



Purdue Road School



Underbody Scrapers & Wings



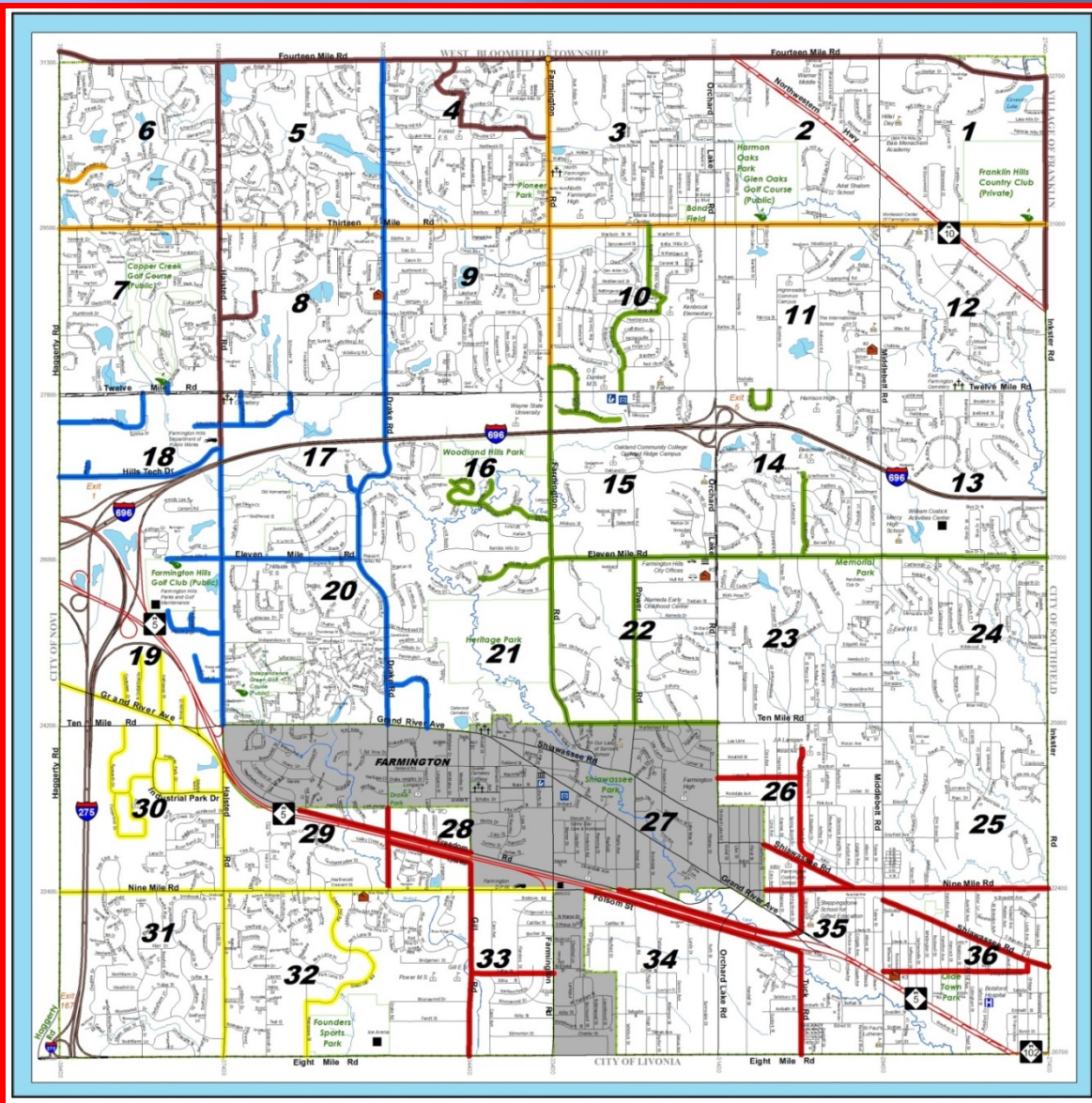
Snow Plowing/Underbody/Wing Action Video

[Link](#)



- Division of Public Works (DPW) maintains a network of more than 58 miles of major roads and 247 miles of paved and unpaved local roads (centerline)
- 170+ Major Rd. Lane miles (some are 5 + lanes wide)
- 9TH largest municipal street network in the state of Michigan and the largest in Oakland County
- Area residents and businesses have high expectations for the City's public services LOS (Level Of Service)
- APWA 2011 Excellence in Snow and Ice Control Award
- APWA Accreditation 2017





FH's Road Network

- 170 Miles of Major Road
- 538 Miles of Residential Road
- Includes 22 Miles of gravel
- 700 + Lane - Miles



Winter Maintenance/Best Practices

- Use **Mechanical means** to remove Snow and Ice such as **plowing**, brooming or blowing as much as possible.



Plowing Vs. Burning it off



Your Costs....



Staff



Equipment



Materials



\$

25% to 45% Budget
For the average year for Winter
Maintenance

Diminishing Return on Investment other than
Public Safety !

Credit: DWClonch,LLC



Single Axle/5 TONS - SALT= \$300+

EVERYTIME YOU
LOAD UP !!



TOOLS IN THE TOOL BOX



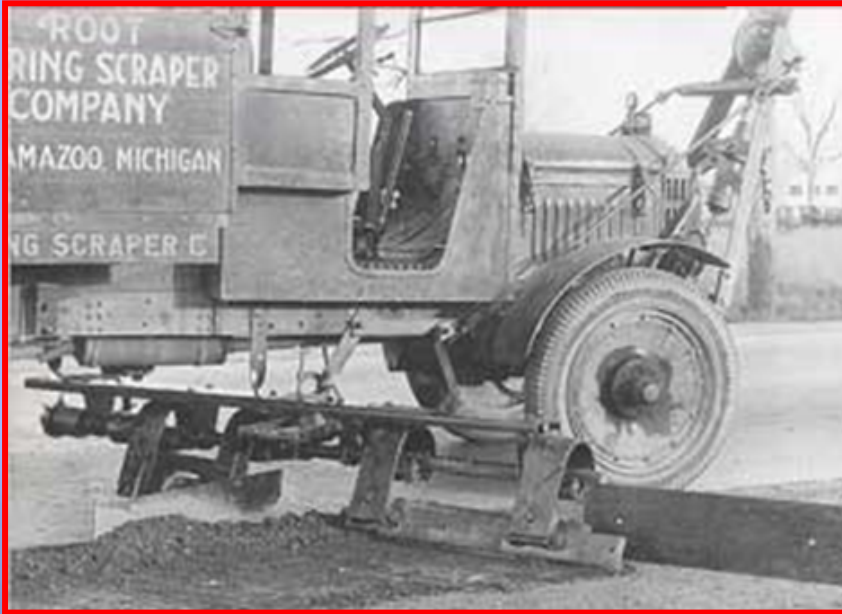
Versatile
Flexible
Efficient



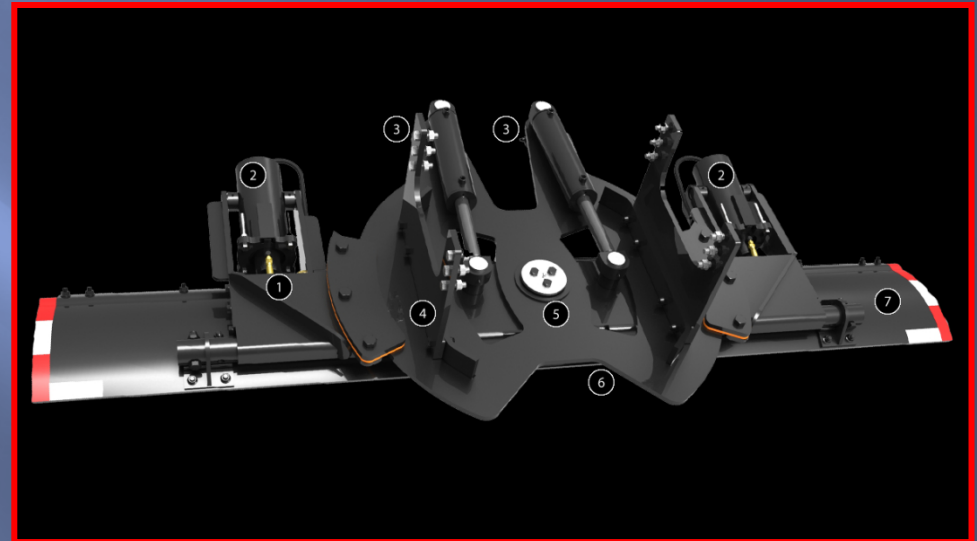
BEST PRACTICES



Underbody History



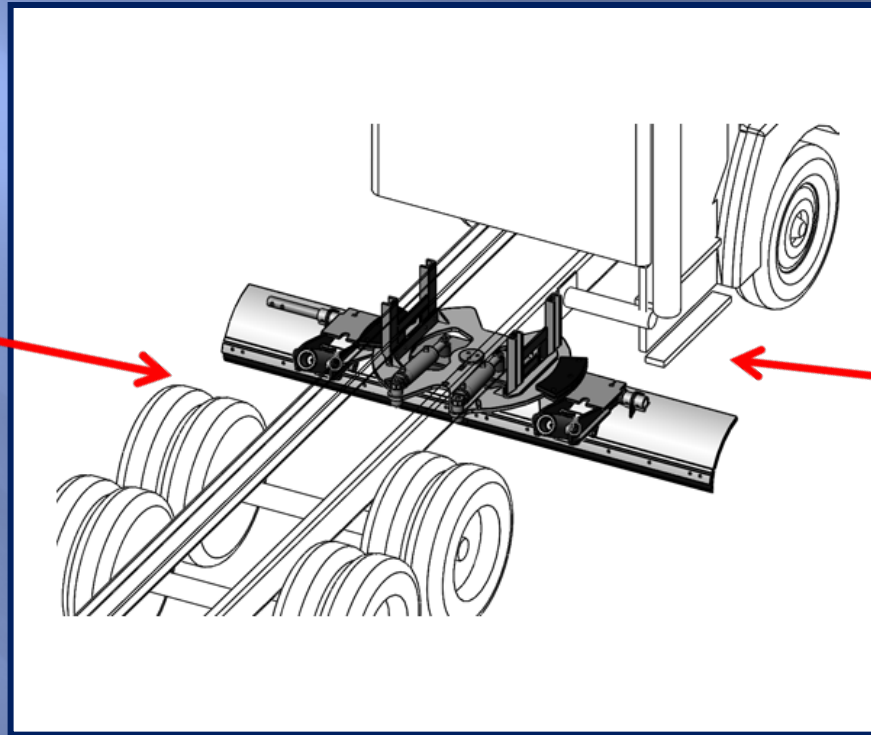
*ROOT inc. Kalamazoo, MI:
picture of the latest in road
maintenance technology was
taken in 1929*



CURRENT



History



Underbody chassis / component location challenges with DEF components-move fuel/hydraulic tanks

Underbody/Belly Blade Applications

- Snow & Ice Maintenance
- Cutting / Floating Gravel Roads
- Gravel Shoulder Maintenance



GRAVEL ROAD Maintenance- Washouts-Frost



GRAVEL ROAD Maintenance- Floating/Placing Material



GRAVEL ROAD Maintenance- Floating/Shaping Material Instead of Motor Grader



Scarifier Bits vs. Flat or Serrated Blades



Reclaiming Material on Shoulders



Floating Material off of Pavement



Winter Maintenance



Front, Underbody & Wing Demo Video

[Link](#)

Hard Pack/ Front Plow Left



Courts – Reverse to pull Snow inside lane



5-6" or less / Hard Pack



Down Pressure using a serrated blade on icy gravels



Underbody Maintenance



Underbody Maintenance



WING



PLOW



Wing Plow Applications

- **Snow & Ice Maintenance**
- **Benching Snow / Shoulders (Gravel)**
- **Efficiency – Local Roads / Trees
Mailboxes**



Snow Plow Video

FH's Underbody /Wing Video

[Link](#)



“We’ve **N**ever Had
an agency come
back to us & say
Please REMOVE this
.....**#%&\$#!\$%@**
WING PLOW “ 😊😊

Mark Lester “Truck & Trailer “ Michigan





7' Jr. Wing-Efficiency





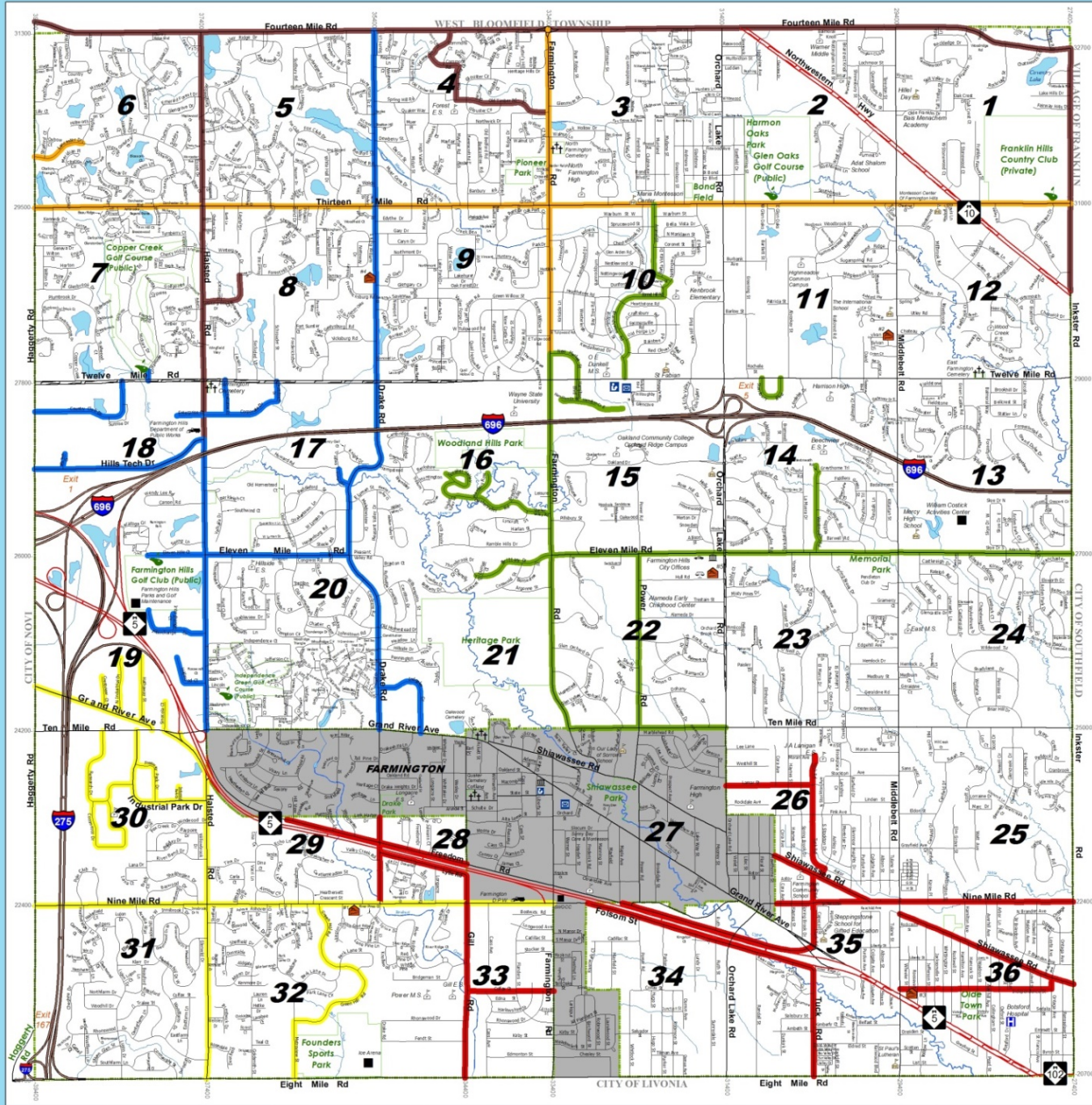
Efficiency





Efficiency





FH's
 Plowing
 Efficiency
 with
 WING



Effieciency

<https://www.youtube.com/watch?v=xpOro5lkRb4#action=share>



Cutting Edges



**Reverse Curve
Mild Steel**



**Recycled
Tire (MI)**



Components Vary by Manufacturer



Wing Shoes



Shoes



Shoes



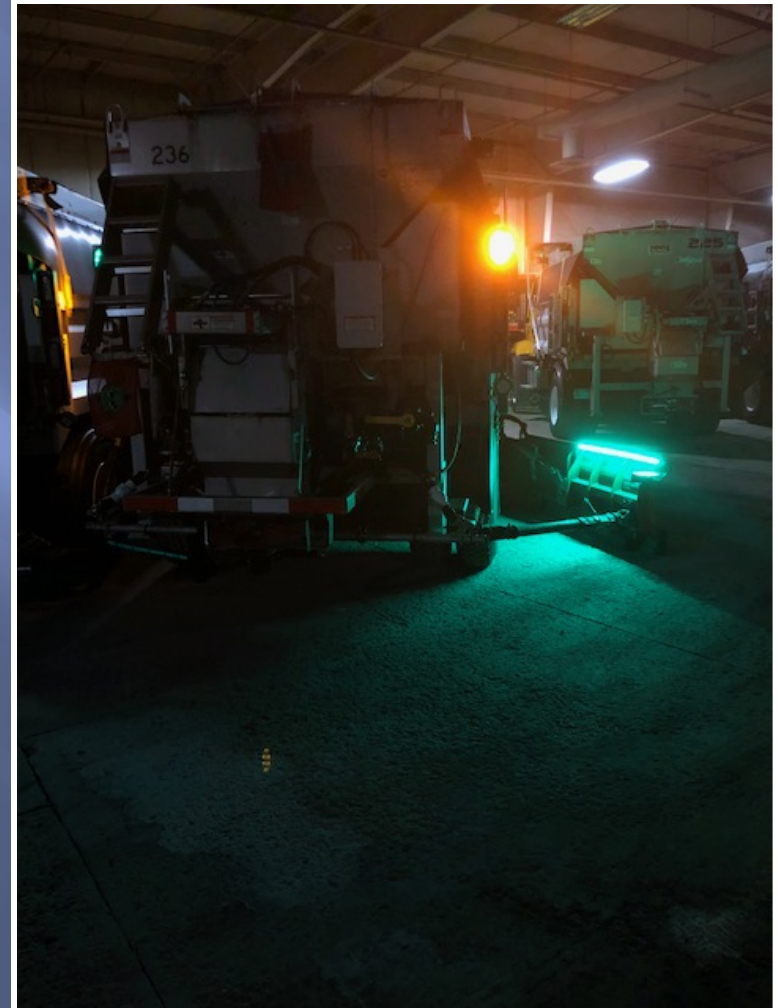
Lighting / Safety



Wing



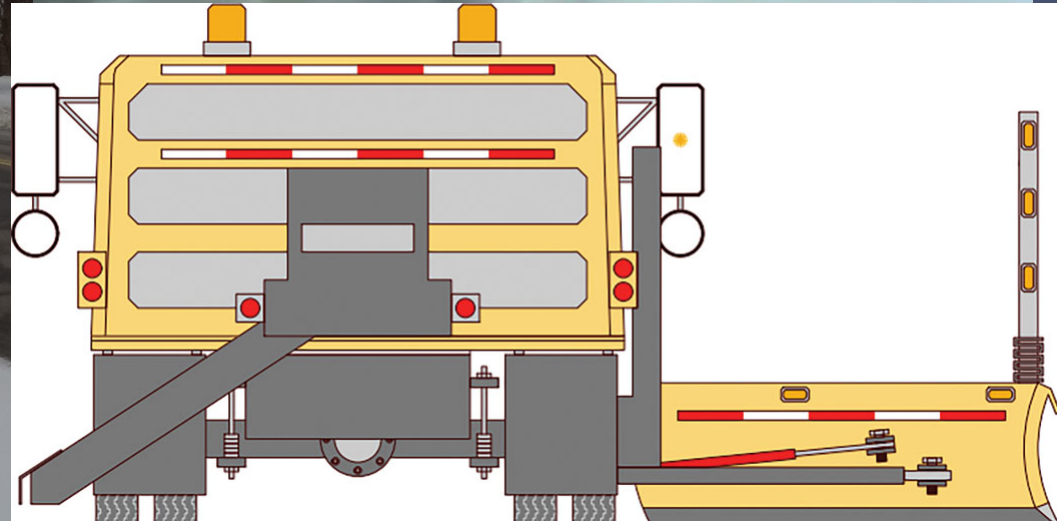
Lighting / Safety



Wing



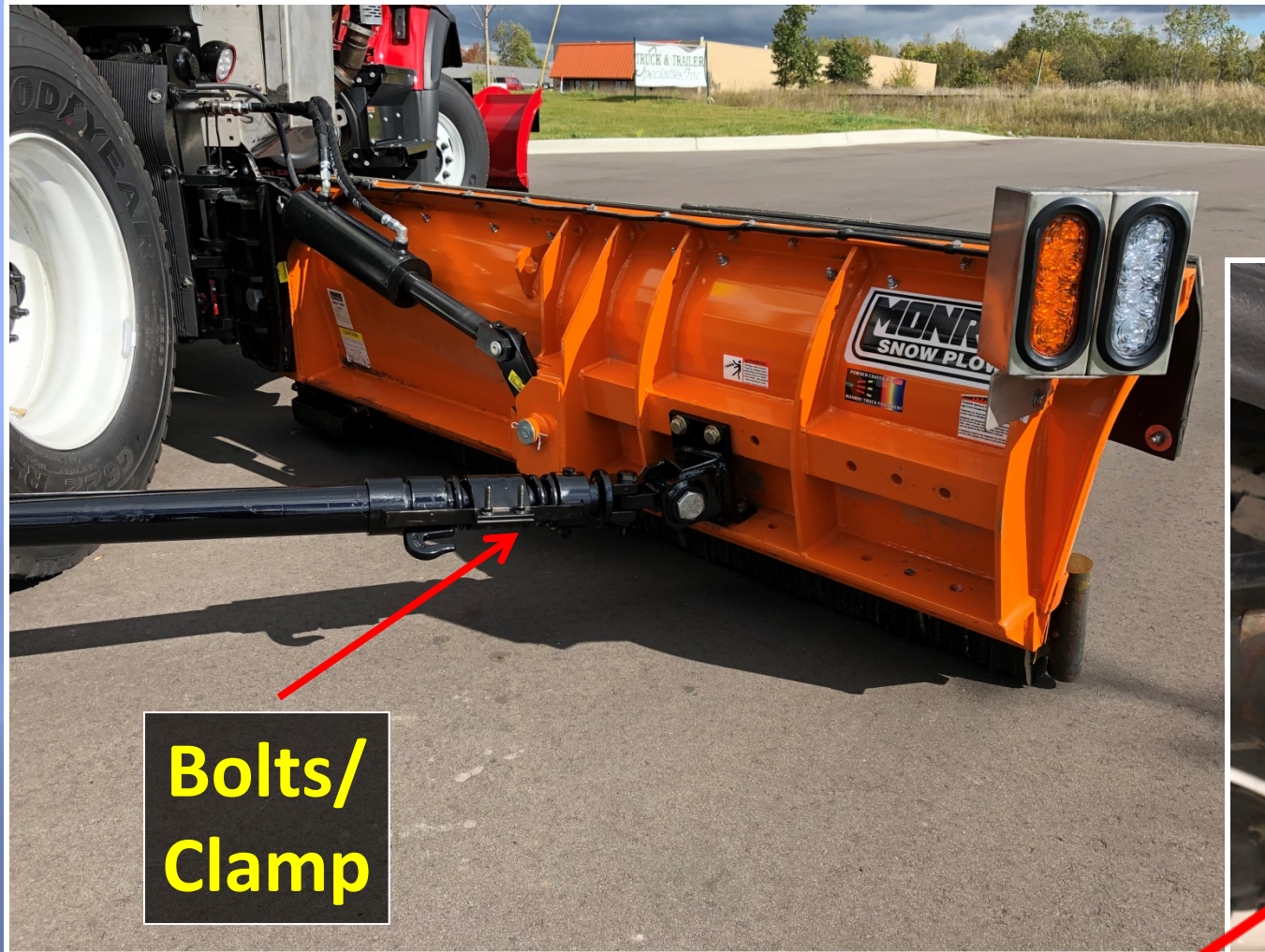
Lighting / Safety



<https://www.youtube.com/watch?v=AUCHgrktrK8#action=share>

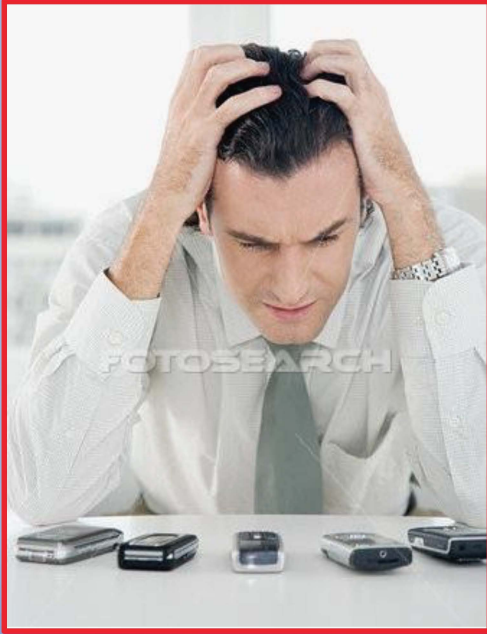


Wing Maintenance



**Bolts/
Clamp**





Training / “Buy-In”-Issues- Novi MI.





**Plow
Lasers**



Tools for the Wing



Components Vary by Manufacturer



Components Vary by Manufacturer



Components Vary by Manufacturer



CALIBRATION



Wing

Underbody
Scraper

Front Plow



Calibration of Joystick for “Feel” & Control



- Controllers / Joystick does has multi functions

Support from Vendors / Manufacturers



SAFETY

PROTECT YOUR ASS



Wing Chains FOR SAFETY



TRAINING



Vendors



Potlucks



Workshops



TRAINING - TEAMWORK



Your #1 Resource – The Team!



QUESTIONS?



Bryan Pickworth

Road Maintenance Supervisor

City of Farmington Hills, MI

Dept. of Public Works

- 28 years as an employee of the City beginning as a Laborer in 1991, moving up the ranks to Equipment Operator III/Crew Leader and promoted to Road Maintenance Supervisor in 2004.
 - 2009 graduate of Michigan APWA's Michigan Public Service Institute
 - Member of national APWA Snow & Ice Committee
 - Current Responsibility's include:
 - Snow and Ice control , Liquids production, Stormwater drainage maintenance, Forestry operations, Inventory of Essential Materials , Safety and Various Training , Street sweeping and various other in-house & contracted services.
- bpickworth@fhgov.com or 248-871-2865



➤ •KEVIN MCCARTHY•

➤ SUPERINTENDENT ➤ CITY OF FARMINGTON HILLS, DIVISION OF PUBLIC WORKS

- The Superintendent of the Division of Public Works for the City of Farmington Hills.
- Has been with the City for over 33 years. Prior to his current assignment, he held the position of City Traffic Engineer and Senior Engineer for the City.
- Licensed Professional Engineer in the State of Michigan and holds a Bachelor of Science degree in Civil Engineering from Michigan State University. Also a 2014 graduate of the Michigan Public Service Institute.
- Current responsibilities include the management of 35 Public Works employees conducting roadway, storm-water maintenance, right-of-way maintenance & repair of 300+ center line miles of public streets, waste collection for a population of approximately 80,000 residents and oversees city-wide fleet acquisition, management and maintenance of over 350 vehicles and heavy equipment.
- kmccarthy@fhgov.com 248-871-2850



THANK YOU

- mark.devries@vaisala.com



dwclonch@gmail.com



THANK YOU for your time !



Front End Loader/Wing Plow Video

[Youtube Link](#)

Front, Underbody & Wing Demo Video (2)

[Youtube Link](#)

Double Wing/Underbody Plow Video

[Youtube Link](#)

Underbody Video-Overview

[Youtube Link](#)



European Underbody Plow Video

[Youtube Link](#)



Components Vary by Manufacturer





