Appendix A

Transportation Plan

Transportation Plan

Huntington Valley Oil and Gas Exploration Project
Noble Energy, Inc.

Presented to:

Bureau of Land Management
Elko District - Tuscarora Field Office
Elko, Nevada

May 2014

TRANSPORTATION PLAN
HUNTINGTON VALLEY OIL AND GAS EXPLORATION PROJECT

1.1 INTRODUCTION

This Transportation Plan addresses traffic and road use associated with the Noble Energy, Inc. (Noble) Huntington Valley Oil and Gas Exploration Project. The proposed project area is located in Elko County, Nevada, approximately 21 miles south of the city of Elko. Noble's project proposal identifies 39 potential new well pads (27 well pads with federal surface and federal minerals and 12 well pads with private surface and federal minerals). Noble intends to construct up to 20 of the 39 identified well pads and drill and complete up to 20 wells during exploration. Construction of new roads and upgrading of existing roads are part of the proposal. The wells will potentially be in production for up to 20 years.

Well pads will be accessed using existing federal and state highways; Elko County roads; City of Elko streets; and BLM, private, and newly constructed access roads (see Map 1). Noble proposes to generally use existing state highways and county roads to access the project area. Within the project area, Noble has identified up to 19.75 miles of existing roads that would not require improvements, up to 13.13 miles of existing roads that would require upgrades, and up to 17.79 of potential new road construction to access individual well pads. An additional 0.47 mile of existing road that would not require upgrades, 0.67 miles of existing road that would require upgrades, and 0.09 mile of new road would be required to access gravel pits. The extent of road upgrades and new construction will depend on which well pads are selected for exploration. Noble will obtain Right-of-Way grants from the BLM for all off-lease existing roads on BLM-administered lands that may be included in the Proposed Action. In accordance with the BLM Elko District Recommended Operating Procedures for Notice Level Operations (BLM Recommended Operating Procedures), Noble is proposing access that is the most direct and safest route with the least amount of disturbance.

This plan addresses the project area and adjacent areas that include roads that may be used to access the project area (see Map 1). This document describes existing roads and roads identified for upgrade/construction; identifies the parties responsible for road maintenance; and estimates the traffic levels associated with construction (including drilling and completion) and operation of the project.

1.2 ACCESS ROUTES

1.2.1 Primary Access Routes in the Project Area

Road types, or functional classifications, describe the functions that roads serve in facilitating traffic flows within a transportation network. Arterial roads, such as interstates and state highways, connect population centers, accommodate high traffic volumes and have limited access. Collector roads include state, county and municipal roads that provide primary access through towns or to large blocks of land, and are generally two lanes wide. Table 1 lists the arterial and collector roads within the project area transportation network, indicates their surface type, and identifies the parties responsible for road maintenance.

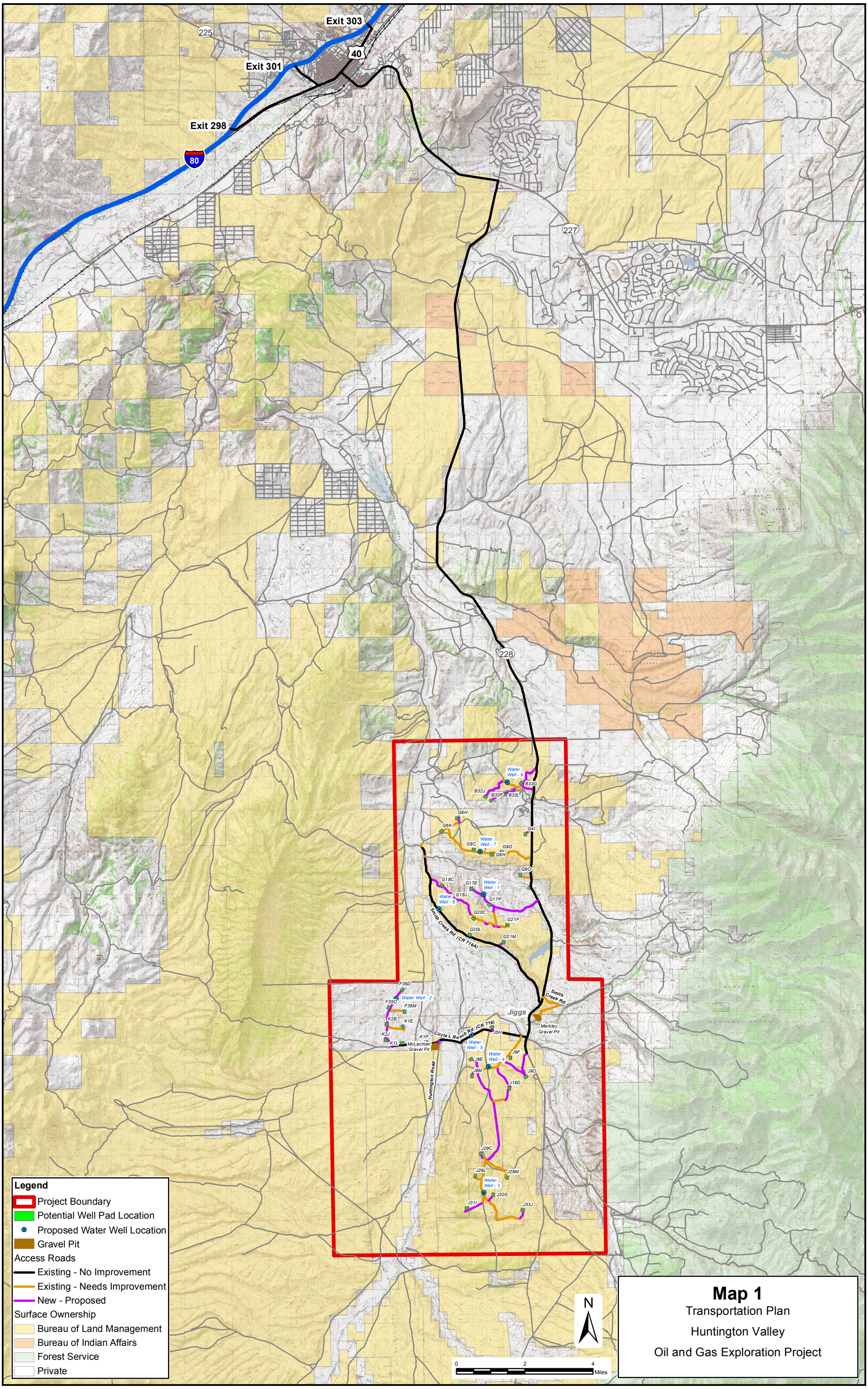

Exit 303
Exit 301
Exit 298
225
40
80
227
228
Water Well - 6
B33G
B32J
B32P
B33L
G6H
G6K
G4I
Water Well - 7
G8C
G9D
G8H
G9O
G18C
G17E
Water Well - 1
G16J
Water Well - 8
G17P
G20C
G21F
G20L
G21M
Smith Creek Rd. (CR 716A)
F36D
Water Well - 2
F35O
F36M
K2B
K1E
K2J
K1P
K1L
McLachlan Gravel Pit
Circle L Ranch Rd. (CR 716)
J5H
Water Well - 5
Jiggs
Smith Creek Rd.
Merkley Gravel Pit
Water Well - 4
J8E
J8M
J9F
J9O
J16D
Huntington Road
J29C
J29L
J28M
Water Well - 3
J32G
J31I
J33J
Legend
Project Boundary
Potential Well Pad Location
Proposed Water Well Location
Gravel Pit
Access Roads
Existing - No Improvement
Existing - Needs Improvement
New - Proposed
Surface Ownership
Bureau of Land Management
Bureau of Indian Affairs
Forest Service
Private
N
0
2
4
Miles
Map 1
Transportation Plan
Huntington Valley
Oil and Gas Exploration Project

Table 1
Primary Access Routes for Huntington Valley Oil and Gas Exploration Project

Road Name	Road Type	Surface Type	Maintenance Responsible Party
Interstate-80 (I-80)	Arterial	Pavement	NDOT[1]
U.S. Highway 40 (I-80 Business Loop/ Idaho Street in Elko)	Collector	Pavement	City of Elko within Elko city limits, NDOT[1] outside Elko city limits
NV State Route 225 (Mountain City Highway)	Collector	Pavement	NDOT[1]
NV State Route 227 (Lamoille Highway)	Collector	Pavement	NDOT[1]
NV State Route 228 (Jiggs Highway)	Collector	Pavement	NDOT[1]
[1] NDOT = Nevada Department of Transportation			

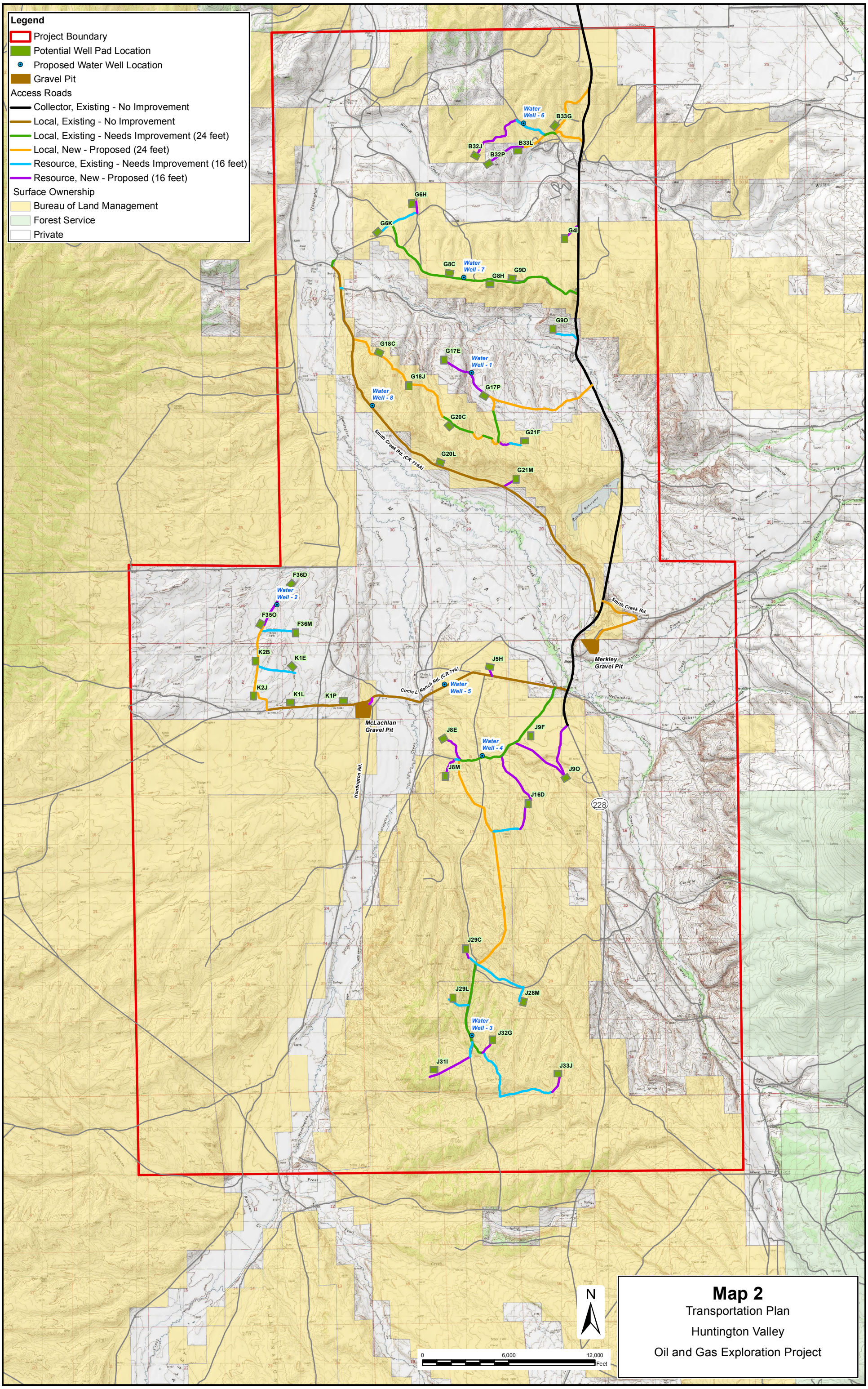
Local and resource roads include BLM, county, municipal, and private roads that link areas with low traffic volumes to higher classification roads. Local roads connect to collector roads and serve a smaller area than collector roads, and may be one or two lanes with lower traffic volumes. Within the project area, Circle L Ranch Road and Smith Creek Road, which are part of the network of Elko County roads numbered County Road (CR) 716, are local roads that would be used for project access. Both roads have unpaved surfaces. Resource roads are BLM and private roads that provide point access, connecting to local or collector roads, and are single lanes to individual well pads.

1.2.2 Access Routes

From Interstate-80, access to the project area is via U.S. Highway (US) 40 and Nevada state routes 225 (Mountain City Highway), 227 (Lamoille Highway) and 228 (Jiggs Highway). Within the City of Elko, US 40 is the Interstate-80 Business Loop, Nevada State Route (SR) 535 and Idaho Street; and SR 227 is South 5th Street.

Three exits from Interstate-80 provide access to the project area: Exit 298 west of Elko, Exit 301 in central Elko, and Exit 303 east of Elko (see Map 1). From Exit 298 the access route proceeds approximately 3.7 miles northeast on US 40/Idaho Street to SR 227/South 5th Street. From Exit 301 the access route proceeds approximately 0.9 mile southeast on SR 225 and turns left on US 40 to continue approximately 0.8 mile to SR 227. From Exit 303 the access route travels approximately 4.2 miles southwest on US 40 to SR 227. From the convergence of all three routes at SR 227, the access route continues for approximately 6.9 miles on SR 227 to SR 228. The access route turns right on SR 228 and continues for 17.8 miles to the northern border of the project area.

SR 228 is the primary road used for access within the project area. All proposed well pads, water well locations, and gravel pits that will provide gravel for access road and well pad construction will be accessed using new and existing roads that connect with SR 228 (see Map 2). Roads that could potentially be used for access are described below. The roads that will be constructed as part of the proposed exploration project will depend on which well pads are constructed. All road lengths reported below are approximate distances.


Legend
Project Boundary
Potential Well Pad Location
Proposed Water Well Location
Gravel Pit
Access Roads
Collector, Existing - No Improvement
Local, Existing - No Improvement
Local, Existing - Needs Improvement (24 feet)
Local, New - Proposed (24 feet)
Resource, Existing - Needs Improvement (16 feet)
Resource, New - Proposed (16 feet)
Surface Ownership
Bureau of Land Management
Forest Service
Private
Water Well - 6
B33G
B32J
B33L
B32P
G6H
G6K
G4I
Water Well - 7
G8C
G8H
G9D
G9O
G18C
G17E
Water Well - 1
G18J
G17P
Water Well - 8
G20C
G21F
G20L
G21M
Smith Creek Rd. (CR 718A)
F36D
Water Well - 2
F35O
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K2J
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Water Well - 5
J5H
Merkley Gravel Pit
Smith Creek Rd.
J8E
Water Well - 4
J9F
J8M
J9O
J16D
Huntington Rd
228
J29C
J29L
J28M
Water Well - 3
J32G
J31I
J33J
N
0
6,000
12,000
Feet
Map 2
Transportation Plan
Huntington Valley
Oil and Gas Exploration Project

Approximately 1 mile south of the project area's northern border, existing and new roads will be used to access proposed water well #6 and any or all of proposed well pads B33G, B33L, B32P, and B32J. From SR 228 a new local road will proceed 1 mile southwest to Well Pad B33G. Beyond this point, the access route proceeds in a generally western direction on an existing road (upgrades required). Approximately 0.25 mile west of Well Pad B33G, a new local road will exit the existing road to the left, proceed 0.6 mile southwest to Well Pad B33L, and continue as a new resource road for 0.5 mile to Well Pad B32P. Beyond the exit to this new road, the route continues approximately 2 miles on new and existing resource road (upgrades required) to access water well #6 and Well Pad B32J.

Continuing on SR 228, 0.8 mile south of the new road exiting SR 228 described above, another new local road will exit SR 228 and proceed 0.5 mile west to proposed Well Pad B33G. From this point, any or all of proposed well pads B33L, B32P, and B32J, and proposed water well #6, can be accessed as described in the paragraph above.

The primary access route proceeds south on SR 228 for another 1.2 miles, where a new 0.2 mile resource road will lead southwest to proposed Well Pad G4I.

Continuing another 0.9 mile south on SR 228, an existing local road (upgrades required) will provide access to proposed water well #7 and any or all of proposed well pads G9D, G8H, G8C, G6K, and G6H. The access route follow the existing local road for 1.3 mile to Well Pad G9D, another 0.3 mile to Well Pad G8H, and another 0.5 mile to water well #7 and Well Pad G8C. The access route encounters a T junction 1.4 miles past Well Pad G8C. To the left, an existing resource road (upgrades required) leads 0.2 mile to Well Pad G6K. To the right, 0.8 mile of new and existing resource road (upgrades required) leads to Well Pad G6H.

After travelling another 0.5 mile south on SR 228, approximately 0.25 mile of an existing resource road (upgrades required) will be used to access proposed Well Pad G9O.

Beyond the exit to Well Pad G9O, the access route proceeds 0.6 mile south on SR 228, at which point a network of new and existing roads will lead to proposed water well #1 and any or all of proposed well pads G17P, G17E, G21F, G20C, G18J, and G18C. From SR 228, the access route proceeds 1.3 miles west on a new local road to Well Pad G17P. From there, the route continues northwest on a new resource road for 0.75 mile to access water well #1 and Well Pad G17E. Another new local road will lead off from the route, exiting to the south just before Well Pad G17P. After 0.1 mile, the route follows an existing local road (upgrades required) for 0.4 mile to encounter a T junction. To the left (east) approximately 0.3 mile of new and existing resource road (upgrades required) will lead to Well Pad G21F. To the right (west), approximately 2.75 miles of new and existing local road (upgrades required) will lead to well pads G20C, G18J and G18C. Approximately 0.25 mile beyond Well Pad G18C, the route joins Smith Creek Road and provides alternate access to the facilities along Smith Creek Road that are described in the paragraph below.

Approximately 2.4 miles south of the exit to the network of access roads described above, Smith Creek Road (CR 716A) intersects SR 228 from the east. The Merkley Pit 1 is located east of SR

228 and will be accessed by turning left (east) off of SR 228 onto Smith Creek Road (no upgrades required) and continuing for 0.47 mile, then turning right (south) onto an existing road (upgrades required) and proceeding 0.67 mile to the Merkley Pit 1.

Westbound Smith Creek Road intersects SR 228 approximately 0.35 mile south of the highway's junction with eastbound Smith Creek Road. Approximately 5.5 miles of westbound Smith Creek Road (no upgrades required) could be used to access proposed water well #8 and either or both of proposed well pads G21M and G20L. Approximately 1.8 miles northwest of SR 228, a new 0.1 mile resource road will lead from Smith Creek Road to Well Pad G21M. The access route follows Smith Creek Road for another 2.7 miles, past Well Pad G20L and water well #8 to turn southeast onto the road network described in the paragraph above. Beyond this turnoff, the access route continues north on Smith Creek Road for 1 mile across BLM land to access well pads on private land with private minerals that are not a connected action. Approximately 0.1 mile of local and resource roads leading off of Smith Creek Road will require upgrades.

Approximately 1.2 miles south of Smith Creek Road, and 0.3 mile south of the town of Jiggs, Circle L Ranch Road (CR 716) (no upgrades required) leads to several proposed well pads located west and south of Jiggs. After travelling approximately 1 mile west on Circle L Ranch Road, a new 0.1 mile resource road will lead north to Well Pad J5H. Beyond this turnoff point, the access route continues on Circle L Ranch Road for 1.7 miles to pass proposed water well #5, cross Huntington Creek, and encounter a junction with Huntington Road. The McLachlan Gravel Pit is located due west of Huntington Road and will be accessed by turning left (south) off of Circle L Ranch Road onto a new road and continuing 0.1 mile to the gravel pit. Beyond the Huntington Road intersection, the access route continues on Circle L Ranch Road for 0.5 mile to Well Pad K1P and another 0.8 mile to Well Pad K1L. Beyond this point, a new local road will head northwest for 0.4 mile to Well Pad K2J and another 0.4 mile north to Well Pad K2B. From here, 0.5 mile of an existing resource road (upgrades required) travels east to Well Pad K1E, and 0.6 mile of new local road travels north to Well Pad F35O. From here, 0.4 mile of an existing resource road (upgrades required) heads east to Well Pad F36M, and 0.6 mile of new resource road will head northeast to proposed water well #2 and Well Pad F36D.

Two routes leading off SR 228 can be used to access proposed well pads located in the southern portion of the project area. The first route travels 0.1 mile west on Circle L Ranch Road, turns south onto an existing local road (upgrades required), and proceeds 1 mile to Well Pad J9F. The second route continues south on SR 228 for 0.9 mile past Jiggs, then heads 0.7 mile southwest on a new resource road to access Well Pad J9O. From here, the route heads northeast for 0.8 mile to meet the existing local road leading to Well Pad J9F, approximately 0.2 mile southwest of the pad.

Following the merger of the two routes described above, the access route proceeds approximately 0.4 mile southwest on an existing local road (upgrades required), past proposed water well #4, to a Y junction. Turning right at this junction, the route continues west on the existing local road (upgrades required) for 0.6 mile to an X junction. To the right, a new resource road leads 0.4 mile north to Well Pad J8E. Straight ahead, 0.2 mile of new resource road leads southwest to Well Pad J8M. To the left, the access route proceeds 1 mile south on a new local road that meets the road accessed via the left fork of the Y junction. To the left of the Y junction,

0.6 mile of new resource road leads to Well Pad J16D. Beyond the pad, the access route continues 0.7 mile on new and existing resource road (upgrades required) to intersect the new local road accessed by turning left at the X junction.

From the point at which the roads accessed via left- and right turns at the Y junction join, the access route continues 1.9 mile south on a new local road to another X junction. To the right, 0.0.2 mile of new and existing resource road (upgrades required) lead northwest to Well Pad J29C. To the left, 0.8 mile of existing resource road (upgrades required) leads southeast to Well Pad J28M. Straight ahead, the access route follows an existing local road (upgrades required) for 2.5 miles to access proposed water well #3 and any or all of proposed well pads J29L, J32G, J31I, and J33J. Approximately 0.5 mile south of the X junction, 0.2 mile of an existing resource road (upgrades required) leads west to Well Pad J29L. The main route continues 0.5 mile south of this new road to pass water well #3 and encounter a Y junction. To the right, 0.6 mile of new and existing resource road (upgrades required) will access Well Pad J31I. To the left, the route proceeds 0.1 mile, where a new 0.1 mile resource road will lead to Well Pad J32G. Beyond this exit point, the access route heads 1.6 miles southwest on new and existing resource road (upgrades required) to access Well Pad J33J.

1.3 ROAD CONSTRUCTION AND IMPROVEMENTS

Up to 17.8 miles of new road construction, including a maximum of 9.9 miles of new local roads and 7.9 miles of new resource roads, could be required to access the proposed well pads from existing and upgraded collector and local roads. Another 0.1 mile of new local road would be required to access the McLachlan gravel pit. New roads will be constructed concurrently with respective well pad construction. New resource roads will generally require a 31-foot width for construction with a final road width of 21 feet to include a 16 foot running surface for the road and 5 feet for ditches (2.5 feet on either side of the road). New local roads will generally require a 39-foot width for construction with a final road width of 29 feet to include a 24 foot running surface and 5 feet for ditches.

Up to 13.1 miles of existing roads, including a maximum of 7.4 miles of local roads and 5.8 miles of resource roads, will require upgrades in order to access the proposed well pads. Another 0.7 mile of upgraded local road would be required to access the Merkley Pit 1. Upgrading of these roads will occur within and outside the existing disturbance of the existing road. Construction of local roads will generally require a 39 foot width, with a final road width of 29 feet (24 foot running surface and 5 feet for ditches). Construction of resource roads will generally require a 31 foot road width, with a final road width of 21 feet (16 foot running surface and 5 feet for ditches). An estimated 24 turnout locations will be constructed along new and local resource roads where there is not a clear line of sight; each turnout will be approximately 500 feet by 15 feet in size (0.16 acre).

The proposed access roads will be constructed and upgraded to meet standards for the anticipated traffic flows and all-weather requirements. Roads will be crowned or sloped, drained with ditches, culverts and/or water dips, and constructed, sized, and surfaced in compliance with the BLM/Forest Service *Surface Operating Standards and Guidelines for Oil and Gas Development*, also known as the *Gold Book* (BLM and Forest Service, 2007) and the BLM's *9113 Roads Manual* (2011).

Noble will implement the following measures during road construction in accordance with BLM Recommended Operating Procedures:

- Low water crossings (no fill) or adequately sized culverts will be used where access roads cross intermittent or perennial drainages. Fill will not obstruct water flow.
- All bladed roads will be waterbarred as necessary with the following spacing:

Road Grade (percent)	Spacing Between Waterbars (feet)
10 to 14	200 to 100
6 to 10	300 to 200
4 to 6	400 to 300
Less than 4	only as needed

- When a fence is cut to allow access to a site, a temporary gate will be installed to prevent livestock from passing through the opening; the fence will be repaired to its original condition or better as soon as possible.
- Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.
- Roads designed to safe standard for intended use.
- Restrict vehicle traffic to only authorized users on newly constructed routes where specified by the county, landowners and/or the BLM (use signing, gates, etc.).
- Construct road crossing at right angles to ephemeral drainages and stream crossings.
- Transportation planning to align roads out of sight and sound of occupied leks where practicable.

In addition to constructing new roads and upgrading portions of existing roads that are part of the access route, a turnout will be installed at the intersection of SR 228 and CR 716 to provide a wider turning radius off of SR 228 for safety. Noble will replace the Huntington Creek Bridge, along Circle L Ranch Road (CR 716). Both of these installations will occur on private lands.

1.4 ROAD MAINTENANCE

Noble will coordinate with NDOT and Elko County to insure that use of state highways and county roads is consistent with issued use permits, rights of way, and other state and local requirements. Paved roads are not likely to require improvement or maintenance prior to or during project construction. Paved access roads will be maintained by NDOT and the City of Elko (see Table 1). Roads with gravel or dirt surfaces (generally local and resource roads in the project area) will be likely to require maintenance to pre-existing conditions during construction and operation. Such roads include Circle L Ranch Road (CR 716) and Smith Creek Road (CR 716A). Elko County maintains Circle L Ranch Road for approximately 0.75 mile between SR 228 and the point at which the road enters BLM land. The BLM maintains the road west of this point, as well as the privately-owned Huntington Creek bridge. Elko County does not provide winter maintenance along Smith Creek Road. Noble will maintain unpaved roads used for project access. Noble and its contractors will comply with Elko city ordinances concerning the use and maintenance of city streets.

Noble will maintain roads in accordance with BLM 9113 Manual specifications (BLM 2011) and the BLM/Forest Service *Gold Book* (BLM and Forest Service, 2007). Noble will be responsible for all maintenance actions necessary to provide all-weather access to roads in the project area and Noble will provide timely maintenance and cleanup of access roads to pre-existing conditions. Existing main roads used as access that are substantially damaged by construction and/or operational traffic will be repaired to the condition existing prior to project activities.

Maintenance will include, but not be limited to: dust abatement; reconstruction of the crown, slope, and/or water bars; blading or resurfacing; material application; clean-out of ditches, culverts, catchments; snow plowing, and other BMPs.

In accordance with the BLM Recommended Operating Procedures, roads will not be bladed directly up drainages and will be designed at right angles to the drainage. Roads bladed in drainages will be located a sufficient height above the channel so that fill material does not enter the drainage channel.

Posted speed limits will be followed. Where there is no posted speed limit, speeds on unpaved access roads and disturbed areas will not exceed 20 miles per hour.

According to BLM Recommended Operating Procedures, saturated soil conditions exist when water is flowing on the ground surface; water comes to the ground surface from walking or driving across the soil; the ground surface is spongy when walked upon; ruts 3 inches or deeper result from driving across the ground surface; vehicles get stuck in mud; a dozer is needed to pull vehicles through the mud, etc. When saturated soil is present, construction travel only will be halted until soil material dries out or is frozen sufficiently for use to proceed without undue damage and erosion to soils and roads. When rutting of the travel-way reaches a depth of 3 inches, maintenance or upgrade will be conducted as approved by the BLM.

Dust suppression will be implemented by spraying water on unpaved roads on an as-needed basis. Magnesium chloride and other surfactants, binding agents, or other dust-suppression chemicals will not be used for dust control without prior approval from the BLM.

1.5 TRAFFIC LEVELS

1.5.1 Construction Traffic

Noble intends to use one drill rig in the first year of project construction. Noble expects that on-site water wells will provide approximately 70 percent of the water required for drilling and completions, which will limit the traffic associated with well construction (drilling and completion activities). On-site water wells, on-site temporary housing (self-contained mobile modular buildings) for all drilling workers, and requiring drilling workers to remain on-site while the well is being drilled will limit traffic associated with drilling a single well to approximately six vehicles per day. Typical traffic levels during the first year will occur with one vertical/directional (production) well being drilled, one vertical/directional (production) well being completed, deliveries, and dust control. At these times, project-related traffic will potentially include 26 light vehicle and 20 heavy vehicle round-trips, for a total of 46 round-trips

per day. Noble anticipates that two drill rigs will be used during the second and any subsequent years of construction. With two drill rigs drilling two vertical/directional wells, typical traffic levels in the project area will potentially include 30 light vehicle and 22 heavy vehicle round-trips, for a total of 52 round-trips per day (see Table 2).

The days on which drill crew changes occur (every 14 days), there could be up to 30 additional light vehicle round-trips per drilling location. Additional traffic will also occur during periods of rig mobilization, which includes moving the modular structures sited on the well pad. Rig mobilization is expected to include 5 days for rig set-up and 5 days for rig take-down. During these 10 days, additional traffic in the project area will include nine light vehicles and 15 heavy vehicles.

Table 2
Huntington Valley Estimated Typical Construction Traffic
in Vehicle Round Trips per Day

Activity	Duration (days)	Peak Vehicle Round-Trips per Day		
		Light Vehicles	Heavy Vehicles	Total Vehicles
Drilling	50	4[1]	2[2]	6
Completion and Flowback	21	12[3]	17[4]	39
Service and Deliveries	71	10[5]	0	10
Dust Control	71	0	1[6]	1
Total Typical Construction Traffic – Year 1[7,8]		**26**	**20**	**46**
Total Typical Construction Traffic – Year 2[7,9]		**30**	**22**	**52**

[1] Assumes that all drilling workers are housed in on-site temporary crew quarters and remain on-site for 14 days. Light vehicles include four miscellaneous personal vehicles.
[2] Assumes that 30 percent of the water required to drill a vertical/directional well (3,000 barrels) is delivered in 120 barrel capacity trucks over 50 days. Includes one additional truck per day delivering supplies (e.g. casing deliveries, cement trucks, wireline logging trucks).
[3] Assumes that completion workers carpool in 10 vehicles. Includes two supervisor vehicles.
[4] Assumes that 30 percent of the water required to complete a vertical/directional well (6,000 barrels) is delivered in 120 barrel capacity trucks over 21 days. Includes 15 additional trucks delivering equipment, supplies and materials for well completion.
[5] Includes vendor deliveries and service visits.
[6] Assumes that 100 barrel capacity water trucks spray 80 barrels of water per mile per day onto unpaved access roads.
[7] Because access road and pad construction, drilling the water well, drilling the production well, and interim reclamation occur sequentially at each site location, typical traffic levels include drilling, completion, service/delivery, and dust control traffic only.
[8] Assumes that one vertical/directional well is being drilled and one vertical/directional well is being completed.
[9] Assumes that two vertical/directional wells are being drilled and one vertical/directional well is being completed.

Depending on the test results of wells drilled during the first year, Noble may drill up to four horizontal wells during following years. If horizontal wells are drilled and completed, peak traffic could occur with one well pad and its access roads under construction, two drill rigs and one completion team (completing a horizontal well) in operation, supplies being delivered, and

dust suppression and interim reclamation being conducted. Under these conditions, peak traffic could potentially include 37 light vehicle and 58 heavy vehicle round trips, for a total of 95 vehicle round trips per day (see Table 3). This peak traffic would only occur during completion of a horizontal well (21 days for each of four wells) and when two wells were being drilled at the same time.

Estimated peak traffic levels are based on several assumptions; the foremost being that horizontal wells are drilled and that the maximum number of vehicles associated with each construction activity would travel on the same day. Typical traffic levels during construction are likely to be lower than the peak traffic estimates shown in Table 3, depending on the number of construction activities taking place and the extent of each activity being conducted.

Table 3
Huntington Valley Estimated Peak Construction Traffic (Year 2)
in Vehicle Round Trips per Day

Activity	Duration (days)	Peak Vehicle Round-Trips per Day		
		Light Vehicles	Heavy Vehicles	Total Vehicles
Road and Pad Construction	5 - 7	5[1]	11[2]	16
Water Well Drilling	7 - 10	2	2	4
Drilling[3]	50 - 65	8	3	11
Completion and Flowback[3]	21	12	39[4]	51
Service and Deliveries[3]	65	10	0	10
Dust Control[3]	71	0	2	2
Interim Reclamation	3	0	1	1
Total Peak Development Traffic		**37**	**58**	**95**

[1] Assumes carpooling, with four personal vehicles for seven workers, and one supervisor light vehicle.
[2] Includes 11 dump trucks (23 cubic yard capacity) hauling gravel from gravel pits to well pads and associated roads under construction in the project area.
[3] Assumptions are the same as those noted for Table 2.
[4] Assumes that 30 percent of the water required to complete a horizontal well (60,000 barrels) is hauled in 120 barrel trucks over a 21 day completion period. Includes 15 additional trucks delivering equipment and materials for well completion.

1.5.2 Operational Traffic

Traffic during the production-only phase will include pumper, maintenance and dust control vehicles and trucks hauling oil and possible produced water. Production traffic will occur 5 days a week, Monday through Friday. This traffic will largely occur during daylight hours, but, in the event of an extremely productive well, oil could be hauled at night during the first 30 days of well production. One pumper truck will visit each well pad approximately once per day and one maintenance vehicle will visit each well pad approximately 10 days per year. Dust suppression will be implemented on unpaved roads in the project area on an as-needed basis. Noble expects that 12 wells in the Huntington project area could produce up to 250 barrels of oil (and possibly 100 barrels of produced water) per day, and that eight wells could produce up to 100 barrels of oil (and possibly 40 barrels of produced water) per day. An average of 1.75 oil trucks and 1.2 water trucks per day will visit each well that produces 250 barrels of oil per day. An average of 0.7 oil trucks and 0.5 water trucks per day will visit each well that produces 100 barrels of oil per

day. Oil will be hauled to refineries in California and Salt Lake City, Utah; and possible produced water will be hauled to an on-site disposal well or disposal facilities in Roosevelt, Utah. With up to 20 wells in production, peak operational traffic could potentially include 36 vehicle round-trips per day (see Table 4). Typical daily traffic levels during operations are expected to be lower, depending on well productivity.

Table 4
Huntington Valley Estimated Peak Operational Traffic Requirements in Vehicle Round Trips per Day

Development Phase Component	Peak Vehicle Round-Trips per Day		
	Light Vehicles	Heavy Vehicles	Total Vehicles
Pumper[1]	1	0	1
Maintenance[2]	1	0	1
Dust Control[3]	0	2	2
Oil Trucks[4]	0	19	19
Produced Water Trucks[5]	0	13	13
Total Production Vehicles	**2**	**34**	**36**

[1] Assumes one pumper visit (pick-up truck) per day per well.
[2] Assumes one maintenance truck serving all wells.
[3] Assumes water for dust control is applied to all unpaved roads in the project area.
[4] Assumes oil production of 250 barrels/day from 12 wells and 100 barrels/day from 8 wells transported in 200 barrel trucks.
[5] Assumes 100 barrels of produced water/day from wells producing 250 barrels of oil/day and 40 barrels of produced water/day from wells producing 100 barrels of oil/day transported in 120 barrel trucks. This traffic would be contained within the project area if produced water is disposed of in an on-site injection well.

References:

Bureau of Land Management, 2011. Manual 9113 – Roads. Manual Transmittal Sheet Release 9-390. October 21.

Bureau of Land Management and Forest Service (BLM and Forest Service). 2007. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development. Gold Book. Fourth Edition.