

AMG | AUTOMATED MACHINE GUIDANCE



Advancing Safer,
Faster, More Accurate,
and Less Expensive
Roadway Construction

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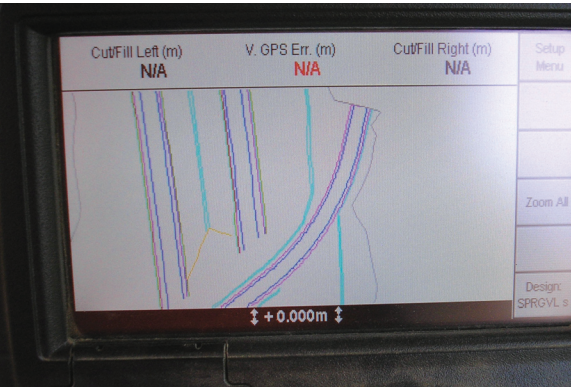
What is AMG?

Automated Machine Guidance (AMG) links sophisticated software with construction equipment to direct the operation of machinery with a high level of precision, improving the speed and accuracy of highway construction processes. Because it eliminates much of the guesswork, skilled manual control, and labor involved in traditional methods, AMG improves worker safety and saves agencies and contractors time and money – enhancing their ability to deliver highways “better, faster, and cheaper.”

Now gaining in popularity for grading operations, AMG offers the opportunity to move soil and other materials with fewer workers. This enhances safety and cost efficiency overall. It also significantly improves the accuracy of measurements, which delivers a myriad of benefits.



The accuracy of planning and construction is enhanced by AMG, improving workflow and resulting in less changes, busts, reengineering and rework.



When used in the grading process, labor-intensive basic construction activities like staking are minimized, putting fewer workers in harm's way in roadway work zones. AMG-related modeling helps better communicate intent between agency teams, and between agency and contractor. The accuracy of planning and construction is enhanced by AMG, improving workflow and resulting in less changes, busts, reengineering and rework. Related GPS tools also allow contractors to schedule work more flexibly since their success is less affected than traditional tools by time-of-day and weather. Downstream field inspections and QA/QC tasks are accomplished more efficiently and effectively. And the precision of AMG measurement and related modeling aids communication and credibility in the environmental process, smoothing permit relationships.

AMG and the Transportation Agency

AMG involves the synthesis of critical construction data into models that enhance road building, repair and maintenance processes. The models create an accurate picture of the terrain and conditions, "informing" software that guides equipment. Machine operators then ensure that each piece of equipment is performing the designated action properly. Along the way, a report of each action is captured by the software, assisting in the tracking of work performed and creating a valuable archive for future maintenance and repair operations – a boon in the case of emergency repairs.

AMG's accuracy enhances profitability, requiring less labor and time to produce high quality results, even with less experienced equipment operators.

AMG and the Contractor

Automated Machine Guidance enhances competitiveness, since it gives contractors an edge in both performance and cost. AMG's accuracy enhances profitability, requiring less labor and time to produce high quality results, even with less experienced equipment operators. The process provides more precise measurements of work performed, ensuring that the contractor gets paid for all work done. AMG also aids the accuracy of the estimating process and, when used before bids are let, can speed electronic analysis for the bid process. AMG provides greater flexibility in scheduling because it promotes more detailed knowledge of a project.

In short, the additional information provided to contractors when AMG technology is deployed enhances the quality of pre-planning, analysis, pricing, project management, implementation, and overall outcome. And tech-savvy

young workers are attracted to jobs involving AMG technology, addressing recruiting needs created by the retirement of experienced personnel.

AMG and the Customer

Highway users reap the ultimate benefits of AMG because applications like machine guided grading produce better ride quality by promoting a consistent sub grade. Plus, a combination of 3-D files and GPS tools streamline time consuming construction processes traditionally performed on the road, creating fewer traffic interruptions. When agencies and contractors save time and money, the taxpayer's hard earned investment in roadway infrastructure goes further.



The team’s goal is to offer “best practice” guidelines that include AMG benefits and challenges.

AMG and the Future

Process improvements driven by the use of AMG technology, from automated recordkeeping to coordination between design and construction personnel, create long-term cost efficiencies for agencies, contractors, and their customers. The technology also holds great promise for new applications like curb placement, pavement, and trenching that will expand the return on investment in AMG tools, training, technical staff and data management.

How do I learn more?

AASHTO’s Technology Implementation Group – or TIG – is leading the effort to promote the use of Automated Machine Guidance.

TIG’s Lead States Team on the project includes State transportation agency representatives, FHWA experts, private contractors, and others who can help you evaluate and promote the use of AMG in your organization. Select States can also participate in a technology assistance program leading to the specification of AMG in appropriate contracts. The team’s goal is to offer “best practice” guidelines that include AMG benefits and challenges. Contact team members today for insight, expertise and advice.



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You can also visit www.aashtotig.org to explore additional AMG resources.

ABOUT TIG

Dedicated to sharing high-payoff, market-ready technologies among transportation agencies across the United States, TIG promotes technological advancements in transportation, sponsors technology transfer efforts and encourages implementation of those advancements. For more information, visit www.aashtotig.org.

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