November 11, 2024

Planning & Development Department
Bingham County
490 N Maple St., Suite A
Blackfoot, ID 83221

Subject: Conditional Use Permit Application for Scott and Tausha Searle

Bingham County Planning & Development Department:

Please accept the included Conditional Use Permit (CUP) application for a new gravel site on two land parcels located north of Porterville Road and east of Clark Road. The legal description is SW1/4 SEC 19, T 2S, R 35E (Exhibit A, Figure 1). The parcels are located in a residential/agricultural (R/A) zone of the County currently. An application to rezone the site to agricultural (A) was submitted in conjunction with this application.

Per the Bingham County Comprehensive plan, "*The population of Bingham County has steadily increased over the last 30 years with 21% growth occurring from 1990 through 2010. US Census figures project similar growth rates in the County over the next 15 to 20 years.*" This area is rich with mineral reserves that are essential to support both current and anticipated growth. Having local mineral reserves promotes a circular economy; by sourcing materials locally products and materials are continuously reused and recycled, diminishing the environmental footprint of the production process. It also aids in controlling costs of public work projects and developing affordable housing in the County. The Idaho Transportation Department has future road improvement projects in the area that will require access to local materials such as aggregates, asphalt, and ready-mix concrete.

A neighborhood meeting was hosted at the Eastern Idaho State Fairgrounds on November 7th, 2024, to discuss any concerns regarding the proposed project. Common concerns expressed by community members were the operation's impact on traffic, property values, and groundwater. They also wanted to know if there is a dust management plan and the proposed hours of operation. All those topics have been addressed in this application. The attendance list from the meeting and a copy of the invitation letter have been included in this application.

There are studies that say living near an aggregate pit can affect property values. However, other studies have found no consistent relationship between aggregate operations and property values. The property values of 10 homes within a mile radius of Knife River's Cranny Pit in Idaho Falls were reviewed. Each home has seen over 100% increase in property value in the last 10 years. Knife River has been operating that aggregate location (including concrete and asphalt production) since 2008.

Mining operations at the site will include concrete production and asphalt production as well as mining sand and aggregate to be crushed, screened, washed, and stockpiled within the boundary of the site. Prior to any mining operations, the vegetation, topsoil, and overburden will be stockpiled onsite for future reclamation. The topsoil and overburden will also be used to build berms around the perimeter of the site to shield it from view and provide a noise barrier. The stockpile berms will be seeded to stabilize them.

Exhibit
A-1

The site will be excavated inside the earth berms and stormwater is allowed to pond inside the site. The site floor will be excavated in six (6) phases, so stormwater is channeled to the lower parts of the site throughout the mining operations. All mining will take place above the high-water table and it is expected that the water will infiltrate into the ground. There is access to electricity and gas on site if connections are needed in the future.

First year disturbance will be Phase 1 of the operation which will include clearing for the stockpile and plant locations totaling 37 acres. The site will be mined to a maximum depth of forty (40) feet below the pre-mining ground surface. Operational slopes on the mine high walls will be approximately 3H:1V and will be dictated by safety. Based on our geologic exploration and GSI Environmental' s technical memo regarding the hydrology of the area, the mine floor will be above the local ground water table. Shallow groundwater occurs more than 21 feet below the proposed pit floor based on recent water levels measured at monitoring wells installed by Basic American Foods in support of Idaho Department of Environmental Quality Water Reuse Permit I-039-04. Groundwater quality or quantity beneath the proposed SLT Pit is not expected to be impacted considering the significant vertical separation between the pit floor and the water table.

Mining will be conducted with heavy equipment such as hydraulic excavators, dozers, frontend loaders, and crushing and screening equipment. A portable concrete plant will be maintained on site and a portable asphalt plant may be moved on site for job specific work. All applicable crushing and material processing equipment, concrete plants, and asphalt plants will be permitted with the Idaho Department of Environmental Quality, Air Quality Division. All reasonable precautions shall be taken to prevent particulate matter from becoming airborne, in accordance with IDAPA 58.01.01.650-651. Best management practices for dust abatement shall be used to control dust and maintain cleanliness of the mine including but not limited to watering of roads and stockpiles.

Equipment and vehicle parking will take place at the site. Fuel and lubricating oils will be brought to the site on service vehicles equipped with spill control equipment as needed. Vehicle fueling and minor maintenance (such as greasing equipment mechanical joints) will be performed on site. Equipment will be transported off site for major maintenance and repairs. Equipment will not be cleaned at the site. Pollutants or pollutant constituents associated with these activities will be contained through active and passive measures. Fuel may be stored at the crusher location in portable containers to support crushing operations. All fuel tanks will be double walled or installed within secondary containment. A stabilized construction entrance will be constructed within the permit boundary, per State of Idaho specifications, and is maintained to prevent vehicle sediment track out to public right of way. This construction entrance shall serve as the only access point to the site.

Access roads are constructed from sand and gravel excavated from the pit. The roads are constructed with borrow ditches to collect stormwater runoff. The borrow ditches have check dams to cause stormwater to pond and infiltrate before discharging to the borrow ditches along the access road. Because of the permeable nature of the subgrade soils water is very rarely ponded in the borrow ditches. The roadway surface will have water applied for dust control. The site uses process water to control dust at the site. The dust control water is applied to high traffic areas during summer months with water trucks. The water applied with trucks is applied in light enough volumes to prevent runoff from the site. The pit floor is permeable and most precipitation and applied water infiltrates into the ground. There is also dust control water that is applied at the crusher and screens to prevent excessive dust at the process equipment. The process water is collected in an excavated depression near the crushing equipment in an excavation in the pit floor. The water is allowed to infiltrate into the
ground and is not allowed to discharge to the runoff.

A traffic impact study was conducted per Bingham County's requirements for this application. The

study was conducted by a third-party engineer with Forsgren Associates. Bingham County staff identified two (2) road segments and three (3) intersections should be analyzed. These segments and intersections are:

- Segment 1: Clark Road (600 W to Hwy 26)
- Segment 2: 200 North (from 200 N to Hwy 26)
- Intersection 1: Clark Road/200 North
- Intersection 2: Hwy 26/Clark Road
- Intersection 3: Hwy 26/200 North

This study has identified that the current road segments are adequate to handle the capacity required without or with the proposed project throughout the study period. All intersections are forecasted to operate within all required capacity thresholds. For safety, both left and right turn lane analyses were performed to identify if there is a safety concern according to ITD guidelines; the CRF recommend for this project is shoulder widening for 200 north and for Clark Road for approximately 200 feet as they approach Hwy 26. In addition, sight distances were analyzed for the intersections. All sight distances meet AASHTO sight distance recommendations. Lastly high visibility stop signs are recommended for intersections approaching Hwy 26. Overall, it is the recommendation of this study that the proposed project will have minimal impacts to the traffic network within the study area for each horizon year but does require the construction of shoulder widening to meet the crash reduction factors.

A reclamation plan has been submitted to the Idaho Department of Lands (IDL) and approved. The reclamation plan approval and reclamation plan application are included in this application. Access to the parcel will be from the western side of the parcel from Clark Road (see Figure 2) located 600 ft north from the intersection of Porterville Road and Clark Road. The road frontage from the construction entrance will be 150 ft wide. Bingham County Road and Bridge has been contacted and they stated the approach permit could be granted after the CUP is approved. Anticipated hours of operation will be from 7am to 7pm Monday through Friday. However, loading and hauling of material as well as asphalt production may take place 24 hours a day, seven days a week only to support construction activity that requires nighttime operations. 1-10 employees are expected to be on site at any given time. Crushing operations will not be continual throughout the year. The aggregate will be processed for two or three months, then site operations will focus on concrete and asphalt production as well as loading and hauling aggregate materials.

Since the early 1990s, the EPA has done extensive testing on asphalt plant emissions and in 2002, removed this industrial sector from the "major source" category – identifying that emissions from asphalt plants are not an area of concern (see the National Asphalt Pavement Association's environmental impact study included). The majority of emissions at asphalt mixing facilities come from the combustion of fuel, such as natural gas, that are used to dry and heat the rock or aggregate and to keep the temperature of the asphalt hot. As stated in the conditional use permit application for this project, multiple permits will be acquired from State and Federal Agencies and the permitted operations are, or may be subject to numerous State and Federal Statues including, but not limited to:

1. The Federal Clean Air Act
2. IDAPA 58.01.01 – Rules for the Control of Air Pollution in Idaho
3. The Federal Clean Water Act
4. IDAPA 58.01.02 – Idaho Water Quality Standards
5. IDAPA 58.01.11 – Idaho Ground Water Quality Rules

6. IDAPA 58.01.16 – Wastewater Rules
7. IDAPA 58.01.17 – Recycled Water Rules
8. IDAPA 58.01.03 – Individual/Subsurface Sewage Disposal Rules
9. Title 40 of the Federal Regulations Code, Part 112 (40 CFR 112) Spill Prevention, Control and Countermeasure (SPCC)
10. Bingham County Road Department Standards

The Idaho Department of Environmental Quality uses a federally approved and scientific approach to set production limits, operating limits, and setbacks that protect both public health and the environment (including the surrounding crops). Setbacks from the property line in the air quality permits protect public health by ensuring all health-based ambient air quality standards are below required limits at the property line. Idaho DEQ air quality permits require daily and monthly fugitive dust inspections, daily production records, as well as baghouse monitoring and inspections. Inspection and production records are required to be kept for a minimum of 5 years and be available upon DEQ's request. Stormwater plans require routine inspections of best management practices, fuel containers, secondary containment, updates to the plan based on changing site conditions, discharge monitoring and sampling, and reporting to the EPA.

A Vicinity Map of the Site Location, as well as a map of the proposed mine area/site plan are included with this application. Please feel free to contact my owner representative if you have any further questions regarding this conditional use permit application.

Respectfully submitted,

Scott Searle

Scott & Tausha Searle

Owner Representative:
Joseph Smith
406-876-4637

Attachments

1. **Exhibit A** – Bingham County Application for Conditional Use Permit
2. **Exhibit B** – Maps
    a. **Figure 1** – Location Map
    b. **Figure 2** – Site Map
    c. **Figure 3** – Site Plan Illustration
    d. **Figure 4** – Site Entrance Illustration
3. **Exhibit C** – Recorded Deed to the Property
4. **Exhibit D** – Chapter 8 Conditional Use Permit Application Contents
5. **Exhibit E** – Traffic Impact Study Approval
6. **Exhibit F** - Neighborhood Meeting Invitation Letter and Attendee Sign-in Sheet

Exhibit A

Bingham County Application for Conditional Use Permit

Bingham County

Planning & Development Department
490 N. Maple Suite A, Blackfoot, Idaho 83221
Phone: (208) 782-3178 | Fax: (208) 782-3868
Email: buildingpermits@co.bingham.id.us

File No. _____

Date: 6/3/2024

APPLICATION FOR CONDITIONAL USE PERMIT

Applicant: SLT Properties LLC
Phone: 406-876-4637

Address: PO Box H
City/Zip: Shelley, 83274

Location: 640 S State St. Suite 6, Shelley, ID.
Email: JLS21601@Gmail.com

(project location for application)

Property Owner(s): Scott and Tausha Searle

Location & Legal Description

2S	35E	19
Township	Range	Section

Zoning: R/A

Acreage: 143.97

Parcel No. RP0303901 & RP0304400

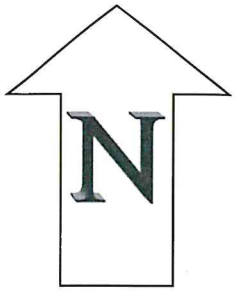
Submit:

- ✓ Completed Application
- ✓ Recorded Deed to Property
- ✓ Detailed Site Plan
- ✓ Narrative - write a detailed narrative addressing the following:
  - Identify the existing use of the property
  - Reason for Conditional Use Permit Request
  - Evaluating effects of proposed Conditional Use on adjoining property that may include, but is not limited to, such elements as noise, odor, fumes and vibration
  - General compatability with other properties and uses in the area
  - Evaluating effects of proposed Conditional Use on public facilities/utilities
- ✓ application fee paid

Application Fees:

Application Fee	275
Deposit for Mailing & Publication	75
Total=	**350**

Site Plan - Show drawing of location (including roads, all buildings, parking areas, service areas, yards, signs, utilities, traffic - pattern, etc.). **Please show all distances between buildings & property lines.**



- View Figure 2.

Appointment of Designated Agent
I/We the undersigned owner(s) of the property described throughout this Application, hereby appoint the following person as my/our representative for all transactions regarding this Application between myself/ourselves, as owner(s), and Bingham County.

Property Owner(s): Scott Searle — Date: 6/3/2024

Property Owner(s): Tausha Searle — Date: 6/3/2024

Designated Agent: Joseph Smith — Date

In granting a Conditional Use Permit the Planning & Zoning Commission may prescribe appropriate conditions and safeguards in conformity with the current Bingham County Zoning Ordinance. Violation of such conditions and safeguards, when made part of the terms under which the Conditional Use Permit is granted shall be deemed a violation of the Ordinance. The approval of a Conditional Use Permit does not permit the violation of any section of the Buildling Code, or any other County Ordinance. All Conditional Use Permits, whether approved or denied have a ten(10) day appeal period and must be appealed in writing at the Bingham County Planning & Zoning Office.

DECLARATION: By signing this application, it is understood and agreed that permission is hereby given to the duly authorized representative of Bingham County to, place & remove signs on the subject property and verify authenticity of the applicant(s) and property owner(s). It is further understood that the Zoning Administrator and staff may inspect the subject property, take photographs and obtain any verifications and data necessary for preparation of its report to the Planning & Zoning Commission. I hereby acknowledge that I have read this application and understand the contents. I also state that the above information is correct.

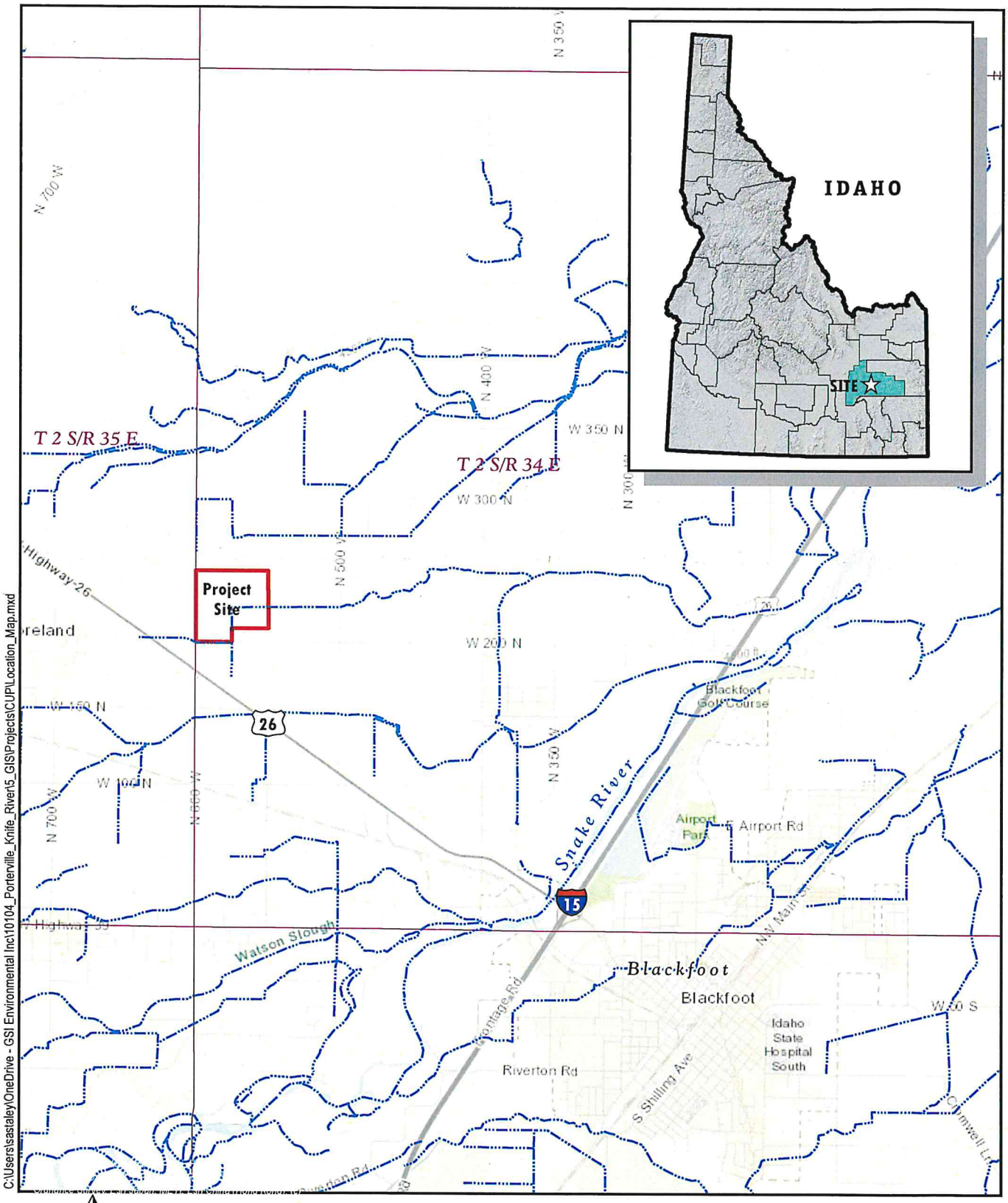
Applicant(s):

Property Owner(s) Signature: Scott Searle Date: 6-3-24

Designated Agent Signature: Joseph Smith Date: 5/31/2024

Exhibit B

Maps



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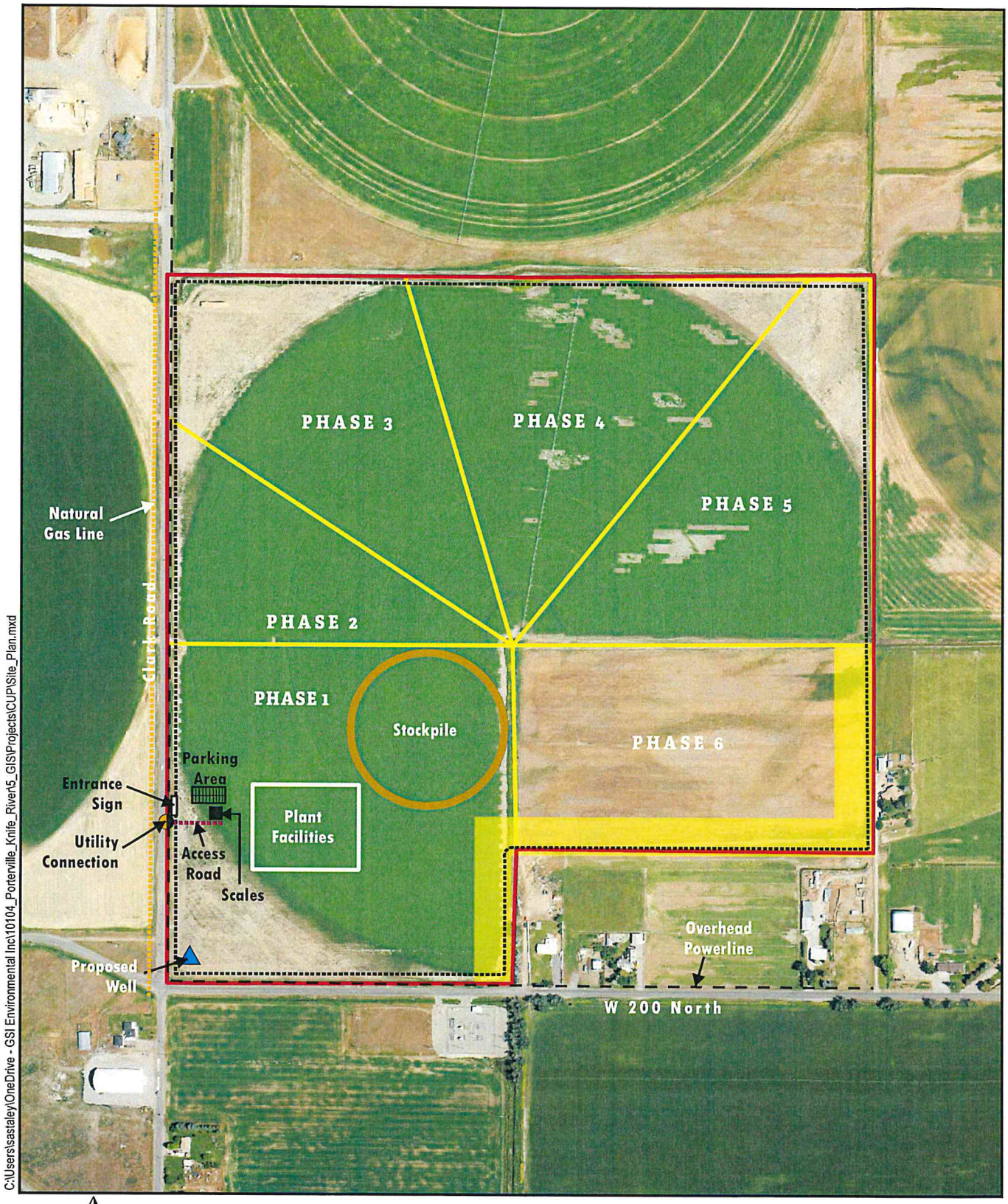
Miles

GSI ENVIRONMENTAL

Location Map
SLT Pit
Knife River
Bingham County, Idaho
FIGURE 1



C:\Users\sastaley\OneDrive - GSI Environmental Inc\10104_Porterville_Knife_River5_GIS\Projects\CUP\Site_Plan.mxd

N

0 500
Feet

GSI ENVIRONMENTAL

Project Site

Mining will be Completed in Phases

30 Foot Setback

150-foot Buffer Zone

Overhead Powerline

Site Plan
SLT Pit
Knife River
Bingham County, Idaho
FIGURE 2

Porterville Pit | Extents Looking Northeast

Note: Not to scale, for illustrative purposes only.

Figure 3

Porterville Pit | Entrance Looking Northeast

Note: Not to scale, for illustrative purposes only.

Figure 4

Exhibit C

Recorded Deed to Property

RECORDED AT THE REQUEST OF:

_____

AFTER RECORDING RETURN TO:

_____

_____

_____

Instrument # 758947
BINGHAM COUNTY, IDAHO
2023-12-08 03:31:20 PM No. of Pages: 8
Recorded for: FLYING S TITLE AND ESCROW - BL
PAMELA W. ECKHARDT Fee: $15.00
Ex-Officio Recorder Deputy JPulley
Index To: WARRANTY DEED
Electronically Recorded by Simplifile

GRANT DEED

FOR VALUE RECEIVED, **Basic American, Inc., a Delaware corporation,** Grantor, does hereby convey to **SLT Properties LLC, an Idaho limited liability company,** Grantee, whose complete mailing address is PO Box H, Shelley, Idaho 83274, the following described property situated in Bingham County, Idaho:

SEE EXHIBIT "A" ATTACHED HERETO AND INCORPORATED HEREIN BY REFERENCE.

TOGETHER WITH all and singular the tenements, hereditaments, and appurtenances thereunto belonging, or otherwise appertaining, including any appurtenant water rights, and all estate, right, title and interest in and to the said property and all of Grantor's right, title and interest in and to all streets, alleys and rights-of-way adjacent thereto.

TO HAVE AND TO HOLD said property unto Grantee, its successors and assigns forever.

SUBJECT TO: the matters set forth on EXHIBIT "B" attached hereto and incorporated herein and all other matters of record or that would be revealed by an accurate survey and inspection of the land.

{signature page follows}

IN WITNESS WHEREOF, Grantor has executed this Grant Deed this 7th day of December, 2023.

GRANTOR:

BASIC AMERICAN, INC.
a Delaware corporation

By: _____
Printed Name: James D Collins
Title: VP & CFO

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA)
) ss.
COUNTY OF _____)

On _____, 2023 before me, _____, Notary Public, personally appeared _____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature: _____ (seal)

121053344.1 0060174-00024

ACKNOWLEDGEMENT/CORPORATE

STATE OF Idaho)
ss.
COUNTY OF Bonneville)

On this **December 7th, 2023**, before me, a Notary Public in and for said State, personally appeared James D Collins, known or identified to me, to be the V.P. & CFO of the Corporation that executed the instrument or the person who executed the instrument on behalf of said Corporation, and acknowledged to me that such Corporation executed the same.

KAREN BECKSTEAD
COMMISSION NO. 17206
NOTARY PUBLIC
STATE OF IDAHO
MY COMMISSION EXPIRES 07/20/27

Notary Public of Idaho
Residing at: Idaho Falls
Commission Expires: 07-20-27

EXHIBIT A

Description of the Property

Property Located near the City of Firth, Idaho

Parcel N:

Part of the S½SE¼ of Section 14, Township 1 South, Range 36 E.B.M., Bingham County, Idaho, as describes as: Beginning at a point that is N. 89°41'10" W. 486.93 feet along the section line to the E. bank of the Great Western Canal from the SE corner of said Section 14; and running thence N. 89°41'10" W. 2157.37 feet along the section line of the S¼ corner of said Section 14, thence N. 00°01'51" W. 1330.74 feet along the North-South center section line to the NW corner of said S½SW¼; thence S. 89°53'51" E. 2462.18 feet along the N. line of said S½SE¼ to the westerly right-of- way of a County road; thence along said Western County right-of-way the following three (3) courses (1) S. 13°07'04"W. 539.86 feet; (2) thence S. 01°33'33"W. 87.74 feet; (3) thence S. 16°35'53" E. 43.97 feet to the N. corner of the Deed instrument No. Book 43, Page 435; thence along said deed and easterly bank of said Great Western Canal following three (3) courses (1) S. 27°43'36"W. 106.44 feet; (2) thence S. 13°33'20"W. 506.99 feet; (3) thence S. 13°46'57" W. 98.28 feet to the point of beginning.

Property Located near the City of Shelley, Idaho

Parcel K:

That portion of the S½SW¼ lying easterly of the East Branch of the Snake River Valley Irrigation Canal and westerly of Sand Creek, all in Section 2, Township 1 South, Range 37 E.B.M., Bingham County, Idaho; EXCEPTING THEREFROM the S. 25 feet for road right-of-way.

ALSO, Township 1 South, Range 37 E.B.M., Bingham County, Idaho.

Section 2: Lot 3, NE¼SW¼, SE ¼NW¼; EXCEPTING THEREFROM: Beginning at a point that is E. 1546.48 feet along the section line, from the NW corner of said Section 2, thence E. 136.31 feet along said Section line; thence S. 0°18'57" W. 356.24 feet; thence S. 88°35'45" W, 97.59 feet; thence N. 12°33'10" W. 164.16 feet; thence N. 0°17'31" W. 197.95 Feet to the point of beginning.

Parcel L:

Township 1 South, Range 37 E.B.M., Bingham County, Idaho

Section 3: N½SW¼, S ½NW¼, Lots 3 and 4; EXCEPTING from said Lots 3 and 4: Beginning at a point that is E. 1,249.8 feet along the Section line from the NW corner of said Section 3; and running thence E. along the Section line 395 feet to the center line of the Union Pacific Railroad spur track; thence following said center line of spur track southwesterly along a 10° curve to the right 456.3 feet; thence N. 0°42' W. 209.2 feet to the point of beginning, less the strip of land 10 feet wide lying northerly and parallel to said spur track measured at right angles from the center line of said spur track, also less 33 feet across the north side of the

above-described property contained in present road right-of-way; ALSO EXCEPTING THEREFROM: Beginning at the NW corner of said Section 3; thence E. along the Section line 1249.80 feet; thence S. 0°42; E. 387.42 feet' thence S. 89°08'23" W. 1054.64 feet; thence N. 0°00'42" W. 46.91 feet; thence S. 89°44' W. 200.10 feet; thence N. 0°00'52" E. 357.24 feet to the point of beginning.

Parcel M:

Township 1 South, Range 37 E.B.M., Bingham County, Idaho

Section 11: N½NW¼; SW¼ NW¼; NW¼SW¼; and that portion of the SE¼NW¼ and NE¼SW¼ lying West of Sand Creek; EXCEPTING THEREFROM: County road right-of-way along the N. 25 feet of the N½NW , and County Road along the West Section line of said Section 11.

Property Located in South Blackfoot, Idaho

Part of the SW1/4 of Section 19, Township 2 South, Range 35 E., B.M. Bingham County, Idaho described as:

Commencing at the SW corner of Section 19, Thence N 00° 13' 38" E 2645.66 feet to the W1/4 corner of said Section 19; Thence along the east-west center Section line of said Section S 89° 52'44" E 2630.50 feet to the C1/4 corner of said Section; Thence along the north-south center section line of said Section S 00° 12' 20" W 2122.51 feet to a point being 525 feet northerly of the south line of said Section; Thence parallel to and 525 northerly of the south line of said Section N 89° 50' 18" W 1317.91 feet; Thence S 00° 09' 24" W 500.00 feet; Thence S 89° 50' 18" E 7.64 feet; Thence S 00° 07' 54" W 25.00 feet to the south line of said Section; Thence along said south line N 89° 50' 18" W 1321.64 feet to the Point of Beginning.

Property Located in North Blackfoot, Idaho

Part of Government Lot 3 of Section 13, Township 2 S., Range 34 E., B.M. and Part of Section 18 Township 2 S., Range 35 E., B.M. Bingham County, Idaho described as:

Commencing at the SE Corner of Section 13, Thence along the east line of said Section 13, N 00° 13' 31" E 626.31 feet to the Point of Beginning Thence continuing along said east line N 00° 13' 31" E 1034.55 feet to the intersection of said east line and centerline of the Peoples Canal; Thence, along said centerline of the Peoples Canal the following ten (10) courses; (1) Thence, S 68° 13' 45" W 30.39 feet; (2) Thence, S 75° 01' 52" W 119.19 feet; (3) Thence, S 81° 44' 09" W 214.65 feet; (4) Thence, S 86° 00' 06" W 190.55 feet; (5) Thence, S 88° 16' 11" W 29.34 feet; (6) Thence, S 76° 12' 00" W 72.34 feet; (7) Thence, S 85° 05' 09" W 140.87 feet; (8) Thence, S 88° 27' 22" W 141.06 feet; (9) Thence, N 88° 28' 31" W 165.28 feet; (10) Thence, N 83° 07' 34" W 128.60 feet to the west line of said Govt. Lot 3 of Section 13; Thence along said west line, N 00°11' 32" E 397.28 feet to the south line of deed Inst# 655568; Thence along said deed the following two (2) courses, (1) N 86° 58' 55" E 223.66 feet; (2) Thence, N 15° 20' 04" E 672.65

feet to the south right of way of a county road; Thence, along said right of way N 88° 07' 38" W 399.19 feet to the west line of said Govt. Lot 3; Thence along said east line, N 00° 11' 32" E 33.17 feet to the east-west center section line of said Section 13; Thence along the center of said Section, S 88° 50' 45" E 1220.10 feet to the E1/4 of said Section; Thence along the east line of said Section, S 00° 13' 23" W 184.03 feet to the W1/4 corner of said Section 18; Thence along the east-west center section line of said Section 18, N 89° 53' 39" E 2030.39 feet to the intersection of said centerline and the south line of the peoples canal;

Thence along said canal centerline the following ten (10) courses, (1) N 54° 19' 48" E 17.31 feet; (2) Thence, N 56° 42' 18" E 707.98 feet to a non-tangent curve, (3) Thence northeasterly, 58.64 feet, along said curve to the left (Curve Data= Delta: 09° 10' 16", Radius: 366.34 feet, chord bearing N 42° 27' 02" E 58.58 feet) to a point of intersection with a non-tangent line. (4) Thence, N 46° 07' 27" E 679.05 feet; (5) Thence, N 40° 29' 34" E 351.14 feet; (6) Thence, N 31° 35' 24" E 342.03 feet; (7) Thence, N 34° 08' 36" E 150.94 feet; (8) Thence, N 42° 19' 55" E 152.73 feet; (9) Thence, N 45° 44' 06" E 163.19 feet; (10) Thence, N 47° 41' 18" E 122.40' feet to the intersection of said centerline and the west line of the NE1/4NE1/4 of said Section 18; Thence along said west line, N 00° 20' 46" E 746.46 feet to the north line of said Section 18; Thence along said north line, N 89° 57' 12" E 1320.83 feet to the NE corner of said Section 18; Thence along the east section line of said Section 18, S 00° 26' 51" W 997.59 feet to the intersection of the centerline of the Aberdeen-Springfield Canal; Thence along said centerline the following eight (8) courses, (1) S 56° 50' 31" W 926.49 feet; (2) Thence, S 56° 29' 47" W 1146.85 feet; (3) Thence, S 56° 41' 04" W 751.35 feet; (4) Thence, S 56° 28' 37" W 1308.27 feet; (5) Thence, S 56° 57' 29" W 900.78 feet; (6) Thence, S 56° 16' 58" W 513.03 feet; (7) Thence, S 56° 20' 16" W 763.00 feet; (8) Thence S 59° 41' 13" W 28.68 feet to the Point of Beginning.

EXHIBIT B

Permitted Liens

Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.

Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of said land or by making inquiry of persons in possession thereof.

Easements, claims of easement or encumbrances which are not shown by the public records.

Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the title including discrepancies, conflicts in boundary lines, shortage in area, or any other facts that would be disclosed by an accurate and complete land survey of the land, and that are not shown in the public records.

(a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the public records.

Any liens, or rights to a lien, for services, labor or material theretofore or hereafter furnished, imposed by law and not shown by the public records.

Any right, title, or interest of the public, the county, or any highway district to roads or highways on the premises whether or not shown by the public records.

General taxes and assessments collected therewith for 2023 and subsequent years.

Levies and assessments of Bingham Ground Water District.

Levies and assessments of Snake River Valley Irrigation District.

Levies and assessments of Idaho Irrigation District.

Levies and assessments of New Sweden Irrigation District.

Levies and assessments of Riverside Canal Co.

Levies and assessments of Peoples Canal & Irrigation Co.

Levies and assessments of Great Western Canal.

Levies and assessments of Larson Lateral.

Right-of-way or easement of County Roads.

Right-of-way or easement of East Branch Snake River Valley Canal.

Right-of-way or easement of Little Sand Creek/Sand Creek.

Right-of-way or easement of Augustine Ditch.

Right-of-way or easement of Peoples Canal.

Right-of-way or easement of Aberdeen-Springfield Canal.

Any portion of the described land within the natural bed of the Sand Creek below the natural or ordinary high water mark where it was located prior to any artificial or avulsive changes in the location of the shoreline.

Rights-of-way for ditches, tunnels and telephone and transmission lines constructed by authority of the United States, as granted to the United States under provisions of Section 58-604, Idaho Code.

Exceptions and reservations contained in deed from the State of Idaho, wherein mineral rights are reserved to the State under provisions of §§ 47-701 and 47-701A Idaho Code.

Unrecorded leaseholds; rights of parties in possession, rights of secured parties, vendors and vendees under conditional sales contracts of personal property installed on the premises herein, and rights of tenants to remove trade fixtures.

Any matters arising from questions of gaps or overlaps between the legal description of the herein described land and those of surrounding parcels.

Exhibit D

Chapter 8 Conditional Use Permit Application Contents

CHAPTER 8
CONDITIONAL USE PERMIT

SECTION:

10-8-1: GENERAL STATEMENT:

A. It is recognized that an increasing number of uses are appearing that have characteristics of a unique and special nature such that the specific use must be considered individually. We recognize that these uses are not permitted without adding certain conditions making them compatible with permitted uses in the underlying zone. The commission may require higher standards of site development than those listed specifically in this title in order to assure that the proposed use will be compatible with other conforming property and uses in the vicinity.

B. The commission shall hold a public hearing on each conditional use permit as listed on the land use chart and new uses brought by the Administrator. The commission may approve, conditionally approve or deny a conditional use permit under the standards listed in this chapter and may require such additional safeguards that will uphold the intent of this title. (Ord. 2012-08, 10-9-2012, eff. 10-26-2012)

10-8-2: CONTENTS OF APPLICATION FOR PERMIT:

An application for a conditional use permit shall be filed with the Administrator by the property owner or by the occupant with owner approval. At a minimum, the application shall contain the following information:

Please explain how the application provided is complete and meets the following requirements of this code section: (if a question is not applicable to your application please state not applicable and explain why)

A. Name, address and phone number of applicant. Scott and Tausha Searle
640 S State St. Suite 6, Shelley, ID. 83274, 406-876-4637

B. Legal description of the property.

C. Description of existing use. The land is currently being used to grow and farm grain.

D. Current zoning designation. Agricultural (A)

E. Description of use being proposed. We propose to mine aggregates from the site to support local development, as well as estabilish a ready mix concrete plant and a hot mix asphalt plant. Aggregates will be mined and reclaimed in phases. Land not being used in mining will be kept in agricultural production.

F. A scaled site plan/drawing showing the location of the following:
   1. All buildings, parking and loading area.
   2. Traffic access and traffic circulation.
   3. Open spaces, landscaping, refuse and service areas.
   4. Utilities, signs.
   5. Any other information that may be required to determine if the proposed conditional use meets the requirements of this title. The Land Use Chart in section 10-5-3 permits the proposed land use in an Agricultural zone.
   6. A statement evaluating the effects on adjoining property that may include, but is not limited to, such elements as noise, odor, fumes and vibration. An accurate statement of the compatibility with adjacent and other properties in the zone, and the relationship of the proposed use to the plan. Aggregate mining is common in this area. The immediate surrounding properties are primarily used for agricultrual purposes such as farming. There are not many residential homes near by, but there are a couple to the southeast of the propoerty. Precautions will be taken to minimize the effects of operations on our neighbors.
   7. More specifically, the following adverse effects shall be mitigated through setbacks, buffers, sound attenuation and/or hours of operation:
      a. Noise, odor, or vibrations, or direct or reflected glare detectable by the human senses without the aid of instruments. Buffers will be built around the perimeter of the site to block noise and odor pollution. All applicable equipment will be permitted with the Idaho DEQ, Air Quality Division.
      b. Radioactivity and electric or electromagnetic disturbances that unduly interfere with the normal operation of equipment, instruments, or appliances on abutting properties. There will be no electromagnetic disturbances.
      c. Any other emission or radiation that endangers human health, results in damages to vegetation or property or which exceeds health and safety standards. In accordance with IDAPA 58.01.01.650-651, all reasonable precautions shall be taken to prevent particulate matter from becoming airborne. All permitted equipment have setbacks to ensure compliance with air quality standards and protect public health and safety.
      d. The appropriate filing fees. (Ord. 2012-08, 10-9-2012, eff. 10-26-2012)

10-8-3: REVIEW OF APPLICATION:

A. The commission shall review the particular facts and circumstances of each proposed conditional use permit in terms of the following standards and shall find adequate evidence showing that such use at the proposed location will:

Please explain how your request complies with the following criteria:

1. Constitute a conditional use as established on the official schedule of zoning regulations or as determined by the commission to be a conditional use for the zone involved.
2. Be in accordance with the general objectives or with any specific objection of the Comprehensive Plan and/or this title.

   The general objectives and specific purpose of the Comprehensive Plan is to promote the health, safety and general welfare of the people of the county as follows:

   a) To protect property rights and the use of property while not adversely impacting neighboring property values more than is necessary. The majority of the surrounding properties are presently being used for agricultural purposes. There are a few residences near the site. Precautions will be taken to minimize the effects of operations on our neighbors.

   b) To ensure that adequate public facilities and services are provided to the people at reasonable cost. Water, gas and electrical utilites are accessible if connections are needed.

   c) To ensure that the economy of the county is protected and enhanced. The county is experiencing wide spread growth and with that comes the necessity for construction materials. With the material souces being nearby the cost of materials and transport emmisions reduces.

   d) To ensure that the important environmental features of the county are protected and enhanced. A reclamation plan approved by the Idaho Department of Lands (IDL) will be applied to the site once mining operations cease. Aggregates will be mined and reclaimed in phases. Land not being used in mining will be kept in agricultural production.

   e) To encourage the protection of prime agricultural, forestry and mining lands for production of food, fiber and minerals. Once the aggregates have been mined from this site, the land will be reclaimed and can be used for agricultural production again.

   f) To encourage urban and urban-type development within or near incorporated cities. There are eighteen clusters of urbanization throughout the county and Blackfoot is considered a major population center. Having construction matereials needed for highway and residential developments nearby will lower the cost of these projects.

g) To avoid undue concentration of population and overcrowding of land. With the primary use of the surrounding properties being agricultural, there seems to be no threat of overcrowding in this area.

h) To ensure that the development on land is commensurate with the physical characteristics of the land. Due to the high quality aggregates on the site, aggregate mining and development is commensurate with the physical characteristics of the land.

i) To protect life and property in areas subject to natural hazards and disasters. Disaster plans and preparations for emergencies will be put in place per the NRP and FEMA guidelines.

j) To protect fish, wildlife and recreation resources. A stormwater pollution prevention plan will be put in place to protect any outlets that feed into waters of the state

k) To avoid undue water and air pollution. A stormwater pollution prevention plan will be put in place to protect any outlets that feed into waters of the state. Air quality permits will be obtained for the equipment used onsite through Idaho DEQ, Air Quality Division.

l) To allow local school districts to participate in community planning and development to address school needs and impacts on an ongoing basis. There will be full cooperation with the school district if there is any impact on their transportation system.

3. Be designed, constructed, operated and maintained to be appropriate in appearance with the existing or intended character of the general vicinity and that such use will not change the essential character of the area as far as is possible. Berms will be installed around the perimeter of the site to shield it from view. Trees and shrubs can be planted in buffer zones near resiednetial homes.

4. Not be unduly hazardous or disturbing to existing or future neighboring uses; nor involve uses, activities, processes, materials, equipment and conditions of operation that will be detrimental to persons, property or the general welfare of the public by reason of excessive production of traffic, noise, smoke, fumes, odors or other pollutants. A stormwater pollution prevention plan will be put in place to protect any outlets that feed into waters of the state. Air quality permits will be obtained for the equipment used onsite through Idaho DEQ, Air Quality Division. All reasonabe precautions will be taken in accordance with IDAPA 58.01.01.650-65.1

5. Not create excessive additional requirements at public cost for public facilities and services and will not be detrimental to the economic welfare of the County. _ No new public facilities or services are needed for this project.

6. Be served adequately by essential public facilities and services or that the persons or agencies responsible for the establishment of the proposed use shall be able to provide such services. A new well will be dug in the southwest corner of the site for water access. Electical and gas are already accessible onsite. A sewage connection will not be necessary for this project.

7. Have legal access to the subject property for the development. Have vehicular approaches to the property that are designed to eliminate a traffic hazard on adjacent public thoroughfares. Access to the property will be gained through an approach permitted by Bingham County Road and Bridge and located 600 ft north from the intersection of Porterville Road and Clark Road. The road frontage from the approach will be 150' wide.

8. Not result in the destruction, loss or damage to a scenic or historic feature of major importance. There are no scenic or historic features near the proposed site.

9. If applicable, have adequate water, sewer, irrigation, drainage and stormwater drainage facilities, and have utility systems provided to accommodate said use. _ A new water well will be dug in the southwest corner of the site for water access. The site will be constructed and shaped so that all storm water will be retained onsite and a Notice of Intent (NOI) to discharge storm water associated with Industrial Activity under the Idaho DEQ.

B. If the literal enforcement of the provisions herein contained would result in unnecessary hardship, the commission may consider exceptions to nonconforming uses as permitted in chapter 9 of this title. (Ord. 2012-08, 10-9-2012, eff. 10-26-2012)

10-8-4: ADDITIONAL STUDIES:

Prior to making a decision concerning a conditional use permit request, the commission or Board may request additional studies at the applicant's expense, of the social, economic, fiscal, and environmental effects of the proposed conditional use permit. (Ord. 2012-08, 10-9-2012, eff. 10-26-2012)

10-8-5: LAND USE TIME LIMITATIONS:

A. When a conditional use permit is granted, the land use or construction of its facility proposed in the application must have commenced within three (3) years of the date of the final decision by the commission, or the Board or a court of appropriate jurisdiction, if appealed, and completed within five (5) years of the same date. The following exceptions shall be limited to ten (10) years of the date of the final decision by the commission or the Board or a court of appropriated jurisdiction, if appealed. If the use is not implemented within this time period, the use and its approval shall expire:

1. Gravel pits in other than A or A/NR Zones.
2. Electrical public service facilities.
3. Commercial wind turbines in other than A or A/NR Zones.

B. Upon expiration of the use or the approval of that use as provided by this section, the applicant may seek approval of the use only by filing a new initial application for review by the commission. (Ord. 2012-08, 10-9-2012, eff. 10-26-2012)

10-8-6: HEARING AND NOTICE:

Prior to granting a conditional use permit, the commission shall follow the hearing procedures as identified in chapter 3 of this title. (Ord. 2012-08, 10-9-2012, eff. 10-26-2012)

10-8-7: ACTION BY COMMISSION:

A. The commission shall approve, conditionally approve or disapprove the application as presented. If more information is needed for a determination to grant a conditional use permit, the commission may request information from the planning staff or public agencies concerning social, economic, fiscal and environmental effects of the proposed conditional use. If the application is approved or approved with modifications, the commission shall direct the Administrator to issue a conditional use permit listing the conditions specified for approval.

B. The commission may attach conditions that include, but are not limited to, the following:
   1. Minimizing adverse impact on other development.
   2. Controlling the sequence and timing of development.
   3. Controlling the duration of development.
   4. Assuring that plans are developed to properly maintain the project.
   5. Designating the exact location and nature of development.
   6. Requiring more restrictive standards than those generally required in this title.
   7. Requiring mitigation of effects of the proposed development upon service delivery by any political subdivision, including school districts, providing services within the planning jurisdiction. (Ord. 2012-08, 10-9-2012, eff. 10-26-2012)

10-8-8: SUPPLEMENTARY CONDITIONS AND SAFEGUARDS:

The commission may prescribe appropriate conditions, bonds and safeguards in conformity with this title over and above those listed in section 10-8-7 of this chapter. Violations of any conditions, bonds or safeguards, when made a part of the terms under which the conditional use permit is granted, shall be deemed a violation of this title.

A. Upon granting or denying an application, the commission shall specify:
   1. The ordinance and standards used in evaluating the application.
   2. The reasons for approval or denial.

B. A conditional use permit shall not be considered as establishing a binding precedent to grant other conditional use permits. A conditional use permit is not transferable from one parcel of land to another. (Ord. 2012-08, 10-9-2012, eff. 10-26-2012)

10-8-9: APPEAL TO BOARD:

The applicant or any affected person may appeal the decision of the commission to the Board, following the hearing procedures requirements of chapters 3 and 10 of this title. (Ord. 2012-08, 10-9-2012, eff. 10-26-2012)

10-8-10: REQUEST FOR TIME EXTENSION FOR PERMIT:

A. An applicant may request extension of the time period provided by this section by filing an application for extension with either the commission or the Board depending on who approved the conditional use permit.
   1. Such application must be filed at least sixty (60) calendar days prior to the date of expiration.
   2. The matter shall be heard at a public hearing before the commission or the Board, whichever made the final decision, in accordance with the notice and hearing procedures of chapter 3 of this title.
   3. A renewal extension, if granted, shall be limited to three hundred sixty five (365) calendar days.

B. The commission or the Board, whoever made the final decision, may extend the commencement period or the completion period as provided in subsection A of this chapter upon proof of good cause by the applicant. Good cause shall be determined at the discretion of the commission or the Board. (Ord. 2012-08, 10-9-2012, eff. 10-26-2012)

10-8-11: REVOCATION OF PERMIT:

A conditional use permit may be revoked upon violation of any of the conditions imposed therein. The Administrator or designee shall verify that a violation has occurred. The permit holder shall be notified that a violation has been noted and shall be given a reasonable time to correct said violation. If compliance is not or cannot be reached within an approved time, the Administrator shall notify the commission or Board, whichever approved the original conditional use permit, so that they may review the preponderance of the evidence to determine if after due process the conditional use permit should or should not be revoked. (Ord. 2012-08, 10-9-2012, eff. 10-26-2012)

10-8-12: MODIFICATION OF APPROVED PERMIT:

A. A conditional use permit or previously approved special use permit may be modified upon a request of the Board, commission or the property owner(s). The Board or commission shall follow the same hearing procedures as per chapter 3 of this title for a conditional use permit.

B. Modification shall only be granted if the Board or commission finds that the modification is consistent with the provisions of the plan and will not be detrimental to the general public health, safety or welfare. (Ord. 2012-08, 10-9-2012, eff. 10-26-2012)

Page 7(f) of the Comprehensive Plan defines Natural Resources as an analysis of the uses of rivers and other waters, forests, range, soils, harbors, fisheries, wildlife, minerals, thermal waters, beaches, watersheds and shorelines.

The A Area corresponds with the A Zone in the Zoning Ordinance and is established to protect agriculture land for growing agriculture crops and raising livestock. Some development of agricultural industries, agriculture service businesses, recreational facilities, natural resources and public service facilities may be permitted by right or conditional use when such uses do not adversely impact adjacent agriculture uses.

Bingham County Comprehensive Plan Page 3-4(e) states the specific purpose of this Plan is to promote the health, safety and general welfare of people of the county To encourage the protection of prime agricultural, forestry and mining lands for production of food, fiber and minerals.

Policy F1. Extraction of Mineral Resources
Promote extraction of mineral resources with mitigation of the impact to neighboring uses, when compatible with surrounding land uses. Mandate restoration plans for existing and new mining projects. The plans should include that all lands mined be restored to their original state as closely as possible.

Rationale
Mined ground should be restored back as closely as possible to the original scenic value. The area that has been mined should be protected from future soil erosion by spring run off. Also existing water resources should be protected from undue pollution due to mining operations.

Implementation
New mining projects should include restoration plans.

Exhibit E

Traffic Impact Study Approval

Winter, Megan

From: Megan Winter <meganwinterrc@gmail.com>
Sent: Friday, November 22, 2024 1:13 PM
To: Winter, Megan
Subject: Fwd: SLT properties

From: **Dusty Whited** <DWhited@binghamid.gov>
Date: Tue, Oct 29, 2024 at 6:39 AM
Subject: SLT properties
To: Tiffany Olsen <TOlsen@binghamid.gov>, Addie Jo Jackman <AJackman@binghamid.gov>, Gwen Inskeep <GInskeep@binghamid.gov>, Aaron Swenson <aswenson@forsgren.com>
CC: Troy Lenhart <TLenhart@binghamid.gov>, Boyd Jensen <BJensen@binghamid.gov>, Megan Winter <meganwinterrc@gmail.com>

Good morning everyone,

I have attached three items ITD and I have accepted and approved the "Traffic Impact Study" for SLT Properties for a gravel pit on the corner of Clark and Porterville.

Thank You,

Dusty Whited

Bingham County

Public Works Director

245 N 690 W

Blackfoot, ID 83221

208 782-3864

My email address has changed to: dwhited@binghamid.gov

Exhibit F

Neighborhood Meeting Invitation Letter

and Attendee Sign-in Sheet

October 25, 2024

Dear Neighbor,

Knife River and Scott Searle are currently working with Bingham County Planning & Development Services to establish a new aggregate source on two land parcels located north of Porterville Road and east of Clark Road. This process includes rezoning the parcels from Residential/Agricultural (R/A) to Agricultural (A) and then applying for a Conditional Use Permit (CUP) to allow temporary mining operations. We originally submitted these applications earlier this year, but the CUP required a traffic impact study before processing. Without the details included in the CUP, our rezone application received testimonies asking for more information on our proposed project. After reading those testimonies, we decided to resubmit both applications once the traffic impact study was complete. That way all the information regarding the project can be reviewed at the same time. We also thought it would be a good idea to schedule a neighborhood meeting, so that we can discuss any questions or concerns our neighbors have regarding the project.

This meeting is for informational purposes and is intended to receive feedback from you as we move through the application process. This is **not** a Public Hearing before a governing body of the County. Representatives from the County's Planning & Development office will be in attendance. Once our application has been submitted and processed, a public hearing date will be scheduled. Prior to the scheduled date you will receive an official notification from Bingham County regarding the Public Hearing via postal mail, newspaper publication, and/or a display on the property for which the Conditional Use Permit is applied.

The neighborhood meeting will be held at the Eastern Idaho State Fairground's Needlecraft Building on **November 7, 2024 6pm – 8pm**. The address for this meeting location is 97 Park St. Blackfoot, ID. 83221.

We look forward to the neighborhood meeting and encourage you to attend. Please do not call Bingham County Planning & Development Services regarding this meeting. We have not resubmitted our applications at this time and the County currently has no information on this project. I look forward to meeting with you and answering any questions you may have at the neighborhood meeting.

Sincerely,

Megan Winter

Megan Winter
Knife River – Mountain West
Sustainability Coordinator

Neighborhood Meeting Sign-In Sheet

Proposed SLT Pit - Blackfoot, ID.

Date: 11/7/2024 Meeting Location: Eastern Idaho Fairgrounds - Needlecraft Building

Meeting Start Time: 6:00pm Meeting End Time: 8:00pm

Name:	Signature:	Address:
Meagan Winter		5450 W Goshen Rd. Boise, ID.
Brandy K Adams		185 N 600 W
Jackie Harris		647 W 350 N
Martin K Allen Hrabik		574 W 200 N.
Kathleen Hrabik		574 W. 200 N.
Catherine Salisbury		226 N. 500 W.
Beverly Salisbury	Beverly Salisbury	556 W 200 N
NEIL Murdock		568 W 200 N
Ryan Baker		614 W. 200 N.
Ann Marie Campbell		551 W. 200 N.
Kyle Campbell		" " "
Chelsey Campbell		550 W. 200 N.
Tara Lyon		546 W 200 N
Dustin Park		4055 Professional Way ID Falls
HeatherBaker	HeatherBaker	614 W 200 N

EASTERN SUPERVISORY AREA
Idaho Falls Office
3563 E. Ririe Highway
Idaho Falls, ID 83401
Phone (208) 525-7167
Fax (208) 525-7011
gbillman@idl.idaho.gov

November 18, 2024

Scott Searle
Attn. Joseph Smith
P.O. Box H
Shelley, ID 83274

email: JLS21601@gmail.com

Re: S802980 Reclamation Plan Application Approval

This correspondence is notification the following reclamation plan was approved on November 18, 2024:

PLAN NO.	ACRES	COUNTY	LEGAL DESCRIPTION
S802980	144	Bingham	T2S, R35E, SW Sec. 19

The plan was granted approval subject to the following terms and conditions:

1. All refuse, chemical and petroleum products and equipment shall be stored and maintained in a designated location, 100 feet away from any surface water and disposed of in such a manner as to prevent their entry into a waterway.

2. State water quality standards will be maintained at all times during the life of the operation. Should a violation of water quality standards occur, mining operations will cease immediately, corrective action will be taken, and the Department of Environmental Quality will be notified.

3. Erosion and non-point source pollution shall be minimized by careful design of the site access and implementing Best Management Practices, which may include, but are not limited to:

   a. Diverting all surface water flows around the mining operation.
   b. Removing and stockpiling vegetation and slash, except merchantable timber, for use in erosion control and reclamation;
   c. Removing and stockpiling all topsoil or suitable plant growth material for use in reclamation.

4. An initial reclamation bond in the amount of $1,030,109 will be submitted to and maintained with the Idaho Department of Lands prior to conducting any surface mining operations, for 144 acres.

Exhibit A-2

5. If the reclamation plan is not bonded within 18 months of approval, or if no operations are conducted within three years, the department may withdraw this plan. This shall not prevent the operator from re-applying for reclamation plan approval.

6. Acceptance of this permit does not preclude the operator from obtaining other necessary permits and approvals from state and federal authorities, i.e., Storm Water Pollution Prevention Plan (SWPPP), wastewater generation and/or air quality permits, consultation with the National Oceanic and Atmospheric Administration Fisheries, U.S. Army Corps of Engineers 404 Permit and Stream Channel Alteration Permits for each production process.

7. At the beginning of each calendar year the operator or plan holder shall notify the director of any increase in the acreage of affected lands which will result from the planned surface mining activity within the next twelve (12) months. A correlative increase in the bond will be required for an increase in affected acreage.

8. An inspection is required as part of the approval process. IDL and applicant will determine the best time for an inspection, weather permitting.

Please note -- pursuant to Idaho Code section 47-1512(a), operations cannot commence until the bond payment established in Stipulation No. 4 is submitted to this department. Failure to submit payment before mining commences may subject you to legal action by the state pursuant to Idaho Code section 47-1513(d), which may include issuance of an order by the district court to temporarily restrain your mining operations without prior notice to you.

If the department does not receive a written notice of objection from you regarding these stipulations by December 2, 2024, the stipulations will be considered as accepted.

If you have any questions, you may contact me at the above address or telephone (208) 525-7167.

Sincerely,

Gary Billman, P.G.
Lands Resource Specialist Senior– Minerals/Geologist

Enclosure(s): Financial Assurance Information Packet

CC: Bureau, file

Idaho Department of Lands
Resource Protection and Assistance Bureau

FINANCIAL ASSURANCE INFORMATION AND INSTRUCTIONS

The following types of financial assurance are accepted by the Idaho Department of Lands (IDL). All types of financial assurance must be submitted on an IDL form with accompanying documents attached.

1. Bond Assurance Fund

For reclamation plans that are under 40 disturbed acres, the plan holder may be required to participate in the Bond Assurance Fund (BAF) program. For more information on the BAF program, please see the BAF information packet on IDL's regulatory mining page on its website.

2. Surety Bonds

Surety bonds are purchased from a bond or insurance company licensed to do business in Idaho. The company issuing the bond must include their bond number and the lease/plan/permit number on the upper right hand corner of the form. The bond must be made payable to the State of Idaho and carry the notarized signature of the surety and signature of the principal. The surety company issuing the bond must be listed as an acceptable surety in Circular 570 of the U.S. Department of the Treasury. **A surety bond form is available below.**

3. Collateral Bonds – All of these bonds must be submitted to the Department with a completed, notarized collateral bond form. This form is available below.

- **Certificate of Deposit and Time Deposit Receipt**

Certificates of deposit and time deposit receipts must be issued by a federally insured institution. Certificates and receipts will not be released for re-issuance and should therefore be automatically renewable. Banks must agree to waive all rights of set-off or liens which it may have against such certificates, and will place holds on those funds that prevent the operator from withdrawing funds until the IDL sends a written release to the bank. The certificate or deposit receipt must be made out to the principal (first) or the Idaho Department of Lands (second), (i.e., "John Doe, et al or Idaho Department of Lands"), in that order. If the issuing bank is not located in the State of Idaho or does not have a branch in Idaho, then a jurisdiction agreement must be executed by the bank and returned to IDL.

- **Letters of Credit**

Letters of credit must be issued by an institution authorized to do business in the State of Idaho, or through a confirming bank authorized to do business in the State of Idaho, which engages that it will itself honor the credit in full. In addition, a foreign bank must consent to jurisdiction

of Idaho courts. Wording of the credit document must provide for presentation at a bank in the State of Idaho. The account party on all credits must be identical to the entity identified on the lease, permit or plan. The credit document must exactly follow the wording of the enclosed sample. A Certificate of Secretary (see sample) must always accompany a letter of credit. **An Irrevocable Standby Letter of Credit form is available below.**

- **Cash**

An operator or lessee may submit a cash bond to be held by IDL. Interest does not accrue on cash bonds.

- **Real Property**

Real property used as a collateral bond must be a perfected, first lien security interest in real property located within the state of Idaho, in favor of the state of Idaho. A deed of trust form acceptable to the Department is required for all lands 40 acres or less, or a mortgage form approved by the Department. See IDAPA 20.03.02.122.04 for additional requirements.

4. Trusts

Trusts uses for financial assurance must be initiated with a Memorandum of Agreement (MOA) between the Operator and IDL. The MOA must describe the proposed trustee, range of investments, initial funding, schedule of payments, trustee fees, and expected rate of return. The Operator must be the joint party on the trust with IDL. Trusts will be irrevocable. Payments may be made over time to keep the amount of the trust equal to the estimated reasonable cost of reclamation. Income accrued on trust funds will generally be retained in the trust. See IDAPA 20.03.02.122.05 for additional requirements.

5. Corporate Guarantee

Corporate guarantees can only be submitted for hardrock, phosphate, and other mines approved under Section 070 of IDAPA 20.03.02, and for permanent closure plans approved under Section 071 of IDAPA 20.03.02. The amount of a corporate guarantee is limited to a maximum of 50% of an operation's total financial assurance, and cannot cover post-closure costs. A parent company may provide the corporate guarantee if they meet the same financial criteria as the operator and submit an indemnity agreement to IDL. The financial criteria and other details are described in IDAPA 20.03.02.122.06.

NOTE: ALL FINANCIAL ASSURANCE TYPES REQUIRE A FULLY EXECUTED ORIGINAL IDL ISSUED BOND FORM. THE FINANCIAL ASSURANCE REQUIREMENT IS NOT SATISFIED UNTIL THE PROPER FORM HAS BEEN SUBMITTED WITH THE APPROPRIATE DOCUMENTATION ATTACHED THERETO.

State of Idaho
DEPARTMENT OF LANDS

Surety Bond Number _____

Lease/Plan No(s). _____

KNOW ALL MEN BY THESE PRESENTS, That we _____, as principal and _____, a corporation organized under the laws of the State of _____, and having its principal place of business in the State of _____, in the City of _____, as surety are held and firmly bound unto the State of Idaho, in the sum of _____dollars ($ _____) lawful money of the United States, conditioned on the payment of all damages to the surface and improvements thereon of lands described in the above lease/plan/permit specified and any outstanding balances as set forth in the lease/plan/permit. For such payment, well and truly to be made, we bind ourselves, our and each of our heirs, executors, administrators, successors and assignees, as the case may be, jointly and severally, firmly by these presents.

THE CONDITION of the foregoing obligation is such that:

WHEREAS, by lease/plan/permit bearing the above serial number, the lessee/plan holder/permittee was granted specific rights under and pursuant to Idaho Code title 47, chapters 7, 15 or 16, and the pertinent rules and regulations of the Idaho State Board of Land Commissioners; and

WHEREAS, said lessee/plan holder/permittee has, by virtue of the lease/plan/permit above referred to, entered into certain covenants and agreements set forth in such lease/plan/permit, under which operations are to be conducted; and

WHEREAS, the said principal, in consideration of being permitted, in lieu of the lessee/plan holder/permittee, to furnish this bond agrees and by these presents does hereby bond himself to fulfill on behalf of the lessee/plan holder/permittee all of the obligations of the said lease/plan/permit in the same manner and to the same extent as though he were the lessee/plan holder/permittee. It is understood and agreed by the surety and the principal that if there is outstanding restoration obligations on the premises, or if outstanding payments are due, this bond shall extend to cover all acts for which restoration is required or payment of such outstanding amounts due, both prior to and subsequent to the date of this bond, until notified in writing by the Idaho Department of Lands that such requirements have been met or the bond has been replaced. The Idaho Department of Lands may require payment of the entire sum of this bond, or portions thereof, upon written notice to the surety, by the department, of the lessee/plan holder/permittee's failure to perform any obligations and/or pay any amounts due under the above referenced statutes and pertinent rules.

The surety shall pay to the Department of Lands the sum of this bond, or portions thereof, as requested by the department within 30 days of receipt of such written notice. In the event of a partial distribution, the remaining funds and liabilities shall not be released until the department notifies the surety, in writing, of release of remaining liability or requires payment of the remaining bond liabilities. Payment of the full sum of the bond to the department shall release the surety of all liabilities and obligations.

NOW THEREFORE, if the above principal shall in good faith observe, carry out and comply with all the laws now existing or hereafter enacted, designed or intended for the protection of the surface owner of said lands against damage and resulting loss caused by any operations carried on under said lease/plan/permit, or if any such damage and resulting loss shall so occur nevertheless, for which damage and loss reimbursement is required and made, then this obligation shall become void, otherwise to remain in full force and effect; and the liability of the surety under this bond for any one or more defaults of the principal under said lease/plan/permit shall not exceed in the aggregate the sum stated herein above; It is further provided, however, that the bond may be cancelled by the surety by the service of written notice of cancellation upon the Director of the Department of Lands of the State of Idaho, such cancellation to be effective at the expiration of ninety (90) days after the service of such cancellation notice by the surety on the Director by registered mail. Such cancellation notice, however, shall not affect any liability that shall have accrued under this bond prior to the effective date of cancellation.

Signed on this _____ day of _____, 20___.

_____ (Signature of Principal)

_____ (Business Address)

_____ (Signature of Surety)

_____ (Business Address)

ACKNOWLEDGEMENT OF SURETY

State of _____)
:ss
County of _____)

On this _____ day of _____, in the year 20____, before me, a Notary Public, personally appeared _____, known to me to be the_____ of the corporation that executed the instrument, or the person who executed the instrument on behalf of said corporation, and acknowledged to me that such corporation executed the same, or the individual who executed the instrument on their own behalf.

In Witness Whereof, I have hereunto set my hand and affixed my official seal of day and year first above written.

Notary Public For _____
Residing at:_____
My Commission expires _____, 20_____

State of Idaho
DEPARTMENT OF LANDS
COLLATERAL BOND

LEASE/PLAN/PERMIT NO(s). _____

BOND TYPE

_____ Cash

Bank: _____ # _____ Certificate of Deposit

Address: _____ # _____ Letter of Credit

City/State: _____ _____ Other (Specify)

KNOW ALL MEN BY THESE PRESENTS, That we _____, as principal are held and firmly bound unto the State of Idaho, in the sum of _____ dollars ($_____) lawful money of the United States. For such payment, well and truly to be made, we bind ourselves, our and each of our heirs, executors, administrators, successors and assignees, as the case may be, jointly and severally, firmly by these presents.

THE CONDITIONS of the foregoing obligation are such that:

WHEREAS, by lease/plan/permit bearing the above number, the lessee/plan holder/permittee was granted specific rights under and pursuant to the provisions and requirements of Idaho Code title 47, chapter 7, 8, 13, 15 or 16 or Idaho Code title 58, chapters 1, 3 and 6 and the pertinent rules and regulations of the Idaho State Board of Land Commissioners, or policy; and

WHEREAS, said lessee/plan holder/permittee has, by virtue of the lease/plan/permit above referred to, entered into certain covenants and agreements set forth in such lease/plan/permit, under which operations are to be conducted; and

WHEREAS, the said principal, in consideration of being permitted in lieu of the lessee/plan holder/permittee, agrees to furnish this collateral bond, and by these presents does hereby bond himself to fulfill on behalf of the lessee/plan holder/permittee, all of the obligations of the said lease/plan/permit and in the same manner and to the same extent as though he were the lessee/plan holder/permittee. It is understood and agreed by the lessee/plan holder/permittee and the principal that if there are outstanding obligations on the premises, and if outstanding payments are due, this bond shall extend to cover all acts for which restoration or payment of outstanding amounts due, if required, both prior and subsequent to the date of this bond until notified in writing by the Idaho Department of Lands that all obligations have been completed and all amounts due have been paid or the bond has been replaced and all liability under this bond has been released. The Idaho Department of Lands may require payment of the entire sum of this bond, or portions thereof, upon written notice to the appropriate agent, by the department, of the lessee/plan holder/permittee's failure to perform outstanding obligations and/or pay amounts due under the above referenced statutes, rules and policies.

The appropriate agent shall pay to the Department of Lands the sum of this bond, or portions thereof, as requested by the department within 30 days of receipt of such written notice. In the event of a partial distribution, the remaining funds and liabilities shall not be released until the department notifies the appropriate agent, in writing, of release of remaining liability or requires payment of the remaining bond liabilities. Payment of the full sum of the bond to the department shall constitute release of this bonding liability and obligation.

NOW THEREFORE, if the above principal shall in good faith observe, carry out and comply with all the laws now existing or hereafter enacted, designed or intended for the protection of the surface owner of said lands against damage and resulting loss caused by any operations carried on under said lease/plan/permit, or if any such damage and resulting loss shall so occur nevertheless, for which damage and loss reimbursement is required and made, then this obligation shall become void, otherwise to remain in full force and effect; and the liability of the principal under this bond for any one or more defaults of the principal under said lease/plan/permit shall not exceed in the aggregate the sum stated herein above. It is further provided, however, that a letter of credit may be cancelled by the issuing bank by the service of written notice of cancellation upon the Director of the Department of Lands of the State of Idaho, such cancellation to be effective at the expiration of ninety (90) days after the service of such cancellation notice by the principal on the Director by certified mail.

Signed on this _____ day of _____ 20 _____.

_____
(Signature of Principal)

_____
(Business Address)

ACKNOWLEDGMENT OF PRINCIPAL

State of _____)
)ss
County of _____)

On this _____ day of _____, in the year 20_____, before me, a Notary Public, personally appeared _____, known to me to be the _____ of the corporation that executed the instrument, or the person who executed the instrument on behalf of said corporation, and acknowledged to me that such corporation executed the same, or the individual who executed the instrument on their own behalf.

In Witness Whereof, I have hereunto set my hand and affixed my official seal of day and year first above written.

Notary Public for: _____
Residing at: _____
My Commission expires: _____, 20_____

MNR-038

Revised: 12/2022

(Bank Letterhead)

IRREVOCABLE STANDBY LETTER OF CREDIT

(Date)_____

ISLC No. _____ Expiry Date:_____

State of Idaho
Department of Lands
300 North 6th St, Suite 103
Boise, ID 83720

We hereby establish our Irrevocable Standby Letter of Credit in your favor for the account of (Name of Plan, Permit, or Lease Holder) to the extent of _____(Written Amount)_____U.S. Dollars ($ Numerical Amount). Drafts are payable at sight when presented at any branch of the (Name of Bank or Other Institution) and accompanied by a signed statement from an authorized representative of the Idaho Department of Lands that (Name of Plan, Permit, or Lease Holder) has not complied with the terms and conditions of (Plan, Permit, or Lease Number.

It is a condition of this letter of credit that it shall be automatically extended without amendment for additional periods of one year from the present or future expiration date hereof unless one hundred and twenty (120) days prior to such expiration date we shall notify you, in writing, via certified mail, return receipt requested, that we elect not to renew this letter of credit for such additional period. Upon receipt of such notice, the balance of the letter of credit may be drawn upon prior to its expiration date by your clean draft drawn at sight on us presented at any branch office of the (Name of Bank or Other Institution).

Drafts drawn under this credit must bear the following clause: "Drawn under (name of bank or other institution), Letter of Credit No. _____, dated _____," and the amount of each draft must be endorsed thereon.

This instrument cannot be amended without written consent of an authorized representative of the Idaho Department of Lands.

Unless otherwise expressly stated, this credit is subject to the "Uniform Customs and Practice for Documentary Credits (2007 Revision) International Chamber of Commerce Publication No. 600" or by subsequent Uniform Customs and Practice fixed by subsequent Congresses of the International Chamber of Commerce.

We hereby engage with the drawers, endorsers, and holders in due course of drafts drawn under and in compliance with the terms of this credit that such draft(s) will be duly honored on presentation to the drawee bank.

_____
Authorized Signature

_____
Title

_____
Authorized Signature (Cosigner if required)

_____
Title

IRREVOCABLE STANDBY LETTER OF CREDIT
(Name of Plan, Permit, or Lease holder)
(Date)_____
ISLC No._____

CERTIFICATE OF SECRETARY

I, ____(Name)_____, as Secretary of (Name of Institution), hereby certify as follows:

(1) That _____(Name)_____ who signed this Letter of Credit on behalf of (Name of Institution) was then ___(Title)_____ of said institution;

(2) That this Letter of Credit was issued in compliance with all applicable State and Federal Laws, Rules, and Regulations; and

(3) That this letter of credit was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

In witness whereof, I, _____(Name)_____, as the Secretary of (Name of Institution), have executed this certificate and affixed the seal of (Name of Institution) on this __ day of _____, 20_____.

Name
Title

(affix corporate seal)

STATE OF _____)
) ss
COUNTY OF_____)

On this _____ day of _____, 20_____, before me, a Notary Public, in and for said county and state, personally appeared ____(Name)_____, known or identified to me to be the Secretary of (Name of Institution), the corporation that executed the foregoing instrument, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

(Seal)

_____
Notary Public for the State of:
Residing at:
Commission expires:

November 4, 2024

Mr. Gary Billman
Senior Lands Resource Specialist
Idaho Department of Lands
Minerals Management
Eastern Supervisory Area
3563 East Ririe Highway
Idaho Falls, ID 83401

Subject: Application for Reclamation Plan Approval – SLT Pit

Dear Mr. Billman:

Please accept the following mine and reclamation plan submitted in accordance with administrative rules IDAPA 20.03.02 governing Surface Mining and Exploration as well as application requirements for quarries, decorative stone, building stone, and aggregate materials including sand, gravel, and crushed rock.

Responses to application information, items 1-11, are on page one of two on the application for Reclamation Plan Approval Form, found in Exhibit "A". Response to application information items 12a-e and 13a-f are provided in the Reclamation Plan Narrative, Exhibit "B", and the provided Map Set, Exhibit "C". A reclamation cost spreadsheet is provided in Exhibit "D".

The proposed SLT Pit is located within Bingham County (Exhibit C, Figure 1). The legal description of the source is the southwest corner southwest corner of Section 19, T2S, R35E (Exhibit C, Figure 2). The proposed SLT Pit source is comprised of two (2) parcels (RP0304400 and RP0303901) which total approximately 140 acres (Exhibit C, Figure 3).

Mining operations at the site will include mining sand and aggregate to be crushed, screened, washed, and stockpiled within the boundary of the SLT Pit. Current and future stockpile locations, crushing operations, and haul roads are shown on Exhibit C, Figure 2. Prior to any mining operations, the vegetation, topsoil, and overburden will be stockpiled onsite for future reclamation. Phase 1 of the mining operation (37 acres) includes the crusher location. Phases 1 through 6 of the mining operation result in a total of 140 acres of mining disturbance.

The surface and mineral rights are currently owned by Scott Searle (Exhibit C, Figure 3). The application is signed and dated. One original is included as a part of our submittal package for reclamation plan approval.

The complete application package consists of:

A. An application provided by Idaho Department of Lands:
    I. *A signed Idaho Department of Lands Application for Reclamation Plan Approval is attached to each surface mining package.*
B. A map set of the proposed mining operation which included that information required under IDAPA 20.03.02.
    I. *Maps of the operation, including information specified by Subsection 069.03 are included.*

Exhibit
A-3

C. A reclamation plan, in map and narrative form, which includes the information required under IDAPA 20.03.02. The map and reclamation plan may be combined on one (1) sheet if practical.
   I. *The maps and narrative reclamation plan specified by IDAPA 20.03.02 are included.*

If you should have any questions concerning this application for Reclamation Plan Approval, please feel free to reach out to my owner representative, Joseph Smith.

Sincerely,

Scott Searle

Scott Searle
Owner Representative:
Joseph Smith
406-876-4637

Exhibit A

Idaho Department of Lands
Application for Reclamation Plan Approval

IDAHO DEPARTMENT OF LANDS

APPLICATION FOR RECLAMATION PLAN APPROVAL

Reclamation Plan Number: _____

GENERAL INFORMATION

The Idaho Mined Land Reclamation Act, Title 47, Chapter 15, Idaho Code requires the operator of a surface mine, a new underground mine, or an existing underground mine that expands the July 1, 2019 surface disturbance by 50% or more to obtain an approved reclamation plan and financial assurance. Fees are charged as shown on the attachment.

When an applicant is mining on lands administered by the U.S. Forest Service or Bureau of Land Management, it is necessary to obtain the proper federal approvals in addition to the Department of Lands. Each agency's application requirements are similar, but not exactly the same. Please review both state and federal application requirements, and develop one plan which meets the requirements of all the agencies involved.

If ponds or lakes are created during the mining process and will remain after reclamation is completed, the Idaho Department of Water Resources (IDWR) requires the operator or landowner to obtain a water right. If a water right cannot be obtained prior to a plan being submitted, then the reclamation plan must include backfilling to an elevation above the local ground water table. Bond calculations must include those backfilling costs.

After the reclamation plan has been finalized, an electronic copy or five (5) hard copies of the application package must be submitted to the appropriate Area office of the Idaho Department of Lands. When the application is received, the appropriate federal or state agencies will be notified of the application. The department shall deliver to the operator, if weather permits and the plan is complete, the notice of rejection or notice of approval of the plan within sixty (60) days after the receipt of the reclamation plan or amended plan.

All reclamation plan applications will be processed in accordance with Section 080 of the Rules Governing Mined Land Reclamation (IDAPA 20.03.02) and applicable Memorandums of Understanding with state and federal agencies.

APPLICATION INFORMATION

1. NAME: Scott Searle d/b/a: _____
2. ADDRESS: PO Box H
   CITY, STATE, ZIP CODE: Shelley, ID. 83274
3. TELEPHONE and EMAIL: 406-876-4637 (000-000-0000) JLS21601@gmail.com (e.g. john.doe@email.com)
4. DESIGNATED IN-STATE AGENT AND ADDRESS: (if Company's main place of business is 'out of state')
   _____
5. PROOF OF BUSINESS REGISTRATION (if applicable): If applicant is a business, please attach proof of registration with the Idaho Secretary of State.
6. LEGAL DESCRIPTION (Section, Township, and Range) TO THE QUARTER-QUARTER SECTION:
   Southwest corner of Section 19, T2S, R35E
7. ACREAGE and COUNTY(ies): 143.97 (Acres) Bingham County (e.g. Ada through Washington)
8. OWNERSHIP: (check applicable)
   ☒ Private ☐ U.S. Forest Service ☐ Bureau of Land Management ☐ Idaho Department of Lands
9. COMMODITY TYPE, PROPOSED START-UP DATE: Sand and Gravel
10. SITE NAME OR MINE NAME (if any): SLT Pit
11. TYPE OF MINING: (check applicable) ☒ Surface ☐ Underground ☐ Both

Fee: See Attached Schedule

12. Please provide the following maps of your mining operation (Subsections 069.04 or 070.03 of IDAPA 20.03.02):

    a. A vicinity map prepared on a standard USGS 7.5' quadrangle map or equivalent.

    b. A site map which adequately shows the location of existing roads, access roads, and main haul roads which would be constructed or reconstructed for the operation. Also, list the approximate dates for construction, reconstruction, and abandonment.

    c. On a site location map, show the following;

        i. The approximate location and names, if known, of drainages, streams, creeks, or bodies of water within 1,000 feet of the surface mining operation.

        ii. The approximate boundaries and acreage of the lands:

            1. That will become affected by the mining operation.

            2. That will be affected during the first year of operations.

            This map must be of appropriate scale for boundary identification.

        iii. The planned configuration of all pits, mineral stockpiles, overburden piles, topsoil stockpiles, sediment ponds, and tailings facilities that will be developed by the mining operation.

        iv. Location of all underground mine openings at the ground surface, if any.

        v. The planned location of storage for fuel, equipment maintenance products, wastes, and chemicals utilized in the surface mining operation.

    d. A surface and mineral control or ownership map of appropriate scale for boundary identification.

    e. Scaled cross-sections of the mine showing surface profiles prior to mining, at maximum disturbance, and after reclamation.

13. A reclamation plan must be developed and submitted in map and narrative form (Subsections 069.05 or 070.04 of IDAPA 20.03.02). The reclamation plan must include the following information:

    a. On a drainage control map show and list the best management practices which will be utilized to control erosion on or from the affected lands.

    b. A description of foreseeable, site specific water quality impacts from mining operations and proposed water management activities or BMPs to comply with water quality requirements.

    c. A description of post-closure activities, if any, such as water handling and treatment.

    d. Which roads will be reclaimed and a description of the reclamation.

    e. A revegetation plan which identifies how topsoil or other growth medium will be salvaged, stored and replaced in order to properly revegetate the area. Identify soil types, the slope of the reclaimed areas, and precipitation rates. Based on this information, identify the seed species, the seeding rates, the time and method of planting the soil, and fertilizer and mulch requirements.

    f. Describe and show how tailings facilities and process or sediment ponds will be reclaimed.

    g. Dimensions of underground mine openings at the surface and description of how each mine opening will be secured to eliminate hazards to human health and safety.

    h. For operations over five (5) acres, estimate the actual cost of third party reclamation including direct and indirect costs for mobilization, re-grading, seed, fertilizer, mulch, labor, materials, profit, overhead, insurance, bonding, administration, and any other pertinent costs as described in IDAPA 20.03.02.120.

APPLICANT SIGNATURE: Scott Slade **DATE:** 7/1/2024

Fee: See Attached Schedule

IDAHO DEPARTMENT OF LANDS

IDAHO DEPARTMENT OF LANDS

Application Fee Schedule

Acres are determined by the number entered in item 7 on the Application Form.

Type of Plan	Fee (Dollars)
Section 069* of IDAPA 20.03.02, Reclamation Plan 0 to 5 acres	Five hundred ($500)
Section 069 of IDAPA 20.03.02, Reclamation Plan >5 to 40 acres	Six hundred ($600)
Section 069 of IDAPA 20.03.02, Reclamation Plan over 40 acres	Seven hundred fifty ($750)
Section 070** of IDAPA 20.03.02, Reclamation Plan 0 to 100 acres	One thousand ($1,000)
Section 070 of IDAPA 20.03.02, Reclamation Plan >100 to 1000 acres	One thousand five hundred ($1,500)
Section 070 of IDAPA 20.03.02, Reclamation Plan >1000 acres	Two thousand ($2,000)
* Section 069 is for gravel pits, quarries, decorative stone sources, and simple industrial mineral mines	
** Section 070 is for hardrock, phosphate, and underground mines, and complex industrial mineral mines	

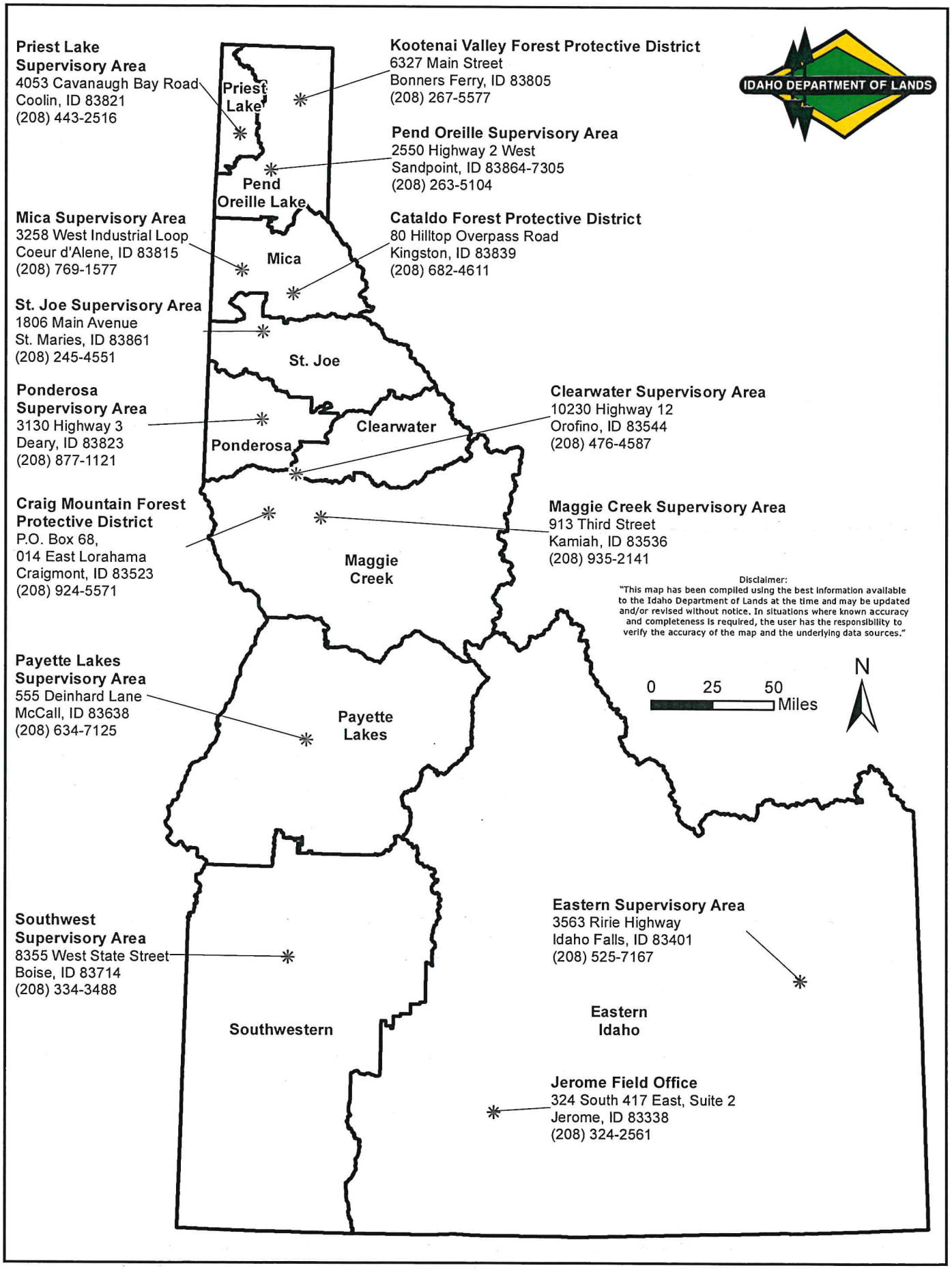

IDAHO DEPARTMENT OF LANDS
Priest Lake Supervisory Area
4053 Cavanaugh Bay Road
Coolin, ID 83821
(208) 443-2516
Kootenai Valley Forest Protective District
6327 Main Street
Bonners Ferry, ID 83805
(208) 267-5577
Pend Oreille Supervisory Area
2550 Highway 2 West
Sandpoint, ID 83864-7305
(208) 263-5104
Priest Lake
Pend Oreille Lake
Mica Supervisory Area
3258 West Industrial Loop
Coeur d'Alene, ID 83815
(208) 769-1577
Cataldo Forest Protective District
80 Hilltop Overpass Road
Kingston, ID 83839
(208) 682-4611
Mica
St. Joe Supervisory Area
1806 Main Avenue
St. Maries, ID 83861
(208) 245-4551
St. Joe
Ponderosa Supervisory Area
3130 Highway 3
Deary, ID 83823
(208) 877-1121
Clearwater Supervisory Area
10230 Highway 12
Orofino, ID 83544
(208) 476-4587
Clearwater
Ponderosa
Craig Mountain Forest Protective District
P.O. Box 68,
014 East Lorahama
Craigmont, ID 83523
(208) 924-5571
Maggie Creek Supervisory Area
913 Third Street
Kamiah, ID 83536
(208) 935-2141
Maggie Creek
Disclaimer:
"This map has been compiled using the best information available to the Idaho Department of Lands at the time and may be updated and/or revised without notice. In situations where known accuracy and completeness is required, the user has the responsibility to verify the accuracy of the map and the underlying data sources."
Payette Lakes Supervisory Area
555 Deinhard Lane
McCall, ID 83638
(208) 634-7125
Payette Lakes
0 25 50 Miles
N
Southwest Supervisory Area
8355 West State Street
Boise, ID 83714
(208) 334-3488
Eastern Supervisory Area
3563 Ririe Highway
Idaho Falls, ID 83401
(208) 525-7167
Southwestern
Eastern Idaho
Jerome Field Office
324 South 417 East, Suite 2
Jerome, ID 83338
(208) 324-2561

Exhibit B

Reclamation Plan Narrative

SLT Pit
Application for Reclamation Plan Approval

Mining Plan Narrative

Operations in the permit area will begin with stripping and stockpiling topsoil in each of the mining phases as mining progresses (Exhibit C, Figure 2) pending Idaho Department of Lands Reclamation Plan approval. Construction of the pit is estimated to be started in 2025 depending on Bingham County zoning requirements. The pit is expected to last up to 20 years with reclamation beginning in 2045 and abandonment in 2047 (2 years of vegetation growth). Topsoil and overburden will be separated and stockpiled onsite for future reclamation. This will help make re-vegetation of the pit easier after completion of operation in the gravel source. A portion of the salvaged soil will be used to create a berm around the mining operation on the boundary of the permitted mining area. The berms will be graded and seeded to provide a best management practice to control stormwater runoff as well as serve as the perimeter of the mining area, per MSHA safety standards. This perimeter berm will be used to keep onsite, and offsite stormwater separate; it will also perform the functions of safety and controlling site access. One access point is located at the southwest corner of the property located 600 ft north from the intersection of Porterville Road and Clark Road. Access to the site has been proposed to Bingham County Road and Bridge and has no posted weight restrictions.

Gravel extraction is planned to begin in the southwest corner of the site (Phase 1 – Exhibit C, Figure 2). The site will consist of six (6) mining phases as follows:

- Phase 1 = 37 acres
- Phase 2 = 12 acres
- Phase 3 = 21 acres
- Phase 4 = 23 acres
- Phase 5 = 24 acres
- Phase 6 = 23 acres

First year disturbance will be Phase 1 of the operation which will include clearing for the stockpile and plant locations totaling 37 acres. The site will be mined to a maximum depth of forty (40) feet below the pre-mining ground surface. Operational slopes on the mine high walls will be approximately 3H:1V and will be dictated by safety. Based on our geologic exploration and GSI Environmental' s technical memo regarding the hydrology of the area, the mine floor will be above the local ground water table (see Appendix E for full geological memo). Shallow groundwater occurs more than 21-feet below the proposed pit floor based on recent water levels measured at monitoring wells installed by Basic American Foods in support of Idaho Department of Environmental Quality Water Reuse Permit I-039-04.

The aggregate deposit will be mined using dry extraction techniques as no groundwater is anticipated at the maximum mining depth. The mining sequence will begin in the southwest corner (Phase 1). The material will be crushed, screened, washed, and stockpiled at the mining site, as noted on Exhibit C, Figure 2. The mining operation is planned to begin upon approval and is expected to be in operation for a maximum of twenty (20) years.

After removal and stockpiling of the overburden, the aggregate will be extracted using an excavator, dozer, and haul trucks to remove up to forty (40) feet of material. Based on adjacent well logs, it is

anticipated that no groundwater will be encountered during mining. Aggregates will be processed with crushing and screening equipment and a wash plant. All applicable equipment will be permitted with the Idaho Department of Environmental Quality (IDEQ), Air Quality Division in accordance with IDAPA 58.01.01.201-228. Portable equipment relocation forms (PERF) will be submitted to DEQ at least 10 days prior to operation when applicable. All reasonable precautions shall be taken to prevent particulate matter from becoming airborne, in accordance with IDAPA 58.01.01.650-652. Some of the reasonable precautions may include, but are not limited to, the following:

1. Use of Water or Chemicals.
2. Application of Dust Suppressants.
3. Use of Control Equipment.
4. Covering of Trucks.
5. Paving.
6. Removal of Materials.

Surface Water

The Augustine Ditch irrigation canal system is located along the eastern boundary of parcel RP0303901 and the northern boundary of parcel RP0304400. This Ditch is owned by two (2) separate entities, Peoples Canal & Irrigation Co., and Riverside Canal Co. Both entities were provided details regarding the project scope via telephone on 10/25/2024. Riverside Canal Co. expressed a concern for gophers possibly digging underground waterways from the irrigation ditch to the mining site. After clarifying that there will be a 30-foot buffer between the ditch and onsite operations the concern was alleviated. Project details were submitted via email to both Peoples Canal & Irrigation Co., and Riverside Canal Co following the initial phone calls; no objections have been provided to date. Monthly site inspections will also be performed by a designated responsible person per SWPPP requirements. Any issues identified during these inspections will be addressed immediately. No other concerns were expressed by the ditch entities.

The pit will not utilize any surface water in the ditch for operations. The functional and distributional capabilities of the Ditch will be maintained throughout the period of mining and reclamation.

Erosion Control

The pit will be constructed and shaped so that all stormwaters will be retained on site. Upon approval and prior to mining, the SLT Pit will file a Notice of Intent (NOI) to discharge stormwater associated with Industrial Activity under the IDEQ National Pollutant Discharge Elimination System Multi-Sector General Permit. In accordance with IPDS requirements, a site-specific stormwater pollution prevention plan (SWPPP) will be developed and implemented for the site. The SWPPP will include a site-specific spill plan and regular training for personnel. This SWPPP will include a designated responsible person (SWPPP administrator) to fulfill State requirements for reporting uncontrolled releases at the site. Through the IDPDS permitting process any additional monitoring requirements will be addressed and implemented if necessary.

The stormwater is controlled on the site through site grading, permanent or temporary ditches, and berms. Before aggregate mining is started, the overburden soil is removed and stockpiled around the perimeter of the mining area. The stockpile berms are seeded to stabilize them, and they create the first runoff control for the facility. The pit is excavated inside the earth berms and stormwater is allowed to pond inside the pit. The pit floor is excavated in stages, so stormwater is channeled to the lower parts of the pit throughout the mining operations.

Access roads are constructed from sand and gravel excavated from the pit. The roads are constructed with borrow ditches to collect stormwater runoff. The borrow ditches have check dams to cause stormwater to pond and infiltrate before discharging to the borrow ditches along the access road. Because of the highly permeable nature of the subgrade soils water is very rarely ponded in the borrow ditches. The roadway surface will have water applied for dust control. Industrial activities exposed to stormwater consist of handling construction aggregates and overburden soil at the site. Equipment and vehicle parking will take place at the site. Fuel and lubricating oils will be brought to the site on service vehicles equipped with spill control equipment as needed. Vehicle fueling, and minor maintenance (such as greasing equipment mechanical joints) will be performed on site. Equipment will be transported off site for major maintenance and repairs. Equipment will not be cleaned at the site. Pollutants or pollutant constituents associated with these activities will be contained through active and passive measures. Fuel may be stored at the crusher location in portable containers to support crushing operations (Exhibit C, Figure 2). All fuel tanks will be double walled or installed within secondary containment. Petroleum releases will be treated in conformance with Idaho Release, Reporting and Corrective Action Regulations (IDAPA 58.01.02.851 and .852). Regulations require notification within 24 hours of any spill of petroleum product greater than 25 gallons and notification for the release of lesser amounts if they cannot be cleaned up within 24 hours. The cleanup requirements are also contained in those regulations. Both federal and Idaho regulations require the cleanup of any spill or release of used oil [40 CFR 279.22(d) (3)]; IDAPA 58.01.05.015. A stabilized construction entrance will be constructed within the permit boundary, per State of Idaho specifications, and is maintained to prevent vehicle sediment track out to public right of way. This construction entrance shall serve as the only access point to the site.

The site may use process water to control dust at the site. The dust control water is applied to high traffic areas during summer months with water trucks. The water applied with trucks is applied in light enough volumes to prevent runoff from the site. The pit floor is highly permeable and most precipitation and applied water infiltrates into the ground there is also dust control water that is applied at the crusher and screens to prevent excessive dust at the process equipment. The water allowed to infiltrate into the ground and is not allowed to discharge to the runoff.

Reclamation

All reclamation will be completed in accordance with the Idaho Surface Mining Act and Administrative Rules. As mining progresses, the pit floor will be smoothed and flattened with reclaimed materials and the mine walls will be sloped to a maximum slope of 3H:1V on the North, South, East, and West sides of the mine (Exhibit C, Figure 5).

All fill material will conform to the Idaho Solid Waste Management Rules (IDAPA 58.01.06.005.19) which defines inert water as: "noncombustible, nonhazardous, and non-putrescible solid wastes that are likely to retain their physical and chemical structure and have a de minimis potential to generate leachate under expected conditions of disposal, which includes resistance to biological attack. "Inert water" includes, bit is not limited to, rock, concrete, cured asphaltic concrete, masonry block, brick, gravel, dirt, inert coal combustion by-products, inert precipitated calcium carbonate and inert component mixture of wood or mill yard debris."

All haul roads within the permit boundary will be reclaimed and seeded to match the existing topography (Exhibit C, Figure 5). The current land use is zoned as residential/agricultural. The pit will be reclaimed with a dry pasture seed mix at the time of reclamation. The overburden and any topsoil stockpiled during stripping of the site will be spread to a uniform depth of 6" over the pit floor and slopes. The floor and slopes will be seeded using a Dryland Pasture Mix which includes the following species (or equivalent):

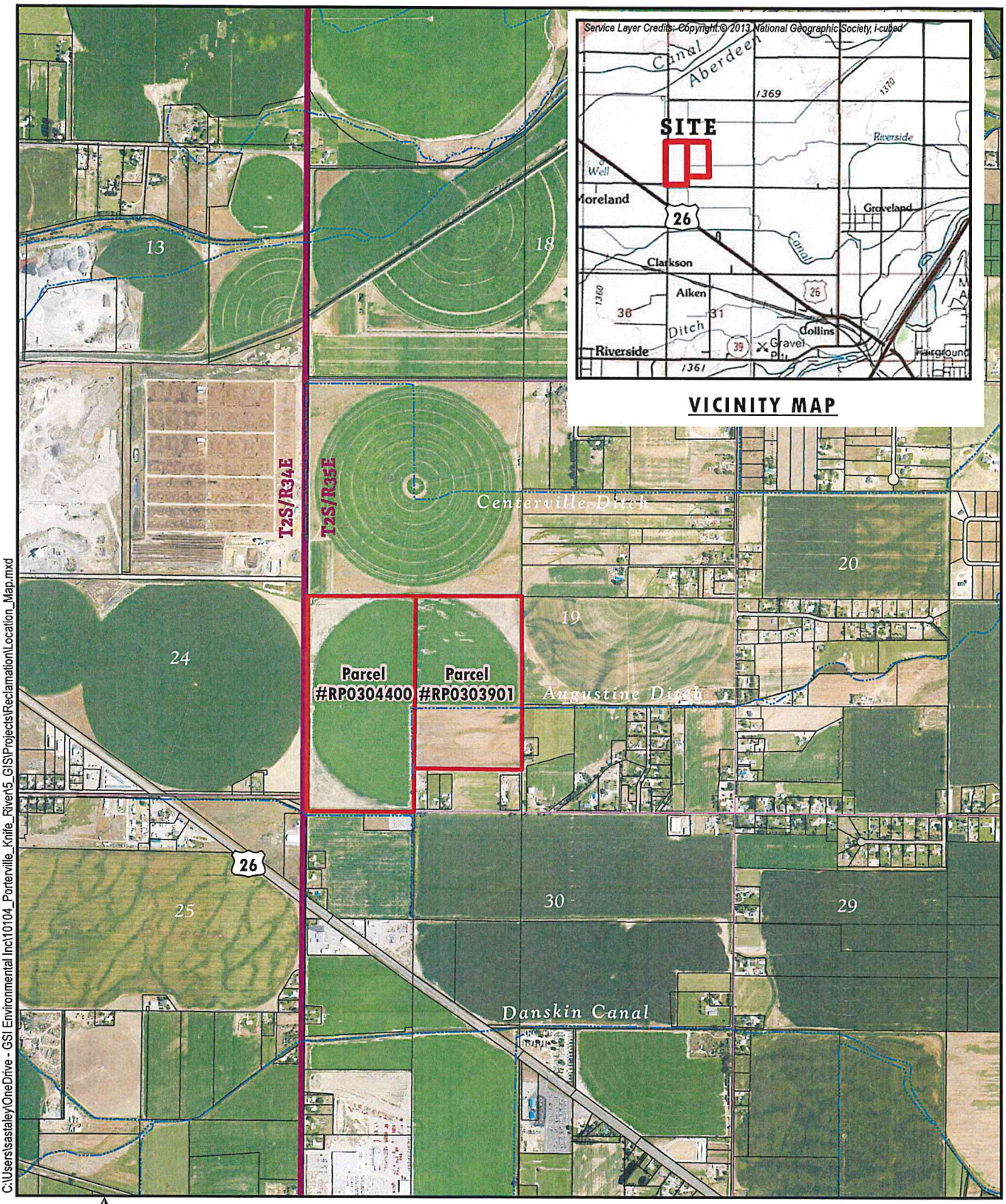
- Intermediate Wheatgrass
- Smooth Bromegrass
- Orchardgrass, Paiute
- Slender Wheatgrass
- Crested Wheatgrass, Hycrest
- Dahurian Wildrye

The site will be drill-seeded at 16 lbs. per acre. Fertilizer will be spread as required to stimulate and support growth. Seeding should take place in spring or fall to accelerate growth of the seed. Alternatively, the site may be seeded and put back into crop production if desired. The site will be monitored and treated for noxious weeds in accordance with Idaho Surface Mining Act and Administrative Rules.

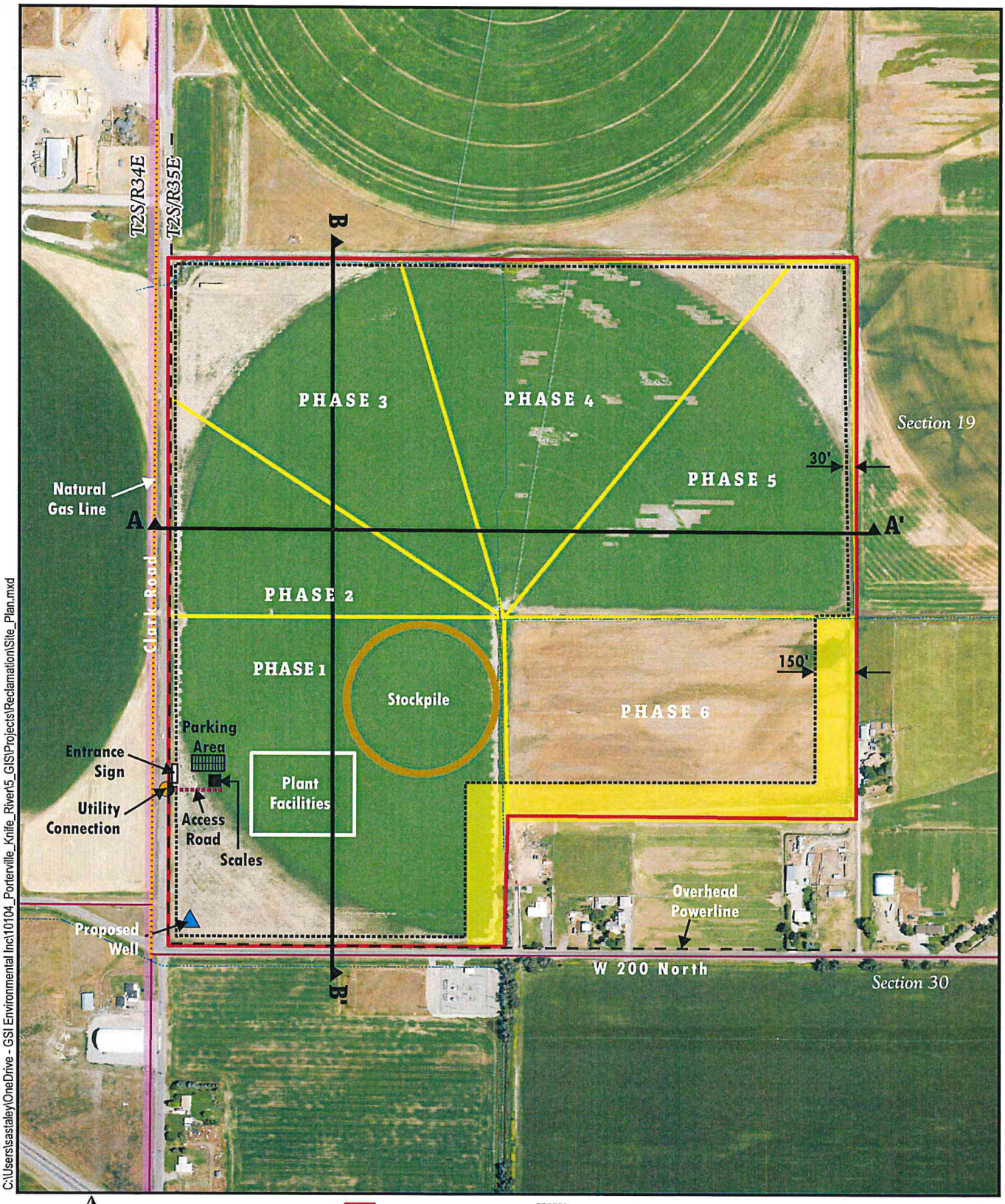
The total cost of reclamation has been estimated at $7,358 per acre and includes all line items described in 13(f) of the Idaho Department of Lands Application for Reclamation Plan Approval. A detailed cost estimate is provided in Exhibit D.

Exhibit C

Map Set



Location Map
Porterville Pit
Bingham County, Idaho
FIGURE 1



C:\Users\sastaley\OneDrive - GSI Environmental Inc\110104_Porterville_Knife_River\5_GIS\Projects\Reclamation\Site_Plan.mxd

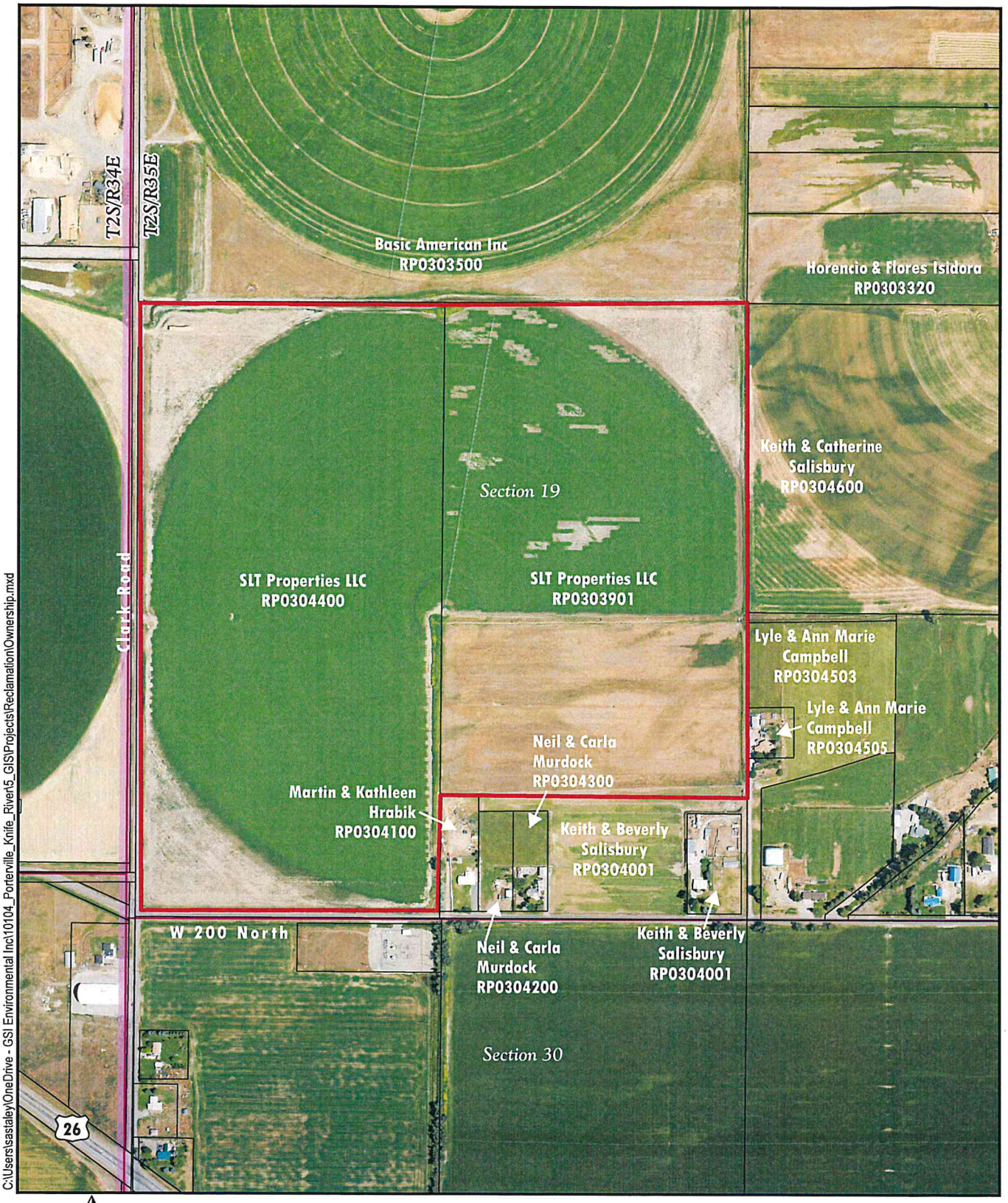
N

0 500
Feet

GSI ENVIRONMENTAL

Project Site
Setback
Mining will be Completed in Phases
Buffer Zone
Canal/Ditch (NHD)
Overhead Powerline
Section Lines
A A' Cross Section Locations

Site Map
Porterville Pit
Bingham County, Idaho
FIGURE 2



N

0 600

Feet

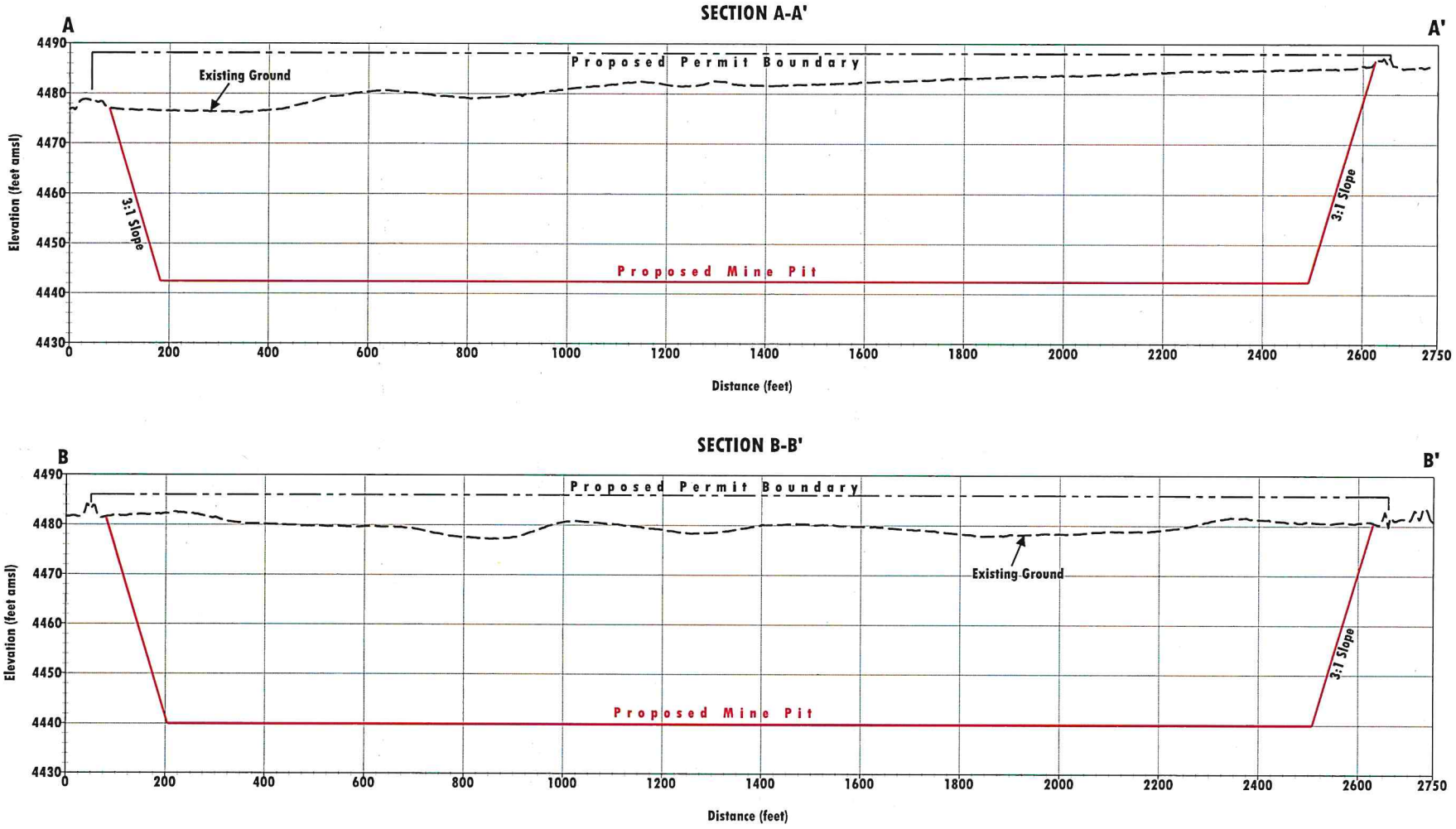
GSI ENVIRONMENTAL

Project Site

Bingham County Cadastral Parcels and Numbers

Section Lines

Ownership and Mineral Control
Porterville Pit
Bingham County, Idaho
FIGURE 3



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Vertical Exaggeration 10X
Horizontal Scale
0 Feet 200

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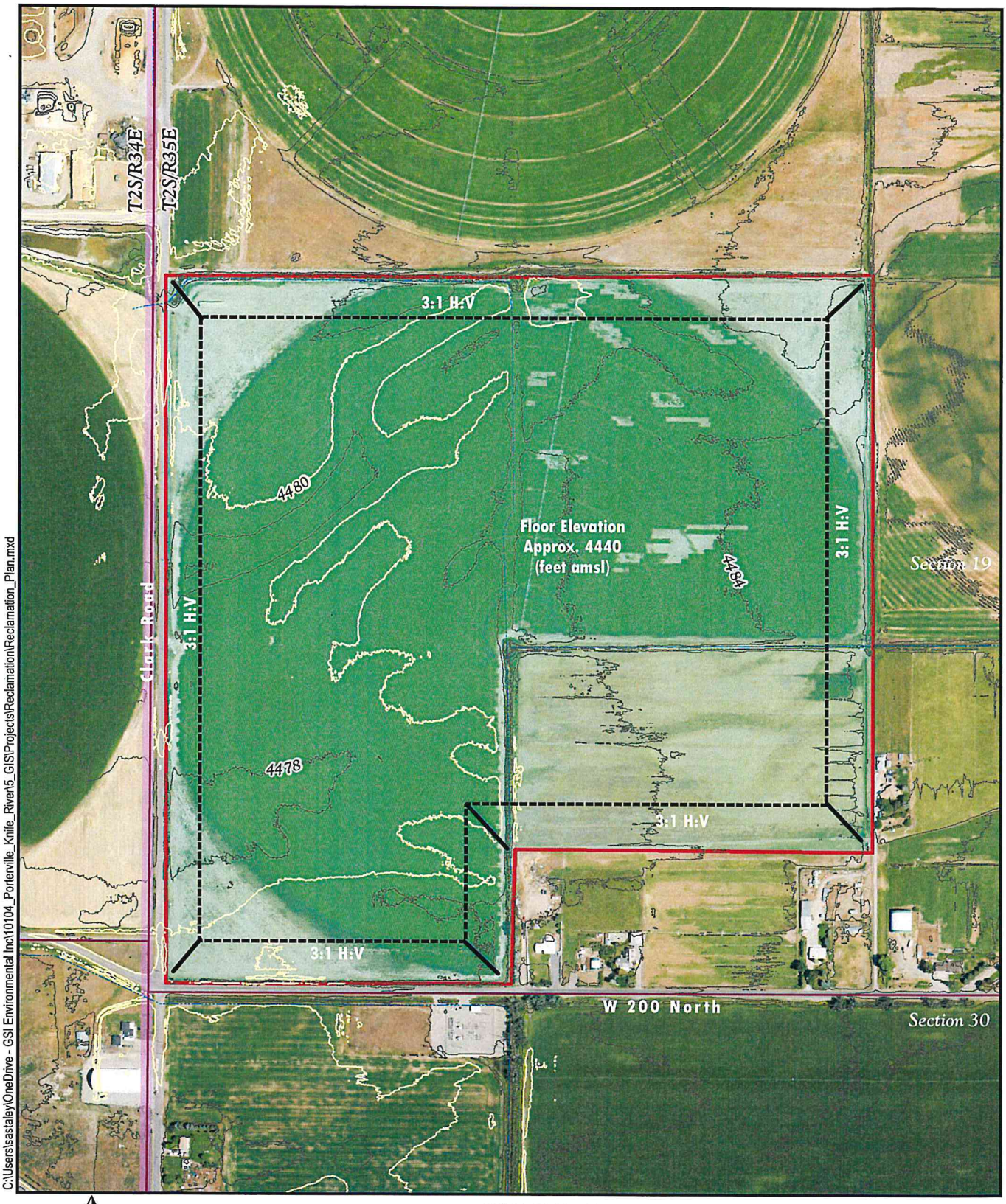
Cross-Sections
Porterville Pit
Bingham County, Idaho
FIGURE 4



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N

0 500
Feet

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Project Site
Reclamation Area
Section Line
Canal/Ditch (NHD)

RECLAMATION

1. Topsoil placed to 6 inches and planted with dryland pastures seed mix (16 lbs/acres)
2. Average overburden and topsoil to be replaced. Post mining land use will be agricultural.

Reclamation Plan
Porterville Pit
Bingham County, Idaho
FIGURE 5

Exhibit D

Detail Reclamation Cost Estimate

GSI ENVIRONMENTAL
Job No. 10104 - Porterville Pit
Bingham County, Idaho

APPLICATION FOR RECLAMATION PLAN APPROVAL

RECLAMATION COST ESTIMATE

Based on Nevada 2023 Standardized Cost Data File

General Notes:

1. The estimated reclamation cost summary below has been developed based on 2023 unit costs used for State of Nevada Standardized Reclamation Cost Estimator (SRCE).
   Format Version: SRCE Data File v1.12
   File Name: SRCE_Cost_Data_File_1_12_Std_2023.xlsm
   Date of File: August 1, 2023 Author/Source: Nevada Division of Environmental Protection & Nevada Bureau of Land Management
   Basis/Region: Northern Nevada
2. The proposed Porterville Pit, located within Bingham County, is comprised of six phases resulting in a total of 140-acres of mining disturbance. As mining progresses, the pit floor will be smoothed and flattened with reclaimed materials (i.e., overburden and topsoil stockpiled onsite). The pit will be reclaimed with a dry pasture seed mix (16 lbs/acre).
3. Assumptions:
   1. No buildings are present and no equipment remains on site at the start of reclamation; therefore, no demolition is required.
   2. All overburden and topsoil material will be stockpiled onsite on the perimeter of active mining operations and there will be no need for imported material.
4. Quantity takeoff and unit cost calculations to support the cost summary below are provided on Page 2 and 3.

RECLAMATION COST SUMMARY

	Line Item		Unit	Unit Cost	Estimated Quantity	Line Item Cost
1	**Topsoil Spreading**					
	1.1	Dozer (Model D6R)	HR	$ 183.56	1,890	$ 346,883
	1.2	Water Truck (8,000 Water Wagon)	HR	$ 154.72	1,890	$ 292,370
	1.3	Minor Grading (Smoothing Pit)	LS	$ 15,000.00	1	$ 15,000
2	**Revegetation**					
	2.1	Seeding Equipment	AC	$ 350.00	140	$ 49,000
	2.2	Seed Mix & Fertilizer	AC	$ 75.08	140	$ 10,511
				DIRECT COSTS	**$**	**713,765**
3	Mobilization / Demobilization			--	$	5,000
4	Engineering, Design, and Construction Plan			8%	$	57,101
5	Construction Management			20%	$	142,753
6	Reclamation Monitoring and Maintenance			2.5%	$	17,844
				SUBTOTAL	**$**	**936,463**
7	Contingency			10%	$	93,646
				TOTAL	**$**	**1,030,109**

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GSI ENVIRONMENTAL
Job No. 10104 - Porterville Pit
Bingham County, Idaho

APPLICATION FOR RECLAMATION PLAN APPROVAL

RECLAMATION COST ESTIMATE

Based on Nevada 2023 Standardized Cost Data File

General Notes:

1. The estimated reclamation cost has been developed based on 2023 unit costs used for State of Nevada Standardized Reclamation Cost Estimator (SRCE).
   Format Version: SRCE Data File v1.12
   File Name: SRCE_Cost_Data_File_1_12_Std_2023.xlsm
   Date of File: August 1, 2023 Author/Source: Nevada Division of Environmental Protection & Nevada Bureau of Land Management
   Basis/Region: Northern Nevada
2. The proposed Porterville Pit, located within Bingham County, is comprised of six phases resulting in a total of 140-acres of mining disturbance. As mining progresses, the pit floor will be smoothed and flattened with reclaimed materials (i.e., overburden and topsoil stockpiled onsite). The pit will be reclaimed with a dry pasture seed mix (16 lbs/acre).
3. Assumptions:
   1. No buildings are present and no equipment remains on site at the start of reclamation; therefore, no demolition is required.
   2. All overburden and topsoil material will be stockpiled onsite on the perimeter of active mining operations and there will be no need for imported material.

Input Value

QUANTITY TAKEOFFS & UNIT COST CALCULATIONS

	Item/Description	Value	Unit	Source / Comment
1	**Project Quantities**			
	Disturbance Area (To Be Topsoiled and Seeded)	140	acre	
	Topsoil Thickness	0.5	ft	
	Topsoil Volume	112,930	CY	
2	**Topsoil Placement**			
	Operating Time			
	Equipment	Dozer (Model D6R)		
	Units Needed	1	unit	*Assumption*
	Average Travel Distance	500	ft	*Assumption*
	Fuel Consumption	5	gal/hr	*Assumption*
	Max Production	80	LCY/hr	*Assumption*
	Efficiency	0.83		*Assumption*
	Material Correction	1.20		*Assumption*
	Operator Efficiency	0.75		*Assumption*
	Production	60	CY/hr	
	Required Operating Time	1890	hrs	

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	Hourly Unit Costs for Equipment - Dozer			
	Monthly Equipment Rate	$ 11,500.00	per mo	[1]
	Monthly Rental Basis	160	hrs	[1]
	Hourly Equipment Rate	$ 71.88	per hr	
	Fuel	$ 19.55	per hr	
	Preventative Maintenance	$ 8.80	per hr	[1]
	G.E.T. Consumption	$ 5.98	per hr	[1]
	Total Hourly Equipment Cost	$ 106.21	per hr	
	Hourly Unit Costs for Operator - Dozer			
	Base Rate	$ 37.51	per hr	[1]
	Fringe Benefits	$ 24.80	per hr	[1]
	Indirect Costs (Social Security, Workman's Comp, Insurance, etc.)	24.15%		[1]
	Total Hourly Operator Cost	$ 77.36	per hr	
	Total Hourly Cost - Dozer	**$ 183.56**	**per hr**	
	Hourly Unit Costs for Equipment - Water Truck			
	Model	8,000 gal Water Wagon		
	Monthly Equipment Rate	$ 12,375.00	per mo	[1]
	Monthly Rental Basis	160	hrs	[1]
	Hourly Equipment Rate	$ 77.34	per hr	
	Fuel	$ 19.55	per hr	
	Preventative Maintenance	$ 8.35	per hr	[1]
	G.E.T. Consumption	$ 5.20	per hr	[1]
	Total Hourly Equipment Cost	$ 110.44	per hr	
	Hourly Unit Costs for Operator - Water Truck			
	Base Rate	$ 31.50	per hr	[1]
	Fringe Benefits	$ 4.16	per hr	[1]
	Indirect Costs (Social Security, Workman's Comp, Insurance, etc.)	24.15%		[1]
	Total Hourly Operator Cost	$ 44.27	per hr	
	Total Hourly Cost - Water Truck	***$ 154.72***	***per hr***	
3	**Revegetation**			
	Unit Cost per Acre for Seeding Equipment			
	Equipment	Drill Seeding		
	Labor Cost	$ 175.00	per acre	[1]
	Equipment Cost	$ 175.00	per acre	[1]
	Total Seeding Cost per Acre	$ 350.00	per acre	
	Unit Cost per Acre for Seed & Fertilizer			
	Dry Pasture Seed Mix - Material	16	lbs/acre	
	Fertilizer - Material	1	lbs/acre	
	Dry Pasture Seed Mix Cost	$ 3.90	per lb	[2]
	Fertilizer Cost	$ 12.68	per lb	[3]
	Total Seed + Fertilizer Cost	$ 75.08	per acre	
	Total Cost for Seeding / Fertilizer per Acre	***$ 425.08***	***per acre***	

[1] Nevada Standardized Reclamation Cost Estimator Version 1.4.1 (SRCE). 2023 Nevada Unit Costs. *https://ndep.nv.gov/uploads/land-mining-recl-rce-docs/SRCE_Cost_Data_File_1_12_Std_2023.xlsm*

[2] Great Basin Seed Dryland Pasture Seed Mix. Cost retrieved July 12, 2024 from *https://greatbasinseeds.com/product/dryland-pasture-seed-mix/.*

[3] Zamzows Fertilizer 2018 quote with applied average inflation rate of 26.8% for January, 2018 to June, 2024 (U.S. Bureau of Labor Statistics - CPI Inflation Calculator).

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Exhibit E

GSI: Groundwater Memo

GSI ENVIRONMENTAL

MEMORANDUM

TO: Gary Billman, Idaho Department of Lands

CC: Nick Neilsen, Idaho Department of Environmental Quality

FROM: David Rugh, L.G., L.H.G.

RE: Groundwater Conditions, SLT Pit, Blackfoot Idaho

This memorandum documents the groundwater conditions in the vicinity of the proposed SLT Pit located near Blackfoot, Idaho. Idaho Department of Lands (IDL) and Idaho Department of Environmental Quality (IDEQ) provided specific comments on the SLT Pit Reclamation Plan Application on August 30, 2024 (IDEQ, 2024) including the following specific comments:

- Mining to a depth of 40 feet (ft) has the possibility to intercept groundwater. Nearby domestic supply wells document static water levels at 16, 26, and 33 ft below ground surface (bgs).

- Revise to incorporate well driller report information from groundwater wells nearest to the site. Please indicate there are more than 50 domestic supply wells completed within a 1-mile radius of the project site. Include the number of wells completed less than 70 ft bgs. Discuss static groundwater depths as well as completion depths for domestic supply. Also discuss groundwater flow gradients at the site and how they were derived.

The following sections present groundwater information as requested by IDL and IDEQ.

Local Groundwater Conditions Beneath the SLT Pit

Groundwater conditions immediately beneath the SLT Pit have been previously characterized and are currently monitored by Basic American Foods, Inc. (BAF) as part of water reuse permit I-039-04 (IDEQ, 2022) that allows application of treated potato processing recycled water to agricultural fields in the vicinity of the SLT Pit. Specifically, BAF has installed three monitoring wells adjacent to the SLT Pit that are utilized as upgradient background wells adjacent to BAF Field Number 6 (Serial Number MU-039-07, 115 acres) located immediately North of the proposed SLT Pit. The BAF monitoring wells were specifically installed to monitor water levels and water quality in the unconfined water table aquifer located above the regional water supply aquifer.

Table 1 presents as built specifications of the BAF monitoring wells (BAF, 2022 and 2023) located adjacent to the proposed SLT Pit and water levels measured by BAF during required annual monitoring conducted in 2021 and 2022. **Figure 1** shows locations of the BAF monitoring wells adjacent to the SLT Pit. Recent (2021 and 2022) groundwater monitoring from the BAF wells surrounding the proposed SLT Pit suggests that the maximum observed groundwater elevation in the BAF monitoring wells is less than 4,419 ft above mean sea level (amsl). The proposed 40 ft depth of the SLT Pit would result in a Pit floor with an elevation of 4,440 ft amsl; therefore, a minimum separation of 21 ft would be present between the final Pit floor elevation and

groundwater. The groundwater flow direction beneath the SLT Pit was to the southwest in April 2022 (**Figure 1**). Groundwater quality or quantity beneath the proposed SLT Pit is not expected to be impacted considering the significant (>20 ft) vertical separation between the Pit floor and water table.

Table 1 – Water Table Monitoring Well Summary

Well ID	Casing Elevation (ft amsl)	Total Depth (ft)	April 2021 Depth to Water (ft btoc)	April 2022 Depth to Water (ft btoc)	April 2021 Groundwater Elevation (ft amsl)	April 2022 Groundwater Elevation (ft amsl)
GW-039-11 [MW-1]	4477.51	72.0	58.95	60.25	4418.56	4417.26
GW-039-13 [MW-3]	4483.15	67.5	67.50	65.30	4415.65	4417.85
GW-039-15 [MW-5]	4479.21	71.0	59.65	60.95	4419.56	4418.26

Notes: ft amsl – feet above mean sea level
ft btoc– feet below top of casing

Regional Well Log Information

Drillers well logs submitted to the Idaho Department of Water Resources (IDWR) database were queried within a 1-mile radius of the proposed SLT Pit (**Figure 2**). The IDWR well log database has several inherent limitations including coarse location information (wells are generally mapped to the nearest 40 acre quarter-quarter section) and incomplete key data fields such as static water level, casing depth, and total well depth. Additionally, IDWR well logs within 1 mile of the proposed SLT Pit cover a period of time from 1957 to 2024; groundwater occurrence and static water levels from older well logs may not be representative of present day conditions. The following list provides a summary of key well log attributes within 1 mile of the proposed SLT Pit:

- A total of 227 well are mapped in the IDWR Database;
- A total of 83 wells have a casing depth of less than 70 ft, however, 29 of the 83 wells have a total depth exceeding 80 ft, and 54 wells have no total depth listed in the IDWR database;
- A total of 11 wells have a casing depth of less than 70 ft and a static water level of less than 40 ft, however, 2 of these wells have depths exceeding 100 ft and 9 wells have no total depth listed in the IDWR database; and
- A total of 7 wells have a static water level of less than 40 ft and casing depths exceeding 70 ft. However, three of these wells have casing depths exceeding 100 ft and 4 wells have no total depth listed in the IDWR database.

The regional hydrogeologic conditions of the area surrounding the proposed SLT Pit is summarized in *Hydrogeology and Water Quality of Areas with Persistent Ground-Water Contamination Near Blackfoot, Bingham County, Idaho* (USGS, 1987). The major water supply aquifer beneath the proposed SLT Pit is Snake River Plains basalt, overlain by quaternary aged

unconsolidated sedimentary deposits. The Snake River Plains basalt aquifer may behave as either confined or unconfined (USGS, 1987).

Three IDWR wells mapped within or adjacent to the proposed SLT Pit suggest that the basalt aquifer behaves as a confined aquifer, with groundwater levels in the basalt rising above the top of the basalt following well completion. **Table 2** summarizes IDWR Well logs 322978, 340071, and 396375 (**Figure 2** and **Attachment A**). Confined conditions in the basalt indicate that the static water levels of wells completed in the basalt do not represent the static water level of the unconsolidated sediments above the basalt.

Table 2 – IDWR Well Log Summary

IDWR Well ID	Completion Date	Depth to Basalt (ft bgs)	Water Bearing Zone (ft bgs)	Total Well Depth (ft bgs)	Static Water Level (ft bgs)
322978	2/23/1995	26	107 - 120	120	61
340071	2/27/2001	8	105 - 110	110	70
396375	8/9/1973	39	98 - 104	104	48

Notes: ft bgs – feet below ground surface

Conclusions

The proposed 40 ft depth of the SLT Pit would result in a Pit floor with an elevation of 4,440 ft amsl. Water table monitoring wells constructed by BAF in support of a water reuse permit confirm that shallow groundwater beneath the proposed SLT Pit occurs at an elevation less than 4,419 ft AMSL, 21 feet below the proposed Pit floor. IDWR domestic well logs confirm that the regional basalt water supply aquifer beneath the unconsolidated sediments behaves as a confined aquifer. Groundwater quality or quantity beneath the proposed SLT Pit is not expected to be impacted considering the significant vertical separation between the Pit floor and the water table.

GSI ENVIRONMENTAL

References

Basic American Foods (BAF), 2022. 2021 Annual Report. Permit No. I-039-03. January 28.

BAF, 2023. 2022 Annual Report. Permit No. I-039-03. January 27.

Idaho Department of Environmental Quality (IDEQ), 2022. Reuse Permit 1-039-04. Basic American Foods, Inc. Blackfoot Facility.

IDEQ, 2024. DEQ Comments on SLT Pit Mine and Reclamation Plan Application. August 28.

United States Geological Survey (USGS), 1987. Hydrogeology and Water Quality of Areas with Persistent Ground-Water Contamination Near Blackfoot, Bingham County, Idaho. Water-Resources Investigations Report 87-4150.

Attachments

Figure 1 Site Map and BAF Monitoring Wells
Figure 2 IDWR Well Locations

Attachment A IDWR Well Logs

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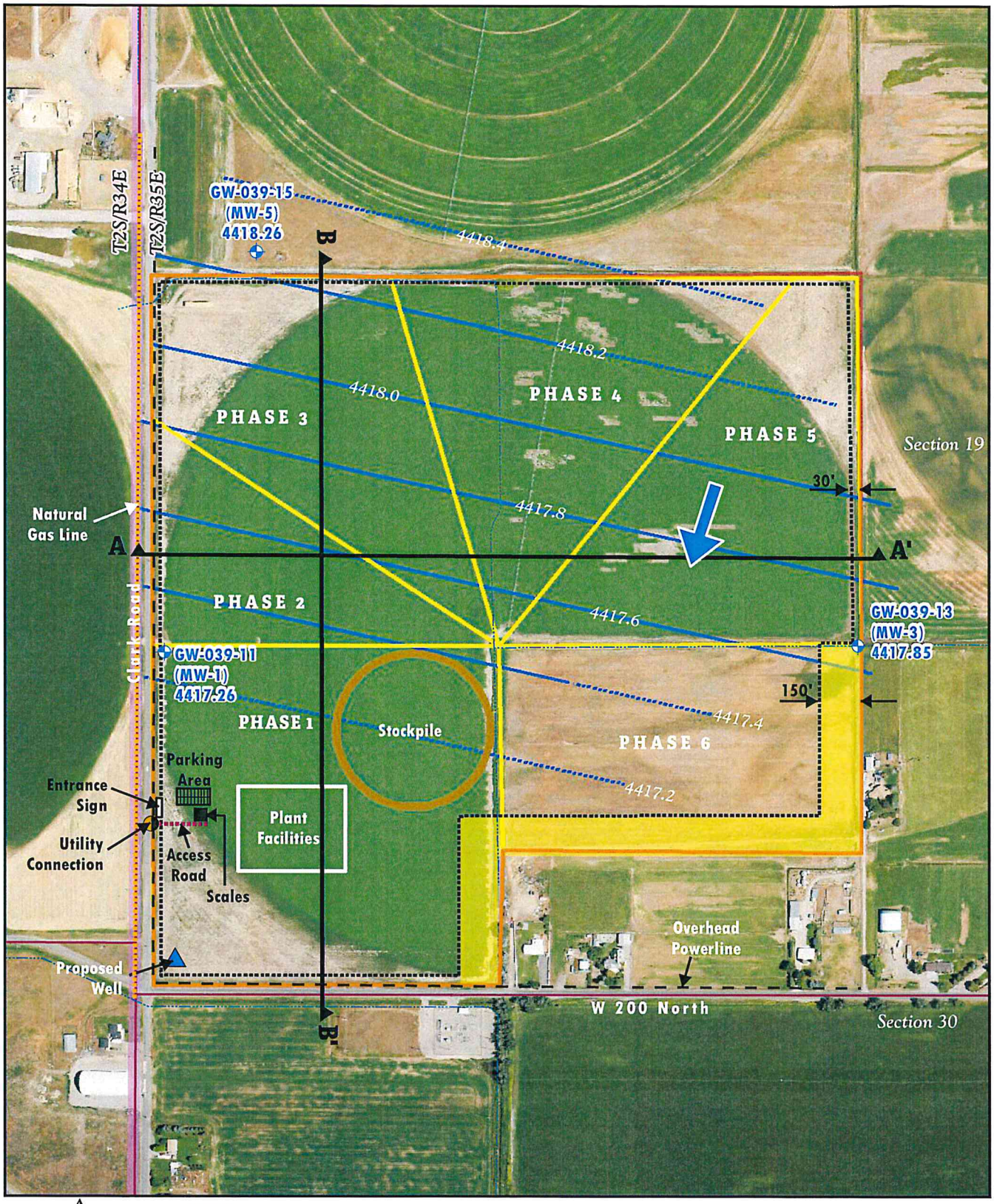
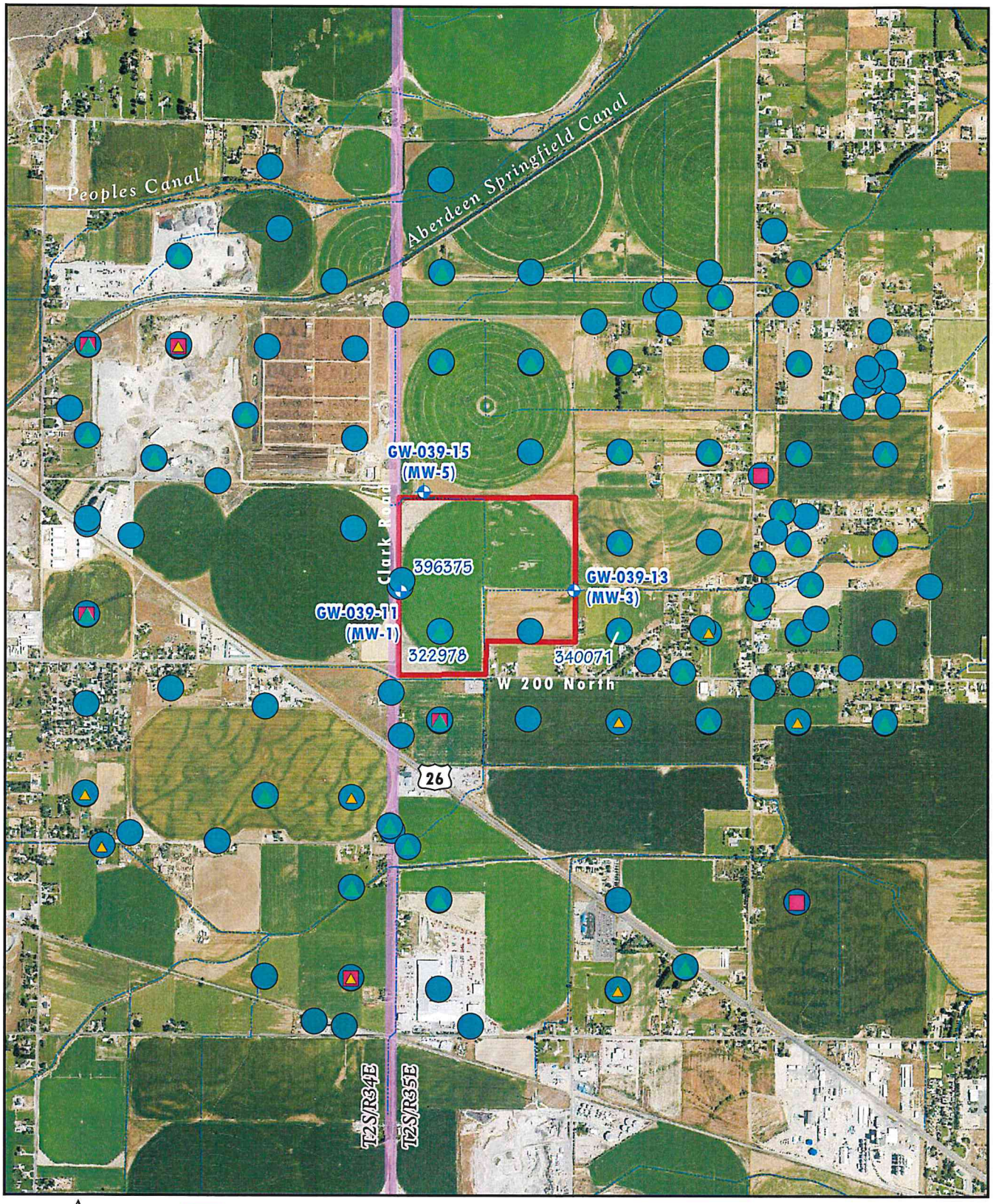
FIGURES



Site Map and BAF Monitoring Wells
SLT Pit
Bingham County, Idaho
FIGURE 1



N

0 2,000
Feet

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- Project Site
- Canal/Ditch (NHD)
- BAF Monitoring Well
- IDWR Wells Within 1 Mile of Project Boundary
- Casing Depth <= 70 feet and Water Level <= 40 feet
- Water Level <= 40 feet and Casing Depth >70 Feet
- Casing Depth <=70 Feet and Water Level >40 Feet

IDWR Well Locations
SLT Pit
Bingham County, Idaho
FIGURE 2

GSI ENVIRONMENTAL

ATTACHMENT A

IDWR WELL LOGS

Form 238-7
7/94

DMD C

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Use Typewriter or Ball Point Pen

49751

1. DRILLING PERMIT NO. 27-95-E-004 000
Other IDWR No.

2. OWNER:
Name LEONARD RAY CARLSON
Address 7 N 600 W
City BLACKFOOT State ID Zip 83221

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp. 2 North ☐ or South ☒
Rge. 35 East ☒ or West ☐
Sec. 19, SW 1/4 (10 acres) SW 1/4 (40 acres) 1/4 (160 acres)
Gov't Lot ____ County Bingham

Address of Well Site 703 N 600 W
City BLACKFOOT
(Give at least name of road + Distance to Road or Landmark)

Lt. ____ Blk. ____ Sub. Name ____

4. PROPOSED USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____

5. TYPE OF WORK
☒ New Well ☐ Modify or Repair ☐ Replacement ☐ Abandonment

6. DRILL METHOD
☐ Mud Rotary ☒ Air Rotary ☐ Cable ☐ Other ____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
BENTONITE	0	30	5	DOWN ANNULAR SPACE

Was drive shoe used? ☐ Y ☐ N Shoe Depth(s) ____
Was drive shoe seal tested? Y☐ N☐ How? ____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+1	31'	250	STEEL	☒	☐	☒	☐
4"		110'		PVC	☐	☒	☐	☒
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____

9. PERFORATIONS/SCREENS
☒ Perforations Method KNIFE
☐ Screens Screen Type ____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
-10	110	5/16"	120	4"	PVC	☐	☒
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
61 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: ____

11. WELL TESTS:
☐ Pump ☒ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
40+			

Water Temp. COLD Bottom hole temp. ____
Water Quality test or comments: ____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
6"	0	5	TOPSOIL		
	5	23	SAND & GRAVEL		
	23	26	BROWN CLAY		
	26	54	HARD GRAY BASALT		
	54	62	BROKEN BROWN BASALT	X	
	62	78	HARD BROWN BASALT		
	78	107	HARD GRAY BASALT		
	107	120	RED & BLACK CINDERS	X	

RECEIVED
APR 05 1995
Department of Water Resources
Eastern District Office

AUG 15 1995
Department of Water Resources

Completed Depth 120 Ft. (Measurable)
Date: Started 2-23-95 Completed 2-24-95

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name INDEPENDENT DRILLING Firm No. 343
Firm Official Brent Henderson Date 2-27-95
and
Supervisor or Operator Kelly Clovis Date ____
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
11/97 JGE

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Inspected by
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0014747
DRILLING PERMIT NO. D0014747
Other IDWR No. 7680.74

2. OWNER:
Name JACOB WERTH
Address 448 W. 300 N.
City BLACKFOOT State ID Zip 83221

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp. 2 North ☐ or South ☒
Rge. 35 East ☒ or West ☐
Sec. 17 ____ 1/4 SW 1/4 SE 1/4
(10 acres / 40 acres / 160 acres)
Gov't Lot ____ County BINGHAM
Lat: Long:
Address of Well Site SAME
(Give at least name of road + Distance to Road or Landmark) City BLACKFOOT
Lt. ____ Blk. ____ Sub. Name ____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____

5. TYPE OF WORK: check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other ____

6. DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ____

7. SEALING PROCEDURES:

Seal/Filter Pack Material	From	To	AMOUNT Sacks or Pounds	METHOD
BENTONITE	0	20	6-SACKS	OVERBORE

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 78
Was drive shoe seal tested? ☐ Y ☒ N How? ____

8. CASING/LINER:

Diameter	From	To	Guage	Material	Casing	Liner	Welded	Threaded
6	+1	78	.250	STEEL	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____

9. PERFORATIONS/SCREENS:
☐ Perforations Method ____
☐ Screens Screen Type ____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
70 ft. below ground Artesian pressure ____ lb.
Depth flow encountered 38-55 ft. Describe access port or control devices: WELL CAP

11. WELL TESTS:
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
30	1	100	1-HOUR

Water Temp. 48 Bottom hole temp. 48
Water Quality test or comments: NOT TESTED
Depth first Water Encounter 105-110

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8	0	4	DRY CLAY		
	4	8	SAND & GRAVEL		
	8	20	GRAY BASALT		
6	20	35	GRAY BASALT		
	35	38	CINDERS		
	38	55	GRAY BASALT		
	55	60	CINDERS & SAND		
	60	65	BROWN CLAY		
	65	70	RED CINDERS	X	
	70		BROKEN RED BASALT &		
		78	CREVISES		
	78	105	GRAY BASALT		
	105	110	CINDERS	X	

RECEIVED
JUN 14 2001
Department of Water Resources

RECEIVED
JUN 05 2001
Department of Water Resources
Eastern Region

Completed Depth 110 (Measurable)
Date: Started 2/27/2001 Completed 2/27/2001

13. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name JACK CUSHMAN DRILLING, INC. Firm No. 94
Firm Official Bob Cushman Date 2/27/2001
and
Driller or Operator Mark Stiple Date 2/27/2001
(Sign once if Firm Official & Operator)

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Administration

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Administration within 30 days after the completion or abandonment of the well.

1. WELL OWNER 17040206.
Name HARDING LIVESTOCK
Address Rt. # 5 - Blackfoot
Owner's Permit No. _____

2. NATURE OF WORK
☑ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe method of abandoning)

3. PROPOSED USE
☑ Domestic ☐ Irrigation ☐ Test
☐ Municipal ☐ Industrial ☐ Stock

4. METHOD DRILLED
☐ Cable ☑ Rotary ☐ Dug ☐ Other

5. WELL CONSTRUCTION
Diameter of hole 6 inches Total depth 104' feet
Casing schedule: ☑ Steel ☐ Concrete

Thickness	Diameter	From	To
.250 inches	6 inches	+ 18' feet	39' feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was a packer or seal used? ☐ Yes ☑ No
Perforated? ☐ Yes ☑ No
How perforated? ☐ Factory ☐ Knife ☐ Torch
Size of perforation _____ inches by _____ inches

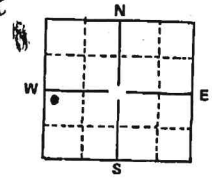
Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☑ No
Manufacturer's name _____
Type _____ Model No. _____
Diameter ___ Slot size ___ Set from _____ feet to _____ feet
Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Gravel packed? ☐ Yes ☑ No Size of gravel _____
Placed from _____ feet to _____ feet

Surface seal? ☑ Yes ☐ No To what depth 18 feet
Material used in seal ☐ Cement grout ☑ Puddling clay

6. LOCATION OF WELL
Sketch map location must agree with written location.



County _____
NW ¼ SW ¼ Sec. 19, T. 2 N/S, R. 35 E/W

7. WATER LEVEL
Static water level 48' feet below land surface
Flowing? ☐ Yes ☑ No G.P.M. flow _____
Temperature 52° F. Quality GOOD
Artesian closed-in pressure _____ p.s.i.
Controlled by ☐ Valve ☑ Cap ☐ Plug

8. WELL TEST DATA
☐ Pump ☐ Bailer ☑ Other

Discharge G.P.M.	Draw Down	Hours Pumped
70	6	2

74288

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
6"					
	0	3'	Top Soil		X
	3'	25'	Gravel		X
	25'	39'	Gravel & Sand		X
	39'	98'	Lava Rock	X	
	98'	104'	Red Cinders	X	

RECEIVED
SEP 28 1973
Department of Water Administration
Eastern District Office

10. Work started 8-9-73 finished 8-9-73

11. DRILLER'S CERTIFICATION (2097)
This well was drilled under my supervision and this report is true to the best of my knowledge.

Jack Cushman Well Drilling
Driller's or Firm's Name
1405 S. Broadway Blackfoot, Ida.
Address Number
Signed By Jack Cushman 8/9/73
Date

USE ADDITIONAL SHEETS IF NECESSARY

FORWARD THE WHITE, BLUE, AND PINK COPIES TO THE DEPARTMENT

RECORDED AT THE REQUEST OF:

_____

AFTER RECORDING RETURN TO:

_____

_____

_____

Instrument # 758947
BINGHAM COUNTY, IDAHO
2023-12-08 03:31:20 PM No. of Pages: 8
Recorded for: FLYING S TITLE AND ESCROW - BL
PAMELA W. ECKHARDT Fee: $15.00
Ex-Officio Recorder Deputy JPulley
Index To: WARRANTY DEED
Electronically Recorded by Simplifile

GRANT DEED

FOR VALUE RECEIVED, **Basic American, Inc., a Delaware corporation**, Grantor, does hereby convey to **SLT Properties LLC, an Idaho limited liability company**, Grantee, whose complete mailing address is PO Box H, Shelley, Idaho 83274, the following described property situated in Bingham County, Idaho:

SEE EXHIBIT "A" ATTACHED HERETO AND INCORPORATED HEREIN BY REFERENCE.

TOGETHER WITH all and singular the tenements, hereditaments, and appurtenances thereunto belonging, or otherwise appertaining, including any appurtenant water rights, and all estate, right, title and interest in and to the said property and all of Grantor's right, title and interest in and to all streets, alleys and rights-of-way adjacent thereto.

TO HAVE AND TO HOLD said property unto Grantee, its successors and assigns forever.

SUBJECT TO: the matters set forth on EXHIBIT "B" attached hereto and incorporated herein and all other matters of record or that would be revealed by an accurate survey and inspection of the land.

{signature page follows}

Exhibit
A-4

RECORDED AT THE REQUEST OF:

_____

AFTER RECORDING RETURN TO:

_____

_____

_____

Instrument # 758947
BINGHAM COUNTY, IDAHO
2023-12-08 03:31:20 PM No. of Pages: 8
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TO HAVE AND TO HOLD said property unto Grantee, its successors and assigns forever.

SUBJECT TO: the matters set forth on EXHIBIT "B" attached hereto and incorporated herein and all other matters of record or that would be revealed by an accurate survey and inspection of the land.

{signature page follows}

IN WITNESS WHEREOF, Grantor has executed this Grant Deed this 7th day of December, 2023.

GRANTOR:

BASIC AMERICAN, INC.
a Delaware corporation

By: _____
Printed Name: James D Collins
Title: VP & CFO

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA)
) ss.
COUNTY OF _____)

On _____, 2023 before me, _____, Notary Public, personally appeared _____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature: _____ (seal)

121053344.1 0060174-00024

ACKNOWLEDGEMENT/CORPORATE

STATE OF Idaho)
ss.
COUNTY OF Bonneville)

On this **December 7th, 2023**, before me, a Notary Public in and for said State, personally appeared James D Collins., known or identified to me, to be the V.P. & CFO of the Corporation that executed the instrument or the person who executed the instrument on behalf of said Corporation, and acknowledged to me that such Corporation executed the same.

KAREN BECKSTEAD
COMMISSION NO. 17206
NOTARY PUBLIC
STATE OF IDAHO
MY COMMISSION EXPIRES 07/20/27

Notary Public of Idaho
Residing at: Idaho Falls
Commission Expires: 07-20-27

EXHIBIT A

Description of the Property

Property Located near the City of Firth, Idaho

Parcel N:

Part of the S½SE¼ of Section 14, Township 1 South, Range 36 E.B.M., Bingham County, Idaho, as describes as: Beginning at a point that is N. 89°41'10" W. 486.93 feet along the section line to the E. bank of the Great Western Canal from the SE corner of said Section 14; and running thence N. 89°41'10" W. 2157.37 feet along the section line of the S¼ corner of said Section 14, thence N. 00°01'51" W. 1330.74 feet along the North-South center section line to the NW corner of said S½SW¼; thence S. 89°53'51" E. 2462.18 feet along the N. line of said S½SE¼ to the westerly right-of- way of a County road; thence along said Western County right-of-way the following three (3) courses (1) S. 13°07'04"W. 539.86 feet; (2) thence S. 01°33'33"W. 87.74 feet; (3) thence S. 16°35'53" E. 43.97 feet to the N. corner of the Deed instrument No. Book 43, Page 435; thence along said deed and easterly bank of said Great Western Canal following three (3) courses (1) S. 27°43'36"W. 106.44 feet; (2) thence S. 13°33'20"W. 506.99 feet; (3) thence S. 13°46'57" W. 98.28 feet to the point of beginning.

Property Located near the City of Shelley, Idaho

Parcel K:

That portion of the S½SW¼ lying easterly of the East Branch of the Snake River Valley Irrigation Canal and westerly of Sand Creek, all in Section 2, Township 1 South, Range 37 E.B.M., Bingham County, Idaho; EXCEPTING THEREFROM the S. 25 feet for road right-of-way.

ALSO, Township 1 South, Range 37 E.B.M., Bingham County, Idaho.

Section 2: Lot 3, NE¼SW¼, SE ¼NW¼; EXCEPTING THEREFROM: Beginning at a point that is E. 1546.48 feet along the section line, from the NW corner of said Section 2, thence E. 136.31 feet along said Section line; thence S. 0°18'57" W. 356.24 feet; thence S. 88°35'45" W, 97.59 feet; thence N. 12°33'10" W. 164.16 feet; thence N. 0°17'31" W. 197.95 Feet to the point of beginning.

Parcel L:

Township 1 South, Range 37 E.B.M., Bingham County, Idaho

Section 3: N½SW¼, S ½NW¼, Lots 3 and 4; EXCEPTING from said Lots 3 and 4: Beginning at a point that is E. 1,249.8 feet along the Section line from the NW corner of said Section 3; and running thence E. along the Section line 395 feet to the center line of the Union Pacific Railroad spur track; thence following said center line of spur track southwesterly along a 10° curve to the right 456.3 feet; thence N. 0°42' W. 209.2 feet to the point of beginning, less the strip of land 10 feet wide lying northerly and parallel to said spur track measured at right angles from the center line of said spur track, also less 33 feet across the north side of the

above-described property contained in present road right-of-way; ALSO EXCEPTING THEREFROM: Beginning at the NW corner of said Section 3; thence E. along the Section line 1249.80 feet; thence S. 0°42; E. 387.42 feet' thence S. 89°08'23" W. 1054.64 feet; thence N. 0°00'42" W. 46.91 feet; thence S. 89°44' W. 200.10 feet; thence N. 0°00'52" E. 357.24 feet to the point of beginning.

Parcel M:

Township 1 South, Range 37 E.B.M., Bingham County, Idaho

Section 11: N½NW¼; SW¼ NW¼; NW¼SW¼; and that portion of the SE¼NW¼ and NE¼SW¼ lying West of Sand Creek; EXCEPTING THEREFROM: County road right-of-way along the N. 25 feet of the N½NW , and County Road along the West Section line of said Section 11.

Property Located in South Blackfoot, Idaho

Part of the SW1/4 of Section 19, Township 2 South, Range 35 E., B.M. Bingham County, Idaho described as:

Commencing at the SW corner of Section 19, Thence N 00° 13' 38" E 2645.66 feet to the W1/4 corner of said Section 19; Thence along the east-west center Section line of said Section S 89° 52'44" E 2630.50 feet to the C1/4 corner of said Section; Thence along the north-south center section line of said Section S 00° 12' 20" W 2122.51 feet to a point being 525 feet northerly of the south line of said Section; Thence parallel to and 525 northerly of the south line of said Section N 89° 50' 18" W 1317.91 feet; Thence S 00° 09' 24" W 500.00 feet; Thence S 89° 50' 18" E 7.64 feet; Thence S 00° 07' 54" W 25.00 feet to the south line of said Section; Thence along said south line N 89° 50' 18" W 1321.64 feet to the Point of Beginning.

Property Located in North Blackfoot, Idaho

Part of Government Lot 3 of Section 13, Township 2 S., Range 34 E., B.M. and Part of Section 18 Township 2 S., Range 35 E., B.M. Bingham County, Idaho described as:

Commencing at the SE Corner of Section 13, Thence along the east line of said Section 13, N 00° 13' 31" E 626.31 feet to the Point of Beginning Thence continuing along said east line N 00° 13' 31" E 1034.55 feet to the intersection of said east line and centerline of the Peoples Canal; Thence, along said centerline of the Peoples Canal the following ten (10) courses; (1) Thence, S 68° 13' 45" W 30.39 feet; (2) Thence, S 75° 01' 52" W 119.19 feet; (3) Thence, S 81° 44' 09" W 214.65 feet; (4) Thence, S 86° 00' 06" W 190.55 feet; (5) Thence, S 88° 16' 11" W 29.34 feet; (6) Thence, S 76° 12' 00" W 72.34 feet; (7) Thence, S 85° 05' 09" W 140.87 feet; (8) Thence, S 88° 27' 22" W 141.06 feet; (9) Thence, N 88° 28' 31" W 165.28 feet; (10) Thence, N 83° 07' 34" W 128.60 feet to the west line of said Govt. Lot 3 of Section 13; Thence along said west line, N 00°11' 32" E 397.28 feet to the south line of deed Inst# 655568; Thence along said deed the following two (2) courses, (1) N 86° 58' 55" E 223.66 feet; (2) Thence, N 15° 20' 04" E 672.65

feet to the south right of way of a county road; Thence, along said right of way N 88° 07' 38" W 399.19 feet to the west line of said Govt. Lot 3; Thence along said east line, N 00° 11' 32" E 33.17 feet to the east-west center section line of said Section 13; Thence along the center of said Section, S 88° 50' 45" E 1220.10 feet to the E1/4 of said Section; Thence along the east line of said Section, S 00° 13' 23" W 184.03 feet to the W1/4 corner of said Section 18; Thence along the east-west center section line of said Section 18, N 89° 53' 39" E 2030.39 feet to the intersection of said centerline and the south line of the peoples canal;

Thence along said canal centerline the following ten (10) courses, (1) N 54° 19' 48" E 17.31 feet; (2) Thence, N 56° 42' 18" E 707.98 feet to a non-tangent curve, (3) Thence northeasterly, 58.64 feet, along said curve to the left (Curve Data= Delta: 09° 10' 16", Radius: 366.34 feet, chord bearing N 42° 27' 02" E 58.58 feet) to a point of intersection with a non-tangent line. (4) Thence, N 46° 07' 27" E 679.05 feet; (5) Thence, N 40° 29' 34" E 351.14 feet; (6) Thence, N 31° 35' 24" E 342.03 feet; (7) Thence, N 34° 08' 36" E 150.94 feet; (8) Thence, N 42° 19' 55" E 152.73 feet; (9) Thence, N 45° 44' 06" E 163.19 feet; (10) Thence, N 47° 41' 18" E 122.40' feet to the intersection of said centerline and the west line of the NE1/4NE1/4 of said Section 18; Thence along said west line, N 00° 20' 46" E 746.46 feet to the north line of said Section 18; Thence along said north line, N 89° 57' 12" E 1320.83 feet to the NE corner of said Section 18; Thence along the east section line of said Section 18, S 00° 26' 51" W 997.59 feet to the intersection of the centerline of the Aberdeen-Springfield Canal; Thence along said centerline the following eight (8) courses, (1) S 56° 50' 31" W 926.49 feet; (2) Thence, S 56° 29' 47" W 1146.85 feet; (3) Thence, S 56° 41' 04" W 751.35 feet; (4) Thence, S 56° 28' 37" W 1308.27 feet; (5) Thence, S 56° 57' 29" W 900.78 feet; (6) Thence, S 56° 16' 58" W 513.03 feet; (7) Thence, S 56° 20' 16" W 763.00 feet; (8) Thence S 59° 41' 13" W 28.68 feet to the Point of Beginning.

EXHIBIT B

Permitted Liens

Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.

Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of said land or by making inquiry of persons in possession thereof.

Easements, claims of easement or encumbrances which are not shown by the public records.

Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the title including discrepancies, conflicts in boundary lines, shortage in area, or any other facts that would be disclosed by an accurate and complete land survey of the land, and that are not shown in the public records.

(a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the public records.

Any liens, or rights to a lien, for services, labor or material theretofore or hereafter furnished, imposed by law and not shown by the public records.

Any right, title, or interest of the public, the county, or any highway district to roads or highways on the premises whether or not shown by the public records.

General taxes and assessments collected therewith for 2023 and subsequent years.

Levies and assessments of Bingham Ground Water District.

Levies and assessments of Snake River Valley Irrigation District.

Levies and assessments of Idaho Irrigation District.

Levies and assessments of New Sweden Irrigation District.

Levies and assessments of Riverside Canal Co.

Levies and assessments of Peoples Canal & Irrigation Co.

Levies and assessments of Great Western Canal.

Levies and assessments of Larson Lateral.

Right-of-way or easement of County Roads.

Right-of-way or easement of East Branch Snake River Valley Canal.

Right-of-way or easement of Little Sand Creek/Sand Creek.

Right-of-way or easement of Augustine Ditch.

Right-of-way or easement of Peoples Canal.

Right-of-way or easement of Aberdeen-Springfield Canal.

Any portion of the described land within the natural bed of the Sand Creek below the natural or ordinary high water mark where it was located prior to any artificial or avulsive changes in the location of the shoreline.

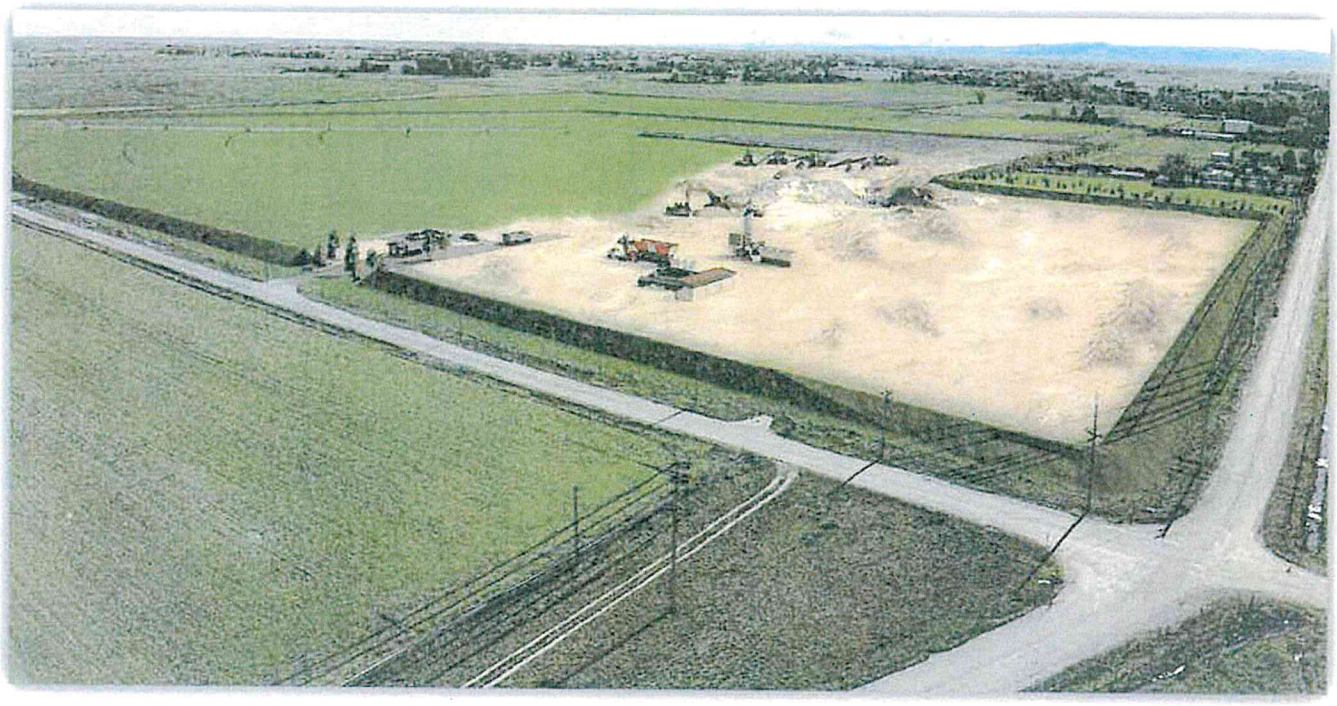
Rights-of-way for ditches, tunnels and telephone and transmission lines constructed by authority of the United States, as granted to the United States under provisions of Section 58-604, Idaho Code.

Exceptions and reservations contained in deed from the State of Idaho, wherein mineral rights are reserved to the State under provisions of §§ 47-701 and 47-701A Idaho Code.

Unrecorded leaseholds; rights of parties in possession, rights of secured parties, vendors and vendees under conditional sales contracts of personal property installed on the premises herein, and rights of tenants to remove trade fixtures.

Any matters arising from questions of gaps or overlaps between the legal description of the herein described land and those of surrounding parcels.

Porterville Gravel Pit Gravel Pit
Traffic Impact Study



PROFESSIONAL ENGINEER
LICENSED
14209
10-18-24
STATE OF IDAHO
AARON E. SWENSON

Prepared By: Forsgren Associates and Stamped by Aaron Swenson, P.E.

Exhibit
A-5

Table of Contents

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INTRODUCTION AND SUMMARY

Purpose of Report and Study Objectives

The purpose of this report is to quantify the impact of the proposed project to the roadway network using engineering practices. The scope of this TIS is based on ITD's Requirements for Transportation Impact Studies (Supplement to Board Policy B-12-06), the guidance document titled Transportation Impact Analyses for Site Project published by the Institute of Transportation Engineers (ITE), and a study outlined provided by Bingham County Staff. These requirements outline a full or minor TIS as:

- A full TIS shall be required for projects that will generate more than 100 vph or 1000 vpd.
- A minor TIS is required for projects that will generate up to 99 vph or 999 vpd.

This project is forecasted to generate less than 99 vph, and less than 999 vpd, thus a minor TIS will be performed. Since this is determined to be a minor TIS, only the PM peak hour will be analyzed as recommended by the Requirements for Transportation Impact Studies by ITD

The Traffic Impact Study (TIS) serves to assess the traffic effects stemming from the proposed project and provide recommendations for mitigating any identified impacts if required. This study encompasses the following aspects:

- Discusses the proposed project
- Analysis of the existing 2024 traffic volumes and conditions
- Analysis of the 2029 build-out horizon year **without** the project
- Analysis of the 2049 20-year horizon year **without** the project
- Analysis of right and left turns for safety **without** the project
- Projected traffic generated from the project
- Analysis of the 2029 build-out horizon year **with** the project
- Analysis of the 2049 20-year horizon year **with** the project
- Analysis of right and left turns for safety **with** the project
- Mitigation Measures
- Conclusions
- Recommendations

It should be noted that all recommendations and/or advice presented in this document regarding probably project conditions are the opinions of Forsgren Associates. Project conditions are based on information and data sources that are readily available from the public sector, provided by the project owner, previously published studies by other competent professionals, and other reliable sources including state agencies and local municipal government entities, all of which are relied upon as accurate. Our recommendations and/or advice are made on the basis of our experience and represent our judgment and opinions. We have no control over new and/or non-public information, changing conditions, cost of land, cost of labor, materials, equipment, and/or other construction costs, or over competitive bidding or market conditions. Therefore, we do not guarantee that actual conditions or actual costs will not vary from those presented in this report.

EXECUTIVE SUMMARY

Site Location and Study Area

The proposed gravel pit is located near the intersection of 200 N and 600W; reference the following chapter for a vicinity map. For a visual of the proposed property that will be used for the gravel pit, see the following figure.

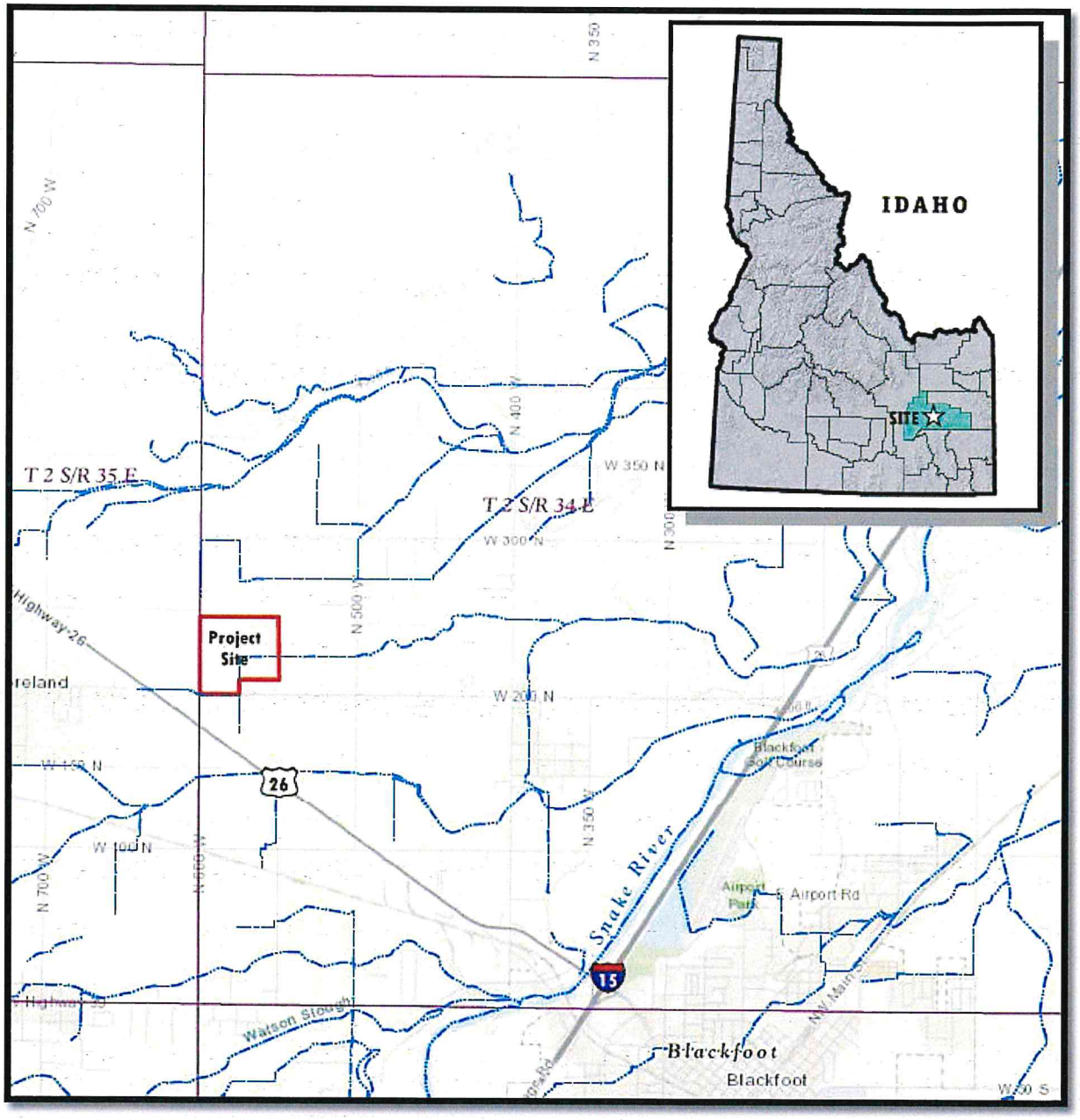


Figure 1: Project Location Map

In discussions with Bingham County staff, it has been identified that there will be two (2) road segment and three (3) intersections analyzed. These segments and intersections are:

- Segment 1: Clark Road (600 W to Hwy 26)
- Segment 2: 200 North (from 200 N to Hwy 26)
- Intersection 1: Clark Road/200 North
- Intersection 2: Hwy 26/Clark Road
- Intersection 3: Hwy 26/200 North

The following map shows the location of the segments and intersections to be analyzed.

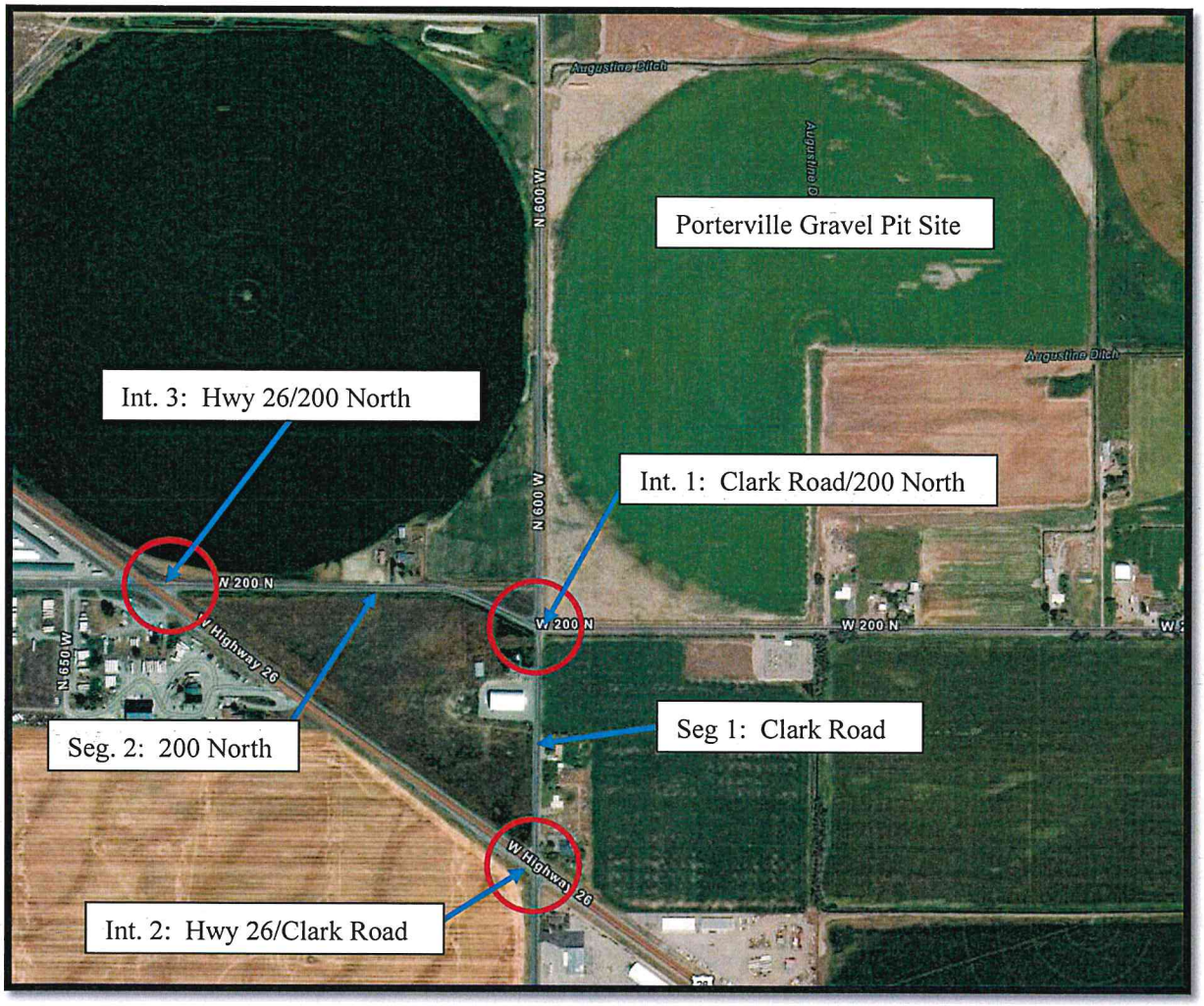


Figure 2: Project Study Area

Project Description

The following description was extracted from the Conditional Use Permit. The legal description is SW1/4 SEC 19, T 2S, R 35E. The population of Bingham County has been steadily increasing over the last 30 years with 21% growth occurring from 1990 through 2010. US Census figures project similar growth rates

in the county over the next 15 to 20 years. This area is rich with mineral reserves that are essential to support both current and anticipated growth. Having local mineral reserves promotes a circular economy. By sourcing materials locally products and materials are continuously reused and recycled, diminishing the environmental footprint of the production process. It also aids in controlling costs of public work projects and aides in developing affordable housing in the County. The Idaho Department of Transportation has future projects in the area that will require access to local materials such as aggregates, concrete and asphalt.

Mining operations at the site will include concrete production and asphalt production as well as mining sand and aggregate to be crushed, screened, washed, and stockpiled within the boundary of the site. Prior to any mining operations, the vegetation, topsoil, and overburden will be stockpiled onsite for future reclamation. The topsoil and overburden will also be used to build berms around the perimeter of the site to shield it from view and provide a noise barrier. The stockpile berms will be seeded to stabilize them. The site will be excavated inside the earth berms and stormwater is allowed to pond inside the site. The site floor will be excavated in six (6) stages, so stormwater is channeled to the lower parts of the site throughout the mining operations. All mining will take place above the high-water table and because of the high permeability of the soil, the water will infiltrate into the ground. There is access to electricity and gas on site if connections are needed in the future.

Equipment and vehicle parking will take place at the site. Fuel and lubricating oils will be brought to the site on service vehicles equipped with spill control equipment as needed. Vehicle fueling, and minor maintenance (such as greasing equipment mechanical joints) will be performed on site. Equipment will be transported off site for major maintenance and repairs. Equipment will not be cleaned at the site. Pollutants or pollutant constituents associated with these activities will be contained through active and passive measures. Fuel may be stored at the crusher location in portable containers to support crushing operations. All fuel tanks will be double walled or installed within secondary containment. A stabilized construction entrance will be constructed within the permit boundary, per State of Idaho specifications, and is maintained to prevent vehicle sediment track out to public right of way. This construction entrance shall serve as the only access point to the site.

A reclamation plan has been submitted to the Idaho Department of Lands (IDL). IDL approval and the approved reclamation plan will be submitted to the county. Access to the parcel will be from the southwestern portion of the parcel from Clark Road located 600 ft north from the intersection of Porterville Road and Clark Road. The road frontage from the construction entrance will be 150 ft wide. Bingham County Road and Bridge has been contacted and they stated the approach permit could be granted after the CUP is approved. Anticipated hours of operation will be from 7am to 7pm Monday through Saturday. Extended hours of operation for concrete production are needed during the summer months. 24-hour operations (excluding crushing) may be required for night work operations as required for some ITD projects.

All applicable crushing and material processing equipment, concrete plant, and asphalt plant used to process materials will be permitted with the Idaho Department of Environmental Quality, Air Quality Division. All reasonable precautions shall be taken to prevent particulate matter from becoming airborne, in accordance with IDAPA 58.01.01.650-651. Best management practices for dust abatement shall be used to control dust and maintain cleanliness of the mine, including but not limited to watering of roads and stockpiles. Water used for dust abatement will be sourced from a new well location along the southwestern corner of the mining area.

Principal Findings

Level of Service Analysis

Level of service (LOS) is a qualitative measure used to relate the quality of motor vehicle traffic service. LOS is used to analyze roadways and intersections by categorizing traffic flow and assigning quality levels of traffic based on performance measure like vehicle speed, density, congestion, etc.

Segment LOS

The following tables show the results of the segment LOS analysis; as can be seen, all the segments throughout each horizon year results in an acceptable LOS; a failed level is a PFFS less than 66.70%.

Table 1 – Seg. 1 Traffic Conditons Progression Each Horizon Year

Segment 1: Clark Road	PFFS/LOS	
	PFFS	LOS
2024 Existing Traffic	98.6%	A
2029 Buildout Comparison		
2029 Buildout Traffic without the Project	98.6%	A
2029 Buildout Traffic with the Project	98.2%	A
Impact (decrease)	0.4%	None
2049 Horizon Year Comparison		
2049 Horizon Traffic without the Project	98.3%	A
2029 Horizon Traffic with the Project	97.8%	A
Impact (decrease)	0.5%	None

Table 2 – Seg. 2 Traffic Conditons Progression Each Horizon Year

Segment 2: 200 N	PFFS/LOS	
	PFFS	LOS
2024 Existing Traffic without the Project	97.8%	A
2029 Buildout Comparison		
2029 Buildout Traffic without the Project	97.5%	A
2029 Buildout Traffic with the Project	97.1%	A
Impact (decrease)	0.4%	None
2049 Horizon Year Comparison		
2049 Horizon Traffic without the Project	95.7%	A
2029 Horizon Traffic with the Project	95.3%	A
Impact (decrease)	0.4%	None

Intersection LOS

The following tables show the results of the intersection LOS analysis; as can be seen, all the turning movements at each intersection throughout each horizon year results in an acceptable LOS.

Table 3 – Int. 1 Traffic Conditons Progression Each Horizon Year

Intersection 1: Clark Road/200 N	Eastbound		Westbound		Northbound		Southbound	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
2024 Existing Traffic without the Project	1.3	A	3.0	A	9.3	A	9.2	A
2029 Buildout Comparison								
2029 Buildout Traffic without the Project	1.3	A	3.0	A	9.4	A	9.3	A
2029 Buildout Traffic with the Project	2	A	3.0	A	9.7	A	9.5	A
Increased Delays (sec)/Decreased LOS	0.7	None	0	None	0.3	None	0.2	None
2049 Horizon Year Comparison								
2049 Horizon Year Traffic without the Project	1.3	A	3.1	A	9.6	A	9.5	A
2049 Horizon Year Traffic with the Project	1.9	A	3.1	A	10	A	9.8	A
Increased Delays (sec)/Decreased LOS	0.6	None	0	None	0.4	None	0.3	None

Table 4 – Int. 2 Traffic Conditons Progression Each Horizon Year

Intersection 2: Hwy 26/Clark Road	Southeast Bound		Northwest Bound		Northbound		Southbound	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
2024 Existing Traffic without the Project	8.3	A	8.0	A	15.3	C	14.3	B
2029 Buildout Comparison								
2029 Buildout Traffic without the Project	8.5	A	8	A	16.5	C	15.5	C
2029 Buildout Traffic with the Project	8.5	A	8	A	17.2	C	16	C
Increased Delays (sec)/Decreased LOS	0	None	0	None	0.7	None	0.5	None
2049 Horizon Year Comparison								
2049 Horizon Year Traffic without the Project	9.2	A	8.5	A	25.8	D	24.9	C
2049 Horizon Year Traffic with the Project	9.3	A	8.5	A	27.3	D	26.7	D
Increased Delays (sec)/Decreased LOS	0.1	None	0	None	1.5	None	1.8	C TO D

Table 5 – Int. 3 Traffic Conditons Progression Each Horizon Year

Intersection 3: Hwy 26/200 N	Eastbound		Westbound		Northwest Bound		Southeast Bound	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
2024 Existing Traffic without the Project	11.9	B	12.1	B	8.1	A	8.2	A
2029 Buildout Comparison								
2029 Buildout Traffic without the Project	12.7	B	12.9	B	8.3	A	8.3	A
2029 Buildout Traffic with the Project	13.1	B	13.3	B	8.3	A	8.3	A
Increased Delays (sec)/Decreased LOS	0.4	None	0.4	None	0	None	0	None
2049 Horizon Year Comparison								
2049 Horizon Year Traffic without the Project	27.2	D	26.5	D	9.2	A	9	A
2049 Horizon Year Traffic with the Project	29.4	D	28.1	D	9.2	A	9	A
Increased Delays (sec)/Decreased LOS	2.2	None	1.6	None	0	None	0	None

Traffic Safety Implications

This study has identified left turn lanes are warranted for safety, due to the impact of the development, for the eastbound traffic at Int. 1 (traveling east on 200 N) and the southbound traffic at Int. 2 (traveling south on Clark Road). Additionally, this study utilized AutoCAD to simulated the WB-50 turning movements at each intersection to determine whether trucks could make the required maneuvers within the designated lanes of traffic. All turning movements at each intersection were deemed acceptable. Shoulder widening is recommended to improve conflict and will be discussed later.

It is recommended to improve safety in the area by constructing the following left turn lanes.

- Int. 1 – left turn lane for the eastbound traffic
- Int. 2 – left turn lane for the southbound traffic

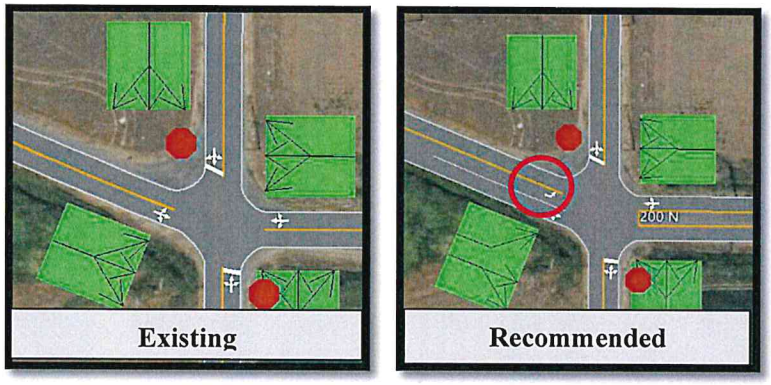


Figure 3: Mitigation Measure 1 – Construct Left Turn Lane at Int. 1

Figure 4: Mitigation Measure 2 – Construct Left Turn Lane at Int. 2

Conclusions and Recommendations

This study has identified that the current road segments are adequate to handle the capacity required without or with the proposed project throughout the study period. All intersections are forecasted to operate within all required thresholds. For safety, both left and right turn lane analyses were performed to identify if there is a safety concern according to ITD guidelines; this study determined that left turn lanes are warranted for the eastbound traffic traveling on 200 N at Intersection 1 and for the southbound traffic traveling on Clark Road at Intersection 2. In addition, sight distances were analyzed for the intersections; all sight distances meet AASHTO sight distance recommendations. Lastly, the geometry of each of the three (3) intersections were examined and found to be sufficient to accommodate a WB-50 turning movement.

Overall, it is the recommendation of this study that the proposed project will have minimal impacts to the traffic network within the study area for each horizon year but does recommend shoulder widening in lieu of left turn lanes which has a Crash Reduction Factor of 15% and also allows for better turning movements for the modeled WB-50 trucks.

CHAPTER 1: STUDY METHODOLOGY

Traffic Model

The data gathered will be entered into the Synchro Traffic Modeling Software Version 11. The traffic volumes (in vehicles per hour) during the pm peak hour will be entered into the traffic model. The following steps will be followed in this TIS:

1. PM peak hour traffic and turning movements for all the segments and intersections identified will be collected.
2. The collected traffic data will be seasonally adjusted to the peak month.
3. The seasonally adjusted volumes will be entered into a model for the 2024 existing conditions to establish a baseline.
4. The 2024 seasonally adjusted volumes will be annually increased for the 2029 buildout year and 2049 20-year horizon year analyses.
5. The proposed project will be analyzed to determine the projected generated traffic.
6. The generated traffic will be added to the 2029 buildout year and the 20-year horizon year seasonally adjusted volumes to determine the impacts of the project.
7. If a poor Level of Service (LOS) is determined, mitigation measures will be discussed and modeled to help improve the projected LOS

Along with entering in the traffic volumes into the model, a peak hour factor, as recommended by the Highway Capacity Manual HCM for rural roadways, of 0.88. Typically, a 5% heavy vehicle factor is used but due to the agriculture in the study area an 8% heavy vehicle factor will be used.

Anticipated Annual Growth

The following table shows the traffic growth over the past 20 years.

Table 6 – 20 Year Annual Growth

Road	2023 (vpd)	2003 (vpd)	% Growth
Clark Road	460	350	1.37%
200 N	730	380	3.26%
Hwy 26	6300	4300	1.9%

These annual growth percentages will be used for this study.

Seasonal Adjustment

Data from the ITD shows that in 2023 (the last set of traffic counts) that the peak month for Clark Road and 200 N was June. For Hwy 26, the peak month was July. The following table shows that the seasonal adjustment for Clark Road and 200 N is 1% and 4.40% for Hwy 26.

Table 7 – Seasonal Adjustment Table

	Clark	200 N	Hwy 26
Max Month AADT	506	803	7985
August Counts	501	794	7636
% Seasonal Adjustment	1%	1%	4.4%

Level of Service (LOS)

The Highway Capacity Manual (HCM) is used to calculate the segment LOS while the traffic modeling software Synchro is used to determine the intersection LOS. The LOS helps to determine when improvements are needed. The following sections discuss the difference between the segment and intersection LOS.

Segment LOS

The HCM defines the LOS as a quantitative stratification of a performance measure or measures representing the quality of service. The HCM defines six levels of service, ranging from A to F; LOS A represents the best operating conditions from the traveler's perspective, and LOS F is the most unfavorable. It is common practice to consider the LOS of A to D as acceptable with a LOS of E or F as unacceptable. For each rural roadway class (I, II, and III), the HCM measures for calculating the LOS are:

- Class I Roadway – Average Travel Speed (ATS) and Percent Time Spent Following (PTSF)
- Class II Roadway – Percent Time Spent Following (PTSF)
- Class III Roadway – Percent of Free Flow Speed (PFFS)

Roadway Classification

This analysis considers both Clark Road and 200 North as a Class III two-lane highway. Therefore, the PFFS will be calculated determine the segment LOS.

Percent of free-flow speed (PFFS)

The PFFS represents the ability of vehicles to travel at or near the posted speed limit. The PFFS is a function of the Average Travel Speed (ATS), which is the average travel speed for vehicles to traverse the roadway during the analysis period, and the Free Flow Speed (FFS) which is the desired speed of drivers in low volume conditions and the absence of traffic control devices.

Free Flow Speed (FFS)

The equation for the Free Flow Speed (FFS) is:

$$FFS = BFFS - F_{LS} - F_A \quad \text{(Equation 15-2 in the HCM).}$$

The variables in the equation are:

- BFFS - base free flow speed (the speed limit plus 10 mph)
- F_{LS} - adjusted lane and shoulder width (from the HCM Exhibit 15-7)
- F_A - adjustment for access point density (from the HCM Exhibit 15.8)

Average Travel Speed (ATS)

The first step is to calculate the demand flow rate for both the analysis and the opposing direction. The equation used is Equation 15-3 from the HCM which is the following:

$$V_{i,ats} = \frac{V_i}{PHF * f_{g,ats} * f_{hv,ats}} \quad \text{(Equation 15-3 in the HCM).}$$

The variables in this equation are:

- V_i (demand volume)
- PHF (peak hour factor from HCM Exhibit 15-5)

- $F_{g,ats}$ (grade adjustment from HCM Exhibit 15-9)
- $F_{hv,ats}$ (heavy vehicle adjustment, using HCM Equation 15-4)

PFFS Results

Lastly, the PFFS is calculated by dividing the ATS by the FFS.

$$PFFS = \frac{ATS}{FFS}$$

LOS Results

The LOS correlation for the resulting PFFS for Class III highways is shown in the following table which is from Exhibit 15-3 of the HCM. It should be noted that a PFFS of less than 66.70% is considered unacceptable.

Table 8 - LOS Criteria for General Two-Lane Highway Segments

Exhibit 15-3
Motorized Vehicle LOS for Two-Lane Highways

LOS	Class I Highways ATS (mi/h)	Class I Highways PTSF (%)	Class II Highways PTSF (%)	Class III Highways PFFS (%)
A	>55	≤35	≤40	>91.7
B	>50–55	>35–50	>40–55	>83.3–91.7
C	>45–50	>50–65	>55–70	>75.0–83.3
D	>40–45	>65–80	>70–85	>66.7–75.0
E	≤40	>80	>85	≤66.7
F	Demand exceeds capacity			

Note: For Class I highways, LOS is determined by the worse of ATS-based LOS and PTSF-based LOS.

The following figure helps define each of the six (6) segment LOS levels. When a LOS decreases to a LOS of E, mitigation measures/improvements are recommended.

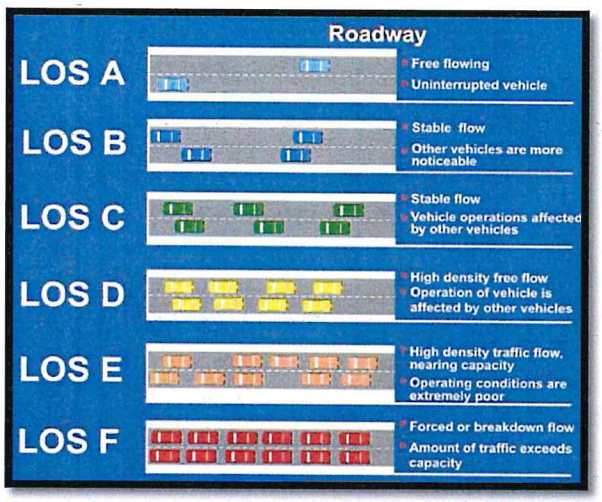


Figure 5 – Segment: Six (6) Levels of LOS

Intersection LOS

The LOS for an intersection is determined by the control delay per vehicle. The LOS is broken down into six (6) categories A through F; A being the best, F being the worst and E being the start of failure. In other words, when a LOS decreases from a D to an E, improvements are recommended. The

following bulleted items and table break down the six (6) categories and show the correlation between the delay time and a LOS.

- LOS A: The intersection has no congestion, has less than a 10-second control delay per vehicle, and is operating below 55% capacity.
- LOS B: The intersection has very little congestion, has a control delay per vehicle between 10 and 15 seconds, and is operating between 55% and 64% capacity.
- LOS C: The intersection has no major congestion, has a control delay per vehicle between 15 and 25 seconds, and is operating between 64% and 73% capacity.
- LOS D: The intersection normally has no congestion, has a control delay per vehicle between 25 and 35 seconds, and is operating between 73% and 82% capacity.
- LOS E: The intersection is right on the verge of congested conditions, has a control delay per vehicle between 35 and 50 seconds, and is operating between 82% and 91% capacity.
- LOS F: The intersection is over capacity and experiences congestion, has a control delay per vehicle between 50 seconds or more, and is operating between 91% and 100% capacity.

Table 9 - Control Delay per Vehicle to LOS Correlation Table

Control Delay Per Vehicle (s)	LOS
≤10	A
10 to 15	B
15 to 25	C
25 to 35	D
35 to 50	E
>50	F

Left Turn and Right Turn Lane Warrant Analysis

The left-hand turn and right-hand turn lane warrants are analyzed following the guidance found in ITD's *Traffic Manual: Idaho's Supplementary Guide to the MUTCD*, which references *NCHRP Report 745 – Left-Turn Accommodations at Unsignalized Intersections.* In addition, the *NCHRP 457 – Evaluating Intersection Improvements: An Engineering Study Guide* was utilized for right-turn movements. The following figures show the left-turn and right-turn warrant charts for intersections on a two-lane rural highway.

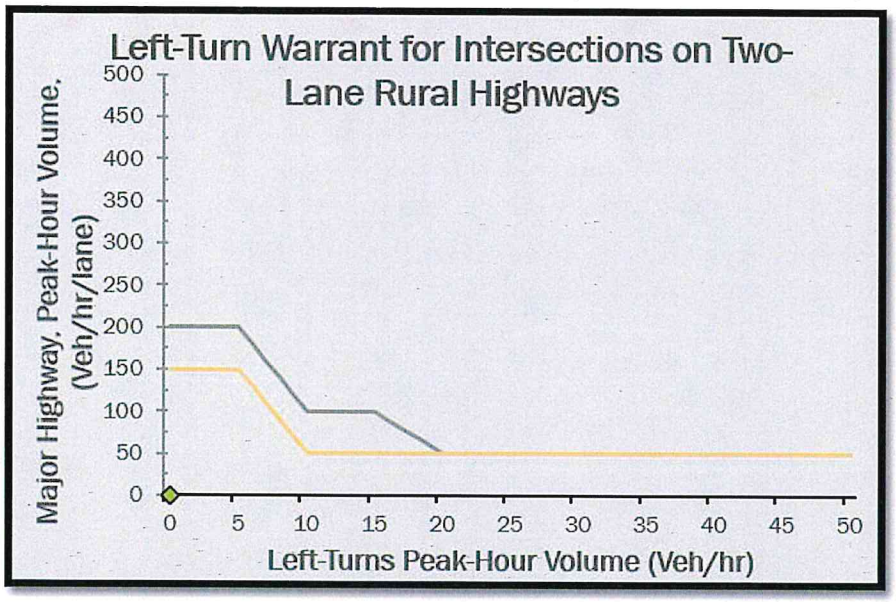


Figure 6 – Left-Turn Warrant Graph

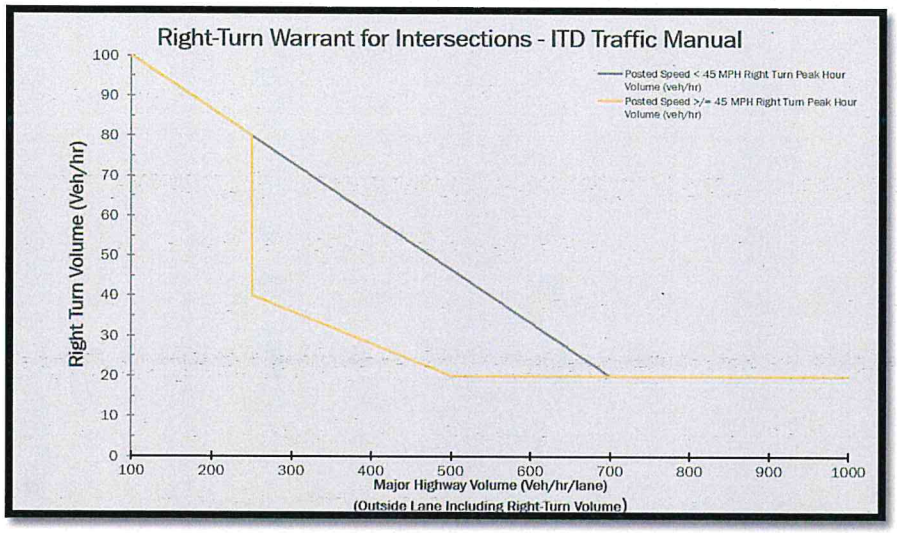


Figure 7 – Right-Turn Warrant Graph

CHAPTER 2: PROPOSED PROJECT

Site Location

The proposed project is located in the middle of Bingham County as shown in the following figure.

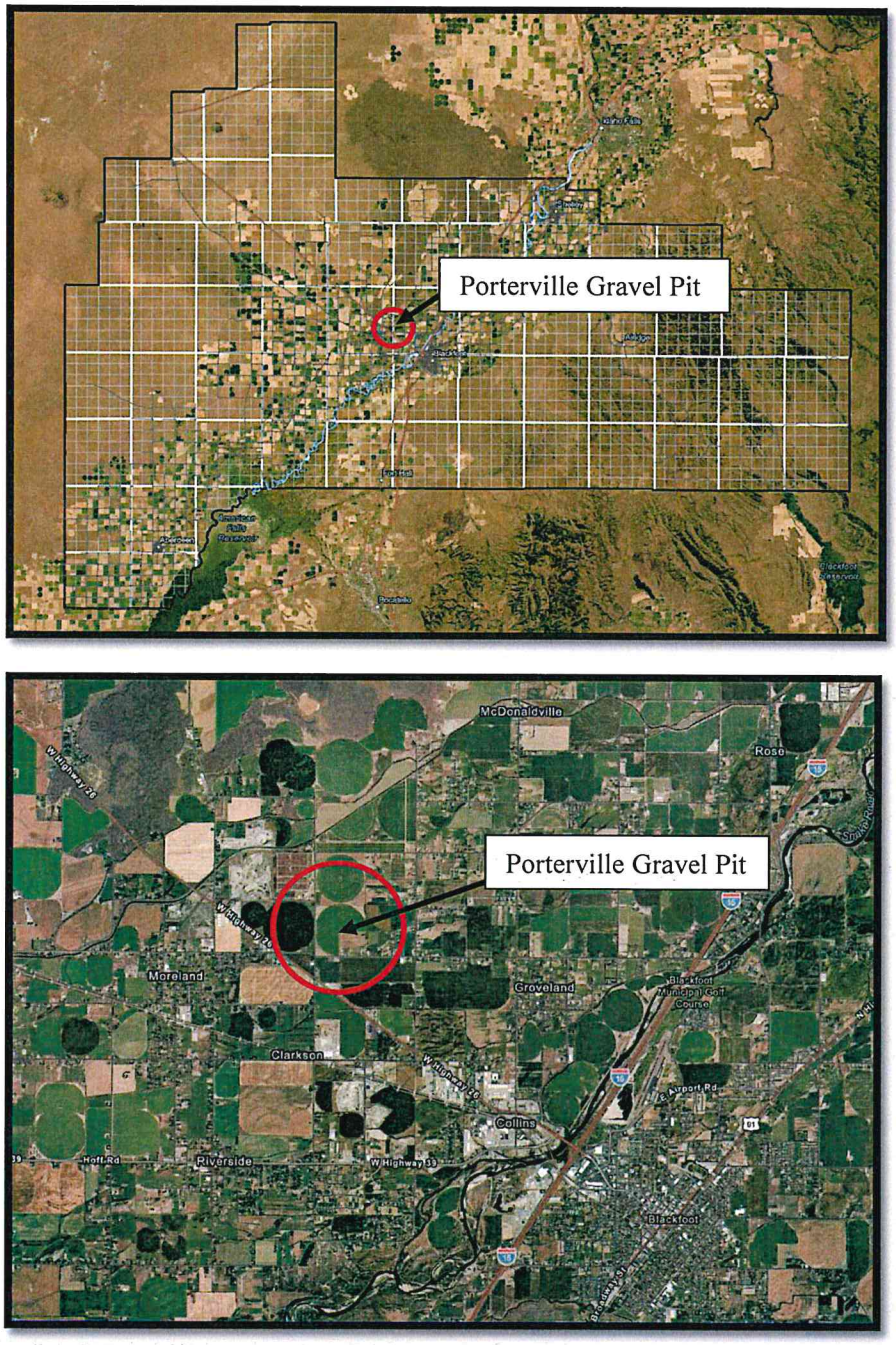


Figure 8: Project Vicinity Map

Land Use and Intensity

The existing land use is residential agricultural and is 143.97 acres.

Proposed Project Details

The proposed project is to transition 143.97 acres from agriculture to a gravel source in six (6) phases. Mining operations at the site will include concrete production and asphalt production as well as mining sand and aggregate to be crushed, screened, washed, and stockpiled within the boundary of the site. Prior to any mining operations, the vegetation, topsoil, and overburden will be stockpiled onsite for future reclamation. The topsoil and overburden will also be used to build berms around the perimeter of the site to shield it from view and provide a noise barrier. The stockpile berms will be seeded to stabilize them. The site will be excavated inside the earth berms and stormwater is allowed to pond inside the site. The site floor will be excavated in six (6) stages, so stormwater is channeled to the lower parts of the site throughout the mining operations. All mining will take place above the high-water table and because of the high permeability of the soil, the water will infiltrate into the ground. There is access to electricity and gas on site if connections are needed in the future.

Equipment and vehicle parking will take place at the site. Fuel and lubricating oils will be brought to the site on service vehicles equipped with spill control equipment as needed. Vehicle fueling, and minor maintenance (such as greasing equipment mechanical joints) will be performed on site. Equipment will be transported off site for major maintenance and repairs. Equipment will not be cleaned at the site. Pollutants or pollutant constituents associated with these activities will be contained through active and passive measures. Fuel may be stored at the crusher location in portable containers to support crushing operations. All fuel tanks will be double walled or installed within secondary containment. A stabilized construction entrance will be constructed within the permit boundary, per State of Idaho specifications, and is maintained to prevent vehicle sediment track out to public right of way. This construction entrance shall serve as the only access point to the site.

Site Plan

The figure on the following page is a site plan of the proposed project that includes phasing.

Access Geometrics

As part of the traffic impact evaluation for the Porterville Gravel Pit gravel pit, we conducted an analysis of turning radii to assess the ability of trucks, specifically WB-50 vehicles, to safely navigate key intersections along the designated haul route. The primary intersections to be evaluated are:

- Intersection 1: Clark Road/200 North
- Intersection 2: Hwy 26/Clark Road
- Intersection 3: Hwy 26/200 North

Using AutoCAD, we simulated the WB-50 turning movements at each intersection to determine whether trucks could make the required maneuvers within the designated lanes of traffic.

Findings

All turning movements at each intersection were deemed acceptable; refer to Appendix J for AutoCAD exhibits for each intersection.

Project Phasing and Timing

For planning and modeling purposes, it is anticipated that the gravel pit will be in full operation within the next five (5) years (2029).

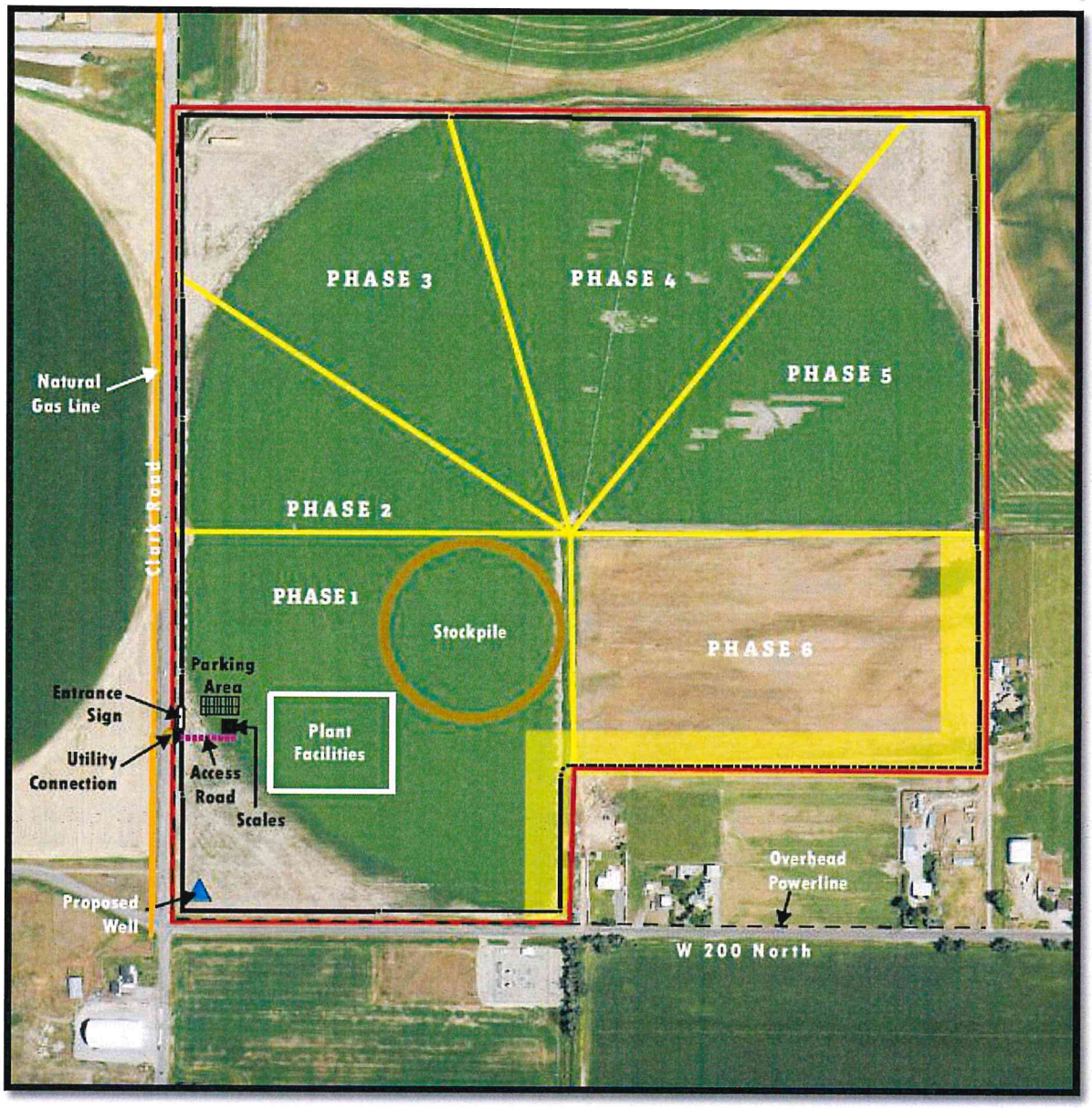


Figure 9: Project/Phasing Site Plan

CHAPTER 3: ANALYSIS OF EXISTING CONDITIONS (2024)

This chapter will analyze the current conditions to develop a baseline for the buildout and 20-year horizon year without the project.

Roadway Characteristics

The following are the base roadway characteristics:

- Segment 1 (Clark Road): Paved, 24' wide
- Segment 2 (200 N Road): Paved, 24' wide
- Intersection 1 (Clark Road/200 N): 4 leg intersection, no turn lanes, 200 North is the major roadway
- Intersection 2 (Hwy 26/Clark Road): 4 leg intersection, Eastbound left and right turn lanes on Hwy 26, Westbound left turn lane on Hwy 26, Hwy 26 is the major roadway
- Intersection 3 (Hwy 26/200 N): 4 leg intersection, Eastbound left turn lane on Hwy 26, Westbound left turn lane on Hwy 26, Hwy 26 is the major roadway

Traffic Control Devices

The following are the existing traffic control devices.

- Intersection 1 (Clark Road/200 N): Two-way stop controlled on Clark Road
- Intersection 2 (Hwy 26/Clark Road): Two-way stop controlled on Clark Road
- Intersection 3 (Hwy 26/200 N): Two-way stop controlled on 200 North

Pedestrian/Bicycle Facilities

The study area is in a rural area with no evidence of pedestrian or bicycle facilities. According to the Bingham County Transportation Plan, no pedestrian/bicycle facilities projects are planned within the study area.

Traffic Volumes

Segment Traffic Volumes

The segment daily and peak hour traffic volumes collected by the traffic counters were seasonally adjusted and are shown in the following tables; reference Appendix A for the traffic counts.

Table 10 – Seg. 1 (Clark Road): Existing 2024 Segment Daily and Peak Hour Traffic Volumes

Segment 1: Clark Road	Units	Year	Traffic Volume	Northbound	Southbound
AADT	VPD	2024	425	222	203
Peak Hour	VPH	2024	45	29	16

Table 11 – Seg. 2 (200 North): Existing 2024 Segment Daily and Peak Hour Traffic Volumes

Segment 2: 200 N	Units	Year	Traffic Volume	Eastbound	Westbound
AADT	VPD	2024	591	291	300
Peak Hour	VPH	2024	70	47	22

Intersection Traffic Volumes

Along with the ITD and Forsgren traffic counters, visual traffic counts were performed to determine turning movements. The counts were used to integrate the turning percentages and the highest PM peak hour volume collected on Tuesday, September 3rd at 5:00 pm; the results are shown in the following figures.

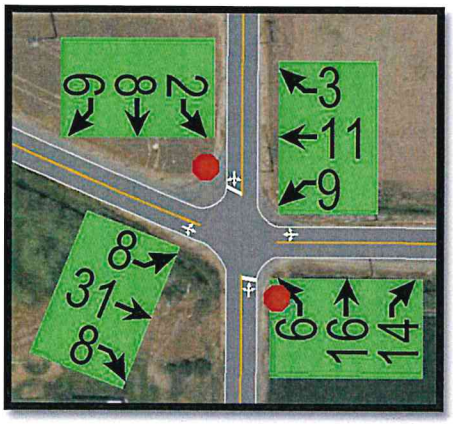


Figure 10: Int. 1 Existing 2024 PM Peak Hr Volumes

Figure 11: Int. 2 Existing 2024 PM Peak Hr Volumes

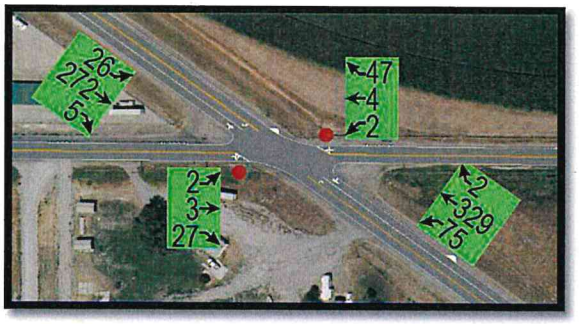


Figure 12: Int. 3 Existing 2024 PM Peak Hr Volumes

Level of Service

Segment LOS

The methods discussed in Chapter 1 will be used to calculate the PFFS and LOS. The following tables are a result of these calculations. For a more in-depth look at these calculations, reference Appendix B.

Table 12 – Seg. 1 (Clark Road): Existing 2024 Segment PM Peak Traffic LOS

Segment 1	Existing 2024	
Clark Road	Value	LOS
FFS (mph)	46.15	n/a
PFFS (%)	98.6%	A

Table 13 – Seg. 2 (200 North): Existing 2024 Segment PM Peak Traffic LOS

Segment 2	Existing 2024	
200 N	Value	LOS
FFS (mph)	38.25	n/a
PFFS (%)	97.8%	A

Intersection LOS

In order to determine how well an intersection is functioning, the level of service (LOS), control delay, volume/capacity ratio (v/c Ratio), and the 95th percentile queue are determined. Using the traffic volumes and turning movements shown previously, the existing 2024 traffic conditions for each intersection can be determined.

The traffic volumes, identified in this chapter, were entered into the computer modeling software Synchro. The results from the model for each intersection are shown in the following tables and more in-depth in Appendix C.

Table 14 – Int. 1: Existing 2024 Intersection PM Peak Traffic LOS

HCM 2000 SIGNING SETTINGS	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes and Sharing (#RL)												
Traffic Volume (vph)	8	31	8	9	11	3	6	16	14	2	8	6
Future Volume (vph)	8	31	8	9	11	3	6	16	14	2	8	6
Sign Control	–	Free	–	–	Free	–	–	Stop	–	–	Stop	–
Median Width (ft)	–	0	–	–	0	–	–	0	–	–	0	–
TWLTL Median	–	□	–	–	□	–	–	□	–	–	□	–
Right Turn Channelized	–	–	None	–	–	None	–	–	None	–	–	None
Critical Gap, tC (s)	4.2	–	–	4.2	–	–	7.2	6.6	6.3	7.2	6.6	6.3
Follow Up Time, tF (s)	2.3	–	–	2.3	–	–	3.6	4.1	3.4	3.6	4.1	3.4
Volume to Capacity Ratio	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.04	0.04	0.02	0.02	0.02
Control Delay (s)	0.0	1.3	1.3	0.0	3.0	3.0	9.3	9.3	9.3	9.2	9.2	9.2
Level of Service	A	A	A	A	A	A	A	A	A	A	A	A
Queue Length 95th (ft)	0	0	0	0	0	0	4	4	4	2	2	2
Approach Delay (s)	–	1.3	–	–	3.0	–	–	9.3	–	–	9.2	–

Table 15 – Int. 2: Existing 2024 Intersection PM Peak Traffic LOS

HCM 2000 SIGNING SETTINGS	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lanes and Sharing (#RL)												
Traffic Volume (vph)	3	7	5	8	9	26	23	274	6	5	377	13
Future Volume (vph)	3	7	5	8	9	26	23	274	6	5	377	13
Sign Control	—	Stop	—	—	Stop	—	—	Free	—	—	Free	—
Median Width (ft)	—	0	—	—	0	—	—	12	—	—	12	—
TWLTL Median	—	☐	—	—	☐	—	—	☐	—	—	☐	—
Right Turn Channelized	—	—	None	—	—	None	—	—	None	—	—	None
Critical Gap, tC (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2	—	—	4.2	—	—
Follow Up Time, tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3	—	—	2.3	—	—
Volume to Capacity Ratio	0.04	0.04	0.04	0.11	0.11	0.11	0.02	0.18	0.00	0.00	0.25	0.25
Control Delay (s)	15.3	15.3	15.3	14.3	14.3	14.3	8.3	0.0	0.0	8.0	0.0	0.0
Level of Service	C	C	C	B	B	B	A	A	A	A	A	A
Queue Length 95th (ft)	3	3	3	9	9	9	2	0	0	0	0	0
Approach Delay (s)	—	15.3	—	—	14.3	—	—	0.6	—	—	0.1	—

Table 16 – Int. 3: Existing 2024 Intersection PM Peak Traffic LOS

HCM 2000 SIGNING SETTINGS	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lanes and Sharing (#RL)												
Traffic Volume (vph)	2	3	27	2	4	47	26	272	5	75	329	2
Future Volume (vph)	2	3	27	2	4	47	26	272	5	75	329	2
Sign Control	—	Stop	—	—	Stop	—	—	Free	—	—	Free	—
Median Width (ft)	—	0	—	—	0	—	—	12	—	—	12	—
TWLTL Median	—	☐	—	—	☐	—	—	☐	—	—	☐	—
Right Turn Channelized	—	—	None	—	—	None	—	—	None	—	—	None
Critical Gap, tC (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2	—	—	4.2	—	—
Follow Up Time, tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3	—	—	2.3	—	—
Volume to Capacity Ratio	0.06	0.06	0.06	0.10	0.10	0.10	0.02	0.18	0.18	0.07	0.21	0.21
Control Delay (s)	11.9	11.9	11.9	12.1	12.1	12.1	8.2	0.0	0.0	8.1	0.0	0.0
Level of Service	B	B	B	B	B	B	A	A	A	A	A	A
Queue Length 95th (ft)	5	5	5	8	8	8	2	0	0	5	0	0
Approach Delay (s)	—	11.9	—	—	12.1	—	—	0.7	—	—	1.5	—

Safety (Turn lane Warrants)

Existing 2024 Conditions Left Turn Lane Analysis

Using the guidelines and procedures as described in Chapter 1, we learn that for safety, the following left turn lanes are warranted for the existing 2024 conditions at each intersection; reference Appendix H for the left turn analysis worksheet.

- Int. 2: Hwy 26 Southeast bound traffic (lane already exists this validates that the left turn lane was warranted).
- Int. 2: Hwy 26 Northwest bound traffic (lane already exists this validates that the left turn lane was warranted).
- Int. 3: Hwy 26 Southeast bound traffic (lane already exists this validates that the left turn lane was warranted).
- Int. 3: Hwy 26 Northwest bound traffic (lane already exists this validates that the left turn lane was warranted).

Existing 2024 Conditions Right Turn Lane Analysis

Using the guidelines and procedures as described in Chapter 1, we learn that for safety right turn lanes are not warranted for the existing 2024 conditions

Existing 2024 PM Peak Hr Traffic Conditions Summary

Segments

The following table is a summary of the traffic conditions for the roadway segments.

Table 17 – Existing 2024 Segment Traffic Conditions Summary

Segment 1	Existing 2024	
Clark Road	Value	LOS
FFS (mph)	46.15	n/a
PFFS (%)	98.6%	A
Segment 2	Existing 2024	
200 N	Value	LOS
FFS (mph)	38.25	n/a
PFFS (%)	97.8%	A

Segments Summary

As can be seen in the above table, each segment is operating at an acceptable level; no improvements are warranted.

Intersections

The following tables show each intersection's LOS and delay times for the existing 2024 conditions.

Table 18 – Int. 1: Existing 2024 Intersection Traffic Conditions

Int 1 - Clark Road/200 N: Existing 2024 LOS and Delay Times												
	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2024 Traffic	8	31	8	9	11	3	6	16	14	2	8	6
Delay (sec)	0.0	1.3	1.3	0.0	3.0	3.0	9.3	9.3	9.3	9.2	9.2	9.2
LOS	A	A	A	A	A	A	A	A	A	A	A	A

Table 19 – Int. 2: Existing 2024 Intersection Traffic Conditions

Int 2 - Hwy 26/Clark Road: Existing 2024 LOS and Delay Times												
	Southeast Bound			Northwest Bound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2024 Traffic	23	274	6	5	377	13	3	7	5	8	9	26
Delay (sec)	8.3	8.3	8.3	8.0	0.0	0.0	15.3	15.3	15.3	14.3	14.3	14.3
LOS	A	A	A	A	A	A	C	C	C	B	B	B

Table 20 – Int. 3: Existing 2024 Intersection Traffic Conditions

Int 3 - Hwy 26/200N: Existing 2024 LOS and Delay Times												
	Eastbound			Westbound			Northwest Bound			Southeast Bound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2024 Traffic	2	3	27	2	4	47	75	329	2	26	272	5
Delay (sec)	11.9	11.9	11.9	12.1	12.1	12.1	8.1	0.0	0.0	8.2	0.0	0.0
LOS	B	B	B	B	B	B	A	A	A	A	A	A

Intersections Summary

As can be seen from these tables, all turning movements are operating within the recommended thresholds. Therefore, no mitigation measures are warranted.

Turn Lane Analysis

Left Turn Lane Analysis

The following left turn lane(s) are warranted for the existing 2024 traffic.

1. The traffic volumes warrant left turn lanes on Hwy 26. ITD has already constructed these left turn lanes. This study validates that these turn lanes were warranted.

Right Turn Lane Analysis

The following right turn lane(s) are warranted for the existing 2024 traffic.

1. None

Overall Summary for the Existing 2024 Traffic Conditions

This analysis has determined that no improvements are warranted to handle the existing 2024 traffic volumes. In addition, no new left or right turn lanes are warranted to improve safety.

CHAPTER 4: ANALYSIS OF FUTURE WITHOUT PROJECT CONDITIONS

This chapter will take the conditions outlined in Chapter 3 and increase them by the annual growth rate without the project for both the 2029 buildout and 20-year 2049 horizon years.

2029 Buildout Year without the Project

Roadway Characteristics

It was determined in Chapter 3 that the roadways are functioning at acceptable levels and that no improvements were needed. Therefore, all roadway characteristics for the 2029 buildout year are the same as existing.

Traffic Control Devices

It is assumed that the traffic control devices will be the same as those identified in Chapter 3.

Pedestrian/Bicycle Facilities

The study area is in a rural area with no evidence of pedestrian or bicycle facilities. According to the Bingham County Transportation Plan, no pedestrian/bicycle facilities projects are planned within the study area.

Traffic Volumes

Volume Forecast Methods

The growth rates identified in Chapter 1 will be used to project future traffic volumes. The annual average increases are: 1.37% for Clark Road, 3.26% for 200 N, and 1.90% for Hwy 26.

Forecasted Volumes by Horizon Year without the Project

The 2029 buildout year forecasted traffic volumes were calculated by taking the existing 2024 traffic counts (see Chapter 3) and increasing them by the annual increase discussed in the previous paragraph. The results of these counts are shown in the following tables and figures.

Table 21 – Seg. 1 2029 Buildout Year Daily and Peak Hr Traffic Volumes without the Project

Segment 1: Clark Road	Units	Year	Traffic Volume	Northbound	Southbound
AADT	VPD	2024	425	222	203
Peak Hour	VPH	2024	45	29	16
AADT	VPD	2029	455	238	217
Peak Hour	VPH	2029	49	31	17

Table 22 – Seg. 2 2029 Buildout Year Daily and Peak Hr Traffic Volumes without the Project

Segment 2: 200 N	Units	Year	Traffic Volume	Eastbound	Westbound
AADT	VPD	2024	591	291	300
Peak Hour	VPH	2024	70	47	22
AADT	VPD	2029	696	342	353
Peak Hour	VPH	2029	82	56	26

The following figures show the forecasted volumes for the intersections for the 2029 buildout year.

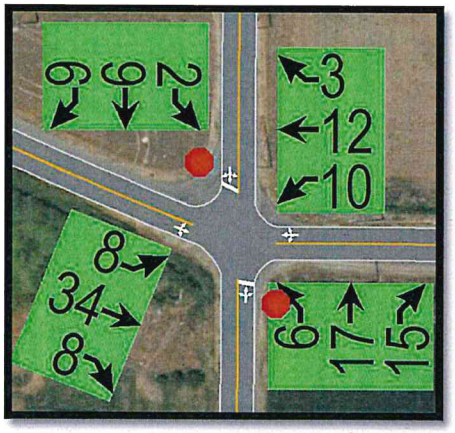


Figure 13: Int. 1 2029 Buildout Year PM Peak Hr Volumes without the Project

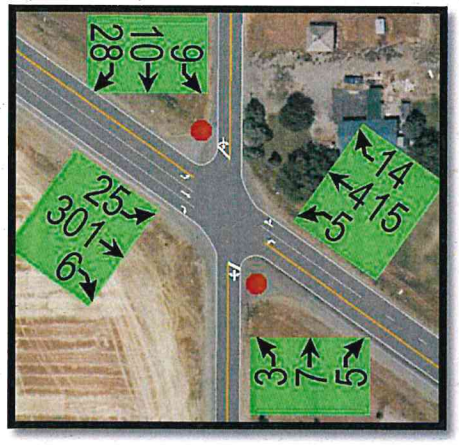


Figure 14: Int. 2 2029 Buildout Year PM Peak Hr Volumes without the Project

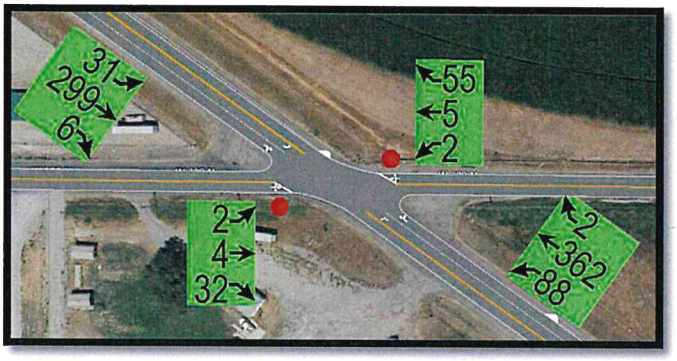


Figure 15: Int. 3 2029 Buildout Year PM Peak Hr Volumes without the Project

Level of Service without the Project

Segment LOS without the Project

The methods discussed in Chapter 1 will be used to calculate the PFFS and LOS. The following tables are a result of these calculations. For a more in-depth look at these calculations, reference Appendix B.

Table 23 – Seg. 1 2029 Buildout Year Segment PM Peak Traffic LOS without the Project

Segment 1	Existing 2024		2029 Buildout	
Clark Road	Value	LOS	Value	LOS
FFS (mph)	46.15	n/a	46.15	n/a
PFFS (%)	98.6%	A	98.6%	A

Table 24 – Seg. 2 2029 Buildout Year Segment PM Peak Traffic LOS without the Project

Segment 2	Existing 2024		2029 Buildout	
200 N	Value	LOS	Value	LOS
FFS (mph)	38.25	n/a	38.25	n/a
PFFS (%)	97.8%	A	97.5%	A

Intersection LOS without the Project

In order to determine how well an intersection is functioning, the level of service (LOS), control delay, volume/capacity ratio (v/c Ratio), and the 95th percentile queue are determined. Using the traffic volumes and turning movements shown previously, the 2029 buildout traffic conditions for each intersection can be determined.

The traffic volumes, identified in this chapter, were entered into the computer modeling software Synchro. The results from the model for each intersection are shown in the following tables and more in-depth in Appendix C.

Table 25 – Int. 1: 2029 Buildout Intersection PM Peak Traffic LOS without the Project

HCM 2000 SIGNING SETTINGS	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes and Sharing (#RL)												
Traffic Volume (vph)	8	34	8	10	12	3	6	17	15	2	9	6
Future Volume (vph)	8	34	8	10	12	3	6	17	15	2	9	6
Sign Control	—	Free	—	—	Free	—	—	Stop	—	—	Stop	—
Median Width (ft)	—	0	—	—	0	—	—	0	—	—	0	—
TWLTL Median	—		—	—		—	—		—	—		—
Right Turn Channelized	—	—	None	—	—	None	—	—	None	—	—	None
Critical Gap, tC (s)	4.2	—	—	4.2	—	—	7.2	6.6	6.3	7.2	6.6	6.3
Follow Up Time, tF (s)	2.3	—	—	2.3	—	—	3.6	4.1	3.4	3.6	4.1	3.4
Volume to Capacity Ratio	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.05	0.05	0.02	0.02	0.02
Control Delay (s)	0.0	1.2	1.2	0.1	3.0	3.0	9.4	9.4	9.4	9.3	9.3	9.3
Level of Service	A	A	A	A	A	A	A	A	A	A	A	A
Queue Length 95th (ft)	0	0	0	1	1	1	4	4	4	2	2	2
Approach Delay (s)	—	1.2	—	—	3.0	—	—	9.4	—	—	9.3	—

Table 26 – Int. 2: 2029 Buildout Intersection PM Peak Traffic LOS without the Project

HCM 2000 SIGNING SETTINGS	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lanes and Sharing (#RL)												
Traffic Volume (vph)	3	7	5	9	10	28	25	301	6	5	415	14
Future Volume (vph)	3	7	5	9	10	28	25	301	6	5	415	14
Sign Control	—	Stop	—	—	Stop	—	—	Free	—	—	Free	—
Median Width (ft)	—	0	—	—	0	—	—	12	—	—	12	—
TWLTL Median	—		—	—		—	—		—	—		—
Right Turn Channelized	—	—	None	—	—	None	—	—	None	—	—	None
Critical Gap, tC (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2	—	—	4.2	—	—
Follow Up Time, tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3	—	—	2.3	—	—
Volume to Capacity Ratio	0.05	0.05	0.05	0.13	0.13	0.13	0.03	0.19	0.00	0.00	0.27	0.27
Control Delay (s)	16.5	16.5	16.5	15.5	15.5	15.5	8.5	0.0	0.0	8.0	0.0	0.0
Level of Service	C	C	C	C	C	C	A	A	A	A	A	A
Queue Length 95th (ft)	4	4	4	11	11	11	2	0	0	0	0	0
Approach Delay (s)	—	16.5	—	—	15.5	—	—	0.6	—	—	0.1	—

Table 27 – Int. 3: 2029 Buildout Intersection PM Peak Traffic LOS without the Project

HCM 2000 SIGNING SETTINGS	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lanes and Sharing (#RL)												
Traffic Volume (vph)	2	4	32	2	5	55	31	299	6	88	362	2
Future Volume (vph)	2	4	32	2	5	55	31	299	6	88	362	2
Sign Control	—	Stop	—	—	Stop	—	—	Free	—	—	Free	—
Median Width (ft)	—	0	—	—	0	—	—	12	—	—	12	—
TWLTL Median	—		—	—		—	—		—	—		—
Right Turn Channelized	—	—	None	—	—	None	—	—	None	—	—	None
Critical Gap, tC (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2	—	—	4.2	—	—
Follow Up Time, tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3	—	—	2.3	—	—
Volume to Capacity Ratio	0.08	0.08	0.08	0.13	0.13	0.13	0.03	0.20	0.20	0.08	0.23	0.23
Control Delay (s)	12.7	12.7	12.7	12.9	12.9	12.9	8.3	0.0	0.0	8.3	0.0	0.0
Level of Service	B	B	B	B	B	B	A	A	A	A	A	A
Queue Length 95th (ft)	7	7	7	11	11	11	2	0	0	7	0	0
Approach Delay (s)	—	12.7	—	—	12.9	—	—	0.8	—	—	1.6	—

Safety (Turn lane Warrants) without the Project

2029 Buildout Conditions Left Turn Lane Analysis

Using the guidelines and procedures as described in Chapter 1, we learn that for safety, the no new left turn lanes are warranted for the 2029 buildout conditions.

2029 Buildout Conditions Right Turn Lane Analysis

Using the guidelines and procedures as described in Chapter 1, we learn that for safety, the no new right turn lanes are warranted for the 2029 buildout conditions.

2029 Buildout PM Peak Hr Traffic Conditions Summary without the Project

Segments

The following table is a summary of the traffic conditions for the roadway segments.

Table 28 – 2029 Buildout Segment Traffic Conditions Summary without the Project

Segment 1	Existing 2024		2029 Buildout	
Clark Road	Value	LOS	Value	LOS
FFS (mph)	46.15	n/a	46.15	n/a
PFFS (%)	98.6%	A	98.6%	A
Segment 2	**Existing 2024**		**2029 Buildout**	
200 N	Value	LOS	Value	LOS
FFS (mph)	38.25	n/a	38.25	n/a
PFFS (%)	97.8%	A	97.5%	A

As can be seen in the above table, each segment is forecasted to operate at an acceptable level.

Intersections

The following tables show each intersection's LOS and delay times.

Table 29 – Int. 1: 2029 Buildout Intersection Traffic Conditions Summary without the Project

Int 1 - Clark Road/200 N: 2029 Buildout LOS and Delay Times without Project												
	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2029 Traffic	8	34	8	10	12	3	6	17	15	2	9	6
Delay (sec)	0.0	1.3	1.3	0.1	3.0	3.0	9.4	9.4	9.4	9.3	9.3	9.3
LOS	A	A	A	A	A	A	A	A	A	A	A	A

Table 30 – Int. 2: 2029 Buildout Intersection Traffic Conditions Summary without the Project

Int 2 - Hwy 26/Clark Road: 2029 Buildout LOS and Delay Times without Project												
	Southeast Bound			Northwest Bound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2029 Traffic	25	301	6	5	415	14	3	7	5	9	10	28
Delay (sec)	8.5	0.0	0.0	8.0	0.0	0.0	16.5	16.5	16.5	15.5	15.5	15.5
LOS	A	A	A	A	A	A	C	C	C	C	C	C

Table 31 – Int. 3: 2029 Buildout Intersection Traffic Conditions Summary without the Project

Int 3 - Hwy 26/200N: 2029 Buildout LOS and Delay Times without Project												
	Eastbound			Westbound			Northwest Bound			Southeast Bound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2029 Traffic	2	4	32	2	5	55	88	362	2	31	299	6
Delay (sec)	12.7	12.7	12.7	12.9	12.9	12.9	8.3	0.0	0.0	8.3	0.0	0.0
LOS	B	B	B	B	B	B	A	A	A	A	A	A

As can be seen from these tables, all turning movements are forecasted to operate within the recommended thresholds. Therefore, no mitigation measures are warranted.

Turn Lane Analysis

Left Turn Lane Analysis

New left turn lane(s) are not warranted for the 2029 buildout traffic.

Right Turn Lane Analysis

New right turn lane(s) are not warranted for the 2029 buildout traffic.

Overall Summary for the 2029 Buildout Traffic Conditions Summary without the Project

This analysis has determined that no improvements are warranted to handle the 2029 buildout traffic volumes. In addition, no left or right turn lanes are warranted to improve safety.

2049 Horizon Year without the Project

Roadway Characteristics

It was determined in the previous section of this chapter that the roadways are functioning at acceptable levels and that no improvements were needed. Therefore, all roadway characteristics for the 2049 horizon year are the same as existing.

Traffic Control Devices

It is assumed that the traffic control devices will be the same as those identified in Chapter 3;

Pedestrian/Bicycle Facilities

The study area is in a rural area with no evidence of pedestrian or bicycle facilities. According to the Bingham County Transportation Plan, no pedestrian/bicycle facilities projects are planned within the study area.

Traffic Volumes

Volume Forecast Methods

The growth rates identified in Chapter 1 will be used to project future traffic volumes. The annual average increases are: 1.37% for Clark Road, 3.26% for 200 N, and 1.90% for Hwy 26.

Forecasted Volumes by Horizon Year without the Project

The 2049 horizon year forecasted traffic volumes were calculated by taking the existing 2024 traffic counts (see Chapter 3) and increasing them by the annual increase discussed in the previous paragraph. The results of these counts are shown in the following tables and figures.

Table 32 – Seg. 1 2049 Horizon Year Daily and Peak Hr Traffic Volumes without the Project

Segment 1: Clark Road	Units	Year	Traffic Volume	Northbound	Southbound
AADT	VPD	2024	425	222	203
Peak Hour	VPH	2024	45	29	16
AADT	VPD	2029	455	238	217
Peak Hour	VPH	2029	49	31	17
AADT	VPD	2049	598	313	286
Peak Hour	VPH	2049	64	41	23

Table 33 – Seg. 2 2049 Horizon Year Daily and Peak Hr Traffic Volumes without the Project

Segment 2: 200 N	Units	Year	Traffic Volume	Eastbound	Westbound
AADT	VPD	2024	591	291	300
Peak Hour	VPH	2024	70	47	22
AADT	VPD	2029	696	342	353
Peak Hour	VPH	2029	82	56	26
AADT	VPD	2049	1336	658	678
Peak Hour	VPH	2049	158	107	50

The following figures show the forecasted volumes for the intersections for the 2049 horizon year.

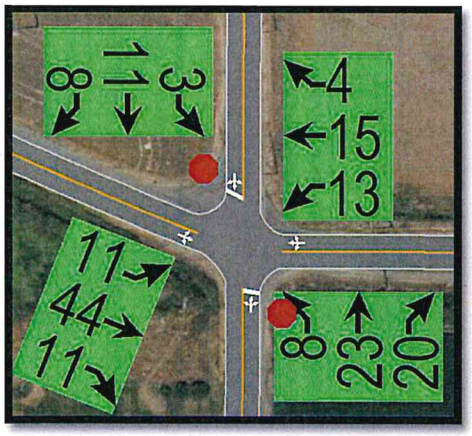


Figure 16: Int. 1 2049 Horizon Year PM Peak Hr Volumes without the Project

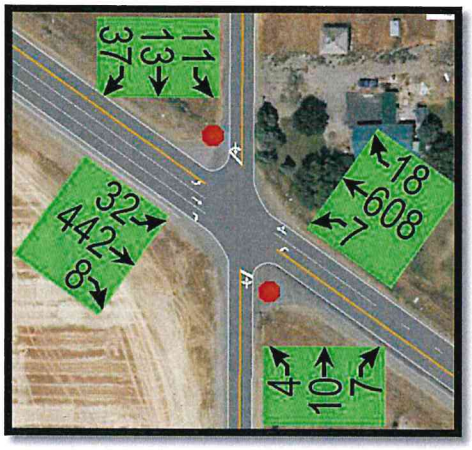


Figure 17: Int. 2 2049 Horizon Year PM Peak Hr Volumes without the Project

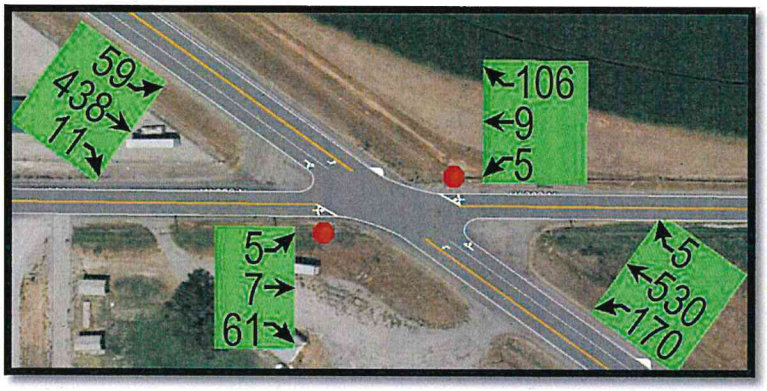


Figure 18: Int. 3 2049 Horizon Year PM Peak Hr Volumes without the Project

Level of Service without the Project

Segment LOS without the Project

The methods discussed in Chapter 1 will be used to calculate the PFFS and LOS. The following tables are a result of these calculations. For a more in-depth look at these calculations, reference Appendix B.

Table 34 – Seg. 1 2049 Horizon Year Segment PM Peak Traffic LOS without the Project

Segment 1	Existing 2024		2029 Buildout		2049 Horizon	
Clark Road	Value	LOS	Value	LOS	Value	LOS
FFS (mph)	46.15	n/a	46.15	n/a	46.15	n/a
PFFS (%)	98.6%	A	98.6%	A	98.3%	A

Table 35 – Seg. 2 2049 Horizon Year Segment PM Peak Traffic LOS without the Project

Segment 2	Existing 2024		2029 Buildout		2049 Horizon	
200 N	Value	LOS	Value	LOS	Value	LOS
FFS (mph)	38.25	n/a	38.25	n/a	38.25	n/a
PFFS (%)	97.8%	A	97.5%	A	95.7%	A

Intersection LOS without the Project

In order to determine how well an intersection is functioning, the level of service (LOS), control delay, volume/capacity ratio (v/c Ratio), and the 95th percentile queue are determined. Using the traffic volumes and turning movements shown previously, the 2049 horizon year conditions for each intersection can be determined.

The traffic volumes, identified in this chapter, were entered into the computer modeling software Synchro. The results from the model for each intersection are shown in the following tables and more in-depth in Appendix C.

Table 36 – Int. 1: 2049 Horizon Year Intersection PM Peak Traffic LOS without the Project

HCM 2000 SIGNING SETTINGS	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes and Sharing (#RL)												
Traffic Volume (vph)	11	44	11	13	15	4	8	23	20	3	11	8
Future Volume (vph)	11	44	11	13	15	4	8	23	20	3	11	8
Sign Control	—	Free	—	—	Free	—	—	Stop	—	—	Stop	—
Median Width (ft)	—	0	—	—	0	—	—	0	—	—	0	—
TWLTL Median	—	☐	—	—	☐	—	—	☐	—	—	☐	—
Right Turn Channelized	—	—	None	—	—	None	—	—	None	—	—	None
Critical Gap, tC (s)	4.2	—	—	4.2	—	—	7.2	6.6	6.3	7.2	6.6	6.3
Follow Up Time, tF (s)	2.3	—	—	2.3	—	—	3.6	4.1	3.4	3.6	4.1	3.4
Volume to Capacity Ratio	0.01	0.01	0.01	0.01	0.01	0.01	0.07	0.07	0.07	0.03	0.03	0.03
Control Delay (s)	0.1	1.3	1.3	0.1	3.1	3.1	9.6	9.6	9.6	9.5	9.5	9.5
Level of Service	A	A	A	A	A	A	A	A	A	A	A	A
Queue Length 95th (ft)	1	1	1	1	1	1	5	5	5	2	2	2
Approach Delay (s)	—	1.3	—	—	3.1	—	—	9.6	—	—	9.5	—

Table 37 – Int. 2: 2049 Horizon Year Intersection PM Peak Traffic LOS without the Project

HCM 2000 SIGNING SETTINGS	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lanes and Sharing (#RL)												
Traffic Volume (vph)	4	10	7	11	13	37	32	442	8	7	608	18
Future Volume (vph)	4	10	7	11	13	37	32	442	8	7	608	18
Sign Control	—	Stop	—	—	Stop	—	—	Free	—	—	Free	—
Median Width (ft)	—	0	—	—	0	—	—	12	—	—	12	—
TWLTL Median	—	☐	—	—	☐	—	—	☐	—	—	☐	—
Right Turn Channelized	—	—	None	—	—	None	—	—	None	—	—	None
Critical Gap, tC (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2	—	—	4.2	—	—
Follow Up Time, tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3	—	—	2.3	—	—
Volume to Capacity Ratio	0.12	0.12	0.12	0.27	0.27	0.27	0.04	0.28	0.01	0.01	0.40	0.40
Control Delay (s)	25.8	25.8	25.8	24.9	24.9	24.9	9.2	0.0	0.0	8.5	0.0	0.0
Level of Service	D	D	D	C	C	C	A	A	A	A	A	A
Queue Length 95th (ft)	10	10	10	26	26	26	3	0	0	1	0	0
Approach Delay (s)	—	25.8	—	—	24.9	—	—	0.6	—	—	0.1	—

Table 38 – Int. 3: 2049 Horizon Year Intersection PM Peak Traffic LOS without the Project

HCM 2000 SIGNING SETTINGS	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lanes and Sharing (#RL)												
Traffic Volume (vph)	5	7	61	5	9	106	59	438	11	170	530	5
Future Volume (vph)	5	7	61	5	9	106	59	438	11	170	530	5
Sign Control	—	Stop	—	—	Stop	—	—	Free	—	—	Free	—
Median Width (ft)	—	0	—	—	0	—	—	12	—	—	12	—
TWLTL Median	—		—	—		—	—		—	—		—
Right Turn Channelized	—	—	None	—	—	None	—	—	None	—	—	None
Critical Gap, tC (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2	—	—	4.2	—	—
Follow Up Time, tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3	—	—	2.3	—	—
Volume to Capacity Ratio	0.33	0.33	0.33	0.44	0.44	0.44	0.07	0.29	0.29	0.18	0.34	0.34
Control Delay (s)	27.2	27.2	27.2	26.5	26.5	26.5	9.0	0.0	0.0	9.2	0.0	0.0
Level of Service	D	D	D	D	D	D	A	A	A	A	A	A
Queue Length 95th (ft)	35	35	35	54	54	54	5	0	0	16	0	0
Approach Delay (s)	—	27.2	—	—	26.5	—	—	1.0	—	—	2.2	—

Safety (Turn lane Warrants) without the Project

2049 Horizon Year Conditions Left Turn Lane Analysis

Using the guidelines and procedures as described in Chapter 1, we learn that for safety, the following new left turn lanes are warranted for the 2049 horizon year conditions at each intersection; reference Appendix H for the right turn analysis worksheet.

1. Int 1: Eastbound traffic
2. Int 2: Southbound Traffic

2049 Horizon Year Conditions Right Turn Lane Analysis

Using the guidelines and procedures as described in Chapter 1, we learn that for safety, the following new right turn lanes are warranted for the 2049 horizon year conditions at each intersection; reference Appendix I for the right turn analysis worksheet.

1. Int 3: Westbound Traffic

2049 Horizon Year PM Peak Hr Traffic Conditions Summary without the Project

Segments

The following table is a summary of the traffic conditions for the roadway segments.

Table 39 – 2049 Horizon Year Segment Traffic Conditions Summary without the Project

Segment 1	Existing 2024		2029 Buildout		2049 Horizon	
Clark Road	Value	LOS	Value	LOS	Value	LOS
FFS (mph)	46.15	n/a	46.15	n/a	46.15	n/a
PFFS (%)	98.6%	A	98.6%	A	98.3%	A
Segment 2	**Existing 2024**		**2029 Buildout**		**2049 Horizon**	
200 N	Value	LOS	Value	LOS	Value	LOS
FFS (mph)	38.25	n/a	38.25	n/a	38.25	n/a
PFFS (%)	97.8%	A	97.5%	A	95.7%	A

As can be seen in the above table, each segment is forecasted to operate at an acceptable level.

Intersections

The following tables show each intersection's LOS and delay times.

Table 40 – Int. 1: 2049 Horizon Year Intersection Traffic Conditions Summary without the Project

Int 1 - Clark Road/200 N: 2049 Horizon Year LOS and Delay Times without Project												
	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2049 Traffic	11	44	11	13	15	4	8	23	20	3	11	8
Delay (sec)	0.1	1.3	1.3	0.1	3.1	3.1	9.6	9.6	9.6	9.5	9.5	9.5
LOS	A	A	A	A	A	A	A	A	A	A	A	A

Table 41 – Int. 2: 2049 Horizon Year Intersection Traffic Conditions Summary without the Project

Int 2 - Hwy 26/Clark Road: 2049 Horizon Year LOS and Delay Times without Project												
	Southeast Bound			Northwest Bound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2049 Traffic	32	442	8	7	608	18	4	10	7	11	13	37
Delay (sec)	9.2	0.0	0.0	8.5	0.0	0.0	25.8	25.8	25.8	24.9	24.9	24.9
LOS	A	A	A	A	A	A	D	D	D	C	C	C

Table 42 – Int. 3: 2049 Horizon Year Intersection Traffic Conditions Summary without the Project

Int 3 - Hwy 26/200N: 2049 Horizon Year LOS and Delay Times without Project												
	Eastbound			Westbound			Northwest Bound			Southeast Bound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2049 Traffic	5	7	61	5	9	106	170	530	5	59	438	11
Delay (sec)	27.2	27.2	27.2	26.5	26.5	26.5	9.2	0.0	0.0	9.0	0.0	0.0
LOS	D	D	D	D	D	D	A	A	A	A	A	A

As can be seen from these tables, all turning movements are forecasted to operate within the recommended thresholds. Therefore, no mitigation measures are warranted.

Turn Lane Analysis

Left Turn Lane Analysis

The following new left turn lane(s) are warranted for the 2049 Horizon Year traffic.

1. Int 1: Eastbound traffic
2. Int 2: Southbound Traffic

Right Turn Lane Analysis

The following new right turn lane(s) are warranted for the 2049 Horizon Year traffic.

1. Int 3: Westbound Traffic

Overall Summary for the 2049 Horizon Year Traffic Conditions without the Project

This analysis has determined that the traffic approaching Hwy 26 will be near an unacceptable level based on the projected traffic delays but will not be at a failed level. However, using the ITD safety guidelines, it has been found that for the 2049 horizon year, new turn lanes at each intersection are warranted; Int 1. eastbound traffic left turn lane, Int. 2 southbound traffic left turn lane, and Int. 3 westbound right turn lane.

CHAPTER 5: ANALYSIS OF FUTURE WITH PROJECT CONDITIONS

This chapter will take the conditions outlined in Chapter 3, increase them by the annual growth rate, and add the generated traffic from the project for both the 2029 buildout and 20-year 2049 horizon years with the project.

Site Traffic Forecasts (each horizon year)

Trip Generation

It is anticipated that the buildout of the development will be complete by 2029. From discussions with the project owners, it is anticipated that the trips generated are:

- Daily
  - 50 vpd (heavy vehicles)
  - 20 vpd (smaller vehicles)
- Peak Hour
  - 14 vph (heavy vehicles)
  - 6 vph (smaller vehicles)

Mode Split

Modal split is the determination of different travel modes (automobile, heavy vehicles, walk, etc.) from an origin to a given destination. The modal split assumptions are:

- 70% of all traffic generated by the development will be heavy vehicles
- 30% will be automobile traffic
- 0 pedestrian trips will be generated

Pass-by Traffic (if applicable)

Pass-by trips are made as intermediate stops on the way from an origin to a destination without a route diversion. In other words, a pass-by trip is when the traffic on an adjacent roadway is attracted to a certain land use in a development as non-site traffic. The trip generally goes from the origin to the generator and then returns to the origin. The proposed project does not have any land uses that would be considered pass-by trips.

Trip Distribution

For study purposes, it is assumed that:

- Daily Trips
  - Primary Trips Entering = 50%
  - Primary Trips Exiting = 50%
- Peak Hour
  - Primary Trips Entering = 50%
  - Primary Trips Exiting = 50%

Trip Assignment

It is assumed that the generated trips will travel from the proposed gravel pit to Hwy 26 following similar traffic patterns that currently exists. This indicates that 60% of the traffic will head south on Clark Road to Hwy 26 and 40% will turn right and travel to Hwy 26 via 200 N.

Total With-Project Volumes (each horizon year)

The following figures show the forecasted PM peak hour trip assignment and generated volumes that will be used in this analysis.

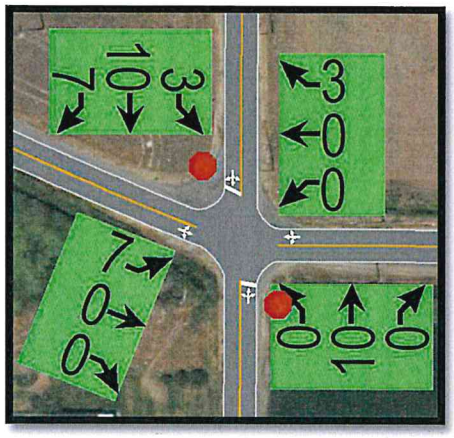


Figure 19: Int. 1 PM Peak Generated Traffic

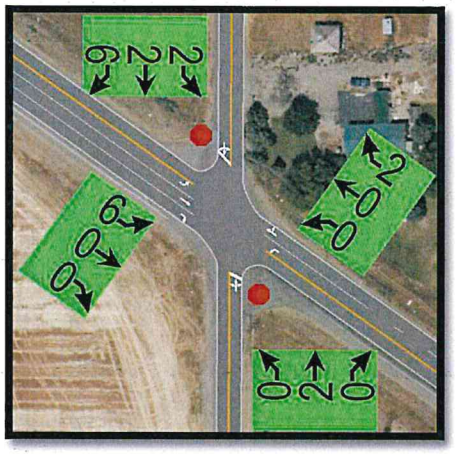


Figure 20: Int. 2 PM Peak Generated Traffic

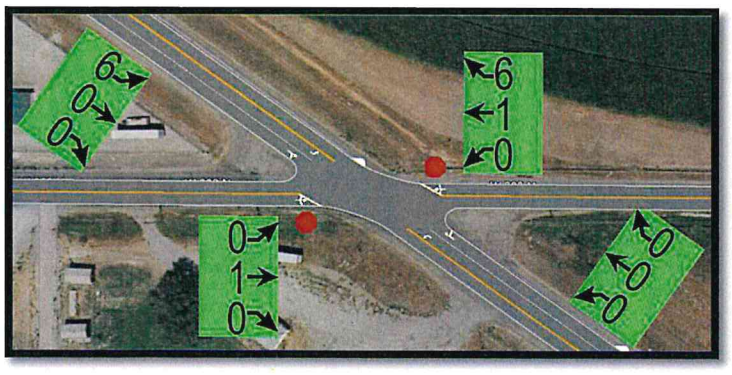


Figure 21: Int. 3 PM Peak Generated Traffic

2029 Buildout Year with the Project

Roadway Characteristics

It was determined in Chapter 3 that the roadways are functioning at acceptable levels and that no improvements were needed. Therefore, all roadway characteristics for the 2029 buildout year are the same as existing.

Traffic Control Devices

It is assumed that the traffic control devices will be the same as those identified in Chapter 3;

Pedestrian/Bicycle Facilities

The study area is in a rural area with no evidence of pedestrian or bicycle facilities. According to the Bingham County Transportation Plan, no pedestrian/bicycle facilities projects are planned within the study area.

Traffic Volumes

Volume Forecast Methods

The growth rates identified in Chapter 1 will be used to project future traffic volumes. The annual average increases are: 1.37% for Clark Road, 3.26% for 200 N, and 1.90% for Hwy 26.

Forecasted Volumes by Horizon Year with the Project

The 2029 buildout year forecasted traffic volumes were calculated by taking the existing 2024 traffic counts (see Chapter 3), increasing them by the annual increase discussed in the previous paragraph, and by adding the generated traffic from the project. The results of these counts are shown in the following tables and figures.

Table 43 – Seg. 1 2029 Buildout Year Daily and Peak Hr Traffic Volumes with the Project

Segment 1: Clark Road	Units	Year	Traffic Volume	Northbound	Southbound
AADT	VPD	2024	425	222	203
Peak Hour	VPH	2024	45	29	16
AADT	VPD	2029	539	280	259
Peak Hour	VPH	2029	69	41	27

Table 44 – Seg. 2 2029 Buildout Year Daily and Peak Hr Traffic Volumes with the Project

Segment 2: 200 N	Units	Year	Traffic Volume	Eastbound	Westbound
AADT	VPD	2024	591	291	300
Peak Hour	VPH	2024	70	47	22
AADT	VPD	2029	752	370	381
Peak Hour	VPH	2029	96	63	33

The following figures show the forecasted volumes for the intersections for the 2029 buildout year.

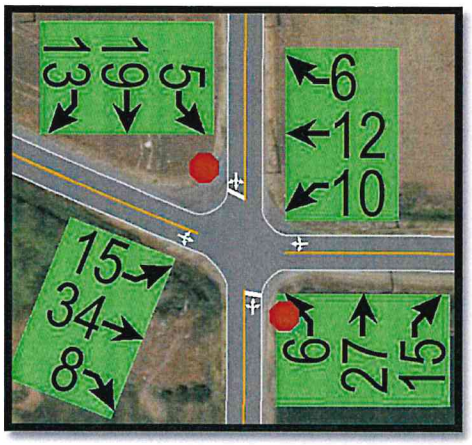


Figure 22: Int. 1 2029 Buildout Year PM Peak Hr Volumes with the Project

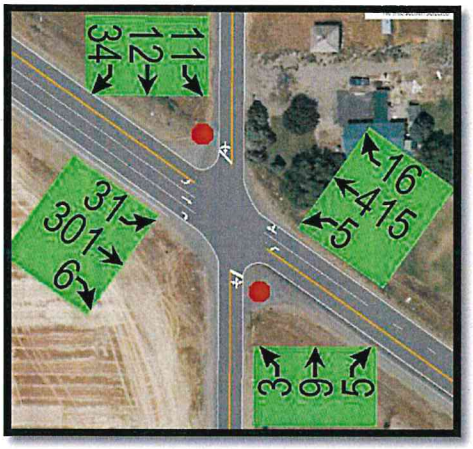


Figure 23: Int. 2 2029 Buildout Year PM Peak Hr Volumes with the Project

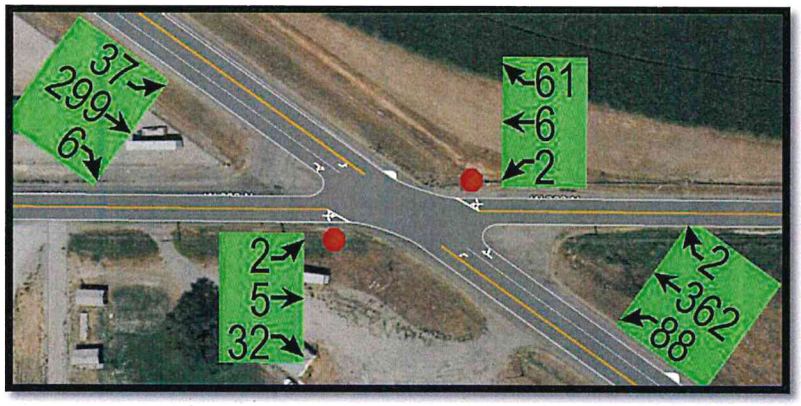


Figure 24: Int. 3 2029 Buildout Year PM Peak Hr Volumes with the Project

Level of Service with the Project

Segment LOS with the Project

The methods discussed in Chapter 1 will be used to calculate the PFFS and LOS. The following tables are a result of these calculations. For a more in-depth look at these calculations, reference Appendix B.

Table 45 – Seg. 1 2029 Buildout Year Segment PM Peak Traffic LOS with the Project

Segment 1	Existing 2024		2029 Buildout	
Clark Road	Value	LOS	Value	LOS
FFS (mph)	46.15	n/a	46.15	n/a
PFFS (%)	99.4%	A	98.2%	A

Table 46 – Seg. 2 2029 Buildout Year Segment PM Peak Traffic LOS with the Project

Segment 2	Existing 2024		2029 Buildout	
200 N	Value	LOS	Value	LOS
FFS (mph)	38.25	n/a	38.25	n/a
PFFS (%)	97.7%	A	97.1%	A

Intersection LOS with the Project

In order to determine how well an intersection is functioning, the level of service (LOS), control delay, volume/capacity ratio (v/c Ratio), and the 95th percentile queue are determined. Using the traffic volumes and turning movements shown previously, the 2029 buildout traffic conditions for each intersection can be determined.

The traffic volumes, identified in this chapter, were entered into the computer modeling software Synchro. The results from the model for each intersection are shown in the following tables and more in-depth in Appendix C.

Table 47 – Int. 1: 2029 Buildout Intersection PM Peak Traffic LOS with the Project

HCM 2000 SIGNING SETTINGS	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes and Sharing (#RL)												
Traffic Volume (vph)	15	34	8	10	12	6	6	27	15	5	19	13
Future Volume (vph)	15	34	8	10	12	6	6	27	15	5	19	13
Sign Control	–	Free	–	–	Free	–	–	Stop	–	–	Stop	–
Median Width (ft)	–	0	–	–	0	–	–	0	–	–	0	–
TWLTL Median	–		–	–		–	–		–	–		–
Right Turn Channelized	–	–	None	–	–	None	–	–	None	–	–	None
Critical Gap, tC (s)	4.2	–	–	4.2	–	–	7.2	6.6	6.3	7.2	6.6	6.3
Follow Up Time, tF (s)	2.3	–	–	2.3	–	–	3.6	4.1	3.4	3.6	4.1	3.4
Volume to Capacity Ratio	0.01	0.01	0.01	0.01	0.01	0.01	0.06	0.06	0.06	0.05	0.05	0.05
Control Delay (s)	0.1	2.0	2.0	0.1	2.7	2.7	9.7	9.7	9.7	9.5	9.5	9.5
Level of Service	A	A	A	A	A	A	A	A	A	A	A	A
Queue Length 95th (ft)	1	1	1	1	1	1	5	5	5	4	4	4
Approach Delay (s)	–	2.0	–	–	2.7	–	–	9.7	–	–	9.5	–

Table 48 – Int. 2: 2029 Buildout Intersection PM Peak Traffic LOS with the Project

HCM 2000 SIGNING SETTINGS	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lanes and Sharing (#RL)												
Traffic Volume (vph)	3	9	5	11	12	34	31	301	6	5	415	16
Future Volume (vph)	3	9	5	11	12	34	31	301	6	5	415	16
Sign Control	—	Stop	—	—	Stop	—	—	Free	—	—	Free	—
Median Width (ft)	—	0	—	—	0	—	—	12	—	—	12	—
TWLTL Median	—	☐	—	—	☐	—	—	☐	—	—	☐	—
Right Turn Channelized	—	—	None	—	—	None	—	—	None	—	—	None
Critical Gap, tC (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2	—	—	4.2	—	—
Follow Up Time, tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3	—	—	2.3	—	—
Volume to Capacity Ratio	0.06	0.06	0.06	0.16	0.16	0.16	0.03	0.19	0.00	0.00	0.28	0.28
Control Delay (s)	17.2	17.2	17.2	16.0	16.0	16.0	8.5	0.0	0.0	8.0	0.0	0.0
Level of Service	C	C	C	C	C	C	A	A	A	A	A	A
Queue Length 95th (ft)	5	5	5	14	14	14	2	0	0	0	0	0
Approach Delay (s)	—	17.2	—	—	16.0	—	—	0.8	—	—	0.1	—

Table 49 – Int. 3: 2029 Buildout Intersection PM Peak Traffic LOS with the Project

HCM 2000 SIGNING SETTINGS	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lanes and Sharing (#RL)												
Traffic Volume (vph)	2	5	32	2	6	61	37	299	6	88	362	2
Future Volume (vph)	2	5	32	2	6	61	37	299	6	88	362	2
Sign Control	—	Stop	—	—	Stop	—	—	Free	—	—	Free	—
Median Width (ft)	—	0	—	—	0	—	—	12	—	—	12	—
TWLTL Median	—	☐	—	—	☐	—	—	☐	—	—	☐	—
Right Turn Channelized	—	—	None	—	—	None	—	—	None	—	—	None
Critical Gap, tC (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2	—	—	4.2	—	—
Follow Up Time, tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3	—	—	2.3	—	—
Volume to Capacity Ratio	0.09	0.09	0.09	0.15	0.15	0.15	0.04	0.20	0.20	0.08	0.23	0.23
Control Delay (s)	13.1	13.1	13.1	13.3	13.3	13.3	8.3	0.0	0.0	8.3	0.0	0.0
Level of Service	B	B	B	B	B	B	A	A	A	A	A	A
Queue Length 95th (ft)	7	7	7	13	13	13	3	0	0	7	0	0
Approach Delay (s)	—	13.1	—	—	13.3	—	—	0.9	—	—	1.6	—

Safety (Turn lane Warrants) with the Project

2029 Buildout Year Conditions Left Turn Lane Analysis

Using the guidelines and procedures as described in Chapter 1, we learn that for safety, the following new left turn lanes are warranted for the 2029 buildout year conditions at each intersection; reference Appendix H for the right turn analysis worksheet.

1. Int 1: Eastbound traffic
2. Int 2: Southbound traffic

2029 Buildout Year Conditions Right Turn Lane Analysis

Using the guidelines and procedures as described in Chapter 1, we learn that for safety, the following new right turn lanes are warranted for the 2029 buildout year conditions at each intersection; reference Appendix I for the right turn analysis worksheet.

1. None

2029 Buildout PM Peak Hr Traffic Conditions Summary with the Project

Segments

The following table is a summary of the traffic conditions for the roadway segments.

Table 50 – 2029 Buildout Segment Traffic Conditions Summary with the Project

Segment 1	Existing 2024		2029 Buildout	
Clark Road	Value	LOS	Value	LOS
FFS (mph)	46.15	n/a	46.15	n/a
PFFS (%)	99.4%	A	98.2%	A
Segment 2	**Existing 2024**		**2029 Buildout**	
200 N	Value	LOS	Value	LOS
FFS (mph)	38.25	n/a	38.25	n/a
PFFS (%)	97.7%	A	97.1%	A

As can be seen in the above table, each segment is forecasted to operate at an acceptable level.

Intersections

The following tables show each intersection's LOS and delay times.

Table 51 – Int. 1: 2029 Buildout Intersection Traffic Conditions Summary with the Project

Int 1 - Clark Road/200 N: 2029 Buildout LOS and Delay Times with the Project												
	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2029 Traffic	15	34	8	10	12	6	6	27	15	5	19	13
Delay (sec)	0.1	2.0	2.0	0.1	2.7	2.7	9.7	9.7	9.7	9.5	9.5	9.5
LOS	A	A	A	A	A	A	A	A	A	A	A	A

Table 52 – Int. 2: 2029 Buildout Intersection Traffic Conditions Summary with the Project

Int 2 - Hwy 26/Clark Road: 2029 Buildout LOS and Delay Times with the Project												
	Southeast Bound			Northwest Bound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2029 Traffic	31	301	6	5	415	16	3	9	5	11	12	34
Delay (sec)	8.5	0.0	0.0	8.0	0.0	0.0	17.2	17.2	17.2	16.0	16.0	16.0
LOS	A	A	A	A	A	A	C	C	C	C	C	C

Table 53 – Int. 3: 2029 Buildout Intersection Traffic Conditions Summary with the Project

Int 3 - Hwy 26/200N: 2029 Buildout LOS and Delay Times with the Project												
	Eastbound			Westbound			Northwest Bound			Southeast Bound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2029 Traffic	2	5	32	2	6	61	88	362	2	37	299	6
Delay (sec)	13.1	13.1	13.1	13.3	13.3	13.3	8.3	0.0	0.0	8.3	0.0	0.0
LOS	B	B	B	B	B	B	A	A	A	A	A	A

As can be seen from these tables, all turning movements are forecasted to operate within the recommended thresholds. Therefore, no mitigation measures are warranted.

Turn Lane Analysis

Left Turn Lane Analysis

The following new left turn lane(s) are warranted for the 2029 buildout traffic.

1. Int 1: Eastbound traffic
2. Int 2: Southbound traffic

Right Turn Lane Analysis

The following new right turn lane(s) are warranted for the 2029 buildout traffic.

1. None

Overall Summary for the 2029 Buildout Traffic Conditions with the Project

This analysis has determined that no improvements are warranted to handle the 2029 buildout traffic volumes. However, using the ITD safety guidelines, it has been found that for the 2029 buildout year with the project, new turn lanes at intersection 1 and 2 are warranted; Int 1. eastbound traffic left turn lane and Int. 2 southbound traffic left turn lane.

2049 Horizon Year with the Project

Roadway Characteristics

It was determined in the previous section of this chapter that the roadways are functioning at acceptable levels and that no improvements were needed. Therefore, all roadway characteristics for the 2049 horizon year are the same as existing.

Traffic Control Devices

It is assumed that the traffic control devices will be the same as those identified in Chapter 3.

Pedestrian/Bicycle Facilities

The study area is in a rural area with no evidence of pedestrian or bicycle facilities. According to the Bingham County Transportation Plan, no pedestrian/bicycle facilities projects are planned within the study area.

Traffic Volumes

Volume Forecast Methods

The growth rates identified in Chapter 1 will be used to project future traffic volumes. The annual average increases are: 1.37% for Clark Road, 3.26% for 200 N, and 1.90% for Hwy 26.

Forecasted Volumes by Horizon Year without the Project

The 2049 horizon year forecasted traffic volumes were calculated by taking the existing 2024 traffic counts (see Chapter 3), increasing them by the annual increase discussed in the previous paragraph, and by adding the generated traffic from the project. The results of these counts are shown in the following tables and figures.

Table 54 – Seg. 1 2049 Horizon Year Daily and Peak Hr Traffic Volumes with the Project

Segment 1: Clark Road	Units	Year	Traffic Volume	Northbound	Southbound
AADT	VPD	2024	425	222	203
Peak Hour	VPH	2024	45	29	16
AADT	VPD	2029	539	280	259
Peak Hour	VPH	2029	69	41	27
AADT	VPD	2049	682	355	328
Peak Hour	VPH	2049	84	51	33

Table 55 – Seg. 2 2049 Horizon Year Daily and Peak Hr Traffic Volumes with the Project

Segment 2: 200 N	Units	Year	Traffic Volume	Eastbound	Westbound
AADT	VPD	2024	591	291	300
Peak Hour	VPH	2024	70	47	22
AADT	VPD	2029	752	370	381
Peak Hour	VPH	2029	96	63	33
AADT	VPD	2049	1392	686	706
Peak Hour	VPH	2049	172	114	57

The following figures show the forecasted volumes for the intersections for the 2049 horizon year.

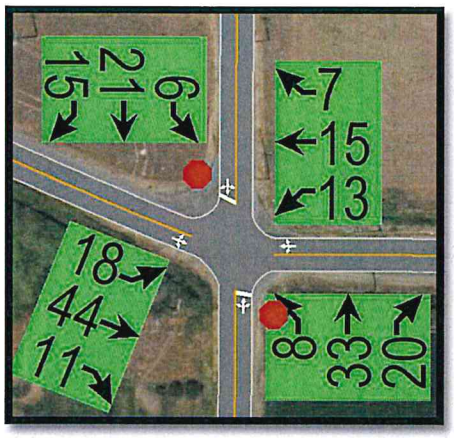


Figure 25: Int. 1 2049 Horizon Year PM Peak Hr Volumes with the Project

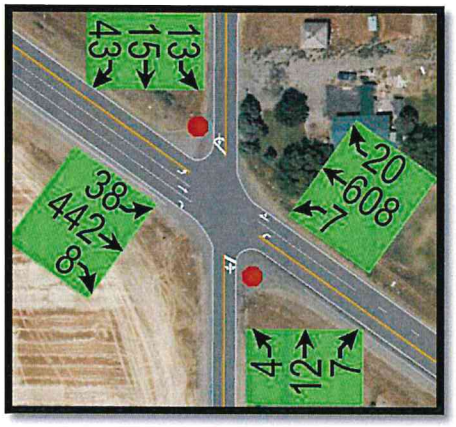


Figure 26: Int. 2 2049 Horizon Year PM Peak Hr Volumes with the Project

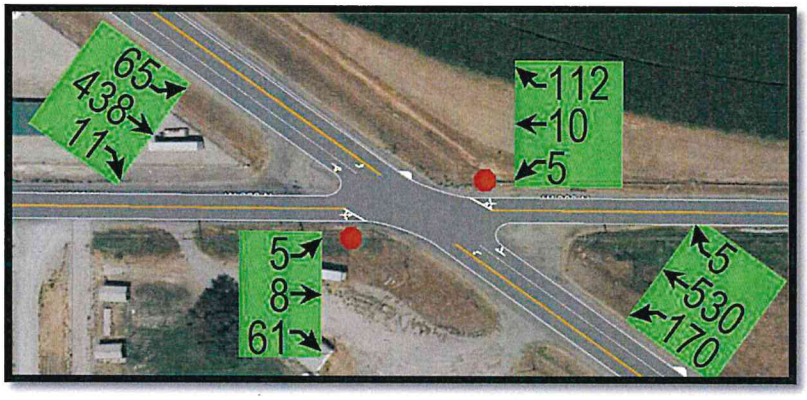


Figure 27: Int. 3 2049 Horizon Year PM Peak Hr Volumes with the Project

Level of Service with the Project

Segment LOS with the Project

The methods discussed in Chapter 1 will be used to calculate the PFFS and LOS. The following tables are a result of these calculations. For a more in-depth look at these calculations, reference Appendix B.

Table 56 – Seg. 1 2049 Horizon Year Segment PM Peak Traffic LOS with the Project

Segment 1	Existing 2024		2029 Buildout		2049 Horizon	
Clark Road	Value	LOS	Value	LOS	Value	LOS
FFS (mph)	46.15	n/a	46.15	n/a	46.15	n/a
PFFS (%)	99.4%	A	98.2%	A	97.8%	A

Table 57 – Seg. 2 2049 Horizon Year Segment PM Peak Traffic LOS with the Project

Segment 2	Existing 2024		2029 Buildout		2049 Horizon	
200 N	Value	LOS	Value	LOS	Value	LOS
FFS (mph)	38.25	n/a	38.25	n/a	38.25	n/a
PFFS (%)	97.7%	A	97.1%	A	95.3%	A

Intersection LOS with the Project

In order to determine how well an intersection is functioning, the level of service (LOS), control delay, volume/capacity ratio (v/c Ratio), and the 95th percentile queue are determined. Using the traffic volumes and turning movements shown previously, the 2049 horizon year conditions for each intersection can be determined.

The traffic volumes, identified in this chapter, were entered into the computer modeling software Synchro. The results from the model for each intersection are shown in the following tables and more in-depth in Appendix C.

Table 58 – Int. 1: 2049 Horizon Year Intersection PM Peak Traffic LOS with the Project

HCM 2000 SIGNING SETTINGS	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes and Sharing (#RL)												
Traffic Volume (vph)	18	44	11	13	15	7	8	33	20	6	21	15
Future Volume (vph)	18	44	11	13	15	7	8	33	20	6	21	15
Sign Control	–	Free	–	–	Free	–	–	Stop	–	–	Stop	–
Median Width (ft)	–	0	–	–	0	–	–	0	–	–	0	–
TWLTL Median	–		–	–		–	–		–	–		–
Right Turn Channelized	–	–	None	–	–	None	–	–	None	–	–	None
Critical Gap, tC (s)	4.2	–	–	4.2	–	–	7.2	6.6	6.3	7.2	6.6	6.3
Follow Up Time, tF (s)	2.3	–	–	2.3	–	–	3.6	4.1	3.4	3.6	4.1	3.4
Volume to Capacity Ratio	0.01	0.01	0.01	0.01	0.01	0.01	0.08	0.08	0.08	0.06	0.06	0.06
Control Delay (s)	0.1	1.9	1.9	0.1	2.8	2.8	10.0	10.0	10.0	9.8	9.8	9.8
Level of Service	A	A	A	A	A	A	A	A	A	A	A	A
Queue Length 95th (ft)	1	1	1	1	1	1	7	7	7	5	5	5
Approach Delay (s)	–	1.9	–	–	2.8	–	–	10.0	–	–	9.8	–

Table 59 – Int. 2: 2049 Horizon Year Intersection PM Peak Traffic LOS with the Project

HCM 2000 SIGNING SETTINGS	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lanes and Sharing (#RL)												
Traffic Volume (vph)	4	12	7	13	15	43	38	442	8	7	608	20
Future Volume (vph)	4	12	7	13	15	43	38	442	8	7	608	20
Sign Control	–	Stop	–	–	Stop	–	–	Free	–	–	Free	–
Median Width (ft)	–	0	–	–	0	–	–	12	–	–	12	–
TWLTL Median	–		–	–		–	–		–	–		–
Right Turn Channelized	–	–	None	–	–	None	–	–	None	–	–	None
Critical Gap, tC (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2	–	–	4.2	–	–
Follow Up Time, tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3	–	–	2.3	–	–
Volume to Capacity Ratio	0.13	0.13	0.13	0.32	0.32	0.32	0.05	0.28	0.01	0.01	0.40	0.40
Control Delay (s)	27.3	27.3	27.3	26.7	26.7	26.7	9.3	0.0	0.0	8.5	0.0	0.0
Level of Service	D	D	D	D	D	D	A	A	A	A	A	A
Queue Length 95th (ft)	11	11	11	33	33	33	4	0	0	1	0	0
Approach Delay (s)	–	27.3	–	–	26.7	–	–	0.7	–	–	0.1	–

Table 60 – Int. 3: 2049 Horizon Year Intersection PM Peak Traffic LOS with the Project

HCM 2000 SIGNING SETTINGS	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lanes and Sharing (#RL)												
Traffic Volume (vph)	5	8	61	5	10	112	65	438	11	170	530	5
Future Volume (vph)	5	8	61	5	10	112	65	438	11	170	530	5
Sign Control	—	Stop	—	—	Stop	—	—	Free	—	—	Free	—
Median Width (ft)	—	0	—	—	0	—	—	12	—	—	12	—
TWLTL Median	—		—	—		—	—		—	—		—
Right Turn Channelized	—	—	None	—	—	None	—	—	None	—	—	None
Critical Gap, tC (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2	—	—	4.2	—	—
Follow Up Time, tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3	—	—	2.3	—	—
Volume to Capacity Ratio	0.35	0.35	0.35	0.47	0.47	0.47	0.07	0.29	0.29	0.18	0.34	0.34
Control Delay (s)	29.4	29.4	29.4	28.1	28.1	28.1	9.0	0.0	0.0	9.2	0.0	0.0
Level of Service	D	D	D	D	D	D	A	A	A	A	A	A
Queue Length 95th (ft)	38	38	38	60	60	60	6	0	0	16	0	0
Approach Delay (s)	—	29.4	—	—	28.1	—	—	1.1	—	—	2.2	—

Safety (Turn lane Warrants) with the Project

2049 Horizon Year Conditions Left Turn Lane Analysis

Using the guidelines and procedures as described in Chapter 1, we learn that for safety, the following new left turn lanes are warranted for the 2049 horizon year conditions at each intersection; reference Appendix H for the right turn analysis worksheet.

1. Int 1: Eastbound traffic
2. Int 2: Southbound traffic

2049 Horizon Year Conditions Right Turn Lane Analysis

Using the guidelines and procedures as described in Chapter 1, we learn that for safety, the following new right turn lanes are warranted for the 2049 horizon year conditions at each intersection; reference Appendix I for the right turn analysis worksheet.

1. Int. 2: Northwest bound traffic

2049 Horizon Year PM Peak Hr Traffic Conditions Summary with the Project

Segments

The following table is a summary of the traffic conditions for the roadway segments.

Table 61 – 2049 Horizon Year Segment Traffic Conditions Summary with the Project

Segment 1	Existing 2024		2029 Buildout		2049 Horizon	
Clark Road	Value	LOS	Value	LOS	Value	LOS
FFS (mph)	46.15	n/a	46.15	n/a	46.15	n/a
PFFS (%)	99.4%	A	98.2%	A	97.8%	A
Segment 2	**Existing 2024**		**2029 Buildout**		**2049 Horizon**	
200 N	Value	LOS	Value	LOS	Value	LOS
FFS (mph)	38.25	n/a	38.25	n/a	38.25	n/a
PFFS (%)	97.7%	A	97.1%	A	95.3%	A

As can be seen in the above table, each segment is forecasted to operate at an acceptable level.

Intersections

The following tables show each intersection's LOS and delay times.

Table 62 – Int. 1: 2049 Horizon Year Intersection Traffic Conditions Summary with the Project

Int 1 - Clark Road/200 N: 2049 Horizon Year LOS and Delay Times with the Project												
	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2049 Traffic	18	44	11	13	15	7	8	33	20	6	21	15
Delay (sec)	0.1	1.9	1.9	0.1	2.8	2.8	10.0	10.0	10.0	9.8	9.8	9.8
LOS	A	A	A	A	A	A	A	A	A	A	A	A

Table 63 – Int. 2: 2049 Horizon Year Intersection Traffic Conditions Summary with the Project

Int 2 - Hwy 26/Clark Road: 2049 Horizon Year LOS and Delay Times with the Project												
	Southeast Bound			Northwest Bound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2049 Traffic	38	442	8	7	608	20	4	12	7	13	15	43
Delay (sec)	9.3	0.0	0.0	8.5	0.0	0.0	27.3	27.3	27.3	26.7	26.7	26.7
LOS	A	A	A	A	A	A	D	D	D	D	D	D

Table 64 – Int. 3: 2049 Horizon Year Intersection Traffic Conditions Summary with the Project

Int 3 - Hwy 26/200N: 2049 Horizon Year LOS and Delay Times with the Project												
	Eastbound			Westbound			Northwest Bound			Southeast Bound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2049 Traffic	5	8	61	5	10	112	170	530	5	65	438	11
Delay (sec)	29.4	29.4	29.4	28.1	28.1	28.1	9.2	0.0	0.0	9.0	0.0	0.0
LOS	D	D	D	D	D	D	A	A	A	A	A	A

As can be seen from these tables, all turning movements are forecasted to operate within the recommended thresholds. Therefore, no mitigation measures are warranted.

Turn Lane Analysis

Left Turn Lane Analysis

The following new left turn lane(s) are warranted for the 2049 horizon traffic.

1. Int 1: Eastbound traffic
2. Int 2: Southbound traffic

Right Turn Lane Analysis

The following new right turn lane(s) are warranted for the 2049 horizon traffic.

1. Int. 2: Northwest bound traffic

Overall Summary for the 2049 Horizon Year Traffic Conditions Summary with the Project

This analysis has determined that no improvements are warranted to handle the 2049 horizon Year traffic volumes. However, using the ITD safety guidelines, it has been found that for the 2049 horizon year with the project, new turn lanes at intersection 1 and 2 are warranted; Int 1. eastbound traffic left turn lane, Int. 2 southbound traffic left turn lane, and Int. 2 northwest bound right turn lane.

CHAPTER 6: MITIGATION MEASURES FOR TRAFFIC AND SAFETY

Areas not Meeting Minimum Thresholds

Traffic

This study has identified that with or without the proposed project the transportation network is forecasted to function within recommended minimum thresholds for the traffic analysis. No areas were determined deficient warranting mitigation measures or improvements caused by capacity or traffic delays.

Safety

It was found that at buildout, in order to meet ITD guidelines, that left turn lanes are warranted at the following:

- Int. 1 – left turn lane for the eastbound traffic
- Int. 2 – left turn lane for the southbound traffic

Mitigation Measures

It is recommended that left turn lanes be constructed as shown in the following figure.

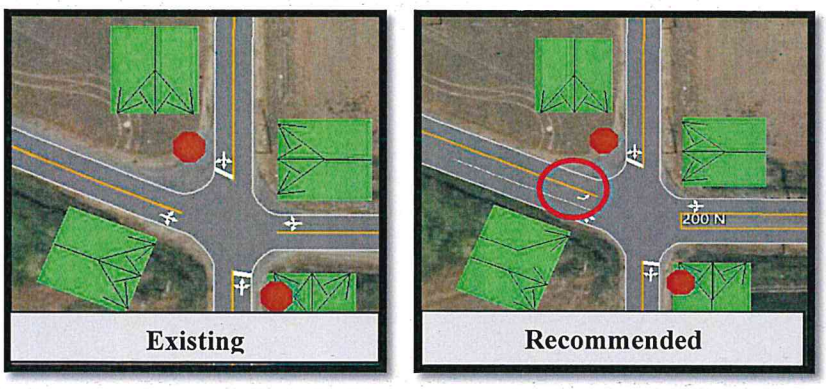


Figure 28: Mitigation Measure 1 – Construct Left Turn Lane at Int. 1

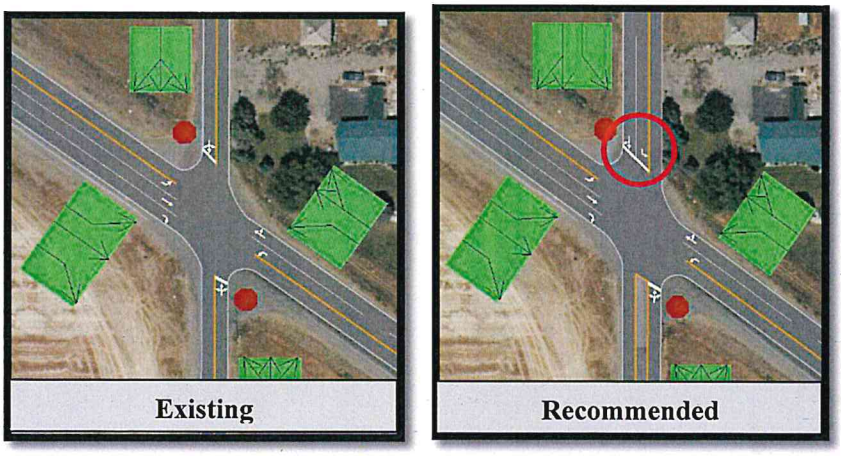


Figure 29: Mitigation Measure 2 – Construct Left Turn Lane at Int. 2

It should be noted on the safety warrants that Hwy 26, owned by ITD, warrants modifications with or without the project and that there is no notable increase in the safety warrants for 200 north and Clark in the current horizon year vs the 20 year horizon year. The Crash Reduction Factor (CRF) for turn lanes is 12%-25% and the CRF for shoulder widening is 10%-15%.

Crash Data:

ITD crash data reports in the last 5 years

- Clark/200 north – 4 Accidents
- 200 north/Hwy 26 – 5 Accidents
- Clark/Hwy 26 – 7 Accidents

As we look at the circumstances of the accents there were two primary causes; road departures, and failure to yield/rear end. Engineer recommends high visibility/flashing stop sign in this area as a mitigating measure.

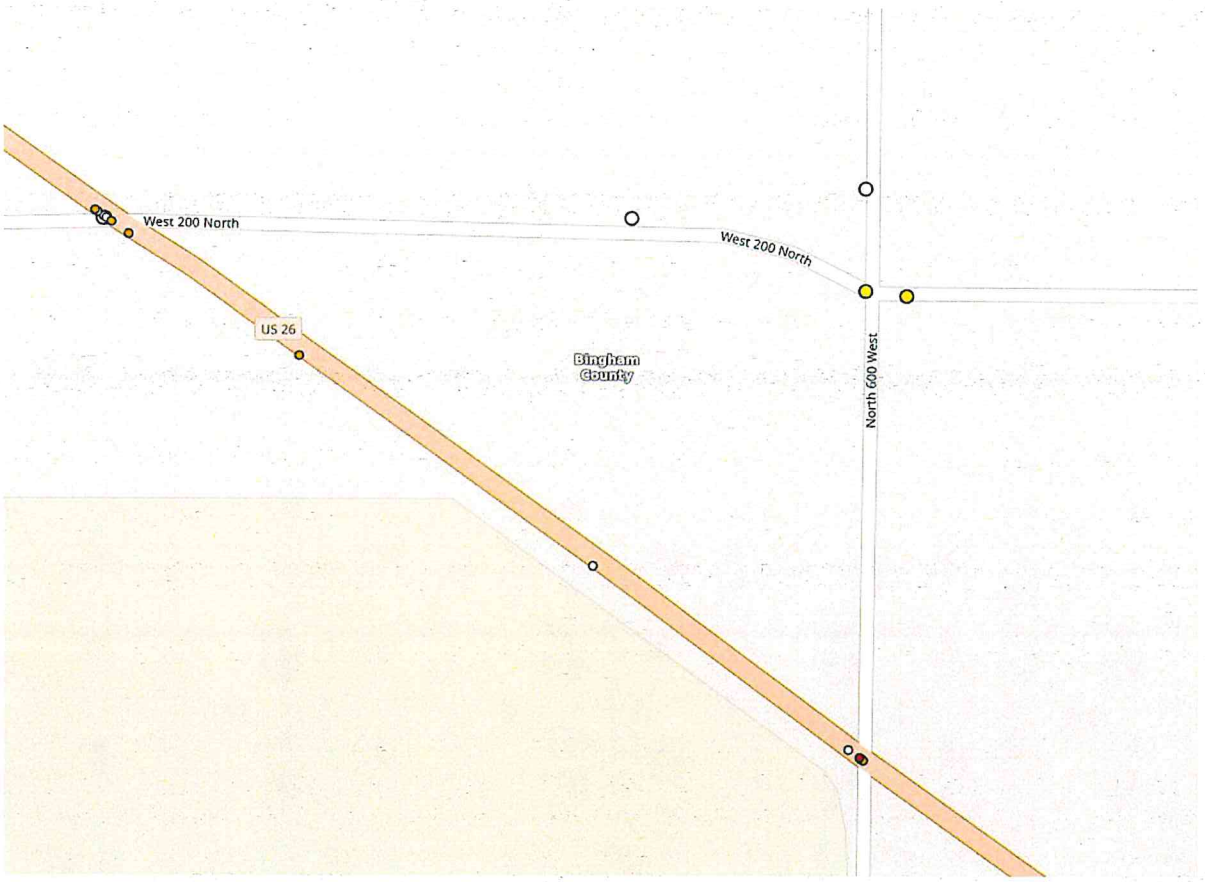


Figure 30: Crash Data

CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

After evaluating the proposed development within the context of zoning; projected land use; existing transportation system; background traffic counts for the principal roadways within the study impact area; projected traffic for horizon year's corresponding with project opening, project buildout, and a 20-year horizon year; the findings of the Traffic Impact Study are summarized in this chapter.

Level of Service Analysis

Segment LOS

The following tables show the results of the segment LOS analysis; as can be seen, all the segments throughout each horizon year results in an acceptable LOS; a failed level is a PFFS less than 66.70%.

Table 65 – Seg. 1 Traffic Conditons Progression Each Horizon Year

Segment 1: Clark Road	PFFS/LOS	
	PFFS	LOS
2024 Existing Traffic	98.6%	A
2029 Buildout Comparison		
2029 Buildout Traffic without the Project	98.6%	A
2029 Buildout Traffic with the Project	98.2%	A
Impact (decrease)	0.4%	None
2049 Horizon Year Comparison		
2049 Horizon Traffic without the Project	98.3%	A
2029 Horizon Traffic with the Project	97.8%	A
Impact (decrease)	0.5%	None

Table 66 – Seg. 2 Traffic Conditons Progression Each Horizon Year

Segment 2: 200 N	PFFS/LOS	
	PFFS	LOS
2024 Existing Traffic without the Project	97.8%	A
2029 Buildout Comparison		
2029 Buildout Traffic without the Project	97.5%	A
2029 Buildout Traffic with the Project	97.1%	A
Impact (decrease)	0.4%	None
2049 Horizon Year Comparison		
2049 Horizon Traffic without the Project	95.7%	A
2029 Horizon Traffic with the Project	95.3%	A
Impact (decrease)	0.4%	None

Intersection LOS

The following tables show the results of the intersection LOS analysis; as can be seen, all the turning movements at each intersection throughout each horizon year results in an acceptable LOS.

Table 67 – Int. 1 Traffic Conditons Progression Each Horizon Year

Intersection 1: Clark Road/200 N	Eastbound		Westbound		Northbound		Southbound	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
2024 Existing Traffic without the Project	1.3	A	3.0	A	9.3	A	9.2	A
2029 Buildout Comparison								
2029 Buildout Traffic without the Project	1.3	A	3.0	A	9.4	A	9.3	A
2029 Buildout Traffic with the Project	2	A	3.0	A	9.7	A	9.5	A
Increased Delays (sec)/Decreased LOS	0.7	None	0	None	0.3	None	0.2	None
2049 Horizon Year Comparison								
2049 Horizon Year Traffic without the Project	1.3	A	3.1	A	9.6	A	9.5	A
2049 Horizon Year Traffic with the Project	1.9	A	3.1	A	10	A	9.8	A
Increased Delays (sec)/Decreased LOS	0.6	None	0	None	0.4	None	0.3	None

Table 68 – Int. 2 Traffic Conditons Progression Each Horizon Year

Intersection 2: Hwy 26/Clark Road	Southeast Bound		Northwest Bound		Northbound		Southbound	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
2024 Existing Traffic without the Project	8.3	A	8.0	A	15.3	C	14.3	B
2029 Buildout Comparison								
2029 Buildout Traffic without the Project	8.5	A	8	A	16.5	C	15.5	C
2029 Buildout Traffic with the Project	8.5	A	8	A	17.2	C	16	C
Increased Delays (sec)/Decreased LOS	0	None	0	None	0.7	None	0.5	None
2049 Horizon Year Comparison								
2049 Horizon Year Traffic without the Project	9.2	A	8.5	A	25.8	D	24.9	C
2049 Horizon Year Traffic with the Project	9.3	A	8.5	A	27.3	D	26.7	D
Increased Delays (sec)/Decreased LOS	0.1	None	0	None	1.5	None	1.8	C TO D

Table 69 – Int. 3 Traffic Conditons Progression Each Horizon Year

Intersection 3: Hwy 26/200 N	Eastbound		Westbound		Northwest Bound		Southeast Bound	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
2024 Existing Traffic without the Project	11.9	B	12.1	B	8.1	A	8.2	A
2029 Buildout Comparison								
2029 Buildout Traffic without the Project	12.7	B	12.9	B	8.3	A	8.3	A
2029 Buildout Traffic with the Project	13.1	B	13.3	B	8.3	A	8.3	A
Increased Delays (sec)/Decreased LOS	0.4	None	0.4	None	0	None	0	None
2049 Horizon Year Comparison								
2049 Horizon Year Traffic without the Project	27.2	D	26.5	D	9.2	A	9	A
2049 Horizon Year Traffic with the Project	29.4	D	28.1	D	9.2	A	9	A
Increased Delays (sec)/Decreased LOS	2.2	None	1.6	None	0	None	0	None

Traffic Safety Implications

This study has identified left turn lanes are warranted for safety, due to the impact of the development, for the eastbound traffic at Int. 1 (traveling east on 200 N) and the southbound traffic at Int. 2 (traveling south on Clark Road). Additionally, this study utilized AutoCAD to simulated the WB-50 turning movements at each intersection to determine whether trucks could make the required maneuvers within the designated lanes of traffic. Shoulder widening for 200 north and Clark road is recommended in lieu of turn lanes; refer to Appendix J for AutoCAD exhibits for each intersection. High visibility stop signs are recommended for traffic approaching Highway 26.

Sight Distance

The intersection's sight triangle is the area required to have a clear sight for safe turning movements. This area is called the "sight distance triangle". The length of the sight triangle leg or ISD along the major road is collected from an equation in the *AASHTO Guide for Very Low Volume Roads*. The calculated ISD distance for 25, 35, 45, and 55 mph is 150, 240, 350, and 475 feet respectively. The following figure shows the sight triangle traffic approaching the left and right.

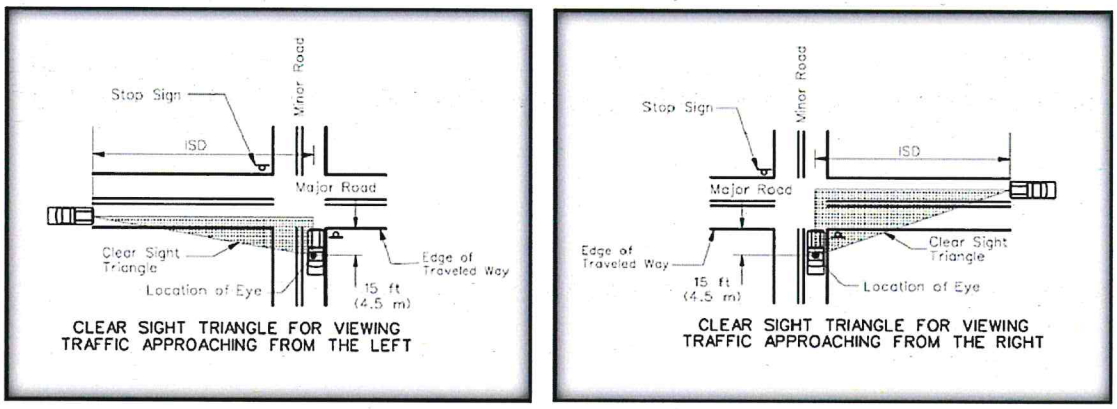


Figure 31: AASHTO Sight Triangle

This analysis has determined that each intersection meets the minimum sight triangle requirement.

Pedestrian/Bicycle Considerations

The project type does not generate any type of need for pedestrian or bicycle infrastructure. Additionally, the Bingham County Transportation plan does not identify plans for the study area. Therefore, considerations for new or updated pedestrian/bicycle facilities are not warranted for this project.

On-Site Traffic Circulation

All site traffic will enter the gravel pit at one (1) access point. The proposed gravel pit has sufficient area to circulate traffic in a safe manner.

Consistency with Adopted Transportation Plan

The Bingham County Transportation Plan identifies that the road section should be 24' in width; see the following figure.

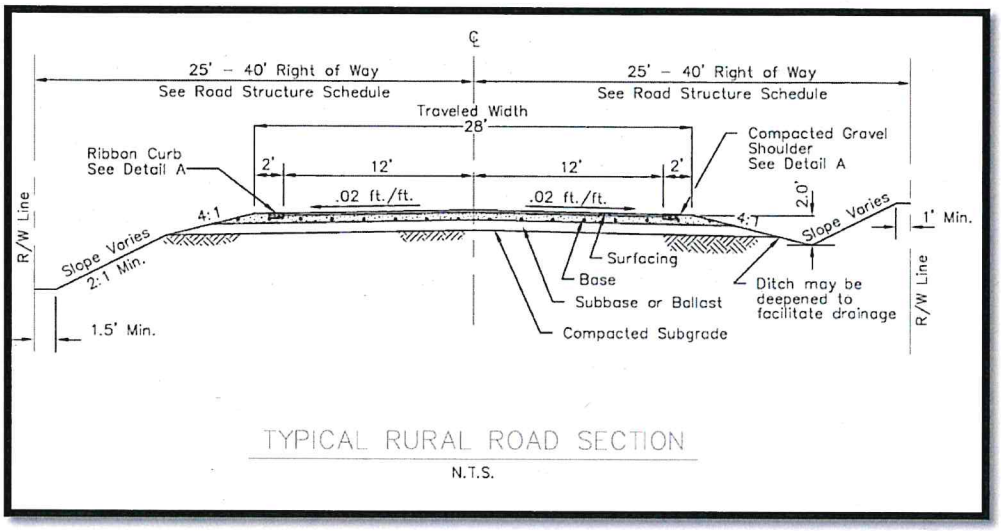


Figure 32: Bingham County Rural Road Section

The roadways within the study area are 24' in width. Additionally, the transportation plan does not identify improvements for the study area. No inconsistencies were noted in regards to the adopted transportation plan.

Recommendations

This study has identified that the current road segments are adequate to handle the capacity required without or with the proposed project throughout the study period. All intersections are forecasted to operate within all required capacity thresholds. For safety, both left and right turn lane analyses were performed to identify if there is a safety concern according to ITD guidelines; the CRF recommend for this project is shoulder widening for 200 north and for clark road for approximately 200 feet as they approach Hwy 26. In addition, sight distances were analyzed for the intersections. All sight distances meet AASHTO sight distance recommendations. Lastly high visibility stop signs are recommended for intersections approaching Hwy 26.

Overall, it is the recommendation of this study that the proposed project will have minimal impacts to the traffic network within the study area for each horizon year but does require the construction of shoulder widening to meet the crash reduction factors.

APPENDIX

Appendix A: Traffic Counts

Clark Road

Date/Time	Approaching, Near Lane	Receding, Far Lane	Total
8/28/2024 10:00 AM	2	5	7
8/28/2024 11:00 AM	8	10	18
8/28/2024 12:00 PM	11	10	21
8/28/2024 1:00 PM	10	3	13
8/28/2024 2:00 PM	16	15	31
8/28/2024 3:00 PM	22	12	34
8/28/2024 4:00 PM	18	15	33
8/28/2024 5:00 PM	23	15	38
8/28/2024 6:00 PM	17	12	29
8/28/2024 7:00 PM	14	14	28
8/28/2024 8:00 PM	13	6	19
8/28/2024 9:00 PM	4	0	4
8/28/2024 10:00 PM	4	2	6
8/28/2024 11:00 PM	1	0	1
8/29/2024 12:00 AM	0	4	4
8/29/2024 1:00 AM	0	0	0
8/29/2024 2:00 AM	1	0	1
8/29/2024 3:00 AM	0	1	1
8/29/2024 4:00 AM	1	1	2
8/29/2024 5:00 AM	1	3	4
8/29/2024 6:00 AM	8	9	17
8/29/2024 7:00 AM	14	15	29
8/29/2024 8:00 AM	20	14	34
8/29/2024 9:00 AM	14	5	19
8/29/2024 10:00 AM	5	12	17
8/29/2024 11:00 AM	16	11	27
8/29/2024 12:00 PM	9	10	19
8/29/2024 1:00 PM	15	12	27
8/29/2024 2:00 PM	20	14	34
8/29/2024 3:00 PM	18	11	29
8/29/2024 4:00 PM	18	15	33
8/29/2024 5:00 PM	14	13	27
8/29/2024 6:00 PM	22	13	35
8/29/2024 7:00 PM	16	7	23
8/29/2024 8:00 PM	9	13	22
8/29/2024 9:00 PM	1	3	4
8/29/2024 10:00 PM	2	1	3
8/29/2024 11:00 PM	2	4	6
8/30/2024 12:00 AM	1	1	2
8/30/2024 1:00 AM	0	0	0
8/30/2024 2:00 AM	0	0	0
8/30/2024 3:00 AM	1	0	1
8/30/2024 4:00 AM	2	1	3
8/30/2024 5:00 AM	1	3	4
8/30/2024 6:00 AM	4	8	12
8/30/2024 7:00 AM	12	14	26
8/30/2024 8:00 AM	16	7	23
8/30/2024 9:00 AM	12	16	28

Date/Time	Approaching, Near Lane	Receding, Far Lane	Total
8/30/2024 10:00 AM	13	11	24
8/30/2024 11:00 AM	8	14	22
8/30/2024 12:00 PM	14	10	24
8/30/2024 1:00 PM	11	11	22
8/30/2024 2:00 PM	12	11	23
8/30/2024 3:00 PM	16	7	23
8/30/2024 4:00 PM	23	13	36
8/30/2024 5:00 PM	17	13	30
8/30/2024 6:00 PM	13	11	24
8/30/2024 7:00 PM	14	9	23
8/30/2024 8:00 PM	10	4	14
8/30/2024 9:00 PM	7	5	12
8/30/2024 10:00 PM	8	5	13
8/30/2024 11:00 PM	1	3	4
8/31/2024 12:00 AM	0	0	0
8/31/2024 1:00 AM	0	1	1
8/31/2024 2:00 AM	1	0	1
8/31/2024 3:00 AM	0	0	0
8/31/2024 4:00 AM	0	0	0
8/31/2024 5:00 AM	1	0	1
8/31/2024 6:00 AM	5	9	14
8/31/2024 7:00 AM	11	7	18
8/31/2024 8:00 AM	6	10	16
8/31/2024 9:00 AM	7	11	18
8/31/2024 10:00 AM	10	6	16
8/31/2024 11:00 AM	7	10	17
8/31/2024 12:00 PM	14	10	24
8/31/2024 1:00 PM	25	11	36
8/31/2024 2:00 PM	18	9	27
8/31/2024 3:00 PM	9	6	15
8/31/2024 4:00 PM	11	3	14
8/31/2024 5:00 PM	10	7	17
8/31/2024 6:00 PM	13	13	26
8/31/2024 7:00 PM	7	11	18
8/31/2024 8:00 PM	8	9	17
8/31/2024 9:00 PM	4	4	8
8/31/2024 10:00 PM	6	4	10
8/31/2024 11:00 PM	5	2	7
9/1/2024 12:00 AM	0	2	2
9/1/2024 1:00 AM	0	0	0
9/1/2024 2:00 AM	0	2	2
9/1/2024 3:00 AM	1	0	1
9/1/2024 4:00 AM	1	1	2
9/1/2024 5:00 AM	0	0	0
9/1/2024 6:00 AM	3	0	3
9/1/2024 7:00 AM	2	3	5
9/1/2024 8:00 AM	6	5	11
9/1/2024 9:00 AM	1	4	5
9/1/2024 10:00 AM	6	5	11

Date/Time	Approaching, Near Lane	Receding, Far Lane	Total
9/1/2024 11:00 AM	8	5	13
9/1/2024 12:00 PM	8	4	12
9/1/2024 1:00 PM	1	5	6
9/1/2024 2:00 PM	7	4	11
9/1/2024 3:00 PM	3	10	13
9/1/2024 4:00 PM	8	8	16
9/1/2024 5:00 PM	9	13	22
9/1/2024 6:00 PM	10	5	15
9/1/2024 7:00 PM	6	5	11
9/1/2024 8:00 PM	11	6	17
9/1/2024 9:00 PM	3	4	7
9/1/2024 10:00 PM	1	2	3
9/1/2024 11:00 PM	3	0	3
9/2/2024 12:00 AM	1	1	2
9/2/2024 1:00 AM	0	3	3
9/2/2024 2:00 AM	1	0	1
9/2/2024 3:00 AM	0	0	0
9/2/2024 4:00 AM	0	0	0
9/2/2024 5:00 AM	1	0	1
9/2/2024 6:00 AM	2	1	3
9/2/2024 7:00 AM	13	6	19
9/2/2024 8:00 AM	7	8	15
9/2/2024 9:00 AM	11	9	20
9/2/2024 10:00 AM	5	13	18
9/2/2024 11:00 AM	4	10	14
9/2/2024 12:00 PM	15	13	28
9/2/2024 1:00 PM	7	13	20
9/2/2024 2:00 PM	6	23	29
9/2/2024 3:00 PM	11	11	22
9/2/2024 4:00 PM	9	10	19
9/2/2024 5:00 PM	10	11	21
9/2/2024 6:00 PM	8	9	17
9/2/2024 7:00 PM	45	10	55
9/2/2024 8:00 PM	7	7	14
9/2/2024 9:00 PM	4	5	9
9/2/2024 10:00 PM	3	5	8
9/2/2024 11:00 PM	0	1	1
9/3/2024 12:00 AM	2	2	4
9/3/2024 1:00 AM	0	0	0
9/3/2024 2:00 AM	0	0	0
9/3/2024 3:00 AM	1	0	1
9/3/2024 4:00 AM	0	0	0
9/3/2024 5:00 AM	1	4	5
9/3/2024 6:00 AM	10	9	19
9/3/2024 7:00 AM	9	22	31
9/3/2024 8:00 AM	14	13	27
9/3/2024 9:00 AM	7	14	21
9/3/2024 10:00 AM	14	13	27
9/3/2024 11:00 AM	8	13	21

Date/Time	Approaching, Near Lane	Receding, Far Lane	Total
9/3/2024 12:00 PM	13	10	23
9/3/2024 1:00 PM	13	9	22
9/3/2024 2:00 PM	12	8	20
9/3/2024 3:00 PM	22	16	38
9/3/2024 4:00 PM	17	14	31
9/3/2024 5:00 PM	29	16	45
9/3/2024 6:00 PM	16	6	22
9/3/2024 7:00 PM	12	15	27
9/3/2024 8:00 PM	10	2	12
9/3/2024 9:00 PM	5	7	12
9/3/2024 10:00 PM	3	6	9
9/3/2024 11:00 PM	2	2	4
9/4/2024 12:00 AM	2	0	2
9/4/2024 1:00 AM	1	1	2
9/4/2024 2:00 AM	0	0	0
9/4/2024 3:00 AM	1	1	2
9/4/2024 4:00 AM	0	0	0
9/4/2024 5:00 AM	0	5	5
9/4/2024 6:00 AM	7	9	16
9/4/2024 7:00 AM	14	17	31
9/4/2024 8:00 AM	22	16	38
9/4/2024 9:00 AM	11	10	21
9/4/2024 10:00 AM	15	13	28
9/4/2024 11:00 AM	12	8	20
9/4/2024 12:00 PM	9	6	15
9/4/2024 1:00 PM	4	5	9
Total	1369	1184	

200 North

Date/Time	Approaching, Far Lane	Receding, Near Lane	Total
8/28/2024 11:00 AM	10	8	18
8/28/2024 12:00 PM	18	12	30
8/28/2024 1:00 PM	24	15	39
8/28/2024 2:00 PM	21	19	40
8/28/2024 3:00 PM	21	22	43
8/28/2024 4:00 PM	16	34	50
8/28/2024 5:00 PM	26	33	59
8/28/2024 6:00 PM	20	25	45
8/28/2024 7:00 PM	11	9	20
8/28/2024 8:00 PM	13	7	20
8/28/2024 9:00 PM	3	7	10
8/28/2024 10:00 PM	3	3	6
8/28/2024 11:00 PM	0	1	1
8/29/2024 12:00 AM	3	3	6
8/29/2024 1:00 AM	1	1	2
8/29/2024 2:00 AM	1	0	1
8/29/2024 3:00 AM	0	1	1
8/29/2024 4:00 AM	11	0	11
8/29/2024 5:00 AM	17	2	19
8/29/2024 6:00 AM	14	9	23
8/29/2024 7:00 AM	20	15	35
8/29/2024 8:00 AM	16	16	32
8/29/2024 9:00 AM	15	10	25
8/29/2024 10:00 AM	10	16	26
8/29/2024 11:00 AM	22	7	29
8/29/2024 12:00 PM	18	21	39
8/29/2024 1:00 PM	22	24	46
8/29/2024 2:00 PM	23	15	38
8/29/2024 3:00 PM	21	20	41
8/29/2024 4:00 PM	25	28	53
8/29/2024 5:00 PM	22	27	49
8/29/2024 6:00 PM	13	17	30
8/29/2024 7:00 PM	16	9	25
8/29/2024 8:00 PM	9	12	21
8/29/2024 9:00 PM	9	6	15
8/29/2024 10:00 PM	10	1	11
8/29/2024 11:00 PM	1	2	3
8/30/2024 12:00 AM	1	0	1
8/30/2024 1:00 AM	1	1	2
8/30/2024 2:00 AM	0	0	0
8/30/2024 3:00 AM	0	1	1
8/30/2024 4:00 AM	0	0	0
8/30/2024 5:00 AM	2	1	3
8/30/2024 6:00 AM	5	5	10
8/30/2024 7:00 AM	9	12	21
8/30/2024 8:00 AM	13	11	24
8/30/2024 9:00 AM	17	18	35
8/30/2024 10:00 AM	18	15	33

Date/Time	Approaching, Far Lane	Receding, Near Lane	Total
8/30/2024 11:00 AM	17	17	34
8/30/2024 12:00 PM	31	17	48
8/30/2024 1:00 PM	12	9	21
8/30/2024 2:00 PM	14	17	31
8/30/2024 3:00 PM	22	24	46
8/30/2024 4:00 PM	24	21	45
8/30/2024 5:00 PM	24	14	38
8/30/2024 6:00 PM	33	15	48
8/30/2024 7:00 PM	15	5	20
8/30/2024 8:00 PM	11	9	20
8/30/2024 9:00 PM	6	4	10
8/30/2024 10:00 PM	10	6	16
8/30/2024 11:00 PM	5	1	6
8/31/2024 12:00 AM	5	5	10
8/31/2024 1:00 AM	0	0	0
8/31/2024 2:00 AM	1	1	2
8/31/2024 3:00 AM	0	0	0
8/31/2024 4:00 AM	1	0	1
8/31/2024 5:00 AM	1	1	2
8/31/2024 6:00 AM	3	5	8
8/31/2024 7:00 AM	4	3	7
8/31/2024 8:00 AM	12	16	28
8/31/2024 9:00 AM	15	12	27
8/31/2024 10:00 AM	19	14	33
8/31/2024 11:00 AM	19	17	36
8/31/2024 12:00 PM	28	18	46
8/31/2024 1:00 PM	16	18	34
8/31/2024 2:00 PM	18	15	33
8/31/2024 3:00 PM	20	19	39
8/31/2024 4:00 PM	22	15	37
8/31/2024 5:00 PM	20	17	37
8/31/2024 6:00 PM	12	17	29
8/31/2024 7:00 PM	7	5	12
8/31/2024 8:00 PM	8	6	14
8/31/2024 9:00 PM	9	7	16
8/31/2024 10:00 PM	8	6	14
8/31/2024 11:00 PM	5	7	12
9/1/2024 12:00 AM	5	4	9
9/1/2024 1:00 AM	0	0	0
9/1/2024 2:00 AM	1	0	1
9/1/2024 3:00 AM	1	1	2
9/1/2024 4:00 AM	0	0	0
9/1/2024 5:00 AM	1	1	2
9/1/2024 6:00 AM	4	1	5
9/1/2024 7:00 AM	2	1	3
9/1/2024 8:00 AM	12	7	19
9/1/2024 9:00 AM	9	6	15
9/1/2024 10:00 AM	11	4	15
9/1/2024 11:00 AM	14	19	33

Date/Time	Approaching, Far Lane	Receding, Near Lane	Total
9/1/2024 12:00 PM	10	7	17
9/1/2024 1:00 PM	6	8	14
9/1/2024 2:00 PM	17	9	26
9/1/2024 3:00 PM	9	8	17
9/1/2024 4:00 PM	8	9	17
9/1/2024 5:00 PM	9	15	24
9/1/2024 6:00 PM	8	8	16
9/1/2024 7:00 PM	11	8	19
9/1/2024 8:00 PM	8	12	20
9/1/2024 9:00 PM	12	5	17
9/1/2024 10:00 PM	3	4	7
9/1/2024 11:00 PM	4	0	4
9/2/2024 12:00 AM	2	0	2
9/2/2024 1:00 AM	2	1	3
9/2/2024 2:00 AM	1	1	2
9/2/2024 3:00 AM	0	0	0
9/2/2024 4:00 AM	0	0	0
9/2/2024 5:00 AM	2	1	3
9/2/2024 6:00 AM	5	9	14
9/2/2024 7:00 AM	10	7	17
9/2/2024 8:00 AM	9	17	26
9/2/2024 9:00 AM	10	9	19
9/2/2024 10:00 AM	12	9	21
9/2/2024 11:00 AM	18	16	34
9/2/2024 12:00 PM	22	10	32
9/2/2024 1:00 PM	24	21	45
9/2/2024 2:00 PM	11	16	27
9/2/2024 3:00 PM	17	12	29
9/2/2024 4:00 PM	26	12	38
9/2/2024 5:00 PM	22	13	35
9/2/2024 6:00 PM	19	9	28
9/2/2024 7:00 PM	7	50	57
9/2/2024 8:00 PM	8	8	16
9/2/2024 9:00 PM	5	6	11
9/2/2024 10:00 PM	12	3	15
9/2/2024 11:00 PM	5	1	6
9/3/2024 12:00 AM	2	2	4
9/3/2024 1:00 AM	1	0	1
9/3/2024 2:00 AM	0	0	0
9/3/2024 3:00 AM	0	0	0
9/3/2024 4:00 AM	15	1	16
9/3/2024 5:00 AM	19	4	23
9/3/2024 6:00 AM	25	10	35
9/3/2024 7:00 AM	16	21	37
9/3/2024 8:00 AM	16	10	26
9/3/2024 9:00 AM	8	13	21
9/3/2024 10:00 AM	16	11	27
9/3/2024 11:00 AM	18	15	33
9/3/2024 12:00 PM	13	13	26

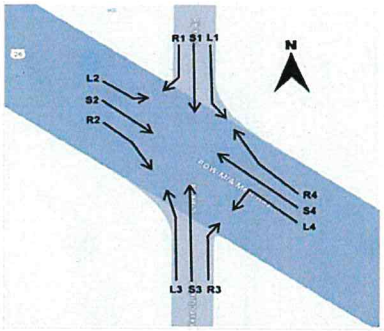
Date/Time	Approaching, Far Lane	Receding, Near Lane	Total
9/3/2024 1:00 PM	18	24	42
9/3/2024 2:00 PM	15	18	33
9/3/2024 3:00 PM	16	20	36
9/3/2024 4:00 PM	17	27	44
9/3/2024 5:00 PM	22	47	69
9/3/2024 6:00 PM	23	26	49
9/3/2024 7:00 PM	12	14	26
9/3/2024 8:00 PM	10	8	18
9/3/2024 9:00 PM	3	2	5
9/3/2024 10:00 PM	7	2	9
9/3/2024 11:00 PM	5	0	5
9/4/2024 12:00 AM	0	1	1
9/4/2024 1:00 AM	1	0	1
9/4/2024 2:00 AM	1	1	2
9/4/2024 3:00 AM	0	0	0
9/4/2024 4:00 AM	13	0	13
9/4/2024 5:00 AM	21	4	25
9/4/2024 6:00 AM	21	12	33
9/4/2024 7:00 AM	20	22	42
9/4/2024 8:00 AM	21	11	32
9/4/2024 9:00 AM	17	8	25
9/4/2024 10:00 AM	7	13	20
9/4/2024 11:00 AM	12	7	19
9/4/2024 12:00 PM	17	13	30
9/4/2024 1:00 PM	4	9	13
Total	1914	1661	3575

Time	Clark St (south bound)					
	R1		S1		L1	
	Cars	Trucks	Cars	Trucks	Cars	Trucks
7:30am - 8:30am	8	0	3	0	2	0
5:00pm - 6:00pm	25	1	9	0	8	0
Total	33	1	12	0	10	0

	Hwy 26 (southeast bound)					
	R2		S2		L2	
	Cars	Trucks	Cars	Trucks	Cars	Trucks
	5	1	189	12	2	0
	5	1	259	15	22	1
	10	2	448	27	24	1

	Clark St (north bound)					
	R3		S3		L3	
	Cars	Trucks	Cars	Trucks	Cars	Trucks
	17	0	4	0	1	1
	5	0	7	0	3	0
	22	0	11	0	4	1

	Hwy 26 (northwest bound)					
	R4		S4		L4	
	Cars	Trucks	Cars	Trucks	Cars	Trucks
	0	0	115	7	24	2
	12	1	361	16	5	0
	12	1	476	23	29	2

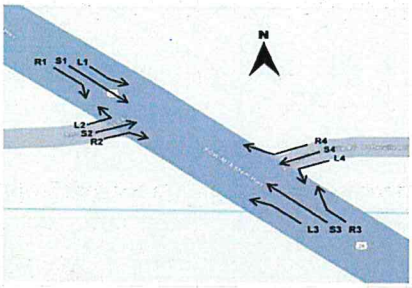


Time	Hwy 26 (southeast bound)					
	R1		S1		L1	
	Cars	Trucks	Cars	Trucks	Cars	Trucks
7:00am - 7:45am	0	0	46	2	25	1
5:45pm - 6:30pm	0	0	255	13	1	1
Total	0	0	301	15	26	2

	Porterville Rd (east bound)					
	R2		S2		L2	
	Cars	Trucks	Cars	Trucks	Cars	Trucks
	4	0	1	0	0	0
	25	2	3	0	2	0
	29	2	4	0	2	0

	Hwy 26 (northwest bound)					
	R3		S3		L3	
	Cars	Trucks	Cars	Trucks	Cars	Trucks
	1	0	88	4	0	2
	0	0	95	8	71	2
	1	0	183	12	71	4

	Porterville (west bound)					
	R4		S4		L4	
	Cars	Trucks	Cars	Trucks	Cars	Trucks
	47	0	2	0	0	0
	2	0	1	3	0	0
	49	0	3	3	0	0

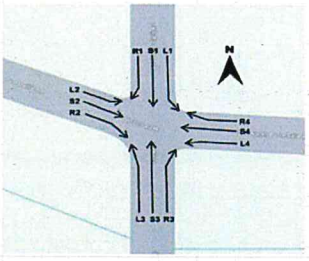


Time	Clark St (south bound)					
	R1		S1		L1	
	Cars	Trucks	Cars	Trucks	Cars	Trucks
7:45am - 8:30am	0	1	6	0	0	0
5:00pm - 5:45pm	0	0	7	1	2	0
Total	0	1	13	1	2	0

	Porterville Rd (east bound)					
	R2		S2		L2	
	Cars	Trucks	Cars	Trucks	Cars	Trucks
	0	0	3	0	0	0
	1	0	4	0	0	0
	1	0	7	0	0	0

	Clark St (north bound)					
	R3		S3		L3	
	Cars	Trucks	Cars	Trucks	Cars	Trucks
	0	0	4	1	1	0
	14	0	16	0	0	0
	14	0	20	1	1	0

	Porterville (west bound)					
	R4		S4		L4	
	Cars	Trucks	Cars	Trucks	Cars	Trucks
	0	0	2	0	7	0
	3	0	2	0	9	0
	3	0	4	0	16	0



Appendix B: Segment LOS Calculations

Existing 2024 without Project: Clark Road

Input Data (Step #1)

Input Cell

Road Name	Clark Road	
Lane Width	12	ft
Shoulder Width	3	ft
Total Accesses	5	Accesses
Segment Length	0.2	miles
Speed Limit	40	mph
PHF	0.88	HCM Ex. 15-5
Truck %	8%	
RV %	0%	
Grade %	0%	
No Passing %	0%	

Free Flow Speed (FFS) Calcs (Step #2)

			Calc Cell / Input Cell
FFS=BFFS-f_{LS}-f_A	46.15	mph	HCM Eq. 15-2
Base Free Flow Speed (BFFS)	50	mph	From HCM: BFFS = Speed Limit + 10
Lane/Shoulder Width Adj. F_{LS}	2.6		From HCM Ex. 15-7
Accesses/mile	25.00	Accesses	
Round down nearest 10	20.00		Auto roundown to nearest 10
Rounded down FFS reduction	0	mph	From HCM Ex. 15-8
Round down value	5.00		Difference for interpolation
Interpolated FFS reduction	1.25	mph	Every 10 access/mile = 2.5 reduction
Access Density Reduction f_a	1.25	mph	From HCM Ex. 15-8

Demand Flow Rate (Step #3)

			Calc Cell / Input Cell
Direction 1 Volume	29	vph	
Direction 2 Volume	16	vph	
Equvalent Trucks E_t	1.9		From HCM Ex. 15-11
Equvalent RV E_R	1		From HCM Ex. 15-11
Heavy Veh Adj. f_{hv}	0.93		From HCM Eq. 15-5
Grade Adj. f_g	1		From HCM Ex. 15-9
Demand Flow Eq.	$v_{i,ATS} = \frac{V_i}{PHF * f_{g,ATS} * f_{hv,ATS}}$		From HCM Eq. 15-3
Direction 1 Demand Flow (v	35	vph	
Direction 2 Demand Flow (v	19	vph	

Average Travel Speed (ATS) (Step #4)

			Calc Cell / Input Cell
ATS = FFS - 0.00776(v_1,ats + v_2,ats) - f_{np},ats			From HCM Eq. 15-6
No Pass Adj Factor f_{np}	0.2		From HCM Ex. 15-15
ATS	45.52	mph	

Percent of Free Flow Speed (PFFS)

Exhibit 15-3
Motorized Vehicle LOS for Two-Lane Highways

LOS	Class I Highways ATS (mi/h)	Class I Highways PTSF (%)	Class II Highways PTSF (%)	Class III Highways PFFS (%)
A	>55	≤35	≤40	>91.7
B	>50–55	>35–50	>40–55	>83.3–91.7
C	>45–50	>50–65	>55–70	>75.0–83.3
D	>40–45	>65–80	>70–85	>66.7–75.0
E	≤40	>80	>85	≤66.7
F	Demand exceeds capacity			

Note: For Class I highways, LOS is determined by the worse of ATS-based LOS and PTSF-based LOS.

Percent of Free Flow Speed (PFFS)

PFFS = ATS/FFS	98.6%	
ATS	45.52	mph
FFS	46.15	mph

Level of Service (LOS)

LOS A

Existing 2024 without Project: 200 North

Input Data (Step #1)

Input Cell

Road Name	200 N	
Lane Width	12	ft
Shoulder Width	3	ft
Total Accesses	1	Accesses
Segment Length	0.35	miles
Speed Limit	35	mph
PHF	0.88	HCM Ex. 15-5
Truck %	8%	
RV %	0%	
Grade %	0%	
No Passing %	0%	

Free Flow Speed (FFS) Calcs (Step #2)

	Calc Cell		Input Cell
FFS=BFFS-f_{LS}-f_A	38.79	mph	HCM Eq. 15-2
Base Free Flow Speed (BFFS)	45	mph	From HCM: BFFS = Speed Limit + 10
Lane/Shoulder Width Adj. F_{LS}	3		From HCM Ex. 15-7
Accesses/mile	2.86	Accesses	
Round down nearest 10	0.00		Auto roundown to nearest 10
Rounded down FFS reduction	2.5	mph	From HCM Ex. 15-8
Round down value	2.86		Difference for interpolation
Interpolated FFS reduction	0.71	mph	Every 10 access/mile = 2.5 reduction
Access Density Reduction f_a	3.21	mph	From HCM Ex. 15-8

Demand Flow Rate (Step #3)

			Calc Cell / Input Cell
Direction 1 Volume	47	vph	
Direction 2 Volume	22	vph	
Equvalent Trucks E_t	1.9		From HCM Ex. 15-11
Equvalent RV E_R	1		From HCM Ex. 15-11
Heavy Veh Adj. f_{hv}	0.93		From HCM Eq. 15-5
Grade Adj. f_g	1		From HCM Ex. 15-9
Demand Flow Eq.	$v_{i,ats} = \frac{V_i}{PHF * f_{g,ats} * f_{hv,ats}}$		From HCM Eq. 15-3
Direction 1 Demand Flow (v	57	vph	
Direction 2 Demand Flow (v	27	vph	

Average Travel Speed (ATS) (Step #4)

			Calc Cell / Input Cell
ATS = FFS - 0.00776(v_1,ats + v_2,ats) - f_{np},ats			From HCM Eq. 15-6
No Pass Adj Factor f_{np}	0.2		From HCM Ex. 15-15
ATS	37.93	mph	

Percent of Free Flow Speed (PFFS)

Exhibit 15-3
Motorized Vehicle LOS for Two-Lane Highways

LOS	Class I Highways ATS (mi/h)	Class I Highways PTSF (%)	Class II Highways PTSF (%)	Class III Highways PFFS (%)
A	>55	≤35	≤40	>91.7
B	>50–55	>35–50	>40–55	>83.3–91.7
C	>45–50	>50–65	>55–70	>75.0–83.3
D	>40–45	>65–80	>70–85	>66.7–75.0
E	≤40	>80	>85	≤66.7
F	Demand exceeds capacity			

Note: For Class I highways, LOS is determined by the worse of ATS-based LOS and PTSF-based LOS.

Percent of Free Flow Speed (PFFS)

PFFS = ATS/FFS	97.8%	
ATS	37.93	mph
FFS	38.79	mph

Level of Service (LOS)

LOS A

2029 without Project: Clark Road

Input Data (Step #1)

Input Cell

Road Name	Clark Road		
Lane Width	12	ft	
Shoulder Width	3	ft	
Total Accesses	5	Accesses	
Segment Length	0.2	miles	
Speed Limit	40	mph	
PHF	0.88	HCM Ex. 15-5	
Truck %	8%		
RV %	0%		
Grade %	0%		
No Passing %	0%		

Free Flow Speed (FFS) Calcs (Step #2)

	Calc Cell		Input Cell
FFS=BFFS-f_{LS}-f_A	46.15	mph	HCM Eq. 15-2
Base Free Flow Speed (BFFS)	50	mph	From HCM: BFFS = Speed Limit + 10
Lane/Shoulder Width Adj. F_{LS}	2.6		From HCM Ex. 15-7
Accesses/mile	25.00	Accesses	
Round down nearest 10	20.00		Auto roundown to nearest 10
Rounded down FFS reduction	0	mph	From HCM Ex. 15-8
Round down value	5.00		Difference for interpolation
Interpolated FFS reduction	1.25	mph	Every 10 access/mile = 2.5 reduction
Access Density Reduction f_a	1.25	mph	From HCM Ex. 15-8

Demand Flow Rate (Step #3)

			Calc Cell	Input Cell
Direction 1 Volume	31	vph		
Direction 2 Volume	17	vph		
Equvalent Trucks E_t	1.9			From HCM Ex. 15-11
Equvalent RV E_R	1			From HCM Ex. 15-11
Heavy Veh Adj. f_{hv}	0.93			From HCM Eq. 15-5
Grade Adj. f_g	1			From HCM Ex. 15-9
Demand Flow Eq.	$v_{i,ATS} = \frac{V_i}{PHF * f_{g,ATS} * f_{hv,ATS}}$			From HCM Eq. 15-3
Direction 1 Demand Flow (v	38	vph		
Direction 2 Demand Flow (v	21	vph		

Average Travel Speed (ATS) (Step #4)

			Calc Cell	Input Cell
ATS = FFS - 0.00776(v_1,ats + v_2,ats) - f_{np},ats				From HCM Eq. 15-6
No Pass Adj Factor f_{np}	0.2			From HCM Ex. 15-15
ATS	45.50	mph		

Percent of Free Flow Speed (PFFS)

Exhibit 15-3
Motorized Vehicle LOS for Two-Lane Highways

LOS	Class I Highways ATS (mi/h)	Class I Highways PTSF (%)	Class II Highways PTSF (%)	Class III Highways PFFS (%)
A	>55	≤35	≤40	>91.7
B	>50–55	>35–50	>40–55	>83.3–91.7
C	>45–50	>50–65	>55–70	>75.0–83.3
D	>40–45	>65–80	>70–85	>66.7–75.0
E	≤40	>80	>85	≤66.7
F	Demand exceeds capacity			

Note: For Class I highways, LOS is determined by the worse of ATS-based LOS and PTSF-based LOS.

Percent of Free Flow Speed (PFFS)

PFFS = ATS/FFS	98.6%	
ATS	45.50	mph
FFS	46.15	mph

Level of Service (LOS)

LOS A

2029 without Project: 200 North

Input Data (Step #1)

Input Cell		
Road Name	200 N	
Lane Width	12	ft
Shoulder Width	3	ft
Total Accesses	1	Accesses
Segment Length	0.35	miles
Speed Limit	35	mph
PHF	0.88	HCM Ex. 15-5
Truck %	8%	
RV %	0%	
Grade %	0%	
No Passing %	0%	

Free Flow Speed (FFS) Calcs (Step #2)

			Calc Cell / Input Cell
FFS=BFFS-f_{LS}-f_A	38.79	mph	HCM Eq. 15-2
Base Free Flow Speed (BFFS)	45	mph	From HCM: BFFS = Speed Limit + 10
Lane/Shoulder Width Adj. F_{LS}	3		From HCM Ex. 15-7
Accesses/mile	2.86	Accesses	
Round down nearest 10	0.00		Auto roundown to nearest 10
Rounded down FFS reduction	2.5	mph	From HCM Ex. 15-8
Round down value	2.86		Difference for interpolation
Interpolated FFS reduction	0.71	mph	Every 10 access/mile = 2.5 reduction
Access Density Reduction f_a	3.21	mph	From HCM Ex. 15-8

Demand Flow Rate (Step #3)

			Calc Cell / Input Cell
Direction 1 Volume	56	vph	
Direction 2 Volume	26	vph	
Equvalent Trucks E_t	1.9		From HCM Ex. 15-11
Equvalent RV E_R	1		From HCM Ex. 15-11
Heavy Veh Adj. f_{hv}	0.93		From HCM Eq. 15-5
Grade Adj. f_g	1		From HCM Ex. 15-9
Demand Flow Eq.	$v_{i,ATS} = \frac{V_i}{PHF * f_{g,ATS} * f_{HV,ATS}}$		From HCM Eq. 15-3
Direction 1 Demand Flow (v	68	vph	
Direction 2 Demand Flow (v	32	vph	

Average Travel Speed (ATS) (Step #4)

			Calc Cell / Input Cell
ATS = FFS - 0.00776(v_1,ats + v_2,ats) - f_{np},ats			From HCM Eq. 15-6
No Pass Adj Factor f_{np}	0.2		From HCM Ex. 15-15
ATS	37.81	mph	

Percent of Free Flow Speed (PFFS)

Exhibit 15-3
Motorized Vehicle LOS for Two-Lane Highways

LOS	Class I Highways ATS (mi/h)	Class I Highways PTSF (%)	Class II Highways PTSF (%)	Class III Highways PFFS (%)
A	>55	≤35	≤40	>91.7
B	>50–55	>35–50	>40–55	>83.3–91.7
C	>45–50	>50–65	>55–70	>75.0–83.3
D	>40–45	>65–80	>70–85	>66.7–75.0
E	≤40	>80	>85	≤66.7
F	Demand exceeds capacity			

Note: For Class I highways, LOS is determined by the worse of ATS-based LOS and PTSF-based LOS.

Percent of Free Flow Speed (PFFS)		
PFFS = ATS/FFS	97.5%	
ATS	37.81	mph
FFS	38.79	mph

Level of Service (LOS)	
LOS	A

2049 without Project: Clark Road

Input Data (Step #1)

Input Cell

Road Name	Clark Road		
Lane Width	12	ft	
Shoulder Width	3	ft	
Total Accesses	5	Accesses	
Segment Length	0.2	miles	
Speed Limit	40	mph	
PHF	0.88	HCM Ex. 15-5	
Truck %	8%		
RV %	0%		
Grade %	0%		
No Passing %	0%		

Free Flow Speed (FFS) Calcs (Step #2)

	Calc Cell		Input Cell
$FFS=BFFS-f_{LS}-f_A$	46.15	mph	HCM Eq. 15-2
Base Free Flow Speed (BFFS)	50	mph	From HCM: BFFS = Speed Limit + 10
Lane/Shoulder Width Adj. F_{LS}	2.6		From HCM Ex. 15-7
Accesses/mile	25.00	Accesses	
Round down nearest 10	20.00		Auto roundown to nearest 10
Rounded down FFS reduction	0	mph	From HCM Ex. 15-8
Round down value	5.00		Difference for interpolation
Interpolated FFS reduction	1.25	mph	Every 10 access/mile = 2.5 reduction
Access Density Reduction f_a	1.25	mph	From HCM Ex. 15-8

Demand Flow Rate (Step #3)

			Calc Cell	Input Cell
Direction 1 Volume	41	vph		
Direction 2 Volume	23	vph		
Equvalent Trucks E_T	1.9			From HCM Ex. 15-11
Equvalent RV E_R	1			From HCM Ex. 15-11
Heavy Veh Adj. f_{hv}	0.93			From HCM Eq. 15-5
Grade Adj. f_g	1			From HCM Ex. 15-9
Demand Flow Eq.	$v_{i,ATS} = \frac{V_i}{PHF \times f_{g,ATS} \times f_{hv,ATS}}$			From HCM Eq. 15-3
Direction 1 Demand Flow (v	50	vph		
Direction 2 Demand Flow (v	28	vph		

Average Travel Speed (ATS) (Step #4)

			Calc Cell	Input Cell
$ATS = FFS - 0.00776(v_1,ats + v_2,ats) - f_{np},ats$				From HCM Eq. 15-6
No Pass Adj Factor f_{np}	0.2			From HCM Ex. 15-15
ATS	45.35	mph		

Percent of Free Flow Speed (PFFS)

Exhibit 15-3
Motorized Vehicle LOS for Two-Lane Highways

LOS	Class I Highways ATS (mi/h)	Class I Highways PTSF (%)	Class II Highways PTSF (%)	Class III Highways PFFS (%)
A	>55	≤35	≤40	>91.7
B	>50–55	>35–50	>40–55	>83.3–91.7
C	>45–50	>50–65	>55–70	>75.0–83.3
D	>40–45	>65–80	>70–85	>66.7–75.0
E	≤40	>80	>85	≤66.7
F	Demand exceeds capacity			

Note: For Class I highways, LOS is determined by the worse of ATS-based LOS and PTSF-based LOS.

Percent of Free Flow Speed (PFFS)

PFFS = ATS/FFS	98.3%	
ATS	45.35	mph
FFS	46.15	mph

Level of Service (LOS)

LOS	A

2049 without Project: 200 North

Input Data (Step #1)

Input Cell

Road Name	200 N	
Lane Width	12	ft
Shoulder Width	3	ft
Total Accesses	1	Accesses
Segment Length	0.35	miles
Speed Limit	35	mph
PHF	0.88	HCM Ex. 15-5
Truck %	8%	
RV %	0%	
Grade %	0%	
No Passing %	0%	

Free Flow Speed (FFS) Calcs (Step #2)

			Calc Cell / Input Cell
FFS=BFFS-f_{LS}-f_A	38.79	mph	HCM Eq. 15-2
Base Free Flow Speed (BFFS)	45	mph	From HCM: BFFS = Speed Limit + 10
Lane/Shoulder Width Adj. F_{LS}	3		From HCM Ex. 15-7
Accesses/mile	2.86	Accesses	
Round down nearest 10	0.00		Auto roundown to nearest 10
Rounded down FFS reduction	2.5	mph	From HCM Ex. 15-8
Round down value	2.86		Difference for interpolation
Interpolated FFS reduction	0.71	mph	Every 10 access/mile = 2.5 reduction
Access Density Reduction f_a	3.21	mph	From HCM Ex. 15-8

Demand Flow Rate (Step #3)

			Calc Cell / Input Cell
Direction 1 Volume	107	vph	
Direction 2 Volume	50	vph	
Equvalent Trucks E_t	1.9		From HCM Ex. 15-11
Equvalent RV E_R	1		From HCM Ex. 15-11
Heavy Veh Adj. f_{hv}	0.93		From HCM Eq. 15-5
Grade Adj. f_g	1		From HCM Ex. 15-9
Demand Flow Eq.	$v_{i,ATS} = \frac{V_i}{PHF * f_{g,ATS} * f_{hv,ATS}}$		From HCM Eq. 15-3
Direction 1 Demand Flow (v	130	vph	
Direction 2 Demand Flow (v	61	vph	

Average Travel Speed (ATS) (Step #4)

			Calc Cell / Input Cell
ATS = FFS - 0.00776(v_1,ats + v_2,ats) - f_{np},ats			From HCM Eq. 15-6
No Pass Adj Factor f_{np}	0.2		From HCM Ex. 15-15
ATS	37.10	mph	

Percent of Free Flow Speed (PFFS)

Exhibit 15-3
Motorized Vehicle LOS for Two-Lane Highways

LOS	Class I Highways ATS (mi/h)	Class I Highways PTSF (%)	Class II Highways PTSF (%)	Class III Highways PFFS (%)
A	>55	≤35	≤40	>91.7
B	>50–55	>35–50	>40–55	>83.3–91.7
C	>45–50	>50–65	>55–70	>75.0–83.3
D	>40–45	>65–80	>70–85	>66.7–75.0
E	≤40	>80	>85	≤66.7
F	Demand exceeds capacity			

Note: For Class I highways, LOS is determined by the worse of ATS-based LOS and PTSF-based LOS.

Percent of Free Flow Speed (PFFS)

PFFS = ATS/FFS	95.7%	
ATS	37.10	mph
FFS	38.79	mph

Level of Service (LOS)

LOS A

2029 with Project: Clark Road

Input Data (Step #1)

Input Cell			
Road Name	Clark Road		
Lane Width	12	ft	
Shoulder Width	3	ft	
Total Accesses	5	Accesses	
Segment Length	0.2	miles	
Speed Limit	40	mph	
PHF	0.88	HCM Ex. 15-5	
Truck %	8%		
RV %	0%		
Grade %	0%		
No Passing %	0%		

Free Flow Speed (FFS) Calcs (Step #2)

			Calc Cell / Input Cell
FFS=BFFS-f_{LS}-f_A	46.15	mph	HCM Eq. 15-2
Base Free Flow Speed (BFFS)	50	mph	From HCM: BFFS = Speed Limit + 10
Lane/Shoulder Width Adj. F_{LS}	2.6		From HCM Ex. 15-7
Accesses/mile	25.00	Accesses	
Round down nearest 10	20.00		Auto roundown to nearest 10
Rounded down FFS reduction	0	mph	From HCM Ex. 15-8
Round down value	5.00		Difference for interpolation
Interpolated FFS reduction	1.25	mph	Every 10 access/mile = 2.5 reduction
Access Density Reduction f_a	1.25	mph	From HCM Ex. 15-8

Demand Flow Rate (Step #3)

			Calc Cell / Input Cell
Direction 1 Volume	41	vph	
Direction 2 Volume	27	vph	
Equvalent Trucks E_t	1.9		From HCM Ex. 15-11
Equvalent RV E_R	1		From HCM Ex. 15-11
Heavy Veh Adj. f_{hv}	0.93		From HCM Eq. 15-5
Grade Adj. f_g	1		From HCM Ex. 15-9
Demand Flow Eq.	$v_{i,ATS} = \frac{V_i}{PHF * f_{g,ATS} * f_{hv,ATS}}$		From HCM Eq. 15-3
Direction 1 Demand Flow (v	50	vph	
Direction 2 Demand Flow (v	33	vph	

Average Travel Speed (ATS) (Step #4)

			Calc Cell / Input Cell
ATS = FFS - 0.00776(v_1,ats + v_2,ats) - f_{np},ats			From HCM Eq. 15-6
No Pass Adj Factor f_{np}	0.2		From HCM Ex. 15-15
ATS	45.31	mph	

Percent of Free Flow Speed (PFFS)

Exhibit 15-3
Motorized Vehicle LOS for Two-Lane Highways

LOS	Class I Highways ATS (mi/h)	Class I Highways PTSF (%)	Class II Highways PTSF (%)	Class III Highways PFFS (%)
A	>55	≤35	≤40	>91.7
B	>50–55	>35–50	>40–55	>83.3–91.7
C	>45–50	>50–65	>55–70	>75.0–83.3
D	>40–45	>65–80	>70–85	>66.7–75.0
E	≤40	>80	>85	≤66.7
F	Demand exceeds capacity			

Note: For Class I highways, LOS is determined by the worse of ATS-based LOS and PTSF-based LOS.

Percent of Free Flow Speed (PFFS)		
PFFS = ATS/FFS	98.2%	
ATS	45.31	mph
FFS	46.15	mph

Level of Service (LOS)	
LOS	A

2029 with Project: 200 North

Input Data (Step #1)

Input Cell		
Road Name	200 N	
Lane Width	12	ft
Shoulder Width	3	ft
Total Accesses	1	Accesses
Segment Length	0.35	miles
Speed Limit	35	mph
PHF	0.88	HCM Ex. 15-5
Truck %	8%	
RV %	0%	
Grade %	0%	
No Passing %	0%	

Free Flow Speed (FFS) Calcs (Step #2)

	Calc Cell		Input Cell
FFS=BFFS-f_{LS}-f_A	38.79	mph	HCM Eq. 15-2
Base Free Flow Speed (BFFS)	45	mph	From HCM: BFFS = Speed Limit + 10
Lane/Shoulder Width Adj. F_{LS}	3		From HCM Ex. 15-7
Accesses/mile	2.86	Accesses	
Round down nearest 10	0.00		Auto roundown to nearest 10
Rounded down FFS reduction	2.5	mph	From HCM Ex. 15-8
Round down value	2.86		Difference for interpolation
Interpolated FFS reduction	0.71	mph	Every 10 access/mile = 2.5 reduction
Access Density Reduction f_a	3.21	mph	From HCM Ex. 15-8

Demand Flow Rate (Step #3)

			Calc Cell / Input Cell
Direction 1 Volume	63	vph	
Direction 2 Volume	33	vph	
Equvalent Trucks E_t	1.9		From HCM Ex. 15-11
Equvalent RV E_R	1		From HCM Ex. 15-11
Heavy Veh Adj. f_{hv}	0.93		From HCM Eq. 15-5
Grade Adj. f_g	1		From HCM Ex. 15-9
Demand Flow Eq.	$v_{i,ats} = \frac{V_i}{PHF * f_{g,ats} * f_{hv,ats}}$		From HCM Eq. 15-3
Direction 1 Demand Flow (v	77	vph	
Direction 2 Demand Flow (v	40	vph	

Average Travel Speed (ATS) (Step #4)

			Calc Cell / Input Cell
ATS = FFS - 0.00776(v_1,ats + v_2,ats) - f_{np},ats			From HCM Eq. 15-6
No Pass Adj Factor f_{np}	0.2		From HCM Ex. 15-15
ATS	37.68	mph	

Percent of Free Flow Speed (PFFS)

Exhibit 15-3
Motorized Vehicle LOS for Two-Lane Highways

LOS	Class I Highways ATS (mi/h)	Class I Highways PTSF (%)	Class II Highways PTSF (%)	Class III Highways PFFS (%)
A	>55	≤35	≤40	>91.7
B	>50–55	>35–50	>40–55	>83.3–91.7
C	>45–50	>50–65	>55–70	>75.0–83.3
D	>40–45	>65–80	>70–85	>66.7–75.0
E	≤40	>80	>85	≤66.7
F	Demand exceeds capacity			

Note: For Class I highways, LOS is determined by the worse of ATS-based LOS and PTSF-based LOS.

Percent of Free Flow Speed (PFFS)

PFFS = ATS/FFS	97.1%	
ATS	37.68	mph
FFS	38.79	mph

Level of Service (LOS)

LOS A

2049 with Project: Clark Road

Input Data (Step #1)

Input Cell

Road Name	Clark Road		
Lane Width	12	ft	
Shoulder Width	3	ft	
Total Accesses	5	Accesses	
Segment Length	0.2	miles	
Speed Limit	40	mph	
PHF	0.88	HCM Ex. 15-5	
Truck %	8%		
RV %	0%		
Grade %	0%		
No Passing %	0%		

Free Flow Speed (FFS) Calcs (Step #2)

	Calc Cell		Input Cell
FFS=BFFS-f_{LS}-f_A	46.15	mph	HCM Eq. 15-2
Base Free Flow Speed (BFFS)	50	mph	From HCM: BFFS = Speed Limit + 10
Lane/Shoulder Width Adj. F_{LS}	2.6		From HCM Ex. 15-7
Accesses/mile	25.00	Accesses	
Round down nearest 10	20.00		Auto roundown to nearest 10
Rounded down FFS reduction	0	mph	From HCM Ex. 15-8
Round down value	5.00		Difference for interpolation
Interpolated FFS reduction	1.25	mph	Every 10 access/mile = 2.5 reduction
Access Density Reduction f_a	1.25	mph	From HCM Ex. 15-8

Demand Flow Rate (Step #3)

			Calc Cell / Input Cell
Direction 1 Volume	51	vph	
Direction 2 Volume	33	vph	
Equvalent Trucks E_t	1.9		From HCM Ex. 15-11
Equvalent RV E_R	1		From HCM Ex. 15-11
Heavy Veh Adj. f_{hv}	0.93		From HCM Eq. 15-5
Grade Adj. f_g	1		From HCM Ex. 15-9
Demand Flow Eq.	$v_{i,ATS} = \frac{V_i}{PHF * f_{g,ATS} * f_{hv,ATS}}$		From HCM Eq. 15-3
Direction 1 Demand Flow (v	62	vph	
Direction 2 Demand Flow (v	40	vph	

Average Travel Speed (ATS) (Step #4)

			Calc Cell / Input Cell
ATS = FFS - 0.00776(v_1,ats + v_2,ats) - f_{np},ats			From HCM Eq. 15-6
No Pass Adj Factor f_{np}	0.2		From HCM Ex. 15-15
ATS	45.16	mph	

Percent of Free Flow Speed (PFFS)

Exhibit 15-3
Motorized Vehicle LOS for Two-Lane Highways

LOS	Class I Highways ATS (mi/h)	Class I Highways PTSF (%)	Class II Highways PTSF (%)	Class III Highways PFFS (%)
A	>55	≤35	≤40	>91.7
B	>50–55	>35–50	>40–55	>83.3–91.7
C	>45–50	>50–65	>55–70	>75.0–83.3
D	>40–45	>65–80	>70–85	>66.7–75.0
E	≤40	>80	>85	≤66.7
F	Demand exceeds capacity			

Note: For Class I highways, LOS is determined by the worse of ATS-based LOS and PTSF-based LOS.

Percent of Free Flow Speed (PFFS)

PFFS = ATS/FFS	97.8%	
ATS	45.16	mph
FFS	46.15	mph

Level of Service (LOS)

LOS A

Existing 2049 with Project: 200 North

Input Data (Step #1)

Input Cell

Road Name	200 N		
Lane Width	12	ft	
Shoulder Width	3	ft	
Total Accesses	1	Accesses	
Segment Length	0.35	miles	
Speed Limit	35	mph	
PHF	0.88	HCM Ex. 15-5	
Truck %	8%		
RV %	0%		
Grade %	0%		
No Passing %	0%		

Free Flow Speed (FFS) Calcs (Step #2)

	Calc Cell		Input Cell
FFS=BFFS-f_{LS}-f_A	38.79	mph	HCM Eq. 15-2
Base Free Flow Speed (BFFS)	45	mph	From HCM: BFFS = Speed Limit + 10
Lane/Shoulder Width Adj. F_{LS}	3		From HCM Ex. 15-7
Accesses/mile	2.86	Accesses	
Round down nearest 10	0.00		Auto roundown to nearest 10
Rounded down FFS reduction	2.5	mph	From HCM Ex. 15-8
Round down value	2.86		Difference for interpolation
Interpolated FFS reduction	0.71	mph	Every 10 access/mile = 2.5 reduction
Access Density Reduction f_n	3.21	mph	From HCM Ex. 15-8

Demand Flow Rate (Step #3)

			Calc Cell / Input Cell
Direction 1 Volume	114	vph	
Direction 2 Volume	57	vph	
Equivalent Trucks E_t	1.9		From HCM Ex. 15-11
Equivalent RV E_R	1		From HCM Ex. 15-11
Heavy Veh Adj. f_{hv}	0.93		From HCM Eq. 15-5
Grade Adj. f_g	1		From HCM Ex. 15-9
Demand Flow Eq.	$v_{i,ATS} = \frac{V_i}{PHF * f_{g,ATS} * f_{hv,ATS}}$		From HCM Eq. 15-3
Direction 1 Demand Flow (v	139	vph	
Direction 2 Demand Flow (v	69	vph	

Average Travel Speed (ATS) (Step #4)

			Calc Cell / Input Cell
ATS = FFS - 0.00776(v_1,ats + v_2,ats) - f_{np},ats			From HCM Eq. 15-6
No Pass Adj Factor f_{np}	0.2		From HCM Ex. 15-15
ATS	36.97	mph	

Percent of Free Flow Speed (PFFS)

Exhibit 15-3
Motorized Vehicle LOS for Two-Lane Highways

LOS	Class I Highways ATS (mi/h)	Class I Highways PTSF (%)	Class II Highways PTSF (%)	Class III Highways PFFS (%)
A	>55	≤35	≤40	>91.7
B	>50–55	>35–50	>40–55	>83.3–91.7
C	>45–50	>50–65	>55–70	>75.0–83.3
D	>40–45	>65–80	>70–85	>66.7–75.0
E	≤40	>80	>85	≤66.7
F	Demand exceeds capacity			

Note: For Class I highways, LOS is determined by the worse of ATS-based LOS and PTSF-based LOS.

Percent of Free Flow Speed (PFFS)

PFFS = ATS/FFS	95.3%	
ATS	36.97	mph
FFS	38.79	mph

Level of Service (LOS)

LOS	A

Appendix C: 2024 Existing Conditions Traffic Model Results

2024 Existing Conditions: Int 1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	8	31	8	9	11	3	6	16	14	2	8	6
Future Volume (Veh/h)	8	31	8	9	11	3	6	16	14	2	8	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	34	9	10	12	3	7	17	15	2	9	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	15			43			102	92	38	114	94	14
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	15			43			102	92	38	114	94	14
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	99			99			99	98	99	100	99	99
cM capacity (veh/h)	1565			1528			844	778	1016	816	775	1049

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	52	25	39	18
Volume Left	9	10	7	2
Volume Right	9	3	15	7
cSH	1565	1528	868	868
Volume to Capacity	0.01	0.01	0.04	0.02
Queue Length 95th (ft)	0	0	4	2
Control Delay (s)	1.3	3.0	9.3	9.2
Lane LOS	A	A	A	A
Approach Delay (s)	1.3	3.0	9.3	9.2
Approach LOS			A	A

Intersection Summary				
Average Delay	5.0			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A	
Analysis Period (min)	15			

2024 Existing Conditions: Int 2

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	3	7	5	8	9	26	23	274	6	5	377	13
Future Volume (Veh/h)	3	7	5	8	9	26	23	274	6	5	377	13
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	8	5	9	10	28	25	298	7	5	410	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	801	782	298	784	782	417	424			305		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	801	782	298	784	782	417	424			305		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	99	97	99	97	97	96	98			100		
cM capacity (veh/h)	270	310	728	290	310	623	1104			1222		

Direction, Lane #	NB 1	SB 1	SE 1	SE 2	SE 3	NW 1	NW 2
Volume Total	16	47	25	298	7	5	424
Volume Left	3	9	25	0	0	5	0
Volume Right	5	28	0	0	7	0	14
cSH	366	434	1104	1700	1700	1222	1700
Volume to Capacity	0.04	0.11	0.02	0.18	0.00	0.00	0.25
Queue Length 95th (ft)	3	9	2	0	0	0	0
Control Delay (s)	15.3	14.3	8.3	0.0	0.0	8.0	0.0
Lane LOS	C	B	A			A	
Approach Delay (s)	15.3	14.3	0.6			0.1	
Approach LOS	C	B					

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	33.4%	ICU Level of Service		A
Analysis Period (min)	15			

2024 Existing Conditions: Int 3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	2	3	27	2	4	47	26	272	5	75	329	2
Future Volume (Veh/h)	2	3	27	2	4	47	26	272	5	75	329	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	3	29	2	4	51	28	296	5	82	358	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	930	878	298	906	880	359	360			301		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	930	878	298	906	880	359	360			301		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	99	99	96	99	98	92	98			93		
cM capacity (veh/h)	206	255	727	223	255	672	1166			1227		

Direction, Lane #	EB 1	WB 1	SE 1	SE 2	NW 1	NW 2
Volume Total	34	57	28	301	82	360
Volume Left	2	2	28	0	82	0
Volume Right	29	51	0	5	0	2
cSH	554	567	1166	1700	1227	1700
Volume to Capacity	0.06	0.10	0.02	0.18	0.07	0.21
Queue Length 95th (ft)	5	8	2	0	5	0
Control Delay (s)	11.9	12.1	8.2	0.0	8.1	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	11.9	12.1	0.7		1.5	
Approach LOS	B	B				

Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	37.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Appendix D: 2029 Buildout Year Conditions Traffic Model Results without the Project

2029 Buildout Conditions: Int 1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	8	34	8	10	12	3	6	17	15	2	9	6
Future Volume (Veh/h)	8	34	8	10	12	3	6	17	15	2	9	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	37	9	11	13	3	7	18	16	2	10	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	16			46			108	98	42	121	100	14
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	16			46			108	98	42	121	100	14
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	99			99			99	98	98	100	99	99
cM capacity (veh/h)	1563			1524			834	771	1012	804	768	1048

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	55	27	41	19
Volume Left	9	11	7	2
Volume Right	9	3	16	7
cSH	1563	1524	863	857
Volume to Capacity	0.01	0.01	0.05	0.02
Queue Length 95th (ft)	0	1	4	2
Control Delay (s)	1.2	3.0	9.4	9.3
Lane LOS	A	A	A	A
Approach Delay (s)	1.2	3.0	9.4	9.3
Approach LOS			A	A

Intersection Summary				
Average Delay	5.0			
Intersection Capacity Utilization	13.5%	ICU Level of Service	A	
Analysis Period (min)	15			

2029 Buildout Conditions: Int 2

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	3	7	5	9	10	28	25	301	6	5	415	14
Future Volume (Veh/h)	3	7	5	9	10	28	25	301	6	5	415	14
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	8	5	10	11	30	27	327	7	5	451	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	878	857	327	858	856	458	466			334		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	878	857	327	858	856	458	466			334		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	99	97	99	96	96	95	97			100		
cM capacity (veh/h)	236	280	701	257	280	590	1065			1192		

Direction, Lane #	NB 1	SB 1	SE 1	SE 2	SE 3	NW 1	NW 2
Volume Total	16	51	27	327	7	5	466
Volume Left	3	10	27	0	0	5	0
Volume Right	5	30	0	0	7	0	15
cSH	330	395	1065	1700	1700	1192	1700
Volume to Capacity	0.05	0.13	0.03	0.19	0.00	0.00	0.27
Queue Length 95th (ft)	4	11	2	0	0	0	0
Control Delay (s)	16.5	15.5	8.5	0.0	0.0	8.0	0.0
Lane LOS	C	C	A			A	
Approach Delay (s)	16.5	15.5	0.6			0.1	
Approach LOS	C	C					

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	36.1%	ICU Level of Service	A	
Analysis Period (min)	15			

2029 Buildout Conditions: Int 3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	2	4	32	2	5	55	31	299	6	88	362	2
Future Volume (Veh/h)	2	4	32	2	5	55	31	299	6	88	362	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	4	35	2	5	60	34	325	7	96	393	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1044	984	328	1016	986	394	395			332		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1044	984	328	1016	986	394	395			332		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	99	98	95	99	98	91	97			92		
cM capacity (veh/h)	165	217	699	181	216	642	1132			1194		

Direction, Lane #	EB 1	WB 1	SE 1	SE 2	NW 1	NW 2
Volume Total	41	67	34	332	96	395
Volume Left	2	2	34	0	96	0
Volume Right	35	60	0	7	0	2
cSH	508	525	1132	1700	1194	1700
Volume to Capacity	0.08	0.13	0.03	0.20	0.08	0.23
Queue Length 95th (ft)	7	11	2	0	7	0
Control Delay (s)	12.7	12.9	8.3	0.0	8.3	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	12.7	12.9	0.8		1.6	
Approach LOS	B	B				

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	39.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Appendix E: 2049 Horizon Year Conditions Traffic Model Results without the Project

2049 Horizon Year Conditions: Int 1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	11	44	11	13	15	4	8	23	20	3	11	8
Future Volume (Veh/h)	11	44	11	13	15	4	8	23	20	3	11	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	48	12	14	16	4	9	25	22	3	12	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	20			60			139	126	54	158	130	18
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	20			60			139	126	54	158	130	18
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	99			99			99	97	98	100	98	99
cM capacity (veh/h)	1558			1506			790	741	996	747	737	1043

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	72	34	56	24
Volume Left	12	14	9	3
Volume Right	12	4	22	9
cSH	1558	1506	833	830
Volume to Capacity	0.01	0.01	0.07	0.03
Queue Length 95th (ft)	1	1	5	2
Control Delay (s)	1.3	3.1	9.6	9.5
Lane LOS	A	A	A	A
Approach Delay (s)	1.3	3.1	9.6	9.5
Approach LOS			A	A

Intersection Summary				
Average Delay	5.2			
Intersection Capacity Utilization	15.4%	ICU Level of Service	A	
Analysis Period (min)	15			

2049 Horizon Year Conditions: Int 2

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	4	10	7	11	13	37	32	442	8	7	608	18
Future Volume (Veh/h)	4	10	7	11	13	37	32	442	8	7	608	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	11	8	12	14	40	35	480	9	8	661	20
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1274	1247	480	1250	1246	671	681			489		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1274	1247	480	1250	1246	671	681			489		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	97	93	99	91	91	91	96			99		
cM capacity (veh/h)	115	161	574	131	161	446	884			1044		

Direction, Lane #	NB 1	SB 1	SE 1	SE 2	SE 3	NW 1	NW 2
Volume Total	23	66	35	480	9	8	681
Volume Left	4	12	35	0	0	8	0
Volume Right	8	40	0	0	9	0	20
cSH	196	246	884	1700	1700	1044	1700
Volume to Capacity	0.12	0.27	0.04	0.28	0.01	0.01	0.40
Queue Length 95th (ft)	10	26	3	0	0	1	0
Control Delay (s)	25.8	24.9	9.2	0.0	0.0	8.5	0.0
Lane LOS	D	C	A			A	
Approach Delay (s)	25.8	24.9	0.6			0.1	
Approach LOS	D	C					

Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	48.9%	ICU Level of Service	A	
Analysis Period (min)	15			

2049 Horizon Year Conditions: Int 3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	5	7	61	5	9	106	59	438	11	170	530	5
Future Volume (Veh/h)	5	7	61	5	9	106	59	438	11	170	530	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	8	66	5	10	115	64	476	12	185	576	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1676	1561	482	1622	1564	578	581			488		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1676	1561	482	1622	1564	578	581			488		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	88	90	88	91	88	77	93			82		
cM capacity (veh/h)	42	83	572	54	83	504	964			1045		

Direction, Lane #	EB 1	WB 1	SE 1	SE 2	NW 1	NW 2
Volume Total	79	130	64	488	185	581
Volume Left	5	5	64	0	185	0
Volume Right	66	115	0	12	0	5
cSH	240	294	964	1700	1045	1700
Volume to Capacity	0.33	0.44	0.07	0.29	0.18	0.34
Queue Length 95th (ft)	35	54	5	0	16	0
Control Delay (s)	27.2	26.5	9.0	0.0	9.2	0.0
Lane LOS	D	D	A		A	
Approach Delay (s)	27.2	26.5	1.0		2.2	
Approach LOS	D	D				

Intersection Summary				
Average Delay	5.2			
Intersection Capacity Utilization	56.6%	ICU Level of Service	B	
Analysis Period (min)	15			

Appendix F: 2029 Buildout Year Conditions Traffic Model Results with the Project

2029 Buildout Year with the Project - Int 1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	15	34	8	10	12	6	6	27	15	5	19	13
Future Volume (Veh/h)	15	34	8	10	12	6	6	27	15	5	19	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	37	9	11	13	7	7	29	16	5	21	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	20			46			136	116	42	142	116	16
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	20			46			136	116	42	142	116	16
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	99			99			99	96	98	99	97	99
cM capacity (veh/h)	1558			1524			782	750	1012	767	749	1045

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	62	31	52	40
Volume Left	16	11	7	5
Volume Right	9	7	16	14
cSH	1558	1524	820	834
Volume to Capacity	0.01	0.01	0.06	0.05
Queue Length 95th (ft)	1	1	5	4
Control Delay (s)	2.0	2.7	9.7	9.5
Lane LOS	A	A	A	A
Approach Delay (s)	2.0	2.7	9.7	9.5
Approach LOS			A	A

Intersection Summary				
Average Delay	5.9			
Intersection Capacity Utilization	14.7%	ICU Level of Service	A	
Analysis Period (min)	15			

2029 Buildout Year with the Project - Int 2

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	3	9	5	11	12	34	31	301	6	5	415	16
Future Volume (Veh/h)	3	9	5	11	12	34	31	301	6	5	415	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	10	5	12	13	37	34	327	7	5	451	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	900	873	327	874	872	460	468			334		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	900	873	327	874	872	460	468			334		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	99	96	99	95	95	94	97			100		
cM capacity (veh/h)	223	272	701	247	273	589	1063			1192		

Direction, Lane #	NB 1	SB 1	SE 1	SE 2	SE 3	NW 1	NW 2
Volume Total	18	62	34	327	7	5	468
Volume Left	3	12	34	0	0	5	0
Volume Right	5	37	0	0	7	0	17
cSH	314	390	1063	1700	1700	1192	1700
Volume to Capacity	0.06	0.16	0.03	0.19	0.00	0.00	0.28
Queue Length 95th (ft)	5	14	2	0	0	0	0
Control Delay (s)	17.2	16.0	8.5	0.0	0.0	8.0	0.0
Lane LOS	C	C	A			A	
Approach Delay (s)	17.2	16.0	0.8			0.1	
Approach LOS	C	C					

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	40.6%	ICU Level of Service		A
Analysis Period (min)	15			

2029 Buildout Year with the Project - Int 3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	2	5	32	2	6	61	37	299	6	88	362	2
Future Volume (Veh/h)	2	5	32	2	6	61	37	299	6	88	362	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	5	35	2	7	66	40	325	7	96	393	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1063	996	328	1028	998	394	395			332		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1063	996	328	1028	998	394	395			332		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	99	98	95	99	97	90	96			92		
cM capacity (veh/h)	156	212	699	176	211	642	1132			1194		

Direction, Lane #	EB 1	WB 1	SE 1	SE 2	NW 1	NW 2
Volume Total	42	75	40	332	96	395
Volume Left	2	2	40	0	96	0
Volume Right	35	66	0	7	0	2
cSH	486	509	1132	1700	1194	1700
Volume to Capacity	0.09	0.15	0.04	0.20	0.08	0.23
Queue Length 95th (ft)	7	13	3	0	7	0
Control Delay (s)	13.1	13.3	8.3	0.0	8.3	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	13.1	13.3	0.9		1.6	
Approach LOS	B	B				

Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	40.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Appendix G: 2049 Horizon Year Conditions Traffic Model Results with the Project

2049 Horizon Year with the Project - Int 1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	18	44	11	13	15	7	8	33	20	6	21	15
Future Volume (Veh/h)	18	44	11	13	15	7	8	33	20	6	21	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	48	12	14	16	8	9	36	22	7	23	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	24			60			170	146	54	182	148	20
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	24			60			170	146	54	182	148	20
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	99			99			99	95	98	99	97	98
cM capacity (veh/h)	1553			1506			737	718	996	709	716	1041

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	80	38	67	46
Volume Left	20	14	9	7
Volume Right	12	8	22	16
cSH	1553	1506	794	802
Volume to Capacity	0.01	0.01	0.08	0.06
Queue Length 95th (ft)	1	1	7	5
Control Delay (s)	1.9	2.8	10.0	9.8
Lane LOS	A	A	A	A
Approach Delay (s)	1.9	2.8	10.0	9.8
Approach LOS			A	A

Intersection Summary				
Average Delay	5.9			
Intersection Capacity Utilization	16.8%	ICU Level of Service	A	
Analysis Period (min)	15			

2049 Horizon Year with the Project - Int 2

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	4	12	7	13	15	43	38	442	8	7	608	20
Future Volume (Veh/h)	4	12	7	13	15	43	38	442	8	7	608	20
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	13	8	14	16	47	41	480	9	8	661	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1294	1261	480	1264	1259	672	683			489		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1294	1261	480	1264	1259	672	683			489		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	96	92	99	89	90	89	95			99		
cM capacity (veh/h)	107	157	574	126	157	445	883			1044		

Direction, Lane #	NB 1	SB 1	SE 1	SE 2	SE 3	NW 1	NW 2
Volume Total	25	77	41	480	9	8	683
Volume Left	4	14	41	0	0	8	0
Volume Right	8	47	0	0	9	0	22
cSH	186	242	883	1700	1700	1044	1700
Volume to Capacity	0.13	0.32	0.05	0.28	0.01	0.01	0.40
Queue Length 95th (ft)	11	33	4	0	0	1	0
Control Delay (s)	27.3	26.7	9.3	0.0	0.0	8.5	0.0
Lane LOS	D	D	A			A	
Approach Delay (s)	27.3	26.7	0.7			0.1	
Approach LOS	D	D					

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	50.1%	ICU Level of Service		A
Analysis Period (min)	15			

2049 Horizon Year with the Project - Int 3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↔			↔							
Traffic Volume (veh/h)	5	8	61	5	10	112	65	438	11	170	530	5
Future Volume (Veh/h)	5	8	61	5	10	112	65	438	11	170	530	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	9	66	5	11	122	71	476	12	185	576	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1698	1575	482	1637	1578	578	581			488		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1698	1575	482	1637	1578	578	581			488		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	87	89	88	90	86	76	93			82		
cM capacity (veh/h)	39	81	572	52	81	504	964			1045		

Direction, Lane #	EB 1	WB 1	SE 1	SE 2	NW 1	NW 2
Volume Total	80	138	71	488	185	581
Volume Left	5	5	71	0	185	0
Volume Right	66	122	0	12	0	5
cSH	226	291	964	1700	1045	1700
Volume to Capacity	0.35	0.47	0.07	0.29	0.18	0.34
Queue Length 95th (ft)	38	60	6	0	16	0
Control Delay (s)	29.4	28.1	9.0	0.0	9.2	0.0
Lane LOS	D	D	A		A	
Approach Delay (s)	29.4	28.1	1.1		2.2	
Approach LOS	D	D				

Intersection Summary				
Average Delay	5.6			
Intersection Capacity Utilization	57.1%	ICU Level of Service	B	
Analysis Period (min)	15			

Appendix H: Left Turn Lane Warrant Analysis

Intersection 1: Eastbound Traffic without the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	200 N	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark Road	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr, left-turn lane vol	8	8	11	(vehicles per hour)
6	Posted Speed Limit (MPH)	40	Major Roadway Peak-hr vc	47	50	66	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection Intersection 1 - Eastbound **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

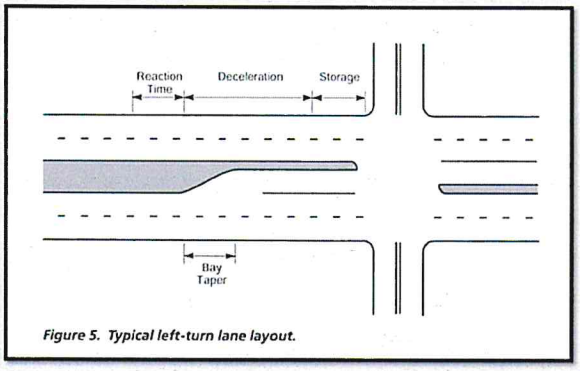
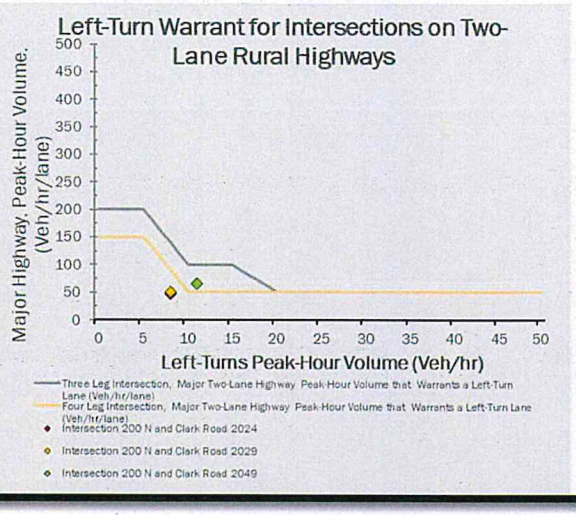


Figure 5. Typical left-turn lane layout.



Intersection 1: Westbound Traffic without the Project

IGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)						
Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
Name of Major Roadway	200 N	No. of lanes on the major	Two	Two	Two	
Name of Minor Roadway/Approach	Clark Road	Number of Legs	Four	Four	Four	
Peak Hour	PM	Peak-hr, left-turn lane vol	9	10	13	(vehicles per hour)
Posted Speed Limit (MPH)	40	Major Roadway Peak-hr vc	23	25	22	(veh/hour/lane).

ysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

rsection **Intersection 1 - Westbound** **Horizon Years**

Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

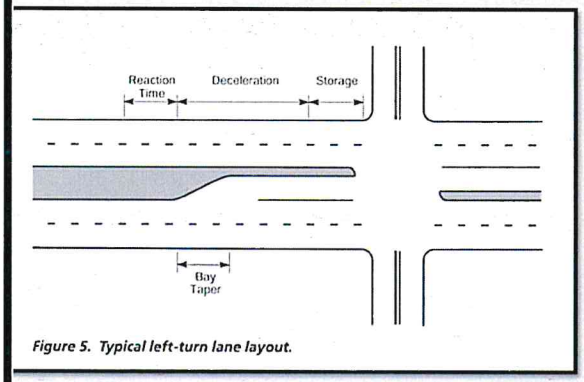
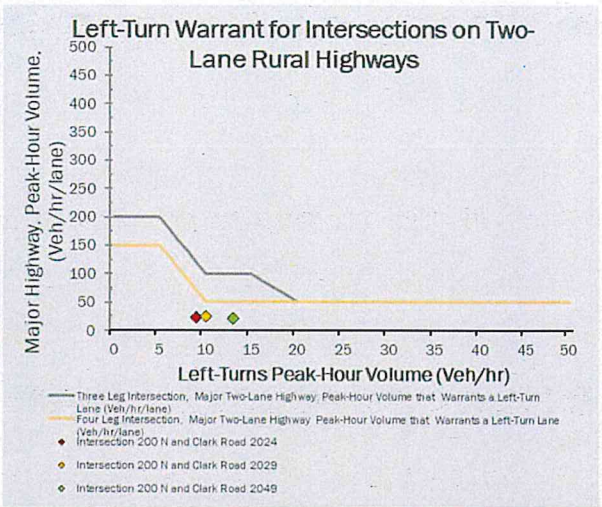


Figure 5. Typical left-turn lane layout.



Intersection 1: Northbound Traffic without the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	200 N	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark Road	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr, left-turn lane vol	6	6	8	(vehicles per hour)
6	Posted Speed Limit (MPH)	40	Major Roadway Peak-hr vc	36	38	51	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection **Intersection 1 - Northbound** **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

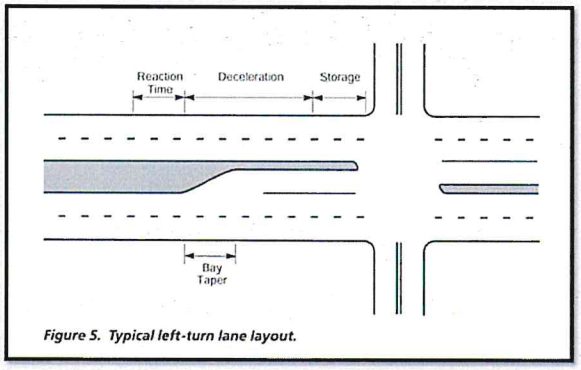
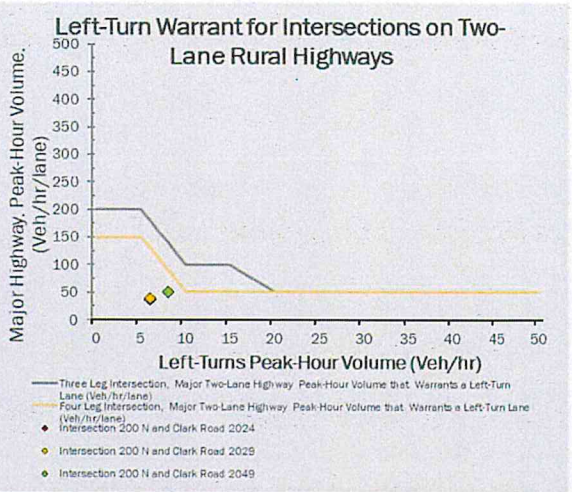


Figure 5. Typical left-turn lane layout.



Intersection 1: Southbound Traffic without the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	200 N	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark Road	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr, left-turn lane vol	2	2	3	(vehicles per hour)
6	Posted Speed Limit (MPH)	40	Major Roadway Peak-hr vc	16	17	22	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection **Intersection 1 - Southbound** **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

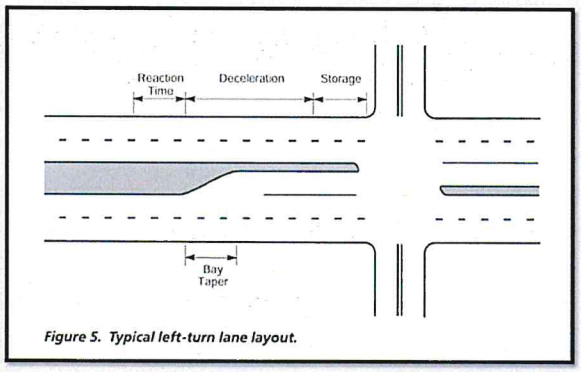
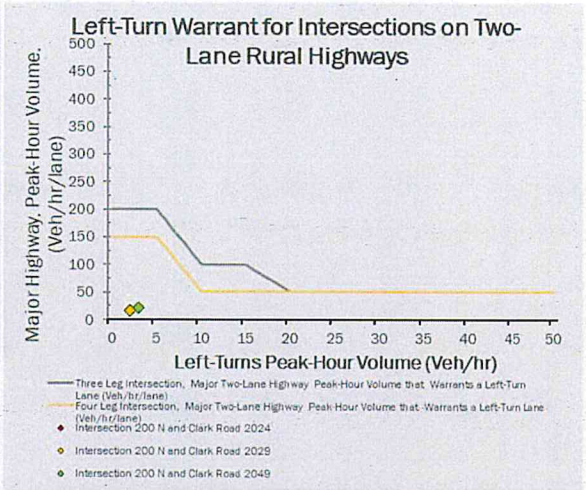


Figure 5. Typical left-turn lane layout.



Intersection 2: Southeast bound Traffic without the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark Road	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr. left-turn lane vol	23	25	59	(vehicles per hour)
6	Posted Speed Limit (MPH)	40	Major Roadway Peak-hr vc	303	332	508	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection **Intersection 2 - Southeast bound** **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

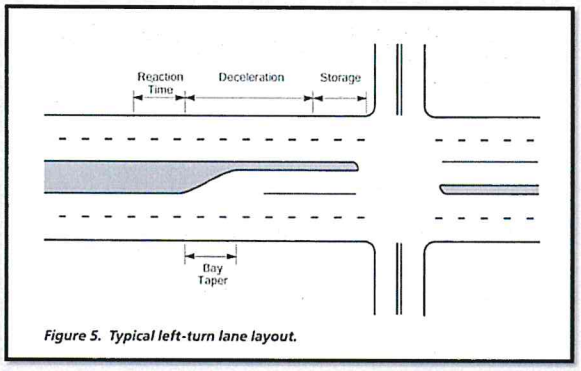
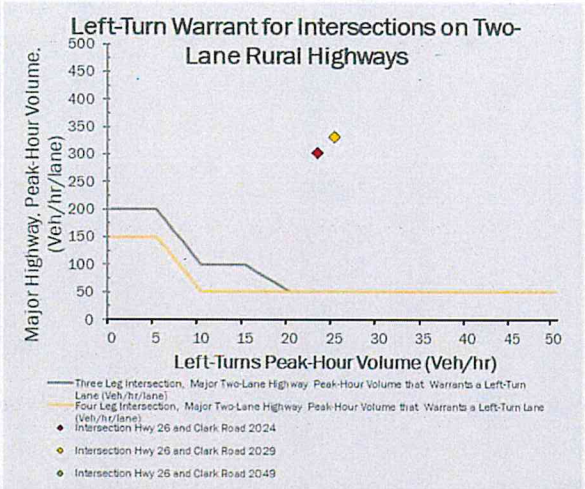


Figure 5. Typical left-turn lane layout.



Intersection 2: Northwest bound Traffic without the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark Road	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr, left-turn lane vol	5	5	7	(vehicles per hour)
6	Posted Speed Limit (MPH)	40	Major Roadway Peak-hr vc	395	434	633	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection **Intersection 2 - Northwest bound** **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

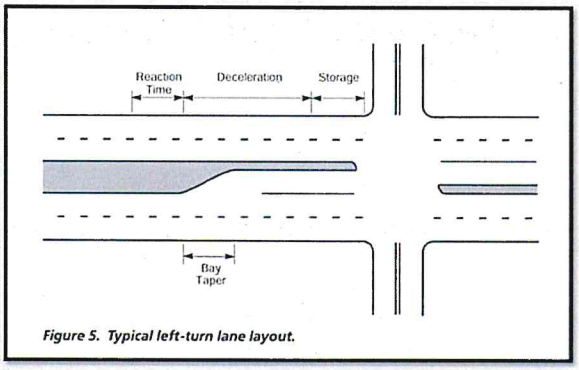
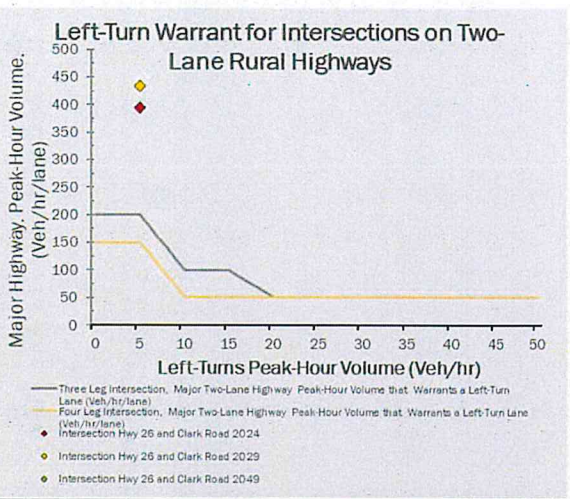


Figure 5. Typical left-turn lane layout.



Intersection 2: Northbound Traffic without the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark Road	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr, left-turn lane vol	3	3	4	(vehicles per hour)
6	Posted Speed Limit (MPH)	40	Major Roadway Peak-hr vc	15	15	21	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection **Intersection 2 - Northbound** **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

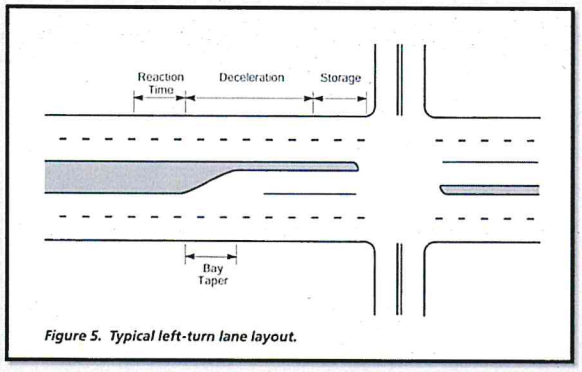
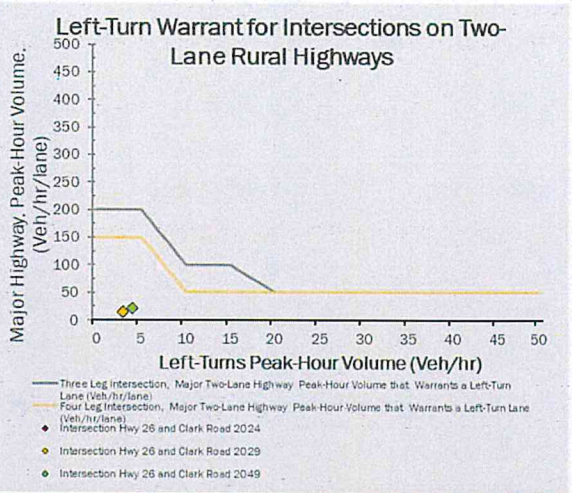


Figure 5. Typical left-turn lane layout.



Intersection 2: Southbound Traffic without the Project

Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
Name of Minor Roadway/Approach	Clark Road	Number of Legs	Four	Four	Four	
Peak Hour	PM	Peak-hr, left-turn lane vol	8	9	11	(vehicles per hour)
Posted Speed Limit (MPH)	40	Major Roadway Peak-hr vc	43	47	61	(veh/hour/lane).

ysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

rsection **Intersection 2 - Southbound** **Horizon Years**

Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

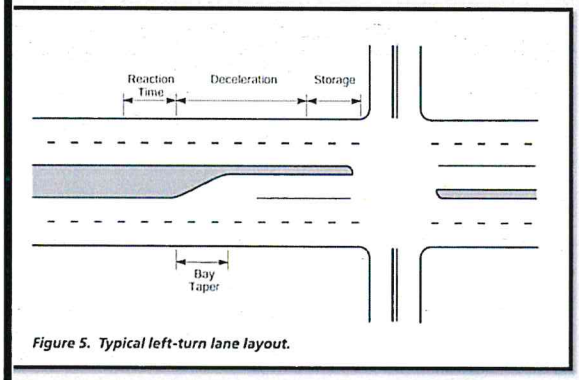
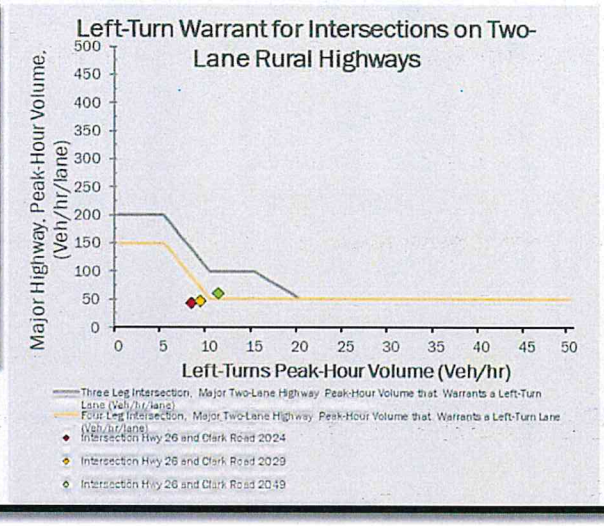


Figure 5. Typical left-turn lane layout.



Intersection 3: Eastbound Traffic without the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	200 N	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr, left-turn lane vol	2	2	5	(vehicles per hour)
6	Posted Speed Limit (MPH)	65	Major Roadway Peak-hr vc	32	38	73	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection Intersection 3 - Eastbound **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

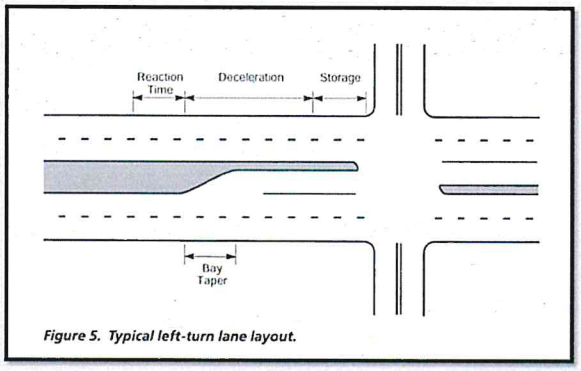
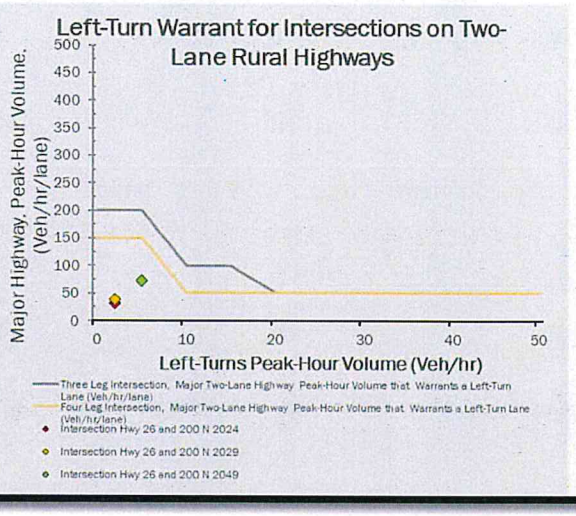


Figure 5. Typical left-turn lane layout.



Intersection 3: Westbound Traffic without the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	200 N	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr, left-turn lane vol	2	2	5	(vehicles per hour)
6	Posted Speed Limit (MPH)	65	Major Roadway Peak-hr vc	53	62	120	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection Intersection 3 - Westbound **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

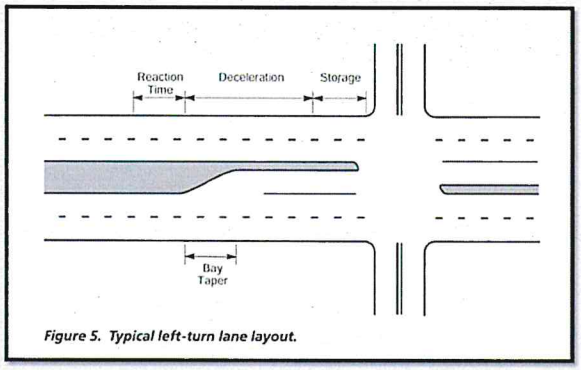
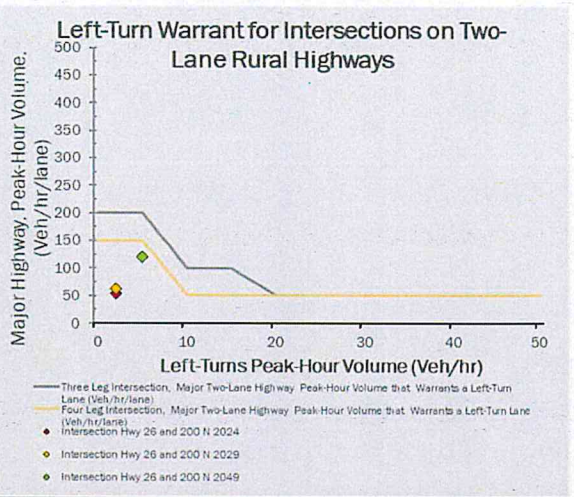


Figure 5. Typical left-turn lane layout.



Intersection 3: Northwest bound Traffic without the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	200 N	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr, left-turn lane vol	75	88	171	(vehicles per hour)
6	Posted Speed Limit (MPH)	65	Major Roadway Peak-hr vc	406	452	705	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection Intersection 3 - Northwest bound **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

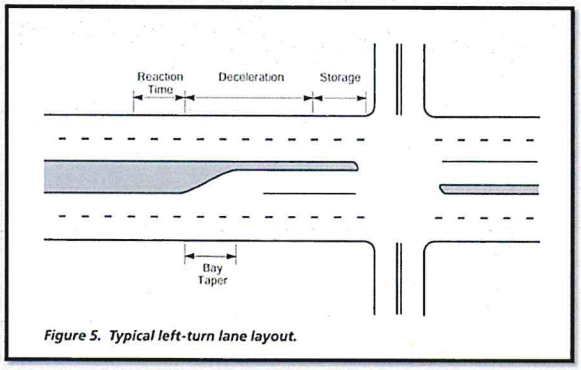
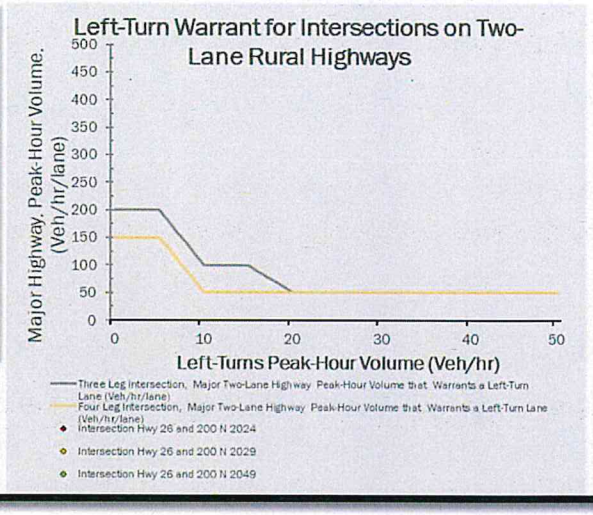


Figure 5. Typical left-turn lane layout.



Intersection 3: Southeast bound Traffic without the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	200 N	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr, left-turn lane vol	26	31	32	(vehicles per hour)
6	Posted Speed Limit (MPH)	65	Major Roadway Peak-hr vc	303	336	482	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection Intersection 3 - Southeast bound **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

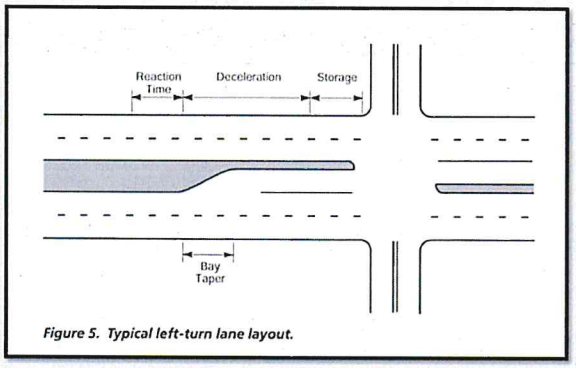
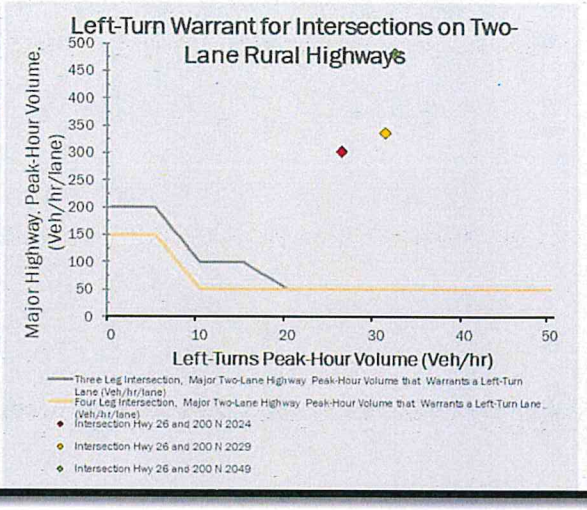


Figure 5. Typical left-turn lane layout.



Intersection 1: Eastbound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	200 N	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark Road	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr. left-turn lane vol	8	15	18	(vehicles per hour)
6	Posted Speed Limit (MPH)	40	Major Roadway Peak-hr vc	47	57	73	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection **Intersection 1 - Eastbound** **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

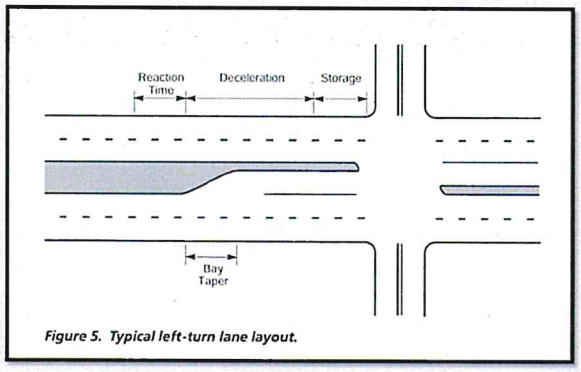
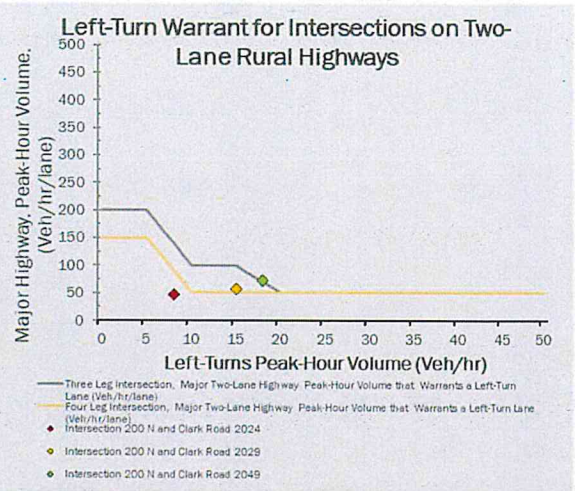


Figure 5. Typical left-turn lane layout.



Intersection 1: Westbound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	200 N	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark Road	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr. left-turn lane vol	9	10	13	(vehicles per hour)
6	Posted Speed Limit (MPH)	40	Major Roadway Peak-hr vc	23	28	35	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection Intersection 1 - Westbound **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

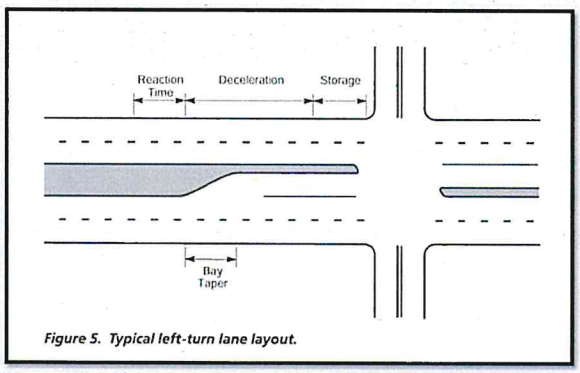
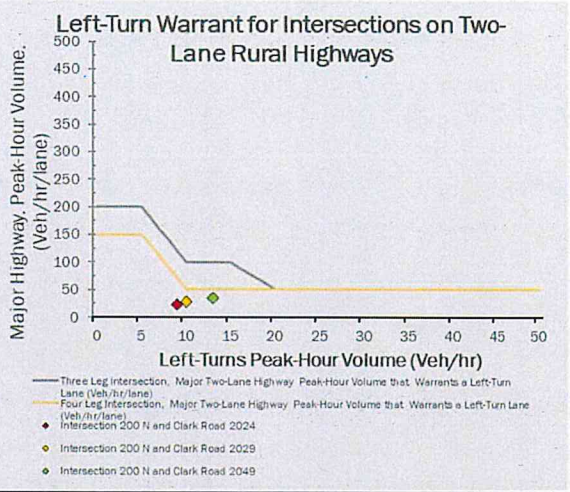


Figure 5. Typical left-turn lane layout.



Intersection 1: Northbound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	200 N	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark Road	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr, left-turn lane vol	6	6	8	(vehicles per hour)
6	Posted Speed Limit (MPH)	40	Major Roadway Peak-hr vc	36	48	61	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection Intersection 1 - Northbound **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

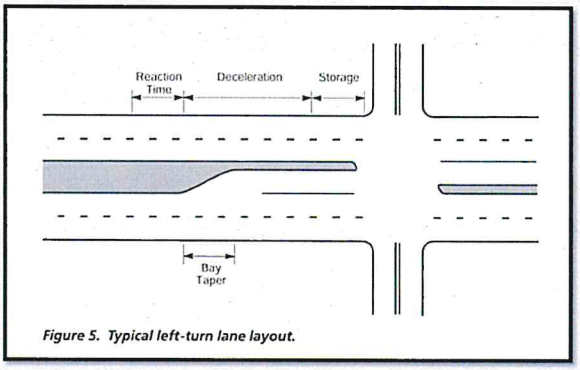
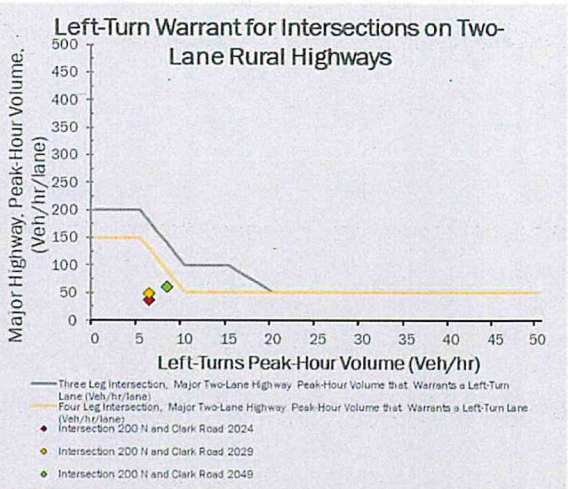


Figure 5. Typical left-turn lane layout.



Intersection 1: Southbound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	200 N	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark Road	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr, left-turn lane vol	2	5	6	(vehicles per hour)
6	Posted Speed Limit (MPH)	40	Major Roadway Peak-hr vc	16	37	42	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection **Intersection 1 - Southbound** **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

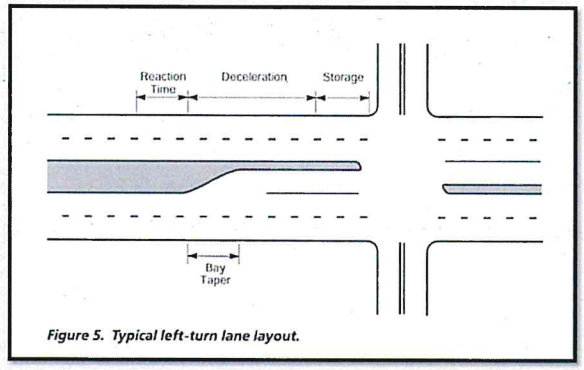
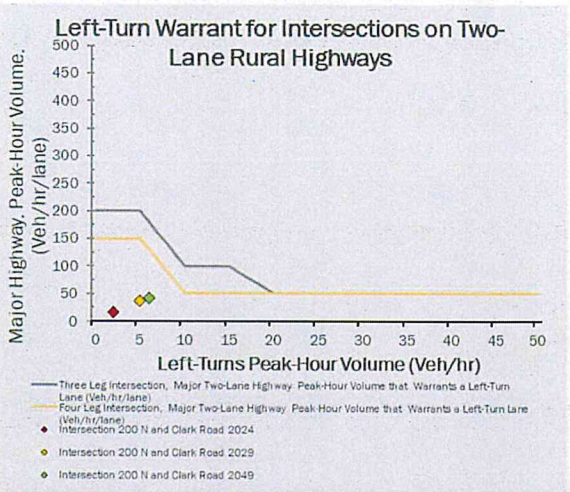


Figure 5. Typical left-turn lane layout.



Intersection 2: Southeast bound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark Road	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr, left-turn lane vol	23	31	38	(vehicles per hour)
6	Posted Speed Limit (MPH)	40	Major Roadway Peak-hr vc	303	338	488	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection **Intersection 2 - Southeast bound** **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

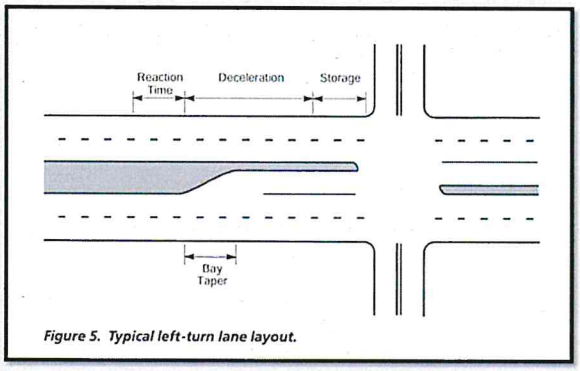
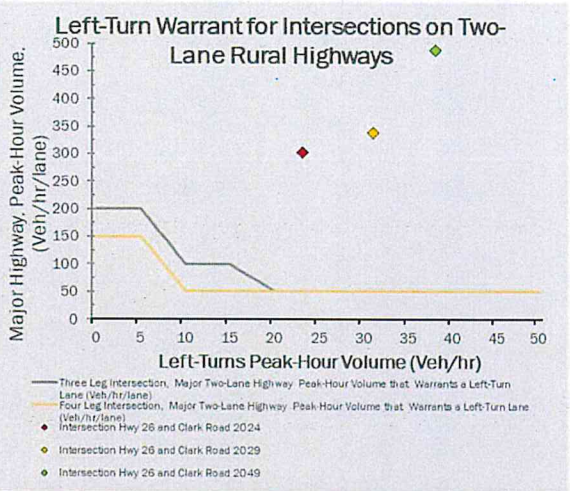


Figure 5. Typical left-turn lane layout.



Intersection 2: Northwest bound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark Road	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr, left-turn lane vol	5	5	7	(vehicles per hour)
6	Posted Speed Limit (MPH)	40	Major Roadway Peak-hr vc	395	436	535	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection **Intersection 2 - Northwest bound** **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

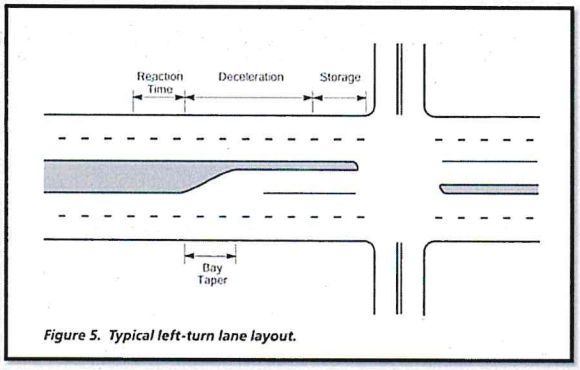
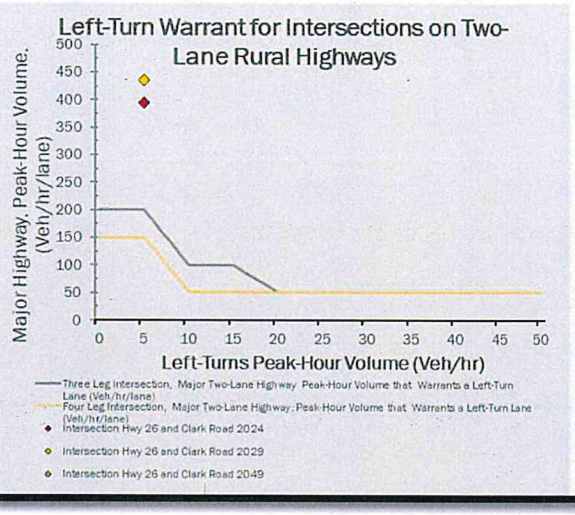


Figure 5. Typical left-turn lane layout.



Intersection 2: Northbound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark Road	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr, left-turn lane vol	3	3	4	(vehicles per hour)
6	Posted Speed Limit (MPH)	40	Major Roadway Peak-hr vc	15	17	23	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection Intersection 2 - Northbound **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

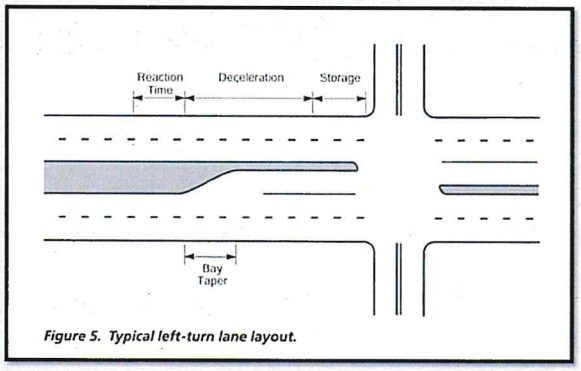
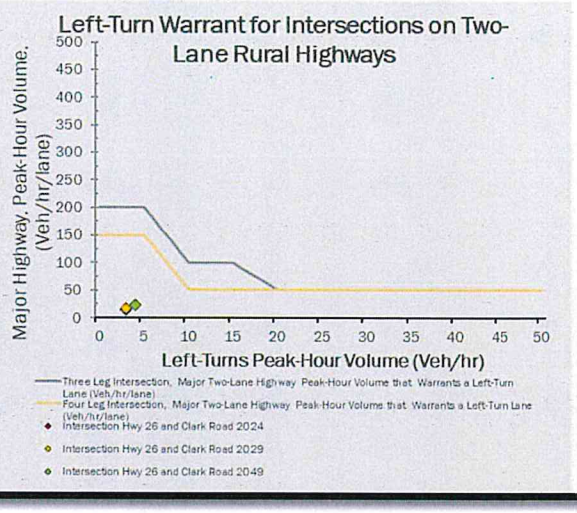


Figure 5. Typical left-turn lane layout.



Intersection 2: Southbound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark Road	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr, left-turn lane vol	8	11	13	(vehicles per hour)
6	Posted Speed Limit (MPH)	40	Major Roadway Peak-hr vc	43	57	71	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection Intersection 2 - Southbound **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

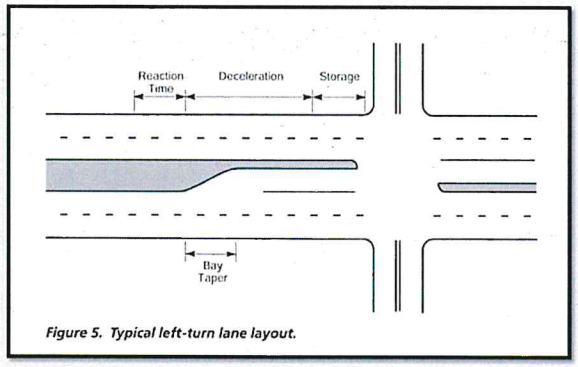
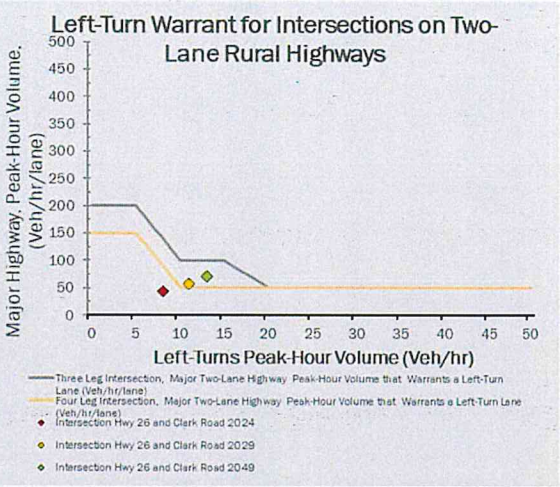


Figure 5. Typical left-turn lane layout.



Intersection 3: Eastbound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	200 N	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr, left-turn lane vol	2	2	5	(vehicles per hour)
6	Posted Speed Limit (MPH)	65	Major Roadway Peak-hr vc	32	39	74	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection Intersection 3 - Eastbound **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

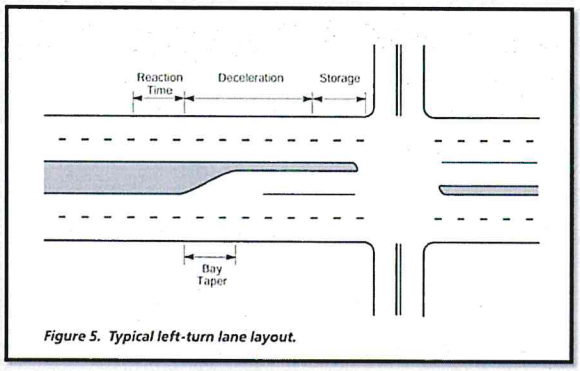
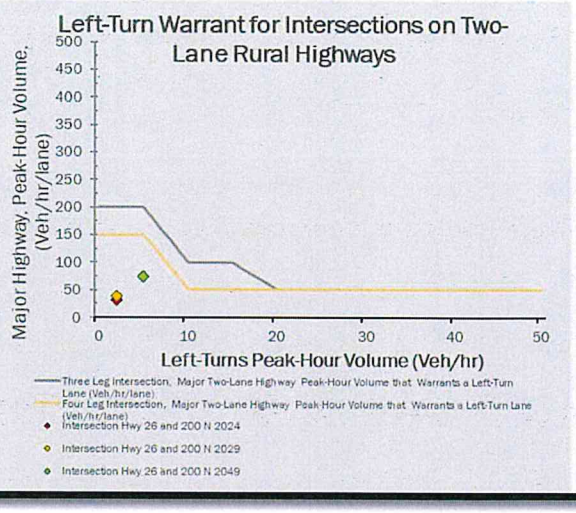


Figure 5. Typical left-turn lane layout.



Intersection 3: Westbound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	200 N	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr. left-turn lane vol	2	2	5	(vehicles per hour)
6	Posted Speed Limit (MPH)	65	Major Roadway Peak-hr vc	53	69	127	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection Intersection 3 - Westbound **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

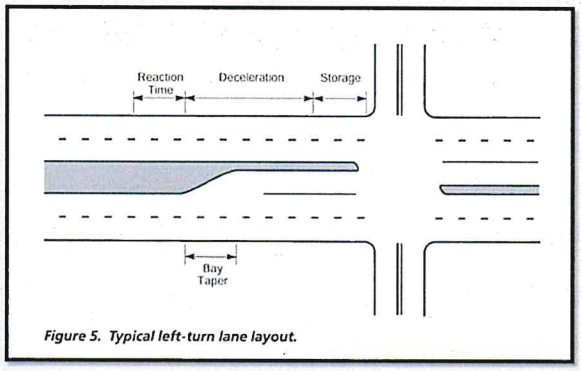
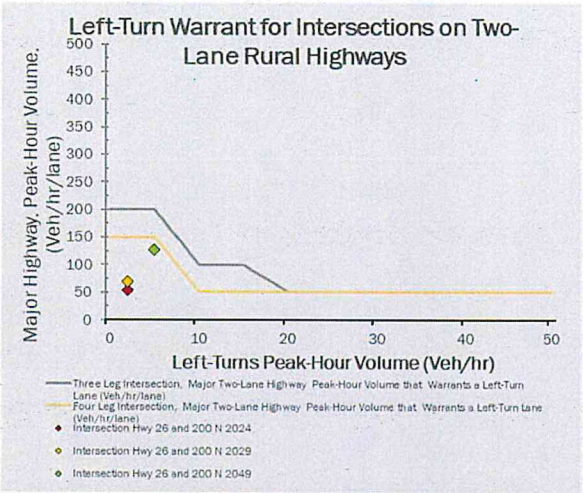


Figure 5. Typical left-turn lane layout.



Intersection 3: Northwest bound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	200 N	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr. left-turn lane vol	75	88	175	(vehicles per hour)
6	Posted Speed Limit (MPH)	65	Major Roadway Peak-hr vc	406	455	720	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection **Intersection 3 - Northwest bound** **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

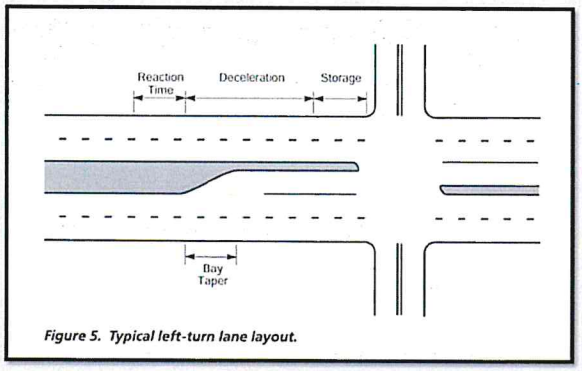
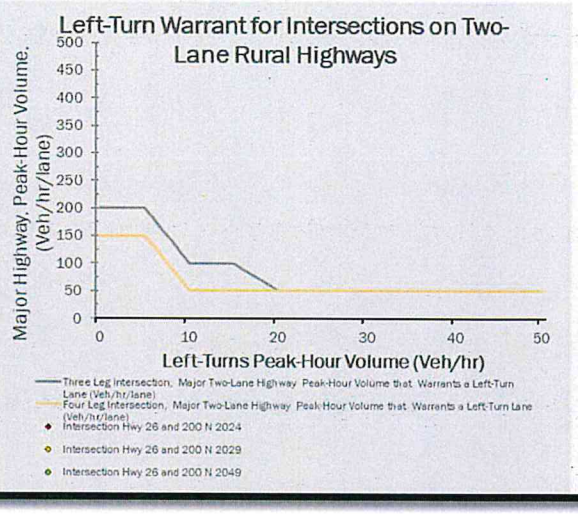


Figure 5. Typical left-turn lane layout.



Intersection 3: Southeast bound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	200 N	Number of Legs	Four	Four	Four	
5	Peak Hour	PM	Peak-hr, left-turn lane vol	26	37	65	(vehicles per hour)
6	Posted Speed Limit (MPH)	65	Major Roadway Peak-hr vc	303	342	514	(veh/hour/lane).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

Intersection Intersection 3 - Southeast bound **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Left Turn Peak Hour Volume (Veh/hr)	Three Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Two-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Three Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)	Four Leg Intersection, Major Four-Lane Highway Peak-Hour Volume that Warrants a Left-Turn Lane (Veh/hr/lane)
5	200	150	75	50	450	50
10	100	50	75	25	300	50
15	100	50	50	25	250	50
20	50	<50	50	25	200	50
25	50	<50	50	<25	200	50
30	50	<50	50	<25	150	50
35	50	<50	50	<25	150	50
40	50	<50	50	<25	150	50
45	50	<50	50	<25	150	<50
50	50	<50	50	<25	100	<50

2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

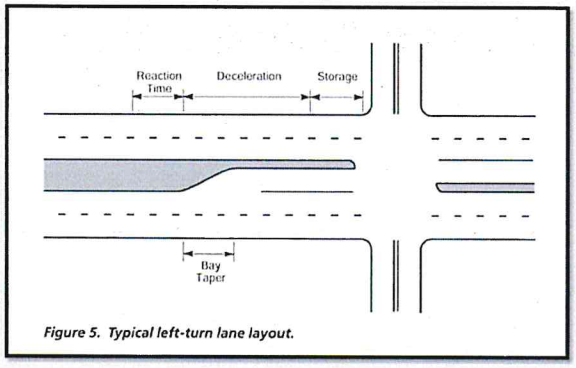
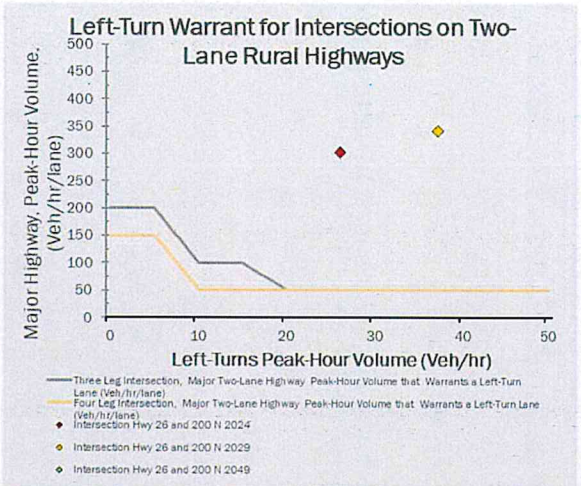


Figure 5. Typical left-turn lane layout.



Appendix I: Right Turn Lane Warrant Analysis

Intersection 1: Eastbound Traffic without the Project

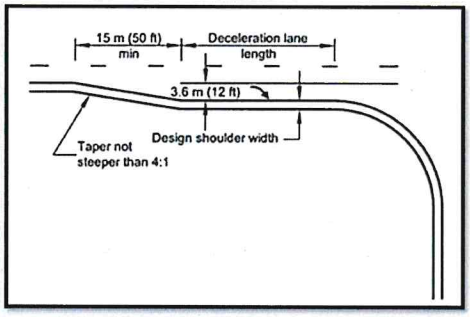
IGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)						
Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
Name of Major Roadway	200 N	No. of lanes on the major	Two	Two	Two	
Name of Minor Roadway/Approach	Clark	Number of legs	Four	Four	Four	
Peak Hour	PM	Major roadway volume	47	50	66	(veh/hour/lane).
Posted Speed Limit (MPH)	40	Right-Turn, Peak Hour Vol	8	8	11	(veh/hour).

ysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

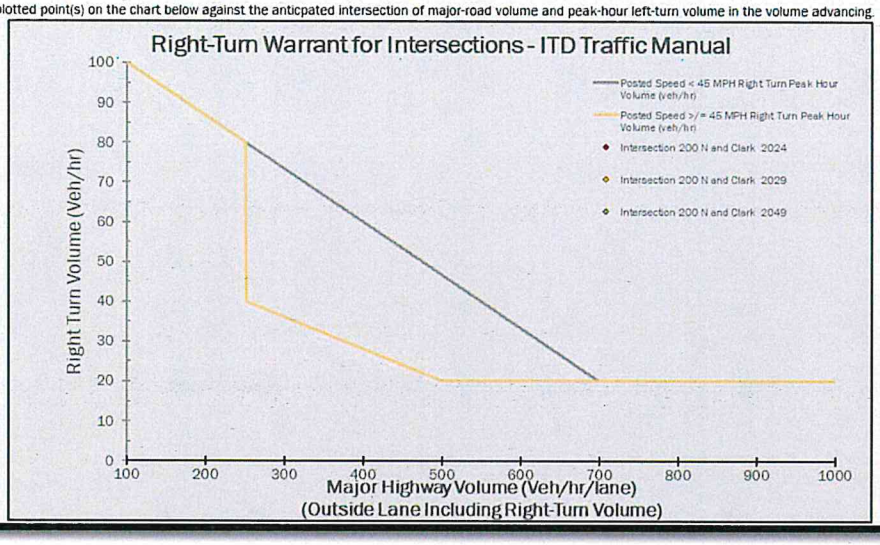
rsection **Int 1 Eastbound** **Horizon Years**

Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 1: Westbound Traffic without the Project

IGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
Name of Major Roadway	200 N	No. of lanes on the major	Two	Two	Two	
Name of Minor Roadway/Approach	Clark	Number of legs	Four	Four	Four	
Peak Hour	PM	Major roadway volume	23	25	32	(veh/hour/lane).
Posted Speed Limit (MPH)	40	Right-Turn, Peak Hour Vol	3	3	4	(veh/hour).

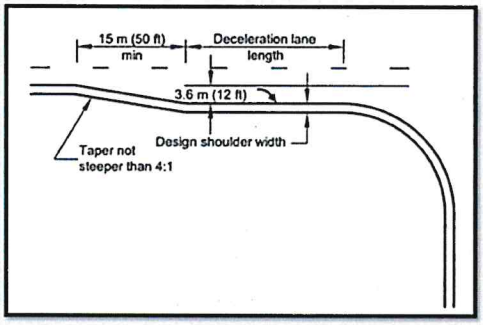
ysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

rsection **Int 1 Westbound**

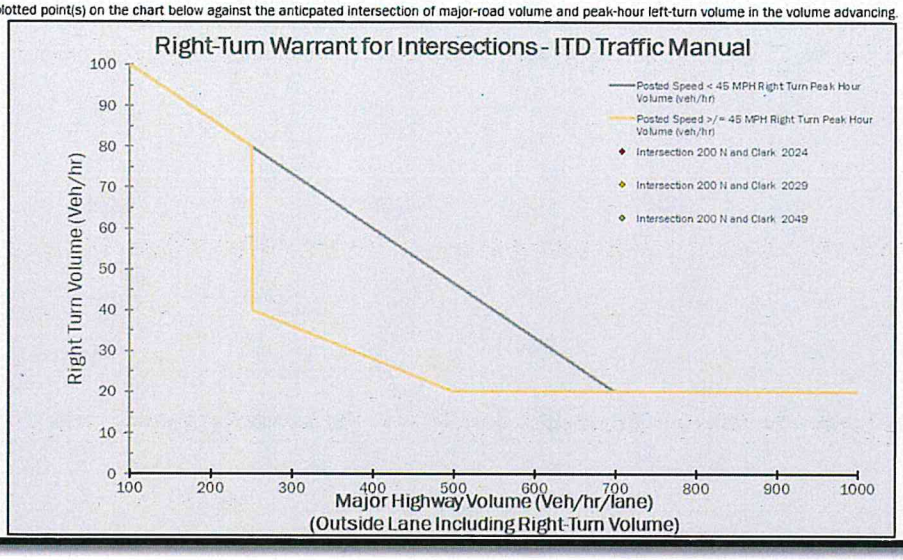
Horizon Years

Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 1: Northbound Traffic without the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

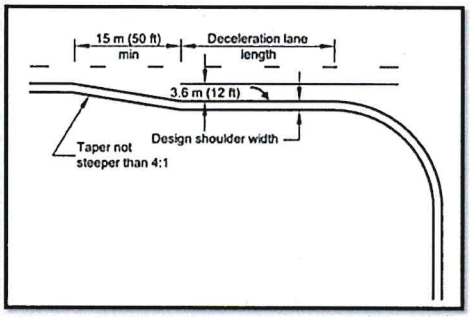
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	200 N	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	36	38	51	(veh/hour/lane).
6	Posted Speed Limit (MPH)	40	Right-Turn, Peak Hour Vol	14	15	20	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

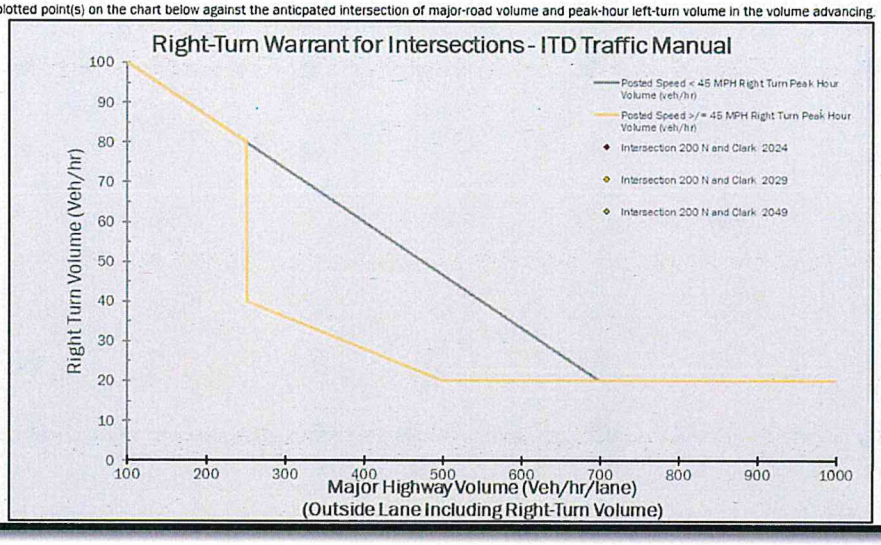
Intersection Int 1 Northbound **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 1: Southbound Traffic without the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

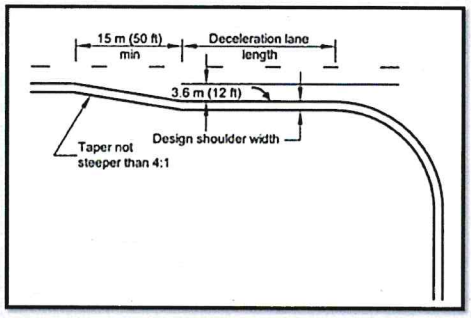
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	200 N	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	16	17	22	(veh/hour/lane).
6	Posted Speed Limit (MPH)	40	Right-Turn, Peak Hour Vol	6	6	8	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

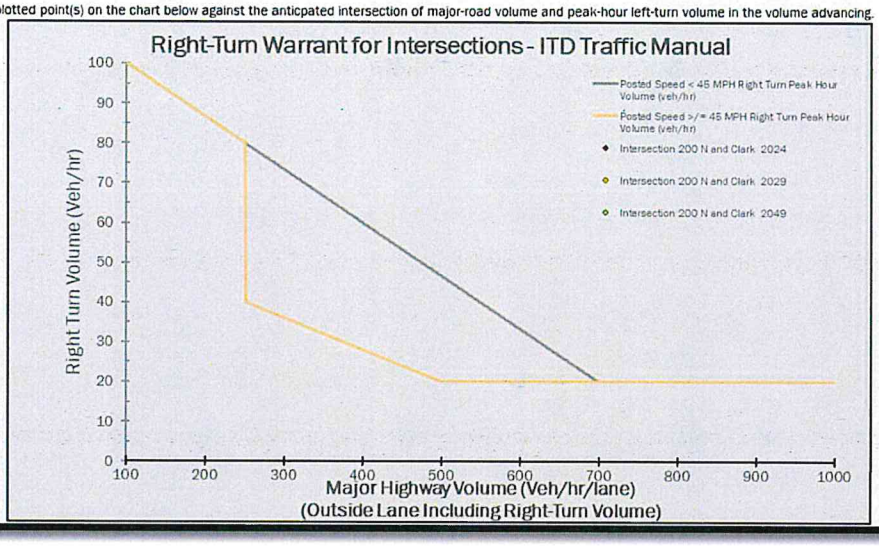
Intersection Int 1 Southbound — **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 2: Southeast bound Traffic without the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

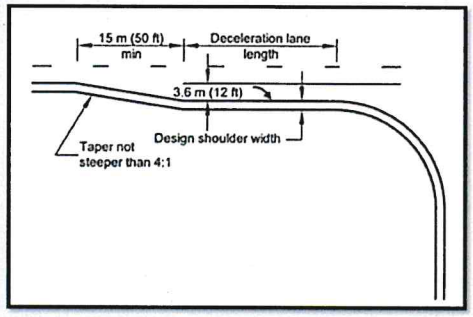
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	303	332	482	(veh/hour/lane).
6	Posted Speed Limit (MPH)	65	Right-Turn, Peak Hour Vol	6	6	8	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

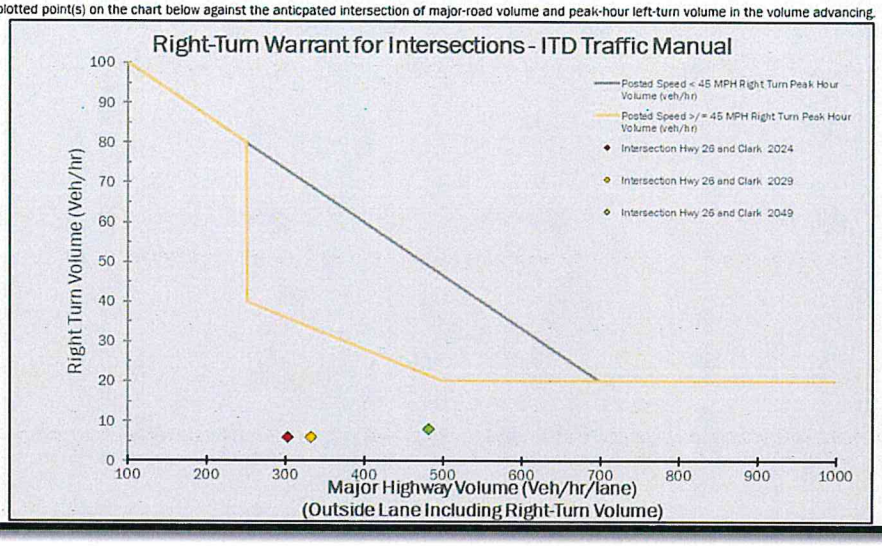
Intersection Int 2 Southeast bound — **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 2: Northwest bound Traffic without the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

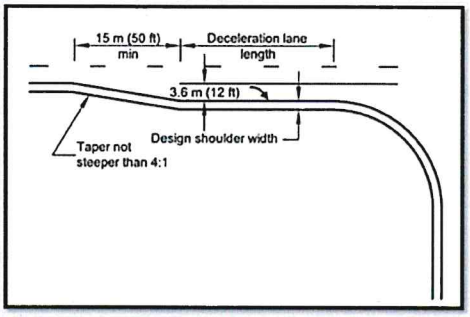
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	395	434	633	(veh/hour/lane).
6	Posted Speed Limit (MPH)	65	Right-Turn, Peak Hour Vol	13	14	18	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

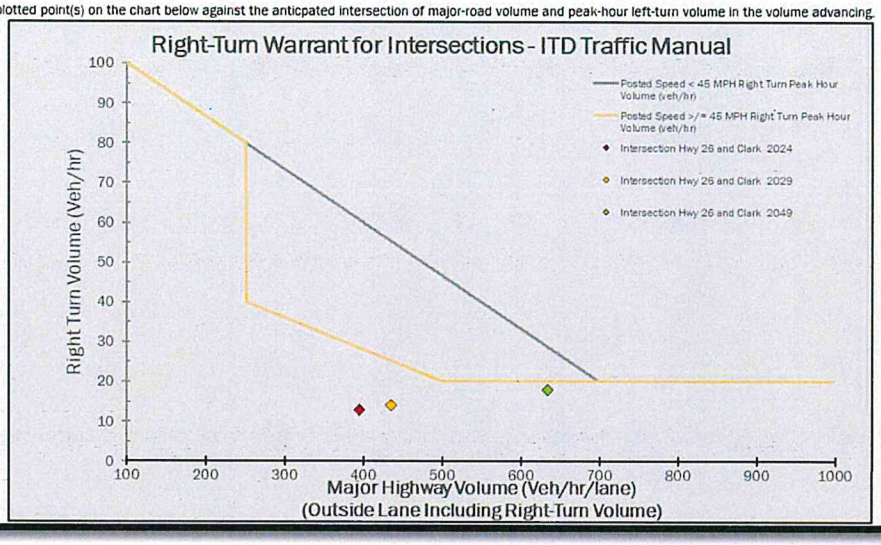
Intersection Int 2 Northwest bound **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 2: Northbound Traffic without the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

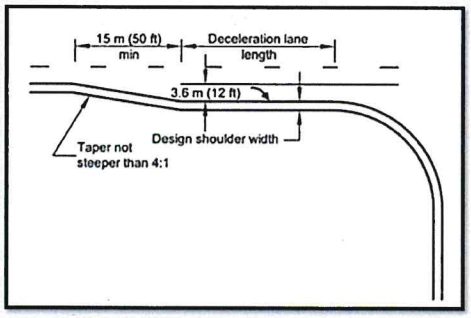
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	15	15	21	(veh/hour/lane).
6	Posted Speed Limit (MPH)	40	Right-Turn, Peak Hour Vol	5	5	7	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

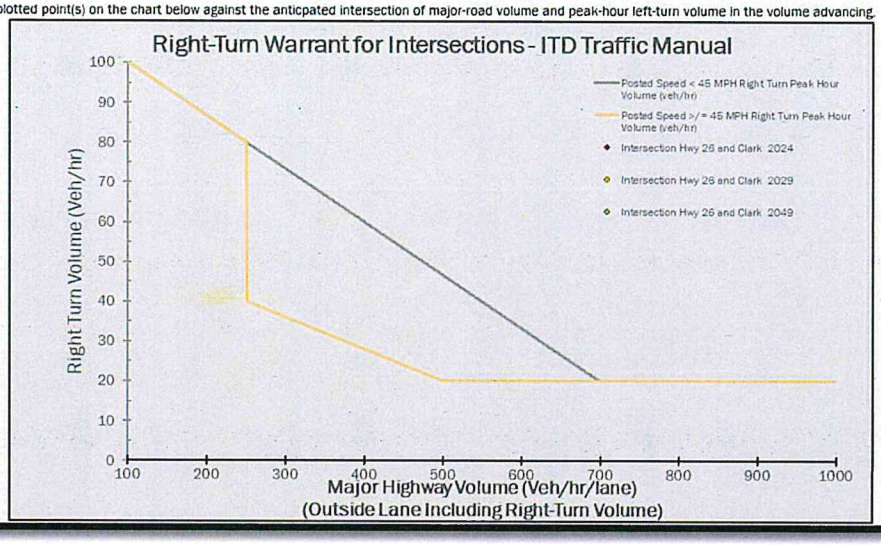
Intersection Int 2 Northbound — **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 2: Southbound Traffic without the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

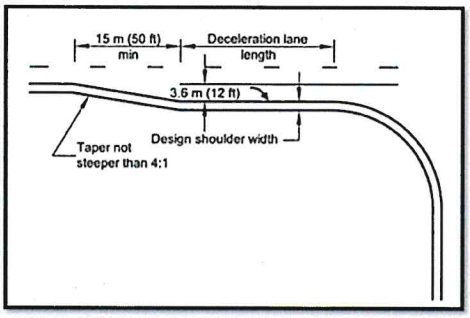
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	43	47	61	(veh/hour/lane).
6	Posted Speed Limit (MPH)	40	Right-Turn, Peak Hour Vol	26	28	37	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

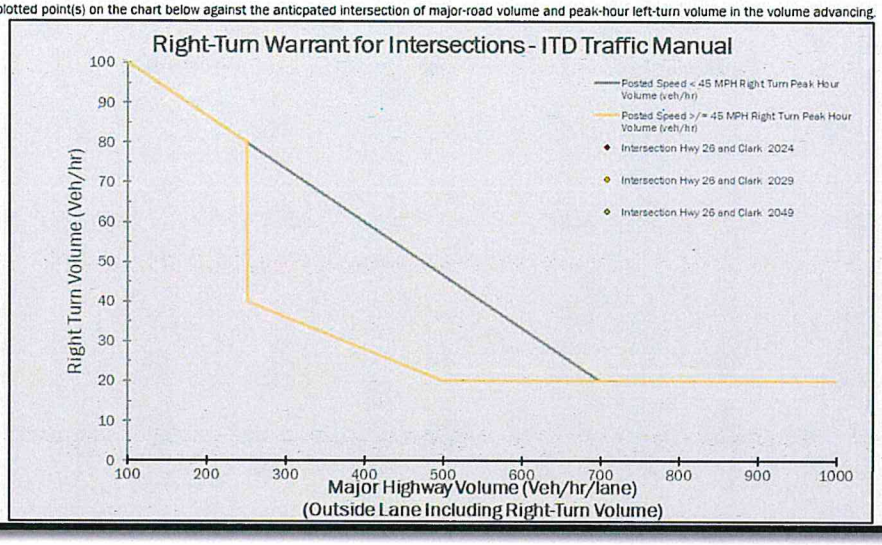
Intersection Int 2 Southbound — **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 3: Eastbound Traffic without the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

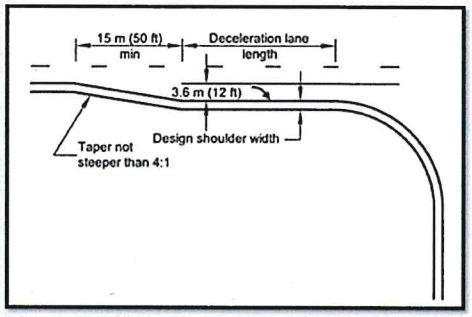
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	200 N	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	32	38	73	(veh/hour/lane).
6	Posted Speed Limit (MPH)	40	Right-Turn, Peak Hour Vol	27	32	61	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

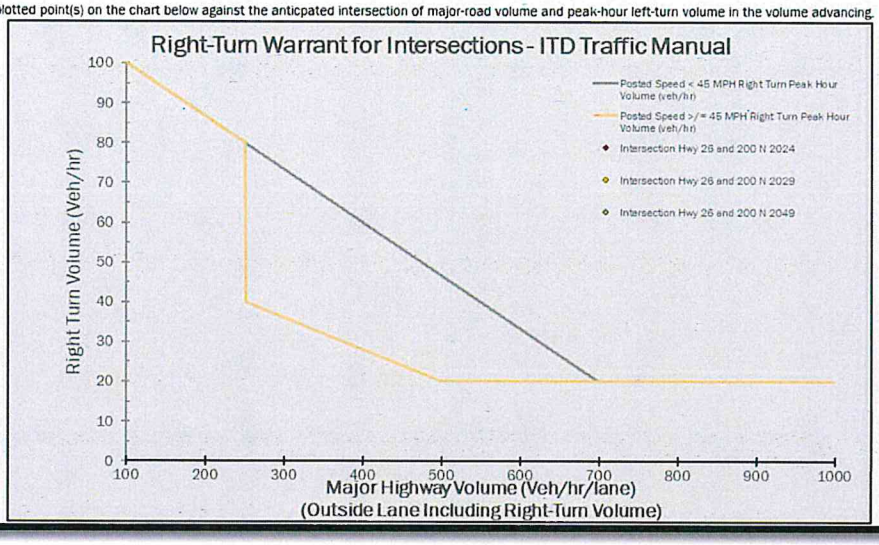
Intersection Int 3 Eastbound — **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 3: Westbound Traffic without the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

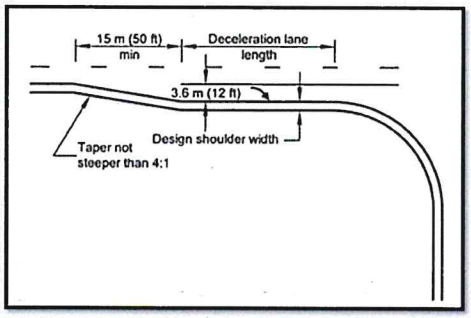
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	200 N	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	53	62	120	(veh/hour/lane).
6	Posted Speed Limit (MPH)	40	Right-Turn, Peak Hour Vol	2	55	106	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

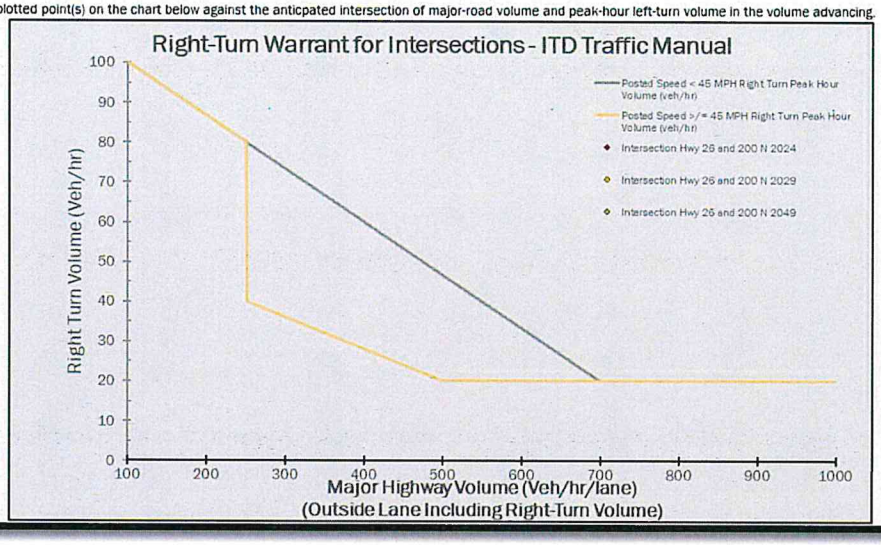
Intersection Int 3 Westbound **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 3: Northwest bound Traffic without the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

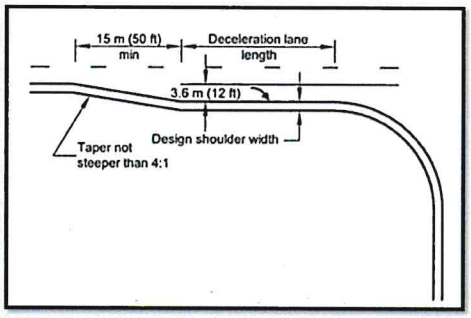
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	200 N	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	406	452	705	(veh/hour/lane).
6	Posted Speed Limit (MPH)	65	Right-Turn, Peak Hour Vol	2	2	5	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

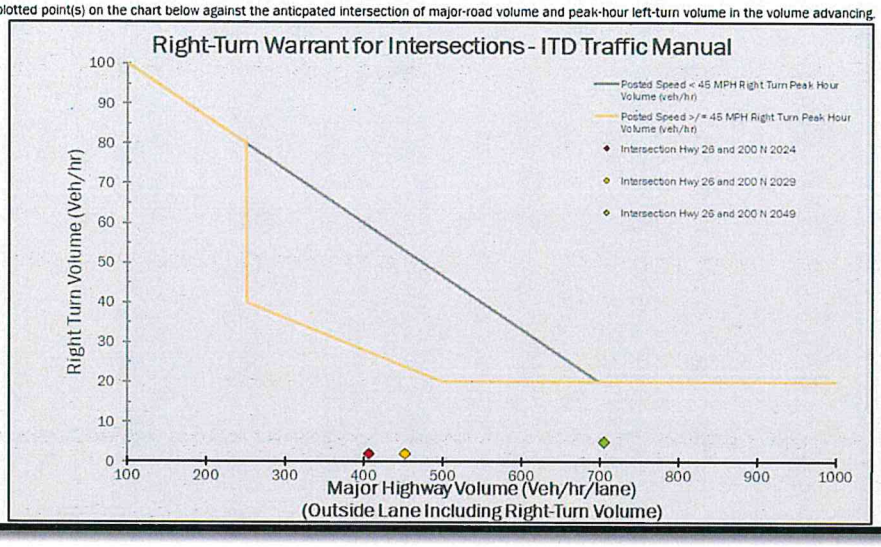
Intersection Int 3 Northwest bound — **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 3: Southeast bound Traffic without the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

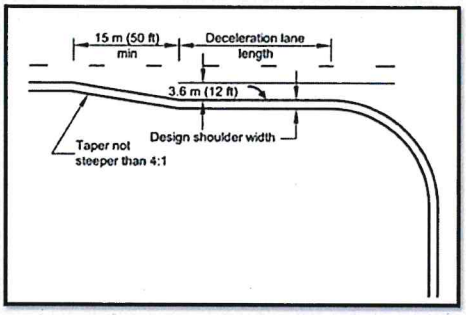
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	200 N	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	303	336	508	(veh/hour/lane).
6	Posted Speed Limit (MPH)	65	Right-Turn, Peak Hour Vol	5	6	11	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

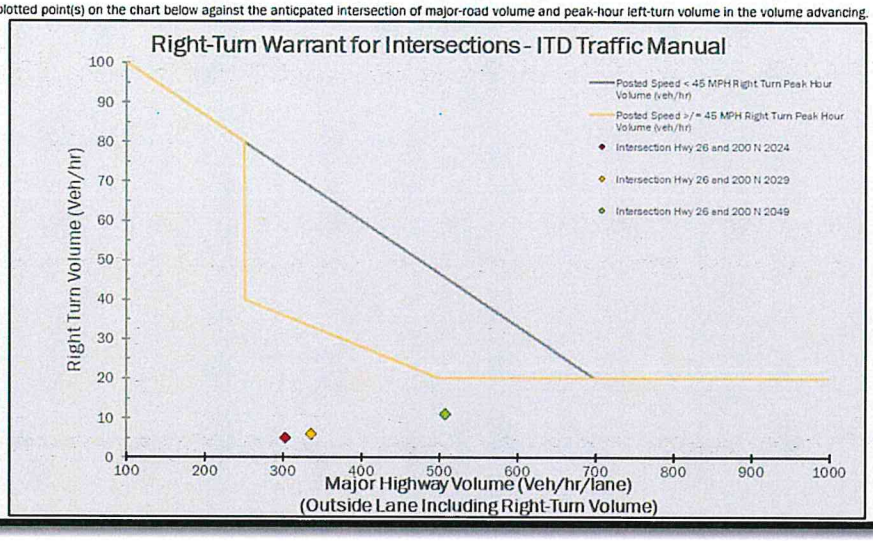
Intersection Int 3 Southeast bound **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 1: Eastbound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

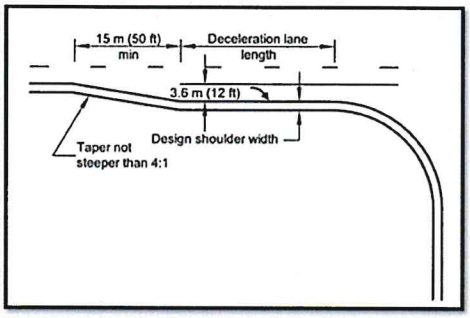
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	200 N	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	47	57	73	(veh/hour/lane).
6	Posted Speed Limit (MPH)	40	Right-Turn, Peak Hour Vol	8	8	11	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

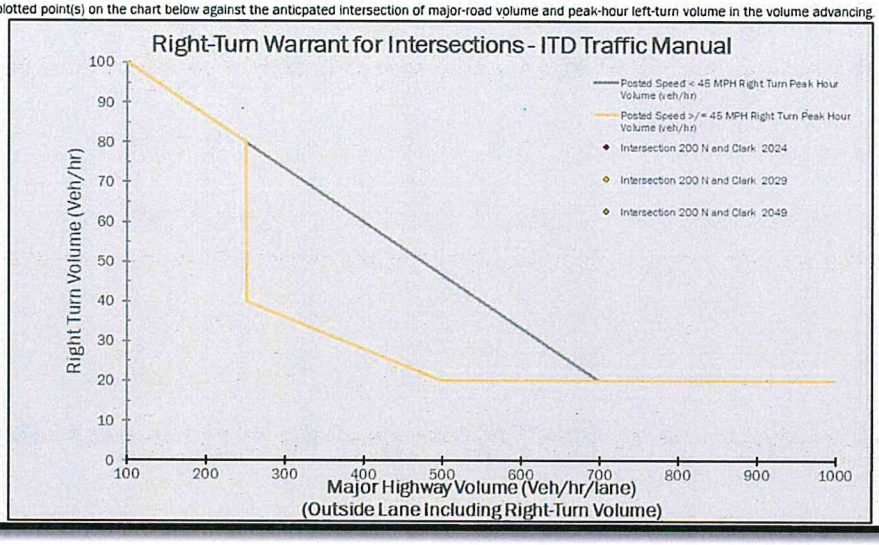
Intersection Int 1 Eastbound — **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 1: Westbound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

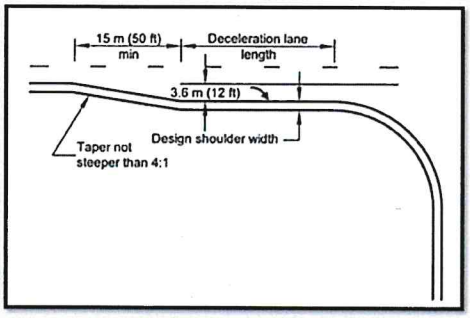
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	200 N	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	23	28	35	(veh/hour/lane).
6	Posted Speed Limit (MPH)	40	Right-Turn, Peak Hour Vol	3	6	7	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

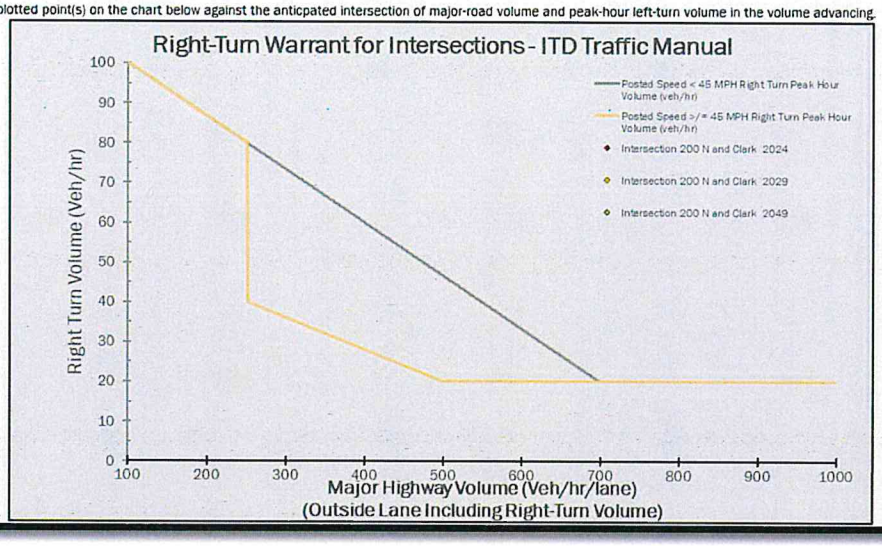
Intersection **Int 1 Westbound** **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 1: Northbound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

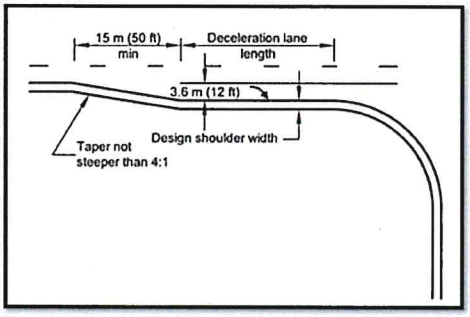
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	200 N	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	36	48	61	(veh/hour/lane).
6	Posted Speed Limit (MPH)	40	Right-Turn, Peak Hour Vol	14	15	20	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

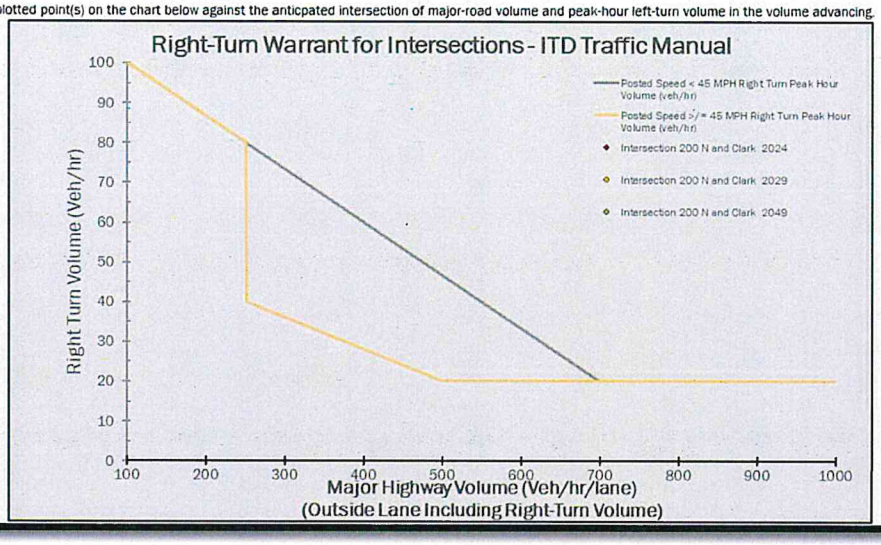
Intersection Int 1 Northbound — **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 1: Southbound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

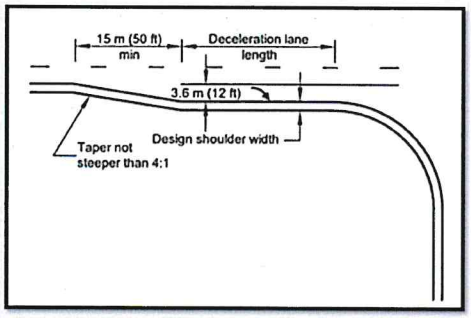
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	200 N	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	16	37	42	(veh/hour/lane).
6	Posted Speed Limit (MPH)	40	Right-Turn, Peak Hour Vol	6	13	15	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

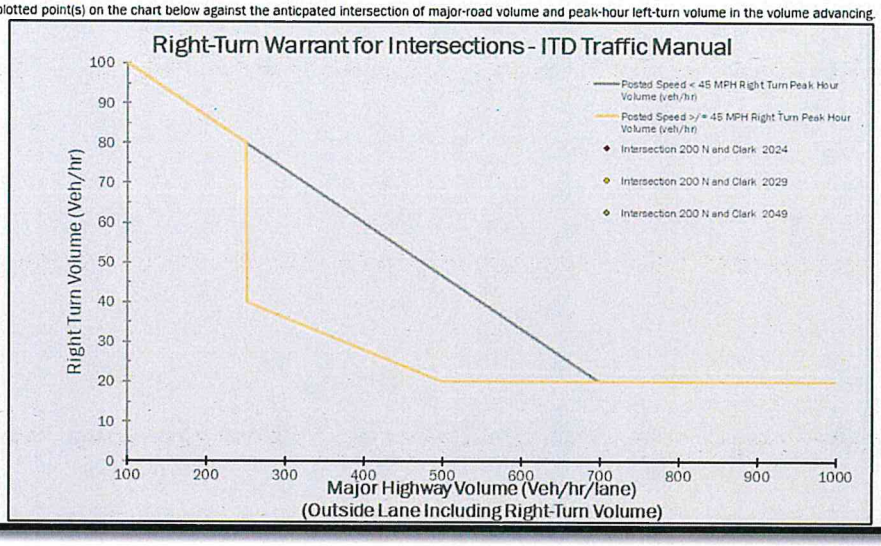
Intersection Int 1 Southbound — **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 2: Southeast bound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

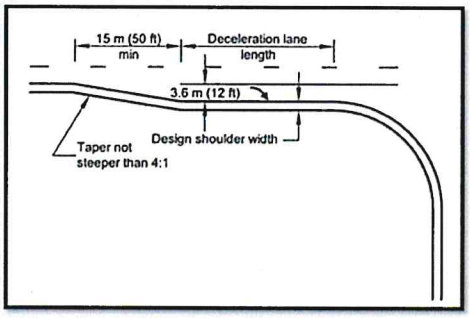
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	303	338	488	(veh/hour/lane).
6	Posted Speed Limit (MPH)	65	Right-Turn, Peak Hour Vol	6	6	8	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

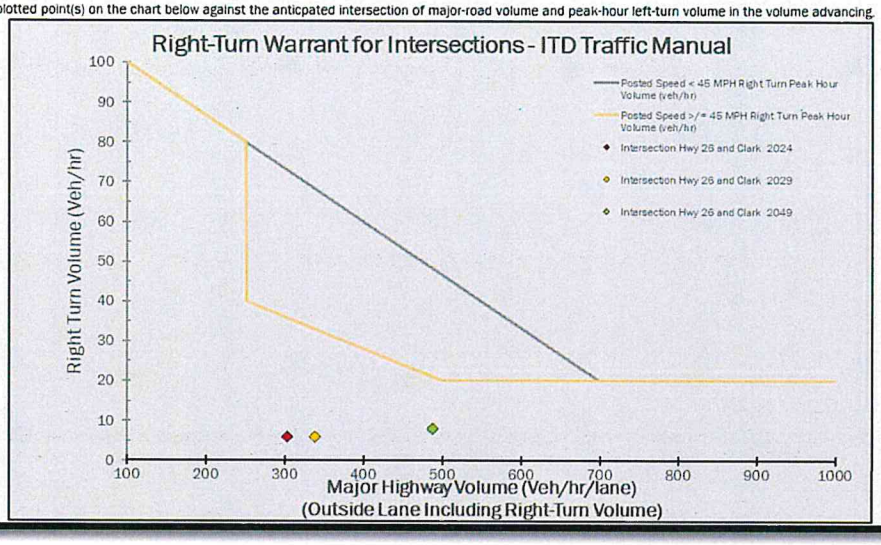
Intersection Int 2 Southeast bound — **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 2: Northwest bound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

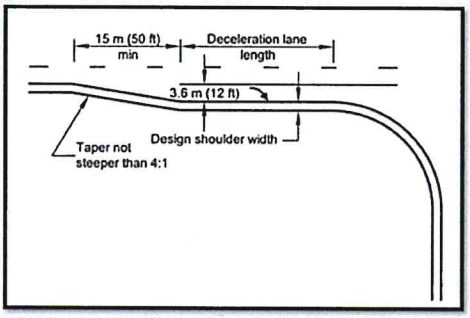
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	395	436	635	(veh/hour/lane).
6	Posted Speed Limit (MPH)	65	Right-Turn, Peak Hour Vol	13	16	20	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

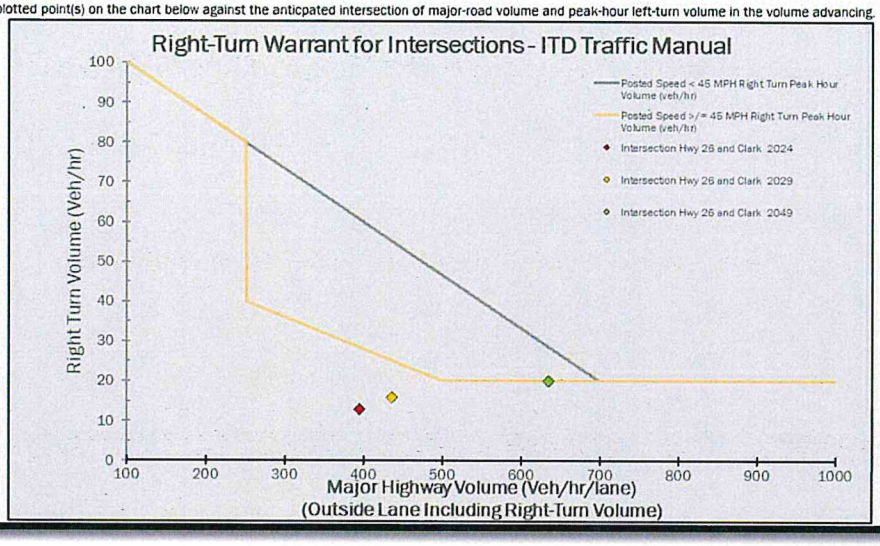
Intersection Int 2 Northwest bound — **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 2: Northbound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

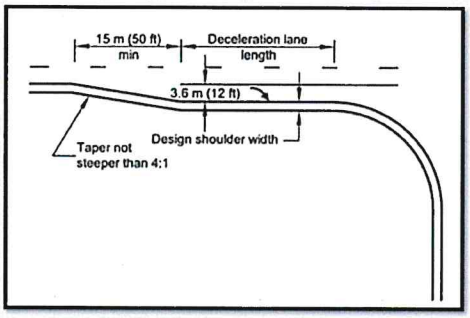
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	15	17	23	(veh/hour/lane).
6	Posted Speed Limit (MPH)	40	Right-Turn, Peak Hour Vol	5	5	7	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

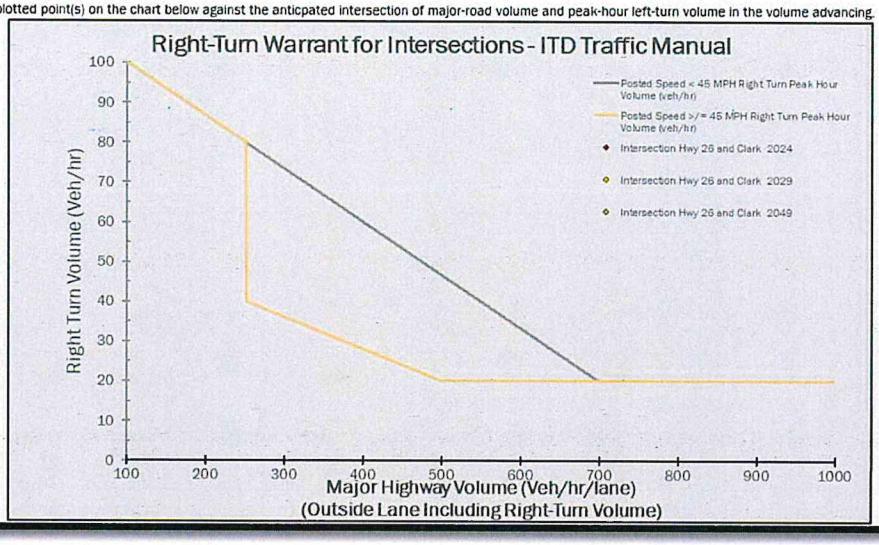
Intersection Int 2 Northbound — **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 2: Southbound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

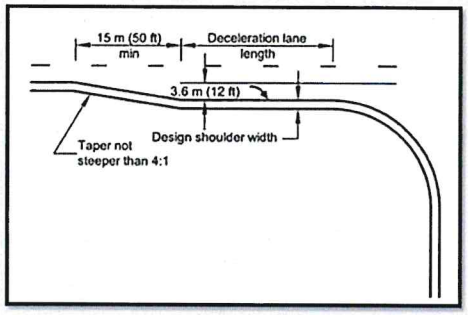
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	Clark	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	43	57	71	(veh/hour/lane).
6	Posted Speed Limit (MPH)	40	Right-Turn, Peak Hour Vol	26	34	43	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

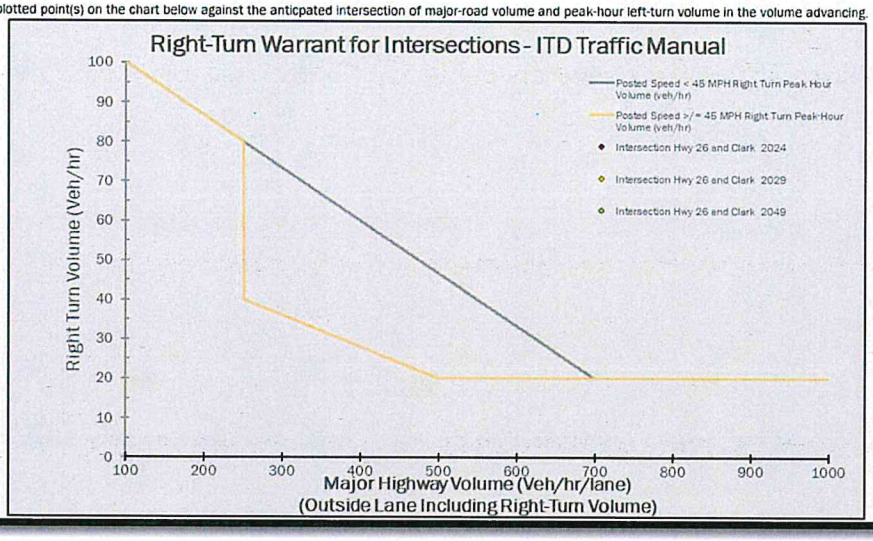
Intersection Int 2 Southbound — **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 3: Eastbound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

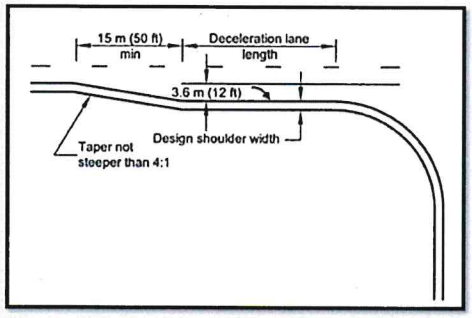
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	200 N	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	32	39	74	(veh/hour/lane).
6	Posted Speed Limit (MPH)	40	Right-Turn, Peak Hour Vol	27	32	61	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

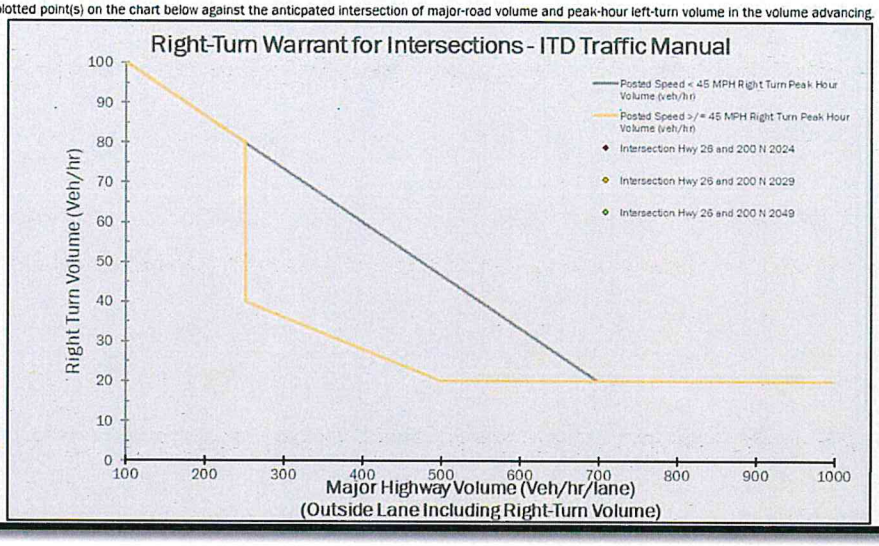
Intersection Int 3 Eastbound — **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 3: Westbound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

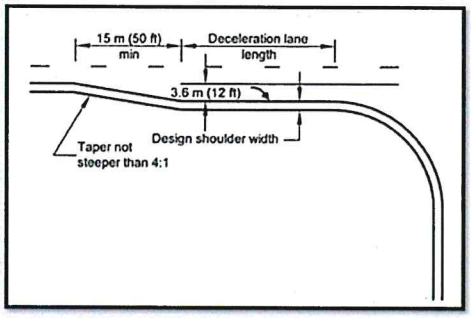
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	200 N	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	53	69	127	(veh/hour/lane).
6	Posted Speed Limit (MPH)	40	Right-Turn, Peak Hour Vol	2	61	112	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

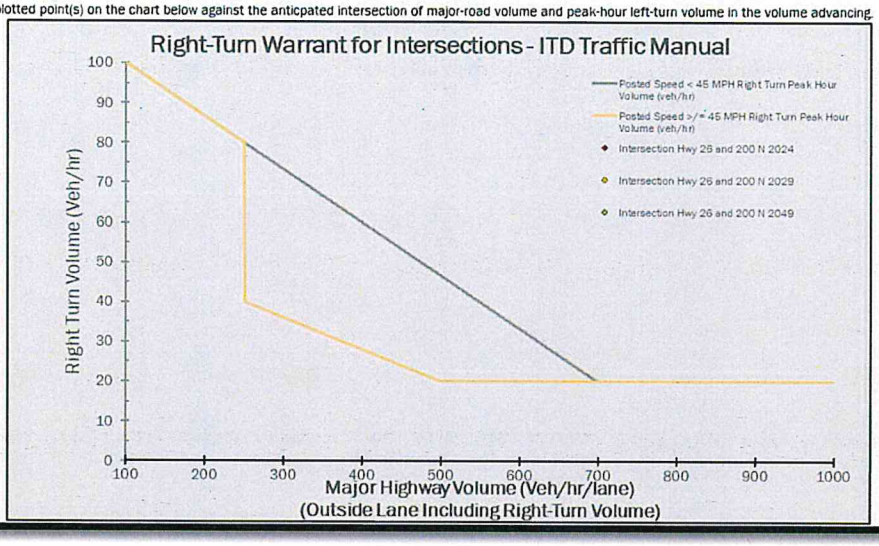
Intersection Int 3 Westbound — **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 3: Northwest bound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

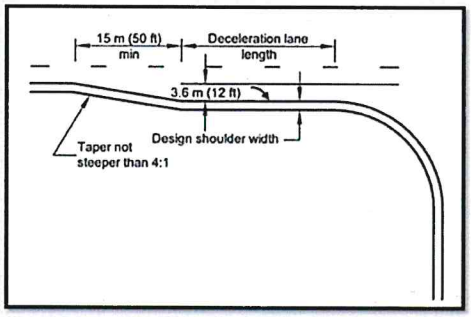
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	200 N	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	406	452	705	(veh/hour/lane).
6	Posted Speed Limit (MPH)	65	Right-Turn, Peak Hour Vol	2	2	5	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

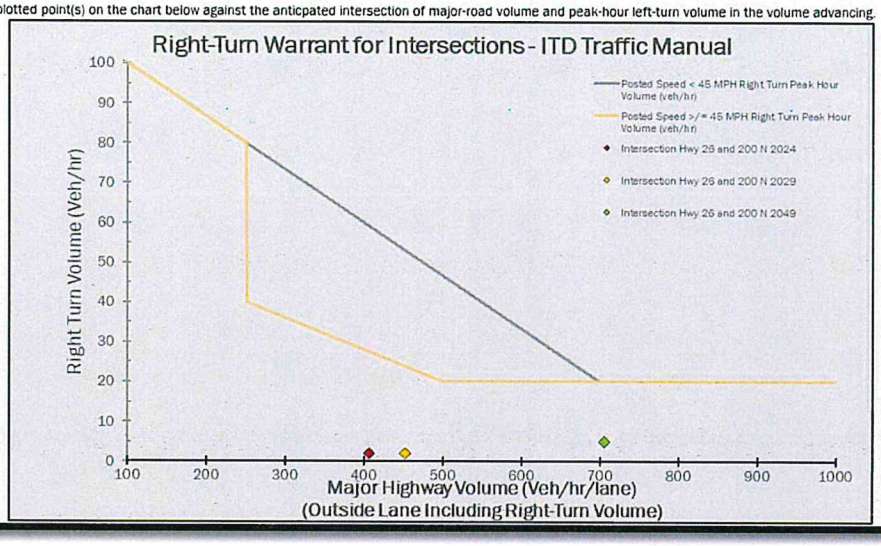
Intersection Int 3 Northwest bound — **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.



Intersection 3: Southeast bound Traffic with the Project

DESIGN CRITERIA (Input the following based on observation, historical data, and/or results of a site specific study)

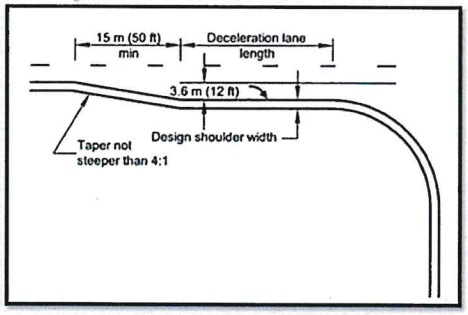
1	Jurisdiction	Bingham County	Horizon or Planning Year	2024	2029	2049	
2	Subdivision or Development Name	Porterville Gravel	Development Type	Rural	Rural	Rural	
3	Name of Major Roadway	Hwy 26	No. of lanes on the major	Two	Two	Two	
4	Name of Minor Roadway/Approach	200 N	Number of legs	Four	Four	Four	
5	Peak Hour	PM	Major roadway volume	303	342	514	(veh/hour/lane).
6	Posted Speed Limit (MPH)	65	Right-Turn, Peak Hour Vol	5	6	11	(veh/hour).

Analysis - Table and graph reproduced from NCHRP Report 745 (Axes on the graph are reversed from source)

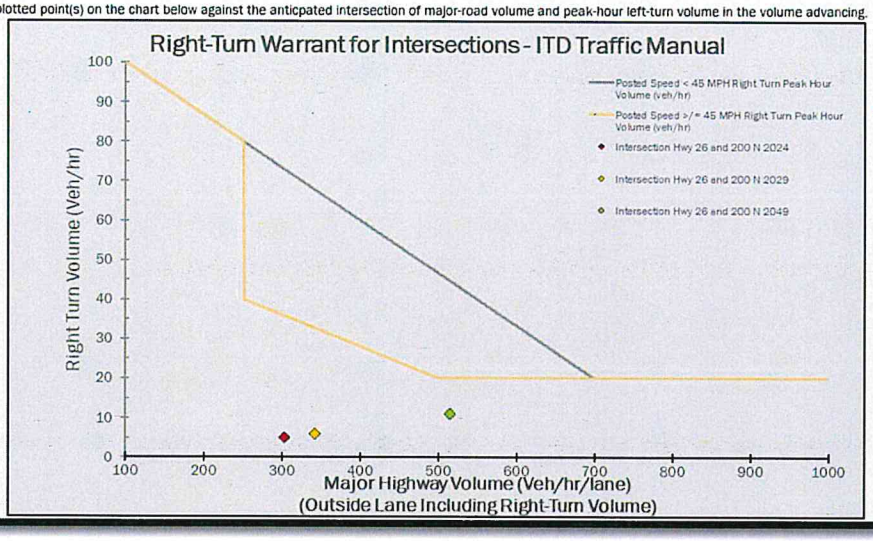
Intersection Int 3 Southeast bound — **Horizon Years**

1 Consult chart below and evaluate the type of intersection and the left-turn, peak-hour volume

Posted Speed < 45 MPH Highway Volume Outside Lane Only Including R-T Volume (Veh/hr/lane)	Posted Speed < 45 MPH Right Turn Peak Hour Volume (veh/hr)	Posted Speed >/= 45 MPH Right Turn Peak Hour Volume (veh/hr)
0	100	100
100	100	100
200	87	87
300	73	35
400	60	25
500	47	20
600	33	<20
700	20	<20
800	<20	<20
900	<20	<20
1000	<20	<20



2 Check the plotted point(s) on the chart below against the anticpated intersection of major-road volume and peak-hour left-turn volume in the volume advancing.

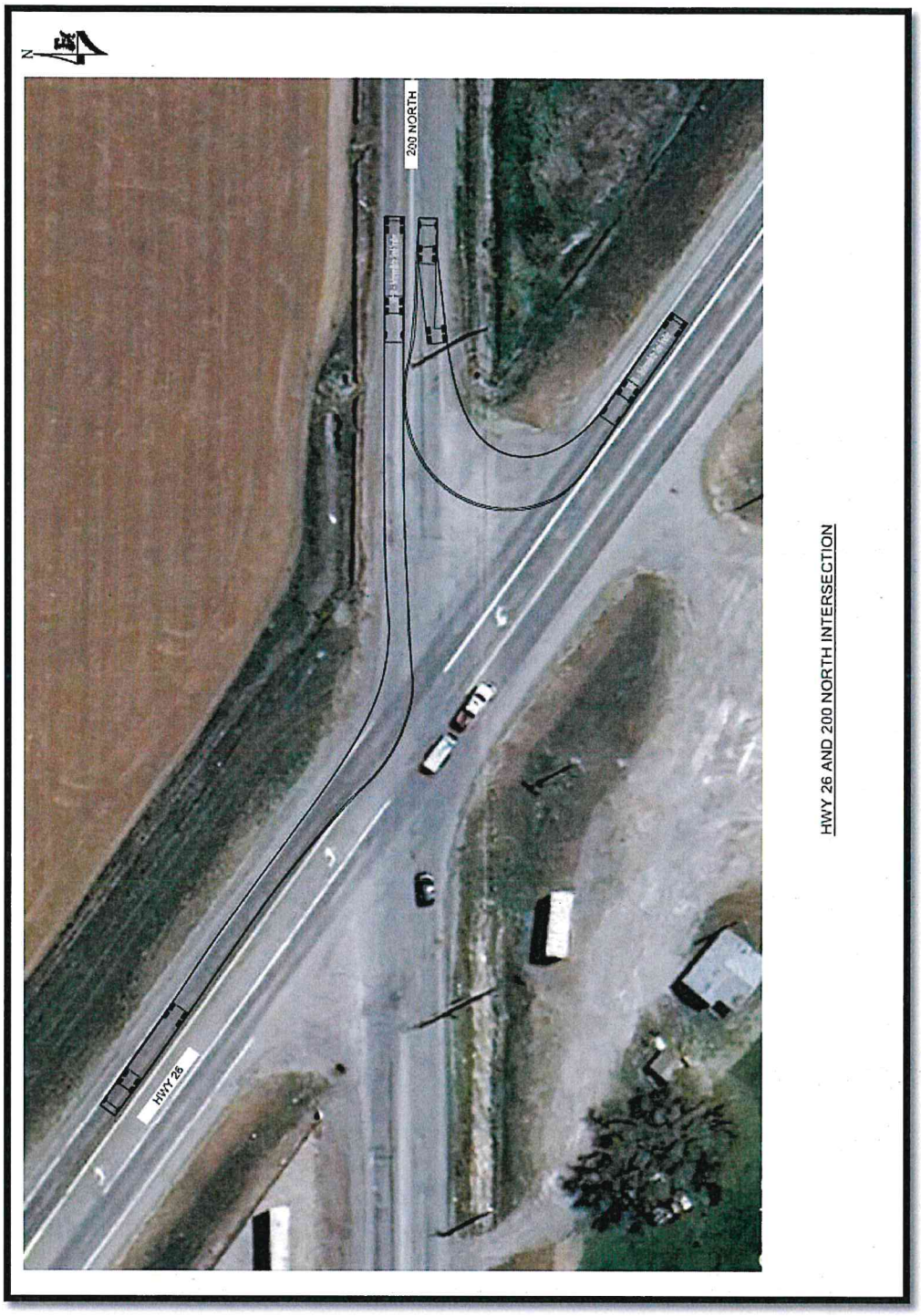


Appendix J: Intersection Geometry Analysis

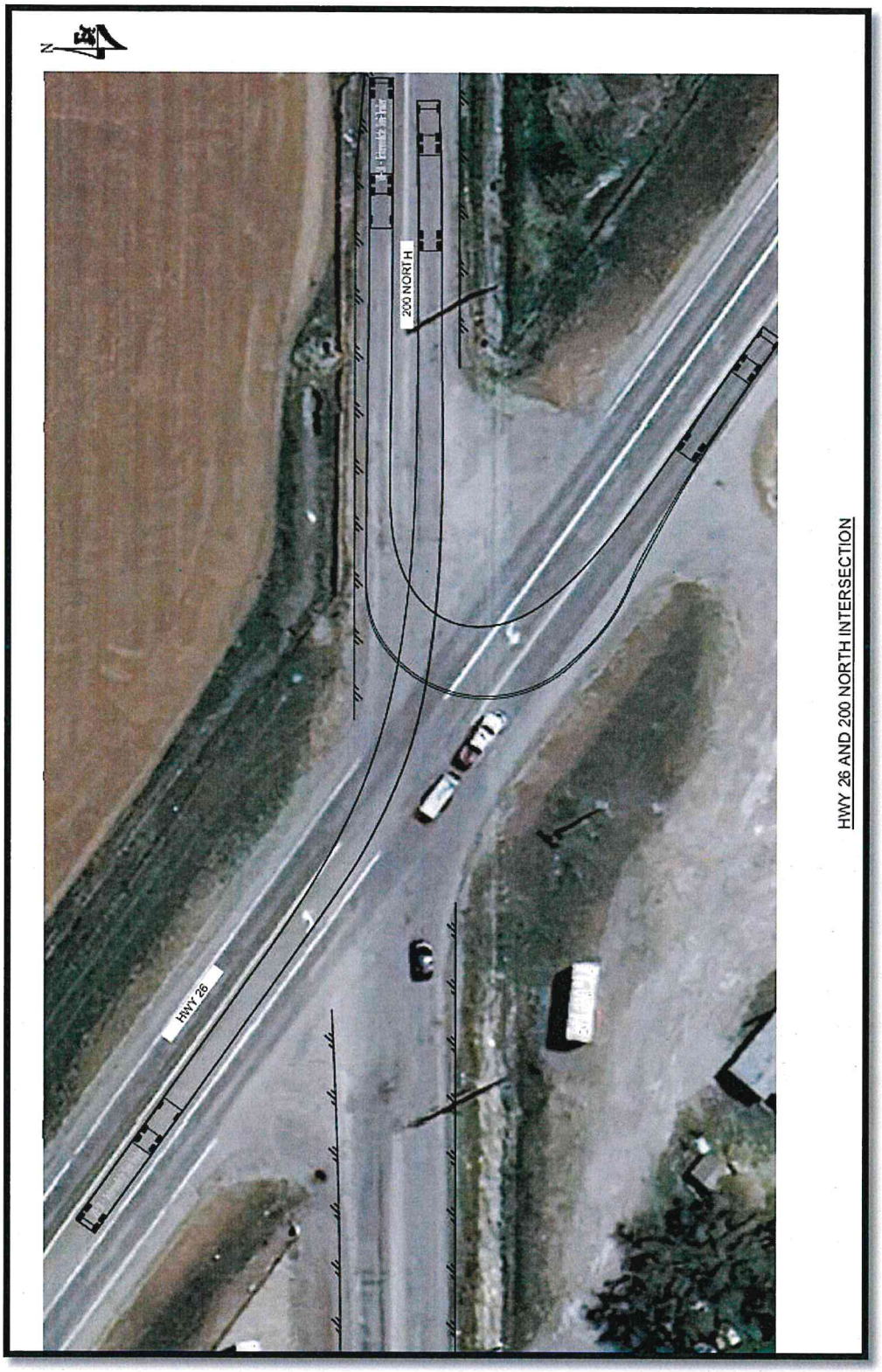
Intersection 1 Right Turn

Intersection 1 Left Turn

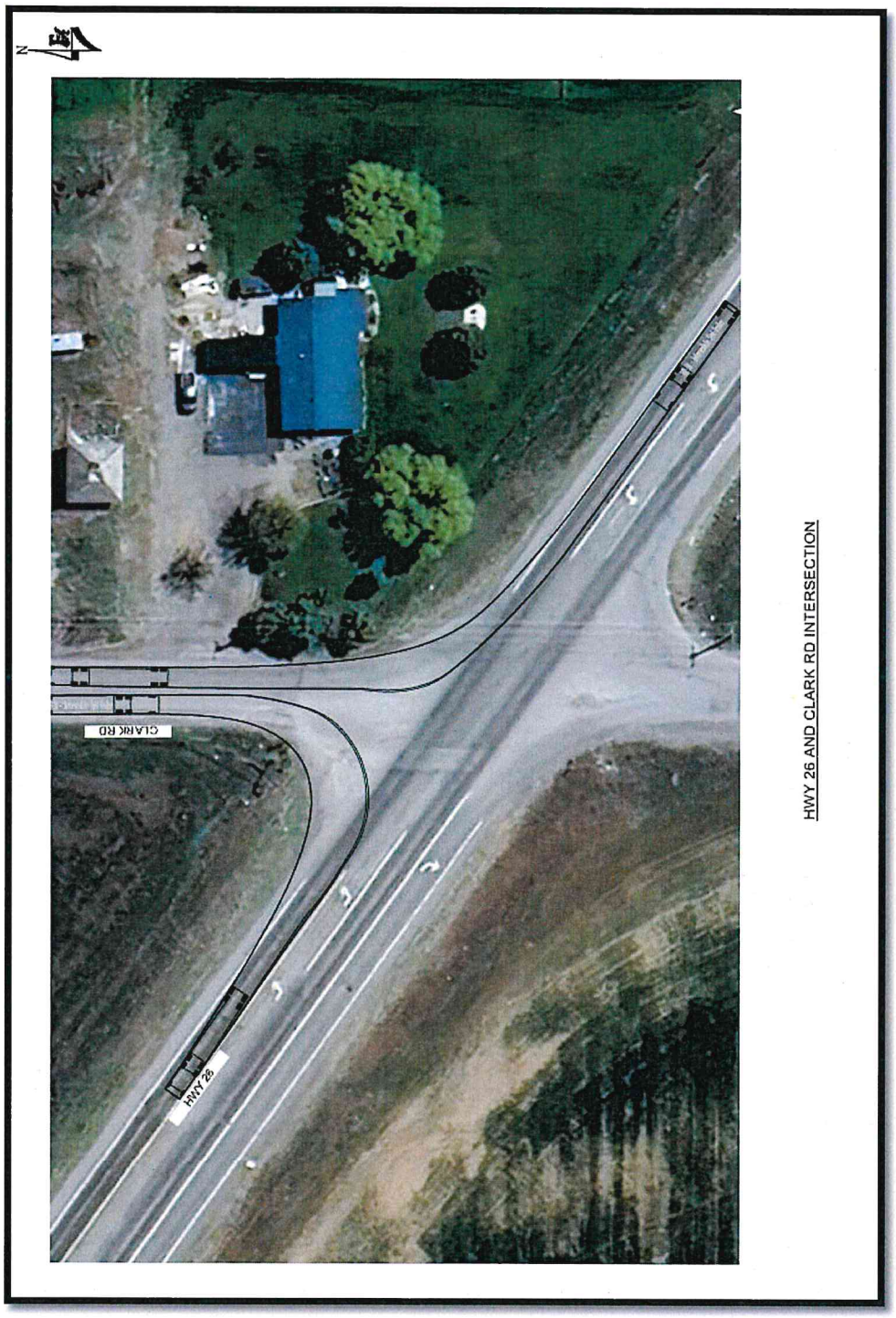
Intersection 2 Right Turn



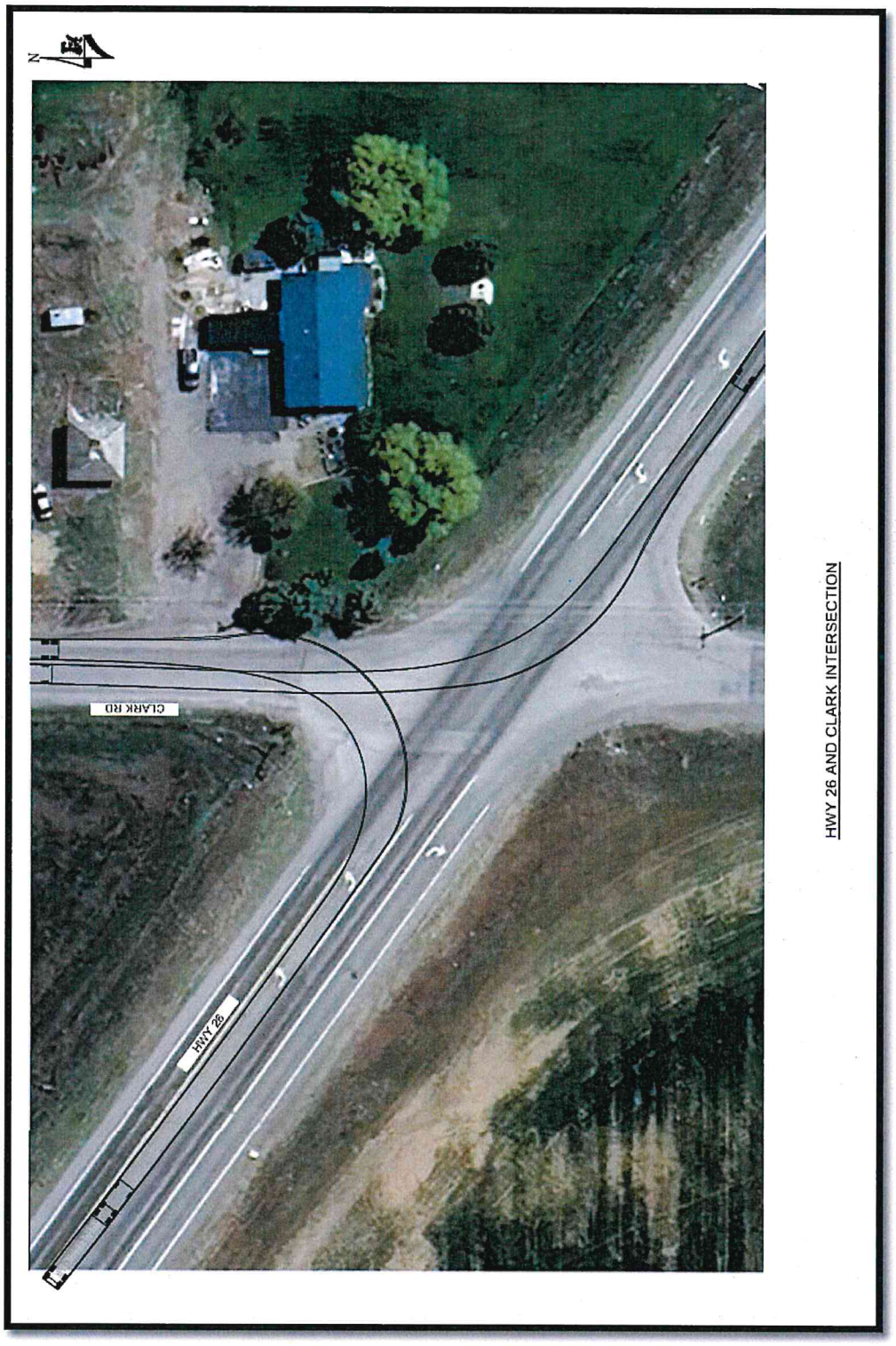
Intersection 2 Left Turn



Intersection 3 Right Turn

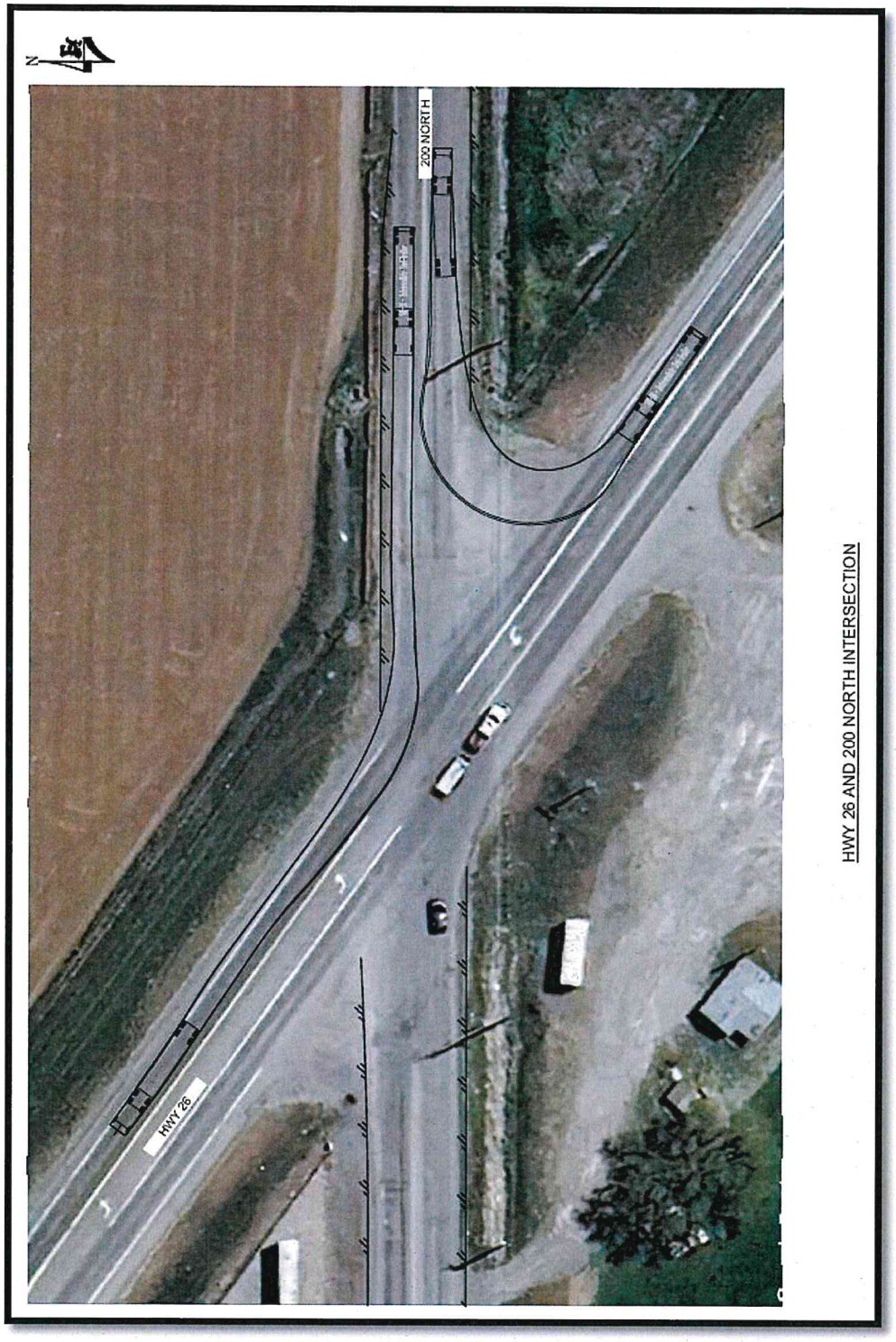


Intersection 3 Left Turn

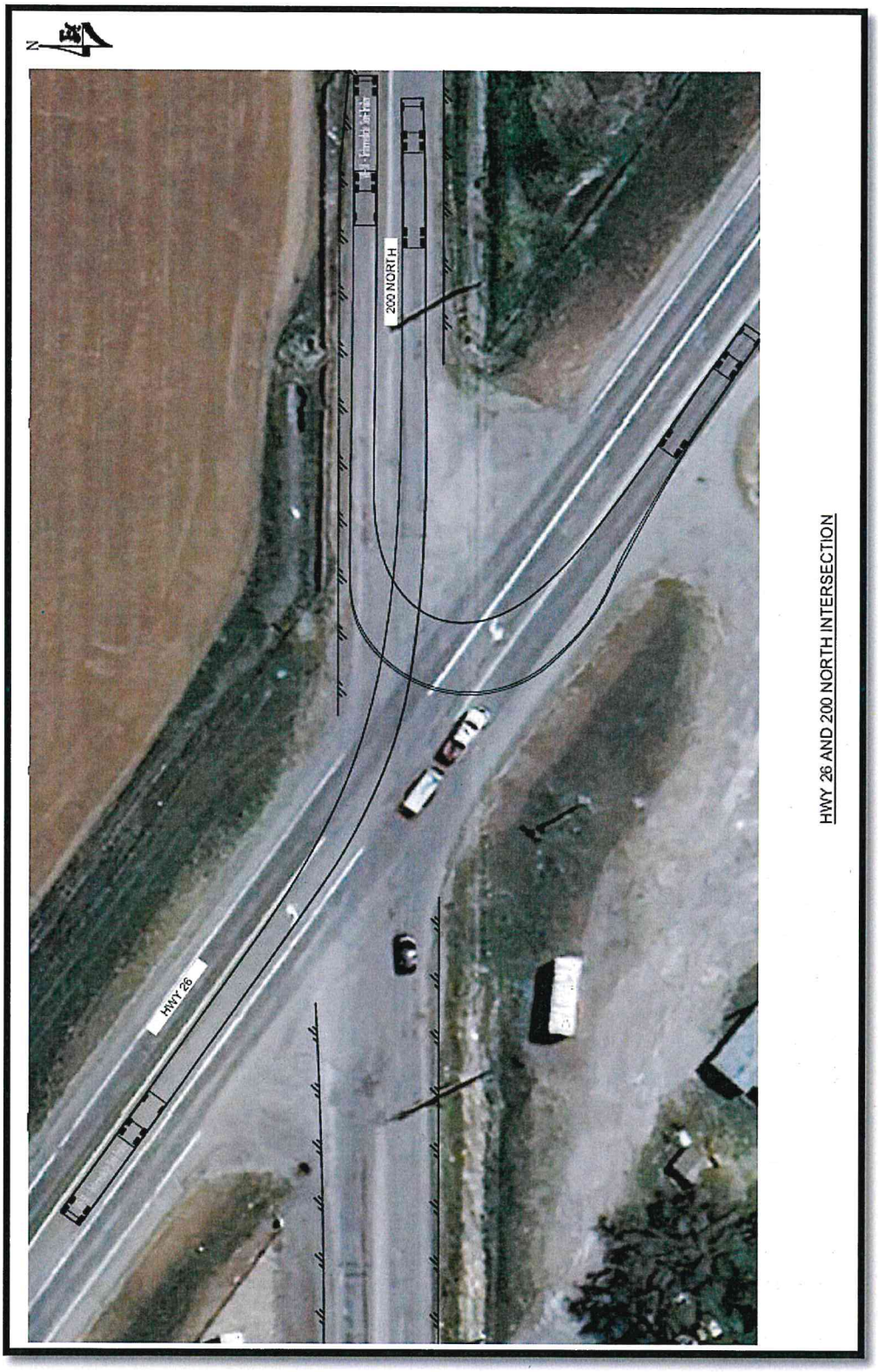


Proposed Intersections with Shoulder Widening

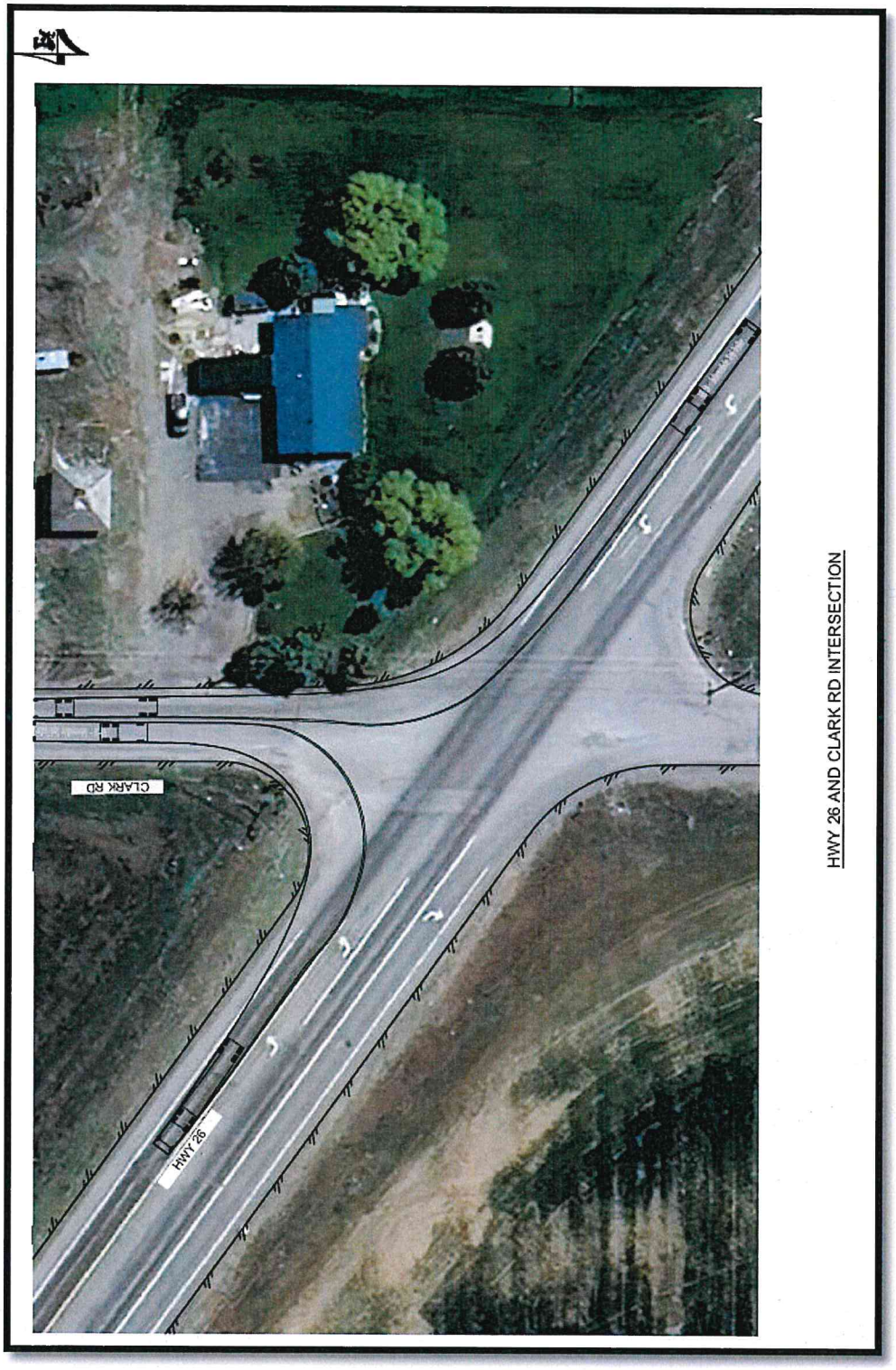
CLARK RD AND 200 NORTH INTERSECTION



HWY 26 AND 200 NORTH INTERSECTION



HWY 26 AND 200 NORTH INTERSECTION



HWY 26 AND CLARK RD INTERSECTION

Project	Porterville Gravel Pit
Engineer's Project Number	01-24-0955
Client	SLT Properties

Question Number	Comment From	Page	Comment	Addressed by	Response	Corrective Action
1	Greydon	1	What resource and edition from ITE?	Aaron Swenson	Transportation Impact Analyses for Site Project published by the Institute of Transportation Engineers (ITE) Version 9 is the resource used.	N/a
2	Greydon	5	Use Road Name	Aaron Swenson	Clark Road	Updated TIS
3	Greydon	5	Use Road Name	Aaron Swenson	200 North	Updated TIS
4	Greydon	6	Used Intersection road names	Aaron Swenson	Clark Road / 200 North	Updated TIS
5	Greydon	6	Use Intersection road names	Aaron Swenson	Highway 26 / Ckark Road	Updated TIS
6	Greydon	6	Use Intersection road names	Aaron Swenson	Highway 26 / 200 North	Updated TIS
7	Greydon	6	Include in Appendix	Aaron Swenson	Added	Updated TIS
8	Greydon	7	Why wasn't taking the skew out intersections considered?	Aaron Swenson	Impacts other property owners not apart of this project.	N/a
9	Greydon	7	What other mitigation was considered?	Aaron Swenson	Shoulder widening considered. CFR= 10% / Left turn lane = 25%	N/a
10	Greydon	7	Turning templates are required for future build out of intersections.	Aaron Swenson	Can be found in Appendix J	N/a
11	Greydon	33	Talking with the owners id not how this is done. All calculations based on this are invalid.	Aaron Swenson	ITE does not have trip generators for gravel pits. Gravel pits are based on prosected operational use	N/a
12	Greydon	136	Trucks need to not go coming traffic to make a turn.	Aaron Swenson	Truck pathway updated	Updated TIS
13	Greydon	EMAIL	•ITD uses the ITE trip generation manual for trip projections. oThe Consultant determined the trips from a conversation with the developer, not the ITE Trip Generation manual. Not saying this happened here, but it can skew the numbers as it does not treat each development the same. It is good to check both sources (developer and manual).	Aaron Swenson	ITE does not have trip generators for gravel pits. Gravel pits are based on prosected operational use	N/a
14	Greydon	EMAIL	•Turning radii's for the proposed improvements are not included. oExisting turning templates were done on an arial image not design file of the intersection. Tough to see any off-tracking that may be happening.	Aaron Swenson	Proposed shoulder widening added to additional exhibits in Appendix J with both existing and proposed intersection turning Radi.	Updated TIS
15	Greydon	EMAIL	•No other offered mitigations other then turning bays are offered. oRecommended to look at more than one option oJust looking at the templates, radius improvements are needed. (areas where the trucks cross multiple lanes to turn)	Aaron Swenson	Two mitigation methods are considered: - The addition of left turn lanes - Shoulder widening at the intersections. This was the chosen mitigation.	N/a
16	Greydon	EMAIL	•They take about safety at the intersection only based on warrant analysis'. No crash data was taken into account. Would not hurt to pull crash numbers and talk about it. This is an increase in traffic.	Aaron Swenson	Crash data was pulled and added to the report.	Updated TIS

Hi Dusty,

Forsgren has addressed the comments that ITD had on the traffic impact study for the Porterville Gravel Pit to our satisfaction. We have no further comments and would recommend approval of the report.

Thank you,

Greydon Wright, P.E.

D5 Operations Manager

208.239.3317