



*Southeast Nebraska Regional
Intelligent Transportation
System (ITS) Architecture*

Workshop #3

Presented by
ITERIS

In association with

OLSSON ASSOCIATES


SOUTHEAST NEBRASKA
REGIONAL ITS ARCHITECTURE

January 27, 2005

Agenda

- ▶ ***Welcome and Introductions***
- ▶ ***Existing Regional ITS***
- ▶ ***SE Nebraska Project Status***
- ▶ ***Identified ITS Projects (Sequencing)***
- ▶ ***Agreements***
- ▶ ***Next Steps and Summary***
- ▶ ***Project Review (boards)***



What is ITS?



Roadway Management



Traveler Information



Rural Systems



Goods Movement



Emergency Management



Transit Systems



Maintenance and Construction



Existing Systems

Traffic management

- Signal control
- Monitoring



Existing Systems

- Automatic warning systems



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Existing Systems

- Traveler information
 - Dynamic message signs
 - 511
 - Websites
 - Kiosks



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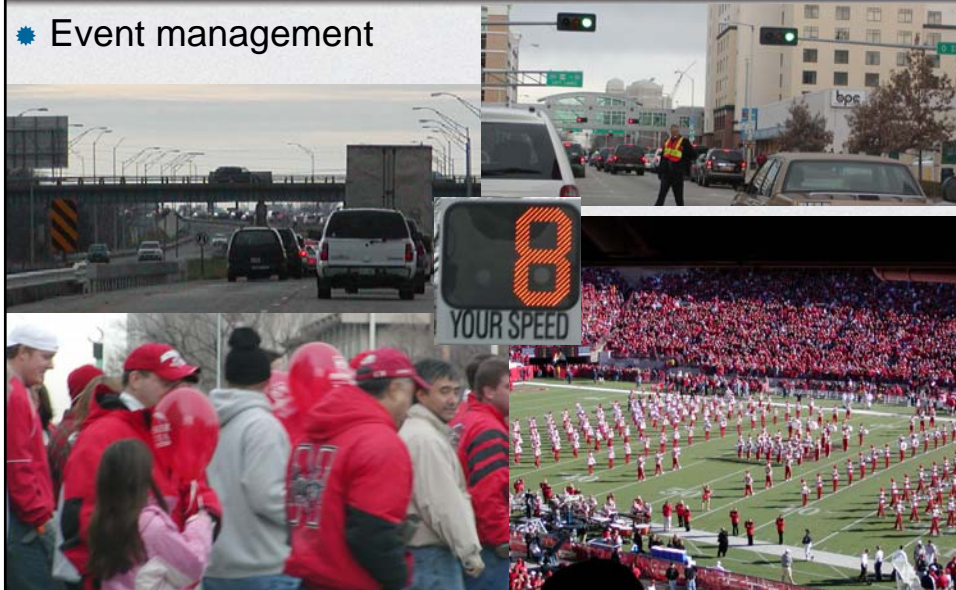
Existing Systems

Emergency & incident management



Existing Systems

Event management



Existing Systems

- Public transportation and parking



FOOTBALL
PARKING
AVAILABLE

AT
FOLLOWING
LOCATIONS

11TH & "N"
12TH & "N"
10TH & "K"



Existing Systems

- Commercial vehicle operations
 - Weigh-in-motion
 - Oversize/overweight permitting
 - Pre-pass
 - Hazmat



Existing Systems

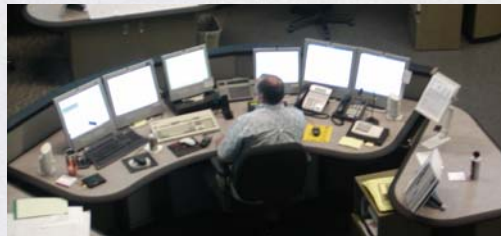
- Construction and maintenance
- Automated work zones



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Future ITS

- Regional operations centers
 - Traffic incident and event management
 - NDOR DOC
 - Lincoln TOC
 - 911/emergency operations
 - Emergency routing
 - Mayday support



Future ITS

- Public transportation
 - Transit vehicle tracking
 - Demand response transit operations
 - Transit security
 - Multi-modal coordination



Future ITS

- Vehicle systems
 - Transit vehicle tracking
 - Maintenance and construction vehicle and equipment tracking
 - HAZMAT management



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Future ITS

- Infrastructure based systems
 - Intersection collision avoidance
 - Regional parking management
 - Transportation infrastructure protection
 - HAZMAT security detection and mitigation



FOOTBALL
PARKING
AVAILABLE



Project Status



SENEARCH Market Packages

AD2: ITS Data Warehouse

APTS1: Transit Vehicle Tracking
 APTS2: Transit Fixed-Route Operations
 APTS3: Demand Response Transit Operations
 APTS7: Multi-modal Coordination
 APTS8: Transit Traveler Information

ATIS1: Broadcast Traveler Information
 ATIS2: Interactive Traveler Information

ATMS1: Network Surveillance
 ATMS3: Surface Street Control
 ATMS4: Freeway Control
 ATMS6: Traffic Information Dissemination
 ATMS7: Regional Traffic Control
 ATMS8: Traffic Incident Management
 ATMS13: Standard Railroad Grade Crossing
 ATMS16: Parking Facility Management
 ATMS17: Regional Parking Management
 ATMS19: Speed Monitoring (enforcement)
 ATMS21: Roadway Closure Management



Red = Planned

CVO3: Electronic Clearance
 CVO6: Weigh in Motion
 CVO7: Roadside CVO Safety

EM1: Emergency Call-Taking and Dispatch
 EM2: Emergency Routing
 EM4: Roadway Service Patrols
 EM5: Transportation Infrastructure Protection
 EM6: Wide Area Alert
 EM7: Early Warning System
 EM8: Disaster Response and Recovery
 EM9: Evacuation and Reentry Management
 EM10: Disaster Traveler Information

MCO1: Maint. and Const. Vehicle Tracking
 MCO3: Road Weather Data Collection
 MCO4: Weather Info Processing and Dist.
 MCO5: Roadway Automated Treatment
 MCO6: Winter Maintenance
 MCO7: Roadway Maint. and Const.
 MCO8: Workzone Management
 MCO9: Workzone Safety Monitoring
 MCO10: Maint. And Const. Activity Coordination

Project Sequencing

- Some ITS Deployments Exist or Are Underway in the Region
- Task is to Further “Build-out” the Architecture by Identifying and Packaging Projects
- Provides a Path to Regional ITS Implementation
- To be incorporated into Traditional Regional Planning Processes

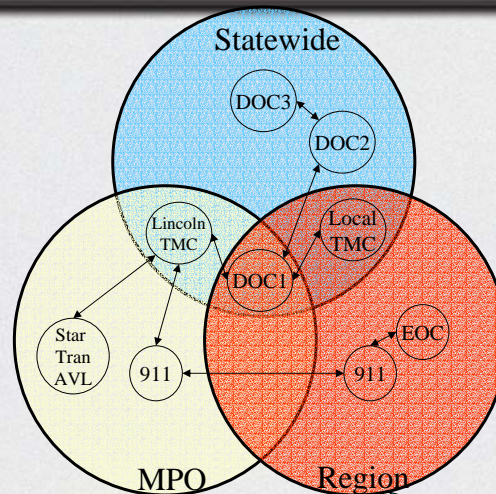


Project Sequencing

- Process:
 - Evaluate needs
 - Identify gaps
 - Review statewide, local and regional plans for projects
 - Develop list of projects to resolve gaps and issues



Project Sequencing



Projects in SENE ARCH

Projects in SENE ARCH

Project Sequencing

- Grouping of Projects based on:
 - Perceived need
 - Feasibility
 - Financial
 - Technical
 - Institutional
 - Providing “Enabling” technology
 - Having a champion to guide project



Project Sequencing

- Project Sequencing:
 - Near-Term: 0 - 4 year time frame
 - Projects addressing immediate and urgent needs
 - Mid-Term: 5 - 10 year time frame
 - Projects addressing needs but funding or technology may not be ready
 - Long-Term: 10+ years
 - Projects addressing needs, but not seen as urgent and/or region not ready to commit to required technology



Project Sequencing

- 36 Recommended Projects
 - 16 Near-Term
 - 11 Mid-Term
 - 9 Long-Term
- Broad-based stakeholder representation
- Broad-based geographic representation



Summary List of Projects

Near Term

1. Flood Monitoring System
2. Maintenance Vehicle Tracking
3. NDOR D1 District Operations Center
4. City of Lincoln and NDOR Operations Coordination
5. Dynamic Message Sign Expansion
6. Emergency Services Coordination
7. City of Lincoln Traffic Management Center
8. City of Lincoln Joint Operations Center
9. City of Lincoln Emergency Vehicle Improvements
10. City of Lincoln Traffic Signal Response Improvements
11. StarTran Automatic Vehicle Location
12. StarTran Transit Information Improvements
13. City of Lincoln Traffic Camera Expansion
14. NDOR Traffic Camera Expansion
15. Regional Communications Improvements
16. Urban Camera Coordination

Mid Term

17. Automated Gate Closure
18. Infrastructure Security Monitoring
19. Local Emergency Management Computer Aided Dispatch
20. Portable Weight-in-Motion
21. Expansion of NDOR Speed Monitoring
22. Multi-Jurisdictional Transit Coordination
23. Local Emergency Vehicle Improvements
24. Local Transit Operations Upgrade
25. City of Lincoln Traveler Information System
26. City of Lincoln Maintenance Vehicle Tracking
27. Parking and Event Management Improvements

Long Term

28. Trailblazer Signage
29. Ramp Metering
30. Local County Maintenance Vehicle Tracking
31. City of Lincoln Smart Grade Crossing
32. City of Lincoln Automated Traffic Enforcement
33. Transit Signal Priority
34. School Bus Tracking
35. Local Transit Vehicle Tracking
36. Local Agency Smart Grade Crossing



Emergency Services Coordination

Emergency Services Coordination – This project will coordinate the services of several local, city and state resources for responding to major incidents such as attacks and major natural disasters. It will coordinate the communication, enhance data sharing among emergency response agencies and help develop integrated response plans that cross jurisdictional and institutional boundaries to address major catastrophes. The purpose is to provide security and efficient large-scale emergency response.



Multi-Jurisdictional Transit Coordination

Multi-Jurisdictional Transit Coordination – This project will coordinate the transit services of providers throughout Southeast Nebraska. It will establish two-way communications between the region's transit agencies to improve service coordination. By communicating, the agencies can identify opportunities to share rides or transfer passengers from one service to another. The purpose is to shorten the rural transit provider's trips by coordinating with other agencies, and to more efficiently allocate the number of transit seat miles available. Projects similar to this are identified in the Kearney Transit ITS Architecture dated April 17, 2003 and will likely be identified in the Omaha-Council Bluffs (MAPA) Regional ITS Architecture. Implementation of this project should be coordinated with those projects to share standards and technologies to the extent beneficial.



Agency Agreements

- Agreements are necessary:
 - To define roles and responsibilities
 - To formalize partnerships
 - To formalize funding arrangements
- The agreement type depends on:
 - The project
 - The agencies
 - The existing relationship



Agreement Types

- **Memorandum of Understanding** – *Initial agreement, minimal detail, general consensus for next steps*
- **Interagency** - *Documents responsibility, functions, liability*
- **Intergovernmental** – *Between governing agencies*
- **Operational** - *Between agencies involved in funding, or using property or equipment of another agency*
- **Funding** – *Documents the funding arrangement*
- **Masters** – *Standard contract that serves as master for all business of an agency*



Agency Agreements

- MOU Priorities
 - Near-term projects involving multiple agencies and/or departments within agencies
- Projects that do not require a formal agreement

SENARCH Project	Stakeholder
NDOR Maintenance Vehicle Tracking	NDOR
Automated Gate Enclosure	NDOR
Ramp Metering	NDOR
Trail Blazer Signage	NDOR
NDOR Traffic Camera Expansion	NDOR
StarTran AVL and Transit Information Improvements	Star Tran
City of Lincoln Traffic Signal Response Improvements	City of Lincoln
City of Lincoln Maintenance Vehicle Tracking	City of Lincoln



Next Steps

- Finalize List of Agreements
- Identify ITS Standards
- Develop the SE NE Architecture Maintenance Plan
 - Who is responsible?
 - What has to be maintained (Identify baseline)?
 - When (how often) does this occur?
 - How are changes identified and made?
 - Change Management (CM) process?
- Develop Final Project Documentation
- Document Approval



Future SENEARCH Workshops

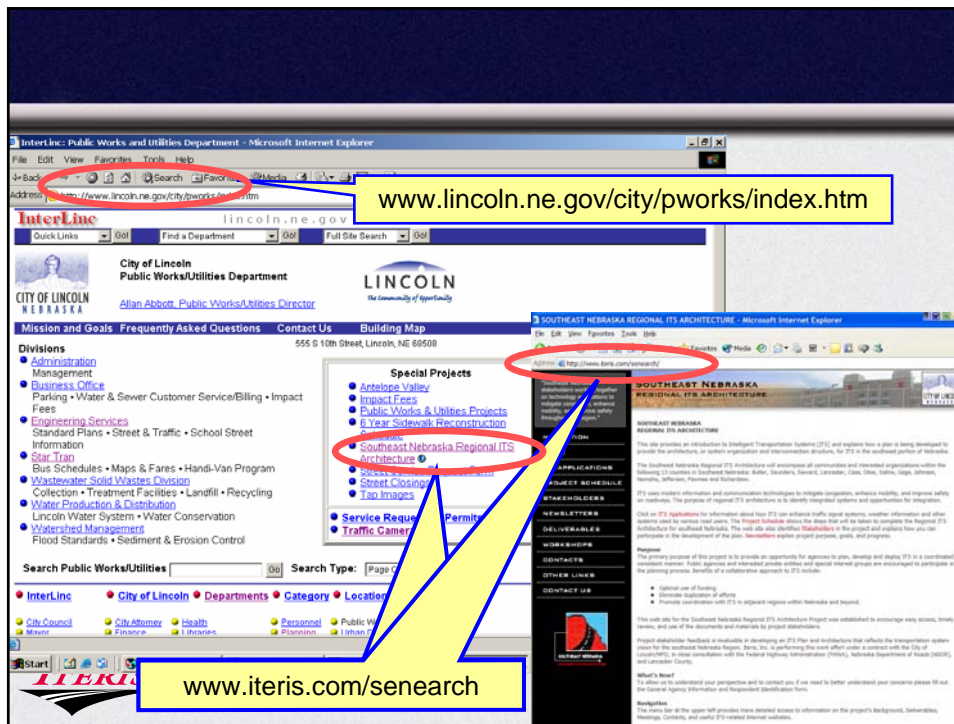
- **Workshop 4 (March 3) - Results**
 - Maintenance of the SE NE ITS Architecture
 - Final Report



How to Stay Involved

- Visit our website to confirm meeting dates, review newsletters, etc.
- Attend future workshops
- Contact information:
 - Mr. Virendra Singh
 - VSingh@ci.lincoln.ne.us
 - 441-7835





After the Break...

- Visit "List of Projects Boards" and review/comment
 - Project description
 - Project sequencing
 - Involved agencies
- Are Projects Reasonable?
- Are There Other Projects?
- Project Champions
- Is the Sequencing/Timing Reasonable?



10 minute break

