Information contained in this document is for planning purposes and should not be used for final design of any project. All results, recommendations, cost opinions, and commentary contained herein are based on limited data and information, and on existing conditions that are subject to change.
Acknowledgments

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Kimley-Horn

Support Provided By

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Fort Worth Independent School District
Fort Worth League of Neighborhoods
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Sixty and Better
SteerFW
Streams and Valleys, Inc.
Tarrant County
Tarrant County Community College
Tarrant County Public Health
Tarrant Regional Water District
Tarrant Transit Alliance
Texas Christian University
Texas Wesleyan University
Trinity Metro
Trinity River Vision Authority
TxDOT
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OVERVIEW

The following executive summary excerpts the trail-related content from the Fort Worth Active Transportation Plan (ATP). It is intended for agency staff and community members who are primarily focused on developing trails in Fort Worth.

It contains:

• The Trail Network Development Approach
• Relevant Policies
• Priority Trail Projects
• Trail Network Maps, and
• Trail and Sidewalk Design Guidance

Relationship Between Trails and User Comfort

A trail is a path fully separated and independent from a road, shared by bicyclists, pedestrians, and others. As a result of this separation, a well-designed trail is comfortable for users in most contexts. Higher-demand trails, such as those included in the ATP Spine network, should be wider to accommodate more users traveling at varied speeds. Pedestrians and bicyclists may be separated to increase comfort. If the trail is congested, some bicyclists may choose to ride on adjacent roads.

Figure 1. Trails in Fort Worth provide a comfortable place for exercise, recreation, and transportation. (Photo credit: Tarrant Regional Water District)
TRAIL NETWORK DEVELOPMENT APPROACH

The recommended network structure for the Active Transportation Plan consists of a combination of Spine and Ribs and Connected Neighborhood Networks. Major Spine corridors support uninterrupted longer-distance trips, and Rib corridors provide connections between the Spines and neighborhoods. Fort Worth’s existing trail network naturally acts as many of the Spine and Rib connections. These facilities provide many of the long-distance routes between the city’s major activity centers and neighborhoods. More on these structures and how they impact design is found on pages 13-15.

Criteria Description Impact on Network Development

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
<th>Impact on Network Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Trails</td>
<td>An inventory of all existing trails.</td>
<td>Included in the network, except local park trails.</td>
</tr>
<tr>
<td>Previous Plans</td>
<td>Bike Fort Worth, Confluence: The Trinity River Strategic Master Plan, Regional Veloweb, and other regional and local plans.</td>
<td>Included in the network.</td>
</tr>
<tr>
<td>New Trail Opportunities</td>
<td>Floodplains and streams, utility easements, rail corridors, parks and open space areas</td>
<td>Corridors were mapped and evaluated for trail projects.</td>
</tr>
</tbody>
</table>

Table 1. Trail network development inputs.
Identification of Future Trail Network Alignments

Existing Trail Inventory
The identification of candidate alignments for expanding the City’s trail network began with an assessment of existing trail conditions. Several organizations have worked together over the years to develop the trail system as it exists today. The Tarrant Regional Water District (TRWD) has constructed, and maintained, much of the existing Trinity Trails system. The City of Fort Worth has constructed trails, many located within city parks and within parks along the Trinity River corridor. Local neighborhood-level trails have been constructed as part of private development projects that can be integrated into the citywide trail network. The Regional Transportation Council has provided funding for several Regional Veloweb trails in Fort Worth. An inventory of all existing trails was compiled in order to make additional network alignment recommendations.

Previous Plans
Previous planning efforts that included trail alignment recommendations were reviewed for integration with the Active Transportation Plan, including:

- **Bike Fort Worth** – Trail alignment recommendations identified in the City’s previous bicycle and pedestrian plans were re-evaluated for inclusion in the ATP trail network.

- **Confluence: The Trinity River Strategic Master Plan** – Led by Streams & Valleys, a nonprofit organization whose mission is to fund and develop projects that enhance the river and trails, this plan was developed in coordination with TRWD and the City of Fort Worth to identify a variety of projects to enhance all major segments of the Trinity River. All trail facility recommendations were integrated into the Active Transportation Plan.

- **Regional Veloweb** – Established by the North Central Texas Council of Governments (NCTCOG) to create a region-wide plan for future trail development. Veloweb corridors were incorporated and updated. Refined Regional Veloweb alignments are proposed for the next adopted Metropolitan Transportation Plan.

Trail recommendations identified in other regional and local plans, as outlined in the ATP Existing Conditions Report, were also evaluated for inclusion in the citywide trail system.

New Trail Opportunities
Building upon the existing and previously planned trails, new trail opportunity areas were mapped and evaluated for trail projects. These areas include:

- Floodplains and streams
- Utility easements
- Rail corridors (existing and abandoned)
- Parks and open space areas

Figure 3. A bicyclist in Fort Worth. (Photo credit: Tarrant Regional Water District)
Trail Network Development

Building on the existing trails and opportunity areas, the Trails Master Plan identifies a network of inter-connected off-street alignments to provide comfortable routes for recreation and transportation. The majority of trails identified in the plan can be considered part of the Spine and Ribs structure as described in the box below. Selected routes are intended to be primarily separated from roadways with minimal crossings, utilizing natural areas, floodplain, rail alignments, or other easements. Emphasis was placed on identifying trail alignment opportunities that serve all major districts, activity centers, neighborhoods, and future growth areas. It is important that the trail network be fully coordinated and connected with the on-street bicycle and pedestrian networks to increase trail access and route continuity throughout the Fort Worth.

Local/Neighborhood Trails

Local trails that serve as part of a Neighborhood Network are typically not mapped as part of the Trails Master Plan. However, local off-street and on-street connections should be considered in existing and future development areas to enhance access to the Spine and Rib trail network. When determining local trail alignments, access from all neighborhoods to the proposed Active Transportation Plan network should be provided to promote the connectivity of the trail network to community destinations within neighborhoods. The Neighborhood Trail Connectivity section of Chapter 5 provides more information.

SPINE AND RIB TRAIL CHARACTERISTICS

Spine Trail Connectivity
- Emphasis on long-distance connectivity
- Trails create major cross-town connections or regional connections to adjacent cities
- Interconnected network with connections to/from other Spine trails

Rib Trail Connectivity
- Emphasis on connectivity between Spine trails and neighborhoods
- Non-regional (shorter-distance) connections between neighborhoods

Figure 4. Trail users in Fort Worth. (Photo credit: Tarrant Regional Water District)
Figure 5. Existing and proposed trail network map

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Trail-Related Policies

Chapter 5 of the ATP contains a list of policies to support the development of the active transportation network and encourage walking, bicycling, and trail use in Fort Worth. Several policies that related to the trail network are listed below.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Policy</th>
<th>Implementer</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Connected</td>
<td>2.7. Update development requirements to include easement dedication for trails, and require pedestrian and bicycle connectivity to new development.</td>
<td>Planning &amp; Development (P&amp;D)</td>
</tr>
<tr>
<td>3. Safe and Comfortable</td>
<td>3.10 Develop a Low Water Crossing Indication System for the Spine Network</td>
<td>City of Fort Worth (CFW), Tarrant Regional Water District (TRWD)</td>
</tr>
<tr>
<td>5. Equitable</td>
<td>5.4 Include Equity as a prioritization measure in all projects</td>
<td>City of Fort Worth (CFW)</td>
</tr>
<tr>
<td>7. Community Awareness and Culture</td>
<td>7.1. Review Subdivision and Zoning codes to develop and adopt changes that incorporate language that supports and promotes bicycling and walking such as connectivity and development requirements. See subdivision ordinance policy discussion in Chapter 5.</td>
<td>Planning &amp; Development (P&amp;D)</td>
</tr>
<tr>
<td>8. Funding</td>
<td>8.1. Continue to pursue federal funding sources such as Congestion Mitigation and Air Quality (CMAQ) Improvement Program, the Transportation Alternatives and Recreational Trails Programs, and BUILD grants.</td>
<td>Transportation &amp; Public Works (TPW); Park and Recreation (PARD)</td>
</tr>
</tbody>
</table>

Table 2. Fort Worth ATP Trail-Related Policies.

Local/Neighborhood Connectivity Policy

When a new development is approved, it is important to consider what trails or facilities are located nearby. The ATP recommends a revision to Section 31-102 “Streets and Block Arrangement” of the Subdivision Ordinance that would require access from all neighborhoods to the proposed Active Transportation Plan network and the provision of trail network connections to community destinations.

Recommended changes ensure that:
- Subdivisions provide connectivity for pedestrians and bicyclists to adjacent ATP facilities and between adjacent neighborhoods. This is accomplished through a connected street network and, in some cases, cul-de-sac easements.
- Subdivisions provide an internal circulation plan that considers bicycle and pedestrian connectivity.
- Streets should be designed with appropriate bicycle and pedestrian accommodations to convey residents conveniently throughout the neighborhood, and to parks, schools, and/or shopping areas within the neighborhood.
TRAIL PROJECTS

The trail projects in Table 4 scored the highest in the ATP prioritization process. Details on the top six projects are included starting on page 10. The ATP’s recommended trail network includes approximately 174 miles of trail, 94 river crossings, 331 street crossings, 34 highway crossings, and 25 railroad crossings. The cost opinion for implementation of the entire recommended trail network is $714,500,000.

Trails Cost Assumptions

A 10-foot-wide concrete path is estimated to cost an average of $1.9 million per mile based on observed trail cost estimates in Fort Worth, including the cost for design, right-of-way acquisition, and contingency. The citywide cost opinion for recommended trail projects also includes adjustments for recommended trails in floodplains and major crossings:

- In floodplain: +$250,000
- In floodplain with one river crossing: +$500,000
- In floodplain with two or more river crossings: +$500,000 per 2,000 feet of trail in floodplain or +$500,000 per river crossing, whichever total is less
- Street crossing: +$250,000
- Highway crossing: +$3,000,000
- Railroad crossing: +$500,000

Project Prioritization

Recognizing that there are limited funds and resources for project implementation, the prioritization process used in the ATP provides information on which projects should be funded and implemented first. The ATP’s data-driven prioritization process scored and ranked each project in the pedestrian, bicycle, and trails networks. The table below shows the weights for each factor used in the trail project prioritization.

<table>
<thead>
<tr>
<th>Prioritization Factor</th>
<th>Description</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity</td>
<td>Majority Minority Area, low-income populations, population of people with disabilities</td>
<td>30%</td>
</tr>
<tr>
<td>Spine Trail</td>
<td>On a Spine network alignment</td>
<td>30%</td>
</tr>
<tr>
<td>Connectivity</td>
<td>Intersects with an existing bikeway or trail</td>
<td>30%</td>
</tr>
<tr>
<td>Stakeholder Input</td>
<td>Interactive map priority</td>
<td>10%</td>
</tr>
<tr>
<td>Funding</td>
<td>20% funding from external sources</td>
<td>10% (bonus)</td>
</tr>
<tr>
<td>Feasibility</td>
<td>Evaluated through 30% design</td>
<td>10% (bonus)</td>
</tr>
</tbody>
</table>

Table 3. Prioritization factors and weights for trail projects.
Figure 6. Top 20 trail projects
## Table 4. Top 20 priority trail projects and cost opinions.

<table>
<thead>
<tr>
<th>Priority Rank</th>
<th>Trail Name</th>
<th>From</th>
<th>To</th>
<th>Length (feet)</th>
<th>Cost Opinion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TEXRail Trail Segments</td>
<td>Trinity River (near Trail Drivers Park)</td>
<td>TEXRail Mercantile Center Station</td>
<td>14,054</td>
<td>$14,000,000</td>
</tr>
<tr>
<td>2</td>
<td>Marine Creek Trail</td>
<td>23rd St</td>
<td>Trinity River Trail</td>
<td>2,547</td>
<td>$2,200,000</td>
</tr>
<tr>
<td>3</td>
<td>Bomber Spur Trail (South Extension)</td>
<td>Calmont Ave</td>
<td>Vickery Blvd</td>
<td>12,916</td>
<td>$21,100,000</td>
</tr>
<tr>
<td>4</td>
<td>Sycamore Creek Trail</td>
<td>I-30</td>
<td>Sycamore Park</td>
<td>6,118</td>
<td>$14,200,000</td>
</tr>
<tr>
<td>5</td>
<td>Marine Creek Trail</td>
<td>Cromwell Marine Creek</td>
<td>Marine Creek Lake Trail</td>
<td>4,399</td>
<td>$2,700,000</td>
</tr>
<tr>
<td>6</td>
<td>Krauss Baker Park/ Woodmont Park Trail Connection</td>
<td>Krauss Baker Park (McCART Ave)</td>
<td>Woodmont Park (Woodmont Trl)</td>
<td>1,974</td>
<td>$1,900,000</td>
</tr>
<tr>
<td>7</td>
<td>Western Hills Oncor Trail North</td>
<td>Dale Ln</td>
<td>Calmont Ave (at SH 183)</td>
<td>11,466</td>
<td>$7,100,000</td>
</tr>
<tr>
<td>8</td>
<td>Trinity Trail (North Bank)</td>
<td>Trinity River (near Trail Drivers Park)</td>
<td>Riverside Park (near Embrey Pl)</td>
<td>8,217</td>
<td>$9,300,000</td>
</tr>
<tr>
<td>9</td>
<td>Western Hills Oncor Trail South</td>
<td>Calmont Ave (at Glenrock Dr)</td>
<td>Chapin Rd</td>
<td>7,265</td>
<td>$11,300,000</td>
</tr>
<tr>
<td>10</td>
<td>Sycamore Creek Trail</td>
<td>Cobb Park (Old Mansfield Rd)</td>
<td>Carter Park (Seminary Dr)</td>
<td>11,982</td>
<td>$11,800,000</td>
</tr>
<tr>
<td>11</td>
<td>Big Bear Creek Trail</td>
<td>Existing Trail (near Golden Triangle Blvd and Goldrush Dr)</td>
<td>Fort Worth/Keller City Limits</td>
<td>10,743</td>
<td>$5,700,000</td>
</tr>
<tr>
<td>12</td>
<td>Bomber Spur Trail (North Extension)</td>
<td>Sherry Ln (Fort Worth/Westworth Village City Limits)</td>
<td>Calmont Ave</td>
<td>8,512</td>
<td>$12,800,000</td>
</tr>
<tr>
<td>13</td>
<td>Trinity Trail (North Bank)</td>
<td>University Dr</td>
<td>SH 199</td>
<td>2,999</td>
<td>$7,100,000</td>
</tr>
<tr>
<td>14</td>
<td>Wedgwood Trail</td>
<td>Granbury Rd</td>
<td>Woodway Dr</td>
<td>10,043</td>
<td>$8,900,000</td>
</tr>
<tr>
<td>15</td>
<td>Fossil Creek Trail</td>
<td>TX-121 (Fort Worth/Richland Hills City Limits)</td>
<td>Existing Trinity Trail</td>
<td>5,640</td>
<td>$3,600,000</td>
</tr>
<tr>
<td>16</td>
<td>Sycamore Creek Trail</td>
<td>Seminary Dr</td>
<td>Fair Park Blvd</td>
<td>5,262</td>
<td>$2,700,000</td>
</tr>
<tr>
<td>17</td>
<td>Altamesa Rail Trail</td>
<td>Campus Dr</td>
<td>Wichita St</td>
<td>7,154</td>
<td>$4,800,000</td>
</tr>
<tr>
<td>18</td>
<td>Sycamore Creek Trail</td>
<td>Fair Park Blvd</td>
<td>Altamesa Blvd</td>
<td>13,862</td>
<td>$21,800,000</td>
</tr>
<tr>
<td>19</td>
<td>Crawford Farms Park Trail Connection</td>
<td>Wexford Dr (Existing Trail)</td>
<td>Sinclair Park Trail (Existing Trail)</td>
<td>805</td>
<td>$1,100,000</td>
</tr>
<tr>
<td>20</td>
<td>Lake Arlington Trail</td>
<td>Rosedale St</td>
<td>Berry St</td>
<td>10,436</td>
<td>$4,100,000</td>
</tr>
</tbody>
</table>
Fort Worth Active Transportation Plan Priority Trail Project
#1: TEXRail Trail Connection

**General Description**

This trail would provide a shared-use trail connection between the existing Trinity River Trail near Trail Drivers Park to two TEXRail stations (North Side Station and Mercantile Center Station) via the TEXRail rail corridor and Long Avenue. It would connect to existing trail segments in Trail Drivers Park. On-street bicycle facilities along Decatur Ave and Long Ave would be necessary to create a continuous route. This project requires interagency coordination (TxDOT, rail).

**Additional Project Considerations**

<table>
<thead>
<tr>
<th>1</th>
<th>Major Thoroughfare/Highway Crossing(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rail Crossing(s)</td>
</tr>
<tr>
<td>✓</td>
<td>Interjurisdictional Connection</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2</th>
<th>Floodplain/Estimated Stream Crossing(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>Connects to Existing Trail System</td>
</tr>
</tbody>
</table>

**Project Characteristics**

<table>
<thead>
<tr>
<th>Trail Name/Location</th>
<th>TEXRail Trail</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Limits</strong></td>
<td></td>
</tr>
<tr>
<td>From</td>
<td>Trinity River Trail (near Trail Drivers Park)</td>
</tr>
<tr>
<td>To</td>
<td>TEXRail Mercantile Center Station</td>
</tr>
<tr>
<td><strong>Length (mi)</strong></td>
<td>2.7 (trail segments only)</td>
</tr>
<tr>
<td><strong>Facility Type</strong></td>
<td>Trail</td>
</tr>
<tr>
<td><strong>Proposed Veloweb</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Project Status</strong></td>
<td>Proposed Alignment</td>
</tr>
<tr>
<td><strong>Estimated Project Cost</strong></td>
<td>$14,000,000*</td>
</tr>
<tr>
<td><strong>Funding Source</strong></td>
<td>TBD</td>
</tr>
</tbody>
</table>

**Major Destinations**

- Trinity Trails
- Trail Drivers Park
- North Side Station
- Mercantile Center Station
- City of Haltom City (future trail connection)

*Estimate does not include cost for on-street facility connections
Fort Worth Active Transportation Plan Priority Trail Project
#2: Marine Creek Trail Connection

General Description
This trail would complete a shared-use trail connection between the southern end of the existing trail through Saunders Park in the Stockyards District and the Trinity Trails. This connection would primarily follow the Marine Creek waterway. This project requires interagency coordination (rail).

Additional Project Considerations
- Major Thoroughfare/Highway Crossing(s)
- Rail Crossing(s)
- Interjurisdictional Connection
- Floodplain/Estimated Stream Crossing(s)
- Connects to Existing Trail System

Project Characteristics

<table>
<thead>
<tr>
<th>Trail Name/Location</th>
<th>Marine Creek Trail Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Limits</td>
<td>From 23rd Street (near the Stockyards) To Trinity Trails</td>
</tr>
<tr>
<td>Length (mi)</td>
<td>0.5</td>
</tr>
<tr>
<td>Facility Type</td>
<td>Trail</td>
</tr>
<tr>
<td>Proposed Veloweb</td>
<td>Yes</td>
</tr>
<tr>
<td>Project Status</td>
<td>Proposed Alignment</td>
</tr>
<tr>
<td>Estimated Project Cost</td>
<td>$2,200,000</td>
</tr>
<tr>
<td>Funding Source</td>
<td>TBD</td>
</tr>
<tr>
<td>Major Destinations</td>
<td>• Fort Worth Stockyards • Trinity Trails</td>
</tr>
</tbody>
</table>

Map of Marin Creek Trail Connection highlighting the trail's route and connections to major destinations.
Fort Worth Active Transportation Plan Priority Trail Project
#3: Bomber Spur Trail

General Description
This trail would complete the southern extension of the Bomber Spur Trail from the Ridgmar Mall area near I-30 to Vickery Boulevard and the City of Benbrook. This project would connect to the existing Trinity River trails via a planned on-street bicycle facility on Vickery Boulevard. This alignment primarily utilizes the former Bomber Spur rail corridor. This project requires interagency coordination (TxDOT).

Additional Project Considerations

| 3 | Major Thoroughfare/Highway Crossing(s) | Floodplain/Estimated Stream Crossing(s) |
|   | Rail Crossing(s)                      | Connects to Existing Trail System       |

<table>
<thead>
<tr>
<th>Major Destinations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ridgmar Mall area</td>
</tr>
<tr>
<td>• North Z Boaz Community Park</td>
</tr>
<tr>
<td>• City of Benbrook</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trail Name/Location</td>
</tr>
<tr>
<td>Project Limits</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Length (mi)</td>
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<td>Facility Type</td>
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<td>Proposed Veloweb</td>
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<tr>
<td>Project Status</td>
</tr>
<tr>
<td>Estimated Project Cost</td>
</tr>
<tr>
<td>Funding Source</td>
</tr>
</tbody>
</table>
Fort Worth Active Transportation Plan Priority Trail Project
#4: Sycamore Creek Trail

**General Description**

This trail would provide a shared-use trail connection between the existing Trinity River Trail north of I-30 (near Beach Street) and the existing trail in Sycamore Park. This project requires interagency coordination (TxDOT, rail).

**Additional Project Considerations**

- Major Thoroughfare/Highway Crossing(s): 2
- Rail Crossing(s): 2
- Floodplain/Estimated Stream Crossing(s): 1
- Connects to Existing Trail System: ✓
- Interjurisdictional Connection: 

**Project Characteristics**

<table>
<thead>
<tr>
<th>Trail Name/Location</th>
<th>Sycamore Creek Trail</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Limits</strong></td>
<td></td>
</tr>
<tr>
<td><strong>From</strong></td>
<td>Trinity River Trail</td>
</tr>
<tr>
<td><strong>To</strong></td>
<td>Sycamore Park</td>
</tr>
<tr>
<td><strong>Length (mi)</strong></td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Facility Type</strong></td>
<td>Trail</td>
</tr>
<tr>
<td><strong>Proposed Veloweb</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Project Status</strong></td>
<td>Proposed Alignment</td>
</tr>
<tr>
<td><strong>Estimated Project Cost</strong></td>
<td>$14,200,000*</td>
</tr>
<tr>
<td><strong>Funding Source</strong></td>
<td>TBD</td>
</tr>
</tbody>
</table>

**Major Destinations**

- Trinity Trails
- Sycamore Park

*Estimate does not include cost for on-street facility connections*
Fort Worth Active Transportation Plan Priority Trail Project
#5: Marine Creek Trail

General Description
This trail would provide a shared-use trail connection from the existing Marine Creek Lake Trail and the Tarrant County College - Northwest Campus Area north to Cromwell Marine Creek Road. This trail extension would add connectivity near the Northwest Branch Library, as well as a number of local schools and existing neighborhoods.

Additional Project Considerations

- Major Thoroughfare/Highway Crossing(s)
- Floodplain/Estimated Stream Crossing(s)
- Interjurisdictional Connection
- Connecting to Existing Trail System

Trail Name/Location
Marine Creek Trail

Project Limits
From: Cromwell Marine Creek Road
To: Marine Creek Lake Trail
Length (mi): 0.8
Facility Type: Trail
Proposed Veloweb: Yes
Project Status: Proposed Alignment
Estimated Project Cost: $2,700,000
Funding Source: TBD

Major Destinations
- Northwest Branch Library
- Marine Creek Lake
- Tarrant County College - Northwest Campus Area
**General Description**

This trail would provide a shared-use trail connection between the existing trail in Krauss Baker Park to the existing trail in Woodmont Park.

**Project Characteristics**

<table>
<thead>
<tr>
<th>Trail Name/Location</th>
<th>Krauss Baker Park/Woodmont Park Trail Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Limits</strong></td>
<td>From Krauss Baker Park (near McCart Ave) To Woodmont Park (near Woodmont Trl)</td>
</tr>
<tr>
<td>Length (mi)</td>
<td>0.4</td>
</tr>
<tr>
<td>Facility Type</td>
<td>Trail</td>
</tr>
<tr>
<td>Proposed Veloweb</td>
<td>Yes</td>
</tr>
<tr>
<td>Project Status</td>
<td>Proposed Alignment</td>
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<td>Estimated Project Cost</td>
<td>$1,900,000</td>
</tr>
<tr>
<td>Funding Source</td>
<td>TBD</td>
</tr>
</tbody>
</table>

**Major Destinations**

- Krauss Baker Park
- Woodmont Park

**Additional Project Considerations**

- **2** Major Thoroughfare/Highway Crossing(s)
- Floodplain (no estimated stream crossings)
- Connects to Existing Trail System

**Proposed Facilities**

- Trail
- Sidewalk
- Bicycle Facility
- Natural Surface Trail

**Existing and Funded Facilities**

- Urban Villages
- City of Fort Worth
- Other Cities
- TexRail Stations
- Public Park
- Water
- River
- Rail
TRAIL DESIGN TOOLBOX

Introduction

The Trail Design Toolbox describes the design criteria that the Fort Worth Active Transportation Plan recommends for trails that run in an independent right-of-way. This toolbox is divided into three sections:

1. Trail Network Classifications
   A. Spines
   A. Ribs
   A. Local Trails
2. Trail Amenity Accommodation Checklist
3. Trail Design Best Practices
   A. Trailheads
   A. Creating Trail Identity
   A. Lighting
   A. Signage & Wayfinding
   A. Intersections & Crossings

To guide the future development of trails in Fort Worth, a range of design standards have been developed to accommodate different conditions based on the current or anticipated level of activity and user type. Providing a range takes into account the many constraints and particularities of varying trail settings. This flexible approach to trail design aims to maintain superior standards and ensures that all users can feel comfortable using active transportation facilities all over the City of Fort Worth.
Trail Classifications

Trail classifications bring a context-sensitive approach that uses the anticipated function to inform how the trail should be designed. The trail network was designed by classifying all trails into three categories:

- Spines
- Ribs
- Local Trails

Trails classified as Spines act as the primary backbone for the network and largely incorporate the Regional Veloweb network. They emphasize long-distance connectivity and create major cross-town connections.

Branching off of the spine trails are the Ribs. The primary purpose of these trails is to connect spine trails to neighborhoods and make non-regional connections.

Local Trails are the final network level and make the last-mile connections to destinations and neighborhoods.
Network Classifications: Spines

Description
Spine trails are the highest level of trail classification. They make regional connections and accommodate large volumes of users.

Design
The standard width of a spine should ideally be between 12 and 16 feet. The width may go down to 10 feet in constrained conditions. An operational study should be conducted to determine the appropriate width of trails based on context and projected volume of users. Since spine trails need to be able to serve large volumes of users, and potentially emergency vehicles, the recommended surface material is Portland cement concrete.

The following design elements, including shoulder width, vertical clearance, maximum cross slope, and maximum grade for spine trails, were all determined according to AASHTO design recommendations.

Design Elements

<table>
<thead>
<tr>
<th>Design Element</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Width</td>
<td>12’ – 16’</td>
</tr>
<tr>
<td>Minimum Width</td>
<td>10’</td>
</tr>
<tr>
<td>Easement Width</td>
<td>25’ – 35’ Depending on width of trail</td>
</tr>
<tr>
<td>Surface Material</td>
<td>Concrete</td>
</tr>
<tr>
<td>Shoulder Width</td>
<td>3’</td>
</tr>
<tr>
<td>Horizontal Clearance</td>
<td>2’</td>
</tr>
<tr>
<td>Vertical Clearance</td>
<td>10’ 12’ for emergency vehicles</td>
</tr>
<tr>
<td>Maximum Cross Slope</td>
<td>2%</td>
</tr>
<tr>
<td>Maximum Grade</td>
<td>5%</td>
</tr>
<tr>
<td>Design Speed</td>
<td>18 mph</td>
</tr>
<tr>
<td>Pavement Thickness</td>
<td>5” 6” for PARD 6” for TRWD</td>
</tr>
</tbody>
</table>

Dual-Track Alternative
If a trail consistently has higher volumes of users, there may be a need to separate wheeled users from pedestrians. In these cases, a spine may be designed as a dual-track path. This design dedicates 10 feet of width to bicyclists and 5 feet to pedestrians.

Centerline striping, directional arrows, and mode symbols should be used on spines where directions and modes are separated. Centerlines can be painted or represented by a change in surface.

Traffic Calming
If bicyclists regularly ride at speeds that reduce comfort or safety for other users, traffic calming techniques can be applied: speed limit signs, slow zones, center islands, and chicanes.
Network Classifications: Ribs

Description
Trails classified as ribs provide important connections, dispersing spine traffic out to their final destinations.

Design
The standard width of a rib trail is 12 feet with 10 feet as a minimum. The surface material of rib trails can be either concrete or asphalt, depending on the local context.

The following design elements, including shoulder width, vertical clearance, maximum cross slope, and maximum grade for rib trails, were all determined according to AASHTO design recommendations.

Design Elements

<table>
<thead>
<tr>
<th>Standard Width</th>
<th>10’ – 12’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Width</td>
<td>10’</td>
</tr>
<tr>
<td>Easement Width</td>
<td>25’</td>
</tr>
<tr>
<td>Surface Material</td>
<td>Concrete or Asphalt</td>
</tr>
<tr>
<td>Shoulder Width</td>
<td>2’</td>
</tr>
<tr>
<td>Vertical Clearance</td>
<td>10’</td>
</tr>
<tr>
<td>Maximum Cross Slope</td>
<td>2%</td>
</tr>
<tr>
<td>Maximum Grade</td>
<td>5% 8.33% for segments &lt;200’</td>
</tr>
<tr>
<td>Design Speed</td>
<td>18 mph</td>
</tr>
</tbody>
</table>
Network Classifications: Local Trails

Description
Local trails serve as the final connection to common destinations for bicyclists. Destinations may include anything from a local neighborhood to downtown. These trails may be narrower than spine and rib trails because they tend to have lower user volumes.

Design
On local trails, the preferred width is 10 feet, and the minimum width is 8 feet. Concrete is the preferred material in most contexts, but asphalt, crushed limestone or other materials may be used at the direction of the appropriate City agency. Default to the relevant agency design standards.

The shoulder width, vertical clearance, maximum cross slope, and maximum grade for local trails were all determined according to AASHTO design recommendations.

Design Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Width</td>
<td>10’</td>
</tr>
<tr>
<td>Minimum Width</td>
<td>8’</td>
</tr>
<tr>
<td>Easement Width</td>
<td>20’</td>
</tr>
<tr>
<td>Surface Material</td>
<td>Concrete (preferred), Asphalt, or Limestone</td>
</tr>
<tr>
<td>Shoulder Width</td>
<td>Optional</td>
</tr>
<tr>
<td>Vertical Clearance</td>
<td>10’</td>
</tr>
<tr>
<td>Maximum Cross Slope</td>
<td>2%</td>
</tr>
<tr>
<td>Maximum Grade</td>
<td>5 – 8.33% for &lt;200’ or 8.33 – 10% for &lt;30’</td>
</tr>
<tr>
<td>Design Speed</td>
<td>15 mph</td>
</tr>
</tbody>
</table>
Trail Amenity Checklist

Recommended Amenities

Trail amenities are essential for improving user experience and enhancing trail safety. The following list of amenities are recommended on all trails in Fort Worth:

- **Bicycle Parking** allows trail users to safely park their bicycles if they wish to stop along the way, particularly at parks and other destinations.

- **Maps and Wayfinding** allow users to navigate the trail system. Information kiosks with maps at trailheads and wayfinding signs can provide all the information that someone would need to use the trail system to reach key destinations. The Trinity Trails App provides information on the location of restrooms, 911 signs, trail parking, and kayak launch sites.

- **Pedestrian-Scale Lighting** improves safety by providing night-time visibility and the perception of security. Lighting allows the trail to be used throughout the evening.

- **Reference Location Markers** communicate the trail name and reference location in miles approximately every 1,000 feet. This includes 911 emergency markers.

- **Trash Receptacles and Dog Waste Pick-Up Stations** help keep the trails clean and litter free. Periodic containers at access points should be provided, and regularly trash collection service is key.

- **Fix-It Stations** provide basic tools that can be used to address common repair problems that may occur during a bike ride.

Figure 13. Trail Amenities in Fort Worth.
Optional Amenities

The following trail enhancements are provided in strategic locations and can further enhance trail users’ comfort and safety.

- **Art Installations** make a trail system distinct and can reflect local culture or history.
- **Bike Share** bicycles are made available for shared use on a short-term basis for the cost of a daily or annual membership fee. Fort Worth Bike Sharing provides stations across the central city of Fort Worth.
- **Drinking Fountains** provide drinking water for people (and pets in some cases).
- **Trailhead Maps** provide trail users with information and the rules of the trail. A legible trail system map with a “you are here” marker is helpful for orientation.
- **Landscaping** should consider practical and aesthetic appeal, including trees for shade and native, low-maintenance plants.
- **Restrooms** shall be ADA accessible and are particularly appropriate at major trailheads. There are also many existing restrooms in City parks along trail routes.
- **Shade Pavilions** give trail users a respite from the sun and weather. Shade pavilions should include furniture for trail users to take a break or have a picnic.
- **Trail Furniture** encourages people of all ages to use the trail by ensuring that they have a place to rest along the way. Benches can be provided at rest areas and viewpoints, as well as periodically along longer routes.
Trail Design Best Practices

**Trailheads**

It is important that trails are designed to be accessed at multiple points.

Long stretches of trail with no access points can feel isolated to users. More access points and intersections also increase a sense of security because they create moments of visibility and permeability between the trail and surrounding uses. They also provide opportunities for people to exit the trail if they suddenly feel unsafe. Access points should be no more than ¼ mile to a ½ mile apart, and placement of access points should take into consideration the nearby on-street transportation network, transit stops, bike share stations, and points of interest. Access points should provide adequate signage and wayfinding, though they do not all need to be designed as trailheads.

Creating Trail Identity

Trails are a source of community identity and pride. These effects are magnified when communities use trails to highlight and provide access to historic and cultural resources. Many trails themselves preserve historically significant transportation corridors.

The City of Fort Worth has a rich historical background that can be incorporated into many different trail projects such as the Trinity Trails, the Bomber Spur, and the Cotton Belt Trail. Incorporating a unified vision and character into a trail’s design can help transform trails from basic transportation corridors into cherished community gathering places.
**Lighting Placement**
Trail lighting is recommended at the following locations:

- Under vehicular bridges, underpasses, tunnels, or locations with limited visibility
- Along bridges used by bicycles and pedestrians
- Along routes or trail segments where frequent evening or nighttime use is anticipated
- On routes that are within ¼ mile from Trinity Metro transit stations, near schools and major employers
- Along high-use portions of trails that lead to areas with frequent evening events
- At trail intersections with roadways or driveways where crossing is required
- At major trail entrances/trailheads

**Other Factors**
Other factors to consider when planning lighting elements for a trail include:

- Limit lighting in natural and undeveloped areas to mitigate environmental disturbance, or use light fixtures designed to minimize negative impacts
- Consider timed lighting for commuting (e.g. evening and early dawn)
- Consider other needs of users related to nighttime and evening use (e.g., security measures)
- Include signage or information for trail users to notify the City if a light is out or damaged
- Artificial nighttime lighting should be turned off after curfew along riparian corridors and other less-developed areas.
- Trail lighting is not permitted on Oncor easement alignments
Signage and Wayfinding
Appropriate and helpful signage is essential to making users comfortable along extensive trail systems. The elements of a well-designed signage system include:

- Uniformity and Design
- Legibility
- Placement
- Safety
- Communication
- Awareness

Design Factors

Uniformity and Design
City staff and stakeholders should work together to create a streamlined design for wayfinding signs that allows trail users to easily identify, understand, and navigate the network.

Legibility
The shape, size, text, and icons on a sign should be legible for users of all ages and for both locals and visitors. They should also be easy to understand for English and non-English speakers, as well as visually impaired people. For important messages conveyed by text, consider including a Spanish translation.

Placement
Signs should be placed at entrances, intersections, and at forks in the trails to inform and guide trail users. Such signage aims to inform users of all directional options, nearby destinations, and attractions.

Communication
Signage should convey distance, direction, and destination. Trail etiquette signage conveys appropriate speed and “keep right, pass left” messages.

Awareness
In order for more people to use the trails, they need to know that they exist, where they are located, and how to access them. Better wayfinding and signage can attract more users.
**Intersections and Crossings**

It is important to properly design crossings to provide the safest situation for all users. Poorly designed or regulated crossings can lead to people disregarding traffic control measures, which reduces safety for everyone. The sign types, pavement markings, and crossing types will depend on the local conditions at each crossing.

**Mid-Block Roadway Crossings**

Mid-block trail crossings should be properly signed and marked. The crossing should be perpendicular to the street to minimize the crossing length. The approaching path can also have a horizontal curve in advance of the crossing to help slow down trail users as they approach. Mid-block crossings are not recommended on roadways with posted speeds of 40 MPH or greater unless a signal is installed.

**Trail Bridges and Underpasses (Grade-Separated Crossings)**

Bridges and underpasses are permitted when grade separation is needed for crossing a roadway or railroad, or when the natural topography cannot accommodate trail requirements such as streams or hills.

Bridges should be at least 1-2 feet wider than the trail on each side to allow users to stop without obstructing the trail and to provide a clearance for bicyclists from the adjacent railings.

When designing a trail to accommodate bicycles across a high bridge, such as a bridge that goes over a body of water or major roadway, railing should be provided. AASHTO recommends a railing height of 42” – 48” depending on the site location. The railing design should also consider sight lines of pedestrians and bicyclists. Bridge approaches and span should not exceed 5% slope ADA access. Underpasses should be built to allow a vertical clearance of at least 10 feet.

Refer to the 2019 Fort Worth Traffic Engineering Manual (TEM) for further guidance on bicycle facility design on bridges.

**Multi-Use Trail**

Users should be given adequate advance notice of intersections between two trails. Advanced warning signs, such as the MUTCD Intersection Warning signs (See Figure 15) or directional signs should be placed near the intersection. Advanced warning signs should be placed a minimum of 50 feet from the crossing and directional signs could be placed on the corners. The crossing paths should try to be aligned at a 90-degree angle when possible. The line of sight as the two trails converge should be kept clear of obstructions. Roundabout style intersections are also permitted as an alternative.
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