The Metropolitan Transportation Plan for North Central Texas
What is the Metropolitan Transportation 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
METROPOLITAN TRANSPORTATION PLAN
The Process

Step 1: Examine current conditions
Step 2: Forecast growth
Step 3: Identify needs based on regional goals, performance measures, and targets to draft projects, programs, and policies
Step 4: Assess financial resources

Step 5: Develop recommended projects, policies, and programs
Step 6: Assess social equity and air quality effects of projects
Step 7: Public review and comment
Step 8: RTC adoption of MTP

Step 9: FHWA/FTA/EPA air quality conformity determination
Step 10: Implement projects, policies, and programs

Mobility 2045
What’s New about Mobility 2045?

New Base and Horizon Years
Builds Upon Mobility 2040
  • New Financial Forecast and Demographics
  • Updated Policies, Programs, and Projects

Consistent with HB 20 Process
  10-Year Plan

Environmental Document Consistency
Consistent with MAP-21 and FAST Act Goals

Transportation Conformity Determination
  November 23, 2018

Continuous, Coordinated, Comprehensive
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
Mobility 2045: Focus on Connections

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

Maximize Existing System
- 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

Strategic Infrastructure Investment
- Rail and Bus
  - Induce Switch to Transit
- HOV/Managed Lanes
  - Increase Auto Occupancy
- Freeways/Tollways and Arterials
  - Additional Roadway Capacity
Emerging Technologies

Levels of Vehicle Automation

<table>
<thead>
<tr>
<th>SAE Level</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td><strong>No Automation</strong></td>
<td><strong>Driver Assistance</strong></td>
<td><strong>Partial Automation</strong></td>
<td><strong>Conditional Automation</strong></td>
<td><strong>High Automation</strong></td>
<td><strong>Full Automation</strong></td>
</tr>
<tr>
<td>Driver carries out all driving tasks.</td>
<td>Driver retains control but vehicle has some driving assistance features.</td>
<td>Vehicle has some automated features but driver must stay focused on driving tasks.</td>
<td>Driver does not have to focus on driving tasks, but must always be ready to take control if notified.</td>
<td>In certain situations, vehicle can carry out all driving tasks. Driver control is optional.</td>
<td>Vehicle can carry out all driving tasks. Driver control is optional.</td>
<td></td>
</tr>
</tbody>
</table>

For more information: [https://www.nctcog.org/trans/plan/vehicles/auto](https://www.nctcog.org/trans/plan/vehicles/auto)
Non-Motorized Connections: Active Transportation

• Low-cost mobility options that place fewer demands on local roads and highways.

• Mobility 2045 supports the development of local Complete Streets policies and the implementation of Complete Streets infrastructure on both new and reconstructed streets; such designs will safely accommodate all users in the region.

For more information on Complete Streets: [https://www.nctcog.org/trans/plan/roads/complete-streets-context-sensitive-design](https://www.nctcog.org/trans/plan/roads/complete-streets-context-sensitive-design)
Non-Motorized Connections: The Regional Veloweb & Costs

<table>
<thead>
<tr>
<th>Facility</th>
<th>Estimated Costs Per Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-foot wide concrete shared-use path(^1)</td>
<td>$420,000</td>
</tr>
<tr>
<td>Retaining wall, bridges, railings, culverts, or other major structures</td>
<td>$530,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$950,000</strong></td>
</tr>
</tbody>
</table>

\(^1\) Based on 12-foot width, includes mobilization, site prep, demolition, earthwork

Source: NCTCOG, 2015

For more information on the Veloweb: [https://www.nctcog.org/trans/plan/bikeped/veloweb](https://www.nctcog.org/trans/plan/bikeped/veloweb)
Facility recommendations indicate transportation need. Corridor-specific alignment, design, and operational characteristics for the Regional Veloweb system will be determined through ongoing project development.
Regional Passenger Rail

• Local Transit Agencies
• Trinity Metro
• DART
• DCTA

For more information: https://www.nctcog.org/trans/plan/transit/transit-providers
Major 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

• Connected System
• “One Seat Ride”
• Three Stations
  • Fort Worth
  • Arlington
  • Dallas

For more information:
https://www.nctcog.org/trans/plan/transit/transit-planning/high-speed-rail
The table above illustrates the impact of truck lane restrictions on the average speed for vehicles traveling on IH 20 and IH 30.

Truck lanes restrictions are expected to improve highway safety and mobility and the region’s air quality.

For more information: [https://www.nctcog.org/trans/plan/freight](https://www.nctcog.org/trans/plan/freight)
Toll Managed Lane System

• Increase Auto Occupancy
• Corridor Traffic Management
• Strategic Investment
• Policy for Toll Managed Lane System Boundary

For more information: https://www.nctcog.org/trans/manage/congestion-management-process
Priced Facilities

Facility recommendations indicate transportation need. Corridor-specific alignment, design, and operational characteristics will be determined through ongoing project development.
2045 Levels of Congestion/Delay
2040 Network without TEXpress Lanes

Cost of Congestion/Delay: $31.6 billion
Congestion Index is based on a percent increase in travel time.
Air Quality Emission Trends

8-HOUR OZONE NAAQS HISTORICAL TRENDS

As of July 26, 2018

1997 Standard < 85 ppb (Revoked)

2008 Standard ≤ 75 ppb (Moderate by 2017)

2015 Standard ≤ 70 ppb (Marginal by 2020)

For more information: https://www.nctcog.org/trans/quality/air
8-Hour Ozone NAAQS Nonattainment Areas
2018 Transportation Conformity Nitrogen Oxides (NO$_x$) Emission Results

Includes Reductions from RTC Initiatives of 2.12 tons/day

2017 MVEB = 130.77 tons/day

- **2018**: 111.12 tons/day
- **2020**: 93.14 tons/day
- **2028**: 56.09 tons/day
- **2037**: 43.69 tons/day
- **2045**: 45.04 tons/day

Green bars indicate Rockwall County Emissions.
2018 Transportation Conformity
Volatile Organic Compounds (VOC) Emission Results

Includes Reductions from RTC Initiatives of 0.56 tons/day

2017 MVEB\(\d\) = 64.91 tons/day
Regional Performance Measures

Federal legislation passed in 2012 introduced a new requirement to incorporate a performance-based approach into the transportation planning process.

**Performance-based approach:** set coordinated targets, report on a required set of performance measures, and prioritize projects.

### Required Performance Measures

- Safety
- Pavement and Bridge Condition
- System Performance/Freight/Congestion
- Mitigation and Air Quality
- Transit Asset Management

### Additional Performance Measures

- Observed System Performance (beyond rulemaking)
  - Forecasted System Performance
  - Environmental Justice
  - Air Quality
  - Active Transportation
  - Freight Movement

For more information: [https://www.nctcog.org/nctcg/media/Transportation/DocsMaps/Plan/MTP/8-0-Regional-Performance.pdf](https://www.nctcog.org/nctcg/media/Transportation/DocsMaps/Plan/MTP/8-0-Regional-Performance.pdf)
Regional Performance Measures

Regional System Performance

<table>
<thead>
<tr>
<th>Regional System Performance</th>
<th>2018</th>
<th>2045</th>
<th>No-Build</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>7,429,723</td>
<td>11,246,531</td>
<td>11,246,531</td>
</tr>
<tr>
<td>Employment</td>
<td>4,793,363</td>
<td>7,024,227</td>
<td>7,024,227</td>
</tr>
<tr>
<td>Vehicle Miles of Travel (Daily)</td>
<td>212,232,952</td>
<td>331,495,638</td>
<td>332,500,169</td>
</tr>
<tr>
<td>Hourly Capacity (Miles)</td>
<td>44,794,000</td>
<td>54,330,341</td>
<td>44,297,513</td>
</tr>
<tr>
<td>Vehicle Hours Spent in Delay (Daily)</td>
<td>1,680,685</td>
<td>3,788,105</td>
<td>6,654,772</td>
</tr>
<tr>
<td>Increase in Travel Time Due to Congestion</td>
<td>40.94%</td>
<td>59.32%</td>
<td>101.65%</td>
</tr>
<tr>
<td>Annual Cost of Congestion (Billions)</td>
<td>$12.1</td>
<td>$27.3</td>
<td>$47.9</td>
</tr>
</tbody>
</table>

Lane Miles at Level of Service ABC, DE, and F

- **2018 Network**
- **2045 Build**
- **2045 No-Build**
Levels of Congestion/Delay: 2018 & 2045 Build vs. No Build Scenarios
Transportation Funding Basics

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

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

- **Local Revenue**
  - Sales Taxes
  - Special Taxes
  - Bond Programs
  - Impact Fees
  - Property Taxes
  - Value Capture

= **Regional Transportation System Revenues**

*Revenue from existing NTTA facilities after bonds are retired.
Mobility Plan Expenditures

Maximize Existing System

Infrastructure Maintenance
- Maintain & Operate Existing Facilities
- Bridge Replacements
  - $36.8

Management, Operations, and Technology
- Improve Efficiency & Remove Trips from System
- Traffic Signals and Bicycle & Pedestrian Improvements
  - $9.5

Growth, Development, and Land Use Strategies
- More Efficient Land Use & Transportation Balance
  - $3.2

Growth, Development, and Land Use Strategies

Strategic Infrastructure Investment

Rail and Bus
- Induce Switch to Transit
  - $33.3

HOV/Managed Lanes
- Increase Auto Occupancy

Freeways/Tollways and Arterials
- Additional Roadway Capacity
  - $53.6

Mobility 2045 Total Expenditures

$136.4

1 Actual dollars, in billions. Values may not sum due to independent rounding.

2 Balances to reasonably expected revenue, demonstrating financial constraint.
Mobility 2045 Summary

Social Considerations
• Approximately 1 million people per decade have been added to the region since 1970
• Population Forecasts/Density
• Employment Growth/Forecasts
• Population Profile Changes
• Culture Trends
• Nondiscrimination Efforts (Environmental Justice)

Environmental Considerations
• Travel Demand Management
• Transportation System Safety
• Transportation System Security
• Sustainable Development

Operational Efficiency
Mobility 2045 Summary

Mobility Options

• Active Transportation
• Regional Aviation
• Freight Planning

Transportation Technology

• Vehicle Automation
• Vehicle Electrification
• Shared Mobility

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

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

Lines on this map depict arterials with funds for improvement. Facility recommendations indicate transportation need. Corridor-specific alignment, design, and operational characteristics will be determined through ongoing project development.
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.
Contact Information

To find out more about Mobility 2045:
https://www.nctcog.org/trans/plan/mtp/2045

Email questions or comments to:
mobilityplan@nctcog.org