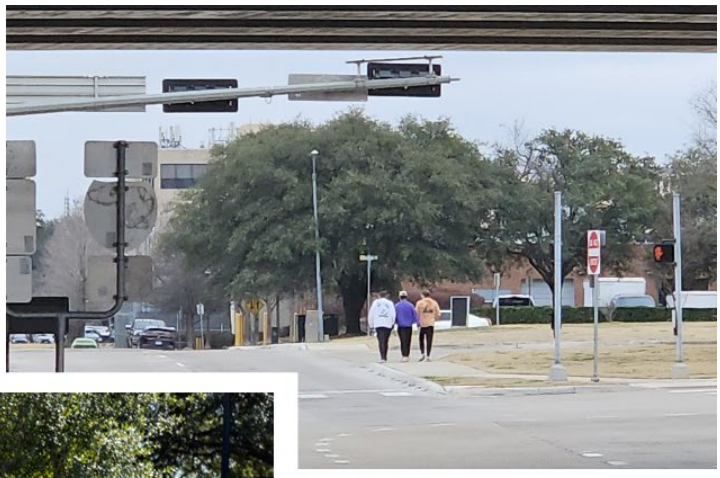

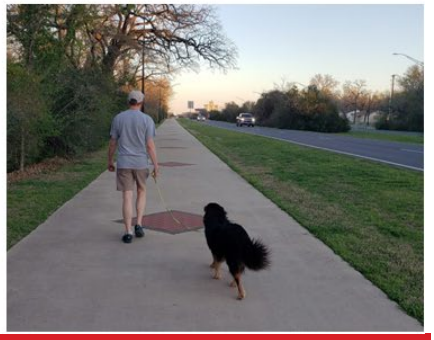

TxDOT Bicycle and Pedestrian Data Collection Program

2023 Annual Report

Texas Department of Transportation

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1.0 Introduction

The development of statewide management systems for bicycle and pedestrian information is a focus area outlined in the TxDOT (Texas Department of Transportation) Bicycle and Pedestrian Advisory Committee's strategic direction report.[1] An important part of this focus area is understanding where, when and how often pedestrians and bicyclists travel. The TxDOT Public Transportation Division (PTN) and its local and regional partners have established a network of continuous and short-term counting sites to better understand the way these active transportation users travel. With an interface for sharing and accessing count data, agency personnel and the public have access to existing walking and bicycling demand data. The availability of count data better positions TxDOT and its partners to plan, design and construct pedestrian and bicycle projects for citizens and visitors alike. Further details about the history of the count program are included in the Background section of this report.

In anticipation of eventual mandatory reporting of bicycle and pedestrian counts to the federal Traffic Monitoring Analysis System, TxDOT has built the foundation of a bicyclist and pedestrian count program by engaging TTI (Texas A&M Transportation Institute) to establish a statewide database, provide guidance and training and purchase and deploy count equipment. Through the further collection of bicyclist and pedestrian count data, TxDOT is working to better quantify walking and bicycling activity on state highways, allowing them to make better transportation investment decisions.

The purpose of this annual report is to document the efforts conducted to date. It represents the first in a series of annual reports where TxDOT will share details about the different facets of the counting program, highlight trends in bicycling and walking, and provide an overview of pedestrian and bicycle infrastructure. This report sets the stage and provides a baseline for future annual reports.

Background

TxDOT and TTI first created the Texas Bicycle and Pedestrian Count Program in 2018. The facets of this program have been critical in furthering TxDOT's ability to incorporate bicycle and pedestrian data into its decision-making process. Incorporating this data has been a challenge in Texas because counts have not traditionally been available for planning purposes and resources have been limited to support this effort. A report published by TTI referred to this effect as a *catch-22*, requiring planners and engineers to make decisions without the bicycle and pedestrian data to support these decisions.[2]

While good industry practice dictates collecting this data, a business process requiring agencies to do so has not existed. This lack of requirement resulted in limited data being collected, and thus the unavailability of data when needed. While this concern remains a challenge, some agencies continue to see the value in collecting this data and are allocating resources to gather these counts. A TTI report published in 2019, *Improving the Amount and Availability of Pedestrian and Bicyclist Count*

[1] https://ftp.txdot.gov/pub/txdot-info/ptn/bikestripe/strategic-direction.pdf
[2] https://ftp.txdot.gov/pub/txdot/ptn/bicycle/module-3.pdf

Data in Texas, not only highlighted the need for bicycle and pedestrian data but also charted a path forward for how TxDOT can support programs that make collecting this data standard practice.[3]

In this 2019 study, TTI researchers interviewed public agency staff in all 25 Texas MPO (metropolitan planning organization) regions about their pedestrian and bicyclist data collection practices. The interviews revealed that public agencies in eight metropolitan areas in Texas were regularly monitoring pedestrian and/or bicyclist volumes. Researchers concluded that agencies were in the early stages of data collection and would like to expand their efforts, but resource constraints limited this ability. While some nontraditional agencies such as conservancies, utility districts, river authorities and parks departments collect count data, most data are being collected by city transportation departments and MPOs. The following common themes from the interviews highlighted ways to make collecting bicycle and pedestrian counts standard practice:

- Create a data clearinghouse (exchange) with a uniform reporting standard.
- Develop a peer exchange of best practices among the states.
- Incorporate bicycle and pedestrian counts as part of a formal business process in the project planning process.[3]

Since the 2019 report was published, efforts to standardize bicycle and pedestrian collection practices have included the following:

- Deploying over 52 permanent counters since the program began and deploying 152 temporary counters throughout the state in urban and rural areas between September 2023 and August 2024.
- Securing contributions to the Texas Bicycle and Pedestrian Count Program from 21 agencies.
- Hosting free workshops and providing resources for agencies to learn how to determine locations, deploy counters and use the counts in their planning efforts.
- Providing specific language for incorporating bicycle and pedestrian data and data collection into well-established processes in TxDOT's 2022 *Roadway Design Manual*, 2019 *Project Development Process Manual* (update forthcoming) and 2022 *Traffic Signals Manual*.
- Conducting a survey for TxDOT bicycle and pedestrian coordinators to capture a variety of information to better understand the various duties of coordinators and if/how coordinators are using/would like to use bicycle and pedestrian volume data.

As the program continues to evolve, more resources will become available for agencies to make collecting counts part of their processes, thus allowing them to make bicycle and pedestrian data-driven decisions. This annual report not only showcases the work done in the past but provides a roadmap for how to continue advancing the state of the practice.

[3] https://tti.tamu.edu/documents/0-6927-R1.pdf

2.0 Goals of Bicycle and Pedestrian Data Collection

Data collection efforts should be driven by clear goals to equip TxDOT, its districts and its partner agencies with the necessary information to support data-driven decisions. First and foremost, collection efforts should create a thorough and representative network of permanent and short-term count sites that cover various pedestrian and bicycle facility types. This network must provide accurate and timely data describing bicycle and pedestrian traffic patterns and trends.

Second, data collection efforts — and the information provided — should be integrated into the project identification and selection processes within TxDOT and its partner agencies. Engineers, planners and other staff members should have open access to data that allow for right-sizing facilities within roadways or other stand-alone projects. It is important to note that low to no usage should not be the sole determining factor for whether bicycle and pedestrian infrastructure is constructed. The lack of usage in an area can also be attributed to little or no infrastructure in place for these modes prior to a project being constructed.

Finally, data collection efforts should enable estimating the future demand for bicycle and pedestrian activity or demand in areas where counts are difficult to collect. With counts dating as far back as 2010 in certain areas of Texas, count data must provide historical perspectives of bicycle and pedestrian behavior as TxDOT looks forward to providing transportation options for all Texans.

Continued support and expansion of permanent count stations and rotating widespread short-term counting efforts in focused regions and cities will be critical to achieving these goals and providing engineers, planners and practitioners with helpful information for decisions.

State of Bicycle and Pedestrian Activity

Count data show that Texans are walking and bicycling across the state in urban and rural areas alike. With 172 permanent count stations and almost 800 short-term count locations in TxDOT's BP|CX (Bicycle and Pedestrian Count Exchange), Texas is on its way to having a robust pedestrian and bicycle counting network.

The nonmotorized travel data retrieved from these counters has revealed interesting findings. In one count location in El Paso, the equipment recorded a weekday average of over 2,600 people, which means that more than 100 people walked or bicycled there every hour on average. A more typical location in Texas has between 100 and 300 people walking and/or bicycling in a one-day period instead of every hour. In general, some locations have higher count averages on weekdays, possibly indicating a route people use to commute to work or school, and others are higher on weekends. Special events around the state can also show sudden increases in walking and bicycling, such as football games, concerts, conferences or festivals.

Areas of Emphasis

The data from these counters are slowly being incorporated into efforts around the state. This section describes several possible areas of emphasis.

Bicycle Tourism Trails Network

The Texas BTTS (Bicycle Tourism Trails Study), finalized in 2018, identified a network of bicycle tourism trails. The network highlighted the state's natural, historic and exceptional landscapes. Elevating these trails (i.e., bicycle routes) has the potential to boost economic development for cities and provide recreational and travel opportunities for local Texans.[4]

The BTT (Bicycle Tourism Trails) network is included as a layer in the TxDOT Statewide Planning Map[5] and crosses every TxDOT district (see Figure 1).[6] The BTT network is important for bicycle accommodation decisions. The TxDOT *Roadway Design Manual* identifies specific design criteria for bikeways along the BTT network and states that "projects located on the Texas Bicycle Tourism Trails Example Network are not excepted from providing bikeways regardless of location."[7]

The BTT network includes a variety of bikeway types, dependent on local conditions, including shared use paths, bicycle and buffered bicycle lanes, and paved shoulders. The BTTS included specific recommendations for collecting usage information along these different bicycle facility types. Many of the permanent counting locations, as well as short-term counters, are on or near the BTT network. Similarly, the TxDOT Statewide Bicycle and Pedestrian Program aims to provide a dof facilities when collecting usage data.

[4] https://www.txdot.gov/discover/bicycle-trails-maps/bicycle-tourism-trails-study.html
[5] https://www.txdot.gov/apps/statewide_mapping/StatewidePlanningMap.html
[6] https://ftp.dot.state.tx.us/pub/txdot-info/ptn/btts-summary-print-friendly.pdf
[7] https://onlinemanuals.txdot.gov/TxDOTOnlineManuals/TxDOTManuals/rdw/rdw.pdf

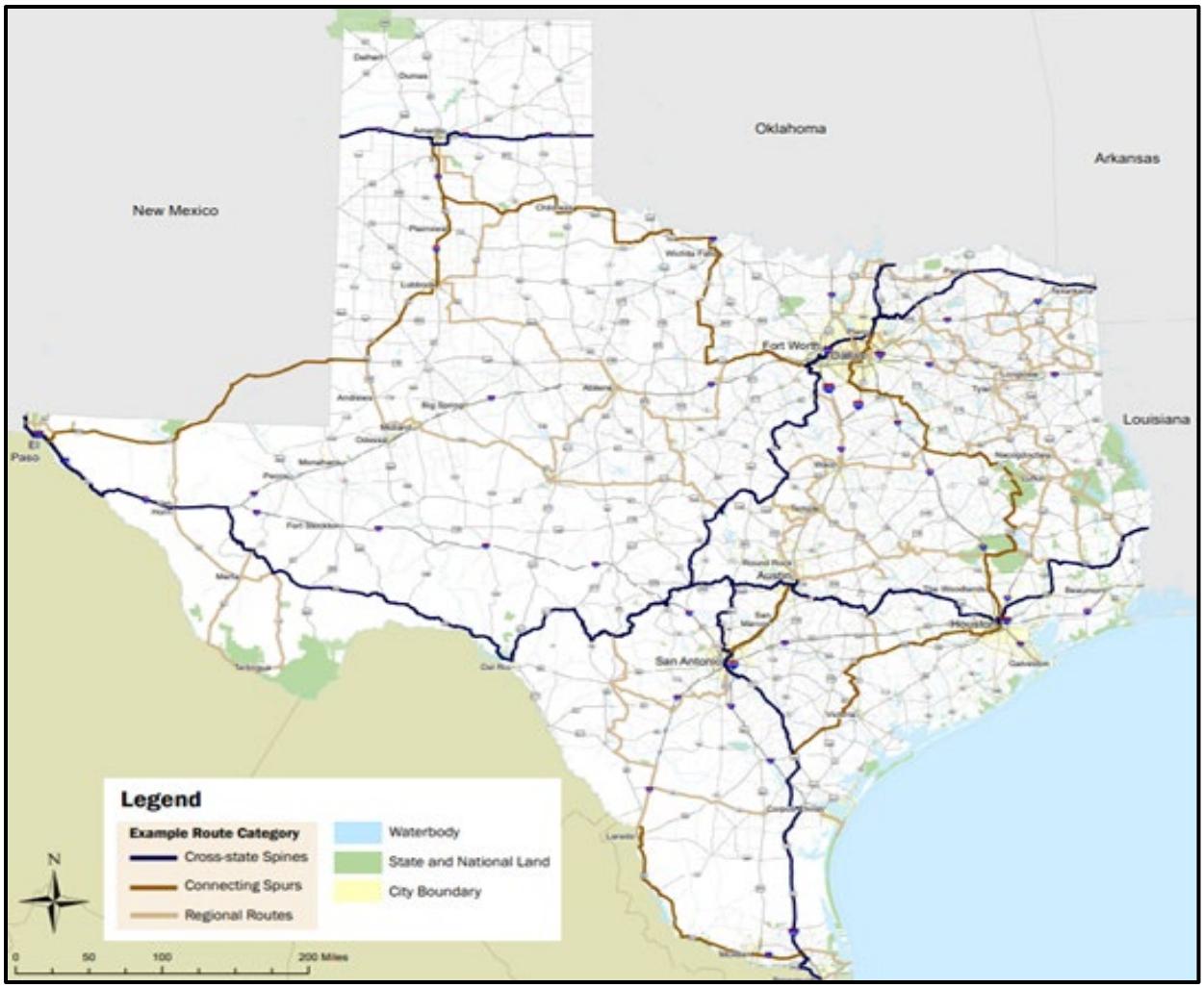

Figure 1: Screenshot of the BTT Network.

Better Utilizing Investments to Leverage Development (BUILD)

As part of the Better Utilizing Investments to Leverage Development (BUILD) grant program, TxDOT partnered with local communities and non-profits on a grant to construct segments of the bicycle tourism trail network in west and east Texas. Count data from the Texas Bicycle & Pedestrian Count Exchange has been and will continue to be used for grant applications and for reporting on performance measures.

Counts were collected along the Northeast Texas Trail and the Paso del Norte Trail in the spring of 2024 to establish the baseline for performance measurement and reporting required as part of the BUILD grant. The initial counts were low (from 3 to 20 per day); however, the project is focused on connecting trails and closing gaps with the hope of increasing the utilization rate on these networks.

District Bike Plans

One example of where bicycle usage data could be helpful is in the development of TxDOT district bike plans. The TxDOT Statewide Bicycle and Pedestrian Program is finalizing four district bike plans in Bryan, Laredo, Pharr and San Antonio. The draft plans and an interactive map were posted online for review as of August 20, 2024.[8] These plans reflect public and stakeholder feedback where TxDOT staff partnered with the local community "to develop bike networks integrated with the state system to improve safety, connectivity and access within and between TxDOT districts." The three main objectives of the district bicycle plans include the following:

- Analyze the need for bicycle infrastructure on the state highway system.
- Prioritize locations for bicycling improvements.
- Identify what role different routes should play in the bicycling network.

These initial four district plans were finalized in September 2024. In early 2025, the TxDOT Statewide Bicycle and Pedestrian Program will initiate the same bike plan development process in five more districts, with plans expected for completion in two years. Four more district plans will follow until all districts have participated. Existing bicycle demand data may be used for decision-making and to track performance over time.

3.0 Development of Statewide Management Systems for Bicycle and Pedestrian Data

Data Collection Efforts

TxDOT introduced the BP|CX in 2018. This free online data exchange system allows anyone in the state collecting bicycle or pedestrian counts to import, manage, quality review, factor and share their data with others. The public visualization can be found at https://mobility.tamu.edu/bikepeddata/.

The previously mentioned TTI report published in 2019, *Improving the Amount and Availability of Pedestrian and Bicyclist Count Data in Texas*, provides specific guidance to agencies when gathering counts.[3] Figure 2 illustrates the steps required to gather and upload counts into the BP|CX. Appendix A contains more specific information on gathering counts.

[8] https://www.txdot.gov/projects/planning/bicycle-pedestrian-planning-designing/statewide-bicycle-analysis-district-bicycle-plan-pilot.html

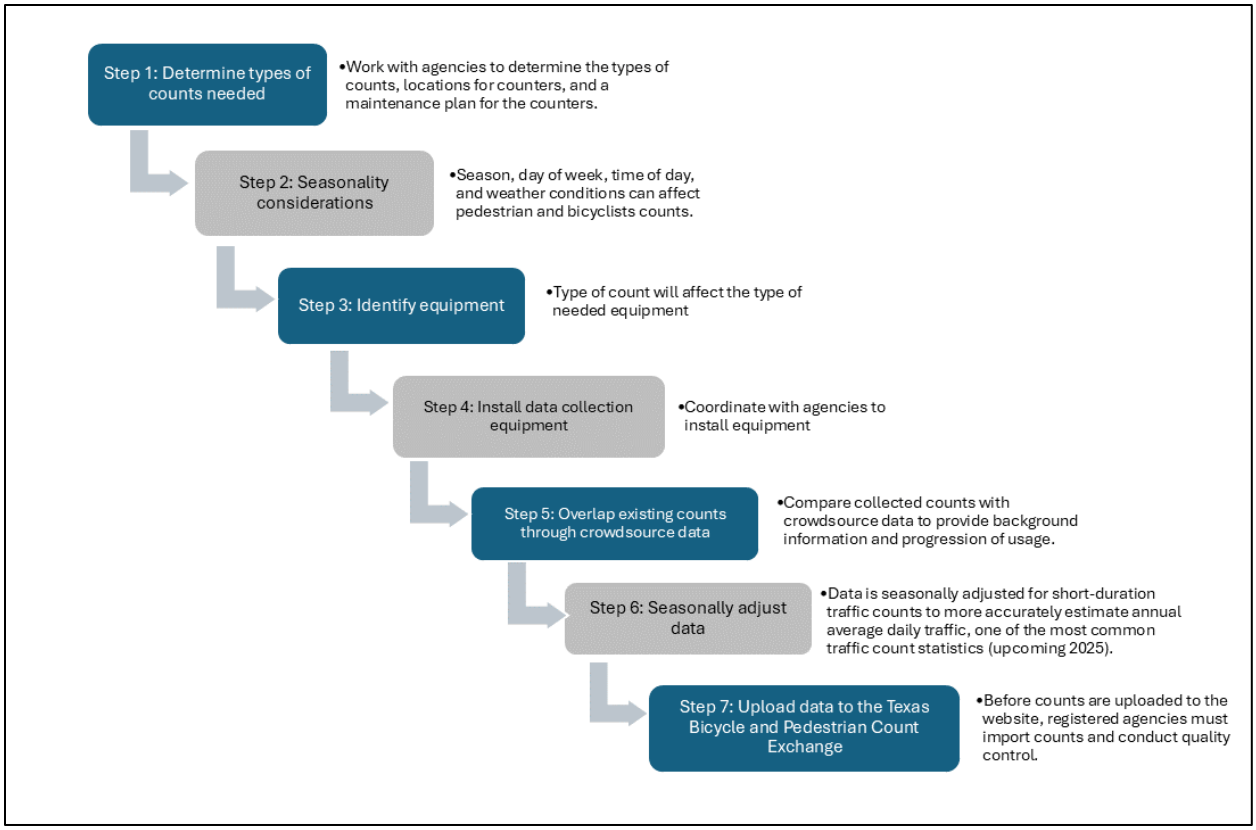

Figure 2: Flowchart for Gathering Bicycle and Pedestrian Counts.

Count Location and Equipment Installation

This report refers to both stations and counters, so it is important to understand the difference between the two. A *station* or *count station* is a **unique location** where nonmotorized counts have been or are being collected. A *counter* or *traffic counter* is a **device** that collects pedestrian, bicycle, micromobility device and motor vehicle event data that can be placed permanently or temporarily at specific locations. A station can have multiple counters. Appendix B provides more detailed definitions of these terms.

Counters include a variety of equipment types that can be installed on a variety of facility types. The type of count data needed by the agency and the resources available determine the equipment type and the timeframe for deployment. As of August 2024, the BP|CX included 944 stations (see Table **1**). The TxDOT PTN owns and maintains its own fleet of permanent and short-term counters, from which TTI helps collect, maintain, and upload data to the BP|CX. Of the 944 count stations listed in Table 1, 528 are owned by TxDOT.

Table 1: Number of BP|CX Stations and Year Established.

Number of BP|CX Stations (All Agencies)	Year Established
95	2010–2015
47	2016
105	2017
42	2018
17	2019
16	2020
134	2021
162	2022
186	2023
140	2024
944	Total

Permanent Counters. Permanent counters offer a significant advantage in temporal coverage, recording data continuously, 24/7, throughout the year. This comprehensive data collection provides a detailed and mostly uninterrupted dataset that can be used to develop trend measures such as AADT (annual average daily traffic) and ADT (average daily traffic). The benefits of permanent counters come with higher unit costs and increased operating and maintenance requirements, making them a more expensive long-term investment. Appendix A contains additional information about permanent versus temporary counters.

As of August 2024, the count program includes 172 permanent counters, 82 of which are owned by TxDOT. Figure 3 shows the locations of these counters in Texas by TxDOT District. Figure 4 shows the locations of all counts in the BP|CX, both temporary and permanent.

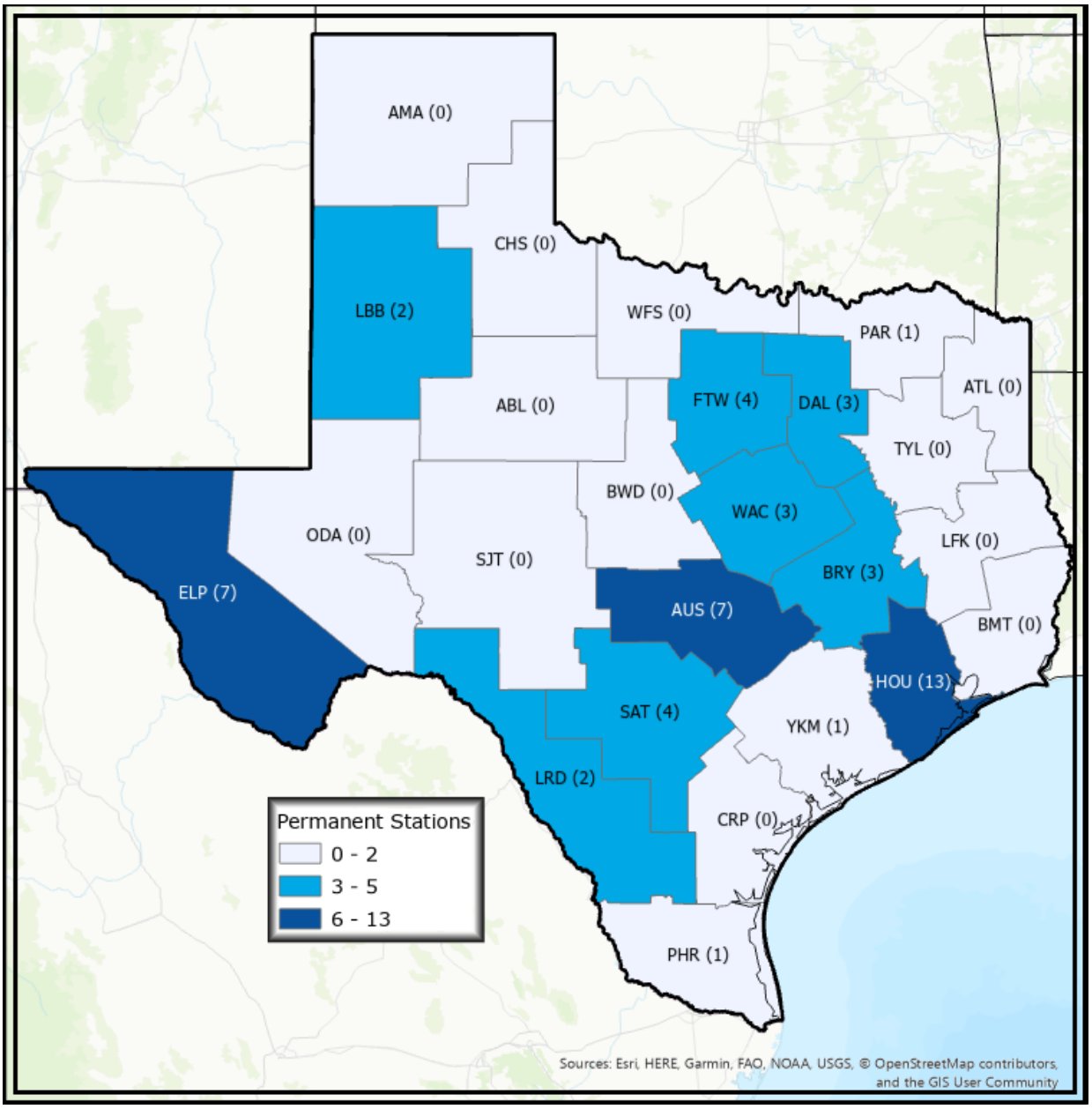

Figure 3: Count of Active TxDOT-Owned Permanent Counters by District as of August 2024.

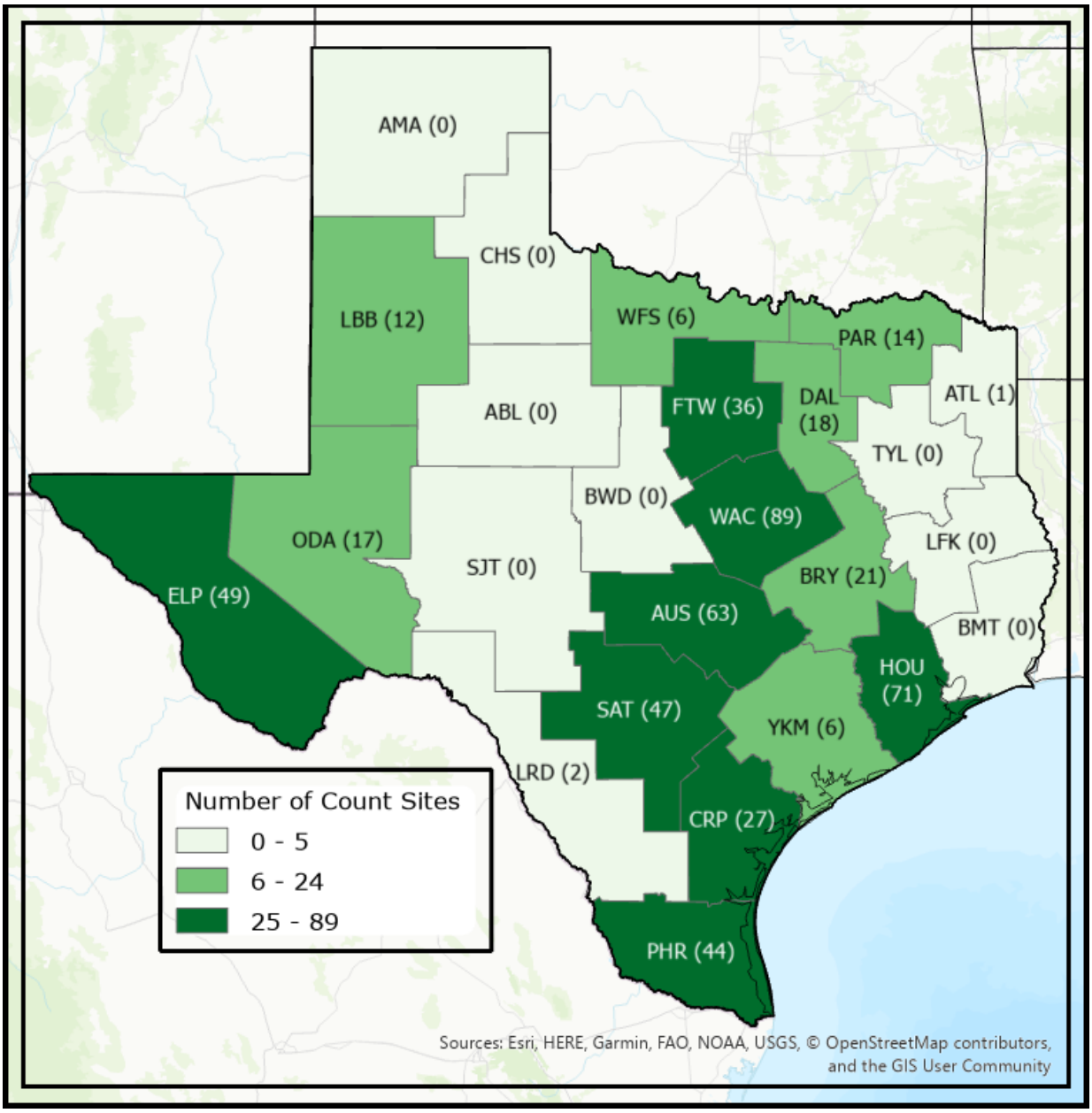

Figure 4: Locations of All Temporary and Permanent Counters in the BP|CX as of August 2024.

Temporary Counters. Temporary or short-term counters excel in spatial coverage because they are portable and can be deployed in large batches throughout a region at one time. Their lower unit costs make them an affordable option for collecting data across multiple locations; however, they do not offer the same level of temporal detail as permanent counters because short-term count deployments are only scheduled for about 2–3 weeks at a time. Appendix A contains more detailed information about counters.

Between September 2023 and August 2024, 152 short-duration counters were installed, all of which were owned by TxDOT (see Figure 5).

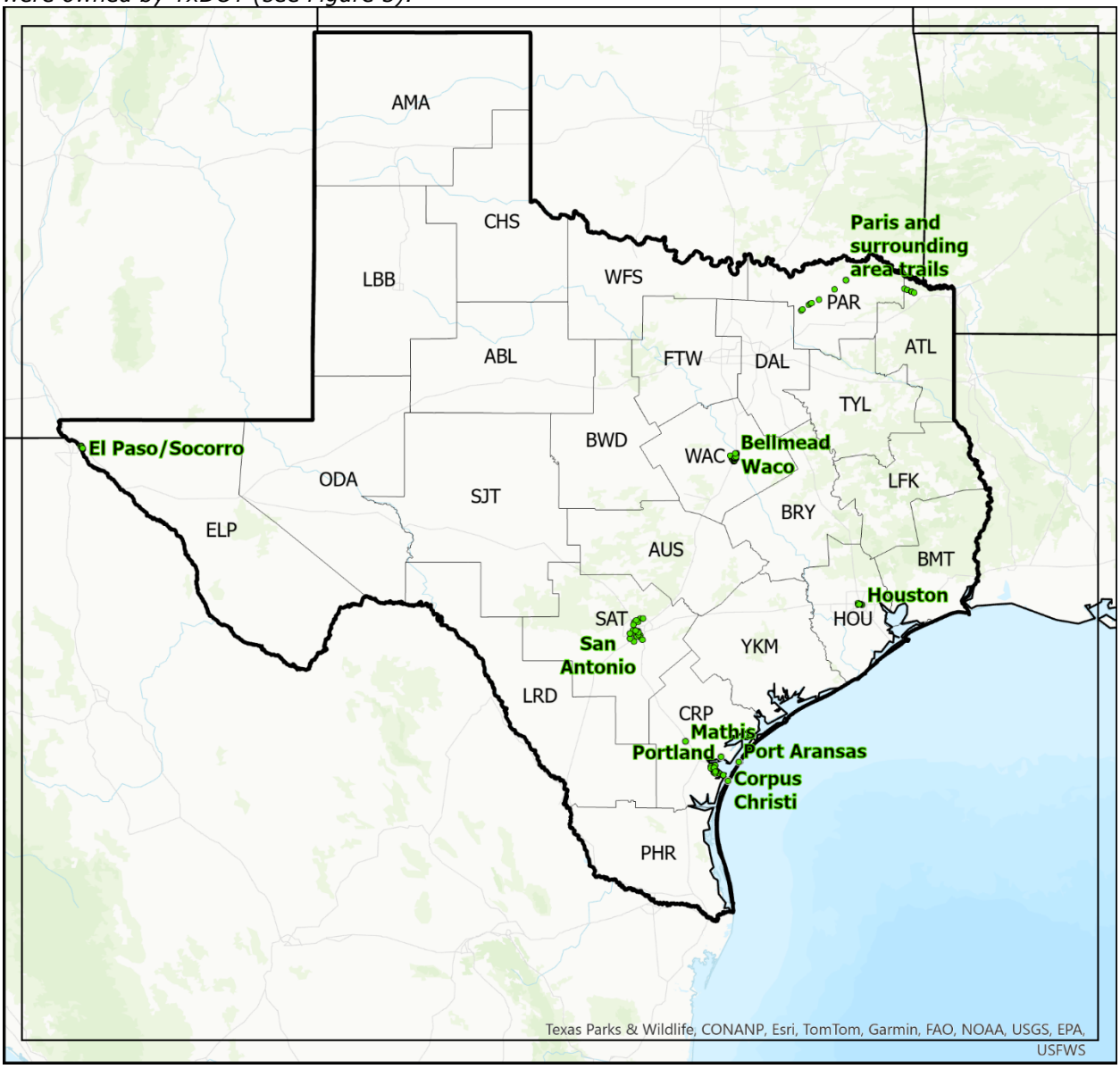

Figure 5: Locations of TxDOT-Owned Temporary Counters Installed September 2023–August 2024.

Equipment Challenges. A robust count program requires a balanced mix of both permanent and short-term counters to effectively meet temporal and spatial coverage needs, with the optimal balance depending on the specific geographic area and the unique goals of the local agency count program.

Data limitations in nonmotorized counting arise from the technological constraints of current equipment, which primarily differentiate between bicyclists and pedestrians. While some advanced counters are starting to recognize other micromobility modes (e.g., scooters and skateboards) using artificial intelligence or other technologies, these systems are often costly and demand extensive installation and maintenance. Consequently, the most widely accessible counting equipment tends to

overlook variations in micromobility beyond bicyclists and pedestrians. The most affordable counters — commonly used by TTI — cannot distinguish between different modes of travel.

TxDOT Atlanta District

The TxDOT Atlanta District initiated an analysis of State Line Avenue/U.S. 71 in Texarkana. This route divides Texas and Arkansas, so close coordination on the study was critical. An initial nonmotorized volume request directed at TTI developed into assistance in assessing and documenting existing conditions. A high frequency of pedestrian crashes had been reported along this route, but the district lacked nonmotorized volume data. TTI researchers met with district personnel to gather motor vehicle volume and crash data and discuss the areas with the highest volumes and safety issues. The TTI team deployed counters and cameras to document the existing volumes and behaviors, as well as the existing infrastructure and deficiencies. As a result of the field study, signal warrants, hybrid beacons and rectangular rapid flashing beacons were suggested. The data and discussions were used to adjust and add additional safety features and nonmotorized infrastructure to improve the safety and comfort of the proposed improvements.

TxDOT Bicycle and Pedestrian Counter Loan Program

If an agency does not have the resources to purchase counters, they can borrow counter equipment through the TxDOT Bicycle and Pedestrian Counter Loan Program. Between September 2023 and August 2024, three agencies have utilized the counter loan program, deploying 45 counters among the City of Austin, San Antonio Public Works and the Houston-Galveston Area Council–Willow Fork Drainage District.

Post Data Collection Efforts

Import Process

The data are QA/QC'd by the collector before being viewable online. More detailed information about each step of the data import process is included in Appendix A. Additionally, this information can be found in *The Bicycle and Pedestrian Count Exchange (BP|CX) User Manual*.[9]

Quality Assurance/Quality Control

After a station has been created and data have been uploaded, the next step is QA/QC (quality assurance/quality control) and data certification. The QA/QC process for nonmotorized count data has historically been difficult and lies at the center of why nonmotorized count data are not often used even if collected. In the past, most data were not reviewed for quality due to file sizes and computing

[9] https://ftp.dot.state.tx.us/pub/txdot/ptn/bicycle/bicycle-pedestrian-count-exchange-manual.pdf

limitations, a lack of review tests and standards, multiple file formats, and a lack of resources to perform the task. The BP|CX attempts to streamline this cumbersome process from large spreadsheets and pivot tables to a more manageable and automated process. *Figure 6* summarizes the quality review process in the BP|CX following the data import process. Please note factoring is not being done at this time.

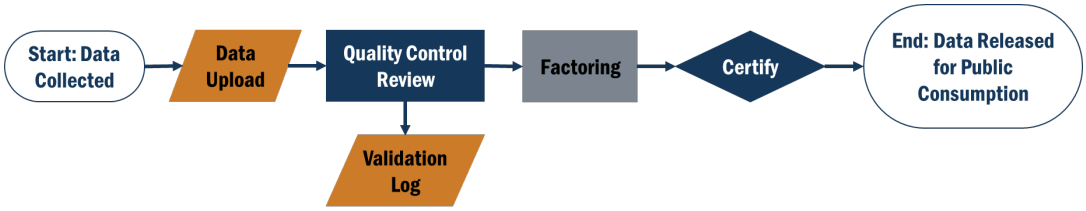

Figure 6: Flowchart for Reviewing Data Quality.

The Bicycle and Pedestrian Count Exchange (BP|CX) User Manual provides more detailed information about each step of the quality review process.**Error! Bookmark not defined.**

Figure 7 shows a screenshot of a station awaiting data quality control and certification in the BP|CX data manager portal as part of the quality review process. Once all counts have been properly reviewed for quality, an authorized user is required to certify the reviewed counts for quality to the best of the reviewer's ability. This certification also ensures that invalid or abnormal counts have been properly logged and that all counts are now ready for use/public consumption. The reviewed data are then released on the BP|CX public visualization website the next morning.

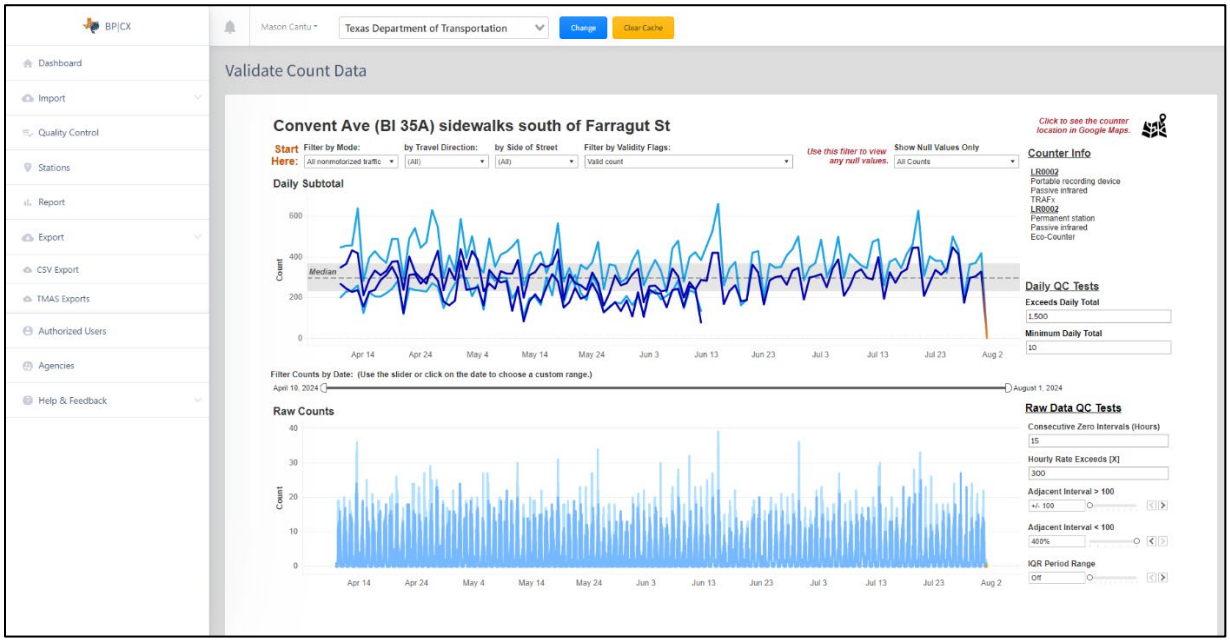

Figure 7: Screenshot of Count Data Validation Step in the Quality Review Process.

The upload and QA/QC processes for short-term counters are straightforward, occurring only once per station and per deployment. This process is more complex for permanent counters because data must

be regularly imported, reviewed for quality and certified to ensure that the most up-to-date information is available to the public. Regularly checking data also assists in identifying any counter malfunctions requiring repair or recalibration. Therefore, it is crucial to establish clear data management responsibilities within contributing agencies to maintain the integrity of the permanent counter data.

This regular management of data has proven to be a significant issue for agencies with staff constraints. The BP|CX is a tremendous resource, but the future of this data exchange remains dependent on the commitment of other agencies to upload counts and regularly maintain the data in the BP|CX.

Local Partnerships and Coordination with TTI

Relationships with other agencies is critically important and has allowed TxDOT to expand the BP|CX through uploaded bicycle and pedestrian count data from partnering MPOs, cities and other stakeholders. These shared resources enhance the program's overall efficiency. To date, the following 21 local Texas agencies have contributed to the BP|CX, representing a wide range of stakeholders including nonprofits, transportation agencies, MPOs, toll road authorities and others:

- Austin Transportation Department
- City of Austin Urban Trails Program
- City of Brownsville
- City of College Station
- City of Dallas
- City of Plano
- Corpus Christi MPO
- Houston-Galveston Area Council
- Memorial Park Conservancy*
- San Antonio River Authority
- TTI
- TxDOT
- North Central Texas Council of Governments
- Texas A&M AgriLife Extension
- Rio Grande Valley MPO
- City of San Antonio–Parks and Recreation
- Paso del Norte Health Foundation*
- Northeast Texas Trail Coalition
- Central Texas Regional Mobility Authority
- Houston Parks Board
- Willow Fork Drainage District

* Nonprofit organizations

TxDOT Waco District

The TxDOT Waco District has made a concerted effort to accommodate pedestrians and bicyclists during the reconstruction of I-35 and to understand how the I-35 project impacted walking and bicycling. Nonmotorized count data was collected using multiple methods and across the different seasons of the year. Through TxDOT's BP|CX, the Waco District and its partners — the Waco MPO, City of Waco and Baylor University — gained valuable information about the number of people walking and bicycling along and across I-35 interchanges and in the downtown and university areas. Short-term and permanent counters and video recordings captured activity and provided details that these agencies can use and have used to make decisions about safety, planning, operations and construction. In many cases, the number of nonmotorized users (more than 200 per day) crossing I-35 was valuable information for TxDOT and the contractor to ensure that those users were accommodated during construction with pedestrian access through work zones. Other districts have gained valuable insights from the Waco District about accommodating pedestrians and bicyclists during construction projects and benefit from informational tools and materials developed to assist with outreach efforts.

4.0 Baseline Inventory/Infrastructure

TxDOT has made significant investments in increased bicycle and pedestrian infrastructure. TxDOT's open data portal provides the bikeway[10] and sidewalk inventory for the state.

Current Infrastructure

Bikeway Data

Bikeway data indicated 165.5 linear miles of different bikeway types reported in 17 of the 25 districts between January 8, 2019, and October 28, 2020 — the date of the latest addition or update to the dataset. Figure 8 depicts the bikeway data, which includes the following types of bikeways:

- Bike lanes
- Buffered bike lanes
- Shared lane markings
- Separated bike lanes
- Separated shared use paths
- Shared use paths
- Shoulders (marked and signed)
- Shoulders (signed)

These data were categorized by multiple attributes such as:

- Bikeway type
- Associated route
- Distance from origin and reference to route
- Length
- Width
- Buffer width
- Condition
- Survey date
- Surface type
- City, county and TxDOT district
- Survey type, date and status
- Associated MPO (when available)

Table **2** displays the total mileage for each bikeway type by district. Figure 8 shows all bikeway types grouped as shared use paths, bike lanes and shoulders. The color scheme in Table **2**— the first four columns shaded in green (bike lane, buffered bike lane, shared lane markings, and separated bike lane), the next two columns shaded in blue (separated shared use path and shared use path), and the

[10] https://gis-txdot.opendata.arcgis.com/datasets/TXDOT::2019-bicycle-inventory-lines/explore

final column shaded in red (shoulder [marked or marked and signed]) — reflects the aggregation of bicycle types into the three groups (bike lanes in green, shared use paths in blue and shoulders in red) in Figure 8.

Table 2: Total Mileage for Each Bikeway Type by District as of 2020.

TxDOT District	Bike Lane				Shared Use Path	Shoulder
	Bike Lane	Buffered Bike Lane	Shared Lane Markings	Separated Bike Lane	Shared Use Path	Shoulder (Marked or Marked and Signed)
Abilene	N/A	N/A	N/A	N/A	N/A	N/A
Amarillo	0.34	0	0	0	0.00	0
Atlanta	N/A	N/A	N/A	N/A	N/A	N/A
Austin	4.37	0.388	0	0	0.49	0
Beaumont	0	0	0	0	2.41	0
Brownwood	N/A	N/A	N/A	N/A	N/A	N/A
Bryan	2.039	0	0	0	0.17	0
Childress	N/A	N/A	N/A	N/A	N/A	N/A
Corpus Christi	5.279	0	0	0	0.15	0
Dallas	0.531	0.036	0	0.711	0.31	0
El Paso	3.22	5.409	0.703	0	3.39	10.71
Fort Worth	1.233	0.441	0.197	0	0.85	0
Houston	17.904	0.04	0	0	1.68	0.953
Laredo	0.969	0.725	0.138	1.338	0.00	0
Lubbock	N/A	N/A	N/A	N/A	N/A	N/A
Lufkin	N/A	N/A	N/A	N/A	N/A	N/A
Odessa	N/A	N/A	N/A	N/A	N/A	N/A
Paris	5.696	0	0	0	0.06	0
Pharr	42.476	2.823	0.444	0	0.97	3.481
San Angelo	0.264	0	0	0	0.00	0
San Antonio	27.173	0.83	6.877	0.159	0.03	0
Tyler	4.472	0	0	0	0.00	0

Waco	0.611	0	0	0	0.00	0
Wichita Falls	0	0	0	0	0.00	2.057
Yoakum	N/A	N/A	N/A	N/A	N/A	N/A

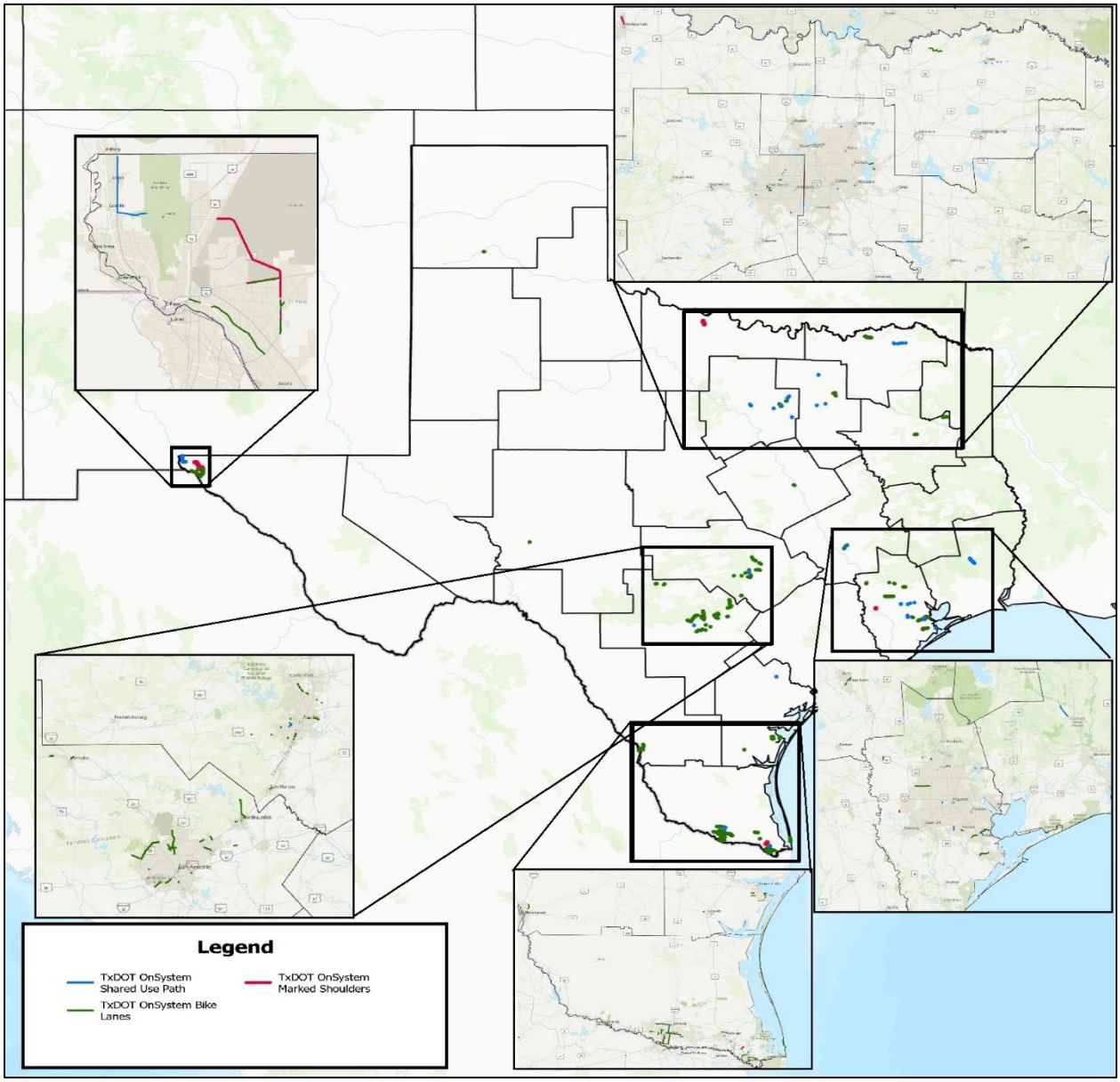

Figure 8: Map of Bikeway Types Grouped as Shared Use Paths, Bike Lanes and Shoulders.

Nonmotorized Facility (Excluding Bikeways) Data

Nonmotorized facility data that excluded bikeways indicated approximately 4,472 linear miles of sidewalks reported in all TxDOT districts between June 21, 2016, and April 27, 2021. This mileage includes sidewalks and sidewalks under construction. Figure 10 depicts these data, grouped as shared use paths, sidewalks, and sidewalks under construction. This mileage includes 52.5 miles of sidewalk under construction as of April 27, 2021. Approximately 490.9 linear miles were designated as missing sidewalk, buried sidewalk, sidewalk gap, missing bus connect, not surveyed, or no sidewalk; these data were excluded from Figure 10.

The sidewalk data were categorized by multiple attributes such as:

- Sidewalk type
- Associated route
- Distance from origin reference to route
- Length
- Width
- Condition
- Vertical alignment
- City, county and TxDOT district
- Survey type, survey status and review status

Table 3 displays the total mileage for shared use paths and sidewalks by district. The color scheme in Table 3— the first column shaded in yellow-orange (sidewalk) and the second column shaded in blue (shared use path) — is consistent with the color scheme used in Figure 9.

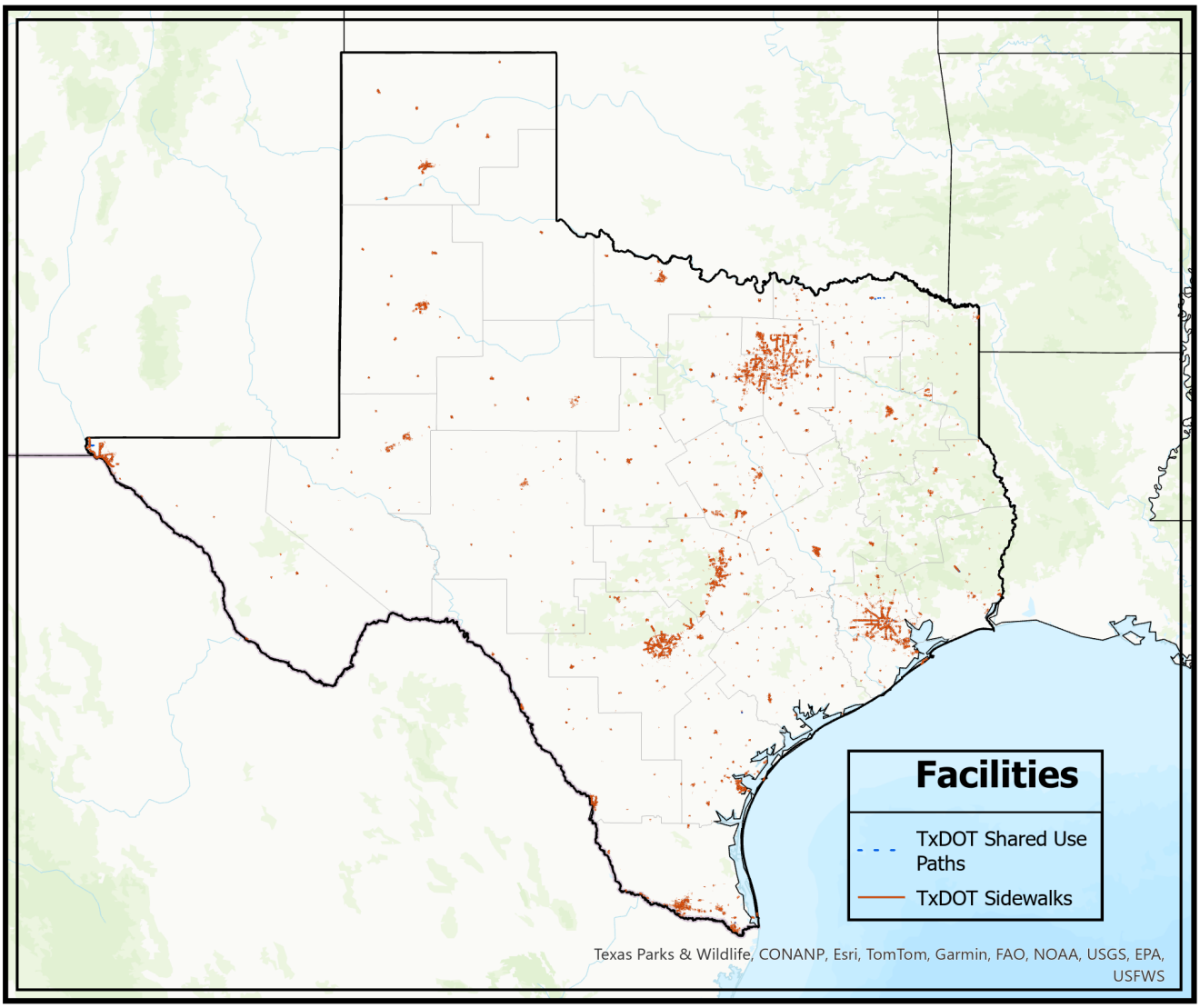

Figure 9: Map of Nonmotorized Facility Types Grouped as Shared Use Paths and Sidewalks.

Table 3: Total Mileage for Sidewalks and Shared Used Paths by District as of 2021.

TxDOT District	Sidewalk	Shared Use Path
Abilene	43.691	N/A
Amarillo	112.965	0.000
Atlanta	36.028	N/A
Austin	314.580	0.491
Beaumont	53.927	2.412
Brownwood	69.629	N/A
Bryan	116.077	0.174
Childress	6.656	N/A
Corpus Christi	185.316	0.155
Dallas	610.487	0.307
El Paso	240.544	3.391
Fort Worth	353.494	0.849
Houston	586.217	1.676
Laredo	111.497	0.000
Lubbock	110.148	N/A
Lufkin	49.353	N/A
Odessa	72.352	N/A
Paris	109.878	0.061
Pharr	310.039	0.968
San Angelo	45.044	0.000
San Antonio	499.730	0.032
Tyler	127.823	0.000
Waco	166.728	0.000
Wichita Falls	73.535	0.000
Yoakum	65.951	N/A
Grand Total	**4471.688**	**11.123**

Project Implementation

Many bicycle and pedestrian construction projects are underway or scheduled to begin within the next four years.[11] Figure 10 shows the locations of these projects as of October 10, 2024. The projects span the state in both urban and rural districts. As these projects are constructed, the inventory database will be updated. Please note the map only shows Transportation Alternative and ADA/Pedestrian Program funded projects which are standalone bike and pedestrian projects. TxDOT installs many more bicycle and pedestrian facilities as part of larger TxDOT roadway projects.

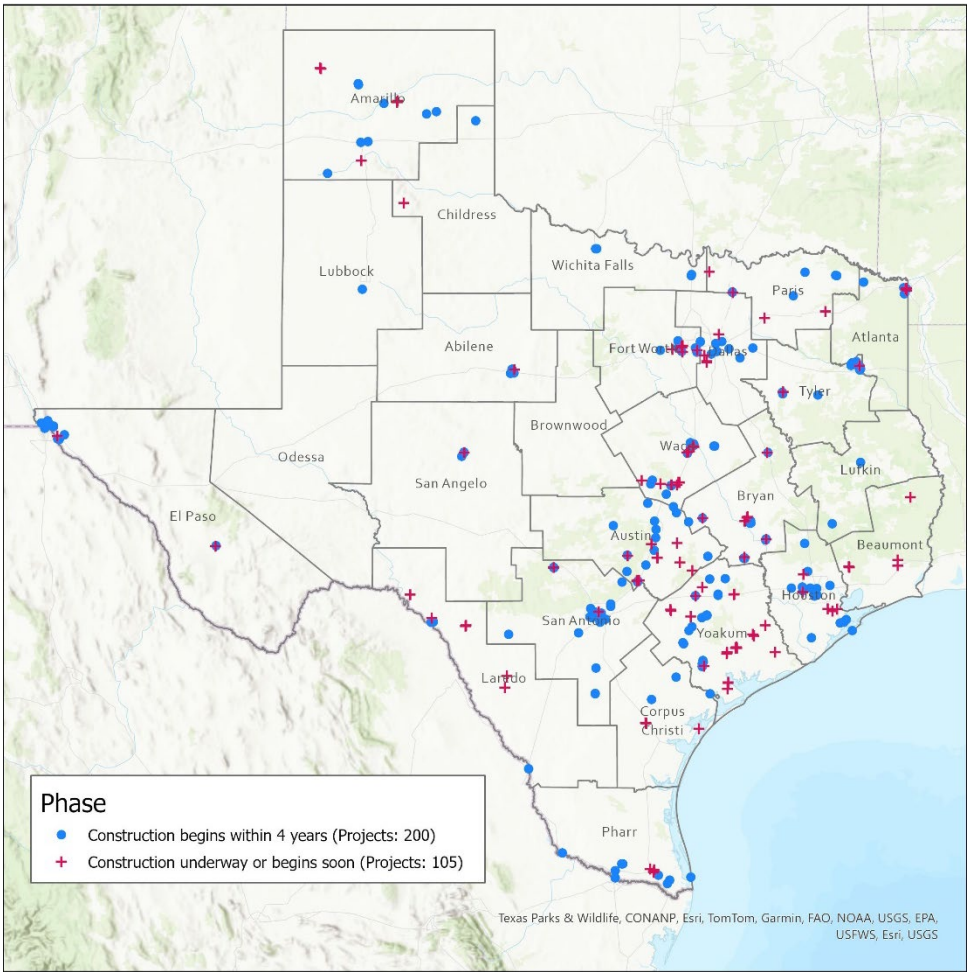

Figure 10: Locations of Current and Forthcoming Bicycle and Pedestrian Projects from TxDOT's Project Tracker.

[11] https://apps3.txdot.gov/apps-cq/project_tracker/

5.0 Data and Analysis

Data collected and stored in the Texas BP|CX allow users to view count results across the different TxDOT districts and counties; for pedestrians, bicycles, or these two modes combined; and by year. In most cases, ADT estimates are available, often segregated by weekday and weekend traffic. If sufficient data exist, AADT estimates are calculated. As of October 14, 2024, 172 permanent counters and 818 short-duration count locations existed in the state. These counters are owned by TxDOT, cities, counties, MPOs and other agency partners. General counter locations can be found on the BP|CX website.[12] Figure 11 shows a screenshot of the BP|CX website indicating the presence of counters by county; the darker blue shading indicates a higher number of count locations. Harris (Houston), Travis (Austin), Bexar (San Antonio), McClennan (Waco) and Dallas Counties have the highest number of count stations with at least 85 locations.

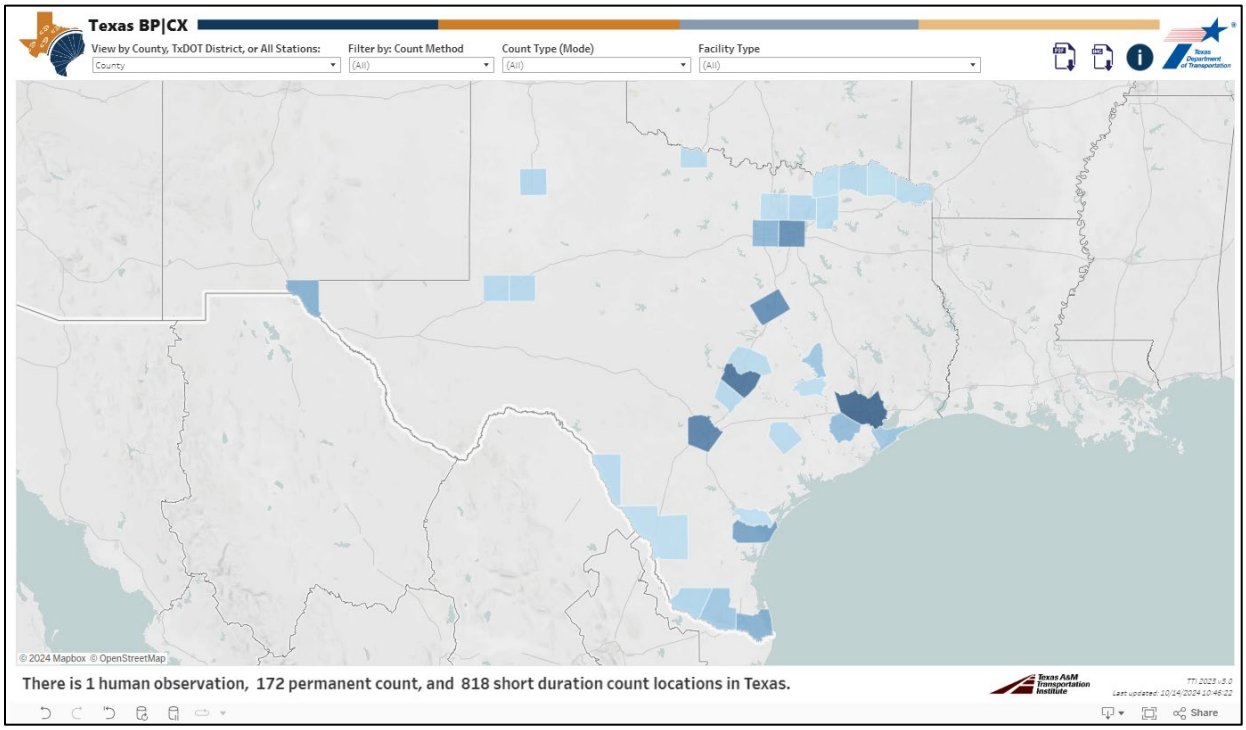

Figure 11: Screenshot of the Texas BP|CX Website Indicating the Presence of Counters by County.

To better understand the distribution of counters beyond physical location, Figure 13 shows the distribution of TxDOT-owned permanent counters by facility type, surrounding land use and surrounding income level. Facility type and land use data were recorded by TTI staff at the site location, and income data was sourced from the U.S. Department of Housing and Urban Development.[13] This method of counter metadata analysis provides a guiding framework for staff when determining new permanent counter sites.

[12] https://mobility.tamu.edu/bikepeddata/
[13] Low to Moderate Income Population by Block Group | HUD Open Data Site (arcgis.com)

Station Metadata Fields	Station Metadata Subfields	Facility						Land Use						Low-to-Moderate Income		
		Marked bicycle lane	Overpass for nonmotorized traffic	Side-path for bicycles and pedestrians	Sidewalk	Trail not associated with a roadway	Wide shoulder	Residential	Commercial/Industrial	Mixed Use	Civil/Open Space	Special Purpose	Vacant/Undeveloped	Less than 33%	Between 33%-67%	More than 67%
Facility	Marked bicycle lane	5.5						1	1.5		1	1	1	3	1	1.5
	Overpass for nonmotorized traffic		3					1		1		1			1	2
	Side-path for bicycles and pedestrians			12				6	3		2	1		6	5	1
	Sidewalk				17.5			3	11.5	2	1			2	8	7.5
	Trail not associated with a roadway					5		1	3		1			2	3	
	Wide shoulder						1				1			1		
Land Use	Residential	Refer to Facilty x Land Use						12						4	4	4
	Commercial/Industrial								18					3	9	6
	Mixed Use									1					1	
	Civil/Open Space										6			4	2	1
	Special Purpose											3		2	1	
	Vacant/Undeveloped												1	1		
Low-to-Moderate Income	Less than 33%	Refer to Facility x Low-to-Moderate Income						Refer to Land Use x Low-to-Moderate Income						14		
	Between 33%-67%														17	
	More than 67%															10

Figure 12: Distribution of TxDOT-Owned Permanent Counters by Facility Type, Land Use and Income Level.

For the purposes of this table, please note that some counters have 0.5 because one of the permanent counters is an eco multi and is counting on the sidewalk (post) and marked bike lane (zelt loops). To avoid undercounting or overcounting the counter is split in half.

Statewide Activity

Based on a growing number of AADT values from permanent count locations across the state, statewide nonmotorized activity can now be tracked starting in 2020. Table 4 provides the percentage change in AADT from the previous year for bicycle-only, pedestrian-only, and all nonmotorized traffic (the combination of bicycle-only, pedestrian-only, and data lacking modal distinction).

Table 4: Statewide Nonmotorized Activity, 2020-2023.

Reference Year	All Nonmotorized Traffic	Bicyclist-Only	Pedestrian-Only
2020–2021	–10%	–24%	1%
2021–2022	–4%	–4%	–4%
2022–2023	–6%	–4%	–16%

The value for all nonmotorized traffic provided the best general picture of nonmotorized activity across the state. Although 2020 was the first year an analysis of this type was able to be conducted, the COVID-19 pandemic caused a spike in nonmotorized activity to unprecedented levels during the statewide quarantine. Each year's value compared to the previous year's value was based on this historic 2020 high level, explaining the gradual decrease in activity. The 24% decline in bicycle activity from 2020–2021 was likely due to more people using their cars more as the quarantine began to lift and having less free time to cycle.

Another noteworthy trend was the impact of the weather — heat in particular — on statewide nonmotorized activity levels (pedestrian). The statewide heatwave in 2023 lasted from the beginning of June to the end of October with little to no rain and few breaks from 100+ degree heat. A closer inspection of the data confirmed that pedestrian activity levels statewide nearly flatlined during the entire heat wave.

Individual Station Activity

Table 5 shows the TxDOT counter locations with the highest nonmotorized and pedestrian AADT in 2023. An asterisk (*) next to the count amount in Table 5 indicates ADT data was used for one or more of the station flows in lieu of insufficient AADT data. The reason that both nonmotorized and pedestrians are included in this table is that some of the counters do not distinguish between the roadway user (pedestrian, bicyclist, scooter, etc.). Table **6** shows the TxDOT bicycle counter locations with the highest AADT in 2023. These counters are able to distinguish the bicyclists from other users. Tables 5 and 6 reflect the highest bicycling and walking activity levels from across the state. The highest count locations include a range of large urban areas and smaller rural areas, border cities and coastal areas, and university areas and downtowns. Facilities include sidewalks, shared use paths, trails, worn paths and bridges.

Table 5: Highest Ranked Nonmotorized (bicycles and pedestrians) AADT Counter Locations in 2023.

#	Station Name	TxDOT District	Count Type	Facility Type	2023 AADT
1	E Paisano Dr (US 85) southeast sidewalk east of S Oregon St	El Paso	Pedestrians only	Sidewalk (TMG code 3)	2607
2	Convent Ave (BI 35A) sidewalks south of Farragut St	Laredo	Pedestrians only	Sidewalk (TMG code 3)	1423(*)
3	E San Antonio Ave south sidewalk west of N Kansas St	El Paso	Pedestrians only	Sidewalk (TMG code 3)	742
4	Boston Ave Ped Bridge at Marsha Sharp Fwy (US 82)	Lubbock	Pedestrians only	Overpass for nonmotorized traffic (TMG code 5)	691
5	Stanton St east sidewalk north of Paisano Dr (US 85)	El Paso	Pedestrians only	Sidewalk (TMG code 3)	514
6	Katy Trail (along US 75) north of McCommas Blvd	Dallas	All nonmotorized traffic	Side-path for bicycles and pedestrians (TMG code 8)	345
7	Lamar Blvd (SH 275) west sidewalk south of Rundberg Ln	Austin	Pedestrians only	Sidewalk (TMG code 3)	292
8	George Bush Dr (FM 2347) north SUP west of Anderson St	Bryan	All nonmotorized traffic	Side-path for bicycles and pedestrians (TMG code 8)	264
9	Lamar Blvd (SH 275) west sidewalk north of Rundberg Ln	Austin	Pedestrians only	Sidewalk (TMG code 3)	249
10	San Bernardo Ave (BI 35A) south of Shea St	Laredo	All nonmotorized traffic	Sidewalk (TMG code 3) & Marked bicycle lane (TMG code 4)	247

Values with an asterisk (*) contain ADT values and cannot be considered AADT.

Table 6: Highest Ranked Bicycle Only AADT Counter Locations in 2023.

#	Station Name	TxDOT District	Facility Type	2023 AADT
1	Wurzbach Pkwy (FM 1502) SUP (Salado Crk Greenway) east of Jones Maltsberger Rd	San Antonio	Side-path for bicycles and pedestrians (TMG code 8)	187
2	Katy Trail (along US 75) north of McCommas Blvd	Dallas	Side-path for bicycles and pedestrians (TMG code 8)	172
3	Bellaire Dr S bike lanes under SH 183	Fort Worth	Marked bicycle lane (TMG code 4)	147(*)
4	Boston Ave Ped Bridge at Marsha Sharp Fwy (US 82)	Lubbock	Overpass for nonmotorized traffic (TMG code 5)	55
5	George Bush Dr (FM 2347) north SUP west of Anderson St	Bryan	Side-path for bicycles and pedestrians (TMG code 8)	53
6	SH 183 NB FR SUP north of Trinity Trails Southwest Blvd Trailhead	Fort Worth	Side-path for bicycles and pedestrians (TMG code 8)	52
7	Duck Creek Trail Connector under IH 30 west of Greenbelt Pkwy	Dallas	Trail not associated with a roadway (TMG code 0)	46
8	Egret Bay Blvd (FM 270) SUP south of Henderson Ave	Houston	Side-path for bicycles and pedestrians (TMG code 8)	44
9	W Sam Houston Pkwy (SL 8) NB FR north of Faust Ln	Houston	Side-path for bicycles and pedestrians (TMG code 8)	43
10	Terry Hershey Park Trail (along Beltway 8) south of Boheme Dr	Houston	Trail not associated with a roadway (TMG code 0)	42

Values with an asterisk (*) contain ADT values and cannot be considered AADT.

Not shown in Table 5 or Table **6** is the regional bicycle and pedestrian count data uploaded to the BP|CX from partner agencies. These partner agencies upload data from 232 counters at 65 stations. The locations with the highest AADT of non-motorized users owned by each of these partner agencies is shown in Table 7. The number of stations owned by each agency is reflected in the "n" value. As seen in the AADT values, some stations have counted 2,500 to 6,000 users per day on average while others are closer to 200 to 800 users per day.

Table 7: Partner Agency Stations with the Highest AADT.

Station Name		AADT
City of Austin (Austin Transportation & Urban Trails)	**n = 27**	
Butler Trail at MoPac/Crenshaw Bridge		5890
Butler Trail: Boardwalk		3188
Butler Trail at S Bank Colorado River east of Pfluger Bridge		2571
Pleasant Valley Road west SUP over Colorado River		1191
Northern Walnut Creek Trail west of Walnut Creek Park Rd		1131
City of Dallas	**n = 11**	
Katy Trail at Cedar Springs Rd		3498
Katy Trail at Fitzhugh Ave		2635
Katy Trail at Harvard Ave		1834
White Rock Creek Trail at Park Central Dr		813
White Rock Lake Trail at Fisher Rd		785
City of Plano	**n = 5**	
Oak Point Park and Nature Preserve Trail south of Parker Rd		421
Russell Creek Trail east of Independence Pkwy		223
Rowlett Trail		166
Bluebonnet Trail at US 75 (north of Chase Oaks Blvd)		146
Legacy Trail south of Windhaven Pkwy		49
City of San Antonio - Parks and Recreation	**n = 6**	
Leon Creek @ Prue Rd		637
Mission Theo Avenue		199
Salado Creek @ MLK		163
Colorado at Alazan		97
North Central Texas Council of Governments	**n = 6**	
Trinity Trail northeast of N Henderson St Bridge		440
Chisholm Trail at Jack Carter Park		360
Chisholm Trail at Orlando Dr		289
Cottonwood Trail north of Exchange Pkwy		210
Cotton Belt Trail east of Holiday Ln		155
Rio Grande Valley MPO	**n = 10**	
Mission Trail west of Conway Ave		307
2nd St Hike and Bike Trail east SUP south of Pecan Blvd		297
Precinct 2 Trail north of E. Ridge Rd (west bank)		296
2nd St Hike and Bike Trail east SUP north of Larkspur Ave		284
Brownsville Historic Battlefield Trail east of Habana Street at Bus Transfer Station		166

North Central Texas Council of Governments

TxDOT and TTI have long partnered with NCTCOG to ensure that data collected by the region as part of the NCTCOG's local report clearinghouse is also uploaded to the Texas BP|CX. As one of the first partner agencies using the BP|CX, the three agencies have worked together to identify the minimum requirements of the exchange, review quality efforts and identify future improvement opportunities for reporting data and statistics.

Over 100 count locations exist in the region to date, all of which provide count data in the exchange for partners and the public to access and visualize. TTI is working with NCTCOG as a regional coordinator to help wrangle data from smaller municipalities or agencies who might not have the resources necessary to process and use their own data. NCTCOG's commitment to nonmotorized data and sensible reporting that is accurate, easily digestible and meaningful continues to drive improvements for the entire count program.

Agency reports are available for TxDOT staff and partner agencies who desire to access and filter the count data in different ways.[14] Figure 13 shows a screenshot of an example count report, ranked by ADT. Reported data can be filtered by TxDOT district, county, station name, count type (mode), count method (permanent or short-term), facility type and year.

[14] https://tableau.tamu.edu/t/TTI/views/AgencyReportTxDOT-Beta/AgencyReport?%3Aembed=y&%3AisGuestRedirectFromVizportal=y

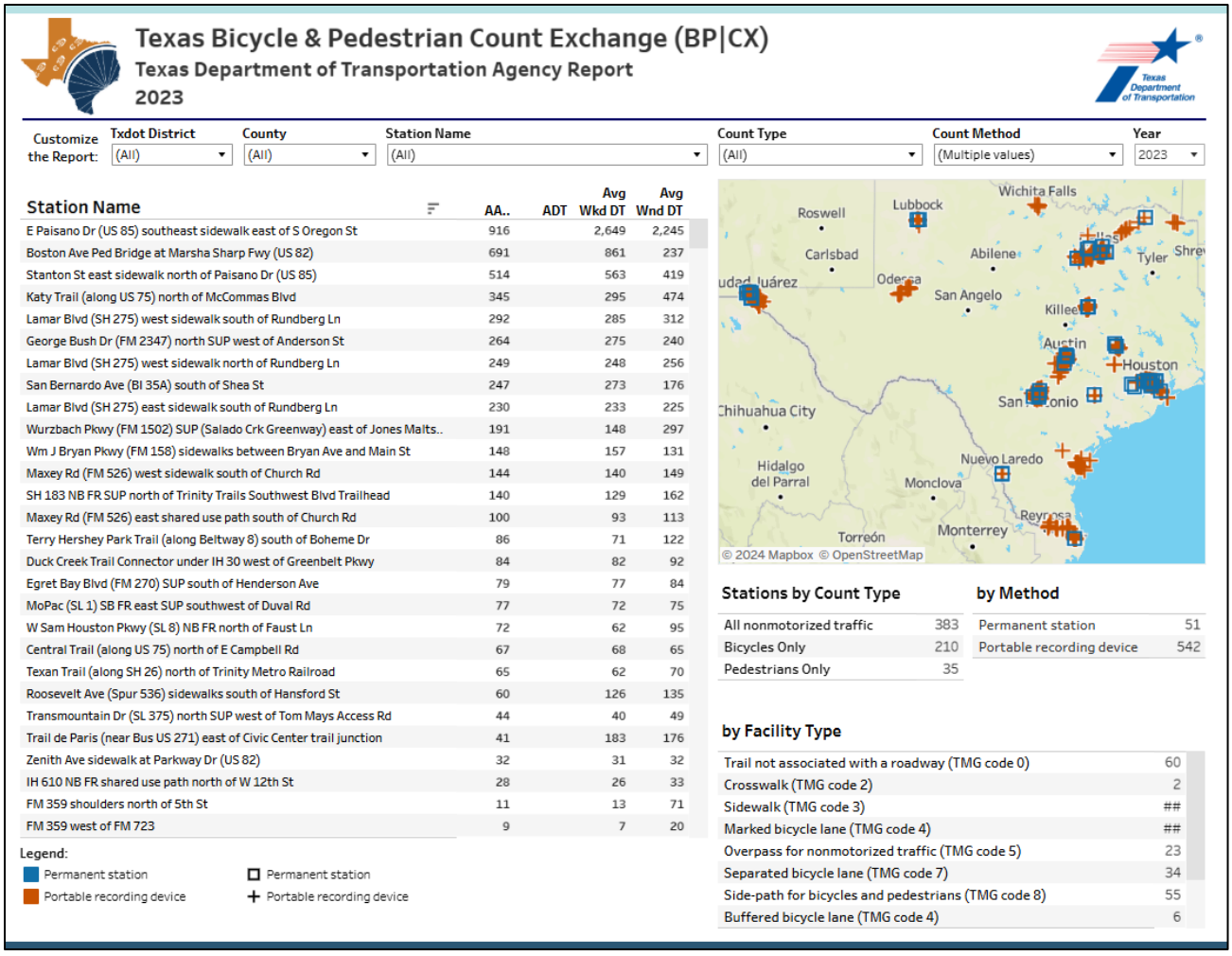

Figure 13: Screenshot of an Example Count Report from the Texas BP|CX.

6.0 Future Reports

Considerations for future reporting include the following:

- **Updated Infrastructure Inventory.** TxDOT plans to begin regular updates of bicycle and pedestrian facilities across the state.
- **Micromobility Data.** Count data regarding other micromobility modes, like scooters or electric bikes, may be collected using emerging technologies (e.g., computer visioning or other forms of artificial intelligence and usage information) for gathering and processing count data.
- **Enhances Safety Data.** Safety data may include information about near misses that are captured by video detection allowing for a more proactive approach to address risk. As technology advances, opportunities will likely be available to improve the methods, equipment and analysis techniques.
- **Integrating Motor Vehicle and Nonmotorized Data.** The incorporation of active transportation data into the robust Statewide Traffic Analysis and Reporting System II — a data analysis and reporting database with detailed traffic data and statistics — is a long-term goal. In addition, traffic data collected and reported according to federal requirements for the FHWA Traffic Monitoring and Analysis System and Highway Performance Monitoring System could include active transportation data in the future.
- **Hardware Condition and Uptime Report in the BP|CX.** Future improvements to the BP|CX could include information and alerts that enable better and more robust counter maintenance. Reporting hardware condition, battery life or cellular signal status could enable better preventative maintenance and reduce the downtime or lost data collection of permanent counters.
- **Seasonal Count Factoring of Short-Term Counts.** Future research into the efficacy of seasonal adjustment factoring to short-term counts may allow for a more geographically varied set of usable data that is more equivalent to permanent counts/AADTs.

The reach of the program will be expanded to more areas as more districts deploy counters, more partner agencies upload data to the BP|CX, and more people understand the value of and uses for the data. Limitations exist, however, when it comes to future funding of bicycle and pedestrian count data programs. TxDOT may be able to tap into existing processes to provide more efficiency and to stretch limited dollars.

Appendix A-Estimating Bicyclist and Pedestrian Counts: A Summary

This section provides guidance to agencies collecting bicycle and pedestrian count data. More comprehensive guidance can be found in the TTI (Texas A&M Transportation Institute) report published in 2019, *Improving the Amount and Availability of Pedestrian and Bicyclist Count Data in Texas*, sponsored by TxDOT (Texas Department of Transportation).[1]

If permanent counters are unavailable, agencies can utilize temporary counters through TxDOT's Bicycle and Pedestrian Counter Loan Program.[2] If an agency desires a longer-term commitment to bicycle counters, they should consider investing in permanent counters; the aforementioned TTI report provides guidance regarding investing in the proper equipment.[1] Whether an agency acquires permanent or temporary counters, the following steps should be taken when collecting bicycle and pedestrian counts:

1. **Work with Other Agencies.** Agencies should work together to determine what types of counts are needed/desired (continuous or short-term), identify placement for counters, and determine a maintenance plan. During this phase, resource sharing opportunities with agencies should be identified to help facilitate the count collection process.
2. **Consider Seasonality.** Pedestrian and bicyclist counts can vary significantly by season, day of week, time of day and weather conditions.
3. **Determine the Required Equipment Based on the Types of Counts Being Collected.** While a variety of technologies are available in the industry to collect data, certain types of technologies are better at measuring and/or distinguishing certain modes. Specific considerations are detailed in the aforementioned TTI report.[1]
4. **Install Data Collection Equipment**. Other coordinating agencies throughout this process could possibly assist in installing the equipment.
5. **Overlap Existing Counts Through Crowdsourced Data.** Once count data are collected, use crowdsourced data sources such as Strava and Ride Report for comparison. Data from multiple sources can provide background information and show a progression of usage. Note that crowdsourced data does not typically accurately represent actual usage because those types of counts tend to favor more advanced and recreational riders, which does not necessarily represent everyday users.
6. **Seasonally Adjust Short-Term Count Data.** As short-term counts are collected, agencies should seasonally adjust the data using the following steps:
    a. **Create a Summary of Traffic Count Patterns from Continuous Counters**. Develop month-of-year, day-of-week and time-of-day summary charts.
    b. **Identify Distinct Traffic Patterns**. Examine charts to identify which continuous counters are most similar or dissimilar.

[1] https://tti.tamu.edu/documents/0-6927-R1.pdf
[2] Bicycle and Pedestrian Count Program (txdot.gov)

c. **Classify Continuous Counters into Unique Factors Groups**. Combine continuous counter locations into unique factor groups.
d. **Calculate Average Adjustment Factors from Each Factor Group**. Calculate average adjustment factors that can be applied to short-duration counts.

7. **Upload Data to the Texas Bicycle and Pedestrian Count Exchange (BP|CX).** Prior to the counts being displayed on the website, registered agencies must first import the counts and conduct quality control on the data via the access-restricted BP|CX data manager portal.[3] This module is only accessible to registered users and provides tools to import/upload, review, factor, mass export and report collected nonmotorized count data for that user's counters. If an agency is not registered, they can do so through the same website. Anyone collecting counts can register. To partner with an agency, however, consider the following list of registered agencies:

    - City of Austin (Austin Transportation & Urban Trails)
    - City of Brownsville
    - City of College Station
    - City of Dallas
    - City of Plano
    - Corpus Christi MPO
    - Houston-Galveston Area Council
    - Memorial Park Conservancy
    - San Antonio River Authority
    - Texas A&M Transportation Institute
    - TxDOT
    - North Central Texas Council of Governments
    - Texas A&M AgriLife Extension
    - Rio Grande Valley Metropolitan Planning Organization
    - City of San Antonio–Parks and Recreation
    - Paso del Norte Health Foundation
    - Northeast Texas Trail Coalition
    - Central Texas Regional Mobility Authority
    - Houston Parks Board
    - Willow Fork Drainage District

Once reviewed and certified, data from this portal are then viewable from the public-facing data visualization. Figure 6 illustrates the data import process, starting with no data and displaying three options for how data can be imported into the BP|CX. More detailed information about each step of the data import process can be found in *The Bicycle and Pedestrian Count Exchange (BP|CX) User*

[3] https://txbpcx.org/

Manual.[4]

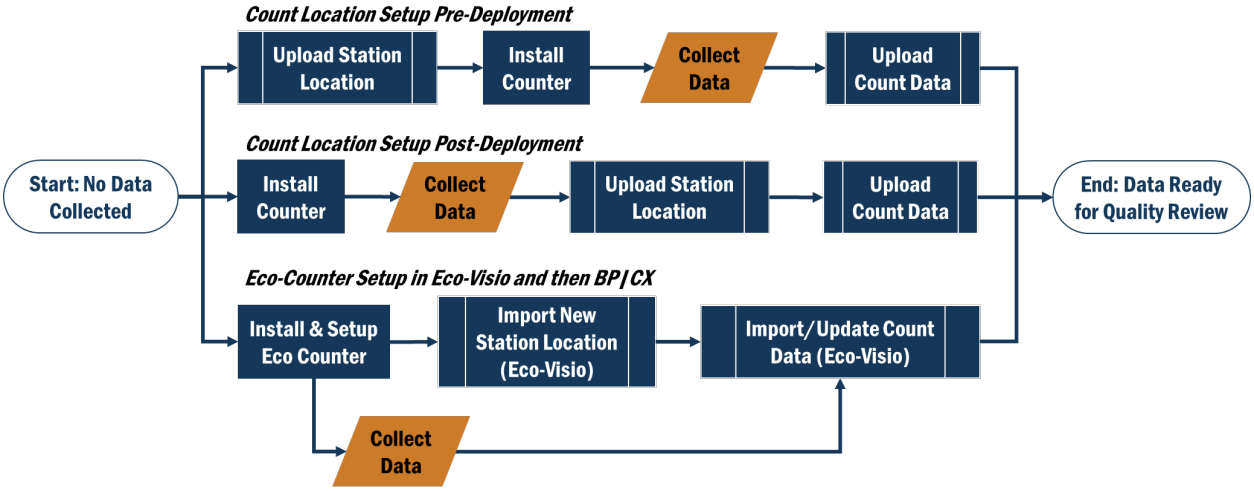

Figure 14: Flowchart for Importing Data into the BP|CX.

As noted previously, this section provides a short summary of how agencies can collect counts. It is highly recommended that agencies read through the aforementioned TTI report for specific guidance on collecting data counts.[1] The success of the Texas BP|CX relies on dedicated agencies and individuals throughout the state.

[4] https://ftp.dot.state.tx.us/pub/txdot/ptn/bicycle/bicycle-pedestrian-count-exchange-manual.pdf

Appendix B-Glossary

General Terms

Continuous Count. A volume count derived from permanently installed counters for a period of 24 hours each day over 365 days (except for leap year) for the data-reporting year.[1]

Continuous Count/Data Program. Refers to the program management aspects of maintaining, storing, accessing and reporting data from continuous counters within an overall travel monitoring program. In some states, this is referred to as the Permanent Count Program. For the purposes of the *Traffic Monitoring Guide*, the program will be referred to as the Continuous Data Program.[1]

Intersection Crossing Counts. Counts taken where a micromobility facility crosses another facility of interest, usually including turning movements.[1]

Micromobility. An updated and modern definition of a nonmotorized program that incorporates pedestrians, human-powered bicycles, scooters, hoverboards, e-bikes and other micro-powered traffic.[1]

Screen Line Counts. Counts taken at a mid-segment location along a micromobility facility (e.g., sidewalk, bike lane, cycle track, shared use path).[1]

Short-Term Count. Counts collected on a noncontinuous basis, allowing the temporal data to be expanded to other areas. Consequently, these counts could be considered as supplying spatial data.[1]

Short-Term Count Program. Refers to the noncontinuous data collection program management aspects of an overall travel monitoring program. Short-term (i.e., short-duration, portable) counts are needed to provide more spatial/geographic count coverage (in addition to the continuous program). Within a short-duration count program, counts are recommended to be taken for 14 days. At least all days of the week should be collected (modified by TTI [Texas A&M Transportation Institute]).[1]

Counter Types and Technologies

Active Infrared Sensor. Active infrared sensors use a signal transmitter on one side of the detection area and a receiver or target reflector on the other side. Active infrared sensors operate by sending a series of infrared pulses in a beam from a transmitter to a receiver. When the beam is broken for a predetermined time, then an event or count is registered.[1]

Inductance Loop Detectors. Inductance loop detectors operate by circulating a low alternating electrical current through a formed wire coil embedded in the pavement. The alternating current creates an electromagnetic field above the formed wire coil, and a conductive object (e.g., car, truck and bike) passing through the electromagnetic field disrupts the field by a measurable amount. If this

[1] 2022 Traffic Monitoring Guide (dot.gov)

disruption meets predetermined criteria, then detection occurs, and an object is counted by a data logger or computer controller.[1]

Passive Infrared Sensor. Passive infrared sensors use a signal transmitter on only one side of the detection area and operate by identifying a changing heat differential in the detection area. If the heat differential and pattern meet predefined criteria, then a detection and/or count is registered.[1]

Portable Counter. A vehicle counter or classifier that is portable/mobile (i.e., can be moved to different locations) and not permanently installed in the infrastructure, including sensors placed across the road.[1]

Traffic Counter. Any device that collects pedestrian, bicycle, micromobility device and vehicle characteristic data (e.g., volume, classification, speed, weight). A traffic counter is placed at specific locations to record the flow distribution and variation by hour of day, day of week, and/or month of year. It may be used to collect data continuously at a permanent site or at any location for shorter periods.[1]

Count Data Terms

Annual Average Daily Traffic. The total volume of users of a facility for a year divided by 280 days to 365 days. It is meant to represent traffic on a typical day of the year and must adhere to string data completeness requirements (modified by TTI).[1]

Average Daily Traffic. The total volume during a given time period (in whole days), greater than one day and less than one year, divided by the number of days in that time period. Average daily traffic is also known as raw data and unadjusted or nonfactored data.[1]

Bicycle and Pedestrian Count Exchange. A nonmotorized count exchange system developed by the TxDOT (Texas Department of Transportation) Bicycle and Pedestrian Program to provide for the collection, quality control and reporting of nonmotorized count data, including bicycle and pedestrian counts for Texas.[3]

Continuous Count Station. Permanent counting site that provides a continuous count of data.[1]

Count Method. Indicates the method used to conduct the count, whether by human observation, portable traffic recording device or continuous count station.[2] Refer to the *Traffic Monitoring Guide* for further information.[1]

Count Mode (Type). Indicates the type of user being counted. All TrafX and Eco Pyro Evo counts must be designated as *all nonmotorized traffic*. Only designate a count as *all pedestrians and bicycles* if the traffic counter used can omit all other nonpedestrian and nonbicyclist users. Refer to the *Traffic Monitoring Guide* for further information.[1]

[2] Microsoft Word - Coding Nonmotorized Station Location Information in the 2016 Traffic Monitoring Guide_Published_2016-12-08.doc (dot.gov)

Count Side of Street. Indicates the side of the street on which the counter is located. All counts conducted on sidewalks must include side-of-street designations.

Count Station. A unique location where nonmotorized counts have been or are being collected (sometimes also referred to as station location or simply as a station). Each station includes data attributes such as geographic descriptors, modes, directions of travel, roadway inventories, land use characteristics, counter equipment types and descriptions, and relevant owner information.[3]

Flow, Flow ID, or Channel (Eco-Visio Only). A fundamental subset of a count station (and station ID) that differentiates the smallest unit of count collected. The smallest unit is made unique by count method, travel direction, mode, and the side of the street on which the count was taken (optional). The flow ID is the unique identifier for each unique set of counts expressed in the following format:

(Station ID)–(Count Method)–(Travel Direction)–(Mode)–(Side of Street [optional])

Flows are the lowest level of detail in count metadata (e.g., AU0001-P-NB-Bic-W).

Channels are usually found as labels on Eco-Counter data downloads for counters that count bicycles and pedestrians separately or counters that can determine directionality.[3]

Metadata. Traditionally, metadata include the who, what, why and where of the dataset. It describes how data are collected or converted for reporting and explains variations in data that do not warrant the establishment of a collection requirement (e.g., equipment type used, sampling frequency etc.).[1]

Statewide Traffic Analysis and Reporting System II. A TxDOT data analysis and reporting database with detailed traffic data and statistics that provides public viewing of annually reported traffic data, as well as data and statistics that are not part of the annually validated data set.[4]

Station ID. A six-character count station identifier that indicates a location at which a set of counts is collected.[2] The first two digits indicate the city or area, and the last four digits are a sequential number based on its introduction to the database (e.g., AU0001).[3]

Travel Direction. The cardinal travel direction being counted at the station. The closest approximation should be provided if travel is not exactly in a cardinal direction. If more than one direction is counted, separate records/rows should be included for each direction.[3]

Wrong Way Direction. A wrong way direction designation (a user's travel direction followed by W) indicates that the count is measuring traffic moving in the wrong direction intended by the facility or legally (i.e., SBW indicates that a bicyclist is traveling southbound on a northbound only facility).

[3] The Bicycle and Pedestrian Count Exchange (state.tx.us)
[4] https://txdot.ms2soft.com/tcds

Acronyms

AADT. Annual average daily traffic.

ADT. Average daily traffic.

BP|CX. Bicycle and Pedestrian Count Exchange.

BTT. Bicycle Tourism Trails.

BTTS. Bicycle Tourism Trails Study.

MPO. Metropolitan planning organization.

NCTCOG. North Central Texas Council of Governments.

QA/QC. Quality assurance/quality control.

TTI. Texas A&M Transportation Institute.

TxDOT. Texas Department of Transportation.