Agenda

Regional Perspective
Mobility Planning Overview
Draft Recommendations
Draft Policy Recommendations
Financial Planning Overview
Transportation Conformity
Schedule and Next Steps
Regional Perspective
Regional Perspective

Population

12. Virginia – 8,411,808
13. Washington – 7,288,000
★ DFW – 7,123,170
14. Arizona – 6,931,071
15. Massachusetts – 6,811,779
16. Tennessee – 6,651,194
17. Indiana – 6,666,818
18. Missouri – 6,113,532
19. Maryland – 6,052,177

Area (square miles)

42. Maryland – 12,406
43. Hawaii – 10,932
44. Massachusetts – 10,554
45. Vermont – 9,616
★ DFW – 9,441
46. New Hampshire – 9,349
47. New Jersey – 8,722
48. Connecticut – 5,543
49. Delaware – 2,448
50. Rhode Island – 1,545

Source: US Census Bureau July 2016 estimate and NCTCOG
DFW estimate is January 1, 2016

Source: US Census Bureau, 2010 Census and NCTCOG
Prosperity and Mobility

Region Is Prospering
Adding 100,000+ Population Annually
Adding 60,000+ Jobs Annually

Corporate Relocations
Toyota
Liberty Mutual
State Farm
Amazon?

Mobility Key Factor
DFW Roadway Congestion Levels

Dallas-Fort Worth Congestion Levels and Population

Dallas-Fort Worth's congestion is offset with transportation investments.

$28 Billion Roadway Infrastructure Investment Since 2000

Sources: TomTom Traffic Index 2013, 2014, 2015 and 2016 Data; North Central Texas Council of Governments
Mobility Planning Overview
What is the Metropolitan Transportation Plan?

Required by Law

Referred to as The Mobility Plan

- Represents a Blueprint for the Region’s Multimodal Transportation System
- Covers at Least a 20-Year Timeframe
- Responds to Goals
- Identifies Policies, Programs, and Projects for Continued Development
- Guides the Expenditure of Federal and State Funds
Mobility 2045 – Focus On Connections

High-Speed Rail
Tolled Managed Lane System
Emerging Technologies
Freight
Regional Passenger Rail
Non-Motorized Connections
Mobility Plan Process

Public Involvement

Infrastructure Maintenance
Maintain & Operate Existing Facilities
Bridge Replacements

Management, Operations and Technology
Improve Efficiency & Remove Trips from System
Traffic Signals and Bicycle & Pedestrian Improvements

Growth, Development, and Land Use Strategies
More Efficient Land Use & Transportation Balance

Rail and Bus
Induce Switch to Transit

HOV/Managed Lanes
Increase Auto Occupancy

Freeways/Tollways and Arterials
Additional Roadway Capacity

Mobility 2045

Environmental Justice

Air Quality

Financial Constraint

Technology (AV/CV)
Draft
Recommendations
Mobility 2045 Goals

**Mobility**
- Improve Transportation Options
- Support Travel Efficiency Strategies
- Ensure Community Access to System and Process

**Quality of Life**
- Enhance Environment and Life Styles
- Encourage Sustainable Development

**System Sustainability**
- Ensure Adequate Maintenance, Safety and Reliability
- Pursue Long Term, Sustainable Financial Resources

**Implementation**
- Provide Timely Planning and Implementation
- Develop Cost Effective Projects and Programs
Infrastructure Maintenance
Maintain & Operate Existing Facilities
Bridge Replacements

$ 37.5 B

Regular Maintenance
TxDOT Programmed
Bridge Replacement Program

![Image of construction site]

![Image of bridge replacement]
Management, Operations and Technology

- Improve Efficiency & Remove Trips from System
- Traffic Signals and Bicycle & Pedestrian Improvements

$9.5 B

Traffic Signal Retiming Program
Technology Program
Bike/Ped Program
Asset Optimization Program
Asset Optimization Recommendations

Facility recommendations indicate transportation need. Corridor-specific alignment, design, and operational characteristics will be determined through ongoing project development.
Regional Veloweb

Facility recommendations indicate transportation need. Corridors specific alignment, design, and operational characteristics for the Regional Veloweb system will be determined through ongoing project development.
Growth, Development and Land Use Strategies
More Efficient Land Use and Transportation Balance

$ 3.2 B

• Incentives for Mixed-Use Development
• Last Mile Connections
• Local Government Coordination
Sustainable Development

Policies

Continue RTC Local Government Funding Program for Sustainable Development
Promote Transit-Oriented Development
Plan for Land Use-Transportation Connections
Support Multimodal Transportation Network Planning and Design
Support Active Transportation Planning and Design
Support Pedestrian and Bicycle Safety, Health and Education
Support Active Transportation Education and Outreach
Rail and Bus
Induce Switch to Transit

Local Transit Agencies
Trinity Metro
DART
DCTA

$33.3B
Transit Corridor Recommendations

Facility recommendations indicate transportation need. Corridor-specific alignment, design, and operational characteristics will be determined through ongoing project development.
High-Speed Rail Recommendations

Corridor-specific alignment, design, and operational characteristics for the intercity passenger, regional passenger, and freight rail systems will be determined through capacity evaluation and ongoing project development. Refined rail forecasts are necessary to determine technology and alignment in future rail corridors.
Facility recommendations indicate transportation need. Corridor-specific alignment, design, and operational characteristics will be determined through ongoing project development.
HOV/Managed Lanes
Increase Auto Occupancy
Corridor Traffic Management

Freeways/Tollways and Arterials
Additional Roadway Capacity

Economic Development Engine
Transportation System Backbone
Increased Connectivity
Strategic Investment
Accessibility

Source: LBJ Express

Source: North Tarrant Express

$52.0 B
Tolled Managed Lanes

Purpose: Manage Congestion

Effect: Increase Mobility

Guaranteed 50 mph Speed on Tolled Managed Lanes

Speeds 50% Faster for Non-Tolled Lanes

Speeds 75% Faster for Tolled Lanes

Managed Lanes Have Free Periods

Drivers Have Choice and Predictability

Increased Reliability

Project Funding Supplement

Demand Based Pricing

System Connectivity

Source: LBJ Express
Toll Managed Lane System Policy Boundary

Within Boundary – Year 2018

- 13% Land Area
- 79% Vehicle Hours of Congestion Delay

Cost of Congestion/Delay: $11.9 billion

Congestion Index is based on a percent increase in travel time.
Priced Facility Recommendations

Facility recommendations indicate transportation need. Corridor-specific alignment, design, and operational characteristics will be determined through ongoing project development.
IH 35W – Segment 3C

Segment 3A

Segment 3B

Segment 3C
IH 35W – Segment 3C

Connects Fort Worth to Alliance
   Continuous Frontage Roads
   6 Main Lanes
   4 Tolled Manage Lanes

Three Other Phases Have Proceeded
TxDOT Construction Contract in Place
No Public Sector Funds Available
   Needs Private Sector Investment

$800 million Private Investment Lost if
Not Constructed as Tolled Managed Lane
IH 635 East Phase 3
IH 635 East Phase 3

US 75 to IH 30, Including Interchange

Continuous Frontage Roads

10 Main Lanes

4 Tolled Managed Lanes (Initially Deferred)

Citizen and Elected Official Approval

Public Sector Owns Revenue

New Lower Cost Tolling Policy

Manage Congestion

Project Funding Supplement

$165 million Grant Submitted to USDOT
Facility recommendations indicate transportation need. Corridor-specific alignment, design, and operational characteristics will be determined through ongoing project development.
Major Roadway Recommendations

- New or Additional Freeway Capacity
- New or Additional Managed Lane Capacity
- New or Additional Toll Road Capacity
- Staged Facility (Frontage Roads)
- Asset Optimization

Facility recommendations indicate transportation need. Corridor-specific alignment, design, and operational characteristics will be determined through ongoing project development.
Major Roadway Recommendations

Roadway Expenditures
$ 52 B

Regional Roadway Needs
$ 389 B

Shortfall
$ 327 B

DRAFT

Facility recommendations indicate transportation need. Corridor-specific alignment, design, and operational characteristics will be determined through ongoing project development.
Roadway Corridors for Future Evaluation

Roadway corridors for future evaluation indicate an identified transportation need and do not represent recommendations or specific alignments. Recommendations may be developed for future MTPs through feasibility analyses, thoroughfare plans, and environmental studies.
Major Roadway Recommendations

- New or Additional Freeway Capacity
- New or Additional Managed Lane Capacity
- New or Additional Toll Road Capacity
- Staged Facility (Frontage Roads)
- Asset Optimization

Draft Document Is Available!!

www.nctcog.org/mobility2045

Facility recommendations indicate transportation need. Corridor-specific alignment, design, and operational characteristics will be determined through ongoing project development.
## Project Recommendation Table

<table>
<thead>
<tr>
<th>IT Corridor</th>
<th>MTP ID</th>
<th>Facility</th>
<th>From</th>
<th>To</th>
<th>2018 Attainment Year</th>
<th>2020 Attainment Year</th>
<th>2023</th>
<th>2027</th>
<th>2045</th>
<th>Improvement Type</th>
<th>YOE Cost</th>
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<tr>
<td>5G - US 60</td>
<td>22.10.1</td>
<td>US 60</td>
<td>IH 30</td>
<td>IH 635</td>
<td>4 (Frwy), 2/6 (Frng-C)</td>
<td>4 (Frwy), 2/6 (Frng-C)</td>
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<td>5G - US 60</td>
<td>22.10.2</td>
<td>US 60</td>
<td>IH 635</td>
<td>IH 100 (Caldwell County Line)</td>
<td>4 (Frwy), 4 (Frng-C)</td>
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<table>
<thead>
<tr>
<th>IT Corridor</th>
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<th>Facility</th>
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<th>To</th>
<th>2018 Attainment Year</th>
<th>2020 Attainment Year</th>
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<th>2027</th>
<th>2045</th>
<th>Improvement Type</th>
<th>YOE Cost</th>
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<td>29 - North Tarrant Express (5)</td>
<td>5.40.1</td>
<td>IH 35W</td>
<td>US 81/287</td>
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<td>6 (Frwy) + 4 (MLT/C), 4/6 (Frng-C)</td>
<td>6 (Frwy) + 4 (MLT/C), 4/6 (Frng-C)</td>
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<td>IH 35W</td>
<td>Basswood Blvd</td>
<td>IH 329</td>
<td>4 (Frwy) + 4 (MLT/C), 4/6 (Frng-C)</td>
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<td>IH 329</td>
<td>SH 188</td>
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<td>8 (Frwy) + 4 (MLT/C), 4/0 (Frng-C)</td>
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<td>SH 121</td>
<td>IH 30</td>
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<td>6 (Frwy) + 2 (MLT/C), 2 (Frng-C)</td>
<td>8 (Frwy) + 2 (MLT/C), 2 (Frng-C)</td>
<td>8 (Frwy) + 2 (MLT/C), 2 (Frng-C)</td>
<td>8 (Frwy) + 2 (MLT/C), 2 (Frng-C)</td>
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<tr>
<td>29 - North Tarrant Express (5)</td>
<td>5.50.3</td>
<td>IH 35W</td>
<td>SH 121</td>
<td>IH 30</td>
<td>6 (Frwy) + 2 (MLT/C), 2 (Frng-C)</td>
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<td>8 (Frwy) + 2 (MLT/C), 2 (Frng-C)</td>
<td>8 (Frwy) + 2 (MLT/C), 2 (Frng-C)</td>
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</tbody>
</table>

[www.nctcog.org/mobility2045](http://www.nctcog.org/mobility2045)
Environmental Sensitivity

Regional Ecosystem Framework: Wildlife Habitat

Subwatershed Score
- 1 - Lower Quantity Wildlife Habitat
- 2
- 3
- 4
- 5 - Higher Quantity Wildlife Habitat

Major Roads

Major Lakes

Dallas CBD

Fort Worth CBD

Information on the content and scoring methods for Regional Ecosystem Framework: Wildlife Habitat is included in the Environmental Appendix.
Environmental Justice

Environmental Justice Index with Population Density

Central Business Districts
Dallas

Fort Worth

Legend
- Block Groups Above Regional Percentage: Low Income
- Block Groups Above Regional Percentage: Total Minority
- Block Groups Above Regional Percentage: Low Income and Total Minority

The Environmental Justice Index (EJI) displays Census block groups above the regional percentage for two variables: Total Minority and Low Income. The Total Minority population includes individuals who identify their race as any race other than white, or who identify their ethnicity as Hispanic or Latino. The Low income population includes individuals whose household income in the past 12 months was below the US Census poverty threshold. The EJI is a preliminary screening tool to identify areas that may need additional analysis when considering EJ groups in a plan, project, or program.

Source: 2016 American Community Survey 5-Year Estimates
March 26, 2016
Additional Plan Components

- **Environmental Considerations**
  - Natural Environment – Extreme Weather Resiliency
  - Environmental Justice

- **Transportation Demand Management**
- **Transportation System Management**
- **Transportation System Safety and Security**
- **Technology**
- **Freight**
- **Aviation**
Draft Policy
Recommendations
Proposed Policy Additions

Freight

Encourage Regional Railroads to Participate in Regional Planning

Active Transportation Mode Share

Support Active Transportation Measurable Share of all Transportation Modes
Proposed Policy Additions

Technology

- Encourage Data Sharing
- Encourage Automated Vehicles
- Support Infrastructure Maintenance
- Encourage Ridesharing

Asset Optimization

Resiliency

- Develop Strategies to Address Vulnerabilities

Roadway Maintenance

Support Asset Management Policies
Proposed Policy Additions

General

Support Ability to Modify Mobility Plan for Emergency Operational Improvements

- Technology Lanes
- Managed Lanes
- Access Ramps
- Auxiliary Lanes

Managed Toll Lane System

Support Implementation within a Tolled Managed Lane Policy Area
Financial Planning Overview
Transportation Funding Basics

System Revenue + Facility Revenue + Local Revenue = Regional Transportation System Revenues

- Motor Fuel Taxes
- Vehicle Registration Fees
- Other Federal Sources
- Toll System Revenues*
- Other State Sources

- Toll Road Bonds
- Managed Lanes
- Public/Private Partnerships
- Public Transportation Fares

- Sales Taxes
- Special Taxes
- Bond Programs
- Impact Fees
- Property Taxes
- Value Capture

* Revenue from existing NTTA facilities after bonds are retired.
Financial Plan Requirements

Use All “Reasonably Expected” Sources

Year of Expenditure Dollars

Must be Financially Constrained

Balance Priorities with Available Resources
Financial Assumptions

Traditional Funds are Insufficient
Multiple Scenarios and Options to Generate Additional Funds
Continue Toll Roads and Toll Managed Lanes as a Long Term Strategy
Not Approving a Specific Scenario
Future Available Funding Sources Unknown
   New Federal Infrastructure Initiative
Approving Equivalent Magnitude Funding Amount
## Financial Assumptions

<table>
<thead>
<tr>
<th>Funding Strategy</th>
<th>Mobility 2045 (DRAFT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Motor Fuel Tax (per gallon)</td>
<td>Existing State Motor Fuel Tax +$0.05 in 2025 +$0.07 in 2035</td>
</tr>
<tr>
<td>State Motor Fuel Tax Indexing</td>
<td>No</td>
</tr>
<tr>
<td>Federal Motor Fuel Tax (per gallon)</td>
<td>Existing Federal Motor Fuel Tax +$0.05 in 2025 +$0.05 in 2035</td>
</tr>
<tr>
<td>Average Vehicle Registration Fee</td>
<td>Existing Fee +$10 in 2025 +$10 in 2035</td>
</tr>
<tr>
<td>Tollroads, Managed Lanes, CDA, and PPP</td>
<td>Currently funded projects + select, strategic facilities based on new toll area policy</td>
</tr>
<tr>
<td>Other Assumptions</td>
<td>New revenues from 84th legislature, now allocated, will continue through 2045</td>
</tr>
</tbody>
</table>

* It is assumed that the equivalent revenue of this magnitude will be available. Specific strategies will be monitored and advanced as appropriate.
# Mobility 2045 Expenditures

## DRAFT

<table>
<thead>
<tr>
<th>Strategic Infrastructure Investment</th>
<th>Infrastructure Maintenance</th>
<th>Management and Operations</th>
<th>Growth, Development, and Land Use Strategies</th>
<th>Rail and Bus</th>
<th>HOV/Managed Lanes</th>
<th>Freeways/Tollways and Arterials</th>
<th>Total Expenditures*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximize Existing System</td>
<td>Maintain &amp; Operate Existing Facilities Bridge Replacements</td>
<td>Improve Efficiency &amp; Remove Trips from System Traffic Signals and Bicycle &amp; Pedestrian Improvements</td>
<td>More Efficient Land Use &amp; Transportation Balance</td>
<td>Induce Switch to Transit</td>
<td>Increase Auto Occupancy</td>
<td>Additional Roadway Capacity</td>
<td>$ 135.4</td>
</tr>
<tr>
<td></td>
<td>$ 37.5</td>
<td>$ 9.5</td>
<td>$ 3.2</td>
<td>$ 33.3</td>
<td>$ 52.0</td>
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</tr>
</tbody>
</table>

* Actual dollars, in billions. Values may not sum due to independent rounding.
Transportation Conformity
Purpose: Federal requirement for nonattainment areas to conduct air quality analysis on projects, programs, and policies identified in transportation plans, transportation improvement programs, federally funded projects, or projects required for federal approval.

Analysis Area: Ten-County Ozone Nonattainment Area

Analysis Years: 2018, 2020, 2028, 2037, and 2045

Latest Planning Assumptions: MOVES2014a Emissions Model
2014 Vehicle Registration
2016 Traffic Count Data
2012 Meteorological Data

Motor Vehicle Emissions Budgets (MVEBs)*
- Nitrogen Oxides (NOₓ) = 130.77 tons/day
- Volatile Organic Compounds (VOC) = 64.91 tons/day

Draft Final Analysis in May 2018

*Adequacy Status of the Dallas-Fort Worth, Texas Attainment Demonstration 8-Hour Ozone Motor Vehicle Emission Budgets for Transportation Conformity Purposes, 81 FR 78591.

Conformity determination anticipated by November 2018.
2018 Transportation Conformity Results

Nitrogen Oxides (NO$_x$) Emissions

![Graph showing nitrogen oxides emissions from 2018 to 2045 with data points and analysis years.]

- **2017 MVEB**: 130.77 tons/day

Source: Adequacy Status of the Dallas-Fort Worth, Texas Attainment Demonstration 8-Hour Ozone Motor Vehicle Emission Budgets for Transportation Conformity Purposes, 81 FR 78591

DRAFT
2018 Transportation Conformity Results

Volatile Organic Compounds (VOCs) Emissions

2017 MVEB² = 64.91 tons/day

Analysis Years

1 Source: Adequacy Status of the Dallas-Fort Worth, Texas Attainment Demonstration 8-Hour Ozone Motor Vehicle Emission Budgets for Transportation Conformity Purposes, 81 FR 78591
Schedule and Next Steps
Notes:
- Public meetings held during highlighted months.
- Regional Transportation Council action on Mobility 2045 Plan scheduled for June 14, 2018.
Public Meeting Schedule

April 9 – Garland, 6:00 pm
April 10 – North Richland Hills, 6:00 pm
April 11 – NCTCOG, 2:30 pm
May 8 – Fort Worth, 6:00 pm
May 15 – NCTCOG, 2:30 pm
May 16 – Richardson, 6:00 pm
Next Steps

• Official Public Comment Period
  • April through May

• Revise Recommendations

• Draft Final Document – April 9

• STTC Updates in April

• Review and Action
  • STTC – May 25
  • RTC – June 14

• Air Quality Conformity
Questions?

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Mobility 2045

Transit

Air Quality

www.nctcog.org/mobility2045
## Toll Facility Effect

### Computer Simulation Analysis

**Average Weekday in 2040**

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Toll Facility Presence</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>With</td>
<td>Without</td>
</tr>
<tr>
<td>Vehicle Hours of Travel</td>
<td>9,734,528</td>
<td>17,451,493</td>
</tr>
<tr>
<td>Average Speed (mph)</td>
<td>32.8</td>
<td>18.5</td>
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<tr>
<td>Vehicle Hours Spent in Delay</td>
<td>3,587,038</td>
<td>10,979,607</td>
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