

**PLUMAS COUNTY HAZARDOUS MATERIALS  
EMERGENCY PREPAREDNESS (HMEP)  
COMMODITY FLOW STUDY**

**August 2009**



**With Hazardous Materials Emergency Preparedness Grant Funding  
by US Department of Transportation and Administered by  
California Emergency Management Agency**

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## **Introduction**

Environmental Health is pleased to submit this 2009 Hazardous Materials Commodity Flow Study for Plumas County. Funding was provided by the US Department of Transportation's Hazardous Materials Emergency Preparedness (HMEP) Grant administered by the California Emergency Management Agency (formerly the California Office of Emergency Services) with a twenty-five percent matching share provided by Plumas County. This study updates commodity flow information last obtained in Plumas County in year 2000.

This commodity flow study consisted of three parts: highway, rail, and agricultural chemical use. The highway commodity flow focused on the trends and patterns of hazardous materials transported on Plumas County's major highways including State Highways 36, 70 and 89. Working in cooperation with the California Highway Patrol, Environmental Health staff surveyed every truck passing through designated commercial inspection/weigh stations set up around the county. Survey information is tabulated and analyzed in further detail below. Environmental Health thanks CHP Commercial Inspection Officer Rick LaGrue for his invaluable assistance with this part of the project.

The commodity flow study for rail transportation summarizes field observations as well as information obtained from Union Pacific Railroad and Burlington Northern Santa Fe Railway. Before this study, no formal data existed regarding rail transportation trends or patterns for hazardous materials. Environmental Health thanks Sandra Covi of Union Pacific Railroad and Patrick Brady of Burlington Northern Santa Fe Railway for their information and cooperation.

Not surprisingly, agricultural chemical use in Plumas County is quite low. Annual pesticide use reports, prepared by the Plumas-Sierra Counties Department of Agriculture, are summarized in this report. Environmental Health thanks Tim Gibson for his contributions to this part of this study.

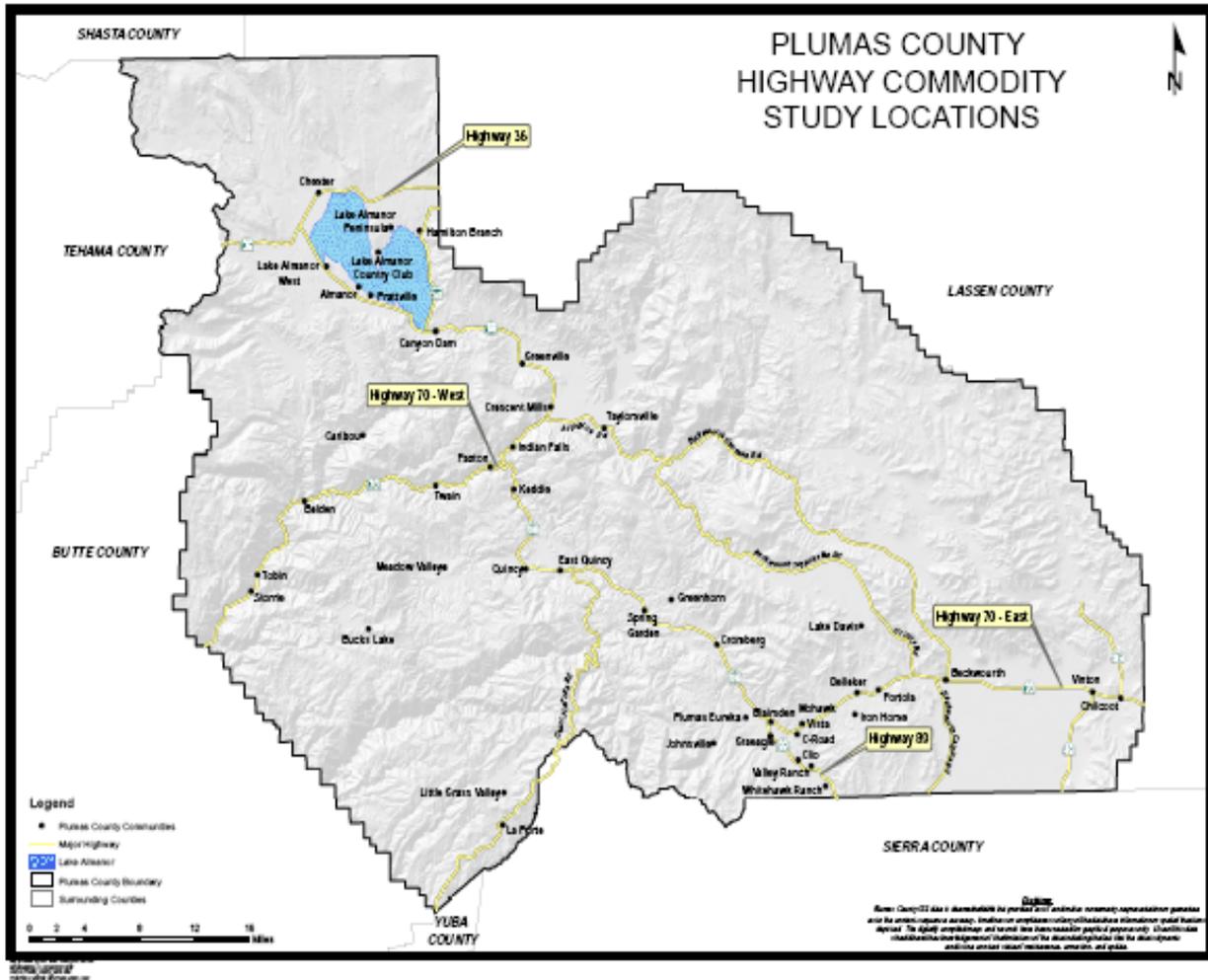
## **State Highway Commodity Flow**

From the year 2000 HMEP Grant Program, baseline information was established that identified the types and volumes of hazardous materials being transported on State highways in Plumas County. The goals of the 2009 commodity flow study included:

- Validate and update inventories as established in 2000
- Expand commodity flow check points throughout State highways in Plumas County.
- Inspect mixed cargo/freight trucks for smaller volumes of hazardous materials.
- Identify potential truck traffic changes when Interstate Highway 80 over Donner Summit closes due to incremental weather.

## 2009 Commodity Flow Survey Sites

State highway routes that were surveyed include: State Highway 70 in both Western and Eastern Plumas County; State Highway 36, and State Highway 89 as shown below.

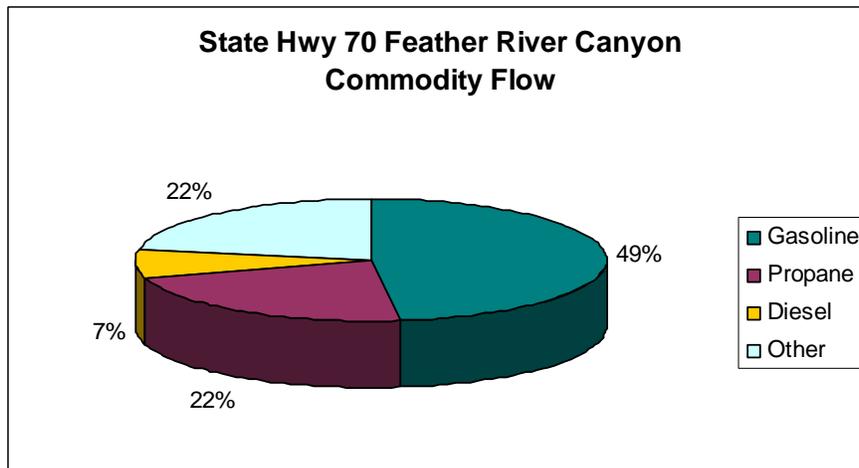
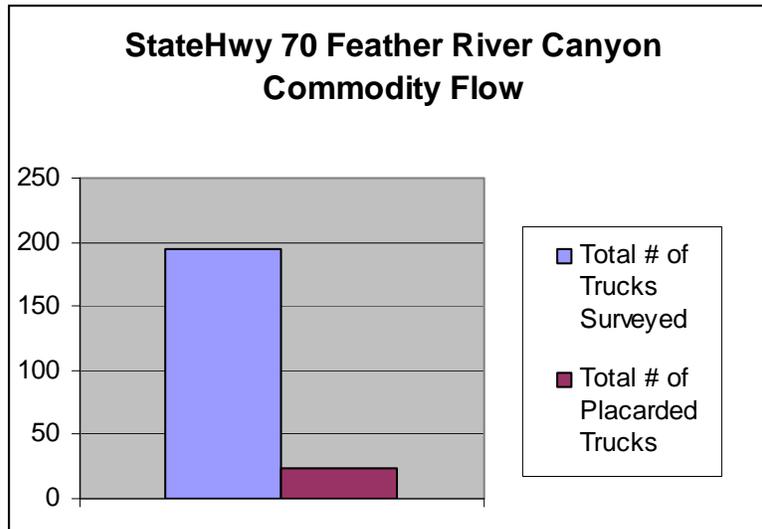


### State Highway 70 (Feather River Canyon) Flow Results

The western State Highway 70 Feather River Canyon survey site is known as the Greenville Wye. A total of four commodity flow surveys were performed at this site. One hundred and ninety five trucks were surveyed. Of these, twenty three were placarded loads. The top three hazardous commodities were;

- 1.) Gasoline: 13 commercial trucks
- 2.) Propane: 6 commercial trucks
- 3.) Diesel fuel: 2 commercial trucks

Other small quantity placard loads were also identified including: aviation fuel, medical cylinders and industrial cylinders. A total of six freight trucks were stopped and their shipping papers/bill of lading reviewed. Of these six, one load had small quantities of disinfection chemical used for treatment of municipal sewage.



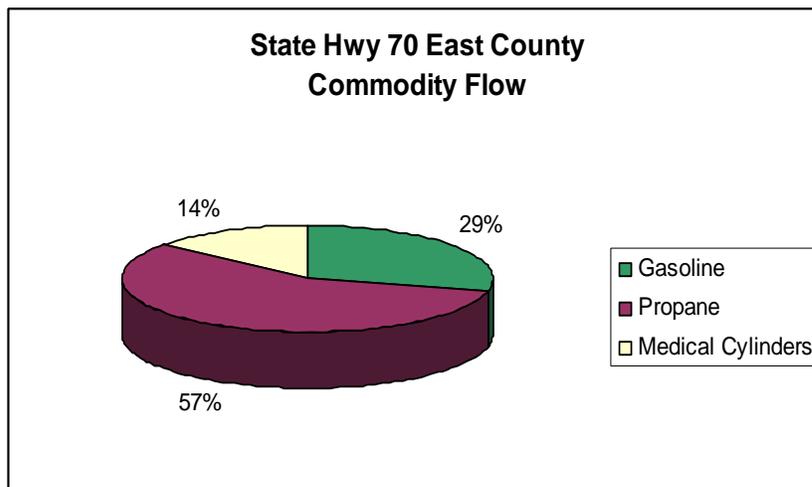
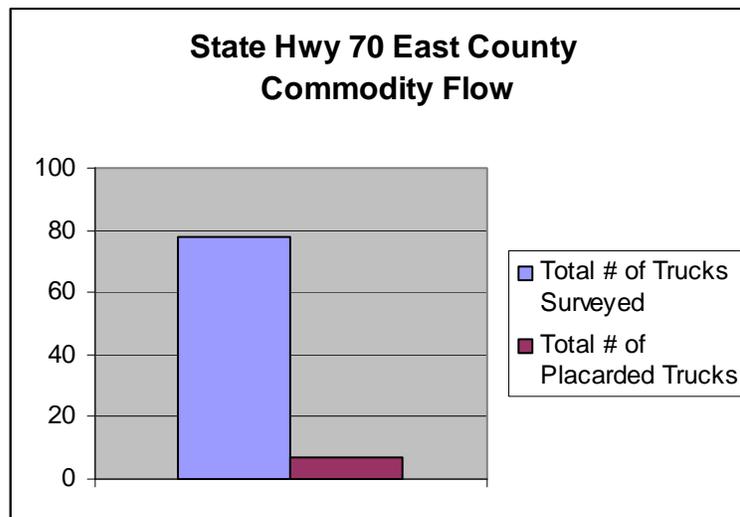
## State Highway 70 East County (Sierra Valley)

The eastern State Highway 70 commodity flow site was near the Sierra Valley community of Beckwourth. Two commodity flows were performed at this site.



A total of seventy eight commercial trucks were surveyed at this location. Of these, seven had placard loads. They were as follows:

- 1.) Propane: 4 commercial trucks
- 2.) Gasoline: 2 commercial trucks
- 3.) Medical Cylinders: 1 commercial truck

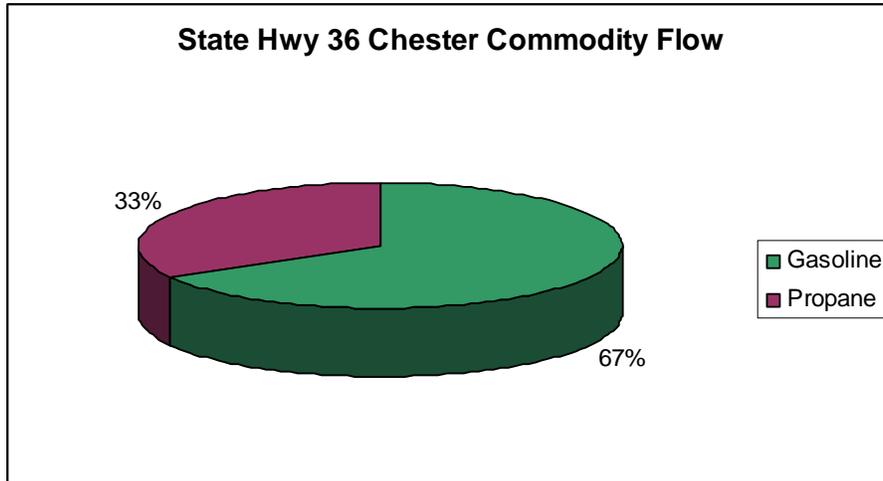
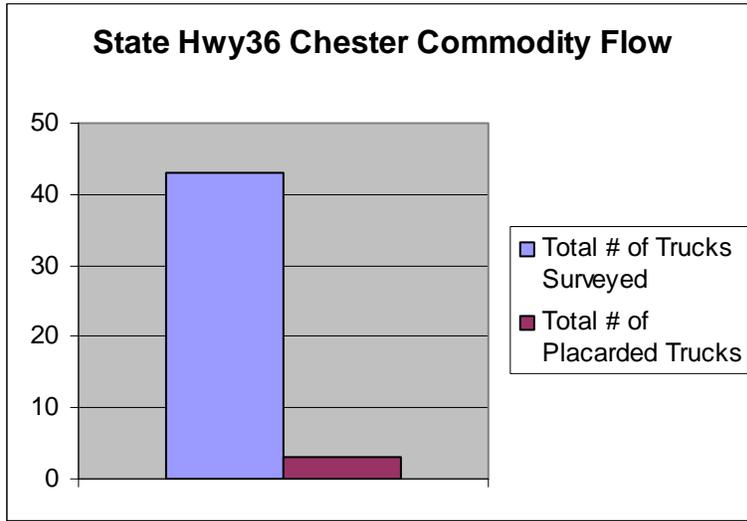


**State Highway 36 near Chester**

The State Highway 36 survey site was near the community of Chester. One commodity flow was performed at this site with a total of forty three commercial trucks surveyed. Of these, three were placarded loads. They are as follows:

- 1.) Gasoline: 2 commercial trucks\*
- 2.) Propane: 1 commercial truck

\* The 2 bulk gasoline trucks had Lassen County destinations



## State Highway 89 in Mohawk Valley

One commodity flow study was performed at this site with a total of nine commercial trucks surveyed. Of these nine trucks, only one was a placarded truck. This was a local propane delivery vehicle.

## Commodity Flow Risk Analysis

Approximately one in every ten commercial vehicles traveling Plumas County highways is transporting a hazardous material. As identified in the 2000 Commodity Flow Survey, petroleum products and heating fuels continue to be the most frequently transported hazardous materials throughout Plumas County. These products are shipped in bulk tanks with capacities of up to 8,000 gallons with a tractor-trailer rig. These rigs are easy for emergency response personnel to spot and identify.



State Highway 70 runs East-West, West-East through Plumas County. The majority of bulk petroleum trucks with Plumas County destinations originate from a bulk storage facility or “tank farm” located in Butte County. These bulk petroleum trucks travel east bound to Countywide fuel stations and bulks plants located on the State Highway 70 corridor, then double back west bound empty of contents. With this general operating plan, east-bound petroleum trucks pose a greater risk for hazardous materials release than the west-bound petroleum trucks.

The State Highway 36 runs through the Plumas County town of Chester just north of Lake Almanor. Petroleum products are also the most common hazardous material transported on this highway. These are often “pass through” loads, most often with a Lassen County destination but Chester gas stations do receive a small percentage of these bulk petroleum loads. These petroleum products also typically originate from the tank farm in Butte County.

Through discussions with CHP Officer LaGrue, State Highway 89 that runs through the Mohawk Valley was determined not to be a typical route for bulk haulers due to the alternative routes that provide more efficient deliver times. The majority of placarded loads on State Highway 89 are local fuel oil delivery trucks.

As in 2000, this study found the majority of placarded trucks were local delivery vehicles following established routes. It has also been determined that the number of

placarded loads on the State highways is fairly consistent through out the year. During the spring and summer, Plumas County's two largest economic revenue sources are timber and tourism. Thus the seasonal increase in motor vehicle fuel shipping and transportation. In the fall and winter, the primary placarded loads are heating oils and propane.

During the 2000 commodity flow study, freight or mixed cargo carriers were identified as a potential area of concern for hazardous materials transportation, but no specific information was available at that time. During the 2009 study, each freight or mixed cargo carrier was surveyed and inspected for hazardous materials. An example of a typical mixed cargo carrier is shown below.



In 2009, a total of nine freight haulers were inspected for hazardous labeled materials. Only one had small quantities of an industrial disinfectant, and this vehicle had a Lassen County destination. Nonetheless, a variety of hazardous materials may be shipped in this way and can be difficult for emergency personnel to identify. Based on this limited survey information, it is important to have an awareness that a variety of hazardous materials may be

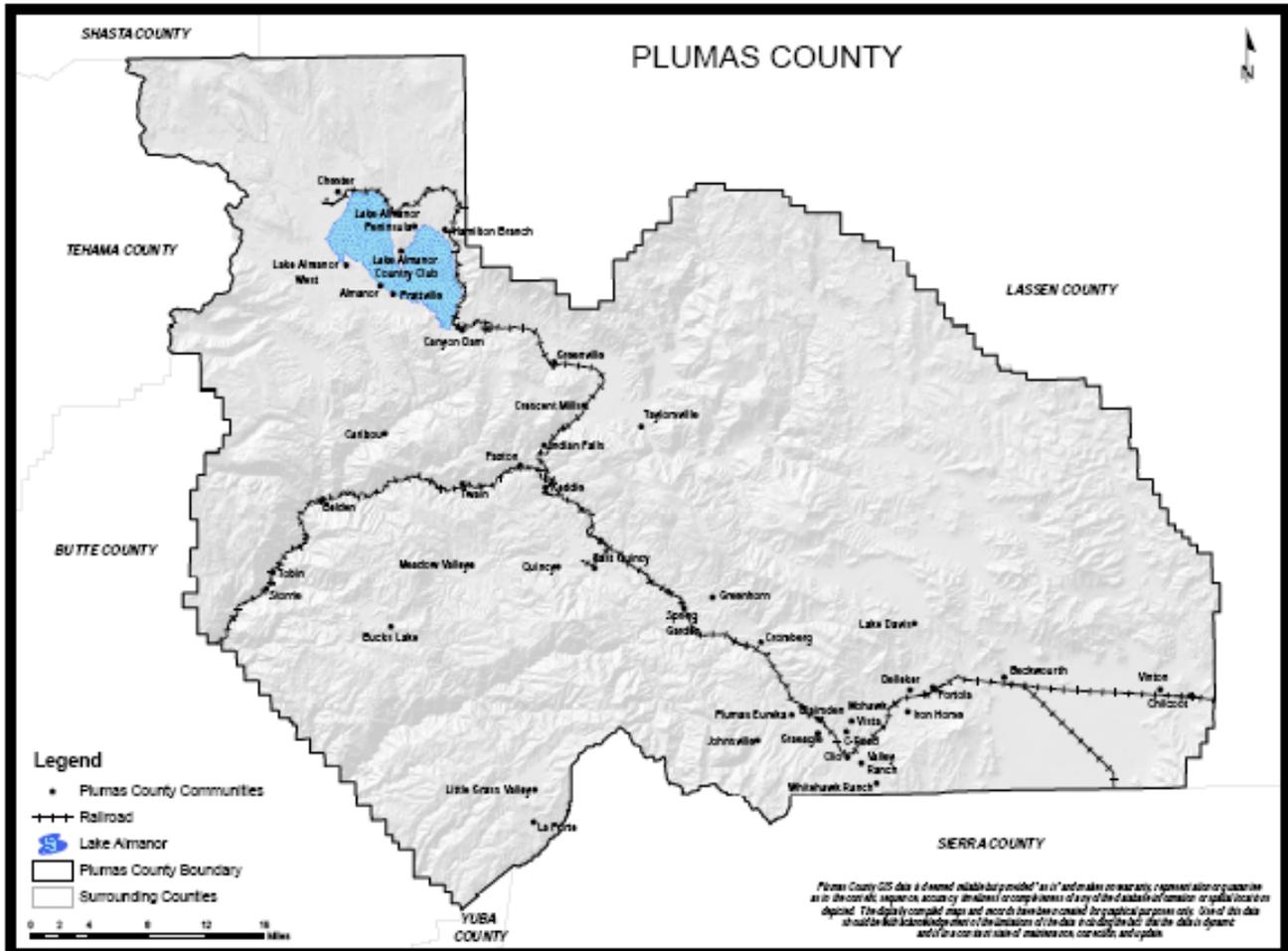
shipped in this manner. If such a freight vehicle is involved in a highway incident, emergency response personnel must remember the possibility of hazardous materials and their potential risks.

The last objective of the 2009 hazardous materials flow analysis was to identify the potential increase of placarded loads re-routed through State Highway 70 when Interstate Highway 80 over Donner Summit is temporally closed due to extensive snowfall. Only one survey was conducted during inclement weather that closed Interstate Highway 80 and resulted in R-1 (chains required on single drive axle) conditions on State Highway 70. No increase in traffic was noted and in fact traffic may have decreased. With such limited data, no reasonable conclusions or assumptions regarding hazardous materials transportation trends should be made. This remains an issue for possible future study.

## **Rail Lines Commodity Flow**

Currently there are two major rail companies that have track through Plumas County: Union Pacific and Burlington Northern Santa Fe. Until this study, no formal data was known on the type or volumes of hazardous materials transported by these rail lines. Through this brief study, Plumas County Environmental Health has had the

opportunity to establish relationships with both rail line Hazardous Materials Managers. Through these contacts we have been provided with extensive inventory information on hazardous loads and emergency contact information for both companies. Approximate rail line routes are shown below.

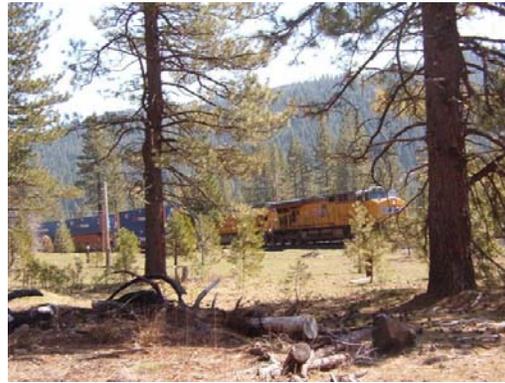


Map prepared by Plumas County GIS Office  
 Date/Map # 11/08/2010/Map 0108  
 Source: Plumas County GIS Office  
 Revision: 1/11/2011/Rev. 1.001

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## Union Pacific

The Union Pacific rail line trends east and west across Plumas County and is known as the Feather River Route. It connects the Sacramento Valley to Northern Nevada. Although UPRR would not provide specific quantities of hazardous materials in transportation, Sandra Covi, Union Pacific Hazardous Materials Manager, was able to identify the most commonly transported hazardous materials. The top ten hazardous commodities transported through Plumas County, listed in alphabetical order, are:



- Alcohols, N.O.S (not otherwise specified)
- Anhydrous Ammonia
- Elevated Temperature Liquid, N.O.S
- FAK ( freight of all kinds) Hazardous
- Liquefied Petroleum Gas
- Molten Sulfur
- Phosphoric Acid Solution
- Refrigerated Liquid Carbon Dioxide
- Sodium Hydroxide Solution
- Sulfuric Acid

Union Pacific's traffic that flows through Plumas County has changed the past few years and will continue to change over the next several years according to Union Pacific Railroad (UPRR) Manager of Hazardous Materials Unit, Sandy Covi. Currently, the majority of UPRR's traffic through Plumas County consists of mixed cargo containers, single and double stacked. This has been confirmed through our field observations. (See commodity flow surveys in appendix). A typical double-stacked mixed cargo container is shown below:

The majority of Union Pacific placarded loads transported to and from the Sacramento Valley to Northern Nevada are currently traveling the rail line that parallels Interstate Highway 80, commonly referred to as the "Donner Route." Union Pacific uses this route for the single stacked loads due to the limitations of the existing snow roofs and lower tunnel clearance heights.



Even though the Feather River route adds delivery time to the same destinations, this

route accommodates double stacked loads due to better rail line infrastructure. As noted above, Union Pacific’s rail type and volume of traffic on this line will likely change over the next few years, primarily because UPRR is planning to upgrade the Donner Route by raising tunnels and snow shed heights.

### Burlington Northern Santa Fe

The primary Burlington Northern Santa Fe (BNSF) rail line trends north and south in Plumas County, starting near the town of Keddie. The BNSF route north from Keddie is known as the “High Line”. BNSF currently has an agreement with Union Pacific to lease track time for all of UPRR rail lines in Plumas County. BNSF’s highest traffic section of leased line is the Feather River Canyon Route, which connects to the High Line route near Keddie. According to Patrick Brady, BNSF Hazardous Materials Manager, the top ten hazardous commodities transported through Plumas County, also listed in alphabetical order, are as follows:



transported through Plumas County, also listed in alphabetical order, are as follows:

- Alcohols N.O.S
- Anhydrous Ammonia
- Butane
- Chlorine
- Elevated Temperature Liquid, N.O.S
- Gasoline
- Hydrocarbons, Liquid N.O.S
- Liquefied Petroleum Gas
- Styrene Monomer, Stabilized
- Sulfuric Acid

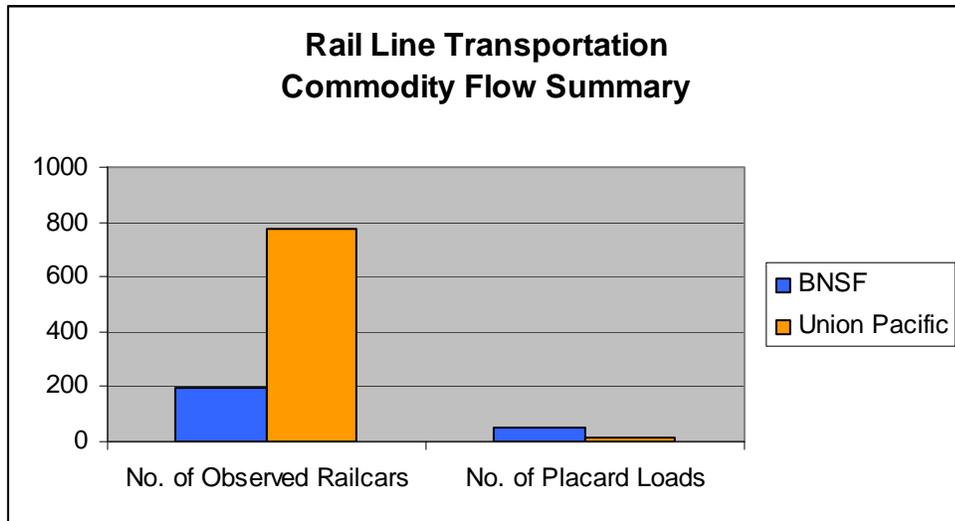
An example of the 30,000 gallon shipping container and labeling for alcohol is shown below.



From observations, interviews with BNSF employees and confirmation from Patrick Brady, Manager of Environmental Operations, and the majority of the placarded loads originate from the Port of Oakland, travel east bound through the Feather River Route to Keddie, connect with the High Line Route, and proceed north for Pacific Northwest destinations.

**Rail Line Transportation Summary**

Based on submitted hazardous materials inventories from both rail companies, Burlington Northern Santa Fe is reporting more shipments of hazardous materials through Plumas County than Union Pacific. This matches field observations. In fact, approximately 25% of BNSF cargo was classified as hazardous materials compared with less than 2% for UPRR. The total number of cars tallied during this study, however, was much greater for UPRR. These trends are noted in the table below.



As noted earlier, with the exception of double stacked cargo containers, Union Pacific currently transports the majority of its placard loads over the Donner Route. Burlington Northern Santa Fe continues to use Plumas County as its primary shipping corridor. More shipments and the greater likelihood of full containers will be encountered on east and north-bound trains passing through the county.

Union Pacific and Burlington Northern Santa Fe Railroads have independent, 24-hour emergency dispatch centers. However, both centers have a reciprocal agreement should an incident be reported to the wrong emergency dispatch center. This agreement ensures seamless and immediate inter-company notification for proper handling of rail incidents countywide. 24 hour dispatch center information numbers for each company are:

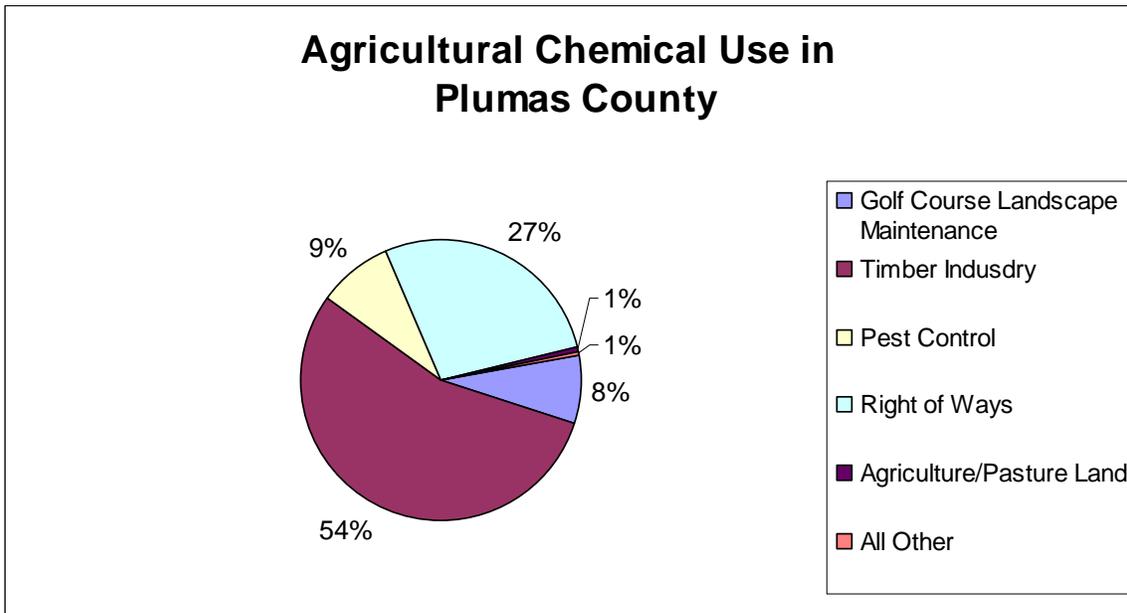
Union Pacific  
1-888-877-7267

Burlington Northern Santa Fe  
1-800-832-5452

## Agricultural Chemical Use in Plumas County

As expected, agricultural chemical use and transportation in Plumas County is minimal when compared to highway and railway transportation. The Plumas-Sierra Counties Department of Agriculture tracks and reports annual pesticide use and according to the “2008 Annual Pesticide Use Report,” usage was divided by the following user’s dilute application totals:

- Timber Industry/Forestry Usage: 4000 lbs
- Right of Ways: 2000 lbs
- Pest Control: 635 lbs
- Golf Courses/Landscape Maintenance: 570 lbs
- Agriculture/Pastureland: 47 lbs
- All Other: 40 lbs



Any commercial or agriculture pesticide user operating in Plumas County must have an operator ID number issued annually by the Plumas-Sierra Counties Department of Agriculture. The use of “restricted materials” requires the applicators to pass the private applicators test and annual safety training prior to use.

Transportation of pesticide varies by users, but in general pesticides are hauled by the vender to user. For Plumas County this means shipment in small quantities in small containers. The majority of pesticide users do not store any large volumes of pesticide. Pesticide users receive concentrated product from the venders and dilute prior to use at their main facility or at a staging area.

Typical application procedures for the most commonly used ag chemicals are as follows:

- Forestry Usage: Pesticide primarily applied using a backpack sprayer for treating specific areas of underbrush. Aerial application only used on occasional events.
- Agriculture/Pastureland Application: Applied using tractor-pulled tanks with fixed application wands, all terrain vehicles with small tanks, or individual backpack sprayers.
- Golf Courses/Landscape Maintenance/Pest Control: Applied using backpack sprayer, all terrain vehicle with small holding tanks, or occasionally small service trucks with hose reel attached to tank and pump.
- Right of Ways: Generally applied with commercial trucks equipped with tank and fixed spray wands.

For Plumas County, the average amount of diluted pesticide applied over the past three years is 7300 pounds per year. Considering the weight of water at over 8 pounds per gallon, the annual transportation and storage of concentrated chemical formulation averages approximately 900 pounds per year. For comparison, this would be less than one day's usage in many Central Valley counties.



## Summary

This information will be shared with emergency responders to increase awareness, mitigation and response to hazardous materials emergencies. Results of all the above will be incorporated into the revised and updated Plumas County Hazardous Materials Emergency Response Plan. Last updated in September 2006, this plan must be maintained and updated every three years by Plumas County Environmental Health as part of the Unified Hazardous Materials Management Program (CUPA) responsibilities.