The 21st Century State DOT: Providing Mobility

The Message: 21st C State DOT Transformations

- Future mobility/safety/security depends less on what we build
- More on how we operate the system we have
- Technology enables operations
- State DOTs have not yet adjusted to this reality

The Public Works Legacy

- **C.I.P not measure of DOT effectiveness**
- **Customer Service = Measurable *outcomes:***
- **New Plan: Accountable for Performance?**

What meaningful outcomes can the State DOT realistically promise?

New Realism

- **Future mobility dependent on rebalancing DOT priorities**

Definition of "Operations and Management":

Active management of the existing transportation system to maintain customer-focused performance in the face of congestion, incidents and other service disruptions

"But we're already doing it"……

The Unexploited Promise of Operations:

- **20th Century**
  - *Partial deployments of ITS*
  - *Modest applications*
  - *Infrastructure/vehicle separate*
  - *2-3 percent of investment*

- **21st Century**
  - *System Operations as DOTs principal mobility program*
  - *Aggressive operations facilitated by technology*
  - *Vehicle/Infrastructure integration (all modes)*
  - *20-30 percent of investment*

Why Bother?

The Leverage of Operations			
Delay Type	**Share Of Total**	**Cause of Delay**	**Strategy to Relieve**
Recurring Causes	**50-60%**	**Mainline Capacity shortfalls**	Increased Capacity: 20%?
		Interchange Bottlenecks	
		Weave & merge friction	
		Poor Signal Timing	
Non-Recurring Causes	**40-50%**	**Breakdowns & Crashes**	Operations & Management: 30%?
		Construction work zones	
		Weather	
		Vehicle mix	
		Special events	

The Impact of Technology on Operations

TECHNOLOGY	APPLICATIONS
WI FI/DSRC	Communications (Vehicle/infra)
Micro-sensors/radar	Safety (crash avoidance)
GPS/AVL	Incident management (probes)
Data mining	Traveler information (predictions)
Pattern Recognition	Automated enforcement
Multisensor embeds	Snow and ice prediction, control

PROGRESS =

TECHNICAL CONCEPTS

+

NEW PROGRAMS & ROLES

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PROBLEM	TECHNOLOGY STRATEGY	INSTITUTIONAL PRECONDITIONS
Freeway peak congestion	Ramp metering/speed & lane control	State/Local cooperation
Intersection delays	Traffic responsive signals	Technical/financial capacity
Breakdowns and crashes	Advanced detection & surveillance	Formal DOT/PSA Commitment
Buses in traffic	Automated intersection Prioritization	Managed Lane dedications
Snow & Ice	Mezzo prediction & pretreatment systems	Prediction/advisory/control regimes
Run off the road crashes	Vehicle Infrastructure integration	Public–private partnership
Freight Operations	Integrated Logistics	Private-private partnerships
Peaks	Demand Management thru Pricing	Managing Public Expectations

Bottom line:
Not $$; mostly technology/institutional combinations

State DOT Institutional Transformation for Operations

- Policy commitment unclear
- Not a Core Program
- Fragmented responsibility
- Limited accountability for performance
- Informal relationship with other players
- Unclear budgetary & staffing priority
- Minimal relationship with private service providers

The 21st Century State DOT

- **20th Century**
  - *Public works (output)*
  - *Project-focused*
  - *Our jurisdiction*
  - *8-5 Reactive*
  - *Mostly passenger*
  - *Business as usual*
  - *Do it our way*
- **21st Century**
  - *Mobility (outcomes)*
  - *Customer-oriented*
  - *The entire system*
  - *24X7 Proactive*
  - *Passenger & Freight*
  - *Performance-driven*
  - *Partnerships*

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