

Wood River Valley Reliability



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Current Project Status 01/10/2018

| Project Permitting Timeline | Information | Public Input Opportunity | Expected Completion |
|---|--|--|---|
| Idaho Public Utility Certificate (Idaho PUC) for Public Convenience and Necessity (CPCN) | <p>Idaho Public Utility Commission approved Idaho Power’s request for a CPCN to construct system improvements (the second transmission line between Hailey and Ketchum) for Wood River Valley customers.</p> <p>More information can be found at the PUC website.</p> | <p>Hearings were scheduled, along with extensive public comment opportunities.</p> | <p>Final Order received on 10/12/2017</p> |
| Blaine County Conditional Use Permit (CUP) | <p>Blaine County denied the CUP request to construct, operate, and maintain a second transmission line between Hailey and Ketchum in 2017.</p> <p>At the urging of the Idaho PUC, Idaho Power has resubmitted a CUP application to Blaine County to reconsider the project.</p> <p>More information can be found on Blaine County’s website.</p> | <p>Blaine County allows written comments.</p> <p>A hearing will be scheduled and a date released to the public per their process. We’ll provide that information here.</p> | <p>Spring 2018</p> |
| Other jurisdictional construction permits | <p>Currently, we expect additional construction permits will be required from Ketchum, Sun Valley, and Idaho Transportation Department (ITD).</p> <p>Idaho Power will request encroachment permits, highway crossings, and to work in road rights-of-way.</p> | <p>Ketchum and Sun Valley allow written comments. We’ll provide that information here.</p> | <p>Summer 2018</p> |
| Expected Construction Timeframe | <p>More information to follow once permitting is completed.</p> | | <p>2019-2020</p> |

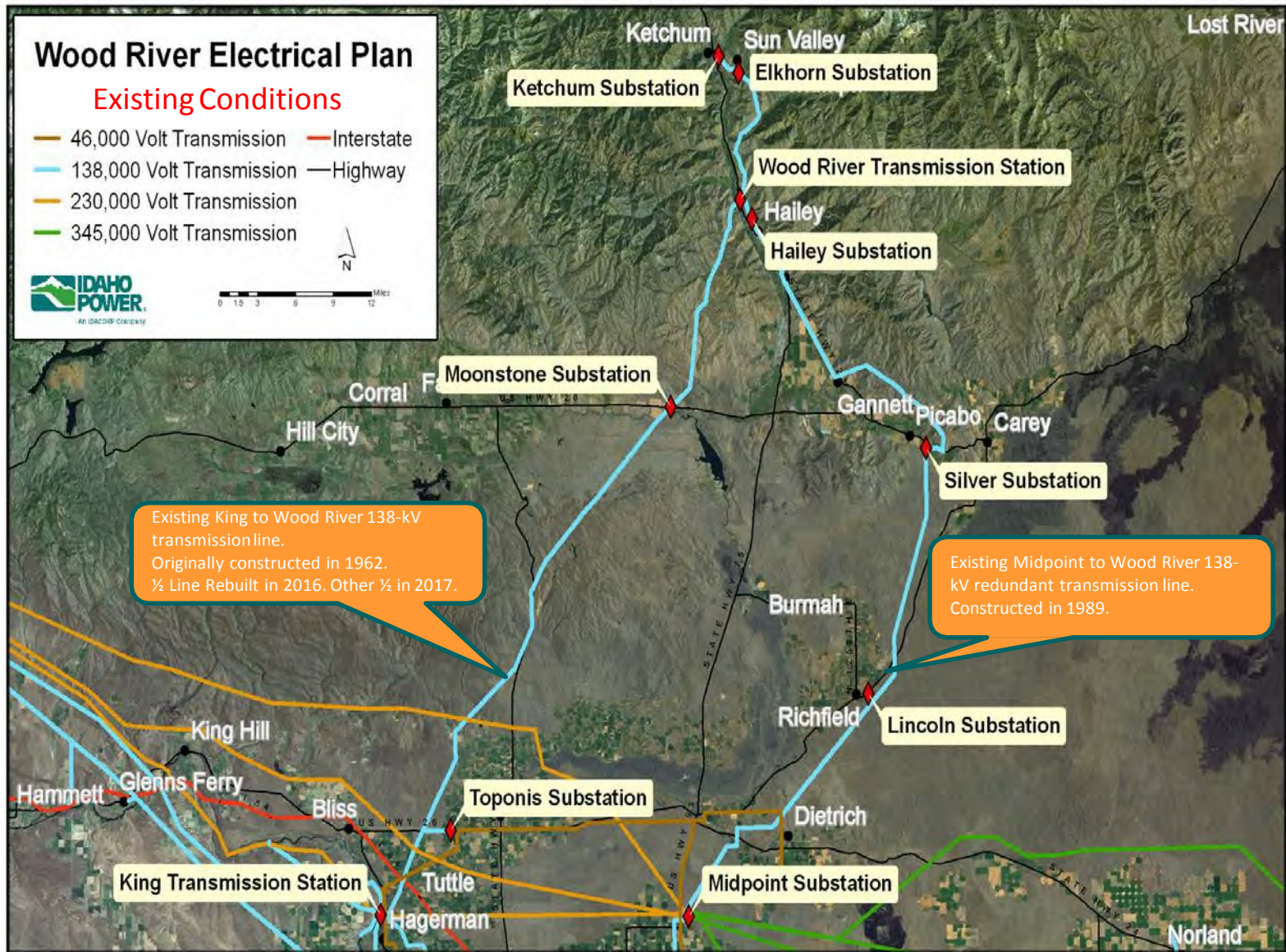
Existing Conditions

- The existing 138-kV transmission line between Hailey and Ketchum was constructed in 1962
 - In spite of the line's good service record, it will need to be replaced
 - Customer outages will be required while rebuilding this line without a redundant system
- The King to Wood River line reconstruction project was completed in December 2017.

Wood River Electrical Plan

Existing Conditions

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

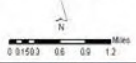


Existing King to Wood River 138-kV transmission line. Originally constructed in 1962. ½ Line Rebuilt in 2016. Other ½ in 2017.

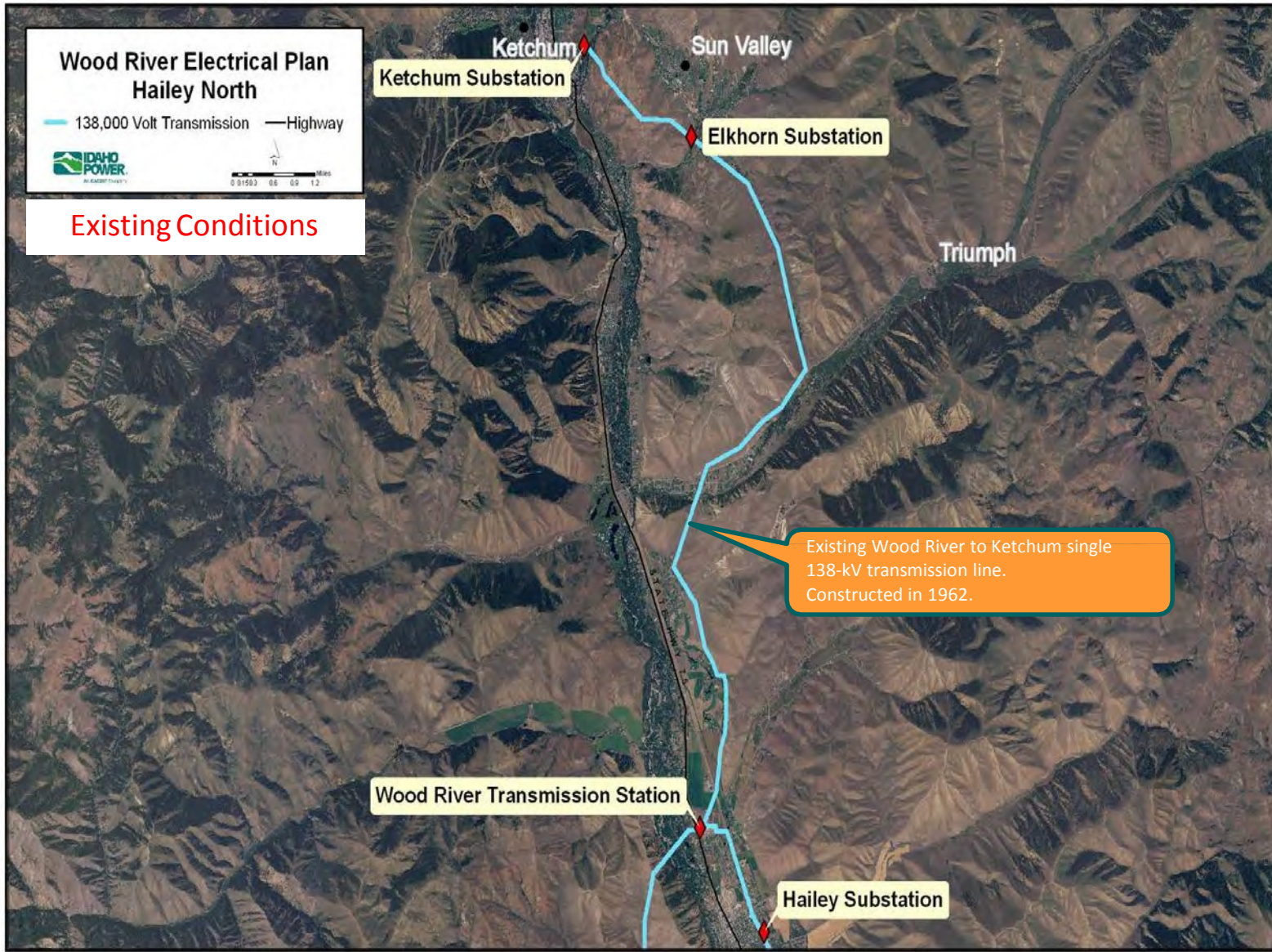
Existing Midpoint to Wood River 138-kV redundant transmission line. Constructed in 1989.

Wood River Electrical Plan Hailey North

— 138,000 Volt Transmission — Highway



Existing Conditions



Existing Wood River to Ketchum single 138-kV transmission line. Constructed in 1962.

Wood River Transmission Station

Hailey Substation

Ketchum Substation

Sun Valley

Elkhorn Substation

Triumph

Ketchum

Wood River Electrical Plan

- The Wood River Electrical Plan (the Plan or WREP) was developed in 2006 and 2007 through a collaborative process involving Idaho Power and a local Community Advisory Committee (CAC).
- The purpose of the Plan was to identify a community-based plan of the electrical system improvements to meet the Wood River Valley's long term electrical need.

WREP Goals

- **Reliable Power:**

- Provide redundant transmission facilities throughout the Wood River Valley.
- Provide sufficient reliable quality power necessary to support the customer needs in the Valley.

- **New Infrastructure Design:**

- Optimize the use of existing infrastructure; increase use or upgrade as feasible.
- Implement feasible infrastructure alternatives to new transmission or to provide redundancy.
- Identify a utility alternative and renewable sources of power that minimize the need for new transmission or delivery infrastructure.
- Plan and implement infrastructure improvements that integrate with future system development.
- Explore and implement new power system technologies as feasible and appropriate.

- **Energy Conservation:**

- Implement feasible “Demand Side Management” programs that reduce power demand.
- Optimize the use of existing energy efficiency programs as feasible to reduce power demand.
- Develop new energy efficiency programs with education, as supported by Valley residents.

WREP Goals

- **Environment:**

- Utilize existing and shared utility and transportation corridors where feasible.
- Site new corridors that have minimal to no impact on the environment.
- Preserve the Wood River Valley's aesthetic and scenic qualities.

- **Political Support:**

- Address individual and collective political concerns for design, operation, siting, and funding.
- Integrate WREP recommendations into local land use plans; comply with local plans if possible.
- Identify solutions that are least obtrusive and objectionable.

- **Cost Effectiveness:**

- Implement solutions that are affordable to construct, operate, and maintain.
- Cause minimal to no rate increases to support new infrastructure/system improvements.
- Minimize local public or private funding participation to support new or upgraded infrastructure.
- Implement solutions that have available public or private funding where required.

WREP Siting Criteria

- **Wood River Substation North**

- Provide both redundancy and capacity to meet electrical needs north of the WRSS.
- Do not use the existing 138-kv transmission corridor without new technology to avoid new impacts.
- Preserve the scenic corridor.
- Maintain the ordinance setbacks from residences, when using overhead transmission lines (in County jurisdiction).
- Conform to existing hillside ordinances.
- Install underground electricity where the necessary funding is available.

- **Wood River Substation South**

- Provide electrical infrastructure and systems that meet Lincoln Camas Cos. electrical needs.
- Improve structures and transmission lines in Lincoln and Camas Cos. as needed to accommodate future growth.
- Maintain scenic corridors.
- Cause no environmental impact to wetlands and habitat.
- Use existing corridors and transmission equipment where possible.
- The use of overhead lines and infrastructure is acceptable, until the affected community can afford to fund a different proposal.
- Maintain or reduce pole size in Bellevue.

Community Advisory Committee

- The CAC was made up of customers (businesses and residents), local elected officials, stakeholders, and advocacy groups.
- **2007:** CAC and Idaho Power recommend moving forward with second line for serving northern Blaine County for reliability and resiliency.
- **2011-12:** CAC refined the Plan through 2012 based on stakeholder and public input from 40 presentations, 17 jurisdiction meetings and four open house / public presentations.
- **2014:** Idaho Power reconvened the CAC and reviewed additional options, files for conditional use permits (see slide 12)
- **2015-17:** Idaho Power collaborated with CAC on permitting efforts.

CAC 2014 Recommendation

The need is to improve reliability and reduce outage risk, by...

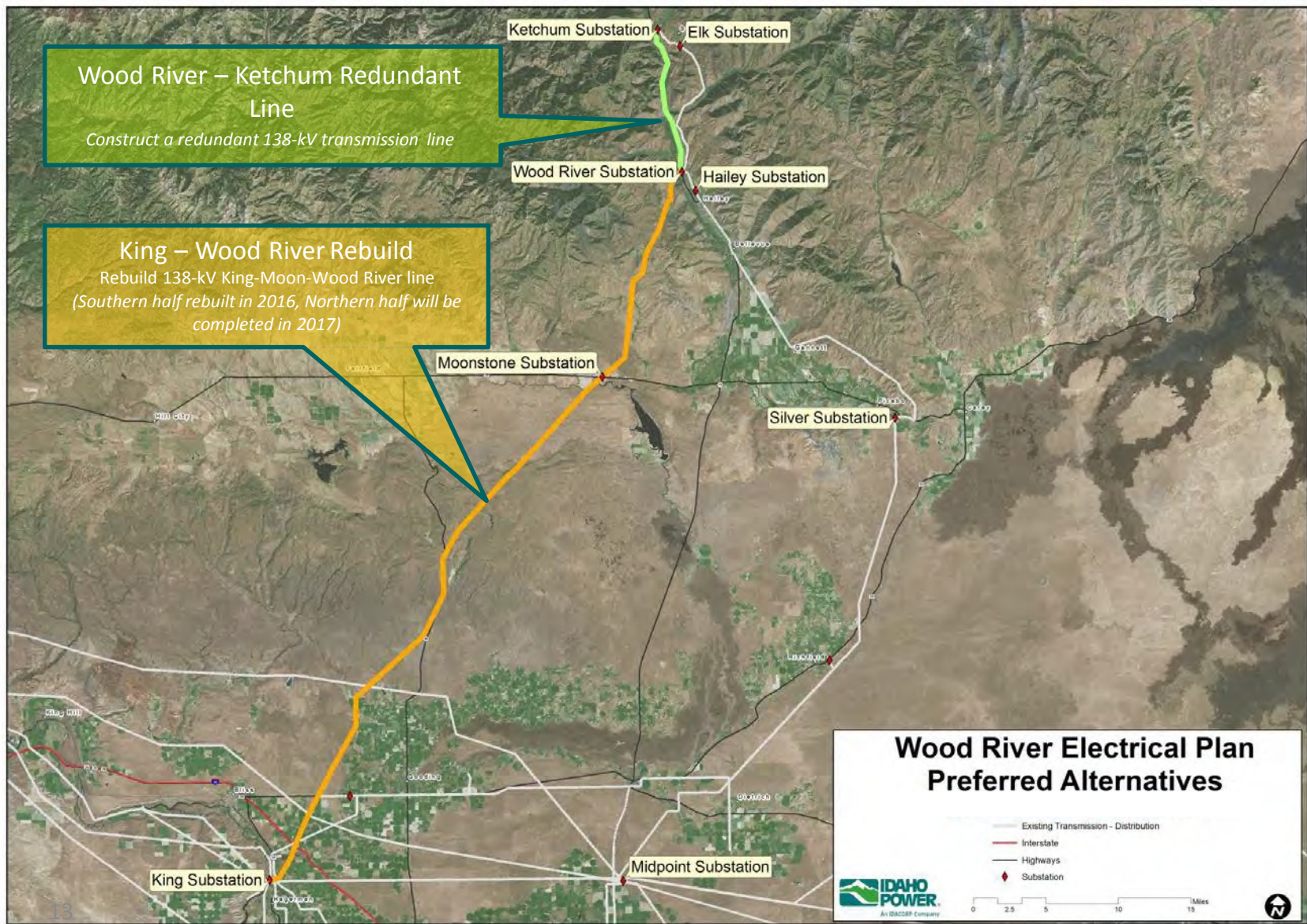
- Strengthening the two existing 138-kV lines south of Hailey.
 - Rebuild the existing King to Wood River transmission line.
- Add redundant power service between Hailey and Ketchum.
 - Retain the existing transmission line.
 - Locate a redundant line on a separate route from the existing line.
 - Combine a new overhead transmission line with existing distribution lines on new steel poles along the highway between Hailey and the SH 75/Hospital Dr. area (results in a single line of poles).
 - Minimize pole height as much as possible.
 - Provide an underground solution around the SH 75/Hospital Dr. intersection area and the Ketchum substation that responds to local aesthetic concerns.

Wood River – Ketchum Redundant Line

Construct a redundant 138-kV transmission line

King – Wood River Rebuild

Rebuild 138-kV King-Moon-Wood River line
(Southern half rebuilt in 2016, Northern half will be completed in 2017)



Wood River Electrical Plan Preferred Alternatives

Legend:

- Existing Transmission - Distribution
- Interstate
- Highways
- Substation

IDAHO POWER
An BGE Group Company

0 2.5 5 10 15 Miles

What Else 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 their input, updated Idaho Power's Green Power Program.

- **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:** Updated storage and generation cost estimates with input from INL.

Hailey – Ketchum 138kV Line

- Construct a second 138-kV transmission line from Wood River Transmission Station (north of Hailey) to the Ketchum Substation (Sun Valley).
- We can provide resilient electrical service to customers from East Fork Road to Galena Summit.

Overhead section

- A new overhead 138-kV line would be constructed along the CAC-identified route from Wood River substation to the area north of St. Luke's Medical Center.
- The existing distribution poles would be replaced with new steel poles in the same location with existing distribution lines underneath the new transmission line.

Underground section

- Construct an underground 138-kV transmission line starting at Elkhorn Road.
- The route would follow SH 75 into Ketchum, through Ketchum and Sun Valley.
- Idaho Power would work with the Ketchum, Sun Valley, and ITD on a feasible route.

Benefits to Customers

Blaine County's Local Emergency Planning Committee:

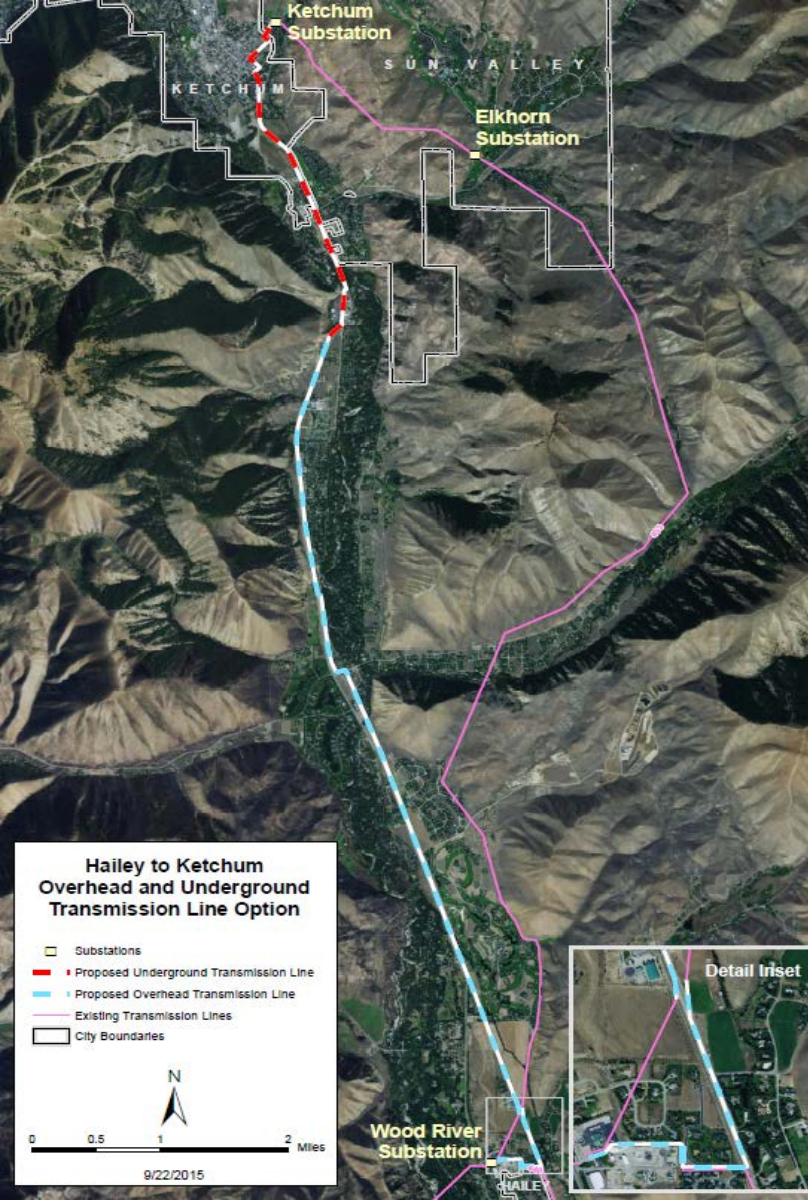
- A long-term interruption of electrical power to any part of the county is the most serious threat to residents.
- Resiliency and reliability of the power delivery service is extremely important.
- Not just a North Valley issue; affects all of Blaine County – residents and emergency responders.

Project Overview

Approx. 11 miles total length:

- 9.2 miles in Blaine County
- 2 miles in Ketchum and Sun Valley

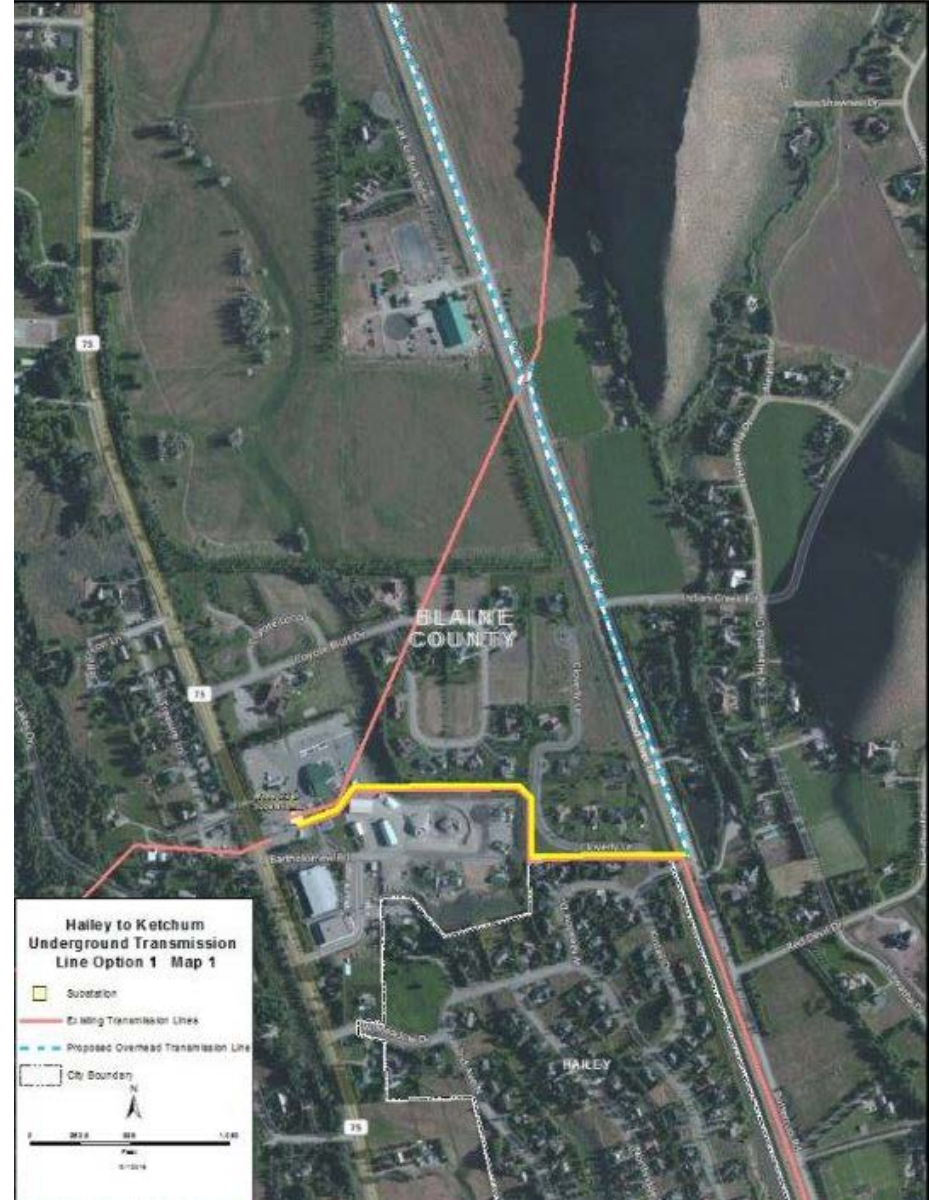
The transmission line will utilize existing power line alignment on replaced poles.



Segment 1

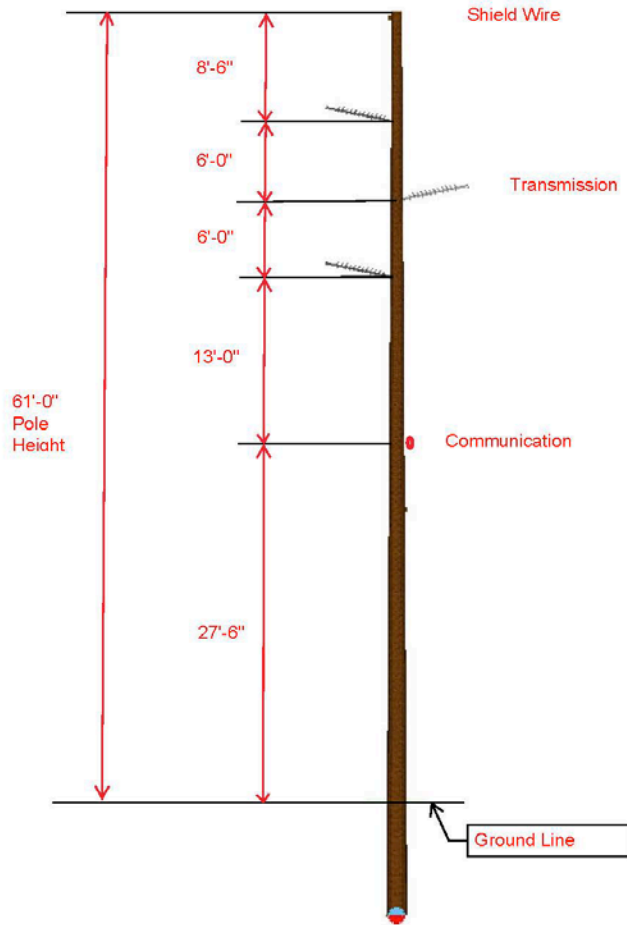
Wood River Station to Buttercup Road

- ✓ 0.5 mile, 8 replaced poles
- ✓ Rebuild single-circuit transmission to double-circuit transmission
- ✓ No change in pole height, adds 3 wires on poles

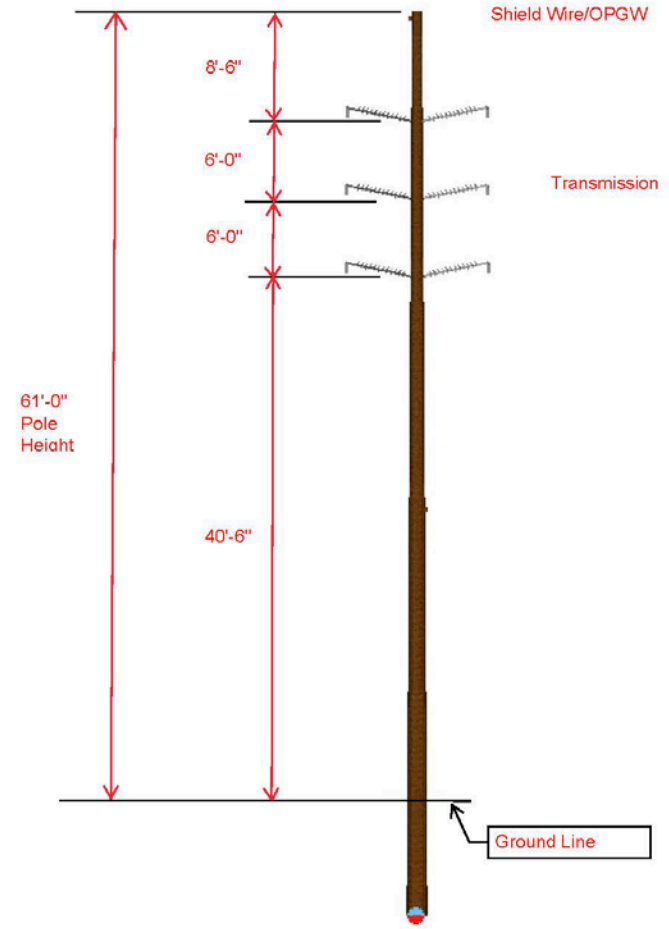


Segment 1 Pole (existing and proposed)

Existing TVS structure with shield wire



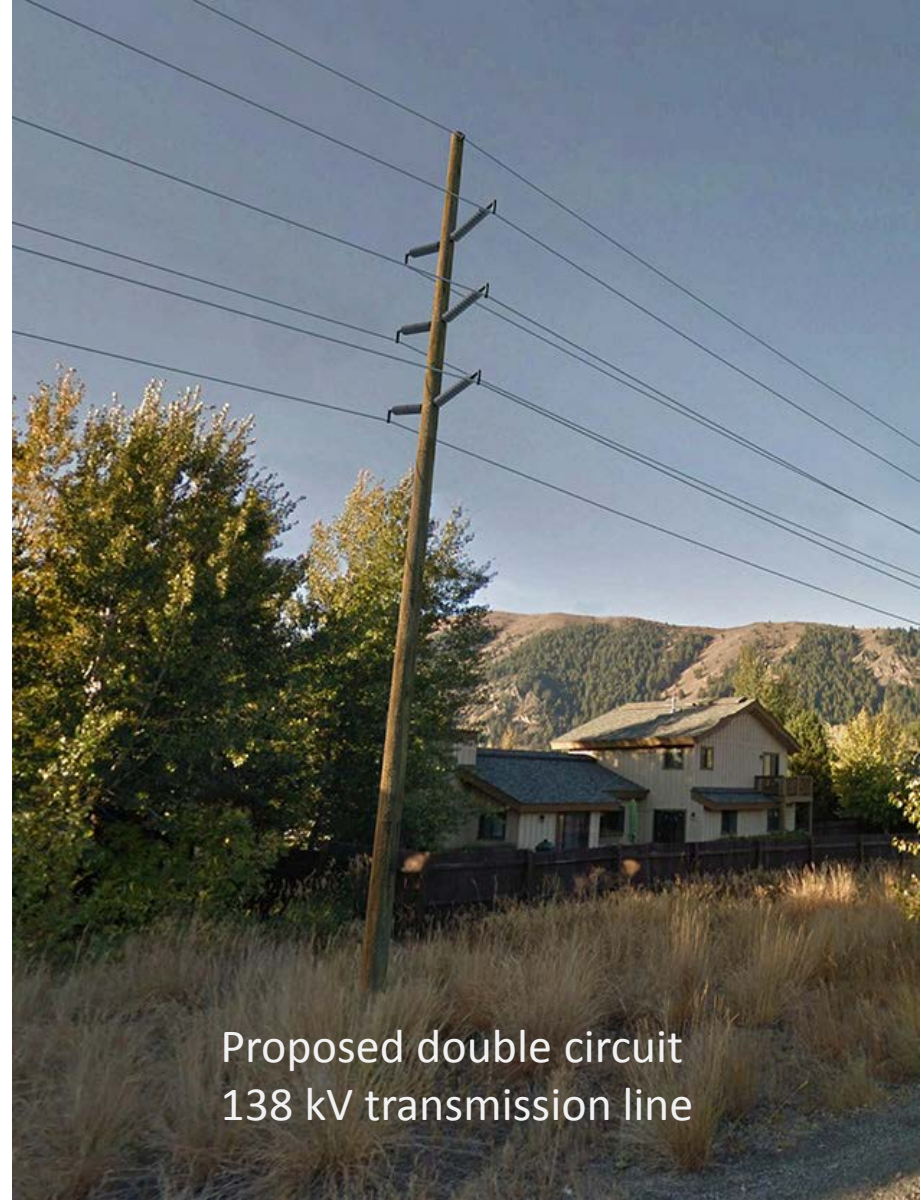
Double Circuit TVS structure with OPGW as shield wire



Measurements are accurate, images are not drawn to scale



Existing single circuit
138 kV transmission line



Proposed double circuit
138 kV transmission line

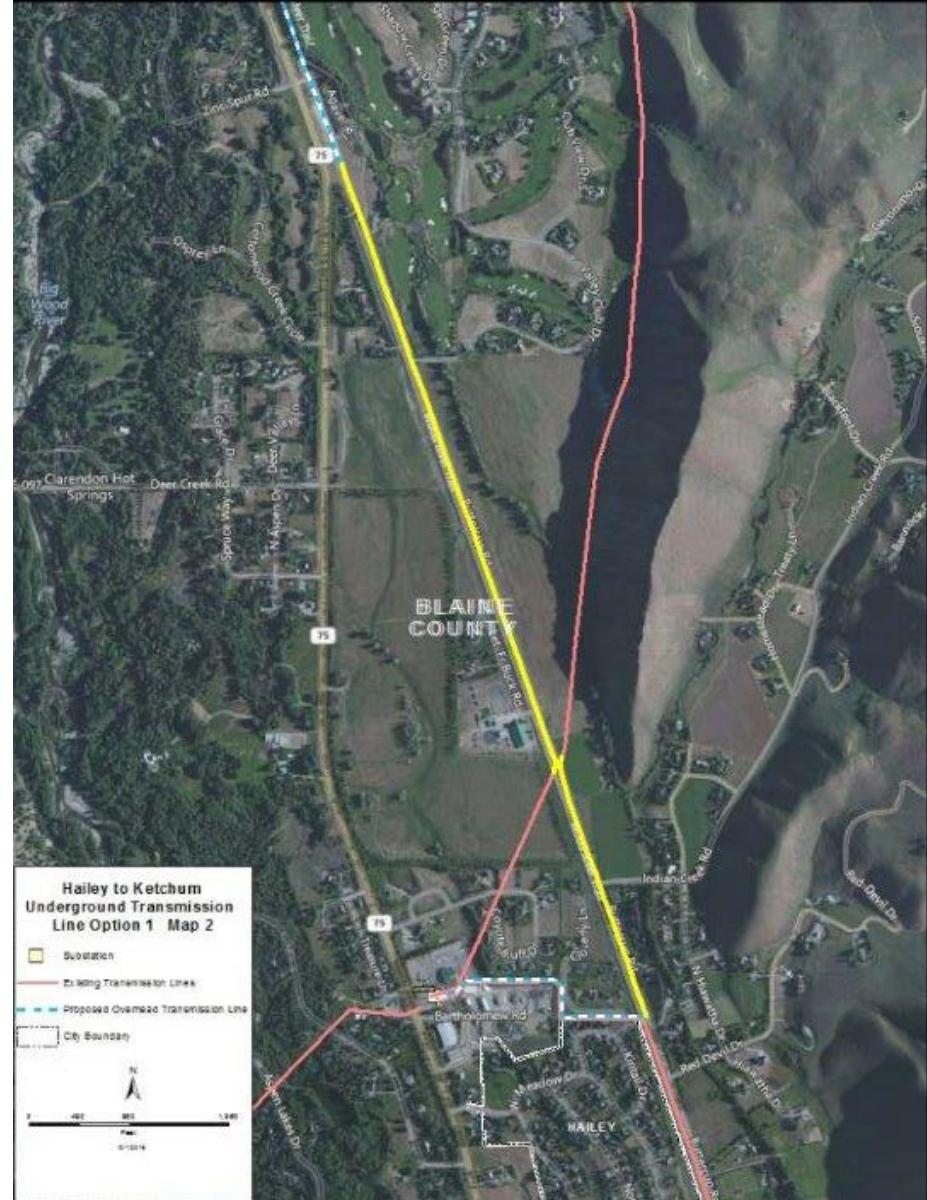
Segment 2

Buttercup Road, West Meadow Drive
to Hwy-75

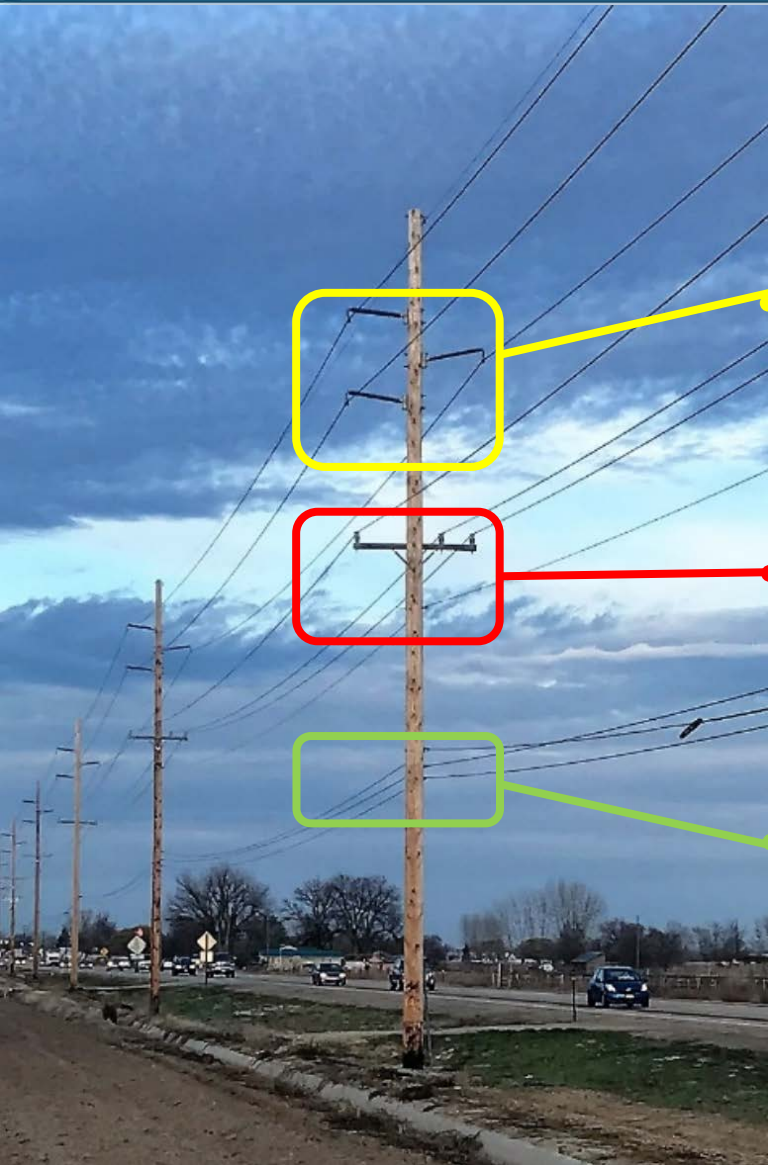
✓ 1.6 miles, 34 replaced poles

✓ Rebuild along existing distribution
(local service) line route

✓ Approximately 9 feet height
increase.



How the Electrical Grid Works



Transmission (Interstate Highway)

- Moving electricity over the grid between substations or from generation sources

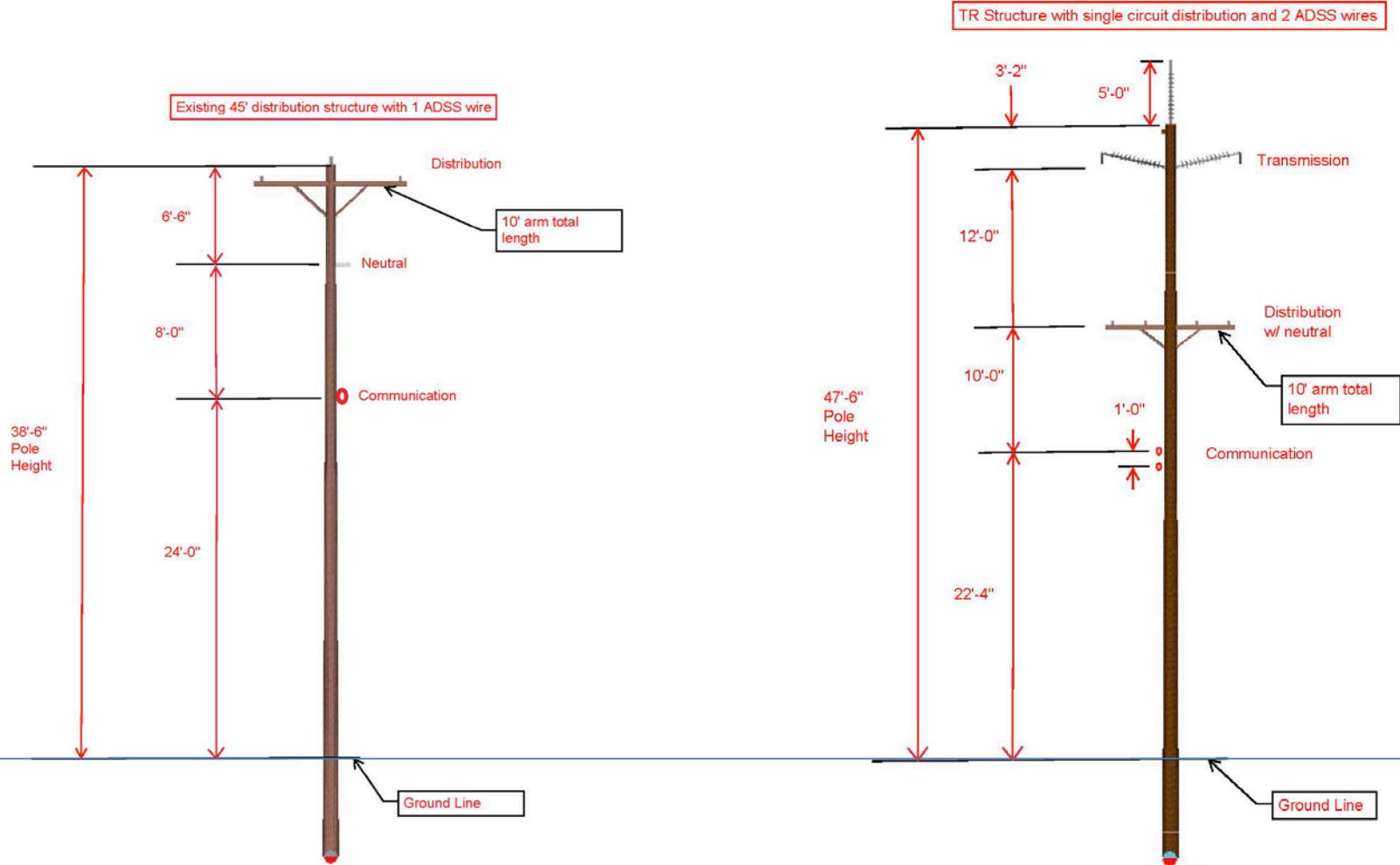
Distribution (Local Roads)

- Delivering electricity to customers from the substation

Other Utilities

- We share our poles with other utility providers (cable, phone, fiber)

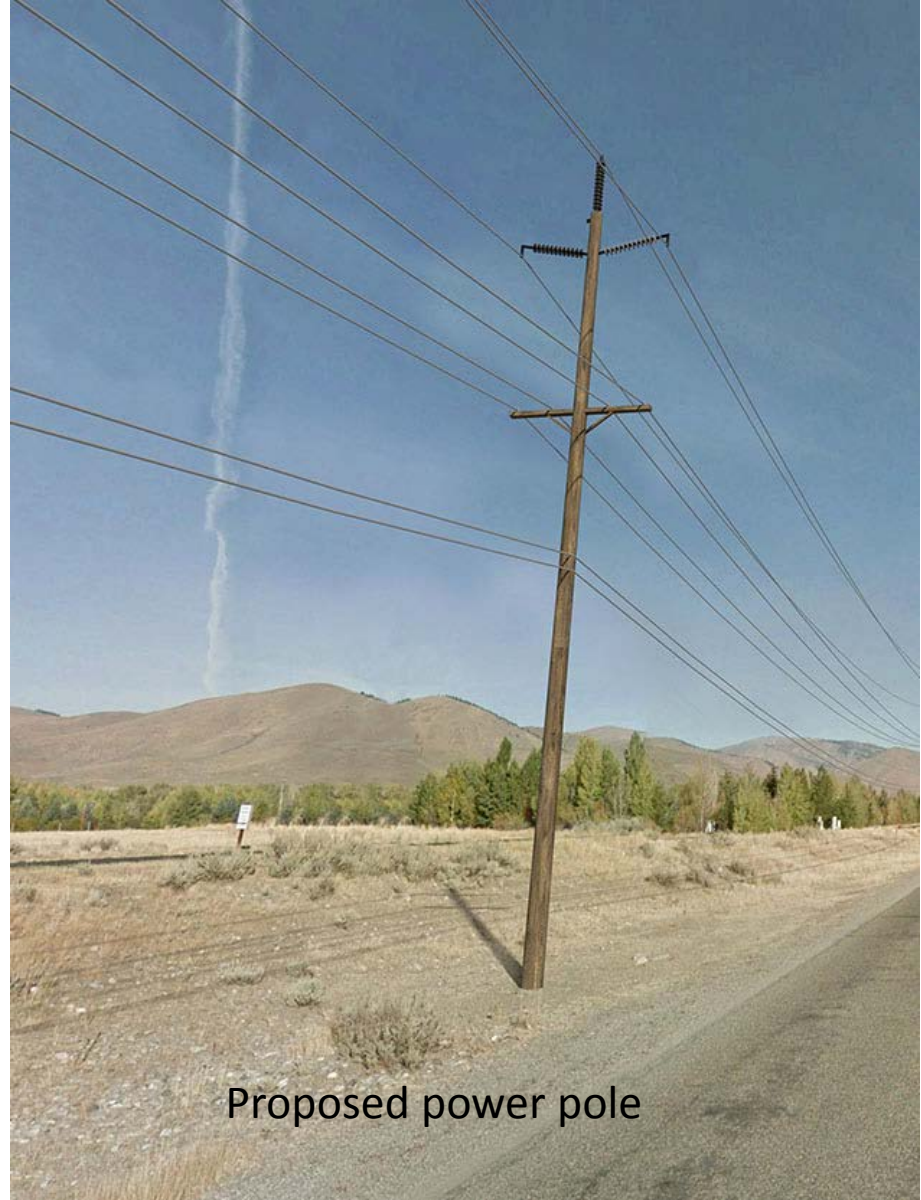
Segment 2 Pole (existing and proposed)



Measurements are accurate, images are not drawn to scale



Existing power pole



Proposed power pole

Segment 3

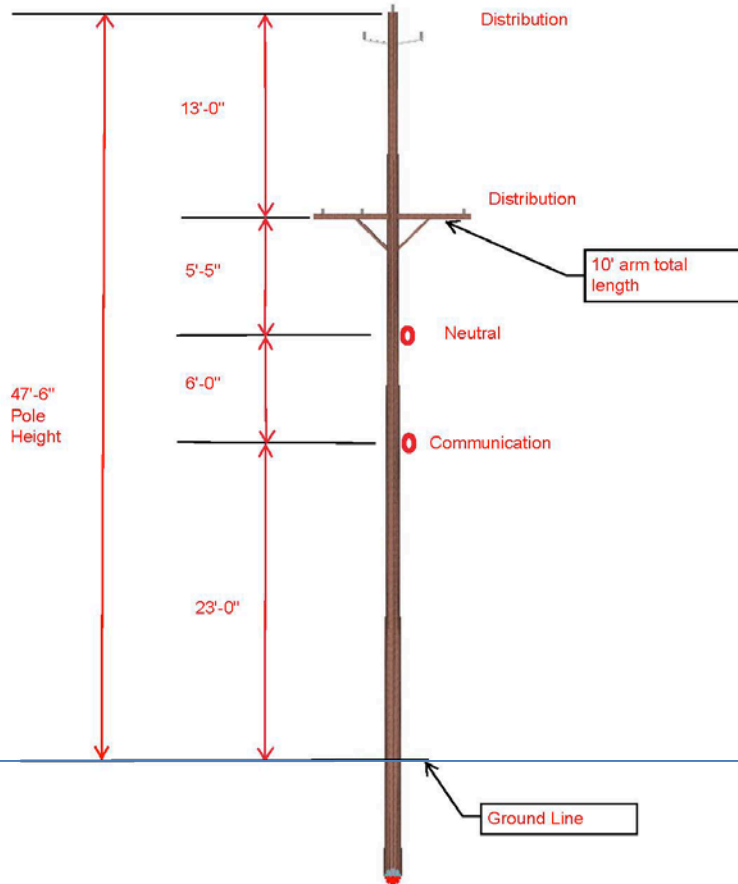
Buttercup Road, along Hwy-75, to
East Fork Road

- ✓ 2.9 miles, 56 replaced poles
- ✓ Rebuild along existing double – circuit distribution line route
- ✓ Approximately 4.5 feet height increase.

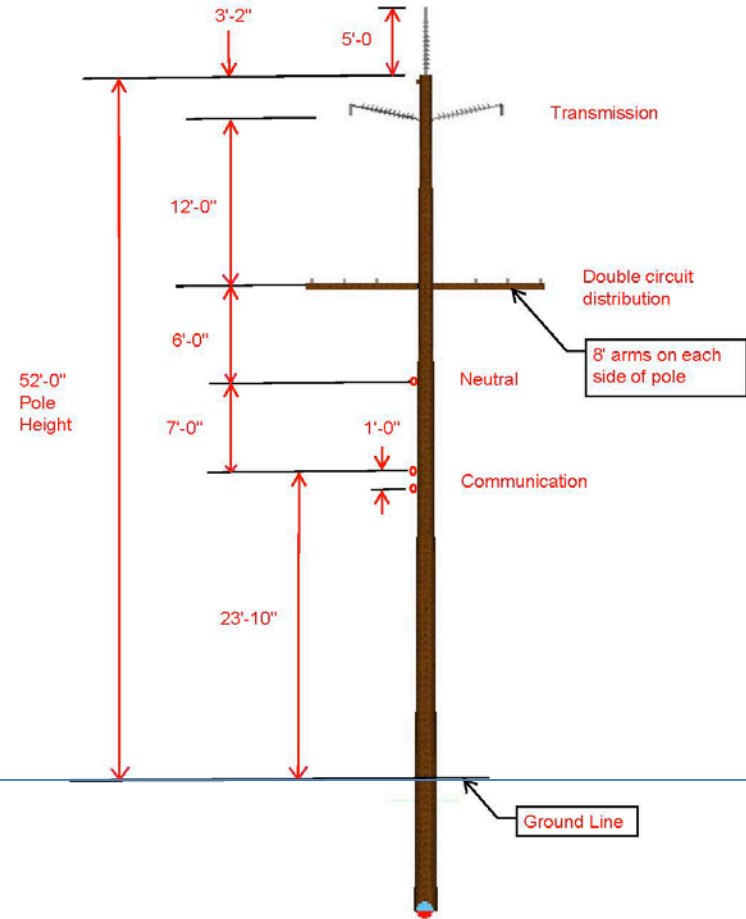


Segment 3 Pole (existing and proposed)

Existing 55' double circuit distribution structure with 1 ADSS wire



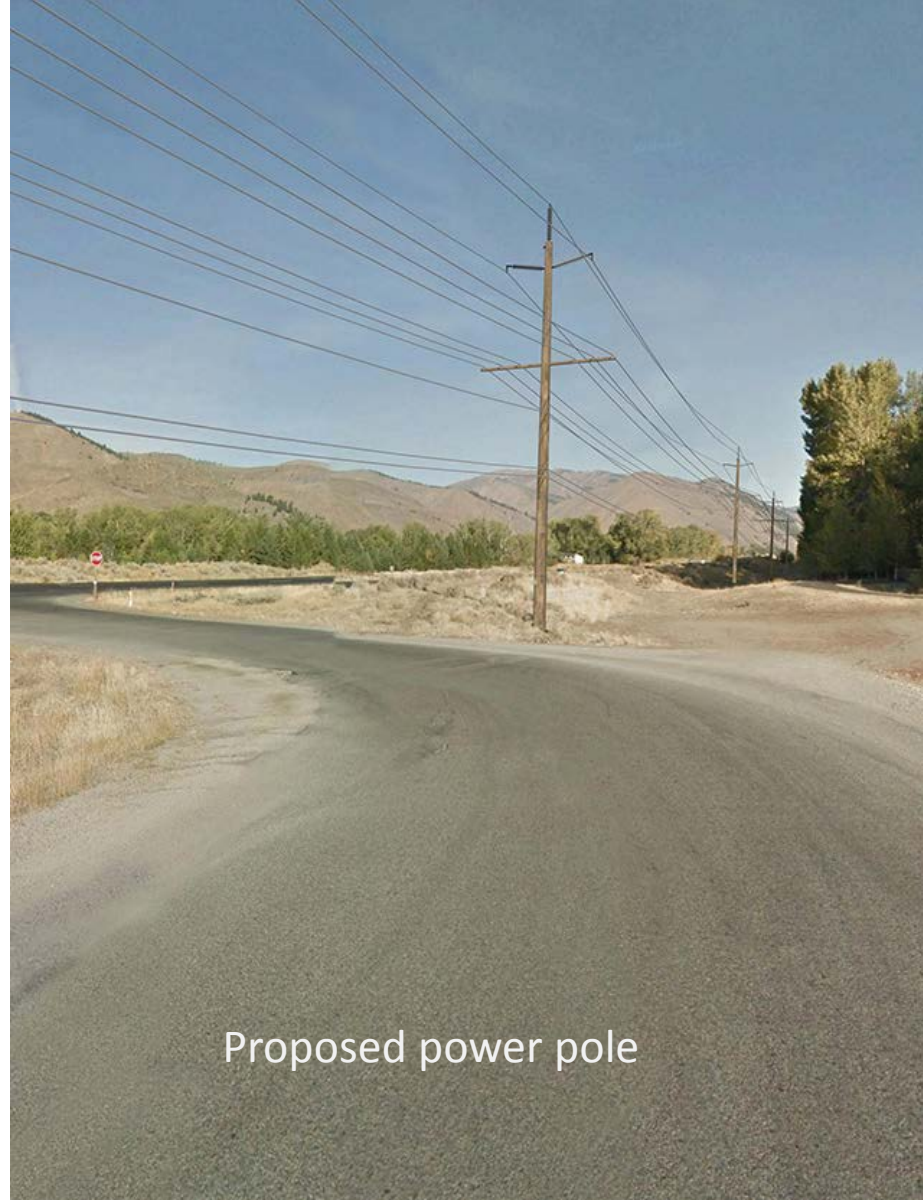
TR Structure with double circuit distribution and 2 ADSS



Measurements are accurate, images are not drawn to scale



Existing power pole

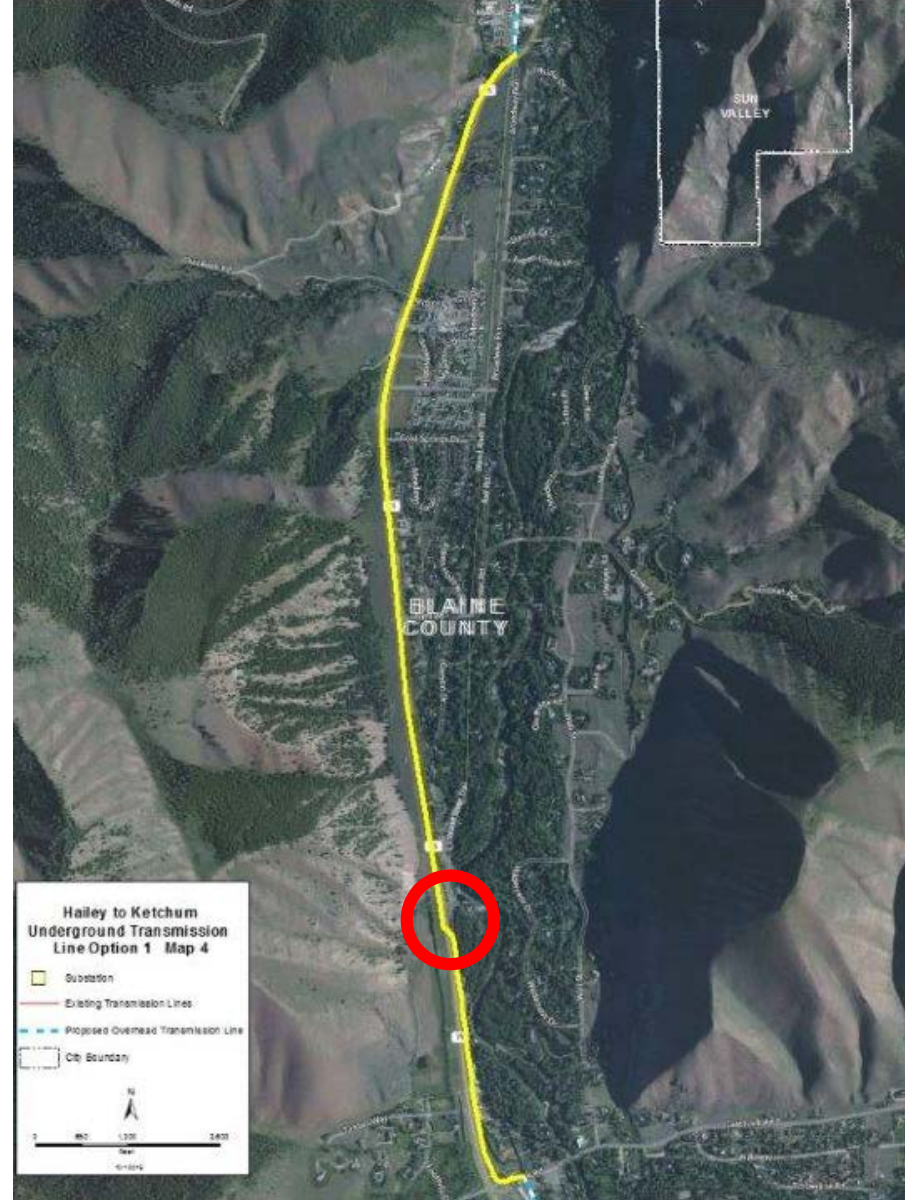


Proposed power pole

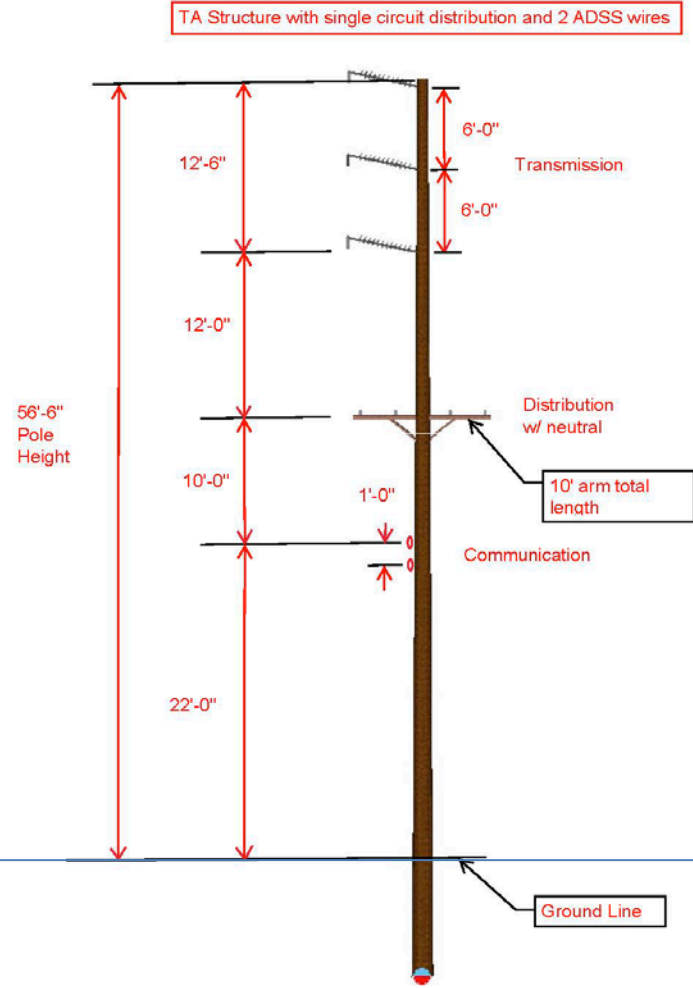
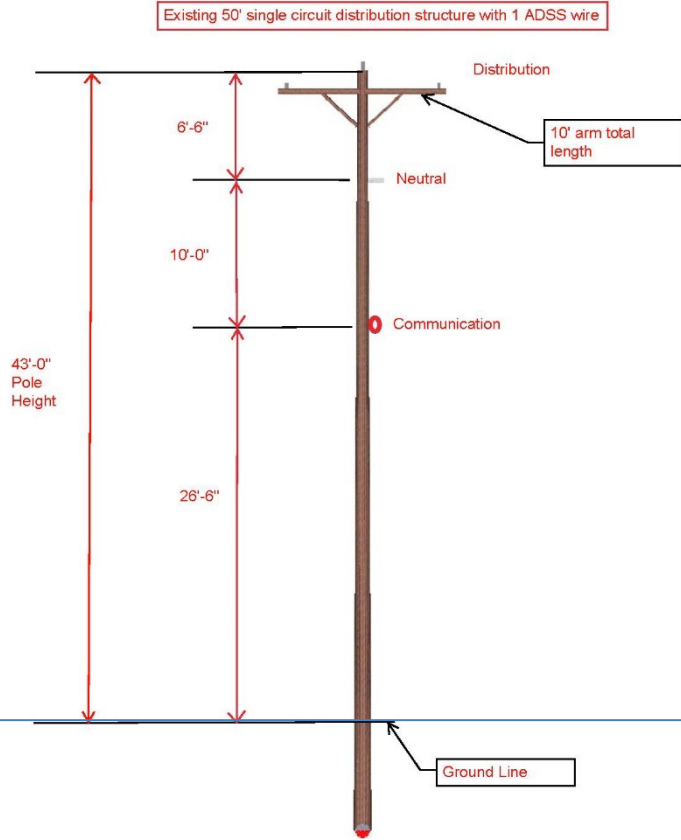
Segment 4

East Fork Road to Hospital Drive

- ✓ 3.2 miles, 64 replaced poles
- ✓ Rebuild along existing distribution line route
- ✓ Approximately 14.5 feet height increase with TA-type poles



Segment 4 Pole (existing and proposed)



Measurements are accurate, images are not drawn to scale



Existing Hwy-75 crossing



Proposed Hwy-75 crossing



Existing power pole



Proposed power pole

Segment 5

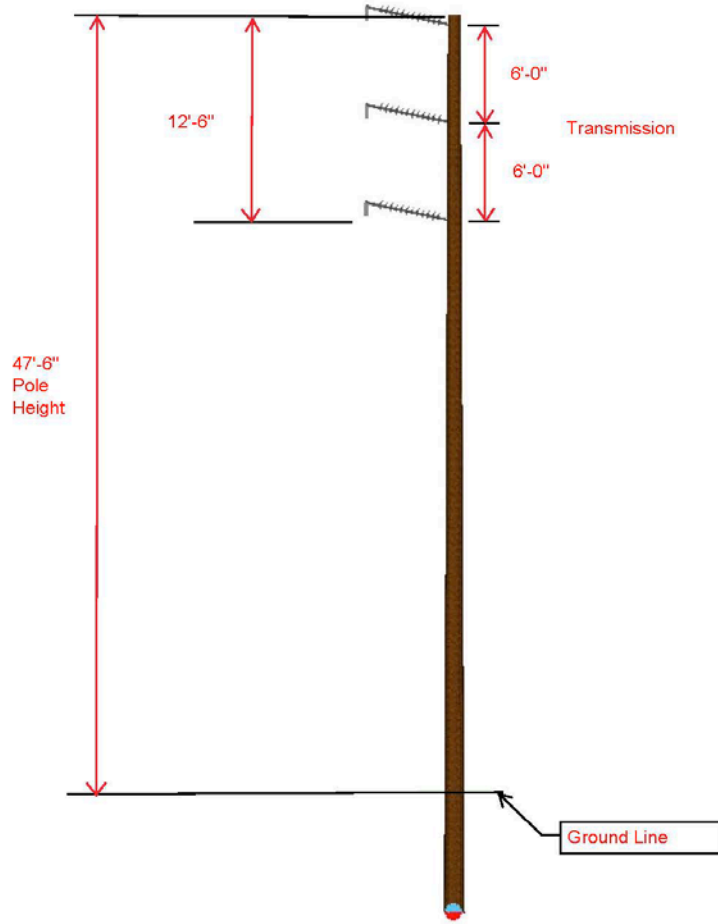
Hospital Drive to Elkhorn Road

- ✓ 1.1 miles, 21 poles
- ✓ New single-circuit transmission along Hospital Drive and SH-75

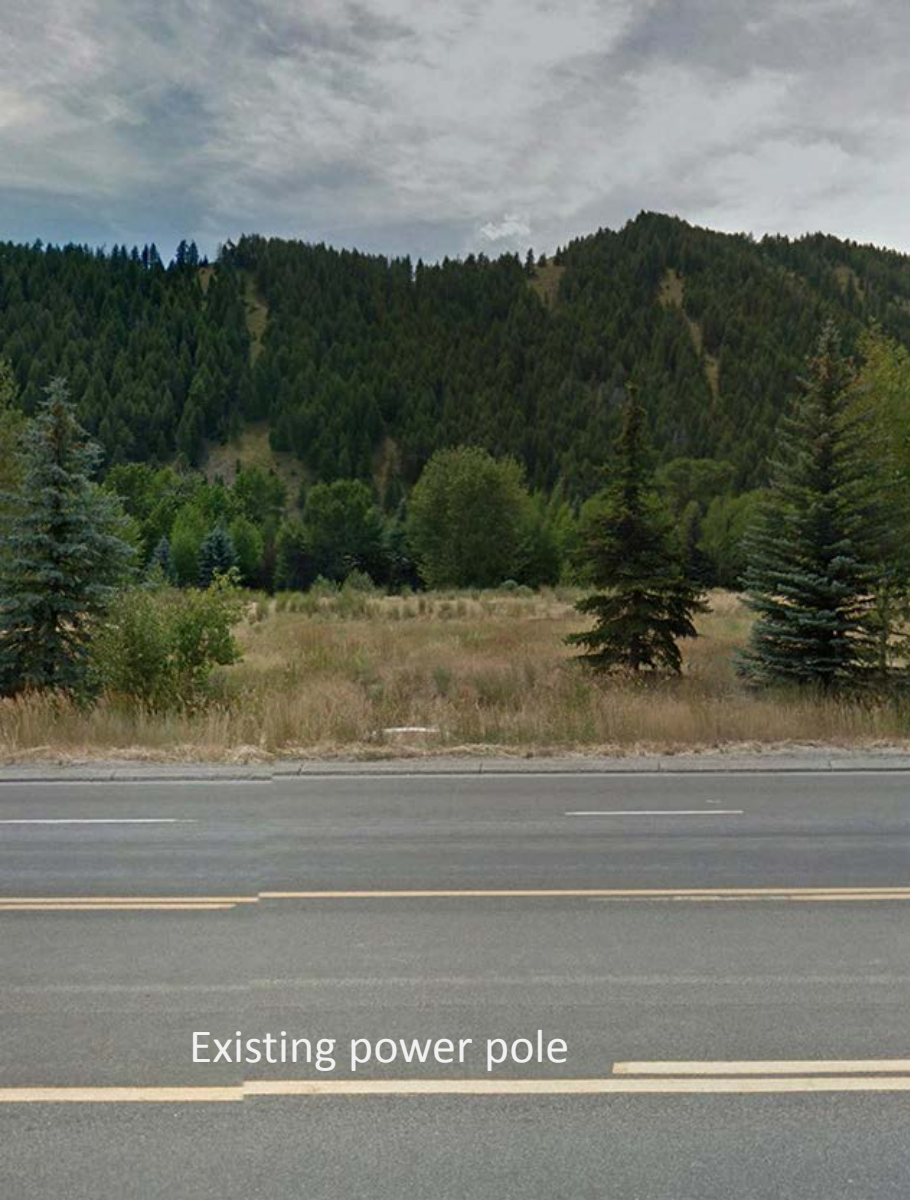


Segment 5 Pole (proposed)

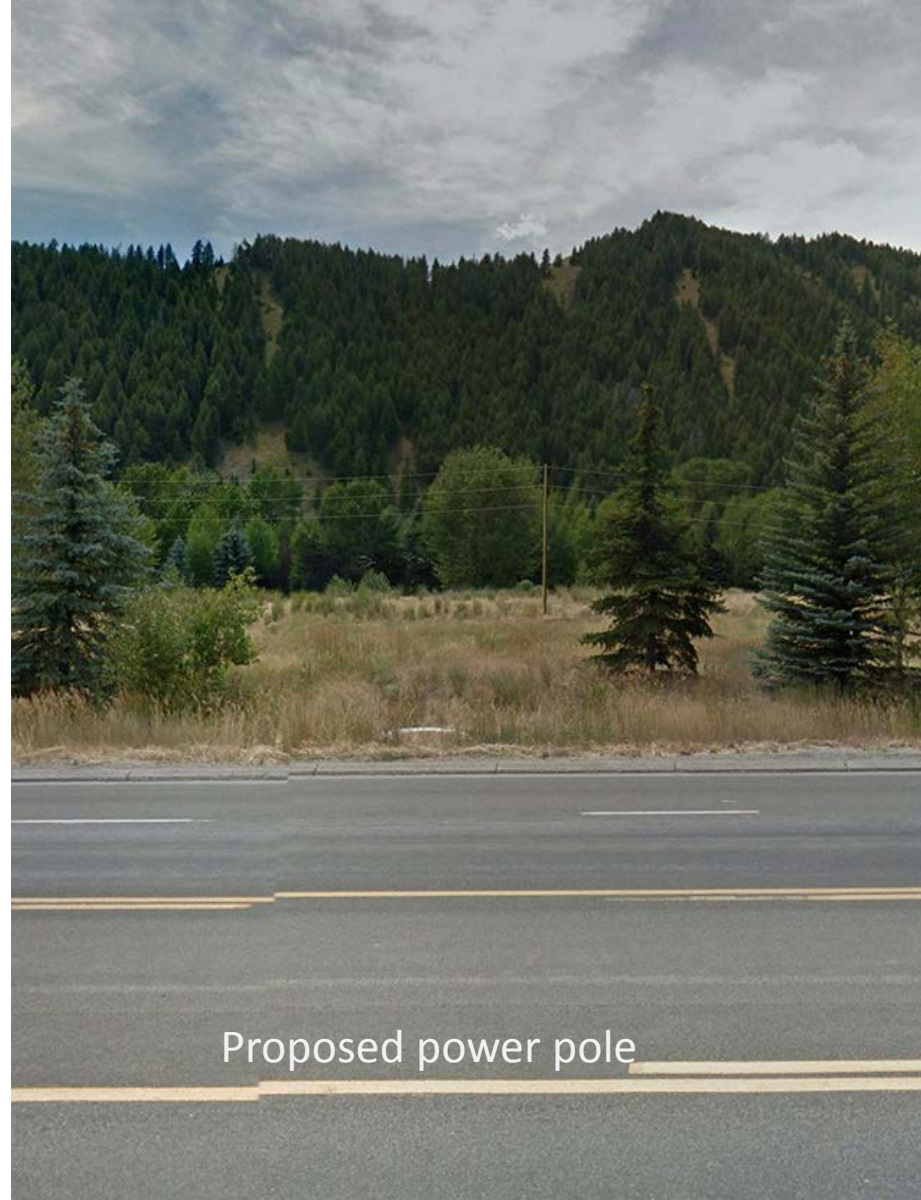
TA Structure with no distribution



Measurements are accurate, images are not drawn to scale



Existing power pole



Proposed power pole