5.4.7 Transportation Hazards

This section provides a hazard profile and vulnerability assessment of transportation-related hazards for the Cayuga County Hazard Mitigation Plan (HMP).

5.4.7.1 Hazard Profile

This section presents information regarding the description, extent, location, previous occurrences and losses, and probability of future occurrences for the transportation hazard.

Description

A transportation hazard may be defined as a condition created by moving anything by common carrier. Transportation hazards can be divided into two categories: hazards created by the material that is being transported; and hazards created by the transportation medium. Transportation systems available in the Cayuga County include air, railroad, pipelines, and waterways. A major accident in each of these transportation systems is a risk. All of these systems and supporting transportation resources provide services locally, regionally and nationally.

Vehicular Accidents

In the context of commercial motor vehicles, the Code of Federal Regulations defines accidents as a fatality, bodily injury to a person who receives medical treatment away from the scene of an accident, or one or more motor vehicles incurring disabling damage as a result of the accident. Vehicular accidents can include passenger and commercial vehicles, motorcycles, trucks, buses, bicycle and pedestrian accidents, and other motorized forms of road transportation.

Hazardous Materials (HAZMAT) in Transit

A HAZMAT is defined as "any solid, liquid, or gas that can harm people, other living organisms, property, or the environment" (FEMA 2007). Hazmat incidents, which include spills or releases, can occur during transportation, use, disposal, storage or production and can occur along railroads, pipelines, waterways, and highways where hazmats are being transported.

Aviation Accidents

The Code of Federal Regulations (CFR) defines an aircraft accident as "an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage" (Cornell University 2020).

At-Grade Railroad Crossings

An at-grade railroad crossing is an intersection where a public highway, road, street, or private roadway crosses one or more railroad tracks at grade, or at the same ground surface level. These crossings are marked by crossbucks, stop signs, or other signals, and may be identified by a U.S. DOT inventory number (49 CFR 218.93).

Flood Vulnerable Roadways

A flood vulnerable roadway is any public road that has a history of being covered by enough water in a manner that the road surface, markings and edges are not visible to the operator of a vehicle, cyclist or a pedestrian. These conditions can be caused by stream/river flooding, poor drainage along roadways or normal surface runoff.

Water on the roadway can be either standing or moving and could also leave debris such as gravel, leaves and sticks on the roadway. Duration of the flooding event can vary from minutes to days (Fifth Planning District Commission, 1999).

Extent

Vehicular Accidents

There is no warning time for vehicular accidents. Contributing factors for these accidents are typically associated with the driver, vehicle and the environment. Factors associated with the driver include speeding, error, experience, 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 have severe effects on those directly involved, as well as effects to others not directly involved. Other effects may include: severe traffic delays, lost sales to businesses, delayed commodity shipments, and increased insurance costs (Cova and Conger, 2003).

HAZMAT In Transit

HAZMAT incidents may occur at any time, in populated or remote areas of Cayuga County. Multiple incidents may occur simultaneously and all typically require a multi-agency, multi-jurisdictional response. To identify the extent of the hazard in a particular community or region, what types of HAZMAT are stored, handled, processed or transported must be determined (FEMA, 1997).

On average, 6,774 HAZMAT events occur in the U.S. annually. Of those events, 5,517 are highway events, 991 are railroad events, and 266 are due to other causes. Transportation of HAZMAT on highways involves tanker trucks or trailers and certain types of bulk-cargo vehicles. Average trip lengths are 28 miles for gasoline trucks and 260 miles for chemical trucks. These trucks are responsible for the greatest number of HAZMAT events (FEMA, 1997).

Natural hazards can contribute to transportation-related HAZMAT events. Severe storms, high winds and fires can worsen conditions surrounding HAZMAT events. This makes it more difficult to contain releases and to mitigate the short and long term effects. These releases create short and long term toxicological threats to people, plants and wildlife. Toxic materials affect people through inhalation, ingestion or direct contact with skin (FEMA, 1997).

During transportation, the U.S. Department of Transportation (DOT) classifies HAZMAT in one or more categories: explosive, blasting agent, flammable liquid, flammable solid, oxidizer, organic peroxide, corrosive material, compressed gas, flammable compressed gas, poison, irritating materials, inhalation hazard, etiological agent, radioactive material and other regulated material (FEMA, 1997).

Aviation Accidents

Approximately 80-percent of all aviation accidents occur shortly before or during take-off and landing. These are usually said to have been caused by human error. Mid-flight accidents are rare but not unheard of. A survey was conducted on 1,843 plane crashes that occurred between 1950 and 2006. The survey showed that of those 1,843 plane crashes, 53-percent were due to pilot (human) error; 21-percent due to mechanical failure; 11-percent due to weather; eight-percent due to other human error (lack of communication, improper maintenance); 6-percent due to sabotage and terrorism; and 1-percent due to other causes (Krasner, 2009).

Aviation accidents are often devastating incidents that may result in serious injuries or fatalities. The Federal Aviation Administration (FAA) and the National Transportation Safety Board (NTSB) are the agencies

responsible for monitoring air travel and investigation accidents. Some of the most common causes of aviation accidents occur as a result of the violation of FAA and NTSB regulations. Some other causes of accidents include, but are not limited to:

- Pilot or flight crew errors – Pilot errors are the number one cause of aviation accidents and account 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 and/or mechanical features are another common cause of an aviation accident.
- 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 – The failure of air traffic controllers to properly monitor the airways is another cause of aviation accidents (Aviation Law News, Date Unknown).

At-Grade Railroad Crossing

Accidents involving trains and pedestrians or motor vehicles are very severe. A motorist is 30-times more likely to die in a collision with a train than any other type of motor vehicle accident (West Virginia Department of Transportation, Date Unknown).

As of 2015, there were 129,582 public crossings and 80,073 private crossings in the United States (USDOT 2019). Between 2015 and 2020, there are have been three reported at-grade railroad crossing incidents in Cayuga County (Federal Railroad Administration 2020).

For most local road officials, at-grade railroad crossings are the most common exposure to railroads. Such crossings are often a nuisance for both highway and railroad officials. Railroad crossings are a conflict point between two different transportation systems, which have different operating characteristics and different needs (Association of American Railroads, 2012).

New York State has been a national leader in grade crossing safety, installing full sets of active warning systems, including flashers and gates, at all appropriate public crossings in the State. As a result, New York State has among the lowest crossing accident rates in the country. The State has also been reducing the overall number of at-grade railroad crossings. In 1975, there were over 4,000 public crossings and currently there are only 2,687. Of those 2,687 public crossings, 2,000 are equipped with active warning devices, while 750 have passive devices only. Because of this, the occurrence of at-grade crossing accidents in New York State is one of the lowest rates in the country (New York State Department of Transportation, 2020).

Flood Vulnerable Roadways

See Section 5.4.2 (Flood) for detailed information on the extent for flood and flood vulnerable roadways.

Location

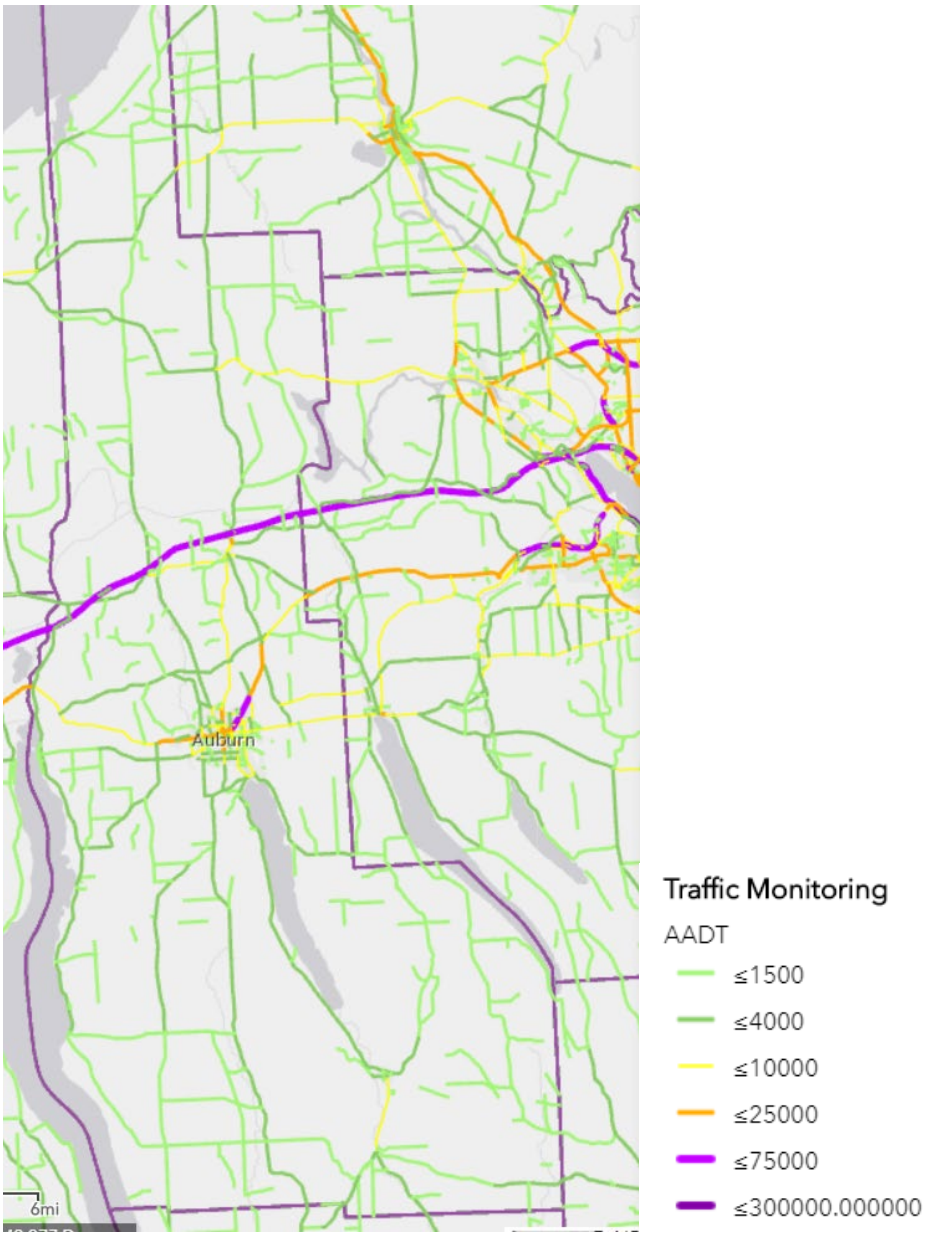
Transportation hazards are not uncommon in Cayuga County. Transportation systems within the Cayuga County include roads, railway, pipelines, and air. Therefore, the location of these transportation hazards can occur anywhere in Cayuga County.

Vehicular Accidents

A vehicular accident can occur on any traveled roadway in Cayuga County, including highways, streets, and parking areas. Areas of particular concern include areas of roads that are difficult to navigate, conducive to accidents, historically accident-prone, adjacent to water bodies, and pass through populated or highly traveled areas. The majority of main roads in Cayuga County run in a north-south direction, with few roads running east-west. However, two major parkways run east-west across Cayuga County: U.S. Route 20 passes through the City of Auburn, and Interstate 90 (New York State Thruway) transverses Cayuga County near the Villages of Weedsport and Port Byron, as well as other towns. The main north-south corridors are New York State Route 38 and New York State Route 34, both passing through the City of Auburn near the center of Cayuga County. Figure 5.4.5-2 depicts traffic volume in Cayuga County, with Interstate 90, U.S. Route 20, and New York State Route 34 experiencing the greatest volumes.

According to most recent available data (as of 2014) from the NY Department of Health, there were 2,970 vehicular crashes in Cayuga County. More than 10 percent (341) resulted in emergency department visits, and 34 required hospitalizations. Major contributing factors to crashes in the county include driver distraction (14.3%), failure to yield (14.6%), following too close (9.1%) and passing/lane violations (9.7%). Motor vehicle injuries are the second leading cause of injury-related deaths and in 2014 cost $3.4 million in hospitalizations and medical charges.

Figure 5.4.7-1. Traffic Volume in Cayuga County.



Source: *NYS DOT Traffic Viewer*
Note: *This map shows two-directional Average Annual Daily Traffic (AADT) volumes for interstate highways, parkways, state highways, and touring routes, county roads and selected roadways.*

According to the Planning Committee, traffic in Cayuga County has been impacted in more urbanized areas of the county including the city of Auburn and the corridor along Interstate Route 90 and State Route 20 (as depicted in the Traffic Volume Map). The 2020 Cayuga County HMP Steering Committee noted that the I-90 entrance and exit are especially prone to high traffic levels as it is one of the main entrances into the Finger Lakes Region. Additionally, roads along Lake Ontario have previously been closed due to lakeshore flooding and erosion that resulted in the collapse on various town and county roads. The village of Aurora and Cayuga are located along the lake and during the summer, can experience relatively higher levels of traffic with increased tourism.

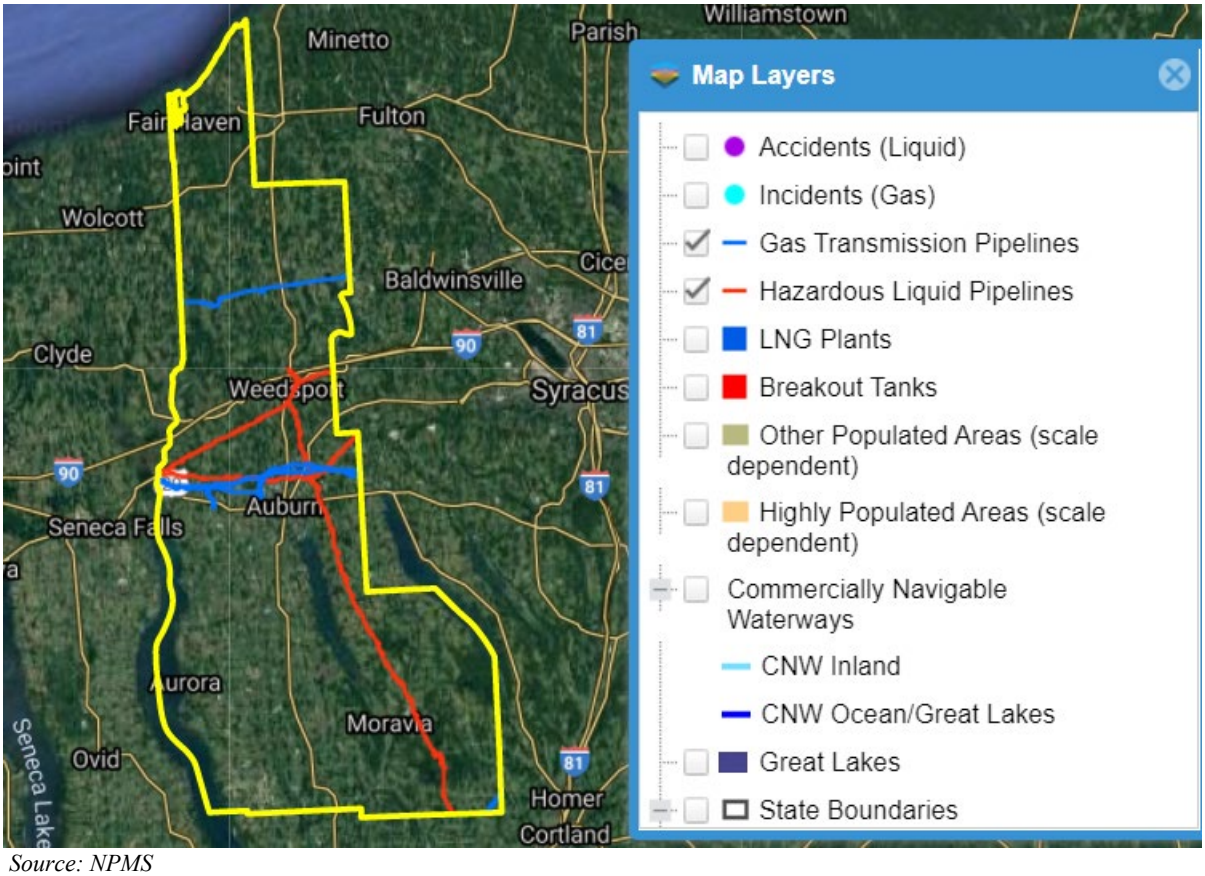
HAZMAT In Transit

Highways, railways, barge canal, and commercial or military aviation routes are a major vulnerability due to the number of chemicals and hazardous substances, including radioactive materials, transported in vehicles, vessels, trains and aircraft. Truck traffic on local roads including NYS Routes 90, 41A, 38A, 38, and 34 has been identified as a topic of concern. Also, local shortcuts in Cayuga County and GPS routes often send trucks onto smaller county roads, such as Tollgate Hill Road, which connects NYS Routes 38 and 90. This road is hazardous for truck traffic due to the grade of the roadway. This increases the possibility that an accident involving hazardous materials could occur.

In addition to surface routes, Cayuga County is crossed by several pipeline routes. These routes include:

- Dominion Energy Transmission (Natural Gas): Located in the southeastern corner of the county
- Buckeye Partners (Non-HVL Petroleum Products): This pipeline enters the county near Summer Hill and travels northwest east of Owasco Lake. Additional line runs east-west between the US-20 bridge on the border with Seneca County east to Skaneateles Falls and Jordan.
- Tennessee Gas Pipeline (Natural Gas): This pipeline carries natural gas throughout the northeast. It runs between Cayuga Lake and Mottville.
- Dominion Energy Transmission (Natural Gas): This pipeline carries natural gas parallel to the Tennessee Gas pipeline between Cayuga Lake and Mottville.

Figure 5.4.7-2. Pipelines in Cayuga County



Source: NPMS

In addition to pipelines, there have been hundreds of spill incidents in the county since 2013. Each year, NYSDEC receives nearly 16,000 reports of suspected or confirmed releases to the environment, most of which involve petroleum products. The table below shows the distribution of spill incidents reported to NYSDEC across communities in Cayuga County.

Table 5.4.7-1: NYSDEC-Reported Spill Incidents

Location	2013	2014	2015	2016	2017	2018	2019	2020	Total
N/A	0	2	1	0	2	0	0	0	5
AUBURN	41	23	25	80	20	28	21	22	260
Aurelius	3	2	0	2	1	1	3	1	13
AURORA	2	1	2	0	1	1	0	1	8
BRUTUS	1	1	1	2	2	4	1	1	13
CATO	7	4	4	10	2	4	8	2	41
CAYUGA	1	3	2	0	4	0	0	1	11
CONQUEST	0	1	0	0	0	2	1	0	4
ELBRIDGE	0	0	0	0	0	1	0	0	1
FAIR HAVEN	1	0	1	4	1	1	3	1	12
FLEMING	1	0	2	6	1	4	2	0	16
GENOA	3	1	1	6	3	3	1	1	19
HANNIBAL	1	0	0	0	0	0	0	0	1
IRA	1		0	0	0	1	0	0	2
KING FERRY	0	0	2	0	0	0	2	0	4
LEDGER/AURORA	0	0	0	0	0	0	1	0	1
LEDYARD	0	0	1	2	0	0	1	0	4
LOCKE	4	1	3	6	1	3	0	1	19
MARTVILLE	1		1	4	1		3	1	11
MENTZ	0	0	0	0	2	4	0	0	6
MERIDIAN	0	0	0	0	0	1	0	0	1
MONTEZUMA	1		1	4		1	2	1	10
MORAVIA	4	9	3	8	9	5	2	2	42
NEW HOPE	0	0	0	0	0	0	0	1	1
NILES	1	0	0	0	0	0	1	2	4
OWASCO	1	1	4		1	1	0	0	8
PORT BYRON	6	3	3	8	1	6	2	1	30
RED CREEK	0	0	0	0	0	0	1	0	1
SCIPIO	2	1	1	6	4	0	1	1	16
SCIPIO CENTER	1	1	2	0	0	1	0	0	5
SCIPIOVILLE	0	0	0	0	0	0	1	0	1
SCIPO	0	1	0	0	0	0	0	0	1
SCIPO CENTER	0	0	1	0	0	0	0	0	1
SEMPRONIUS	0	2	0	0	0	0	0	2	4
SENNETT	2	3	1	2	3	0	1	0	12
SPRINGPORT	0	0	2	2	2	0	1	0	7

Location	2013	2014	2015	2016	2017	2018	2019	2020	Total
STERLING	2	1	1	2	1	0	0	1	8
SUMMERHILL	1	0	0	6	0	1	1	1	10
THROOP	0	2	0	0	0	1	2		5
UNION SPRINGS	3	1	2	2	0	2	5	3	18
VENICE	2	1	0	2	1	2	3	0	11
VICTORY	1	1	0	2		1	1	1	7
WEEDSPORT	2	3	3	2	8	4	2	2	26
Total	**96**	**69**	**70**	**168**	**71**	**83**	**73**	**50**	**680**

Source: NYSDEC

Aviation Accidents

While Cayuga County is served by up to four regional commercial airports, only one is located within Cayuga County. Whitford's Airport is a commercial and flight education airport located on Ditmar Road in the Town of Cato. The airport maintains 3,630 feet of paved and 2,800 feet of grass runways and offers a wide range of aviation related services such as sightseeing flights, banner towing and aircraft rentals (www.whitfordairport.com).

Other regional airports serving Cayuga County include the Ithaca/Tompkins International Airport in Tompkins County, Greater Rochester International Airport in Rochester, and the Hancock International Airport in Syracuse. Cayuga County does not lie directly within the approach and take off zones of these airports; however, Cayuga County is still exposed to some risk.

There are nine private airfields and one public for small planes in Cayuga County. These could be significant because one or more are used by certified pesticide applicators for aerial spraying of crops, utility rights-of-way, or mosquito control.

At-Grade Railroad Crossing

The responsibilities for public crossings at grade are shared between the railroad and the road/highway agency. The railroad is responsible for the crossing surface between the out ends of the railroad ties, for the installation of the crossbuck signs where no signals are present, and for the operation and maintenance of the railroad crossing signals and associated control circuitry. The road or highway agency is responsible for warning and regulatory signs on the approaches to the crossing, for pavement markings and for the street or highway approaches outside the end of the railroad ties (Cornell Local Roads Program/ NYSDOT, 2018).

Two major rail corridors cross central/northern Cayuga County. The CSX line crosses east-west through the Towns of Montezuma, Mentz, and Brutus. The Cayuga County portion is 11.5 miles with four grade-crossings and at least two driveway crossings. There are also two significant bridges, one carrying the rail line over the New York State Barge Canal/Seneca River and the other carrying the New York State Thruway (I-90) over the rail line. Amtrak also uses this corridor, so it may become a high speed rail corridor in the future (Cayuga County Input, 2020).

Finger Lakes Railway crosses Cayuga County on a generally east-west path through Aurelius, Auburn and Sennett. The Cayuga County portion is 19.1 miles with over 20 grade-crossings, and at least 5 driveway crossings. Two significant bridges occur on the Finger Lakes Railway in Cayuga County. The first is the 1.6 mile long causeway across Cayuga Lake which includes a half mile of causeway and three bridges in Cayuga County. The second is the Owasco River crossing which occurs at the junction of State Routes 5 and 38 and U.S. Route 20, next to the walls of the maximum security New York State Department of Corrections

(NYSDOC) prison (Auburn Correctional Facility) (Cayuga County Input, 2013). According to the Village of Cayuga, various railroad crossings are in poor condition or are nonexistent and the increased speed from 15 to 25 miles per hour through densely populated communities like the Village of Cayuga and City of Auburn have led to local concern for increased protective infrastructure around the rail lines (2020 Cayuga Planning Partnership).

Flood Vulnerable Roadways

According to FEMA, flood hazard areas are defined as areas that are shown to be inundated by a flood of a given magnitude on a map. These areas are determined using statistical analyses of records of riverflow, storm tides, and rainfall; information obtained through consultation with the community; floodplain topographic surveys; and hydrologic and hydraulic analyses. Flood hazard areas are delineated on FEMA's Flood Insurance Rate Maps (FIRM), which are official maps of a community on which the Federal Insurance and Mitigation Administration has indicated both the Special Flood Hazard Areas (SFHA) and the risk premium zones applicable to the community.

In addition to FIRM, FEMA also provides FISs for entire counties and individual jurisdictions. These studies are narrative reports of countywide flood hazards, including descriptions of the flood areas studied and the engineered methods used, principal flood problems, flood protection measures and graphic profiles of the flood sources (FEMA, Date Unknown). A countywide FIS for Cayuga County has been completed. The 2007 FIS discussed the principal flood problems in Cayuga County including flood vulnerable roadways (FEMA FIS, 2007). See the Flood Hazard section (5.4.2) for more information.

Previous Occurrences and Losses

Many sources provided historical information regarding previous occurrences and losses associated with transportation incidents throughout Cayuga County and New York. With so many sources reviewed for the purpose of this HMP, loss and impact information for many events could vary depending on the source. Therefore, the accuracy of monetary figures discussed is based only on the available information identified during research for this HMP.

FEMA Major Disasters and Emergency Declarations

Between 1954 and 2020, the State of New York was included in three transportation-related emergency (EM) declarations. Generally, these disasters cover a wide region of the State; therefore, they may have impacted many counties. However, not all counties were included in the disaster declarations. Cayuga County was included in the declaration for the terrorist attacks on September 11th, 2001 (FEMA 2020). The terror attacks resulted from four hijacked planes that crashed into the World Trade Center in New York City, the Pentagon in Washington D.C., and a field in Pennsylvania. The attacks resulted in the grounding of airplanes nationwide.

Table 5.4.7-2. Transportation Hazard-Related FEMA Declarations for Cayuga County, 1954 to 2020

Date(s) of Event	Type	FEMA Declaration Number (if applicable)	Cayuga County Designated?
September 11, 2001	Fire	DR-1391	Yes

Source: FEMA 2020

Previous Events

For this 2020 HMP update, known transportation hazard events that have impacted Cayuga County between 2014 and 2020 are identified in Table 5.4.7-3.

Table 5.4.7-3. Major Transportation Incidents in Cayuga County, NY

Date(s) of Event	Disease Type	FEMA Declaration Number (if applicable)	Cayuga County Designated?	Description
February 5, 2013	Train Incident	N/A	No	A Finger Lakes Railway Corp. freight train was struck by a highway user moving over the State Street crossing in Auburn. No deaths or injuries were reported.
May 20, 2013	Hazmat Spill	N/A	No	A delivery of fuel oil in Locke resulted in a spill due to a defective component in the vent caps or hose.
May 29, 2013	Hazmat Spill	N/A	No	A delivery of diesel fuel in Locke resulted in a spill due to human error upon delivery.
February 18, 2014	Hazmat Spill	N/A	No	A small amount of fuel oil was inadvertently spilled on a building and nearby ground in Moravia due to a delivery error.
March 8, 2015	Train Incident	N/A	No	A vehicle stalled on the CSX train crossing on North Main Street in Port Byron. No injuries were reported.
June 15, 2015	Hazmat Spill	N/A	No	Approximately six barrels of petroleum were lost and then recovered due to equipment failure at the Buckeye Pipeline Auburn Station in Sennett.
March 24, 2016	Train Incident	N/A	No	A van traveling on North Main Street went around the gates of a railroad crossing in Mentz, resulting in the death of the vehicle driver. The train was an Amtrak passenger train and reported no injuries.
January 11, 2018	Aircraft Incident	N/A	No	A pilot of a Cessna 182G overshot the runway on a landing attempt, causing substantial damage to the aircraft but no injuries. The aircraft struck a power pole located at the end of the runway.
October 12, 2018	Train Incident	N/A	No	A tractor trailer stalled or stopped on the North Main Street rail crossing in Port Byron. No injuries were reported.

Source: FRA: USDOT - PHMSA

Climate Change Impacts

Climate change is expected to increase precipitation and temperatures in New York State. Climate change is not anticipated to have direct impacts on aircraft and automobile accidents. However, accidents owing to adverse weather conditions may increase owing to increased frequency or severity of meteorological conditions.

Probability of Future Occurrences

Predicting aircraft and automobile accidents in Cayuga County is difficult but can be modeled or anticipated using reviews of existing accident data and finding trends in accident times, locations, and environmental conditions. Broadly speaking, accidents can occur at anytime and anywhere in Cayuga County. Broadly speaking, accidents can occur at anytime and anywhere in the county. Large-scale, mass casualty accidents within Cayuga County appear to be a rare occurrence.

In Section 5.3, the identified hazards of concern for Cayuga 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 Steering and Planning Committees, the probability of occurrence for transportation hazards in the county is considered 'occasional'.

5.4.7.2 Vulnerability Assessment

To understand risk, a community must evaluate what assets are exposed or vulnerable to the identified hazard. The following discusses Cayuga County's vulnerability, in a qualitative nature, to the transportation hazard.

Impact on Life, Health and Safety

For the purposes of this HMP, the entire population in Cayuga County is exposed to hazardous material transportation accidents. Those particularly vulnerable to the effects of transportation accidents are populations located along major transportation routes and those that frequently use roadways. Potential losses from hazardous substances incidences include human health and life and property resources. Transportation accidents frequently cause injury and more rarely death. Human safety and welfare can become compromised from negative health effects of exposure to accidents. Long-term mental health impacts and after-effects from accidents can cause long-term impacts upon involved individuals.

Impact on General Building Stock

For the purposes of this HMP, the entire population in Cayuga County is exposed to hazardous material transportation accidents. Those particularly vulnerable to the effects of transportation accidents are populations located along major transportation routes and those that frequently use roadways. Potential losses from hazardous substances incidences include human health and life and property resources. Transportation accidents frequently cause injury and more rarely death Human safety and welfare can become compromised from negative health effects of exposure to accidents. Long-term mental health impacts and after-effects from accidents can cause long-term impacts upon involved individuals.

Impact on Critical Facilities

Potential losses to critical facilities caused by vehicle accidents is difficult to quantify. Potential losses may include direct damage and loss of utility as well as inaccessibility. Refer to Section 4 (County Profile) which summarizes the number and type of critical facilities and lifelines in the county. All critical facilities in Cayuga County are exposed to the hazard.

Impact on Economy

If a significant traffic or aircraft accident occurred, the economy of Cayuga County could be affected as well due to the disruption of travel in the region. A significant accident in a high-traffic-volume area would cause business disruptions. An accident involving an automobile or aircraft striking a commercial building would cause direct adverse economic impacts. The exact impact on the economy is difficult to determine, given the uncertain nature of the size and scope of accidents.

Impact on Environment

Hazardous material releases and vehicular incidents can have both acute, short-term and protracted long-term environmental impacts. If hazardous material releases are not contained or remediated, long-term ecological impacts can occur and persist particularly if they contaminate aquifers or waterbodies. In the short-term, hazardous material releases and vehicular incidents

Cascading Impacts on Other Hazards

Damage and impacts to Cayuga County's transportation infrastructure will hamper the County's and municipalities' abilities to respond to impacts from other hazards discussed in this Hazard Mitigation Plan. The ability to evacuate or respond to natural hazards can be diminished with loss of functionality to roadways, railways, pipelines, airports, and waterways. Though the impact of transportation hazards may be isolated, a significant incident impacting an element of infrastructure carrying heavy volume can cause regional and potentially national disruptions to supply chains, personal mobility, and national security.

Future Changes that May Impact Vulnerability

Understanding future changes that may impact vulnerability in the county can assist in planning for future development and ensuring that appropriate mitigation, planning, and preparedness measures are in place. The county considered the following factors that may affect hazard vulnerability:

- Potential or projected development.
- Projected changes in population.
- Other identified conditions as relevant and appropriate, including the impacts of climate change.

Projected Development

Any areas of growth could be potentially impacted by traffic accidents due to increased trip generation and exposure of population and building stock to existing hazards.

Projected Changes in Population

The county experienced a population decrease between the 2010 Census and the 2018 American Community Survey. Population exposure to transportation hazards will decrease as local populations decrease and there are fewer residents living in close proximity to transportation infrastructure.

Climate Change

Because aircraft and automobile accidents are human-caused hazard, no direct climate change impacts are associated with the hazard.

Change of Vulnerability Since the 2014 HMP

Overall, the county's vulnerability to aircraft and automobile accidents has not changed since the 2014 HMP. The entire county will continue to be exposed and vulnerable to this hazard.

Identified Issues

- High-volume roadways such as Interstate 90 are major networks that see large numbers of crashes and are critically important for connecting Cayuga County to the region and nation. The potential exists for a high intensity, mass-casualty crash to severely disrupt travel in the region.
- The Auburn Station for the Buckeye Terminal in Sennett is critical infrastructure for the distribution of petroleum supplies in the region. The facility includes a tank farm for storage as well as pumping stations. All of Buckeye's products that pass through western and central New York travel through Cayuga County.
- The poor railroad crossing infrastructure in rural communities throughout Cayuga County, but especially along Cayuga Lake are concerning to the local communities and while the municipalities would be willing to conduct safety measures to mitigate hazards, because the railroad is owned by a private entity, these negotiations are difficult to conduct.
- Many of the rural county roads are in poor condition and lack adequate shoulders. Additionally, with stormwater erosion, some roads are washed out and are eroding and thus are prone to collapse unless addressed by the county or New York State. Significant investment in road infrastructure is needed to mitigate traffic accidents.