ASPHALT, THE SUSTAINABLE PAVEMENT

For most of the community asphalt pavements are taken for granted. However, asphalt pavements and their cousins the sprayed sealed pavements are the means of ensuring that Australia has effective transport and communication links. Within cities and across the whole countries bituminous pavements provide safe, reliable, long lasting, easily maintained and cost effective pavements.

The following article highlights the some of the benefits of asphalt pavement and is produced with the permission of the US Asphalt Pavement Alliance. The comments made are as applicable in Australia as they are in the US.

Asphalt is *the* sustainable material for constructing pavements.

From the production of the paving material, *to the placement of the pavement on the road, to rehabilitation, through recycling, asphalt pavements minimize* impact on the environment. Low consumption of energy for production and construction, low emission of greenhouse gases, and conservation of natural resources help to make asphalt the environmental pavement of choice.

I. Energy and Recycling

Less energy consumed in building pavements

Asphalt pavements require about 20 percent less energy to produce and construct than other pavements.[1]

Less energy consumed by the travelling public

Congestion leads to unnecessary consumption of fuel and production of emissions. Reducing congestion by constructing asphalt pavements just makes sense. Asphalt pavements are faster to construct and rehabilitate. And, a new or newly rehabilitated asphalt pavement can be opened to traffic as soon as it has been compacted and cooled. There is no question of waiting for days or weeks for the material to cure.

America's leading recycler

The asphalt industry reclaims about 100 million tons of its own product every year, and reuses or recycles about 95 million tons. This makes it America's number one recycler. In Australia the amount of recycled asphalt pavement is also continuing to increase with the aim of asphalt being 100% recycled

Other materials are routinely recycled into asphalt pavements. Some of the most common are rubber from used tires and glass.

II. Ultimate Sustainability

The road doesn't wear out

Only asphalt can be the Perpetual Pavement. When appropriately designed and constructed, the road itself doesn't wear out. Maintenance is simple: only the top layer is removed and replaced. This can be done quickly, even overnight, and it saves taxpayers money. The material that has been reclaimed is then recycled. The newly overlaid road surface (which may also contain recycled

material) is a good-as-new pavement. Total removal and reconstruction is not needed. This is a truly sustainable construction process.

Public safety

Smooth asphalt roads give vehicle tires superior contact with the road, improving safety.

Open-graded asphalt allows rainwater to drain through the pavement surface, reducing the amount of splash and spray kicked up by vehicles.

Noise reduction

Asphalt is the quiet pavement. Newer quiet pavement technologies include fine-graded dense pavements, open-graded surfaces, and two-layer open-graded pavements.[3] Studies show that the noise-reducing properties of asphalt last for many years.[4]

Noise reductions of 3 to 10 dB(a) are common. Reducing noise by 3 dB(a) is about the same as doubling the distance from the road to the listener, or reducing traffic volume by 50 percent.

For more information on quiet pavement technology, visit www.quietpavement.com.

Asphalt moves traffic along

Asphalt pavements are faster to construct and rehabilitate. In crowded urban areas, where closing a road for rehabilitation or reconstruction would dump increased traffic on to neighbouring routes, asphalt is the answer. Highways and roads can be milled for recycling, then overlaid, during off-peak hours. An entire freeway can be resurfaced without commuters ever being inconvenienced.

III. Water Quality

Stormwater management with porous asphalt

Porous asphalt pavement systems can replace impermeable surfaces for parking lots, roads, walking/biking paths, and other applications. Porous pavements can turn runoff into infiltration; restore the hydrology of a site, or even improve it; improve water quality; and eliminate the need for detention basins.5

Asphalt pavements do not leach

Once constructed, asphalt pavements have minimal impact on the environment. Studies show that asphalt pavements and stockpiles of reclaimed asphalt pavement do not leach.[6,7]

Environmental applications

Asphalt is used to construct liners and caps for landfills. The impermeable material is an effective barrier to potential leaks.

Drinking water reservoirs are often lined with asphalt. Asphalt cement is also used to line water pipes that supply potable water to humans.

Oregon and Washington state fish and wildlife agencies use asphalt pavement to line their fish rearing ponds.[8]

IV. Cleaner Air and Cool Cities

Asphalt plants are environmentally sound

Emissions from asphalt plants, including greenhouse gases, are very low and well-controlled. Between 1970 and 1999, the US asphalt industry decreased total emissions by 97 percent while increasing production by 250 percent.[9] Emissions from asphalt plants are so low, the EPA considers them as only minor sources of industrial pollution.[10]

Traffic relief

When cars and trucks are caught in congestion, they consume fuel and produce greenhouse gases. Asphalt's speed of construction allows planners and managers a way to fix congestion hot spots and bottlenecks, quickly and cost-effectively.

For more information and references refer to the ACA website http://asphaltroads.org.

The US Asphalt Pavement Alliance is a joint venture between the US National Asphalt Pavement Association (NAPA), the US Bitumen Institute and US State Asphalt Pavement Associations. The APA website contains a range of interesting articles and publications. This includes the recently release publication "Smoothness Matters" which highlights the fuel savings with smooth asphalt pavements