

Appendix C
Corridor and Sub-area Summaries



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The MTP is comprised of complementary components that provide the framework for future investments in the regional transportation system. Each component is one piece of an overall structure that operates in tandem to achieve system performance objectives.

One of the first steps in the metropolitan transportation planning process is the evaluation of congestion levels in various geographic areas and along specific transportation routes. While roadway congestion is one of the most obvious indicators of system performance, safety, lack of access to employment, shopping and recreational centers, few travel mode alternatives and facilities in need of repair are also indicators of how the transportation system is performing.

This chapter will discuss transportation needs along 21 individual corridors and within four major employment centers (MEC). The corridors and MEC's are:

Corridors

Interstate 10 East
Interstate 10 West
Interstate 45 North
Interstate 45 South
Proposed Interstate 69
U.S. 59 North
U.S. 59 South
U.S. 90 East
U.S. 90A
U.S. 290
Hardy Toll Road
State Highway 6
Proposed State Highway 35 (SH 35)
State Highway 99
State Highway 105
State Highway 146
State Highway 225
State Highway 249
State Highway 288
FM 1093/Westheimer
FM 1960
Westpark

Major Employment Centers

Downtown and the Central Business District
Greenway Plaza
Texas Medical Center
Uptown

Interstate 10 East

Overview

The Interstate 10 East Freeway corridor consists of the freeway facility and the surrounding area approximately two to five miles north and south of the freeway. The corridor extends approximately 63 miles from Interstate 45, near the Houston CBD, east to the Jefferson County line. The northern limits of the corridor generally follow Wallisville Road, Barbers Hill Road, FM 1942 and the Liberty County line. The southern limits generally follow Buffalo Bayou, the Houston Ship Channel, Baker Road, Lynchburg-Cedar Bayou Road and SH 65. Included within the corridor are portions of Harris and Chambers counties and the cities of Houston, Jacinto City, Galena Park, Baytown, Mont Belvieu and Winnie.

I-10 is the primary east-west corridor through the center of the eight-county Houston-Galveston Transportation Management Area (TMA). The I-10 East segment is the predominant coastal travel route to eastern Texas and the Gulf Coast states, and is a major freight corridor, particularly for the Port of Houston and the surrounding industries. Although it is not a major commute route to the Houston CBD and beyond, the freeway does provide travel between surrounding residential areas and the petrochemical and industrial plants within the corridor. Connections to the other regional corridors are provided in the Houston CBD, and via Loop 610 and the Sam Houston Toll Road (Beltway 8).

The land uses within the I-10 East corridor can be characterized using three major categories: low to medium residential, industrial and rural open space. The residential land uses are generally concentrated north and south of the freeway between U.S. 59 and Wayside, north and south of the freeway between Loop 610 and Federal Road, and north of I-10 between Greens Bayou and Whites Lake. The predominant land use east of Crosby-Lynchburg Road is low-density residential and rural residential transitioning, as well as open space further east toward Jefferson County.

There is a higher concentration of industrial land uses within the I-10 East corridor, relative to other regional corridors. Industrial land uses are concentrated along the freeway between I-45 and U.S. 59 and between Wayside and Loop 610, and along the Houston Ship Channel, northwest of Whites Lake and SH 146. Finally, open space uses are generally found at Herman Brown Park and east of Whites Lake on the north, and east of Galveston Bay on the south.

Land-use densities in the eastern portion of the corridor may be influenced by the construction of the proposed Grand Parkway (SH 99). This facility is envisioned as a new beltway outside the current urbanized area. Although the exact limits have not been determined, one option shows a north-south segment of the proposed facility intersecting with I-10 approximately two miles east of the Chambers County line, midway between SH 146 and FM 3180 (Eagle Road). This new facility will likely encourage new development along its alignment, with higher densities likely at its interchange with I-10.

METRO is responsible for transit service and facility improvements within Harris County, including the I-10 East corridor. At present, I-10 East does not have high-occupancy vehicle (HOV) lanes, and buses operating on the facility use either the main travel lanes or the parallel frontage roads. Currently, two commuter routes and four local/other routes operate on I-10 East for a portion of their trip. The total combined average weekday boardings for these routes is 16,900.

Major Attractors

The following major trip generators and attractors, including intermodal freight facilities, have been identified within the I-10 East corridor. This provides further evidence of the freeway's importance to freight movement within the corridor and higher than average truck traffic.

Demographics

For the 24-year period, corridor population and employment are both expected to grow at a rate of approximately 18%.

	2000	2022	% Change
Population	138,563	164,119	18.4%
Employment	63,828	75,635	18.5%

Traffic Analysis

For home-based work trips in the year 2000, the dominant travel patterns in the I-10 East corridor are shown through the 43,000 internal trips within the outer portions of northeast Harris County. These dominant patterns suggest short local and crosstown trips that are not destined to the central Houston major employment centers, and they are likely associated with the industrial and Houston Ship Channel workers who live nearby their jobs. In addition, there is a significant level of travel to the downtown area (over 6,000 trips) and some crosstown movements to the northeast part of Houston (over 2,600 trips). The location with the current highest traffic volume (210,000 ADT) is near Oats Road, between Loop 610 East and East Beltway 8. High traffic volumes are forecasted inside Loop 610 in the future, with over 212,000 estimated during the 25-year period.

Congestion

Serious levels of mobility exist on I-10 East near its intersection with U.S. 59, as well as Sheldon Road and Spur 330. Oats Road, Crosby, Lynchburg Road, Wade Road and Garth Road have serious levels of congestion around I-10 East.

Safety

There were 881 crashes along I-10 East and within a quarter mile of the road, an average of 2.4 crashes per day. On a per-mile basis, there were about 14.1 crashes per mile along the 63-mile stretch of I-10 East. Several locations were identified along I-10 East that had a higher-than-average number of crashes in the 1998 database. These locations include the East Belt interchange (51 crashes) and the intersections with Sheldon Road (43) and Cedar Bayou (44). It has been estimated that close to 80 percent of the freeway crashes in Houston involve large trucks. It is likely that the high concentration of industrial uses in the area and the associated volume of heavy truck traffic along I-10 are part of the overall safety concern of the corridor. A recent demonstration project was conducted by TxDOT, in coordination with the city of Houston, that restricted truck traffic to the outside lanes along a stretch of I-10. The results of that project reported a significant reduction in crash rates.

Transit

METRO is preparing a 21st Century Transit Plan and a 2025 Transit Plan for the Houston metropolitan area. The recommendations of both plans will have a direct bearing on the direction of future transit service improvements within the I-10 East corridor.

Future Improvements

Map Key	Project Description/Limits	Est. Cost
Committed Funding		
1	Elysian Street underpass, replace bridge and approaches.	\$15,645,000
2	North Wayside to Mercury Drive; widen freeway from 6 to 8 lanes and complete U.S. 90 interchange.	\$33,000,000
3	Spur 330 to west of SPTC Railroad, widen freeway from 4 to 6 lanes.	\$55,500,000
4	Harris County line to 0.2 miles east of SH 146, widen freeway from 4 to 6 lanes.	\$8,800,000
5	FM 3180 to FM 565, rehabilitate existing main lanes.	\$7,000,000
Short Range		
6	West of Thompson to Sjolander, raise bridge, add lanes, relocate ramps and improve frontage roads.	\$15,000,000
7	East of SH 146 to west of FM 565, widen freeway from 4 to 6 lanes.	\$11,500,000
8	Trinity River Bridge to SH 61, widen freeway from 4 to 6 lanes.	\$25,000,000
Long Range		
9	U.S. 59 to North Wayside, widen freeway from 8 to 10 lanes with HOV lane.	\$29,900,000
10	At Trinity River Bridge, replace 4-lane bridge with 6-lane bridge.	\$20,000,000
11	Construct Baytown Park & Ride.	\$16,900,000
12	SH 73 to Jefferson County line, widen freeway from 4 to 6 lanes.	\$10,000,000

Interstate 10 West

Overview

The Interstate 10 West (Katy Freeway) corridor consists of the freeway facility and the surrounding area three to five miles north and south of the freeway. The northern limits of the corridor generally follow West 43rd Street/Clay Road and the southern limits follow Westheimer Road/FM 1093. The corridor extends approximately 40 miles from the Houston CBD west to the Brazos River. Included within the corridor are portions of Harris, Fort Bend and Waller counties and the cities of Houston, Spring Valley, Hunters Creek, Piney Point, Hedwig, Bunker Hill, Katy, Brookshire and Pattison.

I-10 West is the primary east-west corridor through the center of the eight-county Houston-Galveston Transportation Management Area (TMA), that provides access for out-of-region passenger travel and freight movement. Within the region, the freeway is a major commute route to and from the Houston CBD from western Harris, Fort Bend and Waller counties. Major intersecting north-south regional corridors include I-45, Loop 610, Sam Houston Toll Road (Beltway 8) and the future SH 99 (Grand Parkway). Major parallel streets include Clay Road/West 43rd Street along the northern section, and Memorial Drive, Allen Parkway and Westheimer Road/FM 1093 along the southern section.

Land use in the I-10 corridor reflects two geographically distinct types. High-density commercial, industrial and residential development is concentrated primarily between I-45 and SH 6, near the freeway. Densities generally decrease further away from the freeway, except on major parallel or intersecting roads where densities are greater. Portions of this segment are located within Houston and unincorporated areas of Harris county that do not have land-use zoning. As a result, mixed land use is a characteristic of the area. With the exception of development in the vicinity of the Oak Road interchange in Katy, the segment between SH 6 and the Brazos River is comprised of sparsely developed, low-density residential and agricultural use. Associated low-density commercial development is typically clustered near major interchanges.

Land-use densities in the western portion of the corridor are likely to be influenced by the construction of the proposed SH 99. This facility is envisioned as a new beltway outside the current urbanized area. Although the exact limits have not been determined, one option shows a north-south segment of the proposed facility intersecting with I-10 approximately two miles east of Katy. This new facility will likely encourage new development along its alignment, with higher densities likely at its interchange with I-10.

Currently, seven commuter routes and four local/other routes operate on I-10 for a portion of their trip. Total combined average weekday boardings for these routes is 22,900. The existing I-10 HOV lane is 12.3 miles long and runs from east of Loop 610 to west of SH 6. The HOV lane operates as a barrier-separated, single-lane, peak-directional, reversible facility. Access points are provided east of Loop 610, at North Post Oak, Gessner, the Addicks Park & Ride and west of SH 6.

The I-10 HOV lane carries 24.6 percent of all vehicles using the six existing regional HOV facilities and 24 percent of all people, the most of any HOV facility. In April 1999, METRO approved funding to extend the HOV facility west to U.S. 99. The extension will be an interim facility until TxDOT completes a reconstruction of the freeway, which will include a reconstructed HOV facility. The interim HOV facility will make use of shoulder lanes on the existing median with painted stripes designating the HOV lane.

Demographics

The areas within the corridor projected to experience the highest future population growth are generally located west of Beltway 8, as well as north and south of I-10. The areas with the highest projected employment growth are located south of I-10 (west of Loop 610) and west of Beltway 8 (north and south of I-10).

	2000	2022	% Change
Population	164,604	214,405	30.3%
Employment	150,467	180,943	20.3%

Major Attractors

There are seven major attractors within the I-10 West corridor, including five retail and one each of recreational and transportation.

Traffic Analysis

Based on an analysis of the major travel patterns for home-based work trips in the year 2000, the dominant travel patterns are from the outer southwest area into both the Houston CBD (44,986 trips) and the middle southwest area (26,972 trips). This indicates a strong east-west travel pattern, probably traversing the major east-west arterials, as well as I-10. Another prominent pattern is observed within the southwestern (27,277 trips) and northwestern (24,758 trips) quadrants of Harris County. These patterns indicate a significant number of local crosstown, short-distance trips for work, showing that most of the commuters live and work in the same general vicinity.

Throughout the length of the corridor, mobility is at the serious and severe levels. Average speeds have remained constant between the Houston CBD and Loop 610 while there has been a significant decline in the average speed between Loop 610 and Beltway 8. Speeds will significantly decrease between Katy and Houston in the future. These decreasing travel speeds suggest that I-10 is approaching or exceeding its capacity.

Congestion

I-10 West is experiencing severe congestion, particularly between Loop 610 and SH 6, and the projected future traffic volumes will add to this congestion. Reduced average speeds, particularly between Loop 610 and Beltway 8, and the higher than average number of accidents are also indicative of increased congestion.

Safety

The crash rate in the urbanized section is significantly higher than statewide averages. In 1993, there were 1,970 accidents on I-10 between SH 6 and I-45, an average of five per day. Severe congestion, inadequate highway shoulders, inadequate vehicle clearances and other design limitations are some of the reasons for the higher than average crash rate. Several crash hot spots have been identified, including a particularly hazardous one-mile stretch from Gessner to Beltway 8 (89 crashes in 1998).

Future Improvements

MAJOR I-10 KATY PLANNED IMPROVEMENTS

ID Number	Project Description / Limits	Est. Cost
Committed projects		
3002	Install CTMS, Ft. Bend C/L to Austin C/L	\$6,657,000
6038	SH 6 to east of Fry Rd, reconstruct & widen to 8M/L, 2 managed lanes and 3 frontage Rds.	\$95,800,000
6039	East of Fry Rd to E. of Peek Rd., reconstruct & widen to 8M/L, 2 managed lanes and 3 frontage Rds.	\$70,900,000
6040	E. of Silber to W. of Washington, Reconstruct & widen ramps to accommodate HOV lane.	\$122,500,000
6041	East of Peek Rd to Ft. bend C/L, reconstruct & widen to 8M/L, 2 managed lanes and 3 frontage Rds.	\$20,000,000
10286	ROW Acq. Utility adj. & relocation assistance	\$11,200,000
Short Range projects		
916	FM 359 to the brazos river WIDEN TO 6 LN RUR FWY & FRTG RD BRIDGES AT BRAZOS RIVER (PH 11)	\$35,000,000

6037 W. of SH6 to E of Eldridge Reconstruct and widen to 8 main lanes w/ 4 lane SUL & 3 lane FRTG RDS (PH 7)	\$101,700,000
6054 Washington Ave. to Taylor st.Extend & widen frontage Rds to 3 Lns.\ (PH 12)	\$44,400,000
6056 FM 359 to Ft. Bend county Rd. CONST & EXTEND TO TWO 3-LN FRTG RDS (PH 14)	\$33,000,000
7713 E. of Eldridge to E. of Kirkwood RECONST & WIDEN TO 8 M/L, 2 MANAGED LN, 3 LN FRTG RDS & CONST OF IC RAMPS	\$52,500,000
7714 E. of Kirkwood to E. of BW 8 RECONST & WIDEN TO 8 M/L, 2 MANAGED LN, 3 LN FRTG RDS & IC RAMPS/DC	\$116,300,000
7715 E of BW8 to E of Campbell Rd. RECONST & WIDEN TO 8 M/L W/ 2 MANAGED LNS & TWO 3 LN FRTG RDS	\$116,300,000
7716 E of Campbell to E of Silber RECONST & WIDEN TO 8 M/L, 4 LN SUL & TWO 3 LN FRTG RDS	\$119,600,000

Long Range projects

6057 FM 359 Waller county line REHAB M/L PAVEMENT	\$25,140,000
9631 Katy Frt. Bend Rd to Fry Rd.THIN BOND OVERLAY	\$19,836,000

Interstate 45 North

Overview

The Interstate 45 North corridor consists of the freeway facility and the surrounding area two to five miles west and east of the freeway. The corridor extends from the Houston CBD to the Walker County line – a distance of approximately 50 miles. Major intersecting east-west regional corridors include I-10, Loop 610 North, Beltway 8 North, FM 1960, SH 242, Loop 336 and SH 105. The future SH 99 will also intersect this freeway. Major parallel highways include SH 249 and U.S. 290 on the west side, and the Hardy Toll Road, U.S. 59 North. Included within the corridor are portions of Harris and Montgomery counties and the cities of Houston, Spring, The Woodlands, and Conroe.

Land-use in the I-45 North corridor reflects multiple uses. High-density commercial development is concentrated primarily along the thoroughfares and major parallel and intersecting roads, while low and medium residential and industrial developments are distributed throughout the corridor. Land use within Montgomery County can be described as sparsely developed, low-density residential, agricultural and commercial use, with a large portion of undeveloped land. The Woodlands Town Center development is a master planned community in southern Montgomery County.

The areas within the corridor that are projected to experience the highest population growth are generally located east of the freeway between Beltway 8 and FM 1960, and west of the freeway between Loop 610 North and Beltway 8. The areas of greatest projected employment growth will be found west of I-45 between West Little York and Montgomery Road, and east of the freeway between the Harris County line and FM 3083.

Transit facilities within the corridor include four park and rides, two transit centers and 13 bus routes operated by METRO. The existing I-45 North HOV lane is 16 miles long and runs from the Houston CBD to FM 1960. The Brazos Transit System (BTS) operates three park and ride facilities with service connecting Montgomery County to major activity centers in Harris County. For FY99, the total combined average weekday boardings for the routes was 24,872.

Major Attractors

The majority of trip generators and attractors within the I-45 North corridor are recreational and commercial, with only a few industrial sites. Most of the traffic on weekdays are work trips to the Houston CBD. Other trip generators include Greenspoint Mall and Intercontinental Airport as well as recreational and commercial trips to Conroe and traffic moving towards Dallas.

Demographics

Overall population in the corridor is expected to grow at a slightly lower rate at 38 percent than the employment growth (41 percent).

	2000	2022	% Change
Population	282,643	391,763	38.6%
Employment	158,865	225,335	41.8%

Traffic Analysis

Based on a comparison analysis of the 2000 and projected 2022 traffic volumes, the segment between Loop 610 and Beltway 8 has the heaviest existing and forecast volumes of traffic (158,958 for 2000 and 229,922 for 2022, an increase of 45 percent). However, the segment with the highest growth rate is between FM 1960 and the Harris County line (48 percent).

Congestion

By 2022, projected traffic volumes will be between serious and severe levels of congestion, particularly between Shepherd and Memorial, Cypresswood and Grand Parkway, Woodlands Parkway and Loop 336 East, and I-45 and U.S. 290 on Loop 610 North.

Safety

The motor vehicle crash rate on I-45 North is lower than the statewide averages. In 1998, there were 1,418 motor vehicle crashes, including 10 with fatalities and 73 with incapacitating injuries. Eleven crash hot spots were identified in this corridor, including the following:

1. A five-mile stretch surrounding Loop 336 , with 243 crashes, including 14 incapacitating injuries.
2. A four-mile stretch between SH 242 and Woodlands Parkway, with 192 crashes, including one fatality and five incapacitating injuries.
3. A half-mile stretch around the intersection of FM 1960 and I-45 North, with 134 crashes, including eight incapacitating injuries.

Severe congestion, inadequate highway shoulders and clearances, as well as other design limitations appear to be some of the reasons for these accidents.

Facility Improvements

MAJOR I-45 NORTH PLANNED IMPROVEMENTS		
ID #	Project Description/Limits	Estimated Cost
Committed		
94	Montgomery County line to North of Cypresswood, construct HOV lane.	\$7,000,000
300	Montgomery County line to North of Cypresswood, widen from 4 to 8 main lanes with TMS.	\$43,000,000
333	BW 8 N, construct 4 direct connectors (NE and SW). Currently under construction.	\$36,000,000
361	Tamina Road to FM 1488, widen from 4 to 8 main lanes with frontage road and TMS and provision for future HOV lane.	\$40,000,000
Short Range		
3087	Harris County line to League Line Road, overhead illumination.	\$7,000,000
181	Long Street and Calvary Road, reconstruct interchange.	\$10,000,000
301	Reconstruct Interchange from @ Long Street and Calvary Rd.	\$7,000,000
9836	Widen from 8 to 10 & 12 main lanes from HB&T RR, north of IH 610(N) to Gulf Bank Road.	\$66,000,000
917	Widen from 4 to 6 lanes & 2-lane frontage; replace the existing overpass from FM 830 to Walker County Line	\$46,000,000
362	Widen from 4 to 6 lanes Fwy with frontage roads and provision for future HOV & TMS from SH 105 to Loop 336	\$16,000,000
9908	Widen from 4 to 8 main lanes with frontage, TMS & for future HOV from River Plantation Drive to Loop 336.	\$34,000,000
365	Widen from 4 to 6 man lanes and construct 2-lane frontage road from Loop 336 (N) to FM 830.	\$19,000,000
101	Widen from 6 to 10 lanes from SH 249 to IH 10	\$70,000,000
Long Range		
103	Reconstruct Interchange & widen from 6 to 10 lanes from IH 10 to US 59.	\$105,000,000
9698	Construct 4-lane frontage road from FM 1097 to Walker County.	\$6,000,000

Source: Vision 2020 Metropolitan Transportation Plan, 1997.

Interstate 45 South

Overview

The I-45 South (Gulf Freeway) corridor extends approximately 45 miles from downtown Houston (at U.S. 59) southward to 61st Street in Galveston. Included within the corridor are portions of Harris and Galveston counties, as well as the cities of Houston, Friendswood, Webster, League City, Dickinson, La Marque, Texas City, Bayou Vista, Tiki Island and Galveston.

I-45 South is the primary north-south corridor between Houston and Galveston. Major intersecting highways include U.S. 59, Loop 610 South, Beltway 8, SH 35, SH 6, SH 146 and the future SH 99. The major parallel highway is SH 3 (Old Galveston Road).

Several land uses in the I-45 South corridor are geographically distinct. High-density commercial, industrial and residential development land uses are concentrated along the corridor. Between U.S. 59 and Loop 610, the corridor is bound by light manufacturing and commercial uses to the north of the freeway, with some residential neighborhoods. To the south, along the same limits, the land use is principally residential, with two universities (the University of Houston and Texas Southern University), and light industrial and commercial development closer to Loop 610, south of Griggs. This section of the corridor is generally built out with some vacant plots of land. Continued development would only be likely through densification over existing developments.

Between Loop 610 and Beltway 8, a similar pattern of development continues. At Almeda Road, several commercial developments exist, including the Almeda Mall. Residential uses border the commercial developments and sometimes border the freeway corridor. Vacant properties exist in abundance south of Airport Boulevard, comprising 20 to 40 percent of the land along this section, depending on the location.

South of Beltway 8 to the Galveston Causeway, land use becomes more rural than along the northern sections of the road. Substantial development exists away from the freeway, especially residential uses. Some commercial development occurs along frontage roads and at major arterial intersections, however, more than 50 percent of the land near the corridor is undeveloped. North of SH 3 (a parallel facility along this section of the corridor) is well developed with commercial and residential use. The intersections of I-45 South at NASA Road 1 and FM 518 are the exceptions to the rural character of this section of the corridor. South of the Galveston Causeway is primarily commercial and residential in nature.

Land-use densities in the western portion of the corridor are likely to be influenced by the construction of the proposed SH 99. This facility is envisioned as a new beltway outside the current urbanized area. Although the exact limits have not been determined, one option shows an east-west segment of the proposed facility connecting near FM 646. The new facility will likely encourage new development along its alignment, especially at its interchange with I-45 South.

Currently, 10 commuter routes and local/other routes operate on I-45 South for a portion of their trips. The total combined average weekday boardings for these routes is close to 22,000. HOV lanes operate within the I-45 South corridor as a single, peak-direction, reversible lane. On a typical weekday, over 2,200 vehicles and more than 6,200 people use the HOV lanes during the morning peak period.

As noted in the Congestion Analysis section, even with the addition of new general travel lanes, frontage roads and HOV improvements, there will still be serious congestion on segments of I-45 South through the year 2025. Options other than further freeway expansion will be needed to address this congestion, including increased bus service on the HOV facility or other high-capacity transit improvements within the corridor. Once the construction dates for the planned I-45 South HOV improvements are known, METRO will also evaluate additional service improvements within the corridor that are consistent with budgetary constraints.

Major Attractors

I-45 South carries more special event traffic than other urban freeways in the region. These are tied to such activities as “Beach Weekends” in Galveston, Mardi Gras, Dickens on the Strand and the air show at Ellington Field. Within the I-45 South corridor, 16 major trip generators and attractors have been identified.

Demographics

Overall, population and employment within the corridor are expected to grow at 23 and 15 percent respectively. The areas that are projected to experience the highest future population growth are generally located between the Harris County line south and FM 1764. The areas of highest projected employment growth are approximately in the same area of the corridor.

	2000	2022	% Change
Population	194,261	239,632	23.4%
Employment	157,712	182,107	15.5%

Traffic Analysis

The I-45 South segment south of Loop 610 has the heaviest existing traffic volumes, ranging from 192,000 to 254,000 vehicles per day. The roadway is one of the most heavily used roadways in the United States and the Houston region. Traffic projections indicate that by 2025, daily traffic volumes will be in excess of 270,000 vehicles per day.

Congestion

Based on the congestion analysis, the Gulf Freeway will continue to experience serious or severe congestion, even with current plan improvements in place.

Safety

Generally, accident rates on I-45 South have been lower than statewide averages for similar freeway facilities. However, there are several locations that have been identified as requiring more detailed study to mitigate potentially unsafe driving conditions. Those locations are near the intersections of FM 528, NASA Road 1 (126 crashes in 1998) and near Bay Area Boulevard (92 crashes in 1998).

The reasons for the higher than average number of crashes can be attributed to severe congestion, following too closely, inadequate highway shoulders, inadequate vehicle clearances and other design limitations

Future Improvements

MAJOR I-45 SOUTH (GULF FREEWAY) PLANNED IMPROVEMENTS		
Map Key	Project Description/Limits	Estimated Cost
Committed		
	South of SH 6, north to the Harris County line, install Computerized Traffic Management System (CTMS).	\$10,000,000
Short Range		
	Phase 1 – widen Galveston Island Causeway from 6 to 8 lanes.	\$70,000,000
	Phase 2 – replace bridges at the Galveston Island Causeway.	\$70,000,000
	Clear Creek to FM 517, widen to 8 main lanes with 2 three-lane frontage roads.	\$43,000,000
	FM 517 to FM 1764, widen to 8 main lanes with 2 two-lane frontage roads.	\$45,000,000
	FM 1764 to FM 519, widen to 9 main lanes with 2 two-lane frontage roads.	\$42,000,000
	FM 1959 to Bay Area Blvd., widen to 10 main lanes with 2 HOV lanes and 2 three-lane frontage roads.	\$42,000,000
	Texas City Wye, reconstruct I-45/SH 146/SH 3/SH 6 interchange.	\$70,000,000
	Texas City Wye, widen to 8 main lanes with 2 two-lane frontage roads from FM 519.	\$27,000,000
	Bay Area Blvd. To Clear Creek, widen to 10 main lanes with two HOV lanes and 2 three-lane frontage roads.	\$30,000,000
	South of the Galveston Island Causeway to 61 st Street,	\$75,000,000

	widen to 8 lanes with 2 two-lane frontage roads and a direct connector to Harborside Street.	
	South of TCWI to north of the Galveston Island Causeway, widen to 8 main lanes with 2 two-lane frontage roads.	\$24,000,000
Long Range		
	None	

Proposed Interstate 69

Overview

TxDOT initiated a route feasibility study in 1999 to analyze the various routes that Interstate 69 could potentially take around the Houston area. Dubbed by some as the NAFTA Highway, I-69 will span eight states – Michigan, Indiana, Kentucky, Tennessee, Arkansas, Mississippi, Louisiana and Texas – and carry increased truck traffic resulting from the 1994 passage of the North American Free Trade Agreement (NAFTA). Currently, I-69 only exists as a freeway from Indianapolis to Port Huron, Michigan. In Texas, I-69 is planned to run along U.S. 59 from Laredo to Texarkana, with two additional southern branches proposed to link McAllen and Brownsville to the main route.

The feasibility study analyzed potential routes for I-69 from the Fort Bend County/Wharton County lines, northeast through or around the Houston metropolitan area and continuing northeast to the Liberty County/San Jacinto County lines. The study area encompasses the existing route of U.S. 59, covering a length of approximately 100 miles. The publicly preferred alternative alignment should be based on proximity that will facilitate access to intermodal facilities, such as the Port of Houston, airport cargo areas and trucking terminals. Projected increases in trade between the United States, Mexico and Canada will result in additional travel demands on Texas highways. Houston is the largest and the southernmost major population center along this transportation byway, so it is important to carefully plan the future Houston-area transportation improvement needs related to NAFTA traffic.

Proposed Routes

The I-69 Route Feasibility Study analyzed five routes around Houston, including the following alignments:

U.S. 59 Corridor – the baseline for the comparison;

West Corridor (A & B Possible Alignments) – starting north of Kingwood, heading west on the proposed SH 99 and rejoining U.S. 59 South in Fort Bend County;

East Corridor (A & B Possible Alignments) – starting north of Kingwood, heading east on the proposed SH 99, then west on the southern segment of Beltway 8, before rejoining U.S. 59 South;

Beltway 8 East Corridor (A & B Possible Alignments) – going along the eastern and southern segments of Beltway 8, until it intersects with U.S. 59 South; and

Beltway 8 West Corridor (A & B Possible Alignments) – following the northern and western segments of Beltway 8, until it intersects with U.S. 59 South.

Major Attractors

As a consequence of the construction of I-69 to facilitate efficient movement of freight through the United States, the proposed I-69 corridor will be a trip generator and attractor for intermodal facilities such as ports, airport cargo facilities and other goods movement facilities.

Traffic Analysis

Truck traffic between Mexico and the United States has increased significantly since the passage of NAFTA. In 1996, approximately 500 trucks per day made NAFTA trips along U.S. 59, south of Houston, and 300 trucks per day north of Houston. In that same year, there were approximately 1,700 truck trips per day along I-10, west of Houston, and 1,300 trucks per day east of Houston. While I-10 currently carries nearly twice the truck volume of U.S. 59, some of that traffic is expected to shift to I-69 following the upgrade of U.S. 59 to interstate standards.

Next Steps

TxDOT will conduct project location and environmental studies to determine the publicly preferred alternative. The studies are anticipated to commence in late 2002 and will take several years to complete.

U.S. 59 North

Overview

The U.S. 59 North (Eastex Freeway) corridor consists of the freeway facility and the surrounding area approximately two to five miles east and west of the freeway. The corridor extends approximately 48 miles from I-45, near the Houston CBD, northward to the San Jacinto county line. The eastern limits of the corridor follow Garrett Road, Lockwood, Woodland Hills and Tramway Road. The western limits of the corridor follow Aldine Westfield Road. Included within the corridor are portions of Harris, Montgomery and Liberty counties, and the cities of Houston, Kingwood, Humble, Splendora and Cleveland.

U.S. 59 North is the primary focus of the proposed I-69 through the eight-county Houston-Galveston TMA. Major intersecting east-west regional corridors include I-10 East, Loop 610, Beltway 8 and the proposed SH 99. Major parallel streets include Jensen and Aldine Westfield to the west, and Hirsch, Lockwood and Homestead to the east.

Land use within the U.S. 59 North corridor is characterized as predominately low-to-medium density residential and rural open space. Industrial land use in this corridor is less than other regional corridors. Retail centers constitute a minority of land use within the corridor. A heavy concentration of low-to-medium density residential use exists east of the facility in Kingwood near the Montgomery/Harris county lines. Transit facilities within the corridor include one transit center, two park and rides and 11 bus routes.

Major Attractors

Within the U.S. 59 North corridor, there are three major trip generators and attractors, including Bush Intercontinental Airport, Kingwood College and Deerbrook Mall.

Demographics

Population and employment within the U.S. 59 North corridor will increase by 22 percent and 26 percent, respectively.

	2000	2022	% Change
Population	246,209	301,301	22.4%
Employment	100,482	126,721	26.1%

Traffic Analysis

Between 1988 and 1994, speeds on U.S. 59 North increased by 3 percent, 27 percent and 7 percent, respectively, for the sections from the Houston CBD to Loop 610, Loop 610 to Beltway 8 and outside the beltway.

Congestion

In 2000, U.S. 59 North experienced little severe or serious congestion. The majority of the corridor, about 94 percent of the 48-mile facility, experienced tolerable or moderate congestion.

Safety

There were 816 crashes in 1998 and 766 crashes in 1999. There are six hot spots for accidents along this corridor, including the intersections of U.S. 59 North with FM 1314, Loop 184, Will Clayton Parkway, Bender Road, Aldine Bender and West Gulf to Langley.

Future Improvements

MAJOR U.S. 59 N EASTEX PLANNED IMPROVEMENTS		
Map Key	Project Description/Limits	Estimated Cost
Committed Funding		
	Roman Forest Blvd., construct interim grade separation.	\$5,000,000
	Beltway 8 eastbound to U.S. 59 northbound, construct direct connector.	\$8,639,000
Short Range		
	One mile north of Community Dr. to Roman Forest Blvd., construct main lanes and grade separation (phase 1).	\$7,235,475
	U.S. 59 N from FM 1314 to Northpark Dr., widen to 6 main lanes and U-turns @ 1314.	\$31,110,000
	U.S. 59 N from the Harris County line to North Park Dr., widen from 4 to 6 main lanes.	\$22,770,000
	U.S. 59 N from Community Dr. to FM 1314, widen from 4 to 6 main lanes.	\$20,075,000
	U.S. 59 N from north of Roman Forest Blvd. to north of Community, widen to 6-lane	\$25,853,000

	freeway with grade separation, ramps and SB frontage road (Phase 2).	
	U.S. 59 N from south of FM 2090 to north of Roman Forest Blvd., widen to 6-lane freeway with grade separations, ramps and SB frontage road (Phase 2).	\$28,882,223
	U.S. 59 N from Liberty County line to south of FM 2090, widen from 4- to 6-lane freeway with grade separations (Phase 2).	\$21,379,773
	U.S. 59 N from Montgomery county line to the south end of Cleveland bypass, construct 6-lane rural freeway.	\$62,000,000
	U.S. 59 N from Greens Road to Aldine Bender, construct 4 direct connectors to Beltway 8.	\$33,014,000
Long Range		
	U.S. 59 N from the end of Cleveland bypass to San Jacinto County line, construct 4-lane rural freeway.	\$9,000,000

U.S. 59 South

Overview

The U.S. 59 South corridor, approximately 48 miles in length, consists of the area one to two miles on both sides that stretches between Spur 527 and the Fort Bend/Wharton County lines. Major facilities within this corridor are Loop 610 West, Beltway 8, SH 6, U.S. 90A and SH 99. Included within the corridor are the cities of Houston, Sugarland, Stafford, Missouri City, Richmond and Rosenberg, as well as the unincorporated areas of Harris, and Fort Bend counties.

Travel patterns within the U.S. 59 South corridor are predominately work-oriented in nature and freight movement is minimal. Connections to the other regional corridors are provided via Loop 610, Beltway 8, U.S. 90A, SH 6, and SH 99. Land uses within the U.S. 59 South corridor are predominantly commercial and residential along major arterials.

Current uses between Spur 527 and SH 6 are primarily commercial. There are mixed residential and light commercial land uses from SH 6 extending through Sugarland and in the cities of Richmond and Rosenberg. Between Sugarland and the cities of Richmond and Rosenberg, land is primarily for agriculture and ranching. Transit facilities within the corridor include one transit center, three park and rides and 12 bus routes.

Major Attractors

There are 18 major trip generators and attractors, equally divided between recreational, retail and educational, within the U.S. 59 South corridor. Examples of these include Compaq Center, the Arena Center and Theatre, the Galleria/Uptown, First Colony Mall, Houston Baptist University and the University of St Thomas.

Demographics

Population and employment within the U.S. 59 South corridor are expected to grow at rates of 26 percent and 30 percent, respectively, during the 22-year planning period.

	2000	2022	% Change
Population	281,150	354,330	26.0%
Employment	286,837	373,092	30.1%

Traffic Analysis

With the completion of planned expansions in the southern end of the corridor, traffic volumes should continue to increase at rapid rates. New planned toll facilities, such as the Ft. Bend Tollway, in adjacent corridors may lessen travel to destinations other than the Houston CBD.

Congestion

As of 2000, U.S. 59 South experienced varying degrees of congestion – of the 48-mile facility, 56 percent was tolerable, 27 percent was moderate, 11 percent was serious and 6 percent was severe.

Safety

Along U.S. 59 South, there were 2,151 crashes in 1998 and 2,201 crashes in 1999. The six hot spot accident locations along U.S. 59 South, outside of Beltway 8, were identified and include a 3.1 mile stretch from FM 1092 to about one mile south of U.S. 90A (204 crashes).

Future Improvements

MAJOR U.S.59S PLANNED IMPROVEMENTS	
Widen to 12 main lanes and reconstruct to extend HOV and replace Montrose overpass with bridges @ Graustork & Montrose from East Mandell to Smith Street.	\$58,043,001
Widen to 6 main lane rural freeway with grade separations, ITS, TMS & bus priority corridor treatment, west of FM 762 to West of SH36.	\$20,000,000
Widen to 6 main lane rural freeway with grade separations, ITS, TMS & bus priority corridor treatment, west of FM 762 to West of SH 36.	\$35,064,973
Widen to 6 main lane rural freeway with grade separations, ITS & bus priority corridor treatment from west of SH36 to west of Spur 10.	\$41,372,058
Widen to 6 lane rural freeway with grade separations, ITS, TMS from west of Spur 10 to west of Hamlink.	\$17,304,273
Widen to 6 lane rural freeway with grade separations, ITS, and TMS from west of FM 360.	\$22,140,000
Widen to 6 lane rural freeway with grade separations, ITS, and TMS from west of FM 360 to west of Darst Road.	\$27,140,000

Widen to 8 main lanes with grade separations, 2-way diamond HOV, ITS, TMS, upgrade to urban freeway and bus priority, from west of FM 2759 to west of FM 762.	\$32,303,204
Widen to 6 lane rural freeway with grade separations, ITS, and TMS from west of Darst Road to the Wharton County Line.	\$34,166,682
Construct 2 braided ramps @ Spur 41.	\$5,382,000
Widen to 8-10 main lanes with HOV from Spur 527 to SH 288.	\$12,000,000
Construct frontage road from SH 36 to FM 2218 in Rosenberg.	\$10,250,000
Interchange @ Hamlink Road.	\$7,700,000

U.S. 90 East

Overview

The U.S. 90 East (Beaumont Highway) corridor consists of the roadway facility and the surrounding area approximately two to five miles north and south of the roadway. The corridor extends approximately 69 miles from Loop 610, near I-10, through Liberty County, to the Jefferson county line. The southern limits of the corridor follow Wallisville Road, Barbers Hill Road and FM 1942. The northern limits follow Garrett Road, Foley Road and Louis Street. Included within the corridor are portions of Harris and Liberty counties, and the cities of Houston, Dayton and Liberty.

Major intersecting north-south roads include FM 526 (C E King Parkway), Sheldon Road (Crosby), Lynchburg Road, Bohemian Hall Road (Crosby), Eastgate Road and the future SH 99. Major parallel roads located south of the facility include Wallisville Road, Miller Road No. 1 (Crosby), FM 1942 (Barbers Hill Road), Kennings Road, Krennek Road and Runneburg Road. No major parallel roads exist north of the roadway facility.

Land within the U.S. 90 corridor can be characterized by three major uses – low-to-medium residential, industrial and rural open space. The corridor has several established residential areas, primarily neighborhoods dispersed within the urbanized section of the corridor that border the major arteries. Densities of residential development tend to decrease as the corridor extends eastward. The close proximity of the corridor to the Houston Ship Channel provides ample industrial employment opportunities. The anticipated expansion of the Port of Houston is likely to enhance the growth of this vibrant sector.

The physical industrial facilities tend to be evenly distributed throughout the corridor. Rural open space accounts for a significant portion of overall use. Parks are well represented within the rural open space with more than 20 different facilities that exist. Public libraries are in abundance with more than 10 locations on the fringe and throughout the corridor. Elementary and secondary education is provided by the Houston Independent School District and the North Forest Independent School District. San Jacinto's north campus provides the only post-secondary educational opportunities along the corridor. Other amenities include a mix of medical, shopping and office facilities.

The corridor currently provides employment for an estimated 34,000 people, and it is projected to grow to 41,922 by the year 2022, an increase of about 23 percent. The dominant employment categories include retail, office and industrial. These three categories comprise about 75 percent of all employment in the corridor and will remain consistent for the projected time frame. The most significant growth is expected to occur in the retail sector, where employment will grow by approximately 17,000 jobs. This is closely followed by the industrial sector, with job increases of about 10,000 (37 percent), and increases of 8,500 jobs for the office sector (35 percent). Currently, U.S. 90 does not have an HOV lane or bus service operating within the facility or corridor.

Major Attractors

There are no major trip generators or attractors within the U.S. 90 corridor. However, the heavy influence of industrial and intermodal activities in adjacent corridors may impact traffic demand and travel patterns within this corridor.

Demographics

Population and employment within the U.S.90 corridor will increase by 30 percent and 23 percent, respectively.

	2000	2022	% Change
Population	74,893	97,239	29.8%
Employment	34,077	41,922	23.0%

Traffic Analysis

Forecasted traffic counts along the corridor show modest increases.

Congestion

In 2000, U.S. 90 experienced limited amounts of serious and severe congestion. The majority of the approximately 69-mile mile facility (84 percent) experienced tolerable or moderate congestion.

Safety

There were 155 crashes in 1998 and 159 crashes in 1999. These included three fatal and 29 incapacitating injury crashes. Two hotspots were identified in the corridor– the intersection at U.S. 90 and SH 146, and the one-mile stretch where the multiple junctions with SH 321, SH 146 and FM 1409 occur.

Future Improvements

MAJOR U.S. 90E BEAUMONT HIGHWAY PLANNED IMPROVEMENTS		
Key Map	Project Description/Limit	Estimated
Committed Funding		
	None.	
Short Range		
	Phase 3 – Southwest of Mercury Drive to Uvalde, construct 4-lane freeway.	\$19,310,000

	Phase 2 – Wallisville to Uvalde, construct two 3-lane frontage road.	\$7,400,000
	Phase 1 – Southwest of Mercury Drive to Wallisville, construct two 3-lane frontage roads.	\$6,080,000
	Phase 2 – Mercury from I-10 (Oates Rd.) to Mercury Drive, construct 4-lane freeway with grade separation.	\$9,193,000
	Southwest of Mercury to Beltway 8, grade separation at major interchanges from ramps.	\$43,906,000
Long Range		
	Phase 4 – Southwest of Mercury Drive to Uvalde, widen to 6-lane freeway ramps.	\$30,000,000
	I-10 to Uvalde, construct 6-main-lane freeway.	\$30,000.00
	North of Runneburg to Liberty County line, construct and upgrade to 4-lane freeway.	\$73,130,000

U.S. 90A

Overview

The U.S. 90A (S. Main) corridor, approximately 41 miles in length, consists of the area one to two miles wide on both sides, stretching between Loop 610 and the Fort Bend/Wharton County lines. Major facilities within this corridor are Loop 610 South, Beltway 8, SH 6, SH 36 and SH 99. Included within the corridor are the cities of Houston, Sugar Land, Stafford, Missouri City, Richmond and Rosenberg, as well as the unincorporated areas of Harris and Fort Bend counties.

Land use within the U.S. 90A corridor varies from light industrial and commercial along major arterials, to residential areas located throughout the corridor. Between Loop 610 and Missouri City, land is primarily commercial. Beginning in Missouri City and extending through Sugar Land, and in the cities of Richmond and Rosenberg, there are residential and light commercial uses. The land between Sugar Land and the cities of Richmond and Rosenberg is primarily used for agriculture and ranching. Agricultural and ranching land uses also continue from west of Rosenberg to the end of this corridor at the Wharton county line.

Currently, U.S. 90A does not have any HOV lanes, but they are available at an intersecting facility of U.S. 59 South. Four commuter routes and eight local/other routes operate on U.S. 90A, or serve transit facilities within the U.S. 90A corridor, for portions of their trip. Additionally, there are two park and ride facilities located within the corridor. The total combined average weekday boardings for these routes is 42,789.

METRO, in coordination with H-GAC and local governments within the corridor, is studying the corridor for possible inclusion of a High Capacity Transit system. This High Capacity Transit Systems could include HOV lanes, transit lanes and heavy or light rail.

Major Attractors

Within the U.S. 90A corridor, there are eight major trip generators and attractors, including the Sugar Land Airport, AstroWorld and the Astrodome, First Colony Mall, Imperial Sugar Company, Texas Department of Corrections, Manor Care Hospital and Fort Bend Community Hospital.

Demographics

Population and employment in the corridor are expected to grow by 41 and 37 percent respectively.

	2000	2022	% Change
Population	136,912	193,282	41.2%
Employment	110,036	150,577	36.8%

Traffic Analysis

With continued development, traffic will continue to increase within the corridor.

Congestion

The level of congestion on U.S. 90A varies from tolerable to severe, depending on location along the corridor. In 2000, areas of severe congestion were located near Fondren, Beltway 8 and from U.S. 59 South to just west of SH 99. These areas will remain severely congested through the year 2025. Other areas along this facility will experience tolerable to serious congestion during the same period.

Safety

In 1998, there were three fatalities in 470 crashes along U.S. 90A within the corridor. The 1.25-mile-area between Austin Street and 5th Street in the Richmond and Rosenberg area experienced 66 crashes in 1998. Other high crash locations within the corridor at, or near the intersections with, U.S.90A include FM 2234, Post Oak Road, FM 1092, U.S. 59 South, and between Howard Lane and Herdon Street.

Future Improvements

U.S. 90A IMPROVEMENTS

U.S. 90A, 0.1 miles west of Present Street to Harris County line, widen to 8 main lanes with 2-level interchange at FM 2234.	\$17,568,000
U.S. 90A, 0.24 miles west of FM 1092 to 0.31 miles west of Kirkwood/Dulles, widen to 8-lane divided.	\$14,833,967
U.S. 90A, 0.1 miles west of Present Street to 0.24 miles west of FM 1092, widen to 8-lane divided.	\$13,599,289
U.S. 90A at FM 2234/Gessner, construct grade separation.	\$10,500,000
U.S. 90A, 0.3 miles west of SH 6 to FM 1876, widen to 8-lane divided.	\$8,489,000
U.S. 90A, FM 1876 to west of U.S. 59, widen to 8-lane divided.	\$7,433,000
U.S. 90A, Loop 762 to 0.3 miles west of SH 6, widen to 6-lane divided.	\$21,219,000
U.S. 90A, 0.17 miles east of FM 1640 to FM Loop 762, widen to 6-lane divided.	\$10,327,000
U.S. 90A, FM 1640 to 0.17 miles east of FM 1640, widen to 6-lane divided.	\$890,000

U.S. 90A, SH 6 to SH 99, widen to 8-lane with grade separations.	\$16,300,000
U.S. 90A at Almeda (FM 521), Almeda Road overpass.	\$5,580,000
U.S. 90A, Lawndale to Polk, widen to 6 lanes.	\$1,110,000

U.S. 290

Overview

The U.S. 290 (Hempstead Highway/Northwest Freeway) corridor consists of the freeway facility and the surrounding area approximately five miles north and south of the freeway. The facility runs from Loop 610 West to the Waller County line. U.S. 290 extends approximately 27 miles within the study area.

The U.S. 290 corridor includes both urban and rural characteristics, with the inner and middle section primarily urban and the outer section primarily rural. The corridor is bound by Buffalo Bayou on the north, U.S. 59 South and Bissonnet Avenue on the south, Loop 610 West on the east and SH 99 on the west. Major east-west streets include West 43rd Street, West Road, and Spring Cypress Road. Major north-south streets include T. C. Jester, SH-6, FM 1960, Loop 610, Beltway 8, SH 99. Included within the corridor is Houston and unincorporated portions of Harris County. Currently, there are seven commuter routes and four local/other routes within the U.S. 290 corridor. Total combined average weekday boarding for these routes is 22,900.

The HOV system on U.S. 290 has six entrances and exits. Northwest Station, Dacoma, Pinemont, West Little York, West Road and FM 1960. Five of these HOV access and departure points have adjoining parking facilities (METRO park and rides), as a well as a transit center.

Major Attractors

Within the U.S. 290 corridor, six major trip generators and attractors have been identified, including Delmar Stadium, Northwest Mall, Tinseltown, Northwest Crossing Shopping Center, Northbrook Shopping Center and numerous automobile dealerships. These attractors are primarily retail, sporting, recreational, restaurant and entertainment facilities.

Demographics

The population and employment within the corridor are projected to grow at a rate Of 43 and 33 percent respectively.

	2000	2022	% Change
Population	119,409	171,469	43.6%
Employment	125,131	166,602	33.1%

Traffic Analysis

As the population increases by 300,000 by the year 2025, there will be an increased demand for this facility. The increased population coupled with the estimated increase of 161,000 people working in the corridor by the year 2025 will contribute to this facility's continued congestion and mobility issues.

Congestion

On U.S. 290, from Loop 610 West to West 43rd street (approximately 2½ miles), the current level of mobility is classified as serious. This is due to a major convergence of freeway systems that involve U.S. 290, Loop 610 and I-10. From West 43rd Street to West Tidwell (approximately 1½ miles), the current level of congestion drops to moderate. From West Tidwell to the Harris County line, the current level of mobility drops to tolerable. The projected levels of mobility by the year 2022 will increase the level of congestion. On U.S. 290, from Loop 610 West to West 43rd Street, congestion will increase from serious to severe levels. From West 43rd Street to West Tidwell, congestion will increase from moderate to serious, while the levels of congestion from West Tidwell to the FM 1960 will range from moderate to severe. The level of congestion drops, and remains tolerable, past FM 1960.

Safety

In 1998, there were 676 crashes on U.S. 290, including 10 fatalities. In 1998, hot spots were identified on Clay Road, Bingle Road, Gardendale Road, Dacoma Street, Mangum Road, Post Oak Road, and between Clay Road and Loop 610, with 51 crashes that occurred at these locations. Additionally, 59 crashes occurred on U.S. 290 between West Road and Flintlock Street in 1998.

Future Improvements

MAJOR U.S. 290 PLANNED IMPROVEMENTS		
Project #	Project Description	Estimated Cost
Committed		
7030	Transportation control measure (TCM) improvements, U-turn lanes, etc.	\$634,000
7001	Construct interim grade separation.	\$5,000,000
7000	Construct interim grade separation.	\$5,000,000
6099	Construct interim grade separation.	\$5,000,000
461	Connect main lanes.	\$2,000,000
9939	Construct interim grade separation.	\$5,000,000
3016	Install Computerized Traffic Management System (CTMS).	\$1,050,000
3014	Install CTMS.	\$2,709,000

Short Range		
196	Widen bridge.	\$933,000
932	Widen to 8-10-lane freeway.	\$66,500,000
1677	Paint structures.	\$100,000
1696	Landscape development.	\$500,000
Long Range		
1082	Install CTMS, including surveillance system, satellite computer facility.	\$92,000,00
319	Construct interim grade separation.	\$15,000,000
910	Widen and upgrade to 6-lane freeway.	\$66,500,000
1107	Install CTMS, including surveillance system.	\$3,600,000
3047	Construct park and ride (500 spaces).	\$2,000,000

Hardy Toll Road

Overview

The Hardy Toll Road corridor consists of the freeway facility and the surrounding area approximately two to five miles west and east of the freeway. The corridor extends 21 miles from Loop 610 North near the Houston CBD, to a junction with I-45 North near the Montgomery County line north of Bush Intercontinental Airport. The western limits of the corridor generally follow Airline Road, I-45 North, Veterans Memorial, West Montgomery Road and U.S. 290. The eastern limits of the corridor generally follow U.S. 59 North, Jensen Road and Hirsch Road.

Major intersecting east-west regional corridors include I-10 East, 610, Beltway 8 and the proposed SH 99. Major parallel streets include West Montgomery Road, Veterans Memorial, T.C. Jester, Jensen Road, Hirsch Road and Lockwood Road. Land use within the Hardy Toll Road corridor can be characterized as predominately low-to-medium density residential, commercial and industrial. Open space constitutes the majority of land use within the corridor. Industrial land uses are low, relative to other regional corridors.

The areas within the corridor that are projected to experience the highest future population growth are located north of Beltway 8 and south of the Montgomery County line. The area of greatest projected employment growth is also north of Beltway 8 in the general area of Bush Intercontinental Airport.

METRO is responsible for transit service and facility improvements within the Houston metropolitan area, including the Hardy Toll Road corridor. Currently, the Hardy Toll Road does not have an HOV lane or bus service operating within the facility or corridor. METRO has plans to develop a new High Capacity Transit system in this corridor by 2025.

Major Attractors

The majority of trip generators and attractors in this corridor are employment, commercial, recreational and some industrial. Most of the traffic on the weekdays is related to work trips to the Houston CBD. Other trip generators include recreational or commercial trips to The Woodlands and trips to Bush Intercontinental Airport.

Demographics

Overall population and employment in this corridor are expected to grow at a rate of 20 and 43 percent respectively.

	2000	2022	% Change
Population	84,615	101,861	20.4%
Employment	48,615	69,419	42.8%

Traffic Analysis

The highest level of increases in traffic on the Hardy Toll Road will be between Beltway 8 and I-45 North, between 2000 and 2022. Traffic on this segment will increase by 86 percent during the 25-year period.

Congestion

As of 2000, the Hardy Toll Road has not experienced any severe or serious congestion. However, projected traffic volumes through 2022) will change the level of mobility from tolerable to serious at some intersections.

Safety

In 1998, there were 58 crashes on the Hardy Toll Road, including two fatal and three incapacitating injury crashes. The intersection at the Hardy Toll Road and FM 525 (Aldine Bender) is particularly hazardous, but more so along FM 525 than on the Hardy Toll Road.

Future Improvements

METRO is planning to develop a new High Capacity Transit corridor with stations located at Bush International Airport and Greenspoint by 2025.

HARDY TOLL ROAD PLANNED IMPROVEMENTS	
Project Description/Limits	Estimated Cost
Committed	
John F. Kennedy Blvd. to Bush Intercontinental Airport, construct direct connector.	\$26,000,000
Short Range	
Beltway 8 to I-45, widen to 6 main lanes.	\$36,330,000
Long Range	
Hardy Toll Road, construct eastbound-to-northbound connector.	\$12,000,000
Loop 610 to CBD, construct 6-lane toll extension.	\$76,000,000

State Highway 6

Overview

The State Highway 6 (SH 6) corridor, approximately 70 miles in length, consists of the area one to two miles on both sides of the facility that stretches between U.S. 290 on the north to I-45 South. Major facilities within this corridor are FM 529, FM 1093 (Westheimer Road), U.S. 90A, U.S. 59, SH 288, SH 35 and I-45 South. Included within the corridor are the cities of Houston, Sugar Land, Missouri City, Arcola, Manvel, Alvin, Santa Fe, Hitchcock and La Marque, as well as the unincorporated areas of Harris, Fort Bend, Brazoria and Galveston counties.

Travel patterns within the SH 6 corridor are predominately work-oriented in nature, followed by commercial, with minimal freight movement. Connections to the other regional corridors are provided via intersecting freeways.

Land use within the SH 6 corridor varies from light industrial and commercial, along major arterials, to residential areas located throughout the corridor. Current use between U.S. 290 and the southeastern city limits of Missouri City includes dense residential and commercial. Other land uses, especially in the unincorporated areas in Fort Bend, Brazoria and Galveston counties, are primarily agricultural and ranching.

Currently, the SH 6 corridor does not contain any HOV lanes, but they are available at the intersecting facilities of U.S. 59S, U.S. 290, and I-10. Eight commuter routes and eight local/other routes operate on, or serve transit facilities within, the SH 6 corridor for portions of their trip. Total combined average weekday boardings for these routes are 68,079.

Major Attractors

Within the SH 6 corridor, major trip generators are commercial and retail centers. Within the U.S. 59 South corridor, major trip generators and attractors are divided between recreational, retail and educational. The corridor has three airports, three major retail centers, two hospitals, a recreational area and one major government facility.

Demographics

Population and employment rates within the SH 6 corridor is expected to grow 59, and 60 percent, respectively, during the 24-year year planning period.

	2000	2022	% Change
Population	341,683	542,212	58.7%
Employment	127,828	204,425	59.9%

Traffic Analysis

Traffic volumes will increase most dramatically along SH 6 between U.S. 290 and FM 1093. The volumes along this section will increase by nearly 30,000 trips each day during the 25-year period.

Congestion

The level of congestion on SH 6 varies from tolerable to severe, depending on the location along the corridor. Most of the serious and severe congestion in 2000 was between U.S. 290 and FM 1093, with additional moderate to serious congestion around the Sugar Land/Missouri City area. By 2025, the entire facility from U.S. 290 to FM 1093 will experience severe congestion. Congestion will go from tolerable to moderate and serious from FM 1093 to Sugar Land, and will increase to the severe level past Sugar Land. Other sections of SH 6 will have tolerable to moderate congestion.

Safety

In 1998, there were 873 crashes along SH 6 including 10 fatalities. Several hot spots were identified including a stretch of 0.9 miles around the intersection with Clay Rd. (53 crashes) and a stretch of 0.8 miles around the intersection with Bellaire Blvd (66 crashes, 28 at the intersection itself).

Future Improvements

SH 6, 1.189 miles west of FM 521 to Brazoria County line, widen to 6-lane divided rural facility.	\$18,099,610
SH 6, .22 miles southeast of Southern Pacific railroad to Spur 58, widen to 6-lane divided with curb and gutter.	\$3,040,000
SH 6 at Southern Pacific railroad near U.S. 90A, construct railroad-highway grade separation (phase 2).	\$10,068,000
SH 6, 0.3 miles south of U.S. 90A and to McKeever Road, noise abatement walls.	\$2,674,000
SH 6, FM 2004 to FM 519, install Automated Traffic Management Systems (ATMS).	\$183,000
SH 6, Brazoria County line to Texas City terminal railroad, improve guardrail to design standards.	\$244,800
SH 6, I-10 to Schiller Road, spot base repair and crack sealing.	\$250,000

Proposed State Highway 35

Overview

The State Highway 35 (SH 35) corridor includes a new alignment, as well as usage, of current facilities from I-45 in Harris County to the Brazoria/Matagorda County line. The proposed corridor generally follows Mykawa Drive from I-45 to Loop 610, southward and to the west of Pearland, and then southeastward to the current SH 35 facility north of Alvin. The cities of Alvin, Danbury, Houston, Liverpool, Pearland and West Columbia are within this corridor.

There are multiple land uses within the SH 35 corridor. In the northern section of the corridor, between I-45 and Alvin, the land use is primarily light industrial/commercial and residential. The land use in the rest of the corridor is primarily agricultural, except for the urban areas where it is mostly commercial and residential.

Major Attractors

Of the 30,102 employment trips made each day from within the corridor, 42 percent travel to eight employment centers. There are four major attractors – Hobby Airport, Palms Center, Gulfgate Mall and Phillips Petroleum.

Demographics

Population and employment rates within the SH 35 corridor are expected to grow at a moderate rate, 22 and 25 percent respectively during the 24-year period.

	2000	2022	% Change
Population	168,192	206,035	22.5%
Employment	93,110	116,576	25.2%

Traffic Analysis

Currently, SH 35 is mostly a two-lane urban and rural facility that provides southern Harris County and Brazoria County residents with a means to commute to work and shop in the Greater Houston area.

Plans for the facility include developing and realigning it, between I-45 South and Alvin, to freeway status with controlled access by 2025. If the facility is expanded and realigned, traffic volumes are projected to increase two to three times the current volumes. This new and expanded facility will allow a greater number of vehicles into the southeastern part of Harris County.

Congestion

SH 35 is a primary route for residents along the corridor to travel to the city of Houston and its employment centers. Approximately 33,620 commuter trips are made to Harris County daily. Most of the current alignment is a two-lane, rural, undivided roadway. In the cities of Pearland, Alvin, Angleton and West Columbia, traffic consists of 10,000 to 26,000 vehicles per day. Additionally, traffic volumes on Mykawa Drive, the proposed new alignment of SH 35 between I-45 South and just West of Pearland, is between 6,000 and 31,410 vehicles per day.

Safety

In 1998, there were at least 522 crashes on SH 35, including eight crashes with fatalities and 39 crashes with incapacitating injuries. Several hot spots were identified, including a major one in and around Alvin (81 crashes). Currently, there is no crash data available for the proposed SH 35 alignment.

Future Improvements

MAJOR SH 35 PLANNED IMPROVEMENTS	
SH 35 at Jamison Slough, replace bridge.	\$720,000
SH 35, from near FM 521, west of Angleton, to 0.9 miles east of Brazos River, widen to 4-lane divided rural section.	\$9,645,060
SH 35, 0.9 miles east of Brazos River to south end of San Bernard River bridge, widen to 4-lane divided with sections undivided.	\$31,184,940
SH 35, south end of San Bernard River bridge to Matagorda County line, widen to 4-lane divided rural.	\$18,000,000
SH 35, 0.351 miles west of SH 288, west of Angleton, to west end of proposed FM 521 O/P, widen to 4-lane divided rural.	\$13,965,200
SH 35 at Oyster Creek, widen bridge.	\$630,800
SH 35, 14 th street at SH 36, install Automated Traffic Management Systems (ATMS).	\$178,000
SH 35, Downing Street to BS 288, surface rehabilitation and ACP overlay.	\$171,000
SH 35, Harris County Line to FM 518 in Pearland, widen to 6 lane divided with curb and gutter.	\$8,529,251
SH 35, from SM 1301 to SH 36, surface rehabilitation and ACP overlay.	\$129,000
SH 35, from SH 35 to Hastings site, removal of contaminated material.	\$200,000
SH 35, from .24 kilometers north of Brazoria County line at Beltway 8 to Brazoria County line, widen to 6-lane divided with curb and gutter.	\$574,640
Total	\$83,927,891

State Highway 99

Overview

The State Highway 99 (Grand Parkway) corridor consists of the SH 99 freeway facility, both existing and future segments, and the surrounding area (approximately two miles on either side of the freeway). The SH 99 corridor is approximately 30 miles from the Houston CBD. The corridor lies within Harris, Fort Bend, Montgomery, Brazoria, Galveston, Chambers and Liberty counties. The cities of Houston, Sugar Land, Manvel, Friendswood, Clear Lake, League City, Kemah, La Porte, Katy, Baytown, Morgan's Point, Mont Belvieu, The Woodlands and Tomball are within the SH 99 corridor.

The SH 99 freeway is a partially completed, four-lane freeway that is proposed to serve as Houston's third loop. Once completed, the 170-mile-long facility will be a four-lane, limited access highway with a greenbelt easement. It is possible that the four lanes will, eventually, be extended to six.

The construction status of each segment is shown below. Only segment D has been constructed thus far.

SH 99 SEGMENT	Location	Constructed	Study Completed/ Underway	Planned
A	SH 146 to 1-45 S.			X
B	1-45 S. to SH 288			X
C	SH 288 to U.S. 59 S.		X	
D	U.S. 59 South to I-10 W.	X		
E	I-10 W. to U.S. 290		X	
F	U.S. 290 to 1-45 N.		X	
G	1-45 N. to U.S. 59 N.		X	
H	U.S. 59 N. to I-10 E.			X
I	I-10 E. to FM 225			X

In general, the existing SH 99 corridor experiences low levels of commuter travel and freight movement. This is largely due to the fact that the SH 99 freeway facility is only partially constructed. The SH 99 corridor does serve several major intermodal facilities in the region, including four airports, two port terminals and one truck/rail facility.

Development along the SH 99 corridor consists of both residential and commercial/business areas. The corridor's residential areas are not densely developed, with some exceptions (e.g., The Woodlands). The low population (both residential and commercial) density of the SH 99 corridor makes it unique to the Houston-Galveston region.

Major Attractors

Within the SH 99 corridor, the three major trip generators and attractors include NASA, the Port of Houston, The Woodlands and Compaq Computer Corporation.

Demographics

Population and employment growth within the Grand Parkway corridor are projected to increase, by 68 and 48 percent respectively.

	2000	2022	% Change
Population	305,431	515,223	68.7%
Employment	82,079	122,006	48.6%

Congestion

In 1990, it is estimated that 13.7 percent of the roads within the SH 99 corridor, including the freeway, were either seriously or severely congested. By the year 2025, that figure is projected to increase to 24.7 percent, an increase of 80 percent. In contrast, for the eight-county region, the percentage of serious or severely congested roads will increase from 10.4 percent in 1990 to 14.9 percent by 2020, an increase of 43 percent.

Safety

Since only a small section of SH 99 has been built, safety problems cannot be identified. In 1998, there were four crashes on the part of the corridor that has been built.

Future Improvements

The following improvements are planned for the State Highway 99 corridor. New transit projects (on the long range plan) include the construction of the Sugar Land Park & Ride lot (500 spaces) at U.S. 59.

MAJOR SH 99 PLANNED IMPROVEMENTS		
Map Key	Project Description/Limits	Estimated Cost
Committed		
230	I-10 E. to SP 55 @ FM 1405, construction of 4-lane divided rural highway with I/C @IHE.	\$15,000,000
6086	SP55@ FM 1405 to FM 565 construct 4 LN divided, rural.	\$37,000,000
Short Range		
219	Construct bridge and approaches, At US-90A	\$12,400,000
218	Harris county ine to U.S. 59, construction of 4-laneFreeway with intermittent frontage roads.	\$69,000,000
257	Galveston C/L to SH 288 (segment B), construction of 4-lane divided rural highway with I/C.	\$45,000,000
258	SH 288 (segment C-3)to Ft. Bend C/L construction of 4-lane freeway with intermittent frontage roads.	\$28,000,000
259	Liberty C/L to IH-10 Construct 4 lane divided rural.	\$25,000,000
266	Brazoria C/L to FM 762 construction of 4-lane freeway with intermittent frontage roads.	\$37,000,000
283	Brazoria C/L to IH 45 S construction of 4-lane divided rural section.	\$29,000,000
314	Montgomery C/L to IH 45 N construction of 4-lane Freeway with intermittent Frontage roads	\$2,300,000
316	U.S. 290,to SH 249 construction of 4-lane freeway with intermittent Frontage roads. Section. (F-1)	\$42,000,000
328	Franz Rd, to US 290, construction of 4-lane Freeway with intermittent frontage roads. (E)	\$61,000,000
217	IH 45 N. to SH249, construction 4 lane Freeway with intermittent Frontage roads.	\$61,000,000
6066	Harris C/L to FM 1093. Widen to 6 main lanes	\$19,000,000

6067	FM 1093 to N. of US90 A. Widen to 6 main lanes	\$54,000,000
6068	S. US90A to US 59, widen to 4 main lanes	\$23,000,000
6069	Franz Rd. to Ft Bend C/L widen to 6 main lanes	\$22,000,000
Long Range		
284	SH 146 to IH 45S. construct 4 Lane div Rural	\$22,500,000
315	Montgomery C/L to US 90, construct 4 Lanes rural with I/C @ US90	\$71,900,000
367	Harris C/L to US 59 Construct 4 Lns div rural W/C @ 2 bayous.	\$37,300,000
265	Construct 4 lane O/P, 0.3 m S. of FM 1093 to 0.3 m. N. of FM 1093	\$5,100,000
353	Harris county line to Chambers county line, construction of 4-lane divided rural.	\$19,000,000
	Liberty county line to I-10, construction of 4-lane divided rural.	\$25,300,000
396	I-45 S., construction grade separation I/C.	\$8,400,000

State Highway 105 Corridor

Overview

The State Highway 105 corridor is approximately 70 miles in length. The northern limit of the corridor generally follows FM 1097, and the Montgomery County and Liberty County lines. The southern limit generally follows FM 1488 and SH 242. Major intersecting north-south regional road facilities include FM 149, SH 75, U.S. 59, Loop 336 and FM 3083. Major parallel facilities include FM 1097, FM 2432, FM 1484 and FM 787. Included within the corridor are portions of Montgomery and Liberty counties, as well as the cities of Conroe, Cut and Shoot, Woodbranch Village and Cleveland.

Land use within the SH 105 corridor is low-to-medium residential and industrial, with a large amount of rural open space. Brazos Transit provides commuter service connecting Montgomery County to major employment centers in Houston and fixed-route service in Liberty County. Vanpool and carpool programs, as well as other demand-response services are provided by different nonprofit organizations.

Major Attractors

Since most of the corridor is rural, there are a limited number of major attractors. Attractors in the corridor include shopping and resort activities in, and around, the city of Conroe.

Demographics

The areas along the SH 105 corridor that will have the greatest projected population growth are located east of I-45, along SH 105 and Loop 336. Within this corridor, employment growth is projected in eastern Liberty County. Population and employment are expected to grow by 65 and 60 percent respectively.

	2000	2022	% Change
Population	70,023	115,901	65.5%
Employment	26,677	42,634	59.8%

Traffic Analysis

Traffic volume on SH 105 will increase by 69 percent between I-45 and U.S. 59. The segment of SH 105 from I-45 North to U.S. 59 is projected to have the greatest percentage increase in traffic volume.

Congestion

SH 105 currently experiences no serious or severe congestion, however, congestion could increase within this corridor as growth continues to expand, especially east of Conroe and around Cleveland and U.S. 59. The construction of the Cleveland South Loop should help provide some relief to the facilities.

Safety

In 1998, there were 373 crashes along SH 105, including six fatal and 25 incapacitating injury crashes. Particular hot spots are the intersection of SH 105 and U.S. 59 (77 crashes) and the 1.3 mile stretch of SH 105 that overlaps intersections with I-45 and SH 75 (60 crashes).

Future Improvements

Major SH 105 Planned Improvements	
2.1 miles south of Loop 573 wide to SH 105 west of Cleveland, construct new loop with 4-lane controlled access.	\$25,000,000
FM 149 to Lake Conroe, widen from 4 to 6 lanes.	\$16,580,000
Grimes County line to FM 149, widen from 2 to 4 lanes.	\$30,000,000
FM 1314 to Loop 336 East, widen from 2 to 4 lanes.	\$5,232,000
Loop 336 to San Jacinto County line, widen from 2 to 4 lanes.	\$28,055,000

State Highway 146

Overview

The State Highway 146 corridor consists of the highway facility and the surrounding area three to five miles north and south of the freeway. The corridor extends approximately 40 miles from U.S. 90 in Liberty County in the north to I-45 in Galveston County in the south. The corridor buffer extends three miles on both sides of the highway. Included within the corridor are portions of Chambers, Liberty, Harris and Galveston counties, and the cities of Dayton, Mont Belvieu, Baytown, La Porte, Morgan's Point, Shore Acres, Taylor Lake Village, Seabrook, El Lago, Houston, League City, Clear Lake Shores, Kemah, Texas City and La Marque.

SH 146 is the primary corridor along east Galveston Bay, serving as a major link between the interstate highway system and its residential and industrial uses. Major intersecting regional corridors include U.S. 90 in the north, I-10, SH 225 and I-45. There are few parallel roads along the corridor, so it mainly serves north-south movement in the region.

Demographics

Overall population and employment within the corridor are expected to grow at 34 and 38 percent respectively.

The areas projected to experience the highest population growth are generally located between FM 517 and Red Bluff Road. The areas of highest projected employment growth are north of FM 518, near the proposed Port of Houston facilities, and in Texas City. Higher employment growth is projected in the area near the intersection of SH 146 and I-45 South.

	2000	2022	% Change
Population	175,239	234,643	33.9%
Employment	71,662	98,892	38.0%

Major Trip Attractors

Most of the trip attractors and generators in the SH 146 corridor are industrial centers. Multiple land uses exist in the corridor. Land use in the northern section of the corridor is primarily agricultural, however, land uses in Dayton and Mont Belview consist of low densities and small communities. South of I-10, near the Houston Ship Channel, land uses are primarily residential and strip commercial, with some industrial.

A heavy concentration of industrial activity occurs around SH 225 (La Porte Freeway) and Barbours Cut Boulevard. There is heavy residential development just east of SH 146,

and south of the Barbours Cut Boulevard area. The Bayport Channel, located south of Shore Acres, is the site that was proposed as a “mega port” for container shipping.

Traffic Analysis

The segments between SH 201 South and Fairmont Parkway have the heaviest projected traffic volumes, ranging from 57,590 to 60,140 vehicles per day. The segments between Cedar Bayou and SH 201 North, and Fairmont and Red Bluff Road, are projected to have the greatest percentage increases in traffic volume by 2022. On these segments, the projected increase in traffic volumes is 51 percent and 43 percent, respectively.

Congestion

The same segments mentioned above are projected to have severe and serious congestion. These segments are already congested, and without any additional capacity congestion in this particular area, congestion will only increase.

Safety

In 1998, there were 387 crashes along SH 146, including three fatal crashes. Of these, 323 (including the fatal crashes) occurred on SH 146, south of U.S. 90. Four crash hot spots were identified, including a 2/3-mile stretch south of Main Street (40 crashes) and a 2/3-mile stretch around SH 99/NASA Road (39 crashes).

Future Improvements

The following improvements are planned for the SH 146 corridor. For more detailed listing of projects refer to the 2022 Metropolitan Transportation Plan.

Major SH 146 Planned Improvements	
SH 146, 0.395 miles south FM 517 to 0.976 miles south of Dickinson Bayou, construct 2-lane frontage road bridge on west side.	\$4,850,001
SH 146, Fairmont Pkwy. to Red Bluff Rd., widen to 6 main lanes.	\$16,000,000
SH 146, Red Bluff Rd. to NASA Rd. 1, upgrade to 6-lane divided.	\$20,000,000
SH 146, NASA Rd. 1 to Galveston C/L, widen and upgrade to 6-lane divided.	\$10,000,000
SH 146, CHA C/L to U.S. 90, widen to 4-lane undivided.	\$22,500,000

State Highway 225

Overview

The SH 225 (La Porte Freeway) corridor consists of the freeway facility and the surrounding area. The corridor begins at the Loop 610 East Loop and follows SH 225 to its end at SH 146 in La Porte, a distance of approximately 15 miles. The entire corridor is within Harris County. The cities within the corridor are Houston, Pasadena, Deer Park and La Porte.

SH 225 is the primary east-west corridor through eastern Houston and the industrial centers of La Porte, Deer Park and Pasadena. Major intersecting north-south regional corridors include Loop 610 East, Beltway 8 and SH 146. No roads run parallel to the corridor, but the freeway was intended to relieve traffic running east-west on I-10 to the north of the ship channel. Other significant intersecting roads include Richey, Red Bluff Road, and SH 134 (Battleground Road).

Demographics

The SH 225 corridor demographics includes the area one to three miles north to the ship channel and south of SH 225. Population and employment within the corridor are expected to grow at 16 and 24 percent respectively. Almost all of the population growth in the corridor will occur south of SH 225, between Beltway 8 and SH 146, in the cities of Deer Park and La Porte. Employment growth is dispersed along the freeway without areas of heavy concentration (mostly north of SH 225). More job growth is expected on the eastern end of the corridor than on the western end.

	2000	2022	% Change
Population	53,965	62,924	16.6%
Employment	35,864	44,485	24.0%

Major Trip Attractors

Nearly the entire SH 225 corridor is lined with petrochemical refining and other industrial uses that are served by their proximity to the Interstate Highway System and to the Port of Houston Ship Channel. This is particularly true on the north side of the highway corridor (between SH 225 and the Houston Ship Channel). To the south of the freeway, however, there are some residential areas that are adjacent to the roadway.

Traffic Analysis

The segments of road along SH 225 that are projected to have the greatest percentage increase in traffic volume by 2022 are Beltway 8 to Battleground Road, and

Battleground Road to SH 146. The traffic volumes of these segments have increased by approximately 25 percent. Traffic volume in the segment between Loop 610 and Beltway 8 is projected to increase to approximately 178,000 trips by 2022. The segment from Loop 610 East to Allen Genoa has the highest traffic volume.

Congestion

Congestion on SH 225 will remain tolerable, however, congestion will increase on segments in Houston at the intersection with Loop 610, around Pasadena and La Porte. Near Loop 610, congestion will increase by 19 percent, and in the La Porte area near SH 146, congestion will increase by approximately 54 percent. Finally, segments in the Pasadena area should increase moderately in comparison to the other segments mentioned.

Safety

There were 96 crashes on SH 225 in 1998, including 12 that had incapacitating injuries, and no identified fatalities. There were no hot spots identified on SH 225, and, compared to other major roads in the region, the highway is not hazardous.

Planned Transit Service and Facility Improvements

Included in the current Regional Transit Plan (VISION 2020) is a park and ride lot on the south side of SH 225, east of Beltway 8. No major improvements are planned for the SH 225 corridor after current construction is completed. The most significant improvement to the corridor will be the installation of a CTMS (Computerized Transportation Management System) that will extend from SH 134 to Strang Road. This project will assist in the management of the traffic on the freeway and make handling temporary congestion more efficient.

State Highway 249 Summary

Overview

The State Highway 249 (Tomball Parkway) corridor is approximately 37 miles in length and consists of the area two miles east and two miles west of the freeway. The four-mile wide corridor originates at the intersection of SH 249 with I-45 North (the facility is called West Mount Houston Road at this location), near the CBD in Harris County, and runs northwest through Montgomery County to the Waller County and Grimes County lines.

Major intersecting east-west roads include I-45, U.S. 290, FM 2978, FM 1488, FM 149, FM 2920, Boudreaux Road, Spring-Cypress Road, Louetta Road, Cypresswood Drive, FM 1960, Beltway 8, Fallbrook Drive, West Road, West Mount Houston Road, Victory Drive and Tidwell. Major intersecting north-south roads include U.S. 290 and I-45. The corridor is comprised of cities within both Harris and Montgomery counties, including the City of Houston and unincorporated portions of Harris County, Tomball, Decker Prairie, Pinehurst and Magnolia. There are multiple land uses within the SH 249, varying from light industrial and commercial, along major arterials, to residential areas located throughout the corridor. There are many railroad facilities and drainage crossings in the study area.

Transit facilities within the corridor include one METRO park and ride facility and three METRO bus routes. METRO has identified SH 249 as one of the high-capacity transit corridors listed in their 2025 Plan.

Major Attractors

Within the SH 249 corridor, there are six major trip generators or attractors, including Tomball College, Compaq Computer Corporation's headquarters, Willowbrook Mall, Sam Houston Race Park, Spring Creek Park and Tomball Regional Hospital. David Wayne Hooks Memorial Airport is just east of the corridor.

Demographics

From 1999 to 2022, population, and employment within the SH 249 corridor are expected to increase by 57 and 44 percent, respectively.

	2000	2022	% Change
Population	149,927	235,414	57.0%
Employment	60,413	87,052	44.1%

Traffic Analysis

The 2000 home-based work trips were reviewed to determine the primary travel patterns of residents within the SH 249 corridor, and they showed that the majority of trips are local, and are not outside of the sector.

Congestion

In 2000, SH 249 experienced tolerable congestion. Overall, congestion is expected to remain the same or decrease along certain stretches through 2025. However, 5 percent of the segments along the road are currently classified as severely congested and 15 percent are seriously congested.

Safety

In 1998, the Department of Public Safety (DPS) documented 572 crashes occurring on State Highway 249. These crashes included 10 involving fatalities and 34 involving incapacitating injuries. The seven areas in the corridor that accounted for a minimum of 25 crashes or more are:

1. A 2/3-mile stretch bordering the crossing with Verteran's Memorial (25 crashes including one fatal crash).
2. A 0.8-mile stretch between Mosielee Road and Lincoln Road (41 crashes, including one fatal and four incapacitating injury crashes).
3. A 2/3-mile stretch between Houston-Rosslyn and Seton Lake (63 crashes, including two with incapacitating injuries).
4. A 0.6-mile stretch around the intersection with Beltway 8 (50 crashes, including one fatal and one incapacitating injury crash).
5. A 0.6-mile stretch between Compaq Visitor Drive (29 crashes).
6. A 0.7-mile stretch northwest from Spring Cypress Drive (42 crashes, including three with incapacitating injuries).
7. A 0.6-mile stretch on both sides of FM 2920 (49 crashes).

Future Improvements

The following improvements are planned for the State Highway 249 corridor. These do not include east-west intersecting roadways.

MAJOR STATE HIGHWAY 249 PLANNED IMPROVEMENTS 2003 – 2007	
State Highway 249, Westlock Dr. to Willow Creek, construct 6-lane freeway and TSM.	\$26,534,000
State Highway 249 at Compaq Center Drive , construct interchange.	\$2,500,000
State Highway 249, Willow Creek to Brown Road, construct two 3-lane frontage roads with grade separations at FM 2920 and TSM.	\$15,000,000

State Highway 288

Overview

The State Highway 288 (South Freeway) corridor is approximately 63 miles in length and consists of the area two miles east and two miles west of the freeway. The four-mile-wide corridor originates at the intersection of SH 288 and U.S. 59 South in Harris County. It spans southward through Brazoria County, merges with SH 288 Business, south of Clute, and ends at the intersection of SH 288 and SH 36 in Freeport.

Major intersecting east-west streets include Beltway 8 South, FM 2234, SH 6, FM 1462, SH 35, FM 2004, FM 332 and SH 36. Major north-south streets include FM 521, SH 35 and FM 523. This corridor traverses both Harris and Brazoria counties and includes the cities of Houston, Angleton, Lake Jackson, Freeport, and Pearland.

The majority of SH 288 is in Brazoria County, which is generally characterized by its floodplains and many water features, such as Chocolate Bayou, Oyster Creek and the Brazos River.

There are multiple land uses within the SH 288 corridor. Businesses and industries in the area include petrochemical, governmental (prison), an agricultural base and the Port of Freeport. Paratransit services are provided by Connect Transportation.

Major Attractors

Major attractors within the corridor include manufacturing, governmental and retail companies. A total of 26,784 people are employed by 20 companies and agencies, with employment ranging from 275 to 5,000 employees per firm.

Demographics

Population and employment within the SH 288 corridor will increase by 28, and 35 percent, respectively.

	2000	2022	% Change
Population	84,913	108,703	28.0%
Employment	47,601	64,566	35.6%

Traffic Analysis

The 2000 home-based work trips were reviewed to determine the primary travel patterns of residents within the SH 288 corridor, and it showed that the majority of trips are local trips.

Congestion

In 2000, the SH 288 corridor experienced no serious or severe congestion on a 24 hour basis. Although congestion will increase within this corridor as the area continues to experience growth, the level of congestion is not expected to increase beyond the tolerable level by year 2020.

Safety

There were 348 motor vehicle crashes in 1998, including seven fatal and 28 incapacitating injury crashes. One crash hot spot was identified at the intersection of SH 288 and SH 35, where there were 24 crashes.

Future Improvements

The following improvements are proposed and planned improvements not yet adopted by Brazoria County officials.

MAJOR STATE HIGHWAY 288 PLANNED IMPROVEMENTS	
BW 8 to CR 59, Continuous Frontage Roads (Proposed)	\$ 3,534,216
@ CR 44, Construct GSEP of M/L over CR 44	\$ 6,200,000
@ CR 220, Construct GSEP	\$ 6,200,000
@ CR 58 & CR 59, Two O/P Structures	\$ 4,747,000
BS 288B @ Union Pacific RR in Clute, Construct RR GSEP	\$ 6,500,000
BS 288 North end of Bastrop Bayou to 0.6 miles S of SH 35	\$21,500,000
@ BW 8, Construct Direct Connectors	\$
CR 100/101, from SH 288 to SH 35, construct 2.5 miles of two-lane road.	\$ 5,901,200

FM 1093/Westheimer

Overview

The FM 1093/Westheimer study area is approximately 16 miles in length and one to two miles wide. The segment’s western terminus is SH 6; Main Street in downtown Houston is the eastern terminus. The portion of FM 1093/Westheimer between IH 610 and SH 6 falls under the jurisdiction of the Texas Department of Transportation and is designated as FM 1093. The portion of FM 1093/Westheimer between IH 610 and Main Street falls under the jurisdiction of the City of Houston and is designated as Westheimer.

Major parallel east-west arterial facilities include Richmond and Briar Forest/San Felipe. Major north-south intersecting arterial facilities include: SH 6, Hillcroft, Post Oak Boulevard, Kirby, South Sheppherd, Dunlavy, and Main streets. Freeway facilities include BW 8, IH 610, and Spur 527.

Land Use

FM 1093/Westheimer is a densely populated area. It’s land use features single and multiple family residential sites, commercial/industrial, retail, and business development. Several major retail malls and strip shopping centers are in the corridor. Area public schools are under the jurisdictions of the Alief and Houston Independent School Districts. One private university, The University of St. Thomas is located in the corridor. Additional land use includes water/drainage ways, open space and recreational parks, a cemetery, hospitals, and highway rights-of-way.

Major Attractors

Unlike other areas within the TMA, the corridor accommodates regular heavy traffic volumes throughout the day, seven days a week. The Uptown/Galleria area is reported as the nation’s largest urban business district. In addition to Uptown/Galleria, major traffic generators include Memorial Park, Greenway Plaza, West Oaks Mall, Westchase, and the Rosewood Medical Center.

Demographics

The area’s population and employment growth is approximately 21 and 19 percent respectively.

	2000	2022	% Change
Population	242,414	293,843	21.2%
Employment	218,497	260,190	19.1%

Transit

The corridor has a complete range of transit services, which includes local, commuter, flyer, and crosstown routes. The locations with the most significant transit volumes (current and future) are Memorial, Westchase, and The Galleria. By forecast year, transit trips will increase in all sectors with the exception of trips from the Galleria/Post Oak, and Memorial areas. The CBD and Westchase areas will experience the most significant increases, approximately 82% and 20% respectively.

Mobility

Traffic volumes tend to remain high, near 40,000 ADT through the corridor. The corridor relies on the adjacent freeway facilities to service its through traffic needs. Access is primarily dependent upon east-west arterials.

The area experiences a complete range in LOM levels, with LOM varying from tolerable to severe. Over an average 24-hour period, IH 610 and SH 6 are the most severely congested facilities in the study area. BW 8, Eldridge, and Westpark operate at tolerable LOM during an average 24-hour period.

The remaining arterials have wide fluctuations in LOM. Typically, all major arterial intersections with FM 1093/Westheimer have serious to severe LOM. This undesirable LOM condition is not expected to improve over the planning horizon, specifically at intersections with SH 6, BW 8, and IH 610.

Safety

Safety is a problem at a number of intersections within this corridor. Recent data indicates that safety countermeasures are warranted at several major intersections along FM 1093/Westheimer, such as at Chimney Rock, Dunvale Rd, and the access to Beltway 8.

Future Improvements

Several entities are working together to meet the transit and transportation needs of this corridor. TxDOT has plans to reconstruct IH 610, provide strategically placed direct connectors, and make bridge and frontage road improvements. The Harris County Tollroad Authority (HCTRA) is planning a future Westpark Tollroad. Metro is currently involved in corridor preservation efforts for a future high-capacity transit facility. The Uptown Development Authority has initiated a comprehensive plan to improve overall mobility in the area. In addition to roadway infrastructure and intersection improvements, Uptown will implement a full-scale transportation management system and, an Uptown Shuttle and Uptown Connector transit link. On the western end, The Westchase District has recommended improvements to the intersection of BW 8 and FM 1093/Westheimer. The improvement will likely include a depressed arterial facility.

FM 1960

Overview

The FM 1960 corridor, approximately 37 miles in length and consists of the area one to two miles either side from US 290 on the West to its intersection with US 90. Major facilities within this corridor are SH 249, I – 45N, the Hardy Tollroad and US 59N. Included within the corridor are the Cities of Houston, Spring and Humble and the unincorporated portions of Harris County.

Travel patterns within the FM 1960 corridor are predominately work-oriented in nature, followed by commercial; freight movement is minimal. Trip origins are primarily within Harris and Liberty Counties. Few trips are taken outside the eight-county region. Connections to the other regional corridors are provided via IH-610, I – 45, SH 249, US 59, US 290, the Hardy Toll Road and Beltway 8.

Land use within the FM 1960 corridor reflects multiple land use types. Land use varies from light industrial and commercial along major arterials with residential areas located throughout the corridor. Current land uses east of Lake Houston are mostly undeveloped farm and ranch lands.

At present, FM 1960 does not have any High Occupancy Vehicle (HOV) lanes within its corridor but HOV lanes are available at its intersecting facilities of US 290 and I – 45N. Currently nine commuter routes and four local/other routes operate on FM 1960 or serve transit facilities within the FM 1960 corridor for a portion of their trip. These routes are listed below in Table 7. Total combined average weekday boardings for these routes are 24,542.

Major Attractors

Within the FM 1960 corridor, seven (7) major trip generators and attractors have been identified as shown on Table 3 below. These attractors and generators include George Bush Airport, Willowbrook Mall, two major shopping plazas and 4 major medical facilities.

Demographics

Population and employment within the FM1960 corridor will increase significantly with population increasing by nearly 47 percent while employment increases by 45 percent.

	2000	2022	% Change
Population	238,603	349,528	46.5%
Employment	108,224	157,093	45.2%

Traffic Analysis

Traffic is expected to increase throughout the entire length of the FM 1960 between 2000 and 2025. Areas in the eastern part of the of the corridor will see traffic volumes increase two to three times current volumes. Areas between I-45N and US 290 will see traffic increase more slowly than on the eastern side of I-45N, but there will be significant growth with sections around Willowbrook Mall and SH 249 increasing to over 74,000 vehicles per day using FM 1960. FM 1960, just west of I-45N will have volumes over 86,000 vehicles per day.

Congestion

In 2000, FM 1960 experiences serious to severe congestion along most of its route. Only one small segment of the route is at a tolerable congestion level - Treaschwig Road to Cypresswood east of I – 45N. By the year 2022, all areas along FM 1960 will experience serious to severe congestion between US 290 and I – 45N. Between I – 45N and its intersection with US 90 in Liberty County, FM 1960 will have tolerable areas of congestion, but the area on either side US 59N and from FM 1942 to US 90 will experience moderate to severe levels of congestion.

Safety

In 1998, there were 1,260 crashes identified on FM 1960. Of these crashes, five involved fatalities and 53 involved incapacitating injuries. Some of the major “hot-spots” for crashes within this corridor includes the area around US 290, west of Veterans Memorial, near Kuykendahl Road and the intersection with US 59N.

Future Improvements

MAJOR FM 1960 IMPROVEMENTS	
FM 1960; At Kuykendahl Road to Stuebner-Airline Road; ITS Installation of changeable Lane Assignment System	\$75,000
FM 1960; 0.14km East of Humble–Westfield Road to .20 km east of Lee Road	\$34,880,000
FM 1960; FM 2100 to Liberty County Line; Widen to 4 lane Divided road	\$6,500,000
FM 1960; 0.1mile East of Humble to 0.3mile West of San Jacinto Bridge; Widen to 6 lane divided with curb and gutter, TMS.	\$27,861,000
FM 1960; At Kuykendahl; Construct Grade Separations.	\$10,000,000
FM 1960; 0.40km West of Jones Road to 0.40km East of Jones Road; Construct Grade Separations.	\$6,975,000

Westpark

Overview

The Westpark corridor is approximately 19.9 miles in length and consists of the area bound by Buffalo Bayou on the north, U.S. 59 South and Bissonnet Avenue on the south, Loop 610 West on the east and SH 99 on the west. Major east-west streets include Westheimer Road, Richmond Avenue, Westpark Drive, U.S. 59, Alief-Clodine Road, Bellaire Boulevard, Bissonnet Boulevard and Beechnut/North Braeswood. Major north-south streets include Loop 610, Fountainview, Hillcroft, Fondren, South Gessner, Beltway 8, Wilcrest, Dairy-Ashford, Eldridge, and SH 6 and SH 99. Included within the corridor is Houston and unincorporated portions of Harris County.

There are multiple land uses within the Westpark corridor, varying from light industrial and commercial along major arterials, to major business centers in the Galleria and Westchase areas, as well as residential areas. Most of the growth is in the area east of SH 6. The land between SH 6 and SH 99 is mostly undeveloped and used for farming and ranching, however, this is expected to change as the corridor develops and SH 99 is constructed.

A key east-west feature within the corridor is the Southern Pacific Railroad right of way, purchased by METRO in 1992, that runs from Kirby Drive west to SH 6, paralleling Westpark Drive and Alief-Clodine Road. METRO has sold all but 50 feet of this right of way to the Harris County Tollroad Authority, which, in conjunction with the Fort Bend County Toll Road Authority, is currently in the process of constructing a toll road facility from Loop 610 West to SH 99.

Transit facilities within the corridor include one transit center, two park and rides, and 16 bus routes.

Major Attractors

Within the Westpark corridor, there are seven major trip generators or attractors, including the Galleria, West Oaks Mall, the Westchase Business District, West Houston Medical Center, the Carillon shopping Center, Westchase Mall and the Uptown area.

Demographics

Population and employment within the Westpark Drive corridor will increase 26 and 12 percent, respectively.

	2000	2022	% Change
Population	118,833	149,904	26.1%
Employment	65,226	72,975	11.9%

Traffic Analysis

With the completion of the Westpark Toll Road, traffic volumes along Westpark Drive should decrease when more motorists use the new toll road as their primary means to get to the Galleria and Greenway Plaza areas.

Congestion

In 2000, Westpark Drive experienced no serious or severe congestion based on the 24- hour traffic volumes. Congestion could increase within this corridor as growth continues, especially west of Beltway 8. The construction of the Westpark Toll Road should help relieve expected congestion on FM 1093 (Westheimer Road), Richmond Avenue and Westpark Drive.

Safety

In 1998, there were 4,200 motor vehicle crashes in the Westpark corridor (12 percent of all crashes within the Houston Police Department coverage area) and more than 100 pedestrian accidents (about 1/6 of all pedestrian accidents within the Houston Police Department cover area).

Future Improvements

MAJOR WESTPARK PLANNED IMPROVEMENTS	
Westpark Drive, Wilcrest to Dairy Ashford Road, construct 6-lane divided road.	\$6,300,000
Westpark Drive, Eldridge Road to SH 6, construct 6-lane divided road.	\$3,600,000
Westpark Toll road, Loop 610 to SH6, construct 4-lane toll road.	\$240,000,000

Downtown and the Central Business District Summary

Overview

Downtown Houston is centrally located within Loop 610, is comprised of the Houston CBD and the area immediately south and west. The Houston Central Business District (CBD) is bounded by I-10, I-45 and U.S. 59, and it has a land area of roughly 1.8 square miles. With the Houston CBD and surrounding areas, such as midtown, the Fourth Ward and Old Sixth Ward, downtown Houston is approximately 16 square miles.

The Houston CBD is home to many large corporate companies, including Continental Airlines, Shell Oil, Dynegy, Chevron and Pennzoil-Quaker State Company, Exxon USA and Reliant Energy. Before recent developments, tall skyscrapers and crisscrossing expressways characterized downtown Houston as only a workplace. Now, the Houston CBD has 'Enron Field', and there are plans to build another professional sports arena, as well as a light rail line, transforming it into an area with attractions for all ages and families.

Within the last five years, the area has undergone a resurgence with the investment of private and public money. By winter 1999, projects under construction totaled \$950 million and projects in the design phase totaled an additional \$800 million. Proponents of downtown redevelopment argue that the best time to reinvest in areas experiencing decline or neglect are periods when the regional economy thrives, as it has since the mid-1990s.

Major Attractors

Approximately 100 buildings provide this area with office space. Total existing office space in the Houston CBD is approximately 40 million square feet, with a 7 percent vacancy rate. The Houston CBD contains four hotels with approximately 2,000 rooms for lodging. Total meeting space is more than 600,000 square feet, including some space for meetings from area hotels and the George R. Brown Convention Center. Existing space for churches is approximately 300,000 square feet. Governmental space totals approximately 6 million square feet that includes correctional, court and non-office facilities.

Entertainment space in the Houston CBD is approximately 1 million square feet, including all theatre district facilities (e.g., Bayou Place, Wortham Theatre, Jones Hall and Alley Theatre). 'Enron Field', the newly opened Major League Baseball park, seats approximately 40,000 people. The Houston CBD contains approximately 3 million square feet of retail space. Residential developments exist at the northern part of the CBD and the historic, and completely renovated, Rice Hotel has 312 lofts and apartment units. The midtown area has 1,477 market rate apartment units and the Fourth Ward area has 332 new town houses.

Demographics

Population and employment in the CBD area are expected to grow by 102 and 13 percent respectively.

	2000	2022	% Change
Population	10,169	20,600	102.6%
Employment	159,482	180,677	13.3%

Traffic Analysis

Demand in this area is high and will increase with the addition of future attractions like the new downtown sports arena and others. Traffic problems in downtown Houston center on congestion during peak times and circulation problems during events at 'Enron Field'.

The Houston CBD continues to be a place many where residents commute daily to work. The 1990 census shows that the Houston CBD area has approximately 132,000 workers and approximately 48 percent of area workers who commute to employment centers within Loop 610 travel to the Houston CBD.

Congestion

H-GAC's Congestion Management System identified the downtown area as severely congested. The level of mobility on expressway ramps and major arterials, such as Louisiana and Smith streets, are low and far from free flow conditions.

Safety

In 1998, there were 281 motor vehicle crashes within the CBD (excluding those on the adjacent freeways). These included 12 crashes with incapacitating injuries. Particularly hazardous locations were at Fannin and Walker, where there were six crashes, and at Fannin and St. Joseph, where there were also six crashes. Seven other locations had four crashes each. Given the high traffic volumes in the CBD, these are not high crash risk locations.

Future Improvements

The city of Houston and METRO have begun an ambitious renovation of many downtown streets, including improvements to the associated underground utilities and center median, as well as rebuilding all center lanes. Additional plans are being developed to ensure future access to all downtown components.

A proposed light rail project is planned to pass through the study area. The project is expected to provide a higher level and quality of transit service, and improve mobility and

access to the area. The 7.5 miles of light rail will run from downtown Houston to the Houston Astrodome.

The following is a list of capacity increasing projects in the Downtown area:

Street Name	Project Limits		Project Descriptions
	FR_LOC	TO_LOC	
Connector Street	HOU.S.TON AVE	1-45 @ FRANKLIN	Katy CBD Ramp: Construct easterly portion of HOV Lane Connector Ramp
I-10 W	CBD	Loop 610	Construct 2 HOV Lanes
I-10 W	Loop 610	HOU.S.TON CBD	Reconstruct Main Lanes Ancillary Lanes & 2 HOV Lanes
U.S. 59 NE	GREENS RD	MEDICAL CENTER RD	Construct HOV Lane
1-45 N	MON C/L	N OF CYPRESSWOOD	Construct HOV Lane

Greenway Plaza Summary

Overview

Greenway Plaza area is a major activity center in the eight county region. Many Houstonians work here, and with entertainment attractions such as National Basketball Association league games and popular music concerts many Houstonians play here too.

Greenway plaza located in close proximity to the Uptown/Galleria activity center within the I-610 Loop 2.4 miles southwest of Downtown Houston, is bounded by Southern Pacific Railroad to the west, Alabama Street to the north, Shepherd Avenue to the East and Southwest Freeway (US 59) to the south. Its has a land area of about 1.5 square miles. US 59 and several other major arterials provide access and mobility for many traveling to the area.

Land use

The Greenway plaza development is the centerpiece of the area. The concept called for a fully integrated office, retail, residential and entertainment complex. The Greenway Plaza area comprises of several landuses: Several clusters of multifamily and single family residential development exist on the periphery of Greenway Plaza, totaling approximately 14 million square feet.

Most of the office space lines the Southwest Freeway and other arterials, and it totals about 12 million square feet. Retail space the smallest space of all uses totals about 820,000 square feet excluding retail space found in the Greenway Plaza development itself. Hotel/lodging space totals about 600,000 square feet including Stouffer Presidente Hotel space only. The large entertainment complex, Compaq Center, has a seating capacity of about 12,000 persons.

Demographics

Current year 2000 population shows the area has about 8,000 persons. The average household size is about 2 persons. By 2025 the area population should decrease to approximately 8,004 persons and 4,656 households.

Total employment for 2000 is 67,000 workers and is projected to 99,000 by 2022. The highest current and forecasted employment levels are in Office category.

	2000	2022	% Change
Population	8,124	8,004	-1.5%
Employment	66,867	99,101	48.2%

Traffic Analysis

The main points of egress and ingress are US 59, Richmond and Westheimer streets at Weslayan, Edloe, Kirby and Shepard streets. Automobile is the dominant mode choice followed by bus transit.

Congestion

Like most active centers inside the loop, the levels of congestion on most streets have serious to severe congestion.

Safety

In 1998, there were 136 motor vehicle crashes within the area including two with incapacitating injuries. A particularly hazardous stretch exists on Kirby between Alabama and US 59 where there were 39 crashes. A bad hot spot is at Kirby and Algerian Way, where there were 10 crashes in 1998. Two other crash hot spots are at Kirby and Norfolk, where there were seven crashes, and at Farnham Road and Sandman Road, where there were also seven crashes.

Future Improvements

In this area, there will be no capacity increasing projects in the area during the planning years. However, there are some projects for bicyclists. With bike paths along Weslayan and W. Alabama, mobility for cyclist should improve.

Project Number	County Code	Street	Project Description	Project Sponsor
0912-71-650	HAR	TMC/GREENWAY PLAZA/GALLERIA ON-ST BIKE	TMC/GREENWAY PLAZA/GALLERIA ACCESS ON-STREET BIKEWAY NETWORK-PH 2 (TCM SIP COMMITMEN)	CITY OF HOUSTON /TXDOT

Texas Medical Center

Overview

The Texas Medical Center (TMC), located approximately 2.5 miles south of the CBD, is a densely developed collective of medical facilities that provides superior patient care, research and educational services. The study area is approximately 1.3 square miles and is bounded by Bissonet/Binz to the north, South Braeswood to the south, Almeda Road to the east and South Main to the west. A hierarchical network of major arterials, collectors and local streets serves regional mobility and local access. The network allows efficient and direct access to and from 1-45, U.S. 59, SH 288, and Loop 610.

The land use in the TMC is integrated and mixed, involving numerous distinct site-owner entities. The TMC borders single-family communities to the east and south, and higher-density residential communities to the northwest. The area features several major hospital and medical treatment complexes, universities, medical and dental schools, hotels, banks and parking garages.

The TMC corridor is forecasted to maintain all of its current land use features while introducing new uses, such as multi-family housing, retail and restaurant facilities, entertainment and tourism services. The main campus has the potential to expand by approximately 10 million square feet.

METRO provides local and commuter transit service to the area via an extensive, interconnected network of circulator, standard passenger, commuter, flyer and express services, as well as restricted bus lanes. Several transit centers are contiguous to the study area.

Major Attractors

Major traffic generators include the Astrodome Convention Center, and AstroWorld and WaterWorld amusement parks. Major area landmarks include facilities of international recognition, such as Hermann Park, the Houston Zoo, and Hermann Golf Course.

Demographics

Population and employment growth are forecasted to be 13 and 22 percent respectively.

	2000	2022	% Change
Population	6,931	7,848	13.2%
Employment	54,101	66,062	22.1%

Traffic Analysis

The TMC's existing roadway infrastructure accommodates heavy traffic volumes throughout the day. Increasing volumes are expected to continue through 2025. During an average 24-hour period, the major arterials and intersections operate at a tolerable level of service. Key segments on Kirby, Greenbriar, University, Sunset and Binz will deteriorate to severe levels of service through 2025. This level of congestion will likely have a negative impact on U.S. 59, Loop 610 and SH 288.

Safety

A number of crashes have occurred within the TMC corridor and recent data indicates that safety countermeasures are warranted along several major arterials. The most recent fatalities occurred in the vicinity of Almeda and Ewing. The most frequently occurring vehicle/pedestrian crashes occurred near Almeda and Southmore, and Hermann and Crawford. However, the area directly to the north of this corridor has a lot of pedestrian and bicycle crashes. If bicycle facilities are expanded, then safety design must be an important factor.

Future Improvements

The city of Houston and METRO have begun an ambitious renovation of Fannin and Main streets, including improvements to the associated underground utilities and center median, as well as rebuilding all center lanes. Additional plans are being developed to ensure future access to all of the TMC components.

A proposed light rail project is planned to pass through the TMC corridor. The project is expected to provide a higher level and quality of transit service, as well as improve mobility and access to the area. The 7.5 miles of light rail will run from downtown Houston to the Houston Astrodome.

Future developments also include:

1. Extending existing north-south streets for improved collection/distribution.
2. Extending Bertner Avenue southward.
3. Connecting Cambridge Street to North MacGregor Drive via new bridges.
4. Providing continuity on east-west streets for linkage to other campus facilities.
5. Extending and connecting Herman Pressler Street to Galen Drive.
6. Reinforcing Fannin Street as the area's primary arterial.
7. Creating a "Gateway Plaza" at Holcombe, Fannin and Main.
8. Eliminating grade separations at the intersections of Holcombe and Fannin, and Holcombe and Main.
9. Reconfiguring the existing below-grade right of way for light-rail only access.

Uptown

Overview

The uptown Houston area is a unique urban subset of the city of Houston. It is centrally located, approximately five miles west of the Houston CBD. This area is approximately 2.5 square miles and bound by Chimney Rock to the west, Woodway to the north, Southern Pacific Railroad to the east, and Westpark to the south. A major longitudinal freeway facility, Loop 610, traverses the area and provides regional mobility and local access.

Uptown's existing land use features several single and multi-family residential clusters, a small grouping of public institutional facilities, 23 million square feet of current office space, 4 million square feet of current retail space, 23 hotels, 5,300 hotel rooms and 155 acres of vacant land.

METRO provides local and commuter transit service to the study area. Buses operate in mixed-flow traffic conditions. The service provided represents a complex interconnected network utilizing five basic components. The Northwest Transit Center and Greenway Plaza Transportation Center serve as transfer points. Local routes provide standard passenger service. Commuter routes are provided on Loop 610, Post Oak Boulevard, Richmond Avenue and U.S. 59. Flyer trips and one-way service are also provided throughout the corridor and additional service is proposed with the implementation of the Uptown Connector.

Major Attractors

Major area landmarks include facilities of international recognition, such as the Galleria, Williams Tower (formerly Transco Tower) and Four Oaks Place.

Demographics

In 2000, the population in the uptown area was comprised of approximately 15,500 people living in 9,090 households. Average household size was about 1.7 people. The area's population is growing slowly at approximately 1 percent per year. Regional demographic models predict a decline in total population. This forecast will be further reviewed.

Traffic Analysis

Uptown's steady growth has resulted in a transportation network that is severely congested. The area's peak traffic periods have expanded from the normal one to two hours morning and afternoon to include a continuous peak period from midday to late evening. Increasing traffic volumes are expected to continue through 2025. All of the major arterials and intersections consistently operate at unacceptable levels of service (LOM). Current LOM vary from moderate to severe throughout the day. Projected traffic conditions and forecasted LOM do not indicate any significant improvements.

Loop 610 currently operates with volumes in excess of capacity throughout the workday and does not have a clearly defined peak period. Typically, the peak period is continuous from 7 a.m. to 6:30 p.m., with the highest probability of free-flow conditions occurring between 9 a.m. and 11 a.m. Freeway rights of way are constrained and no added-capacity projects are planned.

Safety

Safety is a problem for pedestrians due to the lack of a clearly defined pedestrian network. In 1998, there were 11 motor vehicle crashes with injuries within the area that involved pedestrians. The crashes occurred mostly along Westheimer (7 crashes), but also along Sage, Yorktown, and Post Oak Boulevard. There were no bicycle-vehicle crashes reported in 1998 in the area, but if a bikeway is developed, safety has to be a major component.

Future Improvements

The Uptown Development Authority has initiated a comprehensive plan to improve overall mobility in the area. The plan has five basic components and describes, in detail, a systematic approach for creating a more efficient street grid and pedestrian network, improving many of the existing streets, intersections and transit routes, as well as implementing a parking management plan. Additionally, the authority lists the widening of San Felipe from Yorktown to Loop 610, pedestrian enhancements, a Westpark Tollroad and a Post Oak Boulevard to Westpark improvement as high priority projects.

Two transit projects are planned, including an Uptown Shuttle for Post Oak Boulevard and an Uptown Connector to connect the Northwest Transit Center to a proposed Southwest Transit Center. In addition to the proposed alternative modal projects previously mentioned, the Uptown Association has developed plans to introduce a full range of transportation management services. The transportation management plan includes an Advanced Traveler Information System (ATIS) that uses a regional computerized traffic signal system (RCTSS), closed circuit television, static and changeable message signing, and telecommunications.

PLANNED IMPROVEMENTS AFFECTING UPTOWN

	LIMITS	# of MAINLANES		FRONTAGE ROADS	
		Existing	Proposed	Existing	Proposed
Loop 610	Westpark to Richmond	8	0	0	4
Loop 610	Richmond to Woodway	8	0	4	4
Loop 610	Westpark to Richmond	Proposed Project: Extend 4 lane Frontage Roads under U.S. 59 and Connect to Westpark			
Loop 610	Westpark to Richmond	Proposed Project: Widen Bridge and Direct Connectors @ U.S. 59 and Construct Ramps			
Loop 610	Richmond to I-10	Proposed Project: Reconstruct Freeway, Provide space for HOV and TSM, Increase median			

