Technology Deployment Initiative Problem Statement
Request for Funding
FY2004

FHWA Strategic Goal Area:
Productivity

FLH Technology Strategy:
Phase I Migrated, upgraded, and configured the electronic Bore Hole Log software from the Apple Newton Operating System (OS) to the Microsoft Windows OS. Phase II will complete the hardware migration of the upgraded application from the obsolete Apple Newton hardware platform to three commercially off the shelf (COTS) ruggedized platforms. This improvement in the application and hardware will make this process more accurate and the data more transferable to other third party applications.

Project Title:
Bore Hole Log Software & Hardware

Problem Statement:
The previous Bore Hole Logging software was based on the Apple Newton OS and hardware platform. Apple discontinued the Newton hardware platform in 1995. This has created a situation where the core application is still relevant and widely accepted today but usage is limited by the ever-decreasing number of Apple Newtons. As the original author and developer of this tool, FLH has responded to the numerous requests from the geotechnical community to update this tool. Phase I addressed the software migration issues. Phase II will complete the upgrade by providing the opportunity to port the new application to three different MS Windows OS based hardware form factors. In the past, there was a limited number of personal computing hardware platforms that provided the computing power, functionality, portability, and ease of use. In addition to the limitation mentioned previously, environmental resistance and durability was limited to bulky, heavy, and urban environments requiring substantial power source considerations. With the completion of the MS Windows OS version, it will now allow for the porting of the finished application to the MS Pocket PC OS handheld platform.

Background:
FLH was the original author, architect and financier of the Bore Hole Log software application. The often-severe weather climate and working environment of all drilling operations was the biggest considerations during that earlier time. The original Apple Newton OS based Bore Hole Log software application was written specifically for the Apple Newton ruggedized handheld hardware platform. Around 1995 Apple made the strategic decision to discontinue the Apple Newton ruggedized line of handheld devices. The discontinued product line was not replaced with a new generation of handhelds and OS. This decision did not affect the value, functionality, and demand for this application. It simply forced interested parties to begin hoarding the ruggedized Apple Newtons. Early 2000, FLH began to poll the existing user base for input and interest in porting the existing application to a MS Windows GUI and the current suite of ruggedized hardware platforms being offered by a number of well-known manufacturers. State, county, and municipal DOTs are just some of the parties that will realize the positive impacts of completing the evaluation and implementation of the three hardware platforms.

Benefits:
This will complete the migration, and updating of the Bore Hole Log application from an obsolete OS and hardware platform. Completing the porting of the newly completed Bore Hole

Logging application to a MS Windows Pocket PC platform will provide functionality and versatility for all of the existing and potential user community. This will further minimize the possibility of getting too dependent on one software or hardware platform. This application takes full advantage of the latest MS Windows OS and hardware features standard on all well-known hardware platforms.

Scope:
The deliverable will be the full evaluation through field-testing of a ruggedized mobile (wearable) PC (MS Windows OS), a ruggedized Tablet PC (MS Windows Tablet PC OS), and a ruggedized handheld (MS Pocket PC OS). Concurrent to the field testing of the first two platforms mentioned above, the porting of the certified version of the Bore Hole Log application to MS Pocket PC OS will be completed to full test on the ruggedized handheld.
Specific deliverables will include

- Porting certified version of Bore Hole Logging application to MS Pocket PC.
- Rigorous field evaluation of the ruggedized mobile PC and Tablet PC.
- Rigorous field evaluation of the ruggedized handheld
- CFLHD and EFLHD field evaluation if scheduling permits
- Final report utilizing the TD final report format
    - Report for documenting the field evaluation of each hardware platform.
    - Report of integration, functionality, and ease of use of software on each platform.
- Showcasing and demonstration of all software and hardware platforms to local state, Federal agencies, and private sector organizations and Technology Expos.

Deployment Method:
The Champion will develop a work plan for the completion of the MS Pocket PC OS version and the ruggedized handheld. Activities to procure the ruggedized Tablet PC and the Mobile PC will commence upon approval of this initiative. The Champion will develop a work plan for evaluation deployment and coordinate with the other FLH offices and client agencies. Quarterly progress reports will be submitted to the WFLHD TD Engineer.

Estimated Costs:
The total estimated cost of this proposal including deployment is $16,000.

Porting certified Bore Hole Logging version to MS Pocket PC	$2,500
Ruggedized Mobile (wearable) PC and peripherals	$7,500
Ruggedized Tablet PC and peripherals	$3,000
Ruggedized Handheld and peripherals	$2,500
Software maintenance / upgrades	$ 500

Duration:
For purposes of the evaluation period, the following time requirements are estimated. Some activities may run concurrently.

MS Pocket PC porting	Summer 2004
Hardware acquisition	Spring/Summer 2004
Field testing	Summer/Fall/Winter 2004/05
Final Report	Spring 2005

Champions:
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