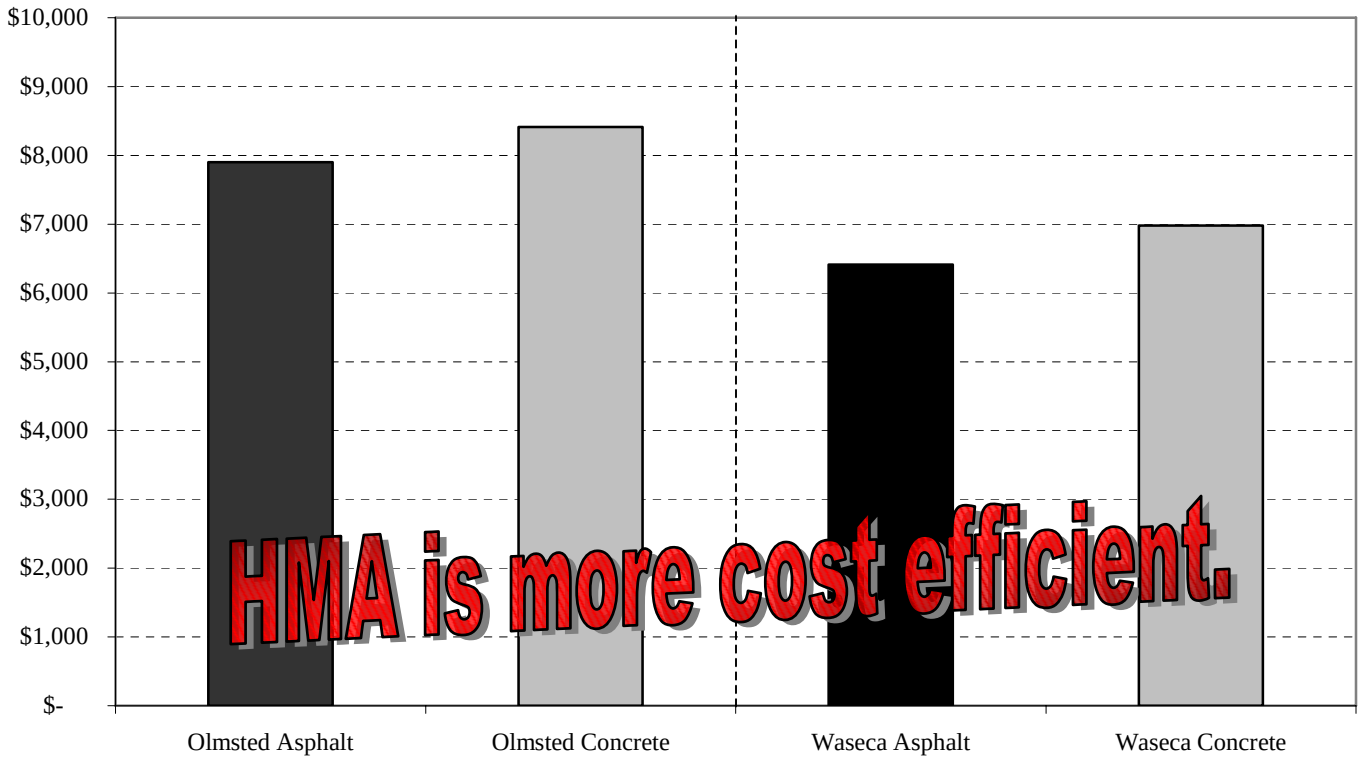
Asphalt is Best

In a report titled "*Case Study Comparisons of the Life-Cycle Costs of HMA and PCC Pavements on Lower Volume Roads*,"[1] which is compiled from two reports commissioned by the Concrete Paving Association of Minnesota,[2][3] many facts about Hot-Mix Asphalt (HMA) have been omitted. Promotional flyers based on these reports just aren't true, and in fact, are quite misleading.

Average Cost Efficiency
($ Spent/ Lane Mile/ Year) **Note: Data from CPAM Study**



Data from the CPAM study of Olmsted and Waseca county roads in the graph above shows that the average life cycle costs - in terms of equivalent uniform annual cost (EUAC), 1998 dollars – per lane mile are ***less for HMA than pcc, meaning HMA is the best buy***. This can ***add up for many miles of cost savings***. Of the 63 pavement sections the CPAM study chose, five HMA sections in Olmsted County and three in Waseca County have service lives of 37 years or more, this cannot be said of the pcc sections. These long-life HMA sections are subjected to high traffic by the report's standards – yet these long-life sections are not mentioned in the case study nor in the conclusions of the study.

In CPAM's study, the life cycle costs are determined, then divided by the traffic volume. Not only is this an *unprecedented, unmerited* step, it clearly is used as a means to try to mask the high costs associated with the pcc pavements. The Federal Highway Administration provides clear guidance[4] for correctly determining LCCA and it does not include normalizing the costs with traffic volume or other variables. While traffic is a key factor in the design of pavements, it is accounted for in the initial costs of a project (primarily in the thickness of the pavement layers).

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In fact, to correctly make the comparison that is made in CPAM's reports,[1][2][3] the sections under consideration in a true LCCA would be for the same data and the same conditions. There were sections of roadway available for comparison between the costs on the same road, yet they chose to compare sections from different roadways. Also, when comparing the costs relative to the traffic, the pcc sections had as much as four (4) times the traffic as the HMA sections. ***Thus, when the costs of the pavements were divided by traffic, the intent was to clearly mask the high cost of the concrete pavement.***

Maintenance costs are discussed in the report, as they should be in a true life cycle cost analysis. However, these costs were speculative due to a significant lack of data. Also, the analysis is misleading since the initial costs of the pavements was omitted in the analysis. The initial costs typically have the greatest effect on life cycle costs, and leaving them out was another means of distorting the comparison.

Tax payers are paying for the roadway to be designed, constructed, and maintained for the most economical benefit possible. CPAM's report[1] is missing significant costs related to work zone user costs. These costs are incurred by the public when they are unable to use the road due to delays for construction and maintenance that restrict the flow of traffic, particularly during the curing of concrete. ***Paving with HMA cuts construction project time significantly and eliminates the long curing times of concrete***, says the Asphalt Pavement Alliance[5] (APA). As a result, traffic flows more smoothly, the impact on commerce is minimized, and safety hazards are reduced.

The HMA sections used in this study were built prior to today's technology standards such as SuperPave and quality management. ***Several of the HMA sections listed continue to perform well after 35 years of service and are potentially long life - perpetual HMA pavements!*** This information is consistent with information in the "Summary of Minnesota Research Findings" study[6].

Yes, but what about today? A summary of responses to AASHTO's Survey in Construction Cost Increases and Competition[7] was recently released. This formal survey was sent to all State DOTs of the AASHTO Standing Committee on Highways on March 2006 and 44 states responded to the survey. The average cost increase reported by the states was 18% for asphalt, 22% for concrete and 26% for steel.

HMA is still the best buy.

MAPA's position has always been to promote HMA roads on the merits of performance and cost effectiveness, not to attack competitive paving materials. However, we have been obliged to address the misleading concrete propaganda and to put their analyses and remarks into a factual perspective. We trust that in doing so, all will return to promoting and specifying competitive pavement systems based on cost-effectiveness and performance for the tax payer rather than distortion.

References:

1. Embacher, R. A., and M. B. Snyder, *Case Study Comparisons of the Life-Cycle Costs of HMAC and PCC Pavements on Lower Volume Roads*, Transportation Research Record, 2001.
2. Embacher, R. A., and M. B. Snyder, *A Comparison of Life-Cycle Costs of Asphalt Concrete and Portland Cement Concrete Pavements In Olmsted County, Minnesota*. Final Report to Concrete Paving Association of Minnesota (CPAM). University of Minnesota Department of Civil Engineering, Minneapolis, Minnesota. January 2000.
3. Embacher, R. A., and M. B. Snyder, *A Comparison of Life-Cycle Costs of Asphalt Concrete and Portland Cement Concrete Pavements In Waseca County, Minnesota*. Final Report to Concrete Paving Association of Minnesota (CPAM). University of Minnesota Department of Civil Engineering, Minneapolis, Minnesota. January 2000.
4. Walls III, J., and M. R. Smith, "Life-Cycle Cost Analysis in Pavement Design – Interim Technical Bulletin," Federal Highway Administration, Report Number FHWA-SA-98-079, September 1998.
5. Asphalt Pavement Alliance web site, www.asphaltalliance.com
6. Minnesota Asphalt Pavement Association web site, www.asphaltisbest.com
7. AASHTO Survey on Recent Construction Cost Increases Released, http://fs1.hotmix.org/jay/AASHTOconstructioncostsurvey.pdf

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