

Livingston County  
Hazardous Material Flow Study  
August 2018



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## **Statement of Purpose**

This hazardous material transportation flow study was conducted within the boundaries of Livingston County, Missouri. The data from this study will enhance all Livingston County firefighters' emergency planning abilities and enable the departments to increase the effectiveness of their emergency response capabilities to hazardous material transportation events.

Livingston County has 6 fire departments in the county:

- Chillicothe
- Chula
- Dawn
- Mooresville
- Utica
- Wheeling

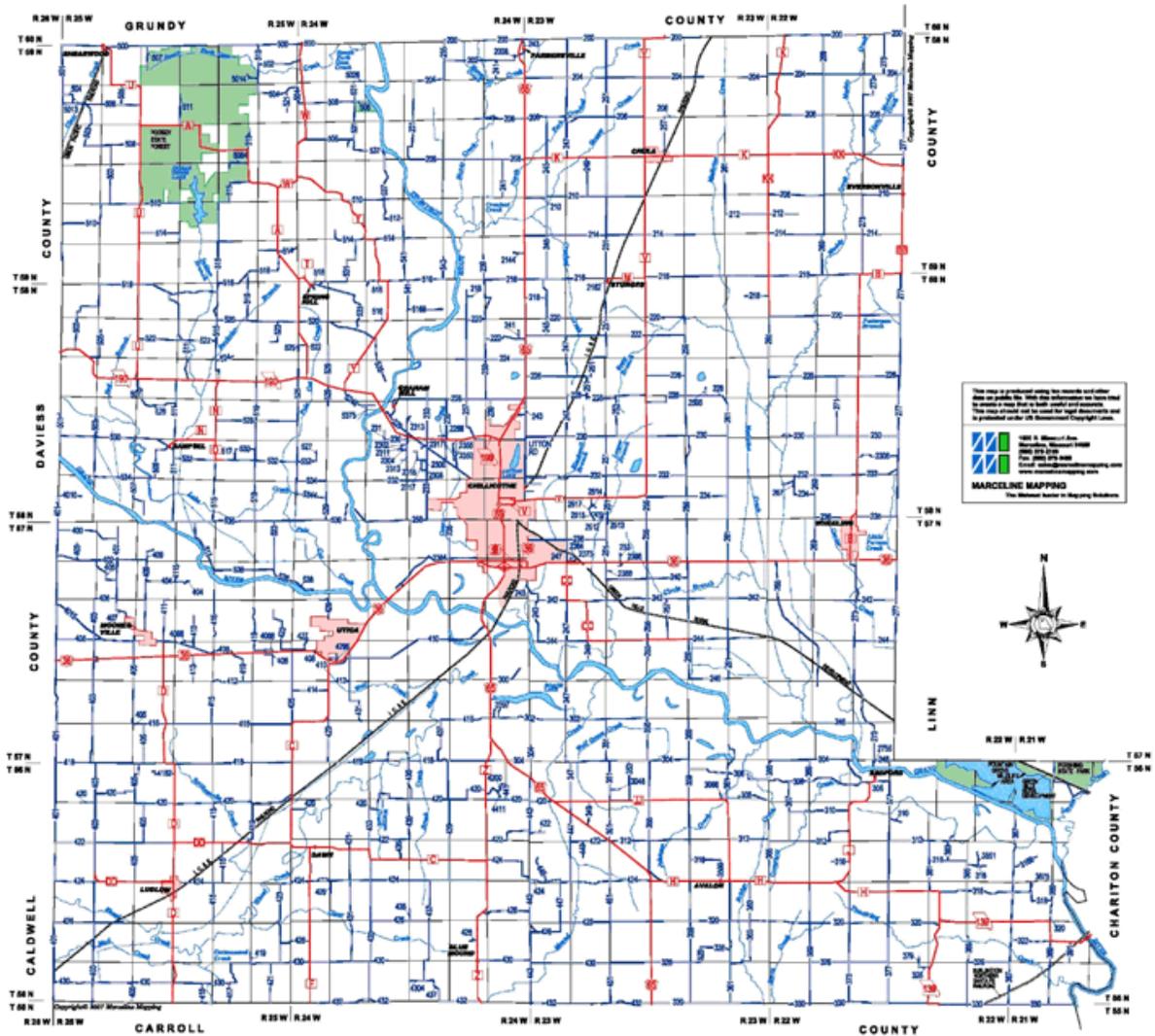
The purpose of this study is as follows:

1. Identify modes of shipment of hazardous materials that either originate in or are destined to pass through Livingston County.
2. Identify the routes which have the greatest flow.
3. Get a general feel for the amount of hazardous material that passes through the county during a defined time period.

## Study Area

The analysis area for this flow study was Livingston County. The analysis teams primarily set up in the city of Chillicothe. Livingston County has a population of approximately 15,033 with the majority of the population and traffic located in the Chillicothe area. The land use in the county is mostly agriculture with family farms, as well as some industrial.

# LIVINGSTON COUNTY



## **Transportation Summary**

### **Highway**

Transportation through Livingston County is performed in many forms, with the most common mode of hazardous material transport, or materials in general, being via highway. Most commodities travel via U.S. Highway 36 and U.S. Highway 65. These highways run through Chillicothe, Utica, Mooresville, and Wheeling.

### **Rail**

Three railroads operate in Livingston County. The Union Pacific operates a track that runs along the northwest part of the county. Another railroad, owned by Canadian Pacific, runs from the southwest end of the county, to the northeast. An additional line, owned by Missouri North Central, runs from Chillicothe to east/southeast. The rail exposure adds additional hazardous materials to the county, especially to Chillicothe. Canadian Pacific has sent a current flow study for this county. Canadian Pacific is to be notified immediately of any issues. The railroad's closest response would be coming from Kansas City, with the next closest response coming from St. Louis or Des Moines, Iowa. The Chillicothe Fire Department would respond in the event of a spill utilizing a spill trailer provided by Canadian Pacific, using mutual aid from the Region H Hazmat Team. Chillicothe Fire Department trains in hazmat and has been involved with trainings with Canadian Pacific to familiarize themselves with spill response equipment as well as rail response.

### **Pipeline**

There are 3 different pipelines running in Livingston County.

### **Water**

While our waterways are areas of concern for contamination, they will not be included as supporting transportation, in this hazardous flow study, as they are not utilized for commercial transportation. The main waterways in Livingston County are the Thompson River and the Grand River, as well as the Fountain Grove Wildlife Area.

### **Air**

Livingston County does not have a major airport, although Chillicothe has a municipal airport primarily serving small private aircraft. Livingston County is in the main flight path for commercial flight transportation. Training on handling aircraft emergencies would be low for this area.

## **Highway Transportation**

This section will highlight the findings of both hazardous and non-hazardous materials, through Livingston County, with regards to movement on highways.

Nationally, according to the Federal Motor Carrier Safety Administration, as of December 2017 there were 543,061 interstate motor carriers and intrastate hazmat motor carriers with recent activity operating in the U.S. As of 2018, the American Trucking Association reports that approximately 71% of freight by weight is transported by trucks, in this country. They further report that, as of 2016, there were approximately 3.68 million trucks on US highways.

The chemical quantities moving through Livingston County, on the highways, are primarily fuels. The top 3 items, in regard to sheer amount, are:

1. Corrosive
2. Gasoline
3. Combustible liquid

Livingston County Emergency Management conducted this flow study in July. The intersections studied were:

1. US 36 and US 65
2. MO 190 and US 65
3. US 65 and Rt K
4. Due to parking congestion and traffic volume, hourly spot-checks for placarded vehicles were conducted at the local truck stop off of US 36 and US 65.

**Livingston County Commercial Vehicle HAZMAT Flow Study 2018**

	Standard Tank	Vacuum Tank	Dry Bulk	Standard Van	Gas Tank	Refrigerated	Service	Flatbed	Corr. Tank	Ref. Tank	Other	LOCATION	TIME		
<b>Day 1</b>	5 (3082)	8*	58*	4 (1.4 Explosive)	4 (1013)	210*	4*	105*	1 (2796)	1 (1977)	87 (livestock)	US65/US36	1000-1800		
	3 (Flammable)			2 (Flammable)	5 (1075)				8 (Corrosive)	1 (1263)					
	7 (1203)			5 (Dangerous)	2 (non-flam gas)				2 (1824)	1 (2187)					
	5 (1993)			2 (Flam solid)	2 (1155)					1 (1073)					
	1 (1364)			2 (Env hazard)	1 (Flam gas)										
	1 (1987)			1 (1773)											
	1 (1110)			1 (2014)											
	1 (1263)			259*											
	2 (1170)														
	235*														
<b>Day 2</b>	1 (Toxic)		43*	1 (Corrosive)	1 (1013)	202*	2*	83*	1 (1805)		38 (livestock)			US65/US36	1800-0200
	1 (1993)			1 (Dangerous)	4**				1 (1790)						
	1 (1170)			1 (2794)											
	1 (1915)			3**											
	2 (1203)			264*											
	2 (Flammable)														
	4**														
	207*														
<b>Day 3</b>	2 (1987)		25*	1 (Dangerous)	2 (1013)	154*		87*	1 (1975)	1 (1951)		US65/US36	0200-1000		
	1 (1993)			4**					3 (Corrosive)						
	1 (3082)			207*											
	7**														
	185*														
												<b>Total Trucks</b>	<b>2581</b>		
												<b>Total Placards</b>	<b>98</b>		
<b>Day 4</b>	2 (1203)		24*				4*	22*			2 (sprayers)*	MO190/US65	1000-1800		
	1 (1993)										8 (livestock)* 4 (hay trucks)				
<b>Day 5</b>	2**		12*					14*				MO190/US65	1800-0200		
<b>Day 6</b>			8*					7*				MO190/US65	0200-1000		
												<b>Total Trucks</b>	<b>108</b>		
												<b>Total Placards</b>	<b>5</b>		
<b>Day 7</b>											2 (sprayers)*	Rt K/US65	1000-1800		
<b>Day 8</b>												Rt K/US 65	0800-0200		
<b>Day 9</b>												Rt K/US 65	0200-1000		
												<b>Total Trucks</b>	<b>2</b>		
												<b>No Placards</b>	<b>0</b>		
<b>Hr. Check</b>				1 (1340)	1 (1005)							Truck Stop	Hourly Ck		
												<b>Total Placards</b>	<b>2</b>		
												<b>*No Placard</b>			
												<b>**Unknown Placard</b>			

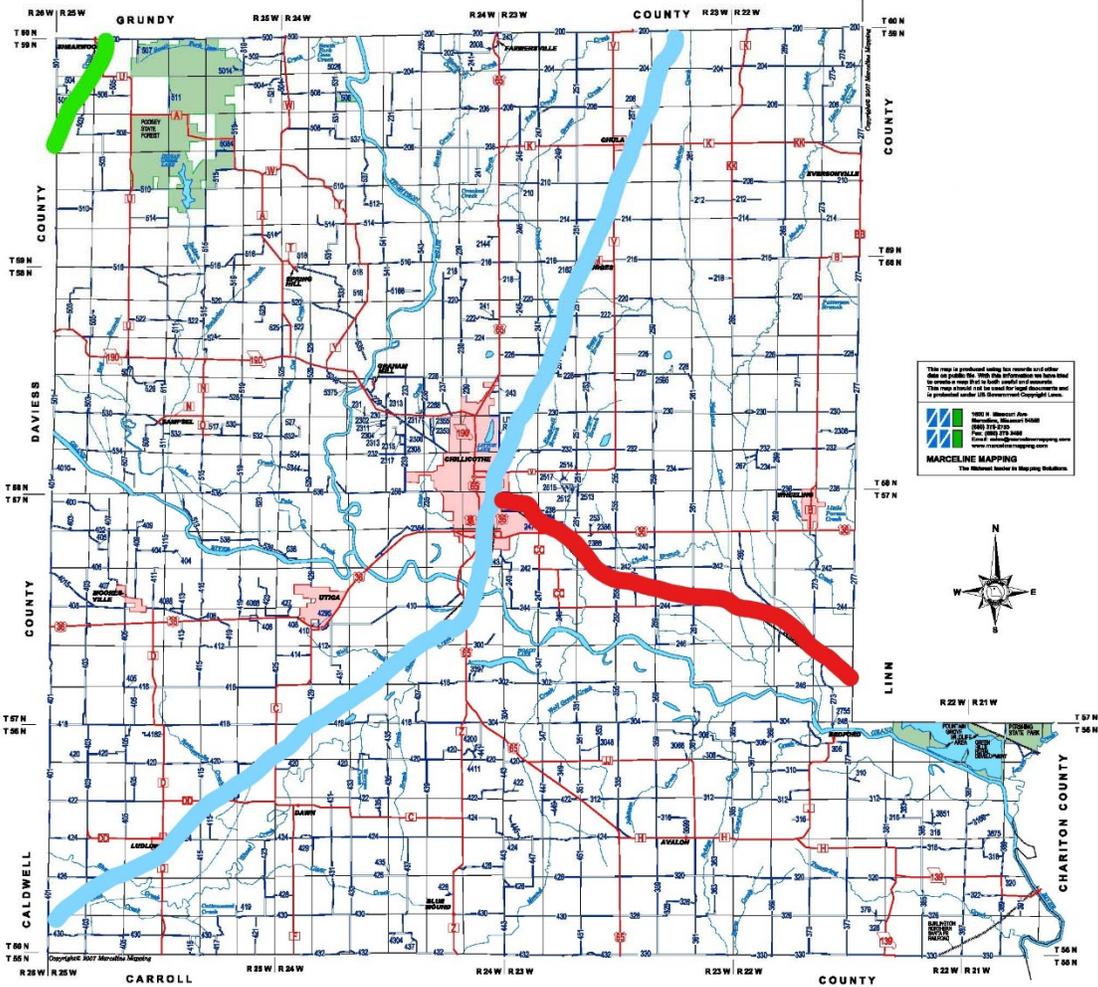
## **Railroad Transportation**

The Canadian Pacific Railroad (Blue) runs across Livingston County, from the southwest in Caldwell County, to the northeast into Grundy County. An additional line, owned by Missouri North Central under Burlington Northern (Red), runs from Chillicothe to east/southeast into Linn County. An additional line, owned by Union Pacific (Green) runs along the northwest part of the county, from Daviess to Grundy County. The rail exposure adds additional hazardous materials into the county, especially into Chillicothe.

The Chillicothe Fire Department has personnel trained to respond in the event of a hazardous materials incident, and would do so utilizing spill equipment provided by Canadian Pacific, with mutual aid available from the Region H Hazmat Team. Chillicothe FD personnel have trained with Canadian Pacific hazmat personnel and should be somewhat familiar with rail response. Follow-up and refresher training should be utilized to maintain skills and familiarization with equipment and techniques.

The Canadian Pacific reports that 99.997% of their hazmat shipments arrive without incident, and they have the lowest Class 1 Train Accident Rate, per FRA. Canadian Pacific Railroad has provided a current flow study for the Emergency Management Agency of Livingston County and City of Chillicothe. This document, however, is not for public use.

# LIVINGSTON COUNTY



-  Union Pacific
-  Canadian Pacific
-  Missouri North Central

## Pipeline Transportation

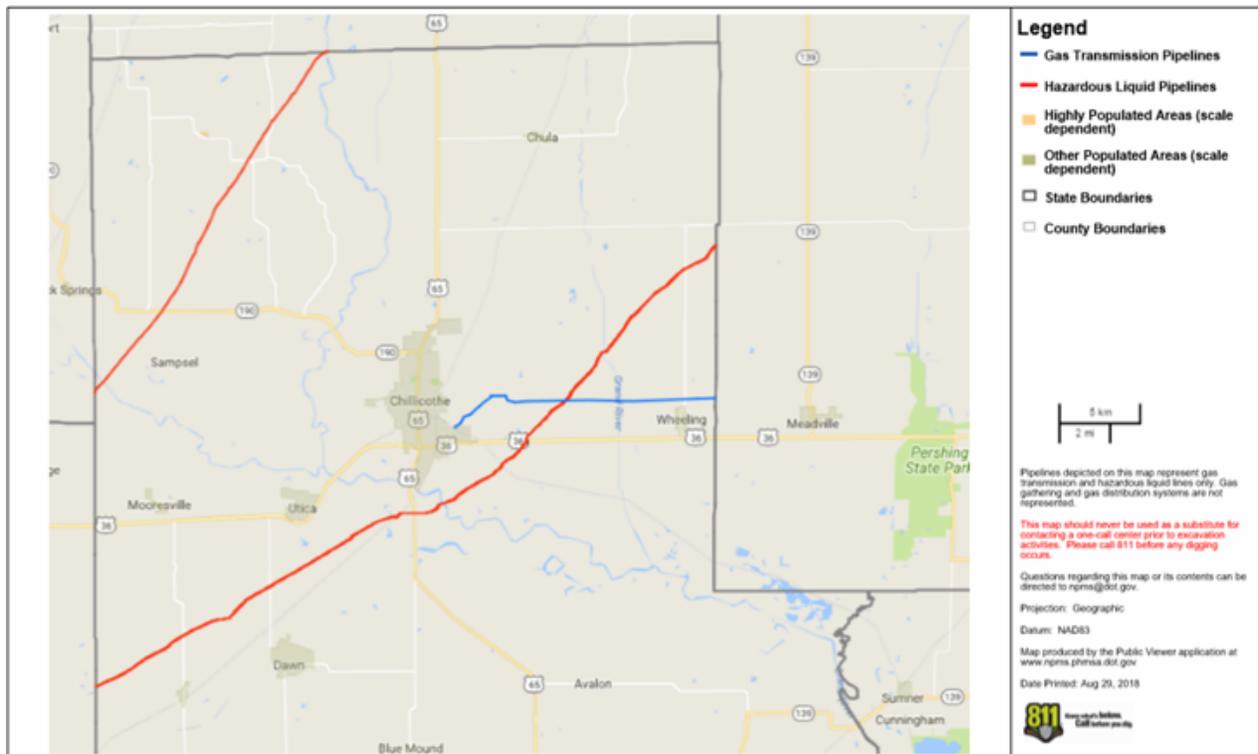
Livingston County has 3 different pipelines going through our county.

Enterprise Pipeline is the longest pipeline in Livingston County, spanning from Caldwell County, in the southwest, and entering Linn County below B Highway. This pipeline carries propane, natural gas, and ethane. See map below.

Buckeye Pipeline enters Livingston County from the west, south of the Grand River between the Daviess and Caldwell County lines, and exits the county from the north, just to the west of the Thompson River. This pipeline carries non-Highly-Volatile Liquid (non-HVL) products. See map below.

Empire Pipeline runs from Chillicothe to the east, going north of Wheeling where it exits into Linn County. This pipeline carries natural gas. See map below.

These lines are all monitored by their operators. Yearly training is available and should be done by our fire departments to maintain current contact information with the companies and current proper procedures in responding to pipeline incidents.



## **Conclusion**

This study has shown that truck, railroad, and pipelines are the main means of transporting hazmat through Livingston County. A majority of the hazmat is passing through our county. US 36 appears to be the main truck transportation route for hazmat through Livingston County, along with the Canadian-Pacific Railroad and the pipelines. While there is a quantity of hazmat that is transported through Livingston County and Chillicothe, it is not a high amount.

Livingston County fire departments should continue to participate in pipeline exercises and training opportunities. Due to its location, Chillicothe Fire Department should also continue their training in hazmat rail response and trucking incidents.