

CNHRPC
Road Surface Management Program

Purpose

To utilize a rating system to develop a prioritized listing of necessary road improvements and to estimate the costs for such improvements in line with the Town's Capital Improvement Program.

The following is a list of the basic steps necessary to build a road surface management program:

Road Inventory Survey

The road inventory survey is the process of collecting the information necessary to adequately describe the roads in the local network (all municipal streets). The information to be collected typically includes:

- Road name
- Section Description * - This is important as different sections of the same roadway can vary greatly with certain sections in greater need of remedial work than others
- Functional Classification
- Type of Pavement
- Length and Width
- Average Daily Traffic (ADT) – CNHRPC, Town and State Traffic Count History will be utilized
- Construction History

The amount and type of information gathered is at the discretion of the Road Advisory Committee (RAC) and can be adjusted to fit the specific needs of an individual community. The objective is to gather exactly what is needed without gathering too much. The information outlined above has worked well in similar sized communities in the state.

The process of assembling inventory information is typically approached in three phases:

1. Determine the types of data needed
2. Determine which data currently exists in office records (Town/CNHRPC/NHDOT)
3. Determine the remaining data that must be gathered

Surface Condition Survey

The purpose of the condition survey is to determine the condition of each segment by visually observing any surface distresses that are present. The condition survey is a crucial part of the Road Surface Management Plan since certain distresses are very much related to particular causes of pavement deterioration. The surface condition survey is a visual inspection of 100 percent of the local road network. Since the data from this survey is used for planning purposes, a detailed survey of each street is not necessary at this stage.

The following is a list of recommended distresses to be included in the condition survey for a municipality with asphalt concrete pavements.

- Alligator cracking
- Longitudinal/transverse cracking
- Edge cracking
- Potholes/patching
- Roughness
- Rutting

In addition to recording the types of distresses that exist, the severity and extent of the distress must be recorded. Severity refers to the degree of deterioration (low, medium, high), extent refers to the frequency of occurrence, or amount of road surface (percentage) subjected to a particular distress. The following inventory sheet is utilized to combine the data collection efforts of the Road Inventory and Surface Condition Survey stages of the project.

Repair Strategies

This step requires the municipality to decide which repair strategies are going to be considered for each of the road segments surveyed. Routine maintenance on roadways in generally good condition is often the most important strategy to consider. According to the American Association of State Highway and Transportation Officials, every \$1 spent to keep a road in good condition avoids \$6-14 needed later to rebuild the same road once it has deteriorated significantly. Investing too little on road repair increases these future liabilities.

It is generally accepted that there are five repair strategies that should be considered for road surfaces:

1. Routine Maintenance – usually includes local patching, crack sealing, and other relatively low cost actions. Localized distresses, such as isolated severe bumps or potholes are usually corrected first. If possible, routine maintenance needs should be funded each year.
2. Preventative Maintenance – includes techniques such as surface treatments that are designed to stop deterioration before it becomes a serious problem.
3. Deferred Action – road sections which fall into this category receive minimum funds for the current budget year. These sections are beyond the point where preventative maintenance will be effective but have not yet deteriorated to the point of needing rehabilitation. When a municipality defers action, it must be prepared to fund rehabilitation or reconstruction when it becomes necessary.
4. Rehabilitation – usually includes overlays or recycling. Funding for completion of these projects depends upon long range planning and careful scheduling of improvements to be done in stages.
5. Reconstruction – involves complete removal and replacement of a failed pavement. It may also involve features such as widening, improved alignment, grade changes and major drainage work. Lead times of several years may be required because of the more costly nature of full reconstruction and the time required to develop a complete plan of action.

Project Prioritization

Due to costs associated with roadway repair and maintenance it is necessary to prioritize improvement on the municipal roadways in accordance with a list of projects proposed by the RAC. Prioritization uses either the worst-first method or the best-first method. As mentioned previously, routine maintenance is the most cost effective method of roadway management. However, based on safety issues it may be necessary to prioritize certain road sections if funding for larger scale projects is available.

Developing a Budget

Determining how much funding should be allocated to the repair of municipal roadways is something that the RAC needs to discuss with the relevant town departments/local citizens. However, it must be remembered that the total cost of repairs for the road network is not stagnant. As time goes on, roads that need to be repaired will continue to deteriorate. Also, roads that are currently in good shape will continue to deteriorate and require repairs in the future. If the maintenance and rehabilitation budget is

under-funded, the total cost of repairs for all streets can rise dramatically. It is therefore important to focus on both a short-term and long-term approach to municipal road management.

Working with the Town Road Agent and the NHDOT District Engineering staff at this stage is useful in order to get a general sense of costs associated with specific roadways/repairs. Many municipalities have incorporated their Road Surface Management Plan into their respective Capital Improvement Programs in order to ensure that the prioritized projects are developed in line with a clear understanding of resources available.

Once the streets that are to be repaired have been selected, they must be examined in more detail to determine the exact scope of work. The detailed survey of the selected streets is necessary because the initial condition survey does not measure exact quantities of repairs.