



Waller County

TRANSPORTATION PLAN
EXECUTIVE SUMMARY
OCTOBER 2019



ACKNOWLEDGEMENTS

Thank you – The project team would like to thank all the Steering Committee members, Stakeholders and Public Officials that contributed their time and creative ideas throughout the development of this plan.

LEAD AGENCY:

HOUSTON-GALVESTON AREA COUNCIL

H-GAC Project Managers

- Carlene Mullins, Senior Planner
- Stephan Gage, Principal Planner

CONSULTANT TEAM

- CDM Smith
- RS&H
- The Lentz Group
- CJ Hensch and Associates

FUNDING PARTNERS

- City of Brookshire
- City of Hempstead
- City of Katy
- City of Pattison
- City of Prairie View
- City of Waller
- Waller County
- Texas Department of Transportation

WALLER COUNTY COMMISSIONERS COURT - 2017

- Hon. Carbett "Trey" J. Duhon III, Judge
- Hon. John A. Amsler, Precinct 1 Commissioner
- Hon. Russell Klecka, Precinct 2 Commissioner
- Hon. Jaron Barnett, Precinct 3 Commissioner
- Hon. Justin Beckendorff, Precinct 4 Commissioner

STEERING COMMITTEE

- Bill Huntsinger, Waller County Transportation Authority
- Charles Airiohuodion, TxDOT, Houston Office
- Hon. Chuck Brawner, Mayor, City of Katy
- Claudia Wicks, Colorado Valley Transit
- Corey Bradford, Prairie View A&M
- Hon. David Allen, Mayor, City of Prairie View
- Fengpin An, TxDOT, Fort Bend/Waller
- Fred Mathis, Harris County
- Fred Washington, Prairie View A&M
- Grady Mapes, TxDOT, Houston Office
- Hon. Joe Garcia, Mayor, City of Pattison
- John Isom, Waller Economic Development Corporation
- Jennifer Ostlind, City of Houston
- Hon. Kim Branch, City Council, City of Brookshire
- Mary Anne Piacentini, Katy Prairie Conservancy
- Hon. Michael Wolfe, Mayor, City of Hempstead
- Patrick Gant, TxDOT, Houston Office
- Ron Jenson, Harris County Engineering
- Hon. Steve Nagy, Mayor, City of Pine Island
- Vince Yokom, Waller County Economic Dev Partnership
- Yancy Scott, County Engineer, Waller County
- Ayo Jibowu, H-GAC, Senior Planner
- Alan Rodenstein, H-GAC, Senior Planner
- Eric Gayetsky, H-GAC, Planner
- Francis Rodriguez, H-GAC, Outreach Coordinator
- Cory Lynn Golden, H-GAC, Senior Planner



BACKGROUND

The Waller County Transportation Plan (WCTP) is a comprehensive transportation study conducted to determine existing and future transportation needs in Waller County. Land use and transportation coordination will become increasingly critical as the County continues to grow and develop. Coordinating planning efforts allows local decision-makers to define common goals, balance competing interests, and coordinate efforts to maximize cost-effectiveness and efficiency. The Plan consists of a Mobility Plan and a Thoroughfare Plan. The Mobility Plan examined existing and future mobility needs that were identified through public outreach and data collection and created a list of short- and long-term recommendations based on the identified issues. The Thoroughfare Plan is a long-range plan (50+ years) that creates a system of major roadways intended to facilitate travel and preserves the needed roadway right-of-way (ROW) so that the county has the ability to develop appropriate transportation facilities as development occurs or as traffic increases. It should be noted that the proposed SH36A was not included in this study. TxDOT is performing a separate study on the proposed location of that corridor.

H-GAC and Waller County led the development of the WCTP. Funding for the study included a combination of funds from TxDOT and Waller County, in conjunction with Brookshire, City of Waller, Hempstead, Katy, Pattison, and Prairie View.

VISION AND GOALS

The WCTP is a county-wide transportation plan that accommodates current and future mobility needs of all people and goods traveling within and through the area. The Steering Committee established a vision for the region and accompanying goals to steer plan development.

“The vision of the WCTP is to enhance safety and mobility for all users while preserving the county’s heritage and protecting environmentally sensitive areas.”

Table ES-1 : Study Goals, Objectives, and Performance Measures

Goals	Objectives	Performance Measures
<p>ENHANCE MOBILITY</p> <p>Develop innovative approaches to manage and improve transportation facilities, minimize delays, and selectively increase roadway capacity on the transportation network.</p>	<ul style="list-style-type: none"> ▪ Improve safety ▪ Improve connectivity ▪ Improve access ▪ Preserve right-of-way ▪ Mitigate barriers 	<ul style="list-style-type: none"> ▪ Reduction in the number of fatal and serious crashes ▪ Number of roadway lane miles built to increase connectivity ▪ Number of transit lines or stations expanded into Waller County ▪ Number of changes or amendments to the thoroughfare plan ▪ Bridge condition
<p>ECONOMIC DEVELOPMENT</p> <p>Support continued economic development by managing congestion and improving travel reliability and safety.</p>	<ul style="list-style-type: none"> ▪ Mitigate congestion ▪ Improve reliability ▪ Revise development policies 	<ul style="list-style-type: none"> ▪ Travel time reliability (Planning Time Index, Average Weekday Motorist Delay at Highway Rail Grade Crossings) ▪ Level of service ▪ On-time performance of existing transit service
<p>QUALITY OF LIFE</p> <p>Reflect the County’s priorities on protecting quality of life and the natural environment through appropriate use of design concepts and mitigation techniques.</p>	<ul style="list-style-type: none"> ▪ Preserve county heritage ▪ Balance between transportation network and natural environment ▪ Incorporate all modes of transportation 	<ul style="list-style-type: none"> ▪ Acreage of farm land or natural areas preserved ▪ Number of additional miles of bike facilities and sidewalk facilities
<p>PROJECT CONSENSUS</p> <p>Strengthen partnerships between local governments by identifying projects with significant consensus in Waller County.</p>	<ul style="list-style-type: none"> ▪ Community support ▪ Fiscal soundness ▪ Strengthen partnerships 	<ul style="list-style-type: none"> ▪ Number of public meetings held on transportation-related projects ▪ Number of projects funded in the transportation plan ▪ Number of interagency coordination meetings on transportation projects

PUBLIC INVOLVEMENT

H-GAC and the consultant team collaborated with local communities on a public involvement process to engage residents, businesses, institutions, and elected officials in decision-making. Over the yearlong study, seven steering committee meetings, nine stakeholder meetings, and six public meetings were held.



Figure ES-2 Public Meeting, Round 1 - Brookshire

ANALYSIS RESULTS

Understanding existing and future land use and traffic operations is essential to identifying intersection and/or roadway operational deficiencies that must be addressed as part of this plan. Key findings from the analysis include the following:

- There is a significant increase in traffic on football game days compared to non-game days on State Highway (SH) 6 and Farm to Market (FM) 1488 (20% increase), US 290 (60% increase), and roads adjacent to Prairie View A&M University (200% increase).
- The percentage of heavy trucks on US 90 (16-18%) is about the same as IH 10 (14-18%).
- The non-freeway roads with the highest percentage of heavy truck traffic is FM 1489 (13-24%), US 90 (16-18%), SH 6 (14-15%), FM 529 (7-16%), and FM 362 (6-15%).
- Brookshire, Pattison, and Hempstead have several roads in poor condition that need repair.
- Most crashes occur on FM roads with 36% of total crashes and crash hotspots are along IH-10, US 90, and US 290.
- The only transit service in the county is on-demand service provided by Colorado Valley Transit.
- Waller County had a 159% increase in population and 154% increase in jobs between 1980-2017.
- 66% percent of the land is classified as vacant developable.
- The population is forecasted to increase by 169% to approximately 134,000 by 2045. Employment is expected to increase by 86% during that same time period.
- Vehicle miles traveled is expected to increase 5% annually by 2040. The average annual growth in traffic volume along major roadways ranges from 2.5% (FM 359) to 42% (FM 362). See Figure ES-3.

Figure ES-3: Issues Identified by the Steering Committee, Stakeholder Groups and Public

Major Issues	Steering Committee	Stakeholders	Public
Traffic Congestion	●	●	●
Transit Needs	●	●	●
Increased Truck Traffic	●	●	●
Cyclist/Vehicle Conflicts	●	●	●
Dangerous Road Curves	●	●	●
Road Flooding		●	●
Roads without Shoulders	●	●	●
Road Conditions			●
North/South Connectivity	●	●	●
East/West Connectivity	●	●	●
Coordinate Ordinances/Policies		●	●
Widen IH 10	●	●	●
Widen US 290	●	●	●

ADDITIONAL ISSUES

MAJOR BARRIERS

The Brazos River, Katy Prairie Conservancy, and numerous creeks and streams are natural barriers, along with their floodways and floodplains, that present a significant challenge to roadway connectivity and directly obstruct north-south and west-east travel. (Figure E-?). Building roads through floodplains and floodways is difficult and expensive. Proactive planning is of critical importance.

Identifying gaps where roads end or do not exist is critical in mitigating congestion and improving connectivity and safety. Improving connectivity by eliminating the dead-end roads redistributes traffic, improves safety, and mitigates congestion on existing neighboring roads. Because Waller County is mostly rural, there are large gaps in the transportation network. Currently there are no corridors that completely traverse the county from north to south. IH 10 and US 290 are the only routes that traverse the county from east to west. Additional regional routes are needed to provide alternative routes, disperse traffic, and improve connectivity. Failing to address this issue will result in lost opportunities and will have a direct effect on future mobility, congestion, and safety.

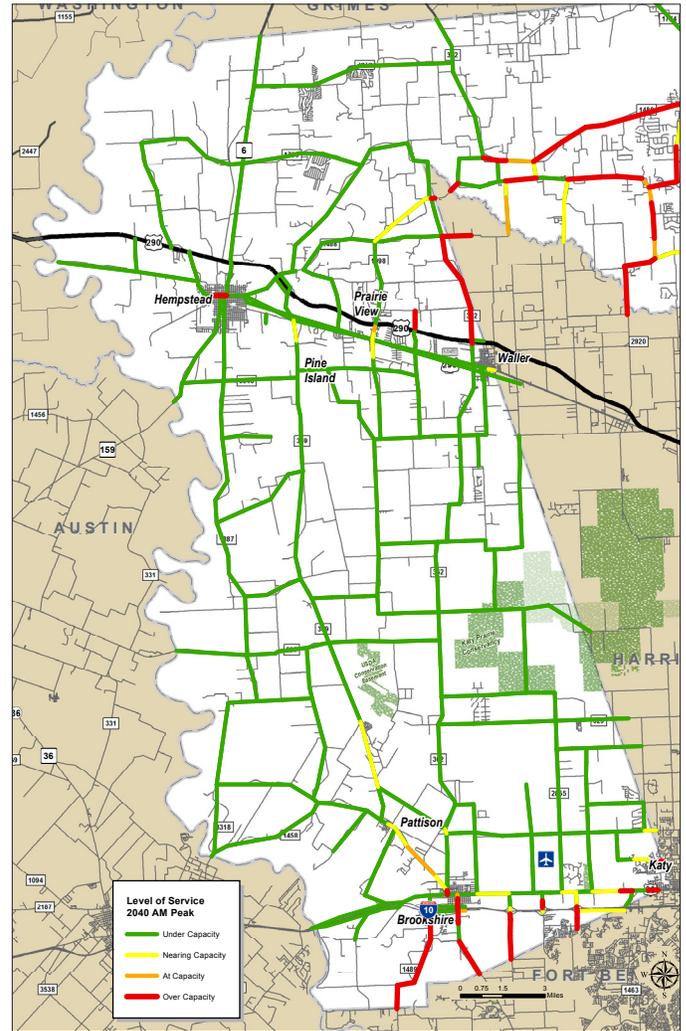


Figure E-4: 2040 Projected AM level of service



Figure ES-5: Owens Road - one of many dead-end roads in Waller County.

MOBILITY PLAN

The 2019 WCTP offers short- and long-term transportation strategies through a combination of physical, operational, and regulatory measures. These recommendations are intended to help local governments and policy makers guide transportation investments to improve mobility and increase access to jobs, homes, and services in the area.

Based on the needs identified, the 2019 WCTP developed short- and long-term recommendations to address mobility issues. The list below summarizes the improvements by type.

- 8 grade separations at railroad facilities
- 42 intersection improvements (geometric design and signal installations)
- 5 Brazos River bridges
- 234 miles roadway modifications including widening/straightening
- 22 miles access management treatment (raised medians)
- 42 miles new roads

SHORT-TERM RECOMMENDATIONS

ROADWAY

Short-term roadway recommendations are improvements intended to be implemented relatively quickly, within a 0-5-year timeframe, and require no or minimal right-of-way. See Figure E-6 and Figure E-7 for short-term improvements in the northern and southern area of the County.

The proposed short-term projects include:

- 20 intersection improvements (geometric design).
- 8 traffic signal installations.
- 56 miles roadway modifications including widening/straightening.
- 22 miles access management treatment (raised medians).
- 6 miles of new roads.

ACTIVE TRANSPORTATION

- A detailed Waller County Hike and Bike Study is needed to determine the exact location and design standards for a bicycle network in Waller County.
- Paved shoulders, sidewalks, or bike lanes are recommended as part of all short-term and long-term roadway projects, where possible.

Figure ES-6: Short-Term Roadway Recommendations – Northern County

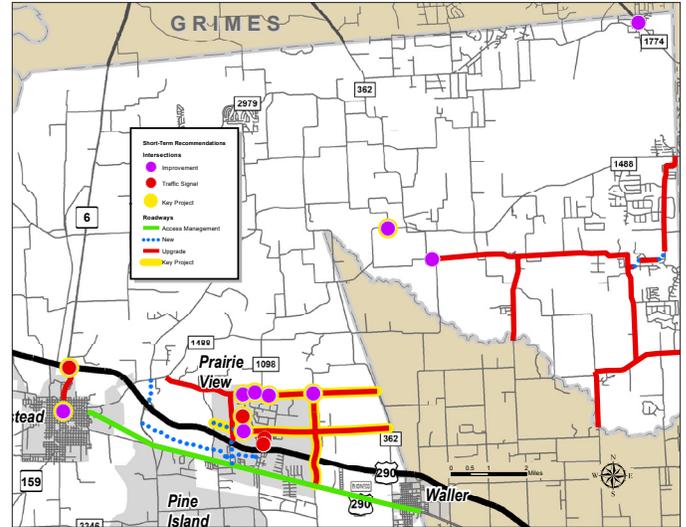
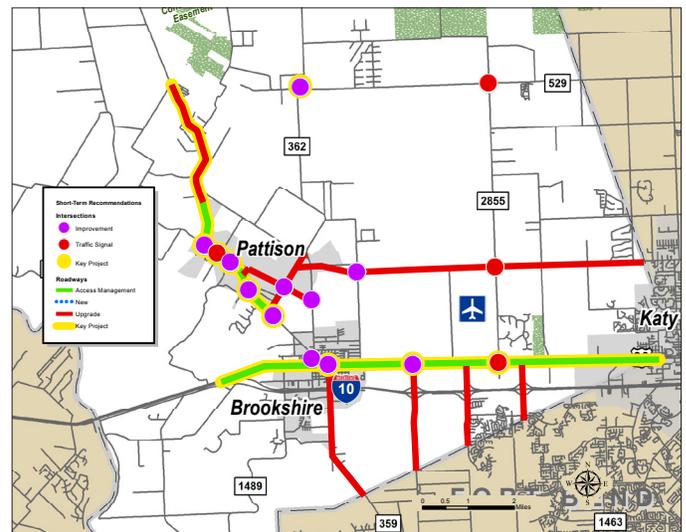


Figure ES-7: Short-Term Roadway Recommendations – Southern County



TRANSIT

- A short-term transit study is recommended to address significant transit issues including local and commuter transportation challenges. Existing recommendations based on the current study are:
 1. Initiate year-round weekday circulator service for Hempstead, Prairie View, Waller, and Brookshire.
 2. Develop intra-county service linking Hempstead, Prairie View, Waller, and Brookshire.
 3. Secure a location in western Katy and initiate Park and Ride service into Houston in 2022 or 2023.

LONG-TERM RECOMMENDATIONS

ROADWAY

Long-term roadway recommendations are improvements intended to be implemented within a 6-20-year time-frame and require additional right-of-way; see Figure E-8. The proposed long-term projects include:

- 5 bridge crossings across the Brazos River (including directional frontage roads for I-10 and US290).
- 8 grade separation at railroad facilities along Business 290 and US 90.
- 15 intersection modifications (geometric design improvements).
- 178 miles of roadway upgrades (widen/straighten).
- 36 miles of new roads.

ACTIVE TRANSPORTATION

Long-term pedestrian/bicycle recommendations include on-road and off-road facilities and are shown in Figure E-9. Specific recommendations include six separated shared use paths.

TRANSIT

Transit recommendations include the following and are outlined in Figure E-10:

- Commuter rail service connecting Hempstead, Prairie View and Waller with Houston Downtown.
- Park and ride commuter bus service from Brookshire and expansion of Western Katy service to Houston.
- Intra-County feeder transit service between Hempstead, Prairie View, Waller, and Cypress.

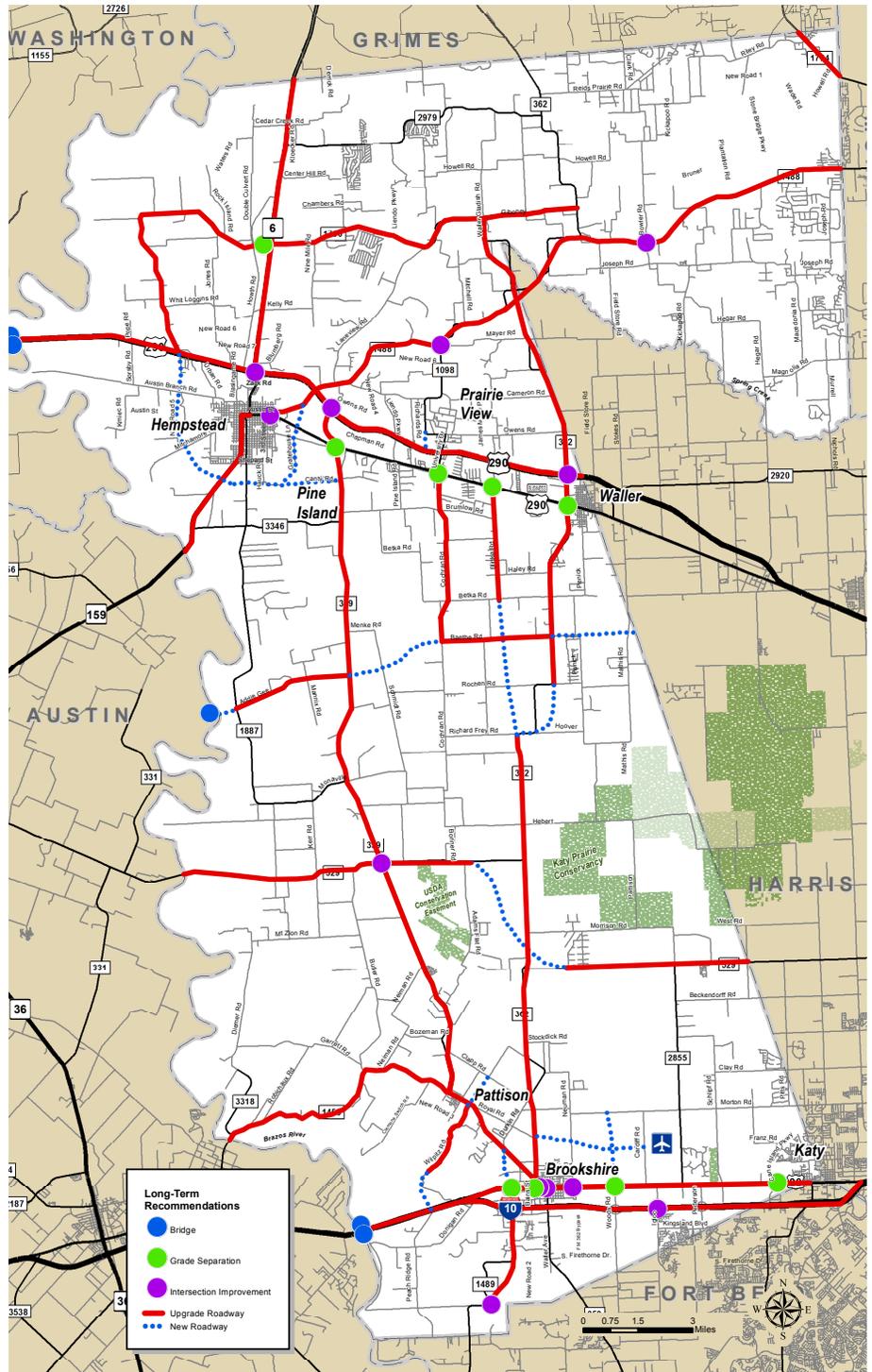


Figure ES-8: Long-Term Roadway Recommendations

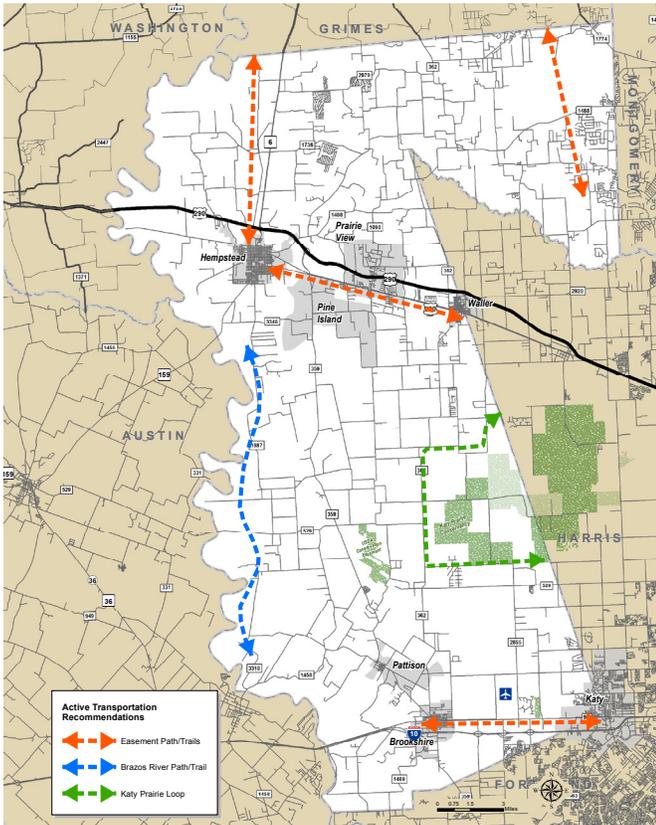


Figure ES-9: Long Term Active Transportation Recommendations

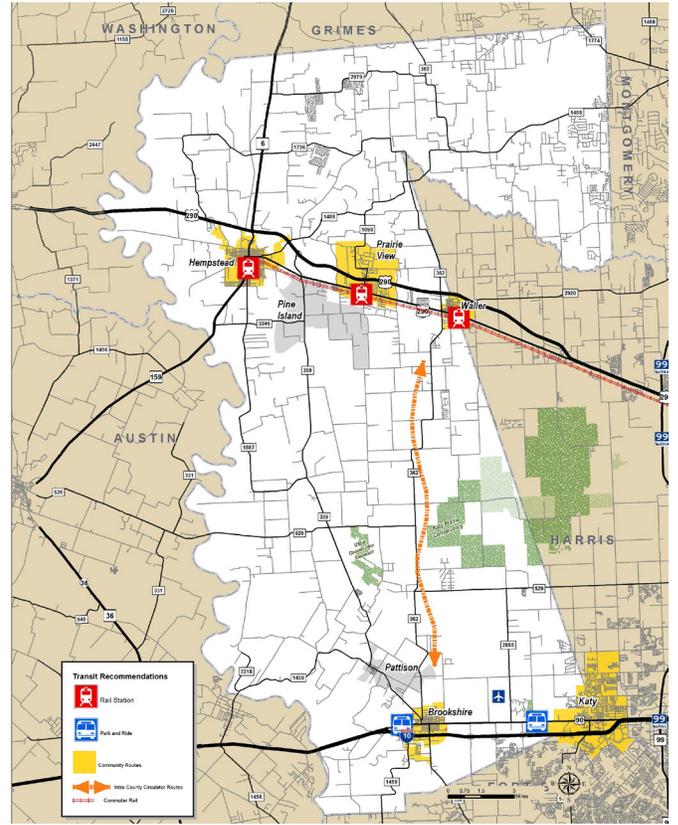


Figure ES-10: Transit Recommendations

COSTS AND BENEFITS

Draft planning level cost estimates were developed for the roadway improvements. In addition to short- and long-term projects, the WCTP identified pavement repair improvements for roadways in fair to poor condition. The estimated total cost to implement the WCTP has been divided into short-term and long-term projects, as shown in Figure ES-11

The benefits include:

- Improved travel time by developing a network of E/W and N/S roads that improve connectivity.
- Distributing traffic across various roadways by providing alternative travel routes.
- Congestion mitigation by increasing connectivity and reducing mobility barriers by constructing roadway and intersection improvements
- Implementing transit services.
- Improved safety by implementing access management strategies.
- Improved safety for bikes and pedestrians by adding shoulders to new and widened roadways and creating off-road active transportation paths.
- Communities working together for better mobility in Waller County.

Figure ES-11: Cost Estimates for Roadway Projects

Recommendation Type	Length (Miles)	Estimated Cost (Millions)
Road Repair	46.31	\$39.2
Poor Roads	8.59	\$6.6
Fair Roads	37.72	\$32.6
Short-Term	83.40	\$276.0
Short-Term Key	25.90	\$68.2
Short-Term Other	57.51	\$207.8
Long-Term	216.35	\$1,244.0
TOTAL	377.02	\$1,559.2

THOROUGHFARE PLAN

The WCTP also includes an update to the 2012 Waller County Thoroughfare Plan. The 2019 Waller County Thoroughfare Plan provides the County with an updated planning tool that can be used to manage, guide, and design a transportation network that improves connectivity, mitigates congestion, and accommodates new development and growth. The strategies for the 2019 Thoroughfare Plan are to:

- Improve N/S and E/W connectivity
- Promote orderly development
- Standardize road design standards
- Update subdivision regulations

PURPOSE

The Thoroughfare Plan designs a system of major roadways intended to provide adequate access and travel mobility. It includes freeways, major and secondary arterials (high-capacity urban roads), and major collectors. Figure E-12 outlines what a Thoroughfare Plan is and is not.

PROCESS

The Thoroughfare Plan was developed using the existing conditions analysis completed in the mobility plan, documenting new corridors and missing roadway links, and soliciting input from the Steering Committee, stakeholders, and the public. This resulted in the 2019 Waller County Thoroughfare Plan is shown in Figure E-13.

SUMMARY

- 9 thoroughfares removed from Katy Prairie Conservancy
- 5 thoroughfares recommended to be removed from City of Houston Thoroughfare Plan
- 3 Brazos River crossings added
- 1 new E/W thoroughfare added to traverse the County
- 1 new limited access facility along FM 362
- Improved N/S and E/W connectivity

IMPLEMENTATION

There are still steps that need to be completed by the County for the Thoroughfare Plan to be successfully implemented.

This includes:

- Updating existing subdivision regulations;
- Instituting policies and procedures to coordinate and optimize transportation investments in the county;
- Collaborating with the development community to ensure that roadway investments satisfy existing and future growth needs;
- Coordinating with Hempstead, Prairie View, Waller, Pattison, Brookshire, Katy, Houston, Fort Bend County and Montgomery County to ensure their Thoroughfare Plan complements the WCTP;
- Developing a process to amend the thoroughfare plan; and
- Updating the thoroughfare plan every 5 years.

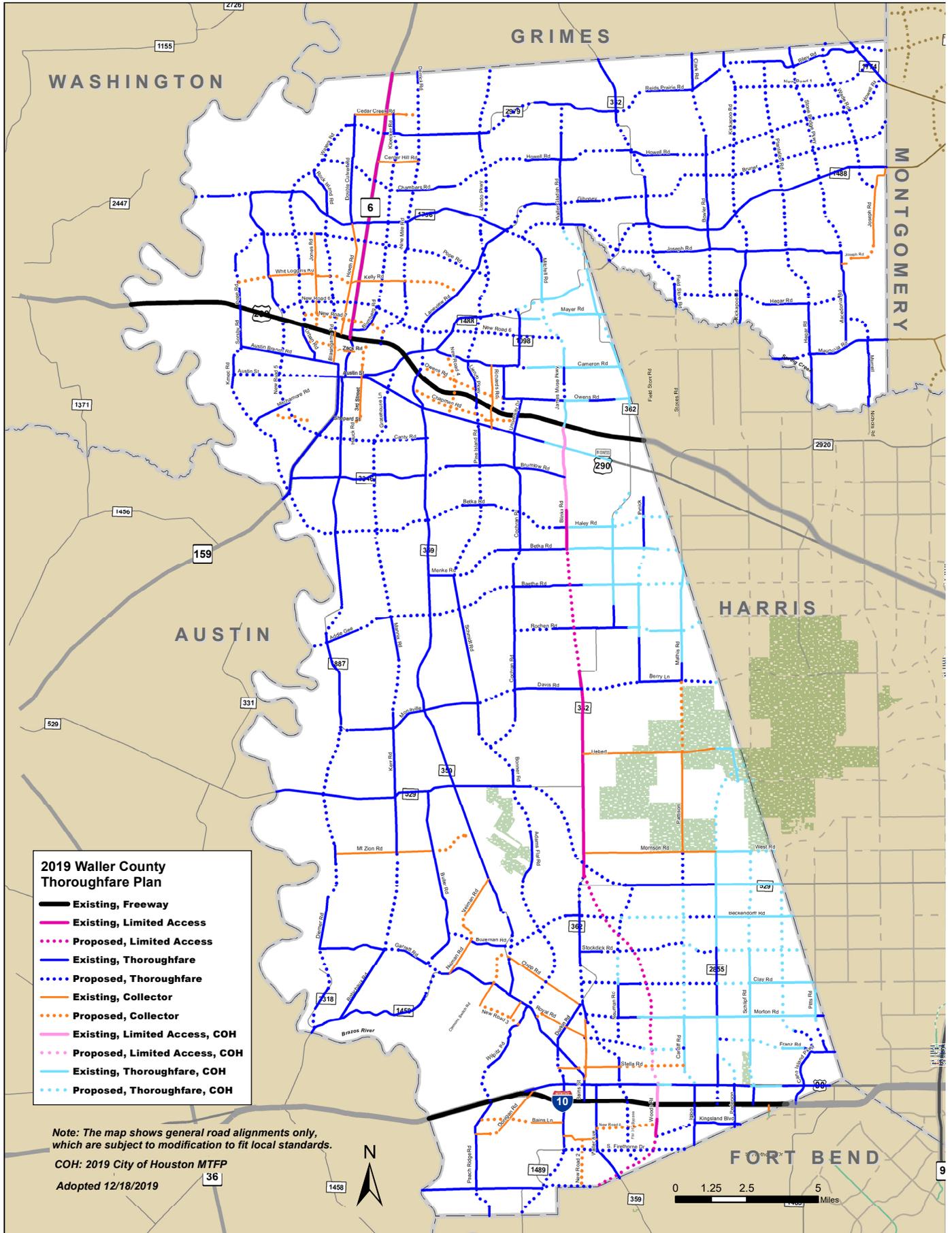


Figure ES-13: 2019 Waller County Thoroughfare Plan



Houston-Galveston Area Council

3555 Timmons Lane, Suite 120

Houston, Texas 77027

713.627.3200

h-gac.com

