Clarion County
Commodity Flow Study

Clarion, Pennsylvania

Completed 2021

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CLARION COUNTY
COMMODITY FLOW STUDY

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CLARION COUNTY COMMODITY FLOW STUDY

1.0 INTRODUCTION

1.1 Purpose of Study

Congress passed the Emergency Planning and Community Right-to-Know Act (EPCRA), also known as Title III of the Superfund Amendment and Reauthorization Act (SARA), in 1986, which provides for the collection and availability of information regarding the use, storage, production, and release of hazardous chemicals to the public and emergency responders in local communities. Community right-to-know provisions provide education, information, and public access regarding chemical uses and releases into the environment respective to individual facilities. By doing so, states and communities, working with facilities, can improve chemical safety and protect public health and the environment.

In December 1990, Pennsylvania promulgated Act 1990-165 (The Hazardous Material Emergency Planning and Response Act) to implement the planning and preparedness requirements of EPCRA in Pennsylvania (amended in 2001 and 2016). The Pennsylvania Emergency Management Council (PEMC) serves as the State Emergency Response Commission (SERC), as required by SARA Title III. The SERC works cooperatively with the local emergency planning committees (LEPCs) serving the counties of Pennsylvania. The EPCRA is indicative of the fact that Congress realizes the risk to communities posed by the use, storage, and transportation of hazardous materials. Pennsylvania's implementation of the EPCRA indicates the state's realization of this risk as well.

As part of the implementation of the EPCRA, LEPCs should develop and implement comprehensive emergency response plans. As part of the process of developing these plans, LEPCs conduct various hazard analyses and risk assessments, of which this commodity flow study is an example.

Utilizing funding, from the Pennsylvania Emergency Management Agency (PEMA), the Clarion County LEPC coordinated the completion of this flow study. The county hired a contractor, JH Consulting, LLC (JHC) of Buckhannon, West Virginia, to facilitate data collection and analysis. Monitoring took place over two non-consecutive weeks. The first week began on October 28, 2020; the second began on November 8, 2020. During the second week of data collection, two monitors were stationed at different locations on Interstate 80, to determine if vehicles carrying hazardous materials were exiting the Interstate to local roads. Following the collection of data, JHC completed the final analysis and assimilated the results into a report. (NOTE: The sections below provide detailed methodologies by analysis.)

This study intends to provide emergency managers and responders in Clarion County with information to more fully advise efforts to mitigate, prepare for, respond to, and recover from hazardous material incidents. These efforts may significantly minimize damage or harm to equipment, facilities, personnel, and the community at large.

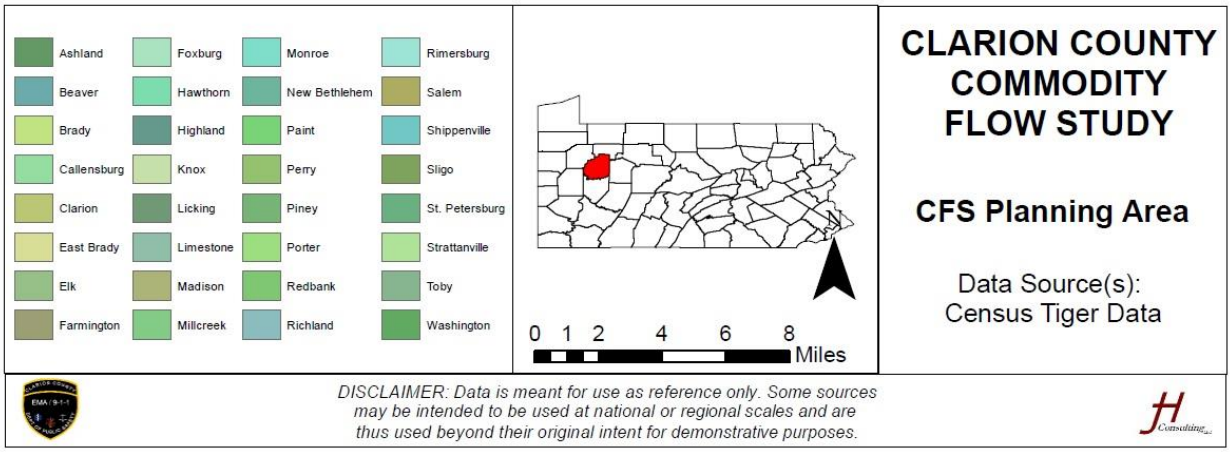
1.2 Description of the Planning Area

Clarion County is located in the northwestern portion of Pennsylvania, approximately 70 miles northeast of Pittsburgh. By the jurisdiction of the county, the study area includes a land area of 602 square miles and a total estimated population of 39,438 (U.S. Census, 2019).

The primary transportation route through Clarion County is Interstate 80. I-80 runs east-west centrally through the county, passing through the Borough of Clarion. US 322 also runs east-west centrally through the county, north of Clarion. Many Pennsylvania routes are utilized in Clarion County, including PA-66, PA,-68, and PA-208 as major transportation routes.

The topography of Clarion County is, for the most part, rural, with mountainous terrain. Clarion County is inhabited by several small towns along many state and county roads. While there are many towns, nearly all of them are quite some distance away from one another. Most roadways, even the more rural ones, are two-lanes; with I-80 and portions of US 322 being the only four-lanes.

Figure 1.2.a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Highland
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Limestone
Madison
Millcreek
Monroe
New Bethlehem
Paint
Perry
Piney
Porter
Redbank
Richland
Rimersburg
Salem
Shippenville
Sligo
St. Petersburg
Strattanville
Toby
Washington
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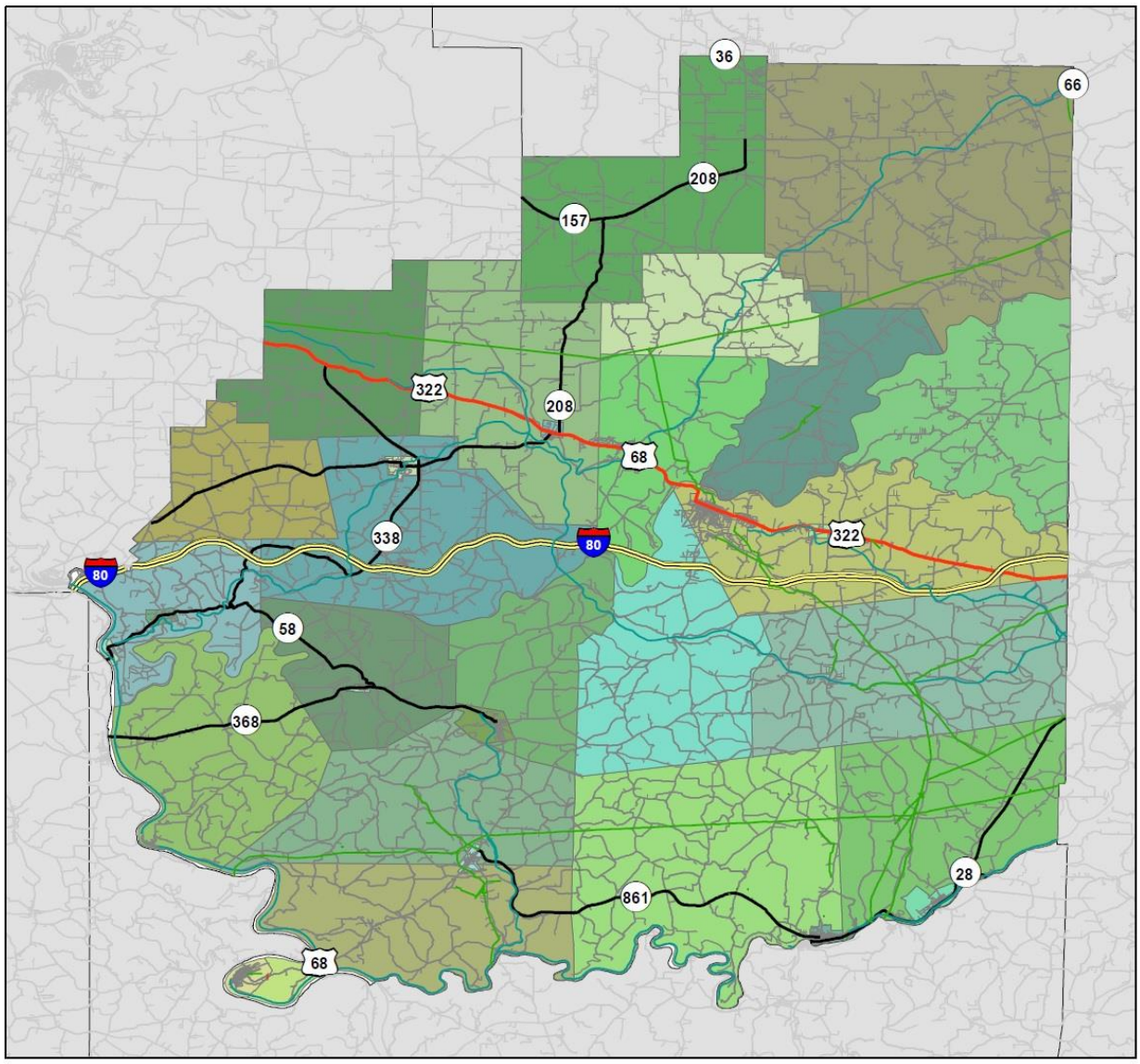
Miles
CLARION COUNTY COMMODITY FLOW STUDY
CFS Planning Area
Data Source(s):
Census Tiger Data
DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.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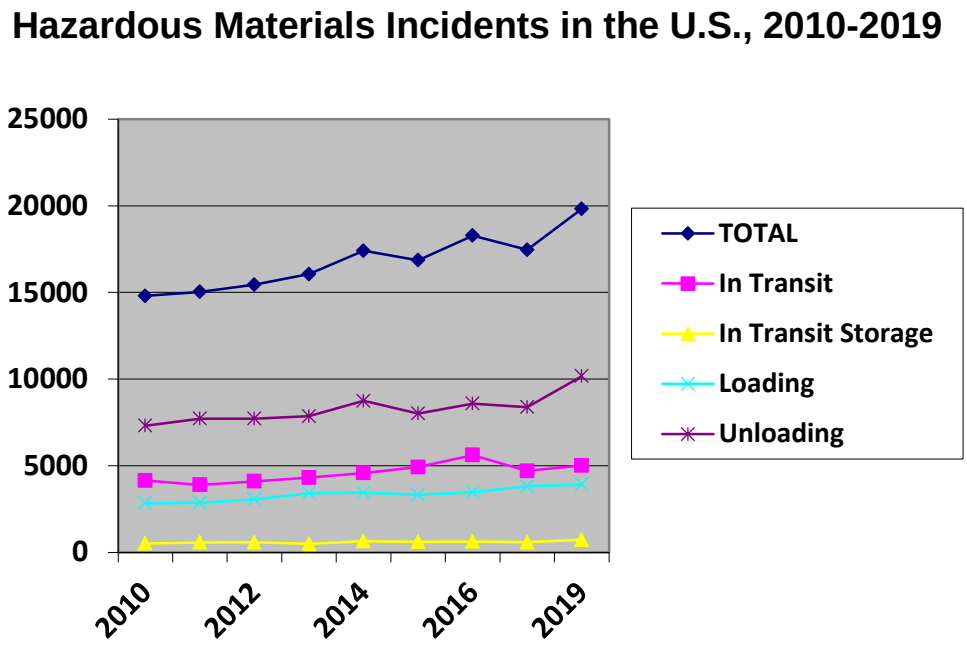
2.0 HIGHWAY ANALYSIS

2.1 Statistics

The annual number of hazardous material incidents during transport in the United States has increased since 2009, though since 2014 the number has oscillated. Figure 2.1.a shows the total hazardous material incidents in the U.S. for the period 2010-2019. The blue line with the diamond year indicators represents the total number of incidents. The sub-lines are all parts of that total, and they indicate the transport phase in which the incident occurred.

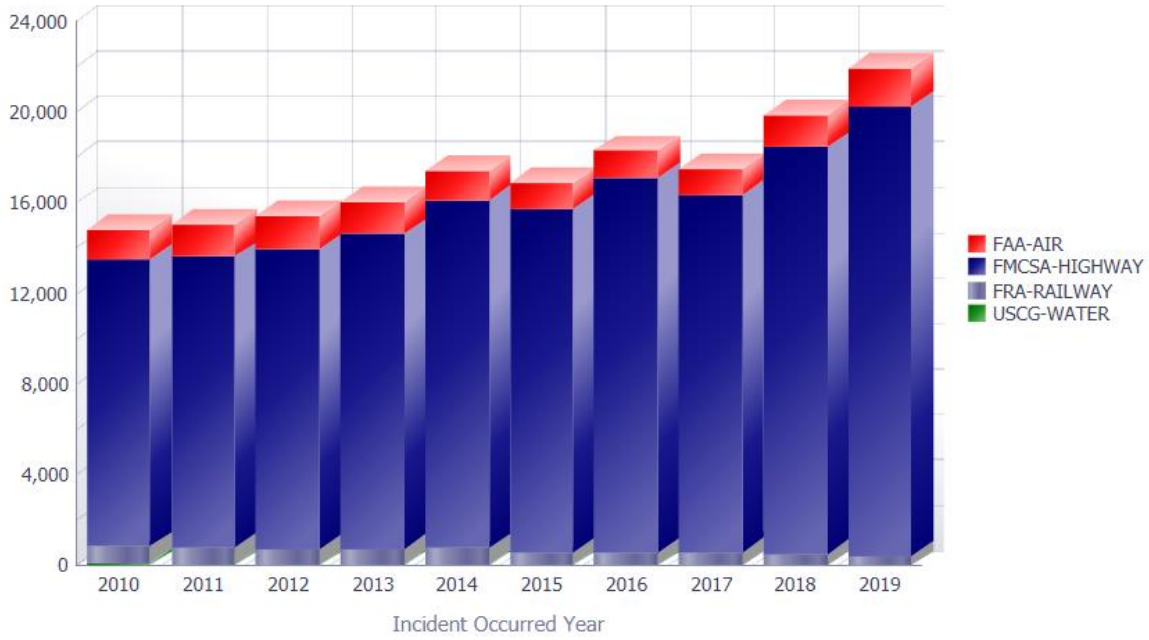
Figure 2.1.a



Per Figure 2.1.b, the U.S. Department of Transportation (DOT) has posited that a majority of hazardous material incidents in the United States occur on highways (http://www.phmsa.dot.gov/hazmat/library/data-stats/incidents).

Figure 2.1.b

Hazardous Material Incidents by Mode



The DOT also maintains data on the causes of hazardous material incidents. According to the DOT, the causes of the highway incidents have been as follows (http://www.phmsa.dot.gov/hazmat/library/data-stats/incidents).

Table 2.1.1

Cause of Hazardous Materials Incidents 2016-2019

Cause	2016	2017	2018	2019	Total
Abrasion	110	90	142	180	522
Broken Component or Device	251	239	225	174	889
Cause Not reported	1,644	2,617	4,064	4,496	12,821
Commodity Polymerization	0	1	3	1	5
Commodity Self-Ignition	8	6	6	2	22
Conveyer or Material Handling Equipment Mishap	94	103	156	182	535
Corrosion – Exterior	22	23	18	32	95
Corrosion – Interior	34	38	39	44	155
Defective Component or Device	1,127	1,048	756	882	3,813
Derailment	169	1	0	0	170
Deterioration or Aging	0	129	76	82	287
Dropped	1,896	1,541	1,676	1,902	7,015
Fire, Temperature, or Heat	21	25	11	15	72

Cause	2016	2017	2018	2019	Total
Forklift Accident	1,939	1,732	1,662	1,547	6,880
Freezing	16	13	11	28	68
Human Error	1,283	1,365	1,654	2,910	7,212
Impact with Sharp or Protruding Object (e.g., Nails)	946	843	776	709	3,274
Improper Preparation for Transportation	1,574	1,013	1,551	1,960	6,098
Inadequate Accident Damage Protection	243	377	135	1	756
Inadequate Blocking and Bracing	908	1,158	292	337	2,695
Inadequate Maintenance	10	13	6	6	35
Inadequate Preparation for Transportation	863	561	1,267	863	3,554
Inadequate Procedures	112	54	457	593	1,216
Inadequate Training	6	6	16	23	51
Incompatible Product	9	2	6	4	21
Incorrectly Sized Component or Device	3	11	8	3	25
Loose Closure, Component, or Device	2,483	2,105	2,143	2,048	8,779
Misaligned Material, Component, or Device	29	28	27	21	105
Missing Component or Device	18	32	17	17	84
Over-Pressurized	48	52	68	71	239
Overfilled	61	52	74	73	260
Rollover Accident	108	86	85	68	347
Threads Worn or Cross Threaded	13	18	20	9	60
Too Much Weigh on Package	319	262	290	284	1,155
Valve Open	158	95	122	206	581
Vandalism	1	2	3	2	8
Vehicular Crash or Accident Damage	109	97	122	98	426
Water Damage	3	6	8	16	33

There are many types of hazardous materials transported via highways, each divided into “classes” denoted on the placards labeling shipments. Table 2.1.2 lists the hazardous material classes involved in 2016, 2017, 2018, and 2019 incidents (http://www.phmsa.dot.gov/hazmat/library/data-stats/incidents).

Table 2.1.2

Hazmat Incidents by Class 2016-2019

Hazard Class		2016	2017	2018	2019
1:Explosives	Highway	2	2	12	16
	Total	6	6	45	39
2: Flammable, Non-Flammable, & Poisonous Gases	Highway	20	37	475	396
	Total	88	143	868	708
3: Flammable Liquids	Highway	643	812	6,943	6,739
	Total	943	1,131	7,375	7,028
4: Other Ignitable Hazards	Highway	4	6	97	74
	Total	7	8	114	96

Hazard Class		2016	2017	2018	2019
5: Oxidizers	Highway	42	82	959	1,039
	Total	47	86	984	1,053
6: Poisonous & Infectious Materials	Highway	27	32	288	211
	Total	46	71	343	256
7: Radioactive Materials	Highway	0	0	2	3
	Total	1	1	11	5
8: Corrosive	Highway	314	523	5,127	4,852
	Total	378	600	5,287	4,997
9: Other Miscellaneous Hazardous	Highway	52	69	441	998
	Total	200	208	783	1,420

The DOT also maintains the results of the hazardous material incidents discussed above. Table 2.1.3 presents those results (http://www.phmsa.dot.gov/hazmat/library/data-stats/incidents).

Table 2.1.3

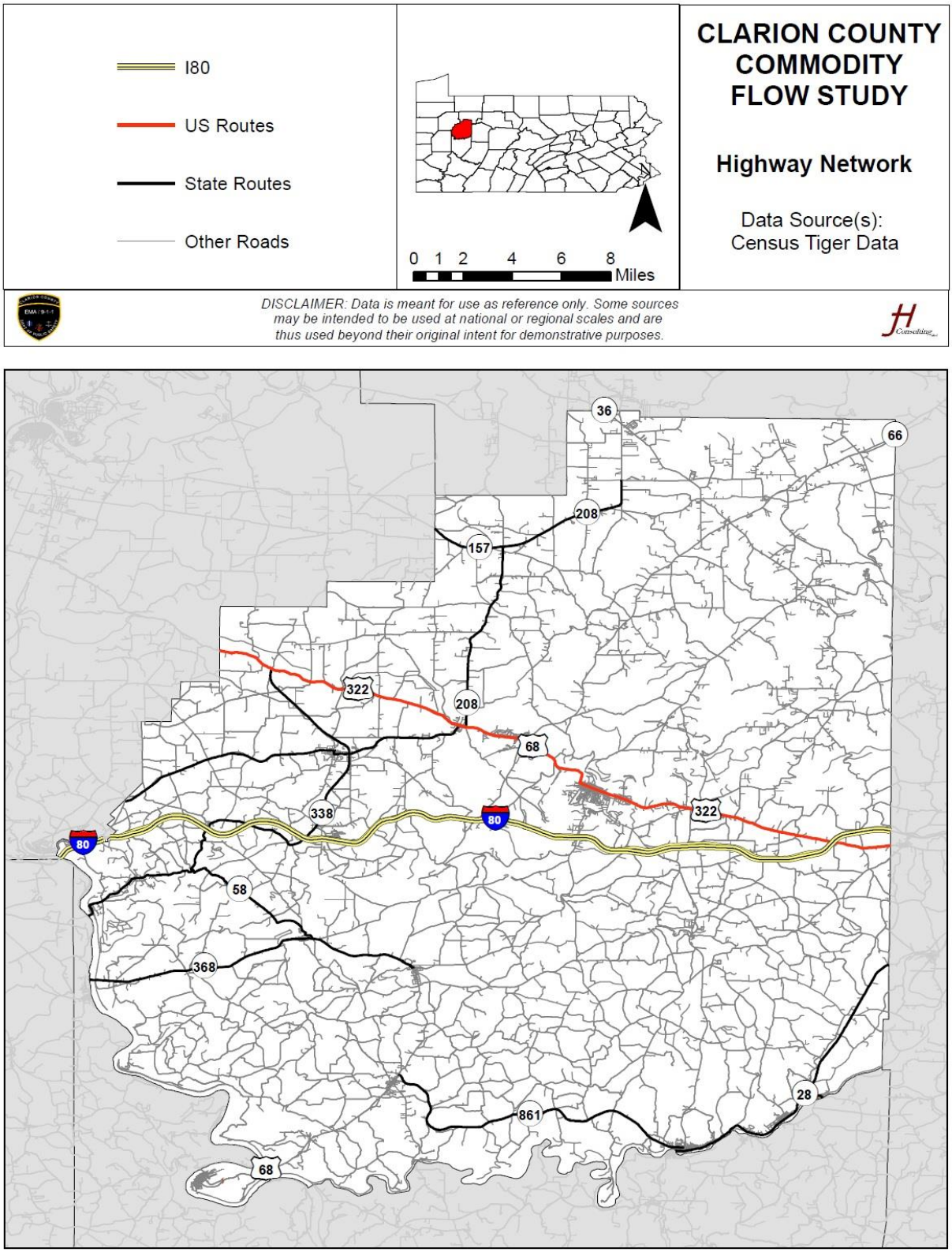
Hazmat Incidents Results 2016-2019

Result		2016	2017	2018	2019
Environmental Damage	Highway	42	37	54	22
	Total	51	46	61	22
Explosion	Highway	15	10	12	5
	Total	17	13	14	5
Fire	Highway	58	58	63	43
	Total	100	99	102	78
Material Entered Waterway/Sewer	Highway	34	50	53	24
	Total	40	53	55	25
None	Highway	446	445	457	351
	Total	963	905	1,043	989
Spillage	Highway	15,948	15,155	17,298	14,508
	Total	16,993	16,224	18,406	15,349
Vapor (Gas) Dispersion	Highway	146	129	112	155
	Total	368	355	343	277

2.2 Methodology

Clarion County is divided north to west by Interstate 80 with multiple U.S. and state routes branching from it. Figure 2.2.a depicts the major highways in Clarion County.

Figure 2.2.a


I80
US Routes
State Routes
Other Roads
0 1 2 4 6 8
Miles
CLARION COUNTY
COMMODITY
FLOW STUDY
Highway Network
Data Source(s):
Census Tiger Data
DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.
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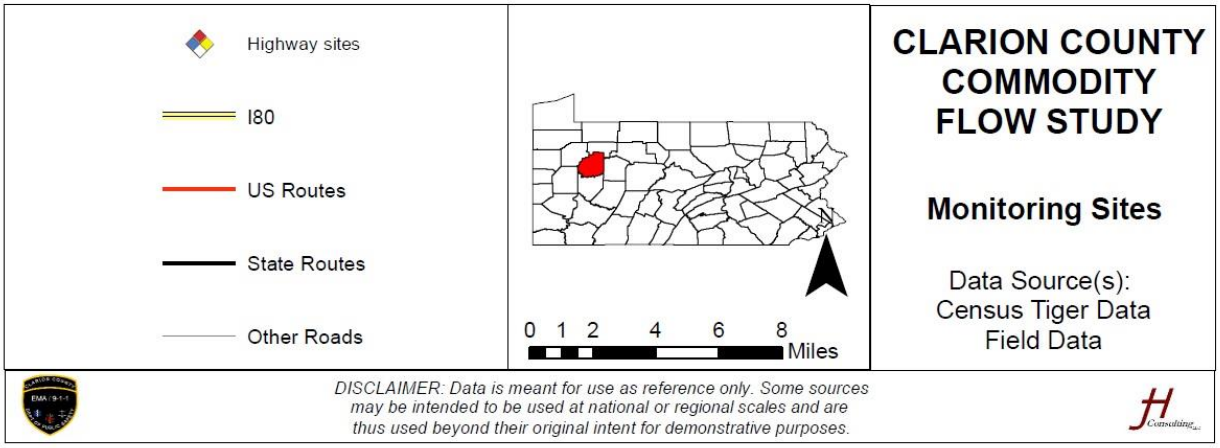
There have been 16 hazardous material incidents recorded in Clarion County since 1993. There were four events in Clarion, five events in Emlenton, one in Fairmount City, one in Mayport, one in Shippenville, and four in Strattonville. The average damage of these events is $15,299.06 with four events having no monetary damages recorded. Fifteen of the events resulted in spillage (one spill also resulted in a fire) and one was a vapor release. Six events involved Class 3: Flammable Liquid, four involved Class 2: Gases, Three involved Class 8: Corrosive, two involved Class 9: Miscellaneous, and one involved Class 6: Poison.

To complete the highway analysis, roadway monitoring sites were established along the primary transportation routes and at key intersections throughout the county. The following sites were monitored. (NOTE: Detailed data sheets for each of these sites are provided in Appendix 2.)

- Interstate 80 (near Mile Marker 45) x3
- Interstate 80 (near Mile Marker 53) x4
- Interstate 80 (near Mile Marker 67) x3
- PA-36 and PA-66 (Leeper)
- PA-208 and US 322 (Shippenville)
- PA-58 and PA-368 (Callensburg)
- PA-28 and PA-66 (New Bethlehem)

Figure 2.2.b


Highway sites
I80
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State Routes
Other Roads
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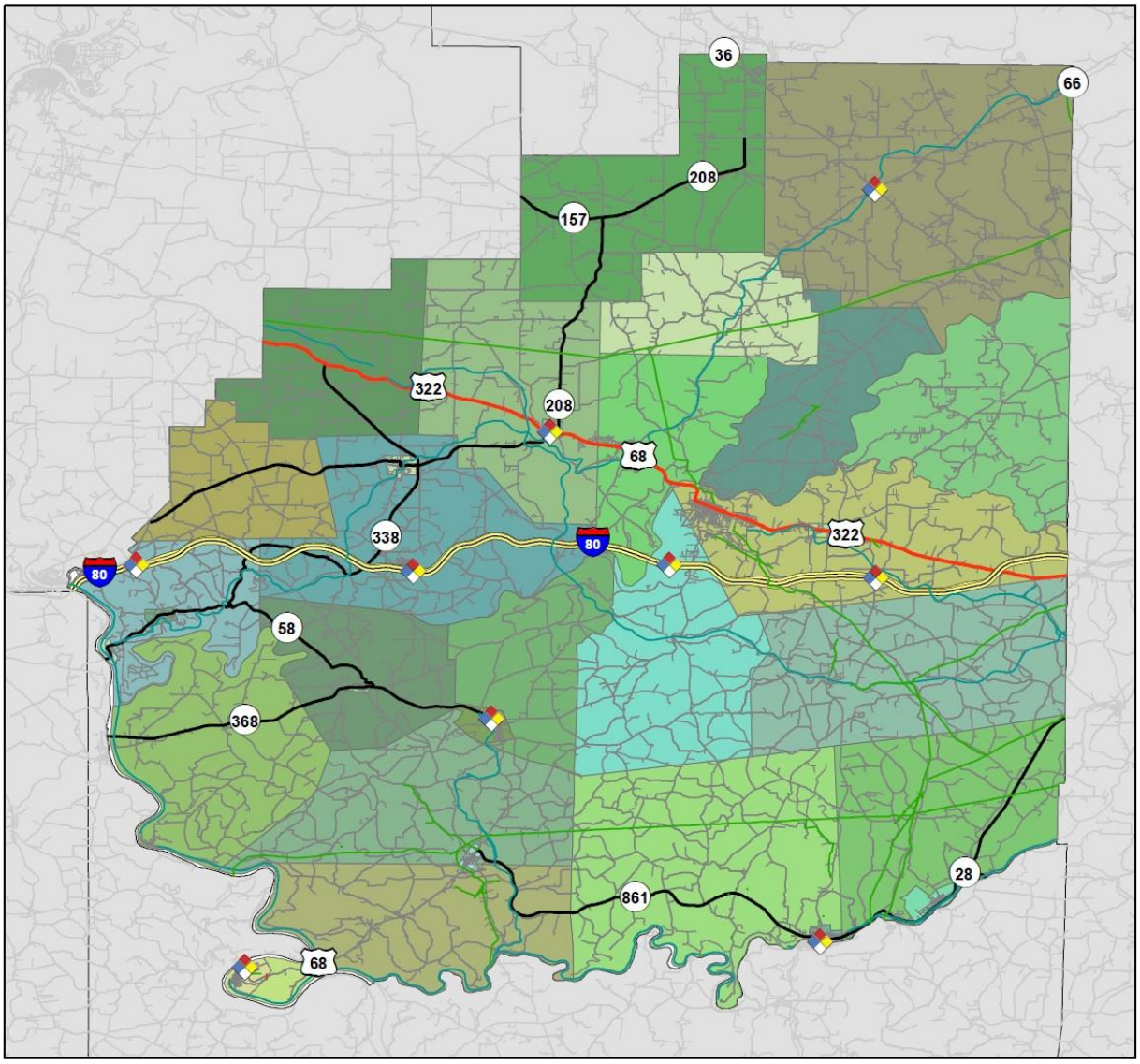
Miles
CLARION COUNTY COMMODITY FLOW STUDY
Monitoring Sites
Data Source(s):
Census Tiger Data
Field Data
DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.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A one-person crew staffed each observation point. This individual noted the UN numbers and the hazard classes of the placards passing through the site. The monitor manually counted the total truck traffic through the site to allow for real-time comparisons between hazmat-carrying and non-hazmat-carrying truck traffic. Planners also researched total traffic volume data (maintained by the Pennsylvania Department of Transportation [PennDOT]) for the planning area (PennDOT, 2019). This data allows the planning committee to compare total traffic versus total hazmat traffic.

2.3 Field Data

The monitoring sites were chosen because they are likely the most heavily traveled routes, especially by traffic passing through the county. These sites may also represent the most congested intersections in the county. Clarion County Emergency Management personnel assisted in the selection of sites, given their knowledge of facility locations, alternate routes (leading to and from facilities in neighboring counties, etc.).

Monitors counted a total of 23,482 trucks during the observation periods. Of the total trucks, 895 (3.8%) bore placards and were thus carrying hazardous materials. Monitors recorded a total of 365 trucks labeled with UN numbers bearing a total of 66 unique chemical numbers. Monitors also observed nine additional placards, labeled generally with the name of a DOT hazard class. General placards included the following.

- Explosives
- Gases
- Flammable Liquids
- Flammable Solids
- Oxidizers
- Toxics
- Radioactive
- Corrosives
- Miscellaneous

The following summary combines 2020 highway analysis data.

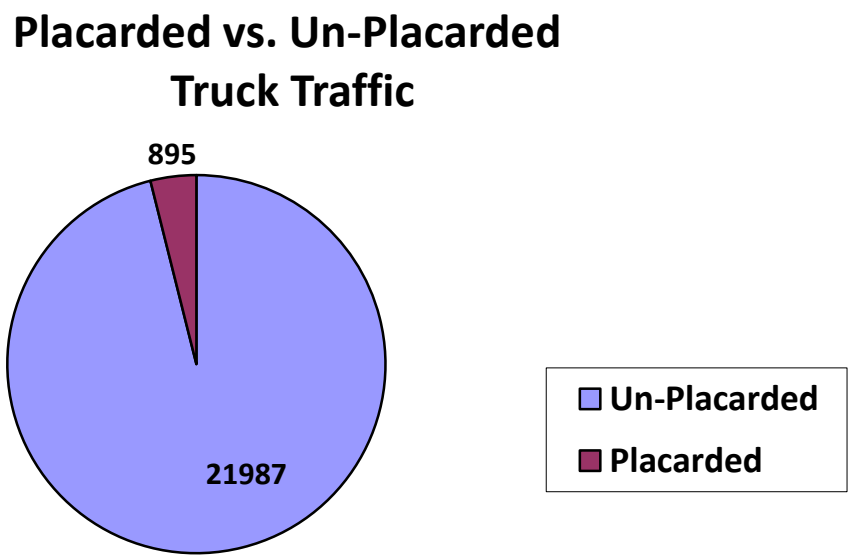
- **Total Number of Monitoring Sites: 9**

- **Total Observation Hours:** 88
- **Total Trucks:** 23,482
  - **Total Placarded Loads:** 895
  - **Percent Placarded Loads:** 3.8%

Below, planners considered trucks bearing general placards with the hazard class of the placard; thus, total figures per hazard class from this point include specifically-identified UN numbers and the general placards.

Figure 2.3.a depicts the placarded and un-placarded truck traffic observed at monitoring points.

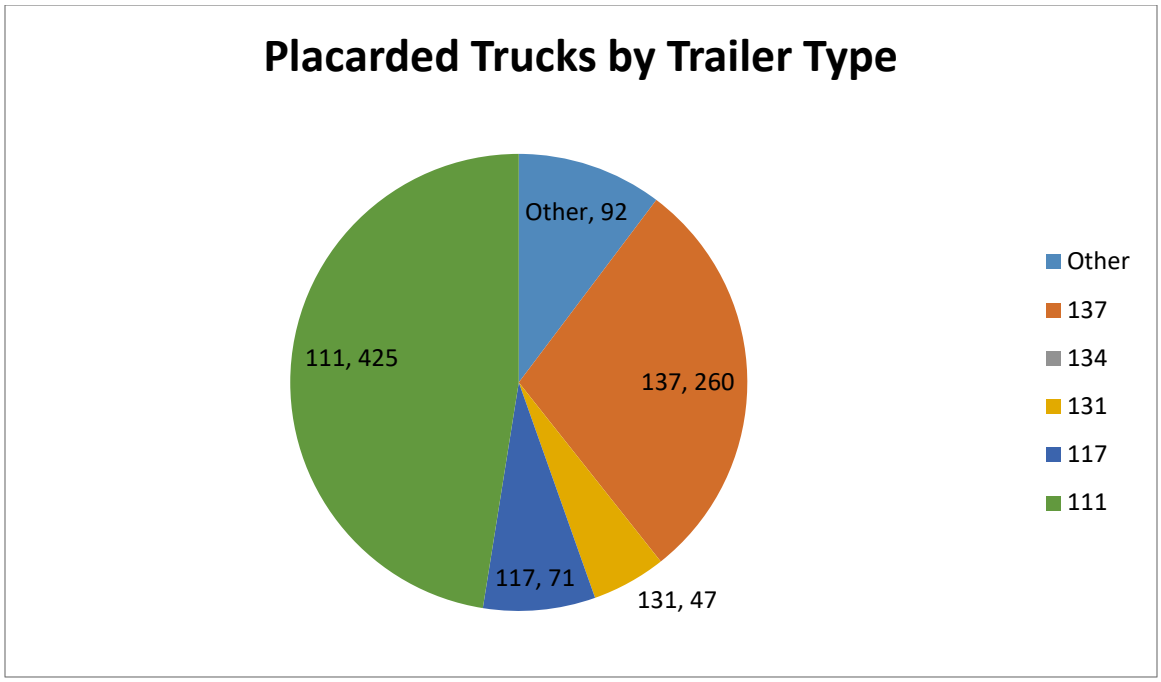
Figure 2.3.a



Monitors recorded placarded trucks by trailer type (e.g., mixed cargo, compressed liquefied gases, flammable liquids, etc.), per the latest edition of the U.S. DOT's *Emergency Response Guidebook* (2020, pp. 12-13). Monitors listed placarded trucks that did not fall into any of the trailer type categories (e.g., flatbed trucks) as "Other." The most observed trailer type was Trailer Type 111 with 425 observed trucks, followed by Trailer Types 137 with 260 and

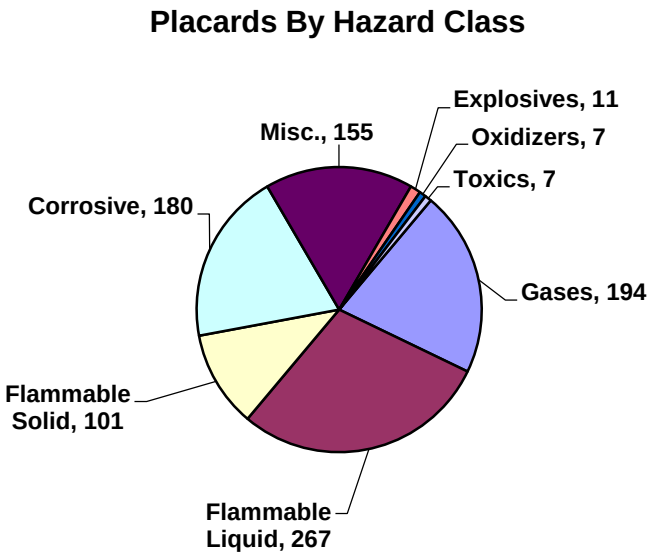
"Other" with 92.

Figure 2.3.b



Approximately 3.8% of the 23,485 total trucks observed carried hazardous materials.

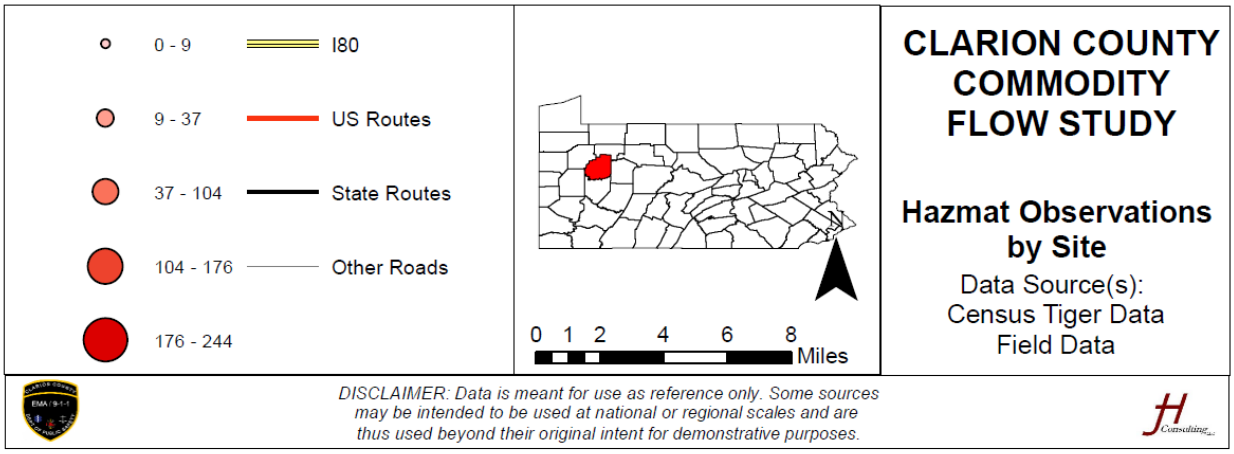
Figure 2.3.c



Approximately 29% of the total placarded vehicles recorded were carrying Class 3 (Flammable Liquids). Class 2 (Gases) were the second-most frequently-carried materials (21%), followed by Class 8 (Corrosives, 20%). Within Class 3, Petroleum Crude Oil (UN 1267) was the most frequent material. Petroleum Distillates (UN 1268), Gasoline (UN 1203) along with Flammable Liquids (UN 1993) were among the most frequently observed materials. .

The following map (Figure 2.3.d) depicts the hazardous materials observed in this study, organized by monitoring site.

Figure 2.3.d


0 - 9
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I80
US Routes
State Routes
Other Roads
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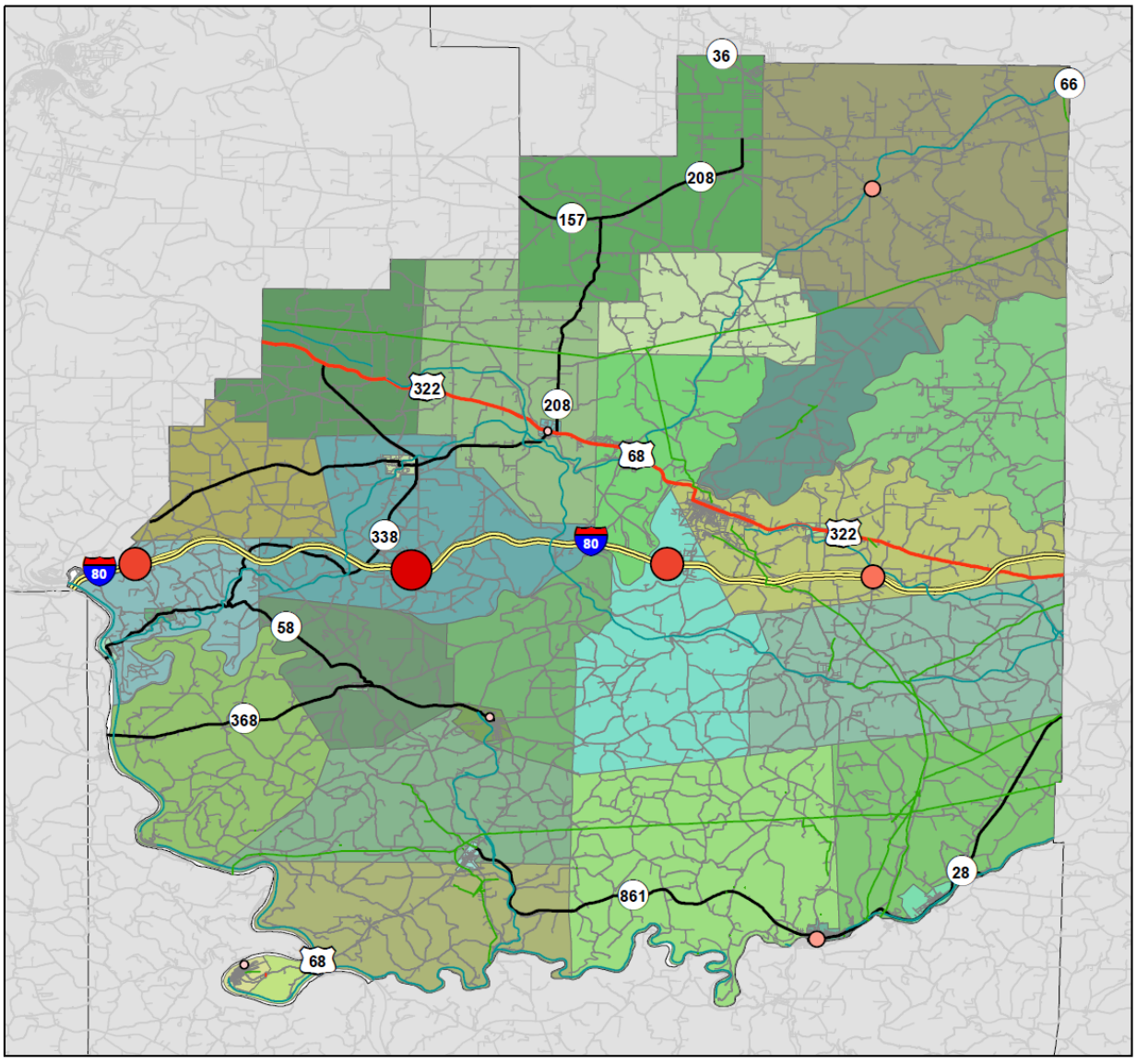
Miles
CLARION COUNTY COMMODITY FLOW STUDY
Hazmat Observations by Site
Data Source(s):
Census Tiger Data
Field Data
DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.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Monitors recorded 10 materials at the observation points that appear on the U.S. Environmental Protection Agency's (EPA) list of "extremely hazardous substances" (EHS).

- Alkyl Sulfonic Acid
- Ammonia Anhydrous
- Benzyl Chloride
- Chlorine
- Cresosis, Liquid
- Hydrogen Peroxide
- Isopropyl Chloroformate
- Methacrylic Acid
- Nitric Acid
- Phosphorous Pentasulfide

During monitoring periods when two monitors were both on the same highway, the traffic count and hazardous vehicle count remained near the same. This shows that the vehicles carrying hazardous shipments may be bypassing Clarion County exits. However, the monitoring periods were in four hour intervals meaning the vehicles could exit, make deliveries, and return to the highway prior to the monitoring period ending.

2.4 Route-by-Route Analysis

This section presents data for the eight different routes included in the study. It identifies the breakdown of hazard classes and the top materials transported. This section also includes a calculation of potential accidents with placarded loads based on route-specific data per a methodology from Transcaer. Transcaer based its formula on several criteria, including:

- The number of placarded vehicles observed in the study area,
- The highway road miles within the study area, and
- The national hazardous material accident frequency rate.

The following data can be used for planning purposes, but should always be compared to historical data. As for a note on the risk analysis methodology, consider the following. All monitoring sites along a given route were combined to obtain the total placard vehicles and survey time along that route. Roadway miles in Clarion County were taken from Census Tiger Data (2014). Further, the figures 1,000,000 and 0.608 were constants in the Transcaer formula.

Table 2.4.1 shows the results of the highway risk analysis.

Table 2.4.1

Highway Risk Analysis Summary

Roadway Name	Miles in Clarion County	Accidents with Placarded Loads per Year
Interstate 80	28.00	2.28
PA-28	11.27	0.23
PA-36	14.12	0.348
PA-66	34.94	0.43
PA-68	15.61	0.0796
PA-208	24.5	0.293
PA-368	7.38	0.0039
US Route 322	23.53	.1411

2.4.1 Interstate 80

Monitors observed a total of 22,437 trucks, 854 bore placards, along I-80. The monitoring of I-80 occurred over 14 four-hour periods for a total of 56 hours of monitoring.

Table 2.4.1.1

Observed Hazard Classes Interstate 80

1	2	3	4	5	6	7	8	9
9	186	229	96	6	7	1	192	128
.12%	21.78%	28.55%	11.97%	0.75%	0.87%	0.12%	22.48%	14.99%

Table 2.4.1.2

Estimated Annual Accidents Involving Placarded Loads, Interstate 80

Route	Approximate Miles	Accidents with Placarded Loads per Year
Interstate 80	28	2.28

Table 2.4.1.3

Top 10 Materials Observed, Interstate 80

Material	UN Number	Total	Avg. per Monitored Hour
Hazardous Waste, Liquid, n.o.s.	3082	30	0.536
Elevated Temp. Liquid, n.o.s.	3257	28	0.5
Hazardous Waste, Solid, .n.o.s.	3077	27	0.482
Petroleum	1075	19	0.339
Combustible Liquid, n.o.s.	1993	18	0.321
Resin Solution	1866	17	0.303
Gasoline	1203	17	0.303
Nitrogen	1977	14	0.25
Hydrochloric Acid	1789	11	0.196
Petroleum Distillates	1268	10	0.179

2.4.2 PA Route 28

Monitors observed a total of 276 trucks, 19 bore placards, along PA Route 28. The monitoring of PA Route 28 occurred over two four-hour periods for a total of 8 hours of monitoring.

Table 2.4.2.1

Observed Hazard Classes Interstate PA-28

1	2	3	4	5	6	7	8	9
1	5	2	0	0	0	0	0	11
5.26%	26.32%	10.53%	0.00%	0.00%	0.00%	0.00%	0.00%	57.89%

Table 2.4.2.2

Estimated Annual Accidents Involving Placarded Loads, PA-28

Route	Approximate Miles	Accidents with Placarded Loads per Year
PA-28	11.27	0.23

Table 2.4.2.3

Materials Observed, PA-28

Material	UN Number	Total	Avg. per Monitored Hour
Elevated Temperature Liquid	3257	11	1.37
Gasoline	1203	5	0.625
Explosive	0332	1	0.125
Petroleum Gases	1075	1	0.125
Carbon dioxide	2187	1	0.125

2.4.3 PA Route 36

Monitors observed a total of 328 trucks, 37 bore placards, along PA Route 36. The monitoring of PA Route 36 occurred over two four-hour periods for a total of eight hours of monitoring.

Table 2.4.3.1

Observed Hazard Classes Interstate PA-36

1	2	3	4	5	6	7	8	9
0	8	16	0	1	0	0	1	11
0.00%	21.62%	43.24%	0.00%	2.70%	0.00%	0.00%	2.70%%	57.89%

Table 2.4.3.2

Estimated Annual Accidents Involving Placarded Loads, PA-36

Route	Approximate Miles	Accidents with Placarded Loads per Year
PA-36	14.12	0.348

Table 2.4.3.3

Materials Observed, PA-36

Material	UN Number	Total	Avg. per Monitored Hour
Gasoline	1203	9	1.125
Elevated Temp. Liquid, n.o.s.	3257	9	1.125
Petroleum Gas Liquid	1075	5	0.625
Combustible Liquid, n.o.s.	1993	5	0.625
Petroleum Crude Oil	1267	2	0.250
Env. Haz. Substance, Liquid	3082	2	0.250

Materials Observed, PA-36

Material	UN Number	Total	Avg. per Monitored Hour
Ethyl Bromide	1891	1	0.125
Nitrogen, Refrigerated Liquid	1977	1	0.125

2.4.4 PA Route 66

Monitors observed a total of 328 trucks, 37 bore placards, along PA Route 66. The monitoring of PA Route 66 occurred over two four-hour periods for a total of eight hours of monitoring.

Table 2.4.4.1

Observed Hazard Classes Interstate PA-66

1	2	3	4	5	6	7	8	9
0	8	16	0	1	0	0	1	11
0.00%	21.62%	43.24%	0.00%	2.70%	0.00%	0.00%	2.70%%	57.89%

Table 2.4.4.2

Estimated Annual Accidents Involving Placarded Loads, PA-66

Route	Approximate Miles	Accidents with Placarded Loads per Year
PA-66	34.94	0.43

Table 2.4.4.3

Materials Observed, PA-66

Material	UN Number	Total	Avg. per Monitored Hour
Gasoline	1203	9	1.125
Elevated Temp. Liquid, n.o.s.	3257	9	1.125
Petroleum Gas Liquid	1075	5	0.625
Combustible Liquid, n.o.s.	1993	5	0.625
Petroleum Crude Oil	1267	2	0.250
Env. Haz. Substance, Liquid	3082	2	0.250
Ethyl Bromide	1891	1	0.125
Nitrogen, Refrigerated Liquid	1977	1	0.125

2.4.5 PA Route 68

Monitors observed a total of 512 trucks, 23 bore placards, along PA Route 68. The monitoring of PA Route 66 occurred over 6 four-hour periods for a total of 24 hours of monitoring.

Table 2.4.5.1

Observed Hazard Classes Interstate PA-68

1	2	3	4	5	6	7	8	9
3	6	3	0	0	0	0	0	11
13.04%	26.09%	13.04%	0.00%	0.00%	0.00%	0.00%	0.00%	47.83%

Table 2.4.5.2

Estimated Annual Accidents Involving Placarded Loads, PA-68

Route	Approximate Miles	Accidents with Placarded Loads per Year
PA-68	15.61	0.07957

Table 2.4.5.3

Materials Observed, PA-68

Material	UN Number	Total	Avg. per Monitored Hour
Elevated Temp. Liquid	3257	11	0.524
Gasoline	1203	6	0.286
Explosive	0332	1	0.048
Petroleum Gases	1075	1	0.048
Flammable Liquid, n.o.s	1993	1	0.048
Carbon Dioxide	2187	1	0.048

2.4.6 PA Route 208

Monitors observed a total of 205 trucks, 9 bore placards, along PA Route 208. The monitoring of PA Route 208 occurred over two four-hour periods for a total of 8 hours of monitoring.

Table 2.4.6.1

Observed Hazard Classes Interstate PA-208

1	2	3	4	5	6	7	8	9
0	5	3	0	1	0	0	0	0
0.00%	55.56%	33.33%	0.00%	11.11%	0.00%	0.00%	0.00%	0.00%

Table 2.4.6.2

Estimated Annual Accidents Involving Placarded Loads, PA-208

Route	Approximate Miles	Accidents with Placarded Loads per Year
PA-208	24.5	0.293

Table 2.4.6.3

Materials Observed, PA-208

Material	UN Number	Total	Avg. per Monitored Hour
Petroleum Gas Liquid	1075	3	0.375
Gasoline	1203	3	0.375

2.4.7 PA Route 368

Monitors observed a total of 101 trucks, four bore placards, along PA Route 368. The monitoring of PA Route 368 occurred over two four-hour periods for a total of eight hours of monitoring.

Table 2.4.7.1

Observed Hazard Classes Interstate PA-368

1	2	3	4	5	6	7	8	9
2	1	1	0	0	0	0	0	0
50.00%	25.00%	25.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Table 2.4.7.2

Estimated Annual Accidents Involving Placarded Loads, PA-368

Route	Approximate Miles	Accidents with Placarded Loads per Year
PA-368	7.38	0.004

Table 2.4.7.3

Materials Observed, PA-368

Material	UN Number	Total	Avg. per Monitored Hour
Gasoline	1203	1	0.125
Flammable Liquid, n.o.s.	1993	1	0.125

2.4.8 US Route 322

Monitors observed a total of 205 trucks, 9 bore placards, along US Route 322. The monitoring of US Route 322 occurred over two four-hour periods for a total of eight hours of monitoring.

Table 2.4.8.1

Observed Hazard Classes Interstate US-322

1	2	3	4	5	6	7	8	9
0	5	3	0	1	0	0	0	0
0.00%	55.56%	33.33%	0.00%	11.11%	0.00%	0.00%	0.00%	0.00%

Table 2.4.8.2

Estimated Annual Accidents Involving Placarded Loads, US-322

Route	Approximate Miles	Accidents with Placarded Loads per Year
US-322	23.53	0.141

Table 2.4.8.3

Materials Observed, US-322

Material	UN Number	Total	Avg. per Monitored Hour
Gasoline	1203	1	0.125
Flammable Liquid, n.o.s.	1993	1	0.125

2.5 Conclusion

- National hazardous material incident trends *generally* predicted the hazardous materials seen locally.
  - Confirmations
    - Class 3 Flammables are involved in the most incidents nationally and were the most frequently recorded materials in Clarion County.
    - Class 8, Corrosives are involved in the second most incidents nationally in incidents and frequently appeared in Clarion County
  - Deviations
    - Monitors observed Class 2 materials more frequently in Clarion County than national statistics would predict.
- As would be predicted, the largest amount of truck traffic and vehicles carrying hazardous materials were observed on Interstate 80.
- Observations on Sundays (November 8, 2020) produced much lower numbers then other days of the week.
- When two monitors were present on Interstate 80 at nearby sites, the truck traffic count and placarded vehicle counts remained similar. This would indicate most vehicle are passing through the area and not exiting Interstate 80 in that section of Clarion County. However, Monitors were on site for four hours meaning the vehicles exiting and re-entering the roadway is plausible.

3.0 PIPELINE ANALYSIS

3.1 Statistics

According to the U.S Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA), there are over 218,000 miles of hazardous liquid and carbon dioxide pipelines; over 301,000 miles of gas transmission pipelines; over 2,238,000 miles of gas distribution mains and services pipelines; and 157 LNG facilities, containing 230 LNG tanks, connected to gas transmission and distribution systems (2020).

A significant amount of data is available regarding incidents on pipeline systems. Table 3.1.1 shows a summary of all reported pipeline incidents over the period of 2011 through 2020. The following figures provide additional data on these incidents.

Table 3.1.1

Summary – All Reported Pipeline Incidents, 2011-2020

Year	Incidents	Fatalities	Injuries	Total Cost Reported ($)
2011	588	13	55	$302,087,404
2012	571	12	57	$171,631,931
2013	617	9	44	$316,500,884
2014	706	19	95	$261,212,369
2015	712	11	48	$289,089,966
2016	632	16	87	$270,107,110
2017	647	20	36	$256,304,267
2018	634	7	79	$2,138,849,792
2019	657	11	36	$228,029,360
2020	581	16	44	$128,115,731
Total	6,345	134	581	$4,361,928,814
Most Recent 3 Year Avg.	**624**	**11**	**53**	**$831,664,961**

Figure 3.1.a

All Reported Pipeline Incidents: Count 2001-2020

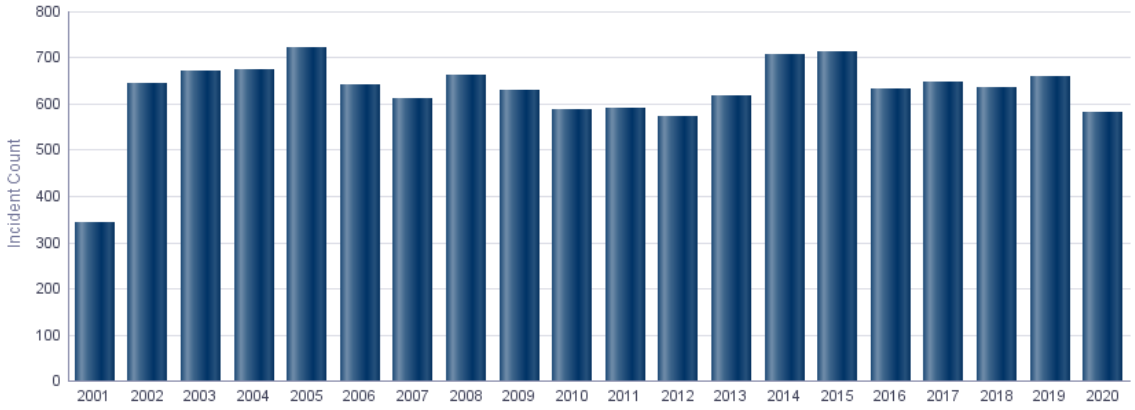


Figure 3.1.b

All Reported Pipeline Incidents: Fatalities 2001-2020

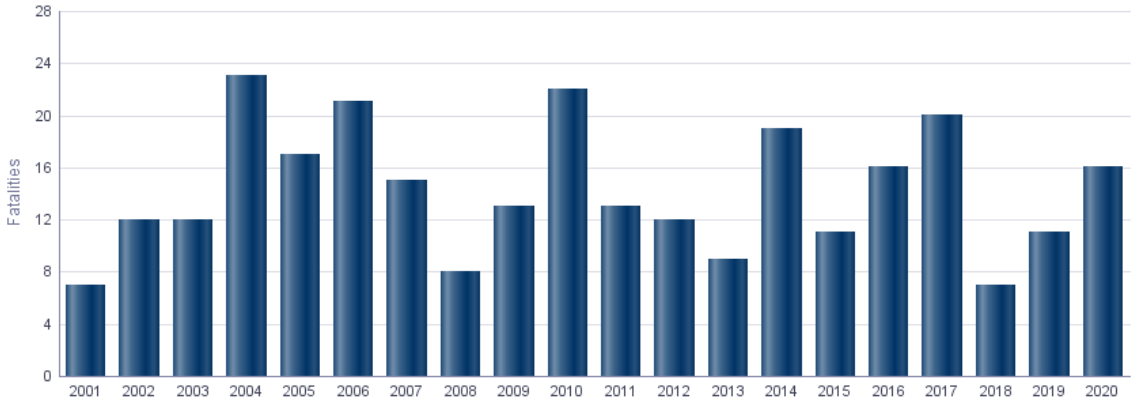
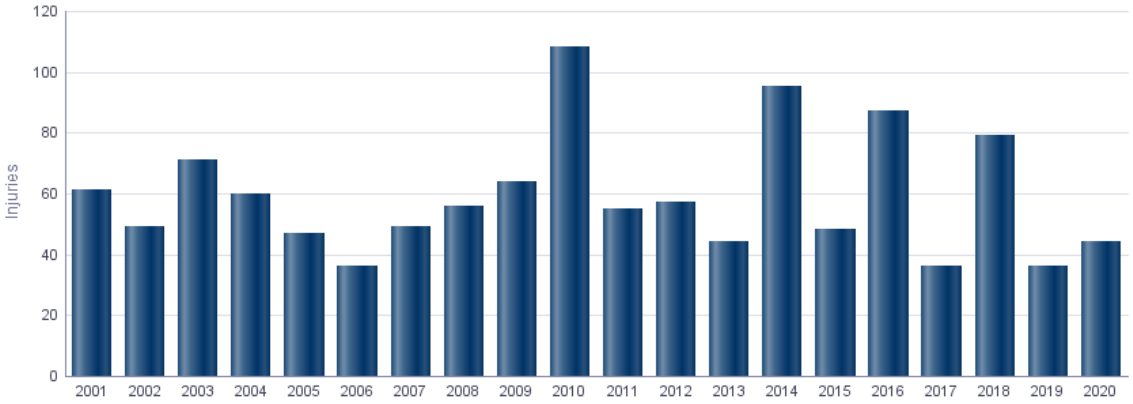


Figure 3.1.c

All Reported Pipeline Incidents: Injuries 2001-2020



Within these figures, PHMSA reports incidents within the hazardous liquid, gas transmission, gas gathering, and gas distribution subcategories. Tables 3.1.2 through 3.1.5 present these figures for the period 2011-2020 for onshore incidents only (PHMSA, 2020).

Table 3.1.2

Gas Gathering Pipeline Incidents, 2011-2020

Year	Number	Fatalities	Injuries	Total Cost Reported ($)
2011	10	0	0	$1,786,922.00
2012	12	0	0	$2,937,821.00
2013	6	0	0	$1,977,657.00
2014	9	0	0	$5,965,427.00
2015	5	0	0	$3,121,758.00
2016	2	0	0	$577,343.00
2017	12	0	0	$1,771,246.00
2018	3	0	0	$12,904,662.00
2019	8	0	1	$5,323,671.00
2020	7	0	0	$101,755,997.00
Total	227	0	6	$481,887,377.00
Most Recent 3 year Avg.	**6**	**0**	**0.3**	**$39,994,777**

Table 3.1.3

Gas Transmission Pipeline Incidents, 2011-2020

Year	Number	Fatalities	Injuries	Total Cost Reported ($)
2011	118	0	1	123,710,870
2012	104	0	7	55,860,855
2013	106	0	2	51,044,739
2014	133	1	1	55,567,727
2015	144	6	16	59,839,826
2016	94	3	3	106,887,884
2017	107	3	3	79,617,650
2018	111	1	5	59,921,779
2019	120	1	8	100,504,643
2020	118	2	1	52,229,010
Total	1,155	17	47	$745,184,983
Most Recent 3 Year Avg.	**116**	**1**	**5**	**$70,885,144**

Table 3.1.4

Gas Distribution Pipeline Incidents, 2011-2020

Year	Number	Fatalities	Injuries	Total Cost Reported ($)
2011	116	13	53	$27,305,022
2012	88	9	46	$25,556,562
2013	104	8	36	$37,363,960
2014	106	18	93	$72,885,067
2015	101	4	32	$32,176,608
2016	115	10	75	$56,900,068
2017	104	16	32	$92,013,232
2018	109	6	72	$1,944,401,489
2019	139	10	27	$68,069,598
2020	111	10	29	$30,015,995
Total	1,093	104	495	2,386,687,601
Most Recent 3 Year Avg.	**119**	**9**	**43**	**$680,829,027**

Pipeline mileage data for states is somewhat more detailed than it is nationwide. PHMSA reports a total of 90,514 miles of pipeline in Pennsylvania (2020). Within those 90,514 miles:

- 10,384.8 miles are gas transmission lines,
- 889.5 miles are gas gathering lines, and
- 79,239.9 miles are gas distribution lines.

Similar classifications of incident data are available at the state level as presented above nationwide. Table 3.1.5 presents a summary of all pipeline incidents in Pennsylvania for the period 2011-2020 (PHMSA, 2020).

Table 3.1.5

Reported Pipeline Incidents in Pennsylvania, 2011-2020

Year	Incidents	Fatalities	Injuries	Total Cost As Reported ($)
2011	11	6	7	$27,335,873
2012	9	0	1	$982,299
2013	14	0	0	$2,676,899
2014	11	1	1	$5,618,003
2015	18	0	0	$2,460,694
2016	19	0	5	$73,356,484
2017	12	1	5	$3,503,992
2018	15	0	1	$19,030,488
2019	19	2	2	$13,717,142
2020	13	1	2	$2,391,793
Total	141	11	24	$151,073,667
Most Recent 3 Year Avg.	**12**	**1**	**1**	**$11,713,141**

Table 3.1.6

Gas Gathering Pipeline Incidents in Pennsylvania, 2011-2020

Year	Incidents	Fatalities	Injuries	Total Cost As Reported ($)
2011	0	0	0	$0
2012	1	0	0	$21,060
2013	0	0	0	$0
2014	0	0	0	$0
2015	0	0	0	$0
2016	1	0	0	$406,816
2017	0	0	0	$0
2018	1	0	0	$7,011,146
2019	1	0	1	$1,805,538
2020	0	0	0	$0
Total	4	0	1	$9,244,560
Most Recent 3 Year Avg.	**1**	**0**	**0**	**$2,938,895**

Table 3.1.7

Gas Transmission Pipeline Incidents in Pennsylvania, 2011-2021

Year	Incidents	Fatalities	Injuries	Total Cost As Reported ($)
2011	1	0	0	$23,359,400
2012	3	0	1	$435,776
2013	2	0	0	$564,402
2014	3	0	0	$2,941,426
2015	6	0	0	$1,482,612
2016	2	0	1	$69,482,540
2017	3	0	0	$213,330
2018	9	0	0	$711,782
2019	5	0	0	$531,181
2020	3	0	0	$1,156,096
Total	37	0	2	$100,878,545
Most Recent 3 Year Avg.	**6**	**0**	**0**	**$799,686**

Table 3.1.8

Gas Distribution Pipeline Incidents in Pennsylvania, 2011-2020

Year	Incidents	Fatalities	Injuries	Total Cost As Reported ($)
2011	5	6	7	$2,592,795
2012	0	0	0	$0
2013	4	0	0	$521,830
2014	4	1	1	$1,121,349
2015	2	0	0	$340,324
2016	7	0	4	$563,967
2017	4	1	5	$2,415,552
2018	2	0	1	$266,762
2019	6	2	1	$1,920,180
2020	7	1	2	$1,086,779
Total	41	11	21	10,829,538
Most Recent 3 Year Avg.	**5**	**1**	**1**	**$4,701,086**

Of the incidents presented in Tables 3.1.6 through 3.1.8, a total of 50 have been described by PHSMA *as significant incidents.* Significant incidents are those reported incidents with the following specifically-defined consequences:

- a fatality or injury requiring in-patient hospitalization,
- $50,000 or more in total costs, measured in 1984 dollars,
- highly volatile liquid releases of five barrels or more or “other liquid” release of 50 barrels or more, or
- liquid releases resulting in an unintentional fire or explosion.

These 50 significant incidents resulted in a total of 11 fatalities, 24 injuries, and $$130,857,962 in total costs reported (PHSMA, 2020).

Of the 50 significant incidents, 17 were catergorized as a serious incident. Serious incidents are a smaller subset where any fatality or in-patient hospitalization occurs.

3.2 Methodology

Pipeline data came from the National Pipeline Mapping System (https://www.npms.phmsa.dot.gov/). In some cases, when clarification was needed, the county's consultant contacted pipeline operators directly. Section 3.3 below presents local data. Data consisted of geographic information system (GIS) files provided by PHMSA.

3.3 Field Data

Within Clarion County, there are 92.66 gas transmission miles and no liquid transmission miles (PMHSA, 2020). According to PHMSA, there have been no recorded incidents in the jurisdiction.

Figure 3.3.a shows the transmission pipelines passing through and near Clarion County (https://www.npms.phmsa.dot.gov/). Under 49 CFR § 192.3, a transmission line is: "a pipeline, other than a gathering line, that: (1) transports gas from a gathering line or storage facility to a distribution center, storage facility, or large volume customer that is not down-stream from a distribution center; (2) operates at a hoop stress of 20 percent or more of SMYS; or (3) transports gas within a storage field." All of the transmission lines throughout Clarion County are for gas transmission and are operated by six companies. Additionally, there are three abandoned lines in the area that have been completely purged of gas. Table 3.3.1 shows the ownership of these lines.

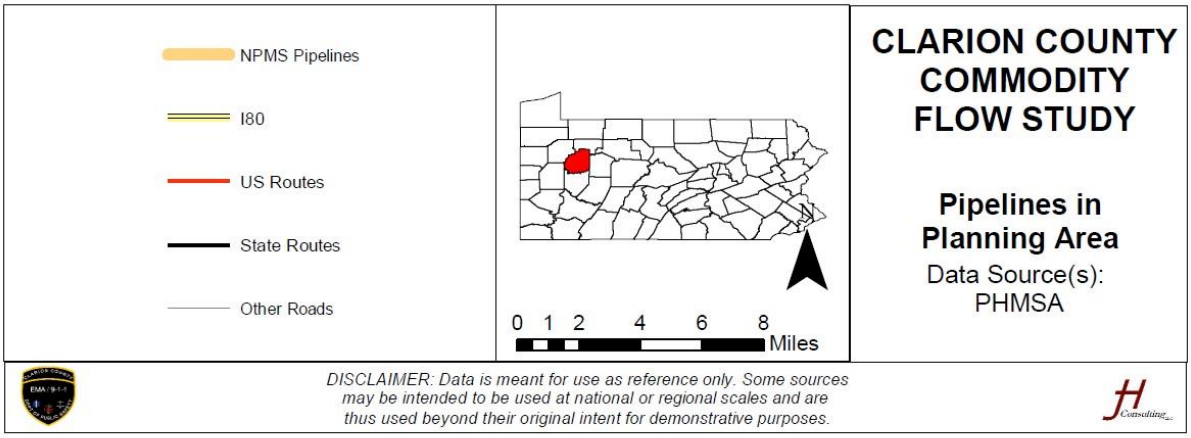
Table 3.3.1

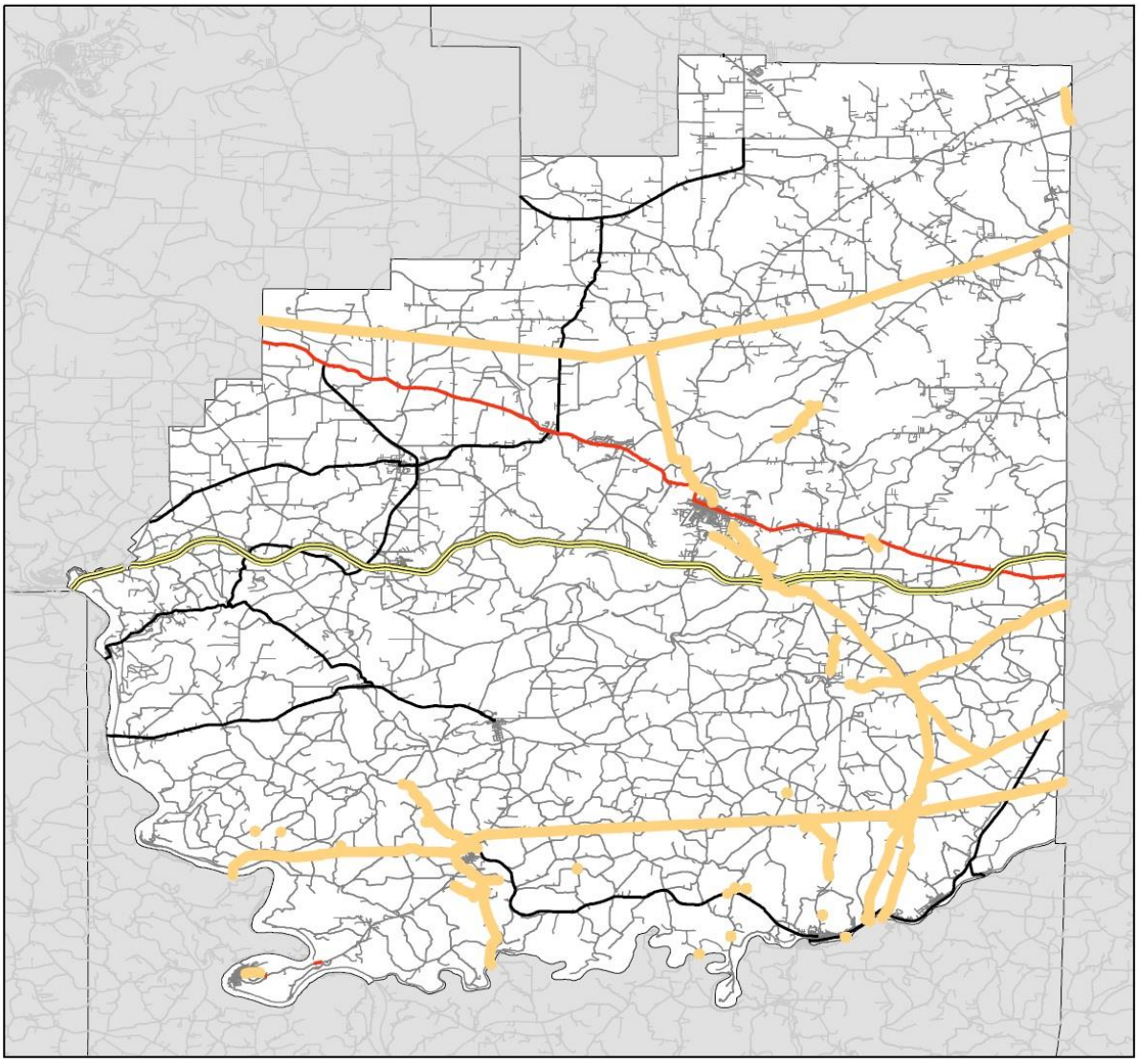
Gas Distribution Pipeline Ownership

Companies Reported	Reported Miles
Abandoned	5.36
Alliance	10.64
Columbia Gas Transmission	28.77

Companies Reported	Reported Miles
Dominion Energy	13.51
Equitrans Midstream Corp	5.96
National Fuel Gas Supply Corp	26.77
People's Natural Gas Supply Corp	1.65

Figure 3.3.a


NPMS Pipelines
I80
US Routes
State Routes
Other Roads
0 1 2 4 6 8
Miles
CLARION COUNTY
COMMODITY
FLOW STUDY
Pipelines in
Planning Area
Data Source(s):
PHMSA
DISCLAIMER: Data is meant for use as reference only. Some sources
may be intended to be used at national or regional scales and are
thus used beyond their original intent for demonstrative purposes.



3.4 Conclusions

Pipeline analysis data suggests the following conclusions.

- According to PMHSA only liquid gas lines exist in Clarion County.
- The areas that the transmission lines travel through are largely rural or otherwise difficult to access. Thou it is more likely for an emergency to occur at a launcher station, first responders should be prepared to respond to incidents that take place over steep or otherwise difficult terrain.
- Planners retrieved data from the U.S. Department of Transportation, Pipeline Hazardous Materials and Safety Administration's National Pipeline Mapping System (NPMS) for this analysis. NPMS data only includes data on natural gas transmission pipelines (not distribution or feeder pipelines). As such, there are many more, smaller pipelines carrying natural gas underground in Clarion County.

4.0 COVERED FACILITIES ANALYSIS

4.1 Methodology

In addition to the highway and pipeline analysis, a general "information request" was distributed to the Superfund Amendments and Reauthorization Act (SARA) reporting facilities throughout the county. Each facility was sent a form that requested a list of the chemicals used or stored, the mode of transportation used to transport the chemicals to the facility, the frequency and volumes of shipments, and storage locations at each facility.

This information was collected to both verify and supplement data from the various field studies. It will allow the Clarion County Local Emergency Planning Committee to determine which types of materials are present year-round and which materials are simply "passing through" to facilities in neighboring counties.

4.2 Field Data

Twenty facilities responded to the information request. Questionnaires were submitted to a total of 37 facilities (for a response rate of 54%). Of the 20 respondents, one did not wish to provide information on the chemicals, one stated they do not ship or store chemicals, and one facility is closed. Materials listed for the other 17 facilities participating in the information request in 4.2.1 are taken from their response.

Table 4.2.1

Covered Facilities with Materials

Facility	*Material(s)*	*Frequency of Shipments*					*Incident at Facility*
		Daily	*Weekly*	*Bi-Weekly*	*Monthly*	*Other*	*Yes/No*
ABARTA	**CONDENSATE** **Container Type:** 100 BBL STEEL **Route Utilized:** MCEWEN RD TO 68E TO 60W TO 66N TO 219N					QUARTERLY	**NO**
ADVANCED DISPOSAL CLARION COUNTY TRANSFER STATION	**ULTRA LOW SULFUR DIESEL** **Container Type:** FUEL TANKER **Route Utilized:** I-80 & I-79 TO ADVANCED DISPOSAL SITE					2X PER MONTH	**NO**
	OFF-ROAD DIESEL FUEL **Container Type:** FUEL TANKER **Route Utilized:** RT 66 TO ADVANCED DISPOSAL SITE					2X PER MONTH	
	LIQUID PROPANE GAS **Container Type:** CYLINDER **Route Utilized:** RT 66 TO ADVANCED DISPOSAL					1X EVERY 2 MONTHS	
	OXYGEN **Container Type:** CYLINDERS **Route Utilized:** RT 66 TO ADVANCED DISPOSAL SITE				**X**		
	ACETYLENE **Container Type:** CYLINDERS **Route Utilized:** RT 66 TO ADVANCED DISPOSAL SITE						
BROOKFIELD RENEWABLE ENERGY	**LOW TOX HYDRAULIC OIL** **Container Type:** 55 GAL DRUM **Route Utilized:** I-80 & RT 68					1/ YEAR	**NO**
	SURFURIC ACID (BATTERY ELECTROLYTE) **Container Type:** VARIOUS **Route Utilized:** I-80 & RT 68						
CHARLES MACHINE INC	**DID NOT WANT TO PARTICIPATE IN THE SURVEY**	N/A					
CLARION BATHWARE	**RESIN** **Container Type:** TANKER **Route Utilized:** I-80 TO RT 208					2X/WEEK	**NO**
	GEL COAT **Container Type:** 50 GAL DRUM **Route Utilized:** I-80 TO RT 66 TO RT 322 TO RT 208					EVERY 2 WEEKS	
	VARIOUS POLYESTER RESIN **Container Type:** 50 GAL DRUM **Route Utilized:** I-80 TO RT 66 TO RT 322 TO RT 208					EVERY 2 WEEKS	
	ACETONE **Container Type:** 50 GAL DRUM					EVERY 2 WEEKS	

	Route Utilized: I-80 TO RT 66 TO RT 322 TO RT 208						
	METHYL ETHYL KETONE PEROXIDE **Container Type:** 5 GAL PLASTIC CONTAINER **Route Utilized:** I-80 TO RT 66 TO RT 322 TO RT 208					EVERY 2 WEEKS	
CLARION BOARDS, LLC	**MDI** **Container Type:** TANKER **Route Utilized:** I-80 TO RT 66 TO RT 322		**X**				**NO**
	DIESEL FUEL **Container Type:** TANKER **Route Utilized:** I-99 TO I-80 TO RT 322					QUARTERLY	
	PROPANE **Container Type:** CYLINDER **Route Utilized:** IRT 62 TO RT 257 TO RT 322				**X**		
	UREA **Container Type:** TANKER **Route Utilized:** RT 30 TO RT 71 TO RT 76 TO I-80 TO RT 66 TO RT 322				**X**		
	BELT RELEASE (CHEM TREND WC-8234W) **Container Type:** TOTE **Route Utilized:** RT 96 TO I-80 TO RT 66 TO RT 322		**X**				
	WAX **Container Type:** TANKER **Route Utilized:** RT 95 TO RT 495 TO RT 270 TO RT 70 TO RT 99 TO RT 350 TO RT 322					BI-MONTHLY	
CORNER WATER SUPPLY	**HYPOCHLORITE SOLUTIONS (SODIUM HYPOCHLORITE) (LIQUID CHLORINE)** **Container Type:** 150 BULK GALLON **Route Utilized:** I-80/ RT 66/ RT322/ WEAVER LANE						**NO**
	SODIUM HYDROXIDE SOLUTIONS (LIQUID CAUSTIC SODA) **Container Type:** 300 BULK GALLON **Route Utilized:** I-80/ RT 66/ RT322/ WEAVER LANE						
	AQUASERVE (LIQUID Phosphate) **Container Type:** 15 GALLON DRUM **Route Utilized:** I-80/ RT 66/ RT322/ WEAVER LANE						
COUNTY LANDFILL INC.	**FACILITY IS CLOSED**			N/A			
EAST BRADY	**CHLORINE** **Container Type:** 150 LBS					QUARTERLY	

WATER/SEWER PLANT	CYLINDERS **Route Utilized:** RT 18 TO I-376 SOUTH TO RT 422 EAST TO RT 68 INTO EAST BRADY						
	SODIUM HYDROXIDE 50 % SOLUTION (LIQUID CAUSTIC SODA) **Container Type:** 65 LBS **Route Utilized:** RT 18 TO I-376 SOUTH TO RT 422 EAST TO RT 68 INTO EAST BRADY					EVERY 2 WEEKS	
	SODA ASH **Container Type:** 50 LB BAGS **Route Utilized:** RT 18 TO I-376 SOUTH TO RT 422EAST TO RT 68 INTO EAST BRADY					QUARTERLY	
GLASSMERE FUEL SERVICE	**DIESEL FUEL** **Container Type:** TANKER **Route Utilized:** RT 322/ RT 66/ I-80	**X**					**NO**
	CHEMICAL **Container Type:** TANKER **Route Utilized:** RT 322/ RT 66/ I-80	**X**					
IA CONSTRUCTION CORPORATION	**DIESEL FUEL** **Container Type:** 1,000 GAL FUEL TANK TRUCK **Route Utilized:** RT 66 TO RT 36 TO RT 62				**X**		**NO**
	LIQUID ASPHALT **Container Type:** 6,500 GAL TANKER TRUCK **Route Utilized:**	**X**					
J.M. SMUCKERS	**NITROGEN** **Container Type:** (2) 30 LITER TANKS **Route Utilized:** RT 28/ PENN ST				**X**		**NO**
	METHANOL **Container Type:** 4 LITERS (4/PALLET) **Route Utilized:** I80/RT 66/PENN ST				**X**		
	POWDER FLOOR CONDITIONER **Container Type:** 55 GAL (4/PALLET) **Route Utilized:** I80/RT 66/PENN ST					SEMI-ANNUALLY	
	SODIUM STANDARDS **Container Type:** GALLON JUGS **Route Utilized:** I80/RT 66/PENN ST					SEMI-ANNUALLY	
	LIFT RT ALKALINE CLEANERS **Container Type:** 55 GALLON **Route Utilized:** I80/RT 66/PENN ST					QUARTERLY	
	QUORUM YELLOW II **Container Type:** 55 GALLON **Route Utilized:** I80/RT 66/PENN ST					SEMI-ANNUALLY	

	D2 SANIFECT SANITIZER **Container Type:** 5 GALLON **Route Utilized:** I-80/ RT 28/ PENN ST					SEMI-ANNUALLY	
KAHLE'S KITCHENS, INC.	**CABINET FINISH** **Container Type:** 50 GAL DRUM/ 1 GAL PAILS **Route Utilized:** I-80/RT 66/ RT 36				**X**		**NO**
	PROPANE **Container Type:** CYLINDERS **Route Utilized:** I-80/RT 66/ RT 36					QUARTERLY	
	DIESEL FUEL **Container Type:** TRUCK **Route Utilized:** I-80/RT 66/ RT 36					AS NEEDED	
KNOX BOROUGH SEWAGE TREATMENT PLANT	**CHLORINE** **Container Type:** (3) 150 LB CYLINDERS **Route Utilized:** NOT LISTED					SEMI-ANNUALLY	**NO**
	CL 981 POLYMER **Container Type:** (2) 55 GAL DRUMS **Route Utilized:** NOT LISTED					SEMI-ANNUALLY	
KNOX BOROUGH WATER TREATMENT PLANT	**CHLORINE** **Container Type:** (3) 150 LBS CYLINDERS **Route Utilized:** NOT LISTED					SEMI-ANNUALLY	**NO**
	POTASSIUM PERMANGANATE **Container Type:** (2) 55 LB PAIL **Route Utilized:** NOT LISTED					SEMI-ANNUALLY	
	DELPAC 2020 POLYMER **Container Type:** (2) 55 GAL DRUMS **Route Utilized:** NOT LISTED					SEMI-ANNUALLY	
	AQUA-MAG **Container Type:** (2) 55 GAL DRUMS **Route Utilized:** NOT LISTED					SEMI-ANNUALLY	
LONG ARCES POTATO FARM	**2-4 AMINE** **Container Type:** 2.5 GAL **Route Utilized:** NOT LISTED	NOT LISTED					**NO**
	ROUNDUP WEATHERMANMAX **Container Type:** 2.5 GAL **Route Utilized:** NOT LISTED	NOT LISTED					
	ACURON **Container Type:** BULK **Route Utilized:** NOT LISTED	NOT LISTED					
	ACURON **Container Type:** 2.5 GALLON **Route Utilized:** NOT LISTED	NOT LISTED					
	ALFALFA INOCULATION **Container Type:** 1 BU **Route Utilized:** NOT LISTED	NOT LISTED					
	ALL CLEAR **Container Type:** 1 GALLON **Route Utilized:** NOT LISTED	NOT LISTED					
	APPROACH PRIMA **Container Type:** 2.5 GALLON **Route Utilized:** NOT LISTED	NOT LISTED					

	ATRAZINE 4L **Container Type:** 2.5 GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	AVIPEL SEED TREATMENT BIRD REPELLENT **Container Type:** 16 OZ CAN **Route Utilized:** NOT LISTED	NOT LISTED	
	BADGE SC **Container Type:** GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	BANVEL/RIFLE **Container Type:** 2.5 GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	BASAGRAN **Container Type:** GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	BLACKHAWK NAYURALYTE INSECTICIDE **Container Type:** 64 OZ **Route Utilized:** NOT LISTED	NOT LISTED	
	BUTOXONE 200/ BUTYRAC 200 ALBAUGH **Container Type:** 2.5 GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	CELL TEC (LIQUID SOYBEAN INNOCULANT **Container Type:** 1 BOX TREATS 50 UNITS **Route Utilized:** NOT LISTED	NOT LISTED	
	CHLOROTHALONIL 720 **Container Type:** 2.5 GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	CIMARRON **Container Type:** 2 OZ **Route Utilized:** NOT LISTED	NOT LISTED	
	CORAGEN **Container Type:** QUART **Route Utilized:** NOT LISTED	NOT LISTED	
	CRUISER 5FS **Container Type:** 1 GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	DEGREE EXTRA **Container Type:** 2.5 GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	DUREANGO DMA **Container Type:** BULK **Route Utilized:** NOT LISTED	NOT LISTED	
	DURANGO DMA **Container Type:** 2.5 GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	DYNE-AMIC **Container Type:** GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	EXPLORER **Container Type:** 1 GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	FULTIME NXT **Container Type:** BULK **Route Utilized:** NOT LISTED	NOT LISTED	

	GOAL **Container Type:** NOT LISTED **Route Utilized:** NOT LISTED	NOT LISTED	
	GRAPHEX SEED COATING **Container Type:** NOT LISTED **Route Utilized:** NOT LISTED	NOT LISTED	
	GRAZON HL **Container Type:** 2 GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	HALEX GT **Container Type:** BULK **Route Utilized:** NOT LISTED	NOT LISTED	
	HALEX GT **Container Type:** 2.5 GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	HELENA CHEMICALS **Container Type:** NOT LISTED **Route Utilized:** NOT LISTED	NOT LISTED	
	HERBIMAX CROP OIL LOVE **Container Type:** 2.5 GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	INDUCE **Container Type:** GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	INITIATE 720 **Container Type:** 2.5 GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	KEYSTONE NXT **Container Type:** GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	KEYSTONE NXT **Container Type:** BULK **Route Utilized:** NOT LISTED	NOT LISTED	
	LANNATE SP **Container Type:** 5 LB **Route Utilized:** NOT LISTED	NOT LISTED	
	L1700 LOVE **Container Type:** GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	LOROX DF 20 DUPONT **Container Type:** 20 LBS **Route Utilized:** NOT LISTED	NOT LISTED	
	LOZ VOL 2-4D ESTER AMINE **Container Type:** NOT LISTED **Route Utilized:** NOT LISTED	NOT LISTED	
	MANZATE PRO STICK **Container Type:** 30 LBS **Route Utilized:** NOT LISTED	NOT LISTED	
	MCPA (MCP AMINE 4 CC) **Container Type:** 2.5 GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	MEDAL ATZ II **Container Type:** NOT LISTED **Route Utilized:** NOT LISTED	NOT LISTED	
	MEDAL EC **Container Type:** NOT LISTED **Route Utilized:** NOT LISTED	NOT LISTED	
	MEDAL 11 EC (SAME AS DUAL/ MEDAL **Container Type:** 2.5 GALLON **Route Utilized:** NOT LISTED	NOT LISTED	

	METRIBUZIN 75 DF **Container Type:** 5 LB **Route Utilized:** NOT LISTED	NOT LISTED	
	PERMETHRIN 3.2 EC **Container Type:** NOT LISTED **Route Utilized:** NOT LISTED	NOT LISTED	
	PERMIT 75 DF **Container Type:** 20 OZ **Route Utilized:** NOT LISTED	NOT LISTED	
	PRISTINE 38% **Container Type:** 120 OZ **Route Utilized:** NOT LISTED	NOT LISTED	
	RAPTOR **Container Type:** GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	RESICORE HERBICIDE DOW **Container Type:** 2.5 GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	RESICORE **Container Type:** BULK **Route Utilized:** NOT LISTED	NOT LISTED	
	RESOLVE Q **Container Type:** 50 OZ **Route Utilized:** NOT LISTED	NOT LISTED	
	REVULIN Q **Container Type:** 85 OZ **Route Utilized:** NOT LISTED	NOT LISTED	
	RIDOMILL GOLD **Container Type:** NOT LISTED **Route Utilized:** NOT LISTED	NOT LISTED	
	ROPER **Container Type:** 30 LBS **Route Utilized:** NOT LISTED	NOT LISTED	
	ROUNDUP-MAX **Container Type:** 30 GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	ROUNDUP ORIGINAL MAX **Container Type:** 2.5 GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	SNIPER (BIENTHRIN) **Container Type:** 1 GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	SONIC **Container Type:** 7.5 LB **Route Utilized:** NOT LISTED	NOT LISTED	
	STEALTH (PROWL) **Container Type:** 2.5 GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	STRATEGY (TREE OR WEED KILLER) **Container Type:** NOT LISTED **Route Utilized:** NOT LISTED	NOT LISTED	
	SURE START **Container Type:** BULK **Route Utilized:** NOT LISTED	NOT LISTED	
	SURE START II **Container Type:** 2.5 GALLON **Route Utilized:** NOT LISTED	NOT LISTED	
	TALSTAR PROFESSIONAL **Container Type:** 1 GALLON **Route Utilized:** NOT LISTED	NOT LISTED	

	TAPOUT **Container Type:** GALLON **Route Utilized:** NOT LISTED	NOT LISTED					
	TOMBSTONE HELICS **Container Type:** GALLON **Route Utilized:** NOT LISTED	NOT LISTED					
	TOP GUARD EQ **Container Type:** NOT LISTED **Route Utilized:** NOT LISTED	NOT LISTED					
	TRIZMET II **Container Type:** GALLON **Route Utilized:** NOT LISTED	NOT LISTED					
	TUFF TRAZ **Container Type:** GALLON **Route Utilized:** NOT LISTED	NOT LISTED					
	WARHAWK (LORSBAN) **Container Type:** 2.5 GALLON **Route Utilized:** NOT LISTED	NOT LISTED					
	WEATHERGUARD DRIFT & FOAM REDUCER & WATER SOFTENER **Container Type:** NOT LISTED **Route Utilized:** NOT LISTED	NOT LISTED					
MANOR METALS, INC. dba PJ GRECO OF CLARION	**LIQUID OXYGEN** **Container Type:** TRUCK **Route Utilized:** INTERSTATE TORT 322					TWICE A YEAR	**NO**
PEOPLE'S NATURAL GAS COMPANY-LIMESTONE STATION	**PRODUCTION FLUIDS** **Container Type:** 3,000 GALLON **Route Utilized:** RT 66/ RT 28					ANNUALLY	**NO**
ST. PETERSBURG WATER COMPANY	**DELPAC** **Container Type:** 50 GAL DRUM **Route Utilized:** I-80 TO RT 478					QUARTERLY	**NO**
	SULPHURIC ACID **Container Type:** 50 GAL DRUM **Route Utilized:** I-80 TO RT 478					QUARTERLY	
	SODIUM HYPOCHLORITE **Container Type:** 15 GAL DRUM **Route Utilized:** I-80 TO RT 478					QUARTERLY	
	PROPANE **Container Type:** 500 GAL CYLINDER **Route Utilized:** I-80 TO RT 478					SEMI-ANNUAL	
TRM SUPPORT LTD	**FUEL AVIATION TURBINE ENGINE JET A COMBUSTIBLE FLUID III** **Container Type:** TANKER TRUCK **Route Utilized: 51-79N -80E-EXIT 68 PERKINS RD**					ANNUALLY	**NO**
VERIZON	**Verizon response to survey: Verizon does not ship any commodities and/or waste on a routine basis. Verizon;s**	N/A					

	inclusion on SARA reporting is due to the storage of diesel fuel (for emergency generators) and lead acid batteries used for back-up power at our switching sites. Therefore, Verizon will not be providing electronic information as requested.						
WINDSTREAM KNOX CENTRAL OFFICE	**SULFURIC ACID (SEALED BATTERIES)** **Container Type:** TRACTOR TRAILER **Route Utilized:** NOT LISTED					1/5+ YEARS	**NO**
WINDSTREAM NEW BETHLEHEM	**SULFURIC ASIC (SEALED BATTERIES)** **Container Type:** TRACTOR TRAILER **Route Utilized:** NOT LISTED					1/5+ YEARS	**NO**

* Note: ***Chemical Name*** Denotes "Extremely Hazardous Substances"

Participation in the covered facility information request was not a SARA Title III requirement; it was an effort by the Clarion County LEPC to gather data in addition to that which is reported on Tier II filings. The following facilities elected not to participate in the study at this time.

- Advanced Disposal of PA, Inc.
- Air Ground Express
- Brookfield Power – Piney Power
- Central Electric Cooperative
- Charles Machine, Inc.
- Clarion Boards, Inc.
- Corner Water Company
- Equitable Gas Company
- EQT Productions, LLC
- Exco Resources (PA), LLC
- Farmington Township Water Treatment
- Kahles Kitchens, Inc.
- Long Acres Potato Farm
- Matheson Tri-Gas, Inc.
- Peoples Natural Gas Company
- P. J. Greco, Inc.
- Rimersburg Boro Municipal Authority
- Satterlee & Sons, Inc.

- STAT MedEvac
- TruGreen
- Verizon Pennsylvania, Inc. (Clarion)
- Verizon Pennsylvania, Inc. (Leeper)
- Windstream Communications, Inc. (Knox)
- Windstream Communications, Inc. (New Bethlehem)

4.3 Conclusions

The following conclusions can be determined following the covered facilities analysis.

- The covered facilities analysis did not yield any additional EHS materials necessitating additional planning. Chlorine was the only EHS material noted in the covered facilities analysis, which was also recorded in the highway analysis.
- Generally, the highway analysis could predict the materials facing Clarion County responders; in other words, the facilities analysis – as presented in this report – did not significantly add to the overall list of materials.
- The following materials (that have a corresponding UN number) were noted in the covered facilities analysis, but not the highway analysis. NOTE: There were a number of trade-name materials noted that were not recorded specifically by the highway analysis. See Appendix 1.
  - Hydrofluorosilicic acid (UN 1778)
  - Hypochlorite (UN 1791)
  - Potassium permanganate (UN 1490)
  - Sodium bisulfite (UN 3260)

5.0 CONCLUSION

5.1 Conclusions

The following are conclusions that can be drawn regarding the transport, use, and storage of hazardous materials in Clarion County.

- A total of 165 different specifically-named materials are reflected in this commodity flow study.
  - 78 materials (47.2%) were identified only by the highway analysis.
  - 72 materials (43.6%) were identified only by the covered facility analysis.
  - Natural gas is the only material noted by the pipeline analysis.
  - Fifteen :Extremely Hazardous Substances" that require extraordinary planning and response considerations were recorded (as part of the total 165).

- In addition to those 165 materials above, a total of 10 other placards were recorded during the highway analysis that did not have a UN number:
  - Corrosive,
  - Explosives,
  - Flammable gas,
  - Flammable liquid,
  - Flammable solid,
  - Miscellaneous,
  - Non-flammable gas,
  - Oxidizer,
  - Radioactive, and
  - Toxic.

- As mentioned, approximately 47.2% of the specific materials sighted along roadways were not reported by any other analysis completed as part of this study. Therefore, it can be assumed that some of these materials simply "pass through" Clarion County and are bound for destinations in neighboring or other nearby counties. For this bulleted item, it is sufficient to realize that local responders may encounter incidents involving materials not used or stored in

Clarion County.

- As expected, based on data collected, hazardous material transport is overwhelmingly confined to Interstate 80 throughout Clarion County.

5.2 Recommendations

5.2.1 Update this flow study on a regular basis.

Vary the time of year that data is collected during future flow studies. The covered facilities that responded to the information request distributed as part of this study indicated that shipments occur at all times of the year. Some materials are only shipped three to six times per year; as such, it is extremely difficult to capture these infrequent shipments by monitoring roadways once throughout a calendar year. As this study is updated, planners should make an effort to vary data collection times in an effort to show shipping trends.

5.2.2 Conduct an in-depth hazardous material vulnerability assessment based on covered facilities and the areas surrounding them.

This study presents a brief list of materials used and/or stored at the covered facilities that report to the Clarion County. By design, this study only lists the materials that are present in the county. A detailed vulnerability assessment would characterize not only material presence, but also material quantities, at-risk populations, potential protective measures, etc. A detailed vulnerability assessment would be a companion to this document.

5.2.3 Ensure that responders are properly trained in the response to incidents involving flammable liquid and corrosive products.

In general, flammable liquids and corrosives are the frequently transported products in the county (as part of Classes 3 and 8). As such, they are the hazardous materials most likely to be involved in an incident. Responders should seek training to properly prepare themselves for such an incident.

5.2.4 Design emergency exercises that include hazardous materials recorded by this study.

Earlier recommendations in this report call for the need to properly train local

responders. A significant aspect of this preparedness is designing realistic exercises involving the materials they are likely to encounter. Training efforts are misspent if involving materials that responders are highly unlikely to see in a local incident.

5.2.5 Encourage covered facilities that use/store extremely hazardous substances to participate in emergency exercises.

Any facility that actively participates in emergency exercises enhances the overall preparedness in the study area. However, those facilities with EHS materials should be particularly encouraged to participate due to the EPA designation of the materials they use/store.

CLARION COUNTY COMMODITY FLOW STUDY
APPENDIX 1: HAZARDOUS MATERIALS IN CLARION COUNTY

APPENDIX 1

HAZARDOUS MATERIALS IN CLARION COUNTY

This appendix contains a complete list of all the hazardous materials identified in Clarion County, regardless of phase.

List if Chemicals	Highway	Fixed Facilities	Pipeline
2-4 Amine		X	
Acetic acid	X		
Acetone	X	X	
Acuron		X	
Adhesives	X		
Alcohol, n.o.s.	X		
Alcoholic beverages	X		
Aldehydes	X		
Alfalfa Inoculation		X	
Alkali metal alcholates	X		
Alkyl Sulfonic Acids	X		
All Clear		X	
Amines, solid	X		
Ammonia, Anhydrous	X		
Approach Prima		X	
Aqua-Mag		X	
Aquaserve		X	
Argon, Refrigerated Liquid	X		
Atrazine		X	
Avipel Seed Treatment		X	
BA Sagran		X	
Badge SC		X	
Banvel/Rifle		X	
Batteries, wet, filled with acid	X		
Belt Release		X	
Benzyl chloride	X		
Blackhawk Nayuralyte		X	
Butoxone 200/Butyrac200		X	
Cabinet Finish		X	
Carbon Dioxide	X		

List if Chemicals	Highway	Fixed Facilities	Pipeline
Cell Tec		X	
Chemical kit	X	X	
Chlorine	X	X	
Chlorothalonil 720		X	
Cimarron		X	
CL 981 Polymer		X	
Coal Tar Distillates	X		
Combustible Liquid, n.o.s.	X		
Condesate		X	
Coragen		X	
Corrosive liquid, acidic	X		
Corrosive Solid, Basic, Inorganic	X		
Cresols, liquid	X		
Cruiser 5FS		X	
D2 Sanifect		X	
Degree Extra		X	
Delpac		X	
Delpac 2020 Polymer		X	
Denatured alcohol	X		
Dichloromethane	X		
Diesel	X	X	
Difluorophosphoric Acid, Anhydrous	X		
Dimethyl Carbonate	X		
Dureango DMA		X	
Dyne-Amic		X	
Elevated temp liquid	X		
Env. Haz. Substances, Solid, n.o.s.	X		
Ethanol/Gasoline Mix	X		
Ethyl Bromide	X		
Ethyl phosphonothioic	X		
Explorer		X	
Explosive	X		
Explosive, Blasting, Type E	X		
Flammable Liquid, n.o.s.	X		
Fuel Aviation Engine Jet A Fluid		X	
Fultime NXT		X	
Fusee (railway or highway)	X		
Gasoline	X		

List if Chemicals	Highway	Fixed Facilities	Pipeline
Gel Coat		X	
Goal		X	
Graphex Seed Coating		X	
Grazon HL		X	
Halex GT		X	
Hazardous waste, liquid, n.o.s.	X		
Hazardous waste, solid, n.o.s.	X		
Helena Chemicals		X	
Helium	X		
Helium, refrigerated	X		
Herbimax Crop Oil		X	
Hydrocarbons, liquid, n.o.s.	X		
Hydrochloric acid	X		
Hydrogen peroxide	X		
Hydrogen, compressed	X		
Hypochlorite solutions	X	X	
Induce		X	
Initiate 720		X	
Isobutanol	X		
Isopropenylbenzene	X		
Isospropyl chloroformate	X		
Kerosene	X		
Keystone NXT		X	
L1700 Love		X	
Lannate SP		X	
Lift RT Alkaline Cleaner		X	
Liquid Asphalt		X	
Liquid Natural Gas			X
Liquid Oxygen		X	
Lorox DF 20 Dupont		X	
Lorsban		X	
Low Tox Hydraulic Fluid		X	
Manzate Pro Stick		X	
MCPA		X	
MDI		X	
Medal 11 EC		X	
Medal ATZ II		X	
Medal EC		X	

List if Chemicals	Highway	Fixed Facilities	Pipeline
Methacrylic acid	X		
Methanol	X	X	
Methyl chloride	X		
Methyl Ethyl Ketone Peroxide		X	
Metribuzin 75 DF		X	
Nitric acid	X		
Nitrogen	X	X	
Nitrogen trifluoride	X		
Nitrogen, Refrigerated Liquid	X		
Nitrohydrochloric acid	X		
Octanes	X		
Off-Road Diesel Fuel		X	
Organic peroxide type D	X		
Oxygen		X	
Paint	X		
Pentanols	X		
Perfumery products	X		
Permethrin 3.2 EC		X	
Permit 75 DF		X	
Petroleum	X		
Petroleum crude oil	X		
Petroleum distillates	X		
Petroleum Gas Liquid	X		
Phenolsulfonic Acid, liquid	X		
Phosphoric Acid	X		
Phosphorus pentasulfide	X		
Polyester Resin		X	
Polymeric Beads	X		
Potassium hydroxide	X		
Potassium Peranganate		X	
Powder Floor Conditioner		X	
Printing Ink	X		
Pristine		X	
Production Fluids		X	
Propane		X	
Propylene	X		
Quorum Yellow		X	
Raptor		X	

List if Chemicals	Highway	Fixed Facilities	Pipeline
Resicore Herbicde Dow		X	
Resin solution	X	X	
Resolve Q		X	
Revulin Q		X	
Ridomill Gold		X	
Roper		X	
Round-up Max		X	
Roundup Original Max		X	
Roundup Weathermanmax		X	
Self-heating solid	X		
Sniper		X	
Soda Ash		X	
Sodium hydroxide solution	X	X	
Sodium Hypochlorite		X	
Sodium Standards		X	
Sonic		X	
Strategy		X	
Sulphuric Acid		X	
Sure Start		X	
Sure Start II		X	
Talstar Professional		X	
Tapout		X	
Terpinolene	X		
Thioglycol	X		
Tombstone Helics		X	
Top Guard EQ		X	
Trizmet II		X	
Tuff Traz		X	
ULTRA LOW SULFUR DIESEL		X	
UREA		X	
Vinyl acetate	X		
Wax		X	
Weatherguard Drift & Foam Reducer		X	

CLARION COUNTY COMMODITY FLOW STUDY
APPENDIX 2: HIGHWAY MONITORING SITES

APPENDIX 2
HIGHWAY MONITORING SITE DATA

This appendix contains detailed information regarding the monitoring sites observed as part of this project.

- Interstate 80 at MM 45
- Interstate 80 at MM 53
- Interstate 80 at MM 62
- Interstate 80 at MM 67
- PA 28 and PA 66 (New Bethlehem)
- PA 36 and PA 66 (Leeper)
- PA 68 and PA 368 (Sligo)
- PA 68 (East Brady)
- PA 208 and UA 322 (Shippenville)

Where applicable, the site profiles below contain the most recent Pennsylvania Department of Transportation (PennDOT) traffic count information (2020) for that highway. The figure presented represents the total traffic through that site in an average 24-hour period. For comparison, planners mathematically estimated the hazardous material figures for each site for 24-hour intervals and then presented an estimated percentage of traffic carrying hazardous materials through a site in an average 24-hour period.

INTERSTATE 80 @ MM 45

Date: November 8, 2020

Interstate 80 (near Mile Marker 45)

Time: 3:30 p.m. ***Interval:*** 3 hours

Monitor: Traffic eastbound on I-80

Weather: Sunny, 52°

Special Considerations: *N/A*

Trucks Carrying Haz-Mat

Trucks may have multiple placards

Trailer Type	*Totals*	*% of Total*
111	3	0.4%
117	1	0.1%
131	2	0.3%
134	0	0.0%
137	3	0.4%
Other	0	0.0%

UN No.	*Class*	*Name*	*Total*	*% of All Placards*
332	1	Explosive, Blasting, Type E	1	8.3%
1203	3	Gasoline	2	16.7%
1803	8	Phenolsulfonic Acid, liquid	1	8.3%
1993	3	Combustible Liquid, n.o.s.	1	8.3%

General Placards	*Totals*	*% of All Placards*
Corrosive	2	16.7%
Explosives	1	8.3%
Flamm Liquid	2	16.7%
Miscellaneous	1	8.3%
Oxidizer	1	8.3%

Site Summary Data

Total Haz-Mat:	12
Unique Placards (#):	9
Total Truck Traffic:	728
% w/ Placard:	1.6%
PennDOT Count:	24000
24 hr-Trucks Calc:	8736
24-hr Haz Calc:	144
Est Haz per hr:	6
% Haz per 24-hr:	0.6%

Hazard Classes

1-Explosives:	2	16.7%
2-Gases:	0	0.0%
3-Flamm. Liquids:	5	41.7%
4-Flamm. Solids:	0	0.0%
5-Oxidizers:	1	8.3%
6-Toxics:	0	0.0%
7-Radioactives:	0	0.0%
8-Corrosives:	3	25.0%
9-Miscellaneous:	1	8.3%

Date: November 9, 2020

Time: 7:30 a.m. **Interval:** 4 hours

Interstate 80 (near Mile Marker 45)

Monitor: *All traffic, both directions*

Weather: Sunny, 42°

Special Considerations: *N/A*

Trucks Carrying Haz-Mat

Trucks may have multiple placards

Trailer Type	*Totals*	*% of Total*
111	30	2.2%
117	8	0.6%
131	3	0.2%
134	0	0.0%
137	22	1.6%
Other	5	0.4%

UN No.	*Class*	*Name*	*Total*	*% of All Placards*
1049	2	Hydrogen, compressed	1	1.7%
1075	2	Petroleum	2	3.4%
1105	3	Pentanols	1	1.7%
1136	3	Coal Tar Distillates	1	1.7%
1203	3	Gasoline	1	1.7%
1223	3	Kerosene	1	1.7%
1789	8	Hydrochloric acid	1	1.7%
1814	8	Potassium hydroxide	1	1.7%
1866	3	Resin solution	5	8.5%
1963	9	Helium, refrigerated	1	1.7%
1977	9	Nitrogen	2	3.4%
1987	3	Alcohol, n.o.s.	1	1.7%
2541	2	Terpinolene	1	1.7%
3077	9	Hazardous Waste, solid	4	6.8%
3082	9	lazardous waste, liqui	9	15.3%
3257	9	ed temperature liquid	4	6.8%
3264	8	Corrosive liquid, acidi	1	1.7%

General Placards	*Totals*	*% of All Placards*
Flamm Solid	12	20.3%
Flamm Liquid	6	10.2%
Oxidizer	1	1.7%
Corrosive	5	8.5%
Flamm Gas	5	8.5%
Non-Flamm Gas	5	8.5%
Miscellaneous	2	

Site Summary Data

Total Haz-Mat:	59
Unique Placards (#):	23
Total Truck Traffic:	1355
% w/ Placard:	4.4%
PennDOT Count:	24000
24 hr-Trucks Calc:	8130
24-hr Haz Calc:	708
Est Haz per hr:	30
% Haz per 24-hr:	3.0%

Hazard Classes

1-Explosives:	0	0.0%
2-Gases:	14	23.7%
3-Flamm. Liquids:	16	27.1%
4-Flamm. Solids:	12	20.3%
5-Oxidizers:	1	1.7%
6-Toxics:	0	0.0%
7-Radioactives:	0	0.0%
8-Corrosives:	8	13.6%
9-Miscellaneous:	22	37.3%

Date: November 11, 2020

Time: 8:00 a.m. **Interval:** 4 hours

Interstate 80 (near Mile Marker 45)

Monitor: Traffic eastbound on I-80

Weather: Rain, 59°

Special Considerations: N/A

Trucks Carrying Haz-Mat

Trucks may have multiple placards

Trailer Type	Totals	% of Total
111	36	1.7%
117	5	0.2%
131	2	0.1%
134	0	0.0%
137	26	1.2%
Other	11	0.5%

Site Summary Data

Total Haz-Mat:	80
Unique Placards (#):	28
Total Truck Traffic:	2174
% w/ Placard:	3.7%
PennDOT Count:	24000
24 hr-Trucks Calc:	13044
24-hr Haz Calc:	480
Est Haz per hr:	20
% Haz per 24-hr:	2.0%

Hazard Classes

1-Explosives:	1	1.3%
2-Gases:	14	17.5%
3-Flamm. Liquids:	21	26.3%
4-Flamm. Solids:	5	6.3%
5-Oxidizers:	0	0.0%
6-Toxics:	0	0.0%
7-Radioactives:	0	0.0%
8-Corrosives:	16	20.0%
9-Miscellaneous:	7	8.8%

UN No.	Class	Name	Total	% of All Placards
1049	2	Hydrogen, compressed	1	1.3%
1075	2	Petroleum	3	3.8%
1203	3	Gasoline	1	1.3%
1230	3	Methanol	1	1.3%
1267	3	Petroleum crude oil	3	3.8%
1268	3	Petroleum distillates, n.o.s.	2	2.5%
1301	9	Vinyl acetate	1	1.3%
1593	9	Dichloromethane	1	1.3%
1760	8	Chemical kit	1	1.3%
1798	8	Nitrohydrochloric acid	1	1.3%
1824	8	Sodium hydroxide solution	1	1.3%
1866	3	Resin solution	1	1.3%
1963	2	Helium	1	1.3%
1977	2	Nitrogen	1	1.3%
1987	3	Denatured alcohol	1	1.3%
1993	3	ombustible liquid, n.o.	2	2.5%
2031	8	Nitric acid	1	1.3%
3077	9	ardous waste, solid, n	5	6.3%
3082	9	rdous waste, liquid, n	5	6.3%
3088	9	Self-heating solid	1	1.3%
3295	3	drocarbons, liquid, n.(	1	1.3%

General Placards	Totals	% of All Placards
Explosives	1	1.3%
Flamm Gas	4	5.0%
Non-Flamm Gas	4	5.0%
Flamm Liquid	13	16.3%
Flamm Solid	5	6.3%
Corrosive	13	16.3%
Miscellaneous	5	6.3%

Date: November 12, 2020

Time: 7:30 a.m. **Interval:** 4 hours

Interstate 80 (near Mile Marker 45)

Monitor: Traffic both directions

Weather: Sunny, 78°

Special Considerations: N/A

Trucks Carrying Haz-Mat

Trailer Type	Totals	% of Total
111	35	1.5%
117	4	0.2%
131	8	0.4%
134	0	0.0%
137	19	0.8%
Other	11	0.5%

Site Summary Data	
Total Haz-Mat:	77
Unique Placards (#):	26
Total Truck Traffic:	2284
% w/ Placard:	3.4%
PennDOT Count:	24000
24 hr-Trucks Calc:	13704
24-hr Haz Calc:	616
Est Haz per hr:	26
% Haz per 24-hr:	2.6%

Hazard Classes		
1-Explosives:	1	1.3%
2-Gases:	15	19.5%
3-Flamm. Liquids:	28	36.4%
4-Flamm. Solids:	6	7.8%
5-Oxidizers:	0	0.0%
6-Toxics:	3	3.9%
7-Radioactives:	0	0.0%
8-Corrosives:	11	14.3%
9-Miscellaneous:	13	16.9%

UN No.	Class	Name	Total	% of All Placards
1075	2	Petroleum	2	2.6%
1203	3	Gasoline	2	2.6%
1262	3	Octanes	1	1.3%
1266	3	Perfumery products	1	1.3%
1267	3	Petroleum crude oil	1	1.3%
1268	3	Petroleum distillates	2	2.6%
1340	2	Phosphorus pentasulfide	1	1.3%
1790	8	Hydrofluoric acid >60%	1	1.3%
1866	3	Resin solution	3	3.9%
1993	3	Combustible liquid, n.o.s.	7	9.1%
2794	8	Batteries, wet, filled with acid	1	1.3%
2927	6	Ethyl phosphonothioic	2	2.6%
3062	9		1	1.3%
3077	9	Hazardous waste, solid	3	3.9%
3082	9	Hazarous waste, liquic	2	2.6%
3206	3	Alkali metal alcholates	1	1.3%
3257	9	Elevated temp liquid	4	5.2%
3295	3	drocarbons, liquid, n.c	1	1.3%

General Placards	Totals	% of All Placards
Flamm Liquid	9	11.7%
Explosives	1	1.3%
Miscellaneous	3	3.9%
Flamm Gas	6	7.8%
Non-Flamm Gas	6	7.8%
Poison	1	1.3%
Corrosive	9	11.7%
Flamm Solid	6	7.8%

INTERSTATE 80 @ MM53

Date: November 9, 2020

Time: *7:30* a.m. **Interval:** 4 hours

Interstate 80 (near Mile Marker 53)

Monitor: Traffic eastbound and westbound on I-80

Weather: Sunny, 41°

Special Considerations: *N/A*

Trucks Carrying Haz-Mat

Trucks may have multiple placards

Trailer Type	*Totals*	*% of Total*
111	29	2.1%
117	8	0.6%
131	3	0.2%
134	0	0.0%
137	24	1.8%
Other	4	0.3%

UN No.	*Class*	*Name*	*Total*	*% of All Placards*
1049	2	Hydrogen, compressed	1	1.6%
1075	2	Petroleum	4	6.3%
1105	3	Pentanols	1	1.6%
1136	3	Coal Tar Distillates	1	1.6%
1203	3	Gasoline	1	1.6%
1223	3	Kerosene	1	1.6%
1789	8	Hydrochloric acid	1	1.6%
1814	8	Potassium hydroxide	1	1.6%
1866	3	Resin solution	4	6.3%
1963	9	Helium, refrigerated	1	1.6%
1977	9	Nitrogen	2	3.2%
1987	3	Alcohol, n.o.s.	1	1.6%
2541	2	Terpinolene	1	1.6%
3077	9	Hazardous Waste, solid	4	6.3%
3082	9	lazardous waste, liqui	9	14.3%
3257	9	ed temperature liquid	4	6.3%
3264	8	Corrosive liquid, acidi	1	1.6%
1017	8	Chlorine	1	1.6%

General Placards	*Totals*	*% of All Placards*
Flamm Solid	13	20.6%
Flamm Liquid	6	9.5%
Oxidizer	1	1.6%
Corrosive	5	7.9%
Flamm Gas	5	7.9%
Non-Flamm Gas	5	7.9%
Miscellaneous	4	6.3%

Site Summary Data

Total Haz-Mat:	63
Unique Placards (#):	23
Total Truck Traffic:	1355
% w/ Placard:	4.6%
PennDOT Count:	26000
24 hr-Trucks Calc:	8130
24-hr Haz Calc:	756
Est Haz per hr:	32
% Haz per 24-hr:	2.9%

Hazard Classes

1-Explosives:	0	0.0%
2-Gases:	16	25.4%
3-Flamm. Liquids:	15	23.8%
4-Flamm. Solids:	13	20.6%
5-Oxidizers:	1	1.6%
6-Toxics:	0	0.0%
7-Radioactives:	0	0.0%
8-Corrosives:	8	12.7%
9-Miscellaneous:	24	38.1%

Date: November 11, 2020

Time: 8:00 a.m. **Interval:** 4 hours

Interstate 80 (near Mile Marker 53)

Monitor: Traffic eastbound and westbound on I-80

Weather: Rain, 59°

Special Considerations: N/A

Trucks Carrying Haz-Mat

Trucks may have multiple placards

Trailer Type	*Totals*	*% of Total*
111	36	1.7%
117	5	0.2%
131	2	0.1%
134	0	0.0%
137	22	1.0%
Other	10	0.5%

Site Summary Data	
Total Haz-Mat:	75
Unique Placards (#):	28
Total Truck Traffic:	2169
% w/ Placard:	3.5%
PennDOT Count:	26000
24 hr-Trucks Calc:	13014
24-hr Haz Calc:	450
Est Haz per hr:	19
% Haz per 24-hr:	1.7%

Hazard Classes		
1-Explosives:	1	1.3%
2-Gases:	11	14.7%
3-Flamm. Liquids:	21	28.0%
4-Flamm. Solids:	5	6.7%
5-Oxidizers:	0	0.0%
6-Toxics:	0	0.0%
7-Radioactives:	0	0.0%
8-Corrosives:	14	18.7%
9-Miscellaneous:	7	9.3%

UN No.	*Class*	*Name*	*Total*	*% of All Placards*
1049	2	Hydrogen, compressed	1	1.3%
1075	2	Petroleum	2	2.7%
1203	3	Gasoline	1	1.3%
1230	3	Methanol	1	1.3%
1267	3	Petroleum crude oil	1	1.3%
1268	3	Petroleum distillates, n.o.s.	2	2.7%
1301	9	Vinyl acetate	1	1.3%
1593	9	Dichloromethane	1	1.3%
1760	8	Chemical kit	1	1.3%
1798	8	Nitrohydrochloric acid	1	1.3%
1824	8	Sodium hydroxide solution	1	1.3%
1866	3	Resin solution	1	1.3%
1963	2	Helium	1	1.3%
1977	2	Nitrogen	1	1.3%
1987	3	Denatured alcohol	1	1.3%
1993	3	Combustible liquid, n	2	2.7%
2031	8	Nitric acid	1	1.3%
3077	9	ardous waste, solid, n	5	6.7%
3082	9	ardous waste, liquid, n	5	6.7%
3088	9	Self-heating solid	1	1.3%
3295	3	Hydrocarbons, liquid,	1	1.3%

General Placards	*Totals*	*% of All Placards*
Explosives	1	1.3%
Flamm Gas	3	4.0%
Non-Flamm Gas	3	4.0%
Flamm Liquid	15	20.0%
Flamm Solid	5	6.7%
Corrosive	11	14.7%
Miscellaneous	5	6.7%

Date: November 12, 2020

Time: 7:30 a.m. **Interval:** 4 hours

Interstate 80 (near Mile Marker 53)

Monitor: Traffic eastbound on I-80

Weather: Sunny, 45°

Special Considerations: Traffic moving very slow, sometimes stopping

Trucks Carrying Haz-Mat

Trucks may have multiple placards

Trailer Type	Totals	% of Total
111	13	1.1%
117	3	0.3%
131	0	0.0%
134	0	0.0%
137	14	1.2%
Other	2	0.2%

Site Summary Data

Total Haz-Mat:	37
Unique Placards (#):	22
Total Truck Traffic:	1158
% w/ Placard:	3.2%
PennDOT Count:	26000
24 hr-Trucks Calc:	6948
24-hr Haz Calc:	222
Est Haz per hr:	9
% Haz per 24-hr:	0.9%

Hazard Classes

1-Explosives:	0	0.0%
2-Gases:	1	2.7%
3-Flamm. Liquids:	17	45.9%
4-Flamm. Solids:	3	8.1%
5-Oxidizers:	1	2.7%
6-Toxics:	0	0.0%
7-Radioactives:	0	0.0%
8-Corrosives:	8	21.6%
9-Miscellaneous:	5	13.5%

UN No.	Class	Name	Total	% of All Placards
1161	3	Dimethyl Carbonate	1	2.7%
1210	3	Printing Ink	1	2.7%
1212	3	Isobutanol	1	2.7%
1230	3	Methanol	1	2.7%
1263	3	Paint	1	2.7%
1268	3	Petroleum Distillates, n.o.s.	1	2.7%
1340	4	Phosphorus Pentasulfide	1	2.7%
1824	8	Sodium Hydroxide, Solution	1	2.7%
1866	3	Resin Solution, Flammable	2	5.4%
1977	2	Nitrogen, Refrigerated Liquid	1	2.7%
1993	3	Combustible Liquid, n.o.s.	5	13.5%
2211	9	Polymeric Beads	1	2.7%
2303	3	Isopropenylbenzene	1	2.7%
2586	8	Alkyl Sulfonic Acids	1	2.7%
3077	9	Env. Haz. Substances, Solid, n.o.s.	1	2.7%
3082	9	Env. Haz. Substances, Liquid, n.o.s.	2	5.4%
3257	9	Elevated Temp. Liquid, n.o.s.	1	2.7%
3266	8	Corrosive Liquid, Basic, Inorganic	2	5.4%
1075	2	Petroleum	1	2.7%
1203	3	Gasoline	1	2.7%

General Placards	Totals	% of All Placards
Corrosive	4	10.8%
Flamm Liquid	3	8.1%
Flamm Solid	2	5.4%
Oxidizer	1	2.7%

INTERSTATE 80 @ MM62

Date: November 9, 2020

Time: 1:00 p.m. ***Interval:*** 4 hours

Interstate 80 (near Mile Marker 62)

Monitor: Traffic east/west on I-80

Weather: Sunny, 62°

Special Considerations: N/A

Trucks Carrying Haz-Mat

Trucks may have multiple placards

Trailer Type	*Totals*	*% of Total*
111	36	1.7%
117	8	0.4%
131	0	0.0%
134	0	0.0%
137	22	1.0%
Other	5	0.2%

UN No.	*Class*	*Name*	*Total*	*% of All Placards*
1075	2	Petroleum	2	2.5%
1077	2	Propylene	1	1.3%
1203	3	Gasoline	1	1.3%
1789	8	Hydrochloric acid	2	2.5%
1866	3	Resin solution	4	5.1%
1977	9	Nitrogen	3	3.8%
1988	3	Aldehydes	1	1.3%
1993	3	Combustible liquid, n.o.s.	1	1.3%
3077	9	Hazardous waste, solid, n.o.s.	3	3.8%
3257	9	Elevated temperature liquid, n.o.s.	8	10.1%

General Placards	*Totals*	*% of All Placards*
Explosives	2	2.5%
Flamm Gas	7	8.9%
Non-Flamm Gas	7	8.9%
Flamm Liquid	15	19.0%
Flamm Solid	5	6.3%
Corrosive	14	17.7%
Miscellaneous	3	3.8%

Site Summary Data

Total Haz-Mat:	79
Unique Placards (#):	17
Total Truck Traffic:	2166
% w/ Placard:	3.6%
PennDOT Count:	28000
24 hr-Trucks Calc:	25992
24-hr Haz Calc:	474
Est Haz per hr:	20
% Haz per 24-hr:	1.7%

Hazard Classes

1-Explosives:	2	2.5%
2-Gases:	17	21.5%
3-Flamm. Liquids:	22	27.8%
4-Flamm. Solids:	5	6.3%
5-Oxidizers:	0	0.0%
6-Toxics:	0	0.0%
7-Radioactives:	0	0.0%
8-Corrosives:	16	20.3%
9-Miscellaneous:	17	21.5%

Date: November 11, 2020

Time: 2:30 p.m. **Interval:** 4 hours

Interstate 80 (near Mile Marker 62)

Monitor: Traffic both east and westbound on I-80

Weather: Sunny, 65°

Special Considerations: *N/A*

Trucks Carrying Haz-Mat

Trucks may have multiple placards

Trailer Type	*Totals*	*% of Total*
111	45	2.0%
117	7	0.3%
131	1	0.0%
134	0	0.0%
137	12	0.5%
Other	1	0.0%

Site Summary Data	
Total Haz-Mat:	95
Unique Placards (#):	29
Total Truck Traffic:	2201
% w/ Placard:	4.3%
PennDOT Count:	25000
24 hr-Trucks Calc:	13206
24-hr Haz Calc:	570
Est Haz per hr:	24
% Haz per 24-hr:	2.3%

Hazard Classes		
1-Explosives:	0	0.0%
2-Gases:	19	20.0%
3-Flamm. Liquids:	33	34.7%
4-Flamm. Solids:	10	10.5%
5-Oxidizers:	1	1.1%
6-Toxics:	1	1.1%
7-Radioactives:	1	1.1%
8-Corrosives:	15	15.8%
9-Miscellaneous:	6	6.3%

UN No.	*Class*	*Name*	*Total*	*% of All Placards*
1075	2	Petroleum	2	2.1%
1133	3	Adhesives	1	1.1%
1203	3	Gasoline	1	1.1%
1230	3	Methanol	1	1.1%
1268	3	Petroleum distillates	2	2.1%
1789	8	Hydrochloric acid	1	1.1%
1791	8	Hypochlorite solutions	3	3.2%
1977	9	Nitrogen	1	1.1%
1988	3	Aldehydes	1	1.1%
2076	6	Cresols, liquid	1	1.1%
2407	9	Isospropyl chloroformate	4	4.2%
2451	2	Nitrogen trifluoride	1	1.1%
2531	8	Methacrylic acid	2	2.1%
2789	8	Acetic acid	1	1.1%
2966	6	Thioglycol	2	2.1%
3065	3	Alcoholic beverages	1	1.1%
3077	9	ardous waste, solid, n	1	1.1%
3082	9	ardous waste, liquid, r	1	1.1%
3105	2	rganic peroxide type	2	2.1%
3257	9	Elevated temp. liquid	1	1.1%
3259	8	Amines, solid	1	1.1%

General Placards	*Totals*	*% of All Placards*
Flamm Gas	8	8.4%
Non-Flamm Gas	8	8.4%
Flamm Liquid	27	28.4%
Flamm Solid	10	10.5%
Oxidizer	1	1.1%
Radioactive	1	1.1%
Corrosive	8	8.4%
Miscellaneous	1	1.1%

Date: Novmber 12, 2020

Time: 1 2:00 p.m. **Interval:** 4 hours

Interstate 80 (near Mile Marker 62)

Monitor: Traffic eastbound and westbound I-80

Weather: Sunny, 46°

Special Considerations: N/A

Trucks Carrying Haz-Mat

Trucks may have multiple placards

Trailer Type	*Totals*	*% of Total*
111	48	2.3%
117	4	0.2%
131	3	0.1%
134	0	0.0%
137	14	0.7%
Other	6	0.3%

UN No.	*Class*	*Name*	*Total*	*% of All Placards*
1075	2	Petroleum	3	3.5%
1203	3	Gasoline	3	3.5%
1268	3	Petroleum distillates, n.o.s.	1	1.2%
1738	8	Benzyl chloride	1	1.2%
1789	8	Hydrochloric acid	2	2.3%
1824	8	Sodium hydroxide solution	1	1.2%
1977	2	Nitrogen	2	2.3%
1993	3	Combustible liquid, n.o.s.	1	1.2%
2014	2	Hydrogen peroxide	1	1.2%
2031	8	Nitric acid	1	1.2%
3077	9	Hazardous waste, solid, n.o.s.	3	3.5%
3082	9	Hazardous waste, liquid, n.o.s.	1	1.2%
3257	9	Elevated temp. liquid	3	3.5%

General Placards	*Totals*	*% of All Placards*
Flamm Gas	11	12.8%
Non-Flamm Gas	11	12.8%
Flamm Liquid	7	8.1%
Flamm Solid	13	15.1%
Poison	1	1.2%
Corrosive	18	20.9%
Corrosive	2	2.3%

Site Summary Data

Total Haz-Mat:	86
Unique Placards (#):	20
Total Truck Traffic:	2093
% w/ Placard:	4.1%
PennDOT Count:	28000
24 hr-Trucks Calc:	12558
24-hr Haz Calc:	516
Est Haz per hr:	22
% Haz per 24-hr:	1.8%

Hazard Classes

1-Explosives:	0	0.0%
2-Gases:	28	32.6%
3-Flamm. Liquids:	12	14.0%
4-Flamm. Solids:	13	15.1%
5-Oxidizers:	0	0.0%
6-Toxics:	1	1.2%
7-Radioactives:	0	0.0%
8-Corrosives:	25	29.1%
9-Miscellaneous:	7	8.1%

INTERSTATE 80 @ MM 67

Date: November 8, 2020

Time: 3:30 p.m. ***Interval:*** 3 hours

Interstate 80 (near Mile Marker 67)

Monitor: *All t* raffic both directions on I-80

Weather: Sunny, 77°

Special Considerations: *N/A*

Trucks Carrying Haz-Mat

Trucks may have multiple placards

Trailer Type	*Totals*	*% of Total*	*UN No.*	*Class*	*Name*	*Total*	*% of All Placards*	*General Placards*	*Totals*	*% of All Placards*
111	0	0.0%	1090	3	Acetone	1	20.0%	Miscellaneous	1	20.0%
117	0	0.0%	1203	3	Gasoline	1	20.0%			
131	1	0.1%	3032	9		1	20.0%			
134	0	0.0%	3257	9	Elevated Temp Liquid	1	20.0%			
137	4	0.4%								
Other	0	0.0%								

Site Summary Data

Total Haz-Mat:	5
Unique Placards (#):	5
Total Truck Traffic:	966
% w/ Placard:	0.5%
PennDOT Count:	25000
24 hr-Trucks Calc:	11592
24-hr Haz Calc:	60
Est Haz per hr:	3
% Haz per 24-hr:	0.2%

Hazard Classes

1-Explosives:	0	0.0%
2-Gases:	0	0.0%
3-Flamm. Liquids:	2	40.0%
4-Flamm. Solids:	0	0.0%
5-Oxidizers:	0	0.0%
6-Toxics:	0	0.0%
7-Radioactives:	0	0.0%
8-Corrosives:	0	0.0%
9-Miscellaneous:	3	60.0%

Date: November 9, 2020

Time: 7:30 a.m. **Interval:** 4 hours

Interstate 80 (near Mile Marker 67)

Monitor: Traffic eastbound on I-80

Weather: Partly sunny, 62°

Special Considerations: N/A

Trucks Carrying Haz-Mat

Trucks may have multiple placards

Trailer Type	*Totals*	*% of Total*
111	11	1.2%
117	3	0.3%
131	2	0.2%
134	0	0.0%
137	13	1.4%
Other	1	0.1%

UN No.	*Class*	*Name*	*Total*	*% of All Placards*
1005	2	Ammonia, Anhydrous	1	3.3%
1090	3	Acetone	1	3.3%
1203	3	Gasoline	1	3.3%
1325	4	Fusee (railway or highway)	1	3.3%
1768	8	Difluorophosphoric Acid, Anhydrous	1	3.3%
1789	8	Hydrochloric Acid	1	3.3%
1805	8	Phosphoric Acid	1	3.3%
1824	8	Sodium Hydroxide, Solution	1	3.3%
1951	2	Argon, Refrigerated Liquid	1	3.3%
1993	3	Combustible Liquid, n.o.s.	4	13.3%
2031	8	Nitric Acid	2	6.7%
3082	9	Env. Haz. Substance, Liquid	2	6.7%
3257	9	Elevated Temp. Liquid, n.o.s.	1	3.3%
3262	8	Corrosive Solid, Basic, Inorganic	2	6.7%
3266	8	Corrosive Liquid, Basic, Inorganic	1	3.3%
3475	3	Ethanol/Gasoline Mix	1	3.3%

General Placards	*Totals*	*% of All Placards*
Corrosive	1	3.3%
Explosives	1	3.3%
Flamm Liquid	2	6.7%
Flamm Solid	2	6.7%
Miscellaneous	2	6.7%

Site Summary Data

Total Haz-Mat:	30
Unique Placards (#):	21
Total Truck Traffic:	944
% w/ Placard:	3.2%
PennDOT Count:	25000
24 hr-Trucks Calc:	5664
24-hr Haz Calc:	180
Est Haz per hr:	8
% Haz per 24-hr:	0.7%

Hazard Classes

1-Explosives:	1	3.3%
2-Gases:	2	6.7%
3-Flamm. Liquids:	9	30.0%
4-Flamm. Solids:	3	10.0%
5-Oxidizers:	0	0.0%
6-Toxics:	0	0.0%
7-Radioactives:	0	0.0%
8-Corrosives:	10	33.3%
9-Miscellaneous:	5	16.7%

Date: November 11, 2020

Time: 1:30 a.m. **Interval:** 4 hours

Interstate 80 (near Mile Marker 67)

Monitor: Traffic eastbound on I-80

Weather: Cloudy, 65°

Special Considerations: N/A

Trucks Carrying Haz-Mat

Trucks may have multiple placards

Trailer Type	*Totals*	*% of Total*
111	45	2.8%
117	7	0.4%
131	1	0.1%
134	0	0.0%
137	12	0.7%
Other	1	0.1%

Site Summary Data	
Total Haz-Mat:	69
Unique Placards (#):	28
Total Truck Traffic:	1614
% w/ Placard:	4.3%
PennDOT Count:	25000
24 hr-Trucks Calc:	9684
24-hr Haz Calc:	414
Est Haz per hr:	17
% Haz per 24-hr:	1.7%

Hazard Classes		
1-Explosives:	0	0.0%
2-Gases:	8	11.6%
3-Flamm. Liquids:	19	27.5%
4-Flamm. Solids:	10	14.5%
5-Oxidizers:	1	1.4%
6-Toxics:	1	1.4%
7-Radioactives:	0	0.0%
8-Corrosives:	15	21.7%
9-Miscellaneous:	6	8.7%

UN No.	*Class*	*Name*	*Total*	*% of All Placards*
1063	2	Methyl chloride	1	1.4%
1133	3	Adhesives	1	1.4%
1203	3	Gasoline	1	1.4%
1230	3	Methanol	1	1.4%
1268	3	Petroleum distillates	2	2.9%
1789	8	Hydrochloric acid	1	1.4%
1791	8	Hypochlorite solutions	3	4.3%
1977	9	Nitrogen	1	1.4%
1993	3	Combustible liquid, n.o.s.	1	1.4%
2076	6	Cresols, liquid	1	1.4%
2407	9	Isospropyl chloroformate	4	5.8%
2451	2	Nitrogen trifluoride	1	1.4%
2531	8	Methacrylic acid	2	2.9%
2789	8	Acetic acid	1	1.4%
2966	6	Thioglycol	2	2.9%
3065	3	Alcoholic beverages	1	1.4%
3077	9	ardous waste, solid, n	1	1.4%
3082	9	rdous waste, liquid, r	1	1.4%
3105	2	rganic peroxide type	2	2.9%
3257	9	Elevated temp. liquid	1	1.4%
3259	8	Amines, solid	1	1.4%

General Placards	*Totals*	*% of All Placards*
Flamm Gas	3	4.3%
Non-Flamm Gas	3	4.3%
Flamm Liquid	13	18.8%
Flamm Solid	10	14.5%
Oxidizer	1	1.4%
Corrosive	8	11.6%
Miscellaneous	1	1.4%

Date: Novmber 12, 2020

Time: 1 2:00 p.m. **Interval:** 4 hours

Interstate 80 (near Mile Marker 67)

Monitor: Traffic eastbound on I-80

Weather: Sunny, 46°

Special Considerations: N/A

Trucks Carrying Haz-Mat

Trailer Type	*Totals*	*% of Total*
111	48	3.9%
117	4	0.3%
131	3	0.2%
134	0	0.0%
137	16	1.3%
Other	6	0.5%

UN No.	*Class*	*Name*	*Total*	*% of All Placards*
1075	2	Petroleum	1	1.7%
1090	1	Acetone	1	1.7%
1203	3	Gasoline	2	3.4%
1268	3	Petroleum distillates, n.o.s.	1	1.7%
1738	8	Benzyl chloride	1	1.7%
1789	8	Hydrochloric acid	2	3.4%
1824	8	Sodium hydroxide solution	1	1.7%
1977	2	Nitrogen	2	3.4%
1993	3	Combustible liquid, n.o.s.	1	1.7%
2014	2	Hydrogen peroxide	1	1.7%
2031	8	Nitric acid	1	1.7%
3077	9	Hazardous waste, solid, n.o.s.	3	5.1%
3257	9	Elevated temp. liquid	1	1.7%

General Placards	*Totals*	*% of All Placards*
Flamm Gas	6	10.2%
Non-Flamm Gas	6	10.2%
Flamm Liquid	5	8.5%
Flamm Solid	11	18.6%
Poison	1	1.7%
Corrosive	12	20.3%

Site Summary Data

Total Haz-Mat:	59
Unique Placards (#):	20
Total Truck Traffic:	1230
% w/ Placard:	4.8%
PennDOT Count:	25000
24 hr-Trucks Calc:	7380
24-hr Haz Calc:	354
Est Haz per hr:	15
% Haz per 24-hr:	1.4%

Hazard Classes

1-Explosives:	1	1.7%
2-Gases:	16	27.1%
3-Flamm. Liquids:	9	15.3%
4-Flamm. Solids:	11	18.6%
5-Oxidizers:	0	0.0%
6-Toxics:	1	1.7%
7-Radioactives:	0	0.0%
8-Corrosives:	17	28.8%
9-Miscellaneous:	4	6.8%

PA-28 AND PA-66 (NEW BETHLEHEM)

PA-28 and PA-66 (New Bethlehem)

Date: *October 29, 2020*

Time: *1400- 1600* ***Interval:*** *4 Hours*

Monitor: All traffic, both directions
Weather: *47* °F, Rain
Special Considerations: N/A

Trucks Carrying Haz-Mat

Trailer Type	*Totals*	*% of*
111	0	0.0%
117	0	0.0%
131	0	0.0%
134	0	0.0%
137	0	0.0%
Other	2	1.1%

Trucks may have multiple placards

UN No.	*Class*	*Name*	*Total*	*% of All*
1203	3	Gasoline	2	100.0%

General	*Totals*	*% of All*

Site Summary Data

Total Haz-Mat:	2
Unique Placards (#):	1
Total Truck Traffic:	180
% w/ Placard:	1.1%
StateDOT Count:	10,000
24 hr-Trucks Calc:	1080
24-hr Haz Calc:	12
Est Haz per hr:	1
% Haz per 24-hr:	0.1%

Hazard Classes

1-Explosives:	0	0.0%
2-Gases:	0	0.0%
3-Flamm. Liquids:	2	100.0%
4-Flamm. Solids:	0	0.0%
5-Oxidizers:	0	0.0%
6-Toxics:	0	0.0%
7-Radioactives:	0	0.0%
8-Corrosives:	0	0.0%
9-Miscellaneous:	0	0.0%

PA-28 and PA-66 (New Bethlehem)

Date: *Novrember 10, 2020*

Time: *0730- 1130* ***Interval:*** *4 Hours*

Monitor: All traffic, both directions

Weather: *47*°F, Rain

Special Considerations: N/A

Trucks Carrying Haz-Mat

Trucks may have multiple placards

Trailer Type	*Totals*	*% of Total*
111	0	0.0%
117	1	0.5%
131	4	2.0%
134	0	0.0%
137	8	4.1%
Other	2	1.0%

Site Summary Data

Total Haz-Mat:	17
Unique Placards (#):	5
Total Truck Traffic:	196
% w/ Placard:	8.7%
StateDOT Count:	10000
24 hr-Trucks Calc:	1176
24-hr Haz Calc:	102
Est Haz per hr:	4
% Haz per 24-hr:	1.0%

Hazard Classes

1-Explosives:	1	5.9%
2-Gases:	5	29.4%
3-Flamm. Liquids:	0	0.0%
4-Flamm. Solids:	0	0.0%
5-Oxidizers:	0	0.0%
6-Toxics:	0	0.0%
7-Radioactives:	0	0.0%
8-Corrosives:	0	0.0%
9-Miscellaneous:	11	64.7%

Trucks may have multiple placards

UN No.	*Class*	*Name*	*Total*	*% of All Placards*
0332	1	Explosive	1	5.9%
1075	2	Petroleum Gases	1	5.9%
1203	2	Gasoline	3	17.6%
2187	2	Carbon Dioxide	1	5.9%
3257	9	Elevated Temp Liquid	11	64.7%

General Placards	*Totals*	*% of All Placards*

PA-36 AND PA-66 (LEEPER)

Date: *October 28, 2020*

Time: *1000- 1400* **Interval:** *4 Hours*

PA-36 and PA-66 (Leeper)

Monitor: All directions, both routes
Weather: *45* °F, Light rain
Special Considerations: N/A

Trucks Carrying Haz-Mat

Trailer Type	*Totals*	*% of*
111	0	0.0%
117	2	1.1%
131	4	2.3%
134	0	0.0%
137	7	4.0%
Other	7	4.0%

Trucks may have multiple placards

UN No.	*Class*	*Name*	*Total*	*% of All*
1075	2	leum Gas l	2	9.5%
1203	3	Gasoline	5	23.8%
1267	3	Petroleum Crude Oil	2	9.5%
1977	2	Nitrogen, Refrigerated Liquid	1	4.8%
1993	3	Combustible Liquid, n.o.s.	3	14.3%
3082	9	Env. Haz. Substance, Liquid	1	4.8%
3257	9	Elevated Temp. Liquid, n.o.s.	6	28.6%

General	*Totals*	*% of All*
Oxidizer	1	4.8%

Site Summary Data

Total Haz-Mat:	21
Unique Placards (#):	0
Total Truck Traffic:	176
% w/ Placard:	11.9%
StateDOT Count:	5900
24 hr-Trucks Calc:	1056
24-hr Haz Calc:	126
Est Haz per hr:	5
% Haz per 24-hr:	2.1%

Hazard Classes

1-Explosives:	0	0.0%
2-Gases:	3	14.3%
3-Flamm. Liquids:	10	47.6%
4-Flamm. Solids:	0	0.0%
5-Oxidizers:	1	4.8%
6-Toxics:	0	0.0%
7-Radioactives:	0	0.0%
8-Corrosives:	0	0.0%
9-Miscellaneous:	7	33.3%

PA-36 and PA-66 (Leeper)

Date: *November 10, 2020*

Time: *1230- 1630* ***Interval:*** *4 Hours*

Monitor: All directions, both routes

Weather: *65* °F, Partly sunny

Special Considerations: N/A

Trucks may have multiple placards

Trailer Type	*Totals*	*% of Total*
111	0	0.0%
117	1	0.7%
131	5	3.3%
134	0	0.0%
137	7	4.6%
Other	4	2.6%

Site Summary Data

Total Haz-Mat:	16
Unique Placards (#):	0
Total Truck Traffic:	152
% w/ Placard:	10.5%
StateDOT Count:	5900
24 hr-Trucks Calc:	912
24-hr Haz Calc:	96
Est Haz per hr:	4
% Haz per 24-hr:	1.6%

Hazard Classes

1-Explosives:	0	0.0%
2-Gases:	5	31.3%
3-Flamm. Liquids:	6	37.5%
4-Flamm. Solids:	0	0.0%
5-Oxidizers:	0	0.0%
6-Toxics:	0	0.0%
7-Radioactives:	0	0.0%
8-Corrosives:	1	6.3%
9-Miscellaneous:	4	25.0%

Trucks may have multiple placards

UN No.	*Class*	*Name*	*Total*	*% of All Placards*
1075	2	leum Gas l	3	18.8%
1203	3	Gasoline	4	25.0%
1891	3	Ethyl Bromide	1	6.3%
1993	2	Combustible Liquid, n.o.s.	2	12.5%
3082	3	Env. Haz. Substance, Liquid	1	6.3%
3257	9	Elevated Temp. Liquid, n.o.s.	3	18.8%

General Placards	*Totals*	*% of All Placards*
Corrosive	1	6.3%
Miscellaneo	1	6.3%

PA-68 AND PA-368 (SLIGO)

Date: *October 29, 2020*

Time: *0800- 1200* **Interval:** *4 Hours*

PA-68 and PA-368 (Sligo)

Monitor: All traffic, both directions
Weather: *40* °F, Sunny
Special Considerations: N/A

Trucks Carrying Haz-Mat

Trailer Type	*Totals*	*% of*
111	0	0.0%
117	0	0.0%
131	0	0.0%
134	0	0.0%
137	0	0.0%
Other	1	2.0%

Site Summary Data

Total Haz-Mat:	1
Unique Placards (#):	1
Total Truck Traffic:	50
% w/ Placard:	2.0%
StateDOT Count:	3,700
24 hr-Trucks Calc:	300
24-hr Haz Calc:	6
Est Haz per hr:	0
% Haz per 24-hr:	0.2%

Hazard Classes

1-Explosives:	0	0.0%
2-Gases:	0	0.0%
3-Flamm. Liquids:	1	100.0%
4-Flamm. Solids:	0	0.0%
5-Oxidizers:	0	0.0%
6-Toxics:	0	0.0%
7-Radioactives:	0	0.0%
8-Corrosives:	0	0.0%
9-Miscellaneous:	0	0.0%

Trucks may have multiple placards

UN No.	*Class*	*Name*	*Total*	*% of All*
1993	3	able Liquid	1	100.0%

General	*Totals*	*% of All*

PA-68 and PA-368 (Sligo)

Date: *November 10, 2020*

Time: *0730- 1130* ***Interval:*** *4 Hours*

Monitor: All traffic, both directions

Weather: *42* °F, Cloudy

Special Considerations: N/A

Trucks may have multiple placards

Trailer Type	*Totals*	*% of Total*
111	0	0.0%
117	0	0.0%
131	0	0.0%
134	0	0.0%
137	0	0.0%
Other	3	5.9%

Site Summary Data

Total Haz-Mat:	3
Unique Placards (#):	2
Total Truck Traffic:	51
% w/ Placard:	5.9%
StateDOT Count:	3700
24 hr-Trucks Calc:	306
24-hr Haz Calc:	18
Est Haz per hr:	1
% Haz per 24-hr:	0.5%

Hazard Classes

1-Explosives:	2	66.7%
2-Gases:	1	33.3%
3-Flamm. Liquids:	0	0.0%
4-Flamm. Solids:	0	0.0%
5-Oxidizers:	0	0.0%
6-Toxics:	0	0.0%
7-Radioactives:	0	0.0%
8-Corrosives:	0	0.0%
9-Miscellaneous:	0	0.0%

Trucks may have multiple placards

UN No.	*Class*	*Name*	*Total*	*% of All Placards*	*General Placards*	*Totals*	*% of All Placards*
1203	2	Gasoline	1	33.3%	Explosives	2	66.7%

PA-68 (EAST BRADY)

Date: *November 30, 2020*

PA-68 (East Brady)

Time: *1130- 1530* **Interval:** *4 Hours*

Monitor: All directions, both routes
Weather: *65* °F, Partly sunny
Special Considerations: N/A

Trucks Carrying Haz-Mat

Trucks may have multiple placards

Trailer Type	*Totals*	*% of Total*
111	0	0.0%
117	0	0.0%
131	0	0.0%
134	0	0.0%
137	0	0.0%
Other	0	0.0%

Site Summary Data

Total Haz-Mat:	0
Unique Placards (#):	0
Total Truck Traffic:	24
% w/ Placard:	0.0%
StateDOT Count:	3000
24 hr-Trucks Calc:	144
24-hr Haz Calc:	0
Est Haz per hr:	0
% Haz per 24-hr:	0.0%

Hazard Classes

1-Explosives:	0
2-Gases:	0
3-Flamm. Liquids:	0
4-Flamm. Solids:	0
5-Oxidizers:	0
6-Toxics:	0
7-Radioactives:	0
8-Corrosives:	0
9-Miscellaneous:	0

Trucks may have multiple placards

UN No.	*Class*	*Name*	*Total*	*% of All Placards*

General Placards	*Totals*	*% of All Placards*

Date: *November 10, 2020*

Time: *1230- 1630* **Interval:** *4 Hours*

PA-36 and PA-66 (Leeper)

Monitor: All directions, both routes

Weather: *45* °F, Light rain

Special Considerations: N/A

Trucks Carrying Haz-Mat

Trailer Type	*Totals*	*% of*
111	0	0.0%
117	0	0.0%
131	0	0.0%
134	0	0.0%
137	0	0.0%
Other	0	0.0%

Trucks may have multiple placards

UN No.	*Class*	*Name*	*Total*	*% of All*

General	*Totals*	*% of All*

Site Summary Data

Total Haz-Mat:	0
Unique Placards (#):	0
Total Truck Traffic:	11
% w/ Placard:	0.0%
StateDOT Count:	3000
24 hr-Trucks Calc:	66
24-hr Haz Calc:	0
Est Haz per hr:	0
% Haz per 24-hr:	0.0%

Hazard Classes

1-Explosives:	0
2-Gases:	0
3-Flamm. Liquids:	0
4-Flamm. Solids:	0
5-Oxidizers:	0
6-Toxics:	0
7-Radioactives:	0
8-Corrosives:	0
9-Miscellaneous:	0

PA-208 AND US 322 (SHIPPENVILLE)

PA-208 and US-322 (Shippenville)

Date: *October 28, 2020*

Time: *1430- 1830* ***Interval:*** *4 Hours*

Monitor: Traffic E/W on US322, on/off PA208

Weather: *50* °F, Cloudy

Special Considerations: N/A

Trucks Carrying Haz-Mat

Trucks may have multiple placards

Trailer Type	*Totals*	*% of Total*	*UN No.*	*Class*	*Name*	*Total*	*% of All Placards*	*General Placards*	*Totals*	*% of All Placards*
111	0	0.0%	1203	3	Gasoline	1	100.0%			
117	0	0.0%								
131	1	1.3%								
134	0	0.0%								
137	0	0.0%								
Other	0	0.0%								

Site Summary Data

Total Haz-Mat:	1
Unique Placards (#):	0
Total Truck Traffic:	80
% w/ Placard:	1.3%
StateDOT Count:	9,600
24 hr-Trucks Calc:	480
24-hr Haz Calc:	6
Est Haz per hr:	0
% Haz per 24-hr:	0.1%

Hazard Classes

1-Explosives:	0	0.0%
2-Gases:	0	0.0%
3-Flamm. Liquids:	1	100.0%
4-Flamm. Solids:	0	0.0%
5-Oxidizers:	0	0.0%
6-Toxics:	0	0.0%
7-Radioactives:	0	0.0%
8-Corrosives:	0	0.0%
9-Miscellaneous:	0	0.0%

PA-208 and US-322 (Shippenville)

Date: *October 30, 2020*

Time: *0700- 1100* ***Interval:*** *4 Hours*

Monitor: Traffic E/W on US322, on/off PA208

Weather: *42* °F, Cloudy

Special Considerations: N/A

Trucks Carrying Haz-Mat

Trucks may have multiple placards

Trailer Type	*Totals*	*% of Total*
111	0	0.0%
117	0	0.0%
131	2	1.6%
134	0	0.0%
137	0	0.0%
Other	5	4.0%

Site Summary Data

Total Haz-Mat:	8
Unique Placards (#):	0
Total Truck Traffic:	125
% w/ Placard:	6.4%
StateDOT Count:	9600
24 hr-Trucks Calc:	750
24-hr Haz Calc:	48
Est Haz per hr:	2
% Haz per 24-hr:	0.5%

Hazard Classes

1-Explosives:	0	0.0%
2-Gases:	5	62.5%
3-Flamm. Liquids:	2	25.0%
4-Flamm. Solids:	0	0.0%
5-Oxidizers:	1	12.5%
6-Toxics:	0	0.0%
7-Radioactives:	0	0.0%
8-Corrosives:	0	0.0%
9-Miscellaneous:	0	0.0%

Trucks may have multiple placards

UN No.	*Class*	*Name*	*Total*	*% of All Placards*
1075	2	Petroleum Gas Liquid	3	37.5%
1203	3	Gasoline	2	25.0%

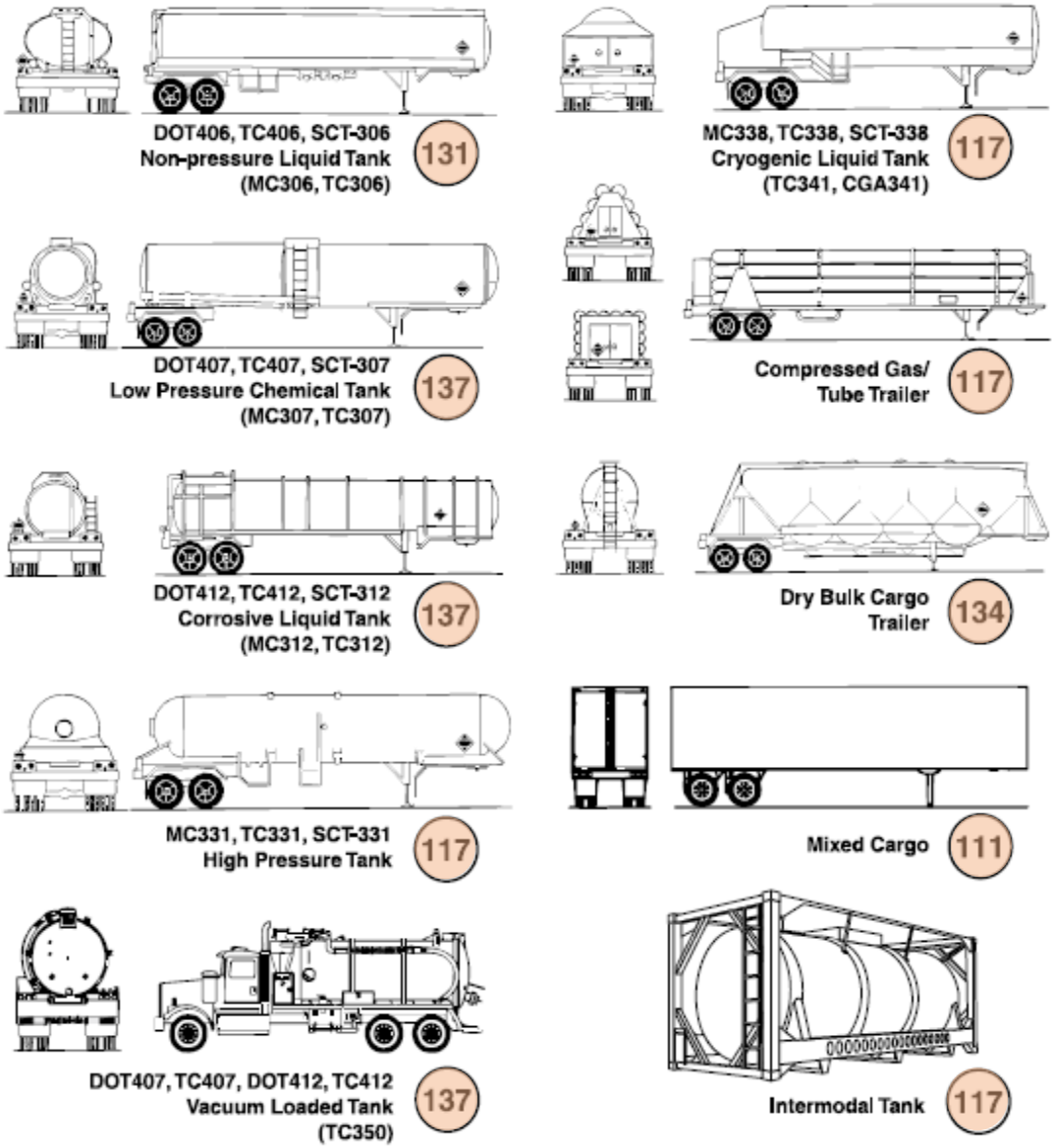
General Placards	*Totals*	*% of All Placards*
Non-Flamm Gas	2	25.0%
Oxidizer	1	12.5%

CLARION COUNTY COMMODITY FLOW STUDY
APPENDIX 3: TRAILER TYPE REFERENCE SHEET

APPENDIX 3

TRAILER TYPE REFERENCE SHEET

This appendix contains the reference sheet used for determining trailer types during highway field reconnaissance.



CLARION COUNTY COMMODITY FLOW STUDY
APPENDIX 4: GLOSSARY

APPENDIX 4
GLOSSARY

This appendix is a glossary of key terms and a list of acronyms used throughout the report. Definitions presented in this appendix may differ slightly from the common definitions of the terms; these definitions correspond to how the term is used (and its meaning) as part of the study.

LIST OF TERMS

Commodity Flow Study: A study to identify the types of hazardous materials transported on a variety of transportation systems (e.g., highway, railway, waterway, airway, pipeline, or at covered facilities).

Covered Facility: A facility that reports to a Local Emergency Planning Committee as part of Tier II reporting requirements under Title III of the Superfund Amendment and Reauthorization Act of 1986.

Covered Facility Analysis: An analysis of the hazardous materials used and stored by covered facilities. The analysis includes an identification of shipping routes, quantities shipped, and frequency of shipments.

Emergency: Any incident, whether natural or human-caused, that requires responsive action to protect life or property. Under the Robert T. Stafford Act, an “emergency” is an incident for which federal assistance is needed to supplement state and local efforts and capabilities to save lives and to protect property.

Extremely Hazardous Substance: A hazardous material recognized by the United States Environmental Protection Agency as having extremely toxic properties and thus necessitates additional safety measures during handling and transport.

Hazard Class: A system utilized by the United States Department of Transportation to classify the type of hazardous material in transport. There are nine (9) hazard classes: Explosives (Class 1), Gases (Class 2), Flammable Liquids (Class 3), Flammable Solids (Class 4), Oxidizers (Class 5), Toxics (Class 6), Radioactive (Class 7), Corrosives (Class 8), and Miscellaneous (Class 9).

Hazardous Material: A material that is (or can be) harmful to human health and the environment.

Highway Analysis: An analysis of hazardous materials transported along roadways in a

study area. The analysis is usually completed by visually monitoring select sites along the roadways and recording the hazardous materials that pass through the site. An analysis can also be conducted remotely through the use of waybills, shipping company reporting, etc.

Incident: An occurrence, natural or human-caused, that requires a response to protect life or property.

Placard: A sign or notice for display in a public place. For this document, the sign is the diamond or rectangular-shaped card attached to a truck and trailer labeling hazardous material shipments.

Threshold Planning Quantity: A quantity designated for each chemical on the list of extremely hazardous substances that triggers a notification by facilities to the State Emergency Response Commission that such facilities are subject to emergency planning requirements under SARA Title III.

LIST OF ACRONYMS

DOT	United States Department of Transportation
EHS	Extremely Hazardous Substance
EPCRA	Emergency Planning & Community Right-to-Know Act
FRA	Federal Railroad Administration
JHC	JH Consulting, LLC of West Virginia
LEPC	Local Emergency Planning Committee
PA	Pennsylvania
PEMA	Pennsylvania Emergency Management Agency
PEMC	Pennsylvania Emergency Management Council
PennDOT	Pennsylvania Department of Transportation
SARA	Superfund Amendment and Reauthorization Act
SERC	State Emergency Response Commission
TPQ	Threshold Planning Quantity
WWTP	Wastewater Treatment Plant