

## 5.4.8 Transportation Accident

This section provides the hazard profile (hazard description, location, extent, previous occurrences and losses, probability of future events, and impact of climate change) and vulnerability assessment for the transportation accident hazard in Wyoming County.

### 5.4.8.1 Hazard Profile

#### Description

Transportation accidents include the following: vehicular, aviation, marine, hazardous materials in transit, at-grade railroad crossings, and roadways. The National Transportation Safety Board (NTSB) reports the Bureau of Transportation Statistics' (BTS) transportation-related fatalities each year. In 2018 (the most recent data available), the BTS reported 38,516 total fatalities. Of those 38,516 fatalities, 36,560 were highway incidents, 831 were rail incidents, 394 were aviation incidents, 8 were pipeline incidents, and 684 were marine incidents (BTS 2020). For the purpose of this plan update, transportation accidents are defined as incidents involving highway, air, and rail travel, including hazardous materials in transport, resulting in death, serious injury, extensive property loss or damage; or situations that cause delay or closure.

A transportation hazard may be defined as a condition created by movement of anything by common carrier. Transportation hazards can be divided into two categories: hazards created by the material being transported, and hazards created by the transportation medium. Transportation systems available in Wyoming County include roadways, railways, and airports. Based on historical records, major road accidents in the county are probable; however, aviation or rail accidents are less likely. All county systems and supporting transportation resources, with the exception of the private airports, provide services locally, regionally, and nationally. Transportation accidents involving road, air, and rail travel are defined below:

- *Vehicular Accidents:* A vehicular accident is a road traffic incident that usually involves one vehicle colliding with another vehicle or other road user, such as an animal or a stationary roadside object. A vehicular accident may result in injury, property damage, or possible fatalities. Many factors contribute to vehicular accidents, including equipment failure, poor road conditions, weather, traffic volume, and driver behavior.
- *Aviation Accidents:* According to the National Transportation Safety Board, an aviation accident is an occurrence during operation of an aircraft between the time a person boards the aircraft with intent to fly to a destination, to the time the person has disembarked the aircraft. Three different situations qualify as an aviation accident: a person is fatally or seriously injured; the aircraft sustains damage or structural failure; or the aircraft is missing or inaccessible. An aviation incident is an occurrence, other than an accident, associated with operation of an aircraft that affects or could affect the safety of operation (NTSB n.d.). Although Wyoming County is home to only private airports/airstrips, thereby limiting the probability of aviation accidents, airport accidents and incidents have the potential to occur while a plane is flying over county airspace.
- *Hazardous Materials (HazMat) in Transit:* A HazMat is defined as a substance or material determined capable of posing an unreasonable risk to health, safety, or property when transported. "Unreasonable risk" covers a broad range of health, fire, and environmental considerations. HazMat substances come in various forms, which, under certain conditions, can cause death; serious injury; long-lasting health effects; and damage to buildings, homes, and other property. HazMat substances include explosives, flammable solids, substances that become dangerous when wet, oxidizing substances, and toxic liquids. An accident involving a vehicle carrying HazMat becomes a HazMat incident if the HazMat leaks; is involved in a fire; or if potential for release, fire, or other



- hazard exists. Hazards can occur during production, storage, transportation, use, or disposal of HazMats (Federal Emergency Management Agency [FEMA] 2007).
- *Railway Accidents:* Railway accidents involve one or more trains. They can involve a train derailment or one train impacting another train, vehicle, or pedestrian.

Transportation of HazMats is a threat to Wyoming County. Volatility of products transported, along with potential impact on a local community, may increase risk of intentional acts against a transport vehicle. Release of certain products, considered as HazMats, can cause immediate and adverse impacts on the general population, ranging from the inconvenience of evacuations to personal injury and even death. Additional effects of a release of HazMats from transportation accidents are addressed in the Hazardous Materials profile (Section 5.4.5).

## Extent

### Vehicular Accidents

Roadway accidents in Wyoming County range from minor crashes to more serious incidents that involve injuries or fatalities or result in a release of HazMats (described further in Section 5.4.5).

The worst-case transportation accident within the county would be overturn of a tractor trailer carrying an extremely hazardous substance (described in Section 5.4.5) resulting in a massive release of its cargo on a major roadway. This incident would block traffic on Wyoming County’s major transportation routes and could threaten the health and safety of individuals on the roadways and in surrounding neighborhoods. In addition, a release could necessitate closure of critical facilities. The most likely transportation accident in the county would involve a single vehicle hitting an object and sustaining minimal damage.

### Aviation Accidents

Aircraft accidents can vary from a single-engine aircraft having a “hard landing” causing damage to the aircraft, to a crash of a small turboprop or jet aircraft, to a crash of a large jet aircraft (such as a Boeing 727). Other aircraft accidents could include helicopter or experimental aircraft crashes. Aviation accidents also can involve radio-controlled or drone aircraft devices, many of which are experimental and not subject to defined regulatory oversight, potentially complicating issues with and for the public that could arise if one of these devices crash.

### Hazardous Materials in Transit

The extent of a hazardous substance release depends on (1) whether the substance is released from a fixed or mobile source, (2) the size of the impacted area, (3) the toxicity and properties of the substance, (4) the duration of the release, and (5) environmental conditions (for example, wind and precipitation, terrain, etc.). The extent of a HazMat release in transit is further described in Section 5.4.5.

### Railway Accidents

Rail accidents can vary widely in terms of injuries, fatalities, property damage, release of HazMats, and interruption of service, depending on the nature and severity of the accident.

## Location

### Vehicular Accidents

Wyoming County is bisected by the US Highway 20A that runs east and west through the towns of Sheldon, Varysburg, Warsaw, and Perry, connecting the county to the greater Buffalo area. Routes 98, 19 and 39 and



other primary transportation routes running north and south, and connects the county to Allegany, Livingston and Genesee Counties.

A total of 240.90 miles of roads are present in Wyoming County (NYDOT 2019a). Table 5.4.8-1 provides a breakdown of the roads and Figure 5.4.8-1, on the following page, indicates the major routes. Major roadways in Wyoming County include US Highway 20A. Transportation accidents can occur at any point along these roadways, with many occurring at the intersection of two or more roadways.

**Table 5.4.8-1. Wyoming County Transportation Networks**

Category	Miles
Interstate Highway	0
NYSDOT	414.87
County Roads	481.76
Local Roads	1,301.89
Other	26.54
<b>Total</b>	<b>2,225.06</b>

Source: NYSDOT 2019b

There is no warning time for vehicular accidents. Factors contributing to these accidents are typically associated with the driver, vehicle, and the environment. Factors associated with the driver include error, speeding, lack of experience, texting or talking on a cellular phone, and blood-alcohol level. Factors associated with the vehicle include type, condition, and center of gravity. Environmental factors include quality of the infrastructure, weather, and obstacles. The majority of vehicular accidents are attributed to the driver. Vehicular accidents can severely affect those directly involved, as well as others not directly involved. Other effects may include severe traffic delays, lost sales to businesses, delayed commodity shipments, and increased insurance costs (Business Insider 2019).

Figure 5.4.8-1. Major Transportation Routes in Wyoming County



Source: Wyoming County 2020

### Aviation Accidents

The Perry-Warsaw Airport is the main air facility; however, a few private air strips are also located throughout the county. Two major regional airports, the Greater Rochester International Airport and the Buffalo Niagara International Airport, are located near the county. These airports may have associated air traffic patterns in the skies above Wyoming County that could lead to problems in flight resulting in a crash within the county boundaries.

Approximately 45 percent of all aviation accidents occur during the approach and landing phases of a flight. Reportedly, 90 percent of these accidents are caused by human error (FAA 2020). Mid-flight accidents are rare but not unheard of. A survey of plane crashes between 2000 to 2010 (most recent data available) show that 57 percent of accidents are the result of the pilot (human) error, 21 percent were caused by mechanical failure, 10 percent were caused by weather, 4 percent were caused by sabotage and terrorism, and 4 percent resulted from other causes (PlaneCrashInfo 2019).

Aviation accidents are often devastating incidents that may result in serious injuries or fatalities. The Federal Aviation Administration (FAA) and NTSB are the agencies responsible for monitoring air travel and investigating accidents. Some of the most common causes of aviation accidents occur as a result of violations of FAA and NTSB regulations. Some other causes of accidents include, but are not limited to:

- Pilot or flight crew errors – Pilot error is the primary cause of aviation accidents and accounts for the highest number of fatalities. Pilots have the responsibility to transport passengers safely from one place to another and follow the FAA and NTSB regulations to better ensure passenger safety. If a pilot or flight crew makes an error, an accident may occur.
- Faulty equipment – Faulty aircraft equipment or mechanical features is another common cause of aviation accidents.
- Aircraft design flaws – The manufacturer of an aircraft is responsible for an aviation accident if the structural design is flawed and results in an accident.
- Failure to properly fuel or maintain the aircraft – If any regulations and safety standards set by the FAA or NTSB are violated, an accident may occur.
- Negligence of Federal Air Traffic Controllers – Failure of air traffic controllers to properly monitor the airways is another cause of aviation accidents (PlaneCrashInfo 2019).

### Railway Accidents

Norfolk Southern, and two short lines (Depew, Lancaster & Western Railroad, and Rochester & Southern Railroad) provide railroad service throughout the county.

### Previous Occurrences and Losses

Major roadway accidents (such as multi-vehicle accidents those that close roads or bridges, or those involving school buses) are reported to the state. Table 5.4.8-2 summarizes these accidents from 2009 to 2019. While this table lists accidents reported to the county and state agencies, significantly more minor accidents are not reported.

**Table 5.4.8-2. Summary of Major Transportation Accidents in Wyoming County, 2009 to Jan. 2020**

Year	Vehicle Accidents	Fatal	Personal Injury	Property Damage	Railroad Incidents	Aircraft Accidents
2009	1,147	2	241	\$904	0	0
2010	1,076	6	243	\$827	0	0
2011	1,060	5	204	\$851	0	0
2012	1,174	2	225	\$947	0	0



Year	Vehicle Accidents	Fatal	Personal Injury	Property Damage	Railroad Incidents	Aircraft Accidents
2013	1,212	2	238	\$972	0	0
2014	1,112	5	199	\$908	0	0
2015	1,082	6	186	\$890	0	1
2016	1,151	3	198	\$950	0	0
2017	1,057	5	188	\$864	0	0
2018	1,241	3	198	\$1,040	1	1
2019	1,223	3	171	\$1,049	0	0
2020*	250	2	33	\$215	1	0

Source: New York State Traffic Safety Statistical Repository (TSSR) 2020; NTSB 2019; USDOT 2020; FRA 2020a; FRA 2020b  
 Note: \*as of January 2020

Table 5.4.8-3 includes railway, automobile, and aviation accidents from 2014 to 2019. From 1954 to 2019, the State of New York was not included in any FEMA disaster (DR) or emergency (EM) declarations in regard to transportation failure events.

**Table 5.4.8-3. Transportation Failure Incidents in Wyoming County, 2014 to January 2020**

Date	Type	Description
2014	Vehicular Accidents	In 2014, as reported by ITSMR, 1,112 vehicular accidents occurred in Wyoming County.
2015	Vehicular Accidents	In 2015, as reported by ITSMR, 1,082 vehicular accidents occurred in Wyoming County.
2015	Aviation Accident	In Perry, the student pilot failed to maintain vigilance, which resulted in a loss of directional control during the landing roll.
2016	Vehicular Accidents	In 2016, as reported by ITSMR, 1,151 vehicular accidents occurred in Wyoming County.
2017	Vehicular Accidents	In 2017, as reported by ITSMR, 1,057 vehicular accidents occurred in Wyoming County.
2017	Rail Accident	Train derailment in Silver Springs at 1 mph due to a turnout frog (spring) worn out or broken. No injuries were reported; however, \$3,440 worth of equipment was damaged due to the accident.
2018	Vehicular Accidents	In 2018, as reported by ITSMR, 1,241 vehicular accidents occurred in Wyoming County.
2018	Aviation Accident	In Strykersville, the pilot reported that during landing on a home-built landing platform the helicopter landed normally and was stable, yet the platform collapsed, causing damage to the aircraft.
2018	Rail Accident	Train derailment in Silver Springs at 36 mph due to track damage from washout/rain/slide/flood/snow/ice. Two were injured and the accident caused \$402,302 worth of property damage.
2019	Vehicular Accidents	In 2019, as reported by ITSMR, 1,223 vehicular accidents occurred in Wyoming County.
2020*	Vehicular Accidents	As of January 2020, as reported by ITSMR, 250 vehicular accidents occurred in Wyoming County.
2020	Rail Accident	Train derailment in Silver Springs due to a broken rail-detail fracture from shelling or head check. No injuries were reported and \$23,343 worth of damage was reported due to this accident.

Source: National Transportation Safety Board 2019, NTSB 2019; ITSMR 2020  
 Note: mph miles per hour; \*as of January 2020; ITSMR: Institute for Traffic Safety Management and Research  
 With transportation failure documentation for Wyoming County being so extensive, not all sources have been identified or researched; therefore, not all events may be included in the table.

**Probability of Future Events**

Transportation hazards are impossible to predict accurately; however, areas prone to these hazards can be located, quantified through analysis of historical records, and plotted on county-wide and municipality base



maps. Certain characteristics that together cause these hazards or increase vulnerability to these hazards can be identified, as well as areas that may be prone to these hazards.

For this 2021 HMP update, the most up-to-date data was collected to calculate the probability of future occurrence of transportation events, of all magnitudes, for Wyoming County. Information from NYS DMV, NTSB, and the Federal Railroad Administration were used to identify the number of transportation accidents and incidents that occurred between 2009 and 2019. Using these sources ensures the most accurate probability estimates possible. The tables below show these statistics, as well as the annual average number of events and the estimated percent chance of an incident occurring in any given year.

**Table 5.4.8-4. Probability of Future Occurrences of Transportation Accidents and Incidents**

Hazard Type	Number of Occurrences Between 2009 and 2019	Probability of Event in any given year	Percent chance of occurrence in any given year
Vehicle Accidents	12,535	179.07	17,907.14%
Railroad Accidents	1	0.01	1.43%
Aircraft Accidents	2	0.03	2.86%
<b>TOTAL</b>	<b>12,538</b>	<b>179.11</b>	<b>100%</b>

*Source: National Transportation Safety Board 2019, NTSB 2019; ITSMR 2020. It is estimated that Wyoming County will continue to experience transportation accidents and incidents each year, with a majority of the incidents occurring as vehicle accidents.*

In Section 5.3, the identified hazards of concern for Wyoming County were ranked. The probability of occurrence, or likelihood of the event, is one parameter used for hazard rankings. Based on historical records and input from the Planning Team, the probability of occurrence for transportation accidents in the county is considered “frequent” (likely to occur within 25 years, as presented in Table 5.3-1).

### Climate Change Impacts

According to New York State Energy Research and Development Authority, precipitation totals will increase between 4 and 10 percent by the 2050s and 6 to 13 percent by the 2080s (baseline of 34.0 inches, middle-range projection). The projected increase in precipitation is expected to fall in heavy downpours and less in light rains. The increase in heavy downpours has the potential to flood key rail lines, roadways, and transportation hubs; and increase delays and hazards related to extreme weather events (NYSERDA 2014).

Road, rail, and air traffic is also vulnerable to freezing rain (icing) and snow. Increasing temperatures lead to shorter-duration freezes of Lake Ontario and the Finger Lakes, allowing more moisture to be drawn up. During the winter months, that moisture may fall as snow or freezing rain across central New York State. Additional snow and icing would result in more transportation accidents (NYSERDA 2014).

### 5.4.8.2 Vulnerability Assessment

To understand risk, a community must evaluate the assets that are exposed or vulnerable within the identified hazard area. For the transportation accident hazard, all of Wyoming County has been identified as the hazard area. Therefore, all assets in the county (population, structures, critical facilities, and lifelines), as described in the County Profile, are vulnerable to a transportation accident. This section discusses the potential impact of the transportation accident hazard on the county. Specifically, this section addresses:

- Overview of vulnerability
- Data and methodology used for the evaluation
- Impacts to (1) life, health, and safety of residents; (2) general building stock; (3) critical facilities; (4) economy; and (5) future growth and development

- Change of vulnerability compared to data presented in the 2008 Wyoming County Hazard Mitigation Plan
- Further data collections that will increase understanding of this hazard over time.

### Overview of Vulnerability

County transportation systems rely on use of roadways. Hazards associated with transportation can be natural hazards that affect the roadway, the material being transported, or hazards pertaining to the transportation medium itself. Multiple major roadways (interstates and other major highways) within the county are used by residents and commuters, and these are means for transporting all types of materials, including HazMats. A major accident on any of these major roadways is possible, which could minimally, moderately, or severely affect the county in various ways.

### Data and Methodology

Data on transportation accidents was obtained from the county, local officials, and federal data sources. In addition, the Planning Partnership has identified roadways within the county that are also vulnerable to other natural hazards (such as flood).

### Impact on Life, Health, and Safety

Transportation hazards could lead to potential losses in human health and life, property, and natural resources. Vehicular accidents, flooded roadways, and other roadway impairments may result in injury or death to drivers and passengers on the road, the public in the immediate vicinity, and emergency services personnel. The number of people exposed depends on population density, whether the accident occurs during day or night, and whether the accident location is near a population located indoors and outdoors.

Wyoming County and its municipalities are prepared to manage and respond to transportation hazards.

### Impact on General Building Stock, Critical Facilities, Economy and Future Development

Because of insufficient data, a full loss estimate was not completed for the transportation hazard. Loss of roadway use, and interruption of public transportation services would affect thousands of commuters, employment, day-to-day operations within the county, and delivery of critical municipal and emergency services. Potential losses include inaccessibility, loss of service, and potential structural and content losses of a building. Disruption of one or more of these modes of transportation can lead to congestion of another and affect both the county and the region as a whole.

As discussed in the County Profile and the Jurisdictional Annexes, areas targeted for future growth and development have been identified across Wyoming County. Future growth could affect the amount of road traffic. Areas targeted for potential future growth and development within the next 5 years have been identified across the county at the municipal level. Jurisdictional annexes in Volume II of this HMP provide more information.

### Change in Vulnerability

Overall, the county's vulnerability has not changed since the HMP was developed in 2015, and the entire county will continue to be exposed and vulnerable to the transportation accident hazard.

### Additional Data and Next Steps

Based on limited data regarding the probability and potential impact of this hazard, a quantitative loss estimate was not completed for this HMP. Over time, the county can work with appropriate agencies to collect additional



data to support mitigation planning, consideration of potential risks, and prioritization of mitigation measures for this hazard.

Wyoming County recognizes it must compile and maintain data regarding specific concerns and past losses from this hazard. These data should include specific information regarding damage or loss of life, property, or infrastructure; and any data pertaining to potential or actual cost and logistics of responding to an event caused by this hazard (locations of road closures, map detours, traffic counts, durations of closures and detours; and costs to respond). These data will be included in future revisions of the HMP and can be used to support future mitigation grant efforts (benefit cost analysis).

Studying traffic and potential transportation accident patterns could provide information on vulnerability of specific road segments and nearby populations. Increased understanding of the types of HazMats transported through and within the county will also support mitigation efforts. Maintaining a record of these frequently transported materials can facilitate development of preparatory measures to respond to a release. Predicting costs to respond to a release, remediate the environment, or repair damaged infrastructure would be useful for developing mitigation options.