Louisiana Transportation Research Technical Assistance Report Report No. 17

Louisiana ITS Strategic Plan Executive Summary

April 1998

LTRC
Louisiana Transportation Research Center

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LOUISIANA ITS STRATEGIC PLAN
EXECUTIVE SUMMARY

LOUISIANA TRANSPORTATION RESEARCH CENTER
Technical Assistance Report Number 17

by
Louisiana ITS Committee

Louisiana Transportation Research Center
4101 Gourrier Ave.
Baton Rouge, LA 70808

April 1998

INTRODUCTION

Intelligent Transportation Systems (ITS) have received increased attention and become integral parts of transportation functions in recent years. Upon passage of ISTEA re-authorization, commonly known as "ISTEA II", it is projected that the ITS subtitle will provide $1.8 billion for federal ITS programs in a six year period. Additional funding for ITS elements is also possible through other programs such as the new high density transportation and increased trade border crossings programs.

Realizing the role of ITS in the future of our transportation infrastructure, the Louisiana Transportation Research Center (LTRC) suggested development of a Louisiana ITS Strategic Plan to Louisiana Department of Transportation and Development (DOTD) Secretary Frank Denton in the spring of 1997. Secretary Denton charged LTRC and a select committee to identify the immediate and long term needs of Louisiana with regard to ITS (see Appendix A).

APPROACH

The ITS Strategic Planning Committee was formed in May, 1997, with individuals from various public and private organizations. Public sector participants included both DOTD and FHWA personnel and representatives of local government (MPOs, municipalities, etc.), since many applications of ITS have major impact at the local level and collaboration in goal setting was considered essential. Private sector participants included consultants and representatives of industry associations. The list of participants is attached in Appendix B.

The primary objective was to lay the groundwork for short-term and long-term commitments for ITS projects in Louisiana. The committee was then divided into three subcommittees based on the ITS services relevant to Louisiana. The three subcommittees were Travel and Traffic Management, Commercial Vehicle Operations (CVO) and Electronic Payment, and Public Transportation and Emergency Management.

The committee met once a month from June through November of 1997 with subcommittees holding additional meetings. All were well attended and members were enthusiastic about the chance to develop an ITS strategic plan for Louisiana.

MISSION

The following mission for the committee was established with the consensus of the members during the first meeting:

To develop a coordinated strategic plan for deployment of Intelligent Transportation Systems to improve the efficiency and safety of Louisiana's transportation network.

GOAL

The following goal was also set by the committee:

To develop an ITS Strategic Plan by December, 1997 which addresses traffic and travel management, commercial vehicle operations/electronic payment, and public transportation/emergency management issues and needs for Louisiana. The plan will consist of a short-term component (0-5 years) and a long-term component (5-10 years).

GUIDING PRINCIPLES

The following guiding principles were selected and used to achieve the goal of the committee.

1. Address institutional changes needed to support appropriate level of technologies
2. Balance organizational changes with respect to level of technologies (high-tech/low-tech/no-tech ITS improvements)
3. Identify needs, then select the most appropriate action
4. Focus on low cost/high return, for the short-term and high cost/high return for the long-term
5. Provide standardization and inter-operability of ITS technology
6. Employ proven technologies
7. Ensure conformity with national ITS architecture
8. Seek multiple applications and benefits
9. Leverage experiences of other states (activities/knowledge/mistakes)
10. Monitor results

METHODOLOGY

Each subcommittee was asked to identify the needs and potential projects for the ITS user services in their area. Short-term and long-term projects were identified within each subcommittee. A set of action plans which were identified by all three subcommittees as high priority were classified as "high priority action items."

RECOMMENDATIONS

The following recommendations were made by the committee for potential short- and long-term projects and the high priority action plans. These projects are listed in the order of priority.

Potential Projects

The following short term and long term potential projects were identified within each subcommittee.

Travel and Traffic Management

Short-term projects -

1. Provide Motorist Assistance Patrols (MAPs) in metropolitan areas
   - Identify the interstate segments with significant peak-hour congestion
   - Document data related to major and minor accidents for further analysis
   - Develop prioritization criteria and prioritize high volume interstate corridors statewide
   - Prepare implementation plans including hours of operation, expenditures, and source(s) of funds for projects
   - Place projects in the State Transportation Improvement Program, and the MPO Transportation Improvement Programs for implementation
   - Provide for permanent continuation of Motor Assistance Patrols (MAPs) throughout the state

2. Develop incident response plans in rural and urban areas to build/expand upon current incident management activities
   - Develop criteria for expanding incident management activities in urban and rural areas. Criteria to consider are:
     - corridors with high Average Daily Traffic
     - corridors with high incidents in terms of severity and intensity
     - areas of high risk in relation to industrial activity

- Establish incident management steering committees with a DOTD staff member as committee coordinator
- Identify key issues and consider consultant assistance to prepare incident response plans as well as detour plans
- Prepare plans to address issues such as procedures, jurisdictional issues, authority, coordination, agencies of first response, and other details
- Stress continuation of existing incident management activities

3. Install Variable Message Signs (VMS) to address fog, incident management, and other safety concerns
   - Identify severe fog-affected areas statewide and prioritize corridors for further study
   - Based on the prioritized list
     - select sites for VMS
     - prepare VMS plans, specifications, and estimates
     - program corridor projects for implementation
   - Identify and study other safety concerns with recommendations for mitigation

4. Address communications infrastructure and implement pilot projects
   - Identify alternative funding mechanisms for fiber optic communications network development
   - Consider use of public/private partnerships
   - Explore installation of fiber optic cables by private sector in state right-of-way with provisions for state use
   - Include installation of conduit to house fiber optic cables in the scope of new construction projects

Long-term projects -

1. Develop traffic management centers
   - Assign appropriate DOTD unit the following duties:
     - initiation of feasibility studies
     - coordination with local governments
     - planning and implementation of traffic management centers
     - exploring provisions for local government units to operate and maintain centers
     - Use Baton Rouge and New Orleans as prototypes for other metropolitan areas in the state

2. Deploy incident avoidance/detection systems
   - Consider incident detection systems part of the architecture in areas with on-going projects to design and build traffic management centers
   - In other areas of the state, identify key locations to study feasibility of installation of devices such as sensors, cameras, and VMS

3. Expand corridor management to include major arterial systems
   - Monitor congestion levels on interstate and principal arterial corridors
   - Program ITS technologies to manage congestion in high congestion areas identified on interstate and principal arterial corridors

Commercial Vehicle Operations (CVO) and Electronic Payment

Short-term projects -

1. Implement Permit and Electronic Routing with Bridge Analysis (PERBA)
   - This project will provide for the electronic routing of oversize/overweight permitted loads on the state maintained highway system. It will also provide 24 hour access to the permitting system by certain users and enforcement personnel. Bridge analysis procedure will be used with an interface with the actual permit process reducing the turn around time for most requests

2. Provide automated credentialing/electronic data exchange
   - This project will provide electronic interfaces with credentialing agencies for enforcing trucking requirements at roadside facilities. This method will reduce the time spent by trucks at weigh scales and the time required by enforcement officials reviewing required credentials. Roadside computer data bases will be updated periodically with the latest information on companies and trucks using the state highway system

3. Provide electronic fund transfer (EFT) one-stop shopping
   - This project will develop the process for agencies to receive funds electronically for violations, credentials, taxes, permits, etc. This will reduce the time necessary for deposit of funds in banks used by each agency and will provide a more convenient way for trucking companies to pay for needed credentials

4. Develop CVO incident management plan
   - This project will provide for the quicker response time necessary for roadside incidents that retard traffic flow during high peak times and better define which response team will answer when the need arises

5. Upgrade existing physical infrastructure at weigh stations
   - This project will identify and prioritize the maintenance, repair, and construction necessary for each weigh station to weigh and inspect each vehicle in the most efficient method possible. This project will also provide the mechanism to proceed with the upgrade to include ITS technology to reduce the time spent in each scale by trucks using the state maintained highway system

6. Deploy mainline clearance systems
   - This project will identify elements of ITS systems that can be used at scale locations in Louisiana and justification for their addition to the existing infrastructure. This equipment will include but not be limited to weigh-in-motion (WIM), automatic vehicle identification (AVI) transponders, etc.

Long-term projects -

1. Develop CVO traffic management systems
   - This project will identify new and existing sites where the latest technology can be used. It will also help coordinate site expansions along with short- and long-range plans for additional sites and possible linking of such sites

2. Standardize toll tag systems (master tag)
   - This project will review and analyze existing transponders used by toll systems and their compatibility for use with other ITS projects such as mainline clearance systems. It will look at their design and ease of use by truckers for notification to enter the weigh scale or approval to bypass the scale

Public Transportation and Emergency Management

Short-term project -

1. Deploy two-way communication systems (cellular phones/radios)
   - This project will identify both elderly and disabled, and rural public transportation providers that need to improve communication and dispatching, and provide them with new two-way radio or cellular phone systems

2. Signal pre-empts through joint ITS applications
   - Signal pre-empts for emergency vehicles
     In this project, DOTD will identify and work with local agencies to include signal pre-emption (as appropriate) for emergency vehicles with signal upgrade/replacement projects statewide

   - Signal pre-empts in "special" corridors for transit
     DOTD will identify and work with local agencies to provide signal pre-emption for transit in special corridors such as High Occupancy Vehicle (HOV) lanes, and in congested corridors with transit to provide low-cost transportation system management benefits

   - Signage relating to public transit
     This project will include transit-related information and messages on both stationary and variable message signs as appropriate. For example: park and ride locations on freeways and major arterial systems

3. Develop Geographic Information Systems (GIS)/Automatic Vehicle Location (AVL)/Automatic Vehicle Identification (AVI) for rural and elderly/handicapped programs
   - Determine which public transportation providers can benefit from the use of GIS and AVL and AVI technologies to enhance communication and dispatching by providing real-time location information

4. Deploy electronic payment systems (smart cards)
   - Determine which public transportation providers can benefit from the use of some type of "smart card" or swipe/storage card to improve service and fare collection

Long-term projects -

1. Consider ITS technologies in evacuation planning efforts
   - Determine how ITS deployments can assist in hurricane and incident-related evacuation efforts. For example: enhance use of public transit to move people during evacuation to/from staging areas

2. Develop traveler information systems
   - Investigate and deploy ITS applications that will disseminate public transportation availability, routing, stop, and scheduling information in urban and rural areas

3. Consider ITS technologies in HOV operations
   - In the case of the Crescent City Connection transit lanes or other future planned HOV projects statewide, investigate and deploy (as appropriate) ITS applications such as electronic toll collection, vehicle signal pre-emption, VMS, cameras, etc.

4. Extend ITS applications to include school bus fleet
   - Determine potential applications of ITS strategies and technologies in assisting school bus fleets in their operations and in assisting congestion and traffic management activities

High Priority Action Items

The following action plans were identified by the committee as immediate and high priority.

1. Establish an ITS organizational unit within DOTD to provide ITS leadership in Louisiana and work with other states toward the national ITS goals

   a. Establish working groups to support DOTD efforts (MPOs, private sector, incident management committees)

   b. Interact internally with design, maintenance and construction divisions

   c. Establish communication and work groups with local entities

   d. Address both urban and rural applications

   e. Develop statewide framework with local implementation

   f. Consider ITS in all operations decisions

   g. Develop an ITS clearinghouse for exchange of technology and information and to educate the public and stakeholders

2. Develop a Business Plan that identifies projects, resources, and deployment strategies

APPENDIX A

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
P. O. Box 94245
Baton Rouge, Louisiana 70804-9245

January 10, 1997

M. J. "MIKE" FOSTER, JR.
GOVERNOR

FRANK M. DENTON
SECRETARY

MEMORANDUM TO:

EACH TASK GROUP MEMBER

I am requesting your assistance in serving as a member of a task group formed to take a strategic view towards the utilization of Intelligent Transportation Systems (ITS) in Louisiana. A roster of task group members and the charge to this task group are attached.

This task group represents a public/private partnership and includes representatives from state, federal, local government, private industry and academia. The input of this group will be of great value to DOTD and the transportation community in identifying and prioritizing the future utilization of ITS technologies in Louisiana. The enclosed publication by the U.S. Department of Transportation entitled, *The National Architecture for ITS: A Framework for Integrated Transportation Into the 21st Century* relates the federal emphasis on these technologies.

Your assistance in planning to determine the applicability and level of deployment for these technologies is both needed and valued. Please contract Dr. Babak Naghavi, LTRC Technology Transfer Manager, who will chair this task force for any questions or assistance you may desire.

Sincerely,

Frank M. Denton
Secretary

Attachment
cc: Mr. Lacey A. Glascock
Mr. Joe Baker
Dr. Babak Naghavi

Dr. Babak Naghavi

Louisiana ITS Task Group

Purpose: To form a partnership with public and private industry to develop an ITS Strategic Plan for Louisiana.

Goal: To deploy state-of-the-art systems that will improve the overall safety and efficiency of the state's transportation network. The major ITS user services groups include: Travel and Traffic Management. Commercial Vehicle Operations. Public Transportation Management. Electronic Payment. Emergency Management. and Advanced Vehicle Control and Safety Systems.

Charge: To develop an ITS Strategic Plan by December of 1997 through:

1. Formation of the Task Group,
2. Conducting monthly meetings of the Task Group to reach consensus on the direction and implementation of ITS projects, and
3. Developing a short-range plan of 2-5 years and a long-range plan of 5-10 years.

Task Group: Louisiana ITS Task Group will consist of 23 representatives from local government, state government, federal government, Louisiana universities, and private industry. This composition will provide a true partnership needed to implement the strategic plan developed for the state. The recommended representatives are:

1. Dr. Babak Naghavi. Chairman. DOTD (LTRC)
2. Peter Allain. DOTD (Planning)
3. Jim Joffrion. DOTD (Planning)
4. Ann Wills. DOTD (Design)

5. John Brommelsick, DOTD (Traffic Services)
6. Carol Cranshaw, DOTD (Public Transit)
7. M. F. Khosravanipour, DOTD (Communications)
8. Steve Strength, DOTD (District Traffic)
9. Dom Cali, DOTD (Information Services)
10. Mandar Khanal, LTRC
11. Eric Kalivoda, DOTD (Planning)
12. Conrad Rein, MPO (New Orleans)
13. Huey Dugas, MPO (Baton Rouge)
14. Kent Rogers, MPO (Shreveport)
15. Dwight Fox, City of Baton Rouge
16. Doug Roberts, Jefferson Parish
17. Seve Serna, FHWA
18. Tom Walker, FHWA
19. Dr. Darcy Bullock, LSU
20. Dr. Xiaoduan Sun, USL
21. Steve Glascock, GEC
22. Blaise Carriere, HNTB
23. Glenn Graham, Urban Systems
24. William Ishche, Amtech

LOUISIANA ITS STRATEGIC PLAN COMMITTEE

Huey Dugas - Capital Regional Planning Commission (Baton Rouge, LA)
Dwight Fox - City of Baton Rouge - E.B.R. DPW
Mostafa Khosravanipour - DOTD - Information Services, Section 13
Chris Petro - NW LA Council of Government (Shreveport, LA)
Doug Roberts - Jefferson Parish - Traffic Engineering
Brian Wolshon - LSU - Department of Civil Engineering
Glenn Graham - Urban Systems, Inc.
Steve Glascock - GEC, Inc.
Blaise Carriere - HNTB Corp.
John Brommelsick - DOTD - Traffic Services, Section 45
Ann Wills - DOTD - Road Design, Section 24
Steve Strength - DOTD - District Traffic Operations, District 02
Peter Allain - DOTD - Planning Division, Section 85
Babak Naghavi - DOTD/LTRC - Section 33
Sgt. Tim Sharkey - Louisiana State Police
Jim Norman - DOTD - Truck Permits, Section 43
Sterlin Williams - FHWA - Office of Motor Carriers
Dom Cali - DOTD - Information Services, Section 13
Lance Goodson - DOTD - Bridge Design, Section 25
Ray Starsman - ITS America
Joe Madek - International Road Dynamics
Captain Joey Booth - Louisiana State Police
Cathy Gautreaux - Louisiana Motor Transport Association
Seve Serna - Federal Highway Administration (Louisiana)
Brian H. Davis - Parsons, Brinckerhoff, Quade & Douglas, Inc.
Conrad Rein - Regional Planning Commission (New Orleans, LA)
Carol Cranshaw - DOTD - Public Transportation, Section 81
Fred Rasmussen - DOTD - Safety, Section 50
Dan Magri - DOTD - Planning Division, Section 85
Tim Cummings - City of Baton Rouge - E.B.R. DPW - Traffic Engineering
Eric Kalivoda - DOTD - Planning Division, Section 34
Jerry Jones - Federal Highway Administration, Region 6
Colonel William Croft - Office of Emergency Preparedness
Jim Joffrion - DOTD - Planning Division, Section 85
Lt. Gary LeBlanc - Louisiana State Police
Valerie Moten - Regional Transit Authority (New Orleans, LA)
Brett Kriger - Office of Emergency Preparedness

APPENDIX B