Fort Worth
Active Transportation Plan
Data Driven Analysis

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City of Fort Worth
Transportation and Public Works

Presentation Overview

• Overview of Active Transportation Plan
• Review data driven approach to measuring pedestrian and bicycle comfort
• Overview of prioritization criteria and outputs
What is Active Transportation?

People who walk (including persons with disabilities), use transit, and bicycle creating a citywide seamless network of on- and off-street bicycle and pedestrian ways suitable for people of all ages and abilities

- Update: Walk Fort Worth plan
- Update: Bike Fort Worth plan
- New: Trail Master Plan
- Coordination: Master Thoroughfare Plan, Transit Moves Fort Worth, Complete Streets, Race and Culture Task Force

Project funding

- Partnership with NCTCOG
  - Authorized Interlocal Agreement June 6, 2017
  - M&C C-28249
- Total project cost: $500,000
  - NCTCOG $250,000
  - Fort Worth $215,000 cash match plus $35,000 in-kind staff time
Project Stakeholder Committee

- Stakeholders representing 53 groups guided project progress, including:
  - Methodology and approach
  - Policy and prioritization
  - Plan recommendations
- Committee met five times with project staff

AARP
Area Agency on Aging/United Way
Bike Friendly Fort Worth
Blue Zones Project
Central City Committee
Clear Fork Bicycle Club
Cultural District Alliance
Development Advisory Committee
Downtown Fort Worth Inc
FitWorth
Fort Worth Bike Share
Fort Worth Safe Communities Coalition
Fort Worth League of Neighborhoods
Greater Fort Worth Association of Realtors
Greater Fort Worth Builders Association
Independent School Districts
Mayor’s Cmte. On Persons With Disabilities
MedStar
Mental Health Mental Retardation
Near South Side, Inc.
North Fort Worth Alliance

Oncor
Park & Recreation Advisory Board
Pedestrian and Bicycle Advisory Commission
Real Estate Council
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
UNT Health Science Center
YMCA

Existing Conditions
Existing Plans and Conditions

- Bike Fort Worth plan adoption (2010)
- Safe Passing Ordinance (2011)
- Walk Fort Worth plan adopted (2014)
- Blue Zones Project kicks off (2014)
- City of Fort Worth received Bicycle Friendly Community Designation, League of American Bicyclists (2016)
- Complete Streets Policy adopted (2016)
- Master Thoroughfare Plan update adopted (2016)

Existing Conditions

- Fort Worth Commute Rates
  - 1.2% walk, 1.4% use transit and .01% commute by bike

- Pedestrian Crashes
  - Deaths increased from 11 in 2010 to 36 fatalities in 2018
  - Since 2010, pedestrians accounted for 15.5% of all road deaths

- Bicycle Crashes
  - Top crash causes were driver inattention, failure to yield
Designing for Comfort and Safety

Sidewalk, trail, and bike design should meet the needs of all users, of all ages and abilities:

- Appropriately designed for **land use context**
- **ADA accessible** curb ramps and signals
- Appropriately **wide sidewalks** with buffers from traffic
- Separated sidepaths along busy roadways
- Buffered and separated bike lanes

Complete Streets and Context Sensitivity

Complete Street (**Policy**): Provide transportation options for all users, process – not product

Context Sensitive (**Implementation**): As the land use context changes, so does the infrastructure
Pedestrian Comfort Analysis (Pedestrian Experience Index)

Sidewalks: Not a New Concept

Raised Crosswalk?!
Design Considerations: 
People walking

What a street prioritized for motor vehicles looks like from the pedestrian realm.
Karl Jilg/Swedish Road Administration
What makes a good pedestrian experience?

**Intersections**
- Fewer lanes to cross
- Lower traffic speeds
- ADA curb ramps present
- Traffic lights/stop signs present

**Infrastructure**
- A sidewalk is present and good condition
- Posted traffic speeds are lower and there are fewer traffic lanes
- Car parking or bike lane provides a buffer

**Building and Land (in high density)**
- Blocks are relatively short
- Mid-block crossings on long blocks
- Buildings are close to the sidewalk, not setback too far
- Fewer driveways to cross
- More address (destinations) on the block
Street Parking

Driveways
Intersection Scoring

Scored on 1 - 4

- Number of Lanes: 1: 2 lanes 4: >5 lanes
- Posted Speed Limit: 1: 30mph 4: >40mph
- Average Daily Traffic: 1: ≤1,200 4: ≥18,000
- ADA Curb Ramps: 1: 4 corners 4: 0 ramps

Score Improved By:

- Traffic Signal
- Crosswalk across major road
Existing Conditions – Walking Level of Comfort

- Streets without sidewalks are less comfortable
- High speed and volume roadways and intersections are barriers
- Curb ramps are required for travel for persons with disabilities

Bicycle Stress Analysis
(Bicycle Level of Traffic Stress)
**Basis of Analysis**

*Types of Bicyclists in North Central Texas Council of Governments Region*

- **Interested But Concerned**
  - 37% of the population
  - Prefer trails, paths, separated bike lanes, or quiet streets, often residential streets. They may not bike at all if bicycle facilities do not meet needs for personal comfort.

- **Enthusiastic & Confident**
  - 14% of the population
  - Prefer more separated bicycle facilities, but will ride in bicycle lanes or separated shoulders if need be.

- **Strong & Fearless**
  - 2% of the population
  - Comfortable riding with traffic and will use roads without bike facilities.

<table>
<thead>
<tr>
<th>Level of Traffic Stress</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
<td>Safe for children to use; Usually completely separated from auto traffic</td>
<td><img src="image1.png" alt="Example 1" /></td>
</tr>
<tr>
<td><strong>2</strong></td>
<td>Tolerated by most mainstream adult populations of cyclist. Roads with low volume and low speed auto traffic</td>
<td><img src="image2.png" alt="Example 2" /></td>
</tr>
<tr>
<td><strong>3</strong></td>
<td>Tolerated by riders who are enthusiastic and confident. Heavy traffic with separated bike facility</td>
<td><img src="image3.png" alt="Example 3" /></td>
</tr>
<tr>
<td><strong>4</strong></td>
<td>Only tolerated by strong and fearless riders. Cyclists must interact with high volumes or speeds of auto traffic</td>
<td><img src="image4.png" alt="Example 4" /></td>
</tr>
</tbody>
</table>
Roadway Traffic Stress

- Speed of traffic
- High number of travel lanes
- High traffic volume
- Presence of comfortable bike facility

Effect on Stress

Bicycle Facility Selection

- Applies to roadways not assigned a cross-section in the Master Thoroughfare Plan
- Assists in planning **appropriate bicycle facility** based on roadway and land use context
- Eliminates improper facility selection (e.g., bike lane on high speed roadway)
Case Study: Forest Park

- ADT ~15,000/day
- Residential land use
- Posted speed limit: 35
- No on-street parking
- Original configuration: 4-lane undivided
- New configuration: 2-lane/direction; TWLTL; 5’ bike lanes
- Level of Traffic Stress: 3
- Most common complaint: “I never see anyone biking”
- LTS 1 would suggest a separated bike lane or sidepath

Intersection Bicycle Crash Exposure

<table>
<thead>
<tr>
<th>Exposure Level: High</th>
<th>Exposure Level: High to Medium</th>
<th>Exposure Level: Medium to Low</th>
<th>Exposure Level: Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONVENTIONAL BIKE LANES AND SHARED LANES</td>
<td>SEPARATED BIKE LANES WITH MIXING ZONES</td>
<td>SEPARATED BIKE LANES THROUGH ROUNDABOUTS</td>
<td>PROTECTED INTERSECTIONS</td>
</tr>
</tbody>
</table>
Intersection Traffic Stress

- Speed of cross traffic
- Number of lanes to cross
- Intersection control

Effect on Stress

Common Bicycle Intersection Design

- Install cross hatch
- Install edge line
- Install stripes
- Install bike lane symbol and arrow
- Install dots
- Install stopbar
- Install crosswalk
Existing Conditions – Bicycling Level of Comfort

- Residential streets are inherently more comfortable
- Intersections provide a barrier for travel
- High speed and volume roadways and intersections are barriers
- Bike lanes on high-speed thoroughfares are not comfortable for a majority of people bicycling
Prioritization

Prioritization Criteria

<table>
<thead>
<tr>
<th>Prioritization Factor</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Sidewalks</td>
<td></td>
</tr>
<tr>
<td>Bikeways</td>
<td></td>
</tr>
<tr>
<td>Trails</td>
<td></td>
</tr>
<tr>
<td>Equity</td>
<td>40%</td>
</tr>
<tr>
<td>Veloweb/Spine</td>
<td>30%</td>
</tr>
<tr>
<td>Connectivity</td>
<td>25%</td>
</tr>
<tr>
<td>Demand</td>
<td>30%</td>
</tr>
<tr>
<td>Crash History</td>
<td>20%</td>
</tr>
<tr>
<td>Comfort</td>
<td>5%</td>
</tr>
<tr>
<td>Stakeholder Input</td>
<td>5%</td>
</tr>
<tr>
<td>Funding</td>
<td>10%</td>
</tr>
<tr>
<td>Feasibility</td>
<td>10%</td>
</tr>
</tbody>
</table>

10% bonus
Sidewalk Gap Costs

<table>
<thead>
<tr>
<th>Sidewalk Gap Areas</th>
<th>All</th>
<th>Priority (Top 300)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Citywide</td>
<td>3,740 $3,612,900,000</td>
<td>151 $145,900,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Super Majority-Minority Areas</td>
<td>1,530 $1,478,000,000</td>
<td>140 $135,300,000</td>
<td></td>
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</tr>
<tr>
<td>Near Transit</td>
<td>1,319 $1,274,200,000</td>
<td>104 $100,500,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In High Disability Areas</td>
<td>1,127 $1,088,700,000</td>
<td>112 $108,200,000</td>
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<tr>
<td>Near Schools</td>
<td>939 $907,100,000</td>
<td>51 $49,300,000</td>
<td></td>
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</tr>
<tr>
<td>Near Higher Education</td>
<td>160 $154,600,000</td>
<td>16 $15,500,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Bicycle Network Costs

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Mileage</th>
<th>Cost Opinion</th>
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</thead>
<tbody>
<tr>
<td>On-street bicycle facilities</td>
<td>442</td>
<td>$40,500,000</td>
</tr>
<tr>
<td>Top 150 Projects</td>
<td>120</td>
<td>$21,300,000</td>
</tr>
</tbody>
</table>
Trail Network Costs

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Mileage</th>
<th>Cost Opinion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Trails</td>
<td>240</td>
<td>$ 714,500,000</td>
</tr>
<tr>
<td>Top 20 Trails</td>
<td>30</td>
<td>$ 168,200,000</td>
</tr>
</tbody>
</table>

Next Steps

- Vision Zero Policy
- Comprehensive Sidewalk Policy
- Coordination of prioritized projects
- Process improvements – Complete Streets
Additional Resources

Contact

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Questions?