University of Wisconsin-Madison

Transformative Technologies in Highway Maintenance

Thank you for participating in this important survey!

Your responses to the questions that follow will help the Midwest Transportation Workforce Center (MTWC) at the University of Wisconsin-Madison identify the technologies that will impact the highway maintenance workforce of the future.

Your responses are confidential and will not be associated with you personally. Results will be reported in aggregate form. Your participation is voluntary and you may skip any questions. However your responses are crucial for our study to be successful. We estimate that it takes 10 minutes to complete this survey. You can take the survey all at once or in parts. Simply close the browser to exit the survey and click the link to access it from where you had left off.

Survey results will be used to structure the highway maintenance breakout group discussion at **TRB's Workshop #873: National Transportation Career Pathways Initiative Stakeholder Engagement** to be held on Thursday, January 11, 2018 from 8 am to noon.

If you have any questions please contact:

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Project Information:
http://mtwc.org/initiatives/highway-maintenance-engineering-career-pathways/

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Technology Adoption in Highway Maintenance

There are many emerging technologies that new workers will need to learn.

First, which of the following technologies are already in use in highway maintenance in your organization?

	Yes	No
3D printers	○	○
Mixed reality such as HoloLens	○	○
Geographic Information Systems (GIS)	○	○
AVL (Automatic Vehicle Location System) devices - vehicle equipment	○	○
Drones	○	○
Fiber optics cables and boxes in ROW	○	○
Solar panels in the right of way and facilities	○	○
Driver-less vehicles	○	○
Cybersecurity	○	○
Internet of Things (IoT) applications - remote monitoring of environmental habitat	○	○
Virtual reality	○	○
RWIS - Road weather information systems	○	○
Blockchain	○	○

Internet of Things (IoT) applications - real-time, remote monitoring of infrastructure through sensors for maintenance	○	○
ITS I2V devices (infrastructure to vehicle)	○	○
Advanced pavement materials for pavement repair	○	○
GIS-based Pavement Management System	○	○
Augmented reality	○	○
Advanced equipment controls	○	○
AVL Systems- Fleet management and dispatching - system programming and operation.	○	○

You mentioned that the following technologies are not currently used in highway maintenance.

In how many years do you think would the following technologies be used in highway maintenance?

	Less than five years	Five to ten years	More than ten years
» Drones	○	○	○
» Advanced equipment controls	○	○	○
» Driver-less vehicles	○	○	○

» 3D printers	○	○	○
» AVL (Automatic Vehicle Location System) devices - vehicle equipment	○	○	○
» AVL Systems- Fleet management and dispatching - system programming and operation.	○	○	○
» Geographic Information Systems (GIS)	○	○	○
» GIS-based Pavement Management System	○	○	○
» Solar panels in the right of way and facilities	○	○	○
» Cybersecurity	○	○	○
» Blockchain	○	○	○
» Internet of Things (IoT) applications - real-time, remote monitoring of infrastructure through sensors for maintenance	○	○	○
» RWIS - Road weather information systems	○	○	○
» Internet of Things (IoT) applications - remote monitoring of environmental habitat	○	○	○

» Fiber optics cables and boxes in ROW	○	○	○
» ITS I2V devices (infrastructure to vehicle)	○	○	○
» Advanced pavement materials for pavement repair	○	○	○
» Virtual reality	○	○	○
» Mixed reality such as HoloLens	○	○	○
» Augmented reality	○	○	○

Please tell us about any other technologies that you think highway maintenance workers might use in the future.

Please provide commentary on new skills that a worker may need in the future.

How much do the following factors contribute to the slow adoption of technologies in the area of highway maintenance?

	Not at all	A little	Somewhat	Quite a bit	A great deal

Lack of qualified workers	○	○	○	○	○
High cost of entry to new technologies	○	○	○	○	○
Non-existent training	○	○	○	○	○
Cost/benefit or ROI not undertaken	○	○	○	○	○
Lack of funding	○	○	○	○	○
Lack of support from upper management	○	○	○	○	○
Generational differences to adopting new methods	○	○	○	○	○
No reward for risk taking	○	○	○	○	○
Other, please specify	○	○	○	○	○

Thinking about highway maintenance in general, what is your organization's biggest challenge?

Will you be attending TRB 2018?

We invite you to be part of the discussion.

TRB Workshop 873: National Transportation Career Pathways Initiative Stakeholder Engagement

The impact of disruptive/transformational technologies in transportation on the workplace and workforce

Thursday, January 11, 2018
8:00am - 12:00pm

- ○ I will attend TRB and the workshop.
- ○ I will attend TRB but cannot stay until Thursday.
- ○ I will not be attending TRB.

Please provide your contact information.

Name	
Title	
Organization	
Address	
City	
State	
Zip Code	
Email	