Bicycle Tourism Trails Study

Technical Memorandum 2: Routing Criteria and Example Network Development

Jacobs for TxDOT Public Transportation Division (PTN)

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Introduction

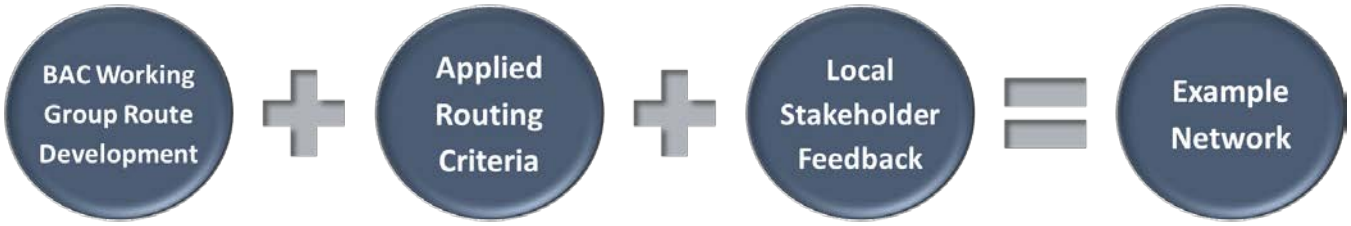
The purpose of the Bicycle Tourism Trails Study (BTTS) is to investigate the development of a statewide bicycle tourism trail network. The study was initiated by the Texas Department of Transportation (TxDOT) Public Transportation Division (PTN) Bicycle and Pedestrian Program in response to 2005 legislation (Texas Transportation Code § 201.9025 Texas Bicycle Tourism Trails). TxDOT and its consultant, CH2M (now Jacobs), are working with TxDOT's Bicycle Advisory Committee (BAC) and TxDOT-PTN staff to propose recommendations for the development of bicycle tourism trails in Texas. This study applies BAC and TxDOT-developed quantitative and qualitative routing criteria to provide an example vision of a statewide network of tourism bikeways. The products produced, as a result of this study will serve as an initial high-level network analysis for statewide bicycle tourism consideration and future development.

Bicycle tourism can be defined as any travel or tourism-related activity that incorporates a bicycle. Bicycle tourism activities include, but are not limited to, long-distance bicycle touring, bike-packing, local day rides, urban cycling, and bicycle events that include races and or destinations. Bicycle tourism activities occur in urban, suburban, and rural locations on a variety of different on-road and off-road bikeways.

A network of bicycle tourism trails across Texas would highlight the natural, historic, and exceptional landscapes across the many unique regions of the state. These tourism trails could attract bicyclists from around the world, showcase communities across the state, and boost economic development. The bicycle tourism trail network could also provide recreational and travel opportunities for local Texans craving a Monday-night ride or perhaps a weekend family adventure.

This memo documents the process used to develop the Example Network and focuses on the critical role played by TxDOT's BAC members and the BAC Working Group created to help steer the Bicycle Tourism Trails Study. For additional information about TxDOT's BAC Working Group, see Technical Memorandum 4. Interaction with the Working Group was critical to the development of a transparent, data-driven process for identifying proposed route locations. Using an iterative process, the project team sought monthly approval and/or direction from the Working Group on various interim products throughout project development. Figure 1 provides a simplified diagram of the route development process.

Figure 1: Route Development Methodology Diagram



Preliminary Route Development

Once the BAC and project team agreed on the goals and objectives of the BTTS, the project team initiated the route location development process. At the April 10, 2017 Working Group meeting, the project team asked the Working Group members to draw their ideal route locations on statewide and regional maps of Texas. The maps featured the following data layers:

- National and state parks, forests, grasslands, etc.
- Cities
- National, state, and local roadways
- Railways
- Existing, funded, and planned bikeway infrastructure identified known at that point in the study
- State park trails
- Potential U.S. Bicycle Route System (USBRS) corridors through Texas
- U.S. Fish and Wildlife Service, National Park Service, and historic trails
- Previously proposed bicycle tourism trail routes from BikeTexas (including "Railtrails," Rail with Trail, off-street, and on-street accommodations)

Figure 2: Working Group Feedback Drawn on a Texas Statewide Map

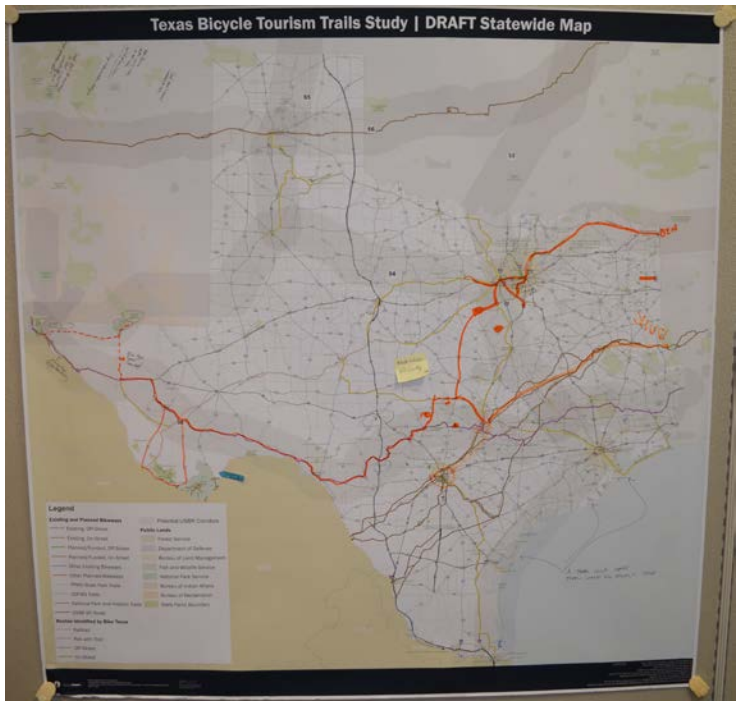
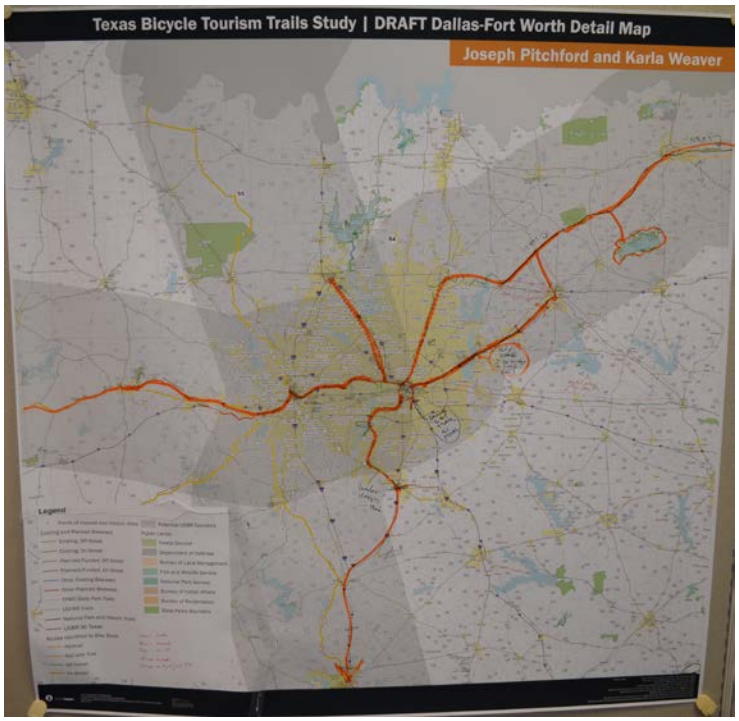


Figure 3: Working Group Feedback Drawn on an East Texas Regional Map

During the April BAC Working Group meeting, members identified bicycle destinations and drew connections urban areas, cultural/recreational destinations, and along known bicycle routes on statewide and regional Texas maps. Figures 2, 3, and 4 represent routes drawn by Working Group members. Members provided perspectives on existing conditions and popular recreational routes in their home regions. The Working Group recommended a "spine and spur" network type, featuring a

few cross-state spine routes forming the backbone of a potential future Texas bicycle tourism network with routes connecting key destinations around the state.

Figure 4: Working Group Feedback Drawn on a Dallas/Fort Worth Regional Map



The project team transferred the lines drawn by the Working Group into a digital Geographic Information Systems (GIS) format (Figure 5). This initial GIS linework followed existing and funded bikeways in urban areas around Texas. Meanwhile, in rural areas between urbanized portions of the state, this initial GIS linework followed state-maintained and local roadways. After the April 2017 meeting, the project team requested GIS data from several major urban areas around the state and began collecting municipal and regional bicycle and transportation plans from around Texas.

Routing Criteria Development

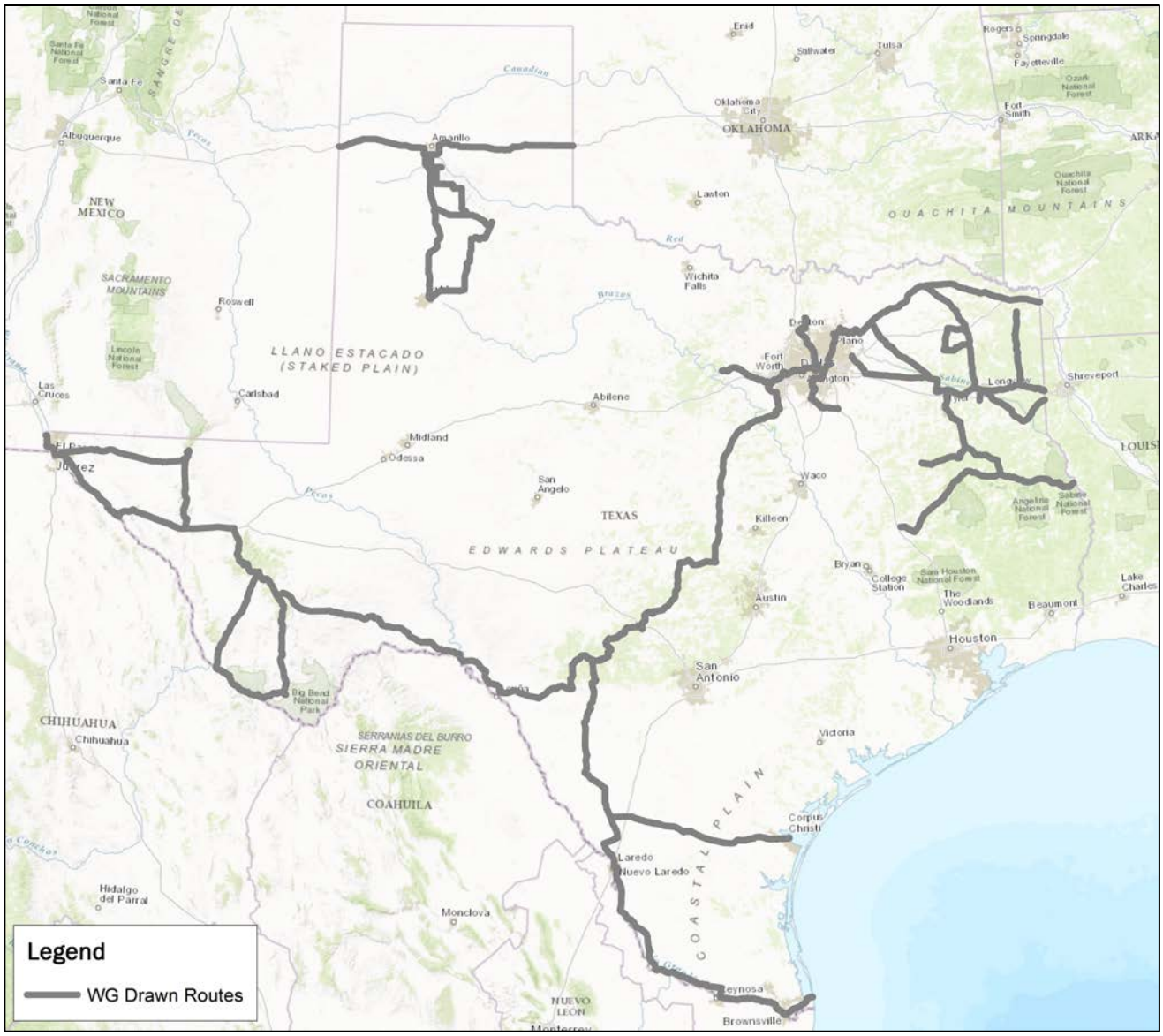
To determine optimal route locations and create a framework for route decision-making, the project team and the BAC Working Group developed a series of routing criteria. Qualitative and quantitative criteria established as part of this study were applied to the initial routes to develop the Example Network. The project team used the best available GIS data from TxDOT to describe existing roadway conditions, and the most current bicycle and transportation plans and data to identify existing, funded, and planned bicycle infrastructure. A more thorough analysis of local conditions and extensive stakeholder engagement is needed to support all proposed bicycle routes.

Qualitative Routing Criteria

The project team began investigating route decision-making by assembling a list of routing criteria from long distance bikeway/trail planning efforts in other states/regions as well as best practices for national bicycle routes. These sources for corridor identification and routing criteria included:

- *Corridor and Route Criteria for the United States Bicycle Route System (USBRS)*, created by the American Association of State Highway Transportation Officials (AASHTO) Task Force for Numbered Bicycle Routes[1]
- Adventure Cycling Association Route Selection Philosophy[2]
- East Coast Greenway Route Selection Guidelines[3]
- Criteria for Establishment of U.S. Bicycle Routes in Florida[4]

Figure 5: Routes Drawn by Working Group – April 10, 2017



During the April 10, 2017 BAC Working Group meeting, the project team asked the members to prioritize the list of compiled routing criteria tailored to the Texas local context. Each of the members were given 10 dots to place next to their preferred routing criteria. Afterwards, the dots were totalled. Table 1 summarizes the results of this routing criteria prioritization exercise.

Table 1: Working Group's Criteria Prioritization Exercise Results

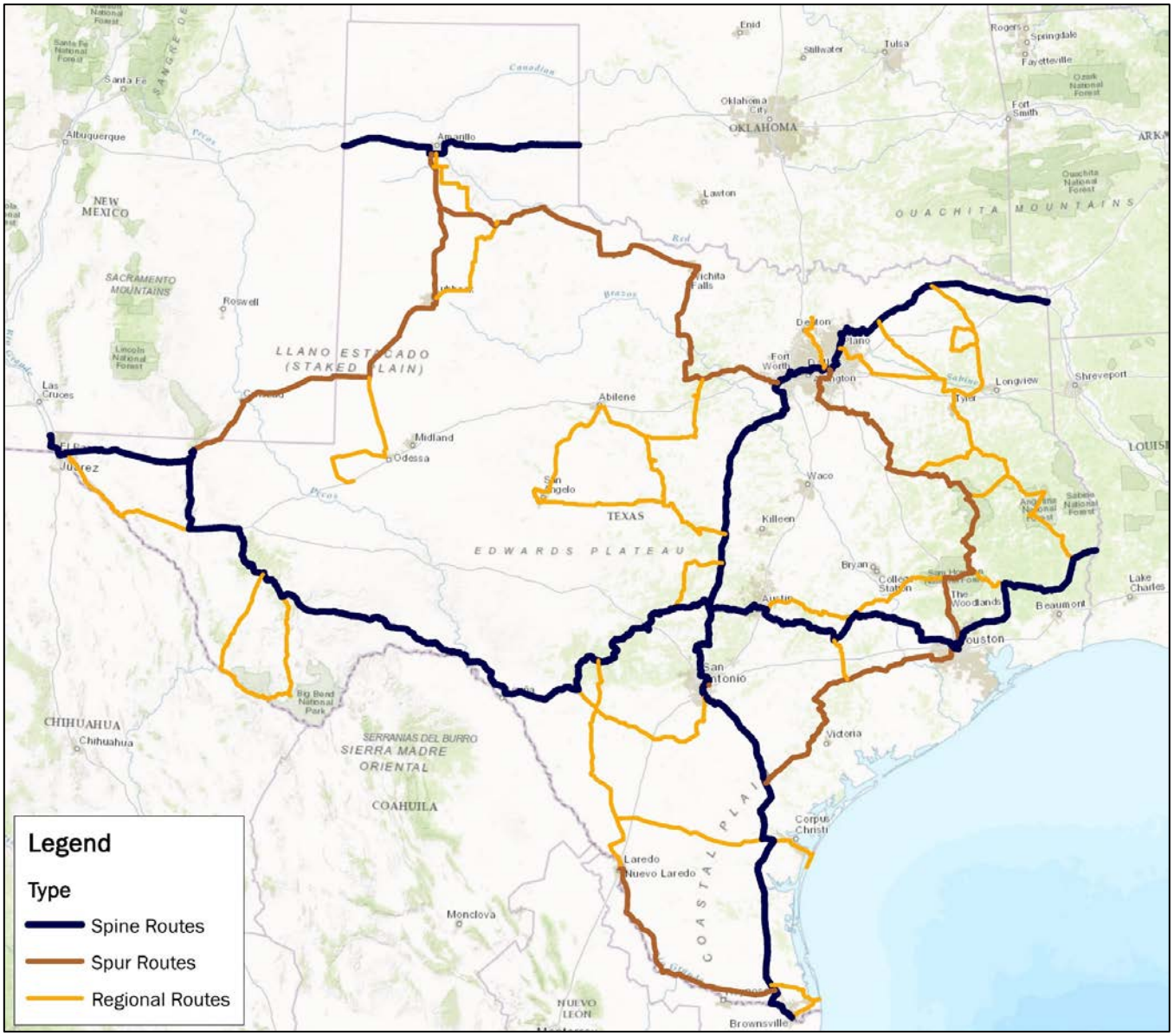
The routes for Bicycle Tourism Trails should...	
Dots	Routing Criteria
9	Use existing and proposed off-road shared use paths (including rails to trails and greenways where available)
8	Connect to national and state parks
5	Focus on two or three cross-state "spine" routes and anticipate complementary "spoke" routes
4	Use rural area roads with low vehicle volume (preferably carrying fewer than 2,000 vehicles per day)
4	Use rural area roads with shoulders minimum 8 feet wide
4	Use available rights-of-way within transmission line corridors, where possible
4	Establish regional loops of interest focused on culture/geography/points of interest
3	Use available rights-of-way within rail corridors, where possible
3	Use corridors that highlight natural geography, unique scenery, and/or distinctive terrain
3	Have cell phone reception availability
2	Avoid truck routes
2	Use TxDOT's road network (U.S. and state highways, FM roads, etc.)
2	Be rural in nature. Where convenient, the route should pass near, but generally not through, large centers of population.
2	Have bicycle services (food, water, shelter, etc.) every 40 to 60 miles
1	Use corridors that highlight cultural or historic paths and points of interest
1	Be more or less evenly distributed north-south and east-west
1	Establish long-distance pathways focused on connecting destinations
	Use rural area roads with shoulders minimum 6 feet wide
	Use rural area roads with shoulders minimum 4 feet wide
	Avoid roads with steep or sustained sloping grades on hills
	Connect top 10 most populous metro areas in Texas
	Follow reasonably direct paths in rural areas to connect major cities and/or attractions
	Connect to annual bicycle events
	Connect to small town "Main Street programs"
	Connect to Texas Heritage Trails signed vehicular routes

Color Codes

	Full Agreement
	At least half agree
	Minority agrees
	Not a priority

The project team began to locate bicycle tourism trails based on the priorities identified during the routing criteria prioritization exercise. As additional bicycle plans and GIS data were provided or identified by local jurisdictions and Metropolitan Planning Organizations (MPOs), the project team expanded the network. Between April and July, Working Group members provided feedback and enhancements to the routing locations during monthly meetings. By the time of the July 17, 2017 BAC meeting, route locations were identified as Preliminary Routes to reflect these Working Group and project team refinements (Figure 6).

Figure 6: BTTS Preliminary Routes – July 17, 2017



Quantitative Routing Criteria

While the Preliminary Routes proposed a statewide network of trails connecting state/national parks, existing shared use paths, and other bicycle destinations, a question still remained: Do *Preliminary Routes* match preferences of bicycle tourists? After the Working Group prioritized route location criteria during the April 2017 meeting, the project team began to identify potential metrics associated with location criteria and any available GIS data that could help quantify those criteria. Establishing metrics allowed the project team members to more confidently select routes that reflect bicycle tourist routing preferences. Specifically, the project team could apply data-driven modifications to Preliminary Routes as described below.

TxDOT's Transportation Planning and Programming Division (TPP) maintains GIS datasets that represent the most current and broadest geographic expanse of data available for TxDOT-maintained roadways. The project team used TxDOT's Roadway Inventory (RhINo) GIS file[5], which includes roadway dimensions (such as shoulder widths, number of lanes, divided or undivided) and usage information (speed, motor vehicle volume, truck volume). For more information on the data sources used during the routing process, please see Appendix A.

Table 2 identifies the qualitative and quantitative criteria identified by the Working Group and project team. This table also lists the metric, where available, which was identified to guide routing decisions. Several qualitative metrics identified as "subjective routing guidance" were used to expand Preliminary Routes across Texas. Meanwhile, the remaining metrics identified in Table 2 helped the project team modify the Preliminary Routes to better approach bicycle tourist routing preferences.

Table 2: Route Location Criteria and Metrics

Criteria Category	Criteria	Metric
Quantitative Criteria (data-driven route location guidance)	Use roads with wide shoulders, where possible	Outside shoulder width
	Use low volume roads, where possible	Daily vehicles per outside lane
	Avoid truck routes, where possible	Daily trucks per outside lane
	Use lower speed roadways, where possible	Speed limit
Qualitative Criteria (largely subjective, case-by-case route location guidance)	Connect to national and state parks	Subjective routing guidance
	Use existing and proposed off-road shared use paths	"Facility length"/"distance-away" ratio is greater than 1
	Have bicycle services and amenities (food, water, shelter, cell phone reception, etc.) every 40 to 60 miles	Route through towns with populations at least 500 persons every 40 miles
	"Spine and spur" network	Subjective routing guidance
	Use corridors that highlight natural geography, unique scenery, and/or distinctive terrain	Subjective routing guidance
	Establish regional loops/routes of interest	Subjective routing guidance
	Be rural/scenic in nature	Subjective routing guidance
	Use corridors that highlight cultural or historic paths and points of interest	Subjective routing guidance
	Use available rights-of-way within rail corridors, where possible	Subjective routing guidance
	Use available rights-of-way within transmission line corridors, where possible	Subjective routing guidance

The roadway dimension and usage data available in TxDOT-TPP's RHINO GIS file were used to rank all the Texas roads according to the metrics listed in Table 2. The metric groups were determined based on the following:

- Research of bicycle facility selection and routing practices in other U.S. states and cities.
- AASHTO's Guide for the Development of Bicycle Facilities (2012)[6]
- Federal Highway Administration's Small Town and Rural Multimodal Networks (2016)[7]

Only the roadways with the available quantitative data (shoulder width, average daily traffic volume, speed limit, and percent heavy trucks) were analysed and ranked. Roadways with the available quantitative data were largely TxDOT-maintained and totalled 59,537 miles, or 19 percent, of all roadway miles in Texas. More detailed route location identification processes in the future may require additional roadway dimension and usage data from local or regional partners. While these

additional datasets may be available from municipalities and MPOs across Texas, the TxDOT-TPP RHINO GIS data were determined to provide the most appropriate data for the scope of this initial statewide study.

Table 3: Detailed Quantitative Criteria Metrics

Routing Criteria Name	Metrics		Score	Measure	Weight
	Data Grouping	Metric			
Lower speed roadways	Poor	55+ mph	2	Speed Limit	5
	Acceptable	35–55 mph	4		
	Good	<35 mph	8		
Lower volume roadways	Poor	5,000+ vehicles/lane	2	$\frac{Volume\ of\ daily\ vehicles}{Number\ of\ lanes}$	2.5
	Acceptable	1,000–5,000 vehicles/lane	4		
	Good	< 5,000 vehicles/lane	8		
Avoidance of truck routes	Poor	1,000+ trucks/lane	2	$\frac{Volume\ of\ daily\ heavy\ vehicles}{Number\ of\ lanes}$	2.5
	Acceptable	100–1,000 trucks/lane	4		
	Good	<100 trucks/lane	8		
Roadways with wider shoulders	Poor	0–5 feet wide	2	Outside Shoulder Width	2.5
	Acceptable	6–7 feet wide	4		
	Good	8 feet wide or wider	8		

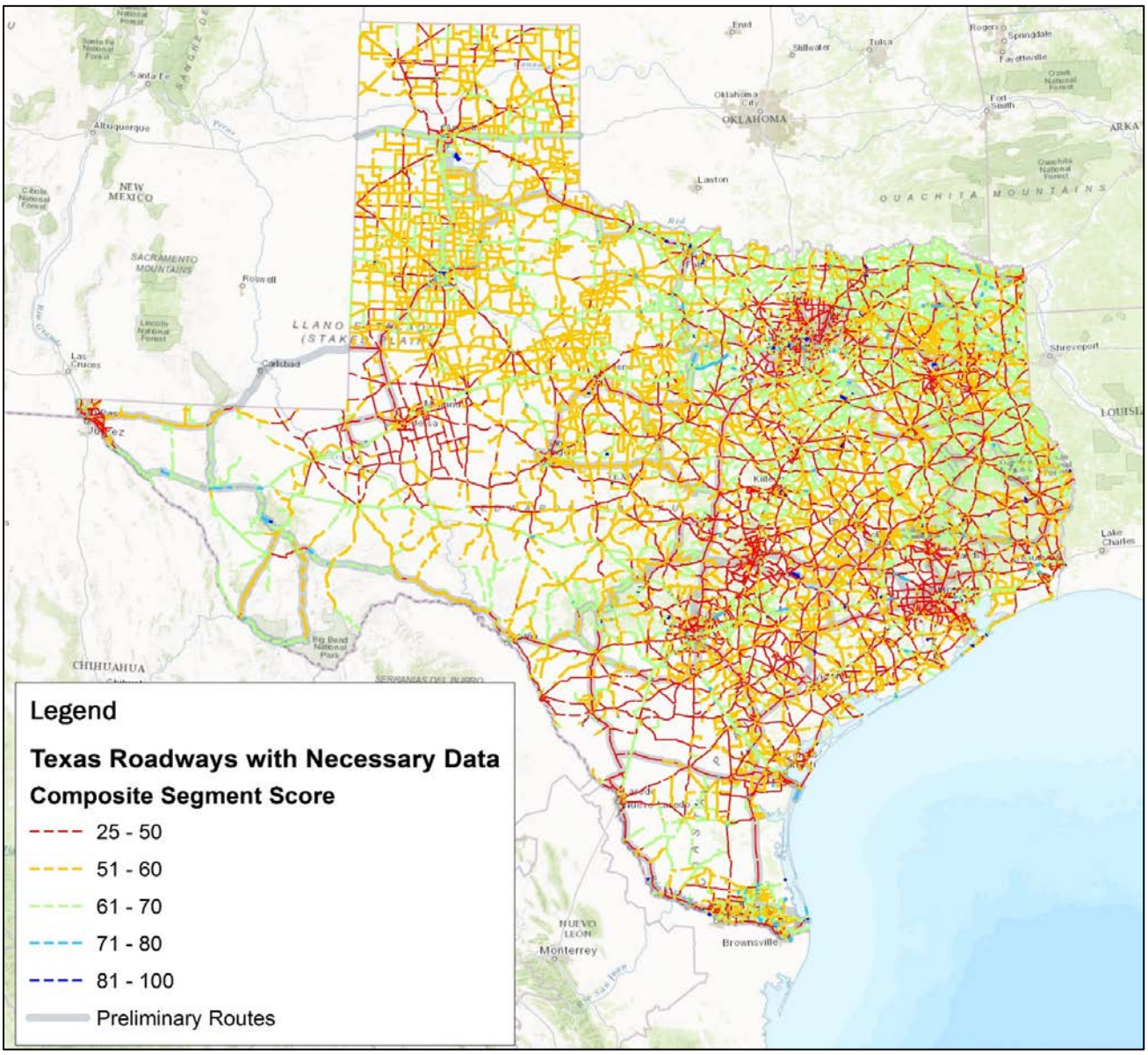
Table 4 provides an example composite score calculation for a 2-lane, 2.5-mile-long segment of SH 70 in the Childress District (SH0070, Control Section 0310-01).

Table 4: Example Calculation for Composite Segment Score

Routing Criteria Name	Measure	Example Roadway Data	Score	Weight	Weighted Score
Lower speed roadways	Speed Limit	75	2	5	10
Lower volume roadways	$\frac{Volume\ of\ daily\ vehicles}{Number\ of\ lanes}$	395	8	2.5	20
Avoidance of truck routes	$\frac{Volume\ of\ daily\ heavy\ vehicles}{Number\ of\ lanes}$	75	8	2.5	20
Roadways with wider shoulders	Outside Shoulder Width	8	8	2.5	20
				Composite Segment Score	**70**

GIS Python coding was developed to calculate a composite segment score for each of the 85,000-plus roadway segments with the quantitative data necessary to complete composite segment score calculations. This Python coding automated the segment scoring process by assigning scores and weights based on the measure as seen in the example segment in Table 4. The relevant data for each segment was grouped and scored. Subsequently, each criterion score was multiplied by the weight, then all weighted scores were added together to obtain a composite score. The result of this process created a score similar to a Bicycle Level of Service score for the segments analyzed. Figure 7 represents the results of this analysis geographically with the composite segment scores grouped into five color-coded categories. Figure 8 presents the statistical distribution of these composite segment scores.

Figure 7: Composite Segment Scores Applied Statewide



The project team used the established criteria metrics to modify the Preliminary Routes. Specifically, the project team considered modifying a Preliminary Route under the following conditions:

- An existing or planned shared use path was near a Preliminary Route
- A composite segment score for an adjacent, parallel, or nearby (within 10 miles) segment was higher than the Preliminary Route segment
- A higher scoring route allowed routing nearer to a national/state park
- A higher scoring route provided a distance between bicycle services and amenities (food, water, shelter, cell phone reception, etc.) that was at least 40 miles. The project team

approximated these services and amenities by assuming these would be available in towns with populations of at least 500 people for every 40 miles.

Figure 8: Composite Segment Score Distributions

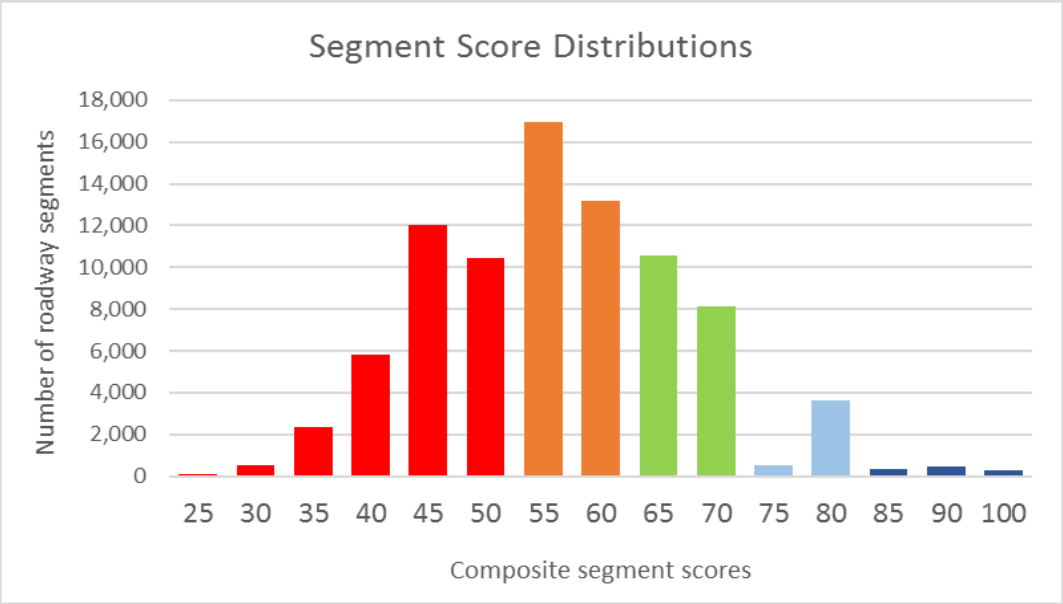
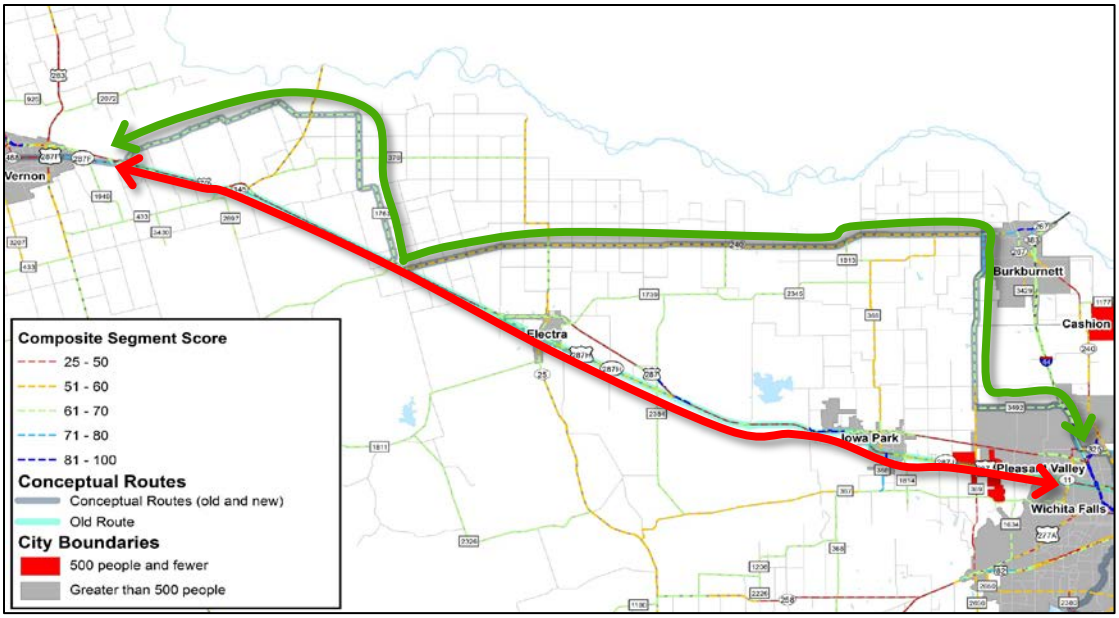


Figure 9 below provides an example of modifications to the Preliminary Routes. In this section of US 287 between Vernon and Wichita Falls, a Preliminary Route was originally drawn along US 287 (red), but composite segment scores on nearby roadways generally paralleling US 287 indicated adjacent, lower volume, lower speed state-maintained roadways that would be more bicycle-tourist-friendly (green).

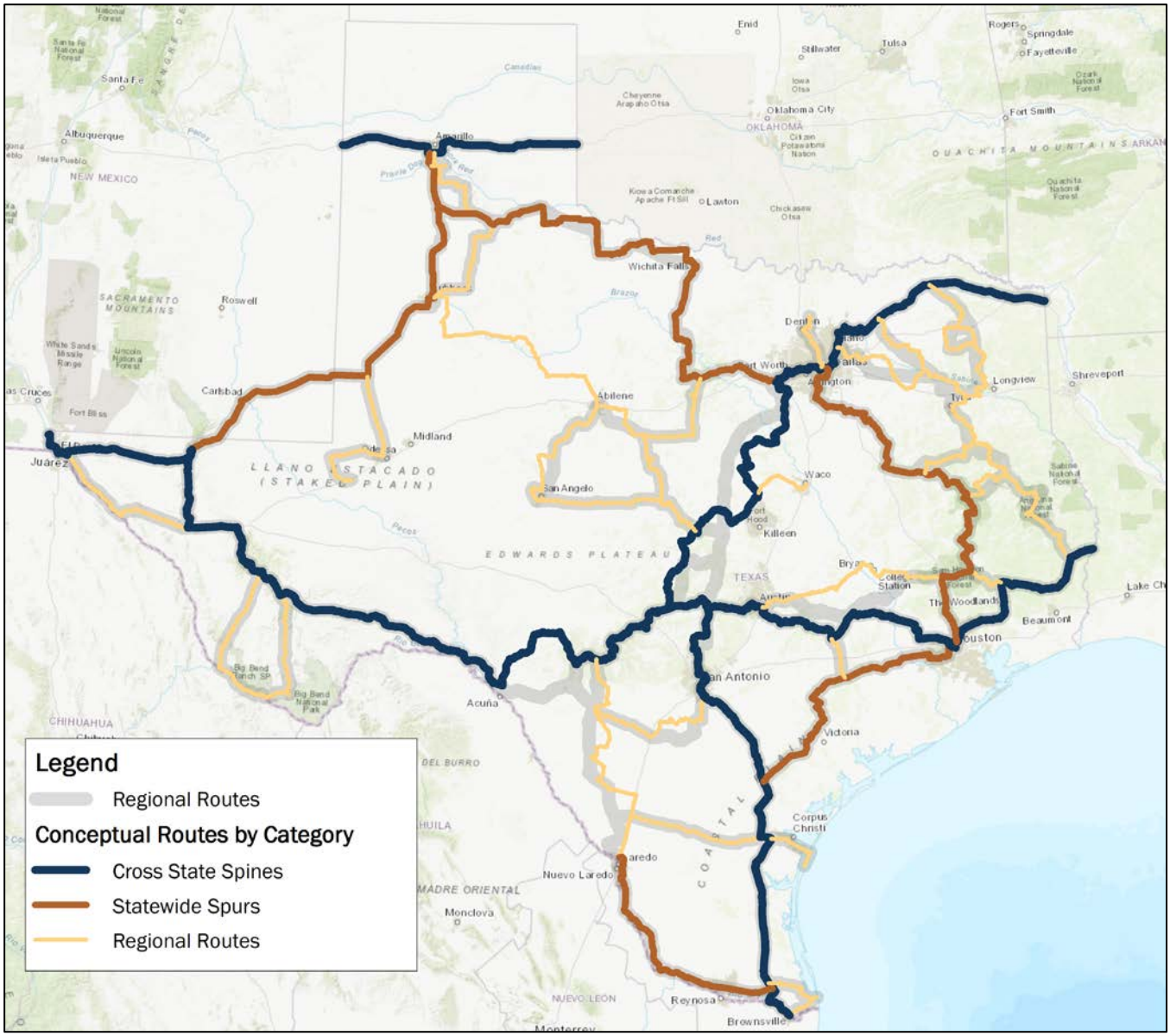
Figure 9: Example of a Preliminary Route Modification



This exemplifies a common Preliminary Route modification throughout the state – where available, lower speed and lower volume roadways which tend to be circuitous were identified for bicycle routing instead of higher speed, higher volume, truck-heavy routes, which tend to be more direct.

Once these Preliminary Route modifications were completed statewide, the modified route network was renamed Conceptual Routes. Figure 10 compares the Preliminary Routes (grey) with the Conceptual Routes (blue, brown, and orange). After the Working Group approved the Conceptual Routes, the project team sought the feedback of regional stakeholders.

Figure 10: Preliminary and Conceptual Routes Compared



Regional Stakeholder Input on Conceptual Route Network

During Summer 2017, the project team presented an overview of the BTTS to regional stakeholders including TxDOT District, MPO, and regional council representatives. Following these overview presentations to regional stakeholders, the project team contacted representatives of the 25 TxDOT Districts, the 25 MPOs, and the 24 regional councils across Texas to solicit feedback on the Conceptual Route Network through a Wikimap Online Input Tool. This tool was available from September 5 to 29, 2017.

Wikimap Online Input Tool

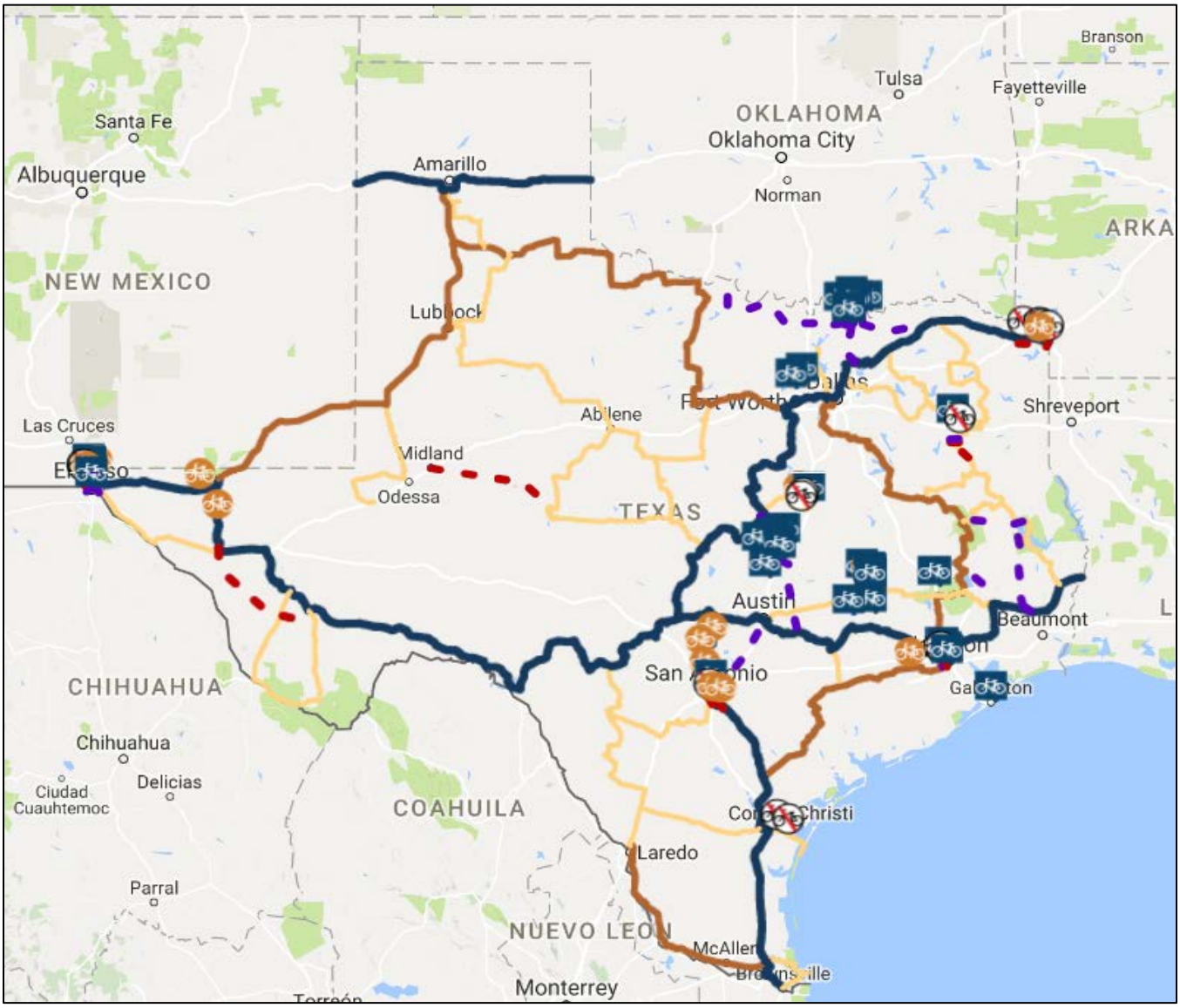
The Wikimap Online Input Tool was a customizable, interactive, online map product used to collect geographic specific point and/or line feedback from regional stakeholders across Texas. Upon clicking on the specific weblink in the solicitation email, the user was brought to an online map which featured the Conceptual Routes as seen in Figure 10. An introduction screen (Figure 11) identified the requested feedback, the map legend, and navigation tools. To navigate the map, the user could pan, zoom, and even "drive" a street in Google Streetview in any area across Texas. Specifically, regional stakeholders were asked to place comment pins or draw additional routes related to their knowledge of local and regional bicycle and roadway infrastructure, transportation plans, transportation needs, and related economic development considerations.

Figure 11: Wikimap Introduction Screen and Legend

Table 5: Wikimap Online Input Tool: Written comments summary

Comment Type	Comment Category	Number	Totals
Point	New bicycle destination	66	99
	Route not suitable for bicycle use	17	
	Route only for fearless cyclists	16	
Line	Recommended route change	27	107
	Significant route connection	80	

Figure 12: Wikimap Online Input Tool: Feedback Map



After a 1-month comment period, the project team received more than 200 point or line comments from 58 total users in 13 regions. Additionally, the regional stakeholder outreach process initiated conversations with several MPOs in Texas, which led to MPOs sharing local bike plans and GIS bikeway data with the project team. Table 5 and Figure 12 summarize the Wikimap feedback received statewide.

Conceptual Route Modifications in response to Wikimap feedback

Some point comments, like "Bicycle Destination" comments, were more informational in nature, indicating locations of local bike shops, mountain biking courses, wildflower blooming locations, etc. Other comments had no written text attached, but instead were points identifying roadways as "Only for fearless cyclists" or "Not suitable for bicycle use." Most of the point and line comments contained valuable additional knowledge of local roadway conditions, planning efforts, well-traveled bicycle routes, and local cyclist interests.

In general, the project team adopted the suggestions of regional stakeholders unless the suggestion conflicted with a higher scored routing option or the suggestion recommended a routing away from existing/planned infrastructure. Specific responses to Wikimap feedback were categorized and documented. Documentation of all Wikimap comments and project team responses can be found in Appendices B and C.

Figures 13 and 14 show a Houston-area example of Wikimap feedback and the modifications made to the Conceptual Routes in response.

Figure 13: Houston-area Conceptual Route Modifications

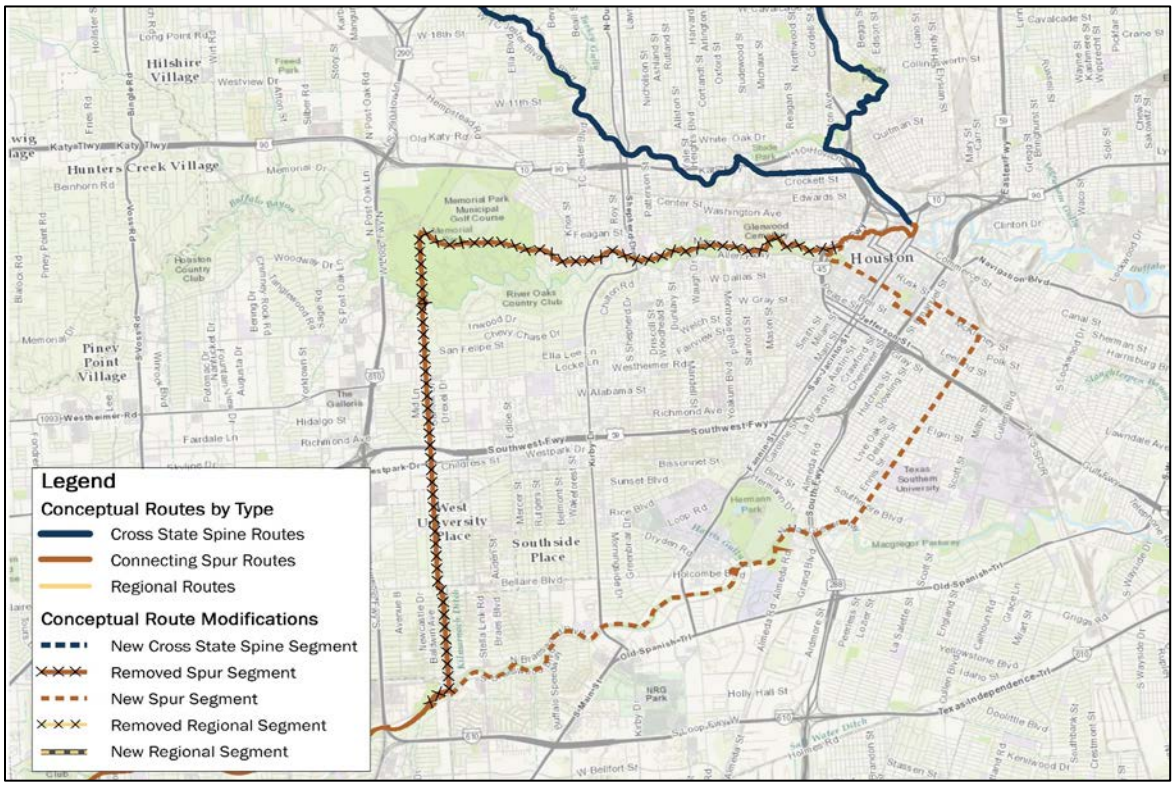
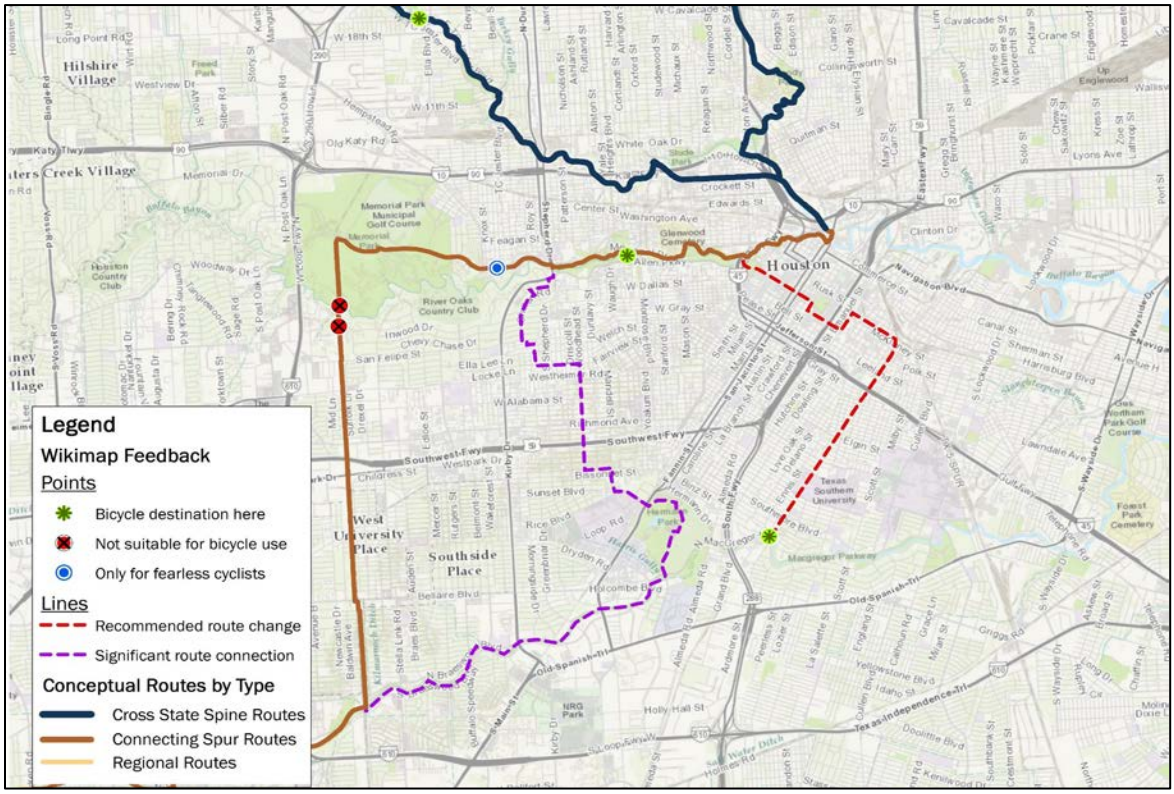


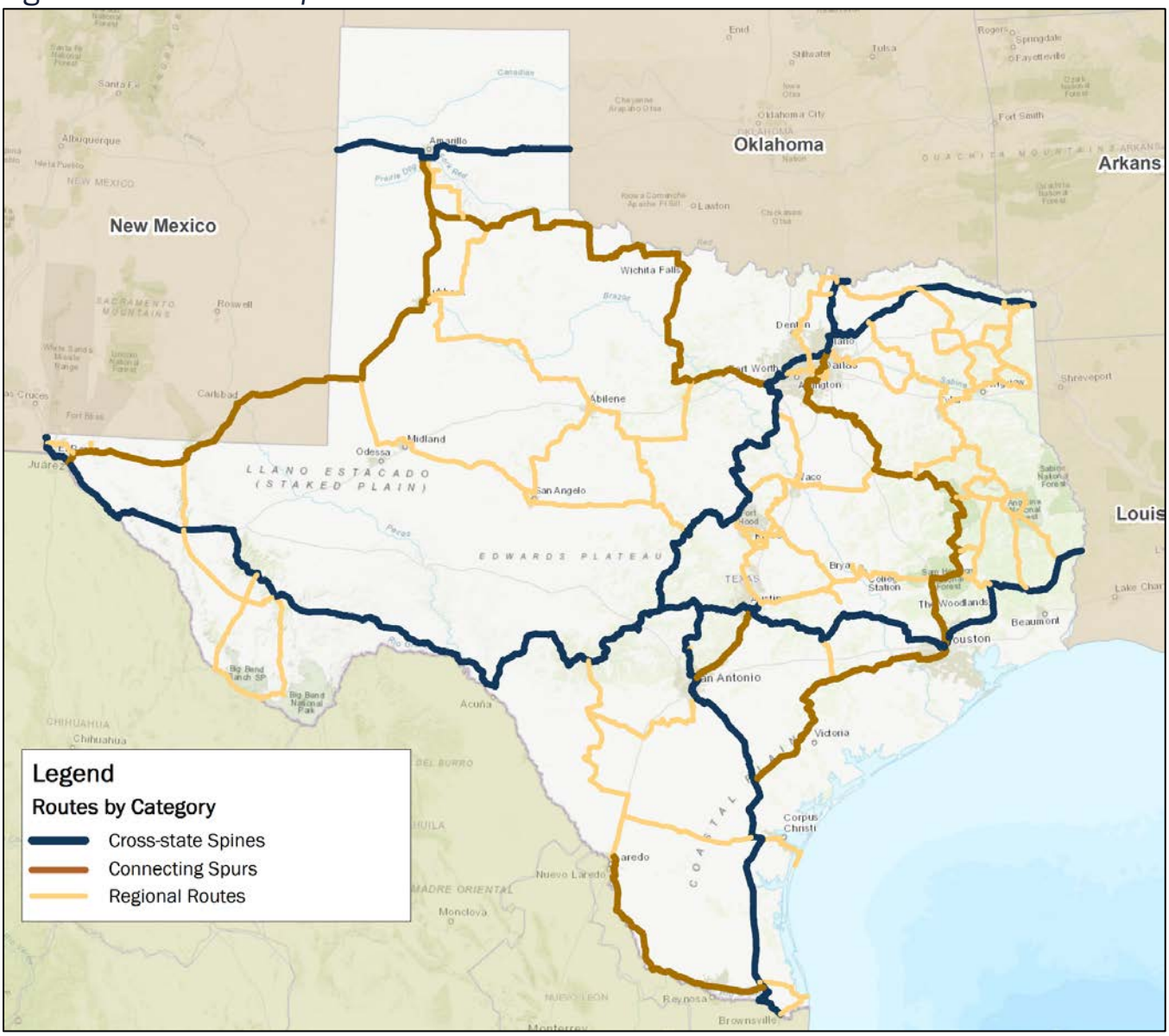
Figure 14: Houston-area Wikimap Feedback/Comments



Bicycle Tourism Trails: Example Network

After modifying the Conceptual Routes in response to regional stakeholder feedback, the project team renamed the routes in the Example Network to more accurately reflect the study scope. The bicycle tourism routes identified as part of the Bicycle Tourism Trails Study do not reflect an extensive statewide local-level stakeholder engagement process, nor do the results include analysis of local environmental or site conditions. **Example Network routes represent an application of the qualitative and quantitative criteria established as part of the study. A more thorough analysis of local conditions and extensive stakeholder engagement is needed for all routes.** Figure 16 displays the BTTS Example Network alignments symbolized by route category.

Figure 15: BTTS Example Network



Example Network Analysis

Table 6 provides analysis of the Example Network by route category. The project team defined these route categories as follows:

- Cross-state Spines
  - Routes of statewide significance which connect to other states and link major urban areas.
  - Due to interstate connections, these routes may be candidates for USBRS designation (see Technical Memorandum 3 for details about USBRS routing).
- Connecting Spurs
  - Routes of statewide significance which connect major urban areas, state/national parks, and other bicycle destinations.
  - Routes that provide important links between cross-state spines, with end points within state boundary.
- Regional Routes
  - Routes of regional significance which connect to natural/scenic areas and frequently form loops nearby or between mid-sized or smaller population centers.

Table 6: Example Network by Route Type

Route Category	Miles	Percent of Total Network
Cross-state Spines	2,346	28%
Connecting Spurs	1,809	22%
Regional Routes	4,163	50%
Total	8,318	

TxDOT's BAC emphasized the importance of locating tourism trail routes across Texas to connect to bicycle tourism destinations and through urban areas with existing infrastructure. Perhaps more importantly, tourism trail routes have the potential to impact the local economies of small towns. *Technical Memorandum 1: Benefits of Bikeways and Trails* provides more information on the community benefits of bikeways. Analysis shows that Example Network alignments cross directly through 254 small towns (categorized as fewer than 5,000 people). Table 7 shows the extent to which the *Example Network* routes are located near other economic development and tourism-related destinations around Texas.

Table 7: Example Network Geographic Analysis

Economic Development and Tourism-related Destinations	Within 10 Miles of BTTS Example Network	
	Number	Percent
National Parks/Forests/Historic Sites	18	69%
State Parks/Forests/Historic Sites	110	68%
Historical Markers	6,705	62%
Texas Main Street Communities	65	75%
Small Towns (under 5,000 ppl)	540	62%
Medium Cities (5,000 to 200,000 ppl)	243	75%
Large Urban Areas (over 200,000 ppl)	13	100%

Example Network Bikeway Types

While route locations were being developed, the project team and Working Group engaged in a parallel effort to identify the recommended bikeway types for TxDOT's Bicycle Tourism Trail Study. The project team and BAC agreed that the built-out network should be usable for all ages and abilities of potential users. The recommended bikeways include off-road and on-road accommodations providing options of striping and/or buffered space between bicyclists and motor vehicle traffic:

1. Shared Use Path/Sidepath
2. Buffered Bicycle Lane
3. Bicycle Lane
4. Wide Shoulder

The most appropriate bikeway accommodation for an all-ages and all-abilities network is a 12-foot paved, off-road, shared use path. However, existing investments in bicycle lanes and buffered bicycle lanes should be leveraged where available. Additionally, where a roadway has outside shoulders 8 feet wide or wider, this accommodation provides a safe riding environment for many bicycle tourism trail users. Therefore, where existing or planned shared use paths, buffered bicycle lanes, or bicycle lanes are available, according to local and/or regional bicycle/transportation plans, the project team routed on these facilities. Where these three bikeway types did not exist in local and regional transportation plans, the project team routed along wide-outside shoulders and according to the highest composite segment scores.

Using the quantitative criteria application process, 42 percent of the Example Network is routed on a combination of on- and off-roadway bikeways that meet recommended BTTS design minimums. Only 58 percent of the Example Network needs improvement to reach recommended BTTS design minimums. See Figure 16 and Table 8 for map and tabular comparisons of existing and future

bikeway accommodations on the Example Network. See Technical Memorandum 3 for additional details on recommended BTTS Bikeway Types.

While the project team located routes on existing/planned bikeways and wide shoulders, 58 percent of the BTTS Example Network consists of roadways that do not meet recommended BTTS design minimums. The project team believes that an off-road, shared use path is ideal to fill these gaps in the network; however, analysis of local conditions and stakeholder engagement is necessary to further refine the route and determine the most appropriate facility type. See Figure 17 and Table 9 for map and tabular analysis of the bikeway types that are recommended to comprise the Example Network.

Figure 16: Example Network Bikeway Accommodations: Existing vs. Future Map

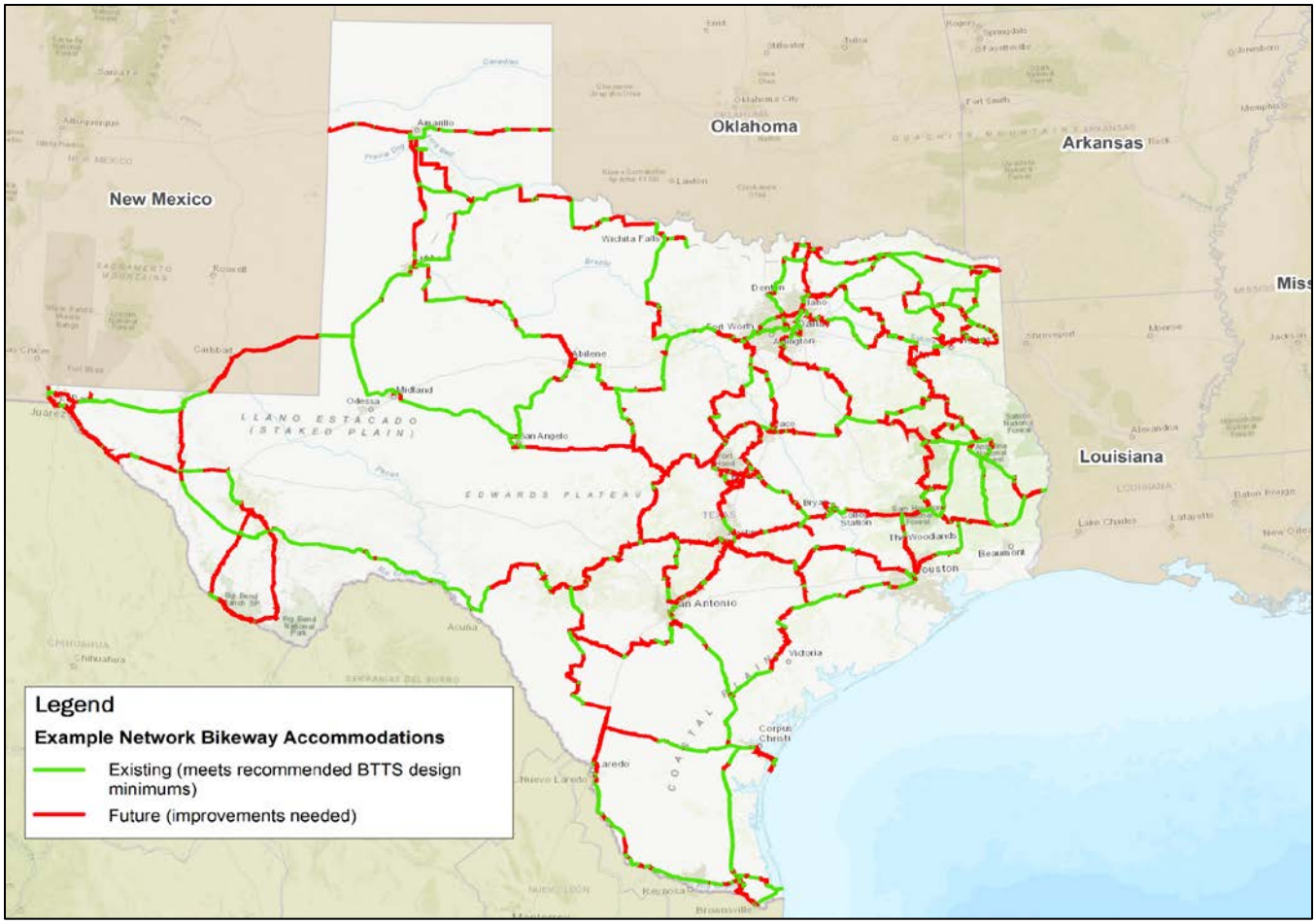


Table 8: Example Network Bikeway Accommodations: Existing vs. Future

	Miles	Percent of Total Network
Existing *(meets recommended BTTS bikeway design minimums)*	3,518	42%
Future *(improvements needed)*	4,800	58%
Total	8,318	

Figure 17: Example Network by Bikeway Type Map

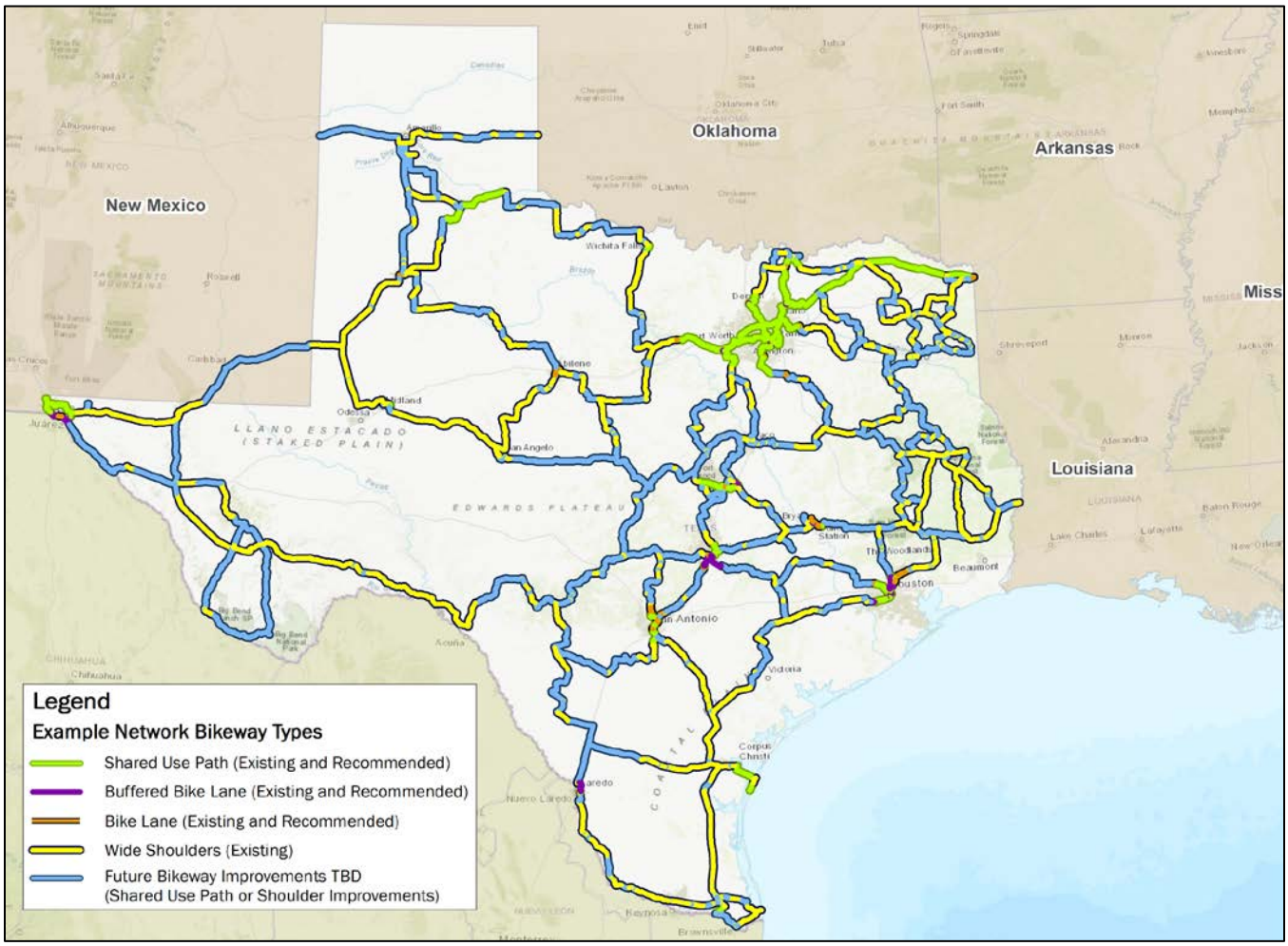


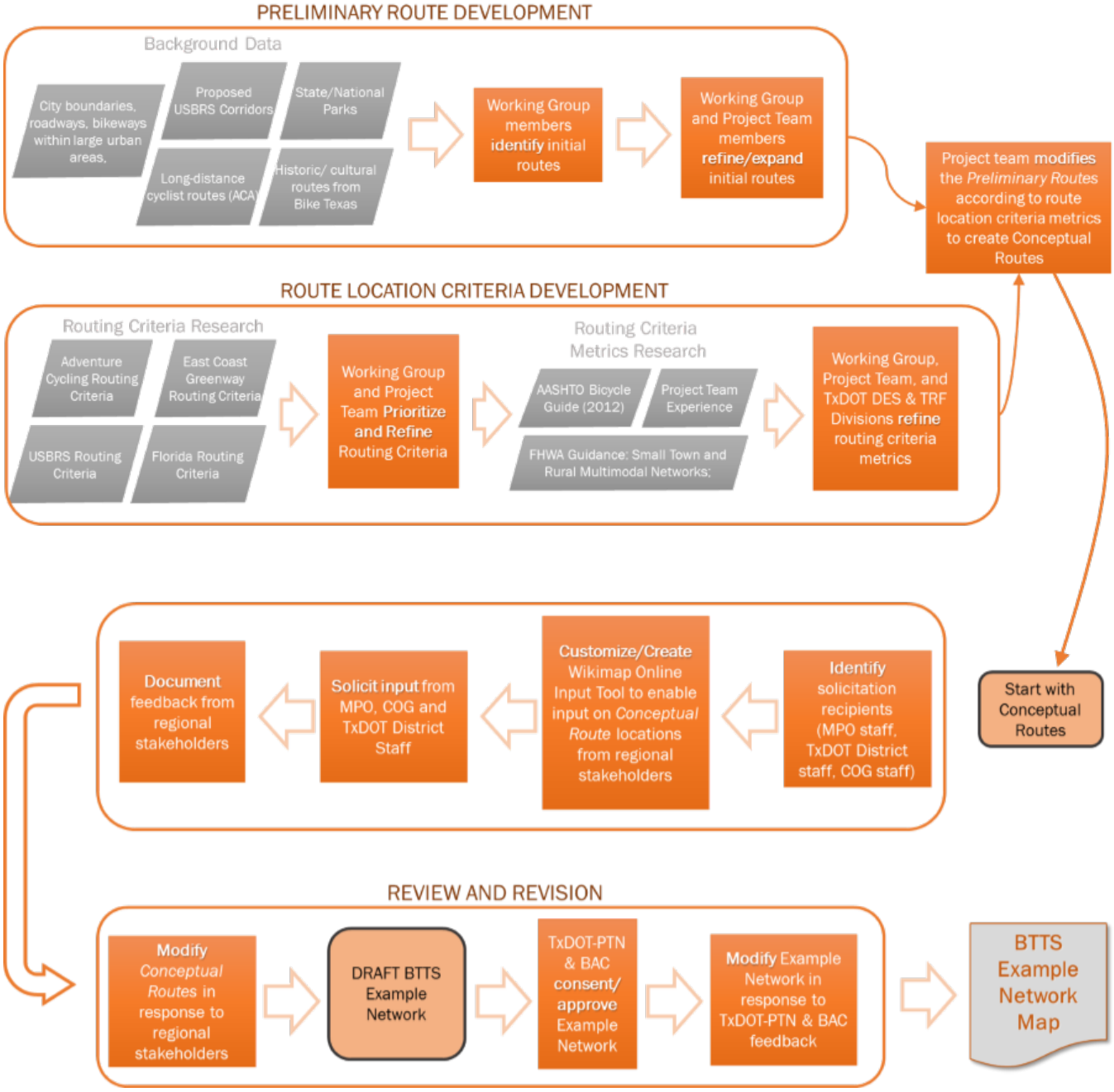
Table 9: Example Network by Bikeway Type

Bikeway Accommodation*	Shared Use Path (SUP)/ Sidepath	Buffered Bicycle Lane	Bicycle Lane	Wide Shoulder	To Be Determined
Meets BTTS Bikeway Recommendations	6%	0.0%	0.3%	36%	-
Recommended Improvements *(Local Plans)*	6%	1%	1%	-	-
Improvements Needed *(Either SUP or Shoulder Improvements)*	-	-	-	-	50%
Total Mileage	931	90	111	3,024	4,162

*See *Technical Memorandum 3: Bikeway Design Criteria* for additional details regarding bikeway types, design criteria, and cost estimates.

Figure 18 provides a detailed overview of the BTTS Route Development process.

Figure 18: BTTS Route Development: Detailed Process Overview



United States Bicycle Route System (USBRS)

In the national context of long-distance bicycle tourism routes, the USBRS represents a proposed nationwide network of bikeways with similar bicycle tourism routing goals as those developed as part of the Example Network. Any successful Texas bicycle tourism network should not only connect between Texas cities and bicycle destinations, but also to adjacent states and to other existing or proposed national-scale bikeway infrastructure. Several Example Network routes link to adjacent states, connect to planned corridors, or follow well-travelled routes.

USBRS Overview

In 2003, AASHTO formed a Task Force on U.S. Bicycle Routes comprised of various public-sector entities and bicycling advocacy organizations. One bicycling organization, Adventure Cycling Association (ACA), was tasked with developing a map of potential corridors called the National Corridor Plan. The Task Force then assigned numbered designations for signing and marking the routes, allowing for future growth and expansion beyond the proposed corridors. Since 2009, the AASHTO Task Force and ACA have been implementing the proposed corridors into on-the-ground long-distance bicycling routes.

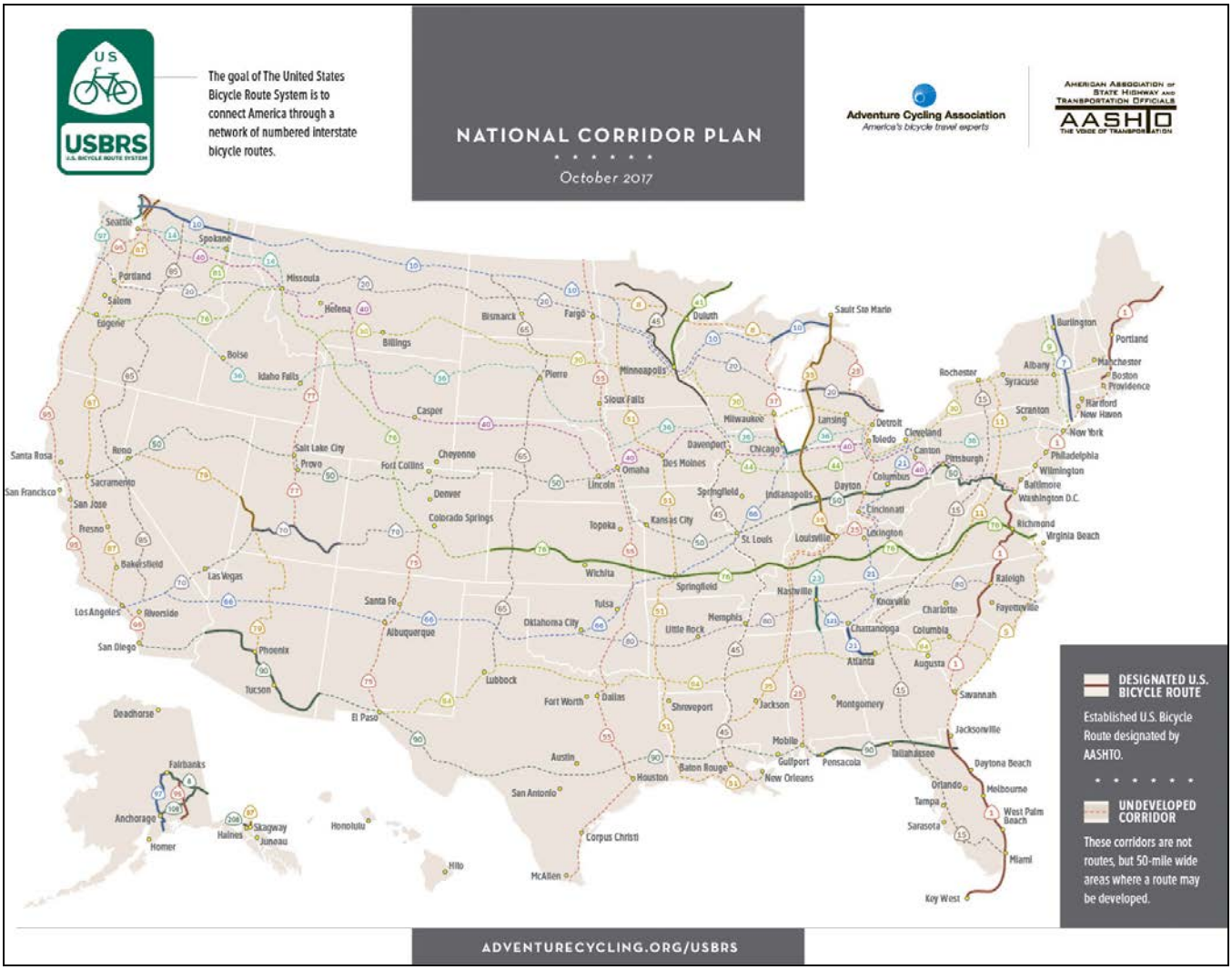
Undeveloped Corridors vs. Designated Routes

It is important to understand the differences between two elements identified as part of the USBRS National Corridor Plan (Figure 19):

1. Undeveloped corridors (dashed lines) – These 50-mile wide areas where a route **could be** developed were identified by ACA in their role to provide technical assistance to the AASHTO Task Force. No state or local-level engagement with public sector staff or bicyclists was completed to create these wide corridors which could possibly contain a bicycle route one day.
2. Designated routes (solid, thick lines) – These AASHTO approved and numbered routes have the support of local jurisdictions and bikeway facility owners. These routes are defined with turn-by-turn instructions and were developed with the assistance of state and local level collaboration. These designated routes are officially approved by the state department of transportation through which they traverse. In general, a designated USBRS route must either connect: two or more states, another USBRS route, or to an international border. Additional details regarding the designation process can be found below.

As of May 2018, over 13,100 miles of USBRS routes in 26 states have been officially designated and numbered. Around 37,000 miles of proposed, undeveloped corridors have not been designated (Figure 19).

Figure 19: USBRS National Corridor Plan



AASHTO Designation Process

The ACA suggested steps to formalize route designation. These steps are documented below to inform future efforts to implement the results of this study. Figure 20 provides an overview of the route designation process.

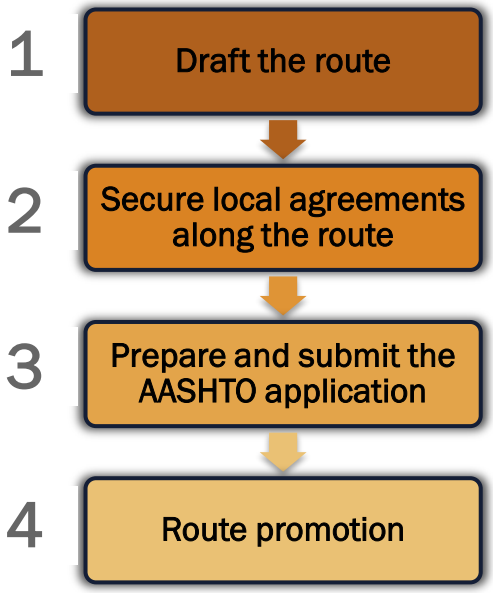
Anyone can lead or champion a USBRS route designation, including the state DOT, a local-level public sector entity, or bicycle tourism advocates. A completed AASHTO application requires signatures from the state DOT.

Step 1: Draft the route

The process begins with determination of the appropriate route, turn-by-turn. This step includes the following:

- Local, regional, and touring bicycle club routes/maps along with municipal or regional transportation/bicycle plans may be good foundational elements of a proposed USBRS route.
- In addition, a thorough understanding of potential necessary infrastructure improvements along proposed routes will be valuable.
- Regional and roadway characteristics of importance may include: the surface treatment quality/maintenance schedule, traffic volumes, roadside amenities, bicycle destinations, and scenic/recreational/historic features. ACA recommends the consideration of alternative routes begin at this stage.
- Additionally, the appropriate level of stakeholder engagement for the length and scope of the proposed route would be advisable at this point in the process. Allowing the stakeholders to provide feedback on the draft route can save time and effort in the long-term.

Figure 20: USBRS Route Designation Process



The qualitative and quantitative routing criteria used as part of the BTTS Example Network development process included many of the inputs described in Step 1. Indeed, with additional local engagement and route refinement, the Example Network development process may serve as the basis for USBRS Route Designation.

Step 2: Secure local agreements along the route

Following the preparation of a draft route, targeted outreach to jurisdictions along the route begins. This step includes the following:

- Research and documentation of the federal, state, and local agencies (like road authorities, federal land agencies, etc.) with jurisdiction over the draft route roadways or surrounding areas. It is important to document everything throughout the process which will serve as a basis for AASHTO application.
- Contacting roadway owners for USBR MOUs or interagency support agreements. TxDOT will work with route designation champions to determine appropriate agreements required for the AASHTO application.
    - Depending on draft route length this step may require volunteer assistance.
    - Having strong arguments for the benefits of bikeways and bicycle tourism may help with local stakeholder agreements. See Technical Memorandum 1: Benefits of Bikeways and Trails.

    - Conversations with roadway owners should include funding discussions for any anticipated bikeway maintenance and operation costs.
- Contacting trail organizations, bike clubs, and cyclists along the draft route for documented support can create long-term advocates and help with promotion later.
- Draft route review by TxDOT.

Step 3: Prepare and submit the AASHTO application.

The AASHTO application includes:

- Turn-by-turn instructions
- Map(s) detailing the route in electronic format
- Agreements from:
    - Neighboring states. TxDOT would be responsible for gaining this agreement.
    - State/local road owners
- A signature from a TxDOT official

For additional details see:
https://www.adventurecycling.org/default/assets/File/USBRS/USBRSApplicationInstructions2017.pdf

Step 4: Route promotion and operation

Following AASHTO route designation, on-going route marketing/promotion is the critical final step.

Promotion partners:

- Successful marketing/promotion of USBRS routes may involve several state agencies responsible for transportation, health, tourism, parks/recreation, and/or cultural resources.
- Additionally, extensive engagement of local businesses, bicycle advocates, and municipal/county stakeholders will be crucial to widespread usage of USBRS routes.

Marketing, maintenance, and funding:

- While USBRS route signage is encouraged (not required), funding responsibilities for signage and any other bikeway maintenance and operation costs should be clearly identified.
- Route marketing and promotion may involve promotional events to spread the word. Disseminating route details will likely involve social media, and an online presence. Additional informational/marketing media may include brochures, maps, flyers, stickers, patches, etc.

Conclusion

This technical memorandum documents the iterative, collaborative route development process undertaken by the BAC, Working Group, and project team to create the BTTS Example Network. This process was founded in best practices from federal, state, and municipal levels of government as well as national and regional bicycle tourism advocates. Data-driven and stakeholder informed, the route development process relied on available existing condition data as well as local/regional transportation plans and knowledge. **Example Network routes represent an application of the qualitative and quantitative criteria established as part of the study. A more thorough analysis of local conditions and extensive stakeholder engagement is needed for all routes.**

References

1 American Association of State Highway Transportation Officials and Adventure Cycling Association. 2006. *US Task Force on Numbered Bicycle Routes Corridor and Route Criteria for U.S. Bike Route System*. Revised June 2006.

2 Adventure Cycling Association. *Adventure Cycling Association's Route Philosophy*. https://www.adventurecycling.org/default/assets/File/USBRS/Route_Criteria/ACA_Route_Criteria.pdf

3 East Coast Greenway Alliance. 2006. *East Coast Greenway Route Selection Guidelines*. Obtained from Niles Barnes, Director of Greenway Programs with East Coast Greenway Alliance on March 2, 2017 via email.

4 Florida DOT, 2011. *Criteria for Establishment of US Bicycle Routes in Florida*. https://www.adventurecycling.org/default/assets/File/USBRS/Route_Criteria/FloridaDraftUSBRCriteria.pdf

5 Roadway Inventory Network shapefile obtained from TxDOT Transportation Planning and Programming Division as part of the most up-to-date available desktop version of the Statewide Planning Map (Statewide_Planning_Desktop_Dec_2015.mxd)

6 American Association of State Highway Transportation Officials. 2012. *Guide for the Development of Bicycle Facilities.* 4th Edition. ISBN Number: 978-1-56051-527-2. https://bookstore.transportation.org/item_details.aspx?ID=1943

7 Federal Highway Administration. 2016. Small Town and Rural Multimodal Networks. https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/small_towns/. For additional information, see http://ruraldesignguide.com/

Technical Memorandum 2

Appendix A: Example Network Route Development Data Sources

Jacobs for TxDOT Public Transportation Division (PTN)

March 2018

Acknowledgements

Prepared for: TxDOT Public Transportation Division (PTN)

Prepared by: Carl Seifert

Quality Reviewers: Nishant Kukadia and Stephanie Lind

BTTS Example Network Route Development Data Sources

Data utilized	Data Type	Source
RHINO (2015)	Line shapefile	TxDOT-TPP
City Boundaries	Polygon shapefile	TxDOT-TPP
Railroads	Line shapefile	TxDOT-TPP
BikeTexas Tourism Trail Routes	Line shapefile	CH2M digitized, BikeTexas created
USBRS Proposed Corridors	Line shapefile	CH2M digitized, Adventure Cycling Association originated
Adventure Cycling Routes	Line shapefile	Adventure Cycling Association
Federal and state roadways	Line shapefile	TxDOT-TPP
State Park Trails	Line shapefile	Texas Parks and Wildlife Department
National and State Parks	Polygon shapefile	TxDOT-TPP
Federal lands	Polygon shapefile	TxDOT-TPP
Water (lakes, bays, etc.)	Polygon shapefile	TxDOT-TPP
Water (rivers, streams, etc.)	Line shapefile	TxDOT-TPP
Historic Trails	Line shapefile	National Park Service
Historical markers	Point shapefile	Texas Historical Commission, Texas Heritage Tourism Program
Texas Mainstreet Communities	Polygon shapefile	Texas Historical Commission, Texas Mainstreet Program
Existing bikeway locations	Line shapefile	City of Austin
	Line shapefile	Alama Area MPO
	Line shapefile	Corpus Christi MPO
	Line shapefile	Houston-Galveston Area Council
	Line shapefile	Bryan-College Station MPO
	Line shapefile	Sherman-Denison MPO
	Line shapefile	North Texas Council of Governments
	Line shapefile	Temple-Killeen MPO
	Line shapefile	City of El Paso
Bicycle and Transportation Plans	PDF file/image	Texarkana MPO
	PDF file/image	City of Nacogdoches
	PDF file/image	Capital Area MPO
	PDF file/image	Brownsville Active Plan
	PDF file/image	Dallas Loop
	PDF file/image	City of Abilene
	PDF file/image	City of Laredo
	PDF file/image	Lubbock MPO
	PDF file/image	City of Amarillo
	PDF file/image	Waco MPO
	PDF file/image	City of San Antonio
	PDF file/image	North Texas Council of Governments
	PDF file/image	Northeast Texas Trails Coalition
Regional stakeholder feedback via Wikimap Online Input Tool	Line shapefile	Regional stakeholder feedback
Strava heat map linework	Tiled internet raster layer	Strava Metro
Satellite imagery	Tiled internet raster layer	Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
World street map	Tiled internet raster layer	Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community

Technical Memorandum 2

Appendix B:
Wikimap Online Input Tool: All Stakeholder Comments

Jacobs for TxDOT Public Transportation Division (PTN)

March 2018

Acknowledgements

Prepared for: TxDOT Public Transportation Division (PTN)

Prepared by: Carl Seifert

Quality Reviewers: Nishant Kukadia and Stephanie Lind

Comment ID	Type	Category ID	Category	Initial Comment	Creator ID	Create Date
252986	point	10157	Only for fearless cyclists	The section of Memorial from Buffalo Bayou Park to Memorial Park is pretty speedy and has no shoulders. Cyclists often ride on the sidewalks here.	166717	6-Sep-17
252987	point	10155	Bicycle destination here	Buffalo Bayou Park is a phenomenal place for cyclists to both pass through and stop.	166717	6-Sep-17
252988	point	10155	Bicycle destination here	Really easy ride	166717	6-Sep-17
252989	point	10155	Bicycle destination here	The Columbia Tap Trail, Hermann Park, and Brays Bayou are all great spots. The route should connect to those places as well.	166717	6-Sep-17
252990	point	10156	Not suitable for bicycle use	If I'm reading the map correctly, this is not a bike trail. There's a functional rail line that runs through here and it has no infrastructure for bike use. It would be amazing if there were. Instead, I would take a different route to get back to Brays Bayou. I'll indicate it on the map.	166717	6-Sep-17
252991	point	10156	Not suitable for bicycle use	It is not possible to cross the bayou here. That would be great though!	166717	6-Sep-17
252992	point	10157	Only for fearless cyclists		166717	6-Sep-17
252993	point	10155	Bicycle destination here	It would be great to dream up a route that takes folks to Galveston.	166717	6-Sep-17
253077	point	10156	Not suitable for bicycle use	SH 358 is a divided highway without any accommodations for cyclists. While the greater Corpus Christi region is well suited for developmetn of bike-based tourism, the selected roadways (SH44 and SH358) are not suitable for this purpose. Please see Bicycle Mobility Network defined in the Corpus Christi MPO's Strategic Plan for Active Mobility for alternative routes. Plan includes detailed methodology about data basis for route selection and infrastructure prescriptions. MPO staff would be happy to provide any shapefiles from the plan that may be of use.	167055	7-Sep-17
253078	point	10156	Not suitable for bicycle use	SH 44 is a highway without any accommodations for cyclists. While the greater Corpus Christi region is well suited for development of bike-based tourism, the selected roadways (SH44 and SH358) are limited in ROW and thus may not be preferred for this purpose. Please see Bicycle Mobility Network defined in the Corpus Christi MPO's Strategic Plan for Active Mobility for alternative routes. The Plan includes detailed methodology about data basis for route selection and infrastructure prescriptions. MPO staff would be happy to provide any shapefiles from the plan that may be of use.	167055	7-Sep-17
253128	point	10157	Only for fearless cyclists	No shoulders on Sandy Point Road. Narrow Lanes 70 MPH Speed Limit. Trucks. Drunk Drivers from Lake. Strong and Fearless at best!	167215	8-Sep-17
253134	point	10155	Bicycle destination here	Lake Bryan. Mountain Bike Trails, camping etc.	167215	8-Sep-17
253173	point	10155	Bicycle destination here	Sam Houston State Park. Beautiful recreational bike trails!	167215	8-Sep-17
253174	point	10155	Bicycle destination here	Scenic 390 between Burton and Independence. Spring Wildflowers. Lots of bicyclists. Narrow windy sections however and some traffic. Not 8-80 without some enhancement.	167215	8-Sep-17
253177	point	10155	Bicycle destination here	Long distance riders need places to stay overnight at regular intervals. Routes need to incorporate camping locations!	167215	8-Sep-17
253344	point	10155	Bicycle destination here	City of Sherman Mountain Bike Course	167720	12-Sep-17
253345	point	10155	Bicycle destination here	City of Sherman Bike Course	167720	12-Sep-17
253346	point	10155	Bicycle destination here	City of Denison Waterloo Lake Park; Has a concrete trail around park.	167720	12-Sep-17
253347	point	10155	Bicycle destination here	Loy Lake Park has a number of trails.	167720	12-Sep-17
253348	point	10155	Bicycle destination here	Eisenhower Birthplace State Historic Site	167720	12-Sep-17
253349	point	10155	Bicycle destination here	Eisenhower State Park has a number of trails.	167720	12-Sep-17
253350	point	10155	Bicycle destination here	City of Sherman Bike Course	167720	12-Sep-17
253351	point	10155	Bicycle destination here	Hagerman National Wildlife Refuge has a number of trails.	167720	12-Sep-17
253393	point	10155	Bicycle destination here	Downtown Bryan hosts regular events including Third Thursday Art Step, First Friday, and Brazos Valley Farmers Market on Saturdays. There are occasional street festivals including Texas Reds Steak & Grape Festival, Christmas parade, etc. https://www.downtownbryan.com/	167861	12-Sep-17
253394	point	10155	Bicycle destination here	Blinn College - destination for students living in Bryan, College Station, and/or co-enrolled at Texas A&M University.	167861	12-Sep-17
253395	point	10155	Bicycle destination here	Texas A&M University - destination for students and faculty living off-campus in Bryan and College Station.	167861	12-Sep-17
253424	point	10155	Bicycle destination here	Mountain Biking, Camping and Equestrian Facilities	168016	13-Sep-17
253425	point	10155	Bicycle destination here	Camping, Mountain Biking, Equestrian and Running Trails	168016	13-Sep-17
253426	point	10155	Bicycle destination here	Camping and Mountain Bike Trails Equestrian Camping / Riding is possible with advanced coordination	168016	13-Sep-17
253427	point	10155	Bicycle destination here	Bicycle Repair Station, common Start Point for Endurance Cyclist and Runners	168016	13-Sep-17
253503	point	10155	Bicycle destination here	12 miles of area-best singletrack. A worthy destination.	168215	14-Sep-17
253504	point	10155	Bicycle destination here	Bike trails need to be developed here. Can TXDOT enhance Army Corps of Engineers relations to facilitate trail development? This would be a wonderful attraction for Salado bike tourism, and mountain bikers north and south on Interstate 35.	168215	14-Sep-17
253505	point	10155	Bicycle destination here	Bike trails are developed here. Can TXDOT enhance Army Corps of Engineers relations to facilitate trail development? This would be a wonderful attraction for Temple-Belton bike tourism, and mountain bikers north and south on Interstate 35.	168215	14-Sep-17
253536	point	10155	Bicycle destination here	Historic City (Tourism), e bikes available and popular bike friendly businesses. Gathering start point for endurance road riders.	168016	15-Sep-17
253636	point	10155	Bicycle destination here	Several other local trails are available for shorter trips or excursions. Could be included as a lower-level network. e.g. Salado Creek Greenway Trail, Leon Creek Greenway Trail, Westside Creeks Trails.	168316	19-Sep-17
253638	point	10157	Only for fearless cyclists	Blanco Road is a wide, high speed road and is rated as "Strong" in our bicycle level of traffic stress network. That being said, there aren't any alternate continuous northbound bike routes that would be more comfortable.	168316	19-Sep-17
253644	point	10157	Only for fearless cyclists		168316	19-Sep-17
253645	point	10157	Only for fearless cyclists		168316	19-Sep-17
253646	point	10156	Not suitable for bicycle use	There is no access to Loop 410 from Villamain Road.	168316	19-Sep-17
253647	point	10157	Only for fearless cyclists		168316	19-Sep-17
253648	point	10157	Only for fearless cyclists		168316	19-Sep-17
253846	point	10155	Bicycle destination here	Carpenter's Bluff Bridge is a historic bridge that has been converted to pedestrian access only by the State of Oklahoma.	169381	21-Sep-17
253915	point	10155	Bicycle destination here	Sun City has a very active cycling club, especially involving those over 50 years old.	169507	21-Sep-17
254112	point	10156	Not suitable for bicycle use	I debated between for "fearless cyclists" and not suitable for bicycle use concerning US 82. The stretch of US 82 between Texarkana and New Boston has heavy traffic due to industry. There is not a wide shoulder for use, and there are deep ditches on the north side of the road and a railroad track on the south side of the road. Cyclists have no escape route in my opinion.	169996	25-Sep-17
254113	point	10156	Not suitable for bicycle use	I debated between for "fearless cyclists" and not suitable for bicycle use concerning US 82. The stretch of US 82 between Texarkana and New Boston has heavy traffic due to industry. There is not a wide shoulder for use, and there are deep ditches on the north side of the road and a railroad track on the south side of the road. Cyclists have no escape route in my opinion.	169996	25-Sep-17
254116	point	10156	Not suitable for bicycle use	There are no wide shoulders for riding comfort and heavy traffic during different times of the day due to people going to work at Red River.	169996	25-Sep-17
254117	point	10156	Not suitable for bicycle use	Once you left Lelia Street, you are traveling along a railroad track which, to my knowledge, is still active. Not suitable for bike use!!	169996	25-Sep-17
254118	point	10156	Not suitable for bicycle use	Satellite image has train on the tracks. Not for bike use.	169996	25-Sep-17
254223	point	10155	Bicycle destination here	Tyler State Park	167251	26-Sep-17
254224	point	10156	Not suitable for bicycle use	Narrow lanes with no shoulder and high volume of bulky vehicles accessing the landfill along the route.	167251	26-Sep-17
254242	point	10156	Not suitable for bicycle use	The section after the Rio Grande trail ends is not currently connected to the US 20	170205	26-Sep-17
254253	point	10155	Bicycle destination here	More bicycle facilities are needed in the Northwest quadrant of Fort Worth and the suburbs. This is a rapidly growing area.	166771	26-Sep-17
254254	point	10155	Bicycle destination here	A bicycle facility is needed along Golden Triangle/FM 1709.	166771	26-Sep-17
254260	point	10157	Only for fearless cyclists		170205	26-Sep-17
254263	point	10157	Only for fearless cyclists	This county road hits US 67 at a very busy point, and there is a bit of a sprint to get to the section of US 67 that widens out to have larger shoulders. One could take Presley Road (1225) to FM 2148 S, but that FM road has heavy traffic and maybe 1-2 foot shoulders. It would put a cyclist past the intersections of FM 2148 N and FM 991 when it ties back in to US 67.	169996	26-Sep-17
254272	point	10157	Only for fearless cyclists	This 55-mile HW-54 segment is not adequate with bicycle facilities such as water access, accommodations in case of an emergency, sanitary facilities, limited cell phone coverage, and virtually no rural communities along the road.	170205	26-Sep-17

Comment ID	Type	Category ID	Category	Initial Comment	Creator ID	Create Date
254334	point	10156	Not suitable for bicycle use	Bicycles are prohibited on SH 6 bridges over Lake Waco Freeway class facility	170417	27-Sep-17
254336	point	10155	Bicycle destination here	Cameron Park - Extensive bike trails	170417	27-Sep-17
254337	point	10157	Only for fearless cyclists	Long bridge with no shoulders and 55mph speed limit No plans to widen / retrofit bridge	170417	27-Sep-17
254338	point	10156	Not suitable for bicycle use	Trail on private property No public access - prior permission from property owners required	170417	27-Sep-17
254366	point	10155	Bicycle destination here	San Jacinto Plaza (Downtown El Paso) Bicycle Friendly Zone, Bicycle facilities, and Touristic (historic) Destination	170205	27-Sep-17
254367	point	10157	Only for fearless cyclists	For fearless cyclists. Segment between US-54 and Railroad Dr.	170205	27-Sep-17
254368	point	10155	Bicycle destination here	Franklin Mountains State Park	170205	27-Sep-17
254369	point	10155	Bicycle destination here	Mammoths Trunk Trail Parking. Typically used by mountain bikers to ride some of the Franklin Mountain trails	170205	27-Sep-17
254370	point	10155	Bicycle destination here	Transmountain View	170205	27-Sep-17
254371	point	10157	Only for fearless cyclists	Typically limited cell phone connectivity (low to zero phone signal). Long segments (30-50 miles) without water/food supply. No lodging facilities around (120 miles without hotels)	170205	27-Sep-17
254393	point	10156	Not suitable for bicycle use	Current conditions are not safe for cyclists (I-10 crossing)	170205	28-Sep-17
254405	point	10155	Bicycle destination here	Access to the Franklin Mountains mountain bike trails	170205	28-Sep-17
254411	point	10155	Bicycle destination here	Hueco Tanks State Park	170205	28-Sep-17
254412	point	10155	Bicycle destination here	U.S. Border Patrol Checkpoint. Cyclist must show proper identification and/or travel documents. Cell phone signal/service become limited after this point (eastbound). After this point (eastbound) cyclists will not find water/food/services supply for about 25 miles or more.	170205	28-Sep-17
254413	point	10155	Bicycle destination here	One of the few food/water provisions for cyclists along the El Paso-Guadalupe Mountains route. This place is not open every day. Cyclist must plan in advance.	170205	28-Sep-17
254414	point	10157	Only for fearless cyclists		170205	28-Sep-17
254415	point	10155	Bicycle destination here	Access to a rustic adobe hotel	170205	28-Sep-17
254416	point	10155	Bicycle destination here	Access to the Fort David National Historic Site	170205	28-Sep-17
254417	point	10155	Bicycle destination here	Access to the McDonald Observatory Visitors Center	170205	28-Sep-17
254418	point	10157	Only for fearless cyclists		170205	28-Sep-17
254453	point	10156	Not suitable for bicycle use	Hwy 6 is not recommended as a spur into the City of Waco. Alternate route via State Hwy 1637 is proposed.	170417	29-Sep-17
254454	point	10155	Bicycle destination here	It's important to connect the two largest metro areas in the state. Please consider re-classifying this corridor as a "cross-state spine route". This corridor is also consistent with US Bicycle Route 55 identified in the National USBRS Corridor Plan adopted by AASHTO.	169298	29-Sep-17
254456	point	10155	Bicycle destination here	Please consider re-classifying this corridor as a "cross-state spine route". This corridor is consistent with US Bicycle Route 84 identified in the National USBRS Corridor Plan adopted by AASHTO.	169298	29-Sep-17
254457	point	10155	Bicycle destination here	NCTCOG agrees with the conceptual corridor connecting McKinney to Sherman and Denison. This corridor is also consistent with US Bicycle Route 55 identified in the National USBRS Corridor Plan adopted by AASHTO.	169298	29-Sep-17
254459	point	10157	Only for fearless cyclists	The NCTCOG Metropolitan Transportation Plan identifies SH 34 as a rural route, but in need of being upgraded with shoulders. US 69 to Greenville could be an alternative route.	169298	29-Sep-17
254473	point	10155	Bicycle destination here	This route connects to several DART transit stations.	169298	29-Sep-17
254474	point	10155	Bicycle destination here	Cedar Hill State Park	169298	29-Sep-17
254475	point	10155	Bicycle destination here	Katy Trail is extremely popular among bicyclists and is near downtown Dallas.	169298	29-Sep-17
254476	point	10155	Bicycle destination here	Downtown Fort Worth, Cultural District, and Fort Worth Zoo are popular destinations close to this route.	169298	29-Sep-17
254477	point	10155	Bicycle destination here	Mineral Wells State Trailway.	169298	29-Sep-17
254478	point	10155	Bicycle destination here	Lake Mineral Wells State Park	169298	29-Sep-17
254479	point	10155	Bicycle destination here	Ray Roberts Lake State Park	169298	29-Sep-17
254480	point	10155	Bicycle destination here	Several DCTA and DART transit stations are accessible along this corridor.	169298	29-Sep-17
254481	point	10155	Bicycle destination here	Several TRE transit stations are accessible along this corridor.	169298	29-Sep-17
254493	point	10155	Bicycle destination here	San Angelo State Park. Several trails for cyclists and hikers	170758	29-Sep-17
254590	point	10155	Bicycle destination here	Caddo Lake State Park	164797	2-Oct-17
254591	point	10155	Bicycle destination here	Overlook Point, Lake o the Pines Dam - Lake o the Pines consists of seven parks and four campgrounds with activities such as camping, fishing, and boating.	164797	2-Oct-17
254592	point	10155	Bicycle destination here	Daingerfield State Park	164797	2-Oct-17
254593	point	10155	Bicycle destination here	Wright Patman Lake - 10 surrounding parks	164797	2-Oct-17
254594	point	10155	Bicycle destination here	Enoch's Stomp Vineyard & Winery	164797	2-Oct-17
254595	point	10155	Bicycle destination here	This extension is being proposed to continue along FM 2275/George Richey Rd., which includes four (4) miles of existing bicycle lane between SH 300/Gilmer Rd. and US 259. An additional two (2) miles of bicycle lanes are planned when FM 2275/George Richey is widened from 2 to 4 lanes in 2021, for a total of 6 miles of bicycle lanes.	164797	2-Oct-17
254596	point	10155	Bicycle destination here	Jefferson, Texas is a historic riverport town with attractions and overnight lodging. The city has over 70 historic landmarks, over 25 bed and breakfast locations, restored buildings, museums, dining, lodging, and well-preserved homes. Jefferson is a hot spot for tourists.	164797	2-Oct-17
254696	point	10155	Bicycle destination here	Bike & Fitness Shop - Great stop for supplies or rest between long stretches of riding.	164797	4-Oct-17
1139229	line	10154	Recommended route change		166717	6-Sep-17
1139321	line	10154	Recommended route change	This is a pretty popular bicycle route. See the heat map compared to SH 21 on Strava. It is far lower ADT on all portions and far fewer trucks. Some of the smaller FM sections do not have shoulders however. The FM 60 section has shoulders and new bicycle facilities and enhancements are currently being added between campus to west of FM 2818. -MJ	167215	8-Sep-17
1139323	line	10154	Recommended route change	Bicycle route shifting from South College to Cavitt Street for a section. Enhancements are currently under construction. Enhancements include a new SUP along Spur 308 South College Ave. from Brookside to Inlow. This is not shown because it does not yet connect. Will become main route once an additional project is designed and constructed from Inlow to FM 60 University Drive.	167215	8-Sep-17
1139332	line	10154	Recommended route change	Railroad ROW purchased by Northeast Texas Regional Mobility Authority for multi-use trail	167251	8-Sep-17
1139338	line	10154	Recommended route change	Reroute to match current plans for bicycle routes around University of Texas at Tyler campus.	167251	8-Sep-17
1139419	line	10154	Recommended route change	Hwy 158 from Midland to Hwy 87 to San Angelo. Since the hwy has been rebuilt the shoulders are wide and flat, with places to stop, small communities, a public rest stop on 87 and San Angelo has numerous bike trails and facilities and a state park. It is a beautiful ride.	167826	12-Sep-17
1139432	line	10154	Recommended route change	Existing shared use path along Boonville Road (FM 158) from Earl Rudder Freeway (SH 6) to University Drive (FM 60).	167861	12-Sep-17
1139550	line	10154	Recommended route change	Lake to Lake Route, small stretch of FM 439 and Sparta need shoulder work.	168016	15-Sep-17
1139551	line	10154	Recommended route change	Very low traffic access road leading to scenic outlook of the lake. Popular Hill Challenge at the beginning.	168016	15-Sep-17
1139678	line	10154	Recommended route change	There is no access to Loop 410 from Villamain Road. Shane Road is a low-stress route and would be a good alternative to a high-stress access road.	168316	19-Sep-17
1139679	line	10154	Recommended route change	Need to take access road to get on US 181 S.	168316	19-Sep-17
1139969	line	10154	Recommended route change	Starting at the East Gate of Fort Hood (the Great Place) along Rancier Ave (which the City Mayor is trying to revitalize with sidewalks and landscaping) to the City's largest park, Long Branch Park. Then continuing East along FM-439 to the Belton Lake Park areas (near Dead Fish Grill). Then continuing further East along FM-439 to 317, head North into Temple and South into Downtown Belton. This route would connect Fort Hood, Killeen, Nolanville, Belton and Temple. Plus the scenery/terrain along this route is the most pleasant and safest as compared to I-14.	169515	21-Sep-17
1139970	line	10154	Recommended route change	Makes more sense to continue the FM-439 trail to 317 rather than 121. Because 121 you will have to cross over the dam which has no room for widening and/or it would be too costly. Plus extending to 317 allows for it to break off into two, North towards Temple and South into Downtown Belton.	169515	21-Sep-17
1139971	line	10154	Recommended route change	Extend the trail from the connection of FM-439 and 317 into Downtown near the Gin development or Nolan Creek.	169515	21-Sep-17
1139973	line	10154	Recommended route change	Perfect route from Fort Hood to Central Texas College which provides numerous classes for our troops. Plus it would also connect some Fort Hood Family Housing units to the college.	169515	21-Sep-17
1139974	line	10154	Recommended route change	Extension connecting not only Fort Hood to CTC but CTC to TAMU-CT! This will serve a growing academic population in anticipation of future growth at TAMU-CT.	169515	21-Sep-17

Comment ID	Type	Category ID	Category	Initial Comment	Creator ID	Create Date
1139975	line	10154	Recommended route change	This piece would help connect the Fort Hood soldier barracks to the extensive trail along Rancier and FM-439 and provide seamless connectivity from Fort Hood to Temple/Belton/Salado.	169515	21-Sep-17
1139977	line	10154	Recommended route change	This addition would connect the existing Andy K Wells Hike and Bike Trail along Avenue G in Killeen to another significant and widely utilized park, Conder Park. This also connects Central Fire Station to their training facility at Conder Park.	169515	21-Sep-17
1140263	line	10154	Recommended route change	Alternative route connecting Van Horn-Valentine-Quebec-Ryan-Marfa-Alpine areas using the State Highway US 90/US 67 instead of the I-10 Vanhorn-Kent section	170205	26-Sep-17
1140265	line	10154	Recommended route change	Alternative route connecting Van Horn-Valentine-Quebec-Ryan-Marfa-Alpine areas using the State Highway US 90/US 67 instead of the I-10 Vanhorn-Kent section	170205	26-Sep-17
1140302	line	10154	Recommended route change	This route is a suggestion to circumvent US 82 from Texarkana to New Boston. It is not perfect by any means. I have NO idea why US 82 keeps showing up on bike travel websites as a suggested route from New Boston to Texarkana. There have been bike tourists that have followed the route and have been very upset about the amount of traffic and hazards. They may have been riding during a shift change at Red River Army Depot. I don't know of anyone riding FM 2149 from US 67 to SH 8, but knew SH 8 has a bit of heavy truck traffic and not much of a shoulder. Riders should always use caution.	169996	26-Sep-17
1140338	line	10154	Recommended route change	Alternative route connecting El Paso West Side area with El Paso downtown	170205	27-Sep-17
1140463	line	10154	Recommended route change	recommended spur into Waco city limits, instead of Hwy 6.	170417	29-Sep-17
1140473	line	10154	Recommended route change	potential future connection or alternate route from State Hwy 6. Current conditions aren't ideal, but there are future projects to improve the 84/Speegleville interchange (TxDOT project) and a County project to improve a portion of Speegleville road.	170417	29-Sep-17
1140486	line	10154	Recommended route change	This route follows the historic Bankhead Highway, which could serve as an on-street alternative to the planned off-street corridor submitted between Mineral Wells State Trailway and Trinity Trails in Benbrook. Information obtained from the Texas Historical Commission: http://www.thc.texas.gov/content/bankhead-highway	169298	29-Sep-17
1140487	line	10154	Recommended route change	US 69 has shoulders and may want to be considered as an alternative to SH 34.	169298	29-Sep-17
1140633	line	10154	Recommended route change	FM384-Old Longview Hwy can be utilized as an alternative to FM2767-Old Kilgore Hwy. This route has low traffic volumes and picturesque routes through the pines.	164797	3-Oct-17
1139228	line	10153	Significant route connection	This might be another option to getting around the lack of a North-South connection. There are many variations, especially on the urban streets.	166717	6-Sep-17
1139322	line	10153	Significant route connection	This route provides connection to Lake Bryan avoiding Sandy Point Road. It has a strong Strava heat signature as the most used route. Lake Bryan is a popular local/regional bicycle destination.	167215	8-Sep-17
1139352	line	10153	Significant route connection	Proposed reroute will connect to Tiger Creek Wildlife Refuge, Tyler State Park, a multimodal transit hub and downtown.	167251	8-Sep-17
1139400	line	10153	Significant route connection	This trail, which is shown on the 2040 MTP for the Sherman-Denison MPO, would utilize floodplain from the East Fork Trinity River, run along SH 56 (this portion was constructed using TAP funds about four years ago) to downtown Sherman, run up an abandoned railroad line to downtown Denison, run up the floodplain of Duck Creek to a powerline, follow the powerline to an existing road that connects to Eisenhower State Park. Within Eisenhower State Park, there are a series of trails and other amenities for users to enjoy! The Sherman-Denison MPO is excited about the opportunity to add this to the statewide plan.	167720	11-Sep-17
1139401	line	10153	Significant route connection	This trail, which is shown on the Sherman-Denison MPO's 2040 MTP, connects downtown Denison with downtown Bells. We would have like to have continued it and tied it back into the trail to Paris, TX, but did not have the resources to determine the optimal route. Perhaps as part of this study, this is a trail that could be examined.	167720	11-Sep-17
1139407	line	10153	Significant route connection	Connects the proposed trail in downtown Denison to Oklahoma and the historic Carpenters Bluff Bridge.	167720	12-Sep-17
1139408	line	10153	Significant route connection	Has a high Strava count.	167720	12-Sep-17
1139409	line	10153	Significant route connection	Connects downtown Sherman with Hagerman National Wildlife Refuge. There are a number of trails in this area.	167720	12-Sep-17
1139412	line	10153	Significant route connection	This trail connects Eisenhower State Park with Hagerman National Wildlife Refuge.	167720	12-Sep-17
1139414	line	10153	Significant route connection	Connection to Oklahoma.	167720	12-Sep-17
1139415	line	10153	Significant route connection	This rail line appears to be abandoned. If it is not being utilized, this is an excellent opportunity to make a significant connection.	167720	12-Sep-17
1139420	line	10153	Significant route connection	This route, the majority of which is an abandoned rail line, would be an excellent connector to the north Texas region. It would connect a number of small towns across north Texas.	167720	12-Sep-17
1139433	line	10153	Significant route connection	Alternative route to downtown Bryan. Also, commuter route for students and faculty to west campus of Texas A&M.	167861	12-Sep-17
1139695	line	10153	Significant route connection	A direct connection between San Antonio and Austin is recommended. These two regions are increasingly growing towards eachother, and efforts have already been initiated to provide a continuous bike route between them. The Alamo Area MPO and Capital Area MPO held a joint public workshop in February 2017 to identify potential routes, and CAMPO has included regional connections in its draft Active Transportation Plan. Local groups, including the National MS Society, also host bike rides along this corridor.	168316	19-Sep-17
1139968	line	10153	Significant route connection	A Great connecting, scenic route from Gatesville through Belton, scenic Salado and great communities south to suggested regional routes.	169507	21-Sep-17
1139968	line	10153	Significant route connection	A Great connecting, scenic route from Gatesville through Belton, scenic Salado and great communities south to suggested regional routes.	169507	21-Sep-17
1139976	line	10153	Significant route connection	This small extension would allow the existing Andy K Wells Hike and Bike Trail (currently runs from Downtown Killeen to 38th St) to connect to the proposed trail along Rancier/FM-439. And the land owner, which owns all of the land along the northside of Water St in Killeen (James Gaffney and Laurie Leach) have already committed to donating (no cost) all of the land along that section of Nolan Creek and Water Street to the City of Killeen if an extension of the Andy K Wells Hike and Bike Trail was ever to be constructed.	169515	21-Sep-17
1139978	line	10153	Significant route connection	This route would connect the National Mounted Warfare Museum to the other proposed trail along Rancier/FM-439.	169515	21-Sep-17
1140300	line	10153	Significant route connection	Significant Route in Beaumont District	170223	26-Sep-17
1140303	line	10153	Significant route connection	Proposed Bicycle Route	170223	26-Sep-17
1140312	line	10153	Significant route connection	Proposed Bike Route	170223	26-Sep-17
1140314	line	10153	Significant route connection	Proposed Bike Route	170223	26-Sep-17
1140364	line	10153	Significant route connection	Alternative route connecting downtown El Paso and North Loop	170205	27-Sep-17
1140365	line	10153	Significant route connection	Ongoing project: Trail proposal by the Institute of Healthy Living, connecting Azcarate Park with Riverside Park.	170205	27-Sep-17
1140366	line	10153	Significant route connection	Martin Luther King Jr. Blvd (FM 3255) connecting with Stateline/Chaparral (NM-213). Shoulder starts after Loma Real Ave (North bound)	170205	27-Sep-17
1140367	line	10153	Significant route connection	Potential connection using gateways on Woodrow Bean Transmountain Dr.	170205	27-Sep-17
1140397	line	10153	Significant route connection	This route connects downtown El Paso with US-62 route (to Hueco Tanks and Guadalupe Mountains)	170205	28-Sep-17
1140404	line	10153	Significant route connection	TX-2775 Hueco Tanks Rd	170205	28-Sep-17
1140426	line	10153	Significant route connection	Connection to TX-118	170205	28-Sep-17
1140430	line	10153	Significant route connection	Connection to TX-17 (Fort Davis)	170205	28-Sep-17
1140440	line	10153	Significant route connection	Based on KTMPO 2011 Regional Thoroughfare and Pedestrian/Bicycle Plan.	170705	29-Sep-17
1140446	line	10153	Significant route connection	Based on KTMPO 2011 Regional Thoroughfare and Pedestrian/Bicycle Plan.	170705	29-Sep-17
1140447	line	10153	Significant route connection	Based on KTMPO 2011 Regional Thoroughfare and Pedestrian/Bicycle Plan.	170705	29-Sep-17
1140449	line	10153	Significant route connection	Based on KTMPO 2011 Regional Thoroughfare and Pedestrian/Bicycle Plan.	170705	29-Sep-17
1140454	line	10153	Significant route connection	Possible route to connect KTMPO region to proposed network.	170705	29-Sep-17
1140459	line	10153	Significant route connection	Based on KTMPO 2011 Regional Thoroughfare and Pedestrian/Bicycle Plan.	170705	29-Sep-17
1140461	line	10153	Significant route connection	Proposed route to connect KTMPO region to proposed network.	170705	29-Sep-17
1140464	line	10153	Significant route connection	connect from FM 1637 to Lake Waco Dam Trail	170417	29-Sep-17
1140465	line	10153	Significant route connection	recommended connection from Lake Waco Dam Trail (off-street) to on-street bike lanes along Park Lake Dr.	170417	29-Sep-17
1140466	line	10153	Significant route connection	Connection from Park Lake Dr bike lanes to downtown Waco (and downtown Waco bike lanes).	170417	29-Sep-17
1140467	line	10153	Significant route connection	Connection (NW bound)	170417	29-Sep-17
1140468	line	10153	Significant route connection	E-W route out of Waco metro area	170417	29-Sep-17
1140469	line	10153	Significant route connection	Route connection to downtown West. Good tourist stop.	170417	29-Sep-17
1140470	line	10153	Significant route connection	Connection from West and Leory to Axtell via FM 2311.	170417	29-Sep-17

Comment ID	Type	Category ID	Category	Initial Comment	Creator ID	Create Date
1140471	line	10153	Significant route connection	Connection from Axtell to State Hwy 84 via FM 1330.	170417	29-Sep-17
1140472	line	10153	Significant route connection	Potential regional connection from eastern McLennan County to main route in Fairfield, TX, via State Highway 84 and through Mexia and Teague.	170417	29-Sep-17
1140475	line	10153	Significant route connection	potential connection from regional route on FM 317 to potential Speegleville Rd connectivity	170417	29-Sep-17
1140476	line	10153	Significant route connection	recommended connection route from Cotton Belt Trail to downtown McGregor.	170417	29-Sep-17
1140479	line	10153	Significant route connection	From Waco metro area, take Old Dallas Hwy north to West	170417	29-Sep-17
1140480	line	10153	Significant route connection	The cross-state spine routes need to be connected. The City of Benbrook's plan identifies planned bikeways along this segment of FM 2871/Chapin School Road.	169298	29-Sep-17
1140481	line	10153	Significant route connection	connection to Hillsboro via WIllie Nelson Hwy. At I-35 and SH 81, northbound only (because of frontage road). Southbound route will be different.	170417	29-Sep-17
1140482	line	10153	Significant route connection	southbound connection from downtown Hillsboro to FM 3102	170417	29-Sep-17
1140483	line	10153	Significant route connection	potential connection from Hillsboro to main route in Cleburne	170417	29-Sep-17
1140484	line	10153	Significant route connection	This corridor is the Cotton Belt Trail, existing in the Mid-Cities region and planned to parallel the TexRail Commuter Rail Line and Cotton Belt Commuter Rail Lines.	169298	29-Sep-17
1140485	line	10153	Significant route connection	Extending the Cotton Belt Trail to connect with the Fort Worth - Dallas Regional Bikeway Corridor.	169298	29-Sep-17
1140488	line	10153	Significant route connection	An on-street extension from Ray Roberts Lake State Park would connect to the route through Whitesboro proposed by the Sherman-Denison MPO.	169298	29-Sep-17
1140491	line	10153	Significant route connection		169298	29-Sep-17
1140491	line	10153	Significant route connection		169298	29-Sep-17
1140492	line	10153	Significant route connection		169298	29-Sep-17
1140493	line	10153	Significant route connection		169298	29-Sep-17
1140494	line	10153	Significant route connection		169298	29-Sep-17
1140495	line	10153	Significant route connection	LP 375 is an alternative route that passes through Franklin Mountains State Park	170205	29-Sep-17
1140496	line	10153	Significant route connection	River Park trail connection to New Mexico	170205	29-Sep-17
1140499	line	10153	Significant route connection	Connection to the El Paso Mission Trail in Ysleta, Socorro and San Elizario.	170205	29-Sep-17
1140552	line	10153	Significant route connection		164797	2-Oct-17
1140555	line	10153	Significant route connection	Beautiful route north to Harleton with easy access to Enoch's Stomp Vineyard & Winery. Several miles of new construction on FM 450 with wide shoulders.	164797	2-Oct-17
1140556	line	10153	Significant route connection		164797	2-Oct-17
1140557	line	10153	Significant route connection	FM 726 is a preferred route by local and regional bicyclists to visit Lake o the Pines and enjoy Overlook Point for a rest stop and photo op.	164797	2-Oct-17
1140558	line	10153	Significant route connection		164797	2-Oct-17
1140571	line	10153	Significant route connection	SH 49 provides a picturesque route from Jefferson, Texas to Daingerfield, Texas. Daingerfield is home to Daingerfield State Park and is often visited by locals and tourists alike for picnicking, camping, boating, fishing, swimming, hiking, and nature study.	164797	2-Oct-17
1140576	line	10153	Significant route connection	SH-154 commonly selected route for local and regional bicyclists. Low traffic route.	164797	2-Oct-17
1140580	line	10153	Significant route connection		164797	2-Oct-17
1140581	line	10153	Significant route connection		164797	2-Oct-17
1140582	line	10153	Significant route connection		164797	2-Oct-17
1140629	line	10153	Significant route connection		164797	3-Oct-17
1140630	line	10153	Significant route connection		164797	3-Oct-17
1140631	line	10153	Significant route connection	FM 134 is often traveled by local and regional bicyclists. This route allows for access to Caddo Lake State Park. Caddo Lake is the largest natural lake in the south and the only natural lake in Texas.	164797	3-Oct-17
1140632	line	10153	Significant route connection	SH 49 provides a picturesque route from Jefferson, Texas to Daingerfield, Texas. Daingerfield is home to Daingerfield State Park and is often visited by locals and tourists alike for picnicking, camping, boating, fishing, swimming, hiking, and nature study.	164797	3-Oct-17
1140651	line	10153	Significant route connection	Route commonly utilized by local bicyclists due to low traffic and access to FM 449.	164797	4-Oct-17
1140654	line	10153	Significant route connection	FM 449 & FM 2208 commonly traveled by local and regional bicyclists for nice views and low traffic.	164797	4-Oct-17

Users(*): 58
Lines: 105 **Line comments: 6**
Points: 99 **Point comments: 3**

Note: * when allow anonymous users, the data won't be precise as multiple users may use the same computer to input

Technical Memorandum 2

Appendix C:
Wikimap Online Input Tool: Stakeholder Feedback and Project Team Responses

Jacobs for TxDOT Public Transportation Division (PTN)

March 2018

Acknowledgements

Prepared for:	TxDOT Public Transportation Division (PTN)
Prepared by:	Carl Seifert
Quality Reviewers:	Nishant Kukadia and Stephanie Lind

Area Location	ConceptualRte	ProposedRte	Comment/Issue	Point Comment IDs (25xxxx)	Line Comment IDs (11xxxxx)	Resolution	Response
Texarkana	Cross-state Spine	Rail Corridor Alternative	Rte on active railway	4117-8		Mark as Rail Corridor Alternative	Retained on network. 1) listed in local bike plan as regional route, 2) Currently active railway, but unknown future usage.
	Cross-state Spine	Modified Location	Currently US 82 Not suitable for riders	4112, 4113, 4116, 4263	40302	Keep US82 and add alternative	US 82 retained on network. Local alternative adopted as Regional Route. US82 improvements can make this a good route. SUP on rail can be built as well.
	n/a	n/a	Bicycle Destination	4593		Bicycle Destination	Adopted local recommendation to connect to bicycle destination.
Sherman-Denison	n/a	Cross-state Spine	No coverage of this MPO	4457	39400, 39407	Utilized local plans to add routes	Locally preferred routes were adopted into the network as a cross-state spine.
	n/a	Regional Route	No coverage of this MPO		39409, 39412	Utilized local plans to add routes	Locally preferred routes were adopted into the network as a regional route
	n/a	Rail Corridor Alternative	East-West connection requested		39401, 39415, 39420	Added routes along railway alternatives	E-W connection follows USBRS 'corridor'. Locally preferred routes were added, but identified as on active, unknown, or inactive railways.
	n/a	Spur	East-West connection requested		39401, 39415, 39420	Also added an on-road parallel feature	Between Bells and Paris (East of Denison), On-road parallel facility was added because locally preferred RR was identified as active.
	n/a	n/a	Bicycle Destination	3344-3351, 3846, 4457,4479		Noted on project record	Local bicycle destinations were noted to project record. Routes nearby/adjacent to these destinations were added where suggested.
	n/a	n/a	Bicycle Destination		39408	Noted on project record	Large recreational ridership as indicated by Strava counts. Route not added to network because bypasses Sherman-Denison.
	n/a	Regional Route	Connect Ray Roberts SP to Sherman-Denison		40488	Utilized locally preferred to add route	Locally preferred routes were adopted into the network as an on-street regional route. US 377 mostly has 9 foot shoulders with 55-60 mph during this segment.
	n/a	n/a	Bicycle Destination		39414	Noted on project record	Connection to Oklahoma. Locally significant, but not as safe in comparison to the Carpenters Bluff Bridge connection to Oklahoma.
Bryan-College Station	Regional Route	Modified Location	Local rtes recommended instead		39323, 39433	Modified slightly	Locally preferred route used, utilizes existing on-street bicycle infrastructure. Alternative route not used.
	n/a	Regional Route	Local rtes recommended instead	3128	39322	Added locally preferred rte	Locally preferred route to Lake Bryan added. Current route removed for more direct route
	Regional Route	Modified Location	Local rtes recommended instead		39321	Change Rtes to locallly preferred	Popular local route added to the network as a regional route connection to Caldwell.
	n/a	Regional Route	Utilize existing SUP		39432	DID NOT MODIFY.	Suggested SUP did not connect to other routes.
	n/a	n/a	Bicycle Destination	3134, 3173, 3393-5, 3177		Noted on project record	Local bicycle destinations (Lake Bryan, Sam Houston SP, Blinn College and Texas A&M Univ were noted to project record.
	n/a	n/a	Bicycle Infrastructure	3174		Added regional route to nearby SP	Added new regional route to nearby SP and Lake
Longview/ East Texas	n/a	Regional Route	Local rtes addition recommended		40552, 40555-8, 40571, 40576, 40581-2, 40629-32, 40651, 40654	Added all locally preferred rtes	Locally preferred routes were adopted into the network as regional routes
	n/a	n/a	Bicycle Destination	4590-2, 4594, 4596, 4696		Noted on project record	Local parks, lakes, historic and scenic towns were noted to project record as bicycle destinations
	n/a	n/a	Bicycle Infrastructure	4595		Noted on project record	Local bicycle lane infrastructure noted on project record. Also routes adopted along infrastructure corridor.
	n/a	Regional Route	Local rtes addition recommended		40580	Added locally preferred rte with modifications	Adopted local recommended route with a small modification b/c a low volume road with limited shoulders provided a better detour around low-scoring, high-speed, narrow shoulder segments.
Beaumont/ East Texas	n/a	Regional Route	Local rtes addition recommended		40300, 40303	Added locally preferred rte	Locally preferred US 69 Route added. Not suitable for bicycles now but connects Lufkin to Kountze and areas east.
	n/a	Regional Route	Local rtes addition recommended		40312	Added locally preferred rte	Connects Lufkin to two regional routes
	n/a	Regional Route	Local rtes addition recommended		40314	Added modified version of locally preferred rte	Better scoring route between US59 and Onalaska was found and utilized.
	n/a	Spur	DFW to Houston Spur/Spine route		40492-3	Added locally preferred rte	Locally preferred US 59 Route added. Not suitable for bicycles now but connects Lufkin to Sam Houston Nat'l Forest, Shepard and other cities.
Tyler	Regional Route	Modified Location	Local rtes recommended instead	4224	40633	Change Rtes to locallly preferred	Route location modified away from route not as suitable for cyclists.
	Regional Route	Modified Location	Local rtes recommended instead		39352	Change Rtes to locallly preferred	Locally preferred route modification was adopted.
	Regional Route	Modified Location	Local rtes recommended instead		39338	Change Rtes to locallly preferred	Locally preferred route modification was adopted.
	n/a	n/a	Bicycle Destination	4223		Noted on project record	Local park noted to project record as bicycle destinations
	Regional Route	Rail Corridor Alternative	RR ROW already purchased for SUP		39332	Add rail ROW alternative	Added local rail corridor alternative between Whitehouse and Troupe. Rail ROW is still listed as Active by TxDOT data. Local comment indicates ROW was purchased for SUP.
Dallas-Fort Worth	n/a+B32:H42	Regional Route	Cotton Belt Trail Recommended		40484-5	Added new local Rail Trail	Existing, funded, and planned segments of the Cotton Belt trail were included as a regional route.
	n/a	Regional Route	Extend Regional Rte to connect with Sherman Denison area Rte		40488	DID NOT MODIFY.	Additional N-S RegionalRte a few miles away just added.
	n/a	Spur Route	Consider US 175 as spur Rte btwn Dallas and Houston		40491-94	DID NOT MODIFY	Did not add route. Currently proposed spur and regional routes have lower traffic speeds, volumes and fewer trucks. Wider shoulders may come in time.
	Spur	Spur Route Alternative	Add on-st alternative to Mineral Wells Trail		40486	Added new local on-street alternative	Adoped locally preferred on-street historic Bankhead Hwy. This alternative features many local roads with unknown quantitative scores (data) and many of the segments with data score poorly.
	n/a	Spine Route	Add missing Segment in Benbrook		40480	Segment added.	Segment was missing. Corrected based on stakeholder input.
	n/a	Regional Route	Include Dallas LOOP project	n/a	n/a	Added major local bicycle destination	Local off-road shared use path, Dallas LOOP, is largely funded and/or built. Northwest portion was already a part of N-S Spine through Dallas, but the remainder of the loop was added.
	n/a	Modified Location	US 69 suggested as alternative rte	4459	40487	DID NOT MODIFY	Stakeholder suggests routing on US69 instead of SH34. The shoulders are wider, volumes lower, and speeds lower on SH34 and other local road.
	n/a	n/a	Bicycle Destination	4473, 4474-8, 4480-1		Noted on project record	Local transit stations, downtown areas, parks, and trails noted to project record as bicycle destinations.
	n/a	n/a	Bicycle Infrastructure	4253-4		Noted on project record	Two areas where bicycle infrastructure is needed. Noted in project record.
	Spur	Spine Route	Recommendation	4456		Noted on project record	Stakeholder suggests changing spur route to Cross-state spine. USBRS 84 conceptual corridor does not align with the route suggested by stakeholder. USBRS 84 'corridor' is a 50-mile wide suggestion and actually is located north of DFW closer to the US 82 or US 380 corridor.
	Spur	Spine Route	Recommendation	4454		Noted on project record	Stakeholder suggests changing spur route to Cross-state spine. USBRS corridors are suggestions, which must be refined by state and regional stakeholders. USBRS corridors are just 50-mile wide suggestions developed without analysis or Texas input.
Waco	Regional Route	Modified Location	Local rtes addition recommended	4453	40463	Change Rtes to locallly preferred	Adoped locally preferred alternative.
	n/a	Regional Route	Local rtes addition recommended		40469-72	Suggestion taken, but better route chosen	E-W connection suggested. Instead of US84, a combination of SH164 and other routes were selected due to lower volumes and fairly consistent 8'+ wide shoulders.
	n/a	Regional Route	Local rtes addition recommended		40473, 40476	Partially utilized in reroute	Created new regional rte south from Waco to Mother Neff SP and on into Temple.
	n/a	Regional Route	Significant Route Connection		40475	DID NOT MODIFY	As a new Rte into McGregor was created, this rte is unnecessary
	n/a	n/a	Bicycle Destination	4336, 4338		Noted on project record	Local park and private trail noted on project record
		n/a	Bicycle Infrastructure	4334, 4337		Rerouted and avoided lack of bicycle infrastructure.	Rerouted and avoided lack of bicycle infrastructure.
	n/a	Regional Route	Local rtes addition recommended		40464	DID NOT MODIFY	Locally preferred route was short, on local roads and only connected to Waco Dam Trail, which seems to be a local destination with no connectivity to regional destinations. Other routes near this one were modified to provide regional connectivity
	n/a	Regional Route	Local rtes addition recommended		40465	DID NOT MODIFY	Locally preferred route was short and disconnected.
	n/a	Regional Route	Local rtes addition recommended		40466	Partially utilized in reroute	Partially utilized this route suggestion.
	n/a	Regional Route	Local rtes addition recommended		40467	DID NOT MODIFY	Locally preferred route was short and disconnected because formerly preferred route was rerouted.
	n/a	Regional Route	Local rtes addition recommended		40468	Partially utilized in reroute	Added new N-S connection with DFW along IH35. Utilized this locally preferred route to connect to Downtown Waco.
	n/a	Regional Route	Local rtes addition recommended		40479, 40481-3	Partially utilized in reroute	Added new N-S connection with DFW along IH35. Utilized these locally preferred routes entirely.
	n/a	Regional Route	Local rtes addition recommended		40459, 40461	DID NOT MODIFY	Utilized other roadways with better quantitative scores instead of these locally preferred routes
	n/a	Regional Route	Local rtes addition recommended		39550	DID NOT MODIFY	Local, winding route connecting two local lakes at dead ends, no regional or statewide significance. Maybe added at a later point.
	n/a	Regional Route	Local rtes addition recommended		39551	Added route to W-E, Killeen-Temple connecting route	This short route aligns with a planned future Bike-Ped SUP along US190 according to the KTMPO Regional Thoroughfare and Ped/Bike Plan.
	n/a	Regional Route	Local rtes addition recommended		39968	Partially utilized in reroute	A portion of this path was used btwn McGregor and Salado. Alternate route between Salado and Austin was found using Austin area Bike Plan

Area Location	ConceptualRte	ProposedRte	Comment/Issue	Point Comment IDs (25xxxx)	Line Comment IDs (11xxxxx)	Resolution	Response
Temple	n/a	Regional Route	Local rtes addition recommended		39969	DID NOT MODIFY	This route is parallel to the SUP along S Nolan Creek, which was adopted into the network. This on-road facility is valuable, but due to close proximity to the SUP, it was not selected.
	n/a	Regional Route	Local rtes addition recommended		39970, 39971	Partially utilized in new route	This stakeholder adds important information about routing across a local dam. The expense would be prohibitive however the scenic view may be desirable. Future officials may decide to route this dam route as for advanced cyclists only and not make facility improvements.
	n/a	Regional Route	Local rtes addition recommended		39973	DID NOT MODIFY	This short N-S route connects Fort Hood to a local college. This valuable connection is noted to the project record, but it does not provide regional or statewide connectivity. Not noted in KTMPO Regional Thoroughfare and Ped/Bike Plan
	n/a	Regional Route	Local rtes addition recommended		39974	Partially utilized in new route	According to the stakeholder, this on-road route connects Central Texas College and TAMU Central Texas. It has been utilized as a E-W route south of Killeen. Roads utilized are noted for on-road facilities in the KTMPO Regional Thoroughfare and Ped/Bike Plan
	n/a	Regional Route	Local rtes addition recommended		39975	DID NOT MODIFY	This short, 1-mile long route connects two locations within a federal DOD property. This connection is noted to the project record, but it does not provide regional or statewide connectivity.
	n/a	Regional Route	Local rtes addition recommended		39976	Partially utilized in new route	Added portion of this route following S Nolan Creek SUP as identified in the KTMPO Regional Thoroughfare and Ped/Bike Plan. Did not add parallel on-road route along FM439.
	n/a	Regional Route	Local rtes addition recommended		39977	DID NOT MODIFY	This short, 2/3 mile long, route connects a SUP to a city park. This connection is noted to the project record, but it does not provide regional or statewide connectivity. Further investigation locally may identify other connections.
	n/a	Regional Route	Local rtes addition recommended		39978	Partially utilized in new route	Added portion of this route following US 190 as identified in the KTMPO Regional Thoroughfare and Ped/Bike Plan. Did not connect to parallel on-road route along FM439.
	n/a	Regional Route	Local rtes addition recommended		40440	Adopted locally preferred route	Route follows US 190. FM116, & SH9 as identified in the KTMPO Regional Thoroughfare and Ped/Bike Plan. Connects Killeen to Spine Route.
	n/a	Regional Route	Local rtes addition recommended		40446	Partially utilized in new route	This suggested route has been utilized as a E-W route south of Killeen and as part of a N-S route south of Temple. Roads utilized are noted for on-road facilities in the KTMPO Regional Thoroughfare and Ped/Bike Plan
	n/a	Regional Route	Local rtes addition recommended		40447	DID NOT MODIFY	Alternate E-W route out of Temple found using KTMPO Regional Thoroughfare and Ped/Bike Plan
	n/a	Regional Route	Local rtes addition recommended		40449	DID NOT MODIFY	As alternate E-W Route out of Temple was identified, this connection was not utilized.
	n/a	Regional Route	Local rtes addition recommended		40454	Partially utilized in new route	Utilized KTMPO Regional Thoroughfare and Ped/Bike Plan and stakeholder proposed route to connect Temple to College Station area.
	n/a	n/a	Bicycle Destination	3505, 3536		Route additions/modifications connect to these destinations	Route additions/modifications connect to these destinations
	n/a	n/a	Bicycle Destination	3424-7, 3503, 3536, 3915		Noted on project record	Local bicycle destinations, facilities, trails, and amenities noted on project record.
	n/a	n/a	Bicycle Infrastructure	3504-5		Noted on project record	Stakeholder identified that bike trails and infrastructure need to be added at these locations.
San Antonio	n/a	Regional Route	Significant Route Connection		39695	Added Connecting Rte btwn San Antonio and Austin	Generally followed roadways paralleling I35 on west side, following wikimap feedback, conversations with AAMPO staff and using Strava data.
	Spine Route	Modified Location	Local rtes recommended	3646	39678	Modified existing route to local alternative	Lower stress alternative recommended by stakeholders was adopted.
	Spine Route	Modified Location	Local metro connection recommended		39679	Modified existing route to local alternative	Lower stress alternative recommended by stakeholders was adopted.
	n/a	n/a	Bicycle Destination	3636		Noted on project record	Local trips and excursions along with names of local trails will be noted to the project record. SUP's along greenways and trails were previously included as a N-S spine route.
	n/a	n/a	Only for fearless cyclists	3638, 3644-5, 3647-8		Noted on project record	N-S spine route north and south of San Antonio is noted as needing improvement to be closer to all ages and abilities. Currently SA bicycle level of stress scores are high stress.
Austin	n/a	n/a	Bicycle Infrastructure	n/a	n/a	Noted on project record	Austin MPO and TxDOT District staff noted that the improvements to IH35 will include SUP through several counties.
Corpus Christi	Regional Route	Modified Location	Not suitable for bicycle use	3077		DID NOT MODIFY	Either the parallel railroad ROW or the SH 44 Frontage Rd may provide connectivity into central Corpus Christi. Future shoulder widening may also provide a bicycle facility
	Regional Route	Modified Location	Not suitable for bicycle use	3078		Changed Rte to locally preferred alternative	Modified routes according to local active transportation plan as identified in locally provided GIS files.
Houston	Spine Route	Modified Location	Local rtes recommended		39228	DID NOT MODIFY	This line comment is parallel to 1139229, which was accepted
	Spine Route	Modified Location	Local rtes recommended		39229	Changed Rte to locally preferred alternative	Utilized locally prefered routes as identified in wikimap and local GIS files.
	n/a	n/a	Bicycle Destination	2987-9		Noted on project record	Local bicycle destinations (Galveston, rides, parks, and trails) were noted on project record.
	Spur	Modified Location	Not suitable for bicycle use	2986, 2990-1, 2993		Modified route to suggested alternative	Modified spur route to follow locally preferred alternative.
	Spur	Modified Location	Functioning rail line?	2992		Maintained location along rail corridor	This route travels down a rail corridor. Off-road SUP within RR ROW or along highway would be preferred to on-street. TxDOT data indicates this rail section is inactive.
El Paso	Spine Route	n/a	Sharing information	4242		No change	While section doesn't currently connect to US 20, these improvements may be possible in the future
	Spine Route	Modified Location	Local rtes recommended	4393, 4260	40338	Modified Rte to locally preferred alternative	Modified rte follows preferred alternative except for segments that are not planned to be protected bike lanes or shared use paths.
	Spine Route	Modified Location	Rtes modifications recommended		40364, 40499, 40365	DID NOT MODIFY	Parallel rte is too close to other El Paso Rtes. These may be included in future studies.
	n/a	Regional	Rtes modifications recommended		40366	DID NOT MODIFY	Good connectivity into New Mexico, but not to any known bicycle destinations.
	Spine Route	Modified Location	Rtes modifications recommended		40397	Adopted idea, modified route	Better local rte identified following separated bicycle accommodations (FM659 and SH375). Similar to suggestions in 40495 and 40367
	n/a	Regional	Rtes modifications recommended	4368-70, 4405, 4367	40495, 40367	Added locally preferred alternative	Generally followed locally preferred alternative to create a challenging mountain crossing north of El Paso.
	Spine Route	Modified Location	Rtes modifications recommended		40496	DID NOT MODIFY	Additional New Mexico connection which doesn't appear in Local Bike Plan. What does this additional route provide? What does it connect to?
	n/a	Regional	Rtes modifications recommended		40404	Added locally preferred alternative	5 mile road to SP included.
	Spine Route	n/a	Rte issues noted	4371, 4412-14		Changed Rte to Spine Route	Local stakeholder input included Regional Bikeway Plan connecting communities southeast of El Paso. Upon stakeholder request, flipped Far West Alt A & B. Also, made rte between El Paso and Guadelupe SP a Spur Route.
	Various	n/a	Sharing information	4415-18		Purely informative	Purely informative
	Spine Route	Alternative Rte	Alternative Rte proposed		40263, 40265	Alt Rte added as Regional Rte	Locally preferred alternative adopted.
	n/a	n/a	Significant Route Connection		40426, 40430	Noted on project record	Signifant route connections noted. These connecting routes have narrow to no shoulders but have limited vehicle volumes. These may be included in future studies.
	n/a	n/a	Routing concerns	4412-4, 4272, 4371		Noted on project record	Stakeholders identified border patrol checkpoint and area with limited services/amenities.
	n/a	n/a	Bicycle Destination	4366, 4411		Noted on project record, modified some routes to connect de	Local bicycle destinations (Plazas, SPs, trails, lookouts) noted to project record.
	n/a	n/a	Bicycle Destination	4415-7		Noted on project record	West Texas bicycle destinations (Adobe hotel, historic site, and McDonald Observatory) noted on project record.
	n/a	n/a	Only for fearless cyclists	4418		Noted on project record	Stakeholders identified local alternative route and then identified it as only for fearless cyclists. Alternative route created and noted as only for fearless.
San Angelo-Midland	n/a	Regional	Local rtes recommended		39419	Added locally preferred alternative	Locally preferred rte added. It has greater than 8' shoulders along the entire stretch of SH158
	n/a	n/a	Bicycle Destination	4493		Noted on project record	Local bicycle destinations in San Angelo were noted to the project record.