



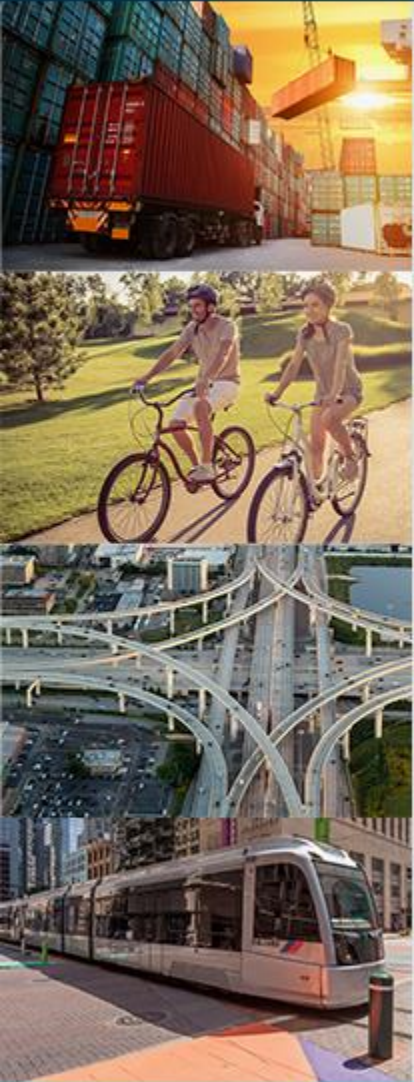
# 2045 Regional Transportation Plan



**Public Meeting**  
**April 24, 2019**



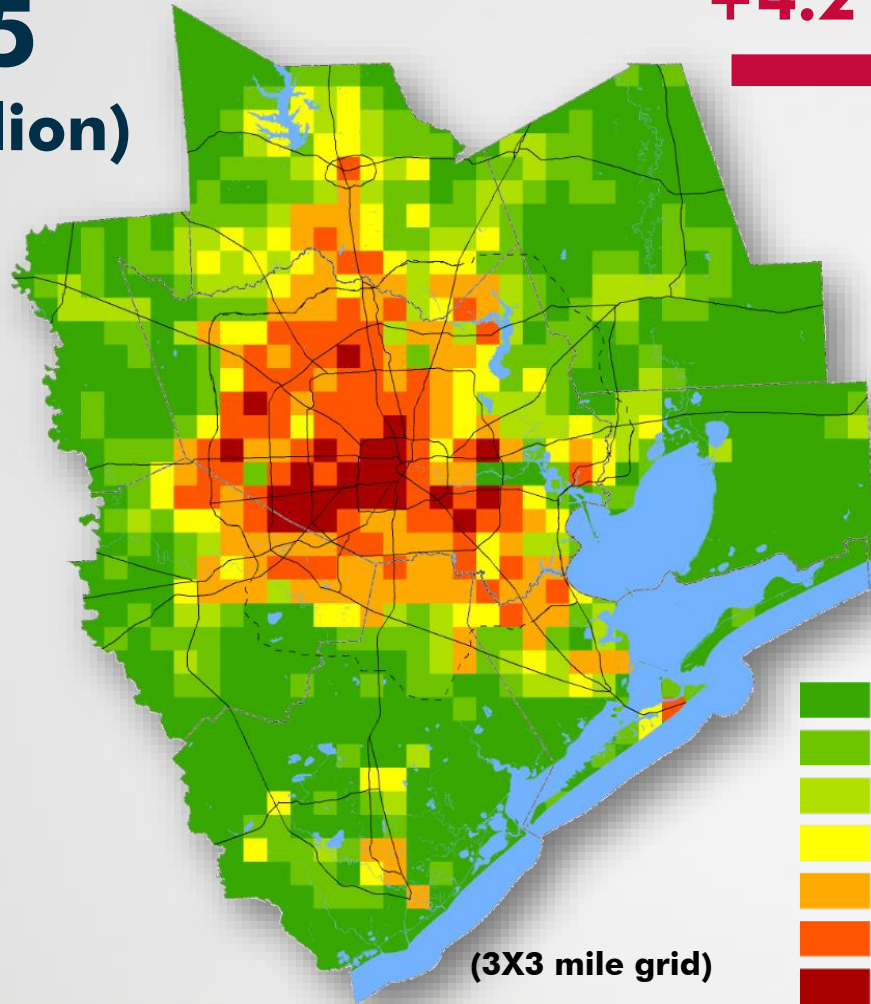
# 2045 RTP Overview



- Update to current 2040 RTP
- Vision, goals, strategies
- Performance measures/targets
- Future available revenue forecasts
- Recommendations/projects list

# Household Population

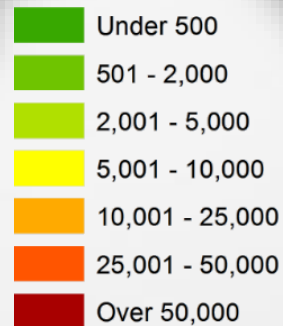
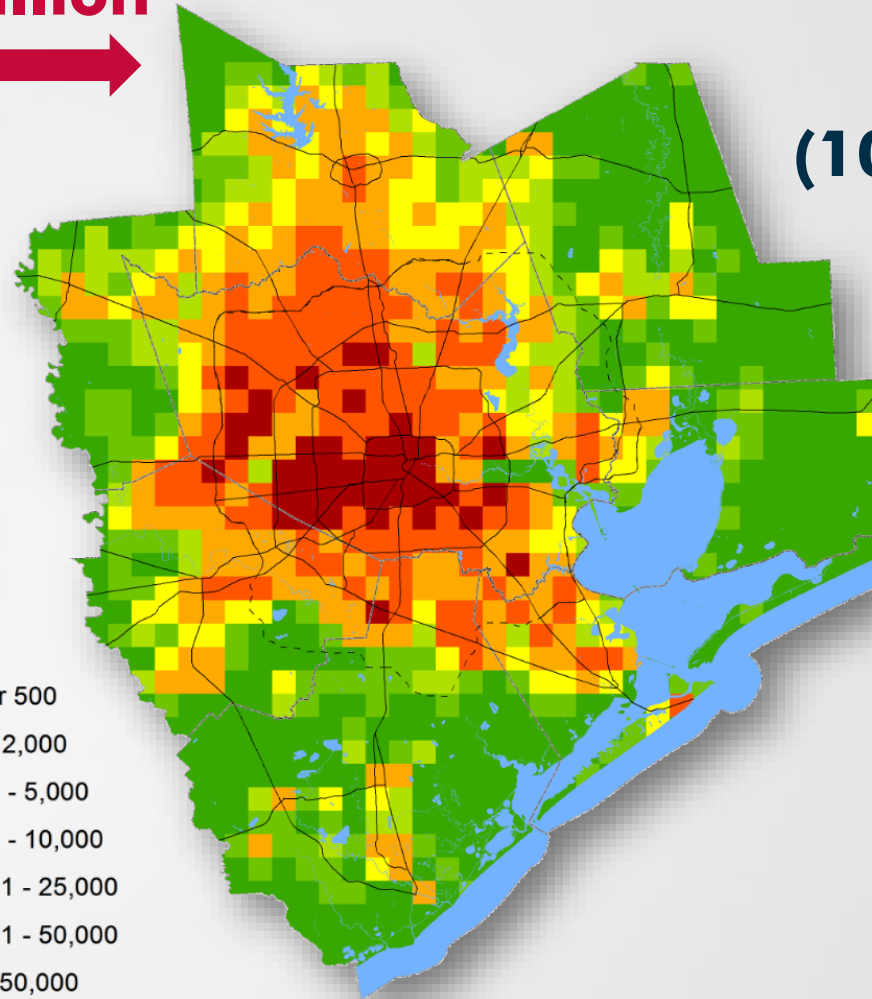
**2015**  
**(6.54 Million)**



**+4.2 Million**

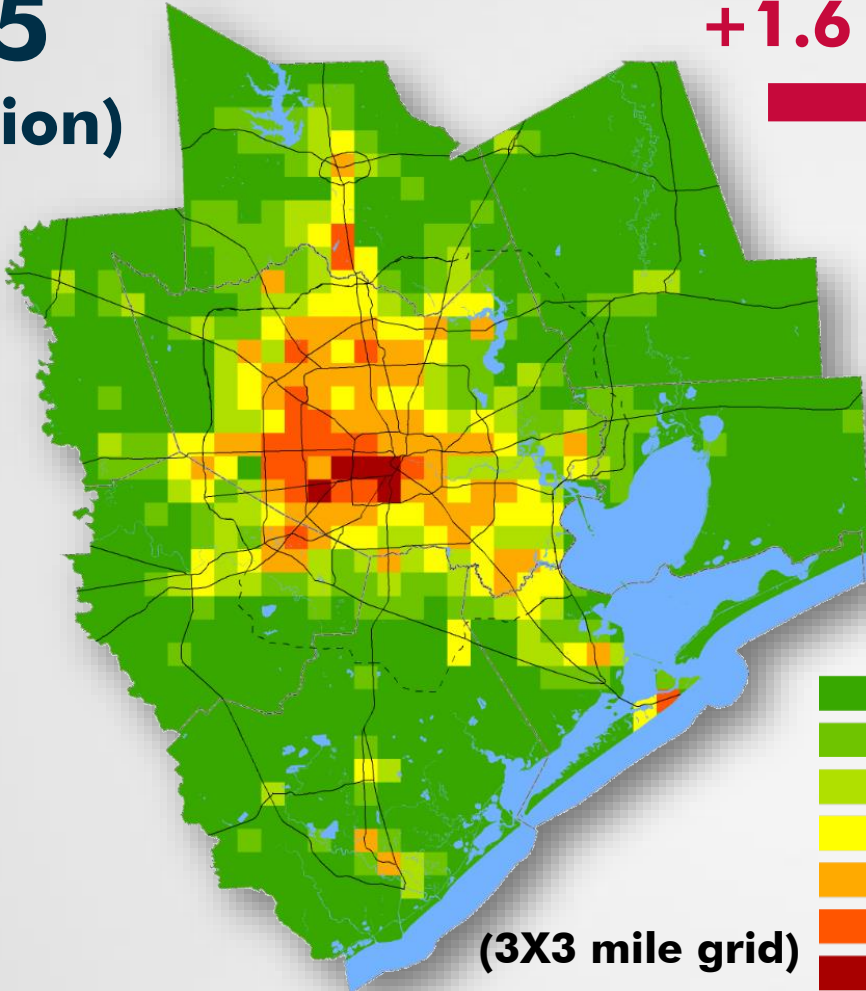


**2045**  
**(10.76 Million)**



# Employment

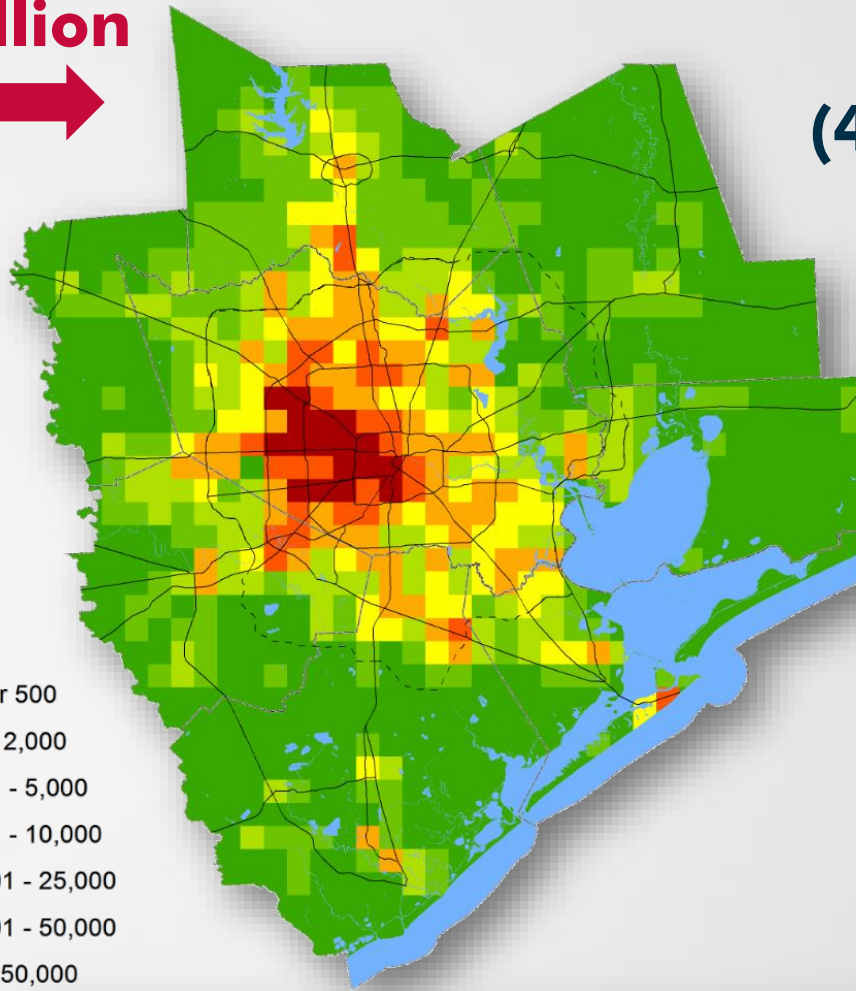
**2015**  
**(3.2 Million)**



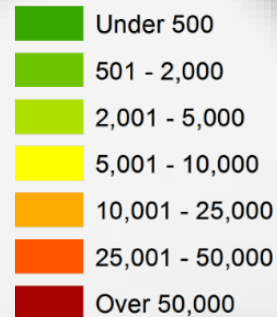
**+1.6 Million**



**2045**  
**(4.8 Million)**

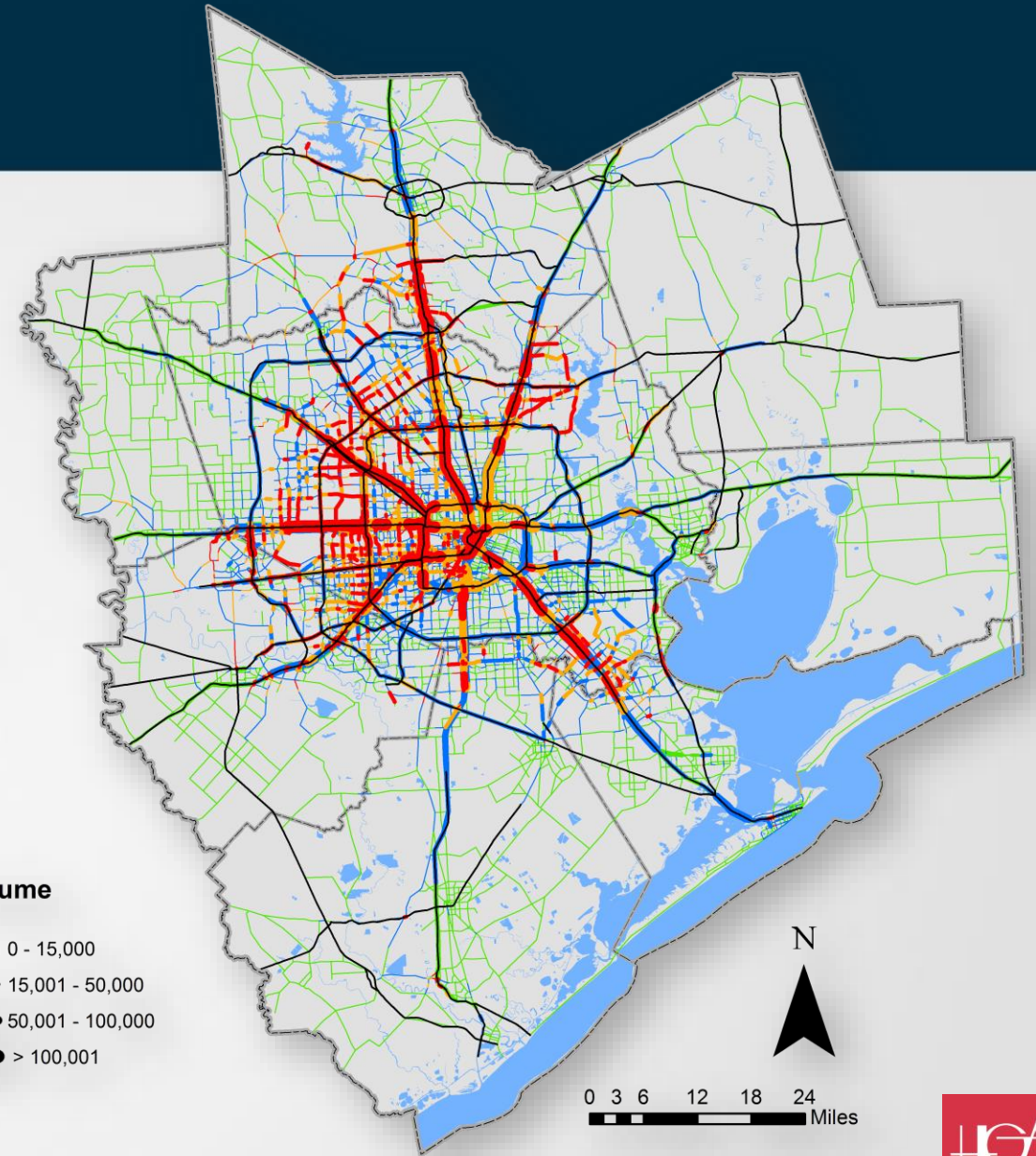
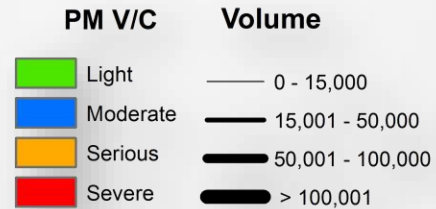


**(3X3 mile grid)**



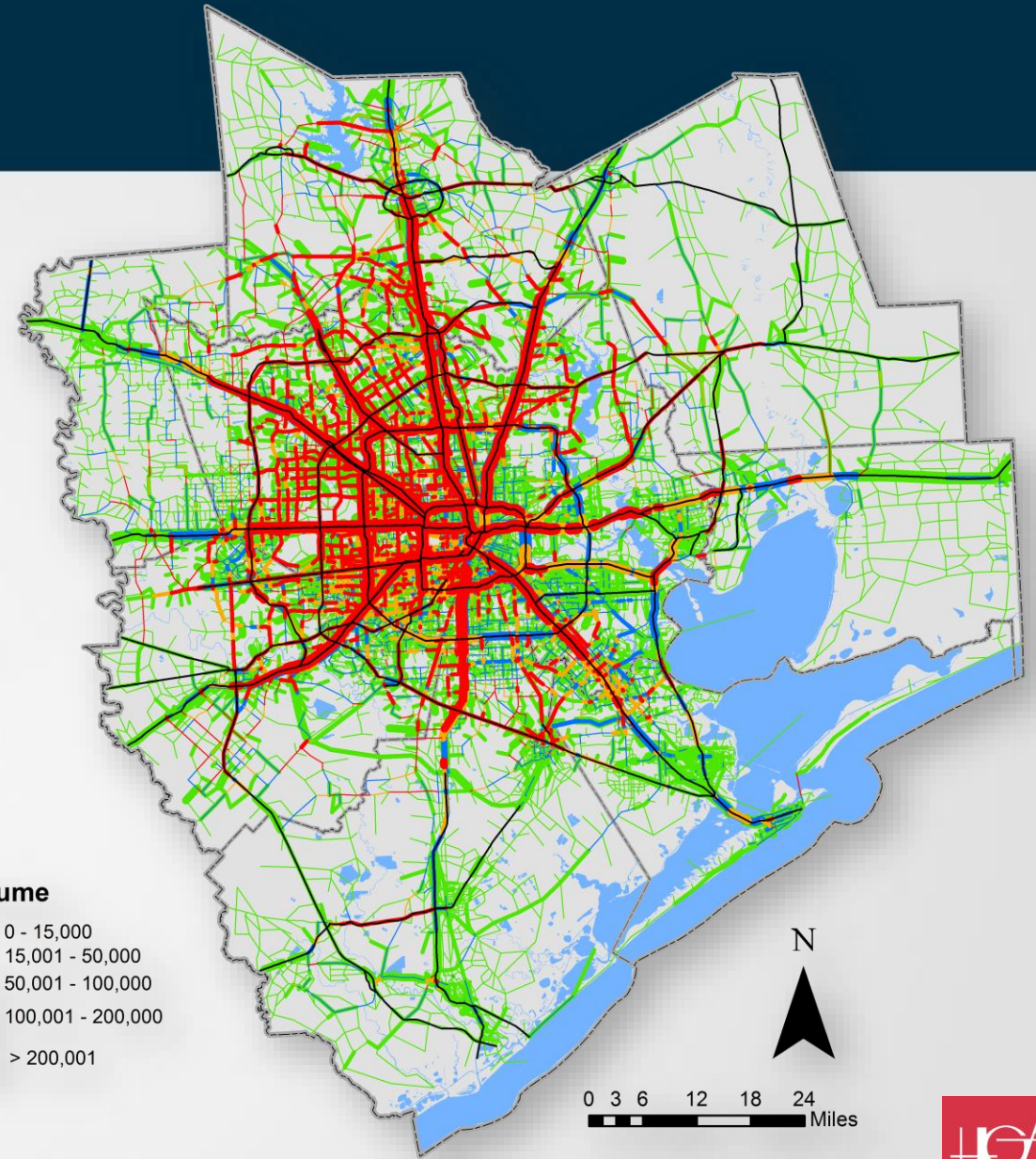
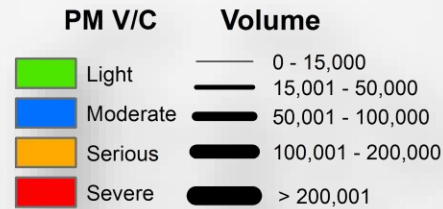
# Travel Trends

## 2020 Congestion

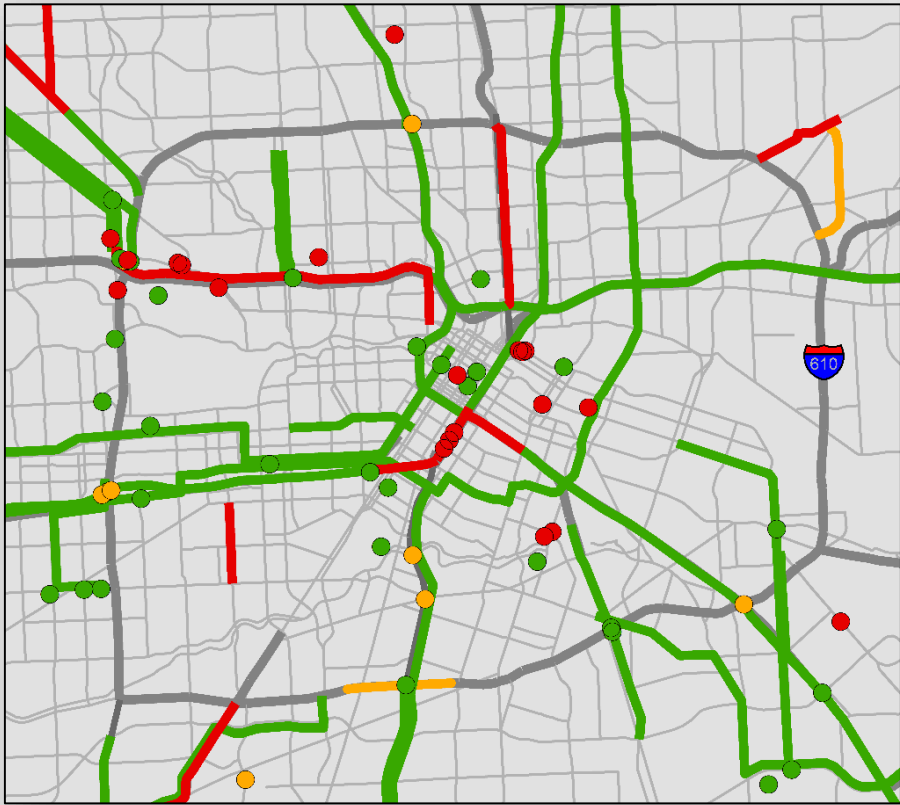


# Travel Trends

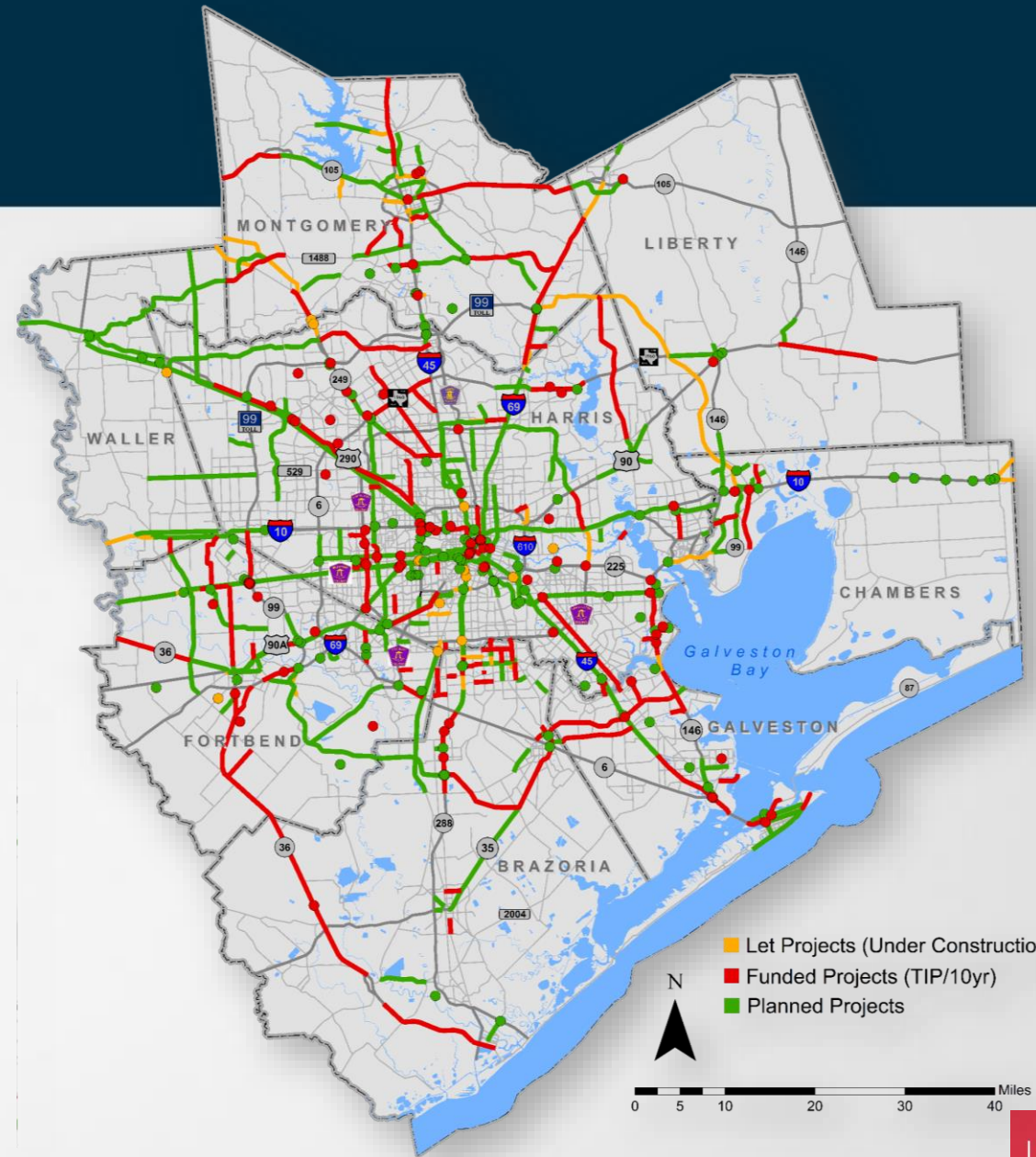
## 2045 Congestion



# 2045 RTP Projects



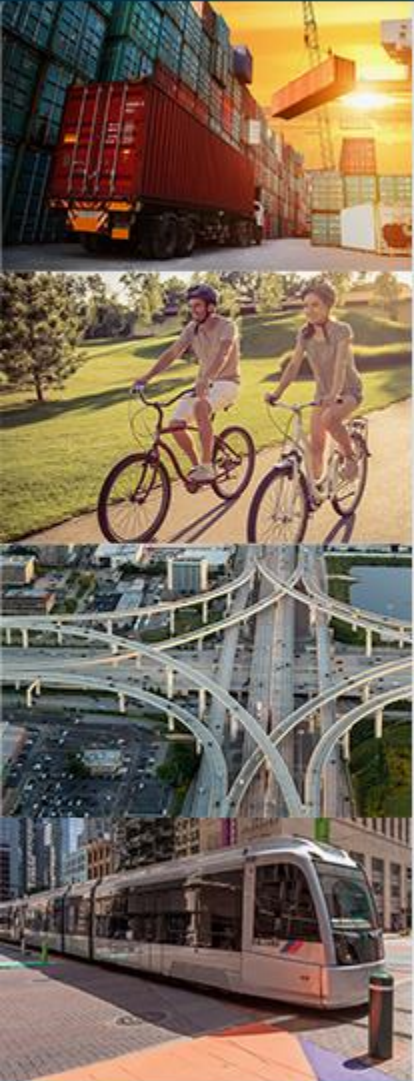
- Let Projects (Under Construction)
- Funded Projects (TIP/10yr)
- Planned Projects



- Let Projects (Under Construction)
- Funded Projects (TIP/10yr)
- Planned Projects

# Regional Safety Plan Focus Areas

- Impaired driving
- Speeding
- Distracted driving
- Bicycle & pedestrian safety
- Intersections



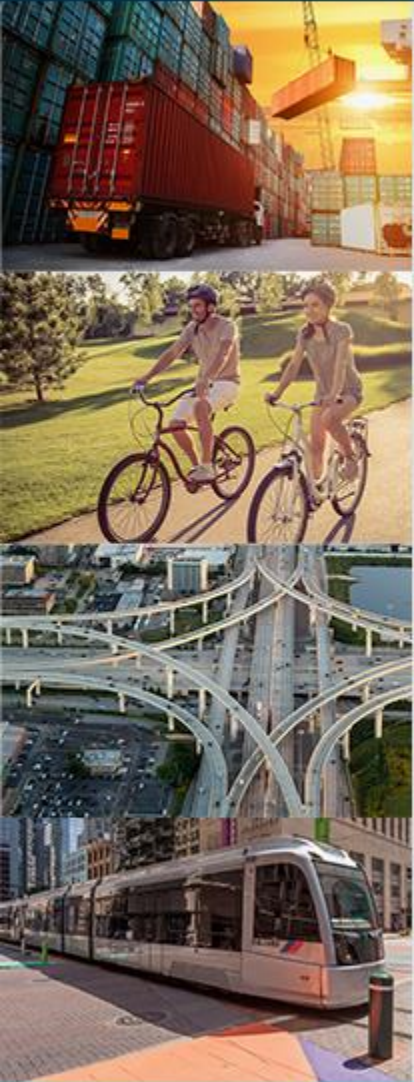


# Traffic Safety Strategies



- Launch Regional Safety Campaign (e.g., Distracted Driving)
- Expand existing traffic safety programs
- Coordinate Regional DWI STEP activities
- Collaborate with regional DA Offices on DWI offenses
- Review high crash intersections for short-term improvements
- Develop consensus for additional plan countermeasures

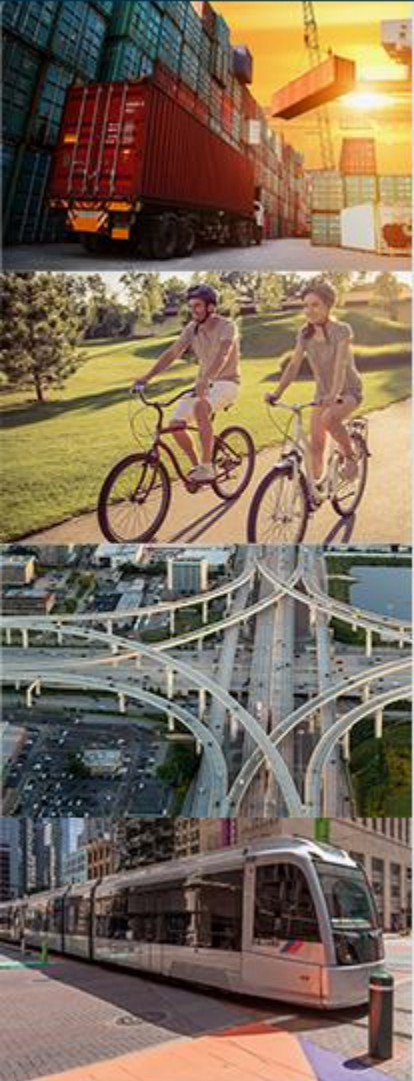
# Freight Recommendations



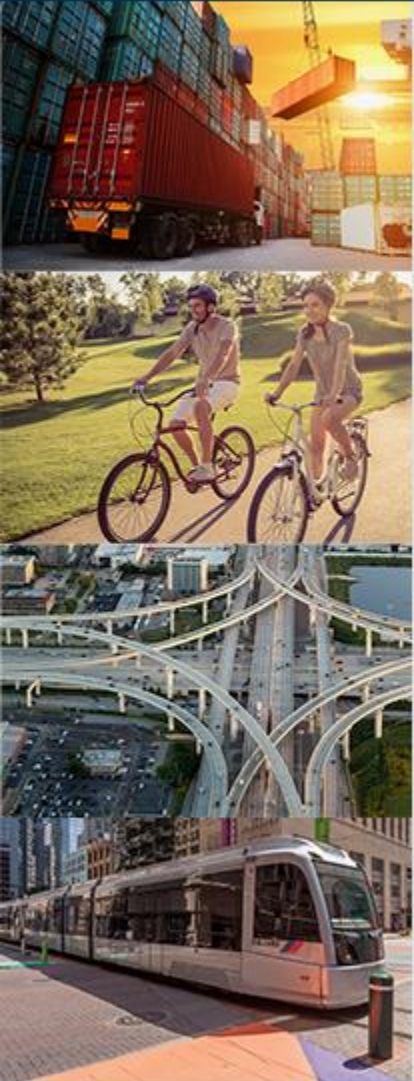
- Work with Partners to mitigate short-term deficiencies on the freight –significant network
- Develop a concept of operations for a freight ITS program
- Improve flow of containers through a virtual container yard to reduce truck trips
- Provide access to growing economic centers outside the urban core

# ITS/Operations Recommendations

- Travel Demand Management Strategies/Programs
  - Carpool/Vanpool
- Freeway Incident Management
- Access Management
- Intersection Improvements
- Intelligent Transportation Systems



# Planning Factors



- Resiliency
- Intercity buses
- Enhance travel & tourism
- Automated & connected vehicles
- Natural hazard mitigation



# High Capacity Transit

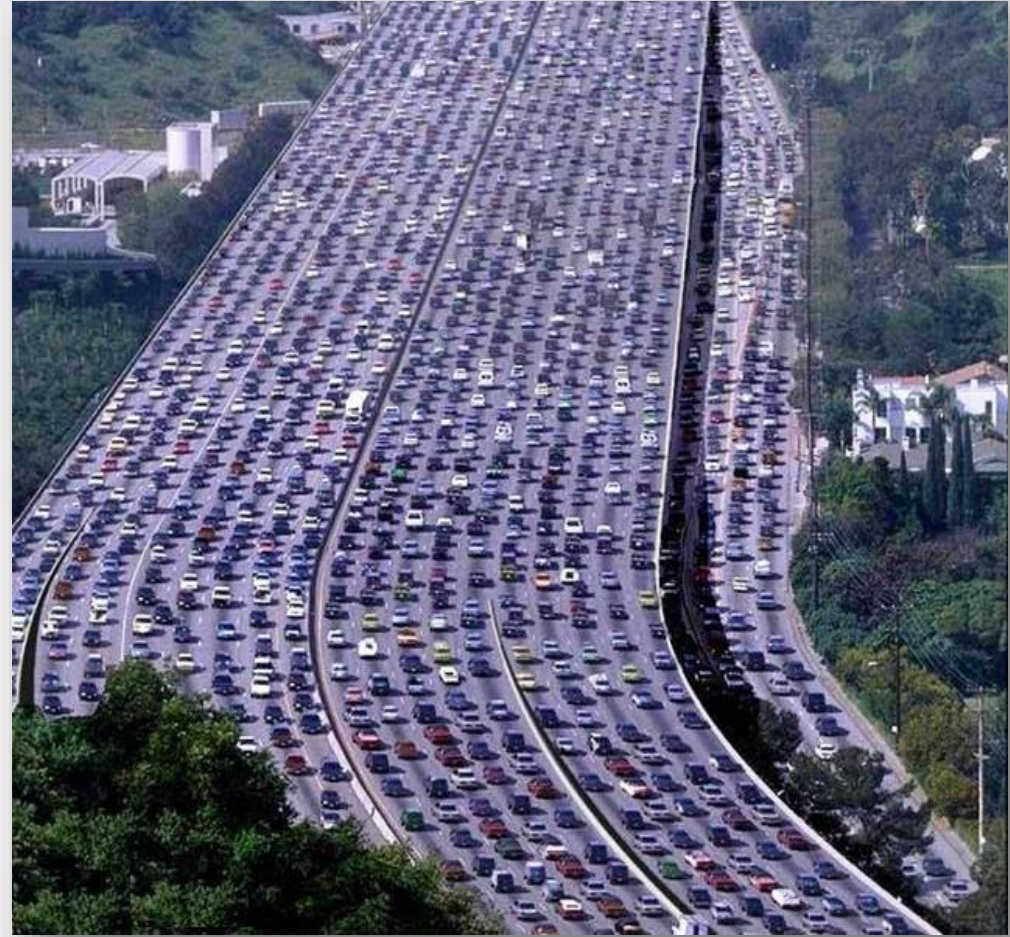


**Thomas Gray**  
**April 2019**



# Where Are We Headed?

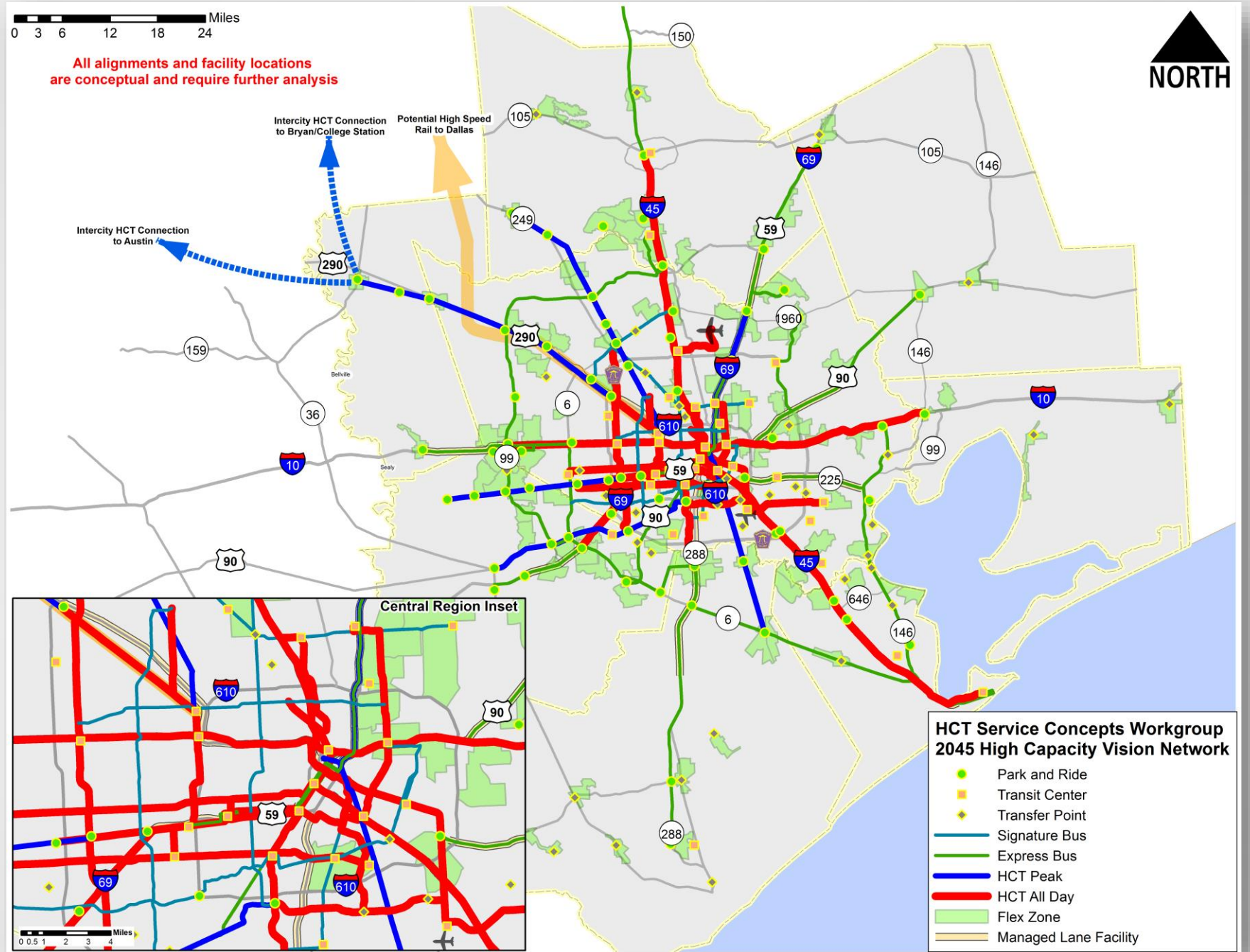
- Widening highways alone cannot handle growth.
- How can we carry more people & goods faster?



# What is High Capacity Transit?



# Vision



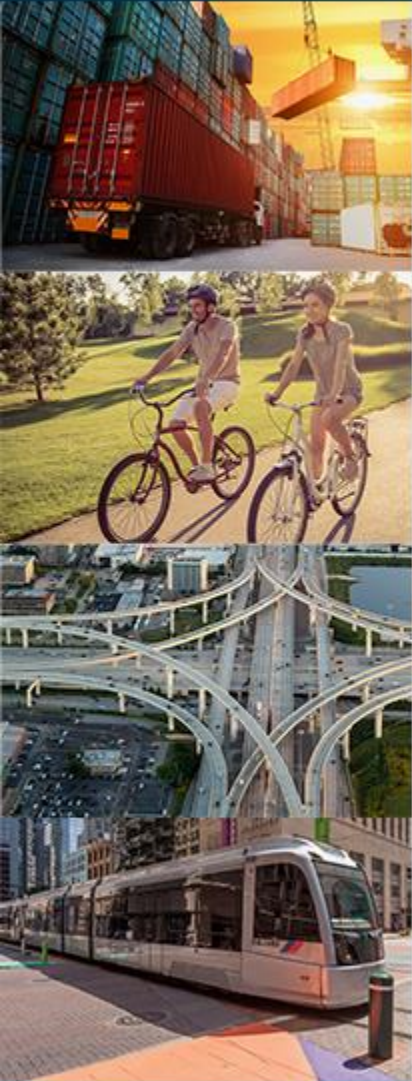


# It's Not Just High Capacity...



- Expanded local services (areas indicating high transit need that do not currently have service, e.g. Pasadena, Channelview, etc.)
- Regional services (connecting outlying communities to each other and to core)
- Flex Zones (Community Connectors)
- “Non-Traditional” Express Bus Service
  - Reverse Commutes / Suburb-to-Suburb

# Comparison of Capital Cost Scenarios

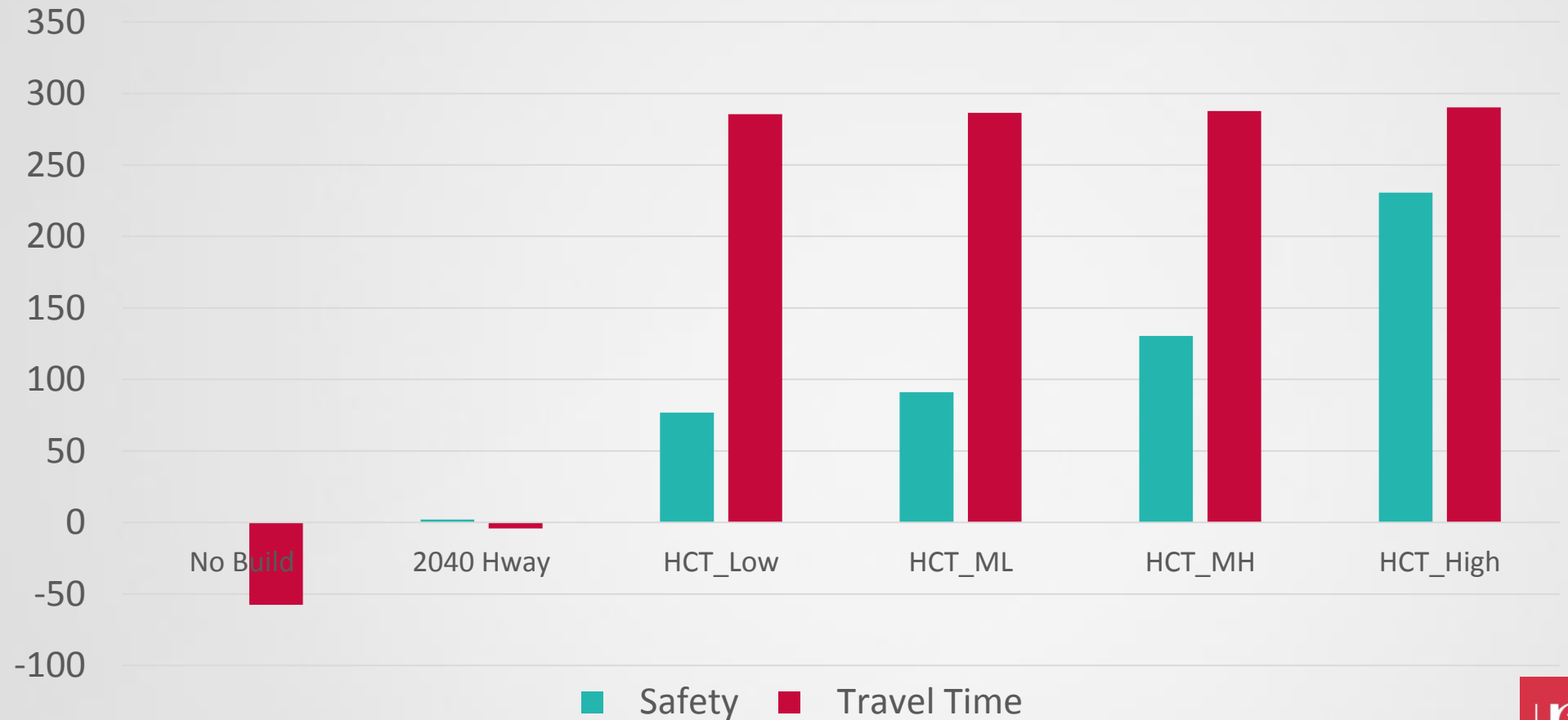


	Existing (2017 NTD Data)	HCTTF Vision Low	HCTTF Vision Medium Low	HCTTF Vision Medium High	HCTTF Vision High
<b>Annual Boardings, All Services</b>	90.4M	515.2M	542.8M	636.3M	852.8M
<b>Annual Passenger Miles, All Services</b>	595.2M	2.7B	3.0B	3.7B	5.6B
<b>Annual Passenger Hours, All Services</b>	n/a	155.3M	164.7M	176.3M	251.2M
<b>Capital Cost, Cumulative 2020-2045</b>	n/a	\$ 34.7B	\$ 43.2B	\$ 81.3B	\$ 100.4B
<b>Annual Net O&amp;M Cost, All Services, Full Buildout</b>	\$551M	\$ 1.4B	\$ 1.4B	\$ 1.4B	\$ 1.4B
<b>Transit Mode Share: Home-Bound Work Trips</b>	2.3%	11.5%	12.3%	14.2%	20.2%
<b>Comparable City/Metro (per US Census ACS Data)</b>	Houston	Chicago	Boston	Washington, DC	2nd only to NYC

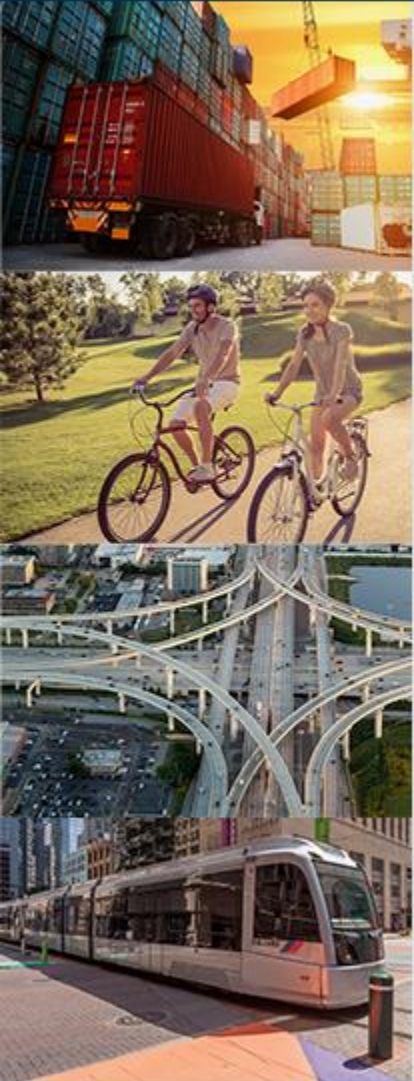
# Societal (User) Benefits



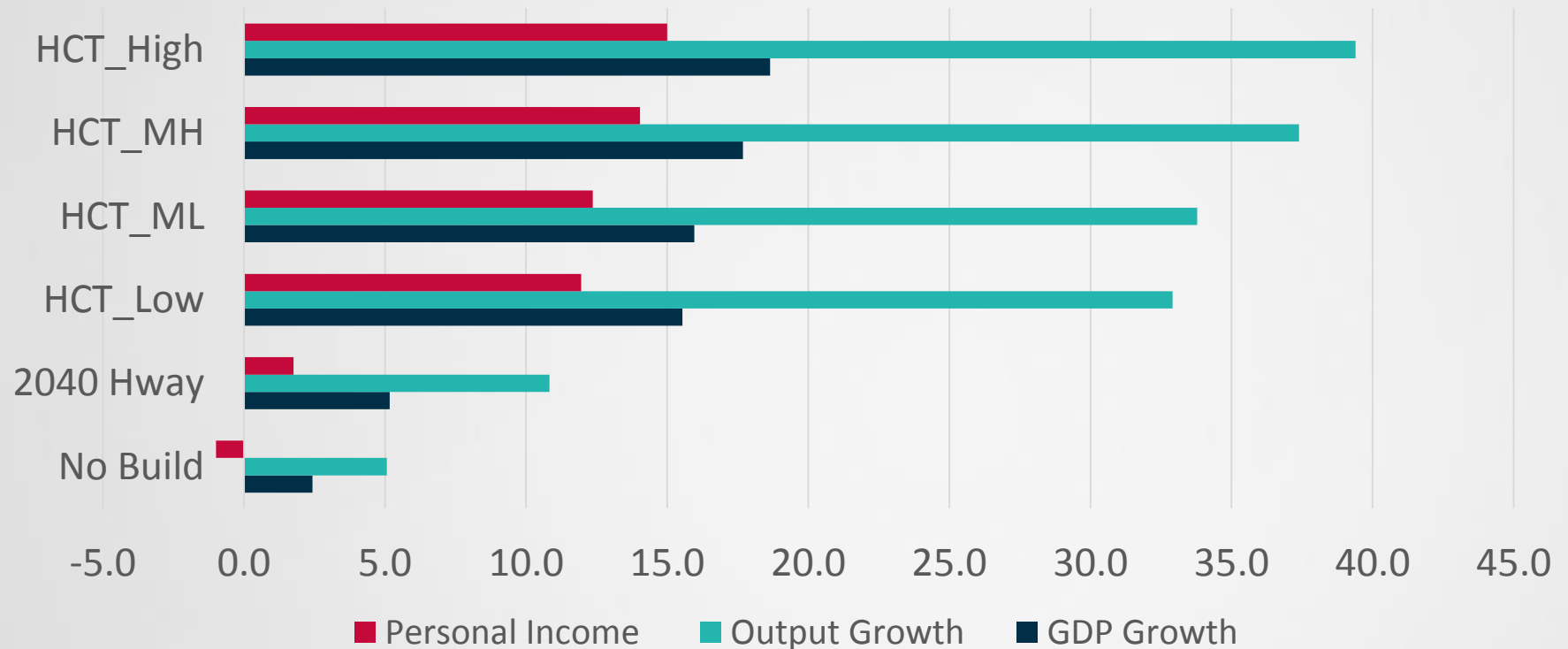
## Travel Time and Safety Benefits (\$ Billions)



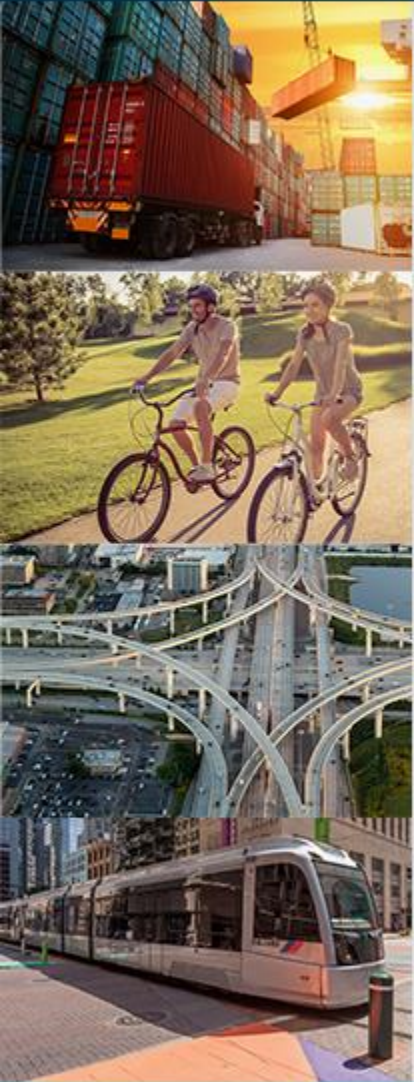
# Economic Impact



## Regional Economic Impact (In Billions)

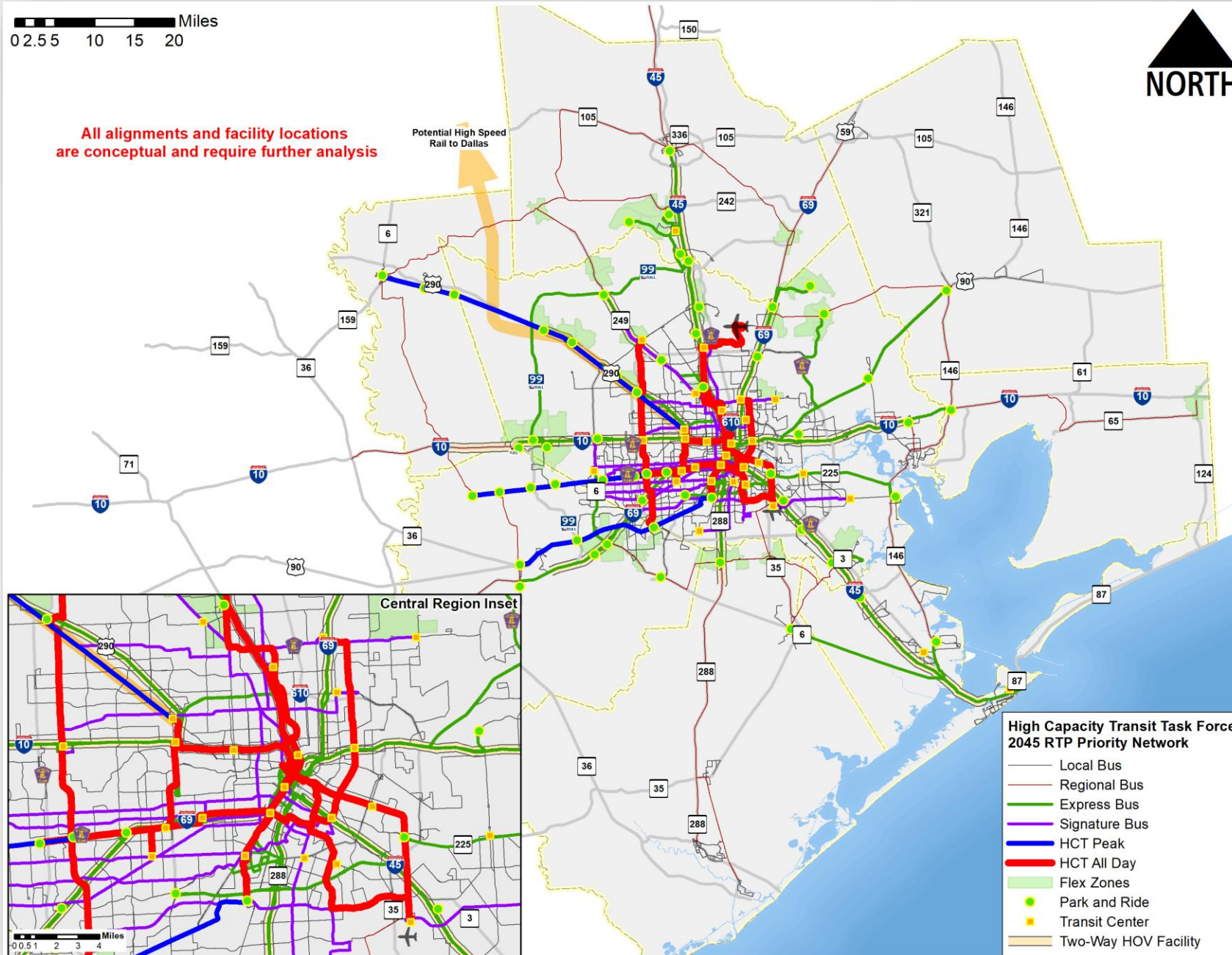


# Priority Network Objectives



- Expansions of commuter and local transit services in all eight counties of region
- Better service for employment centers and commute patterns not well-served by current transit network
- Alignment with METRONext
- Leverage existing infrastructure/ROW

# Priority Network



# General Principles/Supporting Concepts

- Regional Fare & Marketing
- Universal Accessibility
  - “People can’t use transit if they can’t get to it”
  - No new service without access
- First Mile/Last Mile
- Transit-friendly design/parking
- Automated Vehicles
  - Opportunities and Challenges



# Conceptual Examples



**Automated Bus Platoon**



**Transit Priority Infrastructure**  
34<sup>th</sup> Street, Manhattan



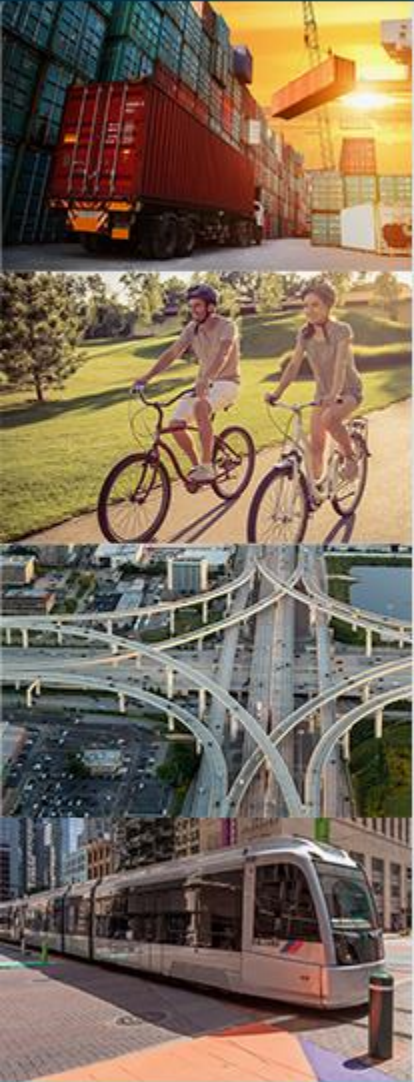
**Complete Street**  
College Street, Toronto



**Online Bus Station**  
I-35W @ E 46<sup>th</sup> St, Minneapolis



# Priority Network: Preliminary Figures



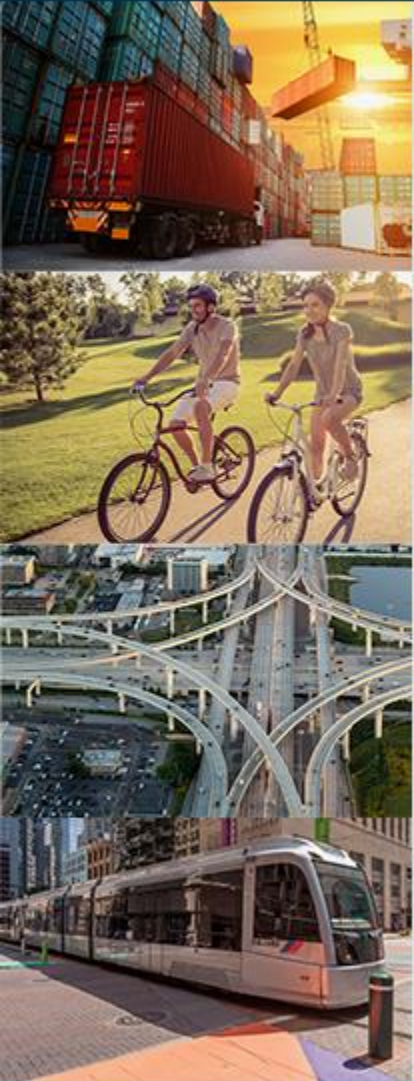
- Capital cost: **\$21.7 Billion**
- Annual O&M cost: **\$1.14 Billion**
- Ridership estimate: **277 Million** boardings/year (all services)
- Estimated user benefit: **\$520 Billion**

# High Capacity Transit Task Force

*Make no little plans; they have no magic to stir men's blood and probably themselves will not be realized.*

**Daniel Burnham**

[h-gac.com/high-capacity-transit-task-force/high-capacity-transit-summary-report.aspx](http://h-gac.com/high-capacity-transit-task-force/high-capacity-transit-summary-report.aspx)





# 2045 Active Transportation Plan

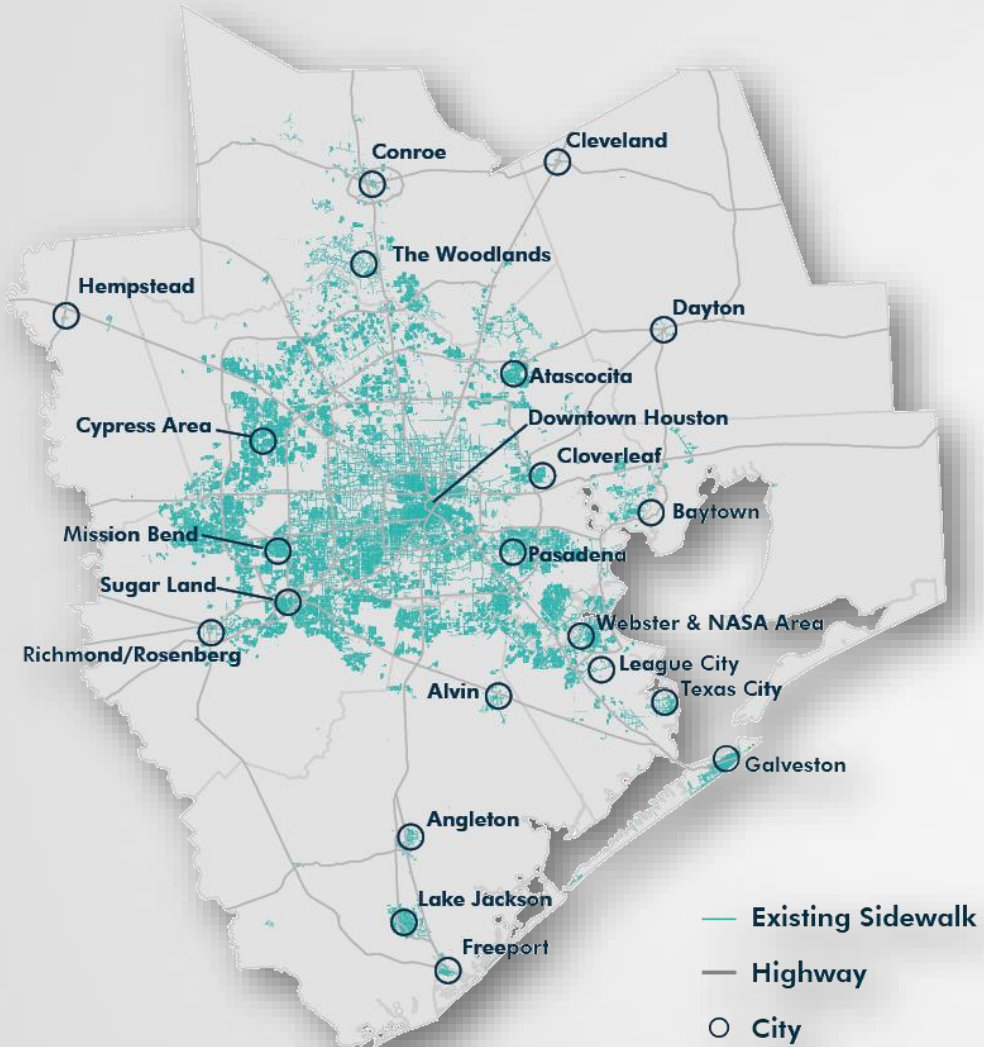


Clint McManus  
April 2019



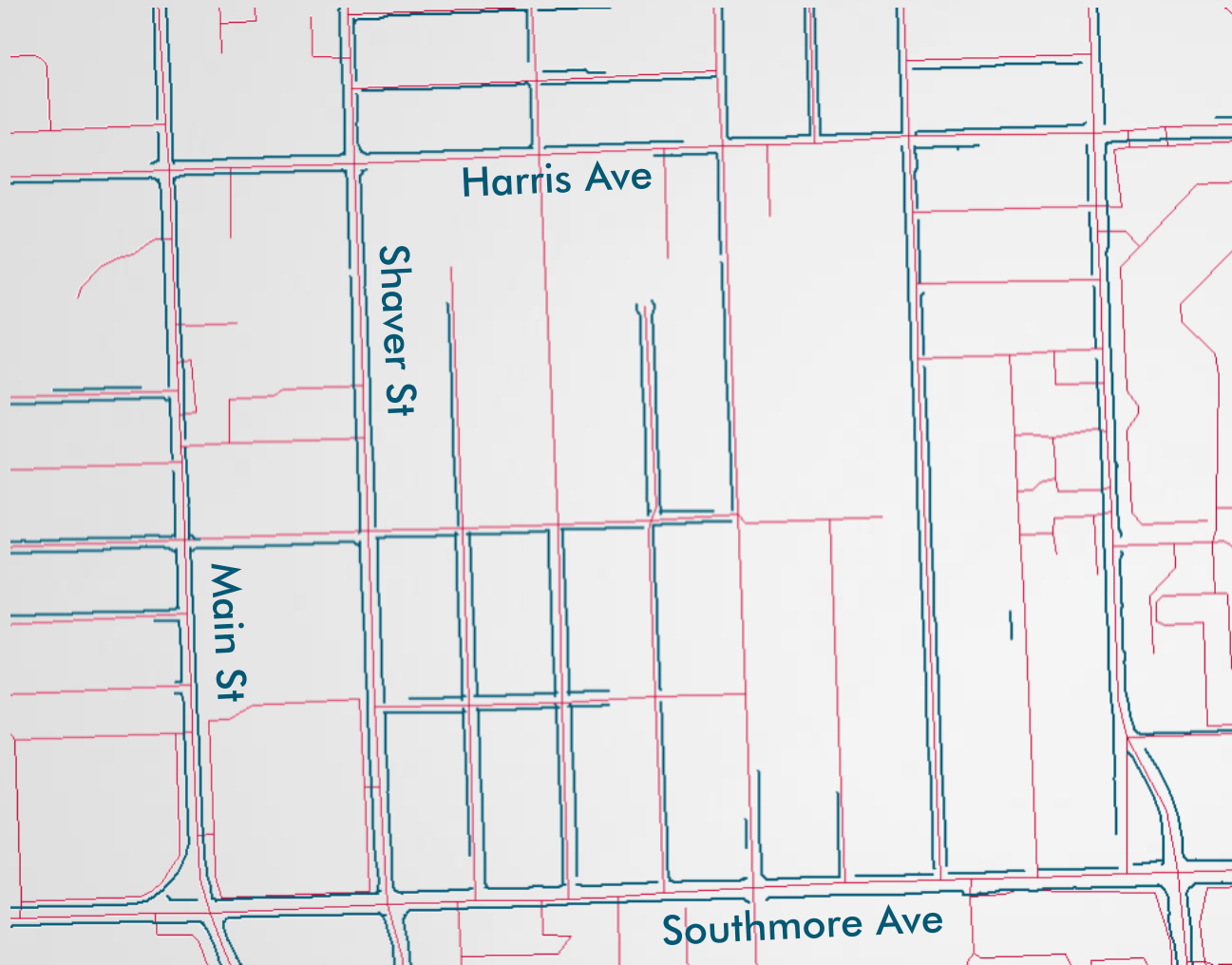
# Sidewalk Network

- 19,300 miles existing
- 43,900 miles needed



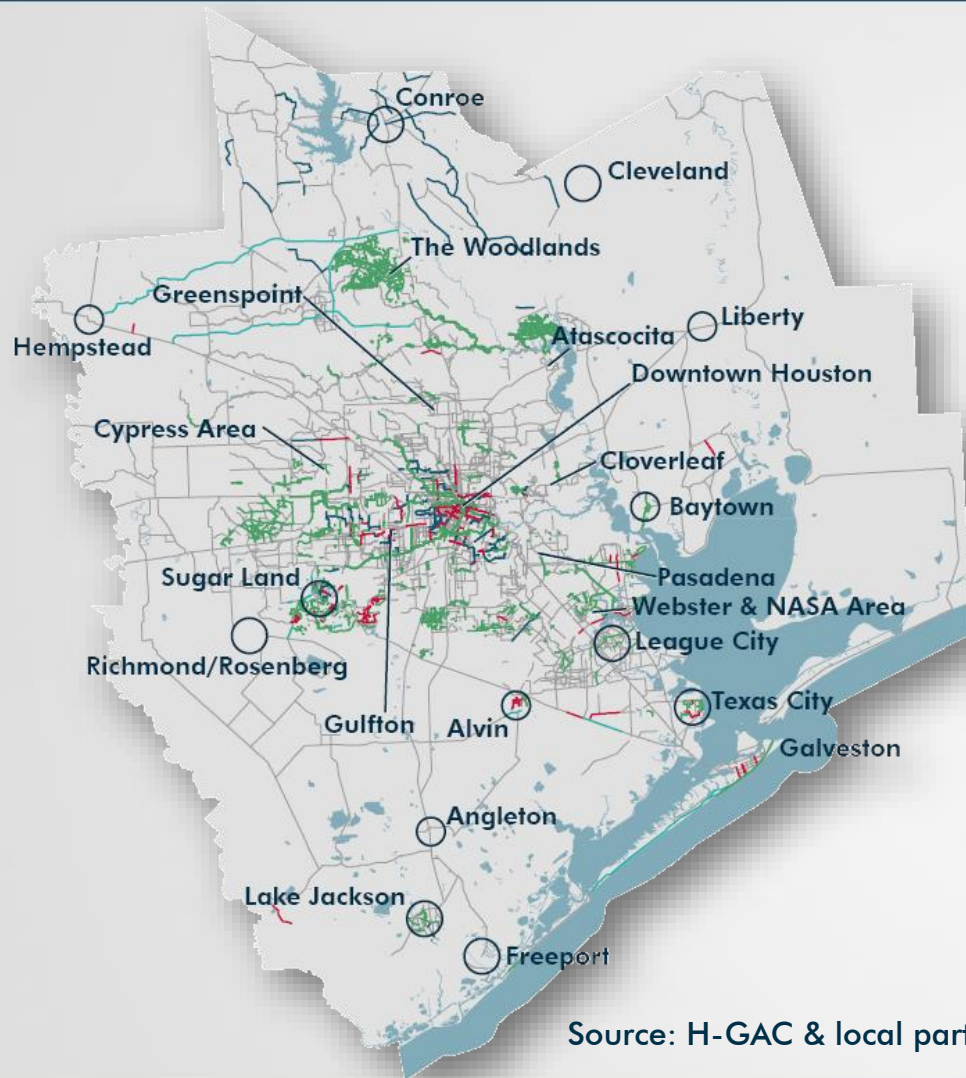
Source: H-GAC Regional Sidewalks, 2018

# Sidewalk Network


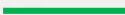


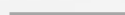


- Roadway
- Existing Sidewalk

# Bikeway Network

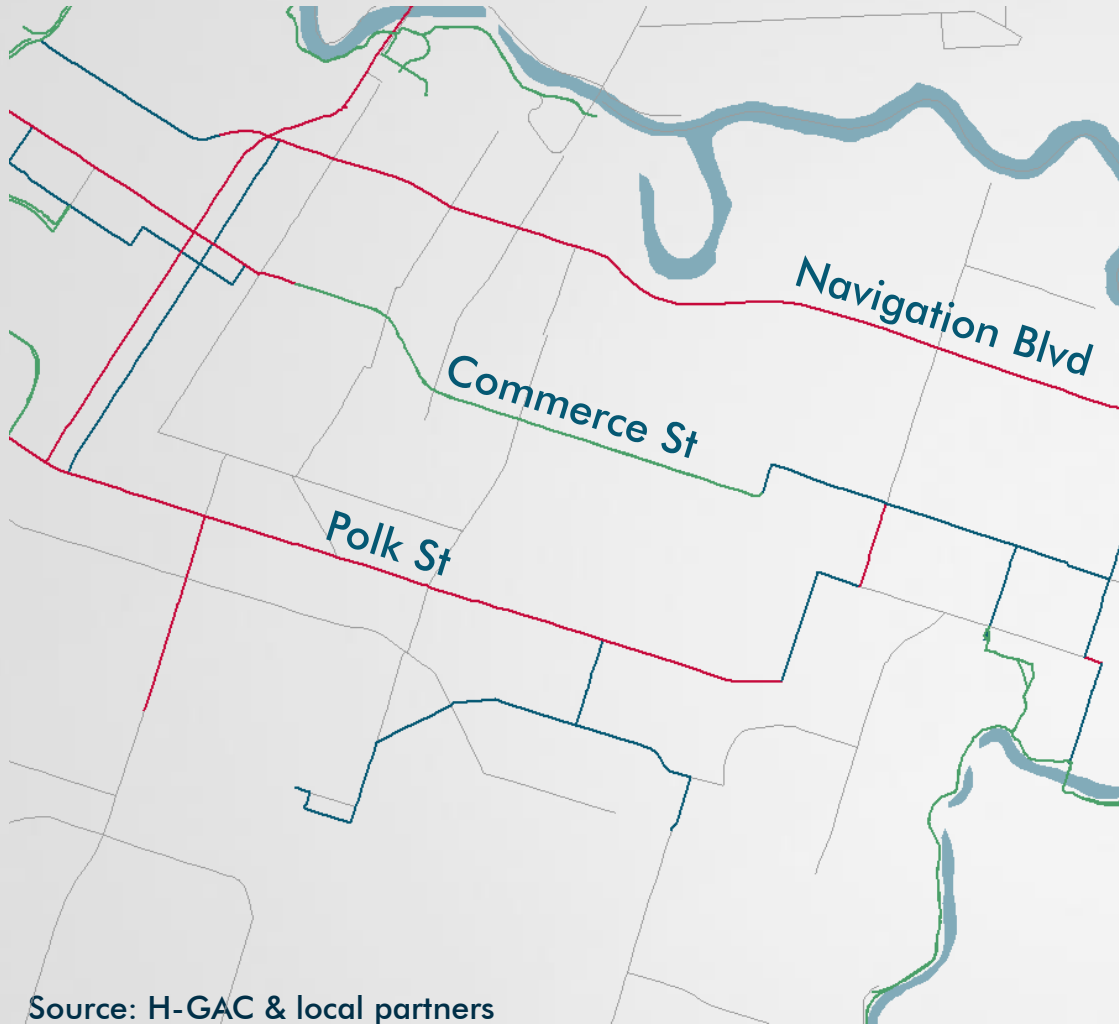





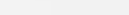
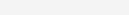
Source: H-GAC & local partners

-  Bike Lane
-  Shared-Use Path/Trail
-  Signed Shared Roadway
-  Signed Shoulder Bike Route
-  Proposed

- 1,478 miles existing
- 3,803 miles proposed

# Bikeway Network



-  Bike Lane
-  Shared-Use Path/Trail
-  Signed Shared Roadway
-  Signed Shoulder Bike Route
-  Proposed

Source: H-GAC & local partners

# A Vision for 2045

Pedestrians and bicyclists of all ages and abilities can travel conveniently and comfortably in all communities using interconnected, well-maintained networks of walkways and bikeways.



# Recommendations

## **PRIORITIZE SAFETY**

Improve safety for people walking, biking, and rolling.

## **ENSURE EQUITY**

Ensure that all people – regardless of age, ability, or location within the region – have access to walkways and bikeways that are safe, convenient and comfortable.

## **CONNECT**

Build interconnected networks of walkways and bikeways in Focus Areas.

# Recommendations, cont'd.

## **MAINTAIN & MONITOR**

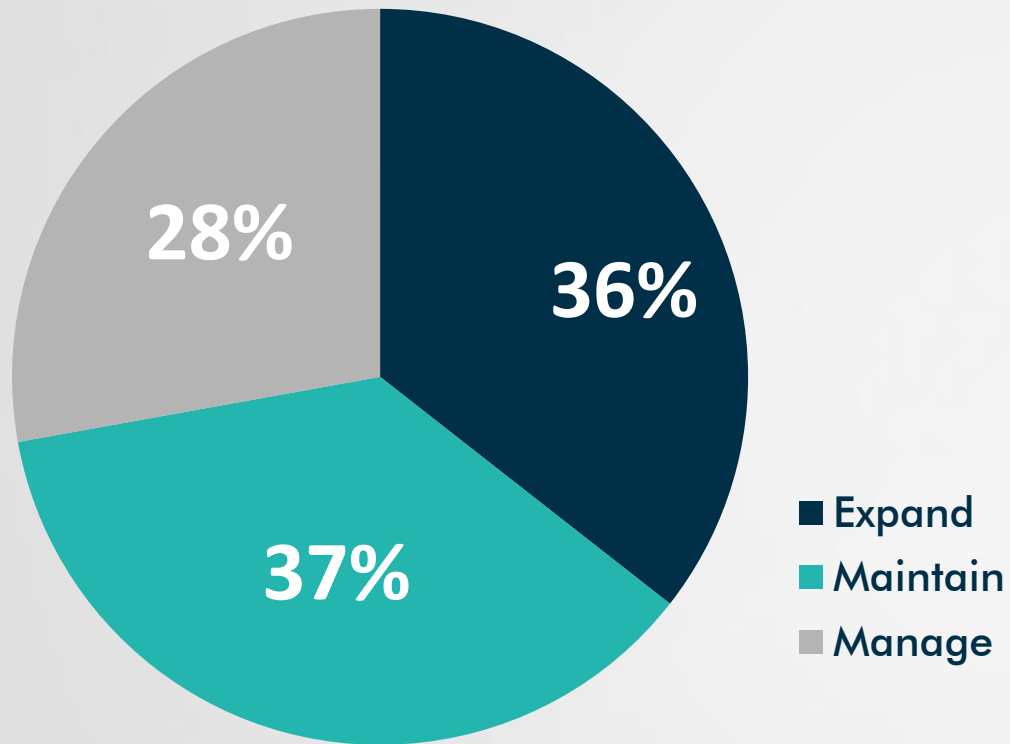
Maintain and improve the existing network of walkways and bikeways in the region and coordinate regional data collection for active transportation infrastructure.

## **ENCOURAGE**

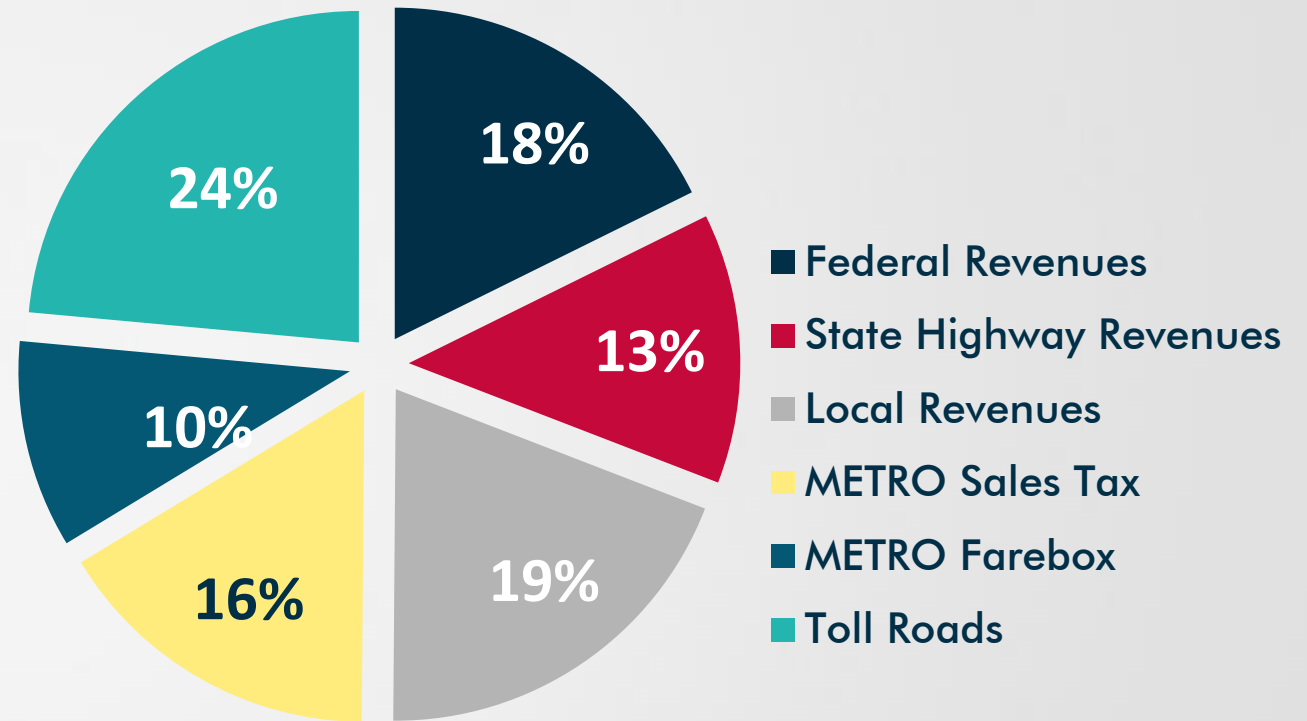
Encourage and incentivize the use of walkways and bikeways to mitigate congestion, improve air quality, and increase physical activity.

# Fiscal Constraint

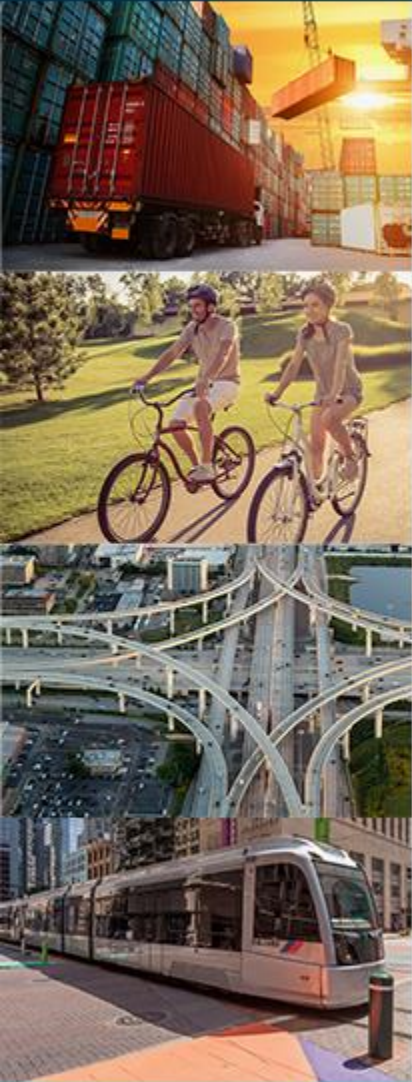
**Expenditures by Strategy**  
**Total: \$132 Billion**



**2045 RTP Revenue by Source**  
**Total: \$147 Billion**



# What is Conformity?

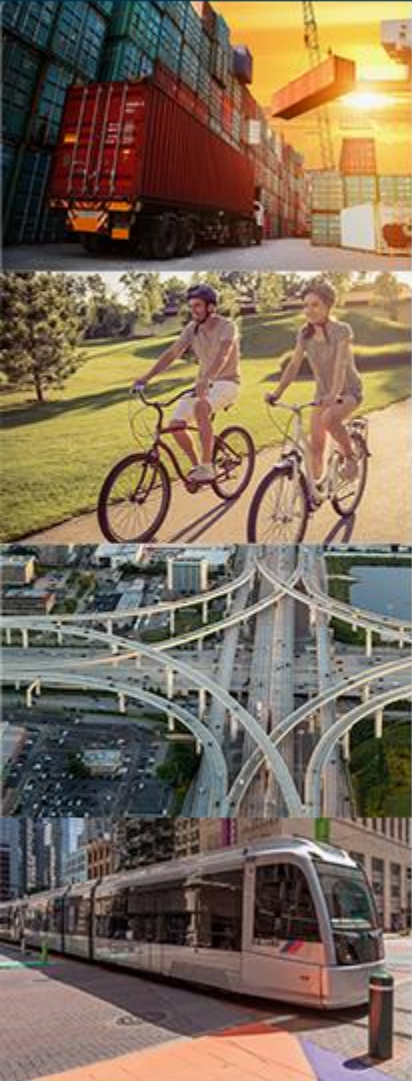


- Links the air quality State Implementation Plan (SIP) with regional roadway planning (RTP/TIP)
- Coordination with consultation partners (EPA, FHWA, TCEQ, and TxDOT)
- Uses the latest EPA-approved emissions model
- Ensures transportation plans do not delay attainment of NAAQS

# Air Quality Budgets

- Houston region in non-attainment for 2008 8-hr Ozone Standard & 2015 8-hr Ozone Standard
- Latest emission budgets from Air Quality State Implementation Plan

RFP Demonstration Budgets (t/d)		
Year	NO <sub>x</sub>	VOC
2017	121.81	68.04



# Draft Conformity Results

Year	NOx Emissions (tons/day)	NOx Budget (tons/day)	VOC Emissions (tons/day)	VOC Budgets (tons/day)	VMT
2020	79.62	121.81	45.92	68.04	186,102,566
2030	47.47	121.81	30.37	68.04	227,527,778
2040	43.09	121.81	22.87	68.04	261,487,989
2045	47.43	121.81	23.89	68.04	284,677,064

# 2045 RTP Schedule

	2018		2019				
	Nov	Dec	Jan	Feb	March	April	May
2045 Update	●						
Develop 2045 recommendations and planning analysis	■						
2045 Update		⊕ ● ★					
30 Day Public Comment			■				
Draft recommendations/assumptions				⊕ ● ★			
2045 RTP Workshop				■			
Draft RTP for Preview					⊕ ● ★		
30 Day Public Comment						■	
Final Draft RTP for Action						⊕ ● ★	⊕ ● ★

- ⊕ TIP/RTP Subcommittee Meeting
- Transportation Advisory Committee Meeting
- ★ Transportation Policy Council Meeting

# Questions/Comments



2045RTP.com