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HOUSTON - GALVESTON REGIONAL TRANSPORTATION STUDY

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INCREASE IN 1992 VEHICLE REGISTRATIONS

Statistics released by the Budget and Finance Division of the Texas Department of Transportation show that vehicle registrations in the eight-county H-GRTS area increased by more than 18,900 during 1992. This annual increase exceeded that of a year ago, which was 10,313. (H-GRTS Newsletter, Fall 1992 issue).

H-GRTS Vehicle Registrations - All Vehicles

| County | 1991 | 1992 | Change | % Change |
|----------------|------------|------------|---------|----------|
| Brazoria | 172,454 | 175,783 | 3,329 | -1.9 |
| Chambers | 21,312 | 21,014 | -298 | -1.4 |
| Fort Bend | 165,365 | 175,035 | 9,670 | 5.8 |
| Galveston | 172,789 | 175,232 | 2,443 | 1.4 |
| Harris | 2,226,657 | 2,211,467 | -15,190 | -0.7 |
| Liberty | 46,088 | 47,254 | 1,166 | 2.5 |
| Montgomery | 156,231 | 172,460 | 16,229 | 10.4 |
| Waller | 24,573 | 26,155 | 1,582 | 6.4 |
| H-GRTS | 2,985,469 | 3,004,400 | 18,931 | 0.6 |
| State of Texas | 13,934,462 | 13,963,403 | 28,941 | 0.2 |

Further comparison of the data shows that while the State of Texas' registrations grew by 0.2 percent, the H-GRTS area increased by 0.6 percent. More than half of the State's 1992 increase of vehicle registrations were in the H-GRTS eight-county area even with a reduction of registrations (-15,190) in Harris County. The largest change (10.4 percent increase) occurred in Montgomery County.



1991 TRAVEL TIME AND SPEED SURVEY

Background

In order to provide quantitative means of evaluating the mobility trends in Harris and the surrounding counties, the Houston-Galveston Regional Transportation Study (H-GRTS) has conducted travel time and speed surveys in this region on a routine basis since 1960. The previous survey was performed in 1988. The 1991 survey was cooperatively performed by the H-GRTS and the Texas Transportation Institute at Texas A&M University.

Data on 1200 miles of highways and major roadways in 100 corridors were collected for the AM peak (6:30-8:30 a.m.), Off-peak (9:30 a.m. to 3:00 p.m.), and PM peak (4:30-6:30 p.m.) periods with emphasis on freeways in Harris County. The travel times and speeds have been summarized in graphic and tabular forms as presented in the enclosed 1991 Travel Time and Speed Survey Map and Matrix.

The data were collected chiefly during the Spring and Summer of 1991 using the "floating car" technique by driving vehicles in the traffic stream. This technique calls for the study vehicle to pass as many vehicles as pass it and therefore "float" with the traffic. A minimum of three runs in each direction was conducted for the two peak periods, while the off-peak collection had at least one run in each direction. Data were generally collected on weekdays excluding Monday mornings and Friday afternoons in order to have a representative sample of typical weekday conditions. Runs affected by nonrecurring

incidents like accidents or heavy rains were discontinued and rerun.

The completion of a new facility can cause significant changes in mobility as exemplified by the opening of the Sam Houston Tollway. A savings of 10 minutes or more per trip can be expected when traveling during peak periods between Sugar Land and the Intercontinental Airport.

Key Findings

- Average outbound PM peak period freeway speed in Harris County was 46.0 mph; improved from 45.6 mph in 1988, 41.1 mph in 1985 and 38.3 mph in 1982, but still trailing the all-time high of 47.1 mph in 1969.
- The average airline distance that could be covered in 30 minutes during the PM peak from downtown Houston along radial freeways was 18.7 miles, up from 16.6 miles in 1988 and 13.7 miles in 1985.
- The area within 30 minutes of travel time from downtown Houston was 765 square miles in 1991 vs. 599 in 1988, and only 276 in 1982.
- Travel to Houston Intercontinental Airport (IAH) from downtown in the evening peak took about 31 minutes via the North or Eastex Freeway; but took only 28 minutes via the Hardy Toll Road. This is a dramatic improvement over the 48 minutes reported in 1985 before the implementation of Hardy Toll Road and the widening of North Freeway (IH 45N).
- Despite the considerable congestion present in the central areas of Houston, over 64 percent of the freeways in Harris County operate with speeds exceeding 50 mph during the peak periods in respective peak directions. Less than

(See Travel Time Survey, Page 4)

EMPLOYEE TRIP REDUCTION PILOT PROGRAM

On November 15, 1990, President Bush signed the 1990 Clean Air Act Amendments (CAAAAs) into law. One of the many requirements of this law is the Employee Trip Reduction (ETR) Program to be implemented in nonattainment areas with severe ozone ratings. The ETR Program requires employers with more than 100 employees to increase the Average Passenger Occupancy (APO) for work trips by 25 percent over the average vehicle occupancy for the region which is 1.17.

The CAAAs established the following goals and deadlines for the ETR Program:

- (1) To register with the Texas Natural Resources Conservation Commission (TNRCC) by September 1, 1993.
- (2) To select an Employee Trip Coordinator by September 1, 1993.
- (3) To conduct a survey of employee travel patterns.
- (4) To submit an ETR Plan between May 15 and November 15, 1994, depending on the number of employees.
- (5) To achieve the APO goal two years after submission of the plan.

The penalties for not meeting these deadlines could be very severe.

In May 1993, the TNRCC began a pilot program to test forms and procedures to be used in the ETR Program. Representative companies from the public and private sector participated in the program. TxDOT was one of the 19 companies that took part in the study.

A summary of the results of the TxDOT survey is presented in the following paragraphs. Of sixteen

hundred people employed by the Houston District, 714 work at the District Headquarters. A total of 702 survey forms were returned for a response rate of 98 percent. The District Offices are located in three work sites including: 7721 Washington Avenue, 8100 Washington Avenue and 6810 Old Katy Road.

The average APO for the district offices was 1.11 persons per vehicle. The APO for the individual sites ranged from 1.078 at 8100 Washington Avenue to 1.118 at 6810 Old Katy Road. The target APO for Harris County is 1.47 passengers per vehicle. In order for the Houston District to reach that goal, the 560 vehicles arriving at the job sites between 6 and 10 a.m. must be reduced by 139 vehicles per day.

The second part of the survey contained attitudinal questions designed to determine what incentives could be used to discourage employees from driving alone. There were 15 transportation measures listed as potential elements to the ETR Plan. These ranged from providing local bus service (to the work site) to including or increasing parking cost.

The most popular incentive for district employees was the compressed workweek. Of 702 respondents, 424 preferred to work four 10-hour days per week. However, the implementation of this single incentive would not reduce trips enough to reach the APO goal. If all 714 employees participated in a compressed workweek, the resulting APO would be 1.36. A successful ETR Plan will have to include several incentives.

To convert work trips from single occupant vehicles to a different mode of travel, the employer must provide a guaranteed ride home for emergencies and unscheduled overtime. For example, people are reluctant to leave the freedom of their personal vehicles if they cannot pick up a sick child or take care of household emergencies.

TxDOT hopes to achieve the APO goal utilizing positive incentives rather than negative incentives such as charging for parking. These negative incentives are the most effective and easiest to implement, but the results are not worth the reduced morale that would be generated among the employees forced to participate in the program.

FREEWAY AND EXPRESSWAY STATUS MAP UPDATED

The Status of Freeway and Expressway System Map is published annually by the H-GRTS Study Office. Enclosed with this Newsletter is the updated 1993 map showing the current status of the planned freeway and expressway system for the eight-county Houston-Galveston Regional Transportation Study Area. The major progress during the past year is discussed below.

1992 Progress

The largest freeway project completed during 1992 was the widening and upgrading of US 59 (Southwest Freeway) from Beltway 8 (West Sam Houston Parkway) to Shepherd Drive. This project also included the Southwest Transitway high-occupancy-vehicle (HOV) lane.

Several major freeway construction projects were let to contract in 1992. These were US 59 (Eastex Freeway) from Greens Bayou to Greens Road; US 290 from FM 359 to Harris County line; SH 99 (Grand Parkway) from north of Oyster Creek to south of FM 1093; SH 249 from Cripple Creek Road to West Rollingwood Road; and Beltway 8 (South Sam Houston Parkway) from east of US 90A to west of FM 521.

HOUSTON-GALVESTON Regional Transportation Study

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Travel Time Survey (Continued from Page 2)

13 percent of the mileage averages speeds below 35 mph.

- Other significant changes in mobility that were observed during the study:

(1) On North Freeway (IH 45N), the delays experienced between Crosstimbers and North Belt due to construction have been greatly eased after the completion of the project. Delays however, occur further to the north near the Harris/Montgomery County line because of traffic congestion.

(2) On Northwest Freeway (US 290), the bottleneck at Little York has been removed. The outbound PM peak speed has been increased from 17 to 57 mph.

(3) Due to the opening of the Sam Houston Tollway on the west side of Houston, mobility for travelers between southwest Houston, Sugar Land, Addicks, Park 10, North Houston, Intercontinental Airport and the Woodlands has been increased. For example, in the AM peak periods of 1988 it took 45 minutes to drive from Sugar Land to Willowbrook Mall. Now it takes only 33 minutes. PM peak travel time from Intercontinental Airport to Jersey Village improved from 38 minutes in 1988 to 24 minutes in 1991.

(4) The West Houston area is experiencing increased commuting time to the CBD and other central Houston locations due to traffic growth and lack of needed improvements. Consequently, the Katy Freeway (IH 10W) corridor is boasting the highest AM peak maximum delay (20.5 minutes) of all the radial freeways in the Houston area. What took 31 minutes in 1988 from the Addicks/Park 10 area to the Astrodome now takes 42 minutes in the AM peak periods. What was a 43 minute drive to Hobby Airport is now a 50 minute trip.

- 1993 preliminary findings show that the completion of the Southwest Freeway (US 59S) widening project resulted in a 13-minute reduction of PM Peak travel time from the CBD to Sugar Land since the 1991 survey.

TRAVEL TIME MATRIX
1991 TRAVEL TIME BETWEEN ACTIVITY CENTERS

| FROM | TO | CBD | MED CT | ASTR | HOBBY | INTRC | CLR LK | SGLD | ADDK | WL BRK | WDLS | KNGW | BAYT | GALL | PASA | JER VLL |
|--|----------|-----|--------|------|-------|-------|--------|------|------|--------|------|------|------|------|------|---------|
| CBD MAIN @ MCKINNEY | Off Peak | - | 11 | 11 | 17 | 25 | 26 | 27 | 21 | 26 | 29 | 24 | 31 | 15 | 19 | 19 |
| | Am Peak | - | 9 | 13 | 16 | 25 | 27 | 27 | 22 | 26 | 30 | 26 | 32 | 18 | 23 | 22 |
| | Pm Peak | - | 10 | 14 | 24 | 28 | 38 | 39 | 30 | 33 | 37 | 35 | 36 | 16 | 22 | 24 |
| MEDICAL CENTER MAIN @ UNIVERSITY | Off Peak | 11 | - | 6 | 19 | 31 | 29 | 24 | 24 | 33 | 36 | 30 | 37 | 14 | 23 | 22 |
| | Am Peak | 8 | - | 6 | 19 | 33 | 29 | 24 | 26 | 35 | 39 | 34 | 40 | 15 | 24 | 25 |
| | Pm Peak | 10 | - | 8 | 28 | 39 | 41 | 34 | 35 | 42 | 47 | 50 | 45 | 19 | 27 | 29 |
| ASTRODOME KIRBY @ IH 610 | Off Peak | 11 | 6 | - | 13 | 30 | 22 | 20 | 22 | 31 | 36 | 30 | 36 | 9 | 17 | 20 |
| | Am Peak | 13 | 6 | - | 13 | 31 | 22 | 22 | 24 | 33 | 39 | 31 | 36 | 12 | 18 | 23 |
| | Pm Peak | 12 | 7 | - | 19 | 36 | 33 | 27 | 36 | 39 | 44 | 40 | 39 | 13 | 19 | 30 |
| HOBBY AIRPORT AIRPORT ENTRANCE | Off Peak | 17 | 19 | 13 | - | 33 | 14 | 32 | 31 | 37 | 40 | 34 | 32 | 21 | 11 | 29 |
| | Am Peak | 19 | 21 | 14 | - | 36 | 14 | 36 | 35 | 39 | 43 | 37 | 35 | 26 | 12 | 35 |
| | Pm Peak | 19 | 25 | 17 | - | 40 | 16 | 45 | 43 | 46 | 48 | 52 | 39 | 30 | 13 | 37 |
| INTERCONTINENTAL AIRPORT TERMINAL B | Off Peak | 25 | 34 | 30 | 34 | - | 43 | 44 | 37 | 21 | 25 | 11 | 45 | 33 | 36 | 23 |
| | Am Peak | 27 | 37 | 36 | 35 | - | 45 | 47 | 36 | 21 | 26 | 10 | 44 | 37 | 37 | 24 |
| | Pm Peak | 25 | 35 | 31 | 41 | - | 52 | 48 | 38 | 23 | 31 | 12 | 49 | 38 | 38 | 24 |
| CLEAR LAKE CITY BAY AREA BLVD. @ IH 45 S. | Off Peak | 26 | 28 | 22 | 15 | 43 | - | 41 | 40 | 46 | 49 | 43 | 31 | 30 | 18 | 38 |
| | Am Peak | 33 | 36 | 29 | 18 | 51 | - | 50 | 50 | 54 | 58 | 51 | 34 | 41 | 18 | 49 |
| | Pm Peak | 25 | 31 | 24 | 15 | 46 | - | 51 | 49 | 52 | 55 | 58 | 39 | 36 | 19 | 43 |
| SUGAR LAND SH 6 @ US 59 S. | Off Peak | 27 | 26 | 22 | 34 | 45 | 43 | - | 21 | 32 | 50 | 46 | 52 | 19 | 37 | 22 |
| | Am Peak | 37 | 34 | 28 | 41 | 48 | 50 | - | 21 | 33 | 52 | 58 | 64 | 29 | 46 | 23 |
| | Pm Peak | 26 | 24 | 21 | 40 | 48 | 53 | - | 23 | 36 | 58 | 64 | 60 | 20 | 39 | 24 |
| ADDICKS/PARK 10 SH 6 @ IH 10 | Off Peak | 21 | 25 | 23 | 31 | 38 | 40 | 21 | - | 22 | 40 | 39 | 46 | 18 | 35 | 12 |
| | Am Peak | 39 | 43 | 42 | 50 | 42 | 60 | 20 | - | 27 | 46 | 52 | 65 | 31 | 55 | 17 |
| | Pm Peak | 23 | 28 | 28 | 43 | 37 | 55 | 22 | - | 25 | 46 | 49 | 51 | 24 | 41 | 13 |
| WILLOWBROOK AREA SH 249 @ FM 1960 | Off Peak | 26 | 32 | 32 | 35 | 20 | 44 | 33 | 23 | - | 25 | 30 | 49 | 27 | 39 | 10 |
| | Am Peak | 31 | 41 | 39 | 40 | 22 | 49 | 34 | 23 | - | 25 | 33 | 51 | 39 | 42 | 11 |
| | Pm Peak | 27 | 39 | 35 | 45 | 22 | 57 | 34 | 24 | - | 30 | 33 | 53 | 32 | 43 | 10 |
| WOODLANDS WOODLANDS @ IH 45 N. | Off Peak | 29 | 37 | 36 | 40 | 25 | 49 | 49 | 42 | 26 | - | 26 | 54 | 38 | 43 | 28 |
| | Am Peak | 37 | 44 | 44 | 43 | 26 | 53 | 55 | 44 | 27 | - | 26 | 54 | 45 | 45 | 32 |
| | Pm Peak | 30 | 38 | 40 | 49 | 26 | 60 | 53 | 43 | 28 | - | 27 | 58 | 42 | 46 | 29 |
| KINGWOOD KINGWOOD DR. @ US 59 N. | Off Peak | 24 | 33 | 30 | 33 | 10 | 42 | 43 | 39 | 31 | 25 | - | 45 | 34 | 35 | 33 |
| | Am Peak | 32 | 41 | 38 | 40 | 11 | 50 | 52 | 47 | 32 | 27 | - | 46 | 43 | 42 | 35 |
| | Pm Peak | 25 | 35 | 31 | 41 | 10 | 52 | 58 | 49 | 33 | 27 | - | 48 | 39 | 38 | 34 |
| BAYTOWN DECKER DR @ TEXAS AVE | Off Peak | 31 | 39 | 35 | 32 | 44 | 29 | 50 | 46 | 50 | 54 | 44 | - | 40 | 25 | 44 |
| | Am Peak | 39 | 45 | 40 | 36 | 49 | 31 | 57 | 52 | 53 | 58 | 49 | - | 47 | 20 | 49 |
| | Pm Peak | 32 | 42 | 39 | 40 | 48 | 37 | 66 | 55 | 54 | 57 | 51 | - | 47 | 32 | 49 |
| GALLERIA WESTHEIMER @ POST OAK | Off Peak | 15 | 15 | 11 | 22 | 33 | 31 | 18 | 19 | 27 | 37 | 33 | 40 | - | 26 | 17 |
| | Am Peak | 16 | 17 | 10 | 24 | 33 | 33 | 18 | 18 | 27 | 37 | 34 | 41 | - | 29 | 17 |
| | Pm Peak | 19 | 17 | 13 | 32 | 41 | 45 | 27 | 26 | 39 | 49 | 53 | 48 | - | 31 | 27 |
| PASADENA SOUTHMORE @ SHAVER | Off Peak | 19 | 23 | 16 | 12 | 35 | 19 | 35 | 34 | 40 | 44 | 35 | 29 | 24 | - | 32 |
| | Am Peak | 21 | 25 | 18 | 12 | 37 | 18 | 39 | 39 | 42 | 46 | 37 | 28 | 30 | - | 36 |
| | Pm Peak | 26 | 26 | 18 | 16 | 38 | 22 | 46 | 44 | 44 | 46 | 50 | 32 | 31 | - | 38 |
| JERSEY VILLAGE US 290 @ BW 8 | Off Peak | 19 | 23 | 22 | 29 | 23 | 39 | 23 | 13 | 10 | 28 | 33 | 44 | 17 | 33 | - |
| | Am Peak | 28 | 34 | 32 | 41 | 25 | 50 | 23 | 13 | 10 | 28 | 35 | 53 | 28 | 44 | - |
| | Pm Peak | 20 | 25 | 25 | 39 | 25 | 50 | 24 | 14 | 12 | 33 | 36 | 47 | 21 | 36 | - |

