Defining the Digital Highway

Project Team
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Project Objectives
The proposed research is focused on defining 10 miles of Nevada highway as a digital highway. The static and dynamic parameters that describe the section of highway will be measured and defined. The test vehicle will be used to monitor and record the real-time parameters that are required to define the selected section of highway. A web based system will be developed to store and display the information recorded on the digital highway.

Project Orientation
Information Transfer

Project Abstract
The “Digital Highway” is a static, dynamic, and real-time description of the physical and operational characteristics of our nation’s highways that positively impacts the performance, efficiency, safety, security and comfort of drivers. The digital highway is
the backbone that supports the concept of the intelligent highway transportation system of
the future. The information contained in the digital highway database will be used to
support future research in a wide range of transportation areas. This project focuses
developing all of the parameters needed to define the “Digital Highway” on 10 miles of
highway in Nevada.

**Project Task**
The project will be completed within 12 months. The schedule is divides into 4 subtasks.

In subtask 1, a literature search and survey of existing web based highway information
system will be conducted. This will be an ongoing task throughout the project.

In subtask 2, an initial web based system will be developed to define the parameters of
the digital highway. Information sources and databases will be identified.

In subtask 3, data defining a 10 mile section of Las Vegas highway will be collected.
The selected section will include I15 between Highway 215 and Charleston. Student
workers will be trained on the UNLV instrumented truck and the capability to capture
real-time data will be established.

In subtask 4, the Digital Highway web system will be completed. It will contain static,
dynamic, and real-time data for the 10 miles of highway selected.

**Project Milestones**

- Demonstrate capability to display digital highway defining parameters on a web
  based system. – **Completed**

- Develop method to accurately define the describing parameters of the digital
  highway by GPS latitude and longitude coordinates – **Completed**.

- Begin data collection on research vehicle

- Initial demonstrate the digital highway web

**Total Budget**

$115,115

**Project Duration**

| Start Date | 2007-09-01 |
| End Date   | 2008-08-31 |

**Undergraduate Student Involvement**

Marcie Arai
Chequala Fuller
Katie Jager
Victor Wang
Laurie Bittle
Ann Marie Frappier - high school student

Relationship to Other Projects
The automated data collection methods developed for the test vehicle can be used to support future research projects

Technology Transfer
The web system will be available to other researchers

Potential Project Benefits
The Digital Highway project will allow the UNLV UTC/TRC to compete for external funding for projects supporting the “Intelligent Transportation System.
Data collection and transmission methods which are being developed for this project can be used to support projects in other research areas.