Executive Summary:

What is Cornell Local Roads Program (CLRP)?

The Cornell Local Roads Program (CLRP) is a training program instituted by the State of New York to provide local municipalities with the training needed to properly manage and maintain the roads under their jurisdiction. CLRP has designed a computer program (CAMP-RS) to digitize the road condition data in an effective, user-friendly platform. The Pavement Internship Training, that CLRP offers, is designed to train college students in the CAMP-RS software and provide them with the tools needed to survey the roads within their municipality. During the ten week internship program, interns are expected to develop an inventory, conduct road evaluations, and prepare a final report of the management plan for the local roads and streets.

Training

Training was held on Cornell's campus in Ithaca, New York. Over the course of three days, we were educated on road design, construction, and maintenance. Proper flagging techniques were taught, as well as asphalt paving principles, pavement maintenance options, and how to operate the CAMP-RS software.

Results

Over the course of the summer 5,275 roads were entered into the CAMP-RS database. 3,029 of these entries and 945 miles of road were evaluated, totalling roughly 50% of the total 2,050 miles of road under Dutchess County's jurisdiction. This number exceeded the original goal to cover 550 miles of paved road by the end of the summer. 10 towns, 3 villages, and 2 cities were provided with the surveys of their roads as well as a detailed report outlining the condition of their roads. These reports also explained the meaning and method by which the Pavement Condition Index (PCI) value was calculated for each road. As a whole, the CLRP internship program was successful in meeting its goals and provided us, as interns, with meaningful experience.

Process and Project Parameters:

Dutchess County has 2,050.3 recorded miles of total local roadways, ranging from unpaved roads in rural areas to urban city streets. The long term goal of this internship program is to survey the entire county over three summers. The goal for the first summer was to cover 550 miles of centerline road in the areas of highest population density in the South West region of the county. This area included the following municipalities: Town of Pleasant Valley, Town of Poughkeepsie, Town of Fishkill, Village of Fishkill, Village of Wappingers Falls, City of Beacon, and City of Poughkeepsie.

In comparison with the other municipalities participating in CLRP training, this was the largest amount of centerline miles being taken on in one summer. This being the case, a more effective method of surveying needed to be implemented. The standard process of surveying roads was to use physical printed survey sheets to record the road information and condition while in the field, and then input this data into the database upon returning to the office. Since we had two full time interns assigned to this project, we chose to bring a laptop in the car while we surveyed roads. The road inventory was imported into the laptop before going to survey, and the condition data was entered into the database as we inspected each road. This method saved paper and a lot of time.

Surveying Roads:

Inventory Data

The road inventory was taken from the New York State Department of Transportation Local Highway Inventory. This list included county, city, town, and village roads within Dutchess County. State roads and private roads were not in our jurisdiction and, therefore, were not surveyed. By using New York State's official inventory, we did not have to input all 5,275 entries manually. We were also able to identify and correct errors in the State's inventory over the course of the summer. An example of the inventory data can be found in Appendix B. After compiling the inventory data into individual database for each town, village, and city, the process of surveying began.

Data Collection

The task of surveying the roads was approached one municipality at a time. Each municipality was divided into sections by the county roads that crossed it. These county roads were rated first, and then the smaller local roads within the sections were rated. This method

made the task easier, and allowed for fewer missed roads after each municipality was completed. The roads were rated while driving, which minimized the need to stop. While grading rural areas, like the Town of North East, this enabled us to cover over 50 miles of centerline road per day.

Condition Data

Each road was graded using the same criteria in order to keep ratings consistent. This criteria was determined using the Surface Condition Survey Sheet (as shown in Appendix A), provided by CLRP. The Surface Condition Survey Sheet allows for an organized recording of the condition of 100 percent of the street system. Its purpose is to identify existing distresses in a road surface which affects the performance of the road. This yields information that highlights structural or material defects which lead to deterioration of road performance and eventual failure.

Surface Condition Surveys were available for Asphalt Treatment, Surface Treatment, Concrete, and Unpaved roadways. Only asphalt roads were surveyed for this project.The document separates the distresses in asphalt into the following eight categories:

- Alligator Cracking
- Longitudinal/Transverse Cracking
- Edge Cracking
- Potholes/Patching
- Roughness
- Rutting
- Bleeding/Raveling
- Drainage

The following explanation was provided by the Cornell Asset Management Program - Roads and Streets 2014 User Guide.