

A Traffic Thermostat for Texans



**USING PERFORMANCE MEASURES TO ENHANCE
MOBILITY**

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A Familiar Example



- Generally speaking, automation = improved efficiency
- Air conditioning thermostat
 - Automatically regulates temperature
- Benefits
 - Less hands-on control needed
 - Efficiency



Different Facility Types



- *Managed Lanes* – lanes that are proactively operated to achieve a pre-determined level of performance; HOV lanes, HOT lanes, and Express Toll lanes
- *HOV Lanes* – primarily reserved for carpools, buses, and motorcycles
- *HOT Lanes* – HOV lanes that allow lower occupant vehicles onto the lanes for a price
- *Toll Lanes/Toll Roads* – open to all travelers who pay a toll
- Facility Type May Change over Time

How Texas Has Employed These Facilities



- Used for decades
- Examples
 - Dallas-Fort Worth Turnpike, 1957
 - Central Texas Turnpike – Austin
 - Loop 49 – Tyler
- All charge same toll for same type of vehicle, regardless of occupancy
- Other facilities employ Variable Pricing
 - Varying the toll rate based on other factors



Considerations for Effective Management



- Some decisions, like toll rates, can be controversial
- Demands change over time
- Operations must be flexible enough to meet changing commuter needs
- Traffic Thermostat helps operators regulate the “temperature” along roadways
- Better managing facilities we have is key to relieving congestion
- Employ performance measures to monitor roadway expectations

What Is Performance Management?



**ACTIVELY MONITORING,
MEASURING AND ADJUSTING A
ROADWAY'S OPERATING
PROCEDURES TO MEET
PERFORMANCE GOALS**

What Are Performance Measures?

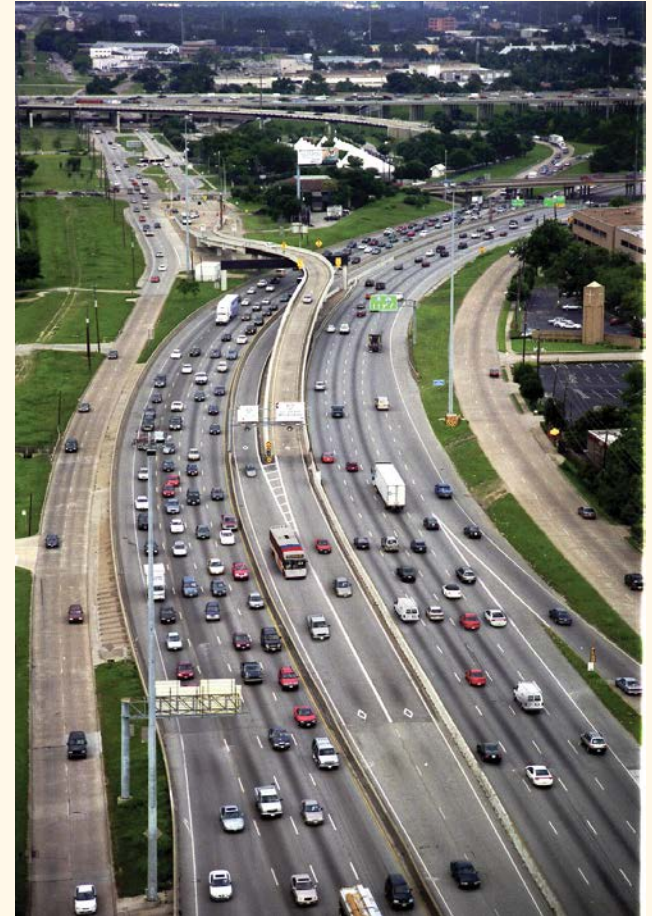


- Set of standards
- Enables operators to identify and implement opportunities for improvement
- Use threshold values, or “triggers,” to alert operators that a problem might exist
- Can be reevaluated and changed as roadway needs change

Why Use Performance Management?



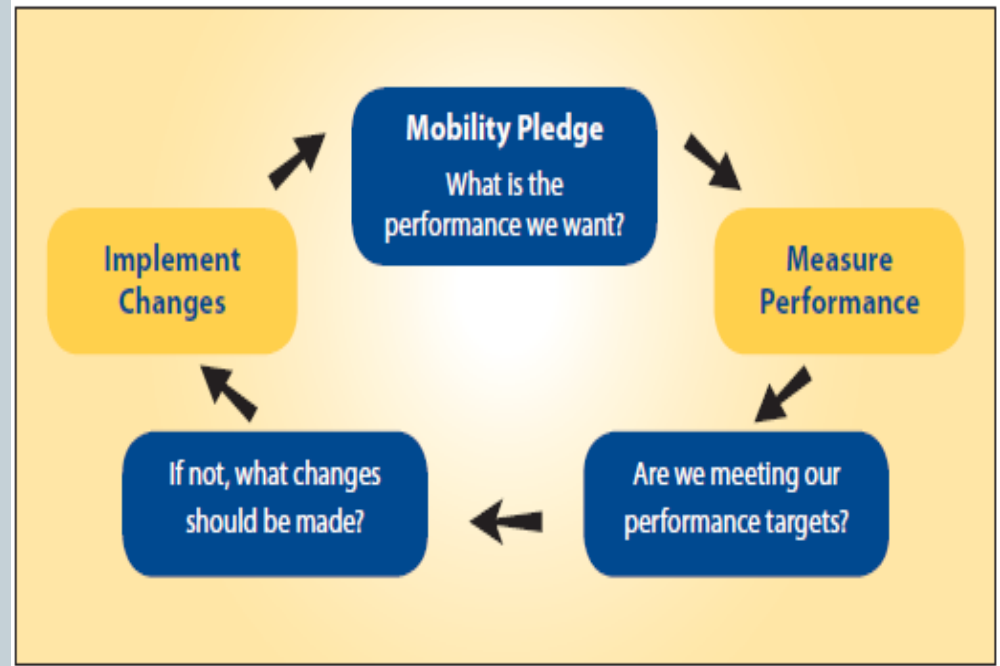
- Improve/Increase Customer Satisfaction
 - Build expectations for how a facility performs over time
- Declining Revenues Require Prioritization
- Monitor and Measure Facility Performance over Time
- Improve Effectiveness of Operations



What Is the Best Way to Manage Operations?



- Develop Goals
- Decide Priorities
- Set Thresholds
- Measure Performance
- Implement Correctional Fixes
- Get Feedback



How Do We Begin?



- Traffic Thermostat is a decision framework tool
 - Uses logical, stepwise process of examining performance goals and using operational changes to achieve the goals
- Guides decision-making
- Changes are agreed upon in advance
- Process is more efficient and transparent



Develop the Framework



- What are the project goals?
 - High speed travel?
 - Optimize revenue?
 - Optimize throughput?
 - Provide reliable travel?
 - Provide safe travel?
- Prioritize the goals, recognizing the priority may change over time



General Goals and Specific Goals



General Goal	Specific Goals
High Speed Travel	Improve freeway efficiency Maintain desired level of service Save travel time Maintain free flow speed Maintain a speed for 90% of peak period Reduce congestion
Optimize Revenue	Generate revenue to pay off debt for facility Generate revenue to fund transit and HOV improvements
Optimize Throughput	Increase person- and vehicle-carrying capacity of HOV lanes Use excess capacity of HOV lanes
Reliable Travel	Reduce congestion
Safe Travel	Safety Reduce serious crashes

Determine User Groups



- Who is allowed on the facility? At what price?
 - Transit vehicles
 - HOV 2/HOV 3+
 - SOV
 - Environmentally friendly vehicles
 - Motorcycles
 - On-duty/off-duty law enforcement/ambulance/fire vehicles
 - Trucks
- How are the user groups prioritized?
- Priorities may change over time



Determine Performance Measures



- Data are collected and analyzed over time
- Good performance measures are:
 - Repeatable – the measure can be transferred to other facilities and are consistent year to year
 - Valuable – the measure must mean something to various stakeholders
 - Sustainable – the measure can be calculated on a continuing basis

Examples of Performance Measures



- Number of cars using the facility
- Number of buses using the facility
- Amount of toll revenue collected
- Travel time
- Travel time reliability



Set Thresholds



- Policy-makers determine what is acceptable based on community input taking into account:
 - Travel time
 - Price
 - Access
 - Community goals



The Thermostat and Performance Measures



- Performance measures determine the data to collect in order to establish performance
- Thresholds for performance indicate when a roadway is not meeting operational goals
- Operators can input operational parameters into the software to simulate effects in the real world of changes