Houston TranStar
2010 Annual Report

The Houston TranStar Consortium is a Partnership of Four Government Agencies Responsible for Providing Transportation Management and Emergency Management Services To the Greater Houston Region

INTRODUCTION

Houston TranStar is a formal partnership among the principal transportation and emergency management agencies in Harris County, including:

- Texas Department of Transportation (TxDOT);
- Metropolitan Transit Authority of Harris County (METRO);
- Harris County (including Traffic & Transportation Group, Harris County Toll Road Authority, and Office of Homeland Security & Emergency Management); and
- The City of Houston.

Houston TranStar Facility

Established in 1993, Houston TranStar provides for multi-agency operations and management of the region's transportation system and has evolved into a primary resource from which multiple state, county and local agencies respond to incidents and emergencies in Harris County and beyond. Houston TranStar plays a pivotal role in the travel of people and goods in the greater Houston region, with an estimated savings to motorists of nearly $2.8 billion in reduced travel time costs over the 14 years of Center operation from 1997 to 2010.

This document is the 14th annual report for the Houston TranStar Transportation Management and Emergency Operations Center. This annual report provides a review of the performance of the center and summarizes the estimated return on investment as quantified by the estimated benefit/cost ratio. It also includes conservative estimates of the impact of center operation on regional mobility (travel time, speed and delay), customer satisfaction, and energy and environmental benefits.

In 2010, the reduction of travel time attributable to Houston TranStar operation was estimated to be almost 11.7 million vehicle-hours. This level of delay savings has a corresponding value of over $238 million in road user cost savings and over $58 million (or more than 21 million gallons) in reduced fuel consumption.

The total estimated benefits of Center operation in 2010 were over $296 million. Comparing the annualized TranStar operating cost estimate of $26 million to the estimated annual benefit of $296 million yields an estimated benefit/cost ratio for Houston TranStar center operation of 11.4.

Houston TranStar's Mission

It is the mission of Houston TranStar and its partner agencies to provide highly effective transportation and emergency management services through the combined use of the partners' collective resources to maximize safety and mobility to the public.

On the Cover: Downtown Houston Skyline with Interstate 45 passing over Buffalo Bayou
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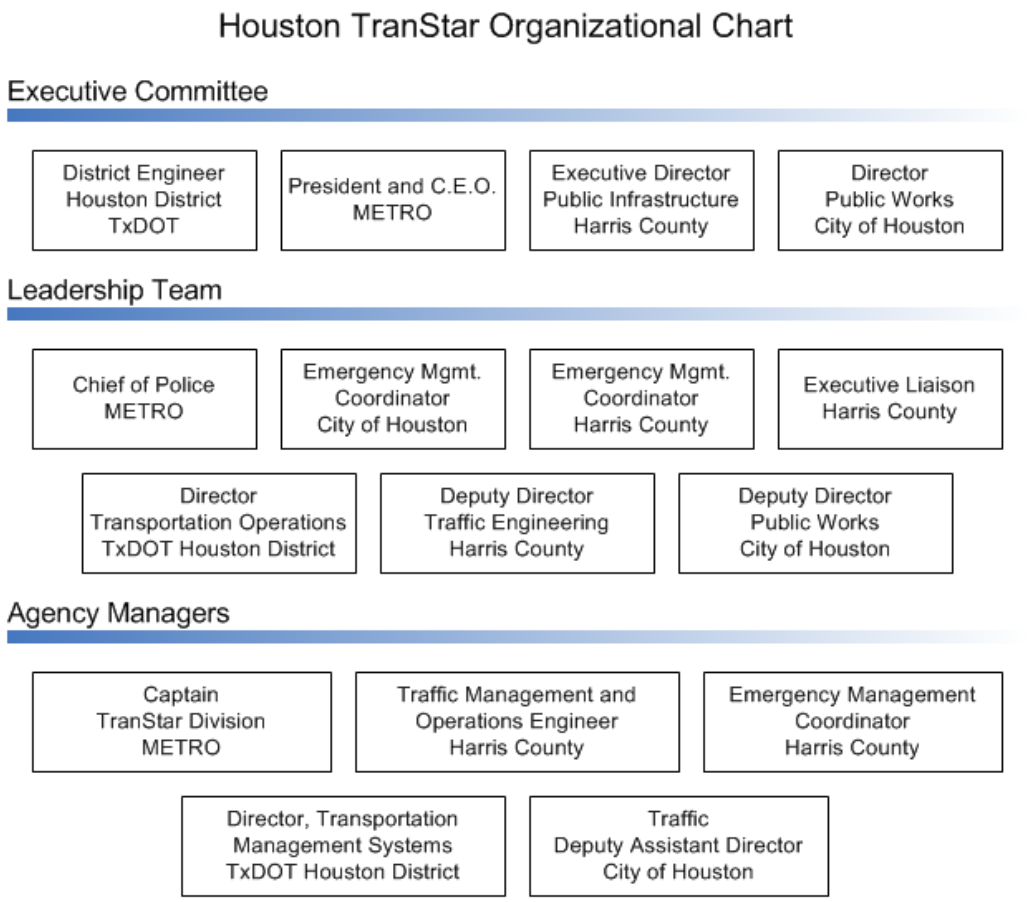
TRANSTAR OPERATIONS FRAMEWORK

Houston TranStar is staffed by employees from each of the four member agencies which support the three levels of management in operating the programs housed in the Center.

Operation of the Center is coordinated by a small management staff that is responsible for operating and maintaining Houston TranStar facilities, coordinating multi-agency activities, coordinating budget preparation, hosting workshops and meetings, conducting facility tours, and managing public information activities. The three-tiered management structure and functions of the three committees are:

- Executive Committee – includes agency- or division-level executive administrators; the committee sets policy and manages fiscal and staffing matters;
- Leadership Team Committee – includes administrators of the transportation and emergency management groups; the team administers implementation of various projects and activities and reviews funding commitments; and
- Agency Managers Committee – includes managers of the transportation and emergency management groups; the agency managers are responsible for daily operations.



SUMMARY OF 2010 ACTIVITIES

In 2010, the TranStar Partner Agencies continued transportation system operations and emergency response. Significant agency activities at the center in 2010 are highlighted in the following sections of this report. Some of these highlights and significant accomplishments of TranStar included:

- Harris County Office of Homeland Security and Emergency Management had 37 activations, responses or monitoring events in 2010. The most significant included:
    - Winter weather events in January and February;
    - Overturned fuel tanker truck in the City of Bellaire (impacting IH-610 and US-59) in March;
    - NCAA Basketball Regional Finals in March; and
    - Activations for Hurricane Alex in June and Tropical Storm Hermine in September.

- In January, Federal Emergency Management Administration Director Craig Fugate came to Houston TranStar and held a media conference with Houston Mayor Annise Parker, Harris County Judge Ed Emmett, Congresswoman Sheila Jackson Lee and others regarding Hurricane Ike assistance.

- In January, travel time monitoring coverage was extended on State Highway 288 from South Beltway 8 to State Highway 6, an additional 7.0 miles of coverage in Brazoria County.

- In January, Houston TranStar announces an iPhone-enhanced version of the mobile website.

- TxDOT deployed the initial phases of travel time monitoring on rural sections of IH-45 north of The Woodlands (FM 1488) to Huntsville, Texas using the Bluetooth-based Anonymous Wireless Address Matching System (AWAM). The initial deployment was over 42 miles in length. The second phase deployed in 2010 was from Huntsville to Fairfield, Texas (an additional 75 miles). The system provides travel time monitoring support in the event of evacuations, but will be available to the public 24/7/365.

- Significant efforts began in 2010 to restructure the TranStar control room and viewing room as part of the floor console upgrade project. To be completed in 2011, this upgrade will increase the number of consoles on the floor from 29 to 72.

- Houston TranStar was a key player in the Intelligent Transportation Society of America's Annual Meeting May 3-5, 2010 at the George R. Brown Convention Center. More than 2,000 professionals took place in the conference, with tours of Houston TranStar included in conference activities. As part of the conference, ITS America invited students from local high schools to attend the conference and tour TranStar. More than 160 students and staff from six local high schools attended the conference and tours.

- In March, the first Houston TranStar Public Service Announcement (PSA) was finalized and delivered to local television stations for inclusion in their PSA rotation. *Water on the Road* informed drivers about the dangers of driving on flooded roadways.

- Houston TranStar unveiled its interactive hurricane evacuation status map, to be used by Emergency Management Offices in the region. This application received the ITS America *Smart Solutions Spotlight* award in April.

- Forty-four Harris County Toll Road Authority cameras were brought online in the CCTV subsystem and placed on the Houston

SUMMARY OF 2010 ACTIVITIES

TranStar website for the Hardy Toll Road and Fort Bend Tollway. Total camera coverage then exceeded 730 CCTV locations.

- TxDOT activated 12 wireless-based CCTV cameras along SH 6 from IH-45 Gulf Freeway to FM 521.

- In May, an article ran in The Tribune (focusing on Atascocita, Humble, Kingwood and Lake Houston) about *Together Against the Weather*, the special needs outreach effort for hurricane preparedness. Houston TranStar, H-GAC and others were involved in the article's creation.

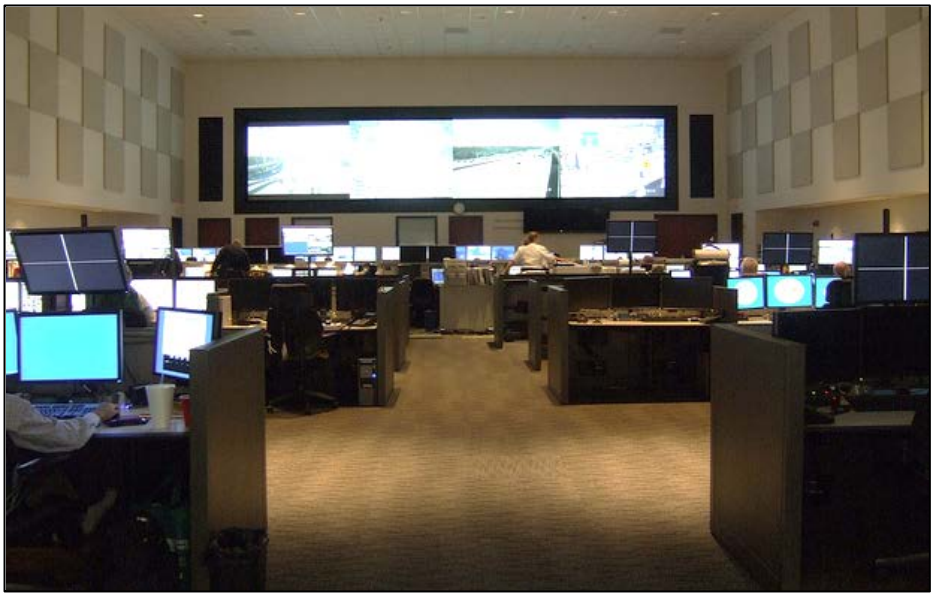
- In June, HCOHSEM kicked off hurricane season 2010 with a media conference attended by Harris County Judge Ed Emmett and City of Houston Mayor Annise Parker.

- In July, representatives from the four partner agencies attended an Incident Management workshop facilitated by the Federal Highway Administration to discuss procedures and recommended implementation of national and international best practices.

- In September, TranStar hosted the *ITS Cabinet Version 2* national Steering Committee meeting. This meeting extended the national standard for the federal ITS cabinet specifications, of which Houston TranStar partner agencies are leaders in development and deployment of the technology.

- In August, diesel-powered emergency electricity generators #2 and #3 were installed at the center. These generators will provide additional backup capability and will also provide the additional capacity for backup power for future center expansion.

- The Greater Houston Partnership held its Transportation Committee meeting at Houston TranStar, giving local business leaders more exposure to the center and the activities which take place within the facility.



Houston TranStar Control Room

- The center hosted more than 2,200 visitors during the year. Visitors included local, state, national and international citizens and officials. Visitors included attendees to local conferences, including ITS America and the Association of Public Safety Communications Officials. In addition to visitors from across Texas and the U.S. the center hosted delegations from Taiwan, China, the United Arab Emirates, and the Netherlands.

2010 HOUSTON TRANSTAR PARTNER AGENCY ACTIVITIES

The following sections summarize each partner agency's activity during 2010. This includes various measures of performance of the center and programs operated from Houston TranStar.

Texas Department of Transportation

The Texas Department of Transportation (TxDOT) is responsible for traffic management of freeways and state-maintained arterial highways in the region. TxDOT's Computerized Traffic Management System (CTMS) has been in continuous deployment on Houston area freeways since the late 1980s. The total extent of the system is about 857 directional miles, including 768 directional freeway miles and 89 miles on HOV and Managed Lanes. Also not separately monitored are the non-barrier-separated HOV "diamond lanes" on US-59 (Southwest) and IH-10 (Katy Freeway) as these are currently included with mainlane monitoring.

Major components of the CTMS include CCTV, DMS, highway advisory radio (HAR), freeway entrance ramp flow signals, travel time monitoring using the Automatic Vehicle Identification (AVI) system, and related communications systems and central facility computer systems.

TranStar's traveler information systems are the cornerstone of the partner agencies' traffic management function and its ability to respond to and manage incidents. Monitoring systems at Houston TranStar provide extensive information of value to motorists as well as to traffic management operators at Houston TranStar. TxDOT operates and maintains this system for TranStar. Information is provided to motorists by four primary means: DMS, HAR, the Internet (by both desktop and mobile Internet formats), and the local media.

Total TxDOT ITS field equipment deployed as of the end of 2010 included:

- Closed Circuit Television;
  - 661 freeway CCTV cameras;
  - 71 regional hurricane evacuation cameras (on rural and/or remote routes);
- Dynamic Message Signs – 218 total DMS;
  - 172 for freeway operations;
  - 41 for HOV and park and ride operations;
  - 5 portable units;
- Highway Advisory Radio;
  - 12 fixed transmitting locations;
  - One portable transmitting station;
- Radar-based Vehicle Volume and Speed Detection – 104 total detectors;
  - 28 locations on evacuation routes (primarily on rural and/or remote highway routes);
  - 76 locations on freeway facilities in the urban area, including 30 on the IH-10 Managed Lanes operated in coordination with HCTRA;
- Flow Signals in Operation – 86 on six facilities (IH-45 North, IH-45 Gulf, US-59 Southwest; US-290 Northwest, IH-610 North Loop, and IH-610 West Loop); and
- Travel Time Monitoring System – 857 directional miles of coverage.

2010 HOUSTON TRANSTAR PARTNER AGENCY ACTIVITIES

The 213 permanent roadside DMSs provide information on traffic incidents and planned construction, giving location, travel direction, and nature of the incident or activity. The system is also used to display current travel times; weather alerts; and Amber (missing child), Silver (missing elderly or disabled persons), and Blue (law enforcement-related) Alerts.

There were more than 239,000 operator activated messages and almost 1.6 million automated messages displayed on DMSs in 2010. The total number of operator-activated and automated messages increased 5.9% over estimated 2009 levels, while the total number of state-mandated Amber, Silver, and Blue Alert messages increased more than 10% over 2009 levels, mostly because of an increase of over 17% for Silver Alert messages. Amber Alerts decreased by 30% in 2010 as compared to 2009.

Other DMS message categories which changed significantly in 2010 (over 2009 levels) were:

- Incidents – up 8%;
- Road closures – up 241%;
- Ferry wait times – up 30%;
- Safety campaigns – up 86%;
- Weather events – up 43%;
- Ozone alerts – up 94%;
- Informational messages – up 190%;
- Traveler information for special events – up 31%; and
- Traffic control information for special events – down 63%.

TxDOT operators use HAR broadcasts to disseminate travel information via the 12 fixed HAR sites located throughout the area. HAR was activated to broadcast 276 messages in 2010, a significant decrease from the 2,876 messages broadcast in 2009. In 2010, based on the perceived ineffectiveness of the HAR system and ongoing operational costs, TxDOT began a gradual decommissioning of the system.

The types of DMS messages posted in 2010, and the corresponding estimated number of messages posted included:

- Operator Activated (239,400 total);
  - 76,200 operator activated messages for incidents;
  - 65,400 operator activated messages for road closures or construction;
  - 6,100 operator activated messages for weather-related events, including
    - 4,600 for general weather events, including hurricane preparation;
    - 1,500 ozone alerts;
  - 61,100 operator activated messages for public service messages, including,
    - 16,700 for safety campaigns;
    - 24,000 HCTRA's PEAT assistance information;
    - 20,400 for other informational messages;
  - 9,000 operator-activated messages for Special Events;
  - 5,860 Amber, Silver, and Blue Alert messages;
    - 730 for Statewide Amber Alerts;
    - 230 for Local Amber Alerts;
    - 4,900 for Silver Alerts;
    - 0 for Blue Alerts; and
  - 15,700 Galveston-Port Bolivar Ferry wait time messages.

- Automated:
  - 1,569,000 Freeway travel time messages.

2010 HOUSTON TRANSTAR PARTNER AGENCY ACTIVITIES

City of Houston

The City of Houston Traffic Operations Branch, located at Houston TranStar, directs the design and installation of new traffic signals, operates and manages the city's signal system, and oversees operations and development of the signal communications infrastructure. The need for good traffic signal operation has never been greater. Traffic congestion is a major issue for Houstonians, making signal timing optimization an excellent investment with significant benefits for our city's future traffic operations. Houston has more than 2,400 signalized intersections maintained and operated by the city.

The Public Works and Engineering Department's Traffic Signal Timing Optimization Program (TSTOP) is a coordinated effort between many agencies to ensure the city's traffic signals are using the most up-to-date traffic data, while taking advantage of the most recent technologies to produce new customized signal timings. TSTOP'S revolving program is scheduled to revisit each major corridor each four years for retiming. The central approach of TSTOP is to provide an optimized level of traffic signal operation on the city's most heavily-traveled corridors and throughout some of its most heavily-populated employment areas.

In addition to providing the program management for TSTOP, the Traffic Operations Branch is responsible for developing signal optimization plans for the selected zones. The Traffic Operations Branch's role in this process consists of field data collection, timing plan design, and signal timing implementation. Approximately 800 traffic signals are evaluated and optimized each year. During 2010, corridors in the far western portion of the City (south of IH-10 and west of the Sam Houston Toll Road), Kingwood and east Houston were evaluated and traffic signal timing adjustments were made.

Evaluations of TSTOP corridors have indicated travel time savings of 10 to 25 percent. The City also actively coordinates signal operations in work zones and at political boundaries with TxDOT and Harris County.

Communications between Houston TranStar and traffic signals have always been problematic within the City using a combination of different technologies including fiber optics, twisted pair, cellular modems and other technologies. In 2009, the City of Houston began investigating the use of WiMax radios as a cost effective communications solution to provide reliable communications between field devices and Houston TranStar. The preliminary testing was successful and the City of Houston pursued American Reinvestment and Recovery Act (ARRA) funds to pursue the city-wide implementation of a WiMax communications system. The installation of field equipment began in late 2010 and will continue through 2011.

Additionally, the City Traffic Operations Branch reported the following in 2010:

- Completed final design for the West Houston ATMS project;
- Continued research with the Texas Transportation Institute into the use of Bluetooth technology as a probe based technology for calculating arterial travel times while beginning deployment for a test area in West Houston; and
- Continued joint operations of the Mobility Response Team with the Houston Police Department.

2010 HOUSTON TRANSTAR PARTNER AGENCY ACTIVITIES

Metropolitan Transit Authority of Harris County

The Metropolitan Transit Authority of Harris County provides bus and light rail transit services as its core function but is also involved in other transportation and law enforcement functions. METRO is an active partner in the operation of Houston TranStar, and by using Houston TranStar's collection of ITS technologies, METRO provides improved service to the Authority's patrons. METRO programs operated from Houston TranStar include METRO bus and METRORail dispatch, METRO Police Communication Section operations, traffic signalization systems, HOV management systems, SAFEClear and incident management programs. METRO highlights for 2010 include:

- During 2010, Metro PD assumed specific responsibilities regarding the SAFEClear Program from the City of Houston. During the initial stages, METRO Police were trained by Houston Police officers over several weeks regarding SAFEClear procedures. The goal of the SAFEClear Program is to get vehicles and passengers off of the freeway as quickly and safely as possible.

- The METRO Motorist Assistance Program (MAP) consists of civilian staff members who continued to provide METRO MAP services in close coordination with the SAFEClear program. Both METRO MAP and SAFEClear on the HOV lanes are coordinated through Houston TranStar in partnership with the Houston Police Department and the SAFEClear Management team. In 2010, METRO's MAP personnel assisted 18,303 motorists on regional freeways, more than 3,300 more than in 2009.

- METRO continued efforts to prepare for major incidents through on-going meetings and training events with TranStar partner agencies.

- METRO continued remote security monitoring of the Park and Ride facilities through the use of the METRONet System from Houston TranStar. While incidents reported in 2010 decreased 29% over 2009 levels, several measures were continued to assist with deterring crime on Park and Ride facilities. Steps to close park and ride lots during non-peak hours allowed TranStar staff to remotely open and close a facility based on patrons request. Additional staff was assigned at 810 N. San Jacinto (Metro Police Headquarters) to assist with the monitoring of cameras on Park and Ride facilities from our situation room. After an incident a METRO Police Officer will sit on the facility to ensure that suspects would not return. A fail/pass report card is placed on patron's vehicles pointing out crime prevention tip specific to that vehicle. Additional steps were taken to alert TranStar staff on all behaviors and movements within Park and Ride Facilities.

METRO maintained an increased state of situational awareness during the 2010 hurricane season, and continued to adjust from past lessons learned following the 2008 hurricane season. While there was no local hurricane impact during the 2010 season, METRO, like many partner agencies, continued their planning and preparation focus with partner agencies as planned. During 2010, METRO continued to review Homeland Security and FEMA practices.

2010 HOUSTON TRANSTAR PARTNER AGENCY ACTIVITIES

Harris County Traffic Management

The Harris County Public Infrastructure Department's Traffic Maintenance Group (TMG) is responsible for the operation and maintenance of the County's traffic signal infrastructure, which includes the fiber optic interconnect communications network. The year of 2010 included several interesting projects that are an integral part of our system and of our partnering with our sister agencies at Houston TranStar.

TMG coordinated with the Harris County Information Technology Center (ITC) to further enhance the incident management message switch developed for the Harris County Toll Road Authority (HCTRA). ITC has identified this technology as a key component of their planned wireless communications and information backbone now being implemented by the Houston Ship Channel Security District (HSCSD).

TMG continued coordination with various parties regarding the installation phase of the Houston Ship Channel Security District (HSCSD) project, and provided comments and guidance during the construction phase. In addition, TMG has assumed maintenance responsibilities for the HSCSD equipment associated with this project. For this purpose, five technicians received training and certifications related to maintaining the Security System.

TMG assisted the contractor for the HSCSD with moving the Head-End Servers from the Washburn Tunnel to TranStar, and with installing the Command and Control workstation into the Emergency Operations Center. Video and Data are now flowing from the ship channel area to both TranStar and HCTRA's Dairy Ashford Center over the 10 GigE Network.

Eleven intersections along the East Sam Houston Toll Road have been completed, including three split-diamond intersections using distributed Intelligent Transportation Systems (ITS) Cabinet Hardware via fiber optic cable. Signal timings are completed to provide coordination along the East Sam Houston Toll Road main lanes. TMG was the first to deploy a traffic signal control system with this fiber optic interconnected I/O (input/output) technology.

TMG partnered with HCTRA and TxDOT to oversee Harris County contract maintenance resources used to repair existing cameras and ITS infrastructure on the Sam Houston Parkway. Though originally a TxDOT function, TxDOT and Harris County agreed that TMG would assist with equipment maintenance and repairs under existing agreements to enhance incident management along the toll road corridor.

TMG partnered with TxDOT to complete the design, installation/modifications of 115 intersections in the Harris County area under the Congestion Mitigation Air Quality (CMAQ) Program. Additionally under this program, a 63 mile network of fiber optic interconnect communication cables has been designed and is now under construction.

TMG deployed progression timing plans along Beltway 8 within the limits of HCTRA's East Belt Construction Project as well as special event timing plans for Shell Houston Open along Beltway 8 to expedite the departure of traffic from the event. Also completed was coordination along the Spencer Highway corridor from SH 146 to Center Street. The coordination timing along Fairbanks – North Houston Road was upgraded from US-290 to Sam Houston Tollway.

TMG leads the industry in several areas. For instance, TMG was the first to deploy 2070 controllers with Linux software. For the HCTRA Westpark Tollway, TMG maintains five color Dynamic Message Signs in the Houston area. At the Jesse Jones Toll Bridge, TMG maintains the warning system for rerouting traffic. TMG also maintains an Artificial Intelligence Platoon

2010 HOUSTON TRANSTAR PARTNER AGENCY ACTIVITIES

Progression System (ACS Lite) along Memorial Drive, which is a pilot program for the Federal Highway Administration.

The Traffic Maintenance Group and the Office of Homeland Security and Emergency Management highlighted Houston TranStar's regional emergency management role as part of the Association of Public Safety Communications Officials (APCO) National Meeting.

TMG partnered in the E-Views Preemption System presently deployed in Northeast Harris County by Emergency Services District 11, and continues to work with TxDOT and Emergency Services District 11 on pre-emptive signal timing. Their work was highlighted in "Public Safety Communications: Getting the Green Light," in Public Safety Communications magazine published November 18, 2010.

TMG hosted the ITE ITS Cabinet Standard, Version 2, National Steering Committee meeting at Houston TranStar during the week of September 13-17. Houston TranStar partner agencies are leaders in development and deployment of the ITE ITS National Cabinet Specification Standard, Version 1.

Harris County Traffic staff testified before the Texas House of Representatives Subcommittee on Traffic Signal Operations and provided information on more efficiently using signalized intersections.

Harris County Traffic staff members were active at the ITS America meeting in Houston in May 2010. Staff gave a presentation on interagency data sharing at the meeting. Harris County staff also worked alongside Houston TranStar's Public Information Officer to provide a response to TxDOT's ITS centralization plan.

Harris County Office of Homeland Security and Emergency Management (HCOHSEM)

Harris County has a population of more than four million people, making it the third-largest county in the United States. There are 34 cities in Harris County, including Houston, the nation's fourth-largest city. Harris County also is home to the Port of Houston and the nation's largest petrochemical complex.

Its location makes Harris County prone to petrochemical hazards and vulnerable to hurricanes; nevertheless, HCOHSEM stands ready to activate its Emergency Operations Center (EOC) for any natural or man-made disaster. In the past, the EOC has activated for weather events (including floods, hurricanes and wildfires) to incidents involving pandemics, hazardous materials and industrial accidents.

Houston TranStar Emergency Operations Center

2010 HOUSTON TRANSTAR PARTNER AGENCY ACTIVITIES

Harris County has made a strong effort to gather regional input and participation so as to become a best practice for regional planning. In doing so, the HCOHSEM is able to assist jurisdictions with basic planning concepts so that all emergency partners are prepared to respond to any type of disaster. Teamwork and good communication skills allow us to assist others. The success that this brings is the ability to mount an all-hazards approach to making our community more resilient.

In 2010, FEMA approved HCOHSEM's revised Local Mitigation Action Plan. The Basic Plan and its 22 annexes outline how the county will respond to an incident. HCOHSEM also wrote a Business Commodities Plan designed to work in conjunction with the Harris County Points of Distribution (POD) plan. The Business Commodities Plan establishes how a Business Commodities Report will be created to provide a real time operational decision making tool with the necessary information to support local government response efforts, specifically to assist in determining the need to open or close POD locations in Harris County.

New technology, including audio visual equipment and new radios, has brought the EOC up to date. Training and exercises have educated local officials and emergency partners on the most effective way to prepare for, respond to and recover from a disaster. HCOHSEM's vigorous public education and outreach efforts also attribute to creating a more resilient community.

HCOHSEM is on alert 24/7 and is always ready to exercise its basic emergency management plan. In doing so, the office is meeting the growing expectations of emergency management officials by delivering:

- Coordination and maintenance of a comprehensive emergency management plan;
- Successful activation of the EOC to coordinate and support efforts in response to emergencies and disasters;
- Dynamic public education and outreach programs;
- Timely and accurate information to residents, elected officials, the media, partners and other stakeholders; and
- Comprehensive classes, drills and exercises to help partner agencies prepare for and respond to emergencies.

Houston TranStar Emergency Operations Center

2010 HOUSTON TRANSTAR PARTNER AGENCY ACTIVITIES

Hurricane Season

The 2010 Atlantic hurricane season was one of the busiest on record. A total of 19 named storms formed in the Atlantic Basin. Of those, 12 became hurricanes and five reached major hurricane status of Category 3 or higher.

HCOHSEM monitored all hurricanes throughout the 2010 season, keeping a close eye on Hurricane Alex, Tropical Depression #2 and Tropical Storm Hermine that had Texas in their paths. Fortunately, Harris County was spared.

On-Call

The On-Call program provides our response partners with 24-hour access to a trained staff member for the reporting of significant events and after-hour resource requests. The calls range from severe weather inquiries to assistance requests for high impact chemical spills. In 2010, On-call received 60 documented notifications requiring more than 480 hours of staff time.

Industry

HCOHSEM's Operations team was involved with various industrial and hazardous material emergencies during the year. This includes supporting the Harris County Hazmat team with on-scene safety, emergency communications to community leaders and serving as liaison with partner agencies. In general, the department assists the Texas Division of Emergency Management, State Operations Center, U.S. Department of Homeland Security and the National Response Center to gather information on industrial incidents.

HCOHSEM's new technology systems allows for training and emergency response, while also making inventory control of cache items automated. All of these enhanced capabilities benefit the entire region because they allow HCOHSEM to be more productive, efficient, and responsive to all needs.

Public Information Office

The HCOHSEM Public Information Office keeps its emergency management partners and area residents informed about any and all emergency situations that have a direct impact on the community. It also uses its resources to warn and prepare residents before an incident occurs by promoting hurricane and disaster preparedness all year long.

2010 marked the launch of the Regional Joint Information Center (JIC) website. The site allows partners to post news releases and updates that need to reach the community. It also links to news from various sources and serves as a place where residents can go for the latest information.

The site acts as a dashboard where residents can find out about weather, traffic, school closings and what first responders are doing. They can also sign up for updates which will be delivered directly to their email.

In 2010, HCOHSEM distributed 938 communications products, handled 297 media inquiries and hosted 104 tours of the EOC. It also ran a successful bilingual public service campaign urging residents to prepare for hurricane season.

TRAVELER INFORMATION PROVIDED BY HOUSTON TRANSTAR AGENCIES

The most visible product of the Houston TranStar center operation on a daily basis is traveler information. Local Internet and media outlets use the TranStar CCTV feeds, Internet-based incident reporting capabilities, and travel time reporting systems in their daily traffic reporting functions. In addition, traffic service organizations are housed on the operations floor of Houston TranStar.

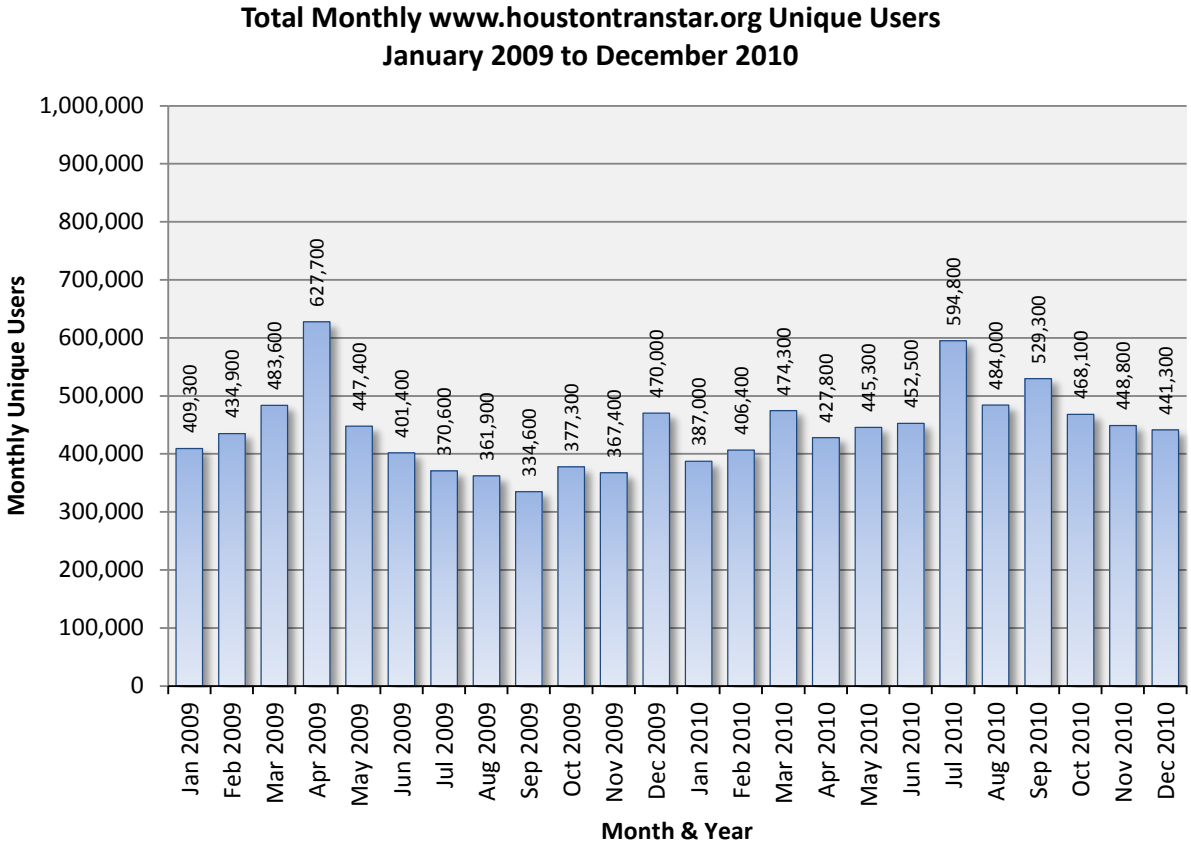
Operational highlights for the TranStar Website in 2010 included:

- Average unique monthly users increased to 463,300 in 2010, a 9% increase over 2009 levels and a 194% increase in the five years since 2005.

- Monthly Webpage accesses in 2010 ranged from 4.7 to 7.2 million, with a monthly average of about 5.5 million accesses. Total Webpage accesses for the year were more than 66 million, down 13.6% from 2009. The continuous improvement process which emphasizes site efficiency has typically resulted in fewer accesses, which has an ultimate impact in site bandwidth requirements.

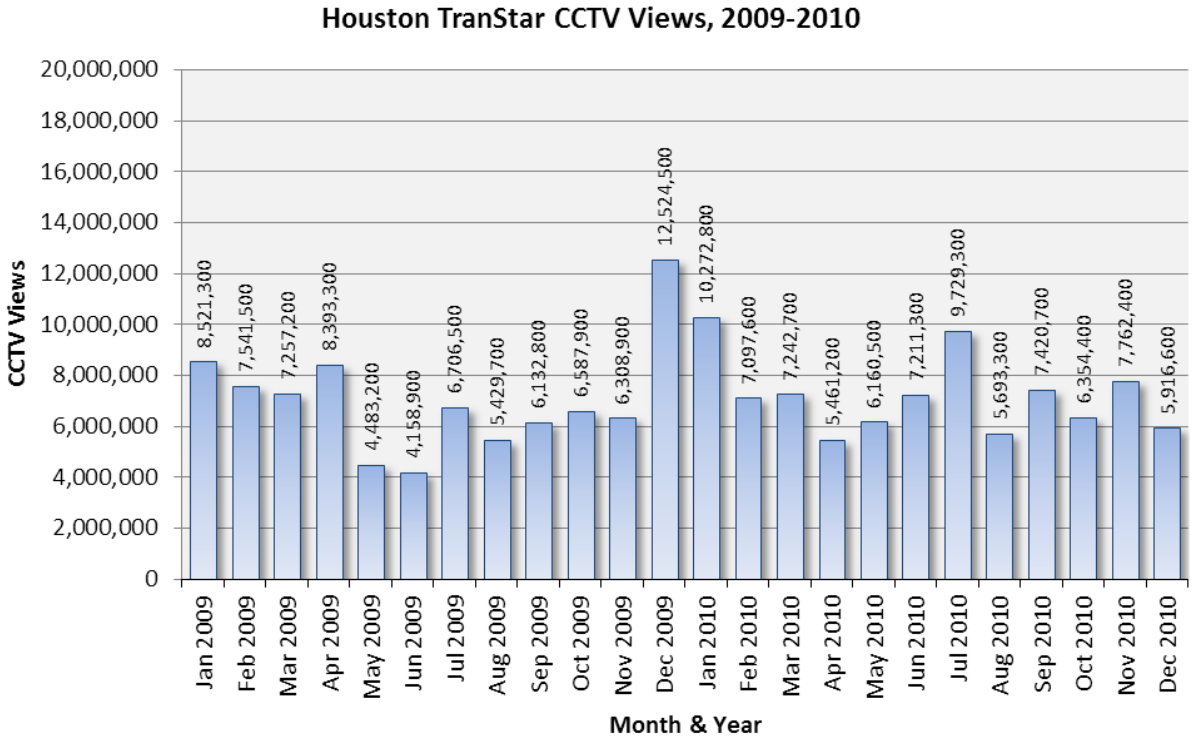
- TranStar's home page (www.houstontranstar.org) received 1.1 million visits in 2010, up about 12% over 2009.

- Access to the route builder system was down 13% in 2010 as compared to 2009 levels, but is still providing 4.3 million views in 2010. This level is nearly triple (+291%) over 2005 levels.



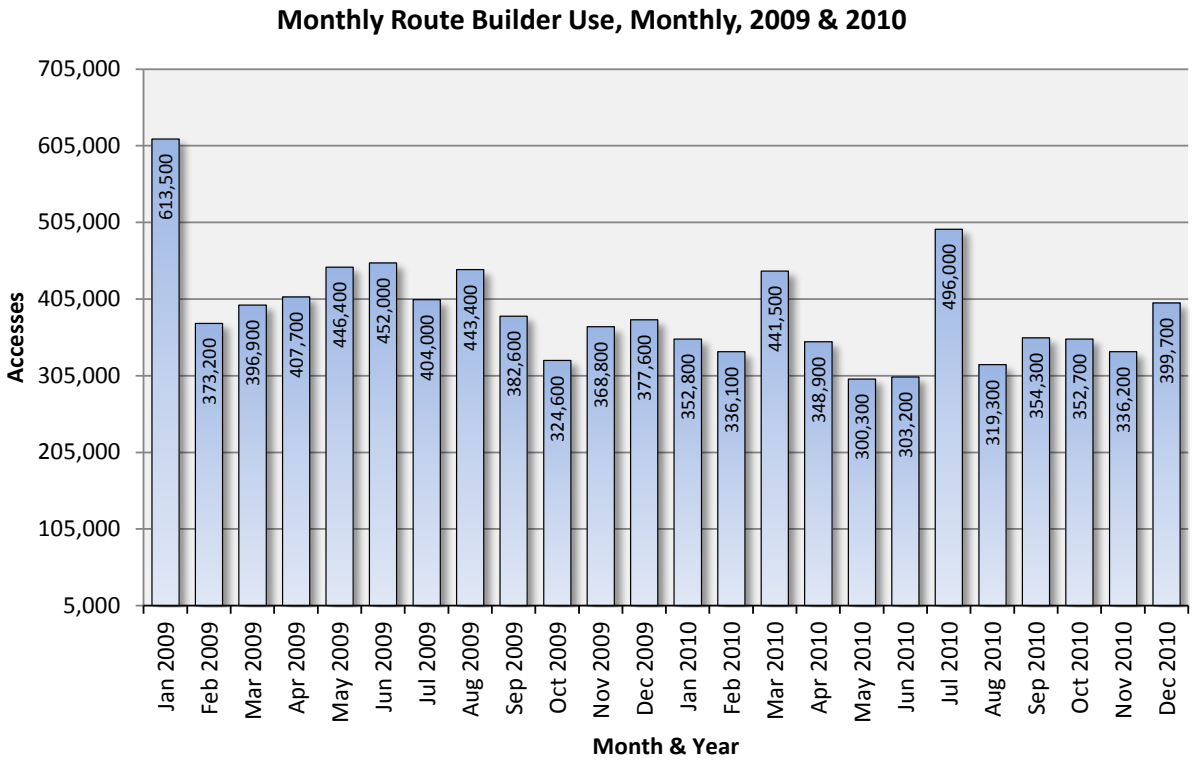
TRAVELER INFORMATION PROVIDED BY HOUSTON TRANSTAR AGENCIES

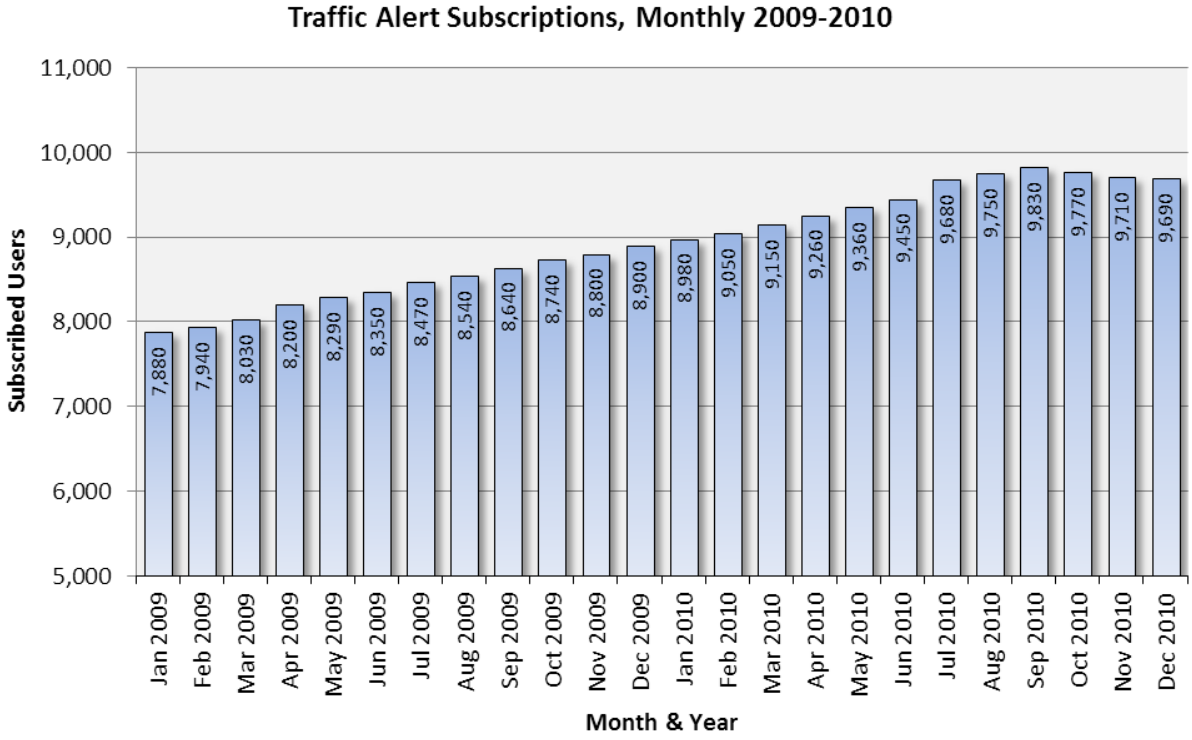
- CCTV Views:
  - Views of CCTV images increased from 84.0 million in 2009 to 86.3 million in 2010, an increase of 2.7%. However, since 2005, CCTV snapshot views have increased more than 1000%.
  - Views of the regional cameras (primarily used for hurricane evacuation route monitoring) totaled 5.4 million in 2010.
- Traffic data information to third-party providers via the TranStar data feed remained relatively flat in 2010 (5.7 million accesses) over 2009.
- DMS information viewed increased by 55% from 2009 to 2010, with more than 2.3 million views. Since 2008, views of DMS messages have increased nearly 300%.



- Traffic alert subscribers increased from an average monthly subscriber base of 8,400 in 2009 to 9,470 in 2010, an increase of 13%. Total monthly users at the end of 2010 were nearly 9,700.
- Mobile traffic data accesses decreased a bit in 2010 to 7.1 million accesses as opposed to 7.4 million in 2009, a 3.5% decrease. However, in the past five years mobile traffic data accesses have increased more than 475%.
- Average monthly accesses to the Virtual Earth version of the speed map was down 50% as users continue to prefer the traditional black background maps for most traveler information.

TRAVELER INFORMATION PROVIDED BY HOUSTON TRANSTAR AGENCIES





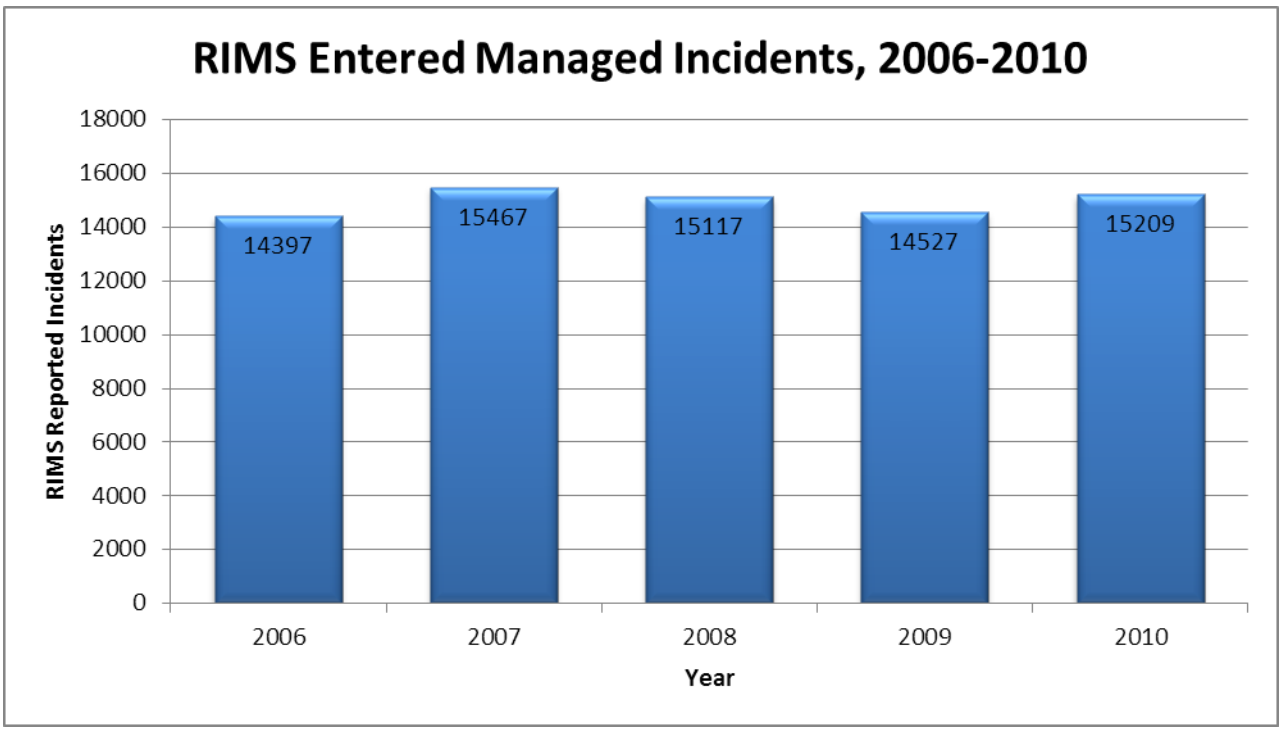
INCIDENT MANAGEMENT

Detection, response, and clearing of freeway incidents are important functions of Houston TranStar, and the Houston TranStar agencies play a major role in incident response management and information dissemination.

A majority of incidents are entered into the Regional Incident Management System (RIMS) operations database by agency personnel. In 2010 there were 15,209 incidents recorded by Houston TranStar operators, largely by TxDOT personnel. This is an increase of 4.7% when compared to total incidents entered into RIMS in 2009.

The top five incident locations managed and/or monitored from TranStar in 2010 included:

- US-59 Southwest Freeway Northbound at IH-610 West Loop (150 incidents);
- West Sam Houston Tollway Northbound at South Sam Plaza (105 incidents);
- IH-45 Gulf Freeway Northbound at IH-610 South Loop (99 incidents);
- IH-45 North Freeway Southbound at IH-610 North Loop (97 incidents); and
- West Sam Houston Tollway Southbound at Central Plaza (93 incidents).

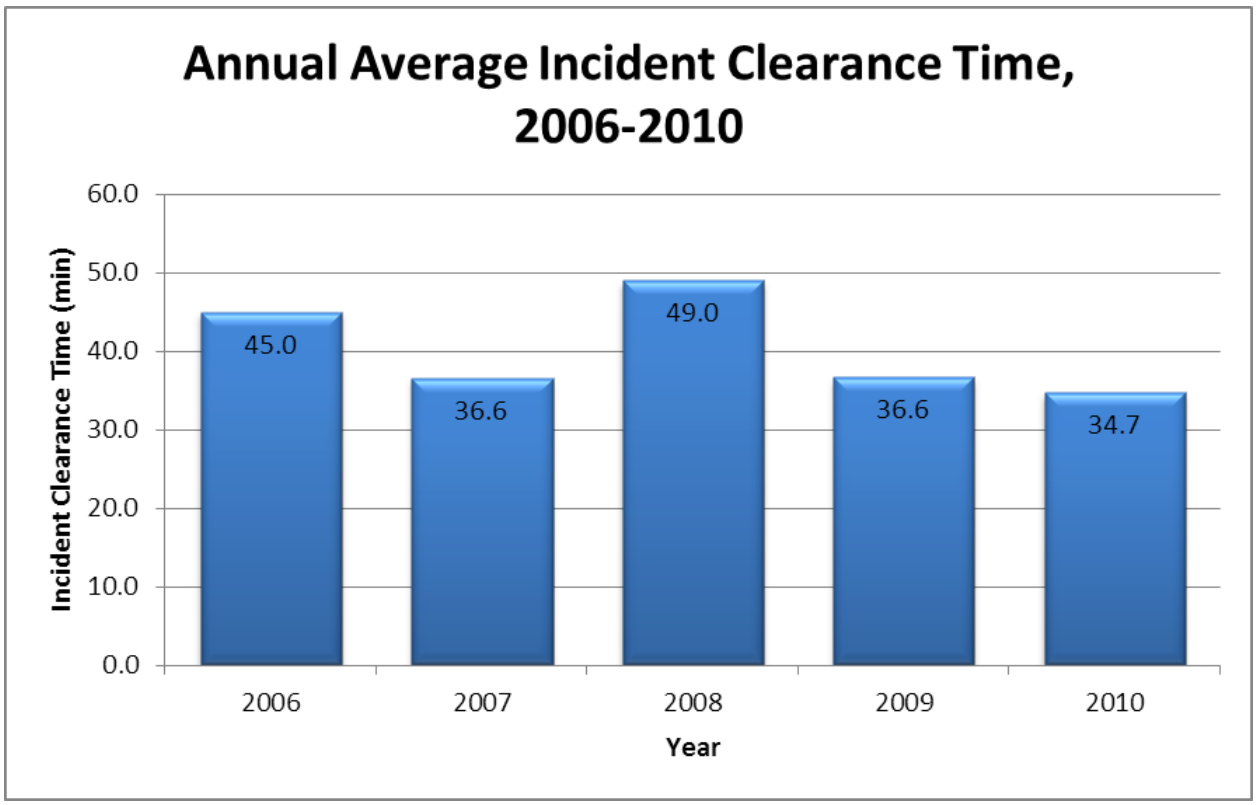


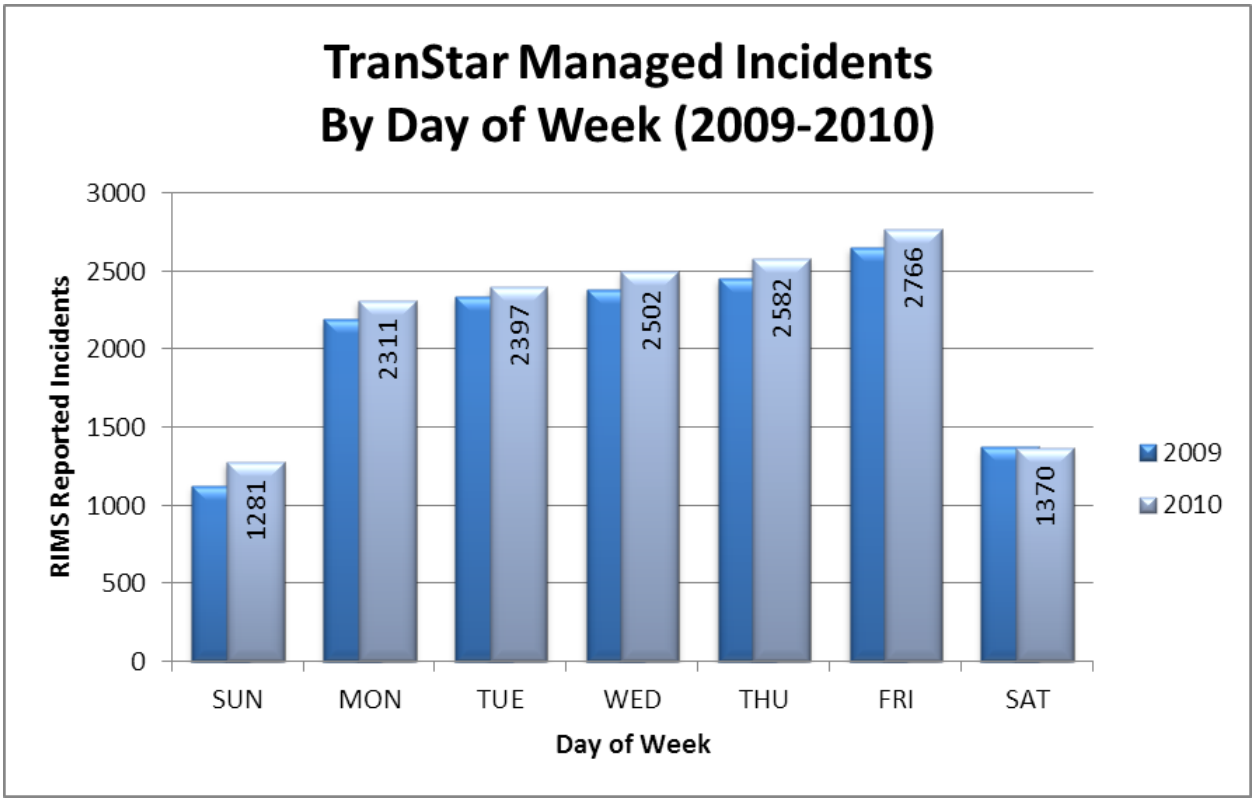
Some of the incident related performance measures determined for 2010 include:

- There were 8,801 incident-hours managed from the Center in 2010.
- The average incident clearance time in 2010 was 34.7 minutes, which was somewhat lower than the average since 2004 (38.6 minutes).

RIMS incident location and status are automatically provided on the traffic Website. Operators develop and activate DMS messages providing information on the incident (e.g., traffic direction, location, type incident, lanes blocked) to motorists at the roadside.

INCIDENT MANAGEMENT

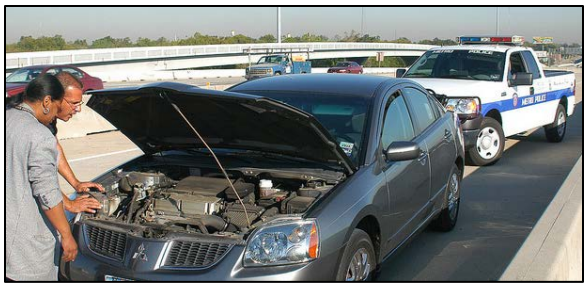




INCIDENT MANAGEMENT

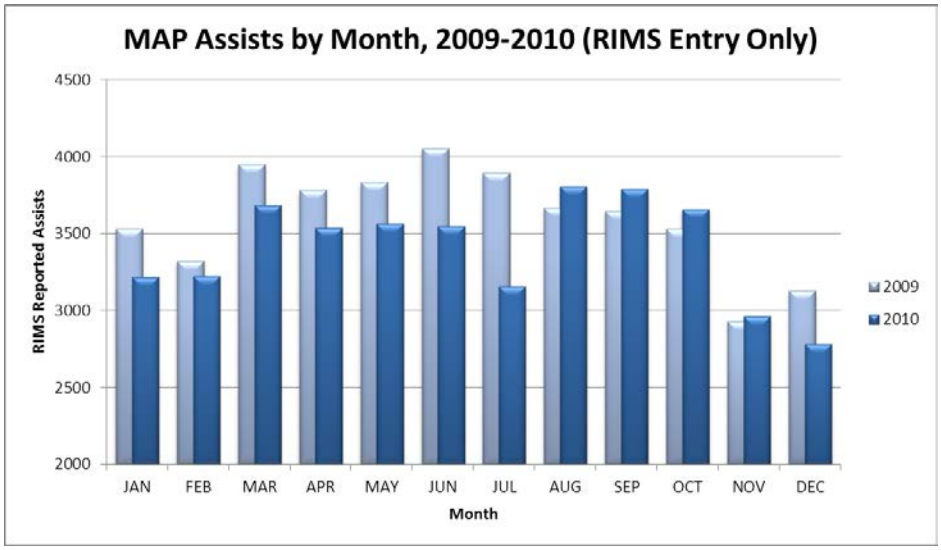
Motorist Assistance Program (MAP)

The Motorist Assistance Program (MAP) continues to be one of the most visible services operated by the Houston TranStar agency partnership.

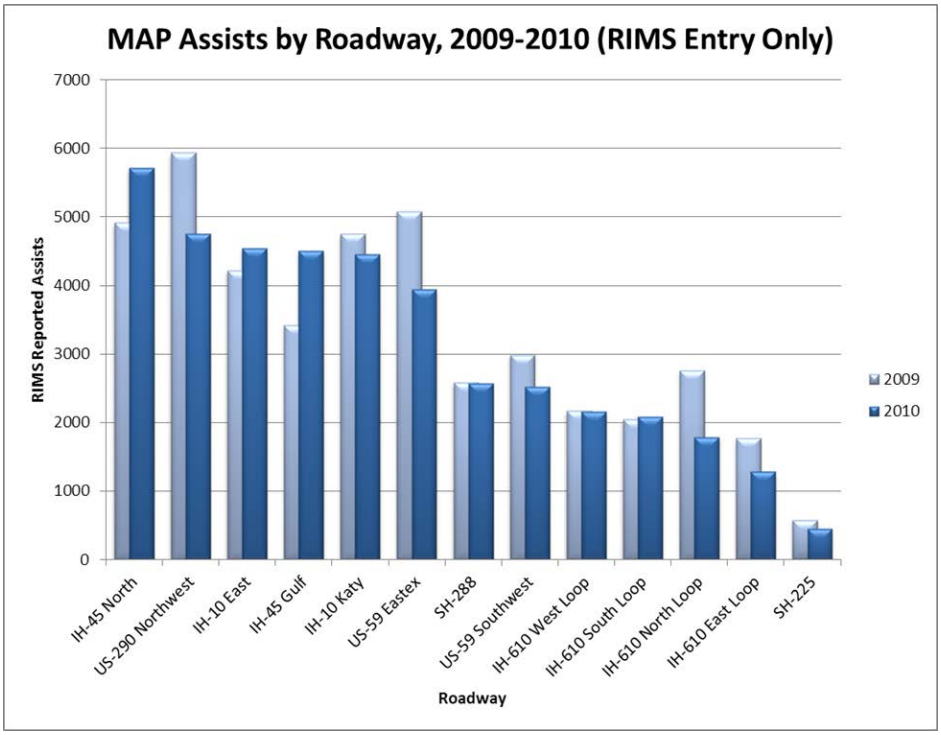


Motorist Assistance Patrol

MAP started in 1986 with two vans operating eight hours per day. The program has expanded significantly since, operating 16 hours per day on all major freeways, Monday through Friday. The program was expanded in 2005 to include the participation of METRO Police in addition to Harris County Deputies. In 2008, METRO replaced METRO Police with METRO civilian staff members to participate in MAP activity.



There were 40,930 RIMS-reported assists handled by MAP in 2010, a decrease of about 5% from 2009. The RIMS-reported MAP assists are for Harris County Deputy MAP activity only. METRO reported an additional 18,303 assists, but those are not currently entered into RIMS, the TranStar Incident Database. TxDOT operators provide dispatch service to the MAP program.



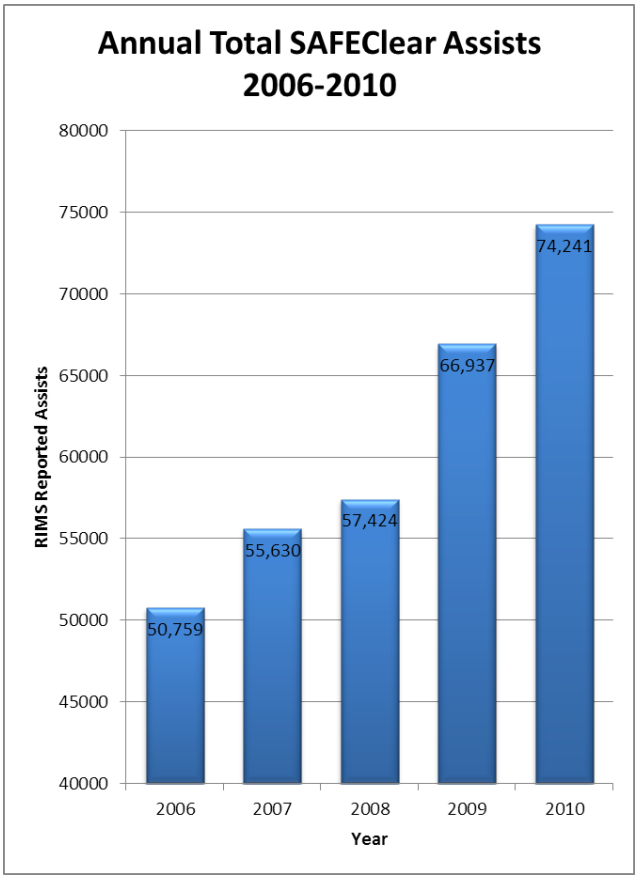
INCIDENT MANAGEMENT

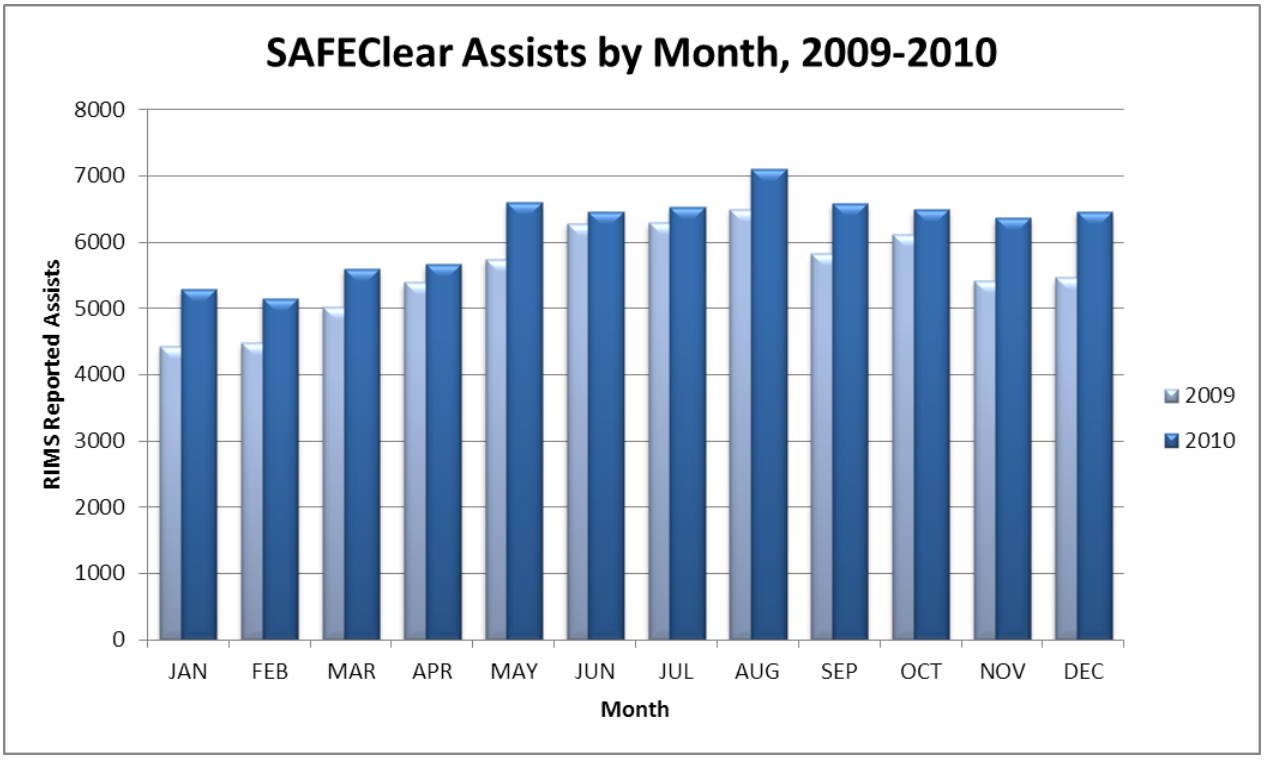
SAFEClear

SAFEClear, the City of Houston's rapid clearance program, was instituted in 2005. SAFEClear is intended to bring quick response to disabled vehicles to reduce the occurrence of secondary crashes in the freeway queue.

There were 72,241 RIMS reported SAFEClear assists in 2010; an increase of 11% from 2009 levels. In 2010, the average time from tow authorization to clearance was 14 minutes.

SAFE Clear Tow Truck





ESTIMATED TRANSTAR OPERATIONAL BENEFITS

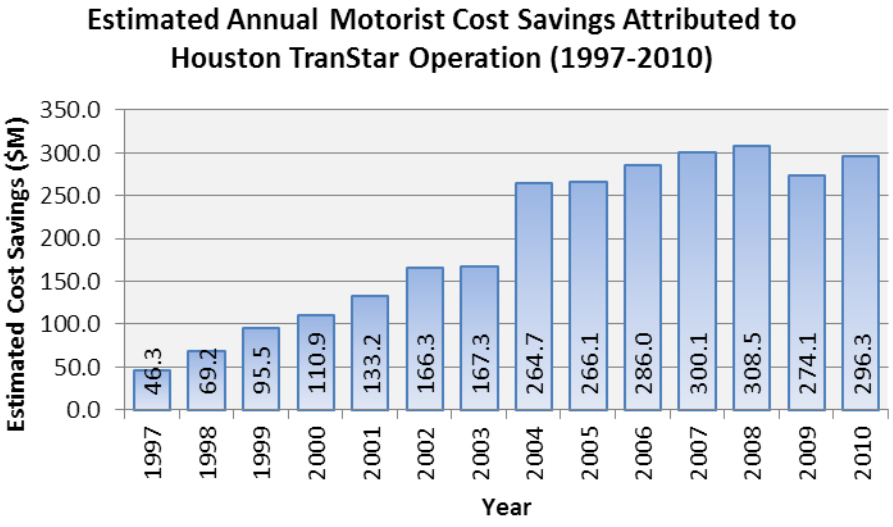
This report develops estimates of those benefits which are quantifiable, such as the cost of motorist delay savings (in time and dollars), fuel savings (in gallons and dollars), and emissions reductions (in tons of emissions). However, determining the benefits of Houston TranStar is treated conservatively because many benefits are not easily quantifiable and some are intangible.

For the past 14 years, this report has used an approach which estimates the operational benefits in terms of freeway motorist delay savings. Traffic delays on the freeway mainlane system were estimated using the TxDOT travel time monitoring system and traffic volumes from the TxDOT annual volume-roadway inventory files.

The procedure for evaluation uses national benchmarks and experience to establish Houston TranStar quantitative goals for expected benefits. The expertise of Houston TranStar staff is relied upon to estimate performance of the transportation systems in terms of percent attainment of the goals.

The estimated costs of congestion in the Houston TranStar region were calculated to be more than $580 million in 2010. Annual benefits in the reduction of travel time were estimated to be more than 11.7 million vehicle-hours with an estimated monetary benefit of over $238 million. The saving in travel time is equivalent to reducing fuel consumption more than 21.9 million gallons, which results in an additional savings of about $57.9 million. Thus, the total 2010 motorists' savings was in excess of $296 million. Since 1997 (when benefits were first estimated), Houston TranStar has saved Houston area motorists an estimated $2.8 billion in reduced traveler delay and fuel costs.

An estimated reduction in the amount of fuel consumed would also result in a reduction of mobile source exhaust emissions. Based on USDOT Bureau of Transportation Statistics, the reduction of 21.9 million gallons of fuel is equivalent to an estimated reduction of 473 tons of hydrocarbons; 3,062 tons of carbon monoxide; and 689 tons of nitrogen oxides.

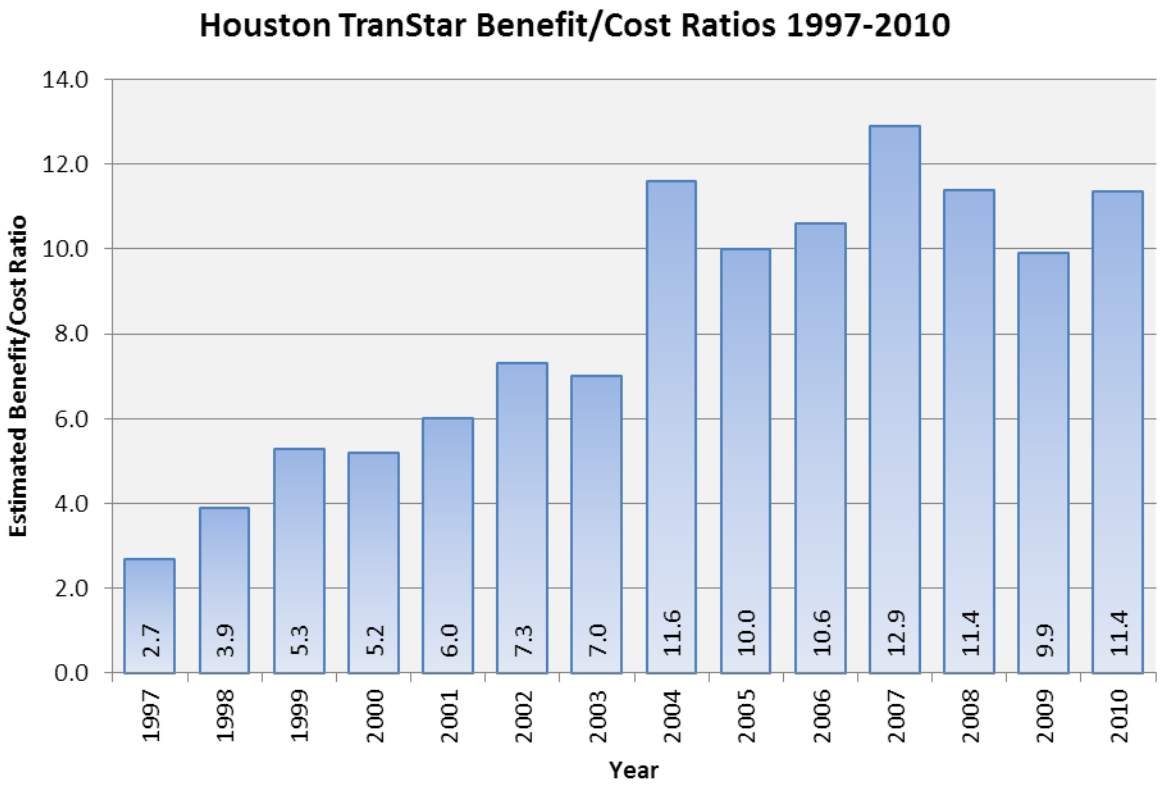


A benefit/cost analysis for 2010 was performed, comparing the benefits discussed previously to the annual costs of Houston TranStar. Annual costs include annualized capital costs, annual operational costs of the Houston TranStar systems, and the annual cost of operation and maintenance of the field installations. The annualized cost estimate of $26.09 million is divided into the annual benefit estimate of $296.29 million, yielding a 2010 estimated benefit/cost ratio of 11.4.

ESTIMATED TRANSTAR OPERATIONAL BENEFITS

Since 2004, the benefit/cost ratio of Houston TranStar has ranged from 10.0 to 12.9. In 2010, the benefit/cost ratio is 11.4, which is squarely in the middle of this range. Several factors enter into this calculation when comparing 2010 to previous years:

- The motorist value of time increased slightly from $20.00 in 2009 to $20.35 per vehicle-hour in 2010.
- The average cost of fuel in the Houston area increased 18% from 2009 to 2010, from $2.23/gal in 2009 to $2.64/gal in 2010. While fuel savings in gallons was 3% higher in 2010 compared to 2009, the dollar value of fuel saved was 22% more over that same time.
- Total measured congestion via the travel time monitoring system increased from 26.2 to 28.6 million vehicle-hours in the TranStar managed region (a 9.0% increase).
- Agency managers rated center effectiveness in 2010 as somewhat less than in 2009. Agency managers remain concerned about staff effectiveness as their agencies were not able to maintain adequate staffing levels and/or staff training levels to address increased responsibilities.
- While Houston has fared fairly well in the economic downturn which began in 2008, greater unemployment and less construction activity in the region contributed to decreased congestion on freeways and tollways in 2009. That trend appears to have reversed in 2010 as congestion increased by about 3.3% in 2010 over 2009 levels.



GLOSSARY

TxDOT	Texas Department of Transportation
METRO	Metropolitan Transit Authority of Harris County
HCTRA	Harris County Toll Road Authority
RIMS	Regional Incident Management System
TEEX	Texas Engineering Extension Service
PIO	Public Information Officer
FEMA	Federal Emergency Management Agency
CTMS	Computerized Traffic Management System
CCTV	Closed Circuit Television
DMS	Dynamic Message Sign
HAR	Highway Advisory Radio
AVI	Automatic Vehicle Identification
HOV	High Occupancy Vehicle
MAP	Motorist Assistance Program
PEAT	Patron Emergency Assist Team
TSTOP	Traffic Signal Optimization Program
HCPID	Harris County Public Infrastructure Department
HCOHSEM	Harris County Office of Homeland Security and Emergency Management
EOC	Emergency Operations Center
CERT	Citizens Emergency Response Team
RWIS	Roadway Weather Information System
USDOT	United States Department of Transportation