

## MEMORANDUM

**TO:** Board of Trustees

**THROUGH:** Indra Winqest  
District General Manager

**FROM:** Nathan Chorey, P.E.  
Engineering Manager

Michael Lefrancois, P.E.  
Senior Engineer

**SUBJECT:** Review, discuss and provide feedback on the Ski Way and Diamond Peak Parking Lot Reconstruction Project – Fund: Community Services; Project 3469L11805.

**STRATEGIC PLAN:** Long Range Principle #5 – Assets and Infrastructure

**DATE:** October 7, 2020

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### **I. RECOMMENDATION**

That the Board of Trustees moves to review, discuss and provide feedback on the Ski Way and Diamond Peak Parking Lot Reconstruction Project.

### **II. DISTRICT STRATEGIC PLAN**

Long Range Principle #5 – Assets and Infrastructure – The District will practice perpetual asset renewal, replacement, and improvement to provide safe and superior long term utility services and recreation activities.

- The District will maintain, renew, expand, and enhance District infrastructure to meet the capacity needs and desires of the community for future generations.
- The District will maintain, procure, and construct District assets to ensure safe and accessible operations for the public and the District's workforce.

### III. BACKGROUND

IVGID Engineering Staff evaluates all District pavements annually and periodically contracts for independent evaluations to help guide pavement maintenance projects and budgeting. These evaluations identified the need for extensive repairs and/or renovation to Ski Way and Diamond Peak parking lot. Capital Improvement Project budgeting going back to at least 2012 have included such a project. Since then a series of repair and maintenance projects have occurred to extend the life of the asphalt life of Ski Way and Diamond Peak parking lot but the growing annual cost of the pavement repair and maintenance projects support a reconstruction project in the near future.

#### Recent Ski Way and Diamond Peak Parking Lot Reconstruction Project History

- August 9, 2017, Wood Rodgers, prepared a report titled; *Geotechnical Investigation Diamond Peak Traffic Safety Study Incline Village, Nevada*, to determine general soil conditions and provide recommendations for design and construction of the project.
- February 7, 2018, Director of Asset Management Bradley A. Johnson, gave a presentation to the IVGID Board of Trustees titled; *Diamond Peak Traffic Safety and Pavement Preservation*, (livestream time 55:00 – 2:04:00)
- March 28, 2019 – Capital Improvement Program Budget agenda item

The Diamond Peak Traffic Safety and Pavement Preservation presentation at the February 7, 2018 Board of Trustees meeting included improvement options to reconstruct the asphalt pavement and improve safety and circulation through Diamond Peak's parking lots and along Ski Way.

The table below lists the project options and cost.

Option #	Description	Cost 2018
1	Defer / Ongoing Maintenance	\$900K +/-
2	Pavement Rehab	\$2.8M
3	Minor Capital Improvement	\$3.8M
4	Moderate Capital Improvement	\$4.1M
5	Greater Capital Improvement	\$4.6M

*Note to the table above: Costs have not been updated since originally presented in 2018*

Additional considerations include relocating the K-Rail along the Bullwheel Parking Lot and construction of a roundabout at the entrance to Tyrolian Village.

Since the February 7, 2018 presentation, there have been a couple changes worth noting.

1. As part of the 2018 Incline Creek Culvert Restoration Project, parking along the Schoolhouse lift was converted from parallel parking to angled parking. This improvement resulted in an additional 23 parking spaces.
2. Wood Rodgers has prepared 90% construction drawings for improvements to the Bullwheel Parking Lot including relocation of the K-rail and restriping. This project will provide an additional 23 parking spaces.

#### **IV. NEXT STEPS**

CIP 3469LI1805 – Ski Way and Diamond Peak Parking Lot Reconstruction is budgeted as multi-year project. With Trustee's feedback, Staff would contract with Wood Rodgers to update the preferred design option(s) and associated cost estimate(s) for future discussion and acceptance by the Board of Trustees prior to proceeding with final design. We anticipate the revised design(s) would appear before the Board of Trustees at the December 9, 2020 Board Meeting.

#### **V. FINANCIAL IMPACT AND BUDGET**

The Ski Way and Diamond Peak Parking Lot Reconstruction project has a budget of \$300,000 for design in the 2020-21 CIP and \$3,600,000 for construction in the 2021-22 CIP.

#### **VI. ALTERNATIVES**

1. The Board of Trustees may choose to delay the Ski Way and Diamond Peak Parking Lot Reconstruction Project.
  - a. If construction is to be delayed past 2024, Staff requests reallocation of 2020-21 capital improvement project budget identified for design of this project to fund a pavement maintenance project. The newly created pavement maintenance project will help extend the asphalt life until a reconstruction project occurs.

#### **VII. BUSINESS IMPACT**

This item is not a "rule" within the meaning of Nevada Revised Statutes, Chapter 237, and does not require a Business Impact Statement.

### Attachments

- Ski Way and Diamond Peak Parking Lot Reconstruction – Data Sheet
- *Geotechnical Investigation Diamond Peak Traffic Safety Study Incline Village, Nevada*, prepared by Wood Rodgers, dated August 9, 2017.
- *Diamond Peak Traffic Safety and Pavement Preservation* slides, presented on February 7, 2018.
- Meeting Minutes February 7, 2018





## Project Summary

<b>Project Number:</b>	3469LI1805
<b>Title:</b>	Ski Way and Diamond Peak Parking Lot Reconstruction
<b>Project Type:</b>	B - Major Projects - Existing Facilities
<b>Division:</b>	69 - Property, Parking & Transportation
<b>Budget Year:</b>	2021
<b>Finance Option:</b>	Bond Eligible
<b>Asset Type:</b>	LI - Land Improvements
<b>Active:</b>	Yes

<b>Project Description</b>				
This project will reconstruct and reconfigure Ski Way and the Diamond Peak Parking Lots to address pavement failure, increase parking, and enhance traffic circulation. Ski Way will be modified with improvements which may include widening to enhance safety, pedestrian access, and parking layout. The K-Rail along the Bullwheel parking lot will be reconstructed and parking stalls will be reconfigured to increase available parking.				
<b>Project Internal Staff</b>				
IVGID Engineering to manage all phases of the project in coordination with Diamond Peak Staff. Outside engineer(s) to study and prepare design and bid documents. IVGID Engineering to manage bidding and contract administration. Work to be done by outside contractor. Construction Management and Special Inspection and Testing to be done by consultant.				
<b>Project Justification</b>				
Regular preventative maintenance of pavement significantly increases the life of a facility and defers the timeline for which wholesale replacement is required. Once pavement has reached its expected lifespan and begins to fail, major rehabilitation is required. Tahoe's freeze/thaw climate and snow removal operations accelerate deterioration. Ski Way (above Fairview) to Tyrolian Village and the Diamond Peak parking lots are all owned by IVGID. The pavement condition affects rideability in both customers' own vehicles and while riding the Diamond Peak tram. Visual inspection and a 2017 geotechnical investigation has determined that pavement at Diamond Peak and Ski Way is at end of structural life and must be reconstructed. Safety and circulation improvement opportunities were identified in a 2015 Traffic Safety Review by LSC Transportation.				
<b>Forecast</b>				
<b>Budget Year</b>	<b>Total Expense</b>	<b>Total Revenue</b>	<b>Difference</b>	
2021				
Design	300,000	0	300,000	
Year Total	300,000	0	300,000	
2022				
Construction	3,000,000	0	3,000,000	
Construction Management	300,000	0	300,000	
Construction Reserves	300,000	0	300,000	
Year Total	3,600,000	0	3,600,000	
	3,900,000	0	3,900,000	
<b>Year Identified</b>	<b>Start Date</b>	<b>Est. Completion Date</b>	<b>Manager</b>	<b>Project Partner</b>
2018	Jul 1, 2019	Dec 31, 2022	Engineering Manager	

# Geotechnical Investigation Diamond Peak Traffic Safety Study Incline Village, Nevada

**Incline Village General Improvement District**  
893 Southwood Boulevard  
Incline Village, Nevada 89451

Project No. 8421003  
August 9, 2017



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Justin M. McDougal, PE  
PE Number – 24474 (NV)



**WOOD RODGERS**

BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

1361 Corporate Boulevard  
Reno, NV 89502

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## 1.0 INTRODUCTION

Presented herein are the results of Wood Rodgers, Incorporated's geotechnical exploration, laboratory testing, and associated geotechnical recommendations for the proposed Diamond Peak Safety Study Project in Incline Village, Nevada. The recommendations presented herein are based on surface and subsurface conditions encountered during our field exploration. The objectives of this study were to:

- Determine general soil conditions pertaining to design and construction of the proposed improvements.
- Provide recommendations for design and construction of the project, as related to these geotechnical conditions.

The following services were performed by Wood Rodgers during the course of our geotechnical investigation:

- Advancing four exploration locations, marked for Underground Service Alert (USA) clearance, prior to our field investigation.
- Performing Dynamic Cone Penetration (DCP) testing and sampling of native subgrade materials. Additionally, a general assessment of the pavement surface was performed.
- Performing laboratory testing including: moisture content (ASTM D2216), particle size analysis (gradation, ASTM D6913), Atterberg limits (plasticity, ASTM D4318), and resistance R-value (ASTM D2844).
- Preparing this report summarizing: field activities, visual observations, subsurface soil conditions, laboratory test results, and design and site preparation recommendations.

This report was prepared for the benefit of the Incline Village General Improvement District (IVGID). No other party should rely on the information contained herein without prior written consent of Wood Rodgers, Incorporated. The findings, recommendations and professional opinions presented in this report were prepared in accordance with generally accepted professional engineering practices at this time in western Nevada. This report does not constitute a warranty, either expressed or implied.



## 2.0 PROJECT DESCRIPTION

The proposed Diamond Peak Traffic Study project extends from the Big Water Grille parking area to the Tyrolian Village entrance as well as portions of Fairview Boulevard to the west. The project is anticipated to be completed under multiple phases. Phase 1 consists of evaluating potential alternatives to establish a preferred solution to address parking and circulation improvements. Future phases will include final design of the preferred alternative and performing the preferred pavement rehabilitation. Construction support if/when construction funding is procured could also be provided.

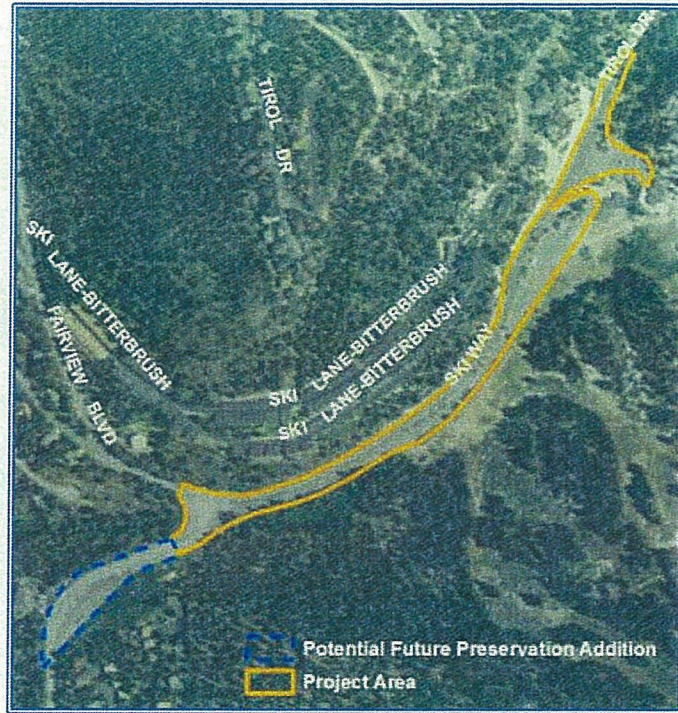


Figure 1: Aerial Photo of Project Location

Figure 1 shows the project location. The geotechnical study included both the project area and the potential future preservation addition region.

## 3.0 SOILS INVESTIGATION AND LABORATORY TESTING

### 3.1 Field Investigation

Plate A-1b – Site Map presents the project limits and approximate test hole locations. The Asphalt Concrete (AC) section was pre-cored (6-inch diameter) and Dynamic Cone Penetrometer (DCP) probes were advanced to a depth until refusal was met. The DCP is a manually-driven hammer with a 35-pound weight and a 15-inch drop transferring energy to a 1.4-inch diameter cone (60°) tip. Hammer blows are counted in 10-centimeter intervals and provide a continuous indication of material consistency. Bulk soil samples of subgrade material were obtained with a hand auger and digging spoon. DCP and hand auger exploration methods were incorporated in lieu of other extensive soil exploration methods because of expected subgrade soil conditions, expected design traffic loading and pavement sections, budgetary



constraints, and our experiences with similar projects. Samples were placed in sealed bags and returned to our Reno, Nevada laboratory for testing.

Laboratory testing included moisture content (ASTM D2216), grain size distribution (ASTM D6319, and Atterberg limits (ASTM D4318) performed on significant soil types. Soil samples, representative of the existing subgrade material, were collected from the roadway shoulders for R-value (ASTM D2488) testing. The existing pavement layer and base thicknesses were measured and are presented in Table 1. AC pavement sections in test holes 1 and 2 had an overlay of approximately 2 and 3 inches, respectively. DCP testing results indicated that the consistency of base and subgrade material varied from medium dense to very dense. Table 2 presents the criteria for soil consistency base on DCP testing values.

Table 1: Existing Pavement Layer Thickness

Location	AC Thickness (in.)	Base Thickness (in.)
TH-1	5.4	11.4*
TH-2	6.0	3.6
TH-3	4.0	12.0*
TH-4	4.3	14.8*

\*Practical Refusal Encountered in Base Layer

Table 2: DCP Values versus Soil Consistency

Non-Cohesive		Cohesive	
0	Very Loose	0	Very Soft
5	Loose	2	Soft
11	Medium Dense	5	Medium Stiff
31	Dense	9	Stiff
51	Very Dense	16	Very Stiff
		31	Hard

At the completion of testing and sampling, test holes were backfilled with the remaining cuttings and compacted before being patched with a high strength, quick-setting cement grout. Soil data used in preparation of this report was obtained from the test holes advanced for this investigation. Variations in soil types and conditions likely exist between the locations explored. The nature and extent of soil variations may not become evident until construction.



**3.2 Laboratory Testing**

All soil testing performed in the Wood Rodgers’ materials testing laboratory is conducted in accordance with ASTM Standards Volume 4.08 (Soil and Rock; Dimension Stone; Geosynthetics). Samples of significant soil types were analyzed to determine their in-situ moisture content (ASTM D2216), grain size distribution (ASTM D6913), plasticity index (ASTM D4318), and R-value (ASTM D2844). Results of Particle Size Analyses are presented graphically on Plate A-4a thru 4b. Results of these tests were used to classify soils according the Unified Soil Classification System (USCS, ASTM D2487) and to verify the field logs, which were then updated as appropriate. R-Value testing result is presented on plate A-4c. A summary of laboratory results is provided in Table 3.

Table 3-Summary of Laboratory Test Results

Test Hole	Sample Interval (ft.)	Subgrade			
		MC (%)	-200%	PI	USCS
TH-2	0.8-2.2	8.9	24.2	6	SC-SM

Note: MC= moisture content; PI= Plasticity Index

**4.0 DISCUSSION AND RECOMMENDATIONS**

The following paragraphs summarize our analyses, proposed alternatives and preliminary construction considerations. Structural pavement sections were evaluated using the RTC Flexible Pavement Design Manual (2007) and the AASHTO Guide for Design of Pavement Structures (1993). All improvements shall be constructed in accordance with the requirements of IVGID, as supplemented by Washoe County Design and Construction Standards, and the Standard Specifications for Public Works Construction (Orange Book).

**4.1 Existing Pavement Conditions and Proposed Alternatives**

A cursory evaluation of the existing pavement’s distress conditions was performed around the investigated locations. The pavement presented medium to high severity transverse cracking. Low to medium severity block cracking was observed around test hole TH-2. Medium to high severity transverse and block cracking, and utility patches were mostly observed in the parking lots. Poor drainage conditions were noticed around test hole TH-1. Transverse and block cracking in AC pavements occur mainly because of environment (climate) and material reasons. No severe load related distress

conditions such as rutting and fatigue cracking were observed; however, localized load related distresses were observed. In general, the investigated pavement was in poor to very poor condition.

Based on the existing pavement distress conditions, it was concluded that roadbed modification or remove and replace (reconstruction) will be the best rehabilitation/reconstruction alternatives. The first alternative includes on-site recycling and re-using of existing materials, and placing Asphalt Concrete (AC) layer over roadbed modification. Roadbed modification process involves pulverizing, blending with cement, and compacting the existing roadway. The second alternative is removing and replacing the existing structure with a new AC layer over an aggregate base.

#### **4.2 Subgrade Soils**

Subgrade soils encountered in our explorations typically consisted of clayey and silty sand. Although an R-value of 72 was obtained from our investigation, an R-Value of 60 was used for design of the pavement section alternatives to account for variations in subgrade soil conditions, repeatability of the test, and reliability.

#### **4.3 Traffic Analysis**

A traffic report was not available; therefore, a traffic number was estimated based on parking area capacity, bus service, residential traffic, drop-off / pick-up, and other facilities. An annual average daily traffic (AADT) of 1800 was estimated. The equivalent single axle load (ESAL) truck factor was obtained from Nevada Department of Transportation's (NDOT) Annual Traffic Report, 2009.

#### **4.4 Pavement Section Alternatives**

Table 4 presents our recommended structural pavement section alternatives. Design analysis, structural number estimation and structural section design are presented in Plate A-5 – Structural Pavement Design.



Table 4 - Structural Pavement Section Alternatives

Rehabilitation Alternative	Base Course Section (in.)	Asphaltic Concrete Section (in.)
Roadbed Modification	6 * + 3% Cement (Optional)	4
Reconstruction	6**	4

\*Recycled Base – Standard Specifications for Public Works Construction (Section 200.01.04)

\*\*Type 2 Class B Aggregate Base – Standard Specification for Public Works Construction (Section 200.01.03)

Recommended pavement section thickness may be less than the existing thickness in some areas. It should be noted that the structural pavement sections are designed primarily based on expected traffic loading and subgrade conditions, discussed in subsections 4.2 and 4.3, and presented in Plate A-5. As discussed earlier in this report, most of the observed pavement distresses were environmental and material related (i.e. non-load related). Therefore, special attention is needed during construction material selection and mix design. Asphalt concrete mix design should be reviewed and approved by a professional engineer.

**4.5 Subgrade Preparation & Stabilization**

Subgrade preparation will be limited to the reconstruction option since rehabilitation leaves the recycled aggregate base course in place. Therefore, grade preparation requirements associated with the roadbed modification alternative are presented in Section 4.6 – Aggregate Base Course of this report. For the reconstruction alternative, the exposed subgrade shall be moisture conditioned to within 3-percent of optimum and compacted to not less than 90-percent of the soil’s maximum dry density (ASTM D1557) after removal of the existing section. High moisture conditions commonly develop beneath existing pavements, and areas of soft, wet or unstable subgrade may be encountered during construction. Contract documents should include a line item for subgrade stabilization.

Subgrade stabilization may consist of scarifying and air-drying subgrade soils or removing pumping soils and stabilizing the exposed soft subgrade with a layer of 4” x 8” rock or pavement that has been processed to meet a similar gradation and provide similar bridging capabilities. The required thickness of the stabilizing layer will vary depending on the severity of the unstable subgrade. Depending on the amount of water and source, a separation geomembrane such as Mirafi 160N may be required.

Other reasonable stabilization alternatives exist. Alternatives may be considered at the owner's request. Subgrade stabilization is typically a trial and error process with requirements and effectiveness varying with soil type, moisture content, construction traffic, and equipment loads. A test area is recommended to determine the most suitable method of creating a working platform. Relatively light, non-vibratory compaction equipment should be used during this operation to minimize further softening and pumping of the exposed subgrade. Channelized construction traffic should be avoided. In addition, excessive compaction efforts on wet soil can cause instability in otherwise stable subgrade. Stabilization is the responsibility of the contractor who is familiar with their construction traffic plan and equipment loads.

#### **4.6 Aggregate Base Course**

Aggregate base for the reconstruction option shall comply with the specifications for Type 2, Class B crushed aggregate base per Section 200.01.03 of the Standard Specifications for Public Works Construction. The aggregate base course should be moisture conditioned to within 3-percent of optimum and compacted to at least 95 percent relative compaction (ASTM D 1557).

Because the pulverization process results in an increase in material volume during roadbed modification, a portion of the recycled material will have to be removed to maintain the current roadway profile. Care must be exercised during trimming to make sure the resulting base section has not been compromised by blending with the subgrade soils or inadequate processing prior to removal; the resulting recycled base course should continue to meet the specifications of Section 200.01.04. The recycled base course should be moisture conditioned to within 3-percent of optimum, and compacted to not less than 95-percent of ASTM D1557.

Cement modification of the base layer is typically incorporated for in-place recycling alternatives. Although the traffic level is not high, given the percentage of bus and tram traffic, cement modification of the base course could provide overall longevity and increased performance to this option. We recommend 3-percent cement addition rate (based on 95-percent compacted dry density) if cement modification can be incorporated. Materials and processes should be in accordance with the Standard Specifications for Public Works Construction.

#### 4.7 Pavement Maintenance

Maintenance is mandatory to long-term pavement performance. Once completed, the project area should be incorporated with the jurisdiction's roadway maintenance program.

#### 5.0 ADDITIONAL SERVICES

Wood Rodgers is a full-service testing and inspection firm that employs engineers, technicians, and inspectors certified by NAQTC and ACI; we are supported by an AMRL/CCRL accredited full service materials testing laboratory. Wood Rodgers is available to provide testing and inspection services and construction administration support during construction.

#### 6.0 REFERENCES

AASHTO Guide for Design of Pavement Structures, 1993, American Association of State Highway and Transportation Officials.

American Society for Testing and Materials (ASTM), 1993, *Soil and Rock; Dimension Stone; Geosynthetics*, Volume 4.08.

Annual Traffic Report, Nevada Department of Transportation, 2009-2015.

Flexible Pavement Design Manual, Regional Transportation Commission of Washoe County, 2007.

Standard Specifications for Public Works Construction, Washoe County, 2016

APPENDIX A  
GEOTECHNICAL PLATES





PLATE A-1a - Vicinity Map  
 DIAMOND PEAK TRAFFIC SAFETY STUDY  
 INCLINE VILLAGE, NV  
 JULY 2017

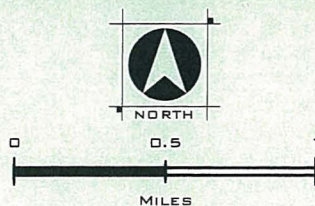
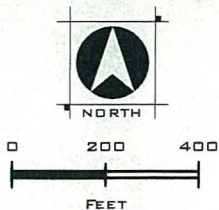






PLATE A-1b - Site Map  
 DIAMOND PEAK TRAFFIC SAFETY STUDY  
 INCLINE VILLAGE, NV  
 JULY 2017





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 Reno, Nevada 89502  
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 Fax: 775-823-4066

# TEST HOLE NUMBER TH-1

PAGE 1 OF 1

<b>CLIENT</b> <u>Incline Village General Improvement District</u>	<b>PROJECT NAME</b> <u>Diamond Peak Traffic Safety Study</u>
<b>PROJECT NUMBER</b> <u>8421003</u>	<b>PROJECT LOCATION</b> <u>Incline Village, Nevada</u>
<b>DATE STARTED</b> <u>7/3/17</u> <b>COMPLETED</b> <u>7/3/17</u>	<b>GROUND ELEVATION</b> <u>6575 ft</u> <b>HOLE SIZE</b> <u>6 inches</u>
<b>DRILLING CONTRACTOR</b> <u>N/A</u>	<b>GROUND WATER LEVELS:</b>
<b>DRILLING METHOD</b> <u>Hand Auger</u>	<b>AT TIME OF DRILLING</b> <u>--- No Free Water Encountered</u>
<b>LOGGED BY</b> <u>Sandeep Pandey</u> <b>CHECKED BY</b> <u>Justin McDougal</u>	<b>AT END OF DRILLING</b> <u>--- No Free Water Encountered</u>
<b>NOTES:</b> _____	<b>AFTER DRILLING</b> <u>--- No Free Water Encountered</u>

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	DCP BLOW COUNTS	R-VALUE	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		ASPHALT CONCRETE, (AC)										
1	•••••	AGGREGATE BASE COURSE, (AB) very dense, moist, dark blackish brown, non-plastic  Note: Refusal encountered in AB layer			50 / 9 cm							

Practical Refusal at 1.4 feet.  
 Bottom of Borehole at 1.4 Feet.







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# TEST HOLE NUMBER TH-3

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CLIENT Incline Village General Improvement District  
 PROJECT NUMBER 8421003  
 DATE STARTED 7/3/17 COMPLETED 7/3/17  
 DRILLING CONTRACTOR N/A  
 DRILLING METHOD Hand Auger  
 LOGGED BY Sandeep Pandey CHECKED BY Justin McDougal  
 NOTES:

PROJECT NAME Diamond Peak Traffic Safety Study  
 PROJECT LOCATION Incline Village, Nevada  
 GROUND ELEVATION 6985 ft HOLE SIZE 6 inches  
 GROUND WATER LEVELS:  
 AT TIME OF DRILLING --- No Free Water Encountered  
 AT END OF DRILLING --- No Free Water Encountered  
 AFTER DRILLING --- No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	DCP BLOW COUNTS	R-VALUE	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		ASPHALT CONCRETE, (AC)										
		AGGREGATE BASE COURSE, (AB) medium dense to dense, moist, dark brown			28							
1		Note: Refusal encountered in AB layer Very dense			44							
					50 / 9 cm							

Practical Refusal at 1.3 feet.  
 Bottom of Borehole at 1.3 Feet.

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# TEST HOLE NUMBER TH-4

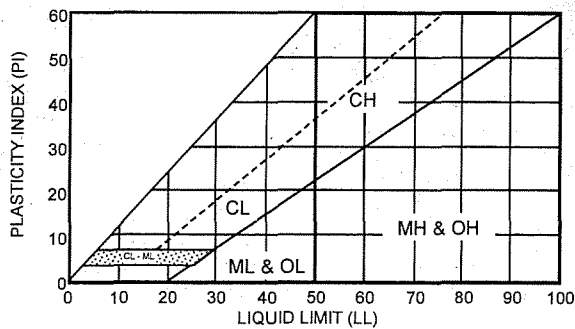
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**CLIENT** Incline Village General Improvement District      **PROJECT NAME** Diamond Peak Traffic Safety Study  
**PROJECT NUMBER** 8421003      **PROJECT LOCATION** Incline Village, Nevada  
**DATE STARTED** 7/3/17      **COMPLETED** 7/3/17      **GROUND ELEVATION** 6826 ft      **HOLE SIZE** 6 inches  
**DRILLING CONTRACTOR** N/A      **GROUND WATER LEVELS:**  
**DRILLING METHOD** Hand Auger      **AT TIME OF DRILLING** --- No Free Water Encountered  
**LOGGED BY** Sandeep Pandey      **CHECKED BY** Justin McDougal      **AT END OF DRILLING** --- No Free Water Encountered  
**NOTES:** \_\_\_\_\_      **AFTER DRILLING** --- No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (ROD)	DCP BLOW COUNTS	R-VALUE	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		ASPHALT CONCRETE, (AC)										
0.5		AGGREGATE BASE COURSE, (AB) dense to very dense, moist, dark blackish brown			42							
1.0		Note: Refusal encountered in AB layer Very dense	GB 4A		52 / 5 cm			8.6				
1.8		Practical Refusal at 1.8 feet. Bottom of Borehole at 1.8 Feet.			50 / 5 cm							

MAJOR DIVISION					TYPICAL NAMES	
COARSE-GRAINED SOILS MORE THAN HALF IS COARSER THAN NO. 200 SIEVE	GRAVEL MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN SANDS WITH LITTLE OR NO FINES		GW	WELL GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES	
				GP	POORLY GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES	
		GRAVELS WITH OVER 12% FINES		GM	SILTY GRAVELS, SILTY GRAVELS WITH SAND	
				GC	CLAYEY GRAVELS, CLAYEY GRAVELS WITH SAND	
	SAND MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS WITH LITTLE OR NO FINES		SW	WELL GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES	
				SP	POORLY GRADED SAND WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES	
		SANDS WITH OVER 12% FINES		SM	SILTY SANDS WITH OR WITHOUT GRAVEL	
				SC	CLAYEY SANDS WITH OR WITHOUT GRAVEL	
	FINE-GRAINED SOILS MORE THAN HALF IS FINER THAN NO. 200 SIEVE	SILT AND CLAY  LIQUID LIMIT 50% OR LESS			ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTS WITH SANDS AND GRAVELS
					CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY CLAYS WITH SANDS AND GRAVELS, LEAN CLAYS
				OL	ORGANIC SILTS OR CLAYS OF LOW PLASTICITY	
SILT AND CLAY  LIQUID LIMIT GREATER THAN 50%			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOLID, ELASTIC SILTS		
			CH	INORGANIC CLAYS OR HIGH PLASTICITY, FAT CLAYS		
			OH	ORGANIC SILTS OR CLAYS MEDIUM TO HIGH PLASTICITY		
HIGHLY ORGANIC SOILS				Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS	



CONSISTENCY		RELATIVE DENSITY	
SILTS & CLAYS	SPT BLOW* COUNTS (N)	SANDS & GRAVELS	SPT BLOW* COUNTS (N)
VERY SOFT	0 - 2	VERY LOOSE	0 - 4
SOFT	3 - 4	LOOSE	5 - 10
MEDIUM STIFF	5 - 8	MEDIUM DENSE	11 - 30
STIFF	9 - 15	DENSE	31 - 50
VERY STIFF	16 - 30	VERY DENSE	50 +
HARD	30 +		

\* The Standard Penetration Resistance (N) in blows per foot is obtained by the ASTM D1585 procedure using 2" O.D., 1 3/8" I.D. samplers.

DESCRIPTION OF ESTIMATED PERCENTAGES OF GRAVEL, SAND, AND FINES	
TRACE	Particles are present but est. < 5%
FEW	5% - 10%
LITTLE	15% - 20%
SOME	30% - 45%
MOSTLY	50% - 100%

NOTE: Percentages are presented within soil description for soil horizon with laboratory tested soil samples.

DEFINITIONS OF SOIL FRACTIONS	
SOIL COMPONENT	PARTICLE SIZE RANGE
COBBLES	ABOVE 3 INCHES
GRAVEL	3 IN. TO NO. 4 SIEVE
COARSE GRAVEL	3 IN. TO 3/4 IN.
FINE GRAVEL	3/4 IN. TO NO. 4 SIEVE
SAND	NO. 4 TO NO. 200
COARSE SAND	NO. 4 TO NO. 10
MEDIUM SAND	NO. 10 TO NO. 40
FINE SAND	NO. 40 TO NO. 200
FINES (SILT OR CLAY)	MINUS NO. 200 SIEVE

**PLATE A-3 - USCS KEY**

DIAMOND PEAK TRAFFIC SAFETY STUDY  
INCLINE VILLAGE, NV  
JULY 2017



**WOOD RODGERS**

1361 Corporate Boulevard, Reno, NV 89502  
Phone 775.823.4068 Fax 775.823.4066





Wood Rodgers, Inc  
 1361 Corporate Blvd  
 Reno, Nevada 89502  
 Telephone: 775-823-4068  
 Fax: 775-823-4066

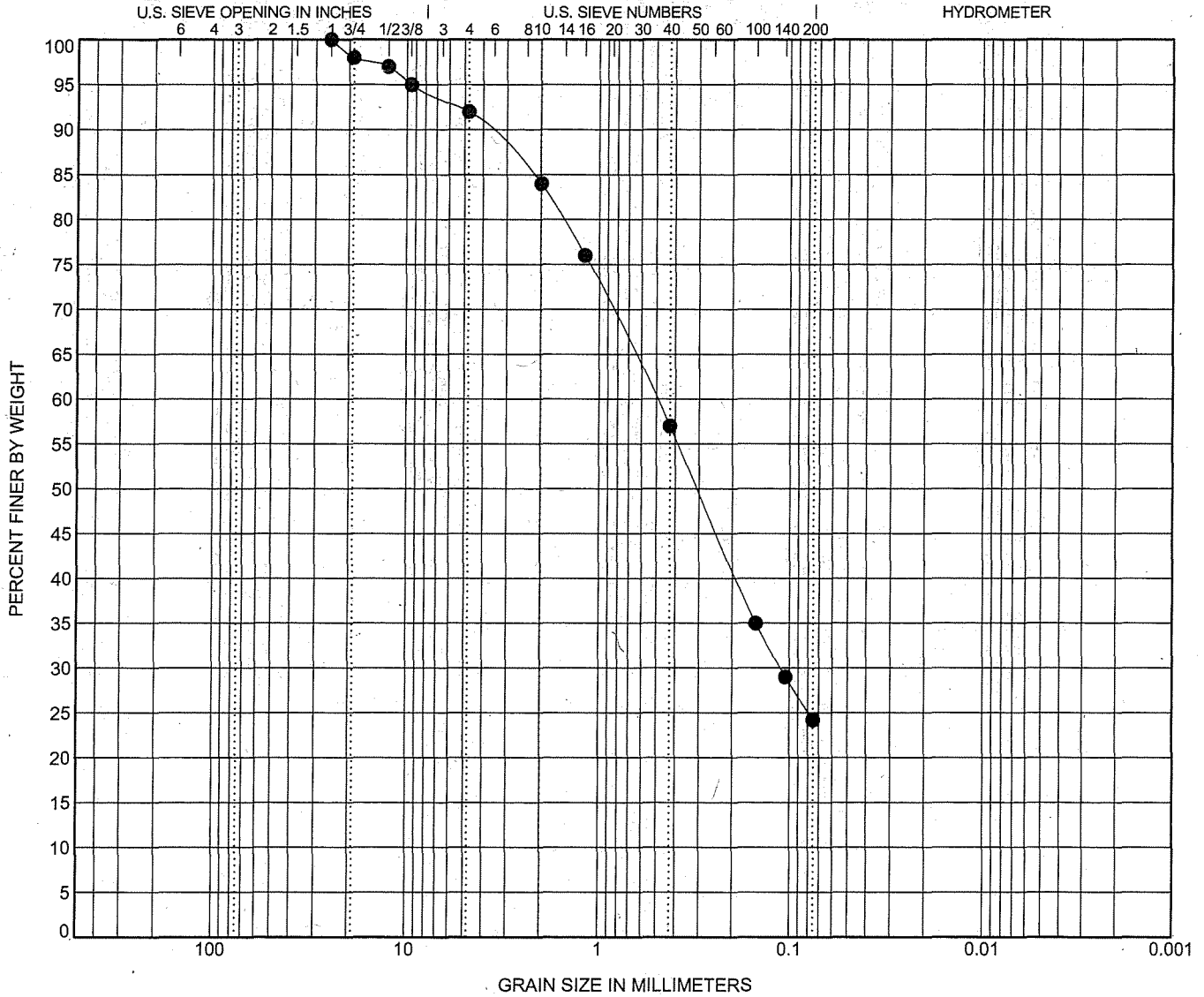
# GRAIN SIZE DISTRIBUTION

CLIENT Incline Village General Improvement District

PROJECT NAME Diamond Peak Traffic Safety Study

PROJECT NUMBER 8421003

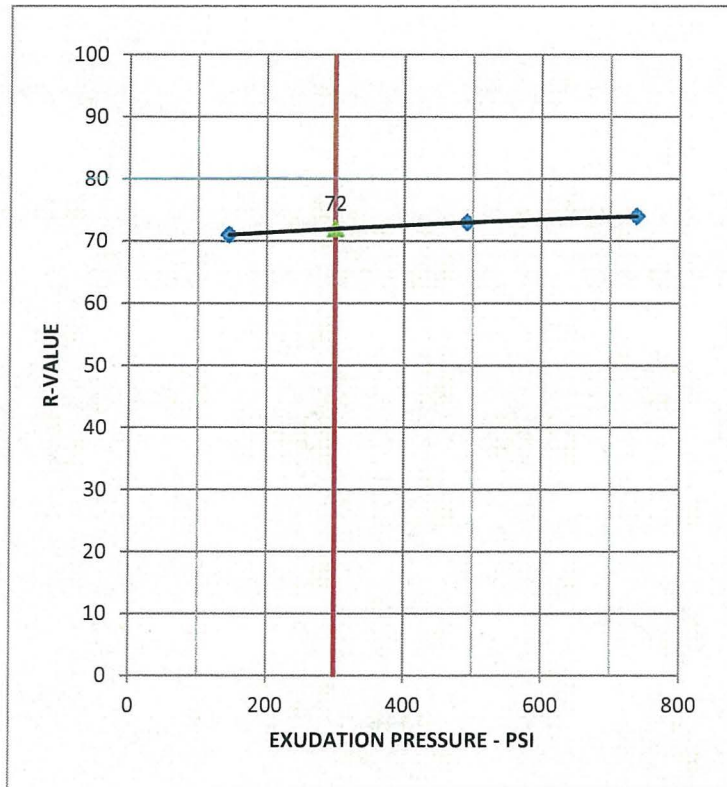
PROJECT LOCATION Incline Village, Nevada



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

TEST PIT	DEPTH	Classification					LL	PL	PI	Cc	Cu
● TP-2	0.8	<b>SILTY, CLAYEY SAND(SC-SM)</b>					23	17	6		
TEST PIT	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay		
● TP-2	0.8	25	0.499	0.111		8.0	67.8	24.2			

GRAIN SIZE - GINT STD US LAB.GDT - 7/31/17 13:08 - \\WOODRODGERS.LOC\PRODUCTION\DATA\JOBS-RENO\JOBS\8421\_INCLINE\_VILLAGE\_GID\DIAMONDPEAK\_SKIWAY\_TRAFFIC\_STUDY\GEO\TECH\GINT\SKIWAY.GPJ



Subgrade			
Dry Density (pcf)	116.7	117.0	117.9
Water Content (%)	11.7	10.7	10.2
Exudation Pressure (psi)	145	492	738
R-Value <sub>300psi Exudation</sub>	71	73	74

Sample Source	Field Classification	R value @ 300 psi Exudation Pressure
TH-1, TH-3 & TH-4	SM	72

**PLATE A-4c - R-Value Test Results**  
 DIAMOND PEAK TRAFFIC SAFETY STUDY  
 INCLINE VILLAGE, NV  
 JULY 2017





ESALs Estimation	
Average Daily Traffic ADT	1,800
Truck Percentage, T	1.0%
Truck Factor, $T_f$	0.996
Growth Rate, G	2.0%
Design Year, Y	20
Lane Distribution, L	1
Directional Factor, D	0.5
Estimated ESALs	79,498

Design Analysis	
Design ESALs	7.95E+04
Terminal Serviceability Index, $P_t$	2
Initial Serviceability Index, $P_0$	4.2
Loss in Serviceability, $\Delta PSI$	2.2
R Value	60
Roadbed Resilient Modulus, $M_r$ , psi	22912
Reliability	85
Standard Deviation, $S_0$	0.45
Standard Normal Deviate, $Z_r$	-1.037

SN Estimation	
Design $\log(W_{18})$	4.900354
Required Structural Number	1.38
Calculated $\log(W_{18})$	4.9002855

Material Type	Reference	Structural Coefficient	Thickness (in)	Thickness (in)	Thickness (in)
Plantmix Bituminous Surface	AC	0.39	4	4	4
Roadbed Modification (Cement)	RM	0.18	6	0	0
Roadbed Modification (No Cement)	RM	0.10	0	6	0
Type 2 Class B	AB	0.12	0	0	6
Structural Number for Section			2.6	2.2	2.3

**PLATE A-5 - Structural Pavement Design**  
 DIAMOND PEAK TRAFFIC SAFETY STUDY  
 INCLINE VILLAGE, NV  
 JULY 2017



**WOOD RODGERS**

1361 Corporate Boulevard, Reno, NV 89502

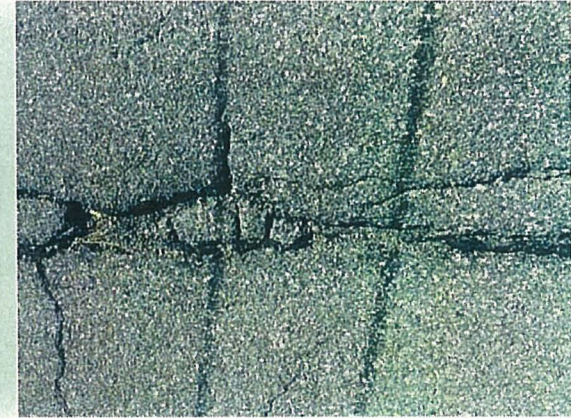
Phone 775.823.4068 Fax 775.823.4066



# Diamond Peak Traffic Safety and Pavement Preservation

February 7, 2018

Bradley A. Johnson, P.E. – Director of Asset Management





# District Strategic Plan

## Long Range Principle #5 – Assets & Infrastructure

The District will practice perpetual asset renewal, replacement, and improvement to provide safe and superior long term utility services and recreation activities.

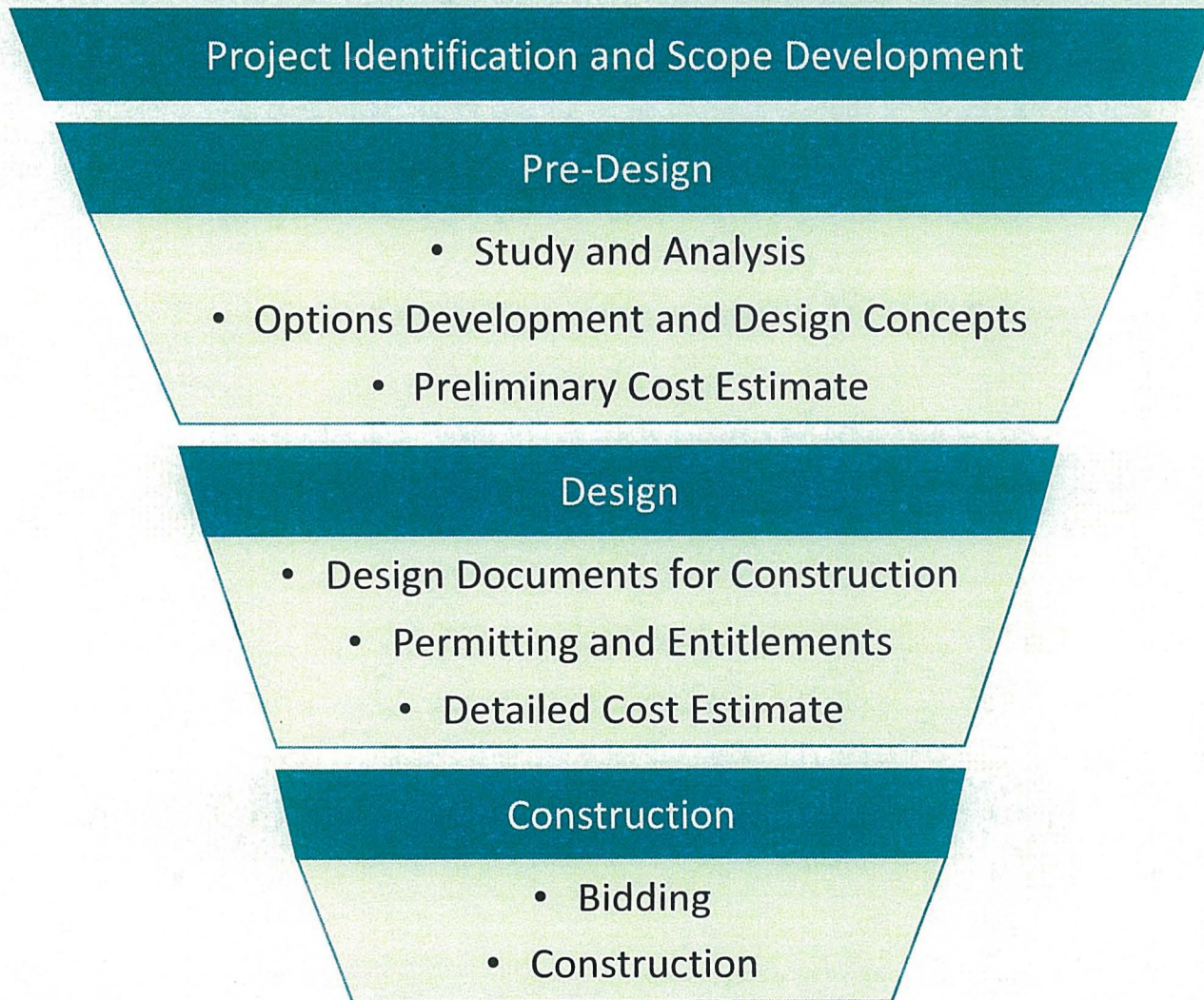
- Maintain, renew, expand, and enhance District infrastructure to meet the capacity needs and desires of the community for future generations.
- Maintain, procure, and construct District assets to ensure safe and accessible operations for the public and the District's workforce.

### Budgeted Initiatives for 2017-2018

- Complete preliminary design for rebuilding Ski Way and set direction for final design approach.



# Project Sequence



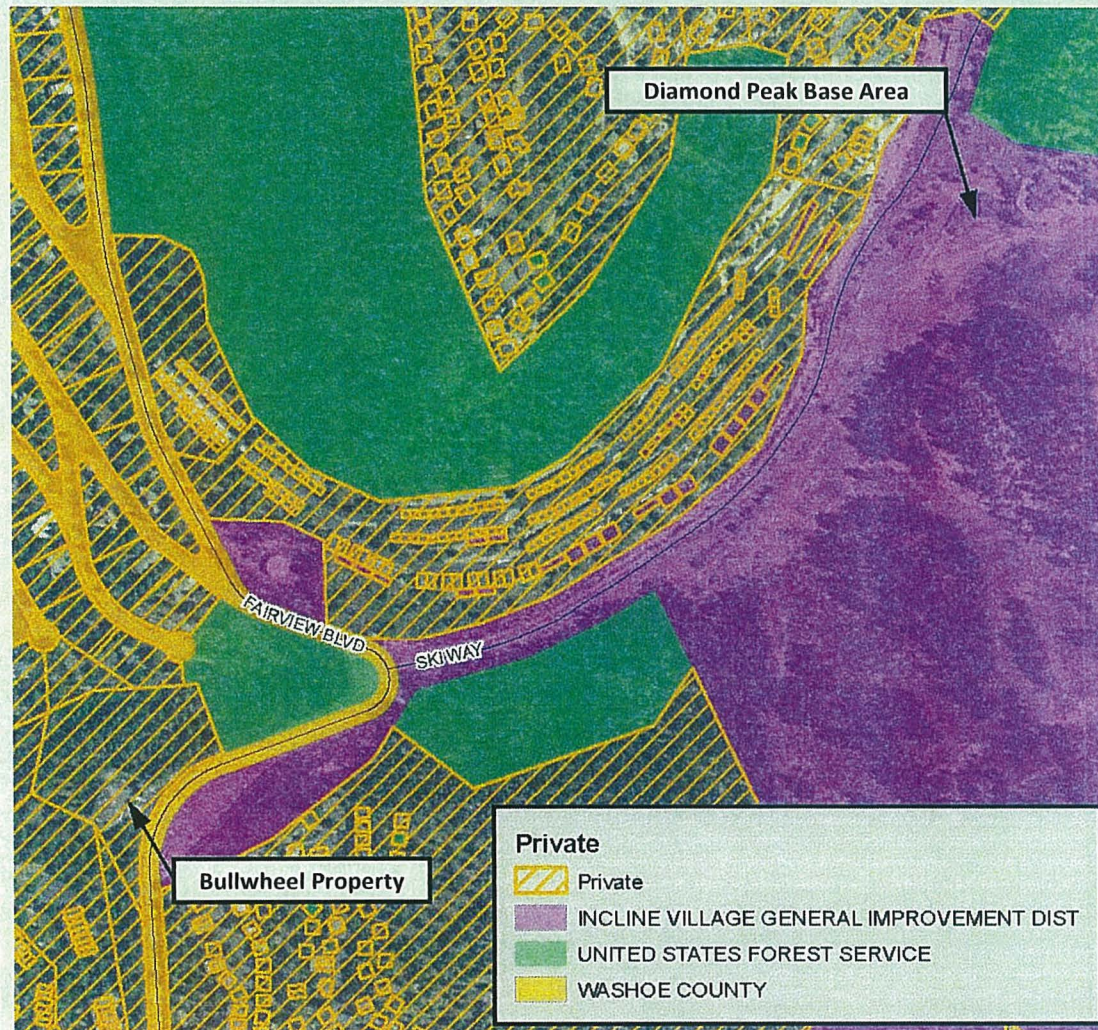


# Project Status

- Fall 2015 – Traffic Safety Review by LSC Transportation Consultants
- Winter 2017 – Preliminary Design Engineering contract with Wood Rodgers
- Summer 2017 – Geotechnical Investigation by Wood Rodgers
- FY 17/18 – 5-year Capital Plan:
  - \$2.12M programmed for design and construction of Ski Way and Diamond Peak Parking Lot reconstruction between FY 17/18 and FY 20/21
- Ski Way project is independent of the Diamond Peak Incline Creek Culvert Project

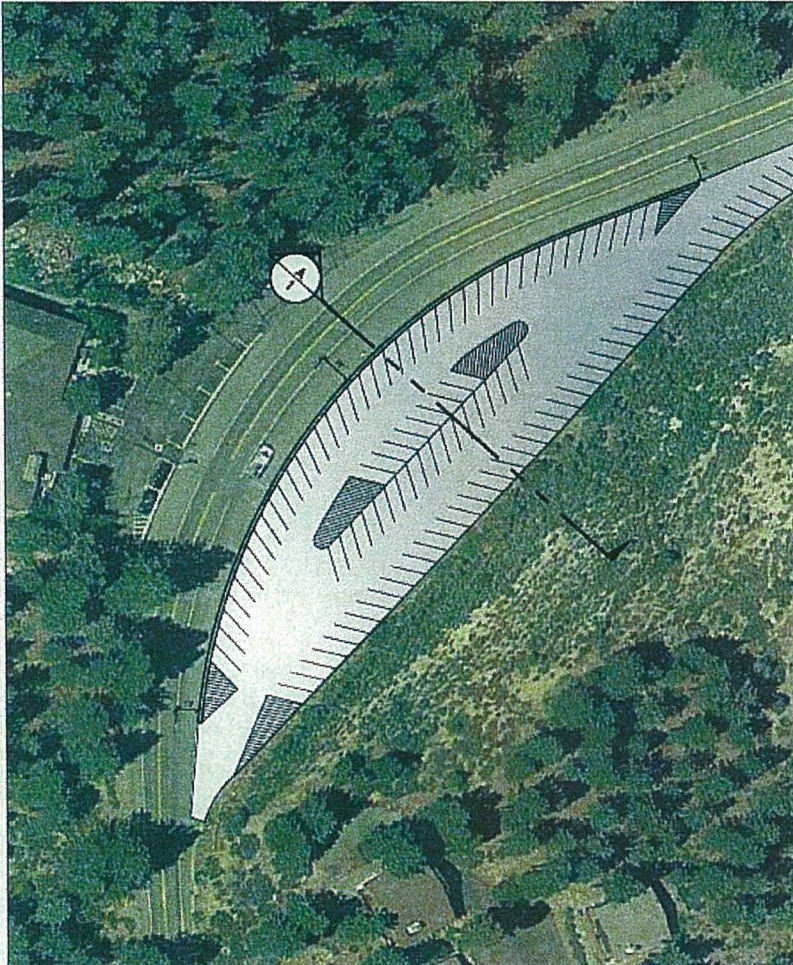


# Project Area and Ownership





# Project Area and Ownership – Bullwheel



- Bullwheel Property developed in late 1970s
- Agreement between developer and IVGID to build a shared, paved and lighted parking lot on IVGID land
- Bullwheel Property responsible for all construction costs and future maintenance costs
- IVGID responsible for snow removal



# Project Purpose

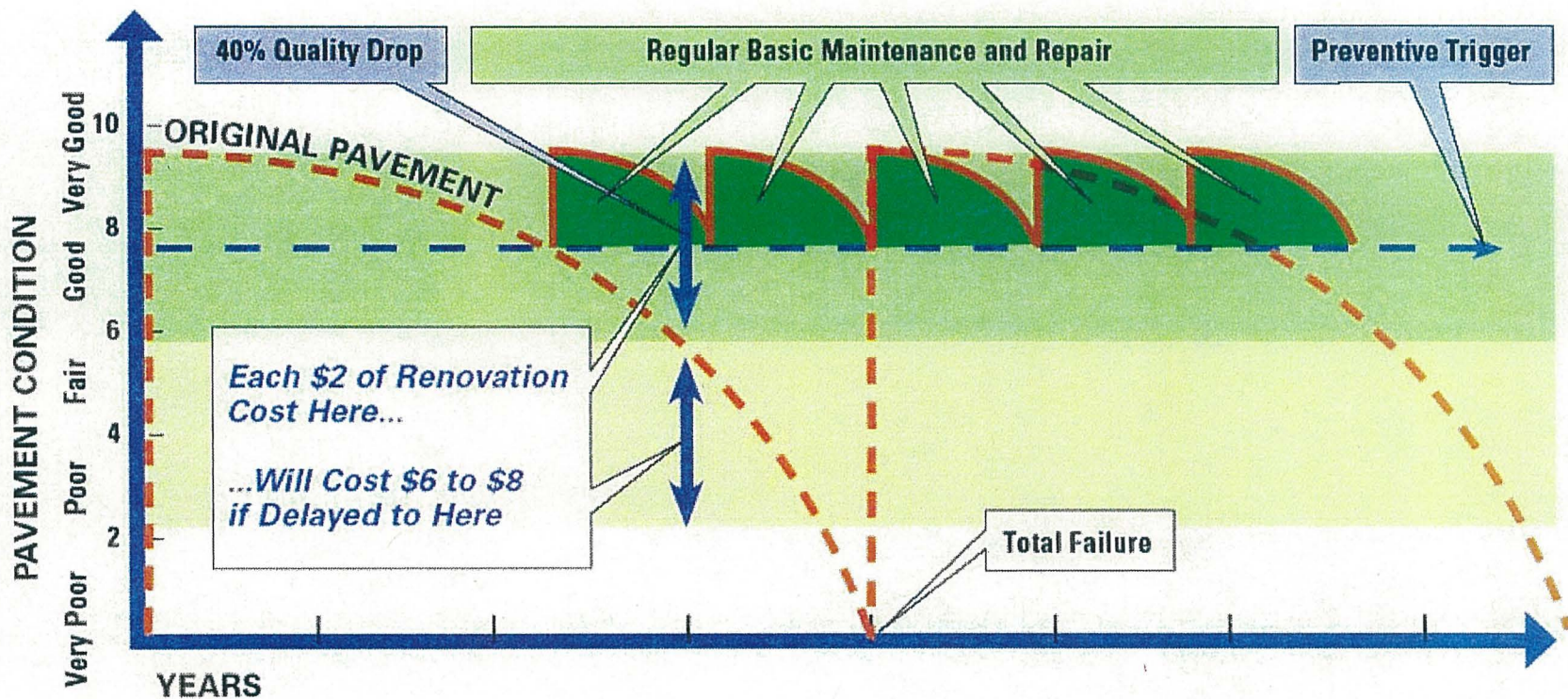
- The pavement on Ski Way and in Diamond Peak Parking Lots is deteriorating
  - Significant transverse and block cracking
  - Geotechnical Report... *"poor to very poor condition"*
- Opportunity to improve safety and circulation?





# Pavement Maintenance Investment

## The Cost of "Timely" Maintenance





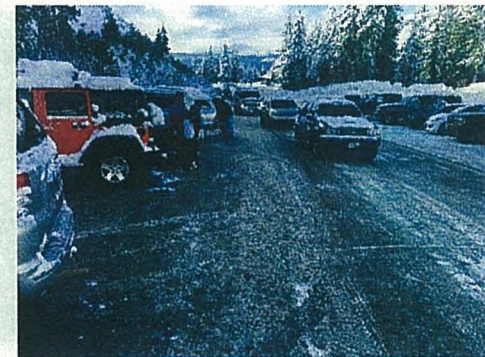
# Material Issues

- District has completed regular pavement preventative maintenance dating to 1985
- Geotechnical Report revealed adequate Asphalt and Base thicknesses in tested areas and no severe load related distress conditions were observed
- From Geotechnical Report:  
*“Observed pavement distresses are environmental and material related (i.e. non-load related). Therefore, special attention is needed during construction material selection and mix design.”*



# Safety and Circulation Issues

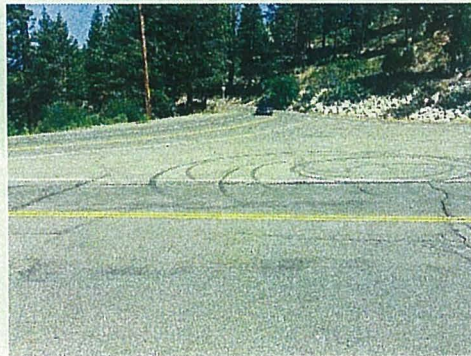
- Ski Way is both a through street and a parking lot
- DP parking demand extends past Bullwheel Property during peak periods
- Pedestrian traffic mixes with vehicular traffic
- Difficult to see when pulling in and back out
- Must back out across both traffic lanes





# Safety and Circulation Opportunities

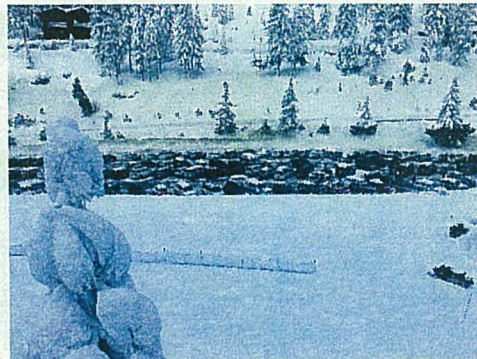
- Can we reconfigure the roadway to improve pedestrian and vehicular safety?
- Can we slow down through traffic and improve circulation?
- Can we minimize the loss of parking in the process?





# Project Options

- Option 1 – Defer / Ongoing Maintenance
- Option 2 – Pavement Rehab and Reconfigure Striping
- Option 3 – Minor Capital Improvement
- Option 4 – Moderate Capital Improvement
- Option 5 – Greater Capital Improvement



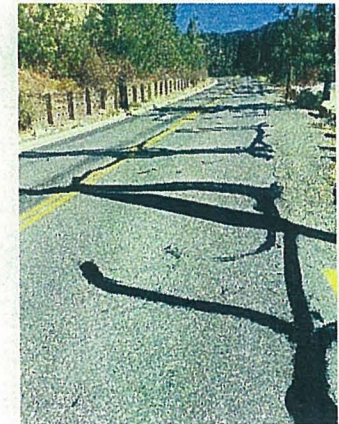


# Project Options – Option 1

## Defer / Ongoing Maintenance

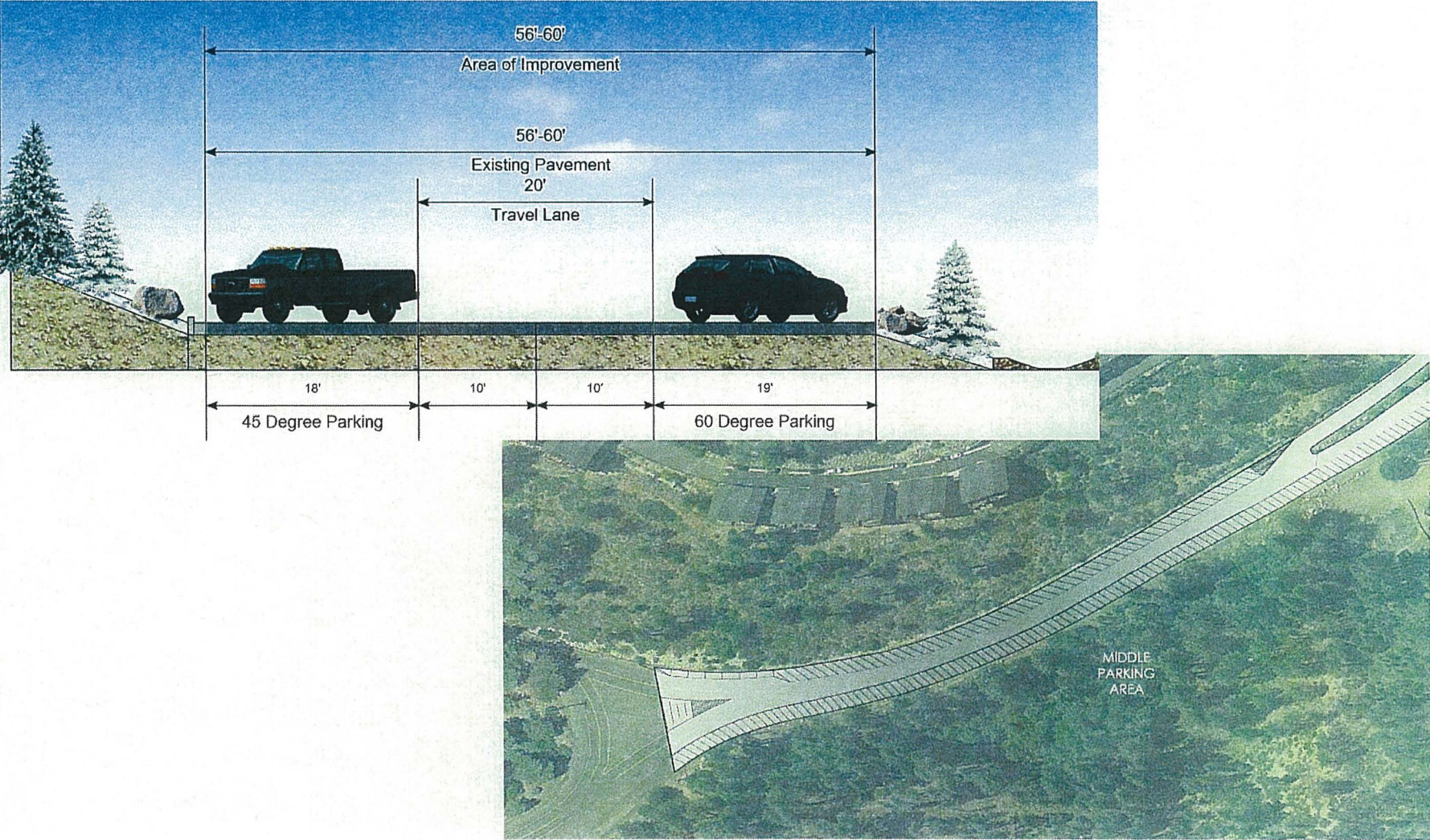
- Annually recurring simple maintenance strategy
- \$100,000 +/- yearly patch pave, gap fill and crack sealing
- Additional \$150,000 larger project in year 3
- Defer full reconstruction costs for 5-10 years

*Equates to \$650,000 to \$1.15 million in interim maintenance*



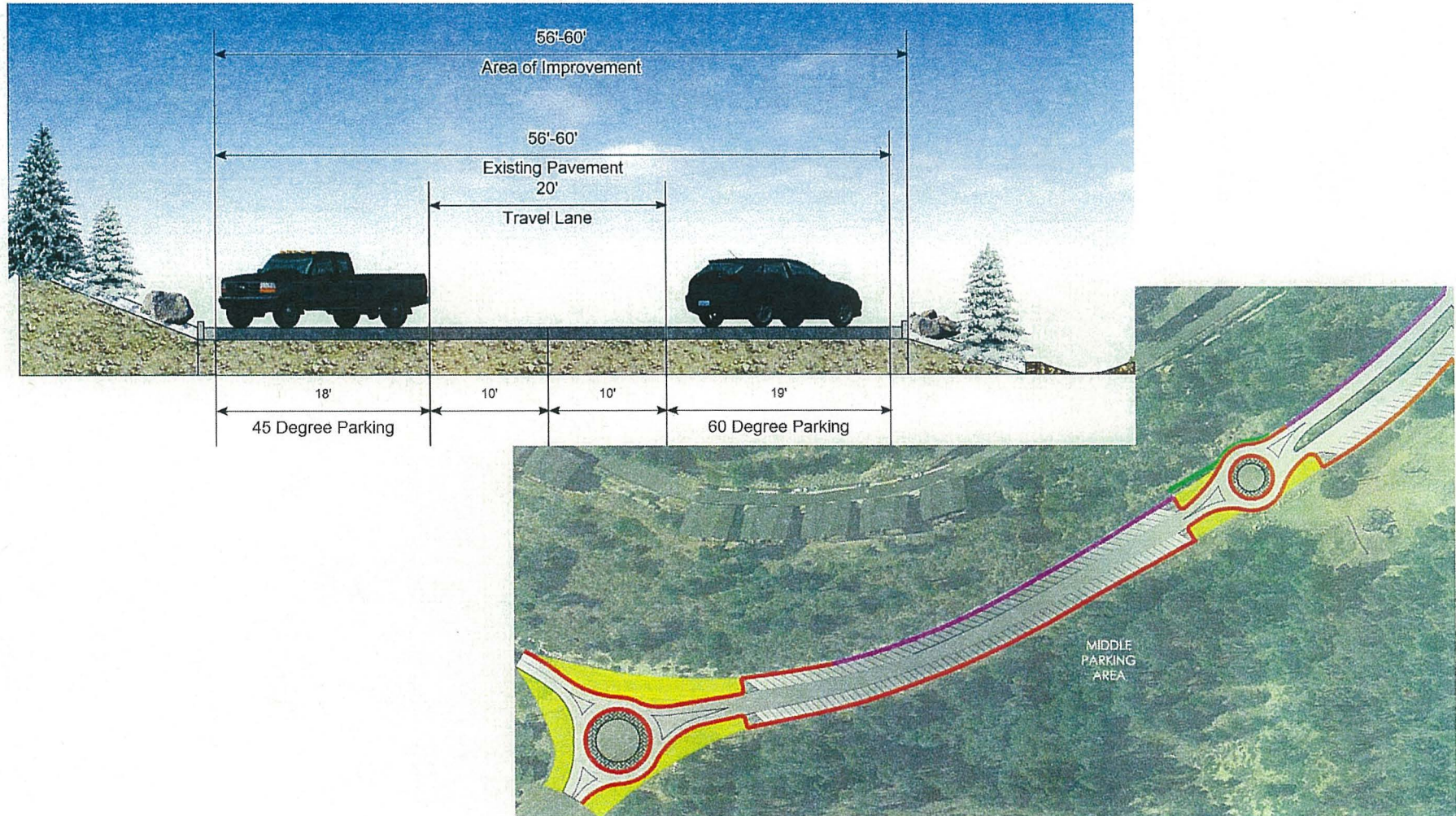


# Option 2 – Pavement Rehab and Reconfigure



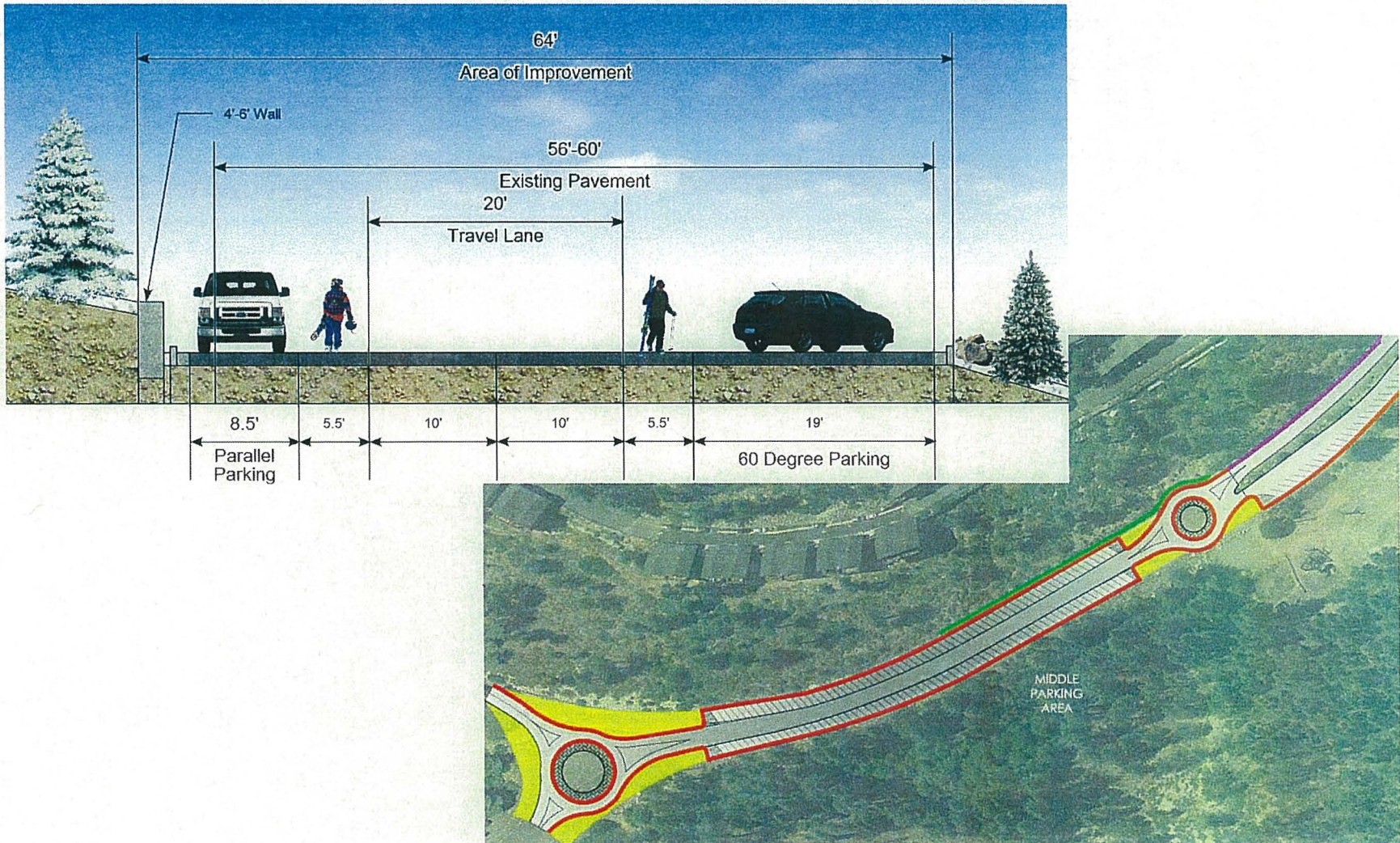


# Option 3 – Minor Capital Investment



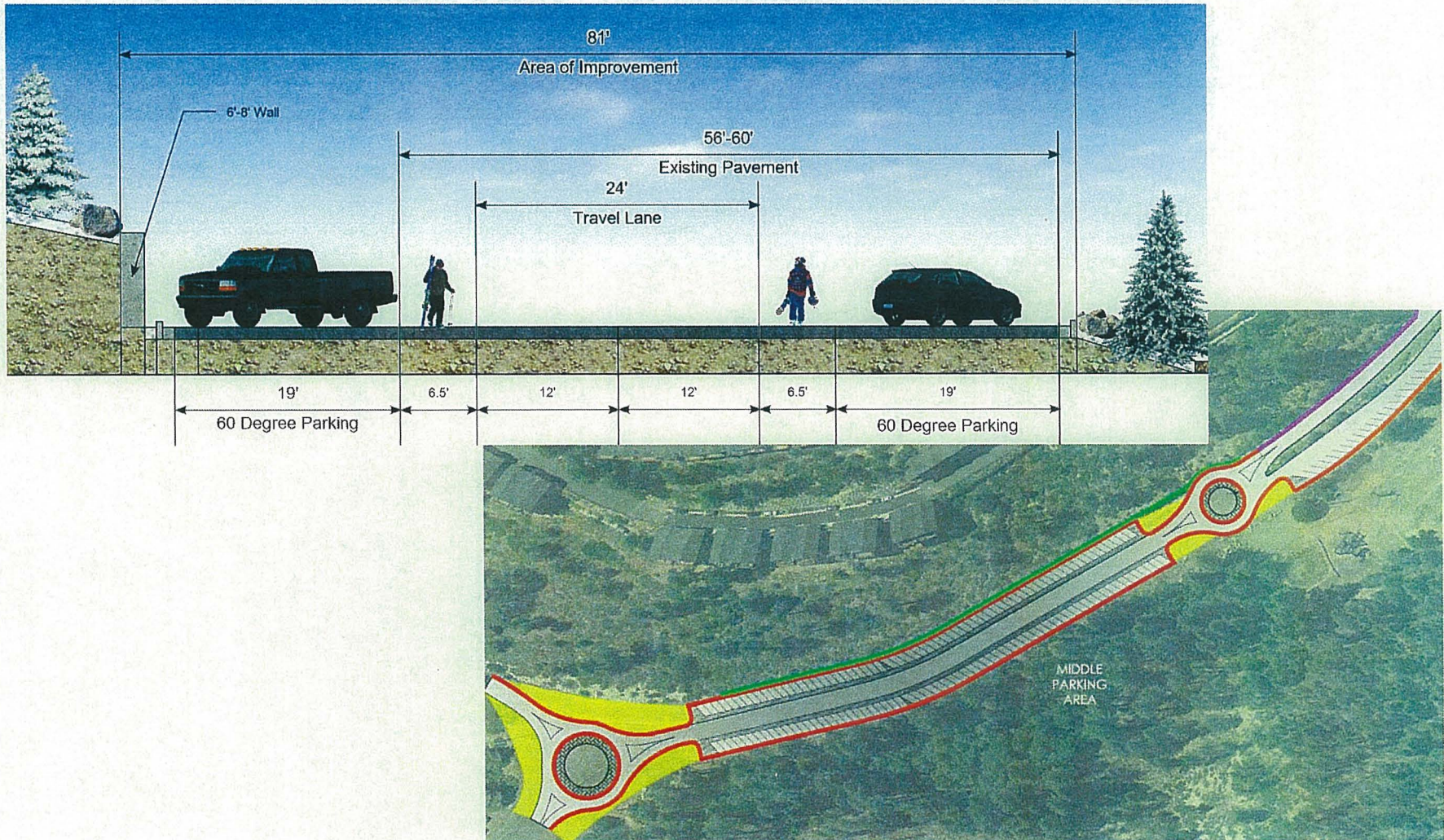


# Option 4 – Moderate Capital Investment





# Option 5 – Greater Capital Investment





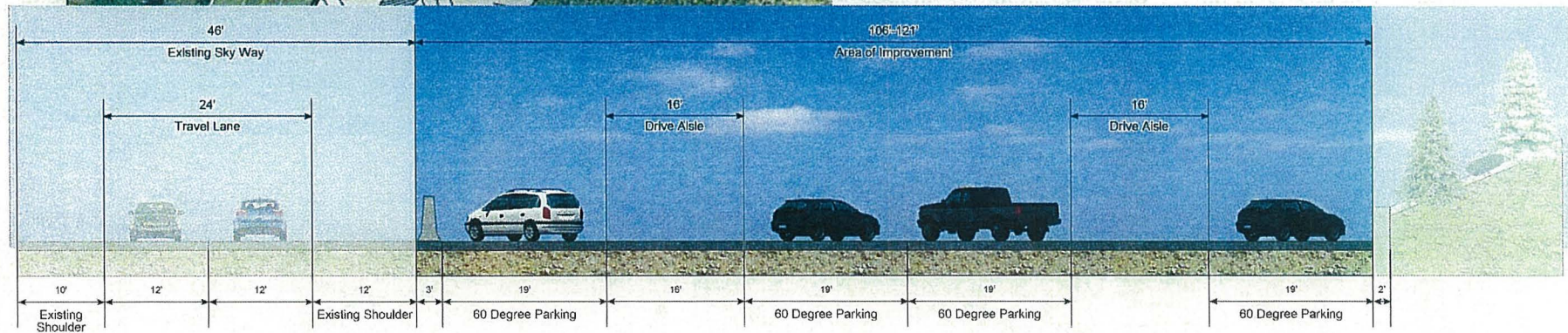
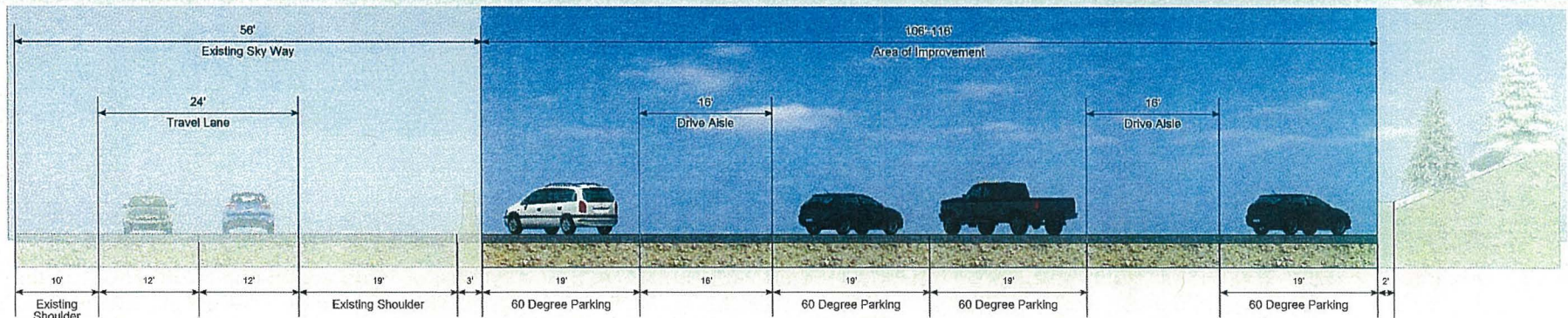
# Options Summary and Comparison

Option #	Safety Enhancement	Circulation Enhancement	Parking Spaces	Cost
Option 1			-	\$900k +/-
Option 2			0 to +65	\$2.8M
Option 3			-15	\$3.8M
Option 4			-30 to 0	\$4.1M
Option 5			+5	\$4.6M

 Poor  
  Fair  
  Good  
  Great



# Other Considerations – Bullwheel Parking





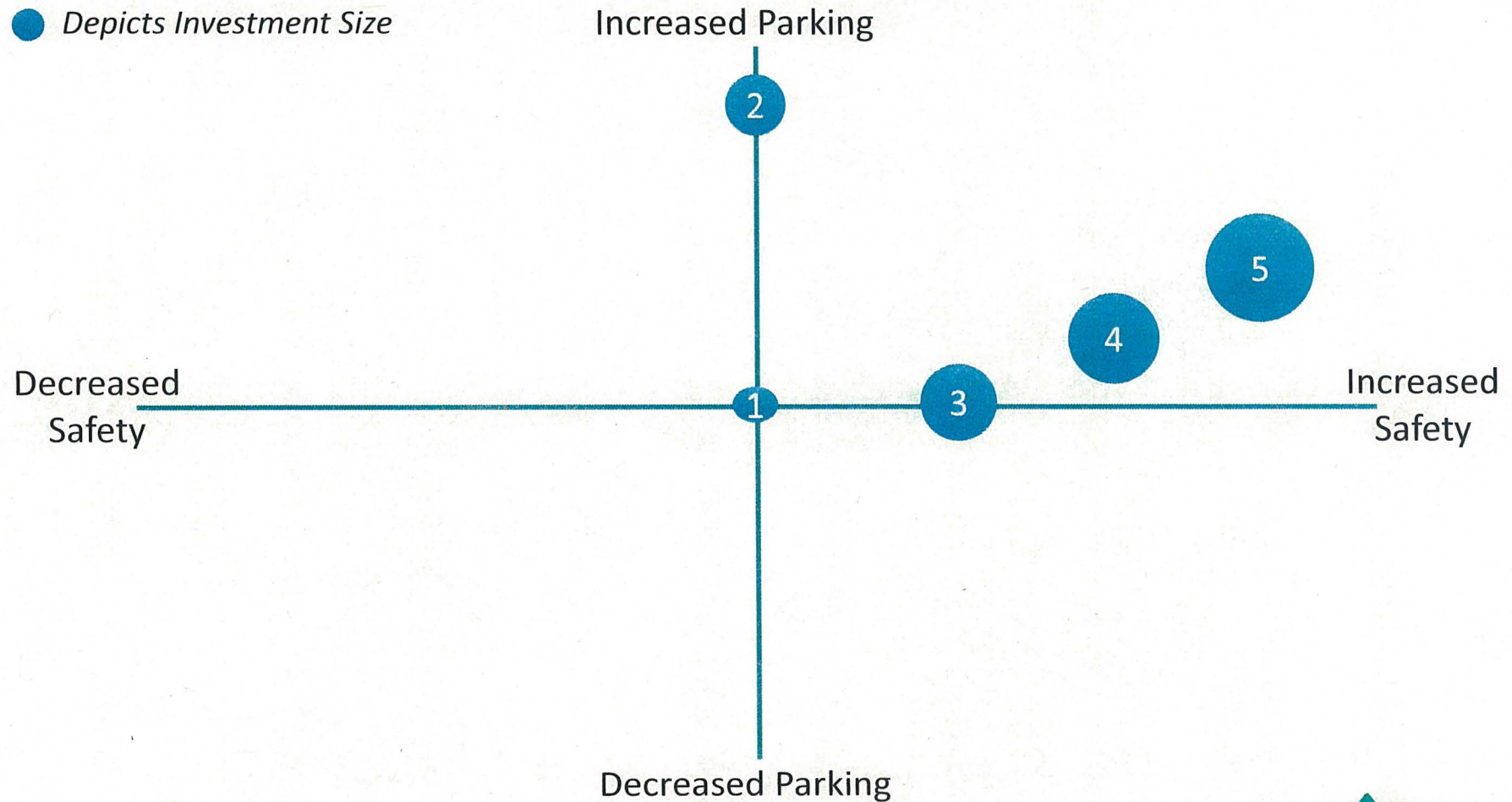
# Parking and Cost Comparison with Bullwheel

Option #	Rehab Existing		Move Barrier Rail	
	Parking Impact	Cost	Parking Impact	Cost
Option 2	+5 to +70	\$3.3M	+20 to +85	\$3.5M
Option 3	-10	\$4.3M	+5	\$4.5M
Option 4	-25 to +5	\$4.6M	-10 to +20	\$4.8M
Option 5	+10	\$5.1M	+25	\$5.3M



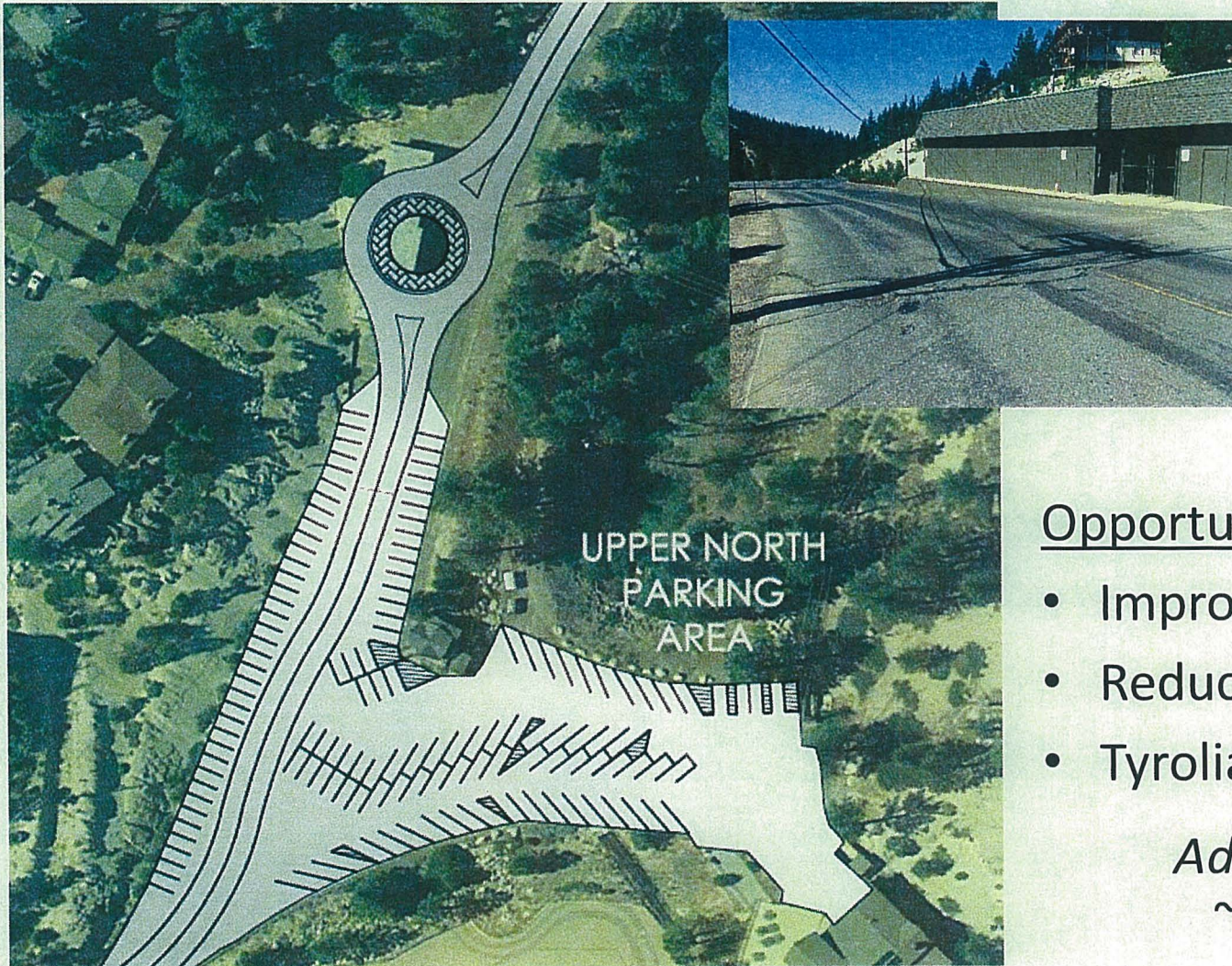
# Options Summary and Comparison

● *Depicts Investment Size*





# Other Considerations – Tyrolian Roundabout



## Opportunities

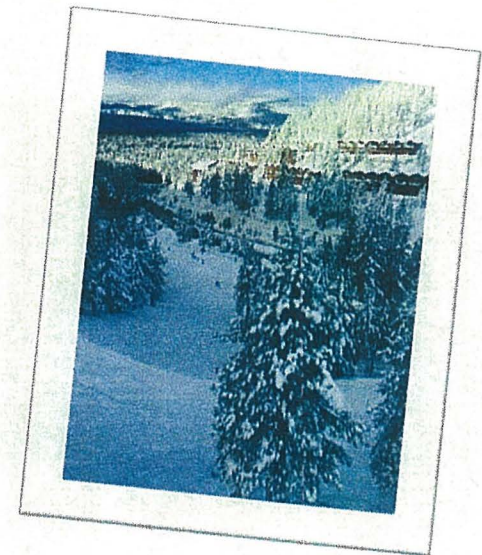
- Improve circulation
- Reduce speed
- Tyrolian Village gate

*Additional cost  
~\$500,000*



# Other Considerations – Phasing & Funding

- Phased construction
  - Middle/Upper Parking Lots and Ski Way to Storage Building
  - Lower Section Parking / DP Entrance Roundabout
  - Fairview / Ski Way Intersection Roundabout
  - Bullwheel Parking Reconstruction
  - Tyrolian Roundabout
- Grant Opportunities
  - Fixing America's Surface Transportation (FAST) Act
  - Infrastructure for Rebuilding American Grants
  - NDOT Safety Funds





# Discussion Points

- Selected alternative dependent on available capital funding
  - Cash only or debt issuance
  - Phasing to spread capital expenditures
  - Availability and likelihood of grant support has not yet been vetted
- Urgency of work
  - Near term repairs and maintenance activities must continue
  - Full rebuild can be postponed if necessary
- Necessity of safety and circulation enhancements
  - Traffic safety evaluation indicated “no undue traffic safety issue”
  - Continued focus on operational enhancements can help improve traffic safety and customer flow
- Impacts to and importance of on-site parking spaces



# Discussion Points

- Land Ownership, Authorizations, and Access Rights
  - Washoe County Right of Way and Transportation Planning
  - United States Forest Service
  - Bullwheel Property
  - Tyrolian Village
- Tyrolian Roundabout
  - Impact to on-site operational storage
  - Public Private Partnership Opportunities
    - DPSEF
    - Tyrolian Village HOA
- Project timing relative to any Diamond Peak Master Plan Improvements
  - Work should be completed prior to start-up of any summer operations

and people say thank you. When hard decisions come before you, there is nothing but blank faces. You think your job is not important and that it is not important to do anything.

**D. APPROVAL OF AGENDA (for possible action)**

Chairwoman Wong asked for changes to the agenda, none were made, so Chairwoman Wong said that the agenda is approved as submitted.

**E. GENERAL BUSINESS (for possible action)**

**E.1. Asset Replacement Funding Strategy Presentation (Requesting Staff Members: Director of Finance Gerry Eick and Director of Asset Management Brad Johnson)**

Director of Finance Gerry Eick gave an overview of the submitted materials.

Trustee Horan said what he sees over time is that we have dramatically increased our expertise in replacing assets and that this is an excellent way to start. There seems to be, over the last year or year and a half, concern about debt. We have to take a really long look at debt and look at some of the bigger projects like the beach house, Snowflake, Admin Building as these are very big projects and we can only kick that can down the road so far. So let's take an intelligent look because pay as we go on culvert is not necessarily the right way to go. Let's see where debt fits because as we decide on a project, we need to step up and say what is the most intelligent way to do it.

Trustee Callicrate said to alleviate some of the concerns and fears of the community, he would strongly urge more focus to this Board and to look at what is overall big picture of projects and out of that what is the have to do projects as this District is almost 60 years old and we have a lot of buildings that were not built for longevity. The Recreation Center is 25 years old and the Chateau is coming up on 20 years so let's look at big picture and look at opportunities for public/private partnerships. We have a couple of options – we can have a general obligation bond that the community can vote on but we have to get hard facts so that they can say yah or nah on whatever the number might be as we might be talking \$20 or \$30 million. We have an adult community who might scream and yell but we have to put that out there as that is what public forums are specifically for and that could go a long way in letting them know that the infrastructure is not where it needs to be and



we have to replace this or that. Staff has done an excellent job of costing it out but we have a lot on our plate that the community wants so there is a lot of discussion that has to happen and he is glad for this start.

Chairwoman Wong thanked Staff for the presentation as it is a good reminder for all of us.

Director of Finance Eick said that part of the projection will be to look at the various forms of funding that will be available and that in defense of the project spends, Staff has filtered that down to the most important while not ignoring years six through twenty. During the capital tour, he would encourage discussion and asking about longer plans as right now we try to focus on the one year and five year plans.

Chairwoman Wong suggested it is time to have a presentation on the five highest priority projects and start to identify where those fall. Director of Finance Eick said he agrees and that Staff will incorporate that into the report.

**E.2. Diamond Peak Traffic Safety and Pavement Preservation Presentation (Requesting Staff Members: Director of Asset Management Brad Johnson)**

Director of Asset Management Brad Johnson gave an overview of the submitted materials.

Trustee Callicrate asked about identified tram stops or do they just stop where they can (relevant to Option 2). Director of Asset Management Johnson said that we could eliminate the parking spots for the trams and that this is an engineering judgement that we can decide as we move through the process.

Trustee Callicrate said, regarding Option 5A or 6, that he has discussed this with Staff in the past and that is about having two lanes against the hillside and segregating the parking off to the right which might necessitate taking out one of the roundabouts such that the Tyrolian Village residents would have to interact with the skiers and what that would entail in costs. He is not so worried about the parking spaces as he is in the safety of those there and in Tyrolian Village. Option 1 isn't even an option and the opportunity is really Option 6. Director of Asset Management Johnson said that there are multiple ways to do the stripping, etc. and that we looked at this option and the

challenge is that the pavement widths really grow and when we went over the challenges, it is not impossible, but logistically it is very challenging to do so the best approach is Option 5 however it is something that can be further refined but it is not easy but it is not impossible.

Trustee Morris asked if Staff looked at the opportunity of losing spaces on Ski Way but carving out more parking at Schoolhouse to take cars totally off the road. Director of Asset Management Johnson said via restriping, we could gain a few spots at the bottom of Schoolhouse but all of that is sensitive land so widening is very limited as growth comes from pushing into the hillside so the opportunity is really further south.

Trustee Horan asked if the cost on Option 2 include the replacement of the roadway. Director of Asset Management Johnson said that pavement reconstruction is entirely within IVGID lands. Trustee Horan followed up by noting that the project costs on Option 5 escalates to almost double. Director of Asset Management Johnson said yes that is true and verbally went over the options and what they include.

Trustee Callicrate asked for a little more clarity on the parking spaces at the next go around. Director of Asset Management Johnson said it all has to do with overlays and then went over them.

Trustee Morris said he is concerned about safety and it is about 20 feet between cars so in Option 2 he is worried about that and that the same is true in a couple of the other options. Director of Asset Management Johnson said not knowing the path the Board wanted to take, Staff wanted to present a lot options. Option 2 is a huge step back and not an option he recommends but wanted to show it to the Board.

Trustee Callicrate said, regarding the pedestrian pathways, there is no curbing or speed bumps, is that correct. Director of Asset Management Johnson said they are not in Option 5 because of plowing. Trustee Callicrate said so that will be done with stripping or coning and that he is being so outspoken about this project because he is definitely on the side of maximum safety as it is a miracle that no one has been injured or killed. He also understands that by having wider lanes and pedestrian access with the roundabouts would save a lot of nightmare opportunities.

Chairwoman Wong said that layered on the options and then the Bullwheel projects, we need to talk about funding, and is that the reason to do these



simultaneously or split them into distinct projects. Director of Asset Management Johnson said yes, we can talk about financing and will get to that part in his presentation shortly.

Trustee Morris asked about the Tyrolian roundabout and parking. Director of Asset Management Johnson said that there will be more no more parking spaces as the costs are just for the roundabout and the demolition of the existing building.

Trustee Morris asked about the potential on grants and is 90% on the roundabout and not the rest of Ski Way. Director of Asset Management Johnson said that is correct.

Chairwoman Wong asked what conversations have we had with our Tyrolian Village neighbors. Director of Asset Management Johnson said he wanted to present it to the Board first and that we have had nothing to date with the Tyrolian Village residents but Staff has had a brief conversation with the Bullwheel owners; Tyrolian Village is very enthusiastic about doing something on Ski Way.

Trustee Callicrate said he appreciates Staff coming to the Board first and that we definitely should involve both Tyrolian Village and Ms. Franc-Buck at the Bullwheel as this has been such a pariah and is similar to the Skate Park is still awaiting additional phases. We need to decide as a Board and then go to Tyrolian Village as he would imagine they would amenable.

Trustee Horan asked if Staff had considered phasing and what is the increased costs as opposed to a one time project. Director of Asset Management Johnson said that Staff does have to look at that as cost will escalate with time and with a phasing of the work. Trustee Horan said he would like that compared to the cost of a bond and that it be measured more as a fiduciary responsibility as opposed to doing it over time and paying cash. Director of Asset Management Johnson said that no one is paying cash for these types of projects that would last over one hundred years as they are issuing transportation bonds. Trustee Horan said that was well put and thus this Board needs to look at bonding.

Trustee Horan asked Staff to comment on operational safety as the survey says there is no undue traffic safety issue yet he has trouble with their analysis. Director of Asset Management Johnson said that one must remember we are engineers and thus you have to pick the option.

Trustee Morris said, hypothetically, with the potential demolition of our storage could we just demolish and not put in replacement storage and thus create more parking. Director of Asset Management Johnson said yes that is an option. Trustee Morris continued that we own Ski Way so say we approach Washoe County about taking it back. Director of Asset Management Johnson said he didn't think we could do that as it wasn't here when it was developed and that when it was constructed the developer owned Diamond Peak and was selling Tyrolian Village lots so that is why the favorable agreement. Washoe County isn't taking it back as there is a condition that they never take it back. There is some confusion in the public as members of the public don't know that IVGID owns it.

Chairwoman Wong said if we had a magic wand and \$6 million to do this project, how long it would take to do it and when would be the earliest date we could start. Director of Asset Management Johnson said with \$6 million in the bank, the earliest would be the construction season of summer 2020. It would have a long design phase in order to allow ample time to coordinate with agencies, Tyrolian Village, and the Bullwheel property owners. We may be able to accelerate to 2019 which is aggressive.

Trustee Callicrate asked for a ballpark of what the potential opportunity is for grants and/or public/private opportunities as well as Federal opportunities. Director of Asset Management Johnson said that he didn't know as we don't do a lot of transportation however we do have a strong consultant on the team who does a tremendous amount of transportation, Wood Rodger, and we will coordinate with them. It is something that we would have to chase and they come and go every year and one has to apply and reapply. Many agencies are dependent on grants and when they don't get the grants, they don't move forward so he just doesn't know.

Trustee Callicrate said that whatever we decide to do, whether it be Option 3, 4, or 5, this has been an onerous situation for a couple of decades. While we need to look at pay as go we have been doing too much pay as you go which makes us hamstrung and depletes our reserves. Other communities do small, medium term bonds so he would like to do it right the first time and follow our plan of attack. He would recommend moving towards being all inclusive as we have been toying with this for so long and knowing that we don't have the money for as you go we need to look at bonding, partnering, etc. Let's move forward on the roundabouts and working with Tyrolian Village as Option 5 is what he is leaning towards but we have to come up



with the money and that he doesn't know what the next step would be. Director of Asset Management Johnson said there will be an opportunity to discuss this as we enter into March and what the project would look like, what debt would look like, and then more opportunity with the Community Services Master Plan.

Chairwoman Wong asked what the next steps are and what do you from the Board. Director of Asset Management Johnson said this has been great feedback and Staff has a good understanding of where you want to go so we will come back with options such as pay as go as the first portion of phased construction, issue debt and what would that debt packet look like, and include the larger options.

Trustee Horan said it is important to understand that if we do this in phases it will cost us more so we have to develop what we want to do and then figure out how to finance it.

Chairwoman Wong called for a break at 8:02 p.m.; the Board reconvened at 8:13 p.m.

**E.3. Review, discuss, and possibly approve a Golf Course Maintenance Staff Reorganization for better management and cost savings (Requesting Member of Staff: Director of Golf Michael McCloskey, Grounds Superintendent Jeff Clouthier, and Director of Human Resources Dee Carey)**

Director of Golf Michael McCloskey, Grounds Superintendent Jeff Clouthier, and Director of Human Resources Dee Carey gave an overview of the submitted memorandum.

Chairwoman Wong said that she appreciates the comparisons to the other golf courses as it makes her realize how much you do with less and the quality of the courses so thank you for everything you do.

Trustee Morris said he would echo Chairwoman Wong as he too was surprised at the numbers. He hadn't looked at the number for staff but he has heard that our Staff is inefficient and we are overstaffed and this shows quite the opposite. Just as a check on agenda packet page 46, this is a decrease in wages and if we pass a motion on this would you be making this change immediately. Director of Golf McCloskey said yes, that is correct. Trustee Morris asked if you have someone in mind or perhaps more than