

Wood River Electrical Plan

Including the Updated Redundant Transmission Line Project

Background and Status

August 2016



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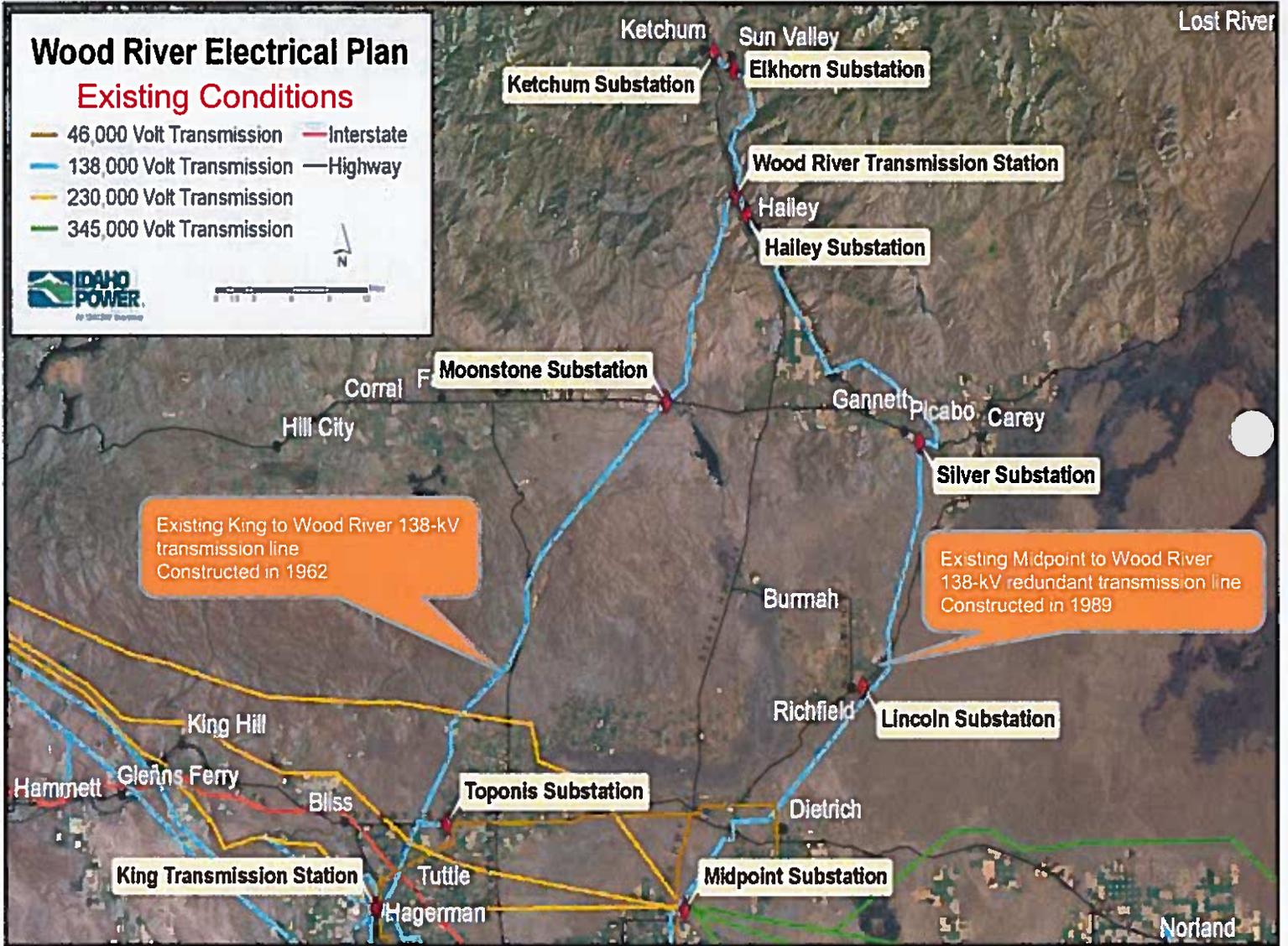
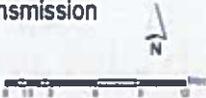
Existing Conditions

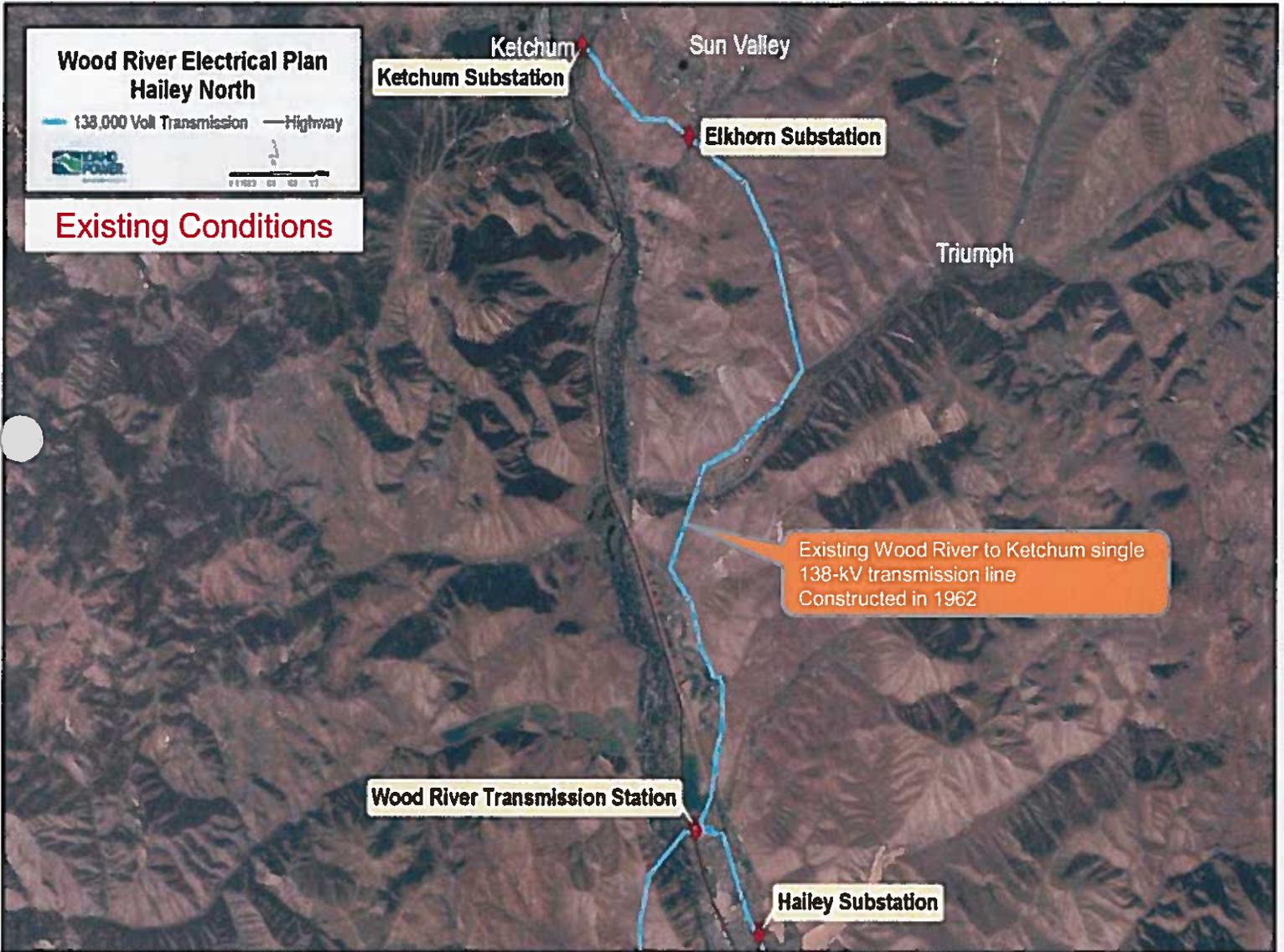
- The existing 138-kV transmission line between Hailey and Ketchum was constructed in 1962
 - In spite of the line's good service record, it will need to be replaced
 - Power to customers served by this line will be out during these periods unless a redundant system is developed
- The King - Wood River and Midpoint - Wood River transmission lines have received increased maintenance to decrease the chance of outage
- The King - Wood River line reconstruction project is underway and planned for completion in 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







WREP Background

- 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 is to identify a community-based plan of the electrical system improvements to meet the Wood River Valley's long term electrical need



Community Advisory Committee

- The CAC consists of members representing Blaine and Lincoln Counties, the cities of Sun Valley, Ketchum, Hailey, Bellevue, Picabo and Carey, private business/developers, area residents, the BLM, USFS and the Nature Conservancy
- The CAC has been reconvened to address plan updates



WREP Updates

- The CAC refined the Plan through 2012 based on stakeholder and public input from 40 presentations, 17 jurisdiction meetings and 4 open house / public presentations
- In October 2014, the CAC was reconvened to consider additional alternatives and update their recommendation
- In July 2015, Idaho Power updated the Wood River – Ketchum Redundant Line Project (transmission line) costs and local allocation for the underground portion



WREP Goals

(to guide development and evaluation of alternatives)

Reliable Power: Provide reliable power to the entire Wood River Valley

- *Provide redundant transmission facilities throughout the Wood River Valley*
- *Provide sufficient reliable quality power necessary to support the Valley's current and future business and economic activities*

New Infrastructure Design: Develop new transmission and delivery infrastructure as appropriate when providing for current and future power needs

- *Optimize the use of existing infrastructure; increase use or upgrade as feasible*
- *Implement feasible mechanical alternatives to new transmission or delivery systems to provide redundancy*
- *Identify and utilize alternative and renewable sources of power that minimize the need for new transmission / 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 programs that reduce demand for additional energy

- *Implement feasible "Demand Side Management" programs to reduce power demand as a portion of an overall solution to meet the Valley's energy needs*
- *Optimize the use of existing "conservation" programs as feasible to reduce power demand*
- *Develop new "conservation" programs with education, as feasible and supported by Valley residents*



WREP Goals

Environment: Cause no or minimum impacts to the natural, physical, cultural, historic, social and aesthetic environment due to development and operation of power facilities and delivery systems

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

Political Support: Develop solutions that are politically supported throughout the Wood River Valley

- *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 the least obtrusive and objectionable*

Cost Effectiveness: Develop solutions that are cost effective and provide associated benefits

- *Implement solutions that are affordable to construct*
- *Implement solutions that are affordable to operate and maintain*
- *Cause no or minimum 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

(to guide planning and location of new infrastructure)

•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-required 150 ft. setback from residences, when using overhead transmission lines (applies to county lands only)*
- Conform to existing hillside ordinances*
- Install underground electricity where the necessary funding is available*

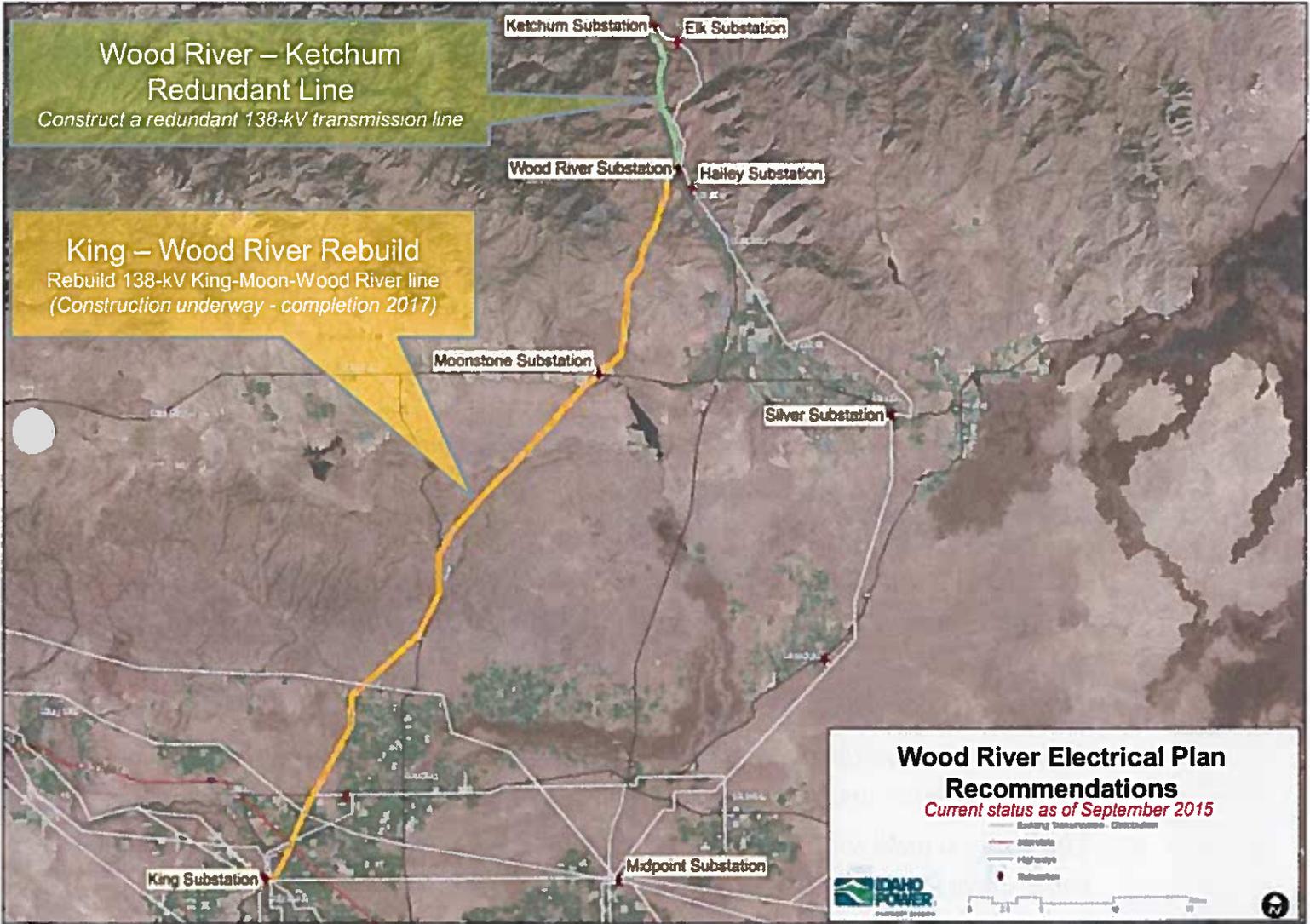
•Wood River Substation South

- Provide electrical infrastructure and systems that meet Lincoln Co. and Camas Co. electrical needs*
- Improve structures and transmission lines in Lincoln Co. and Camas Co. 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*



The CAC's Updated Design Recommendations – Oct 30, 2014

- 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 fully redundant 138-kV transmission line between the Wood River Substation north of Hailey to the Ketchum Substation

- **Overhead section**

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

- **Underground section**

- *Construct an underground 138-kV transmission line from the St. Luke's Medical Center area to the Ketchum Substation*
- *The route would follow SH 75 into Ketchum, then through Ketchum along a route determined by the City of Ketchum and Idaho Power*

Wood River – Ketchum Redundant Line

Overhead Line Section

- Wood River Substation to St. Luke's Medical Center area*

Underground Line Section

- St. Luke's Medical Center area to Ketchum Substation*

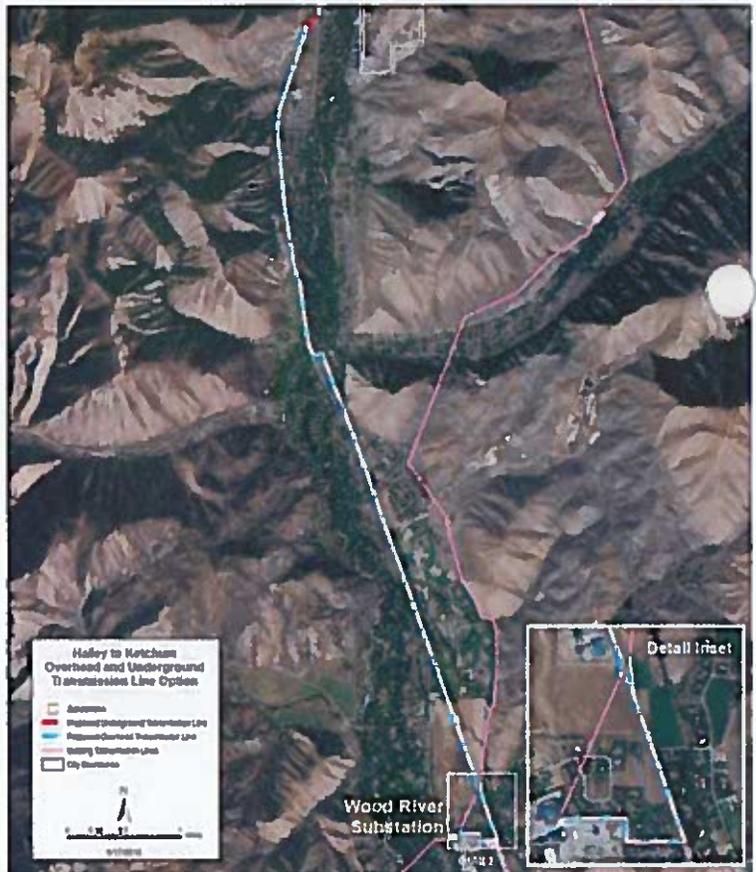


* Transition Location to be determined with Community Input

Wood River – Ketchum Redundant Line

Overhead Line Section

- Wood River Substation to St. Luke's Medical Center area
 - Wood River Substation to Buttercup Rd
 - Combine new line with the existing distribution lines on new steel poles
 - Along Buttercup Rd to Highway 75
 - Along Highway 75 to St. Luke's Medical Center area*



* Transition Location to be determined with Community Input

Wood River – Ketchum Redundant Line

Underground Line Section

- St. Luke's Medical Center area* to Ketchum Substation
 - Begin near St. Luke's Medical Center area*
 - Parallel Hospital Dr. back to SH 75
 - Parallel SH 75 into Ketchum, turn Rt. at Gem St., through Ketchum to Sun Valley Rd.**
 - Sun Valley Rd. to Ketchum Substation



*Transition Location to be determined with Community Input

**Final Route Determined with City of Ketchum Input

Wood River – Ketchum Redundant Line

Transition Structure Locations*

(Overhead to Underground)

- Option 1: Elkhorn Road Area
- Option 2: Hospital Drive Area
- Option 3: Owl Rock Road Area



*Transition Location to be determined with Community Input



Wood River – Ketchum Redundant Line

Project Costs

Overall project cost - \$30 million* (Base Cost)

- 138-kV transmission line from Hailey to Ketchum with overhead construction from Wood River Substation to St. Luke's Medical Center area, distribution substation, then overhead distribution construction to interconnect to existing feeders.

Local Community Cost for Underground – ranges from \$0 to \$5.5 million*

- Items used to determine the cost to be funded by the community include:
 - Substation with overhead distribution option is used as the reference base cost for determining the incremental local cost for undergrounding.
 - Location of transition structure (overhead to underground). No cost alternative at Elkhorn Road, highest cost alternative near Owl Rock Road.

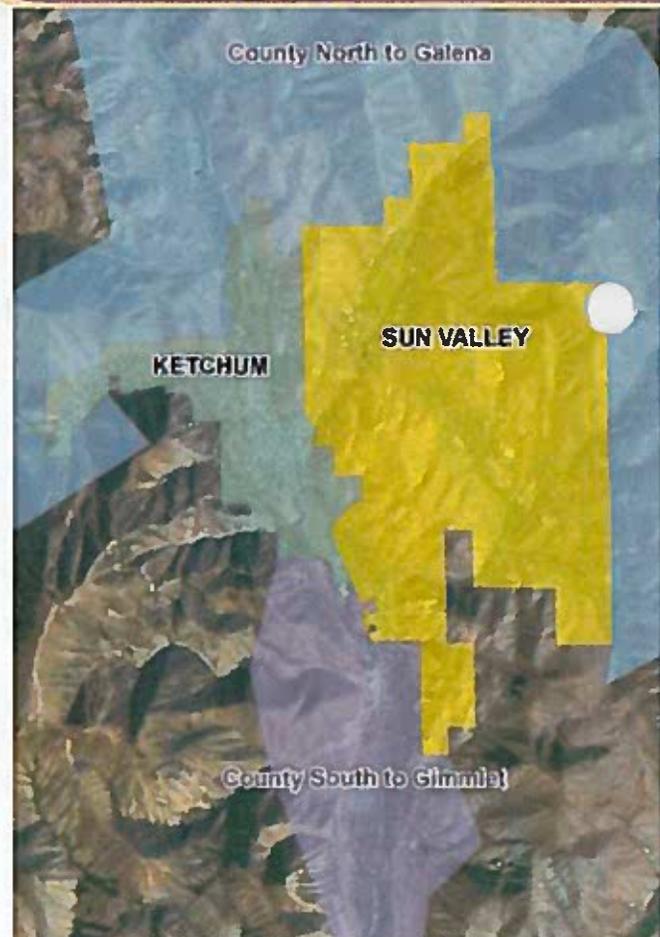
** Note that costs are preliminary and subject to change. They are based on Conceptual Design level estimates and may increase or decrease as the design is developed. Final cost to the community may vary due to actual construction costs.*

Underground Funding

(local cost differential)

- Underground (UG) funding regulations
 - Idaho Public Utility Commission (IPUC) regulations prohibit passing underground costs onto all ratepayers, so local funding for the incremental cost of undergrounding is needed

- Proposed funding concepts
 - All who benefit from the new transmission line would contribute, including all of the City of Ketchum, City of Sun Valley and Blaine County - properties from (and including) Gimlet north to Galena – See map at right
 - Local funding options
 - Local Improvement District
 - Franchise fees
 - Budgeted funds
 - Surcharge
 - Others to be determined by each jurisdiction





Status and Next Steps

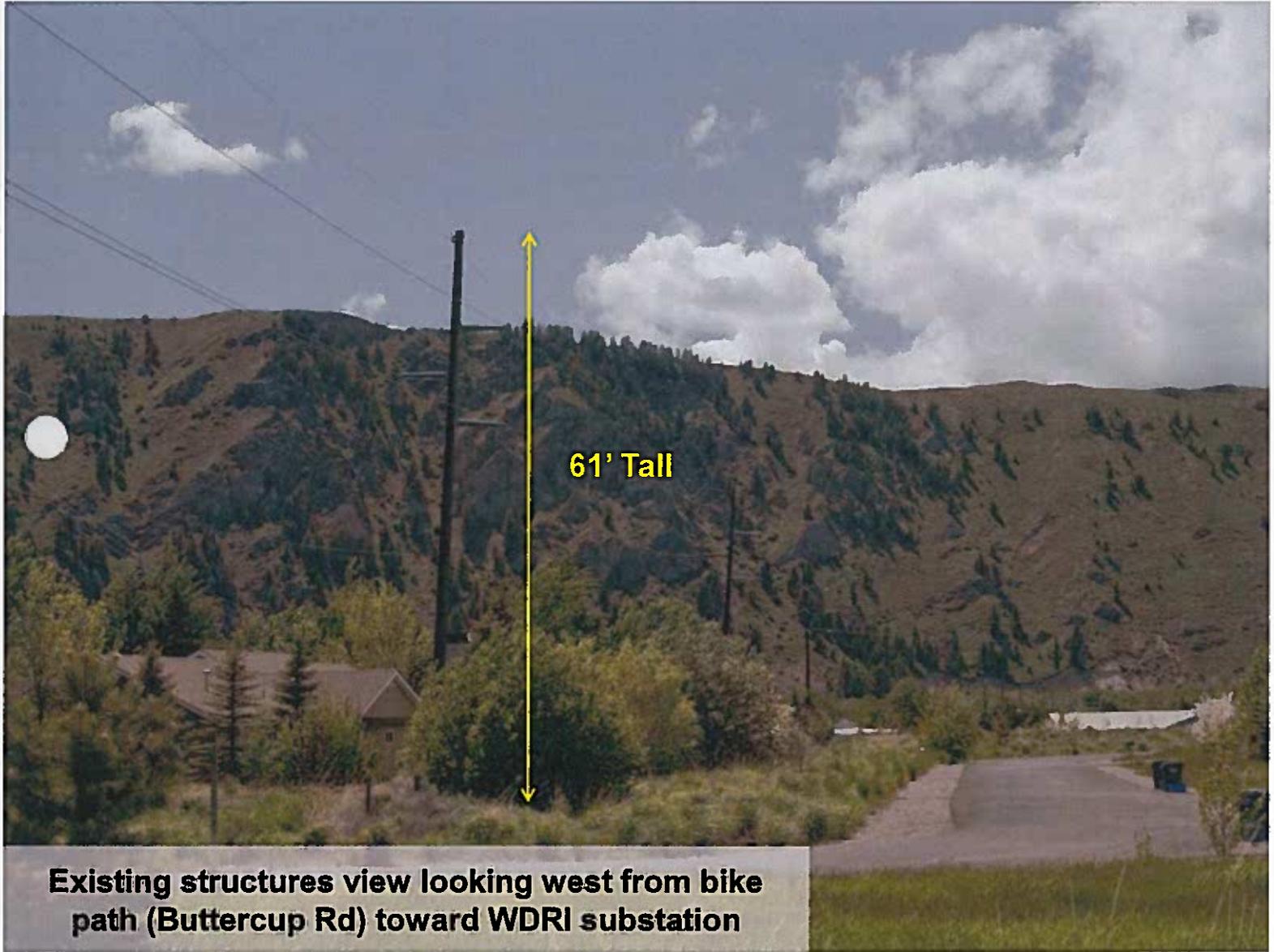
- Early Fall 2015 – IPC submitted necessary permit requests
- Summer 2016 – Presentations of updated project to jurisdictions
- 2016 / 2017 – Permit-required public hearings / Idaho PUC process
- 2017 / 2018 – Project design
- 2019 /2020 Project construction (contingent on local UG funding)

Note: The dates provided are approximate. Dates / time frames may change through project development.

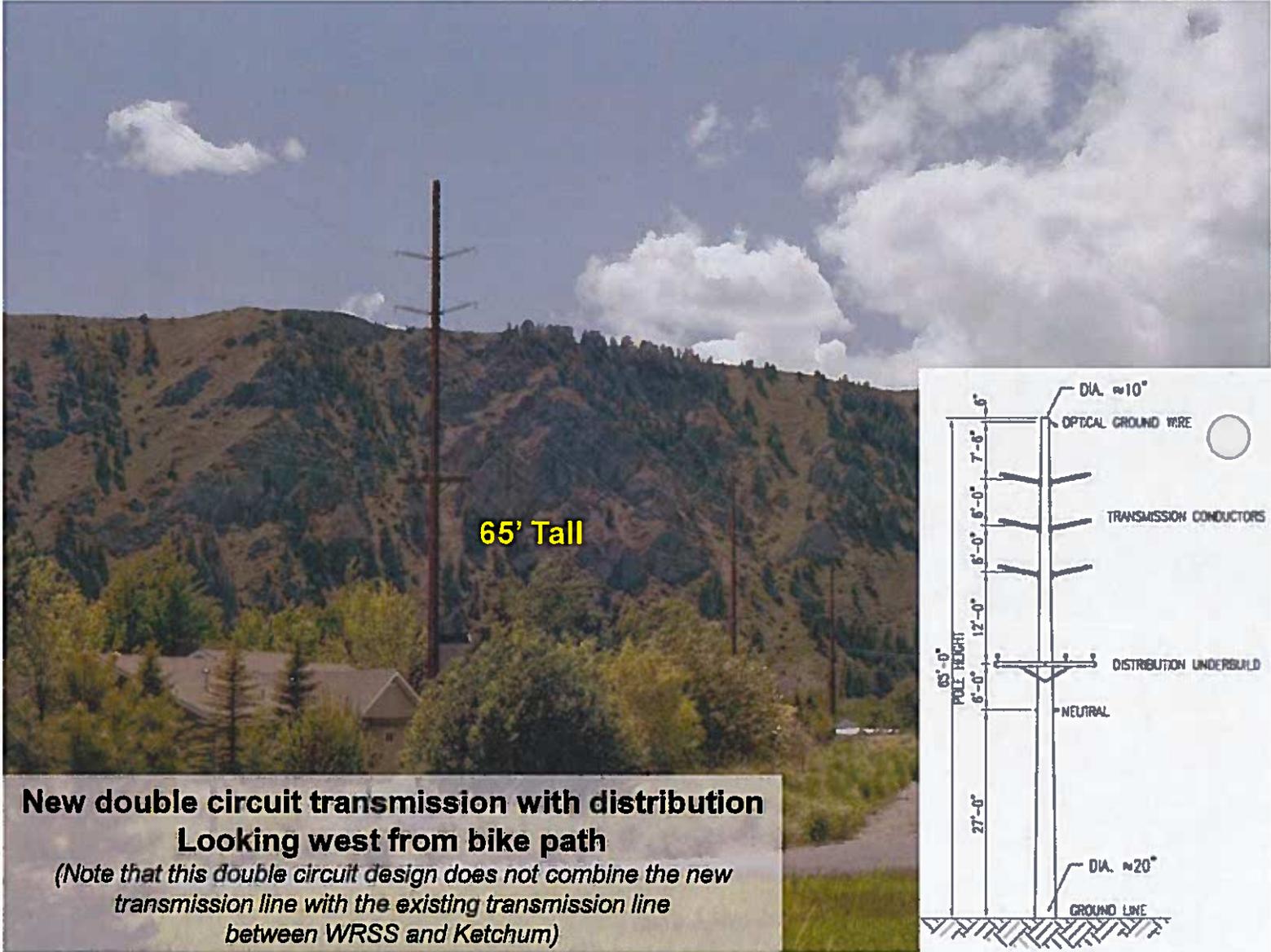


Wood River – Ketchum Redundant Line - Illustrations

- The following images depict the existing distribution line and proposed new configuration for the redundant 138-kV transmission line between the Wood River Substation and St. Luke's Medical Center
 - *The route for the new configuration retains the same location as the existing distribution poles along Buttercup Rd. and SH 75*
 - *The new configuration will include new steel poles to replace the existing poles (new steel poles are designed to weather to brown color)*
 - *The new configuration includes the new transmission line on top and the existing distribution line below on the new poles*
 - *Increased pole heights vary from 4 to 8.5 ft.*



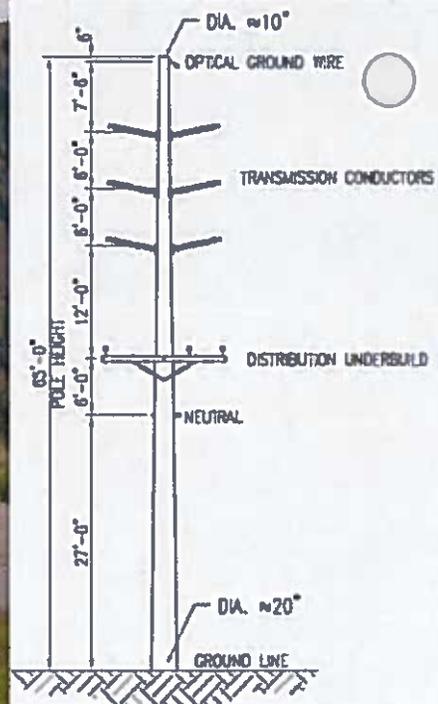
Existing structures view looking west from bike path (Buttercup Rd) toward WDRI substation



65' Tall

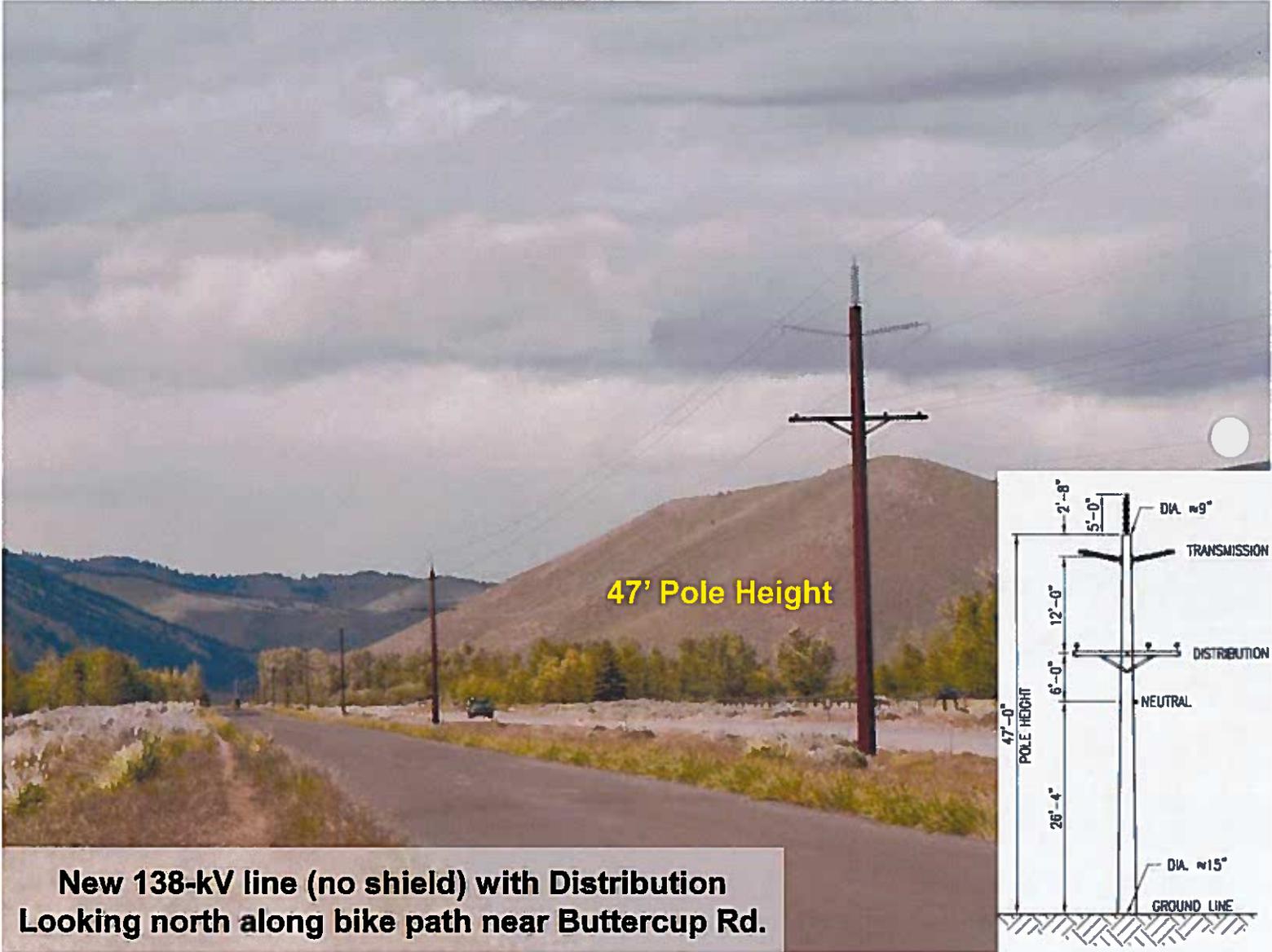
**New double circuit transmission with distribution
Looking west from bike path**

(Note that this double circuit design does not combine the new transmission line with the existing transmission line between WRSS and Ketchum)





Existing structures view looking north along bike path near Buttercup Rd.

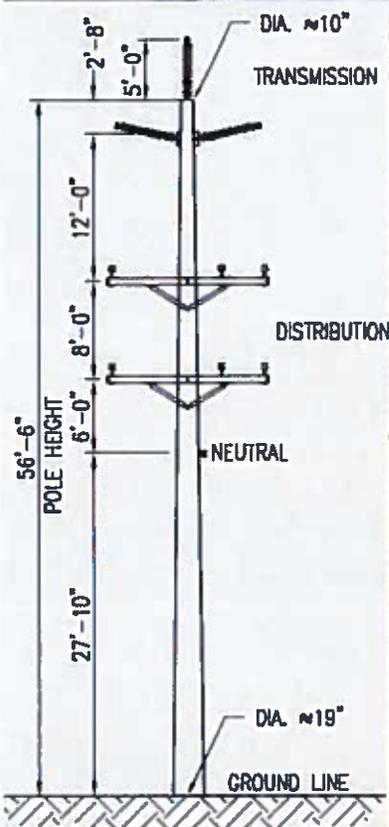


47' Pole Height

**New 138-kV line (no shield) with Distribution
Looking north along bike path near Buttercup Rd.**



**Existing structures view looking north
along SH 75 at Ohio Gulch**



**New 138-kV transmission (no shield)
Double circuit distribution
Looking north along SH 75 at Ohio Gulch**



Existing Structures

North of East Fork Intersection



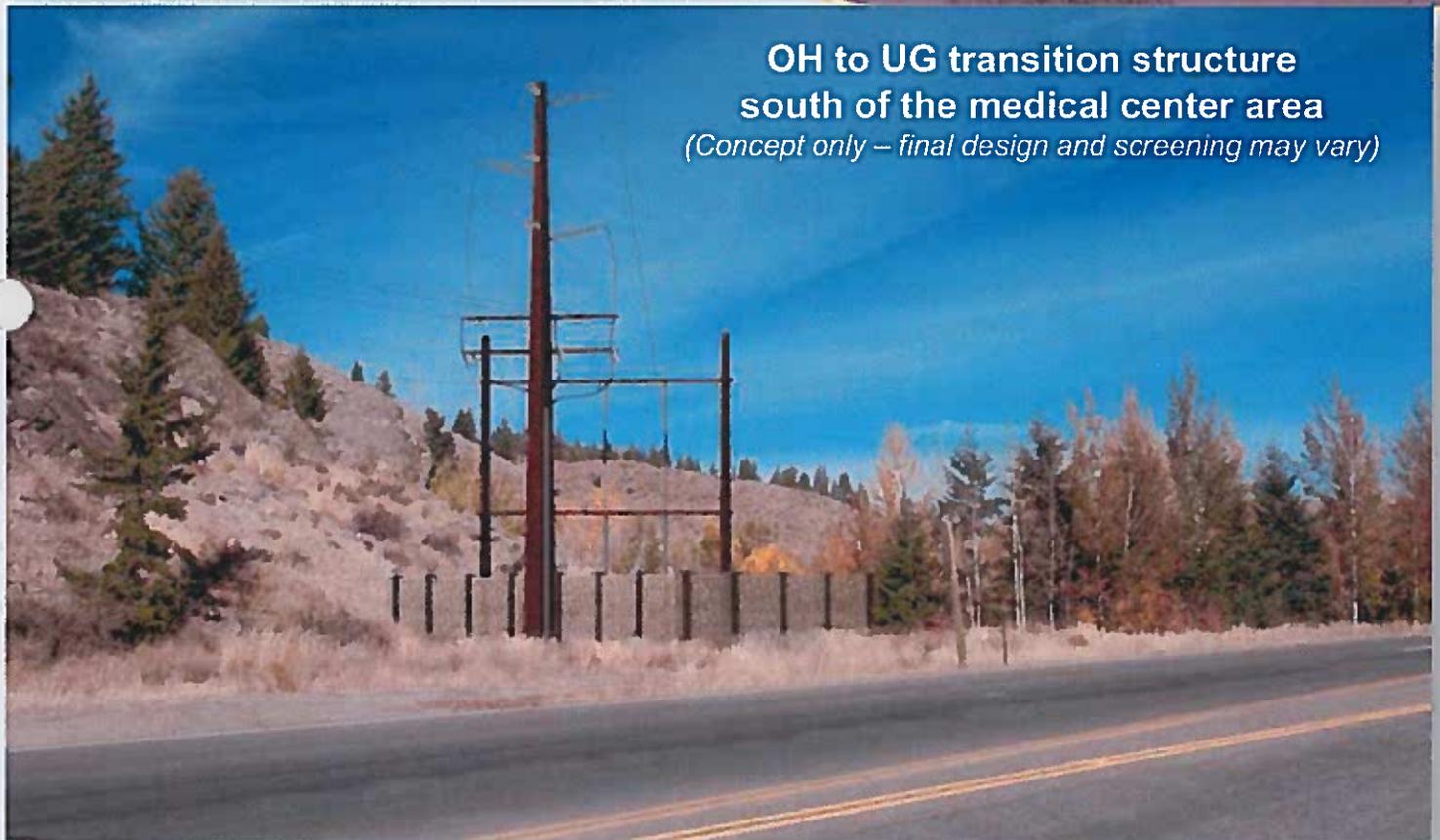


Proposed New Structures

North of East Fork intersection



Transition Structure





WREP Links

- WREP document:
 - https://www.idahopower.com/pdfs/AboutUs/PlanningForFuture/ProjectNews/wrep/WREPFinal_Report.pdf
- WREP Executive Summary:
 - https://www.idahopower.com/pdfs/AboutUs/PlanningForFuture/ProjectNews/wrep/WREP_ExecutiveSummary.pdf
- Initial Community Advisory Committee Members:
 - <https://www.idahopower.com/AboutUs/PlanningForFuture/RegionalElectricalPlans/WoodRiver/CACRoster.cfm>
- Current Community Advisory Committee Members:
 - <https://www.idahopower.com/AboutUs/PlanningForFuture/RegionalElectricalPlans/WoodRiver/CACRoster2014.cfm>
- Wood River – Ketchum Redundant Line Fact Sheet:
 - https://www.idahopower.com/pdfs/AboutUs/PlanningForFuture/ProjectNews/HaileyKetchum/Fact_Sheet.pdf



For More Information

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 - Tbarber@idahopower.com / 1-208-388-5667
- **Lynette Standley**, Corporate Communications Leader
 - LStandley@idahopower.com / 1-208-388-2407



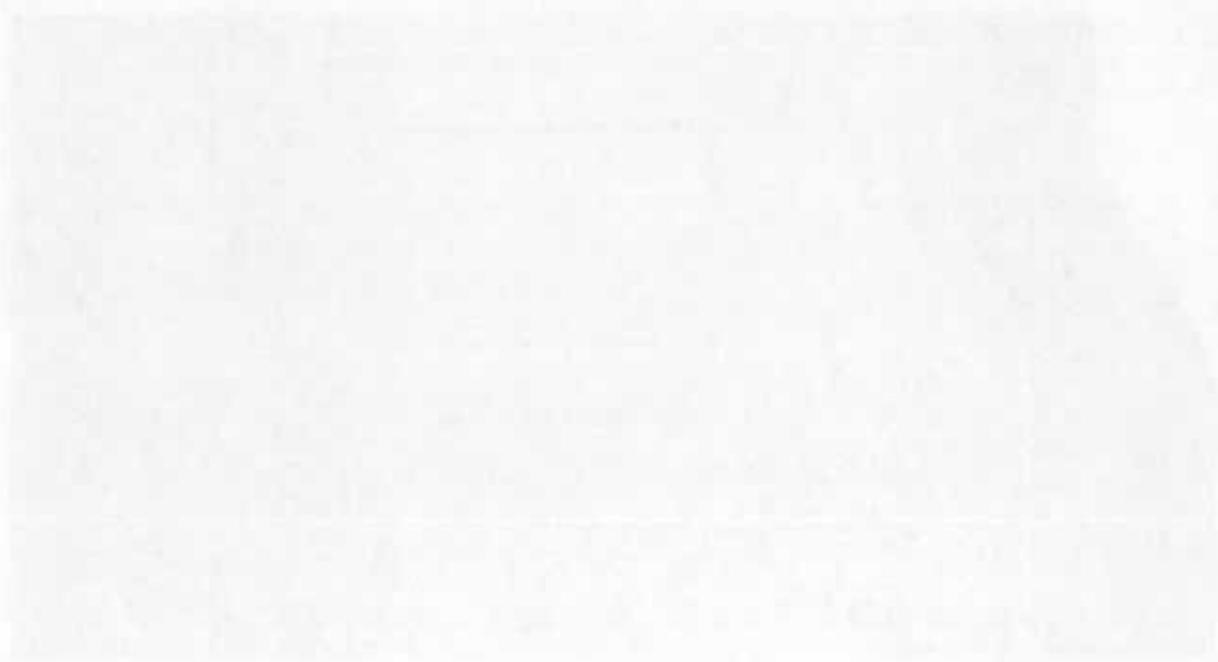


Electric and Magnetic Fields



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MAY 15 1967



WATERVILLE
MAY 15 1967

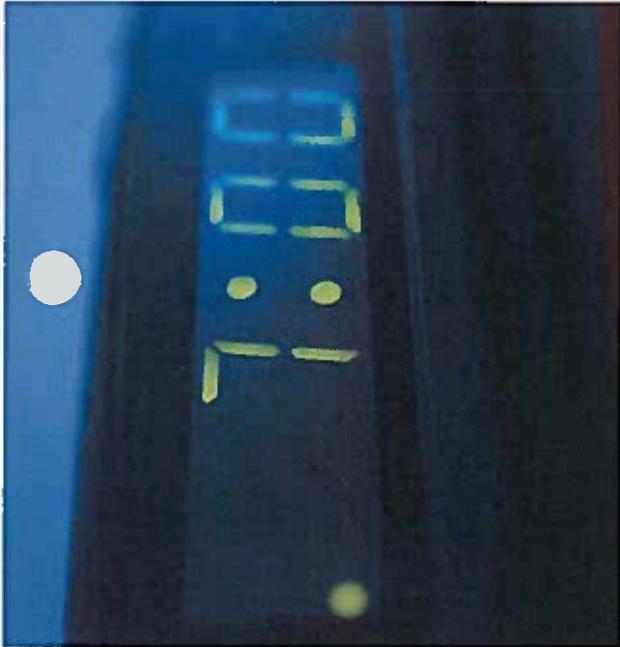


Are there established EMF exposure limits in Idaho?

No. Some states have them, but none have been established for Idaho. A great deal of animal testing and cell biology research has been conducted worldwide, but even extremely high EMF exposure has never produced cancer or any other disease in the laboratory. Scientists, therefore, cannot identify any level of EMF that is harmful in any way. Since no level of exposure has been shown to be hazardous, no federal government environmental EMF standards have been adopted.

While there are no federal or Idaho-established limits for EMF exposure, some governmental and non-governmental organizations have issued advisory limits. These limits, however, do not apply to the low levels of EMF found in homes, schools, and offices, or even the EMF exposures being studied in relation to childhood leukemia.

The advisory limits apply only to extreme, short-term EMF exposures far higher than those in residential or typical occupational settings. For example, the International Commission on Non-Ionizing Radiation Protection recommends that the general public not be exposed to magnetic field levels above a 24-hour average of 10,000 milligauss (mG). In contrast, fields inside homes rarely exceed an average of 20 or 30 mG.



Frequently Asked Questions



Do EMF levels increase when the voltage of a line increases, like rebuilding a 69-kV line to 138 kV?
The magnetic field of a power line depends on both the current in the line and the distance from it. When the voltage of a line is increased, it requires greater clearance and thus greater distance from the ground. And when voltage is doubled, as in this example, the current drops by half. Combined with the increased distance, the magnetic field is actually reduced by two-thirds.



Do underground power lines limit EMFs?
Not necessarily. The maximum magnetic field will generally be higher for underground lines, but much depends on the method of construction.



Should I have an EMF strength reading done in my home?
Idaho Power will measure EMF strength upon request and will discuss the results with the customer.



Should I limit my exposure to electrical appliances?
The research does not suggest that people need to change the way they use electrical appliances, or limit the amount of time they use certain appliances.

For more information

Contact us for information on research and regulatory developments pertaining to this issue.

Idaho Power
P.O. Box 70
Boise, ID 83707

www.idahopower.com

Additional Resources on EMFs

Medical College of Wisconsin
www.mcw.edu

Search: Electromagnetic Fields and Human Health

National Institute of Environmental Health Sciences
U.S. Department of Health and Human Services
www.niehs.nih.gov/health/topics/agents/emf

World Health Organization
Electromagnetic Fields
www.who.int/peh-emf/en

International Commission on Non-Ionizing
Radiation Protection
www.icnirp.de/PubMost.htm
See Low-frequency reports
www.icnirp.de/documents/LFgdl.pdf

Government of Canada
Health Canada

www.healthycanadians.gc.ca/environment-environnement/home-maison/emf-cem-eng.php
www.hc-sc.gc.ca/ewh-sem/radiation/radprotect/emf-cem-eng.php

National Cancer Institute
National Institutes of Health
www.cancer.gov/cancertopics/factsheet/Electromagnetic-fields

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Date: 11/11/11

1. The first part of the document discusses the background of the project and the objectives of the study. It highlights the importance of understanding the current state of affairs and the need for a comprehensive analysis.

2. The second part of the document details the methodology used for data collection and analysis. It describes the various techniques employed to ensure the accuracy and reliability of the findings.

3. The final part of the document presents the results of the study and discusses the implications of the findings. It provides a clear and concise summary of the key points and offers recommendations for future research and action.