



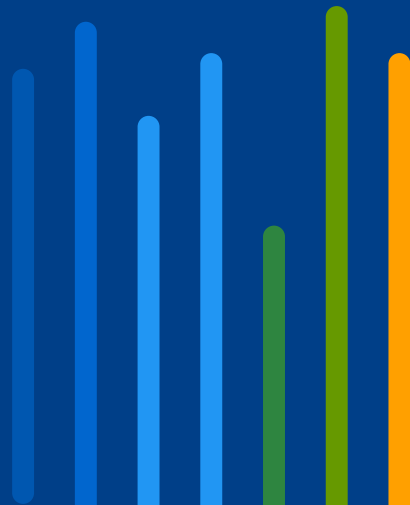
DALLAS BIKE PLAN UPDATE

DRAFT
2023



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2023





Acknowledgments

City Council & City Staff

The Project Planning Team would like to express our sincere gratitude to the Dallas City Council members for their support, guidance, and input throughout the development of the Dallas Bike Plan Update. We also extend our heartfelt thanks to the city staff members who worked tirelessly to gather data, engage with the community and community leaders, and offer valuable insights to the bike network development process, all of which was instrumental in shaping the plan and ensuring the project's success. Without their commitment and dedication, this project would not have been possible.

Bicycle Advisory Committee & Technical Advisory Members

To the members of the Bicycle Advisory and Technical Advisory Committees (BAC and TAC), we thank you for your invaluable contributions to the development of the Dallas Bike Plan Update. Your expertise, experiences, and insight were markedly influential in defining the plan's recommendations and ensuring that this plan reflects the needs and interests of the residents of the City of Dallas.

Project Team & Dallas Residents

We would also like to acknowledge the members of the project consultant team – Gresham Smith, Alta Planning, AMTTAZ, Cemetrics, Criado, and Lim & Associates – who provided their expertise and knowledge to help shape the plan update process. Their professional contributions were instrumental in ensuring that the plan is comprehensive, innovative, and reflective of the unique needs of the Dallas community.

Lastly, we would like to express our gratitude to the residents of the City of Dallas for their input, participation and support throughout the development of this plan. Your feedback, ideas, and enthusiasm for biking were integral to shaping this plan, and we are deeply grateful for your commitment to making Dallas a safer, more bike-friendly city for all. We also hope you had fun during the process!

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EXECUTIVE SUMMARY

Executive Summary

Vision & Goals

The vision for the Dallas Bike Plan was established with contribution from the Bicycle Advisory Committee (BAC) and the Technical Advisory Committee (TAC). This vision was an aspirational statement that defined the objective of the Bike Plan Update for the City of Dallas. The vision statement guided the project team and staff to deliver a plan that will help transform Dallas into a world class city for biking.

UPDATE

Bike Network and Design Standards

CREATE

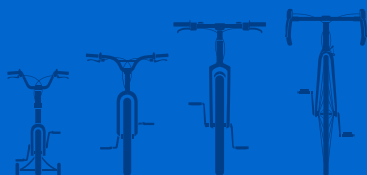
Implementation Plan

SET PATH

Incorporate Plan in City's Guiding Materials

Vision

The Dallas Bike Plan Update envisions a bike network that is unique to our city—one that is safe, accessible, and comfortable—and also provides the avenue for Dallas to become world class for biking. This plan update will focus on developing a safe and connected bike network that serves the different types of people who have to, choose to, and want to bike.



Goals

Update the Bike Network to reflect existing conditions, priority destinations or connections, and desired facility types comfortable for a wide range of ages and abilities.

Update design standards for bike facilities based upon identified national, state, and local best practices.

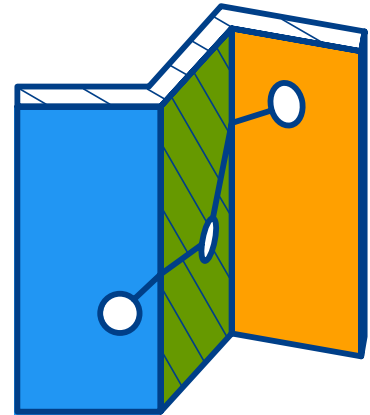
Create a prioritized and phased implementation plan that identifies “quick win” priority bike facilities and establishes priorities for future capital improvement programs. The focus will be on what can be built within the next five years.

Set a path for incorporating the Dallas Bike Plan in the City's guiding policies, plans, and codes.

The goals for the Dallas Bike Plan Update were established by the City and confirmed by the BAC and TAC.

Chapter Summaries

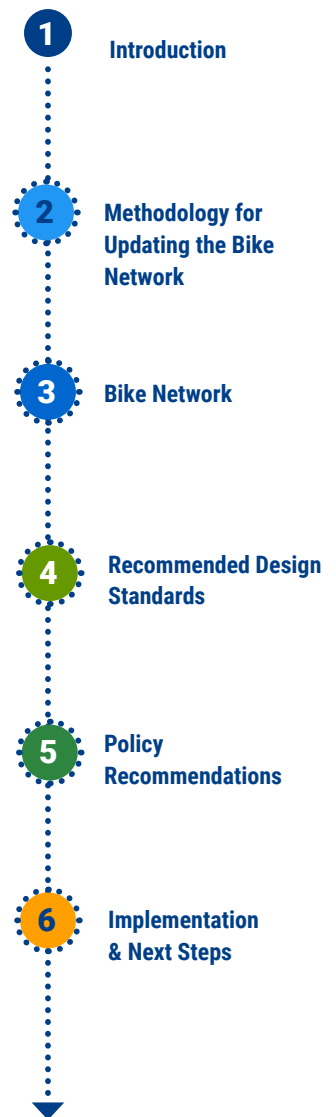
These summaries are of the key themes and chapters for the Dallas Bike Plan Update document. This section serves as a guide to the rest of the document, providing readers with an overview of the major goals and objectives of the plan, as well as the strategies and actions that will be taken to achieve them.



CHAPTER 1

Introduction

This section details the vision set forth for the Dallas Bike Plan Update. It provides a summary of bike-friendly achievements for the City of Dallas since the adoption of the 2011 Bike Plan and bike-oriented goals included in other adopted plans. This includes goals in the *Comprehensive Environmental & Climate Action Plan (CECAP)* for updating and implementing the Bike Plan to decrease single-occupancy vehicle use from 88% currently to 62% by 2050, multimodal transportation goals and policies in *ForwardDallas* to reduce traffic congestion, improve air quality, and support a convenient transportation network with a variety of mode choice, and equitable infrastructure goals, including the introduction of neighborhood traffic calming in equity priority areas, as promoted in Dallas' *Racial Equity Plan (REP)*. Finally, the introduction describes the clear goals set forth by the City of Dallas for this plan update.



CHAPTER 2

Methodology for Updating the Bike Network

This section details the approach used to update and expand the bike network in the City of Dallas, including existing conditions data collection and analysis, community and stakeholder engagement, and the guiding philosophy and principles for the development of the bike network. This methodology was applied to create a comprehensive and inclusive bike network that serves the diverse needs of Dallas residents, supports active transportation, and enhances the overall livability of the city.

Existing Conditions

The existing conditions analysis examined the bike network at the time of this plan's publication, evaluated traffic stress levels, assessed safety outcomes and the City's high injury networks, modeled active trip potential and bike rider demand based on destination and land use, explored equity and public health implications, and highlighted the integration of pedestrian and transit multimodal facilities. For planning consistency, these evaluations were conducted for the seven defined planning areas developed for the Connect Dallas and ForwardDallas planning efforts. These seven distinct geographic regions provide a more detailed review of existing conditions, as well as provide congruence among mobility planning efforts in Dallas.

Key existing conditions observations included 147 existing miles of trails and 73 miles of on-street bikeways, as well as an additional 79 miles of funded facilities that await implementation. Only 11% of Dallas' existing bike network include visually or physically separated barriers in the city streets, leaving most riders highly vulnerable when riding in on-street facilities. Further, the bike network is primarily in Central,



Northcentral, and Northeast Dallas (most heavily concentrated in Downtown and Central Dallas), and it is currently fragmented and disconnected by barriers such as highways and major roadways. The updated bike network provides a robust network of low-stress and separated bike facilities, connected throughout the city, and equitably distributed throughout underserved areas.

The **Level of Traffic Stress (LTS)** analysis describes the expected experience of a bike rider when traveling along a given roadway, and it is measured using characteristics such as the posted speed limit of the roadway, the width of the roadway, and provision of space for bikes. The Bike Plan identified that low-stress roadways make up most of Dallas' street network (65%). The updated bike network capitalizes on this significant opportunity to support a complete, connected system of low-stress routes. The network will support local travel within the city and provide connections to a larger network of regional destinations.

The **safety analysis** considered the locations of bike-involved collisions throughout Dallas and the City's existing Bike High Injury Network (HIN) as identified in the City's Vision Zero Action Plan (2022). As reported in the Vision Zero Action Plan, just 1% of City streets account for 38% of fatal or severe injury collisions involving a person biking. Much of the HIN is in Northeast Dallas, closely followed by Northcentral and Central. Over half of the bike-involved fatalities and severe injuries, however, were located outside of the High Injury Network. The fatalities located outside of the HIN were all located in south Dallas, including

Southwest, Southcentral, and Southeast Dallas planning areas. A disproportionate number of bike-involved fatalities and severe injuries also occurred in the highest need areas in terms of both equity and public health. Although the highest need areas represent 17% of the city's population, these areas have experienced 31% of all serious injury collisions involving a person biking and 29% of fatal crashes involving a person biking. To address this, recommendations in the Bike Plan Update include more connections to and between the existing low-stress bike facilities, particularly along high-stress corridors with a high number of severe or fatal bike-involved collisions.

The **active trip demand analysis** identified areas where most trips are three miles or less in length. When considered in coordination with key destinations and activity centers, this analysis revealed where bike network improvements may have the greatest impact. Short trips make up at least 40% of trips in most areas of the city. Many areas with the highest active trip potential typically have limited existing bike infrastructure and are located along or near highways and high-stress major roadways. As a result, these areas represented significant opportunity to expand the bike network and complete low-stress connections to nearby activity centers, regional routes, and multimodal trip opportunities.

The **equity analysis** sought to discover where people with the highest need for transportation options live within the City of Dallas. Understanding where these communities are most densely located has helped prioritize improvements and ensure that the benefits of future investments are shared across the city. The equity analysis considered variables related to opportunity and accessibility, environmental justice, health, affordability and cost of living, and vulnerability. Based on the results of the equity analysis and public health analysis, the key takeaways include:

- High need areas are in southern areas of the city, with additional areas located most often near highways and other physical barriers. Like the equity analysis, the areas with the poorest health outcomes are located primarily in south Dallas, with the highest concentrations in southcentral Dallas and southeast Dallas (in the area closest to downtown).

- When compared to the results of the safety analysis a disproportionate number of bike-involved fatalities and severe injuries occurred in the highest need areas and areas with the poorest health outcomes. Over a third of bike-involved fatalities (29%) and severe injuries (31%) occurred in the highest need areas. Over a fifth of bike-involved fatalities (21%) and a quarter of severe injuries (25%) occurred in areas with the poorest health outcomes. These outcomes are indicators that these communities are underserved and most at risk and most in need of bike infrastructure.
- While some areas have opportunities to connect to the light rail network, the lack of existing bike infrastructure limits active transportation connections to transit, which can limit access to critical employment centers, further impacting career mobility and job access.

Many of these areas are in South Dallas, which also has the fewest existing bike facilities. This plan recommends the provision of low stress bike facilities in the highest need areas to address these inequities, along with the connection of these facilities to the rest of the existing bike network. Bike facility improvements in this plan have prioritized along high stress roadways—or where a parallel, yet direct alternative exists—with connections to community destinations such as parks, schools, health facilities, light rail stations, and other community services.

Finally, observations regarding the City's existing pedestrian and transit multimodal facilities were discussed. Gaps in sidewalk facilities or connections to transit make it difficult for residents to plan multimodal trips. These difficulties can discourage residents from choosing alternative modes of transportation, as they may feel unreliable or uncomfortable. Although this plan does not include specific recommendations for pedestrian improvements, it is important to consider how both the bike and pedestrian networks interact to support access to transit stops and stations. This plan has recommended and prioritized enhanced bike connections to transit, especially transit stations with limited bikeways and sidewalk connections.

Engagement

Three phases of public outreach, supported by on-going coordination with two stakeholder bodies (the resident-represented Bicycle Advisory Committee and the staff-and-agency represented Technical Advisory Committee), informed the recommendations in the Bike Plan Update.

The first public engagement phase was held in summer 2022, from July 5 – August 21, including a three-week virtual and interactive comment collection period with a supplemental two-week paper-based survey. Most participants mentioned cars, safety, and access to bike facilities as barriers for them choosing to bike, and the majority also supported bike-friendly policy change and a willingness to take a longer route to avoid heavy traffic. Other key take-aways included a general desire for protected or separated bike facilities, directness in bike connections to desired destinations, and exercise as the current predominant purpose of bike trips in Dallas with great opportunity to support biking to work, school, or goods and services.

The second public engagement phase was held in fall 2022, from October 19 – November 14, with seven in-person public meetings held in partnership with Planning & Urban Design and their Land Use Update workshops for ForwardDallas, and four subsequent pop-up focus group events. Participants were invited to provide feedback on the results of the existing conditions analysis, comment on the first draft bike network, build their own desired street by playing a game to learn about the building blocks of a city's right-of-way, and vote on their preferred outcomes to a series of thoughtful question prompts. The majority of participants preferred to see the City construct less miles of bike network in order to build higher cost, protected bike facilities on direct roadway corridors and to have routes provided that serve the local neighborhood destinations rather than being able to get to the city center. Other key take-aways included concerns regarding speed, protection, and driver awareness as common concerns of those interested in biking, and underscored requests for expansion of Dallas' protected, separated, and trail bike facilities.



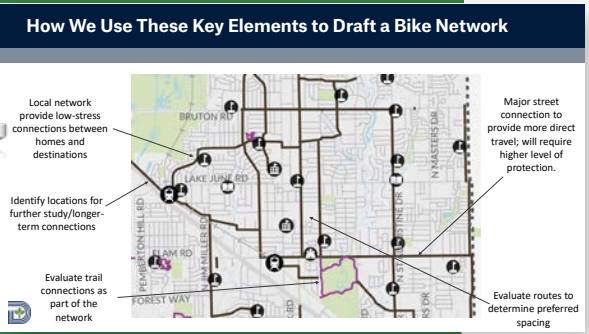
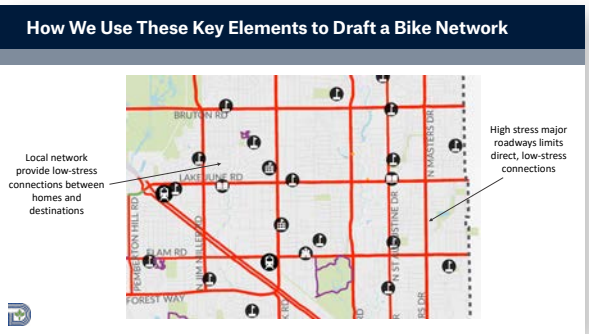
The third public engagement phase was held in summer 2023, from June 19 - July 9, with a two-week online, interactive engagement event and a virtual public forum. Participants were invited to review the draft plan, the fifteen priority capital projects, and the final updated bike network. Participants were encouraged to participate interactively by submitting photos of themselves with their bikes or biking in their favorite places in Dallas or by visiting the sites of the fifteen priority capital projects to provide feedback that would be used in future project development and design. An interactive webmap was provided for virtual comment on the final updated bike network.

The Bicycle Advisory Committee (BAC) and the Technical Advisory Committee (TAC) were formed to provide counsel, guidance, and feedback to the project team. The BAC was comprised of individuals appointed by each of the City of Dallas' 14 City Councilmembers and the Mayor of Dallas, as well as additional members recommended by Dallas Department of Transportation (DDOT) staff to ensure that a diverse cross-section of community voices was represented. TAC members included representatives from the City of Dallas and other intergovernmental and interagency partners, including DART and NCTCOG, who were recommended and invited to participate at City staff recommendation. Five BAC meetings, seven TAC meetings, and one joint BAC/TAC meeting were held during the project. Topics for discussion included visioning and goal setting, recommendations for and edits to the first and second draft bike networks, principles for prioritizing projects and recommendations to the prioritized project list, recommendations for and edits to the proposed bike facility design standards and bike policy recommendations, and validation of the public outreach efforts conducted for each engagement phase.





How We Use These Key Elements to Draft a Bike Network



Network Development

Development of the updated bike network was informed by the results of the existing conditions analysis and comments received during on-going public engagement through the project. The guiding philosophy for defining the bike network was established in collaboration by the project team and the BAC and TAC stakeholder committees. Key elements included establishing connections to existing and future trails, leveraging low-stress routes to promote network connectivity, providing access to destinations and areas of high active trip potential, prioritizing network interconnectivity and directness, and above all supporting bike rider safety and comfort to develop a bike network accessible to all ages and abilities. A supplementary component to

the process, upon the initial development of the first draft network was a planning-level feasibility analysis that was conducted to provide a cursory assessment of the proposed bike network’s implementable viability. A geospatial analysis was conducted for the proposed physically separated facilities in the first draft network, to confirm the route selection or propose a parallel or alike alternative. This analysis reviewed City and TxDOT GIS data on right-of-way, surface width, traffic volume (annual average daily traffic/AADT), heavy truck percentages, roadway configuration and speed limits. The results of the feasibility analysis supported the development of the final bike network.

CHAPTER 3

Bike Network

This section is an overview of the updated bike network proposed for the City of Dallas. The four bike facility types—*Bike Boulevards*, *Visually Separated On-Street Bike Lanes*, *Physically-Separated On-Street Bike Lanes*, and *Trails*—proposed for the bike plan are described with illustrative examples. **Bike boulevards** are quieter, local streets, typically with less cars and lower posted speeds, that feature elements that give priority to bike riders and pedestrians. There is no standard design for a bike boulevard, instead think of it as a kit of possible parts where multiple components are needed at the same time to accomplish a single goal. **Visually separated** bike lanes designate an exclusive space for bike riders on the roadway by using signage and pavement markings. **Physically separated** bike lanes are exclusive bike facilities with a protected barrier to separate cars and bike riders. Paved bike trails, also called shared use paths, are physically and fully separated from the roadway, and they are intended to be shared by bike riders, pedestrians, and other non-motorized users. Overall, the updated city-wide bike network includes recommendations for the improvement or addition of over **536 miles** of bike facilities.



CHAPTER 4

Recommended Design Standards

This section provides detailed guidance on the design of bike facilities and infrastructure in Dallas. This section presents a set of recommended design standards and guidelines that reflect best practices in bike network design and are tailored to the unique needs and characteristics of Dallas. A comprehensive review of the existing *Street Design Manual* (2019), *Complete Streets Design Manual* (2016), *Traffic Sign Standards* (2021), and construction details *File 251-D* (2022) was conducted, with observations of successes and recommended areas for improvement included. A key recommendation, based on assessment and confirmed by comments received by the TAC, is that a unified *Street Design Manual* be compiled that incorporates the Complete Streets design standards and guidelines to support increased usage and compliance.

Detailed recommendations for the Dallas *Street Design Manual* are provided for design manual sections regarding Bicycle Provisions; On-Street Elements (Bikeways & Facilities), Intersections – Bicycle Treatments; Sidewalk, Pedestrian Walkway, and Bikeway Illumination Levels; and Storm Drains. Additional detail is provided to guide the City regarding the provision of physical separators, the interaction between bike facilities and bus stops, the guidance of bike facilities, signalization for bikes. Finally, guidance is supplied for the selection of the appropriate bike facility based on existing conditions characteristics.

CHAPTER 5

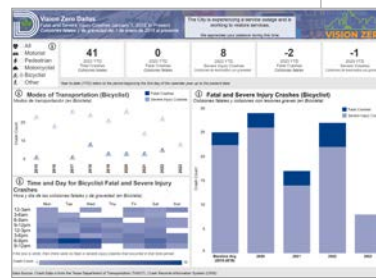
Policy Recommendations

This section outlines a set of policy changes and strategies that can help support and enhance the future and existing bike network in Dallas. This section presents a range of recommendations that aim to improve conditions for bike riders, promote active transportation, and integrate biking into the broader transportation system.

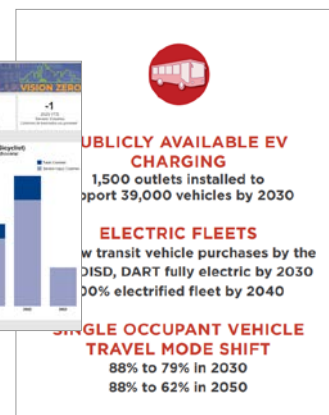
To provide a more robust assessment of the region's bike policies, the project team reviewed the following documents:

- 2011 Bike Master Plan
- Connect Dallas (Strategic Mobility Plan) (2021)
- Dallas 360 Plan (2017)
- City of Dallas Vision Zero Action Plan (2022)
- Dallas Comprehensive Environmental and Climate Action Plan (CECAP) (2020)
- Dallas Development Code
- Dallas Street Design Manual (2019)
- Dallas Complete Streets Design Manual (2016)
- Bike Signals Policy (draft as of July 2022)

Four policy recommendations regarding staff coordination, development permitting, the use of green paint in bike lanes, and the installation of low-cost/quick-build design or operational modifications are detailed. Three action items, including the utilization of a standard methodology for identifying, prioritizing, and implementing bike facility improvements, enhanced public messaging of Vision Zero, and collaboration with partner departments and agencies are described with their subsequent recommendations.



Images from the CECAP and Vision Zero Dashboard



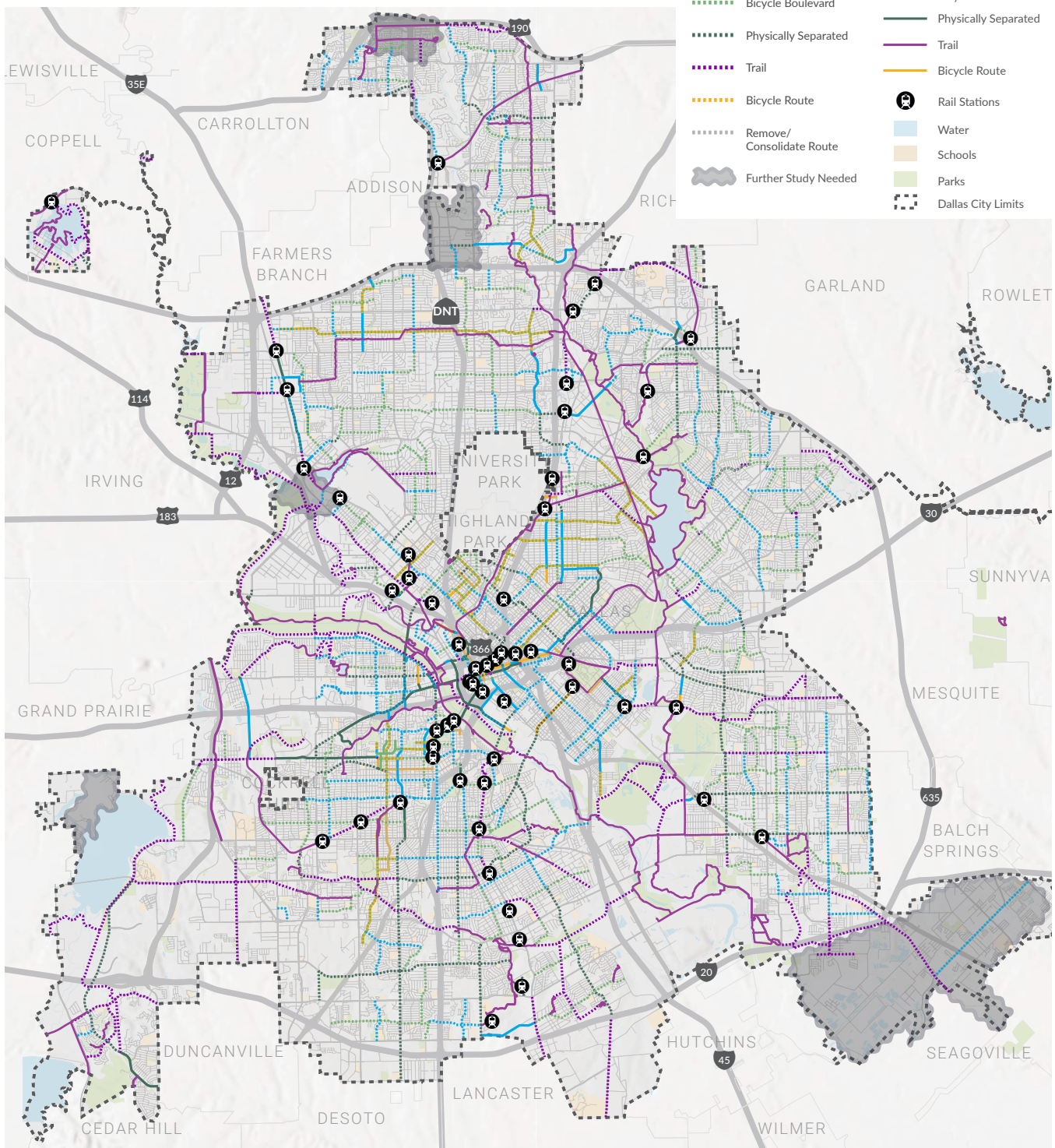
CHAPTER 6

Implementation & Next Steps

This section focuses on key aspects necessary for the successful realization of the Dallas Bike Plan – Funding, Phasing, and Implementation. Funding recommendations discuss the DDOT's existing budget (currently \$2.5M/annually with recommendations to increase to \$4.24M to \$6.52M), the relevance and advantage of public/private partnerships, and federal, state, and private grant opportunities to extend the reach of local funds and maximize the value of taxpayer dollars. Federal and state grant programs include the *Highway Safety Improvements Program* (HSIP), *Rebuilding American Infrastructure with Sustainability and Equity* (RAISE), *Reconnecting Communities Program* (RCP), *Recreational Trails Programs* (RTP), *Safe Routes to School* (SRTS), *Safe Streets for All* (SS4A), the *Transportation Alternatives Set-aside Program* (TA), and the *Thriving Communities Program* (TCP). Private grant programs are offered through the League of American Bicyclists and People for Bikes.

The criteria leveraged for generating phasing recommendations and identifying 15 priority capital projects for the Bike Plan are also detailed: Stakeholder Input, Constraints, Opportunities, Safety, Existing Conditions, Demand, Connectivity, Equity, and Public Input. This list of priority capital projects introduces almost 27 miles of new bike facilities to the existing Dallas Bike Network. Additionally, most of the priority capital projects were identified as co-locating with roadway improvements already programmed for implementation.

Additionally, critical actions for successful implementation, including alignment amongst City departments, deepened collaboration with Public Works, and the introduction of an interdepartmental and interagency working group (like the CECAP's LEAF) to ensure action is taken to implement the Bike Plan and a resident-led committee to provide guidance and accountability for implementation of the Bike Plan. Finally measures for the successful implementation of the Bike Plan are provided, with the recommendation that these be monitored by the recommended on-going Bike Plan working groups. Monitoring measures for success are recommended to include the following dimensions: Community, Connectivity, Economic Development, Education, Equity, Enforcement, Funding, Public Health, Ridership & Mode Shift, Safety, and Supporting Infrastructure.



Bike Network Preview

The updated Dallas bike network is a product of the many rounds of public engagement, TAC and BAC input, review by City staff and multiple City departments, and comments from elected officials, coupled with detailed technical analysis. The implementation of this network would support a significant increase in bike ridership and bike rider safety, and it would support the City in meeting its goals as established by the Bike Plan, the CECAP, ForwardDallas, and the Racial Equity Plan.

Dallas Bike Plan Update

Top 15 Priority Projects

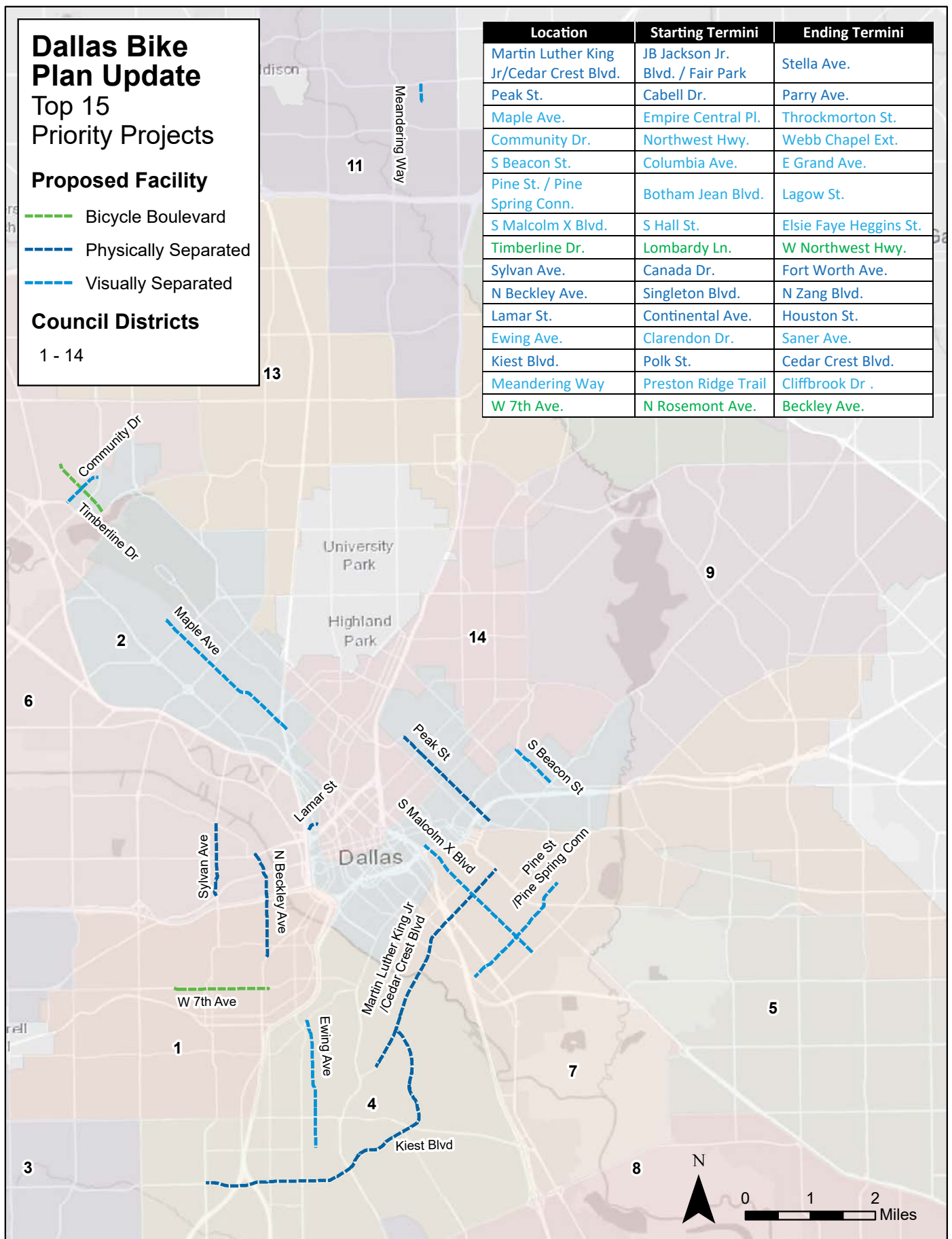
Proposed Facility

- Bicycle Boulevard
- Physically Separated
- Visually Separated

Council Districts

1 - 14

Location	Starting Termini	Ending Termini
Martin Luther King Jr/Cedar Crest Blvd.	JB Jackson Jr. Blvd. / Fair Park	Stella Ave.
Peak St.	Cabell Dr.	Parry Ave.
Maple Ave.	Empire Central Pl.	Throckmorton St.
Community Dr.	Northwest Hwy.	Webb Chapel Ext.
S Beacon St.	Columbia Ave.	E Grand Ave.
Pine St. / Pine Spring Conn.	Botham Jean Blvd.	Lagow St.
S Malcolm X Blvd.	S Hall St.	Elsie Faye Heggins St.
Timberline Dr.	Lombardy Ln.	W Northwest Hwy.
Sylvan Ave.	Canada Dr.	Fort Worth Ave.
N Beckley Ave.	Singleton Blvd.	N Zang Blvd.
Lamar St.	Continental Ave.	Houston St.
Ewing Ave.	Clarendon Dr.	Saner Ave.
Kiest Blvd.	Polk St.	Cedar Crest Blvd.
Meandering Way	Preston Ridge Trail	Cliffbrook Dr.
W 7th Ave.	N Rosemont Ave.	Beckley Ave.



Summary of Priority Projects

These proposed priority projects are the result of the project prioritization process and public and stakeholder engagement. The 15 priority projects were evaluated and analyzed using feedback gathered during the public engagement and TAC and BAC stakeholder meetings, and it has been reviewed by City staff. The top 15 projects connect many historically disenfranchised communities and will break down barriers of active transportation for many Dallas

neighborhoods. While this list contains the top priority projects that were defined during the planning and engagement processes, changing needs and available funding may influence the subsequent prioritization of additional supportive routes. Many of these routes also connect to existing DART infrastructure and may help to shift commute patterns and provide additional options for many residents.

Priority Projects

LOCATION	STARTING TERMINI	ENDING TERMINI	LENGTH (MI)	PROPOSED FACILITY TYPE	OPINION OF PROBABLE CONSTRUCTION COST (Cost Estimate)
Martin Luther King Jr / Cedar Crest Blvd	Fair Park	Stella Ave	3.7	Physically Separated	\$1,910,956.00 - \$2,336,864.00
Peak St	Cabell Dr	Parry Ave	1.9	Physically Separated	\$971,408.00 - \$1,080,506.00
Maple Ave	Empire Central	Throckmorton St	2.7	Visually Separated	\$302,161.00
Community Dr	Northwest Hwy	Webb Chapel Ext	0.6	Visually Separated	\$51,778.00
S Beacon St	Columbia Ave	East Grand Ave	0.7	Visually Separated	\$51,600
Timberline Dr	Lombardy Ln	W Northwest Hwy	1.0	Bicycle Boulevard	\$174,240.00
Pine St / Pine Spring Conn	Botham Jean Blvd	Lagow St	2.0	Visually Separated	\$186,000.00
S Malcolm X Blvd	S Hall St	Else Faye Heggins St	2.3	Visually Separated	\$216,632.00
Sylvan Ave	Canada Dr	Fort Worth Ave	1.1	Physically Separated	\$667,512.00 - \$819,096.00
N Beckley Ave	Woodall Rodgers Fwy	N. Zang Blvd	1.6	Physically Separated	\$960,352.00 - \$1,070,595.50
Lamar St	Continental Ave.	Houston St	0.2	Physically Separated	\$70,208.00 - \$83,983.00
Ewing Ave	Clarendon Dr	Saner Ave	2.0	Visually Separated	\$200,200.00
Kiest Blvd	Polk St	Cedar Crest Blvd	5.3	Physically Separated	\$2,841,416.00
Meandering Way	Preston Ridge Trail	Cliff Brook Dr	0.3	Visually Separated	\$29,767.00
W 7th Ave	N Rosemont Ave	Beckley Ave	1.5	Bicycle Boulevard	\$156,200.00
TOTAL					\$9,601,038.50



CHAPTER 1

INTRODUCTION

Introduction

Vision & Purpose

The Dallas Bike Plan Update project continues the evolutionary development of a multimodal transportation network in Dallas. Active transportation is a key component of any healthy, sustainable, and vibrant community, and the Dallas Bike Plan recognizes the importance of biking in achieving these goals.

This update is a targeted planning supplement specifically for biking that supports bigger goals for Dallas in its ForwardDallas Comprehensive Plan, Connect Dallas, and Vision Zero initiatives. The Bike Plan builds upon the success of previous efforts to expand the city's bike infrastructure, promoting greater connectivity among neighboring residential areas, employment centers, and public transit stations.

The Dallas Bike Plan is a unified planning document and, like successful bike efforts in other cities, will be referenced by the intergovernmental departments at the City who will design, build, and maintain the projects from this plan update. An updated plan will ensure the right projects happen in the right order, that they have the funding they need, that they get built, and that, when put together, these projects collectively achieve a common vision for safe and comfortable biking in Dallas.

The plan envisions a bike network that is unique to our city - one that is safe, accessible, and comfortable - and provides the avenue for Dallas to become world-class for biking. The plan will focus on developing a safe and connected bike network that serves the different types of people who need to, choose to, and want to bike.

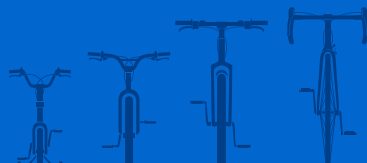
The plan combines an analysis of the successes and gaps in the existing network with an understanding of the needs of the community to set forth a master list of recommendations and priority projects that encourage bike riding as a safe and dignified transportation choice.

By implementing these recommendations and increasing the modal shift toward biking, the Dallas Bike Plan Update will contribute to a healthier, more sustainable, and more vibrant city. The plan seeks to create a world-class biking experience in Dallas, ensuring that biking remains a safe and enjoyable transportation option for residents and visitors alike.



Vision

The Dallas Bike Plan update envisions a bike network that is unique to our city—one that is safe, accessible, and comfortable—and also provides the avenue for Dallas to become world class for biking. This plan update will focus on developing a safe and connected bike network that serves the different types of people who have to, choose to, and want to bike.



Achievements since the 2011 Bike Plan

The Dallas Bike Plan, first developed in 1985 and last updated in 2011, has been the City's guide for implementing a system of on-street and off-street bike facilities, intended to enable and encourage biking as a safe, alternative mode of transportation. Dallas was a late-comer to biking, and in 2011 had no recorded on-street bike facilities. The plan recommended a vast 833 miles of on-street bike facilities and 456 miles of off-street facilities including trails. The 2011 Dallas Bike Plan also recommended an ambitious implementation timeframe: for the entire network to be implemented by 2021.

In the 10 years since the adoption of the 2011 Plan, the City has made progress. 84 miles of on-street bike facilities have been implemented (up from zero recorded in 2011), and the City's network of existing and funded trails and off-street bike facilities has grown from 130 miles to 174. However, the City is still far from the goal set by the 2011 Dallas Bike Plan. Also, since 2011, the city has changed drastically. There has been rapid development and densification in the core of the city, leading to increasing competition for the curb space. The City has passed landmark plans and manuals, including the *Complete Streets Design Manual* (2016), the *Downtown 360 Plan* (2017), an updated *Street Design Manual*

(2019), the *Comprehensive Environmental and Climate Action Plan* (CECAP) (2020), and most recently the *Connect Dallas Strategic Mobility Plan* (Connect Dallas) (2021). Combined, these initiatives set the stage for a city that seeks to move towards more environmentally-friendly, multimodal forms of transportation, and towards a transportation system that enables safe, convenient, and comfortable travel by all modes of transportation.

Through Connect Dallas planning efforts, which established a transportation decision-making framework intended to be used to prioritize transportation projects for funding, it was recognized that many of the projects and connections recommended in the 2011 Dallas Bike Plan no longer reflected existing conditions, needs, and preferences. An update to the plan was recommended to identify future priority projects that make the most sense. This Bike Plan Update serves that purpose and continues the legacy of the City's commitment to establish a safe and comfortable bike network that serves all ages and abilities.

Planning Framework

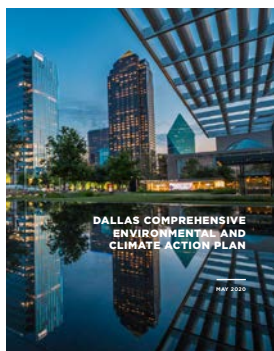
Dallas has a long history of planning for a sustainable and equitable future. In 2020, the City unanimously approved the [Dallas Comprehensive Environmental & Climate Action Plan \(CECAP\)](#), which is a comprehensive roadmap that outlines the activities the City will undertake to improve the quality of life, reduce greenhouse gas emissions, prepare for the impacts of climate change, and create a healthier and more prosperous community. The CECAP emphasizes that “the transportation sector forms the single largest contribution of GHG emissions in Dallas (34%), of which 98% is attributed to on-road transportation. The majority (78%) of Dallas residents drive to work alone, while another 23.2% carpool, telework (4.8%), and use transit (3.8%), and other modes of transportation.” To address this issue, the CECAP has established target goals to decrease single occupant vehicle travel mode shift from 88% to 79% in 2030, and from 88% down to 62% in 2050. The completion of the Dallas Bike Plan Update by DDOT, with support from Planning & Urban Design, Public Works, and other agencies, fulfills CECAP FY22-23 short-term goal T7: Secure resources to implement the existing bike network masterplan. Future short-term goals recommended for the CECAP to support active transportation and mode shift goals could include actions such as cross-department support in seeking grant-funding for bike facilities as green transportation options, bike education campaigns (including topics like safe-riding skills, bike rider awareness for motorists, bike-oriented enforcement for law enforcement, bike riding advocacy to support positive and healthy culture shift), and updates to interdisciplinary policies consistent with supporting a bike-friendly transportation network and city landscape.

In 2011, the city adopted the [ForwardDallas Comprehensive Plan](#), which provides a vision and framework for the City’s growth and development. The plan emphasizes the importance of transportation, including active transportation modes such as biking and walking, in creating a more sustainable and livable city. Stated in its vision is a desire for convenient transportation, with choices offered for how to get around emphasizing walking and transit, and prioritizing bikes along with other alternative travel modes to reduce traffic congestion and improve air quality.

Specifically, implementation measures in the Transportation Element provide direction for the following:

4.2.2.2: Regularly update the Bike Plan to provide for enhanced bike access in Mixed-Use Building Blocks and explore ways to better integrate the Bike Plan with the *Thoroughfare Plan*.

4.2.2.3: Use “Context Sensitive Design” standards for public street improvements to ensure safe and convenient bike and pedestrian movement.



4.2.2.4: Incorporate bike and pedestrian amenities into public facilities and rights-of-way, and stream corridors, including wider sidewalks, trees, pedestrian lights, bike racks and street signs designed with reflective materials. Use a combination of local, state, federal and private funding to install such amenities.

4.2.2.5: Revise plat regulations to encourage development to incorporate convenient and reasonably direct pedestrian and bike routes from businesses to local destinations and nearby residential areas.

4.2.2.6: Create new zoning districts and amend existing districts to encourage new projects to provide enhanced pedestrian and bike amenities such as wider sidewalks, trees, pedestrian lighting, safe bike routes and bike racks.

4.2.3.3: Ensure that evaluation of design alternatives for major transportation infrastructure in Dallas takes into account the importance of the following criteria:

- Reduction of vehicle miles traveled per capita.
- Reduction in average trip time and time spent in congestion.
- Reduction in total trip delay per capita.
- Increase in transit trip capture—the proportion of trips made using public transit.
- Increase in pedestrian/bike trip capture—the proportion of walking or biking trips.
- Increase in internal trip capture—the proportion of trips that begin and end within an area.

More recently, the City has been working to address issues of racial equity in planning and policymaking. In 2018, the City adopted the [Dallas Racial Equity Plan](#), which seeks to address disparities and ensure that all residents have equal access to opportunities and resources. This plan emphasizes the importance of equitable transportation policies and investments, including promoting active transportation modes such as biking and walking in underserved communities. The REP summarized a common theme of “more progress – fewer plans,” expressing frustrations of engagement participants of inequitable outcomes across social determinants, including infrastructure, and a desire to see measurable results in underserved communities. It acknowledges that a “lack of updated infrastructure in many parts of Dallas’ primarily historically disadvantaged communities is the missing framework that limits healthy community development,” underscoring needs in southeast Dallas for transportation infrastructure. In the REP’s Infrastructure “Big Audacious Goal,” problems the plan identifies that could be addressed with the introduction of multimodal transportation options and a well-defined, safe, comfortable, and accessible bike network include a high cost of living and infrastructure challenges that make it difficult to initiate housing or business developments. Key department actions set for DDOT by the REP that implementation of the Bike Plan supports includes implementing neighborhood traffic calming in equity priority areas identified in the Vision Zero Action Plan (Ei#32,45]).

Together, these planning frameworks demonstrate the City’s commitment to creating a more sustainable, equitable, and livable community for all residents. The Dallas Bike Plan update project builds upon these frameworks and supports their goals by promoting safe and accessible biking as a key component of a multimodal transportation network in Dallas.

Bike Plan Goals

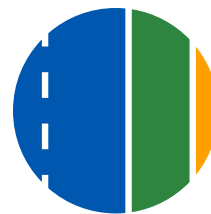
To achieve its vision for a world-class biking experience, the Dallas Bike Plan Update project has established several key bike plan goals in collaboration with its stakeholder Bicycle Advisory Committee (BAC) and Technical Advisory Committee (TAC) and in confirmation with goals communicated by the public during the first phase of public engagement. These goals have guided the development of a comprehensive bike network that is safe, accessible, and comfortable for riders of all ages and abilities.

Update the Bike Network to reflect existing conditions, priority destinations or connections, and desired facility types comfortable for a wide range of ages and abilities.

Update design standards for bike facilities based upon identified national, state, and local best practices.

Create a prioritized and phased implementation plan that identifies “quick win” priority bike facilities and establishes priorities for future capital improvement programs. The focus should be on what can be built within the next five years.

Set a path for incorporating the Dallas Bike Plan in the City’s guiding policies, plans, and codes.



UPDATE

Bike Network and
Design Standards

CREATE

Implementation Plan

SET PATH

For Incorporating the
Dallas Bike Plan



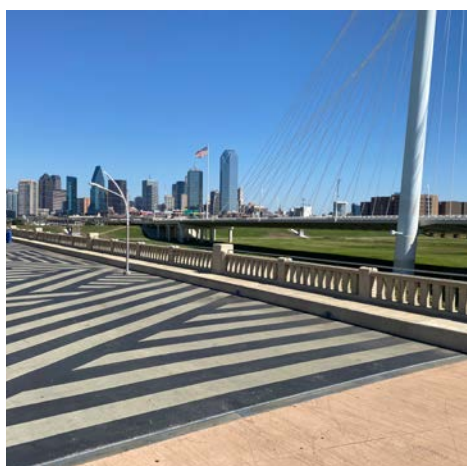


CHAPTER 2

METHODOLOGY

for Updating the Bike Network

Methodology for Updating the Bike Network



The success of the Dallas Bike Plan hinges upon a thorough understanding of the existing conditions that shape bike ridership within the City, active public engagement and involvement, and a solid foundation built on stakeholder collaboration for the network development process. By comprehensively analyzing existing conditions, including the current state of the bike network, levels of traffic stress, safety outcomes and the High Injury Network (HIN), active trip demand, equity and public health implications, existing pedestrian and transit multimodal facilities, the updated bike network will be able to address key gaps in network performance, address historic and systemic inequities, and provide safe and comfortable facility recommendations for all ages and abilities. A robust emphasis on public engagement, including three phases of outreach and two on-going stakeholder committees working in partnership with the project team held the project accountable to its goals and vision. It also ensured that the updated Bike Plan represents a wide range of perspectives and voices and that the recommendations in this plan update comprehensively serve the needs and desires of the diverse residents of Dallas. Finally, a collaboratively developed network development process was established based on industry-leading practices for bike network development and rooted in the goals and visions for the Dallas bike network. The result was a well-vetted, trustworthy, and reliable process to update the bike network and its component facility types. Detail on each of these three critical methodology components for updating the bike network—**existing conditions analysis, engagement, and network development**—is found in the following sections.



Existing Conditions Analysis

Understanding how the existing conditions influence bike ridership in the City of Dallas today is paramount for guiding future recommendations. An evaluation of the existing bike network characteristics, level of traffic stress, prior adverse safety outcomes, equity, public health outcomes, and neighborhood assets that drive demand for biking all served as the starting point for beginning the community conversations regarding biking in Dallas. The results of the existing conditions analysis provided the bedrock for bike network recommendations.

For planning consistency, these evaluations were conducted following the seven defined planning areas leveraged for the Connect Dallas and ForwardDallas planning efforts. These seven distinct geographic regions provide a more detailed review of existing conditions, as well as provide congruence among mobility planning efforts in Dallas.

The full Existing Conditions report can be found in the Appendices to this report.

The City's Existing Bike Network

As shown in Figure 2.1, the existing Dallas bike network includes 73 miles of on-street bikeways and 147 miles of off-street paved trails (Table 2.1). An additional 79 miles of funded facilities await implementation. While there is currently a range of facility types, 89% of Dallas bikeways are comprised of shared lane markings (21%) or off-street trails (68%). Only 11% of bike network has either a visually or physically separate barrier in the City's streets, leaving most riders highly vulnerable while riding in on-street facilities. Further, existing bikeways are primarily located in Central, North Central, and Northeast Dallas. In fact, more than 59% of the on-street bikeway network is in these areas. Only 30% of existing on-street bikeways are in southern areas of Dallas (including Southcentral, Southeast, and Southwest), with few connections to major destinations and the rest of the bikeway system. The lack of facilities in the southern areas of Dallas represent an opportunity to address the equitable distribution of bike facilities in the City. The Dallas Bike Plan Update looks address historical inequities by prioritizing connections to and through areas of highest need.

In addition to being primarily located in Central, North Central, and Northeast Dallas, the existing bikeway system is disconnected, with limited options for continuous travel between facilities and to community destinations. The disconnected bikeway network is further divided by highways, which serve as barriers to active travel. Running through each planning area, major highways are making it difficult to bike between regional destinations due to limited or non-existent low-stress crossing opportunities. For example, Downtown and Central Dallas, despite containing most of the existing bikeway network, are surrounded by highways, effectively isolating these areas from other locations in the city. Acting on these opportunities to provide low stress bikeway connections across highway barriers will be critical for a connected network.

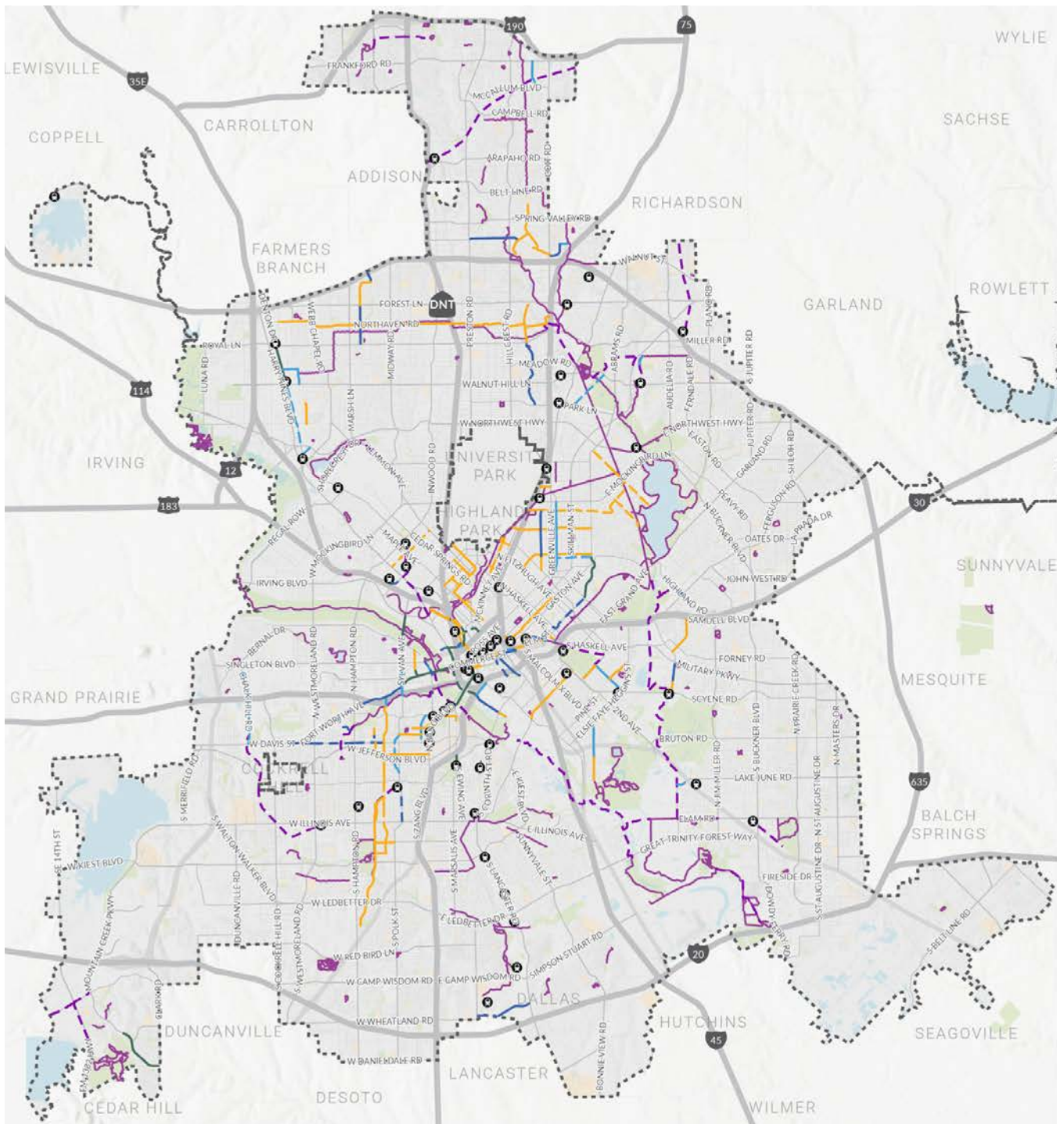
Table 2.1 Existing Bike Facilities

Facility Type	Existing Length (Miles)	Funded Length (Miles)
Shared Roadway (Sharrow)	46	53
Bike Lane	8	7
Buffered Bike Lane	11	9
Cycle Track	8	2
Trail	147	53



The disconnected bikeway network is further divided by highways, which serve as barriers to active travel.

Figure 2.1 Existing and Funded Bikeways in Dallas



- Existing Bike Facilities**
 - Sharrow
 - Bike Lane
 - Buffered Bike Lane
 - Cycle Track
 - Trail
 - Funded Bike Facilities**
 - Sharrow
 - Bike Lane
 - Buffered Bike Lane
 - Cycle Track
 - Trail
- Rail Stations
 - Water
 - Schools
 - Parks
 - Dallas City Limits

0 2 4 MILES



Level of Traffic Stress

Level of Traffic Stress (LTS) describes the expected experience traveling by bike along a roadway. At its foundation, LTS relates to the posted speed limit of the roadway, the width of the roadway, and provision of space for bikes. A roadway with fewer lanes for motor vehicles, lower posted speeds, and greater separation from motor vehicles is considered more comfortable for a bike rider, while high speeds and mixed traffic conditions are least comfortable. LTS scores also provide insight into what type of bike rider might travel along a corridor; for example, an LTS 1 is considered to be an all ages and abilities facility, while an LTS 4 is high stress and may only be traveled by the most confident bike riders. To better understand existing network gaps and opportunities to advance a low-stress network, an LTS analysis for Dallas was conducted.

Figure 2 depicts the LTS scores for roadways within Dallas.¹ Neighborhood and local roadways, with lower speed limits and fewer lanes, are typically low stress (LTS 1 or LTS 2) and make up most of the network. However, there are also more than 1,500 miles of high stress (LTS 3 or LTS 4) roadways across the city, representing nearly 35% of roadways in Dallas (Table 2.2)—representing roadways with higher travel speeds, a greater number of travel lanes, and limited or no bike infrastructure.

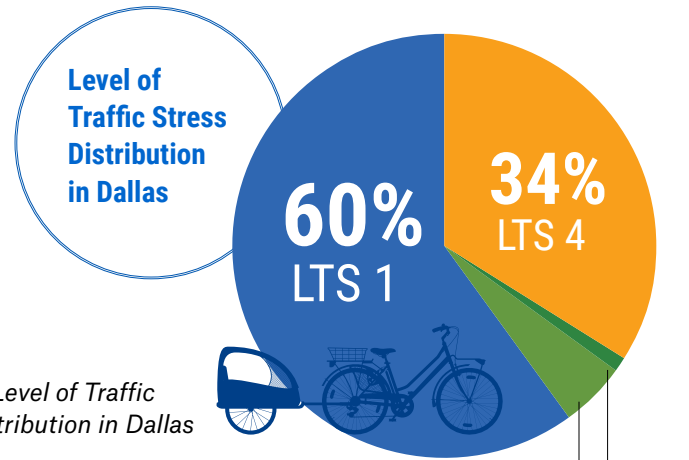


Table 2.2 Level of Traffic Stress Distribution in Dallas

LEVEL OF TRAFFIC STRESS	PERCENT OF ROADWAY NETWORK
LTS 4 - Highest Stress	34%
LTS 3	1%
LTS 2	5%
LTS 1 - Lowest Stress	60%

5%
LTS 2

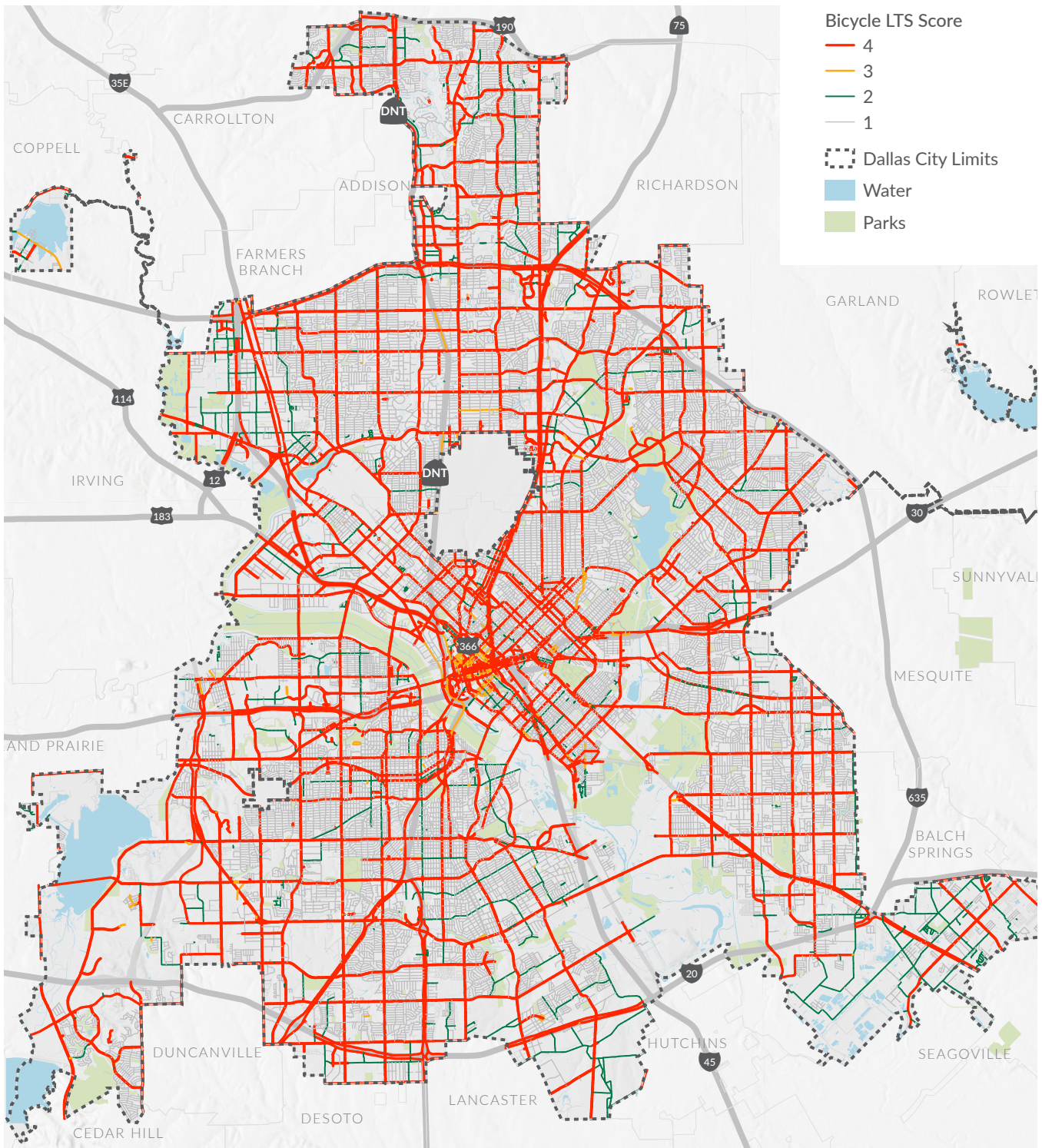
1%
LTS 3

High-stress routes not only represent less comfortable bike travel along a corridor, they are often also a barrier to travel across the corridor (perpendicular). This limits the effectiveness of lower stress routes and results in a disconnected network for people traveling by bike. Low-stress bike travel is presently possible across some high-stress roadways where there are protected crossings. Protected crossings are places where dedicated signals exist or where the crossing is separated from the roadway. More typically, however, low-stress bike travel—particularly along neighborhood streets—is not possible across high-stress roadways because of unprotected.

There is significant opportunity to (1) support a complete, connected system of low-stress routes, (2) develop a network that can support local travel within the city and to a larger network of regional destinations, and (3) improve high-stress arterial crossings using signals and other treatments.

¹ The LTS analysis utilizes data provided by the City of Dallas and relies on the accuracy of attributes within the available dataset. Given the complexity of a city-wide dataset, the results of this analysis should be used as a framework to guide further review and provide insight into recommended facilities. As this data is used to develop recommendations in subsequent stages of the Plan, further review may be required to confirm that roadway attributes are accurate.

Figure 2.2 Level of Traffic Stress



0 2 4 MILES



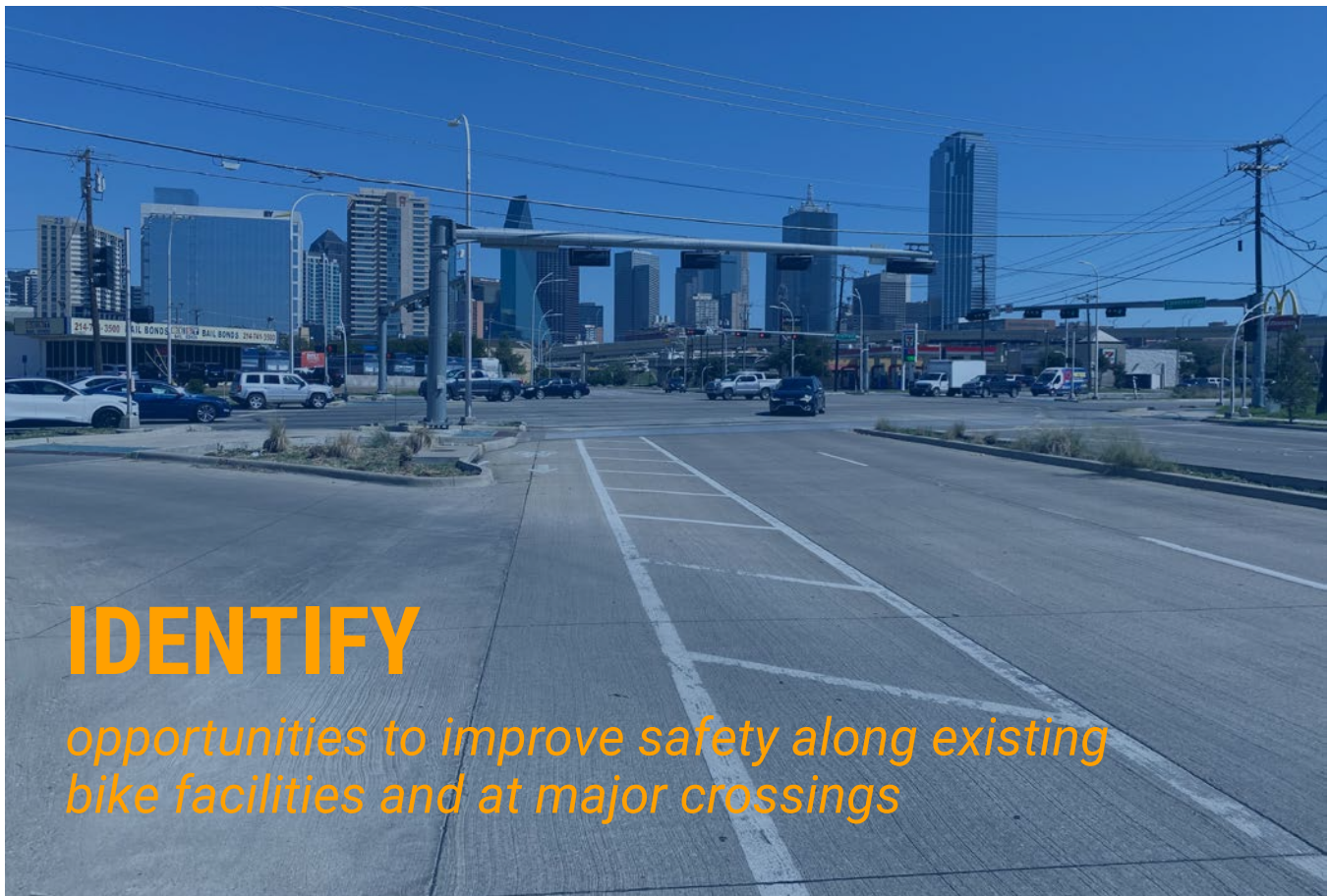
Emphasize improving high-stress arterial crossings and prioritizing route improvements along key corridors.

Safety

The Safety Analysis considered the locations of bike-involved collisions throughout Dallas, focusing on locations with a higher frequency of collisions as well as collisions resulting in a severe injury or fatality. Using data provided by the North Central Texas Council of Governments (NCTCOG), this analysis evaluated reported collisions occurring between 2014 and 2019 (Figure 2.3). In addition to collision data, this analysis also included considerations for the City's existing Bike High Injury Network (HIN). Identified in the City's *Vision Zero Action Plan (2022)*, the HIN are streets where the highest percentage of bike-involved fatalities and severe injuries have occurred. As reported in the *Vision Zero Action Plan*, just 1% of City streets account for 38% of fatal or severe injury collisions involving a person biking. The HIN is concentrated along major roadways, with approximately 60% along major arterials and 32% along minor arterials. Much of the HIN is located in Northeast Dallas, closely followed by Northcentral and Central.

Table 2.3 Mileage of Bike HIN by Planning Area, 2014-2019.

PLANNING AREA	MILEAGE OF HIN
Northwest	15.55
Northcentral	34.1
Northeast	43.62
Central	27.11
Southwest	6.55
Southcentral	15.35
Southeast	31.3



Overall, the data between 2014 and 2019 showed 661 bike-involved collisions, including 14 fatalities and 108 severe injuries. Bike-involved collisions, including fatalities and severe injuries, were more frequent in Central Dallas and along major arterials throughout the city, consistent with the HIN. Table 2.4 shows the number of bike-involved fatalities and severe injuries across Dallas by planning area. Over half of the bike-involved fatalities and severe injuries, however, were located *outside* of the High Injury Network. The fatalities located outside of the HIN were all located in south Dallas, including Southwest, Southcentral, and Southeast Dallas planning areas. Severe injuries located outside of the HIN were located throughout the city, but also more concentrated in Southwest and Southeast Dallas. Existing bike facilities are generally not located along the HIN; however, there are routes located in Central and Southeast Dallas where the HIN is coincident with existing bikeways. Although routes with more comfortable facility types, such as buffered bike lanes, may provide a lower stress route, there are locations in the city where these facilities are co-located with segments in the HIN. Additionally, many existing facilities intersect with the HIN. The recommendations in this plan update address these conflicts and will identify opportunities to improve safety along existing bike facilities and at major crossings.

Bike rider-involved fatal or severe injuries during this period more often occurred along routes without existing facilities. Additionally, a disproportionate number of bike-involved fatalities and severe injuries occurred in the highest need areas in terms of both equity and public health. Although the highest need areas represent 17% of the city’s population, these areas have experienced 31% of all serious injury collision involving a person biking and 29% of fatal crashes involving a person biking. To address this, recommendations in this plan include more connections to and between the existing low-stress bike facilities, particularly along high-stress corridors with a high number of severe or fatal bike-involved collisions.

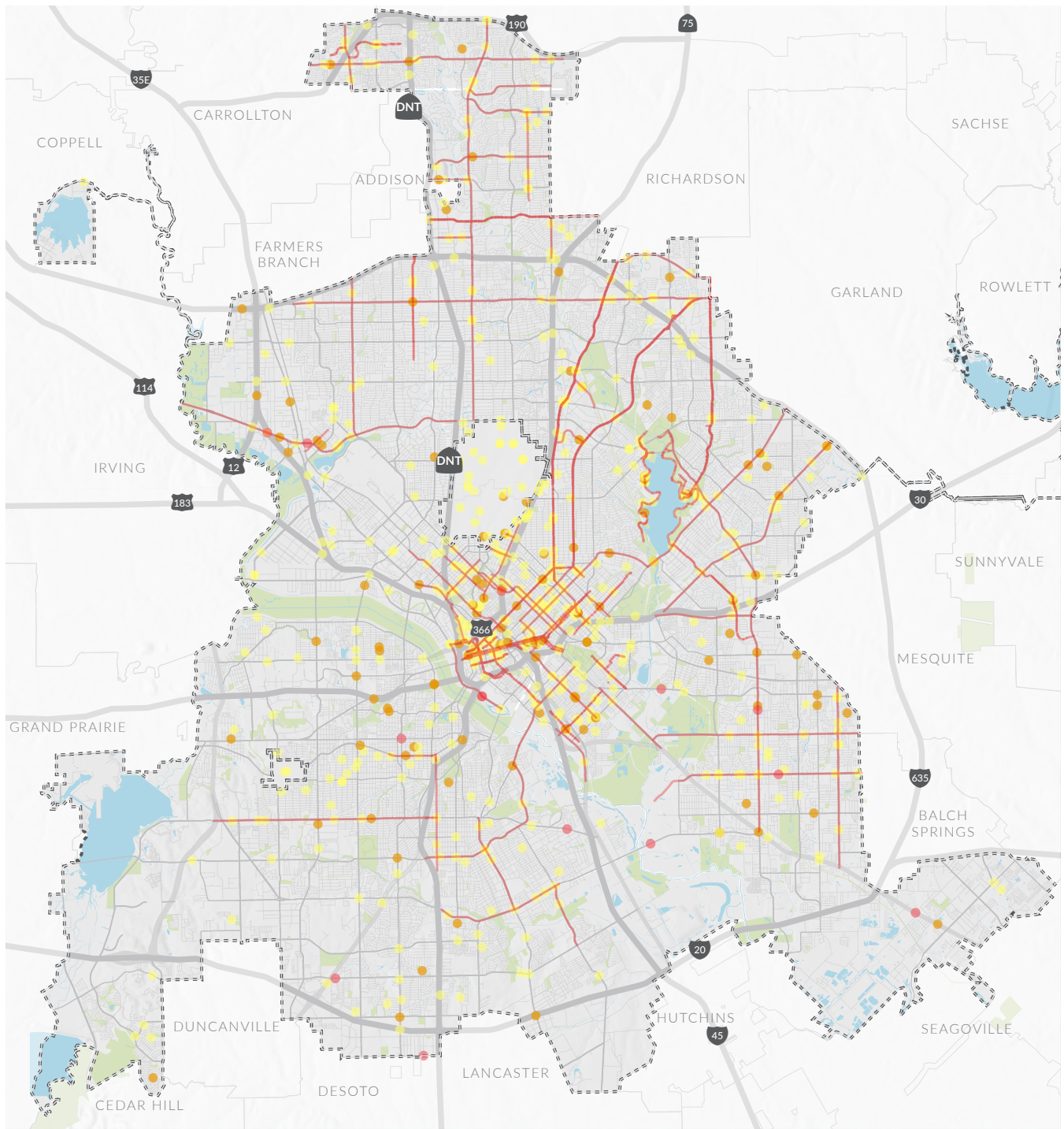
Table 2.4 Number of Bike-Involved Fatalities and Severe Injuries by Planning Area

PLANNING AREA	NUMBER OF FATALITIES	NUMBER OF SEVERE INJURIES
Northwest	2	9
Northcentral	0	7
Northeast	0	24
Central	3	22
Southwest	1	18
Southcentral	3	6
Southeast	5	22

Most severe, or fatal bike-involved collisions have occurred on streets without bike facilities.



Figure 2.3 Safety - Bike Collisions 2014-2019

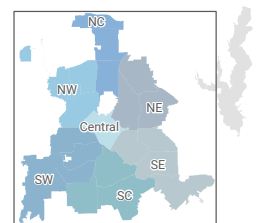
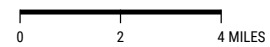


Collisions

- Fatal
- Suspected Serious Injury
- Other Collisions

Other Features

- Bicycle High Injury Network
- - - Dallas City Limits



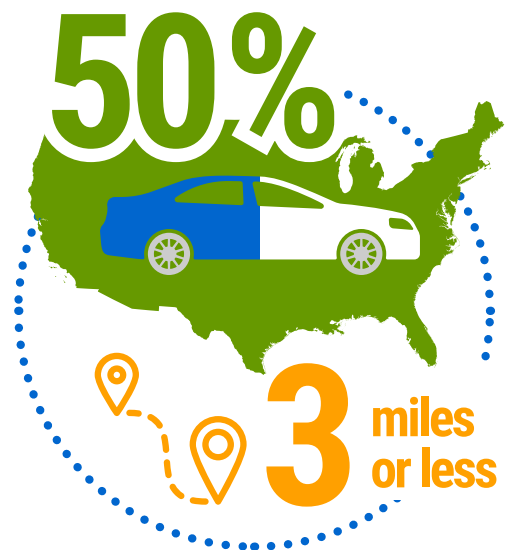
Active Trip Demand

Understanding the potential demand for active transportation (like biking) helps the City of Dallas identify locations where bike facilities may have the greatest impact. For the purposes of this analysis, high potential active trip demand referred to areas where most trips are three miles or less in length. When considered in coordination with key destinations and activity centers, this analysis revealed where bike network improvements may have the greatest impact. Studies have shown that nearly 50% of all car trips in the United States are three miles or less², a distance that could be supported by biking. Data from Replica Places provides insight into areas of Dallas with higher proportions of short-distance trips. Replica Places is an activity-based model that utilizes a combination of mobile, land use, census, and transaction data to generate census-block level trip estimates, including trip length, trip purposes, and trip mode.³

Shown in Figure 2.4, significant areas of Dallas have high relative percentages of short trips. In fact, short trips make up at least 40% of trips in most areas of the city. Areas with the highest proportion of short trips are often located in close proximity to locations that generate trips, such as where people live, and attract trips, such as places of employment, parks and recreation, shopping centers, schools, or transit. However, many areas with the highest active trip potential typically have limited existing bike infrastructure and are located along or near highways and high-stress major roadways (most often arterial or collector roadways). Without improved bike connections, highways and high-stress major roadways act as barriers to active travel. As a result, these areas represent significant opportunity to expand the bike network and provide a complete low-stress connection to nearby activity centers, regional routes, and multimodal trip opportunities. Connections across major roadways and barriers, such as highways, are key to supporting a complete and connected network that facilitates access to schools, transit, parks, jobs, and community services.

² Curry, Melanie, et al. "Bikes and Scooters Could Replace a Lot of Car Trips in U.S. Cities." Streetsblog California, 17 Sept. 2019, <https://cal.streetsblog.org/2019/09/16/bikes-and-scooters-could-replace-a-lot-of-car-trips-in-u-s-cities/>. Accessed 5 July 2022.

³ Results of this analysis were compared to data provided by NCTCOG. The NCTCOG analysis utilized LOCUS data from the first half of 2019. In general, the results of both analyses reflect similar trip patterns in Dallas.

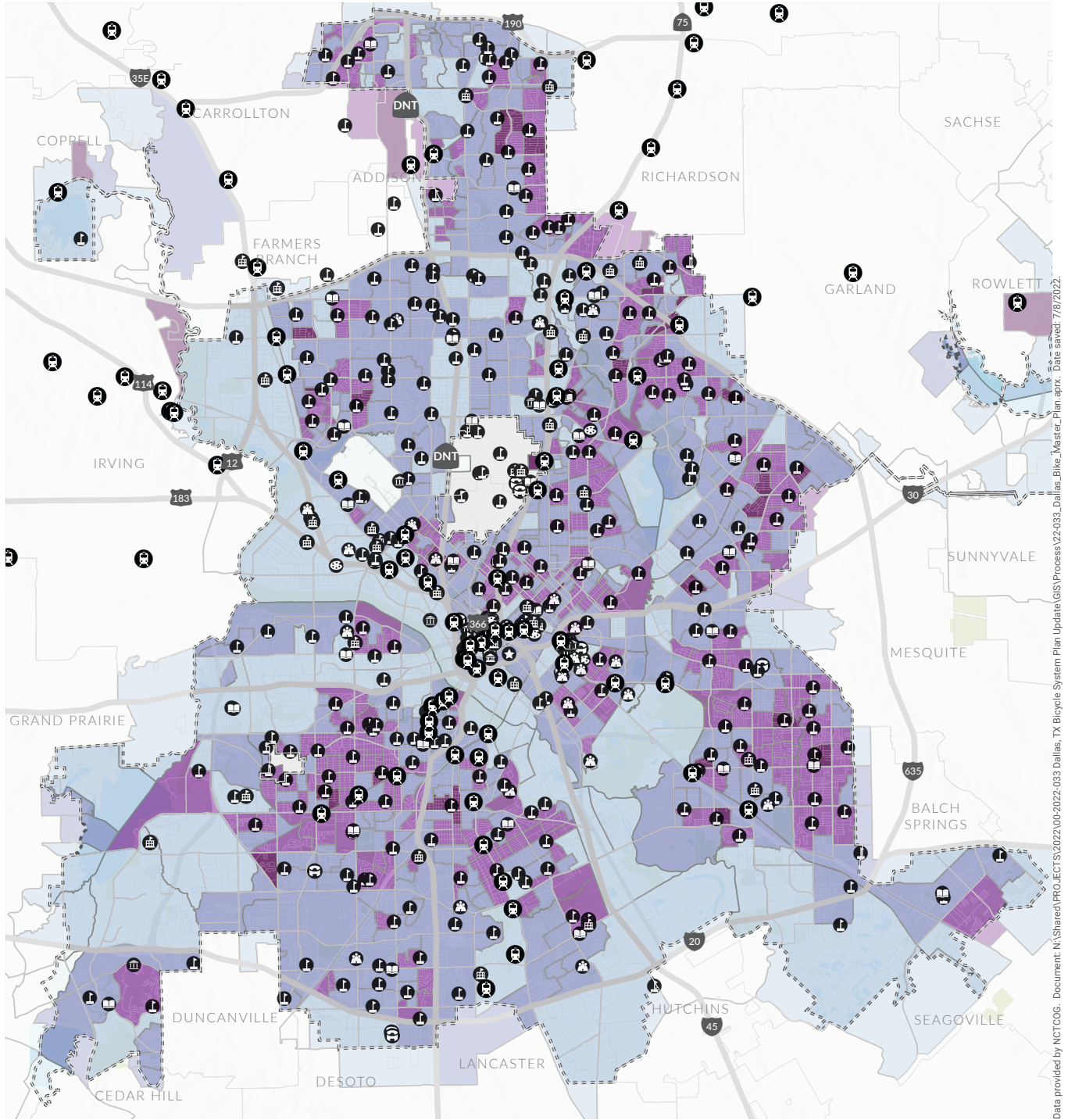


Fifty percent of all car trips in the US are three miles or less



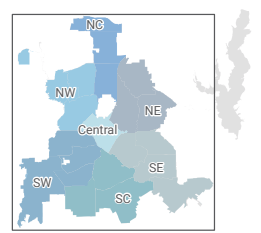
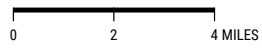
Short trips make up at least 40% of trips in most areas of Dallas.

Figure 2.4 Active Trip Potential



- Places of Interest**
- Arena/Stadium
 - City Hall
 - Community Center
 - Landmark
 - Fine Arts
 - Library
 - Museum
 - Higher Education
 - Primary/Secondary Education
- Transit**
- Rail Stations

- Percent of Trips Less Than 3 Miles**
- Greater than 60 Percent
 - 50 - 60 Percent
 - 40 - 50 Percent
 - 20 - 40 Percent
 - Less than 20 Percent
 - Dallas City Limits



Equity & Public Health

Defining equity is a context-dependent exercise and disadvantaged populations will vary from community to community. This is a crucial step in the analysis process to determine where future bike investments can address systemic issues related to safety, access, and health that are more highly prevalent in historically underserved communities.

To establish a baseline, the Equity Analysis considered variables related to:



Opportunity + Accessibility

Promoting biking as a transportation option creates more opportunities for people to access jobs, education, and other important destinations.



Environmental Justice

Ensuring that bike infrastructure investments are equitably distributed, and that historically marginalized communities benefit from increased access to safe and affordable transportation options. Prioritizing biking infrastructure in historically underserved neighborhoods can help reduce air pollution and create a more equitable distribution of transportation resources.



Health

Encouraging biking as a form of transportation can improve public health by reducing sedentary time and increasing physical activity.



Affordability (Cost of Living)

Biking can be a cost-effective transportation option for individuals and families, reducing the financial burden of car ownership and maintenance.



Vulnerability

Vulnerable road users such as pedestrians and bike riders are at a higher risk of injury or death in accidents, and improving biking infrastructure can help reduce this risk.

The equity analysis conducted for this plan update sought to discover where people with the highest need for transportation options live within the City of Dallas. Understanding where these communities are most densely located has helped prioritize improvements and ensure that the benefits of future investments are shared across the city. Working towards a more equitable transportation system may mean prioritizing active and public transportation funding in areas with a greater concentration of disadvantaged populations instead of distributing funding equally based on geography.

Understanding where these communities are most densely located has helped prioritize improvements and ensure that the benefits of future investments are shared across the city.

The equity analysis relied on large-scale, publicly available, and spatially-attributable data at the Census Block Group level. Each factor was assessed relative to Dallas County and combined into a composite score. These results are mapped to identify areas of higher need (higher scores). These results are shown in Figure 2.5. While Health and Safety was factored into the larger equity composite score and analysis, public health—indicated by the percent prevalence of coronary heart disease among adults and the location of medical facilities—was also included as a separate analysis as shown in Figure 2.6. While there may be overlapping areas and populations shown as higher need in both the equity analysis and the public health analysis, public health outcomes in relation to the transportation system may be unique to different areas of the city.

Based on the results of the equity analysis and public health analysis, the key takeaways include:

- High-need areas are in southern areas of the city, with additional areas located most often near highways and other physical barriers. Like the equity analysis, the areas with the poorest health outcomes are located primarily in south Dallas, with the highest concentrations in southcentral Dallas and southeast Dallas (in the area closest to downtown).
- When compared to the results of the safety analysis a disproportionate number of bike-involved fatalities and severe injuries occurred in the highest-need areas and areas with the poorest health outcomes. Over a third of bike-involved fatalities (29%) and severe injuries (31%) occurred in the highest-need areas. Over a fifth of bike-involved fatalities (21%) and a quarter of severe injuries (25%) occurred in areas with the poorest health outcomes. These outcomes are indicators that these



communities are underserved and most at risk and most in need of bike infrastructure.

- While some areas have opportunities to connect to the light rail network, the lack of existing bike infrastructure limits active transportation connections to transit, which can limit access to critical employment centers, further impacts career mobility and job access.

Many of these areas are located in South Dallas, which also has the fewest existing bike facilities. This plan recommends the provision of low-stress bike facilities in the highest-need areas to address these inequities, along with the connection of these facilities to the rest of the existing bike network. Bike facility improvements in this plan have been prioritized along high-stress roadways—or where a parallel, yet direct alternative exists—with connections to community destinations such as parks, schools, health facilities, light rail stations, and other community services.

Figure 2.5 Equity Analysis

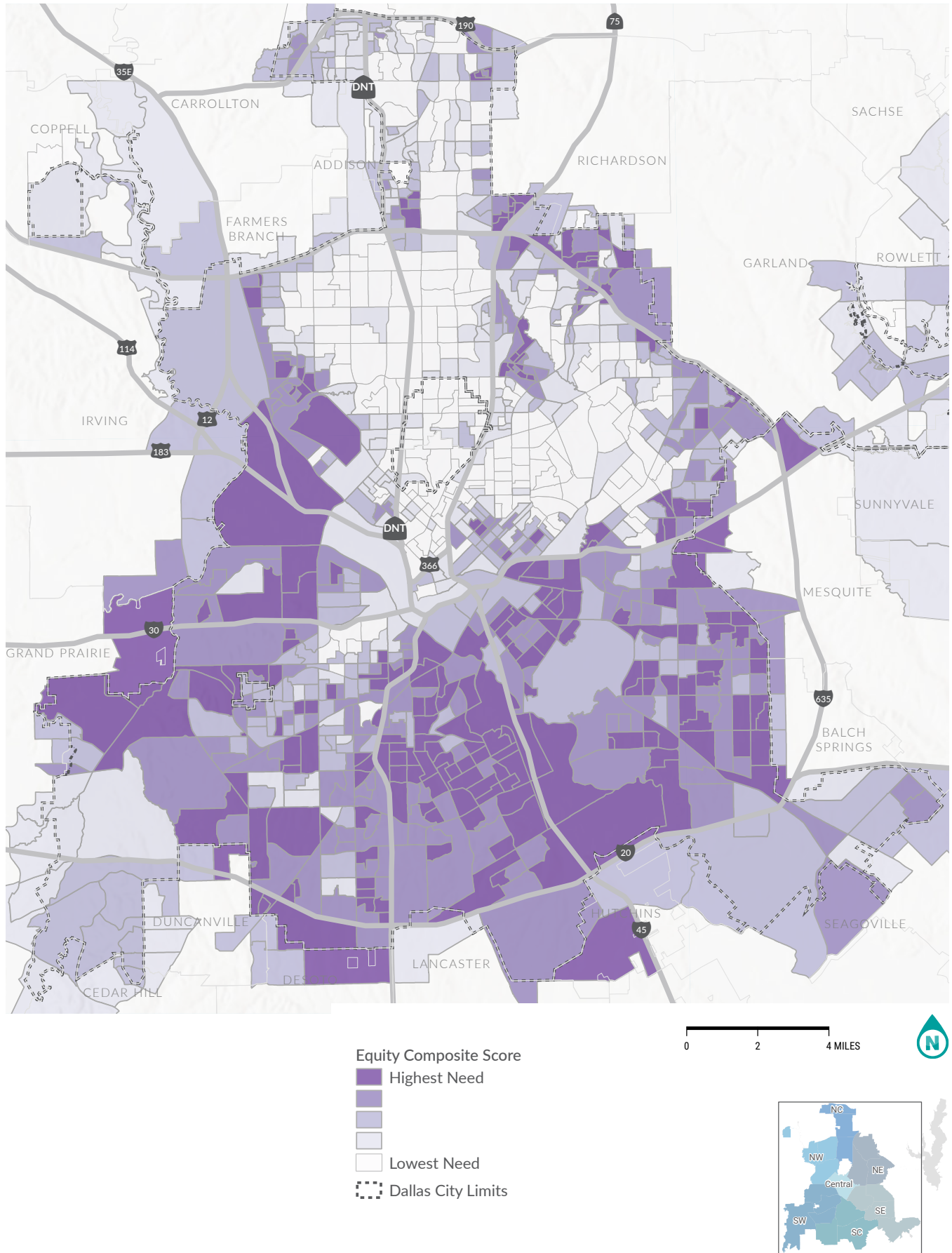
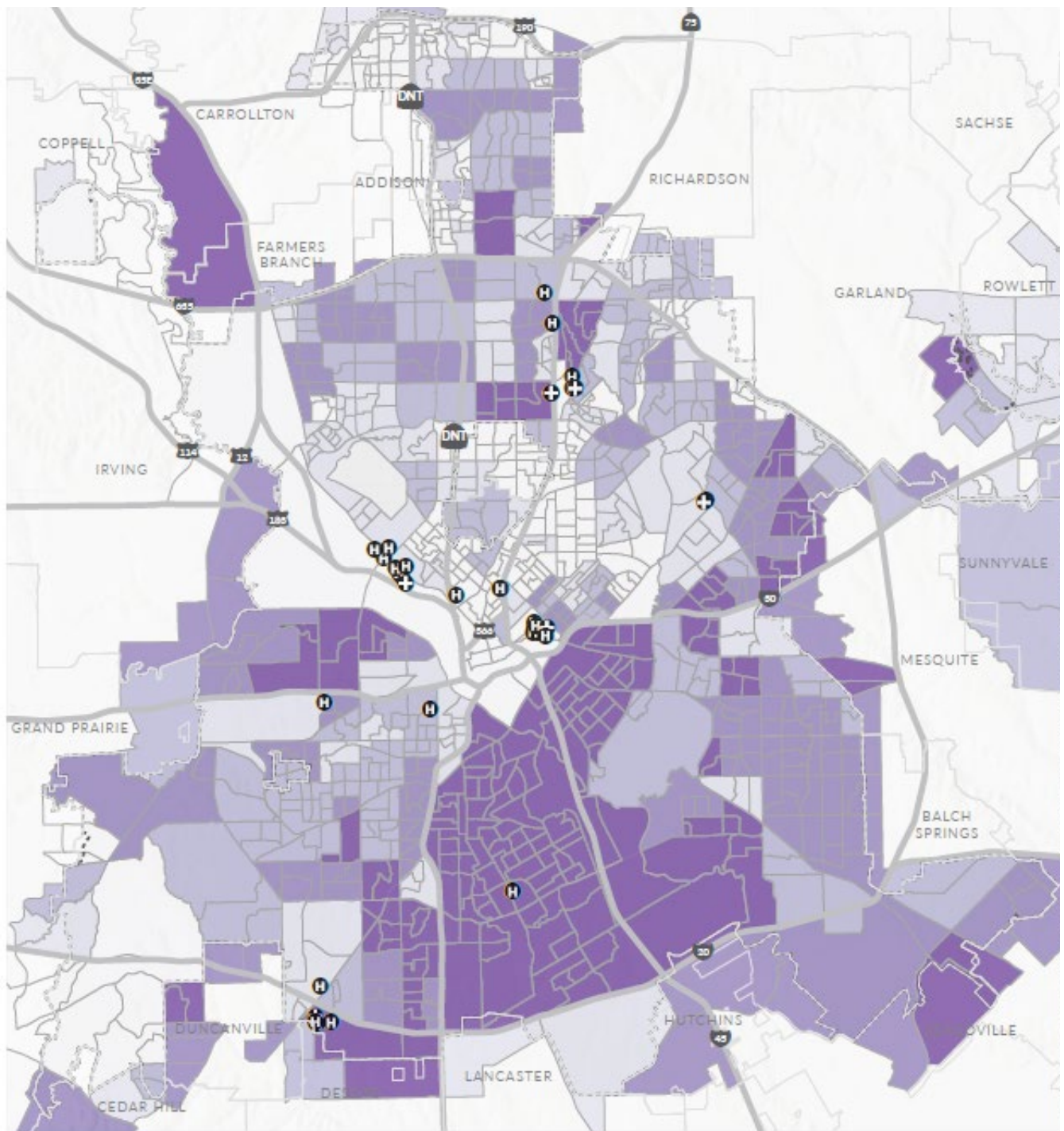


Figure 2.6 Public Health Analysis



PUBLIC HEALTH ANALYSIS
DALLAS BICYCLE PLAN UPDATE

Coronary Heart Disease Among Adults Aged ≥18 Years

- 6.7 - 11.3%
- 5.5 - 6.6%
- 4.9 - 5.5%
- 4 - 4.8%
- < 3.9%

Health Facilities

Type

- Clinic
- Hospital
- Dallas City Limits

0 2 4 MILES



Pedestrian & Transit Multimodal Facilities

While the Dallas Bike Plan focuses on the on- and off-street bike networks within the city, it is also important to understand how the bike network may interact with the existing pedestrian and transit networks. Gaps in sidewalk facilities or connections to transit make it difficult for residents to plan multimodal trips, especially those that may involve a combination of mode types. These difficulties can discourage residents from choosing alternative modes of transportation, as they may feel unreliable or uncomfortable.

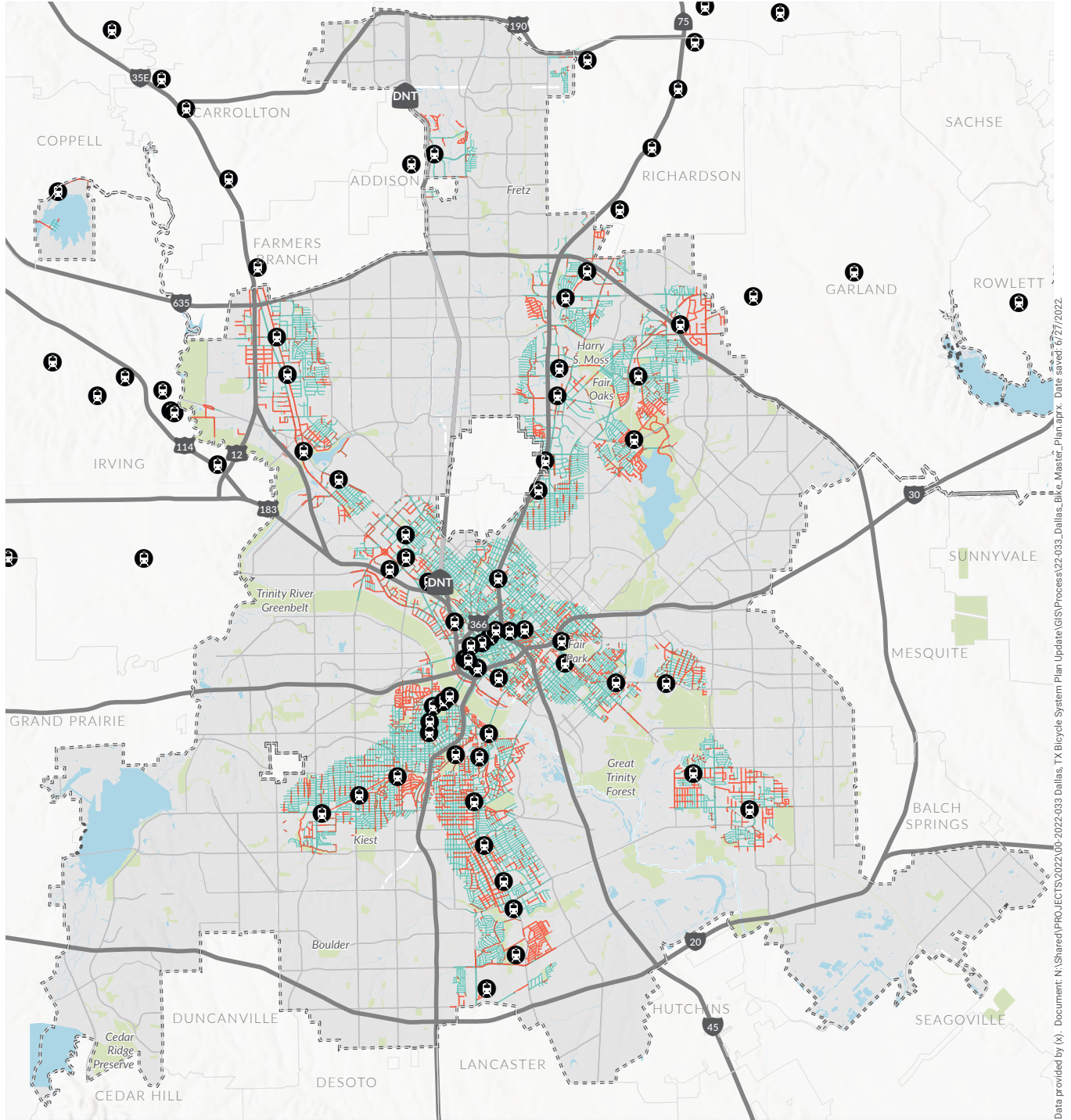
Transit stops are an important destination, as described in the Active Trip Demand section, and direct connections to these locations may require sidewalk-based connections for those traveling by bike. Figure 2.7 displays the existing sidewalk network within 3 miles of transit stops. Although this plan update does not include specific recommendations for pedestrian improvements,

it is important to consider how both the bike and pedestrian networks interact to support access to transit stops and stations. The results of this analysis have been used to inform facility type and route recommendations, opportunities for developing trail facilities that can accommodate both bike and pedestrians, and network prioritization.




In addition to missing sidewalks near transit stations, the existing bike network has few connections to transit. While this is true across the city, transit stations are more often without connecting bikeways across South Dallas, which has fewer existing bikeways overall. This plan has recommended and prioritized enhanced bike connections to transit, especially transit stations with limited bikeways and sidewalk connections.



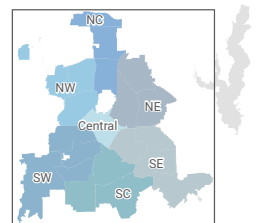
Figure 2.7 Multimodal Facilities



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-  Rail Stations
- Sidewalk Presence within 1 mile of Transit
-  Missing Sidewalk
-  Existing Sidewalk

0 2 4 MILES



Engagement

At the heart of Dallas Bike Plan Update is the voices of the community it serves. A broad and wide representation of community perspectives have ensured that the updated Dallas Bike Plan delivers a bike network that is safe and comfortable for a city as diverse as Dallas, that multimodal improvements are distributed equitably across the city, and that the investment of public funds for active transportation is made with community input.

To accomplish this, the Dallas Bike Plan established several guiding principles for its engagement methodology:

- Public engagement would include opportunities for two-way communication aimed at incorporating the views and concerns of the people of Dallas.
- Public engagement would be ongoing through all phases of the project.
- Public engagement would endeavor to be inclusive of the varied and diverse decision-makers, stakeholders, and populations represented in Dallas.
- Proven tactics and innovative outreach tools would be deployed.
- Comprehensive project records would be kept to assure everyone that their comments and concerns have been heard and responded to.

In practice, the Dallas Bike Plan included three distinct phases of public involvement and the formation of two stakeholder committees: a Bicycle Advisory Committee (BAC) and a Technical Advisory Committee (TAC).



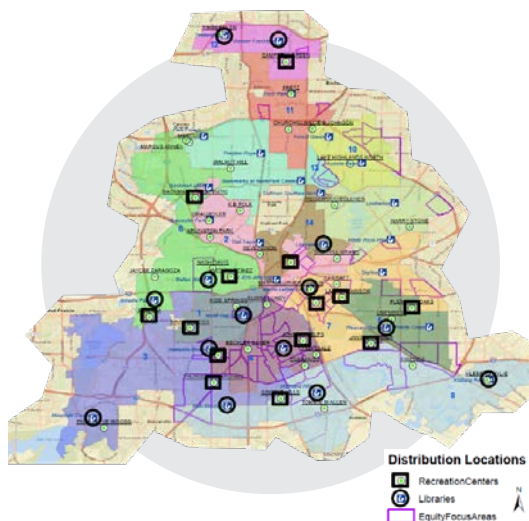
Photos from the Nov. 2 event held at J. Erik Jonsson Central Library and the Nov. 5 event held at Forest Green Branch Library

Engagement Phase I

Overview

The first public engagement phase of the project featured a three-week virtual and interactive comment collection period with a supplemental two-week paper-based survey. Throughout phase 1 engagement, a dedicated project text message phone number via Textline was opened to create a direct line of communication between the project team and members of the public. The virtual engagement was open from July 5 – July 24. The paper-based survey launched on August 8, with completed surveys collected August 21. This staggered deployment approach allowed the project team to focus paper survey collection in areas where web-based responses were fewer than others.

Engagement materials were posted on the Dallas Bike Plan webpage on the DDOT’s website. Advertisements were run on City of Dallas social media channels, including Facebook, Twitter, and Instagram. Additional emails were sent out to City-managed distribution lists, including 200+ residents and homeowners’ association representatives. Members of the BAC and TAC have also shared notice of the virtual engagement event. A second round of outreach and notice distributed the paper surveys to promote public involvement and focused on target populations based on earlier Phase I participation.



Quantitative Responses



more than **60%**

of survey respondents mentioned cars, safety, and access to bike facilities as barriers to biking in Dallas

87%

of respondents were in support of bike-friendly policy change



85%

of respondents were willing to take a longer route to avoid heavy traffic



35%

of online map comments described a location with a challenge/barrier to biking

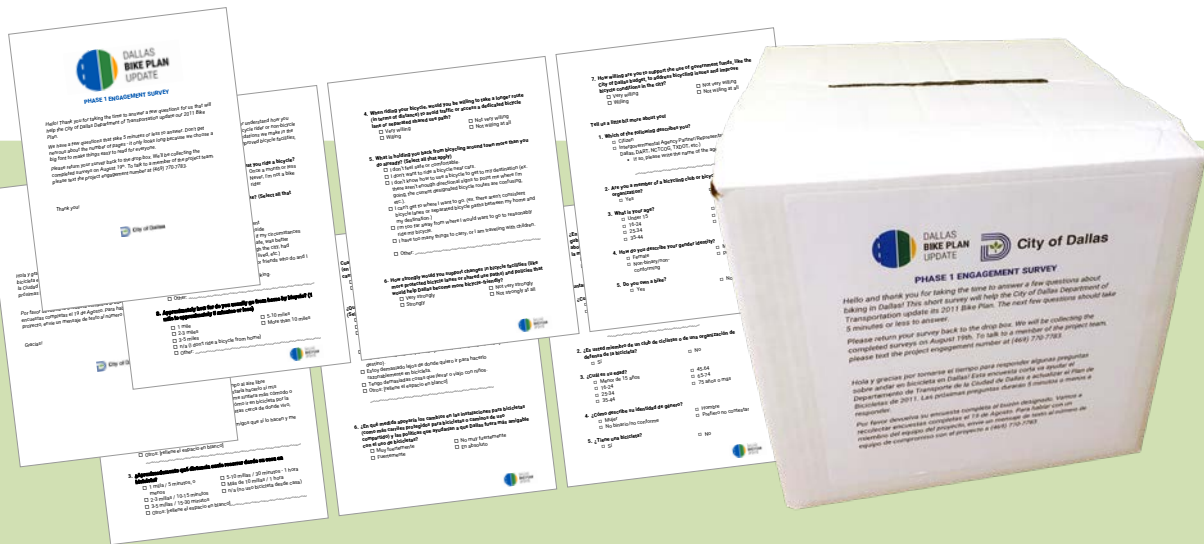
13%

of comments highlighted specific locations that need improvement



5%

of comments mentioned crashes or dangerous and scary conditions



Analysis & Key Take-Aways

- People voiced a strong desire for protection/separation from cars for bikes. The project team used this feedback to look for feasible opportunities to either provide protection/separation on higher-stress roads or redirect bike riders to lower-stress roads with bike-friendly improvements.
- People said they were willing to take a longer route to avoid mixing with heavy traffic. This supported the guiding philosophy of developing a low-stress network of bike boulevard facilities, with the understanding people wouldn't mind going a block or two out of their way to ride somewhere more comfortable.
- In the BAC and TAC stakeholder committees and in the written survey comments, people commented on how long it takes to bike to where they're going because they have to go out of their way to complete their trip. The project team used this information to create as direct of a network as possible between destinations, transit, activity/employment centers, and dense residential areas to support travel times.
- Most survey respondents said right now they were biking for exercise. These results emphasized the need for a comfortable, low-stress network with access to parks and trails.
- Based on the results, it was observed that there is high market share ready for capture to increase ridership for folks who are not currently biking for work or school but would if there were safe and comfortable facilities in a reliably and intuitively connected network to those types of destinations.
- On the webmap, in the Textline conversations, and in the written survey comments people noted specific routes they wanted added or destinations they wanted to reach by bike. The network development used information to edit the first internal draft of the network.

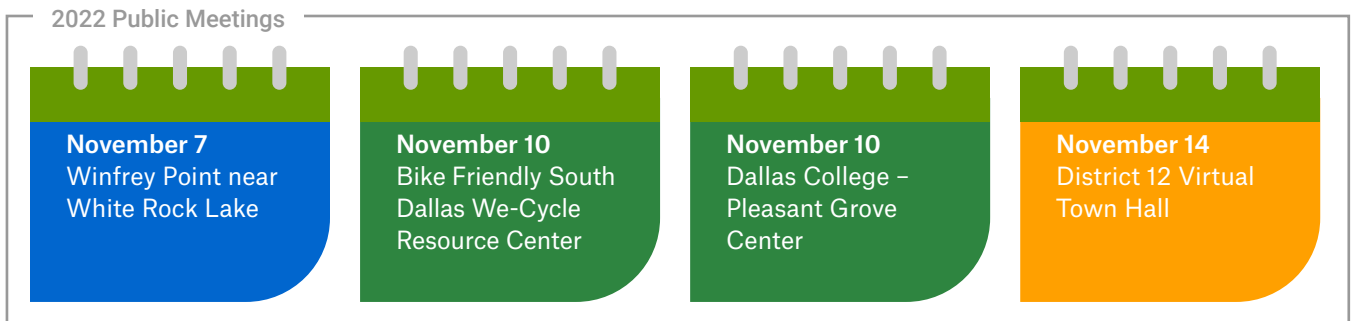
Engagement Phase II

Overview

For the second phase of public engagement, DDOT combined efforts with the Dallas Department of Planning & Urban Design (P+UD) to jointly host seven public meetings in the seven planning areas identified in the *Connect Dallas Strategic Mobility Plan*. Engagement materials were posted on the Dallas Bike Plan webpage on the DDOT’s website. Advertisements were run on City of Dallas social media channels, including Facebook, Twitter, and Instagram. Additional emails were sent out to City-managed distribution lists, including 200+ residents and homeowners’ association representatives. Members of the BAC and TAC also shared notice of the engagement events and were supplied with individual ads for each public meeting to post throughout the three-week open house period. Notices were also distributed to each of the City Council offices for distribution across their own email lists and social media channels. Simultaneously, P+UD posted advertisements on their department’s social media channels and assisted with publishing advertisements on Clear Channel digital billboards throughout the City and print ads in resident utility bills.

City of Dallas staff also participated in several pop-up, focus group events throughout Dallas to supplement this phases’s outreach efforts. These events were at the request of residents and community leaders. Staff tabled these events with a selection of outreach materials from the public meetings.

Each public meeting was styled as an informal open house, with a brief interlude approximately 15 minutes after the opening of the meeting for a presentation by P+UD detailing the ForwardDallas project and an providing an introduction to the Bike Plan update. Three stations were set-up for people to visit after the presentation.





Photos from the Oct. 27 event held at the Park in the Woods Recreation Center

The first “Existing Conditions and Public Engagement” station shared the existing conditions analysis conducted by the project team and the themes heard during the summer engagement events. After visiting this station, attendees understood what existing conditions for biking are in the city, the measures used to determine these conditions, and what residents and survey respondents answered about biking in Dallas. The station layout consisted of an Existing Conditions Board providing geospatial information and a second board containing the Summer Engagement Themes heard through the online and paper surveys. The boards were accompanied by several ‘field guides’ which provided planning area specific maps supplemental to the Existing Conditions Board.

Next, the “Proposed Bike Network” station was designed to validate the proposed bike network. The goal was to seek additional input regarding desired destinations, and routes to add, delete, or modify. The project team also sought to receive comments regarding the proposed facility types within the proposed network. The second station included two boards: one illustrating the different facility types with their corresponding colors on the draft map, renderings of each bike facility type, and photos of bike facilities installed today in Dallas; the second included a flip chart of the overall city-wide map and zoomed-in maps for each planning area. Supplemental to the map on the board was a printed roll plot for the corresponding planning area for the meeting location. Attendees were invited to leave comments via sticky note on this map. Additionally, two computers with monitors and two digital tablets were available with the proposed bike network loaded on the webmap for additional zoom-in detail and public comment (similar format to the virtual engagement used in Phase 1 and on the same web-based platform). Comment cards

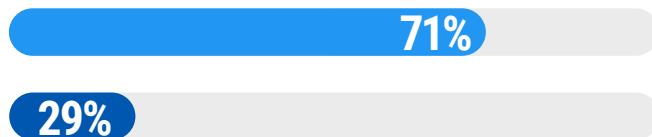
were available at this station (and all others) for other general comments.

The final “Gamification for Prioritization & Decision Making” station was designed to educate the public on how space is allocated and used in the public right-of-way and to gauge people’s preferences for how they think space should be physically allocated between travel modes. Activities were designed to help visitors understand how City staff prioritize decision-making for funding and project phasing and to help visitors participate in the decision-making process by voicing their preferences at this decision-making juncture. An educational board was provided to illustrate how many agencies participate in delivering services using the public right-of-way. An excerpt from the City’s Street Design Guide with sample right-of-way layouts was provided for visitors seeking additional information or examples. To further communicate this idea, an interactive activity was designed to offer people the opportunity to design their own street. Pieces with Velcro were provided to scale for the different components of a street (ex. 4 ft wide bike lane, 11 ft wide travel lane, 12 ft wide trail, etc.). Visitors to the station could affix their pieces along 60 ft, 80 ft, and 100 ft right-of-way street options to experience space constraints and work their way personally through the trade-off and decision-making process. To continue this theme, five “would-you-rather” question prompts were affixed to voting boxes bisected down the middle for people to drop voting chips into. The responses to these questions sought to get important information regarding network development and prioritization. The responses were then tracked and analyzed to help validate network prioritization criteria used later in the Bike Plan Update process.



If cost was equivalent, would you rather the city construct...

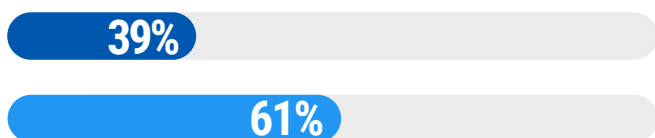
10 miles of protected cycle track facilities on arterial roadways



50 miles of bike boulevard facilities on local neighborhood roads

Would you rather the city prioritize biking infrastructure to provide...

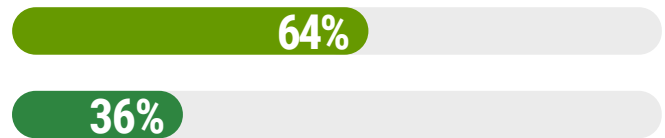
Routes to and from downtown



Routes among local neighborhood commercial centers

Would you rather...

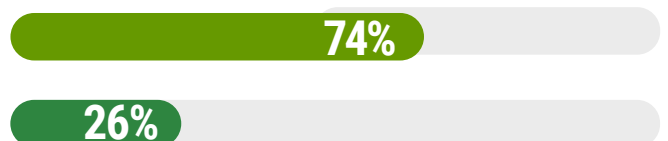
Remove a vehicle lane on a larger, main roadway to incorporate a new bike lane



Implement bike safety improvements on a parallel, lower-stress neighborhood street (ex. adding traffic calming features like speed bumps and/or bulb-outs)

Would you rather bike on...

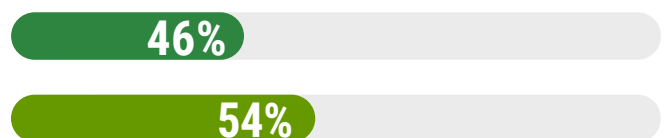
A busier, higher-stress main roadway with high-quality separated bike facilities that provide more direct connections to your destinations



A bike boulevard facility located on a local, lower-stress neighborhood street that would potentially take longer to get to you destination than a more direct route

Would you rather bike to...

A grocery store



A local park



Analysis & Key Take-Aways

Using a variety of engagement methods and levels of interactivity at each station, the project team collected valuable quantitative and qualitative data. In addition to the ‘would you rather’ game, the maps and comment cards gave visitors the ability to provide more nuanced descriptions about their experiences and the needs of their community. The data collected from the engagement events helped to better refine the draft bike network and define the prioritization factors that were used to generate the project prioritization ranking. Routes that were either commented on in the online webmap or drawn in by hand at the meeting were all captured and considered for inclusion into the bike network. These same routes also received additional points in the prioritization process to emphasize the impact of public engagement and community desire.

Some of the important takeaways, as noted both in comment cards at the meeting and during the initial rounds of engagement, were that residents largely see the current

bike network in Dallas as functioning for recreational purposes. Many participants at the meeting voted for more direct and time-efficient connections to their local destinations using physically separated routes. The responses also often reflected that the current on-street network is not and does not feel safe and that many routes would need additional protection to encourage higher ridership. Speed, protection, and driver awareness were common concerns of those interested in biking more. It should also be noted that the comment cards and responses to the three stations overwhelmingly signaled that almost all respondents were interested in biking more and felt that current conditions limited them. Whether it was to a park or a neighborhood shopping center or to get to school or work, most residents were clear about their desire to see increased access to bike infrastructure, especially comfortable and separated bike facilities.

Engagement Phase 3 to be conducted June 2023

On-Going Engagement: Bicycle & Technical Advisory Committees

Overview

To ensure engagement was on-going through the life of the project, a Technical Advisory Committee (TAC) and a Bicycle Advisory Committee (BAC) were formed to provide counsel, guidance, and feedback to the project team. TAC members included representatives from the City of Dallas and other intergovernmental and interagency partners who were recommended and invited to participate by the DDOT. The BAC was comprised of individuals appointed by each of the City of Dallas' 14 City Councilmembers and the Mayor of Dallas, as well as additional members recommended by DDOT staff to ensure that a diverse cross-section of community voices was represented.

During Phase I in spring/summer 2022, four virtual stakeholder committee workshops were held via Microsoft Teams: two with the BAC and two with the TAC. The two BAC sessions were held on April 6 and May 17, and the TAC sessions were held on April 28 and July 13. The stakeholder meetings were broken into two segments: (1) a live PowerPoint presentation and (2) an open discussion session guided by discussion prompts. The initial meetings for both the BAC and TAC also featured an opening activity in which attendees marked a favorite outdoor destination on an interactive online map and then sharing the location with the group via virtual sticky note or survey question. Attendees were invited to ask questions live on the Teams call and/or ask questions in the Teams chat. The presentations and corresponding meeting summaries were subsequently published on the Dallas Bike Plan project webpage on the City of Dallas website.

During Phase II in fall 2022, five virtual stakeholder committee workshops were held via Microsoft Teams: two with the BAC and three with the TAC. The two BAC sessions were held on September 20 and October 18, and the TAC sessions were held on August 16th, September 22, and November 3. The committee meetings were broken into two segments: (1) a live PowerPoint presentation and (2) an open discussion session guided by discussion prompts and different interactive activities. Attendees were invited to ask questions live on the Teams call and/or ask questions in the Teams chat. The presentations and corresponding meeting summaries were subsequently published on the Dallas Bike Plan project webpage on the City of Dallas website.

During Phase III in spring/summer 2023, four virtual stakeholder committee workshops were held via Microsoft Teams: one with the BAC and two with the TAC, and one joint with the BAC and TAC together. The BAC session was held on March 14, the TAC sessions were held on March 16, April 27, and the joint BAC/TAC session was held on June 15. The committee meetings were broken into two segments: (1) a live PowerPoint presentation and (2) an open discussion session guided by discussion prompts and different interactive activities. Attendees were invited to ask questions live on the Teams call and/or ask questions in the Teams chat. During the April 27th TAC meeting, a live-polling exercise was integrated throughout the discussion. The presentations and corresponding meeting summaries were subsequently published on the Dallas Bike Plan project webpage on the City of Dallas website.

Bicycle Advisory Committee

The BAC was asked to participate in the development of the Dallas Bike Plan Update by (1) contributing thoughtful input on the Public Involvement Plan, (2) making recommendations for refining the project's community engagement strategy to maximize our reach and ensure equity throughout the process, (3) offering honest reactions to the findings of the existing conditions analyses, and (4) providing collaborative suggestions on the draft bike network, draft bike design standards, draft policy/program recommendations, and draft Dallas Bike Plan.

The BAC met five times throughout the life of the project. A summary of the BAC meetings, including their topics of discussion, goals, and outcomes, is as follows:

BAC Meeting #1 04/06/2022: Project Overview, Purpose of BAC, & Public Involvement Plan. The meeting started with an engaging activity and participants shared their favorite outdoor locations in Dallas. The project team established the project goals, timeline, and the details of the public involvement plan. The discussion included suggestions for engagement materials to be available in English and Spanish, promoting outreach and engagement in diverse communities, and collaborating with neighborhood and community groups. Additional committee discussion emphasized the importance of inclusivity, outreach to specific user groups such as runners and bike riders and exploring opportunities for micro-engagement and community bike rides. The Dallas Trail Coalition and upcoming events like Parking Day and Bike DFW awards were also mentioned as potential avenues for involvement.

BAC Meeting #2 05/17/2022: Existing Conditions Analysis Progress, Bike Network Guiding Principles, Vision & Goals SWOT Workshop. At the second BAC meeting the existing conditions analysis was presented, focusing on safety, demand, equity, public health, and the existing bike network. The committee reviewed the existing bike facilities map and provided feedback on the network. The bike plan guiding principles were discussed, including research, methodology, and

project evaluation criteria. The group participated in a SWOT workshop, sharing strengths, weaknesses, opportunities, and threats for Dallas' bike network. The discussion included ideas for improving infrastructure, addressing connectivity issues, and leveraging local partnerships. Vision statement exercises prompted participants to envision the future of biking in Dallas and suggest ways to overcome barriers to biking safely in Dallas. The conversation touched on topics such as funding, education, infrastructure maintenance, and community engagement.

BAC Meeting #3 09/30/2022: Review of Bike Network Development Framework. Public engagement efforts were discussed, highlighting the responses received from the web map and paper surveys. Barriers to biking were identified, such as safety concerns and the need for separated facilities on high-volume roadways. The importance of comfort and connectivity in and through intersections and the potential for multimodal trips were emphasized. A preliminary network structure was explained, focusing on direct routes and local connections. The discussion touched on the experiences of the committee members, survey results, and outreach to bike organizations. The group then had a discussion on framework prioritization, including the inclusion of a low-stress system of on-street bikeways. The preference for direct routes and addressing concerns about commute times and heat as a barrier were also discussed. The need for wayfinding, branding, and shade in the network implementation was highlighted. The group expressed support for the network framework and emphasized the importance of bold leadership and public outreach in implementing bike infrastructure.

BAC Meeting #4 10/18/2022: Draft Bike Network, Fall Engagement Strategies. This meeting began with discussions about the proposed bike network and facility types. The draft network was presented on an interactive map, considering factors such as comfort, existing facilities, popular destinations, and equity. Updates on fall engagement activities were provided, including public meetings and materials. During the discussion of the network map, participants raised questions

and comments regarding facility types, map visibility, coordination with other entities, trail connections, infrastructure in specific areas, and avenues for further input. The importance of a comprehensive citywide plan and future meetings was emphasized.

BAC Meeting #5 03/14/2023: Project Updates, Proposed Bike Network Review, Review of Candidate Priority Projects, and of Proposed Policy Recommendations. The meeting opened with an introduction to the project and emphasized the importance of providing feedback for this session. Updates on the project’s progress were provided, and the second draft of the proposed bike network was

introduced. The prioritization factors and variables for the top 15 priority projects were discussed, and initial thoughts and opinions from the group were collected. Concerns were raised regarding map legibility, and the team committed to finding alternative presentation methods. Discussions took place regarding project details, funding, equity, council districts, and engaging with elected officials. The proposed policy recommendations were not discussed due to time constraints, and any remaining questions would be addressed via email or at the final joint meeting.

A summary of each of these five meetings can be found in the Appendices to this report.



Technical Advisory Committee

The Technical Advisory Committee (TAC) focused on providing review and input during the course the plan update from the perspective of municipal staff responsible for implementing the plan. The TAC participated in eight focus group workshops to provide technical input and guidance, with a special emphasis on ensuring that the final plan is a usable and reliable set of directions for all parties responsible for implementing the recommended priority projects.

A summary of TAC meetings, including their topics of discussion, goals, and outcomes, is as follows:

TAC Meeting #1 04/28/2022: Project Overview, TAC Purpose, and Review of Criteria for Project Development. A comprehensive overview of the project, including its scope, goals, and timeline were introduced by the DDOT. The TAC engaged in open discussions regarding their previous planning experiences, committee charter preferences, and best practices for plan development. Additionally, the plan development process was outlined, emphasizing the research methodology and a comparison of evaluation criteria.

TAC Meeting #2 07/13/2022: Review of Existing Conditions, Prioritization Principles, and Project Prioritization Discussion. The existing conditions on the City's bike network were analyzed, revealing barriers on major roadways, high numbers of crashes in focus areas with incomplete networks, and limited connections among existing bikeways. The importance of prioritization criteria was emphasized, including equity, safe connections, gap completion, and alignment with the Dallas Strategic Mobility Plan's objectives. During the discussion, issues such as maintenance of bike lanes, fear of conflicts with cars, lack of dedicated facilities, wayfinding challenges, and the need for amenities and safety improvements were raised. The top three issues identified for addressing in the bike plan update were public understanding and support, connectivity, and measurable improvements tied to the long-term vision.

TAC Meeting #3 08/16/2022: Summer Engagement Strategy Update, Implementation Discussion, Bike Network Development Considerations, and Bike Facility Discussion. The summer engagement strategy was discussed, highlighting preliminary metrics for various engagement methods such as the webmap, interactive survey, Textline, and paper surveys. Known implementation issues were juxtaposed with bike plan best practices, identifying barriers such as lack of leadership, unclear goals, funding challenges, and insufficient support for public outreach. During the committee discussion, concerns were raised about the safety and practicality of certain bike facility designs, the need for incentives to encourage bike riding, caution in adopting approaches that may not work in Dallas, the importance of focusing on separated cycle tracks, prioritizing downtown in the bike plan, addressing the cleanliness of bike lanes, and promoting equity in the project's engagement efforts.

TAC Meeting #4 09/22/2022: Project Updates and Bike Facility Type Workshop. The meeting focused on bike facility types, including the integration of past feedback into the proposed network. The network development methodology was explained, along with the potential for creative placemaking through traffic calming and green infrastructure. During the workshop discussion, various interventions and infrastructure elements were explored, including speed management, traffic calming, and road closures. The group considered design criteria for specific elements like speed bumps, mini-traffic circles, and road closures, but potential solutions and examples from other cities were discussed. Additional topics included speed limit changes, street crossings, intersection striping, and signalization in bike lanes.

TAC Meeting #5 11/03/2022: Project Updates, Proposed Bike Network Review, and Fall Community Engagement Updates. The focus of this meeting was on the placement of the proposed bike network and the selection of facilities. Various questions and suggestions were raised, such as discussing the benefits of bike infrastructure for reducing speeds in local neighborhoods, clarifying terminology and facility

types, identifying missing connections in different areas, and considering visual separation and traffic calming measures. Additionally, an update was provided on upcoming community engagement events.

TAC Meeting #6 03/16/2023: Review of Second Draft Proposed Bike Network, Candidate Priority Project Discussion, review of Proposed Policy Recommendations. This meeting opened with an update on the project progress and introduced the second draft of the proposed bike network. The changes made were reviewed, and the consideration of public engagement feedback in updating the network was discussed. The committee then discussed the prioritization of projects, including factors, variables, and scoring methodology. Concerns were raised about interagency projects, implementation processes, and funding applications. The proposed policy recommendations were not discussed due to time constraints. Follow-up actions were planned to address remaining questions and review previous comments.

TAC Meeting #7 04/27/2023: Review of Existing Design Standard Resources, Review of Proposed Design Standard & Guideline Recommendations.

During this meeting, the project team provided project updates and introduced the topic of bike-friendly design standards in Dallas. TAC members engaged in interactive polling and discussed existing design resources, proposed recommendations, and integration of proposed design standards into the process. Topics covered included bike detection, green paint in bike lanes and through intersections, transit integration, bike parking, intersection design, and more. Suggestions were made to incorporate standards into codes, consulting contracts, and development checklists. Tactical urbanism, testing, and messaging campaigns were proposed for project success. Other topics included bike lane design, parking requirements, and creative ideas from other cities. The meeting concluded with a project schedule review.

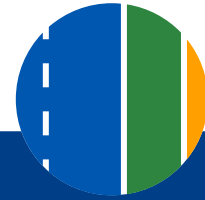
A summary of each of these eight meetings can be found in the Appendices to this report.



Network Development Process

Development of the updated bike network was informed by the results of the existing conditions analysis and comments received during on-going public engagement through the life of the project. The initial development of the updated bike network was appropriately influenced by the context of the City of Dallas, its existing road network and physical characteristics unique to the City, its current bike culture, and the goals set for this bike plan update.

During this process, it was identified first that **the emerging and expanding network of existing paved trails can provide connections** across Dallas. This would help to link neighborhoods and different areas of town to each other that are currently disconnected and not easily accessible by bike. Separated, paved trails are also welcoming for the approximately 50% of residents who are “interested but concerned” when it comes to bike riding and deeply value safety and comfort when making the choice to bike for purpose or fun.



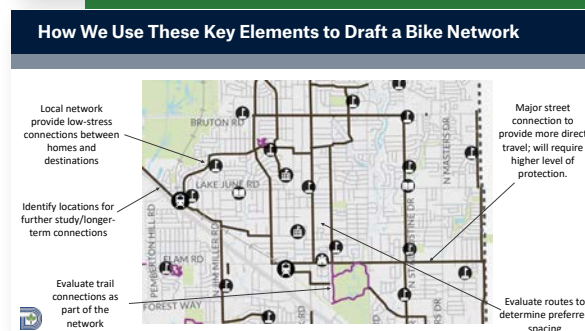
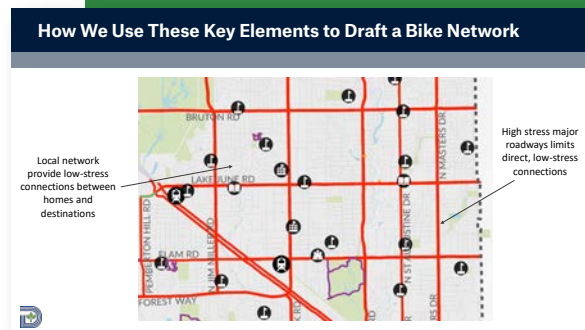
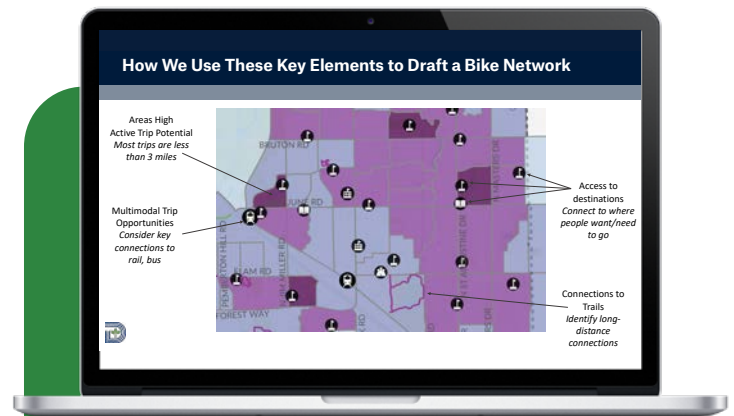
Key Elements for Defining the Bike Network

- Connections to Existing & Future Trails
- Low-Stress Routes
- Access to Destinations
- Connections to Areas of High Active Trip Potential
- Interconnectivity & Directness
- Bike Rider Safety & Comfort



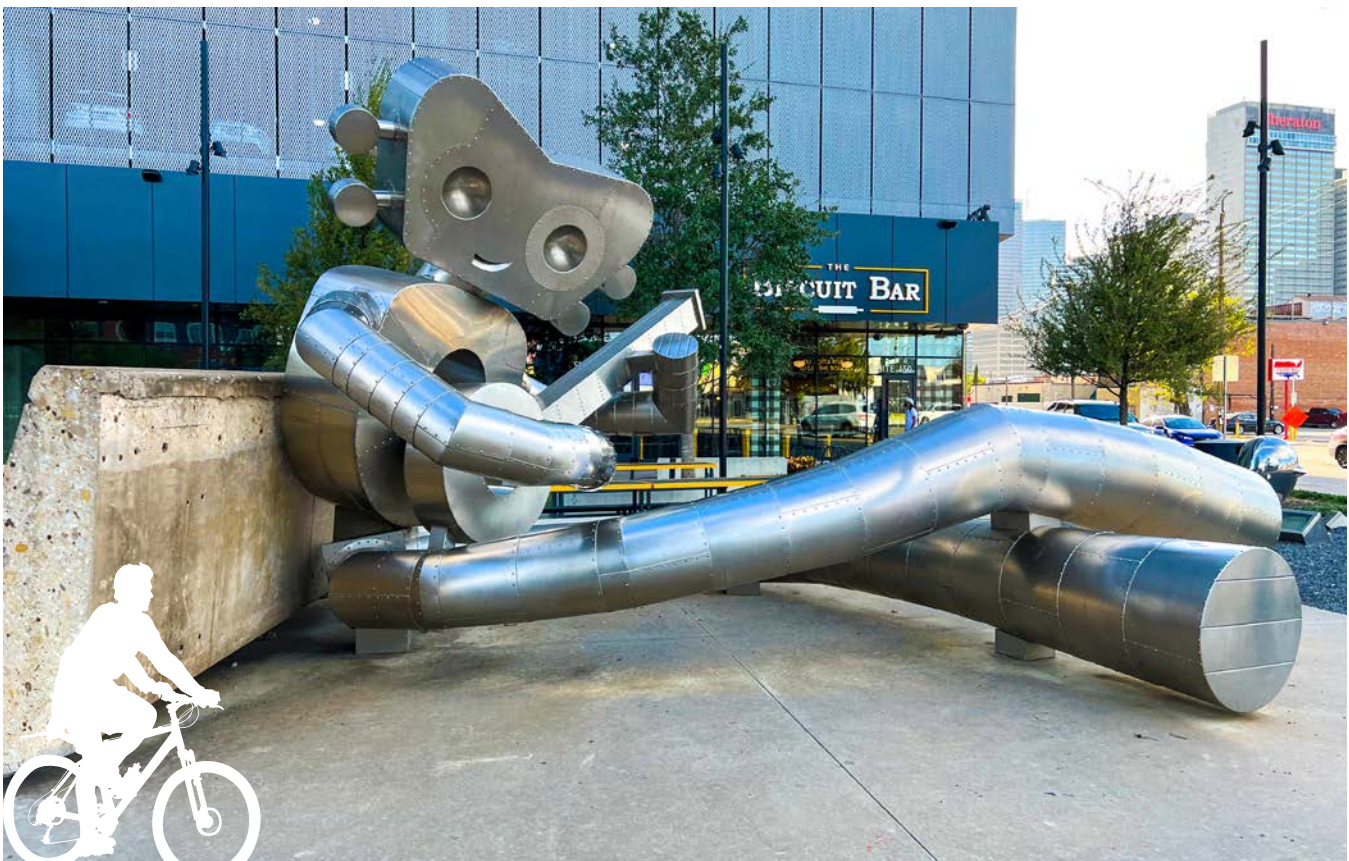
Second, it was observed that the **City's vast network of low-stress local roadways** (65%+ of Dallas street network) could support access to local destinations and connections among neighborhoods. By introducing bike boulevard elements such as improved intersections at major roads, traffic calming to slow vehicle travel speeds (decreasing the speed differential between travel modes for safety), or volume management to designate roads as bike-friendly and encourage through-vehicle traffic to choose different and car-efficient travel routes, the low-stress local roadway network could gently and cost-effectively evolve to better serve bike trips and open many new channels of multimodal travel. Coupled with this analysis was consideration of the City's High Injury Network, past patterns of adverse safety outcomes, and existing bus and freight/high truck traffic routes.

Third, it was also acknowledged that **access to destinations is critical** to the success of a well-developed bike network. With many trips covering short distances as observed in the active trip potential and travel demand analyses, improved bike network links could provide more multimodal travel options for people who want to, choose to, or need to bike to serve their transportation needs. Essentially, a good bike network will get people where they are going. A major component of this is taking into consideration connections with the DART transit system in order to help people move further and efficiently across the City. A key theme identified particularly by the BAC and TAC stakeholder committees heavily involved with this process was the need for direct connections to destinations to ensure efficiency in the bike network.



Finally, an overarching theme in developing the updated bike network was to develop an interconnected and comfortable series of varying bike facility types that would **encourage existing bike riders to ride more and introduce new bike riders of all ages and abilities to biking**. Meaningful change in expanding any bike network, promoting a healthy bike culture, securing investment for bike infrastructure, and positively improving bike safety happens when bike usership reaches a critical mass. This bike network update supports expanded and increased bike ridership and the safety of bike riders on the Dallas bike network.

These key elements and guiding principles, keeping a clear line of sight toward the project's ultimate vision and goals, informed each iteration of the network development process. A first draft network was developed based on the existing conditions analysis and preliminary feedback provided by the BAC and TAC. After refinement based on DDOT and BAC/TAC input, the first draft network was presented to the community in fall 2022 during a series of seven public workshops held in October and November, along with subsequent focus group sessions facilitated by DDOT with advocacy organizations and local resident groups. Heavy refinement of the bike network, taking into account the public input collected in fall 2022, as well as the results of a feasibility analysis conducted to assess planning-level viability for the first draft network, was completed during winter 2022-2023. A second draft network was presented to the DDOT and BAC/TAC groups, where multiple rounds of discussion and edit were facilitated. The draft final network was presented to the BAC/TAC committees, City Council, and the overall community during the project's final phase of outreach in June 2023. Final refinements were applied based on community feedback, stakeholder input, and City recommendation to accept the final updated bike network.



Network Development Process Highlight: Feasibility Analysis

Upon development of a first draft update to the City of Dallas Bike Network, a general, high-level feasibility evaluation was conducted to provide a cursory assessment of the proposed bike network's implementable viability, in a manner of detail appropriate for a city-wide, master planning effort.

This feasibility assessment first consisted of the following steps and procedures to confirm the appropriateness of the proposed bike facility:

- Where network gaps were identified through the GIS analysis, recommend completion of the gaps with a similar facility type.
- Recommend extensions of the existing facility types to extend the network's coverage and linkage to identified trip origins and destination.
- Include local and regionally planned bike routes as shown in the *ConnectDallas* Plan and the NCTCOG Mobility 2045 Plan.
- Confirm bike boulevard facility types are proposed only on local (low-speed, low-volume) streets.
- Confirm visually or physically separated bike lanes are proposed on higher volume local roads, collector roads and higher classifications.
Note: A more robust assessment of the feasibility of any given route will require further analysis of the roadway and traffic characteristics, availability of right-of-way, combined with local knowledge of specific safety, property access, or other related factors following plan adoption and approaching project implementation.



400+

Proposed
Improvements

150

Bike Boulevards

140

Visually Separated
Facilities

60

Physically Separated
Facilities

70

Trail Segments

Next, the feasibility assessment considered the general feasibility of the proposed bike network, with regard to construction. The proposed bike network includes over 400 proposed improvements, consisting of over 150 bike boulevards, 140 visually separated facilities, 60 physically separated facilities, and 70 trail segments. For this stage of the feasibility assessment, the following roadway modification requirements of each proposed facility type is noted:

- **Bike Boulevards** – typically requires signage and pavement markings within existing curbs/edge of pavements and other volume management, speed management, and traffic calming measures;
- **Visually Separated Facilities** – typically accomplished through restriping of existing travel lanes and additional signage within existing curbs/edge of pavements;
- **Physically Separated Facilities** – typically requires conversion of an existing travel lane to a dedicated bike facility within existing curbs/edge of pavements;
- **Trails / Shared Use Paths** – located outside of the existing curbs/edge of pavement.

To assess “feasibility” at a city-wide level, existing GIS data identifying roadway and traffic characteristics along the proposed physically separated facilities was used. City and TxDOT GIS data on right-of-way, surface width, traffic volume (annual average daily traffic/AADT), heavy truck percentages, roadway configuration and speed limit was reviewed for the approximately 60 physically separated facilities that were preliminarily recommended in the first draft bike network. The results of this analysis and their influence on the development of the second draft updated bike network is included in the Appendices.

For a more robust and detailed feasibility assessment needed for more complex projects, including but not limited to physically-separated and trail facility types, this plan recommends that feasibility studies be conducted prior to design efforts. These more detailed studies should include at a minimum the following elements:

- Detailed roadway characteristics
- Existing traffic characteristics
- Right-of-way information (such as as-builts, property appraiser parcel information, etc.)
- The need for more than one typical section based on varying conditions.

51-56%
of population

Interested but concerned;
low stress tolerance;
think “8 to 80”

5-9%
of population

Somewhat confident;
comfortable riding in
bike lanes or on paved
shoulders if necessary

4-7%
of population

Highly confident;
comfortable riding with
traffic bike lanes or on paved
shoulders if necessary



CHAPTER 3

BIKE NETWORK



Guiding Philosophy

Providing a thoughtful and meaningful update to the City’s bike network required deep collaboration among City residents, stakeholder advisory committee participants, City staff, and the project team. To establish the guiding philosophy for developing the bike network, the project team considered the results of the existing conditions analysis (including equity and public health, active trip potential, past safety outcomes, and level of traffic stress) alongside feedback for how the City imagines itself as a bike-friendly community. Themes of “accessible for all ages and abilities,” “low-stress and comfortable,” “directness and connectivity,” “safety and separation,” “serve all types of bike trips,” quickly rose to the surface consistently across those sources and conversations. Thus, development of the bike network prioritized adding low-stress bike routes across the city (and introducing the bike boulevard facility type), considering separation and safety for bike routes that are along major roadways, connecting areas of high active trip potential, providing direct bike routes to support bike travel of all distances, expanding bike access to destinations, and increasing bike connections to the robust existing and proposed city-wide trail network.

Four facility types—**bike boulevards, visually separated on-street bike lanes, physically separated on-street bike lanes, and trails**—were presented to comprise the city-wide bike network. Bike boulevards and visually separated on-street bike lanes leverage the City’s existing low-stress street network to create key neighborhood linkages. Connections to physically separated on-street bike lanes, trail facilities, and transit stations facilitate longer distance and regional travel. The updated bike network is presented city-wide, with detail provided for each of the seven planning areas.

The network development framework approach elements are summarized as follows:

1. Adding lower stress bike routes to the bike network (and introducing the bike boulevard facility type)
2. Considering separation and safety for bike routes that are along major roadways
3. Connecting areas of high active trip potential
4. Providing direct bike routes to support bike travel of all distances
5. Expanding bike access to destinations
6. Increasing bike connections to the robust existing and proposed City-wide trail network

Facility Types

BIKE BOULEVARDS



Speed Management



Intersection Priority



Berkeley, CA Example

VISUALLY SEPARATED



Conventional Bike Lane



Conventional Bike Lane



Bishop Avenue



Parking Side Buffer



Travel Side Buffer



North Polk Street

PHYSICALLY SEPARATED



One Way, Parking Buffer



Two Way



Forth Worth Avenue

TRAILS



Katy Trail



Great Trinity Forest Trail



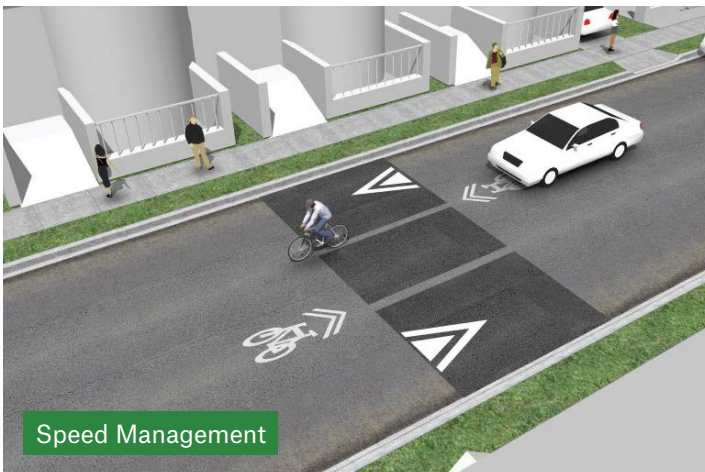
White Rock Lake Trail

The following four types of bike facilities comprise the City of Dallas bike network. They are drawn from the City of Dallas *Street Design Manual*, the City of Dallas *Complete Streets Guide*, the City of Dallas *Traffic Calming Toolkit*, the National Association of City Transportation Officials (NACTO) *Urban Bikeway Design Guide*, and the American Association of State Highway and Transportation Officials (AASHTO) *Guide for the Development of Bicycle Facilities*.

Each facility type is designed for different conditions and contexts, taking into consideration things like the surrounding land uses or the posted speed of the road and traffic volumes. Working in unison, these four types of bike facilities provide a variety of opportunities for bike riders to plan their trips and arrive at their desired destinations safely. In the following section, photos are coupled with descriptions of each facility type, along with rendered examples of different bike treatment types from NACTO's *Urban Bikeway Design Guide*.



Bike Boulevard in Berkeley, CA. (Photo by Payton Chung)



Speed Management



Intersection Priority

BIKE BOULEVARDS

Bike boulevards, sometimes called “neighborhood greenways” or “neighborways,” are quieter, local streets, typically with lower traffic volumes and lower posted speeds, that feature elements that give priority to bike riders and pedestrians. There is no standard design for a bike boulevard; instead think of it as a kit of possible parts where multiple components are needed at the same time to accomplish a single goal (not one violin, but a whole orchestra). Bike boulevards start with streets that already have low existing speeds and volumes, the basic components for a safe biking environment, and then they build upon this foundation to improve bikeability. Important design elements include traffic calming to encourage lower automobile speeds, volume management to discourage cut-through traffic, and signs and pavement markings for easy wayfinding and clear branding that this street is intended to be bike-friendly.



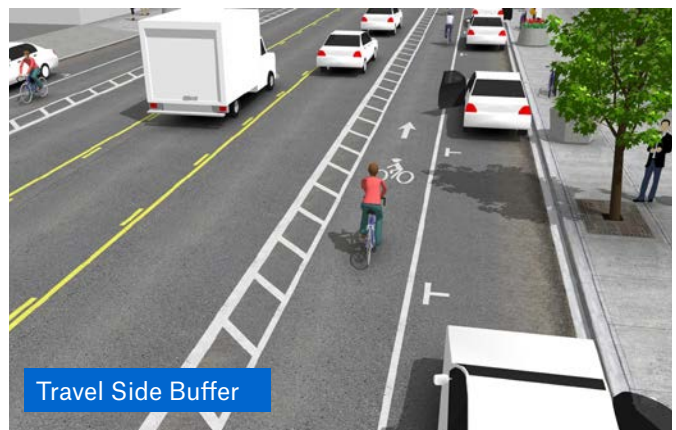
Conventional Bike Lane



Conventional Bike Lane



Parking Side Buffer



Travel Side Buffer



Bishop Avenue



North Polk Street

VISUALLY SEPARATED BIKE LANES

Visually separated bike lanes designate an exclusive space for bike riders on the roadway using signage and pavement markings. They are typically on the right side of the street between the adjacent travel lane and curb, road edge, or parking lane. Bike traffic flows in the same direction as car traffic. The important distinction is that there is no physical barrier between cars in the travel lane and bike riders in the bike lane. Visually separated bike lanes, however, include a painted buffer (typically 2-3 feet wide) to increase the width and separation between cars and bikes.



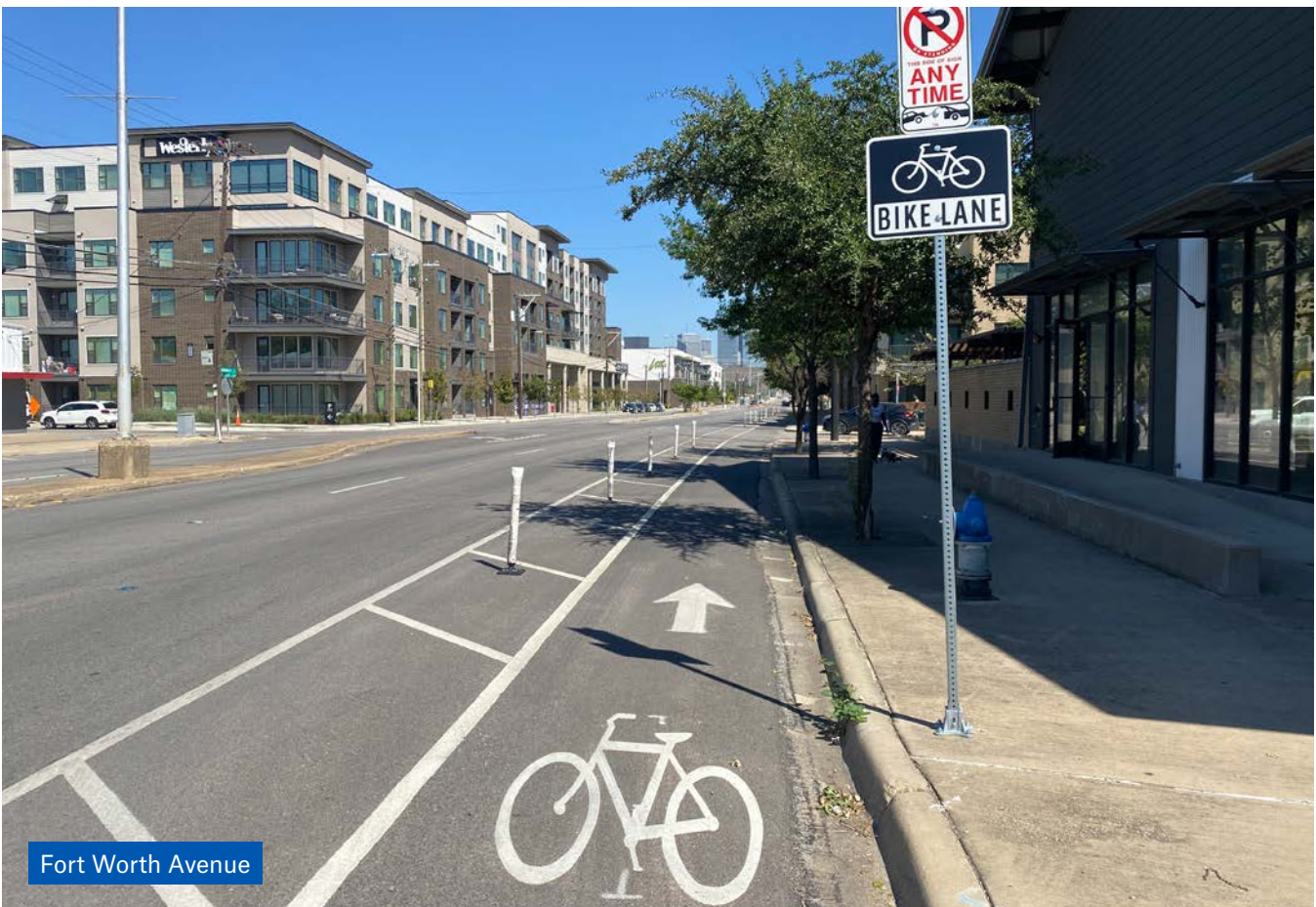
One Way, with Parking Buffer



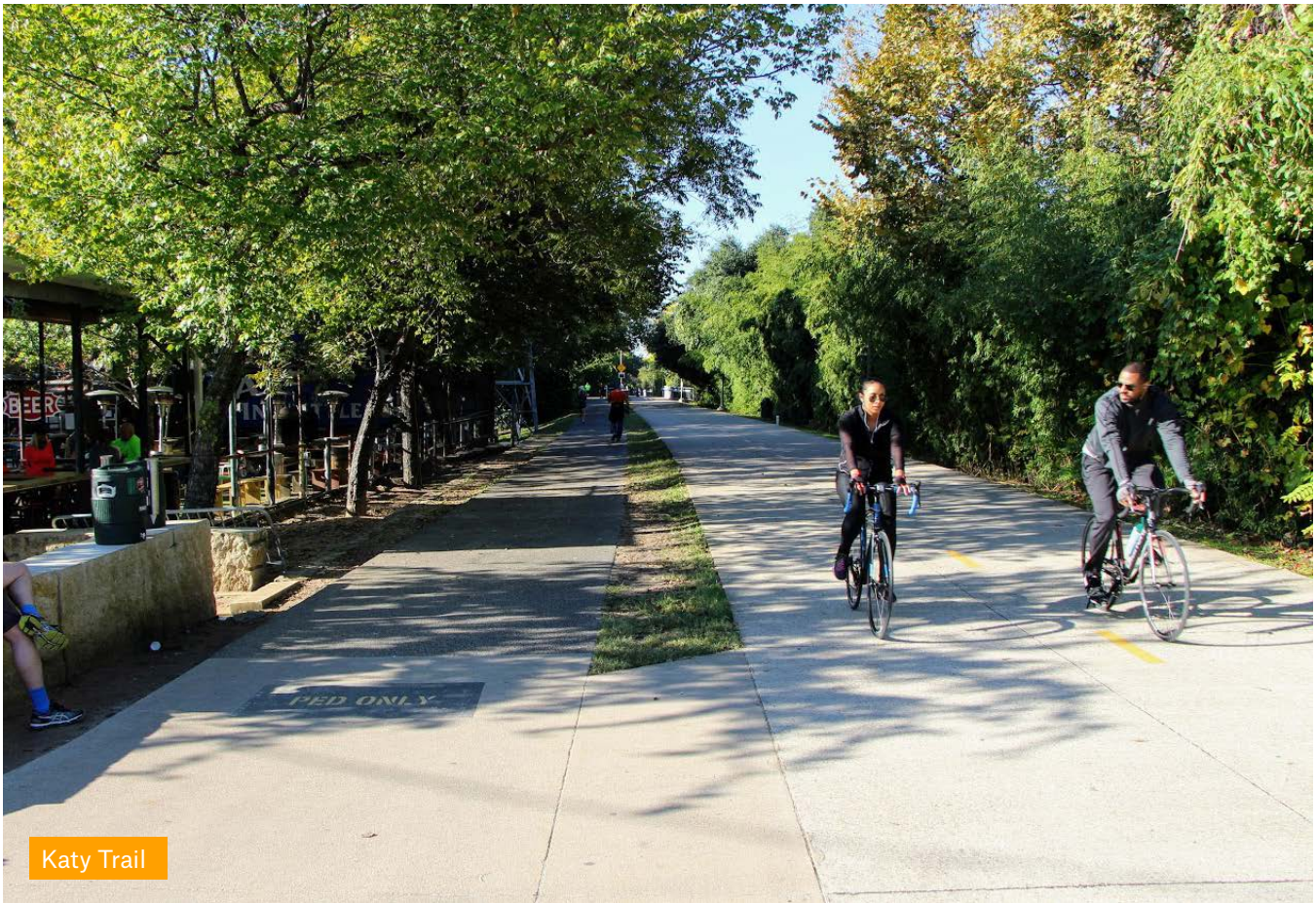
Two Way

PHYSICALLY SEPARATED BIKE LANES

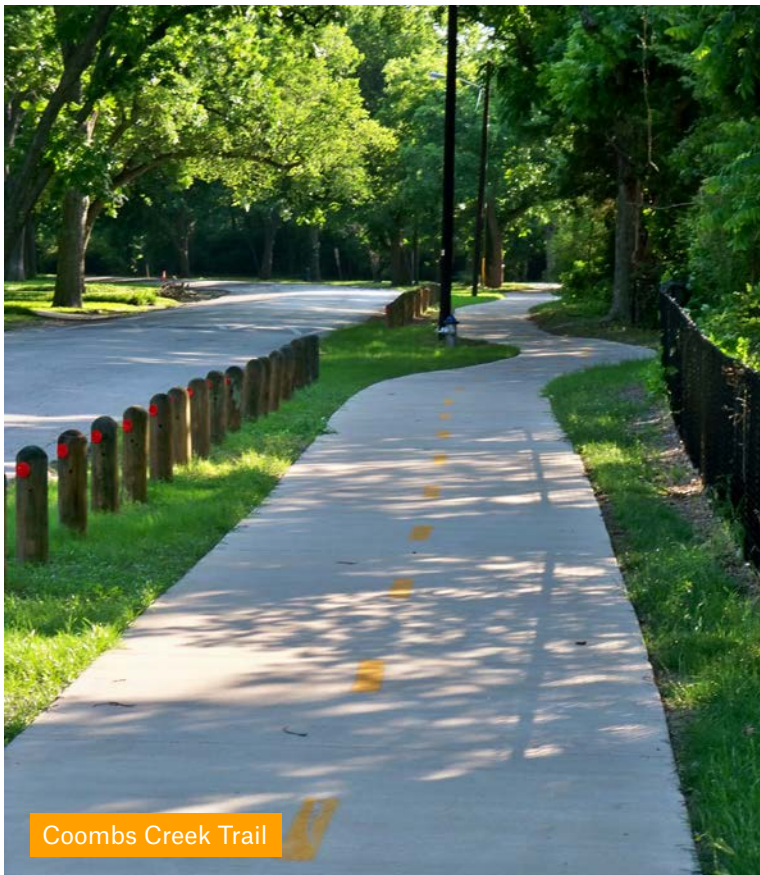
Physically separated bike lanes are exclusive bike facilities that provide physical barrier or separation between cars and bike riders. This can be done at the street level by adding medians, bollards, barriers, or on-street parking. It can also be done at the sidewalk level, where a curb or median separates bikes from motor vehicles. Different pavement types, colors, or textures separate bike space, called a cycle track, from pedestrians and the sidewalk.



Fort Worth Avenue



Katy Trail



Coombs Creek Trail

TRAILS

Paved bike trails, also called shared use paths, are physically and fully separated from the roadway and are intended to be shared by bike riders, pedestrians, and other non-motorized users (skateboards, one-wheels, and more are welcome!). Trails make up a complementary system to the on-street network using facilities. Trails can either be wider paths, sometimes called sidepaths, that are adjacent to roadways, or they can be fully off-system paved trails through parks, recreation areas, or publicly-owned easements that are not next to the road.

Bike Network

The updated city-wide bike network includes recommendations for the improvement or addition of approximately 175 miles of bike boulevards, 140 miles of visually separated on-street bike lanes, 91 miles of physically separated on-street bike lanes, and 130 miles of trails—a total of 536 miles. The implementation of this network would result in a significant increase in bike ridership and support the City in meeting its goals as established by the Bike Plan, the CECAP, ForwardDallas, and the Racial Equity Plan. The city-wide network is provided, along with details for each of the seven planning areas.

536 miles

Total of Improvements or Additions to the Bike Network

175

Miles of Bike Boulevards

140

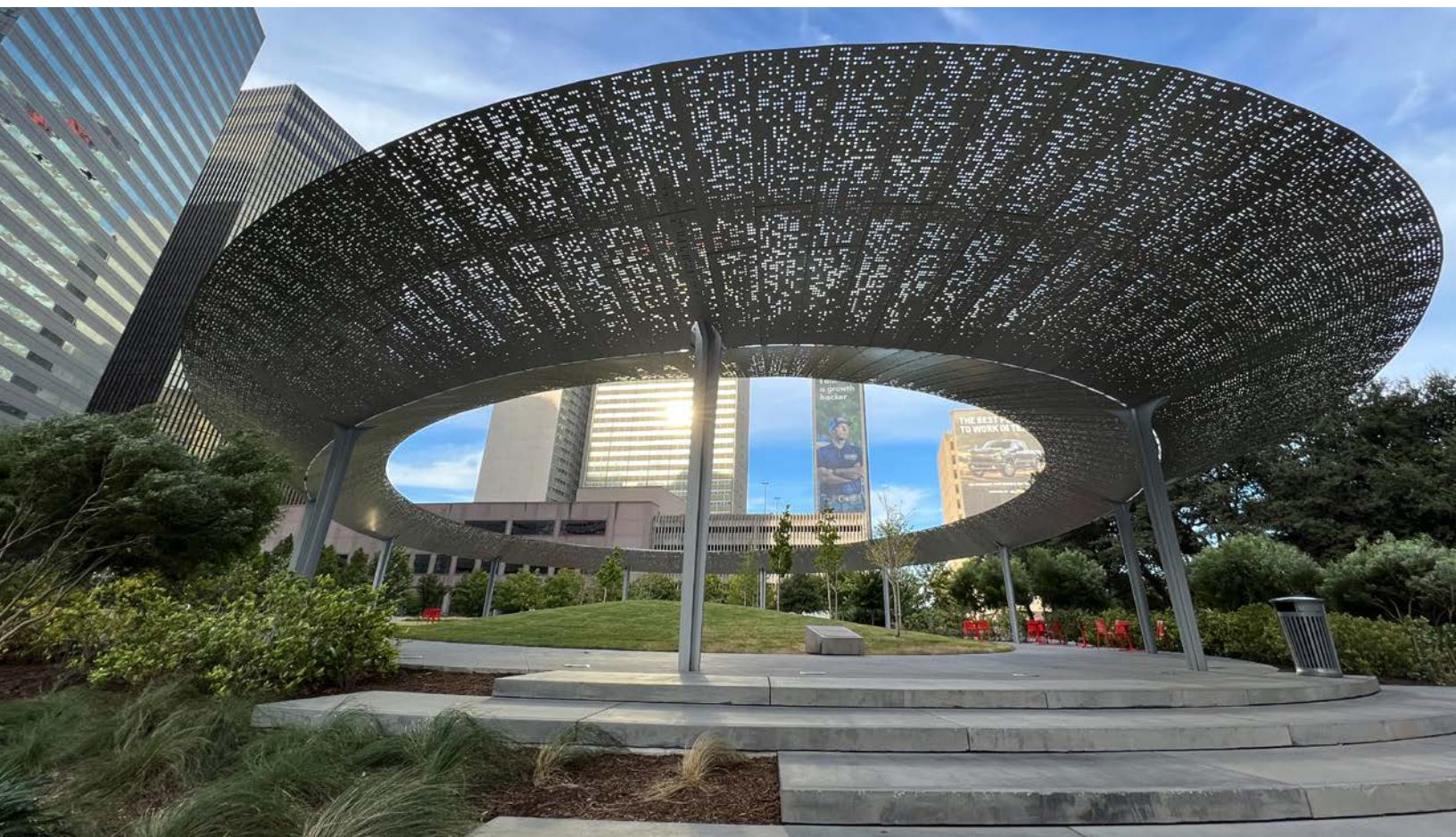
Miles of Visually Separated On-street Bike Lanes

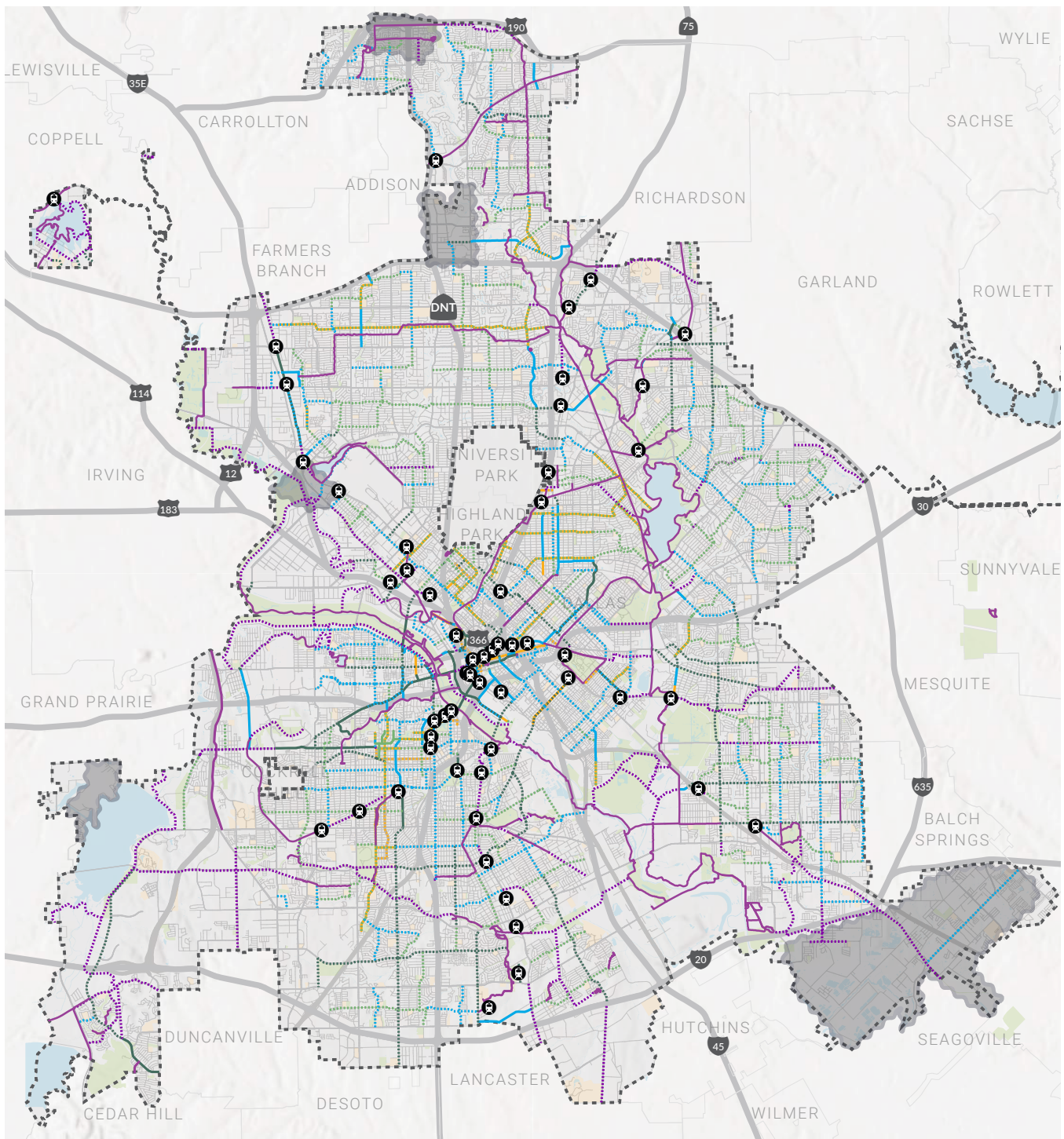
91

Miles of Physically Separated On-street Bike Lanes

130

Miles of Trails





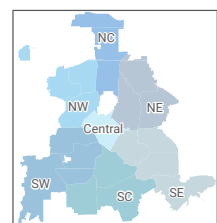
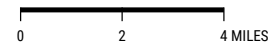
Overall Planning Area

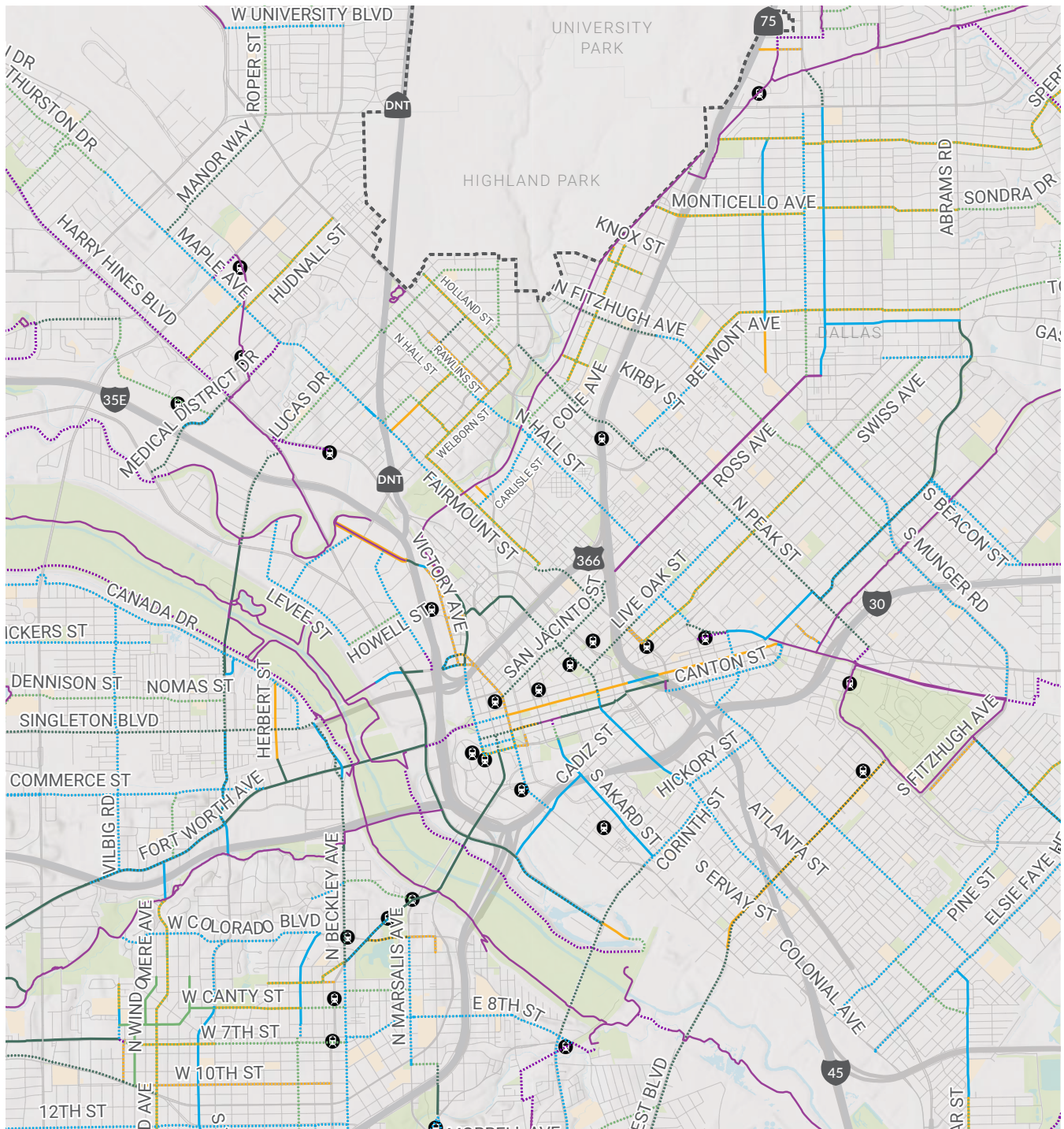
Network Recommendations

- Visually Separated
- Bicycle Boulevard
- Physically Separated
- Trail
- Bicycle Route
- - - Remove/ Consolidate Route
- Further Study Needed

Existing and Funded Bike Facilities

- Visually Separated
- Bicycle Boulevard
- Physically Separated
- Trail
- Bicycle Route
- Rail Stations
- Water
- Schools
- Parks

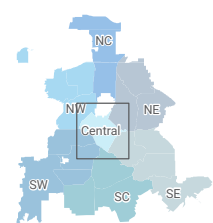
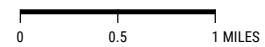


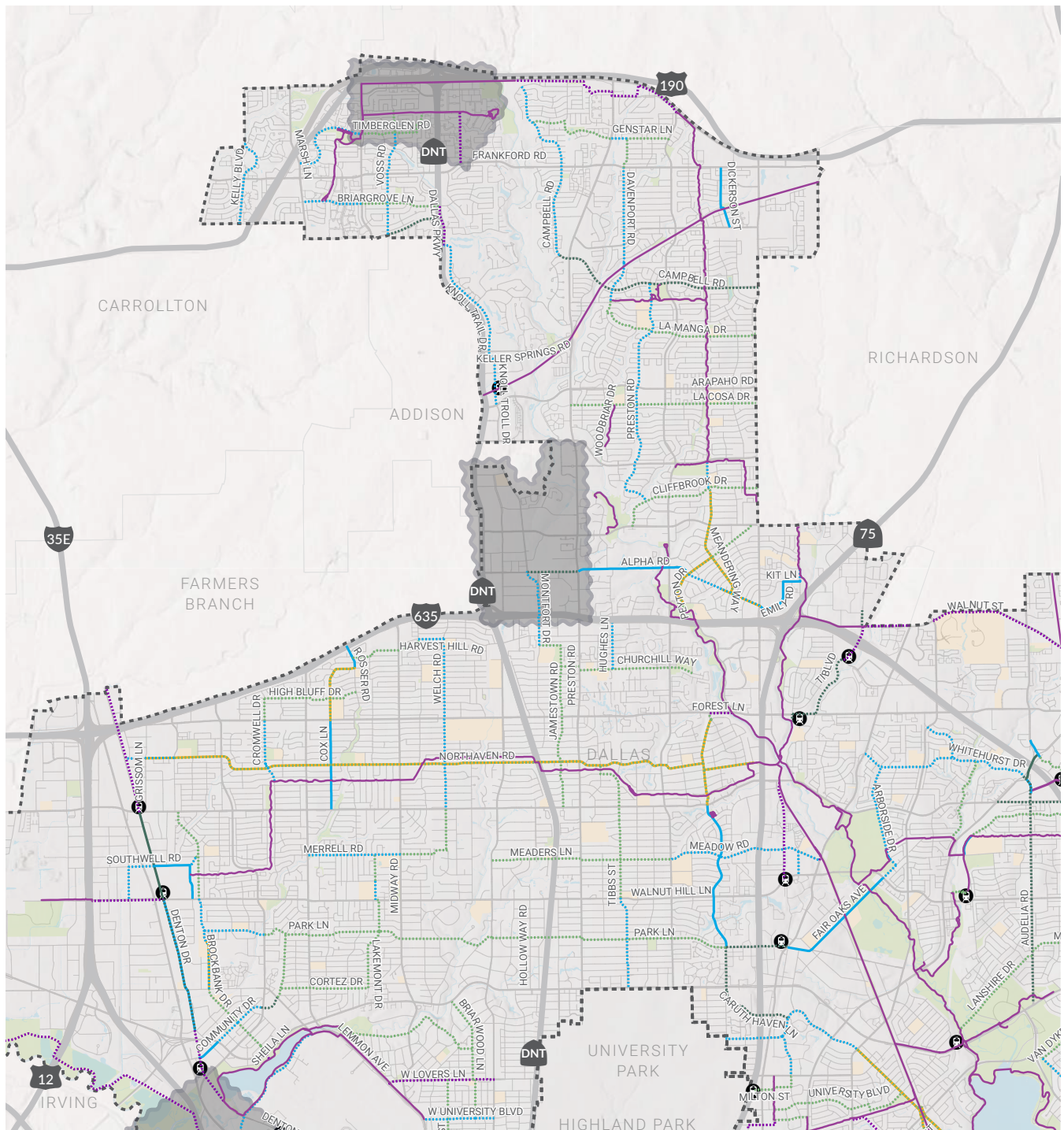


Central Planning Area

- Network Recommendations**
- — — — — Visually Separated
 - — — — — Bicycle Boulevard
 - — — — — Physically Separated
 - — — — — Trail
 - — — — — Bicycle Route
 - — — — — Remove/ Consolidate Route
 - — — — — Further Study Needed

- Existing and Funded Bike Facilities**
- — — — — Visually Separated
 - — — — — Bicycle Boulevard
 - — — — — Physically Separated
 - — — — — Trail
 - — — — — Bicycle Route
 - Rail Stations
 - Water
 - Schools
 - Parks





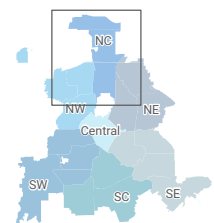
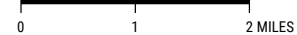
North Central Planning Area

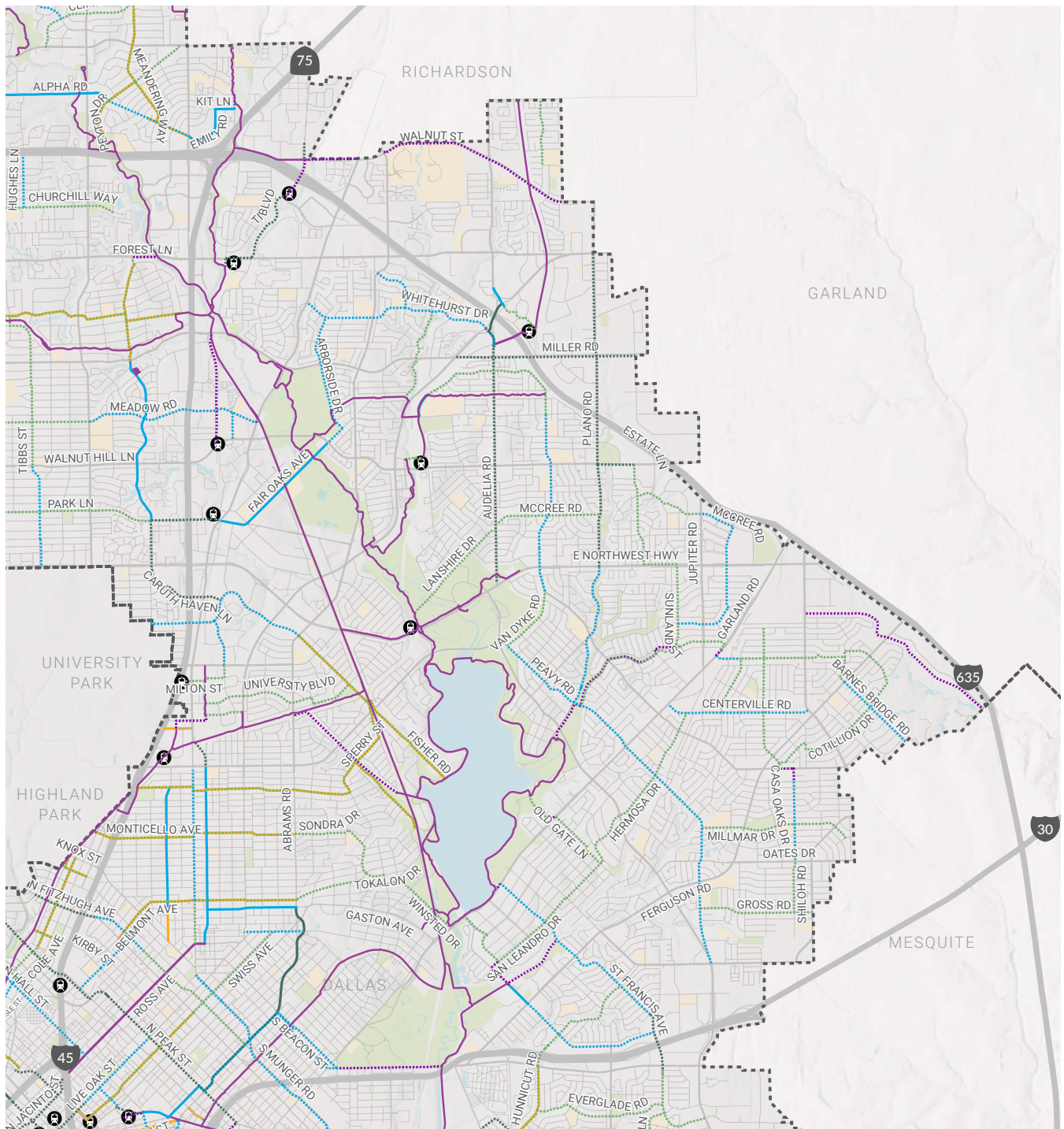
Network Recommendations

- ⋯ Visually Separated
- ⋯ Bicycle Boulevard
- ⋯ Physically Separated
- ⋯ Trail
- ⋯ Bicycle Route
- ⋯ Remove/ Consolidate Route
- Further Study Needed

Existing and Funded Bike Facilities

- Visually Separated
- Bicycle Boulevard
- Physically Separated
- Trail
- Bicycle Route
- Rail Stations
- Water
- Schools
- Parks
- Dallas City Limits





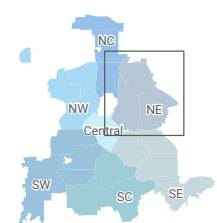
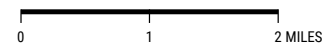
Northeast Planning Area

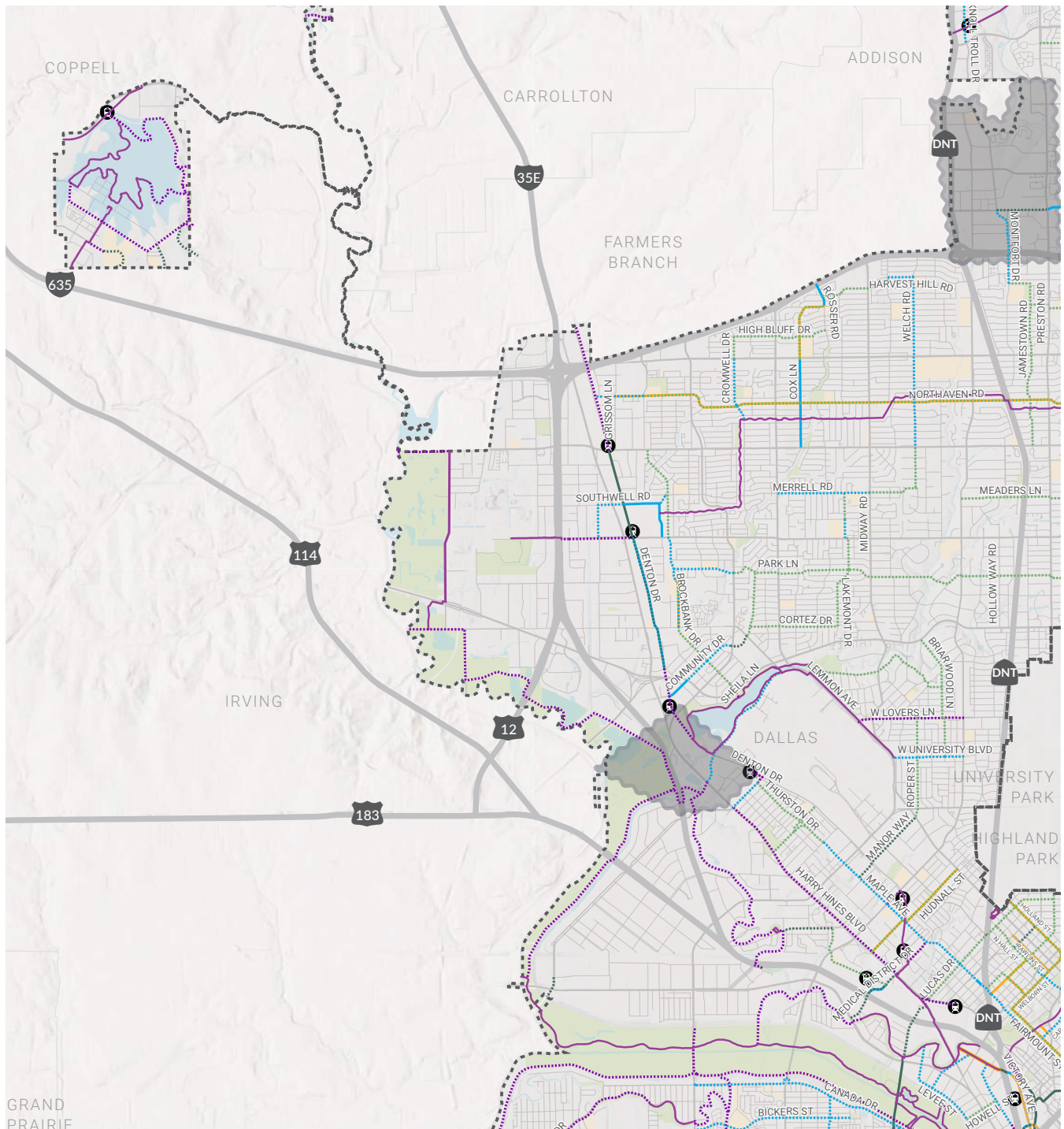
Network Recommendations

- - - - - Visually Separated
- Bicycle Boulevard
- Physically Separated
- Trail
- - - - - Bicycle Route
- Remove/Consolidate Route
- █ Further Study Needed

Existing and Funded Bike Facilities

- Visually Separated
- Bicycle Boulevard
- Physically Separated
- Trail
- Bicycle Route
- R Rail Stations
- Water
- Schools
- Parks

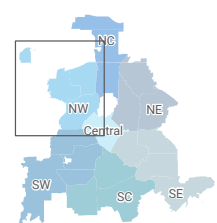
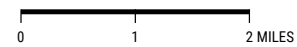


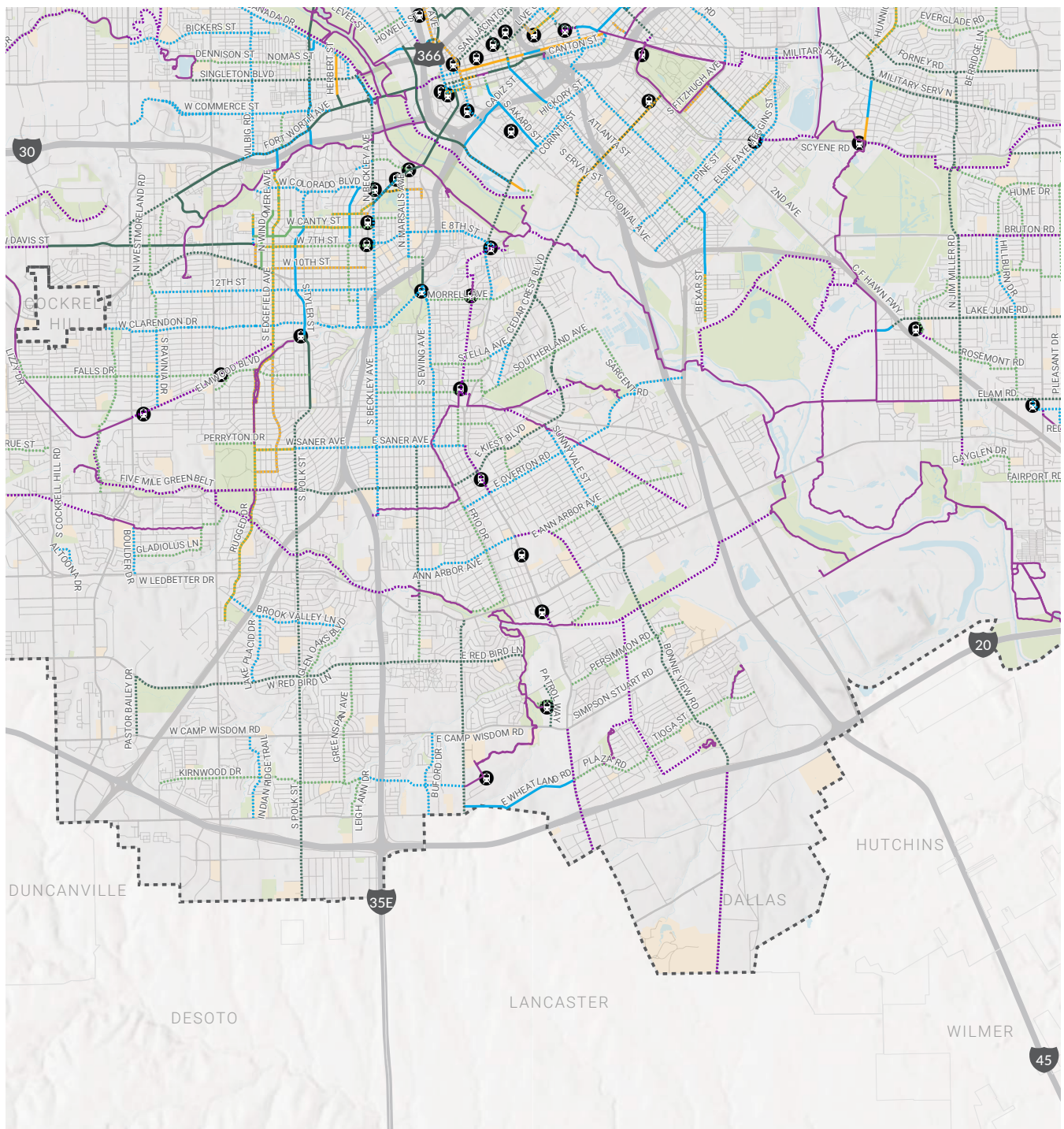


Northwest Planning Area

- Network Recommendations**
- — — — Visually Separated
 - — — — Bicycle Boulevard
 - — — — Physically Separated
 - — — — Trail
 - — — — Bicycle Route
 - - - - - Remove/ Consolidate Route
 - Further Study Needed

- Existing and Funded Bike Facilities**
- — — — Visually Separated
 - — — — Bicycle Boulevard
 - — — — Physically Separated
 - — — — Trail
 - — — — Bicycle Route
 - Rail Stations
 - Water
 - Schools
 - Parks





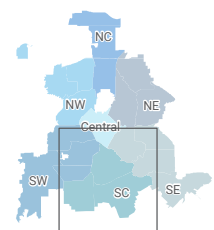
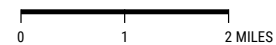
South Central Planning Area

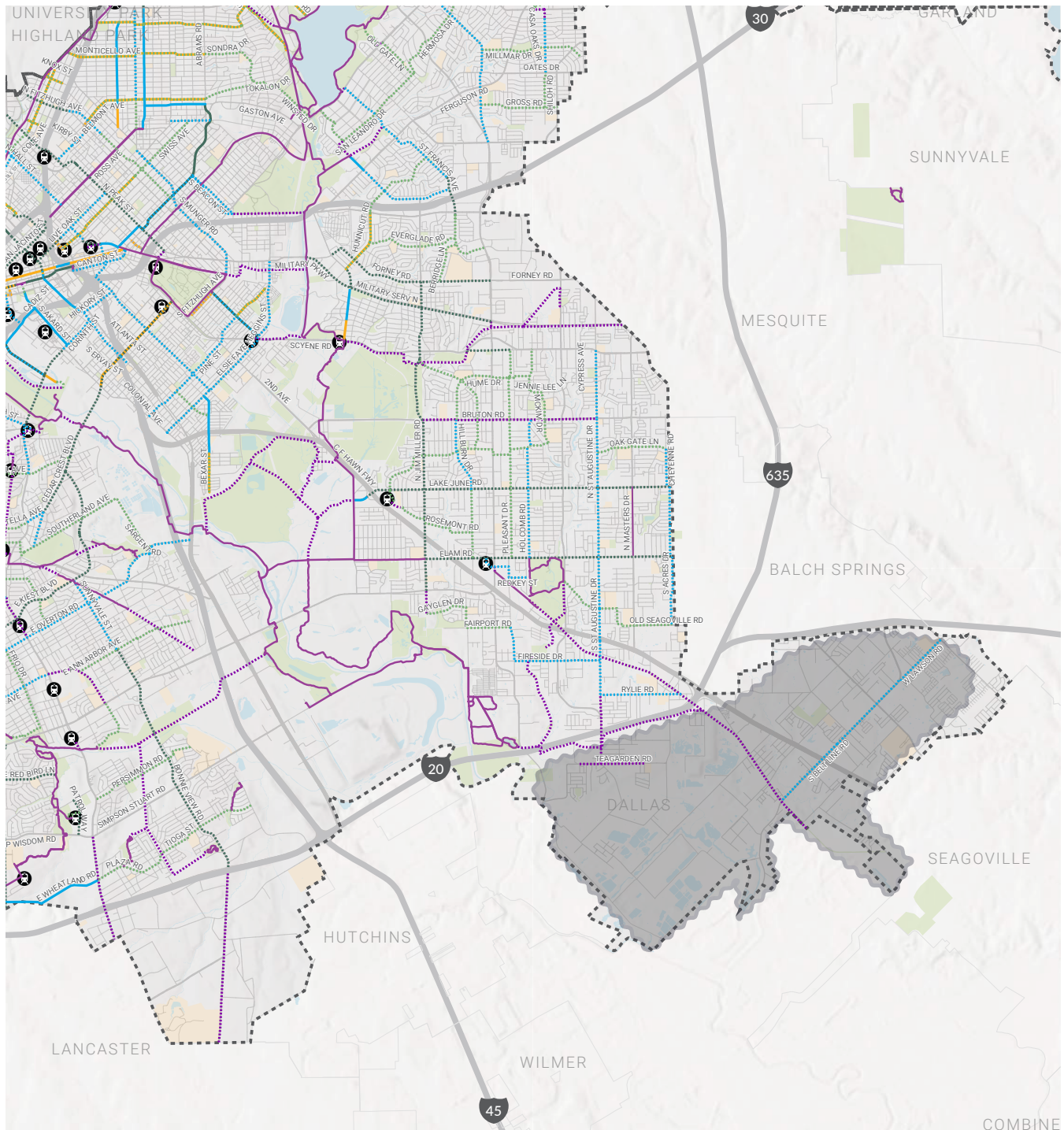
Network Recommendations

- — — — — Visually Separated
- — — — — Bicycle Boulevard
- — — — — Physically Separated
- — — — — Trail
- — — — — Bicycle Route
- — — — — Remove/ Consolidate Route
- — — — — Further Study Needed

Existing and Funded Bike Facilities

- — — — — Visually Separated
- — — — — Bicycle Boulevard
- — — — — Physically Separated
- — — — — Trail
- — — — — Bicycle Route
- Rail Stations
- Water
- Schools
- Parks





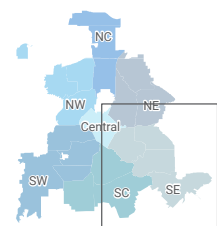
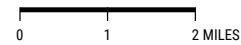
Southeast Planning Area

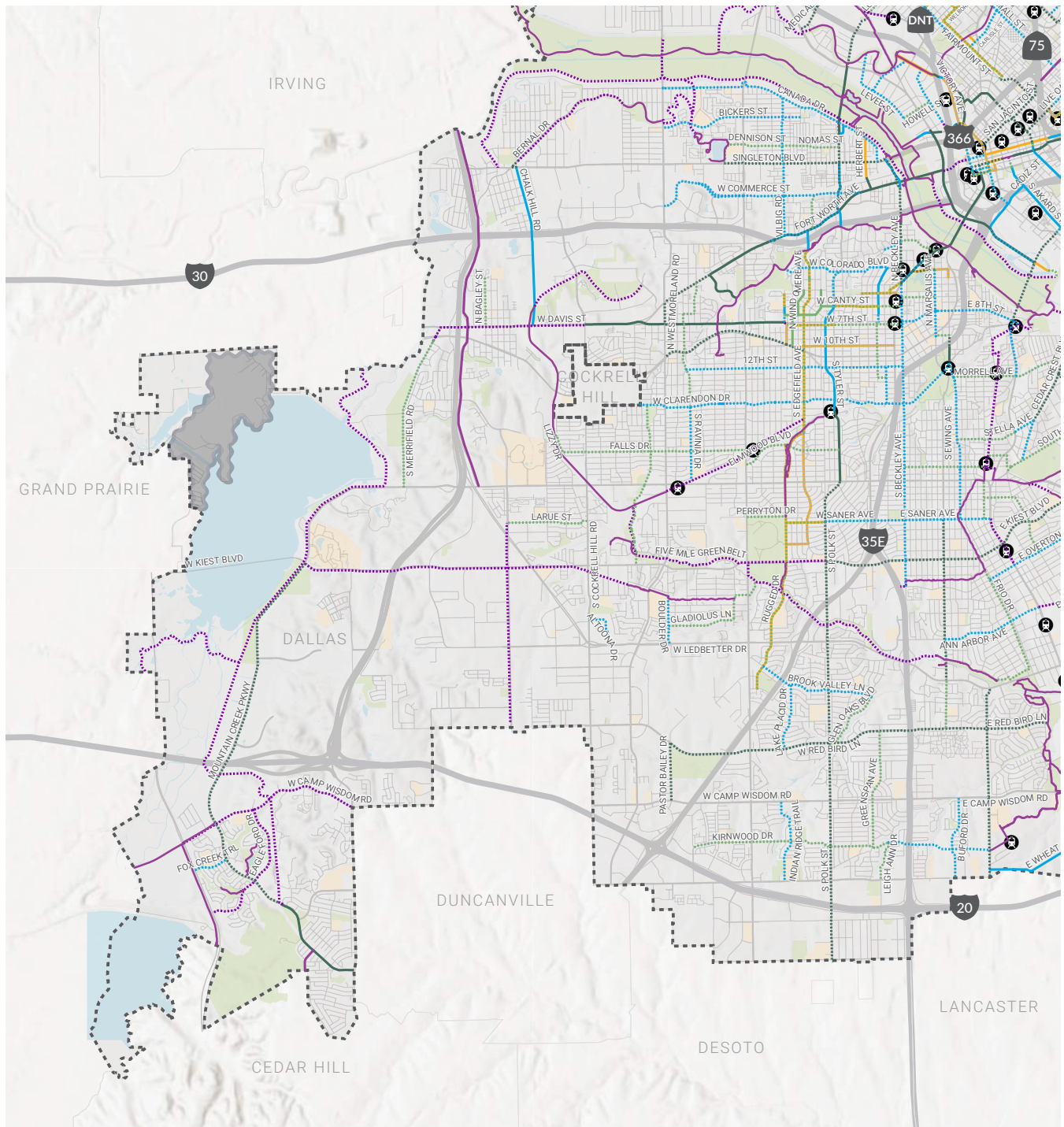
Network Recommendations

- — — — Visually Separated
- — — — Bicycle Boulevard
- — — — Physically Separated
- — — — Trail
- — — — Bicycle Route
- — — — Remove/ Consolidate Route
- — — — Further Study Needed

Existing and Funded Bike Facilities

- Visually Separated
- Bicycle Boulevard
- Physically Separated
- Trail
- Bicycle Route
- Rail Stations
- Water
- Schools
- Parks

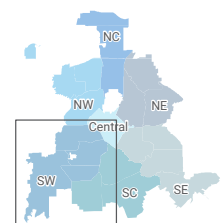
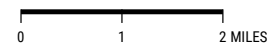




Southwest Planning Area

- Network Recommendations**
- — — — — Visually Separated
 - — — — — Bicycle Boulevard
 - — — — — Physically Separated
 - — — — — Trail
 - — — — — Bicycle Route
 - — — — — Remove/ Consolidate Route
 - — — — — Further Study Needed

- Existing and Funded Bike Facilities**
- — — — — Visually Separated
 - — — — — Bicycle Boulevard
 - — — — — Physically Separated
 - — — — — Trail
 - — — — — Bicycle Route
 - Rail Stations
 - Water
 - Schools
 - Parks





CHAPTER 4

RECOMMENDED

Design Standards Updates

Recommended Design Standards Updates



This section provides an overview of existing City bike facility design standards and guidelines, identifies opportunities for improvement to the design standards, and develops revised draft design standards for potential inclusion in the *Street Design Manual* and City of Dallas standard details.

While the City has a *Street Design Manual* and a *Complete Streets Design Guidebook*, members of the Technical Advisory Committee (TAC) observed that these design resources may not be used frequently, especially by the City's outside consultants. During a TAC meeting conducted April 27, 2023, a survey of the attendees was conducted to provide feedback to further evaluate this situation.

NOTEWORTHY SURVEY RESULTS INCLUDE THE FOLLOWING:

- 3 of 8 respondents noted the existing design standards are useful for designing bike facilities (4 of 8 responded they did not know);
- 5 of 8 stated consultant engineers do not use these existing bike facility design standards;

- 6 of 10 respondents stated City staff and consultants are not well versed on these design standards;
- 5 of 8 noted City staff and consultants are not well versed on national bike facility design standards.

Several TAC members observed that bike facility design standards should be better integrated into the roadway design process through several strategies and actions:

- Consolidation of bike standards directly into the *Street Design Manual* (versus having various separate manuals, guidelines, and standards publications);
- Ensure that all roadway improvement (resurfacing, capacity enhancement, safety enhancement, etc.) design contracts include as a requirement

the use of the City's adopted standards for bike facilities;

- Training of City staff involved with design and traffic operation improvement projects on the published and adopted bike facility standards.

National best practices and standards vary widely across states and municipalities. A critical element for updating Dallas' design standards is recognizing the community's vision for multimodal transportation facilities and where emphasis should be provided: urban vs. suburban vs. rural land uses; and existing roadway characteristics.

Review of Existing Dallas Bike Facility Standards, Guidelines and Specifications

The City's primary standards and specifications for bike facilities design are the *Street Design Manual* (last updated September 2019) and the *Complete Streets Design Manual* (prepared in 2016). The City also developed and approved in June 2021 a *Traffic Signs Standards* document and additional standard construction details *File 251-D* in September 2022. These documents were reviewed to identify potential areas for modification to better reflect the City's preferred bike facilities design standards.



The *Street Design Manual* currently provides the following information regarding bike facility standards:

Street Networks - Section 3

- Recognition that bike facilities should be incorporated in the street network

Geometric Design - Section 4

- Optional typical sections showing various configurations of travel lanes, medians, bike lanes and pedestrian zones within several right-of-way widths (50-ft to 130-ft ROW)

- On-street element recommendations for bike facilities (on-street shared lanes; on-street dedicated lanes; off-street facilities (shared use paths)
- Recommendations for pavement markings for bike facilities through intersections
- A provision that a "floating bus stop" shall be provided for curbside bus stops where bus volumes are high so the bike lane can be diverted behind the bus stop
- Recommendations and guidance on the appropriateness of dedicated bike signals





Source: City of Dallas Street Design Manual, 2019

These items within the *Street Design Manual* are presented as recommendations or considerations during the street design process. The introduction section of the manual provides context for the application of the street design provisions:

The purpose of the Street Design Manual is to provide requirements and establish minimum standards for design streets and thoroughfares, and to assist in preparing construction plans in the City of Dallas, such that streets are built to be safe, comfortable, and sustainable for everyone.

The standards set forth in this document are not a substitute for sound engineering judgment but are the minimum criteria permitted by the City of Dallas to be used in street design.

As noted in our TAC survey, most of participants noted that these standards are not being used sufficiently by consultants during the design process. This plan recommends that more prescriptive standards including guidance on the applicability of various bike facility type and design options be documented and adopted by the City.

The Dallas *Complete Streets Design Manual* adopted in 2016 had the primary objectives of establishing new street design processes, policies, and standards to better accomplish the City's goal of providing safe and healthy transportation alternatives. Regarding bike facilities, the *Manual* provides policy and design process guidance that ultimately needs to form the framework for specific design standards for bike facilities.

The following is a summary of the bike facility guidance provided in the *Manual*:

- Recommended bike lane widths by general street type/classification
- General appropriateness of bike network facility types by street classification
- General design considerations for bike riders by facility type
- Intersection design considerations
- Transit stop and bike interaction considerations

The *Complete Streets Design Manual* also recommended implementation actions to incorporate complete street principles and practices into the City's engineering and design manuals. This recommendation included the enhancement of inter-departmental coordination on street improvement projects (resurfacing, reconstruction, safety, and capacity projects).

Recommendations for Bike Facility Design Standards

This bike plan update included extensive coordination with technical staff and community members through the TAC and BAC. Through 13 total meetings with these representatives, it was clear that both designers and users of the bike network desire the implementation of more prescriptive and definitive bike facility design standards. The recommendations provided in this section provide guidance toward that objective.

Chapter 5 of this report provides a review of existing policies and recommendations for policy revisions and additions that should accompany any design standard recommendations. Policy revisions will provide the framework for enhancing the coordination of staff across various departments (DDOT, Public Works, Planning & Urban Design, Park & Recreation, the Office of Equity & Inclusion, and the Office of Environmental Quality & Sustainability) and partner agencies (such as DART and NCTCOG) to actively coordinate on the improvement of the City's multimodal transportation network

Guidance for recommended modifications is based on national guidance from NACTO (National Association of City Transportation Officials) and AASHTO (American Association of State Highway and Transportation Officials). References are also made to the Texas Manual of Uniform Traffic Control Devices (TMUTCD). The recommendations provided herein are to be viewed as considerations for future assessment and incorporation into the City's design manuals. Table 4.1 provides a summary of the recommended changes to the *Street Design Manual* to update the bike facility provisions. ***These recommendations require further research and evaluation prior to adoption as design standards by the City of Dallas.***

A primary recommendation is the development of a unified *Streets Design Manual* to provide in one document the standards and guidelines for bike facility design. This would include the bike guidelines contained within the *Complete Streets Manual*. A unified design manual will provide City staff and their design consultants with the guidance needed to better standardize design concepts and specifications, simplifying the application of the standards to future roadway design and construction projects.

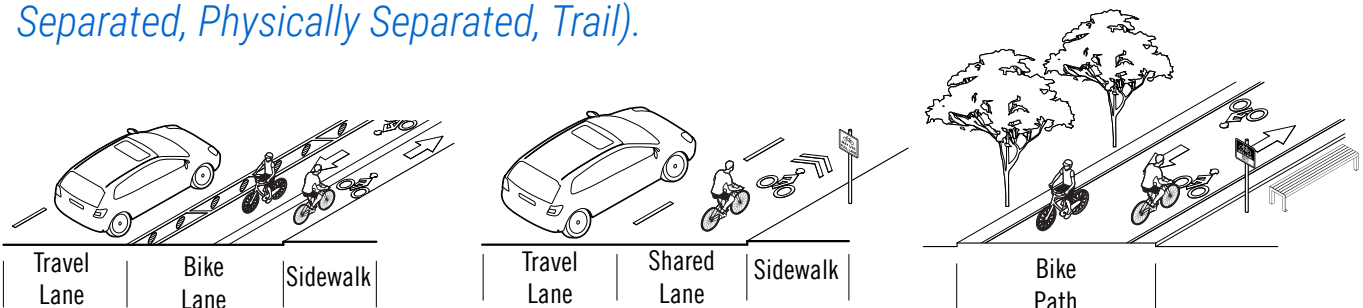


The Bike Plan recommends that a unified Streets Design Manual be compiled that incorporates the Complete Streets design standards and guidelines.

Table 4.1 Recommended Changes to the Dallas Street Design Manual

SECTION	TITLE	RECOMMENDED CHANGE FOR STREET DESIGN MANUAL
3.2.6	Bicycle Provisions	<ol style="list-style-type: none"> Update bike facility classifications (Bike Boulevard, Visually Separated, Physically Separated, Trail). Include a bike facility applicability matrix to guide facility type selection.
4.3.7.1	On-Street Elements; Bikeways and Facilities	<ol style="list-style-type: none"> Incorporate Sheet No. 5012 dated June 2021 for Bike Lane Pavement Markings into Section 4.3.7.1 for clarity of on-street bike lane/cycle track pavement marking. Figure 4.19 On-Street Shared Bike Route should be noted that shared lanes/sharrows are not a preferred bike facility type and require Department Director approval. Figure 4.20 On-Street Dedicated Bike Lanes and Facilities should be revised to better illustrate the pavement marking standards, signage, and the separation (including striping and physical barriers) between the vehicle travel lane and the bike facility. <p>Elements to include the following:</p> <ul style="list-style-type: none"> Physical separator typology options: <ul style="list-style-type: none"> Parking stops or similar low-profile physical separators Prefabricated low profile walls Concrete separators The placement of physical separators close to the travel lane The use of green pavement markings (to increase the awareness of bike riders travelling through intersections, across larger commercial driveways, or in other situations where deemed appropriate). Consideration of the durability of pavement markings and physical separators for maintenance.
4.4.5.6	Intersections – Bicycle Treatments	<p>Improved illustrations showing complete bike approach pavement markings and signage should replace Figure 4.29 Crossing Markings.</p> <p>Optional elements for consideration include:</p> <ul style="list-style-type: none"> Dashed line white or green pavement markings through the intersection Bike keyholes placed between a through lane and the adjacent right turn lane, bus bay, or parking lane Bike boxes may be appropriate for intersections of significant collector and arterial roadways that experience moderate to high levels of bike activity
6.1.4	Sidewalk, Pedestrian Walkway, and Bikeway Illumination Levels	<p>Modify Table 6.3 Illuminance Values for Pedestrian Areas to include Bike Usage Areas. The rationale for including High, Medium and Low Bike Usage Areas is to better align the illumination standards with the City’s Vision Zero policies.</p>
Appendix A.4.6	Storm Drains	<p>The City is encouraged to add bike-safe stormwater inlet and grate design standards into the Street Design manual. Considerations include the following:</p> <ul style="list-style-type: none"> Grate must be flush with the road surface Grates with inlet bars must be perpendicular to the direction of bike travel, and should not have spacing greater than 4” Use small hexagon or similar small spacing inlet face where appropriate Where feasible, locate the entire grate in the gutter pan Ensure there is no exaggerated warping/drop off towards the inlet opening that would pose an obstacle to a bike rider

Update bike facility classifications to match Bike Plan update recommendations (Bike Boulevard, Visually Separated, Physically Separated, Trail).



Source: City of Dallas Street Design Manual, 2019



Source: City of Jersey City

Physical Separators

During the Bike Plan Update process, numerous concerns about and suggestions for specific bike facility design were expressed by the TAC and BAC committees, City staff, and other project stakeholders. These items were researched, and the following and provides the discussion of recommendations for further evaluation and incorporation into the City's Street Design Manual.

The City of Dallas has installed several varieties of bike lane physical separators including poured concrete medians, "armadillos", parking stops, and flex posts. Each of these have their advantages and challenges including cost, ease of installation, maintenance (of the separator and the bike lane), visibility, and level of protection for the bike rider. The objective of these recommendations is to provide guidance to City staff on regarding the evaluation and selection of physical separators. The final selection of a specific bike lane separator requires an assessment of the roadway corridor, traffic volumes, speed differential between motorists and bike riders, presence of on-street parking, adjacent land uses, transit routes, frequency of driveways and intersections, and similar existing characteristics.

The City has noted comments received from elected officials, bike riders, motorists, business operators, and residents about physical separators, as outlined below:

- They are aesthetically unappealing
- They get damaged easily and require frequent repair or replacement
- The reflectivity (and visibility) wears off easily
- The separator prevents sweeping/maintenance of the bike lane

Delineators/ Bollards

PROS: High visibility for motorists;
ease of installation

CONS: Get ripped out easily;
poor aesthetics; lacks a feel of
permanence for defining the
cyclist's bike rider's space

OPINION

- Not a preferred option for safe physical separation
- May be of value when installed in combination with another physical separator application to increase visibility.



Source: City of Atlanta, Jason Winston

DISCUSSION

Bollards are a common type of bike lane separator that can be found in a variety of settings. They offer greater protection for bike riders than painted markings or flex posts and are less expensive and easier to install than concrete median barriers. Adding reflective materials can further improve their visibility and safety. However, bollards are not as durable as other types of barriers and may require more frequent maintenance and replacement.

Warranty Information: The warranty for bollards can vary depending on the manufacturer and the specific product.

Reflectivity: Bollards can be made with reflective materials to improve visibility and safety for bike riders. Reflective tape or paint can be applied to the top of the bollard to make it more visible to drivers.

Cost: The cost of bollards can vary depending on the size, design, and manufacturer of the product. On average, bollards can cost between \$100-\$200 per unit. However, the cost can be higher if the bollard is customized or if additional features such as lighting or landscaping are included.

Concrete Raised Medians

PROS: Fair visibility for motorists depending on their width; very low maintenance; high safety factor for bike riders

CONS: May introduce stormwater drainage conveyance problems resulting in standing water within the cycle track; difficult to maintain for street debris removal; may limit emergency vehicle access/travel along corridor; more costly to install than other options

OPINION

- Better suited in higher pedestrian activity areas, providing greater definition of the bike and vehicle space and providing (depending on the width of the median) a raised pedestrian refuge for street crossings
- Potential concern of a vehicle obstacle especially along roadways with relatively higher speeds (i.e. > 40 mph)
- Narrow medians may be difficult for motorists to see. *Note: To improve visibility mount delineators along the median*
- Regular sweeping and maintenance of the cycle track is required to maintain safe usability



Source: Polk Street, San Francisco (Photo by Nick Falbo)

DISCUSSION

Concrete median bike separators are typically used on roads with high traffic volume and speed to provide a sturdy physical barrier between bike riders and vehicles. Concrete median bike separator islands offer the most permanence and lowest maintenance for separating bike lanes from vehicle traffic. While they can be more expensive than other types of barriers, they offer greater durability and protection for bike riders. Adding reflective materials can further improve their visibility and safety.

Concrete islands consist of curbs up to 6-inches-high, can vary in width, and require a 1-foot-shy distance to the travel lane. Concrete islands will generally be no narrower than 2 feet. The barrier should have a 3-inch-radius on the travel lane side of the barrier. On the bike riding zone side, efforts should be taken to minimize the threat of pedal strikes. This can be done with a beveled curb on the bike lane side or a treatment in which the barrier slopes down to a 2-inch curb height on the bike lane side. As a point of reference, the average bike rider's pedal has a 4-inch clearance from the ground. The approach end of the island (and both island ends adjacent to driveways) should be tapered at 1:10 from the 6-inch curb height to a 2-inch curb height. Concrete islands should include a minimum 12-inch break every 25 feet to accommodate drainage. The 1:10 taper is not required at the drainage gaps.

Concrete Raised Medians Discussion Continued

Warranty Information: Concrete median bike separators do not typically come with a warranty as they are designed to be a permanent fixture on the road. However, the manufacturer may offer a warranty for defects in materials or workmanship during the manufacturing process.

Reflectivity: Concrete median bike separators can be made with reflective materials to improve visibility and safety for bike riders, particularly at night. Reflective tape, paint, or flex posts can be applied to the top of the barrier to make it more visible to drivers.

Cost: The cost of concrete median bike separators can vary widely depending on the size, design, and location of the barrier. On average, concrete median barriers can cost between \$300-\$500 per linear foot. However, the cost can be higher if the barrier is customized or if additional features such as lighting or landscaping are included.

Affixing: Concrete median bike separators are affixed to the road using anchors or bolts. The barrier is typically embedded into the pavement and secured with metal pins or anchors to prevent it from shifting or moving. The barrier is then reinforced with steel or other materials to make it more durable and resistant to impact from vehicles.

Source: City of Tampa Green Spine Trail, WMNF



Planters

PROS: High visibility to motorists; high aesthetics as part of streetscaping; easy to install; best used in low-speed corridors; good definition of the bike rider's space

CONS: More expensive than other options; requires maintenance of the plants (best to use native low maintenance plantings); planters may be struck by vehicles requiring costly replacement; could present an obstacle to emergency vehicle access and use of lane

OPINION

- Best used in combination with cycle track pavement coloring to improve visibility to motorists
- The installation to the pavement is somewhat dictated by the style, length and composition of the separator. (In-pavement bolts plus an adhesive may improve the durability of the installation.)
- Regular sweeping and maintenance of the cycle track is required to maintain safe usability.



Source: City of Denver

DISCUSSION

Planters are best used in commercial locations or along commercial corridors where favorable aesthetics are a priority. Planters require a maintenance agreement for watering. They are typically used on low-speed roadways. Planters provide an aesthetically-pleasing and environmentally-friendly solution for separating bike lanes from vehicle traffic. They offer greater protection for bike riders than painted markings or flex posts and can also provide a visual barrier for drivers. Adding reflective materials can further improve their visibility and safety. However, planters may require more frequent maintenance and can be susceptible to damage from vehicles.

Warranty Information: The warranty for planters can vary depending on the manufacturer and the specific product.

Reflectivity: Planters can be made with reflective materials to improve visibility and safety for bike riders. Reflective tape or paint can be applied to the planter to make it more visible to drivers.

Cost: The cost of planters can vary depending on the size, design, and material of the product. On average, planters can cost between \$100-\$500 per unit. However, the cost can be higher if the planter is customized or if additional features such as lighting or irrigation are included.

Installation: Planters are typically affixed to the road using concrete or other materials. The planter is placed on top of the road surface and secured with concrete or other materials to prevent it from shifting or moving. Planters can be relatively heavy and may require heavy equipment for installation.

Parking Stops

OR SIMILAR LOW PROFILE PRE-CAST SEPARATOR A.K.A. "ARMADILLOS," "ZEBRAS," "ZIPPER TRACKS"

PROS: Moderate visibility for motorists depending on the length and color/material of the separator; ease of installation; affords better drainage crossflows than a continuous raised median; good definition of the bike rider's space

CONS: May get removed or damaged when struck by vehicles (maintenance problem); aesthetics are poor-to-moderate depending on the specific style of separator used

OPINION

- Not preferred for longer (>1 mile) corridors.
- Best reserved for use in short roadway segments that have other streetscaping elements installed.
- May be able to get local stakeholders/partners to assist with planters' maintenance costs and upkeep.
- Mountable versions can be applied at driveways to preserve existing access and maintain physical separator continuity.



Source: Better Streets Miami Beach

DISCUSSION

Pre-cast cycle track separators provide a cost-effective and durable solution for separating bike lanes from vehicle traffic. They offer greater protection for bike riders than painted markings or flex posts and are less expensive and easier to install than concrete median barriers. Adding reflective materials can further improve their visibility and safety.

Warranty Information: The warranty for pre-cast cycle track separators can vary depending on the manufacturer and the specific product.

Reflectivity: Pre-cast cycle track separators can be made with reflective materials to improve visibility and safety for bike riders. Reflective tape or paint can be applied to the top of the separator to make it more visible to drivers. Some pre-cast manufacturers offer products that allow for plastic delineators to be inserted into cast-in sockets or surface mounted along the length of the barrier, providing a taller vertical element with increased visibility.

Cost: The cost of pre-cast cycle track separators can vary depending on the size, design, and manufacturer of the product. On average, pre-cast cycle track separators can cost between \$50-\$150 per linear foot. However, the cost can be higher if the separator is customized.

Installation: Pre-cast cycle track separators are typically affixed to the road using anchors or bolts. The separator is placed on top of the road surface and secured with metal pins or anchors to prevent it from shifting or moving. The separator is then reinforced with steel or other materials to make it more durable and resistant to impact from vehicles.

Vehicle On-Street Parking

This plan does not recommend solely using vehicle parking spaces as a bike lane separator without other physical separator elements to define the bike riders' space. Parking may be used as a physical separator for bike lanes in certain situations, such as in areas with low traffic volume or in neighborhoods with on-street parking. Parked vehicles frequently present a hazard from doors being opened into the bike rider's path and from vehicles accessing and departing from the parking space. Further, vehicles may present a visibility concern especially when larger vehicles completely block the view of bike riders and motorists to each other's presence.

In summary, the following recommendations are offered to provide the City with general considerations in evaluating physical separators for implementation.

- Provide consistent physical separator configurations along roadways with similar characteristics and functional classification.
 - Provides consistency for motorists to recognize the presence of a physically separated bike facility.
 - Provides consistency for bike riders' safe operation.
 - It is recognized that available right-of-way, travel lane widths, and other characteristics may require modification of a cycle track's configuration along a roadway. Efforts should be made to retain the same physical separator type and associated pavement markings along the roadway.
- The use of the "parking stop" style separators seems to be used in most urban environments and thus is easily recognizable by motorists and bike riders regardless of their location in the country.
- Colored pavement marking (generally green) of the physically separated facility is typically encouraged in guidelines, as it provides greater visibility and definition of the physically separated facility to motorists and bike riders. Safety benefits can be increased when the colored pavement markings are carried through intersections.
- Additional research of the more recent successful installation of physical separators including product performance should be conducted. For example, the City of Daytona Beach recently installed "zipper tracks" in conjunction with pavement coloring to positive reviews and are evaluating its performance.



Source: NACTO Material Success White Paper

Bus Stop Treatments

Bike facilities must physically permit local agency buses to pull completely up to the loading platform of a transit stop, allowing level boarding of passengers. The presence of an on-roadway bike facility may introduce conflicts between buses and bike riders, impacting the operational performance time of buses and impacting the comfort of bike riders. Visually and physically separated bike lanes approaching bus stops typically have a break in the pavement markings and physical separators to allow buses access to the stop.

A suggestion for further investigation is the use of a “floating bus stop.” This transit platform is a bulb out from the travel lane curb line separated from the sidewalk by the bike lane. This unattached bulb out platform reduces bike and bus conflicts allowing buses to stop in-lane saving time and increasing transit operational speed and reliability. The floating stop must be a minimum of 40 ft in length, and wide enough to comply with ADA requirements and PROWAG guidelines.

The placement of the floating stop must be carefully considered as traffic flow within the bus operation lane is interrupted during passenger loading and unloading. Far-side placement may result in vehicles queuing behind the bus and through the intersection. This treatment is typically most suited for roads that have high peak period or daily passenger counts where bus headways are frequent.

BENEFITS

Enhances bike rider safety from bus operations at the stop

Creates more room for bus riders as they are removed from the sidewalk onto a separate platform

Buses do not have to leave then re-enter travel flows



CHALLENGES

May require additional stormwater drainage modifications

Uses more roadway right-of-way space when combined with a separated bike lane

Can introduce conflicts between transit passengers and bike riders within the bike lane.



Source: City of Seattle, NACTO Urban Bikeway Design Guide

Guidance of Bike Path Through Intersections

A common safety consideration for the implementation of bike facilities is the pavement marking treatment of the bike lane through the intersection. Known as a mixing zone, the location of interactions between a dedicated bike facility and the vehicle lane presents a potential conflict hazard, especially for vehicle right and left turns. According to the NCHRP Report 926, *Guidance to Improve Pedestrian & Bike Safety at Intersections* (2020), countermeasures should be designed and employed proactively to support safe bike riding as opposed to just reactively correcting high crash locations. This forward-thinking approach will help support the City's Vision Zero program and

provide support for greater usage of bike facilities that have incorporated enhanced safety measures into their design.

The primary strategy for identifying a bike rider's space through an intersection is through high-emphasis pavement markings delineating the bike lane. Whether 4" to 6"-wide white skip stripes or green skip bars, the intent is to provide high visibility of bike riders to motorists through the intersection, defining where bike rider should travel. Multiple strategies to maintain separation of bike riders from motorists as they approach and negotiate through an intersection as provided by FHWA, NACTO and the NCHRP Report 926.

Source: Streetsblog San Francisco



Bike Lane Markings through the Intersection

PROS: High visibility of bike lanes for left- or right-turning motorists; good definition of a bike rider's space; may be used for signalized or unsignalized intersections

CONS: Maintenance of the thermoplastic pavement markings

OPINION

- Best used where there is a high frequency of turning movements
- Increases the visibility and predictability of the bike rider
- May be employed with visually or physically separated bike lanes
- May be combined with other treatments (bike box, bike signal heads, enhanced lighting)



Source: City of San Jose



Source: City of Jersey City, StreetPlans

Bike Boxes

PROS: High visibility of bike rider stopped at the intersection approach; allows bike riders to progress in front of vehicles at the onset of a green light (including bike riders making a left turn); applicability is for signalized intersections only

CONS: Maintenance of the thermoplastic pavement markings; may not be comfortable for less experienced bike riders; motorists may disregard box or get annoyed by bike riders filtering up the queue

OPINION

- Best used at signalized intersections where there is a high frequency of vehicle turning movements



Source: City of NYC

Signalization for Bikes

Bike signals make crossing intersections safer for bike riders by clarifying when they should enter an intersection and by restricting conflicting vehicle movements. It is recommended that bike signal use guidance and standards be incorporated into the *Dallas Street Design Manual*.

The City references the TMUTCD for all traffic signalization design standards. It is recommended that the City's *Manual* should include guidance on the appropriateness for implementation of bike signals, similar to the recommended classification and applicability matrix for bike facilities in the TMUTCD. These recommendations should be included in Section 4.4.5.6 of the *Dallas Street Design Manual*, Intersections; Bike Treatments, to emphasize how bike signals can make crossing intersections safer for bike riders.



Source: City of Austin

The following bike facility signalization recommendations are based on NACTO and AASHTO guidance.

Trails (paved shared use paths) should not have signals.

- These paths have mixed pedestrian and bike traffic.
- Bike riders take their right-of-way cues from either the pedestrian signals or the traffic signals controlling the parallel roadway.
- A pedestrian hybrid beacon (PHB) (a.k.a. High-Intensity Activated Crosswalk – HAWK) or a Rectangular Rapid Flashing Beacon (RRFB) be used to improve bike crossings of major streets or mid-block crossings from the trail.

Physically separated cycle tracks should always consider the installation of bike signals as guided by professional engineering judgement. Factors and situations to be evaluated include, but are not limited to, the following:

- Roadway characteristics
- Posted speed
- Traffic operations
- History of bike crashes
- Potential turning conflicts with vehicles

Bike Facility Type Selection

The selection of a proposed bike facility is frequently a balancing of a community's vision, numerous transportation objectives, and existing conditions characteristics.

Key factors for consideration include the following:

- Availability of right-of-way or perpetual easements
- Corridor roadway characteristics
 - Number of lanes
 - Posted speed limit
 - Traffic volume
 - Functional classification (local, collector, arterial)
 - Volume/percentage of heavy trucks
 - Crash history (including if the corridor on the City's High Injury Network)
- Adjacent land use
- Bike route connectivity

NACTO and FHWA provide guidelines for the appropriateness of bike facilities dependent upon the above factors. These guidelines are not prescriptive and instead are recommendations that are subject to local preferences including budget constraints, ease of constructability, future maintenance costs, and other local priorities. Table 4.2 is a decision guide for determining the recommended bike facility type given roadway and traffic characteristics.

IN GENERAL, THE INITIAL FACILITY TYPE RECOMMENDATION SHOULD ADHERE TO THE FOLLOWING GUIDELINES:

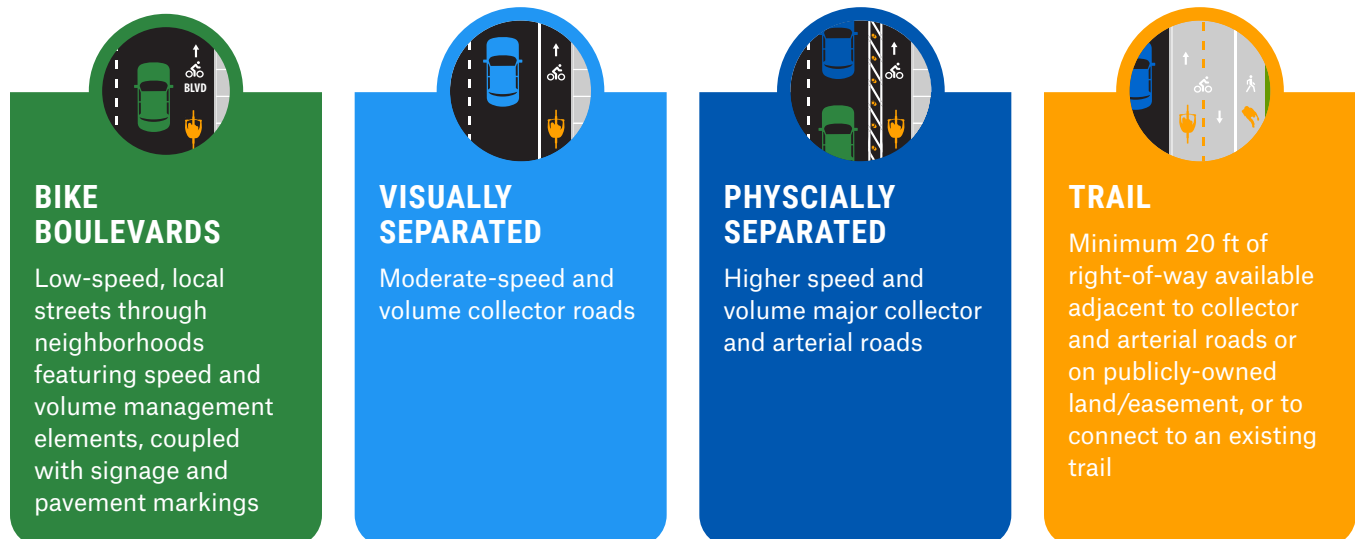


Table 4.2 Bike Facility Type Recommendations Matrix

FACILITY TYPES	BIKE FACILITY MINIMUM WIDTH	MAX POSTED SPEED*	MAX NUMBER OF LANES*	RECOMMENDED AADT VOLUME*	HIGHEST FUNCTIONAL CLASS**	APPROPRIATE FOR LOCAL TRANSIT ROUTE	MAX HEAVY TRUCK %	PREFERRED APPLICATION	CONSIDERATIONS
Bike Boulevard	N/A	25	2	<1,000	Local	Most Appropriate	<3%	Low-speed and low-volume local roads that provide bike facilities	<ol style="list-style-type: none"> 1. May require signalized crossing of higher volume/speed roads. 2. Traffic calming measures are frequently recommended.
Visually Separated Bike Lane (buffered and unbuffered)	7 ft	40	4	2,500-5,000	Community Collector	Moderately Appropriate	<3%	<ol style="list-style-type: none"> 1. Recommended when additional separation between the outside travel lane and bike riders is advisable 2. When on-street parking is permitted. 	<ol style="list-style-type: none"> 1. 3 ft buffer preferred 2. Provide intersection treatments that afford bike riders a defined crossing path.
Physically Separated Buffered Bike Lane / Cycle Track Separated Bike Lane (one-way)	8 ft	45	6	>5,000	Minor Arterial	Least*** Appropriate	<10%	Higher speed, higher volume roads	<ol style="list-style-type: none"> 1. Availability of right-of-way 2. Style of physical separator 3. Addressing bike rider transition zones approaching large driveways, intersections, transit stops/stations
Physically Separated Buffered Bike Lane / Cycle Track (two-way)	12 ft	30	2	1,000-3,500	Community Collector	Most Appropriate	<3%	Urban core low-speed, low-volume streets	Bike signalization required due to contra-flow movements.
Trail / Shared-Use Path	12 ft (10 to 8 ft for limited distance constrained condition)	N/A	N/A	N/A	N/A	Least*** Appropriate	N/A	When off-road bike facilities are advisable to support longer trips and when right-of-way or easements are available.	Enhanced crossing treatments including signals (RRFBs, HAWKS, full signalization) for crossing higher volume and speed collector arterial roadways.

* Reference Table 4.2 - Target Speed by Street Typology/Functional Classification; Dallas Street Design Manual.

** Reference Table 2.1 - Typical Characteristics of Functional Classifications; Dallas Street Design Manual.

*** When floating bus stops are not employed.



CHAPTER 5

PLANNING POLICY

Review & Recommendations

Planning & Policies Review

The 2011 Dallas Bike Plan identified bike programs and policies that were recommended for implementation by the City, centered on the following topics:

- Enhanced education of motorists and bike riders
- Enforcement and encouragement of good behavior on the bikeway system
- Advocacy and marketing of the City's bike program
- Allowing bike riders to report unsafe riding conditions to the existing 311 system
- Encouraging bike/transit commuter incentives

This update of the Bike Plan was tasked to develop policies for the planning, design, construction and maintenance of Dallas' multimodal transportation network. These policies provide the necessary framework for the successful implementation of the updated Dallas Bike Plan.



In addition to reviewing the City's recent planning efforts and bike facility policies, the regional policies of the *Mobility 2045 Update* (June 9, 2022) as prepared in 2021 by the North Central Texas Council of Governments (NCTCOG) were also reviewed. The relevant policies (Chapter 6. Mobility Options, Active Transportation) are as follows:

- **Policy BP3-001:** Support the planning and design of a multimodal transportation network with seamless interconnected active transportation facilities that promotes walking and biking as equals with other transportation modes.
- **Policy BP3-002:** Implement pedestrian and bike facilities that meet accessibility requirements and provide safe, convenient, and interconnected transportation for people of all ages and abilities.
- **Policy BP3-003:** Support programs and activities that promote pedestrian and bike safety, health, and education.

The plans and policy documents reviewed:

2011 Bike Master Plan

Connect Dallas

(Strategic Mobility Plan - 2021)

Dallas 360 Plan (2017)

Vision Zero Dallas Action Plan (2022)

Dallas Comprehensive Environmental and Climate Action Plan (CECAP) (2020)

Dallas Development Code

Dallas Street Design Manual (2019)

Dallas Complete Streets Design Manual (2016)

Bike Signals Policy (draft as of July 2022)

Recommendations for Bike Policy Modifications

The City's current bike policies provide a framework for the development of more specific policies on the planning and design of bike facilities in Dallas. Similarly, the Vision Zero Plan adopted in June 2022 specifies a collaborative and comprehensive approach to improving the safety of the City's transportation system for all users. The City has numerous aspirational policies for the improvement of the bike network in several of its adopted plans and design guidelines and manuals. The following recommended policies and associated action items are offered for consideration by City staff to supplement these aspirational policies and to provide the framework for the recommended updates to the City's bike design standards and specifications

Policy Recommendations

1. Enhancing the coordination of staff across various departments (DDOT, Public Works, Planning & Urban Design, Park & Recreation, the Office of Equity & Inclusion, and the Office of Environmental Quality & Sustainability) and partner agencies (such as DART and NCTCOG) to actively coordinate on the improvement of the City's multimodal transportation network.
2. The City should include in its development permitting process the requirement that the developer at their own expense will reconstruct to its original function and configuration all bike facilities and amenities directly affected by the development. This includes but is not limited to bike lanes, physical separators, signage, bike signals, and associated bike amenities that were in place prior to the development activity.
3. Recognizing that the visibility of bike riders and their operating space within a roadway corridor is paramount to their safety, the City will carefully evaluate on a case-by-case basis the use of green pavement painting for all future developed on-road bike facilities. This consideration will include the cost to apply the green pavement marking and the life-cycle cost of maintaining these safety markings.
4. Implement when possible low-cost/fast implementation design or operational modifications that would immediately improve the safe operation of bike riders. These improvements may be short-term/interim solutions prior to the identification, funding, and implementation of more comprehensive design/operational improvements.

The City will use the updated Dallas Bike Plan to identify candidate roadways for the construction of enhanced bike facilities during the evaluation and scope development of each roadway resurfacing, rehabilitation and reconstruction project, and capacity enhancement project. This will include roadway intersection enhancement projects, including safety improvements and capacity improvements.



Action Items

1. The City should utilize a standardized methodology for identifying, prioritizing, and implementing bike facility improvements consistent with the process used for the Bike Plan Update. This will help ensure planning and design consistency in project evaluation, equity considerations for project locations and prioritization, selection of bike facility configurations, and related implementation factors.

This process should include the following elements:

A. *Identification of candidate bike system connections.*

- The Bike Plan Update provides over 400 separate candidate projects for future implementation. As such, these highly vetted potential bike linkages should form the candidate bike system connections unless or until the plan is updated.

B. *Prioritization of projects should consist of a two-tiered screening process:*

- *Tier 1* – Use quantifiable evaluation factors for the initial screening of top priority bike projects (Note: quantification of subjective information may include counting the frequency of comments/ input, a scaled score to reflect a pre-defined range of factor influence, or other similar methods)
 - Input from the Bicycle Advisory Committee
 - Project complexity
 - Probable construction cost
 - Safety (crash history, empathic analytics)
 - Trip demand (access to activity centers; high bike trip demand)
 - Connectivity to existing or programmed bike facilities

- Whether the project is within an Equity Need area
- Public comments/input
- *Tier 2* – Address community/political recommendations based on current safety conditions, local preferences, etc.
- It should be recognized that adjustment of the quantified assessment of priorities must remain a community governmental decision.

C. *Project implementation factors and issues for consideration.*

- Identify through a review of the City's Capital Improvements Program opportunities for a bike project to "go with" a programmed road resurfacing/rehabilitation project.
- The comfort and safety of non-motorists should be a measure of operational success similar to the level of service for vehicular comfort of operation. The City should consider adopting as part of their multimodal transportation policies a multimodal level of service as projects are prioritized and implemented.

2. Review and enhance the public messaging of Vision Zero and safety for all transportation modes.

- A. Motorist education should include reinforcement of the presence of bike riders and pedestrians along our transportation corridors. It should also reinforce compliance with all traffic laws (again, as the responsibility for the safety of vulnerable users is shared among all transportation system users).
- B. Education for bike riders and pedestrians should reinforce compliance with all traffic laws (as the responsibility for the safety of vulnerable users is shared among all transportation system users).
- C. Multimedia campaigns should be investigated for implementation, including their effectiveness, cost, and potential funding sources.

3. Dedicated bike facilities should be maintained on a schedule similar to or more frequently than the adjacent vehicle travel lanes.

Maintenance includes but is not limited to regular sweeping, removal of large debris, rehabilitation/resurfacing of poor pavement condition, pavement marking reapplication, and signage repair and replacement.

4. Collaborate with partner departments and agencies to further develop a network of bike-friendly policies across jurisdictions and disciplines.

This is important because no singular policy or action exists that can make roadways safer for bike riders. A series of policies in strategic areas can work together to comprehensively shape the overall landscape to become increasingly bike-friendly for all ages and abilities. Examples include:

- A. End-of-trip facility provisions (such as workplace incentives for amenities like indoor bike parking or shower and changing areas)
- B. Transit policies (such as requirements for transit agencies to provide bike-friendly amenities at transit stops, stations, and hubs or bike-friendly training requirements for transit vehicle operators)
- C. Enforcement policies (such as training for law enforcement staff).
 - Unlike most states, Texas does not (as of Spring 2023) have specific statutes concerning motor vehicles and bikes. For example, there are no legal, safe passing distance laws. It is expected that drivers will uphold a duty of care in being safe and courteous, mainly if bike riders are sharing the road. If a driver breaches this duty of care and causes an accident with injuries, the bike rider may be entitled to compensation for damages.





CHAPTER 6

IMPLEMENTATION & NEXT STEPS

Implementation & Next Steps

This chapter focuses on key aspects necessary for the successful realization of the Dallas Bike Plan – Funding, Phasing, and Implementation.

Funding recommendations discuss the DDOT’s existing budget, the relevance and advantage of public/private partnerships, and federal, state, and private grant opportunities to extend the reach of local funds and maximize the value of taxpayer dollars. The criteria leveraged for generating phasing recommendations and identifying 15 priority capital projects for the Bike Plan are detailed. Additionally, critical actions for successful are discussed, including alignment amongst City departments, deepened collaboration with Public Works, and the introduction of an interdepartmental and interagency working group (like the CECAP’s LEAF) to ensure action is taken to implement the Bike Plan and a resident-led committee to provide guidance and accountability for implementation of the Bike Plan. Finally success measures for implementation of the Bike Plan are provided, with the recommendation that these be monitored by the recommended, on-going Bike Plan working groups.

By addressing these key components for success and giving clear direction for how and where to secure funding, which projects to address first, and what supporting activities can make or break the successful implementation of the updated bike network, the Bike Plan provides the direction needed transform the city’s bike riding landscape and create a future where bike riding thrives, connectivity flourishes, and the well-being of the community soars. This chapter acts as a comprehensive guide, providing valuable insights to navigate the intricate terrain of bike planning in Dallas.




Funding Opportunities

The City of Dallas has access to a variety of funding sources that can support the implementation of the bike network and the Dallas Bike Plan Update. To maximize the value of the City’s financial resources, funding for the Bike Plan should come from a combination of multiple sources and not be reliant solely on original funding allocations for bike lanes in the General Fund. Cities that have successfully implemented and expanded their bike networks consistently do so by leveraging a variety of external funding sources to invest continuously year-over-year in bike-oriented design, capital construction, and on-going maintenance. For the City of Dallas, the appropriate and eligible funding source is dependent upon the type of project, its budget, its timeframe, and its location. Details regarding various funding sources are included in the following sections, with an example rubric of applicability for funding sources based on a project’s timeline and budget included in Figure 6.1.

The appropriate and eligible funding source is dependent upon the type of project, its budget, its timeframe, and its location.

Figure 6.1
Example Funding Sources by Project Timeline and Budget




	SHORT Term Project <2 Years	LONG Term Project >2 Years
Small Budget	<ul style="list-style-type: none"> Neighborhood Associations Community Improvement Districts Crowdsourcing Non-Profit Grants Impact Fees Infrastructure bonds Local taxes (General Fund) Local health departments Foundation grants Individual donors League of American Bicyclists Spark Grant People for Bikes Community Grant Program 	<ul style="list-style-type: none"> Federal Transportation Funds Capital Improvement budget funds State Programs: <ul style="list-style-type: none"> • Texas Department of Transportation • Recreation Trails Program (Department of Natural Resources) • Community Development Block Grant (CDBG) • Highway Safety Improvements Program (HSIP) • Safe Routes to School (SRTS) • Safe Streets for All (SS4A) • Transportation Alternatives (TA) Set-Aside Program
Big Budget	<ul style="list-style-type: none"> Foundation grants Individual donors Community Improvement Districts Public-Private Partnerships Infrastructure bonds Local taxes (General Fund) League of American Bicyclists Spark Grant People for Bikes Community Grant Program 	<ul style="list-style-type: none"> Federal Transportation Funds Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Reconnecting Communities Program (RCP) Safe Streets for All (SS4A) Thriving Communities Program (TCP)



City of Dallas Department of Transportation Budget & Capital Improvements Program

*Bike to City Hall Day,
Nov. 2, 2022*

During the first round of engagement with Dallas residents for the Bike Plan Update, 88% of survey respondents were either willing (12%) or very willing (76%) to “use government funds (like the City of Dallas Budget) to improve biking conditions in the City.” Recognizing this favorable public response, coupled with City Council and City Leadership support for expanding a safe, city-wide bike network, this plan recommends that the City of Dallas reconsider its present budgetary allocations that support the development of bike infrastructure. The current DDOT budget allocated to bike infrastructure is inadequate for the timely development of the bike network. A recommended target threshold¹ per capita expenditure (spend) is between \$3.25² / resident (national average) to \$5.00+/resident (aspirational). With a City population of 1,304,379 according to the 2020 US Census, this would result in an annual bike infrastructure budget of approximately \$4.24M to \$6.52M.

The current DDOT bike budget is only \$2.5M annually, approximately \$1.92 per resident and well below national average. An increase in the transportation budget allocated toward bike projects and bike rider safety would support project feasibility analysis development, addition of staff, authoring of grant packages for external funding, and design and construction of bike network projects. City-based funding sources for the DDOT budget may include the general fund, property taxes, vehicle taxes or other taxes, bond proceeds, tolls, fees, investment income, or other receipts.

¹ Source: via League of American Bicyclists. Federal Highway Administration. Fiscal Management Information System Data for 2012-2016. U.S. Census Bureau. American Community Survey Table B01003 5-year estimate (2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

² 2016 dollars have been inflated to 2023 dollars using US Bureau of Labor Statistics CPI Inflation Calculator. https://www.bls.gov/data/inflation_calculator.htm

Public/Private Partnerships

A P3 or PPP (Public/Private Partnership) can provide additional funding for bike infrastructure projects when traditional funding sources are insufficient. Demonstrating the economic benefits of bike facilities, both for private investors and the overall City economy, can increase the likelihood of securing P3 funding. Highlighting a project’s alignment with the City’s vision, its appeal to the public, and its uniqueness can attract private stakeholders for a value-add P3 project.

A note on implementation: Defining stakeholder roles and risk distribution is crucial for successful P3 relationships. Establishing clear roles and responsibilities at the project’s outset simplifies addressing hurdles later in the process.

Federal & State-Administered Grants

By setting priorities with NCTCOG (the North Central Texas Council of Governments), DDOT can maximize the reach of its local budget dollars. As previously mentioned, this requires DDOT to internally conduct project planning and feasibility studies, define and scope its proposed projects, and provide local match dollars (usually between 5-20%).

Table 6.1 Sample of grant program opportunities

ADMINISTRATION	ESTIMATED LOCAL MATCH	ELIGIBLE PROJECT CATEGORIES/TYPES	CONSIDERATIONS FOR COMPETITIVENESS
HSIP - Highway Safety Improvements Program			
TxDOT	10% <i>Note:</i> HSIP funds are only eligible for construction. (Environmental permitting, Right-of-Way, and Design/Engineering costs are specifically excluded) <i>Additional Note:</i> Only 10% of HSIP funds are programmed for off-system roadways (not on the state highway system or maintained by TxDOT)	<p>Categories Targeted</p> <ul style="list-style-type: none"> • Projects are selected based on crash history (traffic volumes & roadway geometrics are also considered) • SII (Safety Improvement Index) Score is used as a guide to rank projects. • Crash Costs are considered with Benefit/Cost ratios <p>Systemic</p> <ul style="list-style-type: none"> • A systemic approach project involves widely implementing improvements based on high-risk roadway features correlated with specific severe crash types. <p>Types</p> <ul style="list-style-type: none"> • Traffic signal installation/improvements • Delineator installation • Pedestrian Hybrid Beacons (PHB) or Rectangular Rapid Flashing Beacons (RRFB) • Safety lighting • Pavement markings & crosswalks 	<ul style="list-style-type: none"> <input type="checkbox"/> Is the strategy, activity, or project consistent with the priorities of Texas’ Strategic Highway Safety Plan (SHSP)? <input type="checkbox"/> Does the project address a serious crash risk such as a hot spot, systemic risk factor, road segment, or crash type that has been identified through a data driven process? <input type="checkbox"/> Is the project likely to contribute to a significant reduction in fatalities and serious injuries? <input type="checkbox"/> Is this project consistent with the District Annual Safety Plan? <input type="checkbox"/> How does this project address the Pedestrian & Pedal-cyclist Emphasis Area in the SHSP? <p><i>Note:</i> Project selection is based on the crash history, traffic volumes, and roadway geometrics at the specified location.</p>

ADMINISTRATION	ESTIMATED LOCAL MATCH	ELIGIBLE PROJECT CATEGORIES/TYPES	CONSIDERATIONS FOR COMPETITIVENESS
RAISE – Rebuilding American Infrastructure with Sustainability and Equity			
<p>USDOT (applications are coordinated with NCTCOG)</p>	<p>Minimum 20% unless located in an Area of Persistent Poverty (APP), or located in a Historically Disadvantaged Community (HDC)</p> <p>Minimum RAISE grant award is \$5M; no maximum</p>	<p>Categories</p> <p>Planning Projects – Planning, preparation (including NEPA), or design</p> <p>Capital Projects – Right-of-way acquisition and design.</p> <p>Types</p> <ul style="list-style-type: none"> • Bike lanes (on road & separated) • Recreational trails • Shared use paths / transportation trails • Signs, signals, and signal improvements • Signing (route designation, directional, & wayfinding) • Traffic calming 	<ul style="list-style-type: none"> <input type="checkbox"/> What connections does this project have to the broader network? Does this fill a significant gap in the current bike network? <input type="checkbox"/> Does this project connect to transit? <input type="checkbox"/> Can workforce elements be included (such as requiring work be performed by Dallas residents or reserving work for journey-level positions)? <input type="checkbox"/> Does this project address a significant safety issue? <input type="checkbox"/> Is this project in an Area of Persistent Poverty (APP) or a Historically Disadvantaged Community (HDC)? <input type="checkbox"/> Does this project contribute to broader revitalization and economic development efforts?
RCP – Reconnecting Communities Program			
<p>USDOT</p> <ul style="list-style-type: none"> • City or NCTCOG may apply. Account with Grants.gov and SAM. gov required. Accounts can take 2-4 weeks to establish. • City must apply for Capital Construction grant as the facility owner. <p>Estimated Deadline: Q3</p>	<p>Planning Grant</p> <ul style="list-style-type: none"> • 20% match • \$2M award maximum <p>Capital Construction Grant</p> <ul style="list-style-type: none"> • 50% match for total project - <i>Other federal funds can be used for additional 30% of total project cost.</i> • \$5M award minimum 	<p>Categories</p> <ul style="list-style-type: none"> • Planning Grants fund the study of removing, retrofitting, or mitigating an existing facility to restore community connectivity; public engagement; and other transportation planning activities. • Capital Construction Grants are to carry out a project to remove, retrofit, mitigate, or to replace an existing eligible facility with a new facility that reconnects communities. Includes preliminary and detailed design activities and associated environmental studies; predevelopment / preconstruction; permitting activities including the completion of the National Environmental Policy Act (NEPA) process; delivering community benefits and the mitigation of impacts identified through the NEPA process or other planning and project development for the capital construction project <p>Types</p> <ul style="list-style-type: none"> • Infrastructure removal • Pedestrian walkways and overpasses • Linear parks and trails • Roadway redesigns and complete streets conversions • Main street revitalization <p><i>Eligible Facilities:</i> Highways or other transportation facilities that create a barrier to community connectivity, including barriers to mobility, access, or economic development, due to high speeds, grade separations, or other design factors. DOT is taking a broad view of “other transportation facilities,” that might include railroads or transit lines.</p>	<ul style="list-style-type: none"> <input type="checkbox"/> How does this project knit a community back together? <input type="checkbox"/> Does this project serve economically disadvantaged communities? <input type="checkbox"/> Does this project remove or build a path over/under an existing infrastructural barrier? <input type="checkbox"/> Does this project include a P3 partnership? (Partnerships are encouraged and included in merit criteria)

ADMINISTRATION	ESTIMATED LOCAL MATCH	ELIGIBLE PROJECT CATEGORIES/TYPES	CONSIDERATIONS FOR COMPETITIVENESS
RTP – Recreational Trails Programs			
<p>Texas Parks & Wildlife (TPWD)</p> <p>Annual Deadline: February 1</p>	<p>20%</p> <p>Maximum \$300,000 for non-motorized trail grants and a maximum award of \$600,000 for motorized (off-highway vehicle) trail grants</p>	<ul style="list-style-type: none"> • Construction of new recreational trails • Improvement of existing trails • Development of trailheads or trailside facilities • Acquisition of trail corridors. 	<ul style="list-style-type: none"> <input type="checkbox"/> Does the project connect to a park or recreational trail network? <input type="checkbox"/> Does the project provide crossing over an environmental, utility, or transportation barrier? <input type="checkbox"/> Does the project include recreational amenities? <input type="checkbox"/> Does the project provide new recreational access for underserved or equity populations? <input type="checkbox"/> Does the project promote sustainable development or the use of innovative/green materials? <input type="checkbox"/> Does the project address drainage or water quality issues?
SRTS – Safe Routes to School			
<p>NCTCOG via Transportation Alternatives Set-Aside, approved by the Regional Transportation Council.</p> <p>Leverages federal Transportation Alternatives (TA) funds or Congestion Mitigation & Air Quality Improvement Program (CMAQ) funds</p>	<p>20%</p>	<ul style="list-style-type: none"> • Shared-use paths (trails) • Multimodal connections to existing rail stations • Safety-technology improvements in locations with a history of crashes • Pedestrian and bike infrastructure that will substantially improve safety and the ability for students to walk and bike to school. 	<ul style="list-style-type: none"> <input type="checkbox"/> Is this project within a 2-mile radius of a school? If so, does that school have an established SRTS plan?
SS4A – Safe Streets for All			
<p>NCTCOG (required applicant)</p>	<p>Minimum 20%</p> <p>Estimated Project Award:</p> <ul style="list-style-type: none"> • Planning & Demonstration (Action Plan): \$100,000 - \$10,000,000 • Implementation: \$2,500,000 - \$25,000,000 	<p>Planning & Demonstration</p> <ul style="list-style-type: none"> • Development of an SS4A Action Plan: Goal-Setting and Public Commitment, Planning Structure, Safety Analysis, Community Engagement, Policy/Plans/Standards Assessment, Strategic Project Selections, Monitoring • Supplemental Planning: Road Safety Audits, Safety Analysis & Data Collection, Targeted Equity Assessments • Demonstration Activities: Feasibility Studies, MUTCD Engineering Studies, Pilot Programs • <i>A condensed and targeted version of the Dallas Bike Plan for a strategic area of the city and subset of bike network projects could serve as the foundation for developing an SS4A Action Plan. Completion of a SS4A Action Plan is required for subsequent Implementation Grant application</i> <p>Implementation</p> <ul style="list-style-type: none"> • Funds projects and strategies identified in previously completed SS4A Action Plan • May include Supplemental Planning & Demonstration Activities 	<ul style="list-style-type: none"> <input type="checkbox"/> Does this project address a significant safety issue? <input type="checkbox"/> What connections does this project have to the broader network? Does this fill a significant gap in the current bike network to address regional connectivity issues? <input type="checkbox"/> Is this project in an under-served community? (<i>especially significant for Implementation Grants</i>) <input type="checkbox"/> Can this project incorporate innovative technologies? <input type="checkbox"/> Has this project established and/or employed a robust and equitable public engagement strategy?

ADMINISTRATION	ESTIMATED LOCAL MATCH	ELIGIBLE PROJECT CATEGORIES/TYPES	CONSIDERATIONS FOR COMPETITIVENESS
TA – Transportation Alternatives Set-aside Program			
<p>USDOT (applications are coordinated with TxDOT)</p> <ul style="list-style-type: none"> City, NCTCOG, DART, or school district can act as Project Sponsor - Sponsors limited to three applications each NCTCOG administers funds Work with Local Government Project Section Coordinator (TxDOT offers “LGP101” training) <p><i>Estimated Timeline</i></p> <ul style="list-style-type: none"> Required coordination meetings for Project Sponsors are Q4 the year prior to applications opening Call for projects opens end of Q4 year prior to year of application Preliminary application due early Q1 year of application Required Project Sponsor meetings held early Q2 year of application Detailed application due end Q2 year of application Project award expected Q3 year of award 	<p>20%</p> <p>TxDOT offers flexibility in local match for construction (Cash, Transportation Development Credits [TDCs], Overmatch)</p>	<p>Community-Based Infrastructure</p> <ul style="list-style-type: none"> City of Dallas is not eligible. <p>Large Scale Transportation Infrastructure (\$5M-25M award)</p> <ul style="list-style-type: none"> Bike, shared use path, sidewalk infrastructure improvements Infrastructure-related projects to improve safety for non-motorized transportation Construction of boulevards located in right-of-way of highways that improve bike pedestrian, and transit user access Examples: Long distance routes, shared use paths in rail or utility corridors, connections to intermodal hubs, comprehensive/area-wide accessibility improvements, mitigate barriers to biking) <p>Active Transportation Network Enhancements (\$1M minimum award)</p> <ul style="list-style-type: none"> Quick construction or installation activities <ul style="list-style-type: none"> Support active transportation networks Infrastructure projects with limited or no design and no right-of-way acquisition activities Can be completed quickly after award Examples: Signal improvements, bikeshare bikes & kiosk installations, city-wide bike parking installations, city-wide high visibility crosswalk installations, converting visually separated bike lanes to physically separated bike lanes, bike/pedestrian counters) <p>Active Transportation Non-Infrastructure (\$100,000 minimum award)</p> <ul style="list-style-type: none"> Planning documents to assist communities develop non-motorized transportation networks 	<ul style="list-style-type: none"> How does the project improve safety, accessibility, or mobility? How does the project serve all ages and abilities? Does the project exceed minimum design requirements or use innovative technologies? Is the project on the Texas Bicycle Tourism Trail network? Is the project in an existing high-crash area? Does the project improve access to public transportation? Does the project improve safe access to schools? Is the project along a long-distance bike route? Does the project provide accessibility improvements for disabled communities? Is the project shovel-ready? <ul style="list-style-type: none"> Have permits/right-of-way been acquired? Is it on the NCTCOG’s TIP? How does the project address equity issues? Was there a robust community engagement process? Is there public support for the project? Are there any transformational elements included in the project (eliminates significant barrier, mitigates impacts to underserved communities, goes-with another project, significant economic development potential, innovative technologies, etc.)?
TCP – Thriving Communities Program			
<p>USDOT</p> <p><i>Applicants</i> For Funding – Notice of Funding Opportunity (NOFO): City of Dallas</p> <p><i>For Assistance Only</i> – Letter of Interest (LOI): City of Dallas, NCTCOG, DART</p>	<p>Estimated NOFO award amount: Between \$3.5M-\$6M for a 2-year period of performance</p>	<p>Categories</p> <ul style="list-style-type: none"> Notice of Funding Opportunity (NOFO) Letter of Interest (LOI) <p>Types</p> <ul style="list-style-type: none"> Complete Neighborhoods– Focused on urban and suburban communities located within Metropolitan Planning Organization areas to help advance complete streets policies and coordinate transportation with land use, housing, and economic development. Complete Transit-Oriented Neighborhoods – Focused on urban and suburban communities located within metropolitan regions working to advance equitable transit-oriented development and improve safe, reliable, and accessible transit service. Networked Communities– Focused on communities located near ports, airports, freight, and rail facilities to address mobility, access, housing, environmental justice, and economic issues. Main Streets – <i>City of Dallas is not eligible.</i> 	<ul style="list-style-type: none"> Does this project specifically serve equity and marginalized populations and/or majority disadvantaged or underserved communities? Does this project increase access to transit? Does this project connect or create greater access to redeveloped or revitalized activity centers? Does the project address issues of environmental or public health inequities?

Additional Grant Opportunities

Other non-governmental grants for consideration include, but are not limited to, the following sources:

League of American Bicyclists Spark Grant

Up to \$1500 award

Application Deadline: early Q2

Fundable Activities

- One Time Event
- Series of Events
- Classes/Educational Opportunity
- Pop-up Infrastructure/Traffic Calming*
- Placemaking/Tactical Urbanism*
- End-of-Trip Facilities (bike parking/fix-it stations, etc.)
- Giveaways or subsidies for bike equipment and/or accessories (e.g., lights, helmets, bells, locks, etc.)
- Bike audit, count, survey, or other evaluation/assessment effort (must have follow-up/community involvement to be eligible)

**Funding can only support temporary/non-permanent structures and materials such as paint, vertical delineators, bollards, and signage.*

People for Bikes Community Grant Program

Up to \$10,000 award

Local match: 50% (higher preferred)

Application Deadline: Q3

Fundable Activities

Tasks:

- Engineering and design work,
- Construction costs including materials, labor and equipment rental
- Reasonable volunteer support costs (staffing that is directly related to accomplishing the goals of the initiative)

Projects:

- Bike paths, lanes, trails, and bridges
- End-of-trip facilities such as bike racks, bike parking, bike repair stations and bike storage



Bike to City Hall Day
Nov. 2, 2022

Phasing

To support the quick and efficient implementation of the recommended projects in this plan, a prioritization analysis was conducted to identify 15 priority capital projects for early implementation. These projects are keystone to the bike network's development and would benefit from bond or grant programs to leverage existing funding sources to advance their design and construction. The prioritization process was guided by nine overarching criteria identified by the City, the Bicycle Advisory Committee (BAC), and the Technical Advisory Committee (TAC), along with public input collected during Phase I and Phase II engagement events. Each criterion included component variables, and the project team, the BAC, and the TAC, agreed that the prioritization criteria would not be weighted and be considered and listed in no particular order.

Prioritization Criteria

STAKEHOLDER INPUT

Accounting for comments received by the BAC and TAC stakeholder committees.

CONSTRAINTS

Accounting for project complexity and planning-level opinions of probable construction cost for each project.

OPPORTUNITIES

Accounting for projects that coincide with previously programmed roadway improvements and projects that were specifically physically separated or trail facility types (a reflection of public input).

SAFETY

Accounting for the City's High Injury Network (HIN), previously recorded fatal and serious injury bike crashes, and a comparison of level of traffic stress (from existing conditions analysis) with intersections.

EXISTING CONDITIONS

Accounting for upgrades to protected/separated facility types for existing non-separated facilities on roads with high levels of traffic stress.

DEMAND

Accounting for high active trip potential areas (from existing conditions analysis) and projects that specifically provide connection to the existing trail network (a reflection of public input).

CONNECTIVITY

Accounting for new connections to the existing bike network and new/improved connections to DART rail transit.

EQUITY

Accounting for equity need areas (from existing conditions analysis).

PUBLIC INPUT

Accounting for favorable public reactions to proposed projects during Phase II engagement.

Short Term 5-Year Action Plan

15 PRIORITY CAPITAL
PROJECTS

Using a prioritization methodology detailed in the Appendices, all projects comprising the Dallas Bike Network were organized into a preliminary prioritization order. The prioritization order was refined by the DDOT and subsequently the BAC and TAC stakeholder committees. A final prioritized project list was produced, resulting in the following 15 priority capital projects recommended for early advancement within the first 5 years of bike network implementation.

LOCATION	STARTING TERMINI	ENDING TERMINI	LENGTH (MI)	PROPOSED FACILITY TYPE	OPINION OF PROBABLE CONSTRUCTION COST (Cost Estimate)
Martin Luther King Jr / Cedar Crest Blvd	Fair Park	Stella Ave	3.7	Physically Separated	\$1,910,956.00 - \$2,336,864.00
Peak St	Cabell Dr	Parry Ave	1.9	Physically Separated	\$971,408.00 - \$1,080,506.00
Maple Ave	Empire Central	Throckmorton St	2.7	Visually Separated	\$302,161.00
Community Dr	Northwest Hwy	Webb Chapel Ext	0.6	Visually Separated	\$51,778.00
S Beacon St	Columbia Ave	East Grand Ave	0.7	Visually Separated	\$51,600
Timberline Dr	Lombardy Ln	W Northwest Hwy	1.0	Bike Boulevard	\$174,240.00
Pine St / Pine Spring Conn	Botham Jean Blvd	Lagow St	2.0	Visually Separated	\$186,000.00
S Malcolm X Blvd	S Hall St	Else Faye Heggins St	2.3	Visually Separated	\$216,632.00
Sylvan Ave	Canada Dr	Fort Worth Ave	1.1	Physically Separated	\$667,512.00 - \$819,096.00
N Beckley Ave	Woodall Rodgers Fwy	N. Zang Blvd	1.6	Physically Separated	\$960,352.00 - \$1,070,595.50
Lamar St	Continental Ave	Houston St	0.2	Physically Separated	\$70,208.00 - \$83,983.00
Ewing Ave	Clarendon Dr	Saner Ave	2.0	Visually Separated	\$200,200.00
Kiest Blvd	Polk St	Cedar Crest Blvd	5.3	Physically Separated	\$2,841,416.00
Meandering Way	Preston Ridge Trail	Cliff Brook Dr	0.3	Visually Separated	\$29,767.00
W 7th Ave	N Rosemont Ave	Beckley Ave	1.5	Bike Boulevard	\$156,200.00
TOTAL					\$9,601,038.50

These priority capital projects introduce almost 27 miles of new bike facilities to the existing Dallas Bike Network.

Additionally, most of the priority capital projects were identified as co-locating with roadway improvements already programmed for implementation. Quick action to mobilize these projects can expedite their initiation to efficiently construct them alongside other forthcoming roadway projects.

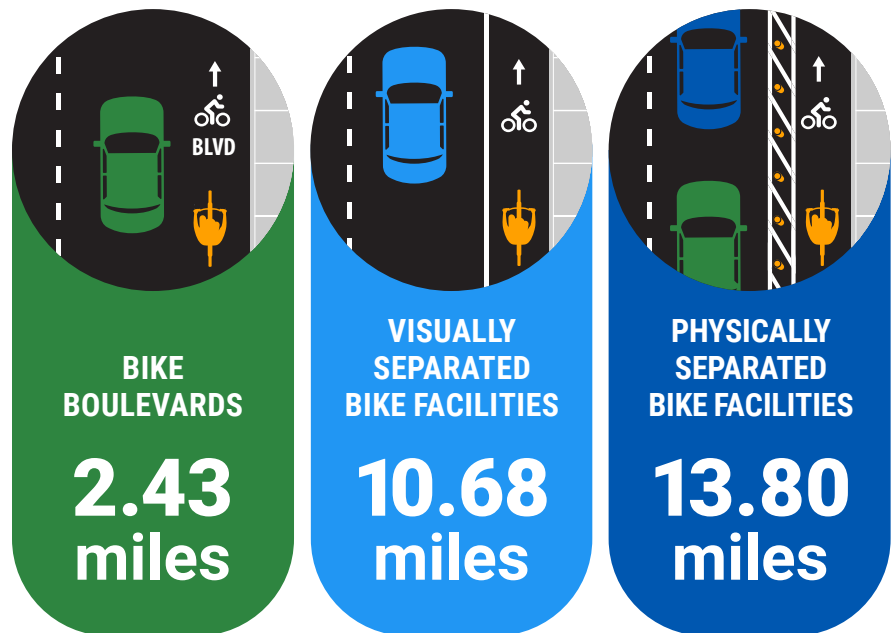
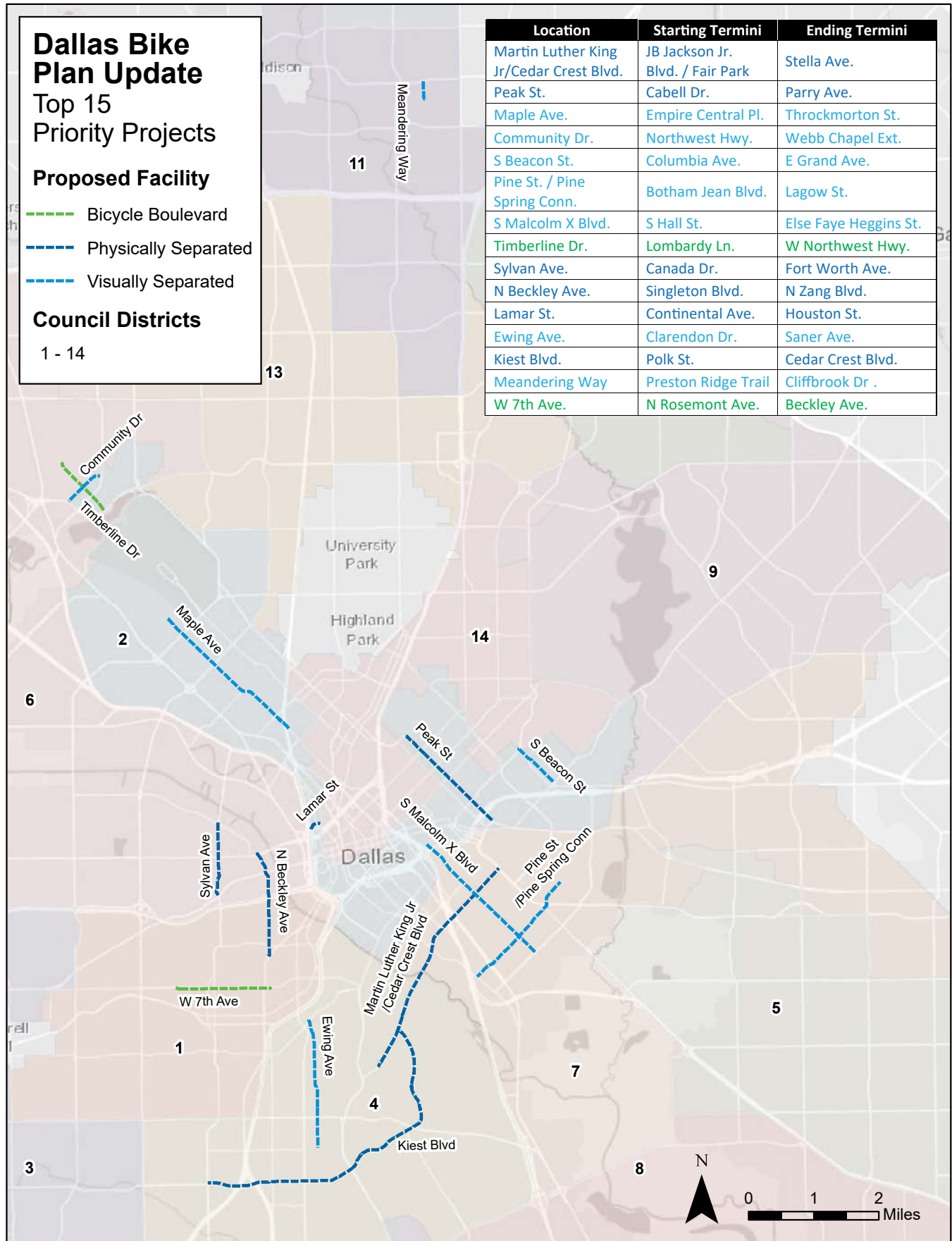


Figure 6.2 Priority Project Map



A Note About Funding

As it stands today, current funding for bike projects in the DDOT is programmed at \$500,000/year. If no adjustments are made to current funding allocations, DDOT can expect \$2.5M to be allocated over the next five years (short-term), stymying the progress of bike network implementation. It is exceptionally critical for the early success and efficient implementation of this bike plan that external funding sources be leveraged to maximize the value of these budget allocations. Building a budget strategy that considers the local funding necessary to derive the feasibility and planning studies for these projects, the design phase for these projects (or the local match required in the instance of some grants), and the local match dollars required for the construction phase for these projects can creatively expand the reach of the current budget if a grant-seeking strategy is employed. For this to be successful, staff time must be dedicated in the DDOT along with the time to continue to invest in partner relationships with NCTCOG and TxDOT as grant-supporting, grant-sponsoring, and grant-awarding agencies.

Long Term

As the DDOT looks ahead to future programming beyond the next five years and the 15 priority capital projects, continuing to employ the nine prioritization criteria will support a consistent process that reflects collaboration with Dallas residents. The Dallas landscape, however, will look very different from today as time moves forward. As needs change, priorities evolve, or new public comment is received, it can be helpful to review the prioritization criteria through different lenses to achieve different goals. To that end, projects sorted by prioritization criteria can be found in the Appendices as a useful reference for staff completing future prioritization exercises.

Long-term project phasing should also consider evolution in the built environment. As more people start walking, biking, or taking the bus or train, and as public support for biking increases, projects that at the time of this Plan's publication might be more challenging could see those obstacles reduce or lessen. Additionally, the expansion of new transit routes and infrastructure could influence the prioritization of projects, expediting their need based on the level of service and access a new bike facility would offer. Further, demand for bike facilities continues to grow. Recommendations in this plan should be re-evaluated at minimum every two years to adjust for changing transportation patterns.

City of Dallas

Interdepartmental Internal Alignment

As a part of the Bike Plan Update, areas of potential cross-departmental operational improvements that could better streamline the internal implementation of the Bike Plan and its myriad component parts were identified. With over 400 individual bike network projects, implementation of the Bike Plan will take ample coordination between the City departments who have accountability and influence over their budget forecasting and allocation, planning and project definition, scoping, procurement, public involvement, design, construction, and maintenance. To that end, a coordination discussion was facilitated with the project's Technical Advisory Committee (TAC), comprised of City representatives from DDOT, Public Works, Planning & Urban Design, Park & Recreation, the Office of Equity & Inclusion, and the Office of Environmental Quality & Sustainability, as well as external partner agencies DART and NCTCOG. The TAC discussed coordination issues such as miscommunication, unclear metrics or goals, and a lack of leadership or interdepartmental support. TAC members emphasized the need for clear accountability and ownership for tasks among departments.

Public Works Coordination

While DDOT is primarily tasked with the implementation of the Bike Plan, it relies on the support of other City departments for different types of projects. As a key strategic partner for DDOT, Public Works is responsible for designing, constructing, and maintaining the City's mobility infrastructure in the City's right-of-way. While Public Works and DDOT each handle certain project types, the two departments have started discussing opportunities to better align processes and define interdepartmental responsibilities for joint future planning and efficient project delivery. A common goal established for these conversations has been to determine the level of effort, challenges, risks, and benefits of implementing bike lane projects as part of street repaving and reconstruction projects. Ultimately by working together, DDOT and Public Works will develop current and future process maps for the Annual Bike Lane Work Plan and the Annual Pavement Maintenance Plan. This Plan supports these efforts and encourages the DDOT and Public Works to leverage FHWA's Guidebook on "Incorporating On-Road Bicycle Networks into Resurfacing Projects" to determine new strategies that can be employed to support the efficient implementation of the Bike Plan and updated bike network.



On-going Interdepartmental & Interagency Coordination

To improve coordination and implementation of the Bike Plan, this Plan recommends a City of Dallas Bike Plan Working Group led by DDOT be informed and that it include representatives from DDOT, Public Works, Planning & Urban Design, Office of Environmental Quality & Sustainability, DART, NCTCOG, and others. This Bike Plan Working Group would be structured like the CECAP's LEAF (Leading Environmental Action Forward), an interdepartmental and interagency coalition where partners have specific actions assigned to them for clarity and ownership. Interdepartmental partners would be assigned goals and action items to ensure bike projects are implemented and bike-friendly policies are incorporated throughout the various and ancillary functions of the City. Interagency partners would provide insight into setting project priorities, regional project opportunities where bike infrastructure can be incorporated, upcoming grant opportunities, and accountability. By setting mutually agreed upon success measures and goals, this Bike Plan Working Group can ensure direct, measurable change occurs.

Resident-Led Involvement

This plan also recommends that a complementary resident-led Bike Plan Working Group be established in similar fashion to the Bike Plan's Bicycle Advisory Committee (BAC), with representation shared across the City of Dallas by Council district. Working group members should represent the diversity that the City of Dallas offers and advocate for bike riders of all ages and abilities. Resident Working Group members would be tasked with reviewing monitoring progress measures for implementation of the Bike Plan, holding the City accountable for meeting its bike transportation goals, and providing targeted stakeholder feedback and input during bike project planning and design phases, among other tasks as deemed necessary and appropriate. By introducing an on-going resident-led Bike Plan Working Group, the City will maintain transparency in its implementation process and progress, and it provides a direct and on-going mechanism for input and collaboration with the public in the implementation of the updated Bike Plan.

These two working groups will provide the resources and accountability necessary for successful and timely implementation of the Dallas Bike Plan.

A important note on Working Group implementation:

Recruiting a dedicated, passionate team is crucial for the success of these working groups. Establishing a public brand identity for both the staff-participating and resident-led Bike Plan Working Groups, like LEAF, is a first step. Not only is this a fun exercise that builds camaraderie and affinity (necessary for the health of interdisciplinary teams), it also sets the personality and purpose for the groups and publicly communicates the City's commitment to implementing the Bike Plan. Next, these groups should collaboratively develop charters for their respective group, build team rapport, and establish credibility, trust, and support among members. The teams can then work together to establish their goals as a working group and measures for implementation success for the Bike Plan. Tips for additional success include meeting together in person, especially over a meal, and rotating meeting locations in either different department or member offices or externally in local restaurants with large tables or meeting spaces conducive to working conversations. Further, be sure to communicate across the team regularly and thoroughly, clearly organize materials (such as files, notes, data, research) so people can easily access them, and offer flexibility in how goals are achieved so creative, innovative thinking is encouraged. Additionally, as a foundation of trust is established across working members, it will become easier and easier to hold members accountable for their tasks and goals. Bear in mind that cross-functional teams generally fail when there is unclear governance, a lack of accountability, unspecific goals, or the success of the project (in this case, the Bike Plan) is not a priority of leadership. Using these recommendations to establish a healthy, well-formed, and sustainable City of Dallas Bike Plan Working Groups will markedly contribute to the successful implementation of the Bike Plan Update and the city-wide bike network.



A foundation
of trust is built on

13 actions

—as identified by
Stephen Covey

1. Talk Straight
2. Demonstrate Respect
3. Create Transparency
4. Right Wrongs
5. Show Loyalty
6. Deliver Results
7. Get Better
8. Confront Reality
9. Clarify Expectations
10. Practice Accountability
11. Listen First
12. Keep Commitments
13. Extend Trust

Measures for Successful Implementation

Once branded Bike Plan Working Groups have been founded, measures for monitoring implementation of the Bike Plan can be established. Measures for success should address dimensions including, but not limited to, the following:



Community

Such as the number of community or cultural events hosted in areas of new bike infrastructure, or the number of façade or landscaping improvements made in areas of new bike infrastructure



Connectivity

Such as the overall lane miles of bike facilities in the constructed bike network, the number of gaps filled in the existing bike network, how many points of bike access there are/how much local bike access there is to the Dallas recreational trail network, the number of identified activity centers accessible by bike, or the number of residents with access to the bike network within a given buffer (ex. 0.25 mi) of their residence



Economic Development

Such as the number of new businesses opened in areas of new bike infrastructure, the increase in property values in areas of new bike infrastructure, the amount of property taxes collected in areas of new bike infrastructure, the reduction of commercial or residential vacancies in areas of new bike infrastructure, the number of new jobs created in areas of new bike infrastructure, or the city-wide number of bike-friendly businesses recognized by organizations like the League of American Bicyclists



Education

Such as the number of educational or job training institutions accessible by bike, the number of schools with adequate bike parking, or the number of bike safety programs or awareness campaigns conducted over a given time period



Equity

Such as the number of new bike miles provided in areas of identified equity need, or the number of DART rail transit stations accessible by bike in areas of identified equity need



Enforcement

Such as the level of enforcement of bike traffic safety laws for motorists, or the level of attendance/participation/facilitation of bike safety education events by law enforcement agents



Funding

Such as the number of grants pursued, the number of grants awarded/projects funded by grants, the amount of grant dollars received, or the proportion of leveraged budget dollars against external funding secured.



Public Health

Such as the number of health facilities accessible by bike or measurable improvements in air quality.



Ridership & Mode Shift

Such as bike counts on new facilities /the bike network as a whole (perhaps measuring a significant, representative sample), the reductions in overall vehicle miles traveled, the increased number of children (18 and under) riding bikes to school, or the perception of Dallas residents of biking as a viable means of transportation.



Safety

Such as reduction in bike crashes over a given period, the reduced 85th percentile speed of cars traveling on bike boulevard designated roads, or improvements in perceived safety when biking by residents.



Supporting Infrastructure

Such as the number of implemented wayfinding & signing programs, the number of public and/or private bike parking facilities installed, the number of bike signals installed, or the level of City maintenance service (such as sweeping) provided to/for bike facilities.

The Bike Plan Working Groups should select the appropriate measures of success for each dimension, define the parameters and timelines for each measure (employing SMART goal methodology – Specific, Measurable, Achievable, Realistic, and Time-Bound), and make joint staff recommendations to City Council for adoption. To ensure that bike safety is prioritized and a safe bike network is expanded throughout the City, and to ensure that City departments working together to implement bike projects have clear direction, it is critical to secure early support from City Council and City staff leadership for these measures and their corresponding target goals.

Once success measures are selected and approved, baseline data should be inventoried, measured, and analyzed. Regular monitoring should be established every 2-5 years to determine the amount of progress made expanding the bike network and implementing the Bike Plan. The Bike Plan Working Groups would assign measures for success to different members for regular monitoring. This plan also recommends that DDOT regularly report updates regarding these success measures to City Council to celebrate achievements and garner additional support for future bike-friendly initiatives.



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