Most of us have heard the terms sustainability and sustainable development used in many different applications. These terms can take on various implications and nuances, but one rather succinct definition of sustainable development is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. Sustainability can be viewed as the end state achieved by sustainable development and relates to the holistic consideration of environmental, economic and social concerns with a long-term view in mind.

Long before “sustainability” became such an eagerly pursued part of the American business plan, the asphalt paving industry initiated research and field practices that have constantly enhanced environmental soundness in the production of asphalt pavements. These efforts have had the most profound effects in recycling reclaimed asphalt pavement (RAP). RAP is the most recycled material in America! About 100 million tons of old pavement are reclaimed every year, and most of it is reused in new asphalt pavement mixes.

Asphalt pavement is unique not only in the volume of material that is recycled, but also in its renewability. It is comprised of about 95 percent aggregates and about 5 percent liquid asphalt cement. When the milled asphalt pavement material is reused in a new asphalt mix, some of the old asphalt cement is rejuvenated so that it becomes an active part of the glue that holds the new pavement together, just like the high quality aggregate in the RAP becomes part of the aggregate content of the new mix. And, as long as the reclaimed asphalt pavement is reused in appropriate pavement mixes, it can be recycled over and over again.

The asphalt pavement industry also has worked on other technologies over the years that reduced air emissions - including greenhouse gases. In fact, studies showed that emissions from asphalt plants are low and well controlled and resulted in EPA declaring them to not be a major source of hazardous air
pollutants. Total emissions from asphalt plant operations decreased by 97 percent from 1970 to 1999 even while production of hot-mix asphalt more than doubled.

The industry is proud of its record of environmental stewardship and its proactive position of continuously reducing emissions. This focus is on-going with concerted efforts to deploy warm-mix asphalt (WMA) technologies. By using WMA, temperatures at which asphalt mixes are produced and placed can be reduced 50 to 100°F below the conventional 320°F for hot-mix material. This results in both reduced fuel consumption and reduced emissions. The industry has constructed scores of WMA projects in over 40 states since the introduction of this technology in the U.S. in 2004.

Modern asphalt pavement designs also comply with sustainable development precepts. Porous asphalt pavements allow stormwater infiltration into underlying aggregate beds or retention systems and eventual groundwater recharge. They enhance the quality of the stormwater that does run-off.

**RECLAIMED ASPHALT PAVEMENTS**

The use of reclaimed asphalt pavement (RAP) has been widespread for about 30 years. Currently, RAP makes up 12 percent of the average asphalt mix by volume, with the remainder comprised of virgin aggregate and asphalt cement. Contributing to this national average are states that routinely use 30 percent RAP and states that permit minimal use. Increasing the use of RAP as a percentage of the total new asphalt mix can reduce greenhouse gas emissions by eliminating the significant fuel consumption required to extract and process raw materials for virgin mixes. If RAP usage is increased to 25 percent of the average mix, the total life-cycle greenhouse gas emissions can be reduced by 10 percent, which equates to 2 million tons offset annually.

Reuse/recycling is not only an environmentally sustainable practice, it is also an economically sustainable one. It is estimated that there is 18 billion tons of asphalt pavement already in place on America’s roads and highways. Because of the ability to reuse and recycle this material indefinitely as long as it remains uncontaminated, our highways are a resource for future generations. Not only are our roads a primary engine of the economy, they have a high residual value as a source of construction materials. As a note, the process of reclaiming and processing these materials has a very low environmental impact.

**WARM MIX ASPHALT**

Warm mix asphalt was originally explored for its environmental benefits, which include reduced fossil fuel consumption and reduced emissions, including greenhouse gas emissions. Contractors and agencies have also discovered numerous construction and performance benefits, including the potential to extend the paving season in northern climates, the potential to store pavement mix for longer periods, a longer window of opportunity for compacting pavement, and increases in recycling rates. There are currently 16 states that either have made or are making warm mix a standard practice.

Running warm mix can reduce energy consumption during the manufacturing of the asphalt pavement mixture by an average of 20 percent, which decreases total life-cycle greenhouse gas emissions by 5 percent. In terms of greenhouse gas emissions, this equates to cutting 1 million tons of asphalt production annually. Combining warm mix with reuse/recycling yields even greater benefits. Warm mix with 25 percent RAP could potentially offset asphalt pavement life-cycle greenhouse gas emissions by 15 to 20 percent. The potential for total savings in greenhouse gas emissions using both warm mix and recycling is about 3 million tons per year.

*Continued on page 3*...
Porous asphalt pavements are made with an open-graded surface so stormwater can freely flow through them. The system is designed and constructed to collect stormwater, which then infiltrates into a stone recharge bed and then the ground. Porous pavement systems are used mostly for parking lots where they replace or reduce the need for open detention basins. And, they have also been used successfully on low volume roads in communities like Pringle Creek in Salem, Oregon.

Porous asphalt surfaces allow roads and highways to function as linear stormwater management systems. Porous parking lots store stormwater, reduce runoff, promote infiltration and ground-water recharge, allow evaporative cooling of the atmosphere, diminish erosion on stream banks, reduce particulates in stream water after storms, and improve water quality. Porous asphalt pavements are accessible and affordable. They can be produced and constructed by any qualified contractor.

CONCLUSION

Past, current and future advancements in asphalt mixes as a sustainable paving material are especially important because asphalt pavements comprise such a major part of the built infrastructure and because the quantities of material used annually are so large. Of the 2.6 million miles of paved roads in the U.S., about 94 percent are surfaced with asphalt. There are about 4,000 asphalt mixing plants in the U.S. and the industry employs, directly or indirectly, 300,000 workers. Because of the extensive use of this material, even small improvements in asphalt pavement technologies can effect significant benefits to sustainable designs.

Those many individuals, representing both owner agencies and industry, who guide the development and deployment of advances in asphalt pavements have made it one of the most environmentally advanced building materials. By improving the desirability of reclaimed asphalt in new mixes, they have reduced the cost of the mix and the demand for virgin asphalt cement and virgin high quality aggregates—both of which have limited supply. They have broadened and advanced warm mix asphalt technologies to make WMA a primary pavement material—thus reducing energy consumption and greenhouse gas emissions. And, they have developed porous pavement applications as a best management practice for reducing stormwater run-off and improving water quality.

The asphalt industry is committed to the U.S. Department of Transportation’s comprehensive national energy and environmental policy that emphasizes reducing carbon emissions and consumption of fossil fuels as well as protecting and enhancing natural resources. Dż

(Information excerpted and reformatted from NAPA’s “Black and Green” brochure.)
President’s Message

It is an honor and pleasure to be the current President of the Pennsylvania Asphalt Pavement Association. Looking at the list of names of the previous Presidents that have served before me, it will be a huge job to match their accomplishments. I have been associated with the asphalt paving industry since the mid-80’s both in Maryland and Pennsylvania and have had the opportunity to be involved in production, lay down, QC and aggregate supply. One of the things I wanted to do in the 80’s was understand the issues and obstacles facing the paving industry, what were the “hot” topics; highway funding, quality of material, recycling, life cycle of pavements, Superpave mixes, longitudinal joint, testing procedures, night paving, work zone congestion and safety of the workforce and traveling public, etc... Sound familiar? 25 years later, same issues! However, we have come a long way in many respects, concerning quality, proven life cycle benefits, joint construction, testing, work zone safety to name a few and, new opportunities are facing us: warm mix, recycled shingle use, lower liquid mixes at higher quality, higher RAP percentages, porous pavements, etc...

Obviously, funding will always be open for discussion. Our current system of funding is obsolete since the tax on fuel consumption with the push to increase mpg and to use alternate fuels, is regressive and not sustainable. Collectively, we need to work on alternate sources of revenue to fund our large backlog of highway program needs.

In closing, I look forward to working with our new Executive Director, Gary Hoffman, the many good and involved members of PAPA, along with the staff to meet the needs of the Association. ♦
Hot-Mix Asphalt (HMA) 101 (13 PDHs)
A 2 day course  $350

November 3-4, 2010

This seminar is geared specifically for Pennsylvania applications.

Register online

Who Should Attend
This course has been developed for those persons seeking a basic understanding of hot-mix asphalt pavements. It is intended to focus on areas critical to the successful completion of an asphalt pavement. This course is also valuable for individuals who plan to apply for field technician certification in Pennsylvania.

This 2-day seminar taught by AI engineers and equipment industry representatives provides participants with a solid foundation in:

- Asphalt Cements
- Aggregates
- Mix Design and Plant Operations (as they relate to field applications)
- Proper Hauling, Placement and Compaction Procedures

Seminar Location
The Penn Stater Conference Center
215 Innovation Blvd.
State College, PA 16803

Class Schedule
8:45 a.m. - 4:00 p.m. Wednesday (Lunch will be provided)
8:15 a.m. - 4:30 p.m. Thursday (Lunch will be provided)

Fees & Registration
The registration fee is $350 and needs to be received prior to the course date. Fee includes course instruction, refreshment breaks, lunch both days and all seminar materials. Hotel accommodations are not included. Attendees are responsible for making their own hotel reservations. Cancellations are subject to a $100 administrative fee and must be requested in writing 30 days prior to the course. Early registration is recommended as the class size is limited.

Hotel Information
Hotel accommodations are not included in the course fee; attendees are responsible for making their own hotel reservations. If hotel reservations are needed, please call the Penn Stater Conference Center reservation line at (800) 233-7505. The AI Room Block Code is ASPK10A. The single room rate is $105 plus tax per night and the double room rate is $115 plus tax per night. These rates are available until 30 days prior to the workshop.

Instructor
Knowledgeable instructors from the equipment industry and Asphalt Institute engineers will lead this course. Attendees are encouraged to ask questions and interact with the instructors.

Download the Adobe PDF with mail or fax-in registration and seminar details. (Coming Soon)

Download the Asphalt Academy Catalog (Coming Soon) with mail or fax in registration and seminar details.

Sample HMA 101 Agenda (PDF 1.1 mb)

Register online

For more information contact:
Katrina Walasinski
Meeting Planner & Event Manager, Asphalt Institute
Phone: (859) 288-4964
Fax: (859) 288-4999
Email: seminars@asphaltinstitute.org

Carlos Rosenberger
Sr. Regional Engineer
Asphalt Institute
PO Box 337
Dillsburg, PA 17019
Phone: (717) 432-5965
Email: cresenberg@asphaltinstitute.org
Lindy Paving, Inc. of New Castle, PA, an active member of PAPA, has won the prestigious Sheldon G. Hayes Award for Excellence in construction of an asphalt pavement in 2009. Lindy received the award in January at the National Asphalt Pavement Association’s 55th Annual Meeting in Maui, Hawaii. Remarkably, this is the second year in a row and the third time in the last five years that Lindy Paving, Inc. has received the National Asphalt Pavement Association’s highest honor for a quality asphalt pavement.

The company won the competition with the reconstruction of 6.6 miles of Section 35M of Interstate 79 in the Pittsburgh area. The existing aged concrete pavement, the roughest section of Interstate road in the Pennsylvania Department of Transportation’s inventory, was transformed into one of the smoothest in the state. This dramatic transformation is testimony to the quality focus of PennDOT’s District 11-0 and contractors Lindy Paving, Inc. and Trumbull Corporation, joint venture partners. This most successful project is a product of teamwork and innovation that allowed the agency and the contractor to deal with the most complex traffic management requirements either had ever seen. The high project traffic levels required that two lanes be kept open in both directions during peak hours.

The two-year project that consisted of cracking and seating the approximately 30-year old concrete pavement and paving an 18-inch asphalt overlay was completed on time and on budget. The project also included reconstruction of seven bridges, new sign structures and safety appurtenances.

Lindy Paving, Inc. and PennDOT partnered on this 308,000 ton SUPERPAVE design project from the start, overcoming scheduling challenges, creating innovative solutions to problems that arose during construction, and adhering to special traffic control and time requirements to provide the motorists with the smoothest possible pavement.

“At the start of the job we sat down with PennDOT and went through with them what we thought would be the best way to pave the job, and we discussed all of the needs and requirements that they had. From that we came up with a plan with which we were both comfortable. That provided us with the greatest opportunity to achieve the best ride we could,” said Dan Ganoe, Lindy Paving’s operations manager.

The Sheldon G. Hayes Award winner is determined through a two-year process. Highway pavement projects using more than 50,000 tons of asphalt are eligible for consideration. Initially, they must win a Quality in Construction (QIC) Award, which is determined by numerical scores given by pavement engineers at the National Center for Asphalt Technology (NCAT) on the basis of how well the contractor met the specifications and achieved density on the finished pavement. All the pavements that meet a benchmark figure are given the QIC Award.

Continued on page 7...
The year after a project wins a QIC Award, it may be considered for the Sheldon G. Hayes Award. The top-ranked projects from each year are tested for smoothness, then visually inspected by an independent pavement consultant with many years of experience in the industry. This year, the evaluators praised the contestants for high-quality construction practices resulting in smooth, safe and durable pavements. 

Congratulations to Lindy Paving, Inc. and the Pennsylvania Department of Transportation, District 11-O, for winning this prestigious award an unprecedented third time and for a job well done!

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**2010-2011 PENNDOT LETTING SCHEDULES**

**Following is the tentative Letting Schedule for Construction Year 2010:**

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**Following is the tentative Letting Schedule for Construction Year 2011:**

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ERGON ASPHALT & EMulsions, inc.  (Associate Membership)
Representative: Stephan Romanchak, Area Manager
Ergon began in 1954 by its Chairman, Leslie Lampton and is headquartered in Jackson, Mississippi. The company employs nearly 3,000 people globally. Ergon not only markets paving asphalt, but manufactures and markets a wide variety of advanced asphalt products.

FCC ENVIRONMENTAL  (Associate Membership)
Representative: Geoffrey Lyons, Transportation Manager
FCC Environmental provides petroleum based recovery services and environmental clean up of oil based products. They are present in more than fifty countries and generate over $20 billion in annual revenues. FCC Environmental serves more than 30,000 customers from New York to Texas.

HEMPT BROS., INC.  (Producer Membership)
Representative: Timothy J. Rice, P.E., General Manager
Hempt Bros., Inc. is family owned and operated since 1925. The company has two generations working together to provide the ultimate combination of past, present, and future ideas which they demonstrate in their commitment to quality products, excellent services for both large and small businesses or individuals, and efficient project management.

LONG’S ASPHALT, INC.  (Paving Contractor Membership)
Representative: Steven E. Long, President
Long’s Asphalt, Inc. is a paving company that began over 25 years ago. They pave for commercial companies, municipalities and residential customers. Their business is located in Quarryville, PA, and they serve the Southern York and Lancaster areas as well as Southern Chester County.

MAXAM EQUIPMENT, INC.  (Associate Membership)
Representative: Eric Hutchison, Regional Sales Manager
Maxam Equipment has been serving their customers for over 20 years. They offer asphalt plant design & manufacturing, custom engineered equipment, retrofits and repairs, maintenance and replacement parts as well as many other services.

McCONNAUGHAY TECHNOLOGIES  (Associate Membership)
Representative: Steve Headrick, North American LEA Marketing Director
McConnaughay Technologies is the technical arm of Suit-Kote Corporation, a vertically integrated asphalt emulsion manufacturer. The company was established in 1926 and has the capabilities to perform research and development, laboratory testing, process and plant design as well as many other functions.
MEADWESTVACO CORPORATION (Associate Membership)
Representative: Jonathan MacIver, Business Director—EVOTHERM

MEADWESTVACO is a global technology provider for the asphalt paving industry. The company has been serving its customers for over 150 years and employs over 20,000 people around the world. Their products for the asphalt industry include emulsifiers, adhesion promoters, warm mix asphalt, slurry seal, chip seal and more. They are also recognized for a warm mix asphalt additive—Evotherm.

PQ CORPORATION (Associate Membership)
Representative: Annette Smith, Project Leader

The PQ Corporation was founded in 1831 and was known as the Philadelphia Quartz Company from 1864 to 1978. The company changed its name to PQ Corporation in 1978. It operates 57 chemical and glass-bead facilities in 19 countries on five continents—North America, South America, Europe, Asia and Australia. It employs 1600 people worldwide and does approximately $500 million annually. The company manufactures and markets Advera WMA, a warm mix asphalt additive.

ROAD SCIENCE, LLC (Associate Membership)
Representative: Tim Montag, Account Manager

Road Science, LLC is a technology company for the road paving industry. They offer specification support, process development, site assessment, product development, network planning, pavement management, inspector training and formulations support. The company began as SemMaterials in February of 2008 and officially became Road Science, LLC in May of 2009.

SEALMASTER PAVEMENT PRODUCTS & EQUIPMENT (Associate Membership)
Representative: L. J. Rich III, Plant Manager

SealMaster has franchised locations throughout the United States and distribution around the world. They are a manufacturer of asphalt maintenance equipment and bituminous coatings as well as a distributor of asphalt construction materials, tools and supplies.

WARFEL CONSTRUCTION COMPANY (Engineering & Architectural Consultant Membership)
Representative: Shiela Snyder, Senior Project Manager

Warfel Construction Company located in East Petersburg, PA was established in 1911 by David S. Warfel. They offer a wide range of services including: design & build, construction management and general construction.

“Coming together is a beginning. Keeping together is progress. Working together is success.”
~ Henry Ford ~
Gary L. Hoffman, P.E., became the 5th Executive Director of the Pennsylvania Asphalt Pavement Association in January succeeding Ronald J. Cominsky, P.E., who retired at the end of 2009.

Hoffman, who has been directly involved in the transportation industry for nearly 40 years, holds B.S. and M.S. degrees in Civil Engineering from Drexel University with majors in structures and geo-technical engineering. For most of his career he has been in management and executive roles where he has been able to develop and employ his teambuilding and leadership skills.

Hoffman worked in engineering consulting for SITE Engineers of Cherry Hill, NJ, after graduation and most recently for Applied Research Associates of Champaign, IL, in which capacity he was principal engineer and project manager for a virtual national consulting team that assisted the FHWA with the implementation of the “Highways for Life” program. Hoffman served PennDOT in managerial and leadership positions for 34 years before his retirement in 2006. The last 12 years of his career were as Chief Engineer and Deputy Secretary for Highway Administration where he was responsible for the design; construction; maintenance and operations of the nation’s fifth largest state-owned highway system. Hoffman spent nearly the first ten years of his PennDOT career in the Materials and Testing Laboratory. Subsequently, he held positions as Director of the Office of Research, Director of the Bureau of Bridge and Roadway Technology, and Statewide Director of Maintenance and Operations.

Hoffman has been and continues to be active on committees, panels and projects at the national level where his focus has been on the deployment of proven technologies and innovations. He has chaired numerous Transportation Research Board and AASHTO panels, task forces and committees including the Subcommittee on Maintenance and the Subcommittee on Materials. Over the year he has had the good opportunity to author or co-author over 60 published reports and articles some of which dealt with pavement materials and pavement management practices and systems.

After 34 years at PennDOT, Hoffman retains a strong sense of pride and ownership of the highway system in Pennsylvania. He is proud to be working with and representing the good PAPA member companies and their employees to provide quality asphalt pavements for all Pennsylvanians—pavements that are safe, smooth and quiet.

Hoffman lives in Linglestown with Virginia, his wife of 40 years. He has a daughter and son-in-law (Jamii and Eric Nelson) and five grandsons (Jake, Joel, Jared, Wesley and Gabriel). Hoffman is an avid hunter and fisherman and is actively transferring these outdoor skills to his grandboys. Dż
New Enterprise Stone & Lime Co., Inc. and Valley Quarries, Inc. recently completed the $61 Million six-lane reconstruction and widening on the Pennsylvania Turnpike in Cumberland County between MP 210-215. This section of roadway was part of the original turnpike construction being within the limits of the first roadway project bid and awarded by the commission in 1938 between MP 204-215.

The reconstruction and widening of this section of the Turnpike required over 500,000 cubic yards of excavation including the removal of the original four-lane 9" thick concrete pavement layer and subsequent bituminous overlays. The roadway and shoulders were replaced with a new full-depth bituminous pavement structure. The newly widened turnpike has three lanes of travel totaling 36' in width with a 12' outside shoulder and 10' paved median shoulder in each direction separated by a 52" concrete barrier for a total paved roadway width of 118'. The new six-lane roadway design was a full-depth bituminous “Perpetual Pavement” consisting of:

- 6" 2A Subbase
- 4" Asphalt Treated Permeable Base Course
- 4" ‘Rich Bottom’ BCBC Base Course, PG 64-22
- 4" BCBC Base Course, PG 64-22
- 3" SUPERPAVE, 19mm Binder Course, PG 64-22
- 2" SUPERPAVE, 12.5mm, SRL-E, Wearing Course, PG 76-22

The scope of the project, in addition to over 500,000 CY of excavation, included the removal and replacement of three bridges over the turnpike; the replacement of two at grade structures, one of which spanned the Conodoguinet Creek; and five box culvert and/or Arch extensions. In addition to providing sufficient and adequate drainage, a suitable and sound subgrade is essential to the longevity of any pavement structure. After the original concrete pavement was removed, the Turnpike Commission was proactive in making the necessary subgrade improvements consisting of over excavation, additional positive drainage, and rock backfill to establish a sound subgrade for pavement longevity.

The project required over 325,000 tons of bituminous pavement produced by Valley Quarries, Inc. at their Shippensburg blacktop facility. In addition to the bituminous pavement Valley Quarries, Inc. supplied more than 325,000 tons of aggregates and more than 25,000 cubic yards of concrete from their Shippensburg Quarry and Shippensburg Transit mix facilities.

Continued on page 12...
This project was constructed in two phases similar to other Turnpike six-lane widening projects in which the outside of the new roadway (travel lane and shoulder) were constructed first in stage one while maintaining all four lanes of traffic (two lanes in each direction) on the original turnpike pavements. Stage two was then constructed by removing the original turnpike pavements while maintaining all four lanes of traffic (two lanes in each direction) on the newly constructed outside travel lane and shoulder. Due to the existing median barrier as well as the temporary concrete barrier used to separate the phased construction while maintaining four lanes of traffic, emergency pull-offs (EPO’s) had to be built and maintained throughout the project to assist motorists. In addition to the numerous EPO’s, traffic had to be staged around the construction of the structures, arch extensions, and box culverts. The use of a full depth bituminous ‘perpetual pavement’ allowed for the project to be easily completed in only two phases by providing flexibility with the construction and staging of the EPO’s and numerous structures all while maintaining four lanes of traffic. The traffic plan provided for safe travel through the construction zone and at the same time minimized construction congestion.

“Even with the construction and coordination difficulties on this project, NESL and their subcontractors were able to provide the Commission’s customers with a quality ride. IRI values for the pavement averaged 42 inches”, said Mike Flack, the Commission’s Assistant Chief Engineer.
New software called LCCAExpress is making life easier for engineers who perform life-cycle cost analysis (LCCA) for pavements.

The new software, available free from the Asphalt Pavement Alliance (APA), uses the principles recommended by the Federal Highway Administration (FHWA) to compare the economics of alternative design for a given road project.

LCCAExpress is a simplified version of the APA’s original LCCA software. Geared to less complex projects, it’s quick and easy to use. Beyond ease of use, it’s important that it is based on the standard principles set out by the FHWA. LCCAExpress is unbiased and reliable.

Download LCCAExpress for free at AsphaltRoads.org. This is the Asphalt Pavement Alliance’s new web site. While you are there, note that the original LCCA software is still available for more complex projects.

THREE EASY STEPS TO GOOD LCCA ANALYSIS

1. DISCOUNT RATE: The Real Deal

While some have argued in favor of a negative discount rate, the APA points out that the time value of money doesn’t work that way. A 2010 dollar is inevitably worth more than a 2030 dollar, or a 2050 dollar. Accordingly, LCCAExpress uses a real discount rate, based on published information from the U.S. government’s Office of Management and Budget.

2. INPUTS: Use Real Information

Inputs should come from relevant, historical data on previously bid projects of a comparable scale for a given location. Pavement performance periods (initial, rehabilitation, overlay, etc.) should be determined based on pavement data and historical experience. Don’t let promoters tell you what data to use—get it from the historical records.

3. INCLUDE ALL THE COSTS

Life-cycle cost analysis should look at initial costs and discounted future costs.

www.asphaltroads.org

Continued on page 14...
Future costs include maintenance, reconstruction, rehabilitation, restoration, and resurfacing over the life of the project. Don’t forget to factor in user delay. Even though not borne directly by the agency, user delay costs are real; they reflect the cost of construction delays incurred by the public and disruption of business.

**ASPHALT PAVEMENTS - YOUR BEST INVESTMENT**

We are all taxpayers and the responsibility lies with each generation to invest wisely in our infrastructure. Smooth, durable, safe, quiet pavements constructed with asphalt stand up to the punishment of heavy trucks and other vehicles, significantly reducing initial and total costs over the entire life cycle of a road.

With asphalt pavements, initial construction, maintenance, and rehabilitation all cost less. And, user delay costs are far less with asphalt because construction, maintenance, and rehabilitation are quicker and can be accomplished in off-peak hours.

When maintenance is needed, asphalt offers the widest variety of alternatives geared to solve the precise problems on the roadway. Asphalt parking lots, runways, and roadways can be repaired and maintained cost-effectively with overlays rather than a costly removal and reconstruction. Overlays also have the benefit of adding structural capacity to accommodate increased traffic loading.

Asphalt conserves precious natural resources, too. Asphalt can be reused and recycled, saving dollars and preserving nonrenewable natural resources. There are over 18 billion tons of asphalt pavement in place on America’s roads today. This material is a resource that our children’s children will be able to use for the infrastructure of tomorrow.

For background information on the discount rate, how it works, and what value should be used in life-cycle cost analysis, consult Circular No. A-94 from the White House Office of Management and Budget. www.whitehouse.gov/omb/rewrite/circulars/a094/a094.html
2010 Midyear Meeting and Plenary Sessions

NAPA
NATIONAL ASPHALT PAVEMENT ASSOCIATION

July 26 - 28, 2010 • Washington, DC • Mandarin Oriental Hotel
For more information go to www.hotmix.org or call (888) 468-6499
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