

Oregon Parks and Recreation Department

Guidance for Recording and Evaluating Linear Cultural Resources

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Introduction¹

Linear Resources are those that manifest as long, narrow individual structures, or as linked structures (classified by the National Park Service as districts). These can include those that are designed to convey something (people, goods, power, communications, etc.) across long distances, such as roads, trails, railroads, canals, irrigation and mining ditches, and transmission lines, and those that are designed to bound or separate areas or to contain something, such as fence lines, walls, and levees.² They frequently (but not always) occur within a right-of-way spanning many individual properties, communities, counties, states, or even nations. This document is intended to provide guidance on how to approach the questions of identification, integrity and significance, and overall evaluation of eligibility of linear resources for listing in the National Register of Historic Places (NRHP). Note that these are general guidelines. Every historic resource has individual qualities, characteristics and associations that may affect the approach of the researcher.

It is important to note that, within the regulatory setting, there are two essential levels of regulation under which cultural resources projects are reviewed by the SHPO. These are projects that qualify as federal undertakings, and those that do not. Knowing the regulatory environment under which a project will be reviewed is critical. Generally, a project that is a federal undertaking (as defined in 36 CFR 800) will be reviewed under Section 106 of the National Historic Preservation Act, and its associated implementing regulations. For these projects, the typically-applied age criterion for eligibility for listing in the NRHP is 50 years at the time the project is completed. For projects that are not federal undertakings, Oregon State Regulations may apply. For archaeology, the threshold for defining an archaeological site is a deposition age of 75 years or more. For the built environment, there is no state regulation that applies, except for projects that will directly impact non-federal public properties (such as government buildings, schools, fire stations, etc.).³

Purpose of this Document

This document has been developed by the Oregon State Historic Preservation Office, and is intended to be a true guidance document, not a policy statement. While the document does briefly address the question of findings of effect, the focus is to assist the preparers of determinations of eligibility by illustrating key considerations, approaches, and significance elements for each type. It has been prepared with full recognition that all resources are different, and may require consideration of circumstances that occur only at that resource. This guidance

¹ This document is intended for historic preservation professionals with an understanding of the National Register of Historic Places eligibility and the seven aspects of integrity. For information regarding these, please refer to National Register Bulletin #15 “How to Apply the National Register Criteria for Evaluation,” available online at <http://www.nps.gov/nr/publications/bulletins/nrb15>. Other National Register Bulletins may also provide useful insight into evaluation of other resource types.

² The use of “districts” throughout this document is not meant to reflect a determination of eligibility or National Register status of a linear resource. Rather, it is a reflection of the five categories of cultural resources, as defined by the National Park Service (see National Register Bulletin #15, “How to Apply the National Register Criteria for Evaluation”).

³ For more information on federal and state cultural resource regulations, please visit the Environmental Compliance page on our website, here: http://www.oregon.gov/oprd/HCD/SHPO/pages/preservation_106.aspx

document, therefore, should be considered as a tool for preservation professionals, in addition to their own expertise, experience, other guidance documents developed by federal agencies (particularly when the designated lead federal agency for an undertaking has developed a directly relevant guidance document), and professional common sense.

Integration with Oregon Survey Standards

The Oregon SHPO approaches historic properties surveys in a three-tiered system, based on the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716). Standard I (Identification of Historic Properties Is Undertaken To The Degree Required To Make A Decision) indicates that the extent of investigation on the eligibility of a resource is based on the amount of information required to provide "a sound basis for making decisions."

The Secretary of the Interior's Guidelines establish the Reconnaissance and Intensive Level surveys, upon which the Oregon Reconnaissance Level Survey (RLS) and Oregon Intensive Level Survey (ILS) are based. Oregon further adds the third step of a formal Determination of Eligibility, submitted to and reviewed by the Keeper of the National Register of Historic Places. This is in recognition that the Keeper is the final authority on the eligibility of a resource for listing in the National Register.

As described more fully in *Guidelines for Historic Resource Surveys in Oregon*⁴, the RLS is designed to allow very preliminary evaluations of built resources, based on the age and integrity of the resource, taking into account the various degrees to which integrity must be present for a resource to be eligible under any NR Criterion, and in any format (individual or contribution to a historic district). Upon finding that a resource is eligible at this level of investigation, it is determined whether or not further investigation through the use of an ILS is warranted. This decision is made by the lead federal agency, in consultation with the SHPO, and is typically based on the likelihood or unlikelihood of an adverse effect to the resource arising from the undertaking. If a resource is found to be eligible at the RLS level, and the undertaking may have an adverse effect on it, the lead federal agency may either elect to acknowledge the eligibility of the resource and move to the full finding of effect evaluation (and mitigation if an adverse effect is found), or the agency may elect to conduct further investigation through the ILS, which is designed to address eligibility more completely through the application of all of the NR Criteria for Eligibility, as well as any applicable Criteria Considerations. These guidelines are intended to assist preservation professionals in the collection of data sufficient to satisfy both the RLS and ILS. Some data points outlined below may not be required to inform the RLS-level evaluation, however, all will be relevant to the ILS-level evaluation.

Linear Resource Classification

Linear resources can be classified as either "structures" or as "districts," depending on the resource. When linear resources are considered as comprehensive systems, they are classified under the National Historic Preservation Act (NHPA) as "districts," composed of many segments

⁴ Available on the internet at:

http://www.oregon.gov/oprd/HCD/SHPO/docs/guidelines_for_historic_resource_surveys_2011.pdf

and features that together form the significant resource.⁵ Individual segments and features are considered to be “contributing” or “non-contributing” elements to the overall resource, much the same way individual buildings are considered in a residential or commercial historic district. Features within linear districts can also be eligible as individual resources, evaluated on their own merits, such as an architecturally unique pump station, or a significant bridge on a historic road. Linear resources differ from traditional historic districts, however, in that they can manifest as:

1. A direct, linear resource (such as a railroad, highway, or transportation canal connecting directly between two points);
2. An interconnected grid that branches and reconnects, creating backup and alternate routes in case of disruptions in continuity (such as the net-like interconnected nature of an electrical transmission system interconnecting several communities), or;
3. A dendritic system (such as an irrigation district, with root canals feeding laterals, which feed smaller sub-laterals, which feed ditches at the individual parcel level).

When linear resources manifest as a single, discrete linear resource, they are classified as “structures,” and may be considered individually, or as possible contributing elements to a larger, related grouping, such as a historic stone wall found within a historic ranch complex.

Literature Review

The literature review conducted prior to fieldwork is composed of two essential pieces, the gathering and review of prior cultural resource studies within and near the APE, and the gathering and synthesis of prior historical research establishing the historic contexts that may be embraced by the various resources (known and unknown) within the APE. These two elements will provide the cultural resources professional with the information needed to conduct efficient and complete field data collection by creating a basic body of information regarding the resources that can be expected to be encountered in the field, whether they are previously-identified resources known to exist beforehand, or if the historical contexts identified by research suggest that such currently-unidentified resources may be encountered during field surveys. Knowing what to expect in the field can greatly assist the execution of fieldwork in an efficient manner by allowing the investigator to plan field studies, focusing efforts in likely locations, and by providing an understanding, at least at a basic level, how to record and interpret resources identified for the first time.

Background History

Background histories should be researched and synthesized using any primary and secondary research materials that are appropriate. In addition to basic secondary materials, useful primary

⁵ The National Register defines a historic district as a “significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development.” For further definition of historic districts, see National Register Bulletin #15. Please note that the contributing resources within a historic district may also be individually eligible or individually listed in the NRHP. Such resources require additional consideration when determining project-related impacts or effects. For more on determining project effects, see “The Section 106 Process in Oregon – A Practical Foundation,” available at the Oregon State Historic Preservation Office website (http://www.oregon.gov/oprd/HCD/SHPO/pages/preservation_106.aspx).

source materials can be found at local historical societies and museums, libraries, and interviews with local land-owners and residents. Begin with a broad historical narrative, narrowing the focus to establishing major themes in the history of the area, and delving down to history of the immediate vicinity of the APE. Be sure to include the various currents of history that are present in the history of the area, and that may provide insights into the important contexts that may provide information relevant to Criterion A and Criterion B associations that may be found to exist for any cultural resources (both built and archaeological) identified within the APE during field studies.

Cultural Resources Literature Review

Conducting thorough background research within the records of the resource's managing entity, historical societies, museums, and other repositories, and gathering a complete review of existing contexts and resource records held by the SHPO and federal agencies is especially important when dealing with linear resources. Documentation of linear resources frequently occurs in segments (based on project boundaries) and is often spread over many years, so it takes more work to track down and reconcile all of those varied records.

Because linear resources are often long, interconnected corridors, it is can be difficult to determine during background research whether the resource has been evaluated for significance in the past. Even if the current undertaking includes a segment of the resource that has not been evaluated, it is frequently the case that another, sometimes distant segment has been recorded and/or evaluated, and that a record of that previous encounter exists in regulatory agency records.

Identifying previously evaluated segments will assist the researcher in several ways. First, it will often provide the historic context of the resource as a whole, which, if broadly developed, will be applicable to the segment of the same resource within the current survey area. Second, it will often identify the critical aspects of integrity that must be present in order to be eligible. Finally, a well-constructed evaluation can provide insight into the best approach for application of the NRHP criteria for eligibility. Consult the records of regulatory agencies (SHPO and any relevant federal agencies) to ensure that all previously evaluated segments are identified.

When working in the Oregon Historic Sites Database,⁶ the identification of previously-recorded segments of linear resources can be difficult, due to the limitations of the system the SHPO has available. The best way to begin searching the Historic Sites Database is to begin by searching under the NAME of the resource. If basic information, especially the name and age of a linear resource, is not already known, begin by consulting historic maps (USGS, General Land Office, Metsker's County Atlases, U.S. Coast and Geodetic Survey, etc.) that may indicate the name and approximate age of the resource. Many linear resources (especially canals and railroads) will be identified by name on such maps. Remember that the name supplied in these maps is typically the name by which the resource was best known at the time of the publishing of the map, and the resource may have been built under a different name. Knowledge of one of the historical names of a resource, however, will very often provide a point of entry for tracing the history of the resource through its various historical incarnations. For example, due to their frequent changes in ownership, it can be especially difficult to track the history of railroads. However, if the

⁶ The Oregon Historic Sites Database is accessible by the general public, and can be found online at: <http://heritagedata.prd.state.or.us/historic/>.

researcher knows at least one name by which a railroad was known, and the time at which it was known by that name, it is possible to track the railroad through its history. There are many print and online resources available to assist the researcher in this.

Once the names of a resource are identified, search the Oregon Historic Sites Database by the RESOURCE NAME. This will allow you to identify other portions of the resource being evaluated, even if they are distant from the survey area. Searching for all of the names by which a resource has been known throughout its history is of critical importance, as these can change repeatedly over time, and not all names historically associated with a resource may be recorded in the SHPO records. Include larger entities to which the resource may have belonged, and consider spelling variations.

- Among the many print resources that are helpful with uncovering the corporate past of railroads is *Encyclopedia of Western Railroad History* by Donald B. Robertson (Vol. III, *Oregon and Washington*, The Caxton Printers, Ltd., Caldwell, Idaho, 1995), which is particularly helpful in tracking changes in ownership and dates of construction for spur lines, secondary lines, and mergers.
- For irrigation canals and branches thereof, search by the name of the canal, irrigation district, or project with which it is associated. USGS maps frequently include names of major canals. Contact the responsible Irrigation District for designations that may not appear elsewhere.
- For power transmission lines, search by the name of the transmission line, the organization that operates the transmission line, and the project under which it was developed.

Searches conducted in Oregon Archaeological Sites Database⁷ can be useful in identifying archaeological resources that represent parts of the resource that may no longer exist in the built environment, but that may provide useful information regarding the resource that is not evident when viewing the resource in its built state. Archaeological information can also provide data on associated sites such as construction camps, buildings that are no longer present, or other elements that no longer present themselves to the observer. Whenever appropriate, relevant information derived from archaeological investigations should be incorporated into the interpretation of the built environment.

Existing Agreement Documents

Many federal, and some state agencies have previously negotiated and signed Programmatic Agreements or Programmatic Memoranda of Agreement with the SHPO. Such documents may establish resource types or actions that are programmatically exempt from review, or may establish management practices that apply directly to certain resources or resource types. Contact the federal or state agencies or the Oregon SHPO to determine if such agreements exist. As a part of the literature review, researchers should also investigate whether or not a Multiple Property Document exists that may pertain to the resource type. Such documents establish what types of resources are covered by its provisions, and typically establish general and specific registration

⁷ The Oregon Archaeological Sites Database is only available to qualified professional archaeologists, and can only be accessed at the State Historic Preservation Office in Salem, Oregon. Note that archaeological sites that span county boundaries have different Smithsonian Trinomials for each county in which they occur.

requirements that establish in detail the integrity and criterion standards required for eligibility for listing in the NRHP.

Survey and Field Recordation

In many cases, linear resources are quite evident on the ground, especially when they are still in active use. Before planning fieldwork, consider that some resources, especially those that have been abandoned for many years (such as trails and roads in forested areas), may be difficult to locate in the field. Resources that have been identified on historic maps, but which are likely abandoned (based on information received or available aerial images), should be actively sought during surveys. Doing so may require implementation of a survey strategy specifically designed to find them, such as orienting survey transects perpendicular to the path of the linear resource, or advising survey crews to watch for other evidence, such as blazes, tree- or pole-mounted insulators, or abandoned trail signs. Note that while all surveys are different, and may require specific strategies, the Oregon SHPO has developed survey standards for both archaeological and historic properties surveys, both of which are available for download from our website.⁸

Once a resource has been identified, it is important to determine what resource form to record it on. Two types of recordation forms are used to document cultural resources in Oregon, based on whether the resource is archaeological or a part of the built environment. As a general guideline, linear resources that have been abandoned or decommissioned for 50 years or more (when the project is reviewed under federal law) or 75 years (when the project is reviewed under state law) with no maintenance should be recorded as archaeological resources. Resources that are actively maintained and operated, or have been abandoned for less than 50 or 75 years (depending on regulatory review environment) should be considered as built resources, and should be recorded using the SHPO Clearance Form. If it is unknown or unclear if a resource has met the abandonment period threshold, record the resource as an archaeological site, and note clearly on the form that this is the case. Often, the organization responsible for the resource or the agency that oversees the activity or use of the resource will have information regarding the abandonment of the resource. For example, the last railroad operating a line (or its corporate successor) may be able to provide the date of abandonment, or, failing that, the Federal Railroad Administration may have such a record.

It should be noted that a single linear site may have multiple components - both archaeological and built environment (e.g., sites that retain both abandoned/derelict and functional components). In such cases, record those elements that are archaeological as archaeological sites, and those that are historic built resources on SHPO Clearance Forms. In order to keep these elements of the same linear resources associated with each other in SHPO records, it is important to cross-reference these in the text of the forms. Please provide enough reference data so that future researchers can find all elements of the resource, but do not include location information of

⁸ Guidelines for Historic Resource Surveys in Oregon (2011) - http://www.oregon.gov/oprd/HCD/SHPO/docs/Guidelines_For_Historic_Resource_Surveys_2011.pdf
Guidelines for Conducting Field Archaeology in Oregon (2007) - http://www.oregon.gov/oprd/HCD/ARCH/docs/draft_field_guidelines.pdf
State of Oregon Archaeological Reporting Guidelines (2011) - http://www.oregon.gov/oprd/HCD/ARCH/docs/state_of_oregon_archaeological_survey_and_reporting_standards.pdf

archaeological resources in the cross-reference on SHPO Clearance Forms. This is so that confidential information is not unintentionally made public. Remember, all information regarding historic built resources is public information, and must be made available to anyone who requests it. If questions arise, please contact Oregon SHPO staff for guidance.

Photographs and Maps⁹

Because of the geographical extent of linear resources, it is especially important to provide supporting maps and figures. Resources should first be indicated in full on USGS maps, with the known extent of the resource highlighted. Within this map, the current project's APE should be clearly identified. Wherever possible, the map of the extent of the resource should identify segments or features that have been previously determined to be eligible or not eligible for listing in the NRHP, particularly when non-eligibility was based on loss of integrity. This will assist the researcher in evaluating the encountered portion of the resource within the context of the overall resource, as it is known to exist at the time of the study, and help to focus the discussion of integrity relative to cumulative impacts.

Detail maps of the APE should follow, with the locations of features specifically discussed in the project report clearly identified. It is extremely useful to key photographs to the maps (Photo 6, facing northeast, taken from here →). The map or maps that accompany the final evaluation forms should show the entire segment of the linear resource (e.g., irrigation ditch), and the locations of the contributing and non-contributing features along the length of the segment within the APE, including those identified previously.

In addition to the maps, recordation should also include photographs of the linear resource and all of its associated features that occur within the Area of Potential Effects. As with all resources, be sure to support all characterizations of the linear resource with photographs. Because of the visual nature of linear resources, this is especially important, as one stretch of a linear resource can often be indistinguishable from another when viewed narrowly, as in a photograph. Remember that in many cases, the federal agency and SHPO reviewers will be relying on the information provided to fully understand the resource. Anticipating the needs of the reviewers will go a long way toward keeping the review schedule on target.

Evaluation

This section provides guidance on the development of a complete Determination of Eligibility, suitable for submission to the Keeper of the National Register. Some elements of the following may not be necessary when preparing an evaluation within the context of regulatory review (Section 106, ORS 358.653), where the evaluation need only be prepared to the extent necessary to create a strong case for eligibility or non-eligibility. The extent to which evaluation must consider all the following is based on a number of factors.

When encountered during a compliance-driven survey, linear resources present difficulties when only a segment of the linear resource is encountered within the project Area of Potential Effects

⁹ For more details on Section 106 reporting and submission requirements, see [Guidelines for Historic Resource Surveys in Oregon](http://www.oregon.gov/oprd/HCD/SHPO/pages/preservation_106.aspx), Chapter X, "Section 106 Historic Properties Surveys," available online at http://www.oregon.gov/oprd/HCD/SHPO/pages/preservation_106.aspx.

(APE). In such cases, while it is possible to determine the significance of the resource as a whole through research, it is often not possible to provide a firm eligibility evaluation of the resource as a whole because the integrity of the resource is not evaluated beyond the confines of the project APE. In a system that has already been determined to be eligible, or that may be eligible, a segment may be found a contributing element of that system, and the linear resource would then be treated as eligible for the purpose of the project. If the segment lacks integrity, was not present during the period of significance, or otherwise has no potential to contribute to the significance of the larger property, it may be found non-contributing to the overall eligibility of the resource. A segment may also be found either eligible or ineligible based on its own significance and integrity as an individual property, if the case can be successfully made that the segment has a separate context under which it may be eligible.

Apply the National Register Criteria for Eligibility¹⁰

Criterion A – This criterion requires the researcher to consider historical significance more broadly than the immediate significance of the construction of the resource. For example, a canal may allow for development of agriculture in a given area, but key to the question of significance is to what degree the development of agriculture in the area is historically significant. A specific irrigation ditch allowed the use of this specific field for agriculture. Is the fact that this specific field was able to produce crops significant? It is also important to understand the resource from the perspective of multiple, parallel uses. Many primarily agricultural systems also provided water for urban irrigation or municipal supply, for industrial power or processing, or for hydroelectric generation, any of which, evaluated in context, may constitute a basis for significance under criterion A.

Criterion B – Because linear resources are typically large, and require significant investment and buy-in from citizens and other interested parties, the involvement of one or more influential individuals was often a critical element in getting the project completed. These individuals were involved as advocates, promoters, land developers, corporate officers or managers, engineers, or politicians, and often in more than one of those roles. Where such an individual is historically important, a linear resource’s significance under Criterion B will depend upon the strength of the person’s association with the resource, and whether other resources better embody the association with the portions of the person’s life or work that are historically important. If a person’s place in history comes primarily from designing or constructing the resource, then the resource itself should be evaluated under Criterion C.

Criterion C – Criterion C evaluations are generally related to engineering, though “work of a master” could be applicable in rare cases where a significant engineer or designer is represented. Evaluations under Criterion C should consider integrity as an important element, especially integrity of design, materials, craftsmanship, and location – those elements of integrity that reflect the physical nature of the resource. A linear resource is unlikely to be eligible under Criterion C unless the design represents a novel approach to overcoming extraordinary

¹⁰ For a more detailed discussion of the four National Register criteria for eligibility and the seven aspects of integrity, and how these two concepts interact, see National Register Bulletin #15 “How to Apply the National Register Criteria for Evaluation,” available online at <http://www.nps.gov/nr/publications/bulletins/nrb15>. The NPS also provides evaluative guidelines for specific property types, all of which can be found online at <http://www.nps.gov/nr/publications/bulletins>

difficulties, or an especially unusual approach to overcoming ordinary design difficulties, or incorporates specific aesthetic attributes or features as an executed part of the design. Many large-scale, federal projects can be eligible under Criterion C, due to the sheer size of the project and the scale of mobilization that it required.

Criterion D – This criterion concerns the ability of the resource to serve as its own primary source of information, as an artifact of primary importance. By the nature of the criterion, which is only relevant if the resource can provide information not contained in the historical documentary record, Criterion D evaluations are going to lean heavily on the physical elements of the resource, and by extension, those aspects of integrity that reflect the physical manifestation of the resource will be of primary importance.

Integrity

All historically significant resources must retain integrity to be eligible for listing in the National Register, and the National Park Service has defined seven key aspects of integrity to consider. A resource need not retain integrity of all aspects of integrity to be said to “retain integrity.” The relative importance of one aspect of integrity over another is guided by the resource type and criterion applied, in that the resource type and the criterion considered go some way toward guiding the identification of the characteristics for which the resource is eligible. For example, an evaluation of a resource under Criterion C for its engineering accomplishment is less concerned with the integrity of setting than it is with integrity of design and materials. By contrast, an evaluation of a resource under Criterion A is less concerned with integrity of materials than it is with integrity of location, feeling, and association. This is not to say that the other aspects of integrity are not important, rather, it means that alterations that impact those aspects of integrity that are deemed less critical can absorb more non-historic alterations without rendering the resource ineligible than alterations that cause loss of integrity in those key aspects.

In general, the overall integrity of linear resources depends heavily on the continuity of the resource and its physical presence as an element of the landscape. Changes in alignment or interruptions in the continuity of the resource can negatively affect integrity, especially when the re-alignment or interruption is of sufficient length or degree to disrupt the ability of the observer to clearly connect the discontinuous segments. Depending on the nature of the resource, integrity of design and materials can weigh heavily as well.

When recording any resource in the field, be sure to note any evidence of alterations that may suggest a loss of integrity. Photos of such observations will help to characterize the changes to the resource in the documentation submission. Remember that when evaluating the integrity of a linear resource encountered during a compliance-driven survey, the integrity determination can only be made regarding the integrity of the segment encountered within the APE, and the integrity of previously evaluated segments encountered during previous surveys, as identified during the literature review. While the significance of a linear resource can be determined without actually seeing the resource, integrity cannot.

When preparing a full and complete evaluation of a complete linear resource, suitable for submission to the Keeper for an official determination of eligibility, it is important to understand the totality of the resource in terms of known impacts to integrity. Because they tend to be long,

crossing many miles of the landscape, careful research must be conducted in order to consider the integrity of the resource as a whole. These resources tend to be particularly susceptible to cumulative impacts, which affect overall integrity when enough individual segments have been adversely impacted by previous projects. As stated above, the Oregon SHPO does not recommend a percent threshold for integrity, preferring to evaluate cumulative integrity loss on a case-by-case basis.

Level of Significance

The National Register defines historic significance as “the importance of a property to the history, architecture, archeology, engineering, or culture of a community, State, or the nation.” As such, a part of the determination of eligibility is the consideration of the level of significance. The level of significance is a reflection of the geographical area affected by the significant resource. Levels of Significance include local, statewide, and national significance. When considering the level of significance for a resource, researchers are encouraged to think broadly about the extended impacts of the resource, including larger historical themes made possible or affected by the development of the resource. However, the level of significance must be supported by research, and clearly demonstrated in the evaluation.

Period of Significance

The period of significance is the point or span of time (marked by a year beginning and a year ending) during which the resource was associated with a significant event, person, group, land use, or during which it attained the physical characteristics that make it significant. This is important because it provides a means of distinguishing between those alterations that may be significant, or are related to the significance of the resource (and are thus contributing), and those that have occurred outside the period of significance (and are thus non-contributing) and may negatively affect the integrity of the overall resource. Remember that alterations over time may contribute to significance when made during the period of significance. In addition, consider that alterations (even those outside the period of significance for the linear resource) may have significance of their own separate from the context of the linear system with which they are now associated. For example, a pump station constructed after the period of significance for the associated historic water conveyance, may lack significance under Criterion A (assuming, in this scenario, that the conveyance is significant under A), because it was built long after the conveyance system, but could possibly be eligible under Criterion B or C completely independently of the conveyance.

For most resources significant under Criterion A, the period of significance begins with the date of completion of the resource, or, if the resource achieved historical significance after the initial construction, with the date that the resource became significant (with relation to the area of significance) and extends to the date at which the historical trend or event ends or loses prominence. When a resource is significant under a specific context, and that effect continues to be evident, consider using the date at which the effect maximized or peaked, either in terms of service or build-out. In some cases, a resource may have more than one period of significance if the resource experienced a renewed historical impact, or if significant changes to the resource occurred after the initial period of significance closes, and those changes initiate an association with a separate (but sometimes related) context. For resources eligible under Criterion B, the period of significance begins with the point at which the historical association with the

significant person is established, and extends to the point at which that relationship ends. This may or may not line up with or include the initial construction of the resource. For resources significant under Criterion C, generally the date of initial completion and date(s) of significant alterations represent the period of significance.

Useful Questions to Consider when Fully Evaluating Linear Resources for NRHP-eligibility

1. Identify the resource. Of what larger system is the resource a part? Does the resource or segment fit into a larger linear district, and if so, what role did it play in the conveyance of whatever it was meant to convey? What elements of the resource (contributing or otherwise) are present? Does the resource contribute to the significance of more than one overall resource?
2. How much of the overall resource is within the APE, and thus subject to direct evaluation?
3. How much of the resource has already been evaluated, and how does that impact the evaluation of the subject segment?
4. What are the character-defining features of the resource, and which aspects of integrity are critical for each NR criterion?
5. Does the resource retain sufficient integrity under any of the criteria to be eligible/contributing?
6. What is the history of the resource? How is the history of the resource significant, to whom, and how broadly (local, state or national significance)?¹¹
7. Does the resource meet the criterion or criteria for which it retains sufficient integrity?
8. Does the segment contain or represent the primary source of information about an important piece of the overall resource?

In this way, each of the criteria will be addressed explicitly, with specific reference to integrity for each. Be sure to incorporate the answers to these questions (as appropriate to the resource) in the submission of a linear resource evaluation. A well-constructed and thoughtfully-reasoned evaluation will include these considerations.

¹¹ For additional guidance on how to research the history of a property, refer to National Register Bulletin #39 “Researching a Historic Property,” available online at <http://www.nps.gov/nr/publications/bulletins/nrb39>.

Linear Resource Type-specific Guidance

Irrigation Features or Systems

Small-scale irrigation in Oregon began very soon after settlement by Euro-American farmers. For the majority of the nineteenth century, lands east of the Cascade Range were passed over for cultivation until available land in the more arable Willamette Valley became scarce. Beginning in the 1860s, an increasing population east of the Cascade Range led to early experiments with irrigation on otherwise arid land, with mixed results. At the end of the nineteenth century and beginning of the twentieth century, spurred on by enabling legislation, large-scale water impoundment and irrigation projects in southern, central, and eastern Oregon were developed. While some were planned but not developed, and others were developed but failed, many were highly successful, in some areas radically changing the local land use and economic base, social organization, and appearance of the landscape. Most of those that survive to the present are administered by Irrigation Districts, responsible for management and maintenance of the system within its jurisdiction. Irrigation systems, especially those managed by Irrigation Districts, are most often (but not always) dendritic in form, typically consisting of the following elements:

1. A source of water, either a natural source such as a river, where the upper-most element of the irrigation system is the initial diversion structure, or an impoundment structure, where the upper-most element is a dam;
2. The main canal, which directs water for the irrigation of a region;
3. The lateral canals, which divert water from the main canal for the irrigation of local areas;
4. The sub-lateral canals, which divert water from the lateral canals for the irrigation of a portion of a local area;
5. The delivery ditches, which divert water from the sub-lateral canals for the irrigation of individual fields or properties (though in some cases, the Irrigation District responsibility ends at the turnout from the lateral or sub-lateral, with individual landowners being responsible for creation and maintenance of the delivery ditches behind the turnout – be sure to contact the relevant Irrigation District to determine the extent of their management responsibility in this regard);
6. Drains, wasteways, and other features that carry excess water away from system or irrigated fields.

Irrigation system infrastructure may also include present or past power generation facilities or facilities associated with provision and treatment of local municipal water supply. In such cases, it is important to determine the significance of these additional functions, relate them to the period(s) of significance, and evaluate those structures with reference to the additional function. It may be that a canal/lateral/ditch network may be significant as for its role as irrigation infrastructure, but not as a power generation-related resource, because the power generation infrastructure was installed much later, or did not have a significant impact. In such cases, those elements along the canal/lateral/ditch network that are related to irrigation (and with integrity) would be eligible/contributing, while those that are related to power generation could be not eligible/non-contributing, and in fact, may negatively impact integrity of the significant resource.

Field Recordation

The field recordation should include a description of the irrigation feature encountered, and all its associated character-defining features. Include information such as width, depth, and profile of the canal, lateral/sub-lateral, or ditch, presence/absence and locations of berms, levees, dikes and/or parallel maintenance roads, and any features associated with the irrigation resource and where they are located (what canal or ditch milepost). Some possible contributing elements include: dam, locks, culverts, diversions, aqueducts, channels, weirs, generators, gates, docks, bridges, feeders, reservoirs, dry-docks, basins, spillways, overflows, siphons, retaining walls, access roads, communication lines.

Evaluation

Ongoing efforts to conserve water and reduce loss through seepage or evaporation have led many irrigation districts in Oregon to replace open canals, etc. with subterranean pipes. When this occurs over significant stretches, the observable continuity of the canal is broken, which, if the piping project is implemented across a substantial length of the canal, lateral, etc. can make the association of the proximal portions of the system with the distal portions difficult or impossible to appreciate. A break in a main canal does not render the rest of the canal behind it ineligible, because the main canal can still be interpreted in the context of the system – the hierarchy is still evident, and the canal can still be seen where it is intact as demonstrating its role in irrigating a REGION (like central Oregon). Breaks in laterals do not necessarily render the remainder ineligible, either, if the lateral is intact enough to demonstrate the role in irrigating an AREA (like Deschutes County, or the vicinity called Powell Butte). Sub-laterals and ditches that are broken may render that behind it ineligible, because the specific role of that sub-lateral is not of sufficient significance to absorb integrity loss when separated off from the rest of the system.

Where a historic-period irrigation ditch is either not associated with a larger irrigation district (i.e., it diverts water from a river to irrigate a single property, land-holding, or field), or when it is an end-user delivery ditch (i.e., delivering water from a lateral or sub-lateral to a single property, land-holding, or field), the ditch should be evaluated in the context of the property it irrigated, and thus as a part of the historic farmstead, ranch, etc., rather than as a part of the irrigation district. This is because, while the final delivery ditch does not generally contribute to the eligibility of a large, regional irrigation district, it could contribute to the eligibility of a farmstead or ranch property that may not exist as such without it.

Transportation-related Canals

Canals designed and built to transport goods from one place to another are relatively few in Oregon, however, they do exist. The era of transportation canal construction was early in Oregon history, and was quickly superseded by development of railroads. An example of a transportation-related canal can be found in the Santiam-Albany Canal, in Linn County, which was built in the early 1870s to transport goods between the eastern portions of Linn County and Albany on the Willamette. Although short-lived as a transportation canal, and was subsequently used for other purposes.

Field Recordation

Field recordation of transportation-related canals should include the name of the canal and its physical attributes, including dimensions, materials, and any associated structures found within the APE, such as tow paths, roads, docks, bridges and crossings, etc. Documentation should also note any alterations or changes that may affect integrity.

Evaluation

Evaluation of transportation canal segments under Criterion A should focus on the impact of the canal as a transportation-related resource in terms of economics, business, development along the corridor, and any further-reaching impacts that may have resulted from its operation. It should be noted, however, that some canals built originally for transportation purposes later found other uses when rail transportation became dominant. In some cases, a canal built for transportation purposes may have achieved significance following the transportation use, such as Albany-Santiam Canal, which only functioned for a brief time as a transportation corridor, and subsequently (beginning in the 1890s) came to be used to power mills and to generate hydroelectricity. Criterion B associations should be explored, including engineers, boosters and organizers, and in some cases, operators. Criterion C evaluations should focus on the design and engineering aspects of the canal.

Associated features of transportation canals include the canals themselves, towpaths, locks (which should be evaluated for their own individual significance as well), docks, tie-off cleats, bridges, and any other elements that may be associated with later uses, such as gates, pumping stations, hydroelectric facilities, etc.

Transmission Lines

The development of infrastructure to facilitate the transmission of electrical power from the place of generation to the end user began in the late nineteenth century. Early systems were generally small-scale, privately-operated facilities delivering power from a generation source (most commonly a steam or water-driven turbine) to users nearby. During the early twentieth century, and especially beginning with large public works projects during the 1930s, power generation and transmission reached a scale with regional and national implications. Both small and large-scale systems can have historical significance.

Field Recordation

Field recordation should include the name of the transmission line (if any) and the name of the entity that manages it (Bonneville Power Administration, PacifiCorp, PGE, or a local Public Utility District or Rural Utility District).¹² The physical attributes of transmission lines that are critical include the height, design, and materials employed in construction of transmission towers. If the undertaking includes changes to a substation, document the existing conditions of the substation, and note if any alterations have been made in the past. If the project involves

¹² Note that BPA transmission lines are evaluated through the Bonneville Power Administration [BPA] Pacific Northwest Transmission System (Kramer 2012) Multiple Property Documentation. This document identifies eligible portions of the system, identifies certain projects that are likely to produce adverse effects, and establishes the threshold of changes under which an adverse effect would arise. Project types discussed in this document are not exhaustive, though it does provide a good framework under which projects not discussed explicitly can be evaluated.

construction of a new substation with new transmission lines, document the project as one would any other project, with special attention given to indirect effects to all resources within the APE, which should be designed to sufficiently capture all properties that may be affected indirectly by the project.

Evaluation

For BPA projects, refer to *Bonneville Power Administration [BPA] Master Grid Multiple Property Documentation* (Kramer 2012). For all other projects, evaluate the resource within the context of the overall significance of the delivery system. Give particular attention to Criterion A. Adverse effects may arise from a change in tower location or design and/or materials, or significant realignment or abandonment of a transmission corridor.

Roads

Throughout the west, the influx of Euro-American settlers brought the beginning of the development and expansion of vehicular traffic corridors. Many of the earliest wagon roads were adapted from previously-existing Native American trails, and many were again adapted for use by automobiles. Because of the high speeds attainable with automotive transportation, these trails and wagon roads were paved, and often widened, straightened, and graded or re-graded for safety purposes. Some others were abandoned as different routes were constructed to carry cars and trucks, and continue to exist as two-track roads, logging roads, recreational trails, etc. Still others were abandoned completely, and now exist only archaeologically.

Please note that although it might otherwise fit the definition presented here for roads, the Oregon Trail is classified by the Oregon SHPO as a trail out of deference to popular convention, and the recognition that, unlike more typical roads, it was never formally surveyed prior to “opening,” or authorized by legislative action, instead becoming established through heavy use over a relatively brief period. In addition, the Oregon Trail was not so much a road as a route, in the sense that in many places it braids, widens as a result of wagons moving side-by-side, and tended to relocate as better routes were found (rather than surveyed).

Field Recordation

When recording a historic-period road in the field, record information related to the road itself within or adjacent to the right of way, including any hillside cuts or engineered fill areas, the materials present, the size and characteristics of the road prism, and any other elements, such as banked curves, culverts, turnouts, presence or absence of curb/gutter/sidewalk, railings, and shoulders. Include all features within the APE, including bridges, tunnels, etc. In some cases, major elements like bridges and tunnels may be appropriately recorded separately, and evaluated for individual eligibility, in addition to evaluation as contributing elements to the road resource.

If the resource is a wagon road that has not been improved for modern use, record the characteristics of the resource including any evident wheel ruts or depressions, any grading that appears, the condition of the roadbed (in terms of erosion or revegetation), the surface material (dirt, rock, or vegetated), and evident shoulder preparation (built-up or dug out). Record the overall dimensions of the segment encountered, including depth if wheel ruts are present. For all roads not in active use, record any remaining road-related features, such as signs, signals, or

control mechanisms, like guard rails or speed bumps. Record the setting of the road, both in terms of immediate surroundings and possibly important views or scenery. In general, do not record modern, active roads. Unpaved roads should only be recorded if they exhibit unusual engineering qualities, have high historical significance, or if they are of great age.

Evaluation

Most actively used and maintained historic-period roads within the State of Oregon are generally not eligible for listing in the NRHP, due to the alterations that have typically been made in order to keep up with changing standards of safety, technology, or capacity. Currently, there are only three active roads for vehicular travel listed in the NRHP in the State of Oregon,¹³ where these roads are the primary or only resource (some historic districts include roads as contributing resources, such as Siskiyou Boulevard within the Siskiyou-Hargadine Historic District in Jacksonville and Reclamation Drive within the Owyhee Dam Historic District). Individual high-integrity segments can be listed together or separately as non-contiguous linear historic districts, such as is the case with the Santiam Wagon Road.

NR-listed (and by extension, NR-eligible) roads and wagon roads in Oregon generally fall under one or more of the following categories:

1. Roads with a high-degree of engineering and/or aesthetic qualities
2. Roads of great age that retain integrity of location, design, setting, association, feeling, materials, and workmanship
3. Roads of transcendent historical significance at the state or national level

Trails

Trails in Oregon generally fall into one of two categories, those related to outdoor recreation, such as the Pacific Crest Trail, and those that are primarily related to overland travel on foot or horseback. Trails are differentiated from roads by the method of transportation intended to use it. Generally-speaking, if the corridor was meant to be used by wagons, motorcycles, or cars, it should be classified as a road. By contrast, if the corridor was meant to be used by pedestrians or animals, it should be classified as a trail. Another way to differentiate trails from roads is by the preparation required prior to construction. While trails and trail routes can be either planned or spontaneously developed, roads generally require some degree of surveying and planning in terms of route and design (even if only rudimentary design), and very often required some legislation to authorize them.

It is important to note that National Historic and Scenic Trails are designated by act of Congress, and these designations, unto themselves, have no direct relationship to, or implication on eligibility for listing in the National Register of Historic Places. In some cases, a designated National Historic Trail may be eligible for listing in the National Register, however, this is not

¹³ These are the Historic Columbia River Highway, which is listed in the National Register, and includes large portions that are listed as a National Historic Landmark, the McKenzie Highway, and Rim Drive within Crater Lake National Park. Inactive roads that are listed in the National Register (generally in non-contiguous segments) include the Oregon Trail and its associated branches, such as the Barlow Road, the Jacksonville to Fort Klamath Military Wagon Road, Oregon Central Military Wagon Road, and the Santiam Wagon Road.

always the case. Some National Historic Trails, such as the Lewis and Clark Trail, represent the route taken by a highly historically-significant expedition, however, there is no physical “trail” to preserve, manage, or evaluate an undertaking’s effects to. Application of the National Register evaluative measures is extremely problematic in these cases, and as there is no “resource” to manage or preserve, the Oregon SHPO does not consider these resources as part of the Section 106 process by virtue of their designation alone. If a designated National Historic Trail that includes some physical manifestation of its existence is encountered in a Section 106 setting, it should be evaluated for eligibility using standard evaluation tools, methodology, and standards.

Field Recordation

When recording a historic-period trail in the field, record information related to the trail itself, including width and profile (built up, dished, etc.), areas of trail engineering (cuts/fill), general topography (level, ascending, descending, traversing, etc.) presentation (single-track, double-track, cleared), surfacing material (dirt, grass, gravel, etc.), and features such as culverts, bridges, blazes, signs, or way markers. Note junctions with other trails, if encountered. Record the setting, including the vegetation (type, density, and maturity), identify key view sheds, and any visible intrusions on the setting that may affect integrity.

Evaluation

Aside from some segments of the Oregon Trail, there are currently no trails within the State of Oregon that are listed in the NRHP as the whole or primary historic resource. However, trails have been listed in the NRHP as integral, contributing elements to a broader historic district, such as is the case with the Oregon Caves Historic District, which includes four historic recreational trails. Trails could be eligible for listing if they are significant at the state or national levels, and retain integrity of location, setting, design, workmanship, and association. Segments of trails can be listed in the NRHP if they retain sufficient integrity. Individual high-integrity segments can be listed together or separately as non-contiguous historic corridors.

Railroads

Few developments in the history of the western United States have had as deep and as broad an impact as the development and expansion of the rail system during the nineteenth and twentieth centuries. Railroads are intimately tied to the development of local or regional agriculture or resource extraction industry, local, regional, national, and even international commerce, personal travel, and in some cases, the very founding of communities. Most community histories reflect the importance of the coming of the railroad. In many cases, the presence or absence of access to a railroad was the primary determinant of the success or failure of communities.

Field Recordation

When recording a historic-period railroad or railway alignment in the field, record information related to the railroad or railway alignment itself, including width and profile (built up on a raised berm, etc.), areas of railway engineering (cuts/fill), general topography (level, ascending, descending, traversing, etc.) presentation (single-track, double-track), surfacing material (dirt, grass, gravel ballast, etc.), and features such as culverts, bridges, drainage ditches, signs, switches, sidings, platforms, etc. Note whether the railroad is active or abandoned, whether key

equipment is present or absent (rails, ties), the profile of rails, and the railroad gauge. Note junctions with other railroads or railway alignments, if encountered.

Evaluation

Railroads should be evaluated with special attention to Criteria A and C. While true of all resources, it is especially true of railroads (due to their overwhelming historical impact) that Criterion A evaluations should consider significance at the national, state, and local levels. As with other linear resources, evaluations of significance should be made with regard to the entirety of the resource, not just that portion within the APE. Criterion C evaluations should be made with special consideration of the engineering qualities of the segment under consideration (see Field Recordation, above). Likewise, if the segment includes any special features (such as bridges, culverts, signs, or switches), these should be included in the evaluation, and relate to integrity. It is important to note that the vast majority of decommissioned or abandoned railroads typically had rails and ties removed or recovered for use elsewhere. The loss of these elements, while affecting the integrity of the resource, does not preclude eligibility for listing in the NRHP. Likewise, many of these elements have a definable service life, and are replaced on set schedules, or as a result of routine inspection. Replacement of these elements in-kind does not affect the integrity of the resource, however, changes such as a conversion from wood ties to concrete, narrow-gauge to standard gauge, or a change in the weight rating (and therefore the profile) of rails may affect integrity, and should be noted and considered during evaluation.

Linear Containment Structures

Containment structures are those that are constructed in order to restrict the movement of something, such as rivers, animals, access or soils. These include dikes and levees, fence lines, walls, etc. Development of these types of resources in Oregon began during the settlement period, and continues to the present. Some, such as construction of some levee systems, represent large-scale developments that transformed land use behind them, and can be of substantial historical significance. Others, such as individual fence lines, are very small-scale, and will rarely be eligible for listing in the NRHP due to an overall lack of significance. Locks associated with river transportation, while generally linear in nature, are of such a discreet nature that they should be evaluated as a structure. Because they tend to introduce few of the challenges that other linear resources present, as they tend to be much more limited in overall length.

Field Recordation

When recording containment structures, be sure to document the character-defining features, including dimensions and materials, and the overall condition of the resource. Include any associated structures or elements, such as sea gates, culverts, pumps, drains, rock jacks, etc. If encountered in a state of advance disrepair, consider whether the resource may best be recorded archaeologically, such as a collapsed stone wall.

Evaluation

Linear containment structures should be evaluated for significance within the context of the property that the development of them impacted. For example, when evaluating an extensive levee system, consider the prior land use behind the levee prior to construction, and the impact that the construction of the levee had on subsequent land use. An example of this can be found at

the Multnomah County Drainage District levees in Portland, determined to be eligible for listing in the National Register in 2006 as a contributing element to a possible historic district embracing four adjacent drainage district properties. Prior to development of the levee system in the early twentieth century, the low-lying lands along the south bank of the Columbia River were extremely prone to flooding, which severely limited their development. The subsequent establishment of the levee and associated flood control and drainage systems allowed for extensive development of these lands. Fence lines, while generally not eligible, may be eligible if they have some unusual quality, such as an atypical material (such as stone, brick, etc.), and then will usually be eligible only within the context of a farmstead or ranch. Therefore, evaluation of these should be within the context of the farmstead or ranch with which they are associated. Walls (not including walls that represent a portion of or the remains of larger structures or buildings) will be treated similarly to fence lines or levees, depending on the purpose for which they were originally built.

Finding of Effect

As with more typical historic districts, project effects to linear resource segments within project APEs should be considered within the context of the significance and integrity of the resource as a whole, that is, an effect to the segment encountered, if found to be contributing to the overall eligibility of the resource, should be considered in terms of overall effects to the entire resource. This is why having a basic understanding of the whole of the resource is critical, even when the portion within the APE represents a relatively small proportion of the overall resource. It is possible that a contributing segment could be impacted such that, if the resource were composed of that segment alone, it would be an adverse effect, but when judged against the entirety of the resource, the effect could be not adverse. Pay close attention to the features that are being affected – projects that affect features that are singular or few in number across the system, such as headgates, locks, trestles, impoundment dams, etc. are more likely to translate to an adverse effect to the overall resource than are minor features that appear frequently and identically, such as slide gates, control boxes, etc.

The effect of a project on a linear resource should also consider the size and nature of the impact, including indirect impacts, and especially with linear resources, cumulative impacts. The implementing regulation for Section 106 of the NHPA indicates that “adverse effects occur when an undertaking may directly or indirectly alter characteristics of a historic property that qualify it for inclusion in the Register. Reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative also need to be considered.”¹⁴

Adverse effects to historic, linear resources might include realignment, subterranean piping of historically open canals, changes in materials, replacement of electrical transmission towers with towers of a differing design, alterations in the slope or dimensions of a historic road, etc. Adverse effects can also arise from undertakings affect the setting of a linear resource, though, as in any evaluation of effect, the degree to which adverse effects can arise from visual or audible

¹⁴ 36 CFR 800.5(a)(1) *Assessment of Adverse Effects*

intrusion is based on the proximity and visibility of the undertaking, the degree to which the historic setting may already be compromised by previous development, and the degree to which the setting is considered to be a character-defining element of the resource's eligibility. Please note that project effects to resources that are eligible or listed both as contributing elements to a district and as individually evaluated resources should consider the effects to both the individually eligible or listed resource and to the district to which it contributes.

Other Things to Remember

1. The Oregon SHPO generally considers Determinations of Eligibility to be current for five years, after which point we request that the evaluation be revisited. This is in order to allow for consideration of subsequent integrity-affecting changes to the resource that may have occurred outside of regulatory review. In addition, previously evaluated resources, if evaluated before that resource reached 50 years in age, may have been evaluated against Criterion Consideration G, which has a significantly higher threshold for eligibility than ordinary evaluations. Finally, as scholarship around cultural resource management and practice evolves over time, it may be useful to reconsider previous evaluations under current evaluative practice, if previous evaluations were not approached in the way that best practice currently suggests. If the previous documentation and evaluation holds up, and meets the current standards, it should be held to remain valid.
2. Administration offices for linear districts often retain extensive records of system development. In addition to narrative reports, operating budgets and correspondence, these records often include maps of the entire system, including the names of the various branches and subdivisions.
3. Conduct an evaluation of the integrity of the segment within the project APE. If the segment does not retain sufficient integrity to contribute to the overall linear resource, the segment is non-contributing. If enough segments of a system have been found to lack integrity, the integrity of the system as a whole may be compromised, though such a far-reaching assertion must be well-supported in the submission.
4. The National Park Service has addressed the question of waterways, such as rivers, as cultural resources. National Register Bulletin #15 *How to Apply the National Register Criteria for Evaluation*. This document states, "A site may be a natural landmark strongly associated with significant prehistoric or historic events or patterns of events, if the significance of the natural feature is well documented through scholarly research. Generally, though, the National Register excludes from the definition of "site" natural waterways or bodies of water that served as determinants in the location of communities or were significant in the locality's subsequent economic development. While they may have been "avenues of exploration," the features most appropriate to document this significance are the properties built in association with the waterways."
5. All of the above resource types, as well as many that are not (such as natural resources like rivers, vegetation, and natural landforms), can be contributing elements to a Historic Landscape, which is another resource type used by the National Park Service. While important to consider during the regulatory process, discussion of Historic Landscapes is beyond the relatively narrow scope of this document. For more information on Historic

Landscapes, see the relevant National Park Service National Register Bulletins that deal with these.¹⁵

Useful Links and Documents

The following list of reference materials has been compiled by SHPO Staff, with significant assistance from the preservation community. It should be considered neither exhaustive, nor complete, but is intended to provide a point of entry for gathering relevant information regarding resource typologies and histories, historical contexts, identification and evaluation methodologies, and management of historic linear resources. If, during the course of investigation, a reference document of particular utility was found, please contact the Oregon SHPO to have it added to this list.

General Guidance

Oregon State Historic Preservation Office (SHPO)

- 2011 *Guidelines for Historic Resource Surveys in Oregon*, available at:
http://www.oregon.gov/oprd/HCD/SHPO/docs/Guidelines_For_Historic_Resource_Surveys_2011.pdf
- 2013 *The Section 106 Process in Oregon – A Practical Foundation*. Draft, available upon request.

Speulda, Lou Ann

- 1989 *Oregon's Agricultural Development: A Historic Context 1811-1940*. Prepared for the State Historic Preservation Office, Salem, Oregon.

Transmission Lines

Advisory Council on Historic Preservation

- 2011 *ACHP Issue Spotlight: Transmission Lines in the West* -
http://www.achp.gov/news_05032011.html

Curran, Christine

- 1998 *A Historic Context for the Transmission of Hydroelectricity by the Bonneville Power Administration, 1939-1945*. Master of Science Thesis, University of Oregon, Eugene.

Kramer, George

- 2010 *Corridors of Power: The Bonneville Power Administration, Transmission Network, Historic Context Statement*, Kramer and Company. Prepared for the Bonneville Power Administration, Portland, Oregon.
- 2012 *Bonneville Power Administration [BPA] Pacific Northwest Transmission System*. National Register Multiple Property Document. Kramer and Company.

¹⁵ See *Guidelines for Evaluating and Documenting Rural Historic Landscapes* (National Register Bulletin #30), *How to Evaluate and Nominate Designed Historic Landscapes* (National Register Bulletin #18), and other resource type-based guidance documents, all of which are available at: <http://www.nps.gov/nr/publications/>

Gas Pipelines

Advisory Council on Historic Preservation (ACHP)

- 2002 *Exemption Regarding Historic Preservation Review Process for Projects Involving Historic Natural Gas Pipelines*. Electronic document, available at:
<http://www.achp.gov/pipelineexemption.pdf>

Historic Roads

American Association of State Highway and Transportation Officials (AASHTO)

- n.d. *Center for Environmental Excellence Practitioner's Handbook* – includes Section 106, Section 4(f), and NEPA compliance. Electronic document, available at:
http://environment.transportation.org/center/products_programs/practitioners_handbooks.aspx

Buckland, Chris, Michael Minyard, and Leminh Nguyen

- n.d. *Historic Roads and Trails in the Willamette Valley: Oregon State Highways 126, 58, and 138, 1848-1930*. On file at State Historic Preservation Office, Salem, Oregon.

Center for Preservation Education and Planning

- 2004 *Historic Roads*. Internet Website, available at: <http://www.historicroads.org/index.htm>

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- n.d. *History of Mountain Roads in Northern/Central Oregon from 1848-1930*. On file at State Historic Preservation Office, Salem, Oregon.

Hadlow, Robert W.

- 2000 *Columbia River Highway Historic District*. National Historic Landmark Nomination (NRIS 83004168).

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- 1973 *Historical Geography of Transportation Routes and Town Populations in Oregon's Willamette Valley*. Doctoral Dissertation, Department of Geography, University of Oregon, Eugene.

Hoyt, Hugh Myron, Jr.

- 1966 *The Good Roads Movement in Oregon: 1900-1920*. Doctoral Thesis, Department of History, University of Oregon, Eugene.

Federal Highway Administration (FHWA)

- 2013 *Historic Preservation: Historic Roads*. Internet Website, available at:
<http://www.environment.fhwa.dot.gov/histpres/roads.asp>

Nielsen, Lawrence E.

- 1987 *In the Ruts of Wagon Wheels: Pioneer Roads in Eastern Oregon*. Maverick Publications, Bend, Oregon.

Oregon Department of Transportation (ODOT)

- n.d. ODOT Cultural Resources Procedural Manual, Geo-Environmental Section. Electronic document, available at: <ftp://ftp.odot.state.or.us/techserv/geo-environmental/environmental/procedural%20manuals/Cultural%20Resources/Procedures%20Guidance/ODOT%20Cultural%20Resources%20Manual.doc>.
- 2002 ODOT NEPA Manual - <ftp://ftp.odot.state.or.us/techserv/geo-environmental/environmental/procedural%20manuals/Nepa/>
- 2011 *History of State Highways in Oregon*. Prepared by RW Engineering Group for ODOT. Electronic Document, available at:
http://www.oregon.gov/ODOT/HWY/GEOMETRONICS/row_eng/historyhighwaysoregon/hsho.pdf
- 2013 *Bridge Log*. Electronic document, available at:
<http://egov.oregon.gov/ODOT/HWY/BRIDGE/docs/brlog.pdf>
- 2013 Cultural Resources Program -
http://www.oregon.gov/ODOT/HWY/GEOENVIRONMENTAL/Pages/cultural_resources.aspx
- 2013 *Oregon's Historic Bridge Field Guide*. Electronic document, available at:
ftp://ftp.odot.state.or.us/Bridge/2013_br_dsg_conf_pdf/Session_4B/4B4_OR_Historic_Field_Guide_R_Burrow.pdf

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- 1972 *Stations West: The Story of the Oregon Railways*. Bonanza Books, New York.

Holtgrieve, Donald Gordon

- 1973 *Historical Geography of Transportation Routes and Town Populations in Oregon's Willamette Valley*. Doctoral Dissertation, Department of Geography, University of Oregon, Eugene.

National Railway Historical Society (NRHS)

- 2013 *National Railway Historical Society Homepage*. Internet website, available at:
<http://www.nrhs.com/>
Also see the four chapters currently active in Oregon (Columbia River, Pacific Northwest, Southern Oregon, and Yaquina Pacific chapters).

Pennsylvania State Historic Preservation Office

- n.d. *Researchers Guide for Documenting and Evaluating Railroads*. Electronic Document, available at:
www.portal.state.pa.us/portal/http://www.portal.state.pa.us:80/portal/server.pt/gateway/PTARGS_0_234154_1215011_0_0_18/Researchers_Guide_RR.pdf

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JRP Historical Consulting Services and California Department of Transportation (Caltrans)

- 2000 *Water Conveyance Systems in California: Historic Context Development and Evaluation Procedures*. Prepared for Caltrans, Sacramento, California.

National Park Service (NPS)

- 1999 *National Register Bulletin #30: Identification and Evaluation of Historic Rural Landscapes*. Electronic Document, available at:
http://www.nps.gov/nr/publications/bulletins/nrb30/nrb30_7.htm

Oregon Water Resources Department

- 2013 *Water Right Information Search*. Electronic Searchable Database, available at:
<http://www.oregon.gov/owrd/pages/wr/wris.aspx>

United States Bureau of Reclamation (USBR)

- 2012 *Reclamation's NEPA Handbook*. Electronic document, available at:
http://www.usbr.gov/nepa/docs/NEPA_Handbook2012.pdf
- 2013 *The Bureau of Reclamation: A Very Brief History*. Electronic document, available at:
<http://www.usbr.gov/history/borhist.html>
- 2013 *Selected Readings in the History of the Bureau of Reclamation*. Electronic document, available at: <http://www.usbr.gov/history/selected.pdf>

Trails

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- 1998 *Oregon Historic Trails Report*. Produced for the Oregon Trails Coordinating Council, Salem, Oregon.

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- 1974 *The Oregon Trail in Oregon*. Prepared for The ExhibiGraphics Group, Salt Lake City, Utah, and the Recreation Division, Oregon State Parks System, Department of Transportation, Salem, Oregon.

Franzwa, Gregory M.

- 1990 *Maps of the Oregon Trail*. The Patrice Press, St. Louis, Missouri.

Oregon Historic Trails Advisory Council (OHTAC)

- 2013 *Oregon Historic Trails Advisory Council*. Internet Website, available at:
<http://www.oregon.gov/OPRD/HCD/pages/ohtac.aspx>

Map Resources useful for Linear Resource Identification

Bureau of Land Management (BLM)

- 2013 *Land Status and Cadastral Records Viewer, Willamette Meridian – Oregon and Washington States*. Searchable Electronic Database, including General Land Office Cadastral Survey Maps, Donation Land Claim Maps, and GLO Surveyor's Notes, available at: <http://www.blm.gov/or/landrecords/survey/ySrvy1.php>

United States Geological Survey (USGS)

- 2013 *US Topo and Historical Topographic Map Collection*. Searchable electronic database, available at:
<http://geonames.usgs.gov/pls/topomaps/f?p=262:1:2906154891053033::NO:RP::>

University of Alabama

- 2013 *Historic USGS Topographic Quadrangle Maps of Oregon*. Searchable electronic database, available at: http://alabamamaps.ua.edu/historicalmaps/us_states/oregon/topos/index.html

University of Texas

- 2013 *Perry-Castañeda Library Map Collection – Oregon*. Searchable electronic database, available at: <http://www.lib.utexas.edu/maps/oregon.html>