

## **Appendix H:**

### **Unfunded Transportation Improvements**

Current and projected funding investments are not sufficient to adequately maintain, operate, and improve the regional transportation system in accordance within regional goals and expectations. The intent of this document is to stimulate discussion among regional officials towards a more comprehensive and coordinated plan of action.

Included below are general descriptions of potential projects and programs that have identified some categories of transportation improvements that require further development. These are not within the financial capacity of the 2035 RTP and are considered as potentially unfunded system improvements at this time. There are several categories of system improvements 1) Potential thoroughfare development in the faster growing parts of the region, 2) Public transportation expansion beyond the METRO service area, 3) infrastructure improvements for the regional freight rail system and associated grade crossings, and 4) the future development of intercity high speed commuter rail.

#### **Thoroughfare Network Development:**

In anticipating the future roadway network needs of the region beyond those included in the 2025 RTP, an analysis was done to determine those areas that may have the highest future demand based on forecasted population growth and density. In this analysis, potential thoroughfare projects were identified where the future roadway capacity (based on thoroughfare spacing) is not sufficient to handle the projected population increases in those areas. Those potential thoroughfare projects are not sponsored projects and were not modeled but provide a cursory assessment of those areas that should be examined closer in the future. Potential projects are a means by which future demands and deficiencies are recognized, allowing the planning process for meeting future mobility needs to begin.

**Methodology:** For both the Trend Scenario (the baseline forecast) and the Envision Scenario (densified forecast) priority TAZs (traffic analysis zones) were identified to be used as target locations for potential projects. Priority TAZs were identified using a weighted methodology that measured population change from 2025 to 2035 as well as population density change from 2025 to 2035. Change was measured from the year 2025 because the potential projects are being designed using the 2025 roadway network as the base.

In the weighted methodology, density change was rated on a 1 to 10 scale and given a higher weight than population change, which was rated on a 1 to 8 scale, with the higher numbers representing higher density and population change respectively. Due to the nature of some TAZs, some can be quite large in area, population density may more accurately reflect future transportation needs. The scores for density change and population change were then aggregated, creating the highest potential score of 18. Priority TAZs for potential projects are those TAZs with a score from 15 to 18.

Potential projects were created by identifying linkages within priority TAZs using the 2025 network and the future thoroughfare plan as a starting point. These potential projects represent

possible future candidate projects or areas of interest for future transportation investment. These projects were then screened for potential environmental conflicts, including location within floodplains, threatened or endangered species habitat, and wetlands. Potential projects with possible environmental conflicts were flagged for further review.

**Results:** As the Trend and Envision Scenarios have different forecasted densities and growth patterns, they have different future transportation needs. It should be noted that the total population in the scenarios are identical, the growth pattern and densities have merely been shifted. The Envision Scenario increases density compared to the Trend Scenario along public transportation corridors, specifically light rail corridors. The result is that population growth and population density change is contained within fewer, denser, TAZ's than in the Trend Scenario. In the Trend Scenario, more TAZ's are identified as priority TAZ's requiring a larger number of potential projects because development is more sprawling. The difference in the forecasted growth pattern for the two scenarios is particularly evident in the western portions of Harris County.

The resulting difference in potential projects between the scenarios is significant in terms of future costs and represents a real choice to be made in planning for transportation projects beyond the 2025 network. Although both scenarios plan for the same population growth, by allocating this growth differently, the Envision Scenario requires fewer potential projects, and thus has lower projected costs, than the Trend Scenario, shown in Table 1. It should be noted that since the potential projects have not been modeled, any difference in mobility resulting from the projects is not available for comparison.

**Table 1. 2035 RTP Scenarios Estimated Cost<sup>i</sup>**

	<b>Trend</b>	<b>Envision</b>
Brazoria	\$29,236,988	\$29,236,989
Fort Bend	\$261,367,262	\$249,053,701
Galveston	\$40,708,630	\$13,113,486
Harris	\$498,952,287	\$220,619,038
Montgomery	<u>\$157,382,977</u>	<u>\$156,242,897</u>
	\$987,648,144	\$668,266,111

<sup>i</sup> Information provided by the Travel Demand Model includes, arterial, major arterial and local roads

Unit cost (lane mile), includes the following:

- Updated TXDOT construction cost (2007)
- Added flat rate cost for signage, striping, landscaping, utility relocation and traffic control.
- Additional cost as a percent of construction cost for mobilization, environmental, engineering and contingency.

Cost does not include the following:

- Right of way acquisition, grade separation, flood control as in pumping stations, retention ponds and related facilities.

Figure 1.

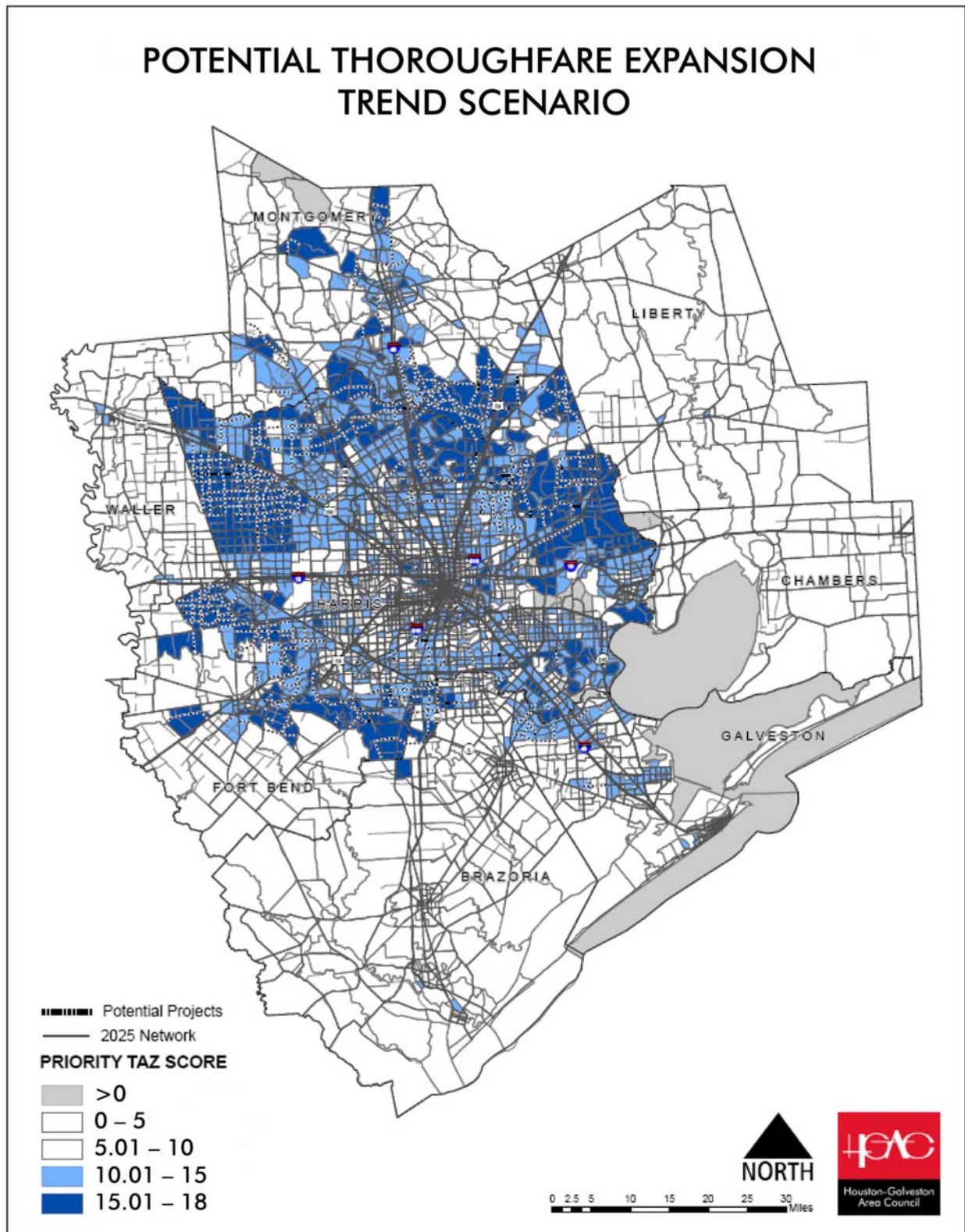
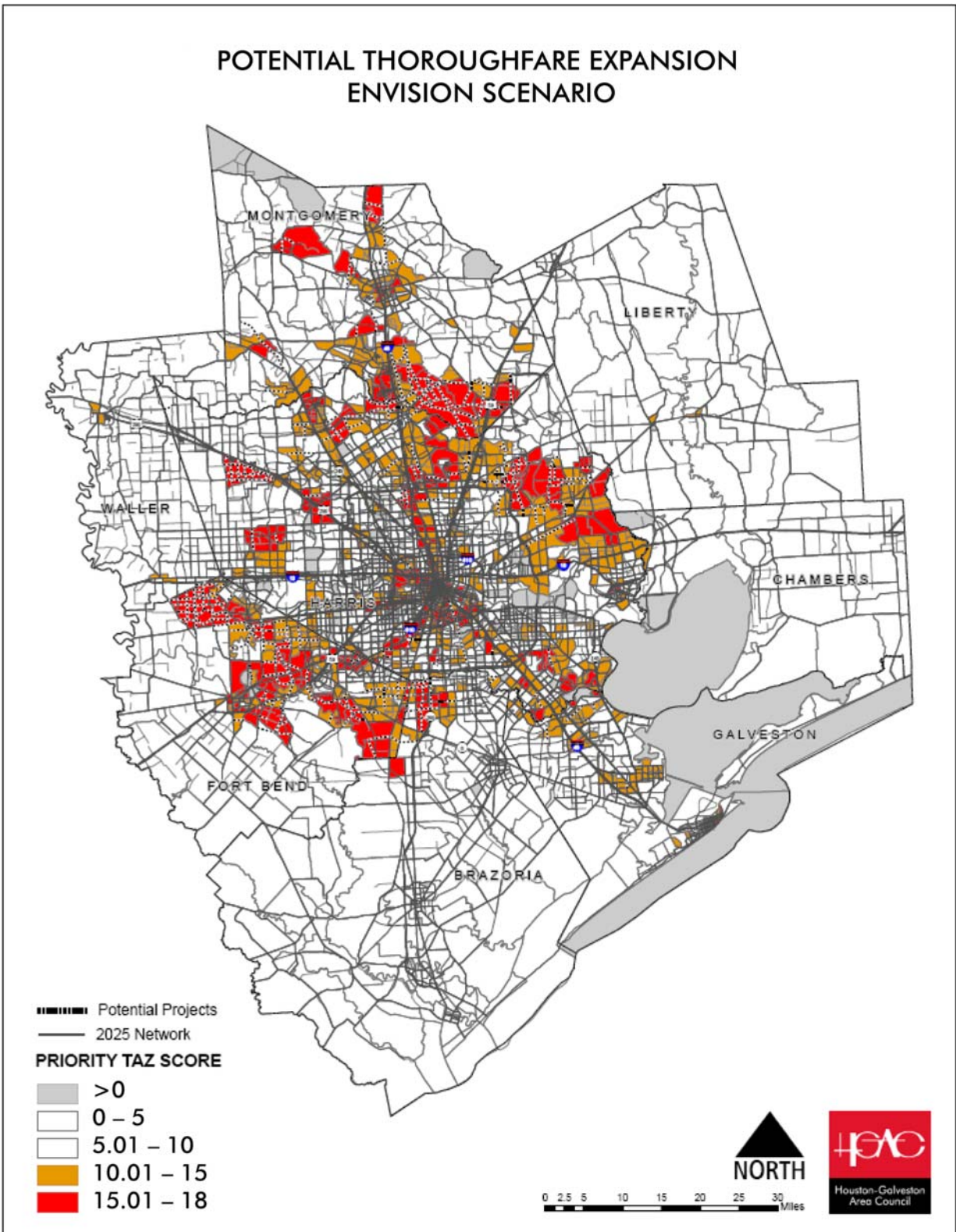


Figure 2.



## **PUBLIC TRANSPORTATION EXPANSION – BEYOND METRO SOLUTIONS**

Current population estimates indicate that over 3 million people reside within the METRO Service Area. Planning estimates show that approximately 1.2 million people live in high-density areas outside of the METRO service area, where fixed route transit services could be feasible. Many people live in other suburban and rural areas in the region that have noticeable gaps in public transit service--where that service is inadequate. Special transit needs populations, including persons of limited mobility, low income, disabled and the elderly are scattered throughout the region.

The 2035 RTP recommends extending transit services beyond the METRO Solutions Plan to make connections to significant regional destinations, to provide attractive alternatives for drive-alone motorists or discretionary drivers, and to ensure more mobility options for people without access to vehicles. Expansion of transit service coverage through the development of dedicated High Capacity Transit (HCT) corridors and the development of a better coordinated regional (13 county) transit system are recommended additions to the regional transit system. The 2025 RTP identified potential bus routes and paratransit service expansions beyond the METRO Service area. That service plan is to be expanded to include minimal transit coverage in the 13 counties of the Gulf Coast Planning Region.

### **High Capacity Transit (HCT) Corridors:**

HCT corridors will provide faster, more convenient and reliable transportation for a large number of people. As part of the long-range planning process, an analysis of major travel corridors outside of the METRO Service area was done. Based upon current and future population, employment and travel forecasts HCT corridors along SH 249, FM 521, SH 288, SH 225, SH 146 and SH 35 merit further consideration beyond the projects included in the METRO Solutions 2035 transit plan. Major corridor feasibility studies for those corridors have also been completed by TxDOT and most of them warranted a high capacity transit investment. Transit technologies to be considered in future corridor analyses might include light rail, commuter rail, express bus or Bus Rapid Transit (BRT) depending on projected ridership levels. Final selection of a transit technology will be based on a detailed corridor study that will examine a full range of technology options.

### **Potential High Speed Rail Corridors**

It will be increasingly more important for Houston's public transportation system to link with other major travel corridors in nearby major cities and in other states. In order to reserve space for potential connections to higher speed modes of intercity passenger transport, potential corridors will have to be preserved. It is anticipated that technological advances to passenger rail systems that have been implemented in other international cities will make the implementation of intercity higher speed passenger rail more feasible along the gulf coast region connecting California to Florida.

The Texas High Speed Rail and Transportation Corporation (THSRTC) – a coalition of cities, counties and interested private parties, is looking to develop a High Speed Rail service that will link Dallas-Fort Worth and San Antonio, with an extension from Killeen-Temple to Houston via Bryan-College Station, called the Texas T-Bone. The Texas-T-Bone would serve about 70



percent of today's Texans and about 78 percent of the projected 2040 population. The proposed plans will not only link riders directly to major metropolitan areas and state colleges, but possibly also major airports. In addition to an alternative transportation choice, the Texas T-Bone will also serve as a FEMA evacuation route, a welcome addition to the current roadway evacuation network. The 2035 RTP supports the purpose of THSRTC to improve multi-modal transportation in Texas.

**Texas Freight Rail Study:** In order to help the Legislature understand the extent of the rail infrastructure needs and the associated investment required, the Texas Transportation Commission commissioned a Statewide Freight Rail Study. This study will determine the amount of funding required to address the needs of our State's rail infrastructure and will identify a timeframe for implementation.

**Freight Rail District:** State and local officials are moving forward with the creation of a freight rail district containing Harris and surrounding counties. The district would be tasked with improving railroad capacity and operation. The Freight Rail District fills a gap where there has been limited expertise and focus outside of the rail industry. The District's mission is to better incorporate rail lines, both freight and commuter, into the region's transportation network. The District is tasked with sustaining regional and economic growth by guiding development of the rail network in a way that limits its impact on quality of life. In doing so, it will foster public-private partnerships with all levels of government and industry to develop projects and secure funding. All projects will require local government approval.

**Houston Region Freight Rail Study:** TxDOT has recently released the preliminary results of the statewide study that examined the freight rail traffic operations of the Houston region's system. Preliminary cost estimates indicate that \$ 92 million would be needed to implement the first phase of improvements to mitigate congestion at the most problematic bottle-neck locations. Approximately \$ 3-4 billion would be needed (total) to significantly improve freight rail operations in the Houston area. For more information on the Houston Region Freight Rail Study, please see [www.houstonrailplan.com](http://www.houstonrailplan.com).

**Commuter Rail Connectivity Study:** H-GAC is undertaking a comprehensive regional commuter rail connectivity study. The purpose of the study is to evaluate the feasibility, accessibility, and connectivity requirements of implementing commuter rail service along selected corridors in the eight-county H-GAC region. The selected corridors for this analysis will be identified from information gathered from the [Statewide Freight Rail Study](#) being conducted by the Texas Department of Transportation. Corridors will be ranked by factors such as cost, right of way availability, and capacities or freight volumes. This study will look at the routing viability along each corridor, potential ridership, potential station locations, and the operability, logistics, and challenges associated with connecting these corridors to the existing and proposed transit network. For more information please go to the website <http://www.hgaccommuterrail.com/>.