

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

FHWA Strategic Goal Area(s): Safety, Productivity

Focus Technology: None

Project Title: Evaluation of construction lighting systems for road construction

Problem Statement: Traffic and other restrictions and concerns often dictate that construction activities should be performed at night at such locations as Yellowstone or Glacier National Parks. Some of the of the major concerns that arise are:

- Increased safety risk to traveling public and construction personnel and resources.
- Decreased efficiency
- Inadequate lighting or improper use and placement of systems leading to safety issues
- Inconsistent quality
- Logistical considerations of lighting large areas.

A substantial program of projects is scheduled in Yellowstone National Park for many years into the future. Most likely every project will involve extensive night work just to accomplish the contract work in a reasonable amount of time. Likewise, an enormous sequence of work is proposed for Glacier National Park in the near future to restore the historic Going-to-the-Sun highway. Again, night work will be required. To improve safety for the traveling public and the construction personnel, efficiency, and assure the quality of the work in these historic parks, better night work lighting systems need to be explored.

Proposal: Research will be conducted to determine feasibility of the “Airstar space lighting” system, or similar system, for use in low ambient light and nighttime construction scenarios. If preliminary indications are positive, we propose that at least two types of systems be purchased or leased to determine the impacts, limitations, and feasibility for future use on construction projects. The two minimal systems suggested should be equivalent to the “Sirocco HMI 1200W and the “Embarked Balloon” with trailer capable of lighting 10,000 m². The systems will be tested on the WY PRA-YELL 13(3) and/or Yell 10(12) (and potentially GLAC 10(17&18) if night work is performed) construction projects during the 2005 construction season. The smaller lighting units should be tested in both fixed usage locations and affixed to construction equipment such as a motor grader and/or paving machine.

Benefits: This will enable the construction project engineer to perform construction activities during nighttime and low ambient light conditions with an easy to install mobile lighting system. Proper utilization of this high-diffusion light(s) instead of the standard array of projection lights will improve the quality of visibility for construction related activities and ultimately reduce the safety risks to the traveling public and construction personnel and resources.

