

The Mormon Wagon Roads In Southern Nevada: Implications for the History and Archaeology of Early Roads in the Western U.S.

Jeffrey L. Baker
Desert Research Institute
and
Annette J. Thompson
Knight & Leavitt Associates, Inc.

Paper Presented at the 2014 Preserving the Historic Road Conference, Savanna Georgia. September 27, 2014

The Mormon Wagon Road¹, a predecessor of modern day I-15, was the major route connecting Los Angeles and Salt Lake City in the second half of the nineteenth century (Figure 1). The history of the Mormon Wagon Road has been documented in great detail in a number of places (Hafen 1948; Hafen and Hafen 1954; Leavitt et al. 1993; Lyman 2004; Lyman and Reese 2001; McBride 2001, Myhrer et al. 1990; Warren 1974). This paper will briefly summarize the history of the Mormon Wagon Road before discussing the present research focus.

History of the Mormon Wagon Road and its Predecessors

The Mormon Wagon Road was an outgrowth of the Old Spanish Trail, which itself utilized an existing network of Native American trails. The Escalante-Dominguez expedition of 1776 was the first attempt by Euro-Americans to journey over Native American trails in southern Utah. At the same time, Francisco Garcés was using Native American trails to explore the Mojave Desert in California (Chavez 1976; Paher 1971; Warren 1974). The Native American trails in Nevada were not explored by Euro-Americans until 1826.

At that time the fur trapper Jedediah Smith passed through southern Nevada on his way to southern California via existing Native American trails (Myhrer et al. 1990; Warren 1974). Building upon the travels of Garcés, Smith, and the Escalante-Dominguez expedition, Antonio Armijo used the same network of trails to travel between Abiquiú, New Mexico (near modern day Santa Fe) and San Gabriel, California to trade blankets and other goods for mules and horses in southern California (Lyman 2004). Armijo's expedition established a trade route between the Santa Fe and Los Angeles areas that became important to both economies (Figure 2). The trade continued on a regular basis until the end of the Mexican–American War in 1848. In addition to trading horses, mules, and blankets, travelers along this trade route, now known as the Old Spanish Trail, also operated a profitable slave trade by capturing Native Americans found in the vicinity and selling them into slavery. The slave trade led the Southern Paiute and other Native American groups living along the trail to abandon many of their settlements (Stoffle et al. 2008).

¹ The Mormon Wagon Road should not be confused with the Mormon Trail which ran from Nauvoo, Illinois to Salt Lake City.

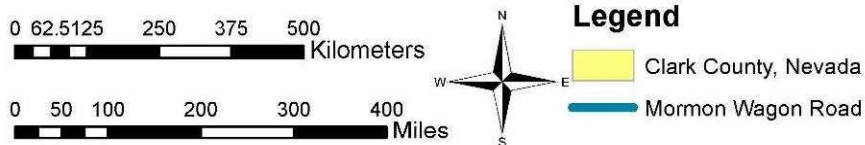


Figure 1. Map Depicting the Route of the Mormon Wagon Road Between Salt Lake City and Los Angeles.

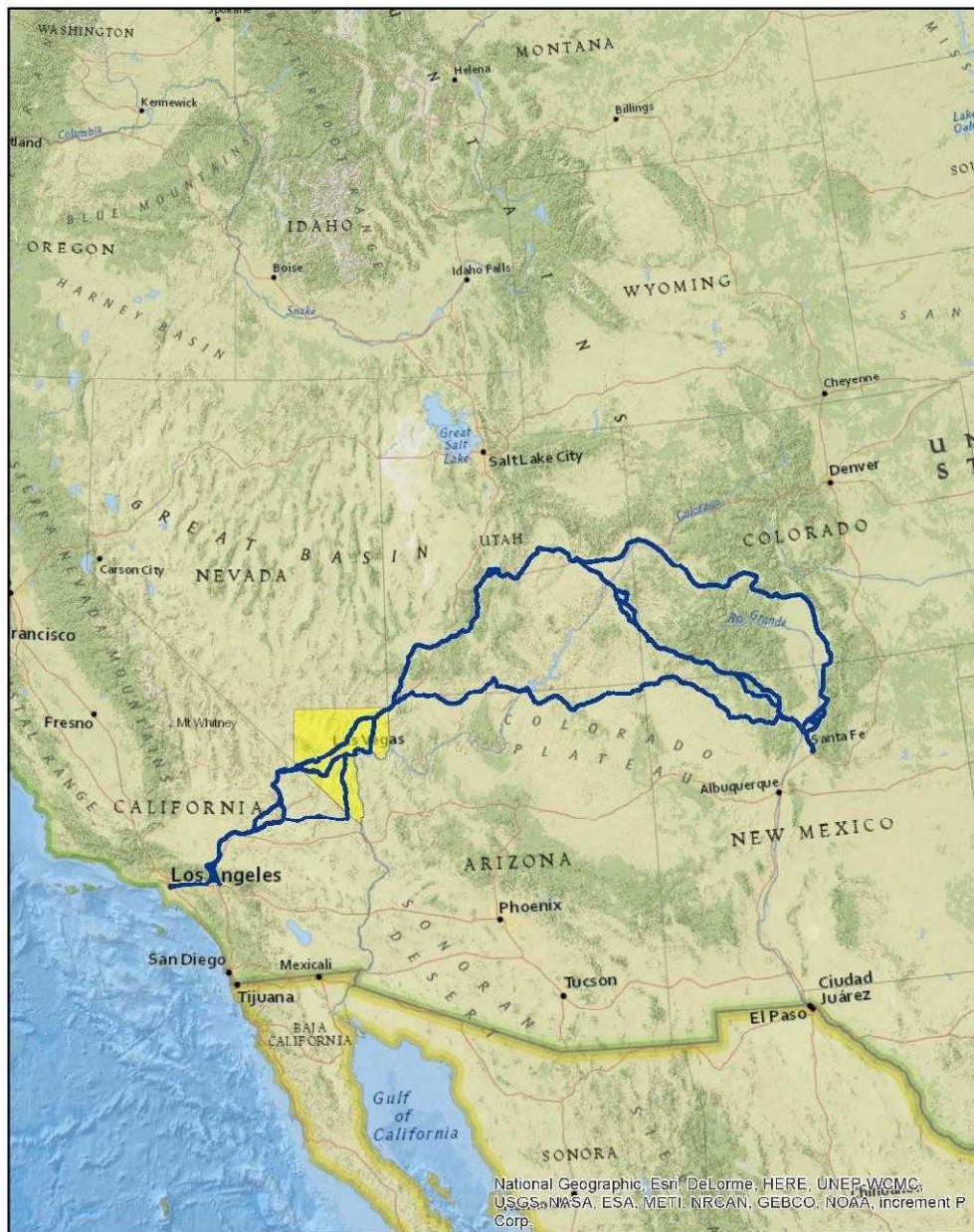


Figure 2. Map Depicting the Route of the Old Spanish Trail Between Santa Fe and Los Angeles.

Between 1842 and 1844, John C. Fremont directed an expedition that explored the Rocky Mountains and other areas of the western U.S. (Warren 1974). As part of this expedition, Fremont traveled from southern California through Nevada on the Old Spanish Trail. Fremont was the first person to label the route “The Old Spanish Trail.” Prior to Fremont’s trip, the route was known as “El Camino de California” or “El Camino de Nuevo Mexico” (Warren 1974). Based upon information provided to Fremont by his various informants, it is clear that there was not a single “Old Spanish Trail” but a variety of different routes that were used between southern California and New Mexico (Warren 1974). Following Fremont’s return to Washington, he prepared a report for Congress, which was completed in 1845. Congress ordered 20,000 copies of Fremont’s report printed, which became widely available. Fremont’s work was also incorporated into other books about the western U.S., such as Joseph Ware’s *Emigrants’ Guide to California* (1849).

After the Mexican–American War, travel along the Old Spanish Trail rapidly declined as routes farther to the south became known. One of the groups responsible for identifying and exploring a southern route was the Mormon Battalion. This group offered their services to the U.S. military during the Mexican–American War in exchange for financial assistance from the U.S. government to Mormon settlers who were moving to the Great Salt Lake area of Utah. By the time the Mormon Battalion arrived in southern California, the Mexican–American War had ended, so the group headed north to meet up with the other settlers in Salt Lake (Lyman 2004). One portion of the battalion traveled north to southern Utah via the Old Spanish Trail. Where the Old Spanish Trail turned eastward, the group continued north to Salt Lake City. Subsequently, settlers and other travelers used this route, known as the Mormon Wagon Road or Southern Route, to travel between southern California and Salt Lake City.

The first large scale use of this route was stimulated by the discovery of gold in northern California in 1848. The availability of Fremont’s report combined with the Donner Party tragedy from 1846 to 1847 also prompted heavy use of the Southern Route by eastern emigrants in 1849 and 1850 (Lyman 2004).

After 1848, the major trade network in this portion of the western U.S. switched to a route between Salt Lake City and Los Angeles. The relatively new Mormon settlement of Salt Lake City was the driving force behind the establishment of this new route. Unlike the Old Spanish Trail, the Mormon Wagon Road was traversed by wagons carrying families and a variety of goods through the area. From southern Utah to Los Angeles this new road closely followed the alignment of the Old Spanish Trail. The Church Jesus Christ of Latter Day Saints established a number of settlements along this route, including Las Vegas and Bunkerville in Clark County, Nevada (Figure 3). The Mormon Wagon Road continued to be an important regional route until 1905 when the San Pedro, Los Angeles and Salt Lake Railroad was completed. But even into the 1920s when the Arrowhead Highway was completed between Salt Lake City and Los Angeles, segments of the Mormon Wagon Road continued to be used for local traffic. The Arrowhead Highway was the first paved road in the area (Lyman 1999).



Figure 3. Map Depicting the Route of the Mormon Wagon Road in Clark County, Nevada.

Academic Study of the Old Spanish Trail/Mormon Wagon Road

The academic study of the Old Spanish Trail was first undertaken by Hill in 1930 (cited in Myhrer et al. 1990). In the 1950s, Hafen and Hafen also undertook a study of the Old Spanish trail (Hafen 1948; Hafen and Hafen 1954), followed by Elizabeth Warren in 1974. Warren argued that the route Fremont traveled in 1844 was different from the route used prior to 1844. According to Warren, the entire length of Fremont's route was not used until after the publication of his report in 1845. In 1964, as part of the Nevada's centennial, the Boy Scouts, under the direction of newspaper journalist Sherwin Garside, placed markers along a route that was thought to be Fremont's route (Figure 4). Three of these markers are present on or in the vicinity of Mormon Mesa: (1) on the north side of the Virgin River, where State Route-170 (SR-170) crosses the Virgin River, referred to here as the Virgin River marker; (2) on the edge of Mormon Mesa overlooking a side canyon of Halfway Wash, referred to here as the Halfway Wash marker; (3) near the western edge of Mormon Mesa, and directly south of I-15 (western Mesa marker) (Figure 5). The placement of these markers has played a major role in subsequent archaeological and historical research of the Old Spanish Trail and the Mormon Wagon Road, with most writers assuming that the markers were placed along **the** alignment of the Old Spanish Trail/Mormon Wagon Road, or at the very least, along the route taken by Fremont (Henderson and Prinz 2011; McBride 2001).



Figure 4. Photograph of an Old Spanish Trail Marker erected by the Boy Scouts in 1964. This marker is adjacent to SR 170 just north of the Virgin River.

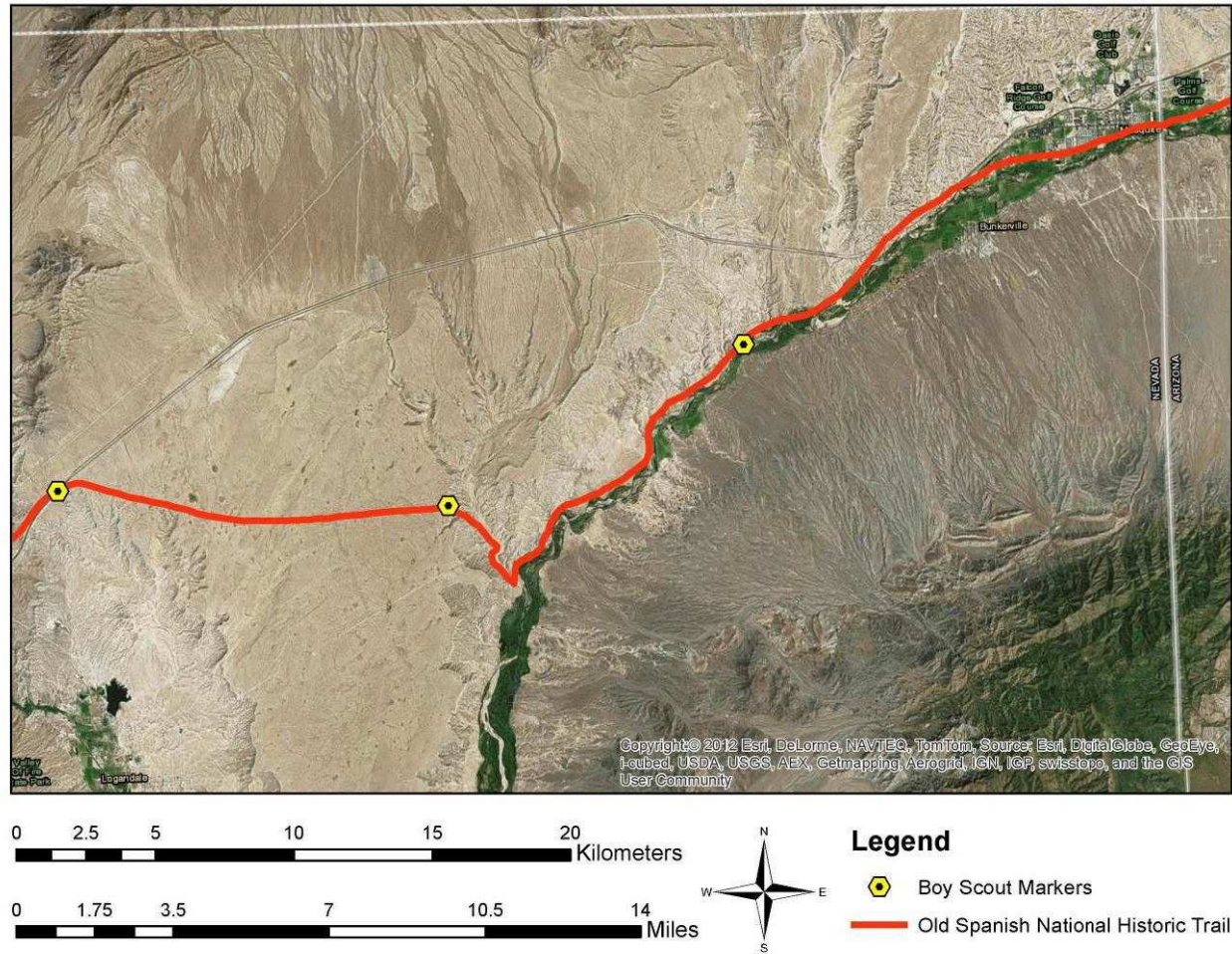


Figure 5. Map Depicting the Location of the Boy Scout Markers and the Presumed Route of the Old Spanish Trail/Mormon Wagon Road.

The traditional view of the Mormon Wagon Road in the northern portion of Clark County is that the road followed the Virgin River to the mouth of Halfway Wash, then followed Halfway Wash for a little over two miles. At this point the road climbed up the slope of Mormon Mesa and then headed in a west-northwesterly direction before descending the Mesa at a location immediately north of I-15. This is the route that is depicted on the National Register of Historic Places nomination form for the Old Spanish Trail/Mormon Wagon Road in Nevada (McBride 2001). Warren (1974) argues that most of the traces of the Old Spanish Trail were destroyed by the subsequent Mormon Wagon Road, a viewpoint adopted by most researchers and agency archaeologists (e.g., Henderson and Prinz 2011).

Current Research

In 2012, the authors conducted a pedestrian archaeological survey of over 120 miles of a 150-foot wide corridor or right-of-way (ROW) for Overton Power on and adjacent to Mormon Mesa in northern Clark County, Nevada (Figure 6). It is this fieldwork that forms the basis of the remainder of this paper. Prior to the start of our fieldwork, we prepared field maps that noted the location of roads depicted on historic maps (Figure 7). When in the vicinity of these locations, we made every attempt to identify possible historic roads during our initial trek along the Overton Power right-of-way. This initial phase of the survey identified a number of possible historic roads.

We revisited each of these roads to measure their width, look for the type of wear present on the rocks, and examine the area for artifacts associated with the roads. Three different types of wear were observed on the roads: wheel polish, wheel abrasions, and battering. Polish and abrasions are both associated with wagon use and consist of wear across the entire rock surface. The difference between these two types of wear is the smoothness of the worn surface. Rocks exhibiting polish are smooth to the touch (Figure 8), while those exhibiting abrasions have a rougher, almost sandpaper feel (Figure 9). We do not know the factors responsible for creating polish vs. abrasions. Two possible explanations are: (1) the mineralogic nature of the rock; or (2) the amount of traffic that traveled over the road. Initially, we had thought that polish might be found in roads associated with heavier wagon traffic than rocks with abrasion. But we subsequently identified an abraded rock that contained an incipient wagon wheel groove (Figure 10). Wagon wheel grooves required a great deal of use to be created and were rarely observed.

Battering, associated with automobile roads, is not present across the entire surface of a rock, but shows up as individual dings on the rock (Figure 11). We suspect that this type of wear is created by gravels trapped in the tread of rubber tires. Roads were identified as either automobile or wagon roads based upon the type of wear present on the rocks and/or the artifacts associated with the road. If the majority of the artifacts predated 1920, we classified the road as a wagon road. If the majority of the artifacts postdated 1930, we classified the road as an automobile road. Very few artifacts found in our survey dated to the period between 1920 and 1930.

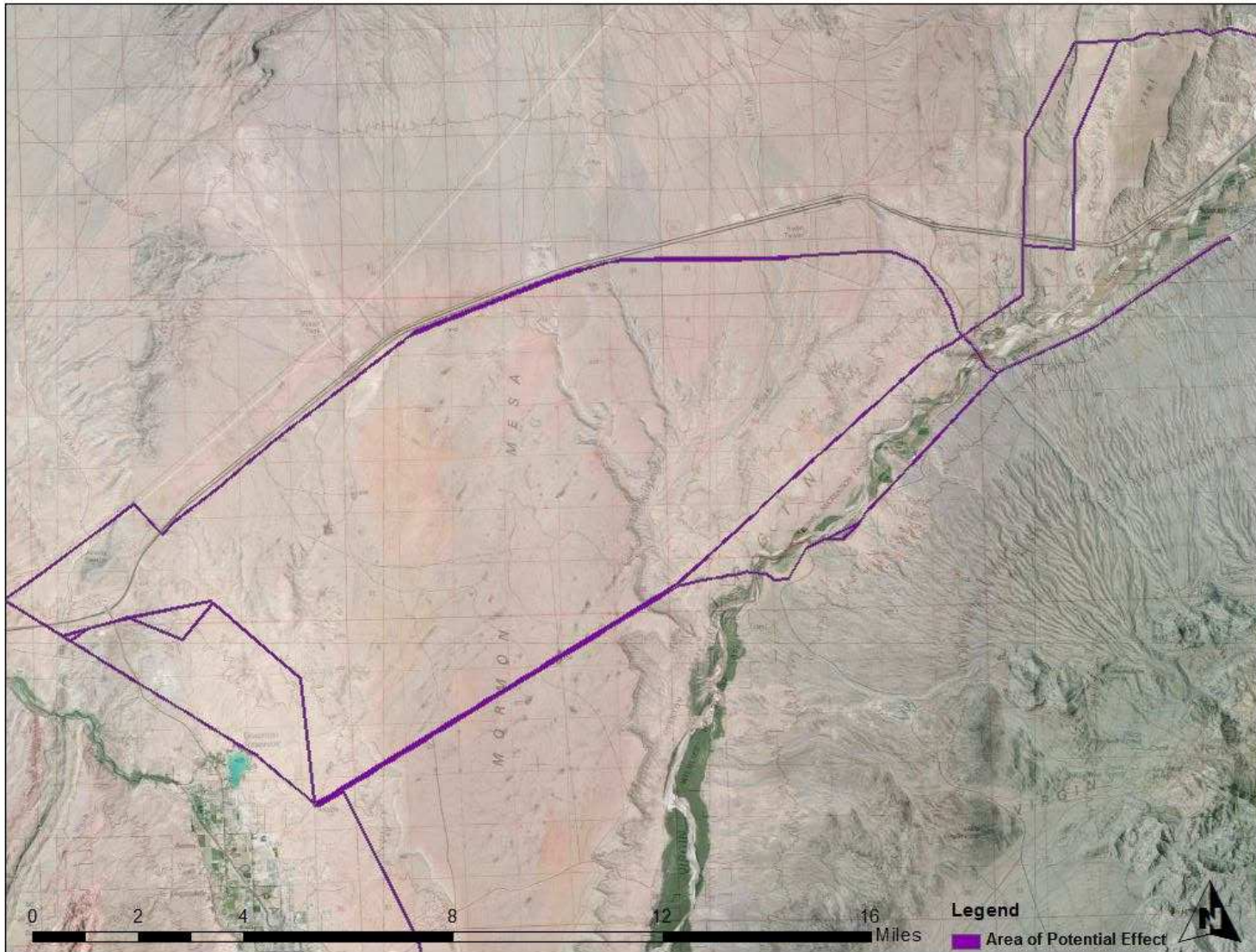


Figure 6. Map of the Overton Power Survey Corridor/Right-of-Way.

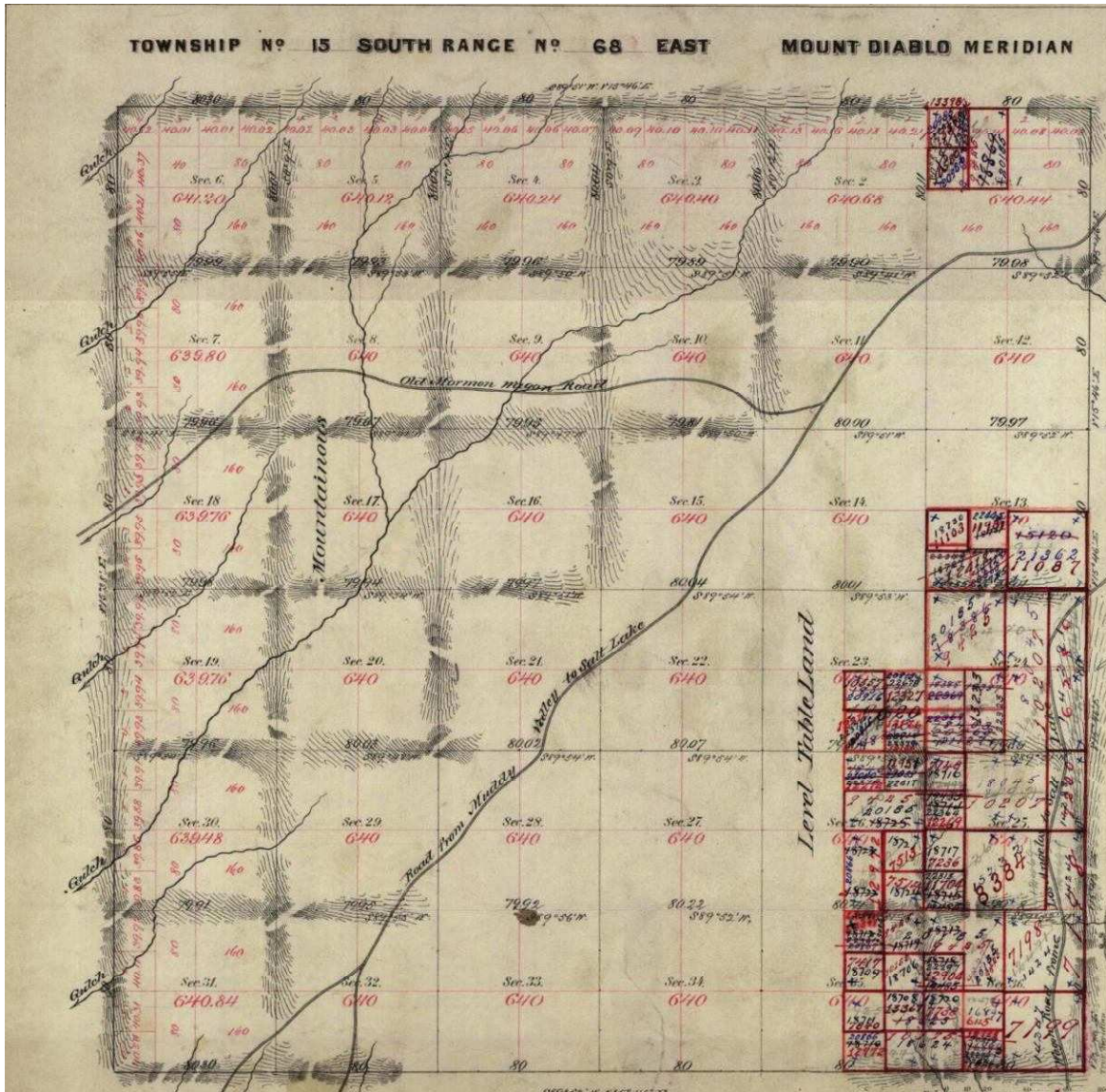


Figure 7. 1881 GLO Map of Township 15S Range 68E Depicting Historic Roads (Image courtesy of the Nevada Division of State Lands and the DeLaMare Library, University of Nevada, Reno).



Figure 8. Photograph of Wagon Wheel Polish Along an Alignment of the Mormon Wagon Road.



Figure 9. Photograph of Wagon Wheel Abrasions on an Alignment of the Mormon Wagon Road.



Figure 10. Photograph of a Wagon Wheel Groove on an Abraded Rock along an Alignment of the Mormon Wagon Road.



Figure 11. Photograph of Battering on a Rock in an Alignment of the Carp-Elgin Road, an Early Automobile Road on Mormon Mesa.

After we had used the artifact and rock wear categories to identify road types (wagon vs. automobile), we compared the width of the roads. To do this, we started out measuring both the inner and outer width of the tracks that were associated with the roads (Figure 12). We soon realized that the width of the inner track (or median) did not provide a good distinguishing measure of the difference between earlier roads and later roads. Although the median is generally smaller for wagon roads than automobile roads, there is clearly an overlap. The median on wagon roads varies in width from 15 to 42 inches, while the median on automobile roads varies from 32 to 52 inches (Figure 13). The width of the outer track provides a clear distinction between automobile and wagon roads. Wagon roads have an outer track of less than 82 inches, while automobile roads have an outer track of 82 inches or greater (Figure 14). The one exception to this is a road that we are simply not sure whether it was an automobile road or a wagon road. We suspect that the road predates 1925, but could find no definitive evidence for dating it. None of the rocks in this road showed any trace of wear. Because the road is located in close proximity to the Arrowhead Highway, we were unable to clearly associate any artifacts with the two-track road. It should be noted that in a few areas, wagon roads had clearly been used by modern vehicles. In these areas the roads were substantially wider than 82 inches. A wagon road that has been subjected to modern disturbance can be in excess of 82 inches in width.



Figure 12. Photograph Depicting the Measurements of the Outer Track (Green Line) and Inner Track (Orange Line).

Road Alignment	Site Number	Inner Track	Type of Road
TG-33 – alignment 1	26CK3638	15	Wagon
TG-33 – alignment 2	26CK3638	24	Wagon
TG-33 – alignment 1	26CK3638	31	Wagon
JB-123	N/A	32	Automobile
SG-7	26CK9463	32	Wagon
TG-30	26CK3638	33	Wagon
SG-2	26CK9463	36	Automobile
SG-2	26CK9463	36	Automobile
TG-11	26CK9503	36	Wagon
TG-34	26CK3638	37	Wagon
SG-2	26CK9463	38	Automobile
TG-31	26CK3638	39	Wagon
SG-2	26CK9463	40	Automobile
SG-5	N/A	40	Unknown
TG-18	26CK3638	40	Wagon
SB-8	26CK9499	42	Wagon
JB-134	N/A	44	Automobile
SG-6	26CK94963	44	Automobile
SG-5	N/A	46	Automobile
JB-096	N/A	48	Automobile
JB-097	N/A	48	Automobile
TG-7	N/A	52	Automobile

Figure 13. Table of the Inner Widths of Wagon vs. Automobile Roads.

Road Alignment	Site Number	Outer Track	Type
TG-40 North Branch	26CK3638	66	Wagon
GM-11	26CK3638	66	Wagon
TG-33 alignment 1	26CK3638	67	Wagon
TG-33 alignment 2	26CK3638	67	Wagon
TG-33 alignment 1	26CK3638	67	Wagon
SG-10	26CK3638	68	Wagon
SB-100 alignment 3	26CK3638	69	Wagon
TG-40	26CK3638	69	Wagon
SB-101	26CK3638	71	Wagon
SG-7	26CK9463	72	Wagon
TG-30	26CK3638	72	Wagon
TG-31	26CK3638	72	Wagon
SB-100 alignment 2	26CK3638	75	Wagon
TG-40 South Branch	26CK3638	78	Wagon
TG-18	26CK3638	78	Wagon
SB-8	26CK9499	78	Wagon
SG-5	N/A	82	Unknown
TG-11	26CK9503	82	Wagon
SG-6	26CK9463	84	Automobile
JB-097	N/A	84	Automobile
JB-123	N/A	86	Automobile
SG-5	N/A	88	Automobile
JB-134	N/A	90	Automobile
SG-2	26CK9463	92	Automobile
SG-2	26CK9463	94	Automobile
SG-2	26CK9463	96	Automobile
JB-096	N/A	96	Automobile
SG-2	26CK9463	102	Automobile
TG-7	N/A	106	Automobile

Figure 14. Table of the Outer Widths of Wagon vs. Automobile Roads.

Mapped Routes vs. Archaeological Routes

After our initial survey and recording efforts, we plotted the archaeological alignments in ArcGIS; these became our archeological routes. Using aerial photographs, we attempted to follow out the segments we identified, as well as segments previously recorded by other researchers (Blair 1994; Knight 1985; McBride 2001). At this stage, we were attempting to correlate the routes we successfully identified on the ground with routes depicted on historic maps (i.e., the mapped routes). But we also wanted to identify other routes that we might have missed in our field efforts. Because we successfully identified previously unrecorded alignments, it is worthwhile to discuss our methods in depth.

We will begin this discussion by examining the route mapped by Fremont in 1844. Although Fremont was traveling on the Old Spanish Trail, it is generally assumed that the horse/mule trail Fremont utilized was subsequently obscured and destroyed by wagon traffic (Henderson and Prinz 2011; Warren 1974).

Before assessing which archaeological route best correlates with Fremont's route, it is worth briefly discussing how Fremont's map was made. Fremont made limited astronomical observations of the route his expedition took. These observations were supplemented with sketch maps drawn by George Preuss (at the end of every day of travel (Schubert 1980). After the expedition was completed, the two data sources were combined to make a single map of the area. Fremont made two astronomical observations in the vicinity of Mormon Mesa: one at his camp along the Muddy River and a second at his first camp along the Virgin River (at the mouth of Halfway Wash). If Fremont's map is georeferenced based upon these two points, the resulting route that crosses Mormon Mesa falls between two of the archaeologically identified roads (Figure 15). The georeferenced map route also crosses a fairly deep canyon incised in the western portion of Mormon Mesa. Initially, this would indicate that the portion of the map based upon Preuss' sketch does not contain any clues as to the route taken by Fremont's expedition. But are there other details on the map that would allow us to identify which archaeological route best correlates with Fremont's route? We argue that there is enough detail to provide at least some clues regarding Fremont's route.

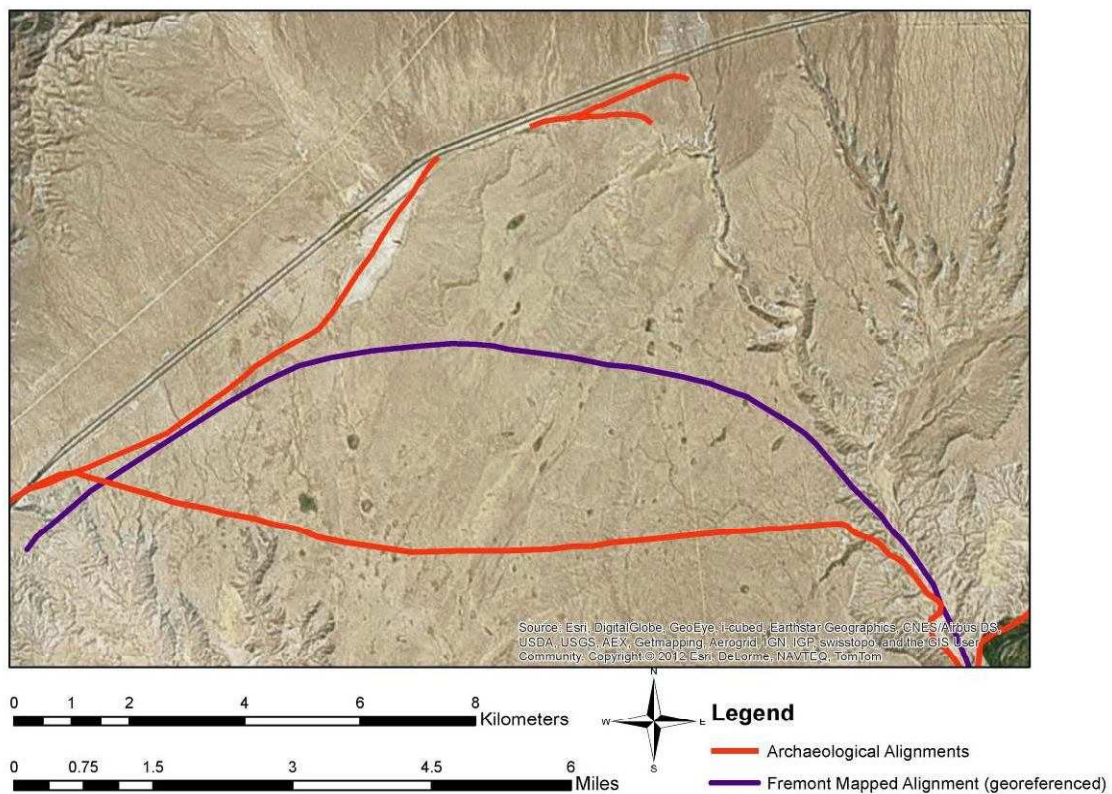


Figure 15. Map Depicting the Georeferenced Fremont Route (in purple), and Known Archaeological Alignments of the Mormon Wagon Road (in red).

For this step, we will concentrate upon the portion of the route in Halfway Wash, comparing Fremont's map with modern aerial photographs (Figures 16 and 17). The Fremont map contains six key geographic features in this area: (1) the confluence between Halfway Wash and the Virgin River; (2) a small canyon to the north/east of the main channel of Halfway Wash; (3) a larger canyon to the south/west of the main channel; (4) the confluence of Halfway Wash and a major tributary; (5) The main channel of Halfway Wash upstream from this confluence; and (6) the tributary of Halfway Wash upstream from this confluence.

In the aerial photographs, the confluence of Halfway Wash and the Virgin River (1) and the confluence of Halfway Wash with a major tributary (4) are clearly visible. The small canyon located east (2) of the main channel is not clearly identifiable, but there are two possible alternatives. The small canyon to the west of the main channel is also clearly visible (3). This canyon, in the aerial photograph, is the canyon that a route of the Mormon Wagon Road utilized, with the Halfway Wash Boy Scout marker located at its head. This suggests that Fremont did not utilize the route that passes the Halfway Wash Boy Scout marker. If one is to argue that the canyon with the Boy Scout marker at its head is the route utilized by Fremont, where is the canyon that is depicted as downstream of the expedition's entrance into Halfway Wash?

During our survey, we identified two routes of the Mormon Wagon Road entering the tributary canyon that Fremont followed (Figure 18). These two routes eventually merge on top of Mormon Mesa about a mile west of the tributary canyon (6). We suggest that one of these two wagon roads may have obscured the horse trail/Native American trail utilized by Fremont.

After correlating the archaeological roads with the mapped roads, we noted two roads depicted on maps that had not been previously identified in the field. The first of these roads is depicted on the 1881 General Land Office (GLO) map for T15S R68E. This map depicts two wagon roads on Mormon Mesa: the Old Mormon Wagon Road and the Muddy Valley to Salt Lake Road (Figure 19). At least one previous researcher has suggested that this map is "fictitious" (McBride 2001). That is, it is not based upon a real survey. We were suspicious of labeling this map as fictitious for several reasons: (1) there is no evidence that prior researchers made any attempt to locate a wagon road in the vicinity of the mapped location; (2) a twentieth-century map used by Harrington also contains roads with similar orientations and locations, although on this map the "Old Mormon Wagon Road" is labeled "Huntsman Wagon Road" (Figure 20). Our initial survey did identify a north-south road slightly north of the mapped location of the "Road from Muddy Valley to Salt Lake" (Figures 21 and 22). But we had some difficulties in locating the "Old Mormon Wagon Road." Following our experience in locating Fremont's route (which relied upon distinctive landscape features), we decided to look for evidence of a road at the locations where the GLO roads depart from the Mesa. Although the GLO map does not depict the edge of Mormon Mesa, the map suggests that the Old Mormon Wagon Road exited the Mesa in Section 1 of T15S R68E. In aerial photographs, we identified a couple roads at the eastern edge of the Mesa that might correspond with the location of the road on the 1881 GLO map (Figure 23).

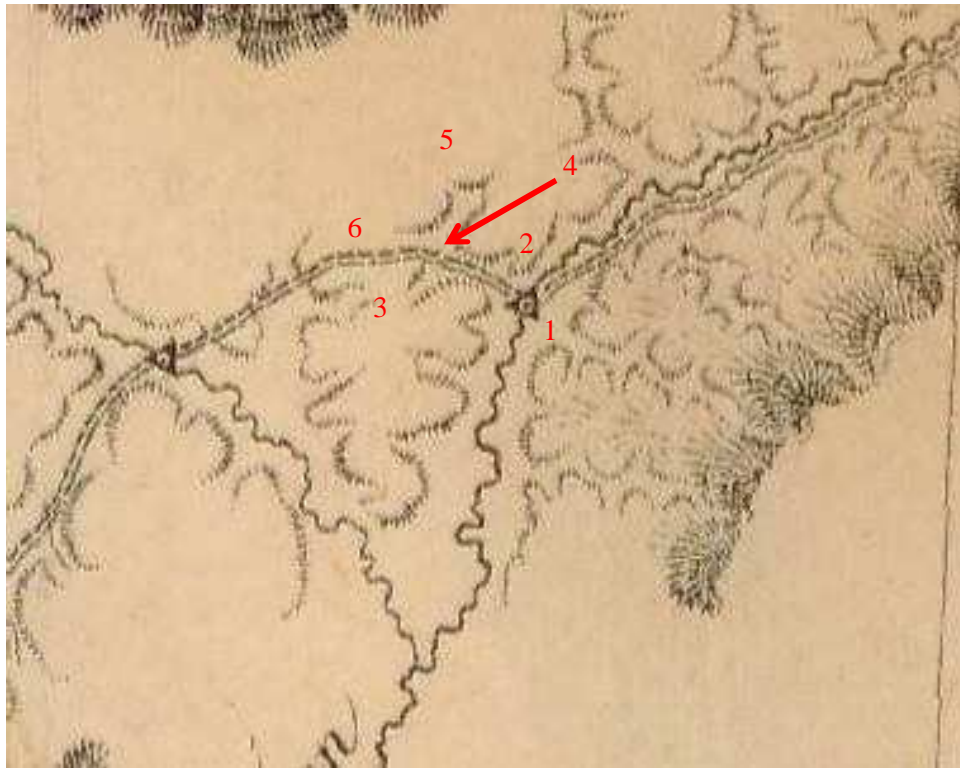


Figure 16. Close-up of the Halfway Wash Portion of Fremont's Map (see text for key to numbers) (Image courtesy of the University of Nevada, Reno Special Collections Department).

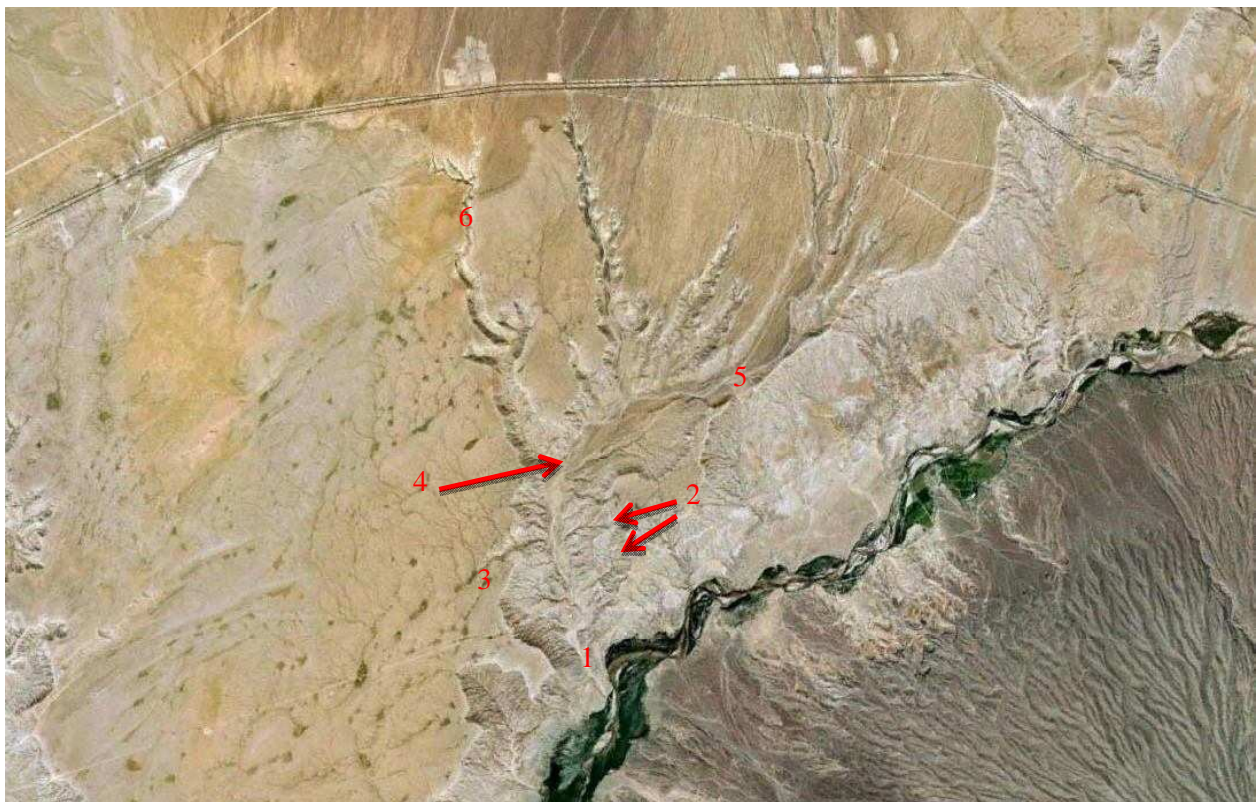


Figure 17. Google earth Image of Halfway Wash. The landmarks identified correspond to the landmarks on Fremont's 1845 map (see text for key to the numbers) (Background imagery © Google 2014).



Figure 18. Photograph of a Wagon Road that May Overlie the Route Taken by the Fremont Expedition.

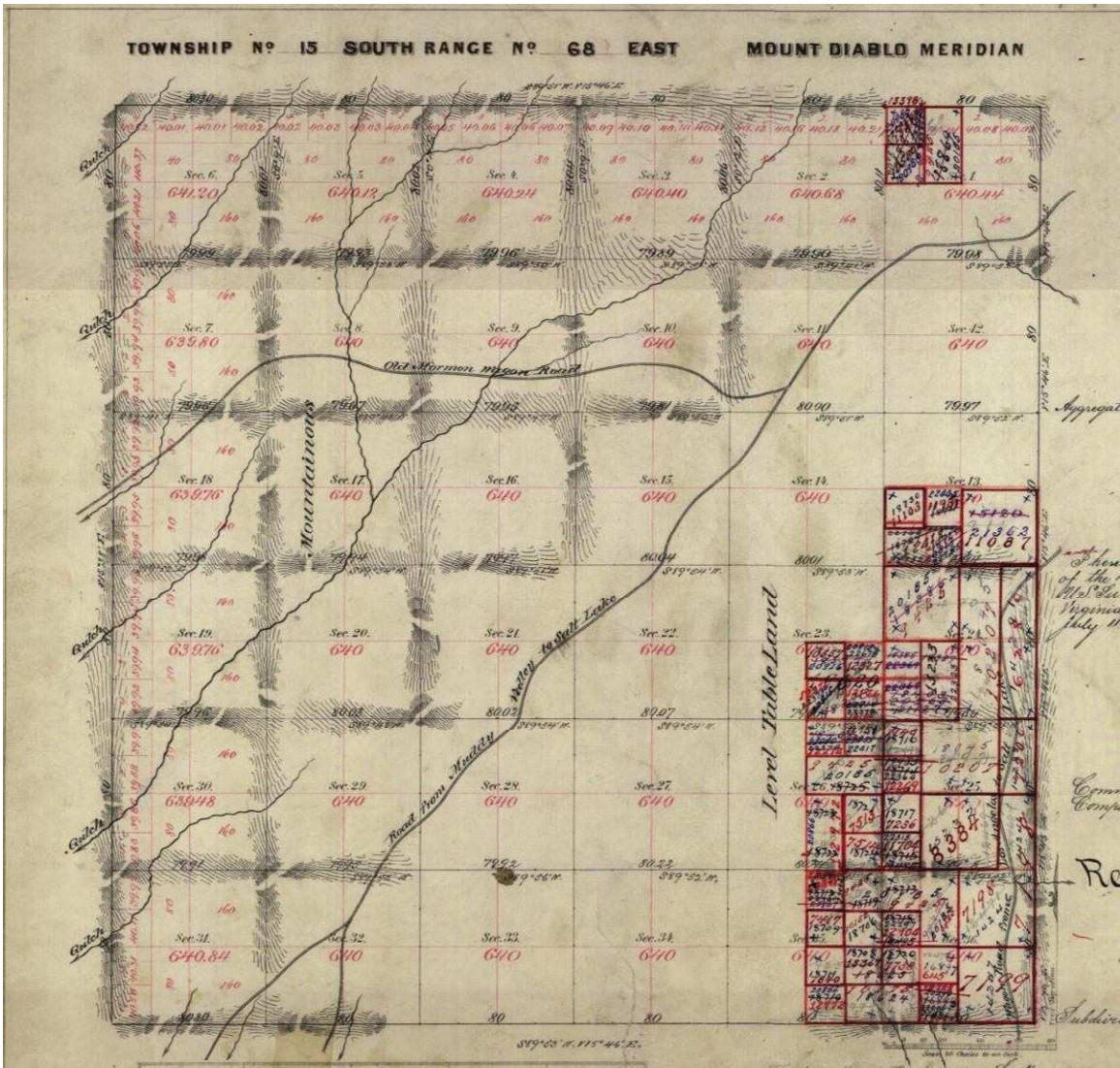


Figure 19. 1881 General Land Office Map for Township 15S Range 68 East (Image courtesy of the Nevada Division of State Lands and the DeLaMare Library UNR).

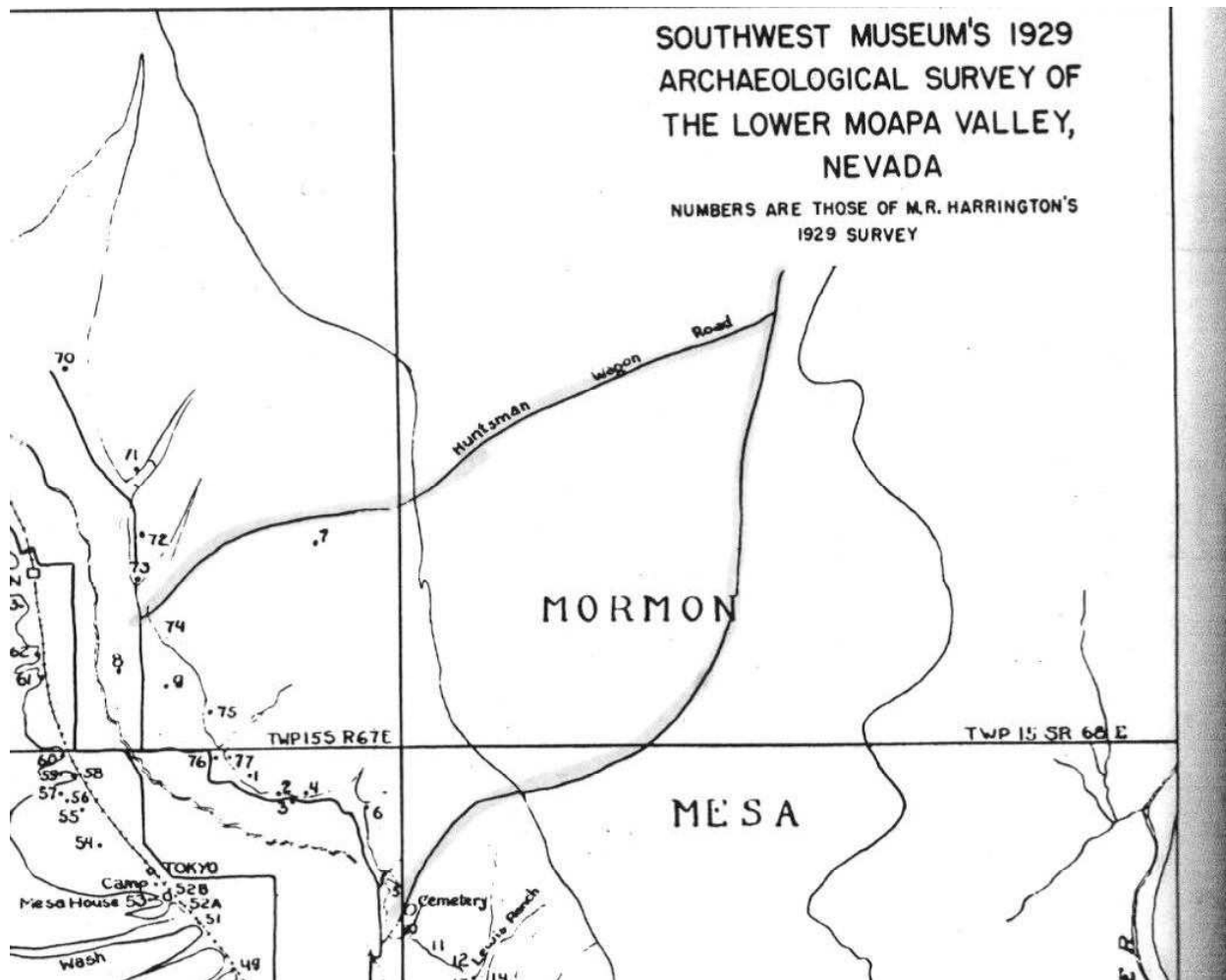


Figure 20. A Map from the 1920s Depicting the Huntsman Wagon Road. Note the similarity between the roads depicted on this map, and the 1881 GLO map (Image courtesy of the Nevada State Museum).

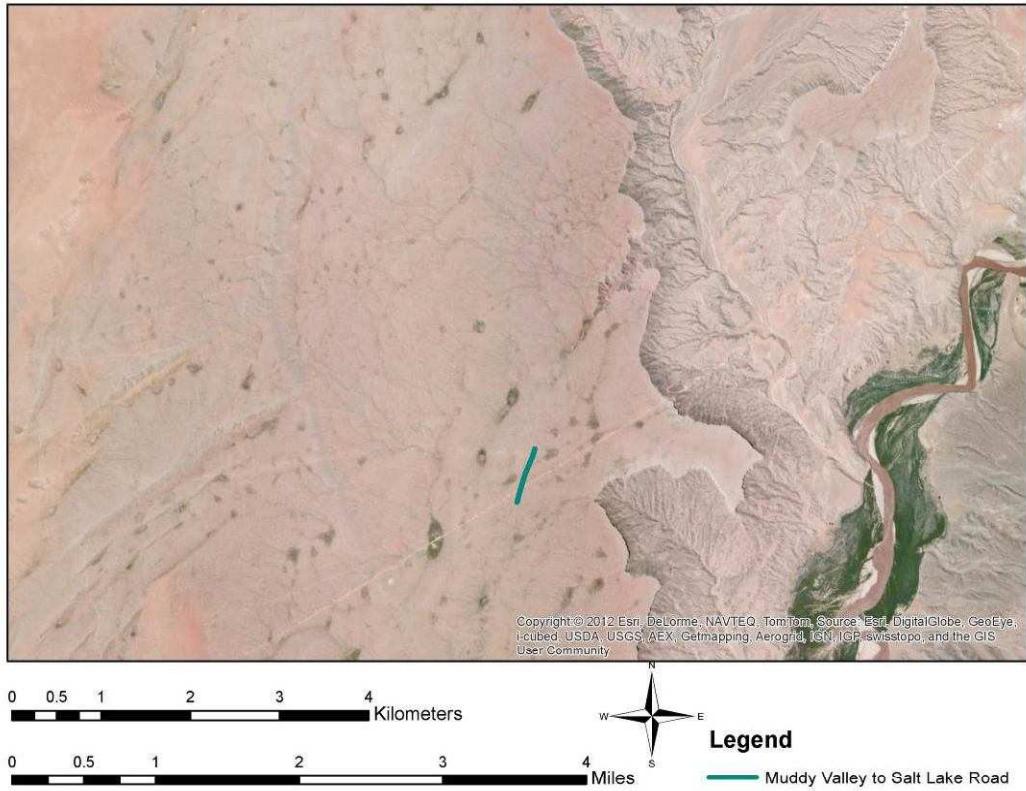


Figure 21. Map of the Archaeological Road that Appears to Correspond with the “Road from Muddy Valley to Salt Lake” on the 1881 GLO Map.



Figure 22. Photograph of the Historic Wagon Road That Appears to Correspond with the “Road From Muddy Valley to Salt Lake” on the 1881 GLO Map.

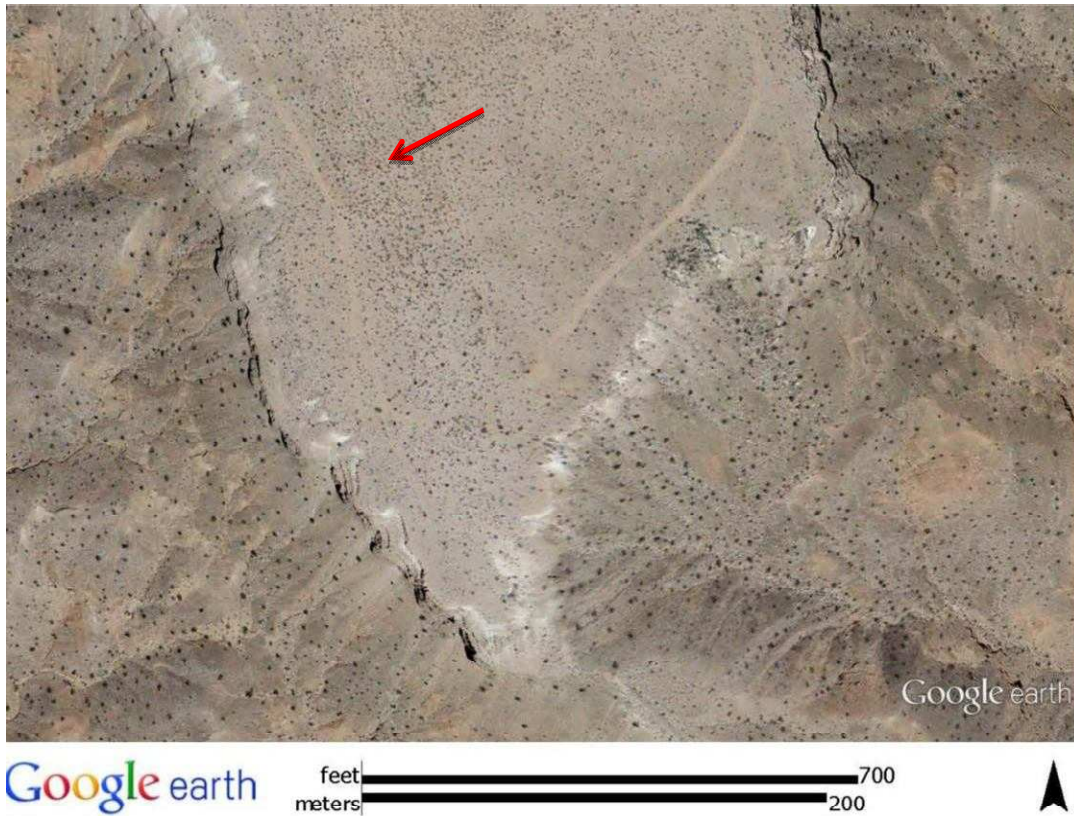


Figure 23. Google earth Image of Possible Historic Roads on the Edge of Mormon Mesa. The red arrow points at a possible road (Image © Google 2014).

With the coordinates of this location in hand, we headed out to the edge of Mormon Mesa. At this location, we observed the remnants of three roads descending the side of Mormon Mesa (Figures 24 and 25). The more westerly of these roads contains clear evidence for wagon wheel traffic (Figure 26). We followed this road to the north, into our project ROW, and slightly beyond. We later used aerial photographs to trace this road out to the western edge of Mormon Mesa (Figure 27). Based upon the extent of the road that we mapped and aerial photographs, this road appears to correspond with the Old Mormon Wagon Road depicted on the 1881 GLO map. It is worth noting that the map is particularly accurate in depicting the alignment of this road at both the western and eastern edge of Mormon Mesa, but the map is off by about three-fourths of a mile in the vicinity of the Overton Power ROW. The intersection between the two roads on the map (assuming we identified both roads correctly) is also off by around three-fourths of a mile. Finally, the 1881 GLO map does not depict the “Road from Muddy Valley to Salt Lake” as extending north of the “Old Mormon Wagon Road,” but, on the ground we found clear evidence that the road extends farther north than depicted on either map. Based upon aerial photographs, this road appears to extend north to the Halfway Wash Boy Scout marker. Bill White had previously identified a split in the Mormon Wagon road route exiting the canyon at this point (personal communication 2012).



Figure 24. Wagon Road Cut on the Top of Mormon Mesa. The drainage visible in the background is Halfway Wash.



Figure 25. Wagon Road on the Southeastern Edge of Mormon Mesa. This road appears to correspond with the “Old Mormon Wagon Road” depicted on the 1881 GLO map.



Figure 26. Photograph of Wagon Wheel Abrasions in the “Old Mormon Wagon Road.”

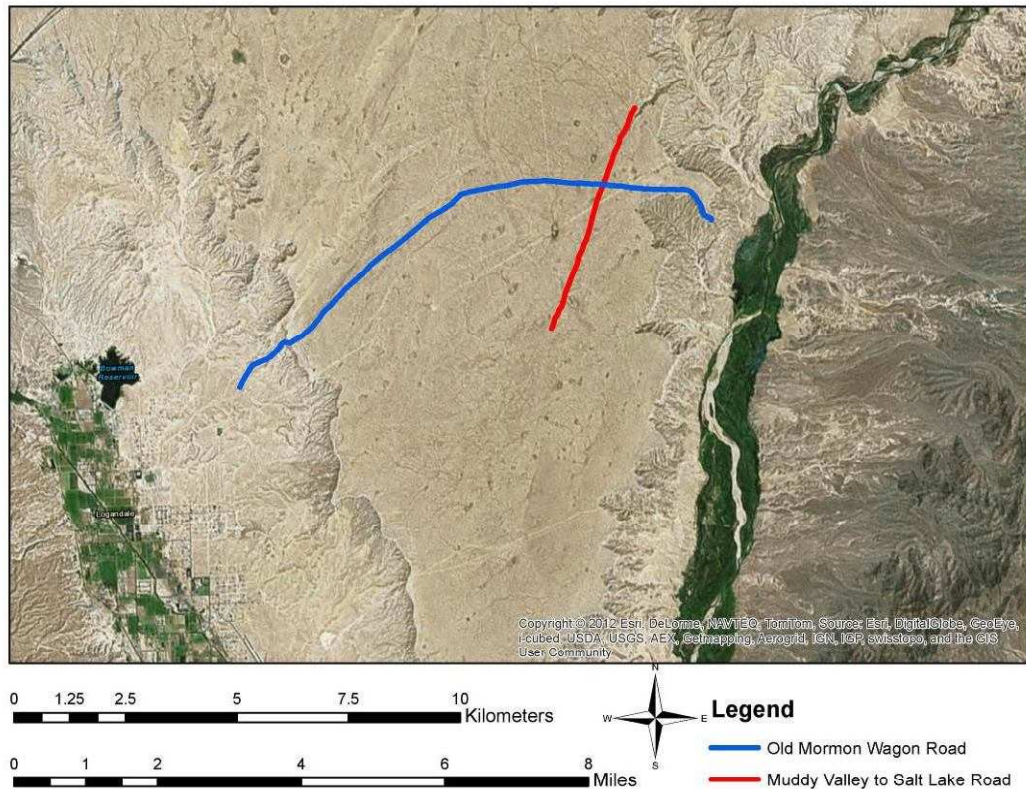


Figure 27. Map Depicting the Archaeological Roads that Correspond with the Mapped Roads Appearing on the 1881 GLO Map.

The other road that was not identified during our initial phases of field work is depicted on the 1888 St. Thomas, Nevada USGS map. Similar to the GLO map, this map also depicts several roads (Figure 28). Most of route identified as Miller’s Cut-Off on the map is located well to the north of our ROW, but we do appear to have identified this alignment at the western end of the Mesa. Of interest here is the route that departs the Virgin River. Drainages that appear to represent Halfway Wash and Toquop Wash are depicted on the map, but the road depicted on this map departs the Virgin River between Halfway Wash and Toquop Wash. Upon diverging from the floodplain of the Virgin River, the mapped road takes a nearly 180 degree turn. Looking at Google Earth, we noticed an unnamed tributary that enters the Virgin River at a shallow angle (Figure 29). To enter the mouth of this drainage traveling downstream in the Virgin River would require a nearly 180 degree turn, mimicking the road depicted on the 1888 USGS map. To the north, there is a gap between two erosional remnants of Mormon Mesa where it is possible to access Halfway Wash. A modern, bladed road is present between the mouth of the wash and the gap in the erosional remnants. North of our project area, we identified a couple small segments of a wagon road, supporting our interpretation of the map (Figures 30–32).

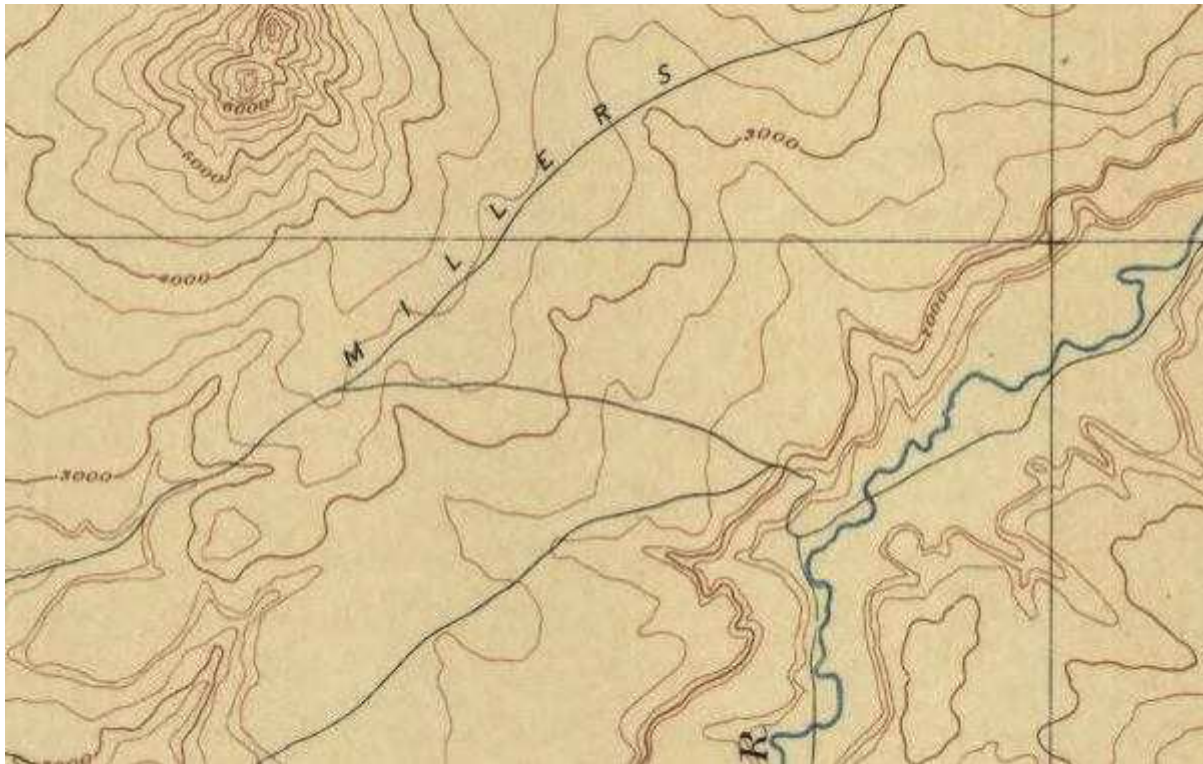


Figure 28. A Portion of the 1888 St. Thomas USGS Quadrangle Depicting Wagon Roads in the Vicinity of Mormon Mesa (Image courtesy of the Mary B. Ansari Map Library, University of Nevada, Reno).

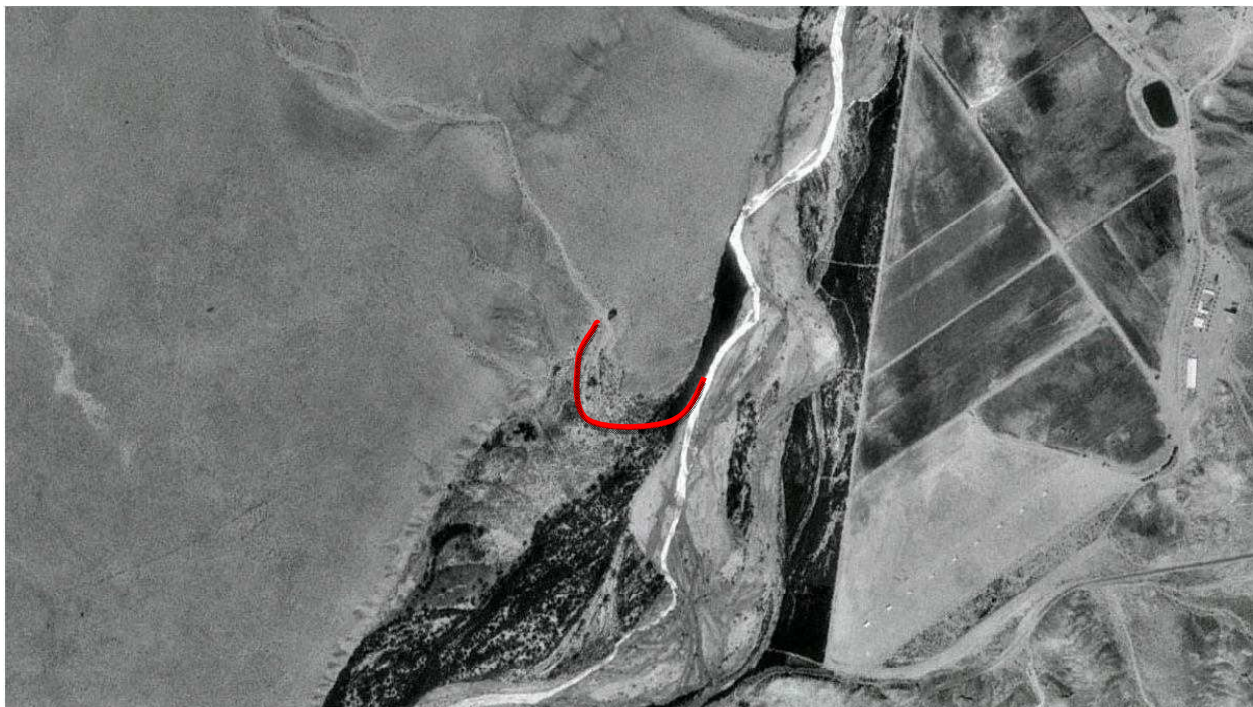


Figure 29. Google earth Image Of Proposed Alignment of Road Depicted on the 1888 St. Thomas USGS Quadrangle (Image courtesy of U.S. Geological Survey, Google).

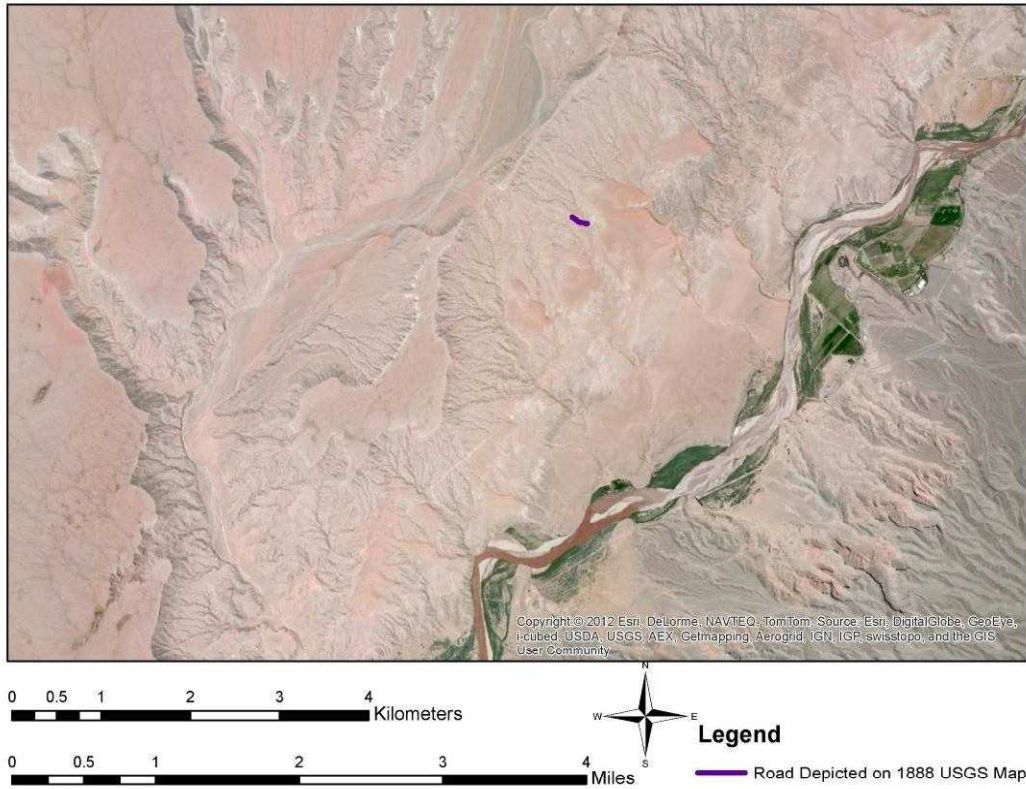


Figure 30. Map of a Segment of an Archaeologically Documented Wagon Road that May Correspond with a Road Depicted on the 1888 USGS Map.



Figure 31. Photograph of Archaeological Alignment that Corresponds with a Road Depicted on the 1888 St. Thomas USGS Quadrangle.



Figure 32. Photograph of Wagon Wheel Polish on Archaeological Road that Corresponds with a Road Depicted on the 1888 St. Thomas USGS Quadrangle.

We suggest that the split in the road depicted on the USGS map occurred in Halfway Wash. The southern portion of the road probably traveled downstream to the vicinity of the eastern Boy Scout marker. The route of the northern alignment depicted on the 1888 map is more difficult to determine. It is possible that the original road either headed upstream in Halfway Wash, and climbed up the Mesa or followed Halfway Wash downstream to the tributary used by one of our proposed Fremont routes, and then used one of those two alignments to head up onto the Mesa.

Ultimately, there are a myriad of different routes crossing Mormon Mesa, and, this does not include the route depicted on maps that follows the Virgin River all the way down to the confluence of the Virgin and Muddy Rivers (Figure 33). Although it is typical to talk of the Mormon Wagon Road as a single alignment, it should be considered a travel corridor, with the width of the corridor varying depending upon the landscape. Was there a single, most important route within this corridor?

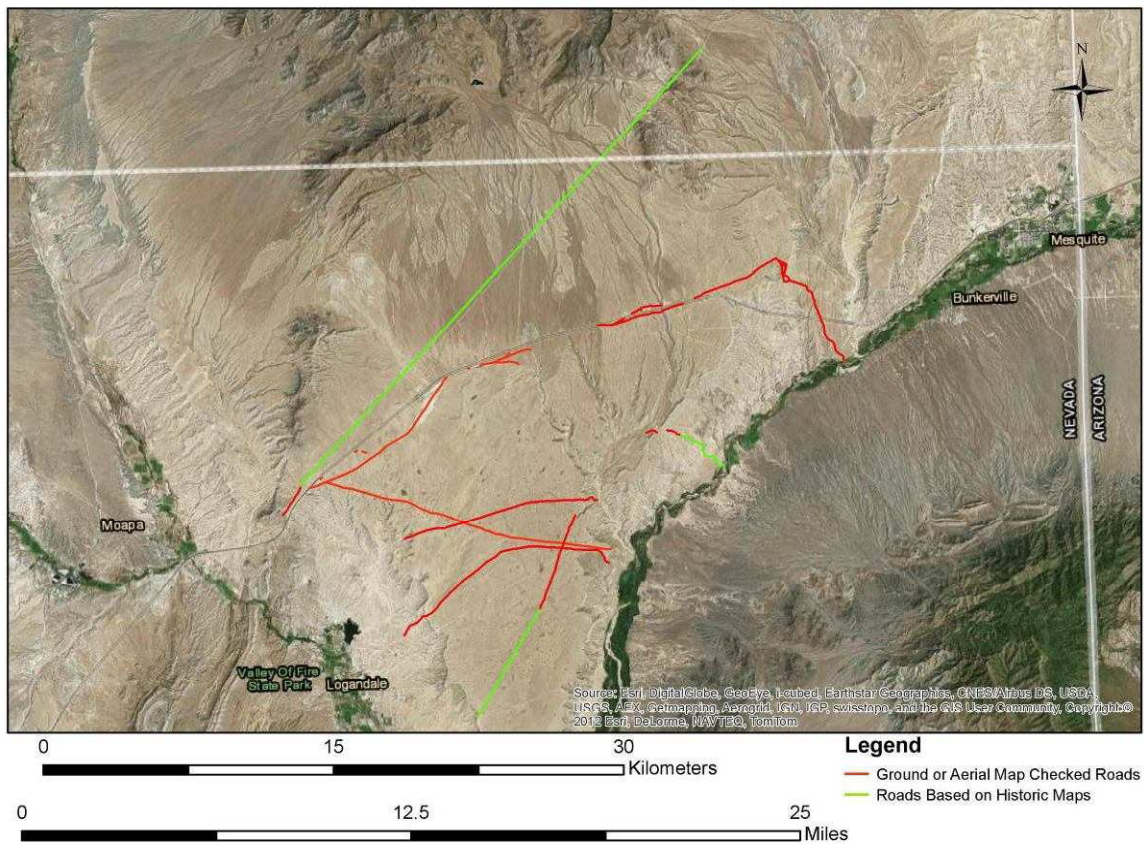


Figure 33. Map Depicting All of the Archaeologically Known Alignments of the Mormon Wagon Road on Mormon Mesa.

One of the landscape features that researchers use in debating the route of the Mormon Wagon Road is the location of Virgin Hill. Virgin Hill is a landscape feature that is frequently mentioned in diaries of travelers through the area. It is described as a steep hill that is climbed shortly after the southbound

traveler departs from the Virgin River. Most researchers associate Virgin Hill with the location of the Halfway Wash Boy Scout marker, but Lyman and the Hafens (Hafen and Hafen 1954; Lyman 2004; Lyman and Reese 2001) argue that Virgin Hill is located adjacent to Toquop Wash, just north of modern-day I-15 (Figure 34). Known alignments of the Mormon Wagon Road are present in both locations (Figure 35).

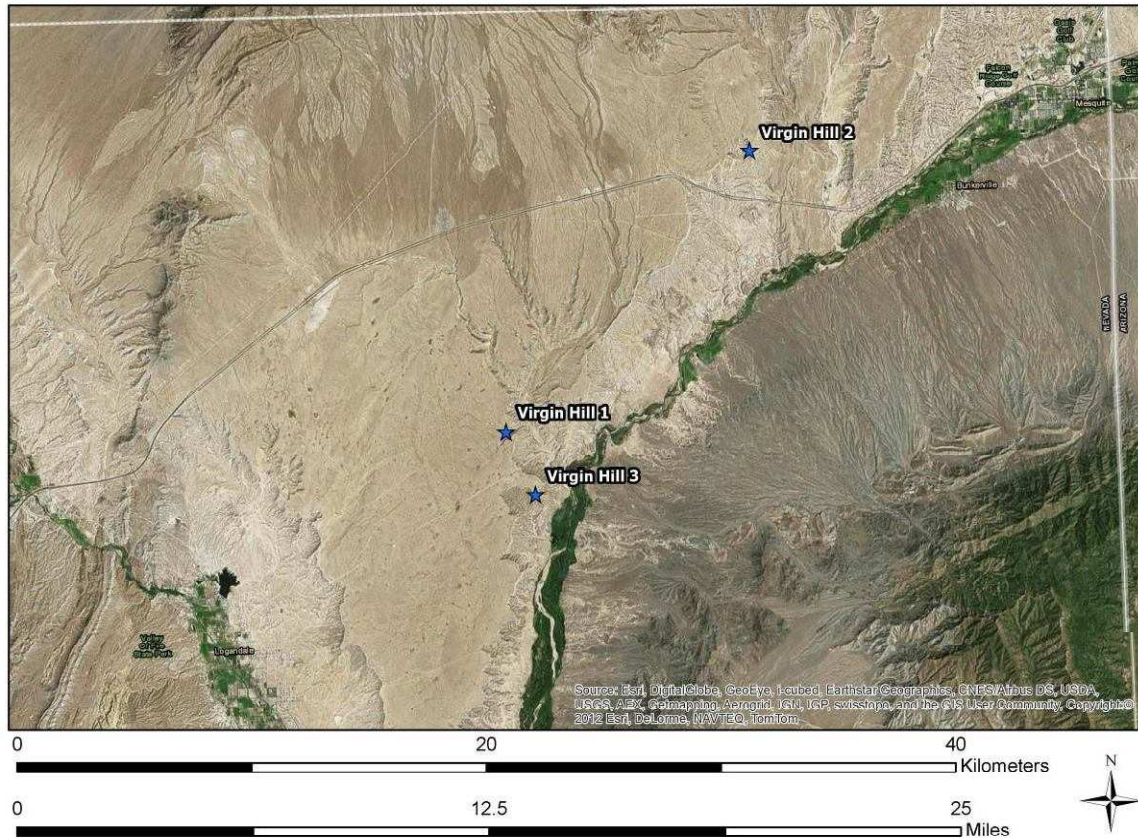


Figure 34. Map Depicting Proposed Locations of Virgin Hill: (1) Location proposed by most researchers, and depicted on some 19th Century Maps; (2) Location proposed by Hafen and Hafen (1954) and Lyman (2004); (3) Location appearing on a 19th Century Map.



Figure 35. Photograph of Wagon Road Ascending Mormon Mesa in the Lyman's (2004) Virgin Hill Location.

Diaries written by nineteenth-century travelers provide a number of different descriptions of the ascent up the side of Mormon Mesa. These diaries can be used to help identify which route was utilized by the travelers. The analysis will be limited to the discussions of the journey from the Virgin River to Mormon Mesa. Addison Pratt notes that they reached the mouth of a canyon at noon and let their cattle graze before moving on. By evening they had reached the base of the climb onto Mormon Mesa (Hafen and Hafen 1954). It is difficult to determine from this exactly how long they traveled up the wash, but his description of a canyon more accurately reflects the situation at Halfway Wash than at Toquop Wash (Figure 36). After their ascent to the top of the Mesa, Pratt claims that they were nine miles from the Virgin River (Hafen and Hafen 1954). The Halfway Wash Boy Scout marker is just over two miles from the river as the crow flies, or about three miles based upon the route a wagon would travel. The Toquop Wash location is approximately 3.5 miles in a straight line, or just under four miles via the wagon road. The locations we identified above as associated with Fremont's route are around seven miles as the crow flies and eight miles via the wagon route. If we are to accept Pratt's description of the distance between Beaver Wash and Halfway Wash as approximately 28 miles, then should we not also accept his statement that the distance traveled from the Virgin River to the top of the Mesa was around nine miles. If that is the case, then the group Pratt was traveling with probably utilized one of the routes we suggest was used by Fremont.



Figure 36. Photograph of the Confluence of Halfway Wash and the Virgin River.

Cheesman (1930:293) also notes that his group traveled up an arroyo for some distance before beginning the climb to the top of Mormon Mesa. But he does not provide enough detail for us to determine how long or how far up the arroyo that they traveled. Assuming he was traveling up Halfway Wash, Cheesman could have utilized the route associated with the Boy Scout marker or the route we associated with Fremont's expedition.

Egan (1917:173), however, describes the base of the ascent as being located a half mile from the river. Chandless (1857:292) suggests that the route taken up the side of the mesa could be seen from the river. These descriptions seem to fit most accurately with either the route we associated with the 1881 GLO map or an adjacent route up the same landform.

Maps created in the nineteenth century are also not consistent on the depiction of Virgin Hill. The 1879 Map of Arizona Territory depicts Virgin Hill as located immediately west of the Virgin River (Figure 37). Conversely, the 1880 Map of Arizona Territory depicts Virgin Hill as located several miles west of the Virgin River but still along Halfway Wash (Figure 38). A similar location is inferred from Wheeler's 1872 map (Figure 39). None of these maps provide any evidence that Virgin Hill was located adjacent to Toquop Wash, but they do suggest that the travelers applied the term *Virgin Hill* to different locations along Halfway Wash. The diaries also provide support for a similar interpretation of the route. The location of the wagon road on the western edge of Mormon Mesa suggests that the 1879 map is depicting a different route than the other two maps. In the 1879 map, the road descends Mormon Mesa south of St. Joseph (modern day Logandale), while in the 1872 and 1880 maps, the road descends Mormon Mesa north of St. Joseph. We suggest here that the 1879 map is depicting the same route depicted on the 1881

GLO map, while the other two maps are depicting a road that climbs Mormon Mesa in the vicinity of the Halfway Wash Boy Scout marker. Ultimately, we suspect that people referred to Virgin Hill as the location that they used to ascend Mormon Mesa, with that location varying from one individual to another.

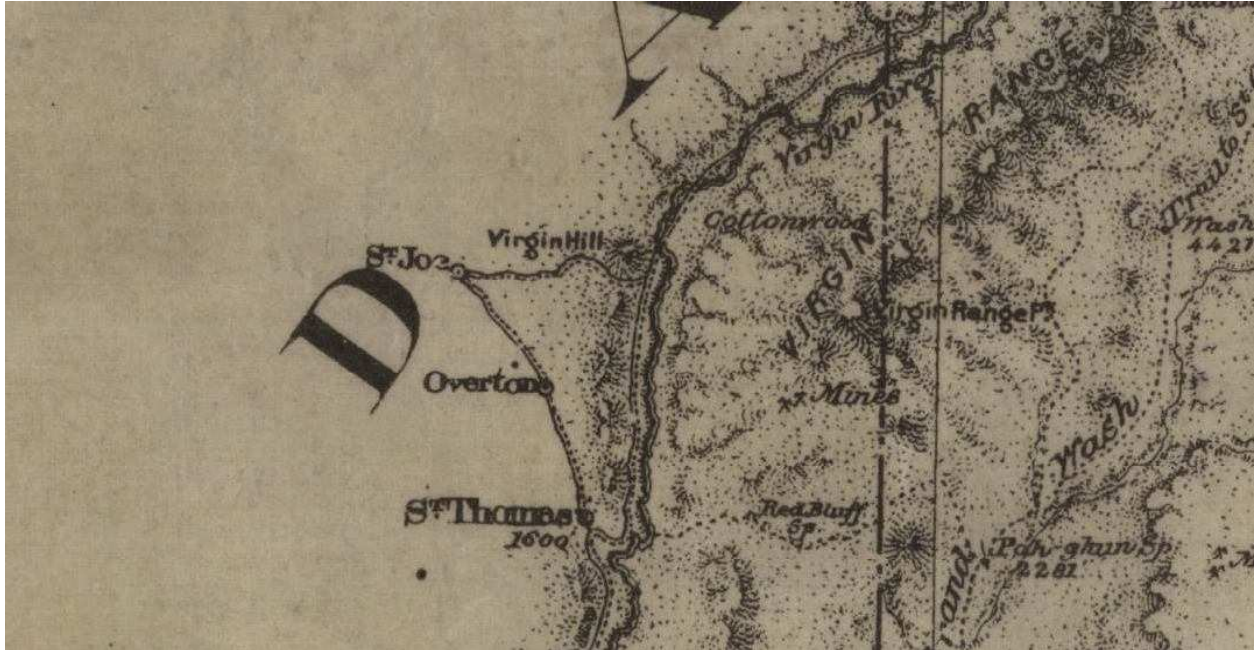


Figure 37. A Portion of the 1879 Map of Arizona Territory Depicting Virgin Hill (Image courtesy of the Nevada State Library and Archives and the DeLaMare Library, University of Nevada, Reno).



Figure 38. A Portion of the 1880 Map of Arizona Territory Depicting Virgin Hill (Image courtesy of the David Rumsey Map Collection, © 2000 by Cartography Associates).

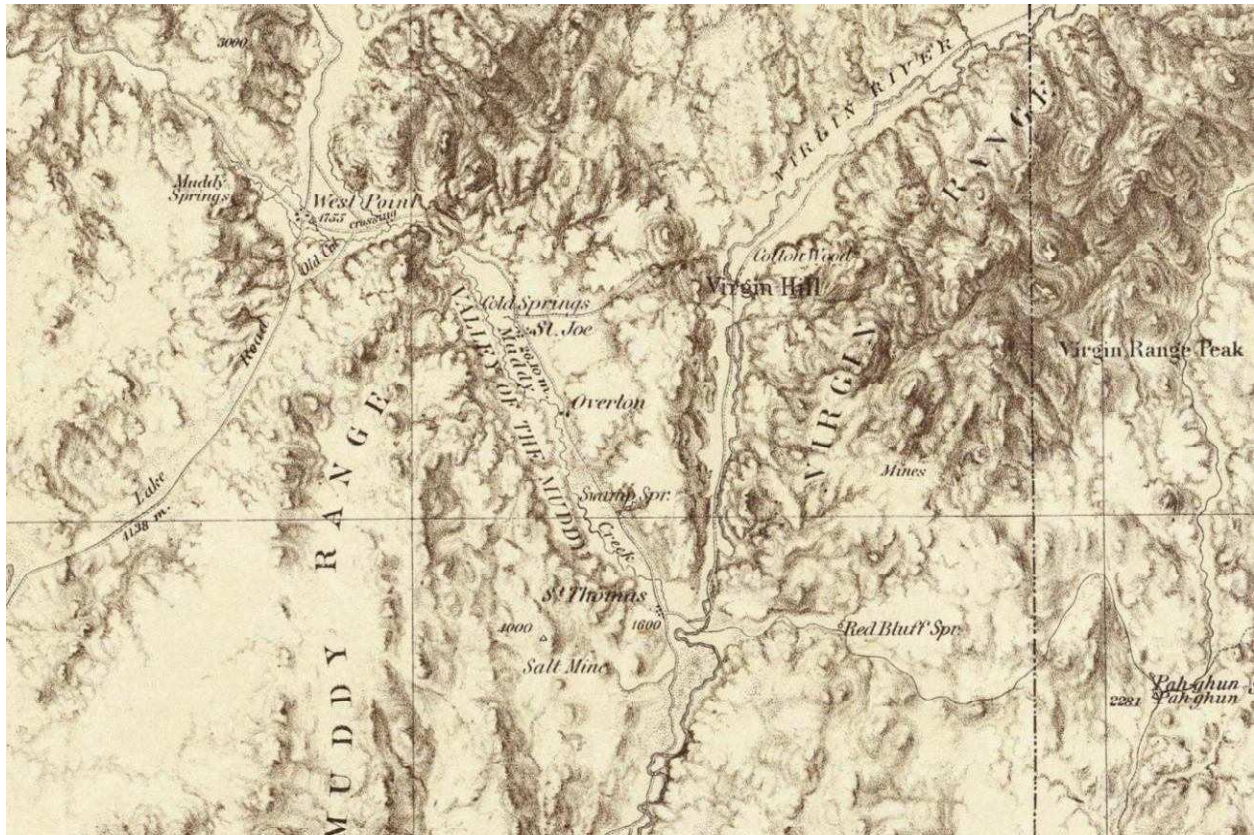


Figure 39. A Portion of Wheeler's 1872 Map Depicting Mormon Mesa and Virgin Hill (Image courtesy of the David Rumsey Map Collection, © 2000 by Cartography Associates).

Summary and Conclusions

Based upon an examination of a variety of historical sources and a study of numerous archaeologically identified routes we think it is unrealistic to argue that any single route was the most important route across the Mesa. The number of routes present on the Mesa can be attributed to a variety of factors: (1) the number of Native American trails that ascend Mormon Mesa (Baker et al. 2012; Thompson and Baker 2013; Susan Rowe, personal communication 2012); (2) erosion that has made some routes unusable over time. Three of the routes we have identified ascending Mormon Mesa have been completely washed out and cannot be used by car, wagon, horse, or foot today (Figures 40 and 41); and (3) travelers passing through the Mormon Mesa area had a number of different destinations in mind in the nineteenth century: St. Thomas, Overton, St. Joseph, and Glendale. The immediate destination in the Muddy River Valley would have influenced which route they took over or around Mormon Mesa. This is true regardless of whether we are talking about their final destination or merely a planned stopping place.

Ultimately, what are the implications of this research for studying the history and archaeology of early roads? First, an outer width of 82 inches appears to be a solid line for separating roads mainly used by wagons from those roads mainly used by automobiles. It would be more reassuring if we had a larger data base of road widths to work with. Hopefully, future researchers will pay more attention to accurately measuring the width of roads and determining if this difference in width holds up along other roads and in other locations.

Second, when trying to associate archaeological roads with roads depicted on maps it is important to look for significant features on the landscape, even if those features do not appear on the map in question. The 1881 GLO map does not depict the edge of Mormon Mesa, but the roads depicted on the map are most accurately plotted at the edge of the Mesa. Similarly, one of the roads depicted on the 1888 St. Thomas USGS quadrangle accurately reflects the alignment of a modern-day wash in the area.

Third, we should not force either maps or descriptions of travel routes to fit our preconceived notions of the location of roads. If a traveler claims to have traveled nine miles from known point A to unknown point B, we should not look for point B at a distance of two to three miles from point A. Similarly, we should not assume that a road is misplotted on a map when we have not looked in that location for a road. Historic maps can have significant errors in depicting some aspects of the landscape, but they can be surprisingly accurate in depicting other parts of the landscape. Understanding the number and existence of alternative alignments of early roads can be as important to our understanding of the history of roads as is further study of known alignments. Why did alternative alignments exist? Did the location of “main” alignments change over time? These are all important questions that will be missed if we focus upon a single alignment and try to shoehorn all of the historical evidence to justify that single alignment’s existence.

REFERENCES CITED

Baker, Jeffrey L., Annette J. Thompson, and John A. Ellis

2012 *A Class III Cultural Resource Survey of the Proposed Overton Power Nine-Year Plan*. K&LA Report 09-0434. Knight & Leavitt Associates, Inc., Las Vegas, NV.

Blair, Lynda M.

1994 *A Cultural Resource Investigation for the Rio Virgin Telephone Company, Inc., A Portion of Fiber Toll Joint Venture, Clark County, Nevada*. HRC Report 5-147-1. Division of Environmental Assessment, Harry Reid Center for Environmental Studies, University of Nevada, Las Vegas.

Chandless, William

1857 *A Visit to Salt Lake; Being a Journey Across the Plains and a Residences in the Mormon Settlements at Utah*. Smith, Elder, and Company, London.

Chavez, Angelico (translator)

1976 *The Dominguez-Escalante Journal*, edited by Ted J. Warner. Brigham Young Press, Provo, Utah.

Cheesman, David W.

1930 *By Ox Team from Salt Lake to Los Angeles, 1850*. Historical Society of Southern California, Los Angeles.

Egan, Howard

1917 *Pioneering the West 1846 to 1878, Major Howard Egan's Diary*. Published by Howard R. Egan Estate, Richmond, Utah.

Hafen, LeRoy R.

1948 The Old Spanish Trail, Santa Fe to Los Angeles. *Huntington Library Quarterly* 11(2): 149-160.

Hafen, LeRoy R. and Ann W. Hafen

1954 *Journals of Forty-Niners: Salt Lake to Los Angeles*. Arthur H. Clark Company, Glendale, CA.

Henderson, Mark and Rachel Preston Prinz

2011 NV – Mormon Mesa: Narrative. Electronic document, <http://oldspanishnationalhistorictail.blogspot.com/2012/04/nv-mormon-mesa-narrative.html>, accessed on June 29, 2014.

Knight, Kenneth

1985 *Maintenance and Improvements to a 28.26 Mile Section of I-15 in Northeast Clark County, Nevada (MP 95.53 to 123.79)*. NDOT Report 014-85R. Nevada Department of Transportation, Carson City, Nevada.

Leavitt, Robert M., Keith Myhrer and L. Hatzenbuehler

1993 *A Cultural Resource Inventory of a 2200 Acre Parcel Near Apex, Clark County, Nevada*. K&LA Report 93-0139. Knight & Leavitt Associates, Inc., Las Vegas, Nevada.

Lyman, Edward Leo

1999 The Arrowhead Trails Highway: Southern Nevada's First Automobile Link to the Outside World. *Nevada Historical Society Quarterly* 42(4):256–278.

2004 *The Overland Journey from Utah to California: Wagon Travel from the City of Saints to the City of Angels*. University of Nevada Press, Reno.

Lyman, Edward Leo and Larry Reese

2001 *The Arduous Road: Salt Lake to Los Angeles, the Most Difficult Wagon Road in American History*. Lyman Historical Research and Publishing Company, Victorville, California.

McBride, Terry

2001 Old Spanish Trail/Mormon Road Historic District. National Register of Historic Places Nomination Form.

Myhrer, Keith, William G. White, and Stanton D. Rolf

1990 *The Archaeology of the Old Spanish Trail/Mormon Road from Las Vegas, Nevada to the California Border*. Contributions to the Study of Cultural Resources Technical Report 17. U.S. Department of the Interior, Bureau of Land Management, Las Vegas, Nevada.

Paher, Stanley W.

1971 *Las Vegas: As It Began—As It Grew*. Nevada Publications, Las Vegas, Nevada.

Schubert, Frank N.

1980 *Vanguard of Expansion: Army Engineers in the Trans-Mississippi West, 1819-1879*. Electronic document, http://www.nps.gov/history/history/online_books/shubert/index.htm, accessed on June 30, 2014.

Stoffle, Richard, K. Van Vlack, R. Toupal, S. O'Meara, and R. Arnold

2008 *American Indians and the Old Spanish Trail*. Bureau of Applied Research in Anthropology, University of Arizona, Tucson.

Thompson, Annette J., and Jeffrey L. Baker

2012 Settlement Patterns on Mormon Mesa and Adjacent Areas. In *Proceedings of the 2011 Three Corners Conference*, edited by Mark C. Slaughter and Steven E. Daron, pp. 145–154. Nevada Archaeological Association, Las Vegas, Nevada.

Ware, Joseph

1849 *Emigrants' Guide to California*. J. Disturnell, New York.

Warren, Elizabeth Von Till

1974 Armijo's Trace Revisited: A New Interpretation of the Impact of the Antonio Armijo Route of 1829-1830 on the Development of the Old Spanish Trail. Unpublished Master's thesis, Department of History, University of Nevada, Las Vegas.