

Texas' Roadways – Texas' Future:

A Look at the Next 25 Years of Roadway Supply, Demand, Cost and Benefits

Overview of A Study for the
Texas Governor's Business Council

Tim Lomax
Texas Transportation Institute

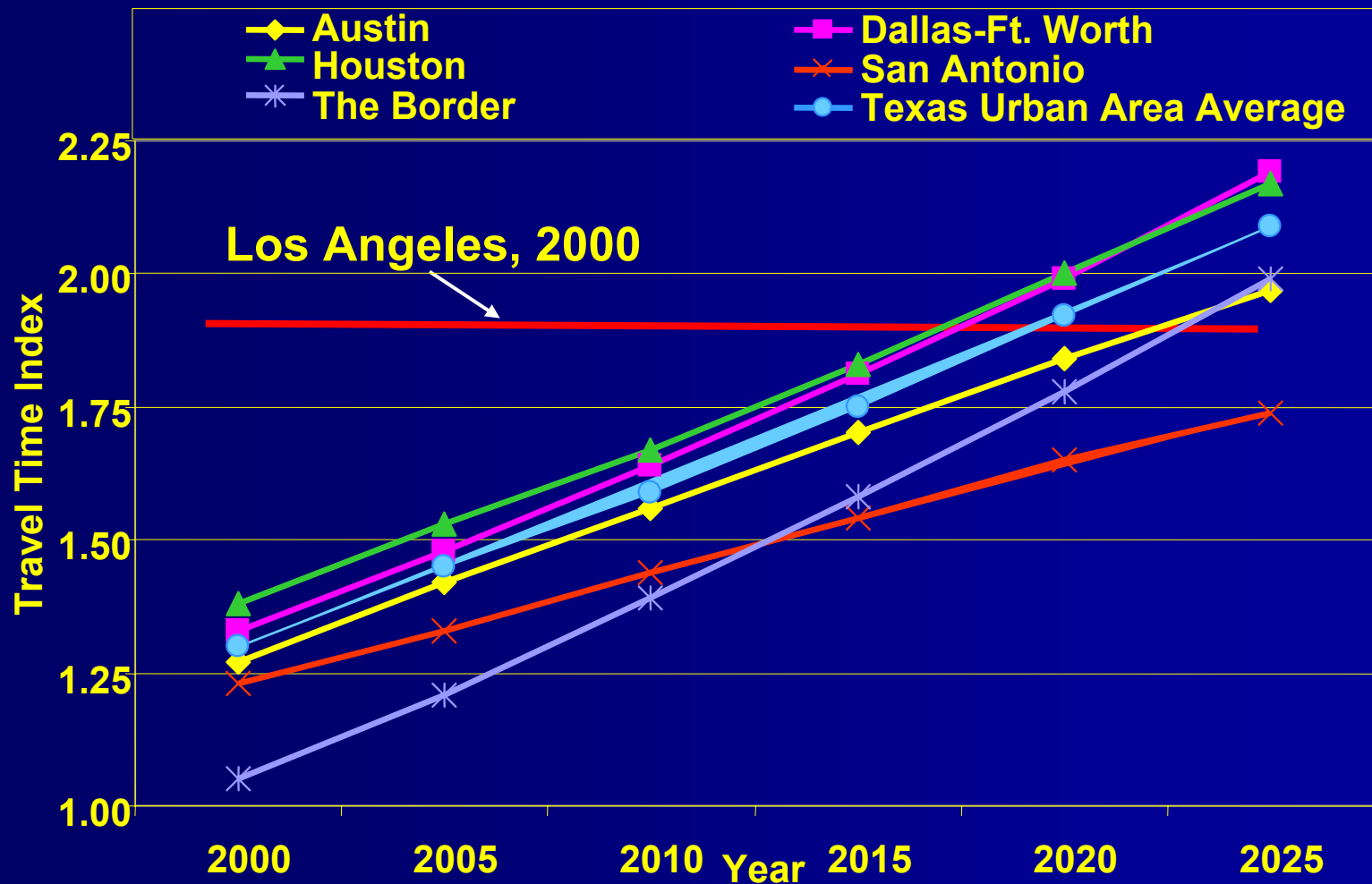
Texas Governor's Business Council

- www.texasgbc.org
- Michael Stevens, Chair of Transportation Task Force
- A Diverse Team
 - Wendell Cox
 - Alan Pisarski
 - Tim Lomax and David Ellis, TTI

The Transportation System

- Texas – World's 10th largest economy
- Movement of people and goods is critical to economic growth.
- Six major ports and 1,200-mile border
- Over half of all goods originating in Texas move by truck.
- Reducing congestion will benefit the economy, safety and the environment.

Projected Travel Time Indices Assuming Current Trends



The Purpose of the Study was:

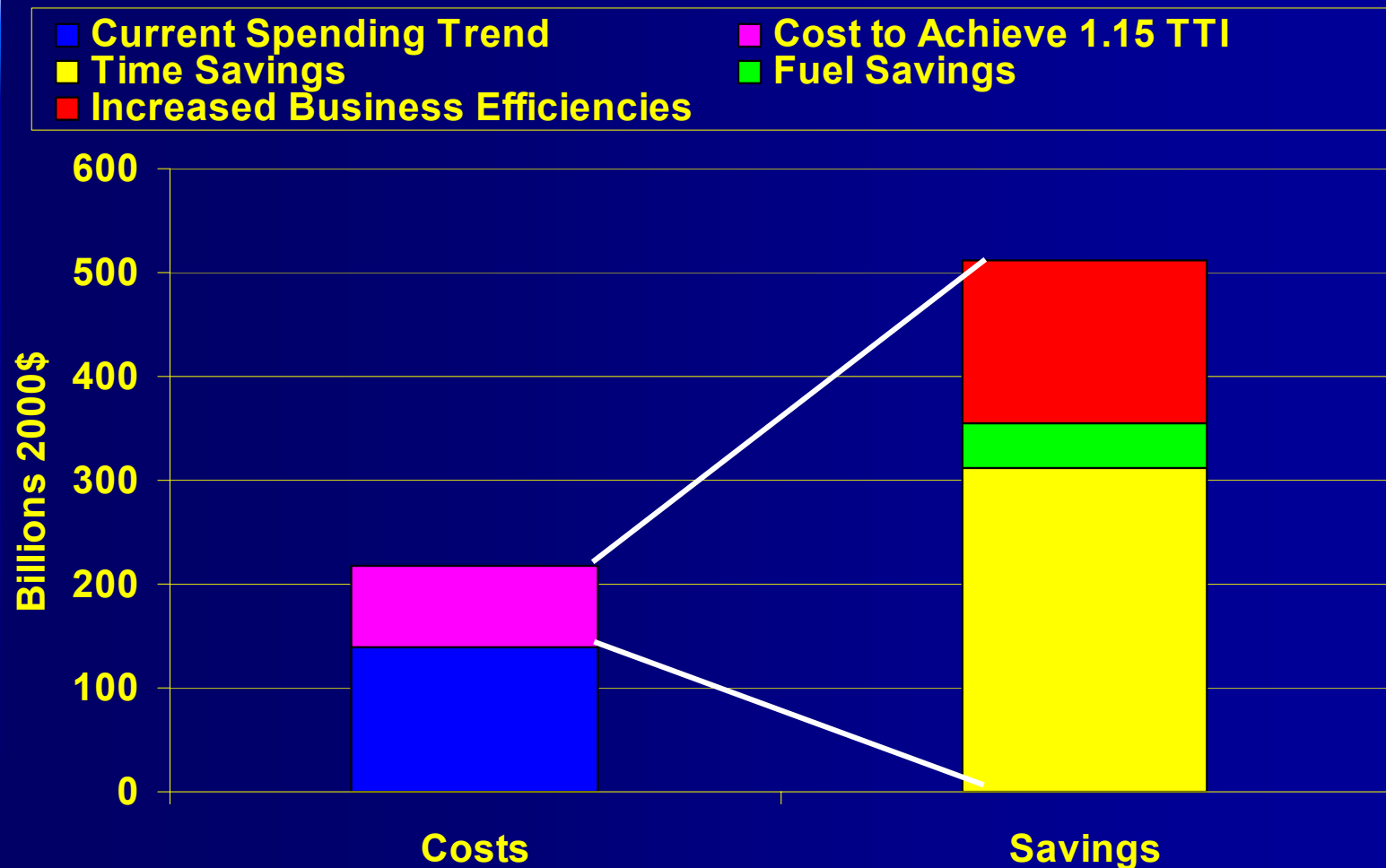
- ...controlled by vision and needs rather than available resources.
- ...to define minimum performance standards and then seek resources to accomplish them.
- ...develop measure reporting process.

Strategies for Reducing Congestion

- Roads are the primary focus of this study
- Roads are the major improvement source
- There are roles for public transit, operations efficiencies, demand management, and other strategies.
- Respond to increasing demand by:
 - adding additional capacity
 - more efficiently using the capacity we have
- Improve personal and commercial traffic flow
- Apply strategies where they perform best

Results--25-Year Costs and Savings

- Achieving the 1.15 Goal -



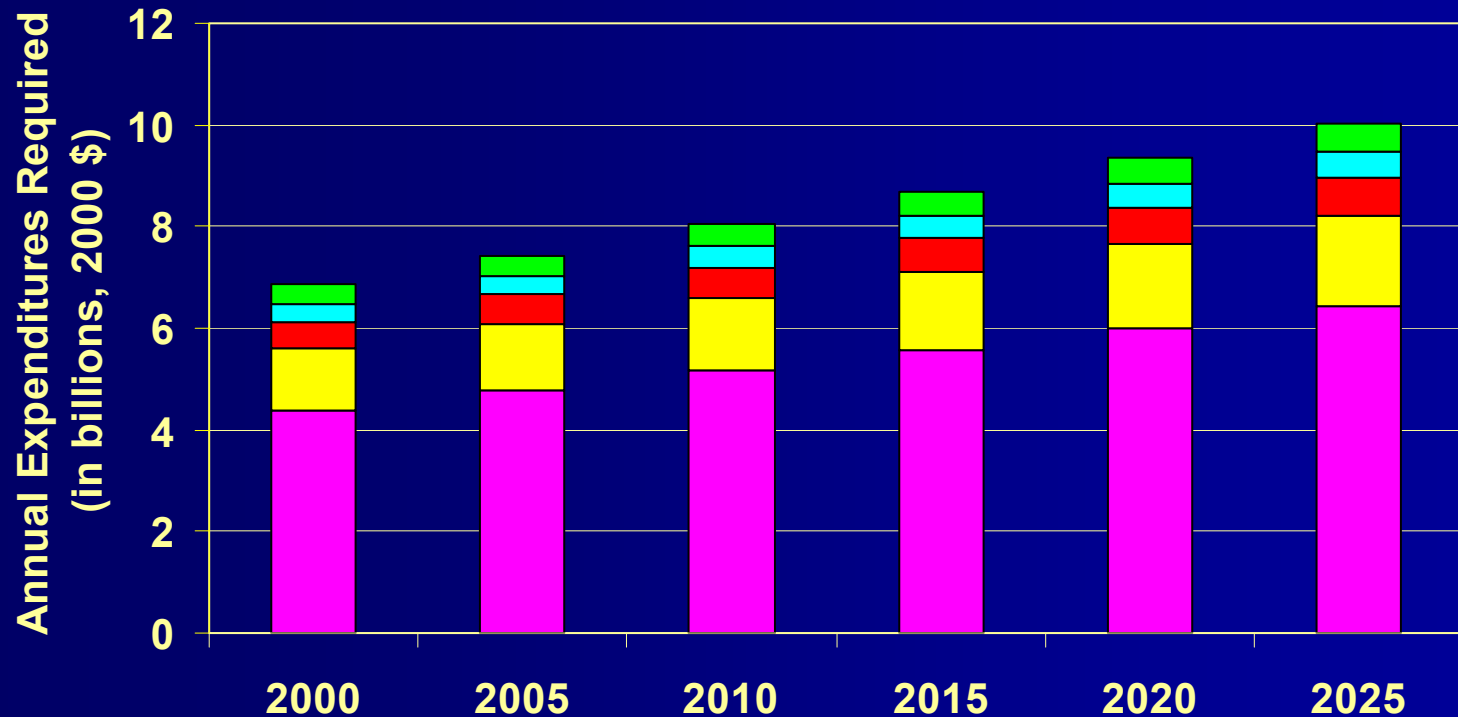
25 Year Improvement Scenarios

- Current Trends -- \$140B
- Maintain Congestion (TTI)-- \$180B
 - Houston: 1.38
 - Dallas-Ft. Worth: 1.33
 - Austin: 1.27
 - San Antonio: 1.23
 - The Border: 1.13
- Reduce the Travel Time Index (TTI)
 - To 1.25 (a 25% penalty) -- \$ B
 - To 1.20 (a 20% penalty) -- \$ B
 - To 1.15 (a 15% penalty) -- \$218B

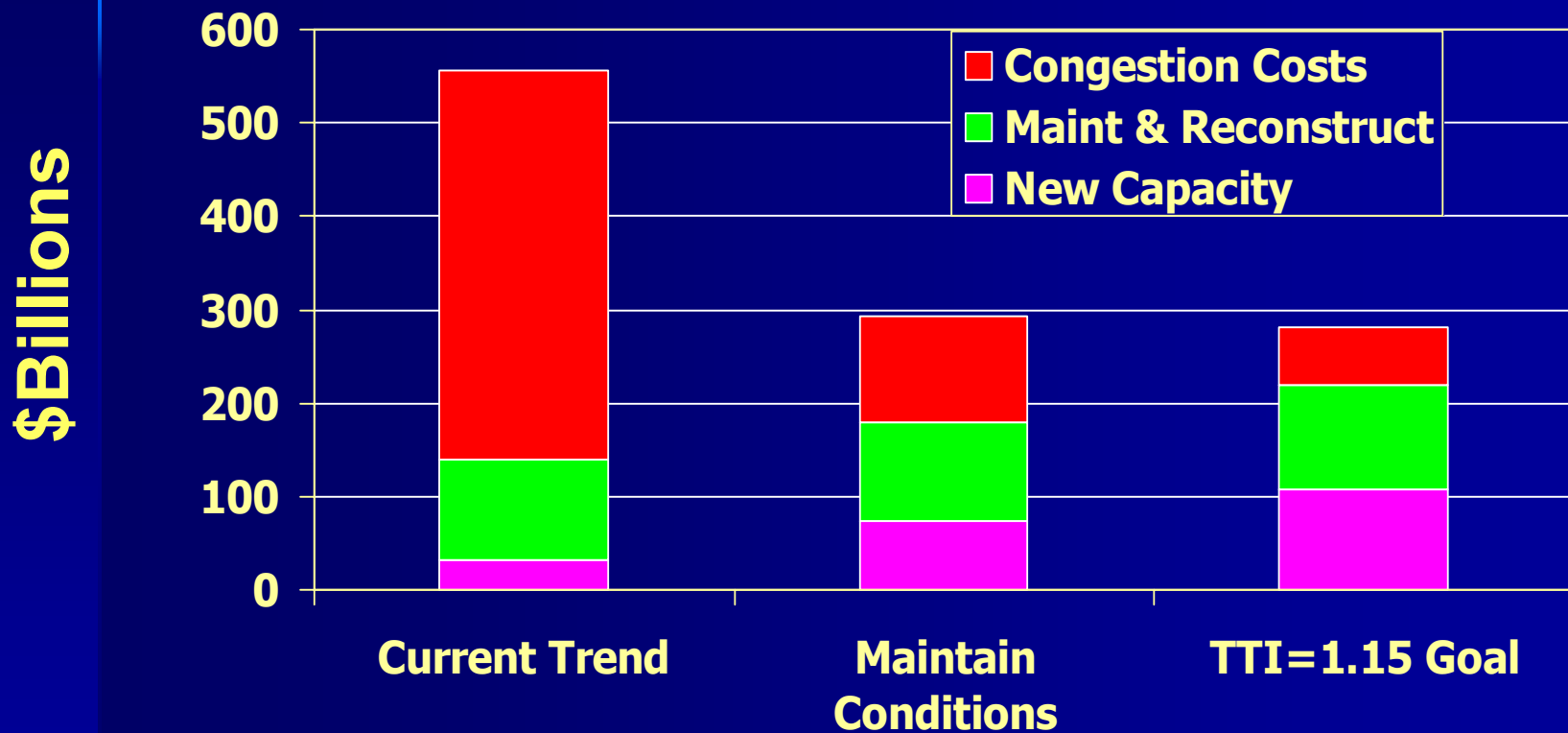
Spending to Reach Goals, Not Preside Over Decline

■ Baseline TxDOT Expenditures
■ To Meet 1.25 Scenario
■ To Meet 1.15 Scenario

■ To Maintain Current Congestion Level
■ To Meet 1.20 Scenario



It Costs Less to Improve Mobility Than to Suffer



Annual Lane Miles Needed (if roads are the only solution)

	Existing Lane-Miles	Current Trend	Achieve 1.15 TTI Goal
Austin	3,755	13	134
The Border	6,128	21	185
DFW	13,607	47	610
Houston	10,502	34	450
San Antonio	4,553	16	124
TOTAL	32,545	115	1,503

If the 1.15 Travel Time Index Goal is Achieved:

Over the next 25 years, Texas would save:

- 20 billion hours of delay
- 31 billion gallons of fuel
- \$354 billion in time and fuel costs
- \$157 billion in increased productivity would be realized.

At a cost of \$78 billion over current spending trends.

Mobility Plan Recommendations

- 25-year Goal: 1.15 Travel Time Index.
- The State should focus on urban mobility.
- TxDOT and MPOs should create goal-oriented plans not constrained by spending.
- Reward, not penalize, local funding efforts in TxDOT funding allocation program.

Funding Plan Recommendations

- Close the \$78 billion gap.
- More cooperation on funding between State and Local levels.
- Use toll-road, bonding, and other financing strategies.
- **Doing nothing costs \$511 billion.**
- **Solving the problem costs \$78 billion more than current trend.**

Evaluation Plan

Recommendations

- Publish an annual Report Card to measure progress.
- Deliver the Report Card to the Governor, Legislature, TxDOT, and local governments.
- Enhance TxDOT statistics.
 - key mobility measures
 - progress toward mobility goals
 - state versus local funding commitments

Conclusions

- Demographic and economic growth
- Current financing is insufficient for expansion
- Congestion could diminish economic & social development
- Cost of “doing nothing” is more than the cost of the improvements
- Give local entities the capacity to address their own problems

The Follow-up

- TxDOT's Metropolitan Mobility Plan
- TxDOT revisions to fund allocation – regional fair share will be ensured
- Five Goals – “Reduce Congestion” is one
- TxDOT Mobility Fund
- Texas Congestion Index will measure goal achievement

Process is Under Development

- Needs-based plan – a return to the vision-oriented approach
 - Mobility goals; Peak periods
 - Multi-modal corridor solutions
 - People and Freight
 - Funding requirements
- Strategic plan – not detailed project list
- Extension of current financially constrained planning process

Performance Measures

- Individual
 - Delay per person
 - Travel time per person
 - Texas Congestion Index
 - Cost per person
- Total
 - Total travel time
 - Delay hours
 - Cost

Texas Congestion Index

$$\text{Texas Congestion Index} = \frac{\text{Peak Period Travel Time Value}}{\text{Free-flow Travel Time Value}}$$

Hours of Delay

- “Extra” travel time
- Freeways and Principal Arterial Streets
- Compare to free-flow for consistent statewide measure -- “How Big is the Problem?”
- Local comparisons to desired conditions – “How Much Improvement is Needed and Where?”

Long-Range Planning Model

- Regional and sub-regional estimates
- Local knowledge and local effects
- Land use and transportation changes
- Used in current process
- Improvements in future
- Outputs can be grouped in many ways and displayed geographically

Basic Calculation Steps

- Planning model volumes
- Estimate travel speeds on links
- Estimate incident delay
- Apply delay reduction “credits” for programs “not in the model”
- Summarize by geography, system element and time
- Calculate measures

Conclusions

- TxDOT and MPOs working together
- Process & product under development
- Calculation procedures and estimates will be refined
- Measures can be locally relevant and also statewide consistent
- Goal – Show the effect of all spending programs