



# Maryland Department of Transportation State Highway Administration



## Winter Hired Equipment Presentation

revised 08/05/2020



# Presentation Agenda

- Contract Item Numbers/Invoicing Samples
- Right to Audit Clause
- Conflict of Interest Clause
- Contractor Requirements
- Salt Usage/Environmental Impacts
- Plowing Best Practices
- Social Media
- Equipment/Facility/Structure Damage



# Item Number/Invoicing Requirements

- Item numbers have been established for equipment type/configurations in the Contract
- These will be required on the Contractor Equipment Questionnaire and all invoices
- If item numbers and equipment type/configurations are not included on the Contract /invoices this will delay payment

# Item Number Example

## Item Single Axle Dump Trucks

## Hourly O

- (01) Single axle dump with Contractor supplied snow plow and Control Point spreader
- (02) Single axle dump with Contractor supplied snow plow and salt spreader
- (03) Single axle dump with Contractor supplied salt spreader and SHA supplied plow
- (04) Single axle dump with Contractor supplied snow plow and SHA salt spreader
- (05) Single axle dump with Contractor supplied snow plow
- (06) Single axle dump carrying SHA supplied snow plow and salt spreader
- (07) Single axle dump carrying SHA supplied snow plow
- (08) Single axle dump for hauling salt, abrasives or snow

## Item Tandem Axle Dump Trucks

- (09) Tandem axle dump with contractor supplied snow plow and Control Point spreader
- (10) Tandem axle dump with Contractor supplied snow plow and salt spreader
- (11) Tandem axle dump with Contractor supplied salt spreader and SHA supplied plow
- (12) Tandem axle dump with Contractor supplied plow and SHA supplied salt spreader
- (13) Tandem axle dump with Contractor supplied snow plow
- (14) Tandem axle dump carrying SHA supplied snow plow and salt spreader
- (15) Tandem axle dump carrying SHA supplied snow plow
- (16) Tandem axle dump for hauling salt, abrasives or snow

## Item Tri-Axle dump trucks

# Equipment Questionnaire Example

## CONTRACTOR EQUIPMENT QUESTIONNAIRE

COMPANY NAME

COMPANY PHONE

COMPANY EMAIL

**Available for**

County

[illegible]



## WINTER HIRED EQUIPMENT CONTRACTOR INVOICE TEMPLATE

**Invoice Number:** \_\_\_\_\_ **BPO #:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Federal I.D. # or Social Security #:** \_\_\_\_\_ **Company Name:** \_\_\_\_\_

**Company Address:** \_\_\_\_\_

**Bill To: Maryland Department of Transportation State Highway Administration**

Address: \_\_\_\_\_

Event #

Item No.	Type of Equipment/Configuration	Tag No.	Date(s) of Service	Check In	Check Out	Rate	Travel Time (if applicable)	Clean Up Time (if applicable)	Down Time	Total Hours	Redeployed (EA)	Amount
	SAMPLE BELOW											
(23)	Tri Axle Dump w/ SHA Plow	123456	12/29/20	0100	1200	125.00	N/A	N/A	N/A	11.0	N/A	1375.00
		Total Amount of Invoice										1375.00

Company Representative Name (printed)



# Right to Audit Clause

- This requires the Contractor to maintain all records pertaining to the Contract for three (3) years, after the Contract end date, and make them accessible at MDOT SHA's request
- This could be documents that are paper, electronic, .pdf, carbon copy, etc.
- Any monies found owed to the Administration will be deducted from future payments or captured by other means if necessary



# Conflict of Interest Clause

- This requires the Contractor to disclose any relationships within company framework that might cause a conflict of interest
- The Contractor is required to disclose any potential conflict of interest to MDOT SHA once they become aware
- The Contract may be terminated but MDOT SHA will need to conduct a thorough investigation





# Winter Operations

- Safety is the Maryland Department of Transportation State Highway Administration's (MDOT SHA) number one priority during all snow storm activities
- Snow removal equally shares first priority regarding highway maintenance operations
- MDOT SHA and Contract forces are jointly responsible for minimizing impacts to our environment and minimizing winter operations costs

# Winter Operations

- MDOT SHA's policy states that winter operations will continue until all state roads are free of snow and ice
- If needed, relief operators shall be employed by the Contractor and shift changes shall occur on the assigned snow route or at a pre-determined location
- Contractor operators are not exempt from any FMCSA laws or regulations while performing winter operations for MDOT SHA





# Contractor Equipment Requirements

- All equipment used for snow removal operations **SHALL** have met the Contract requirements
- All equipment used for snow removal operations **SHALL** be approved by MDOT SHA, listed on or added to the Contract prior to its use
- If any equipment used by the vendor is found to be non-compliant and in breach of the Contract it may be terminated



# Snow Removal Requirements

- Operators are required to have all equipment calibrated and operational prior to check in
- All contract personnel and equipment must be logged in and out of service and, at the request of the facility, operators must provide their cell phone number
- ***NO REPAIR DELAYS!*** All equipment should be ready for work upon arrival
- MDOT SHA will not pay for down time on trucks and equipment that extends beyond one hour

# Snow Removal Requirements

- All CB radios must be in good working condition
- Check with your Snow Supervisor for the appropriate channel
- MDOT SHA equipment being utilized by contract forces shall **NOT** be used for any other work



wiseGEEK



# Automatic Vehicle Location (AVL)

- AVL technology will be used to track the current and past locations of MDOT SHA trucks and select contract equipment
- AVL technology will increase the efficiency, effectiveness, and safety of MDOT SHA and contracted equipment operators



# Automatic Vehicle Location (AVL)

- The Contractor's truck shall provide a 12 volt DC Power Port or other similar power source for the plug-in AVL unit
- The power source shall be in the truck's cab in order to protect the AVL device from damage
- The Contractor's personnel may be assigned an AVL unit when they report for a storm
- The Contractor's personnel may be asked to sign a form accepting the AVL for the event





# Automatic Vehicle Location (AVL)

- The AVL unit must be kept operational throughout the storm and returned, in working order, at the close of the storm or winter season, whichever is the shop's preference
- Failure to keep the AVL unit powered during winter operations will result in a 50% deduction from the post-season retainer
- A second occurrence will result in no post-season retainer and the contract will be terminated
- The Contractor will have \$250 deducted from post-season retainer for failing to return the unit in working order





# Call-Out Phases

- Each storm is evaluated based on the forecasted accumulation and severity
- Report times can be accelerated based on intensity of the storm, timing of the event, and other factors beyond our control



# Call-Out Phases

- **Phase 1-** (0-1 inch forecast or  $<0.1$  inches of freezing precipitation) Includes only MDOT SHA Trucks
- **Phase 2** - (1-2 inch forecast or 0.1 to 0.2 inches of freezing precipitation) Includes Phase 1 trucks and hired spreader trucks to supplement MDOT SHA work forces on designated routes where there are no assigned MDOT SHA trucks

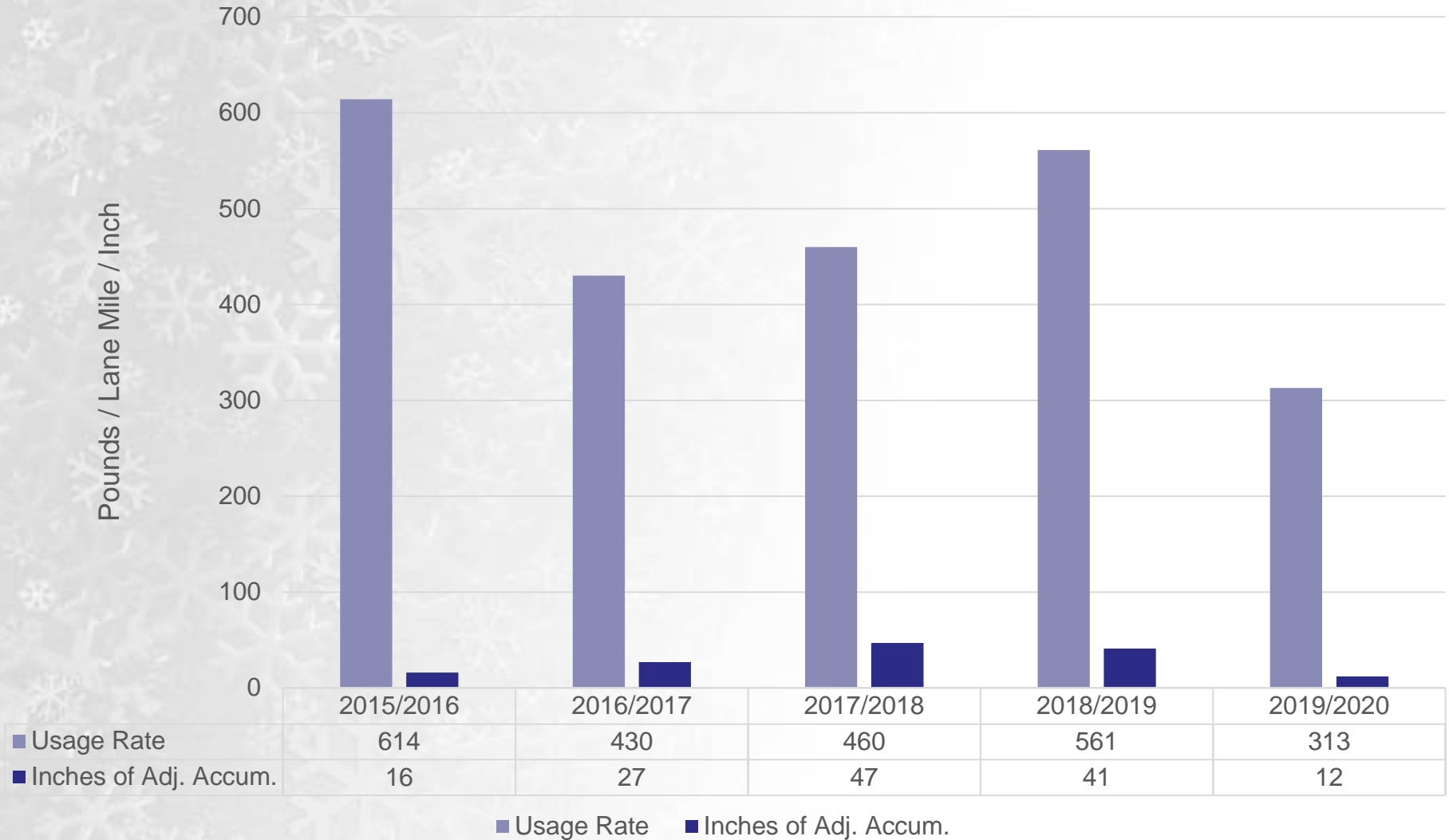


# Call-Out Phases

- **Phase 3** - (2-4 inch forecast or  $>0.2$  inches of freezing precipitation) Includes Phase 2 trucks and hired spreader trucks to supplement the MDOT SHA work forces during heavier snowfalls
- **Phase 4** - ( $>4$  inch forecast or major freezing precipitation) Includes all Phase 3 trucks and hired push trucks to supplement MDOT SHA work forces on designated routes as roadway conditions warrant



# Statewide Salt Usage Trend





# Salt Impacts on the Environment



***So what's the big deal?? Salt is a naturally occurring substance!***

While salt is a naturally occurring substance, high concentrations of salt negatively affect or destroy land based and aquatic habitats and species



# Salt Impacts on the Environment



- Once granular salt mixes with snow or ice it becomes a brine solution. This solution then runs off the roadway and is forever stored in soil or water and can reach levels that are considered unhealthy to the environment
- Salt will contaminate drinking water supplies in wells and in reservoirs, slows the establishment of vegetation or crops, and destroys waterways for fish and other marine life





# Salt Impacts on the Environment

Dumping salt in this area killed the vegetation and the area was at risk for erosion. This area had to be restored by removing contaminated soil, backfilling and seeding and mulching.





# TMDL

- **Total Maximum Daily Load**
- Definition: a regulatory term in the U.S. Clean Water Act, describing a value of the maximum amount of a pollutant that a body of water can ingest on a daily basis while still meeting water quality standards
- TMDL's already exist for phosphorus, nitrogen, and sediment for many watersheds and waterways in Maryland





# TMDL

- TMDL's for Chlorides (salt) are currently being discussed for some of Maryland's watersheds and waterways
- Should they be implemented MDOT SHA will be **required** by law to not exceed a set salt usage rate during winter operations
- Once a TMDL is placed on a watershed or waterway it carries heavy fines if not adhered to



# TMDL

Ask yourself these three simple questions when it comes to TMDL's and salt usage...

Do I enjoy spending time outdoors and enjoying some of Maryland's finest seafood?

Do I value the drinking water, health and well being of my spouse, child, or elderly parent?

Is there something I may be able to do different to make a difference?



# THE BOTTOM LINE

Over salting is ruining our environment and the very water we need to survive so realize it and let's collectively do something about it...



**YOU play a more prominent role in protecting our environment during winter operations than you may have originally thought**

# Practical Salt Usage

- A well trained operator knows when to apply salt, and when not to
- Use the correct amount of salt necessary to get the job done
- Using more salt than necessary actually works against you and damages the environment



# Practical Salt Usage

- Never overload trucks to avoid spillage of salt at MDOT SHA facilities and on the road
- Always travel at a safe speed for optimum performance, safety, and to help keep salt on the road and out of the roadside ditches







# Practical Salt Usage

- Always keep your load covered to avoid unnecessary loss of material when traveling
- Don't salt roads that have already been salted
- Only apply salt to your designated snow route when directed by MDOT SHA personnel
- Always use appropriate shop application rates or rates as directed by MDOT SHA management



# Practical Salt Usage

- Don't apply salt to a undesignated snow route unless directed to by MDOT SHA personnel
- All unused salt must be returned to the dome or barn that it was loaded from
- Never spread salt just to get rid of it



# Best Practices for Plowing Safety

- Be aware of the weight of heavy snow and the damage it can cause when thrown by a plow
- Never plow snow over bridge parapets or jersey barrier walls - that could endanger traffic and/or pedestrians below



# Best Practices for Plowing Safety

Watch out for manholes, railroad tracks, expansion joints, bridge abutments, utility cuts, mailboxes, etc.



# Best Practices for Plowing Safety

Watch for curbs and steel plates...





# Best Practices for Plowing Safety

Be aware your truck's bed height - watch for overhead signs, traffic signals, utility wires, tree limbs and bridges





# Roadway Configurations

## Intersections

- Empty your plow before crossing intersections
- Reduce the size of the windrow
- Avoid building snow banks that interfere with sight distance
- Keep traffic signs unobstructed from view



# Roadway Configurations

## Ramps and Curves

- Plow ramps and curves from the high side to the low side
- Spread salt on the high side of ramps and curves
- Keep your speed down on all ramps and curves



# Roadway Configurations

## Bridges and Overpasses

- Bridge surface may be higher than the road surface due to the bridge freezing and expanding
- Care must be taken not to throw snow over the bridge to the road below
- Keep the sidewalks on bridges open for pedestrians



# Shoulders, Medians & Jersey Barriers

- Plow away from medians with minimum width shoulder and barrier wall
- Avoid plowing snow against a jersey barrier as this creates a ramp for vehicles to possibly become airborne





# Mountains and Hills

- Traction is limited on hills
- Stopping can be difficult on hills
- Watch for melted snow refreezing in the road valley



# Railroad Crossings

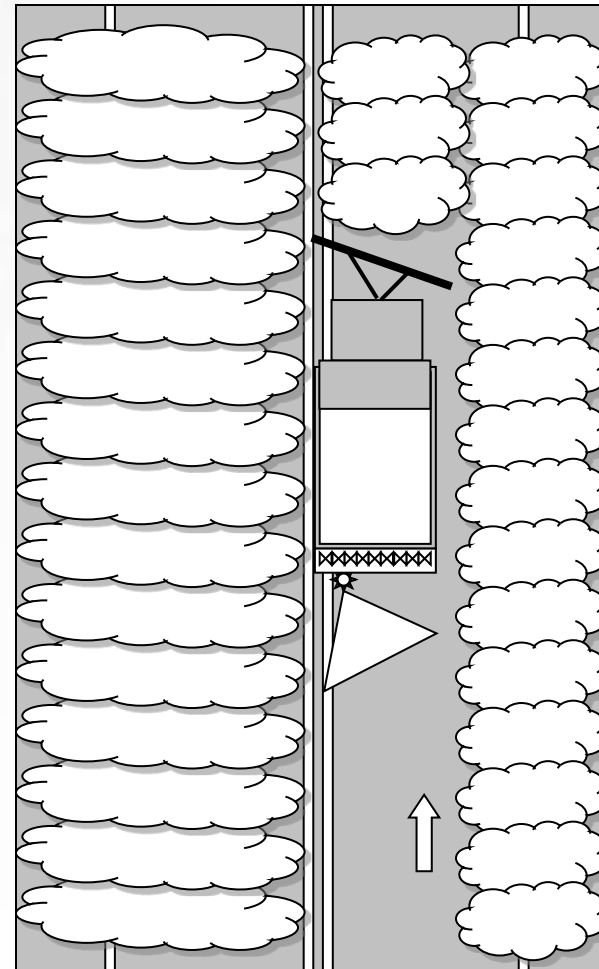
- Avoid piling snow against signals, switch boxes, signs, etc.
- Raise plows slightly when crossing railroad tracks
- Watch for flashing lights and mast arms blocking the roadways



# Two Way Road Single Truck

## First Pass

Plow lane in one  
direction and drop  
salt behind truck

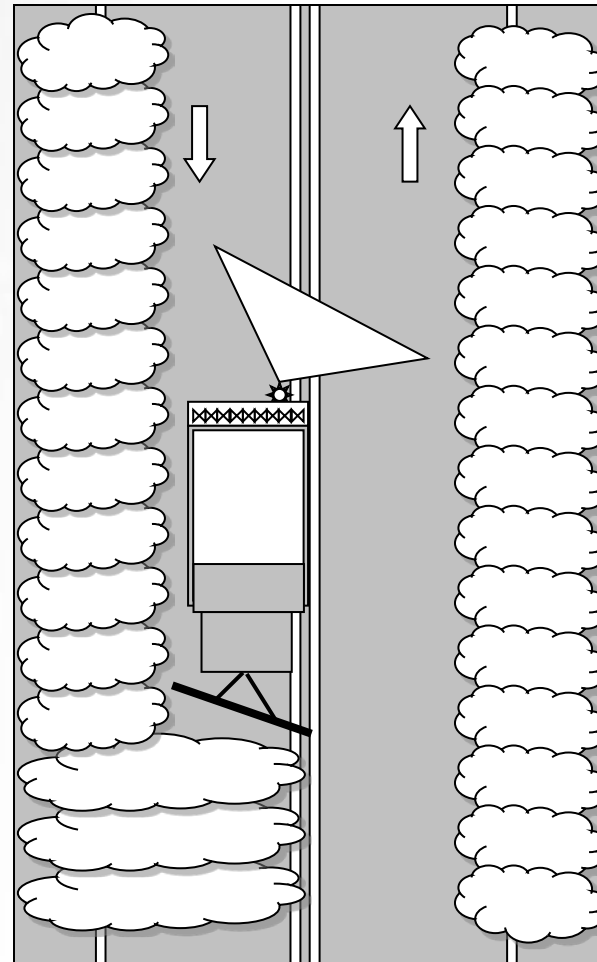




# Two Way Road Single Truck

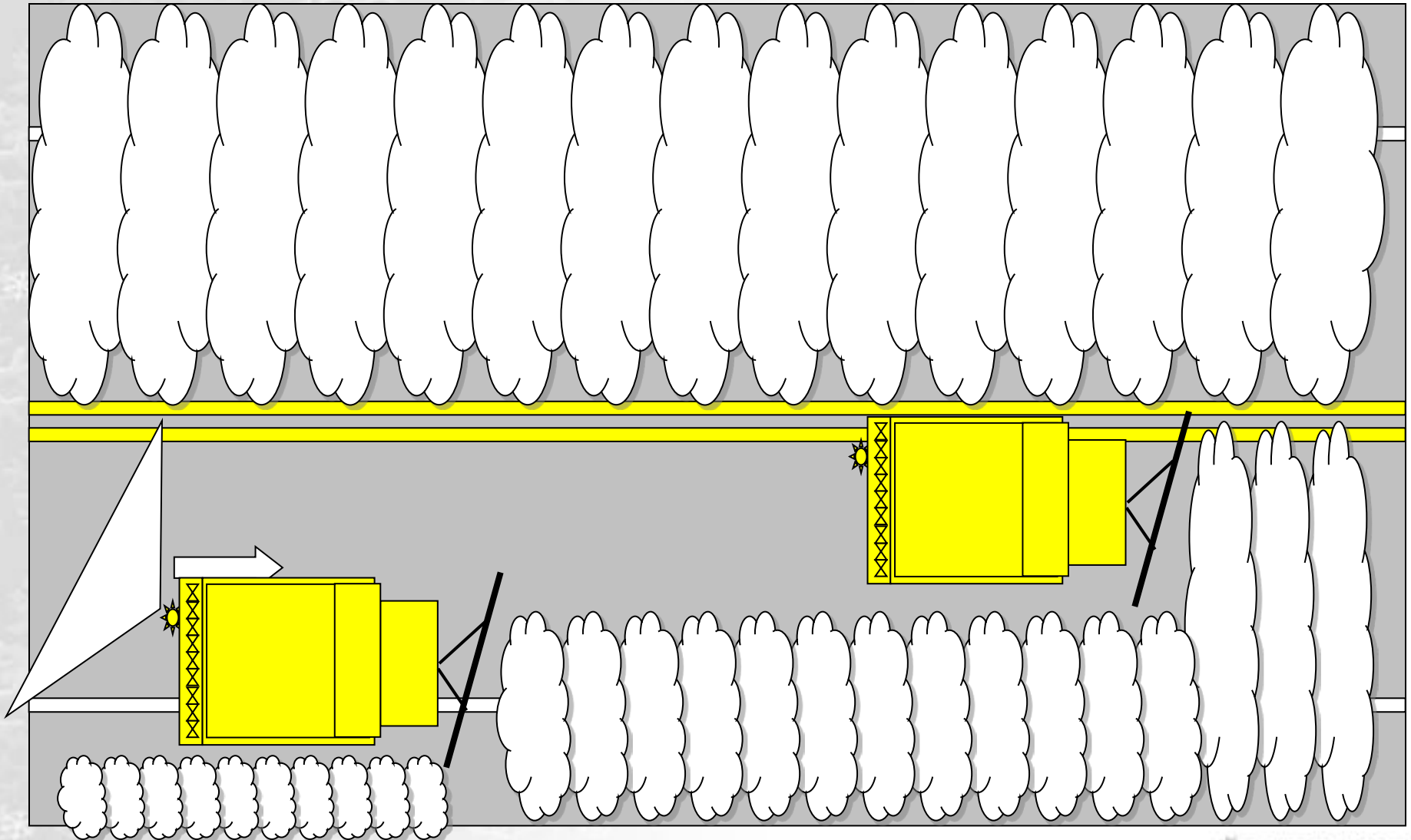
## Second Pass

After plowing in one direction, turn at end of route, plow lane in opposite direction and salt both lanes



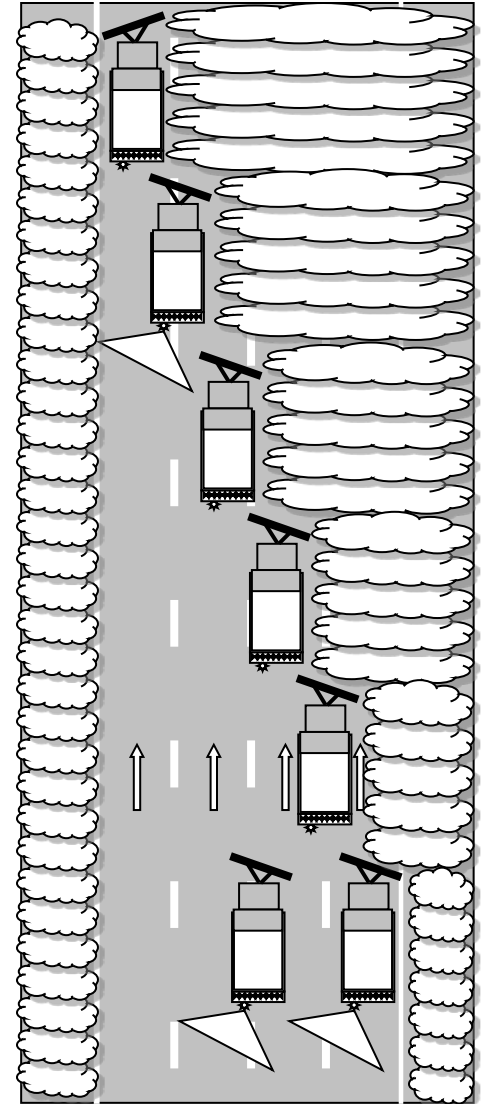


# Two Way Road Two Trucks



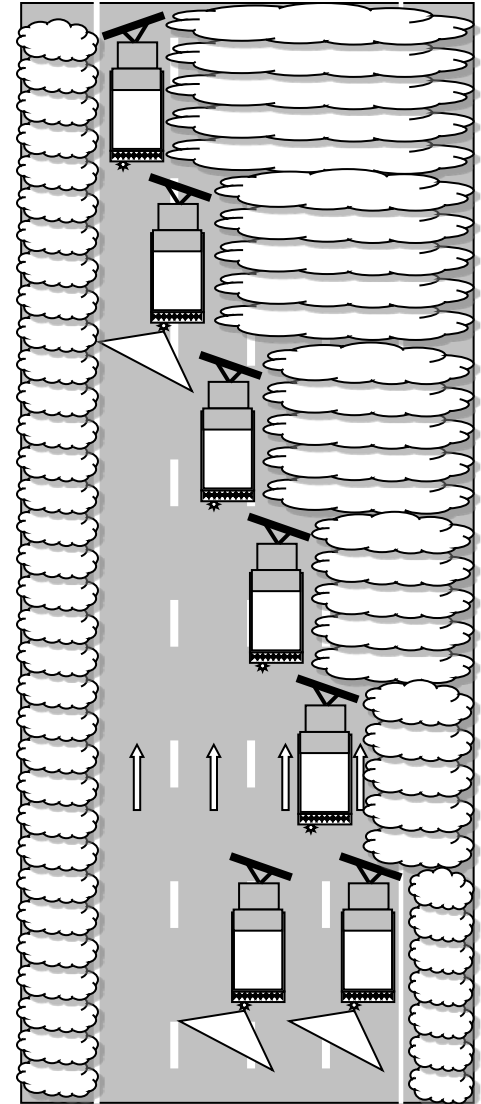
# Multi-Vehicle Plowing

- The deeper the snow, the more overlap needed to avoid leaving a windrow
- First truck clears 8 feet of the left traffic lane, leaving 4 feet for second truck
- Second truck overlaps 1 foot clearing 4 feet of first lane and 3 feet of second lane, leaving 9 feet for third truck



# Multi-Vehicle Plowing

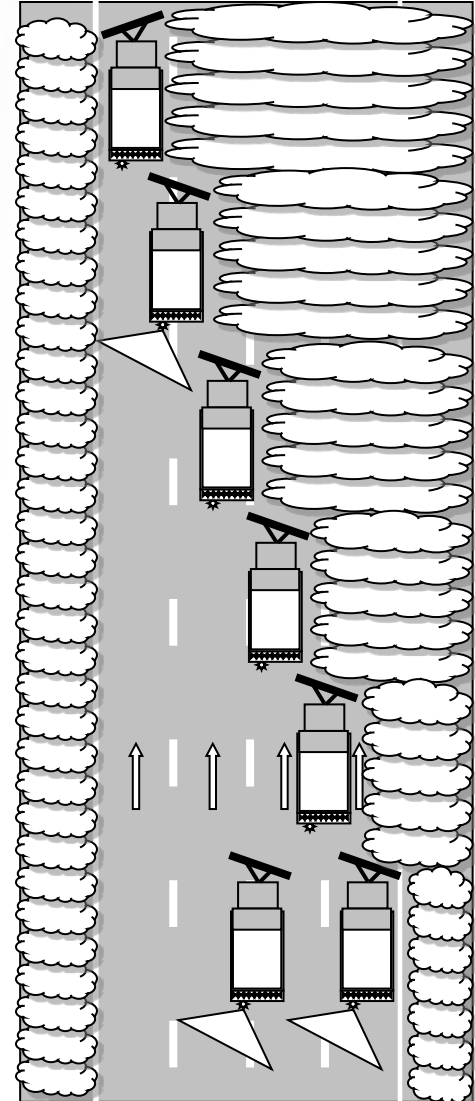
- Third truck overlaps 1 foot clearing 7 feet of second lane, leaving 2 feet for fourth truck
- Fourth truck overlaps 1 foot clearing 2 feet of second lane and 5 feet of shoulder
- One more truck would be required if a third lane was present





# Multi-Vehicle Plowing

- Four or more lanes would require more plow trucks
- The larger trucks should be at the end of the train
- The last truck plows ramps





# Plowing Points to Remember

- Always give bridges and ramps special attention
- Salt the high sides of curves
- Do not over-use salt. Use just enough to get the job done
- Designate specific trucks in a plow train for salting to ensure no overlap of resources



# Plowing Points to Remember

- Salt loses most of its effectiveness at temperatures below 20°F
- Salt stops working altogether at - 6°F
- Adding more salt to an already salted roadway can actually cause the brine solution to freeze



# Operator Guidelines

- Always contact your MDOT SHA supervisor prior to leaving your designated snow route or if you get separated from your assigned SHA truck
- Show up or commute time, from the designated MDOT SHA facility to assigned route, must not be excessive

# Operator Guidelines

- Always communicate the need for fuel or meals with your snow supervisor prior to leaving your assigned route
- Coordinate all refueling to minimize disruptions to the snow removal operations





# Operator Guidelines

- Check the cutting edge of your plow before each event to avoid damage to the plow structure
- When working for MDOT SHA, DON'T plow and salt parking lots, driveways or roads that do not belong to MDOT SHA





# Operator Guidelines

- Relief operators shall be changed out on their snow routes or at predetermined location approved by MDOT SHA
- All trucks loaded with salt while on standby or just plowing should be covered to avoid freezing



# Facility Entrance Protocols

- In light of recent events MDOT SHA has created new security protocols for building entrance
- Operators must adhere to all current MDOT SHA building security procedures when entering and exiting during winter operations
- Any infractions may result in an operator not being utilized for winter operations moving forward



# Accidents and Damage

- Always maintain a heightened state of awareness when working around salt structures or out on the roadways
- Report all accidents involving MDOT SHA equipment or facilities promptly to the snow supervisor and obtain a police report
- MDOT SHA will not be held responsible for damage incurred to the Contractor's vehicle while carrying MDOT SHA's snow removal equipment



# Accidents and Damage

- Upon returning to the shop, the driver will stay with their truck and assist with the repairs of MDOT SHA equipment
- If a repair part is required at the shop, all repair parts must be acquired by a shop mechanic
- All damaged or non-operating equipment must be reported to the snow supervisor, repaired ASAP and/or prior to the next storm



# Social Media Usage

- Operators shall not post anything MDOT SHA related on social media while performing winter operations for the Administration
- This could lead to negative public perception of MDOT SHA winter operations
- It may also lead to legal issues should an accident or an act of environmental non-compliance occur

# Overhead



## Structure Hits







# Overhead Structure Hits

Structure	Inspection Date	Inspection Type	Team Leader	District	Salt Truck?
1504100	02/18/2014	Damage Inspection	Welling	3	Yes
0209206	02/18/2014	Damage Inspection	Bofinger	5	Yes
1616100	01/17/2015	Damage Inspection	Welling	3	Yes
1014300	02/17/2016	Damage Inspection	Douglass	7	Yes
1014400	03/15/2017	Damage Inspection	Holmes	7	Yes
0325800	02/08/2018	Damage Inspection	Douglass	4	Yes
0314900	03/21/2018	Damage Inspection	Holmes	4	Yes
2109500	10/09/2018	Damage Inspection	Bofinger	6	Yes
1014400	11/16/2018	Damage Inspection	Holmes	7	Yes
1310200	01/07/2019	Damage Inspection & Routine	Bofinger	7	Yes
1517500	01/12/2019	Damage Inspection	Bofinger	3	Yes
0220904	01/13/2019	Damage Inspection	Holmes	5	Yes



# Overhead Structure Hits

- Keep truck bodies lowered when traveling
- Use extreme caution when raising to fill the auger box
- Remain aware of your surroundings:
  - signals
  - utility wires
  - overhead signs
  - bridges



# Overhead Structure Hits

- The “Notice of Unsatisfactory Performance” will now allow post-season retainers to be deducted and your contract terminated for multiple infractions
- Contractors will be responsible for cost of damages due to any negligence
- **SO PLEASE BE VIGILANT...**

**Thank You For Your Attendance!**

**There is no better time than the present to express our appreciation for your support**

**The Maryland Department of Transportation State Highway Administration thanks you for making a difference towards our winter snow removal activities**