

# Technology Deployment Initiatives and Partnership Program Request for Funding FY 2005

**FHWA Strategic Goal Area:**           Productivity

**Focus Technology:**   Accelerated Construction

**Project Title:** Quality assurance of accelerated construction techniques

**Problem Statement:** The highway construction industry has begun utilizing GPS technology for construction staking and/or stake-less construction for FLH projects resulting in accelerated construction. The FP and SCRs do not reference the use of GPS technology. Contractors are becoming more and more proficient at using this technology. GPS technology is clearly gaining a foothold in the highway construction industry and we need to familiarize and train ourselves to be able to improve our contract specifications to enable the efficient use of this technology. As size of project staff is reduced, quality assurance is important to monitor contractor's work quality during accelerated construction. Using current practices, this task requires at least two WFL employees to check contractor's staking, organize data, handle instruments, and do the physical checking. By utilizing GPS technology, the crew size can be reduced to one individual.

**Proposal:**       The WFLHD construction branch proposes to purchase a survey grade RTK GPS system with base station to use primarily in the Yellowstone and Grand Teton National Parks. The NPS program in this region is quite large. Significant major projects are scheduled for construction over the next ten years. The GPS system will be used to check contractor's earthwork and drainage activities. Project staff will be trained in its use. Knowledge gained from its use will be transformed into an introductory training class for construction orientation. In addition knowledge gained will be used to provide recommendations for the next FP rewrite or if deemed appropriate suggestions may be advanced for the modification of the current SCR.

**Benefits:**       This proposal will provide following benefits:

- The crew size will be reduced for quality assurance.
- A training module will be developed.
- SCR and FP revisions will be recommended.
- WFL employee will utilize current and new technologies.

As this technology matures, FHWA could specify in contract that contractors use GPS to map completed projects for as-built and provide electronic data for inventory mapping. By utilizing this technology during plan-in-hand reviews, the WFL personnel can graphically show client agencies on-site location of alignment and grade.

**Resources/Cost:**       The total cost is estimated at \$110,000.

GPS system	\$100,000
Training	\$10,000

**Duration:**       January 2005-September 2006

**Organization/Method:** WFL personnel will accomplish the work for this proposal. A training module will be developed after using this system during two construction seasons. At the end of evaluation period, specification recommendations will be made that can be incorporated into FP.

**Submitter:**

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