Data Management Plan

Name of Contractor	Marc Maguire, Utah State University
Name of project	Developing Deterioration Models for Wyoming Bridges
Project Duration	Start date : June 23, 2013 End: May 31, 2016
Date Written	October 7, 2015
Date Amended, if any	

1. Introduction

The purpose of this research project is to:

Create effective deterioration models for Wyoming structures for effective bridge management.

2. Definitions

a. Code or scripts include code used in the collection, manipulation, processing, analysis or visualization of data, but may also include software developed for other purposes.

b. Copyright is a set of legal rights extended to copyright owners that govern such activities as reproducing, distributing, adapting, or exhibiting original works fixed in tangible forms.

c. Data means the recorded factual material commonly accepted in the scientific community as necessary to validate research findings, but not any of the following: preliminary analyses, drafts of scientific papers, plans for future research, peer reviews, communications with colleagues. Recorded material excludes physical objects (e.g. laboratory samples). Research data also does not include trade secrets, commercial information, materials necessary to be held confidential; and personnel and medical information and similar information the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

d. Data Archive is a site where machine readable materials are stored, preserved or possibly redistributed to individuals interested in the materials.

e. Data Management Plan is a document that specifies your plans for managing your data and files for a research project.

f. Dataset means collection of data.

g. Metadata refers to structured data about data which helps define administrative, technical, or structural characteristics of the digital content.

3. Data Types and Storage

The types of data and/or datasets generated and/or used in this project include …

All data used in this project is accessible data from WYDOT databases.

The data was solicited from WYDOT engineers in .xls format.

Data could be reproduced by requesting it again from WYDOT engineers.

The data file used was 83.15 MB and grows every year.

A spreadsheet or programming language can use used to process this data.

Data is stored on a hard drive and cloud storage (box.com) for backup purposes, but also permanently stored an archibed by WYDOT engineers in a unknown (to the contractor) manner and location.

Checklist
o What type of data will be produced?
o How will data be collected? In what formats?
o How to document data collection?
o Will it be reproducible? What would happen if it got lost or became unusable later?
o How much data will it be, and at what growth rate? How often will it change?
o Are there tools or software needed to create/process/visualize the data?
o Will you use pre-existing data? From where?
o Storage and backup strategy?

3. Data Organization, Documentation and Metadata

The plan for organizing, documenting, and using descriptive metadata to assure quality control and reproducibility of these data include …

There will be no standards used for documentation of the meta data and there is no known

community standard for metadata sharing/integration unless requested by WYDOT.

The file supplied to the contractor was named “Yearly Inspection Data from Wyoming Bridges.xls”. This file was contained in a folder labeled “Yearly Inspection data from Wyoming Bridges”, which was in a file labeled “WYDOT Deterioration Modeling”. This data is no longer in use by the contractor due to completion of the contract.

Checklist

o What standards will be used for documentation and metadata?
o Is there good project and data documentation format/standard?
o What directory and file naming convention will be used?
o What project and data identifiers will be assigned?
o Is there a community standard for metadata sharing/integration?

4. Data and/or Database Access and Intellectual Property

What access and ownership concerns are there…

All files are secured on a password protected computer or cloud service. The computer is kept in a locked room with limited access. The data is public data, as such there is no need to protect it and there are no intellectual property concerns.

To access the data they would need to login to the computer or cloud service. Only the PI and a single student have access to these files.

There are no known privacy or embargo periods.

Checklist

o What steps will be taken to protect privacy, security, confidentiality, intellectual property or other rights?
o Does your data have any access concerns? Describe the process someone would take to access your data.
o Who controls it (e.g., PI, student, lab, University, funder) ?
o Any special privacy or security requirements (e.g., personal data, high-security data) ?
o Any embargo periods to uphold?

5. Data Sharing and Reuse

The data will be released for sharing in the following way …

The data will be shared with WYDOT bridge engineers and through partial publication in academic journals and presentations and reports. Data is in standard format and can be analyzed using any data analysis software like Microsoft Excel or Matlab.

Checklist

o If you allow others to reuse your data, how will the data be discovered and shared?
o Any sharing requirements (e.g., funder data sharing policy) ?
o Audience for reuse? Who will use it now? Who will use it later?
o When will I publish it and where?
o Tools/software needed to work with data?

6. Data Preservation and Archiving

The data will be preserved and archived in the following ways …

The data was gathered from WYDOT engineers that is updated regularly and permanently retained. In this project the data was not modifed in any way, with the exception of the filtering outlined in the report.

WYDOT is required (by law) to permanently store and update the raw data in a format of their choice and is freely available.

The raw data obtained by the contractor will be retained in the location(s) stated above for a minimum of 2 years following completion of the contract. A duplicate of the raw data can be requested from WYDOT at any time by interested parties and it is therefore not deemed critical to store this data permanently or long term.

The final report contains the final bridge deterioration models which are permanently available through the research report stored by WYDOT research and also stored in a cloud service (digital commons) upon request to contractor. It is recommended that the models be updated periodically. Instructions for updating are contained in the report and the code used to update is presented in an open format.

o How will the data be archived for preservation and long-term access?
o How long should it be retained (e.g., 3-5 years, 10-20 years, permanently) ?
o What file formats? Are they long-lived?
o Are there data archives that my data is appropriate for (subject-based? Or institutional)?
o Who will maintain my data for the long-term?