factors described above.

Figure 10 – 2035 AM Level of Service (LOS)

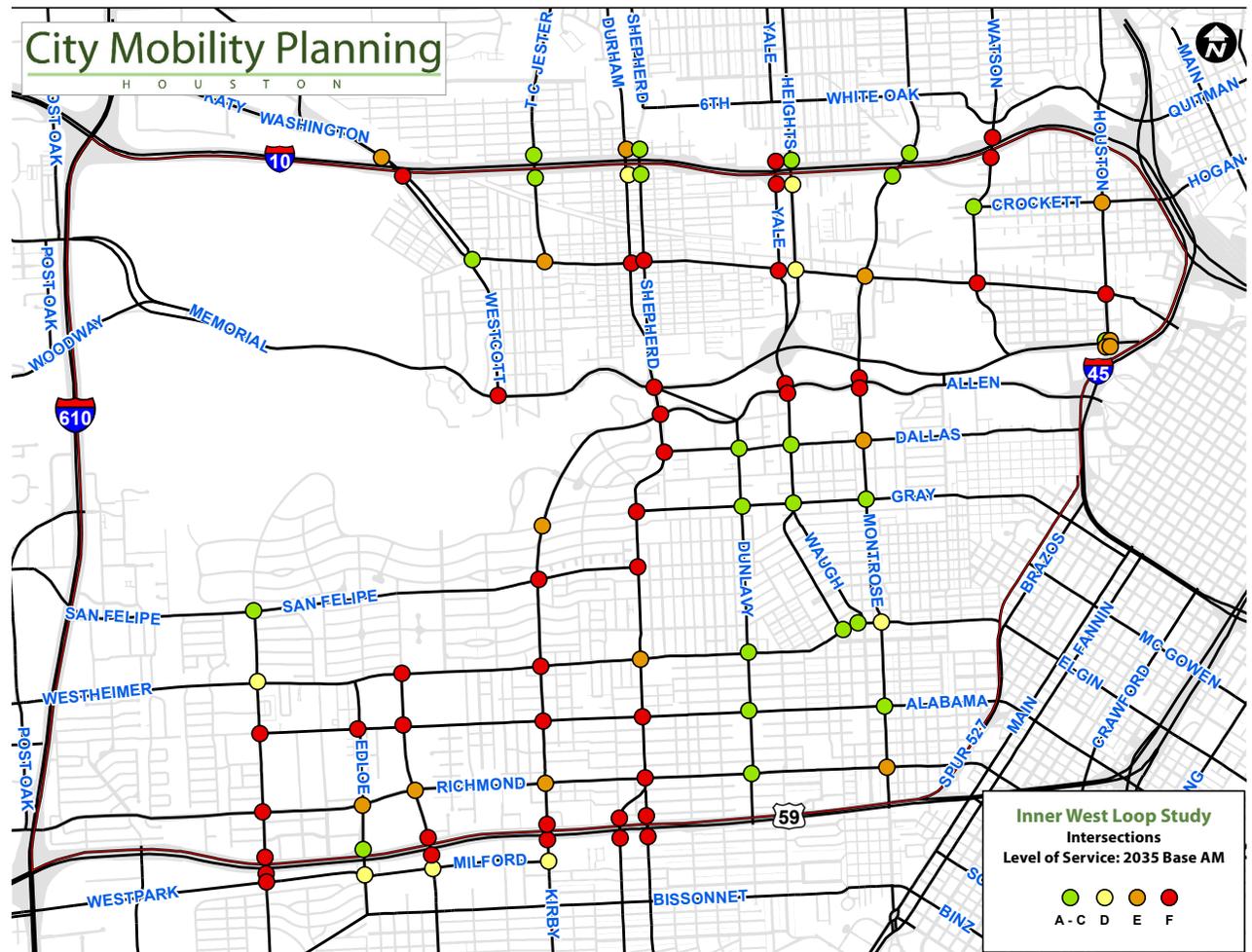
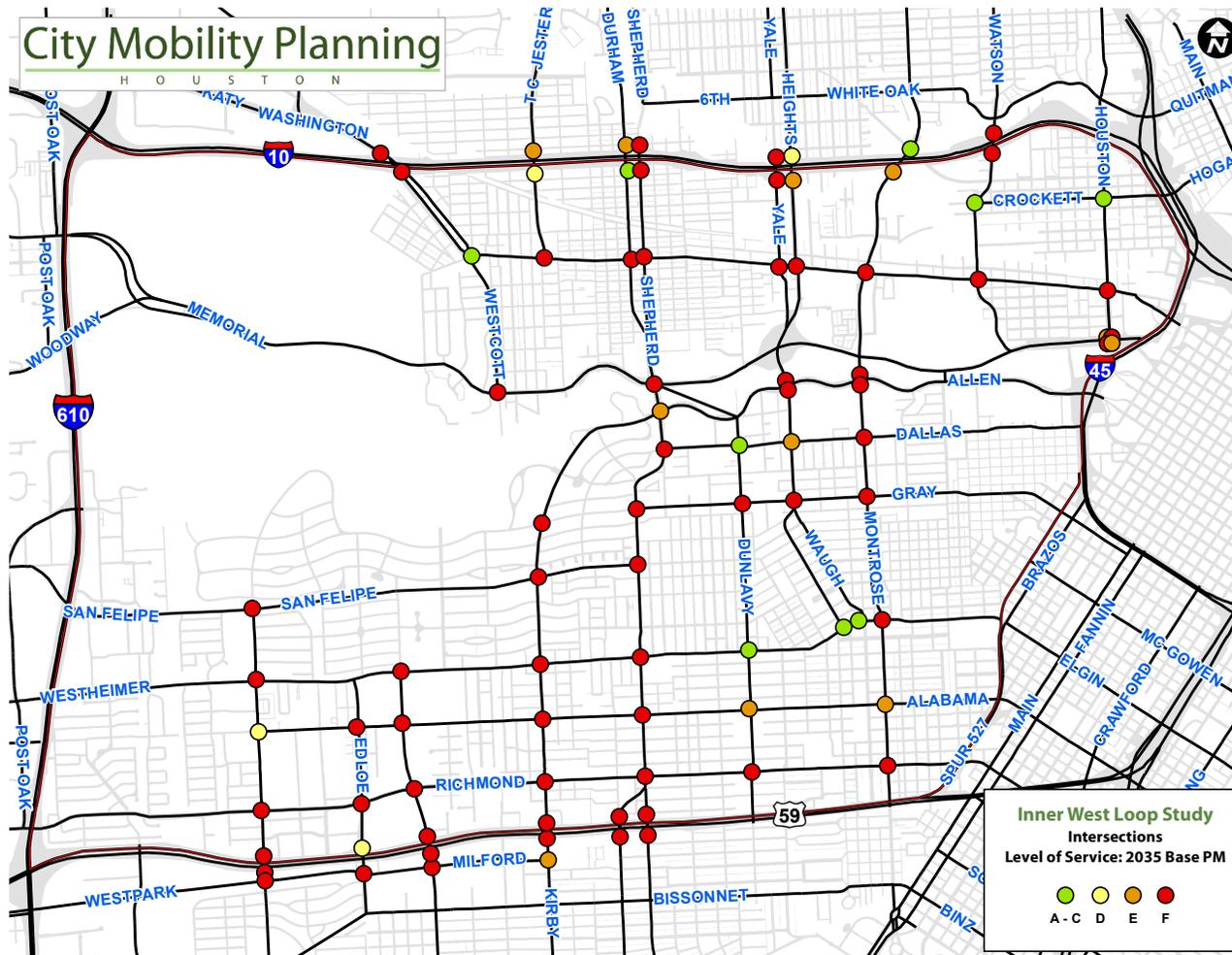


Figure 11 – 2035 PM Level of Service (LOS)



Summarizing the Future Conditions

The PM peak period shows significantly worse congestion than the AM peak. This is as expected given the percent of daily trips that occur within the PM peak. Additionally, the congestion seems most concentrated around those regional routes that provide access to the Highway system. Interestingly, the areas that are more neighborhood related traffic such as Houston/Crockett and Dunlavy/Westheimer do not experience as much congestion. This is likely due to the nature of the trips, and the limited capacity available from the regional model's perspective.

Mitigating the Future Conditions

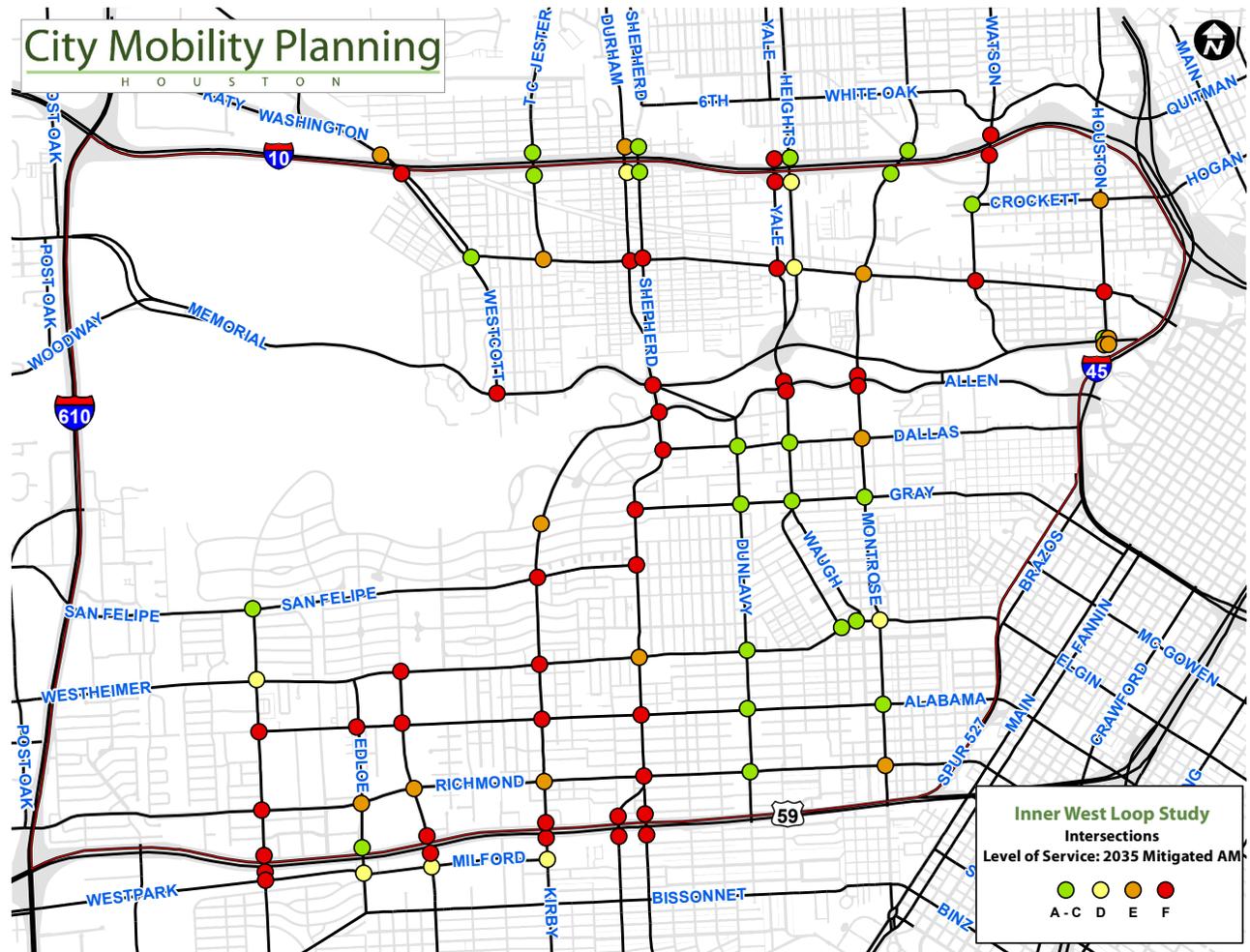
The mitigation opportunities for the 2035 scenario are very likely limited by the existing and proposed available Rights-of-Way for the Inner West Loop corridors. Therefore, it is more than likely that these improvements can be accomplished as part of a corridor-level improvement project with some degree of ROW modifications. Additionally, several of the corridors that are projected to experience peak hour congestion have been already discussed within the Base Year mitigation strategy, but without additional throughput, the intersections will not be able to improve from an operating Level of Service. Planning Level Cost Estimates have also been developed for the proposed intersection improvements. It is worth noting that these costs will be refined in further studies as detailed surveys are conducted to verify the Right-of-Way needs.

Mitigating the Long-Term Peak Hour Congestion

The intersection improvements listed below have been indicated to increase the operating efficiency during the peak period. The effects of those improvements are not limited to one time period, and as such they are combined for **both the AM and PM Peak Period**.

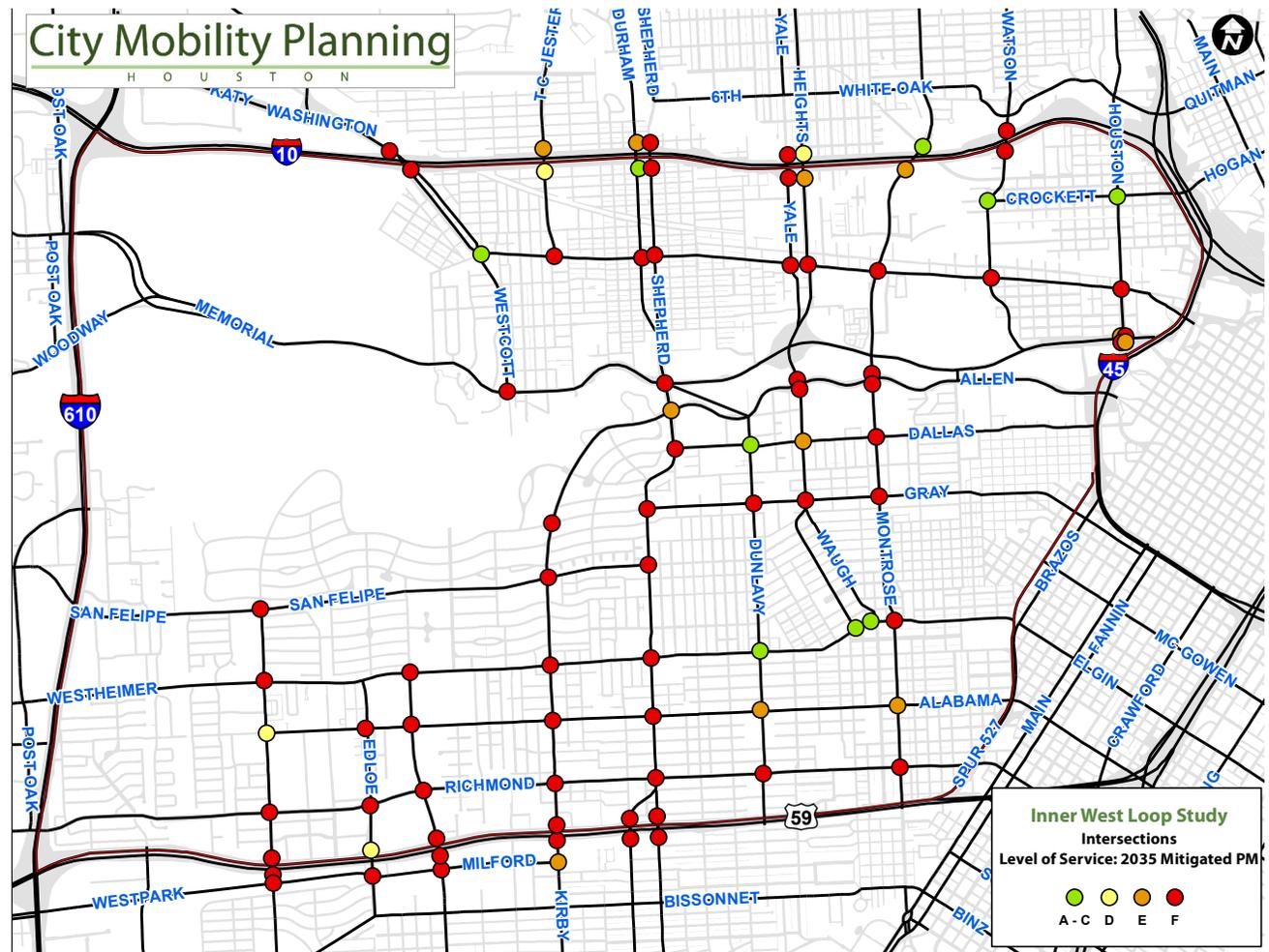
- I-10 westbound frontage road @ T.C. Jester - Add southbound right turn lane 250-feet - \$50,000
- I-10 eastbound frontage road @ Heights - Add northbound right turn lane 150-feet - \$30,000
 - Additional right-of-way required
- I-10 eastbound frontage road @ Studemont - Add northbound right turn lane 150-feet - \$30,000
- Crockett @ Houston - Create a westbound through/right lane configuration. - \$5,000
- Washington @ T.C. Jester - Add One westbound right turn lane 250-feet - \$50,000
 - Additional right-of-way required
- Washington @ Heights - Add northbound dual left turn lanes - \$75,000
 - Additional right-of-way required
- Washington @ Sawyer - Add southbound left turn lane 150-feet - \$30,000
- Memorial @ Houston - Modify eastbound through to a shared through right - \$5,000

Figure 12 – 2035 Mitigated AM Level of Service (LOS)



- Memorial @ Houston - Add northbound right turn lane 250-feet - \$50,000.
 - Additional right-of-way required.
- Dallas @ Shepherd - Add northbound and southbound right turn lanes 150-feet - \$60,000
- Dallas @ Waugh - Add eastbound left turn lane 150-feet and add westbound left turn lane 150-feet - \$60,000
- Dallas @ Montrose - Add westbound right turn lane 150-feet - \$30,000
- Inwood @ Kirby - Add northbound and southbound right turn lanes 150-feet - \$60,000
 - Additional right-of-way required
- Cypresswood @ Kirby - Add southbound right turn lane 300-feet - \$60,000
- Reconstruct the Interchange of Memorial/Shepherd/Allen Pkwy./Kirby -
 - Cost TBD Additional right-of-way required

Figure 13 – 2035 Mitigated PM Level of Service (LOS)



V. A Balanced Approach

Considering All Users of the System

Given the limited Right-of-Way, the need for improvements in the pedestrian realm, the existing and projected traffic congestion, and the desire to create a Multi-Modal network of transportation options within the study area; the planning process for the Study Area blended the expressed desires, with engineering analysis, and transportation system analysis to provide the projects and corridor concepts that follow in the Report.

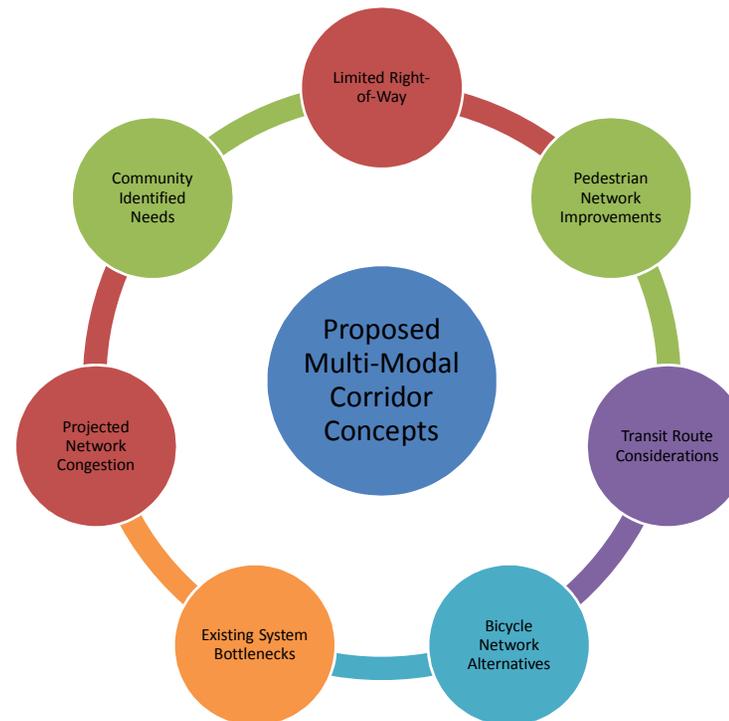
The following pages highlight a shift in the manner in which transportation can be viewed within the Study Area by promoting alternative transportation options, prioritizing improvements for specific corridors and locations, and examining the opportunities for connections to transportation options outside of the City's current Right-of-Way.

There are multiple components to planning for infrastructure needs within the Study Area. Those include but are not limited to:

- Understanding the needs of the community,
- Developing a plan that responds to development trends,
- Examining the travel demand model results,
- Prioritizing corridors for specific users,
- Correcting gaps within the transportation network, and
- Creating/Revising policies as appropriate.

Each of these elements are considered in corridor designs provided in subsequent pages 25-54 of the Report. It is important to note however, that the provided potential cross sections are examples of what roadways might look like when the provided elements (bike, pedestrian, etc) are considered in addition to the automobile. These components were examined throughout the Inner West Loop Study, and the recommendations shown in the pages that follow are preliminary in nature. There has not been an examination of the engineering specifics for each of these solutions given the focus of this effort, however that will be needed moving forward.

The ideas presented will be refined through further analysis at the intersection, corridor, system-wide level before moving into final design and construction. The process for developing those more detailed plans has been discussed previously within this document and will follow the City of Houston's **Capital Improvement Plan Process for Infrastructure Programs**.



VI. A Changing Paradigm

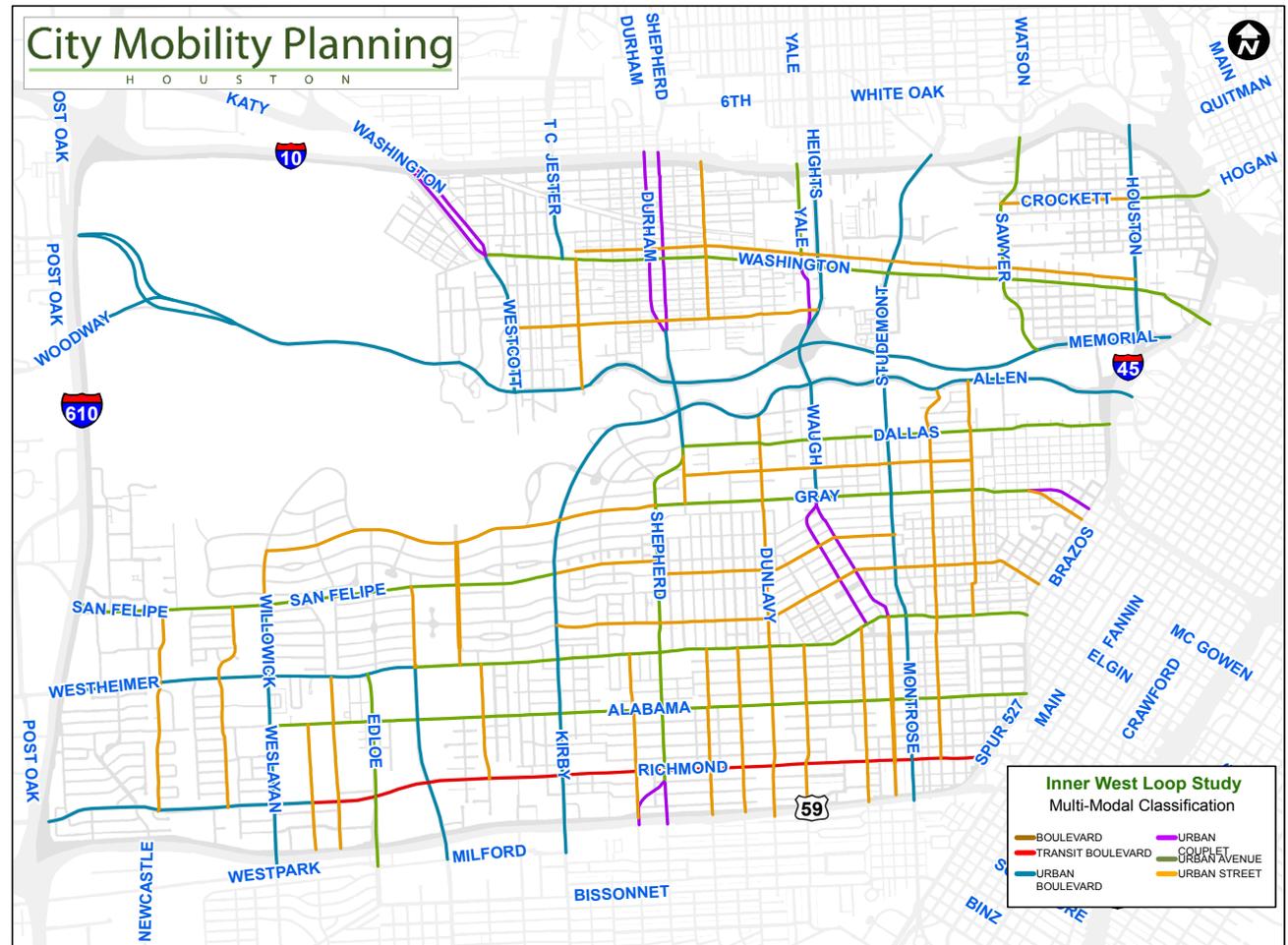
Addressing the Mobility Challenge

During **Phase One** of the City Mobility Planning initiative, the City of Houston contemplated the concept of providing Multi-Modal transportation options within a corridor planning exercise. That conversation led to the development of the alternative design standards that are located within **Appendix 2 of Chapter 10** of the **Infrastructure Design Manual**. These alternative cross-sections provide for a myriad of design configurations, providing options within the transportation network other than an automobile.

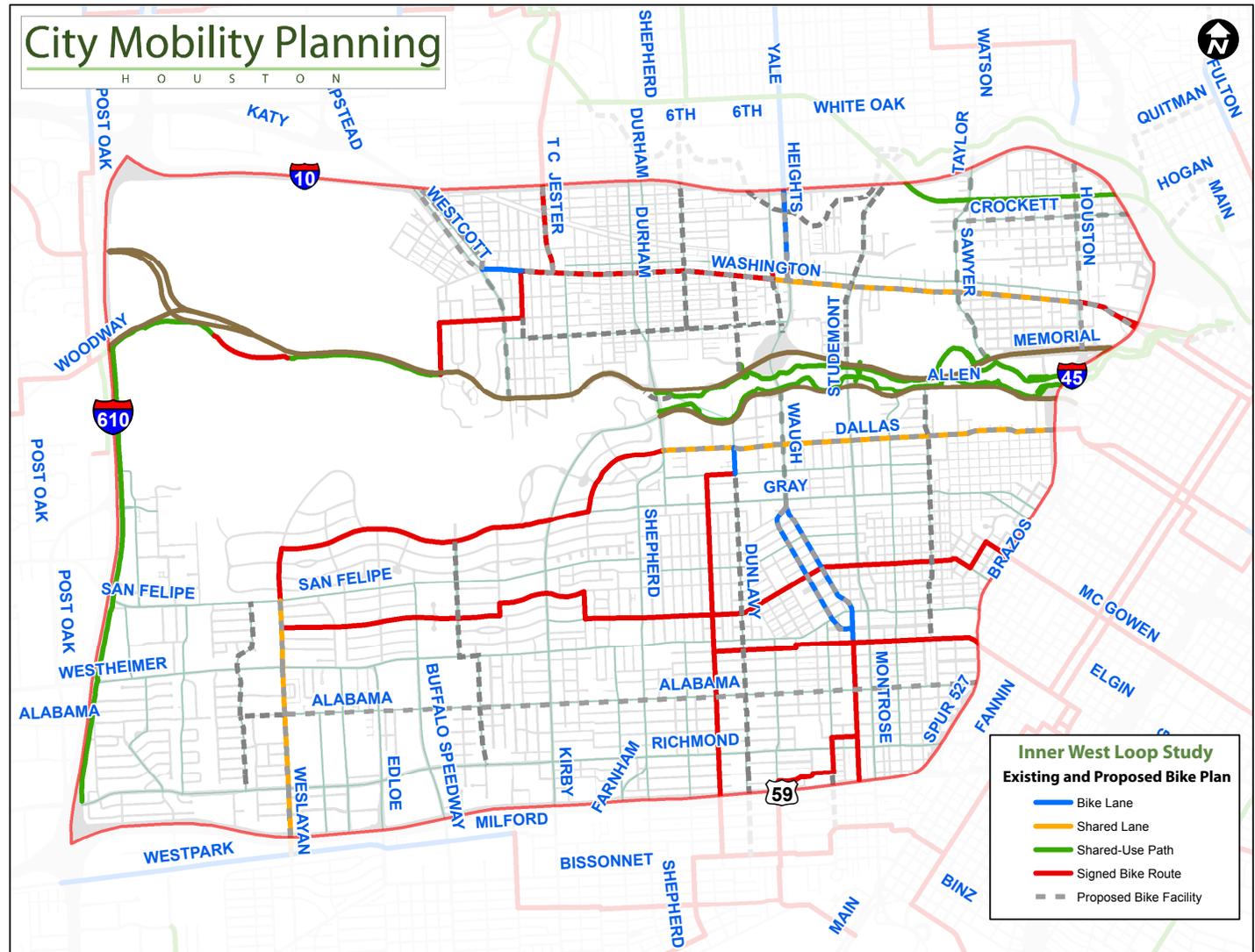
The City recognizes that automobile travel will still continue to be a vital component of transportation within the region, and especially in areas with large clusters of jobs and population. However, there is a need to shift the approach for planning corridors in heavily congested sectors of the City. The Inner West Loop Study Area is projected to see severe congestion throughout various corridors, especially as more and more people try to access the regional highway network that surrounds the Study Area.

Increased density, population and employment growth, exacerbated by the continued need to provide viable access and circulation for continued growth, requires discussion of these corridor to move beyond Major and Minor Arterials, and into the definition of Multi-Modal Streets. The graphic at right (**Figure 14**), and the descriptions on the following pages highlight that transition within the Study Area.

Figure 14 – Proposed Multi-Modal Classification



Completing connections of bicycle facilities throughout the study area is important to the development of a comprehensive bike network within the study area. The proposed bicycle facilities indicated in this map represent the long-term plan for connecting existing bike facilities, as well as creating paths to areas of interest.



Defining the Priority Elements

The creation of a Multi-Modal Street network requires a balance of competing considerations throughout the entire network, rather than focusing on implementing all modes within a single corridor. Oftentimes, those streets that serve a heavy vehicular focus are not the best candidate for high-quality bicycle facilities given limited ROW and higher vehicle volumes/speeds. Similarly, transit vehicles are often desired in context with bicycle facilities, however, providing complementary and intersecting routes often increases the reach of transit. Quality, continuous sidewalk facilities are critical throughout this densely developed area, however, the allocation of space needs to be in balance with the needs of the cycling community given the limited ROW.

Recognizing the need for this balanced approach, the Inner West Loop Mobility Study examined the needs for each mode independently, and then overlaid those needs on one-another to identify gaps within the system, overlapping complementary concepts, and overlapping conflicts given the limited ROW. These concepts were then examined within the design concepts currently available within the Infrastructure Design Manual to arrive at the proposed Multi-Modal Street Classifications highlighted on the pages that follow.

The table on the next page provides a summary of each of the corridors that are currently classified under the existing MTFP. The table highlights several elements that were examined to form the recommendations. A summary of those elements and how they were examined follows.

Parking



The continued provision of adequate vehicular capacity continues to be paramount to providing access and mobility within the study area. Permanent parking is ideal only in cases where currently exist. Non-peak hour parking is not displayed.

Transit



Promoting transit use will help to off-set some of the ROW constraints by increasing the person carrying capacity of the corridor.

Pedestrian



Promoting park-once areas, access to transit, and local trip options through pedestrian facilities helps to curb peak-hour traffic and provides connectivity within the transportation network.

Bicycle



Increases the reach of transit services, promotes non-motorized transportation options, can be used for recreation and commuting alternatives.

ADA Access



Highlights corridors where additional attention to ramps and street crossings that are in compliance with the American with Disabilities Act.

Existing MTFP Classification - examines the current functional use designation and the ROW.

Existing Average Daily Traffic - details the daily traffic needs within the corridor.

Projected Average Daily Traffic - highlights anticipated needs for vehicular capacity.

Proposed MMC - resulting proposed sub-classification based on all of the above inputs, and the facility types that were defined in **Phase 1 of the City Mobility Planning Process**.

STREET NAME	FROM	TO	EXISTING FUNCTIONAL CLASS	MTFP ROW	NUM LANES	ADT	PROPOSED MMC	2035 ADT	Bike Facility	Parking	Transit	Ped Realm
ALABAMA	SPUR 527	SHEPHERD	MAJOR COLLECTOR	60'	C-2	8,900	URBAN AVENUE	21,000				
ALABAMA	SHEPHERD	WESLAYAN	MAJOR COLLECTOR	70'	C-4	10,500	URBAN AVENUE	36,000				
ALLEN	IH 45	WAUGH	MAJOR THOROUGHFARE	105'	T-4 T-6	16,600	URBAN BOULEVARD	29,600		A		
ALLEN	WAUGH	SHEPHERD	MAJOR THOROUGHFARE	105'	T-6	10,500	URBAN BOULEVARD	10,500		A		
BUFFALO SPEEDWAY	WESTHEIMER	WESTPARK	MAJOR THOROUGHFARE	100'	T-4	17,400	URBAN BOULEVARD	22,100				
COMMONWEALTH	GRAY	WESTHEIMER	MAJOR COLLECTOR	80'	C-2	5,800	URBAN COUPLET	14,600				
CROCKETT	SAWYER	HOUSTON	MAJOR COLLECTOR	70'	C-2	3,000	URBAN STREET	7,500				
CROCKETT	HOUSTON	IH 10	MAJOR COLLECTOR	70'	C-4	6,300	URBAN STREET	22,500				
DALLAS	IH 45	MONTROSE	MAJOR COLLECTOR	60'	C-4	9,100	URBAN AVENUE	25,000				
DALLAS	MONTROSE	SHEPHERD	MAJOR COLLECTOR	60'	C-4	10,000	URBAN AVENUE	26,000				
DUNLAVY	ALLEN	WESTHEIMER	MAJOR COLLECTOR	60'	C-2 C-4	13,600	URBAN STREET	5,300				
DUNLAVY	WESTHEIMER	US 59	MAJOR COLLECTOR	60'	C-2	9,300	URBAN STREET	34,000				
DURHAM	IH 10	DICKSON	MAJOR THOROUGHFARE	60'	C-4	23,900	URBAN COUPLET	33,500				
EDLOE	WESTHEIMER	RICHMOND	MAJOR COLLECTOR	80'	C-4	7,100	URBAN AVENUE	38,000				
EDLOE	RICHMOND	WESTPARK	MAJOR COLLECTOR	105' - 200'	C-4	11,900	URBAN AVENUE	70,000				
FARNHAM/SHEPHARD	SHEPHERD	59	MAJOR THOROUGHFARE	80'	T-4	23,500	URBAN COUPLET	41,800				
GRAY	BAGBY	WILSON	MAJOR THOROUGHFARE	80'	T-2	10,000	URBAN COUPLET	15,600				
GRAY	TAFT	MONTROSE	MAJOR THOROUGHFARE	70'	T-4	8,000	URBAN AVENUE	24,700				
GRAY	MONTROSE	SHEPHERD	MAJOR THOROUGHFARE	60'	T-4	11,000	URBAN AVENUE	36,800				
HEIGHTS	IH 10	WASHINGTON	MAJOR THOROUGHFARE	150'	T-4	13,900	URBAN BOULEVARD	34,300				
HEIGHTS	WASHINGTON	ALLEN	MAJOR THOROUGHFARE	130'	T-6	26,900	URBAN BOULEVARD	77,300				
HOUSTON	IH 10	WASHINGTON	MAJOR THOROUGHFARE	100'	T-4	13,300	URBAN AVENUE	43,800				
HOUSTON	WASHINGTON	MEMORIAL	MAJOR THOROUGHFARE	100'	T-6	13,100	URBAN AVENUE	39,000				
KIRBY	SHEPHERD	SAN FELIPE	MAJOR THOROUGHFARE	100' - 105'	T-4	19,600	URBAN BOULEVARD	48,000				
KIRBY	SAN FELIPE	WESTHEIMER	MAJOR THOROUGHFARE	100'	T-6	13,000	URBAN BOULEVARD	48,900				
KIRBY	WESTHEIMER	RICHMOND	MAJOR THOROUGHFARE	100'	T-6	14,600	URBAN BOULEVARD	63,000				
KIRBY	RICHMOND	WESTPARK	MAJOR THOROUGHFARE	100'	T-6	18,700	URBAN BOULEVARD	69,000				

A: Reflects needed connection/trails along Buffalo Bayou

B: Reflects needed connection/trails along Memorial Park

STREET NAME	FROM	TO	EXISTING FUNCTIONAL CLASS	MTFP ROW	NUM LANES	ADT	PROPOSED MMC	2035 ADT	Bike Facility	Parking	Transit	Ped Realm
MEMORIAL	IH 45	SHEPHERD	MAJOR THOROUGHFARE	120'	T-6	31,400	BOULEVARD	58,400	 A			
MEMORIAL	SHEPHERD	DETERING	MAJOR THOROUGHFARE	120' - 200'	T-6	23,000	BOULEVARD	65,400				
MEMORIAL	DETERING	WESTCOTT	MAJOR THOROUGHFARE	120' - 200'	T-6	20,800	URBAN BOULEVARD	54,800				
MEMORIAL	WESTCOTT	WOODWAY	MAJOR THOROUGHFARE	120'	T-6	23,000	BOULEVARD	53,600	 B			
MEMORIAL	WOODWAY	IH 610	MAJOR THOROUGHFARE	60'	T-2	14,500	BOULEVARD	35,000				
MONTROSE	ALLEN	DALLAS	MAJOR THOROUGHFARE	80'	T-4	10,000	URBAN BOULEVARD	32,100				
MONTROSE	DALLAS	WESTHEIMER	MAJOR THOROUGHFARE	100'	T-4	14,800	URBAN BOULEVARD	39,000				
MONTROSE	WESTHEIMER	US 59	MAJOR THOROUGHFARE	90'	T-4	15,500	URBAN BOULEVARD	42,100				
RICHMOND	SPUR 527	KIRBY	MAJOR THOROUGHFARE	80'	T-4	14,700	TRANSIT BOULEVARD	47,500				
RICHMOND	KIRBY	CUMMINS	MAJOR THOROUGHFARE	120'	T-6	19,000	TRANSIT BOULEVARD	74,200				
RICHMOND	CUMMINS	WESLAYAN	MAJOR THOROUGHFARE	120'	T-6	22,300	URBAN BOULEVARD	64,800				
RICHMOND	WESLAYAN	IH 610	MAJOR THOROUGHFARE	120' - 150'	T-6	24,700	URBAN BOULEVARD	74,800				
SAN FELIPE	SHEPHERD	KIRBY	MAJOR COLLECTOR	60'	C-2	5,700	URBAN AVENUE	34,800				
SAN FELIPE	KIRBY	WILLOWICK	MAJOR THOROUGHFARE	60'	T-4	11,800	URBAN AVENUE	50,500				
SAN FELIPE	WILLOWICK	MID LANE	MAJOR THOROUGHFARE	60' - 102'	T-4	20,200	URBAN AVENUE	52,000				
SAN FELIPE	MID LANE	IH 610	MAJOR THOROUGHFARE	60' - 102'	T-4	23,300	URBAN AVENUE	60,600				
SAWYER	IH 10	MEMORIAL	MAJOR COLLECTOR	50'-60'	C-2 C-4	6,700	URBAN STREET	31,000				
SHEPHERD	IH 10	DICKSON	MAJOR THOROUGHFARE	60'	T-4	24,600	URBAN COUplet	35,300				
SHEPHERD	DICKSON	MEMORIAL	MAJOR THOROUGHFARE	110'	T-6	2,800	URBAN BOULEVARD	75,100				
SHEPHERD	MEMORIAL	KIRBY	MAJOR THOROUGHFARE	185'	T-8	3,700	URBAN BOULEVARD	93,900				
SHEPHERD	KIRBY	DALLAS	MAJOR THOROUGHFARE	105' - 175'	T-6	13,200	URBAN BOULEVARD	53,700				
SHEPHERD	DALLAS	GRAY	MAJOR THOROUGHFARE	80'	T-4	15,200	URBAN AVENUE	51,200				
SHEPHERD	GRAY	RICHMOND	MAJOR THOROUGHFARE	80'	T-4	15,400	URBAN AVENUE	60,000				
SHEPHERD	RICHMOND	FARNHAM	MAJOR THOROUGHFARE	70'	T-4	22,200	URBAN AVENUE	38,200				
SHEPHERD	PORTSMOUTH	US 59	MAJOR THOROUGHFARE	60'	T-3	25,700	URBAN COUplet	38,900				
STUEMONT	IH 10	WASHINGTON	MAJOR THOROUGHFARE	100'	T-4	10,200	URBAN BOULEVARD	30,000				
STUEMONT	WASHINGTON	ALLEN	MAJOR THOROUGHFARE	100'	T-4	16,600	URBAN BOULEVARD	51,500				

A: Reflects needed connection/trails along Buffalo Bayou

B: Reflects needed connection/trails along Memorial Park

The success of bike facilities on Washington Avenue will depend on how transit is handled along this corridor in the future. Center street can be used as the alternative bike facility if Washington Avenue is not able to function as such.

STREET NAME	FROM	TO	EXISTING FUNCTIONAL CLASS	MTFP ROW	NUM LANES	ADT	PROPOSED MMC	2035 ADT	Bike Facility	Parking	Transit	Ped Realm
T C JESTER	IH 10	WASHINGTON	MAJOR THOROUGHFARE	95'	T-4	8,800	URBAN BOULEVARD	20,800				
WASHINGTON	HOUSTON	IH 45	MAJOR THOROUGHFARE	80'	T-4	3,000	URBAN AVENUE	14,100				
WASHINGTON	HOUSTON	STUEMONT	MAJOR THOROUGHFARE	80'	T-4	8,500	URBAN AVENUE	29,200				
WASHINGTON	STUEMONT	YALE	MAJOR THOROUGHFARE	80'	T-4	14,000	URBAN AVENUE	35,500				
WASHINGTON	YALE	DURHAM	MAJOR THOROUGHFARE	60'	T-4	11,600	URBAN AVENUE	36,000				
WASHINGTON	DURHAM	WESTCOTT	MAJOR THOROUGHFARE	60' - 70'	T-4	11,900	URBAN AVENUE	40,000				
WASHINGTON	WESTCOTT	IH 10	MAJOR THOROUGHFARE	65'	T-4	17,400	URBAN COUPLET	28,800				
WAUGH	ALLEN	GRAY	MAJOR THOROUGHFARE	100'	T-6	14,500	URBAN BOULEVARD	50,700				
WAUGH	GRAY	WESTHEIMER	MAJOR COLLECTOR	60'	T-2	15,800	URBAN COUPLET	22,800				
WAUGH	WASHINGTON	HEIGHTS	MAJOR THOROUGHFARE	60'	T-6	11,800	URBAN AVENUE	56,600				
WESLAYAN	WESTHEIMER	ALABAMA	MAJOR THOROUGHFARE	80'	T-4	13,900	URBAN BOULEVARD	43,700				
WESLAYAN	RICHMOND	WESTPARK	MAJOR THOROUGHFARE	100'	T-4	19,400	URBAN BOULEVARD	54,300				
WESTCOTT	IH 10	WASHINGTON	MAJOR THOROUGHFARE	150'	T-3	18,400	URBAN COUPLET	29,100				
WESTCOTT	WASHINGTON	MEMORIAL	MAJOR THOROUGHFARE	100'	T-4	6,800	URBAN BOULEVARD	38,100				
WESTHEIMER	BAGBY	MONTROSE	MAJOR THOROUGHFARE	60'	T-4	13,000	URBAN AVENUE	41,700				
WESTHEIMER	MONTROSE	SHEPHERD	MAJOR THOROUGHFARE	60'	T-4	10,400	URBAN AVENUE	44,600				
WESTHEIMER	SHEPHERD	BUFFALO SPEEDWAY	MAJOR THOROUGHFARE	70'	T-4	11,800	URBAN AVENUE	45,800				
WESTHEIMER	BUFFALO SPEEDWAY	WESLAYAN	MAJOR THOROUGHFARE	80'	T-4	17,200	URBAN BOULEVARD	46,000				
WESTHEIMER	WESLAYAN	IH 610	MAJOR THOROUGHFARE	80'	T-5	27,200	URBAN BOULEVARD	93,900				
WILLOWICK	SAN FELIPE	WESTHEIMER	MAJOR THOROUGHFARE	80'	T-4	14,300	URBAN BOULEVARD	40,400				
WOODWAY	MEMORIAL	IH 610	MAJOR THOROUGHFARE	85'	T-4	14,400	BOULEVARD	34,400				
YALE	IH 10	WASHINGTON	MAJOR THOROUGHFARE	70' - 90'	T-4	6,000	URBAN AVENUE	28,000				

The table displays priority elements for the major streets within the study area, and the subsequent cross section displayed later in this chapter provide possible roadway configurations, allowing for accommodation of the recommended elements.

The cross sections represented in this document are examples of possible configurations, but are not specific requirements. Future streets will be determined on these cross sections as an input with necessary adjustments to accommodate new information and consider other elements of the streets.

The following tables on page 31 and 32 detail existing Collector Streets within the Inner West Loop that are not currently designated on the Major Thoroughfare and Freeway Plan for the City of Houston.

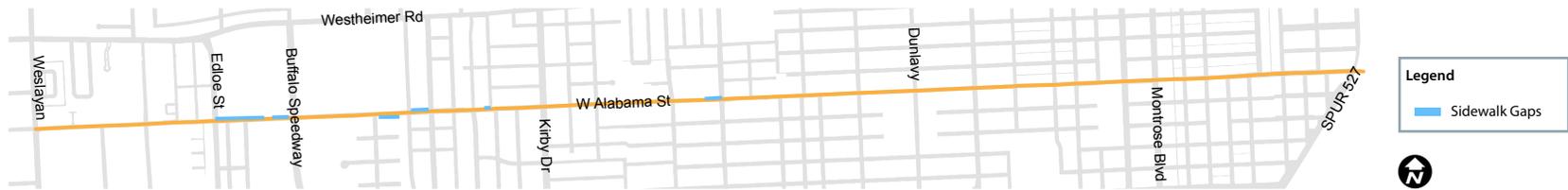
Collector streets act as connections to and between arterials to help facilitate the movement of automobiles. These streets are more accommodating of other modes of transportation such as bicycles. In order to develop a more connected network, the streets in the following table have been proposed for an adjustment in the Major Thoroughfare and Freeway Plan.

STREET NAME	FROM	TO	EXISTING FUNCTIONAL CLASS	PROPOSED MMC	Bike Facility	Parking
CENTER	HOUSTON	T C JESTER	ACCESS, BIKE	URBAN STREET		
CLAREMONT	SAN FELIPE	WESTHEIMER	ACCESS	URBAN STREET		
CLAY	TAFT	MCDUFFIE	ACCESS, BIKE, PED	URBAN STREET		
CUMMINS	ALABAMA	RICHMOND	ACCESS, PED	URBAN STREET		
CUMMINS	RICHMOND	US 59	TRANSIT, PED	URBAN STREET		
DETERING	WASHINGTON	MEMORIAL	ACCESS	URBAN STREET		
DREXEL	SAN FELIPE	RICHMOND	ACCESS	URBAN STREET		
EASTSIDE	WESTHEIMER	RICHMOND	ACCESS	URBAN STREET		
FAIRVIEW	SPUR	KIRBY	ACCESS, BIKE, PED	URBAN STREET		
FEGAN	HEIGHTS	WESTCOTT	ACCESS	URBAN STREET		
GRAUSTARK	WESTHEIMER	US 59	ACCESS	URBAN STREET		
GREENBRIAR	WESTHEIMER	RICHMOND	ACCESS	URBAN STREET		
GREENBRIAR	RICHMOND	US 59	ACCESS	URBAN STREET		
HAZARD	WESTHEIMER	US 59	ACCESS	URBAN STREET		
INWOOD	SHEPHERD	KIRBY	ACCESS, BIKE	URBAN STREET		
INWOOD	KIRBY	WILLOWICK	BIKE	URBAN STREET		
JACKSON HILL	WASHINGTON	MEMORIAL	ACCESS, PED, BIKE	URBAN STREET		
MANDELL	WESTHEIMER	US 59	ACCESS	URBAN STREET		
MCDUFFIE	SHEPHERD	GRAY	ACCESS, BIKE, PED	URBAN STREET		
MIDLANE	SAN FELIPE	RICHMOND	ACCESS	URBAN STREET		
PATTERSON	IH 10	WASHINGTON	VEHICLE, BIKE	URBAN STREET		
PATTERSON	WASHINGTON	FEGAN	ACCESS, BIKE	URBN STREET		
POST OAK BLVD	POST OAK PARK	IH 610	ACCESS, VEHICLE	URBAN AVENUE		
POST OAK PARK	SAN FELIPE	POST OAK BLVD	ACCESS, VEHICLE	URBAN AVENUE		
POST OAK PARK	POST OAK BLVD	IH 610	ACCESS, VEHICLE	URBAN STREET		
RIVER OAKS BLVD	INWOOD	WESTHEIMER	ACCESS	URBAN STREET		
SHEPHERD/FARNHAM	PORTSMOUTH	US 59	VEHICLE, TRANSIT	URBAN COUPLET		



Indicates Possible Future Bike Facility

STREET NAME	FROM	TO	EXISTING FUNCTIONAL CLASS	PROPOSED MMC	Bike Facility	Parking
STANFORD	ALLEN PKWY	WESTHEIMER	ACCESS, PED	URBAN STREET		
STANFORD	WESTHEIMER	RICHMOND	ACCESS, PED	URBAN STREET		
TAFT	ALLEN PKWY	WESTHEIMER	ACCESS, BIKE, PED	URBAN STREET		
TIMMONS	WESTHEIMER	RICHMOND	VEHICLE, PED	URBAN STREET		
TIMMONS	RICHMOND	US 59	VEHICLE, PED	URBAN AVENUE		
VERMONT	SHEPHERD	DUNLAVY	VEHICLE, PED	URBAN STREET		
WEBSTER	BAGBY	WILSON	ACCESS, PED	URBAN COUPLET		
WESTCREEK	SAN FELIPE	WESTHEIMER	ACCESS	URBAN STREET		
WILLOWICK	SAN FELIPE	INWOOD				
WOODHEAD	WESTHEIMER	US 59	ACCESS	URBAN STREET		



Existing Conditions

West Alabama currently is constructed as a 3-Lane travelway with sidewalks. The adjacent development orientation shifts from direct access onto the pedestrian realm to larger surface parking lots abutting the street. West Alabama includes an imbalanced lane cross section that allows 2 travel lanes in one direction and 1 travel lane in the opposing direction. West Alabama connects a residential neighborhood near the western edge of the study area, to the downtown grid in a consistent corridor. The travel speeds and volume tends to be less than either of the parallel routes, Westheimer and Richmond, and the overall context stays much more consistent throughout the length of the corridor. West Alabama is currently classified as a **Major Collector** that is in need of additional Right-of-Way between Buffalo Speedway and Shepherd.

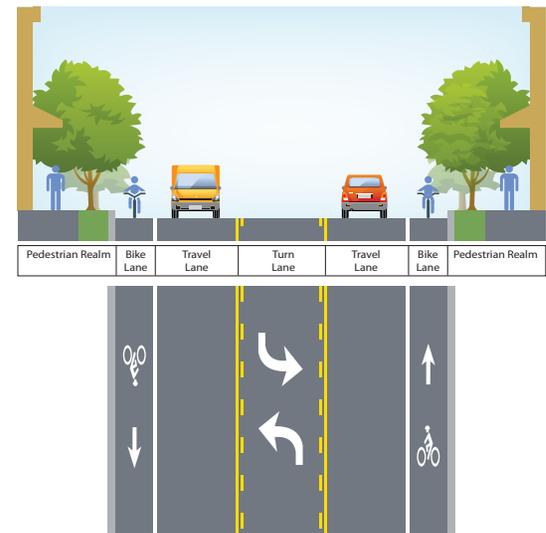
Identified Needs

Comments received during the public outreach process suggested several topics for examination along West Alabama. Residents, business owners, and representatives from various governing agencies suggested that West Alabama could be improved through the implementation of bicycle lanes and creating a uniform cross section that allowed for a conversion to a standardized lane configuration. The corridor could also benefit from an improved pedestrian realm and completing the sidewalks where gaps currently exist. The graphics highlight some alternative considerations for West Alabama. Gaps within the sidewalk network have been noted in blue.

Future Vision

The proposed Multi-Modal Street Classification for West Alabama is an **Urban Avenue**. The corridor is envisioned to serve a local transportation need with less emphasis on through traffic. Construction on an improved corridor that includes facilities for bicycles and completing/improving the pedestrian realm is essential to meeting the overall needs of the Multi-Modal Network within the study area. As redevelopment of smaller parcels occurs, the consolidation of some driveways would help traffic flow along the corridor. In addition, the creation of dedicated turn lanes will be very beneficial to the operation of the intersections.

Key Factors



Possible short-term vision



Existing Conditions

Shepherd and Durham are constructed as a one-way pair north of Memorial. This configuration continues to well beyond the northern limits of the Study Area and a large portion of the traffic within the corridor is regional in nature. As such, the designation as a **Major Thoroughfare** is fitting. The one-way pair nature of this segment of these corridors also allows for additional consideration within the Infrastructure Design Manual pertaining to any on-street parking considerations and alternative cross section options. The current design allows for travel lanes in each direction during the peak hours, with certain areas allowing on-street parking during the off-peak hours for the local businesses. The current sidewalk network has many interruptions throughout the Shepherd corridor, while the Durham corridor seems to have better overall connectivity. Neither corridor currently provides dedicated areas for bicycles within the travelway.

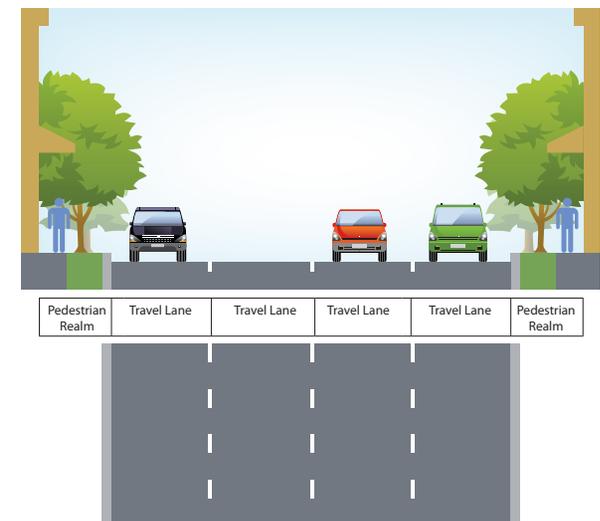
Identified Needs

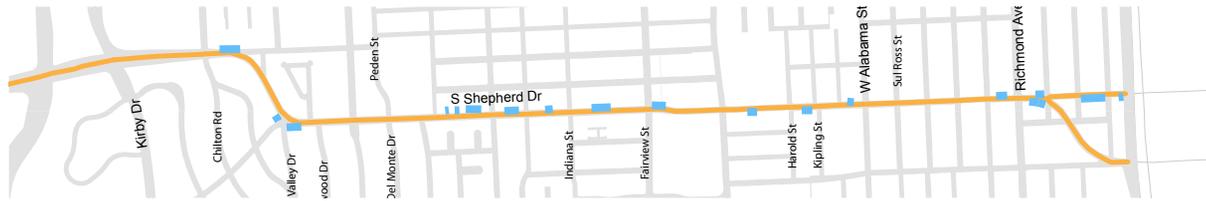
Comments received during the public outreach process suggested a need for improvements within the pedestrian realm, including completion of the entire sidewalk network. Additional improvements to bus stop areas within the corridor could help to facilitate increases in transit ridership within the corridor. The graphics on the following page highlight some alternative considerations for Shepherd and Durham. Gaps within the sidewalk network have been noted in blue. Of note within the Shepherd and Durham corridors is that several of the intersections at other Major Thoroughfares are experiencing significant congestion today, and that congestion is projected to grow in the future. The one-way nature helps to minimize some of the delays, however, traffic volumes are projected to grow to such levels that congestion at intersections during the AM and PM peak are unavoidable.

Future Vision

The proposed Multi-Modal Street Classification for Shepherd and Durham within this section is an **Urban Couplet**. The corridor is envisioned to serve a regional transportation needs while providing local access to businesses and the surrounding neighborhood. Construction of an improved corridor that includes completing/improving the pedestrian realm and provisions for **High Frequency Transit** is essential to meeting the overall needs of the Multi-Modal network within the Study Area. Finally, as redevelopment of smaller parcels occurs, the consolidation of some driveways with a focus on creating logical connections to the local street network would help traffic flow along the corridor.

Key Factors





Existing Conditions

Shepherd is constructed as a 4-Lane facility that carries upwards of 40,000 vehicles on a daily basis. The Shepherd corridor provides the first north/south connection that is west of the 610 loop within the Study Area and a large portion of the traffic within the corridor is regional in nature. As such, the designation as a **Major Thoroughfare** is fitting. With few exceptions, the corridor generally has a Right-of-Way that is approximately 80-feet. The area of between Dallas and Gray has been identified as an area where additional Right-of-Way is needed. The current design allows for two travel lanes in each direction during the peak hours, with certain areas allowing the implementation of left-hand turn lanes at key intersections. Several segments of the corridor experience notable congestion and a limited availability of ROW to provide for additional lanes or multi-modal options. The current sidewalk network has some interruptions throughout the Shepherd corridor; meanwhile the corridor is not a bicycle friendly corridor in its current configuration.

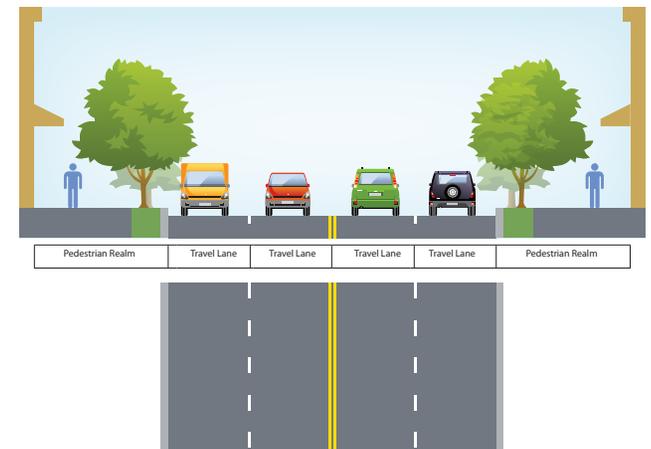
Identified Needs

Comments received during the public outreach process suggested a need for improvements within the pedestrian realm, including completion of the entire sidewalk network. Additional improvements to bus stop areas within the corridor could help to facilitate increases in transit ridership within the corridor. The graphics on the following page highlight some alternative considerations for Shepherd. Gaps within the sidewalk network have been noted in blue. Of note within the Shepherd and corridor is that several of the intersections at other Major Thoroughfares are experiencing significant congestion today, and that congestion is projected to grow in the future. Traffic volumes are projected to grow to such a level that congestion at intersections during the AM and PM peak are unavoidable. Additionally, there is a need to reexamine the manner in which Shepherd/Memorial/Kirby/Allen Parkway interact with one another.

Future Vision

The proposed Multi-Modal Street Classification for Shepherd this section is an **Urban Avenue** and an **Urban Boulevard with High Capacity Transit**. The corridor is envisioned to serve a regional transportation needs while providing local access to businesses and the surrounding neighborhood. Construction on an improved corridor that includes completing/improving the pedestrian realm is essential to meeting the overall needs of the Multi-Modal Network within the Study Area. Finally, as redevelopment of smaller parcels occurs, the consolidation of some driveways with a focus on creating logical connections to the local street network would help traffic flow along the corridor.

Key Factors





Existing Conditions

Portions of Washington Avenue are quickly redeveloping from older industrial uses to multi-story mixed use developments that include an active restaurant environment. Recently, a smaller segment within the corridor was resurfaced and during that activity the roadway was striped to include bicycle “sharrows” on the pavement and “Share the Road” signs along the corridor. The context and traffic patterns of the corridor change east and west of Studemont, but the corridor ultimately serves a large portion of regionally focused traffic and as such the designation as a **Major Thoroughfare** is fitting. Several sections of the corridor have pedestrian infrastructure that isn’t continuous, or changes from a wide sidewalk area to an area of lay-down curb where a business takes direct parking access through the entire pedestrian realm.

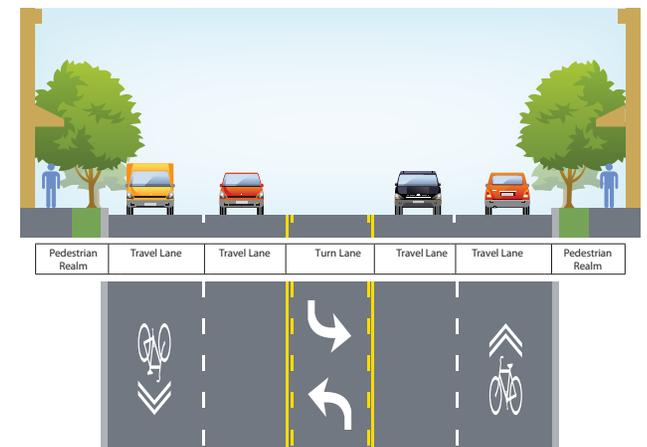
Identified Needs

Washington Avenue has been the topic of several concurrent and ongoing studies. The Livable Centers Study examined the local needs of the corridor. The **City of Houston Parking Study** will be studying the needs of the larger commercial area in a future study. And the Inner West Loop Mobility Study has examined the needs as it related to the traveling public. Several studies and entities have noted a need for increased transit options along Washington Avenue. Those increased services would benefit from improvements to the pedestrian network that connects the residential neighborhoods to Washington Avenue, as well as connecting the uses along the corridor. Additionally, residents and employees have noted a desire for increased bicycling amenities similar to those that already exist within the corridor.

Future Vision

By classifying Washington Avenue as an **Urban Avenue with High-Frequency Transit**, several components of the identified needs can be addressed during future reconstruction. The facility will need to accommodate larger transit vehicles, bicycles, and adequate sidewalks for larger volumes of pedestrians in what is likely to become an urban village. Designing the roadway to safely accommodate an increased volume of traffic, while balancing the multi-modal needs, is paramount to the future success of the corridor. In addition, consideration of Center Street will be critical in the future since both parallel corridors are closely spaced

Key Factors



Waugh/Commonwealth from West Gray to Westheimer



Existing Conditions

Waugh and Commonwealth function as an **Urban Couplet** and serves primarily as access to surrounding residential uses. A majority of both corridors allow on street parking along one side of the street and a bicycle lane on the opposite side. The Commonwealth corridor has continuous sidewalks throughout the entire segment, while there are a few gaps in the Waugh corridor's sidewalk network. The couplet is appropriately designated as a **Major Collector** through this segment given the connections to the arterial system and the amount of local streets that access the facilities for trips to and from the surrounding residential uses.

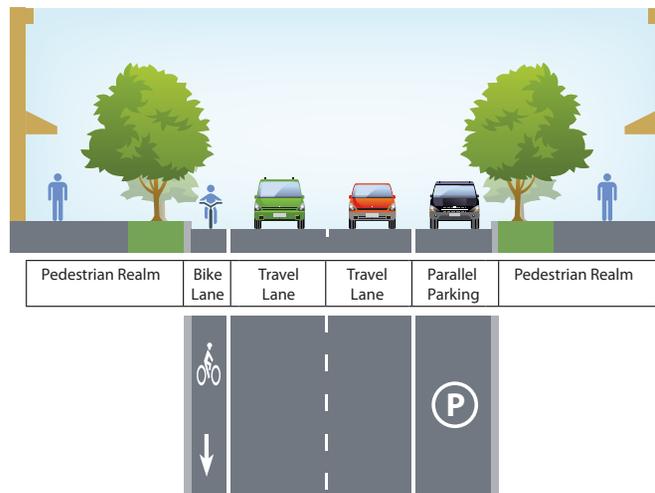
Identified Needs

This section of Waugh and Commonwealth could benefit from a better definition of the pedestrian realm, including the completion of the sidewalk gaps along Waugh. Continuing to provide on-street parking and a bicycle facility that is on-street is desired for both of these corridors. The bike facility provides a greater connection into a larger regional network through Waugh to the north. There are several instances where the sidewalk network would benefit from the implantation of accessible ramps, as improvements are made in the future.

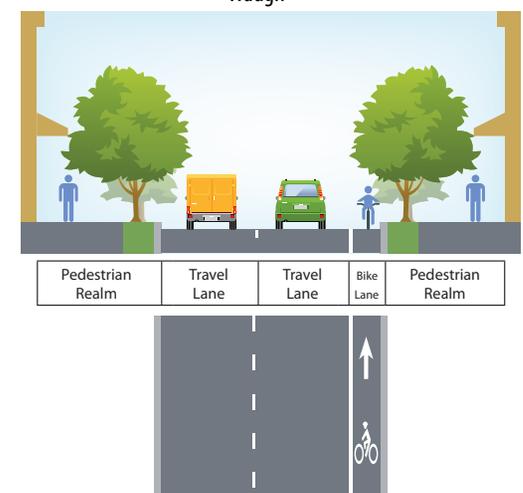
Future Vision

The future vision of the corridors are very similar in nature to the existing facilities. Given the surrounding residential uses, and the character of the current roadways, these facilities are not likely to change very much in the future. The couplet should continue to act as a Major Collector but designation as an **Urban Couplet** is appropriate considering the Multi-Modal Classification System.

Commonwealth



Waugh



Key Factors





Existing Conditions

Waugh Drive between West Gray and Allen is a 6-lane Major Thoroughfare with medians in certain locations for traffic control purposes. Waugh provides regional access to several other Major Thoroughfares, as well as logical connections into the surrounding neighborhoods. The classification of Waugh as a Major Thoroughfare is fitting given this context.

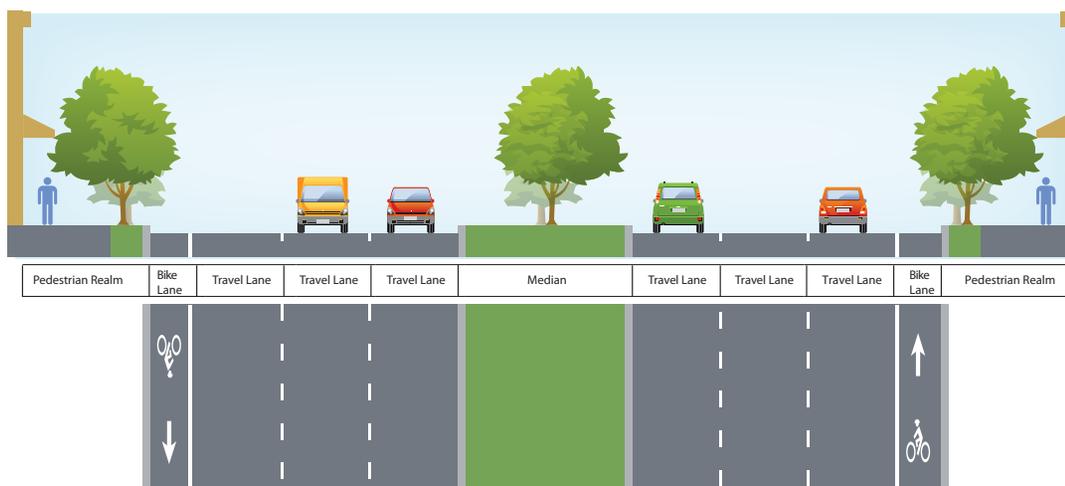
Waugh Drive does not have bicycle facilities for this section of the corridor and the gap is noticeable given the nature of the Waugh/Commonwealth couplet immediately south of this segment of the corridor. The context of Waugh along this portion is generally commercial uses that are set back from the travelway. The pedestrian realm needs some improvements; however the general space is allocated for pedestrian facilities.

Identified Needs

The most notable comments regarding Waugh during the first Public Meeting in March of 2012 were a few sidewalk gaps, the lack of bicycle facilities, and a need for improved transit service and amenities. Also of note within the corridor is the lack of accessible ramps at several locations. There is also a notable gap in the Bicycle network that could be completed using this section of Waugh. Implementation of that facility will require additional ROW.

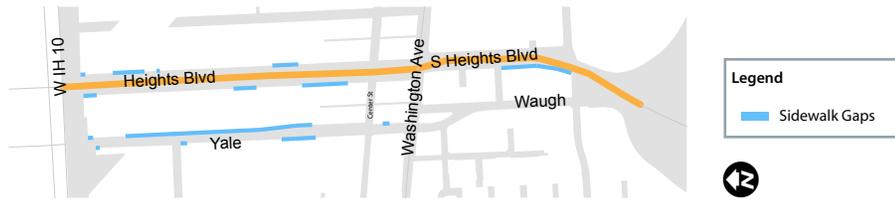
Future Vision

The implementation of a continuous bicycle facility within this section of Waugh, such as that currently under consideration by the Department of Public Works, would allow resident in the lower Westheimer and Waugh/Commonwealth areas to have a logical on-street connection to the Buffalo Bayou Trail System. That facility could be implemented through shared-use lanes along Waugh in conjunction with the **Urban Boulevard** Cross Section Standards. The graphic also highlights a sufficiently wide pedestrian realm to allow for improved transit stop amenities and continuous sidewalks.



Key Factors





Existing Conditions

Heights provides a significant north/south corridor that has access to I-10 and Allen. The corridor has 150' of Right-of-Way that provides ample opportunity for providing facilities that can meet the needs of all users. The center esplanade provides a sense of place within the corridor that also provides for a more efficient movement of traffic by allowing for proper turn lane storage space.

The corridor is currently designated and a **Major Thoroughfare** and this classification is fitting given the regional nature of the traffic it serves and the large capacity available within the Right-of-Way.

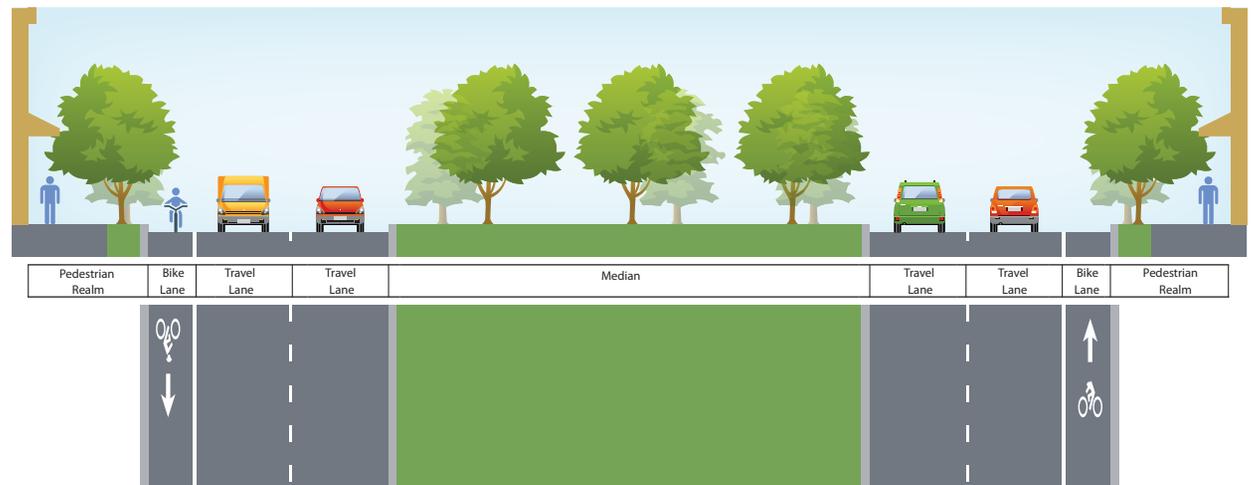
Identified Needs

The wide Right-of-Way had several stakeholders suggesting that the esplanade and the roadway could be reconfigured to promote non-motorized travel options within the corridor. Several segments of the corridor are currently undergoing significant redevelopment, and the implementation of a complete sidewalk network is critical to continuing to promote travel options and accessibility.

Future Vision

By promoting multi-modal travel options within the Heights Corridor, regional connections can be made outside of the Study Area to the north, and users could access the bayou trails system to the south. It is this regional connectivity that frames the conversation about what and how Heights should function in the future. Continuing to provide automobile travel options, while enhancing the pedestrian and bicycle networks will allow Heights to continue to redevelop while help to shift the modal patterns of the corridor. Designating Heights as an **Urban Boulevard** is fitting given the context and desired travel options.

Key Factors





Existing Conditions

Yale is currently designated on the MTFP as a **Major Thoroughfare** to be widened with the exception of a small segment from Washington to Memorial. The corridor provides another route for access to the neighborhood between I-10 and Memorial and would allow for another route to be programmed for improvements as Heights and the surrounding area continues to redevelop. Another key consideration for the Yale Corridor is the provision of on-street parking during the off-peak hours.

Identified Needs

The pedestrian realm was the most noted area that would require improvements within the Yale corridor. Yale will likely continue to need to provide four lanes of vehicular traffic, but an improved network of pedestrian facilities, paired with the improvements made to Heights would make this pair of roadways that are closely spaced a very complete option for residents and visitors alike.

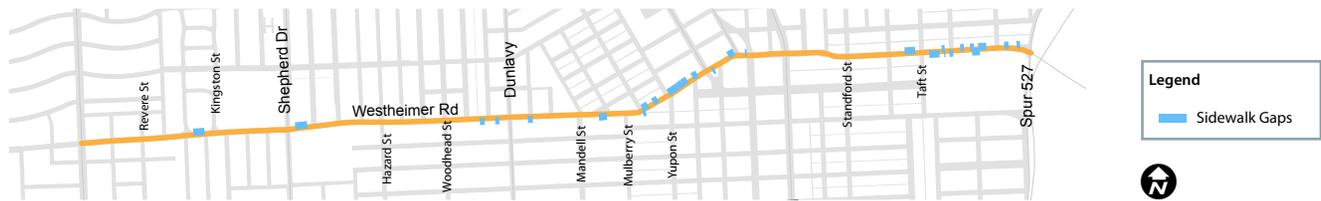
Future Vision

Yale is classified as a **Major Thoroughfare** on the MTFP, and providing a sub-classification as an **Urban Avenue**, improvements that are made within the corridor can help to complete the network of streets within this sector of the Study Area and pedestrians can have a clear corridor for use when making trips within the neighborhood. The focus of the corridor on vehicular and pedestrian trips fits within the context of the overall improvements recommended for Heights and Yale as a pair of corridors that function well together.



Key Factors





Existing Conditions

Lower Westheimer is currently designated as a **Major Thoroughfare** that requires additional Right-of-Way. The corridor has several notable sidewalk gaps, as well as a mix of uses immediately adjacent to the roadway that will make widening the corridor, even to provide a complete sidewalk network, very difficult. The corridor also has a mix of on-street parking and narrow lanes that degrade the operating conditions throughout the day depending on which vehicles are using the corridor and which parking areas are occupied. The corridor handles a significant amount of daily traffic, and the projected traffic volumes show a large amount of growth. This large volume of traffic validates the designation as a **Major Thoroughfare**.

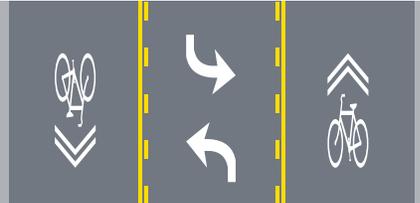
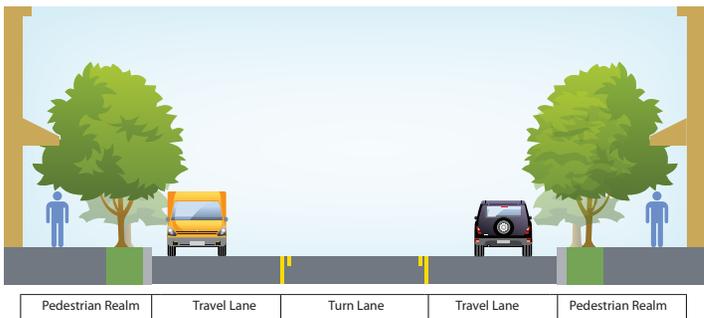
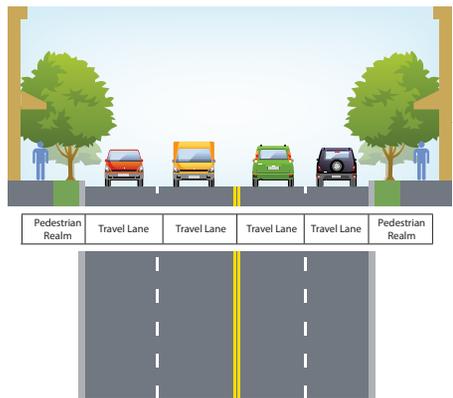
Identified Needs

The existing conditions described suggest that there is a need to re-imagine the operating condition of the corridor. Without widening the existing corridor, the options for improvements are limited. Priorities identified by various stakeholders suggested a need for increased pedestrian connectivity, and an increase in transit services to help facilitate the movement of larger amounts of people. Within the existing pavement and Right-of-Way, the options for additional configurations are limited. As such, there is a need to study further the type of traffic and the development of the best operating configuration for the corridor.

Future Vision

The future configuration of the Lower Westheimer corridor should promote several modes of travel. The optimal configuration maximizes the **High Frequency Transit** of the corridor, while providing a continuous pedestrian realm, and balancing the traffic operations needs of the large volume of automobile traffic. Designating Lower Westheimer as an **Urban Avenue** helps to meet these needs within the Infrastructure Design Manual Alternatives. Finally, the examination of off-street parking options in conjunction with redevelopment initiatives will be critical to the long-term success of this segment of Westheimer.

Key Factors



Option 1 - Possible short-term vision



Existing Conditions

San Felipe is constructed as a 4-Lane undivided roadway with sidewalks along a large portion of the corridor. The MTFP designates San Felipe as a **Major Thoroughfare** and a **Major Collector**, with a segment just east of Kirby needing additional Right-of-Way. There are many sidewalk gaps within the corridor especially near the at-grade railroad crossing and the area between Kirby and Shepherd. San Felipe serves both regional and local traffic needs given the access provided to Interstate-610; however, the corridor quickly shifts into a much more residential character east of the railroad crossing.

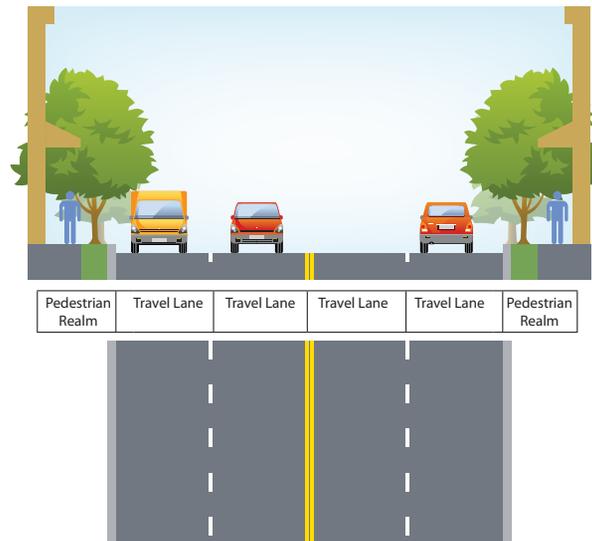
Identified Needs

Beyond the sidewalk gaps noted in the map, the corridor generally did not see any specifically identified needs. Improving the crossing of the at-grade railroad is a concern throughout the Study Area; however, the potential improvements at this location would require very costly grade separations, which would exacerbate the limited connections across the rail, and potentially impact businesses and residences.

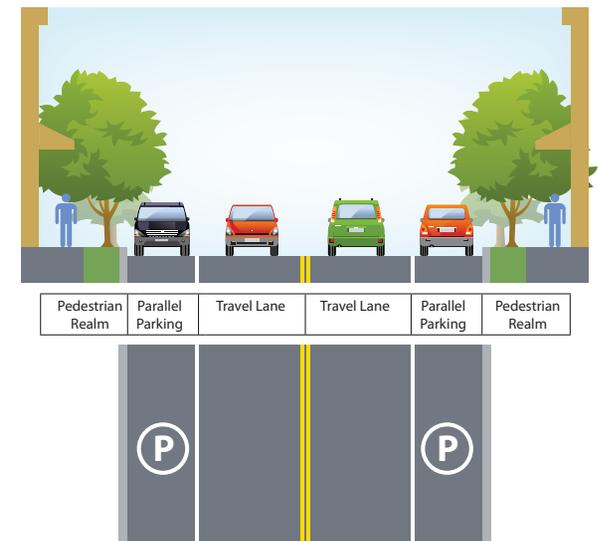
Future Vision

The corridor transitions from a regional roadway, to one that serves a local traffic circulating need as it approaches Shepherd. Designating the corridor as an **Urban Avenue** allows for a transition between the 4-Lane section and a 2-Lane section with on street parking similar to the current operating conditions within the corridor. There may still be a need to evaluate the widening of the Right-of-Way within the corridor east of Kirby. This will need to be examined within further engineering studies as future traffic conditions are specifically developed for design year considerations.

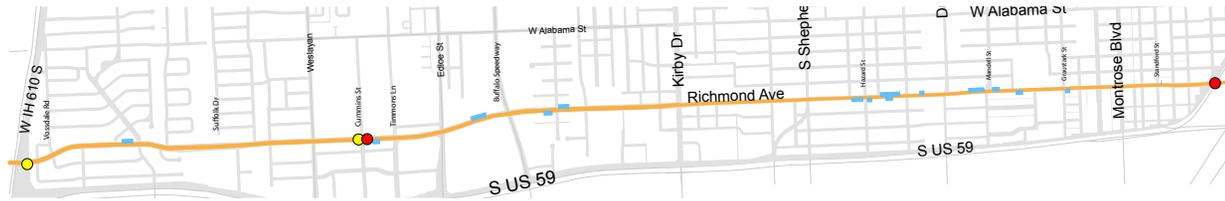
Key Factors



West of Kirby



East of Kirby



Existing Conditions

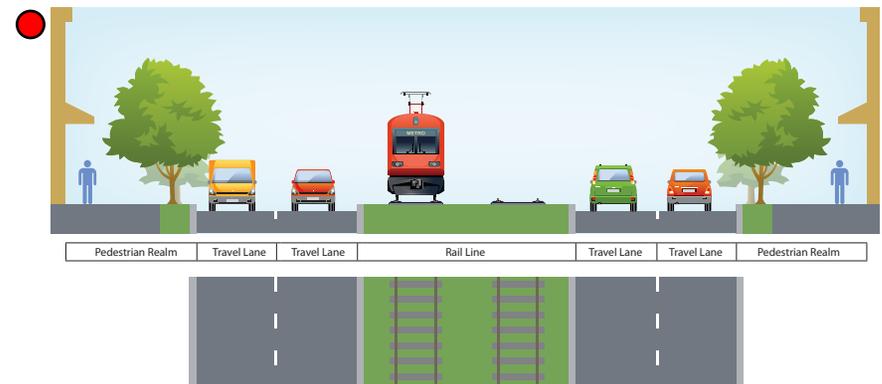
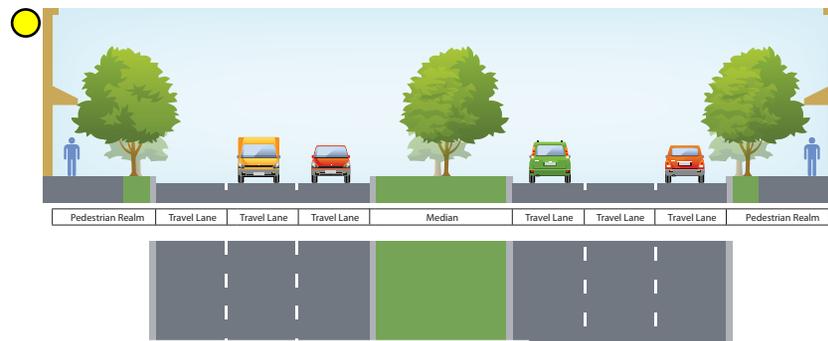
Richmond Avenue changes context and configuration several times throughout the Study Area. The roadway is classified as a Major Thoroughfare and significant segments of the corridor have been studied for years as a part of the METRO University Line. Several sections of Richmond could benefit from the completion of the sidewalk network. A portion of the Richmond Corridor could be designated as a Transit Corridor, per the City of Houston MTFP, requiring additional details regarding sidewalk minimum width and development orientation as redevelopment occurs. There are also a few locations throughout the corridor that are lacking ADA compliant ramps within the cross-walk area.

Identified Needs

Traffic congestion along Richmond Avenue was a significant comment that was received through the public outreach process. Several potential improvements have been identified through this planning process, and several of those improvements could be completed in conjunction with the construction efforts for the University Line. The corridor has been analyzed throughout several studies and the design specifics should be coordinated with those efforts to ensure that the multi-modal carrying capacity of the corridor is considered as improvements are made. Additional right-of-way is warranted along sections of the roadway to meet mobility needs along the corridor.

Future Vision

The Richmond Corridor has been envisioned as an **Urban Boulevard** and a **Transit Boulevard** throughout the Study Area given the changing dynamics as Rail turns south on Cummins. Wider sidewalks east of Wesleyan are warranted given the nature of the Greenway Plaza District and moving east the Transit Corridor designation reinforces the need for improved pedestrian facilities. There is a need to further evaluate additional pedestrian crossing amenities at high volume crossing locations.



Key Factors



West Gray from Shepherd to Bagby



Existing Conditions

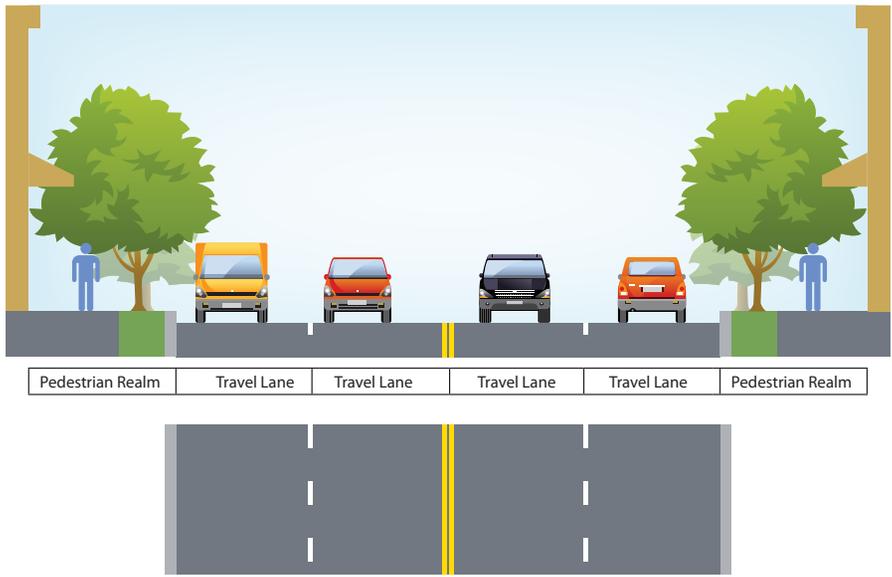
West Gray is a corridor in transition. Through the Fourth Ward, the corridor is dominated by vehicular considerations. Transitioning to the Montrose neighborhood, West Gray becomes a regional route that provides access to shopping and housing needs for an urban neighborhood. Approaching the commercial areas near Shepherd, the corridor becomes dominated by vehicular and pedestrian considerations for patrons at the shopping centers. There are a few locations within the eastern section of the corridor that need additional improvements of sidewalk infrastructure. The designation as a **Major Thoroughfare** is fitting given the vehicular volumes and regional nature of much of the traffic, especially to/from downtown.

Identified Needs

Between Montrose and Bagby, the question of how to address the existing on-street parking considerations will continue to be a topic for further analysis. The gaps within the pedestrian realm in the eastern section of the corridor have also been mentioned as a topic for improvement. Overall the recommendations for this corridor involve dealing with small gaps within the system, rather than a complete change to the corridor.

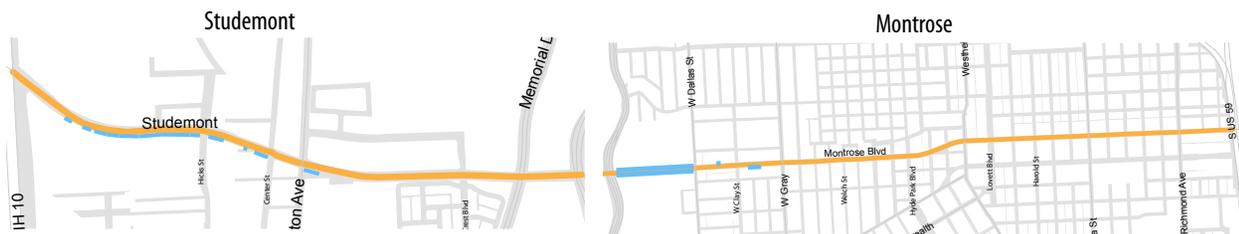
Future Vision

West Gray is a typical **Urban Avenue** within the Southeast quadrant of the Study Area. There are a few locations where minor modifications could be made; however, the larger long-term question surrounds the on-street parking considerations between Montrose and Taft. The local businesses rely on the non-peak hour parking options possible within the Right-of-Way, and the consideration of how best to implement a parking strategy will likely be another study.



Key Factors





Existing Conditions

Studemont and Montrose provide a continuous north/south route from I-10 to US 59. This corridor is one of two designated thoroughfares that are north-south routes in the Study Area that span the entire Study Area. As such, it is currently used for major transit service, heavy vehicular traffic, and pedestrian travel as necessary and the **Major Thoroughfare** status is valid. There are significant gaps within the sidewalk network along both streets, and the roadway may be in need of resurfacing soon.

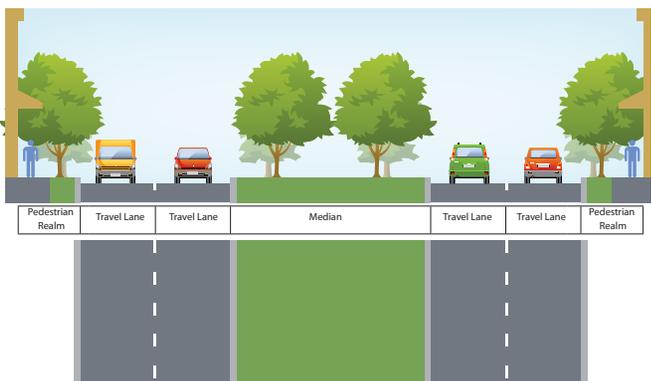
Identified Needs

The **Washington Avenue Livable Centers Study** has identified a grid of streets that would rely on Studemont for regional access. Montrose continues to be a corridor that serves a regional purpose, while providing access to the neighborhoods that exist within this quadrant of the Study Area. The connections to the Museum District and Rice University from Montrose will continue to provide a need for multi-modal transportation options. There has also been an examination of an off-street bike trail to meet the needs of bicycle network within the study area.

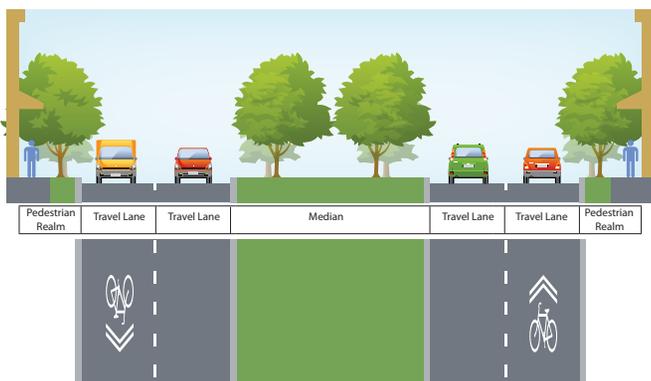
Future Vision

Providing a complete pedestrian network with **High Frequency Transit** options is a key item to the long-term viability of the corridor to handle the projected traffic volumes. An additional item for consideration south of the Bayou Trail network would provide an on-street option for bicycles to access the existing neighborhoods from the downtown area. Finally, by creating an **Urban Boulevard** that promotes a balance of users, the overall carrying capacity of the corridor can be increased within the existing Right-of-Way.

Studemont



Montrose



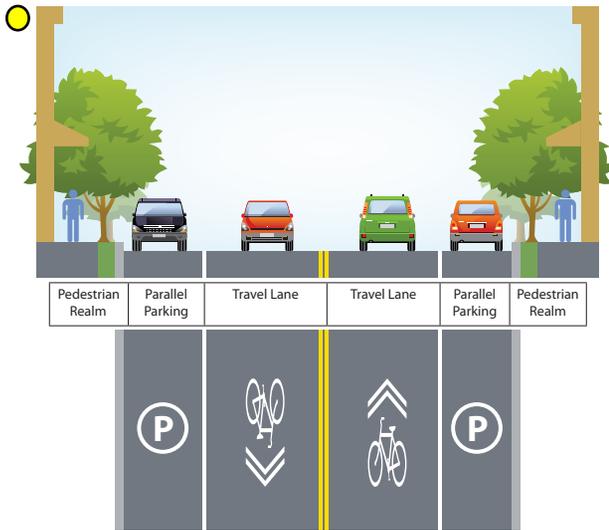
Key Factors





Existing Conditions

Dunlavy provides north/south access within a series of neighborhoods in the southeastern quadrant of the Study Area. The connections to several Major Thoroughfares make Dunlavy a logical Major Collector within the overall transportation network. Dunlavy has been identified as a corridor that will require additional Right-of-Way near the intersection with US-59 and the intersection with Allen Parkway.



Key Factors

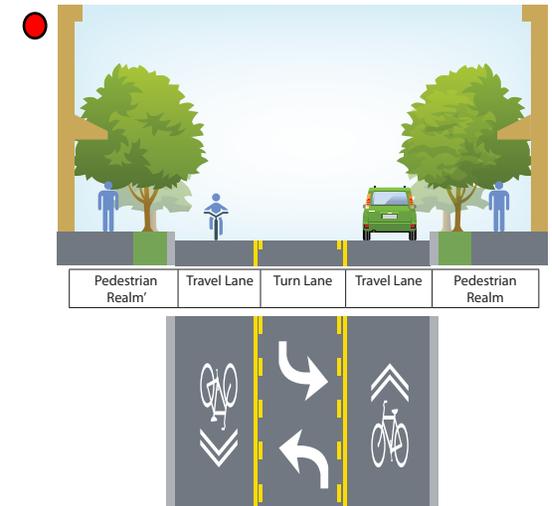


Identified Needs

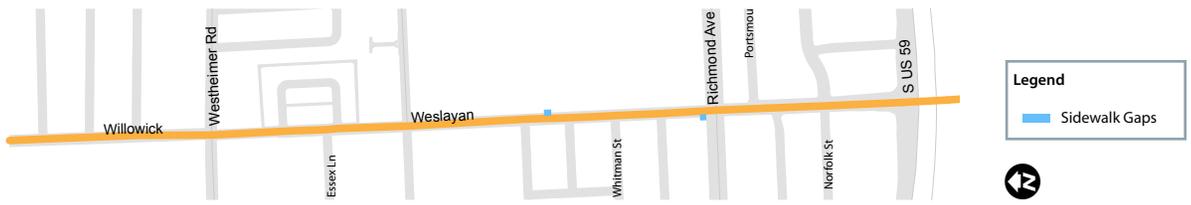
Given the more residential context along Dunlavy, there is a large existing network of on-street parking that provides transportation challenges near major intersections. In particular, the intersection near Westheimer has been identified as an area that will likely need further specific analysis of intersection treatments to minimize conflict points between turning traffic and parking/parked cars. A few small gaps in the sidewalk network exist along Dunlavy. Additionally, the lower speed nature of Dunlavy makes it an attractive Bike Route within this part of the Study Area, especially given the Right-of-Way constraints on the adjacent Major Thoroughfares. The combination of on-street parking and intersection treatments for turning movements can create some confusion for a cyclist, and a clearly defined space would be ideal for creating a bike-friendly environment.

Future Vision

Providing a complete bicycle and pedestrian network along Dunlavy helps to provide an alternative route within the larger transportation network. Slower vehicular speeds, and lower carrying capacity are a byproduct of the corridor focus, however, local access is maintained. The connection of Dunlavy at Allen Parkway will also need additional examination of the best way to get cyclists and pedestrians into the Bayou Trail network. As a Major Collector, Dunlavy fits within the **Urban Street** designation within the Multi-Modal Street Classification System.



Weslayan/Willowick from Westpark to San Felipe



Existing Conditions

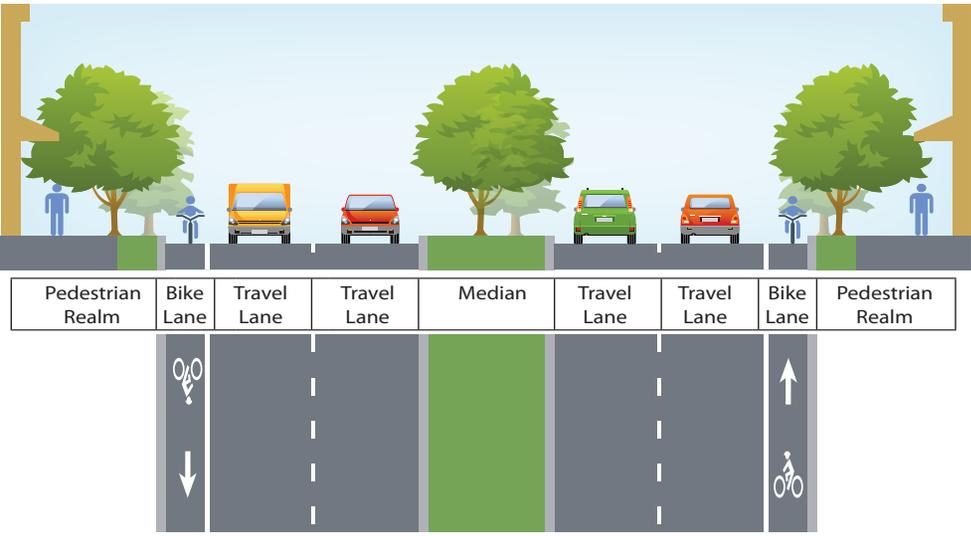
The Weslayan/Willowick corridor serves a regional access purpose for the majority of the corridors within the study area. At the northern edge, the corridor transitions into residential uses and is no longer classified on the MTFP. The existing corridor is a 4-lane section that allows for a median within the 100-foot ROW and no median in the 80' ROW. There is a small bicycle lane on both directions of travel within the corridor. Given the regional trips that use this facility, the designation as a Major Thoroughfare is fitting.

Identified Needs

Several intersections along the Weslayan/Willowick corridor have been identified as having available Right-of-Way to allow for additional turn lane storage which will help to alleviate some of the existing peak hour traffic. A small gap within the sidewalk network was identified between Richmond and Alabama, and various stakeholders identified a desire for increased bicycle facilities within the existing corridor.

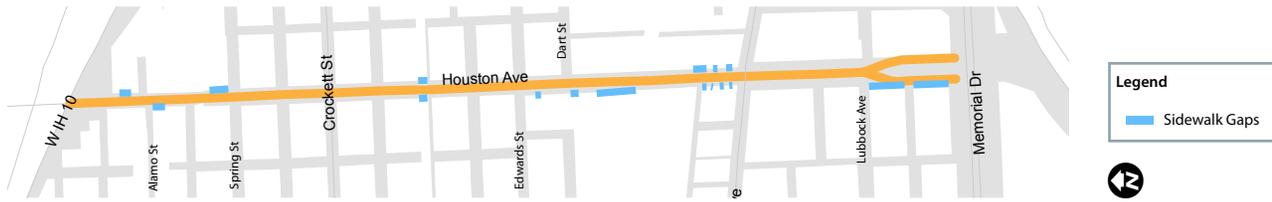
Future Vision

Redefining the **Urban Boulevard** with a consistent bike lane, planted median that allows for access management controls, and improved intersections will allow this corridor to handle more traffic over the planning horizon. The corridor will continue to see increased pressure for vehicular traffic, and balancing the needs of other users will be important as any new projects within the Right-of-Way are considered.



Key Factors





Existing Conditions

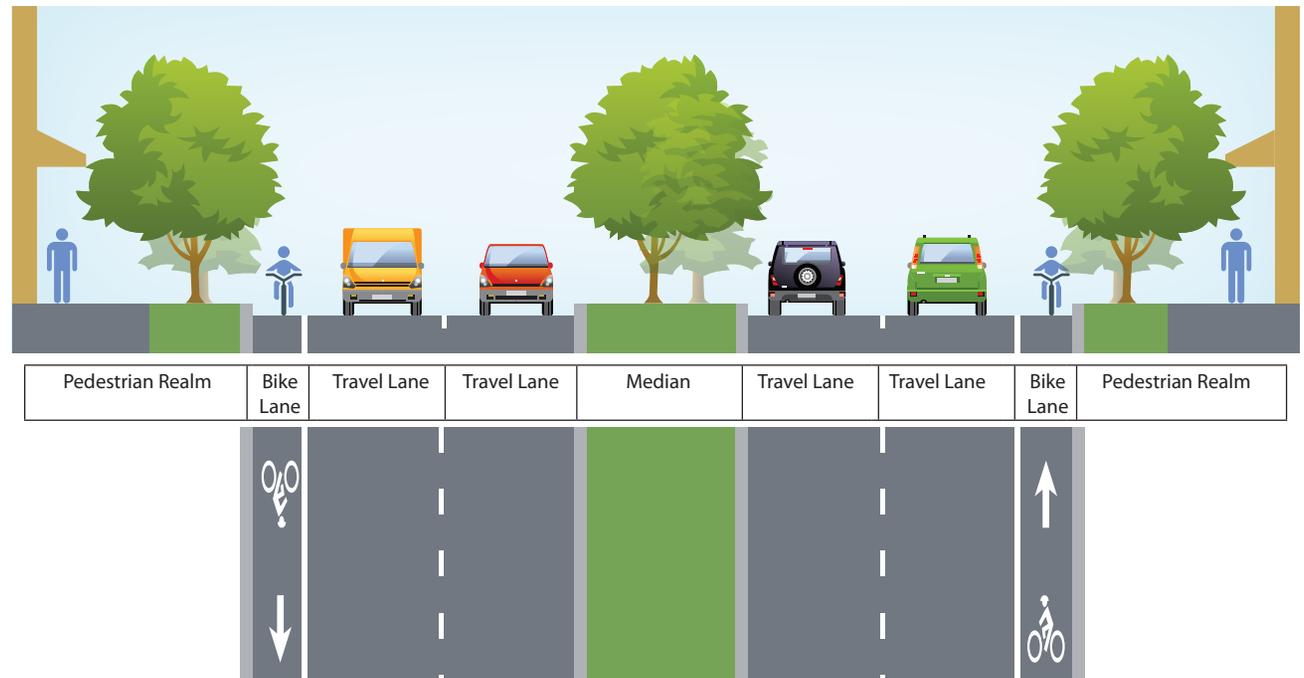
Houston Street provides direct access from I-10 to Memorial Drive and I-45. North of the Study Area, Houston intersects several other Major Thoroughfares, and as such is classified as a Major Thoroughfare. The corridor serves a regional traffic need, while providing access to the surrounding development. The grade separated crossing of the Terminal Subdivision Railroad, is one of a very few within the Study Area.

Identified Needs

Very few needs were identified within the Houston Street Corridor. Continued access to the larger regional facilities, improved Bus Stops and transit amenities, and an improved pedestrian realm will help to strengthen the overall context of the corridor. Minor intersection improvements at Memorial and Lubbock could help to clarify traffic flow considerations within the corridor.

Future Vision

The ROW for the Houston Corridor varies within the Study Area. By implementing a 4-Lane and 6-Lane **Urban Avenue** section within the existing Right-of-Way, the corridor can facilitate the movement of pedestrians, bicyclists, and automobiles. By maintaining the existing ROW, the corridor will be better suited to handle future traffic volumes.



Key Factors





Existing Conditions

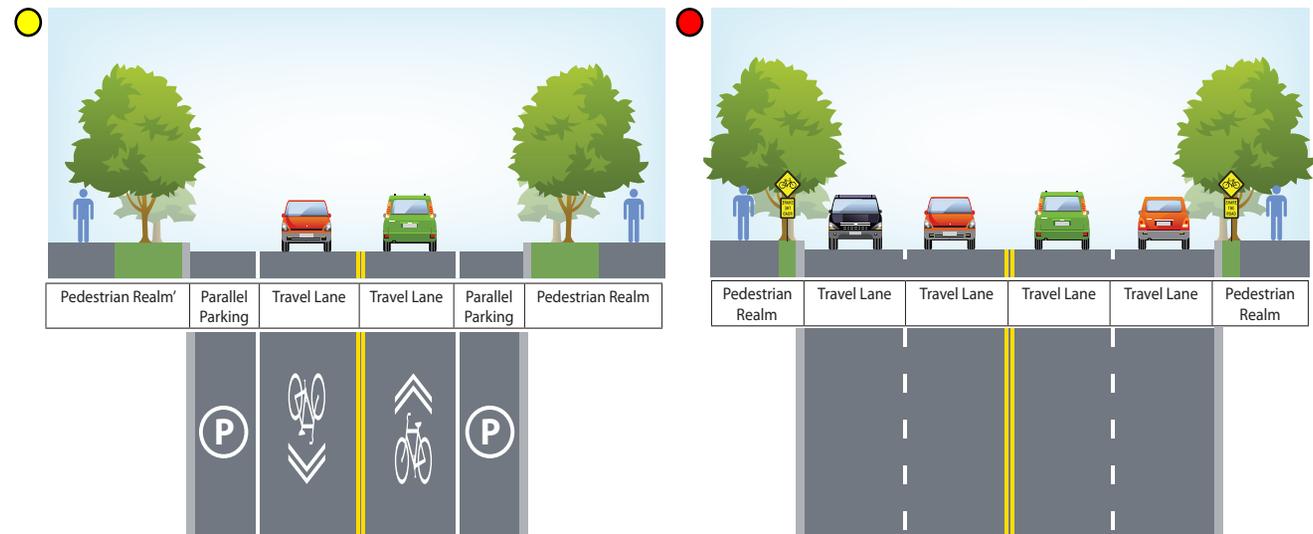
Crockett serves a primarily residential purpose; however, as one of a few roads with access across I-10/I-45 just north of Downtown the roadway is classified as a **Major Collector**. The section between Houston and Taylor allows for on-street parking, while the section east of Houston requires a 4-Lane configuration to match traffic demands.

Identified Needs

There are significant sidewalk gaps along the Crockett corridor. Given the slow pace of redevelopment in this area, the gaps are not unexpected; however, the area is anticipated to see increased development pressure as the surrounding neighborhood sees higher land values. The completion of the sidewalk network and implementation of bicycle facilities across I-10/I-45 will help to create additional connectivity within the non-motorized transportation network.

Future Vision

Given the density of redevelopment likely to occur along Crockett, and the transition into the north side of Downtown, the designation as an **Urban Street** will allow for the transition between the two contexts, while preserving the existing Right-of-Way. On-Street parking within the residential area will continue to be a need, as such the roadway will need to transition between a 2 and 4-Lane section.



Key Factors





Existing Conditions

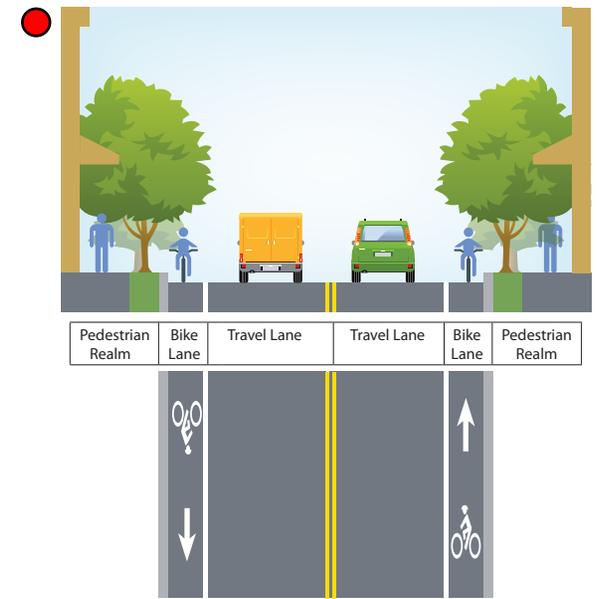
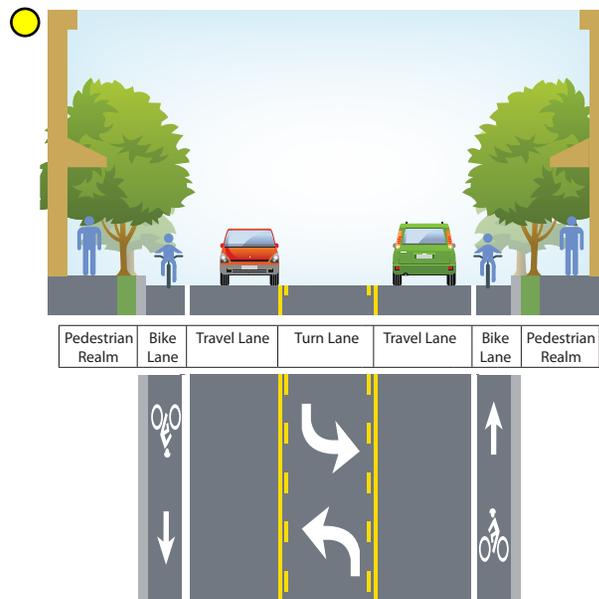
The Sawyer/Taylor corridor is currently designated as a **Major Collector**, with the segment between Washington and Crockett identified as an area that will need additional Right-of-Way. The corridor transitions quickly from commercial to industrial uses, and then as it approaches the Washington Corridor, the corridor again transitions to residential uses.

Identified Needs

Several sidewalk gaps exist along the corridor, and there has been discussion of continuing the existing bicycle facility throughout the remainder of the corridor. As redevelopment occurs, there will be a need to widen the Right-of-Way to the designated 60' width to accommodate the planned cross section.

Future Vision

Defining Sawyer/Taylor as an **Urban Street** will allow for the 60' Right-of-Way to promote the continuation of the bicycle and pedestrian facilities that are present in sections of the corridor, while still allowing the vehicle realm to manage the traffic demand. Continuing to provide connectivity to the local and regional networks will allow Sawyer/Taylor to meet the needs of the traveling public, while also addressing the needs for multi-modal transportation options within this sector of the Study Area.



Key Factors





Existing Conditions

The Dallas corridor provides connections from Downtown to the center of the Study Area. A significant portion of the corridor was recently resurfaced and restriped to encourage on-street cycling through the use of a “sharrow” as shown in the graphic below. This treatment fits within the context of the corridor as a **Major Collector**, and given the manner in which Dallas operates within the regional network the designation is appropriate. Small segments of the corridor are designated as needing to be widened.

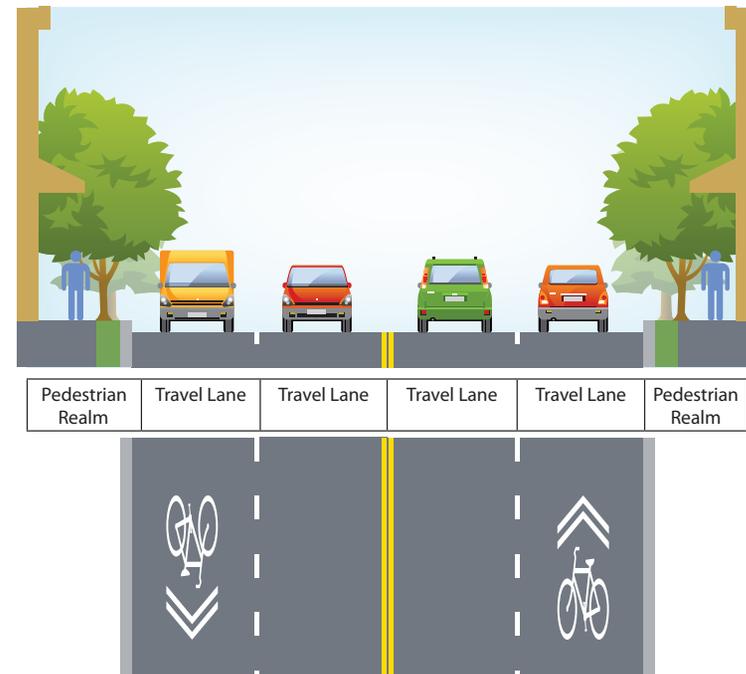
Identified Needs

Comments received on the Dallas corridor mentioned the recent implementation of the shared lane markings, as well as a desire to see more of this application within the surrounding area. Additionally, there was a desire for improved bus stop amenities including the completion of the sidewalk network. The amount of available Right-of-Way was mentioned as a limiting factor within the corridor; as such decisions will need to be based on a network examination for provision of appropriate corridor elements.

Future Vision

By completing the “sharrow” treatment and making improvements to the pedestrian network, the Dallas Corridor can provide a bicycle and pedestrian focused corridor on a street that has lower traffic volumes and lower speeds than the surrounding Arterials. The street is defined as an **Urban Avenue**, with provisions for cycling and pedestrians balanced with those of the automobile traffic.

Key Factors





Existing Conditions

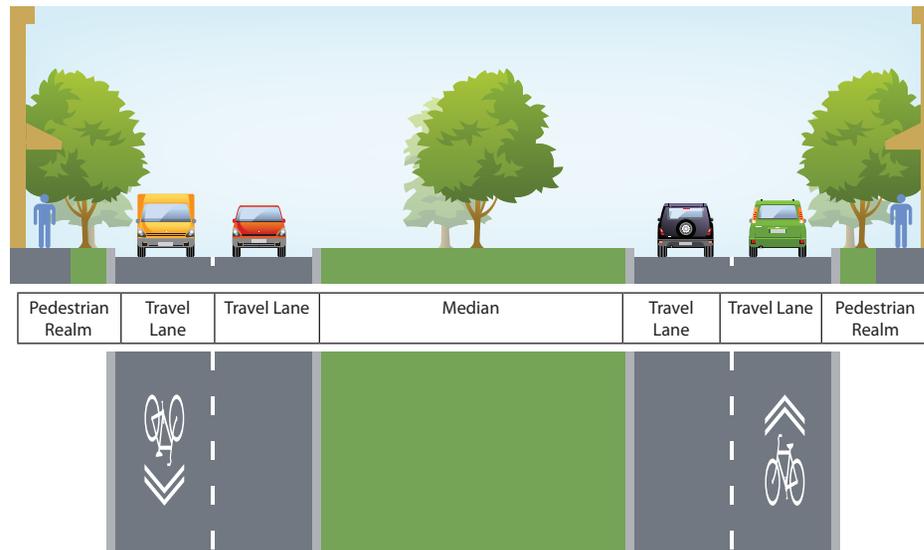
The Westcott corridor serves a regional purpose, while allowing for local access to the neighborhoods near Memorial Park. The corridor is designated as a **Major Thoroughfare** and given the traffic volumes and regional nature of much of the peak hour traffic, this designation is valid. The corridor from Washington to Memorial has continuous sidewalks, a 4-Lane divided section, and a large enough Right-of-Way.

Identified Needs

The intersection at Memorial has been identified as one location where an intersection improvement could help facilitate an easier movement of traffic during the peak hours.

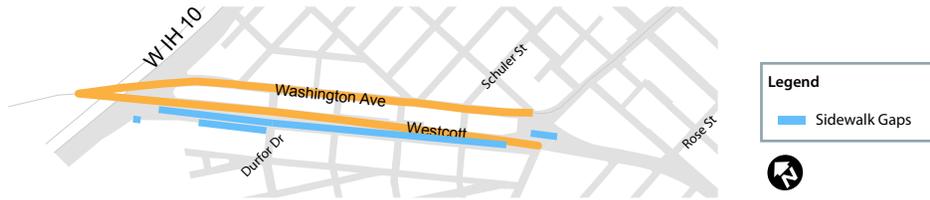
Future Vision

The completion of the pedestrian network and the development of a continuous on-street bicycle facility would promote additional modal options within the **Urban Boulevard**. The connections that could be made as the corridor approaches Memorial allow for larger regional travel to become a reality for bicyclist. The local businesses that operate within the northern section of the corridor benefit from the current on-street parking, and studying the long-term parking needs will likely be necessary to ensure that any corridor reconstruction recognizes the balance of regional and local access that this road currently allows.



Key Factors





Existing Conditions

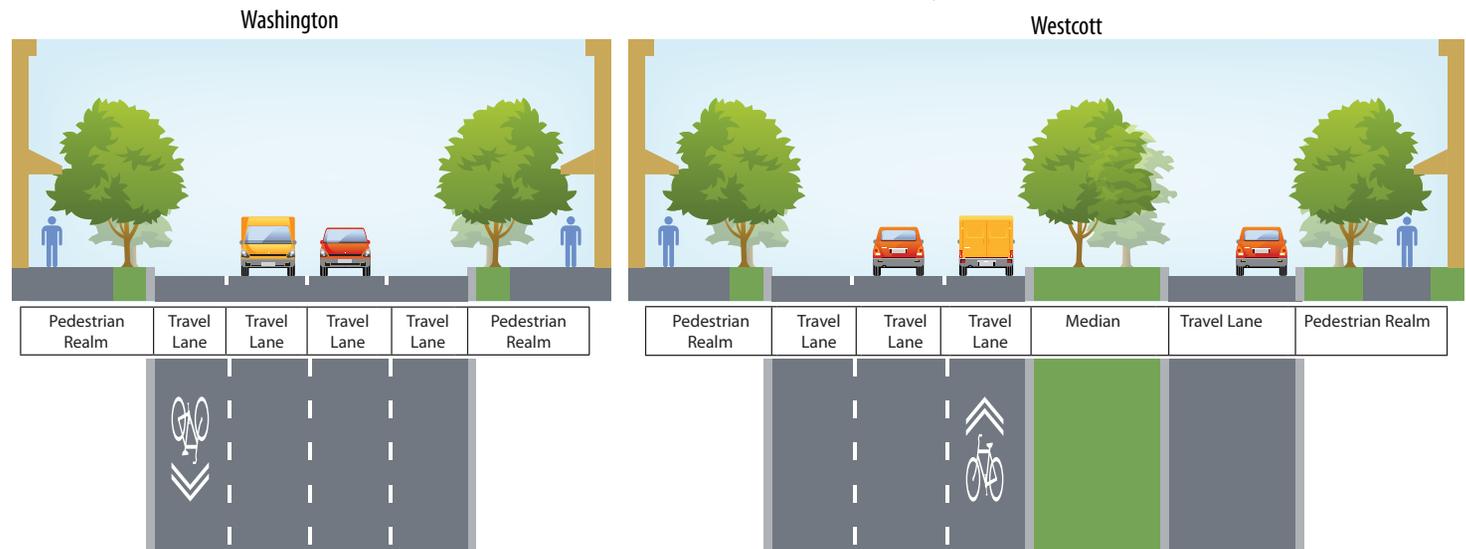
The Westcott corridor serves both regional and local activities in terms of automobile traffic and access to the neighborhoods near Memorial Park, respectively. The corridor is designated as a **Major Thoroughfare** and given the traffic volumes and regional nature of much of the peak hour traffic, this designation is valid. North of the roundabout, the corridor shifts to a multi-lane boulevard with two one-way pairs and an access road. The segment north of the roundabout also lacks a continuous sidewalk throughout the entire length.

Identified Needs

Sidewalks were the single largest comment received for this corridor. The lack of pedestrian connectivity approaching I-10 provides challenges in maximizing the effectiveness of the transit system, and also hinders overall mobility and recreational traffic.

Future Vision

The completion of the pedestrian network and the development of a continuous on-street bicycle facility would promote additional modal options within the **Urban Boulevard**. The connections that could be made as the corridor approaches Memorial allow for commuter travel to downtown to become a reality on a bicycle. The local businesses that operate within the northern section of the corridor benefit from the current on-street configuration, and studying the long-term parking needs will likely be necessary to ensure that any corridor reconstruction recognizes the balance of regional and local access that this road currently allows.



Key Factors





Existing Conditions

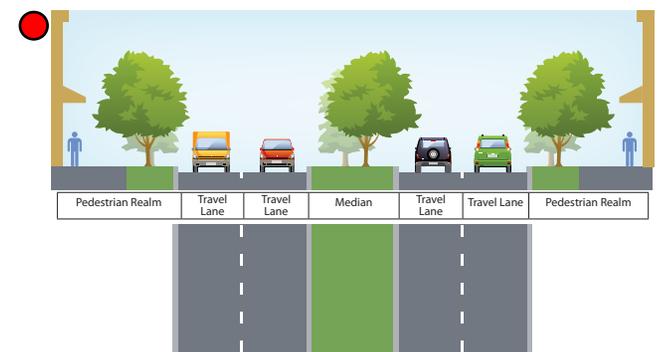
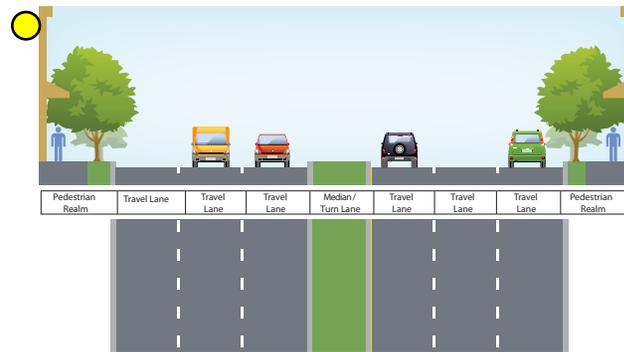
Kirby has recently been reconstructed from US-59 to San Felipe. This recent project provides the capacity available within the Right-of-Way and given the dense development context that is becoming prevalent within the corridor, it is unlikely that this segment will be widened in the future. The segment between San Felipe and Shepherd traverses a different context that is dominated by residential use. The one point of congestion that will need to be addressed within the planning horizon is the combined Shepherd/Allen Pkwy/Kirby/Memorial Interchange. The corridor is currently classified as a **Major Thoroughfare**.

Identified Needs

The single largest challenge within this segment of Kirby is the Urban Interchange at Allen Pkwy and Shepherd. The traffic congestion during the PM peak is of particular concern given the projected increase in the future.

Future Vision

The future vision and the existing facility match one another and no additional projects are likely to occur as it relates to widening the corridor or dramatically changing the current configuration. Designating the corridor as an **Urban Boulevard** meets the overall context of the roadway.



Key Factors



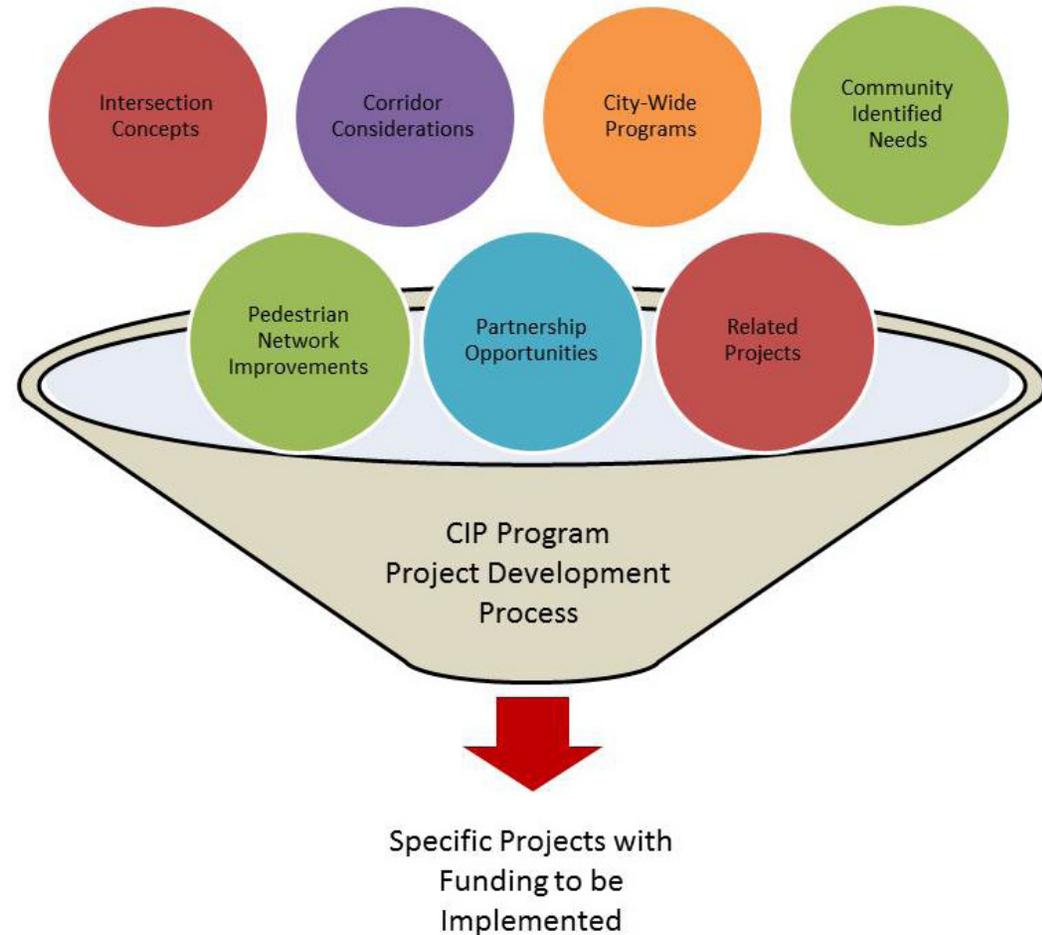
VIII. Next Steps

The Purpose of this Study

The City of Houston has undertaken this Planning Level Study to identify near- and long-term transportation system needs within the Inner West Loop Study Area. This study sets a vision for future transportation facilities within the Study Area through an examination of multiple transportation modes and project concepts. This study examined projects and project concepts that can ultimately be fed into the City's Capital Improvement Program Process as described in more detail within subsequent sections of this chapter, *CIP Manual Summary*.

Additionally, this study promotes several concepts that are policy oriented. These items can be addressed through the annual review process that several City documents undergo, and that process is described in the following section as well.

Finally, these recommendations are not intended to be static. It is the intent of this study, as well as other mobility studies in which the City is a partner, to develop a set of project and policy recommendations that can be used in determining sub-regional priorities to be examined within the broader citywide capital programming and pre-engineering process.



Outcomes of this Study

The specific project concepts identified for both the short and long-term will be analyzed through the lens of several different departments within the City which include, but are not limited to:

- Planning and Development Department can use the recommendations to ensure that ROW is preserved where appropriate and will be the Department responsible for defining the Multi-Modal Classification Process via the MTFP.
- The Department of Public Works and Engineering will work through their annual engineering process to develop further details regarding the solutions discussed in this report for specific intersections.
- The Department of Public Works and Engineering will be responsible for analyzing the broader projects within the scope of their annual projects review process that is highlighted within the CIP Process Manual for Infrastructure Programs.

Each of these items are discussed in more detail in the following sections.

CIP Process Manual Summary

The single largest program that will be used for the implementation of the Inner West Loop Study will be the **Rebuild Houston Initiative**. All City departments and divisions play a role in defining projects for consideration during Rebuild Houston. Given the link

between the street infrastructure concepts presented within this Report, Rebuild Houston provides a viable, long-term funding source for identified improvements. The Process for Planning Capital Projects can be broken into two phases:

- Programming Phase, those projects being constructed in the next five years
- Planning Phase, those projects estimated to occur within the next six to ten years.

Many of the Projects identified through this Study may be examined within the Planning Phase which involves several additional steps before funding is programmed. It is at this stage, however, where projects and related elements are first prioritized, and as such offers an intuitive platform for incorporation of multimodal concepts resulting from this and other mobility studies.

The following graphic provides an overview of the Planning Phase, however it is recommended the most recent version of the **Capital Improvement Plan Process Manual** be examined for pertinent changes throughout the life of this document and the project concepts. The graphics shown are representative of graphics found in Version 3.0 of the above referenced manual.

The planning phase of the CIP process is arranged in four distinct steps (**Figure 15**). Need identification is the first step of the Planning phase and starts with a comprehensive assessment of existing conditions. A **Need** is determined every time that the existing infrastructure does not meet the Level of Service (LOS) defined in the City of Houston Infrastructure Design Manual (IDM). Potential infrastructure improvements result in (**Figure 16**):

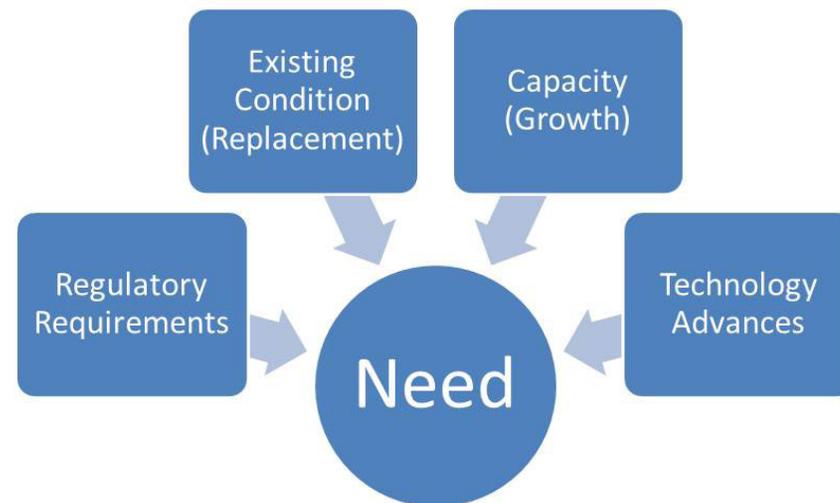


Figure 15

- Replacement – where existing condition of the infrastructure no longer meets the standard LOS and is beyond routine maintenance, or
- Growth – where demand growth results in existing conditions congestion or higher capacity.

Where need is determined, multimodal considerations as determined by these mobility studies efforts should be used to evaluate roadway's focused project infrastructure considerations which include such projects as sidewalks, neighborhood traffic management and commuter bicycle infrastructure. These identified elements may then be prioritized and further evaluated in the third step of the planning process where solutions, including potential roadway designs, are considered.

It is important to note, however, that as projects at the top of the prioritization list become Candidate Needs and then are passed into the solution development step. In this step, pre-engineering is performed to identify and develop Candidate Projects for inclusion in future CIPs. Candidate Projects identified and developed during the planning phase are not automatically added to the CIP.

Final incorporation candidate projects and related design considerations are determined in the Programming Phase of the CIP process.

The Project Needs are then developed further through the process including: pre-engineering, project coordination and review, coordination with other entities, additional engineering, and programming the project within the CIP and including funding for the construction of the project.

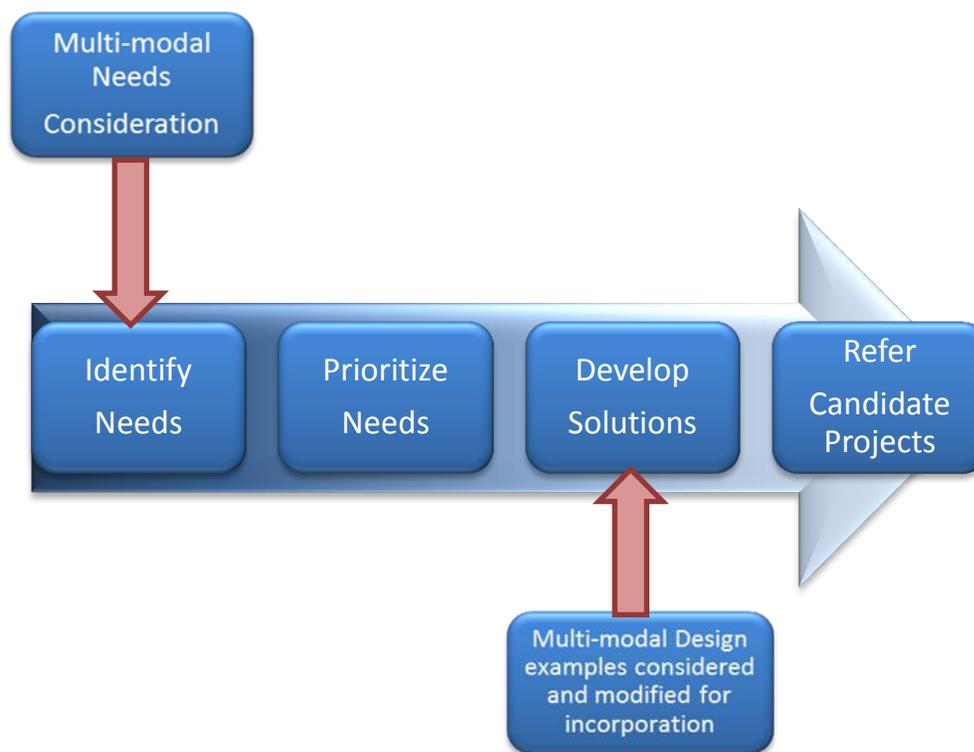


Figure 16

Potential Policy Updates

During the planning process, discussions with City staff led to the realization that there may be a need to update some of the existing City Policies related to street definitions and the application of the Alternative Cross-Sections that are defined in Chapter 10, Appendix 2 of the Infrastructure Design Manual. Most notably several gaps within the options that were identified through this process include a need to:

- Create additional cross section alternatives for 60 and 70-foot corridors that act as Urban Avenues,
- Create Transit Corridor Definitions that do not rely on exclusive lane treatments, and
- Define cross sections for Urban Streets that reflect a 50 and 60-foot ROW pattern for several streets that currently act as collectors but are not defined on the MTFP as such.
- Consider use of “Target Speed” instead of “Design Speed”.

Additional public outreach will likely be warranted during the pre-engineering and final engineering phases of a specific project development process. These outreach activities and the level of detail covered should be governed by the complexity of the project. That is to say, a sidewalk project that completes an identified gap in the network has a smaller sphere of additional outreach, likely only with affected property owners. Meanwhile, a corridor study to implement one of the corridor concepts identified above should

have a detailed public involvement process, as defined previously in this Report.

Updates to the MTFP

The **Major Thoroughfare and Freeway Plan (MTFP)** is another major policy that will be used by the City’s Planning and Development Department to further the Multi-Modal transportation concepts that were developed during this planning effort. By ensuring that roadways within the Study Area are appropriately classified and designated within the MTFP, Planning staff at the City have the ability to secure Right-of-Way, coordinate projects of others, and include non-motorized connections within other planning and design activities. This tool also allows the staff to communicate the long-term vision of a corridor as redevelopment continues within the Study Area.

Additionally, there is a need to examine the appropriate policy revisions to define the proposed Multi-Modal Classification System. Revisions to the main body of policies that define the application of the MTFP would prove difficult given the use of the definitions contained within the MTFP throughout sections of the Local Development Code. As such, it is recommended that a sub-classification system be established within the existing MTFP ordinance so that as sub-regions are analyzed more thoroughly corridors can begin to utilize the Multi-Modal Classification System without adversely impacting the remaining elements of the code.

Coordination with Other Entities

One of the most critical components of moving the concepts discussed in this document forward is the continued coordination of efforts between many groups. The Planning and Development Department is often a reviewing agency for several groups that are moving specific projects forward and as such, a review early and often by the Planning Department of project concepts - whether roads, transit, pedestrian, or bicycle related, will help to ensure that the overall direction of the concepts discussed herein.

Another important component of the coordination efforts that need to be enhanced throughout the project development process related to the concepts discussed in the previous sections of this Report is the integration of these concepts into plans that are being developed by agencies other than the City of Houston. Most often, those projects would be under design by either a Management District, a TIRZ, or a Private Sector entity.

Ensuring that the plans and projects developed by these outside partners are in line with the ideas presented by this report will help to ensure connectivity within the overall transportation system. Additionally, these coordination efforts will help to promote alternative modes of transportation within an area of the City that is currently experiencing a high rate of densification with expectations that this higher rate of density will continue throughout the planning horizon.

Project Phasing

Given the pre-engineering level of detail associated with this effort, defining project phasing and costing beyond concepts of Near-Term and Long-Term is difficult. The City of Houston, through the Rebuild Houston Initiative is in the process of developing and refining a city-wide project prioritization process, into which the project concepts defined through this effort will enter.

In addition, the Department of Public Works and Engineering has established criteria by which the intersections will be analyzed to move beyond the planning stages and into preliminary and final engineering. The final step for any of these projects will be to receive funding through either a Capital Improvements Plan, a coordinated project with one of the Management Districts or TIRZs within the Study Area, or outside funding source such as a Private Sector Partner or State and Federal funding opportunities.

The project concepts defined for Near-Term implementation are needed to help the existing transportation network to function better. There projects include intersection improvements listed on Pages 12 and 13 as well as the sidewalk gaps that were identified throughout many of the corridors.

The Long-Term project list can be examined over the next twenty years to determine phasing that is appropriate given verified needs. As part of this Study, the following were identified as critical improvement corridors to meet the mobility needs of the future.

These corridors include:

- Alabama St
- Durham Dr/Shepherd Dr
- Montrose Blvd
- Richmond Ave
- Washington Ave/Center St.
- Westheimer Rd

Some of these corridors are already under consideration such as increased transit service along Westheimer. Similarly, portions of Alabama and Shepherd, as well as Richmond (University Corridor) are currently in the design phase. Still more are just entering the beginning stages of the project development process and will be discussed again as further information is available.

Another programmatic need within the Study Area involves the definition of a funding source for the large amount of sidewalk gaps that currently exist. The corridor summary pages highlighted the missing segments within the corridor, however, the total amount of missing sidewalks throughout the Study Area is roughly 45,000 linear feet of sidewalk. Using conservative estimates for funding requirements, a program to **complete the possible sidewalk network**

within the Inner West Loop would cost roughly **\$4.5 Million dollars.**

As opportunities arise for coordinated projects, including projects such as utility replacements that already require the street to be reconstructed, the projects shown for Near and Long-Term Implementation will be examined as appropriate.

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APPENDIX A

Demographic Forecast Adjustments

The City of Houston, as a part of the Scenario Planning component of the Inner West Loop Study, examined the demographic assumptions contained within the H-GAC Regional Travel Demand Model dataset. Upon an examination of multiple years of data and projections; specifically for 2010, 2018, and 2035, the City and H-GAC agreed to evaluate additional levels of Population and Employment within the Study Area. The process for evaluating and in many cases increasing the assumed density was two-fold.

First, the City Staff examined the known developments that have occurred since 2010 and the developments for which a developer has indicated would be likely to occur within the next five years, and assumed that this would form the basis for the 2018 population and employment projections. This was compared to the Region's Travel Demand Forecast, and several locations were deemed to merit an increase in development density. In many cases the development community has already platted parcels or submitted a development plan with an accompanying Traffic Impact Analysis and those developments were included for the 2018 forecast year.

Second, City staff examined projected population and employment densities for the 2035 forecast year. When coupled with the analysis that was undertaken

for the update to the 2018 forecasts, the City staff and Regional Demographic Forecasters at H-GAC agreed to increase the density of population and employment within specific locations in the Study Area base on land-values and existing densities. These increased values are simply a scenario for analysis within the overall framework of this study, however, the density assumptions were indicative of the pattern for redevelopment that is currently occurring within the Study Area. Maps can be found on the following four pages illustrating the assumed density levels for 2018 and 2035. A map of each scenario is shown on Pages 52-58.

Travel Demand Model Scenario

Another component of the Scenario Planning activities undertaken in conjunction with this study, was the development of hypothetical transportation system improvements. The reasoning for this analysis was to test individual project concepts and their affect on the regional transportation network, and then determine projects which demonstrated some merit for further discussion with stakeholders and the general public.

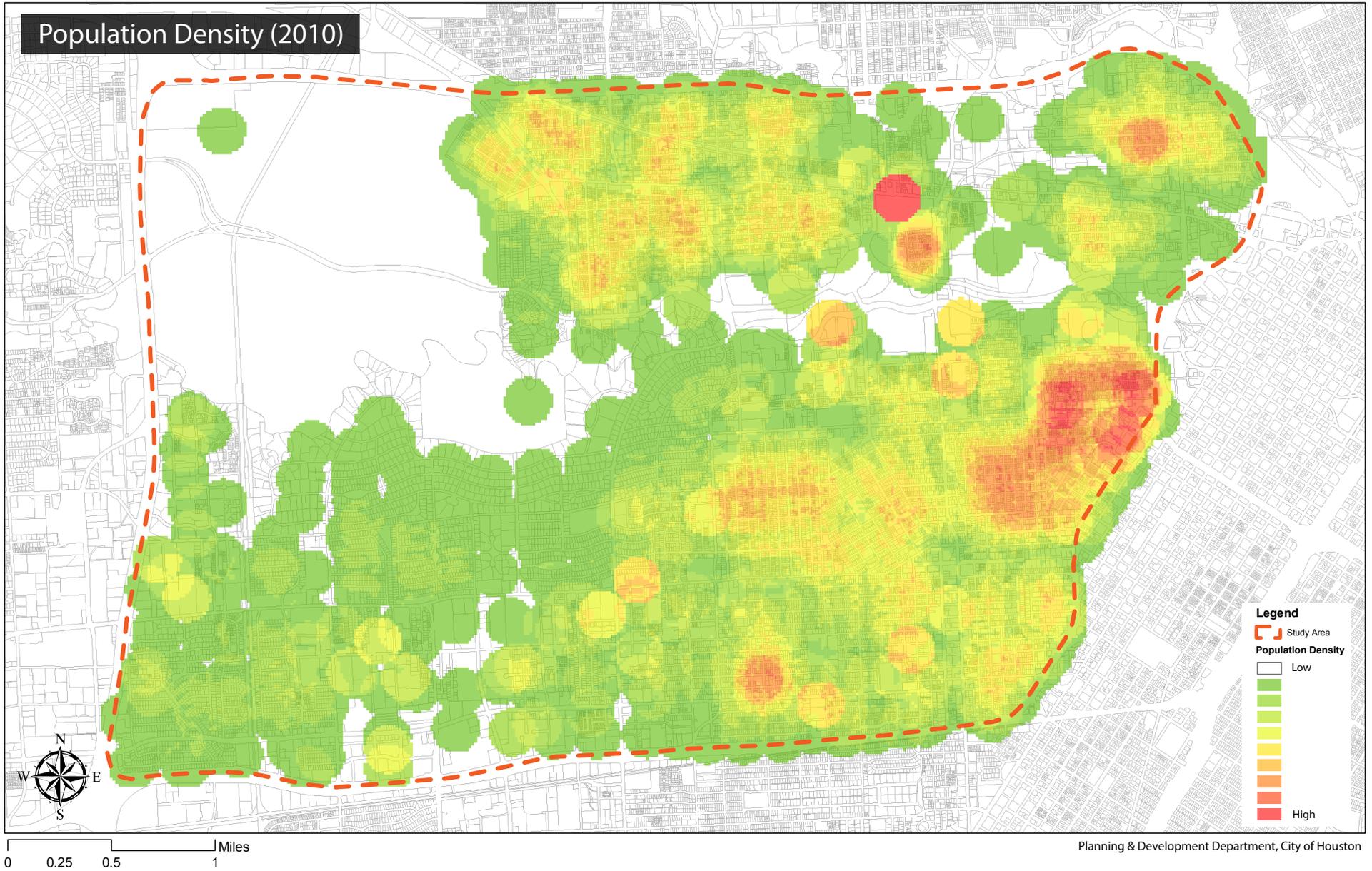
Scenario 1 examined a significant increase in the frequency of transit service along five routes within the study area. Service frequencies were increased to ten minute headways during the peak and fifteen minute headways during the off-peak period. Based on feedback received from Houston METRO, service headways were again decreased on Westheimer..

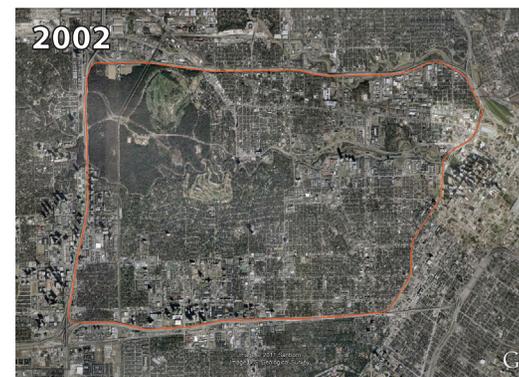
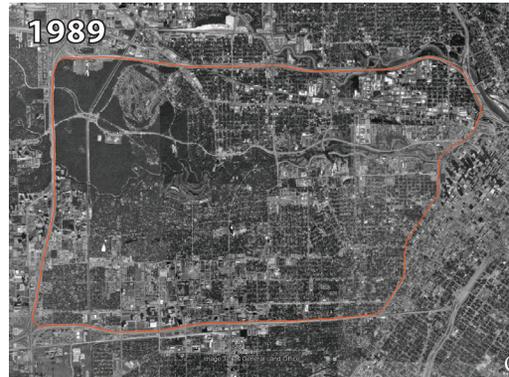
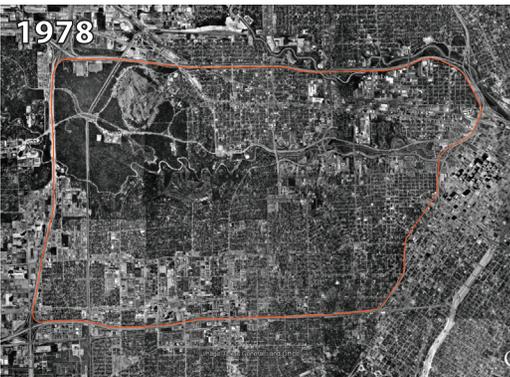
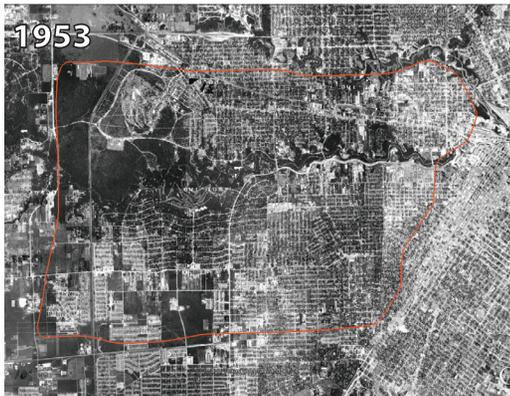
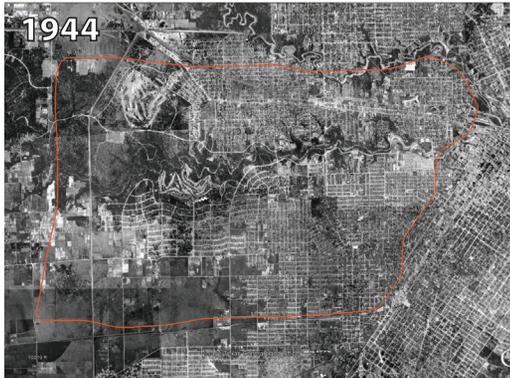
Scenario 2 was developed in response to a project concept that would create one-way pairs along Richmond and Westheimer to increase the operating efficiency of the intersections along these corridors. The concept proved to have merit within the travel demand model comparison in that it alleviated some congestion, however the project concept still requires much more analysis before contemplating making this change to the regional and local roadway networks.

Scenario 3 contemplated an improved Urban Interchange that would combine the current intersections of Memorial/Shepherd/Allen Pkwy./Kirby into a grade separated and at-grade facility. The project concept attempts to remove one or two of the signals from the intersections allowing the traffic to flow more freely within the overall intersection. This project demonstrated limited improvements within the travel demand model, however, that is likely due to significant latent demand within the sub-region..

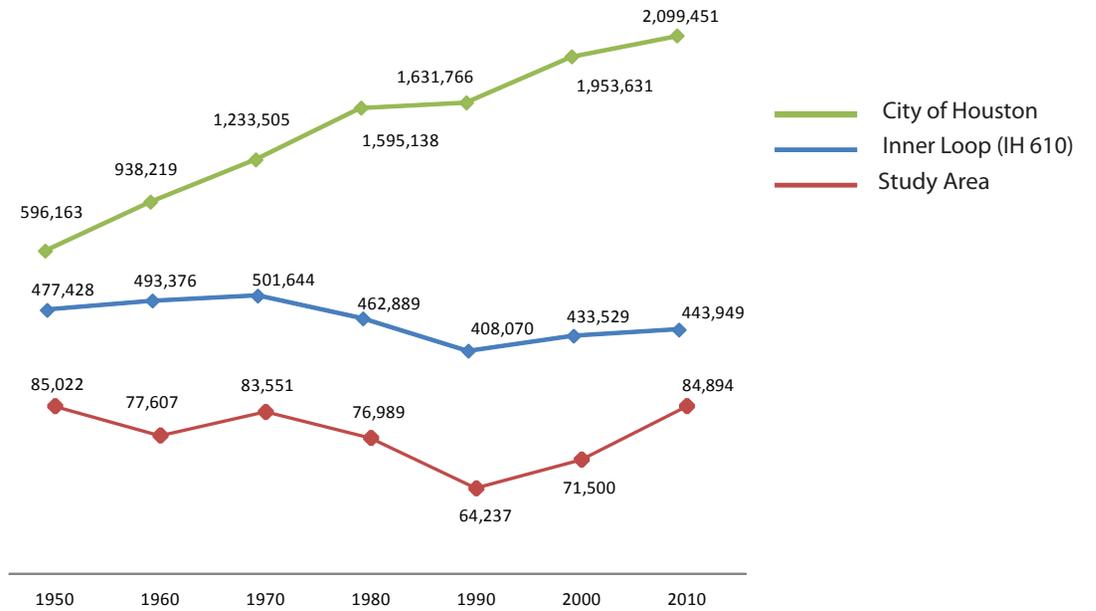
Scenario 4 was initially conceived as a way to potentially minimize the effect of regional trips within the local street network by making a connection between I-45 and US-59 along Spur-527. The grade separated connection would provide direct access on the southwest side of downtown from US-59 to I-45 rather than the current configuration that loops around downtown to the east.

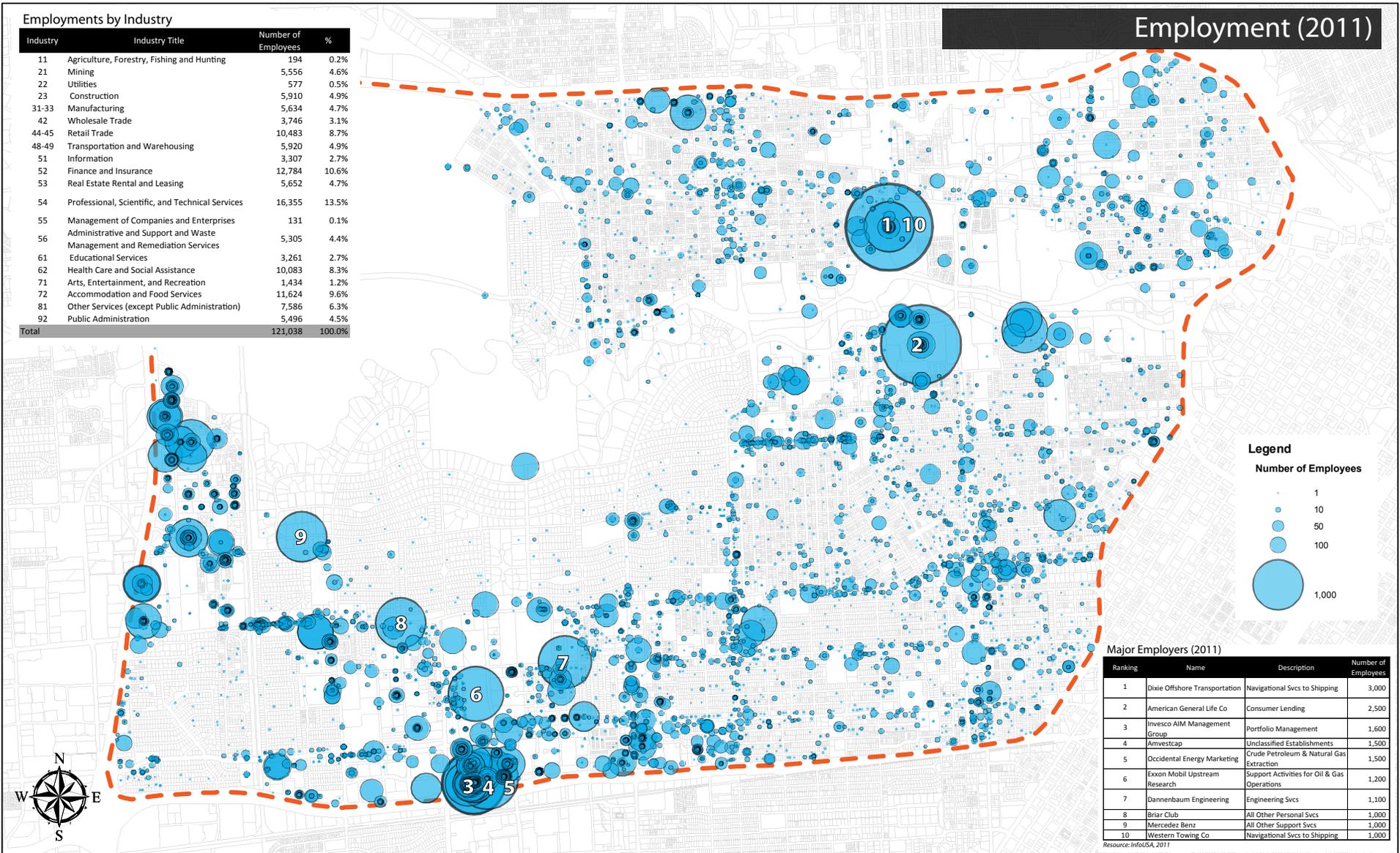
A map of each scenario is shown on Pages 70-79.





Historical Population Change (1950-2010)





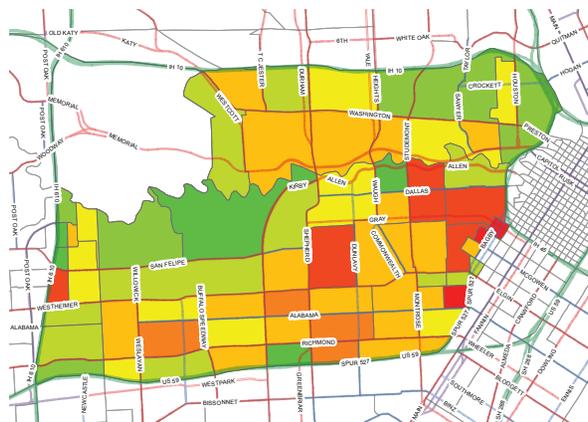
0 0.25 0.5 1 Miles

Planning & Development Department, City of Houston

PROJECTION BY TAZ

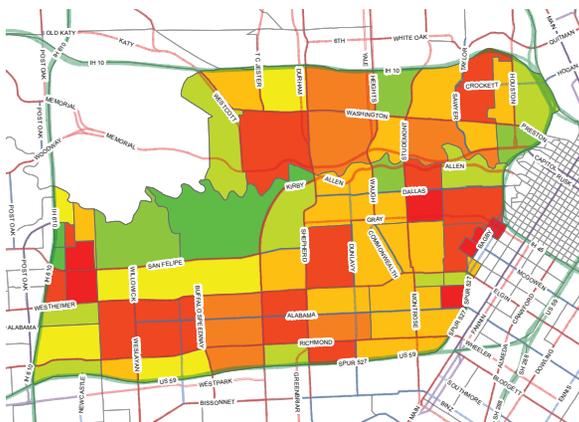
Inner West Loop Mobility Study

Population Density by TAZ



Average **9.8** persons/acre (without Memorial Park)

2010



Average **12.7** persons/acre (without Memorial Park)

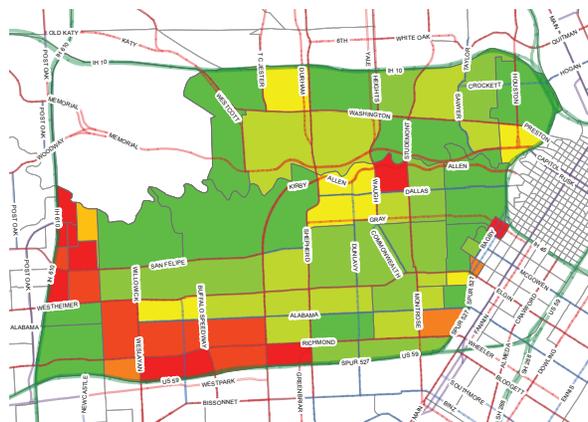
2018



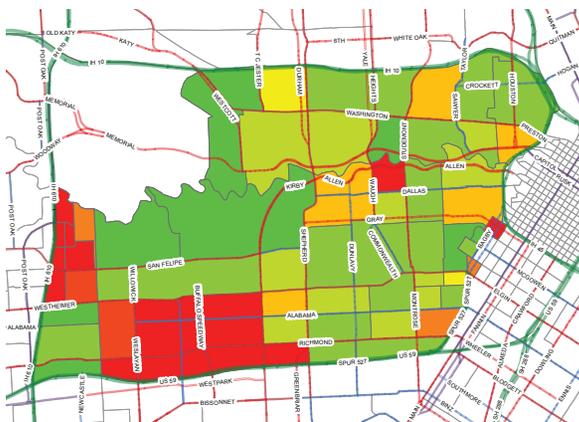
Average **16.9** persons/acre (without Memorial Park)

2035

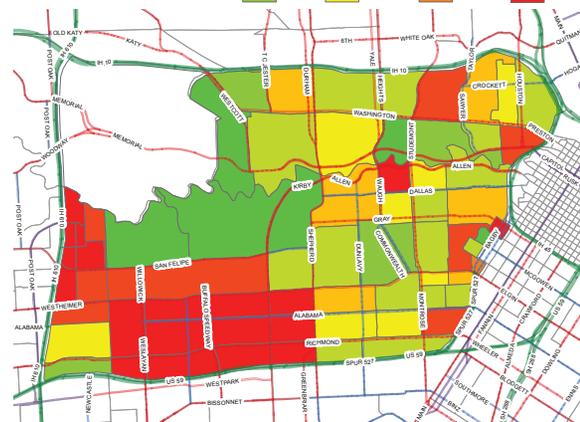
Employment Density by TAZ



Average **15.1** jobs/acre (without Memorial Park)

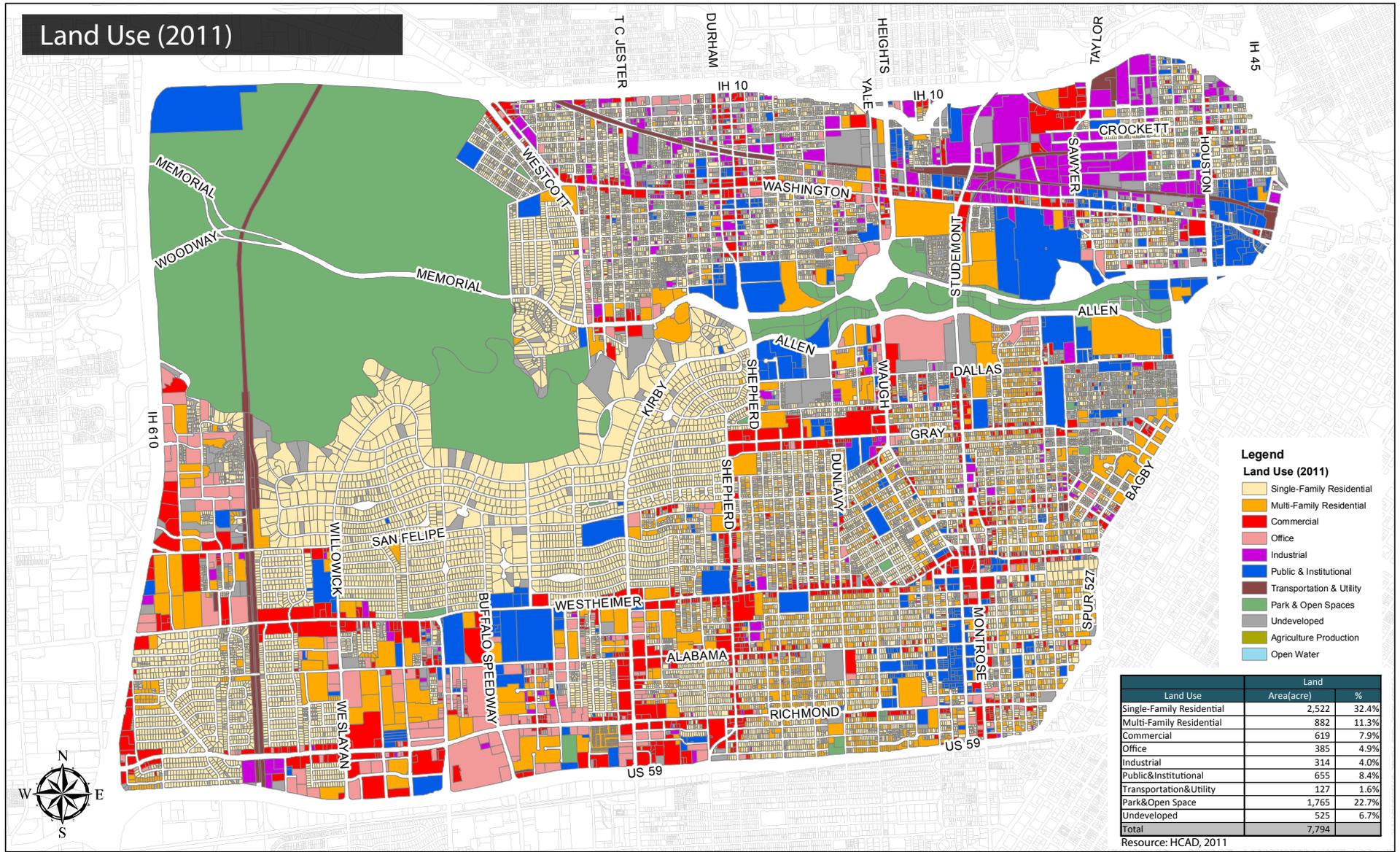


Average **20.7** jobs/acre (without Memorial Park)



Average **33.7** jobs/acre (without Memorial Park)

June 14, 2012

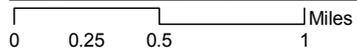


Land Use (2011)

- Legend**
Land Use (2011)
- Single-Family Residential
 - Multi-Family Residential
 - Commercial
 - Office
 - Industrial
 - Public & Institutional
 - Transportation & Utility
 - Park & Open Spaces
 - Undeveloped
 - Agriculture Production
 - Open Water

Land Use	Land	
	Area (acre)	%
Single-Family Residential	2,522	32.4%
Multi-Family Residential	882	11.3%
Commercial	619	7.9%
Office	385	4.9%
Industrial	314	4.0%
Public & Institutional	655	8.4%
Transportation & Utility	127	1.6%
Park & Open Space	1,765	22.7%
Undeveloped	525	6.7%
Total	7,794	

Resource: HCAD, 2011



Planning & Development Department, City of Houston

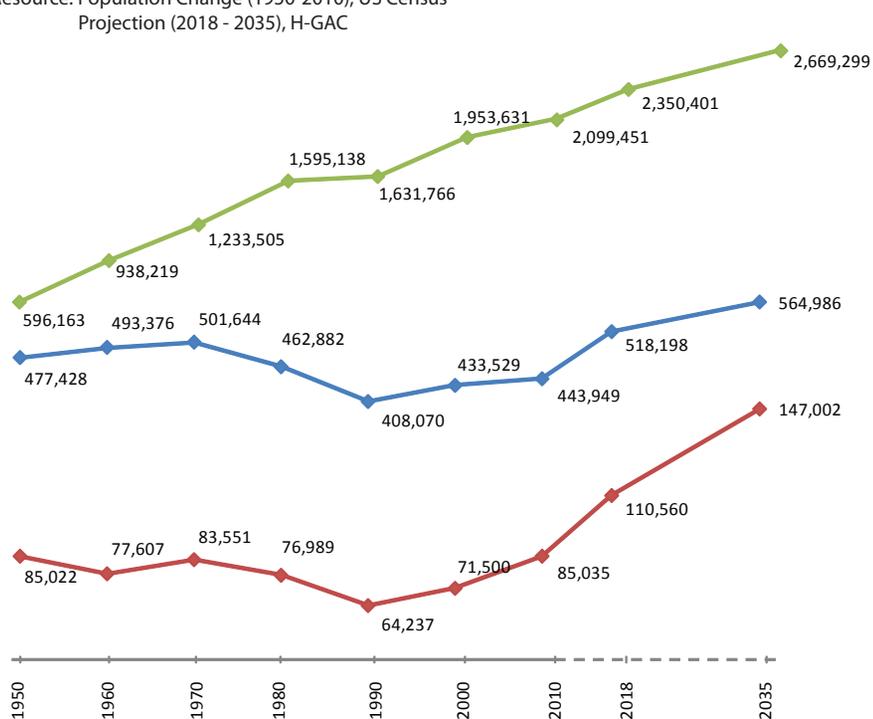
POPULATION /EMPLOYMENT CHANGE & PROJECTION

Inner West Loop Mobility Study

Population Change (1950 - 2010) & Projection (2018 - 2035) * CAGR: Compound Annual Growth Rate

Year	Study Area	CAGR*	Inner Loop (IH 610)	CAGR*	City of Houston	CAGR*
1950	85,022		477,428		596,163	
1960	77,607	-0.9%	493,376	0.3%	938,219	5.7%
1970	83,551	0.8%	501,644	0.2%	1,233,505	3.1%
1980	76,989	-0.8%	462,882	-0.8%	1,595,138	2.9%
1990	64,237	-1.7%	408,070	-1.2%	1,631,766	0.2%
2000	71,500	1.1%	433,529	0.6%	1,953,631	2.0%
2010	85,035	1.9%	443,949	0.2%	2,099,451	0.7%
2018	110,560	3.8%	518,198	2.1%	2,350,401	1.5%
2035	147,002	1.9%	564,986	0.5%	2,669,299	0.8%

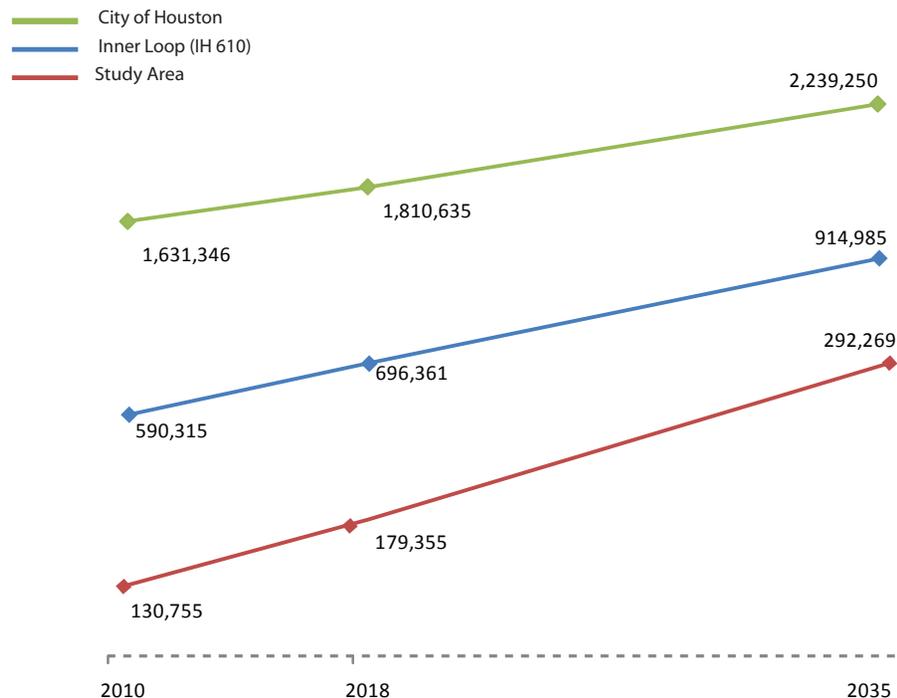
Resource: Population Change (1950-2010), US Census
Projection (2018 - 2035), H-GAC



Employment Projection (2010 - 2035)

Year	Study Area	CAGR	Inner Loop (IH 610)	CAGR	City of Houston	CAGR
2010	130,755	-0.4%	590,315	0.4%	1,631,346	2.2%
2018	179,355	4.6%	696,361	2.2%	1,810,635	1.4%
2035	292,269	3.7%	914,985	1.8%	2,239,250	1.4%

Resource: Projection (2018 - 2035), H-GAC



Creating a Combined Scenario

Upon reviewing the results of the four independent scenarios, a group of stakeholders from the various agencies involved with this project met to discuss the need for the development of a preferred scenario on which to develop the future intersection conditions. The group discussed the merits and shortcomings of each of the scenarios and determined that a combined scenario would include two of the four components. First, the group determined that given the density and travel patterns within the Study Area transit was essential to any future transportation network within the Inner West Loop. As such, the components of Scenario 1 were included in the combined scenario. Second, the group analyzed the concept of the combined Urban Interchange and determine that this project should also be included in the combined scenario. The group elected to not include either of the other scenarios components given the need for significant amounts of analysis on both project concepts before any further consideration could be given.

The results for the combined scenario, or Scenario 5, are shown alongside the results for the other independent scenarios.

Scenario Measures of Effectiveness

The travel demand model results are presented in Pages 62-66. These results highlight the typical Measures of Effectiveness that are used for scenario comparisons during travel demand forecasting. The interesting component of this comparison comes when considering the amount of trip diversion assumed within the results, and recognizing that increases in Vehicle Miles Traveled or Delay within the network can be influenced dramatically by additional trips within the network because of latent demand along the regional highways.

Additionally, it is worth noting that the combined scenario is projected to encounter more than 330,000 additional trips within the transportation system while reducing the impacts of travel for the four major Measures of Effectiveness as compared to the baseline forecast.

The Maps that conclude Appendix A provide a summary of the Level of Service calculations and the projected daily traffic volumes from the Travel Demand Model Scenario Results. This roadway link level of analysis is helpful for determining corridors that may need further consideration for a wide variety of transportation system enhancements.

Limitations within the Analysis

It is again worth noting that the travel demand model is a useful tool for comparing the types of projects discussed within the last two pages. However, the current version of the travel demand model does not anticipate the impact that pedestrian and bicycle facilities would have upon the travel patterns given the limited amount of data currently available on those modes within the study area, and the broad reaching nature of the analysis platform.

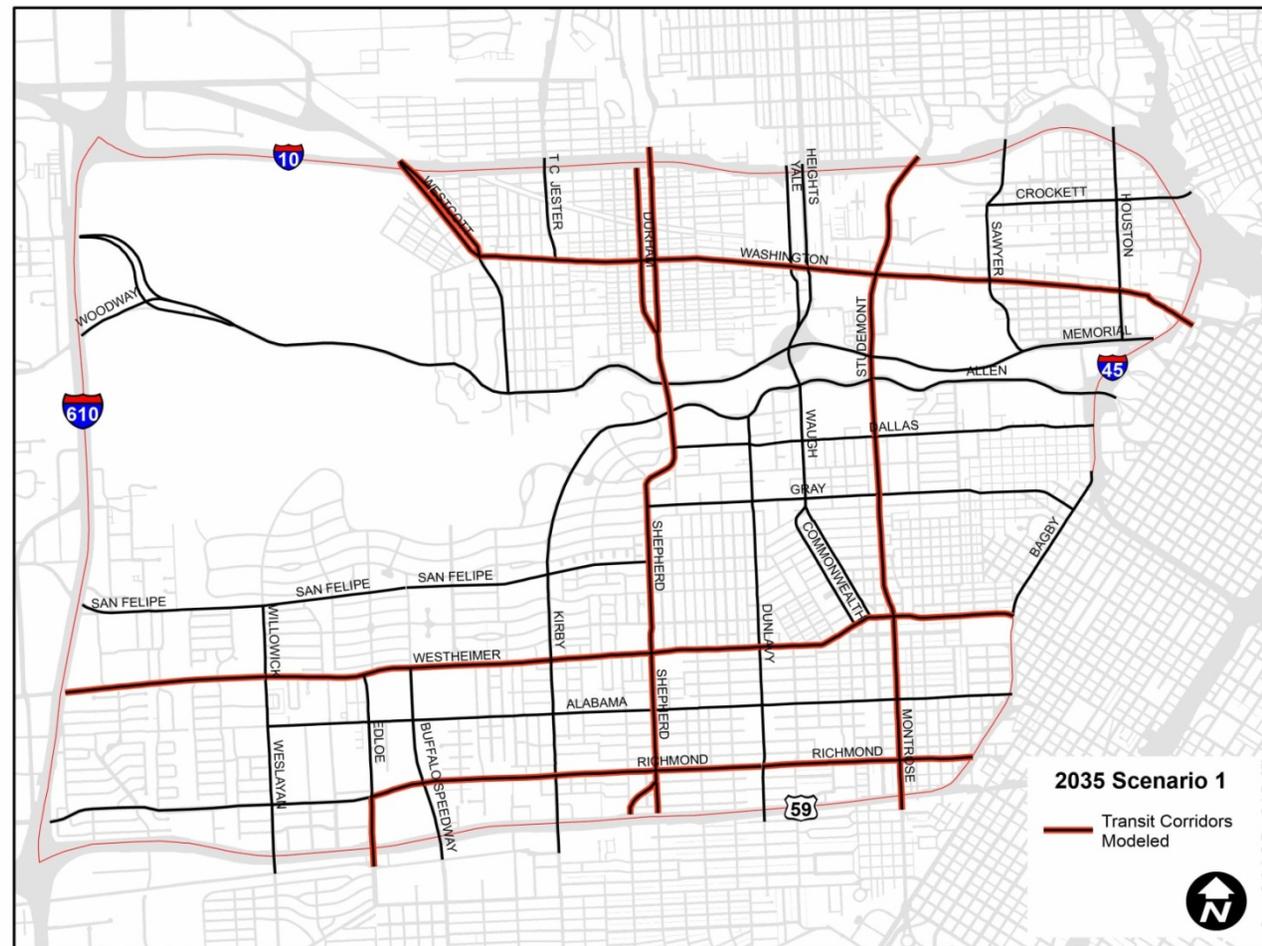
That is not to say that pedestrian and bicycle linkages within the transportation network do not merit further investigation and investment, rather that the tool applied in this section of the analysis is not appropriate for those considerations. The study process included an analysis of those alternative modes outside of the travel demand forecasting process, and the resulting project concepts have already been demonstrated..

Modeling Scenarios – All Transit

Ten minute headways in peak, 15 off peak.

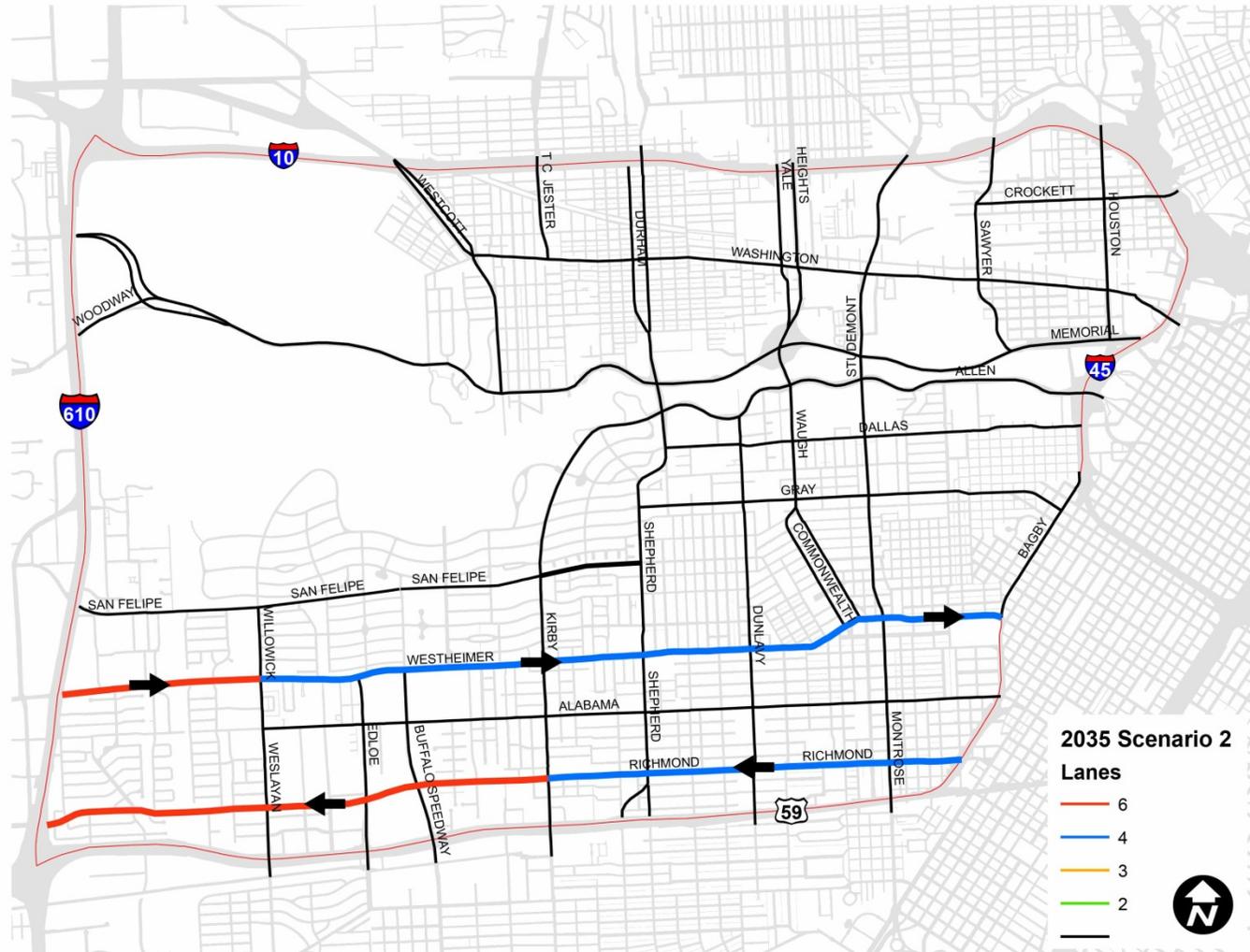
Routes include Westheimer from BW8 to Main Street, Washington from Post Oak to courts complex, Shepherd and Montrose

Richmond rail as planned for 2035



Modeling Scenarios – All Roads

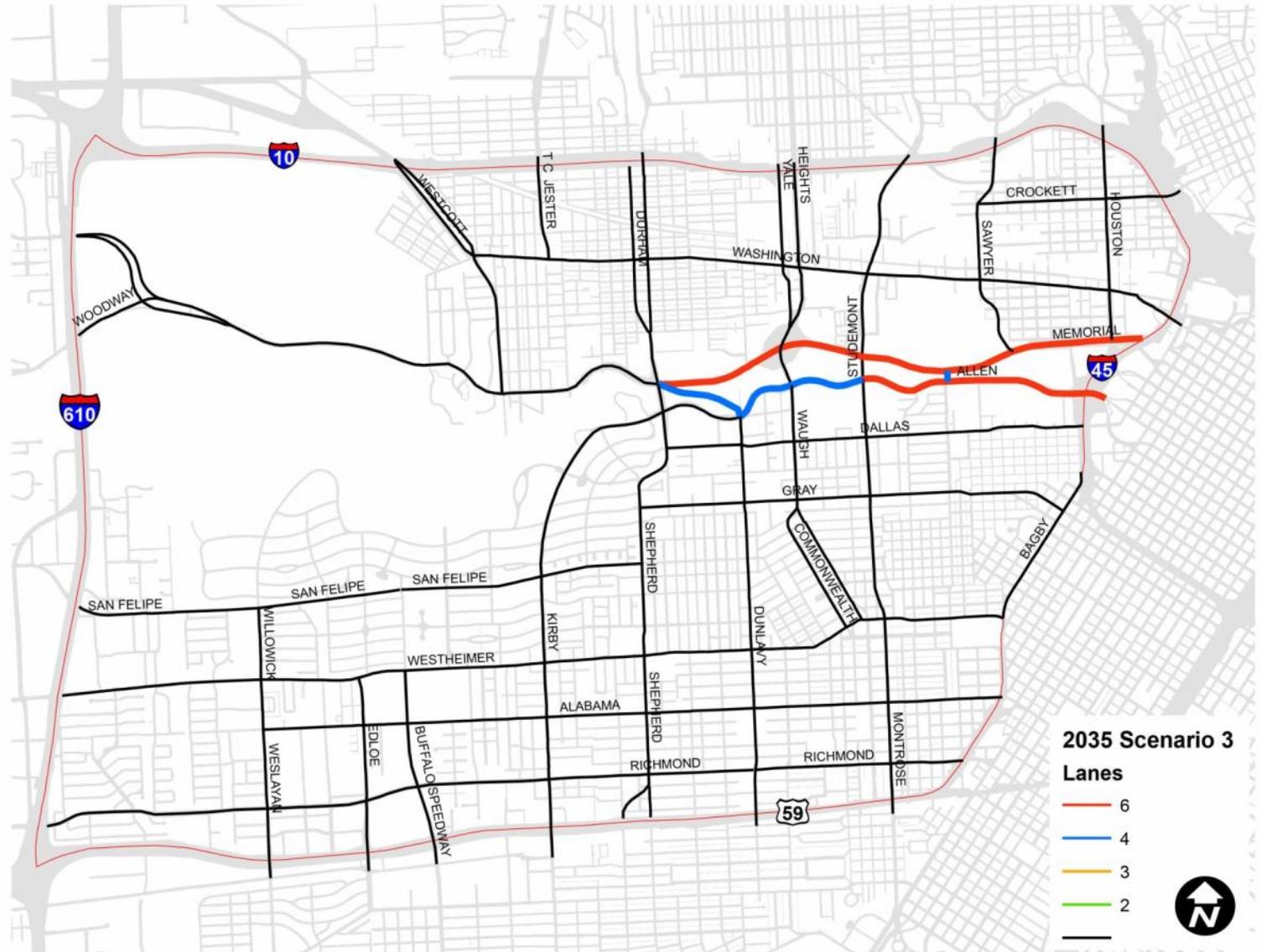
One-Way Pair concept for:
Westheimer and Richmond.



Modeling Scenarios - Interchange

Urban Interchange Concept:

Direct Connections for Allen Pkwy and Memorial.



Modeling Scenarios – Spur 527

Highway Interchange
Concept:

**Direct Connections for Spur
527 and IH-45.**



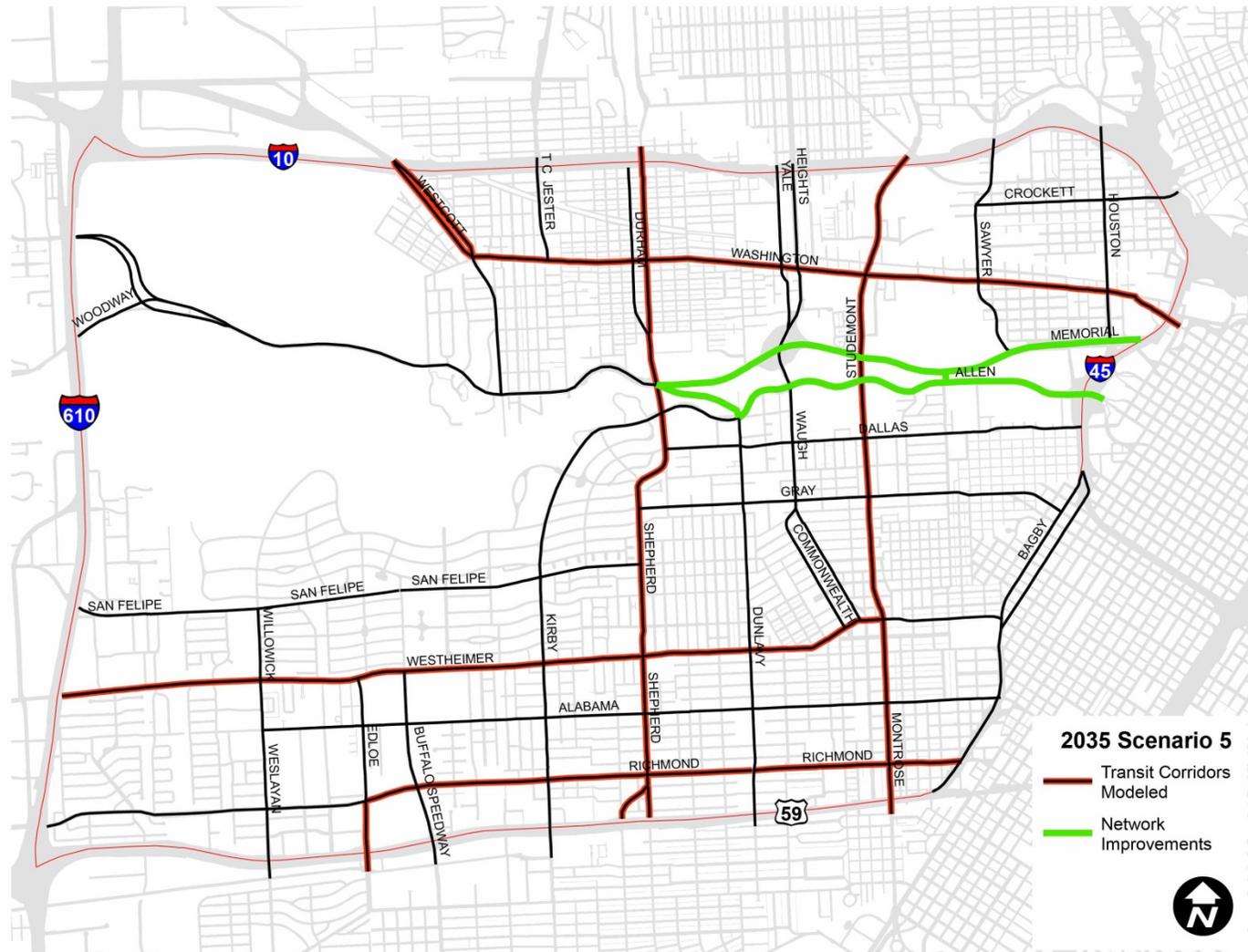
Modeling Scenarios – Combined

Ten minute headways in peak, 15 off peak.

Routes include Westheimer from BW8 to Main Street, Washington from Post Oak to courts complex, Shepherd and Montrose

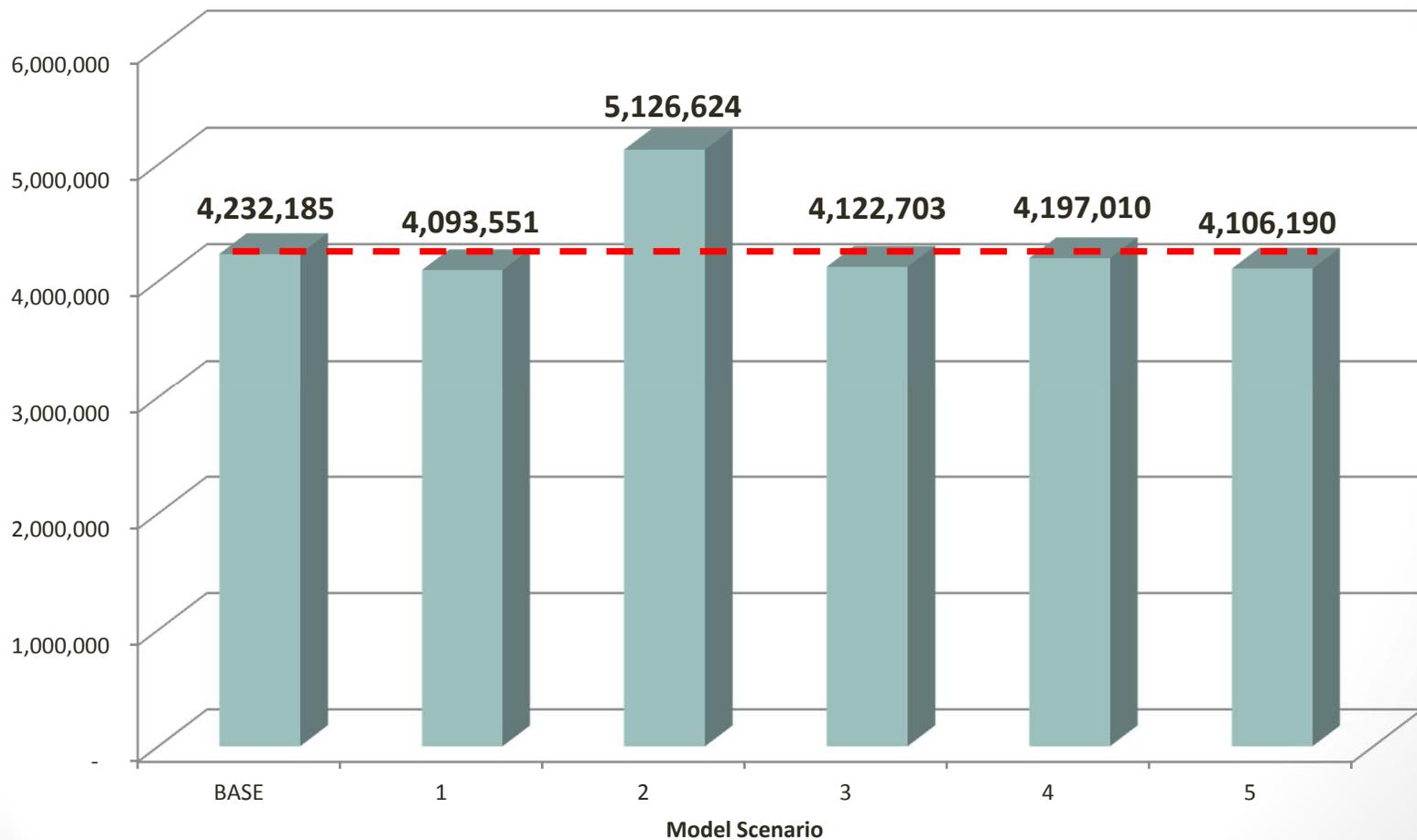
Richmond rail as planned for 2035

Combined Intersection of Allen Pkwy/Memorial/Shepherd/Kirby.



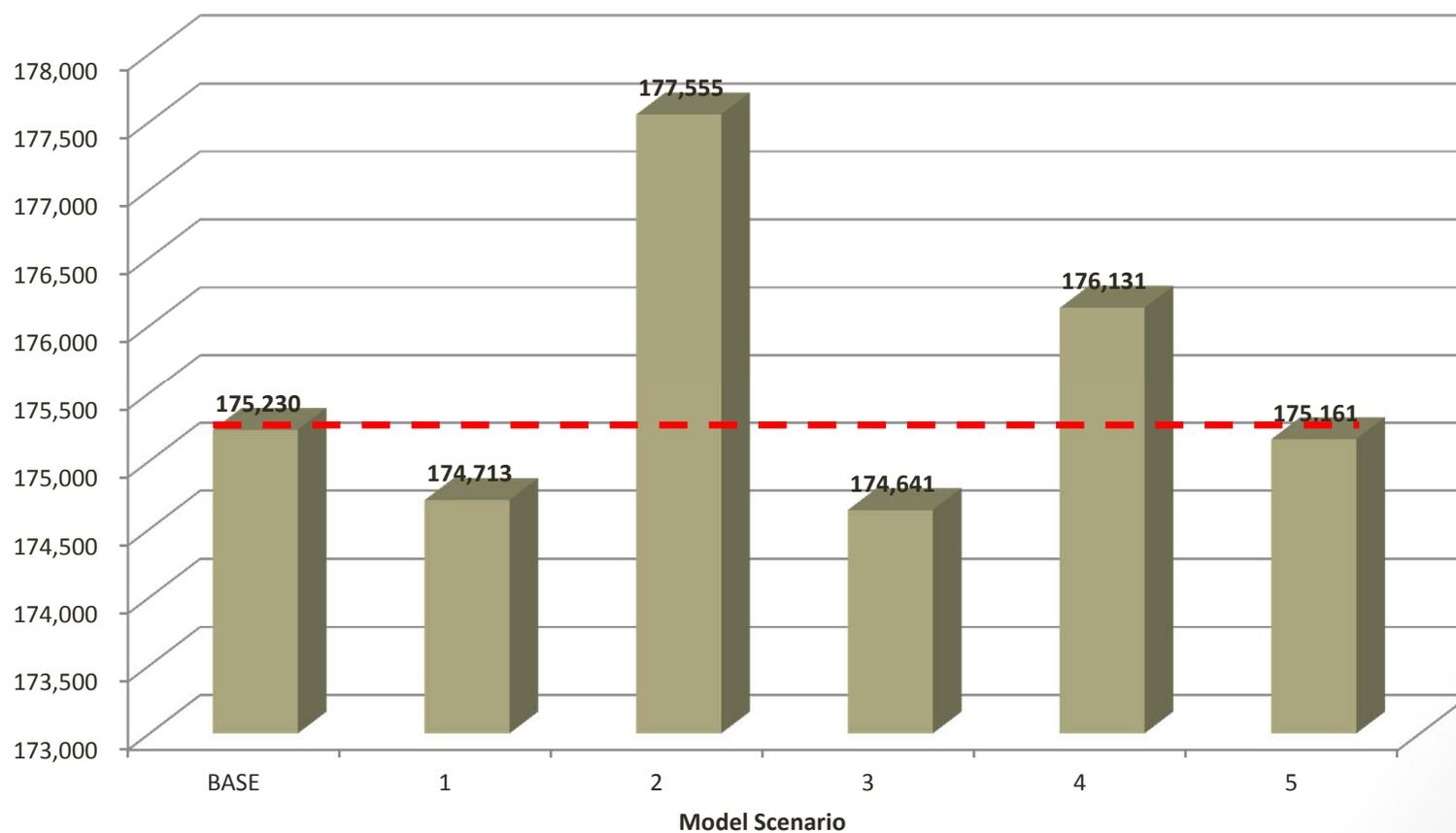
Scenario Results - VMT

Vehicle Miles Traveled



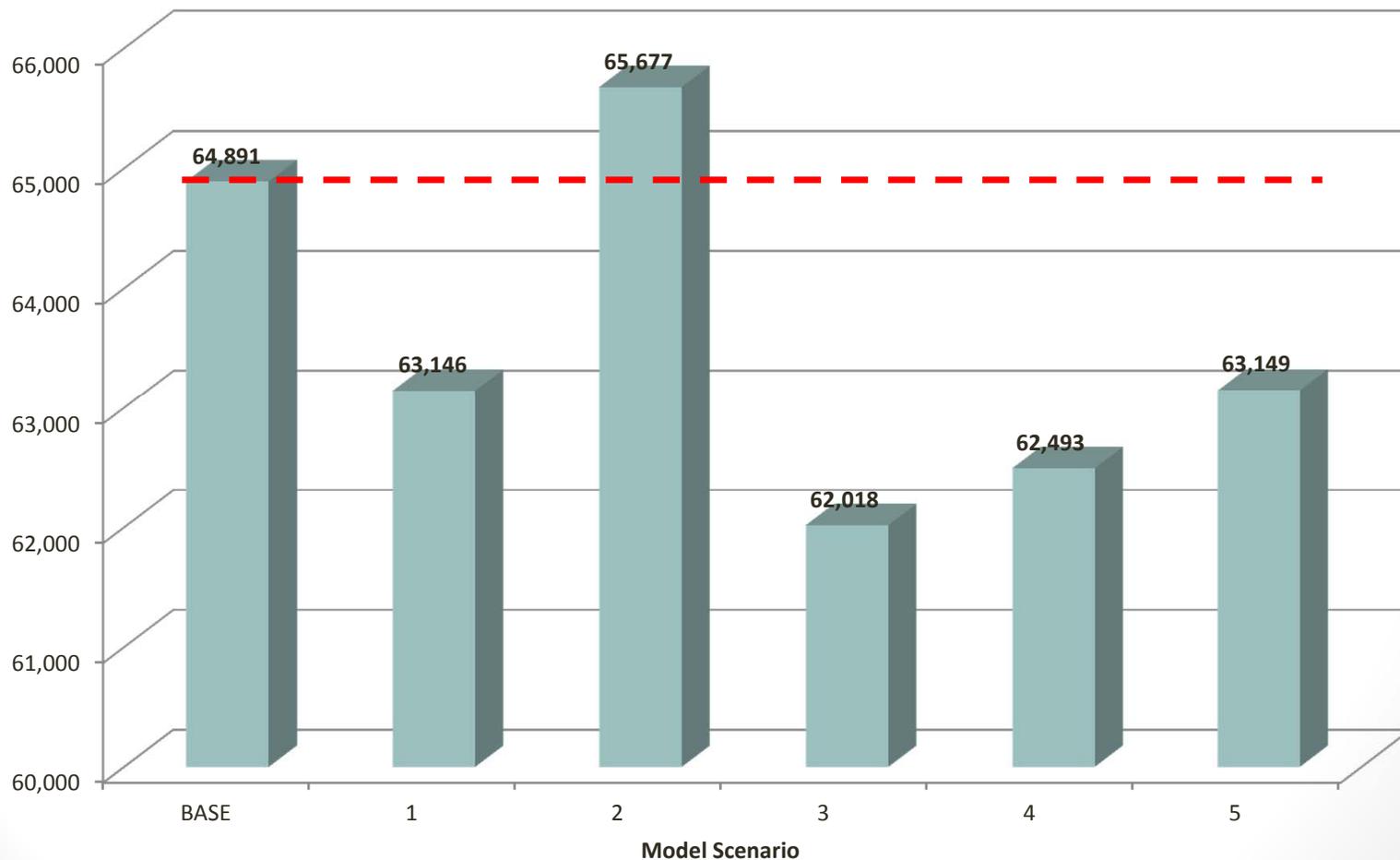
Scenario Results - VHT

Vehicle Hours Traveled

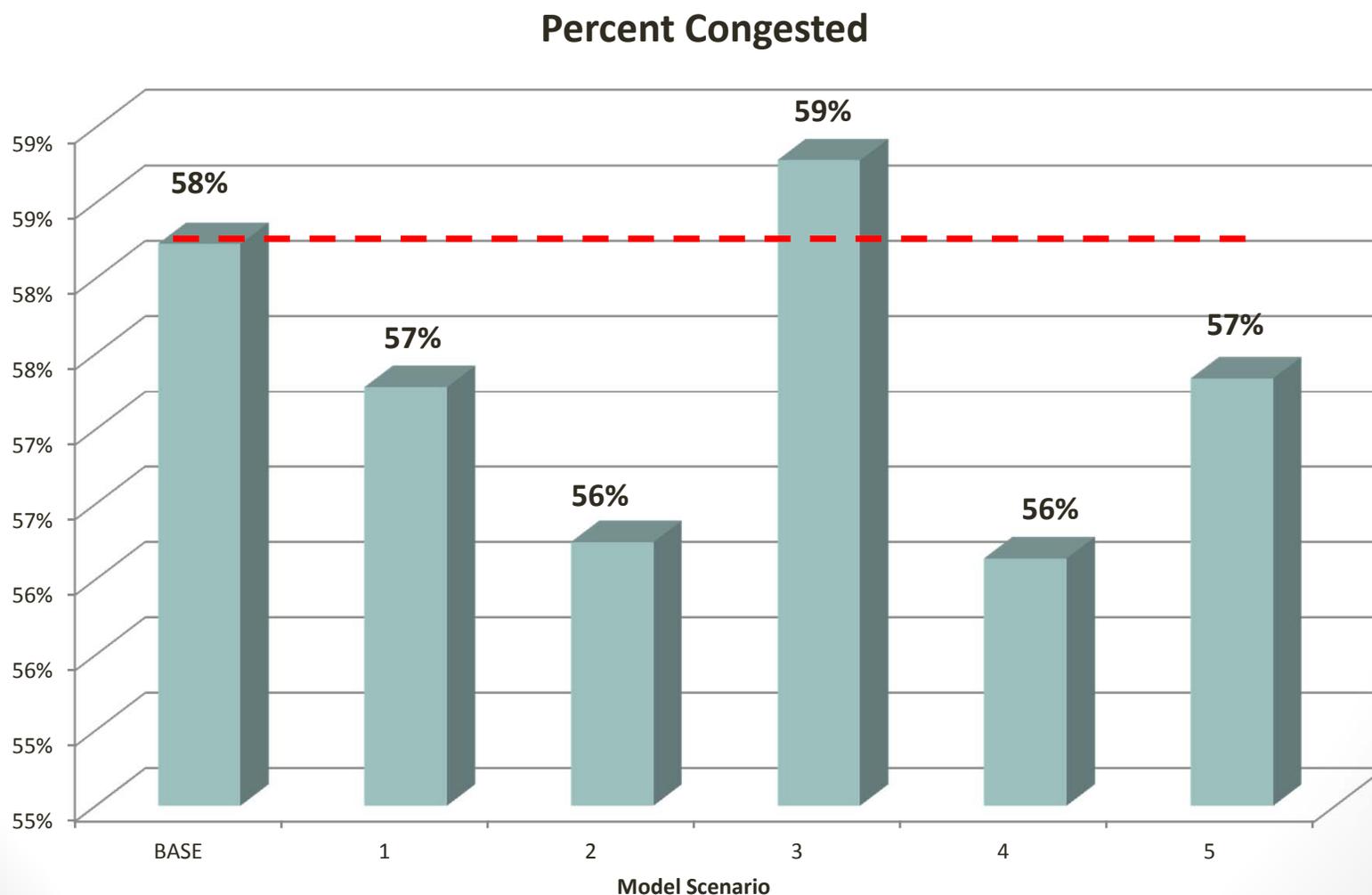


Scenario Results – Delay

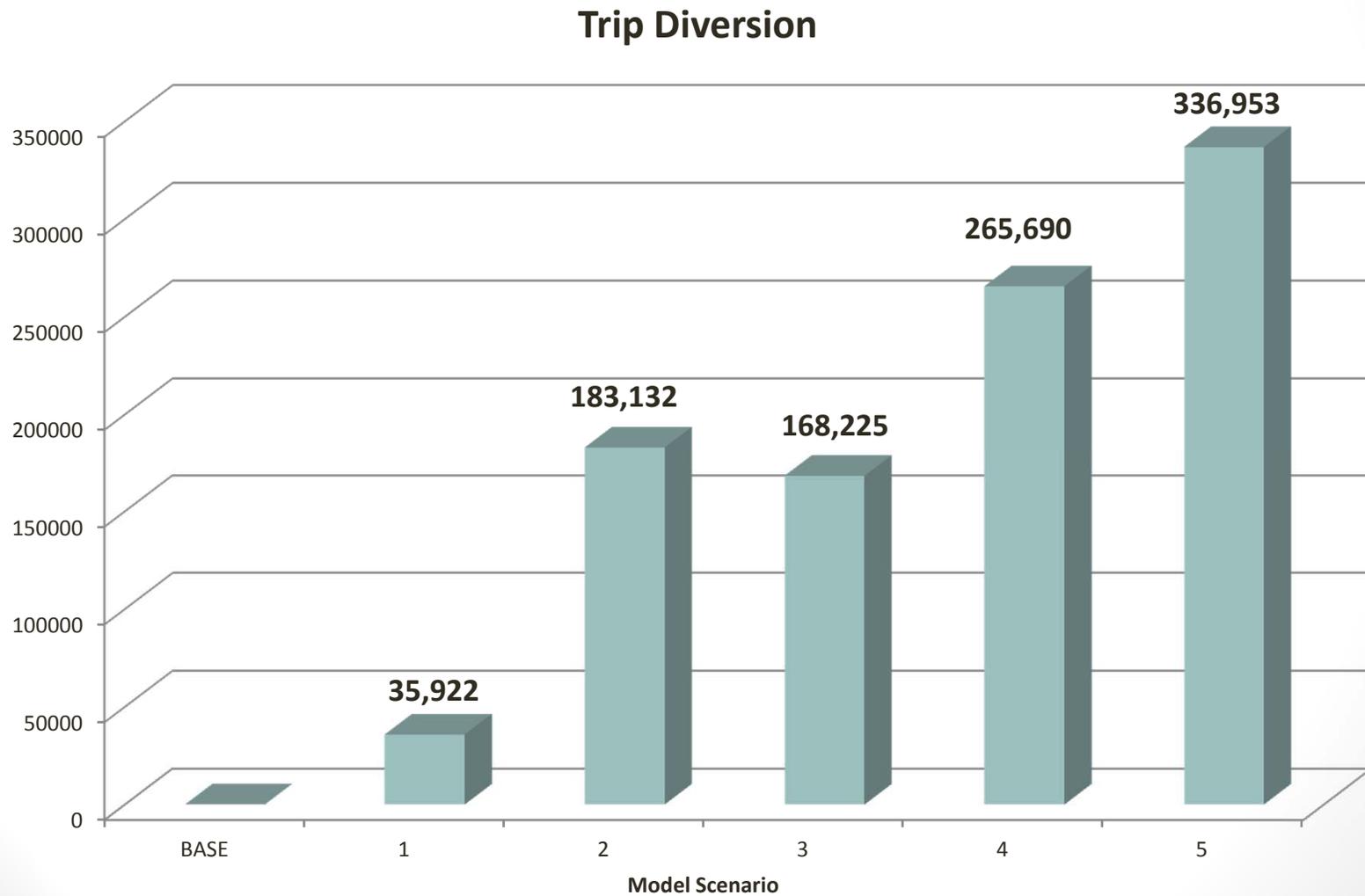
Vehicle Hours Delay



Scenario Results – % Congested

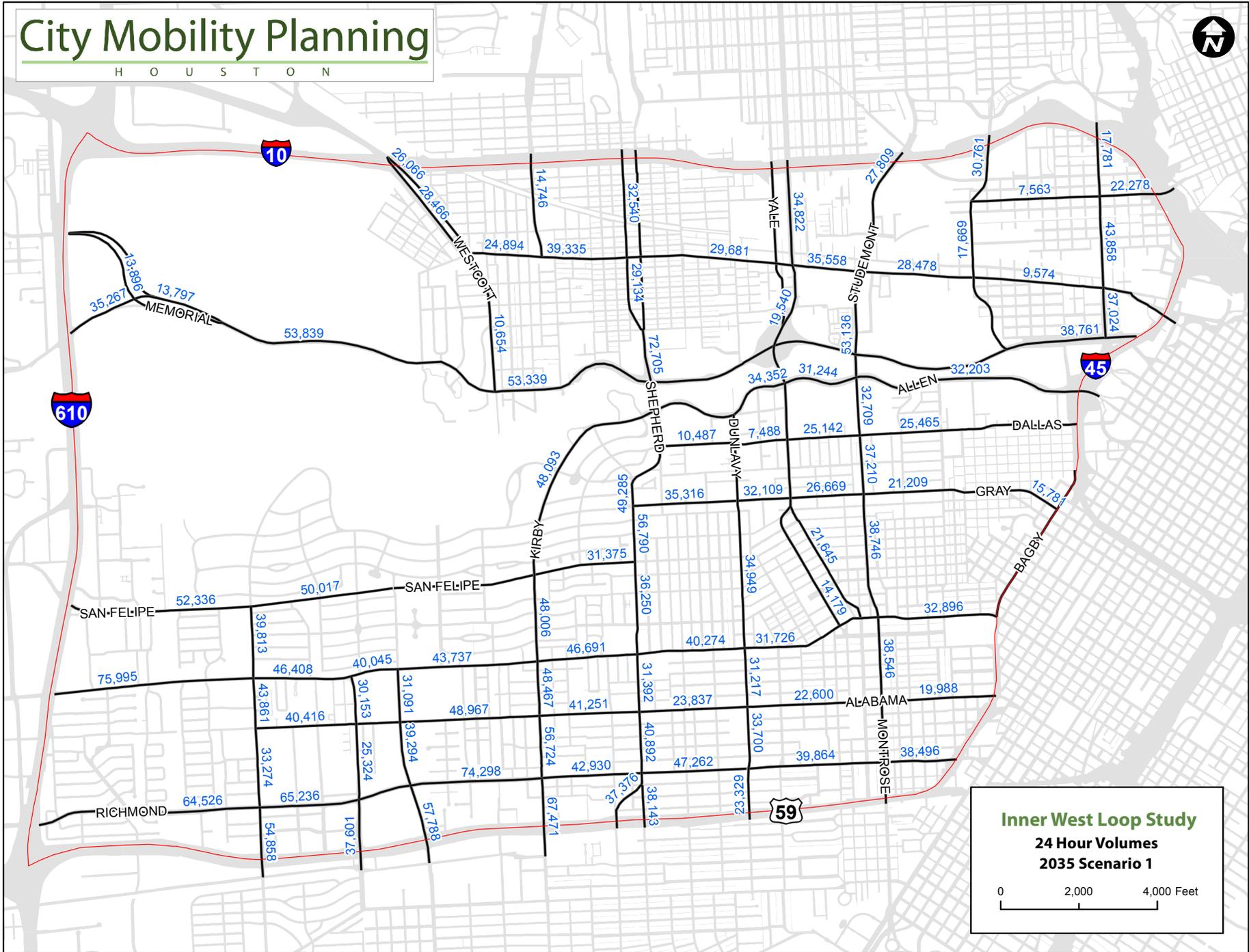


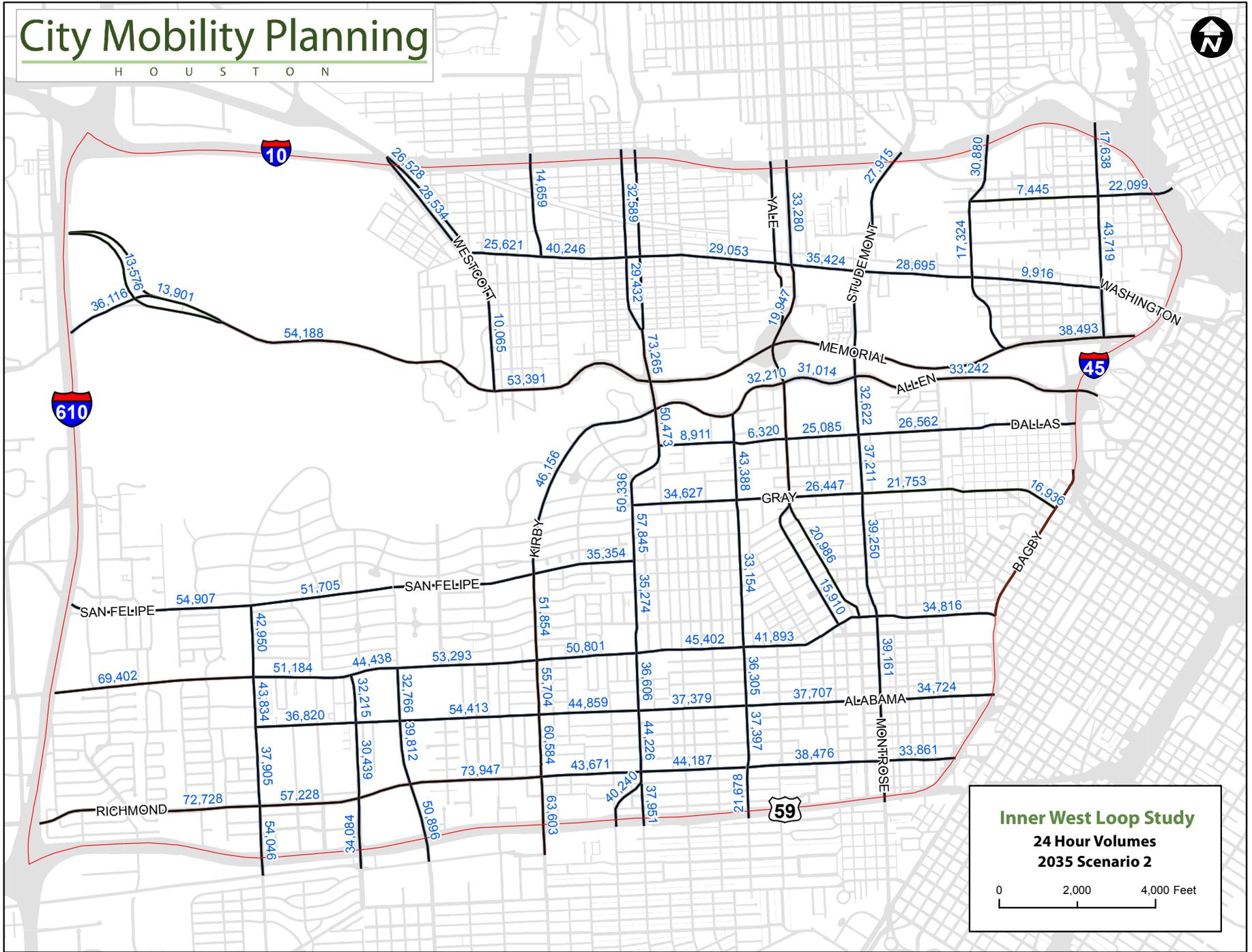
Trip Diversion



City Mobility Planning

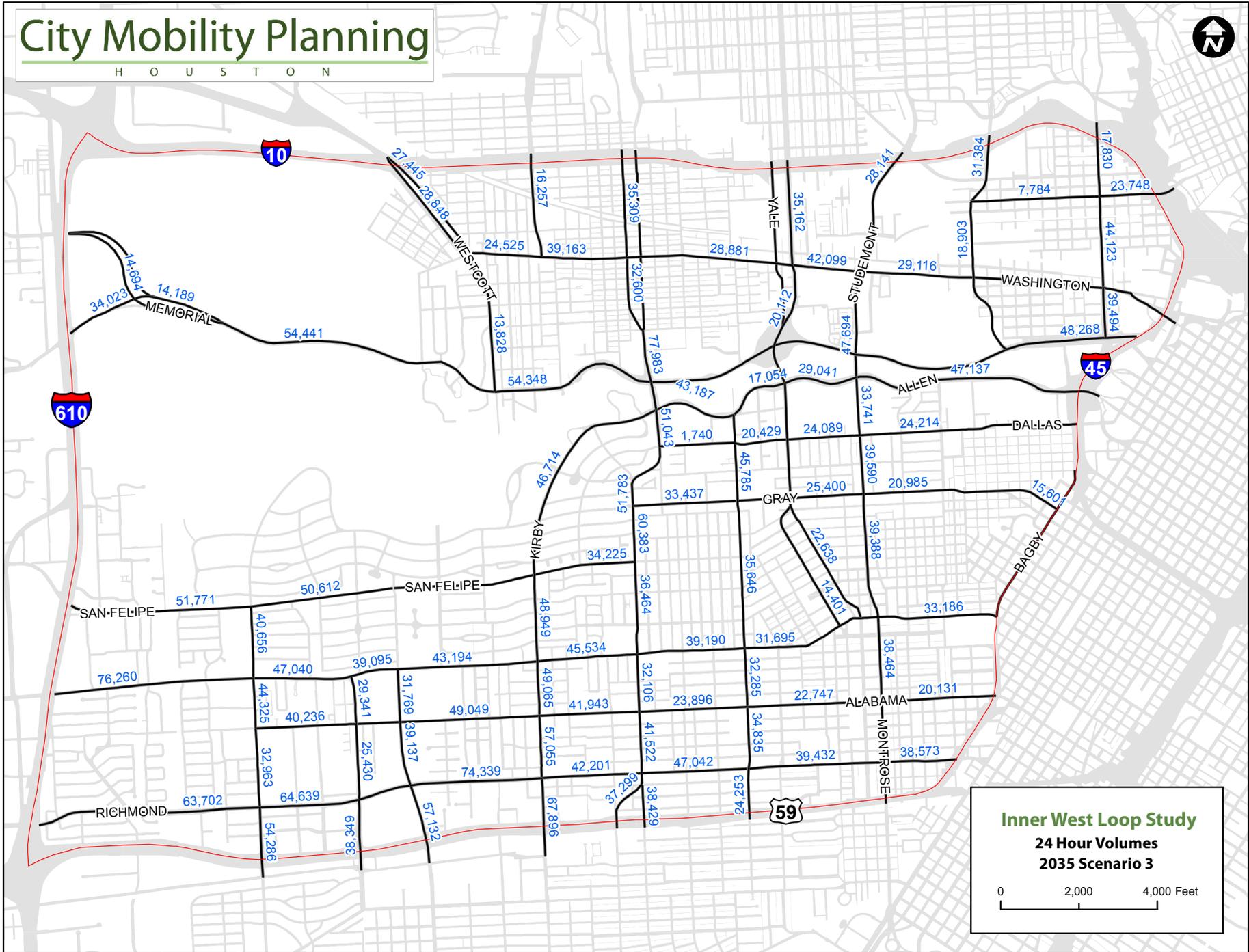
H O U S T O N





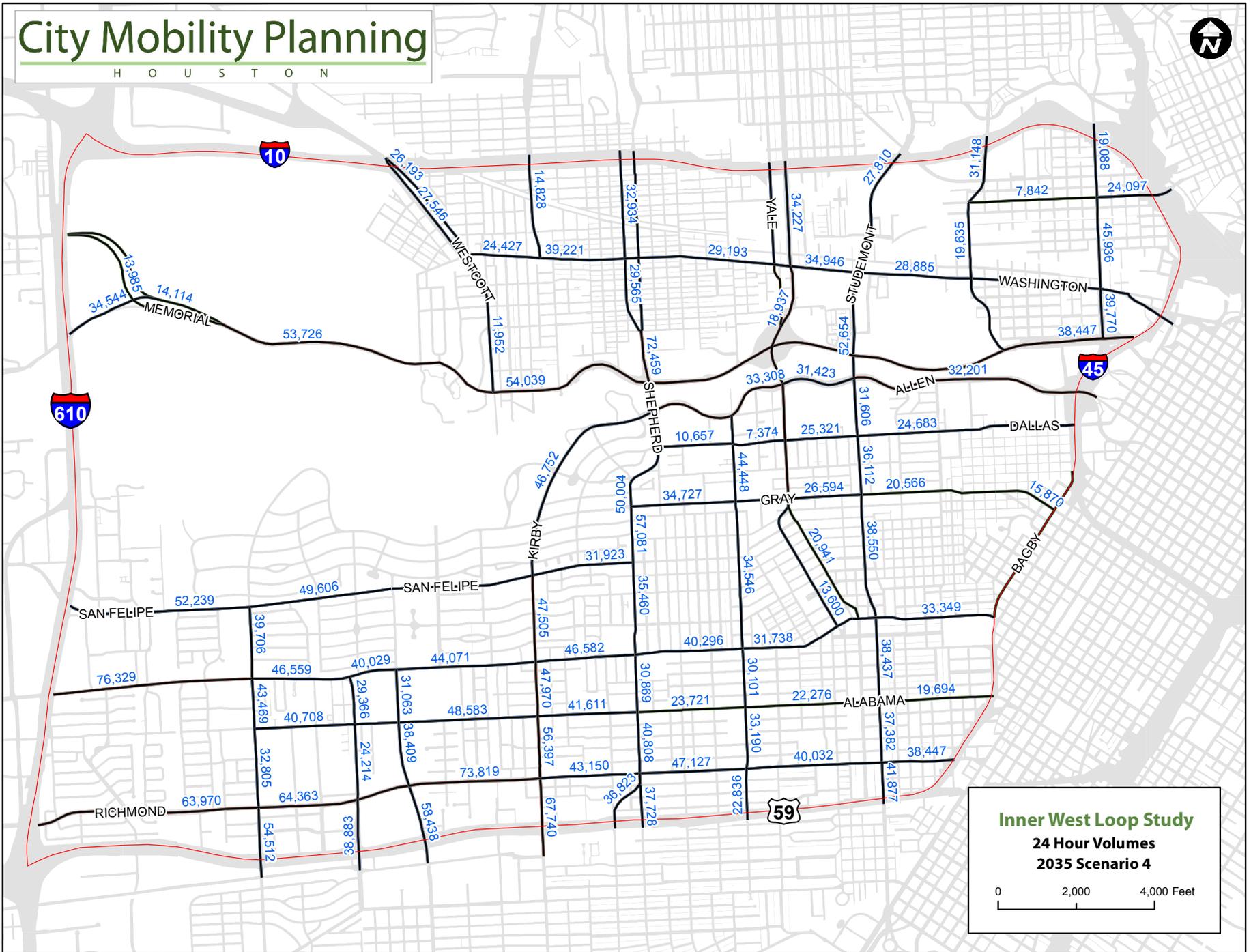
City Mobility Planning

H O U S T O N



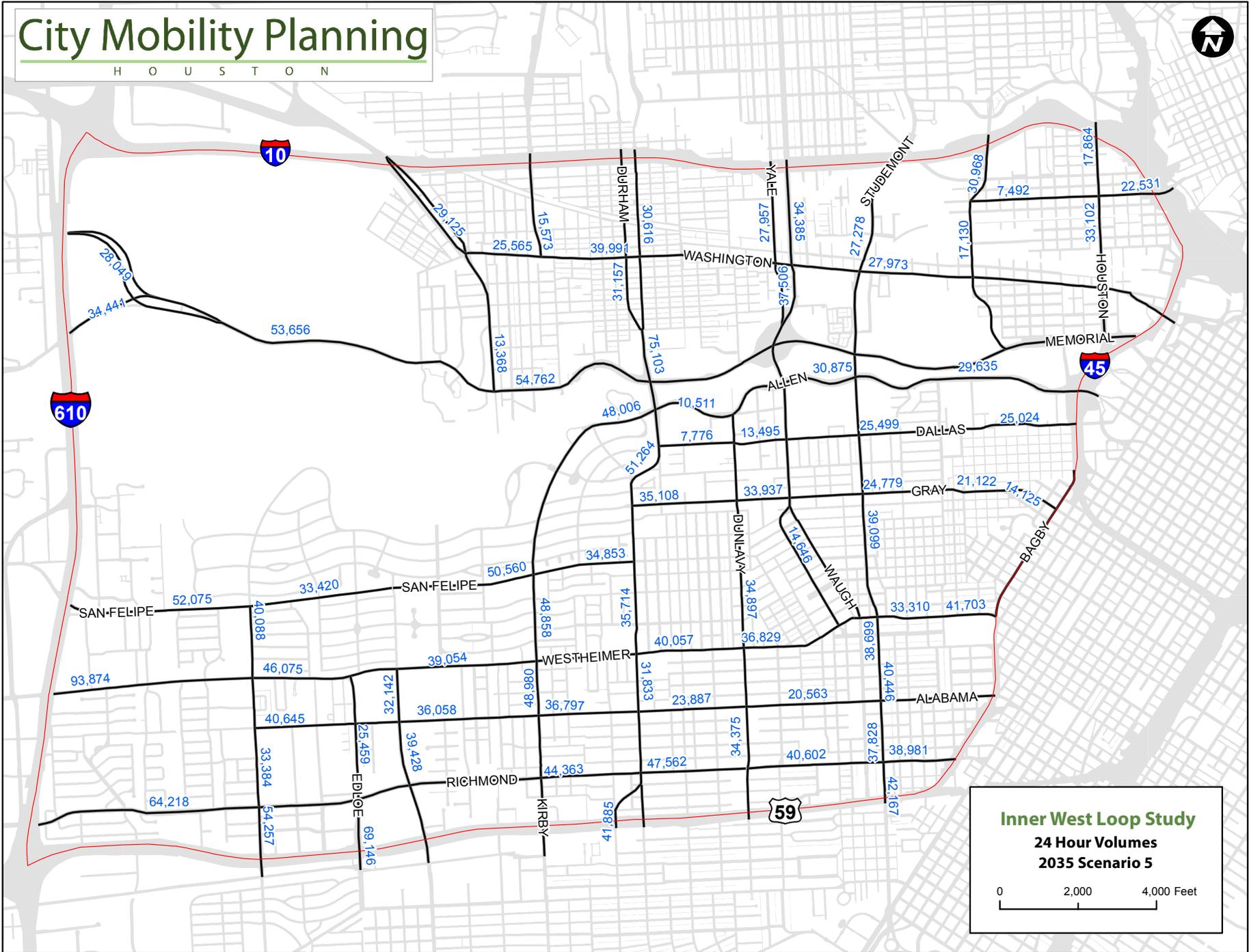
City Mobility Planning

H O U S T O N



City Mobility Planning

H O U S T O N



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Appendix B: Thoroughfare Types

The following pages are provided as reference for the reader. This information was developed during Phase 1 of the City Mobility Planning exercise, and led to the development of the Alternative Cross Sections presented in **Chapter 10, Appendix 2** of the **Infrastructure Design Manual**. This information is intended to clarify the distinction of Boulevards, Avenues and Streets, within the Urban and Suburban Areas. This nomenclature is less about street name or functional classification and is in regard to the context in which the corridor is intended to operate.

Freeway/Expressway/Parkway

Freeways are high speed (50 mph +), controlled-access thoroughfares with grade-separated interchanges and no pedestrian access. (Includes tollways) Expressways and parkways are high- or medium-speed (45 mph +), limited-access thoroughfares with some at-grade intersections. On parkways, landscaping is generally located on each side and have a landscaped median. Truck access on parkways may be limited. In most cases the freeways and tollways are TxDOT or HCTRA controlled facilities and the design elements of those roads are dictated by the State's Design Manual. The parkways are City facilities that function at high speeds. In many cases grade separated limited access facilities.

Urban Boulevard

Urban Boulevards are walkable, lower speed (35 mph or less) divided thoroughfare in urban environments designed to carry both through and local traffic, bicyclists and pedestrians. Urban Boulevards may be long corridors, typically 4 to 6 lanes, but are sometimes wider, serve longer trips and provide limited access to land. Boulevards may be high ridership transit corridors. Boulevards are primary goods movement and emergency response routes and use access management techniques. Urban Boulevards are different from Suburban Boulevards in that the pedestrian and context realms are oriented towards the pedestrian and building frontages. Most often the buildings are close to the street with wide sidewalks and tree wells forming space where a pedestrian feels comfortable and safe. The building height to street ratio often exceeds a 3:1 ratio which creates a comfort level for pedestrians to cross often wide thoroughfares.

Suburban Boulevard

Suburban Boulevards are high speed (40 to 45 mph) divided thoroughfare in suburban environment designed to carry primarily higher speed, long distance traffic and serve large tracts of separated single land uses (for example, residential subdivisions, shopping centers, industrial areas and business parks). High speed suburban boulevards may be long corridors, typically 4 to 8 lanes and provide very limited access to land. They may be transit corridors and accommodate pedestrians with sidewalks or separated paths, but some high speed boulevards may offer limited pedestrian facilities. Suburban boulevards emphasize traffic movement, and signalized pedestrian crossings and cross-streets may be widely spaced. In the context realm, buildings or parking lots adjacent to suburban boulevards typically have large landscaped setbacks. They are routes for primary goods movement and emergency response and widely use access management techniques.



Allen Parkway



Post Oak



Kirby

Transit Boulevard/Avenue

Much like the Urban Boulevards, Transit Boulevards are very walkable, lower speed (35 mph or less) divided thoroughfare in urban environments designed to carry both through and local traffic, pedestrians and bicyclists. Transit Boulevards may be long corridors, typically 4 to 6 lanes but sometimes wider, serve longer trips and provide limited access to land. Transit Boulevards are designed to provide space in the median for transit facilities. Transit Boulevards are extremely oriented towards providing the pedestrian with more space and building frontages. Most often the buildings are close to street with wide sidewalks and tree wells forming space where a pedestrian feels comfortable and safe. The building height to street ratio often exceeds a 3:1 ratio which creates a comfort level for pedestrians to cross often wide thoroughfares.

Urban Avenue

Urban Avenues are walkable, low-to-medium speed (30 to 35 mph) urban arterials or collector thoroughfare, generally shorter in length than boulevards, serving access to abutting land. Urban Avenues serve as primary pedestrian and bicycle routes and may serve local transit routes. Urban Avenues do not exceed 4 lanes and access to land is a primary function. Goods movement is typically limited to local routes and deliveries. Some Avenues feature a raised landscaped median. Urban Avenues may serve commercial or mixed-use sectors and often provide curb parking. The pedestrian realm is normally a continuous sidewalk from the back of curb to the building face with tree wells spaced near the curb lines.

Suburban Avenue

Suburban Avenues are walkable, low-to-medium speed (30 to 35 mph) suburban arterial or collector thoroughfare, generally shorter in length than boulevards, serving access to abutting land. Suburban Avenues serve as primary bicycle and pedestrian routes and may serve local transit routes. Suburban Avenues do not exceed 4 lanes and access to land is a primary function. Goods movement is typically limited to local routes and deliveries. Some Suburban Avenues feature a raised landscaped median. Suburban Avenues may serve commercial or mixed-use sectors and sometimes provide curb parking. The pedestrian realm is usually distinguished by a landscape buffer separating the street from the sidewalk with street trees located outside of the sidewalk area.



Main



West Gray



Yoakum

Urban Street

Urban Streets are walkable, low speed (30 mph) thoroughfare in urban areas primarily serving abutting property. A Urban Street is designed to connect residential neighborhoods with each other, connect neighborhoods with commercial and other districts, and connect local streets to arterials. Streets may serve as the main street of commercial or mixed-use sectors and emphasize curb parking. Goods movements are restricted to local deliveries only.

Suburban Street

Suburban Streets are walkable, low speed (30 mph) thoroughfare in suburban areas primarily serving abutting property. A Suburban Street is designed to connect residential neighborhoods with each other, connect neighborhoods with commercial and other districts, and connect local streets to thoroughfares. Suburban Streets may serve as the main street of commercial or mixed-use sectors and emphasize curb parking. The context realm is defined by a landscape buffer, trees with a separated sidewalk. Goods movements are often restricted to local deliveries only.

Industrial Boulevard and Avenue

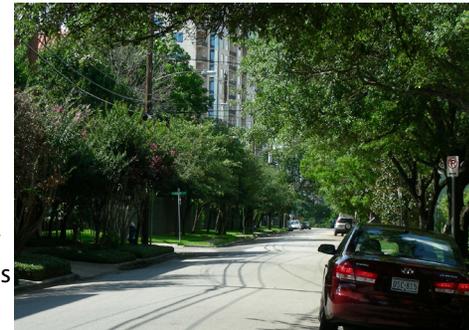
Industrial Boulevard and Avenues vary in speed from 30 to 45 mph in both urban and suburban areas. An industrial street is designed to connect heavy vehicles to and from major highways to industrial areas. These streets have wide travel lanes with large turning radii. Most often have limited pedestrian elements. Medians are optional for Industrial Boulevards.

One-Way Couplets

One-Way Couplets are pairs of one-way streets that function as a single higher-capacity street. Couplets are usually separated by one city block, allowing travel in opposite directions. One-Way Couplets serve many different areas of Houston from higher-density commercial and mixed-use areas such as Downtown and regional centers to lower-density residential areas and Main Streets.

One –Way Couplets are designed to have a higher transportation capacity than an equivalent two-way street. Both parallel and angled parking are appropriate for these streets.

West Dallas



Dunlavy

Navigation



Prairie

Appendix C: Comments

The following pages contain a summary of the public comments that were received regarding the concepts presented in this document.

Category	Commentor	Affiliation	Outreach	Comment	Response - KHA	Response - PWE	Response - PD
Bike Facilities	Peter Wang	League of American Bicyclists Cycling	Email	<p>I was highly disappointed to see that Bicyclist comments concerning San Felipe Rd. from Briar Oaks Lane to Willowick were not taken into account in the study draft. This currently challenging section of road could be a good conduit for cyclists coming from W. Alabama, and Willowick who wish to journey onwards to Memorial Park, the NW Transit Center, or the Galleria. The study draft concludes that this stretch of road has only motor and pedestrian factors. One only observes motorized traffic and minor ped traffic because the road is so badly done. Demand is artificially suppressed. There is potential for bicycle utilization along this route, which is obvious to anyone who has taken up the challenge to ride it in its current condition. It is a gem in the rough. I hope the authors will take another look at their report and write bicycles into the story.</p> <p>At the very list I insist that the writers of the document make 110% certain that sidewalk mitigations on both sides of San Felipe are recommended, so that the Briar Oaks Lane to Willowick bicycle journey can be made safely and slowly on the sidewalk; something we League of American Bicyclists Cycling instructors do not recommend routinely, but sometimes it is the only way.</p>	ROW Constraints, Future Traffic Growth. add a note to make pedestrian realm improvements on the south side of the corridor. This corridor might not be the most appropriate for a bicycle, and corridor studies for San Felipe and Westheimer will need to adequately examine further options.		San Felipe has constrained ROW and high traffic volume for bike lanes. Portion of the Roadway west of the Railroad could provide enhanced pedestrian access.
Rail	Christine Vuu	Concerned Citizen - not IWL (26 years)	News	<p>Hi my name is christine. I was born in and raised in houston. I just recently saw a story on the news about the study you guys are doing for the mobility in the inner west loop of Houston. My question is why is this study on going? Also why are you just limiting the study for the inner west loop? traffic just stop there.</p> <p>Im hoping that the city council or any that represents this city would agree that we need actual passenger trains. Trains that are bi-level to accommodate the large population of houstonians we have. Honestly i believe that we are wasting a lot of money on the metro rail that only cover a few blocks. a few blocks? i mean as known as being one of the fastest cities in houston we could and need to walk a few blocks. however we cant waste any more time or gas being stuck in traffic, we can prevent that by being provided passenger trains that will take us across town in half time we would usually get to by car. It would make houstonians to walk more, tourist attractions, more use of transits from buses and trains, and more local businesses opening which will create jobs and also less traffic accidents. I hope you hear me out and consider my idea. we really need a city rail train system that covers the whole city and run through the suburbs. please stop wasting time and money</p>	The improvements for transit alternatives within the study area will promote multi-modalism. We defined corridors that are equipped to handle high-frequency transit, however we did not evaluate specific technologies.		
Parking	Steve Spillette	Spillette Consulting		1. Which commercial thoroughfares, if any, will start allowing on-street parking where none exists today? More on-street parking is badly needed to support commercial activity, especially when development sites are tight, and to buffer pedestrians behind the curb.	Petitions for additional off-peak on street parking are handled on a case by case basis within the City Traffic Engineer's office. This project did not analyze on-street parking at any level. In cases where dedicated on-street parking already exists, the condition was carried forward into the design vision.		
Pedestrian Crossing	Steve Spillette	Spillette Consulting		2. Will you be establishing a maximum distance between safe pedestrian crossings on the street classifications that are recommended? Planning for a street type that is more accommodating to pedestrians is somewhat futile if they have to travel a 1,000 feet distance to a safe crossing just to visit something that's directly across the street from their original position. Back during the Urban Corridor Planning process, Planning Department staff was using a rough rule of thumb of a maximum 600 foot distance between safe crossings.	The city examines pedestrian crossing locations during the corridor design stage. This project was not examining the study area at that level.		
Traffic Flow - San Felipe	H. Scott Caven	Concerned Citizen - IWL	Examiner	As a resident of the area described in the Inner West Loop Mobility Study, I read with great interest the article about mobility planning in the area which appeared in the Thursday, December 20 edition of the Examiner weeklies. In the description of specific corridors mentioned in the article were the east/west routes along Washington, Westheimer, and Richmond, but there was no mention of what I believe to be a vastly underutilized east/west thoroughfare, San Felipe, which could certainly handle a larger automobile traffic load.	San Felipe <ul style="list-style-type: none"> The character of the roadway between Shepherd and Kirby changes the discussion a little because it becomes a 2-Lane roadway where residences take direct access. The Right-of-Way is limited West of Kirby until the Railroad and making any improvements that meet the standards within the IDM will likely require additional ROW. Given the neighborhood and businesses along this section that seems unlikely, also, some of the homes take rear access off of San Felipe increasing the challenges for a grade separated crossing. 		

Category	Commentor	Affiliation	Outreach	Comment	Response - KHA	Response - PWE	Response - PD
Traffic Flow - Grade Sep Crossings	H. Scott Caven	Concerned Citizen - IWL	Examiner	<p>However, the purpose of my message is to ask why, if the purpose of the mobility study is in fact to increase the traffic flow in the area, there is no mention of possible plans for routing auto traffic over, or under, the railroad track which crosses San Felipe, Westheimer, and Richmond and is a constant source of traffic back-ups and slowdowns at multiple times during each day when trains are passing through the area.</p> <p>While I certainly realize that building overpasses or underpasses over or under that railroad track would be quite expensive, the Metropolitan Transit Authority has already spent several billion dollars for light rail build outs which carry only a fraction of the individuals transported by automobiles by those three streets, and creating passageways which would eliminate the stops at that railroad track would dramatically increase the speed of the traffic flow and therefore the increased mobility you are charged with solving.</p>	<p>Creating Grade Separated Crossings</p> <ul style="list-style-type: none"> The creation of fully-controlled, grade separated crossings within the fabric of the urban environment poses several challenges. <ol style="list-style-type: none"> The provision of access to existing businesses and residences is a large hurdle The distance needed to climb and descend from a 25-ft top of rail to bottom of structure clearance requirement basically requires a 600-750-feet on either side of the tracks. <ul style="list-style-type: none"> There is a need to assess the use of this section of the Railroad infrastructure in conjunction with other large studies such as those undertaken by H-GAC and the GCRD regarding the overall freight and commuter/intercity network inside the loop and consider appropriate application of grade separated crossings. Similar to what has been examined for the West Belt Subdivision. 	<p>Grade separating the street in any manner is physically impossible and frankly does not add capacity to the entire corridor because downstream and upstream of the rail crossings are closely spaced signalized intersections which are the true limitations to the capacity of the roadways (Westheimer, Richmond, and San Felipe) in question. As you mentioned grade separation for the benefit of rail service is another story; but not adding</p>	
Other	Mary Lue Henry	TBG	Email	<p>It is disappointing to see yet another batch of projections and "fixes" that assume that we will continue to do things the way we always have despite the increasing mobility problems. The ability to acquire row is very limited because of existing development and will continue. It is past time to start suggesting that some life-style changes need to be considered and to start suggestions of what they might be. As a specific example, I have read that Seattle is trying to solve both the traffic congestion problems and the children's health issues by organizing groups of children to walk to school together accompanied by one parent. When school is not in session, traffic is substantially less. Some other suggestions might seem outrageous now, but might get people thinking.</p> <p>One specific. On the road condition map, HEB rebuilt Dunlavy south of West Alabama for several hundred feet and reconfigured the intersection for left turn lanes. The stretch of Dunlavy between Fire Station 16 and the piece rebuilt by HEB is still in very poor condition.</p>	<p>traffic projections within this study, were based on regional growth projections and the regional travel demand model. we examined the impact that growth within all sectors of the city will have on the travel network.</p>		
Local Streets	Richard Dickson	Concerned Citizen		<p>Having reviewed the draft report I would like to comment on the addition of turn lanes at the Dallas/Waugh intersection.</p> <p>Due to the increased traffic from Whole Foods and other businesses and residential units a lot of traffic is now using D'Amico and Rochow to avoid the Waugh/Dallas intersection. Rochow is a residential street but we have not been successful in getting any traffic calming because the bulk of single family residences are on a short block between Dallas and W. Lamar and we were told we were too close to Dallas to get speed bumps. The mobility planning exercise should include plans to protect residential streets from heavy traffic volumes, especially in the rush hours and to limit parking on the streets by non residents.</p>	<p>Neighborhood Traffic Management Program and Residential Parking Permit programs are in place to address the local street and neighborhood concerns you mention.</p>		
General Support	Roksan Okan-Vick	Houston Parks Board		<p>As an initial matter, we congratulate the City's Planning and Development Department for its public outreach process and for its willingness to break from traditional automotive mobility metrics in order to look more closely at transportation alternatives.</p>	<p>No Comment - Support</p>	<p>No Comment - Support</p>	<p>No Comment - Support</p>
Trail Connections	Roksan Okan-Vick	Houston Parks Board		<p>As you know, in November of 2012, the citizens of Houston voted overwhelming in favor of a bond measure that calls for the expenditure of \$100 million of public funds for the creation of continuous greenways and trails along Houston's bayous. Once these trails are complete, over 50% of the City's population will be within one and half miles of a bayou. Once on the bayous, anyone -- pedestrians, runners, dog walkers or cyclists - will be able to use these new paths for both recreation and transportation, potentially commuting to work, reaching other parts of the city, or simply exercising and enjoying the natural beauty of our bayous. To make the trails fully accessible to adjacent neighborhoods, individual pedestrian and bicycle connections from neighborhoods to the bayou trails must be made. These connections will ensure that the bayou trails fully function and support the mobility study's goals of secure commutes, increased pedestrian and bicycle facilities, improved air quality, and most importantly creation of a safe and secure environment for pedestrians and bicyclists.</p>	<p>The study examined ways in which to make connections via bicycle to the larger regional trails network. Specific project include corridors like Waugh and Dunlavy.</p>		

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Pedestrian Crossing	Roksan Okan-Vick	Houston Parks Board		<p>While the mobility study concentrates on the flow of traffic east and west, it does not consider the flow north and south in order to provide greater (and safer) pedestrian and bicycle traffic to the Buffalo Bayou and White Oak Bayou corridors. Given the ongoing investments in parks and trails on our bayous, we strongly urge that the Inner West Loop Mobility Study make specific recommendations with respect to safe pedestrian and bicycle access to both Buffalo and White Oak Bayou Greenways.</p> <p>Specifically, we suggest that the following issues be carefully studied: (1) A new segregated connection between existing trails in Memorial Park to the new trails along Buffalo Bayou, which begin at Shepherd and extend to the east. Despite its current unsuitable and dangerous conditions, this vital link is used by countless Houstonians already. Imagine the potential flow of people between Buffalo Bayou Park and Memorial Park if there were a safe connection! (2) Improved bike and pedestrian connections from Waugh, Studemont, Montrose, Sawyer, and other key streets that connect to Buffalo Bayou. Thoughtful street design will open the new Buffalo Bayou Park up to many more visitors and provide a direct safe route into Downtown.</p>	The study examined ways in which to enhance those connections. Details are dealt with on a corridor specific basis. Additionally, there will be new information developed regarding the bike network that would be available given the vision for several corridors within the area.		
Towing	Jeanette Rash	Safeclear Contractor		<p>I agree with the goals of the study and understand the need for the very near future. In the section of the study, "Mitigating Near-Term Peak Hour Congestion", no matter what is spent and what improvements are made, one stalled vehicle or one accident shuts the system down.</p> <p>In MAP 21 Fact Sheets, it is very obvious that federal highway wants roadway to be used to capacity and are willing to fund programs. They considered SAFEClear as "the" program for congestion management at its best. When the funding was cut due to the budget crisis, having to collect from the citizen, one vehicle at a time, has been very costly in time and savings to the public. Contractors continue to do their job but having to receive payment has slowed clearance times which is so important to the program. The good thing out of the cuts is that it shows what a huge impact that a top rate congestion management program can bring to this region. (See 1) Congestion Management Hearing, 2) Fort Bend County Power Plant, 3) Cambridge Systematics as supplements to the provided comment).</p>	No comment		
Bike Facilities	Dan Bolta	Concerned Citizen		Please continue to support Houston cycling. A free enhancement is to time stoplights on bike routes for bicycles, not cars, especially around downtown.	No Comments		
General Support	Tom Compson	Concerned Citizen - IWL		Thank you for providing the opportunity to submit comments on the subject study. Overall, I am very encouraged by the recognition that we can not keep adding traffic lanes to address congestion. This is a big step forward, as is the identification of sidewalk gaps and the need for additional bike accommodations. I would like to focus on the latter in my response here.	No Comment - Support	No Comment - Support	No Comment - Support
Bike Facilities	Tom Compson	Concerned Citizen - IWL		I have lived inside the loop for over eight years now and have biked regularly for recreation and exercise for over 40 years. I have also ridden my bike from my home near Braeswood and Stella Link to my job near the Galleria a few times but it is a daunting endeavor. My biggest concerns about the existing bikeway network in the study area are the significant gaps between Wesleyan and points west, and north-south across Buffalo Bayou. Also, while the expanding off-street network is extremely important and very encouraging to see, we also need to consider connections between it and the on-street network, which are few. Finally, even the most complete network needs to be maintained, which is patchy at best currently. The draft study addresses the first of these concerns partially by filling in a few of the gaps. I will address those specifically now.	no comment		
Bike Facilities - Alabama	Tom Compson	Concerned Citizen - IWL		Alabama - I'm very encouraged by the proposal to restore bike lanes along the entire length of Alabama from Wesleyan to Spur 527. This restores a key corridor that was removed "temporarily" several years ago. I would suggest we should consider extending this bike corridor west to the east side of the 610 loop by constructing a bike/ped bridge across the UP train tracks. This would provide at least one bike-friendly link across this chasm that extends from Memorial to Westpark.	Right-of-Way does not exist across the UP Tracks		
Bike Facilities - Waugh/Commonwealth/Heights	Tom Compson	Concerned Citizen - IWL		Waugh/Commonwealth/Heights - This is one of the few reasonably usable bike connections across Buffalo Bayou between downtown and 610. We should provide continuous bike lanes and shared lanes along it to fill in the gap between West Gray and Washington. We also need to provide connections between it and the new bike trail along the north side of Buffalo Bayou.	Addressed in the Study		
Bike Facilities - Richmond	Tom Compson	Concerned Citizen - IWL		Richmond - We should consider shared lanes between Wesleyan and I-610, even to Post Oak. I have ridden this segment to work a few times and while the traffic can be heavy I think reallocating the existing space to provide wider outside lanes would be workable and consistent with the mostly residential neighborhood through which it passes. This would provide another link across this chasm.	Richmond is probably not the best location for increased bicycle amenities. There is a need for a corridor, however additional studies are needed at the corridor level to address this issue.		
Bike Facilities - Dunlavy	Tom Compson	Concerned Citizen - IWL		Dunlavy - I agree with the recommendation to provide a connection across Allen Parkway to the Buffalo Bayou trail. The more links the better to improve access to this wonderful new asset from the surrounding neighborhoods.	No Comment		

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Bike Facilities - Wesleyan	Tom Compson	Concerned Citizen - IWL		<p>Wesleyan - The current bike lanes are a poster child for how not to do it. They are narrow and generally full of debris, potholes, and pavement seams. It takes steely nerves to brave them. That said, we need to keep them and make them wider or convert the outside lanes to shared lanes when this street is resurfaced. At the December meeting one of the maps indicated the bike lanes don't continue north past Westheimer. They do, and they should continue to provide access to River Oaks and the east-west trails in that area.</p> <p>One more gap I would like to address is a short one - Wesleyan from Westpark to Bissonnet. Extending bike lanes or shared lanes here would provide access to the shopping centers in this area as well as surrounding neighborhoods, including the much more bike friendly north-south streets of Academy and Auden that can be used to get to the Brays trails further south. This segment is just outside of the study area but affects and is affected by it.</p>	Map will be updated for the noted Wesleyan north of Westheimer issue.		
Bike Facilities - Houston	Tom Compson	Concerned Citizen - IWL		Houston Street - providing continuous bike lanes here from I-45 to Memorial as suggested in the study would fill this north-south gap between the Heights and the west side of downtown. The same can be said for the proposed bike lanes on Sawyer.	No Comment		
Bike Facilities - West Dallas	Tom Compson	Concerned Citizen - IWL		West Dallas - No mention was made of the new apartment/condo complex planned where the Allen House apartments once stood. There was a fairly well developed plan for that segment a few years ago before the project was postponed. Will it be revived?	Beyond the scope of this project.		
Bike Facilities - Westcott/Washington	Tom Compson	Concerned Citizen - IWL		Westcott/Washington - I agree with adding provisions for bikes on this segment from I-10 to Memorial.	No Comment - Support	No Comment - Support	No Comment - Support
Bike Facilities - Memorial	Tom Compson	Concerned Citizen - IWL		Speaking of Memorial, the gap between the bike path west of Crestwood and the newly renovated Buffalo Bayou trails needs to be addressed. Currently there is a narrow sidewalk on the south side of Memorial that cyclists try to share with pedestrians. It is not wide enough for this use and should be widened. This would provide a much needed connection between Memorial Park, the rapidly improving Buffalo Bayou park area and downtown and would also serve neighborhoods west of I-610. Also, while there isn't much room on Shepherd between Allen Parkway and West Dallas, we should try to figure out a way to accommodate bikes on this short segment to provide a connection between the Buffalo Bayou trails and the on-street bikeway network.	The Memorial/Shepherd interchange will need to be redesigned. In the design stage, pedestrian and bicycle accommodations will be examined. as for the gap on Memorial east of the park, there will need to be a further examination during the corridor study process.		
Bike Facilities - Edloe	Tom Compson	Concerned Citizen - IWL		Did the group consider adding shared lanes to Edloe between Westheimer and Bissonnet? This would provide another needed connection across US 59 between Wesleyan and Hazard. A short jog on Westheimer from Edloe to Larchmont provides access to/from River Oaks	we will look at adding this use.		
General Support	Joyce Almaguer-Retsdorf	Concerned Citizen	1st public meeting	<p>Friends, thanks for putting this report together, and then letting us comment on it. Attending the March introduction, the December presentation, and reading the draft report helped me get excited about all the good things that are happening here.</p> <p>I appreciate the report's acknowledgement of the importance of public transit, and stronger facilities for cyclists and pedestrians.</p> <p>I don't use the language here for fear that I misuse it, but I also appreciate the new vocabulary for the streets described in this report. The new vocabulary indicates a new view of our streets, and that's exciting.</p>	No Comment - Support	No Comment - Support	No Comment - Support
Bike Facilities - P. 9	Joyce Almaguer-Retsdorf	Concerned Citizen	1st public meeting	<p>Thank you for recognizing that cyclists who are less experienced or comfortable currently have limited options available to them. Please consider mention of children who will benefit from well-planned active transportation options.</p> <p>Please also add a section regarding sidewalks and pedestrian access; that should be first priority in this area. A street that is pleasant to walk along will likely also be friendly to cyclists, but a street pleasant for cyclists may not necessarily be accessible for pedestrians. Pedestrian access must include meeting ADA standards; those using wheelchairs or strollers should not need to be diverted into the street due to poor design or sidewalk maintenance.</p>	As redesign of sidewalks and corridors is undertaken, the standards for ADA will be met. The study examined corridors for first implementation, and recommendations will be included in the final report.		

Category	Commentor	Affiliation	Outreach	Comment	Response - KHA	Response - PWE	Response - PD
Bike Facilities - Standards	Joyce Almaguer-Reisdorf	Concerned Citizen	1st public meeting	<p>Where bike lanes occur, how can we be sure they are wide and clean, not glorified gutters accentuated by blown leaf debris, litter, and parked cars like some of our other bike lanes? A wide, clean bike lane not only offers a welcoming, safe facility, but also demonstrates Houston's commitment to walking and biking in its urban core.</p> <p>Where bike sharrows occur, I would like to see discussion about slowing motor traffic as well. Washington Ave., for instance, is wide open and fast. I find the delta between my speed and that of the cars around me unsafe, particularly when as a cyclist I feel vulnerable not just to the cars cutting around me but to the cars that might pop out of an intersection or curb cut. If, as a mostly able-bodied, experienced cyclist I feel unsafe, we can't expect anyone else to use it.</p> <p>I would like to see a mention for discussion of standards for bicycle facilities:</p> <ol style="list-style-type: none"> lanes of a minimum width, decreased road speed where there are bicycle facilities in the ROW, separations, bike boxes, etc. 	Bike lanes have a minimum width per the Infrastructure Design Manual. The roadway speed is a harder element to alter given state law regarding posted speed limits, however, design changes can help to minimize the speed in certain locations. Along Major Thoroughfares, the balance is between regional and local travel access, as such there is a constant tension between speed and other users.		
Bike Facilities - Sidewalks Standards	Joyce Almaguer-Reisdorf	Concerned Citizen	1st public meeting	<p>Where sidewalks occur, we must ensure sidewalks are simply and consistently easy and pleasant to use. A sidewalk immediately alongside a sunny, dusty street with rapid-moving traffic, giving users an overdose of auto exhaust, does little to encourage active transportation. In the rain, sidewalks become Splash Zones.</p> <p>I would like to see a recommendation for a standard for:</p> <ol style="list-style-type: none"> wider sidewalks, even at the expense of traffic lanes where necessary, slower street speeds, especially where the pedestrian realm is vital (e.g., lower Westheimer), and consideration of the pedestrian experience throughout the year (e.g., no sidewalk Splash Zones). 	Sidewalks have minimum and desired widths per the Infrastructure Design Manual. See previous regarding speed. Design of drainage can be addressed at a later phase, however, the lack of slopes within Houston necessitates certain areas be used for in street detention.		
Lane Widths - Transit	Joyce Almaguer-Reisdorf	Concerned Citizen	1st public meeting	Where a large street must support truck or bus use, perhaps the rightmost lane can be wide, and the interior lanes narrow, to offer a few more feet to the pedestrian/cyclist's realm.	Wider outside lanes are envisioned on several corridors, but the details will be refined during a future design phase.		
Trail Connections	Joyce Almaguer-Reisdorf	Concerned Citizen	1st public meeting	P. 43 We've never been able to ride our bikes as a family or commuters on the new multi-use trail or bayou bridges, because we can't easily get to them using our network of little suburban streets, and don't want to take our children on a street like Waugh or Shepherd. This kind of disconnect is mentioned in the report on page 43 (thank you!).	No Comment - Support	No Comment - Support	No Comment - Support
Trail Connections	Joyce Almaguer-Reisdorf	Concerned Citizen	1st public meeting	P. 43 I would like to see a little more discussion here about how our current street network needs help "plugging in" to the area bayou trail and the bayou bridges, and how the bridges can help bicycle commuters and pedestrians cross the bayou and continue their north-south travels.	we will look at clarifying the gaps, and recommended projects.		
Sidewalk Gaps	Joyce Almaguer-Reisdorf	Concerned Citizen	1st public meeting	<p>P. 14 The report maps illustrate locations where a sidewalk is lacking ("sidewalk gaps"). I appreciate that those gaps are noted. There are also places where the sidewalk shouldn't even count as a sidewalk, e.g., the skinny, interrupted brick sidewalk along Richmond near S. Shepherd. Such sidewalks are not ADA-accessible at all, affecting those disabled as well as users pushing a baby stroller or even fold-up grocery cart.</p> <p>Those sidewalks should be noted as sidewalks requiring a major do-over ASAP.</p>	No Comment		
Pedestrian Crossing	Joyce Almaguer-Reisdorf	Concerned Citizen	1st public meeting	<p>P. 20 Any road/sidewalk user at some point needs to cross a street. There is some discussion about the treatment some intersections may receive for cars in the future, but what of the rest of the users?</p> <p>I would like this report to include discussion of intersections and crosswalks for our diverse types of users, including cyclists and pedestrians, and including cyclists and pedestrians on small local streets who may need to cross larger, multi-lane streets.</p>	The design details for exact intersection treatments for all users are beyond the level of detail of this analysis, however, the report does present a process by which that conversation should be had in future design phases.		
User Hierarchy	Joyce Almaguer-Reisdorf	Concerned Citizen	1st public meeting	<p>P. 25 On page 25 of the report, "Pedestrian" and "Bicycle" are listed as elements considered for report recommendations. Not all pedestrians or cyclists are equal, however, and the diversity of users should be noted.</p> <p>The words "children", "seniors" or "elderly" are also not mentioned in this report, yet to be truly effective our transportation networks must offer options for both the very young and the very old. COH must ensure that bike/ped/transit facilities are consistently available for safe use by a wide range of users.</p>	While we strive to develop solutions for all users, your comments about designing for the 8 year old to the 80 year old is receiving much more attention in the design phase for corridors.		

Category	Commenter	Affiliation	Outreach	Comment	Response - KHA	Response - PWE	Response - PD
Schools	Joyce Almaguer-Reisdorf	Concerned Citizen	1st public meeting	P. 25 There are a lot of schools, public and private, in the study area, but as far as I could tell the word "school" is not mentioned in this report. Traveling to school can be very difficult and intimidating in this study area, causing more students to arrive by car, which means more traffic, etc. Currently sidewalks near schools in the study area are alongside fast-moving traffic or are subject to disappearing; intersections force students to negotiate multiple turning lanes and some must be literally jogged across to reach the opposite side of the street before the light turns again. (My 7 y.o. children cannot "walk" across Richmond at Hazard before the light turns green again). Some transit stops pick up and leave students at congested intersections; students must stand roadside with minimal shelter from road spray and dust. Riding a bike to school might mean asking that a child ride his or her bike on West Alabama or Westheimer or Richmond, or on the sidewalk of those streets, which can be even more dangerous. No bike route to Lamar HS exists without putting a student on a busy street or requiring a long detour through River Oaks. No wonder so many students drive to school or catch a ride!	It is our hope that the network of options, and improved pedestrian realm can help to alleviate some of this concern, however, large roadways will constantly be a challenge in crossing for certain age groups. The design alternatives considered in future phases per corridor will need to examine this concern.		
Bike Facilities - Alabama	Joyce Almaguer-Reisdorf	Concerned Citizen	1st public meeting	P. 30 In this report Richmond is designed for ped/train/auto only, whereas cyclists get a bike lane on W. Alabama. A bike facility on W. Alabama needs to be excellent--deluxe!--because west of S. Shepherd the street grid begins to break down, and it becomes very difficult to travel east-west by bike. W. Alabama would be very useful in providing contiguity. This would ideally mean: 1) narrow auto lanes (slow down traffic and ensure maximum ROW to ped/bike use), 2) wide bike lanes, more than 5', to offer at least 5' passing distance between cars and cyclists and allow maneuvering around cars sticking out of curb cuts, 3) other traffic calming devices to encourage slower automobile travelling speeds 4) and slower posted speeds for those who don't get the hint. Slower traffic improves the user experience and ensures safety for everyone. Slower posted speeds also means that W. Alabama becomes a safer, secure route for a wider range of active transportation users (like teenagers). I think W. Alabama as an east-west access for cyclists should be complemented with the local little streets as much as	See previous note about speeds and minimum/desired bike lane width at the design phase.		
Bike Facilities - Shepherd	Joyce Almaguer-Reisdorf	Concerned Citizen	1st public meeting	P. 31 I would like to see crosswalks or stop lights along Shepherd that permit east-west crossings for bike and pedestrians (and cars, if a stoplight) coming from the suburban streets along this very busy, often-congested road. In the evenings, traffic on S. Shepherd northbound at the W. Alabama stoplight can back up all the way to Colquitt.	Additional signals and pedestrian crossing location require another level of analysis and must meet certain established criteria. While the concern is noted, the analysis will be required at a future phase of effort for Shepherd.		
Bike Facilities - Washington	Joyce Almaguer-Reisdorf	Concerned Citizen	1st public meeting	P. 33 The sharrow on Washington are unfortunately awfully unpleasant for me as a cyclist. Washington is wide open, and fast. I find the delta between my speed and that of the cars around me feels unsafe. It is an important east-west corridor, but I would like to find a better way than using the sharrow--and worrying about drunk drivers, to boot. If the sharrow is the best way to move cyclists--and pedestrians--east-west, I propose traffic calming, a larger pedestrian realm, and slower speed limits.	Traffic Calming on Thoroughfares is not allowed per City Policy, Improved adjacent streets may help to alleviate some of the concern, however within the current section the sharrow is the best available solution.		
Bike Facilities - Waugh/Commonwealth	Joyce Almaguer-Reisdorf	Concerned Citizen	1st public meeting	P. 34 Waugh and Commonwealth can be a fast, unforgiving streets in the evenings. The narrow bike lane, currently decorated with wet, slippery leaves, can offer a very unpleasant cycling experience. I have ridden in the regular lane where the bike lane felt unsafe, and it didn't feel much better--traffic was still fast-moving whenever the road opened up, and afternoon commuters tried to zoom around me. I did not feel safe. As a cyclist and driver I appreciate that Waugh and Commonwealth offer a north/south route with few stops. With upcoming development (e.g., the apartments/condos south and east of Whole Foods) this pair of streets promise to only get more busy. I would like to see a more creative corridor treatment here, such as much wider bike lanes at the expense of the traffic lanes (reducing them in width or number) and slower speeds (after all, this is a windy street through a largely residential neighborhood). Another option--and my preferred--is a sharrow and wide lane for experienced riders, and a cycling greenway through the neighborhood as an option for those of us who don't like tangling with rush hour traffic (that is, most of us)?	Given the grid of streets adjacent, and the need for North South Carrying capacity, the number of lanes needs to be held constant, Improved markings and signage could help alleviate some of the concern.		
Bike Facilities - Dunlavy	Joyce Almaguer-Reisdorf	Concerned Citizen	1st public meeting	P. 43 I like this!!! A larger pedestrian realm and a simplified line for cyclists make this much better than current. I would like to see measures to ensure auto speeds are slower, to minimize jockeying in rush hour traffic.	No Comment		

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Local Streets	Joyce Almaguer-Reisdorf	Concerned Citizen	1st public meeting	<p>P. 90 I wish there was some time/space dedicated in this report toward the "suburban streets" that fill out the urban grid or that otherwise support cut-through traffic from one large, busy street to another. A lot of us don't just drive on these streets, but we live along them as well.</p> <p>I would have liked some discussion regarding what happens to those little streets when we change the nature of an intersection, e.g., don't allow left turns, or when traffic builds up and drivers decide the red light up ahead is too long and they want to speed through the adjacent neighborhood instead. Fast/excessive cut-through traffic in a neighborhood hurts the slow, uber-local traffic in those streets (the mailman, repair people, people pulling in/backing out of their driveways) as well as--and perhaps more importantly--the ability of the streets to safely and comfortably accommodate bike/ped activity.</p> <p>It's disconcerting to get almost ploughed over in front of my house by someone who is in a hurry and needs to make a left on Richmond or W. Alabama or S. Shepherd. And the big, loud trucks who cut through the neighborhood and bang up my trees despite the cute "No Thru Trucks" sign? Ick. Hmm, no wonder my neighbors don't want to walk or bike</p>	No Comment		
Local Streets	Joyce Almaguer-Reisdorf	Concerned Citizen	1st public meeting	<p>The "little streets" of our urban grid can be important parts of our bike/ped networks--they are quieter and permit a slow traveling speed. A challenge that occurs when using them, however, is that the little streets lead to "big streets"--e.g., Westheimer, Kirby, S. Shepherd, Washington--and those big streets can be very hard to cross!</p>	No Comment		
Pedestrian Crossing	Joyce Almaguer-Reisdorf	Concerned Citizen	1st public meeting	<p>Additional crossings would complement access efforts along the larger thoroughfares. Kipling at Kirby, for instance, just north of W. Alabama and before Westheimer, has been extremely helpful to me as a cyclist who uses my bike for transport, as a driver running errands though the neighborhood, and as a pedestrian.</p>	<p>Crossing locations are examined at the corridor planning level of detail, which would be the next step for the improvements suggested within this document.</p>		
Lighting/Ped Indicators	Joyce Almaguer-Reisdorf	Concerned Citizen	1st public meeting	<p>In places where the grid is strong, I would like to see proposals for inclusion of additional lights or crosswalks along major streets--points of high stress for the user--to encourage bike/ped use through these suburban streets (if stoplights, even benefit motorists benefit).</p> <p>In addition to offering east-west and north-south crossings, many of these streets are good candidates for greenways, with lots of traffic calming, extra stop signs, etc. that would add some element of peace to neighborhoods and functionality of suburban streets without major investment.</p>	<p>See previous comment regarding light and crossing warrant analysis.</p>		
Connectivity	Joyce Almaguer-Reisdorf	Concerned Citizen	1st public meeting	<p>Lastly, when large multi-block developments occur, sometimes Houston allows such developments to close a street--or multiple streets--down to all traffic, including bikes and pedestrians. This affects traffic flow and efficiency for all users. The street grid is one of the BEST things about this neighborhood--this report should advocate for the preservation of our urban street grid.</p>	No Comment - Support		
Next Steps- Additional Support	Joyce Almaguer-Reisdorf	Concerned Citizen	1st public meeting	<p>P. 52 As mentioned in the report, achieving a more walkable, bikeable, transit-friendly Houston will require support from multiple organizations and at multiple levels. I would like to see other kinds of support, as well, such as:</p> <ol style="list-style-type: none"> 1) enforced speed limits, 2) truck restrictions enforced where noted (e.g., "No Thru Trucks", "TOTAP Prohibited") 3) parking rules enforced (e.g., no cars blocking sidewalks), 4) and novel enforcement approaches such as larger traffic fines in zones characterized by heavy pedestrian use or where bike lanes are present (similar to how traffic fines are double in construction zones). 	<p>Enforcement issues - beyond the scope of this project, however worth noting.</p>		
Street Definitions	Joyce Almaguer-Reisdorf	Concerned Citizen	1st public meeting	<p>With the new street definitions, speed limits should be considered as well. Suburban streets will be well-served with a 20mph speed limit and larger streets should not exceed 30mph. These larger streets are not just thoroughfares to take drivers from one side of town to the other, but are also spaces where people wish to live, work, eat, and play.</p> <p>New text in the PWE Design Manual may help ensure that bike/ped facilities are given adequate minimum standards. This sounds like a complicated process... but I would like to voice the opinion that pre-determined standards--or, at least, very strong recommendations--are often helpful in accelerating a process, and may be useful as Houston continues to grow.</p>	<p>See Previous regarding Posted Sped and State Law</p>		
Dunlavy-Support	Sowmya Kumar	Concerned Citizen - IWL		<ol style="list-style-type: none"> 1. We agree with the observation of a "more residential context" along Dunlavy, on page 43. 2. We agree with the observation that more bikers use Dunlavy. 	No Comment - Support	No Comment - Support	No Comment - Support

Category	Commentor	Affiliation	Outreach	Comment	Response - KHA	Response - PWE	Response - PD
Dunlavy- Considerations	Sowmya Kumar	Concerned Citizen - IWL		<p>a) The new HEB at the intersection of Dunlavy and W. Alabama has increased overall traffic considerably along Dunlavy.</p> <p>c) HEB trucks and other heavy vehicles have increased considerably along Dunlavy between W. Alabama and Richmond.</p> <p>d) The matter is further complicated by the fast responding traffic of ambulances/fire trucks from Ladder # 16 at the junction of Dunlavy and Richmond. A good amount of this traffic is directed towards Westheimer.</p> <p>We live next to the fire station. We are observing more close calls between the heavy vehicles and pedestrians/bikers recently. We believe, something must be established done soon to reduce the number of heavy vehicles between W. Alabama and Richmond.</p>	No Comment		
Dunlavy - MF	Sowmya Kumar	Concerned Citizen - IWL		b) The new multi-use complex, coming up soon, across from HEB, will create additional traffic along Dunlavy.	No Comment		
Dunlavy- Trucks	Paula Clay	President, Lancaster Civic Association	Mr. Bill Hlavacek	<p>The opening of the new HEB grocery store on the corner of West Alabama and Dunlavy has led to a significant increase in large truck and other traffic on Dunlavy, thus causing problems for residents near Dunlavy</p> <p>There are currently signs posted on West Alabama prohibiting trucks over 2 axles. I did not see that this was mentioned in the study. All trucks delivering to the HEB on Alabama and Dunlavy are obliged to enter and exit the store using Richmond and Dunlavy. Noise and vibrations from the trucks are causing significant problems for nearby residents preventing them from enjoying their property, and impacting property values.</p>	State Law for Trucks making local deliveries provides an enforcement issue - Signage issue refer to Public Works		
West Alabama - Trucks	Paula Clay	President, Lancaster Civic Association	Mr. Bill Hlavacek	Removal of the signs prohibiting trucks on West Alabama would significantly alleviate the problem for residents near Dunlavy. I have learned from Councilmember Cohen's office that the prohibition of trucks on Alabama is actually unlawful and unenforceable. However, as long as these signs are posted, HEB will not reroute delivery traffic and the burden of delivery truck traffic will continue to be shifted to Dunlavy.	Signage issue - refer to Public Works		
Dunlavy - MF	Paula Clay	President, Lancaster Civic Association	Mr. Bill Hlavacek	In the near future, a large apartment complex (slightly below the cut off for designation as a high rise) will be built immediately across the street from the existing HEB. This will have a significant impact on traffic flow and should not be left out of the City's traffic study.	Details pertaining to this development were included in the future year analysis		
City Council Approval	Deborah Mann	Concerned Citizen		<p>I would like to see the City Council be in charge of changes instead of it being set by the engineers. It's our city and shouldn't be mandated only by the "logic" of the engineers.</p> <p>I would like to see the health impacts included on studies and decisions.</p>	No Comment		
Traffic Calming/reduced Speed	Deborah Mann	Concerned Citizen		I support slower speed limits in our area, to the point of getting legislation to enable 20 mph limits in addition to the engineering of slower speeds by the design itself.	See Previous regarding Posted Speed and State Law		
Sidewalk Gaps	Deborah Mann	Concerned Citizen		I support home/business owners being responsible for the maintenance of the sidewalks with standards and citations being put into effect.	No Comment		
Trail Connections	Deborah Mann	Concerned Citizen		I support there being designated connected slow safe paths throughout the inner loop as well as connection to the bayou grids.	No Comment		
Lane Widths	Kevin McNally	BetterHouston		<p>Lanes are still too wide: 12' lanes encourage speeding and are detrimental to the pedestrian environment. While I am thankful that lanes were reduced in some cases (4 lanes down to 1 in each direction and a turning lane), keeping the IDM standard of 12' lanes is not acceptable, except on major thoroughfares with limited or no pedestrian access. Studies have shown that decreased lane widths are just as (if not more) safe than 12' lanes and that they have little impact on traffic flow. Please see this article for more info: http://www.walkinginfo.org/library/details.cfm?id=4348</p>	Lane widths are not provided in any diagram. Infrastructure Design Manual is the guiding standard, however design exception process is also contained within the IDM.		
Bike Facilities	Kevin	BetterHouston		On street bike infrastructure: Many cities (i.e. Portland, Chicago, Washington, DC, Austin) are building progressive and attractive bicycle infrastructure to promote increased bicycle commuting. This infrastructure includes protected and buffered bike lanes, using painted buffers, on-street parking barriers, bollards, and green painted lanes (full length or at conflict points). Research has shown that there are four categories of potential bicycle commuters. 1% are "strong and fearless" and will bike on the streets regardless of bike infrastructure. 7% are "enthused and confident" and will bike on most streets. 30% wouldn't bike, no matter what. And 60% are "interested but concerned" in biking as a	Design Detail to be further refined at the corridor level, see IDM for process		

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Trees	Daphne Scarbrough	Concerned Citizen		I am not interested in losing any dirt or green space to concrete, concrete does not absorb water which creates more flooding and run-off. 8 ft. sidewalks will not increase pedestrian activity, better weather and street medians will. Existing trees should not be clear cut just to add 2 - 4ft. of concrete.	No Comment - Support		Tree Grates; Do not advocate cutting down trees which offer shade and hence, increase pedestrian activity
Signal timing	Daphne Scarbrough	Concerned Citizen		The alteration of street designations does not affect congestion issues, the timing of street lights and condition of the streets has the most effect. Flooding, limiting turns on a major thoroughfare (such as Alabama St.) and the removal of lanes of traffic affect cars and bicycles alike., creating drive through traffic in adjoining neighborhoods.	No Comment - Support		
Parking	Daphne Scarbrough	Concerned Citizen		Businesses need parking! Street parking must remain available as well as self-parking on business property. Street parking should have low rates in the daytime to make it affordable to stop and shop with local businesses.	Policy Issue - Refer to Public Works		
Bike facilities	Daphne Scarbrough	Concerned Citizen		Roads need to be rebuilt to make biking and driving safer for everyone. Road condition, or lack thereof, create dangerous conditions which cause accidents and are a major safety concern. Painting bike lanes on existing roads does nothing to improve the safety of biking over potholes and cracks in the roadway. Public works needs to do a better job of picking up garbage that is another danger for bicycles.	No Comment		
Lane widths	Daphne Scarbrough	Concerned Citizen		12 ft. lane widths need to be maintained for delivery trucks and drivers with less than ideal eyesight. Westheimer Rd. west of the Galleria out to Voss Rd., was the location of a narrower lane experiment about 28 - 30 years ago. The lanes were narrowed thus creating an extra lane and the wrecks were so numerous on an hourly basis, that Westheimer was restriped within months and returned to it's former lane width of 12 ft.	The Infrastructure Design Manual specifies lane width - nothing in this report suggest applicable lane width		
General Support	Tom Dornbusch	Concerned Citizen		I commend the team effort involved in developing the Inner West Loop Mobility Study, and support much of the resultant outcome. The study is an important step in the right direction toward improving mobility in the urban core, and unique example of cooperation within the City's departmental structure.	No Comment - Support	No Comment - Support	No Comment - Support
Vehicular Centric	Tom Dornbusch	Concerned Citizen		Much urgently must be accomplished to assure the health and safety of the City's residents and the quality of place within our neighborhoods as our urban core continues to densify. To that end, I would prefer that this study go further to honestly recognize and state the impossibility of improving roadway congestion by providing added capacity for personal vehicles. It is laudable that this study purports to be multi-modal, but the scales remain tipped to favor vehicular accommodation and accelerated throughput rather than prioritizing the needs of pedestrians and alternate mode transit users. Our planning must focus on efficiently, comfortably, rapidly and safely moving the largest number of people - not the greatest number of personal vehicles.	No Comment		
Transit Corridor	Tom Dornbusch	Concerned Citizen		Any street with bus or light rail service should be classified as a Transit Corridor, and the Transit Corridor design standards should be required. But providing for buses and trains alone is not enough. We must build complete streets with lower traffic speeds to provide a healthy, safe and comfortable pedestrian experience.	Transit Corridor Designation relates more to the manner in which the building fronts the street given that the IDM suggests a minimum 5-foot sidewalk for the Urban Sidewalk		
Trail Connections; Bike Blvds	Tom Dornbusch	Concerned Citizen		Within neighborhoods, specific streets should be identified as suited for conversion to bike/ped boulevards that can directly connect to the bayou trailway system. Residents ought not need to drive a car to access that system and providing vehicle parking for users should not be necessary. On bike/ped routes, traffic calming, lower vehicle speeds, pedestrian amenities, and low impact drainage/detention features should be included to encourage and support non-vehicular use.	No Comment - Support		
Intersections	Tom Dornbusch	Concerned Citizen		The street section drawings in the study draft are appealing and attractive ideals to strive for, but one must question how those isolated location sections would transition into safe and functional intersections for multi-modal use. Buses should have defined and dedicated lanes for reliable schedule timing, and bike lanes would more safely serve users if separated and protected from vehicular traffic.	Dedicated lanes would require significant amounts of Right-of-Way and as such was deemed infeasible		
Sidewalk Gaps	Tom Dornbusch	Concerned Citizen		"Pedestrian Realm" as an annotation, in reality, should read: "Utility Easement (Pedestrian Realm)". We will never achieve this ideal vision and quality of place, with true walkability and shade producing street trees, while the alleged pedestrian realm on most of the study area streets is disrupted with an ever present litter of utility towers and poles, control boxes, ominous suspended transformers, aerial webs of transmission lines, coils of cable, and the clutter of traffic signage.	No Comment - Policy Issue		
Other	Tom Dornbusch	Concerned Citizen		In general, I would prefer to see the City adopt a policy that allows growing congestion and inconvenience of longer travel times to motivate drivers out of personal vehicles and onto an enhanced public transit system operating on streets designed to equitably and safely accommodate all users.	No Comment		
	Jon Boyd	Citizens Transportation Coalition		See separate attachment (9 pages)			
General Support	Jay Crossley	Houston Tomorrow		Attached you will find our comments on the City of Houston Inner West Loop Mobility Study. We believe that this study is a great leap forward for Houston and we are pleased to provide support in general and highlighting particular items, as well as suggesting ideas for improvement.	No Comment - Support	No Comment - Support	No Comment - Support
	Jay Crossley	Houston Tomorrow		See separate attachment (5 pages)			

Category	Commentor	Affiliation	Outreach	Comment	Response - KHA	Response - PWE	Response - PD
General Support		Super Neighborhood 22		The Washington Avenue Coalition/Memorial Park Super Neighborhood (SN 22) is grateful to you and your colleagues for undertaking the task of preparing the City of Houston's Inner West Loop Mobility Plan ("IWLM Plan"). SN 22 is also grateful for the opportunity to comment on the Plan. SN 22 agrees with the comments submitted by the Citizens Transportation Coalition ("CTC"), and Houston Tomorrow, and joins those organizations in support of the observations that they each have made especially regarding the need for the City of Houston to (1) adopt and implement a Complete Streets policy; (2) acknowledge that physical constraints limit the city's ability to provide "adequate vehicular capacity" within the study area; (3) manage parking to limit vehicle trips; and (4) design and build public infrastructure such as streets and sidewalks not to flood and not to cause flooding.	No Comment - Support	No Comment - Support	No Comment - Support
Sidewalk Gaps		Super Neighborhood 22		SN 22 is a member of the Houston Coalition for Complete Streets and is in full support of that organization's 14-point plan to make Houston streets safe for all users. SN 22 applauds the IWLM Plan's call for wide sidewalks in appropriate areas, but notes that the City of Houston will not achieve the goal of Complete Streets unless its design standards for sidewalks are revised to increase the minimum width of sidewalks and insure that newly built sidewalks are passable. The current 5 ft. standard -- although better than the previous 4 feet standard -- is still too narrow for two adults to walk comfortably side-by-side. Moreover, even newly built sidewalks are often impassable due to impediments caused by fire hydrants, street signs, and utility poles. If pavement width needs to be narrowed for a walkable sidewalk to be build, so be it. The 2300 block of Union Street in the Old Sixth Ward exemplifies this situation.	No Comment		
Vehicular Centric		Super Neighborhood 22		The most disappointing aspect of the IWLM Plan is its statement that "[t]he continued provision of adequate vehicular capacity continues to be paramount to providing access and mobility within the study area." Because the population in the study area is not only increasing but also densifying, and because physical constraints such as the width of existing right-of-way and the expense of acquiring additional right-of-way limit the city's ability to continue providing "adequate vehicular capacity" to meet the city's growth, "adequate vehicular capacity" should not longer be "paramount to providing access and mobility." Completion of the IWLM Plan offers a unique opportunity to implement a new paradigm for access and mobility focused on public transit, walking, and biking.	No Comment		
Transit Corridor		Super Neighborhood 22		Any street with public transit such as rail or bus service should be designated a transit corridor and equipped with wide sidewalks, cross walks at corners, and lighting calibrated to facilitate pedestrian and not just vehicular traffic.	No Comment - Support		
Parking		Super Neighborhood 22		The issue of parking and the adverse impacts the city's current parking ordinances have on access and mobility is inadequately addressed in the IWLM Plan. Another issue inadequately addressed is the issue of flooding and storm water management. For example, the city's current policy of allowing unpermitted filling-in of roadside drainage ditches to remain in place causes many adverse impacts to accessibility and mobility that must be addressed.	Policy related item beyond the purview of this effort		
Washington Ave		Super Neighborhood 22		Washington Avenue should be removed from the list of major thoroughfares. The speed limit is 30 miles per hour and the major thoroughfare identification is at odds with the community's vision.	Policy Decision		
Bike Parking	Pual Schechter	Concerned Citizen		I live in central Houston and I'm very excited to read your study and I'm glad that people are looking at this in a serious way. Personally, I'm a big bicyclist and I'm sick and tired of have nowhere to park my bicycle except on the random tree or light post. Although I commend the City's efforts at creating a shared biking program, I think it would be a lot cheaper to just make more bike parking places.	Refer to Planning and Public Works		
Complete Streets	Pual Schechter	Concerned Citizen		I also like the concept of complete streets and I really like the idea of making Westheimer safer for pedestrians and bicyclist to walk and bike. Window shopping, casual strolling, and being able to experience streetscapes instead of simply passing through them are very important. I'm an avid mass transit user and I definitely also encourage more resources going to light rail and buses. The way to stop traffic congestion is NOT to build more roads. There's only 2 ways to inhibit congestion: tolls or increased emphasis on alternatives. I advocate the latter--more biking, mass transit, carpooling, and so forth. This would truly make Houston a great city.	No new roads were proposed in this effort, rather more efficient intersections.		
Minor Collectors	Parks and Recreation - COH	Yuhayna McCoy		Recommendations for Minor Collectors (residential streets that have low traffic volume, thus providing a safe route for bikers and pedestrians) and Connections <ul style="list-style-type: none"> • Create north/south bike connection on Eastside Street between Lamar High School and Levy Park • Continue Mandell Street bike lane from Castle Court to Richmond Avenue to eventually connect with the potential Dunlavy rail station on University METRO line • Create east/west bike connection from Woodhead signed bike route along Lexington Street through Ervan Chew Park • Create east/west bike connection from Castle Court from Ervan Chew Park to Mandell Street signed bike route • Continue bike lane on Montrose over 59 to Bissonett (to stop at Cullen Sculpture Garden) and to serve as a route into the Museum District • Create bike connection on Dunlavy between US-59 and Allen Parkway and apply a ccess treatment at Allen Parkway to create entrance into Tinsley Park • Create east/west pedestrian crossing on Shepherd and Memorial (north side of Buffalo Bayou) so as to handle future traffic from Shepherd pedestrian bridge that will link the north and south side of Buffalo Bayou • Create north/south bike connection from Tinsley Park on Sandman to Feagan 	Refer to Planning and Public Works		

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