

MDOT Tow Plow Experience



Presented by:

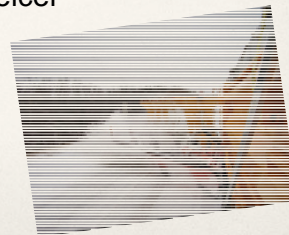
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Michigan 2013 Winter Operations Conference October 16-17

What is a Tow Plow?

- ✦ A steerable trailer-mounted plow
- ✦ Articulates to one side doubling total plow width
- ✦ Equipped with hopper or tank for dispensing deicer
- ✦ 26' moldboard



Tow Plow Adopters

- ✦ At least 300 in service in North America
- ✦ Used in 20 states
- ✦ Over 100 purchased by contractors in Canada
- ✦ Nearly every state that has purchased one has purchased additional units the following year



Tow Plow: Welcome to Michigan

Why the Tow Plow in Michigan?



Tow Plow Training

- ❖ Specialized equipment requires specialized training
- ❖ Focus on safety of operator and motoring public
- ❖ Classroom and driving course components
- ❖ Developed through a partnership with region and OFS
- ❖ Shared with other states



MDOT

Michigan Department of Transportation
Tow Plow Training Guide



Media Engagement

- ❖ Statewide press release
- ❖ Three live media events
- ❖ Dozens of media outlets ran story

New Snow Plow Is Coming To Michigan This Winter

January 6, 2013 9:30 PM

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HOWELL (AP) - Michigan is bringing in a new type of **green plow** this winter, one that can clear widths up to 25 feet.

The state Department of Transportation says the Tow Plow costs \$63,000, and with regular maintenance has an average service life of 30 years. That compares with a 10-year average for a standard plow.

State transportation officials say that by using the Tow Plow, crews can clear both the **green**

MDOT's new Tow Plow testing in U.P. starts Thursday
Fast Facts: - MDOT Superior Region officials are bringing the Tow Plow to St. Ignace for a trial period.

MDOT to test new snow plow this week

Tow Plow visiting Kalamazoo this week

MDOT's New Tow Plow in St. Ignace For Trial Period

Posted: Mar 14, 2013 8:42 PM EDT

Updated: Mar 21, 2013 8:42 PM EDT

By Christina Vachon, Reporter - email



Driveways are common around northern Michigan, but what about a 'Tow Plow'?

The first state-owned Tow Plow is making its way around Michigan, stopping today, Thursday, in St. Ignace.

MDOT workers trained on the Tow Plow in a parking lot.

The plow attaches to a regular plow truck, and makes things twice as efficient. When activated, the wheels of the Tow Plow turn at much as 30 degrees.

Instead of plowing one lane at a time, road workers can clear two full lanes in one pass. MDOT says this will save both time and money.

New Tow Plow, to be tested in Kalamazoo, can do the work of 2 regular snow plows

News | Government

Livingston County First in State to Use New Snow Plow

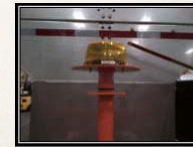
Modifications to Truck and Tow Plow



- ❖ Kuper cutting edges
- ❖ Proximity switches and hour meter
- ❖ Spot lights
- ❖ Additional stop, park and turn lights
- ❖ 5 additional strobe lights
- ❖ Hydraulic directional valve
- ❖ Work lights
- ❖ Additional mirror



Table 1: Costs of Modifications	
Hydraulic Directional Valves	\$600
Drop Chutes	\$200
Plumbing	\$300
Additional Light on Truck	\$100
Additional Mirror	\$150
Rubber-Cutting Edges	\$3,640
Additional Strobe Lights	\$450
Stop, Park, and Turn Lights	\$450
Total	\$5,890



Tow Plow In Action

- ❖ First Deployment: January 21, 2013
- ❖ Lack of snow events lead to the "Good Will" tour
 - ❖ 4 regions
 - ❖ 6900 total miles traveled
 - ❖ 115 hours



After Season Operator Survey



- ✦ Public reaction to seeing the Tow Plow deployed was not out of the ordinary
- ✦ Parking, turning around, and unloading salt were the most common issues stated
- ✦ Maintenance facilities are not designed to store the equipment effectively
- ✦ Most operators were comfortable using the Tow Plow after just a short time training
- ✦ In most areas the truck horse power was adequate

University Region

- ✦ Why in Brighton
 - ✦ It's not about the snowfall
 - ✦ It's all about operations



University Region Experience

- ✦ Keys to success
 - ✦ Get past the hysteria
 - ✦ Find the right operator
 - ✦ Start out slow
 - ✦ Talk is cheap-let people take it for a spin!



Tow Plow Concerns

- ✦ Visibility of Tow Plow
- ✦ Impeding flow of two lanes of traffic
- ✦ Mechanical breakdown of tow truck would take Tow Plow out of service
- ✦ Hitting objects (curbs, signs, disabled vehicles)



Tow Plow Benefits

- ✦ It's all about the money
- ✦ Achieve desired LOS quicker
- ✦ One pass clearing on ramps
- ✦ Less dead time reloading salt
- ✦ Less damage to shoulders



Theoretical Cost/Benefit

Cost Savings Component	Route	Driver Cost per Hour	Equipment Cost per Hour	Total Cost per Hour	Cost per Lane Mile
Tandem with Right Wing					
Longer Plow Routes	Route 1: 40 lane miles	\$43.50	\$144.75	\$188.25	\$4.71
Tandem with Left Wing and Tow Plow					
Longer Plow Routes	Route 2: 60 lane miles	\$43.50	\$174.75	\$218.25	\$3.64
Cost Savings per Lane Mile with Tow Plow					\$1.07
Average Number of Events: 20	Cost Savings per Year with the Tow Plow				
Average Hours per Event: 6	\$7,695.00				

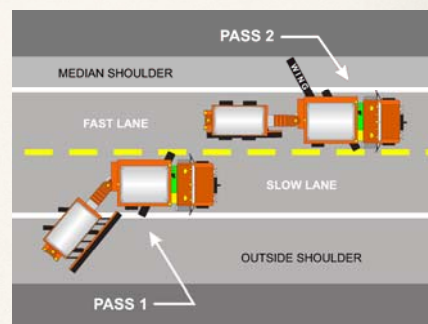
Cost Savings Component	Route	Cost per Hour	Cleanup time (Hours)	Total Cleanup Cost
Tandem with Right Wing				
Faster Cleanup After Winter Events	Route 1: 40 lane miles	\$188.25	4	\$753.00
Tandem with Left Wing and Tow Plow				
Faster Cleanup After Winter Events	Route 2: 40 lane miles	\$218.25	2	\$436.50
Cost Savings per Event				\$316.50
Average number of Events: 20	Cost Savings per Year with the Tow Plow			\$6,330.00

Recommended Uses

Benefits	Impact on Customers and Infrastructure	Concerns
Six-Lane Freeway		
<ul style="list-style-type: none"> Ability to clear middle and slow lane in one pass Faster cleanup of ramps Ability to clean outside shoulders without running truck on shoulder 	Increased level of service because more lanes are cleared.	Will block both two of traffic.
Four-Lane Freeway		
<ul style="list-style-type: none"> Ability to clear passing and slow lane in one pass Faster cleanup of ramps Ability to clean outside shoulders without running truck on shoulder 	Increased level of service because more lanes are cleared.	Will block both lanes of traffic.
Four-Lane Boulevard		
<ul style="list-style-type: none"> Ability to clear both lanes in one pass 	Can extend route length without reducing level of service	Will block both lanes of traffic.
Two-Lane Road with Passing Relief Lanes		
<ul style="list-style-type: none"> Ability to clear both travel lane and passing lanes in one pass 	Motorists will have full access to passing relief lanes much sooner than before.	

Winter 2013-2014-University Region

- ❖ New Tow Plow will also have left wing
- ❖ 2-pass freeway clearing



Evaluating the Use of Tow Plows in Michigan

- ✦ MDOT sponsored research project
- ✦ Collect operational data over 2 winters
- ✦ Calculate a true cost/benefit
- ✦ Recommend most effective routes to use a Tow Plow
- ✦ Lawrence Tech was selected to do research



Winter 2013-2014

- ✦ Will provide a full season to evaluate the Tow Plow
- ✦ Three additional units were purchased this summer
- ✦ Tow Plows will be stationed in St. Ignace, Saginaw, Brighton, and Grand Ledge



Questions?

