

# A Roadmap to Disaster Preparedness for Washington Travelers

## PREPARE FOR A SAFE JOURNEY WASHINGTON HAZARDS



This roadmap is a learning tool to increase your ability to respond to disasters on the road. It features known facts about natural disasters — such as earthquakes, floods and volcanoes. It is important to know that while we can't predict when disasters might occur, current events have proven that it is wise and necessary to be prepared ahead of time. It will increase comfort. It may save a life.

## PREPARE FOR A SAFE JOURNEY SAFE DRIVING TIPS

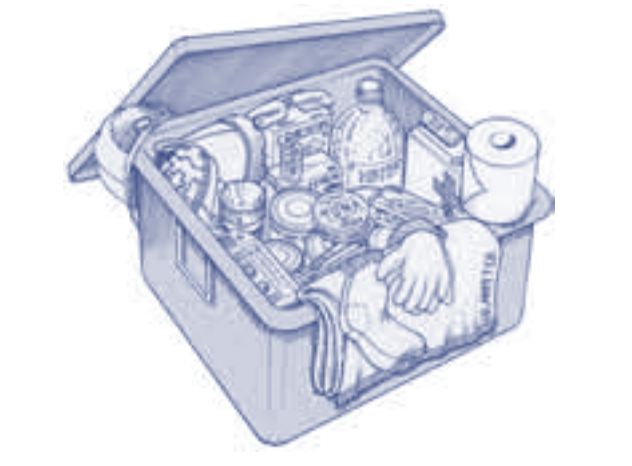


Stock your car with basic driving equipment: a scraper and brush, small shovel, jumper cables, and tow chain and a bag of sand for tire traction during winter.

- Remember...**
- Fill the gasoline tank before entering open country, and stop to fill up long before the tank begins to run low.
  - Drive with your headlights on.
  - Don't try to out-drive the conditions. Start early. Remember the posted speed limits are for dry pavement.
  - Leave plenty of room for stopping.
  - Use brakes carefully. It takes more time to stop in adverse conditions.
  - Look farther ahead in traffic than you normally do to gain extra time to safely react to situations.
  - Be very cautious when driving near trucks.
  - Remember that trucks take longer to safely respond, so avoid cutting quickly in front of them.

- WINTERIZE YOUR VEHICLE**
- Ignition system
  - Fuel system
  - Belts
  - Fluid levels
  - Brakes
  - Exhaust system
  - Snow tires
  - Tire tread/pressure
  - Defroster
  - Proper grade oil
  - Cooling system
  - Battery
  - Lights
  - Antifreeze
  - Windshield blades and washer fluid
  - Don't use cruise control in wintry conditions. A short touch of your brakes to deactivate the cruise control feature can cause you to lose control of your vehicle.
  - Don't get overconfident in your 4x4 vehicle — they can lose traction as quickly as a 2-wheel drive vehicle.

## PREPARE FOR A SAFE JOURNEY PREPARE FOR EMERGENCIES BEFORE LEAVING HOME



Be prepared with good winter tires, chains, supplies, full fuel tank and extra winter clothing. The first rule of winter comfort and survival is to stay dry.

## PREPARE YOUR VEHICLE DISASTER SUPPLY KIT

- Keep your Vehicle Disaster Supply Kit in the vehicle.
- Prepare to be on your own for at least 24-hours.
- Store 1 gallon of water per person per day (24-hour minimum). Store water in large soft-drink containers. Avoid using containers that will decompose or break, such as milk cartons or glass bottles.

## Emergency Food

- Avoid foods that will make you thirsty. Choose whole grain cereals and foods with high liquid content.
- Include infant and special diet foods.

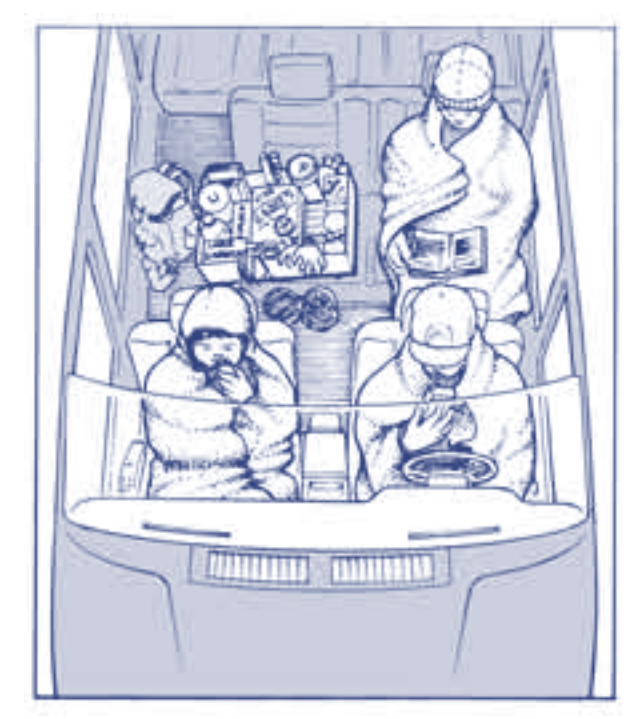
## Emergency Road Supplies

- Battery-operated radio and extra batteries
- Flashlight and extra batteries
- ABC-type fire extinguisher (know how to use it)
- Whistle
- Plastic storage bags
- Cash and change for phones
- A supply of vital medications
- Sturdy shoes, socks, work gloves
- Rain gear
- Mylar blankets, plastic shelter tarps
- Matches in a waterproof container
- Latex gloves (at least 2 pair)
- Map of the area (for locating shelters)
- Compass
- Road flare
- Games and books for kids
- Pet supplies
- Toilet paper, towellettes
- Feminine and personal hygiene items
- Infant diapers and wipes

## Maintaining a Vehicle Disaster Supply Kit

- Write the date on all food and water stored in your kit. Change every 6 months
- Keep items in airtight plastic bags inside your kit

## PREPARE FOR A SAFE JOURNEY AVALANCHES



Be prepared for extended delays while traveling.

The science of avalanche forecasting and control is not perfect. It is nearly impossible to know the exact strength of the snow in every path along a mountain highway and also to know how much additional snowfall or rainfall will be necessary for an avalanche to occur. For your safety, it is extremely important to stay in your vehicle and follow all official instructions.

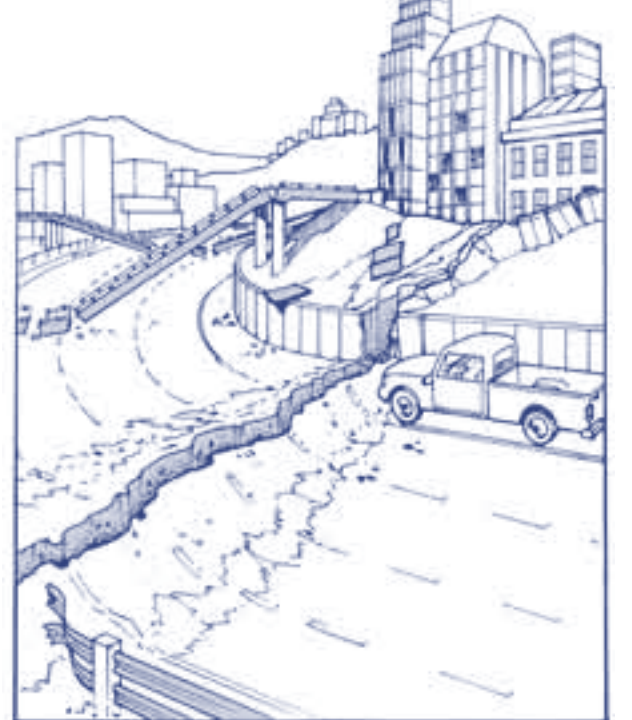


- Obey all closures. Do not attempt to drive through or around an avalanche.
- Tune your radio to Highway Advisory Radio reports; they have more detailed information and are frequently updated.
- Some highways have warning signs to alert you of avalanche areas. Changeable message signs may describe conditions and restrictions.
- Notice your environment and terrain on either side of the road. Watch for changing conditions.
- IF YOU SEE AN AVALANCHE**
- Additional avalanches are likely. Stay in your vehicle.
- Report it if possible from your location.
- Try to position your vehicle so that removal equipment can get by.

## IF YOU ARE CAUGHT IN AN AVALANCHE

- Stay in your vehicle. It is very dangerous outside your vehicle. Someone will come to your aid.
- Turn on your safety lights.
- Turn off your engine—carbon monoxide can kill you. Do not smoke.
- Stay warm, put on additional clothing as needed.

## PREPARE FOR A SAFE JOURNEY EARTHQUAKES



If driving during an earthquake, pull over and stop. Avoid parking near bridges, tall trees, light poles or buildings. If caught while driving and you cannot pull over, brace yourself. Downed power lines could be deadly.



- WHILE DRIVING**
- If you are driving, an earthquake will feel like all four tires have blown out. Carefully navigate out of traffic lanes to the side of the road and stop. Turn off the vehicle ignition. **STAY INSIDE YOUR VEHICLE** until the shaking stops.

## OUTDOORS

- If you are outdoors, find a clear spot away from buildings, trees, and power lines. Drop to the ground.

## INDOORS

- When indoors, the best protection indoors during an earthquake is to get under sturdy piece of furniture such as a table, or beside a sofa or bed. Avoid glass windows, glass display cases, and tall objects that could fall on you.
- HOLD ON to a sturdy piece of furniture and be prepared to move with it.
- Stay where you are until the shaking stops and you're sure it's safe to move — use caution when exiting buildings.
- In buildings, the greatest danger exists directly outside buildings, at exits, and alongside exterior walls. Many fatalities occur when people run outside of buildings only to be killed by falling debris.

## DOWNTOWN

- If you are downtown, it is safer to remain inside a building after an earthquake unless there is a fire or gas leak. There are no open areas in many cities far enough from glass or other falling debris to be considered safe refuge sites. Glass from high-rise buildings does not always fall straight down; it can catch a wind current and travel great distances.
- Never take elevators after an earthquake.

## PREPARE FOR A SAFE JOURNEY TSUNAMIS



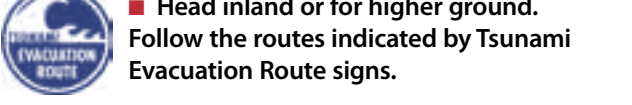
Tsunamis can move faster than a person can run. If you hear a tsunami siren or feel the ground shake, evacuate immediately!

The Pacific Coast, Strait of Juan de Fuca, Puget Sound, and large lakes have experienced tsunamis. Sudden raising or lowering of the Earth's crust during earthquakes generally cause a tsunami, although landslides and underwater volcanic eruptions can generate tsunamis as well. Tsunamis can occur at any time, day or night.

The May 18, 1980, eruption of Mount St. Helens caused a massive tsunami in Spirit Lake. The sliding north face of the volcano slammed into the west arm of the lake, raising its surface an estimated 207 feet and sending a tsunami surging around the lake basin as high as 820 feet above the previous lake level. Displaced water rinsed the valley sides clean of timber and sediment, jamming logs and boulders against the landslide debris.



- A tsunami consists of a series of waves. Often the first wave may not be the largest. The danger from a tsunami can last for several hours after the arrival of the first wave. Sometimes a tsunami causes the water near shore to recede, exposing the ocean floor. A deadly wave will soon reach the shore and rapidly travel inland.
- Head inland or for higher ground. Follow the routes indicated by Tsunami Evacuation Route signs.



## WHAT YOU SHOULD DO

- If you are at the beach or near the ocean and you feel the earth shake, move immediately to higher ground. A tsunami from a local earthquake could strike some areas before a tsunami warning could be announced.
- If people nearby seem not to know that a tsunami is coming, tell them and help them move away from the danger.

- For locally generated tsunamis, where you might feel the ground shake, you may only have a few minutes to move to higher ground. **DO NOT wait for a tsunami warning to be announced.**

- Follow the instructions of local emergency and law enforcement authorities.
- Listen to NOAA Weather Radio or your local radio station for information.

- High, multi-story, reinforced concrete hotels are located in many low-lying coastal areas. The upper floors of these hotels may provide a safe place if you cannot move quickly inland to higher ground.

- Homes and small buildings located in low lying coastal areas are **not** designed to withstand tsunami impacts. Do not stay in these structures should there be a tsunami warning.

- Staying away from rivers and streams and all low-lying coastal areas is the safest advice when there is a tsunami warning.

- Do not return to the beach until emergency officials give the "All Clear" notice.

## THE PERFECT GIFT!

### Vehicle Disaster Safety Kits

Can you think of a better way to provide safety for your loved ones? A duffel bag filled with Vehicle Disaster Safety Kit items will encourage recipients to take positive steps towards completing their kits. You'll gain peace of mind that they will be able to take care of themselves when you're not there.

## PREPARE FOR A SAFE JOURNEY VOLCANOES



Violent volcano eruptions can occur at any moment. Be prepared to follow Volcano Evacuation Route signs away from danger.

Volcanic eruptions can hurl hot rocks for at least 20 miles. Floods, airborne ash, or noxious fumes can spread 100 miles or more. If you travel near a known volcano, active or dormant, be ready to evacuate at a moment's notice.



## BEFORE

- Be prepared for these disasters that can be triggered by volcanoes:
  - Earthquakes
  - Thunderstorms
  - Floods
  - Tsunamis
  - Landslides and mudflows

- Contact local emergency management offices to learn about local community warning systems.
- A lateral blast of a volcano can travel many miles from the mountain. Trying to throw an erupting volcano is a deadly idea.

- Include a pair of goggles and a throw-away breathing mask in your Vehicle Supply Kit for each member of the travel group.
- If a volcano eruption is predicted, follow authorities' instructions and leave the area before the disaster begins. Stay safe. The rock debris from a volcano can break windows and set vehicles on fire.

## DURING

- Follow official evacuation orders.
- Avoid areas downwind of the volcano.
- If caught while driving and you cannot go indoors, close all windows, doors, and dampers of your vehicle.

- If caught in a rockfall, roll into a ball to protect your head.
- Avoid low-lying areas where poisonous gases can collect and flash floods can be most dangerous.
- If caught near a stream, beware of mudflows. Mudflows are powerful "rivers" of mud that can move faster than people can walk or run.

- Mudflows occur when rain falls or when rivers are dammed during an eruption. They are most dangerous close to stream channels.
- When you approach a bridge, first look upstream. If a mudflow is approaching or moving beneath the bridge, do not cross the bridge. The power of the mudflow can destroy a bridge very quickly.

- Protect yourself by wearing long sleeved shirts and pants while in a danger zone. Keep skin covered to avoid irritation or burns.
- Use goggles to protect eyes.
- Keep car or truck engines off.

## AFTER

- Avoid driving; ash is harmful to vehicles.
- If you must drive, drive slowly, use headlights, and use ample windshield washer fluid.
- Change oil, oil filters and air filters frequently (every 50 to 100 miles in heavy dust, i.e., less than 50 feet visibility; every 500 to 1,000 miles in light dust).
- Do not drive through an air filter. If you cannot change the air filter, clean it by blowing air through from the inside out.
- If the car stalls or brakes fail, push the car to the side of the road to avoid collisions. Stay with your vehicle.
- Listen to a battery-powered radio for the latest emergency information.
- When outside, cover your mouth and nose with a cloth. A number of victims of the Mount St. Helens volcano died from inhaling ash.
- Wear goggles to protect your eyes from ash.
- If you have a respiratory ailment, avoid contact with any amount of ash. Stay indoors until local health officials advise it is safe to go outside.
- Avoid driving in heavy ashfall. Driving will stir up more ash that can clog engines and stall vehicles.
- Clear roofs of ashfall. Ashfall is very heavy and can cause buildings to collapse.

## PREPARE FOR A SAFE JOURNEY FLOODS



Do not drive through rushing water.

Flooding can occur nearly anywhere, at any time. It can result from ice jams on rivers, from spring snowmelt, from days of moderate rain, or from a single very heavy downpour. Most flood-related deaths occur in automobiles. Sadly, many of these fatalities were avoidable. In many cases, if the driver had turned around instead of driving onto a flooded roadway, one or more lives would have been spared.



## FLOOD WATCH AND FLOOD WARNING

- The National Weather Service uses a two-tiered system to alert the public of the dangers of flooding and flash flooding.
- A **Flood or Flash Flood WATCH** is issued when flooding or flash flooding may occur with additional rainfall.
- A **Flood or Flash Flood WARNING** is issued when flooding is about to occur or already occurring.

## DEADLY FORCE OF FLOOD WATER

- Moving flood waters contain a deadly amount of force. For each foot of flood water, 1500 pounds of an automobile's weight is displaced. This means that two feet of water will send most automobiles floating helplessly downstream.

- Escaping from a vehicle once flood waters have carried it away is nearly impossible.
- When vehicles are captured in deep water, water pressure on the outside of the vehicle prevents occupants from opening doors.
- Even if a person were able to get out of the vehicle, strong current and undertow of the flood waters would likely be too strong to swim to safety.
- Water depth is very difficult to estimate on roads, especially at night when many flood deaths occur.
- If you travel in a flood-prone area, be prepared to move quickly to higher ground at the first indication of flooding.
- When camping near a mountain stream, locate a quick route to higher ground when you first set up camp.

## FLASH FLOODS

Flash floods can strike any time and any place with little or no warning. In mountainous or flat terrain, distant rain may be channeled into gullies and ravines, turning a quiet streamside campsite into a rampaging torrent in minutes. City streets can become rivers in seconds. Observe these flash flood safety rules. They could save your life.

- Flash flood waters rise very quickly. Water that covered a road by only 6 inches at one moment could easily be 2 to 3 feet deep just seconds later!
- Keep alert for signs of heavy rain (thunder and lightning), both where you are and upstream. Watch for rising water levels.
- Know where high ground is and get there quickly if you see or hear rapidly rising water.
- Be especially cautious at night. It's harder to recognize the danger in the dark.
- Do not attempt to cross flowing water which may be more than knee deep. If you have doubts, don't cross.
- If your vehicle stalls, abandon it and seek higher ground immediately.
- During threatening weather, listen to your radio or NOAA Weather Radio for **Watch** and **Warning** bulletins.

## PREPARE FOR A SAFE JOURNEY HAZARDOUS CHEMICAL



A major chemical emergency is an accident that releases a hazardous amount of a chemical into the environment. Accidents can happen underground, on railroad tracks or highways, and at manufacturing plants. These accidents sometimes result in a fire or explosion, but many times you cannot see or smell anything unusual.

## EVACUATION

- If you are told to evacuate the area, follow the route authorities recommend. Don't take shortcuts, they may be blocked or expose you to dangerous chemicals.
- Listen to your radio to make sure the evacuation order applies to you. Local officials may call for evacuation in specific areas at greatest risk.
- Listen to a radio for information on evacuation routes, temporary shelters and procedures.
- Avoid using the telephone. Call 9-1-1 only in life-threatening emergencies.
- Leaving the area quickly will reduce your chance of exposure to hazardous materials.
- Staying calm will help you move safely and avoid delays or accidents caused by irrational behavior.
- If directed to a shelter, take your Vehicle Disaster Supply Kit to the shelter for greatest comfort.
- Do not assume that a shelter will have everything you need.
- Take only one vehicle to the evacuation site. Traffic may be very heavy and parking at a shelter may be limited.
- If instructed to do so, shelter-in-place.

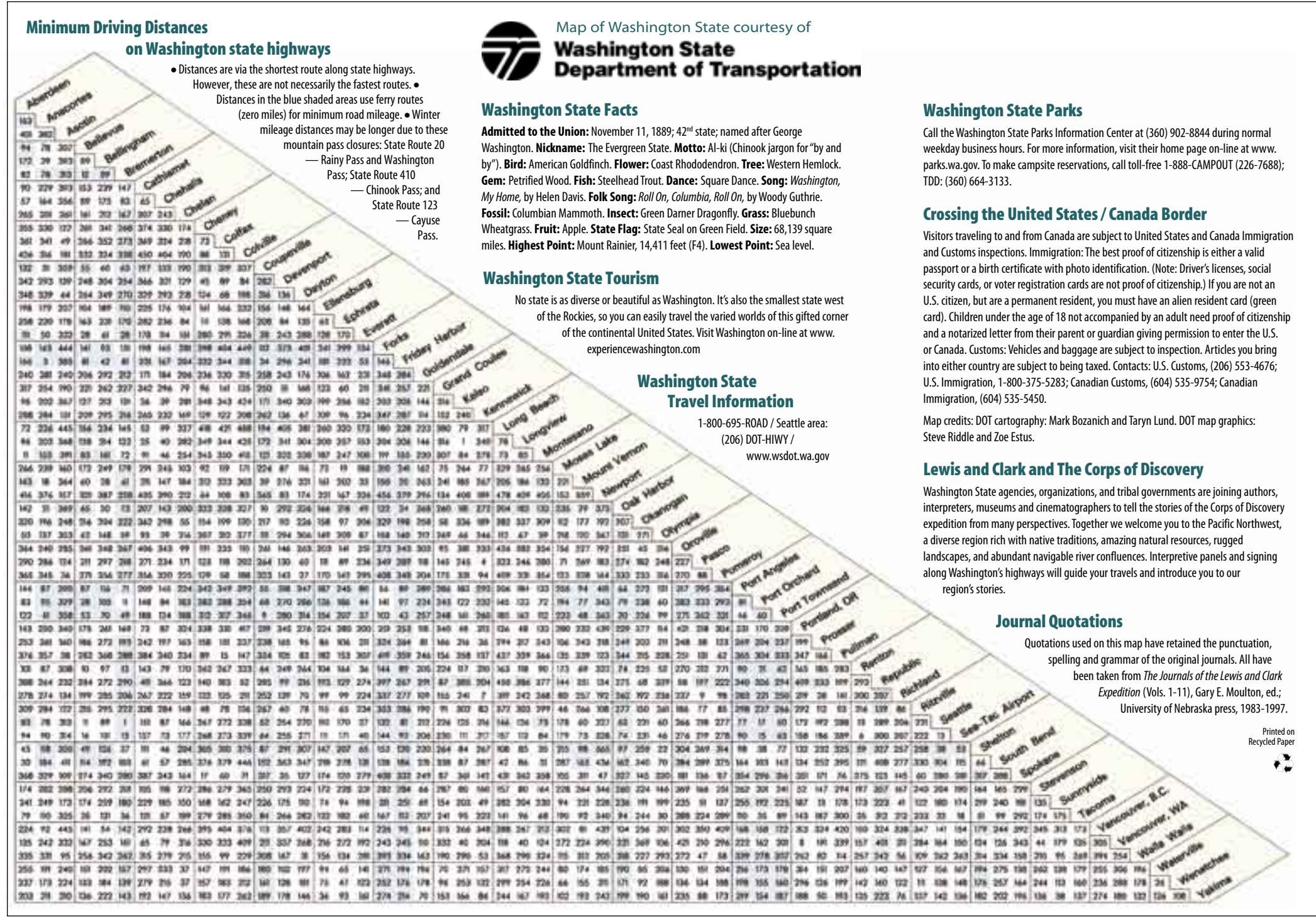
## PREPARE FOR A SAFE JOURNEY SHELTER-IN-PLACE

One of the instructions you may be given during a hazardous chemical incident or a volcanic ashfall emergency is to shelter-in-place. This means you should stay in your vehicle until authorities tell you it is safe.



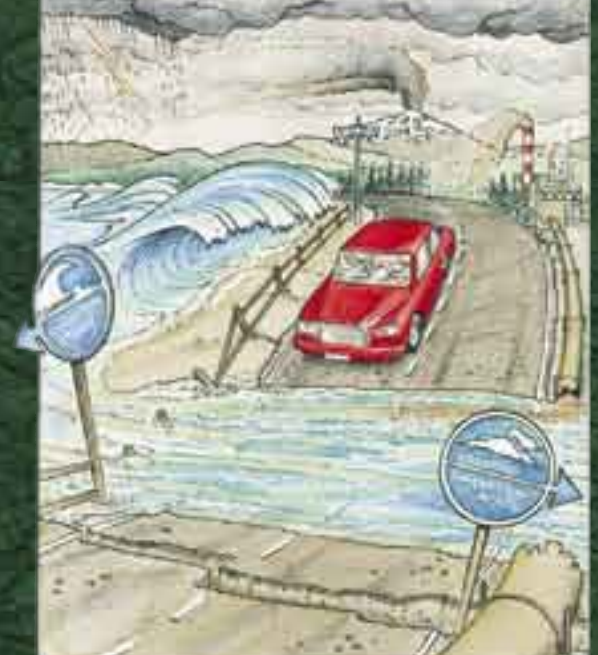
To shelter-in-place in a vehicle, close and lock doors and windows, and turn off vents and air conditioning. Listen to your radio for official instructions.

- Take your Vehicle Disaster Supply Kit whenever you travel.
- Make sure your portable radio is working.



Washington's diverse beauty is the result of the geologic forces that have shaped it. Those same forces cause earthquakes, volcanoes, tsunamis, and the natural hazards that can strike anytime, anywhere. Preparation is key to reducing the impact of these disasters. REPAIRING MEANS ACTION and talking is good, but adverse consequences are reduced as we take action. The astronaut John Glenn said, "The greatest [solution] to worry, whether you are getting ready for a space flight or for the everyday problems of life, is preparation."

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## 2004-2005 Official State Highway Map

Prepared by Washington Military Department Emergency Management Division

## WASHINGTON MILITARY DEPARTMENT EMERGENCY MANAGEMENT DIVISION

- JAMES MULLEN, Director, Emergency Management Division
- Maillian Uphaus, Programs Section Manager, 253-512-7062
- LuAn Johnson, Public Education Program Manager, 253-512-7047
- George Crawford, Earthquake Program Manager, 253-512-7067
- Penelope Cassidy, E911 Public Information Officer, 253-512-7016
- Contacting State Emergency Management: 1-800-562-6108
- Emergency Management Websites:
  - Washington State Emergency Management: [www.emd.wa.gov](http://www.emd.wa.gov)
  - Federal Emergency Management Agency: [www.fema.gov](http://www.fema.gov)
  - American Red Cross: [www.redcross.org](http://www.redcross.org)
  - Citizen Corps: [www.citizencorps.gov](http://www.citizencorps.gov)
  - Washington State 9-1-1 Education Program: [www.ccdh.org/911](http://www.ccdh.org/911)
  - Washington State Department of Ecology: [www.ecology.wa.gov](http://www.ecology.wa.gov)
  - Washington State Department of Health: [www.doh.wa.gov](http://www.doh.wa.gov)
  - Washington State Department of Transportation: [www.wsdot.wa.gov](http://www.wsdot.wa.gov)

Graphic Design: Lenore Doyle / Illustrations: Tom Boatman