

Holmes County Commodity Study



July 2023

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I. INTRODUCTION

In order to identify the hazardous substances and resulting response challenges Holmes County first responders could face when handling local emergencies, the Holmes County EMA conducted a commodity study in 2023. Resource Solutions Associates from Norwalk was hired to conduct the observations and develop the resulting report. This study would include field work and research, and would provide a comprehensive picture of what first responders would/could face when encountering a hazardous materials spill or leak. It would also identify other significant considerations that may be coupled with hazardous materials response.

This project would result in documented conditions first responders could encounter with the purpose of using it to develop hazardous materials response training; to establish equipment needs for first responders; and to compare potential challenges and local resources with the intent to establish gap-filling measures to enable successfully meeting the demands of an incident that might reasonably be anticipated.

a. Commodity Study Components

In April, the first phase included observation and assessment of traffic transporting hazardous materials and other goods, as well as the overall risk of exposure to hazardous substances due to transportation within Holmes County. Roads were driven to assess the characteristics of the roadways, the traffic conditions, and the vehicles using the roads. How state highways interfaced with local roads and the directional signage and markings were noted. The integration of pedestrian traffic into the vehicular movement was observed. Thirty hours of direct observation at designated key sites was completed, and the results were recorded.

The second part of the study identified air and rail transportation of hazardous substances risk through research, and found locations that would present increased potential for accidents. This included locations such as warehouses, distribution centers, and shipping terminals. Fixed facilities that are required to report to the Holmes County LEPC were evaluated for the reported chemical presence. Rail lines were examined for the purpose of establishing a picture of responsibility for each party involved in rail transportation services. Train contents were researched online because railroads haul whatever they are paid to haul, and the cargo varies from hour to hour. There was no response from corporate representatives regarding density studies or other data, but past response information was used to assess the Holmes County situation. Current online information for potential shippers was also used at the suggestion of other railroad experts. Airports were researched and characterized, providing an assessment of hazardous materials exposure by way of air traffic.

The third part of the study identified any documented incidents involving hazardous material releases or spills that have occurred in Holmes County in the past. Various sources were examined, including news reports, documentation by the Pipeline and Hazardous Materials Safety Administration, and the Holmes County LEPC.

II. HOLMES COUNTY CHARACTERISTICS AND DEMOGRAPHICS

a. Overview

Holmes County is a unique location for hazardous materials transport analysis because the county is entirely rural, and much of the traffic in the county is either local traffic or tourists visiting the local attractions. There is an extraordinary amount of foot, bicycle, and other small motorized scooter traffic in the villages. There is a significant Amish population that does not use motorized vehicles, and instead travels by horse and buggy, or bicycle. This leads to the convergence of large and small trucks, vans, and box vehicles with horse-drawn or non-motorized slow-moving vehicles on narrow country roads and two-lane state highways amid foothills and winding routes. Add to that the fact that tourists in typical vehicles without familiarity of the roads and driving conditions are present all year long in all parts of the county, and a dangerous situation can arise. Holmes County responders must be ready, at any given time, to respond to these incidents.

b. Population Demographics

Holmes County has 44,390 residents according to the 2020 US Census (V2022). There are seven villages, each listed with identified population counts as available and indicated: Baltic (829), Millersburg (county seat, 3180), Killbuck (811), Nashville (183), Holmesville (373), Glenmont (239) and part of Loudonville (2,765). Unincorporated communities include Charm, Farmerstown (795), Unionville (240), Welcome, Big Prairie (2,154), Mount Hope (122), Trail (297), and Lakeville. Census-designated areas include Berlin (1,447), Lake Buckhorn (720), Winesburg (191), and Walnut Creek (908). Stillwell (817), categorized as neither of the above, sits at the far southwest border of Holmes and Coshocton counties.

The 2020 US Census identified 49% of the population as Amish. It is the second-largest Amish population in the United States, second only to Lancaster County, Pennsylvania. Holmes County has the highest density of Amish population anywhere in the world, according to Kevin Lynch on November 27, 2017, as published in The Daily Record as “Holmes County Tourism, Hotels Keep Growing”. Holmes County is just behind Cedar Point rollercoaster park on Lake Erie in the number of visitors that come to see local attractions each year. A local hotel manager, Kent Miller, credited “the uniqueness of our area” as the reason Holmes County can sustain its dominance in the tourism industry. He also said, “Holmes County still feels pretty rural. Sure, some of the towns are built up more, but drive a quarter mile out of Berlin down a township road and it’s all farmland.”

c. Business Characteristics

Due to this ample market of Amish crafts and products, and the ensuing attractions in the county, Holmes County is the second-most visited county in Ohio. There are hundreds of businesses, located both inside the villages and in the rolling countryside, where tourists purchase food items, crafts, housewares, furniture and every other imaginable product. Wineries, produce stands, roadside markets, and other venues exist everywhere. There are small industries and manufacturing sites amid the rolling hills of Holmes County, as well as craftsmen and skilled trades providing services and products from their homes and small

business locations. Raw goods are harvested, delivered, and shipped on a daily basis with commercial shipping trucks like UPS and FedEx traveling country roads to find the indicated destination for shipments. Larger carriers transport furniture, heavy equipment, and mass shipments of goods from this area on a regular basis.

As a county of almost forty-five thousand people, Holmes County has the same need for goods and products as most other counties; maybe more. The tourism industry brings the need for gasoline, diesel fuel, and food to a higher level than even some metropolitan areas experience. The number of tourists staying for several days and residing in hotels, individual homes for rent, and bed and breakfast facilities is tremendous

While the high Amish population that does not use motorized vehicles brings the per-capita need for petroleum products down, the extreme tourism industry raises the need beyond the norms. As county businesses produce furniture, housewares, food products and crafts, they all ship these products to end-users outside Holmes County. Postal trucks, common carriers in vans, box trucks, and specialty vehicles pick up and deliver these goods. All of these vehicles use the same two-lane highways for ingress and egress, fuel at the same gas stations, and buy food at the same restaurants and bakeries.

Historically speaking, buggy crashes and bicycle crashes are not the most frequent roadway incidents; however, the injuries and deaths are much higher than other types of accidents.

Holmes County is truly a unique area, as Mr. Miller said it is. This study attempted to capture those characteristics and translate them into a vulnerability analysis for the handling of hazardous materials. Many specific factors were considered, not the least of them the actual chemicals that were observed on the roadways and found in research about the county's transportation dangers.

d. Waterways

Holmes County rivers, creeks, streams, and ditches are vulnerable to contamination in the event of a hazardous spill or release. The following creeks, ditches, and rivers encounter rail overpasses, bridges, and culverts at one or more locations in Holmes County. Virtually any waterway in Holmes County is close enough to a road of some sort to be affected negatively by a hazardous materials spill.

Holmes County is part of the Muskingum River Watershed, and the Sugar Creek and Killbuck Creek sub-watershed.

Responders should always consult local maps, the Holmes County Soil and Water Conservation office and/or the Holmes County Engineer for potential waterway involvement. The Ohio EPA, Ohio Division of Natural Resources, and the Ohio Department of Health provide additional information about waterways in the county, as well as the raw water supply used for consumption by residents and visitors

Table 13 Holmes County Waterways and Lakes

Bear Run	Black Creek	Brush Run
Colliers Run	Corns Run	Crab Run
Crabapple Creek	Doughty Creek	Goose Creek
Hostettler Run	Honey Run	Indian Trail Creek
Killbuck Creek	Lake Fork of the Mohican River	Lauren Creek
Martins Creek	Middle Fork Sugar Creek	Middle Run
Odell Lake	Paint Creek and tributaries	Salt Creek
Sand Run	Sapps Run	Shrimplin Creek
South Fork Sugar Creek	Stone Lick Run	Thaye Valley Creek
Walnut Creek	Wolf Creed	

e. Agriculture

Farms and agricultural production play an important role in Holmes County. Some are contemporary large farms with heavy equipment and sophisticated soil and chemical management. Others are Amish farms that are operated on a simpler basis, often using horses instead of machinery, or using simple machinery acceptable by religious beliefs and cultural standards.

Farmers who use soil treatments, fertilizers, herbicides and pesticides are required to comply with chemical use regulations due to environmental advocacy and protection. Most farmers are cooperative and participatory in meeting these requirements as they wish to protect natural resources that cannot be replaced or restored once damaged. In addition to farm conservation practices that protect the soil and woodlands, farmers work diligently to control the chemical impact and footprint on their land. Strip planting, sod strips, and grassy waterways can serve to collect and hold any fertilizers, pesticides or insecticides they use on crops throughout the year from dumping directly into ditches, creeks and streams, and then on to rivers.

Most pesticides, insecticides, and fertilizers are a unique and patented combination of various chemicals and organic or inorganic substances. The best reference material for a response is the Safety Data Sheet (SDS) provided with the substance; most farm chemicals are not listed in the Emergency Response Guide (ERG) or other typical first responder reference materials, and most are not assigned a UN number. Should this information be unavailable, an Internet search of the specific chemical is advised.

Of 270,421 acres in Holmes County, 173,925 acres are held in farms. Many are small family farms, both Amish and non-Amish. Holmes County farmers till 104,215 acres of farm land; they harvest 89,085 acres. They use 41,082 as pastureland and 30,711 as woodlands. There are 1,673 farms according to the Ohio annual Bulletin from USDA in November 2021. There are 62,000 cattle and calves, ranking #3 in Ohio, and 17,900 milk cows, also ranking #3 in Ohio. This data comes from the 2022 Ohio Department of Agriculture Ohio County profiles in their annual reports.

f. Tourism

The visitors to Holmes County arrive from points all around Ohio, the United States and the world. As the second largest Amish population, the county boasts of ample goods and services provided by Amish craftsmen and businesses. While many attractions are grouped in the downtowns and business districts of the villages, some are scattered about the countryside in commercial sites as well as individual homesteads.

Tourists arrive driving vehicles of all types, and spend their journey using motorized and non-motorized bicycles, scooters, and golf carts to access attractions and businesses across the county. Tourists sometimes walk where they choose to visit. Some are new to the area, never having experienced the Amish culture, and others are returning from many past visits to enjoy the county once again. Some are very familiar with the county, and others are not familiar in the least.

All of them can be distracted, disoriented, and lost in the fascination and allure of a culture unknown to them, or simply excited to be visiting such a quaint and unique environment. They are “on vacation”, and their goal is to enjoy themselves. Safety sometimes takes a back seat, and pedestrians cross in the middle of a block, they step out from behind cars, and they change paths without notice. This presents an increased risk of accidents as the normal-day business vehicle operators attempt to avoid them, putting any vehicle carrying any amount of hazardous material at increased risk of crash or spillage.

The tourism industry brings the need for gasoline, diesel fuel, and food to a higher level than even some metropolitan areas experience. While the high Amish population that does not use motorized vehicles brings the per-capita need for petroleum products down, the extreme tourism industry raises the need beyond the norms. As all county businesses produce furniture, housewares, food products and crafts, they all ship these products to end-users outside Holmes County. Postal trucks, common carriers in vans, box trucks, and specialty vehicles pick up and deliver these goods. All of these vehicles use the same two-lane highways for ingress and egress.

Historically speaking, buggy crashes and bicycle crashes are not the highest percentages of incidents; however, the injuries and deaths are much higher than other types of accidents. Many accidents where a vehicle hits a horse and buggy, not only are the buggy occupants unprotected and seriously injured, the horse is frequently badly injured or killed. Bicycle and scooter accidents are the same.

g. Summary

Holmes County is truly a unique area, as Mr. Miller said it is. This study attempted to capture those characteristics and translate them into a vulnerability analysis for the handling of hazardous materials. Many specific factors were considered, not the least of them the actual chemicals that were observed on the roadways and found in research about the county’s transportation dangers.

III. **HOLMES COUNTY TRANSPORTATION AND COMMERCE SYSTEMS**

Holmes County have miles of federal, state, and local roads as well as a county airport, two segments of rail, and numerous shipping terminals and warehouses. There are multiple manufacturing and industrial sites that use hazardous substances in the course of their work.

a. Highways and Roads

Homes County has almost 175 miles of federal and state highways. All are two-lane paved highways that converge with one another inside the small towns, and then stretch across the countryside to the next small town or settlement. Nashville, Millersburg, and Killbuck, as examples, have multiple highways coming into and out of their village, intersecting with one another amid businesses, restaurants, and residences. This interfaces people with large vehicles and increases the risk of accidents over what one would expect in a “farm” community.

According to the Holmes County Engineer, there are 271 bridges in the county system. The Engineer performs annual inspections and evaluation of the condition and load carrying capacity of each bridge, as well as repair and maintenance of all county roads.

State Route 39 crosses Holmes County from east to west, and travels through the heart of Millersburg, Berlin and Walnut Creek which are high-volume tourist attractions. The open access state highway is peppered with traffic signals, curb breaks, and crosswalks as it goes through these small towns. Routes 60, 62 and 83 cross the county as well, leading vehicles from Cleveland, Lorain, and other lakefront cities to Columbus and central Ohio locations. An array of other state highways includes SR 179, 241, 514, 520, 557, 643 and 754. US 62, mentioned above, is a federal highway.

All of these highways frequently move at less than the posted speeds, are shared with horses and buggies, bicycles, and pedestrians. They wind through hills and curves, on pavement that has less-than adequate berms for large, heavy loads to get where they are going. Stop signs can come up fast and unexpected as the roads dip and wind, leaving drivers with short stopping distances and untimely opposing traffic.

All state highways are two-lanes. No-passing zones are common, and often last for several miles. Traffic is a combination of Amish residents on non-motorized vehicles of various sorts travelling at the rate of a slow-moving vehicle, local residents who use motorized vehicles travelling on familiar roads, and tourists who are often accustomed to fast-moving traffic and are following directions from a GPS device.

County and township roads are two-lane, paved for the most part, and sometimes with center lines and side lines. They are similar to the state highways in that they can frequently move at speeds less than the posted limit. Others are narrow, follow ditches closely, have small berms, and one-lane bridges and tight intersections.

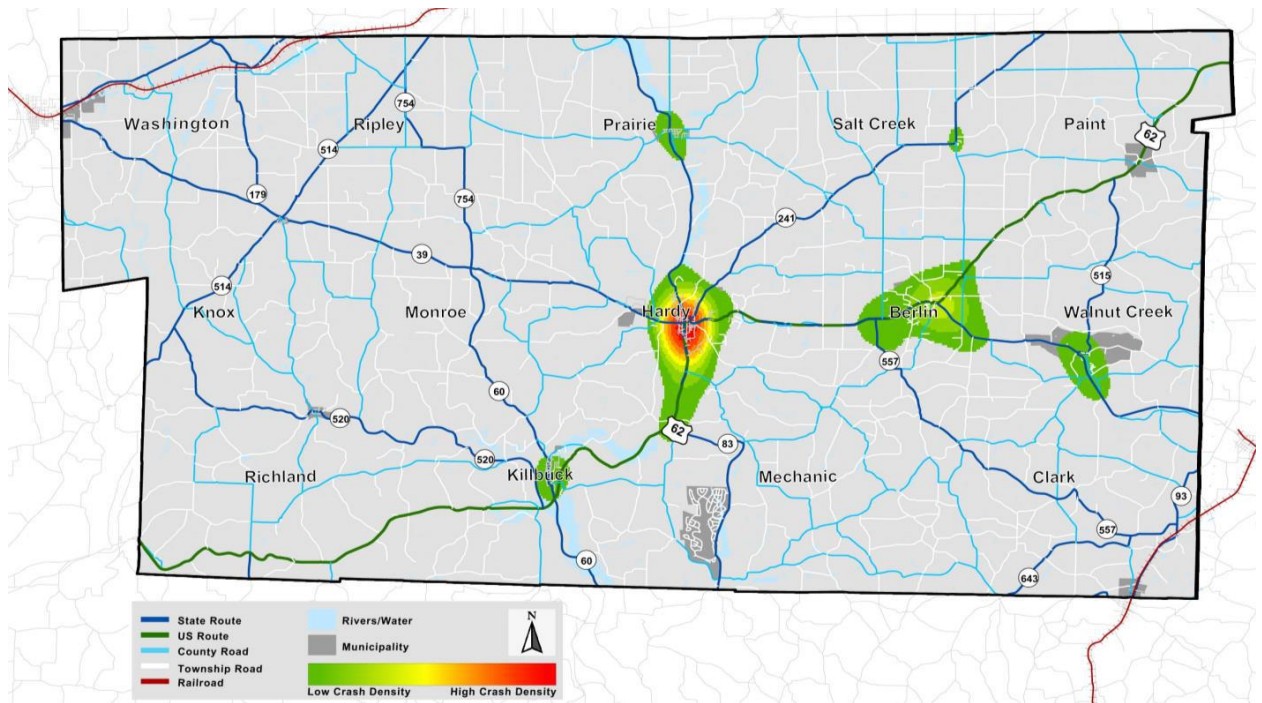
Holmes County has more pedestrian, bicycle and horse and buggy transportation than any other county in Ohio. Having the highest population of Amish in all of Ohio’s eighty-eight counties, almost half of the population utilizes non-motorized modes of transportation. They travel to

and from stores, work sites, and other locations by walking, riding bicycles, and traveling by horse and buggy.

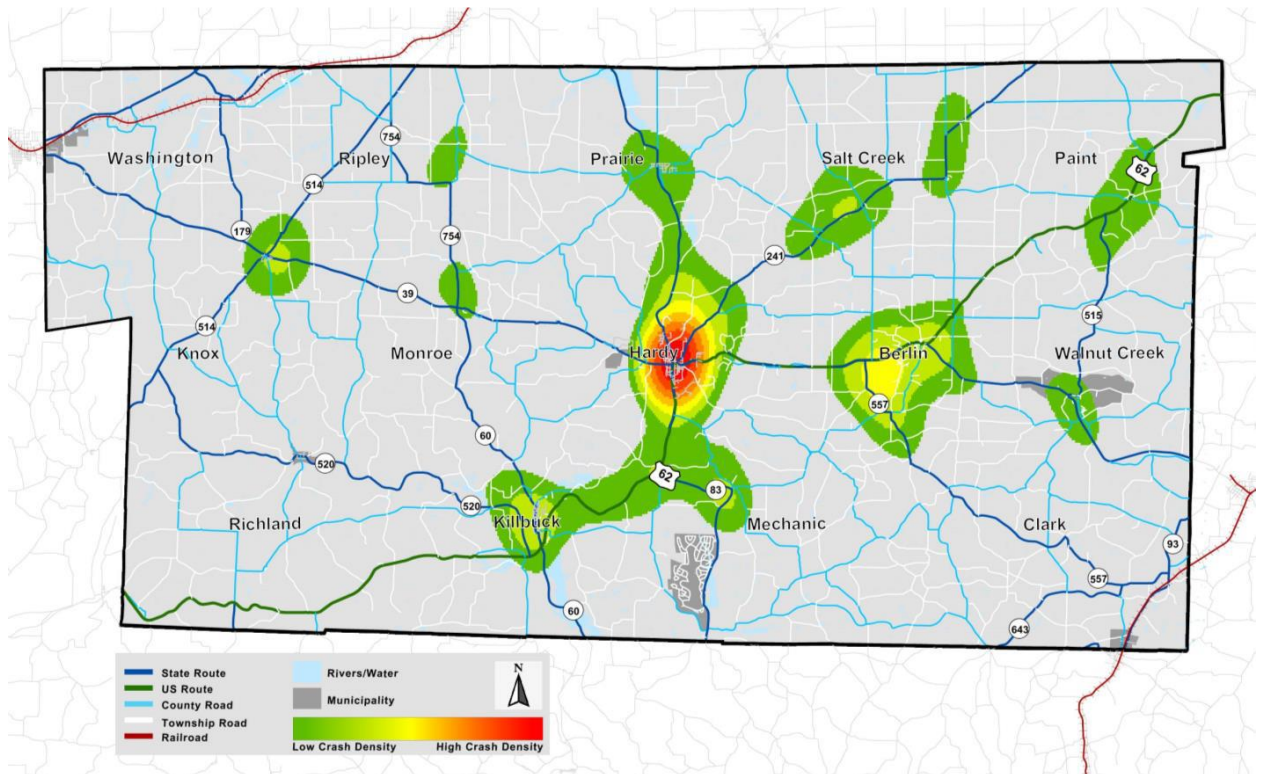
Holmes County is part of Ohio Department of Transportation District 11, headquartered in New Philadelphia. According to the Ohio Department of Transportation Holmes County Road Safety Plan, there are 37 miles of federal highway, 157 miles of state routes, 257 miles of county roads, 603 miles of township roads, and 27 miles of municipal streets, for a total of 1,081 miles of roadway.

This report cites pedestrian-vehicle accidents as a result of no sidewalks, as well as bicyclists, young drivers, horse-drawn Amish buggies, and farm equipment. It cites exports of construction materials, furniture, food products, garage and entry way doors, automotive components and more as attributable to the traffic numbers. They cite tractor-trailers, log trucks, cranes, and other heavy vehicles on roadways. They state that 41% of serious injuries and 22 percent of traffic fatalities occurred on local roads. This report indicates there are, on the average, 759 crashes each year in Holmes County, including four fatal crashes and 203 injury crashes. Berlin Township and Millersburg historically have about 14% each of the total numbers of accidents in a year. Killbuck has the greatest percentage of fatal crashes during the assessed period.

The following map is from the Holmes County Road Safety Plan by ODOT. It shows crash density areas from a time period of 2009-2018. It is obvious that crashes occur in a very consistent pattern, within specific zones.



This study also shows roadway departure crash density. This would include the truck carrying hazmat that went off the road, got tires caught in the berm, tipped or otherwise could not stay on the road. Following is the study's map of those incidents.



This study is available online by searching for “Holmes County Road Safety Plan March 2020”.

b. Railroads

There is very little rail in Holmes County. The rail tracks themselves are owned by two companies, but trains operated by other rail transportation providers run on those tracks, and the cars within a train may be owned by yet a third party. Therefore, the rail industry interest in operating rail service that crosses the small part of Holmes County that has rail is a multi-party partnership of various owners and operators.

Tracks in Holmes County are owned by Norfolk Southern in the far northwest corner traveling from Big Prairie through Lakeville and into Loudonville, and Genesee & Wyoming Railroad in the far southeast corner entering just south of CR 108 and traveling through Baltic into Coshocton County.

Northwest line: Norfolk Southern and CSXT own and operate on a line that passes through the extreme northwest corner of Holmes County, crossing through the villages of Lakeville and Loudonville. This track is also used by the Pennsylvania Ft. Wayne and Chicago Railroad.

From the east, the tracks enter Holmes County in Big Prairie near CR 100 (Shreve Road). The US Post Office and one business are close by, as well as several homes. The tracks follow Odell Lake into Lakeville, crossing CR 101 near Lakeville Elementary School and the local fire department. It follows Bauer Road and passes very close to numerous residential properties. Besides following the shore of Odell Lake, the tracks cross Crab Run that then flows into the Lake Fork Mohican River. Further to the west, it crosses Plum Run, another tributary of the Lake Fork Mohican River. Those waterways would be key factors in a significant spill in the area.

Southeast line: Genesee & Wyoming owns and operates the OHCR (Ohio Central Railroad, Inc.) that touches the far southeast corner of Holmes County, and runs through Baltic and Clark Township. This line begins to the northeast in Brewster (Stark County) and joins the Columbus & Ohio River Rail Road northeast of Coshocton. This line has a total of 277 miles of track, and shares interchanges with CSXT, Ohio Central Railroad, Ohio Southern Railroad, Norfolk Southern, and Wheeling and Lake Erie Railway. It runs just to the east of Brush Run ditch, crossing to the west side of Brush Run slightly before it combines with South Fork and flows into Tuscarawas County where it combines with Sugarcreek Ditch.

Railroads are commercial haulers that transport whatever cargo they are hired to transport. Fees associated with hauling may be much higher for hazardous materials, and perhaps the more dangerous the chemical is, the higher the rate. All railroads list as one of their goals the safe and transparent transport of chemicals, ores, agricultural products and petroleum products, among many other categories.

Both railroads have robust safety divisions. They not only inspect the cars for faulty valves, worn wheels, working order brakes and other moving parts, they regularly pull cars for general maintenance. They inspect cars that display warning signs, and respond to signals and warnings of impending malfunction.

Each railroad has a team of safety professionals, well versed in the dangers of their cargo, that responds to incidents to assist first responders. It is not uncommon for railroad staff to handle spills that are not reported to local first responder agencies due to size of the spill or having adequate internal resources to handle the spill. These railroad responders are available 24-7 and are ideally in contact with local officials on a regular basis regarding safety issues.

Transportation of hazardous materials is regulated by the U. S. Department of Transportation, the U.S. Department of Homeland Security, and the U.S. Transportation Security Administration. For rail security, all railroads operate under the Railroad Risk Analysis and Security Plan. The railroad police departments and infrastructure protection personnel monitor shipments and work closely with local officials.

Railroads meet safety requirements for hauling and operations, personnel operations, and environmental safety. They are regulated by OSHA, the Federal Railroad Administration, and their own internal safety standards. They are subject to both criminal and civil laws that govern how they do business.

Many rail lines carry significant numbers of intermodal containers because these diverse boxes can be loaded onto trains, tractor-trailers, and ships without transferring cargo to alternate containers. As a general rule, intermodal containers are marked appropriately when they contain hazardous substances. That said, containers can hold a variety of chemicals under marking limits, and can be mixed with other cargo as their operational rules allow.

c. Airport Facilities and Services

Holmes County Airport (10G) is located two miles southwest of Millersburg on TR 308. This is public airport, built in 1962, that is publicly owned by the Holmes County Airport Authority, 10 South Clay Street, Millersburg. An airport manager operates the airport from 4501 Township Road 307 in Millersburg. There are two runways, #9 and #27 that are both asphalt and in fair condition. Both runways are lighted. There is no control tower.

There are ten aircraft based at this airport; of those eight are single engine, one is a multi-engine aircraft, and one is a jet aircraft. Fuel service is provided from an 8,000-gallon tank held underground on airport property. An above ground 6,000-gallon unleaded fuel tank is to be installed in mid-2023. Bottled oxygen tanks are stored on the property and are of varied sizes and capacities.

Services provided by the Holmes County airport include the availability of fuel for aircraft, hangar and tie-down service, airframe and powerplant service, and bottled oxygen is available. Most operations are general aviation, but there are occasional military and air taxi activities.

There is a helipad north of Baltic, privately owned by Michael D. Felton of Baltic. It is used by permission-only according to the FAA. The village mayor is the heliport manager.

Pomerene Hospital has a helipad in Millersburg, located at the county fairgrounds at 5180 County Road 349 in Millersburg. This is primarily used for medical transport vehicles.

d. Pipelines

Holmes County has a limited number of pipelines in the county according to the PHMSA public mapping tool. There are no mapped pipelines in the major population centers like Millersburg, or the other villages with the exception of Lakeville.

A hazardous liquid pipeline stretches across the far southeast corner from west of Township Road 11 to the northeast, exiting Holmes County near County Road 172 near Township Road 417. Numerous businesses and at least one school are near this pipeline. It crosses SR 557 and SR 39. Waterways near this pipeline include Walnut Creek and Goose Creek, in addition to several small tributaries that appear to be nearby. There are no areas classified as “highly populated” by PHMSA near this pipeline.

The northwest corner of Holmes County is heavily covered by gas transmission pipelines. Most are north of SR 60 and west of SR 754. Lines cross Washington, Ripley and a small part of Prairie townships. Lakeville is the only municipality that lies within these pipelines, although the

villages of Nashville and Loudonville are close by. There are a variety of businesses near these lines, including overnight facilities, churches, retail outlets, and others.

There are no LNG plants or breakout tanks shown on the PHMSA map.

e. Shipping Terminals and Warehouses

There are several common carriers with bases located in Holmes County, as well as numerous post offices and small package shipping terminals. Terminals are co-located in businesses that are convenient to local residents when shipping personal packages.

Because loading and unloading are the most frequent spill areas where human, container or equipment failure causes a spill, these can be areas where hazardous substance incidents could potentially occur. Packages that are dropped, that fall from a loading dock or shipping vehicle, or punctures with forklifts are common incident types that result in a breeched container or spill.

**Transportation Services Originating in Holmes County
Drop Sites for Shipping – Personal and Commercial**

Site	Street Address	Village
FED EX Drop Off Sites		
Dollar General	5055 SR 39	Millersburg
Drop Box	138 E. Jackson Street	Millersburg
Dollar General	759 S. Washington St.	Millersburg
Dollar General	2530 SR 60	Killbuck
UPS Drop Off Sites		
Advanced Auto	1438 S. Washington St.	Millersburg
Orme Hardware	4888 Elm Street	Berlin
US POSTAL SERVICE OFFICES		
Berlin Post Office	5520 Oak St.	Berlin
Big Prairie Post Office	13214 ST 226	Big Prairie
Charm Post Office	4440 ST 557	Charm
Glenmont Post Office	125 Main St.	Glenmont
Holmesville Post office	201 S. Millersburg St.	Holmesville
Killbuck Post Office	182 W. Front St.	Killbuck
Lakeville Post Office	13989 SR 226	Lakeville
Millersburg Post Office	56 S. Washington St.	Millersburg
Mount Hope Post Office	7834 County Rd. 77	Mount Hope
Nashville Post office	111 W. Millersburg St.	Nashville
Walnut Creek Post Office	4878 Olde Pump St.	Walnut Creek
Winesburg Post Office	2162 W. Main St.	Winesburg
COMMERCIAL SHIPPING TERMINALS		
A.L. Fortner Trucking	5708 Township Rd. 127	Millersburg
Countryside Hauling	56 S. Washington St.	Millersburg
D&H Trucking Inc.	3801 Do. Rd. 135	Millersburg
Doug’s Trucking	7481 Township Rd. 317	Millersburg
Hipp Trucking	8599 OH-39	Millersburg

James Mast Trucking	5090 Twp. Rd. 353	Millersburg
John C. Hipp Trucking Company	5353 Holmes County Trail	Millersburg
Mineral Trucking	6848 Co. Rd. 201	Millersburg
Myron Miller Trucking	7125 Township Rd. 310	Millersburg
Sterling Transfer LLC	6091 Co. Highway 207	Millersburg
T & L Transport Inc.	4395 Do. Hwy. 58	Millersburg
T.D. Evans & Son Trucking	7011 Co. Rd. 68	Millersburg
Vision Express Inc.	1197 Glen Dr. Suite B	Millersburg
AIR SHIPMENTS		
Holmes County Airport	4501 Township Rd. 307	Millersburg

f. Distribution centers and bulk distribution centers

Some distribution centers and bulk facilities are located in the county. Holmes County produces many goods and services. As a result, there are a number of distribution centers. These facilities receive goods, store them, and then ship them to customers.

Distribution Centers and Bulk Facilities

Facility	Address	Village/City
Distributor Service, Incorporated	7580 SR 241	Millersburg
Walnut Creek Foods	3850 SR 39	Millersburg
Nature's Warehouse	7490 SR 241	Millersburg
Holmes County Wholesale	5916 CR 168	Millersburg
Builders Warehouse LLC	6061 CR 68	Millersburg

The county's Economic Profile, developed and published in 2021 by Ohio Job and Family Services, indicates a high amount of manufacturing, goods distribution, and warehousing in the county. Sixty percent of the top certifications required in online job ads for the county included various commercial driving credentials, including hazardous materials qualification, tanker endorsements, and DOT medical cards. The ten top skills in job ads included logistics, tanker truck operation, forklifts operation, and supply chain management. This supports the presence of so many facilities like warehouses and terminals, as well as distribution centers.

g. Fixed Facilities - EHS/HS Facilities Reporting to Holmes County LEPC

There are 39 facilities in Holmes County that are required to report hazardous or extremely hazardous substances under state and federal reporting laws.

These facilities are generally manufacturing and industry, agricultural, utility, service, communications, or fuel related businesses. The full range of information is available at the Holmes County LEPC, including business name, address, emergency contact and alternate contact, and chemicals reported.

These are listed in the table below with the number of reporting facilities per jurisdiction. Some addresses are outside Holmes County but the facility is located within Holmes County. The specific information about these sites is protected and released on a need-to-know basis.

HS and EHS Reporting Facilities in Holmes County

Mailing Address	Number
Baltic	1
Berlin	3
Big Prairie	2
Charm	1
Dundee	1
Holmesville	4
Killbuck	2
Lakeville	2
Loudonville	2
Millersburg	14
Mount Hope	2
Shreve	1
Sugarcreek	1
Walnut Creek	1
Wilmot	1
Winesburg	1

The following table shows the chemicals that are reported to the Holmes County LEPC under reporting requirements for the above list of facilities. While most of these chemicals were not observed during transportation, it is safe to assume that the chemicals are, at some point, transported into the facility and, perhaps, out again. It is reasonable to assume there is chemical waste needing proper disposal. These chemicals are stored on-site, used in preparation, production, cleanup, or maintenance, and are handled according to the manufacturer's recommendations. The business must have on file and accessible the SDS for the chemical, and they must have informed employees of the characteristics and dangers of the substance. The business is, by law, required to acquire, handle, use, and dispose of the chemical properly and according to US EPA guidelines.

The information contained herein may not be complete or accurate as products are upgraded, improved and changed regularly. Information in the EHS/HS reporting may not indicate changes in suppliers, and subtle modifications of the products used. This is intended to be a general summary for the purposes of this study, to serve as a reference in establishing training or researching local risk data for additional needed information.

Some information listed in for a trademarked, specific product that may be a combination of multiple chemicals and other substances, both organic and inorganic.

Consult the Safety Data Sheet for any and all of the chemical listed below if involved in an incident response, and do not rely upon this for anything beyond a general idea of the chemicals present, as reported, in fixed facilities. This is NOT intended to guide any response or intervention on-site.

FIXED FACILITY HAZARDOUS AND EXTREMELY HAZARDOUS SUBSTANCES ON HAND

PRODUCT NAME OR CHEMICAL	HAZARD CLASSIFICATION OR DESCRIPTION OF USE	UN
Abundit Edge (Glyphosphate herbicide)	Irritant, Toxic	
Acetone (liquid)	Flammable Liquid – Water Miscible	1090
Anhydrous Ammonia (gas)	Corrosive Liquefied, compressed Irritant, toxic Aquatic toxicity	1005
Argon	Gas, inert Compressed gas	1006
Asphalt Cement (Bitumin)	Irritant, toxic Health hazard	
Atrazine (chlorinated triazine herbicide)	Irritant, toxic Corrosive Health hazard	
Bullseye (Liquid non-butyl cleaner/degreaser- Alkaline cleaner)	Irritant, toxic Health hazard	
Carbon Black (dust used as filler for plastic and rubber)	Combustible Irritant Health hazard not classified Slippery when wet	
Cationic Dry Polymer PT 1050 dust	Combustible Irritant	
Chlorine Gas	Irritant, toxic Corrosive Oxidizing	1017
Crude Oil or Petroleum	Flammable liquid – water immiscible Irritant, toxic Health hazard Aquatic Toxicity	1267
Diesel Fuel Diesel Fuel #2 (truck fuel, yellow or red liquid) Diesel Fuel Ultra-Low Sulfur #2 dyed Diesel Fuel Ultra-Low Sulfur #2 clear	Flammable Liquid – water immiscible Irritant, toxic Health hazard Aquatic toxicity	1202 1993
Diesel Treat 200 Additive (liquid)	Flammable Irritant, toxic Health hazard Aquatic toxicity	
Dyna-Clor (laundry bleach)	Oxidizer Shin, eye, respiratory irritant Aquatic toxicity	
Elastopher P1001U Isocyanate (compressed gas)	Irritant, toxic Health hazard	
Elastopher 5017R Resin (Electrical curing resin)	Health hazard	
Elastopher P 1967DR Resin (compressed gas)	Health Hazard Asphyxiant	
Engine Lubricant Motor Oil	Not classified as hazardous	

Enlist Duo (2,4D choline with glyphosate herbicide)	Irritant, toxic	
Ethylene Glycol	Irritant, toxic	
Gasoline Gasoline, clear Gasoline, ENL 87 Gasoline Non-Ethanol 90 Gasoline ENLP 93 Gasoline Serve	Flammable liquid – water immiscible Health hazard Irritant, toxic	1203
Gasoline Additive	Flammable liquid – water immiscible Category 4 Aspiration toxicant Category 1 Combustible	
Heavy Parafinic Distillate Solvent Extract	Health hazard Aquatic toxicity	
Hydraulic Oil	Health hazard	
INSTAPAK Dispenser Solvent – used to clean foam dispensing equipment	Health warning – drowsiness, dizziness	
INSTAPAK Component A	Health hazard	
INSTAPAK 50W	Health hazard Irritant	
Kaolin (kaolinite, a clay mineral) ingredient in paint	Not considered hazardous	
Kerosene	Flammable liquid- water immiscible Irritant, toxic Health hazard Aquatic toxicity	1223
Lead	Health hazard Aquatic toxicity	
Lead Acid Battery w/Sulfuric Acid	Corrosive Health hazard Irritant, toxic Aquatic toxicity	
Aggregate, lightweight cement	Health hazard	
Liquid Petroleum Gas (LPG)	Extremely flammable Health Hazard	1075
LOVC Brake Wash (Solvent)	Flammable liquid vapors Aspiration hazard Acute toxicity Health hazard	
MC Acid Blend #1 (45% citric acid, 45% malic acid, 10% tartaric acid)	Dangerous Corrosive Health hazard	
Methanol	Flammable Liquid Toxic	1230
Microtox Prime	Flammable, combustible Oxidizes Corrosive Health hazard Toxic, acute	

Mineral Spirits (Solvent, paint thinner, asphalt reducer, cleaner)	Flammable liquid Health hazard Irritation, toxicity	
Neutra-chill	Corrosive Dangerous Alkalizer	
Nitra-Nox (Non-hazardous odor preventative)	Oxidizing solids Corrosive Health hazard	
Nitric Acid	Toxic and/or Corrosive Water Combustible – Water sensitive	1796 1826 2031
Oil	Flammable liquid Water Immiscible	1270
Paint and Solvents	Paint not considered dangerous Solvents warning! Irritant	3066 2470 1263 3469
Paraquat (Toxic herbicide, usually liquid)	Acute toxicity Health hazard Aquatic hazard	
Plastic Resin (polypropylene)	Not considered hazardous	
Petroleum (Diesel Engine Oil) Petroleum (Motor Oil)	Flammable liquid – water immiscible	1270
Petroleum (Unleaded gas)	Flammable Liquid – Water immiscible	1075
Petroleum Fuel Oil No. 2	Flammable Liquid – Water immiscible	1202 1993
Petroleum Waste Oil	Flammable Liquid – Water Immiscible	1270
Phosphoric Acid	Toxic and/or Corrosive Non-combustible	1805 3452
Pipeline Natural Gas Liquids	Flammable (including refrigerated liquids)	1971 1972
Polyisoprene	Irritant	
Portland Cement / White Cement (concrete ingredient)	Corrosive Irritant, toxic Health hazard	
Produced Fluids	Non referenceable	
Produced Water Solution	Not referenceable	
Propane	Flammable gas	1075 1978
Resicore herbicide	Irritant, toxic	
Rubber Solvent blend	Clear flammable liquid Health hazard Irritant, toxic Aquatic toxicity	
Sand	Irritant Health hazard Non-combustible	
Smackdown Herbicide	Health hazard Combustible Liquid	
Sodium Hydroxide	Toxic Corrosive	1823 1824

	Non-combustible	
Solvent Lantern Fuel – colorless liquid	Highly flammable Irritant, toxic Health hazard	
SP-247 Thinner	Not referenceable	
Sulfuric Acid	Corrosive Water reactive	1830
Toluene	Flammable liquid – Water immiscible Noxious	1294
Transmission Fluid	Aquatic toxicant	
Tri ethylene Glycol – yellow liquid	Not considered hazardous	
Universal Tractor Fluid	Not considered hazardous	
Xylene	Flammable liquid – water immiscible Noxious Irritant, toxic Corrosive Health hazard	1307

IV. COMMODITY STUDY OBSERVATION GOALS

Commodity studies are generally done by observing vehicles that have placards of various types, and recording the location, number of vehicles, and information on the placard. That information is then analyzed to find the most frequent chemicals, most dangerous, and greatest quantity. This is done for the purpose of establishing preparedness and training for first responders, and for the LEPC to guide responders into a competent response capability given the potential incidents they may face.

This process needed to be adapted for Holmes County because of the low volume of trucks and trains carrying hazardous materials.

Observations can be affected by market issues such as supply chain issues, worker circumstances like lay-offs and staff shortages, transportation hub issues in next-step receiving sites, weather, vacations, road closures and construction, time of year, and a host of other details.

These observations were done in April because the farming and planting season would be in process in late April, and the chance of roads being affected by hazardous weather was low. While there would be some tourists in the county, for the most part, traffic would consist of regular county traffic.

The EMA Director requested that the Contractor observe at ten specific sites, and the Contractor did just that. However, there were several locations where no placarded or otherwise marked vehicles were observed during the first day of the study. The Contractor then adjusted the sites and added locations to the target locations.

All totaled, there were 47 observed placarded vehicles at 18 separate sites. The specific data is found later in this report.

a. Objectives

The primary objectives of this study included identification of the hazardous substances being transported on highways, roadways, and railways. Those substances used and transported through airports or any other form of transportation were also to be identified. The type carrier, the characteristics of the vehicles hauling the substances, the challenges of rescue operations, and the general amount of the substances are all identified in this study.

The secondary objective was to create a discussion about the transportation risks in general that could very well include spillage and handling of hazardous substances in the course of responding to a typical daily accident. Challenges posed by terrain, transportation modes, and road characteristics is a significant consideration for Holmes County rescuers.

As a result of this information and the ensuing discussion, training for first responders can be designed using the information in this report. Accidents are not made of chemicals only. That chemical is combined with a mechanism of injury, velocity of the vehicles and persons involved in the incident, and characteristics of each and every rescue make up the challenge faced by fire and EMS professionals on a daily basis.

b. General Methodology

Highway traffic was analyzed through direct observation on various highways for a period of 31 hours over four days. Observations were conducted on April 13, 18, 20 and 27, 2023 starting at 7:00 a.m. and concluding at 4:00 p.m. The locations were selected in cooperation with the EMA Director, and intended to focus on areas that were most-likely routes of travel for large vehicles carrying hazardous substances. Additional sites were added to ensure adequate observation when designated sites did not yield high observation numbers.

On May 4 and July 9, general observations of roads were completed as an observer drove both state highways and country roads to gather information about road characteristics. This observation was done to gather information about stopping distances, road width, topography, and other conditions that would affect (positively or negatively) the operation of vehicles carrying hazardous substances.

Rail traffic is very difficult to observe due to the rate of speed at which trains travel, and because trains do not always pass through an area like Holmes County frequently. Direct observation does not result in valid information because any specific train contains only what was hauled on that particular day. The railroads advise using online information to obtain a much fuller picture of what might be transported. Due to the few miles of rail, research was the exclusive manner of data collection.

The Contractor completed research using the Norfolk Southern Railroad, Norfolk and Western Railroad, and Genesee and Wyoming Railroad websites, online rail information from the Surface Transportation Board and the Federal Railroad Administration. The U. S. Pipeline and Hazardous Materials Safety Administration data was referenced to fill in other parts of the hazardous substance puzzle for Holmes County. Railroad officials recently recommended that their

website be used to identify what chemicals would be accepted for transport because the content of train cars is dictated by what they are hired to haul by shippers. The content can fluctuate on a daily basis, and a special shipper need may introduce a totally new chemical to Holmes County rail without any type of warning or advanced planning.

Norfolk Southern did not respond to specific requests for density studies or other information about substances that were actually hauled through Holmes County. Reasoning for that could be their general security policies for sharing hazardous substance data, being in the midst of demanding response to the East Palestine incident clean-up, and/or the small amount of rail that crosses Holmes County.

Pipeline risk was assessed using the Pipeline and Hazardous Materials Safety Administration websites and information on local business websites. This data includes all spills that are reported to Ohio EPA even if the spill does not necessitate response from local public safety departments. This data captures both pipeline and traditional hazardous materials incidents, including those that occur at shipping terminals. Some industrial spills are managed by on-site full-time personnel who are not first responders, and those incidents, as well, are part of the PHMSA data set.

Because businesses are privately owned and required to report to Holmes County LEPC regarding hazardous substances, no on-site observations were conducted.

Airports were assessed because they often are summoned to provide just-in-time cargo services, and to deliver atypical and unusual shipments that are not accepted by standard carriers. Airport services include providing fuel and fluids for the aircraft, and the most likely spillage is at the time of loading or offloading or the time of refueling. There is only one airport in Holmes County, but the area is potentially part of the approach to both Cleveland Hopkins International Airport and the Canton-Akron Airport. There are also many small, county airports and private airstrips in the surrounding counties, and a plane in trouble could easily find a landing site or experience a crash in Holmes County.

c. Timeline

Observations began in mid-April and concluded by the end of the month. Road observations for road conditions occurred in May and June. Online research was conducted from May through July, and the report was written in July, after all activities were complete.

Observation of highways and rail began April 13, 2023 and concluded April 28, 2023. Other road observation was done on May 4 and July 9 for the purpose of capturing summer tourist traffic characteristics and county or township road characteristics. This time frame also allowed for agricultural product transportation to be observed, and was done while local construction and landscaping work was occurring.

Hazardous substances are generally transported during normal working hours. This generalization was true in Holmes County. While carriers were on the road early in the morning, and perhaps some even before observations began, very few were on the road after 3:00 p.m.

There were no significant road hazards present during any day of observation, and all observation was done during full daylight hours in weather conditions that were unremarkable. Observations quickly indicated that most hazardous materials move in and out of Holmes County early in the day, and that the most traffic observations would be made before 4:00 p.m. during the workweek.

d. Observation and Research Rationale

Locations for highway observation were selected by the EMA Director. Sites were selected because they are high-traffic areas, have additional crash vulnerability, are dangerous from a structural perspective, are used by commercial carriers passing through Holmes County to external sites, or are otherwise believed to have increased vulnerability to exposures.

Some locations involved waterways, including significant ditches and rivers where a contamination could easily flow well beyond Holmes County, affecting downstream communities in addition to Holmes County residents. Sites were not selected to target any business or farm, nor were they intended to identify any pre-determined conditions.

The sites selected included various points on State Route 39 because it is a cross-county two-lane state highway used for much of the east-west traffic in the county. It extends through the villages of Loudonville, Nashville, Millersburg, Berlin, and Walnut Creek. These are the most populated municipalities and are the most frequent tourist destinations. They also are home to a large amount of Holmes County's business and industry.

Other sites included two lane state highways that intersected with one another inside a populated area. Baltic, Killbuck and Millersburg all have multiple two-lane state highways that come together within the incorporation limits. Some of these intersections are close to critical facilities like schools, municipal buildings, or fire and police stations. Winesburg, Walnut Creek, Holmesville, Nashville and Lakeville have state routes that cross through the village and intersect with local streets and residential areas. Drives can have difficulty navigating through the various intersections, so these sites were selected to be able to observe those challenges.

Locations selected intended to capture traffic flowing through Holmes County without stopping as well as the traffic that serves Holmes County business and industry. Some state routes originate in the Cleveland Metropolitan area, and likely travel to disposition sites in central and southern Ohio. Others travel from Pennsylvania across Ohio to Columbus, Mansfield, and Lima. Yet others may travel from the northeast Youngstown and Erie, PA area to those in the Cincinnati or Chillicothe areas. It was assumed that traffic was destined for both Holmes County and outside destinations, and that each carrier may or may not stop in Holmes County for a delivery or pick up.

All observations were done during regular week-day business hours because most hazardous material that is hauled is done during the workday. Much of the fuel transport and other deliveries are short-haul trips, and drivers are daily workers, not long-haul cross-county drivers.

Trucks that haul products – such as farm trucks, logging trucks, small delivery trucks, and construction vehicles were counted even if no hazmat was placarded. The reasoning was that these vehicles could pose a risky rescue situation for first responders as they stabilize and

extricate from them. They could also pose variations of shifting loads, mechanical systems, and body types for firefighters to manage in an incident.

Truck types observed and documented include mixed cargo trucks, single axle box trucks, dump trucks, agricultural trucks, flatbeds, logging trucks, and delivery vans and panel trucks.

Tankers, both pressurized and non-pressurized, bulk haulers, semi tractor-trailers, cryogenic tankers, tube haulers, and other trucks that carry hazardous materials were recorded within the data regarding placarded and/or otherwise marked trucks.

General traffic density that includes passenger vehicles and vans was not observed and/or calculated. Non-motorized vehicles were not counted.

Findings are categorized as “Non-hazardous Material Transport” and “Hazardous Material Transport”.

The following table shows the observation locations, duration of observation, number of placarded or otherwise marked vehicles observed, and the placard numbers observed at that site. It also shows the sites originally designated for observation, and those that were added to ensure adequate observation.

Observation Sites for Placarded/Marked Vehicles

Site Observations	Duration	Notes	Chemicals by Placard Number
SR 557 and SR 39*	2.00 hr.	2 observations	1075, 1203
SR 39 and US 62 Millersburg*	2.00 hr.	9 observations	1203, 1897, 3257, cylinders
SR 39 and US 62 Millersburg*	3.00 hr.	7 observations	1203
SR 39 – US 62 – SR 83 Millersburg*	4.00 hr.	15 observations	1075, 1203, 1267
US 62 and SR 83 south*	2.00 hr.	None	None
Sr 241 in Mt. Hope*	2.00 hr.	4 observations	1075, 1203
SR 62 and TR 186/187 Winesburg*		None	
SR 62 & SR 515 S Winesburg**	1.50 hr.	1 observation	1203
SR 83 and US 62 in Killbuck*	1.00 hr.	None	None
SR 60/SR 39/SR754 Monroe Twp*	1.00 hr.	2 observations	1005, 1075
SR 39 – SR 514 Nashville*	1.00 hr.	None	None
SR 83 & CR 245 Holmesville*	2.00 hr.	None	None
SR 39 & CR 140*	2.50 hr.	3 observations	1075
SR 93, SR 643 and SR 557 Baltic*	1.50 hr.	None	None
SR 62 & SR 206 Stillwell**	1.00 hr.	None	None
SR 39 & SR 515 Walnut Creek**	1.50 hr.	1 observation	1075
SR 520 Glenmont**	1.00 hr.	1 observation	1005
SR 3 and SR 179 Lakeville**	2.00 hr.	2 observations	1075

Sites originally selected for observation are marked with *.

Sites that were added to ensure adequate coverage are marked with **.

Online research was completed to fill in gaps where direct observation was not feasible. Credible sources, often the required reporting sites for regulatory or monitoring agencies were utilized for this information.

Highway and roadway information was referenced by direct observation, and fixed facility site transportation assumptions were made based upon the required reporting to the LEPC. The observer was limited in some cases by a lack of a safe observation point. Attempts are made to stay out of traffic, off personal property, and to not obstruct movement of traffic or pedestrians.

Railroad observations are very difficult due to the speed at which trains travel and the nature of the markings regarding contents. Many times, the placards and numerals are not readable at the speeds they travel, the distance from the observer to the train, and/or the terrain or characteristics at crossings. Observers are not allowed to enter railroad property to obtain the observations, so there is often a significant distance between the observer and the train.

Railroad chemical information was obtained from the railroad websites, using information intended for potential shippers that identifies the products the railroads will accept for shipment. This is methodology recommended by numerous railroad safety experts. They recommend counties work from the list of potential chemicals because what is actually shipped by rail is more accurately illustrated by that information than by observing any given train. They contend that the contents of trains change with every single train, and the only way to understand realistically what they haul is to use the website information. Information from CSXT was also used to describe some trains, chemicals, and procedures.

The types of vehicles used to haul chemicals was obtained from the Emergency Response Guide (ERG) and several academic sources of general information. This includes road vehicles like trucks and tankers, as well as rail cars. It should be noted that not all vehicles or cars of a particular type look alike. Responders need to understand the characteristics of each one, and be able to determine the type on an individual basis.

The Pipeline and Hazardous Material Safety Administration (PHMSA) website is the primary reporting agency. While some incidents handled by first responders do not appear here, all other incidents where industrial or transportation cleanup occurs are reported to PHMSA. This agency captures many spills and releases that are not cause for summoning first responders, are small enough that the quantity of material released does not warrant contracted cleanup resources, or the cleanup resources are held on-site all the time.

The Ohio Department of Transportation highway and roadway safety program for Holmes County was referenced for general roadway vulnerability data. ODOT works with the Ohio State Highway Patrol and other local resources to determine the local crash vulnerability based upon statistics, and determines how these incidents might be prevented.

General public news resources like local and regional newspapers and television stations were used to gather information about incidents cited. In particular, this was a source for airplane crash information, and information about the hazardous materials spill in East Palestine, Ohio and Holmes County first responder roles in that initial incident.

V. OBSERVATION DATA

Observations included the collection of data regarding the substances and cargo being hauled, the type vehicle that was used to haul it, the type container or containment of the substances or cargo, and the special characteristics of that particular vehicle. While some cargo consisted of hazardous substances, other cargo amounted to something that would cause excessive shifting of weight or items based upon speed of the vehicle and mass of the cargo, or due to the atypical characteristics of the cargo.

a. Non-Hazardous Materials Transport

General cargo includes items contained in boxes, crates or barrels; bulk cargo includes grain or milk; dirt or gravel contained in a dump truck with hydraulic hoists and other mechanical devices; flatbeds with secured or unsecured loads of varying weight; logs and lumber carried on flatbed trucks; single axle box trucks that carry a wide variety of containers and cargo; and other cargo like mixed boxes on a mail or small package delivery panel truck, or medical supplies being delivered out of a transit-type van. Cargo may be in boxes, cylinders, pressurized cylinders, cryogenic containers, or hauled unpackaged and secured. Motor vehicle laws in Ohio require that cargo be safely secured, properly marked, and flagged if extending beyond the vehicle.

The truck types for non-hazardous material transport, and the number of each that was observed, are summarized in the table below. The type truck determines how the hauled cargo is contained, determines how load shifting may affect vehicle stability, how the cargo will act when spilled or damaged, and how people in the vicinity of a spill are exposed to the cargo.

Vehicle Type	Observations
Mixed cargo trucks	378
Single axle box trucks	343
Dump trucks	243
Other types (vans, panel trucks, etc.)	180
Agricultural trucks hauling feed, bulk grain or milk	144
Flatbed trucks	129
Log/lumber trucks	117

Mixed cargo trucks and single axle box trucks generally haul items that are packaged or boxed. They might haul barrels or boxes, and the contents can be dry solids, wet solids, or liquids. Cylinders can be hauled and are generally secured in some sort of harness or rack to prevent them from moving around during transit. This category includes small package delivery like Amazon trucks, UPS, FedEx, and USPS. Vans and panel trucks are small forms of this type vehicle.

Dump trucks usually haul stone and stone products, other construction materials, grain, and bulk goods. They might haul solid waste products. Generally open dump trucks do not carry

any cargo that is hazardous except in how it spills and acts in a crash. There are dump trucks that are made in a unique way to handle one specific product, such as a cement mixer truck.

Agricultural trucks generally haul farm products. Some trucks haul livestock; for smaller operations, they may use a pull-behind gooseneck or regular hitch trailer. These trucks haul farm products from the field to the farmstead, or to the local market. Grain haulers of a larger size transport grain products, feed, fertilizer and other products to regional grain elevators, stores, and other commercial sites. Bulk haulers can also transport hazardous substances, and are described under the hazardous cargo sections of this plan.

Flatbeds and log-haulers carry open product, secured by ropes, chains, and metal stripping. These trucks oftentimes haul extremely heavy or bulky cargo. Steel coils, large drainage pipes, raw steel, and raw logs from logging operations are hauled this way. Large shipments of lumber are hauled on flatbeds. These vehicles are especially vulnerable to load shift when their wheels get off the side of the road or other imbalances occur. The cargo frequently, due to its weight and size, breaks loose of the securing bands and moves independently. The mass and speed of the truck and the cargo is exceptionally relevant in these cases, and momentum factors must be considered when responding.

At each observation site, non-hazardous haulers were counted to give an indication of the type trucks moving through Holmes County. This statistic will help first responders know what kinds of vehicles they might be called upon to stabilize or otherwise work with on scene. How the cargo shifts, is contained, how to off-load cargo, and how to stabilize the vehicle upon initial response is dependent upon the type vehicle. While these vehicles do not generally transport hazardous substances, response can be challenging, dangerous, and difficult.

In particular, this observation illustrates the amount of moving traffic in Holmes County, and likely shows, at least in part, how the tourist industry affects transportation. While the vehicles counted in this portion of the study do not cause first responders to exercise hazardous materials protection and containment procedures, it does show what types of trucks may be involved in accidents with hazmat haulers, as well as with passenger vehicles. Cargo in these vehicles may cause significant scene management and cleanup activities, and may make extrication and patient care far more complex. A full load of grain spilled across an intersection, or a load of fresh-logged lumber caught off-balance and dumped could cause unanticipated equipment and skill demands, just as examples. Some of the cargo is not movable without heavy equipment, forklifts, or cranes. These situations present complex scene management circumstances.

Note that this statistic includes all non-hazardous materials hauling or empty trucks that traveled in the observed area; this statistic will not correlate with hazardous materials hauler statistics because it represents an entirely different dataset. It is likely, to local first responders, representative of the businesses, farms, and other activities that occur in each general area.

Site-specific Non-Hazardous Materials Truck Types

Observation Location	Agricultural	Mixed Cargo	Dump Trucks	Flatbed Trucks	Log/Lumber Trucks	Single Axle & Vans	Other
Rt. 39 & 62 Millersburg	12	23	25	1	3	27	15
Rt. 83 & DR 245 Holmesville	5	5	4	3	0	12	8
Rt. 62 & 83 Millersburg	13	20	9	0	4	20	21
SR 60 & Rt. 62 Killbuck	7	8	2	2	7	13	7
SR 60 & SR 39 & SR 754 Monroe Township	16	32	6	3	3	27	5
SR 39 & SR 514 Nashville	0	0	0	0	0	0	0
SR 39 & SR 62 Millersburg	28	62	26	30	9	47	0
SR 241 Mount Hope	12	23	34	3	7	30	0
SR 62 & SR 515 Winesburg	5	22	3	13	3	29	0
SR 39 & SR 515 Walnut Creek	4	13	2	6	2	12	0
SR 39 & CR 140 Walnut Creek	6	28	5	10	6	25	20
SR 93, 643 and 557 Baltic	3	7	4	6	4	12	5
SR 557 Charm	2	7	2	7	5	8	1
SR 62 Stillwell	0	4	3	2	3	2	1
SR 520 Glenmont	0	0	0	0	0	0	0
SR 62, SR 83, SR 39 Millersburg	25	112	110	33	55	71	90
SR 3 and SR 179 Lakeville	6	12	8	10	6	8	7
Total Approximate Percent Overall	144 9%	378 25%	243 16%	129 8%	117 7%	343 23%	180 12%

b. Hazardous Materials Transport

The hazardous substances observed included the following chemicals, hauled as indicated, in the frequency identified. This is a summary of all observation data from all locations designed by the EMA Director in Holmes County, and added while the study was in progress to ensure adequate coverage across the county.

This table indicates, from highest frequency to lowest, the substances that were observed in transportation. It cross references the chemical name, the Emergency Response Guide (ERG) response procedure number, the type vehicle hauling the chemical, and the total number of times this chemical observed across the county during the survey times.

Hazardous Substance or Chemical by Overall Frequency

UN	Hazard Class	Chemical Name	Response Guide	Vehicle Type	Total Observed
1203	3	Gasoline, gasohol, motor spirits, petrol	128	LP	26
1075	3	Liquefied Petroleum Gas*	115	HP	10
1005	2	Anhydrous Ammonia	125	HP	3
1075	2	Liquefied Petroleum Gas*	115	HP	3
1075	2	Liquefied Petroleum Gas*	115	LP	2
1267	3	Petroleum Crude Oil	128	LP	2
No Placard	2.2	Non-flammable, Non-Toxic		Multiple Cylinders	2
No Placard	3		127	Mixed Cargo	2
1897	3	Perchloroethylene; Tetrachloroethylene	160	LP	1
3257	2	Elevated temperature liquid, N.O.S., at or above 100 C (212F) and below flash point	128	LP	1
No Placard	8		153	Mixed Cargo	1

Legend: * can indicate Butane; Butylene; Isobutane; Isobutylene, Liquefied Petroleum Gas; LPG; Petroleum Gases, Liquefied; Propane; or Propylene.

c. Observation Findings

This summary indicates the date and location of the observation, the UN of the hauled substance, the chemical name, its hazard classification, the type hauler, and the capacity of that vehicle. It also indicates the locations at which no transport of hazardous materials was observed. This does not indicate that there are no chemicals transported through the named area, but simply that during the observation period, there were no observations.

Hazardous Substances Observation Detail by Location, Date, Chemical

Location	UN	Chemical Name	Hazard Classification	Truck Type	Capacity
April 13					
SR 39 & SR 62 Millersburg	1203	Gasoline, Gasohol Motor spirit Petrol	Flammable Liquid Class 3	MC 306/DOT406 Non-pressure tank car	9000 gal.

	1897	Perchloroethylene	Halogenated Solvent Class 6.1	MC307/DOT407 Non-pressure tank car	9000 gal.
	3257	Elevated temp liquid n.o.s.	Miscellaneous Hazard Class 9	MC307/DOT407 Non-pressure tank car	9000 gal.
	Cylinder hauler	Mixed; un-placarded trailer	Unmarked	Multiple cylinder trailer Cylinders under pressure	
SR 83 & CR 245 Holmesville	None observed				
SR 62 & SR 83 Millersburg	None observed				
SR 60 & SR 62 Killbuck	None observed				
SR 60 & SR 39 & SR 754 West of Millersburg	None observed				
SR 39 & SR 514 Nashville	None observed				
April 18					
SR 39 & SR 62	1203	Gasoline, Gasohol Motor spirit Petrol	Flammable Liquid Class 3	MC 306/DOT406 Non-pressure tank car	9000 gal.
SR 241 Mount Hope	1075	Butane Butylene- Isobutane Isobutylene	Flammable gas Class 2.1	MC 331 Pressure tank car	2,500 to 11,500 gal.
	1203	Gasoline, Gasohol Motor spirit Petrol	Flammable Liquid Class 3	MC 306/DOT406 Non-pressure tank car	9000 gal.
SR 62 & SR 515 Winesburg	1203	Gasoline, Gasohol Motor spirit Petrol	Flammable Liquid Class 3	MC 306/DOT406 Non-pressure tank car	9000 gal.
SR 39 & SR 515 Walnut Creek	1075	Butane Butylene- Isobutane Isobutylene	Flammable gas Class 2.1	MC 331 Pressure tank car	2,500 to 11,500 gal.
April 20					
SR 39 & CR 140	1075	Butane Butylene- Isobutane Isobutylene	Flammable gas Class 2.1	MC 331 Pressure tank car	2,500 to 11,500 gal.
SR 93, 643, 557 Baltic	None				
SR 39 & SR 62 Millersburg	1203	Gasoline, Gasohol Motor spirit Petrol	Flammable Liquid Class 3	MC 306/DOT406 Non-pressure tank car	9000 gal.
SR 241 Mount Hope	1075	Butane Butylene- Isobutane	Flammable gas Class 2.1	MC 331 Pressure tank car	2,500 to 11,500 gal.

		Isobutylene			
	1203	Gasoline, Gasohol Motor spirit Petrol	Flammable Liquid Class 3	MC 306/DOT406 Non-pressure tank car	9000 gal.
SR 557 & CR 70 Charm	1075	Butane Butylene- Isobutane Isobutylene	Flammable gas Class 2.1	MC 331 Pressure tank car	2,500 to 11,500 gal.
	1203	Gasoline, Gasohol Motor spirit Petrol	Flammable Liquid Class 3	MC 306/DOT406 Non-pressure tank car	9000 gal.
SR 62 Stillwell	None				
SR 520 Glenmont	1005	Ammonia, Anhydrous	Flammable cryogenic, toxic gas Class 2.2, 2.3, 8	MC 331 Pressure tank car	2,500 to 11,500 gal.
April 28					
SR 39, 62, 83 Millersburg	1075	Butane Butylene- Isobutane Isobutylene	Flammable gas Class 2.1	MC 331 Pressure tank car	2,500 to 11,500 gal.
	1203	Gasoline, Gasohol Motor spirit Petrol	Flammable Liquid Class 3	MC 306/DOT406 Non-pressure tank car	9000 gal.
	1267	Petroleum Crude Oil	Flammable Liquid Class 3	MC306/DOT406 Non-pressure tank car	9000 gal.
SR 3 & SR 179 Lakeville	1075	Butane Butylene- Isobutane Isobutylene	Flammable gas Class 2.1	MC 331 Pressure tank car	2,500 to 11,500 gal.

d. Research Findings

Railroads

Due to the difficulty in observing moving rail cars and reading placards, rail sections were not observed, but findings are based upon research of each company. Railroad security prevents private observations while on company owned or controlled property. The companies to, however, boast of complete transparency in sharing information with the public, and that information has provided the basis for findings in this report.

Research materials from CSTX, the Norfolk Southern website, and the PHMSA website identify the top 25 hazardous commodities by loaded tank car, and top 25 measured by loaded non-tank car. Those follow, respectively. There is significant duplication in the lists; there is also a lack of specificity in the exact substances being hauled. For example, “environmentally hazardous waste” is listed several times. “FAK” is used numerous times, and means “freight – all kinds”.

The railroad materials indicate that freight on trains does not vary much from region to region insofar as the actual chemicals that are hauled; however, the percentage of one chemical over another may change slightly from region to region based upon end users and shippers. They also contend that the chemicals on trains, should an incident occur, affect a small, localized area. The highest likelihood for community impact would be from an incident involving a 1.1 or 1.2 explosive, and those substances amount to less than 5% of all CSXT train cargo. The Norfolk Southern website gave similar information.

Table 11: Top Tank Care Commodities

Commodity	UN Number
Petroleum Crude Oil	1267
Alcohols, n.o.s.	UN
Petroleum Gases, Liquefied	1075
Sodium Hydroxide Solution	1824
Elevated Temperature Liquid, n.o.s.	3257
Sulfuric acid	1830
Propane	1075
Hydrochloric Acid	1789
Sulfur, molten	2448
Diesel Fuel	1202
Chlorine	1017
Sulfur, molten	2448
Phosphoric Acid Solution	1805
Methanol	1230
Ammonia, Anhydrous	1005
Vinyl Chloride, stabilized	1086
Flammable Liquids, n.o.s.	1993
Gasoline	1203
Gasoline	1203
Styrene Monomer, stabilized	2055
Environmentally Hazardous Substances, Liquid, n.o.s.	3081
Carbon dioxide, refrigerated	2187
Gasoline	1203
Combustible Liquid, n.o.s.	1993

Table 12: Top Commodities, Non-Tank Car

Commodity	UN Number
FAK- Hazardous Materials	0
FAK – Hazardous Materials	0
Air Bag Modules	3258
Ammonium Nitrate	1942
FAK- Hazardous Materials	0
Environmentally Hazardous Substances, Solid, n.o.s.	3077
Sodium Chlorate	1495

Commodity	UN Number
Engines, Internal Combustion	3166
Environmentally Hazardous Substances, Liquid, n.o.s.	3082
Polychlorinated Biphenyls, Solid	3432
Environmentally Hazardous Substances, Solid, n.o.s.	3077
Lighters	1057
Batteries, wet, filled with acid	2794
Carbon Dioxide	1013
Vehicle, flammable Liquid powered	3166
Waste Polychlorinated Biphenyls, Solid	3432
Radioactive Materials, Low Specific Activity (LSA-II)	3321
Flammable Liquids, n.o.s.	1993
Environmentally Hazardous Substances, Solid, n.o.s.	3077
Compressed gas, n.o.s.	1956
Fireworks	0336
Polymeric Beads, expandable	2211
Environmentally Hazardous Substances, Solid, n.o.s.	3077
Environmentally Hazardous Substances, n.o.s.	3077
Hazardous Waste, Solid, n.o.s.	3077

Airports

Having only one airport in the county limits the amount of air exposure to spills and releases in Holmes County. By consulting the airport website, and examining aircraft incidents in the county, it appears that most use of the airport is by small, private aircraft. Hauling small or expedited cargo shipments to and from local businesses, and carrying passengers for specific events appears to be the primary use of the airport.

It would be reasonable to anticipate some aerial crop services delivery of fertilizers and pesticides to fields during spring and summer months. Crop dusting aircraft may take off, fuel, and land at the Holmes County Airport but deliver their services to farms outside Holmes County. While infrequent, the possibility of crashes is higher for crop dusters who use flight techniques uncommon to regular aircraft and are loaded with organophosphates, fertilizers, and other pesticides that lack environmental and human friendliness. Especially in Holmes County where the terrain is rolling and fields are shaped by the streams and structures that border them, air application could be a navigational challenge. Even though not observed at this time, the expectation and preparation for an incident of this type would be reasonable. This is obviously a risk that is much higher in areas that have flat terrain with very large fields; however, Holmes County is not entirely inappropriate for this kind of application. Power lines, private radio towers, and other unmapped hazards increase the vulnerability of crop dusters.

Small private aircraft are vulnerable to fuel problems, wind shear and crosswinds, equipment failure, and human error. Most small planes carry less than ten passengers and are single or dual engine vehicles. Pilots may have any level of experience imaginable, and may choose to fly in conditions that are challenging. Many small airplane pilots are accustomed to taking off and landing at small airports like this one, without the aid of air traffic controllers or ground personnel. They might carry cargo that is unmarked and unregistered, and may have hazardous substances on board. Incidents reported support the degree to which Holmes County Airport is used for private, small aircraft services.

Other airport incidents generally occur during loading and unloading, including fueling, repairs and cargo transfer. The airport does have significant amounts of fuel available, so incidents could occur when the fuel is delivered or when aircraft are in the process of fueling.

The Pipeline & Hazardous Materials Safety Administration data appears in Appendix A.

Highway truck types and rail car types appears in Appendix B.

Hazardous substance classifications appear in Appendix C.

Additional railroad research data appears in Appendix D.

V. HOLMES COUNTY INCIDENT DATA

a. General Summary

The identification of chemical hazards was assessed through direct observation, interviews with key individuals, and research. While the core hazard considered here is the chemical that is potentially spilled or released, posing a threat to people, property and the environment, the dangers do not end with the chemical itself. The packaging, shipping containers, and vehicles on which the cargo travels pose threats to Holmes County and its residents.

The specific manner in which the accident occurred, or the type vehicles involved, poses additional threat to life and safety. In Holmes County, in particular, vehicle accidents can be moderate or slow-speed incidents involving typical vehicles, but with poorly protected people riding bicycles or motorized scooters, as well as buggy occupants and pedestrians. The likelihood of these exposed individuals and horses to being exposed to a spilled or leaked chemical is very high. Narrow country roads with little allowance for passing facilitates larger vehicles getting off the berm and tipping over or jack-knifing. As a result, higher than normal chances of spillage to cargo and higher vulnerability of opposing victims makes for serious threats to life and safety.

When a release occurs due to crashes or derailments, the occupants and horses can absorb and carry contamination not only to their home, but also along the route if they are able to continue on. The horses pulling the buggies can be injured or killed in an accident as well, and their exposure to hazardous materials is another factor to consider. None of these accident victims

have any sort of protection worn to prevent absorption or inhalation of the spilled or leaked chemical.

Businesses in Holmes County ship and receive just like any other businesses. Although there are no shipping terminals in Holmes County, every business there receives the same goods as businesses in large cities. As they receive or ship goods, the transfer of cargo is the point at which most incidents take place. Damage to packages as they are being taken off cars or out of trucks, transfer of goods to stock or vehicles, and general handling of cargo poses a relatively high threat of incident. Those incidents involve dropping, puncturing, crushing, or otherwise damaging or destroying protective containers that hold chemicals. Warehouse and dock incidents at shipping and receiving areas, postal facilities, and warehouses can also involve defective packaging, pressure valves, and contents.

There are few hazardous materials incidents of record in Holmes County. One may assume that there are frequent but very minor crashes that involve trucks hauling small amounts of hazardous material that are either too small to be regulated, or in mixed cargo shipments and not necessarily known to the hauler. Amazon delivery, UPS, FedEx, USPS, and other carriers that deliver to small businesses and homes frequently haul very small amounts of chemicals and do not know what is in the packages they deliver. It would be reasonable to assume that these incidents do not result in significant, if any, chemical exposure to involved parties.

The furniture production industry in Holmes County obviously uses varnishes, glues, paints and other adhesives and finishes in the production of fine furniture. It would be reasonable to assume that there are occasional spills or container failures. These incidents are likely low on a vulnerability to injury or damage scale. What may be under-reported and even unknown are the long-term health effects of continual exposure to those substances, and actual work-related illness may be significantly under-reported.

Likewise, farm-related incidents oftentimes go unreported and managed by the spiller. Farmers are very familiar with the chemicals they use, are aware of the damages and injuries they cause, and often handle a spill on their own without reporting it. Unless it results in exposure of neighbors or the community, and if no one is injured, the accidents are frequently not reported nor is a response requested.

There are several shipping terminals, bulk plants, and distribution centers in Holmes County. Because loading and unloading are the most frequent spill areas where human or equipment failure causes a spill, there are few reports of container failure, human error, or slips, trips and falls during chemical transfer.

b. Highway/Roadway Incidents

There were no incidents identified that occurred on highways and roads in Holmes County that were recorded as hazardous materials vehicular crashes. However, due to the volume of traffic and the congestion within municipal areas or neighborhoods, the vulnerability to crashes is significant. While many hazmat haulers would be fully marked and identifiable, some may not

be. Mixed cargo is always a challenge in rescue because substances are multiple and frequently unmarked.

Estimations of empty and therefore un-marked vehicles stand at 30 to 35% of the marked trucks in overall commodity studies completed. While vehicles may be considered empty and have too little quantity of a substance to be required for marking, residual chemical could pose a danger to rescuers and bystanders.

In addition to the presentation of chemical management challenges in responses to accidents, it was noted that many significant factors would exist simply due to the type vehicle and the cargo on the roadways. Many vehicles were observed that did not carry placarded hazardous substances, but would, if involved in a significant crash, pose extreme challenges to rescuers. Should these vehicles be involved in a crash with a placarded vehicle, the challenges to rescuers could be significantly higher than each individual part of the equation. The following vehicles have a significant presence on Allen County roadways and constitute a rescue challenge in spite of not hauling what is considered "hazardous substances":

- Grain trucks filled with grain
- Livestock trailers and large haulers with live animals
- Steel and iron cargo or logs on flatbeds, with and without securing bands
- Concrete highway drainage tiles and pipes hauled on flatbeds
- Cement trucks with full and turning tanks
- Extra-wide loads with modular home components, steel beams, etc.
- Topsoil, stone and other aggregate bins, hoppers, and boxes
- Automotive haulers with tiered vehicle cargo
- Box trailers with mixed loads
- UPS, FedEx, and USPS vehicles with mixed and unknown loads
- Agricultural vehicles with small equipment, small fuel tanks, chemicals, seed, and other cargo that would spread of be dangerous
- Bicycles, motorized scooters, horses and buggies, and pedestrians.

c. Air Incidents

There are several airplane crashes that are on record for Holmes County. None involve major aircraft or hazardous materials. All involved were small privately owned planes.

In August 2011, a private airplane left Holmes County airport and crashed shortly after in foggy conditions as it headed to Indiana. The plane was carrying passengers, and was a Piper Apache Twin Engine aircraft. Three people died in the crash after take off from the county airport enroute to Steubenville, Ohio.

Two were injured when a private plane crashed in June 2012 near Baltic near Township Road 174.

A New Hampshire pilot and an occupant were uninjured in May 2016 when a 1937 Waco single-engine plane crashed and overturned on the county airport runway. The cause of the crash was loss of directional control during landing in gusting wind conditions.

In February of 2018, a single engine plane was landing and burst into flames at the Holmes County Airport. One person died in the crash.

In September 2022, a 202 Vans Aircraft Inc. RV 8 single engine aircraft lost a wheel and dug into the runway and spun around. The British crew had stopped for fuel while enroute to a fly-in at Blakesburg, Iowa.

d. Rail Incidents

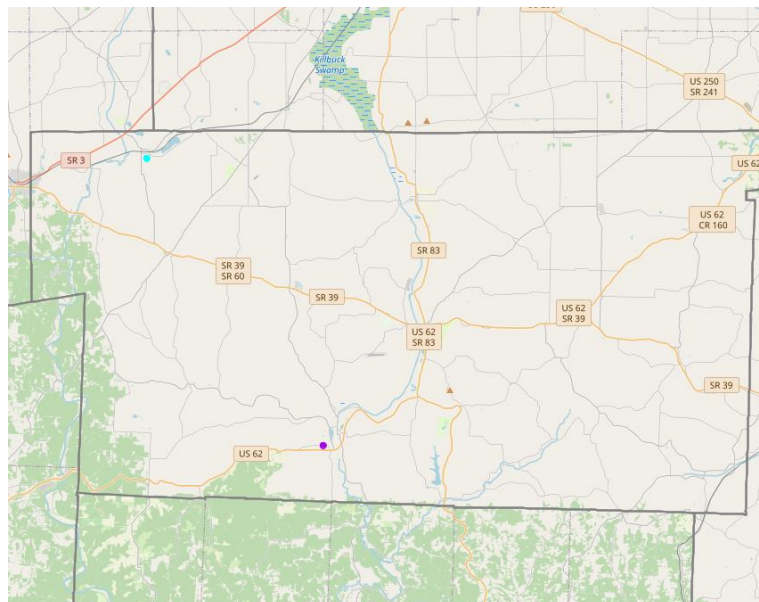
There is no data of record regarding commercial rail incidents in Holmes County. This is reasonable considering the very few miles of railway in the county. There was a derailment of an amusement park train with injuries, but no incidents of record were found for the commercial rail in the far northwest and far southeast corners of the county.

Holmes County fire departments did respond to the Norfolk Southern train derailment in East Palestine, Ohio in February 2023. See the LEPC report section for details.

e. Pipeline Incidents

There are two incidents mapped on the PHMSA site. One is a liquid substance incident at the corner of Township Road 57 and CR 620 to the southwest of Killbuck. This does not correlate to the two incidents reported on the PHMSA site (one in Millersburg and one in Baltic). The other is a gas substance incident in Lakeville at the Columbia Gas Transmission facility. This is located on SR 179 just south of Township Road 464, and appeared to be south of the village limits. Neither incident was considered to have happened in a densely populated area.

PHMSA Pipeline Incident Site Map



Under the Holmes County LEPC reporting, an incident involving a pipeline explosion occurred December 23, 2022. See that section for details.

In February 2016, a pump failed at a natural gas well in Killbuck. This is detailed in LEPC reporting narrative as well.

f. Shipping Terminal and Bulk Facility Incidents

There is no documented history of incidents at shipping terminals in Holmes County. Because most post offices and package drop-off points probably deal with one or two packages at a time, that is a logical assumption. However, it is possible that incidents could go unreported and/or handled by competent individuals on site at the time, with no request for public safety response. Craft supplies, furniture finishing materials, or other small production items are likely to make their way through these terminals regularly. A broken bottle of glue or paint inside a box shipped or received at one of these sites, or something similar, is entirely possible. Packages get dropped or damaged in shipping all the time. It is also entirely possible that cleanups could be handled without knowledge of hazardous materials regulations for small, seemingly nonconsequential spills. Extensively damaged packages could be disposed of in regular waste containers without notice.

Bulk facilities do have a history of incidents in Holmes County. In May 2023, a release occurred at Mid-Ohio Service in Millersburg while loading diesel fuel into a tanker. This is detailed in the LEPC report section.

g. Fixed Facility Incidents – PHMSA data

According to this national data base, there are two hazardous materials incidents recorded in Holmes County, one in Millersburg in 2021 and another in Baltic in 1994. Both occurred during loading of fuel on the property of bulk plants and distributor storage areas.

World Fuel Services spilled 300 gallons of diesel fuel (NA 1993, Flammable and combustible liquid) on October 13, 2021 at their facility at 7257 County Road 623 in Millersburg. A DOT 406 top-loading tanker with two separate compartments was loading using two separate loading arms in the Millersburg bulk plant. The lever on one of the arms got stuck and by the time the driver was able to force it closed, a small amount of fuel spilled. The driver immediately secured spill supplies, but while he was doing that, the other arm overflowed and a spill of 300 gallons resulted. He was able to close the lever. The spill was contained to the concrete pad that drained into an oil/water separator and drained into gravel around the concrete. NRC, OEPA and LEPC was notified and the waste was properly handled. Fire service was not summoned. Loss was estimated at \$1,000 and remediation cost was approximately \$18,000. There were no injuries.

On May 2, 1994 a spill of 75 gallons of environmentally hazardous substance liquid, not otherwise specified (UN 3082), occurred at Chemical Leaman Tank Lines, Inc. in Baltic. While unloading, a driver accidentally connected the discharge line to the wrong holding tank, overflowed the tank and spilled the liquid substance. The site was cleaned up by the customer,

and no first response was called. The material loss was estimated at \$1,740 and the remediation cost was \$180. There were no injuries.

h. Holmes County LEPC Incident Reports

Research of local records revealed three incidents since 2022, and a few others that amounted to providing mutual aid to other areas. While Holmes County does not have a strong history of hazardous materials incidents, they do not shy away from responding to assist with complex and dangerous situations outside Holmes County.

Most recently, on May 5, 2023 a spill occurred at Mid-Ohio Service, 5020 Township Road 353 in Millersburg. A diesel fuel spill occurred within 80 feet of a creek. The business owner was in the process of filling a tank from another above-ground container, and left the immediate area briefly. Upon return, he noted a large amount of diesel spilled onto the driveway and running un the road into a small creek. He estimated the amount at 150-200 gallons of diesel fuel. He attempted to siphon the diesel fuel using a sump pump, and put the contaminated water into totes. The spill did drain into a small drainage ditch that then flowed into Martins Creek and then into Killbuck Creek. A dam was created by the owner with a backhoe to prevent further contamination at the scene, but product was released into the creek. No contamination was noted north of SR 39. The East Holmes Fire Department then placed booms at the site and two other locations near SR 39. The LEPC contacted Ohio EPA. They directed the owner to dig up the gravel and soil around the spill to create a two-siphon dam of sorts close to the creek. The owner and the Ohio EPA continued remediation of the site.

When a Norfolk Southern train hauling vinyl chloride derailed in East Palestine, Ohio on February 3, 2023, Holmes County fire services went into action. As part of the Ohio Fire Chief’s Emergency Response System, Holmes County was summoned to assist in the coming days. East Holmes Fire and EMS responded on February 6 and Killbuck Fire Department went the next day. They dealt with explosive, toxic and flammable substances as well as scene containment and potential explosion of cars due to heat expansion. The following table includes chemicals listed by various news media sources as part of that derailment.

UN/Hazard Class	Chemical Name	Response Guide
Class 1 combustible dust	Polyethylene	
1086	Vinyl Chloride	116-P
	Dipropylene Glycol	
1075-1077	Propylene Glycol	115
	PVC – polyvinyl chloride	
1270	Petroleum lubricating oil	128
Category 4	Diethylene Glycol	
1075	Isobutane	115
2348	Butyl acrylate	129-P
1114	Benzene	130

On December 23, 2022 a Bakerwells Oil Spill in Killbuck resulted from a well catching fire and exploding, with the well landing in the back yard of a private residence. Approximately 2,100 gallons of crude oil was released as a result. Ohio EPA responded and ODNR was called because the spill was close to open water.

On October 17, 2022 a fire broke out at a tire facility when a tire shredding machine caught fire. This involved a machine and piles of shredded tire material. The two-alarm fire brought a dozen trucks or more and over 35 firefighters to the scene. Hazmat concerns were for potential runoff into a nearby creek. A dam was set up to contain the runoff, and Ohio EPA responded to the scene.

On February 23, 2016 the Killbuck Township Volunteer Fire Department responded to a natural gas odor in the area of CR 53 and ST 62 in the evening. On land owned by Ohio Oil Gathering along CR 620, they found oil being released from a transfer pump. This pump moved oil from Homes County to more southern areas according to the local Fire Chief. The pump had failed and leaked oil onto the property where it then went into a ditch, under the road, and into a State Wildlife area. Approximately 8,000 gallons was spilled into a three-acre area, according to a news article in The Daily Record on March 10, 2016.

i. Incident Summary

While the number of observations of hazardous substances on the road and rail was low, the county's vulnerability to damages and loss from chemical incidents is higher than one would expect. The numbers and frequencies do not tell the whole story.

Factors that affect the vulnerability include the terrain in Holmes County, the mix of drivers from local businesses, non-local businesses, and tourists, the variety of vehicles on the road that are susceptible to accidents, and the number of small and varied shipping and receiving across the county.

State highways, county roads, and township roads intermix and mingle across the county. State highways are all two-lane roads without median strips, and sometimes winding a curvy path through hilly countryside. Stop signs and intersections can come up quickly, even at a speed within posted limits. County roads sometimes have a center line, and others do not. These smaller roads wind and meander, and although well-marked in most cases, can easily confuse a driver who doesn't know the area. Township roads are even narrower and more winding, and frequently require very slow speeds to pass an opposing traveler.

Mix into this equation bicycles, motorized scooters, and pedestrians from both the tourist population and the Amish community. This can be a recipe for crashes and accidents. In many cases, the driver hauling cargo has nowhere to go to avoid an accident, as the roads barely accommodate their vehicle to begin with. Berms can be small, and ditches close to the road. The potential for accidents is high, especially during dangerous weather or road conditions.

Drivers from outside Holmes County can easily be confused as they travel from one Amish market to another, or from one attraction to another along county and township roads. With winding and meandering roads that navigate the terrain, roads are not exclusively one direction. Those not familiar can get lost, disoriented, or simply unsafe as they watch a GPS on their phone or their dashboard.

The list of shipping facilities is numerous. The traffic ingress and egress are likely higher than one would anticipate, and provides a hustle and bustle that is uncharacteristic of the atmosphere in Amish country.

Berlin and Millersburg especially experience congestion with the amount of through traffic in their municipality. Where the only state highway that crosses the entire county intersects with tourists, deliveries, shippers, workers, and local residents, congestion results and makes it difficult to traverse the area. This is difficult for passenger vehicles, but even harder for trucks carrying complex cargo. Sudden stops, rapid reactions, shifts of weight and acceleration can cause these large and/or heavy vehicles to tip, sway or overturn. All of these factors combine to make roadway transportation more vulnerable to incident than one would expect.

Businesses in Holmes County ship and receive just like any other businesses. As they receive or ship goods, the transfer of cargo is the point at which most incidents take place. Damage to packages as they are being taken off cars or out of trucks, transfer of goods to stock or vehicles, and general handling of cargo poses a relatively high threat of incident. Those incidents involve dropping, puncturing, crushing, or otherwise damaging or destroying protective containers that hold chemicals. Warehouse and dock incidents at shipping and receiving areas, postal facilities, and warehouses can also involve defective packaging, pressure valves, and contents.

VI. CONCLUSION

Holmes County does not see as much hazardous substance transportation as many other counties in Ohio. The county is not in the path of high traffic. However, the county experiences the highest amount of tourist traffic in Ohio that is not located on the lakeshore. Tourist traffic complicates travel, and Holmes County experiences many accidents involving pedestrians, bicycles and buggies. The enterprising businesses scattered throughout the county ship in and ship out, putting vehicles on the road to interact with tourists.

Most hazardous materials on the roads in Holmes County are petroleum products like vehicle fuel and home heating fuels. Some are farm chemicals and fertilizers. These present dangers to humans as well as animals, and threaten to contaminate natural resources when spilled.

Fire departments and emergency medical services in the county provide a strong layer of capability to respond for local residents and businesses. Holmes County first responders are all trained to the operations level of hazardous materials response. Some firefighters have technician level training. East Holmes Fire Department serves as a Type III Hazmat Team in Holmes County, a capable resource many counties do not have. The Holmes County LEPC and Emergency Management Agency coordinate hazmat training and exercises regularly, holding a hazmat exercise of some sort every year. The EMA continually assess the risks and vulnerabilities in Holmes County, and advises first responders of any changing capability needs.

Businesses that store and use hazardous materials report those chemicals to the LEPC, and that information can be used to establish training scenarios and content. An

First responders must continue to train aggressively to respond to these incidents and more. As part of northeast Ohio, they are likely to be called upon for complex and dangerous large incidents outside Holmes County. They must continue to expand their knowledge and skill to handle both those incidents that occur at home, and those they are called upon to assist by their neighboring counties.

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APPENDIX A

PIPELINE & HAZARDOUS MATERIALS SAFETY ADMINISTRATION INFORMATION

Research available on the Pipeline and Hazardous Materials Safety Administration website summarized past spills and releases across the United States that were reported to regulators and then to them. This would include spills that were reported to transportation authorities and environmental agencies. Spills that were cleaned up by on-site environmental or health and safety personnel may not be included. The statistics do not include all incidents that were reported to and managed by local fire officials either; likewise, if first responders were not called to an incident and independent cleanup crews managed the incident, it is unlikely to be included in PHMSA data unless there was a very significant amount of chemical involved. By nature of collection standards and methodology, there is significant difference between data kept by PHMSA and data kept by the Ohio EPA and the local LEPC.

a. National Hazardous Substances Trends

National statistics are relevant to Holmes County because it is located between various major metropolitan areas. Akron and Canton are to the east, Cleveland and its suburbs to the north, Columbus to the southwest, and a variety of small cities surrounding Holmes County. While there are no major interstate highways that cross Holmes County, an array of secondary state highways commonly used to deliver goods to smaller cities and suburban areas do cross the county. These roads can be busy with commercial transportation, especially if there is a major detour, construction, or accidents on the major interstates. Additionally, transportation from Canada travels south and can utilize Holmes County roadways to reach destinations with cargo shipments.

According to PHMSA, nationwide hazardous substance incidents are trending upward, from 15,997 air, highway, and rail incidents in 2013 to 25,267 in 2022 across the United States. Of these, graphs indicated that almost 93% of all 2022 incidents occurred on the highway; 5% were air-related incidents, and just short of 1% occurred by rail. The number of maritime incidents is negligible, with just six incidents nationwide in 2022. These statistics also show that nationally, highway incidents are on the rise both numerically and proportionately. In 2013, highway incidents amounted to almost 87% of all hazmat incidents, rail was 4%, and air made up for 8%. Maritime incidents were, and continue to be, less than 1%. Air transportation incidents over the past decade have dropped from 1,442 incidents in 2013 to 6 incidents in 2022. Rail incidents have dropped from 667 in 2013 to 367 in 2022. Maritime incidents, at 6, fell considerably from 63 a decade ago.

The documented losses are not consistent with raw incident numbers; higher numbers of incidents do not necessarily generate greater financial loss. National loss figures ranged from an annual low of \$45,464,510 in 2022 to a high of \$114,441,825 in 2018. Loss amounts and incident numbers, therefore, do not correlate.

Within the past decade, all deaths due to hazardous materials incidents have occurred in highway incidents, which also accounted for 73% of the injuries. Rail incidents took credit for 19% of the injuries, and air accounted for 5%, leaving 3% to air-related injuries. Other injuries include classifications such as back injuries, chemical exposures, and falls, trips and slips.

According to PHMSA national statistics for 2022, approximately 46.5% of all incidents occur during unloading; 18.5% during initial loading; 2.2 in transit storage failure; and 32.8% in transit for reasons other than storage.

Nationally, the ten most-frequent chemicals to be involved in an incident by all modes of transportation are listed in the following table. This is especially relevant because logistics are continental in nature; while Ohio does not ship or receive the same products as PHMSA has determined are the most prevalent, Ohio is part of shipping routes across the nation. Truckers in Ohio might come from anywhere in the United States, and rail moves from coast to coast. What is present on roads and rail across the nation is also likely to be present in Ohio; therefore, this represents a relatively reasonable list of high-risk substances that may be encountered by first responders.

Specifically in Ohio, there were 591 hazardous materials incidents in 2022. The damages totally \$8,510,320 in losses, and two people were injured without the need for hospitalization.

b. PHMSA Chemical Density Data

Statistics are summarized on an annual basis to identify those substances most frequently found in incidents on highways and rail. The following tables include nationally applicable information for those findings as of 2022.

Table 1: PHMSA Top Chemical List - Highway

Rank	Substance	Hazard Class	Incidents
1	Paint, including lacquer, enamel, stain, shellac, solutions, varnish, polish, liquid filler and liquid lacquer base	Flammable Combustible Liquid	2,026
2	Sodium hydroxide, solution	Corrosive material	1,536
3	Corrosive Liquid, basic, inorganic, N.O.S.	Corrosive material	1,510
4	Paint related material including paint thinning, drying, removing or reducing compounds Isopropanol or isopropyl alcohol	Flammable Combustible Liquid	1,309
5	Isopropanol or isopropyl alcohol Flammable Liquids, N.O.S.	Combustible Liquid	1,076
6	Flammable Liquids, N.O.S.	Flammable Combustible Liquid	1,030
7	Corrosive Liquids, N.O.S	Corrosive Material	1,004

8	Batteries, wet, filled with acid, electric storage	Corrosive Material	686
9	Hydrochloric acid	Corrosive Material	654
10	Ethanol or ethyl alcohol or ethanol solutions or ethyl alcohol solutions	Corrosive Material	590

By rail incident, the substance list changes significantly to the following.

Table 2: PHMSA Top Chemical List – Rail 2022

Rank	Substance	Hazard Class	Incidents
1	Alcohols, N.O.S.	Flammable combustible liquid	21
1	Petroleum gases, liquefied or liquefied petroleum gas	Flammable gas	21
3	Diesel fuel		20
4	Sodium hydroxide, solution	Corrosive material	17
5	Environmentally hazardous substances, liquid, NOS	Miscellaneous hazardous material	16
6	Flammable Liquids, NOS	Flammable combustible liquid	15
6	Sulfuric acid with more than 51% acid	Corrosive material	15
8	Hydrochloric acid	Corrosive material	10
8	Liquefied petroleum gas	Flammable gas	10
10	Argon, refrigerated liquid (cryogenic liquid)		

PHMSA tabulated data regarding human casualties, broken down by mode of transportation, into first responder, transportation industry, and general public categories. For all incidents, the impact upon transportation industry workers was the highest. First responders do not appear to have a high incidence of injury in PHMSA data. In 2022, there were 3 non-hospitalization injuries and 1 death for incidents reported to PHMSA, and these are considered transportation industry workers. No general public or first responder casualties have occurred. None of these occurred in Holmes County, Ohio in this particular database.

According to the PHMSA website, the leading cause of natural gas distribution pipeline incidents is excavation damage. This is commonly the result of excavators not notifying the pipeline owner of the intent to dig, and not receiving correct information about pipeline placement.

APPENDIX B

HIGHWAY AND RAIL CARRIER TYPES AND MODELS

I. HIGHWAY TRANSPORTATION CARRIER TYPES

Vehicles used to transport chemicals across highways vary significantly from type to type, as substances vary from solids to liquids to gases.

Tank Cars types follow with a brief description of each:

- **Non-pressurized MC 306/DOT 406:** This flat-ended oval non-pressurized tank hauls up to 9,000 gallons of flammable or combustible cargo such as gasoline, diesel fuel or alcohols. There is rollover protection at the top, and the bottom has cutout valves for loading and unloading. The tank has multiple compartments. The pressure in the tank is less than 3 psi.
- **Low-Pressure Cargo Tank MC 307/TC 307/DOT 407/TC407/SCT 307:** Shaped like a horseshoe, these tankers usually haul solvents, lubricants, mild corrosives as well as toxic and flammable liquids. Constructed of rubber lined or double steel walls, they come with or without external skin. Those without skin have visible stabilization rings. The maximum allowable working pressure is 25 - 40 psi. Capacity is approximately 5000 gallons.
- **Corrosive Liquid Cargo Tank (MC 312/DOT 412):** These tankers are ribbed tank cars with double shell configuration. The tank diameter is smaller than other tankers, and capacity is limited to 5,000 to 6,000 gallons of cargo. The reinforcing ribs are most frequently visible. They have a maximum allowable working pressure of 15 psi. The tankers can be lined or unlined, insulated or not. Lining can be chlorobutyl rubber, natural rubber, Plastite, Chemline, Teflon and other material dependent upon the manufacturer of the vessel. These tanks hold corrosive substances or flammable products like sulfuric acid or hydrochloric acid. They usually have overturn and splash protection at the location of dome covers and valves.
- **Pressure Cargo Tank MC 331:** Commonly hauling liquified petroleum gas, anhydrous ammonia, or propane, these circular tanks with rounded ends operate at less than 100 psi or more than 500 psi. They are a single shell with no insulation, and capacity ranges from 2,500 to 11,500 gallons.
- **Cryogenic Liquid Tank MC 338:** These well insulated thermos-bottle type tanks carry super-cold refrigerated liquids at a maximum allowable working pressure of 22 – 500 psi. The double-walled construction has pressure relief valves and discharges from the rear of the tank. They are typically marked “cryogenic”. They typically haul liquified oxygen, nitrogen, or carbon dioxide.
- **Highway Tanker TC 423:** Emulsion and water-gel explosives are hauled in this hopper style tanker that operates at a maximum allowable working pressure of 5-15 psi.
- **Compressed gas tube trailers:** Multiple tubes are stacked and secured on a flat bed, and each cylinder has its own pressure valves and regulators. They

have an operating pressure of 3,000 – 5,000 psi and commonly haul corrosive liquids and high-density liquids. The tubes range in length from 19 to 53 feet, and hold 8 to 54 tubes per load. They usually haul hydrogen gas. New trailers are made of lightweight tubes made of aerospace grade carbon fibers and advanced polymers.

- **Non-pressure Tank Containers IM 101 and IM 102:** These have a MAWP of 25.4 to 100 psig for an IM 101 Type 1 or 14.5 to 25.4 psig for an IM 102. These are transported by highway and rail, and hold up to 6,300 gallons of substance. They employ either pressure/vacuum relief devices or rupture disks for safety. Hazardous substances and food grade substances are transported in these containers.
- **Pressure Tank Containers DOT Spec 51 and Spec 51L:** These tanks hold up to 5,500 gallons at pressures of up to 100 psig. They hold LPG, anhydrous ammonia, bromine, sodium and aluminum alkyls.
- **Dry Bulk Cargo Trailer:** Ammonium nitrate, cement, dry caustic soda and plastic pellets are commonly hauled in dry bulk containers. Loads can be up to 1,500 cubic feet and very heavy. Air pressure can be used to transfer loads, and static charges that develop can cause significant danger.
- **Box Trailers:** Hauling goods in smaller or individualized containers, including ton containers, bulk containers, super sacks and totes, or 55-gallon drums, box trucks hold a variety of goods in a 53-foot box. The cargo is held in a single bay, secured individually if at all, and loaded and unloaded by forklifts and small utility carts. Quantities range from a small container of a few gallons to a box with four or eight individual gallons of liquid, to large containers of 55 to 100 gallons. Dry goods can be boxed or containerized. Radioactive protective overpacks and casks include Type A and Type B packaging that looks like specially marked 55-gallon drums. Box trucks often carry mixed cargo.

II. RAIL CARRIER CONTAINER TYPES

According to CSXT “Emergency Response to Railroad Incidents” and “Hazardous Materials Managing the Incident Field Operations Guide” by Armando S. Bevelacqua, Jones & Bartlett Learning LLC, 2014, there are several different types of rail cars.

- **Non-pressure general service tank cars typed as DOT 103, 104, 111, 115 or AAR 201,203, 206 or 211:** General service tank cars make up 70% of all CSXT fleet units, and may transport hazardous substances, including flammable liquid, poisons, oxidizers, molten solids, and some liquefied gases. They are horizontal tanks with flat ends. Typically, the shell is 7/16” and tank pressures test at 35 psi to 100 psi. Valves and fittings may be exposed at the top or bottom of the car. Capacity ranges from 4,000 to 45,000 gallons. These cars often transport corn syrup or gasoline.
- **Pressure tank cars typed as DOT 105, 109, 112, 114, and 120:** Contain hazardous substances that warrant additional protection such as

flammable and nonflammable and poisonous gases; test pressures are 100 to 600 psi, and fittings are covered with a protective housing on the top of the car. Pressure cars have rounded ends. Black painted cars usually have a jacketed construction and off-white color indicates that there is sprayed on thermal insulation in the car. Capacity ranges from 4,000 to 45,000 gallons. The DOT 112 car is intended to transport liquefied gases and high hazard/environmentally sensitive material like anhydrous ammonia or liquefied petroleum gas. The DOT 105 usually transports chlorine, carbon dioxide, sulfur dioxide, anhydrous hydrogen chloride, or hydrogen sulfide. A DOT 105 is insulated with foam, fiberglass, ceramic fiber or cork with an exterior metal jacket for protection. These cars have no bottom outlets but a spring-loaded safety relief valve or valve and vent are set to function at 75% of the test pressure of the car. A carbon dioxide DOT 105 looks different, and is capable of intermittent venting of pressure inside the tank. Information about this venting is stenciled on the side of the car, but the valves will automatically open if internal pressure exceeds 500 psi and will continue to vent until interior and exterior pressure have equalized.

- **Cryogenic Tank Car DOT 113:** These vacuum-insulated inner containers with an outer shell are like mobile thermos bottles. They transport liquefied gases with a boiling point less than -130 degrees Fahrenheit at atmospheric pressure. The tank is a double shell construction and there are no top fittings on the car. Loading and unloading valves are found in enclosures at corners on one end at ground level, or diagonally at each end. Substances typically transported include liquid hydrogen, ethylene, oxygen, nitrogen and argon.
- **Corrosive Liquid Tank Cars:** Similar to non-pressurized cars with a pressure of 35 – 100 psi and a capacity of 4,000 to 45,000 gallons. They load and unload from valves on the bottom of the car. They haul corrosives.
- **Covered Hopper Cars:** Haul oxidizers, fertilizer, grain, and plastic pellets. They are covered hoppers that unload from the bottom.
- **Container on Flat Cars:** Box containers that sit on flatbeds. A variation is a traditional cargo van transported on a flatbed rail car.
- **Gondola Cars:** Haul bulk ore and other solid materials and are uncovered with low sides. These cars unload by gravity from the bottom.
- **Box Cars:** Enclosed steel or wood inside and used for general freight, include substances in drums, cylinders, boxes and other containers. They have single or double sliding doors.

APPENDIX C

HAZARDOUS SUBSTANCE CLASSIFICATIONS

Hazardous substances are grouped by classifications based upon the consequences of the hazard impact. Following are the classifications of hazardous substances transported in and about Holmes County.

- A.** Class 1 Explosives
 - i. 1.1 have mass explosion capacity
 - ii. 1.2 have a projection hazard
 - iii. 1.2 have a predominant fire hazard and either minor blast hazard or both, but not mass explosion hazard
 - iv. 1.4 is an explosive with no significant blast hazard
 - v. 1.5 is a very insensitive explosive; includes blast agents
 - vi. 1.6 have extremely insensitive explosive potential
- B.** Class 2 Gases
 - i. 2.1 flammable gases ignite and burn easily; 2.1 can include cryogenic forms of flammable gas
 - ii. 2.2 may asphyxiate or cause frostbite and are non-flammable
 - iii. 2.3 gases are poisonous by inhalation (Note: “toxic” and “poison” can mean the same thing for this classification)
- C.** Class 3 Flammable Liquids
 - Liquids with flash points below 141 degrees Fahrenheit
 - Liquids with flash points above 141 degrees Fahrenheit
- D.** Class 4 Flammable Solids
 - 4.1 Substances easily ignitable or readily burnable
 - 4.2 Substances that self-ignite when exposed to air
 - 4.3 Substances that spontaneously combust or give off flammable or toxic gas upon contact with water
- E.** Class 5 Oxidizing Substances, Organic Peroxides
 - 5.1 Substances that support combustion even without air (oxidizer)
 - 5.2 Substances sensitive to heat, shock, or friction or that decompose and ignite (organic peroxide)
- F.** Class 6 Toxic Substances and Infectious Substances
 - 6.1 material adequately toxic to create a health hazard
 - 6.1 can also be poison liquids or solid, PIH/TIH, Hazard Zone A
 - 6.1 can give off dangerous or irritating fumes
 - 6.2 includes infectious substances and regulated medical waste
- G.** Class 7 Radioactive Materials
 - All Class 7 emit ionizing radiation
- H.** Class 8 Corrosives
 - All Class 8 corrode steel and damage tissue
- 1. Class 9 Miscellaneous
 - Class 9 includes any substance that does not meet the previous criteria

APPENDIX D: RAILROAD RESEARCH INFORMATION

GENERAL, NATIONAL IN SCOPE

Because railroads operate across the United States in a similar fashion, research was completed to paint a picture of how trains are assembled, what is shipped by rail, and how a community might prepare for a derailment in their community.

Railroad information is not all published as public information. Because railroads are private for-profit businesses, they do not necessarily disclose specifics about any given train unless a derailment occurs. Their websites will list the chemicals they are available to haul; transportation of some of the chemicals is mandated by federal law.

Railroads are required to warn communities about certain chemicals. Other chemicals are only reported when an incident occurs. When speaking with safety representatives of the railroads, they generally advise counties to look at the list on their website of the chemicals they are available to haul, and to prepare for those chemicals. This is a wide-ranging list that is extensive and all-inclusive.

CSXT publishes an annual density report that is shared with the Ohio EMA and county EMA directors. Norfolk Southern provides density information by request, and only to the county EMA director requesting information, and only the information about that particular county. Other railroads provide information upon request to the EMA director.

I. CSXT Information

CSXT provides information about the chemicals on their trains as provided by the Association of American Railroads. While CSXT does not operate lines in Holmes County, the information they provide is presented in the context of being universal, general information. There is no logical reason to not consider this information in local hazardous materials incident planning.

The following is a list of what they present, quoted from their current “Community Awareness Emergency Planning Guide”. The “Rank” column indicates the highest to lowest quantity of transported substance; the chemical column identifies the substances hauled; the “UN/NA Code” identifies the identifying code used in common hazardous substance guides; and the DOT class indicates the hazard code assigned to the substance by the US Department of Transportation.

Table 7: Chemicals Transported by Rail (National Data)

Rank	Chemical	UN/NA Code	DOT Class Code
1	Alcohols, n.o.s.	1987	3
2	Petroleum Crude Oil	1267	3
3	Sulfur, Molten	2448	4.1
4	Petroleum Gases	1075	2.1
5	Sodium Hydroxide Solution	1824	8

Rank	Chemical	UN/NA Code	DOT Class Code
6	Elevated Temperature Substance	3257	9
7	Waste Polychlorinated	3432	9
8	Sulfuric Acid	1830	8
9	Chlorine	1017	2.3
10	Environmentally Hazardous Substances	3082	9
11	Xylenes	1307	3
12	Phosphoric Acid Solutions	1805	8
13	Phenol, Molten	2312	6.1
14	Ammonia, Anhydrous	1005	2.2
15	Hydrochloric Acid	1789	8
16	Styrene Monomer	2055	3
17	Propane	1075	2.1
18	Ammonium Nitrate	1942	5.1
19	Carbon Dioxide	2187	2.2
20	Methanol	1230	3
21	Waste	3077	9
22	Butadienes, Stabilized	1010	2.1
23	Environmentally Hazardous Substances	3077	9
24	Acetone	1090	3
25	Ammonium Nitrate, Liquid	2426	5.1

Chemicals are classified in nine UN/DOT Hazard Classes. As described by CSXT, these classes are described as explosives (1), compressed gases (2), flammable liquids (3), flammable solids (4), oxidizers (5), poisons (6), radioactive materials (7), corrosive materials (8), and miscellaneous hazardous materials (9).

According to the CSX Transportation website (www.csxt.com), they will transport a wide variety of chemicals, fertilizers, metals, minerals, ores, and waste, among other things. They list plastics, plastic feedstocks, plastic intermediates, chemicals, petroleum products and soda ash/Industrial sand as items they will ship. Again, while there is no CSXT owned rail in Holmes County, trains from CSXT may operate on lines in Holmes County. Cars from CSXT may be part of other trains operated by other companies as well.

Each category is listed as follows:

- Plastics, including polyethylene, polypropylene, polystyrene, polyvinyl chloride, and polyethylene terephthalate
- Plastic feedstocks including purified terephthalic acid, monoethylene glycol, paraxylene, purified isophthalic acid
- Plastic intermediates including styrene, acrylonitrile, and plasticizers
- Chemicals including chlor-alkali, pulp and paper mill, acids, and miscellaneous chemicals

- Petroleum products include LPG, fuels, asphalt, petroleum products, intermediates, crude oil, condensate, lube oils, waxes, alcohols
- Soda ash and industrial sand for glass manufacturing

CSX Transportation claims that 11 percent of all train cars in Ohio carry hazardous materials (<https://www.csx.com/index.cfm/about-us/safety/hazardous-materials1/ohio/>). The following table describes the contents by percentage, as of 2016. It is assumed 2023 distribution of chemicals would be similar. More information can be obtained by contacting CSX Transportation at HazMatSafety@COS.com.

Table 8: Rail Transport by Classification (CSX National)

Class	Percentage
Class 1 Explosives	<1%
Class 2 Gases	17%
Class 3 Flammable Liquids	63%
Class 4 Other Flammable Substances	<1%
Class 5 Oxidizing Substances and Organic Peroxides	1%
Class 6 Toxic (Poisonous) and Infectious Substances	1%
Class 7 Radioactive Materials	<1%
Class 8 Corrosives	8%
Class 9 Miscellaneous Hazardous Materials	10%

II. Norfolk Southern Information

According to the Norfolk Southern website (www.nscorp.com), they will haul a variety of chemicals. While they provide bulk transfer facilities to transfer bulk products from rail to truck, those facilities are not located in Wood County. However, they do haul the following chemicals in and through Wood County:

- Sulfur and related chemicals
- Petroleum products
- Chlorine and bleaching compounds
- Plastics
- Industrial chemicals
- Chemical waste
- Bulk products
- Other non-hazardous waste

Norfolk Southern monthly performance reports posted online show the following distribution of rail car type for 2022 on NS owned rail across the United States. Their statistics show that the average speed of a NS rail car on July 29, 2022 was 18.8 miles per hour.

Table 9: Rail Car Type Frequency (Norfolk Southern National Data)

Car Type	Average # Cars	Percentage
Box	13,075	7.48%
Covered Hopper	48,878	27.98%
Gondola	15,281	8.74%
Intermodal	10,426	5.96%
Multilevel	10,693	6.12%
Open Hopper	29,698	17.01%
Tank	38,713	22.17%
Other	7,945	4.54%

Norfolk Southern ships agriculture and forest products, automotive products, chemicals, and coal. Norfolk Southern transports intermodal containers (60%), metals and construction materials (13%), chemicals (8%), agricultural products (9%), automotive (5%), and coal (5%) out of Ohio; moving into Ohio are intermodal containerized consumer goods (57%), metals and construction materials (16%), coal (11%), paper, clay, and forest products (5%), agricultural products (5%), and other items (6%). Information was obtained from their website.

www.nscorp.com/content/dam/nscorp/get-to-know-ns/about-ns/state-fact-sheets/oh-state-fact-sheet/pdf