

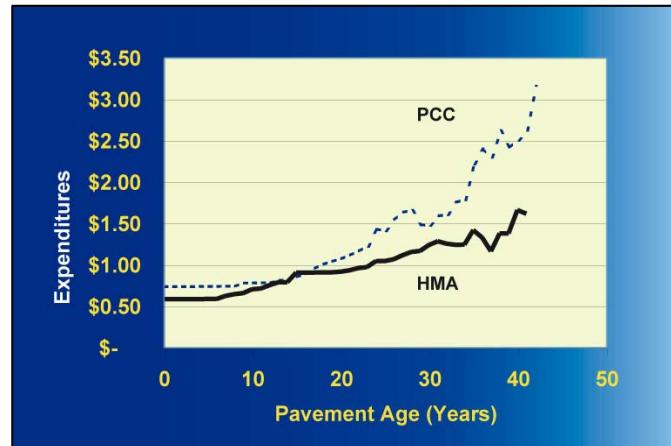
# THE ASPHALT ADVANTAGE

The use of Hot-Mix Asphalt (HMA) provides a fast, efficient and economical construction process with unsurpassed versatility. If rehabilitation is required, it can be accomplished quickly with minimal user delay. Asphalt pavements provide the greatest advantages for every project condition.

## ECONOMICAL

The Federal Highway Administration has shown that a dollar spent on asphalt pavements goes 26.9 percent further than a dollar spent on concrete pavements.

Asphalt is a cost effective choice because it has a lower first cost than concrete and can be constructed as a "Perpetual Pavement", resulting in a lower user cost. Staged construction also helps spread out the cost of placement. Because asphalt pavement has no joints to repair and is not affected by freeze-thaw actions, it is much less expensive to maintain.



## RECYCLABLE

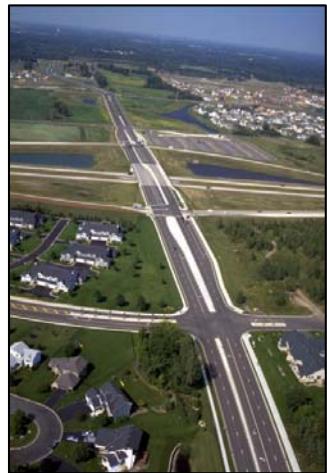
Another major advantage of HMA is its ability to be completely recycled. Not only can the aggregates be reused, but the asphalt binder also retains its adhesive properties and can be re-used in a new HMA mix. Pavements are recycled in a conventional HMA plant with minimal modifications. Recycled pavements have been tested in the laboratory and in the field and have been proven to perform at least as well as virgin aggregate mixes. Hot-Mix Asphalt plants in Minnesota are all capable of using reclaimed asphalt pavement (RAP). HMA pavements are 100 percent recyclable; in fact, they are the most recycled product in the United States. The technology exists to reduce net foreign oil dependency by using RAP, shingles, and potentially synthetic binders.



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## EASE OF CONSTRUCTION

Since HMA is machine-placed, there is no need for time consuming form work and steel reinforcement. After placement, traffic can use the pavement almost immediately – no delay is required to allow it to cure. When repairing roads, an asphalt surface is quicker and easier to complete because there is little down-time waiting for a patch to cure.



## DURABILITY

HMA is a flexible pavement allowing it to withstand occasional over-loads without serious damage. Its resistance to freeze-thaw and deicing salts provides for superior performance during inclement weather. Its lack of repetitive joints removes the possibility of the blowups that plague Portland Cement Concrete during summer heat waves.



## SMOOTHNESS

HMA Pavements will consistently give the driving public the smooth, quiet ride they have come to expect. Since it is machine-placed, it has a uniform surface unsurpassed by other pavements. There are no repetitive joints, noisy surface texture, and blowups with this method of construction, all of which leads to a smoother ride as experienced by the driving public.



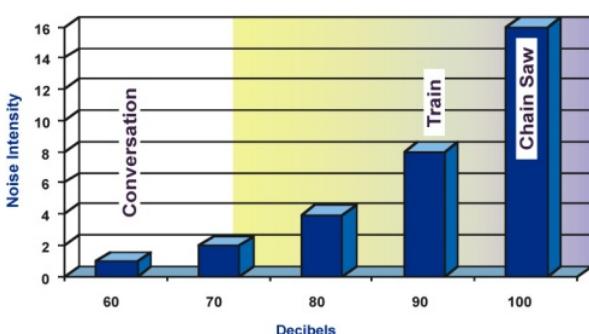
## NOISE

HMA pavements are quiet. Data from around the world prove that less traffic noise is

generated on HMA surfaces. Research in the U.S. and Europe shows that HMA mix will reduce highway noise by 3 to 5 dB(A) and greater. A three decibel reduction in noise is equal to moving the nearby homes double the present distance. If the homes are now 200' away it will sound as if they are 400' away, a small investment to enhance property values. Also, Stone Matrix Asphalt (SMA) and open-graded (OGFC) mixes have been shown to absorb engine and transmission noise.

### The Decibel Scale

Increasing the decibel level by 10 doubles the noise intensity!



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## SAFETY

Asphalt pavements offer high skid resistance values. The dark color of asphalt reduces glare, helps melt ice and snow, and provides a high contrast for lane markings. Also, SMA and OGFC mixes provide safety by reducing splash and spray when compared to concrete pavement.



## VERSATILITY

The versatility and popularity of HMA is evident across the State of Minnesota and the Nation – factories and schools, office parks and playgrounds, and the overwhelming majority of our streets and roads stand as clear testimony that the advantages of HMA make it America's first choice for paving and rehabilitation.



## STAGED CONSTRUCTION

A major advantage for HMA pavements is the potential for staged construction. The asphalt non-wear course can be placed and used under traffic during initial construction. This (non-wear) course can then be overlaid with final surface courses. Staged construction improves on-site conditions, removes the aspect of muddy soils, and provides a staging area to store construction materials and equipment. This method also provides an opportunity to discover and correct unanticipated problem areas, such as weak subgrades, poor drainage, or poorly compacted trenches, which can be repaired at a minimal cost prior to final surfacing. The site may also be landscaped prior to placing the wearing course, allowing all construction operations to be finished before the pavement is completed. In so doing, a surfaced parking lot may receive an occupancy permit prior to final placement of the surface, allowing site use sooner, rather than later.



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