

BIKE AND PEDESTRIAN DATA COLLECTION IN THE DALLAS-FORT WORTH REGION

North American Travel Monitoring
Exposition and Conference (NATMEC)

Karla Weaver, AICP
May 3, 2016



Regional Planning in North Texas

2

Metropolitan Planning Area (MPA)

12 Counties = 9,441 sq. mi.*

209 cities

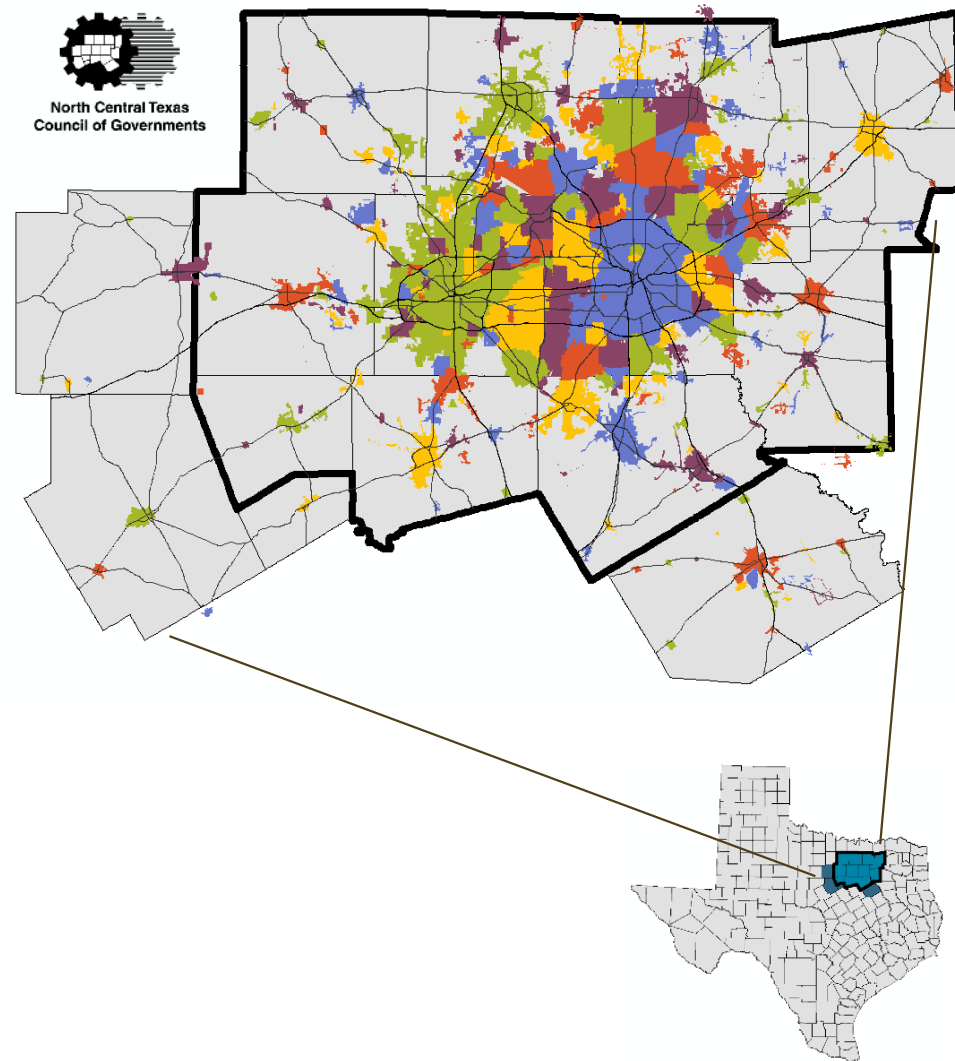
13 cities larger than 100,000 pop.

*Land area larger than the states of New Hampshire, New Jersey, Connecticut, Delaware, and Rhode Island.

MPA Population

2017 Estimate = 7.2 million

2040 Forecast = 10.7 million



Overview

3

US Census: American Community Survey

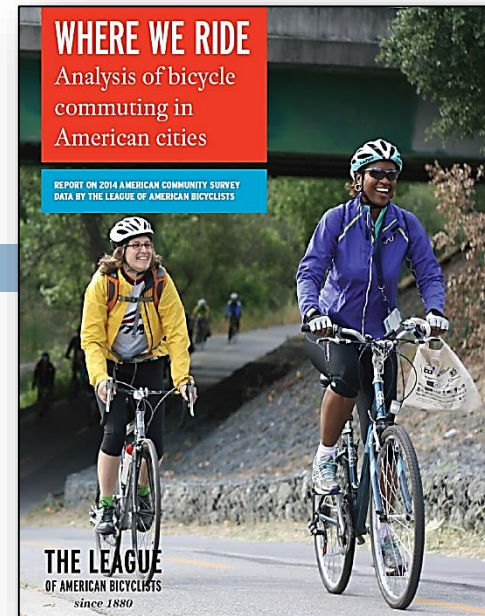
http://www.bikeleague.org/sites/default/files/Where_We_Ride_2014_data_web.pdf

State of Texas

- ▣ 0.3% Bike Commuters
- ▣ 19% Increase in Bike Commuters 2005-2014 (Ranked 40th)

Top 70 Largest Cities (Share of Bike Commuters)

- ▣ Portland: 7.2% **Ranked 1st*** (306.6% Growth**)
- ▣ Austin: 1.3% **Ranked 19th** (44.4% Growth)
- ▣ Houston: 0.6% **Ranked 47th** (22.1% Growth)
- ▣ San Antonio: 0.3% **Ranked 57th** (109.9% Growth)
- ▣ **Fort Worth: 0.3%** **Ranked 59th** (112.4% Growth)
- ▣ **Dallas: 0.2%** **Ranked 63rd** (71.0% Growth)
- ▣ **Arlington: 0.1%** **Ranked 69th** (-23.3% Growth)



*Rank based on 2012 commuter rate

**Growth from 2000-2014

FHWA Peer Exchange, May 2013

4



Transportation Planning Capacity Building (TPCB) Peer Program

North Central Texas Council of Governments Peer Exchange on Bicycle and Pedestrian Count Programs

A TPCB Peer Exchange

Location: Arlington, Texas

Date: May 29, 2013 – May 30, 2013

Host Agency: North Central Texas Council of Governments (NCTCOG)

Peer Agencies: Colorado Department of Transportation (CDOT)
Delaware Valley Regional Planning Commission (DVRPC)
Metropolitan Transportation Commission (MTC)
Texas A&M Transportation Institute (TTI)

Federal Agencies: Federal Highway Administration (FHWA)
Volpe Center



U.S. Department of Transportation

Federal Highway Administration • Federal Transit Administration

- Two-Day TPCB Peer Exchange at NCTCOG
- Peer Agencies Provided Guidance to Setup and Operate a Count Program
 - ▣ Performance Measures
 - ▣ Type of Equipment
 - ▣ Count Locations and Frequency
 - ▣ Data Management
- Selected Peers:
 - ▣ CDOT DVRPC
 - ▣ MTC TTI

[Peer Exchange Report is Available Online](#)

Why Do we Want to Count?

5

- ▣ Provide Data About Actual Non-motorized Travel Volumes (Mobility Plan Performance Measures)
- ▣ Inform the Public and Decision Makers About Actual Usage and Travel Patterns
- ▣ Analyze Trends
- ▣ Evaluate the Impacts of Specific Projects (before/after)
- ▣ Help Prioritize Funds for Bicycle and Pedestrian Infrastructure
- ▣ Relevance!
 - “If it’s not counted, it doesn’t count” – Bill Schultheiss, Toole Design Group

Why Count at the Regional Level?

6

Guidelines and Quality Control
Procedures for Data Collection
(consistency throughout the region)

Regional Clearinghouse for Data
and Reports

Integrate with the Regional *Traffic*
Count Information System

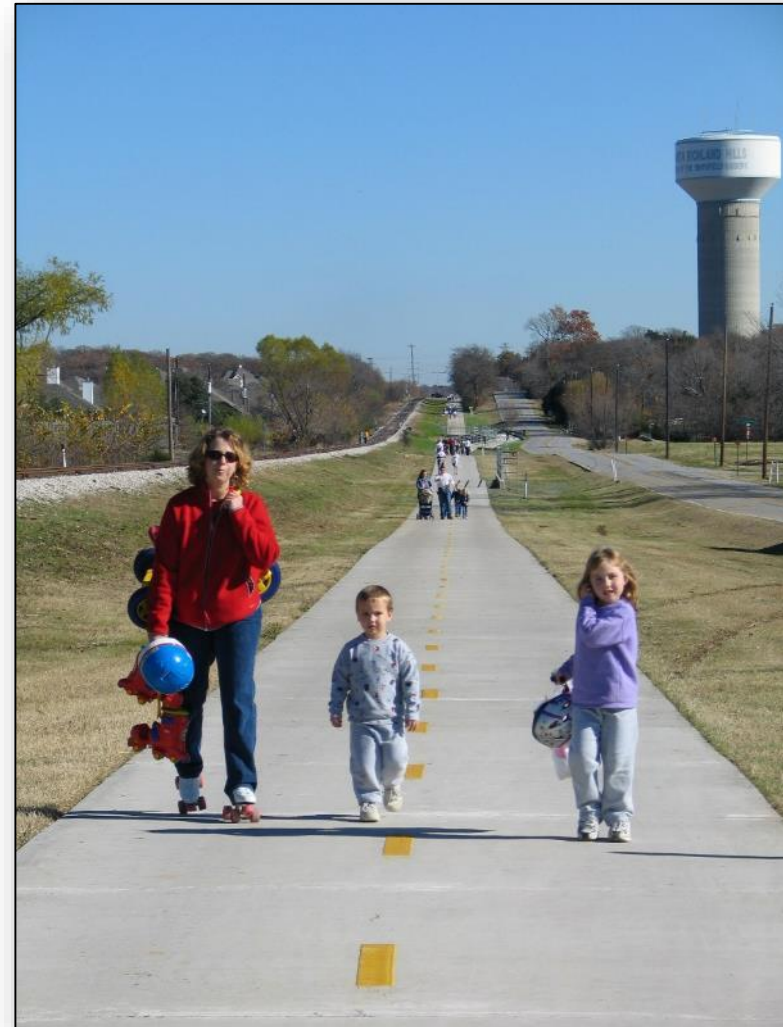


Overview

7

- What to Count
 - ▣ Ongoing Counts of (nonmotorized) Bicycle and Pedestrian Travel Volumes

- Where to Count
 - ▣ Shared Use Paths (off-street trails)
 - ▣ On-street Bicycle Facilities
 - ▣ Regionally Significant Corridors Near Employment Centers, Transit, Schools, Major Destinations
 - ▣ Urban and Suburban Mix



How to Count?

Technology – Permanent Equipment

8

Permanent Count
Equipment is Used on
Shared Use Paths



Infrared and Inductive Loop Combination



Technology and Specifications

9

- 15-minute Count Intervals
- 24-hrs day/ 7 days Week
- Alert System if Count Disruptions Occur
- Automated Daily Data Transmission to the Cloud
- Web-based Software to Manage Data

Technology – Mobile Equipment

10

Short Term Counts



Tubes

Infrared Sensor with
Direction Detection



Tubes with
Infrared Sensor Box
Installed

Biggest take away from the report...

11

JUST DO IT!

Bicycle/Pedestrian Count Program Equipment in the Region

12

Permanent Equipment

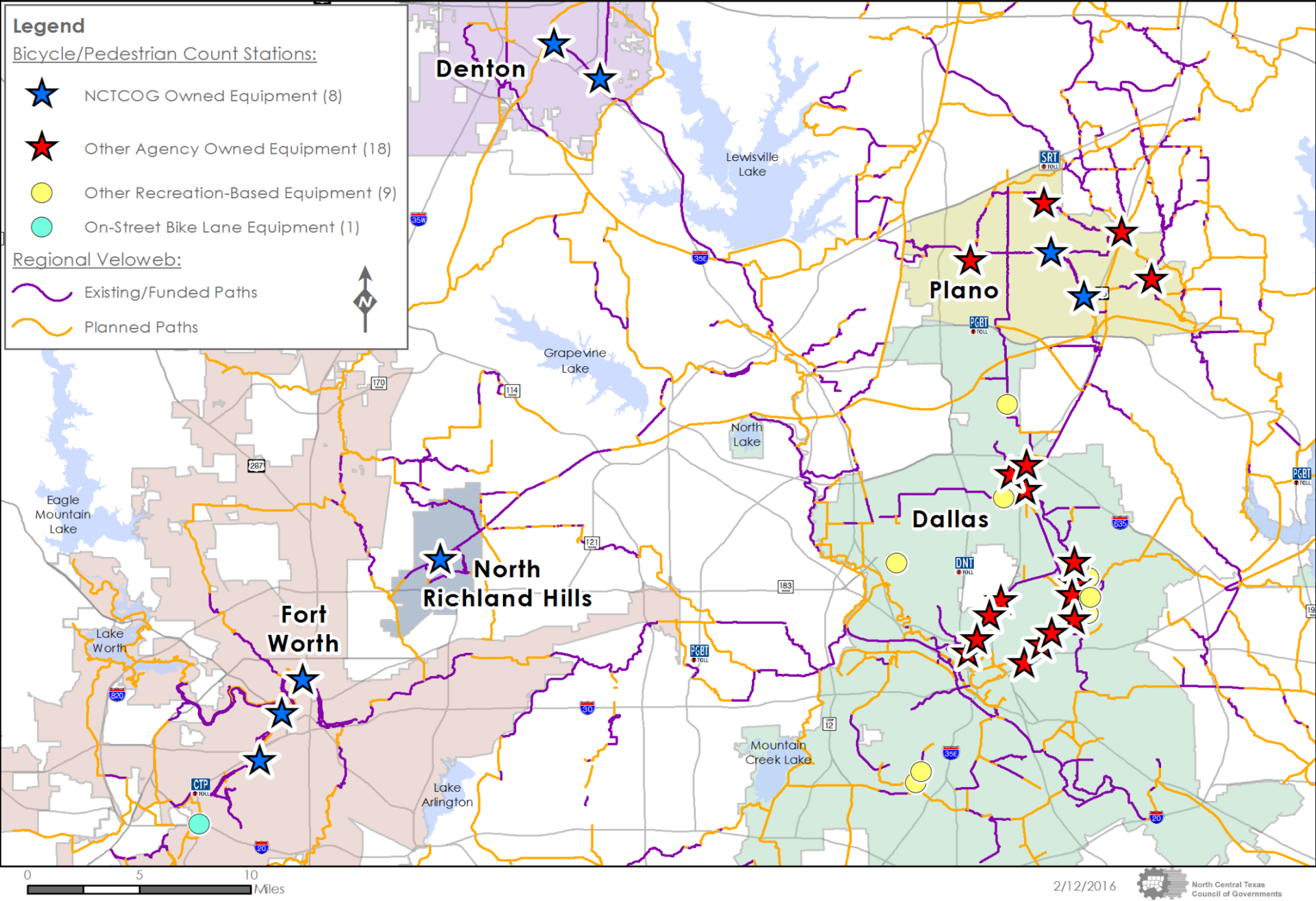
- NCTCOG (9) Shared Use Path *(in the report)*
- Plano (4) Shared Use Path *(in the report)*
- Dallas (26) Shared Use Path *(14 in report)*
- Fort Worth (2) On-street
- Grapevine (1) Shared Use Path

Mobile Equipment

- NCTCOG (2) Shared Use Path and (2) On-Street
- Tarrant Regional Water District (TRWD) (1) Shared Use Path

Equipment in Green boxes was purchased through a cooperative purchase agreement.

Bicycle and Pedestrian Count Stations in the North Central Texas Region



2015 Data Overview

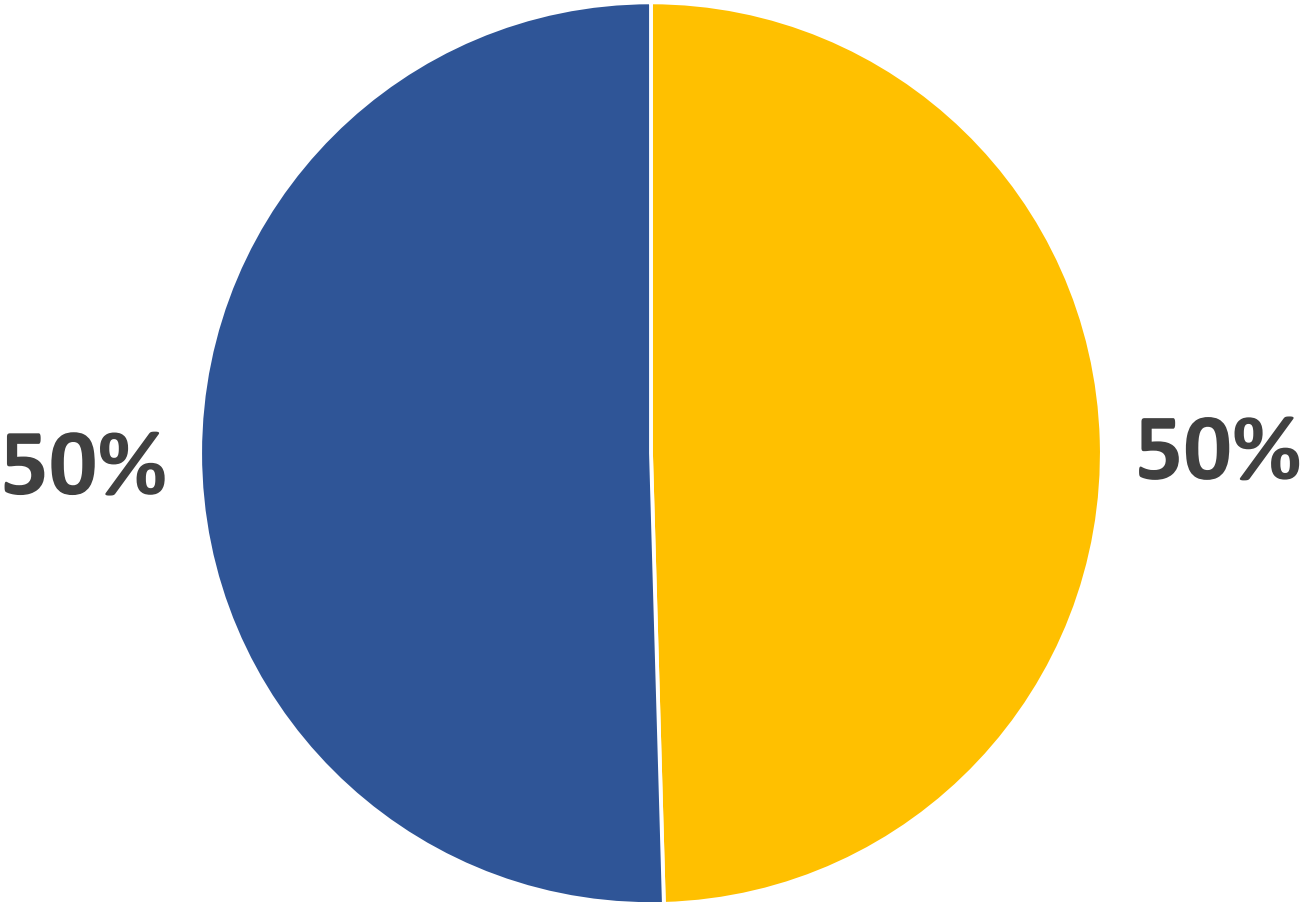
14

26 Locations: 4.2 Million Bicyclists and Pedestrians Counted



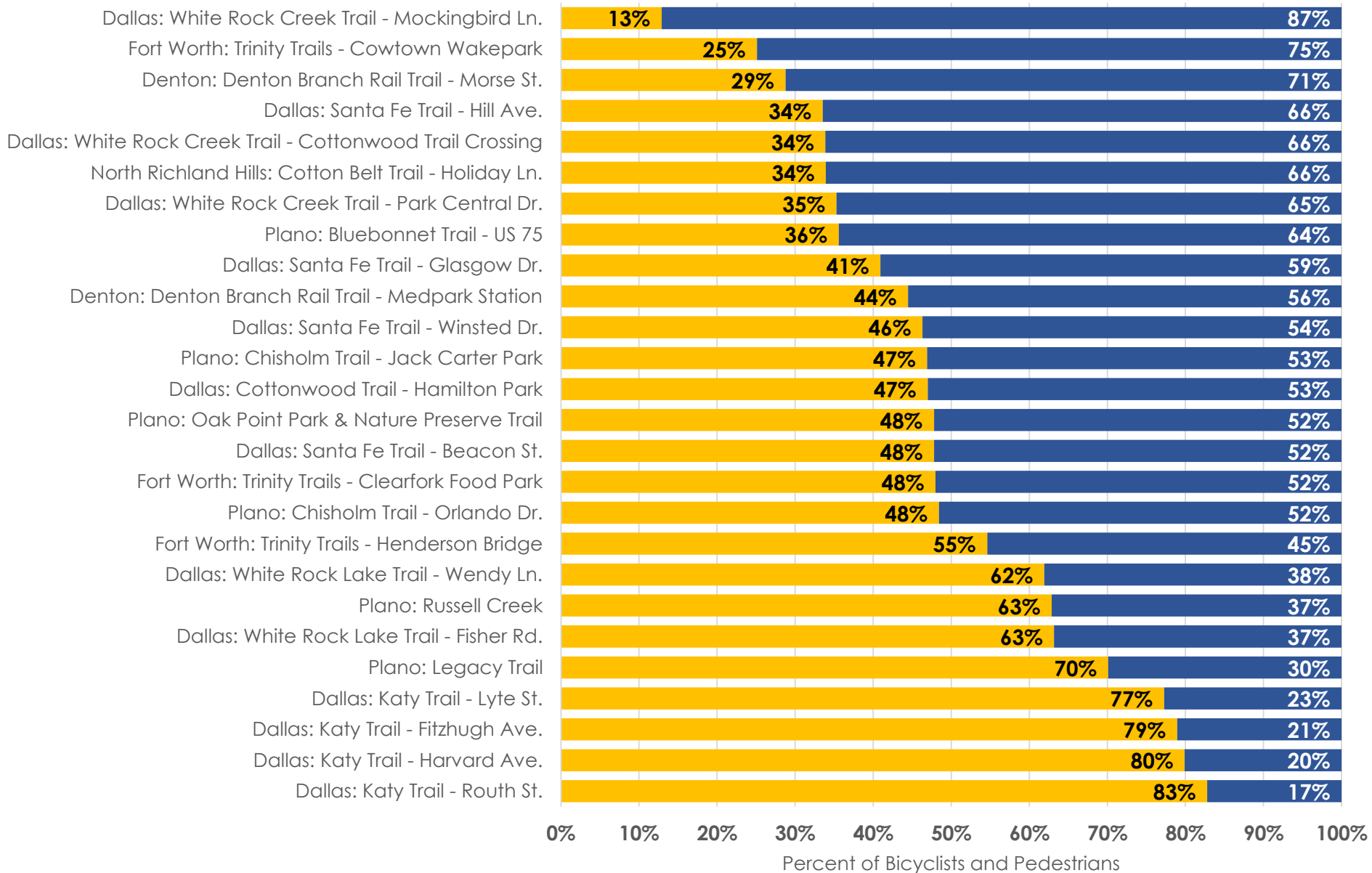
Regional Average Mode Share Split of Count Stations in the North Central Texas Region

■ Pedestrians ■ Bicyclists



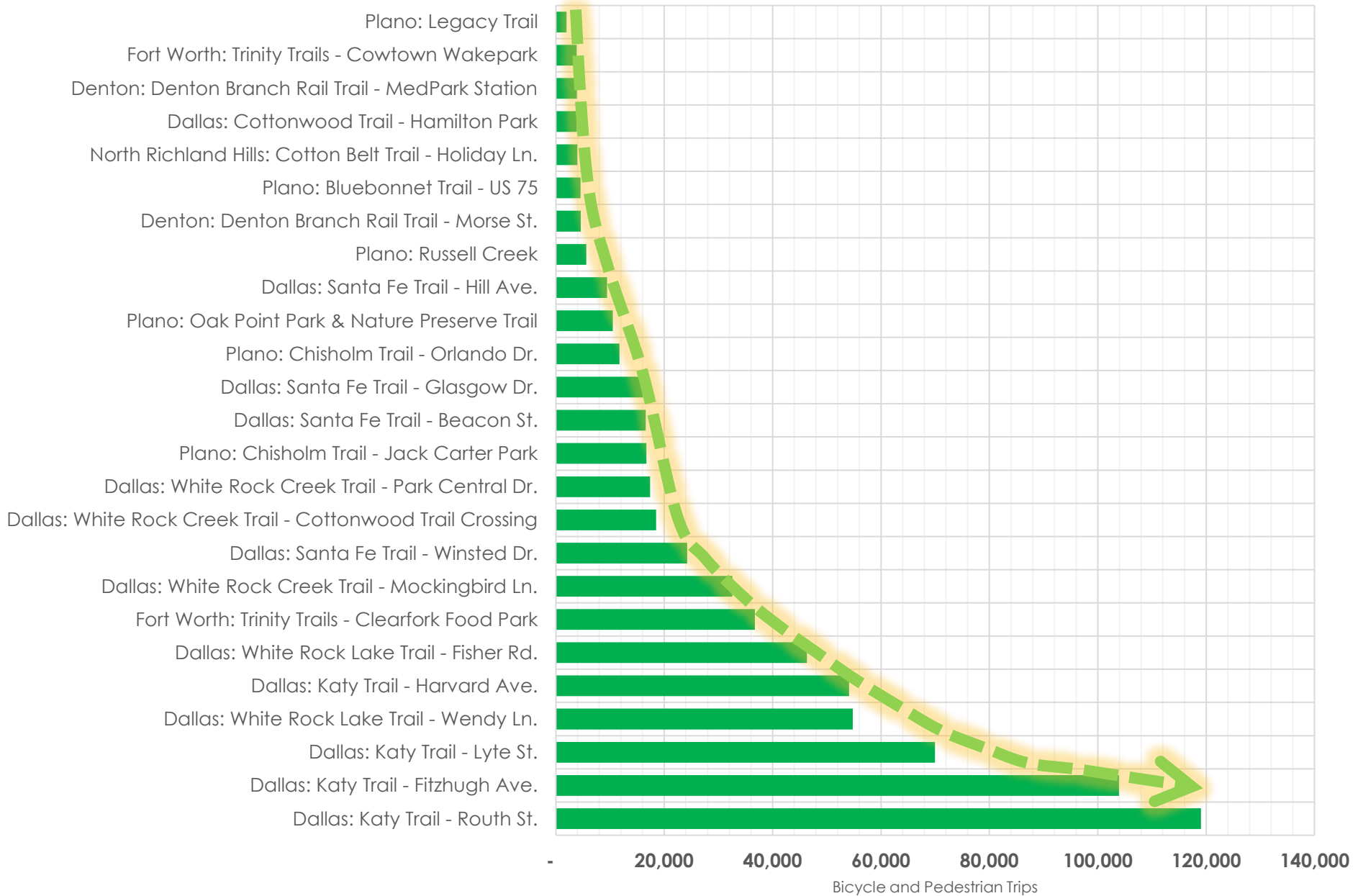
Mode Share Split by Count Station (2015)

■ Pedestrians ■ Bicyclists



Total Bicycle and Pedestrian Traffic by Count Station

October 2015

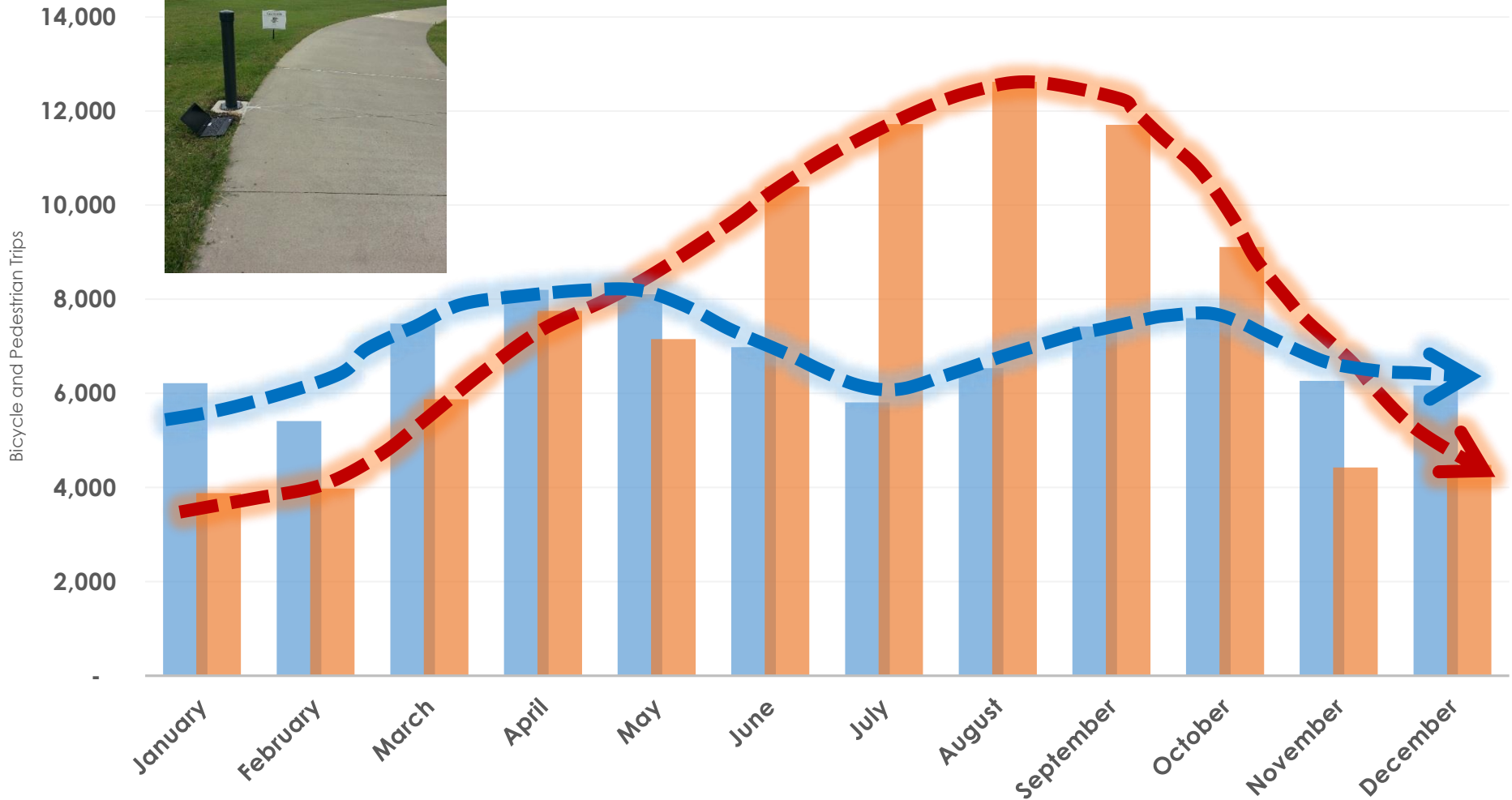


Peaks and Valleys

Plano: Chisholm Trail - Jack Carter Park

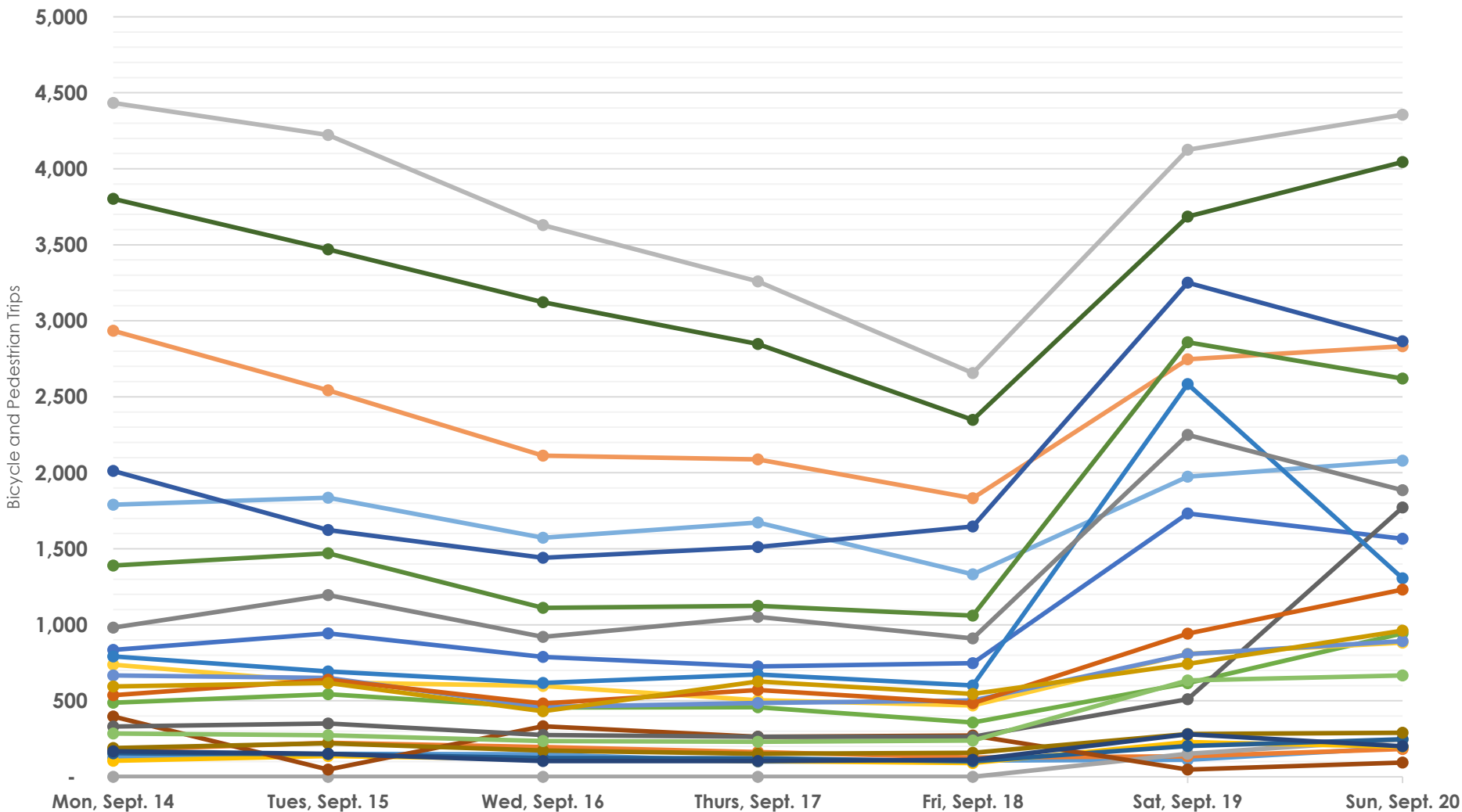
Total Monthly Traffic Volumes (2015)

Pedestrians Bicyclists



Total Daily Traffic During the Week of September 14, 2015

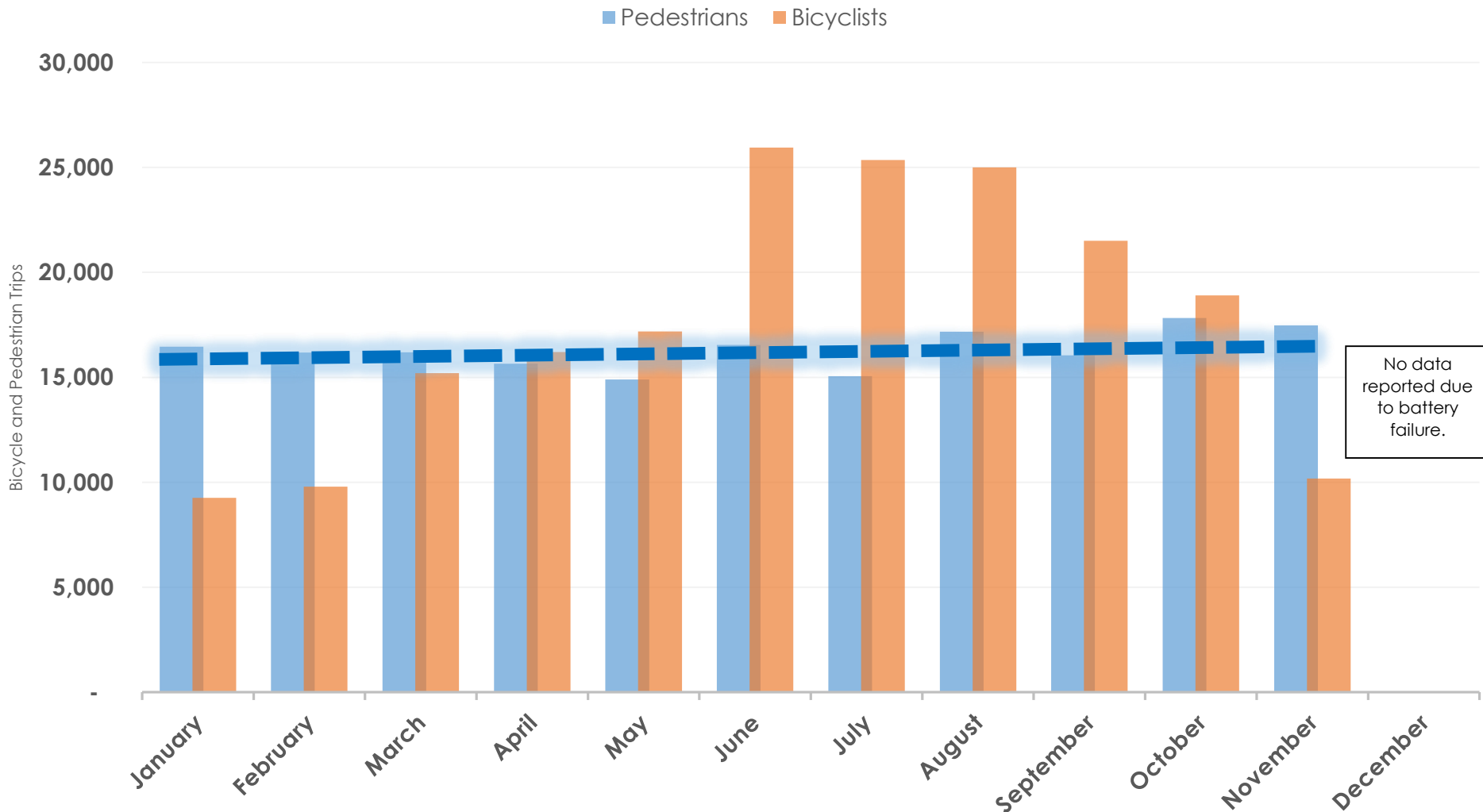
- Denton Branch Rail Trail - Medpark Station
- Trinity Trails - Cowtown Wakepark
- Bluebonnet Trail - US 75
- Russell Creek
- Katy Trail - Harvard Avenue
- Santa Fe Trail - Beacon Street
- Santa Fe Trail - Winsted Drive
- White Rock Creek Trail - Park Central Drive
- Denton Branch Rail Trail - Morse Street
- Trinity Trails - Clearfork Food Park
- Legacy Trail
- Cottonwood Trail - Hamilton Park
- Katy Trail - Lyte Street
- Santa Fe Trail - Glasgow Drive
- White Rock Creek Trail - Cottonwood Trail Crossing
- White Rock Lake Trail - Wendy Lane
- Cotton Belt Trail - Holiday Lane
- Chisholm Trail - Jack Carter Park
- OPP & NP Trail
- Katy Trail - Fitzhugh Avenue
- Katy Trail - Routh Street
- Santa Fe Trail - Hill Avenue
- White Rock Creek Trail - Mockingbird Lane
- White Rock Lake Trail - Fisher Road



Year-Round Pedestrian Activity

Fort Worth: Trinity Trails - Clearfork Food Park

Total Monthly Traffic Volumes (2015)



Validation/Calibration Protocol

21

- Followed RTC's four-hour Manual Observation Methodology Developed for T-MAP Project
- Range of Error Rates for Pedestrians was Significantly Higher than Bicyclists
- Pedestrian Error Rates: 0% - 30%
- Bicycle Error Rates: 0.53% - 8.33%

| Date & Time | Total | | Pedestrians | | | | | | Bicyclists | | | | | |
|----------------------------|---------------|------------|----------------|-----------|---------------|-----------|-------------------|-----------|----------------|-----------|--------------|-----------|------------------|-----------|
| | | | SOUTH (IN) | | NORTH (OUT) | | TOTAL PEDESTRIANS | | SOUTH (IN) | | NORTH (OUT) | | TOTAL BICYCLISTS | |
| | Eco-Counter | Manual | Eco-Counter | Manual | Eco-Counter | Manual | Eco-Counter | Manual | Eco-Counter | Manual | Eco-Counter | Manual | Eco-Counter | Manual |
| Wed, Jul 30, 2014 08:15 AM | 15 | 16 | 4 | 4 | 5 | 5 | 9 | 9 | 2 | 3 | 4 | 4 | 6 | 7 |
| Wed, Jul 30, 2014 08:30 AM | 7 | 8 | 2 | 4 | 2 | 1 | 4 | 5 | 3 | 3 | 0 | 0 | 3 | 3 |
| Wed, Jul 30, 2014 08:45 AM | 18 | 18 | 5 | 5 | 4 | 3 | 9 | 8 | 3 | 6 | 6 | 4 | 9 | 10 |
| Wed, Jul 30, 2014 09:00 AM | 4 | 5 | 0 | 1 | 3 | 3 | 3 | 4 | 0 | 0 | 1 | 1 | 1 | 1 |
| Wed, Jul 30, 2014 09:15 AM | 10 | 11 | 3 | 6 | 3 | 1 | 6 | 7 | 2 | 1 | 2 | 3 | 4 | 4 |
| Wed, Jul 30, 2014 09:30 AM | 5 | 5 | 0 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 1 | 1 | 3 | 3 |
| Wed, Jul 30, 2014 09:45 AM | 9 | 8 | 3 | 2 | 0 | 0 | 3 | 2 | 3 | 3 | 3 | 3 | 6 | 6 |
| Wed, Jul 30, 2014 10:00 AM | 13 | 18 | 7 | 10 | 0 | 0 | 7 | 10 | 2 | 3 | 4 | 5 | 6 | 8 |
| Wed, Jul 30, 2014 10:15 AM | 7 | 6 | 2 | 1 | 1 | 3 | 3 | 4 | 1 | 0 | 3 | 2 | 4 | 2 |
| Wed, Jul 30, 2014 10:30 AM | 9 | 8 | 2 | 2 | 2 | 2 | 4 | 4 | 1 | 0 | 4 | 4 | 5 | 4 |
| Wed, Jul 30, 2014 10:45 AM | 8 | 10 | 0 | 0 | 4 | 6 | 4 | 6 | 2 | 2 | 2 | 2 | 4 | 4 |
| Wed, Jul 30, 2014 11:00 AM | 4 | 6 | 1 | 2 | 2 | 3 | 3 | 5 | 1 | 1 | 0 | 0 | 1 | 1 |
| Wed, Jul 30, 2014 11:15 AM | 10 | 9 | 3 | 1 | 3 | 3 | 6 | 4 | 2 | 4 | 2 | 1 | 4 | 5 |
| Wed, Jul 30, 2014 11:30 AM | 12 | 13 | 6 | 6 | 3 | 4 | 9 | 10 | 2 | 2 | 1 | 1 | 3 | 3 |
| Wed, Jul 30, 2014 11:45 AM | 13 | 17 | 1 | 1 | 3 | 5 | 4 | 6 | 3 | 5 | 6 | 6 | 9 | 11 |
| Absolute Total | 144 | 158 | 39 | 46 | 37 | 40 | 76 | 86 | 29 | 35 | 39 | 37 | 68 | 72 |
| Percentage Error | -8.86% | | -15.22% | | -7.50% | | -11.63% | | -17.14% | | 5.41% | | -5.56% | |
| Correction Factor | 1.10 | | 1.18 | | 1.08 | | 1.13 | | 1.21 | | 0.95 | | 1.06 | |



Mobile Counter Loan Program

22

- (Two) Mobile Units for Trails (bike/pedestrian)
- (Two) Mobile Units for On-street Bike Counts (bike lanes, cycle tracks)
- Mobile Equipment will be Available for Loan
- Loan Agreement
- Two-week Counts Recommended
- Develop Seasonal Adjustment Factors to Analyze Yearly Trends

Challenges

23

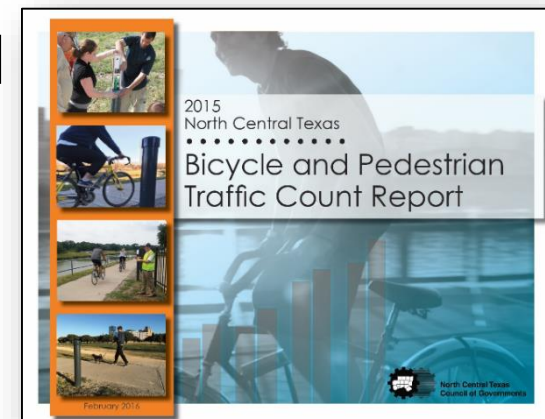
- City Commitments / Partnerships
- On-going Data Fees
- Personnel Needs for Program Support (Battery Replacements, Installations, Mobile Count Loans, Data Processing, etc.)
- Performance Measures
- Permanent vs Mobile Counters

Success Stories

24

- ❑ Interlocal Cooperative Agreements (ILA's) with Four Agencies and Fifth Underway
- ❑ Applied Correction Factors to Reflect the Most Accurate Data
- ❑ Hosted Mobile Counter Installation Training
- ❑ Released 2015 Regional Bicycle and Pedestrian Traffic Count Report

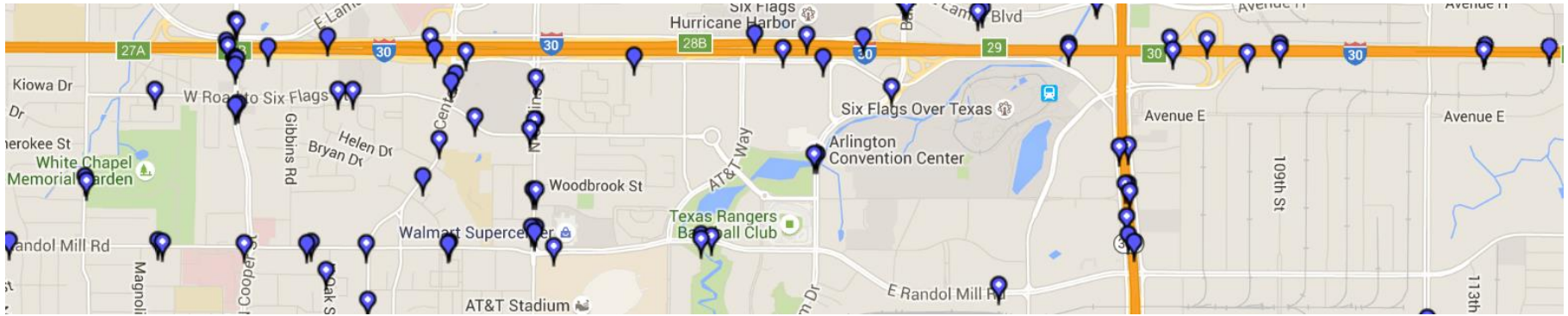
4.2 Million Counts!!



What's Next?

25

- Include bike/ped traffic counts to historical motorized vehicle traffic count web map.

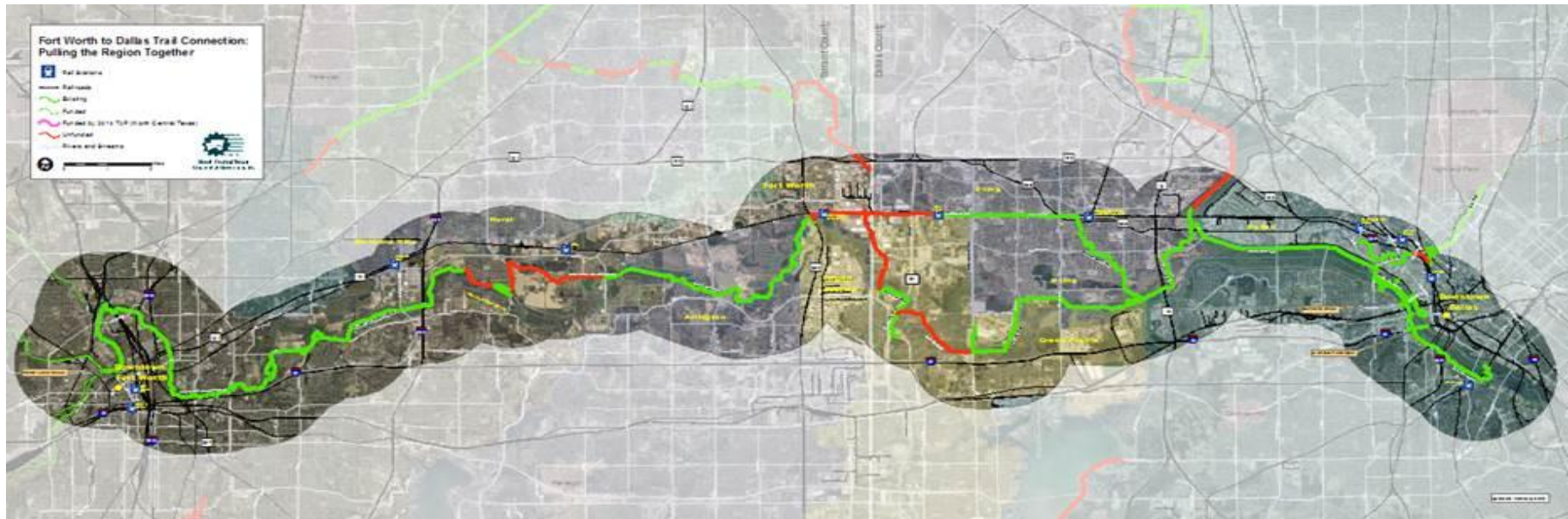


- Analyze relationship of surrounding land use and actual bike/ped traffic volumes.
- Look at future purchasing of permanent counters.

www.nctcog.org/BikePedCountData

Fort Worth to Dallas Regional Trail Corridor

26



- ❑ Combined Route: 64 miles
- ❑ 52.8 Miles Funded or Completed (82.5%)
- ❑ Engineering Funding in Place for Southern Alignment
- ❑ \$14.4 Million Funded Since 2014 (Five Mayors met November 2013)
- ❑ \$16 Million Left to Fund for Construction

Regional Health Competition

27

Regional Health Competition

▣ “Bike Barometer” Counter Competition

- Collect Data on Success
- Add to Regional Data Collection Efforts
- Quantify Benefits
 - Air Quality Benefits
 - VMT reduced
 - Etc.



NCTCOG Contacts

28



Karla Weaver, AICP

Program Manager

(817) 608-2376

kweaver@nctcog.org

Kevin Kokes, AICP

Principal Transportation Planner

(817) 695-9275

kkokes@nctcog.org

Daniel Snyder

Transportation Planner

(817) 608-2394

dsnyder@nctcog.org



North Central Texas
Council of Governments