



Snow Survival Kit 2006-2007

Richmond District

www.VirginiaDOT.org

Richmondinfo@VDOT.Virginia.gov



Our Mission: Get you Back on the Road

When winter weather hits Virginia, the Virginia Department of Transportation's snow-removal crews are ready for action.

VDOT's snow removal crews work around the clock until conditions are safe for traveling. In fact, during the night, crews often cover trouble spots like hills and bridges with anti-icing agents or abrasives such as sand or fine stone. Statewide, the work is divided among nine districts. The districts can also hire emergency equipment operators to help during snow and ice storms, or use personnel from other units, besides maintenance, to plow snow if necessary.

VDOT is responsible for clearing snow from state-maintained roads. We strive to make all state-maintained interstates, primary and high-volume secondary roads* passable by vehicles within 48 hours after a storm ends. State-maintained roads include all interstates, primary and secondary roads and most county subdivision streets. Cities are responsible for maintenance of streets within city limits. **VDOT** maintains the roads in all Virginia counties with the exception of secondary roads in Henrico and Arlington counties.

* Primary roads are numbered 1 through 599. Secondary roads carry numbers 600 and above.

**For 24-hour winter road conditions
on major routes across the state, call 511 or the
Virginia Highway Helpline
1-800-367-ROAD (7623) or
1-800-432-1843 (TTY-hearing impaired).**



Who's First?



Priority 1: Roads with the highest traffic volumes are cleared, or treated, first. These include interstates and other major routes, which receive continuous treatment throughout a storm. Key among the top-priority roads are the “snow emergency routes.” These are highways designated by localities for immediate snow removal so

emergency vehicles can use them.

Priority 2: Next to be cleared are the heaviest-traveled sections of state numbered routes. These roads remain a priority until they're opened to two-way traffic.

Priority 3: Lower-volume or numbered routes are cleared next. **VDOT** pays particular attention to school-bus and commuter routes. Traffic on these routes may be impeded until higher-volume routes are open and clear.

Priority 4: Even after all the roadway surfaces are as clear as possible, **VDOT's** work is not done. Workers now must clean up the accumulation on shoulders, bridge edges and at interchanges. This work is usually completed during normal working hours.

Use of Salt, Sand and Other Chemicals

Salt

Salt is used to break the bond between ice and the pavement. Putting salt on road surfaces prior to a snowfall is not effective since passing vehicles blow the salt away. Salt is most effective after the snow has accumulated about an inch and the temperature is 20 degrees Fahrenheit or higher. Under these conditions, the salt and snow will mix. The snow will melt to form a slush that can be plowed off the pavement. This melting action will occur within two hours, less if traffic is already using the highway.

Abrasives (Sand)

If the temperature is below 20 degrees, the salt will not melt the snow and ice, and could even produce more ice. At these temperatures, abrasives such as sand are put down to break up ice and increase traction. Chemicals and salt can be added when temperatures begin to rise. When sand is mixed with either calcium chloride or salt, the formula is one part calcium chloride or salt and four parts sand. If needed, additional sand is available for delivery to **VDOT** during the winter.

Liquid Magnesium Chloride

Magnesium chloride is more concrete friendly than calcium chloride, and can be placed on the road up to 48 hours before a storm to prevent ice from forming.

Calcium Chloride

Liquid calcium chloride is used as an anti-icer to prevent the bond from forming between ice and pavement, and to break the bond that has already formed, whereas in its dry form it is used only as a de-icer. Because of the expense of the equipment needed to store and apply liquid calcium chloride, its use is limited.

How Roads are Treated

- Treated sand and salt are put down when the temperature is above 20 degrees and after a snowfall.
- Abrasives such as sand are put down when the temperature is below 20 degrees and after a snowfall.
- Liquid calcium chloride or magnesium chloride is applied to bridges and some primary roads before a snowfall.



Snow Removal: Technologies at Work

Anti-Icing

Traditionally, snow and ice removal from roadways involves *de-icing*, which breaks the bond formed between the pavement and the precipitation through plowing and spreading chemicals, such as salt and abrasives. Advancements in weather forecasting and reporting now allow highway agencies to identify when and where to begin *anti-icing* operations before road surfaces freeze.



Anti-icing operations prevent a bond from forming between the roadway and snow and ice. Crews can apply liquid chemicals to roadways before or just as a storm hits, rather than waiting for accumulation to start plowing or applying dry chemicals and abrasives. Road surfaces then remain wet or slushy rather than icy, making driving safer and plowing operations easier.

Sodium chloride, magnesium chloride, calcium chloride, calcium magnesium acetate and potassium acetate are all liquid anti-icing treatments. **VDOT**'s Richmond District uses calcium chloride and magnesium chloride for its chemical applications.

Anti-icing strategies emphasize prevention rather than reaction. **VDOT** plans to practice anti-icing to provide increased traffic safety at the lowest possible cost. Richmond District routes selected for anti-icing treatments include Interstates 95, 195, 64, 85 and 295, and portions of primary routes such as the Powhite Parkway Extension (Rt. 76), Chippenham Parkway (Rt. 150) and Rt. 288. The Pocahontas Parkway (Rt. 895) is maintained by Transurban.

Pre-Wetting

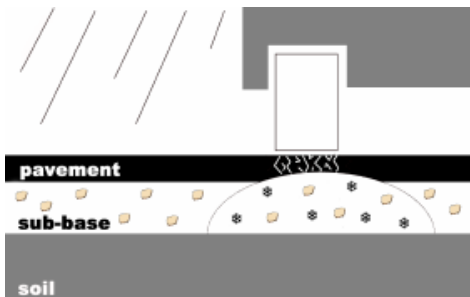
Pre-wetting involves applying a liquid chemical to salt and/or other dry chemicals before spreading them on the road. The moisture acts as the catalyst, activating the chemicals.

Pre-wetting solid chemicals with liquid chemicals has a variety of cost and environmental benefits. This technique has the potential to lower the amount of solid chemical used per lane mile.

How Potholes Form

Freezing temperatures and winter precipitation make potholes a common seasonal problem. The following is an explanation of how potholes form.

1. Water from the melting snow and ice seeps into the pavement and softens it. During repeated cold spells, the water in the pavement refreezes and expands, breaking up the pavement, on and below the surface.



2. When the ice melts, it leaves gaps inside the pavement, and the moisture further softens it. The soft, fractured asphalt cannot support the weight of passing vehicles, and begins to break up.

3. As vehicles continue to pass over the weakened spot, pieces of roadway are kicked out, creating the hole in the highway.



To report a pothole for repair, contact your local **VDOT** office or fill out an online work request at <http://www.virginiadot.org/travel/citizen.asp>.



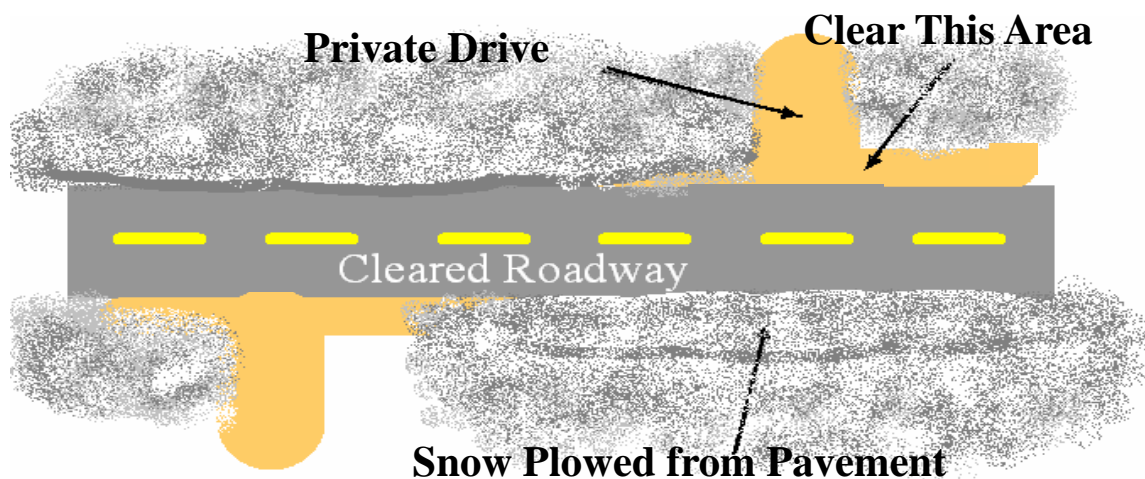
How to Keep Your Driveway Clear

VDOT's top priority in a snowstorm is to clear driving surfaces as soon as possible, which may require several trips down the same route. After the snow has stopped falling and the pavement is clear, crews return to widen the cleared areas and clean the shoulders.

Snow plowed from roads could end up blocking private driveways for some time. VDOT recognizes the inconvenience this causes, but because of limited time and resources, plows can only clear private driveways at the request of local emergency officials.

To reduce the amount of snow that might block your driveway, shovel an open area along the shoulder at the entrance (see illustration below). Plow blades will then push snow into the area just before your driveway, leaving a much smaller amount in front of it.

For 24-hour winter road conditions on major routes across the state, visit VDOT's Web site at www.VirginiaDOT.org, call the Virginia Highway Helpline at 1-800-367-ROAD (7623) or 1-800-432-1843 (TTY), or call 5-1-1.



Winter Travel Driving Tips

- * Remember that driving is most dangerous when temperatures are near 32 degrees.
- * Before beginning your trip, know the current road conditions and weather forecast.
- * Keep your windows, mirrors and lights clear of ice and snow.
- * Leave a few minutes early to allow extra time to get to your destination.
- * Obey speed limits, don't speed.
- * Be aware of potentially icy areas such as shady spots and bridges.
- * Use common sense, and adjust your speed to suit driving conditions.
- * If you begin to skid, do not brake. Take your foot off the gas and steer the vehicle in the direction you want to go.
- * Keep a safe distance of at least five seconds behind other vehicles and trucks that are plowing the road.
- * Give snowplows plenty of room, and don't pass them.
- * Don't park along the street. Snow plow drivers can't fully clear a road if cars are in their way.
- * Keep an emergency winter driving kit in your car.
- * Watch for other vehicles having problems with road conditions.
- * Keep your fuel tank at least half-full.
- * Don't pass vehicles on or near bridges.
- * If you don't feel comfortable driving, park at the first safe place.





If Trapped in Your Vehicle

- ❄ Stay in vehicle. Don't leave to search for help unless the help is visible within 100 yards.
- ❄ Display a troubled sign. Hang a brightly colored cloth on the radio antenna.
- ❄ Run the engine for about 10 minutes each hour and only run the heater or dome light if the vehicle is running.
- ❄ Keep the exhaust pipe clear of snow and open a window slightly for ventilation.
- ❄ Clasp hands and move your arms and legs occasionally. Don't stay in one position for too long.
- ❄ Use newspaper, maps and even car mats for insulation.
- ❄ Huddle together for warmth.
- ❄ If more than one person is in the car, take turns sleeping.

Always wear your safety belt.



Winter Driving Kit

VDOT is already preparing for winter weather. Here is a way everyone can get ready for winter. Assemble an emergency kit to keep in any vehicle you operate--your own or one you drive while at work. The kit may include the following items:

- ❄ A small snow shovel
- ❄ A small bag of rock salt, sand or clay cat litter to generate traction
- ❄ A windshield scraper and brush
- ❄ A small can and waterproof matches to melt snow for drinking
- ❄ Flashlight and extra batteries
- ❄ Battery booster (jumper) cables
- ❄ Blankets/sleeping bags
- ❄ Extra clothing (in case your clothes get wet)
- ❄ High calorie foods (ex. protein bars, nuts, peanut butter, beef jerky)
- ❄ Canned food that has a pop top or doesn't require a can opener
- ❄ A large empty can and plastic cover with tissues for sanitary purposes
- ❄ Tool kit (including pliers, wrench, screwdriver)
- ❄ Brightly colored cloth to use as a flag
- ❄ First aid kit
- ❄ Pocket knife
- ❄ Tow rope
- ❄ Tire chains
- ❄ Water container
- ❄ Compass
- ❄ Road maps
- ❄ Necessary medications





Contact Numbers

To obtain statewide information, visit **VDOT's** Web site for updated information about winter road conditions at www.VirginiaDOT.org or call the Highway Helpline at 1-800-367-ROAD. Travelers can also dial 5-1-1 on their cell, home or office phones to get real-time updates on traffic, weather and construction situations for interstates and other major routes in Virginia.



Attention reporters: Please do not call the Highway Helpline for road conditions. This line needs to be kept open for citizen inquiries.

Richmond District

The Richmond District covers 14 counties in Central Virginia. The district has six residency (branch) offices and one toll facility. District switchboard: (804) 524-6000 or 1-800-663-4188
Public Affairs Office: (804) 524-6179
Media Inquiries: (804) 586-4455
E-mail: Richmondinfo@VDOT.Virginia.gov

Amelia Residency

Counties: Amelia, Lunenburg and Nottoway
Residency Switchboard: (804) 561-2411

Ashland Residency

Counties: Hanover and Goochland
Residency Switchboard: (804) 752-5511

Chesterfield Residency

Counties: Chesterfield and Powhatan
Residency Switchboard: (804) 674-2800

Petersburg Residency

Counties: Dinwiddie and Prince George
Residency Switchboard: (804) 863-4000

Sandston Residency

Counties: Henrico*, Charles City and New Kent
Residency Switchboard: (804) 328-3044
*Henrico County Public Works maintains the county's secondary roads (routes numbered 600 and above).

South Hill Residency

Counties: Brunswick and Mecklenburg
Residency Switchboard: (434) 774-2300

Richmond Toll Facilities

Powhite Parkway Extension: (804) 378-3405

Pocahontas Parkway/Rt. 895 (administered by Transurban): (804) 236-3750



Virginia Department of Transportation

Richmond District Office of Public Affairs

2430 Pine Forest Drive

Colonial Heights, VA 23834

804-524-6000

www.VirginiaDOT.org

Richmondinfo@VDOT.Virginia.gov