Intelligent Transportation Systems
Large metropolitan areas struggle to meet transport demand

- Congestion is a problem worldwide, resulting from demand exceeding capacity
- Demand can be managed through pricing to a point, but growing cities will still require more capacity
- In dense urban areas, traditional construction of new capacity is prohibitively expensive, if at all possible
- Intelligent Transportation Systems (ITS) can deliver more capacity from the existing network, delaying or obviating the need for massive infrastructure investments
- Better information can increase customer satisfaction and ridership of public transit systems, effecting modal shift
- ITS can enable innovation in the way agencies measure performance

Case Study: Boston “Big Dig”

This massive project involved rerouting I-93 through the heart of Boston into a 3.5 mile tunnel, and construction of the Ted Williams Tunnel (extending I-90 to Airport), the Zakim Bunker Hill Bridge over the Charles River, and the Rose Kennedy Greenway in the space vacated by the previous I-93 elevated roadway

- Costs of approx. US$14.7 billion for construction
- The total project cost was nearly twice as much as the construction of the 1,892 miles of I-95 from Houlton, Maine and Miami, Florida

Sources: [Wikipedia, “Big Dig (Boston, Massachusetts)”, Washington State Dept. of Transportation, Highway Costs Study]
Today’s situation is driving tomorrow’s innovation

**Today’s situation**
- Lack of space in inner cities
- Affordability constraints
- Increasing congestion
- Increasing emissions
- Significant financial commitment
- Complex regulatory planning
- Complex environmental planning

**Tomorrow’s innovation**
- Demand Management
- Dynamic Information Management
- Proactive Customer Management
- Infrastructure flexibility

**Change of focus**
Governments and Public transport authorities increasingly recognize the value of a well integrated technology and transport infrastructure.

*Intelligent Transportation Systems*

- Reduce congestion
- Increase revenue
- Increase use of public transport
- Improve quality of life for community
- Sustain economic competitiveness
- Increase flow of goods & people
Intelligent Transportation Systems – Industry Definition
Intelligent Transportation Systems – IBM Scope

Cross-Brand Growth Initiative Focus Areas

Additional Focus Areas for LoBs – Eg. SWG, STG, Research

Research/Automotive Industry Focus Areas
IBM Strategic Intent & Value Proposition

- Enable public transport authorities and governments to
  - Maximize utilization of existing assets across all transport modes
  - Augment existing sources of revenue to fund new investments
  - Influence modal choice of end-users

- Through an integrated technology and transport infrastructure

- That enhances their ability to
  - Reduce congestion
  - Increase inflow of revenues
  - Increase usage of public transport
  - Improve flow of people and goods on the transport infrastructure
  - Improve quality of life for end users
  - Sustain total economic competitiveness
IBM Intelligent Transportation Systems Offering Portfolio

## Innovation & Business Transformation Consulting

- Holistic analysis of ITS projects using IBM maturity model
- Focus on transport authority’s IT framework: use of open standards, SOA
- Enable common solution components e.g. CRM, payment systems, enforcement
- Framework for future solutions, e.g. parking management, Pay As You Drive insurance

### Road User Charging and Tolling (RUC)

- Technology and services assets that scale across highway / city / national schemes
- Design, build and operate schemes
- On board units, detection and validation, software platform/rating engine, financial clearing house, Business Process Services

### Integrated Fare Management (IFM)

- Transit payment system
- Cross-modal / inter-modal capability
- Universal/Integrated transportation accounts
- Extendable to other services, e.g. parking, retail, identification
- Design, build and operate schemes

### Transport Info Management (TIM)

- End-user traveler advice e.g. internet, 511, PDAs etc
- Network optimization
- Cross-modal / inter-modal information
- Design and build
IBM Scope of Activities

- **Design, Build and/or Operate**
  - Simple or Complex Road User Charging (RUC) systems
    - Open Road Tolling, Congestion Pricing Schemes, HOT Lanes, etc.
  - Multi-modal Integrated Fare Management (IFM) systems
  - Transport Information Management (TIM)
    - Network Analytics and Optimization, Variable Message Signs, Transport Information Dissemination systems, Data Models, Traffic Prediction Systems, Enforcement Systems, etc.

- **Technology infrastructure components that enable day-to-day operations of multi-modal transport network**

- **IT and Business Consulting Services**
  - Infrastructure Outsourcing, Managed IT & Business Services, Business Consulting Services, Project Management, Innovation consulting

- **Research & Innovation Services**
  - First-of-a-kind projects, Pilots/Proof of Concepts, Analytics & optimization research, Modeling & Simulation services