



MEETING AGENDA

TxDOT Bicycle Advisory Committee (BAC)
January 22, 2018 | 10:00 A.M.
200 East Riverside Drive, Bldg. 200, Conference Room C (RA200C)
Austin, Texas 78704
Teleconference Available for BAC Members

1.	Call to Order.
2.	Safety briefing.
3.	Approval of minutes from October 27, 2017, BAC meeting. (Action)
4.	Report from BAC Chair.
5.	Report from TxDOT's Public Transportation Division Director regarding status of TA Set-Aside and statewide bicycle/pedestrian matters.
6.	Presentation on TxDOT's Texas Bicycle Tourism Trails Study. (Action)
7.	Presentation on TxDOT's research project, <i>Economic Impacts of Bicycles in Texas</i> .
8.	Presentation on TxDOT's new Bicycle and Pedestrian webpage.
9.	Update from committee members on local and statewide issues.
10.	Public comment – public comments will only be accepted in person.
11.	Discussion of agenda items for future BAC meetings. (Action)
12.	Adjourn. (Action)

I certify that I have reviewed this document and that it conforms to all applicable Texas Register filing requirements.

CERTIFYING OFFICIAL: Leonard Reese, Associate General Counsel, (512) 463-8630.

AGENDA ITEM 6

TxDOT Bicycle Tourism Trails Study Update

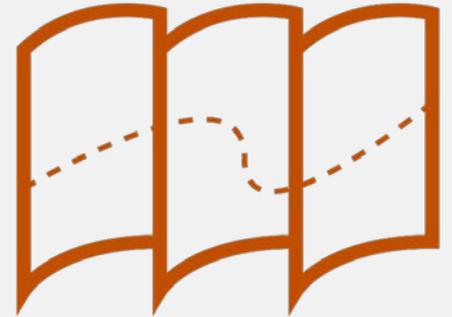
A close-up, shallow depth-of-field photograph of a bicycle's rear wheel and drivetrain. The focus is on the black cassette and chain, with a yellow rear dropout and a silver axle nut visible. The spokes of the wheel are blurred in the foreground and background, creating a sense of motion and depth.

TxDOT BAC Meeting

January 22, 2018

Agenda

- Example Network
- Bikeway Types and Design Criteria
- Next Steps
- Appendix Slides: BTTS Supporting Documentation



Texas approach to bicycle tourism

TxDOT's Bicycle Tourism Trails Study is Texas' first statewide investigation into bicycle tourism. The study has:

- Established a methodology to form a bicycle tourism network
- Identified bikeway designs acceptable for all-ages-and-abilities
- Estimated rough construction and maintenance costs (TBD)
- Created excitement about long-distance bicycle infrastructure
- Initiated dialogue about bicycle tourism within TxDOT and between state agencies

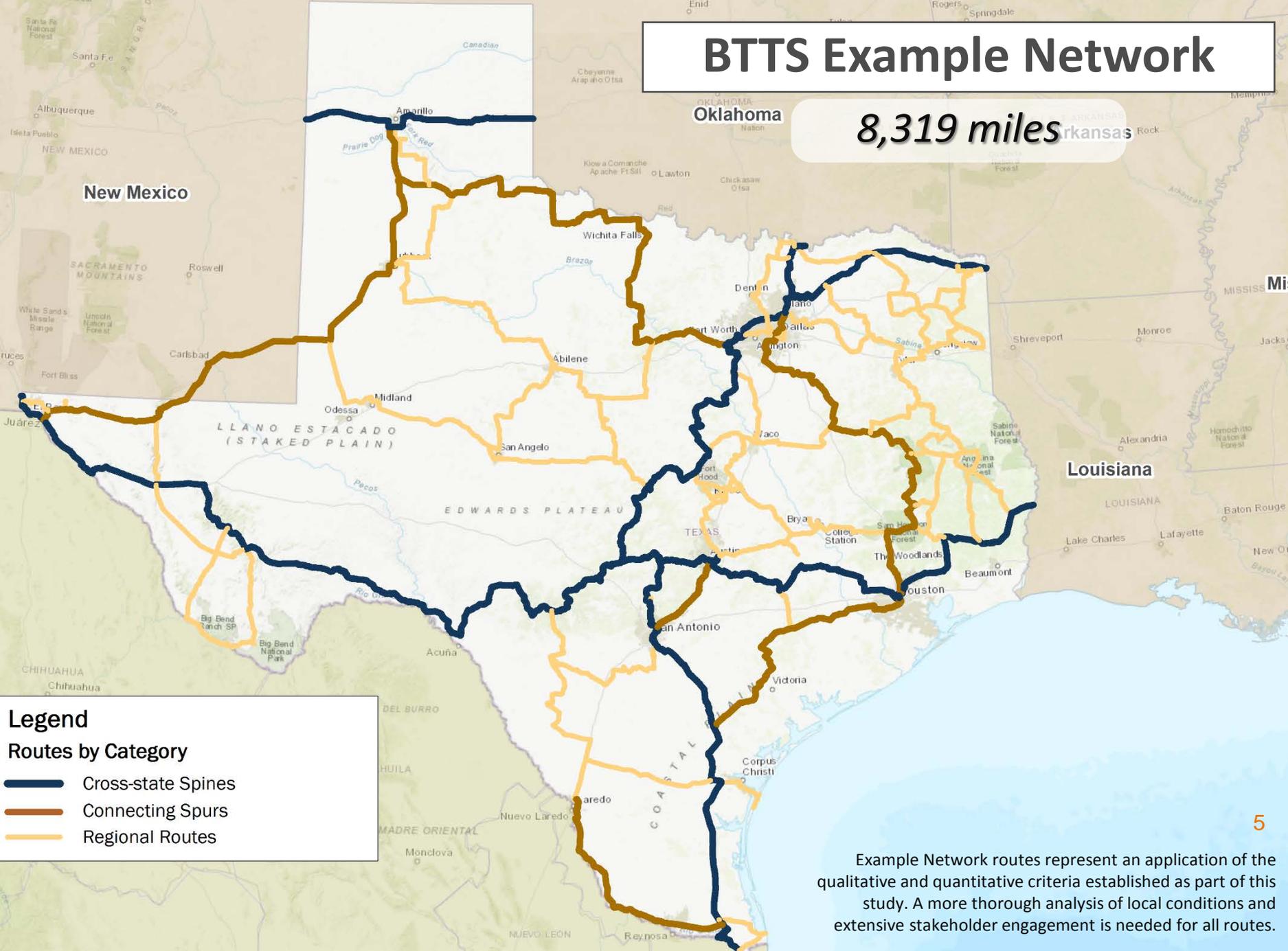
Stakeholder Outreach Overview

Type	Number of Meetings	Stakeholder Outreach Participation Level*
TxDOT's Bicycle Advisory Committee <ul style="list-style-type: none"> BAC meets quarterly (5) Working Group meets monthly (12) 	17	Inform/Consult/Involve/Collaborate
TxDOT Divisions (DES, TRF, CON, MNT, TPP)	6	Inform/Consult/Involve
TxDOT Districts <ul style="list-style-type: none"> TP&D Directors Quarterly Meeting (1) TP&D Directors & Bicycle Coordinators (Wikimap) 	1 + Wikimap	Inform/Consult
Other Texas Agencies <ul style="list-style-type: none"> Texas Parks & Wildlife Texas Historical Commission Texas Economic Development & Tourism 	1	Inform/Consult
Metropolitan Planning Organizations (1) and Councils of Governments (1)	2 + Wikimap	Inform/Consult
BikeTexas	2	Inform/Consult

*Based upon the International Association for Public Participation (IAP2) Public Participation Spectrum

BTTs Example Network

8,319 miles



Legend
Routes by Category

-  Cross-state Spines
-  Connecting Spurs
-  Regional Routes

Example Network routes represent an application of the qualitative and quantitative criteria established as part of this study. A more thorough analysis of local conditions and extensive stakeholder engagement is needed for all routes.

Defining route categories

- Route categories roughly indicate statewide priority.

Cross-state Spines	<ul style="list-style-type: none">• 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.
Connecting Spurs	<ul style="list-style-type: none">• Routes of statewide significance which connect major urban areas, state/national parks, and other bicycle destinations.• Provide important links between cross-state spines, with end points within state boundary.
Regional Routes	<ul style="list-style-type: none">• Routes of regional significance which connect to natural/scenic areas and frequently form loops nearby or between mid-size or smaller population centers.

BTTTS Example Network Analysis by Category

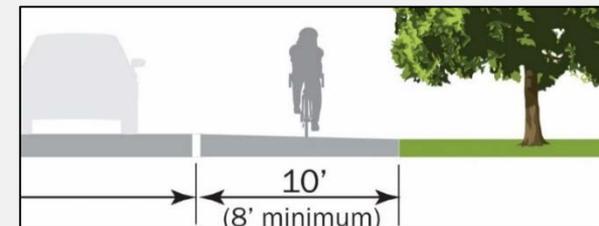
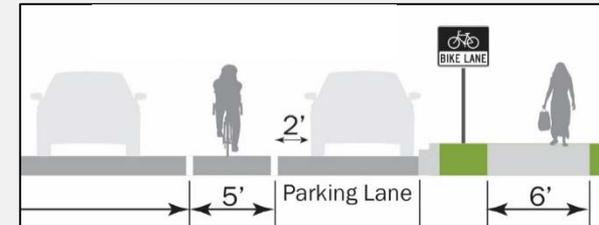
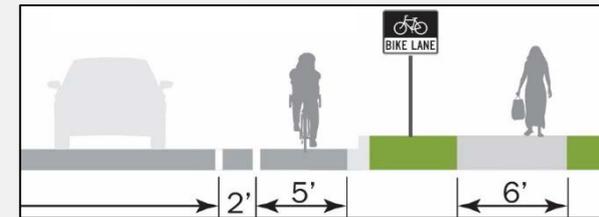
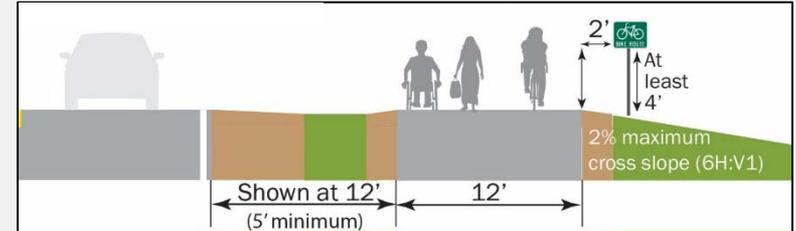
Route Category	Miles	Percent of Total
Cross-State Spines	2,346	28%
Connecting Spurs	1,809	22%
Regional Routes	4,163	50%

Summary of improvement status across the Example Network:

- **42%** of the network meets BTTTS minimum bikeway design recommendations
- **58%** requires construction improvements

BTTs recommended bikeway types and design criteria

- Shared use path/Sidepath
- Buffered bike lane
- Bike lane
- Wide outside shoulder



All proposed design recommendations meet or exceed the current TxDOT's Roadway Design Manual, AASHTO's Guide for the Development of Bicycle Facilities and the Texas MUTCD.

BTTs Example Network

Oklahoma

Existing vs Future

New Mexico

Louisiana

Legend

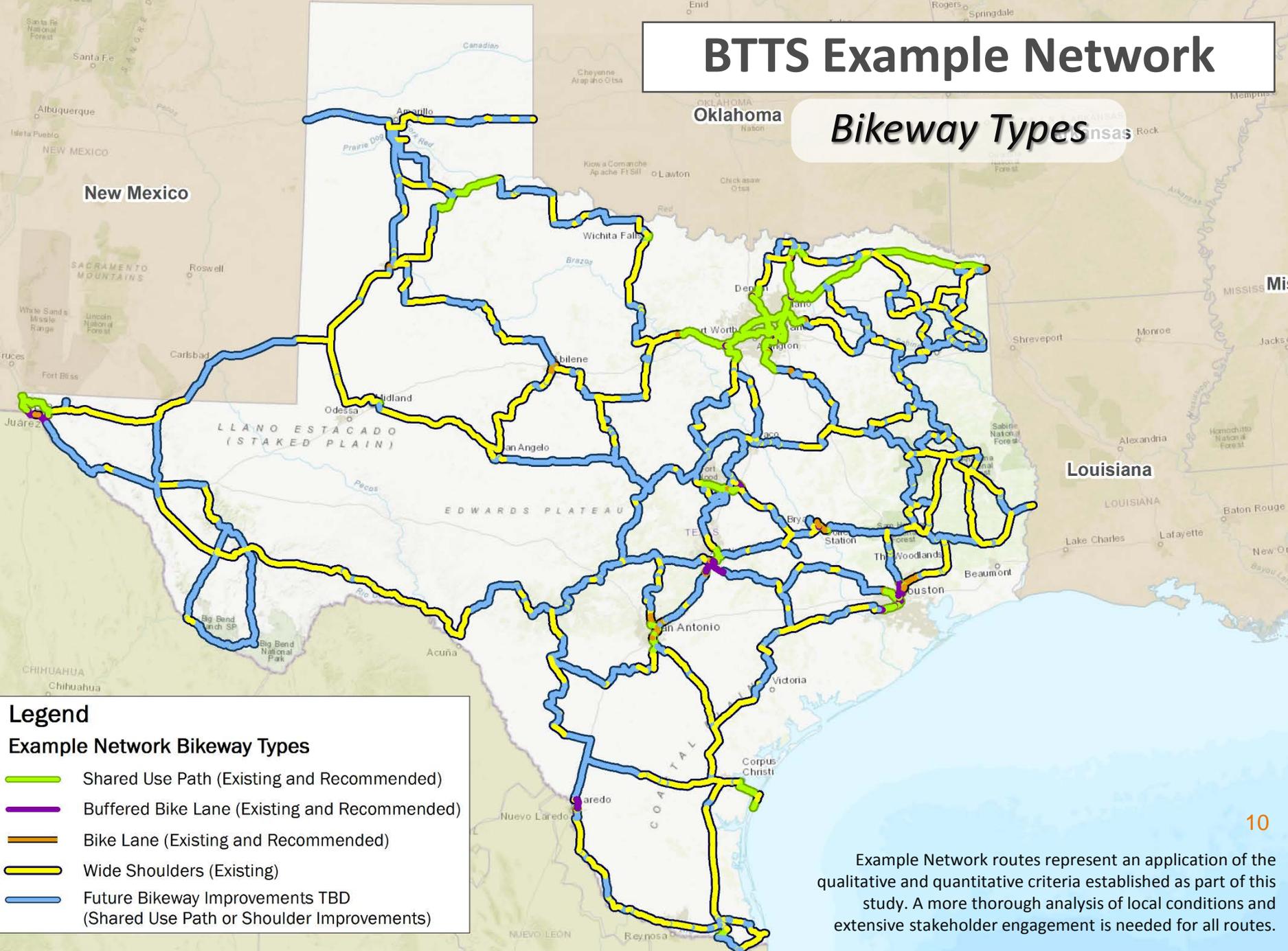
Example Network Bikeway Accommodations

-  Existing (meets recommended BTTs design minimums) **42%** of total
-  Future (improvements needed) **58%** of total

Example Network routes represent an application of the qualitative and quantitative criteria established as part of this study. A more thorough analysis of local conditions and extensive stakeholder engagement is needed for all routes.

BTTs Example Network

Bikeway Types



Legend

Example Network Bikeway Types

- Shared Use Path (Existing and Recommended)
- Buffered Bike Lane (Existing and Recommended)
- Bike Lane (Existing and Recommended)
- Wide Shoulders (Existing)
- Future Bikeway Improvements TBD (Shared Use Path or Shoulder Improvements)

Example Network routes represent an application of the qualitative and quantitative criteria established as part of this study. A more thorough analysis of local conditions and extensive stakeholder engagement is needed for all routes.

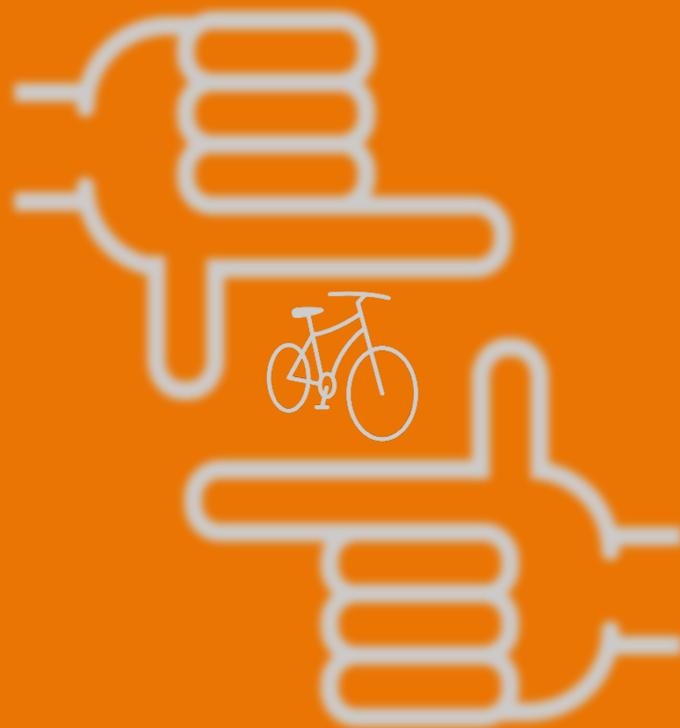
BTTTS Example Network Bikeway Types Analysis

Bikeway Accommodation	Shared Use Path (SUP)/ Sidepath	Buffered Bicycle Lane	Bicycle Lane	Wide Shoulder	To Be Determined
Meets BTTTS Bikeway Requirements	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

BTTS Example Network Geographic Analysis

Economic Development and Tourism-related characteristics	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%

Next Steps



Texas approach to bicycle tourism

	Texas Approach
Bicycle user focus <i>(advanced cyclists vs 8-80)</i>	All ages and abilities (8 to 80 years old) Local users and tourists
Lead agency	To be determined TxDOT? Texas Parks & Wildlife? Texas Economic Development & Tourism?
Product Promotion	To be determined
Interagency coordination <ul style="list-style-type: none">• <i>TxDOT</i>• <i>Texas Parks and Wildlife</i>• <i>Texas Historical Commission</i>• <i>Texas Economic Development & Tourism</i>• <i>Local Governments</i>• <i>Bicycle advocacy groups (BikeTexas)</i>	To be determined

BTTS bikeway types:

Capital and O&M Costs Summary Comparison

Bikeway Type	Cost Ranges per mile (thousands)	
	Construction Costs	Annual Operation and Maintenance Costs
Construct Shared Use Path ¹		
Restripe Roadway for Buffered Bicycle Lane ²		
Widen Roadway for Buffered Bicycle Lane ²		
Restripe Roadway for Bicycle Lane ³		
Widen Roadway for Bicycle Lane ³		
Widen Roadway for Wide Outside Shoulder ⁴		

NOTE: Construction costs do not include intersection considerations, right-of-way acquisition, contingency, mobilization, or project development. All costs are based upon TxDOT Average Bid Prices for Construction and Maintenance. All prices are still being refined as of 12/12/17.

1. Typically 12' wide with 6" Continuously Reinforced Concrete Pavement.

2. Typically 7' wide (5' lane and 2' buffer space identified with pavement markings) with 8" Continuously Reinforced Concrete Pavement on each side.

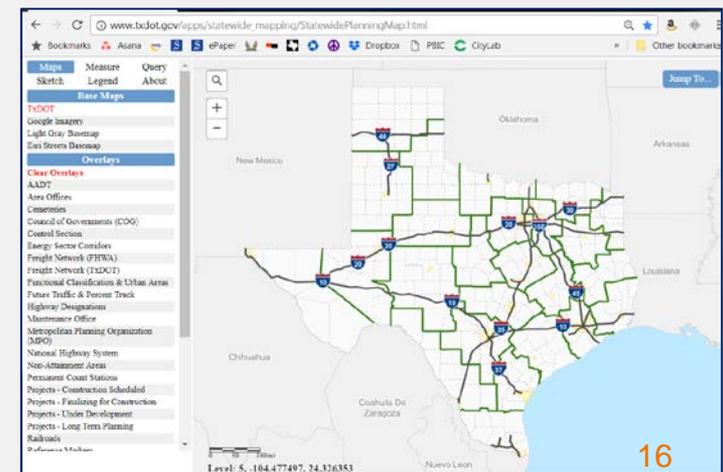
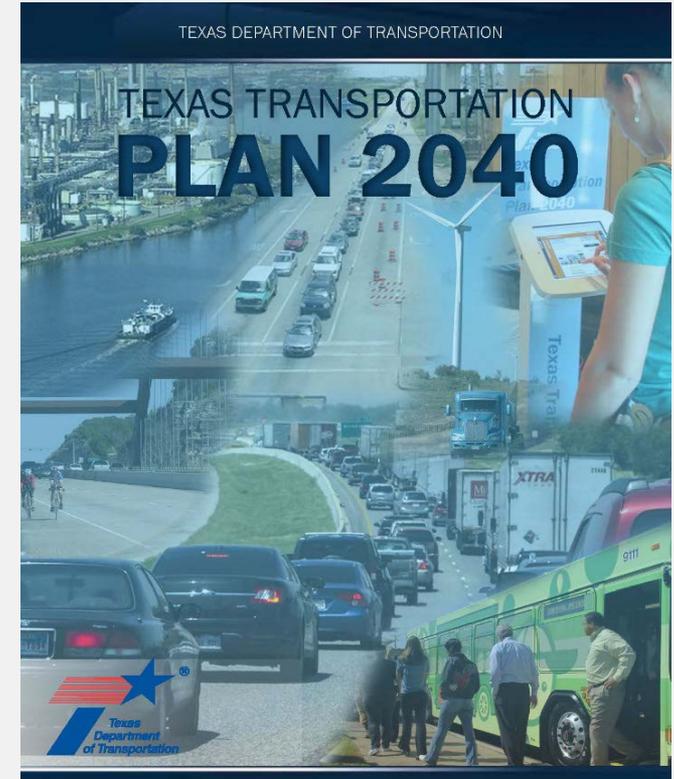
3. Typically 5' wide with 8" Continuously Reinforced Concrete Pavement on each side.

4. Typically 10' wide with 8" Continuously Reinforced Concrete Pavement on each side.

Bicycle tourism next steps

Ideas for Potential Next Steps:

- Incorporate aspects of Bicycle Tourism Trails Study into TxDOT's Texas Transportation Plan 2045.
- Make Example Route Network available on TxDOT's Statewide Planning Map.
- Take steps toward creating Texas Tourism Trails **Plan** or Texas Bicycle **Plan**
- BAC Recommendations
- Others?



Questions?

Bicycle Advisory Committee

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TxDOT: 512-374-5213



Public Transportation (PTN)

Teri Kaplan

Bonnie Sherman

Appendix Slides:
BTTS Supporting Documentation



BTTTS Documentation Products

Tech Memos

Stand alone products describing portions of the study. These include:

1. Benefits of Bikeways and Trails
2. Routing Criteria and Example Network Development
3. Bikeway Design Criteria
4. Stakeholder Engagement

Static and Digital Maps

- Includes created and obtained GIS Files

Summary

- Graphic-oriented, 4-page, high-level overview

Final Report

- Executive Summary
- Contents of Tech Memos integrated into a single document
- Tech Memos included in appendix

Route Development Process

Preliminary Routes

BAC Working Group mapping exercise

Revised according to qualitative criteria



Routing Criteria

Developed by BAC/PTN/CH2M

Applied as quantitative criteria to Preliminary Routes



Regional Stakeholder Feedback

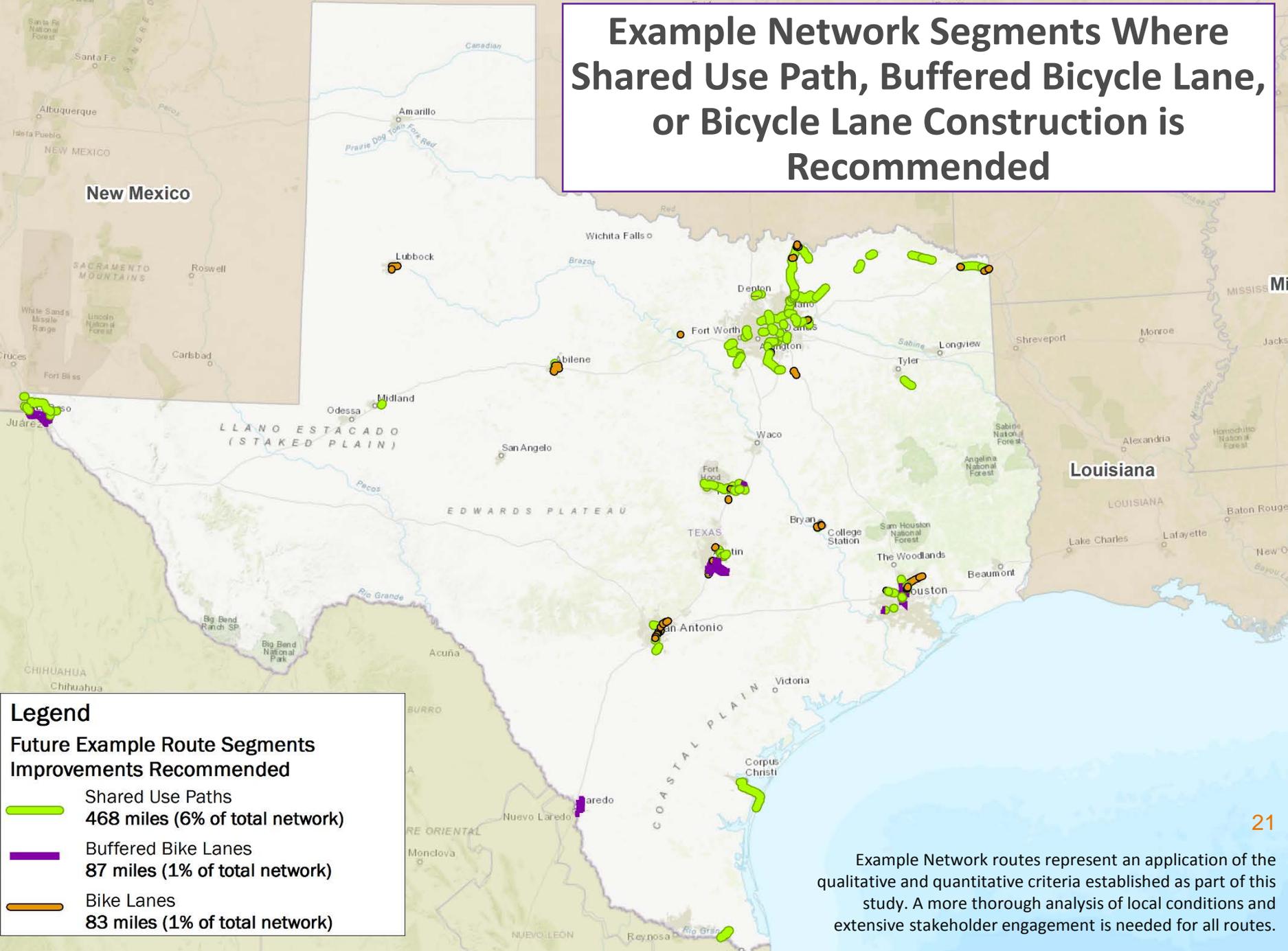
Wikimap inputs

Routes modified based on local knowledge



FINAL Example Network

Example Network Segments Where Shared Use Path, Buffered Bicycle Lane, or Bicycle Lane Construction is Recommended



Legend

Future Example Route Segments Improvements Recommended

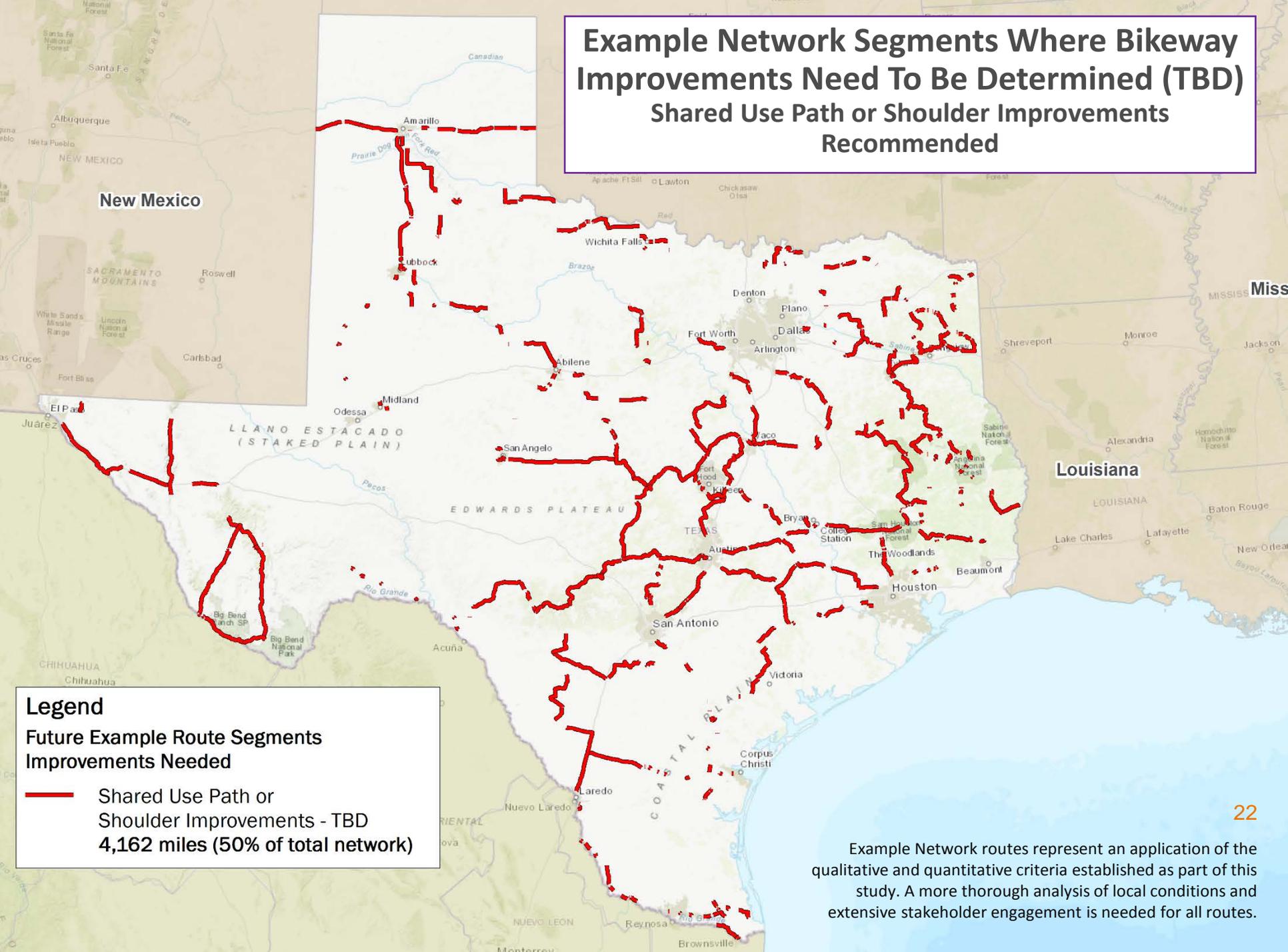
- Shared Use Paths
468 miles (6% of total network)
- Buffered Bike Lanes
87 miles (1% of total network)
- Bike Lanes
83 miles (1% of total network)

21

Example Network routes represent an application of the qualitative and quantitative criteria established as part of this study. A more thorough analysis of local conditions and extensive stakeholder engagement is needed for all routes.

Example Network Segments Where Bikeway Improvements Need To Be Determined (TBD)

Shared Use Path or Shoulder Improvements Recommended



Legend

Future Example Route Segments Improvements Needed

- Shared Use Path or Shoulder Improvements - TBD

4,162 miles (50% of total network)

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Cross-State Spine Analysis

Cross-State Spines:

- | | |
|-----------------------------|-------------|
| 1. Southern Tier/USBRS 90 | 1,136 miles |
| 2. Oklahoma-Mexico/USBRS 55 | 866 miles |
| 3. Panhandle/USBRS 66 | 192 miles |
| 4. Arkansas Connection | 178 miles |



Southern Tier/USBRS 90

Existing/Future

1,136 miles

Legend

— Example Network

**Southern Tier / Potentially USBRS 90
by Bicycle Accommodation Status**

— Existing (meets recommended BTTS design
minimums)

— Future (improvements needed)

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Southern Tier/USBRS 90

Western Portion

Legend

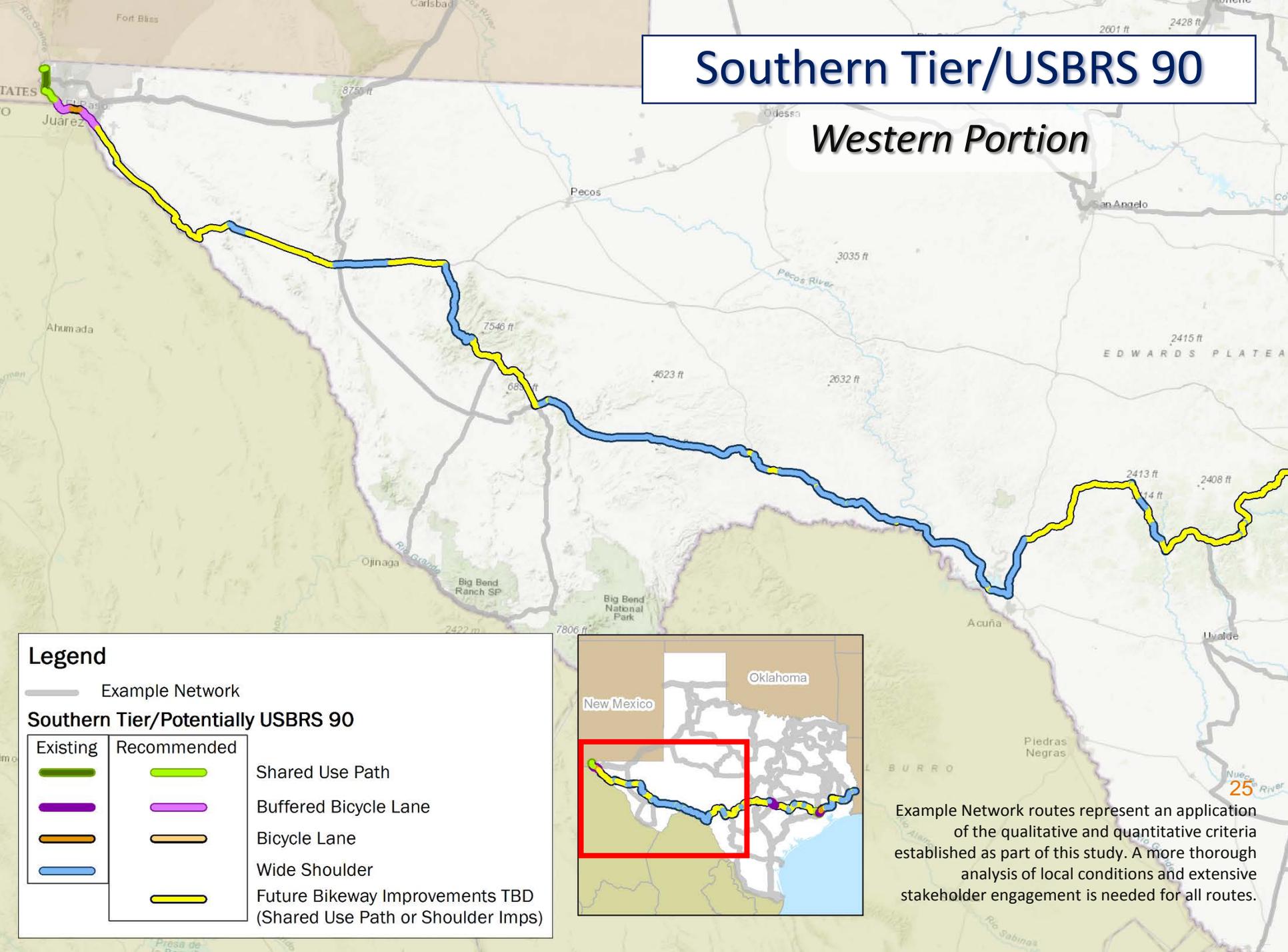
— Example Network

Southern Tier/Potentially USBRS 90

Existing	Recommended	
		Shared Use Path
		Buffered Bicycle Lane
		Bicycle Lane
		Wide Shoulder
		Future Bikeway Improvements TBD (Shared Use Path or Shoulder Imps)

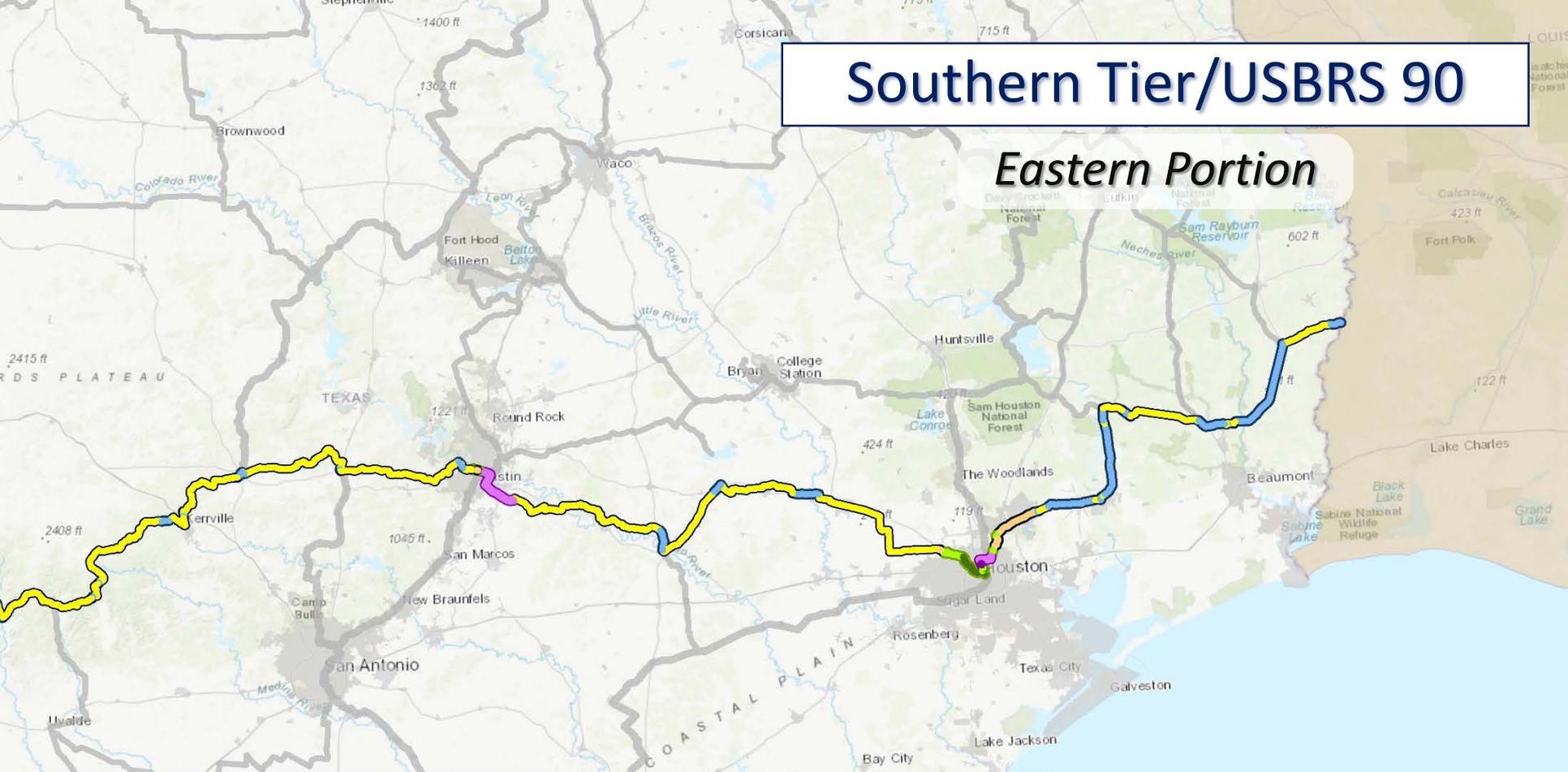


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Southern Tier/USBRS 90

Eastern Portion

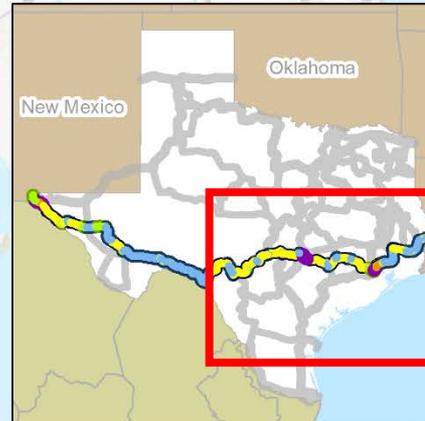


Legend

— Example Network

Southern Tier/Potentially USBRS 90

Existing	Recommended	
		Shared Use Path
		Buffered Bicycle Lane
		Bicycle Lane
		Wide Shoulder
		Future Bikeway Improvements TBD (Shared Use Path or Shoulder Imps)



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Example Network routes represent an application of the qualitative and quantitative criteria established as part of this study. A more thorough analysis of local conditions and extensive stakeholder engagement is needed for all routes.

Southern Tier Details

Accommodation	Shared Use Path/ Sidepath	Buffered Bicycle Lane	Bicycle Lane	Wide Shoulder	To Be Determined
Existing	3%	0%	0%	34%	-
Future	2%	3%	2%	-	56%
Total Mileage	43	38	22	391	642

Overall Improvement Status	Miles	Percent of Spine
Meets BTTS Bikeway Minimum Recommendations	416	37%
Needed Bikeway Improvement	720	63%
Total Mileage	1,136	

Cost Estimate Ranges (millions)	
Initial Construction	Annual Operations & Maintenance
UNDER \$	DEVELOPMENT \$

Oklahoma-Mexico/USBRS 55

Existing/Future

866 miles

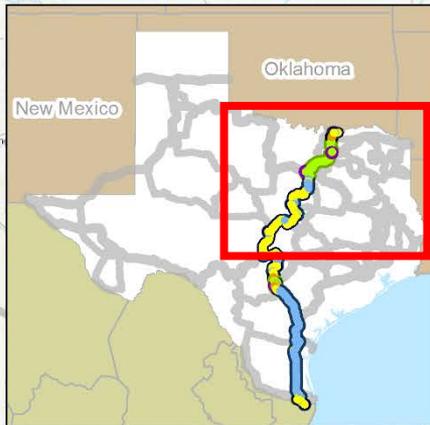
Legend

- Example Network
- Oklahoma-Mexico / Potentially USBRS 55 by Bicycle Accommodation Status
- Existing (meets recommended BTTS design minimums)
- Future (improvements needed)

Example Network routes represent an application of the qualitative and quantitative criteria established as part of this study. A more thorough analysis of local conditions and extensive stakeholder engagement is needed for all routes.

Oklahoma-Mexico/USBRS 55

Northern Portion



Legend

— Example Network

Oklahoma-Mexico/Potentially USBRS 55

Existing

Recommended



Shared Use Path



Buffered Bicycle Lane



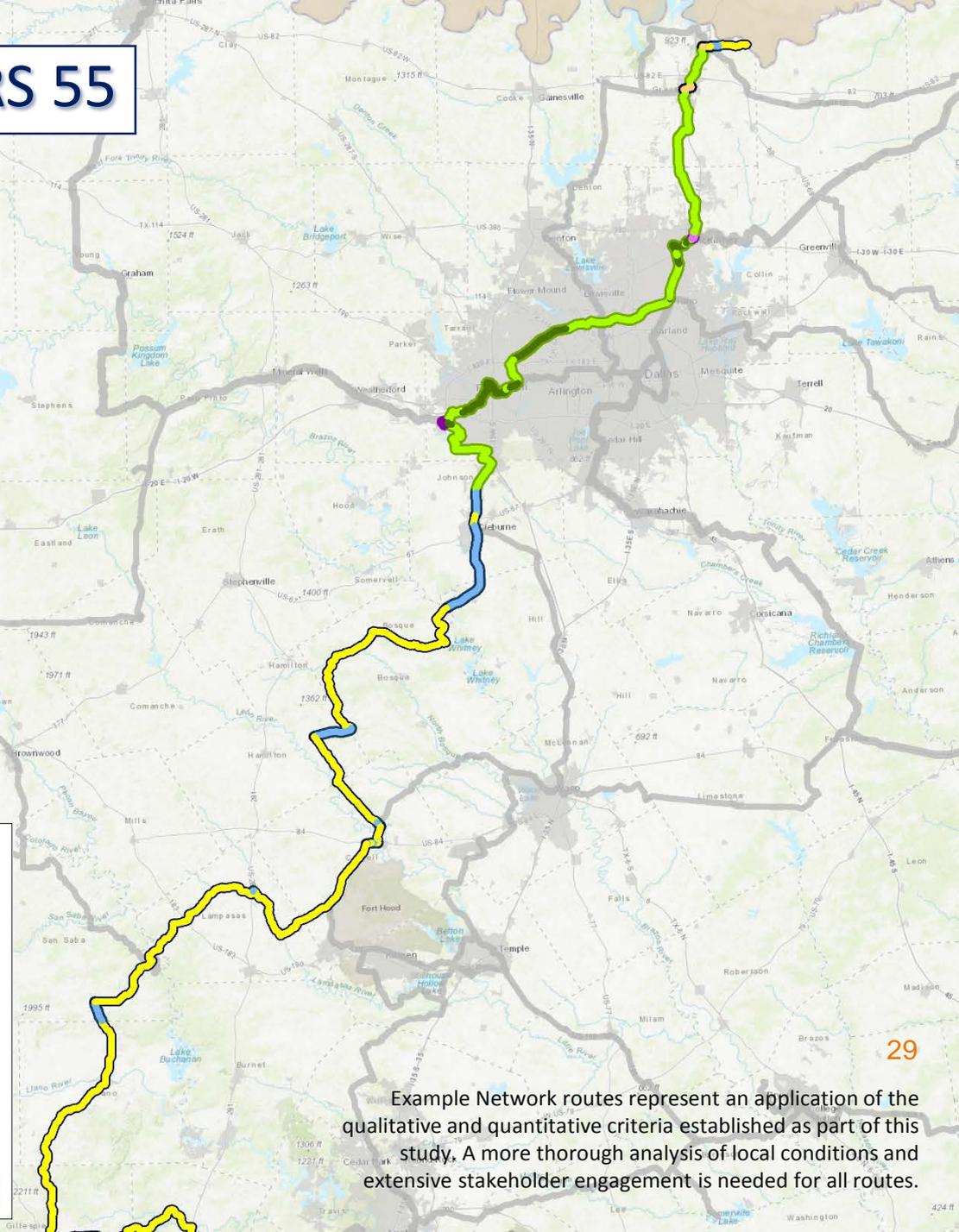
Bicycle Lane



Wide Shoulder



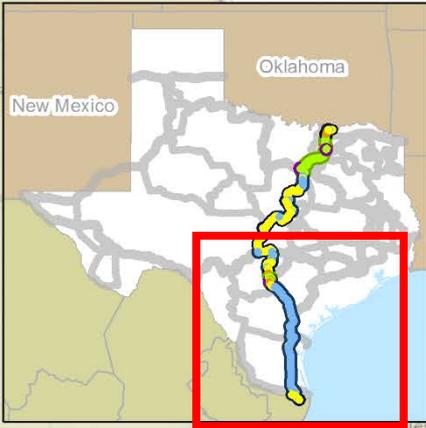
Future Bikeway Improvements TBD
(Shared Use Path or Shoulder Imps)



Example Network routes represent an application of the qualitative and quantitative criteria established as part of this study. A more thorough analysis of local conditions and extensive stakeholder engagement is needed for all routes.

Oklahoma-Mexico/USBRS 55

Southern Portion



Legend

- Example Network

Oklahoma-Mexico/Potentially USBRS 55

Existing	Recommended	
		Shared Use Path
		Buffered Bicycle Lane
		Bicycle Lane
		Wide Shoulder
		Future Bikeway Improvements TBD (Shared Use Path or Shoulder Imps)

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Oklahoma-Mexico/USBRS 55 Details

Accommodation	Shared Use Path/ Sidepath	Buffered Bicycle Lane	Bicycle Lane	Wide Shoulder	To Be Determined
Existing	7%	0%	1%	33%	-
Future	16%	0%	1%	-	42%
Total Mileage	194	4	17	284	367

Overall Improvement Status	Miles	Percent of Spine
Meets BTTS Bikeway Minimum Recommendations	355	41%
Needed Bikeway Improvement	511	59%
Total Mileage	866	

Cost Estimate Ranges (millions)	
Initial Construction	Annual Operations & Maintenance
UNDER DEVELOPMENT	

Panhandle/USBRS 66

Existing/Future

Legend

— Example Network

Panhandle Route / Potentially USBRS 66 by Bicycle Accommodation Status

— Existing (meets recommended BTTS design
minimums)

— Future (improvements needed)

Example Network routes represent an application of the qualitative and quantitative criteria established as part of this study. A more thorough analysis of local conditions and extensive stakeholder engagement is needed for all routes.

Panhandle/USBRS 66

192 miles

Legend

Example Network

Panhandle Route/Potentially USBRS 66

Existing	Recommended	
		Shared Use Path
		Buffered Bicycle Lane
		Bicycle Lane
		Wide Shoulder
		Future Bikeway Improvements TBD (Shared Use Path or Shoulder Imps)



Example Network routes represent an application of the qualitative and quantitative criteria established as part of this study. A more thorough analysis of local conditions and extensive stakeholder engagement is needed for all routes.

Panhandle/USBRS 66 Details

Accommodation	Shared Use Path/ Sidepath	Buffered Bicycle Lane	Bicycle Lane	Wide Shoulder	To Be Determined
Existing	-	-	-	26%	-
Future	-	-	-	-	74%
Total Mileage	-	-	-	50	142

Overall Improvement Status	Miles	Percent of Spine
Meets BTTS Bikeway Minimum Recommendations	50	26%
Needed Bikeway Improvement	142	74%
Total Mileage	192	

Cost Estimate Ranges (millions)	
Initial Construction	Annual Operations & Maintenance
UNDER DEVELOPMENT	

Arkansas Connection/USBRS 84

Existing/Future

Legend

— Example Network

**Arkansas Connection / Potentially USBRS 84
by Bicycle Accommodation Status**

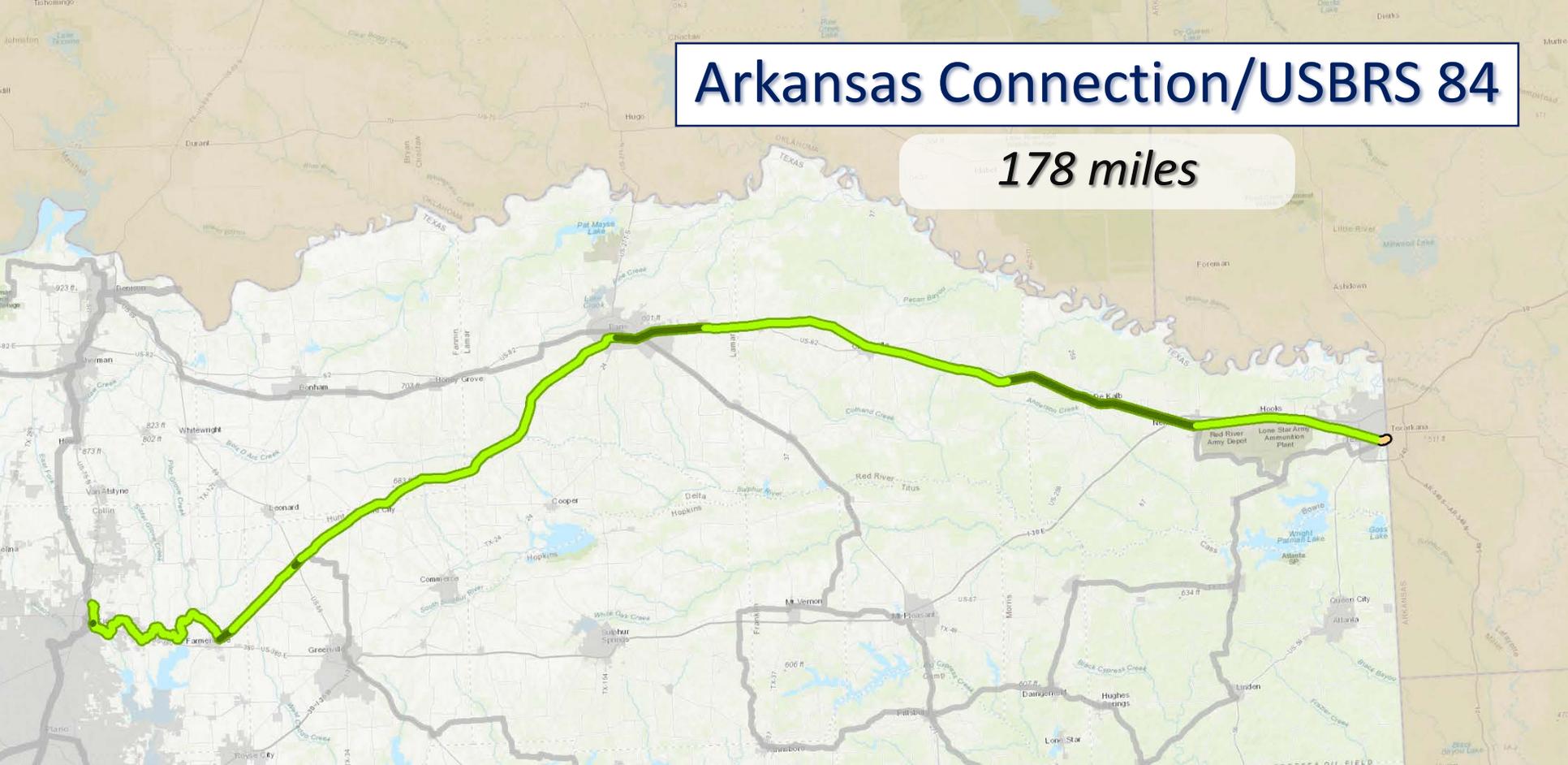
— Existing (meets recommended BTTS design
minimums)

— Future (improvements needed)

Example Network routes represent an application of the qualitative and quantitative criteria established as part of this study. A more thorough analysis of local conditions and extensive stakeholder engagement is needed for all routes.

Arkansas Connection/USBRS 84

178 miles

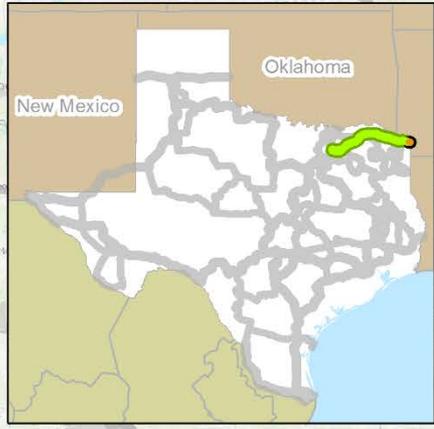


Legend

Example Network

Arkansas Connection/Potentially USBRS 84

Existing	Recommended	
		Shared Use Path
		Buffered Bicycle Lane
		Bicycle Lane
		Wide Shoulder
		Future Bikeway Improvements TBD (Shared Use Path or Shoulder Imps)



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Example Network routes represent an application of the qualitative and quantitative criteria established as part of this study. A more thorough analysis of local conditions and extensive stakeholder engagement is needed for all routes.

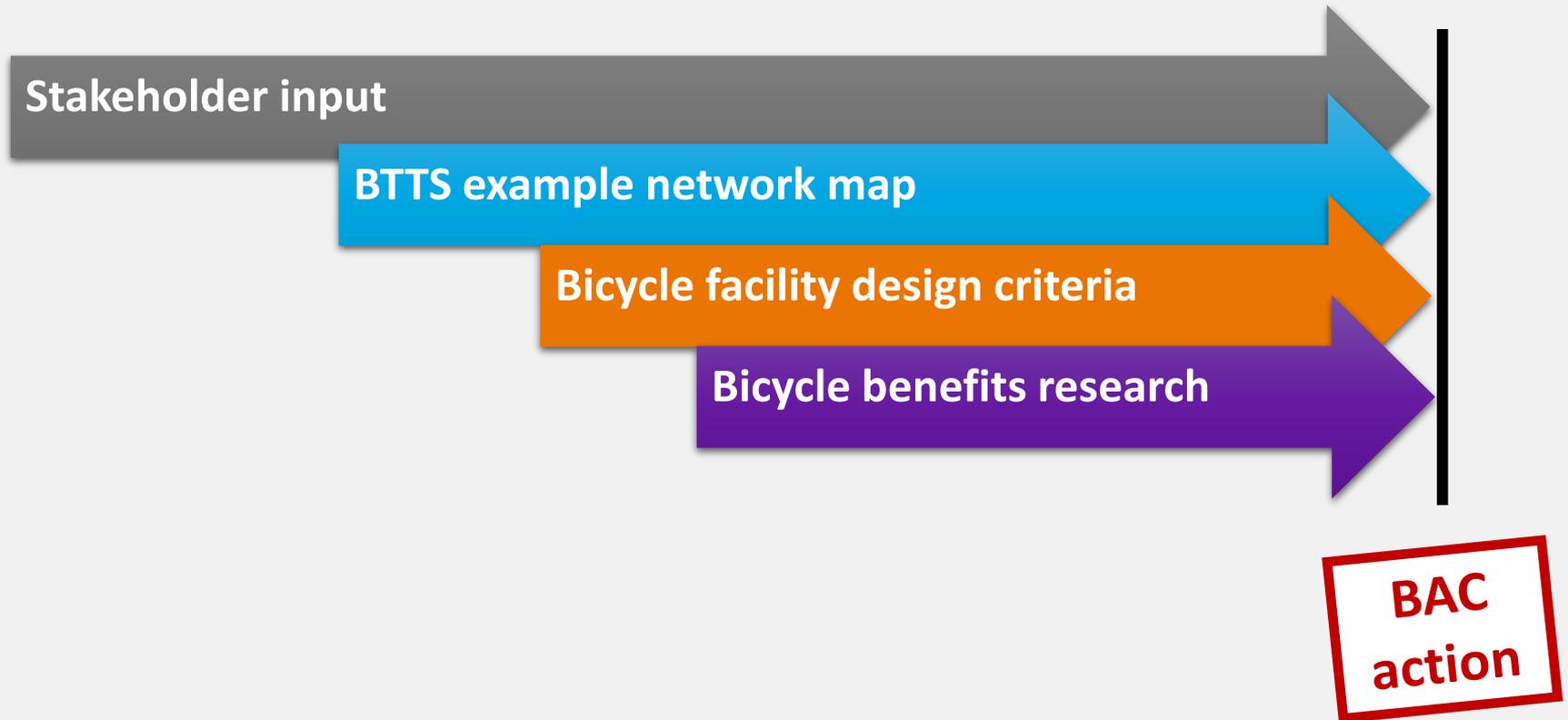
Arkansas Connection/USBRS 84

Accommodation	Shared Use Path/ Sidepath	Buffered Bicycle Lane	Bicycle Lane	Wide Shoulder	To Be Determined
Existing	20%	-	-	-	-
Future	80%	-	0%	-	-
Total Mileage	177	-	1	-	-

Overall Improvement Status	Miles	Percent of Spine
Meets BTTS Bikeway Minimum Recommendations	36	20%
Needed Bikeway Improvement	142	80%
Total Mileage	178	

Cost Estimate Ranges (millions)	
Initial Construction	Annual Operations & Maintenance
UNDER DEVELOPMENT	

BTTS Progress



AGENDA ITEM 7



Economic Impact of Bicycling in Texas

TxDOT IAC - 15293





Subtask Descriptions

- **Subtask 5.1** – Identification of potential economic impacts to be quantified, including data sources, limitations, and assumptions.
- **Subtask 5.2** - Estimation of direct, indirect, and induced economic impacts at the statewide and regional level.
- **Subtask 5.3** - Application of findings to case studies to estimate impacts by community type (rural, small urban, metropolitan).



Project Timeline

	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Subtask 5.1									
Subtask 5.2									
Subtask 5.3									F

(F) - Final Report



Subtask 5.1 – Literature and Case Study Review Results

- Commonly quantified economic impacts:
 - Recreation/ tourism
 - Production/ manufacturing
 - Retail sales/ employment
 - Property values
 - Capital investments/ infrastructure construction
 - Health
 - Mobility

Data Sources

- Primary data sources used in existing studies:
 - Resources Available
 - Bureau of Economic Analysis (BEA)
 - Bureau of Labor Statistics (BLS)
 - Federal/ State bicycle infrastructure funding programs
 - Urban trail counts
 - Resources Not Available
 - Statewide/ regional/ site specific survey data
 - Spending, sales, user totals
 - Retail shops/ production
 - Sales, employment
 - Rural trail counts
 - Event attendance

Areas of Focus

- Recreation & tourism
 - Identification of the economic impact from bicycle tourism and regional/ local bicycling events (e.g. races).
- Production/ manufacturing
 - Estimation of employment and value added from the production of bicycle parts and equipment within the state.
- Retail sales/ employment
 - Estimation of employment and value added from the sale of bicycling parts and equipment from Texas retailers (e.g. bike shops, outdoor recreation stores).
- Health
 - Reduced health costs from active living.
- Mobility
 - Congestion reduction benefits associated with mode shift.

Data Needs

- Statewide/ regional/ local survey data
 - Rural trail counts
 - Expenditures for bicycle tourism activities
 - Hotels, restaurants, bike shops, etc.
- Retail shops/ production
 - Sales, employment
- Infrastructure spending
- Bicycle event attendance and spending



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AGENDA ITEM 8

TxDOT's Bicycle & Pedestrian Program Webpage

Key sections:

- Planning and Designing
- Know Before You Go
- Bicycle Coordination
- Bicycle Funding

Questions or Suggestions:

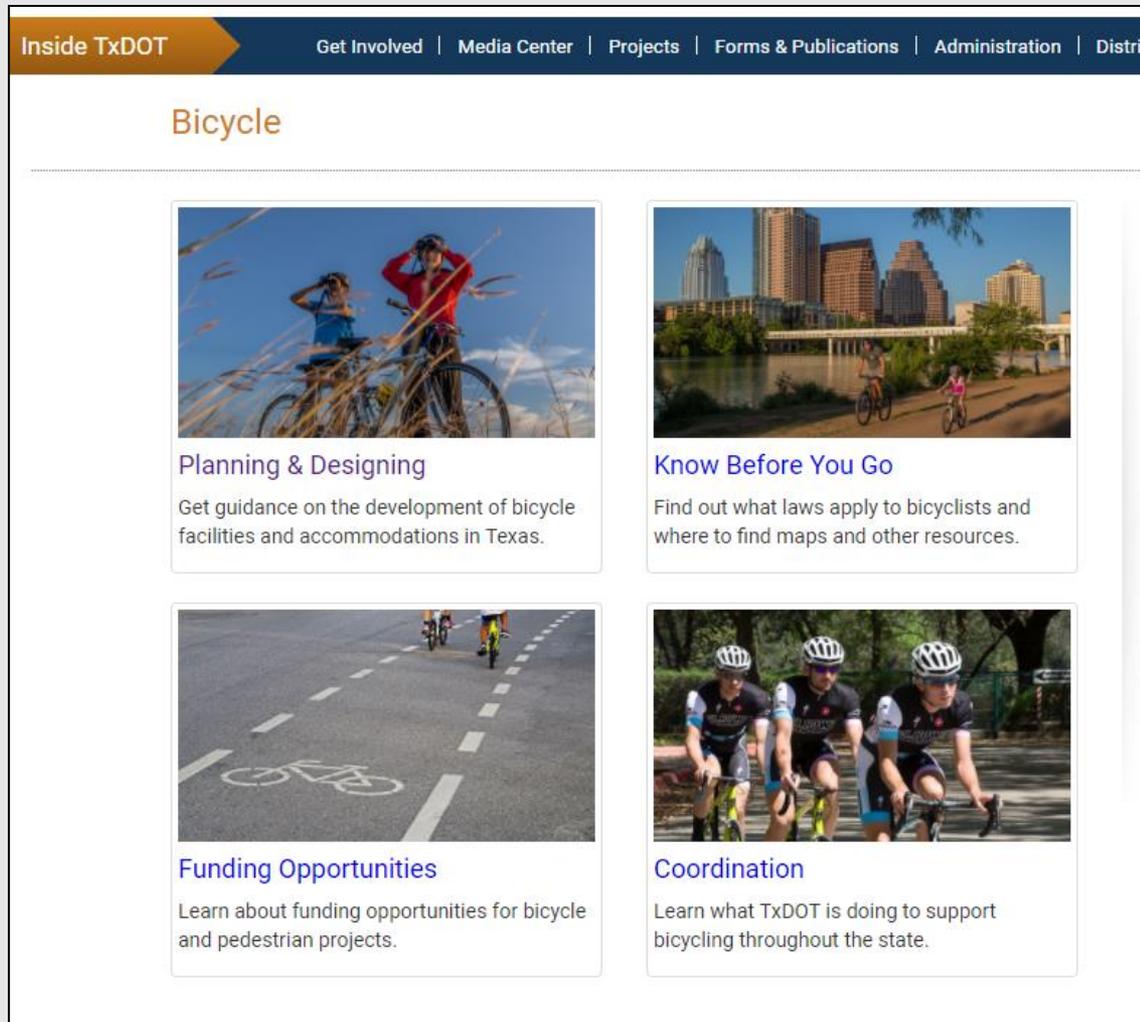
Bonnie Sherman, AICP CNU-A

TxDOT-PTN

Bonnie.Sherman@txdot.gov

(512) 486-5972

<http://www.txdot.gov/inside-txdot/modes-of-travel/bicycle.html>



The screenshot shows the 'Bicycle' section of the TxDOT website. The page has a dark blue header with 'Inside TxDOT' on the left and navigation links: 'Get Involved | Media Center | Projects | Forms & Publications | Administration | Distri'. Below the header, the word 'Bicycle' is displayed in orange. The main content area features four white-bordered cards, each with an image, a title, and a brief description:

- Planning & Designing**: Get guidance on the development of bicycle facilities and accommodations in Texas. (Image: Two people on bicycles in a field of tall grass.)
- Know Before You Go**: Find out what laws apply to bicyclists and where to find maps and other resources. (Image: People cycling on a path near a city skyline.)
- Funding Opportunities**: Learn about funding opportunities for bicycle and pedestrian projects. (Image: A road with a white bicycle symbol painted on it.)
- Coordination**: Learn what TxDOT is doing to support bicycling throughout the state. (Image: Three cyclists in black gear riding on a path.)