



Build Back Better with Asphalt

The National Asphalt Pavement Association's Action Plan to Support President Joe Biden to Build a Modern Infrastructure

December 2020

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December 4, 2020

The Honorable Joseph R. Biden, Jr.
Office of the President-elect
Washington, D.C.

Dear President-elect Biden,

The National Asphalt Pavement Association (NAPA) extends to you and to Vice President-elect, Kamala Harris, our sincere congratulations on your election to the Presidency and Vice Presidency of the United States of America. NAPA is proud to represent over 1,200 member companies exemplifying an industry that provides hundreds of thousands of jobs to Americans. Our industry is committed to working with you and building environmentally-friendly, sustainable, and resilient pavement infrastructure that is the foundation for America's economic prosperity.

America is in the midst of a major, ongoing public health and economic crisis. NAPA supports your Build Back Better plan to protect the health and safety of Americans while boosting economic activity and ensuring and creating jobs. The asphalt pavement industry is uniquely positioned to advance your efforts to harness American ingenuity and grow the economy for all Americans through productive government investments, a robust jobs agenda that supports small and mid-size businesses, and addressing the changing climate of our planet.

We applaud your commitment to provide relief to working families, small businesses, and communities by providing state and local governments with aid so that essential workers remain employed. Our industry is humbled to be essential and we continue to serve our communities through manufacturing pavement materials and maintaining and building roadways. The majority of NAPA members are small and mid-size businesses, and our industry employs an estimated 140,000 men and women in jobs rooted in local communities. **To ensure the essential workers of our industry remain employed, we are calling on lawmakers to use the first 100 days of the 117th Session of Congress to pass a stimulus bill that rapidly deploys supplemental highway funding to states so their Departments of Transportation (DOTs) can jump start the Build Back Better plan.**

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We are eager to assist you in your plan to invest in and build a modern infrastructure. This is especially important considering the U.S. Interstate Highway System has reached 65 years and the demand to efficiently transport people and goods via our National Highway System is more critical than ever. A key challenge in the effort to modernize America's highways is establishment of a sustainable, long-term revenue source for the Highway Trust Fund (HTF). In the near term, Congress must work expeditiously and in a bipartisan manner to reauthorize the Fixing America's Surface Transportation (FAST) Act which expires on September 30, 2021. **The next surface transportation authorization bill must provide the adequate, long-term public investment to properly modernize the surface transportation infrastructure network including highways, roads, and bridges to meet the nation's growing transportation needs.**

NAPA will work with you and Congress to address the HTF revenue shortfall through a permanent user-fee solution. The magnitude of the looming HTF crisis and the impact of the resulting uncertainty on state transportation improvement plans reinforce the need for proactive congressional action. **Any HTF solution should entail a permanent, dedicated, user-based revenue stream to support increased transportation investments. We will continue to urge both chambers of Congress to make a permanent HTF solution the basis of any infrastructure package or surface transportation law and pass this legislation as soon as possible.**

While NAPA's priority is passage of a permanent revenue solution for the HTF, we have also developed positions on specific policy issues in the areas of Federal-aid highway funding, asphalt pavement research, greenhouse gas emissions reductions, and workzone safety that are attached to this letter. **We are calling for these provisions to be included in any surface transportation reauthorization bill Congress produces next year.**

The asphalt industry understands and embraces your ambition to address the changing climate of our planet. Our industry prides itself on resourcefulness in implementing technologies and materials that are environmentally-friendly and sustainable such as the reuse of old asphalt pavement in new pavements, reducing emissions with Warm Mix Asphalt, and enhancing pavement smoothness and quality for reduced vehicle fuel emissions. Through collaboration among NAPA and the Federal government, the reuse of reclaimed asphalt pavements (RAP)

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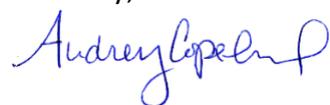
and reclaimed roofing shingles (RAS) in new pavements has increased by 60 percent over the past 10 years resulting in billions of dollars in taxpayer savings. In fact, ***asphalt is America's most recycled product***. The industry also utilizes other recycled materials such as ground tire rubber, steel slag, blast furnace slag, cellulose fibers, and fly ash. NAPA is also on the forefront of researching the use of recycled plastic in the manufacture of asphalt pavements, thus exploring a new end-use market for plastic materials that may otherwise end up in a landfill or marine environment.

While our past efforts have demonstrated a commitment to the economy and environment, our industry also understands that it must continue to make strides forward over the coming decades. To aid in this important effort, we have established a strategic task force to set industry sustainability objectives that outline a timeline and measurable goals to chart our path progress. When this task force completes its roadmap, we will share with your administration our industry's recommended goals and detail the research and technological needs required to enhance the sustainable and long-lasting performance of pavements for highway and airfield infrastructure.

Finally, we want to share that we strongly believe in the benefit of partnerships between government and industry. NAPA has a strong record of partnering with government agencies, labor unions, academia, and scientists to safely evaluate, ideate, and deploy innovations in the manufacturing and construction of asphalt pavements. Through these partnerships, our industry has realized many successes for our industry's workers and for the American people through the advancement and quality improvements of the nation's highways.

Included in this package are facts about the asphalt pavement industry, benefits of investments in highways, roads, and bridges, and NAPA's legislative proposals for your consideration. Our 1,200 member-strong organization representing the asphalt pavement industry looks forward to working with you and your administration over the next four years to build back better our highways and road infrastructure, create jobs, and help build the future economy of America.

Sincerely,



Audrey Copeland, Ph.D., P.E.

President and CEO

The Asphalt Pavement Industry Fast Facts

The Association

- The National Asphalt Pavement Association (NAPA) exclusively represents the interests of the asphalt pavement industry, including producers and contractors, on the national level with Congress, government agencies, and other national trade and business organizations.
- The Association, which counts more than 1,200 companies as its members, was founded 65 years ago in 1955.
- NAPA works to advocate, advance, and support the asphalt pavement industry.
- NAPA maintains an active research program designed to address environmental issues and to improve the performance and quality of asphalt pavements and paving techniques used in the construction of roads, streets, highways, parking lots, airports, and environmental and recreational facilities.

Asphalt Pavement

- Asphalt pavement material is a combination of approximately 95 percent aggregate (stone, sand, or gravel) bound together by approximately 5 percent asphalt binder.
- Asphalt pavement material is produced at a manufacturing facility known as an asphalt plant, where the aggregates and asphalt binder are heated, mixed according to precise engineering formulas, and loaded into trucks for transport to the paving site.
- The asphalt pavement industry has a record of using sustainable and environmentally friendly practices in the manufacture and paving of asphalt pavements.

Scope and Scale of the Asphalt Pavement Industry

- The asphalt pavement industry workforce, estimated to be almost 150,000 men and women strong, is part of a larger transportation construction industry that employs 410,000 people including asphalt plant managers, administrators, road crews, researchers, engineers, and support personnel, all of whom play critical roles in building and maintaining the roads Americans rely upon every day.
- The U.S. has about 3,600 asphalt production sites¹ and produced about 420 million tons of asphalt mixture in 2019.
- Of the 2.8 million miles of paved roads in the U.S., about 94 percent are surfaced with asphalt.²
- Approximately 80 percent of the nearly 3,330 runways in the FAA's national airport system are surfaced with asphalt pavement.³

¹ Chapter 11: Mineral Products Industry, AP 42, Fifth Edition, Volume I. (2004). Retrieved September 22, 2020, from <https://www3.epa.gov/ttn/chief/ap42/ch11/index.html>

² U.S. Department of Transportation, Federal Highway Administration. (2018, August 23). *Table HM-12 - Highway Statistics 2017*. <https://www.fhwa.dot.gov/policyinformation/statistics/2017/hm12.cfm>

³ *Federal Aviation Administration (FAA) Airport Master Records (5010) Module in Airport Data and Information Portal*. Retrieved by FAA representative September 15, 2020. <https://adip.faa.gov/agis/public/#/airportSearch/advanced>.

The Asphalt Pavement Market

- Publicly funded highway programs make up about 65 percent of the asphalt pavement market, with residential and non-residential construction making up the remaining 35 percent.
- Over five years ago, in 2014, total spending on highway improvements such as new construction, reconstruction, resurfacing, and rehabilitation by all levels of government was \$105 billion. The federal share was 43 percent.⁴
- Approximately \$4 billion per year from Airport Improvement Program grants and passenger facility charges is spent on airfield runways, taxiways, and aprons.⁵
- The U.S. Council of Economic Advisers has calculated that \$1 billion of transportation-infrastructure investment supports 13,000 jobs for a year.⁶
- Beyond the numbers, infrastructure is critical to the health and well-being of the country. The United States' economy could not function without an interconnected and well-maintained infrastructure network of roads, bridges, and airports.

Environmentally Friendly & Sustainable⁷

- The use of recycled materials, primarily reclaimed asphalt pavement (RAP) and reclaimed asphalt shingles (RAS), in asphalt pavements reduces the amount of raw materials required to produce asphalt mixes and materials going to landfills. In fact, asphalt pavements are recycled into new roadway surfaces at the highest rate, over 90%, of any material.
- In 2019, 97 million tons of RAP and 1 million tons of RAS were collected for re-use, saving nearly 60 million cubic yards of landfill space.
- In 2019, 90 million tons of recycled materials were used in asphalt pavement, saving more than \$3.3 billion compared to the use of virgin materials.
- An additional 5.5 million tons of RAP and RAS were used as aggregate in cold-mix asphalt and other road-building activities.
- The use of warm-mix asphalt allows the producers of asphalt mixtures to lower temperatures at which the material is mixed and placed on the road.
- Overall, warm-mix asphalt provides substantial sustainability benefits similar to or, in some cases, better than conventional hot-mix asphalt. Sustainability benefits include lower energy use, reduced emissions, and potential for increased reclaimed asphalt pavement usage.
- In 2019, total warm-mix asphalt tonnage increased to over 164 million tons, or 38 percent of all asphalt pavement produced in the United States.

⁴ U.S. Department of Transportation, Federal Highway Administration. (2019). *Status of the nation's highways, bridges, and transit – conditions and performance: Report to Congress*. <https://www.fhwa.dot.gov/policy/23cpr/pdfs/23cpr.pdf>

⁵ Congressional Research Service (CRS). (2019). *Financing airport improvements: CRS report prepared for members and committees of Congress*. <https://fas.org/sgp/crs/misc/R43327.pdf>

⁶ U.S. Department of Transportation, Federal Highway Administration. (2020, September 21). *Employment impacts of highway infrastructure investment*. <https://www.fhwa.dot.gov/policy/otps/pubs/impacts/>

⁷ Citation for entire section: Williams, B.A., J.R. Willis, & Shacat, J. (2019). *Annual Asphalt Pavement Industry Survey on Recycled Materials and Warm-Mix Asphalt Usage: 2018, 9th Annual Survey* (IS 138). National Asphalt Pavement Association, Greenbelt, Maryland. DOI: 10.13140/RG.2.2.21946.82888

Key facts about the U.S. surface transportation system

April 2020

Investing in our nation's surface transportation system improves safety and generates jobs; Making needed highway improvements fosters economic recovery and growth

- Investments in the surface transportation system will boost the nation's economy in the short-term by creating jobs and in the long-term will enhance economic competitiveness, stimulate sustained job growth, improve access and mobility, improve traffic safety, reduce travel delays and improve road and bridge conditions.
- Roads and highways are the backbone of our economy, allowing U.S. motorists to travel 3.2 trillion miles annually and moving a significant portion of the \$16.8 trillion worth of commodities shipped within the country each year. But, conditions on the system are deteriorating, as the need for transportation improvements far outpaces the amount of state and federal funding available.
- The design, construction and maintenance of transportation infrastructure in the U.S. supports approximately 4 million full-time jobs across all sectors of the state economy. Approximately 62.9 million full-time jobs in key industries like tourism, retail sales, agriculture and manufacturing are completely dependent on the nation's transportation network.

Investing in the Nation's surface transportation system Improves road and bridge conditions and reduces the cost to motorists of driving on deficient roads

- A total of 43 percent of major roads in the U.S. are in poor or mediocre condition. Driving on deteriorated roads costs the nation's motorists \$130 billion a year – \$603 per motorist – in the form of additional repairs, accelerated vehicle depreciation, and increased fuel consumption and tire wear.
- A total of seven percent of U.S. bridges are rated in poor/structurally deficient condition, meaning there is significant deterioration to the major components of the bridge. A total of 43 percent of the nation's bridges are at least 50 years old, an age when many bridges require significant rehabilitation or replacement.
- From 2000 to 2018, vehicle travel on U.S. roads increased by 18 percent. The nation's population increased by 16 percent from 2000 to 2019.
- According to the [Status of the Nation's Highways, Bridges, and Transit, 23rd Edition](#), submitted to Congress by the United States Department of Transportation (USDOT) in 2019, the U.S. faced a \$786 billion backlog in needed repairs and improvements to its roads, highways and bridges. The nation's current \$105 billion investment in roads, highways and bridges should be increased by 29 percent to \$136 billion annually to improve the conditions of roads, highways and bridges, relieve traffic congestion, and improve traffic safety, according to the USDOT report.

Roadway improvements can save lives and reduce traffic crashes

- From 2014 through 2018, 178,921 people died on the nation's highways, an average of 35,784 annual fatalities.
- The U.S. had a traffic fatality rate of 1.13 fatalities per 100 million vehicle miles of travel in 2018.
- Fatal and serious motor vehicle crashes in which the lack of adequate roadway safety features was likely a contributing factor cost U.S. motorists \$103 billion per year in medical costs, lost productivity, travel delays, workplace costs, insurance costs and legal costs.
- A 2017 AAA Foundation for Traffic Safety [report](#) found that every \$100 million spent on needed roadway safety improvements would reduce the number of traffic fatalities by 44 and serious traffic injuries by 760 over a 20-year period. Safety improvements needed include adding passing lanes, widening lanes and shoulders, adding medians, adding turn lanes, clearing roadside objects, installing barriers, adding centerline or shoulder rumble strips, adding a bicycle lane or path, improving pedestrian safety features, converting intersections to roundabouts, providing grade separation at intersections, improving intersection signalization, and improving rail crossings.

Latest data from the U.S. Census Bureau, USDOT, FHWA, BTS, ARTBA, NHTSA, and AAA compiled and analyzed by TRIP, a national transportation research nonprofit based in Washington, D.C.

HIGHWAYS DRIVE AMERICA.

Highways have always driven our economy, and investing in highway infrastructure will drive our nation's economic recovery from the COVID-19 crisis.

HIGHWAYS DRIVE OUR PANDEMIC RESPONSE.



87% OF GOODS shipped in the U.S. are carried on highways.

That includes everything from groceries and cleaning supplies to critical medical equipment and PPE.¹

HIGHWAYS DRIVE ECONOMIC RECOVERY.

62.9M JOBS

in retail, tourism, agriculture and manufacturing rely on highways.²



HIGHWAYS DRIVE

350K PEOPLE

are directly employed in constructing and maintaining roads, and most have been hard at work to keep roads safe during the pandemic.³

4M JOBS

across multiple industries are indirectly supported by road maintenance and construction work.²



HIGHWAYS DRIVE AMERICA.

Now is the time to fund critical highway transportation infrastructure.

¹Committee for Economic Development of The Conference Board. *Fixing America's Roads and Bridges*. Accessed June 9, 2020. <https://www.ced.org/reports/fixing-americas-roads-bridges>.
²Key Facts about the U.S. Surface Transportation System. TRIP, April 2020. https://tripnet.org/wp-content/uploads/2020/04/TRIP_Fact_Sheet_NATL.pdf.
³Highway, Street, and Bridge Construction - May 2018 OES Industry-Specific Occupational Employment and Wage Estimates. https://www.bls.gov/oes/2018/may/naics4_237300.htm.

Performance demands sustainability.

Asphalt pavements are designed, produced, constructed and maintained to conserve natural resources, reuse materials and deliver the smooth ride drivers demand. This makes asphalt the best choice for sustainability and performance, today, tomorrow and into the future.

When it comes to sustainability

ASPHALT PERFORMS

TODAY

89.2M TONS
of reclaimed asphalt pavement is used annually in new roads and parking lots.¹

\$3.3B
is saved every year by using recycled asphalt — making the pavement not just environmentally sustainable but economically sustainable as well.¹

TOMORROW

\$1,300
in maintenance costs is saved every year for each lane-mile of smooth asphalt.⁴

4.5%
less fuel is consumed by vehicles driving on smooth asphalt surfaces² ...

... which saves drivers about

13¢
per gallon.³

FUTURE

100% 
of an asphalt pavement is reusable and contains the raw materials for the next generation of roads, runways, trails or parking lots.¹

\$3.5B
in energy will be saved by 2020 by using warm-mix asphalt, according to U.S. Department of Transportation estimates.⁵



¹Williams, B.A., J. R. Willis, & J. Shacat (2020). Asphalt Pavement Industry Survey on Recycled Materials and Warm-Mix Asphalt Usage: 2019 (IS 138). National Asphalt Pavement Association, Greenbelt, Maryland.

²Sime, M., S.C. Ashmore, & S. Alavi (2000). TechBrief: WestTrack Track Roughness, Fuel Consumption, and Maintenance Costs (FHWA-RD-00-052). Federal Highway Administration, McLean, Virginia.

³Assuming \$2.85 per gallon.

⁴McGhee, K.K. & J.S. Gillespie (2006). Impact of a Smoothness Incentive/Disincentive on Hot-Mix Asphalt Maintenance Resurfacing Costs (FHWA/VTRC 06-R28). Virginia Transportation Research Council, Charlottesville, Virginia.

⁵Foxx, A.R. (2013). Working to Improve Transportation Efficiency, Performance. Fast Lane: The Official Blog of the U.S. Department of Transportation. U.S. Department of Transportation, Washington, D.C.

Funding Priorities
FY 2021 Transportation – Housing and Urban Development Appropriations Bill
Financial Assistance for State Departments of Transportation
Highway Reauthorization Bill as Platform for National Economic Recovery and Growth
November 30, 2020

GOALS

There are three separate issues that Congress must address:

- Adequately fund Federal transportation programs in FY 2021 to continue roadway construction and maintenance projects critical to economic recovery.
- Provide state DOTs immediate financial assistance in order to prevent major disruptions to capital highway construction programs and layoffs of workers.
- Enact a multi-year surface transportation authorization bill with increased investments to revitalize the economy and provide jobs.

AN ESSENTIAL, SAFE INDUSTRY

- The asphalt pavement industry is essential and continues to work during the pandemic, providing jobs, and improving highways and roads.
- Safety of our workers at the job site is paramount.
- Our companies follow the Centers for Disease Control and Prevention (CDC) guidelines and have implemented protocols to keep workers healthy and safe on the job site.

FY 2021 TRANSPORTATION – HOUSING AND URBAN DEVELOPMENT APPROPRIATIONS BILL

- Because full-year FY 2021 appropriations were not enacted before the end of FY 2020, a 72-day continuing resolution (CR) was enacted on September 30, 2020.
- As a result, states received about 20 percent of their obligation limitation for FY 2021.
- Although a CR is intended to prevent a funding gap and government shutdown, operating under a CR has negative consequences for resource management due to the inability to plan long-term.
- Congress must enact another spending measure before the current continuing resolution expires on December 11, 2020, either through an omnibus or another CR.
- NAPA urges Congress to reach an agreement on the appropriation bills during the lame- duck session to avoid carrying the issue over to the next Congress.

STATE DOT ASSISTANCE FOR DEPLETED REVENUES

- Since the beginning of the pandemic in March, state DOTs continue to face severe losses in dedicated user fee revenues including motor fuel taxes.
- The American Association of State Highway and Transportation Officials (AASHTO) is requesting \$37 billion in direct federal funding to state DOTs in the pending COVID-19 relief package.
- This crucial federal backstop will prevent potential job losses both in the state DOT workforce and the private sector and cancellations and delays of vital transportation projects as well as.
- Federal funding can also jump-start much needed economic activity as the United States continues to recover from the effects of the pandemic.
- NAPA supports AASHTO's request and urges the Congress to include the AASHTO request for Federal financial support as part of the next emergency relief aid package.

HIGHWAY REAUTHORIZATION

- America's economic vitality and ability to compete in the global marketplace depends on an integrated national, intermodal surface transportation network that reliably moves goods and people to maximize global competitiveness, quality of life, and economic prosperity for all citizens.
- To realize this economic prosperity and global competitiveness, our nation must make robust investments in highway infrastructure systems to stimulate sustainable job growth through improved access, mobility, and improvement of traffic safety; improved road and bridge conditions; and reduce travel delays. This requires a robust and sustainable funding mechanism for the Highway Trust Fund (HTF).
- According to the U.S. Department of Transportation Conditions and Performance Report, the nation's highway and bridge backlog is at \$786 billion due to decades of underinvestment.
- To avoid project delays, Congress enacted a one-year extension of the FAST Act and transferred \$13.6 billion in general fund revenues into the Highway Trust Fund which was critical to support the needed investments in highways, roads, and bridges.
- Since 2008, the Highway Trust Fund has been sustained through a series of General Fund transfers amounting to over \$144 billion. In March 2020, the Congressional Budget Office released updated baseline budget projections indicating that continued inaction will result in the HTF (after incorporating the impact of COVID-19) to face a \$192 billion shortfall by 2030. In addition, reserves are depleted in FY 2021; one-year sooner and \$3 billion above pre-COVID-19 projections.
- If Congress does not act, there is the possibility for reductions of roughly 25 percent in federal reimbursements to states on existing obligations, leading to serious cash flow problems for states if the HTF becomes insolvent resulting in project delays.
- NAPA urges Congress to expeditiously address the common goal of enacting a long-term, robust and sustainable funding mechanism that addresses the Highway Trust Fund's dire fiscal situation with solutions that both stabilize and increase critical highway investments to position America's economy for future success and brings the surface transportation infrastructure network up to a state of good repair.



Accelerated Research on the Potential for Recycling Plastics in Asphalt

In late 2018, media reports and online networks began generating an interest in the possibility of using recycled plastic waste in asphalt mixtures. The idea was marketed as an opportunity to simultaneously improve the quality of asphalt pavements and solve the problem of growing piles of waste plastic in cities and towns across the U.S. While magazine articles and videos have trumpeted potential positive impacts of using recycled plastic modified (RPM) asphalt, such as increased service life and reduced need for oil-derived polymers to modify asphalt binders, and while preliminary research suggests some of these benefits maybe realized, a full set of research to confidently back these claims is lacking.

The current waste plastic crisis is a critical concern; however, there is equal concern about the current state of the U.S.'s aging transportation infrastructure. Investment in maintenance, improvement, and expansion of transportation infrastructure in the U.S. must focus on delivering long-lasting, high-performing pavements as cost-effectively as possible. Any action taken to change the way an asphalt mixture is designed, produced, and constructed must demonstrate through independent, third-party research that there will be no negative impact to pavement performance or unintended consequences that could impact the health safety of plant operators or construction crews. If that can be demonstrated, RPM will serve as a mutually reinforcing solution; helping to bolster the recycling of plastics as well as improve performance of the transportation infrastructure.

A systematic accelerated research program designed to answer critical questions regarding long-term performance, health and safety, plant emissions, binder aging, construction and production best practices, and re-recyclability of RPM asphalt mixtures should be implemented. NAPA recognizes the current challenges associated with plastic waste and believes establishing a well-funded, comprehensive, accelerated research program led by the U.S. Department of Transportation that brings together all the stakeholders is the most effective and expeditious way to evaluate the long-term performance and feasibility for widespread adoption of RPM asphalt mixtures as a solution to creating a much needed end market to support the expansion of plastics recycling.

Sec. ###. **Accelerated Research on the Potential for Recycling Plastics in Asphalt**

- (a) *IN GENERAL.* —The Secretary shall conduct research for the purpose of evaluating the use of Recycled Plastic Modified (RPM) Asphalt Mixtures.
- (b) *ACTIVITIES.* —In carrying out subsection (a), the Secretary shall—
 - 1. seek input and guidance from, and work in collaboration with, the asphalt pavement and plastic industries, American State Highway and Transportation Officials, state Departments of Transportation, and academia;
 - 2. evaluate the effects of RPM asphalt mixtures on long-term pavement performance, emissions, binder aging, plant and construction operations, and re-recyclability;
 - 3. utilize experimental test sections at test tracks and accelerated loading facilities to quickly gain an understanding of long-term performance for RPM asphalt mixtures;
 - 4. enter into cooperative agreements with institutions of higher education and non-profit organizations for research and technology deployment; and
 - 5. conduct demonstrations and open houses of technologies incorporating RPM Asphalt Mixtures.
- (c) *REPORT.* —Not later than 1 year after the date of enactment of this Act, and annually thereafter, the Secretary shall submit a report to the Committee on Environment and Public Works of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives a report on the status of the research conducted under this section.
- (d) *FUNDING.* —From amounts authorized to carry out the Highway Research and Development Program, the Secretary shall use not less than \$2 million for each of the fiscal years 2020 through 2026 to carry out this section.

Contacts:

[Spencer Pederson](#), Director, Government Affairs, ACC, (202) 249-7000

[Richard Willis](#), PhD – Vice President for Engineering, Research and Technology, NAPA, (301)731-4748

[Scott DeFife](#), Vice President, Government Affairs, PIA, (202)974-5200



Reauthorize the Accelerated Implementation and Deployment of Pavement Technologies Program

Background

The Accelerated Implementation and Deployment of Pavement Technologies (AID-PT) program, established under MAP-21, advances the latest innovations, best practices, and technologies for constructing and maintaining high-quality, long-lasting pavements. According to Thomas D. Everett, Federal Highway Administration (FHWA) Associate Administrator for Infrastructure, “This [AID-PT] program is vital to FHWA’s mission.”¹

The AID-PT program focuses on research and implementation of select pavement technologies that have an immediate potential to benefit our infrastructure and the nation’s highway users. The program aims to implement, deploy, demonstrate, showcase, support, and document the application of ready-to-use concrete and asphalt pavement material technologies and practices that will yield performance enhancements to improve mobility on the nation’s highways. Since its inception, the AID-PT program has resulted in meaningful and cost-effective strategies that have benefited road owners, the traveling public, and taxpayers as well as both pavement industries.

Request

The member companies of the American Concrete Pavement Association (ACPA) and the National Asphalt Pavement Association (NAPA) support the reauthorization of the AID-PT program. We would also ask that Congress consider a modification that would encourage collaboration with government and academia. Specifically, we are proposing that 23 U.S. Code § 503(c)(3) be amended as follows:

SEC. ___ TECHNOLOGY AND INNOVATION DEPLOYMENT PROGRAM.

Section 503(c)(3) of Title 23, United States Code, is amended—
in subparagraph (C) by striking “2016 through 2020” and inserting “2021 through ___”

SEC. ___ TECHNOLOGY AND INNOVATION DEPLOYMENT PROGRAM.

Section 503(c)(3) of Title 23, United States Code, is amended—
(1) in subparagraph (A) by adding “*To accomplish the goals outlined in subparagraph (B), the Secretary may enter into cooperative agreements with institutions of higher education and non-profit organizations.*”

ACPA and NAPA have co-developed this language with the intent of strengthening the deployment features of the AID-PT program. This language would encourage the FHWA to lead a coordinated effort to advance knowledge and practices in pavement-related issues. In order to ensure that innovations developed in research are deployed in the field, it is very important to continue the exchange of ideas and interactions among Departments of Transportation, industry, academia, and FHWA throughout the life of the AID-PT program. This is only possible when government, industry, and academia collaborate across the entire innovation process.

Contacts: Leif Wathne, PE Executive Vice President, ACPA, (202)638-2272
Ashley Jackson, Senior Director, Government Affairs, NAPA, (301)731-4748

¹ [Accelerated Implementation and Deployment of Pavement Technologies 2017–2018 Annual Report](#), Federal Highway Administration, 2018



Enhancing Worker Safety During Roadway Construction

Purpose

This proposal will help protect workers and motorists from injury and death during roadway construction projects through the use of innovative contracting methods that enhance work zone safety. Specifically, state transportation agencies would be able to employ an innovative contracting mechanism to create a safety contingency fund to implement work zone safety enhancements that are not foreseen during the project planning and design stages.

Issue

On average, over the past three years, 135 occupationally related roadway construction work zone fatalities have occurred annually <<https://www.workzonesafety.org/crash-information/work-zone-fatal-crashes-fatalities/#national>>. The majority of these incidents were the result of third-party/distracted-driving intrusions into the work zone. During the same time-frame, an additional 600 fatalities occurred annually within roadway construction or maintenance work zones. While motor vehicle fatalities within a work zone have decreased slightly for the driving public over the last decade, injuries and fatalities of road construction workers have increased slightly during the same time period. Roadway construction work zones are dangerous places to work, and inattentive behavior on the part of drivers makes them even more dangerous.

As the U.S. Federal Highway Administration (FHWA), state departments of transportation (DOTs), and private sector construction contracting firms have sought to improve worker safety through the use of improved temporary traffic control provisions, one impediment remains constant — funding. In a low-bid roadway construction contracting environment, work is often awarded based on the lowest cost proposal that meets minimum agency specifications and requirements. The primary challenge for stakeholders arises when the contractor and agency realize that enhanced safety equipment or practices are needed beyond those originally specified in the bidding process. This can occur if mandatory work zone requirements are deemed unsatisfactory once road construction or maintenance begins, necessitating changes.

Unfortunately, at present, no federal funding mechanism is available to accommodate these types of modifications to an existing contract, and DOTs may be reluctant to

(continued)

approve such changes once a contract is accepted, if additional project-specific funds are not available to offset the cost of necessary increased safety measures.

Recognizing this shortcoming, the Texas Department of Transportation (TxDOT) has developed an innovative contracting method for road construction work projects whereby a “safety contingency fund,” an amount incidental to the roadway construction project’s total budget, is set aside to cover the cost of needed enhancements to ensure roadway work zone safety

<https://ops.fhwa.dot.gov/publications/fhwahop20009/index.htm>. The TxDOT safety contingency fund is typically 2–5 percent of the original engineer’s estimated total project cost; the percentage depends on the size of the project and is mutually agreed upon by the state and the contractor.

The road construction industry calls on Congress to encourage states to explore the use of such innovative contracting methods, which can mitigate or eliminate the funding barriers often associated with incorporating enhanced work zone safety measures. In particular, states should establish road construction safety contingency funds for all projects.

Solution

Title 23 of the United States Code, Section 120, Subsection (c)(3)(B), provides several examples of Innovative Project Delivery, including those that use innovative procurement and contracting procedures, and provides for an increased federal share payable up to 100 percent for innovative projects. This section should be amended to specifically include innovative project delivery methods that improve work zone safety for motorists and workers. Add as follows:

In general. — Section 120(c)(3)(B) of title 23, United States Code is amended by adding at the end, the following clause:

“(vii) contractual provisions that provide safety contingency funds to incorporate safety enhancements to work zones prior to or during roadway construction and maintenance activities.”

This amendment would add the establishment of a safety contingency fund to enhance work zone safety as a further example of an innovative project delivery technique that would improve safety for workers and the public.

The Role of Asphalt Pavements In a Low-Carbon Transportation Network



The asphalt pavement industry has a long history of implementing sustainable practices and is actively engaged in multiple efforts to reduce the carbon footprint of pavements. With over 90% of America's roads paved with asphalt¹ and transportation vehicles as the largest source of carbon emissions in the U.S.,² building and maintaining smooth asphalt pavements plays a significant role in creating a low-carbon transportation network.

When it comes to asphalt pavements, emission reductions can be achieved through expanded use of existing proven technologies and optimized design and construction practices, such as:

- **Enhanced Performance** — New asphalt pavements are smoother than ever while maintaining vehicle safety, and smoother pavements improve vehicle fuel efficiency while also reducing vehicle wear and tear, offering numerous benefits across the nation's entire fleet of vehicles.
- **100% Recyclable Asphalt** — Old roads and parking lots are completely recyclable. During maintenance and resurfacing activities, reclaimed asphalt pavement is effectively mined from the road for use in new pavements, reducing the emissions associated with extracting and producing raw materials.
- **Reduced Mix Production Energy** — Warm-mix asphalt technologies can reduce mix production temperature, reducing production energy requirements and associated emissions.
- **Long-Life Pavement Design** — Perpetual Pavement designs yield asphalt pavements with an indefinite structural life so that only the surface needs periodic replacement, eliminating emissions and user delay associated with reconstructing pavements from the bottom up.
- **Optimized Construction Practices** — Asphalt pavements are placed quickly, have no cure time, and are often placed at night, all of which reduces traffic congestion and associated emissions.

Enhanced Performance

The thing drivers want most from roads is a smooth ride,³ and for good reason. Smoother roads are safer, quieter, and cause less wear and tear on vehicles. Multiple studies have also found that smoother roads can reduce fuel consumption by 2.5 to 4.5%, which significantly reduces carbon emissions.^{4,5} Texture and pavement stiffness may also affect fuel economy, but there is no consensus on the magnitude of their impact, and research shows that smoothness has the most significant pavement property impacting vehicle fuel economy.⁶ Because of the flexible nature of asphalt pavements and the construction practices used, asphalt pavements tend to be built smooth and are easy to maintain at a high level of smoothness.

If smoother pavements can yield just a 2% improvement in fuel economy across the country's roads through increased funding of road maintenance, vehicle-related carbon emissions² would drop by nearly 30 million metric tons per year, the equivalent of taking over 6 million cars⁷ off the road.

100% Recyclable Asphalt

The asphalt industry is a leader in the use of recycled materials. Presently, more than 75 million tons of reclaimed asphalt pavement (RAP) are mined from existing roads as part of maintenance and resurfacing activities and re-used in new pavements each year, making asphalt pavement the most recycled material in America. Today, new highway pavements include about 20% RAP, which is up from 12% in 2009.

RAP replaces new aggregates and asphalt binder, which avoids the emissions from producing those materials while saving over \$2 billion per year.⁸ The adhesive properties of old asphalt binder in RAP can be restored for use in new pavements, creating a truly circular economy. Even though asphalt binder is a

petroleum product, the inherent carbon is never burned and is effectively sequestered. In fact, the U.S. EPA recognizes asphalt pavements as one of the most efficient carbon sinks because it keeps carbon locked away.²

The asphalt pavement industry has made considerable investments in research and product development to ensure that pavements with RAP and other reclaimed, recycled, and waste materials perform at least as well as pavements without these materials. By ensuring equivalent or better performance, the public gets the benefits of recycling without sacrificing pavement life or performance.

Reduced Production Energy

The asphalt industry has rapidly adopted and refined warm-mix asphalt (WMA) technologies. WMA technologies enable asphalt pavement plants to reduce production temperatures by 10°F or more compared to traditional hot-mix asphalt, reducing both mix production energy requirements and carbon emissions. In 2017, nearly 40% of asphalt pavement produced in the U.S. used WMA technologies, up from about 5% in 2009.⁸ The industry is committed to further increasing the use of WMA and improving its effectiveness. Other industry efforts to reduce production energy demands include actively managing aggregate stockpiles to reduce moisture content and optimizing production equipment performance, both of which result in more energy-efficient production.

Long-Life Pavement Design

Long-life asphalt pavements use a Perpetual Pavement design methodology to ensure enough strength and durability to eliminate the potential for structural failure, thereby eliminating the future need for full-depth reconstruction. Although the surface wearing course requires periodic maintenance, those repairs are relatively easy and cost-effective to make. With a pavement structure that lasts beyond 50 years, overall maintenance activities are greatly reduced,⁹ as are maintenance-related emissions.

Optimized Construction Practices

The excess fuel burned by vehicles idling in traffic during construction can be a significant source of carbon emissions, particularly in congested urban and metropolitan areas. A major benefit of asphalt pavements is that they are fast to place, have no cure time, and are often placed outside of rush hour when traffic volumes are low. Because of this, asphalt pavements help minimize construction-related traffic congestion¹⁰ and emissions.

What Can Congress Do

There are several areas where Congress can act to further reduce the carbon footprint of pavements:

- Provide adequate funding through the next transportation reauthorization bill to keep existing roads smooth through maintenance, rehabilitation, and reconstruction;
- Encourage the Federal Highway Administration (FHWA) to work with state highway agencies to increase RAP and WMA adoption with the goal of further reducing emissions;
- Provide funding for research and deployment of technologies that further reduce the need for virgin asphalt binder, such as high RAP mixes; and
- Encourage FHWA to evaluate Perpetual Pavement design for use as an approved design methodology for state highway agencies.

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Deliver on the Promise of Life-Cycle Cost Analysis: Mandates Proven Not to Work; LCCAs Need Improved Data Resources to Save Money

As Congress prepares to reauthorize the FAST Act, the proper role of life-cycle cost analysis (LCCA) is frequently discussed. An LCCA, when performed correctly, is an economic decision-support tool used by transportation agencies to help identify the most beneficial and cost-effective project alternatives. While the benefits of LCCA for improved decision-making and potential cost savings are well documented, beyond its application in the pavement design process, the use of LCCA on infrastructure projects is varied and limited. Simply mandating LCCA will not solve the problem. In 1995, states were ordered to conduct LCCA and Value Engineering Analysis for every National Highway System (NHS) project costing \$25 million or more. The mandate was removed in 1998 because states could not meet the requirements¹.

Instead of mandates, NAPA supports federal legislation and policies that focus on:

- Strengthening existing use of performance evaluation in the planning process;
- Tying funding to performance to encourage and incentivize state and local agencies to use existing tools, including LCCA, to optimize performance;
- Ensuring consistent and accurate data for use by states and local agencies; and
- Funding education for conducting and implementing economic analyses.

As noted by the ASCE/Eno report² and a Transportation Research Board report³, ***the major inhibitor for expanding LCCA use in transportation infrastructure is the lack of quality data – a critical input for LCCA.*** Real data based on local conditions, materials, and experiences are essential for an accurate and unbiased LCCA. The literature and case studies consistently point to the lack of quality data as a significant barrier to the effective use of LCCA.

Relying on generalizations and estimates will provide incorrect and unrealistic results, which will negatively impact project delivery times and siphon funds from already limited agency budgets. LCCA requires many predictions and estimates — initial prices, quantities, maintenance, rehabilitation, the time-value of money, and more. A change in any one factor can significantly change the result, which makes LCCAs inherently malleable. While the accuracy of any prediction spanning decades is questionable, with bad data, bad predictions are a certainty. This is an important concern because bad infrastructure decisions on the front end can limit flexibility in the long-term.

¹ American Society of Civil Engineers (ASCE), Eno Center for Transportation, [Maximizing the Value of Investments using Life Cycle Cost Analysis](#), 2014

² Ibid.

³ NCHRP Synthesis 494, [Life-Cycle Cost Analysis for Management of Highway Assets](#), 2016

Rather than require a new unfunded federal mandate on the states, there are better ways to ensure Americans get the best infrastructure value for their investment. ***What is needed are better data resources for agencies to carry out LCCAs effectively and accurately.***

Improved data resources are needed to determine service life under different loadings and in different climates, predict maintenance and rehabilitation, estimate user delays, and evaluate options when uses change or materials must be replaced or recycled.

Recognizing this challenge, NAPA strongly supports the creation of data collection standards and retention policies for this sorely needed data. LCCA is a complex, data- and labor-intensive process that must be performed using statistically valid, transparent inputs to be effective. Therefore, NAPA calls on Congress to include the following provision in the next reauthorization bill:

LIFE-CYCLE COST REDUCTION — *In order to most effectively reduce the life-cycle cost of transportation infrastructure in design, construction, maintenance and operations, the Federal Highway Administration (FHWA) must lead in addressing the greatest challenge to performing effective life-cycle cost analysis (LCCA): the lack of resources to collect and maintain high-quality data on costs, maintenance, deterioration, user costs, service life, and salvage value. FHWA is directed to update its LCCA guidance to ensure agencies appropriately apply LCCA for highway infrastructure with accurate input data. Congress also directs FHWA to establish a data registry clearinghouse for extraction and analysis of data for use in LCCA.*

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