

**APPLICATION FOR PARTICIPATION IN THE
FY02 ITS INTEGRATION COMPONENT
of the
ITS DEPLOYMENT PROGRAM**

**Project Identification Number and Name:
Traffic Signal Systems Integration and Deployment**

Project Location: Moscow, Idaho

FY02 Congressionally Designated Funding Amount: \$827,318

Submitted by

**(Agency): University of Idaho
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Project Contact

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EXECUTIVE SUMMARY

The City of Moscow, Idaho, is one of a number of small rural towns in the state that has a growing transportation problem. Based on the recently-completed statewide ITS plan, phase 1 of the Moscow ITS project was initiated in December 2001 to develop and implement a traffic control infrastructure that would provide benefits to travelers in the city by reducing delay experienced along the city's main arterials, provide a more efficient and manageable signal control system for the Idaho Transportation Department using real time information on the status of the system components, and test the use of NTCIP standards, the development of a project and regional ITS architecture, and the use of the Spec Wizard in a small-town setting. See attachment 1 for the phase 1 work scope and project description.

The following objectives were developed for the first phase of the project:

- Provide a test for the implementation of NTCIP standards in a small-town traffic control system.
- Develop and implement a plan to improve traffic flow and safety in the City of Moscow by upgrading and integrating the city's traffic signal control system.
- Develop and apply a protocol for the design, implementation, and testing of traffic signal timing plans using real-time hardware-in-the-loop simulation.

The project team has identified additional work that will be accomplished with funding made available through the FY02 Department of Transportation appropriations. The additional work will be accomplished through an expansion of two tasks included as part of the FY01 funded project.

Task 8 will be modified and expanded. The additional work to be conducted during this task will focus on the upgrade to the University of Idaho's Traffic Controller Laboratory and the development of guidelines that can be used the Idaho Transportation Department and others to implement closed loop and centralized traffic control systems in small towns. While the first phase of the project provides funding to develop the university's expanded traffic controller laboratory, the second phase will provide funding to develop remote access capability for the laboratory. The remote access capability will allow users across the state (and across the nation) to use the laboratory to develop and test traffic signal timing plans using real-time hardware in the loop simulation in conjunction with the university's controller interface device. The laboratory is an essential part of both phases of the project, for signal timing testing and for workforce training.

Task 10 will be expanded to include the supporting communications system needed to connect the city's traffic controllers. Communications systems linking the traffic control system with ITD district 2, the city's engineering maintenance facility, and with NIATT's traffic controller laboratory will be designed and installed. Construction drawings will be prepared for all signal and communications systems installations.

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Congressionally-designated funds of \$827,318 are available for the second phase of the project. The amount used for integration activities will be \$ 427,318. The amount used for rural infrastructure deployment will be \$ 400,000.

Non-federal matching funds of \$457,176 will be provided for the second phase, exceeding the 20 percent requirement. Other matching funds of \$370,142 will also be provided. Total matching funds account for 50 percent of the total project costs of \$1,654,636.

With the additional funding and expanded scope of work, the project will now conclude on June 30, 2005.

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SCHEDULE

Start Date: December 1, 2002.

Expected Completion Date: June 30, 2005.

Milestones and Expected Completion Dates

Table 1 lists the key project milestones and the expected completion duration for each milestone (phase 1 only unless note).

Tasks	Expected duration
1. Establish project management and technical oversight teams	December 2001 – January 2002
2. Review and document relevant ITS standards	December 2001 – August 2002
3. Prepare concept of operations report	December 2001 – May 2002
4. Prepare and document integration strategy	September 2002 – January 2003
5. Conduct system inventory	January 2002 – October 2002
6. Develop project architecture using Turbo Architecture tool	January 2002 – January 2003
7. Develop specifications for traffic controllers and other support equipment using the Spec Wizard tool	January 2002 – May 2003
8. <i>Develop, test, and analyze signal timing plans and control strategies using hardware-in-the-loop simulation techniques using upgraded traffic controller laboratory (phases 1 and 2)</i>	January 2002 – June 2004
9. Develop training materials and application guides for ITD traffic engineers for implementing new signal timings and control strategies using hardware-in-the-loop simulation techniques	December 2001 – January 2004
10. <i>Deploy standards-based traffic signal controller system and supporting communications system (phases 1 and 2)</i>	June 2003 – October 2004
11. Install and test signal timings in the field	January 2004 – October 2004
12. Assess and evaluate system performance	November 2004 – April 2005
13. Collect and archive traffic flow data	June 2003 – October 2004
14. Complete system evaluation and report	March 2005 – June 2005

Table 1. Milestones and completion dates

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FINANCIAL PLAN

Non-Federally Derived Funding Sources

20% Minimum Match Amount: \$ 330,927

Actual Match Amount: \$ 457,176

A minimum 20% of the total cost of the project must be from non-Federally derived funding sources, as statutorily required, and must consist of either cash, substantial equipment or facilities contributions that are wholly utilized as an integral part of the project, or personnel services dedicated full-time to the proposed integrated deployment for a substantial period, as long as such personnel are not otherwise supported with Federal funds.

Identify Non-Federal Funding Source	Identify Type of Funds (cash, equipment or facilities, or full-time personnel services)	Identify Major: (1) Integration Activities or (2) Rural Infrastructure Deployment Supported with These Funds	Specify Amount of Funding (\$)
University of Idaho ⁽¹⁾	Cash	Integration activities	\$ 50,452
University of Idaho ⁽²⁾	Waived indirect costs	Integration activities	\$ 31,164
University of Idaho ⁽³⁾	Personnel	Integration activities	\$ 25,560
Various traffic control manufacturers ⁽⁴⁾	Equipment	Integration activities	\$350,000

Notes:

- (1) The University of Idaho has committed \$3,000 for miscellaneous equipment that will be used for this project, \$33,600 to cover fees for graduate students who will work on the project, and \$13,852 in indirect costs.
- (2) The University of Idaho's federally-audited indirect cost rate for projects starting in FY02 or later is 48.5 percent. For projects under contract to ITD, the indirect cost rate is 20 percent. The difference between the two rates, 28.5 percent, or \$31,164 for this project, is the cost waived by the University of Idaho. The university commonly uses these waived costs as local match on a variety of federal transportation projects.
- (3) Ahmed Abdel-Rahim, research engineer, will spend 10 percent of his time providing technical support for this project. This time commitment is fully documented and auditable through the University of Idaho accounting system. This amount includes 28.5 percent in fringe benefit costs.
- (4) PB Farradyne, Econolite, and Gardner Systems have committed \$350,000 in traffic control equipment and software to this project.

Other Funding Sources

Remaining 30% Match Amount: \$ 370,142

A minimum of 30% of the total cost of the Project may come from a variety of funding sources and may include the value of Federally supported projects directly associated with the proposed integration project.

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Identify Funding Source	Identify Type of Funds (cash, equipment or facilities, or personnel services)	Identify Major: (1) Integration Activities, (2) Rural Infrastructure Deployment, or (3) Infrastructure Deployment Supporting Integration Supported with These Funds	Specify Amount of Funding (\$)
University Transportation Centers Program	Cash	Integration activities	\$ 370,142