

WEMO Data Irregularities

There are significant inconsistencies among the various GIS and map data products provided by the BLM and between these data sources and the figures in the March 2018 Supplemental Draft EIS (SDEIS) for the WEMO Route Network Project. There are also technical flaws with the GIS data itself.

On the following pages, you will find summaries of the types of irregularities and inconsistencies we have encountered thus far.

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The discrepancies between data from different sources raise questions about accuracy: Is the GIS data correct or is the SDEIS correct? Which map is the correct map in this case?

The technical problems (discontinuous routes, duplicate routes, and segmented routes) and inconsistencies from one map source to another generate real obstacles to the public's ability to understand the alternatives in the DSEIS and provide useful route-specific comments. They also raise significant questions about BLM's ability to accurately track and respond to any route-specific comments.

1. Mileage Discrepancies

On March 26, The Wilderness Society reported to the BLM that the shapefile loaded in the WEMO online mapping tool (available here: <https://blm-egis.maps.arcgis.com/apps/webappviewer/index.html?id=4ae087c34bc142b3b5265cc32752e3f8>) had mileage totals that were vastly different than the totals summarized in the SDEIS. At that time, there was just one shapefile being used by the online mapping tool, and that file had just over 53,000 features (routes/records). Here is a mileage tally for that original shapefile (projected in NAD 1983 UTM Zone 11N).

Interactive Online Map (1st release) - GIS Statistics

	No Action Alt1_IMP_D	Conservation Alt2_IMP_D	Access Alt3_IMP_D	Proposed Alt4_IMP_D
Motorized	6,729	6,183	10,715	7,083
Non-Motorized	0	27	91	57
Non-Mechanized	8	16	67	73
Non-BLM	264	157	241	194
Translinear Disturbance	8,407	9,026	4,246	8,001
Unk				0
N/A			48	
(blank)	0			
TOTAL	15,408	15,408	15,408	15,408

If you compare these totals to those reported on page 2-120 of the SDEIS (table below), you will see that the total baseline disturbance is about 600 miles too low and each alternative's motorized route mileage is off by hundreds of miles (up to 950 miles off).

Table 2.4-2. Comparison of Length (miles) of Alternative Route Networks

Current Designation	Alt. 1 – No Action	Alt. 2 – Resource Conservation Enhancement	Alt. 3 – Public Land Access Maintenance	Alt. 4 – Proposed Action
Motorized: Total Open/Limited Miles of Routes in Network, includes all Motorized subdesignations	6,074	5,231	10,864	6,313
Motorized subdesignation: Motorcycle	36	24	36	118
Motorized subdesignation: Street-Legal Only	NA	361	62	142
Non-Motorized Routes (miles)		35	71	107
Non-Mechanized Routes (miles)		16	92	72
Total Closed Miles of Transportation Linear Disturbance	9,929 ¹	10,718	4,977	9,507
Total Inventoried Transportation Linear Disturbance (miles)	16,003	16,003	16,003	16,003

1 – Value includes routes designated as closed, plus routes undesignated.

After reporting these discrepancies, the BLM apparently revised the GIS data to more closely match the figures in the SDEIS. The new data is currently loaded in the WEMO online mapping tool and has been provided to TWS in response to a FOIA request.

Even so, the mileage totals on the new files (summarized below) don't precisely match the totals reported in the SDEIS. They are without a doubt much closer, and the difference is negligible. However, the fact that there is a difference at all (4 + 3 does not equal 6.8 sometimes and 7.1 other times) raises questions about what GIS data was used to produce the mileage summaries for the SDEIS and how that data differs from what the public is interacting with.

FOIA Data ("fixed" data)

	No Action Alt 1	Conservation Alt 2	Access Alt 3	Proposed Alt 4
Motorized	6,063	5,220	10,850	6,299
Non-Motorized	1	33	92	87
Non-Mechanized	9	21	70	96
Translinear Disturbance	8,899	10,718	4,977	9,506
Nondesignated	1,018			
TOTAL	15,989	15,991	15,988	15,988

An unfortunate side effect of this "fix" is that the new shapefiles – there now is a separate one for each alternative – each contain almost 300,000 records, which is a 6-fold increase in the number of records. The consequence is that each route in the original file has been subdivided into tiny segments, each with their own WEMO Route ID number, which a user must click on individually in order to submit comments through the online mapping tool.

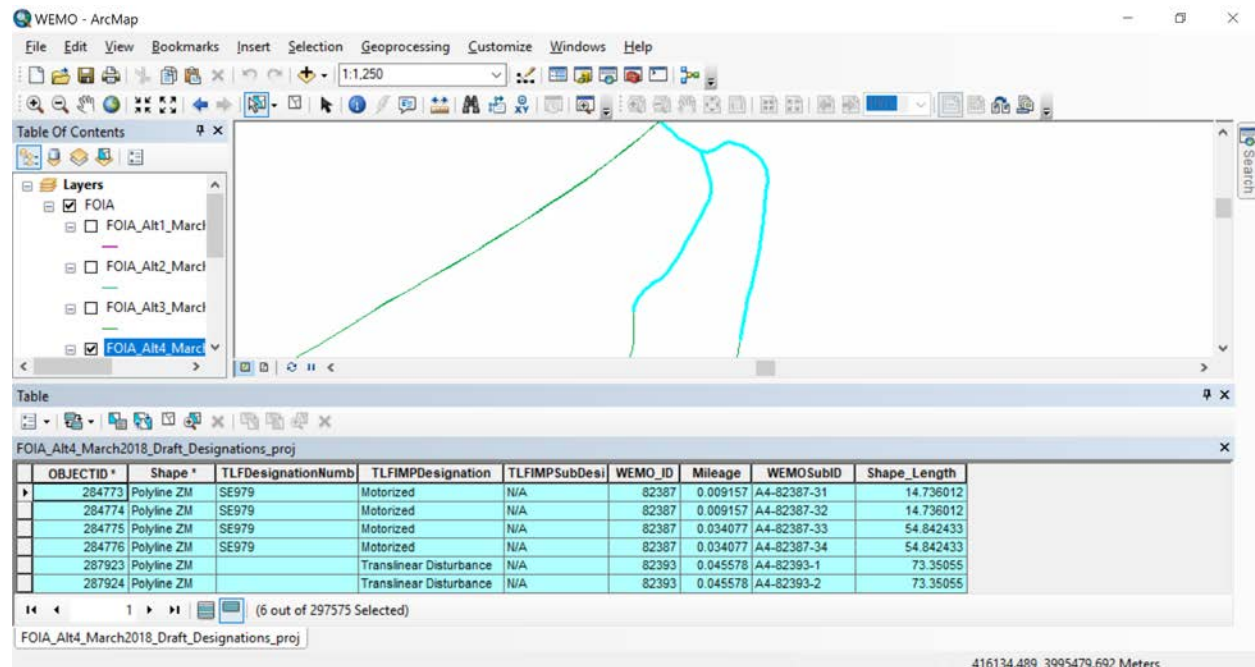
It also turns out that the mileage totals in these new files do not accurately reflect the alternatives being depicted because of excessive duplication of routes, described on the following page.

2. Duplicate Routes

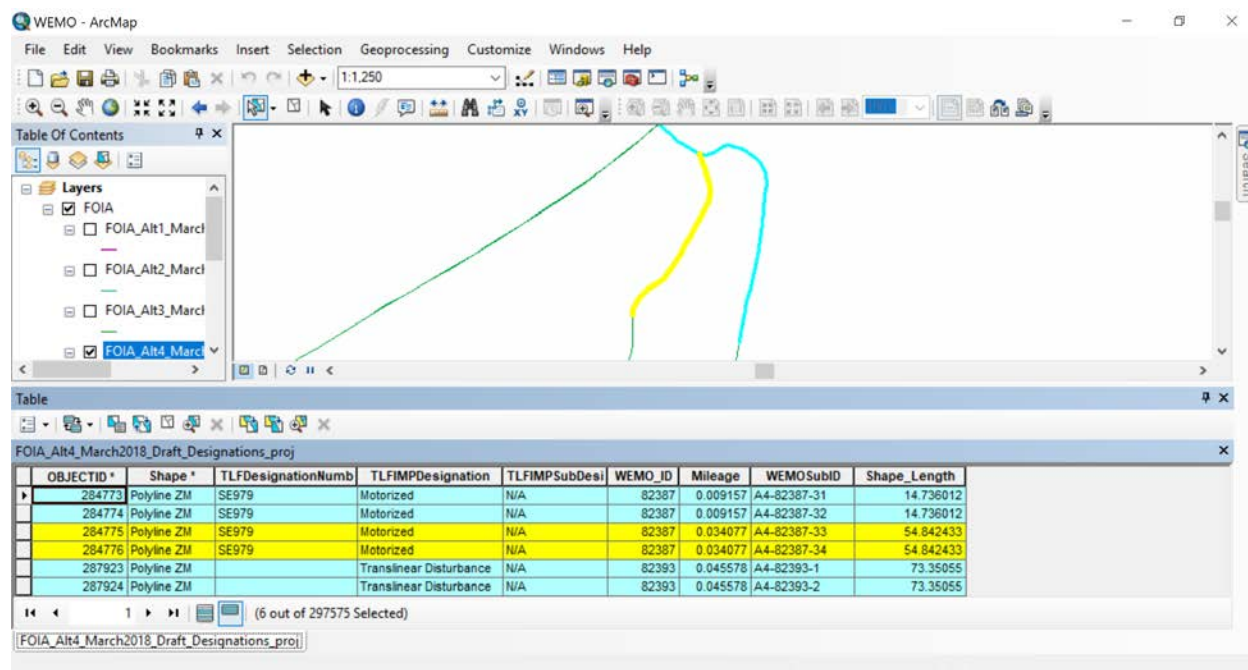
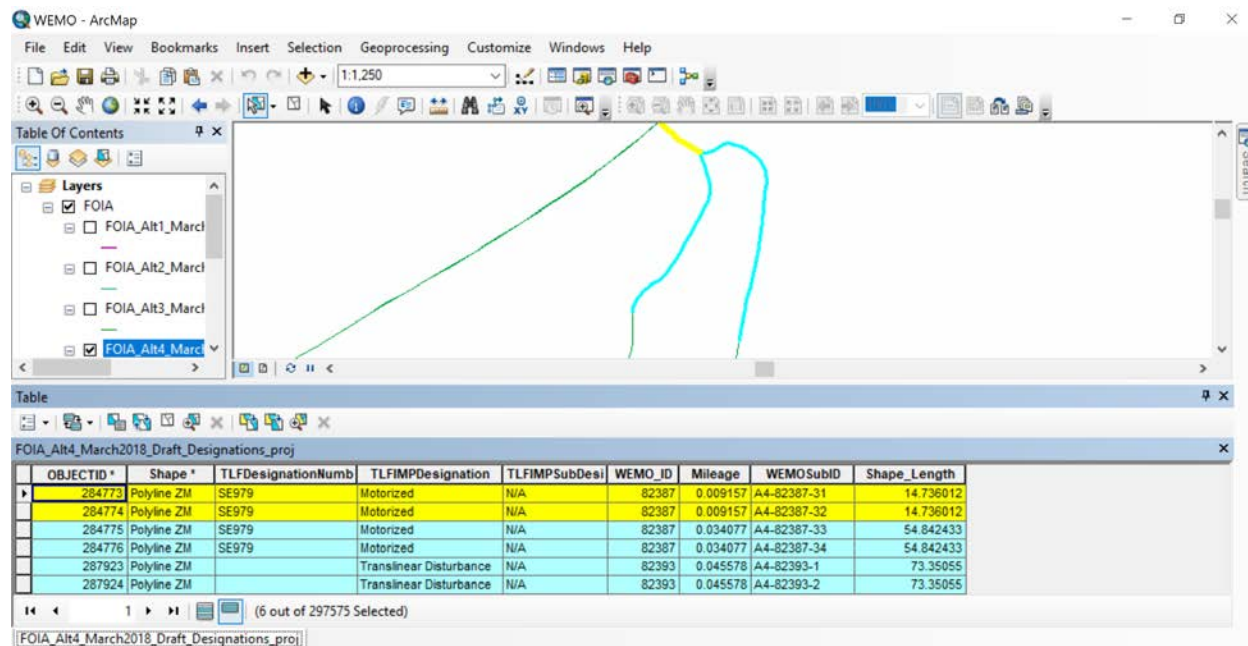
The GIS feature classes (a.k.a. shapefiles) for all four alternatives contain duplicate features, meaning more than one record/line for a single route segment. One result of this duplication is an increase in route mileage because the same routes are being accounted for multiple times. There are more than 20,000 duplicated route segments in Alternative 4 (Preferred) alone.

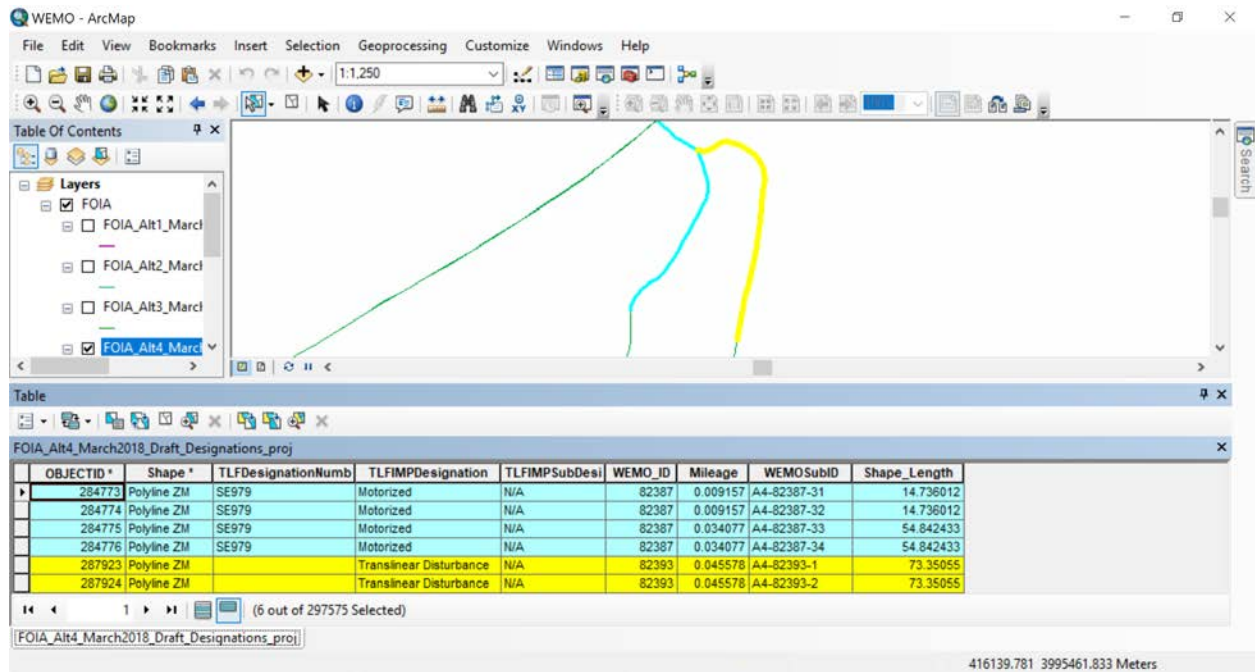
Example from Alternative 4 (Preferred)

The following screenshots provide an example for three such duplicate routes (a total of 6 records in the table/6 features in the map) in the Alternative 4 GIS file. On the map, it appears like 3 route segments are highlighted, but if you look at the table, you see that six records are highlighted. Among the six records, however, the numbers in the *Mileage* and *Shape_Length* fields repeat. That is because there are only supposed to be three route segments here, but each of these segments and its associated record is duplicated.



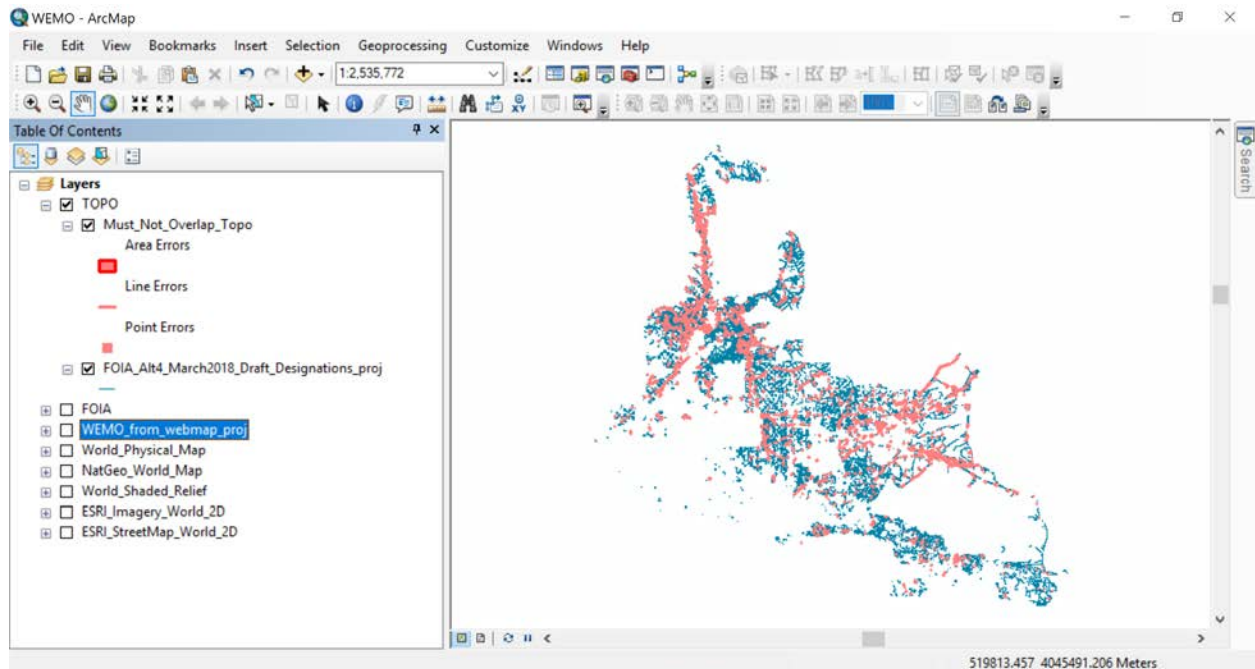
Below, I highlight each duplicate pair. (On the map, this means there are identical lines right on top of each other.)



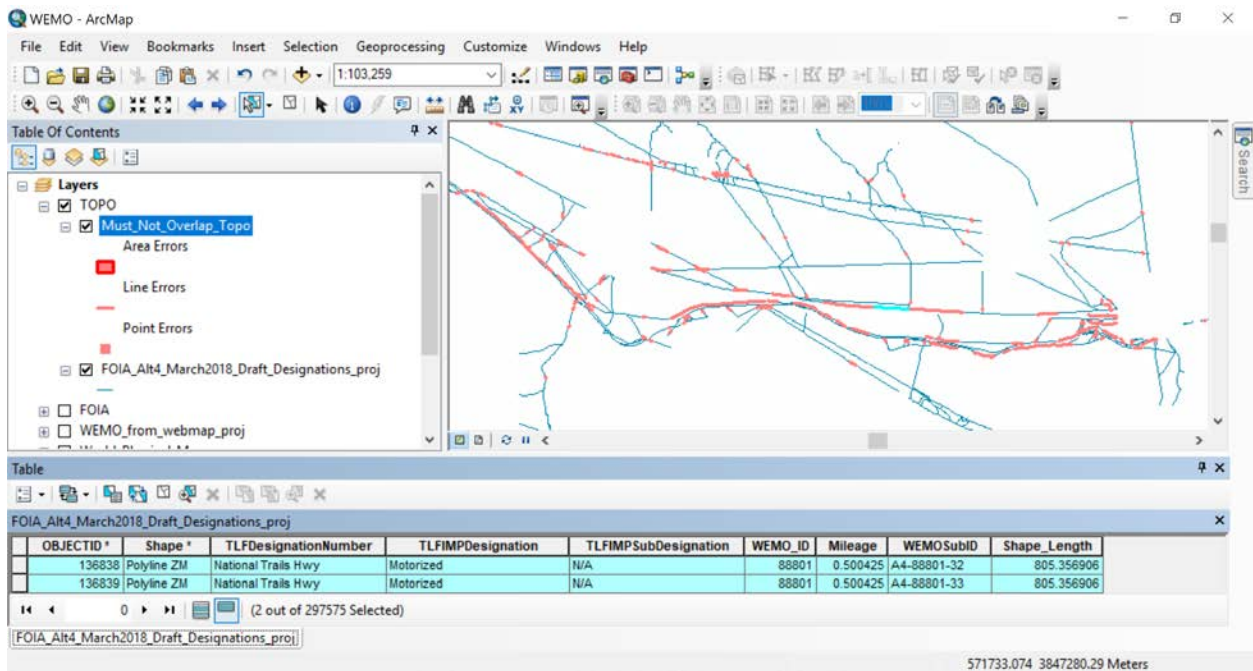
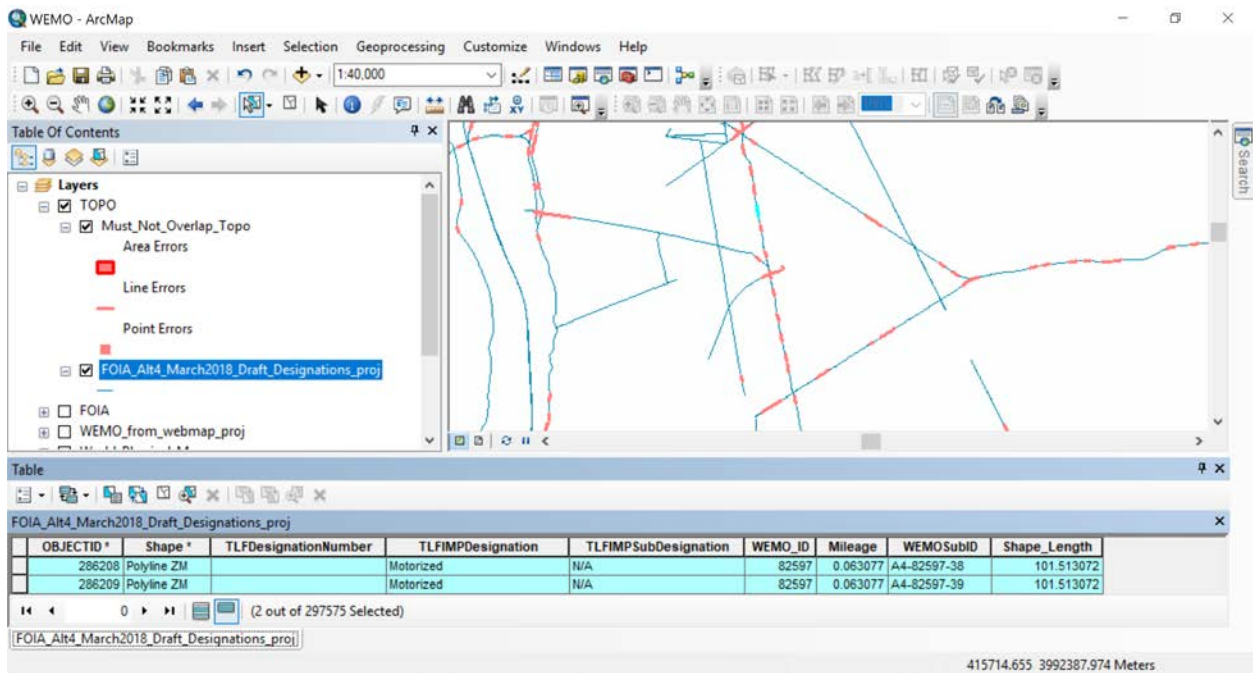


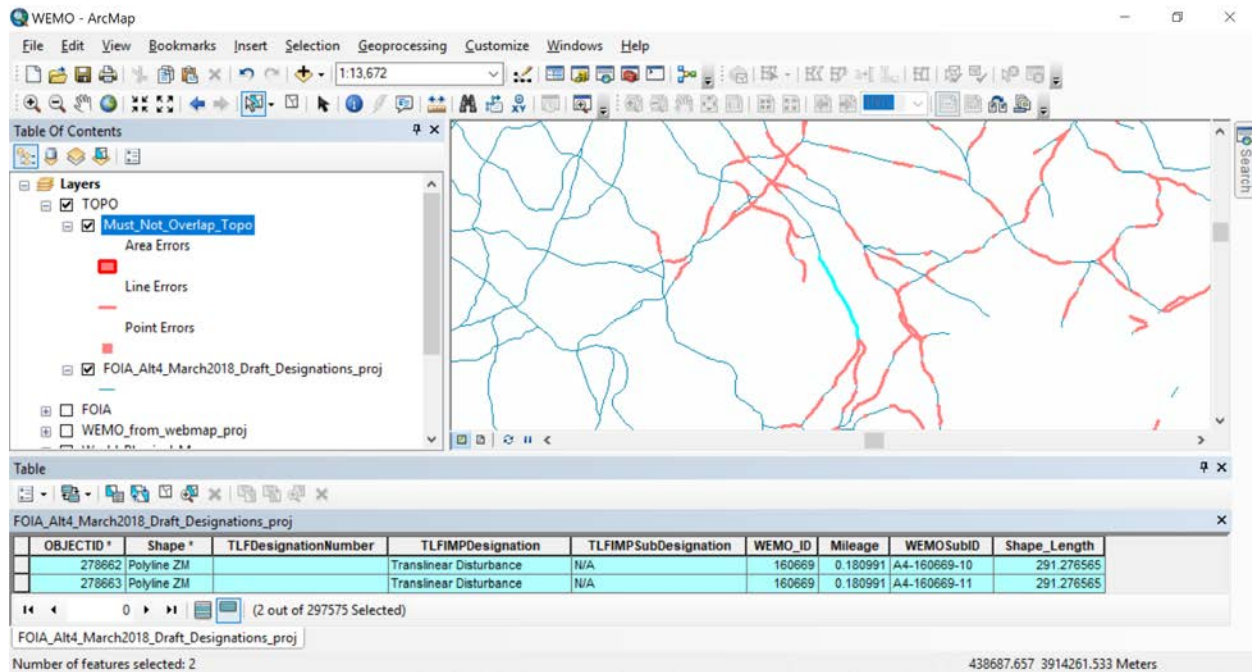
All Duplicates in Alternative 4

The following screenshot highlights all overlapping routes in Alternative 4.

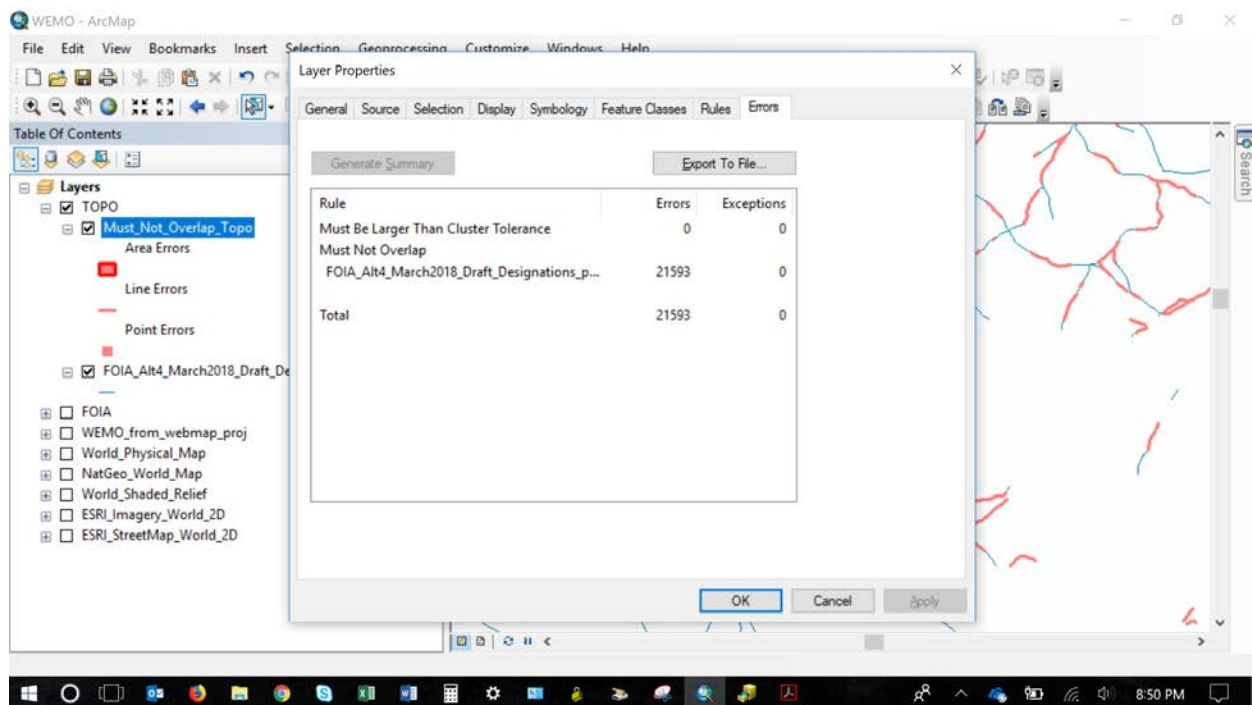


Here are a few closed ups with duplicated routes highlighted.





In total, there are 21,593 overlapping segments in Alternative 4. If the average length of these duplicated route segments is only 1/20th of a mile, the Alternative 4 shapefile's mileage would be off by over 1,000 miles.



3. Discrepancies Among Data Sources

The route data for the WEMO GIS/online mapping tool and geo-referenced PDF maps (available here: <https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage¤tPageId=139665>) do not match each other and may not match other BLM print materials. Several examples follow.

Example A. Juniper Flats – No Action Alternative

In the Juniper Flats area, a recent BLM print brochure correctly matches the routes shown for Alternative 1 (No Action) on the WEMO online mapping tool and the GIS shapefile, but none of these match the route network shown in the geo-referenced PDF map for this area.

LEGEND

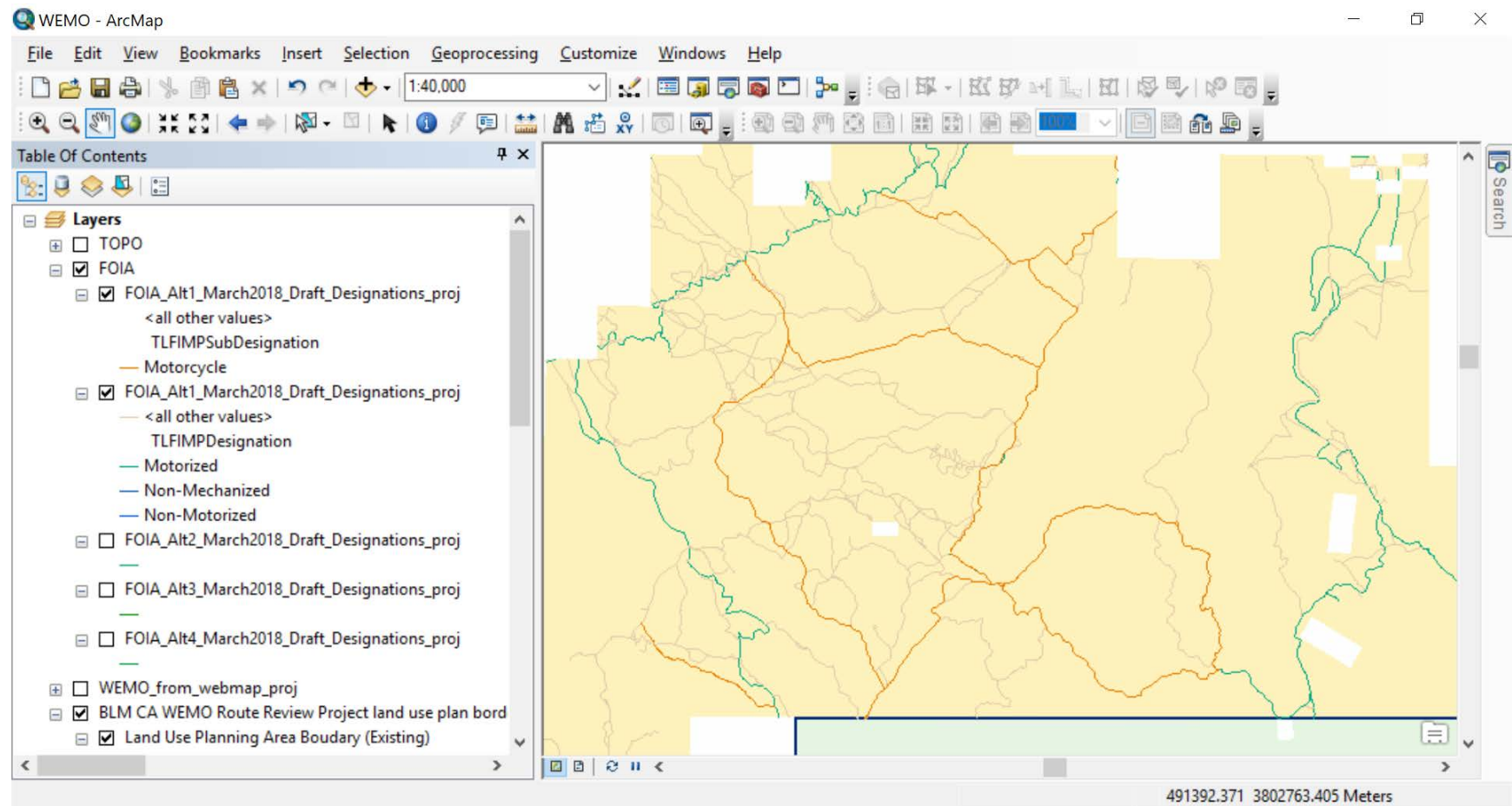
- Arrastre Falls
- Open Route
- Motorcycle Route
- Private Road
- Restoration Area Boundary
- Kiosk Locations
- Powerline Road
- Public Land
- Private Property
- Forest Service

Juniper Flats Restoration Area

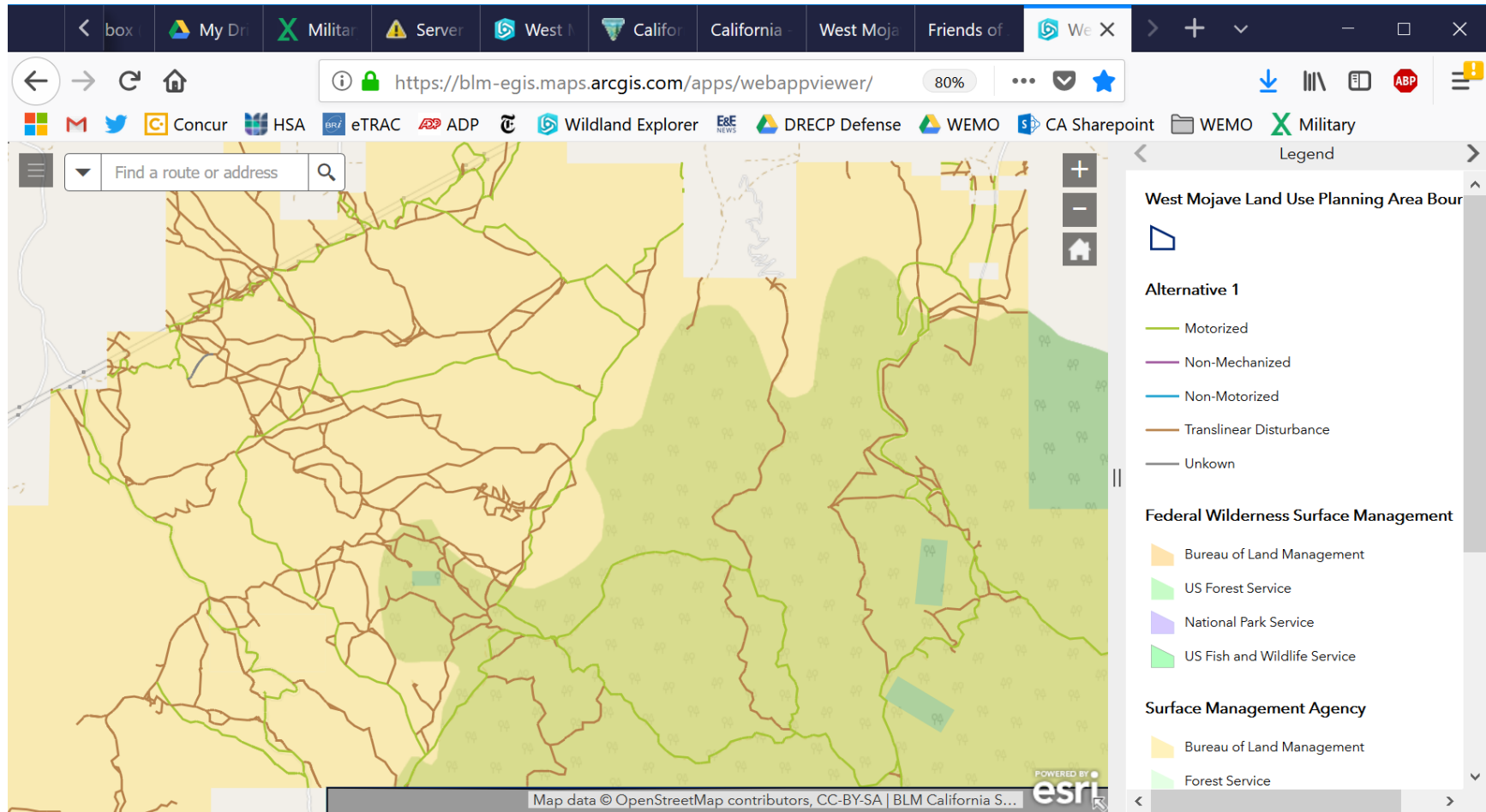
NOTICE:
Motorized use is permitted only on routes signed "OPEN." Any route that does not have an "OPEN" sign is not legal for motorized use. Motorized use of any closed route will result in a fine or criminal prosecution.

The Bureau of Land Management makes no representations or warranties regarding the accuracy or completeness of this map. The map is merely representational. The map and the data from which it was derived are not binding on the Bureau and may be revised at any time in the future. The Bureau of Land Management shall not be liable under any circumstances for any direct, indirect, special, incidental, or consequential damages with respect to any claim by any user or any third party on account of or arising from the use of this map or the data from which it was derived.

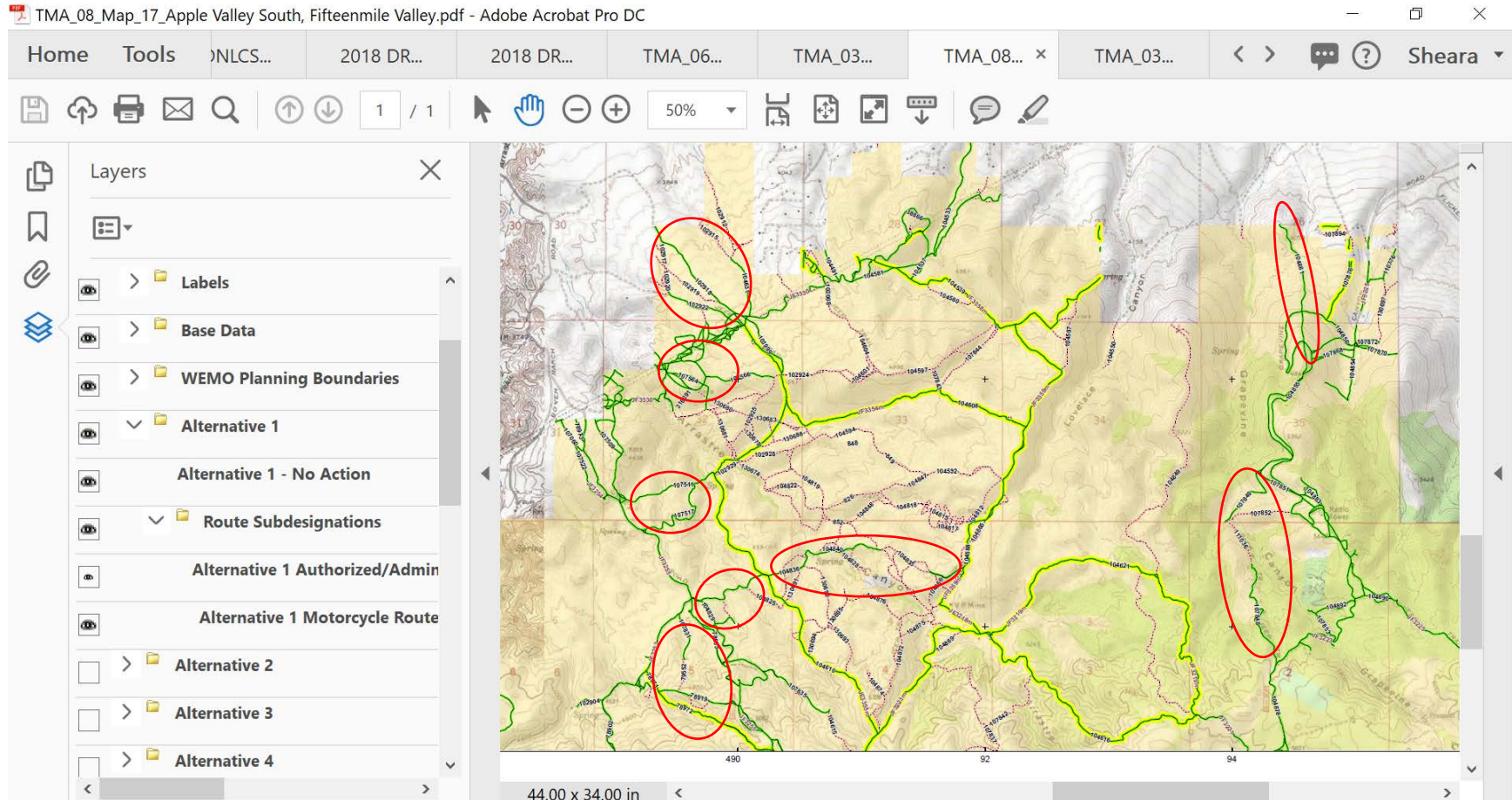
GIS Shapefile – Alternative 1 (No Action): The No Action network in the GIS shapefile matches the network shown in the brochure.



Online Mapping Tool – Alternative 1 (No Action): It is not easy to read with the translinear disturbance lines and without color-coding for the motorcycle-only sub-designation, but the routes shown on the WEMO online mapping tool also match those shown in the brochure. This would be expected, as the tool uses the same shapefile.



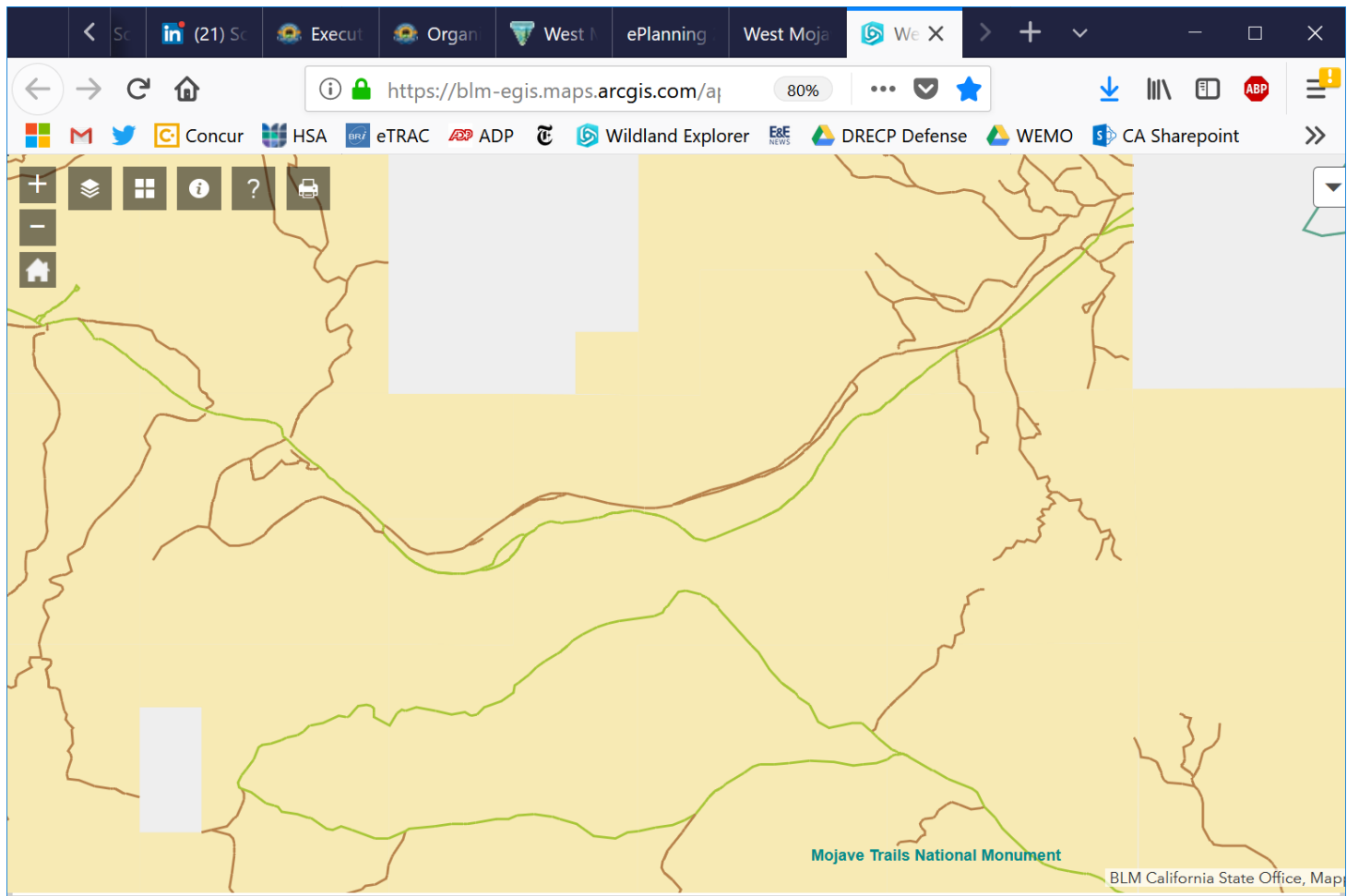
PDF Map – Alternative 1 (No Action): The georeferenced PDF map for the Juniper Flats area (known alternatively as TMA 8 – Map 17; TMA 3 – Map 2; or TMA 6 – Map 14) shows a vastly different route network for Alternative 1 (No Action). Many of the routes designated as translinear disturbance in the online mapping tool and GIS shapefile are designated as motorized in the PDF. Some examples of this difference are circled in red below. Note: These additional motorized routes are NOT administrative routes. The only routes that are administrative are a few small route segments among the motorized routes highlighted in yellow. The rest of the motorized routes highlighted in yellow are motorcycle-only.



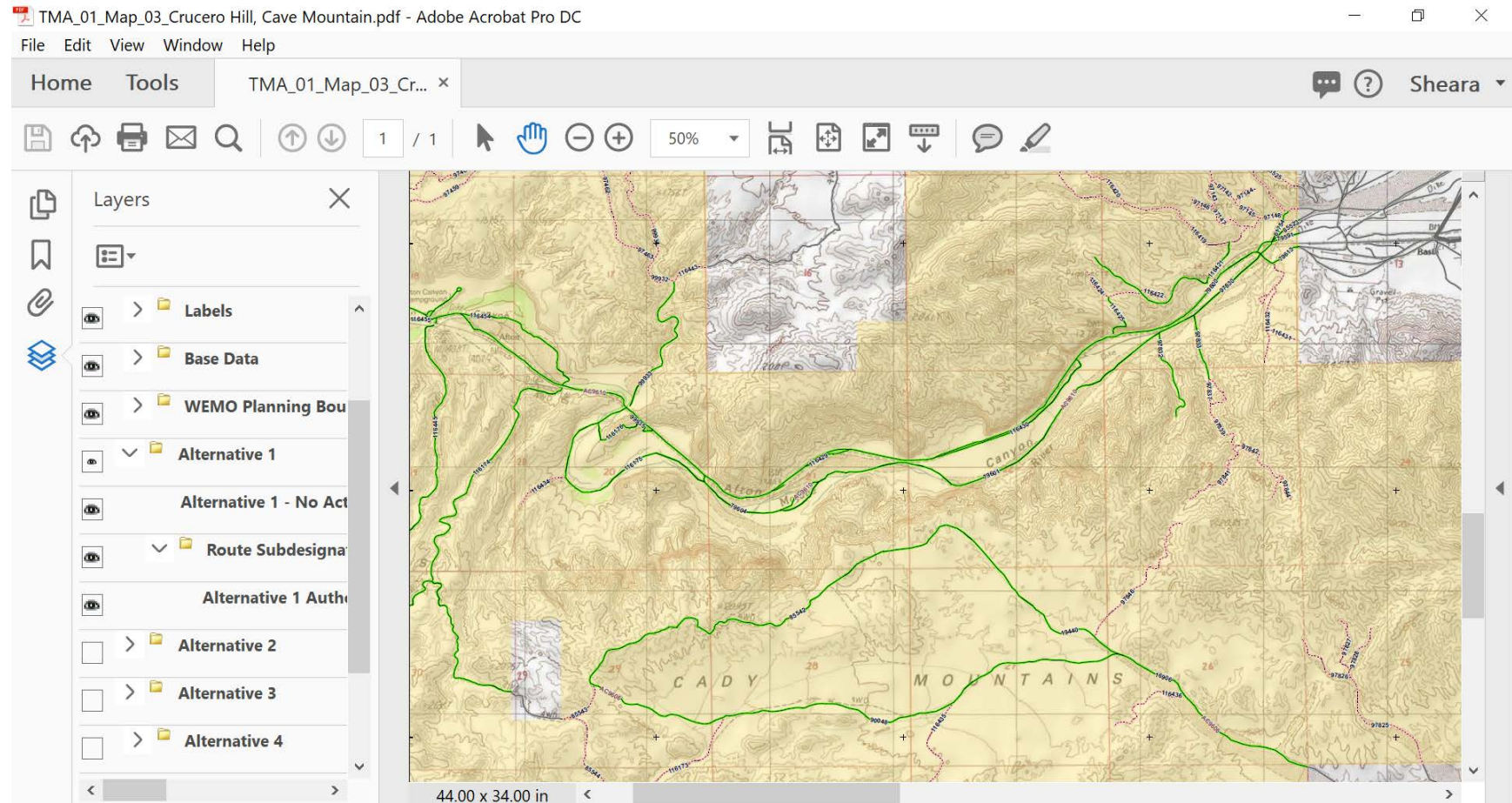
Example B. Cady Mountains – No Action Alternative

Parallel to the Juniper Flats example, the WEMO online mapping tool (and GIS shapefile) for a portion of the Cady Mountains area shows a relatively modest network of motorized routes and an extensive network of translinear disturbance in Alternative 1 (No Action). However, the georeferenced PDF map for this same area codes most of the translinear disturbance shown in the online mapping tool as motorized.

Online Mapping Tool – Alternative 1 (No Action): Note the extensive network of translinear disturbance and limited motorized network.



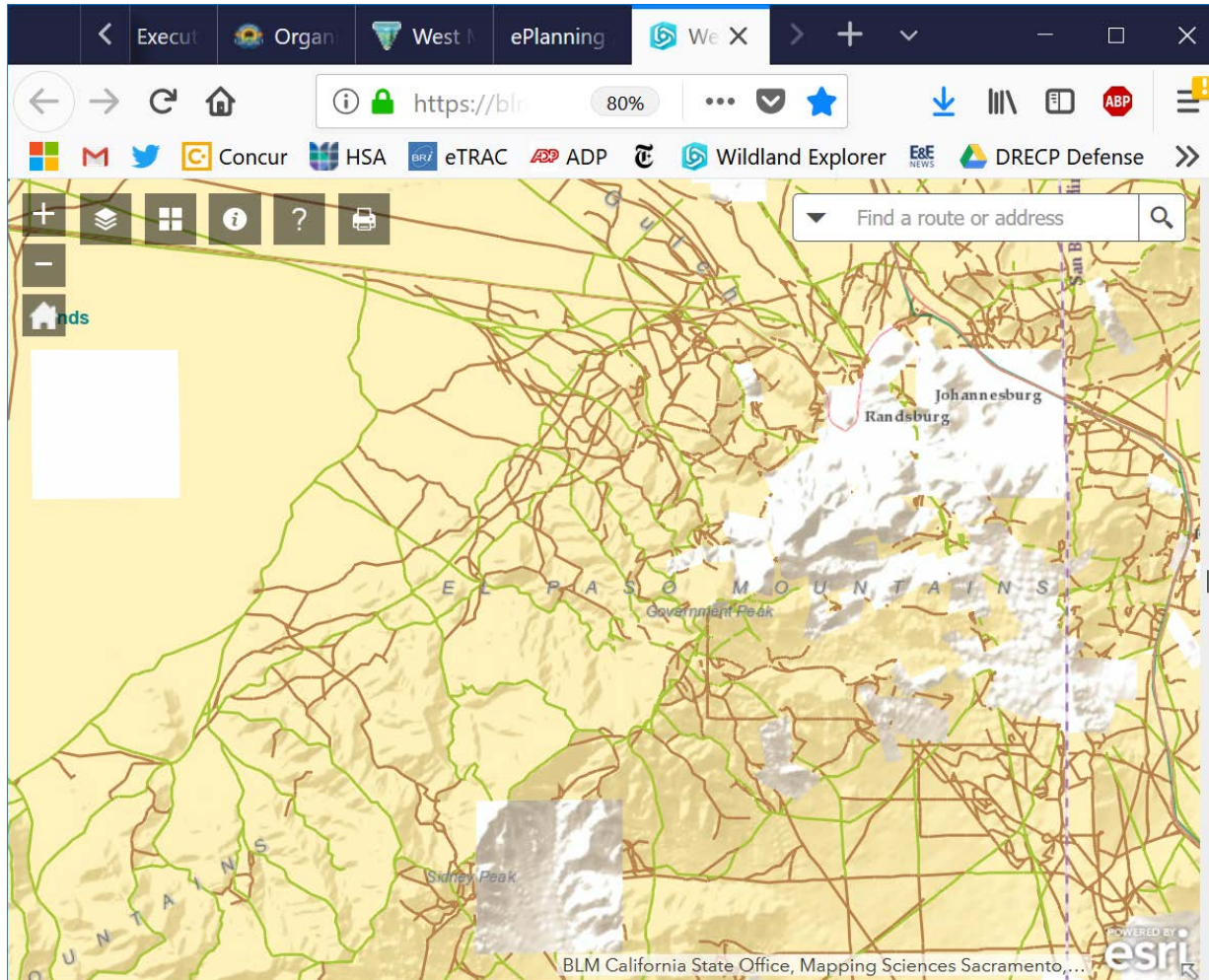
PDF Map – Alternative 1 (No Action): The georeferenced PDF map for this same area (TMA 1 – Map 3) shows a vastly different route network for Alternative 1. The vast majority of routes designated as translinear disturbance in the online mapping tool and GIS shapefile are designated as motorized in the PDF. Note: These additional motorized routes shown in the PDF are NOT administrative routes.



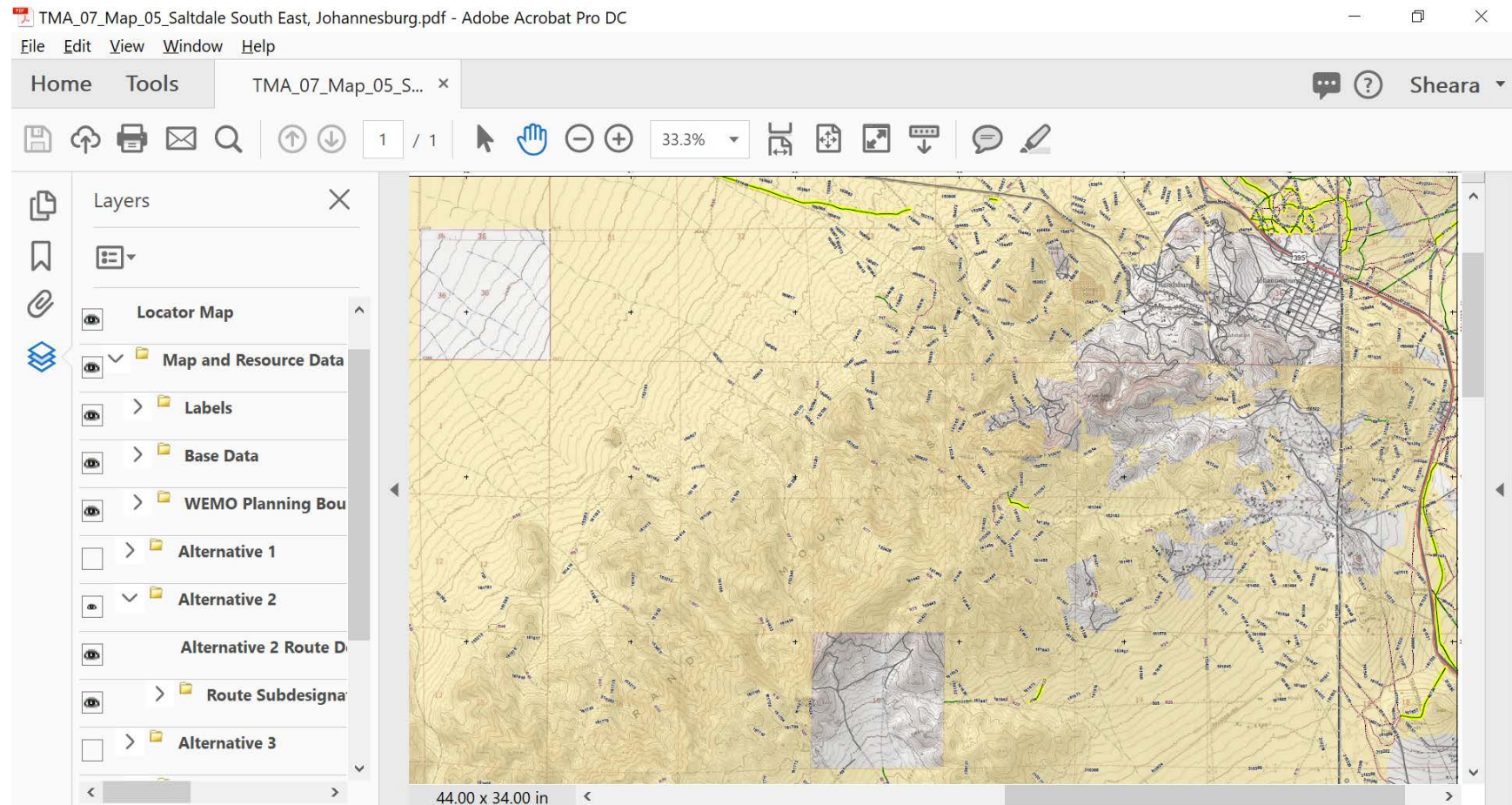
Example C. Johannesburg-El Paso Mountains Area – Alternative 2

In contrast to the examples above, in Alternative 2 for the Johannesburg-El Paso Mountains Area, the WEMO online mapping tool (and GIS shapefile) shows an extensive network of motorized routes, while the georeferenced PDF for this same area shows a very small number of routes, all of which are designated as administrative routes.

Online Mapping Tool – Alternative 2: Note the extensive network motorized routes.



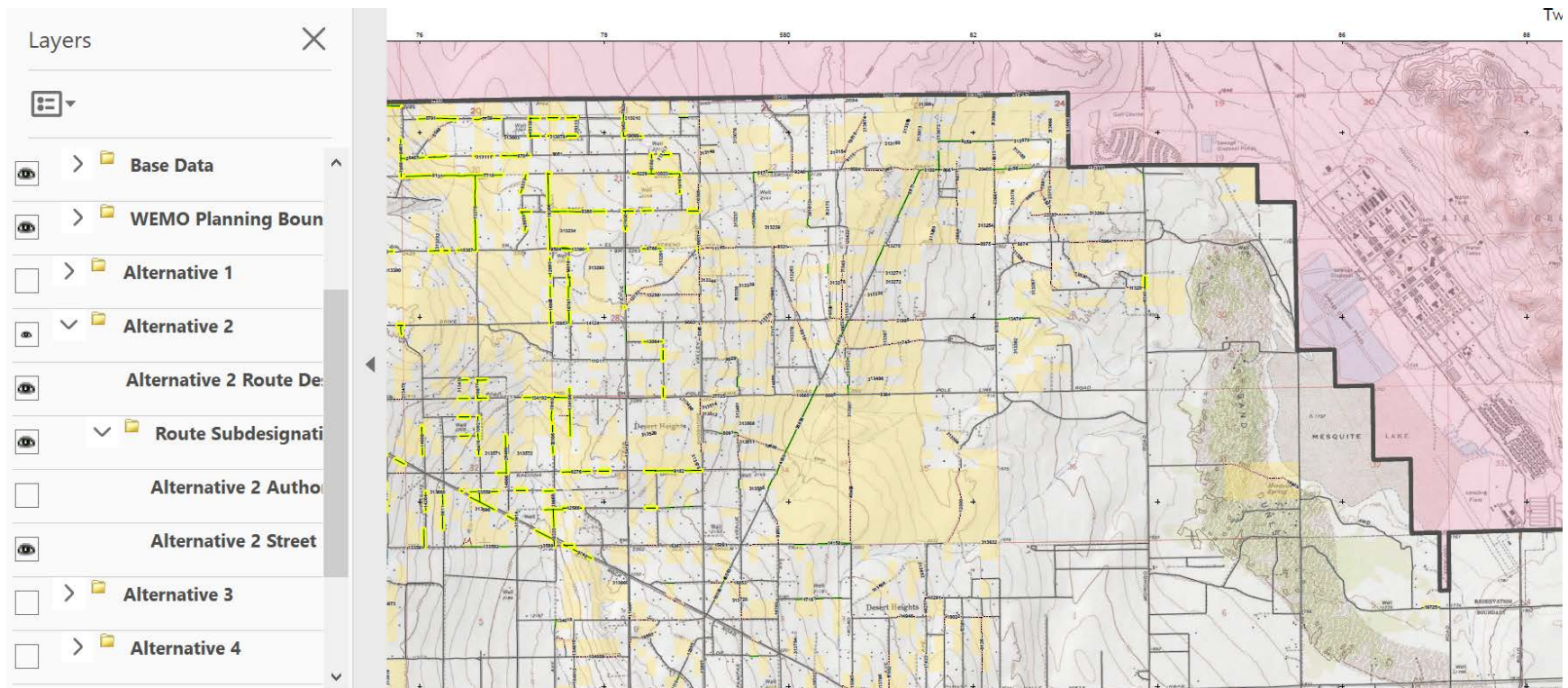
PDF Map – Alternative 2: The georeferenced PDF map for this same area (TMA 7 – Map 5) shows just a fraction of the motorized routes shown in the online mapping tool. To make matters more extreme, almost every route shown has an administrative subdesignation (indicated by the yellow highlights).



Example D. Wonder Valley –Alternative 2

In the Wonder Valley area, the BLM online mapping tool and GIS shapefile show different sub-designations than those shown in the geo-referenced PDF for Alternative 2 (Conservation).

PDF Map – Alternative 2: The geo-referenced PDF map for part of the Wonder Valley Area (TMA 3 – Map 13) shows an extensive street legal only network as shown by the yellow highlighted routes.



GIS Shapefile – Alternative 2: The GIS shapefile does not show any street legal only routes in this same area. Per the legend, those routes would be outlined in turquoise, and yet no turquoise outlines appear in this area. Instead, most appear with an orange outline, which corresponds to Authorized/Permitted routes, per the legend.

