Preventative Maintenance Success in the Regional Municipality of York

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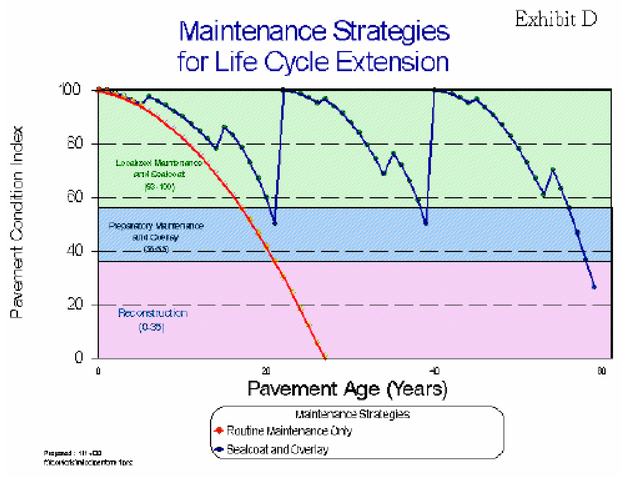
Preventative Maintenance

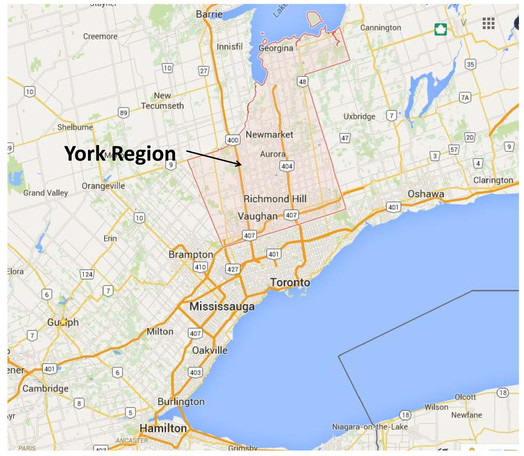
- "Right Time, Right Treatment, Right Road" is the principal behind successful maintenance of any road network
- Challenges of resources and data can prevent selecting "right treatment"
- Preventative maintenance extends the service life of the pavement, maintains the condition and lowers the life cycle-costs.
- Preventative maintenance should be used when the pavement is in good structural condition and before the development of more severe distresses.

Alternatives

- Multiple preventative maintenance treatments are currently available in the industry: thin overlays; micro-surface; fog seal; rejuvenator; chi seals; and crack sealing.
- In the past four years the Region has carried out a project focusing on the following two:
  - **Thin Overlay –** a thin lift of Superpave 9.5, generally 30 mm thickness, directly on the existing pavement
  - **Microsurfacing –** a thin lift of a mixture of polymer-modified cationic emulsified asphalt, mineral aggregate, mineral filler, water and additives



York Region



- Population over 1,000,000
- 5 percent of population in rural areas
- 7 percent in small urban areas
- 88 percent in large urban areas
- 6th largest population growth rate in Canada
- Population expected to exceed 1.5 million by 2031

Annual Project

- Identification of possible road sections by the Region through existing Pavement Management System (PMS) data
- Field visual condition inspection of road sections by Pavement Engineer
- Recommended candidate road sections based on current condition
- Recommended treatment type based on road characteristics
- Identification of treatment repair needs prior to preventative maintenance
- Road section suitability identification carried out in spring with construction completed in the same year or following year

Specifications

- Special Provisions developed for existing Ontario Provincial Standard Specifications (OPSS) (310 and MUNI.1151)
- Simple, focused on quality materials and achieving quality construction
- Multiple road sections included in one contract

Performance

- 8 km inspected in 2012 and 8 km identified for preventative maintenance
- 36 km inspected in 2013 and 24 km identified for preventative maintenance
- 12 km inspected in 2014 and 42 km identified for preventative maintenance

- Generally good performance of thin overlay with SP 9.5 mm on rural and urban road sections
- Three years after placement, minimal surface distresses developing (cracking)
- One year after placement of SP 9.5 mm thin overlay, low frictional characteristics noted at steep intersection
- In 2014 microsurfacing also considered as an alternative, for use on hilly road sections

Summary

- When applied at the right time to the right road section preventative maintenance treatments can be an effective tool for extending the life of a pavement and delaying the expense associated with rehabilitation or construction
- An efficient, simple annual project carried out using PMS data can effectively identify suitable road sections
- Available preventative maintenance treatments can be successfully applied and maintain the condition of a road network

References

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