

# FY 2010 RESEARCH PROBLEM STATEMENT

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TITLE ([more info](#))

**Merging New and Old Schools: Combining GIS and Historic Right-of-Way Maps to Improve Project Planning.**

PROBLEM (Description of need) ([more info](#))

Historic Right-of-Way (ROW) maps provide invaluable information on buildings, structures, and other features that were within or along ODOT ROW. Today, some of these features may have been destroyed for road construction, leaving no visible sign of past use. Remains of these features are often manifested as archaeological sites, which require ODOT's consideration during project planning and construction.

ODOT archaeologists utilize historic ROW maps to more accurately determine the probability of encountering archaeological sites associated with buildings, structures, and other features. This knowledge allows for improved project planning by pinpointing specific areas to examine for archaeological resources and can help minimize inadvertent discoveries during construction.

For example, I reviewed a US20 ROW map that indicated "Indian Mounds" were adjacent to the highway. This knowledge aided in establishing a no work zone to avoid directly impacting this area through construction, but also indirectly through contractor staging and/or disposal. This information allowed ODOT to realize improved timelines and decreased costs.

Unfortunately, ROW maps are an underutilized asset that cannot efficiently be examined on a project-by-project basis. The proposed research proposal would consolidate pertinent information from historic ROW maps, improve archaeological methodology, streamline project planning, and reduce inadvertent discoveries during construction.

time and money.

PROPOSED RESEARCH, DEVELOPMENT OR TECHNOLOGY TRANSFER ACTIVITY ([more info](#))

Proposed research would include contacting several DOT agencies to determine if they have attempted this effort, what worked, what did not work, etc.

Research would involve the review of historic ROW maps to identify buildings, structures, and other features within and along ODOT ROW. Data, including the spatial location of each feature and feature attributes (e.g. type of building, ROW map date, and other comments), would be transferred to a Geographic Information Systems (GIS) program that ODOT currently utilizes, ArcGIS. Locations of these features would be developed into a theme layer that would allow ODOT archaeologists, Regional Environmental Coordinators, Hazardous Materials Specialists, etc., to view features on a project, corridor, county, or statewide level. This layer would work in concert with other ArcGIS layers archaeologists utilize to assess the probability of archaeological resources during project planning.

Most work would be completed by Kurt Roedel; however, an intern may be used to conduct the research. ODOT's GIS Program may also assist and/or provide guidance in this endeavor.

The usefulness of the product would be tested and refined regularly. Archaeological fieldwork is regularly conducted for ODOT projects. Mr. Roedel would track relationships between features identified in ROW maps and how they are manifested through archaeological fieldwork. For example, are archaeological sites associated with these features? What percentage of sites are significant and need further consideration? Can a risk management strategy be employed to further streamline our efforts, reduce costs, etc?

## BENEFITS *(more info)*

The benefits of this research are several fold:

- 1) Historic ROW maps are an available, yet invaluable and underutilized resource with untapped potential.
- 2) Preliminary Engineering costs would be reduced. Having this data available in GIS would allow for rapid archaeological review and assessment during initial project planning, would improve archaeological fieldwork methodology, and allow ODOT to focus efforts on these features.
- 3) Construction Engineering costs would be reduced. Improved planning during project development would reduce the probability for inadvertent discoveries which often delay construction and increase costs.
- 4) Within ODOT, the information could be shared with specialists that would directly benefit from this information, such as Regional Environmental Coordinators, Hazardous Materials Specialists, etc.
- 5) Outside ODOT, the results and testing of this research proposal would benefit other DOTs along the same lines as ODOT.

## CONTACT INFORMATION:

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Problem Statement Number: