NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS

TRANSPORTATION FUNDING PRIMER

A GUIDE TO UNDERSTANDING CURRENT TRANSPORTATION FUNDING

DECEMBER 2018

IN THIS PRESENTATION

BACKGROUND

WHY WE HAVE A PROBLEM

HOW WE GOT HERE

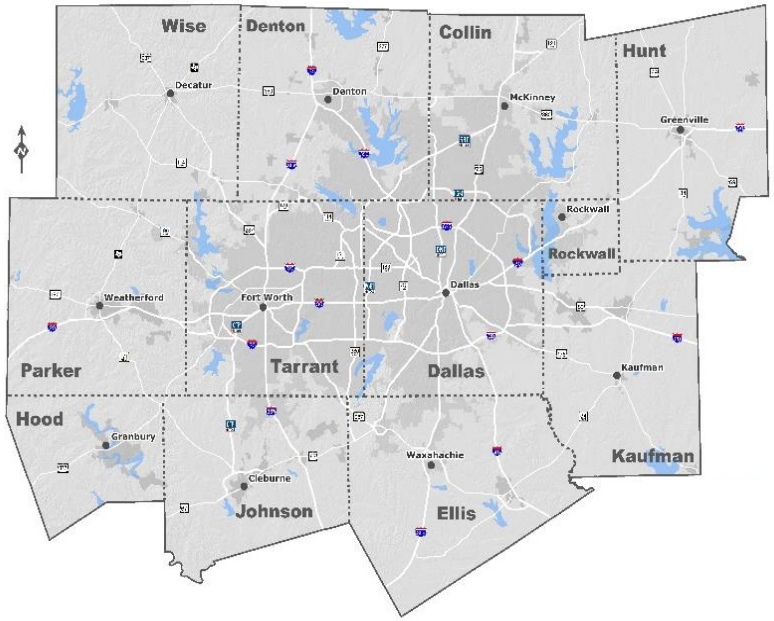
SOLUTIONS

BACKGROUND: REGIONAL PERSPECTIVE

DALLAS FORT WORTH METROPOLITAN PLANNING AREA

4th largest metropolitan area in the US

Population growth **1.1m** between 2005-2015



Larger than **41** states in population

Population **7.4m** in 2018

Population **11.2m** by 2045

Over **30%** of Texas' economy

Larger than **5** states in the area

BACKGROUND: REGIONAL PERSPECTIVE

NORTH TEXAS

Top 3
For growth business expansion, relocations, and employment growth

22
Fortune 500 companies located in the region

15th
In GDP if it were a state

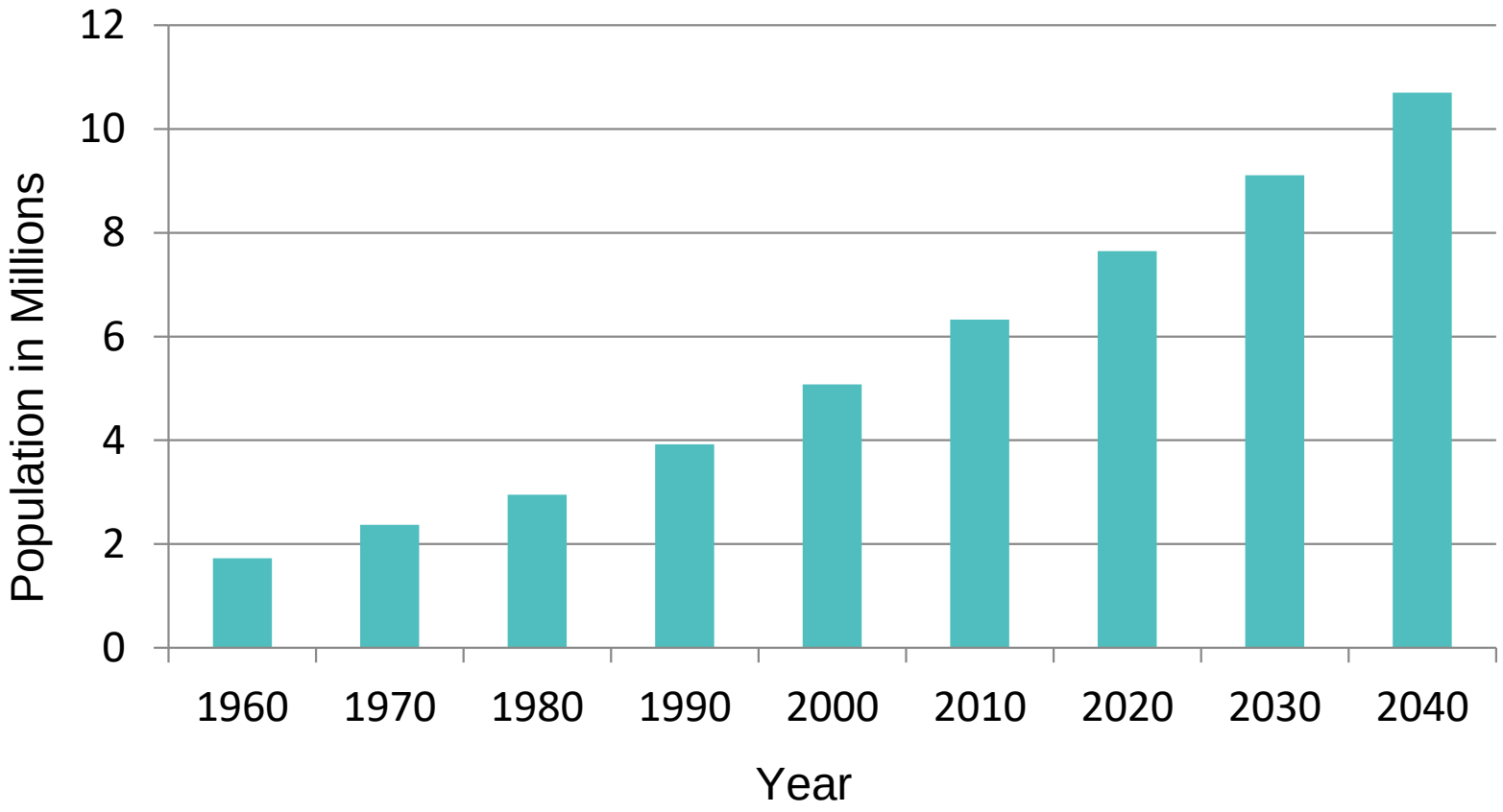
23rd
In GDP if it were a country

2.8%
Job growth rate compared to the nation's 1.5%

3.9 M
North Texas labor force

Source: North Texas Commission

BACKGROUND: REGIONAL POPULATION GROWTH



North Texas grows by 391 people every day.

BACKGROUND: FUNDING BASICS

SYSTEM REVENUE	+	FACILITY REVENUE	+	LOCAL REVENUE
Motor Fuel Taxes Vehicle Registration Fees Other Federal Sources Other State Sources		Tollroads Managed Lanes Public Private Partnerships		Sales or Special Taxes Bond Programs Impact Fees Property Taxes Value Capture

= **REGIONAL TRANSPORTATION SYSTEM**

BACKGROUND: FUNDING BASICS

point of

COLLECTION

EDUCATION

a quarter of gas tax
revenue transferred out

STATE

motor fuel tax rate
gas 20.0 | diesel 20.0

FEDERAL

motor fuel tax rate
gas 18.4 | diesel 24.4

EPA L.U.S.T.

1/10 cent per gallon

REGISTRATION

plus lubricating oil and
special fuels taxes

HIGHWAY ACCOUNT

MASS TRANSIT ACCOUNT

PORTION

sent to states

STATE

highway fund

TEXAS REFUNDED LESS THAN PUT IN

PROPOSITIONS 1+7

oil and gas severance fees | sales tax

TXDOT

plan, maintain, build
transportation projects

ONLY DONOR STATE REMAINING

BACKGROUND: FEDERAL HIGHWAY TRUST FUND

WHAT IS THE HIGHWAY TRUST FUND (HTF)?

- Established in 1956 by the Highway Revenue Act
- Functions as a finance mechanism
- Highway excise taxes are deposited into the fund
- Made up of 2 accounts:
  - Highway & Mass Transit

WHAT ISSUES ARE THERE WITH THE HTF?

- Capital outlays exceed deposits
- The account faces regular solvency issues
- Since 2008, Congress has transferred $143 billion to maintain solvency

Source: Federal Highway Administration

BACKGROUND: STATE HIGHWAY FUND

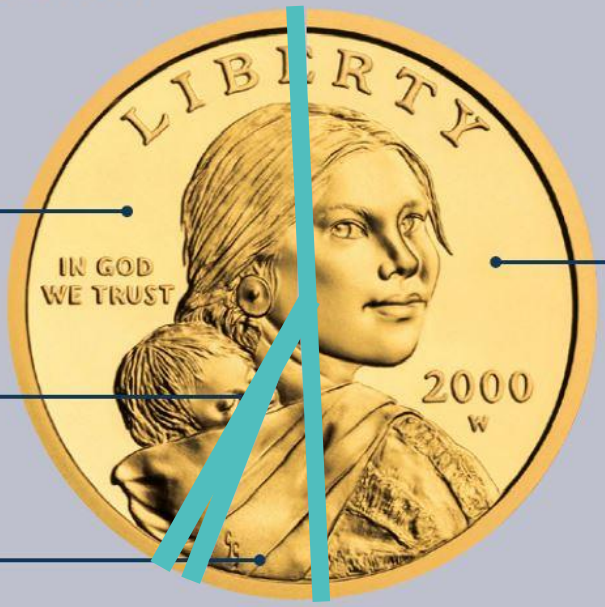
TOTAL STATE HIGHWAYS FUND RECEIPTS*
(FISCAL YEAR ENDED AUGUST 31, 2017)

Total Receipts $9.936 billion

Federal Reimbursements
$4,169.5 million
42¢

Local Participation
$216.4 million
2¢

Sale of Bonds
$700.7 million
7¢



State Fees, Taxes, and Other
$4,849.0 million
49¢

Motor Fuel Tax	$2,630.1 million
Vehicle License Fees	$1,437.4 million
Proposition 1	$439.5 million
Lubricant Sales Tax	$44.9 million
Other State Receipts	$297.1 million

**Includes all receipts to appropriated State Highway Fund.*

BACKGROUND: STATE HIGHWAY FUND

DISTRIBUTION OF TOTAL STATE HIGHWAYS FUND RECEIPTS*
(FISCAL YEAR ENDED AUGUST 31, 2017)

Total Disbursements* $10.499 billion

Plan
$1,593.5 million
15¢

Debt Service Transfers/Payments
$377.7 million
4¢

Build
$2,531.8 million
24¢

Other Agency Expenditures/Transfers
$531.2 million
5¢

Transfers to Other Agencies .. $200.8 million
Other Agency Expenditures .... $330.4 million

Manage
$239.6 million
2¢

Maintain
$3,930.2 million
37¢

Prop 1
$1,130.2 million
11¢

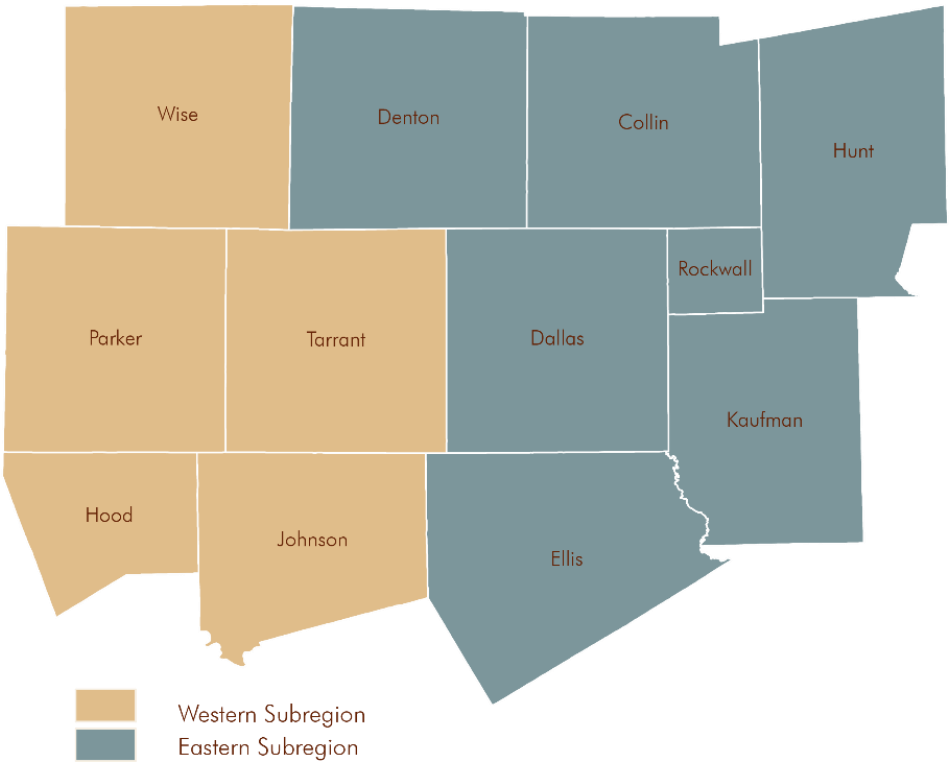
Use
$165.2 million
2¢

**Includes all expenditures to appropriated State Highway Fund.*

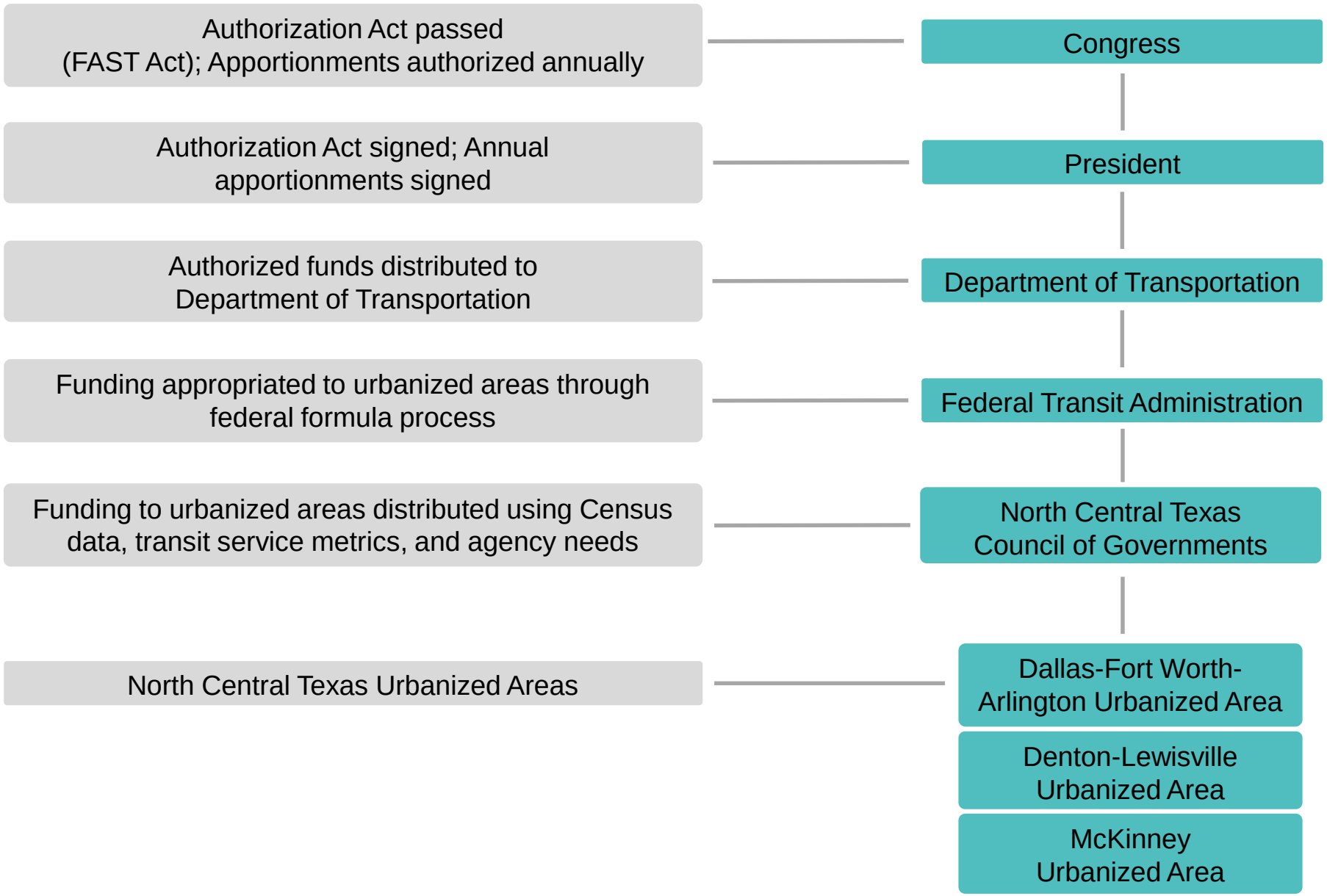
BACKGROUND: DFW SHARE

- The Dallas-Fort Worth region receives approximately a quarter of the State's transportation funds
- Funds are split into east and west sub-regions. The distribution is based on several factors including:

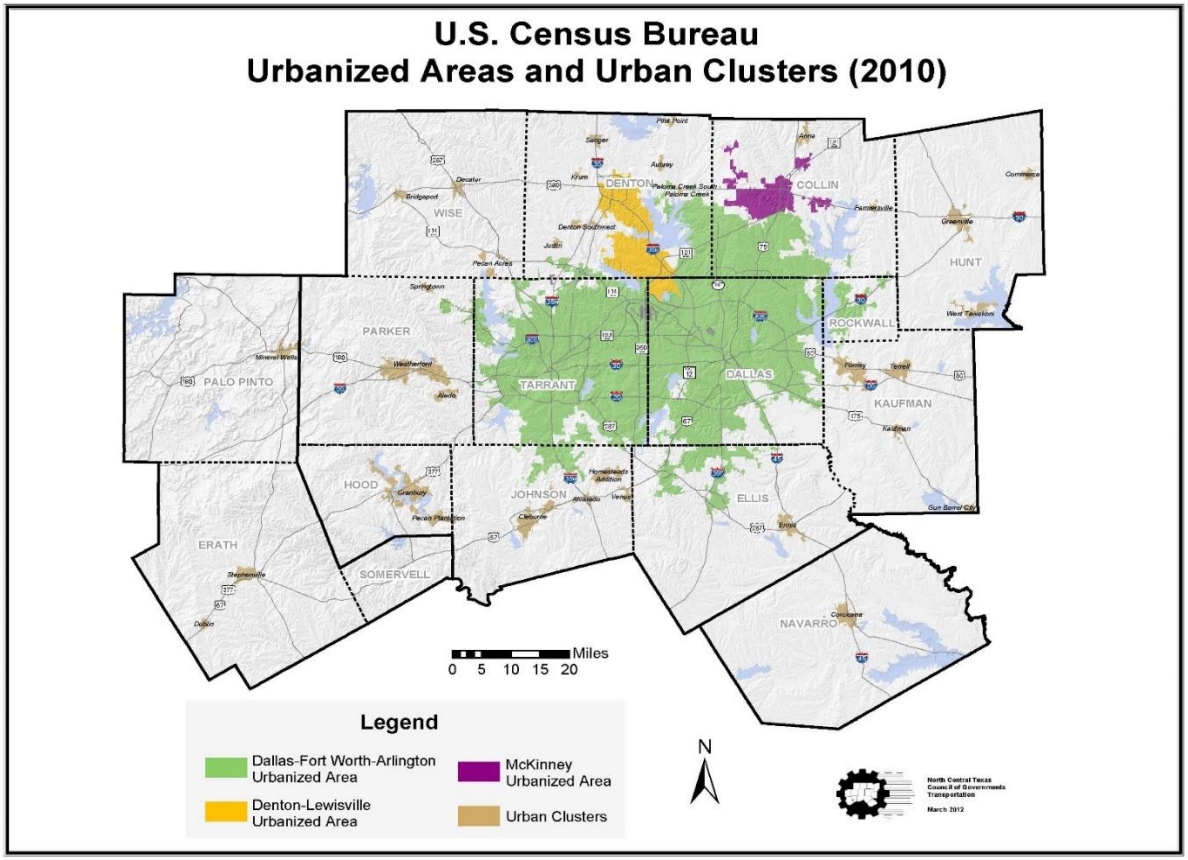
POPULATION	EMPLOYMENT
EMISSIONS	VEHICLE MILES OF TRAVEL



BACKGROUND: TRANSIT FORMULA FUNDING



BACKGROUND: NORTH CENTRAL TEXAS URBANIZED AREAS



BACKGROUND: FEDERAL TRANSIT PROGRAMS & PROVIDERS

PROGRAM	PURPOSE	PROJECT TYPES	YEARLY FUNDING
§5307: Urbanized Area Formula (includes Job Access/ Reverse Commute projects)	Serve general public including low income workers	Capital Operating Planning	~$76M
§5310: Enhanced Mobility of Seniors and Individuals with Disabilities	Serve needs of the elderly and individuals with disabilities	Capital Operating Planning	~$3.5M
§5337: State of Good Repair	Maintain rail services	Capital	~$28M
§5339: Bus and Bus Facilities	Purchase vehicles and/or maintain bus services	Capital	~8.5M

ELIGIBLE TRANSIT PROVIDERS

TRANSIT AUTHORITIES	LOCAL GOVERNMENTS	SMALL TRANSIT AGENCIES
Dallas Area Rapid Transit Denton County Transportation Authority Trinity Metro (Fort Worth Transportation Authority)	City of Arlington City of Grand Prairie City of McKinney City of Mesquite North Central Texas Council of Governments	City/County Transportation Community Transit Services Northeast Transportation Services Public Transit Services Span, Inc. STAR Transit

BACKGROUND: WHAT WE CAN AFFORD

MAJOR EXPENDITURE TYPE	MOBILITY 2045 - (BILLIONS, ACTUAL DOLLARS)
Operations & Maintenance Operations, Maintenance, Rehabilitation, Safety, Facility Reconstruction, Transit Operations	**$36.8**
Non-Capacity Improvements Congestion Management Process, Air Quality & Environment, Bicycle & Pedestrian, Sustainable Development, Transportation Enhancements	**$12.6**
Capacity Improvements Major Roadway System, Rail Capital, Bus, Paratransit, Arterials, Freight	**$86.9**
Total	**$136.4**

Values may not sum due to independent rounding.

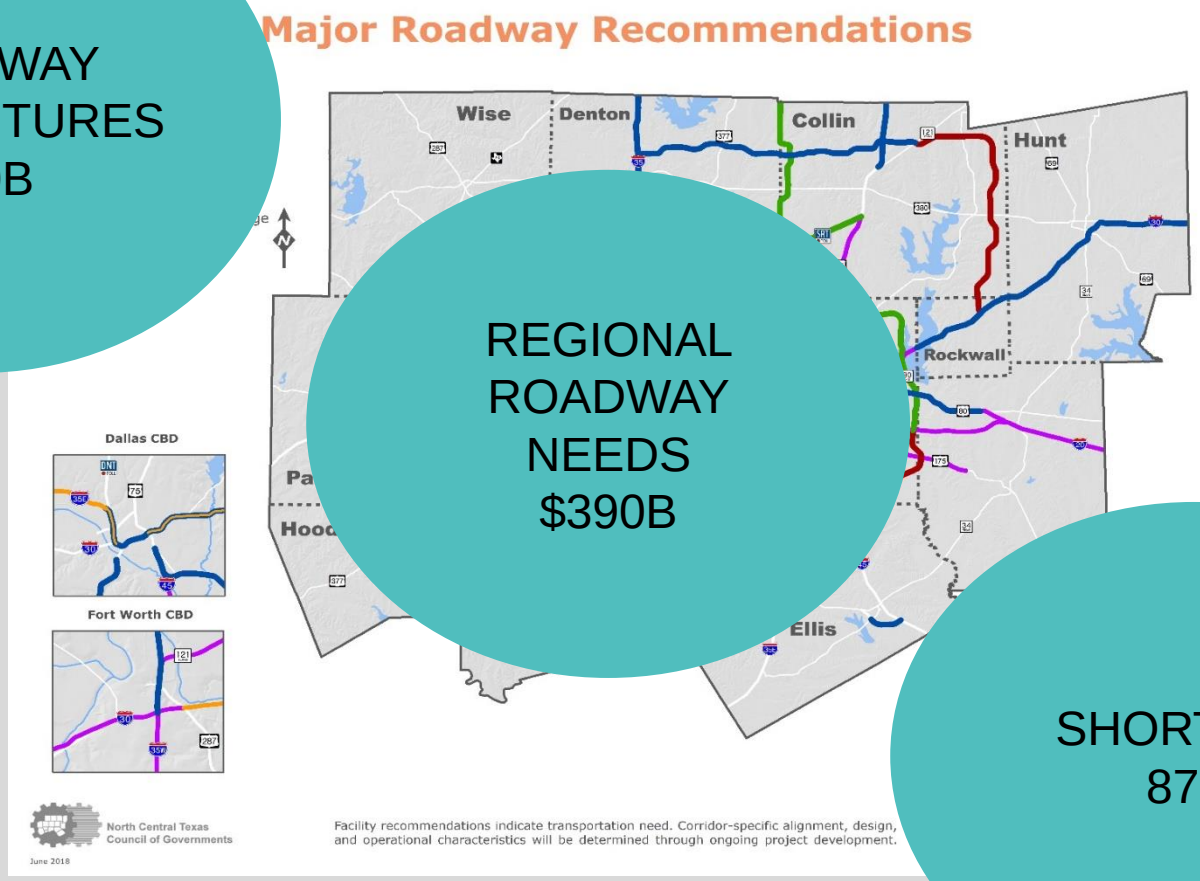
The long-range transportation plan, Mobility 2045, is required to be constrained to financial resources that are reasonably expected to be available. Between now and 2045, this is the region's expected spending.

BACKGROUND: WHAT WE CAN AFFORD

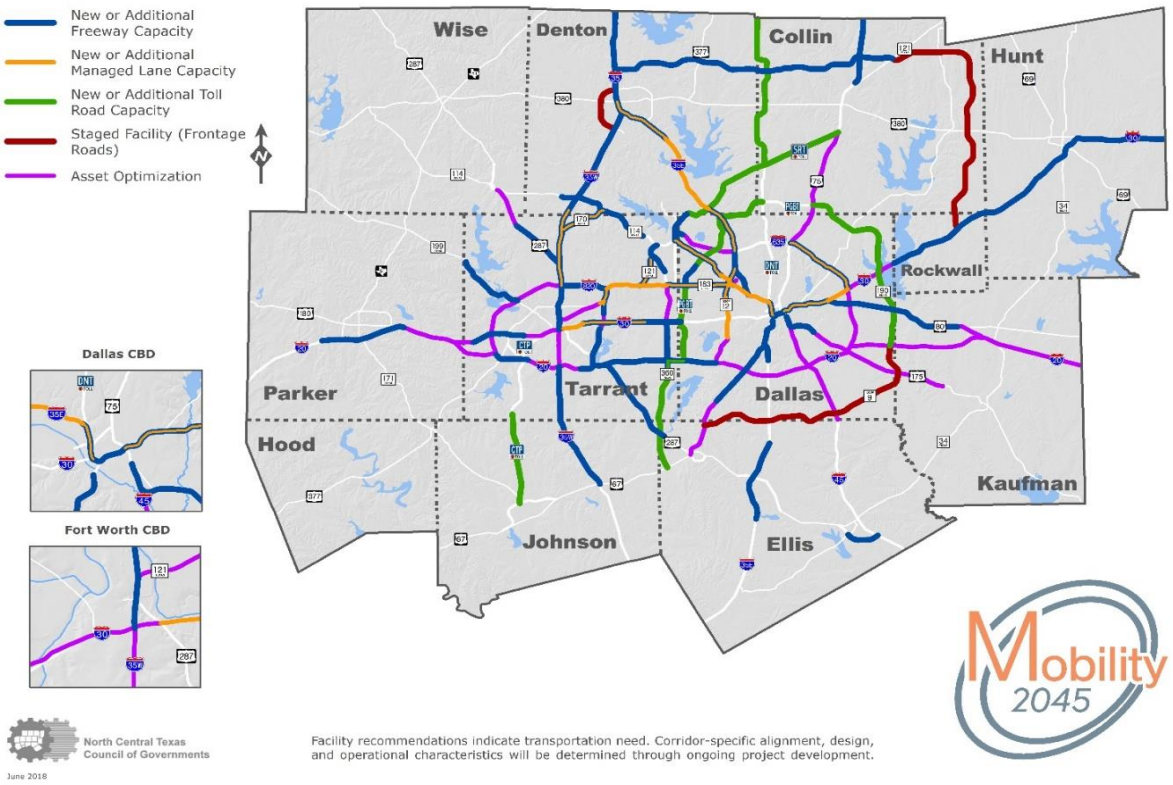
ROADWAY EXPENDITURES $50B

REGIONAL ROADWAY NEEDS $390B

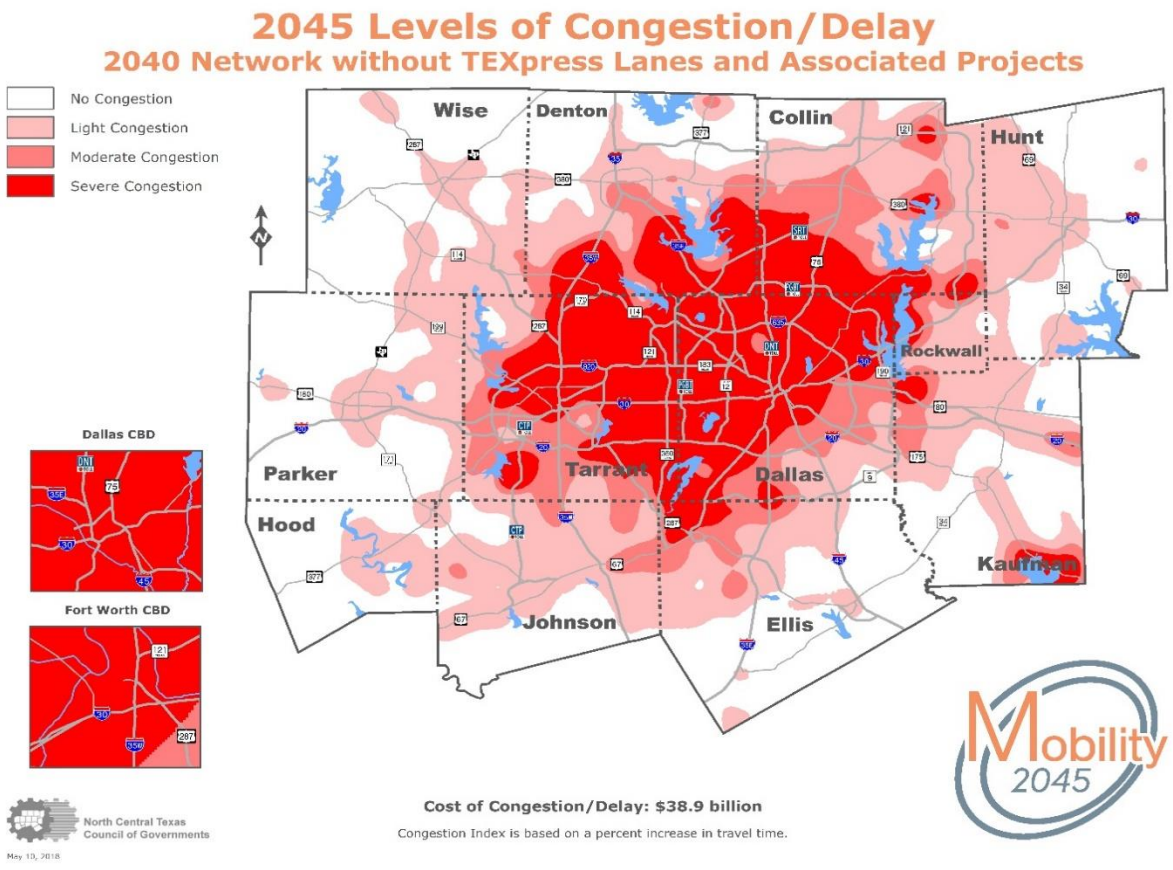
SHORTFALL 87%



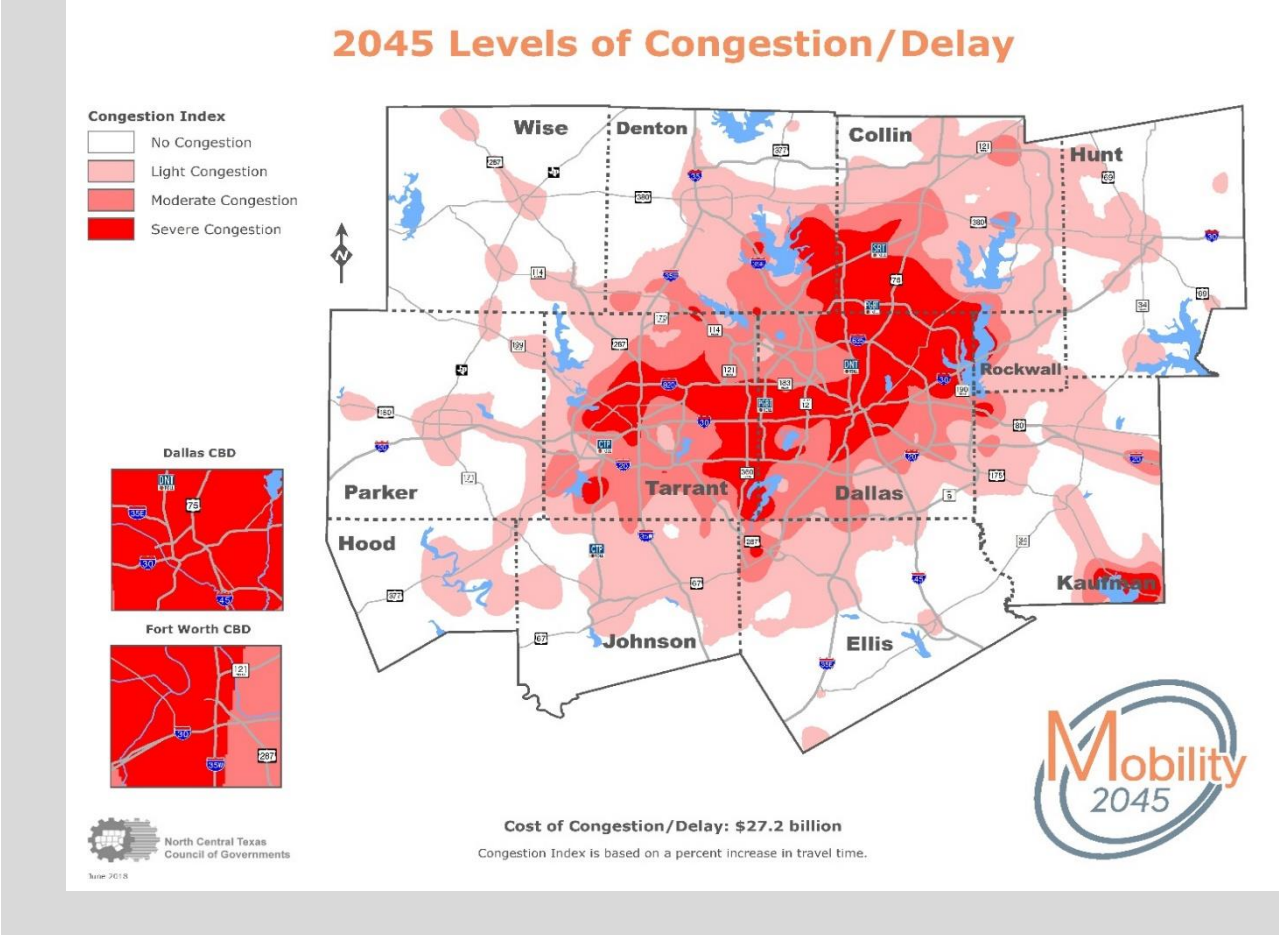
BACKGROUND: WHAT WE CAN AFFORD



BACKGROUND: FUTURE CONGESTION WITHOUT TOLLED MANAGED LANES



BACKGROUND: FUTURE CONGESTION WITH MOBILITY 2045 PROJECTS



BACKGROUND: SUMMARY

The region has grown rapidly and is expected to continue growing between now and 2045

Limited transportation funds are available through a variety of sources at all levels of government

The region needs approximately $390 billion (actual dollars) to eliminate the worst levels of congestion between now and 2045

The region is expected to have $50 billion for roadway improvements, (a total of $136.4 billion, actual dollars, for all projects) between now and 2045 to build and maintain the transportation system

WHY WE HAVE A PROBLEM: FUNDING CRISIS

ISSUES FACING EVERYONE

- Aging system
- Highway Trust Fund in the negative
- Federal gas tax last increased in 1993
- Improved fuel efficiency & alternate fuels
- Construction cost inflation

ISSUES FACING TEXAS

- Donor state
- New revenue sources fluctuate
- State gas tax last increased in 1991
- Gas tax not indexed
- 5 cents of gas tax dedicated to education
- Low vehicle registration fees

Recent legislative and voter action from Prop. 1 and Prop. 7 have made new funds available for roadway improvements in Texas.

WHY WE HAVE A PROBLEM: THREATS > OPPORTUNITIES

SYSTEM REVENUE

THREATS
- Rescissions
- Diversions
- Inflation
- System age
- HTF insolvency
- Gas tax erosion

OPPORTUNITIES
- New revenue in form of Prop 1 and Prop 7

FACILITY REVENUE

THREATS
- Lack of legislative authority
- Public backlash towards tolls in some regions

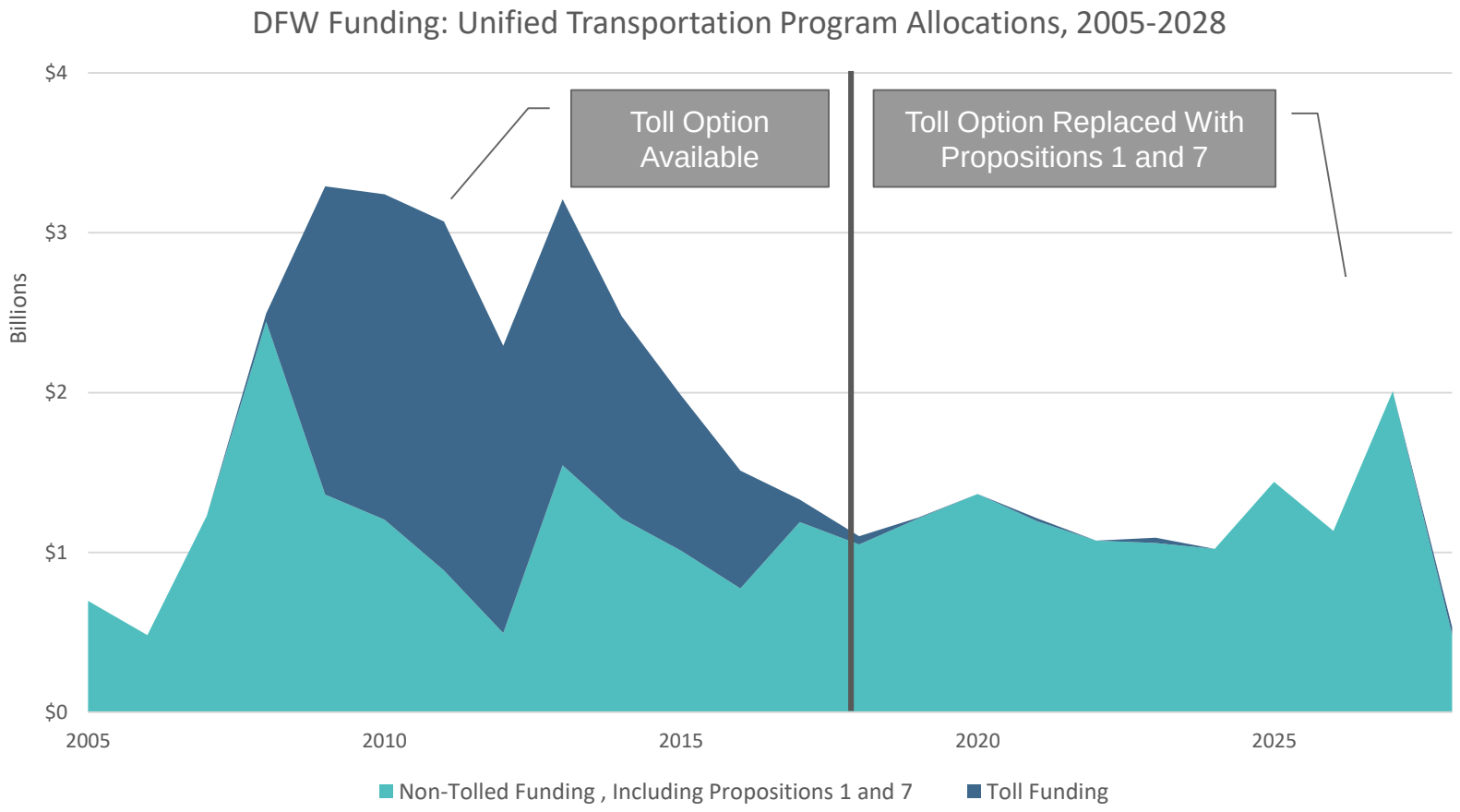
OPPORTUNITIES
- Concession payments
- Excess toll revenue
- Earned interest

LOCAL REVENUE

THREATS
- Sales tax caps
- Era of “no new taxes”
- Competing public services
- Rapid growth

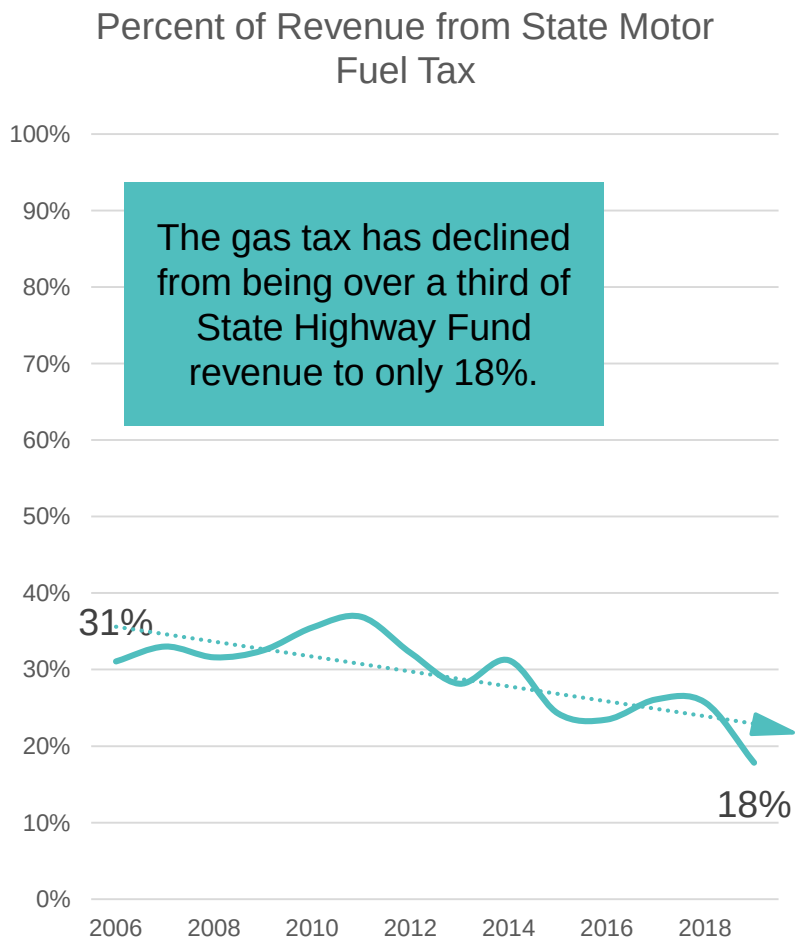
OPPORTUNITIES
- Local fund partnerships
- Sustainable development initiatives

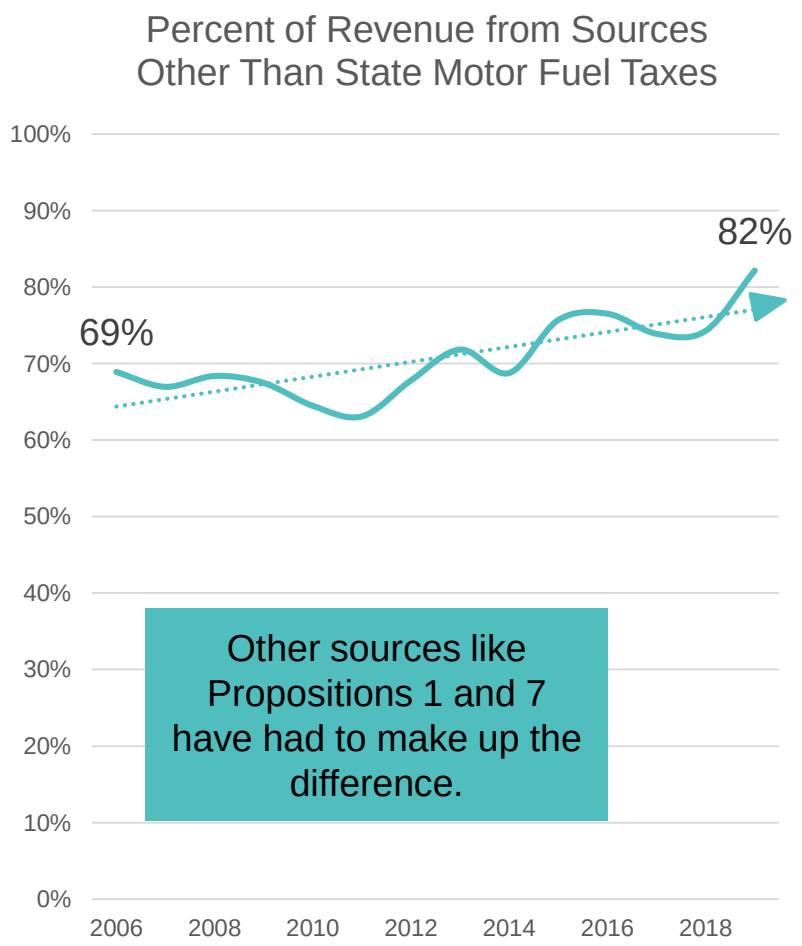
WHY WE HAVE A PROBLEM: DECLINE OF INNOVATIVE TRANSPORTATION FUNDING



Traditional funding has remained about the same, even accounting for new sources of funding such as Propositions 1 and 7.

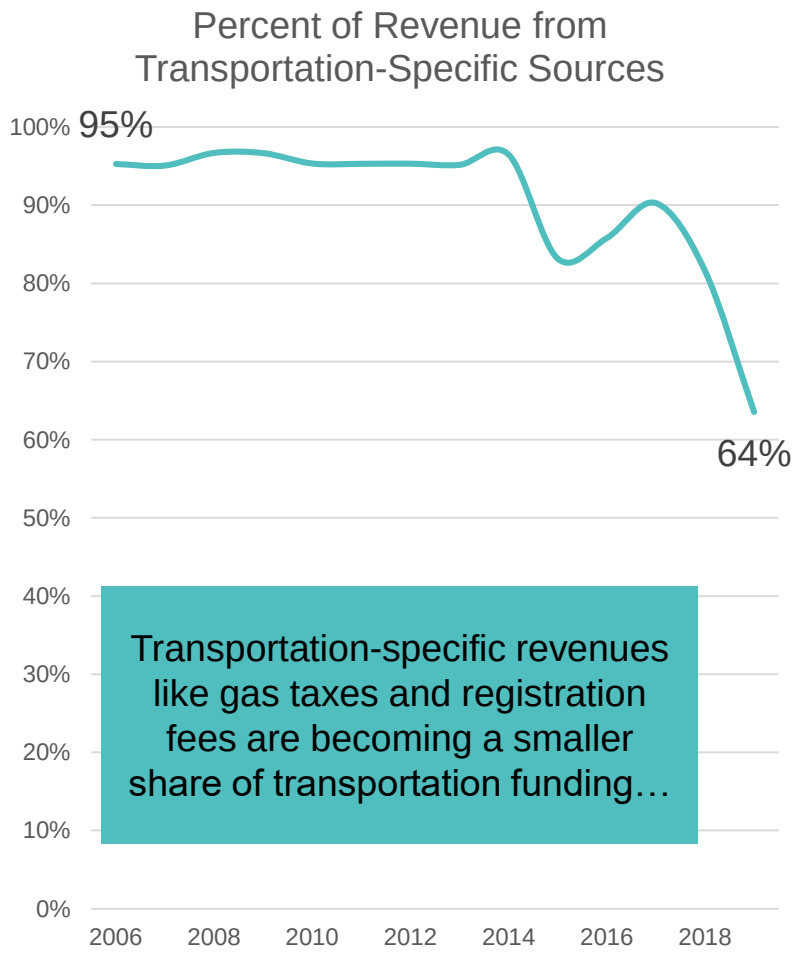
WHY WE HAVE A PROBLEM: DECLINE OF TRADITIONAL TRANSPORTATION FUNDING

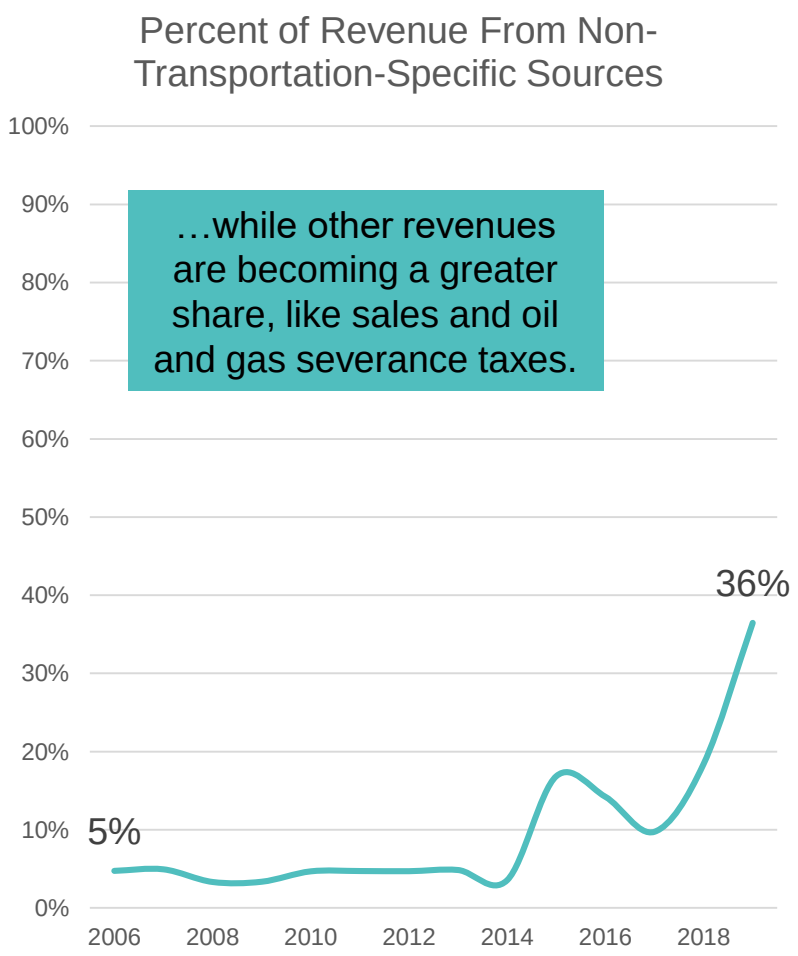




Source: Texas Comptroller of Public Accounts

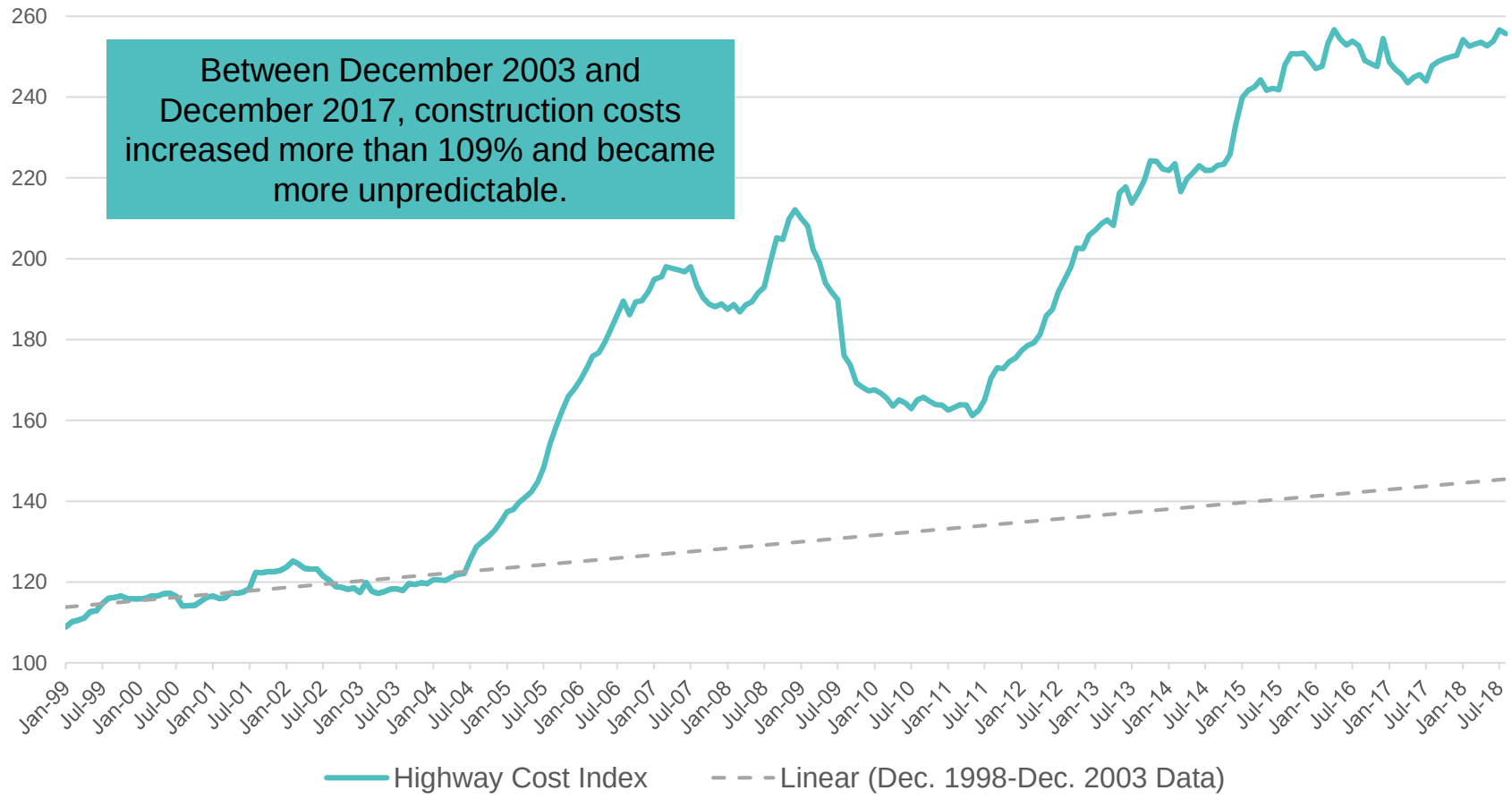
WHY WE HAVE A PROBLEM: MOVING AWAY FROM A TRANSPORTATION USER FEE





Source: Texas Comptroller of Public Accounts

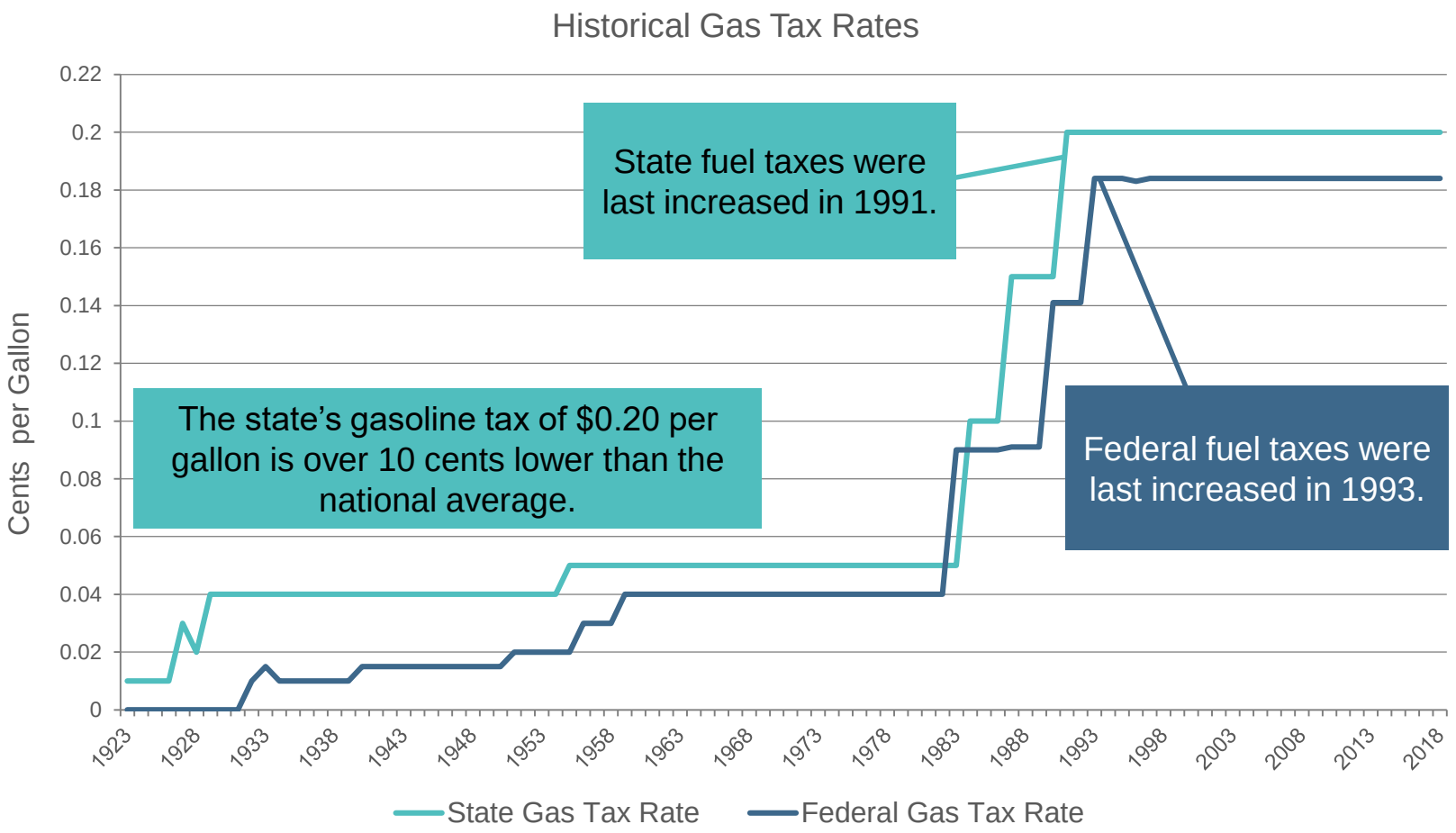
WHY WE HAVE A PROBLEM: CONSTRUCTION COST INFLATION



Despite declines following the economic downturn, costs are still substantially higher than they would have been under more sustainable inflation rate.

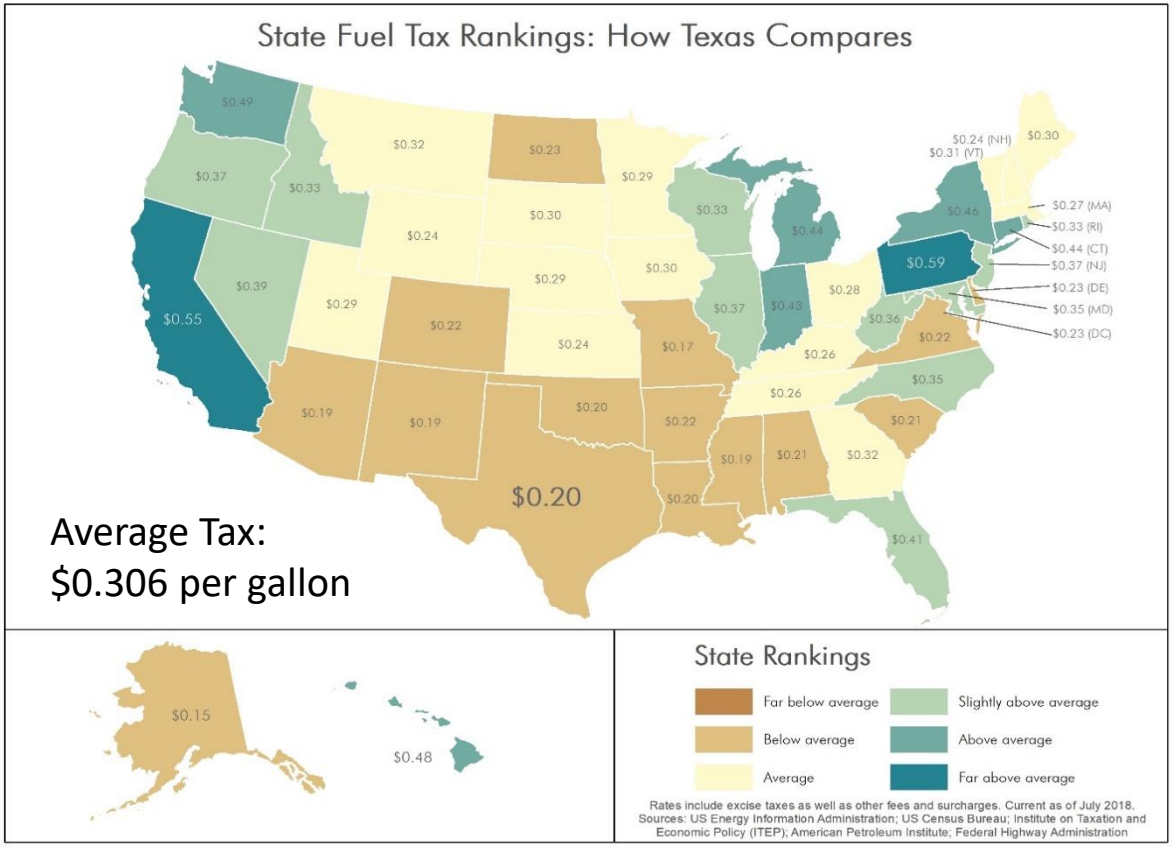
Source: Texas Department of Transportation – Highway Cost Index

WHY WE HAVE A PROBLEM: FUEL TAX RATES

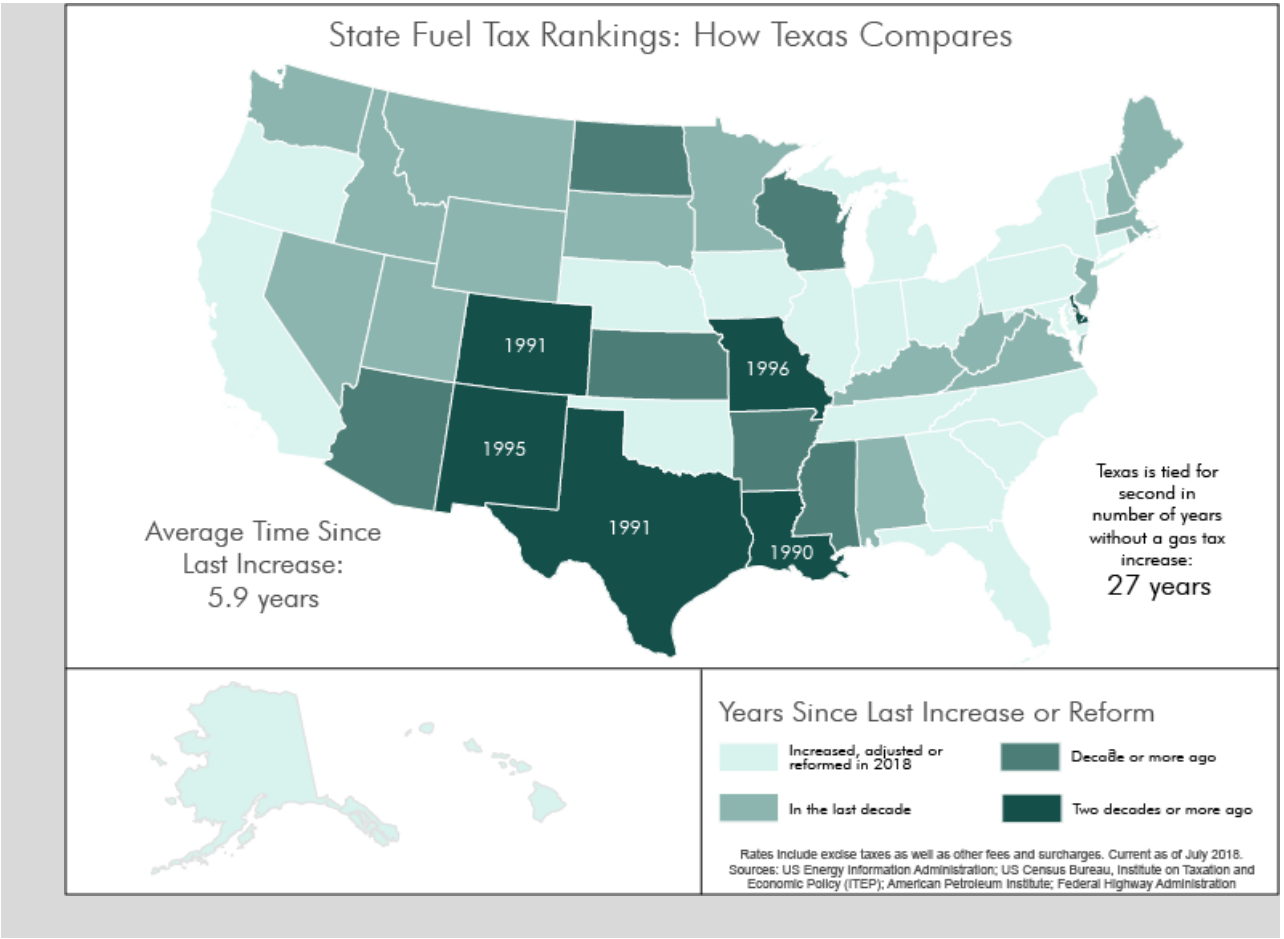


Source: FHWA – Highway Statistics Series – Tax Rates on Motor Fuel

WHY WE HAVE A PROBLEM: FUEL TAX RATES

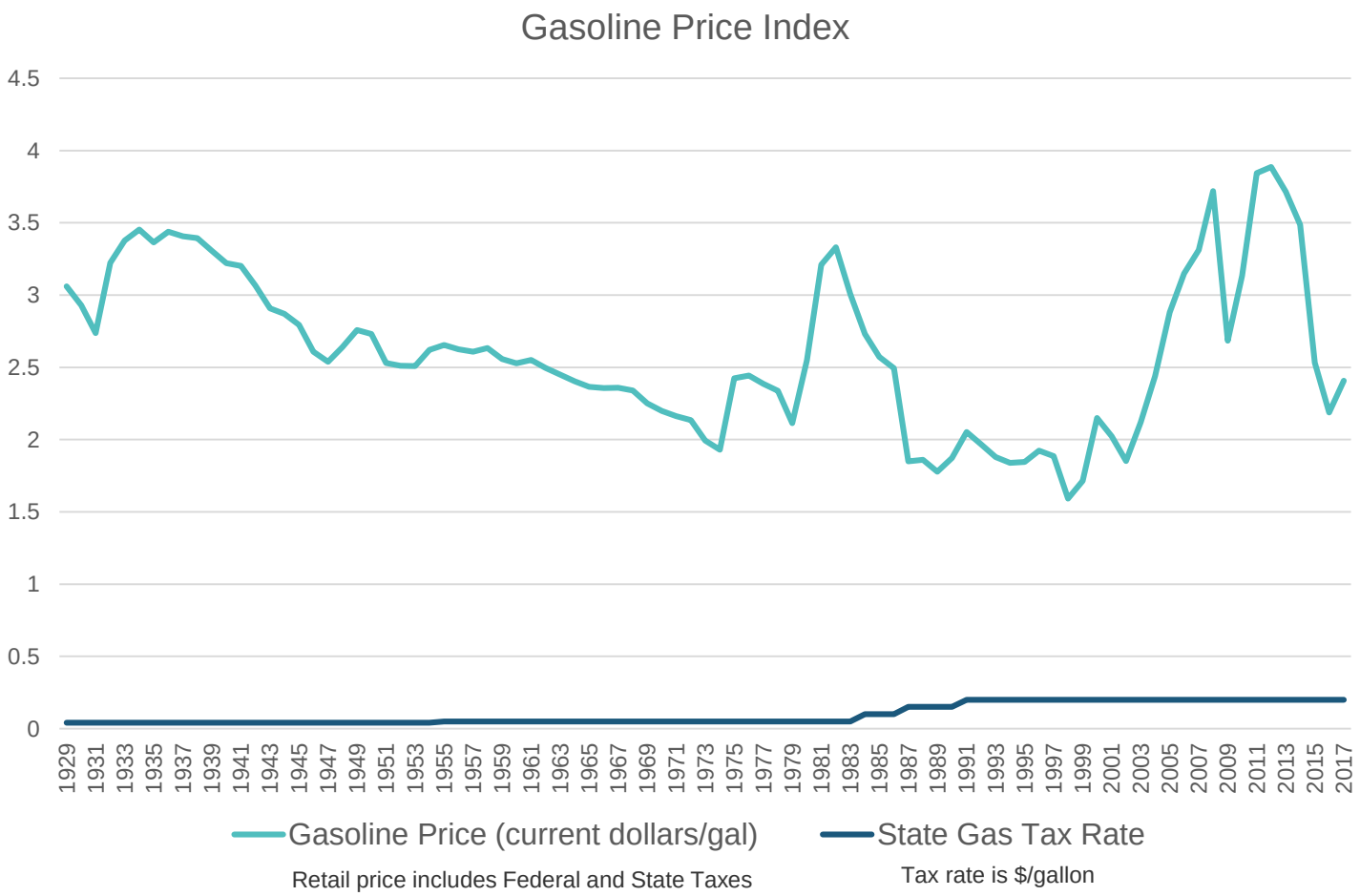


WHY WE HAVE A PROBLEM: STAGNANT REVENUES



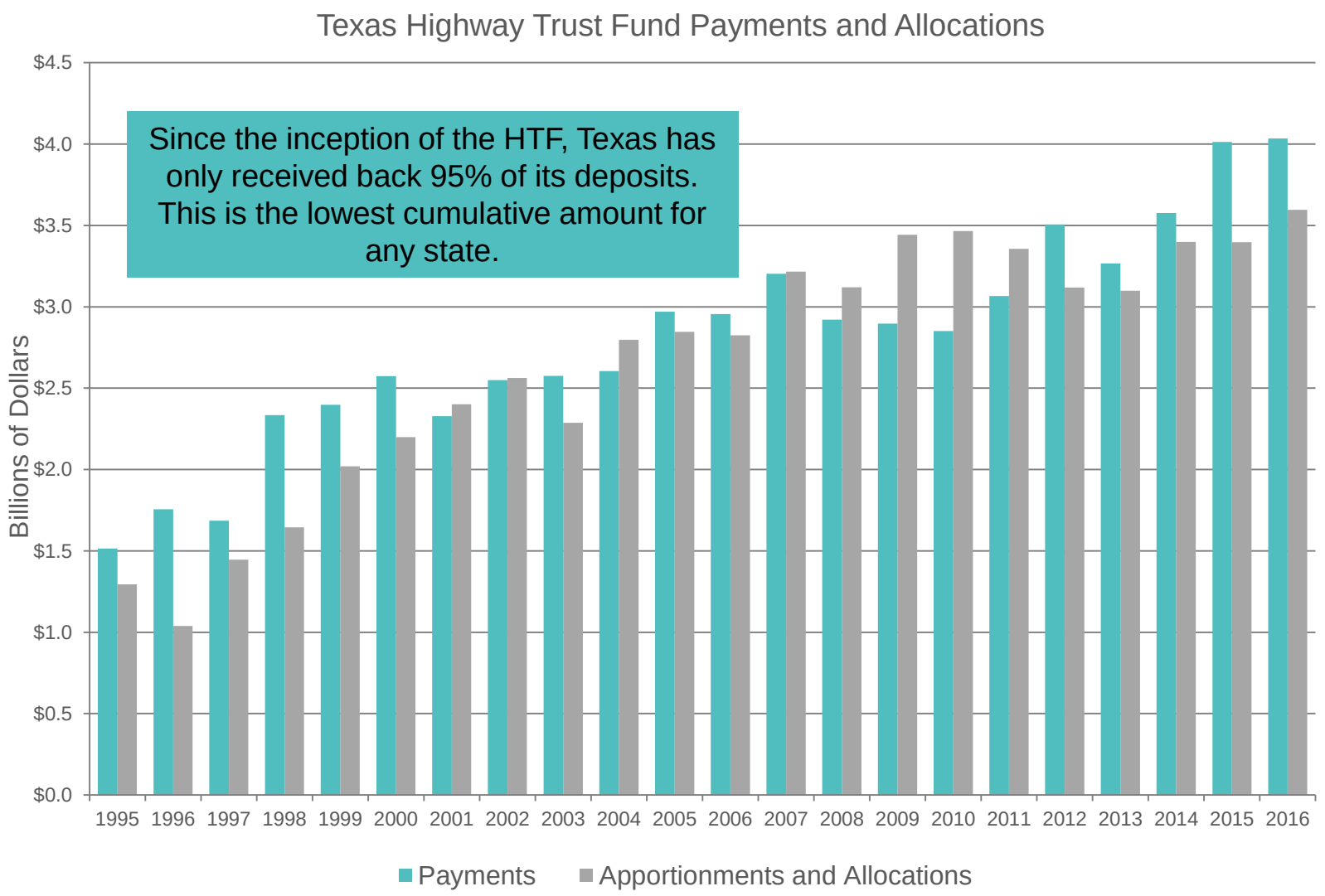
WHY WE HAVE A PROBLEM: GAS PRICE INCREASES UNRELATED TO TAX REVENUE

An increase in gas price does not equate to additional tax revenue because fuel taxes are assessed on a per gallon basis. Over time, the amount of revenue generated has weakened because of the unchanged tax rate, increased usage of fuel efficient vehicles, and inflation.



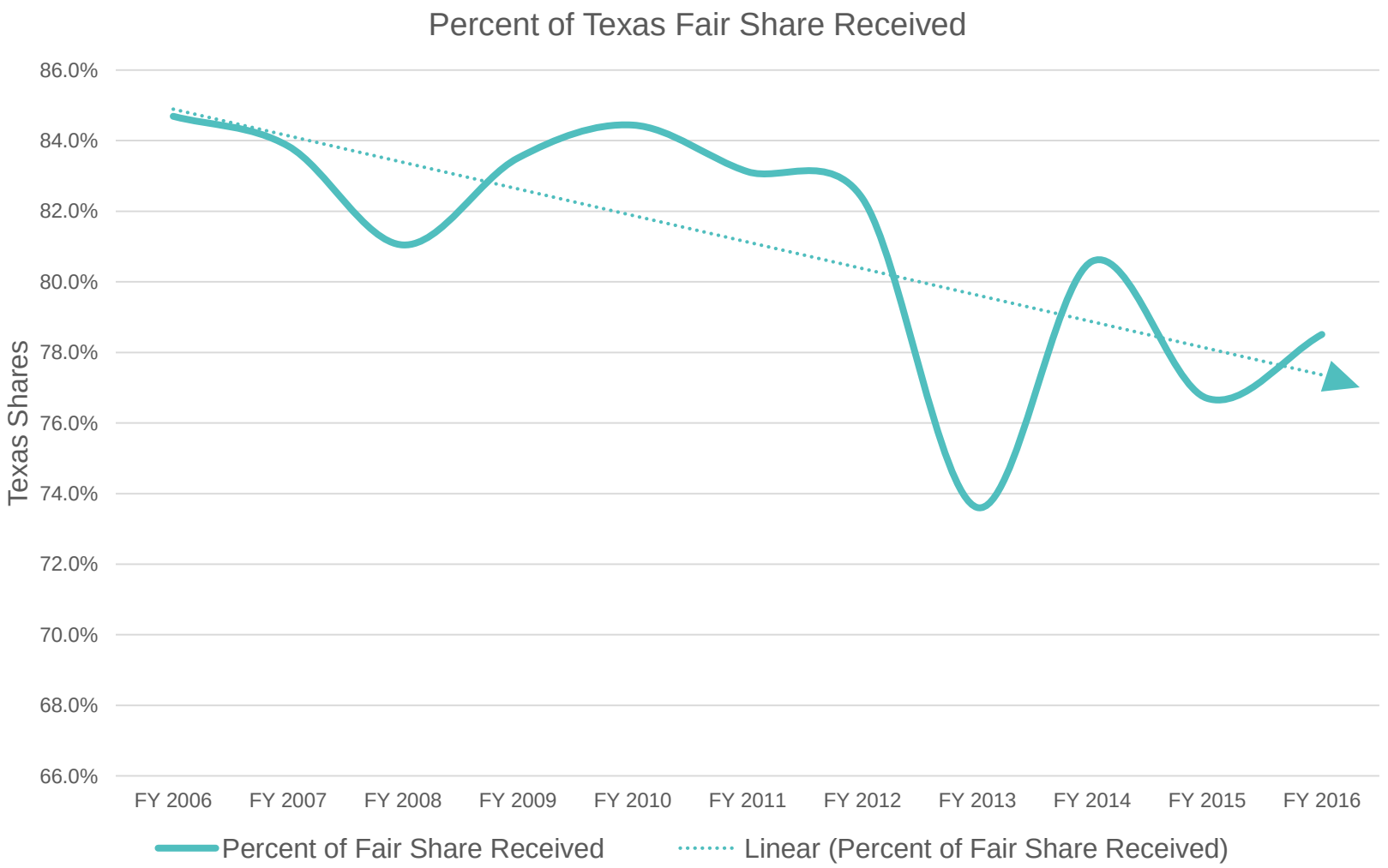
Source: Energy Information Administration, Annual Energy Review, Table 5.4 and *Monthly Energy Review*, Table 9.4
FHWA – Highway Statistics Series – Tax Rates on Motor Fuel

WHY WE HAVE A PROBLEM: DONOR STATUS



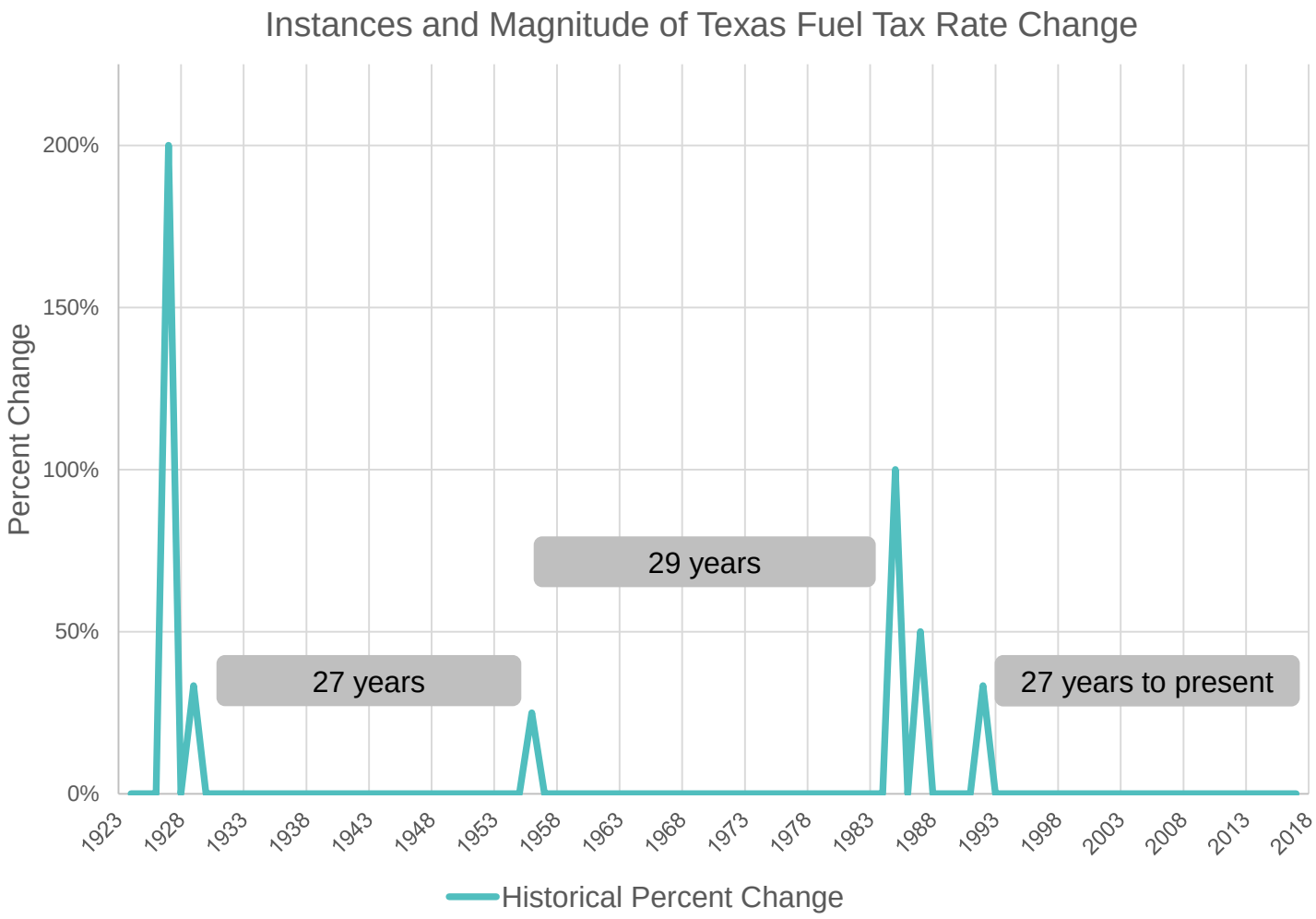
Source: FHWA State Highway Statistics Table FE-221 – Includes HTF Revenues and General Revenue Transfers

WHY WE HAVE A PROBLEM: DONOR STATUS



Includes HTF Revenues Only

WHY WE HAVE A PROBLEM: STAGNANT REVENUES



Source: Texas Comptroller of Public Accounts, NCTCOG Mobility 2045

WHY WE HAVE A PROBLEM: OTHER ISSUES

SYSTEM AGE & MAINTENANCE

Since 2003, the cost to maintain the existing system has surpassed state gas tax receipts.

Source: TxDOT

ALTERNATIVE FUEL USE

There are benefits to using alternative fuels. However, as they become prevalent, revenues collected from traditional fuels will diminish.

IMPROVED FUEL EFFICIENCY

Improved fuel efficiency has many benefits. However, as less fuel is consumed, less revenue is collected.

These issues highlight the competing public values between how we fund the transportation system and our concerns for dependence on foreign oil, non-renewable fuel sources, the environment, etc.

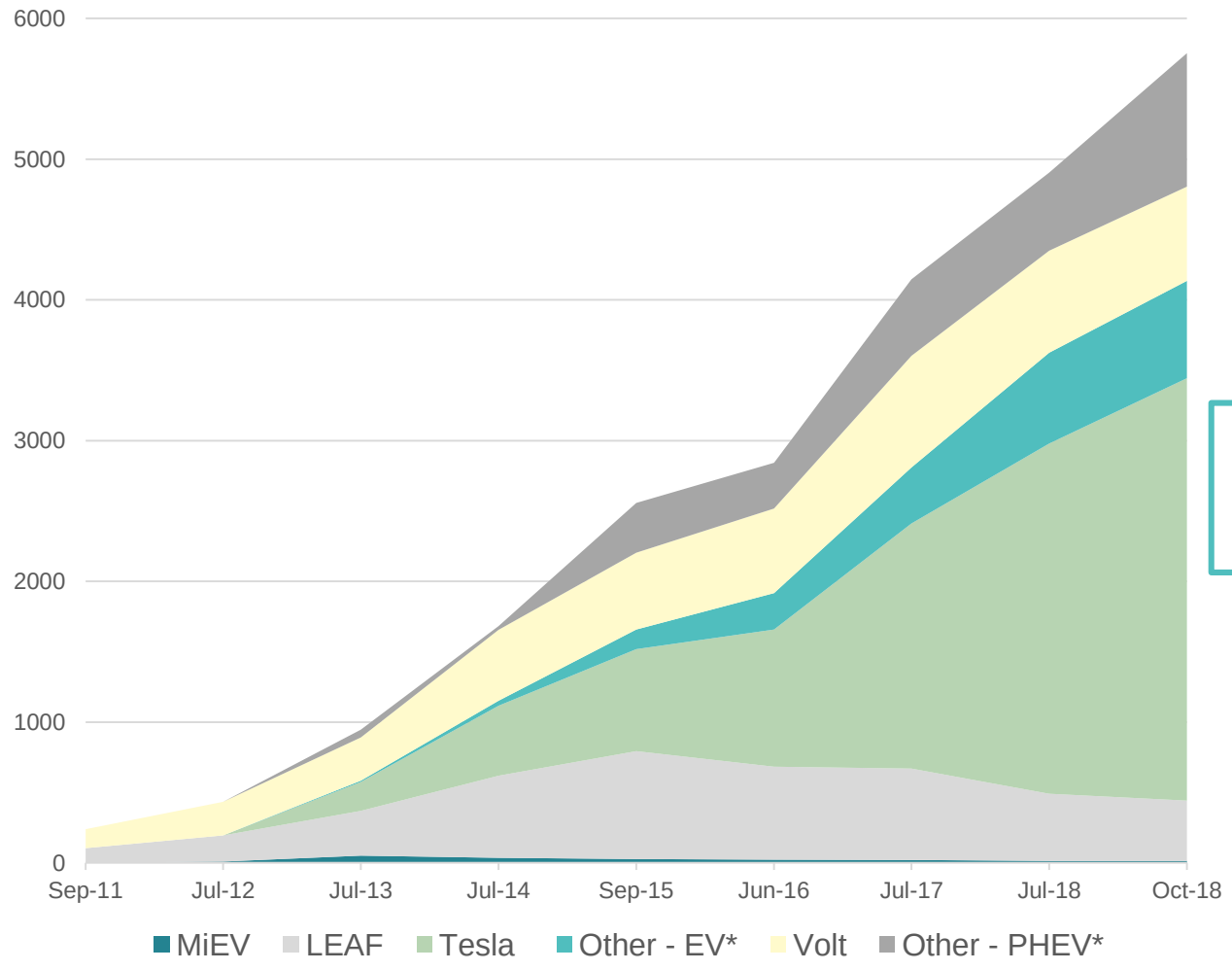
WHY WE HAVE A PROBLEM: FUEL EFFICIENCY

FUEL EFFICIENCY SCENARIO	AVERAGE ANNUAL MILEAGE	AVERAGE MILES PER GALLON	GALLONS CONSUMED	GAS TAX PER GALLON	REVENUE
Low	15,000	19	789	.20	$158
Low-Average	15,000	19.5	769	.20	$154
Average	15,000	20	750	.20	$150
High	15,000	21	714	.20	$143

As fuel efficiency increases, revenue from the gas tax decreases. Inflation adds even more pressure, the longer we wait to increase the per-gallon tax rate.

WHY WE HAVE A PROBLEM: ALTERNATIVE FUEL VEHICLES

NORTH TEXAS ELECTRIC VEHICLE (EV) REGISTRATION HISTORIC TREADLINE

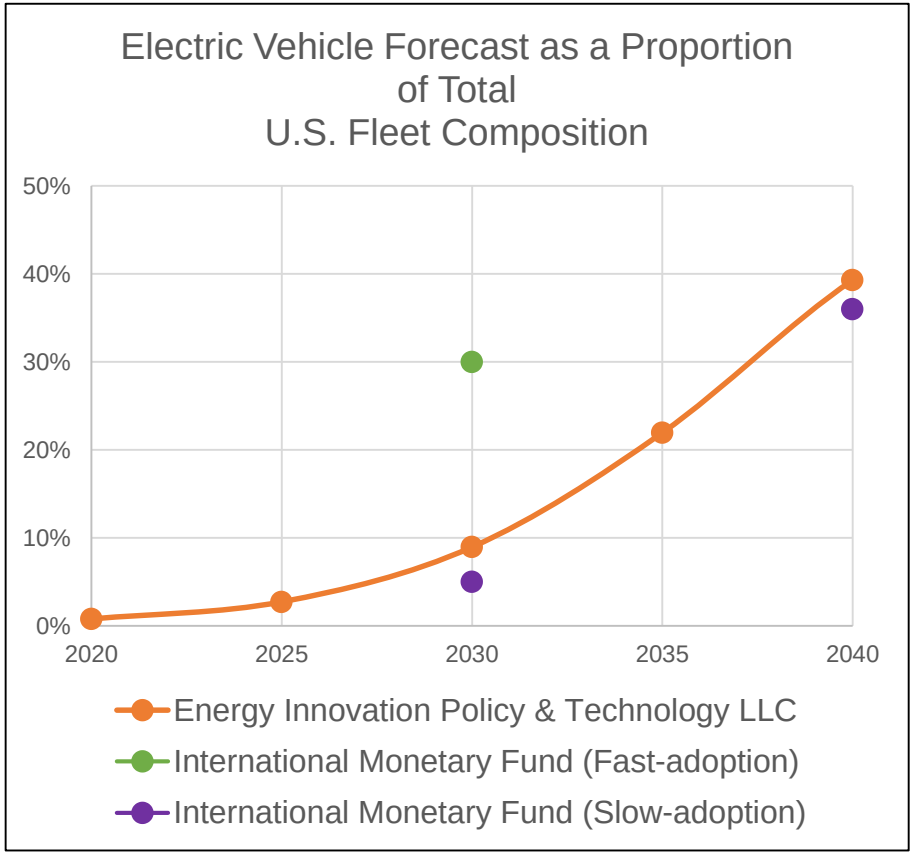


As of Oct. 2018
Total: 5752

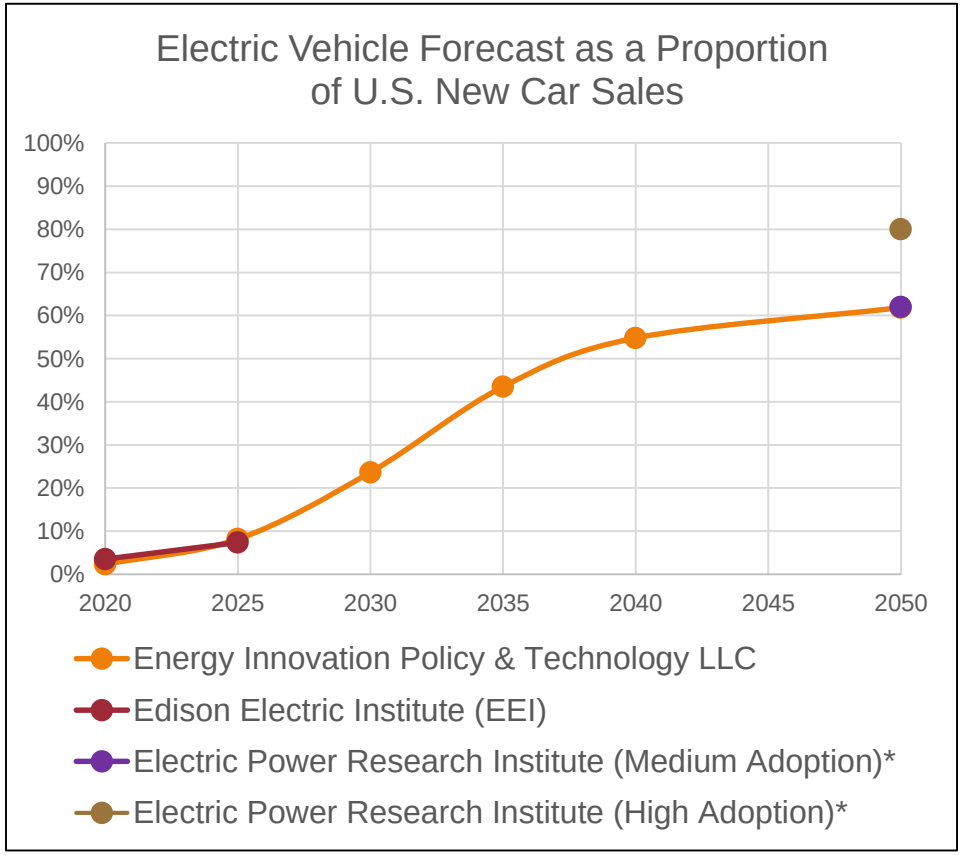
WHY WE HAVE A PROBLEM: ALTERNATIVE FUEL VEHICLES

U.S. ELECTRIC VEHICLE FORECASTS, 2020-2050

% U.S. Fleet in 2017 = 0.0031%



% U.S. New Car Sales in 2017 = 1.07%



Energy Innovation Policy & Technology Source: https://us.energypolicy.solutions/
Edison Electric Institute Source: http://www.edisonfoundation.net/iei/publications/Documents/IEI_EEI%20PEV%20Sales%20and%20Infrastructure%20thru%202025_FINAL%20(2).pdf
EPRI (Electric Power Research Institute) Source: https://www.energy.gov/sites/prod/files/oeprod/DocumentsandMedia/EPRI-NRDC_PHEV_GHG_report.pdf
IMF Source: Cherif, Reda, Fuad Hasanov, and Aditya Pande. (2017). Riding the Energy Transition: Oil Beyond 2040. International Monetary Fund (IMF) Working Papers.
https://www.imf.org/en/Publications/WP/Issues/2017/05/22/Riding-the-Energy-Transition-Oil-Beyond-2040-44932Cooper, Adam and Kellen Schefter

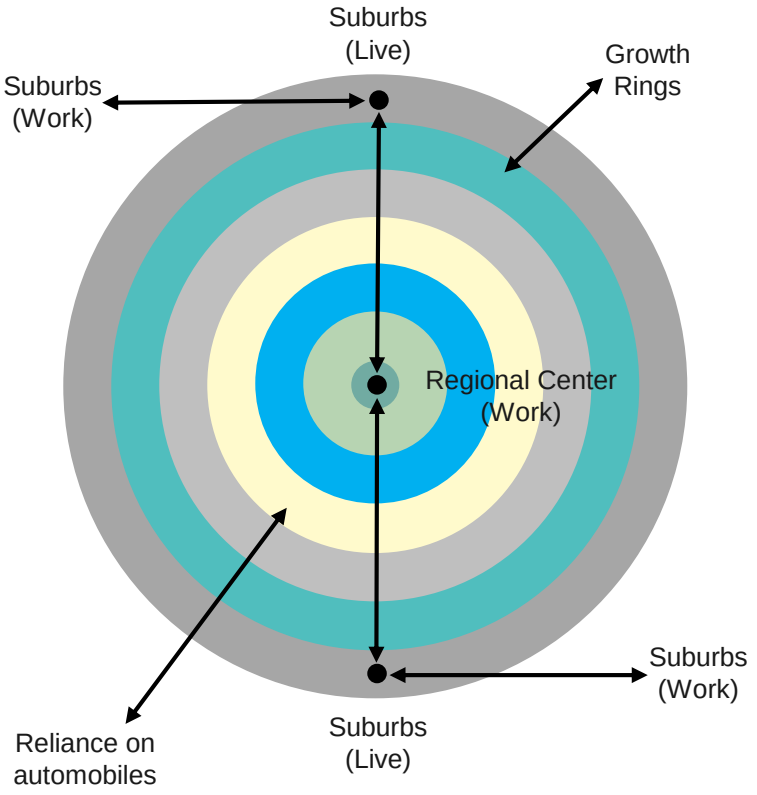
HOW WE GOT HERE: DFW ISSUES

- Growth in single occupant vehicles (SOV)
- Increased travel time and costs
- Air quality non-attainment area
- Suburban sprawl
- Transportation needed to resolve incompatible land use
- Increasing distance from schools and employment centers

Central Expressway at Belt Line Road

HOW WE GOT HERE: SUBURBAN GROWTH

Suburban sprawl has resulted in auto-oriented, low-density development	Single occupancy travel has increased, which affects air quality and traffic volume
As people move further away from their work, travel cost will increase	Rail cost effectiveness decreases
Use of alternative forms of transportation decreases	



HOW WE GOT HERE: SLOW SYSTEM EXPANSION

The rapid population growth in the DFW area in conjunction with funding shortfalls has led to the slow expansion of the transportation system.

DFW will spend $136.4 billion through 2045 on its transportation system

DFW area welcomed 1.1 million new residents from 2005 to 2015

2018 population is 7.4 million

New transportation facilities cannot keep up with growth. By 2045, the vehicle miles of travel will have increased by 56%

The 12-county area needs $390 billion to alleviate traffic congestion

Transportation needs continue to rise but funding is not keeping pace

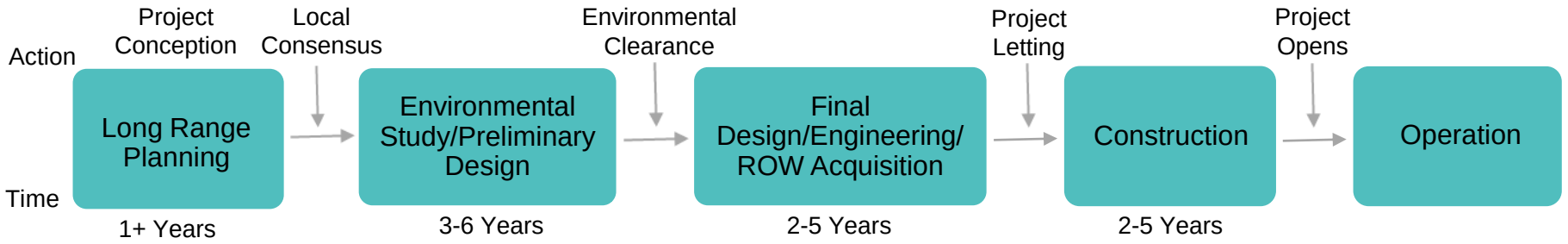
Employment will increase to over 7 million

Population in 2045 will be 11.2 million

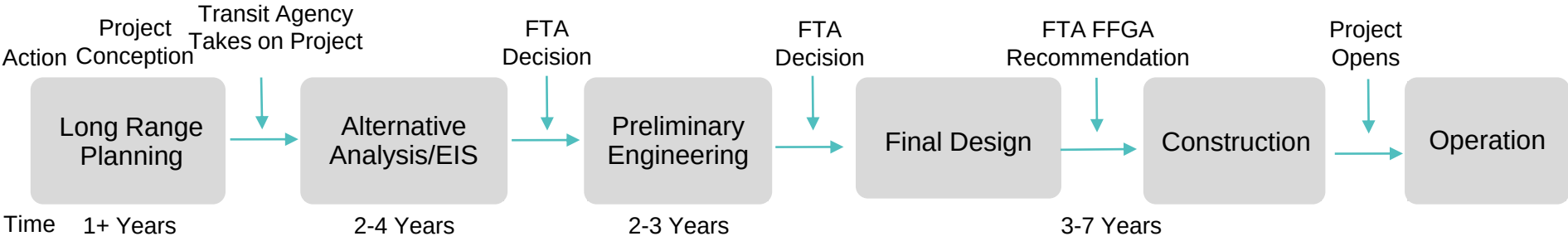
Inadequate Revenue & Continued Population Growth = Slow System Expansion

HOW WE GOT HERE: PROJECT DELIVERY

TYPICAL ROADWAY PROJECT DEVELOPMENT PROCESS



TYPICAL TRANSIT PROJECT DEVLEOPMENT PROCESS



Project delivery can take over 17 years to complete.

Key: EIS = Environmental Impact Statement; FHWA = Federal Highway Administration; FFGA = Full Funding Grant Agreement; FTA = Federal Transit Administration; ROW = Right-of-Way

SOLUTIONS: INNOVATIVE PROJECT DELIVERY FOR TOLL PROJECTS

INNOVATION IN NORTH CENTRAL TEXAS

PRICED FACILITIES	PUBLIC-PRIVATE PARTNERSHIPS	REGIONAL TOLL REVENUE INITATIVE
• Tolled managed lanes are now being used to lessen traffic congestion	• Investments from the private sector have helped the region improve the transportation system	• This initiative expedites transportation projects by providing money for improvements that otherwise may have to wait years to be completed
• Money collected from tolls goes toward paying for construction and continued maintenance of the roads	• Federal and state funds in conjunction with contributions from the NTTA, local transit sales tax, and various municipal bond elections can be used to operate and maintain the transportation system	
• HOV/Managed Lanes are now open to solo drivers who wish to pay for more reliable commutes		

SOLUTIONS: MAXIMIZE THE SYSTEM

Programs and projects which maximize the existing transportation system are the first to be evaluated.

This approach ensures that regional travel demand is first addressed through projects and strategies that have the most benefits and are cost effective.

1

MAXIMIZE EXSISITING SYSTEM

- MAINTENANCE
- MANAGEMENT & OPERATIONS
- GROWTH, DEVELOPMENT, & LAND USE

2

STRATEGIC INFRASTRUCTURE INVESTMENT

- RAIL & BUS
- HOV/MANAGED LANES
- FREEWAY, TOLLWAY, & ARTERIAL CAPACITY

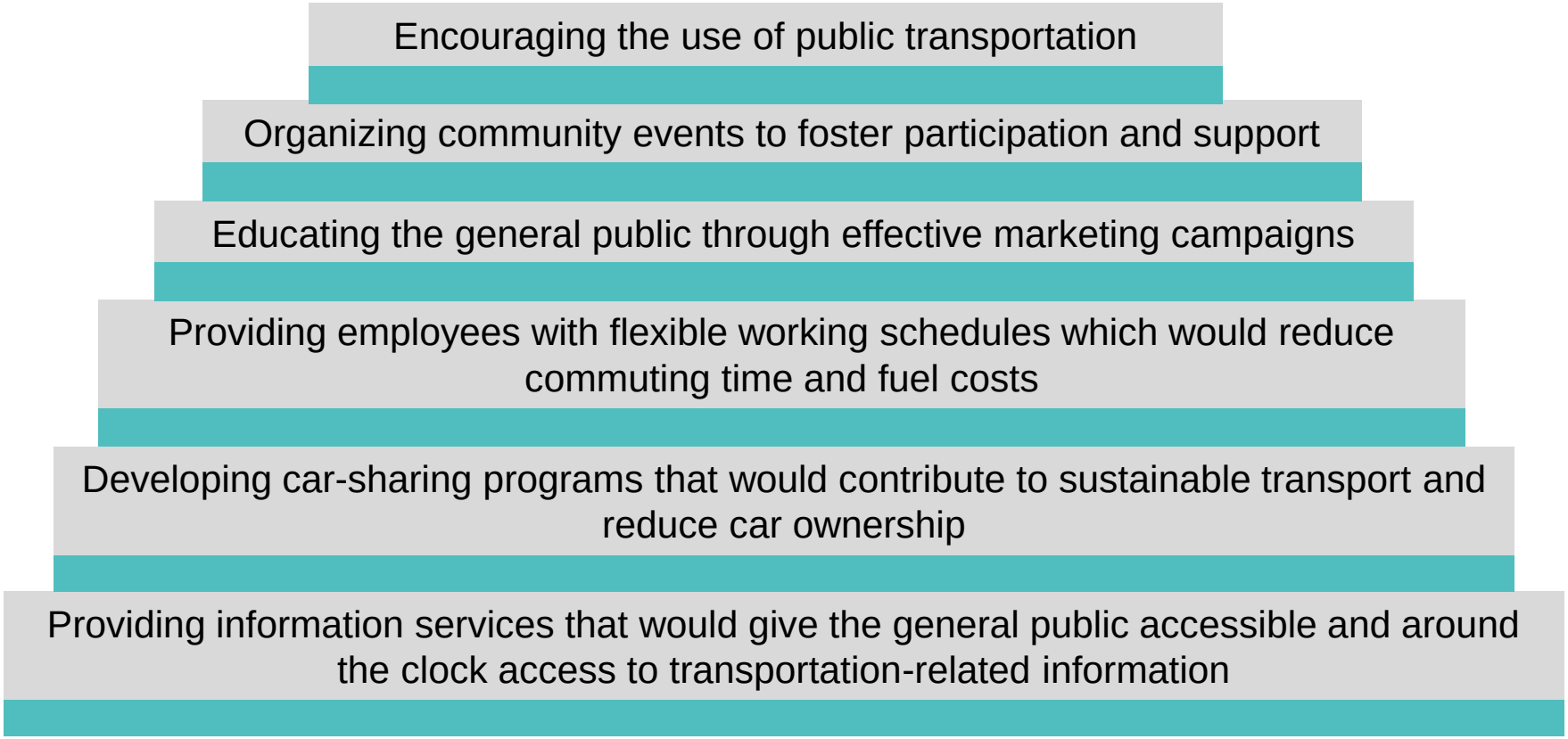
SOLUTIONS: INNOVATIVE PROJECT DELIVERY

In order to maximize the existing transportation system and maximize available funds the following strategies are used:

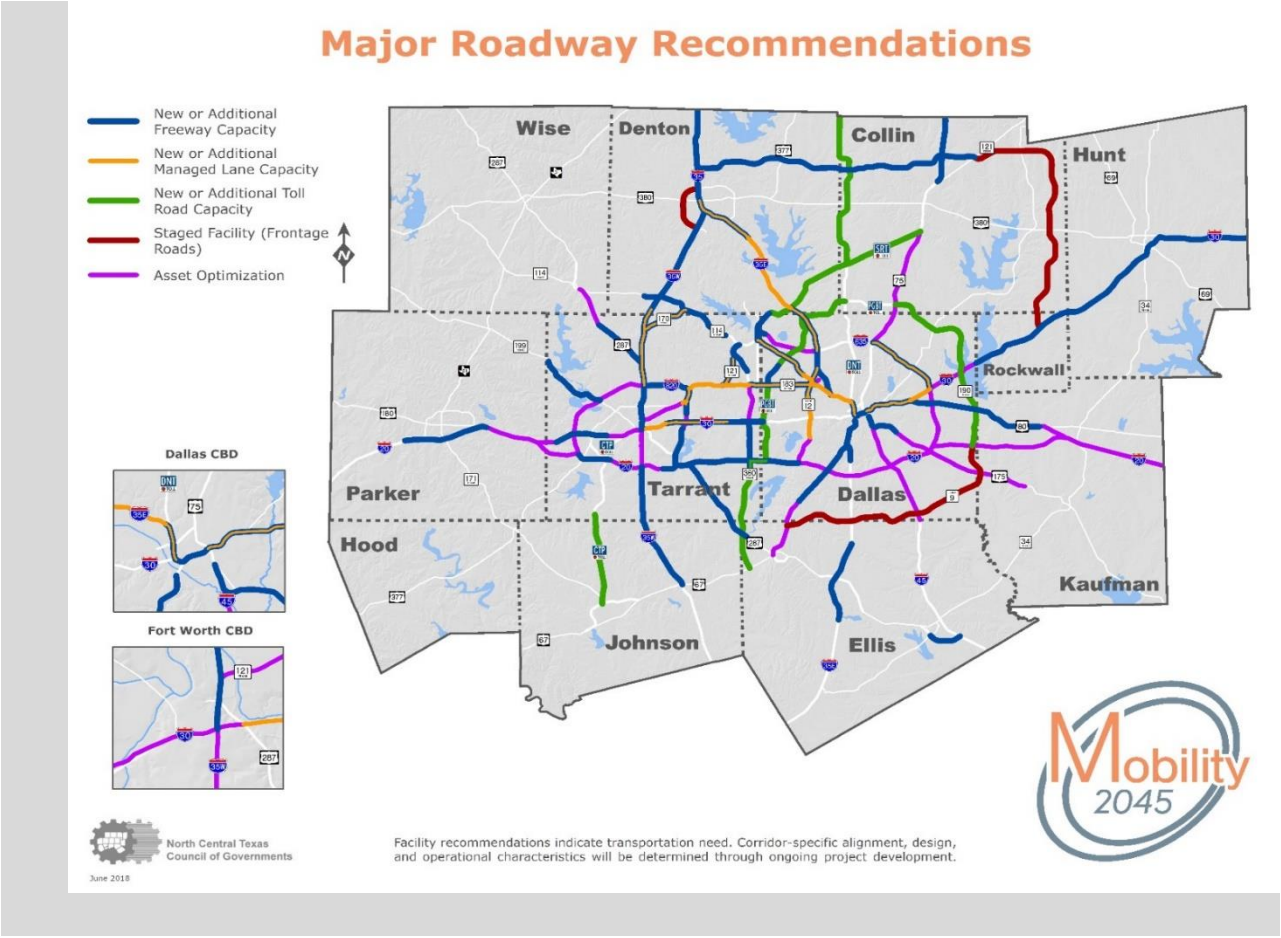
TRAVEL DEMAND MANAGEMENT	TRANSPORTATION SYSTEM MANAGEMENT & OPERATIONS	INTELLIGENT TRANSPORTATION SYSTEMS	SUSTAINABLE DEVELOPMENT
Reduces the demand for drive-alone travel on roadways by offering alternatives to single-occupant vehicle driving	Identifies and implements cost-effective congestion mitigation strategies	Integrates advanced communication technologies into transportation infrastructure and in vehicles	Promotes economic development while using limited resources
Improves mobility, accessibility, and air quality within the region	Improves traffic flow, safety, system reliability, and capacity	Improves travel conditions on the transportation system	Promotes livable communities at a pedestrian scale
• On-demand rideshare • Vanpool • Public-private partnerships	• Signal timing • Bottleneck removal • Special event lane reversal	• 5G infrastructure • Vehicle-to-vehicle and infrastructure-to-vehicle communication	• Housing-jobs balance • Mixed-income housing • Safe Routes to School

SOLUTIONS: ENCOURAGE ALTERNATE TRAVEL BEHAVIORS

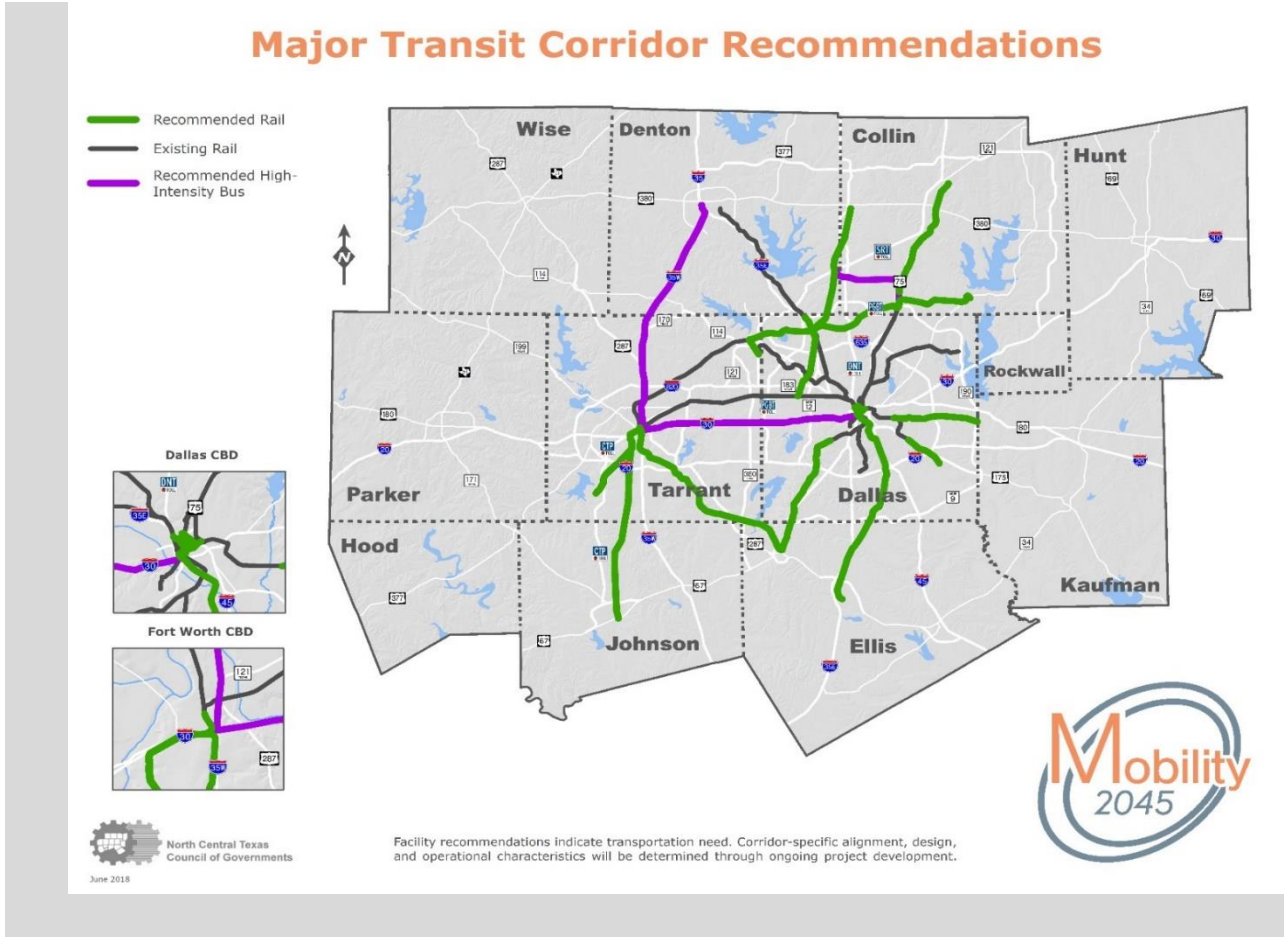
Encouraging alternate travel behavior can alleviate many transportation issues the region currently faces, such as traffic congestion and air pollution. Some established methods to promote change include:



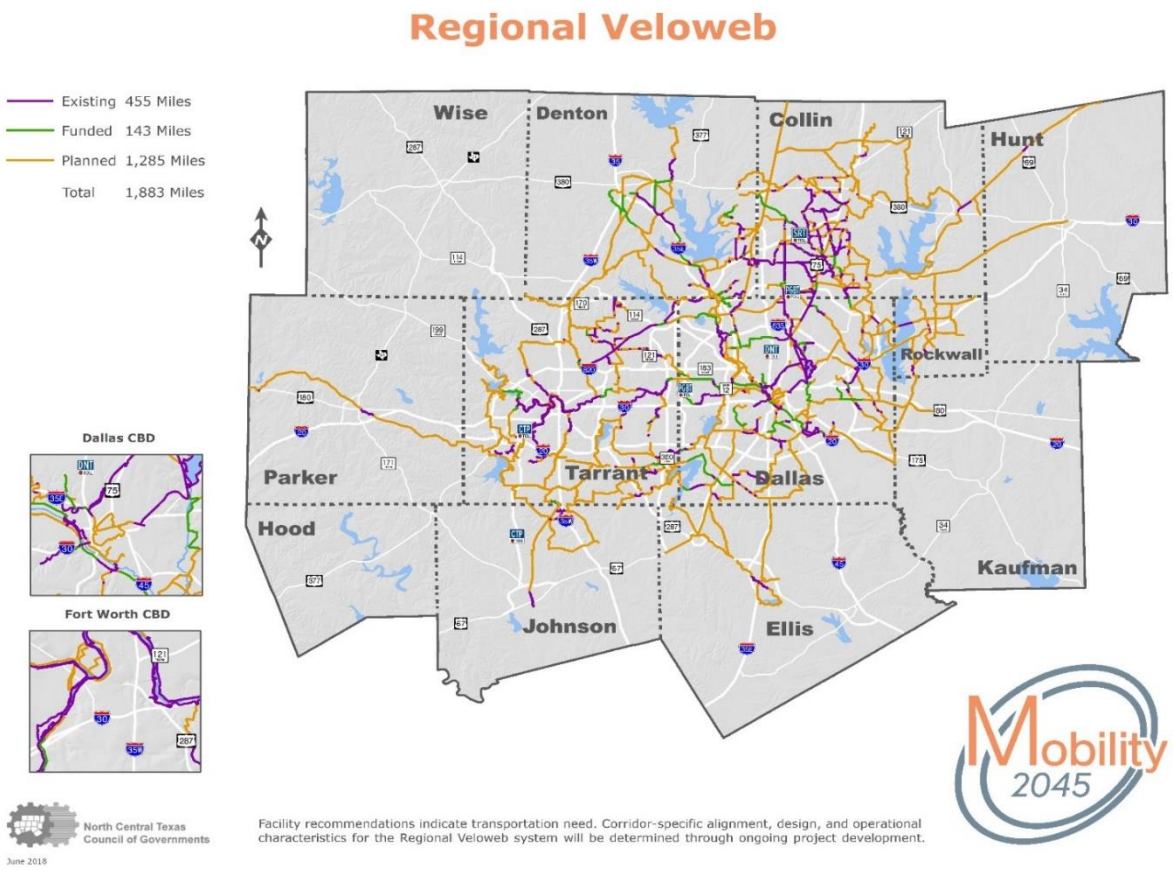
SOLUTIONS: INVEST STRATEGICALLY IN SYSTEM INVESTMENTS



SOLUTIONS: INVEST STRATEGICALLY IN INTERMODAL CONNECTIONS



SOLUTIONS: INVEST IN TRANSPORTATION CHOICES



SOLUTIONS: REVENUE POLICY

Reinstate innovative funding and finance tools such as debt financing and public-private partnerships

Ensure local elected officials support tolling or managed lanes through resolutions at County Commissioners Courts and City Councils

Clarify definition of Comprehensive Development Agreement; create definition of toll road

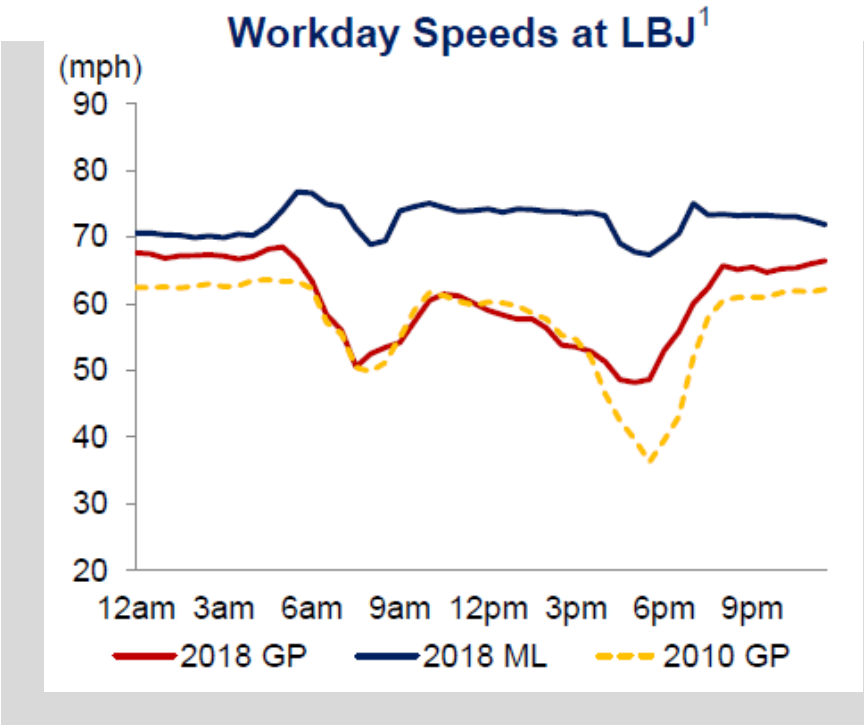
Ensure funding is fairly distributed to funding categories to meet statewide transportation needs

SOLUTIONS: INNOVATIVE FUNDING

POWER OF LEVERAGING

	PUBLIC SECTOR FUNDING	PRIVATE SECTOR CONTRIBUTION	PRIVATE TO PUBLIC SECTOR RATIO
Toll Roads	$1.6 Billion	$16.5 Billion	10:1
Tolled Managed Lanes	$1.3 Billion	$5.9 Billion	4:1
Total	**$2.9 Billion**	**$22.5 Billion**	

SOLUTIONS: TEXPRESS LANES



REDUCES CONGESTION

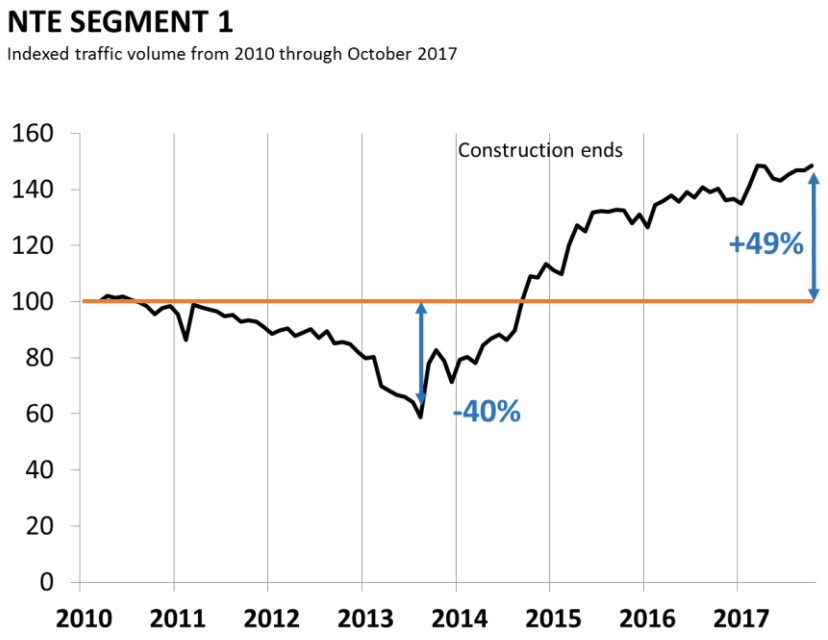
TEXpress Lanes allow for expanded capacity without reducing efficiency.

- No additional lanes; improved shoulders, road design helped non-tolled lanes flow better
- General Purpose speeds much better than pre-construction conditions, despite the whole corridor carrying significantly more traffic
- General Purpose speeds increased on LBJ and NTE 6-12%

[1] 2018 data as of October

SOLUTIONS: TEXPRESS LANES

REDUCES CONGESTION



North Tarrant Express corridor traffic totals increased 49% since construction ended, while congestion time on non-tolled lanes has been reduced.

SOLUTIONS: REVENUE POLICY

CANDIDATE OPTIONS TO ADD REVENUE FOR TRANSPORTATION

- Additional counties allowed to adopt $10 optional registration fee
- Local option transportation revenue
- Tax or fee on electric and other alternative fuel vehicles
- Investigate vehicle miles traveled fee
- Regional or corridor transportation reinvestment zones
- Index the motor fuels tax

GAS TAX INDEXING TO FUEL EFFICIENCY WHAT WE MEAN:

Year	Average Annual Mileage	Gas Price Per Gallon	Average Miles Per Gallon	Average Gallons Consumed	Annual Cost
2018	15,000	$2.840 gas $0.384 tax $3.22 total	20	750	~~$2,130 gas~~ $ 288 tax ~~$2,418 total~~
2035 (no indexing)	15,000	$2.840 gas $0.384 tax $3.22 total	35	429	$1,217 gas **$ 165 tax** $1,382 total
2035 (indexing to fuel efficiency)	15,000	$2.840 gas $0.672 tax $3.51 total	35	429	~~$1,217 gas~~ $ 288 tax ~~$1,505 total~~

If gas tax indexed to fuel efficiency, amount of tax revenue collected remains the same and overall cost (gas price + tax) is lower in the future.

SUMMARY

The Dallas-Fort Worth area is experiencing continued growth

New transportation facilities are not keeping up with growth

New funding has been made available for transportation, but it is not enough to meet growing demand

Single occupancy vehicle travel continues to grow

Tools no longer available and overall revenue available is lower

The region requires a variety of transportation options to solve congestion issues