NAVIGATING THE WESTSIDE FOREST

An Introductory Guide for Emergency Responders

June 2015

Background

Emergency responders serving the developed areas of the west shore of Lake Almanor are well versed in the access routes found there. But when they are dispatched into the forest west of Highway 89, familiarity may be limited. The West Almanor Fire Department (WAFD) can be called upon to respond in that region, all the way west to the County line, and thus has a need for a basic understanding of the primary sites and routes in that area. This overview document is intended to serve that need.

The area in question is a heavily forested, largely unpopulated region composed of both National Forest and private lands. Almost all roads are unpaved and none are plowed once snow starts to accumulate. Surfaces vary from well maintained gravel to narrow, rough dirt tracks. Road signage is infrequent and not all roads are depicted on even detailed topographic maps published by the U.S. Geological Service (USGS). In short, it is an area where navigation skills are quite valuable if response delays are to be minimized.

Area Overview

Attention will be focused in this document on the approximately 172 square mile emergency response area assigned to WAFD, as outlined in Figure 1. The east side of that area is bounded by the shoreline of Lake Almanor and a line drawn due south basically along the western edge of the Feather River canyon. Highway 36 forms the northern boundary, and the Plumas County line is the western boundary. The southern boundary is an irregular line that approximates Soda Ridge and works eastward from there, skirting the Caribou hydroelectric power plant area. Within that assigned area are found numerous campgrounds, several ranches or isolated habitations, active timberlands and a great many opportunities for outdoor recreation (including portions of the Pacific Crest Trail).

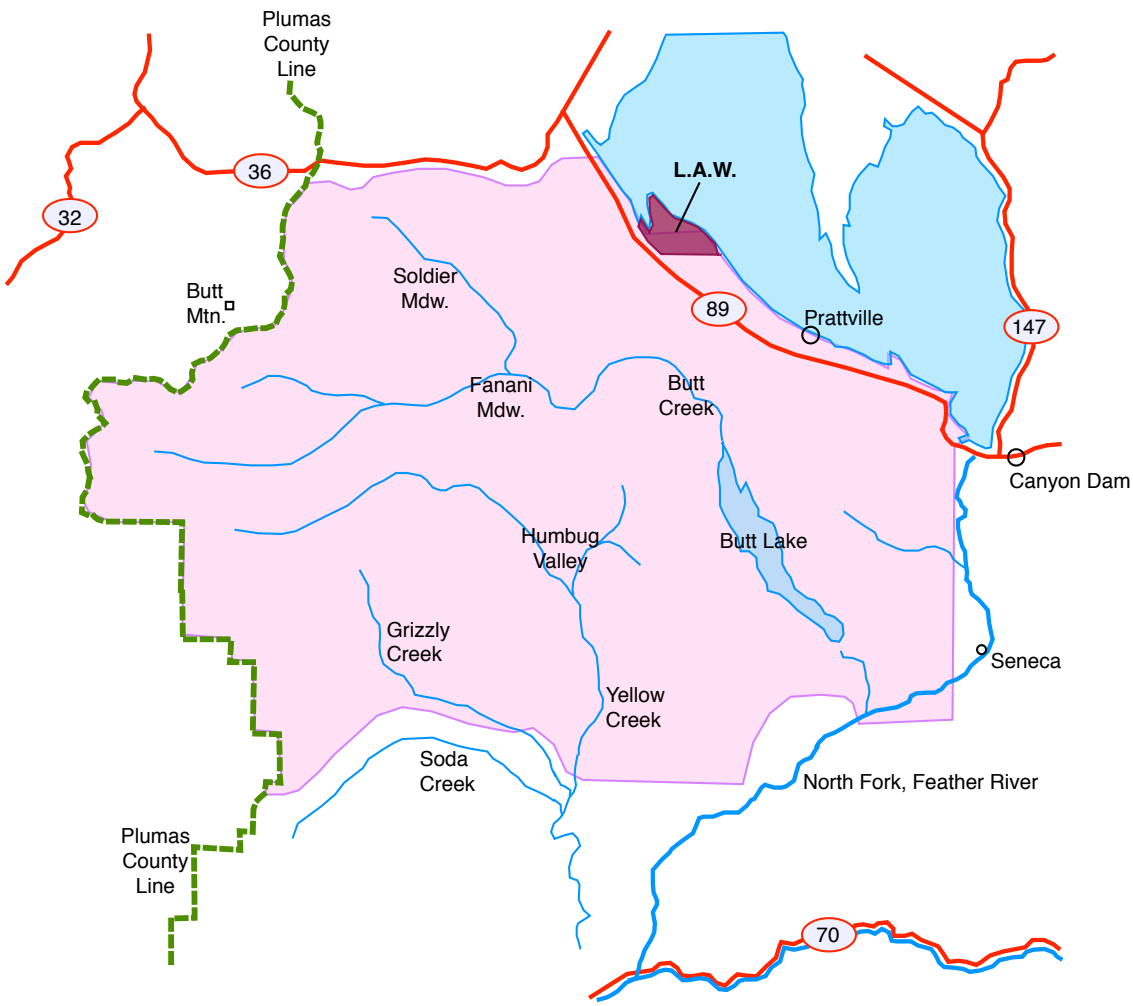


Figure 1. WAFD Emergency Response Area

Map Sources

Conventional road maps are of no real value when driving in the indicated area. The common fold-out ***Lassen National Forest map*** identifies several major routes but none of the secondary roads; it does, however, indicate the distribution of land ownership (private or National Forest) along with campground sites and Section numbers from the Public Lands Survey System (PLSS), often called the "Township Grid." More useful is the ***Lassen National Forest Atlas***, a collection of 1:63,360 scale topographic maps that provide substantial detail on most (but not all) roads. The topo maps of specific interest are:

Stover Mountain
Chester
Humboldt Peak
Humbug Valley
Almanor
Canyondam
Jonesville
Belden
Caribou

The **Twain** topo map in the ***Plumas National Forest Atlas*** also contains a final fragment of assigned response area.

Even further detail is found on 1:24,000 scale USGS topo maps of the same names as listed above. These are the maps most commonly used by hikers, forest planners and wildland firefighters. Scanned versions of these maps are used by many electronic services, including map chips for GPS receivers and various forms of mapping software. Of interest to emergency responders are two free sources for such maps. First is the **Avenza PDFmaps** app, usable on smart phones and tablets. Once you have downloaded the application, you then need to download the topo map files of interest (i.e., the USGS 1:24,000 scale maps of the same names as found above). With that, you can work with the individual maps on your cell phone or tablet without needing an internet connection or cell service.

A second service is an online-only system found at http://www.caltopo.com . This site contains all 1:24,000 scale topo maps of the entire country, including Alaska and Hawaii. Users are able to manipulate maps in various ways to suit specific needs and then save, share or print the results. (Information on how to use the site is available from the undersigned.) Bear in mind that you need internet service to be able to access CalTopo.

Some cautions are in order regarding the use of any of the above maps in the local area. First, even when using the very detailed 1:24,000 scale maps, you should be aware that some road alignments are in error and NOT ALL ROADS ARE SHOWN! You should never completely rely on counting road intersections as a method of establishing your position on a route.

A second and often related caution deals with the age of the information depicted on the map. Topo maps do not get updated on a frequent basis, which leads to numerous examples of changed features over a period of time. Printed maps usually list a publication date, which could be some time after the data were gathered. Many electronic maps lack that information, leaving users without a clue on just how recent the map might be. Therefore, always consider the possibility that something might have changed since the map was published and don't assume that the map is infallible.

Finally, if you are using a compass to orient your map (a good practice), be aware that magnetic declination causes the North needle to swing considerably to the east in this region. That declination is just over 14 degrees (East) at the present time. To properly orient your map towards due North, you will need to rotate it 14 degrees counterclockwise (left) of where the uncorrected North needle is pointing. Also, be sure you have stepped away from any metal objects (like a vehicle) before you take a compass reading; nearby ferrous metal or electronic devices distort compass readings.

Road Markings

Forest roads are notorious for their lack of regular markings. You should never rely on having them available … especially when you really need them. But you will encounter occasional road signs that may help verify your location. The few county roads in the area use familiar white metal "paddle" signs that indicate the County (PLU), the County road number (e.g., 307) and a distance indication in miles from wherever the road began (e.g., 3.0). Forest Service roads are marked with vertical fiberglass posts, often brown in color, containing a road number written vertically. The format for the road number in this region will be two numbers, the letter "N", and then several more characters, as for example, 27N03 or 26N47A.

Private road markings vary with the land owner. Collins Pine typically uses numbers painted on trees at road intersections. Their primary haul routes are called "Main Roads" and might appear as "MR1" for "Main Road One". Significant branches off the Main Roads generally

are listed as “100,” “200,” “300” and so forth. Minor branches off of those are marked “101,” “102,” etc.

Sierra Pacific roads use a letter and number combination, which is usually found on a yellow-painted wooden sign nailed to a tree. Yellow pipe gates are often found barring entry to Sierra Pacific roads.

CB Radio

Forestry activities generally involve large, heavy trucks. Surprise meetings with such vehicles on narrow forest roads can be an unwelcome thrill, which leads to a few words about making your presence known on those roads. The working vehicles typically carry a citizens’ band (CB) radio which is used to announce their location. If logging activity is underway on a particular route, there should be a CB channel posted at the highway at the start of that route. This often is found as something like “CB 25” printed on a white paper plate stapled to a tree, meaning that logging traffic is using CB channel 25 on that route. If your vehicle is equipped with a CB radio, it is advisable to LISTEN for position reports of the other traffic and REPORT your position as well.

Logging traffic will use the numbers posted on white paper plates along the route as location references. They usually try to post them roughly a mile apart, and some refer to them as “mile markers.” Inbound traffic will refer to themselves as *“empty,” “inbound,”* or *“comin’ in,”* while outbound traffic will call themselves *“full,” “heavy,” “outbound,”* or *“comin’ out.”* They will also indicate their position relative to one of those paper markers, such as *“Mile 3”* or *“Marker 7.5”*. By checking your position compared to the reported position of oncoming log traffic you can tell when you might need to find a wide spot to pull over. Reporting your direction and location in a similar manner will keep the other vehicles advised of your presence. But if you don’t have a CB radio available, it is advisable that you activate your flashing lights both inbound and outbound on these roads. There’s no point in trying to be subtle!

A final note on logging traffic: if the road surface has been wet down, it’s a clear sign that you can expect large vehicles to be on that route.

Principal Routes

There are several main routes to the west from the paved highways near Lake Almanor, as shown in Figure 2. Starting in the north and working to the south, there is Highway 36 itself than can rapidly access the northern edge of the response area. There is also a well maintained logging road, Collins Main Road One (MR1) that runs parallel to Hwy 36 and that can be easily reached at each end of the area, first via the road the runs south from the Cedar Chalet and also on the western end via the gravel Collins Road 900 near the County line.

Branching south off of MR1 are Collins Road 400 (the old highway), then MR2 (which passes Rock Lake) and Collins Road 500 that heads towards Soldier Meadows and Soldier Creek.

The next main westward route is Humboldt Road, a.k.a. Plumas County Road 308. This departs Hwy 89 directly across from what is locally called the “Archery Range Road,” more formally Forest Road 27N52. Humboldt Road (PC308) and Humbug Road (PC307) share the same alignment for the first 0.6 mile off of Hwy 89. At that point, Humboldt Road takes a sharp turn to the right and then proceeds in a southwesterly direction. In about 2 miles MR2 crosses Humboldt Road. About 5 miles in Humboldt Road reaches Fanani Meadow, an important road intersection.

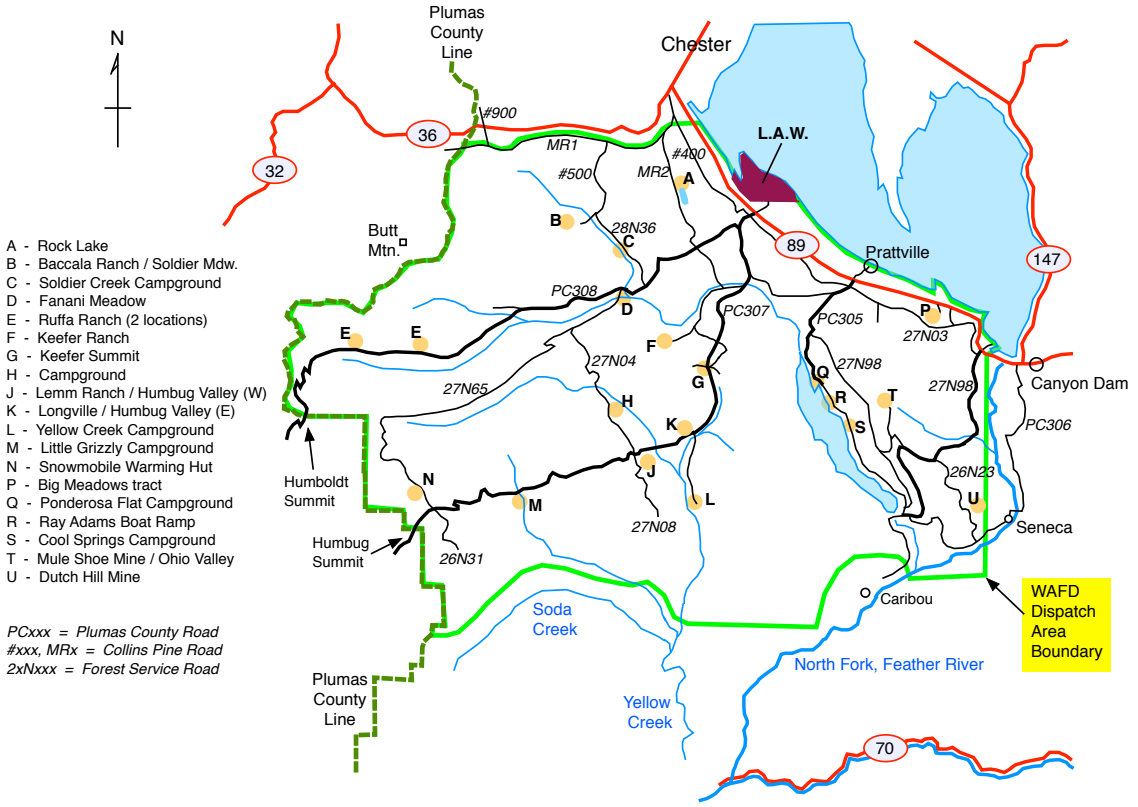


Figure 2. Primary Westside Routes

Humboldt Road continues from Fanani Meadow, passing Shanghai Creek and later the two portions of Ruffa Ranch. It finally begins a climb up the slope to the County line at Humboldt Summit (elevation a bit over 6600 feet).

Going back to Fanani Meadow (point **D** in Figure 2), another principal route heads southwest from that location. After a couple of miles it splits, with 27N65 continuing along the north side of the Yellow Creek drainage and 27N04 proceeding southeast towards Humbug Valley. The latter (27N04) is the recommended route to Humbug Valley for wide or heavy vehicles.

Returning now to Hwy 89, Humbug Road (PC307) proceeds south until it crosses Butt Creek and then starts ascending the slope to "Keefer Summit" (elevation about 5000 feet). The portion of Humbug Road between the points marked **G** and **K** on the map is a narrow and challenging downhill for a large emergency response vehicle and is <u>not recommended</u>.

Humbug Road continues across Humbug Valley, crossing 27N04 and then starting a long ascent up the slope to Humbug Summit (elevation just over 6700 feet).

The only paved access route illustrated on the Figure 2 map is the Butt Lake Road (PC305), which drops down into the Butt Lake depression and runs along the east side of the lake. The paving ends not long after reaching the lake shore area, but the road is regularly maintained for use by PG&E crews. If you continue south on that basic route beyond the dam area the road becomes challenging as it winds along the canyon wall towards Caribou.

The final main access route depicted is Forest Road 27N98, which begins directly across from the Forest Service boatramp facility at the south end of Lake Almanor. This is another well maintained dirt road that passes the south end of Ohio Valley and eventually reaches the south end of Butt Valley.

Another caution to mention here is that the extension of Seneca Road (PC306) south of Seneca and before the junction with 26N23 is truly a cliffhanger, not advised for large or heavy emergency response vehicles and most especially not when roads are slick.

GPS Waypoints

If road signs aren't prevalent, landmarks are hard to see and counting road intersections doesn't work well, then how DO you navigate reliably in the forests to the west? Happily, a bit of modern technology has come to our aid … Global Positioning System or GPS. Both vehicle units and handheld receivers will work, but there are a few little matters that need to be addressed before blindly following GPS directions or accepting the coordinates as gospel.

First is the matter of settings. If your GPS receiver can be configured to use various grids and units, then it is important that the proper ones are selected. The waypoints that follow all use what are generally the factory default settings for most GPS receivers. Unless you are the sole user of the receiver, it is good practice to verify those settings before relying on the GPS display. This is typically done by going into the MAIN MENU and selecting SETUP. From there, select UNITS, and verify the following:

Position Format … hddd° mm.mmm'
Map Datum …….. WGS 84
Distance/Speed .. Statute
Elevation …….. Feet

This arrangement will provide latitude and longitude coordinates in degrees and decimal minutes, using the WGS 84 datum (the international standard). Distance and velocity calculations will be displayed in miles and miles per hour, and elevation data will be presented in feet above mean sea level.

When using a GPS receiver, but sure to give it the widest sky view possible. The signal is blocked by the human body, by vehicle parts (like the cab), by trees and by terrain. You will obtain the most favorable results if you start in a reasonably open area and get an initial fix there, before moving into heavy timber. Be sure to let the receiver "settle" to obtain a stable fix before you use the coordinates or MARK a location.

Some GPS receivers provide an estimate of their current coordinate accuracy. This will help provide some guidance on when you are obtaining a "good" fix versus a "poor" one. Overall, even under the best conditions, the usual GPS receiver only gives you close approximations, good to within perhaps 10 meters. Don't be surprised if you find that you get slightly different coordinates each time to return to the same location. For that reason, the waypoint coordinates that follow are truncated to only two significant figures after the decimal point.

In the maps that follow, key reference points (generally road intersections) are highlighted and given a letter notation, which then refers to a table of latitude and longitude coordinates found below the map. You can use these waypoints to navigate to a known location in a step by step manner. You can also use those coordinates to verify your location when darkness or low visibility conditions exist. The maps, quite obviously, are simplified sketches of a particular area, and they leave out a great many roads and other points of interest. For that reason, always carry and use more detailed topographic maps to ensure that you have adequate navigation details.

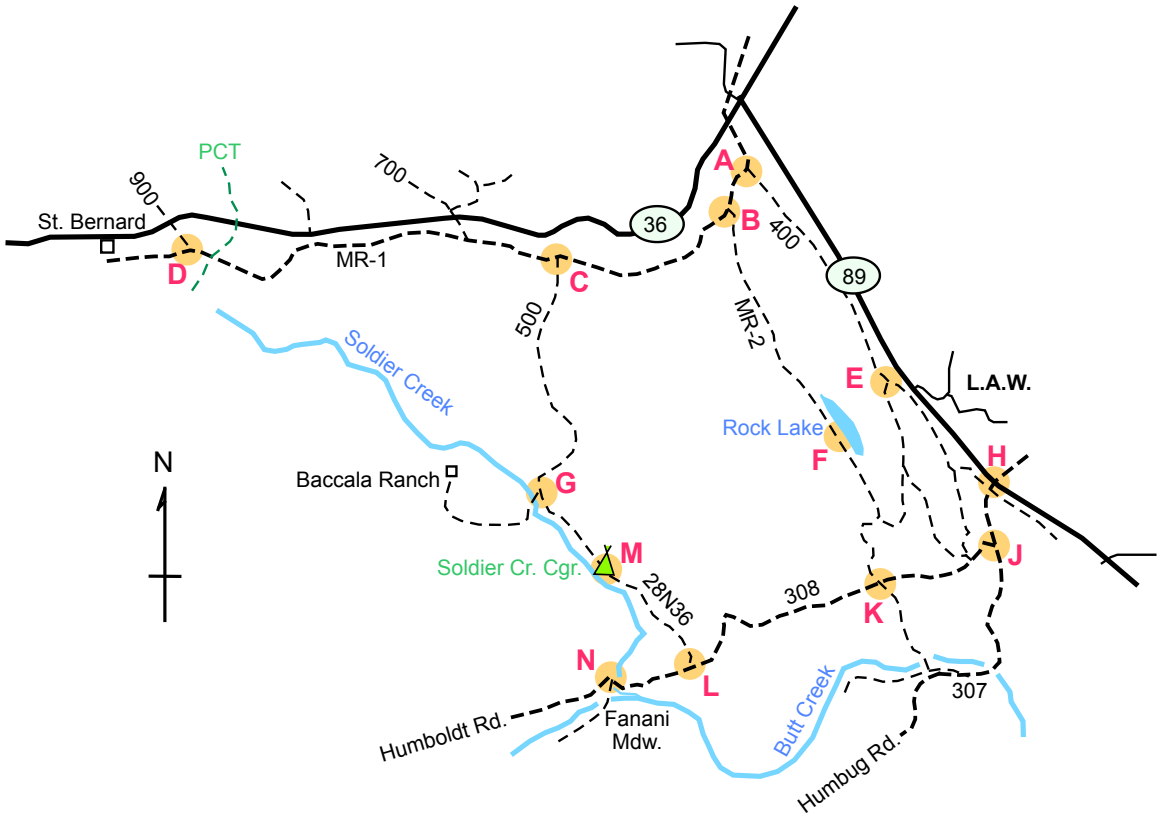


Figure 3. Northern Roads

	N. Lat.	W. Long.	Elev.	
A	40° 16.20'	121° 15.09'	4514 ft.	Jct. MR-1 & 400 (old highway)
B	40° 15.83'	121° 15.32'	4564 ft.	Jct. MR-1 & MR-2
C	40° 15.43'	121° 17.13'	4780 ft.	Jct. MR-1 & 500
D	40° 15.46'	121° 20.88'	4917 ft.	Jct. MR-1 & 900
E	40° 14.42'	121° 13.70'	4551 ft.	Jct. 400 & 450
F	40° 14.00'	121° 14.21'	4524 ft.	Rock Lake, along MR-2
G	40° 13.58'	121° 17.36'	4770 ft.	Baccala Ranch turnoff
H	40° 13.63'	121° 12.51'	4580 ft.	Jct. Hwy 89 & Humboldt/Humbug Rds.
J	40° 13.12'	121° 12.54'	4557 ft.	Jct. Humboldt & Humbug Rds.
K	40° 12.81'	121° 13.77'	4562 ft.	Jct. MR-2 & Humboldt Rd.
L	40° 12.12'	121° 15.76'	4725 ft.	Jct. 28N36 & Humboldt Rd.
M	40° 12.80'	121° 16.47'	4701 ft.	Soldier Creek Campground (28N36)
N	40° 12.04'	121° 16.57'	4656 ft.	Fanani Meadow

(Paved roads are drawn as solid black lines, while unpaved roads are dashed lines.)

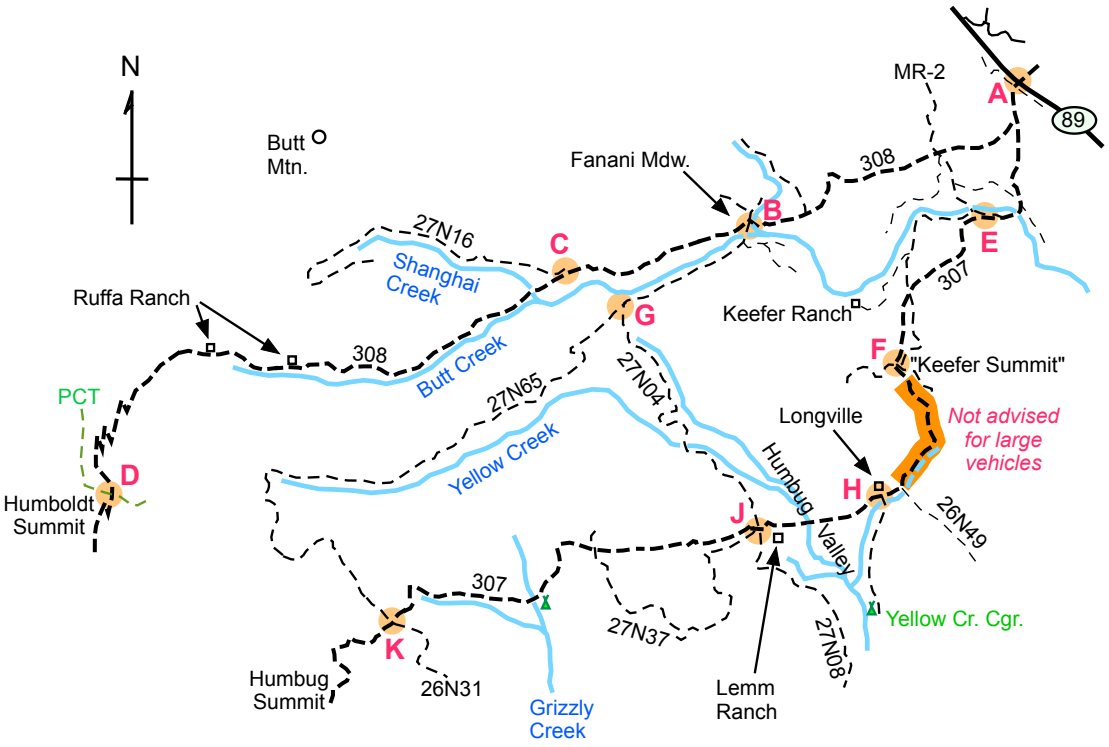
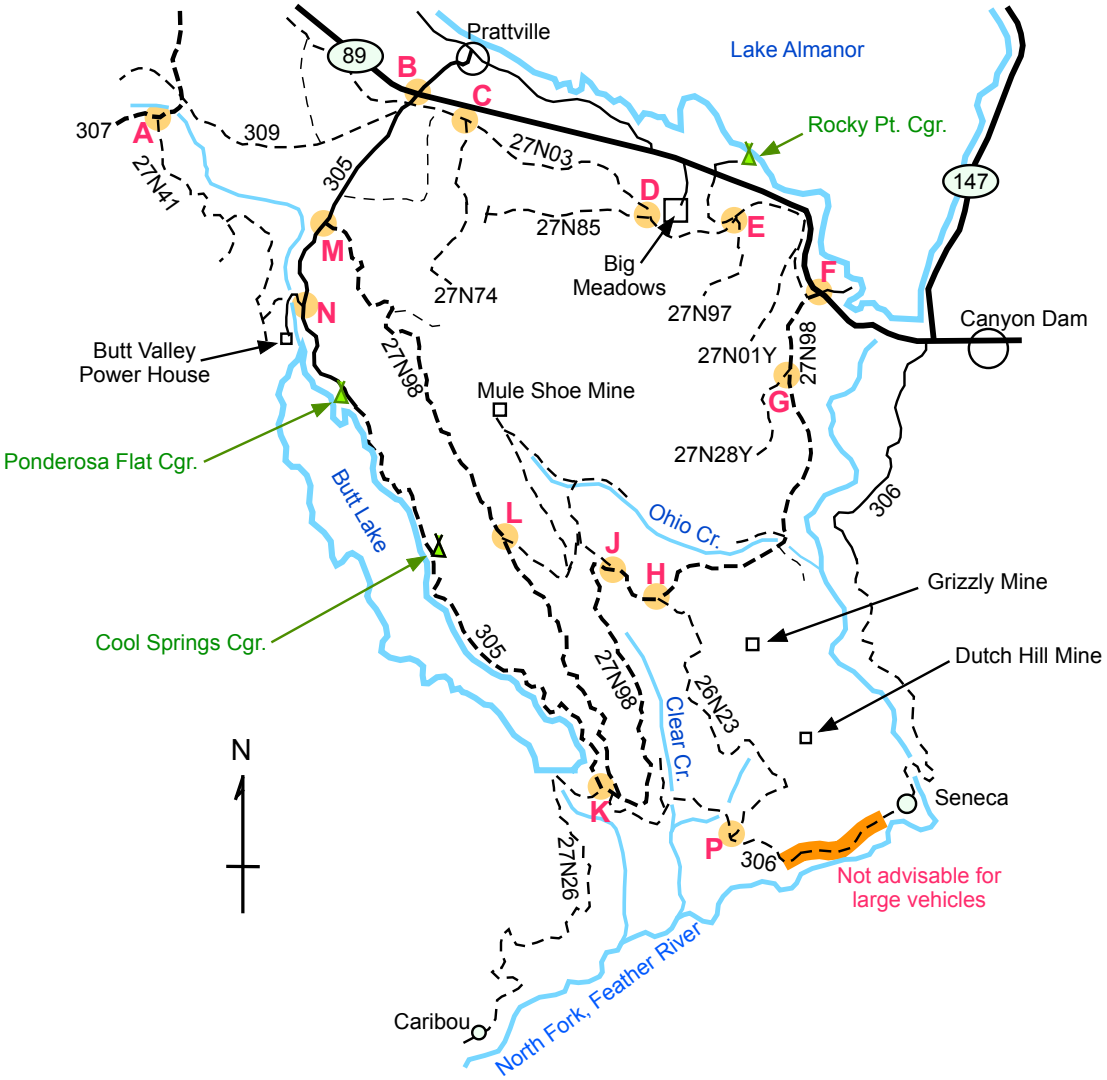


Figure 4. Central Roads

	N. Lat.	W. Long.	Elev.	
A	40° 13.63'	121° 12.51'	4580 ft.	Hwy 89 junction
B	40° 12.04'	121° 16.57'	4656 ft.	Fanani Meadow
C	40° 11.44'	121° 19.18'	5080 ft.	Jct. 308 & 27N16
D	40° 09.11'	121° 26.17'	6624 ft.	Humboldt Summit
E	40° 12.09'	121° 12.82'	4511 ft.	Jct. 307 & MR-2
F	40° 10.34'	121° 14.37'	4996 ft.	Keefer Summit
G	40° 11.09'	121° 18.44'	4835 ft.	Jct. 27N04 & 27N65
H	40° 08.82'	121° 14.59'	4361 ft.	Longville Junction
J	40° 08.42'	121° 16.53'	4434 ft.	Jct. 307 & 27N04
K	40° 07.53'	121° 22.21'	6406 ft.	Jct. 307, 27N65 & 27N31



Butt Valley Dam Junction Detail (K) :

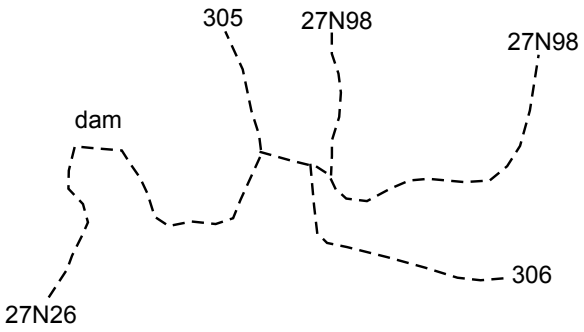


Figure 5. Southern Roads

Coordinates for Southern Road Waypoints:

	N. Lat.	W. Long.	Elev.	
A	40° 12.07'	121° 12.79'	4517 ft.	Jct. 307 & 27N41
B	40° 12.26'	121° 10.08'	4663 ft.	Jct. Hwy 89 & 305
C	40° 12.05'	121° 09.61'	4668 ft.	Jct. 27N03 & 27N74
D	40° 11.29'	121° 07.73'	4700 ft.	Jct. 27N03 & 27N85
E	40° 11.29'	121° 06.86'	4665 ft.	Jct. 27N03 & 27N97
F	40° 10.68'	121° 06.00'	4558 ft.	Jct. Hwy 89 & 27N98
G	40° 10.13'	121° 06.32'	4734 ft.	Jct. 27N98 & 27N28Y
H	40° 08.27'	121° 07.65'	5003 ft.	Jct. 27N98 & 26N23
J	40° 08.48'	121° 07.99'	4905 ft.	Jct. 27N98 & 27N21 (east)
K	40° 06.82'	121° 08.21'	4277 ft.	Butt Dam Junction
L	40° 08.79'	121° 09.24'	4933 ft.	Jct. 27N98 & 27N21 (west)
M	40° 11.26'	121° 11.03'	4696 ft.	Jct. 305 & 27N98
N	40° 10.58'	121° 11.27'	4211 ft.	Jct. 305 & Power House Road
P	40° 06.42'	121° 06.92'	4280 ft.	Jct. 306 & 26N23

Road Miles

Switching now from GPS waypoints to odometer readings, the (approximate) travel distance in miles between selected road intersections is depicted in the map below. Total road distance from the paved highway is listed in subsequent tables. In both cases, the numbers were derived from reputable mapping software. Please note that vehicle odometers vary, which may lead to differences between what you find here and what actually appears on your speedometer.

Closing Notes

The information presented here was derived from reputable mapping software sources. While every effort has been made to accurately portray roads and list GPS coordinates in this document, no field verification has been conducted. There are no guarantees in either case; use at your own risk.

Emergency responders may want to attach their own additional maps and location notes to the back of this document as a way of keeping such information in a single package.

Dale Knutsen
15 June 2015

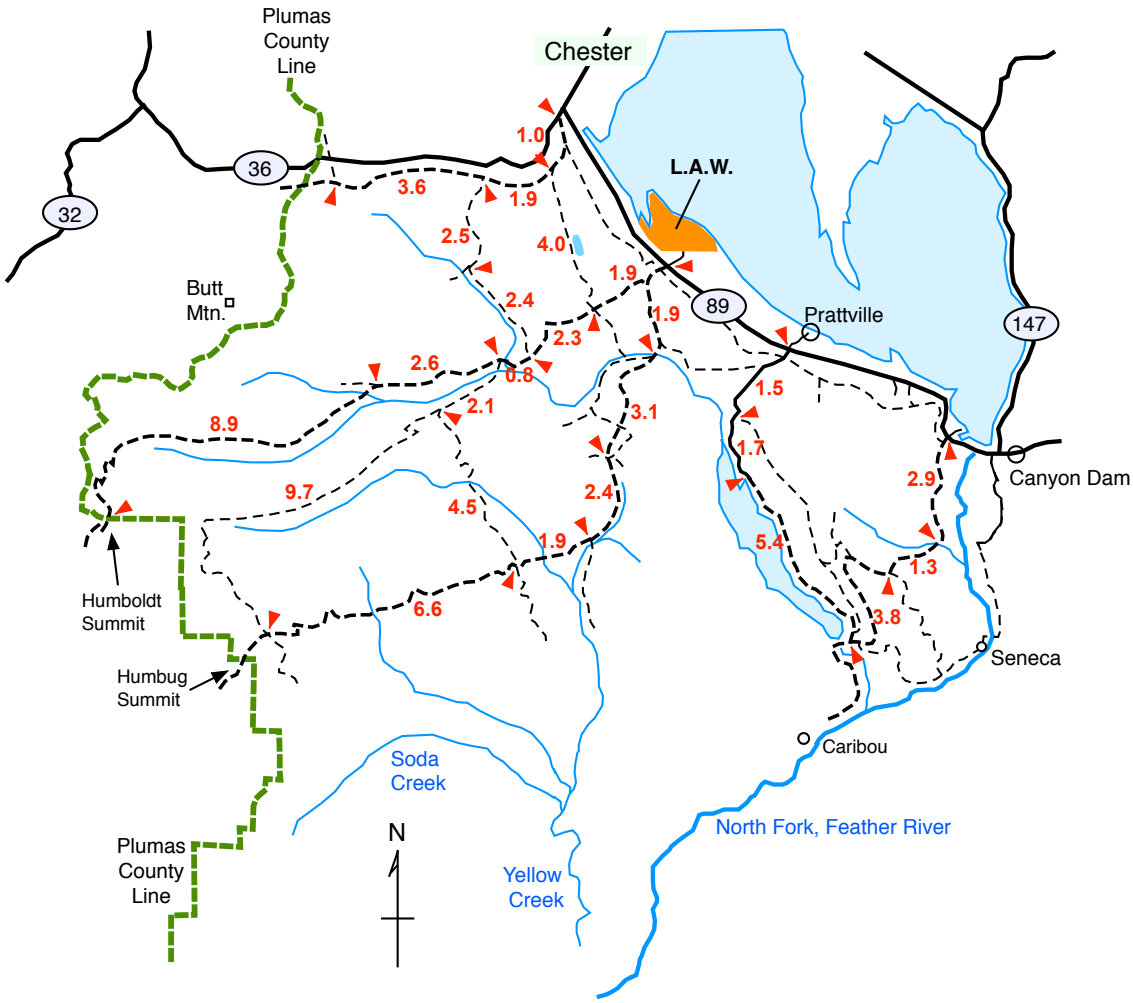


Figure 6. Road Mileage Between Indicated Intersections

Road Mileage Tables

Humboldt Road (308) to Humboldt Summit:

Highway 89	0.0 mile	
308 / 307 split	0.6	
308 / MR-2 junction	1.9	
308 / 28N36 junction	4.2	(turnoff to Soldier Creek Campground)
Fanani Meadow	5.0	
308 / 27N16 junction	7.6	(Shanghai Creek junction)
Ruffa Ranch – East	11.7	
Ruffa Ranch – West	13.4	
Humboldt Summit	16.5	(Plumas County line, PCT crossing)

Humboldt Road (308) to Soldier Meadows:

Highway 89 ……	0.0 mile	
308 / MR-2 junction ……	1.9	
308 / 28N36 junction ……..	4.2	
Soldier Creek Campground ..	5.3	
Soldier Mdw turnoff ……	6.6	

Northern Route to Humbug Valley (via Fanani Meadow):

Highway 89 ……	0.0 mile	
308 / MR-2 junction ……	1.9	
Fanani Meadow ……	5.0	
27N04 / 27N65 junction …….	7.1	
27N04 / 307 junction ……..	11.6	(west side of Humbug Valley)
Longville ……	13.5	(east side of Humbug Valley)

Humbug Road (307) to Humbug Summit:

Highway 89 ……	0.0 mile	
Butt Creek bridge ……	1.9	
Keefer Summit ……	5.0	
(this section not advised for large vehicles)		
Longville ……	7.4	(east side of Humbug Valley)
307 / 27N04 junction ……	9.3	(west side of Humbug Valley)
Little Grizzly Creek …….……	13.1	
307 / 27N65 junction ……	15.9	
Humbug Summit ……..	18.1	(Plumas County line)
		(PCT crossing is 0.5 mile further west)

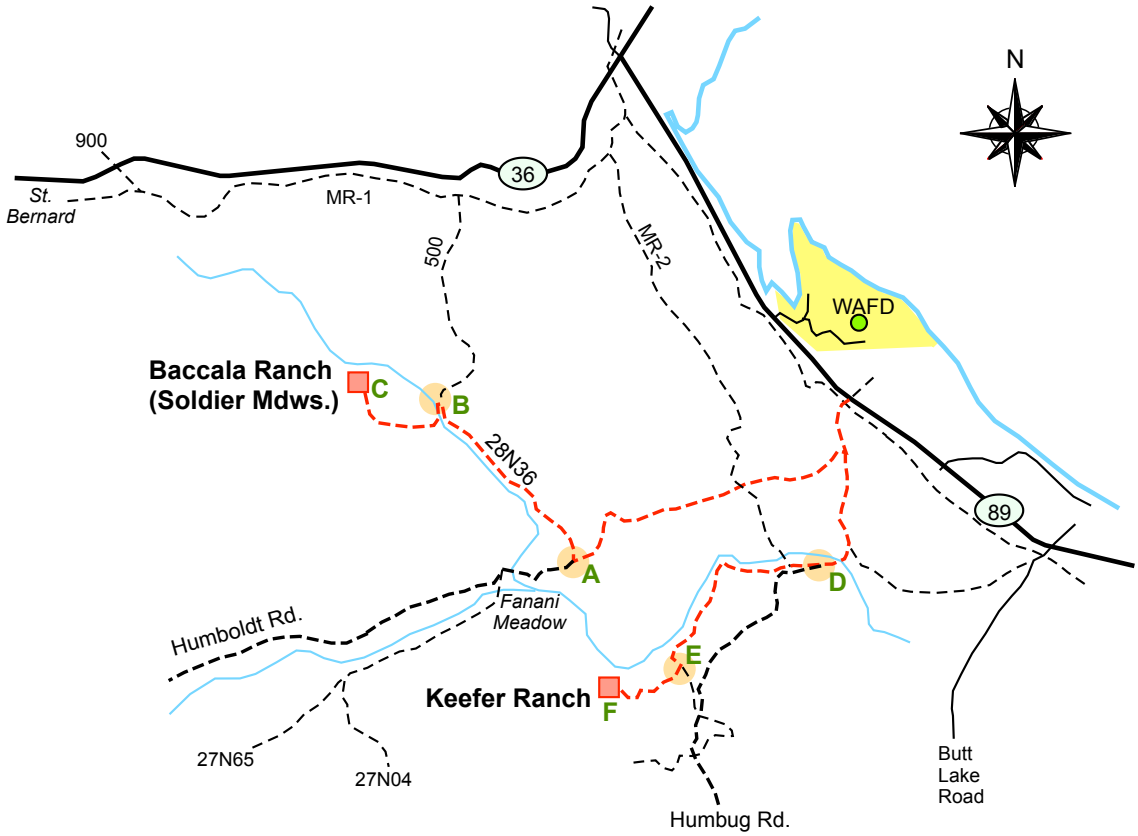
Butt Valley Road (305):

Highway 89 ……	0.0 mile	
305 / 27N98 junction ……	1.5	
Ponderosa Flat Campground	3.2	(near the end of paving)
Ray Adams Boatramp …….		
Cool Springs Campground ..	6.3	
Dam junction ……	8.6	

Forest Road 27N98:

Highway 89 ……	0.0 mile	(across from USFS boat ramp road)
Ohio Creek bridge ……	2.9	
27N98 / 26N23 junction …..	4.2	(“summit”)
Dam junction ……..	8.0	

APPENDIX A - Driving Routes to Baccala Ranch & Keefer Ranch



Baccala Ranch (Soldier Meadows):

- From Hwy 89, take Humboldt Rd. (PC308) for approximately 4.2 miles until reaching the Soldier Meadows Campground turnoff (**A**) at 40° 12.12' N, 121° 15.76' W.
- Turn RIGHT onto 28N36 and proceed for approximately 2.4 miles to Soldier Meadows turnoff (**B**) at 40° 13.58' N, 121° 17.36' W.
- Turn LEFT onto the private road and proceed another 1.4 miles to the ranch buildings (**C**) at 40° 13.73' N, 121° 18.20' W. (Note; There will likely be a locked gate on the private road.)

Keefer Ranch: *(May be called by a different name now.)*

- From Hwy 89, take Humbug Road (PC 307) south approximately 2.1 miles to a narrow fork in the road (**D**) just beyond the bridge over Butt Creek at 40° 12.09' N, 121° 12.82' W; take the RIGHT fork, closest to the creek.
- Follow the unnumbered road along the creek for approximately 1.9 miles to the ranch road junction (**E**) at 40° 11.64' N, 121° 14.23' W.
- Turn RIGHT onto the ranch road and follow it for about 1.3 miles to the ranch buildings (**F**) at 40° 10.98' N, 121° 14.96' W. (Note: There will likely be a locked gate on the ranch road.)

Appendix B - Sighting Bearings from Lake Almanor West

On occasion there has been a need to check for smoke plumes while observing from an elevated location at Lake Almanor West. This typically means visually scanning from along Top of the West or Eagle Crest near the WAMWCo water tanks. A compass bearing to the smoke helps narrow the search for the source.

The diagram below may assist in providing a general orientation. The red lines indicate true bearings from the high ground at L.A.W. Magnetic bearings would be rotated 14 degrees East (clockwise), as indicated by the dashed black “Magnetic North” line.