

PUSHING AHEAD

Production to finishing

Discover how the new D71i-24 dozers with intelligent Machine Control 2.0 increase productivity by using automatics from first pass to last



A Message from the President



Ronald Zagami

**Hope for an
infrastructure
boom?**



Dear Valued Customer:

It's no secret that our nation's infrastructure needs to be updated. There appears to be growing optimism, and even confidence, that real support for this will happen. Congress continues to work on plans that will hopefully be passed sooner rather than later. Long-term legislation is in the works to replace the current Fixing America's Surface Transportation (FAST) Act that expires at the end of September.

That could be a boon for the construction industry. There would be a significant increase in the need for aggregate products, concrete and earthwork. If you service any of those or related industries, we have the equipment you need to get your job done more productively and efficiently.

That equipment includes the latest dozers, such as Komatsu's new D71-24 base and intelligent Machine Control (iMC) 2.0 D71i-24 models. Previewed at CONEXPO last year, they were introduced to rave reviews. Advanced technology in the iMC models allows operators to run in automatics from grass to grade. This saves time, labor, surveying and staking. As one Komatsu product manager said, "They are equally adept at precise, high-speed grading and rough dozing."

If you are working in tight quarters, such as a lane of traffic or against a building, a compact excavator is a great choice. Check out the new PC88MR-11 which has several updated features that increase productivity and efficiency – including a swing boom that moves independently of the cab. This allows operators to get right next to what needs to be dug without worrying about the counterweight swinging into something.

If you are considering using a breaker to bust up old pavement or to perform demolition, the new ones from Komatsu are made specifically to match up with your PC78 to PC490 excavators. You can read more about your options in this issue and learn how to choose the right one for you.

There are also product support articles that I think you will find valuable, including one on why Supercoolant is a great choice for your machines.

As always, if there's anything we can do for you, please call one of our branch locations.

Sincerely,
Clairemont Equipment Company



Ronald Zagami,
President



PUSHING AHEAD

www.CECPushingAhead.com

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Value engineering should empower project teams to optimize designs by examining all functions and their associated costs



John Maranowicz,
Regional
Construction/
Design-Build Group
Manager, Burns &
McDonnell

Completing construction projects on time and within budget can seem like a daunting task. With additional pressures like fluctuating material costs, skilled labor availability and operational costs, clear and creative planning from the start become even more crucial. This is where value engineering can offer several benefits.

When value engineering is referenced in our industry, our minds may immediately go to a process that reduces project cost by slashing the scope or decreasing the quality of materials used. However, that is not necessarily what the definition should be.

In construction, value engineering empowers project teams to improve value by examining the function of each element and its associated cost. By examining the cost-benefit ratio, integrated design and construction teams can make suggestions for alternate delivery methods, designs or materials that enhance project value.

John Maranowicz, Regional Construction/Design-Build Group Manager with Burns & McDonnell, says, "Value engineering empowers project teams to optimize designs by examining the function of each element and its associated cost. By examining the cost-benefit ratio, integrated design and construction teams can make suggestions for alternate delivery methods, designs or materials that enhance project value."

It's critical to note that boosting the value of projects does not mean reducing costs. It means optimizing project components through an analysis of all factors – cost, upkeep, wear and tear, aesthetic value, etc. To provide truly advantageous value engineering, design and construction teams must first understand the project as a holistic effort. Every project is different, as is every business' definition of value.

Live and breathe entire project life cycle

Value engineering assesses the functionality of a product, good or service in relation to cost. With this service, consideration is provided right from the beginning of the project regarding availability of materials, labor and material costs, construction delivery methods, construction site constraints and more. By evaluating these factors upfront and limiting possible difficulties that could arise during the project, owner expenses may be reduced, and the schedule can be tightened.

In combination with value engineering, the best way to achieve successful results during a project is to have a fully integrated design and construction team that lives and breathes the entire project life cycle. The design, construction and, ultimately, the end user need to be joined together on every decision, from design inception through training and turnover. This allows the team to not only suggest innovations and value propositions during the project, but also to offer solutions for the most efficient yet reliable results for years to come. ■

Author bio: John Maranowicz oversees design-build projects ranging from major airport expansions to work involving industrial manufacturing, food and consumer products, aerospace, and surface transportation at Burns & McDonnell. He is experienced in every facet of construction management, including preconstruction, estimating, design management, value engineering, scheduling and direct supervision of self-perform projects.

Editor's note: This article is excerpted from a blog by John Maranowicz at Burns & McDonnell. To read the piece in its entirety, visit: <https://blog.burnsmcd.com/optimizing-construction-projects-with-value-engineering>.





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Require the Shot(s)?

AGC, Fisher Phillips offer guidance to employers about policies related to COVID-19 vaccinations

In February, President Joe Biden said that the United States would have enough COVID-19 vaccines to inoculate 300 million Americans. That would mean everyone in the country could potentially be vaccinated by this summer – which is significant considering the drive to put shots in the population’s arms began in late 2020.

The plan to vaccinate Americans included phasing the shots in with essential frontline workers, such as healthcare professionals, in Phase 1A. Those in the construction industry were slated for Phase 1C, which was expected to begin in late spring of this year.

The Associated General Contractors of America (AGC) and the law firm Fisher Phillips put together a document to help construction employers answer questions with regards to vaccines and their employees. The piece is for informational purposes and should not be considered legal advice or recommendations, according to the organization and attorneys. Here are a few of the highlights.

Can we require employees to be vaccinated?

The Equal Employment Opportunity Commission (EEOC) issued updated guidance on this issue in December of 2020. The agency’s updated FAQs do not unequivocally state that “employers can require the vaccine.” However,

it repeatedly answers questions discussing what actions employers can take in response to various circumstances after an employer has mandated the vaccine. This language plainly suggests there are circumstances where employers may require vaccine immunization of their workers without violating the Americans with Disabilities Act (ADA), Title VII, and other federal anti-discrimination laws.

The only scenario explicitly described by the EEOC as a permissible basis to mandate vaccination under the ADA is when a worker poses a “direct threat” to themselves or others by their physical presence in the workplace without being immunized.

Should we require our employees to get a vaccine? AGC takes no position. This is a decision that employers should make based on their particular legal obligations and business needs.

One factor to consider is the “general duty” clause of the OSH Act, which requires that employers “shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.”

If we decide not to require employees to be vaccinated, how could we best encourage

In February, President Joe Biden said that the United States would have enough COVID-19 vaccines to inoculate 300 million Americans. Those in the construction industry were slated for Phase 1C, which was expected to begin in late spring of this year.





The Associated General Contractors of America and the law firm of Fisher Phillips put together a Q&A for construction employers to give them guidance on employee vaccinations. To view the entire piece, visit https://www.agc.org/sites/default/files/Galleries/enviro_members_file/Vaccine%20QAs.pdf.

employees to get vaccinated? Employers can and should educate themselves and their employees regarding the benefits and safety of the vaccine, especially compared to the risks of not being vaccinated. They should also explore ways to make it easier for employees to get access to the vaccines, such as providing information about local vaccination providers, arranging for mobile units or clinics at or near job sites, paying for any vaccination costs, and allowing employees to get vaccinated during paid work hours.

What should employers consider before requiring employees to be vaccinated?

Employers should ensure that they can articulate the reason for the mandate, specifically how the vaccination is job-related and consistent with business necessity. Employers should also ensure that policies fully inform employees of applicable requirement and explain how employees may seek an exemption as an accommodation, based on a medical condition or a sincerely held religious belief. If an employee seeks an exemption on either or both bases, employers must engage in and document an interactive exchange with the employee to determine whether a reasonable accommodation would enable them to perform their essential job functions without compromising workplace safety.

Are there state and local laws that should be considered? Yes. Fisher Phillips has a 50-state chart on vaccines, exemptions and related issues.

If we require our employees to be vaccinated, are we liable for any adverse reaction an employee might have from taking the vaccine?

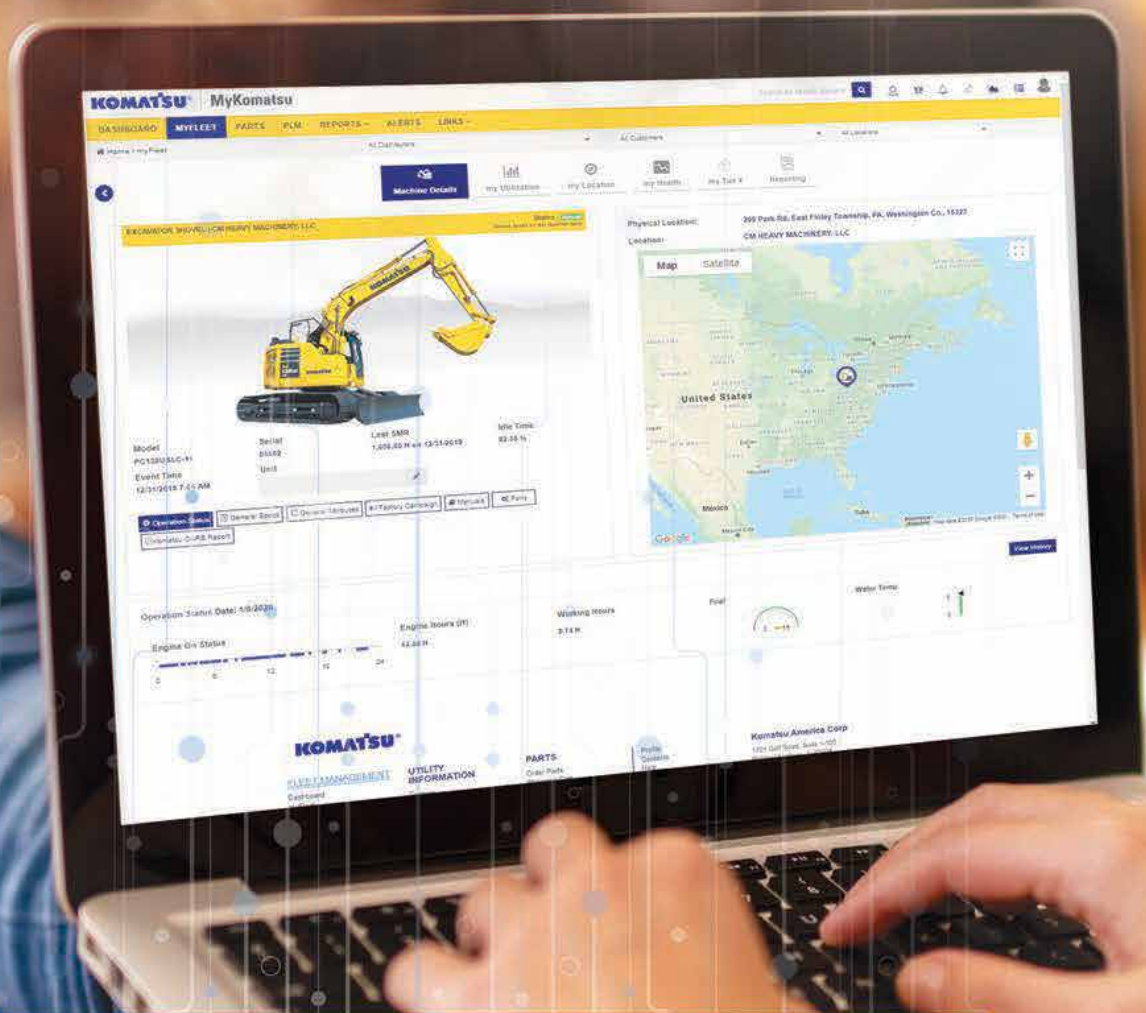
Individuals who experience adverse side effects may assert claims against the manufacturer, the pharmacy or provider who administers it and possibly the employer, depending on the facts. This does not mean the claims would be successful. In most states, workers' compensation is the exclusive remedy for illness or injury acquired at work, in the absence of an intentional action or gross negligence.

Do we have to pay for our employees to get a vaccine? If the employer requires the vaccine, the employer must ensure the employee pays no cost. Further, the most conservative approach would be for the employee to be paid for the time spent getting the vaccine in that scenario. ■

Editor's note: Information provided here is excerpted from a piece by the Associated General Contractors of America and the law firm Fisher Phillips. The full piece can be accessed at https://www.agc.org/sites/default/files/Galleries/enviro_members_file/Vaccine%20QAs.pdf.

We encourage you to visit the site for more comprehensive information.

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Want a single mid-sized dozer that saves you time, lowers your costs and makes your new operators more effective?

Do bigger jobs always require larger or multiple machines? What if you could get the same amount of work done with a mid-sized dozer that allows you to push large loads while also giving you the ability to get to finish grade? How much savings in time, owning and operating costs would that give you?

"These are considerations you should take into account when approaching every project," said Jon Jennings, Komatsu Product Marketing Manager. "Choosing the right machinery makes a significant difference in production, efficiency and profitability. A single dozer that can push, side cut, finish and work in soft ground gives you a real advantage."

Jennings added that technology such as GPS systems can make the dozer and the operator even more effective at moving dirt productively and efficiently. These systems decrease the time it takes to get to grade, which reduces staking and surveying costs, and virtually eliminate overcutting and the need for expensive fill.

"GPS systems and additional technologies continue to reduce owning and operating costs," stated Jennings. "They are also helping new operators become productive faster. With a shortage of skilled operators, that's a tremendous help."

Manufacturers such as Komatsu are factoring in all of these needs as they design and build new machines, according to Jennings. Komatsu

introduced its first intelligent Machine Control (iMC) dozer with factory-integrated GPS about eight years ago and has developed several new models with additional technology since. This includes their new iMC 2.0 models with added satellite systems to improve satellite coverage – which gives operators the ability to work in more challenging areas, such as near woods or on urban job sites.

New technology features

The newest iMC 2.0 D71EXi-24, D71PXi-24 and D71PXi-24 Wide dozers combine several features designed to further increase production. Among them are:

- Lift layer control that optimizes earthwork productivity with the press of a button. It maintains compaction quality by automatically controlling lifts to the desired height. Excess fill is eliminated as automatic blade control follows the finished surface once lifts have reached finished grade.



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Continued...

Quick Specs

Model	Net horsepower	Operating weight	Blade capacity*
D71EX-24	237 hp	49,824 lb	5.8 cu yd
D71PX-24	237 hp	50,927 lb	6.1 cu yd
D71PX-24 Wide	237 hp	52,690 lb	6.6 cu yd
D71EXi-24	237 hp	50,045 lb	5.8 cu yd
D71PXi-24	237 hp	51,147 lb	6.1 cu yd
D71PXi-24 Wide	237 hp	52,911 lb	6.6 cu yd

* Power angle tilt blade

The new D71i-24 intelligent Machine Control 2.0 dozers feature the super-slant nose design that offers outstanding visibility to the cutting edges. "Seeing the front of the machine with reduced blind spots increases awareness of the job site," said Jon Jennings, Komatsu Product Marketing Manager.



Patent-pending Proactive Dozing Control logic

... continued

- Tilt steering control automatically tilts the blade to maintain straight travel during rough dozing and reduces operator steering input by up to 80%.
- Quick surface creation lets operators create a temporary design surface with the press of a button. Combined with other iMC 2.0 functions, crews can begin stripping or spreading using automated input while waiting for the finish grade model.

"The D71i-24s also have our patent-pending Proactive Dozing Control logic that enables even less-experienced operators to cut/strip automatically from existing terrain," said Jennings. "The dozer measures the terrain while tracking over it and uses that data to plan the next pass, improving productivity by up to 60% compared to previous-generation models. The ability to use automatics from first pass to last, instead of just during finish grading, significantly reduces the time it takes to reach target elevation. Proactive Dozing Control decides on the action of the blade — such as whether to cut and carry material, spread or fill that material or whether it should finish grade."

Better visibility for more efficient grading

Jennings said visibility plays an important role in operator productivity. Being able to see the

blade's cutting edges increases production, especially during fine grading work near curbs. The D71i-24 is now the largest of Komatsu's hydrostatic dozers, and it maintains the unique super-slant nose design.

"Seeing the front of the machine with reduced blind spots increases awareness of the job site," said Jennings. "That's important when running a large machine such as the D71, which has the biggest standard blade in its class size. It increases operator confidence and, in turn, their ability to be more productive."

In addition to the iMC 2.0 D71i-24 models, base D71-24 dozers are also available. EX dozers have a ground pressure of 6.3 psi. With a ground pressure of 5.8 psi, the PX models work well in soft conditions; and for highly sensitive areas, PX Wide models with a ground pressure of 5 psi are available.

"With the D71-24s, we specifically matched the track shoes' width to the blade length to ensure optimal performance," said Jennings. "Additional new performance features include improved steering response and maneuverability. In the new Fast Mode during turns, the outside track speeds up while the inside track slows down."

"From golf course construction to highway projects, the D71-24s are all-around crawler dozers," said Jennings. "Equally adept at both precise, high-speed grading and at rough dozing, they are designed to provide outstanding wearability and functionality with a high-capacity, wear-resistant dozer blade. We encourage anyone looking for a solid mid-sized dozer with the versatility to perform on practically any job site to contact their distributor to set up a demonstration." ■

New technology combined with integrated intelligent Machine Control allows automatic grade control from rough cut to finish grade on a wide range of job sites. "Choosing the right machinery makes a significant difference in production, efficiency and profitability. A single dozer that can push, side cut, finish and work in soft ground gives you a real advantage," noted Jon Jennings, Komatsu Product Marketing Manager.



Are you looking for an excavator that can get close to structures, traffic without the worry of a large counterweight?

Tight job sites present unique challenges. In order to be the most productive in those instances you have to carefully consider the type of equipment to use. For instance, an excavator with a large counterweight could swing into an obstruction or into a lane of traffic.

"Tight-tail-swing and compact excavators continue to gain popularity because they are a great solution for these kinds of sites," said Jonathan Tolomeo, Komatsu Product Manager. "On projects where space is at a premium, such as urban areas or during highway reconstruction where you can only work in a single lane, they deliver outstanding production results in a small package. They are also great for tasks that require you to place the machine very close to a house or other type of building."

Tolomeo added that not all tight-tail-swing and compact excavators are right for every limited-space situation. Take foundation repair for example. He emphasized that the best fit for the job is a machine with a swing boom that can work independently of the cab.

"The operator positions the tracks very close to the structure, then only moves the boom," Tolomeo explained. "This allows for digging at various angles while the cab stays in a fixed position. There is virtually no chance of a counterweight swinging into the house or other building as you dig and pile dirt."

Attachments increase versatility

Komatsu recently introduced its latest model, the PC88MR-11, with a host of new features that improve production and fuel efficiency with a viscous fan clutch.

"An improved design of the standard blade rolls material better for more efficient dozing or backfill work, which increases the PC88MR-11's versatility and may provide costs savings by not having to use an additional machine," said Tolomeo. "You can further increase versatility with attachments such as hammers and grapples.

The excavator has two-way auxiliary control with a dual-stage relief valve, as well as a thumb mounting bracket – so it will run

practically any tool in the industry. That capability increases its availability and gives you additional applications and potentially better profitability and return on investment."

He added that productivity increases when you can set hydraulic pressure and flow from inside. The PC88MR-11 lets operators do that, which is a change from the previous model. Additional upgrades include better serviceability with larger service doors and centralized ground-level access to filters located within a common area.

"The list of enhancements, improvements and upgrades is long, and we encourage anyone who is looking for a productive compact excavator that increases versatility, to contact their distributor for a comprehensive list and a demonstration," said Tolomeo. ■



Jonathan Tolomeo,
Komatsu Product
Manager



Discover more at
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Quick Specs

Net horsepower
68 hp

Operating weight
18,739-19,224 lb

Bucket capacity
0.12-0.26 cu yd

The new PC88MR-11 with a swing boom lets operators position the tracks very close to the structure, then only move the boom. "This allows for digging at various angles while the cab stays in a fixed position," said Jonathan Tolomeo, Komatsu Product Manager. "There is virtually no chance of a counterweight swinging into the house or building as you dig and pile dirt."



CG Jones, LLC Construction looks to technology to help take projects from concept to finish, on time and on budget



Trey Alexander,
Co-owner

In 2013, civil engineers Trey Alexander and Brad Williams started a business to meet the overwhelming demand for project design solutions in their area. Their stated goal was to offer quality civil engineering and surveying services as well as common-sense solutions.

Through the next five years, clients expressed the need for new site and civil general contractors, so in 2018, Alexander and Williams formed CG Jones, LLC Construction to provide innovative solutions to complicated problems. It has since grown to 20 employees.

"We'll take on any public or private civil construction project, but our forte is design-build," expressed Alexander. "By partnering with the engineering side of our company, we're able to take our clients' projects from concept to finish. We've built a reputation on ensuring that whatever our clients need, we'll finish on time and on budget."

Alexander said a major factor in their ability to do that is due to the machines the company runs. Because of his experience through a former employer, he knew industry-leading technology would play an integral role at CG Jones Construction. That's why the firm utilizes Komatsu dozers and excavators with

integrated intelligent Machine Control (iMC) GPS systems. Its fleet includes D51PXi-24 and D61PXi-24 dozers, as well as PC210LCi-11 and PC290LCi-11 excavators.

"The first piece of equipment I bought was an intelligent machine because the entire precept of our business is built on using leading-edge technology," explained Alexander. "The iMC capabilities make hitting grade easier for our operators and also make them more productive. I expected we would be more efficient with an iMC machine, and that's proven true."

Operators prefer iMC machines

During the past few years, Alexander and Williams have acquired other companies. A crew from one of them was accustomed to operating a competitive brand of equipment. They now prefer Komatsu, according to Alexander.

"They realized they're much more productive in the Komatsu equipment because they know where they are (in relation to target elevation) at all times," Alexander said. "They know what a job site is supposed to look like when it's done, and they're able to achieve that more efficiently with the iMC equipment. Every operator I've put in the seat of an iMC machine, no matter how much experience they have, prefers them." ■

A CG Jones Construction operator grades with a Komatsu D51PXi-24 dozer.

"Our operators have realized they're much more productive in the Komatsu equipment because they know where they are (in relation to target elevation) at all times," said Co-owner Trey Alexander. "They know what a job site is supposed to look like when it's done, and they're able to achieve that more efficiently with the iMC equipment. Every operator I've put in the seat of an iMC machine, no matter how much experience they have, prefers them."





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Pipelayer designed with input from customers delivers exceptional stability on energy-sector projects



Chuck Murawski,
Komatsu Product
Manager, Dozers

Equipment performance and stability are critical to successfully lay pipe in the ground across miles and miles of varying terrain. Komatsu worked closely with crews from pipeline companies to develop a new pipelayer to meet those needs, according to Chuck Murawski, Komatsu Product Manager, Dozers.

"It's essential to get feedback from the contractors who will ultimately use a pipelayer, like our new D155CX-8," said Murawski. "They suggested a larger steering motor, so we incorporated one into the machine and that gives it better displacement and more steering torque."

Murawski added that the D155CX-8's stability comes from an oval design, nine-roller undercarriage that has 12 feet, 10 inches of track on ground, making it Komatsu's largest. The pipelayer has a track gauge that is approximately 10 inches wider than on the standard D155AX-8 dozer and it features 32-inch track shoes.

Large footprint, better ground contact

"The heavy, final-drive components are close to the ground, which lowers the center of gravity and improves stability," Murawski explained. "The rollers are fixed suspension and don't oscillate like with a dozer. That improves ground contact. The pipelayer has a big footprint and was designed to handle heavy loads."

With a 170,000-pound lift capacity, Murawski said the D155CX-8 can move steel pipe up to 36-inches in diameter. It features a pipelayer package with a standard 24-foot boom length. An optional 28-foot boom is available.

"It's ideal for gas and oil projects in the energy sector and, after conversations at CONEXPO last year, we believe there may be other application possibilities to explore," Murawski said. ■

Quick Specs on Komatsu's D155CX-8 Pipelayer

Model	Net Horsepower	Operating Weight	Lift Capacity	Industries
D155CX-8	354 hp	120,970 lb*	170,000 lb**	Pipeline, Energy

*With pipelayer package

**Maximum lift at tipping point

The new D155CX-8 pipelayer was designed with pipeline contractors' input and includes a long track on ground and a wider track gauge for stability. It can handle up to 36-inch steel pipe, making it ideal for gas and oil projects, according to Chuck Murawski, Komatsu Product Manager, Dozers.



Using the proper coolant at correct intervals helps ensure that your equipment delivers maximum performance

If you are looking to protect critical engine components and keep operating temperatures steady, you need the right engine coolant/antifreeze. While the word "antifreeze" implies protection from freezing, engine coolant is actually critical in all weather applications, because it transfers heat to prevent both freezing and overheating.

Choosing a coolant specifically designed to work with your machinery is your best option, as it's been tested and developed for those particular systems. Not using the correct type can potentially create issues because each coolant brand has a unique formulation.

"It comes down to how that coolant performs with the other components of the cooling system," said Alexis Crawford, Komatsu Parts Marketing Associate. "If the wrong coolant is used, you are introducing chemicals that may cause premature wear such as leaking seals, which can ultimately affect machine performance."

Each manufacturer has its own stated engine coolant life. Some claim that theirs will last the life of the machine. Crawford said that while this statement may be appealing, equipment users should be cautious about relying on it, as the protection will likely degrade over time. Coolant, like other fluids, should be monitored and replaced as part of your preventive maintenance schedule.

Komatsu distributors can provide oil and fluid wear analysis (KOWA) lab testing to show if there are metals or other minerals in the coolant that have leached in and may indicate a breakdown of internal components. Checking the coolant level daily can tell you if there is any evaporation due to a leak that needs to be addressed.

Product offering

Komatsu recommends using their genuine Supercoolant that is specifically designed to work across the entire product line. It offers two types: a 50/50 pre-mix product that is ready to use and a concentrate product that is mixed with distilled water. Its nitrite-free formula contains a blend of phosphate and organic acid technology (OAT) to help prevent corrosion and oxidation in modern engines.

Supercoolant exceeds all ASTM D3306 and JIS K2234 standards, and is available from your Komatsu distributor or can be ordered directly through My Komatsu.

"Komatsu Supercoolant should be replaced every 4,000 hours but could extend up to 6,000 hours for our 50/50 offering," said Crawford. "Your machine operation and maintenance manuals will tell you how much coolant (refill capacity) your machines need."

Coolant color – why does it matter?

You will notice that Supercoolant has a distinctive blue color. It is important to never mix different brands or colors of coolant as this can cause contamination and damage to the cooling system. If you are using Supercoolant for the first time, be sure to perform a system flush to avoid contamination. ■



Alexis Crawford,
Komatsu Parts
Marketing
Associate



The right engine coolant/antifreeze keeps operating temperatures steady. Coolant, like other fluids, should be monitored and replaced as part of your preventive maintenance schedule. It is recommended that you use a genuine product manufactured specifically for your machinery such as Komatsu Supercoolant.

Could a new extended warranty program help you better determine total cost of ownership over the life of large machinery?



Felipe Cueva,
Manager,
Genuine Care

Understanding total cost of ownership (TCO) over the lifetime of a machine helps you make highly informed decisions about which equipment to buy. Several factors go into calculating TCO. Some costs are fixed, such as the initial purchase price, while other costs – repair and maintenance, fuel and operators' hourly wages, for example – fluctuate.

Making the variable costs more predictable can help with budgeting and avoiding large, unplanned expenses. It also contributes to higher accuracy in estimating, bidding and determining operating expenses. One way to make costs predictable is by purchasing an extended warranty and extended periodic maintenance with fixed costs for maintenance and repairs.



Komatsu Care Plus III is designed for total cost of ownership for businesses such as quarries or mines that keep equipment for 30,000 hours before rebuilding it or taking it out of service. "Like the other Komatsu Care programs, it covers scheduled maintenance and repairs," said Felipe Cueva, Manager, Genuine Care. "Care Plus III is even more comprehensive because it includes the equipment's consumables or wear parts such as brakes, hoses, pins and bushings."

"Machinery comes with a standard warranty that covers any repairs for the first 12 months," said Felipe Cueva, Manager, Genuine Care for Komatsu. "Once the machine hits those marks, the expenses can be unpredictable and are all covered by you. Car manufacturers started offering extended warranties years ago, and equipment manufacturers have taken up the concept more recently. The advantage is that for a relatively nominal monthly charge, you have the peace of mind that when service or repairs are needed, you won't be hit with a potentially big bill."

Cueva noted that there have been options available for up to 10,000 hours of extended maintenance and repair coverages for some time. Some examples are Komatsu's recently introduced Komatsu Care Plus and Komatsu Care Plus II, as well as its Advantage Coverage. Soon it will offer Komatsu Care Plus III for larger machines, including wheel loaders, rigid-frame trucks and dozers.

"What's been missing is a program designed for those businesses such as quarries or mines that keep equipment for 30,000 hours before rebuilding it or taking it out of service," said Cueva. "Our new Komatsu Care III is a full, comprehensive maintenance and repair program for the first life of the machine. Like the other Komatsu Care programs, it covers scheduled maintenance and repairs. Care Plus III is even more comprehensive because it includes the equipment's consumables or wear parts such as brakes, hoses, pins and bushings."

Clearer profitability picture

Cueva added that Care Plus III's cost is based on utilization. Customers pay a per-hour rate, and Komatsu tracks the machine's hours through its telematics systems. Coverage extends across the country, and contracts are transferrable.

"This is really the first commercialized TCO from a manufacturer," said Cueva. "It makes your profitability clearer because there are no surprises. We encourage anyone who would like to better know their lifetime costs to contact their dealer about any of the Care Plus programs." ■



Thinking about a breaker? Here are some considerations to help you decide what's right for your operation

Hydraulic breakers for excavators were introduced a little more than 50 years ago. They soon gained popularity because they added versatility – and greater profitability – to what was previously a one-dimensional machine. In addition to digging, operators could now hammer rock, break up pavement and perform demolition.

During the past five-plus decades, the number of breakers introduced to the marketplace continued to grow. There are numerous models and types today. Choosing the right one takes careful consideration to ensure optimal production and efficiency.

"There are several variables that should be taken into account when choosing a breaker; it's definitely not a one-size-fits-all deal," said Eric Chudzik, District Manager of the Komatsu North America Attachments Division. "The first consideration is looking at what model of machines you have available. Next, you have to look for a breaker size that will tie into the type of material you want to break – is it hard rock, concrete or both? What is the application? What type of production do you want to achieve? Purchase price should also be a factor in choosing a breaker."

Another major consideration is purchasing versus renting. How often a breaker will be used and where you work play key roles in

determining which is the right choice for you. Areas with rocky soils that have local ordinances prohibiting blasting would be prime locations for opting to purchase a breaker.

"If you encounter rock on a daily, or near-daily, basis, buying makes perfect sense," said Aaron Scarfia, Regional Manager of the Komatsu North America Attachments Division. "If your projects are in areas where you only run into rock occasionally or not at all, then rental is the way to go. However, you may also do a lot of demolition. In that case, making the investment in a purchase could be justified."

Chudzik added that the type of demolition you perform should factor into which breaker you need. "Bridge decks and abutments, roadways, curb and gutter,

Continued...

Komatsu recently introduced its initial line of branded breakers. The product offering includes the JTHB-G (Gas) series dual-energy type and the JMHB-H (Hydraulic) series with eight models in each series. All are designed and tested to fit Komatsu excavators from the PC78US-11 to the PC490LC-11 models, and their high-percussion efficiency and unique variable energy technology provide high production in multiple applications.



Aaron Scarfia,
Regional Manager,
Komatsu North
America Attachments
Division



Eric Chudzik,
District Manager,
Komatsu North
America Attachments
Division



Breakers designed and tested to fit Komatsu excavators

... continued

and heavy foundations are all different. If you choose one for curb and gutter and try to use it for heavy foundations, the production is likely to be disappointing. Think about how much you do in this segment, what you're breaking and match the attachment to the machine and tasks."

To help you choose the right breaker and be most productive with it, Komatsu has a dedicated attachments sales and service team to support both you and your distributor. The specialists are factory trained and experienced in installation, operation, service and rebuilds, noted Scarfia.

New breakers that match

Komatsu recently introduced its initial line of branded breakers. The product offering includes the JTHB-G (Gas) series dual-energy type and the JMHB-H (Hydraulic) series with eight models in each series. All are designed and tested to fit Komatsu excavators from the PC78US-11 to the PC490LC-11 models. Their high-percussion efficiency and unique variable energy technology provide high production in multiple applications, said Scarfia.

"Komatsu breakers are specifically paired to a machine size. The model numbers of the breakers and the machines match, so that you can easily identify the right attachment for your excavator," explained Scarfia. "They are approved for each model to use in breaker mode – which is single-direction hydraulics with hydraulic fluid traveling from the control valve

to the attachment and back to the source. That makes them very efficient for your machine."

Komatsu built in several features and benefits to protect the breaker, carrier and operator. "Komatsu breakers have an accumulator that recycles high-pressure oil internally, reducing hydraulic surges returning back to the carrier," Chudzik said, noting that some other manufacturers do not include this feature. "That allows us to create more energy with a lower flow. It also reduces hydraulic pressure spikes leaving the breaker, protecting the hydraulic system of the carrier."

Blank fire protection reduces firing when the tool is not in contact with material being broken. This system reduces misfires, increasing the longevity of the hammer while allowing the operator to concentrate on the job.

"Automatic pressure regulation keeps the breaker operating at a constant operating pressure to ensure consistent energy and peak performance," said Chudzik. "Also included are suspensions that reduce vibration going back to the carrier and operator; fully enclosed 'soundproof' cradles and housing that reduce noise; and the breaker packages feature automatic greasing for ease of maintenance."

Rebuild periodically for longer life

How you use the breaker and maintain it factor into its useful life, according to Chudzik. He's seen breakers that needed to be replaced within two years due to neglect and some that have lasted more than two decades thanks to diligent servicing.

"The user is a key component, not only in production but also in longevity," said Chudzik. "They should be well-trained in how to avoid blank firing and how not to use the breaker for prying as that will prematurely wear out the bushings and break working tools. If you treat it right with proper maintenance and rebuilds when required, it may last for 10, 20 years or longer."

Scarfia noted that Komatsu has a rebuild program. "For a flat rate, we provide the labor and genuine parts to repair the breakers. This service is offered through our distributors and our dedicated breaker repair center with factory trained technicians. If you adhere to the recommended maintenance schedule, an extended warranty is possible. New breakers come with a standard 12-month warranty.

"If you think a breaker is the right tool to add versatility to your business or if you want to check out our new line, we encourage you to contact your local Komatsu distributor for more information or to set up a demonstration," Scarfia added. ■



Komatsu built in several features and benefits to protect the breaker, carrier and operator – including an accumulator that recycles high-pressure oil internally and reduces surges back to the carrier. This allows the creation of more energy with lower flow and reduces hydraulic pressure spikes. The breakers also have blank fire protection and automatic pressure regulation.

Partnership designed to bring first battery-electric larger-class hydraulic excavator to the construction market

Since the introduction of GPS and telematics, construction technology has continued to expand. A few years ago, hybrid excavators came onto the scene that captured energy from swing and used it to assist the machine, reducing fuel consumption and emissions.

More recently, manufacturers introduced the first electric excavators which were focused on smaller units. The next step in the evolution appears to be larger, full battery-electric models.

Getting to production will take time and partnerships, such as the one Komatsu and Proterra announced earlier this year. They plan to leverage the latter's battery technology for the development of the first battery-electric larger-class hydraulic excavator. The collaboration represents Proterra's entry into the off-road vehicle market and the company's first Proterra Powered™ battery-electric construction equipment. Development is currently taking place in Japan.

"As more communities embrace a zero-emissions future, Proterra is excited to partner with Komatsu to develop battery-electric construction equipment," said Proterra CEO Jack Allen. "Proterra's best-in-class battery technology has been proven in 16 million miles driven by our fleet of transit vehicles. What's working in our battery-electric transit vehicles on roads across North America can work off-road too. We look forward to collaborating with Komatsu to deliver the benefits of emissions-free, quiet Proterra Powered™ vehicles to more communities around the world."

Proof-of-concept

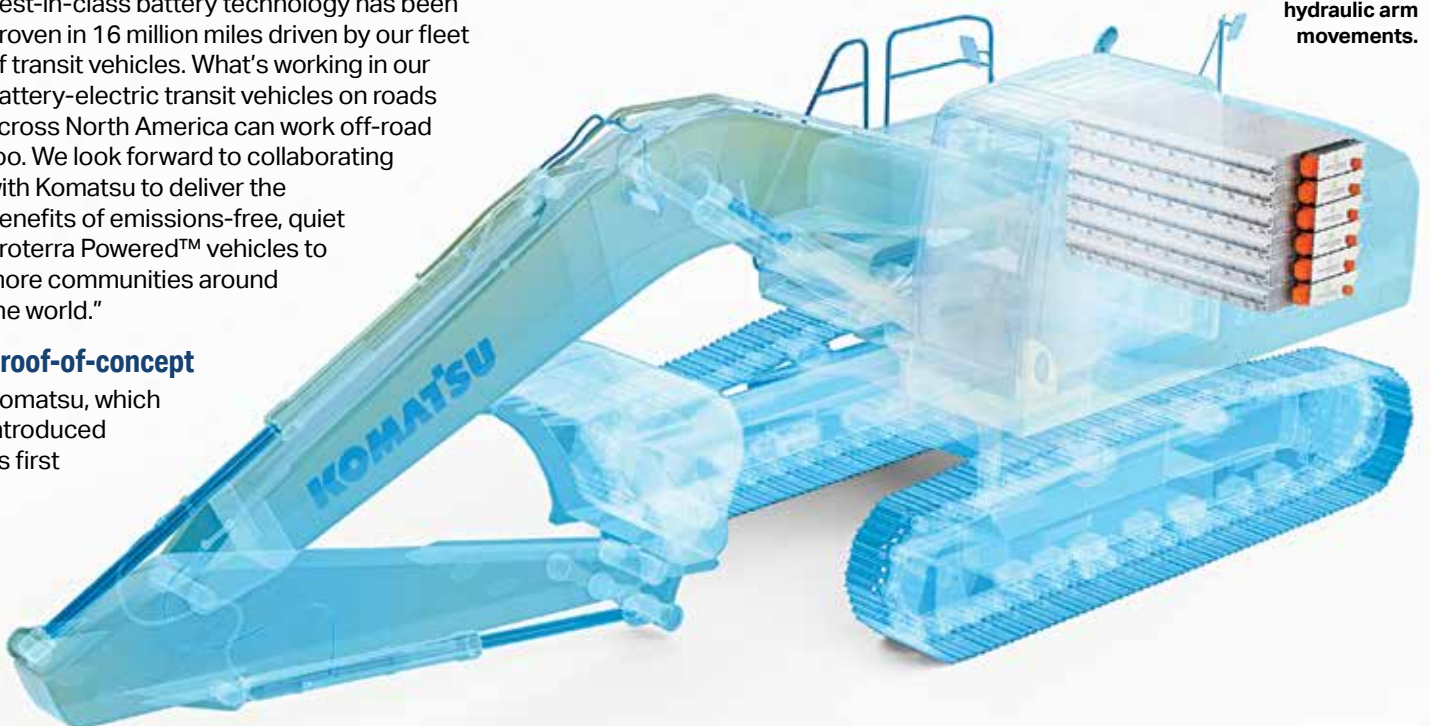
Komatsu, which introduced its first

hybrid excavator in 2008 and the PC30E-5 electric mini excavator in Japan last year, will utilize Proterra's high-performance battery systems for the development of a proof-of-concept electric excavator before expected commercial production. The Proterra battery system powering the electric excavator will feature high-energy-density and fast-charging technology.

Engineered and manufactured in the United States, Proterra battery packs have a customizable design to fit within a variety of vehicles. The packaging flexibility enables optimal placement of the batteries within a larger-class excavator and replaces the need for a normal counterweight used to balance the machine's hydraulic arm movements.

"As a global business, we are always exploring different partnerships to bring innovations to our customers," said a statement from Komatsu. "These often start as an initial offering in a select area to prepare for potential full-scale release, which is the case with the Proterra development originating, for now, in Japan." ■

A collaborative effort between Komatsu and Proterra aims to develop a proof-of-concept larger battery-electric hydraulic excavator. Proterra battery packs have a customizable design to fit within a variety of vehicles. The packaging flexibility enables optimal placement of the batteries within a larger-class excavator and replaces the need for a normal counterweight used to balance the machine's hydraulic arm movements.



Choosing the right tooth system for your excavators and loaders can increase production and safety

When choosing an excavator or wheel loader it's easy to focus on the big things such as horsepower, operating weight and bucket capacity. But, did you know that overlooking details such as choosing the right teeth for the application and material you are handling can have a major impact on productivity and efficiency?

"As with any important task, it's essential to have the right tool for the job," said Colin Chester, Product Manager, Mining with Hensley Industries. "Digging in clay is different than dealing with rocky situations or soft, sandy soils. You have to factor that into the equation."

Chester added that there are additional considerations that may affect both production and safety. "Simple and easy tooth changes equate to less downtime. Not having to hammer

pins means less risk of injury. Our customers told us they valued those features along with high-quality manufacturing."

Chester said Hensley has listened to their customers and has developed an excellent solution - its Kprime™ Tooth System for excavators and wheel loaders that work in construction, mining, quarry, trenching and utility applications. Several styles of teeth are available that fit onto an adapter that's welded onto the bucket lip. Each tooth locks on with the turn of a pin.


Productivity, reliability, safety

"Productivity, reliability and safety enhancements are all built into the Kprime Tooth System's design," said Chester of the product that has replaced Hensley's Kmax Tooth System. "From a productivity standpoint, the Kprime Tooth System has 10% to 15% more usable wear material than its predecessor and improved penetration of up to 15%. To further extend life, Kprime Tooth System teeth are rotatable, and visible indicators on the wear cap and fastener let users know when those parts need to be changed."

To increase reliability, the Kprime Tooth System is 10% stronger than its predecessor for reduced breakage and adapter wear. It also has a tighter fit of the tooth to the adapter and an improved pin design that prevents unlocking after extended use, ensuring the holding pin remains locked throughout the life of the tooth.

For enhanced safety, locking and unlocking the tooth to and from the adapter is done with a simple quarter rotation of the locking pin using a metric socket. A push out ramp on the tooth helps dislodge the fastener when unlocking. An audible "clack" sound indicates when the tooth is locked on, eliminating guessing.

"This system is unique and was built from customer feedback," Chester emphasized. "We encourage anyone who wants to save time and have a safer tooth system on their bucket to use the Kprime Tooth System. Their Komatsu distributor representatives will help them choose the right teeth, assist them with putting the adapters on the bucket, and teach them how to use the simple locking and unlocking system." ■



The Kprime™ Tooth System has improved penetration of up to 15% compared to its predecessor. For enhanced safety, locking and unlocking the tooth to and from the adapter is done with a simple quarter rotation of the locking pin using a metric socket. An audible "clack" sound indicates when the tooth is locked on, eliminating guessing.



Organizations say new infrastructure measures could have a significantly positive effect on the construction industry

Dodge Data & Analytics said that a new comprehensive bill that invests heavily in public works projects would have high economic impact. It pointed out that 2002 was the peak in terms of constant dollars (i.e. adjusted for inflation) for public works construction at \$68 billion. Since then, the average has been \$59 billion annually adjusted for inflation.

"This is arguably the 'low hanging fruit' in any potential infrastructure plan," said Dodge Data & Analytics Chief Economist Richard Branch in a recent article for the organization. He added that additional economic "high-impact" areas would include transit/high-speed rail and renovation work. Renewables could have medium impact economically, while the impact from data centers and health care would be low, according to Branch's article.

The current surface transportation bill (FAST Act) expires Sept. 30 after being extended by a year in late 2020. Congressional committees are working on new long-term legislation that they hope will bring greater certainty to road and bridge funding.

The Senate's Environmental and Public Works (EPW) Committee held a hearing in

February that discussed expanding a five-year bill that was passed unanimously by the committee in July 2019. EPW Chairman Tom Carper said the five-year, \$287 billion plan was a great start, but he wanted to expand it further with provisions to deal with climate change and to make roads and bridges more resilient to natural disasters. The proposed 2019 legislation had \$10 billion in resilience authorizations.

"Much of our transportation infrastructure is in sorry shape," said Carper during the committee hearing. "Unfortunately, a lot of it is getting worse, not better."

Latest score: C-

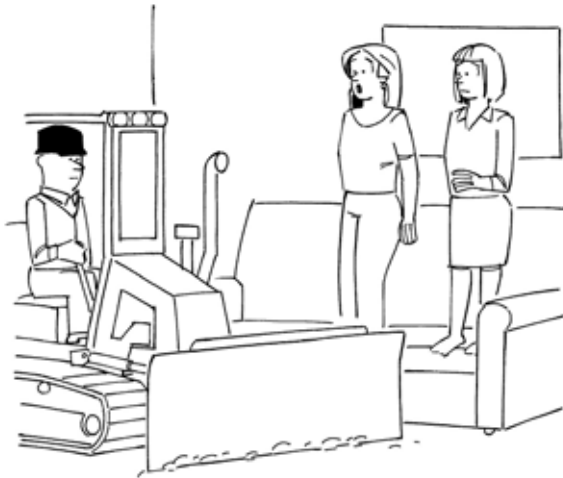
Transportation is not the only infrastructure system in rough shape, according to the American Society of Civil Engineers (ASCE). It recently graded America's entire infrastructure as a C-, a slight improvement from 2017's D+. It said the overall long-term investment gap continues to grow and must be addressed.

"Much remains to be determined, but the possibilities for an infrastructure package on construction are significant," wrote Dodge Data & Analytics Chief Economist Richard Branch. ■



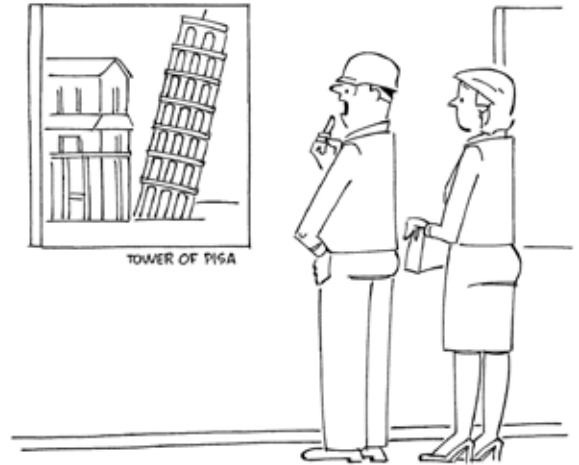
Investment in new and updated infrastructure, including roads and bridges, could have a significantly positive impact on construction, according to industry groups. Legislation is in the works for a new surface transportation bill to replace the FAST Act, which expires Sept. 30, 2021.

On the light side



NOTM JUNG

"HE'S WORKING FROM HOME TODAY."



NOTM JUNG

"I CAN'T BELIEVE IT PASSED THE BUILDING CODE."



NOTM JUNG

"YOUR FATHER HAD A BAD DAY. HE DOESN'T WANT TO BE DISTURBED."

Did you know?

- If you sampled Earth's crust, you'd find that 47% of it is oxygen.
- It's illegal to own just one guinea pig in Switzerland because they are social animals that prefer the companionship of another guinea pig.
- "Strengths" is the longest word in the English language with one vowel.
- Bubble wrap was originally invented as wallpaper.
- The top speed of the winning car in the first U.S. race in 1895 was 7 mph.
- Antarctica is covered in a sheet of ice that's 7,000 feet thick.
- The average U.S. household has 300,000 things in it.
- Beyoncé is the most awarded female artist in Grammys history with 28 awards.
- The 1939 novel Gadsby is the longest book ever published that doesn't contain the letter 'e.'
- The deepest canyon in the world is not the Grand Canyon. Tibet's Yarlung Tsangpo is more than 2 miles deeper and drops 17,567 feet.

Brain Teasers

Unscramble the letters to reveal some common construction-related words. Answers can be found in the online edition of the magazine at www.CECPushingAhead.com

1. LEPI _____
2. RIDT _____
3. KRCUT _____
4. ULEF _____
5. DROLAE _____

OSHA penalties climb in conjunction with inflation rate

The Occupational Safety and Health Administration's (OSHA) maximum civil penalty grew with the rate of inflation to \$13,653 per violation, a nearly 10% rise. Penalties went into effect in January, including those for willful and repeated incidents which are now up to \$136,532.

OSHA also announced a change in its collections. Moving forward, it will send a series

of three penalty payment notices after an establishment fails to make a timely payment based on a final order. Notices come at seven, 30 and 60 days. OSHA will also contact those that don't pay fines on time by phone 14 days after the payment is due. Additional actions may be taken for those who fail to make payments and/or do not set up a payment plan. ■

Researchers say masks can be recycled into road building process

Researchers at RMIT University in Australia showed how disposable face masks could be recycled as part of the road building process. Their study indicated that using them to make just one kilometer (0.6 mile) of a two-lane road would use up to 3 million masks, preventing tens of tons of waste from going to landfills.

The new road-making material developed by RMIT researchers is a mix of shredded single-use face masks and processed building rubble that meets civil engineering safety standards. Their analysis showed that the masks help to add stiffness and strength to the final product, designed to be used for base layers of road and pavement. ■

FHWA grants awarded to projects focused on intelligent transportation

Earlier this year, the US Department of Transportation Federal Highway Administration (FHWA) awarded Advanced Transportation and Congestion Management Technology Deployment (ATCMTD) grants valued at \$49.6 million to projects using "intelligent transportation systems" (ITS) technologies that improve mobility and safety, and support vehicle connectivity.

In addition, the grants funded projects that operate with connected and automated vehicle technology. "The program selects this year to look to the future and help ensure that our nation's highway network is able to accommodate the many advanced technologies on the horizon," said Nicole R. Nason, the Federal Highway Administrator at the time of the awards. ■

White paper shows lidar technology can improve traffic analytics

A Nevada Center for Applied Research white paper based on a study from Velodyne Lidar, Inc. and the University of Nevada, Reno highlighted how using lidar (light detection & ranging) sensor technology improved traffic analytics, increased pedestrian safety, reduced accidents and advanced work toward facilitated autonomous vehicle use.

"The white paper captures how lidar technology can be a catalyst for a

revolutionary data change that will impact transportation planning and systems, and prepare our roadways for the future," said Carlos Cardillo, Nevada Center for Applied Research Director. "Velodyne sensors are powering 'lidar-enhanced' roads that address roadway congestion monitoring and near-crash analysis. They are also enabling data communications with connected vehicles to support eco-drive and collision avoidance applications." ■

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