

# MEMORANDUM

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**DEPARTMENT OF TRANSPORTATION**

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**TO:** Transportation Commission Asset Management Committee  
**FROM:** Scott Richrath, Transportation Performance Branch Manager  
**SUBJECT:** Least Cost Analysis for Very Low Volume Roads  
**DATE:** November 15, 2012

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Following Committee guidance of October 3 and 17, this memorandum offers staff support and draft resolution language for a Least Cost Analysis (LCA) approach on very low volume roads. Consistent with previous Commission Workshops, Very Low Volume Roads are defined here as carrying fewer than 2,000 average daily vehicles and fewer than 100 average daily trucks.

The goal for LCA is to keep very low volume roads drivable while minimizing treatment costs. It should be noted that given resource limitations, the recent annual expenditure on these roads has been in line with the LCA recommendations. Therefore, the average annual savings are not potentially new savings, but savings against the current model recommendations and, therefore, reconstruction costs avoided.

Staff researched and interviewed other agencies performing pavement practices similar to LCA including Oregon, Vermont, British Columbia, Australia, and New Zealand. Staff uncovered no findings substantially inconsistent with CDOT's own engineering and financial analysis of the application of LCA on these roads.

## Summary of Pros for CDOT's LCA

- No "undrivable" miles in 20-year analysis horizon
- Annual savings >\$4 million to CDOT over 20 years
- Deferring reconstruction is most appealing with high cost of capital (discount rate)
- Drivability threshold can vary with tier; may be more easily explained to travelers

## Summary of Cons/Risks of LCA

- Reduced average condition
- More frequent treatment = greater traffic disruption
- Must maintain minimum threshold; therefore may disproportionately fund very low volume roads in years of low total pavement budget
- Few studies available on life cycle of roads under continual minimal treatment; eventual reconstruction likely

## Conclusion

Staff supports implementation of LCA to guide the use of thin surface treatments on very low volume roads. If the Committee favors LCA, staff recommends a resolution such as: "Staff shall modify the Practical Design Guide for Pavements within its 2013 Pavement Design Manual to recommend Least Cost treatments on highways with an Average Daily Traffic of less than 2,000 and/or Average Daily Truck Traffic of less than 100. Staff shall determine a new threshold for Drivability for these roads consistent with the intent to maintain safe, passable highways without reconstruction or major rehabilitation treatments. If a road becomes undrivable or unsafe, its reconstruction must be approved by the Regional Transportation Director."