



# Training: Don't start the season with

*New training videos from Clear Roads give guidance on clearing intersections and using liquid deicers*

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**B**eyond the basics of how to operate a plow, annual training helps keep winter maintenance operators and supervisors up-to-date on best practices as techniques and technologies evolve. For agencies dealing with high turnover rates, a strong training program is especially important.

“We bring in new employees constantly,” says Jeff Pifer, assistant director of

the equipment division at the West Virginia Division of Highways. “When you lose an operator who’s been there for 20 years, it’s hard to put 20 years of experience into a new hire in short order. It’s critical that we do training—every bit helps.”

For agencies that conduct their own training in-house, the Clear Roads winter maintenance research consortium ([clearroads.org](http://clearroads.org)) provides a valu-

Clear Roads training videos demonstrate efficient approaches for plowing 10 different intersection and interchange layouts (photo courtesy of Missouri DOT).



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able resource: free training materials that agencies can incorporate into their programs.

“As a consortium of 36 state DOTs, one of our key goals in developing training materials is to provide a common resource that we can all benefit from,” says Clear Roads representative Scott Lucas, assistant administrator for the Ohio DOT Office of Maintenance Operations. “In developing these materials, we’re able to pull from resources from a wide range of states and cherry-pick the best materials to put in our training.”



Liquid roadway treatments (photo courtesy of Oregon DOT)

Clear Roads used that approach in developing its well-received Snowplow Operator and Supervisor Training, which was released in 2017 and covered a wide range of topics. Following the success of that project, Clear Roads turned its focus to two areas where members saw a need for more instruction and guidance: plowing complex intersections and applying liquid deicers.

### Efficiently plowing intersections and interchanges

As traffic volumes have increased, engineers have designed new types

of intersections and interchanges that allow traffic to flow efficiently using multiple merging and turning points. Intersecting roadways can be challenging for snow removal crews, however, and Clear Roads agencies needed a way to help plow operators visualize complex intersections and clear them effectively.

Clear Roads researchers surveyed practitioners in 21 states on the best tools and techniques for plowing 10 different types of intersections and interchanges, then created video animations depicting an aerial view of a snowplow’s path.



Plow operator on the job (photo by Cathy Morrison, Missouri DOT)

The videos show how to plow four intersection types (four-leg, roundabout, median U-turn and displaced left-turn), and six interchange types (single-point, cloverleaf, diamond, diverging diamond, double roundabout and directional T).

“The training is done in a graphical format so you can see how the truck is moving through and what each pass looks like,” says Kevin Hensley, APWA’s liaison to Clear Roads and superintendent of public services for the City of West Des Moines, Iowa. “The great thing about video-based training is that you can fast-forward and rewind as many times as needed to really get it set in your mind.”

Of course, there’s no one right way to clear an intersection. For each layout, the project committee and researchers evaluated multiple approaches and agreed on one to highlight as a best practice. “By showcasing one approach to clearing an intersection, it may



Image from Clear Roads training on Plowing Intersections and Interchanges (from Practice Manual)

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provide additional food for thought for an agency that doesn’t normally do it that way,” says project champion Justin Droste, asset maintenance engineer at Michigan DOT.

In some cases, seeing the potential for increased efficiency can help justify a new hire or an equipment purchase. “Sometimes the best way to clear a new type of intersection is with equipment

that you may not own yet,” Lucas says. “You may need a left-wing plow when you only have a right-wing plow, or you may not own a wing plow at all.”

In addition to the videos, the training materials include printable reference cards that can be distributed to operators or posted in breakrooms.

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**~ Jeff Pifer, Assistant Director, Equipment, West Virginia Division of Highways**

### Getting the word out: Liquid roadway treatments

Many agencies use salt brine and other liquids as anti-icing treatments to prevent ice from forming on roadways. But the application of salt brine as a deicing treatment—during or after a winter storm—has been slower to catch on.

“It’s not an easy sell, because putting liquids down on the road is kind of counterintuitive,” Pifer says. “People think you’re going to freeze the road up.”

Clear Roads members are taking a second look at liquids. When used in the right conditions, liquid *deicing* treatments can be as effective as granular treatments while using less salt. Liquids are especially effective during light snowfalls and at milder temperatures. Agencies also use liquids as anti-icing treatments before a storm and to loosen packed snow for plowing.

“Here in Ohio, a big thing we’re tasked with is finding ways to save money and resources,” Lucas says. “Using more liquids is one way to do that.”

Clear Roads created two training videos to help agencies expand their use of liquids:



Screen shot from Clear Roads training video on liquid roadway treatments

- A shorter video (12 minutes) for agency decision-makers and the general public that discusses the benefits of liquid anti-icing and deicing treatments while addressing common misconceptions.
- A full-length video (24 minutes) for practitioners that includes information from the short video as well as tips for starting a liquid program, discussion of equipment types, and recommended usage parameters and application rates.

The videos are a good complement to the discussion of liquids in APWA’s Winter Maintenance Supervisor Certificate training program, Hensley says. “For agencies that are interested in exploring this approach, the Clear Roads training goes into more depth about how to implement it,” he says.

To accompany the videos, researchers created two printable reference guides—a Start-Up Reference Guide to help agencies gain buy-in and a Technical Reference Guide with more detailed usage parameters, application rates and general tips.

### Snowplow operator and supervisor training

The video-based training on clearing intersections and applying liquids can be used in conjunction with Clear Roads’ flagship training program: Snowplow Operator and Supervisor Training.

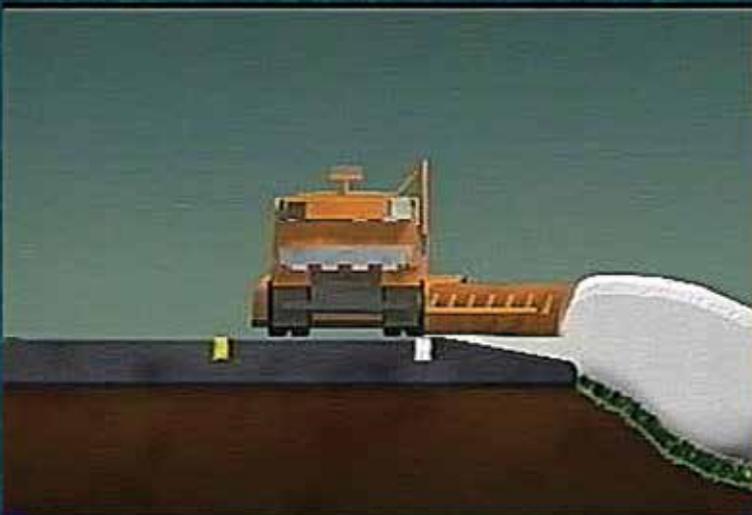
Available as a free download for any agency, the training consists of 22 modules on topics such as plowing procedures, spreaders, pre-wetting, deicing, anti-icing and safety. Designed to be presented by an instructor, each module includes a PowerPoint™ file with teaching notes, an instructor’s guide, and a set of pre-tests and post-tests.

The modules provide over 42 hours of training materials (most modules take 90 to 120 minutes to teach). The modules can be used as a complete package or individually, and agencies can edit and customize them as needed. Each module contains two tracks: operator training and supervisor training.

Since the modules’ release in 2017, they have been accessed by more than 100 agencies and organizations, including many county and municipal highway departments.

# Tips from experienced drivers:

Avoid 'down winging' (lowering the back of the wing lower than the road), which may damage equipment.



Push arms level with moldboard.



Could also cause damage to roadside.



Presentation slide from Clear Roads Snowplow Operator and Supervisor Training

Hensley says he hopes that public works agencies will continue to make use of the research and training materials that Clear Roads has to offer.

"Clear Roads produces real, practical research that people can use in their jobs every day," Hensley says. "It's a free resource that all APWA members should take advantage of."

Looking ahead, Clear Roads is continuing to identify topics that could benefit from training materials. Currently in the works: Defensive driving training for snowplow operators, and a report examining equipment repair training needs for mechanics and operators.

To download the training materials discussed in this article, visit the Clear Roads website:

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**~ Kevin Hensley, Superintendent of Public Services, West Des Moines, Iowa**

- Plowing Intersections and Interchanges: <https://clearroads.org/project/14-03/>
- Liquid Roadway Treatments: <https://clearroads.org/project/16-06/>
- Snowplow Operator and Supervisor Training: <https://clearroads.org/project/12-04/>

For more information on APWA's Winter Maintenance Supervisor Certificate program, visit <http://apwa.net>.

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