MEETING OF THE RTP SUBCOMMITTEE
HOUSTON-GALVESTON AREA COUNCIL

MEMBERS PLEASE USE TEAMS INVITATION

TELECONFERENCE CALL-IN INFORMATION
+1 346-262-0140 United States, Houston (Toll)
Conference ID: 819 861 243#

August 12, 2020
1:30 p.m.
AGENDA

1. Call to Order

   Roll Call Attendance

2. Approval of Minutes

   From meeting of June 10, 2020

3. Election of Officers

   The subcommittee will elect a Chair and Vice-chair. Nominations for both positions will be solicited at the meeting.

4. Project Evaluation (Vishu Lingala)

   Staff will provide an update on the status of evaluation criteria to be used for the next Call For Projects.

5. RTP Amendment and Air Quality Conformity (Vishu Lingala)

   Staff will brief the Subcommittee on the effort to amend the 2045 RTP and ensure air quality conformity as a result of the amendment.

6. Congestion Management Process (CMP) Update – Review Performance Measures and Reliability Problem Areas (Mike Burns)

   Staff will share the data being used for system-wide congestion performance measures and reliability measures being considered for bottleneck identification.

7. Announcements
   - Transportation Advisory Committee Meeting (TAC) – August 19, 2020 at 9:30 a.m., (Teleconference)
   - Transportation Policy Council Meeting (TPC) – August 28, 2020 at 9:30 a.m. (Teleconference)
   - Next RTP Subcommittee Meeting – September 9, 2020 (Teleconference)

8. Adjourn

Regional Transportation Plan Subcommittee

		Primary			Alternate		
	Representing	**First Name**	**Last Name**	**Organization**	**First Name**	**Last Name**	**Organization**
1	Local Government	Monique	Johnson	City of Sugarland	Krystal	Lastrape	City of Sugarland
2	Local Government	Ruthanne	Haut	The Woodlands Township	John	Powers	The Woodlands Township
3	Local Government	Clay	Forister	Brazoria County	Karen	McKinnon	Brazoria County
4	Local Government	Adam	France	City of Conroe	Chris	Bogert	City of Conroe
5	Local Government	Christopher	Sims	City of League City	Chad	Tressler	City of League City
6	Local Government	Ricardo	Villagrand	City of Mont Belvieu	Francisco	Carrillo	City of Mont Belvieu
7	Local Government	Loyd	Smith	Harris County	Bryan	Brown	Harris County
8	Local Government	Nick	Woolery	City of Baytown	Frank	Simoneaux	City of Baytown
9	Local Government	Yancy	Scott	Waller County	Bobby	Pennington	City of Cleveland
10	TxDOT-Houston	Charles	Airiohuodion	TxDOT-Houston	Jeffrey	English	TxDOT-Houston
11	TxDOT-Beaumont	Lisa	Colins	TxDOT-BMT	Scott	Ayres	TxDOT-BMT
12	Transit	Alberto	Lyne	METRO	Priya	Zachariah	METRO
13	Transit	Perri	D'Armond	Fort Bend Transit	Stacy	Slawinski	Fort Bend Transit
14	Transit	Ken	Fickes	Harris County Transit	Vernon	Chambers	Harris County Transit
15	Environmental	Harrison	Humphrey	Air Alliance Houston	Stephanie	Thomas	Public Citizen
16	Planning	Maureen	Crocker	City of Houston	Jennifer	Ostlind	City of Houston
17	Citizens Interests	Jonathan	Brooks	LINK Houston	Bakeyah	Nelson	Air Alliance Houston
18	Business Interests	Elijah	Williams	The Energy Corridor District	Irma	Sanchez	Westchase District
19	Port	Bruce	Mann	Port Houston	Rohit	Saxena	Port Houston
20	Port	Roger	Rees	Port Galveston	Brett	Milutin	Port Galveston
21	Active Transportation	Janis	Scott	LINK Houston	Paulette	Wagner	OST/South Union
22	Toll Roads	John	Tyler	HCTRA - Toll Road	**Vacant**		
23	Airports	Bill	Zrioka	Houston Airport System	David	Leslie	Houston Airport System

MEETING OF THE RTP SUBCOMMITTEE
HOUSTON-GALVESTON AREA COUNCIL
TELECONFERENCE PARTICIPATION VIA MICROSOFT TEAMS
June 10, 2020
1:30 p.m.
Minutes

Member Attendance:

Primary Member	Present	Alternate	Present
Maureen Crocker, Chair	Yes	Jennifer Ostlind	Yes
Janis Scott	No	Paulette Wagner	No
Bruce Mann	Yes	Mark Griffin	No
Adam France	Yes	Chris Bogert	No
Cliff Brouhard	Yes	Jessica Kokes	No
Monique Johnson	No	Rick Ramirez	No
Morad Kabiri	Yes	Larry Buehler	No
Perri D'Armond	Yes	Stacy Slawinski	No
Robert Upton	No	Trent Epperson	No
Yancy Scott (late arrival)	Yes	Dewayne Davis	No
Ruthanne Haut	Yes	John Powers	No
Lisa Collins	Yes	Scott Ayres	Yes
Charles Airiohuodion	Yes	Jeffrey English	No
Ken Fickes	No	Vernon Chambers	Yes
Priya Zachariah	No	Albert Lyne	No

Others Present:
Bruce Brown from Harris County
Staff Participating:
Allie Isbell, Adam Beckom, Mike Burns, Karen Owen, Alan Rodenstein, Lucinda Martinez

1. Introductions
   Maureen C called the meeting to order at 1:30PM.
   Mike B conducted the roll call for attendance and confirmed a quorum was present.
   Maureen C confirmed a quorum was present.
   Mike B read a statement of how the meeting would be conducted via remote participation and the ground rules for any discussion.

2. Performance Measures Presentation (Karen Owen)
   Karen O presented the status of the Performance Measures updating.
   Maureen C mentioned that safety performance measures were important to TPC and TAC.
   Karen O mentioned that TxDOT is setting new measures with a zero-fatality goal by 2050, which would be something for TPC and TAC to consider.
   Bruce B mentioned Harris County is considering a vision zero policy.
   Maureen C mentioned the importance of setting goals and reporting on conditions.
   Bruce M mentioned the need to set goals of fewer crashes and for the trends to go down.
   Carol L mentioned that safety and congestion performance measure may result in projects selected that do not correlate relative to density, especially in areas like Chambers County.
   Maureen C agreed that safety and congestion being relative to density should be considered.
   Adam B mentioned that staff has tried to focus project selection guidelines to consider rural areas.
   No action was taken.

3. Update of the Congestion Management Plan (Alan Rodenstein)
   Alan R presented the status of the Congestion Management Plan (CMP) update.
   Maureen C asked for elaboration on the COVID-19 impacts on congestion.
   Alan R suggested that teleworking will have a huge impact on congestion, but will take some time to quantify the impact and set a baseline.
   Carol L agreed that teleworking would have an impact and agreed it is important to quantify.
   No action was taken.

4. RTP Update – Draft Outline and Implementation Schedule (Mike Burns)
   Mike B presented the strategy for updating the Regional Transportation Plan (RTP).
   Charles A ask Adam B a question regarding air quality conformity.
   Adam B clarified that current air quality conformity efforts are not part of this RTP topic.
   Carol L expressed interest and asked for elaboration on the topics of housing and transportation costs and climate change initiatives.
   Mike B explained that H-GAC is working on both topics and will be including this Subcommittee in developing recommendations over the multi-year updating schedule for the TAC to consider.

5. Announcements
   - Transportation Advisory Committee Meeting (TAC) – June 17, 2020 at 9:30 a.m., Teleconference.
   - Transportation Policy Council Meeting (TPC) – June 26, 2020 at 9:30 a.m., Teleconference.
   - Next Regional Transportation Plan Meeting – TBD (Teleconference)

   Maureen C mentioned the upcoming meetings and that the next Subcommittee meeting was to be determined.
   Carol L suggested it would be helpful to have joint TIP Subcommittee and RTP Subcommittee meetings more often.
   Bruce M agreed that there was value in having joint meetings.
   Maureen C asked about having reporting on trends and conditions at the next meeting.
   Mike B mentioned that staff could present information on trends and conditions at least quarterly as they are developed by staff.

6. Adjourn
   Maureen C asked for a motion to adjourn.
   Motion to adjourn was made by Carol L and seconded by Bruce M.
   The Chair declared the meeting adjourned at 2:30PM.

Minutes submitted by: Mike Burns

Background

In March 2020, the Transportation Policy Council (TPC) established the following priorities for the next call for projects.

1. The reduction and elimination of severe injuries due to vehicle crashes.
2. Improve safe and reliable goods movement within and through the region:
    a. identify and mitigate congestion and crash hot spots for commercial trucks
    b. accelerate freight delivery by autonomous vehicles,
    c. promote off peak and overnight freight delivery including off peak use of exclusive freight lanes
3. Focusing on operational improvements and congestion management, including projects that address railroad/roadway safety and delays.
4. Promote public/private, coordinated planning in high growth areas (areas with high population and/or commercial development growth) to reserve right of way and development of facilities that will avoid future congestion and support continued economic development.
5. Recognize the benefit of regional, multijurisdictional projects to the larger transportation network.
6. Improve access and affordable transportation choices to communities with high concentration of low income, disabled, elderly, or minority households.
7. Develop a multi-modal transportation network that provides
    a. connectivity between modes
    b. transit access to more destinations
    c. facilities that serve pedestrian, bicycle, and other active transportation modes
    d. reduce the delay created by the delay at rail/highway crossings

In July, the TIP Subcommittee discussed consolidating the 13 investment categories into fewer investment categories consistent with project priorities listed above.

Current situation

In the next Call for Projects (CFP) H-GAC staff proposes to seek projects in five investment categories:

1. Major Investments
2. Expand
3. Manage
4. Maintain
5. Active Transportation

The example project types, eligible funding category and definitions of the investment categories can be found in attachment A.

Project scoring

All projects submitted through the next call will be scored based on a benefit/cost (B/C) analysis and planning factors. Based on the comments received from various projects sponsors staff is proposing for all investment categories except for active transportation the B/C ratio and planning factors scores be weighed at 50% of the total score. For active transportation projects B/C ratio and planning factors scores be weighed at 30% and 70% of the total score respectively.

Major Investments – B/C ratio 50%; Planning factors 50%

Expand – B/C ratio 50%; Planning factors 50%

Manage – B/C ratio 50%; Planning factors 50%

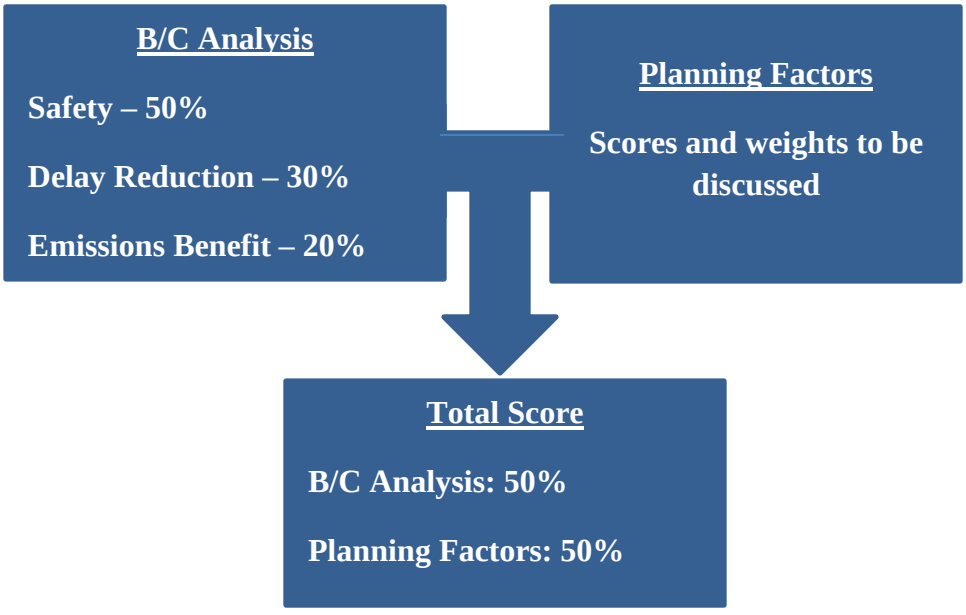
Maintain – B/C ratio 50%; Planning factors 50%

Active Transportation – B/C ratio 30%; Planning factors 70%

B/C ratios

Benefits for B/C ratios of all projects will be calculated based on total safety, delay reductions, and emissions benefits weighed at 50%, 30%, and 20% respectively. Cost for B/C ratios of all projects be calculated based on the total cost of the projects including construction, engineering, right of way and utility relocation costs.

Major Investments, Expand, Manage, and Maintain



Project Evaluation Criteria Development
Attachment A

Investment Category	Project types	Definition	Eligible funding[1]
Major Investments	All project types	> $100 M Total project cost.	Cat 2 for state highways only, 5, and 7.
Expand	New road construction	Construction of new roadway where non exists, extension of an existing roadway.	Cat 2 for state highways only, and 7.
	Road widening/Added Capacity	Projects that increase vehicular capacity by adding new through lanes.	
	Direct connector projects	Construction or expansion of projects providing connectivity between two highways or provide access to a highway from arterials.	
	Grade separations adding capacity/lanes	Construct or expansion of projects providing vertical separation two intersecting highways, or between railroad and a highway.	
	New and expansion of BRT routes	Construction of new bus rapid transit (BRT) facility or extension of existing BRT lines.	
	New and expansion of HOV/HOT lanes	Construction of a new HOV/HOT lanes or widening or extension of existing HOV/HOT lanes.	
	New multimodal facilities/Park & Ride facilities	Construction of new multimodal facilities or park and ride facilities.	

[1] Category 2 - Metropolitan and Urban corridor projects(Metro-TMA),

[1]Category 5 - Congestion Mitigation Air Quality (CMAQ),

[1]Category 7 - Metropolitan Mobility/Rehabilitation(STBG) see appendix E of the 2021-2024 TIP for more details.

Project Evaluation Criteria Development
Attachment A

Investment Category	Project types	Definition	Eligible funding[1]
Manage	Converting at-grade intersections between two highways to grade separated interchanges	Projects providing vertical separation two intersecting highways or between highways and railroad.	Cat 2 for state highways only, 5, and 7.
	Access management	Projects that are recommended in access management plans such as construction of raised medians, continuous center left turn lanes consolidating drives.	
	Intersection improvements	Intersection improvements including adding turn lanes, upgrading intersection signal equipment, signal coordination projects.	
	ITS infrastructure expansion[2]	Upgrading or expansion of ITS infrastructure projects.	
	Complete street projects/Road diets	Reconfiguring roadway to improve safety and access to all users including passenger vehicles, transit users, bicyclists and pedestrians.	Cat 2 for state highways only and 7.
	Ramp relocations	Projects relocating existing access ramps to highways without adding capacity.	
	"Transit priority infrastructure" and BOOST corridors	Bus operations optimized service treatments (BOOST).	
Maintain	Reconstruction and rehabilitation of roadways	Reconstruction and rehabilitation of roadways without expanding through lanes.	Cat 2 for state highways only, and 7.
	Infrastructure resiliency improvements	Infrastructure projects designed to improve transportation resiliency.	
	Transit infrastructure rehabilitation (not vehicle replacements)	Reconstruction of existing transit facilities.	
Active Transportation	Bicycle/pedestrian infrastructure facilities expansion, new construction and rehabilitation/reconstruction	Bicycle/pedestrian projects proving active transportation choice to essential trip making. Example projects include including sidewalks, bike lanes, hike and bike trails, pedestrian refuge islands, bicyclist/pedestrian bridges and underpasses.	Cat 5 and 9.

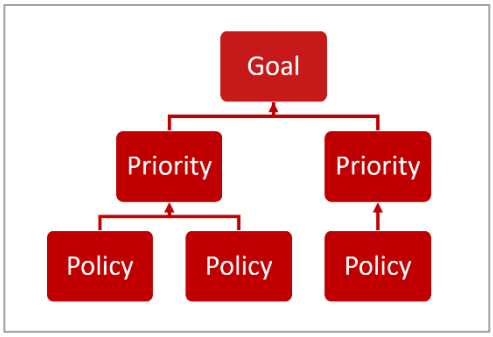
[1] Category 2 - Metropolitan and Urban corridor projects(Metro-TMA),
[1]Category 5 - Congestion Mitigation Air Quality (CMAQ),
[1]Category 7 - Metropolitan Mobility/Rehabilitation(STBG) see appendix E of the 2021-2024 TIP for more details.

DRAFT GOALS, INVESTMENT PRIORITIES AND POLICIES
TRANSPORTATION POLICY COUNCIL

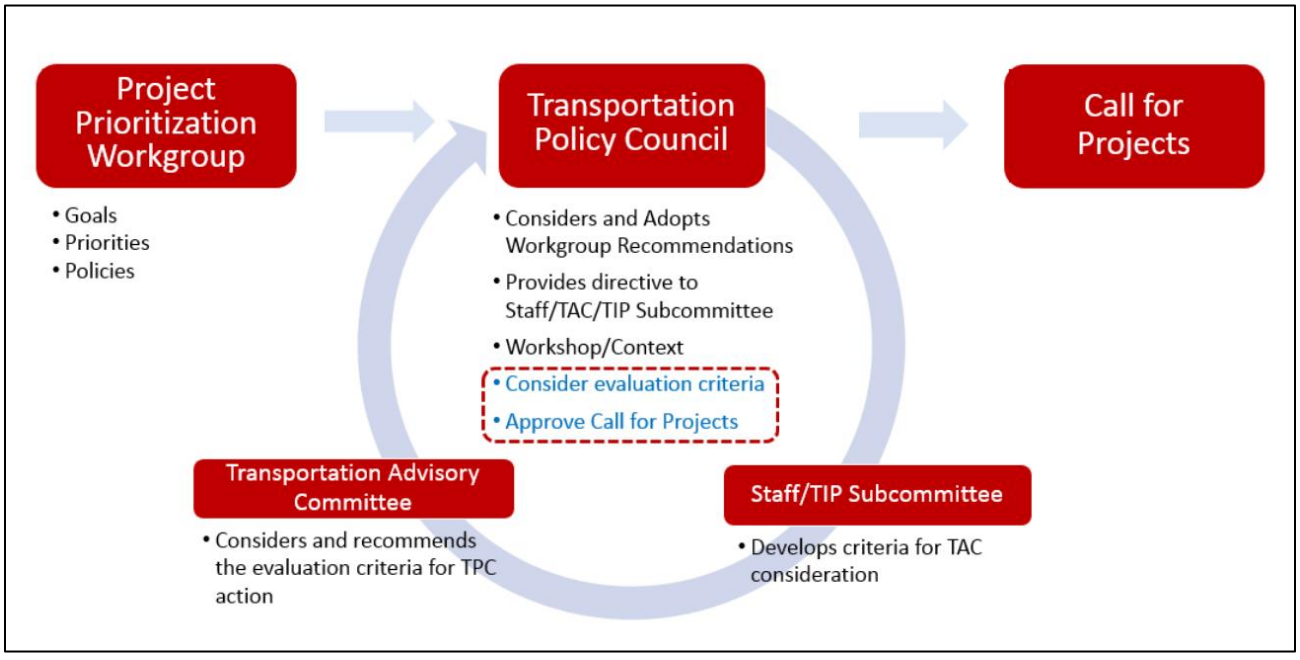
Background

In May 2019, the Transportation Policy Council (TPC) created a 15-member Workgroup to provide recommendations to the TPC on goals and priorities for future investment of federal and state funds in the eight-county region. Members of the Workgroup reviewed current guidelines, and processes for evaluating and ranking candidate transportation projects considering comments received from TPC members and the public. The Workgroup met three times (in September and October of last year and in January 2020) to review results of the previous call for projects in light of past and new investment priorities.

The recommendations provided are structured into goals, priorities and policies. The goals presented in this report will improve alignment with the long-range regional transportation plan as well as federal requirements detailed in the *Fixing America's Surface Transportation Act*. Priorities were identified to highlight which outcomes are most important. And finally, policies were developed to provide additional guidance on achieving the goals.



As shown in the chart below, direction provided by the TPC will guide H-GAC staff, the Transportation Advisory Committee and its Transportation Improvement Program Subcommittee in the consideration of project selection criteria and evaluation methodologies. Following an opportunity for public comment, the TPC will review, modify if necessary and adopt final project selection criteria.



DRAFT GOALS, INVESTMENT PRIORITIES AND POLICIES
TRANSPORTATION POLICY COUNCIL

Mission Statement

To sustain safe, resilient and accessible multi-modal transportation services and facilities that equitably support the travel needs of our current and future residents, businesses and visitors.

Goals

1. Align with Regional Transportation Plan goals:
    a. Improving traveler safety
    b. Efficient movement of people and goods
    c. Maintenance of a state of good repair
    d. Strengthening regional economic competitiveness
    e. Conserving and protecting natural and cultural resources while reducing vehicle generated air pollutants

2. Align with Regional Transportation Plan public comments:
    a. Create a truly, multimodal transportation network that supports the appropriate use by transit, bicycle, pedestrian, active transportation and freight.
    b. Support greater investment in the management and maintenance of current transportation facilities and services
    c. Be responsive to community/neighborhood quality of life concerns (e.g., environmental quality, health, housing availability and affordability, parks, libraries, and other unique cultural qualities of our neighborhoods and communities)

3. Create a resilient transportation network by reducing inoperability for significant time periods due to:
    a. Flooding, erosion, or damage from severe weather events
    b. Infrastructure damaged by collisions with vehicles such as trucks, ships and barges
    c. Vehicle crash rates and crash clearance times

4. Increase the resources available to implement the Regional Transportation Plan with public and private funding partnerships.

Priorities

1. The reduction and elimination of severe injuries due to vehicle crashes.
2. Improve safe and reliable goods movement within and through the region:
    a. identify and mitigate congestion and crash hot spots for commercial trucks
    b. accelerate freight delivery by autonomous vehicles,
    c. promote off peak and overnight freight delivery including off peak use of exclusive freight lanes

3. Focusing on operational improvements and congestion management, including projects that address railroad/roadway safety and delays.

4. Promote public/private, coordinated planning in high growth areas (areas with high population and/or commercial development growth) to reserve right of way and development of facilities that will avoid future congestion and support continued economic development.

5. Recognize the benefit of regional, multijurisdictional projects to the larger transportation network.

6. Improve access and affordable transportation choices to communities with high concentration of low income, disabled, elderly, or minority households.

7. Develop a multi-modal transportation network that provides
    a. connectivity between modes
    b. transit access to more destinations
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    d. reduce the delay created by the delay at rail/highway crossings

Policies

1. Consider the larger, complete project if proposed implementation will be a phased multi-jurisdictional project, parts of which may be developed separately with or without future federal funding. Evaluation of potential transportation investments should include:
    a. Multi-modal transportation needs (auto, freight, transit, active transportation) to alleviate congestion and improve mobility
    b. Travel impact of existing and announced economic development/redevelopment
    c. Impact on natural and cultural resources
    d. Connectivity to other transportation projects
    e. Potential for crash reduction, particularly those causing serious and severe bodily injury and death.
    f. Crash rates
    g. Hurricane evacuation and disaster preparedness

2. Enhance environmental benefits through the addition of alternative transportation modes, the provision of low or no emission vehicles and the conservation of natural and cultural resources.

3. All highway-funded pedestrian, bicycle, and other active transportation investments should facilitate essential trip-making.

4. Proposed projects should document the extent to which they provide essential network access, connectivity and continuity.
    a. Candidate projects should describe how the proposed project supports critical connectivity to jobs, education, medical facilities, and other travel needs.
    b. Projects in high density areas should not be prioritized based simply on their location.
5. Project sponsors are encouraged to consider non-federal highway funding sources for aesthetic considerations beyond those normally accommodated by the State. This could include more expansive landscaping, special decorative lighting, street furniture, and other amenities.

6. Balance qualitative benefits of a project with quantitative benefits.
    a. Consider quality of life improvements (narrative benefits) for projects such as active transportation and local transit expansion projects.
    b. Major investment projects should describe potential economic benefits resulting from project implementation.

7. If Benefit Cost analysis is used, evaluate using total project cost (include all required costs such as environmental determination, right of way acquisition, design, construction, etc.).
    a. Additional benefits will not be given to projects that provide more than the required local match.
    b. Useful life of projects by type must be established and published along with the evaluation criteria. As such, forecasted travel demand for the useful life of a proposed project should be considered for calculating potential benefits.
8. Selected projects should be supported by local communities and affected agencies/jurisdictions.
    a. Multijurisdictional projects (projects crossing multiple city/county boundaries) should provide support letters from all jurisdictions (cities and counties).
    b. Projects sponsored by special districts such as management districts, redevelopment authorities should be supported by governmental entity(ies) in which they are located.
    c. Proposed projects should provide support letters for the on-going maintenance of the investment

9. Creative financing (tax abatements, funding partnerships, 380 agreements, TIRZs, etc.) should be considered as potential tools for private participation or new source for local match requirements.
10. Consider projects proposing to implement automated and connected vehicle technologies and infrastructure based on expected benefits.
11. Advance projects that have demonstrated project readiness for earlier implementation when possible.

RTP Amendment and Air Quality Conformity

Background

The Clean Air Act requires the Houston-Galveston-Brazoria region to demonstrate that transportation projects contained in the TIP and the RTP conform to the Motor Vehicle Emissions Budget (MVEBs) established in the air quality State Implementation Plan (SIP). This process is called transportation air quality conformity (conformity).

Conformity is the way to ensure the federal funding and approval is only given to those projects and activities that are consistent with air quality goals. Under the Clean Air Act, proposed transportation projects and air quality modeling must be coordinated to ensure the TIP and RTP are consistent with or conform to the targets set by the SIP. This integration of transportation planning and air quality review is designed to ensure that transportation plans, programs, and projects do not aggravate an existing NAQQS violation, cause a new violation, or delay the attainment of designated regional milestone.

Current Situation

The transportation conformity determination for the 2045 Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP) received federal approval on August 2, 2019. TxDOT is requesting a 2045 RTP amendment to add regionally significant projects shown in attachment A that would require a new conformity determination. The projects listed in attachment A are also mapped in attachment B.

Along with the new regionally significant TxDOT sponsored projects staff is proposing to amend METRO sponsored transit projects consistent with the MetroNext Plan. You can view the current fiscally constrained 2045 RTP projects list here.

Action Requested

For information only.

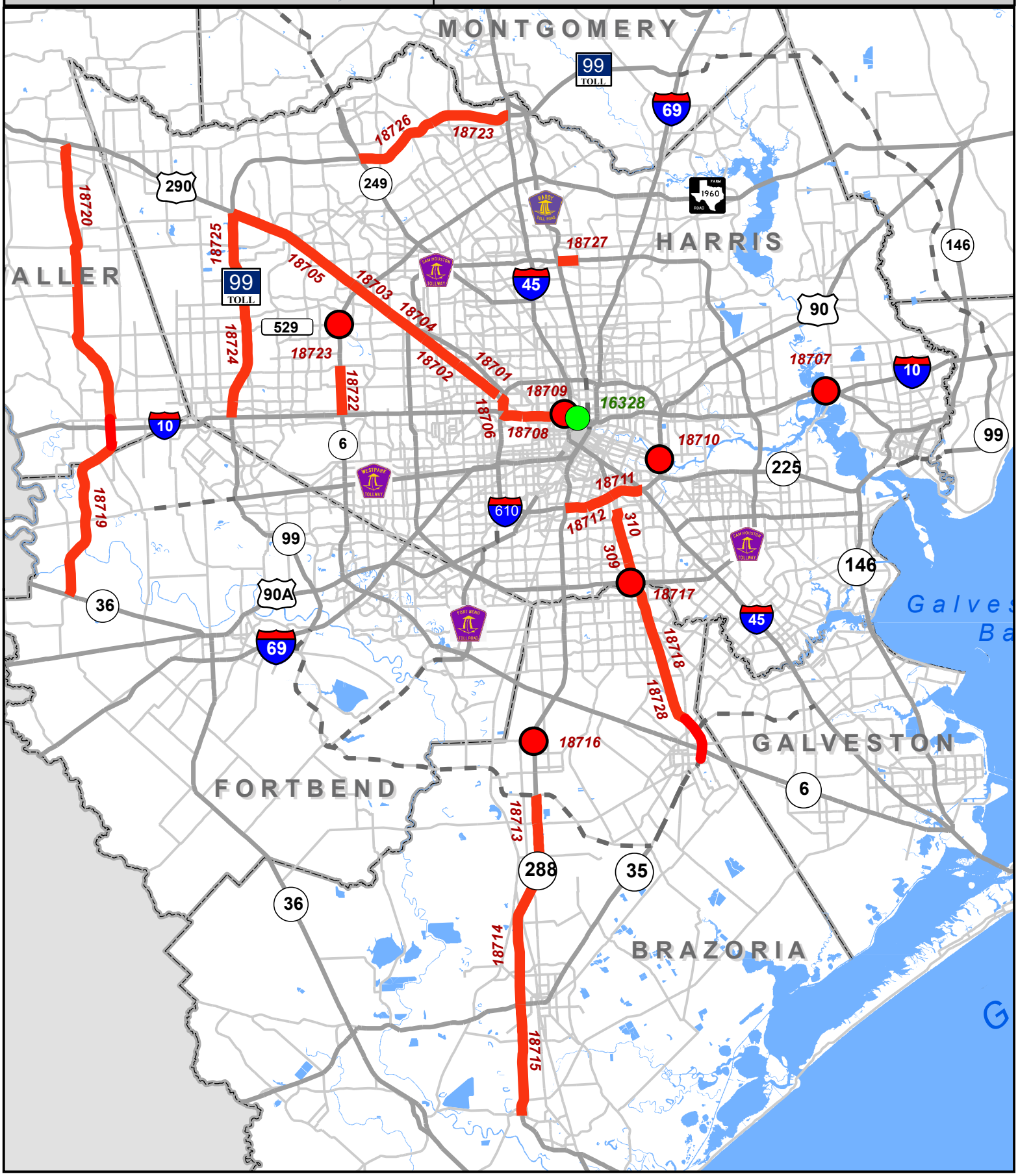
MPOID	CSJNumber	CountyNam	Sponsor	Street	FromLimit	ToLimit	ProjectDescription	LENGTH	ML	FR	FY	AY	TOTALCOST
NEW (18701)	0912-72-598	Harris	TXDOT HOUSTON DISTRICT	HEMPSTEAD RD	MANGUM RD	43RD ST/CLAY RD	Reconstruct Hempstead Road and add one transit lane in each direction at grade and construct 4 elevated managed lanes	3.3	(0,4)	n/a	2028	2040	$ 314,563,108
NEW (18702)	0912-72-599	Harris	TXDOT HOUSTON DISTRICT	HEMPSTEAD RD	GESSNER RD	43RD ST/CLAY RD	Reconstruct Hempstead Road and add one transit lane in each direction at grade and construct 4 elevated managed lanes	3.8	(0,4)	n/a	2028	2040	$ 262,135,923
NEW (18703)	0912-72-600	Harris	TXDOT HOUSTON DISTRICT	HEMPSTEAD RD	W OF HUFFMEISTER	JONES RD	CONSTRUCT 4 MANAGED LANES (NON-TOLL)	3.4	(0,4)	n/a	2025	2030	$ 90,740,742
NEW (18704)	0912-72-601	Harris	TXDOT HOUSTON DISTRICT	HEMPSTEAD RD	JONES RD	GESSNER RD	Reconstruct Hempstead Road and add one transit lane in each direction at grade and construct 4 elevated managed lanes	3.1	(0,4)	n/a	2025	2030	$ 270,873,787
NEW (18705)	0912-72-602	Harris	TXDOT HOUSTON DISTRICT	HEMPSTEAD RD	SH 99	W OF HUFFMEISTER RD	CONSTRUCT 4 MANAGED LANES (NONTOLL)	0.2	(0,4)	n/a	2025	2030	$ 259,259,260
NEW (18706)	0912-72-603	Harris	TXDOT HOUSTON DISTRICT	HEMPSTEAD RD/IH 610	IH 610	MANGUM RD	Reconstruct Hempstead Road and add one transit lane in each direction at grade and construct 4 elevated managed lanes	1.0	(0,4)	n/a	2026	2030	$ 52,427,186
NEW (18707)	0508-01-379	Harris	TXDOT HOUSTON DISTRICT	IH 10 E	AT SAN JACINTO RIVER		RECONSTRUCT AND WIDEN FROM 6 TO 10 MAIN LANES AND CONSTRUCT 4 NEW NON-TOLLED MANAGED LANES	1.0	(6,14)	(0,0)	2025	2030	$ 492,000,000
NEW (18708)	0271-07-327	Harris	TXDOT HOUSTON DISTRICT	IH 10 W	IH 610 W	IH 45	RECONSTRUCT 10 MAIN LANES AND TWO 2-LANE FRONTAGE ROADS AND CONSTRUCT 4 NEW NON-TOLL MANAGED LANES	5.0	(10,14)	(4,4)	2026	2030	$ 1,800,000,000
NEW (18709)	0271-07-326	Harris	TXDOT HOUSTON DISTRICT	IH 10 W	STUDEMONT ST	HOUSTON AVE	Reconstruct to raise the existing 10 mainlanes out of the White Oak Bayou floodway, for reconstructing 2 Lane CBD Connectors to 4 Managed Lanes	1.2	(10,14)	(4,4)	2026	2030	$ 423,200,000
NEW (18710)	0271-15-096	Harris	TXDOT HOUSTON DISTRICT	IH 610 E	AT SHIP CHANNEL (BUFFALO BAYOU)		RECONSTRUCT AND RAISE SHIP CHANNEL BRIDGE	1.0	(8,8)	n/a	2026		$ 2,400,000,000
NEW (18711)	0271-16-158	Harris	TXDOT HOUSTON DISTRICT	IH 610 S	SH 35 (SS 5/Mykawa)	IH 45	RECONSTRUCT FREEWAY INCLUDING TSM IMPROVEMENTS	2.3	(8,8)	(2,2)	2027		$ 223,341,000
NEW (18712)	0271-16-159	Harris	TXDOT HOUSTON DISTRICT	IH 610 S	SH 35 (SS 5/Mykawa)	SH 288	RECONSTRUCT FREEWAY INCLUDING TSM IMPROVEMENTS	3.5	(8,8)	(2,2)	2027		$ 309,399,000
NEW	0271-17-162	Harris	TXDOT HOUSTON DISTRICT	IH 610 W	IH 10 W	IH 69 S	CONSTRUCT 4 EXPRESS LANES	3.6	(8,12)	(4,4)	2026	2030	$ 558,352,698

NEW (18713)	0598-02-127	Brazoria	TXDOT HOUSTON DISTRICT	SH 288	SH 99 (CR 60)	FM 1462	UPGRADE ROADWAY TO FREEWAY FACILITY BY ADDING OVERPASSES AND UNDERPASSES	2.0	(4,4)	(0,0)	2029	2040	$ 40,000,000
NEW (18714)	0598-03-061	Brazoria	TXDOT HOUSTON DISTRICT	SH 288	FM 1462	SH 35	WIDEN FROM 4 TO 6 LANES	13.4	(4,6)	(0,0)	2029	2040	$ 270,000,000
NEW (18715)	0598-04-029	Brazoria	TXDOT HOUSTON DISTRICT	SH 288	SH 35	SH 332	WIDEN FROM 4 TO 6 LANES	8.1	(4,6)	(0,0)	2029	2040	$ 175,000,000
NEW (18716)	0598-02-125	Brazoria	TXDOT HOUSTON DISTRICT	SH 288	AT CR 56		WIDEN CR 56 BRIDGE FROM 2 TO 4 LANES	0.5	(2,4)	(0,0)	2022		$ 12,500,000
310	0178-09-016	Harris	TXDOT HOUSTON DISTRICT	SH 35	DIXIE DR	N OF ALMEDA-GENOA	CONSTRUCT NEW 6 LANE FREEWAY WITH 2 NEW 2-LANE FRONTAGE ROADS	3.3	(0,6)	(0,4)	2030	2040	$ 110,000,000
309	0178-09-024	Harris	TXDOT HOUSTON DISTRICT	SH 35	N OF ALMEDA-GENOA	BRAZORIA C/L	CONSTRUCT NEW 6 LANE FREEWAY WITH 2 NEW 2-LANE FRONTAGE ROADS	1.7	(0,6)	(0,4)	2030	2040	$ 51,000,000
NEW (18717)	0178-09-023	Harris	TXDOT HOUSTON DISTRICT	SH 35	AT SL 8		CONSTRUCT INTERCHANGE ON A NEW LOCATION	0.2	n/a	n/a	2030	2040	$ 200,000,000
NEW (18718)	0178-10-003	Brazoria	TXDOT HOUSTON DISTRICT	SH 35	HARRIS C/L	BS 35C NORTH	CONSTRUCT 4 LANE FREEWAY ON NEW LOCATION	10.0	(0,4)	(0,0)	2030	2040	$ 239,000,000
NEW (18728)	0178-02-081	Brazoria	TXDOT HOUSTON DISTRICT	SH 35	S OF SH 6	FM 518	WIDEN FROM 4 TO 6 LANE DIVIDED	10.8	(4,6)	n/a	2030	2040	$ 129,000,000
NEW (18719)	0912-00-544	Fort Bend/Waller	TBD	36A SOUTH	SH 36	IH 10 W	CONSTRUCT FOUR-LANE DIVIDED ON NEW LOCATION	31.0	(0,4)	(0,0)	2031	2040	$ 1,000,000,000
NEW (18720)	0912-00-XXX	Waller	TBD	36A NORTH	IH 10 W	US 290	CONSTRUCT FOUR-LANE DIVIDED ON NEW LOCATION	30.0	(0,4)	(0,0)	2035	2045	$ 1,000,000,000
NEW (18721)	1685-05-105	Harris	TXDOT HOUSTON DISTRICT	SH 6	AT FM 529		INTERSECTION IMPROVEMENTS	0.25	(6,6)	n/a	2024		$ 9,000,000

NEW (18722)	1685-05-111	Harris	TXDOT HOUSTON DISTRICT	SH 6	CLAY RD	IH 10 W	CORRIDOR FEASIBILITY STUDY	3.5	(6,6)	n/a	2030		$ 800,000
NEW (18723)	3510-06-019	Harris	TXDOT HOUSTON DISTRICT	SH 99	Holzwarth Rd	Kuykendahl Rd	SEG F-2: Widen existing 4 lane toll facility to 6 lane toll facility to mitigate congestion and support operational efficiency	4.5	(4,6)	(0,0)	2024	2030	$ 50,000,000
NEW (18724)	3510-05-047	Harris	TXDOT HOUSTON DISTRICT	SH 99	West Road	I-10 West	SEG E: Widen existing 4 lane toll facility to 6 lane toll facility to mitigate congestion and support operational efficiency	8.0	(4,6)	(0,0)	2029	2040	$ 115,000,000
NEW (18725)	3510-05-048	Harris	TXDOT HOUSTON DISTRICT	SH 99	US 290	West Road	SEG E: Widen existing 4 lane toll facility to 6 lane toll facility to mitigate congestion and support operational efficiency	6.0	(4,6)	(0,0)	2029	2040	$ 80,000,000
NEW (18726)	3510-06-027	Harris	TXDOT HOUSTON DISTRICT	SH 99	Kuykendahl Rd	SH 249	SEG F-2: Widen existing 4 lane toll facility to 6 lane toll facility to mitigate congestion and support operational efficiency	6.0	(4,6)	(0,0)	2030	2040	$ 75,000,000
NEW (18727)	3256-02-093	Harris	TXDOT HOUSTON DISTRICT	SL 8	E OF HARDY TOLL RD	EAST OF ALDINE-WESTFIELD RD	RECONSTRUCT AND WIDEN FRONTAGE ROADS FROM 4 TO 6 LANES	1.6	(8,8)	(4,6)	2022	2030	$ 10,500,000

Houston-Galveston Area Council
3555 Timmons Ln, Suite 120
Houston, TX 77027
Phone: 713-627-3200
Web: www.h-gac.com

DRAFT RTP 2045
TXDOT Amendment Projects



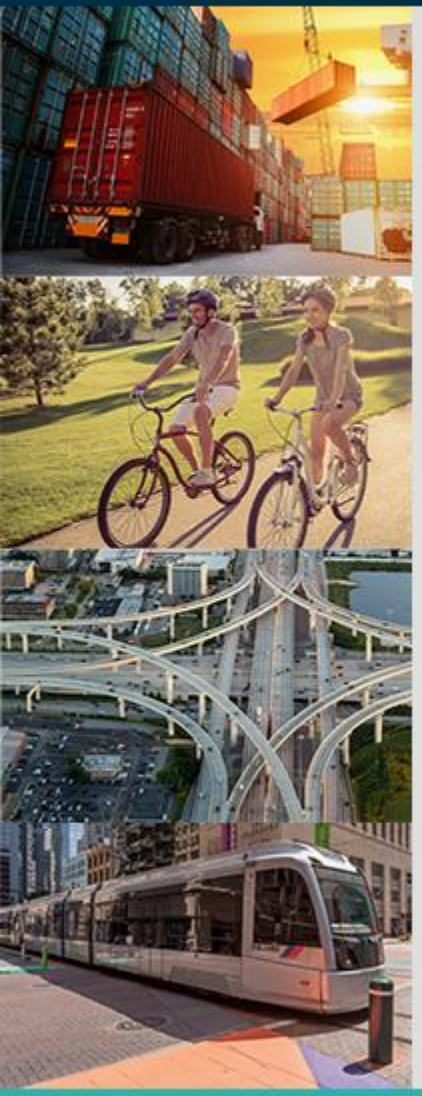

Congestion Management Process Update Status


RTP Subcommittee
August 12, 2020

Regional Collaboration • Transportation Planning • Multimodal Mobility

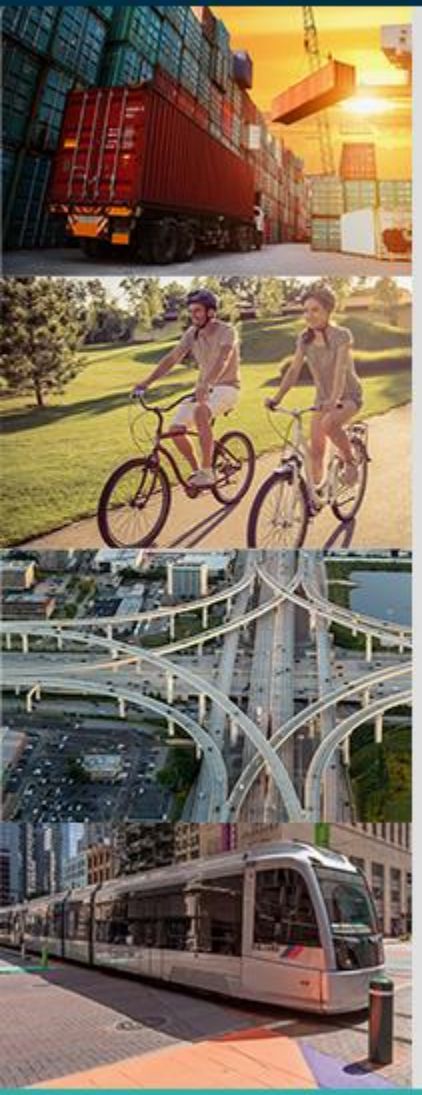
METROPOLITAN PLANNING ORGANIZATION

Congestion Management Process (CMP)



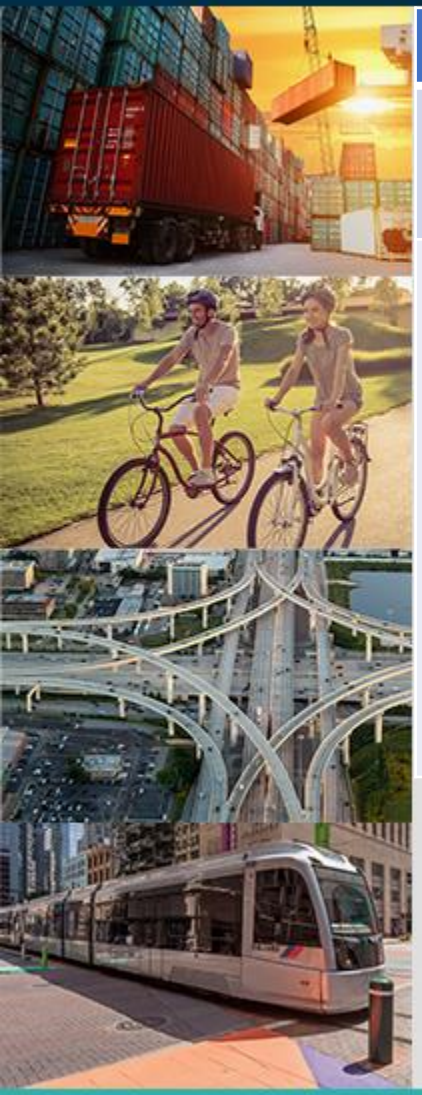
- Three key elements:
  1. Identify congestion and its causes (in region)
  2. Apply mitigation strategies to improve system
  3. Evaluate strategies' effectiveness

Congestion Management Process (CMP)



- CMP Document Structure – Steps
  1. Regional Objectives
  2. CMP Roadway Network
  3. Performance Measures
  4. Performance Monitoring
  5. Identifying Problems and Needs
  6. Congestion Management Strategies
  7. Implementation Strategies
  8. Evaluating Effectiveness

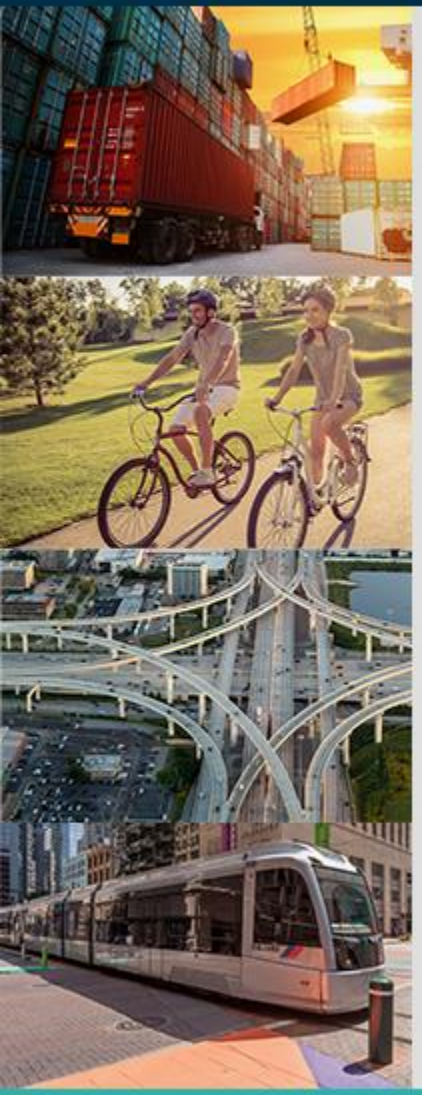
Identifying Problems and Needs



RTP Goal	Performance and Reliability Measures	
	Federal (system-wide) Performance Measures*	***Identifying Problem Areas****
Move people and goods efficiently (Reduce Congestion)	Interstate Level of Travel Time Reliability (LOTTR)	Annual Person-hours of Delay per Mile
	Non-Interstate NHS Level of Travel Time Reliability (LOTTR)	Texas Congestion Index
		Speed Index

* - Data provided by the Texas Transportation Institute

Texas Transportation Institute - Definitions

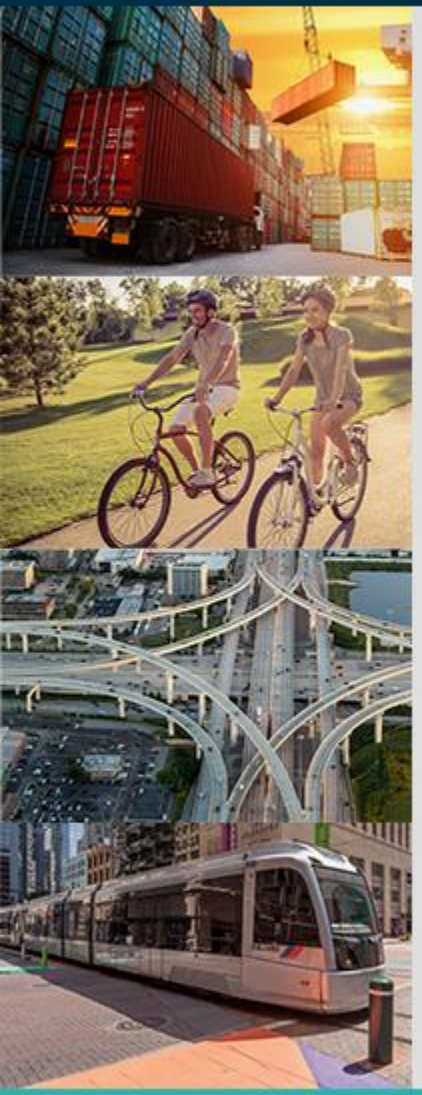


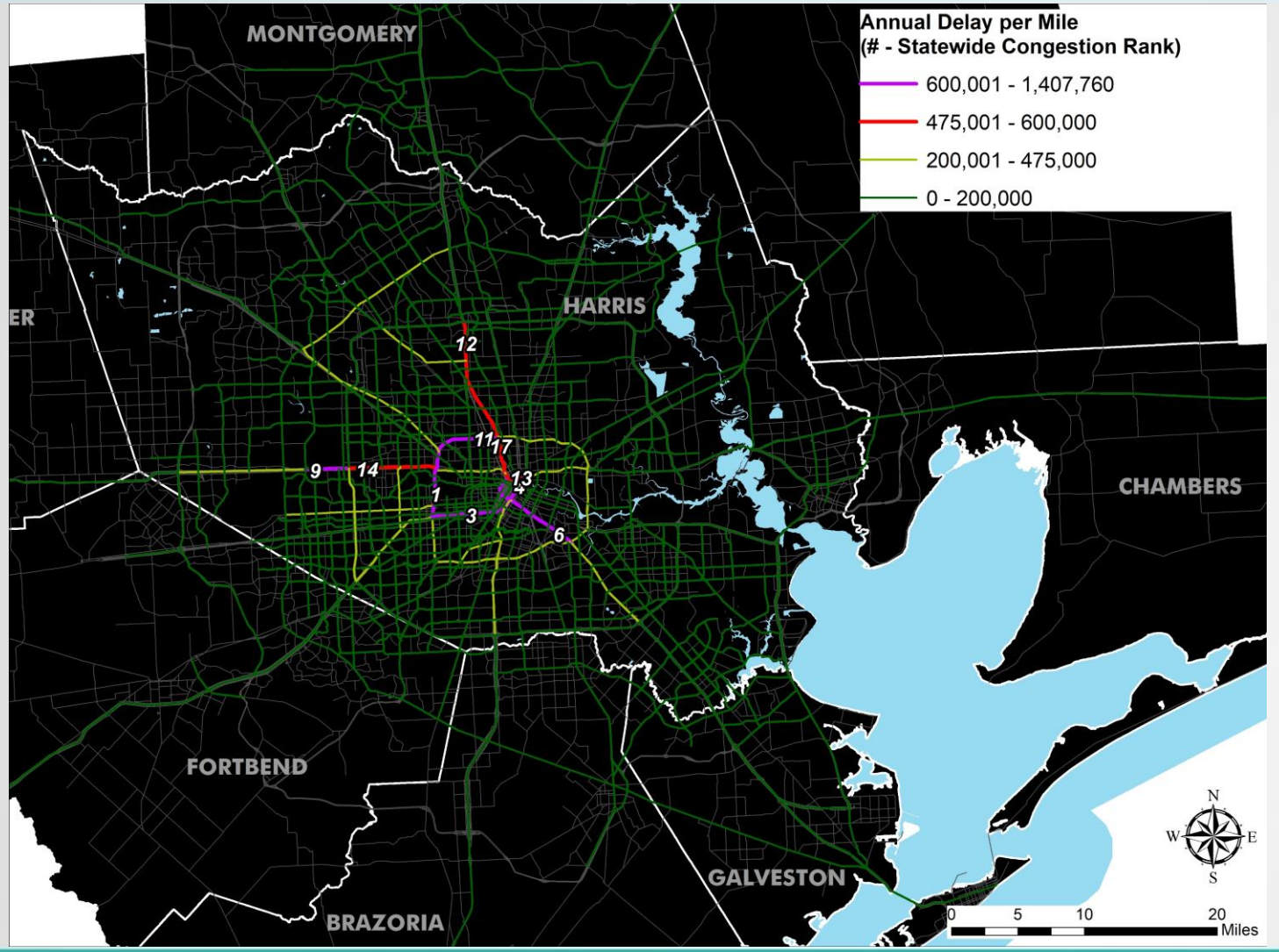
- **Annual Delay per Mile**
  - Annual sum of extra time divided by segment length.
- **Texas Congestion Index**
  - Average travel time during peak period divided by free-flow travel time.
- **Speed Index**
  - Average Peak Period Speed divided by Free Flow Speed.
  - Example:

    45 MPH / 65 MPH = 0.69 Speed Index

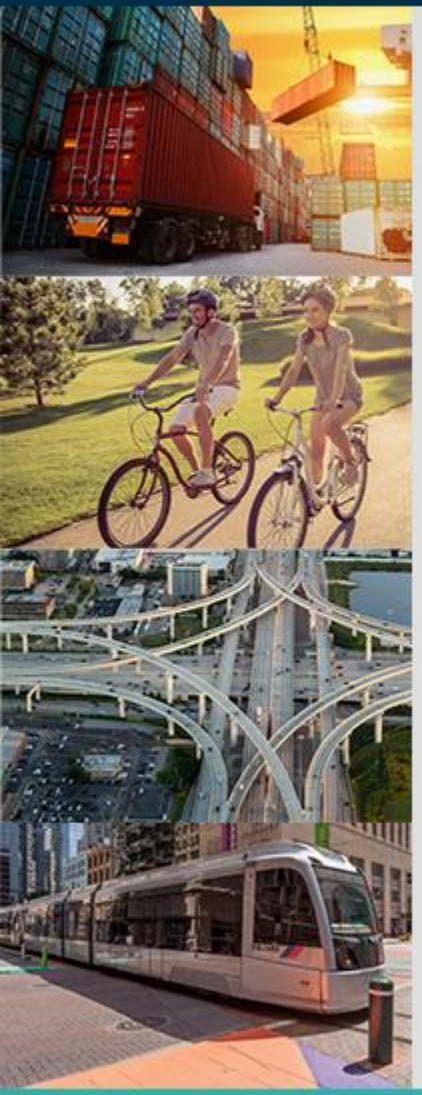
    (Speed Index $\leq$0.7 $\approx$ Congestion)

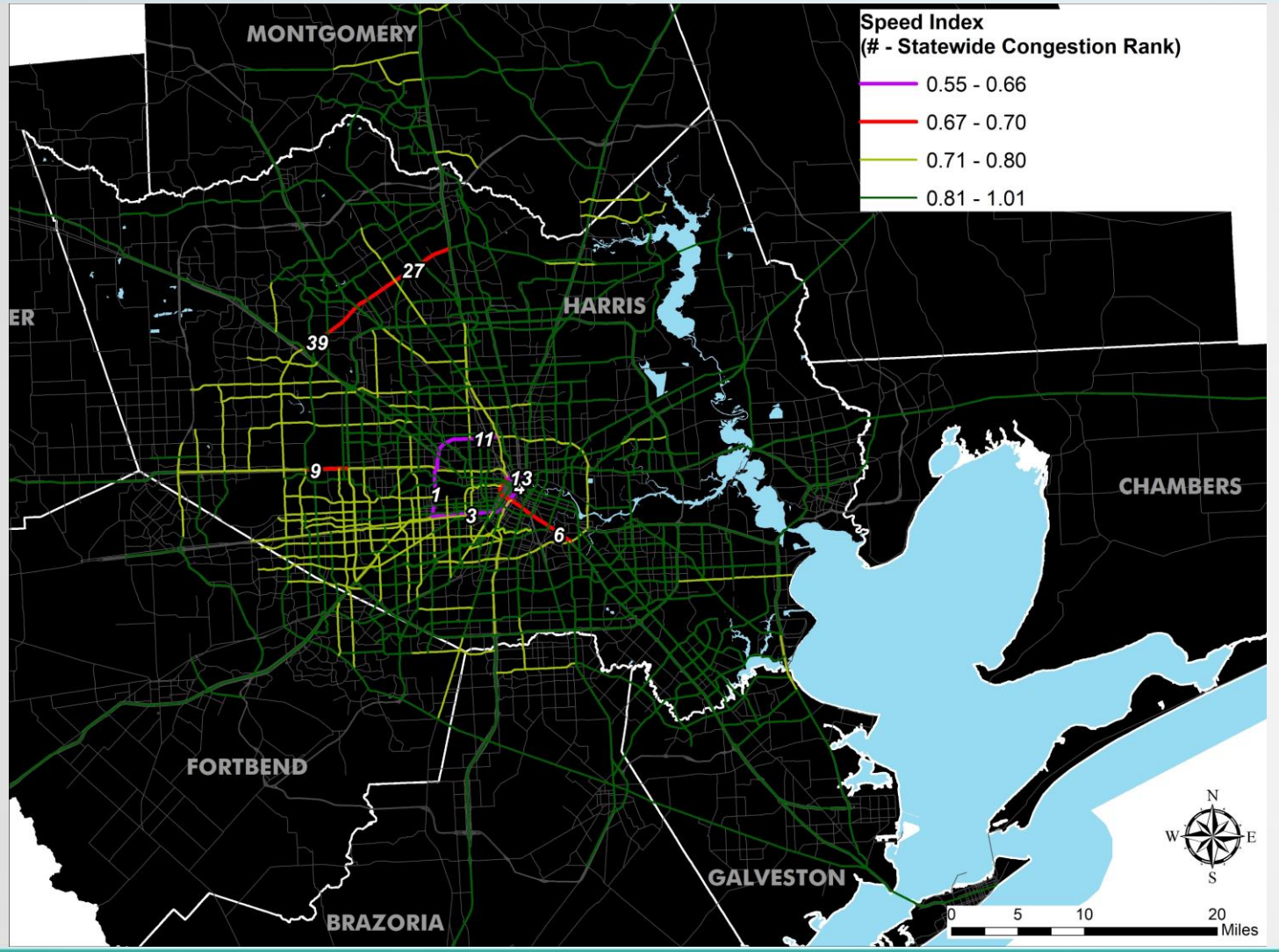
Identifying Problem Areas - Delay



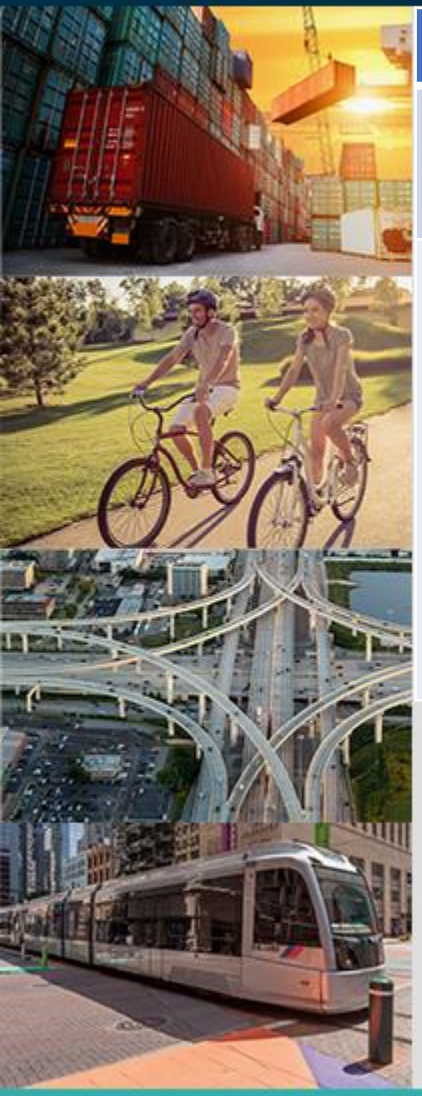


Identifying Problem Areas – Speed Index





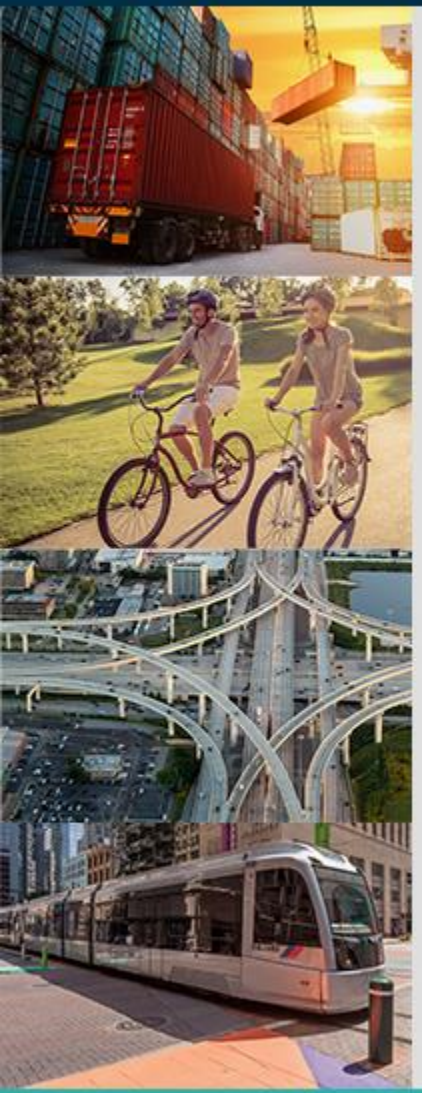
Identifying Problems and Needs



RTP Goal	Performance and Reliability Measures	
	System-wide Performance Measures*	***Identifying Problem Areas****
Strengthen Regional Economic Competitiveness	Truck Travel Time Reliability (TTTR) Index	Annual Truck Delay per Mile
	Increase Multi-Occupant Vehicles	Texas Congestion Index (Trucks Only)
		Truck Speed Index

* - Data provided by the Texas Transportation Institute

Texas Transportation Institute - Definitions

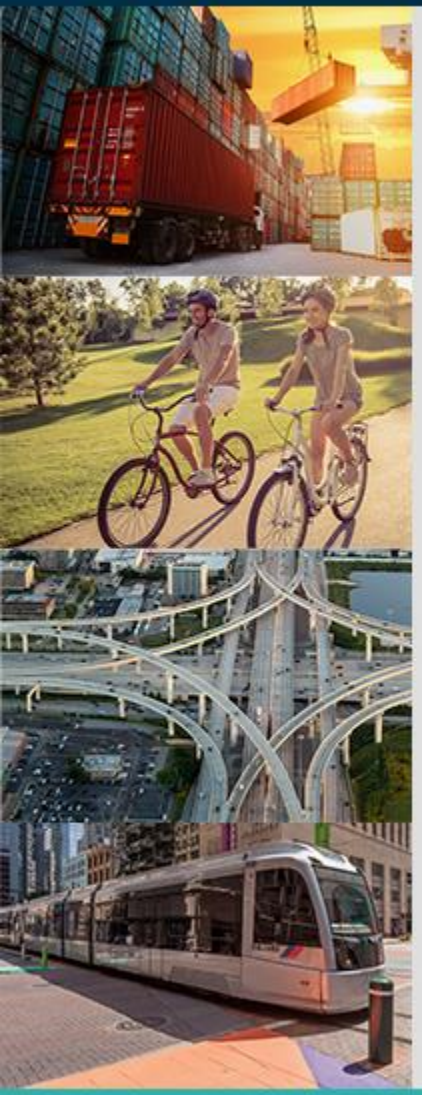


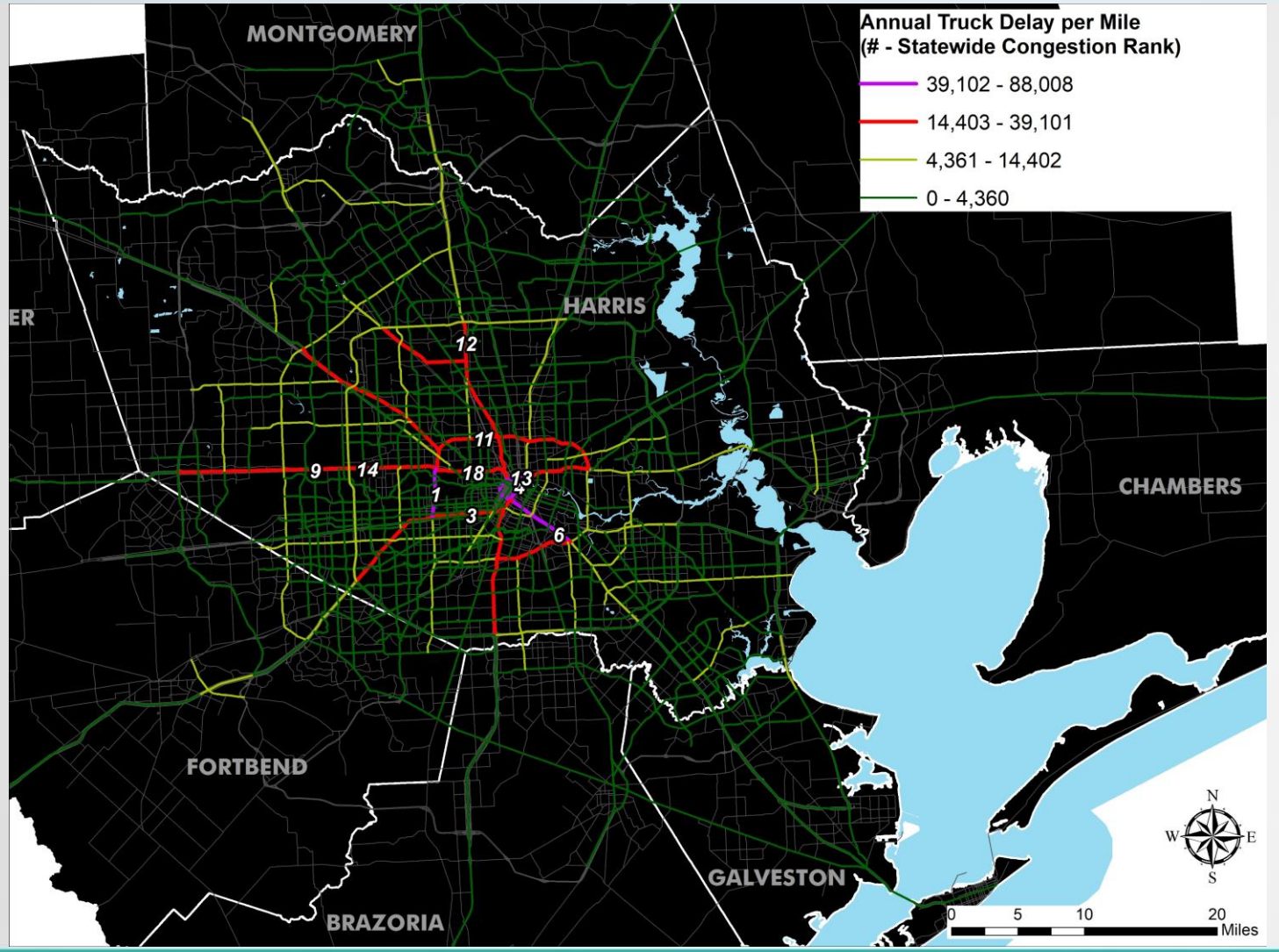
- **Annual Truck Delay per Mile**
  - Annual hours of truck delay divided by segment length.
- **Texas Congestion Index (Trucks Only)**
  - Average travel time during peak period divided by free-flow travel time for Trucks only.
- **Speed Index (Trucks Only)**
  - Average Peak Period Truck Speed divided by Free Flow Truck Speed.
  - Example:

    45 MPH / 65 MPH = 0.69 Speed Index

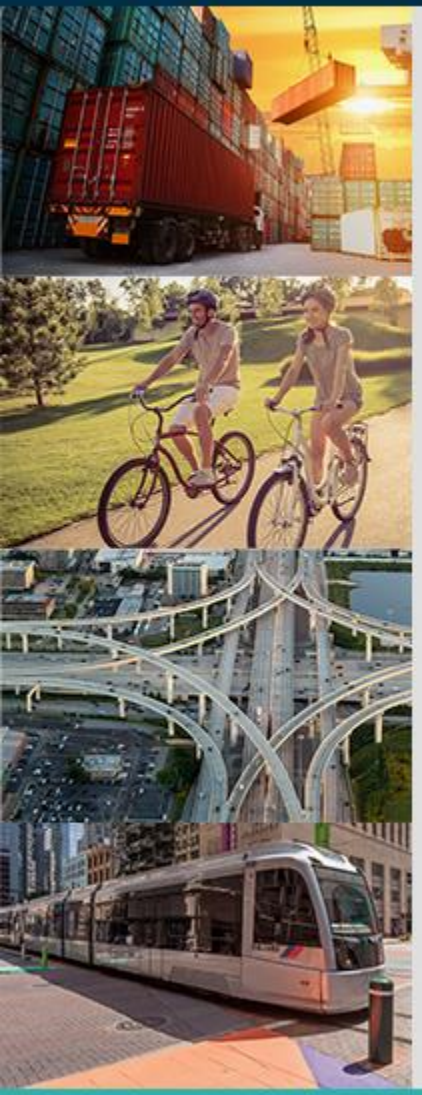
    (Speed Index $\leq$0.7 $\approx$ Congestion)

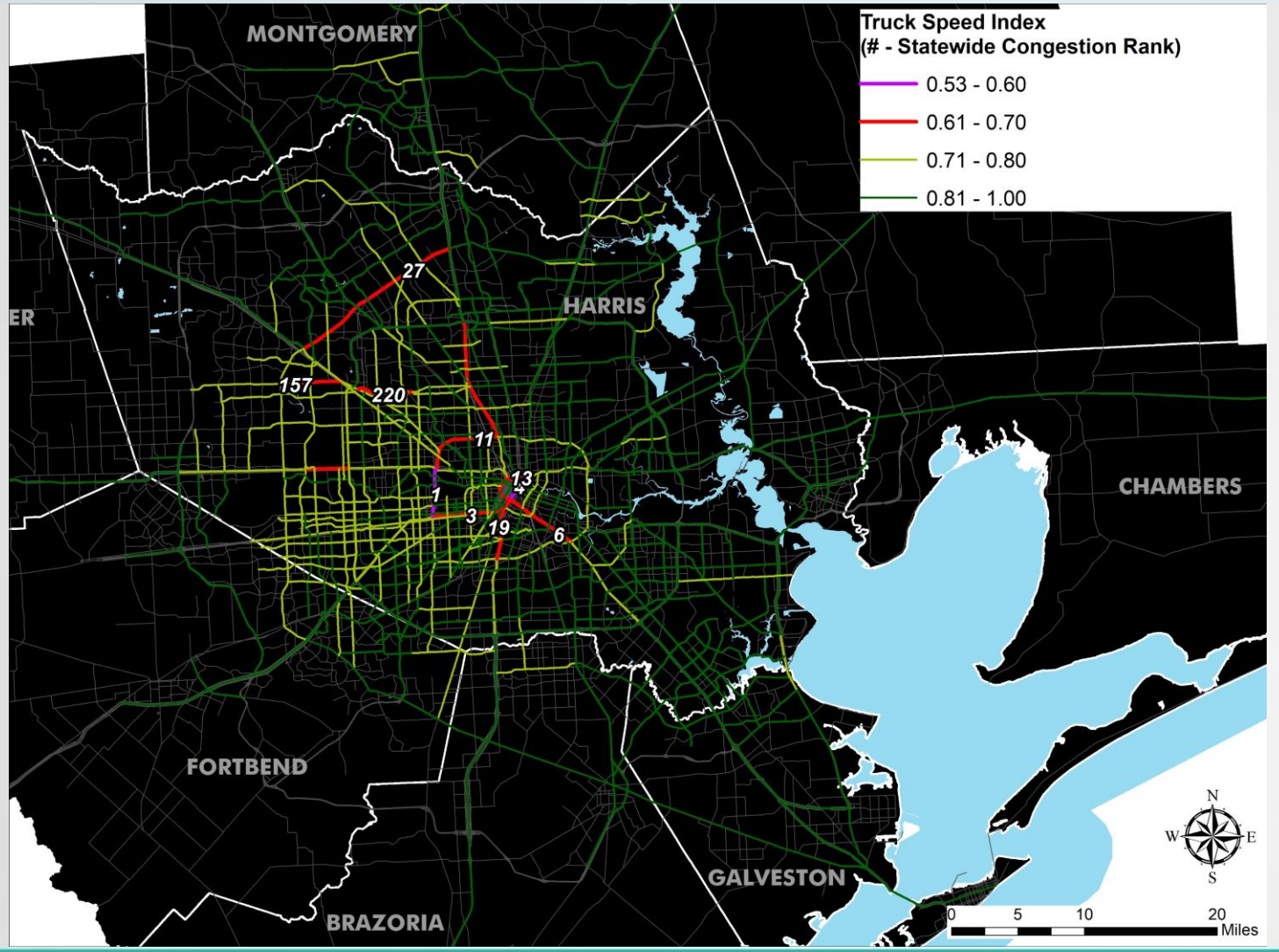
Identifying Problem Areas – Truck Delay



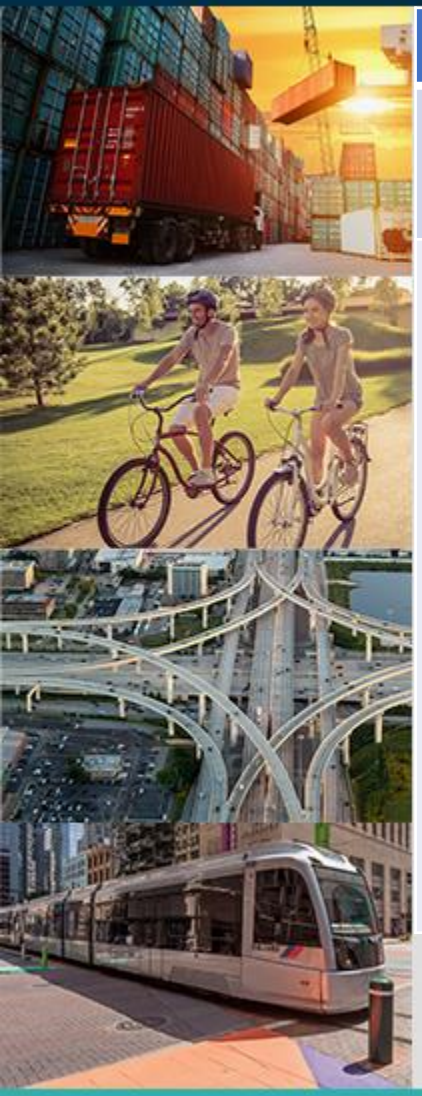


Identifying Problem Areas – Truck Speed





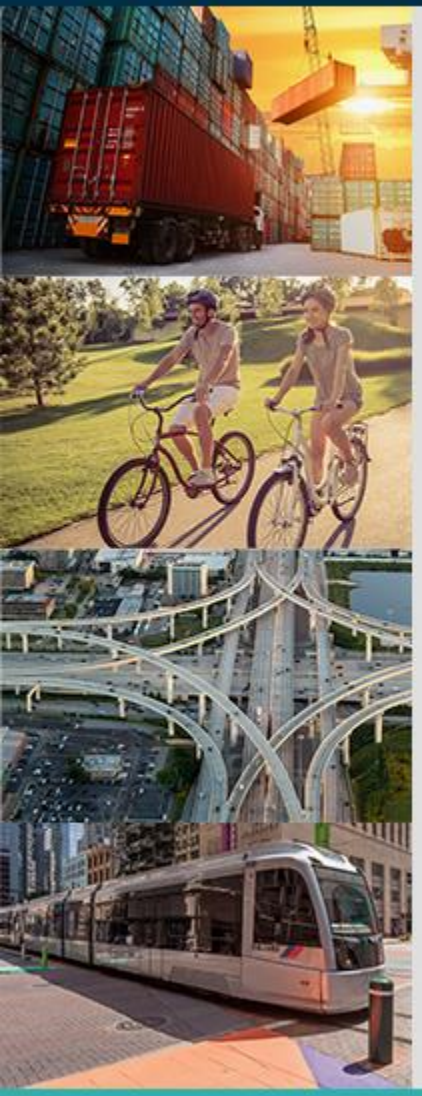
Identifying Problems and Needs



RTP Goal	Performance and Reliability Measures	
	System-wide (Federal) Performance Measures	***Identifying Problem Areas***
Improve Safety	Number of Fatalities	2015-19 Crash Location Mapping*
	Number of Serious Injuries	
	Rate of Fatalities	
	Rate of Serious Injuries	
	Number of Non-motorized Fatalities and Serious Injuries	

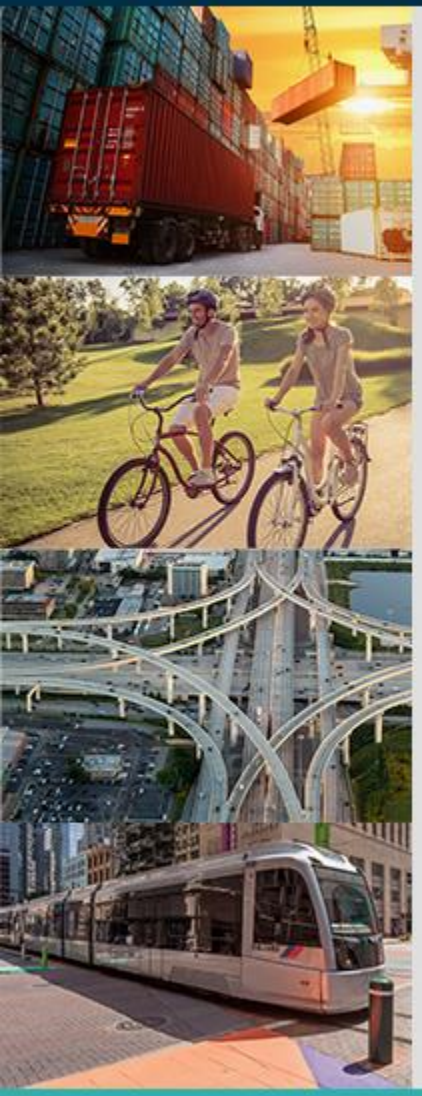
* - Pending Approval by TPC

Next Steps



- 2020
  - August – Finish Draft Report
  - September – Present to Committee and TPC
  - October – Public Comment and Meeting
  - November – Review of Comment – Final Report Prepared
  - December – Recommendation and Approval of Final CMP
- 2021
  - CMP 2020 Update Included in MPO Recertification

Questions



RTP Goals	***Identifying Problem Areas***
Move people and good efficiently (Reduce Congestion)	Annual Person-hours of Delay per Mile
	Texas Congestion Index
	Speed Index
Strengthen Regional Economic Competitiveness	Annual Truck Delay per Mile
	Texas Congestion Index (Trucks Only)
	Truck Speed Index
Improve Safety	2015-19 Crash Location Mapping

100 Most Congested Roadways in Texas

2019 Summary Report

EXECUTIVE SUMMARY

In response to increased roadway congestion throughout the state, in 2009 the Texas Legislature mandated that the Texas Department of Transportation annually produce a ranked list of the most congested roadways in the state. This list measures congestion by the number of extra hours of travel time (also called 'delay') experienced by travelers on each section of road analyzed. Because of the significant delay values in the most congested corridors, and the slow nature of solution implementation to address a congested roadway, the overall list changes little from year to year.

Exhibit 1: 2019 Top 10 Most Congested Roads in Texas

2019	County	Road segment	From	To	2018
1	Harris	W Loop Fwy / IH 610	Katy Fwy / IH10 / US90	Southwest Fwy / US 59 / IH 69	1
2	Travis	IH 35	US 290 N / SS 69	Ben White Blvd / SH 71	3
3	Harris	Southwest Fwy / IH 69 / US 59	W Loop Fwy / IH 610	South Fwy / SH 288	2
4	Harris	Eastex Fwy / IH 69 / US 59	SH 288	IH 10	5
5	Dallas	Woodall Rodgers Fwy / SS 366	US 75	N Beckley Ave	4
6	Harris	Gulf Fwy / IH 45	IH 10 / US 90	S Loop E Fwy / IH 610	11
7	Dallas	US 75	LBJ Fwy / IH 635	Woodall Rodgers Fwy / SS 366	9
8	Dallas	Stemmons Fwy / IH 35E / US 77	John W Carpenter / SH 183	Tom Landry Fwy / IH 30	8
9	Harris	Katy Fwy / IH 10 / US 90	N Eldridge Pkwy	Sam Houston Tollway W / SL 8	7
10	Travis	IH 35	Ben White Blvd / SH 71	Slaughter Ln	19

Two of these road sections are new to the top 10 list:

- Gulf Fwy (IH45) in Houston - #6 this year, #11 last year
- IH 35 in Austin - #10 this year, #19 last year

Full results and multi-year comparisons of all road segments, over 1,800 in all, can be found in the full spreadsheet at (https://mobility.tamu.edu/texas-most-congested-roadways/).

And while congestion is often a by-product of desirable economic growth, for individuals attempting to navigate a congested roadway it is simply "a problem." TxDOT is already seeking solutions to many of these problem sections and the Texas Transportation Commission accelerated those solutions for several road segments through the Texas Clear Lanes program, a 2015 initiative announced by Governor Abbott to provide relief at major chokepoints across the state. Many of the Texas Clear Lanes projects are on or adjacent to some of the most congested sections in the top 100 list.

INTRODUCTION

Everything is interconnected – that's the complicated reality behind the Texas 100 Most Congested Roadways list. And everyone feels it. Economic prosperity is connected to congestion, congested freeways are frequently connected to congested streets. Also, many elements create change, a fact that is also reflected in the 2019 report. There are many transportation variables and urban economic factors that influence congestion levels, so it is difficult to explain all of the causes for roadway segments moving up or down the congestion list. This report describes how a few of the most common factors affect roadway, corridor and regional congestion.

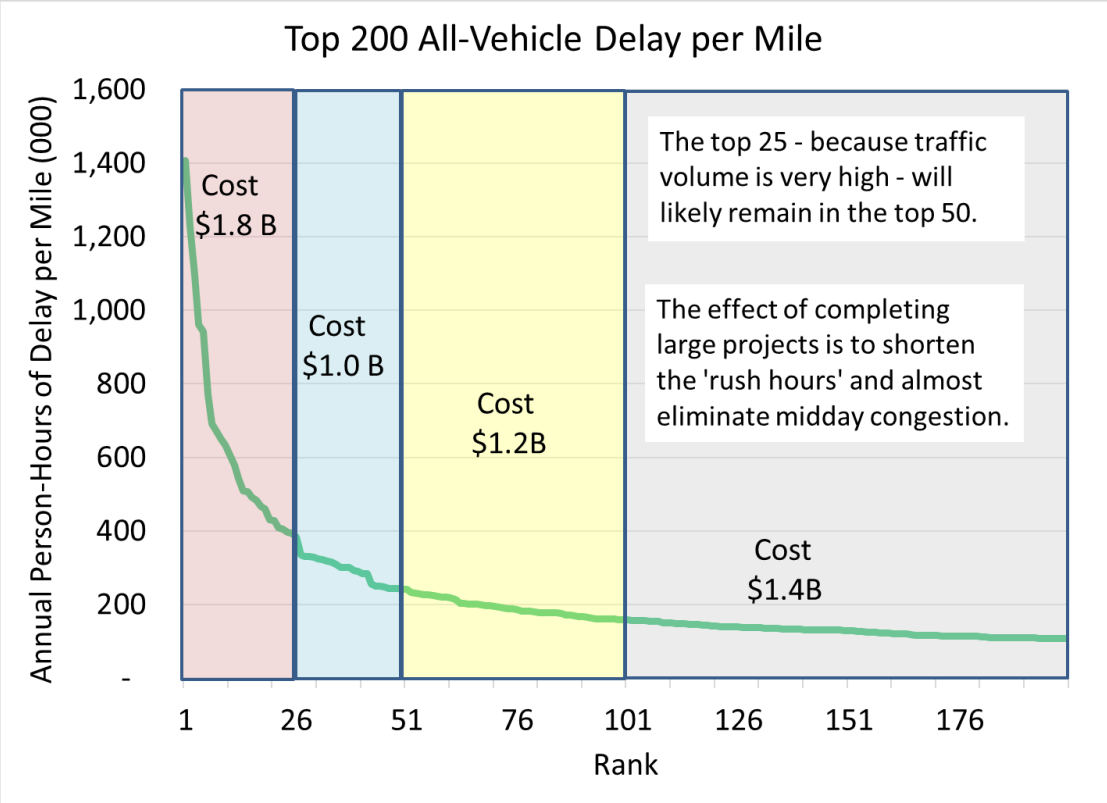
What has not changed since its beginning in 2009 is the goal of this effort: to use traffic volume and speed data to arrive at a measure of traffic congestion and the frustration that travelers and shippers feel. The primary measure quantifies how much more time it takes to travel a mile on a congested road than it does to travel that same mile of road during uncongested conditions. This year's report presents some of the findings from the most recent study, as well as describes some of the changes in technology and in data collection that have affected the research methodology over time.

WHAT'S ON THE LIST

Congestion is widespread, but its relevance can be subjective – what is very congested in small cities might be considered acceptable in larger cities. In an effort to demonstrate these contextual differences, this study tracks roughly 1,800 road sections across the state, in urban and suburban areas, including at least 18 sections (61 miles) in each of the 25 Texas metro areas (see map on the TTI website (https://mobility.tamu.edu/texas-most-congested-roadways/) for the urban regions). The resulting database is useful in tracking statewide congestion, and can be used to help prioritize projects that address congestion problems in each metro area. Rural Texas congestion is not tracked in this effort.

Figure 1 displays the extra travel time per mile of roadway for the top 200 segments on the list; congestion is not only unevenly distributed across the Texas 100 list, it also declines sharply from the top few roadways. The travel delay per mile begins to flatten at about the 50th ranked section. After the top 100 roadways, congestion changes much less for the remaining sections.

Exhibit 2: Annual Delay Hours per Road Mile - 200 Most Congested Roads in Texas



The most congested roads on the list are in the four largest metro areas of the state: Austin, Dallas/Fort Worth, Houston, and San Antonio:

- The 68 most congested roadways are in these four regions
- 92 of the top 100 congested sections are in these four regions
- 163 of the top 200 are in the four largest regions

The most congested list has been relatively stable. This is partly because the Texas Clear Lanes effort is relatively new and the projects have not yet opened. It is also a result of math; as Exhibit 2 shows, the delay values are more than twice as high for the top 25 sections than for the 100th section. Since 2015, …

This year's Top 25,

- Almost all (20) have been top 25 for 3 of last 4 years
- Zero were ever outside the top 100

This year's 26 to 50,

- Almost all have been in the top 100 (Only 3 spent 1 year each outside the top 100)

This year's 1 to 75,

- Almost all have been in the top 100 (Only 5 spent more than 1 year outside top 100)

This year's 76 to 100,

- Is less consistent - 17 spent more than 1 year outside top 100

The “All-Vehicle Congestion” and “Truck Congestion” rankings in the most congested list can be very different because trucks are a small part of some very congested commuter freeway corridors, for example, Austin’s MoPac Freeway, Dallas’ Woodall Rodgers Freeway and San Antonio’s McAllister Freeway. Truck congestion is a significant part of most Laredo corridors, and many urban Interstate corridors. Roadways that generally carry freight traffic through smaller regions such as Bryan-College Station and Tyler are also ranked much higher on the truck list than the all-vehicle list. Since 2015 the truck list has been almost as stable as the all-vehicle list …

This year’s Top 25

- Almost all (18) have been top 25 for 3 of last 4 years
- Only 1 – Laredo’s Bullock Loop - was ever outside the top 100

This year’s 26 to 50

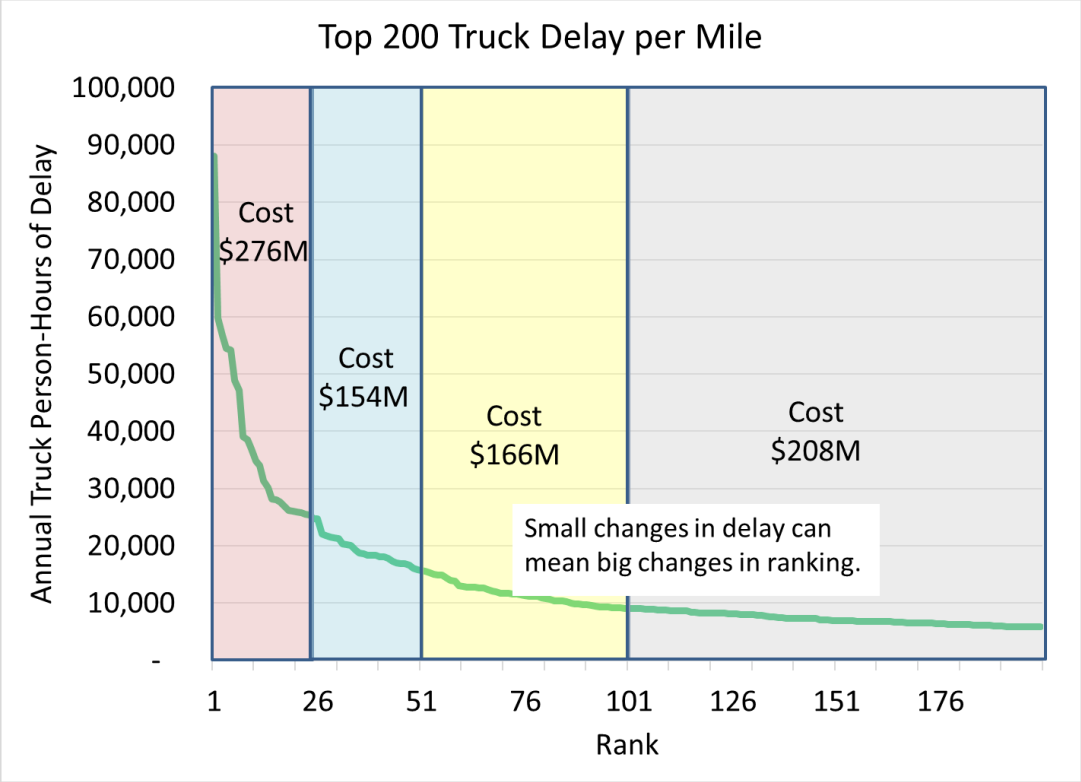
- Almost all have been in the top 100 (Only 3 spent 1 year each outside the top 100)

This year’s 1 to 75

- Almost all have been in the top 100 (Only 12 spent more than 1 year outside top 100)

This year’s 76 to 100

- Is less consistent - 18 spent more than 1 year outside top 100



These are the areas where congestion is generally the most intense and continues for long periods throughout the day. Highest on the list are urban segments where congestion also occurs outside the peak travel period. For example, Figure 2 shows that the highest ranking segment for 2019, I-610 West in Houston from the Katy Freeway to the Southwest Freeway, has about 48 percent of its delay outside of the traditional peak periods (6:00-9:00am and 4:00-7:00pm) which shows that this is not only a "rush hour" phenomenon. In contrast, the segment ranked at position #14 for 2019 (I-10 between Sam Houston Tollway and I-610 in Harris County) suffers much less off-peak period delay (about 28 percent of its delay is outside of the peak periods). Many of the highly ranked sections have much more delay outside the traditional peak periods than those sections further down the list.

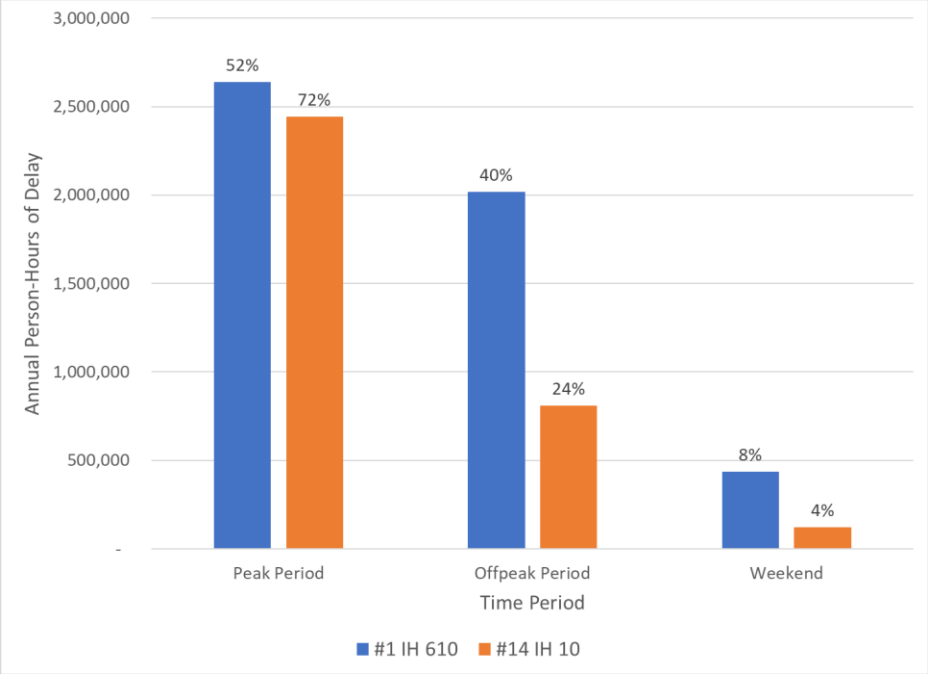


Exhibit 3. Comparison of Segment #1 with Segment #14 for Off-Peak Period Congestion

Congestion is not a uniquely urban or downtown problem, or even one related only to the road section on the congestion list. Some urban road segments jump up the list because nearby construction or maintenance projects cause traffic to divert onto the usually uncongested section.

WHAT ARE THE INFLUENCING FACTORS THAT PUT ROADS ON THE LIST

Economic Prosperity

The most enduring trend since 2009 has been growth – in population, jobs, travel demands, traffic volume – everything except road and transit capacity necessary to accommodate the

growth. Traffic congestion may be an inevitable result of growth, but the congestion growth rate is not seen as reasonable.

Land Use

Land use changes along or near a corridor can have a dramatic impact on that corridor. In urban areas that are developing densely, thousands of trips may be added to a corridor very quickly when people move into newly available housing units or take advantage of new offices, retail stores or restaurants. For example, recent high-density development along Westheimer Road in Houston between SH-6 and IH-610 is one reason that this segment of road is ranked at #57 on the list. That kind of change can send a roadway to a higher position on the list in a short period of time.

Construction

Construction on a road – or on a nearby road - can be the reason for congestion changes. Big construction projects often cause congestion on the road where the project is being built. In smaller cities, even short-term and smaller projects like pavement overlays, re-striping, traffic signal work at a single intersection or right-turn additions can affect annual congestion statistics.

Projects on nearby or connecting roads can also cause congestion on a road where there would otherwise be none. When the road under construction becomes congested, backed-up traffic shifts to connecting roads and they become congested as well. For example, construction on Austin's Loop 1/MoPac creates congestion on other nearby roadways (Cesar Chavez, Bee Caves, and South Lamar) when traffic along Loop 1 is slowed due to construction.

Congestion Outside the Peak Period

Congestion outside the normal peak traffic periods is another frequent condition that moves a road up on the congested list. These roads "where it's always rush hour" not only see regular congestion, but also see more intense problems from traffic crashes and stalled vehicles. This is the case with I-35 through Central Austin, or I-610 West in Houston.

Off-peak period delay can also be significant on arterials, or high-capacity urban thoroughfares, whose traffic lights are timed to serve all travel directions at smaller cross street intersections, rather than prioritizing the major street peak direction, causing delay on the bigger arterial streets. During rush hour, however, the arterials are prioritized and their delay time is lessened.

Weather

Even an exceptionally bad weather year can cause a road segment to appear in the congestion data. Heavy rains can slow traffic, regular flooding can block it, and high winds can deposit debris on the roads or down signs that obstruct traffic until removed or repaired. Extreme weather, especially high heat followed by excessive rains, can accelerate roadway damage,

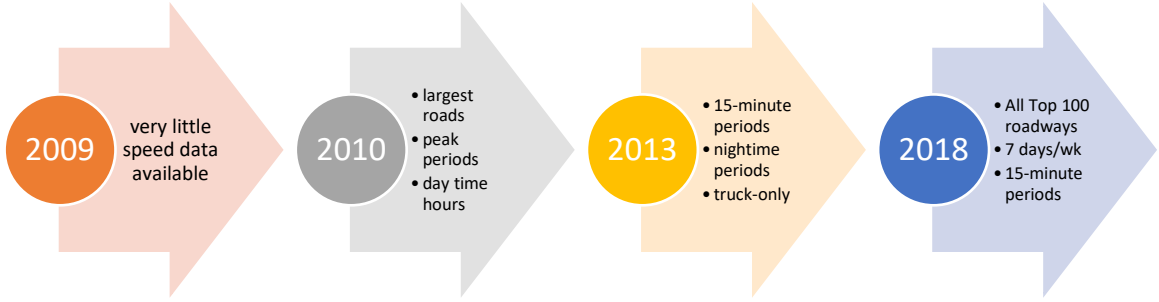
creating large cracks that worsen with the weight of traffic. That kind of damage can slow traffic, and the effort to repair the problem can also obstruct a road and cause congestion.

HOW HAS THE METHODOLOGY CHANGED OVER THE YEARS?

Eleven years of this project have seen changes to road use in Texas. There have also been changes to speed data availability since the first year of this report, both for the time periods and the number of roadways for which it was captured. In 2009, the study's first year, there was very little directly collected speed data so speeds were estimated using traffic volume and number of roadway lanes. Since 2010, however, speed data has continued to improve in both temporal and spatial coverage. In that year, private sector companies were supplying hourly speed data for only the state's largest roadways, generally during higher traffic periods, and during most daytime hours. However, by year four of the report, speeds were available for 15-minute periods, including many overnight periods. As of the 2017 reporting period, speed data was available for over 95 percent of the 15-minute periods for all seven days of the week on all the Texas 100 roadway sections.

In addition, data collection companies who once collected only truck or fleet data now collect passenger vehicle data from anonymized sources like cell phones and in-dash devices. The result is that the reporting has become more accurate both in terms of the timeframes and vehicle types they measure. *(See Exhibit 4 below)*.

Exhibit 4: Timeline Showing Changes to Speed Data Availability



Conclusion

The 100 Most Congested Roadways report provides a birds-eye view of congestion in Texas. It is designed to show where delay hours are occurring, in order of severity. It also shows the type of traffic (commuters or trucks) is affected by congestion, the differences between peak and off-peak period congestion levels, and more. What this report does not show is what

specifically is causing the congestion on a given roadway, or identify specific solutions. However, the report's discussions on congestion describe a variety of reasons why it occurs, and give analysts some insight into what strategies might be effective. This report also provides a brief description of the research methodology and the factors that influence it. Future reports will continue to note changes to methodologies as they occur.

Appendix A. Methodology & Definitions

Annual Hours of Delay

The annual measure of delay is the starting point for calculating all of the congestion measures below. To arrive at this measure, researchers must first acquire four data elements:

- Actual travel speed
- Free-flow travel speed
- Vehicle volume (passenger vehicles and trucks)
- Vehicle occupancy (persons per vehicle) to calculate delay in person-hours

Researchers use the traffic volume and traffic speed data for each section of road to create the large dataset that contains each of the Texas 100 reporting segments. For example, on a given point on a roadway, researchers gather the travel speed and traffic volume for each 15-minute time period of the average week. This means that data is gathered for 672 discreet periods of each week for each segment. They can then compare this data with free flow speeds to determine the difference between a congested period and a free flowing one. By factoring in vehicle occupancy, they are then able to calculate the delay time per person for each roadway. For details about the methodology used and any changes made since the prior year, see *100 Texas Congested – 2019 Method (final)*.

Definitions of Measures

DELAY	
Annual Delay	The sum of the extra travel time in the peak period, off-peak period, and weekend.
Annual Delay Per Mile	Annual hours of delay divided by segment length so that comparable values are obtained.
Peak Period Delay	The hours of delay that occur during the 6:00am-9:00am and 4:00-7:00pm timeframe on weekdays.
Off-Peak Period Delay	The hours of delay that occur on weekdays outside of the peak period.
Weekend Delay	The hours of delay that occur on weekends.
Texas Congestion Index	Score indicating the relationship between the peak-period, average travel time and the free-flow travel time. The score is arrived at by dividing the congested travel time by the free flow travel time. For example, for a segment where a free-flow trip takes 30 minutes, and a trip during peak periods takes 36 minutes, the TCI score would be 1.2.
Planning Time Index	A travel time reliability measure indicating the amount of time that should be planned to arrive on-time for 19 trips out of 20. A value of 2.50 means that for a 30 minute trip in light traffic, 75 minutes should be planned.
Commuter Stress Index	Score indicating the relationship between the peak period, average travel time for the morning and evening peak travel direction and the free-flow travel time for the peak direction of travel only.
VOLUME, SPEED & FUNCTIONAL CLASS	
Peak Period Average Speed	The average speed during the 6:00am-9:00am and 4:00-7:00pm timeframe.
Average Uncongested Speed	The average operating speeds during light traffic conditions, typically during overnight hours.
Functional Class	Coding system for road segments for purposes of analysis. 1=interstates and freeways, 3=major and minor arterial streets.
TRUCKS	
Annual Truck Delay	The portion of annual delay from trucks.
Annual Truck Delay Per Mile	Annual hours of truck delay divided by the segment length
Peak Period Truck Delay	The hours of truck delay that occur during the 6:00am-9:00am and 4:00-7:00pm timeframe on weekdays.
Off-Peak Period Truck Delay	The hours of truck delay that occur in non-peak periods on weekdays.
Weekend Truck Delay	The hours of truck delay that occur on weekends.
Annual Truck Congestion Cost	The portion of annual congestion cost from trucks.
Peak Period Average Truck Speed	The average truck speed during the 6:00am-9:00am and 4:00-7:00pm timeframe.
Average Uncongested Truck Speed	The average truck operating speeds during light traffic conditions, typically during overnight hours.
CONGESTION COST, EXCESS FUEL & ADDITIONAL EMISSIONS DUE TO CONGESTION	
Annual Congestion Cost	The cost of wasted time and fuel associated with congestion.
Excess Fuel Consumed	Additional gallons of fuel consumed due to congestion.
Excess Truck Fuel Consumed	The portion of excess fuel consumed by trucks due to congestion.
Additional CO2 Produced	Pounds of additional carbon dioxide produced because of congestion.
Additional Truck CO2 Produced	Pounds of additional carbon dioxide produced by trucks because of congestion.


Regional Transportation Plan Subcommittee


August 12, 2020

Regional Collaboration • Transportation Planning • Multimodal Mobility

METROPOLITAN PLANNING ORGANIZATION

1. Call to Order

Regional Transportation Plan Subcommittee

		Primary			Alternate		
	Representing	First Name	Last Name	Organization	First Name	Last Name	Organization
1	Local Government	Monique	Johnson	City of Sugarland	Krystal	Lastrape	City of Sugarland
2	Local Government	Ruthanne	Haut	The Woodlands Township	John	Powers	The Woodlands Township
3	Local Government	Clay	Forister	Brazoria County	Karen	McKinnon	Brazoria County
4	Local Government	Adam	France	City of Conroe	Chris	Bogert	City of Conroe
5	Local Government	Christopher	Sims	City of League City	Chad	Tressler	City of League City
6	Local Government	Ricardo	Villagrand	City of Mont Belvieu	Francisco	Carrillo	City of Mont Belvieu
7	Local Government	Loyd	Smith	Harris County	Bryan	Brown	Harris County
8	Local Government	Nick	Woolery	City of Baytown	Frank	Simoneaux	City of Baytown
9	Local Government	Yancy	Scott	Waller County	Bobby	Pennington	City of Cleveland
10	TxDOT-Houston	Charles	Airiohuodion	TxDOT-Houston	Jeffrey	English	TxDOT-Houston
11	TxDOT-Beaumont	Lisa	Colins	TxDOT-BMT	Scott	Ayres	TxDOT-BMT
12	Transit	Alberto	Lyne	METRO	Priya	Zachariah	METRO
13	Transit	Perri	D'Armond	Fort Bend Transit	Stacy	Slawinski	Fort Bend Transit
14	Transit	Ken	Fickes	Harris County Transit	Vernon	Chambers	Harris County Transit
15	Environmental	Harrison	Humphrey	Air Alliance Houston	Stephanie	Thomas	Public Citizen
16	Planning	Maureen	Crocker	City of Houston	Jennifer	Ostlind	City of Houston
17	Citizens Interests	Jonathan	Brooks	LINK Houston	Bakeyah	Nelson	Air Alliance Houston
18	Business Interests	Elijah	Williams	The Energy Corridor District	Irma	Sanchez	Westchase District
19	Port	Bruce	Mann	Port Houston	Rohit	Saxena	Port Houston
20	Port	Roger	Rees	Port Galveston	Brett	Milutin	Port Galveston
21	Active Transportation	Janis	Scott	LINK Houston	Paulette	Wagner	OST/South Union
22	Toll Roads	John	Tyler	HCTRA - Toll Road	Vacant		
23	Airports	Bill	Zrioka	Houston Airport System	David	Leslie	Houston Airport System

2. Approval of Minutes

Regional Transportation Plan Subcommittee

		Primary			Alternate		
	Representing	First Name	Last Name	Organization	First Name	Last Name	Organization
1	Local Government	Monique	Johnson	City of Sugarland	Krystal	Lastrape	City of Sugarland
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11	TxDOT-Beaumont	Lisa	Colins	TxDOT-BMT	Scott	Ayres	TxDOT-BMT
12	Transit	Alberto	Lyne	METRO	Priya	Zachariah	METRO
13	Transit	Perri	D'Armond	Fort Bend Transit	Stacy	Slawinski	Fort Bend Transit
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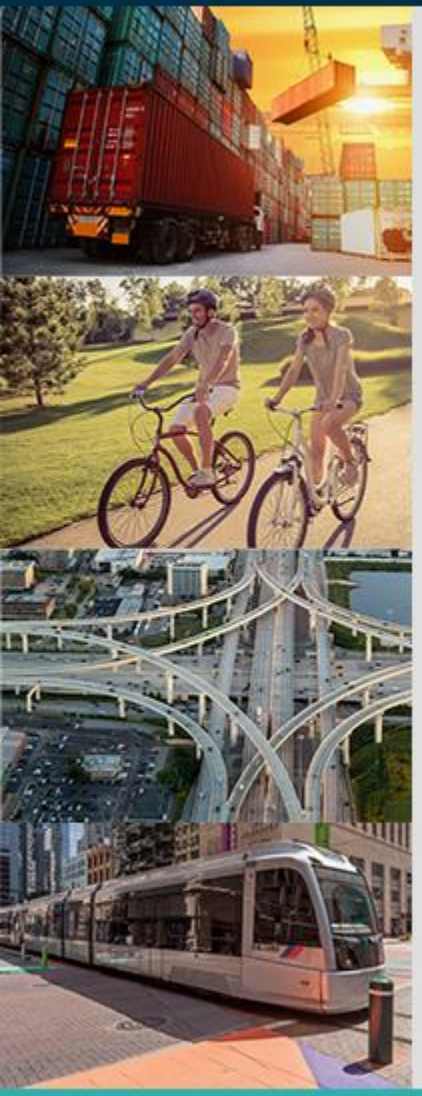
22	Toll Roads	John	Tyler	HCTRA - Toll Road	Vacant		
23	Airports	Bill	Zrioka	Houston Airport System	David	Leslie	Houston Airport System

3.Election of Officers



- Nominations for Chair (currently Maureen Crocker)
  - Maureen Crocker – nominated by Ken Fickes
- Nominations for Vice-Chair (not filled)
  - Perri D'Armond – nominated by Ken Fickes


Development of Project Evaluation Criteria


Item #4 – Vishu Lingala
August 12, 2020

Regional Collaboration • Transportation Planning • Multimodal Mobility

METROPOLITAN PLANNING ORGANIZATION

Process

Project Prioritization Workgroup

- Goals
- Priorities
- Policies

Transportation Policy Council

- Considers and Adopts Workgroup Recommendations
- Provides directive to Staff/TAC/TIP Subcommittee
- Workshop/Context
- Consider evaluation criteria
- Approve Call for Projects

Call for Projects

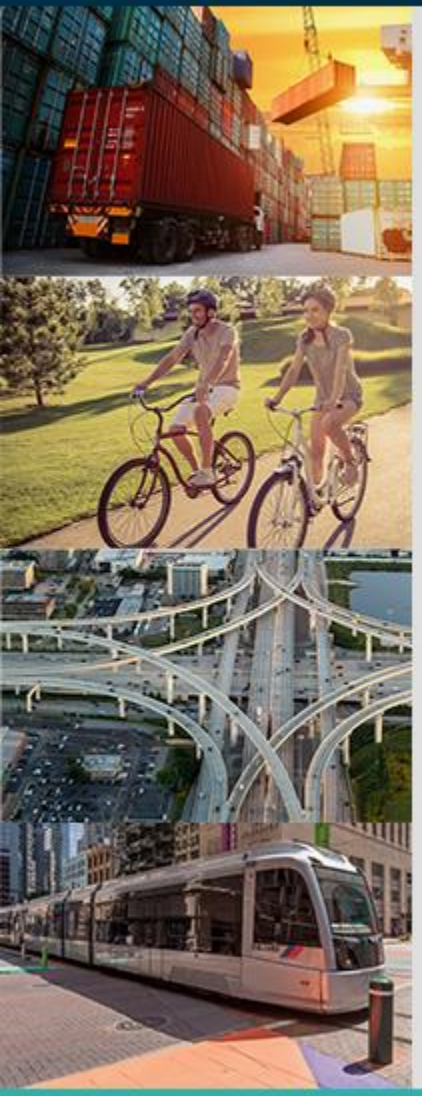
Technical Advisory Committee

- Considers and recommends the evaluation criteria for TPC action

Staff/TIP Subcommittee

- Develops criteria for TAC consideration

Presentation Overview



- Consolidation of investment categories
- Scoring weightage (BCA Vs. planning factors)
- Safety council discussion
- Congestion Management Process Update
- Next steps
- Revised draft timeline

2018 CFP Other Investments Categories

- Access Management/ Safety/Grade Separations
- Active Transportation
- AV/CV Infrastructure
- Infrastructure Resiliency
- Innovative Freight Movement
- Regional ITS Infrastructure
- Rehabilitation/Reconstruction
- Roadway Added Capacity/New Construction/Complete Streets
- Transit Expansion
- Transit Facility State of Good Repair
- Transit Passenger Facilities
- Transit Priority Infrastructure

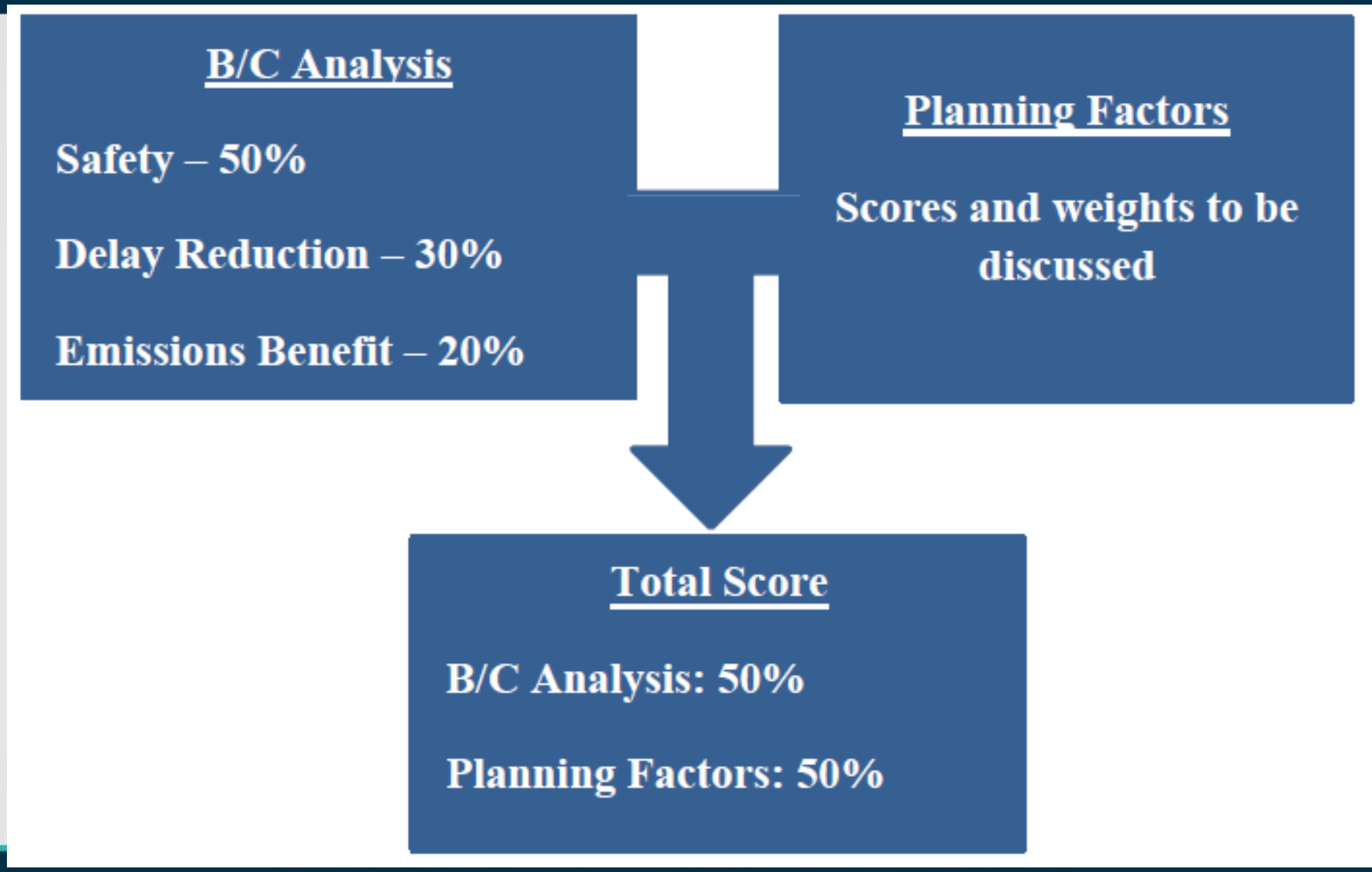
Investments Categories

- Major Investments
- Expand
- Manage
- Maintain
- Active Transportation
- http://www.h-gac.com/transportation-advisory-committee/transportation-improvement-program-subcommittee/documents/TIP-Subcommittee-Agenda-Aug-2020.pdf

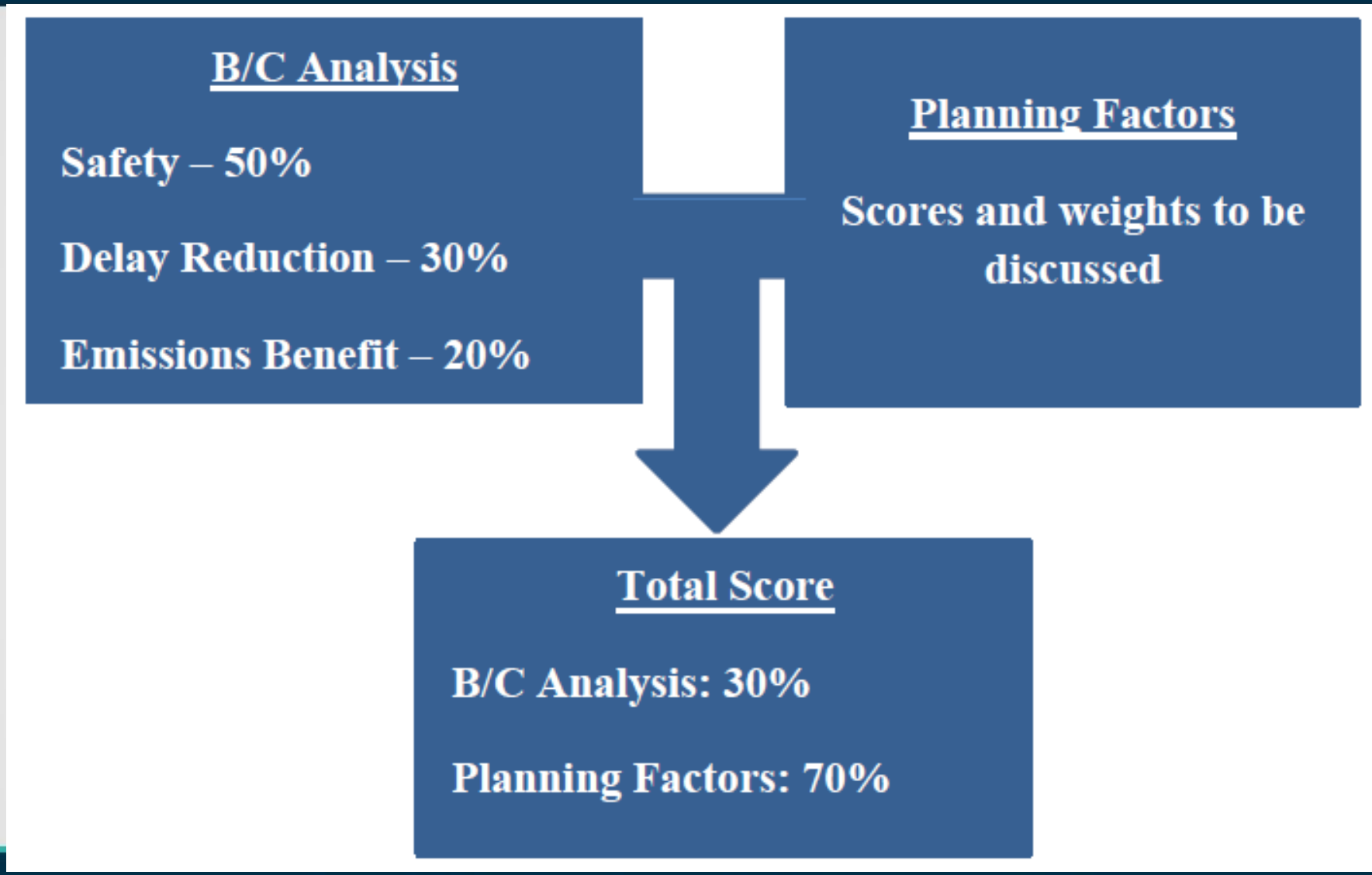
2018 Call Projects: Project Scoring

- 50% Benefit Cost Analysis
  - Safety benefits/Crash Reduction
  - Reduced travel delay
  - Air quality benefits
- 50% Planning Factors
  - Barrier Elimination, Connectivity, Environmental Justice, Planning Coordination.

Total Scoring



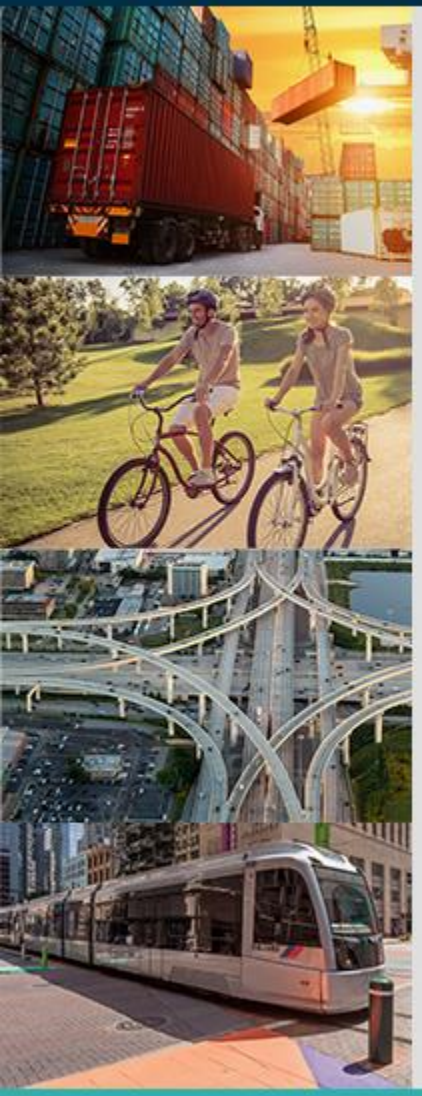
Total Scoring (Active Transportation)



TSC Policy & Regulation Subcommittee

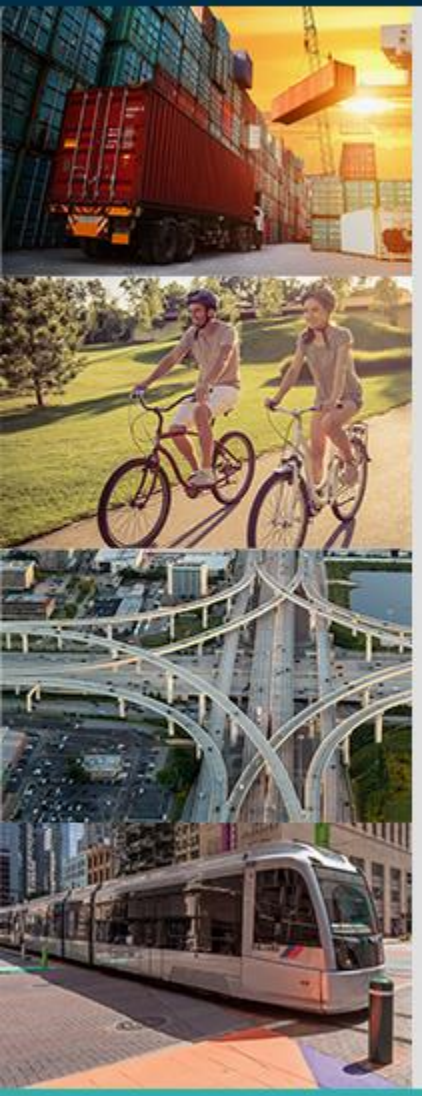
- July 30, 2020 Meeting
- Regional Vision Zero Policy
- Performance measures for Pedestrian – Bicycle and Traffic Safety
- Benchmarks and thresholds

Benchmarks & Thresholds



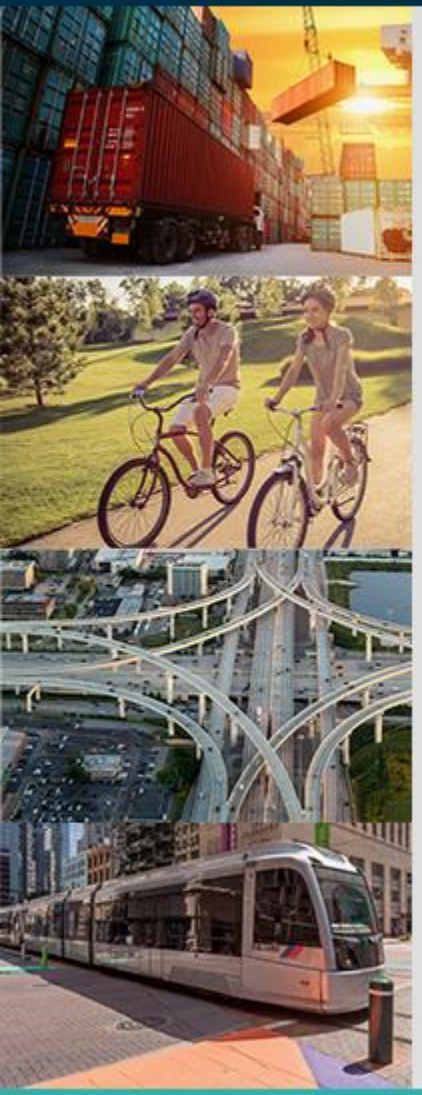
- Purpose
- Basis for Comparison (Regional or State?)
- Scale
- Selection Criteria

Congestion Management Process (CMP)



- CMP Update
- Completed in September
- Identify Multimodal CMP network
- Identify congested segments in the region

Next Steps



- Finalize Investment Categories
- Continue Benefit/Cost Analysis review
- Development of planning factors/narrative questions
- TAC/TPC Subcommittee comments (e.g., Ped/Bike, Transit, Safety)
- Weighting and Scoring
- Application/Submittal Process

Draft Timeline

July	Begin discussions on investment criteria and establish working group
August-October	Continue discussions on investment criteria Update on the Benefit/Cost Analysis review Input from other Subcommittees
November	TAC Mid-point Progress Report **(Information)**
December-March	Continue development of draft evaluation criteria and selection process with TIP Subcommittee
April	TAC/TPC review of draft evaluation criteria and selection process **(Information)**
May-June 2021	Final draft evaluation criteria and selection process to TAC/TPC **(Action)**

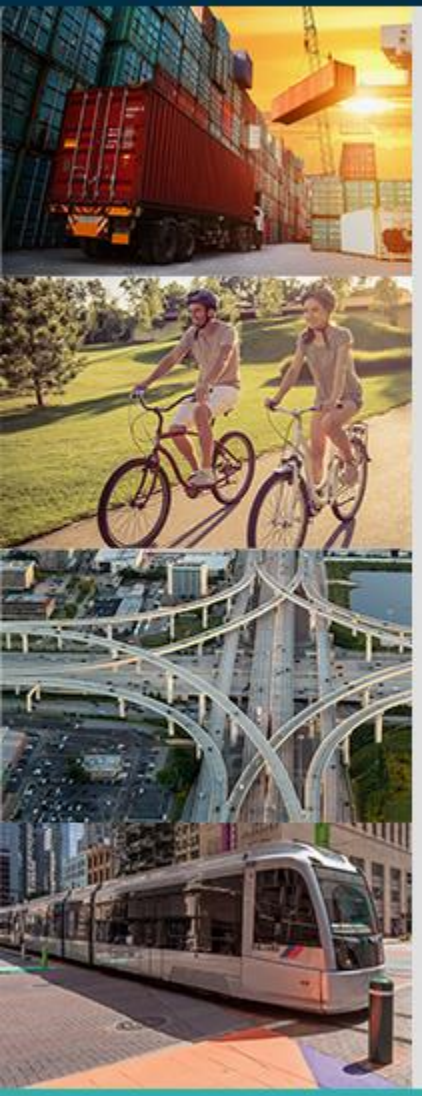

2045 Regional Transportation Plan Amendment


Item #5 – Vishu Lingala
August 12, 2020

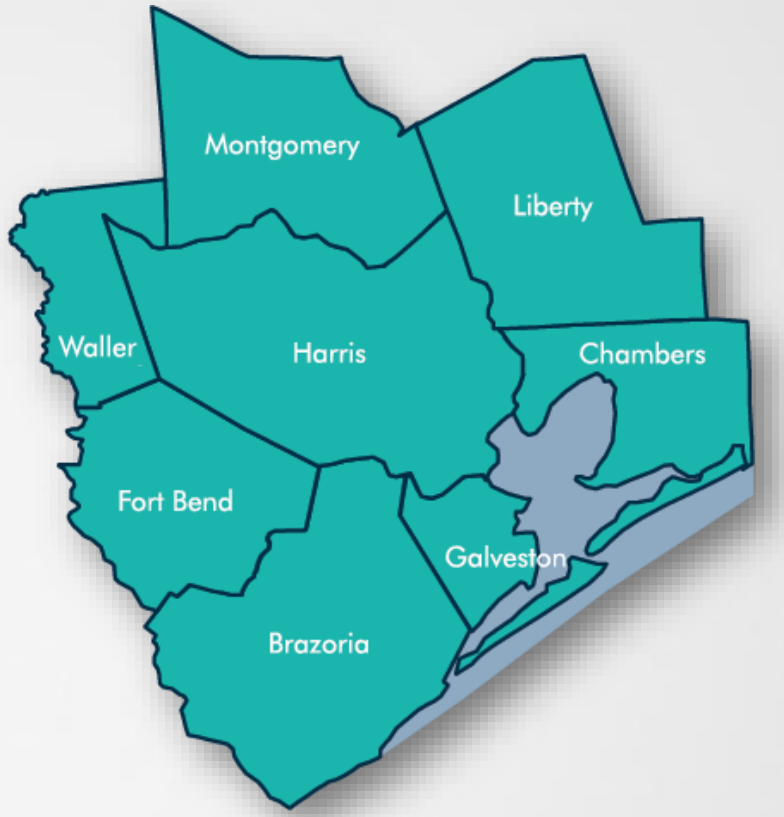
Regional Collaboration • Transportation Planning • Multimodal Mobility

METROPOLITAN PLANNING ORGANIZATION

What is the RTP?



- Long-range vision (20+ Years)
  - Policies, operational strategies, and projects to achieve it
- Performance measures and targets
- Reflects public involvement
- Fiscally constrained, updated every 4 years
- Demonstrate air quality conformity



2045 RTP Conformity Finding

- 2045 RTP was adopted May 2019
- Conformity finding August 2019
- New conformity finding August 2023 or
- When RTP is amended
  - Add new regionally significant projects
  - Change conformity analysis year

Requested Amendments

- TxDOT Houston
  - Hempstead Highway
  - IH 10E (at San Jacinto and Ship Channel)
  - IH 10W (Inner Katy)
  - IH 610W Express lanes
  - SH 35, SH 36 A, SH 288, SH 6, and SH 99
- METRO
  - Align MetroNext projects with the 2045 RTP

TxDOT Corridors

- IH 610W express lanes
- Anticipated amendment in February 2021
- Anticipated conformity finding from consultation partners in June 2021

I-10 Regional Express Lanes Concept

I-10 Regional Express Lanes
CSJ: 0271-07-327

REGIONAL EXPRESS LANES CONCEPT

August 2020

Texas Department of Transportation

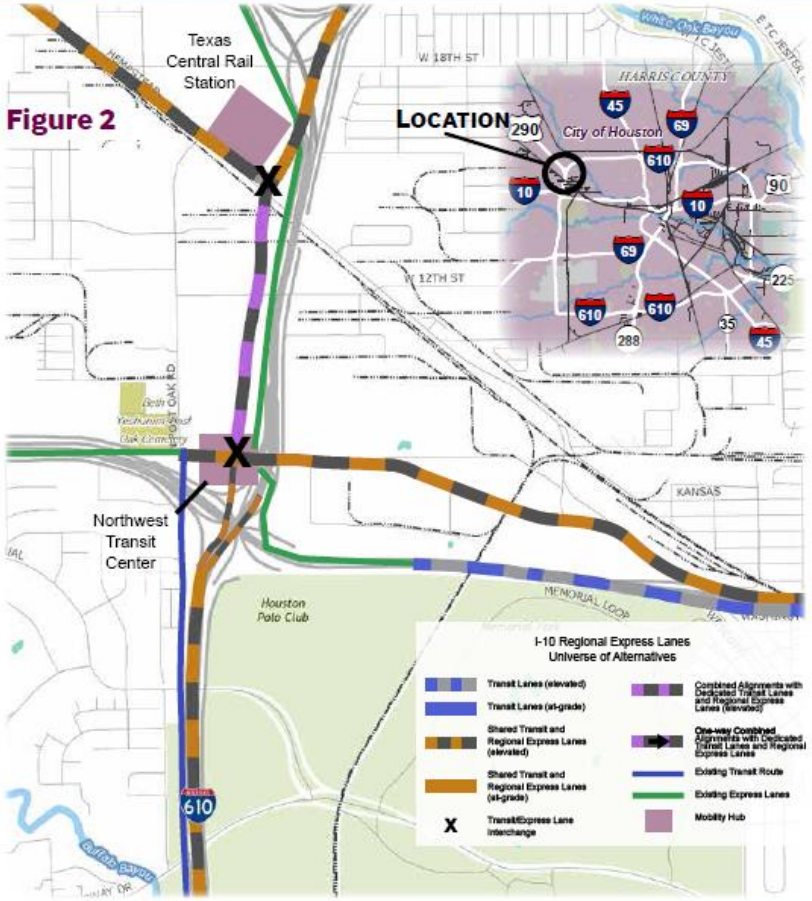
rps MAKING COMPLEX EASY

H-GAC METROPOLITAN PLANNING ORGANIZATION

I-10 Regional Express Lanes Concept

I-10 Regional Express Lanes
CSJ: 0271-07-327

EXPRESS LANE CONNECTIONS NEAR NORTHWEST TRANSIT CENTER AND HIGH SPEED RAIL



Key Connections

- Northwest Transit Center to I-10 east transit lanes
- Hempstead Express Lanes to Northwest Transit Center, mixed express and transit lanes
- Old Katy express lanes

Mobility Hubs

- Texas Central Railway Station
- Northwest Transit Center

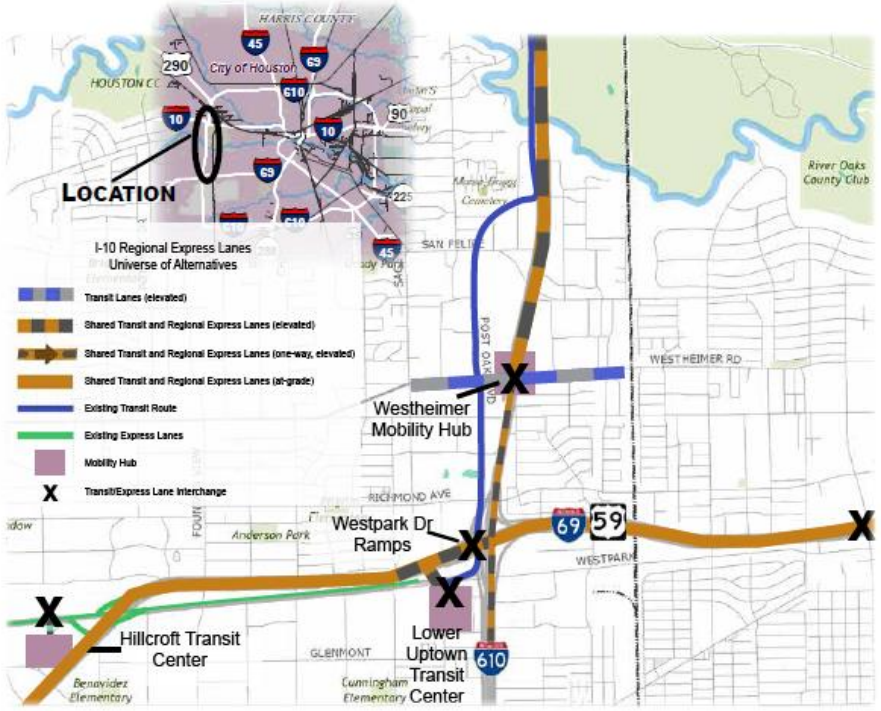
August 2020

I-10 Regional Express Lanes Concept

I-10 Regional Express Lanes
CSJ: 0271-07-327

EXPRESS LANE CONNECTIONS NEAR UPTOWN

Figure 3



Westheimer Mobility Hub

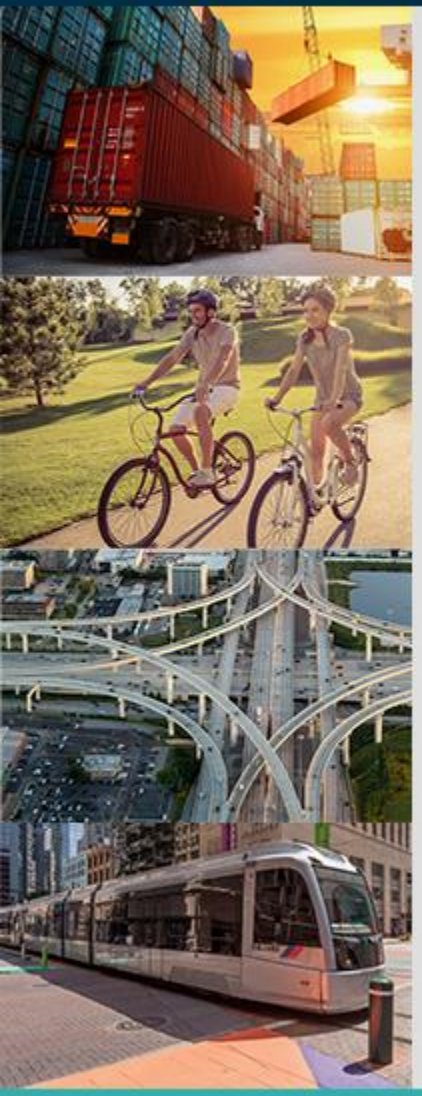
Congestion Management Process Update Status

Item #6 – Mike Burns
August 12, 2020

Regional Collaboration • Transportation Planning • Multimodal Mobility

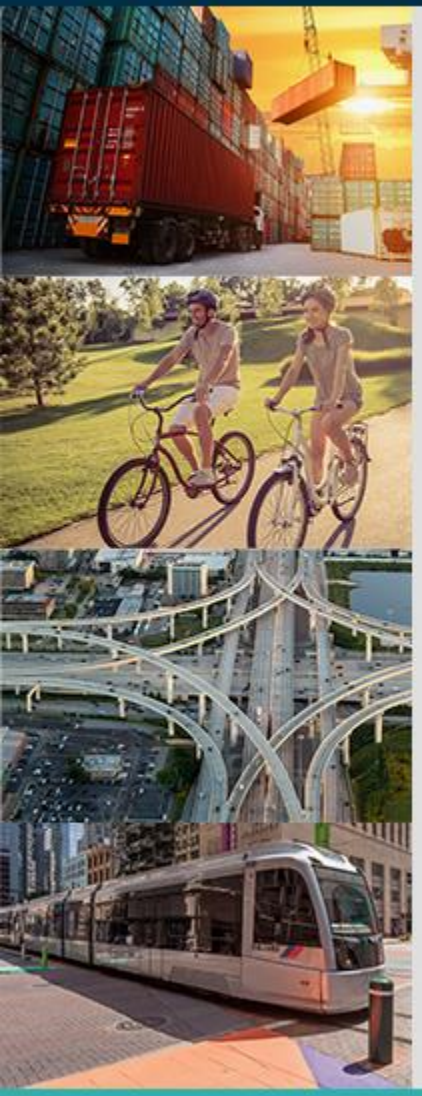
METROPOLITAN PLANNING ORGANIZATION

Congestion Management Process (CMP)



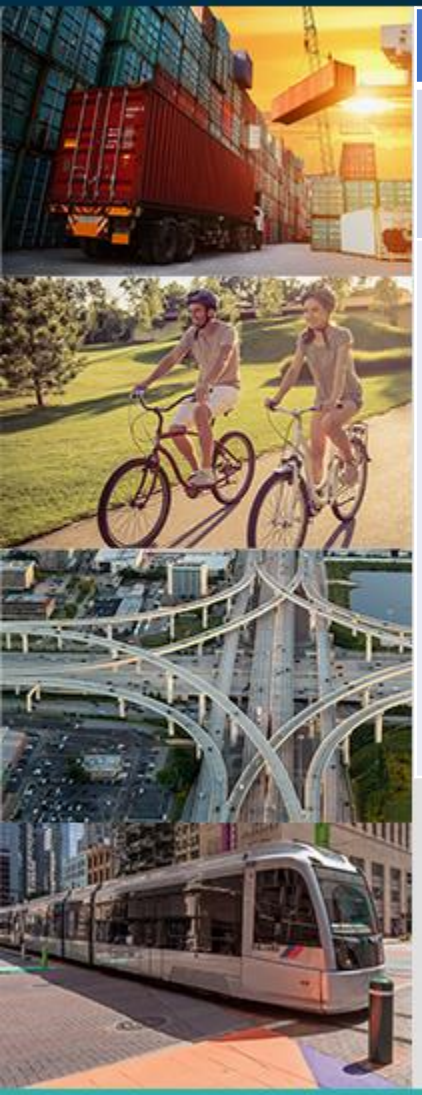
- Three key elements:
  1. Identify congestion and its causes (in region)
  2. Apply mitigation strategies to improve system
  3. Evaluate strategies' effectiveness

Congestion Management Process (CMP)



- CMP Document Structure – Elements
  1. Regional Objectives
  2. CMP Roadway Network
  3. Performance Measures
  4. Performance Monitoring
  5. Identifying Problems and Needs
  6. Congestion Management Strategies
  7. Implementation Strategies
  8. Evaluating Effectiveness

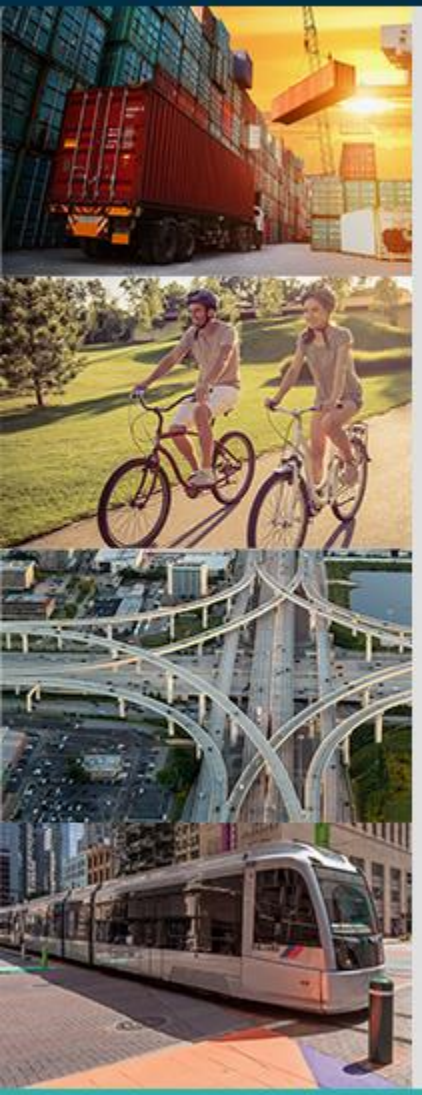
Identifying Problems and Needs



RTP Goal	Performance and Reliability Measures	
	Federal (system-wide) Performance Measures*	***Identifying Problem Areas****
Move people and goods efficiently (Reduce Congestion)	Interstate Level of Travel Time Reliability (LOTTR)	Annual Person-hours of Delay per Mile
	Non-Interstate NHS Level of Travel Time Reliability (LOTTR)	Texas Congestion Index
		Speed Index

* - Data provided by the Texas Transportation Institute

Texas Transportation Institute - Definitions

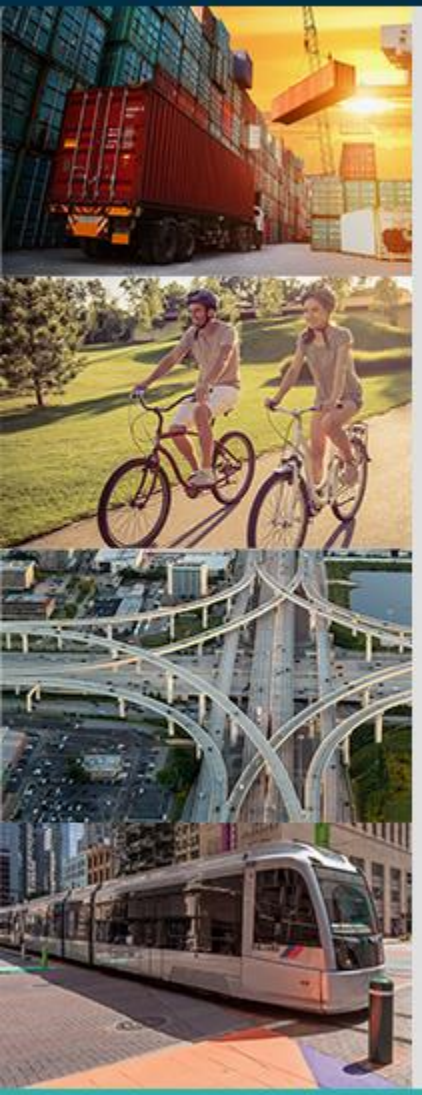


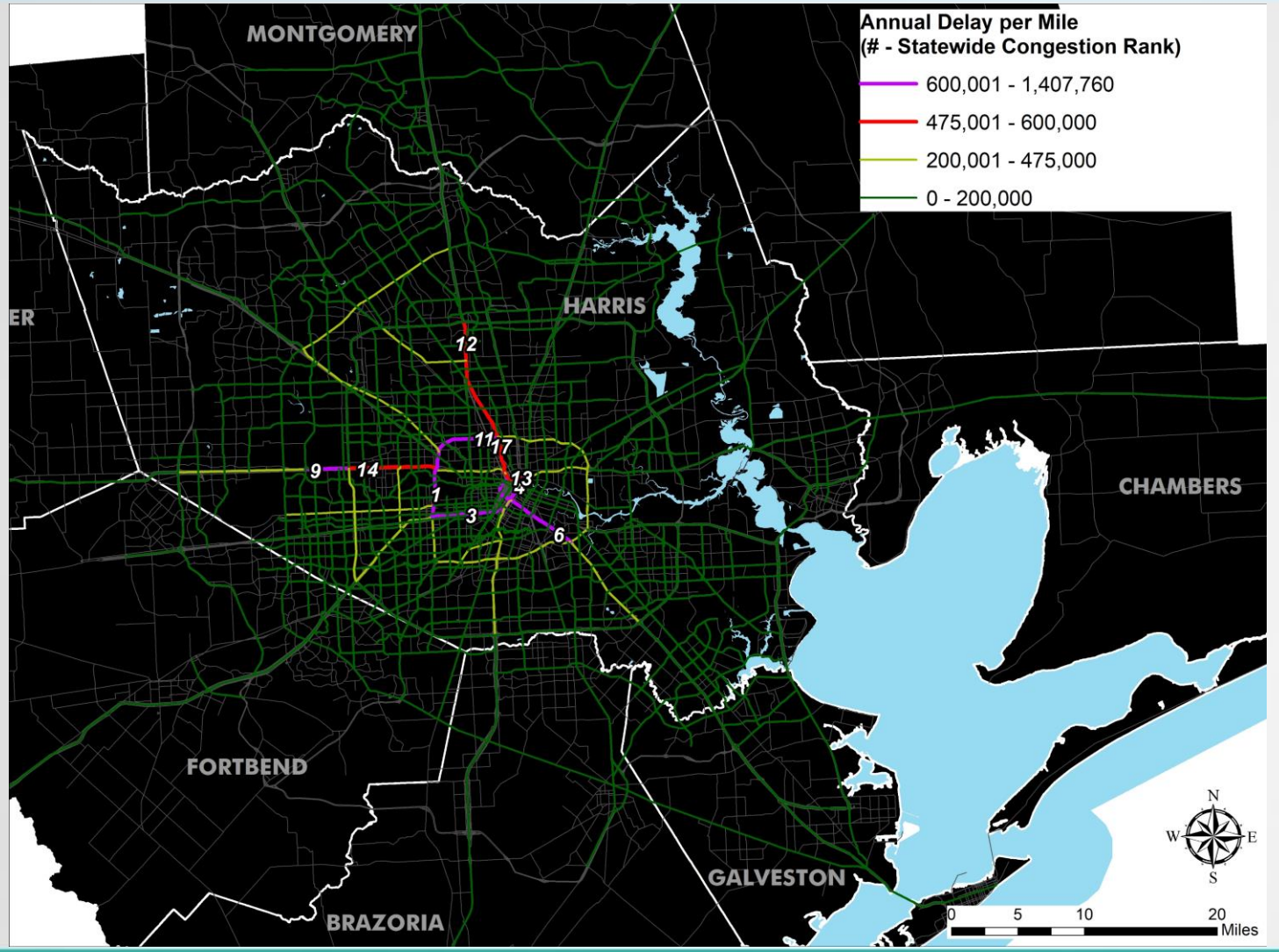
- **Annual Delay per Mile**
  - Annual sum of extra time divided by segment length.
- **Texas Congestion Index**
  - Average travel time during peak period divided by free-flow travel time.
- **Speed Index**
  - Average Peak Period Speed divided by Free Flow Speed.
  - Example:

    45 MPH / 65 MPH = 0.69 Speed Index

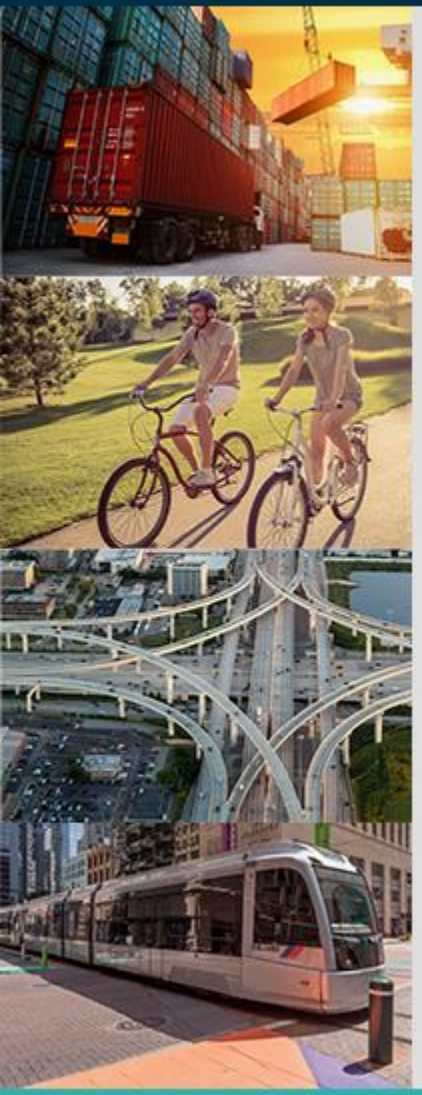
    (Speed Index $\leq$0.7 $\approx$ Congestion)

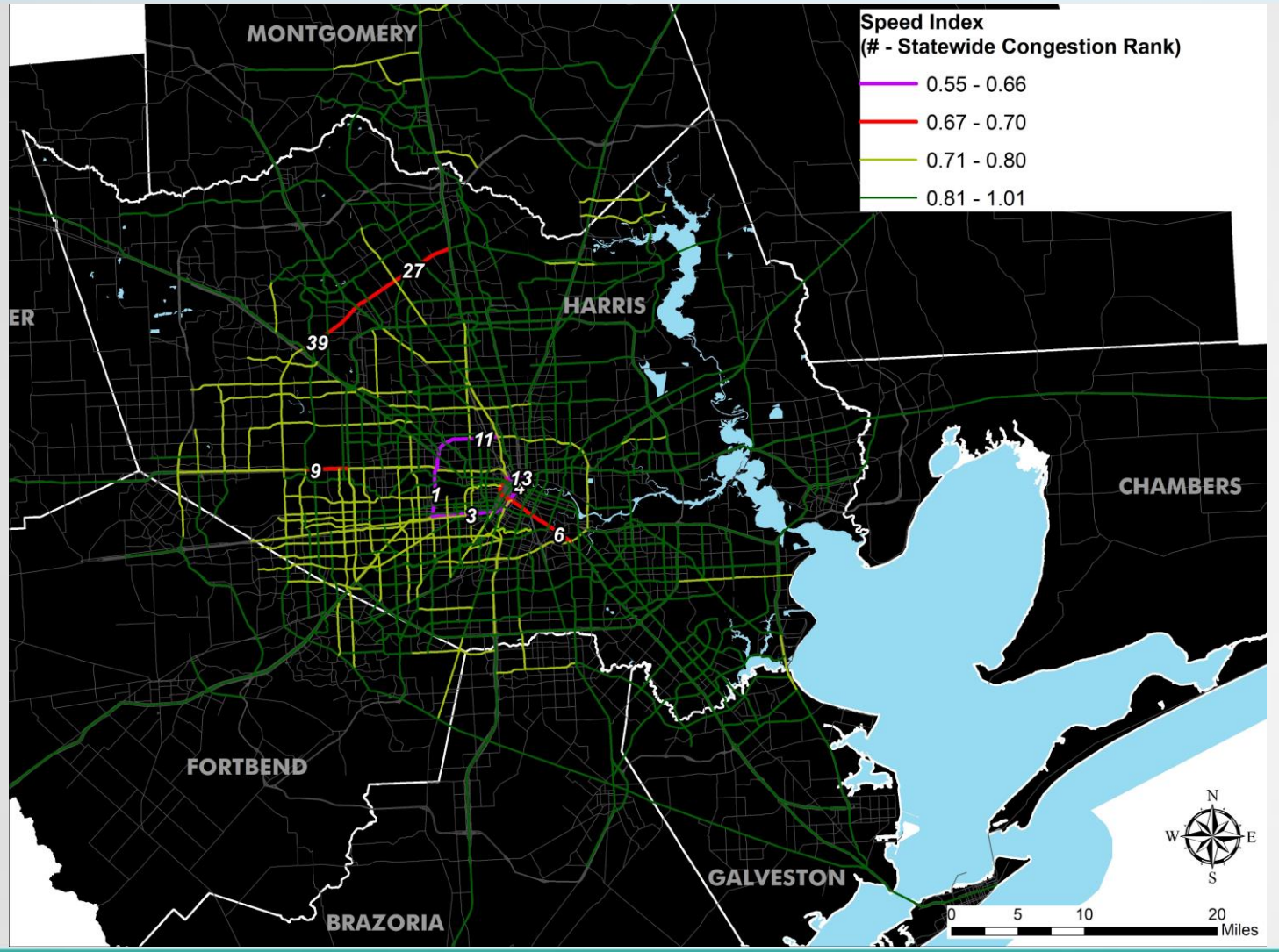
Identifying Problem Areas - Delay



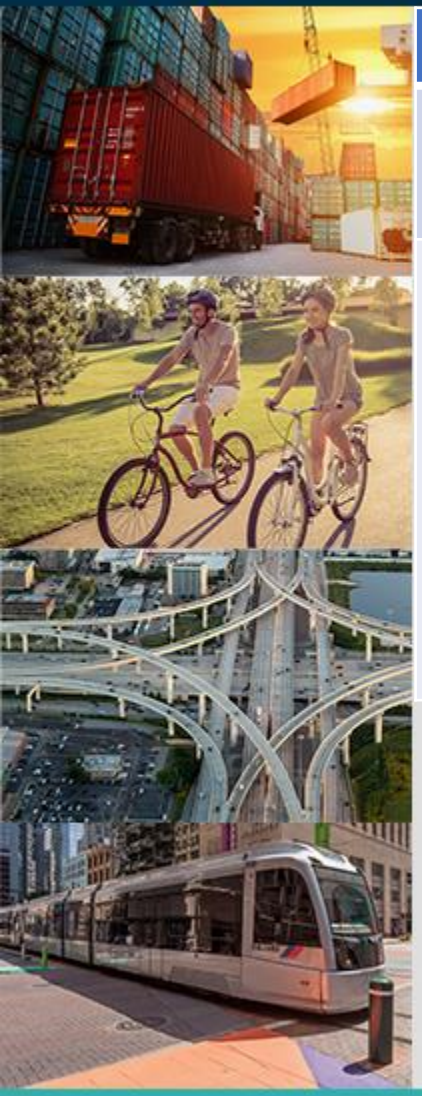


Identifying Problem Areas – Speed Index





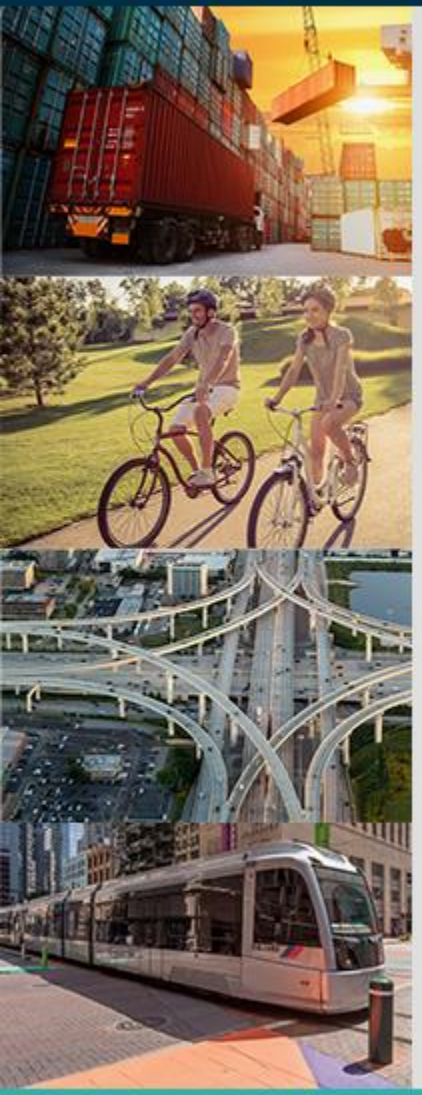
Identifying Problems and Needs



RTP Goal	Performance and Reliability Measures	
	System-wide Performance Measures*	***Identifying Problem Areas****
Strengthen Regional Economic Competitiveness	Truck Travel Time Reliability (TTTR) Index	Annual Truck Delay per Mile
	Increase Multi-Occupant Vehicles	Texas Congestion Index (Trucks Only)
		Truck Speed Index

* - Data provided by the Texas Transportation Institute

Texas Transportation Institute - Definitions

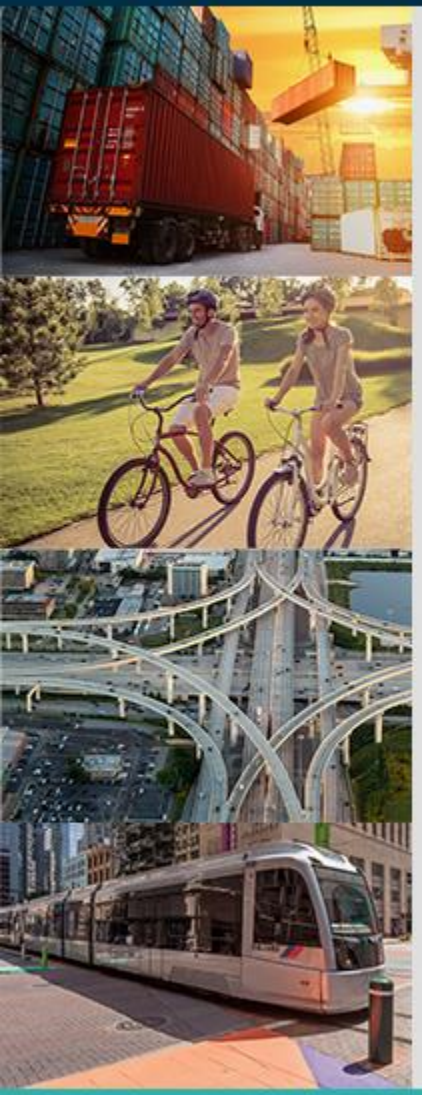


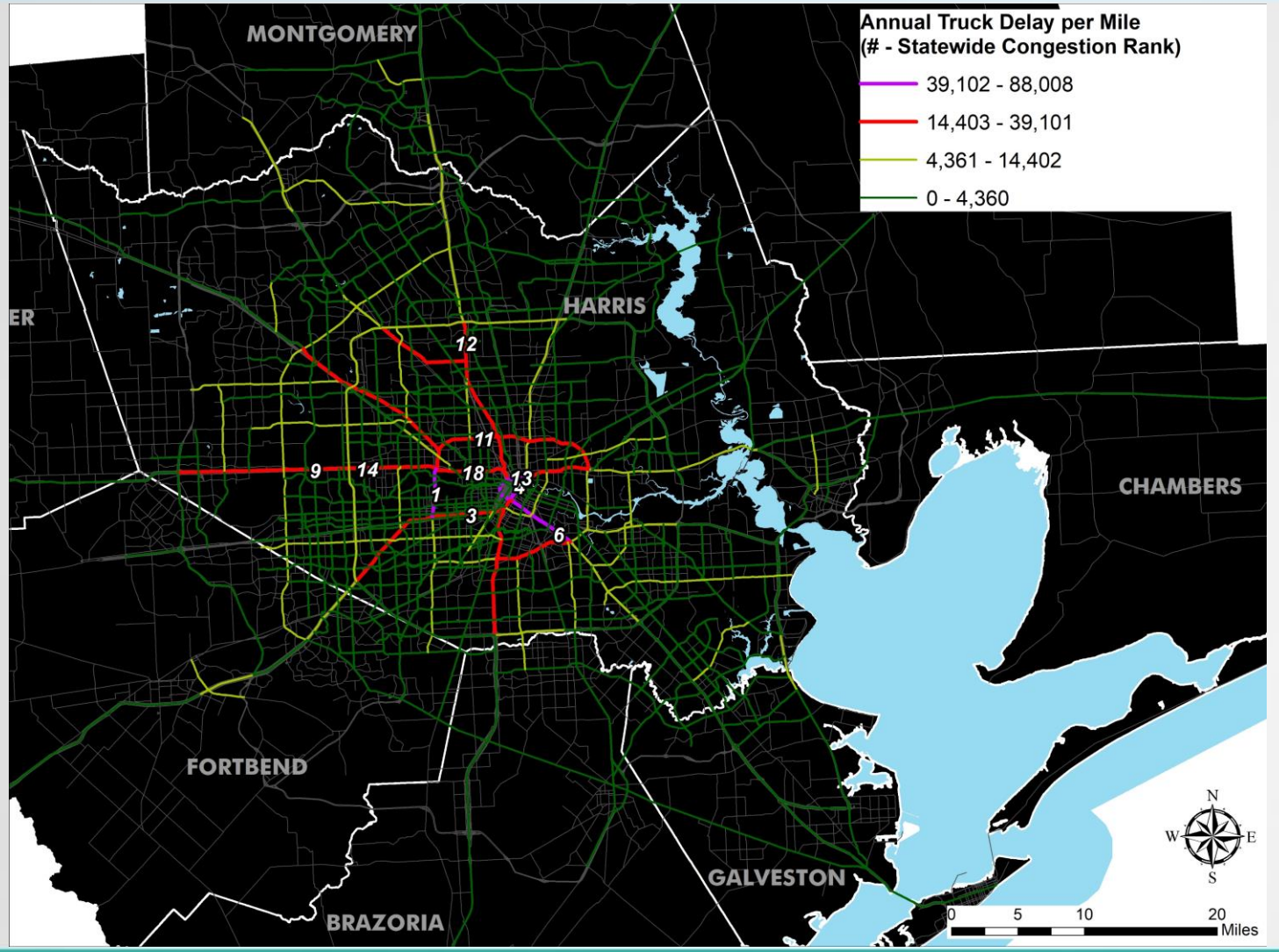
- **Annual Truck Delay per Mile**
  - Annual hours of truck delay divided by segment length.
- **Texas Congestion Index (Trucks Only)**
  - Average travel time during peak period divided by free-flow travel time for Trucks only.
- **Speed Index (Trucks Only)**
  - Average Peak Period Truck Speed divided by Free Flow Truck Speed.
  - Example:

    45 MPH / 65 MPH = 0.69 Speed Index

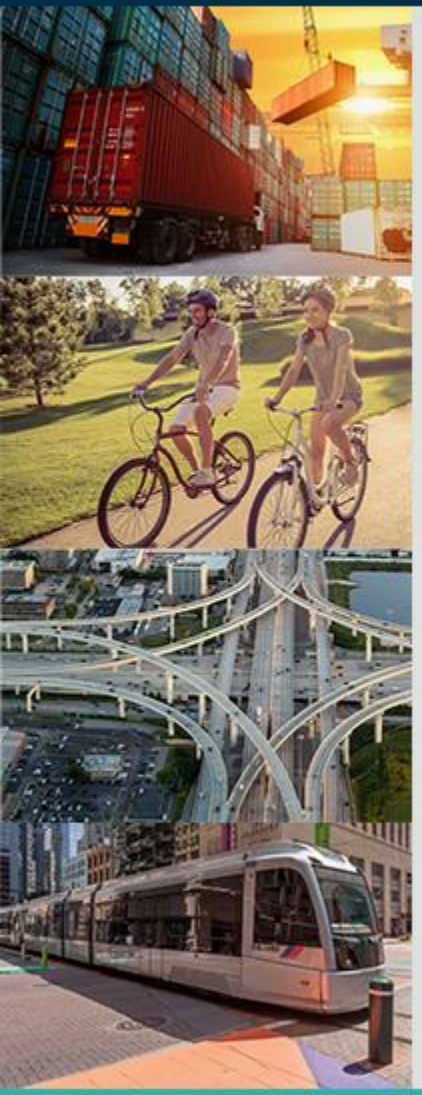
    (Speed Index $\leq$0.7 $\approx$ Congestion)

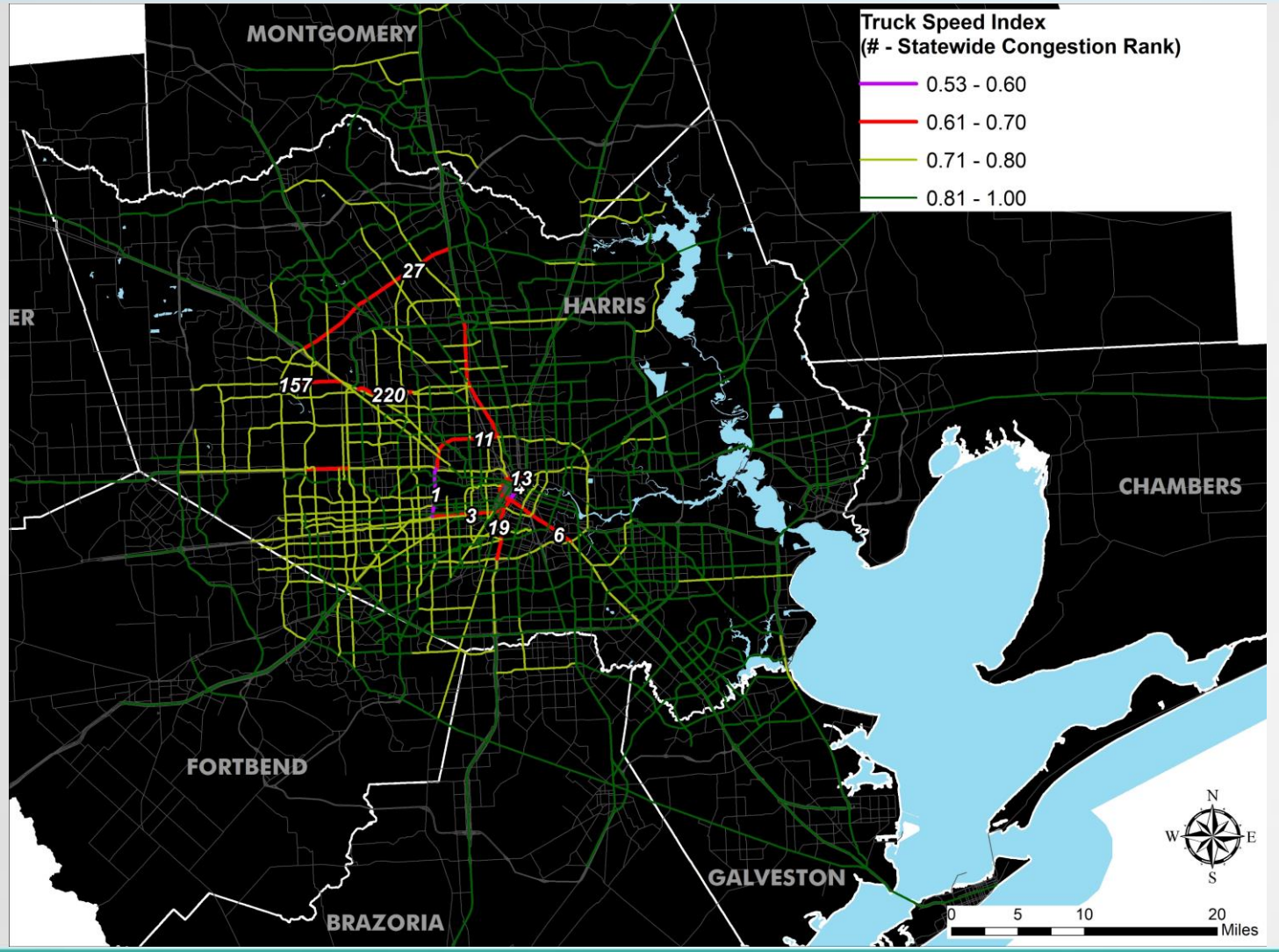
Identifying Problem Areas – Truck Delay



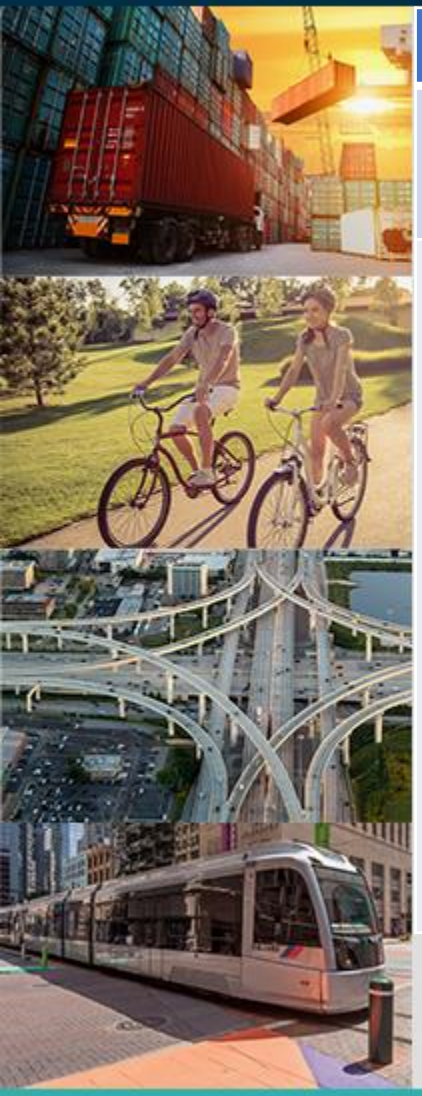


Identifying Problem Areas – Truck Speed





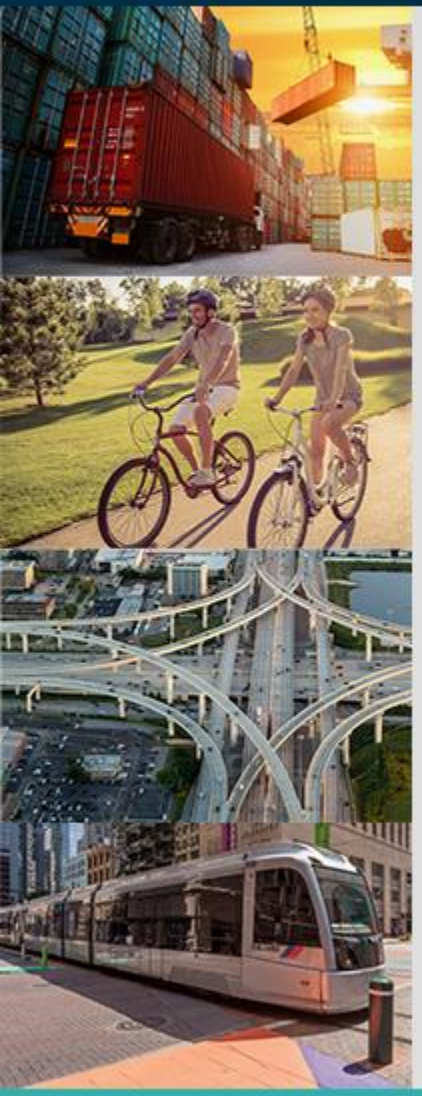
Identifying Problems and Needs



RTP Goal	Performance and Reliability Measures	
	System-wide (Federal) Performance Measures	***Identifying Problem Areas***
Improve Safety	Number of Fatalities	2015-19 Crash Location Mapping*
	Number of Serious Injuries	
	Rate of Fatalities	
	Rate of Serious Injuries	
	Number of Non-motorized Fatalities and Serious Injuries	

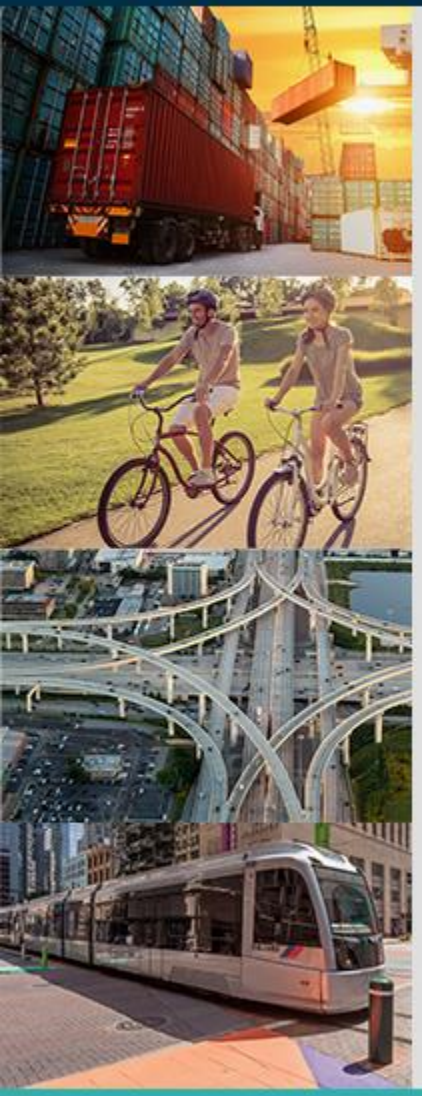
* - Pending Approval by TPC

Next Steps



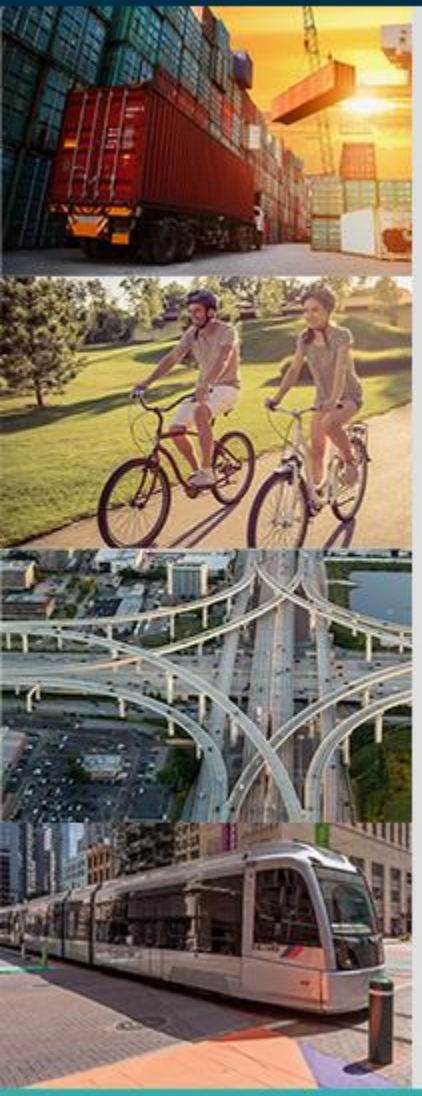
- 2020
  - August – Finish Draft Report
  - September – Present to Committee and TPC
  - October – Public Comment and Meeting
  - November – Review of Comment – Final Report Prepared
  - December – Recommendation and Approval of Final CMP
- 2021
  - CMP 2020 Update Included in MPO Recertification

Questions



RTP Goals	*Identifying Problem Areas*
Move people and good efficiently (Reduce Congestion)	Annual Person-hours of Delay per Mile
	Texas Congestion Index
	Speed Index
Strengthen Regional Economic Competitiveness	Annual Truck Delay per Mile
	Texas Congestion Index (Trucks Only)
	Truck Speed Index
Improve Safety	2015-19 Crash Location Mapping

7. Announcements



- Transportation Advisory Committee Meeting (TAC)
  - August 19, 2020 at 9:30 a.m., (Teleconference)
- Transportation Policy Council Meeting (TPC)
  - August 28, 2020 at 9:30 a.m. (Teleconference)
- Next RTP Subcommittee Meeting
  - September 9, 2020 (Teleconference)