

## **CHAPTER 9**

### **SUMMARY AND RECOMMENDATIONS**

#### **9.1. IMPLEMENTATION OF PMS IN NASHVILLE AND DAVIDSON COUNTY**

MPW has, through contract with the ERES Division of Applied Research Associates, Inc., implemented a pavement management program for the entire MPW road network. Pavement condition data, including digital images of pavement distresses, pavement roughness, and rutting, were collected with state-of-the-art automated equipment. A software package, called Cartegraph PAVEMENTview Plus, was selected and installed in the Office of Pavement Management to accommodate the pavement condition database and interact with Metro's GIS databases.

The PMS software will allow the Office of Pavement Management to develop short-term and long-term (5-year and 12-year) plans for maintaining and resurfacing the roads and streets throughout the city and county. New pavement preservation treatments have been included in the maintenance options and these will be applied to extend pavement life while optimizing the paving budget – i.e., allow more miles of roads to be maintained and improved each budget year.

The current MPW street network consists of 25,577 segments that were defined from 2,320 centerline miles. The area-weighted average OCI of all streets in the network is 81.26. All five paving groups meet the GASB 34 target set by Metro, with 78.58% of all centerline miles having an OCI greater than 70.

The selection of pavement sections to be serviced in a given budget year is based on criteria that considers the importance of the roadway in terms of traffic and usage, the current and projected condition of the pavement, age of the existing surface, and other factors that impact pavement performance.

The PMS program is being coordinated with the requirements for utility intrusions into the streets of Nashville. Improved guidelines for repair of utility cuts were developed under the research contract along with recommendations for quality assurance measures to ensure acceptable repairs.

Methods of accomplishing the paving program were investigated with consideration to in-house forces and contract services, and recommendations were made as to the best arrangement for future paving operations. A combination of both in-house and contracted approaches gives Metro the most cost effective and overall responsive services. The in-house forces will be assigned one of the five paving groups within MPW, but will continue to be available for on-call support in other areas if needed.

A web-based community outreach program was developed. From the internet, each citizen of Metro can learn about the PMS program and review the paving schedule that has been developed for the current year as well as future years.

## 9.2. RECOMMENDATIONS FOR CONSIDERATION

Some considerations for MPW and the Pavement Management Office that are proposed by the research team are:

- Test sections should be used by MPW to evaluate new products and pavement surfacings that have potential to improve pavement performance and save maintenance dollars.
- The guidelines for utility cut repairs, provided in Chapter 8 of this report, should be adopted and implemented.
- The street network should be periodically resurveyed in order to keep the database current. General recommendation is to resurvey every 2 to 3 years; resurveying one-half of the next work each year appears to be a reasonable approach.
- A full-time database manager should be identified, trained on the Cartêgraph PAVEMENTview Plus software, and be assigned responsibility of maintaining the database and operating the software applications as required.

Specific recommendations regarding implementation of the PMS program to ensure that the overall condition of the Metro Nashville roads is maintained at the desired level are:

- Implement an annual Pavement Preservation Plan starting with local roads less than 5 years old utilizing various types of surface treatments to extend the life cycle of these roads to a minimum of 15 years. This will require application of surface treatment to approximately 250 lane miles every year.
- Implement an annual Resurfacing Plan based on 15-year life cycle for each road. Based on the 5600 lane miles in Metro Nashville, this would require resurfacing approximately 373 lane miles per year. Currently, the Metro resurfaces approximately 225 lane miles with the current budget. This means Metro is 148 lane miles short each year in order to meet a 15-year cycle. An annual budget of approximately \$16,000,000 would be required.
- Implement an annual Crack Sealing Plan for roads less than 10 years old. Sealing of the construction joints and other longitudinal cracks will increase the life cycle of their roads to a minimum of 15 years. Based on the condition of Metro's roads, approximately 65 miles of crack sealing should be done each year.
- Implement an Annual Fog Seal Program for roads 10 years or older that are severely raveled with very little cracking