STUDY 2: ROUTE CONDITIONS & ASSESSMENTS

'QUALITY OVER QUANTITY'

A. STUDY GOAL

Provide quality data to make and support route designations

While the travel route locations are important, equally important is **the information about those linear features.** While GPS-capturing route locations, the team also collected information such as condition, surface, width etc. These are vital attributes that imagery is incapable of providing.

The majority of the routes in the current transportation geodatabase come from the 1:100k roads layer. This GIS data originated from the USGS water engineer's office in Carson City, Nevada. Roads were extracted from a digital orthophoto quadrangle quarter (DOQQ), an aerial photograph that is processed to reconcile the round earth with flat imagery, maps and computer screens. Large areas can be covered in a relatively small amount of time. However, the trade off for this ***quantity*** of data is the ***quality*** of the data. [Ref 14]

B. METHODS

BLM's Comprehensive Travel & Transportation Management (CTTM) Program addresses **modes of travel** as follows:

> *'Although historically focused on motor vehicle use, CTTM encompasses all forms of transportation, including travel by foot, horseback and other livestock; travel by mechanized vehicles, such as bicycles; travel by motorized vehicles, such as* ***two-wheeled (motorcycles) and four-wheeled (all-terrain vehicles, cars, and trucks) vehicles;*** *and travel by motorized and non-motorized boats.'*

Project data was collected in accordance with BLM state and federal standards. Collected attributes are defined and discussed in both text and photos in the following pages. For further details, consult CTTM materials [Ref 1].

ROUTE ASSESSMENTS

Suitability

"NOTE: Highest vehicle that can travel route"

- *"Equestrian"– None in this project*
- *"Pedestrian"*
- *"Mtn. Bike"*
- "Motorcycle"
- "ATV"
- "4WD/High Clearance"
- "4WD"
- *"High Clearance"*
- "2WD/High Clearance"
- "All Vehicles"

Overall Condition

- "Good"
- "Fair"
- "Poor"
- "Impassable"
- "Does not apply"

NOTE: Grayed values were not encountered in this project.

This page left intentionally blank

C. DATA AND RESULTS

i. Suitability

62 % of the routes are suited to Motorcycle or ATV with the remainder as noted below. This is not surprising given that most routes were primitive roads and the focus on motorcycle-accessible routes

Miles detailed by route suitability and project area -

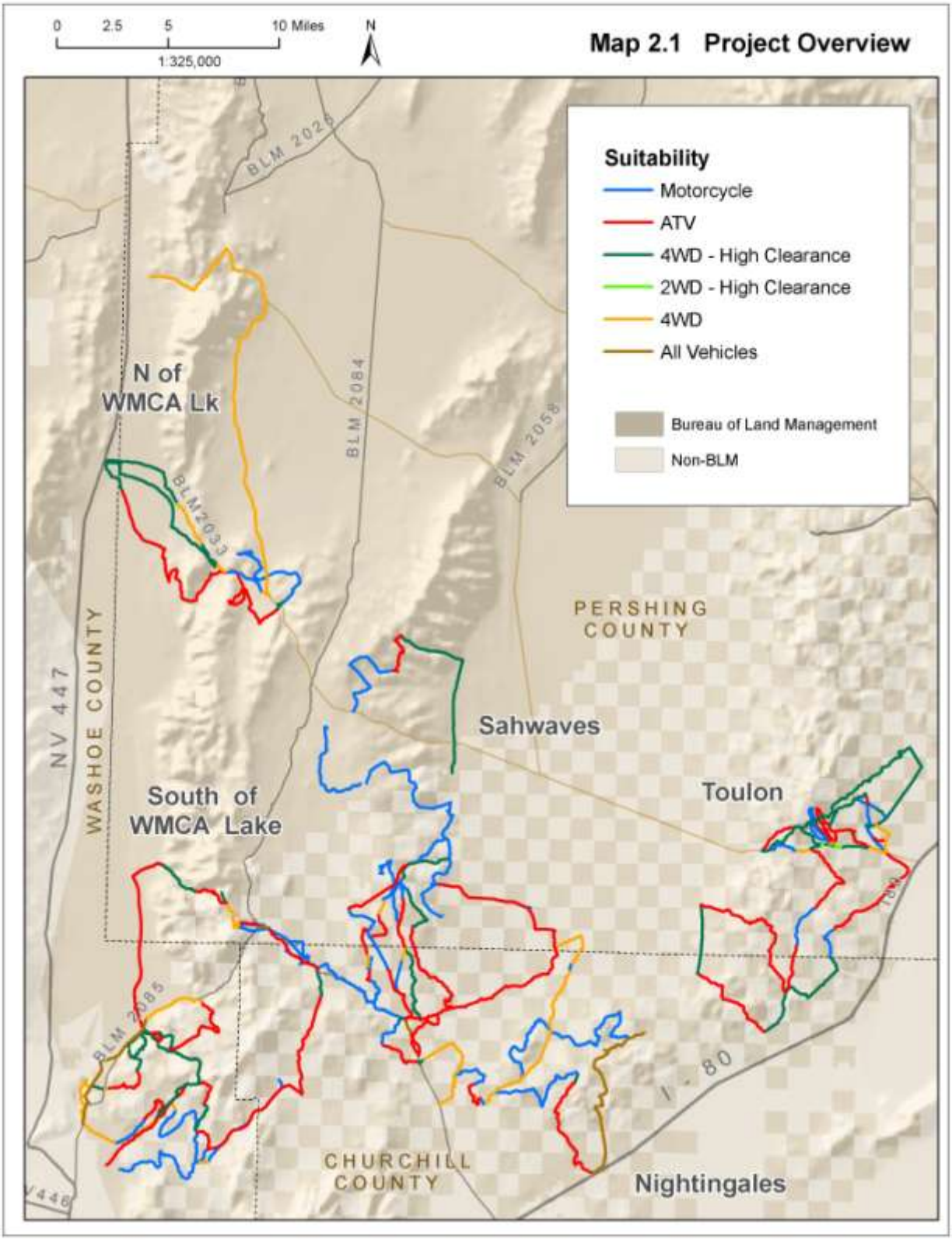
Miles	NTG	N WLk	TOU	SAH	S WLk	TOTAL	%
ATV	10.0	17.1	40.2	43.8	45.2	**156.2**	33
Motorcycle	24.7	8.6	14.5	54.3	40.9	**143.0**	30
4WD/High Clearance	2.2	17.1	34.2	18.5	22.9	**94.8**	20
4WD	13.3	27.3	4.0	5.5	18.2	**68.2**	14
All Vehicles	10.4				6.6	**17.0**	4
2WD/High Clearance			0.5			**0.5**	0
TOTAL	**60.5**	**70.0**	**93.3**	**122.0**	**133.8**	**479.7**	

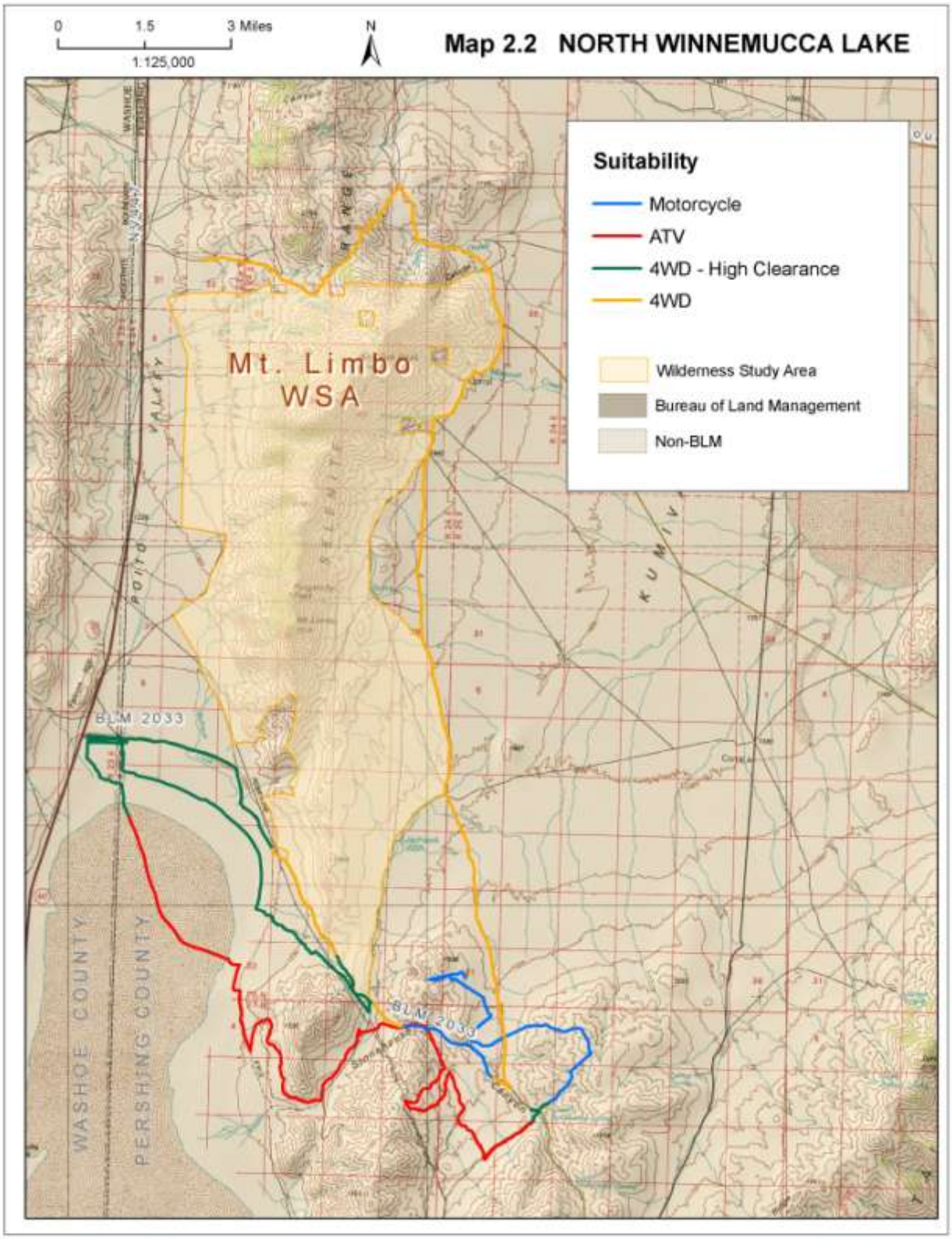
ii. Overall Condition

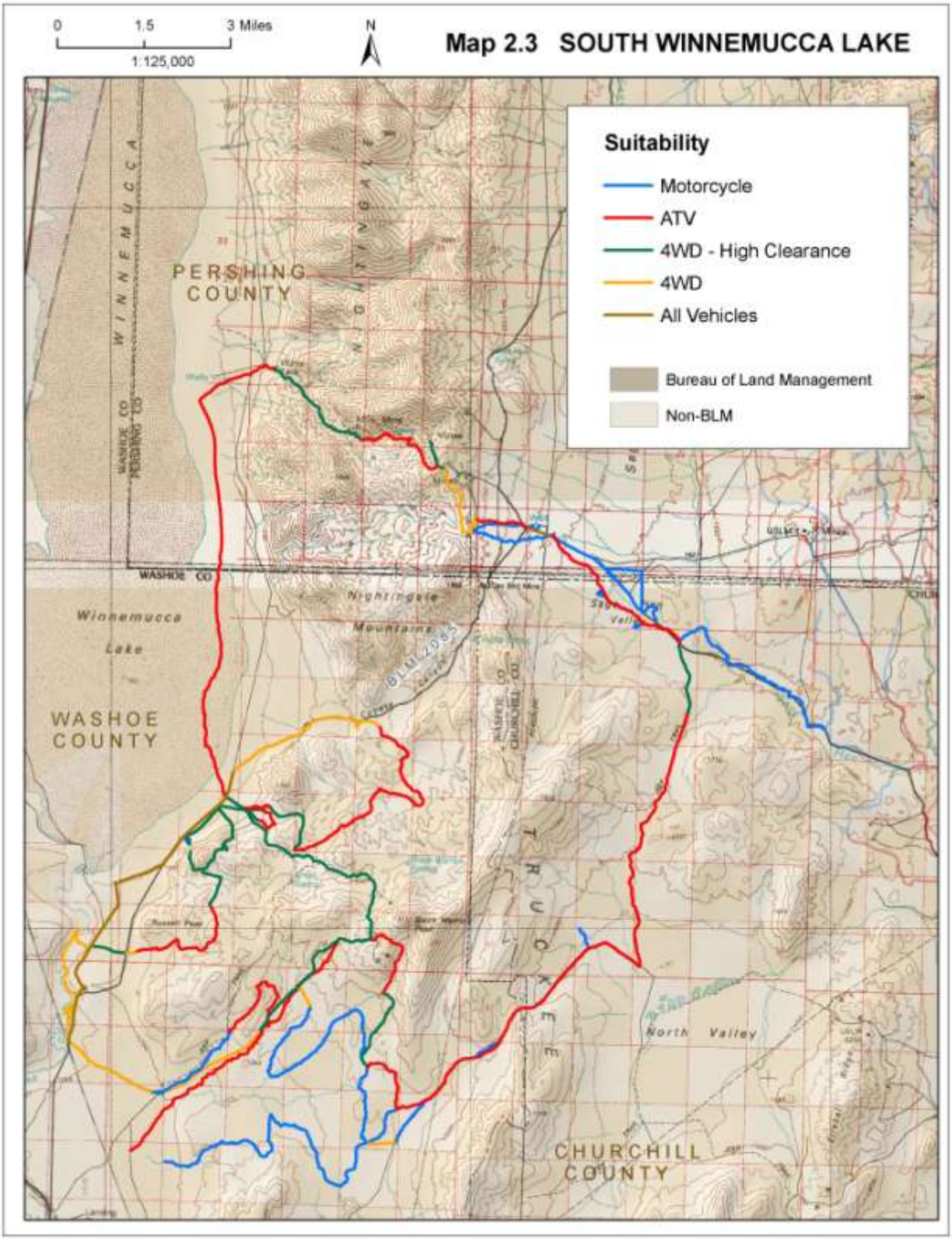
86 % of the routes are in GOOD overall condition.

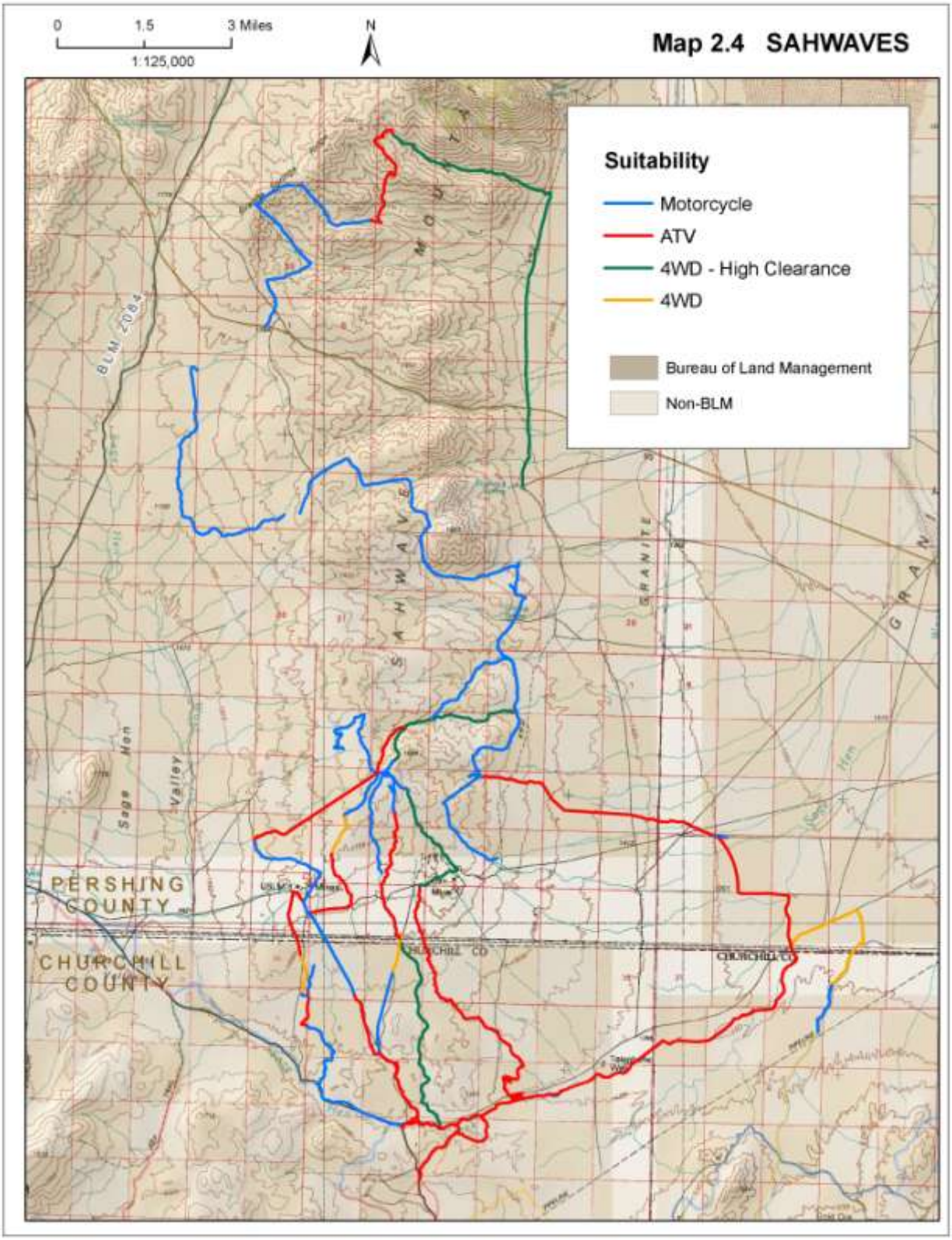
Studies 3 and 4 fully address route conditions.

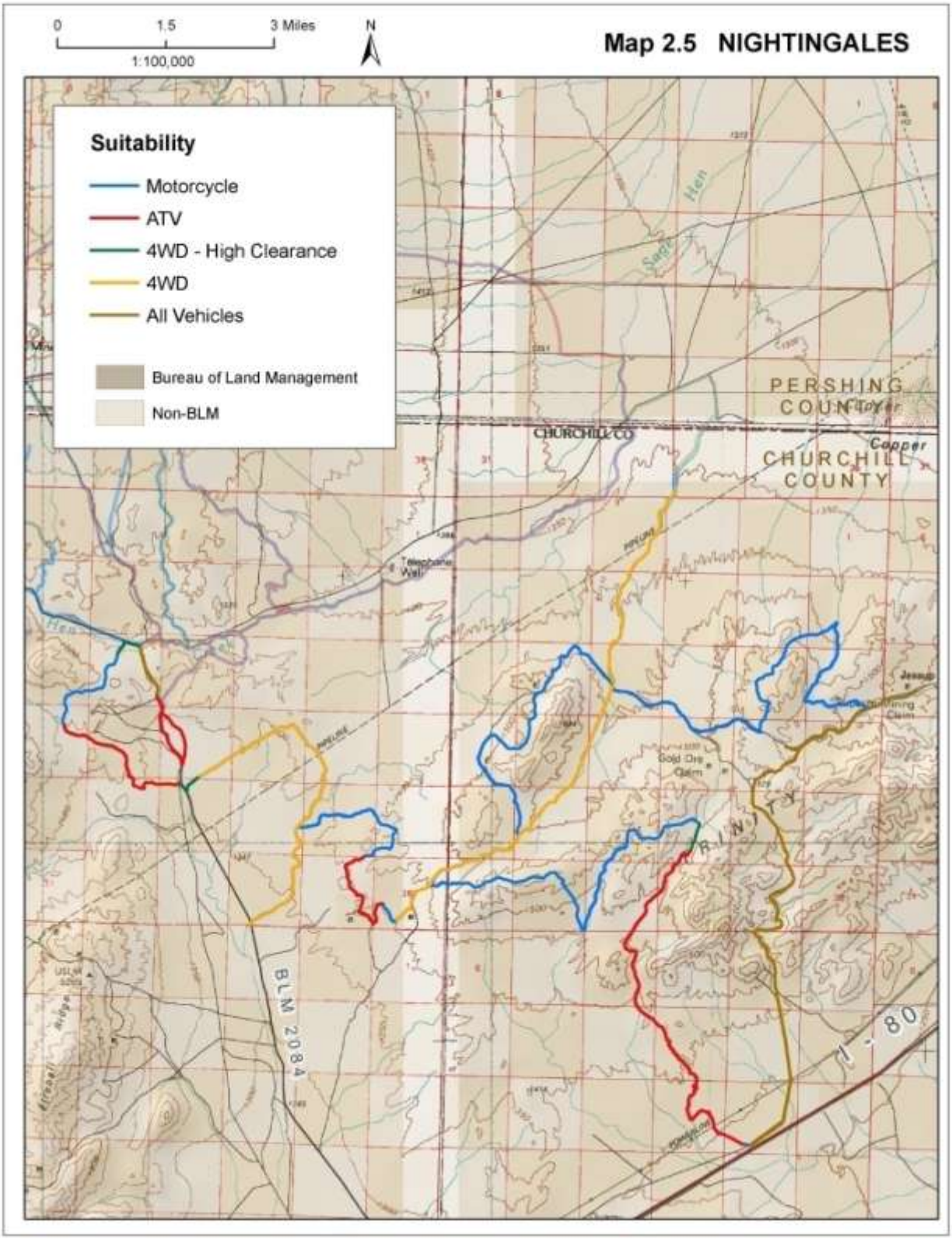
Gaps in routes are areas lacking GPS satellite and/or team coverage

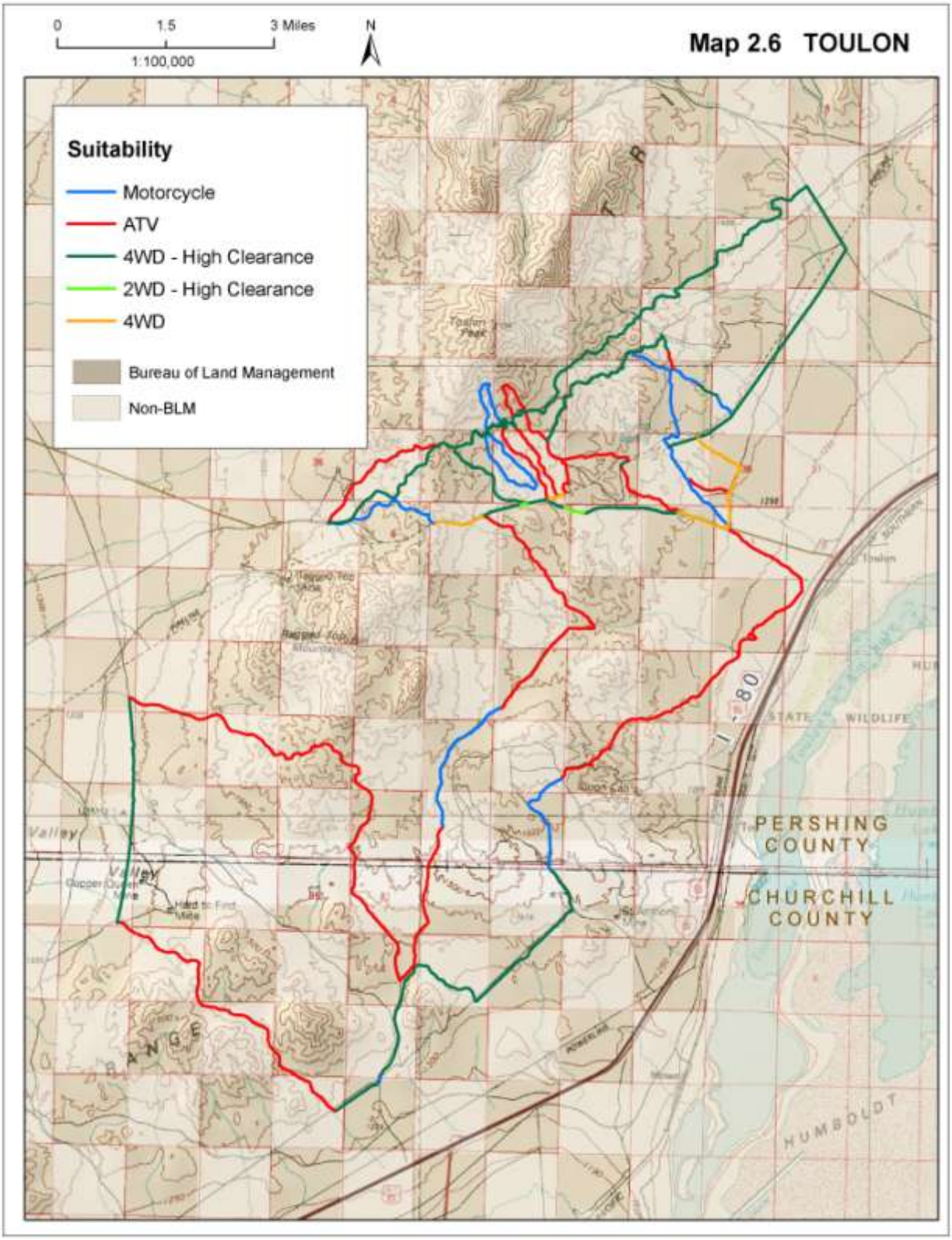



0
1.5
3 Miles
1:125,000
N
Map 2.2 NORTH WINNEMUCCA LAKE
Suitability
Motorcycle
ATV
4WD - High Clearance
4WD
Wilderness Study Area
Bureau of Land Management
Non-BLM
Mt. Limbo
WSA
BLM 2033
BLM 2033
WASHOE COUNTY
PERSHING COUNTY


0
1.5
3 Miles
1:125,000
N
Map 2.3 SOUTH WINNEMUCCA LAKE
Suitability
Motorcycle
ATV
4WD - High Clearance
4WD
All Vehicles
Bureau of Land Management
Non-BLM
PERSHING COUNTY
WINNEMUCCA
NINGALE
WASHOE CO
PERSHING CO
WASHOE CO
Nightingale
Mountains
Winnemucca
Lake
WASHOE COUNTY
BLM 2063
CHURCHILL CO
TRUCKEE
North Valley
CHURCHILL COUNTY


0
1.5
3 Miles
1:125,000
N
Map 2.4 SAHWAVES
Suitability
Motorcycle
ATV
4WD - High Clearance
4WD
Bureau of Land Management
Non-BLM
BLM 2084
SAHWAVE MOUNTAIN
GRANITE
Sage Hen Valley
PERSHING COUNTY
CHURCHILL COUNTY


0
1.5
3 Miles
1:100,000
N
Map 2.5 NIGHTINGALES
Suitability
Motorcycle
ATV
4WD - High Clearance
4WD
All Vehicles
Bureau of Land Management
Non-BLM
PERSHING COUNTY
CHURCHILL CO
CHURCHILL COUNTY
Copper
BLM 2084
I - 80


0
1.5
3 Miles
1:100,000
N
Map 2.6 TOULON
Suitability
Motorcycle
ATV
4WD - High Clearance
2WD - High Clearance
4WD
Bureau of Land Management
Non-BLM
PERSHING COUNTY
CHURCHILL COUNTY
HUMBOLDT
I 80

D. DISCUSSION

The advantages of GPS-captured data over remote imagery include the abilities to -

Detect primitive roads

Highways and other paved roads are easily extracted from imagery. As seen in Study # 1, these do not represent the most common types of routes in this district. Primitive dirt and gravel roads and single tracks are often indistinguishable from washes, horse and cow tracks that are lost in the never ending sea of sagebrush. Ground crews may even have difficulty finding these routes until they are immediately upon them. Imagery and other automated data acquisition methods do not find these routes.

Assess route quality

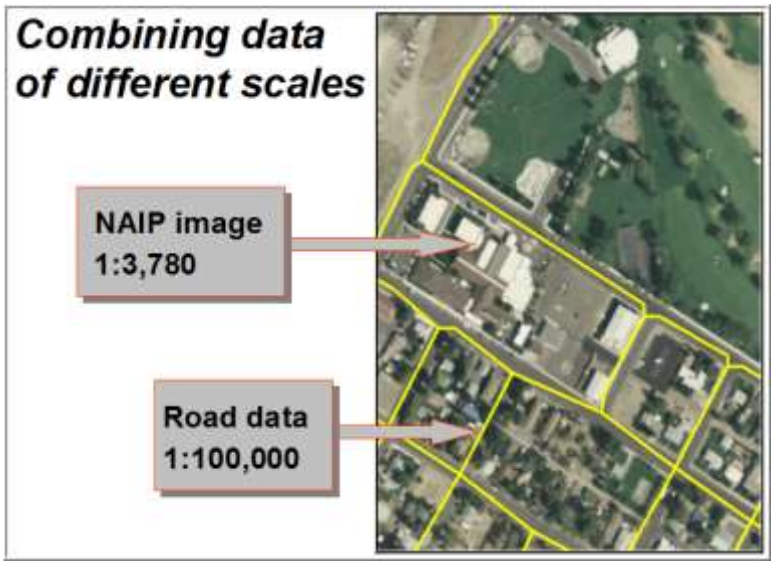
Route conditions and assessments such as ***trail surface, obstructions*** **and** ***use level*** can only be made by field observations. Only a field crew can make these determinations and shoot a GPS-photo that supports these observations.

Submeter accuracy

Data at 1:100k is accurate to only 50.2 meters as per national map accuracy standards. Project data was collected with sub-meter accurate, mapping grade GPS devices.

While it may not seem necessary to locate a route out in the middle of nowhere to the 'gnat's eyebrow' it is important to consider the later uses of that data. The following example illustrates this point –

Dataset	Scale	Accuracy
GIS road data	1:100,000	50.8 meters
Background NAIP image	1:3,780	5 meters
Map display	1:3,780	5 meters



In the above map, the 1:100k road data isn't wrong in itself but rather it is being displayed at 1:3,780 which is well beyond its intended scale. This is similar to zooming into a digital photo beyond its intended resolution and revealing only pixilated blocks.

The National Agricultural Imagery Program (NAIP) imagery in the Winnemucca BLM district is much improved over the older DOQQs. NAIP images are a) accurate to a few meters, b) color images, and c) current as 2006. **The project sub-meter accurate GPS data will look fine when displayed on the 5-meter accurate NAIP imagery.**

Maintain a presence on the public lands

To keep apprised of activities and conditions on the public lands, agency personnel must make regular onsite visits and inspections. This is especially important since the majority of the travel routes in the district are not maintained or assigned to any particular owner (county, federal, private etc).

E. BENEFITS AND APPLICATIONS

Route conditions and assessments are key qualitative indicators that allow for **INFORMED** decision making in creating a travel management plan.

Manage all race course route data in a Race Permit geodatabase

This special recreation permit recommendation is discussed in detail in the Executive Summary.

Designate areas for races and other permits

A database of previously permitted race routes in the district will make it **easier to visualize and designate routes**. It is recommended that racing designations be made **by areas rather than by specific linear routes**. This would greatly facilitate the current permitting process which relies on previously approved route segments.

Assign travel route designations

Apply **assessment data and photos** to designate which routes to should remain open/closed/seasonal, maintained by agency or users, and permitted for various uses. To communicate these regulations, provide maps displaying route locations, data and analysis to **support these decisions.**

Utilize the project tools to monitor other permitted events

Tools and methods established here can be applied to other route-dependent events such as Hummer tours, car rallies, OHV races and off-road driving instruction.