DOE/EA--0586

DE92 019442

DEPARTMENT OF ENERGY

Bonneville Power Administration

Ashland Area Support Substation Project
Finding of No Significant Impact

AGENCY: Bonneville Power Administration (BPA), DOE.

ACTION: Finding of No Significant Impact (FONSI) for BPA's Ashland Area Support Substation Project.

SUMMARY: BPA has prepared an environmental assessment (EA), DOE/EA-0586, for the proposed Ashland Area Support Substation Project. Based on the analysis in the EA, DOE has determined that the proposed action is not a major Federal action significantly affecting the quality of the human environment, within the meaning of the National Environmental Policy Act (NEPA) of 1969. Therefore, the preparation of an environmental impact statement (EIS) is not required and DOE is issuing this FONSI.

PUBLIC AVAILABILITY: Copies of the EA are available upon request from the address listed below.

FOR FURTHER PROJECT INFORMATION CONTACT: John M. Taves, Environmental Coordinator for Engineering, Bonneville Power Administration - EFBG, P.O. Box 3621, Portland, Oregon 97208, (503) 230-4995.

FOR FURTHER INFORMATION REGARDING THE NEPA PROCESS CONTACT: Carol Borgstrom, Director, Office of NEPA Oversight, U.S. Department of Energy, 1000 Independence Avenue, S.W., Washington, DC 20585, (202) 586-4600 or (800) 472-2756.

PROPOSED ACTION: BPA proposes to construct a new 115-12.5-kV substation within the City of Ashland, Oregon, by early 1993 to serve an increased load in the City of Ashland. The new substation would be located between the existing Ashland and Oak Knoll Substations and

would require a parcel of land approximately two acres in size plus an accompanying access road. When fully developed, the new unstaffed substation would generally consist of one 115-12.5-kV transformer, line termination structures, switch equipment, and a small control house.

A new 115-kV transmission tap line, about 1.25 miles long and constructed by the Pacific Power & Light Company (PP&L), would feed into the proposed substation. With the exception of the replacement of three existing structures with three new structures near the tap point, this tap line would be placed above the uppermost distribution line, now in place along Mountain Avenue (in the City of Ashland), and would also include an underbuild with room for a future distribution line on the same poles. The rebuild is required to accommodate the 115-kV conductors and the underbuild. In addition, the City of Ashland would construct three short 12.5-kV circuits from the new substation to connect to their existing distribution system.

SUPPLEMENTARY INFORMATION: The EA prepared for this proposal covers the substation/transmission facilities that are to be constructed or modified by BPA, PP&L, and the City. There were three preliminary alternatives/options considered that were subsequently dropped from detailed study. These were (i) undergrounding of the transmission line, (ii) demand side management (DSM), and (iii) the no action alternative. Subsequently, three additional alternatives/options were similarly considered. These were (i) constructing a new substation near Interstate Highway 5 (I-5), (ii) constructing a new substation on the Southern Pacific Transportation Company property adjacent to and west of substation site No. 6, and (iii) new substation on Southern Pacific Transportation Company (SPT) property near the foot of 8th Street (site 6).

Under the proposed plan, five alternative substation locations were considered and covered in the EA. All are located within 3/4 of a mile from one another and all have similar characteristics; site No. 3 is proposed. For further discussion of need, proposal, and alternatives, please refer to the EA.

Reasons impacts are not significant are presented below:

1. Construction of a substation at the proposed site (No. 3) would be consistent with current zoning and land use requirements. The proposed site is located in a vacant field adjacent to the SPT railroad right-of-way. A substation at this location would be consistent with nearby land use and County zoning requirements. The proposed tap line consists of rebuilding an existing line and, therefore, is consistent with current power line right-of-way use.

2. Visual impacts would be minimal and there would be no direct impact on recreational uses. All of the sites affected by this project are in areas where visual quality has already been altered. The existing line has already established visual impacts for the transmission line serving the proposed substation. Although the new line will have taller poles and a larger conductor diameter, it would be less cluttered and replace a line that is in disrepair and, in many instances, not in alignment. The project would not have a direct effect on any recreational facilities and would not conflict with any recreational activities.

3. No historical or cultural resources would be adversely affected by this action. A review of the National Register of Historic Places indicates that no properties listed on the National Register are in the proximity of the proposed project. Also, a review of the National

Registry of National Landmarks, and the World Heritage List indicates that no listed properties are present in the vicinity of the project. There is also no evidence to suggest that any of the site options would affect sacred sites or sites related to the religious rites of American Indians.

4. There would be little disruption of agricultural land and disturbances to the land and soils would be minimal and occur mostly during construction. About 1.5 acres of the 2-acre non-agricultural site would be needed to construct the substation. Little, if any, additional land would be taken out of production by the tap line since this would be a rebuild of the existing line. Only temporary minor disturbances to agricultural operations, if any, are anticipated. The project is in accordance with the Farmland Protection Policy Act (7 U.S.C. 4201 et seq.). Also, an inventory of the presence of any noxious weeds at the proposed substation site would be taken. New infestations of noxious weeds would be prevented by standard BPA weed control practices. Since the tap line would replace existing poles, only minor new permanent access is needed and disturbances would be confined to the immediate area surrounding the substation and the pole bases. Only slight, temporary increases in soil erosion and surface runoff would occur during construction.

5. Wetlands would be avoided and impacts to fish and wildlife resources would be minimal. Any adverse impacts to Bear Creek and associated wetlands where the rebuilt transmission line would cross the 100-year floodplain would be avoided by using the existing roads for construction access and by avoiding placement of new poles within designated wetlands. Since no access roads are needed and no clearing

is anticipated, there would be no impacts to the creek and related waters. None of the substation sites is located within the 100-year floodplain or near a tributary of Bear Creek. Inventoried wetlands would not be encountered. No part of the transmission line route or the substation itself would have any impact on fishery resources of the area. Wildlife values would be impacted to the extent that clearing for new buildings would displace the small birds, mammals, amphibians and reptiles that may currently inhabit the site. In all cases, the lands have already been disturbed or cultivated. The proposed project would not impact any threatened or endangered species or their habitat.

6. Cumulative effects are not anticipated. BPA has not identified any cumulative environmental effects of the proposed action. Of course, local utilities customarily need to maintain the ability, on short notice, to physically modify, relocate, and change the electrical operation of their system. This is done without any requirement for notice to BPA and such actions are beyond the control of BPA. Presently, any such actions are speculative and uncertain and the impacts associated with such actions are not reasonably foreseeable. BPA is not aware of other proposed actions that would contribute to cumulative effects associated with this proposed project.

ALTERNATIVE PLAN CONSIDERED: Adding more transformers at the two local substations, i.e., the Ashland and Oak Knoll Substations, was also considered as an alternative to building a new substation. Although this alternative would provide the additional electrical capacity, it would require constructing additional and longer distribution lines into the City, resulting in higher line losses and restricting load transfers; it would not be as reliable as the construction of a new

substation and would cost about $400,000 more than the proposed plan.

DETERMINATION: On the basis of the information in the EA and related studies, DOE finds that the project is not a major Federal action significantly affecting the quality of the human environment, within the meaning of NEPA, 42 USC 4321 et seq. Therefore, the preparation of an EIS is not required and DOE is issuing this FONSI.

Issued in Washington, DC, on July 10, 1992.

for Paul L. Ziemer, Ph.D.
Assistant Secretary
Environment, Safety and Health

ASHLAND AREA SUPPORT SUBSTATION PROJECT
ENVIRONMENTAL ASSESSMENT

1.0 NEED FOR ACTION

The Bonneville Power Administration (BPA) provides wholesale electric service to the City of Ashland (the City) by transferring power over Pacific Power & Light Company's (PP&L) 115-kilovolt (kV) transmission lines and through PP&L's Ashland and Oak Knoll Substations (see Figure 1). The City distributes power over a 12.5-kV system which is heavily loaded during winter peak periods and which has reached the limit of its ability to serve peak loads in a reliable manner. Peak loads under normal winter conditions have exceeded the ratings of the transformers at both the Ashland and Oak Knoll Substations.

In 1989, the City modified its distribution system at the request of PP&L to allow transfer of three megawatts (MW's) of electric power from the overloaded Ashland Substation to the Oak Knoll Substation. In cooperation with PP&L, BPA installed a temporary 6-8 megavolt-amp (MVA) 115-12.5-kV transformer for this purpose. This additional transformer, however, is only a temporary remedy.

While the more critical loads are in the public sector (e.g., the Southern Oregon State College and the municipal water treatment plant), the City's loads are mostly commercial and residential, with only a single industrial load at the present time. Recently, the Ashland area has experienced a surge in residential and commercial growth. The Southern Oregon State College, located in the central part of the City, is also planning to expand its facilities.

This growth is reflected in the electric power load forecast dated April 24, 1990. The loads shown below are split between PP&L and the City, and are for both the Ashland and Oak Knoll Substations. The nameplate rating is a substation's designed capacity.

1991 Projected Peak Megawatt Loadings

	Nameplate Rating	Normal Weather (1 in 2 years)		Extreme Weather (1 in 5 years)	Dec. 1990 Actual Loading
Ashland Sub (PP&L)	19 MW (12/16/20 MVA)	City	16.03	18.45	19.57
		PP&L	4.1	4.70	7.93
		Total	20.13	23.15	27.50
Oak Knoll Sub	19 MW (12/16/20 MVA)	City	24.03	26.49	26.40
		PP&L	5.67*	6.20*	8.00
		Total	29.70	32.69	34.40

*PP&L placed on BPA transformer.

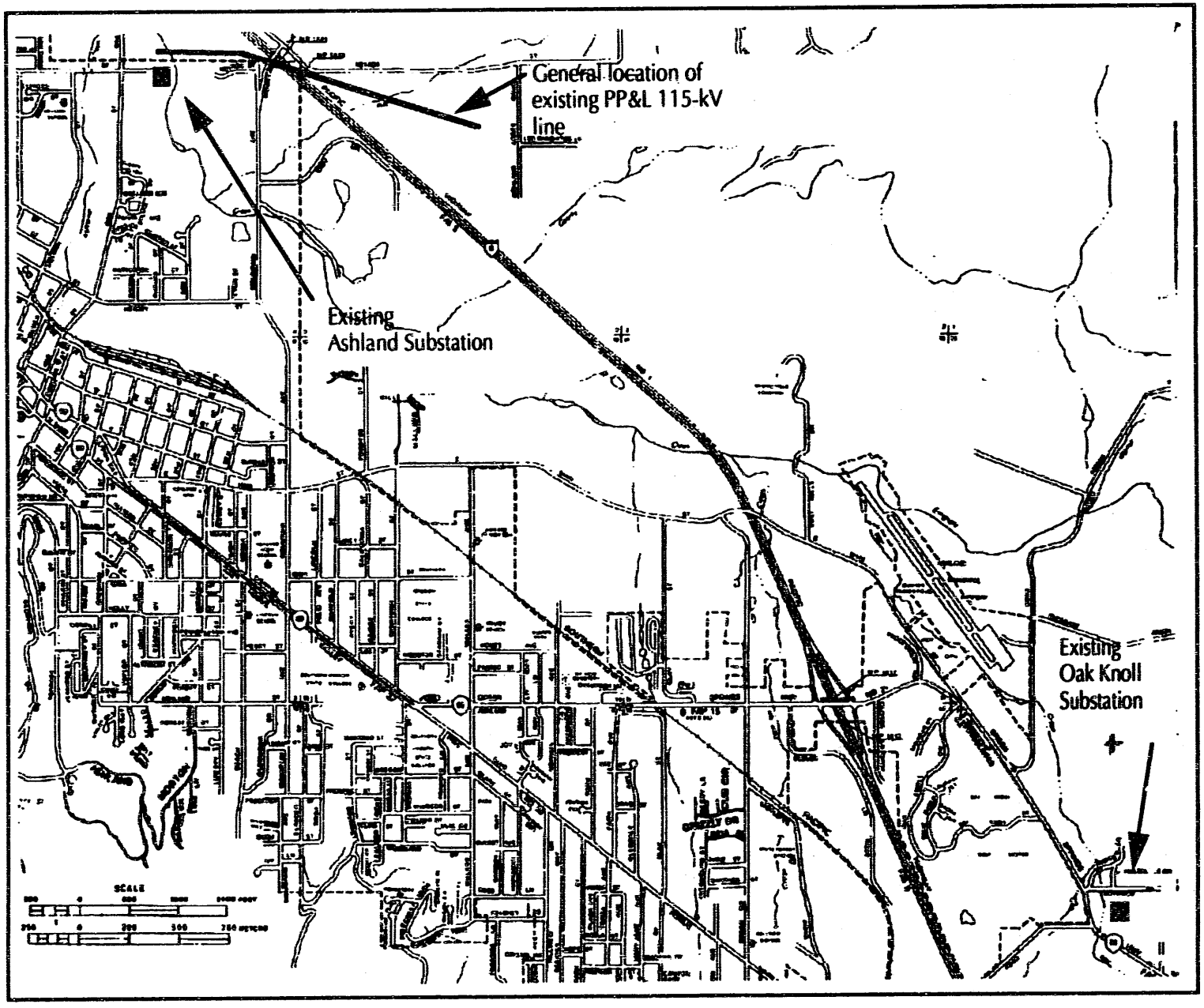


Figure 1
Location of existing Ashland and Oak Knoll Substations in relation to existing PP&L 115-kV Transmission line, City of Ashland

During the February 1989 cold spell, the temperature within the City dipped to 8 degrees F, and the Ashland and Oak Knoll Substations were loaded to 26 and 27 MW's, respectively. More recently, during the cold spell of December 1990, temperatures plummeted to below zero degrees in the local area. During this latest period, the local natural gas company experienced service problems. Their customers had to use electric space heaters, further compounding the peak loading problems at the Ashland and Oak Knoll Substations.

Then, on December 21, 1990, a transformer at the Ashland Substation overloaded and failed, resulting in a major power outage. Loads at the Ashland and Oak Knoll Substations had reached highs of about 28 and 34 MW's, respectively. To restore power, a 25-MVA mobile transformer had to be connected, and power was brought back at about noon the following day. This loss of power, about 14 hours long, occurred even though the Southern Oregon State College was in recess, and the Croman Lumber Company shut down in order to reduce the demand for electrical power. These two actions, however, were not enough to avert the power failure.

BPA needs to provide additional, reliable long-term service to the Ashland area through additional transformation in order to keep similar power failures from occurring during upcoming winters in the Ashland area. The temporary installation of another 20-MVA mobile transformer at the Ashland Substation and additional load curtailment are currently being studied to provide for sustained electrical service by the peak winter period 1992.

2.0 ALTERNATIVES

Two overall electrical plans-of-service are described below and evaluated in Section 3.0, "Environmental Impacts of the Proposed Action and Alternatives." One of them is proposed for action. Within that proposed plan-of-service are location options for the substation. Note that descriptions of actions that may be taken by the City of Ashland are based on information provided by them.

2.1 PROPOSED PLAN-OF SERVICE--A NEW SUBSTATION AND 115-kV TRANSMISSION LINE

Based on a study undertaken by R.W. Beck and Associates for the City of Ashland (1989) and a BPA engineering study (May 1990), BPA proposes to construct a new 115-12.5-kV substation in the City by early 1993. The new substation would require about 2 acres of land, plus space of an accompanying access road. The new unstaffed substation would consist largely of a 115-12.5-kV transformer, line termination structures, switch equipment, and a small control house.

Five possible substation sites are being considered in the area where existing City distribution lines converge (see Figure 2). Initially, a sixth site was proposed because it was appropriately zoned and the least visible site. However, due to developing concern over the potential for hazardous substances and the need for additional cultural resource work, site 6 is no longer under serious consideration. (See Section 2.4, "Alternatives/Options considered and Rejected.")

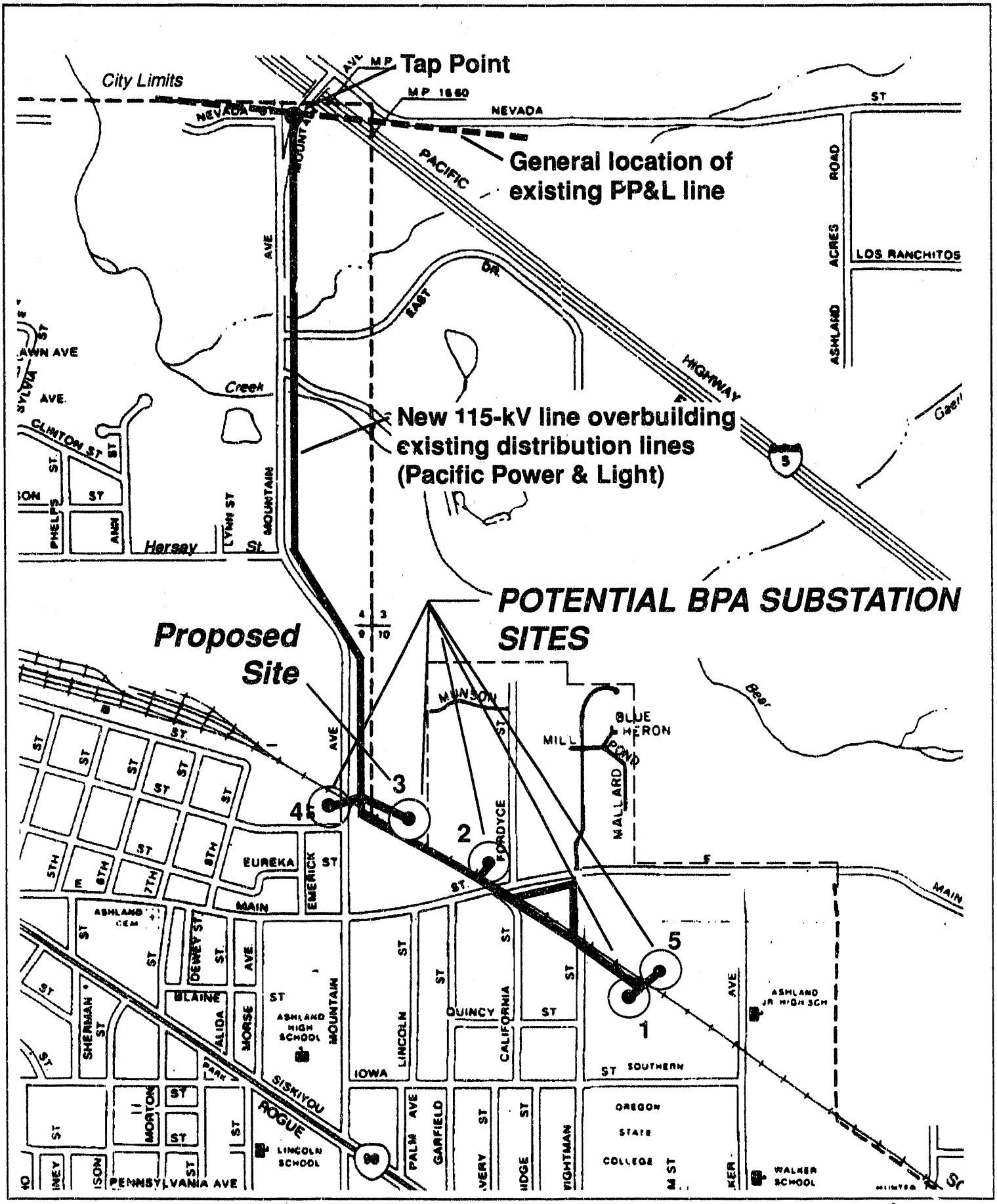


Figure 2
Potential BPA Substation Sites

A substation at any of the five sites would:

- Minimize construction of new distribution lines and associated environmental impacts of such lines;
- reduce electrical loading on existing distribution lines;
- allow transfer of electrical loads from one substation to another during maintenance or in the event of an outage;
- minimize overall initial costs;
- improve reliability and reduce electrical losses and voltage drop on existing distribution lines; and
- postpone the need for a second additional transformer.

Site 5 was proposed because it is somewhat removed from residential uses and adjacent streets, can be extensively landscaped, and would not carry the same local land use/zoning complexities as sites 2, and 4. However, as a result of public review of the EA, additional information on sites 1 and 5 was submitted, which has led BPA to again reconsider the proposed location for the substation.

- Site 5 is located in the immediate area known as the Mark O. Hatfield Environmental Sciences Complex. Associated with the complex are the National Fish and Wildlife Forensics Laboratory (U.S.F.W.S), Southern Oregon State College property, and the Pacific Institute of Natural Sciences (PINS), soon to be constructed. All three have indicated that the proposed substation at site 5 would restrict future expansion/development of the complex and concern over a perceived incompatability with a natural science complex.
- The Forensics Laboratory has indicated that it may be the only wildlife crime laboratory in the world, and as such, contains scientific instruments which are sensitive to magnetic fields. Although the proposed location at site 5 would be far enough from the existing facility to minimize magnetic field strength associated with the substation, future expansion of the laboratory would be toward the substation. The laboratory has expressed concern that additional instruments sensitive to magnetic fields may be prevented in the future.
- PINS has indicated that it considers a substation facility incompatable with the planned natural sciences interpretive center; it would have a substantial number of visitors.
- With regard to sites 1 and 5, most commentors expressed concern over potential restrictions on expansion of the overall complex, perceived inconsistency with planned recreational use of the immediate area, relationship between magnetic fields associated with substations/transmission lines in an area frequented by many people, and noise and safety considerations.

As a result of further review of the five sites under consideration, BPA has selected site number 3 as the final proposed location.

For all substation sites, PP&L would build a new 115-kV transmission tap line about 1.0-1.5 miles long from the tap point just north of Nevada Street to the new substation (see Figure 2). The new line would cross Mountain Avenue and proceed south over the existing distribution lines on the east side of Mountain Avenue. The existing distribution lines along Mountain Avenue would be rebuilt with poles about 15 feet taller than the existing ones because the new 115-kV line would be placed above the existing circuit and would require greater space between lines. One of the existing distribution circuits would be eliminated. An overhead ground wire would be placed on top of the poles for about 1/2 mile beginning at the substation.

The installed cost for the proposed plan-of-service should be about $1,800,000.

2.2 ALTERNATIVE PLAN-OF-SERVICE--ADD TRANSFORMERS TO EXISTING SUBSTATIONS

Adding more transformation to the two local substations has been considered as an alternative to constructing a new substation. A transformer would be installed at the Ashland Substation in 1992 and then, within 1 year, a second 115-2.5-kV, 25-MVA transformer would be installed at PP&L's Oak Knoll Substation in place of the temporary 6-8-MVA BPA transformer at Oak Knoll. Each transformer would be located within the substation yards. The second transformer is required early because the long distribution circuits out of the Ashland Substation limit the amount of load which can be transferred from the Oak Knoll Substation to the Ashland Substation; distribution circuit capacity is limited, and voltage drop presents a major concern for the City.

Although this alternative would provide the additional MW's of capacity, two new feeders would have to be built out of the Ashland Substation and one new feeder out of Oak Knoll Substation to supply loads in the area of Southern Oregon State College and to strengthen the distribution system between the Ashland and Oak Knoll Substations. Existing City distribution lines along Main Street and Mountain Avenue would be rebuilt to accommodate the additional circuits. The long distribution circuits would result in higher electrical line losses than for the proposed plan, would allow for additional voltage drop, would restrict the City's ability to transfer loads, and would not allow the City to meet its required level of reliability. The installed cost for this alternative plan is estimated to be $2,200,000.

2.3 NO ACTION

One alternative would be to take no action to meet the need. However, the load growth in the Ashland area, the risk of extreme peak loads during the winter months, and the limited capacity of the existing system mean that the City has reached the limits of its ability to serve its customers. Unless additional permanent transformer capacity and distribution circuits are provided, electrical service may again be sharply curtailed or lost altogether. If parts of the transmission or distribution systems should be out of service due either to maintenance or to emergencies, the risk of

curtailed service would be even higher. Curtailed electric service would probably increase demand on alternate energy sources for residential heating, such as wood burning, with associated increases in air degradation. Also, large commercial users of electricity would likely be faced with alternatives such as ceasing operation, switching to alternative energy sources, or installing emergency back-up systems. This would likely result in lost wages and profits and higher costs, as well as associated decreases in air quality. Electrical equipment used in the distribution of municipal water would also be affected.

2.4 ALTERNATIVES/OPTIONS CONSIDERED AND REJECTED

A New Substation on Southern Pacific Transportation (SPT) Company Property Near the Foot of 8th Street (Site 6). Site 6 was preferred at first because it is appropriately zoned. It was also perceived as one of the lower-impact sites. It is over 300 feet from the nearest residence and would be visually compatible with adjacent land uses. This site is also near a point where city distribution circuits converge, thus minimizing the length of distribution circuits which would need to be connected to the new substation.

As planning for the project continued, preliminary ground water and soils sample tests were conducted. They indicated the possibility of an elevated level of arsenic near the southwest corner of the site. Preliminary results from subsequent testing also indicated elevated levels of arsenic there, as well as slightly elevated lead concentration near the southeast corner of the site. A general survey for cultural resources was also conducted; it indicated that the southeast portion of the site probably contains historic dump materials and would be the subject of further study to determine its eligibility for inclusion on the National Register of Historic Places.

Both the hazardous substance and cultural resource situations would require additional study, reporting, and processing. Alternative sites which do not present these issues are available. In addition, there was public opposition to this site. Therefore, based on the added information, the availability of sites apparently free of these environmental issues, and the additional time and expense that would be required to resolve the issues at site No. 6, that site has been eliminated from further detailed consideration.

Undergrounding of the Transmission Line. This action would involve building a 1.0 - 1.5-mile underground cable along Mountain Avenue from the tap point at PP&L's 115-kV line to the substation site instead of the proposed overhead line along Mountain Avenue and to the substation. The cable would require a 15- to 25-foot right-of-way outside the existing Mountain Avenue right-of-way (beyond the edge of the road), with access limited to prevent possible damage to the cable and future access for repair. In densely populated sections, this would occur in existing front yards. Cable installation would require constructing a 4x4-foot trench, laying the transmission line in the trench, and then backfilling. The cost of a 115-kV underground cable is significantly greater than the type of overhead transmission line proposed for this project.

Demand-Side Management (DSM). Demand-side management (DSM) alternatives, such as conservation and load shaping (arrangement of specific loads to occur when other loads served by the same system are low), are not expected to be reliable enough or to have sufficient impact to solve the City's transformer and transmission problems. At best, DSM strategies may delay the need for more capacity in the City, but cannot realistically accommodate current load growth. The logistics and institutional barriers that would be encountered in trying to implement timely and reliable DSM strategies also make this an impractical alternative.

New Substation Near Interstate Highway 5 (I-5). The construction of a new substation adjacent to PP&L's 115-kV line near I-5, as proposed by some Ashland citizens, was not identified as an alternative in the initial engineering studies. Although this alternative would initially provide the additional MW's of capacity, it would also accelerate the need for a second transformer at Oak Knoll Substation and associated distribution.

The City has indicated that it would need to build/rebuild three additional distribution circuits from the new substation to the vicinity of Mountain Avenue and East Main Street, approximately nine-tenths of a mile, to allow connection to the existing distribution system which serves the loads. The City has indicated that these additional circuits could be similar in both length and routing options to the distribution circuits required if the additional transformation were added to the existing Ashland Substation. This alternative would result in higher electrical line losses and additional voltage drop. It would also restrict load transfers from Oak Knoll Substation and would not allow the City to meet its responsibilities.

Building a new substation near I-5 would be electrically the same as adding a transformer at Ashland Substation, but would cost approximately $400,000 to $500,000 more than the proposed plan.

This plan offers no advantages over the proposed or alternate plans-of-service, but would needlessly involve impacts from new construction and would cost significantly more than either the proposed or alternate plans-of-service.

Substation Site on Southern Pacific Transportation (SPT) Company Property Adjacent to and West of Substation Site 6. Landowners along Mountain Avenue and A Street have suggested locating the substation somewhere on SPT's property west of site 6 (see Figure 3). A site farther west would be located farther from the residences located along Mountain Avenue and near A and 8th Streets. BPA engineers investigated potential substation sites on SPT property west of site 6.

Significant factors:

- This area is constrained by lack of access. A road would need to be provided to reach the proposed substation and this site is not large enough for an access road and a substation. This is a basic factor in eliminating the area from further consideration.

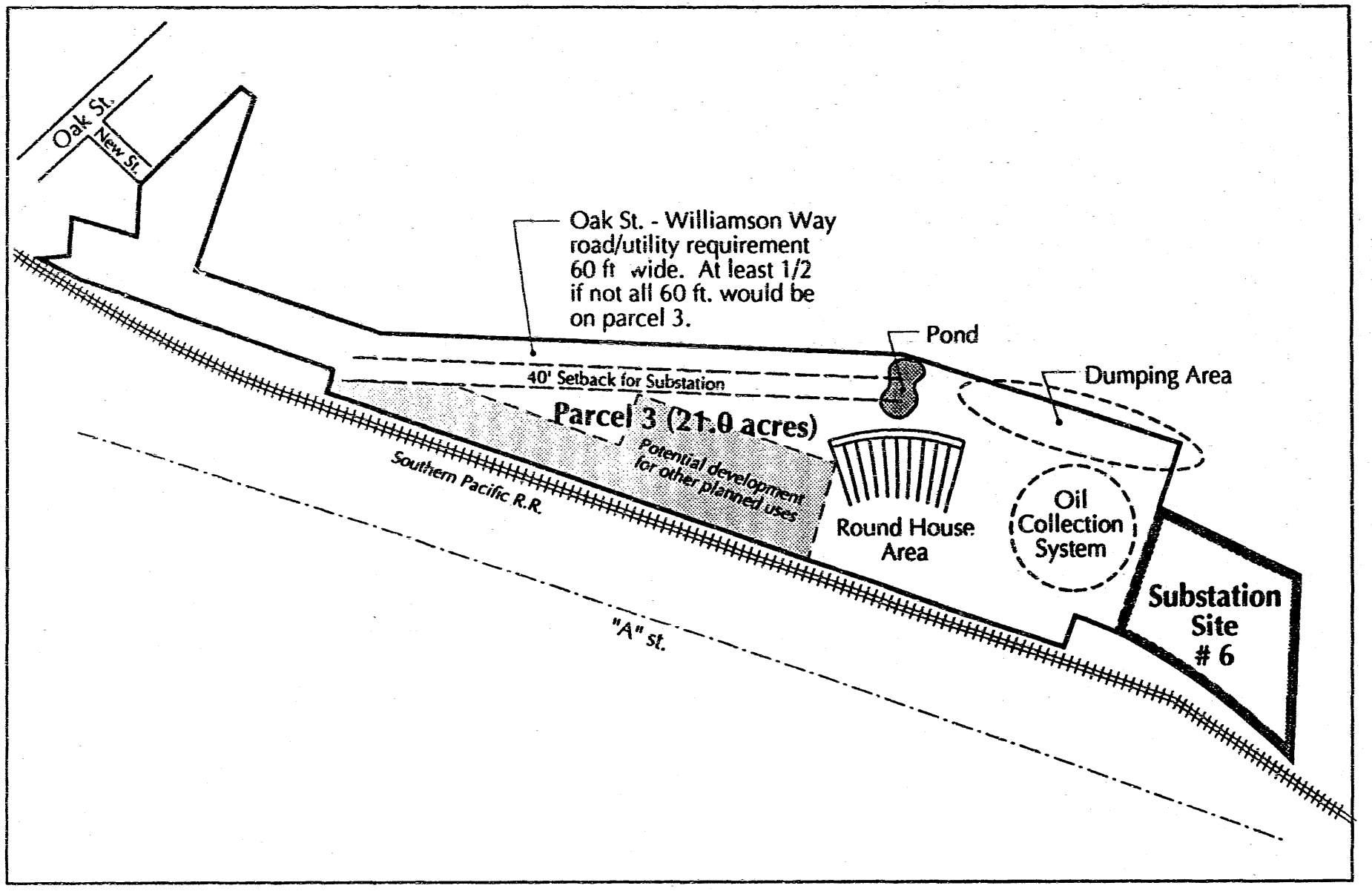


Figure 3
Southern Pacific Transportation Company property in the City of Ashland located adjacent to Oak Street

- Oil collection area immediately west of the proposed substation site 6. Due to past use of the area, it appears tha hazardous waste could be present on this portion of the parcel, and additional (hazardous) waste may be found further to the west in the old roundhouse area.

- Dump area on the northeastern portion of the parcel located northwest of site 6. It would take extensive efforts to clean up this area. Site work would require the removal of considerable amount of earth due to the amount of debris and associated unstable soils.

- The area immediately west of the old roundhouse area. This portion of the parcel is unavailable. SPT is presently involved in negotiations with third parties to develop this portion of the site. A proposed substation would be in direct conflict with the proposed development.

The project cost would increase for any site west of site 6. Access costs alone would increase by $150,000 to $200,000. Transmission line costs would also increase. A route down Hersey Street and then south to the site would require right-of-way acquisition. Another option would extend the transmission line from site 6 westerly, thereby increasing transmission line length by about 1/4 mile, at a cost of approximately $60,000. The distribution circuits would also have to be extended, particularly the two circuits from/to Mountain Avenue. Distribution costs would increase by about $180,000. As compared to the proposed plan, total costs would, therefore, increase by approximately $390,000 to $450,000.

3.0 ENVIRONMENTAL IMPACTS OF THE PROPOSED AND ALTERNATIVE PLANS OF SERVICE

This section addresses impacts of site options under the proposed plan and adding transformers under the alternate plan-of-service. Potential distribution associated with the alternate plan is not addressed (see section 3.11).

3.1 LAND USE

Of the five substation sites now under consideration, only site 4 is developed; it is currently being used by the City to store sand and gravel and contains two steel storage sheds. The other sites are currently either undeveloped or in pasture. Site(s) 3 lies outside of Ashland's city limits, but within the City's urban growth boundary.

Sites 1 and 5 are owned by Southern Oregon State College, and are in non-residential use.

Site 5 is located in the immediate area known as the Mark O. Hatfield Environmental Sciences Complex. A substation in this location is perceived as incompatible with this type of complex and the long-term development objectives of its participants (also see page 3).

Since the proposed tap line would consist of rebuilding the existing distribution line next to the existing street, new access to most of the line would not be needed, and disturbances would be confined to the immediate area surrounding the substation and pole bases. However, new but limited permanent access into the proposed new substation would be needed.

The alternative plan-of-service would be consistent with local land use plans because it involves actions within the existing PP&L substations.

3.2 AGRICULTURE

Construction of a substation (sites 1-5) would convert about 2 acres of land. None of the sites are located in intensive agricultural or residential areas, and impacts on agricultural resources, would, at most, be slight. Site 2 would permanently convert much of a currently used pasture to a non-agricultural use. However, this represents a small amount of the 45-50 acres of similar land in the area. Little, if any, additional land would be taken out of production by the tap line.

Since the existing distribution line would be rebuilt, the minimal amount of land removed by placing the poles would be similar to that currently taken out of production by the existing line. Conflicts with current agricultural operations would be low and similar in intensity to those caused by the existing distribution lines.

This project would not be affected by the Farmland Protection Policy Act (7 U.S.C. 4201). All substation sites are located within the City's urban growth boundary; the affected lands do not meet the criteria for Prime Farmland as defined in the Act and, therefore, are not subject to the Act. Any infestations of noxious weeds at the proposed substation would be prevented by implementation of standard BPA weed control practices.

The alternate plan-of-sevice would not involve the conversion of land to non-agricultural uses.

3.3 VISUAL IMPACTS

Substation sites 1-5 are in areas where visual quality has been altered. None would be a major visual intrusion, although a substation at some sites would be more visible than at others.

- Sites 1, 2, and 5 are near to and visible from Southern Oregon State College's student housing, a bike path, and athletic sports fields. Site 5 would also be near a planned nature history museum; the public has perceived a substation of site 5 as a visual intrusion in a recreational area.

- Site 2 is also at an intersection of three busy streets; a substation here would be highly visible to adjacent homes, travelers, and users of the nearby bike path.

- Site 3 (proposed) is not adjacent to residences or streets and is adjacent to the SPTC railroad right-of-way; a substation would present few viewing opportunities and would be visually compatible with adjacent land uses.

- Site 4 is at an intersection of two streets and at the edge of an older residential area. It is now used by the City for storage of sand and gravel and includes related out-buildings. Visual impact from a substation here would not represent a major visual change.

Visual mitigation at any of the sites would include the use of architecturally designed fencing to block views of the electrical components, as well as landscaping. Solid fencing/wall enclosure would also reduce noise levels adjacent to the substation.

Since the proposed transmission line would involve rebuilding an existing distribution line where it is presently located, the visual character of the area would not change. However, the short segments into the substation sites would involve new construction; there would be a potential adverse visual impact.

Under the alternate plan-of-service, the additional transformers at the existing PP&L substations would not involve major substation modifications and would be visually compatible.

3.4 RECREATION

Site 5 would be near a planned natural history museum which will be a focus for education, recreational, and leisure time activities. Both sites 2 and 5 would be visible from a well-used bicycle path, but would not conflict with the path's use other than possibly lessening its appeal. Sites 3 (proposed) and 4 would not conflict with any recreational facilities of activities.

The additional transformers under the alternative plan-of-service would not involve activities near recreation resources or areas of significant recreation activities.

3.5 WATER RESOURCES

None of the five substation sites are located within a Federally defined 100-year floodplain, wetland, or near a tributary of Bear Creek; waters of the U.S. (Clean Water Act) would not be affected.

The section of transmission line along Mountain Avenue which is common to all options would span the 100-year floodplain and associated riparian wetland (U.S. Fish and Wildlife Service Wetlands inventory) at Bear Creek for a distance of about 200 feet; however, poles would not be placed in the

floodplain. No other line segments would encounter a 100-year floodplain or wetland area, and the proposed plan would not promote development within the floodplain. Adverse impacts on the creek, floodplain, and wetland at Bear Creek would be avoided by using Mountain Avenue for construction equipment and by placing new poles outside the designated wetland.

The proposed plan (all options) would be consistent with Federal policies on floodplain management and protection of wetlands. It would not involve discharge of fill materials or activities in waters of the United States, and there are no navigable streams involved.

The alternate plan-of-service does not involve placement of equipment of structures in a Federally identified 100-year floodplain, wetland, water of the United States, or navigable stream. Therefore, impacts from the alternative plans are not anticipated in these areas.

3.6 FISH AND WILDLIFE

None of the sites or the transmission line work would have any impact on fishery resources of the area. Since no access roads are needed and no clearing is anticipated, there would be no impacts on Bear Creek and related waters. Wildlife values would be affected to the extent that clearing for the new substation would displace small birds, mammals, amphibians, and reptiles that may inhabit the site now. In all cases, the lands have already been disturbed or cultivated. While the impacts would be long-term (because the land would be permanently changed), the kinds of habitats that would be removed are readily available in the surrounding area. Therefore, the impacts would be insignificant.

A BPA wildlife biologist conducted a site visit in late 1990 and noted that all the alternative sites occupy already disturbed or cultivated lands. Based on this site visit, a review of maps and photographs, a review of the latest threatened and endangered species list and these species' habitat requirements, he found that the proposed project would not affect the bald eagle or peregrine falcon, the only threatened or endangered species in the area. In making this finding, he conferred with the regional staff of the USFWS.

The alternate plan-of-service would not have impacts on fish and wildlife in the area because it would not involve major construction activities or critical habitat.

3.7 AIR QUALITY

Except for a few trees that may be near substation sites, all sites have been previously cleared; most of the transmission line route along Mountain Avenue is already cleared and maintained. Therefore, major tree clearing and air quality impacts associated with slash burning would not occur. Other air quality impacts would be minimal and short-term due to the brief (4-month) construction period and compliance with applicable air pollution control standards.

The placement of transformers under the alternate plan would not require clearing or significant or extended use of heavy equipment.

3.8 HEALTH AND SAFETY

The increased risk of electrical shock is low, since the new transmission line would largely be built in place of existing lines. Magnetic field (MF) strength would largely depend on how the wires are arranged on the poles and on the route selected to connect the tap line with the proposed substation. Under the proposed plan, field strength directly under the Mountain Avenue line would be about 2.5 milligauss (mG) (based on year 2005 system normal winter peak loads, all circuits electrically balanced). Between Mountain Avenue and the substation sites (much shorter segment 3), the primary source of magnetic fields would be the underbuild 12.5-kV distribution lines. Field strength directly under the line for segment 3 would be no higher than 4.5 mG. For general comparison, magnetic field levels (based on 1988 loadings) under the existing distribution line along the east side of Mountain Avenue are estimated at approximatly 6.9 mG under the line and about 2.1 mG at 50 feet from the line. Without additional improvements in the Ashland area, peak loads and magnetic fields on the existing system would be increased (assuming the system could still function).

The magnetic fields emitted from the proposed transmission line would be similar to those typically found in the home from household appliances and their associated wiring. The electric fields (EF) would also be comparable to ambient levels typically found in an urban environment. The BPA substation would be located so as not to increase electric and magnetic field (EMF) exposures in nearby residences. None of the sites would increase EMF in any of the nearby residences. The EMF levels near the substation fence would tend to be dominated by levels produced by the lines entering and leaving the substation. However, for short segment 3 associated with sites 1 and 5, there is a possibility that exposures would, at times, increase in nearby residences. For a complete summary of line segments and associated projected magnetic field strengths, please see the Appendix.

Under the alternative plan-of-service, BPA would not be involved in line construction. However, the City would rebuild their distribution lines to accommodate additional circuits. At the request of the City (in response to public concern), BPA has calculated that magnetic fields associated with these distribution line segments would range from 2.7 to 11.6 mG, based on information provided by the City (see Appendix).

3.9 CULTURAL RESOURCES

A review of the National Register of Historic Places indicates that no properties listed on the Register are located close to the proposed project. However, due to the proximity of the locally identified Ashland Historic District and the potential for unrecognized historic properties, a general survey for cultural resources was conducted by a professional archaeologist with experience in the local area. Sites 1-5 were free of concern. If, after

construction has begun, any cultural resources are identified that would be adversely affected by the project, construction in the immediate vicinity of the resource would be halted, and Section 106 consultation procedures would be followed. Construction would not resume until these procedures were complete.

A review of the National Registry of Natural Landmarks, the World Heritage List, and the National Registry of National Landmarks indicates that no listed properties are present in the vicinity of the project. There is also no evidence to suggest that either of the plans-of-service would affect sacred sites or sites related to the religious rites of Native Americans.

3.10 POLLUTION CONTROL AT FEDERAL FACILITIES

BPA would meet State and local noise control regulations. Based on field measurements of the existing "twin" of the transformer that would be used on this project, the State and City noise standards would be met. Mitigation measures might, however, be needed at sites 2 and 4 because residential properties are nearby. Mitigation would take the form of noise barriers, vegetative materials, or some other means of reducing visual impacts. Mitigation at sites 1, 3 (proposed), and 5 would not be required.

Regarding the alternative plan-of-service, no residences are within 100 feet of either the Ashland or Oak Knoll Substations. However, three homes are proposed for construction within 100 feet of the Ashland Substation on the south side of Nevada Street. Under the alternative plan, State noise standards would be met when adding transformers at Ashland and Oak Knoll Substations.

Although the proposed project would occur within the Federally identified Southwest Oregon Intrastate Air Quality Control Region, any pollutants associated with the project would be limited to vehicle emissions (primarily during construction) and would be well within applicable standards. Under the Clean Water Act, stormwater runoff from the substation yard would be subject to EPA permitting requirements.

The substation design (with any of the options) would include oil spill containment to prevent oil from entering any water body. Oil used in substation equipment would contain 5ppm or less polychlorinated biphenyls (PCB's) and would be, therefore, considered "PCB-free" (this status would also apply to adding transformers at Ashland and Oak Knoll Substations under the alternative plan-of-service). Also, no other surface or ground water pollutants would be generated, so the proposed substation is not affected by the Clean Water Act.

A preliminary study to determine whether hazardous substances may be present on the proposed site will be conducted prior to land acquisition. If hazardous substances at elevated levels are anticipated, more detailed studies will be conducted or one of the alternate substation sites will be selected. If further studies confirm the presence of hazardous substances, BPA would coordinate with Federal, state, and local agencies to identify and implement BPA responsibilities, if any, for reporting, and their containment or removal.

Any herbicides that may be used around the substation yard would be applied only by qualified persons and in accordance with applicable instructions and regulations.

3.11 CUMULATIVE EFFECTS

BPA has not identified any cumulative environmental effects of the proposed action. Of course, local utilities customarily need to maintain the ability, on short notice, to physically modify, relocate, and change the electrical operation of their system. This is done without any requirement for notice to BPA and such actions are beyond the control of BPA. Presently, any such actions are speculative and uncertain and the impacts associated with such actions are not reasonably foreseeable. BPA is not aware of other proposed actions that would contribute to cummulative effects associated with this proposed project.

4.0 CONCLUSIONS

All substation sites, the transmission line "rebuild," and the new line segments would have minimal visual impacts. Effect on air, water, or soil resources would be minimized. Although a small amount of wildlife habitat would be permanently disturbed, no fish or threatened or endangered species are expected to be affected by this project, and historical and cultural resources would be preserved. Floodplains/wetland areas would not be affected. The project would be consistent with applicable pollution control regulations. Confirmed hazardous substances would be dealt with in a manner consistent with applicable Federal, state, and local regulations. The project would not threaten or violate any applicable statutory, regulatory, or permit requirement, and would not require siting and construction or major expansion of waste disposal, recovery, or treatment facilities.

5.0 AGENCIES AND PERSONS CONSULTED

BPA has consulted with the persons and agencies listed below regarding issues associated with the proposed project. BPA is distributing this assessment to known interested and affected persons and agencies for further comment on the proposed action, alternatives, and environmental impacts.

City of Ashland
United States:
  Soil Conservation Service, Medford Field Office
  Fish and Wildlife Service
State of Oregon:
  State Historic Preservation Office
Department of Environmental Quality
Citizens Group, Neighbors Opposed to Substations in Rural Areas

ASHLAND SERVICE - COMPARISON OF OPTIONS

	SUBSTATION SITES					
	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5	ALT. PLAN
• Land Use/State, Area Wide, Local Plan & Program Consistency	Inconsistent	Same as Site 1	Consistent*	Consistent but Site Already Occupied	Same as Site 1	Consistent
• Agriculture	No Significant Effect					
• Recreation Considerations	Yes	No	No	No	Yes	
• Visual Compatibility	Question-able	Question-able	Yes	Yes	Question-able	Yes
• Floodplains/Wetlands/Surface Water	All Sites/Alignments Avoid Wetlands/Floodplains and Have Low Potential for Surface Water Impacts					
• Air Quality	No Significant Effect					
• Fish & Wildlife	All Sites/Alignments Would Not Affect Any Threatened Or Endangered Species or its Habitat					
• Anticipated Increase in EMF Exp.	Some Possible**	No	No	No	Some Possible**	
• Soils	Minimal Soils Impacts For All Options					
• Historic/Cultural	No Effect	No Effect	No Effect	Adjacent to Local Historical District-Low Likely-hood of Effect	No Effect	No Effect

* County ordinance allows utility substations after conditional land use process.

** Associated with line segment 3 to serve substation.

APPENDIX - HEALTH AND SAFETY

Ashland Substation and Tap Line Project

As with all electrical wiring, powerlines pose a risk of electrical shock if certain safety precautions are not followed. It is extremely important that people avoid bringing any metal or wooden objects such as TV antennas, irrigation pipe, or ladders close to powerlines. For this project, electrical hazard would not increase since the new transmission line would largely be built in places of an existing line.

Electrical equipment and devices produce electric and magnetic fields (EMF). There is ongoing controversy over whether exposure to EMF is a public health hazard, and if so, at what levels. No studies have established a cause-and-effect link between EMF and disease. Several studies, however, suggest that people who live or work around powerlines have an increased risk of cancer. The U.S. Environmental Protection Agency (EPA) recently released a draft report that discusses the currently inconclusive research on EMF and cancer.1/ BPA also provides a booklet that gives detailed information on EMF research.2/

Because of scientific uncertainty and public concern over EMF, BPA looks for practical alternatives that will not increase public exposures to EMF when planning for new transmission facilities. This is consistent with the policy of "prudent avoidance" described in a report on EMF by the U.S. Office of Technology Assessment.3/

Along Mountain Avenue (segments 1 and 2 of all transmission options), the primary source of magnetic field would be the 115-kV transmission line (see notes on page 15). Annual peak magnetic fields levels in the year 2005 are expected to be no higher that 2.5 mG directly under the line and no higher than 1.3 mG at a distance of 50 feet. Annual average levels are expected to be about half of the peak levels. These are comparable to ambient levels typically found in the home due to the presence of wiring and appliances. As a result, magnetic field exposures to the public along Mountain Avenue are not expected to increase.

1/ Evaluation of the Potential Carcinogenicity of Electromagnetic Fields. (Draft). 1990, U.S. Environmental Protection Agency, Washington, D.C.

2/ Electrical and Biological Effect of Transmission Lines: A Review. 1989, Bonneville Power Administration, Portland, OR.

3/ Biological Effects of Power Frequency Electric and Magnetic Fields. Background paper, 1989, U.S. Congress Office of Technology Assessment, Washington, D.C.

Between Mountain Avenue and the substation (segment 3 of all transmission options), the primary sources of magnetic fields would be the underbuilt 12.5 distribution lines (see notes on page A-3). Annual peak magnetic field levels in the year 2005, under electrically balanced conditions, are expected to be no higher than 4.5 mG directly under the line and no higher than 1.5 mG at a distance of 50 feet. As mentioned above, annual average levels are expected to be half the peak levels. Magnetic field exposures are much less predictable during electrical unbalance conditions and could increase 2-3 times the levels reported for the balanced case.

For segment 3 associated with sites 2, 3, and 4, no residences are located within 100 feet of the proposed line. Even under conditions of electrical unbalance, magnetic fields exposures at these distances are not, on average, expected to be above ambient levels typically found in the home. As a result, magnetic field exposures to residences are not expected to notably increase in these areas.

For segment 3 of transmission options 1 and 5, numerous residences are located within 100 feet along the last half of the segment. Although some magnetic field exposure to these residences are occurring presently due to existing distribution lines, uncertainties related to the electrical unbalance issue suggest the possibility that exposures could, at times, increase as a result of the proposed line.

Maximum electric field levels for all alternatives are well below the State of Oregon electric field standard for power lines (i.e., 9kV/m).

The proposed BPA substation also would be located so as not to increase EMF exposures to nearby residences. The EMF levels near the proposed substation fence would tend to be dominated by fields from the lines entering and leaving the substation.

The following tables and illustrations show magnetic field levels calculated for transmission and distribution line segments requiring work under the proposed and alternate plans-of-service. Fields associated with distribution line segments under the alternate plan-of-service were calculated at the request of the City and are based on data supplied by them.

TO THE READER

The following pages, prepared in response to public interest, contain figures and technical data showing project magnetic field strengths for various options discussed in the EA. The following material is included here:

Figures	This set of figures illustrates the location of each of the possible options.
Magnetic Field Table	This table shows the calculated magnetic fields for possible future transmission and distribution facilities. The calculations in this table are based on certain assumptions about the design, loading (current passing over the line) and phasing (arrangement of the conductors in space). These basic assumptions are listed below:

- Electrical loads for the possible future transmission line alternatives are based on 2005 system normal winter peak and were determined from BPA's 1990 load forecasts.

- Electrical loads on the City of Ashland distribution lines associated with new distribution circuits are for the year 2005 system normal winter peak. Magnetic fields were calculated at the City's request and based on information provided by the City of Ashland.

- Phasing arrangements are selected to achieve low magnetic fields and still provide phasing consistency between line segments.

- 115-kV line geometries are based on standard BPA designs. 12.5-kV line geometries are provided by the City of Ashland.

- Balanced electrical phasing is assumed for all circuits. Operating experience suggests this to be a valid and reasonable assumption for transmission lines such as the 115-kV circuit proposed for this project. Conversely, operating experience on distribution lines (e.g., 12.5-kV) suggest that the degree of unbalance on any distribution circuit is very unpredictable and variable, and depends greatly on the level of diversity of customer loads fed by these circuits. While the phase unbalance on the resulting magnetic field from distribution lines depends greatly on many complicating factors, it is acknowledged that increases of 2-3 times can, at times, occur when compared to the balanced case.

  For those situations where distribution loads are expected to be very low (and comparably much lower than transmission loads). The effect of unbalance on the reported magnetic field levels is not significant. This is the case for segments 1 and 2 which run along Mountain Avenue and make up a majority of the proposed route.

For those situations where distributions loads are expected to be very high (and comparably much higher than transmission loads), the effect of unbalance in the reported magnetic field levels can be significant as described above. This is the case for segment 3 of transmission options and for the alternative plan-of-service.

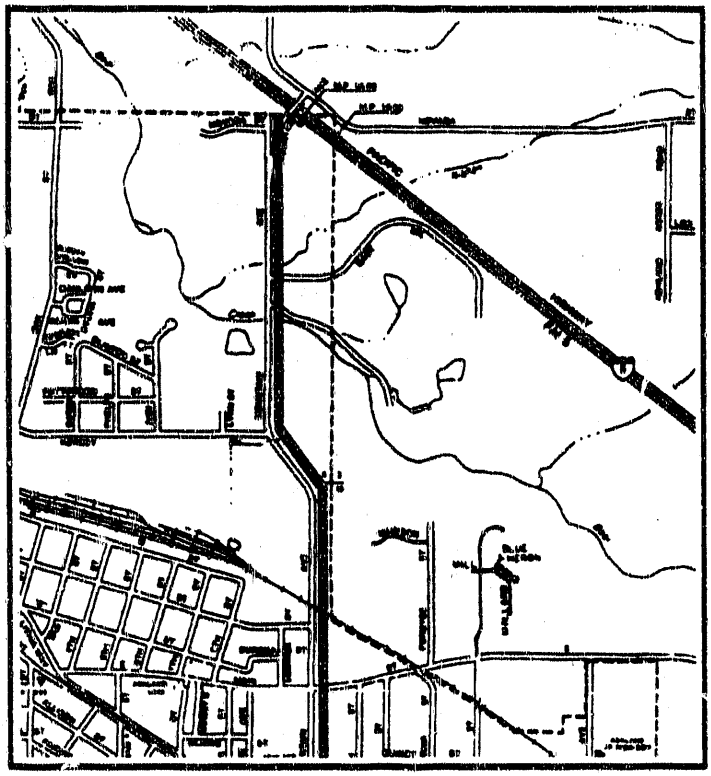
MAGNETIC FIELD TABLE

Calculated magnetic fields for possible future transmission facilities from PP&L's 115-kV transmission system to alternative substation locations.[1/]

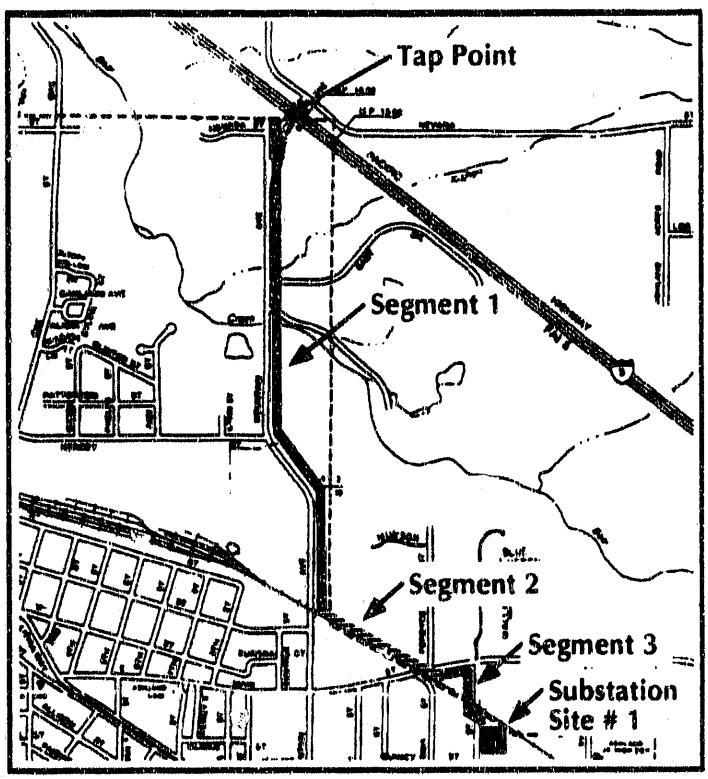
Alternative/Segment	Magnetic Field (mG) L 50'	L 25'	0'	R 25'	R 50'
Alt Sub Site #1					
Segment 1	1.2	1.9	2.4	1.7	1.0
Segment 2	1.2	2.0	2.5	2.1	1.3
Segment 3	0.9	1.9	4.5	3.1	1.5
Alt Sub Site #2					
Segment 1	1.2	1.9	2.4	1.7	1.0
Segment 2	1.1	1.8	2.1	1.7	1.1
Segment 3	0.9	1.9	4.5	3.1	1.5
Alt Sub Site #3					
Segment 1	1.2	1.9	2.4	1.7	1.0
Segment 2	1.1	1.8	2.1	1.7	1.1
Segment 3	0.9	1.9	4.5	3.1	1.5
Alt Sub Site #4					
Segment 1	1.2	1.9	2.4	1.7	1.0
Segment 2	1.1	1.8	2.1	1.7	1.1
Alt Sub Site #5					
Segment 1	1.2	1.9	2.4	1.7	1.0
Segment 2	1.2	2.0	2.5	2.1	1.3
Segment 3	0.9	1.9	4.5	3.1	1.5
Alt Plan-of-Service[2/]					
Segment 1	0.5	1.4	2.7	1.4	0.4
Segment 2	0.6	1.9	3.6	1.8	0.6
Segment 3	3.6	7.4	11.6	7.2	3.4

1/. Probable magnetic field (MF) strength expressed in milligauss (mG) calculated 1.0 meter above ground horizontally away from the centerline of the transmission configuration. The slight differences in MF levels on either side of the transmission line result from line design asymmetry.

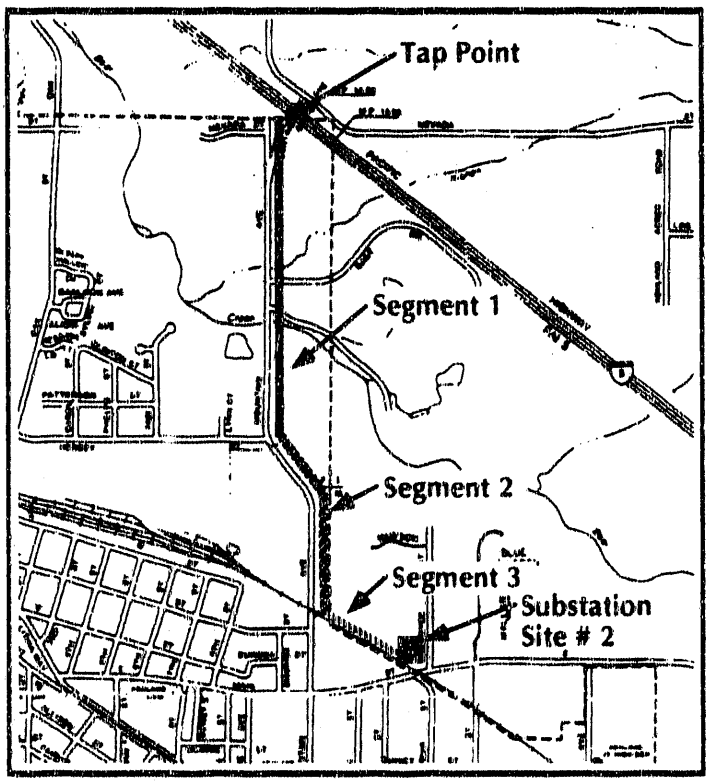
2/. See Figure 5 for locations of segments.



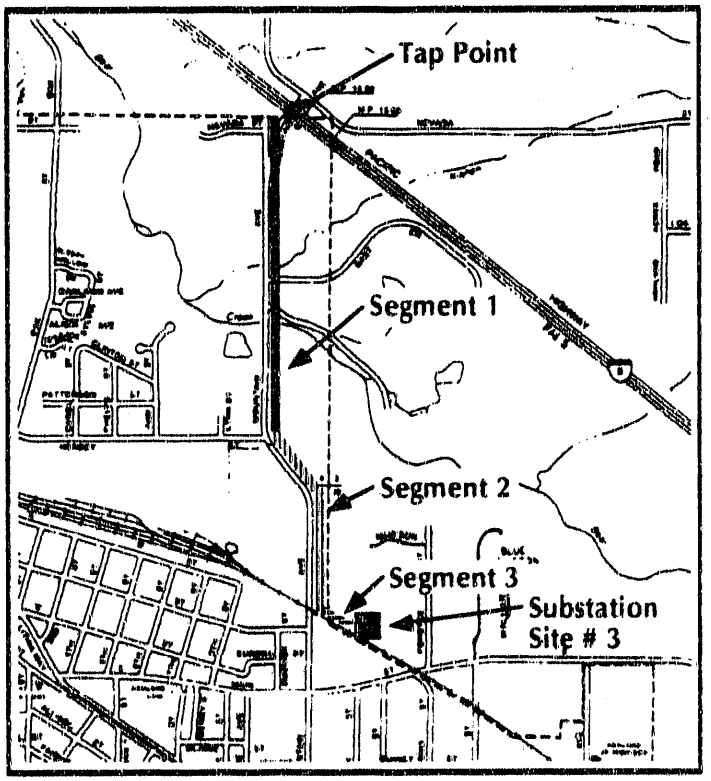
Existing Distribution Line



Alternative Substation Site # 1

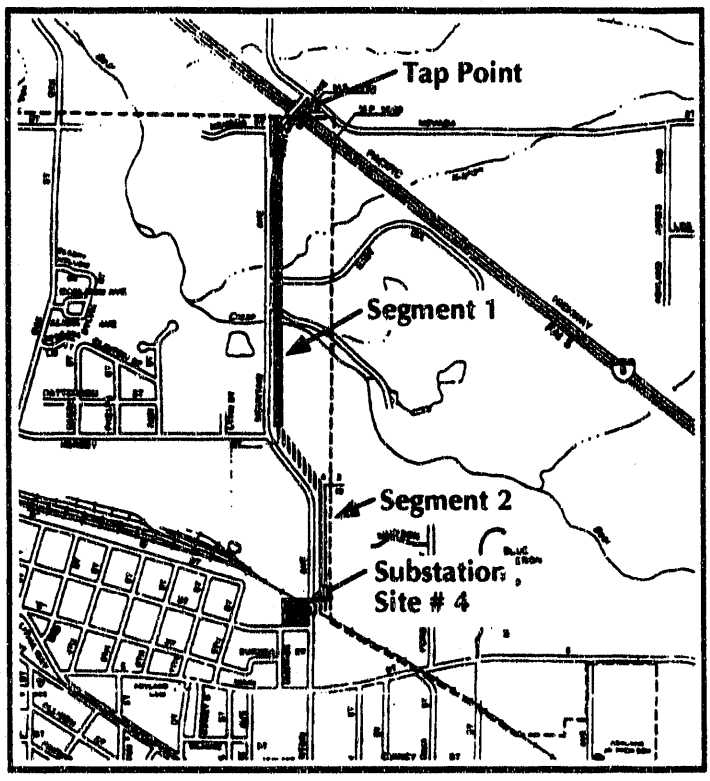


Alternative Substation Site # 2

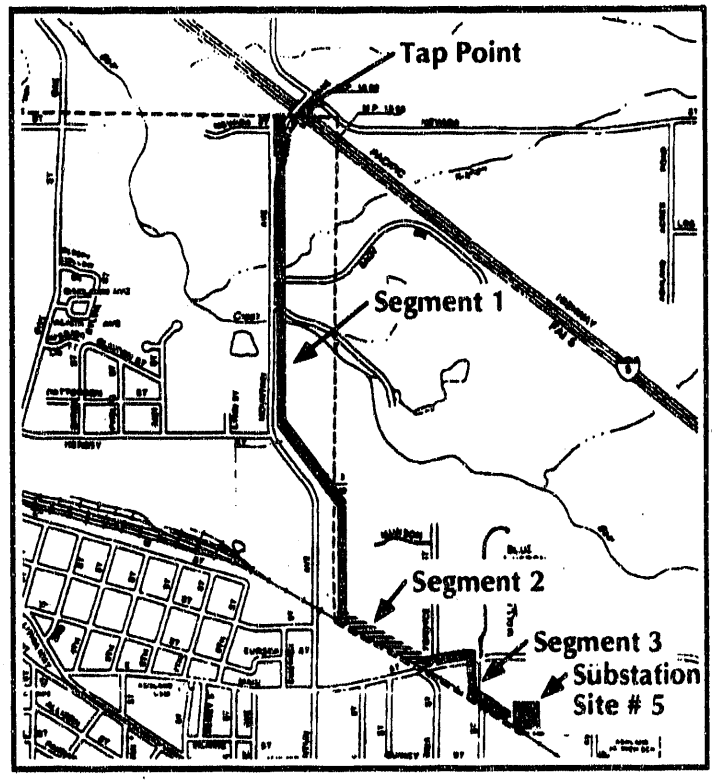


Alternative Substation Site # 3 (Proposed)

Figure 4
Location of 115-kV Transmission Line Segments for each of the Alternative Substation Sites.



Alternative Substation Site # 4



Alternative Substation Site # 5

Figure 4 (continued)
Location of 115-kV Transmission Line Segments for each of the Alternative Substation Sites.

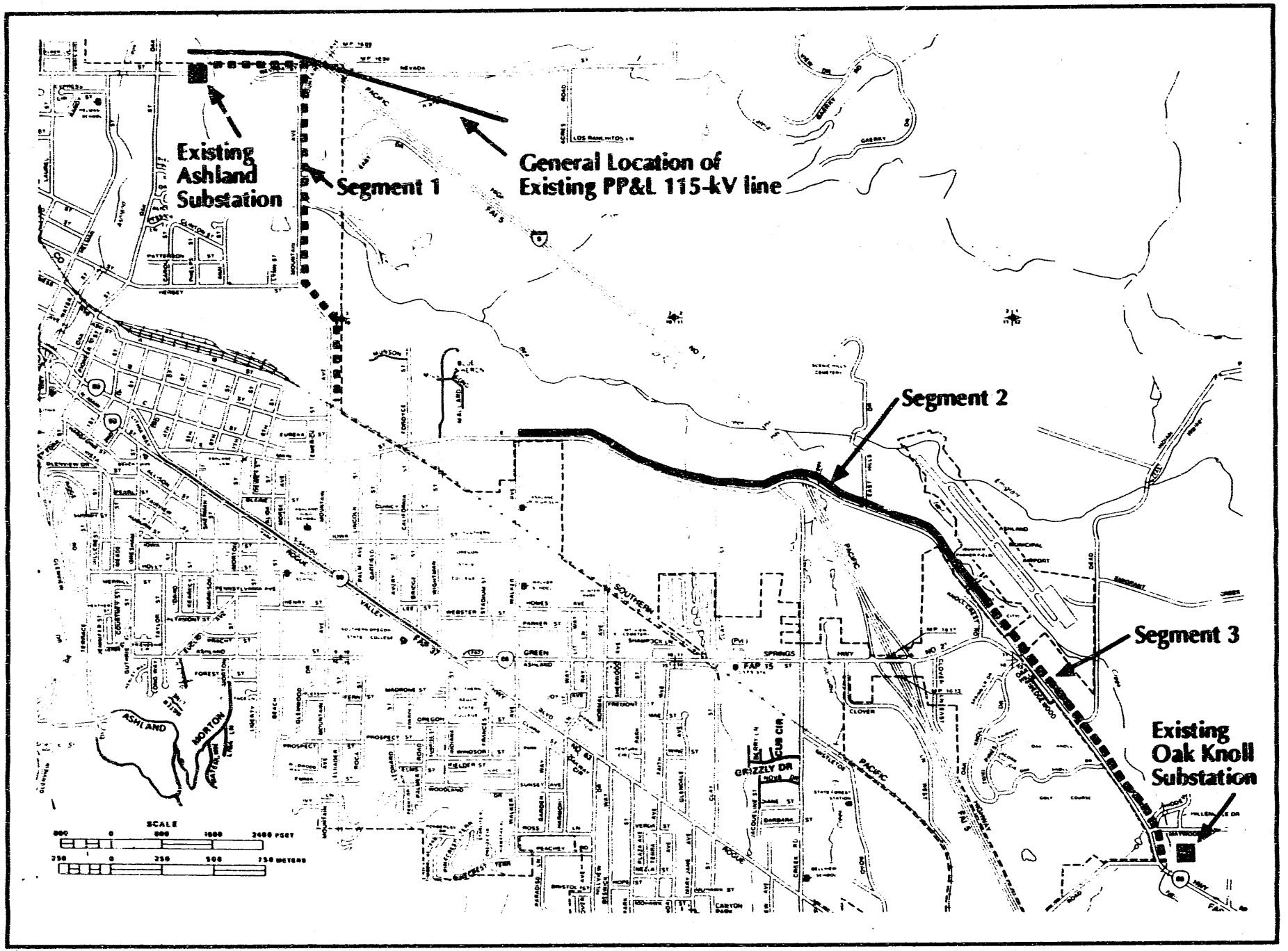


Figure 5
Alternative Plan of Service

END

DATE
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11/3/92