

Priority 5: State-of-the-Art Bridge Surveillance and Security Techniques

Problem Statement. STAs and other private bridge operators (e.g. railroads) are seeking a menu of options for increasing surveillance and security of vulnerable bridges. While a quick turnaround research project currently being prepared for NCHRP by SAIC (complete by Spring 2002) will include general information on this topic, STAs continue to need better information on the cost, effectiveness, design and applicability of *state-of-the-art* techniques for protecting bridges, such as closed circuit cameras, electronic detection, monitoring, and alarm systems, or security patrols.

Scope. Review and synthesize state-of-the-art practices related to surveillance and security of bridge structures and develop evaluation frameworks, tools, and techniques related to the selection among alternative surveillance and security approaches that are consistent with vulnerability levels. As part of the project, consider opportunities to maximize the value of these technologies by ensuring multiple uses. (e.g. ITS/traffic management uses) Particular attention should be paid to the differences between large, densely populated states and smaller, rural states in terms of needs, capabilities, and appropriate technologies. Specifically, the review should include the following:

Surveillance Component

- Clear descriptions of systems that are available and their effectiveness;
- When and how to integrate systems in new and existing structures;
- Installation and maintenance costs;
- A review of technologies for overcoming barriers to monitoring bridges in remote locations, including but not limited to limitations to fuel cells and transmission of video signals;
- Examination of existing automated alarm systems for bridge security, both in transportation and appropriate non-transportation applications; and
- Examination of technologies, such as cameras (including decoy cameras), or patrols, for monitoring critical bridges, and for communication monitoring information to appropriate people within and outside STAs.

Security Component

- Strategies for managing surveillance information obtained;
- Appropriate security responses; and
- Security response costs.

Product. Quick turnaround, best practices report that provides a synthesis of approaches, a framework for evaluation alternative approaches, and recommendations.

Time Frame. 6 months

Cost. \$200,000

Potential Action. FHWA lead, pooled fund study (CA, MO, MD). Also approach private bridge providers, IBTTA.