

Building a National Transportation Infostructure

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Topics

- Defining the Infostructure
- Building the Infostructure
- Conclusions

Defining the Infostructure

- Like ITS, the term is relatively easy to describe
 - Data collection for surface transportation system
- Like ITS, establishing a common definition is very difficult
 - What data?
 - How good?
 - For what?
 - Why?

75% accuracy, 95% of the time or
95% accuracy, 75% of the time?



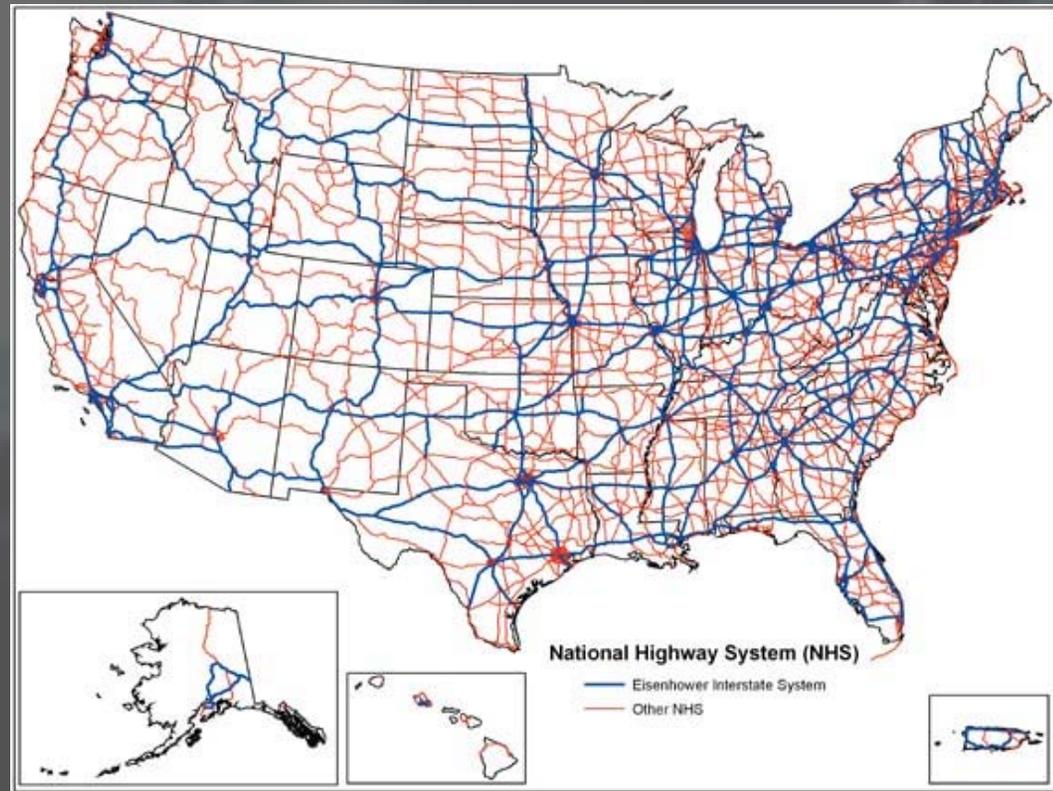
Highway Infostructure

Data collection and dissemination

- Traffic sensor data
- Incident reports
- Video images
- Weather/road conditions

for

- NHS
- Metro areas
- Special hot spots

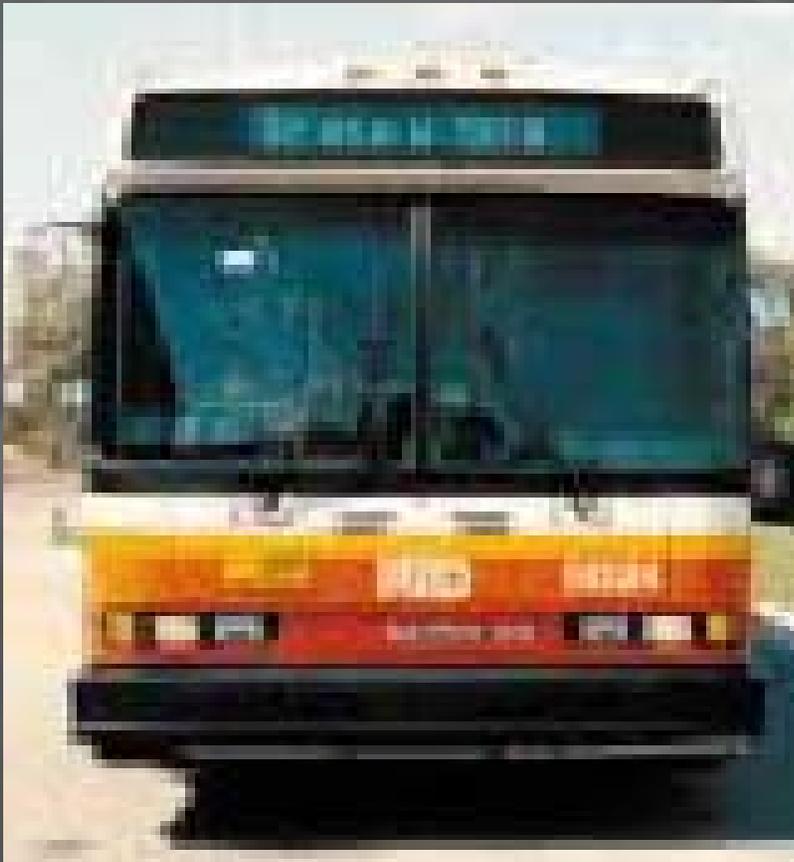


Highway Infostructure Applications

- Traffic management
- Incident management
- Traveler information
- Performance measurement
- Weather warning
- Freight management – shipment and vehicle tracking
- Commercial vehicle and freight regulation
- Transportation system security
- Snow/ice management
- Military deployment management
- Special event management
- Emergency evacuation management

Transit Infostructure

Data collection and dissemination



- Routes and schedules
- Fleet inventory
- AVL
- Passenger counting
- EPS
- Vehicle and key stop video

Transit Infostructure Applications

- Traveler information
- Fleet management
- Route and equipment allocation planning
- Fare payment convenience
- Cash management and payment security
- Passenger security

Defining the Infostructure (2)

- U.S. DOT
 - “Infostructure”
 - Highways and Transit
 - Near-term
- ITS America
 - INTI – Integrated Network of Transportation Information
 - Surface transportation
 - Longer-term
 - “Infostructure +”
- The debate goes on...

Building the Infostructure

- Context
- Issues
- Keys to Success
- A Model?

Building the Infostructure Context

- Current Situation (2000)
 - 22% of urban limited access mileage under surveillance
 - Almost no arterial, interurban, and rural mileage under surveillance
 - 30% transit AVL
 - Infostructure not pervasive
 - Steps must be taken to accelerate infostructure establishment!

Building the Infostructure Issues

- Resources
 - How much and how to get not addressed here
 - Recognize cost is principal barrier
 - Need to reduce cost/quality ratio as much as possible
- Sustainable Business Model(s)

Building the Infostructure Sustainable Business Model(s)

- Developing, Implementing, Operating and Maintaining Infostructure cannot be done that way it (mostly) has been in the U.S.
- Significantly larger systems
- Significant quality improvements needed
 - Accuracy, timeliness, reliability, density, etc.



Problems with Current Infostructure Delivery

- Organizational Culture
 - DOTs are predominantly project centric
 - DOTs are predominantly design centric
 - Mainstreaming ITS slows infostructure growth
 - The “not bite off more than you can chew philosophy”



Einstein says...

- “The significant problems we face cannot be solved at the same level of thinking we were at when we created them.”
- “Insanity: doing the same thing over and over again and expecting different results.”

Sustainable Business Model(s)

Keys to Success

- Harnessing economies of scale
 - Applying typical designs
 - Getting as much mileage out of talent as possible
- Harnessing new technologies, e.g.:
 - Communications
 - Vehicle probes
- Identifying (and using) rapid implementation schemes
- Sustainability!
- Demonstrating value of data
 - Open access/use of (most) data

Clear call for Privatization!

Building the Infostructure A Model?

- England's Traffic Control Centre (TCC) Project
 - 10 year contract to monitor all major roads
 - Signed 2001, to be operational NLT 2004
 - \$240 million contract value
 - Approx. 4000 miles
 - Private financing upfront, government pays over life of operation (a service)
 - Performance-based requirements for contractor
 - Analogous to Highway Infostructure
 - Data available to others – equal access terms



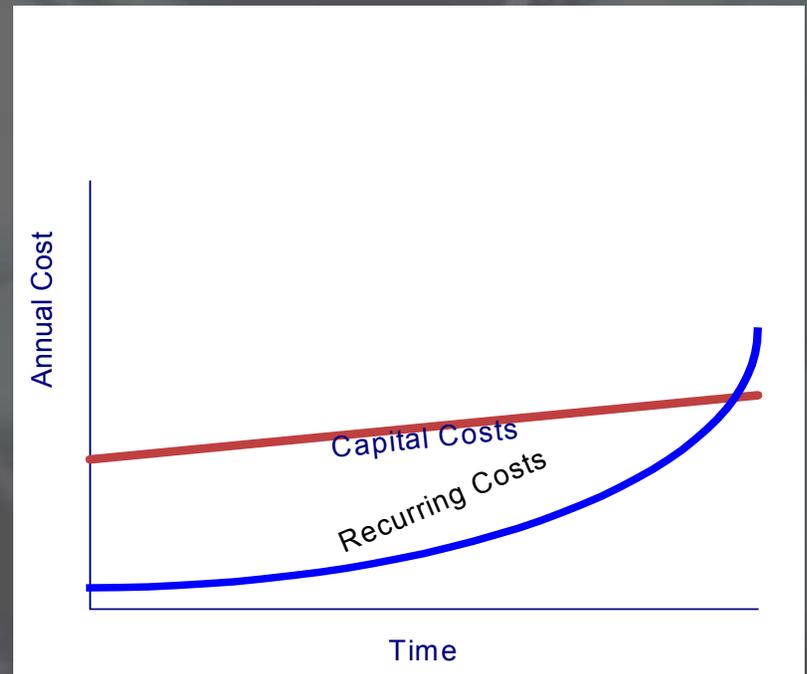
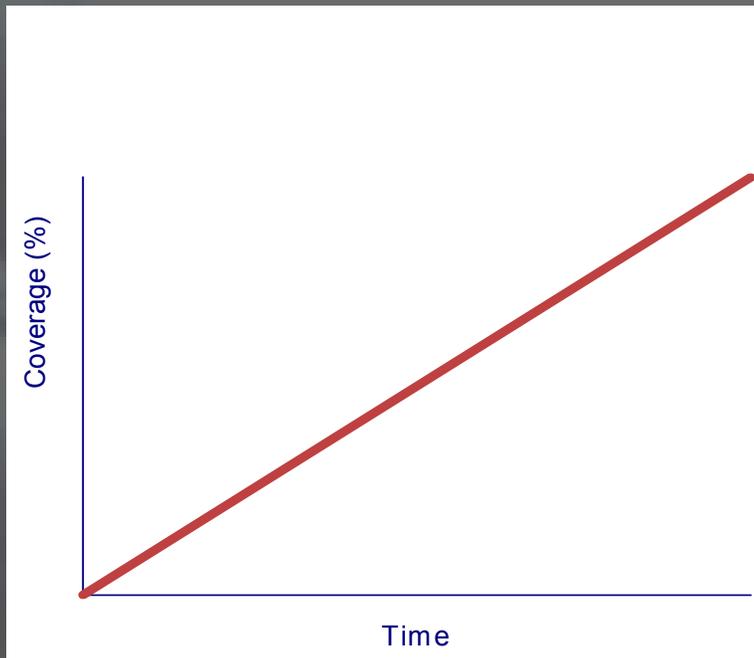
Applying TCC to U.S.

- Model for state-level infostructure deployment?
- Model for metropolitan area infostructure deployment?
- Preliminary research
 - If you can do design-build you should be able to deliver infostructure in this fashion

Traditional Approach

- # of Phases 10
- Plan Agency/Consultant
- Design Consultant/Integrator
- Construction Contractor/Integrator
- Operations Agency
- Maintenance Contractor

Traditional approach (2)

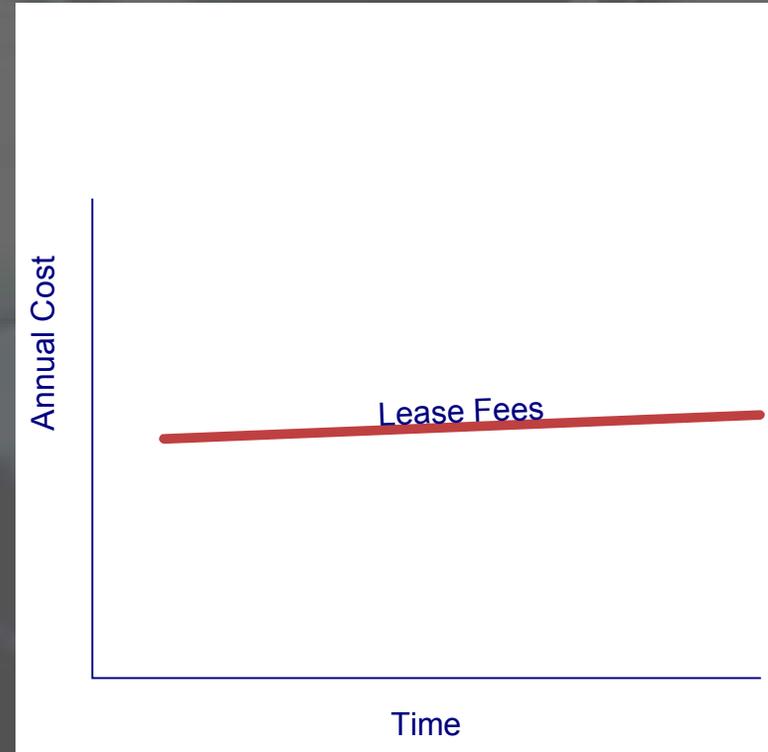
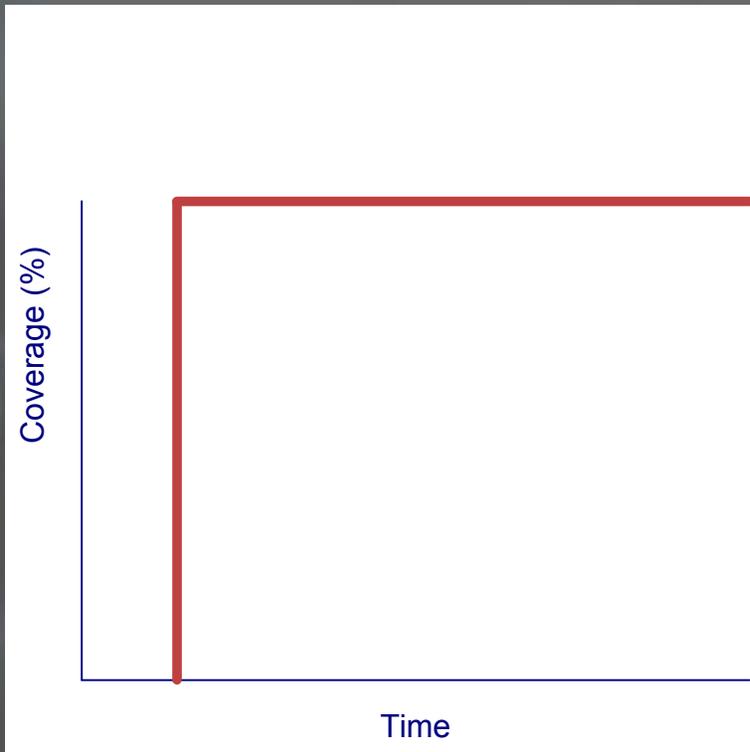


Outsourced

- # of Phases 1
- Plan Agency/Consultant
- Design Contractor
- Construction Contractor
- Operations Contractor
- Maintenance Contractor

Same Contractor throughout!

Outsourced (2)



Conclusions

- Success of the Infostructure relies as much on delivery methods as on definition
- To garner support, delivery methods must be explored in parallel to Infostructure definition
- We must think big!