

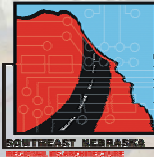
*Southeast Nebraska Regional
Intelligent Transportation
System (ITS) Architecture*

Workshop #4

Presented by



In association with



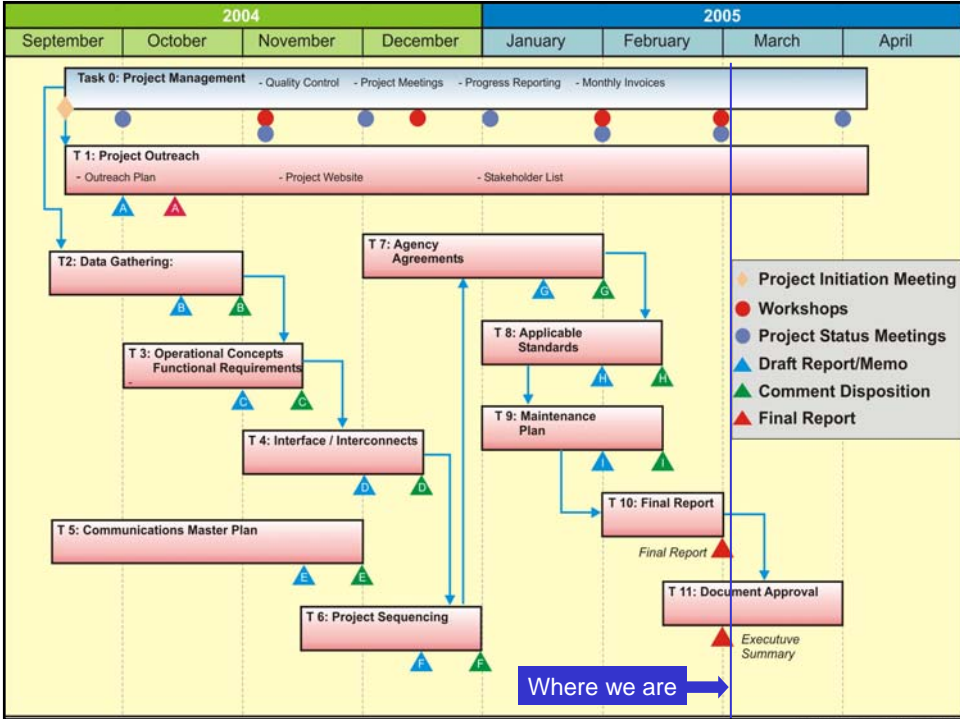
March 3, 2005

Agenda

- ▶ ***Welcome and Introductions***
- ▶ ***Study Status***
- ▶ ***Project Sequencing Update***
- ▶ ***Agency Agreements Update***
- ▶ ***Architecture Maintenance***
- ▶ ***Next Steps***



Study Status



Where Have We Been?



The Problem

- Safety
- Security
- Mobility
- Congestion
- Cost
- Weather



The Solution!

Intelligent Transportation Systems

Use of technology to improve the efficiency and safety of our transportation systems

...Includes both Technical and Institutional attributes



What is ITS?



Roadway Management



Traveler Information



Rural Systems



Goods Movement



Emergency Management



Transit Systems



Maintenance and Construction



What Is a Regional ITS Architecture?

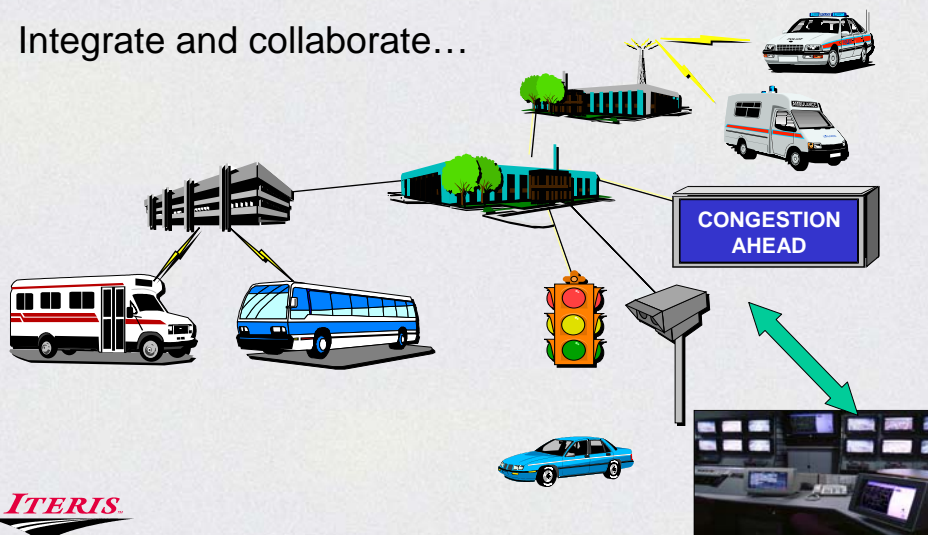
...Is a Framework to:

- Interconnect ITS services across the region
- Identify “gaps” in ITS technologies, services, and coordination
- Define collaborative projects/sequencing
- Assist in the development of cooperative agreements to share in ITS costs and benefits across the region



What is a Regional ITS Architecture?

Integrate and collaborate...



Project Study Area/Stakeholders

The Official Web Site for the
City of Lincoln AND Lancaster County

LINCOLN
The Community of Opportunity

Star TRAN

City of Lincoln
Public Works/Utilities
Department

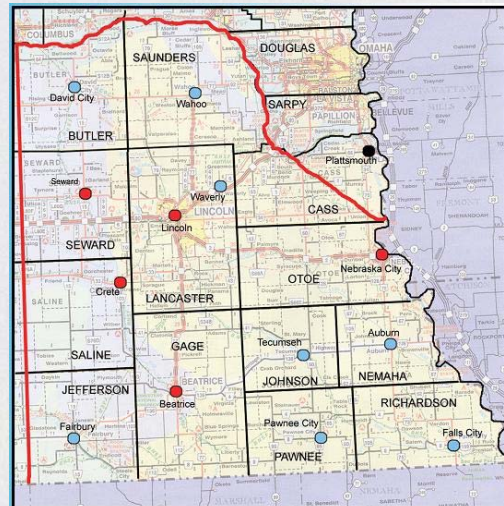
NDOR
Nebraska
Department of Roads

NEMA

803-7470-4015
FAX 803-7470-5750

More Stakeholders

- Rural transit providers
- Counties
 - Sheriff
 - Emergency Managers/911 Centers
 - Highway
- Cities
 - Mayor/Administrator
 - Public works/Engineer/Streets
 - Police
 - Fire

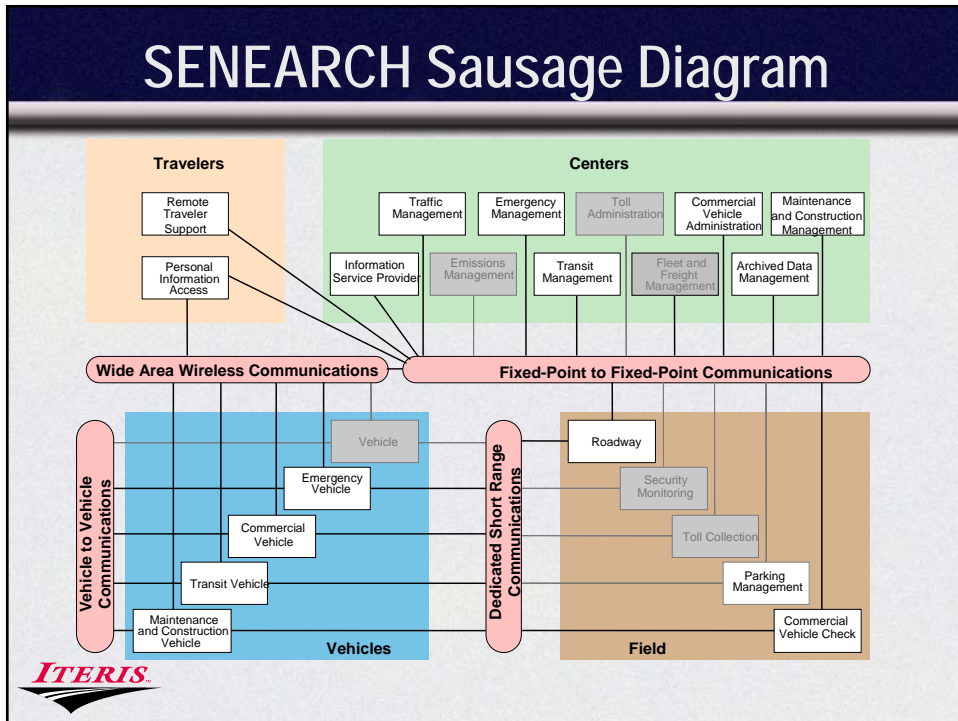


Project Outreach

- Meetings
- Phone Calls
- E-mails
- Workshops
- Website

www.iteris.com/senearch

SENEARCH Sausage Diagram



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

Other steps and activities

- * Operational Concepts
 - Focus on a definition of each stakeholder's role in delivering transportation systems and services
 - Define Responsibilities
- * Functional Requirements
 - Customized based on
 - Inventory
 - Market Package Definition
 - Needs of Agencies
- * Communication Master Plan



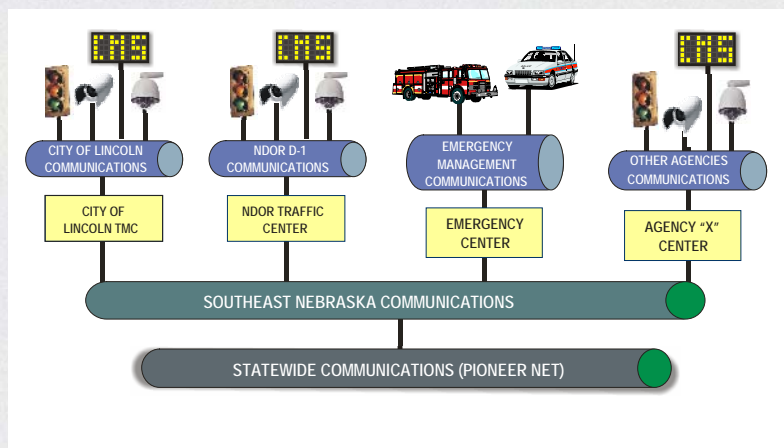
Communications Master Plan

The Objective:

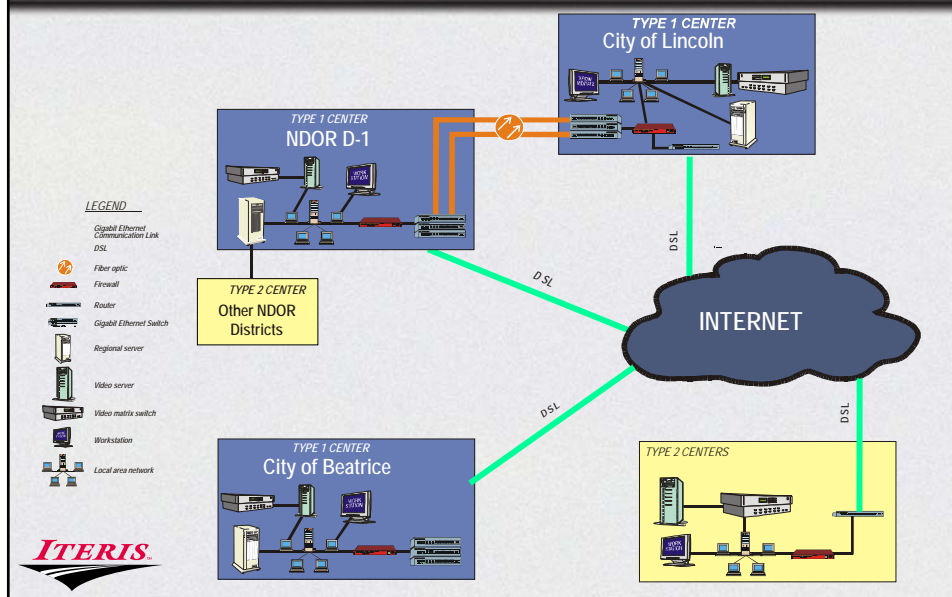
- Consistent with Statewide Strategic Plan
- Ability to share information agency-to-agency
- Maintain common standards to assist with the sharing of information
- Make use of existing systems where possible
- Communicate with ITS elements deployed throughout the area



Regional System



C2C Communications Recommendation



Project Sequencing



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

- 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 Update

- 39 Recommended Projects
 - 19 Near-Term
 - 11 Mid-Term
 - 9 Long-Term
- Changes made based on Steering Committee Comments and Stakeholder Input



Recommended Near-Term (19) Projects

Project Title	Stakeholders
Roadway Flood Warning System	City of Lincoln
Flood Monitoring System	Lancaster County
NDOR District 1 District Operations Center	NDOR
City of Lincoln and NDOR Operations Coordination	City of Lincoln, NDOR
Dynamic Message Sign Expansion	NDOR
Dynamic Message Sign Expansion	City of Lincoln
Dynamic Message Sign Expansion	Lancaster County
Emergency Management Coordination	NDOR; NSP; NEMA; City of Lincoln; ARNG; Local City, County and Agencies; Local Media
City of Lincoln Traffic Management Center	City of Lincoln
City of Lincoln Joint Operations Center	City of Lincoln; Lancaster County Local Media
City of Lincoln Emergency Vehicle Improvements	City of Lincoln
City of Lincoln Traffic Signal Response Improvements	City of Lincoln
StarTran Automated Vehicle Location (AVL)	City of Lincoln – StarTran
StarTran Transit Information Improvements	City of Lincoln – StarTran
StarTran Transit Smart Card	City of Lincoln – StarTran
City of Lincoln Traffic Camera Expansion	City of Lincoln, UNL
NDOR Traffic Camera Expansion	NDOR
Regional Communications Improvements	NDOR; Local City, County and Agencies; Lancaster County; City of Lincoln; NSP; NEMA
Urban Camera Coordination	City of Lincoln, NDOR, UNL

Recommended Mid-Term (11) Projects

Project Title	Stakeholders
Maintenance Vehicle Tracking	NDOR
Flood Monitoring System	NDOR
Automated Gate Closure	NDOR
Infrastructure Security Monitoring	Local City, County and Agencies; NSP; NDOR; NEMA; City of Lincoln; Lancaster County
Local Emergency Management Computer Aided Dispatch	Local City, County and Agencies
Multi-Jurisdictional Transit Coordination	Local City, County and Agencies; StarTran; Lancaster County Transit; Metro Area Transit (Omaha)
Local Emergency Vehicle Improvements	Local City, County and Agencies
Local Transit Operations Upgrade	Local City, County and Agencies, Lancaster County
City of Lincoln Traveler Information System	City of Lincoln, NDOR, Media, Information Service Providers
City of Lincoln Maintenance Vehicle Tracking	City of Lincoln
Parking and Event Management Improvements	City of Lincoln, NDOR, UNL

Recommended Long-Term (9) Projects

Project Title	Stakeholders
<i>Trailblazer Signage</i>	<i>NDOR</i>
<i>Local County Maintenance Vehicle Tracking</i>	<i>Local City, County and Agencies; Lancaster County</i>
<i>City of Lincoln Smart Grade Crossing</i>	<i>City of Lincoln</i>
<i>City of Lincoln Automated Traffic Enforcement</i>	<i>City of Lincoln</i>
<i>Transit Signal Priority (TSP)</i>	<i>City of Lincoln</i>
<i>School Bus Tracking</i>	<i>StarTran; Local City, County and Agencies; Lincoln Public Schools; Local School Districts; Lancaster County</i>
<i>Local Transit Vehicle Tracking</i>	<i>Local City, County and Agencies, Lancaster County</i>
<i>Portable Weigh-in-Motion</i>	<i>NDOR; Local City, County and Agencies</i>
<i>Local Agency Smart Grade Crossing</i>	<i>City, Counties and Local Agencies</i>

Potential ITS Funding Sources?

- Federal ITS Earmarks
- Congestion Mitigation and Air Quality (CMAQ)
- Surface Transportation Program (STP)
- Hazard Elimination and Safety (HES)
- ITS Demonstration/Set-Aside Funds (typ. competitive)
- ITS Research Funds
- Homeland Security Funds
- Public/Private Partnerships
- Local Matching Funds (or In-Kind Services)
- Others?



Agency Agreements



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

- **Handshake** – *Not a long-term solution*
- **Memorandum of Understanding** – *Initial agreement, minimal detail, general consensus for next steps*
- **Interagency** - *Documents responsibility, functions, liability*
- **Intergovernmental (Inter-Local)** – *Between governing agencies*
- **Operational** - *Between agencies involved in funding, mutual aid, 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*

Other Agreement types/needs may be identified based on local agency practice.



Agency Agreements

- **Single-Agency Projects May not Require an Agreement**
- **Identify Candidate Near-term Projects**
 - Typically Complex, Multi-Agency
- **Identify Participating Agencies**
- **Focus on Develop of Draft Memorandum of Understanding (MOU)**
- **Support MOU Development/Agreement Process**



Key Elements of Draft MOUs

- Participating agencies/departments
- Status and existing agreements
- Objective(s)
- Expectations (Roles/Responsibilities)
- Term
- Non-binding



Recommended Near-Term MOUs

- City of Lincoln Joint Operations Center
 - Champion Identified – Julie Righter
 - Stakeholders Identified
 - Initial Meeting Feb. 17, 2005
 - Comments Pending on MOU
- Emergency Management Coordination
 - High Level of Interest (17+ agencies)
 - To be Continued During Agency Approval Meetings
- Urban Camera Coordination
 - Meeting Pending
- Parking and Event Management Improvements
 - Meeting Pending



Architecture Maintenance

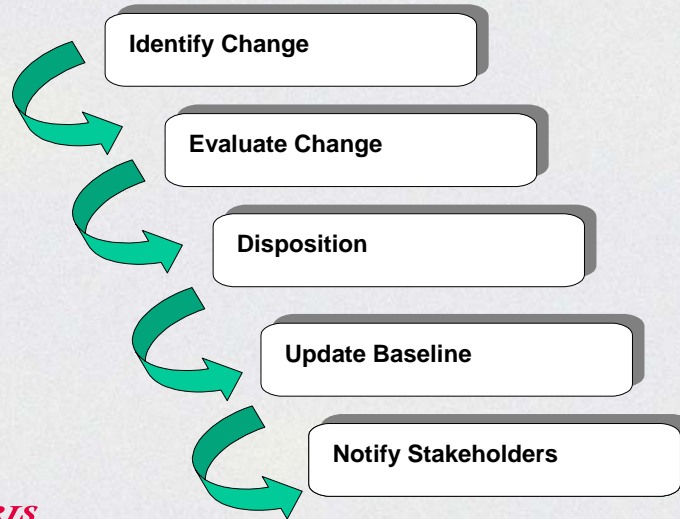


Architecture Maintenance

- 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?



Change Management Process



Maintenance Team Structure?

- Suggested Organization Structure
 - Subcommittee to Project Steering Committee (PSC)
- PSC Maintenance Team
 - Migrate from Project Steering Committee
 - City/MPO is Lead, with PSC sharing responsibility
 - Critical to Involve other 12 Counties
 - Act as Change Control Board (CCB)
- Formation/Role of ITS Coordinating Committee
 - Relationship to Existing City/NDOR Committee



Next Steps



Comment Disposition

- Logged from project initiation
- Technical and non-technical
- 150+ comments received to date from Steering Committee Members and Project Stakeholders
- Comments addressed in draft final project report



Final Tasks

- Draft Final Report and Executive Summary being reviewed by Steering Committee
- Continue Agreements/MOU Development Process
- Initiate Architecture Approval Process
- Develop Letter of Intent/Acceptance for Signature in Approval Process



Approval Meeting Dates

- MPO Technical Committee
 - Wednesday, March 23, 2005 - 3:00 p.m.
- MPO Officials Committee
 - Thursday, March 24, 2005 - 1:30 p.m.
- Tentative SuperCommons Meeting
 - Monday, April 4, 2005 – 8:30 a.m.
- Future Meeting with State Highway Commission
- Meetings with County Boards (12 other counties) and City Councils (key cities) being scheduled in April/May



Maintaining the Momentum

- Continuation of Project Steering Committee
 - Architecture is the Beginning!
- Formation of Sub-Committees
 - Funding Opportunities
 - Lessons Learned
 - Revisit Specific Architecture Elements
 - Continue to Involve Region
- Maintain Architecture
- Focus on Implementation
 - Identify Multi-Jurisdictional Coalitions
- City of Lincoln to Maintain Project Website



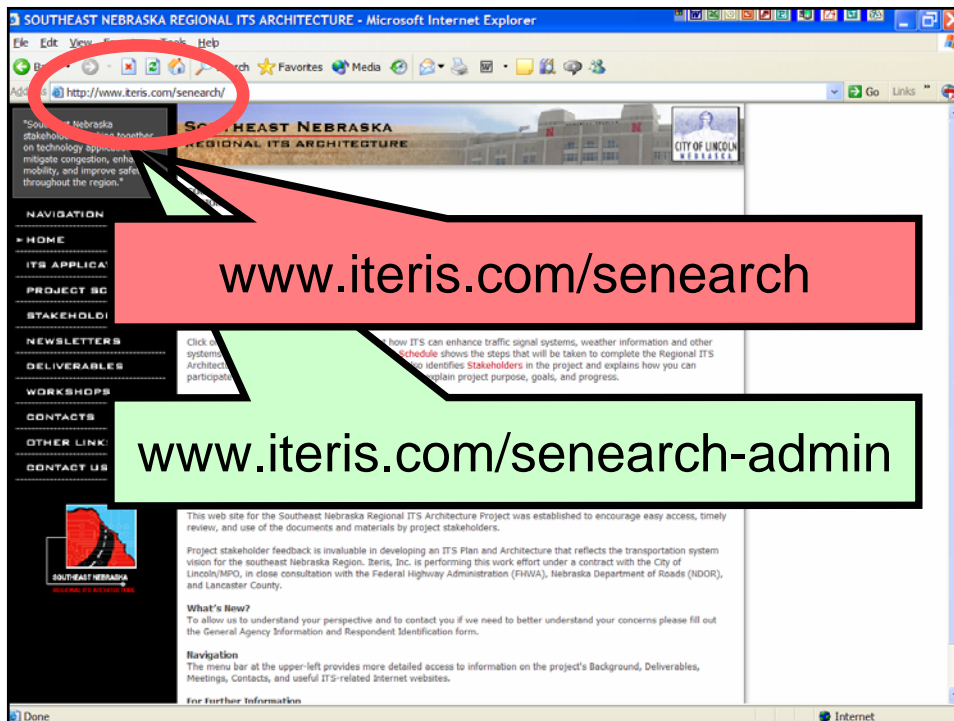
Champions for Collaboration

- You are the Champions
- 120+ Stakeholders Attended and Actively Participated in Workshops
- We Need You to Continue to be Involved!
 - Project Identification/Collaboration
 - Multi-Jurisdictional Coalitions
 - Funding Opportunities



How to Stay Involved

- Visit our website to review project deliverables as they are finalized
- Be a “Project Champion”
- Contact information:
 - Mr. Virendra Singh
 - VSingh@ci.lincoln.ne.us
 - 441-7835



InterLine: Public Works and Utilities Department - Microsoft Internet Explorer

Address: <http://www.lincoln.ne.gov/city/pworks/index.htm>

www.lincoln.ne.gov/city/pworks/index.htm

City of Lincoln
Public Works/Utilities Department
Allan Abbott, Public Works/Utilities Director

SPECIAL PROJECTS

- Antelope Valley
- Impact Fees
- Public Works & Utilities Projects
- 5 Year Sidewalk Reconstruction
- Southeast Nebraska Regional ITS Architecture**
- Street Closures
- Tap Images
- Service Request Permits
- Traffic Camera

SOUTHEAST NEBRASKA REGIONAL ITS ARCHITECTURE

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Thank You!

It has been truly a pleasure to assist you...

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