

Interim Report

School Name: Melrose Mid School.

Area of Science: Engineering.

Title: Our Dirt Road Anthem.

Team Members: Hailey Martin, April Arenivar, Johanna Roybal, Katelynn Skinner, Yvonne Fuerte.

Definition of the problem: Our project is about dirt roads and how important they are to rural areas. Specifically, it deals with showing how unpaved roads are affected by the weather and are then in need of maintenance by road graders to manage wet dirt roads with ruts that make them less passable to vehicles.

The reason we chose this project is because we have experience with dirt roads and when they are wet. We hope to make it easier to make good roads around our area.

Plan for solving the problem and representing it computationally: Our project will take several steps to complete. The steps will be to do research and perform interviews, and then to create a computer model. This project will require a lot of work because we need to find out lots of information, such as how much work road graders can do in a day, how many dirt roads are in an average area, and how they are affected by different types of weather.

Our project will make use of LOTS of practical information that we will get from interviews with those working with this topic. We will ask professionals about how road maintenance works, and how road graders can improve road conditions. Also, we will get guidance on being able to show how different weather conditions can affect dirt roads.

Our group has been working with Wendell Belcher, a local retired road maintenance supervisor. We will also interview our county road department to

see how many dirt roads they have to manage, how long it takes to fix different types of roads.

Our computer model will be on NetLogo and will have the following variables: a) the types of roads, b) the rain effects, c) the time needed for repairs, and of course d) the number road maintainers available.

Progress to data: We have started working with NetLogo and have begun putting together code that will represent a map of our local area with its different types of roads.

We have talked with individuals who are giving us the information we need to add the variables necessary for our project.

Expected results and usefulness: We hope to come up with better ways of road maintenance. This will help make them smoother and more manageable for people to travel on to get to their houses or jobs.

We also hope to get the county to look over our system, so we can see how long it takes to get an area done and the roads fixed. Who knows? Maybe they will even be able to use it!

Citations of Research:

- 1- Interview with, Wendell Belcher, retired road construction worker.
- 2- Curry County Road Department statistics and data.
- 3- "How to maintain a dirt road", by Marjorie Burris, Back woods Home magazines, 2000.
- 4- "Road Maintenance on your dirt road" Hollis Walker, Grit Rural American Know-How 2016.
- 5- Research report: A Critical Review of Innovative Rural Road Construction, Published by the NRRDA, 2005.