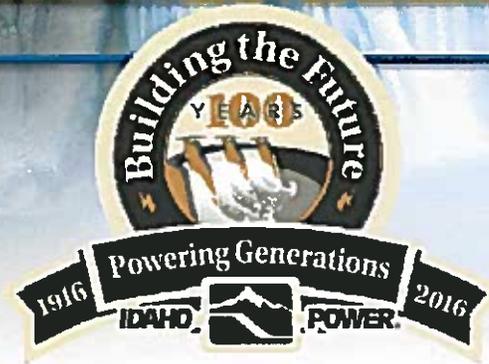


North Valley Reliability: Second Transmission Line Conditional Use Permit



**Blaine County Planning and Zoning
October 20, 2016**

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BLAINE COUNTY
LAND USE & BUILDING SERVICES

Agenda

- The Electric Grid
- Project History and Need
- Construction Options
- Route and Pole Types

How the Grid Works

- Grid
 - Entire Highway System
- Transmission
 - Interstate Highways
- Distribution
 - Local Roads

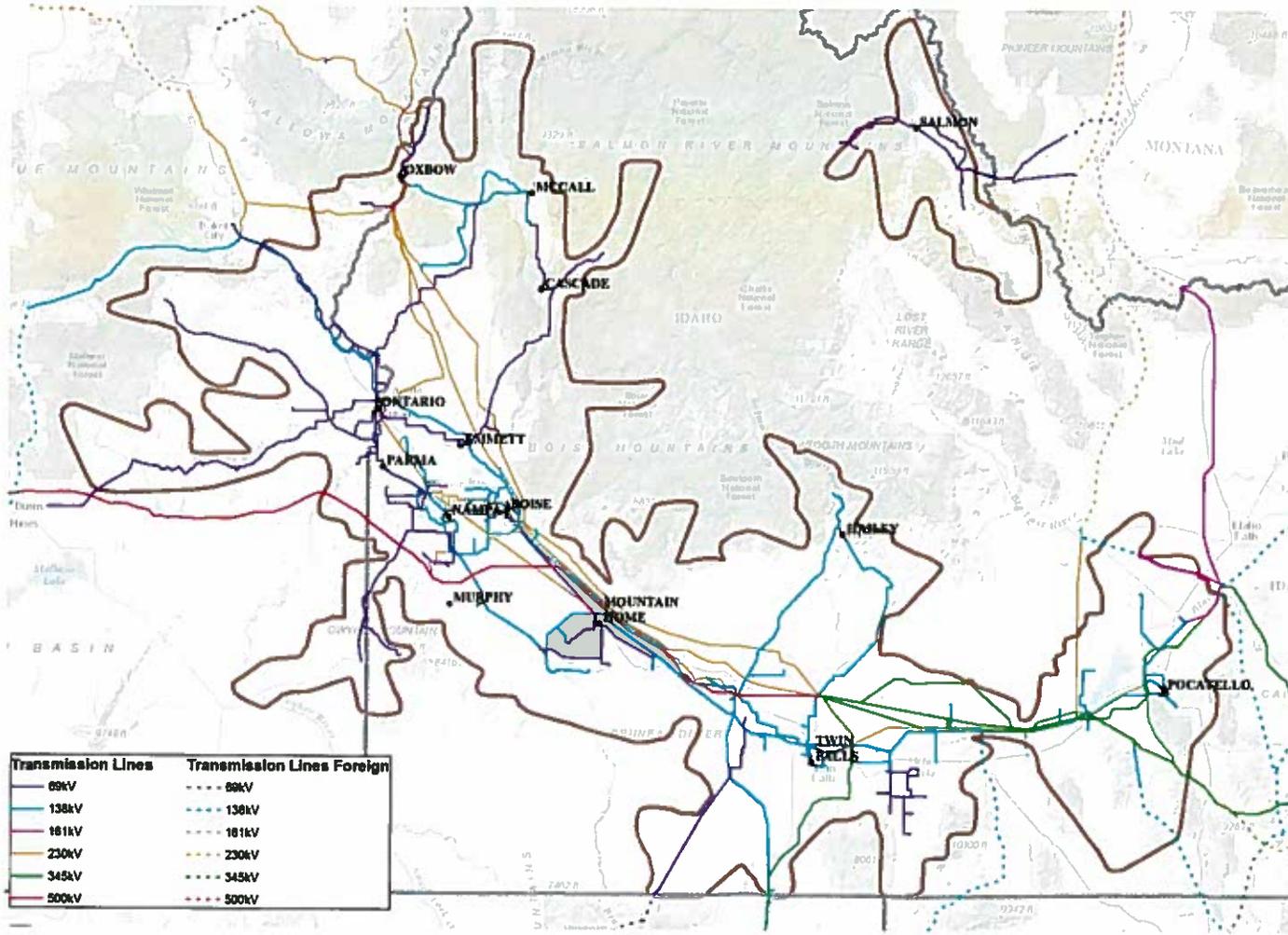


How the Grid Works



Video

Idaho Power Service Area





Why Are We Here?

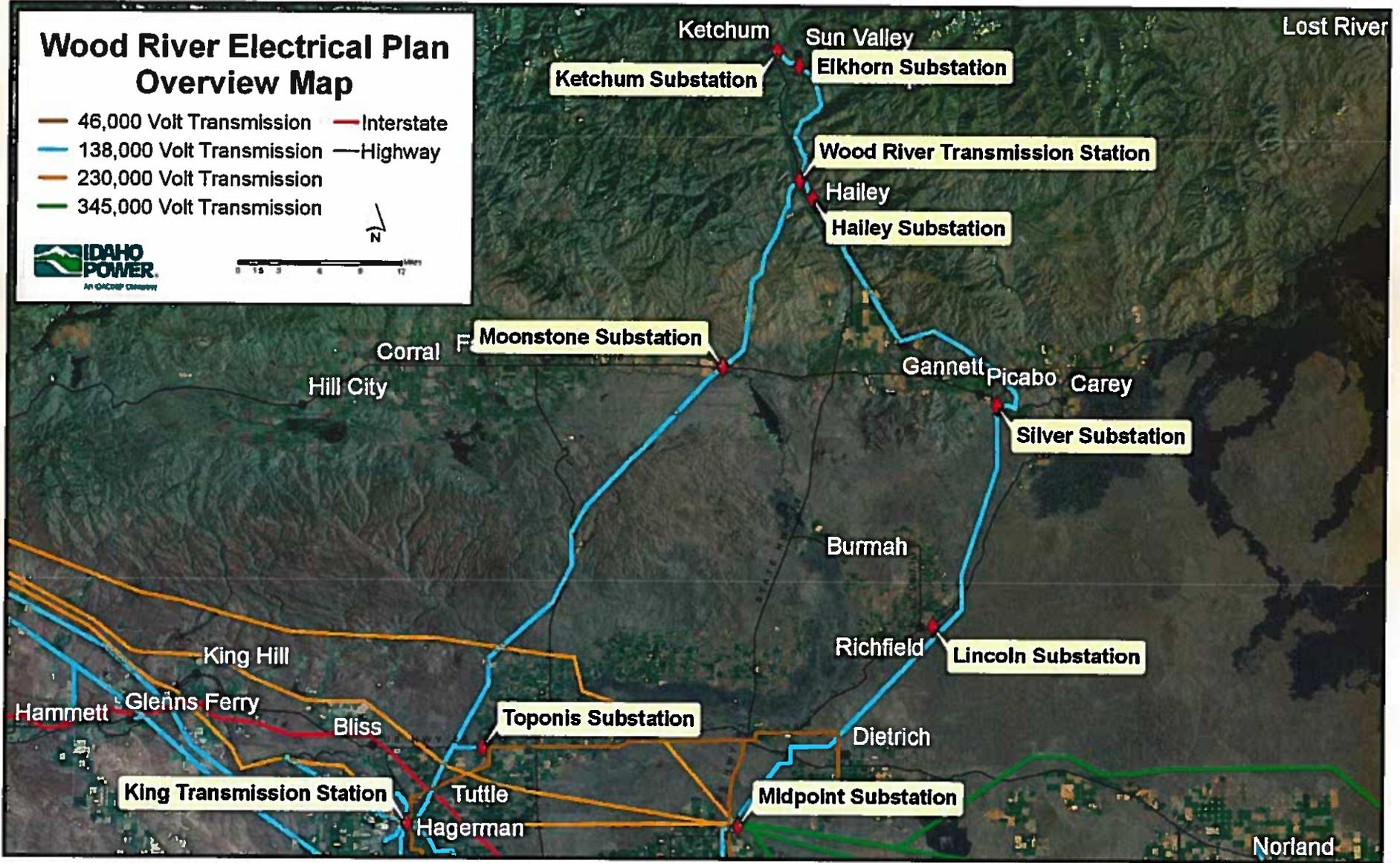
- **2007:** 19-member Community Advisory Committee (CAC) and Idaho Power recommend moving forward with second line for reliability
- **2009:** Christmas Eve power outage
- **2011:** Reviewed Electrical Plan with CAC
- **2014:** Idaho Power reconvened the CAC and reviewed additional options, files for conditional use permits
- **Late 2015:** Idaho Power filed permit applications with jurisdictions
- **2016:** Idaho Power holds meetings with jurisdictions and Idaho Public Utility Commission staff

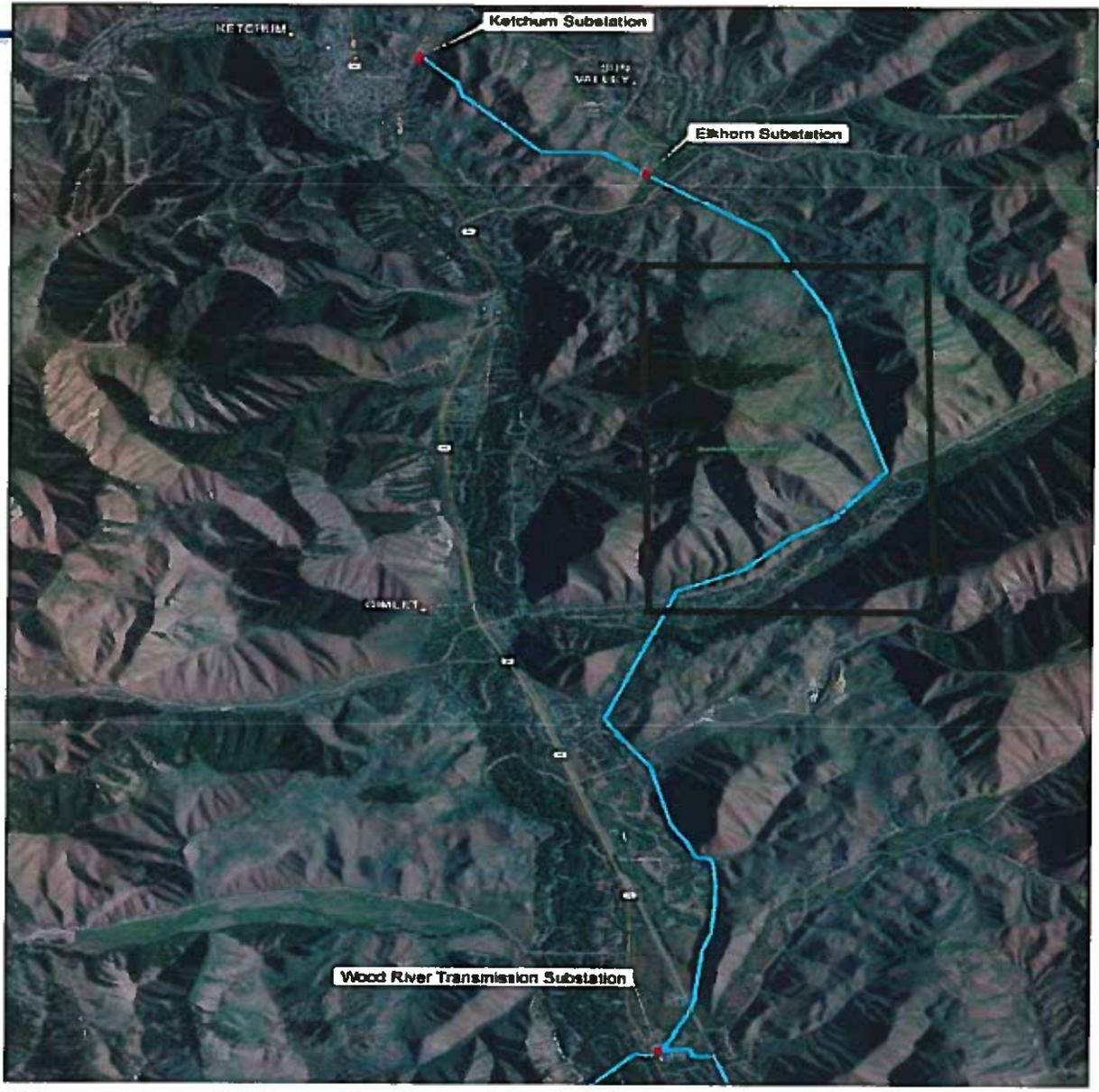
What Have We Explored?

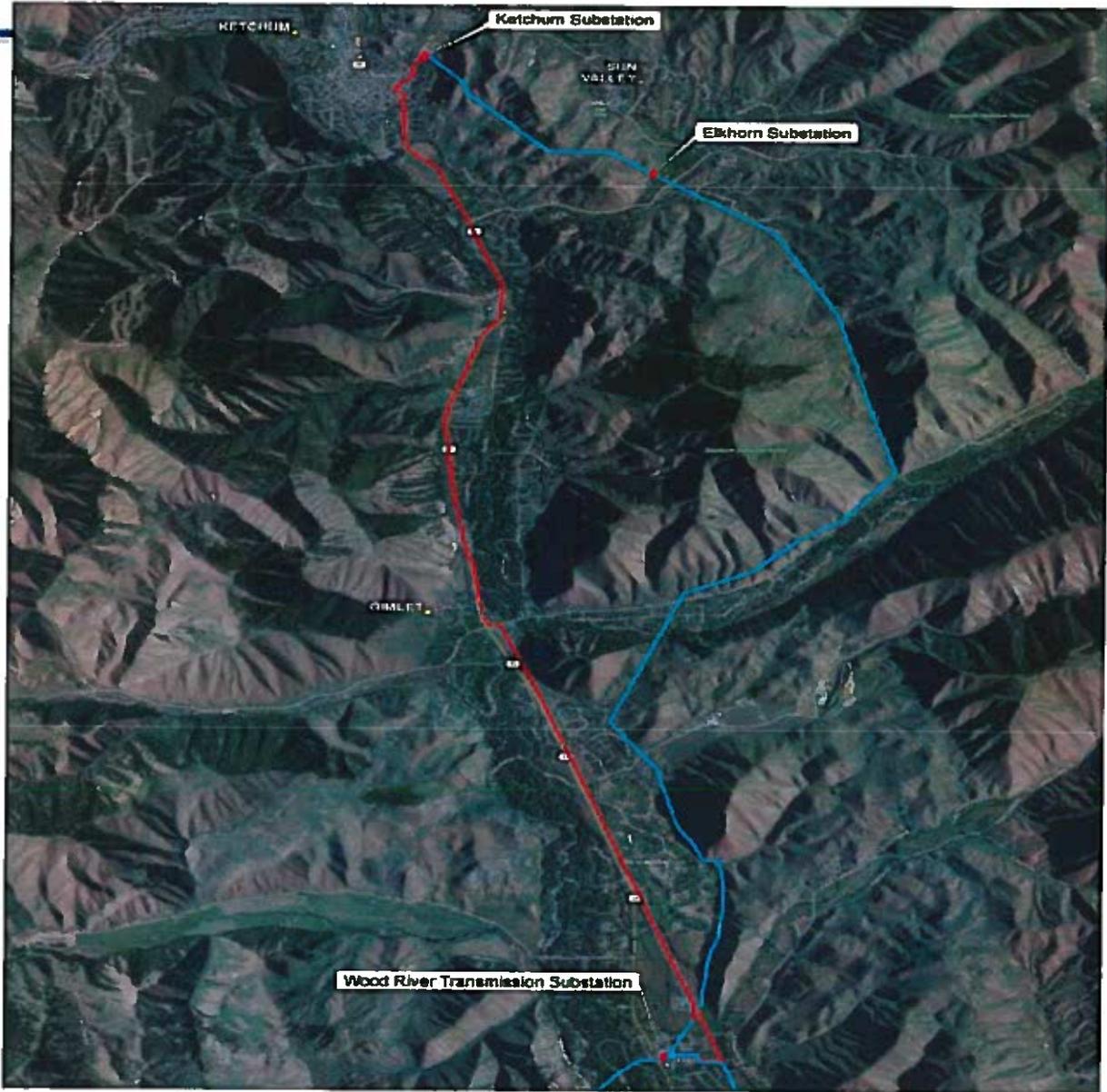
- **2014:** Wood River Renewable Energy Working Group:
 - Explored feasibility of renewable projects in area
 - Provided data on load requirements for serving customers
 - With input, updated Idaho Power's Green Power Program
- **2014:** Provided CAC with estimates for storage and diesel generation
- **2015:** Rocky Mountain Institute's eLab workshop with Idaho Power, Ketchum, Sun Valley Co, and NRG representatives:
 - Collaborated on solutions, addressed technical and economic barriers
 - In the blog below, Idaho Power's participation was applauded:
<http://blog.rmi.org/blog/2015/09/08/elab-accelerator-explores-resilience-options-in-sun-valley>
- **2016:** updates storage and generation cost estimates with input from INL

Wood River Electrical Plan Overview Map

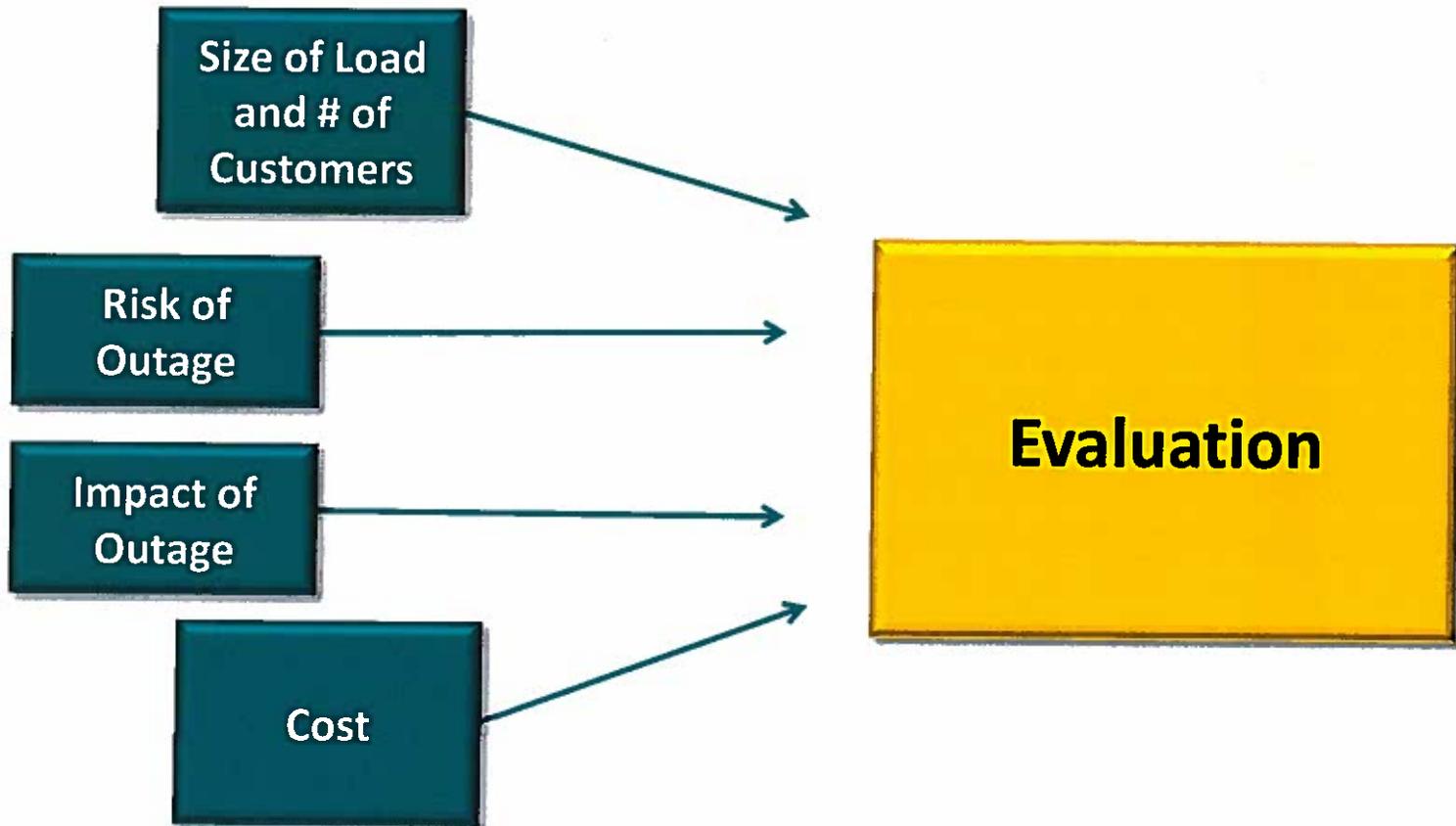
- 46,000 Volt Transmission
- 138,000 Volt Transmission
- 230,000 Volt Transmission
- 345,000 Volt Transmission
- Interstate
- Highway







Project Need Evaluation



STEP 1: Size of Load and Number of Customers

Substations	Peak Load (MW)	# Customers (Spring 2014)
STAR-EAGLE	65	12,193
Ketchum-Elkhorn	64	9,188
Kuna	23	4,917
Horseshoe Bend	12	4,300



STEP 2: Risk of Outage

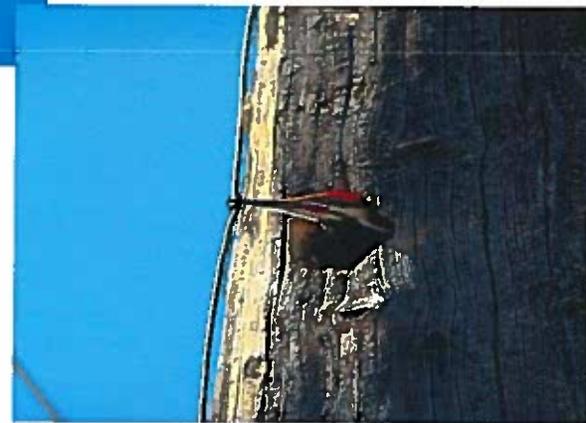


The Balancing Act



External Causes

- Fire
- Vandalism
- Weather
- Trees
- Animals



Age of Line and Past Performance



STEP 3: Impact of Outage

- Difficult terrain (extended outages)
- Safety and Security (cold temperatures, frozen pipes, inability to pump water and gasoline, etc.)
- Economic impact (businesses, tourism, conventions, reputation, etc.)



Reduce Risk to Residents

Blaine County's Local Emergency Planning Committee:

- A long-term interruption of electrical power to any part of the county is the most serious threat to residents
- Resiliency and reliability of the power delivery service is extremely important
- Not just a North Valley issue; affects all of Blaine County – residents and emergency responders

STEP 4: Cost

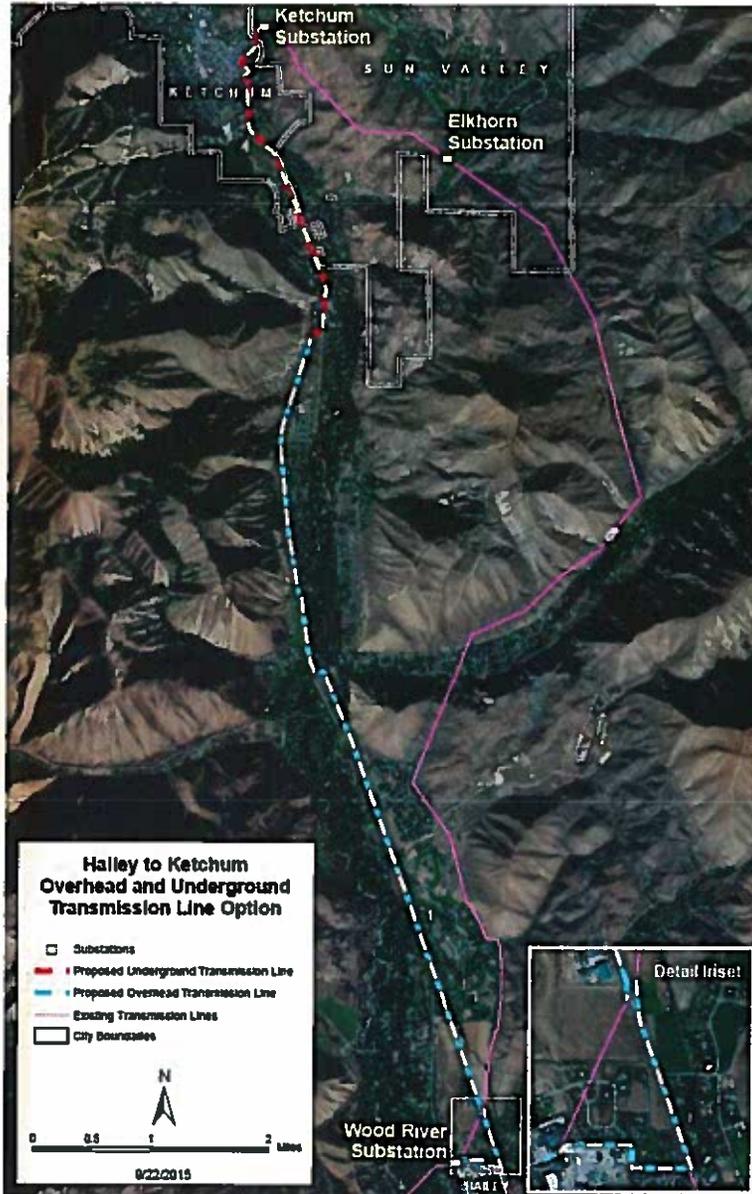
Cost:

- Evaluate Alternatives
- Maintain Low Rates

Community Benefit:

- Reliable service at a low cost





Project Overview

- 12 miles total length:
 - 10 miles in Blaine County
 - 2 miles in Ketchum and Sun Valley
- Where possible, the transmission line will utilize existing Idaho Power lines on replaced poles.



Determining the Base Case

Base Cost Estimate	
	Total Cost Estimate*
Overhead Distribution w/ Substation	\$30.1M

*Based on mid-range costs.

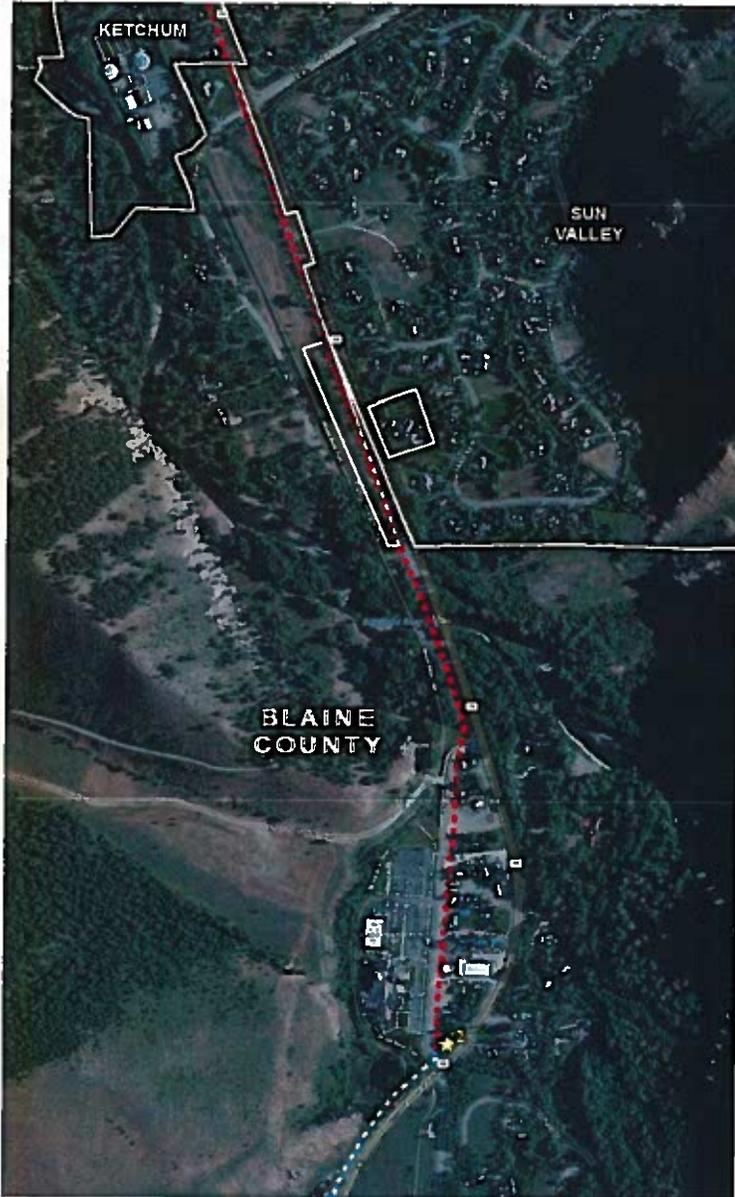
*Estimates are contingent on securing right-of-way and regular construction conditions.



Option 1

Overhead-Underground Transition at Elkhorn Road

Overhead Build	10 miles in Blaine County (167 rebuilt poles, 15 new poles)
Underground Build	0 miles in Blaine County 2 miles in Ketchum and Sun Valley (6 miles of wire conduit, 12 vaults)



Option 2

Overhead-Underground Transition at Hospital Drive

Overhead Build	9 miles in Blaine County <i>(166 rebuilt poles, 3 new poles)</i>
Underground Build	1 mile of trenching in Blaine County <i>(3 miles of wire conduit, 4 vaults)</i> 2 miles in Ketchum and Sun Valley <i>(6 miles of wire conduit, 12 vaults)</i>

Total Project Cost Options

Total Project Costs		
	Total Cost Estimate*	Variance from Base
Base (Overhead)	\$30.1M	--
Opt. 1 – Elkhorn Rd.	\$30.0M	\$0
Opt. 2 – Hospital Dr.	\$32.7M	\$2.6M

* Based on mid-range costs.

* Conceptual level cost estimates.

* Estimates are contingent on securing right-of-way and regular construction conditions.

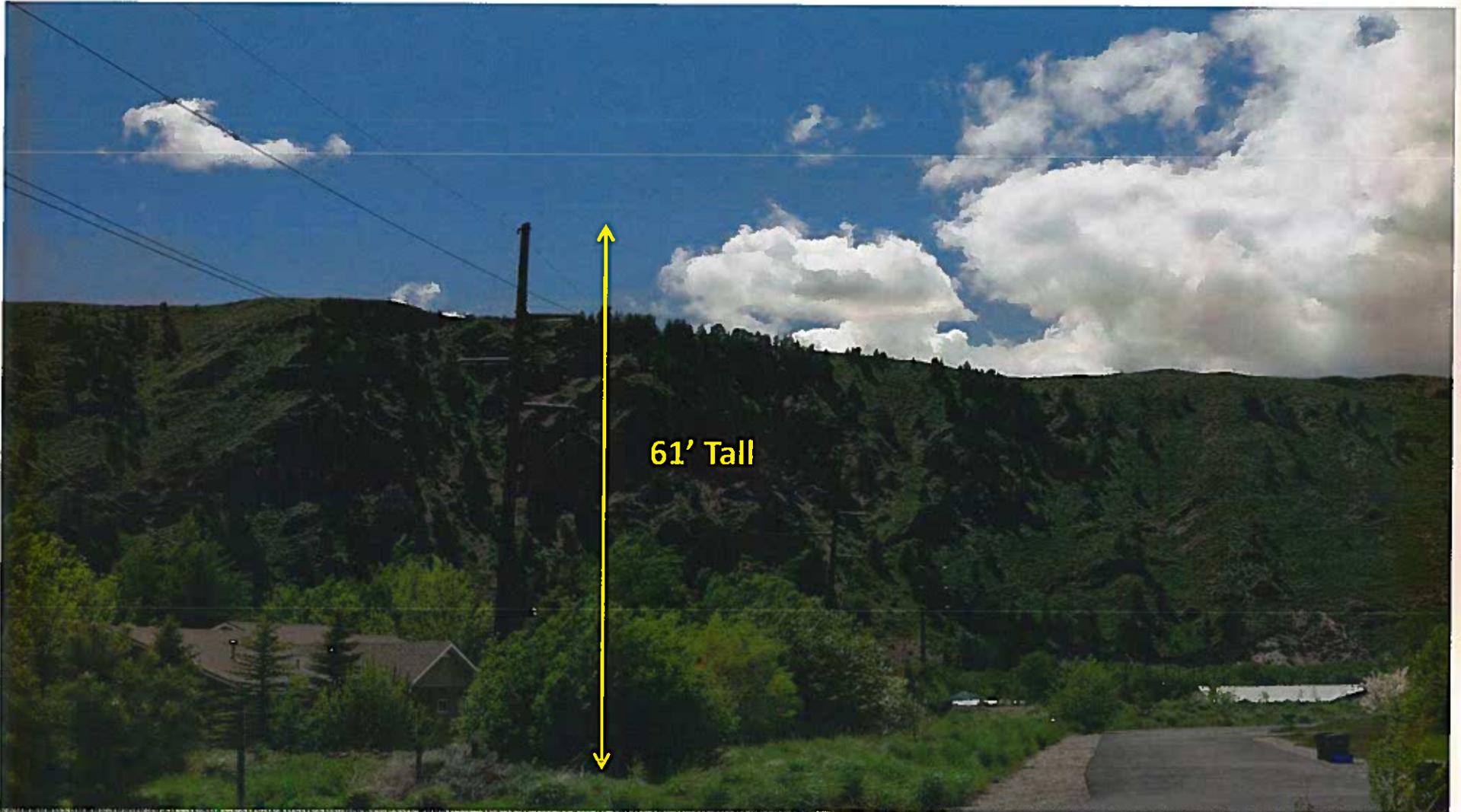
Offered Solution



Offer Options*			
	Variance	Collection Method	Surcharge Rate / Duration
Opt. 1 – Elkhorn Rd.	\$0	N / A	
Opt. 2 – Hospital Dr.	\$2.6M**	Surcharge / Franchise or County General Fund	3.0% (~10 Yrs)

*Costs are contingent on securing right-of-way and regular construction conditions.

**This amount does not include financing charges and administrative costs.

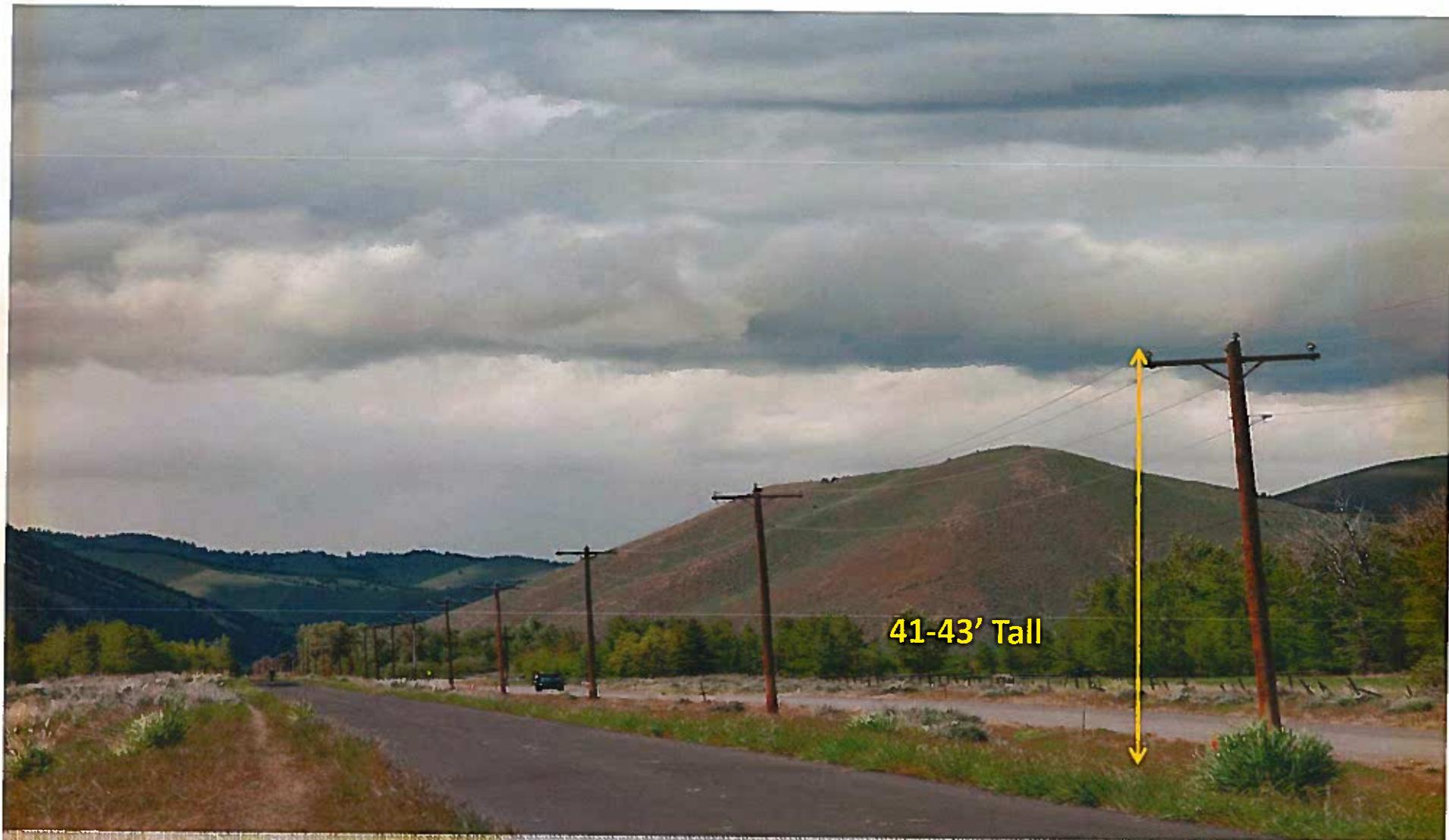


Existing poles with a existing transmission line (through Hailey into substation). Looking west from bike path (Buttercup Rd) toward substation and highway.

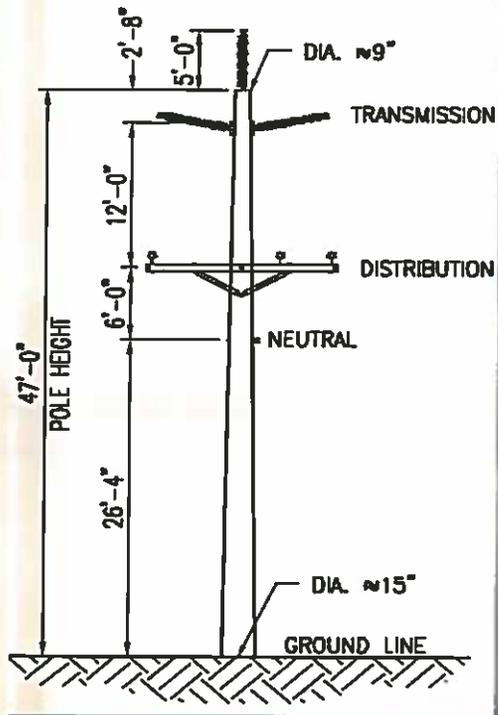


62' Tall

Replacement poles with double-circuit (two: new and existing) transmission lines. Looking west from bike path toward substation and highway.



Existing poles with a distribution line, looking north along bike path near Buttercup Rd.



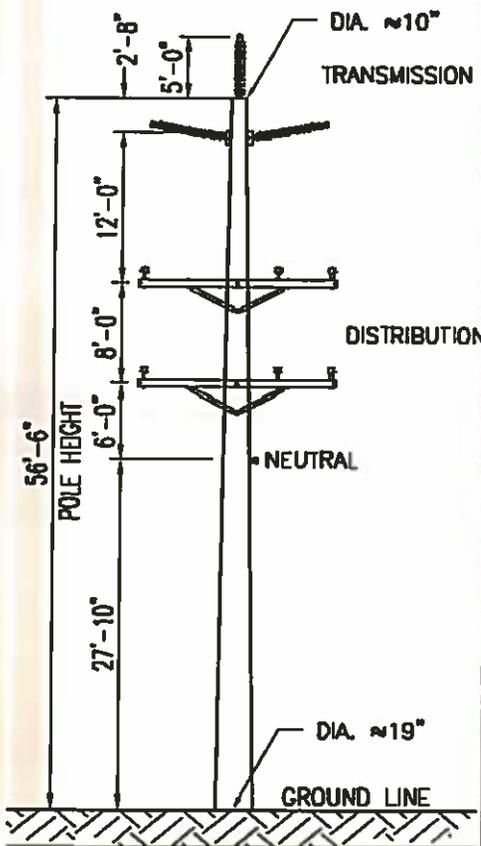
48-52' Tall



**Replacement poles with new transmission line and existing distribution line.
Looking north along bike path near Buttercup Rd.**



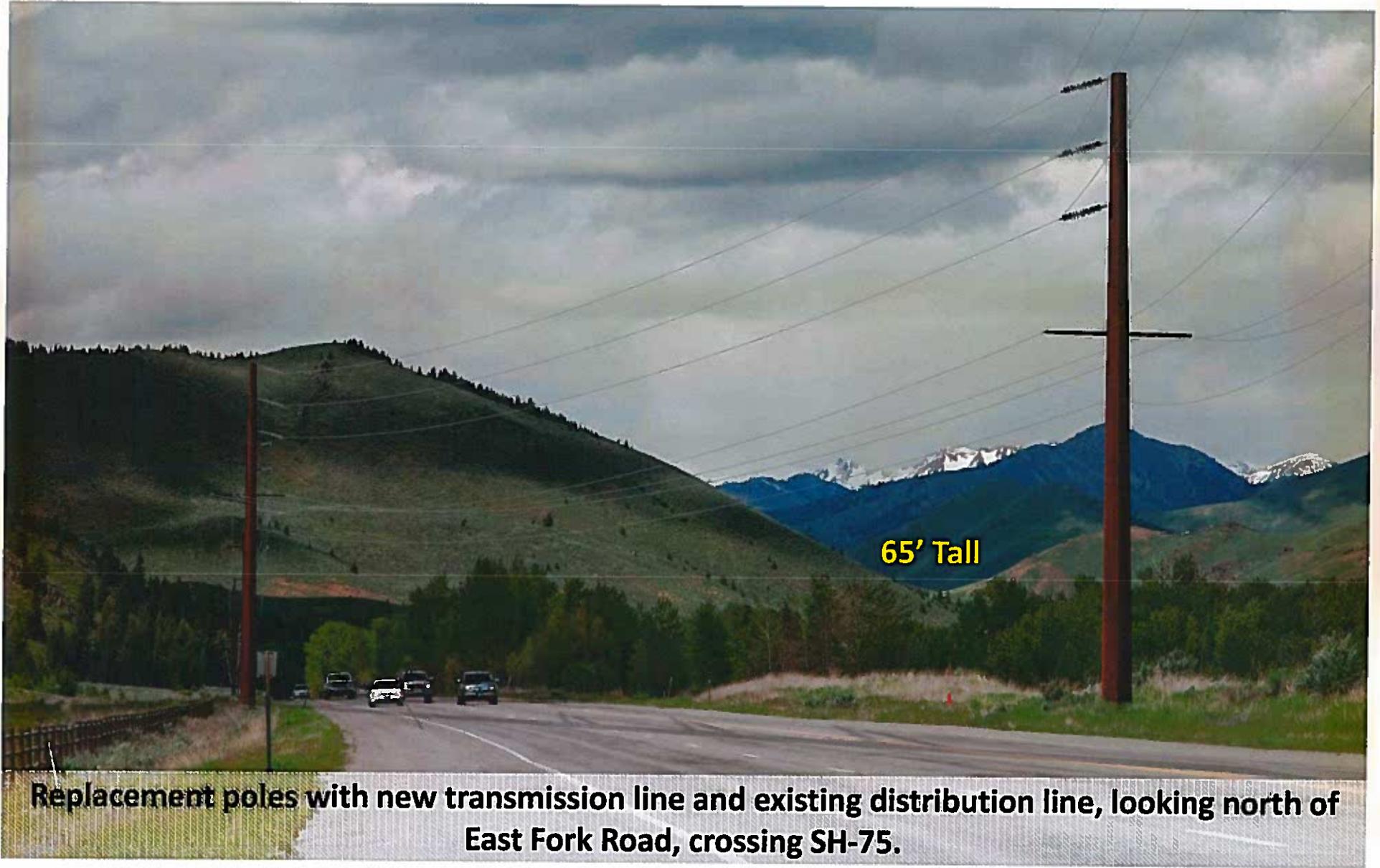
Existing poles with double-circuit (2 lines) distribution, looking north along SH 75 at Ohio Gulch



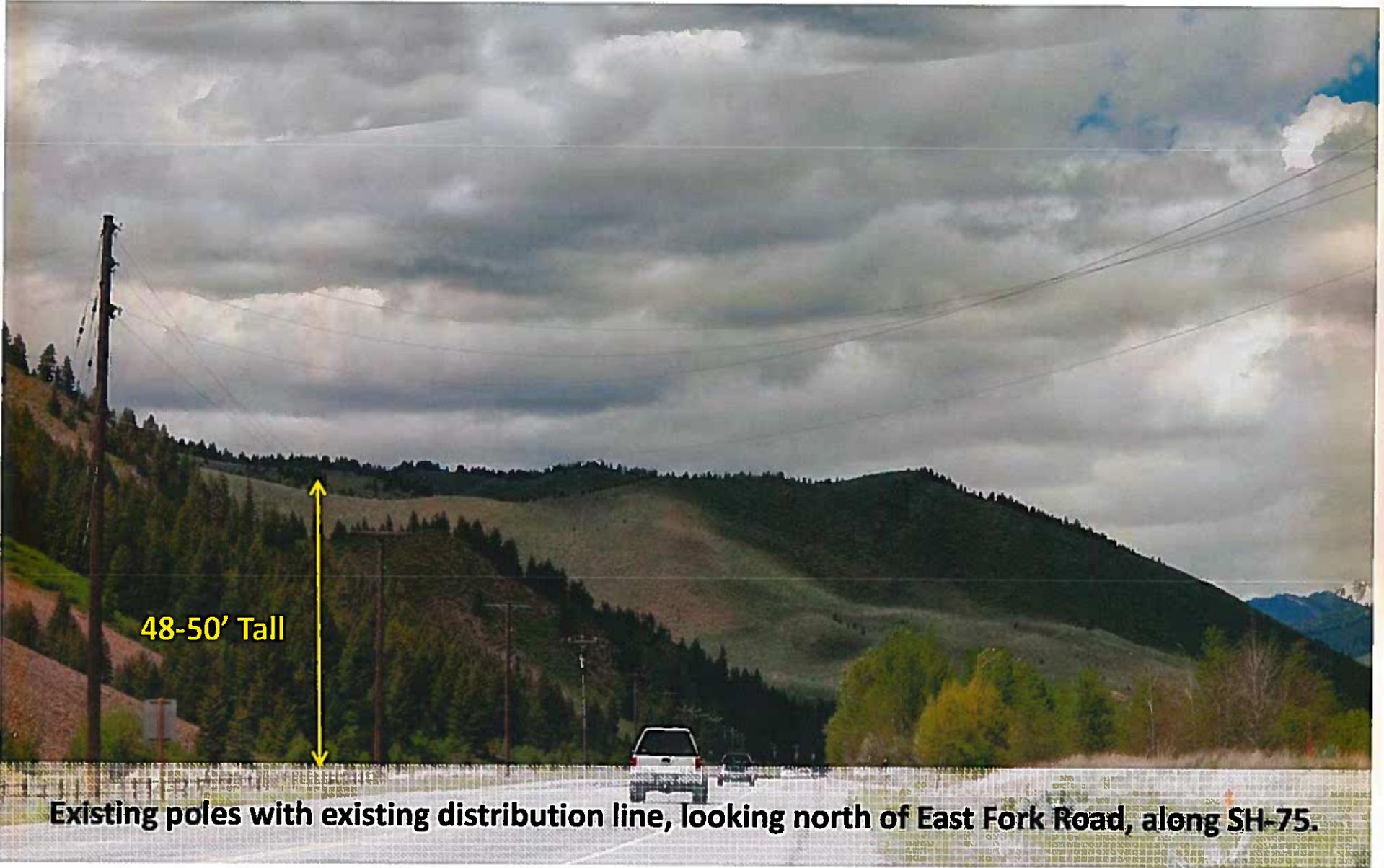
**Replacement poles with new transmission line and existing double-circuit distribution lines.
Looking north along SH 75 at Ohio Gulch**



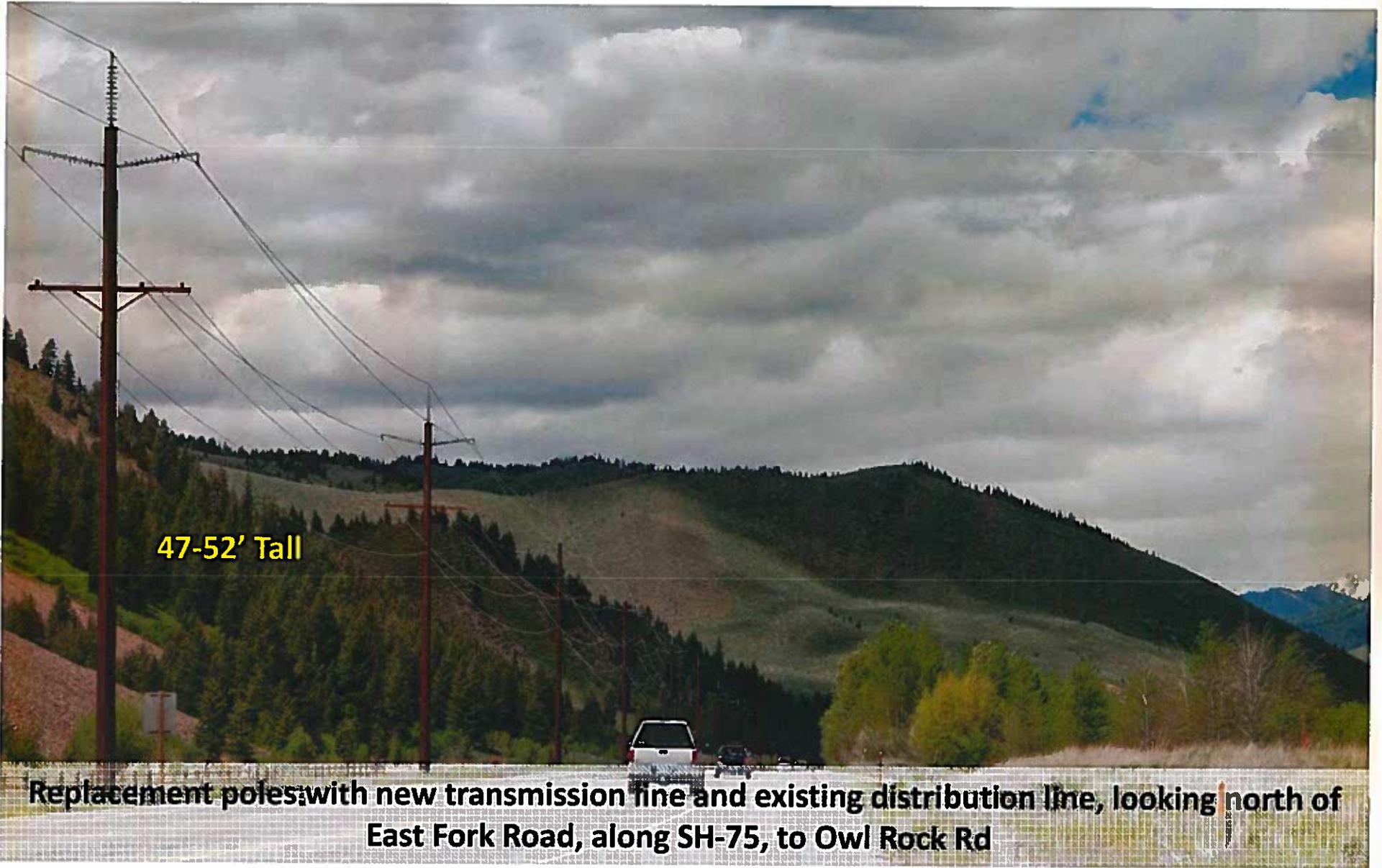
Existing poles with distribution line looking north of East Fork Road, crossing SH-75.



Replacement poles with new transmission line and existing distribution line, looking north of East Fork Road, crossing SH-75.

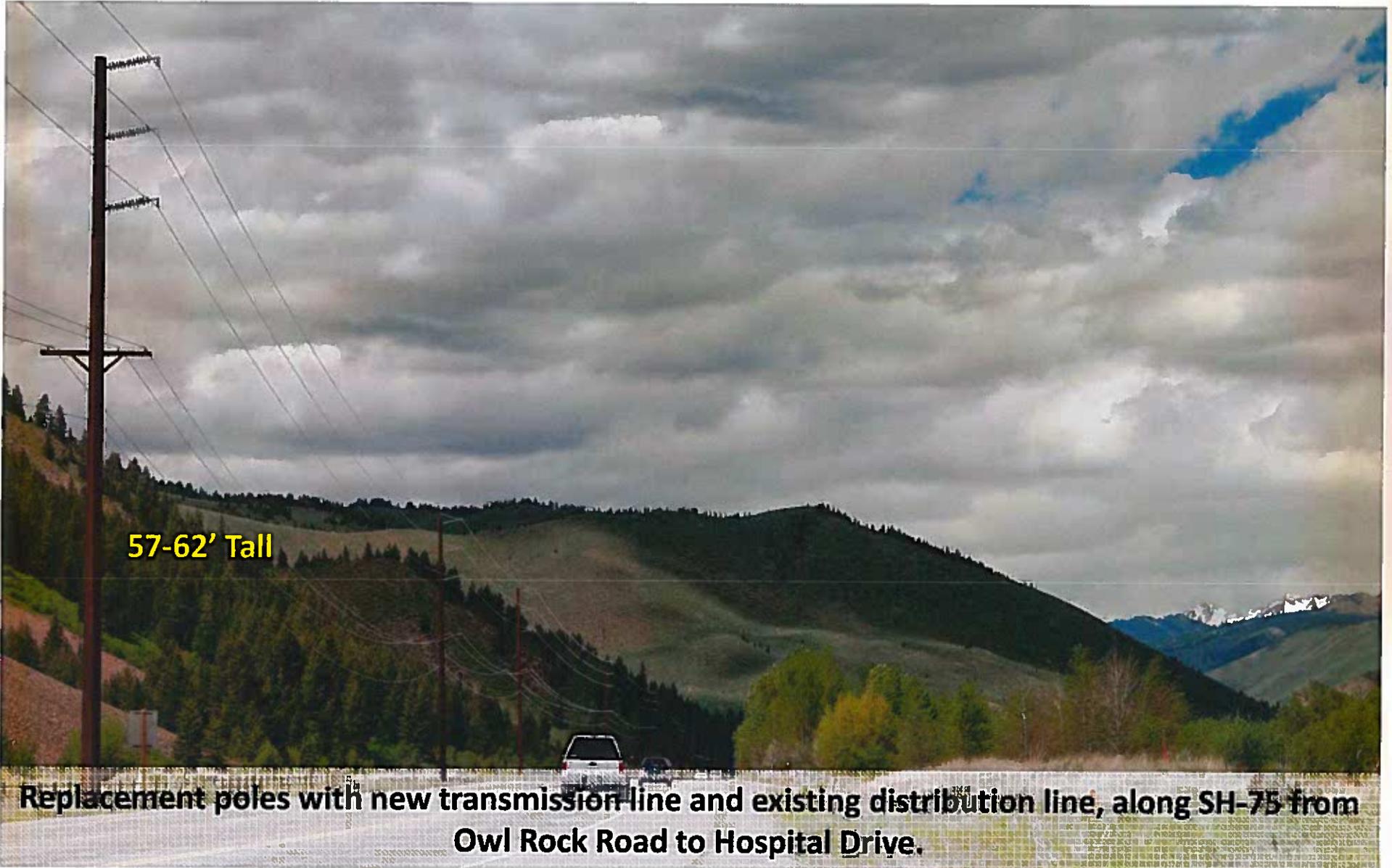


Existing poles with existing distribution line, looking north of East Fork Road, along SH-75.



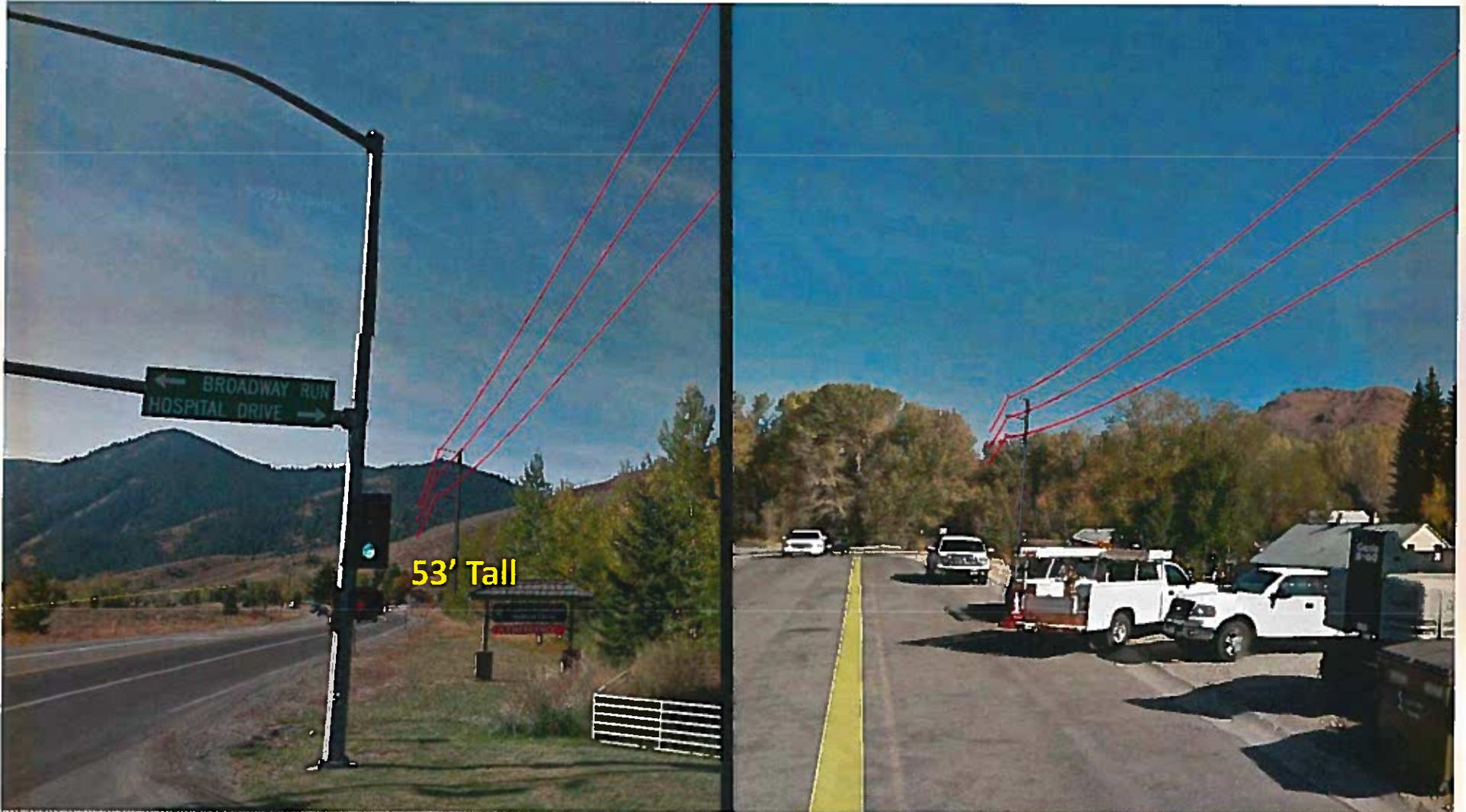
47-52' Tall

Replacement poles with new transmission line and existing distribution line, looking north of East Fork Road, along SH-75, to Owl Rock Rd



57-62' Tall

Replacement poles with new transmission line and existing distribution line, along SH-75 from Owl Rock Road to Hospital Drive.



53' Tall

**New poles with new transmission line along Hospital Drive for Option 1.
Left side looking south | Right side looking north**

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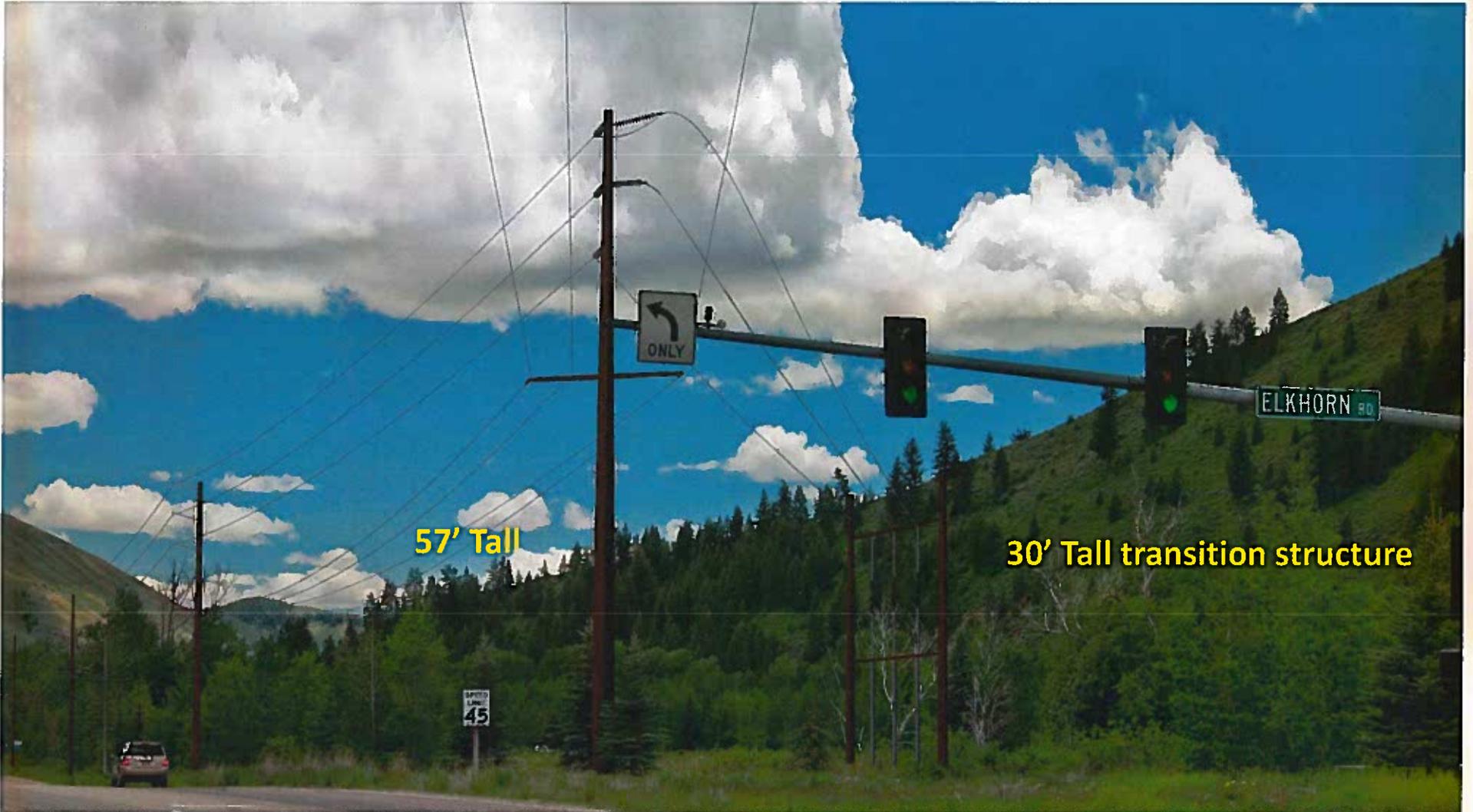


48'-53' Tall

New poles with new transmission line along west side of SH-75 north of Hospital Drive past Big Wood River bridge. (No distribution line)



Existing poles with distribution line, on east side of SH-75, between Big Wood River bridge and Elkhorn Road.



57' Tall

30' Tall transition structure

Replacement poles with new transmission line and existing distribution line (moved from east side of SH-75) on west side of SH-75, between Big Wood River bridge and Elkhorn Road.