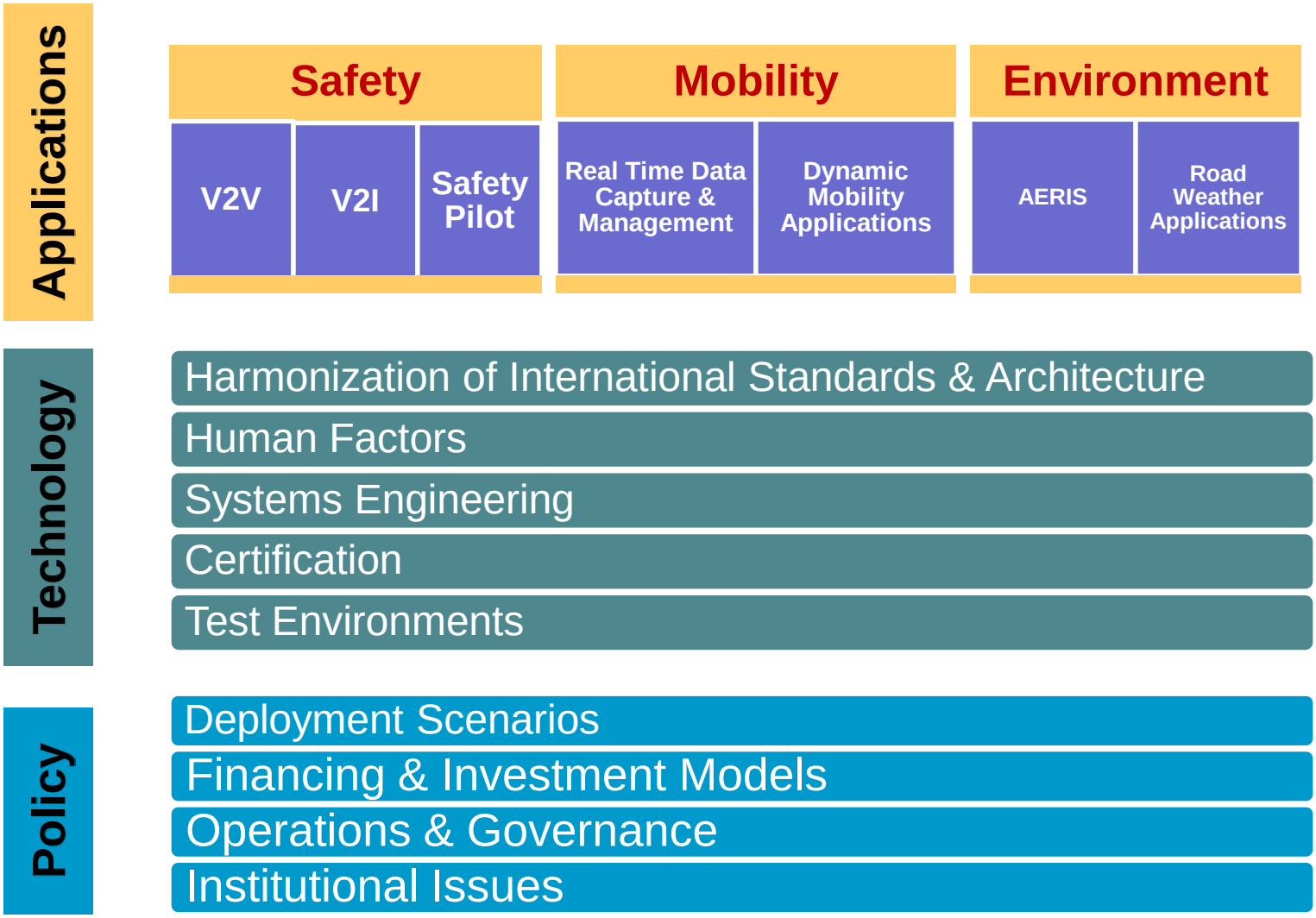
IntelliDrive^{SM} Program Update

September 21, 2010

Brian Cronin, Team Leader, ITS Research and Demonstration
US Department of Transportation
Research and Innovative Technology Administration/ITS Joint Program Office

IntelliDrive℠ Program Structure



IntelliDrive is a registered service mark of the US Department of Transportation.

Major IntelliDrive Objectives

- Move aggressively on vehicle to vehicle communications
  - Regulatory Decision on In-Vehicle Equipment by 2013
- Accelerate in-vehicle technology
  - “Here I Am” messages
  - Aftermarket Safety Systems
  - Enables safety and active traffic management
- Accelerate infrastructure communications capability
  - Signal Phase and Timing (SPaT) as initial focus
  - Enables safety, mobility, and environmental applications
- On road multi-modal pilot deployments for high-value applications
- Monitor and evaluation of driver distraction issues
- Understand benefits and communications needs (DSRC/other) of transformative mobility applications

Evolution of IntelliDrive Deployment

Original VII Deployment Model

- DSRC based for all applications
  - Infrastructure intensive using new DSRC technology
  - Vehicle turnover for embedded DSRC technology
- Start with V2I (for all application types) and evolve into V2V (safety)

US DOT's Current Perspective on IntelliDrive Deployment

- Non-safety (mobility, environment)
  - Leverage existing data sources & communications; include DSRC as it becomes available
  - Support development of key applications for public agencies using current data sources and evolving probe data from IntelliDrive
- Safety → DSRC
  - Aggressively pursue V2V; leverage vehicle capability for V2I spot safety
  - Can leveraging of nomadic devices & retrofitting accelerate benefits?
  - Infrastructure requirement for security is still a TBD

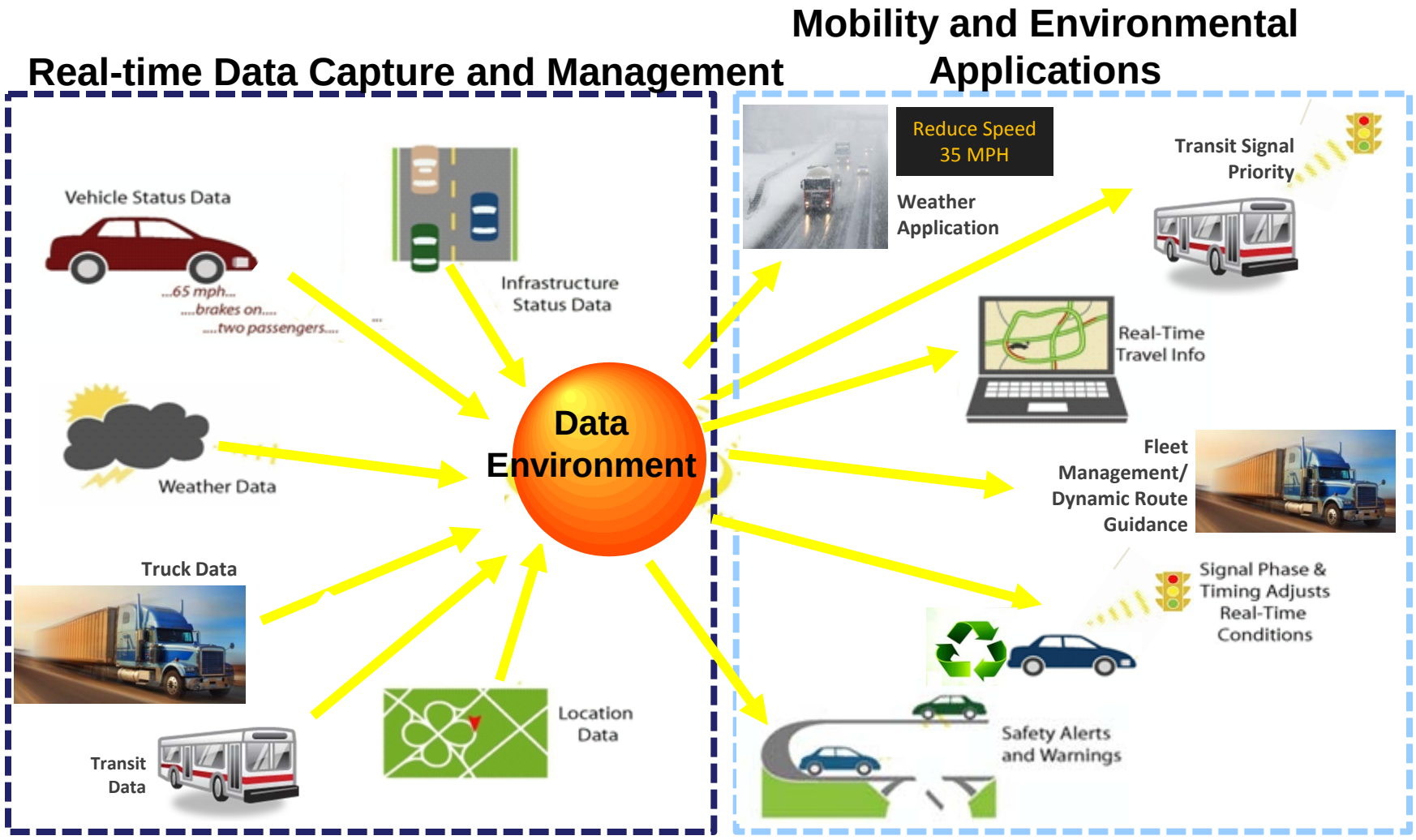
Key Elements of the IntelliDrive Safety Program

- DSRC for low latency needs
- OEM, retrofit, aftermarket device scenarios being considered for deployment
- All vehicle types being examined for value added applications
- Programs are structured towards achieving deployment
- Establishing national level interoperability →Open standards for communications and data
- Introduction of new systems/devices must consider driver distraction safety issues
- Ensure adequate levels of security
- Protect personal privacy
- Activities supportive of mobility and convenience applications

IntelliDrive Safety Program Areas

Initiative	Objectives
Vehicle-to-Vehicle	▪ Support NHTSA regulatory decision for 2013 ▪ Could cover NEW cars, trucks, and buses
Safety Pilot	▪ Ensure technical and institutional viability through real-world deployment testing. ▪ Accelerate in-vehicle technology to ensure value to the first V2V deployed vehicles
Vehicle-to-Infrastructure	Enable active safety applications to assist vehicle operators (including cars, trucks, and buses) and pedestrians to avoid or mitigate crashes.
Policy	Develop policy options and actionable recommendations for privacy, security, governance and other issues
Certification	Establish certification framework for ensuring that DSRC devices/interfaces are compliant with industry standards for communications and data messaging.
Human Factors for IntelliDrive	Eliminate distractions related to ITS devices as a contributing factor to crashes.
International Harmonization	Develop internationally harmonized standards, particularly around vehicle-based applications

IntelliDrive Mobility



IntelliDrive Real Time Data Capture and Management

Vision

- Active acquisition and systematic provision of integrated, multi-source data to enhance current operational practices and transform future surface transportation systems management

Objectives

- Enable systematic data capture from connected vehicles (automobiles, transit, trucks), mobile devices, and infrastructure
- Develop data environments that enable integration of data from multiple sources for use in transportation management and performance measurement
- Reduce costs of data management and eliminate technical and institutional barriers to the capture, management, and sharing of data

IntelliDrive Dynamic Mobility Applications

Vision

- Expedite development, testing, commercialization, and deployment of innovative mobility applications:
  - maximize system productivity
  - enhance mobility of individuals within the system

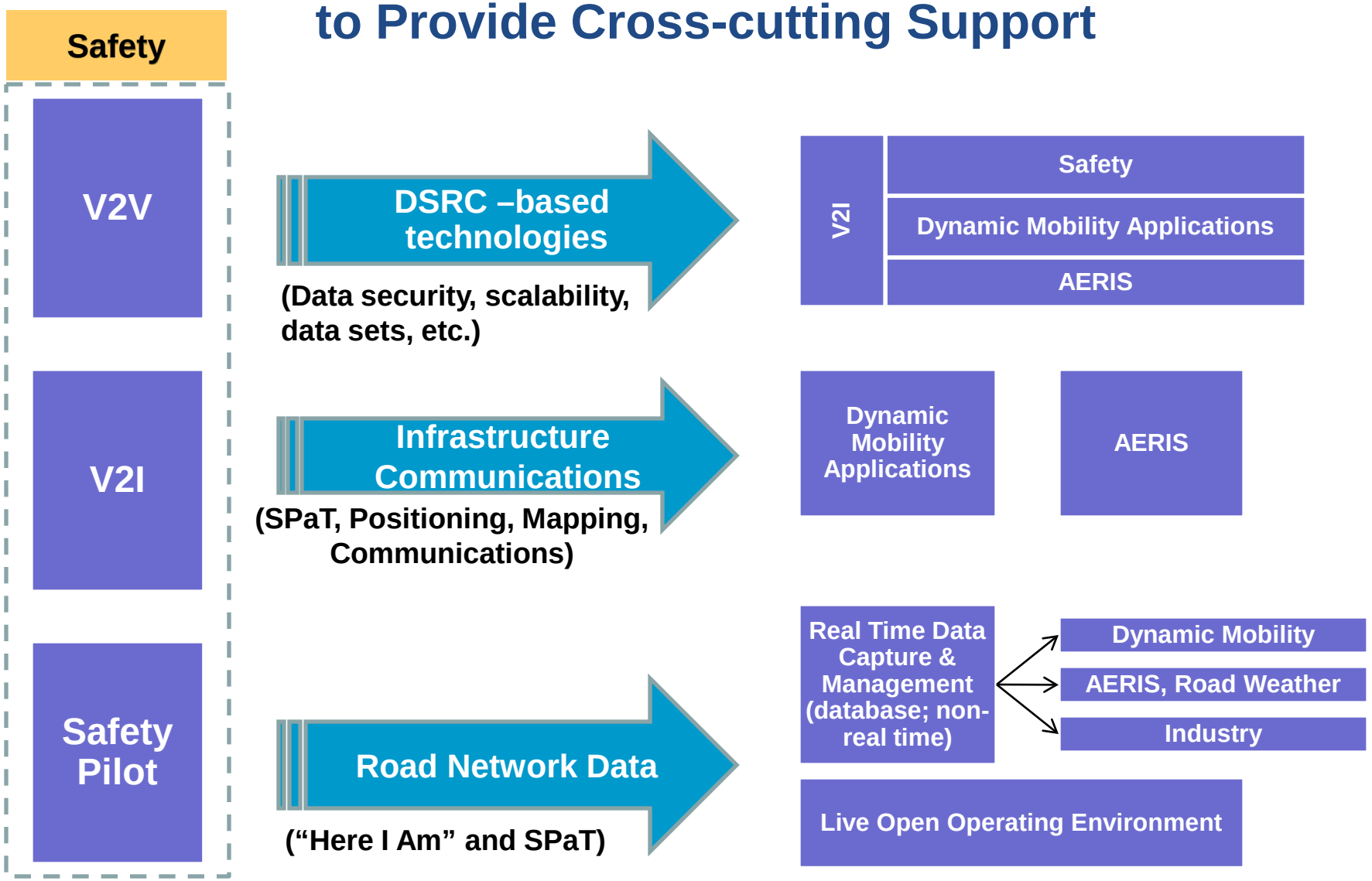
Objectives

- Create applications using frequently collected and rapidly disseminated multi-source data from connected travelers, vehicles (automobiles, transit, freight) and infrastructure
- Develop and assess applications showing potential to improve nature, accuracy, precision and/or speed of dynamic decision making by system managers and system users
- Demonstrate promising applications predicted to significantly improve capability of transportation system to provide safe, reliable, and secure movement of goods and people

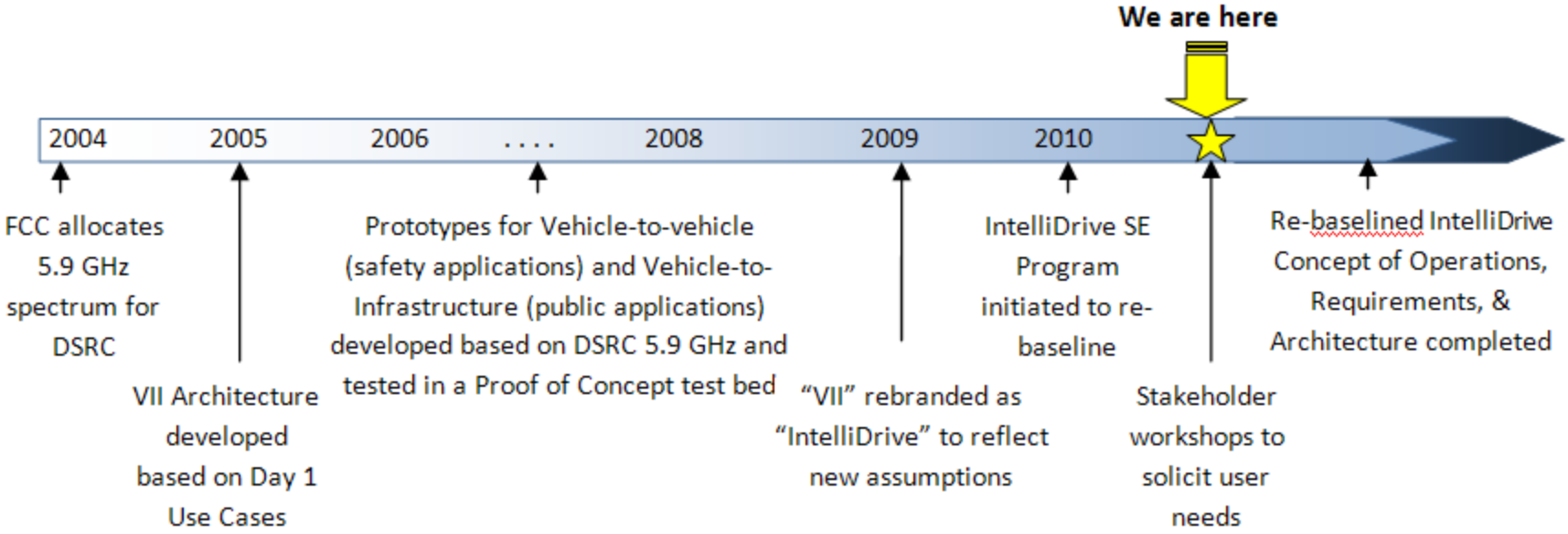
Key Elements of the IntelliDrive Mobility Program

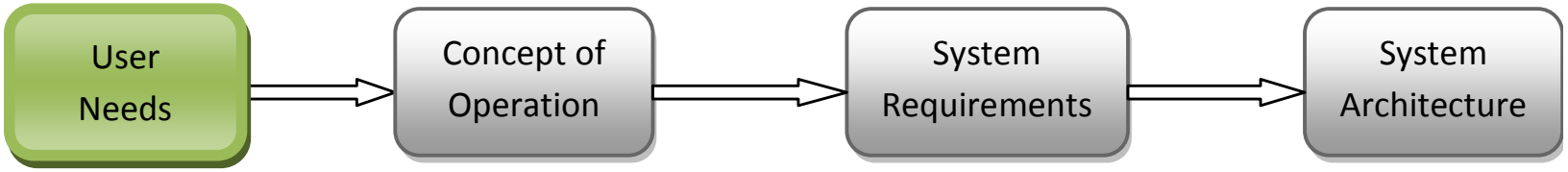
- Facilitate easy, secure access to data environments
  - Prototype Data Environment, https://datacapture.noblis.org/
  - FY 11 will obtain sample data environments
- Open Source Application Development that enables collaboration in mobility application development
  - Prototype Application Template, www.its.dot.gov/intellidrive/app_template/DMA_template.htm
  - 49 application ideas submitted by Aug. 31
  - Application Ideas due October 15, 2010
  - FY 11 will start developing applications
- Accumulate and share intellectual capital while respecting Intellectual Property rights
- Coordination with other IntelliDrive program areas and broader ITS programs

Leveraging Safety Program Activities to Provide Cross-cutting Support



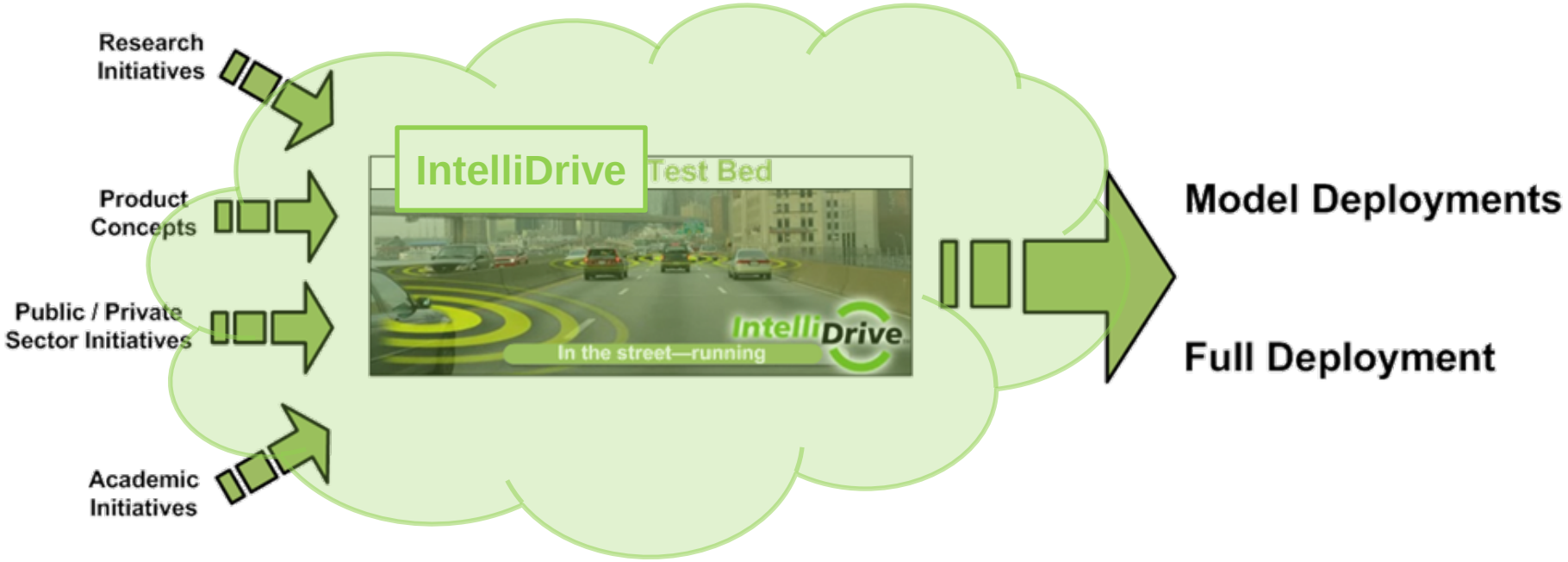
IntelliDrive Systems Engineering





Aug./Sept. 2010 Oct. to Dec. 2010 Jan. to March 2011 Summer 2011

IntelliDrive Testbed – Available January, 2011



"In the street – running"

Reference Implementation of IntelliDrive System Architecture - 2012

Major Upcoming Milestones/Events

- September 29 and 30, IntelliDrive Systems Engineering Workshop, Washington, DC
- October 2010, Signal Phase and Timing (SPAT) Interface Design and Prototype Development Begins, (Dec. 2010 Draft Con Ops)
- November/December, 2010 – IntelliDrive Draft Concept of Operations available for Public Review and Comment
- December 1 and 2, 2010 – IntelliDrive Mobility Workshop, Washington, DC
- January, 2011 – Announce Priority Safety and Mobility Applications for Development
- January 2011 – IntelliDrive Testbed Operator Transition Complete and Available for Stakeholder Use

For More Information…

http://www.intellidrive.org/