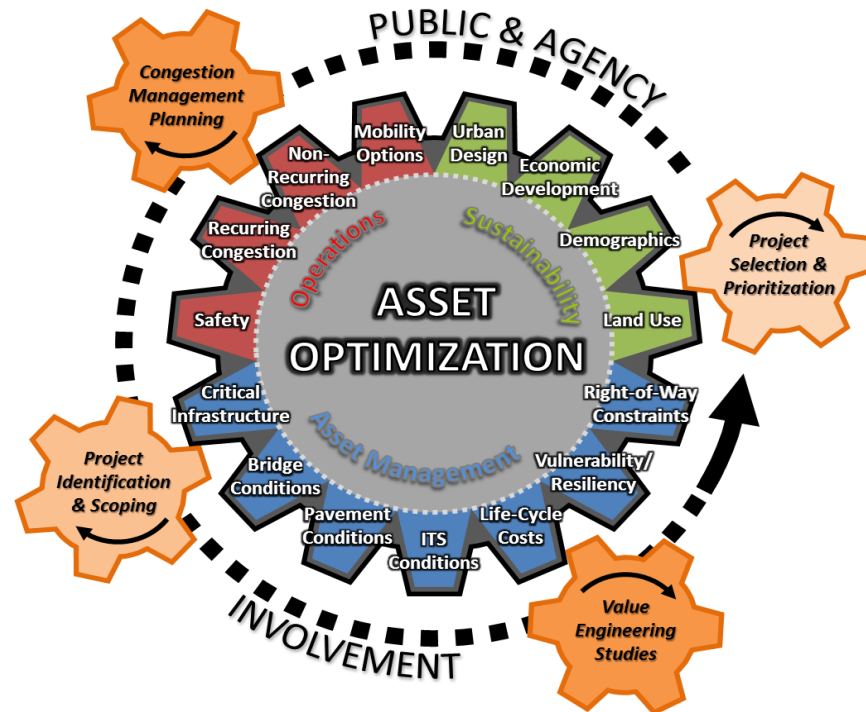


Addressing Asset Management Coordination in North Central Texas



Presented by: Jeffrey C. Neal

North Central Texas Council of Governments (NCTCOG)

July 17, 2018

TRB Transportation Asset Management Conference – San Diego, CA
Coordinating Your TAMP's: Addressing Assets & Local Agencies You Don't Own

Context for Asset Management Coordination

Dallas-Fort Worth Metroplex – “The Big Picture”

2

Population

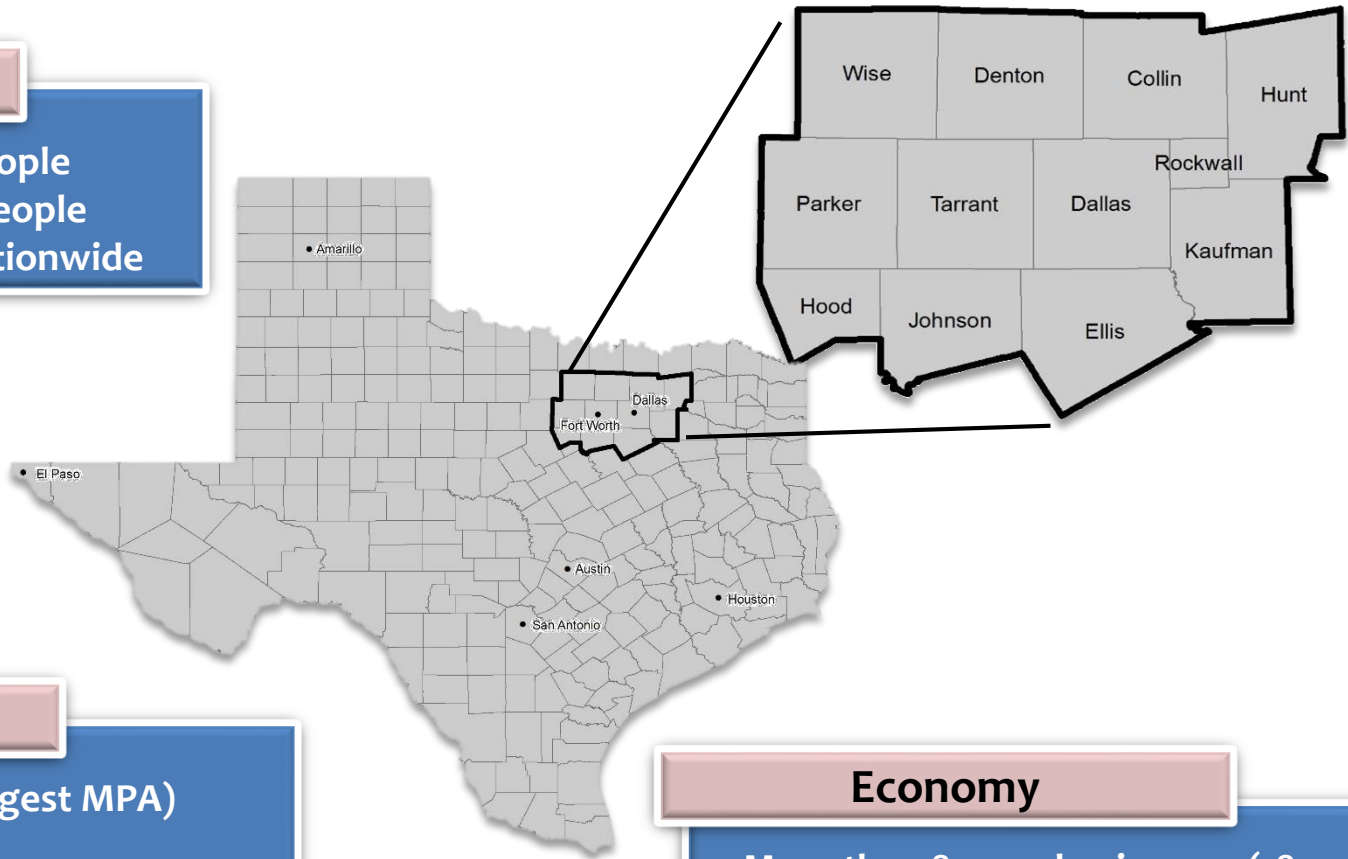
- 2017: 7.2 million people
- 2045: 11.2 million people
- 6th largest MPA nationwide

Area

- 12 Counties (3rd largest MPA)
- 160 Municipalities
- Multiple transportation providers (TxDOT, NTTA, CDA, Public, etc.)

Economy

- More than 80,000 businesses (180 companies with > 1,000 employees)
- 22 Fortune 500 firms (4th highest)
- Represents 1/3rd of Texas GDP



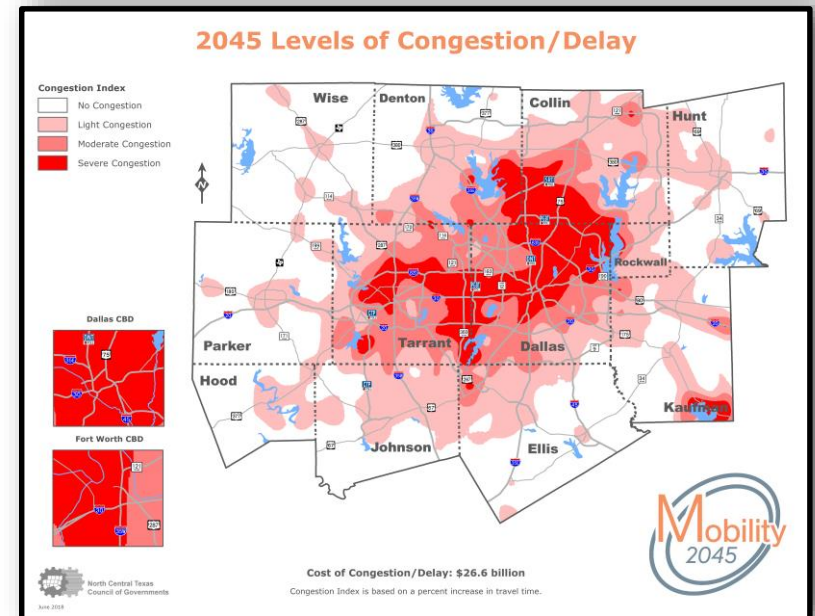
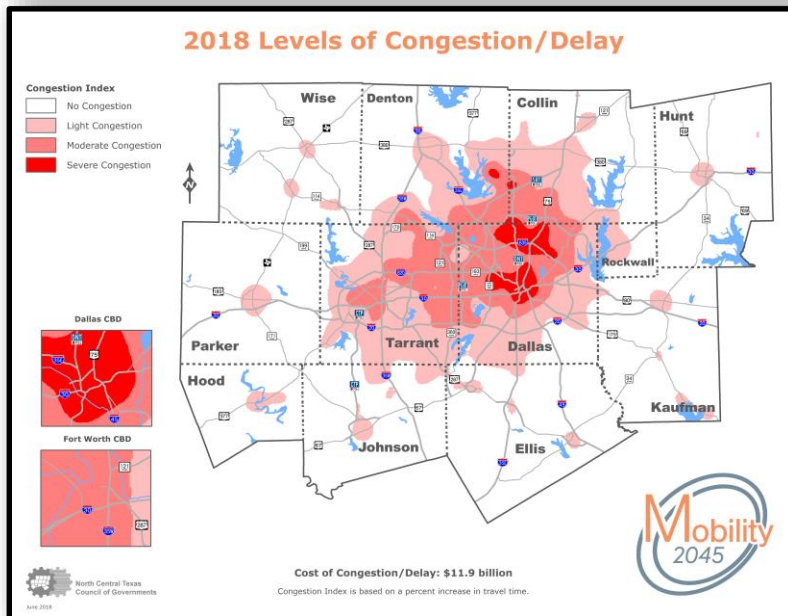
Context for Asset Management Coordination (cont.)

Transportation Challenges for a Dynamic Region

3

- Population/employment growth nearly 50% through 2045
- Increased vehicle-miles of travel, delay, and congestion costs, while numerous existing infrastructure/system burdens remain
- **Mobility 2045 Plan** identifies less than 1/3rd funding necessary to eliminate the worst congestion and maintain state of good repair

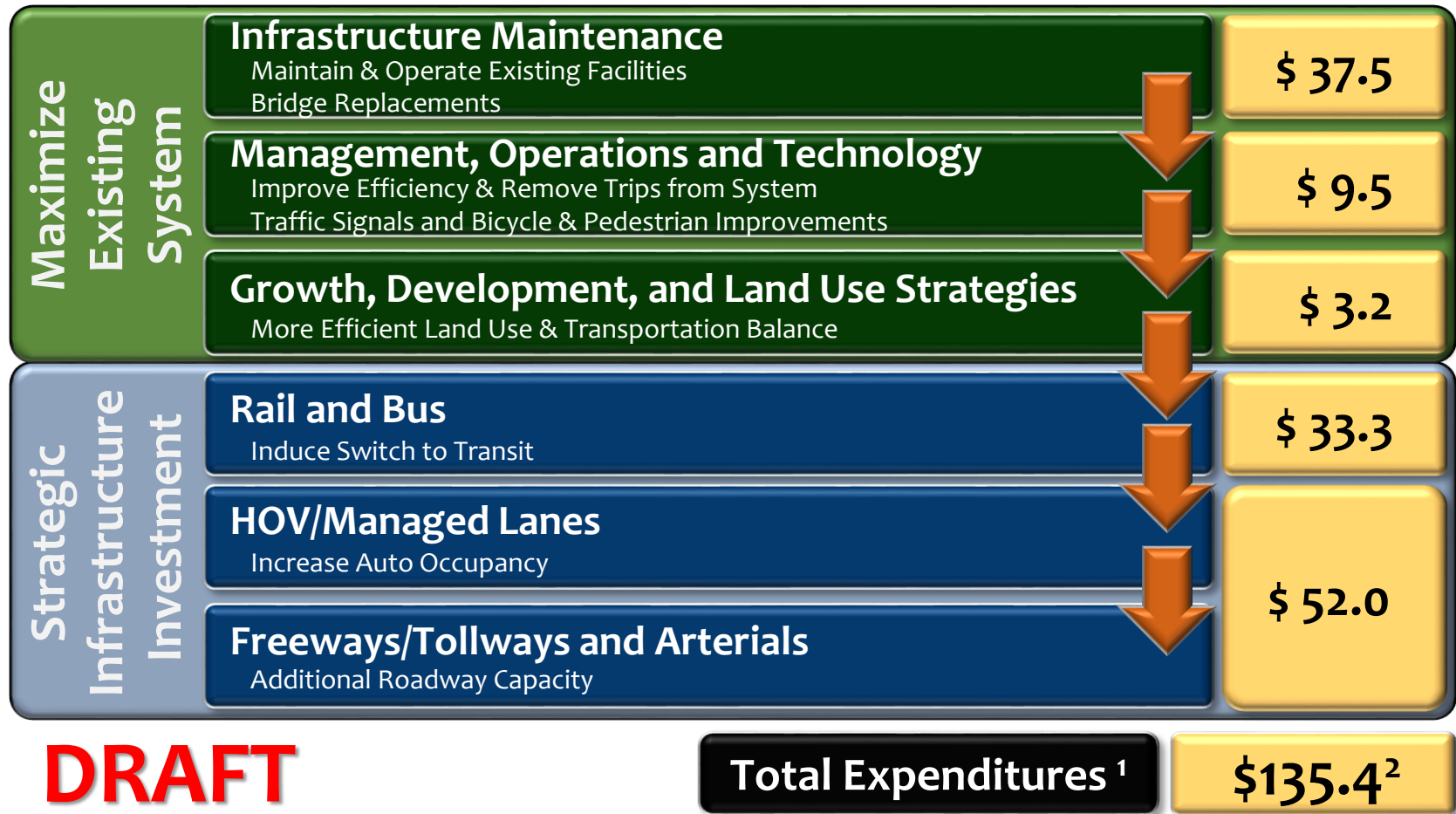
Mobility 2045 Plan – <https://www.nctcog.org/trans/mtp/2045/index.asp>



Context for Asset Management Coordination (cont.)

Mobility 2045 Plan – Establishing Investment Priorities

4

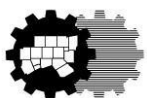


DRAFT

Notes:

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

² Balances to reasonably expected revenue, demonstrating financial constraint.



Ongoing Asset Management Efforts – Local

Monitoring of Local CIP/Bond Program Implementation

5

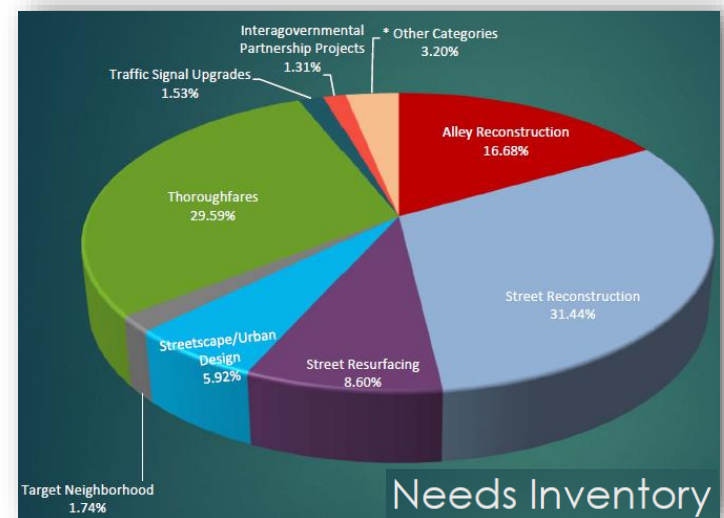
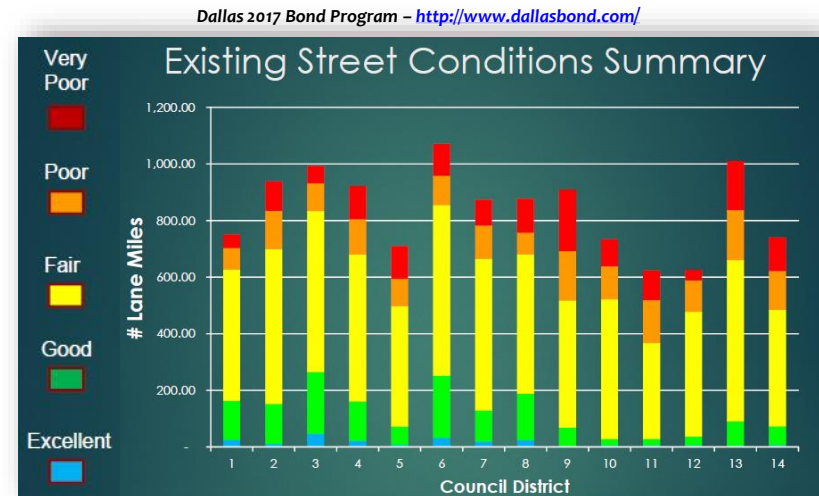
- NCTCOG conducts routine local government communication regarding capacity, maintenance, and enhancement projects for roadways within the regional travel demand model network:
- Current street improvement spending for largest DFW cities:
 - Dallas – \$534 Million (2017)
 - Fort Worth – \$262 Million (2018)
 - Arlington – \$160 Million (2014)
 - Plano – \$90 Million (2017)
 - Garland – \$65 Million (2017)
 - Irving – \$100 Million (2017)
 - Grand Prairie – \$56 Million (2017)
 - McKinney – \$64 Million (2015)
 - Frisco – \$125 Million (2015)
 - Mesquite – \$125 Million (2015)
- Though significant expenditures are allocated to lane-mile expansion to accommodate growth, increasing fund shares over time are being directed toward preservation and rehabilitation

Ongoing Asset Management Efforts – Local (cont.)

Analyzing City Asset Management Needs/Performance

6

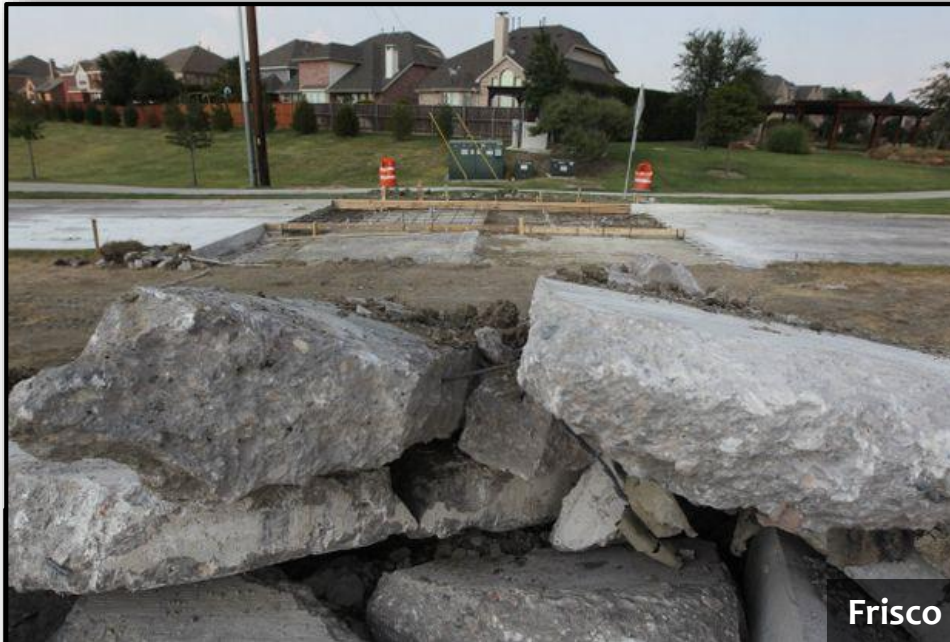
- Some local governments are reporting asset management status, needs, and goals
- Needs vastly outweigh resources and goal attainability is difficult
- Notable examples:
 - ▣ City of Dallas (2017)
 - Total funding needs = **\$5.3 Billion**
 - 2006 City Council goal – 87% overall satisfaction rate; > 80% in all districts
 - August 2016 – **73%** (11,775 lane-miles)
 - ▣ City of Irving (2017)
 - Average PCI score – **72** (1,440 lane-miles)
 - **> \$800 Million per year** to maintain PCI



Ongoing Asset Management Efforts – Local *(cont.)*

Climate/Weather Challenges to Mobility & Functionality

7



Expanding Local Asset Management Efforts

Incorporation with Hazard Mitigation Planning Efforts

8

- Emergency Preparedness Coordination:
 - ▣ Greater inclusion of transportation considerations within official city/county hazard mitigation plans
 - ▣ Pursuit of ATCMTD Grant for Regional Data & Communications Hub building from 511DFW, Waze, and other architecture/distribution platforms
- Texas State Flood Assessment (2018):
 - ▣ Comprehensive review of existing programs, risks, and needs for floodplain management/mitigation
 - ▣ Report to include statewide inventory (w/ local input) of vulnerable transportation infrastructure
- Flood Warning System Integration:
 - ▣ Need for dense/consistent network of detection/communication equipment across local agencies
 - ▣ Collaborative Adaptive Sensing of the Atmosphere (CASA) Urban Test Bed



Texas State Flood Assessment – <http://www.texasfloodassessment.com/>

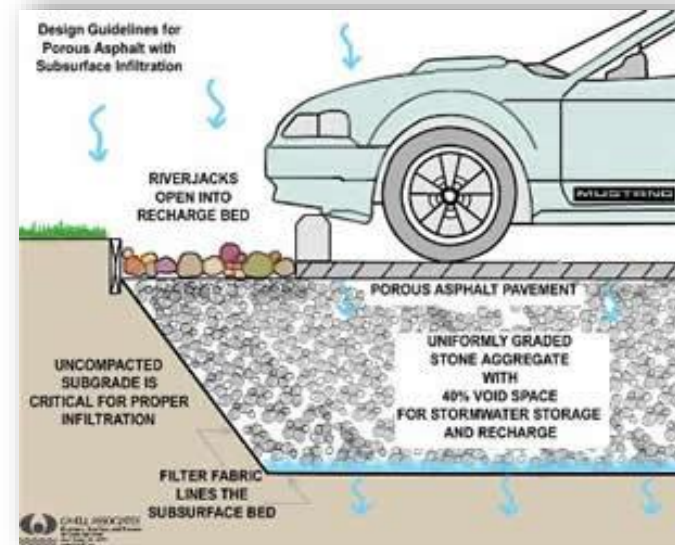


Expanding Local Asset Management Efforts (cont.)

Promotion and Integration of Green Infrastructure

9

- Green Infrastructure enables livability, sustainability, & asset optimization linkages:
 - ▣ Reduced overall costs
 - ▣ Reduced urban heat stress
 - ▣ Improved air quality and public health
 - ▣ Increased bicycle/pedestrian safety
 - ▣ Reduced depletion of energy resources
 - ▣ Decreased erosion and flash flood risks
 - ▣ Improved water quality and recharge
 - ▣ Reduced waste and natural resource consumption
 - ▣ Improved aesthetics/place-making and economic development potential
- Results in improved primary functions for transportation while simultaneously mitigating negative environmental impacts



Expanding Local Asset Management Efforts (cont.)

Identifying Local Needs and Delivering Critical Services

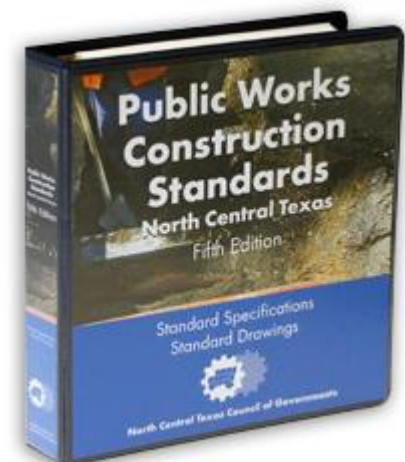
10

- North Texas SHARE Program:
 - ▣ Determine needs/solutions through collaboration and cooperative purchasing programs through procured private vendors
 - ▣ Pavement Analysis Services (started in 2016):
 - Choice of four highly-qualified vendors
 - Continually mobile to reduce equipment fees and allows bulk-level purchasing efficiency
 - Digital imaging, budget estimates, ADA ramp placement, PCI scoring/analysis, and training
 - Initial start-up for shared regional database
- Public Works Construction Standards:
 - ▣ NCTCOG Public Works Council (PWC) product
 - ▣ Increased asset/storm water management emphasis and consistency in 5th Edition (2017)

North Texas Share – <http://www.northtexasshare.org>



Public Works Council – <http://www.nctcog.org/envir/committees/pwc/index.asp>



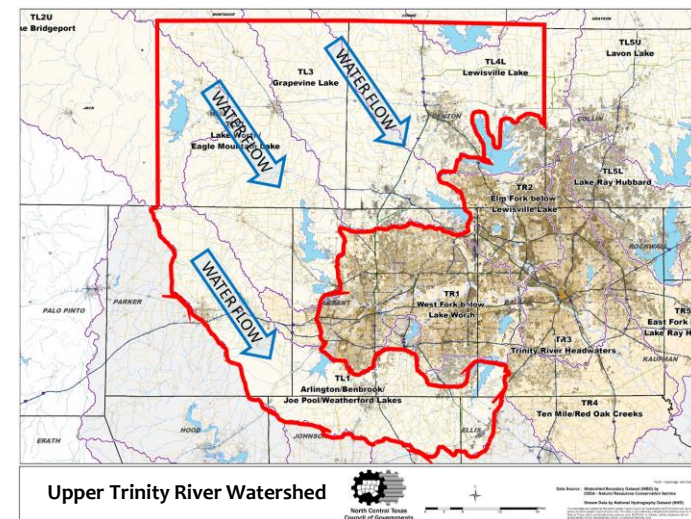
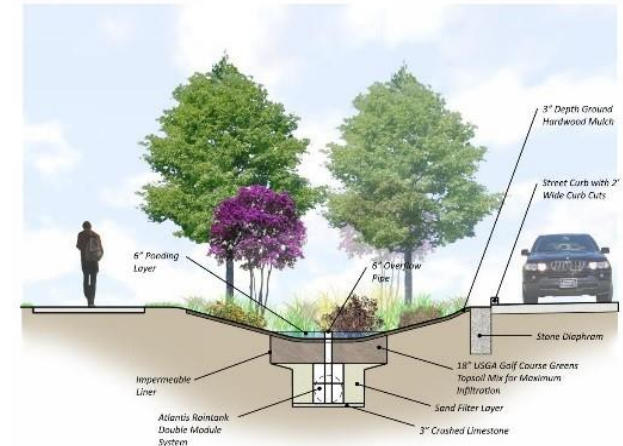
Expanding Local Asset Management Efforts (cont.)

Infrastructure, Land Use, and Sustainability Management

11

- Transportation *integrated* Stormwater Management (TriSWM):
 - ▣ Incorporate effective, environmentally sensitive, and uniform stormwater management practices within transportation project development & lifecycle processes
 - ▣ Strategies to aid public/private sectors to:
 - Design/maintain transportation facilities & development sites mindful of drainage impacts
 - Address/mitigate adverse runoff impacts from development & roads to improve resiliency
 - ▣ Initiatives may be conducted at varying levels of geographic concentration:
 - Project/Corridor
 - Region/Watershed

Integrated Stormwater Management – <http://iswm.nctcog.org/triswm.asp>

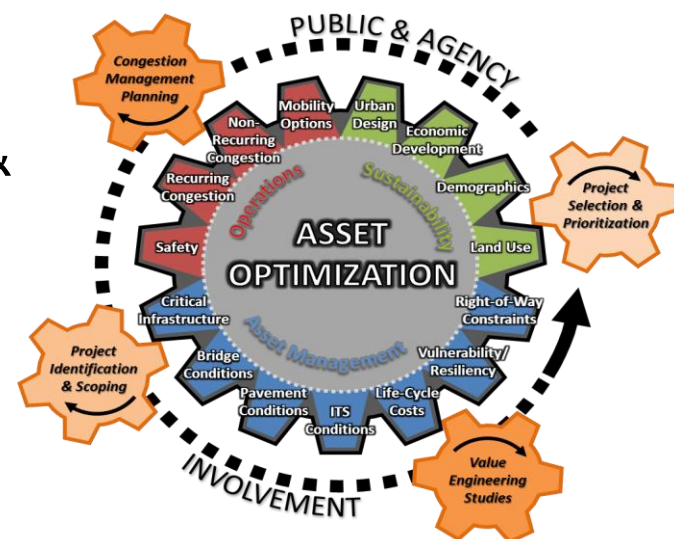


NCTCOG/TxDOT Asset Management Efforts

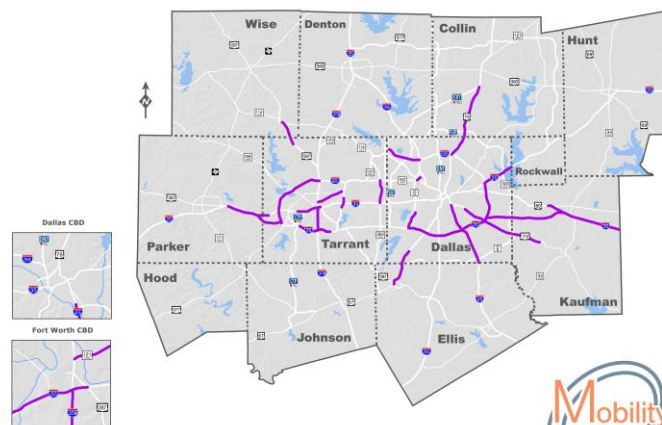
“Asset Optimization” – Corridor Data-Driven Solutions

12

- Corridor-level asset management & performance data integration
- Develop more holistic transportation planning & investment strategies using “TransFACTS”
- Targeting deficiencies & performance gaps efficiently to capitalize on functionality
- “TransFACTS” pilot study data applications:
 - ▣ Traffic Volume/Congestion
 - ▣ Crash Data
 - ▣ Geometric Issues/Facility Condition
 - ▣ TDM/TSM&O Applications
 - ▣ Access/Circulation Maximization
 - ▣ Socioeconomic & Environmental Justice Issues
 - ▣ Urban Design/Sustainability Initiatives



Asset Optimization Recommendations



NCTCOG/TxDOT Asset Management Efforts (cont.)

SH 161 Peak-Period Shoulder Lanes – Irving, TX

13

- Multi-agency partnership applying asset optimization to alleviate critical bottleneck
 - ▣ Construction: May 2014 – Sept 2015
 - ▣ Project length: 5 miles
 - ▣ Project cost: \$4.25 Million
- Notable features:
 - ▣ Traffic cameras
 - ▣ Dynamic message signs
 - ▣ Illumination
 - ▣ Emergency areas
 - ▣ Staged tow trucks
 - ▣ Special event flexibility



NCTCOG/TxDOT Asset Management Efforts (cont.)

House Bill 20 – UTP/10-Year Plan Coordination

14

- Passed by the 84th Texas Legislature in June 2015
- Requires performance-based planning/programming process w/ metrics, measures, & scoring for project selection (increased asset management emphasis)
- DOT/MPO collaboration:
 - ▣ TIP/STIP reconciliation
 - ▣ MAP-21/FAST Act goal linkages
 - ▣ Database sharing & integration
 - ▣ TAMP incorporation (future)

TxDOT Draft 2019 UTP – <http://ftp.dot.state.tx.us/pub/txdot/get-involved/utp-2019.pdf>

TABLE 1

Project Evaluation Performance Metric Criteria

Portfolio Objective	Performance Metric Criteria	Metric Subcriteria
Safety	Crash Count	Estimated Impact on Fatal and Incapacitating Injury Crashes
		Estimated Impact on Total Crashes
	Crash Rate	Estimated Impact on Fatal and Incapacitating Injury Crashes
		Estimated Impact on Total Crashes
	Safety Project Classification	Safety Related Program
Preservation	Societal Cost Savings	Societal Cost Savings
	Hurricane Evacuation Route	Evacuation Route
	Bridge Condition	Deck Area Receiving Preventive Maintenance
Congestion Reduction		Reduction in Structurally Deficient Deck Area
		Lane Mile Receiving Preventive Maintenance (by Ride Score)
		Reduction in Poor Lane Miles (by Ride Score)
		Lane Miles Receiving Preventive Maintenance (by Distress Score)
Enhance Connectivity		Reduction in Poor Lane Miles (by Distress Score)
		Benefit Congestion Index - Auto
		Benefit Congestion Index - Truck
		Normalized Congestion Index - Auto
		Normalized Congestion Index - Truck
Effects on Economic Development		Intermodal Connector
		Intermodal Connector (MPO)
		Lane Miles of New Connectivity (MPO)
		Lane Miles of New Connectivity (Non-MPO)
Environment		Trunk Route
		Project Affects Access and Reliability
		Intermodal Connector
Effects on the Environment		Lane Miles of New Connectivity (Non-MPO)
		National Highway System (NHS) Route Y(Interstate)
		National Highway Freight Network (NHFN)
		Base ADT
Effects on the Environment		Base Percent Trucks
		Energy Sector Route
		Environmental Related Program
Effects on the Environment		Category 5 (Congestion Mitigation and Air Quality) projects
		Hazardous paint removal and landscape and scenic enhancement projects
Effects on the Environment		Environmental work (e.g. wetland mitigation)

FIGURE 8

Project Performance Weights

PERFORMANCE OBJECTIVE	WEIGHT
SAFETY	31.4%
PRESERVATION	20.9%
CONGESTION REDUCTION	19.2%
ENHANCED CONNECTIVITY	13.5%
ECONOMIC DEVELOPMENT	9.8%
ENVIRONMENTAL EFFECTS	5.2%

TABLE 2

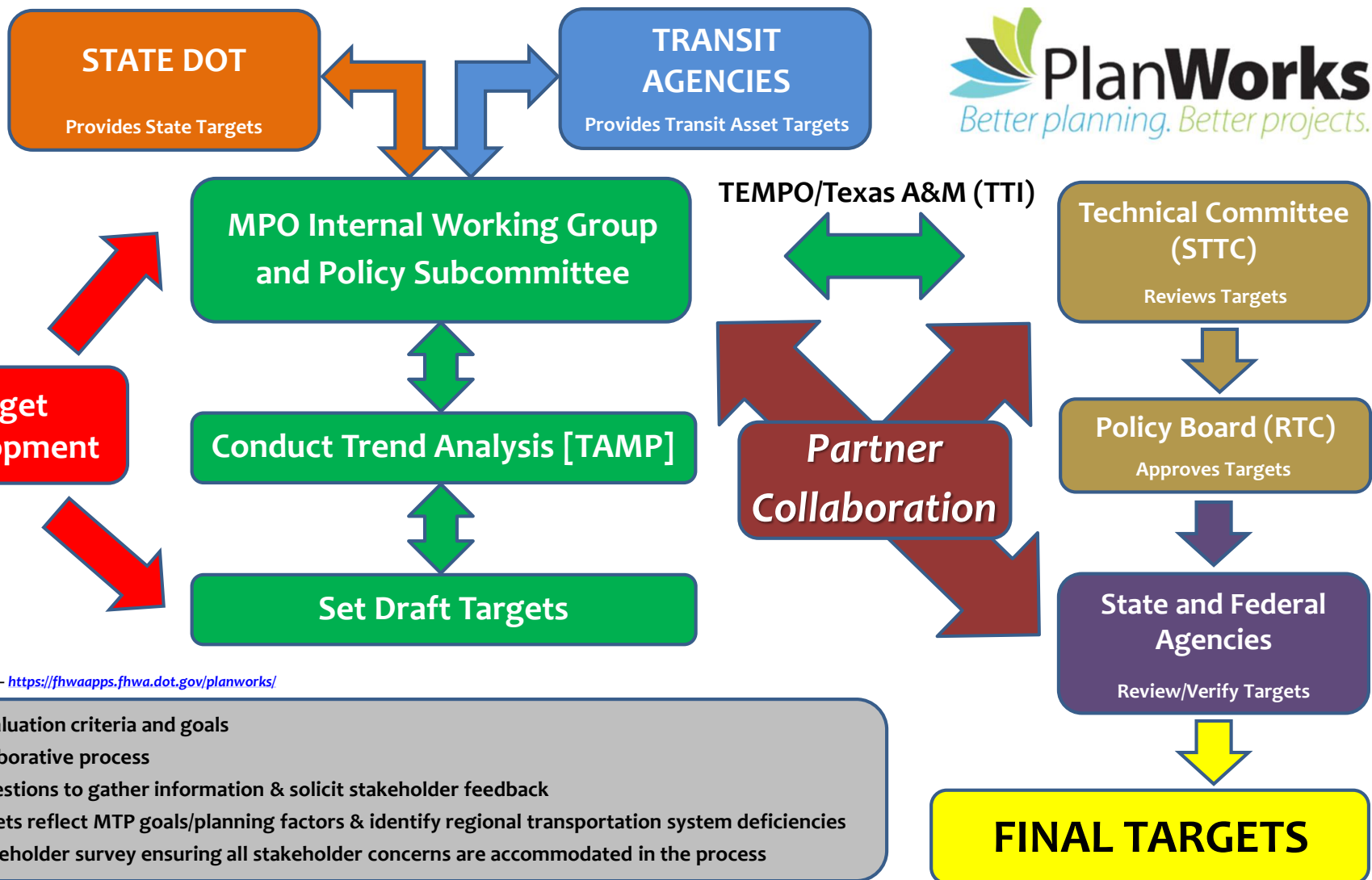
Project Ranking and Tiers Based on Project Performance Scores

Ranking Criteria	Rank
Top 33% of Project Scores	Tier 1
Middle 33% of Project Scores	Tier 2
Bottom 34% of Project Scores	Tier 3

NCTCOG/TxDOT Asset Management Efforts (cont.)

FAST Act Performance Targets – Applying “PlanWorks”

15



PlanWorks (FHWA) – <https://fhwaapps.fhwa.dot.gov/planworks/>

Contacts:

NCTCOG Transportation Department

Natalie Bettger

Senior Program Manager
(817) 695-9280
nbettger@nctcog.org

Mike Galizio

Principal Transportation Planner
(817) 608-2329
mgalizio@nctcog.org

Dan Lamers

Senior Program Manager
(817) 695-9263
dlamers@nctcog.org

Jeffrey C. Neal

Program Manager
(817) 608-2345
jneal@nctcog.org

Karla Weaver

Senior Program Manager
(817) 608-2376
kweaver@nctcog.org

Kate Zielke

Senior Transportation Planner
(817) 608-2395
kzielke@nctcog.org

NCTCOG Environment & Development Department

Tamara Cook

Senior Program Manager
(817) 695-9221
tcook@nctcog.org

Edith Marvin

Director of Environment & Development
(817) 695-9211
emarvin@nctcog.org

July 17, 2018

TRB Transportation Asset Management Conference – San Diego, CA
Coordinating Your TAMP's: Addressing Assets & Local Agencies You Don't Own