

INTRODUCTION

PURPOSE OF THE TRANSPORTATION IMPROVEMENT PROGRAM (TIP)

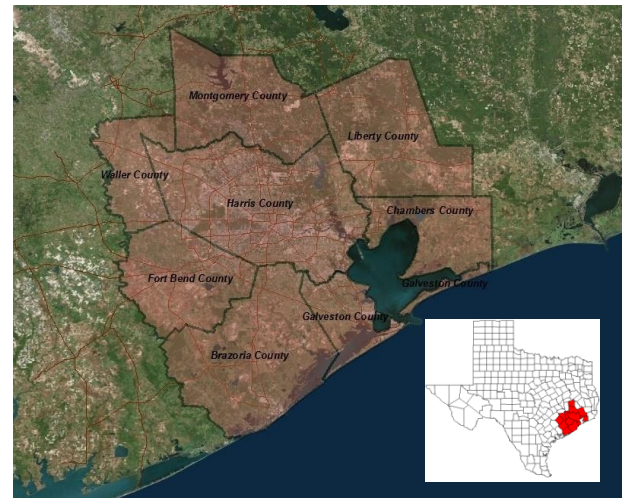
The Transportation Improvement program (TIP) is a staged, four-year program of projects proposed for funding by federal, State, and local sources within the Houston-Galveston Metropolitan Area. The 2019-2022 TIP has been developed by the Houston-Galveston Area Council (H-GAC) in cooperation with local governments, the Texas Department of Transportation (TxDOT), and local transportation agencies. Projects in the 2019-2022 TIP have been identified as priorities for the Houston region.

THE REGION DEFINED

H-GAC serves as the metropolitan planning organization (MPO) for the eight county region depicted in Figure I. The MPO is a federally mandated and federally funded transportation policy-making organization that is made up of representatives from local government and governmental transportation authorities. The designation of the MPO is by agreement among the units of general-purpose local governments and the Governor of Texas.

Approximately 6.9 million people reside within the eight counties and the regional economy supports nearly 3 million jobs.

Figure I



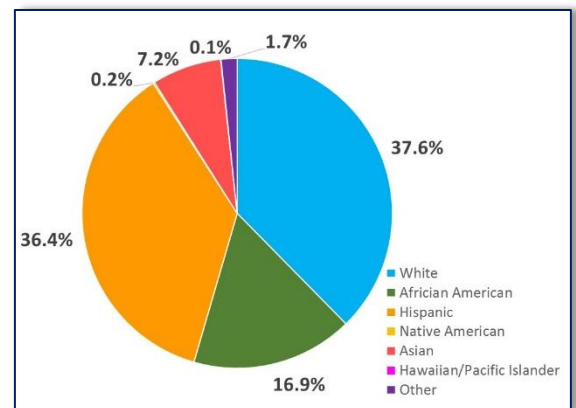
Region Demographics									
	Brazoria	Chambers	Fort Bend	Galveston	Harris	Liberty	Montgomery	Waller	Total:
Population	362,457	41,441	764,828	335,036	4,652,980	83,658	570,934	51,307	6,862,641
Jobs	107,877	13,207	192,008	107,233	2,326,415	16,636	174,877	17,385	2,955,638

Source: US Census Bureau, Population and Housing Unit Estimates 2017
US Census Bureau, Longitudinal Employer-Household Dynamics 2017

The region continues to experience rapid growth with recent estimate suggesting population gains of 140,000 new residents each year, almost half of whom are moving to the region from other parts of the State, nation and world.

Consequently, the region displays tremendous ethnic and cultural diversity.

The mobility needs of our region are similarly varied, and the funding commitments documented within the TIP reflect a continuous, comprehensive and coordinated approach to transportation planning.



Source: US Census, 2016 American Communities Survey

RELATIONSHIP WITH OTHER PLANS AND PROGRAMS

H-GAC, serving as the MPO for the Houston-Galveston area, has the responsibility of preparing and maintaining two key elements of the regional planning process: the metropolitan transportation plan (MTP) and the transportation improvement program (TIP). In addition, areas greater than 200,000 in population, such as the Houston-Galveston area, are designated as Transportation Management Areas (TMA) according to planning regulations, and must also have in place a congestion management process (CMP). Because the counties of Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller have been designated as nonattainment areas for the pollutant ozone, the MPO coordinates the development of a metropolitan transportation plan with the process of developing Transportation Control Measures (TCMs) for the SIP, as required by the federal Clean Air Act (CAA). The 2019-2022 TIP was developed through a coordinated process maintaining consistency with these planning documents:

- 2040 RTP – The Houston-Galveston Regional Transportation Plan;
- H-GAC Ten-Year Plan;
- TXDOT Unified Transportation Program (UTP)
- TXDOT Statewide Transportation Improvement Program (STIP)

2040 RTP – The Houston-Galveston Regional Transportation Plan

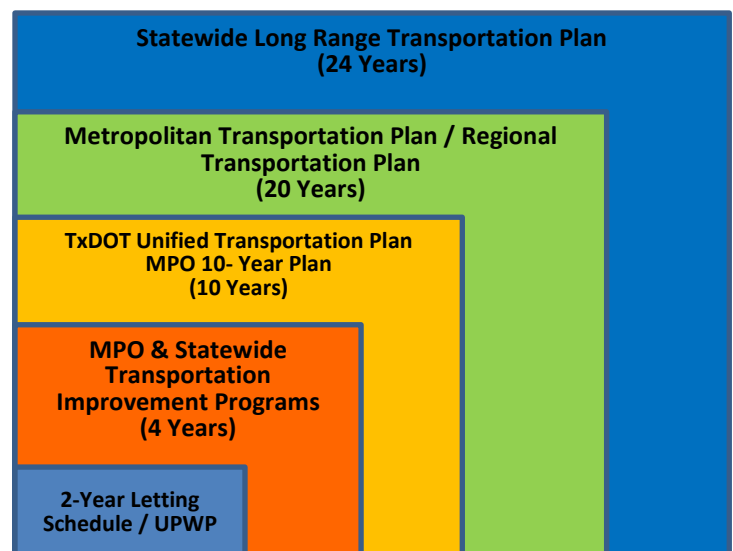
The 2040 RTP has been shaped by the public in almost 60 presentations and public meetings, with at least 1,500 people providing input. The RTP is approved and adopted by the Transportation Policy Council (TPC) of H-GAC. This plan document describes a regional vision, goals, and implementation strategies as well as the current transportation system. The current and future population and jobs that use the system are represented in this plan. Fair treatment of the diverse population, fiscal constraint, and conformity with national air quality standards drive key transportation planning strategies represented in the RTP. The implementation of the 2040 RTP is analyzed to understand more fully what the future of transportation in the Houston-Galveston region will look like.

TxDOT Unified Transportation Program (UTP) and Statewide Transportation Improvement Program (STIP)

The UTP is TxDOT’s 10-year planning document that guides the planning and development of each TxDOT District’s transportation improvements. The UTP is developed annually in accordance with the Texas Administrative Code (TAC §16.105) and is approved by the Texas Transportation Commission annually prior to August 31. The UTP authorizes projects for construction, development and planning activities and includes projects involving highways, aviation, public transportation, and state and coastal waterways.

Planning rules require that the TIP be constrained by available financial resources in the first four year; however, based on State law, TxDOT programs the UTP

Figure 2



over ten years. Hence, the UTP may contain additional projects beyond those included in the TIP.

Figure 2 depicts the structure of the various documents and how they relate to one another. For these additional projects to move into the programming and construction stages, they must be included in the TIP, and subsequently the STIP. Appendix D of the TIP contains a list of projects that are not planned for construction within the four-year time frame of the TIP, but are references in the current TIP while engineering, feasibility, environmental clearance, or other pre-construction efforts are on-going.

TxDOT's UTP is used as a guideline for programming projects in the STIP. In metropolitan areas, projects are programmed in Metropolitan TIPs, and then compiled into the STIP. Projects in rural areas of the State are programmed into the STIP through TxDOT Districts. The TxDOT Houston District's UTP is available on the TxDOT website.

TIP FUNDING AND PROJECT SELECTION

The transportation project selection and approval process involves shared decision-making. The TPC has primary responsibility for project selection under four funding categories: Category 2 – Metropolitan and Urban Corridor Projects, Category 5 – Congestion Mitigation and Air Quality (CMAQ), Category 7 – Surface Transportation Block Grant (STBG) program, and Category 9 – Transportation Alternatives Set-Aside program (TASA). These funding categories have specific eligibility requirements as defined in the federal regulatory code.

TPC approves all projects included in the TIP but many are developed and selected in other forums. For example, the Texas Transportation Commission selects major mobility, maintenance, rehabilitation, and safety projects on the state system. It also selects bridge program projects both on and off the state system. With the exception of the Houston, Conroe, and The Woodlands Urbanized Areas (UZA), the state administers the region's transit funding programs. H-GAC facilitates discussions between local transit agencies on the division of federal funds allocated to the two large UZAs.



PERFORMANCE MEASURES AND OUTCOMES

Performance Measures

The federal legislation Fixing America’s Surface Transportation Act, or FAST Act requires states and MPOs to monitor the transportation system using specific performance measures to address the national goals. Table I lists specific measures in various performance areas for transportation system. MPOs are required to either support the state targets or establish their own specific targets for all performance measures in the MPO planning area within 180 days after the State establishes each target. H-GAC worked cooperatively with TxDOT to establish safety performance targets and continues to work with TxDOT to establish targets for other performance areas listed in Table I.

Category	Performance Measure	Applicability	MPOs Set Targets By	LRSTP, RTP, STIP, and TIP
FHWA Safety	Number of fatalities	All public roads	February 27, 2017	Updates or amendments on or after May 27, 2018
	Rate of fatalities	All public roads		
	Number of serious injuries	All public roads		
	Rate of serious injuries	All public roads		
	Number of non-motorized fatalities and non-motorized serious injuries	All public roads		
FHWA Infrastructure	Percentage of pavements of the Interstate System in Good condition	The Interstate System	No later than 180 days after the state(s) sets targets	Updates or amendments on or after May 20,2019
	Percentage of pavements of the Interstate System in Poor condition	The Interstate System		
	Percentage of pavements of the non-Interstate NHS in Good condition	The non-Interstate NHS		
	Percentage of pavements of the non-Interstate NHS in Poor condition	The non-Interstate NHS		
	Percentage of NHS bridges classified as in Good condition	NHS		
	Percentage of NHS bridges classified as in Poor condition	NHS		
FHWA System Performance	Percent of the person-miles traveled on the Interstate that are reliable	The Interstate System	No later than 180 days after the state(s) sets targets	Updates or amendments on or after May 20,2019
	Percent of the person-miles traveled on the non-Interstate NHS that are reliable	The non-Interstate NHS		
	Truck Travel Time Reliability (TTTR) Index	The Interstate System		

	Annual Hours of Peak Hour Excessive Delay Per Capita	The NHS in urbanized areas with a population over 1 million for the first performance period and in urbanized areas with a population over 200,000 for the second and all other performance periods that are also in nonattainment or maintenance areas for ozone (O3), carbon monoxide (CO), or particulate matter (PM10 and PM2.5)		
	Percent of Non-SOV travel	The NHS in urbanized areas with a population over 1 million for the first performance period and in urbanized areas with a population over 200,000 for the second and all other performance periods that are also in nonattainment or maintenance areas for ozone (O3), carbon monoxide (CO), or particulate matter (PM10 and PM2.5)		
		All projects financed with funds from the 23 U.S.C. 149 CMAQ program apportioned to State DOTs in areas designated as nonattainment or maintenance for ozone (O3), carbon monoxide (CO), or particulate matter (PM10 and PM2.5)		
	Total Emissions Reduction		No later than 180 days after the state(s) sets targets	Updates or amendments on or after May 20,2019
FTA Transit Asset Management	Rolling Stock	The percentage of revenue vehicles (by type) that exceed the useful life benchmark (ULB)	No later than 180 days after the state(s) sets targets	Updates or amendments on or after May 27, 2018
	Equipment	The percentage of non-revenue service vehicles (by type) that exceed the ULB		

	Facilities	The percentage of facilities (by group) that are rated less than 3.0 on the Transit Economic Requirements Model (TERM) Scale		
	Infrastructure	The percentage of track segments (by mode) that have performance restrictions		

Table 3 – FHWA/FTA Performance Measures

Safety

The 2017 State of Safety Reportⁱ sets a baseline for safety crash data and analyzes regional trends to inform performance target setting. Report figures serve as a baseline for subsequent years to measure whether there was significant improvement in Safety Performance Management compared to the previous year.

The Safety Performance Management (PM) Final Rule established the following five performance measures to carry out the Highway Safety Improvement Plan (HSIP): the five-year rolling averages for: (1) Number of Fatalities, (2) Rate of Fatalities per 100 million VMT, (3) Number of Serious Injuries, (4) Rate of Serious Injuries per 100 million VMT, and (5) Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries.

The Texas Strategic Highway Safety Plan estimated the probable number of fatalities for 2022, the target year. Based on the probable number, targets were set at a 2% reduction for all performance measures. FHWA requires MPOs to either support state targets or establish their own specific targets for the same five safety performance measures for all public roads in the MPO planning area, within 180 days after the State establishes statewide targets. The MPO will then report targets to the State when requested, and determination about making significant progress statewide will be made when at least four out of five targets are met or the outcome for the performance measure is better than the baseline performance the year prior to the target year.

H-GAC’s Transportation Policy Council approved a resolution to support the State’s safety targets for the five performance measures as adopted by the State. H-GAC has committed to participate in advancing crash reduction strategies through the Regional Safety Plan, and will annually assess progress on Safety Performance Measures. H-GAC will also incorporate performance measure reporting and strategies into the 2045 RTP. Table 4 shows the 2015 and 2016 regional totals for each of the five safety performance measures.

Safety Performance Measures	2015	2016
Number of Fatalities (FARS)	618	697
Rate of Fatalities per 100 million VMT	1.1	1.4
Number of Serious Injuries (CRIS)	3,509	3,390
Rate of Serious Injuries per 100 million VMT	6.5	6.6
Number of Non-Motorized Fatalities and Serious Injuries (CRIS)	540	615

Table 4 – Federal Safety Performance Measure Regional Stats

Transit Asset Management

The Moving Ahead for Progress (MAP-21), final rule 49 USC 625 established a strategic and systematic process of operating, maintaining, and improving public capital assets effectively through their entire life cycle. This rule became effective October 2016 and includes definition of “transit asset management plan” and “state of good repair” (SGR). It establishes performance measures for equipment, rolling stock, infrastructure, and facilities asset categories. These requirements included the performance measure to be reported to National Transit Database (NTD). The resulting information of the NTD is intended to help any level of government make investment decisions.

Transit providers that receive federal funds as recipients or as sub-recipients and either own, operate or manage capital assets used in providing public transportation are required to develop and implement TAM Plan and submit performance measures, annual condition assessments and targets to NTD by October 1, 2018. Sub-recipients and Tier II providers (that operate one hundred or fewer vehicles) have the options to develop a group TAM Plan with TxDOT/ H-GAC or develop their own plan. Participants must coordinate to determine their specific roles and responsibilities and complying with the rule.

Most of the assets in our region is belong to Tier I provider (METRO) who develop their own TAM plan and targets. The Tier II providers that receive urban funding (5307) are required to set their own targets because they are direct recipients and could opt out to be under TxDOT’s Group Plan. The additional Tier II providers in our region, (5311 and 5310) providers have a choice to set their own or participate with TxDOT. H-GAC is coordinating with TxDOT and Tier II providers to set proposed regional targets. H-GAC has 180 days after the date on which the relevant TxDOT or providers of public transportation establish its performance targets.

In order to develop a preliminary regional performance targets, H-GAC sent out a brief survey on January 23, 2018, for the purpose of understanding the level of interest that Tier II providers have in participating in a Group Plan and to get performance measure used for the four asset categories. The following three providers responded to the survey:

Brazos Transit District

Asset Category	Asset Inventory	Asset Condition
Equipment	28	75% has met their useful life bench mark (ULB)
Rolling Stock	145 (less now)	45% met their ULB
Infrastructure	NA	NA
Facilities	13	65% below 3 TERM (good)

Table 6 – Brazos Transit District Asset Inventory

Conroe Connection

Asset Category	Asset Inventory	Asset Condition
Equipment	NA	NA
Rolling Stock	(4) Type II buses; (2) Type 7 vans	4 TERM (good condition)
Infrastructure	NA	NA
Facilities	Parking Lot	4 TERM (good condition)

Table 7 – Conroe Connection Asset Inventory

Harris County Transit

Harris County Transit contracts with various transportation companies and operates full turn-key contracts. All contracts for transit buses includes clauses requiring the contractor to only use buses no older than 10 years. Harris County Transit follows the FTA guideline for in their contracts and RFPs to ensure they are meeting or exceeding the age and condition requirements set down by TAM plan. Harris County Transit has one non-revenue support vehicle purchased with FTA funds that was under the \$50,000 threshold, several bus shelters that are well below the \$50,000 threshold and no facilities or infrastructure. Since their service is all done through turnkey contract and their providers have no assets purchased with FTA funds, those contractor assets were not required to be on the Harris County plan.

Asset Category	Asset Inventory	Asset Condition
Equipment	1	100 % met their useful life bench mark (ULB)
Rolling Stock	12	0% met their useful life bench mark (ULB)
Infrastructure	NA	NA
Facilities	1	100 % met their useful life bench mark (ULB)

Table 8 – Harris County Transit Asset Inventory

A brief summary of the TAM related targets for State of Good Repair is shown in Table below.

Agency	SGR Targets (Rolling Stock)	Comments
TxDOT-PTN	14% at or beyond ULB	Preliminary and subject to change. TxDOT-PTN is also considering the sponsorship of a TAM Group Plan for Tier 2 transit providers in Texas.
METRO	25% at or beyond ULB	Tier 1 provider, will develop their own TAM plan.
Fort Bend County Transit	20% at or beyond ULB	Interested in a Group TAM Plan
Harris County Transit	0.1 at or beyond ULB	Have submitted TAM Plan to FTA and received preliminary approval in November 2017.

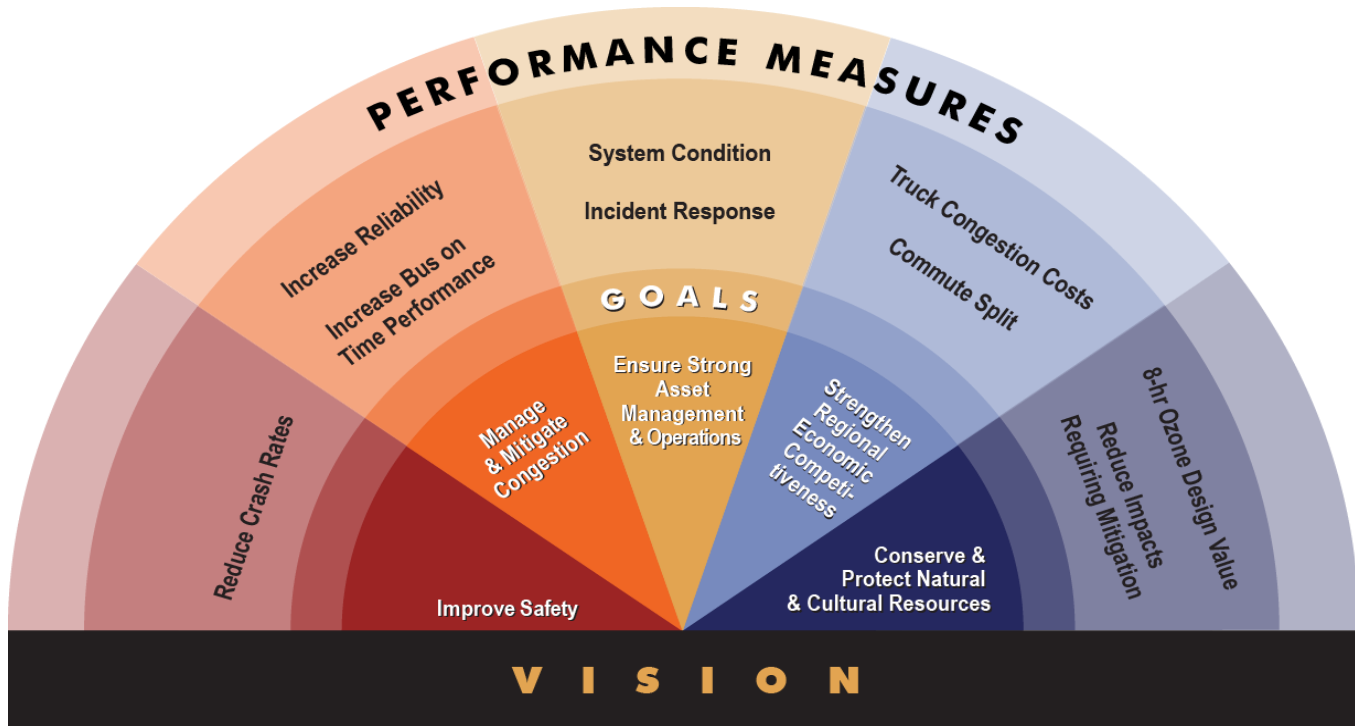
Table 9 – Transit Asset Management- State of Good Repair-Preliminary Targets for Rolling Stock

The 2019-2022 TIP continues to build upon the goals and strategies articulated in the 2040 RTP. The performance measures included in the 2040 RTP were crafted in accordance with the federal surface transportation legislation Moving Ahead for Progress in the 21st Century, or MAP-21. The 2019-2022 TIP utilizes the progress already achieved to support decisions on transportation investment aligned with the following goals:

- 1. Improve Safety**
- 2. Manage and Mitigate Congestion**
- 3. Ensure Strong Asset Management and Operations**
- 4. Strengthen Regional Economic Competitiveness**
- 5. Conserve and Protect Natural and Cultural Resources**

The project selection process utilized during development of the 2019-2022 TIP assessed major investment-level applications based on the 2040 RTP's five goals and performance measures. By incorporating 2040 RTP goals into short-range programming activity, the performance measures have achieved a strong coordination between the region's vision for the future and the investments made today.

Additionally, a total of 85 projects were approved by the TxDOT Traffic Operations division at a cost of \$32.4 million (Safety Funds) from FY 2018-2021.



AIR QUALITY

Air quality is influenced by many factors, including topography, weather conditions, and sources created by human interactions with the environment, including but not limited to agriculture, manufacturing, domestic product use, and transportation. Because transportation sources contribute to air pollution, the Clean Air Act (CAA) of 1990 identifies actions to be taken by states and MPOs to reduce emissions.

The U.S. Environmental Protection Agency (EPA) has designated the eight-county Houston-Galveston-Brazoria area as nonattainment for ground-level ozone (O_3). While transportation is not this region's sole source of ozone pre-cursor pollutants, continued reductions of pollutants from on-road vehicles is an essential part of our plan to attain clean air standards. The Plan and TIP are required to conform to emission limits established by the Texas Commission on Environmental Quality (TCEQ) and approved by the EPA. Consequentially, it is the MPOs role in air quality planning to assess the impact of planned transportation projects on air quality and to identify programs and projects that will help reduce emissions.

The CAA requires TCEQ to develop a plan called a State Implementation Plan (SIP) to show how the state will meet the National Ambient Air Quality Standards (NAAQS) for each type of air pollutant.

The 2019-2022 TIP relies on demonstration of air quality conformity currently under development. Federal approval by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) is anticipated to be received in May 2018. The conformity determination is being made using motor vehicles emissions budgets for the ozone precursors nitrogen oxides (NO_x) and volatile organic compounds (VOC) established for the Houston-Galveston-Brazoria Attainment Demonstration and Reasonable Further Progress State Implementation Plan Revisions for the 1997 Eight-Hour Ozone Standard (SIP). Further detail on the current conformity analysis is available on H-GAC's website at http://www.h-gac.com/taq/airquality_model/conformity.

PUBLIC INVOLVEMENT

The Houston-Galveston Area Council and the Houston-Galveston Area MPO have a very robust public participation process. The MPO recognizes that public participation is an essential part of the development and implementation of a transportation project. Public involvement is an ongoing aspect of the project planning process that encourages and solicits input and provides a forum for the public to become fully informed about project development. H-GAC has developed several important programs to ensure full public involvement, environmental justice and public participation.

Title VI Protections

Title VI of the Civil Rights Act of 1964 as amended, (42 USC 2000d to 2000-4) (23 CFR Part 200 and 49 CFR Part 21) states “No person in the United States shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance”. Subsequent laws, regulations, directives, and executive orders have expanded the criteria for which discrimination is prohibited to include disability, sex, age, income, and limited proficiency in English.

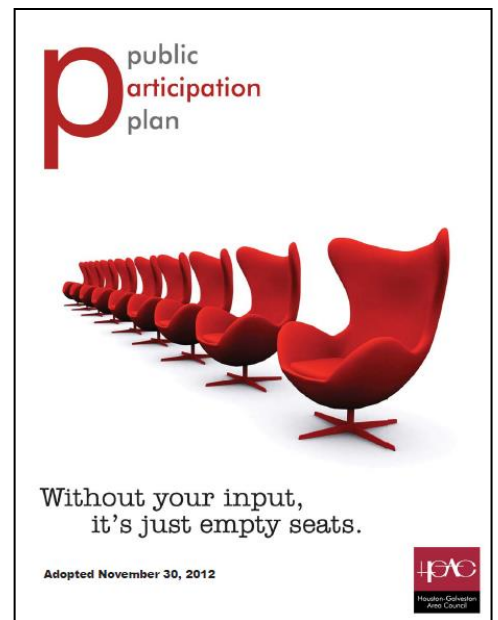
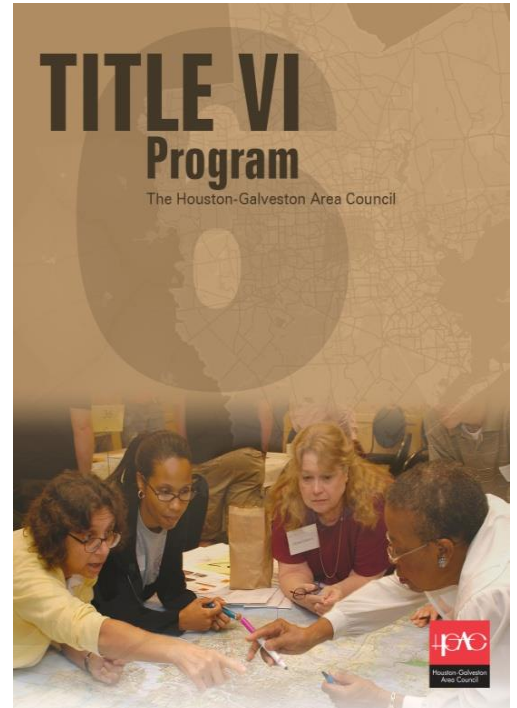
Throughout the transportation planning process, the H-GAC MPO extends public participation to all populations. The TIP is developed to ensure Environmental Justice and nondiscrimination are cornerstones in its development. The complete Title VI Program can be accessed at www.h-gac.com/taq/title-vi/default.aspx.

Environmental Justice (EJ) & the Public Participation Plan (PPP)

In accordance with federal guidance, the MPO prepares and adopts a TIP that:

- Avoids and minimizes disproportionate health, environmental, social, and economic impacts on at-risk populations;
- Implements public outreach strategies that maximize EJ participation in transportation decision-making processes;
- Is informed by project-level analysis to identify benefits and burdens to EJ communities; and,
- Sustains and promotes equitable distribution of benefits.

Key objectives of H-GAC’s EJ processes are described in H-GAC’s PPP available at <http://www.h-gac.com/taq/publications/current/default.aspx> and the Title VI Program which can be accessed at www.h-gac.com/taq/title-vi/default.aspx.



The intent of the PPP is to promote understanding and participation in the regional transportation planning process. There are many opportunities for the public to comment on the TIP.
