Educating Students for ITS Careers: Are Universities Meeting the Challenge?

Transportation Agencies Perspectives

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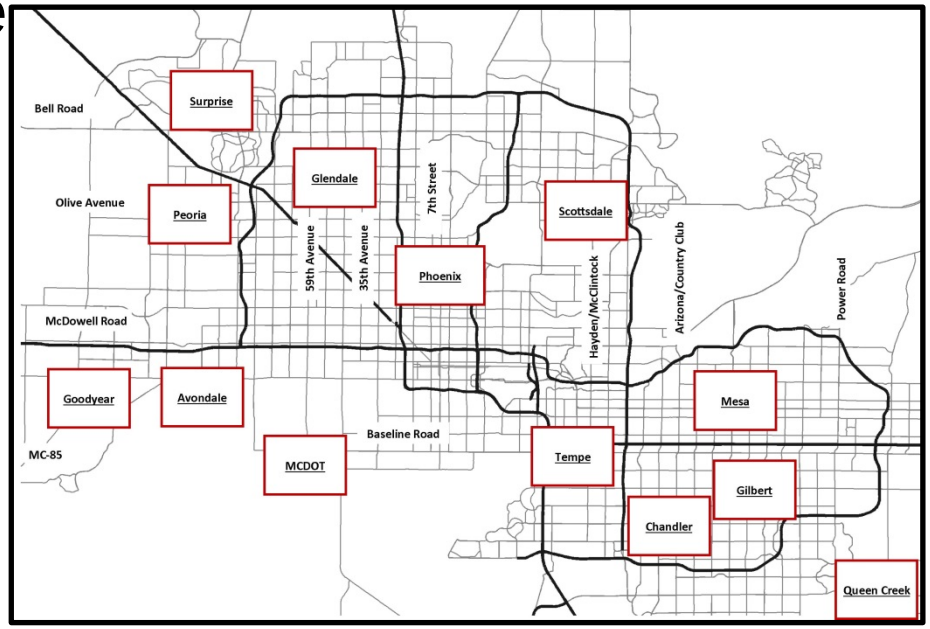
Overview

- Background
- Congestion Management Focus
- Challenges
- Vision
- Success in Sustaining an ITS Program: MCDOT Perspective
- Creating and Sustaining an ITS Program: ADOT Perspective
- Challenges/Opportunities Towards the AZTech Vision

Background

ITS in the Phoenix Metro Region

- Mainly Decentralized Architecture
- 13 Traffic Management Centers (State and Local Agencies)
- FMS
- AMS (Signals Systems)
- Regional Camera Sharing
- Communications (Fiber, Wireless, RCN)



Congestion Management Focus

Seamless traffic management across boundaries and facilities through integrated systems and operations:

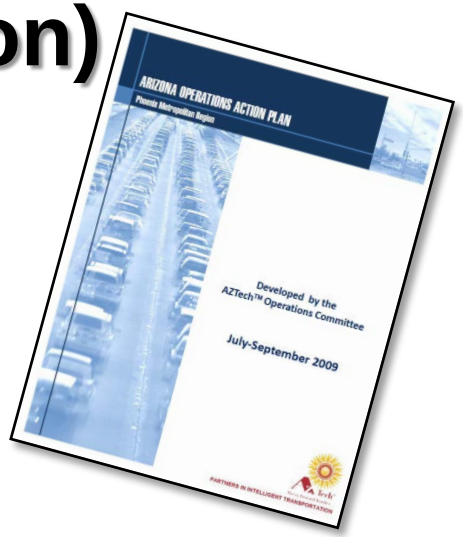
- SMART Corridors (arterials)
- Traveler information systems (integrated)
- Data archiving and retrieval (integrated)
- Incident management (integrated)
- Regional Community Network (RCN)
- Integrated Corridor Management (ICM)

Challenges

- Expanded ITS infrastructure
- **Skill development mainly through in-house training**
- Agencies competing for available **limited skilled pool**
- ITS staff needs **multidisciplinary skills**
- Current **job classification**
- HR positions/roles

Vision

2009 AZTech Arizona Operations Action Plan (Phoenix Metropolitan Region)



Top Four Priorities Included:

Vision Statement: We have qualified, well-trained staff and a pipeline of new talent

- **Desired Outcomes:**
  - Clear job descriptions and
  - Certification process
  - Uniform training
- **Action:**
  - AZTech Operations Committee developed ITS Certification White Paper
  - Leverage National agencies/organizations to develop certification programs

Successes in Sustaining an ITS Program

MCDOT Perspective

- Build support with Management
- Respond to ITS needs
- Target Consultant support to very specific needs
- Develop in-house skills
- Develop Manuals, Policies and Procedures
- Educate and build trust with HR

All the above takes time

Creating and Sustaining an ITS Program

ADOT Perspective

Creating and Sustaining an ITS Program

ADOT's Role in Traffic Management & Operations

- Freeway Management System (FMS)
- Transportation Technology Group (TTG)
- Institutional Structure & Staffing

Creating and Sustaining an ITS Program

ADOT Freeway Management System (FMS)

186 Miles of FMS Coverage Statewide

- Highway Condition Reporting System (HCRS)
- Cameleon ITS: Cam Cam
- Cameleon ITS: D Cam
- 511 Call Line for 24/7
- AZ 511 Speed Map
- Regional Archived Data System (RADS)

All Software and Hardware are in-House maintained

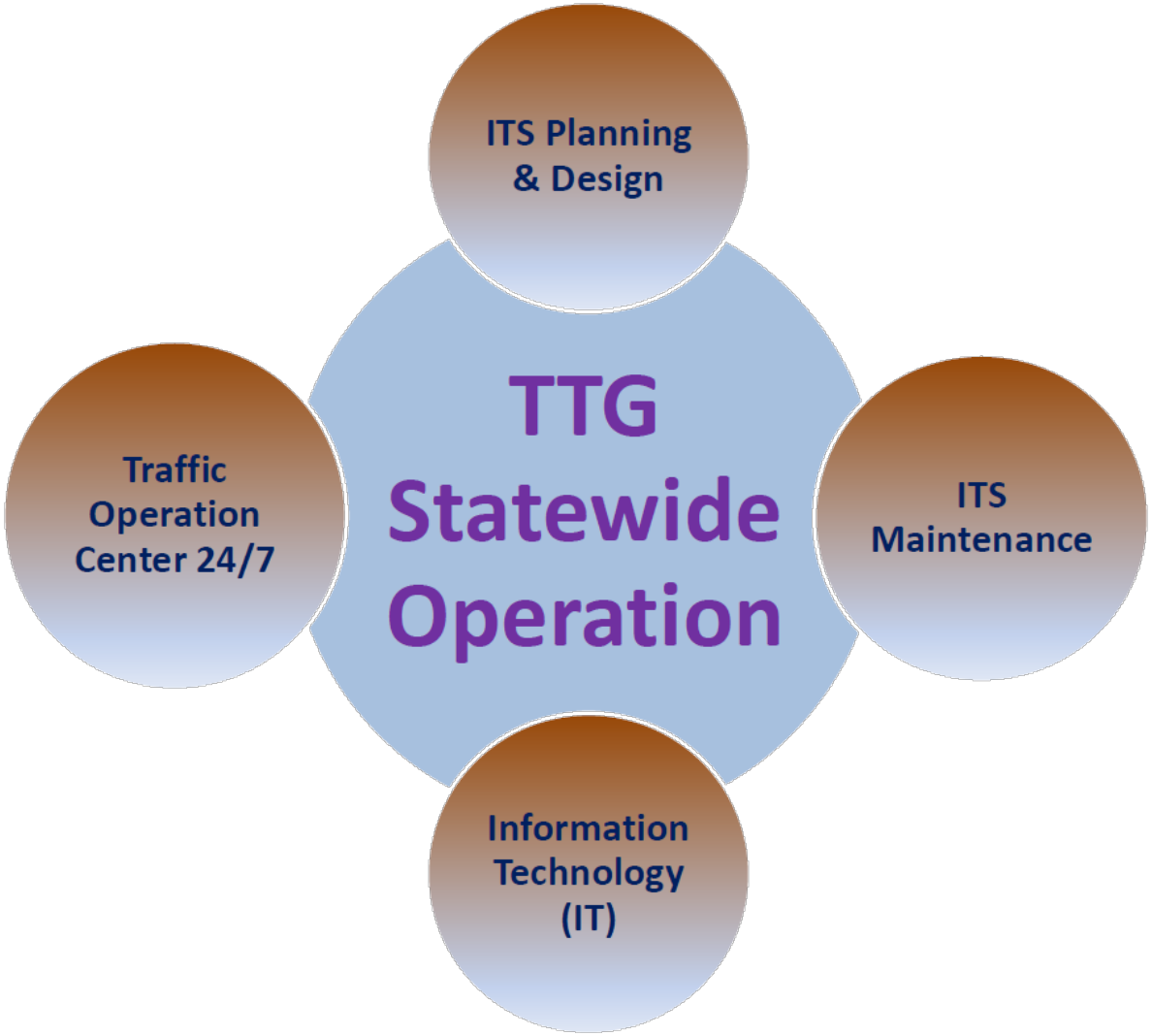
Creating and Sustaining an ITS Program

ADOT Statewide ITS Features

Feature	Location			
	Phoenix	Tucson	Rural	Total
Camera	191	28	-	219
Dynamic Message Signs (DMS)	108	15	60	183
Ramp Meter	202	-	-	202
RWIS	-	-	17	17

Creating and Sustaining an ITS Program

ADOT Transportation Technology Group (TTG)



Challenges/Opportunities Towards the AZTech Vision

- **ITS Technology Consistently Changing:**
  - We are not alone
  - Identify what is constant or core
- **Training:**
  - ITS principles
  - Include ITS principles in undergraduate curriculum
  - Include advanced ITS principles in graduate curriculum

Challenges/Opportunities Towards the AZTech Vision

- **Certification:**
  - Identify job requirements/description
  - Identify training needs
  - Establish and fund national certification training program
  - Possible models: Consortium for ITS Training and Education (CITE)
- **Develop a guidance document for HR**

Creating and Sustaining an ITS Program

Staffing Challenges

Example:

In the absence of ITS Engineers:

- Hired Electrical Engineer who has strong background on ITS communications
- PE was a requirement
- Candidate with ITS knowledge and background
- Agencies spend resources to develop ITS professionals

Creating and Sustaining an ITS Program

What Can Be Done??

- Form a national coalition to approach the Board of Regents
- Undergraduate and graduate level curriculums
- Encourage students
- ITS related presentations
- Develop certification process

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