

Town of Cumberland

Pavement Management Plan

SUMMARY

Cumberland's extensive road system enables the Town's residents and visitors to go to work, visit family and friends, and move goods and services. It is critical that Cumberland develops and maintains a better than adequate road system that can accommodate future growth in population, vehicle travel and economic development.

When roads are in poor condition, which may include potholes, rutting or rough surfaces, the cost to operate and maintain a vehicle increases. These additional vehicle operating costs include accelerated vehicle depreciation, additional vehicle repair costs, increased fuel consumption and increased tire wear. According to the Federal Highway Administration, for every \$1.00 spent on street and highway improvements results in a \$5.40 benefit in improved traffic safety, reduced travel delays and reduced vehicle operating costs.

Roads in poor condition can also be a deterrent to economic development and residential growth. In a competitive environment, the Town's road system and the maintenance of the road system could be the difference between attracting new business and residential growth, and losing them to nearby communities. The overall ride ability and appearance of our roads is important to our tax payers and future taxpayers of Cumberland.

The lifecycle of Cumberland's roads is greatly affected by the Town's ability to perform timely maintenance and upgrades which would ensure the road surfaces and drainage systems last as long as possible. Due to the economic times and budgeting priorities, very few funds have been allocated to maintaining Cumberland's road way infrastructure, resulting in deterioration of the roads. This deterioration is not isolated to one area of town but rather is inclusive of the entire Town's road system.

PLAN

The Town hired Gorrill- Palmer consulting engineers to conduct a "Pavement Condition Rating" for all Town maintained roadways as well as State aid roads. Gorrill- Palmer staff conducted a 100 foot inspection of all town roads; in this inspection they were looking for certain types of cracking, rutting and overall failure of the road surface pavement. The pavement condition of the Town's roads were evaluated and rated on a scale of 0 to 5 with a 5 rating being a newly paved roadway, the number assigned for each road is that road's Pavement Condition Rating or PCR. Gorrill-Palmer submitted the Town a report showing that approximately 63% of all the roads in Cumberland are currently in good to very good condition with a moderate to high PCR, with the remaining 37% being in very poor to fair-good condition and in need of maintenance, a low PCR. This report also showed that if the Town does not develop an aggressive and comprehensive pavement management plan that the amount of roads in the very poor to poor and the poor to poor-fair condition would rise to 78%.

After reviewing the Gorrill-Palmer report, the Town Manager charged me with the task of developing a Pavement Management Plan that would address maintenance and repair of all of Cumberland's roads over a twelve year period. I reviewed Gorrill-Palmer's report and the pavement conditioning ratings (PCR) they assigned for 2011 as well as past PCR's for 1998, 2005 and projected PCR's for 2016. This report confirms that all areas of the town have both very good and very poor pavement conditions, so assigning paving priorities based on the Gorrill-Palmer report alone would have had us paving parts of the entire town in the first year. In making an assessment of priorities I also had to weigh in several other factors:

- **Traffic volumes:** roads used most by our citizens in the course of a day
- **Citizen Complaints:** vehicle damage and drivability
- **Safety:** traffic accident reporting and public safety response.
- **Public Works Maintenance Logs:** what roads continually have to be repaired?
- **Public Works Drainage Completion Projects:** what roads have been repaired and are ready for pavement.

I also weighed in what needed to be done to the road way so I could factor in the cost of the project; does the road need simple crack sealing, thin overlay, rehabilitation or reconstruction. Applying the correct treatment to the road will help the road last as long as possible.

- **Crack Sealing:** roads that are in good to very good condition may need a treatment of crack sealing, which is the process of cleaning out of existing cracks in the pavement surface and filling these cracks with a rubberized material. This prevents water from penetrating the pavement surface and prolongs the life of the pavement.
- **Thin Overlays:** This process is the placing of 1 to 1 ½ inches of pavement on a road that is in good condition but has a high extent of cracking and roughness. This is a maintenance treatment that prolongs the life of the road until more extensive work can be done.
- **Rehabilitation:** This is needed when the pavement has failed, but the base course of the road is ok and is draining properly. This road usually has large cracks and deep ruts in places. This treatment will require some surface preparation and the application of 3 to 4 inches of new pavement.
- **Reconstruction:** This process is what was done on Range Road. The replacement of the road structure, the pavement and much of the base. Usually this is done by reclaiming the road way surface (grinding and recycling the pavement) excavating the base, repairing of the drainage and the placement of new pavement.

After taking all these factors into consideration and with a great deal of research, I am coming forward with a recommendation of a pavement management plan that addresses the paving of major roadways in the 2013 budget year and the establishment of a "neighborhood" paving plan that incorporates the paving clusters of streets in close proximity of the next 11 years.

