Appendix D

Glossary of Terms

Glossary of Terms

Weather Element(s)	Definition
A	
Adjacent Snow Depth	The actual depth of snow on areas other than the surface of roadway pavement, drifts and plowed areas. (FHWA)
Air Quality	The AQI is an index for reporting daily air quality. It indicates how clean or polluted the air is, and the associated health concerns. The AQI focuses on health effects that can happen within a few hours or days after breathing polluted air. EPA uses the AQI for five major air pollutants regulated by the Clean Air Act: ground-level ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide. For each of these pollutants, EPA has established national air quality standards to protect against harmful health effects. (EPA webpage) GREEN: "Good" The AQI value for your community is between 0 and 50. Air quality is considered satisfactory and air pollution poses little or no risk. YELLOW: "Moderate" The AQI for your community is between 51 and 100. Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of individuals. For example, people who are unusually sensitive to ozone may experience respiratory symptoms. ORANGE: "Unhealthy for Sensitive Groups" Certain groups of people are particularly sensitive to the harmful effects of certain air pollutants. This means they are likely to be affected at lower levels than the general public. For example, children and adults who are active outdoors and people with respiratory disease are at greater risk from exposure to ozone, while people with heart disease are at greater risk from carbon monoxide. Some people may be sensitive to more than one pollutant. When AQI values are between 101 and 150, members of sensitive groups may experience health effects. The general public is not likely to be affected when the AQI is in this range. RED: "Unhealthy" AQI values are between 151 and 200. Everyone may begin to experience health effects. Members of sensitive groups may experience more serious health effects. PURPLE: "Very Unhealthy" AQI values between 201 and 300 trigger a health alert, meaning everyone may experience more serious health effects. MAROON: "Hazardous" AQI values over 300 trigger health warnings of emergency conditions. The entire population is more likely to be affected.

Weather Element(s)	Definition
Air Stability	For the purposes of this report, air stability describes the tendency for air to rise or to be restricted from rising, normally described as stable or unstable. An unstable atmosphere is generally associated with convection and the potential for showers, thunderstorms. A stable atmosphere is generally associated with low clouds, fog, poor visibilities, and poor air quality.
Air Temperature	The degree of hotness or coldness of the air measured on a temperature scale by means of a thermometer. (AMS glossary derived)
Air Temperature Change Rate	For the purposes of this report, the change in temperature at a given location during a specified period of time, e.g. 6, 12, or 24 hours.
Atmospheric Transport & Diffusion	For the purposes of this report, the transportation and diffusion of toxic substances by atmospheric movement and turbulent processes.
Avalanche	A mass of snow (perhaps containing ice and rocks) moving rapidly down a steep mountain slope. (AMS Glossary)
B	
Blizzard	A severe weather condition characterized by temperatures near or below 10 degrees Fahrenheit, winds 32 mph or higher, and snow (mostly fine, dry snow picked up from the ground) reducing visibility to less than 500 feet. (AMS Glossary)
C	
Chemical Concentration	For the purposes of this report, the residual concentration of chemicals on the road surface as the result of the most recent application of treatment chemicals or substances.
Cloud Cover	That portion of the sky cover which is attributed to clouds. (AMS Glossary derived) Scattered: Description of a sky cover 1/8 to 4/8, applied only when clouds or obscuring phenomena aloft are present. Broken: Description of a sky cover of 5/8 to 7/8, applied only when clouds or obscuring phenomena aloft are present. Overcast: Description of a sky cover of 8/8, when at least a portion of this amount is attributable to clouds or obscuring phenomena aloft.
D	
Dew Point Temperature	The temperature at which a given parcel of air must be cooled at constant pressure and constant water-vapor content in order for

Weather Element(s)	Definition
	saturation to occur. (AMS Glossary)
Drifting Snow	Snow raised from the surface of the earth by the wind to a height of less than six feet above the surface. When snow is raised to six feet or more above the surface, it is classified as blowing snow. Snow Drift: Snow deposited behind obstacles or irregularities of the surface, or collected in heaps by eddies in the wind. (AMS Glossary)
F	
Fair Weather	When this term is used in weather forecasts, it is meant to imply no precipitation, less than 3/8 sky cover of low clouds, and no other extreme conditions of cloudiness, visibility, or wind. (AMS Glossary derived)
Fire	For the purposes of this report, any fire event at or near areas of transportation operations. This includes the threat caused by the actual flames, fire induced winds, and visibility restrictions caused by smoke.
Flooding	The condition that occurs when water overflows the natural or artificial confines of a stream or other body of water, or accumulates by drainage over low-lying areas. (AMS Glossary)
Freezing Precipitation	Any form of liquid precipitation that freezes upon impact with the ground or exposed objects; i.e., freezing rain, or freezing drizzle. (AMS Glossary)
Freezing Spray	Sea spray transported through the air that freezes on ship's surfaces and structures.
Frozen Precipitation	Any form of precipitation that reaches the ground in frozen form; i.e. snow, snow pellets, snow grains, ice crystals, ice pellets, and hail. (AMS Glossary)
G	
Glare	Any hindrance to vision caused by scattering or reflection of light into an observer's line of sight. (AMS Glossary)
H	
Hail	Precipitation in the form of balls or irregular lumps of ice, always produced by convective clouds, nearly always cumulonimbus. (AMS Glossary)

Weather Element(s)	Definition
Heat Index	For the purposes of this report, sometimes referred to as the "apparent temperature" and given in degrees Fahrenheit. Heat Index is an accurate measure of how hot it really feels when the relative humidity (RH) is added to the actual air temperature.
High Surf	Surf: The sea-surface wave activity between the outermost line of breakers and the shore. (AMS Glossary) For the purposes of this report, high surf thresholds are variable depending on specific transportation activities, operations, and the vulnerability of roadway operations to surf damage.
High Winds	For the purposes of this report, any wind speed (normally in excess of 25 mph) that impacts normal or unique operations or activities.
Hurricane (Tropical Cyclone)	One of the most intense and feared storms of the world with winds of 74 mph or higher and torrential rains. (AMS Glossary)
I	
Ice Gorging	The stacking and packing of ice due to river currents and river constrictions. Ice often packs all the way to the river bottom.
Inland Waterway Ice Coverage	Percentage of rivers, bays, lakes, and inter-coastal waterways covered by surface ice.
L	
Lightning	Generally any or all of the various forms of visible electrical discharge produced by thunderstorms. (AMS Glossary)
Liquid Precipitation	Liquid water droplets that fall from the atmosphere and reach the ground. Liquid precipitation includes drizzle and rain. (AMS Glossary derived)
N	
Nuclear, Biological, or Chemical Release	For the purposes of this report, any release of nuclear, biological, or chemical substances onto the surface or into the atmosphere or waterways.
Open Water Sea Ice	Ice formed by the freezing of seawater. Forming first as lolly ice (frazil crystals), thickens into sludge, and coagulates into sheet ice, pancake ice, or into floes of various shapes and sizes. (AMS Glossary)
P	
Pavement Condition	The state of the surface of roadway pavement based on current or

Weather Element(s)	Definition
	recent weather conditions, road conditions, and traffic conditions. The pavement conditions are expressed as dry, wet, snow/slush and ice. (FHWA)
Pavement Freeze Point Temperature	The temperature at which the existing solution on the roadway will freeze. The critical temperature varies because the normal freeze point of water can be depressed by dissolved chemicals. (FHWA)
Pavement Ice Accumulation	The actual depth of ice on the surface of roadway pavement. (FHWA)
Pavement Temperature	The temperature of the surface of roadway pavement based on thermal energy flows to and from the subsurface (conduction), to and from the air (boundary layer conduction, convection and radiation), water phase changes at the surface (energy from condensation, energy to evaporation), radiation from the sun or surrounding objects that reflect solar energy, and terrestrial heat transfers, e.g. vehicles. (FHWA)
Precipitable Water Vapor	The total atmospheric water vapor contained in a vertical column of unit cross-sectional area extending between any two specified levels of the atmosphere. (AMS Glossary)
R	
Rail Temperature	The temperature of the surface of the rail based on thermal energy flows to and from the subsurface (conduction), to and from the air (conduction, convection and radiation), water phase changes at the surface (energy from condensation, energy to evaporation), radiation from the sun or surrounding objects that reflect solar energy, and terrestrial heat transfers, e.g. vehicles.
Relative Humidity	The (dimensionless) ratio of the actual vapor pressure of the air to the saturation vapor pressure . (AMS Glossary)
River/Lake Ice	Ice formed on the surface of a river/lake. (AMS Glossary)
Roadway Snow Depth	The actual depth of unpacked snow on the surface of roadway pavement. (FHWA)
Roadway Snow Pack Depth	The actual depth of packed snow on the surface of roadway pavement. (FHWA)

Weather Element(s)	Definition
S	
Seismic Activity (earthquakes)	For the purposes of this report: Any earthquakes or earth tremors.
Snow Accumulation (also called snow depth)	The actual depth of snow on the ground at any instant during the storm, or after any single snowstorm or series of storms. (AMS Glossary)
Snow Drift Levels	For the purposes of this report, the height of the crest of snowdrifts (see drifting snow above) measured in inches or feet.
Snow/Ice Bonding	The formation of a bonding layer of ice beneath snow accumulated on the surface of roadway pavement. (FHWA)
Soil Temperature	The temperature of the soil below the rail or roadway surface (same as subsurface temperature).
Soil Moisture	Moisture in the soil within the zone of aeration, including water vapor (also part of the soil air) present in the soil pores. In some cases this refers strictly to moisture within the root zone of plants. (AMS Glossary)
Space Weather	Space Weather refers to conditions on the sun and with the solar wind, magnetosphere, ionosphere, and the thermosphere that can influence the performance and reliability of space-borne and ground-based technological systems and can endanger human life or health. Adverse conditions in the space environment can cause disruption of satellite operations, communications, navigation, and electric power distribution grids, leading to a variety of socioeconomic losses. (National Space Weather Program, Strategic Plan)
Storm Cell Track	For the purposes of this report, the path of past locations, present location, direction of movement, speed of movement, and intensity of storm cells as indicated by a storm detection radar.
Storm Surge	An abnormal rise of the sea along the shore as the result, primarily, of the winds of a storm. (AMS Glossary)
Structure Ice Accumulation	The actual depth of ice on roadway structures. (FHWA)
Subsurface Temperature	The temperature of the soil below the surface. (FHWA)

Weather Element(s)	Definition
T	
Time and Air Temp Integrals (heating/cooling degree days)	Degree day: Generally, a measure of the departure of the mean daily temperature from a given standard: one degree day for each degree (C or F) of departure above (or below) the standard during one day. (AMS Glossary)
Tornado or Waterspout	A violently rotating column of air, pendant from a cumulonimbus cloud, and nearly always observable as a "funnel cloud" or tuba. On a local scale, it is the most destructive of all atmospheric phenomena. (AMS Glossary)
Total Sun (Insolation)	Insolation (incoming solar radiation). In general, solar radiation received at the earth's surface. (AMS Glossary)
Tropical Storm Force Winds	Winds equal to or greater than 39 mph but less than 74 mph.
Tsunami	Japanese for "wave in the harbor" (also called a seismic sea wave or tidal wave). An ocean wave produced by a submarine earthquake, landslide or volcanic eruption. These waves may reach enormous dimensions and have sufficient energy to travel across entire oceans. (AMS Glossary)
V	
Visibility	In United States weather observing practice, the greatest distance in a given direction at which it is just possible to see and identify with the unaided eye (a) in the daytime, a prominent dark object against the sky at the horizon, and (b) at night, a known, preferably unfocused, moderately intense light source. After visibilities have been determined around the entire horizon circle, they are resolved into a single value of prevailing visibility for reporting purposes. (AMS Glossary)
Volcanism	For the purposes of this report, any volcanic activity e.g. eruptions, earthquakes, ashfall which can impact transportation operations and activities.
W	
Water body depths	The measured depth of a water body, e.g. river or stream, from a specified datum at a specified location. (FHWA)
Water course flow volume	Volume of water that passes a given point within a given period of time. (FHWA)

Weather Element(s)	Definition
Water Temperature	The measure of the surface/near surface temperature of the water as measured by a thermometer. (AMS Glossary)
Wet Bulb Temperature	The temperature an air parcel would have if cooled to saturation. (AMS Glossary)
Wind Chill	That part of the total cooling of the body caused by air motion. (AMS Glossary)
Wind Direction	The direction from which the wind is blowing. (AMS Glossary) Headwind: A wind that opposes the intended progress of an exposed, moving object. Tailwind: A wind which assists the intended progress of an exposed, moving object. Crosswind: A wind which has a component which is directed perpendicularly to the course (or heading) of an exposed, moving object.
Wind Direction (upper air)	Upper Air: That portion of the atmosphere which is above the lower troposphere. No distinct lower limit is set but the term is generally applied to the levels above 5 thousand feet (850mb). (AMS Glossary derived)
Wind Speed	The velocity of air in motion relative to the surface of the earth. (AMS Glossary derived)
Wind Wave Height	Height of the ocean surface wave generated by the wind. (AMS Glossary derived)