Local Brownfields Inventories

Developing a Methodology to Identify and Prioritize Potential Redevelopment Sites

Source: Smart Growth America

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Executive Summary

Urban growth has resulted in limited land available to accommodate growing populations and to meet employment needs, resulting in sprawl from urban areas to previously undeveloped land. However, previously undeveloped land that is available for development is particularly hard to find in areas such as Oregon where growth is limited by urban growth boundaries (UGBs), which define the limits of growth to an area in order to protect agricultural and forest resources from development (Porter, 2008). As availability of previously undeveloped land is decreasing, cities and counties are looking at brownfields as opportunity sites for redevelopment. Brownfields are defined as "real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant" (CERCLA, 2002). These sites are vacant or underutilized properties where actual or perceived environmental contamination complicates their redevelopment or reuse.

In order to facilitate the return of these properties to productive use, cities and regions first need to identify these sites to understand the extent of the brownfields problem in their communities. In Marion County, Oregon, the Mid-Willamette Valley Council of Governments (MWVCOG) requested assistance in the identification and inventory of sites that may be considered brownfields and with identification of high priority sites to pursue for redevelopment. Identification of the high priority sites will allow jurisdictions to initiate contact with private property owners to pursue public-private partnerships and opportunities to assist in the assessment and eventual cleanup of contamination.

To assist the MWVCOG, this project develops and tests a method for use as a rapid assessment tool to identify and prioritize brownfields sites that have a high potential for redevelopment. Additionally, the research answers two specific research questions:

- What information should communities use to develop local brownfields inventories?
- How can communities use local brownfields inventories to prioritize sites for redevelopment?

To address the needs of the MWVCOG and to answer the research questions, this study (1) uses existing data to create an enhanced inventory of potential brownfields in Marion County (excluding sites within the Salem-Keizer UGB), (2) identifies evaluation criteria for site prioritization and subsequently prioritized sites in order to gauge their greatest redevelopment potential, and (3) creates draft outreach materials for property owners and prospective purchasers of these sites to provide information on opportunities for assistance.

Inventory and Site Prioritization Findings

Inventory

A base inventory of potential brownfields in the study area was developed using geographic information systems (GIS), and sites were selected for inclusion in the inventory based on typical characteristics of brownfields:

- Commercial or industrial classification
- Vacancy status
- Environmental contamination (or perceived contamination)

Based on literature reviewed and results of interviews conducted, supplemental data was identified for inclusion that would provide adequate information to allow prioritization of sites for redevelopment. The use of only existing data to supplement the inventory limited the types of information that could be included based on available resources.

The criteria suggested to supplement inventories falls under the following categories:

- General site information
- Physical characteristics
- Environmental information
- Environmental justice information
- Marketability
- Historic information
- Redevelopment interest

Research conducted also indicated the importance of involving stakeholders in the process of identifying potential sites for inclusion in the inventory. Once supplemented with available data, cities with the highest number of potential brownfields, Woodburn and Stayton, were contacted to provide an opportunity for city officials to confirm the data in the inventory and to identify known or potential brownfields not identified in the base inventory. Input from these communities resulted in removal of approximately 50% of sites initially on the inventory in these two cities, and the addition of several sites not listed in the base inventory. Incorporating input from these communities into the inventory resulted in an inventory for the study area that contains 287 potential brownfields.

Site Prioritization

Individual interviews and one group interview were conducted to obtain input on evaluation criteria that can be used to prioritize identified sites. During the group interview, participants were asked to rank site evaluation criteria by order of importance. A list of potential evaluation criteria was developed based on literature reviewed, but participants were invited to add and rank any factors that were discussed during the group interview session or that they felt were important in determining high potential sites for further evaluation and site planning. The results of the group interview were used to assist in development of a scoring system for prioritizing inventoried sites.

The group interview discussion and individual interviews indicated that for most participants, property owner willingness to participate in redevelopment efforts or to sell their property is the primary factor in pursuing sites for redevelopment. Participants also generally agreed that community interest in redevelopment of a property is a driving factor in selection of a site to pursue for reuse, and participants indicated the importance of distinguishing sites based on their location within or outside of an urban growth boundary (UGB) or by their status as commercial or industrial land prior to prioritization, since preferred characteristics of these site groups tend to differ. Several participants indicated that it is important to understand the needs of the communities in which sites are located before prioritizing sites.

Conversations with participants and results of individual rankings revealed that other than the common themes mentioned above, stakeholders tend to prioritize evaluation criteria differently based on their involvement in the redevelopment of these sites. These different priorities by different stakeholders lead to difficulty developing a single scoring system for prioritizing sites in the inventory. Instead, different scoring systems can be developed depending on community goals and priorities of stakeholders involved. For example, if individual jurisdictions have identified specific site characteristics to pursue for redevelopment, they could develop a scoring system based on evaluation criteria specific to their area. The inventory can also be used to separate sites with different primary characteristics (such as location within or outside of a UGB), then scoring each of these site groups using the same scoring systems.

Using this recommendation from the group interview to prioritize sites in the study area, sites were classified based on location within or outside of a UGB and the following evaluation criteria were applied to each site group: size, consistency with zoning and comprehensive plan, improvement value, DEQ status, and public/private ownership. Selection of the top 5% of sites scored for both of these categories as priority sites resulted in twelve priority sites within UGBs and two priority sites outside of UGBs These priority sites may indicate areas the MVWCOG or jurisdictions could further evaluate for redevelopment efforts.

Although these prioritized sites could be further evaluated and possibly pursued for redevelopment, the scoring systems used to prioritize sites within and outside of UGBs in the study area were selected to show an example of how this model of scoring could be applied using a local inventory, and do not represent the specific preferences of the region or of individual communities with regard to brownfields, which have not been explicitly defined.

Discussion and Recommendations

The purpose of this project was to develop and test a methodology for use as a rapid assessment tool to identify and prioritize brownfields sites that have a high potential for redevelopment. Implementing this

methodology revealed the following key strengths and challenges of using such a tool to identify potential brownfields.

Strengths

- **Data Management**: The method is an effective way to narrow a large dataset to an inventory of sites based on key characteristics of brownfields. It provides a base inventory to present to communities for feedback in determining where potential brownfields are likely located. Additionally, this is a useful method for consolidation of publicly available GIS data relevant to brownfields into one location.
- **Flexibility**: The inventory is flexible in that it can be configured to support different scoring systems. Sites can be separated into groups based on primary characteristics. Additionally, the inventory contains adequate information to allow the application of different scoring systems based on community goals and the priorities of stakeholders involved.

Challenges

- **Data Availability**: This method relies on existing GIS data, the availability of which varies by communities. While the MWVCOG works with many communities to assist in data management, many small communities do not have the resources to create and maintain their own data, resulting in supplemental data that varies between communities and creating difficulty in scoring sites if evaluation criteria require data that is not available for an entire study area.

  Not all data identified as important for site prioritization is quantifiable, making it difficult to incorporate into this methodology. Additionally, other data that can be digitized and can contribute valuable information to an inventory, such as historic use information, is time and resource-intensive to develop so is often not feasible to include.

- **Data Accuracy**: Because this method relies on existing GIS data, it is important for the accuracy of the inventory that the data included is correct and current. Stakeholder input from Woodburn and Stayton indicated that about 50% of sites identified in these areas using this method were incorrectly included and that several sites in these areas were eligible for inclusion but were not identified in the base inventory.

- **Lack of Community Input:** The initial inventory was developed using only digitally available data and did not involve input from those in the community that could identify sites for inclusion in the inventory (with the exception of Woodburn and Stayton), or that could identify community-specific evaluation criteria by which to prioritize sites. Input from Woodburn and Stayton confirmed the importance of using local knowledge to assist in site identification.

  Property owner willingness to participate and community interest in redevelopment were identified as key factors that must be considered when prioritizing sites to pursue for

redevelopment. The design of this method as a rapid identification and assessment tool lacks these variables, making it difficult to prioritize sites using these factors as evaluation criteria.

By examining the strengths and challenges discovered through this study, this methodology is useful as a way to identify and begin an analysis of potential brownfields. The results of an inventory of this type can allow communities to understand the extent of the brownfields problem in their area. However, limited to existing GIS data, the method alone is not an effective way to prioritize sites. It is important to have qualitative input at different points in the process; first, using local knowledge to assist in site identification and verification of data accuracy, and then seeking community input on redevelopment priorities and information on property owner's willingness to participate. With the inclusion of these qualitative components, this method can assist in identifying opportune sites for redevelopment.

Recommendations

Based on the results of this study, particularly of the challenges identified, I have identified recommendations and a framework for next steps that the MWVCOG and jurisdictions can consider in order to refine the inventory developed and identify sites in the region to pursue for redevelopment based on regional and community goals.

Challenge: Data Availability | Recommendation: Assess Data Availability

The MVWCOG may consider working with jurisdictions and consolidating currently available data to identify key data gaps in the region, such as zoning and comprehensive plan designations for the study area, and should work to develop this data to fill gaps in the inventory.

Challenge: Data Accuracy | Recommendation: Verify Inventory Accuracy

The MWVCOG should regularly review and update existing data as needed. They may also wish to dedicate resources to validating data obtained from outside sources, such as the Oregon DEQ and U.S. BLS. Additionally, to allow for input on sites to include in (or possibly remove from) the inventory, the MWVCOG may want to complete outreach to its member jurisdictions and update the inventory based on feedback received.

Challenge: Lack of Community Input | Recommendation: Identify Evaluation Criteria

The MWVCOG has identified that development of a brownfields inventory aims to assist in pursuing the redevelopment of brownfields as an economic development strategy. Also, although they have not explicitly addressed brownfields redevelopment as a community priority, some communities, such as Turner and Woodburn, have identified infill development and redevelopment of existing sites as goals in their Comprehensive Plans. It is important that the MWVCOG and jurisdictions outline their goals specific to these sites and draft policies that explicitly address brownfields priorities. To do so, jurisdictions can seek feedback from their communities on development priorities to incorporate the community's desires for future growth into site prioritization. In the absence of stakeholder consensus on prioritization of evaluation criteria for site scoring, these priorities for development can be used to develop a scoring system that supports regional or community-specific goals.

Challenge: Lack of Community Input | Recommendation: Conduct Community Outreach
As the MWVCOG and jurisdictions progress in the identification and prioritization of potential brownfields and jurisdictions begin to pursue redevelopment opportunities, they should provide outreach materials to educate the community on the benefits of addressing the brownfields problem. By providing information on the impacts of brownfields in communities, jurisdictions can build support for the redevelopment of these sites. The MWVCOG can work with jurisdictions to determine how they can be of assistance throughout this process.

Because it has been identified that the participation of property owners and those directly involved in the redevelopment of sites is key to the success of redevelopment efforts, it is especially important that jurisdictions initiate contact with private property owners and potential purchasers of brownfields by providing outreach materials to educate and inform them about the brownfields process. To assist in this aspect of the process, outreach materials in the form of fact sheets have been developed for owners of potential brownfields as well as for potential purchasers of these sites. These materials are included in Appendix E of this report.

Conclusion

Through this study, I developed a methodology that can be used as a framework to identify and prioritize potential brownfields in the study area. The method developed is a useful tool to begin site identification and analysis, and can allow the community to understand the extent of the brownfields problem. The study resulted in a draft inventory of potential brownfields in Marion County and provided an example of how a scoring system can be used for site prioritization.

While the MWVCOG and jurisdictions may look to these areas for future redevelopment opportunities, this study indicated that limited to existing GIS data, this method alone is not necessarily an effective way to prioritize sites. This study identified challenges to using the methodology developed and provided suggestions on how the MWVCOG can improve upon the inventory and prioritization process in order to prioritize sites that best align with the goals of the region and of specific communities. By addressing these challenges, the MWVCOG can refine this methodology in a way that allows more accurate identification of potential brownfields in the region and relies on explicit regional goals with respect to brownfields from which to prioritize sites for redevelopment.

Chapter 1: Introduction and Context

Between 2000 and 2010, the United States population increased by 10% and the populations of Oregon and Marion County, Oregon increased at similar rates, 12% and 11%, respectively (U.S. Census Bureau, 2000 and 2010). This population growth primarily occurred in urban areas, with urban populations increasing by 15% in Oregon and 14% in Marion County during this time, and rural populations decreasing slightly in these areas. In 2010, about 80% of Oregon's population and 85% of Marion County's population resided in urban areas (U.S. Census Bureau, 2000 and 2010).

Population forecasts indicate that Oregon's population will increase by 46% over the 2010 population by 2050, and Marion County's will increase by 58% by 2050 (Office of Economic Analysis, 2013). Within Marion County, population forecasts project that by 2030, populations of the five largest cities, Salem, Keizer, Woodburn, Stayton, and Silverton, will account for 67% of the County's total population, up from 66% in 2007. During the 2007 to 2030 period, the population in unincorporated areas of the County is projected to decrease from 27% to 24% of the County's total population (PSU Population Research Center, 2008).

In 2030, Woodburn, Silverton, and Stayton are projected to remain the County's largest cities other than Salem and Keizer, with populations of 37,216, 14,418, and 11,359, respectively (Marion County Oregon, 2013b). However, there are also several cities in Marion County with projected average annual growth rates above 2% for the 2010 to 2030 period. These include Aumsville (2.2%), Aurora (2.54%), Donald (3.2%), Gervais (2.8%), Jefferson (2.44%), Scotts Mills (2.04%), Turner (3.15%), and Woodburn (2.04%), with the populations of Donald, Gervais, and Turner expected to double during this time (Marion County Oregon, 2013b; PSU Population Research Center, 2008).

In addition to population growth, the national economy has shifted from a manufacturing-based economy to one that is service-based over the last three decades, resulting in a shift of key employment industries and changing of land uses in both urban and rural areas (Parker & Goodman, 2011). This shift from manufacturing and resource-intensive industries to service-oriented sectors is expected to continue, and between 2006 and 2016 the U.S. Bureau of Labor Statistics (BLS) projects most job growth nationwide to occur in service-based industries. During this period, the number of jobs in goods-producing industries (agriculture, mining, construction, and manufacturing) is projected to decrease with the exception of the construction sector (Figeroa & Woods, 2007). Employment shifts in Oregon and in the Salem Metropolitan Statistical Area (MSA) have been similar to national trends. Since 1980, service sectors have shown the greatest increase in employment in the Salem MSA, accounting for 57% of new jobs during this time (Parker & Goodman, 2011).

In addition to the national shift from manufacturing to service sector employment, the economy of Oregon has also shifted within the manufacturing sector from manufacturing of lumber and wood products toward high-technology manufacturing, such as electronic equipment (Ingram, Carbonell, Hong, & Flint, 2009). These employment shifts have resulted in increases in employment in urban areas,

while decreases have mostly occurred in rural areas where resource-extraction employment is based (Parker & Goodman, 2011). A 2011 Economic Opportunities Analysis for the Salem-Keizer metropolitan area projects general employment growth (excluding growth in retail sectors) of 27,000 new employees (a 28% increase) between 2012 and 2032 within the Salem, Keizer, and Turner UGBs in Marion and Polk Counties (Parker & Goodman, 2011).

As population increases and shifts in employment continue, communities must plan for these changes in order to provide space and services for all citizens. Urban growth has resulted in limited land available to house growing populations and to meet employment needs, resulting in sprawl from urban areas to previously undeveloped land. However, previously undeveloped land that is available for development is particularly hard to find in areas such as Oregon where growth is limited by urban growth boundaries (UGBs), which define the limits of growth to an area in order to protect agricultural and forest resources from development (Porter, 2008). In Oregon, UGBs have been required for municipalities since the passage of Senate Bill 100 in 1973 that established a statewide land use planning program (Oregon Department of Land Conservation and Development, 2013b; Porter, 2008).

With the passage of Senate Bill 100 and development of a statewide land use planning program, cities and counties must develop comprehensive land use plans ("Comprehensive Plans") that indicate the goals of each community with respect to growth over a 20-year period (Oregon Department of Land Conservation and Development, 2007). These Comprehensive Plans must be consistent with Oregon's 19 Statewide Planning Goals (Oregon Department of Land Conservation and Development, 2013a). Goal 9 of these Statewide Planning Goals addresses economic development, and aims to "provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens" (Oregon Department of Land Conservation and Development, 2013a). To meet this goal, Comprehensive Plans must provide for an adequate supply of sites that meet various industrial and commercial use needs, in addition to other information to encourage economic development (Oregon Department of Land Conservation and Development, 2013a).

As availability of previously undeveloped land is decreasing, cities and counties must increasingly look to infill development and the reuse of previously developed properties to accommodate growing populations and businesses to avoid expanding outward. To address growth management and economic development needs, cities and counties are increasingly looking at brownfields sites as opportunity sites for redevelopment.

Brownfields

Brownfields are defined as "real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant" (CERCLA, 2002). The United States Environmental Protection Agency (EPA) estimates there are at least 450,000 brownfields in the United States (U.S. EPA, 2012b). These properties are abandoned or underutilized and typically have historic commercial or industrial uses. As a result of environmental

contamination or presumed contamination, many owners, potential purchasers, and developers avoid pursuing redevelopment of these properties because they fear the time and costs involved with cleaning up the sites, in addition to fearing liability for contamination that may exist.

These potential cleanup costs and liability concerns, in addition to the unknown extent of contamination onsite and the public's negative perceptions about these sites, create barriers to their redevelopment (Collaton & Bartsch, 1996). These barriers have resulted in negative impacts to communities. Owners with contaminated properties may abandon these properties if they are unsuccessful at selling them, and contamination could spread in the absence of cleanup, impacting community health and economic viability of nearby properties (Collaton & Bartsch, 1996). In addition, these barriers have resulted in urban sprawl to previously undeveloped sites, which impacts natural resources and shifts jobs away from urban populations and existing infrastructure (Horsch, Milmed, & Plante, 1996).
However, there are many positive effects of the cleanup of these sites. The redevelopment of brownfields has a positive effect on the environment by encouraging the cleanup of land for reuse and reducing environmental impacts caused by urban sprawl. Brownfields redevelopment also results in community revitalization and economic benefits due to increases in job opportunities and tax revenues, and the ability to utilize existing infrastructure (Kass, Bridgen, & Lee, 1998).

Legal Framework

Even before the term "brownfield" was widely used, recognition that these sites were often left unused in favor of developing new sites resulted in regulations to address the issues surrounding contaminated sites and to encourage the cleanup and reuse of these sites. A summary of key federal regulations is described here and a more detailed description of regulations is presented in Appendix F.

In 1980, in response to impacts of hazardous waste sites on the environment and public health, the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), also known as Superfund, was enacted (Collaton & Bartsch, 1996). The purpose of CERCLA is to clean up sites with hazardous substance contamination. CERCLA required the EPA to establish a list of the most contaminated sites in the country, known as the National Priority List (NPL), and implemented a tax on chemical and petroleum industries in order to create a fund (Superfund) to clean up these sites. Sites on the NPL were based on a larger list of contaminated sites in the country, the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), which lists sites with varying levels of contamination (CERCLA, 2002).

With the passage of CERCLA, the EPA was able to secure funding to address and clean up some of the most contaminated sites in the Country. However, this unintentionally resulted in the dismissal of many of the nation's less contaminated sites for redevelopment because liability for these brownfields had not yet been addressed. In fact, CERCLA created problems for brownfields because it created the potential for lenders to be held liable for contamination of property if a site was moved from CERCLIS to the NPL, making lenders unwilling to finance projects on these sites (Collaton & Bartsch, 1996). Critics expressed

the need to identify economic development as a goal of CERCLA and remove the barriers to development created by associating less contaminated brownfields with the more seriously contaminated sites listed on the NPL (Howland, 2007).

In the 1990s, the EPA began revising its regulatory framework to broadly address brownfields (Harnik & Donahue, 2011). The 1994 Brownfields Economic Redevelopment Initiative resulted in the removal of approximately 30,000 less contaminated sites from CERCLIS in 1997 (Solitare & Greenburg, 2002). Then, the Small Business Liability Relief and Brownfields Revitalization Act ("Brownfields Act") passed in 2002 and amended CERCLA by designating funds in order to assess and remediate brownfields and to enhance state and tribal environmental response programs (U.S. EPA, 2012d). As a result, the EPA's Brownfields Program and state agencies now provide financial assistance to local and regional governments to inventory, assess, and conduct community outreach and planning around brownfields sites, as well as to assist with funding remediation projects. After revisions to CERCLA, cities have increasingly looked to brownfields as an economic development objective, particularly in areas where available undeveloped land is scarce (DePass, 2006).

Redevelopment Assistance

There are primary agencies in federal and state government responsible for providing technical and financial assistance to communities to facilitate successful redevelopment of brownfields. At the federal level, the EPA has primary responsibility for managing brownfields, and does so through the Brownfields Program (U.S. EPA, 2012a). EPA's Brownfields Program was created in 1995 and differs from the federal Superfund Program in that it focuses on abandoned properties with contamination that is not severe enough to warrant listing on the NPL (Ramseur, 2008). In its early years the program provided up to $200,000 for several pilot inventory and assessment projects nationwide, and with the passage of the 2002 Brownfields Act, a primary activity of the Brownfields Program is the appropriation of grant money to encourage redevelopment of brownfields (Greenburg & Hollander, 2006; U.S. EPA, 2012b). The EPA Brownfields Program has resulted in the assessment of more than 20,000 properties and the cleanup of approximately 850 properties. This has resulted in the creation of about 85,000 jobs and has leveraged close to $20 billion (U.S. EPA, 2013c).

While the EPA has ultimate authority over Superfund, state agencies are responsible for site identification, monitoring, and response to releases (U.S. EPA, 2013a). In Oregon, the Oregon Department of Environmental Quality (DEQ) has primary responsibility for providing guidance on brownfields statewide. The DEQ seeks to assist communities in the investigation and cleanup of sites that are potentially contaminated through technical assistance, site-specific assessments, Prospective Purchaser Agreements (PPAs), and a Voluntary Cleanup Program (VCP), a program where the DEQ can encourage cleanup and redevelopment of sites by working with owners throughout the cleanup process, creating an efficient path to move sites from identification of contamination to cleanup and reuse (Wistar, 2010).

In addition to the EPA and the Oregon DEQ, several federal and state agencies and departments have programs in place to provide technical assistance or financial incentives to those that seek to redevelop brownfields. Key agencies and their roles in these redevelopment efforts are discussed in Appendix F.

Problem Statement

With a growing need to address the brownfields problem nationwide, cities first need to understand the extent of the brownfields problem at a local level. The first step to addressing the brownfields problem at the local level is the identification of sites in the community considered brownfields. While many state agencies, including Oregon DEQ, have publicly available inventories of sites with confirmed and potential contamination, the information contained in these databases is often incomplete, focuses only on contamination, and does not provide information such as site acreage, access to infrastructure, and zoning, to help sites progress from identification through remediation and redevelopment. Furthermore, not all sites with contamination or perceived contamination have been identified by the Oregon DEQ.

Using state hazardous site inventories as a baseline, local enhanced brownfields inventories can incorporate site information that can present a clear picture of site conditions, allowing planners to better understand the redevelopment potential of area brownfields and to prioritize sites with the greatest potential for assessment and remediation. In order to create local brownfields inventories, communities typically need financial assistance through an EPA brownfields assessment grant or state and local grants. This funding is often limited, and in its absence, communities often do not have the resources to develop inventories and prioritize sites with the greatest redevelopment potential.

Project Purpose

In Marion County, Oregon, in order to help remediation of these potential employment lands progress, the Mid-Willamette Valley Council of Governments (MWVCOG) requested assistance in the identification and inventory of contaminated or perceived contaminated sites, collection of more comprehensive information on the sites using geographic information systems (GIS) and Tax Assessor's information, and mapping of these properties to enable identification of the highest priority sites for redevelopment and increased employment opportunities. Marion County, excluding sites within the Salem-Keizer UGB, was selected as the study area. This area was selected in order to allow the project to serve several jurisdictions while remaining manageable in scale.

This effort supports the Mid-Willamette Valley Economic Development District's 2012 Comprehensive Economic Development Strategy (CEDS), which includes Marion County and outlines a 5-year strategic plan for the region's economy. The report recognizes that there are numerous brownfields in the region and notes that "additional assessment information is needed to identify the severity of these sites and the appropriate reclamation actions needed to redevelop these sites" (Mid-Willamette Valley Council of Governments, 2012). Specifically, creation of a brownfields inventory assists in the achievement of Objective 1.3 in the CEDS, to "reduce barriers and obstacles to economic development and employment

growth," as well as Objective 1.6, to "ensure an adequate supply of developable land is available for new and expanding businesses throughout the region" (Mid-Willamette Valley Council of Governments, 2012).

Additionally, the regional economic development strategy developed as part of the Economic Opportunities Analysis for the Salem-Keizer metropolitan area identifies land availability to accommodate new and existing businesses as a goal, and infill and redevelopment opportunities an objective to support this goal. This objective specifically lists the importance of developing strategies to assist in redevelopment of brownfields (Parker & Goodman, 2011).

Where available, Comprehensive Plans for jurisdictions in the study area were reviewed in order to determine whether communities have indicated the redevelopment of brownfields as an economic development strategy. Comprehensive Plans reviewed include those for the jurisdictions of Aumsville, Aurora, Hubbard, Marion County, Mt. Angel, Silverton, Stayton, Sublimity, Turner, and Woodburn. Comprehensive Plans from the remaining jurisdictions in the study area were not available online. Of the plans reviewed, no jurisdictions have identified the redevelopment of brownfields as a goal or objective of the community. Additionally, these communities have not addressed land that may have been impacted by environmental contamination in their Comprehensive Plans, with the exception of the City of Stayton, who recognized that existing groundwater contamination can hinder future development of impacted properties in the city (City of Stayton, 2013).

Although they have not explicitly addressed brownfields redevelopment as a community priority, some communities have identified infill development and redevelopment of existing sites as goals in their Comprehensive Plans. For example, as a policy for commercial and industrial land use to meet area economic goals, the City of Turner stated, "the City shall encourage infill and redevelopment of existing sites, as well as the upgrading of existing facilities and buildings" (Architectural Associates and Mid-Willamette Valley Council of Governments, 2011). Additionally, Woodburn's 2005 Comprehensive Plan lists as a goal for commercial development for the city: "Encourage infill and redevelopment of existing commercial areas within the community, as well as nodal neighborhood centers, to meet future commercial development needs" (City of Woodburn Planning Department and Winterbrook Planning, 2005).

Identification of high priority redevelopment sites will allow jurisdictions to initiate contact with private property owners to pursue public-private partnerships and opportunities to assist in the assessment and eventual cleanup of contamination. This will benefit communities in that public entities can assist and play a direct role in the revitalization of their community, adding to the local tax base.

The purpose of this project is to develop and test a method that can be used as a rapid assessment tool to identify and prioritize brownfields sites that have a high potential for redevelopment. Additionally, the research answers two specific research questions:

- What information should communities use to develop local brownfields inventories?
- How can communities use local brownfields inventories to prioritize sites for redevelopment?

In order to facilitate or encourage brownfields assessment, cleanup, and subsequent reuse, the study (1) uses existing data to create an enhanced site inventory of potential redevelopment lands in Marion County (excluding sites within the Salem-Keizer UGB), (2) identifies evaluation criteria for site prioritization and subsequently prioritizes sites in order to gauge their greatest redevelopment potential, and (3) provides draft outreach materials for property owners and prospective purchasers of these sites with information on brownfields and opportunities for assistance.

The deliverables developed through this process can assist the MWVCOG and its member jurisdictions in identifying opportune sites for employment and display forward progress in increasing the availability of these sites for redevelopment or reuse. An existing list of prioritized sites for redevelopment can assist in future planning efforts and allow the MWVCOG to work with jurisdictions to focus property owner and community outreach efforts to sites with the greatest redevelopment potential, and may increase the likelihood of success should the MWVCOG pursue grant funding from the EPA for assessment, redevelopment planning, or cleanup of specific sites.

This report is organized into the following four chapters:

- **Chapter 2** describes the framework for this research by discussing existing methodologies for the identification and prioritization of brownfields.
- **Chapter 3** describes the methods used to inventory and prioritize brownfields in study area.
- **Chapter 4** presents the results of the inventory and prioritization of brownfields in the study area.
- **Chapter 5** provides a discussion of the research as it relates to the research questions. This chapter also outlines recommendations for the application of the methodology developed to identify brownfields for this project and suggests next steps for the MWVCOG and jurisdictions to assist in moving these sites from identification to assessment and eventual redevelopment and reuse.

Chapter 2: Project Framework

Hayek, Novak, Arku, and Gilliland note that a primary obstacle to addressing the brownfields problem is the difficulty in identifying where and how many brownfields exist in an area, which is necessary prior to making decisions about which sites to prioritize for cleanup (2010). According to Heberle and Wernstedt, it is difficult to develop standard inventory methodology that can compare similar features across multiple project types, and the EPA recognizes that the difficulty in developing standard inventory methodology is a result of varying needs of individual communities (Heberle & Wernstedt, 2006; U.S. EPA, 2009). Further, existing data about brownfields is limited and information available to identify these sites varies between communities and inventories (Hayek, Novak, Arku, & Gilliland, 2010).

This lack of a universal method for identifying and inventorying brownfields can make it challenging for communities to develop their own inventories. In a 2003 study to assess the role of local government in managing brownfields in Canada, of 24 cities that responded to surveys to identify the extent of the brownfields problem, only two cities had an inventory of area brownfields, nine cities were in the process of developing one, and the remaining thirteen cities had no formal inventory (De Sousa, 2006).

However, the development of brownfields inventories is important, as inventories can assist planning efforts by "providing important information for consideration during the development of land use plans, zoning ordinances, or economic development plans" (U.S. EPA, 2009). Among other functions, inventories can identify and prioritize properties to pursue for environmental assessment, cleanup, and redevelopment based on a community's needs (U.S. EPA, 2009).

Inventory Methodology

An EPA report on the development of brownfields inventories for petroleum sites identifies primary data that should be included in an inventory, including tax parcel number, size, location, owner information, and environmental status. Other information identified by the EPA that can enhance an inventory includes zoning information, historic uses of the property, infrastructure, surrounding property uses, redevelopment plans, and socioeconomic factors (U.S. EPA, 2009).

In the absence of standard data and methodology for development of inventories, various methods have been implemented in order to develop local brownfields inventories. Frickell and Elliot developed a method to identify brownfields based on the identification of polluting industries. This method is effective at identifying sites within these industries, but not for identifying sites outside of this limited focus (as cited in Hayek et al., 2010). Page and Berger created an inventory of sites using a state database of contaminated sites with ongoing remediation. They did not seek to identify new sites, but instead focused on providing useful information on the sites with known contamination, such as location, use, and size (as cited in Hayek et al., 2010).

Hayek et al. (2010) note that a geographic information system (GIS) can be used effectively to identify

brownfields, but that there has been limited research on creating a methodology to do so. Their research identifies this method as a tool that governments can use to manage and assist with redevelopment of these sites. The method proposed by Hayek et al. (2010) focuses on the past use of properties, and the inventory is primarily developed using historic Fire Insurance Plans (FIPs) and city directories. They recommend that communities digitize this data as the base for their inventories, and suggest that other sources, such as historic aerial photographs, topographic maps, and tax assessor information, supplement the inventory (Hayek et al., 2010). Although this method can be used to easily access and analyze information regarding area brownfields, the sources recommended by the authors, when available, generally do not exist in digital format and must be digitized, a time and resource-intensive process.

The King County, Washington brownfields program utilized EPA Brownfields Assessment Grant funding to develop three "mini-inventories" by identifying historic land uses that could have resulted in contamination (Bayley, 2010). Sites were identified for inclusion in the inventory using tax parcel information followed by searches of historic city directories to determine parcels with commercial history. The program also used Washington State Department of Ecology records and site visits to narrow their inventory (Bayley, 2010).

In a 2012 study, Portland, Oregon's Metro Regional Council (Metro) took a unique approach to identifying and estimating brownfields in the Portland area by estimating suspected but unreported brownfields and developing a "shadow inventory" (Maul Foster & Alongi, Inc., 2012). To do so, a base inventory was developed by identifying non-residential parcels that were classified as vacant or underutilized in the area's Buildable Lands Inventory and that were *not* listed on DEQ databases. Specific study areas were selected for further analysis, and historic research and site visits were conducted in these study areas. The resulting suspected brownfields from these areas were quantified by percentage and used to estimate the extent of suspected brownfields in the Portland metropolitan area (Maul Foster & Alongi, Inc., 2012).

In addition to obtaining data for inventories using the various methods and sources discussed above, the EPA indicates the identification of potential brownfields by community stakeholders as an effective method for site identification (U.S. EPA, 2009).

Prioritization Methodology

Inventories can be used for prioritization of sites for assessment, cleanup, and redevelopment efforts by ranking key criteria included in an inventory (U.S. EPA, 2009). Communities can select criteria that they deem most important for their planning and development goals to score sites and rank them for prioritization. As with the development of inventories, there is no standard methodology for site prioritization.

Although not based on an inventory, the Clean Ohio Fund, created to provide funding for the cleanup of

brownfields, was developed using focus groups that outlined the program's award criteria and funding priorities. This effort resulted in a scoring rubric for site ranking that determines how funding is awarded (Kellogg, O'Brien, & Toth, 2006). Using focus groups the program was able to utilize the expertise of a diverse group of stakeholders for input into the program's priorities.

In a study by Brill that evaluated priorities for brownfields redevelopment in Worchester, Massachusetts, the author asked a group involved in brownfields redevelopment to rank various factors by both their perceived influence and their preferred influence on brownfields redevelopments (Brill, 2009). Once ranked, a brownfields inventory was developed in GIS using site information obtained from the Massachusetts Department of Environmental Protection (Brill, 2009). Factors from the survey were included in the inventory, and included size, vacant parcels, infrastructure, zoning, recreational facilities, environmental justice zones, schools, aquifers, universities, contamination information, crime statistics, and existing development. Survey results were used to rate each factor, with factors weighed based on both their perceived redevelopment importance as well as their preferred importance. A multi-criteria evaluation followed to determine priority sites for redevelopment (Brill, 2009).

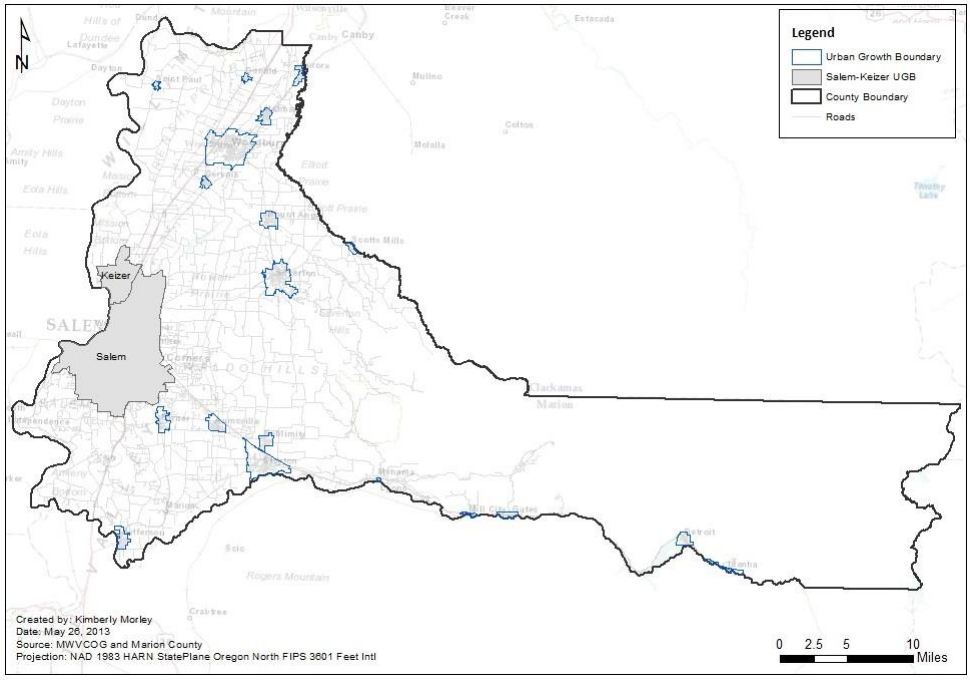
In Oregon, a 2003 inventory to identify potential brownfields in Clackamas County was developed using publicly available data from the Oregon DEQ as a baseline. Regulated facilities listed in various environmental databases were included in the inventory. Based on the redevelopment goals of Clackamas County, the inventory was filtered by facility type to sites listed on the DEQ's Environmental Cleanup Site Information (ECSI) database that had not received a No Further Action (NFA) status. After filtering by facility type, sites were chosen as priority sites based on their location within two key industrial areas or their status as former lumber mill sites. After narrowing sites using these filters, the remaining sites on the list not undergoing cleanup activities were selected as priorities for further evaluation (L. Yandell, personal communication, April 26, 2013).

Although there are no standard methods for development of local brownfields inventories or prioritization of sites, the literature discussed above addresses this study's research questions by describing several methods and data types that can be included to create a local brownfields inventory. This research provides a framework for the methodology used in this study to create an inventory and to develop a scoring system that can assist with site prioritization. The following chapter details the methodology used in this report.

Chapter 3: Methodology

The purpose of this study is to develop and test a method for use as a rapid assessment tool to identify and prioritize brownfields sites that have a high potential for redevelopment. As described in Chapter 1, both the Mid-Willamette Valley Economic Development District's CEDS and the regional economic development strategy developed as part of the Economic Opportunities Analysis for the Salem-Keizer metropolitan area recognize the need to address the redevelopment of brownfields as an economic development strategy. To align with regional goals, the inventory was developed with a primary focus of providing information to assist in planning efforts that support economic development in Marion County. The study area is shown in Figure 1 below and includes urban and rural areas in Marion County with the exception of land within the Salem-Keizer UGB.

Figure 1: Study Area Map



In order to facilitate or encourage brownfields assessment, cleanup, and subsequent reuse, the study (1) uses existing data to create an enhanced site inventory of potential redevelopment lands in Marion County (excluding sites within the Salem-Keizer UGB), (2) identifies evaluation criteria for site prioritization and subsequently prioritizes sites in order to gauge their greatest redevelopment potential, and (3) provides draft outreach materials for property owners and prospective purchasers of these sites with information on brownfields and opportunities for assistance. Methodology for each project phase is described below.

Prior to discussing development of the inventory, it is important to explain how brownfields are defined for the purposes of this study. CERCLA defines brownfields, as "real property, the expansion,

redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant" (CERCLA, 2002). These properties are abandoned or underutilized and typically have historic commercial or industrial uses. For this study, the definition of brownfields has been streamlined to allow for identification of sites using existing, publicly available data.

In this study, brownfields are defined as vacant commercial and industrial lands with either confirmed or perceived contamination based on data available from the Oregon DEQ. Sites with perceived contamination are lands in the inventory that are not directly associated with a DEQ identified site, but that are within close proximity to listed sites and may have been impacted by nearby contamination. In the absence of data confirming whether sites identified in the inventory meet the CERCLA definition of brownfields, all inventoried sites are considered potential brownfields.

Site Inventory

The development of an enhanced site inventory for this study is not only a method to enable site prioritization, but primarily contributes findings to the report by identifying potential brownfields and providing information about these sites for use in future planning efforts. Because of this, the process of inventory development is discussed briefly below and is described in more detail in Chapter 4.

Based on literature reviewed on the development of brownfields inventories and regional planning documents that identify development goals in Marion County, a process to create a base inventory of brownfields sites was developed. Supplemental data was identified for inclusion in the inventory to provide information that enables prioritization of sites for redevelopment. All data used in the inventory is existing, publicly available GIS data, with the exception of U.S. Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages data (discussed below). Publicly available data was obtained online from the Oregon DEQ's databases, Marion County's GIS server, and the U.S. Fish and Wildlife Service National Wetlands Inventory. Additional available county and city data was obtained from the Mid-Willamette Valley Council of Governments and member jurisdictions. No new GIS data was created for development of this inventory, as this project aimed to develop a rapid assessment tool using available resources. The inventory was developed using ArcGIS 10.0. Technical details of inventory development have not been included in this Chapter. However, a detailed description of this project phase is included in Appendix C of this report.

Base Inventory

Beginning with a base map of the study area developed using data from Marion County's GIS server, the inventory was developed using key characteristics of brownfields: commercial or industrial classification, vacancy status, and confirmed or perceived contamination. The base inventory was limited to existing GIS data that represents these characteristics. Starting with tax lot information for the County, tax lots in the study area with recorded commercial or industrial uses based on the tax lot data were selected for inclusion in the inventory.

Once narrowed based on tax lot information, the next step in the analysis used data from the U.S. BLS Quarterly Census of Employment and Wages (QCEW) to identify sites with current employment. The QCEW is a program of the U.S. BLS that primarily functions to provide information on "employment and wages of establishments which report to the Unemployment Insurance (UI) programs of the United States", and employment information covered by these programs accounts for nearly 98% of civilian employment (U.S. BLS, 2012). The QCEW identifies the number of employees at a particular company or facility and can be used as a proxy to indicate properties that do not currently report to UI programs. This information is confidential and not available to the general public. Because of this confidentiality, the MWVCOG applied 2011 QCEW employment data to commercial and industrial tax lots identified in the study area. The MWVCOG provided information on whether employment existed on each parcel in the inventory using this data, and tax lots where QCEW did not indicate any employment were considered the vacant commercial and industrial lots in the study area. Although the definition of brownfields includes sites that are underutilized as well as vacant, based on the data available for this study, the inventory was developed only considering sites lacking employment as vacant sites.

The Oregon DEQ maintains two primary databases that identify sites with contamination or potential contamination. The first is a database of properties that have known or presumed contamination by hazardous substances, called the Environmental Cleanup Site Information (ECSI) database (OR DEQ, 2013a). A second database lists facilities that have confirmed releases from underground storage tanks, called the LUST database.[1] These two lists were used to identify potential brownfields in the County from the tax lots classified as vacant industrial or commercial lands. To do so, ECSI and LUST facility data was used to narrow the base inventory to only those tax lots located within 100 feet of an ECSI or LUST site. This 100-foot buffer was chosen to account for slight misplotting of sites or inaccurate address locations, as well as to include sites in the inventory that may have been impacted by contamination on adjoining properties.[2]

Community Outreach

Literature reviewed and interviews conducted for this study (discussed below) identified stakeholder input into the inventory process as an effective way to identify potential brownfields. Once the base inventory was developed, the primary cities where potential brownfields were identified, Woodburn and Stayton, were contacted to provide an opportunity for city officials to confirm the data in the inventory and to use local knowledge to identify potential brownfields not identified in the base inventory. These cities were selected for stakeholder outreach because, combined, they account for approximately one-third of the sites identified in the base inventory. Input from these jurisdictions resulted in the removal of several sites from the inventory and the addition of others. The limited timeframe of the project prohibited further outreach to all of the MWVCOG's member jurisdictions in the study area.

[1] These lists provide information about facilities that have been identified as having environmental concerns, but are not complete in that they only show sites that have been identified by the DEQ. Additionally, listing in the ECSI database does not necessarily mean that a release has occurred, and not all sites in this database are considered brownfields.

[2] Although contaminated media can migrate more than 100 feet, this amount was selected to primarily account for contamination that may exist on adjoining properties.

Supplemental Inventory Data

After development of the inventory, supplemental information was selected for inclusion in the inventory based on literature reviewed and existing GIS data available from the MWVCOG, member jurisdictions, and other sources. The use of only existing data to supplement the inventory limited the types of information that could be included based on available resources. Data from Marion County was downloaded on February 15, 2013 and additional data was obtained by May 1, 2013.

To incorporate supplemental information into the inventory, available GIS layers were joined to the inventory attribute table and data joined was edited in order to include only relevant information. This method was chosen in order to consolidate relevant inventory information into one spatial file. In some cases the information contained in a particular GIS layer was examined and a column was added to the inventory attribute table to include relevant information (either text or calculations) rather than keeping the joined data in the inventory. Not all GIS data was available for the entire study area. The information included in the enhanced inventory is discussed in Chapter 4 and in Appendix C.

Site Prioritization

After the inventory was developed, one group interview and four individual interviews were conducted to obtain feedback on the supplemental information included in the inventory and input on evaluation criteria that can be used to prioritize potential brownfields for redevelopment. A group interview was the primary method for obtaining this information to enable a broad range of stakeholders to interact with one another about information that enhances brownfields inventories and factors that indicate redevelopment potential.

Interview participants represented various professional groups, including U.S. EPA, state and regional brownfields programs, realtors and private developers, consultants, and city and county planning and economic development staff. This variety of participants was sought in order to understand the preferences of many parties involved in brownfields redevelopment. Potential participants were identified through research and through consultation with Renata Wakeley, Senior Planner, of the MWVCOG. Ten participants attended the group interview on April 25, 2013 at the MWVCOG's offices in Salem, Oregon. Participants had experience with brownfields through the marketing, financing, environmental, and inventory aspects of these sites. Some participants did not have experience specifically with brownfields or inventory of these sites, but had experience identifying redevelopment potential of sites in their communities. Others that were unable to attend the interview but expressed interest in the project were interviewed individually either by phone or in person prior to the group interview session. A list of group and individual interview participants and their professional affiliations is provided in Appendix D.

Interview participants were given an overview of the project and of the process used to develop the base inventory. They were asked to discuss key information that they feel should be included in local

brownfields inventories that can assist in future planning efforts and enable prioritization of sites for redevelopment. The group interview and individual interviews provided information that could further enhance the inventory. Some data suggested could not be included due to time constraints or lack of accessible information, but where feasible, participant's suggestions were incorporated into the inventory.

After discussing the contents of the inventory and providing suggestions for additional data to include, group interview participants were asked to rank site evaluation criteria by order of importance. A list of evaluation criteria to prioritize was developed based on literature reviewed, but participants were invited to add and rank any factors that were discussed during the group interview session or that they felt were important in determining high potential sites for further evaluation and site planning. The results of the interview discussions and ranking of evaluation criteria were used to inform the method of site prioritization developed for this study, wherein a scoring system was developed based on high-ranking evaluation criteria. Scoring and site ranking was conducted using GIS. The results of site prioritization are discussed in Chapter 4.

Outreach Materials

In addition to identification and prioritization of potential brownfields, supplemental research involving general brownfields information and options for redevelopment assistance was conducted. As a result of this research, draft outreach materials in the form of fact sheets have been developed for owners of potential brownfields as well as for potential purchasers of these sites. These fact sheets can be used by interested member jurisdictions when they are ready to contact property owners or potential purchasers to discuss assessment, cleanup, and site reuse. These materials are included in Appendix E of this report. Additionally, information on redevelopment assistance that may be available to the MWVCOG and member jurisdictions is discussed in Appendix F.

Chapter 4: Findings

Inventory Results

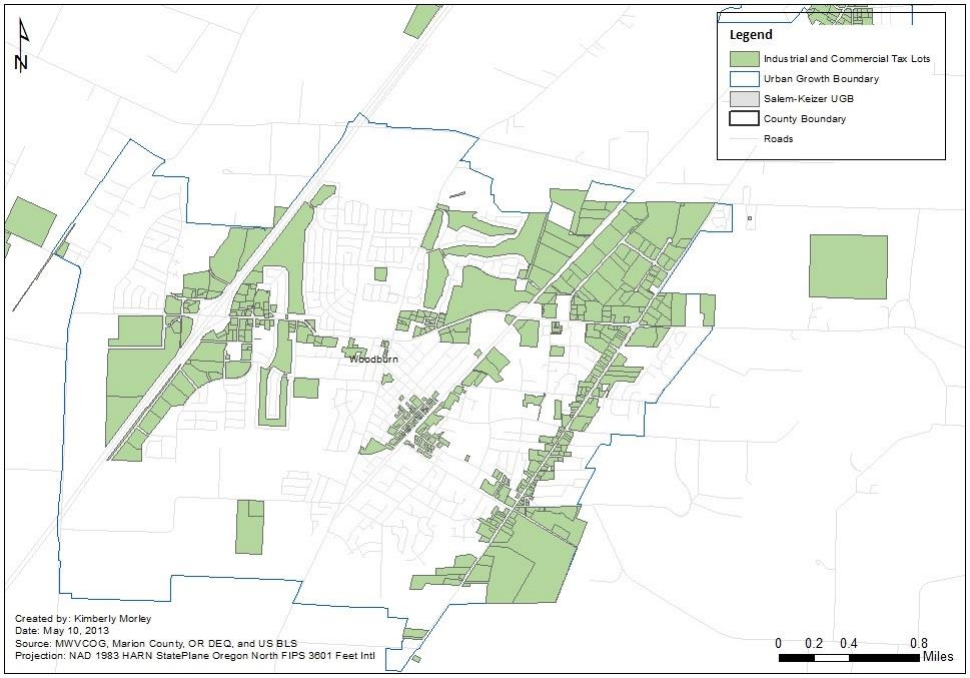
The methodology discussed above to develop a brownfields inventory in Marion County enabled narrowing of a large dataset (52,651 tax lots in the study area) to approximately 300 potential brownfields based on key characteristics of these sites: commercial or industrial use, vacancy status, and actual or perceived contamination. Figure 2 below indicates the reduction in the number of sites in the study area after each step of the inventory development process.

Figure 2: Inventory Results

The inventory process and results from each step in the process are discussed below. As an example of the process, maps of Woodburn, a community in the study area, show how sites were filtered during each step of the process.

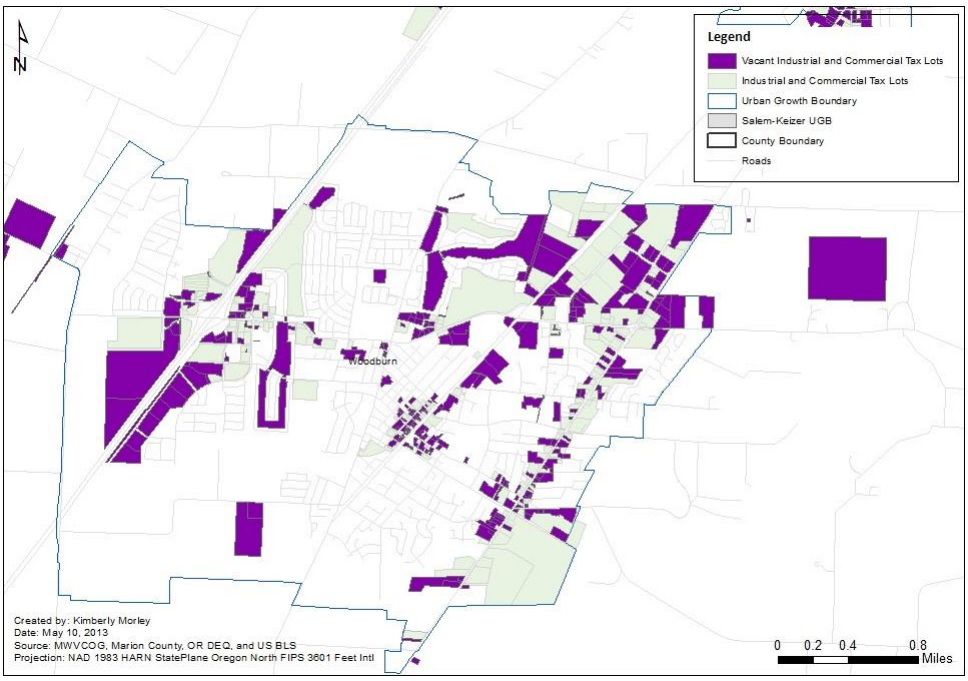
Beginning with 52,651 tax lots in the study area, tax lots classified as commercial or industrial lands were selected for inclusion in the inventory. This resulted in 2,714 tax lots remaining in the inventory after this step. The commercial and industrial tax lots in Woodburn are shown in green on Figure 3 below.

Figure 3: Woodburn Commercial and Industrial Tax Lots



Next, using U.S. BLS QCEW data, commercial and industrial sites that are lacking employment were identified. These sites are considered the vacant commercial and industrial lands in the study area. This step in the filtering process narrowed the inventory to 1,818 tax lots in the study area. These vacant commercial and industrial tax lots in Woodburn are shown in purple on Figure 4.

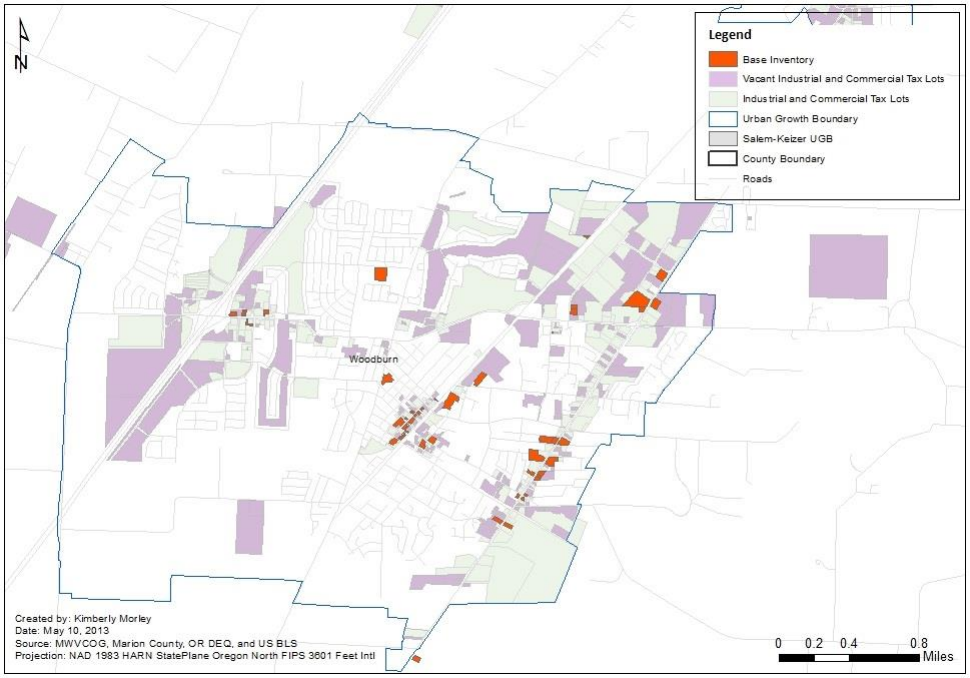
Figure 4: Woodburn Vacant Industrial and Commercial Tax Lots



After narrowing the inventory to vacant commercial and industrial tax lots, two Oregon DEQ databases, the ECSI and LUST databases, were used to identify sites with known or potential contamination. Using information from these databases, the inventory was narrowed to tax lots located within 100 feet of a DEQ-listed site. A 100-foot buffer was selected to account for slight misplotting of sites and to include sites in the inventory that may have been impacted by contamination on adjoining properties. After this step, the inventory was narrowed to 315 tax lots. The base inventory in Woodburn is shown in orange on Figure 5.

It is important to note that information obtained from individual interviews and the group interview indicates that some stakeholders do not consider sites that have received a No Further Action (NFA) status from the DEQ as a concern, but professionals working on the environmental aspect of brownfields indicate that there are different levels of NFA findings and it may be beneficial to keep these sites in the inventory. In the development of this inventory, sites with an NFA status from the DEQ have been kept in the inventory. It may be the case, however, that these sites have lower levels of contamination (if any) than other sites in the inventory that are currently undergoing remediation.

Figure 5: Woodburn Base Inventory



Both the literature reviewed and interviews conducted identified stakeholder input into the inventory process as an effective way to identify potential brownfields. After development of the base inventory the primary cities where potential brownfields were identified, Woodburn and Stayton, were contacted to provide an opportunity for city officials to confirm the data in the inventory and to use local knowledge to identify potential brownfields not identified in the base inventory.

By reviewing the base brownfields inventory developed, Jim Hendryx, Economic and Development Services Director for Woodburn, identified 21 currently occupied tax lots of the 55 sites listed in the base inventory that should be removed from the inventory. He also provided a list of 23 tax lots that the City's Public Works Department maintains as potential brownfields based on property use (J. Hendryx, personal communication, May 9, 2013). From this list, 18 tax lots had not been included in the base inventory and were added to the final inventory. Dan Fleishman, Director of Planning and Development for Stayton, provided comments on Stayton's base inventory, noting current uses, property zoning, market status (for sale, lease, etc.), and providing suggestions for sites to remove from the inventory. As a result, 34 of the initial 53 sites were removed from the inventory. Mr. Fleishman also provided a map outlining nine additional tax lots to add to the inventory, indicating that these sites are vacant sites located in industrial or commercial zones and either listed for sale or would likely be available for sale if redevelopment was pursued (D. Fleishman, personal communication, May 8, 2013).

Input from these cities, accounting for approximately one-third of the sites identified in the base inventory, resulted in the removal of approximately 50% of sites initially on the inventory in these two cities (55 sites were removed), and the addition of 27 sites not listed in the base inventory. These major revisions in the number and location of sites included likely indicate inaccurate location information associated with the employment data the MWVCOG obtained from the U.S. BLS that was used to identify vacant lands in the study area.

The result of these changes is a brownfields inventory for the study area that contains 287 potential brownfields. The final inventory for Woodburn is shown in orange on Figure 6, and the final inventory for Silverton, another community in the study area, is shown on Figure 7. Additional maps of the inventory are included in Appendix A.

It is important to note that although this inventory was developed based on sites located in close proximity to properties that have been listed on either the DEQ's ECSI or LUST databases, properties in the inventory are not necessarily contaminated (nor are properties listed on the databases). Although the data used to develop the inventory is publicly available data, there tends to be a stigma associated with properties being placed on a list that could indicate potential contamination. This inventory is one of potential brownfields, and listing on the inventory does not indicate that any property is a confirmed brownfield or that it is contaminated. Rather, this inventory seeks to show properties that are vacant and that may have been impacted by environmental contamination from past uses onsite or on nearby properties.

Figure 6: Woodburn Site Inventory

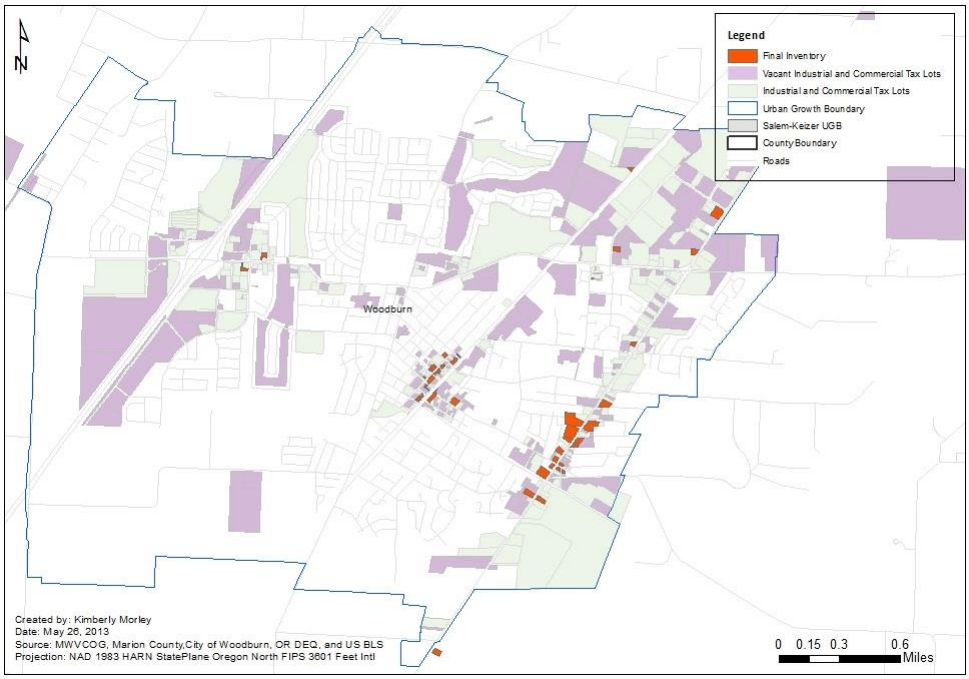
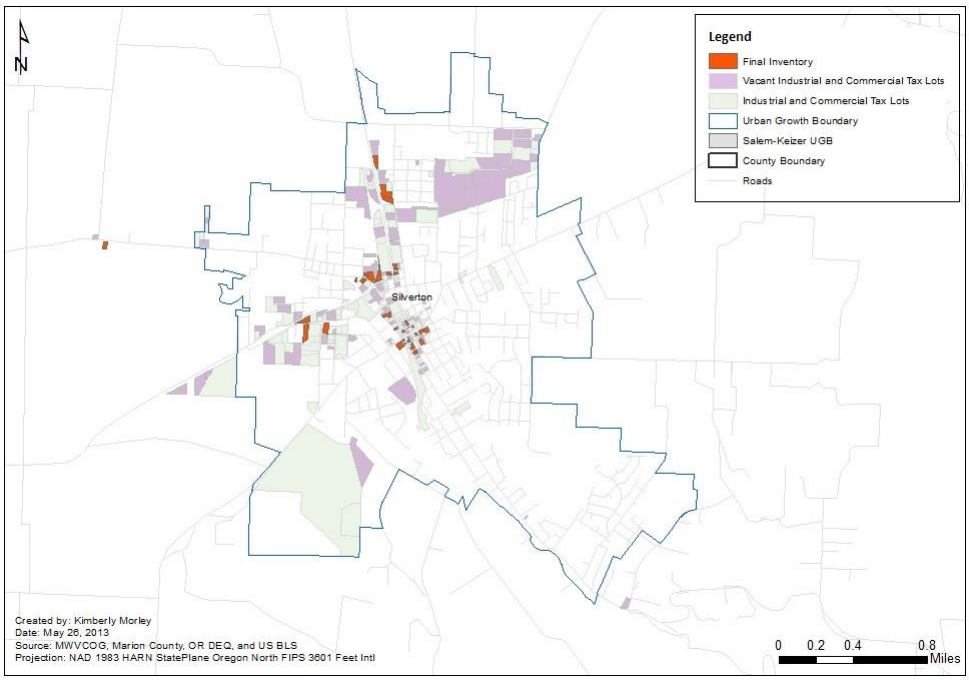


Figure 7: Silverton Site Inventory



Supplemental Inventory Data

In addition to general site information, such as location, owner information, and tax lot number, the literature reviewed and the interviews conducted identified several criteria considered important for

inclusion in brownfields inventories, including property size, vacancy status, environmental status, zoning, infrastructure, historic information (Sanborn fire insurance maps, city directories, and historic aerials), socioeconomic factors, and surrounding uses.

Interviews conducted also indicated that information on comprehensive plan designations, wetlands, floodplains, water sources, wellhead protection areas, urban renewal districts, historic districts, solid waste sites, type of contamination, deed restrictions, location within or outside of a UGB, industrial versus commercial status, market status (for sale or lease), tax delinquency status, ownership classification as public or private, health department data, cost to remediate, ability to profit, marketability, available financing, whether there is a proposed reuse for the site, community interest in redevelopment, and information on property owner willingness to participate in redevelopment efforts as beneficial information to include in inventories.

While all factors listed above can be beneficial to include in an inventory, much of the data is unavailable in GIS format or is not possible to obtain using a method that relies on existing GIS data, such as the one used to develop this inventory. Data that was included in this inventory is based on information gathered from literature and interviews to the extent possible. The GIS layers examined and information added to the inventory from these layers is shown in Table 1 below.

Table 1: Supplemental Inventory Data

GIS Layer	Information Obtained
Tax Lot	Tax lot number, size, location, owner information, land and improvement value, property type (current use), most recent sale information, and improvement construction date/size
DEQ ECSI	Site number, name, location, cleanup status, and distance to nearest ECSI site
DEQ LUST	Site number, name, location, and distance to nearest LUST site
Zoning (Marion County and cities of Idanha, Gates, Jefferson, and Silverton)	County or city zoning designation, overlay zone information in Jefferson
Comprehensive Plan (Marion County and cities of Silverton and Woodburn)	County or city comprehensive plan designations
Floodplain	100-year floodplain locations
Wetlands (NWI and LWI)	National and local wetlands locations
Solid Waste Sites	Distance to solid waste disposal, transfer, and recycling locations
Sensitive Groundwater Overlay (SGO)	SGO Zone locations
Lakes/Ponds	Lake and pond locations
Rivers/Streams	River and stream locations
Railroad Tracks	Distance to railroad tracks
Stayton Buildings	Construction date and current building occupant
Silverton Historic District	Historic District boundaries
Silverton Urban Renewal District	Urban Renewal District boundaries
Silverton Water Service Lines	Water service line locations
Silverton Sewer Lines	Sewer line locations

Using the inventory with supplemental data included, it is possible to quickly calculate information about the inventory that can help explain the extent of the brownfields problem. For example, a user of the inventory can determine the number of sites by location. Table 2 below shows the total number of sites, the number of commercial and industrial sites, and total site acreage of sites identified in the inventory within the study area by jurisdiction.

Table 2: Inventory Results by Jurisdiction

Jurisdiction	Total Number of Sites	Commercial Sites	Industrial Sites	Total Acreage
Woodburn (final after City input)	52	50	1	26.54
Marion County (outside of UGBs)	44	41	3	453.18
Silverton	43	42	1	10.83
Stayton (final after City input)	27	23	3	172.76
Mt. Angel	20	20	0	2.65
Turner	15	14	1	15.29
Jefferson	14	14	0	2.48
Detroit	12	12	0	2.65
Hubbard	11	11	0	10.5
Donald	11	9	2	11.64
Sublimity	10	10	0	0.95
Aumsville	7	7	0	1.87
St. Paul	7	5	2	2.95
Aurora	5	5	0	2.21
Idanha	3	3	0	14.58
Scotts Mills	3	3	0	0.28
Gervais	2	2	0	1
Gates	1	1	0	0.2
Mill City	0	0	0	0

A user of the inventory can also calculate general information and characteristics of the inventory as a whole or for specific sites included in the inventory. Table 3 displays general information obtained at an inventory-wide level, and Table 4 provides information on sites in the inventory that occupy 10 or more acres.

Table 3: Inventory Statistics

Inventory Characteristic	Total
Site Acreage	732.56 acres
Number of Sites 10 Acres or Larger	10 sites
Land Value	$44,522,790
Percent of Sites in UGBs	85%
Percent Commercial	95%
Percent Privately Owned	94%

Table 4: Inventory Sites over 10 Acres

Tax Lot	Acreage	Jurisdiction	Ownership	Classification
097E20A00300	81.89	Marion County	Public	Commercial
091W10CB02400	73.43	Stayton	Private	Industrial
097E20A00100	66.47	Marion County	Private	Commercial
091W09B00600	44.07	Stayton	Private	Farm Land
063W23B00400	37.84	Marion County	Private	Commercial
041W0900901	28.30	Marion County	Private	Commercial
106E22B00400	14.02	Idanha	Private	Commercial
091W09DD00100	13.43	Stayton	Private	Industrial
062W17C00800	11.84	Marion County	Private	Commercial
041W02D00500	10.00	Marion County	Public	Commercial

Evaluation Criteria and Site Prioritization Results

While the development of a local brownfields inventory is helpful in that it consolidates information that may be important to a variety of stakeholders involved in redevelopment of these sites, it is important to identify and rank evaluation criteria that can be used to prioritize sites in the inventory to pursue for redevelopment.

Prior to the group interview, a list of site factors to consider for site prioritization was developed based on literature reviewed, available GIS data for this study, and information obtained from the individual interviews. Possible evaluation criteria included property size, consistency with zoning and comprehensive plan designations (to assist in determining how current site use aligns with area planning goals), improvement value (intended to provide information about what infrastructure may be expected on site in the absence of County-wide data), public/private ownership status, location within a UGB, environmental status, and presence of floodplains or wetlands onsite (which can create barriers to redevelopment).

Discussion Themes

During the group interview, participants were asked to discuss additional criteria they consider important for prioritizing sites for redevelopment. Criteria identified included the industrial/commercial status of a site, community interest in redevelopment, property owner interest, infrastructure, location within an Urban Renewal District or Historic District, redevelopment potential, market status (for sale or lease), property tax status, surrounding uses, whether a known reuse has been identified, public safety, wellhead protection, and socioeconomic factors.

The group interview discussion and individual interviews indicated that for most participants, property owner willingness to participate in redevelopment efforts or to sell their property is the main factor in pursuing sites for redevelopment. Participants also generally agreed that community interest in redevelopment of a property is a driving factor in selection of a site to pursue for reuse, and participants indicated the importance of distinguishing sites based on their location within or outside of a UGB or by

their status as commercial or industrial land prior to prioritization, since preferred characteristics of these site groups tend to differ. Several participants indicated that it is important to understand the needs of the communities in which sites are located before prioritizing sites.

Conversations with participants revealed that other than the common themes mentioned above, stakeholders prioritize sites differently based on their involvement in the field of brownfields redevelopment. Professionals working on the environmental aspect of brownfields appear to focus more on the environmental issues with these sites and the impacts of contamination on communities, while those involved in real estate and economic development focus on the marketability of sites and financing options available for redevelopment. Participants representing communities tended to focus on factors and goals specific to their communities or regions. These different priorities by different stakeholders lead to difficulty developing a single scoring system for prioritizing sites in the inventory.

Individual Criteria Rankings

After our discussion, group interview participants were asked to rank site evaluation criteria by order of importance, and participants were encouraged to add and rank any factors that were discussed during the interview session or that they felt were important in determining high potential sites for further evaluation and site planning. The results of the group interview discussion as well as the participant's individual rankings were used to inform the method of site prioritization developed for this study.

When asked to individually rank evaluation criteria based on level of importance, participants ranked the criteria listed on ranking cards, and several participants added additional criteria to consider for prioritization. Based on information provided during this part of the group interview, the individual scores of all evaluation criteria listed were averaged (although in some cases only one or two participants ranked a specific criterion) to come up with an overall score for each criterion. Additionally, one participant ranked evaluation criteria differently depending on a site's status as commercial or industrial, and one developed separate rankings for public land and commercial land. The average scores of all criteria included in the individual ranking process are shown in Table 5. These average scores were used to determine the level of importance of each criterion to group interview participants.

Table 5: Results of Evaluation Criteria Ranking

Evaluation Criterion	Average Score	Number of Participant Rankings
Property Owner Interest	1	1
Community Interest	2.3	3
Property For Sale	2.7	3
Size	3.3	9
Consistency with Zoning/ Comprehensive Plan	3.8	9
Infrastructure	4	2
Improvement Value	4.3	9
Location within UGB	4.3	9
DEQ Status	4.6	9
Surrounding Uses	5	1
Public/Private Ownership	5.1	9
Property Tax Status	5.7	3
Wetland	6.5	9
Known Reuse	7	1
Floodplain	7.4	9
Public Safety	9	1
Wellhead Protection	10	1

Site Scoring and Prioritization

From Table 5 above, evaluation criteria were eliminated if they were either not highly ranked (1 being the highest ranking) for site prioritization (ranked 6 or higher) or were not possible to assess using the GIS data included in the inventory (based on lack of data or data that was only available for a small portion of the study area). This included the three highest-ranking evaluation criteria from the group interview: property owner interest, community interest, and property status as for sale.

The results of the rankings indicated that among criteria with average scores of less than 6 that can be included in a scoring system based on data availability, there is not a drastic difference between average scores. Property size had the highest average ranking of these criteria at 3.3 and public/private ownership was on the low end of these criteria with an average ranking of 5.1. The similar scores between these criteria support the findings in the group discussion, that there is no general consensus on prioritization of evaluation criteria with the exception of property owner and community involvement.

These varying preferences by stakeholders indicate that a single ranking system for sites in an inventory may not be an effective way to best prioritize sites. Rather, using a base inventory, different scoring systems can be developed depending on community goals and priorities of stakeholders involved. From interview information obtained, several participants indicated that in order to prioritize sites for redevelopment, it is important to understand the priorities of the areas in which sites are located, as each community is unique in their land needs and development goals. This would allow prioritization of sites in a way that supports community goals. For example, if individual jurisdictions have identified specific site characteristics to pursue for redevelopment, they could develop a scoring system based on evaluation criteria specific to their area.

Alternatively, the inventory can be used to separate sites with different primary characteristics prior to developing a scoring system for prioritization. As an example, although many of the evaluation criteria ranked in the group interview received similar average rankings, the interview indicated the importance of evaluating sites separately based on their location within or outside of a UGB. This separation prior to ranking can result in a list of priority sites to pursue for redevelopment both in and outside of UGBs using the same evaluation criteria.

Testing the Model

Using the recommendation from the group interview of grouping sites prior to scoring, a scoring system was developed based on interview results and was subsequently tested to provide an example of how sites can be scored and prioritized using a local brownfields inventory. In this example, to prioritize sites in the study area, sites were first classified based on location within or outside of a UGB. Each site group was scored using evaluation criteria from the group interview with average rankings of less than 6 that could be scored based on the data included in the inventory: property size, consistency with zoning and comprehensive plan, improvement value, DEQ status, and public/private ownership.

Tax lot size was selected for ranking because the size of a site impacts the types of development than can occur on a site. Larger sites allow for more flexible development, but interviews indicated that is important to have a range of sizes available for redevelopment, and that sites up to 40 acres can be configured for many different uses. For this scoring system, larger sites were ranker higher than smaller sites.

Consistency with both zoning and comprehensive plan designations is important to evaluate because these factors determine if the current property classification is consistent with either existing zoning, preferred future land use, or both. Sites that are already zoned or used in a manner consistent with the comprehensive plan may be more suitable for redevelopment.

Improvement value was evaluated as a way to consider existing improvements to a parcel that make redevelopment of a property cheaper than if no infrastructure is in place. For example, although an existing building on a site may not be able to be repurposed for a new development, existing improvements onsite can indicate the presence of infrastructure, such as water, sewer, and electric service, which could reduce development costs.

DEQ status was selected as an evaluation criterion because, although sites with an NFA status have been included in the inventory, these sites may have less contamination than sites with ongoing remediation. For this criterion, the distance and NFA status of nearby ECSI-listed sites was evaluated.

Public or private ownership status was selected as an evaluation criterion because sites that are publicly owned can be easier to assess and pursue for redevelopment, as they do not rely on the willingness of a private property owner to participate in redevelopment efforts. In one individual interview, the interviewee explained that publicly owned sites had been more quickly assessed than privately owned

sites using assessment grant funding because landowner participation was not a factor in redevelopment efforts on these sites.

These evaluation criteria were each scored for all tax lots in the inventory according to the scoring systems shown in Tables 6 and 7 below. The sum of the scores for all criteria by tax lot was used to identify priority sites that may be pursued for redevelopment.

Table 6: Evaluation Criteria Scoring System, Sites within UGBs

	0 Points	1 Point	2 Points	3 Points	4 Points	5 Points
Acreage	0 - <0.5	0.5 - <1	1 - <5	5 - <10	10 - <40	40+
Zoning Consistency	No designation	Not Commercial or Industrial		Commercial or Industrial, but does not support current classification		Zoning and classification match
Comprehensive Plan Consistency	No designation	Not Commercial or Industrial		Commercial or Industrial, but does not support current classification		Zoning and classification match
Improvement Value	$0	<$10,000	$10,000 - <$50,000	$50,000 - <$250,000	$250,000 - <$1 million	$1 million +
ECSI Status		Site within 500 feet and no NFA received		Site within 500 feet, but NFA received		No ECSI site within 500 feet
Publicly Owned	No		Yes			

Table 7: Evaluation Criteria Scoring System, Sites outside UGBs

	0 Points	1 Point	2 Points	3 Points	4 Points	5 Points
Acreage		<1	1 - <5	5 - <10	10 - <40	40+
Zoning Consistency	No designation	Not Commercial or Industrial		Commercial or Industrial, but does not support current classification		Zoning and classification match
Comprehensive Plan Consistency	No designation	Not Commercial or Industrial		Commercial or Industrial, but does not support current classification		Zoning and classification match
Improvement Value	$0	<$10,000	$10,000 - <$50,000	$50,000 - <$250,000	$250,000 - <$1 million	$1 million +
ECSI Status		Site within 500 feet and no NFA received		Site within 500 feet, but NFA received		No ECSI site within 500 feet
Publicly Owned	No		Yes			

After site scoring was completed, total scored ranged from 1 to 20 for sites located within UGBs and from 4 to 21 for sites located outside of UGBs. The top 5% of sites scored for both of these categories were considered priority sites. This resulted in two sites located outside of UGBs in the County and 12 sites located within UGBs as priority sites using the scoring system developed for this study.

Of the sites considered priority sites for redevelopment, ten sites are located within the Silverton UGB, one site is located within Woodburn's UGB, and one site is located within Hubbard's UGB. The two sites located outside of UGBs in the County are adjoining tax lots located slightly north of the Salem-Keizer UGB. Figure 8 below shows the locations of priority sites in Silverton, and Appendix B contains maps showing all priority sites as well as site-specific information for these properties.

Figure 8: Silverton Priority Sites

While the scoring rubrics in this example used the same evaluation criteria, evaluating sites separately based on location within or outside of a UGB allowed prioritization of sites in both of these areas. The results of the scoring systems used indicate that for sites within UGBs, the City of Silverton may be an area in Marion County where the MWVCOG could focus efforts. Outside of UGBs, both priority sites identified are located just north of the Salem-Keizer UGB, and several other inventoried sites are in this area, which could indicate another area to focus efforts.

Although these prioritized sites could be further evaluated and possibly pursued for redevelopment, the scoring systems used to prioritize sites within and outside of UGBs in the study area were selected to show an example of how this model of scoring could be applied using a local inventory, and do not represent the specific preferences of the region or of individual communities, which have yet to be determined.

Chapter 5: Discussion and Recommendations

The purpose of this project was to develop and test a methodology for use as a rapid assessment tool to identify and prioritize brownfields sites that have a high potential for redevelopment. Additionally, the research answered two specific research questions:

- What information should communities use to develop local brownfields inventories?
- How can communities use local brownfields inventories to prioritize sites for redevelopment?

To address these questions, this chapter first summarizes the findings from the development of the brownfields inventory and from the method of site prioritization conducted for this study. Next, it provides a general discussion of the methodology developed in this study, describing strengths and challenges of using such a tool to identify and prioritize brownfields. Finally, this chapter concludes with recommendations for further work and a framework for next steps that can be taken by the Mid-Willamette Valley Council of Governments and member jurisdictions in pursuing redevelopment of potential brownfields in the region.

Inventory Development

Literature reviewed revealed that there is no standard methodology for the development of brownfields inventories, making it difficult for communities to determine the extent and locations of brownfields in a given area. This difficulty is a result of the varying needs of individual communities as well as differences in information available in different areas to help identify these sites (Hayek et al., 2010; U.S. EPA, 2009). In the absence of a universal method for identifying and inventorying brownfields, the literature reviewed and professionals with experience in brownfields and economic development indicated several criteria that can be used in order to develop local brownfields inventories.

Key characteristics of brownfields include previous commercial or industrial use, vacant or underutilized sites, and actual or perceived contamination. With these characteristics, it is possible to begin development of an inventory by narrowing properties in an area to sites that fit these criteria. However, literature reviewed and interviews conducted also stress the importance of involving stakeholders in the process of identifying potential sites for inclusion in the inventory. Using local knowledge, it is possible to develop a more accurate inventory because these stakeholders can often identify known or potential brownfields that have not been identified using standard data sources.

In addition to general site information, this study revealed numerous criteria considered important for inclusion in brownfields inventories to provide a clear picture of site conditions. Because a variety of stakeholders are involved in a given brownfields project, criteria suggested for inclusion in inventories addresses a wide range of site characteristics. Information suggested to supplement inventories generally falls under the following categories:

- **General site information**: location, size, ownership, use, zoning and comprehensive plan designations, and other information;
- **Physical characteristics**: presence of wetlands, floodplains, surface water sources, and infrastructure (transportation and utilities);
- **Environmental information**: environmental status, type and extent of contamination on site, proximity to sites with confirmed or perceived contamination, and remediation costs;
- **Environmental justice information**: socioeconomic and health department data;
- **Marketability**: market status, ability to profit, deed restrictions, and available financing;
- **Historic information**: past uses of property; and
- **Redevelopment interest**: community interest, identified proposed reuse, and property owner interest.

While inclusion of this information enhances an inventory and can provide a clear picture of site conditions, much of the information above is not available as GIS data or is difficult to quantify without extensive time or resources. Data that provides general site information and physical characteristics of sites is generally the most readily available GIS data from the categories listed above, followed by data that identifies the environmental conditions of sites and socioeconomic and health department data that can supply information on environmental justice issues. Some data that addresses marketability can be readily obtained, such as market status and information on deed restrictions, but other data in this category is difficult to quantify. Data on historic uses of properties is often difficult to obtain as GIS data because the production of this data is resource-intensive, and cities often do not have the resources to create the data. Finally, information on the redevelopment interest in a property is often the most difficult information to obtain, particularly when using an inventory model that relies on existing GIS data.

Site Prioritization

As with the development of inventories, there is no standard methodology for site prioritization. However, communities can select criteria that they deem most important for their planning and development goals and use these criteria to score sites and rank them for prioritization. Based on literature reviewed and interviews conducted, several evaluation criteria were identified for possible use in site prioritization, and participants in the group interview ranked these evaluation criteria by order of importance to them.

Results of the interviews conducted indicate that for most interviewees, property owner willingness to participate in redevelopment efforts or to sell their property is the main factor in prioritizing sites for redevelopment. Participants also generally agreed that community interest in redevelopment of a property is a driving factor in selection of a site to pursue for reuse, and participants indicated the importance of distinguishing sites based on major characteristics prior to prioritization, such as their location within or outside of a UGB or by their status as commercial or industrial land.

Other than these commonalities, stakeholders tend to prioritize evaluation criteria differently based on their involvement in the redevelopment of these sites. For example, those involved in real estate place a higher value on site characteristics that would identify marketability. As a result of the varied preferences of stakeholders, there was no general consensus on prioritization of evaluation criteria with the exception of property owner and community involvement. After averaging the group interview participants' rankings of each evaluation criterion and eliminating criteria for site scoring that ranked 6 or higher as well as those that could not be assessed using available GIS data, the ranks of the remaining evaluation criteria to be used for site scoring ranged from an average rank of 3.3 (property size) to 5.1 (public/private ownership).

These varying preferences by stakeholders indicate that a single scoring system for sites in an inventory may not be an effective way to best prioritize sites. Rather, using a base inventory, different scoring systems can be developed depending on community goals and priorities of stakeholders involved. From interview information obtained, several participants indicated that in order to prioritize sites for redevelopment, it is important to understand the priorities of the areas in which sites are located, as each community is unique in their needs and development goals. This would allow prioritization of sites in a way that supports community goals.

Alternatively, an inventory can be used to separate sites with different primary characteristics prior to developing a scoring system for prioritization, which is the method used in this study to demonstrate how a scoring system can be implemented. This separation prior to ranking resulted in a list of priority sites to pursue for redevelopment both in and outside of UGBs using the same evaluation criteria. As a result of these groupings, twelve sites were identified as priority sites within UGBs in Marion County, ten of which are located in Silverton. Additionally, two priority sites were identified outside of UGBs, and are located on adjoining tax lots just north of the Salem-Keizer UGB. These priority sites may indicate areas the MVWCOG or jurisdictions could further evaluate for redevelopment efforts.

Although these prioritized sites could be further evaluated and possibly pursued for redevelopment, the scoring systems used to prioritize sites within and outside of UGBs in the study area were selected to show an example of how this model of scoring could be applied using a local inventory, and do not represent the specific preferences of the region or of individual communities with regard to brownfields, which have not been explicitly defined.

Discussion of Methodology

Development and testing of this methodology for brownfields site identification and prioritization revealed several strengths and challenges of this process, outlined below.

Strengths

Strengths of this inventory methodology can be grouped into the following themes:

- **Data Management**: The method is an effective way to narrow a large dataset (e.g. county tax lot data) to an inventory of sites based on key characteristics of brownfields: commercial or industrial use, vacancy status, and actual or perceived contamination. It provides a base inventory to present to communities for feedback in determining where potential brownfields are likely located. Additionally, this is a useful method for consolidation of publicly available GIS data relevant to brownfields into one location, allowing quick identification of locations where concentrations of potential brownfields may be located and making it possible to easily retrieve information on potential brownfields at an inventory-wide scale or for specific sites (e.g. total acreage).
- **Flexibility**: The inventory is flexible in that it can be configured to support different scoring systems. Sites can be separated into groups based on primary characteristics, allowing scoring of different site groupings using standard evaluation criteria. Additionally, the inventory contains adequate information to allow the application of different scoring systems based on community goals and the priorities of stakeholders involved.

Challenges

As listed above, this methodology is an effective way to manage and evaluate site-specific information, and can be configured in different ways to allow for evaluation of different site groupings and for applying different scoring systems depending on the goals of various stakeholders involved. However, several challenges were identified in the development and application of this methodology. These challenges can be classified by three main themes, discussed below.

- **Data Availability**: This method relies on existing GIS data, the availability of which varies by communities. While the MWVCOG works with many communities to assist in data management, many small communities do not have the resources to create and maintain their own data, resulting in supplemental data that varies between communities and creating difficulty in scoring sites if evaluation criteria require data that is not available for an entire study area.

  Not all data identified as important for site prioritization is quantifiable, particularly property owner willingness to participate and community support, making it difficult to incorporate into this methodology. Additionally, other data that can be digitized and can contribute valuable information to an inventory, such as historic use information, is time and resource-intensive to develop so is often not feasible to include.

- **Data Accuracy**: Because this method relies on existing GIS data, it is important for the accuracy of the inventory that the data included is correct and current. Stakeholder input from Woodburn and Stayton indicated that about 50% of sites identified in these areas using this method were incorrectly included and that several sites in these areas were eligible for inclusion

but were not identified in the base inventory. These inaccuracies in base data (tax lot, employment, and DEQ data) are likely a result of misplotting of data based on site address or inaccurate location information (e.g. DEQ databases or U.S. BLS employment data). Additionally, input from the City of Stayton indicated that some zoning data included as a supplement to the inventory was incorrect or outdated (D. Fleishman, personal communication, May 8, 2013).

- **Lack of Community Input**: The initial inventory was developed using only digitally available data and did not involve input from those in the community that could identify sites for inclusion in the inventory (with the exception of Woodburn and Stayton), or that could identify community-specific evaluation criteria by which to prioritize sites. Input from Woodburn and Stayton confirmed the importance of using local knowledge to assist in site identification, and this process should be included in the development of inventories to ensure sites are accurately labeled.

  Property owner willingness to participate and community interest in redevelopment were identified as key factors that must be considered when prioritizing sites to pursue for redevelopment. The design of this method as a rapid identification and assessment tool lacks these variables, making it difficult to prioritize sites using these factors as evaluation criteria. Additionally, with varied preferences of stakeholders for prioritizing sites, it is not possible to obtain consensus on evaluation criteria for prioritization in the absence of explicit community or regional preferences.

By examining the strengths and challenges discovered through this study, this methodology is useful as a way to identify and begin an analysis of potential brownfields. The results of an inventory of this type can allow communities to understand the extent of the brownfields problem in their area and can allow users of the inventory to identify vacant commercial and industrial sites that may be feasible for redevelopment.

However, limited to existing GIS data, the method alone is not an effective way to prioritize sites. It is important to have qualitative input at different points in the process; first, using local knowledge to assist in site identification and verification of data accuracy, and then seeking community input on redevelopment priorities and information on property owner's willingness to participate. With the inclusion of these components, this method can better assist in identifying opportune sites for redevelopment or reuse. Based on the results of this study, I have identified recommendations and a framework for next steps that the MWVCOG and jurisdictions can consider in order to refine the inventory developed and identify sites in the region to pursue for redevelopment based on regional and community goals.

It is important to note that on a regional scale, prioritization of sites may not be politically feasible. With a study area such as this one that contains several jurisdictions, each jurisdiction likely has different redevelopment goals, making a region-wide scoring system difficult to develop and implement without political repercussions. While it is possible for the region to prioritize specific communities to focus

redevelopment efforts based on regional priorities, support of redevelopment efforts and forward progress is more likely to occur if communities are considered individually and jurisdictions are given the opportunity to identify their own goals and priority sites for redevelopment.

Recommendations

While this method is an effective first step at identifying potential brownfields in a given area and provides a means to consolidate GIS information relevant to brownfields, based on the results of this study, this method would be most effective when supplemented by qualitative information obtained from local knowledge and community input. To address the challenges identified in the previous section and to assist the MWVCOG and jurisdictions in identifying opportune sites for redevelopment that align with community goals, I have identified the following recommendations the MWVCOG and jurisdictions can take in order to continue their efforts of moving potential brownfields toward reuse.

Challenge: Data Availability | Recommendation: Assess Data Availability
While the MWVCOG maintains data for the Marion County area, it does not appear to have access to all data available for member jurisdictions. While limited time and resources limits the amount and types of data that can be compiled and digitized, the MVWCOG may consider working with jurisdictions and consolidating currently available data to identify key data gaps in the region, such as zoning and comprehensive plan designations for the study area, and should work to develop this data to fill gaps in the inventory.

Challenge: Data Accuracy | Recommendation: Verify Inventory Accuracy
Because this method relies on existing GIS data, it is important that the data contained in the inventory is current and correct. The MWVCOG should regularly review and update existing data as needed. They may also wish to dedicate resources to validating data obtained from outside sources, such as the Oregon DEQ or U.S. BLS. Additionally, the limited timeframe of this project only allowed outreach to the cities of Woodburn and Stayton for feedback on the base inventory. To allow for input on sites to include in (or possibly remove from) the inventory, the MWVCOG may want to complete outreach to its remaining member jurisdictions and update the inventory based on feedback received.

Challenge: Lack of Community Input | Recommendation: Identify Evaluation Criteria
The MWVCOG has identified that development of a brownfields inventory aims to assist in pursuing the redevelopment of brownfields as an economic development strategy. Both the Mid-Willamette Valley Economic Development District's CEDS and the regional economic development strategy developed as part of the Economic Opportunities Analysis for the Salem-Keizer metropolitan area recognize the region's brownfields problem, noting that information is needed to determine the extent of the problem and that strategies to assist in redevelopment of these sites should be developed (Mid-Willamette Valley Council of Governments, 2012; Parker & Goodman, 2011). Also, although they have not explicitly addressed brownfields redevelopment as a community priority, some communities, such as Turner and

Woodburn, have identified infill development and redevelopment of existing sites as goals in their Comprehensive Plans.

It is important that the MWVCOG and jurisdictions outline their goals specific to these sites and draft policies that explicitly address brownfields priorities. To do so, jurisdictions can seek feedback from their communities on development priorities to incorporate the community's desires for future growth into site prioritization. They can also look to their existing comprehensive plans for preferred general growth strategies. Many communities have expressed broad preferences for growth in their comprehensive plans, such as for commercial or industrial development. These preferences can be refined to address particular site needs. In the absence of stakeholder consensus on prioritization of evaluation criteria for site scoring, these priorities for development can be used to develop a scoring system that supports regional or community-specific goals. Once evaluation criteria are in place, the MWVCOG and jurisdictions can use the inventory to identify priority sites to pursue for redevelopment.

Challenge: Lack of Community Input | Recommendation: Conduct Community Outreach
As the MWVCOG and jurisdictions progress in the identification and prioritization of potential brownfields and jurisdictions begin to pursue redevelopment opportunities, they should provide outreach materials to educate the community on the benefits of addressing the brownfields problem. By providing information on the impacts of brownfields in communities, jurisdictions can get feedback from the public and build support for the redevelopment of these sites. The MWVCOG can work with jurisdictions to determine how they can be of assistance throughout this process.

Because it has been identified that the participation of property owners and those directly involved in the redevelopment of sites is key to the success of redevelopment efforts, it is especially important that jurisdictions initiate contact with private property owners and potential purchasers of brownfields by providing outreach materials to educate and inform them about the brownfields process. Information provided to property owners and others interested in the redevelopment of these sites can clarify the process and alleviate many of the common concerns of these parties. Additionally, awareness of available assistance can increase understanding of the MWVCOG and partner jurisdiction's commitment to the successful cleanup and redevelopment of these sites. To assist in this aspect of the process, outreach materials in the form of fact sheets have been developed for owners of potential brownfields and for potential purchasers of these sites. These materials are included in Appendix E of this report. Additionally, information on technical and financial redevelopment assistance that may be available to the MWVCOG and member jurisdictions is discussed in Appendix F.

Proposed Next Steps

In order to assist in addressing these challenges and recommendations, I have developed approaches for next steps that can be taken by the MWVCOG and by jurisdictions in order to continue progress with identification of potential brownfields and priority areas for redevelopment.

Mid-Willamette Valley Council of Governments

1) In order to complete the inventory of brownfields and verify accuracy of existing data, the MWVCOG should conduct outreach to planning and economic development staff in each jurisdiction and request that they identify sites to include in the inventory. It will be important that the MWVCOG explain the purpose of the inventory and the definition of brownfields to communities that may not be familiar with the term.
2) The MWVCOG should reach out to member jurisdictions to ensure available GIS data managed by each jurisdiction is provided to the MWVCOG. Once data has been obtained, the MWVCOG should identify key data gaps (e.g. areas where zoning or comprehensive plan data does not exist) and work to address these gaps. The MWVCOG may also want to consider validating existing data from outside sources, such as the Oregon DEQ and the U.S. BLS, to improve the accuracy of the inventory.
3) The MWVCOG should outline goals specific to brownfields redevelopment on a regional scale. These goals should support area plans that identify the redevelopment of brownfields as an economic development strategy for the region. While prioritization of sites may not be as effective at the regional scale as at the community level, identification of areas that the region sees as priority areas for growth could help the MWVCOG dedicate resources to areas with higher demand for space based on projected growth. For example, Woodburn is projected to remain Marion County's third largest city (after Salem and Keizer) in 2030 and is expected to grow at an average rate of 2.04% annually during this period. Additionally, several other cities in Marion County have projected average annual growth rates above 2% for this period, and the populations of Donald, Gervais, and Turner are expected to double by 2030 (Marion County Oregon, 2013b). These projected growth patterns may be helpful to the MWVCOG as they determine priority areas for redevelopment in the region, even if site prioritization takes place at the community level.
4) The MWVCOG should coordinate with interested jurisdictions in order to provide assistance where needed. Also, the MWVCOG could develop a list of potential sources for financial assistance based on information provided in Appendix F, and could begin pursuing grants and other funding opportunities to assist jurisdictions in their efforts.

Member Jurisdictions

1) As they are contacted by the MWVCOG, jurisdictions should indicate their level of interest to the MWVCOG in moving forward with efforts to address brownfields in their communities. If they are interested in participating, jurisdictions should work to verify the data provided in the inventory, and should identify potential brownfields that have not yet been identified.
2) Each jurisdiction should articulate their goals with respect to brownfields redevelopment and should seek feedback from the public on development priorities to incorporate the community's desires for future growth into site prioritization. City comprehensive plans can be evaluated to obtain some of this information. Once evaluation criteria have been identified and ranked, the MWVCOG and jurisdictions can use the inventory to identify priority sites to pursue for redevelopment.

3) Once community-specific evaluation criteria have been identified (e.g. parcel size, access to transportation, etc.), jurisdictions should evaluate the current inventory to determine if the information that it contains is sufficient to prioritize sites based on their evaluation criteria. If other information is needed, jurisdictions can work with the MWVCOG to determine the feasibility of obtaining and including this information. For example, jurisdictions may want to incorporate existing development on a particular site to determine if some sites are better suited for reuse based on the structural integrity of onsite infrastructure, ranking these sites higher than those where reuse of existing infrastructure is not feasible.
4) Each jurisdiction should develop a plan for community outreach to educate the community on the benefits of addressing the brownfields problem. By providing information on the impacts of brownfields in communities, jurisdictions can build support for the redevelopment of these sites and clarify the redevelopment process for property owners and prospective purchasers of these sites. The MWVCOG can work with jurisdictions to determine how they can be of assistance throughout this process.

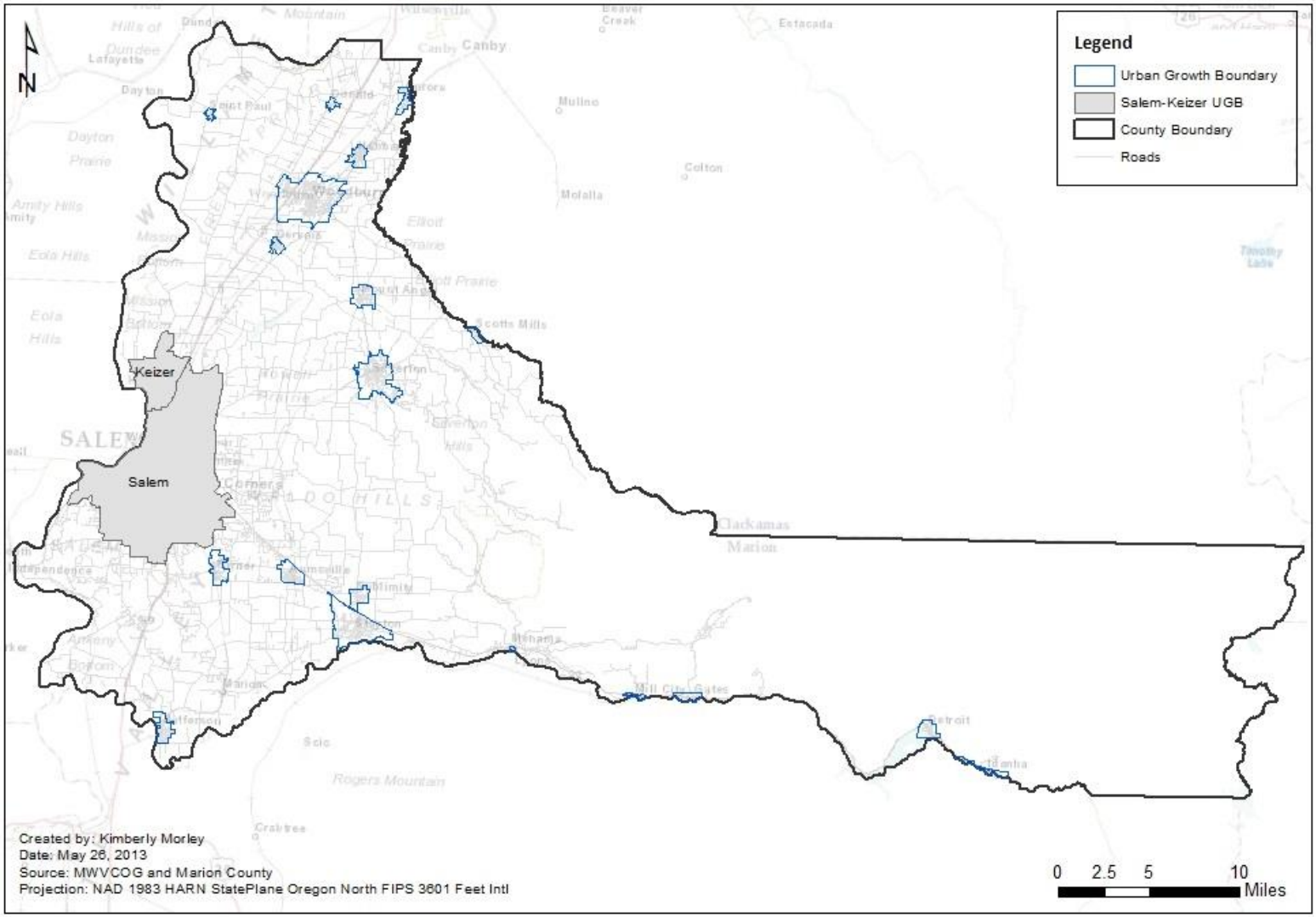
Conclusion

Through this study, I developed a methodology that can be used as a framework to identify and prioritize potential brownfields in the study area. The method developed is a useful tool to begin site identification and analysis, and can allow the community to understand the extent of the brownfields problem. The study resulted in a draft inventory of potential brownfields in Marion County and provided an example of how a scoring system can be used for site prioritization. Using the example scoring system in this study, priority sites within UGBs were identified primarily within the City of Silverton, and priority sites outside of UGBs were located just north of the Salem-Keizer UGB.

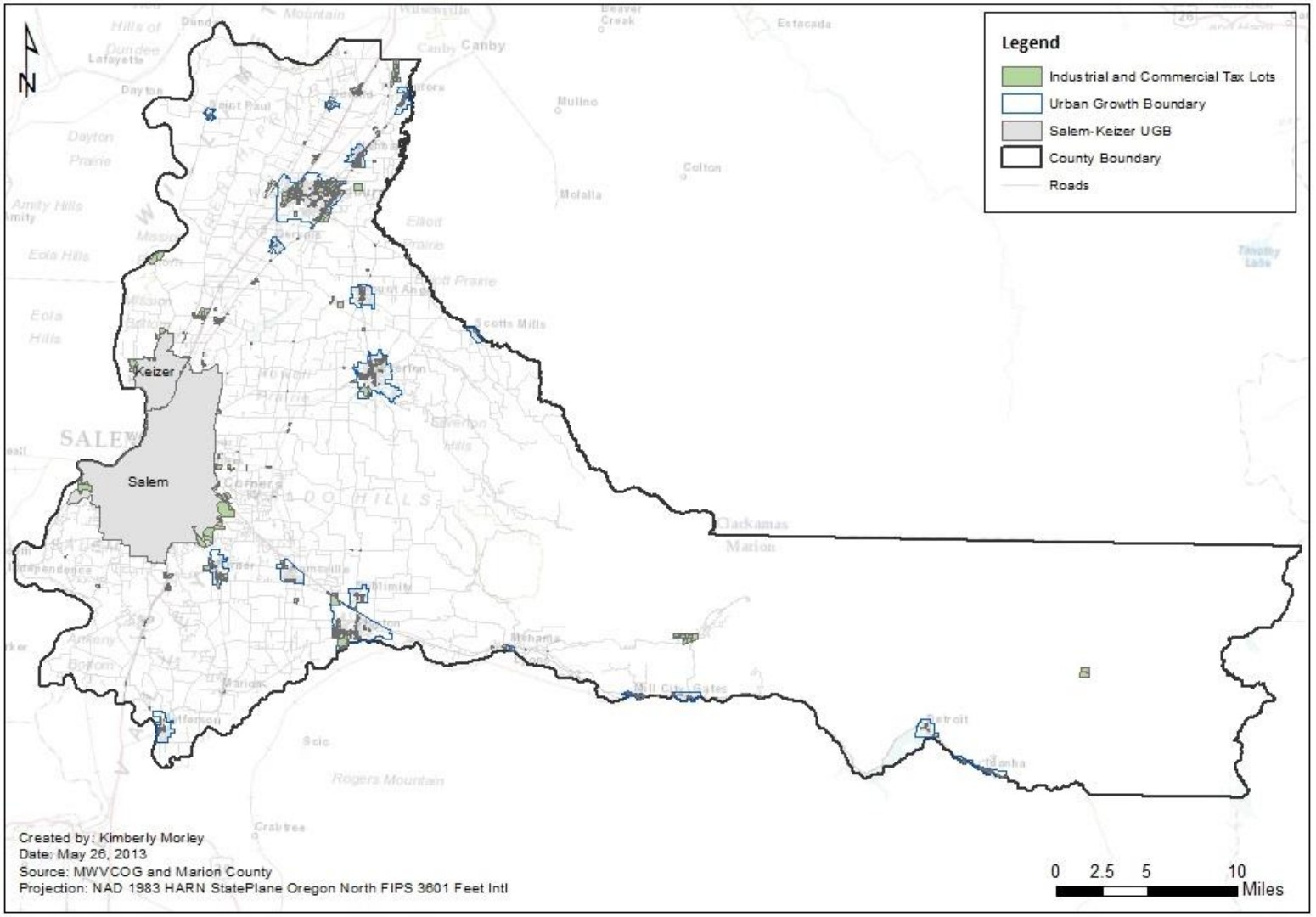
While the MWVCOG and jurisdictions may look to these areas for future redevelopment opportunities, this study indicated that limited to existing GIS data, this method alone is not necessarily an effective way to prioritize sites. The study identified challenges to using the methodology developed and provided suggestions on how the MWVCOG can improve upon the inventory and prioritization process in order to prioritize sites that best align with the goals of the region and of specific communities. By addressing these challenges, the MWVCOG can refine this methodology in a way that allows more accurate identification of potential brownfields in the region and relies on explicit regional and community-specific goals with respect to brownfields from which to prioritize sites for redevelopment.

Appendix A: Brownfields Inventory

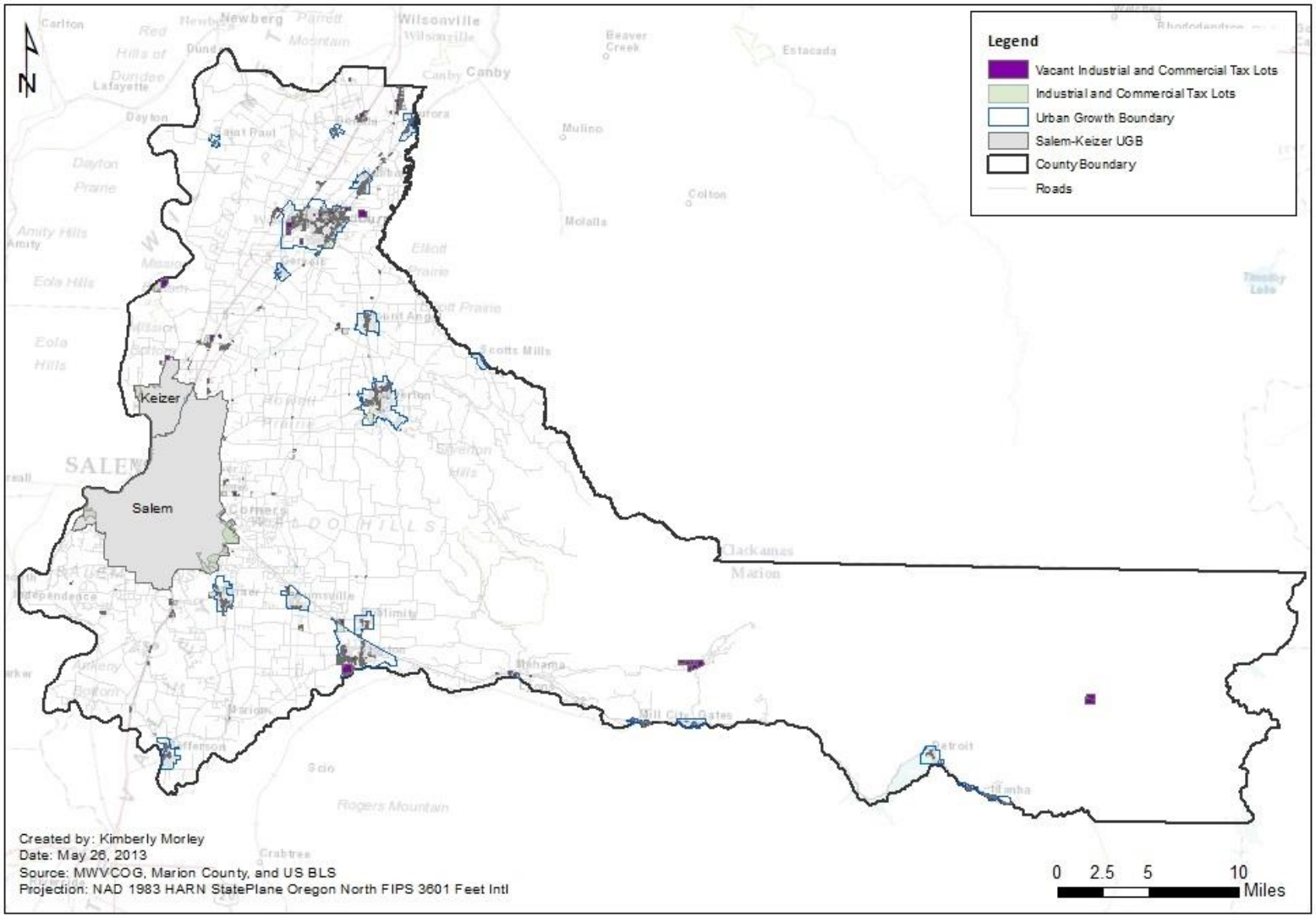
Map A-1: Marion County Study Area



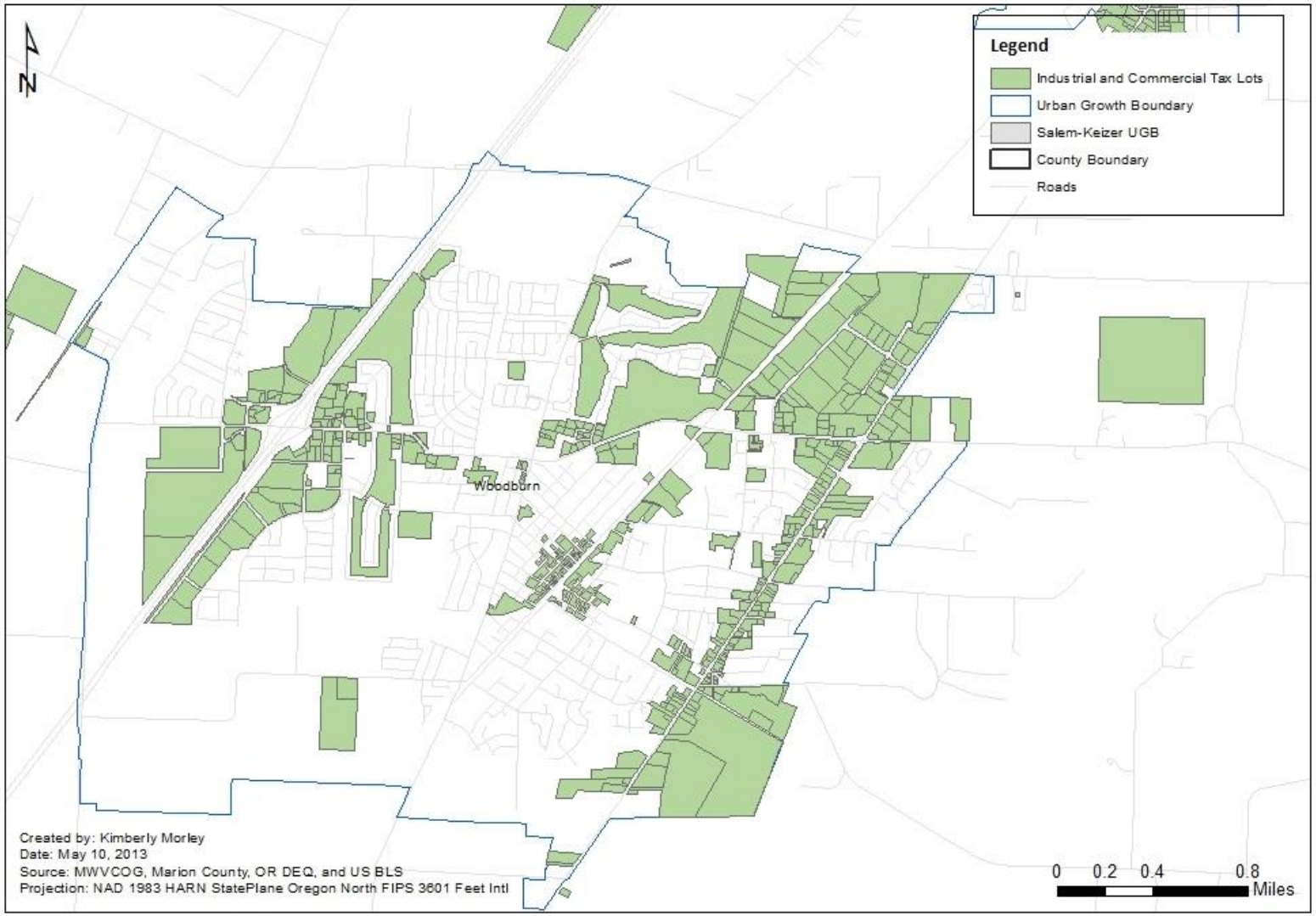
Map A-2: Industrial and Commercial Tax Lots



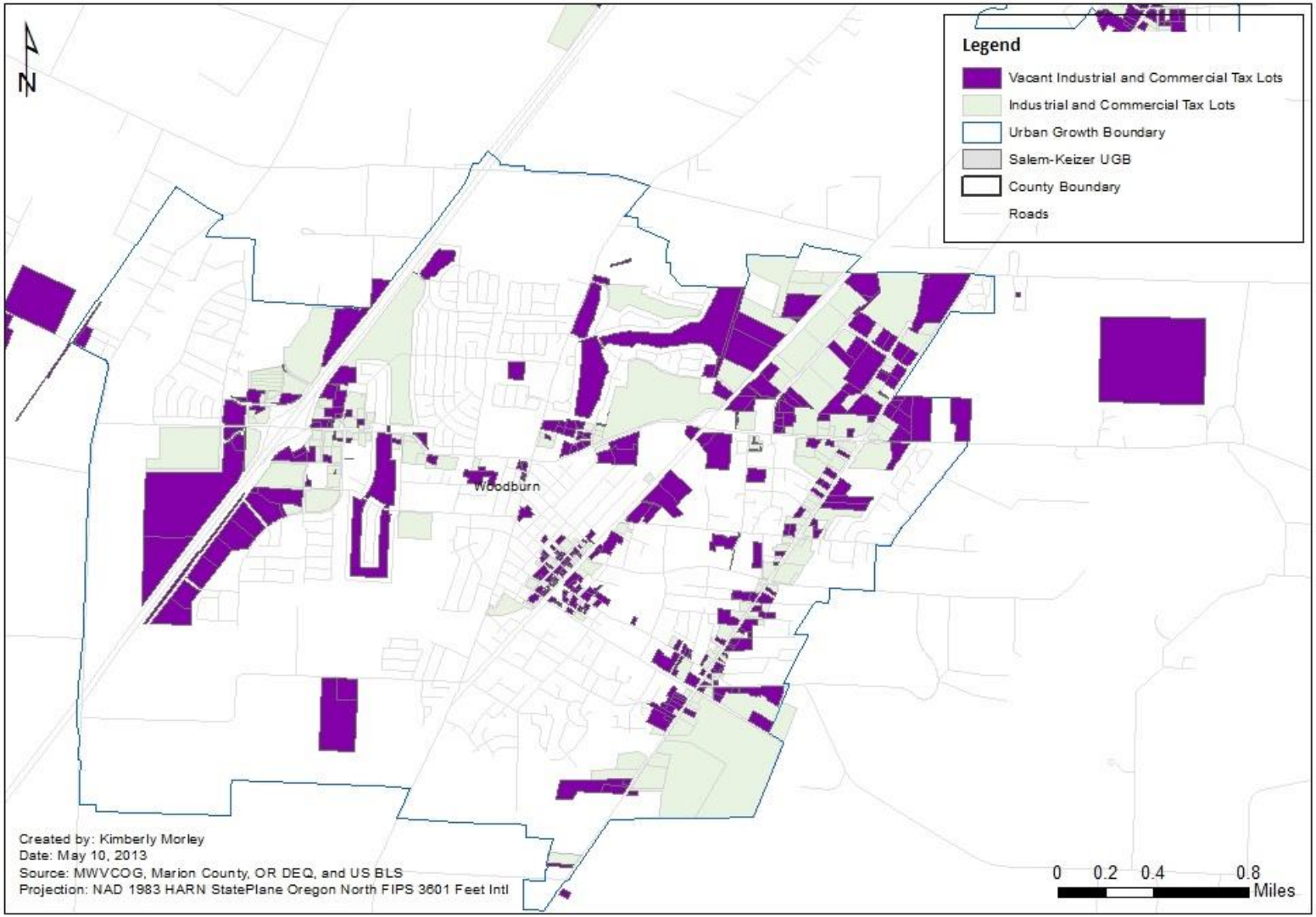
Map A-3: Vacant Industrial and Commercial Tax Lots



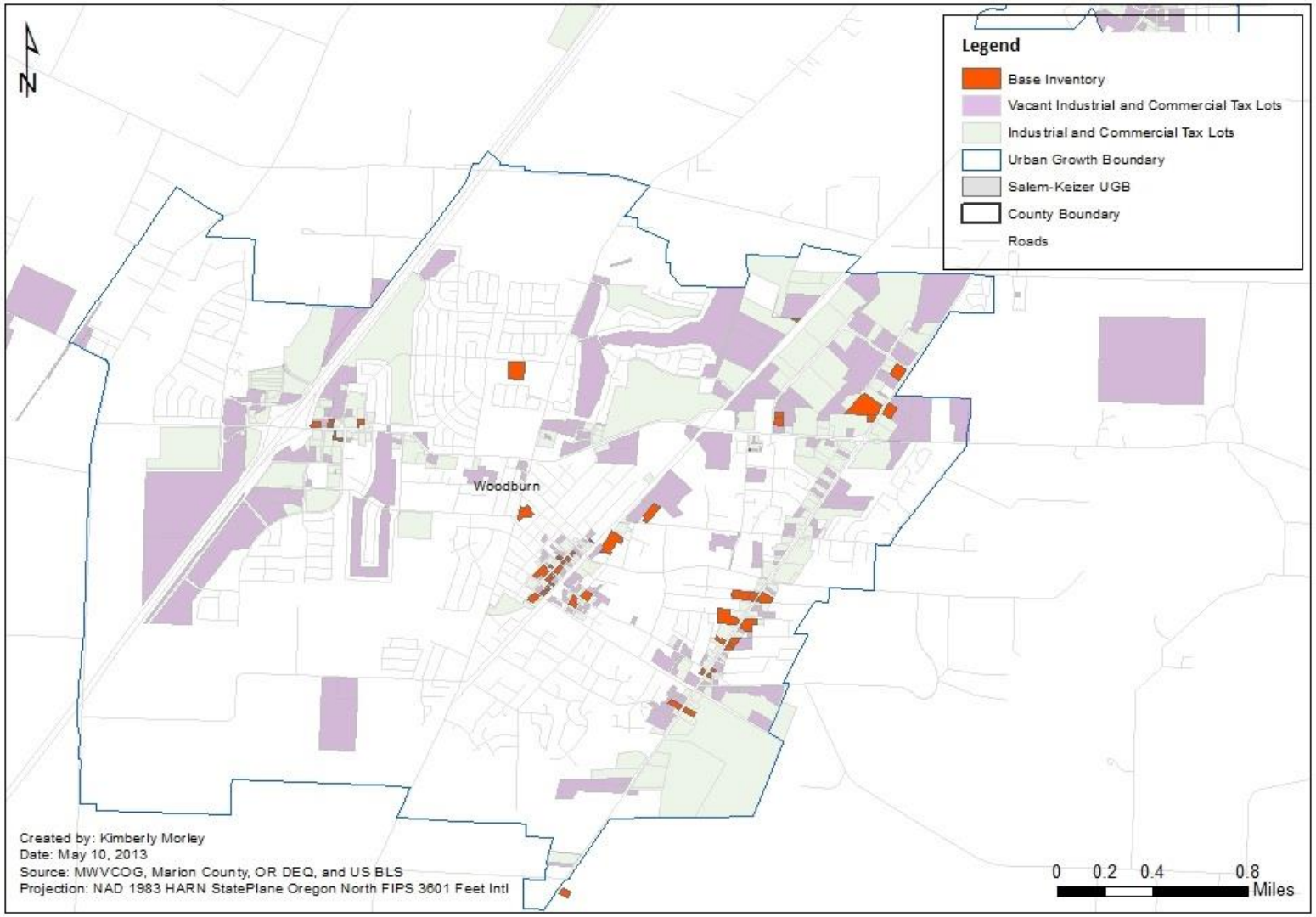
Map A-4: Woodburn Industrial and Commercial Tax Lots



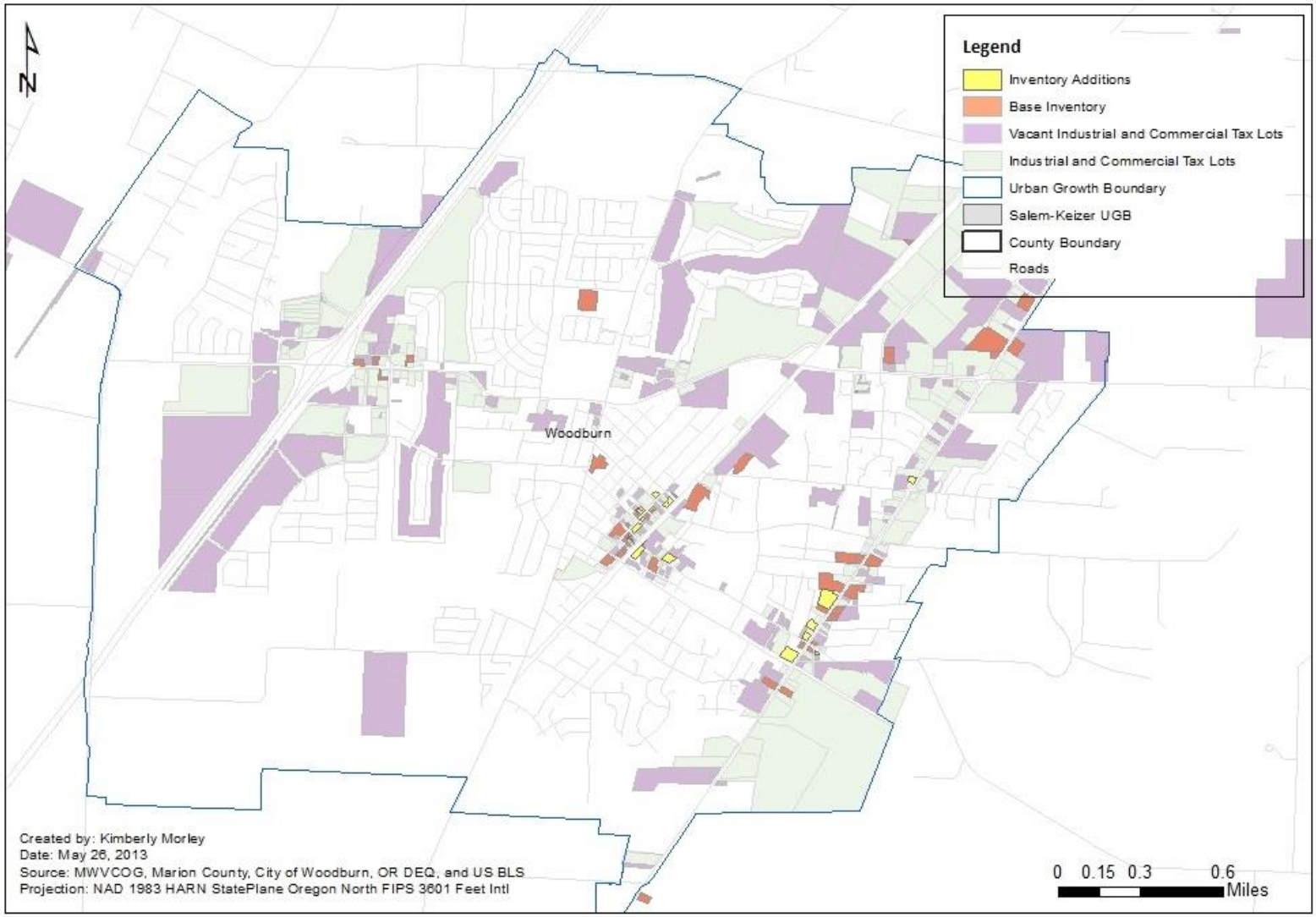
Map A-5: Woodburn Vacant Industrial and Commercial Tax Lots



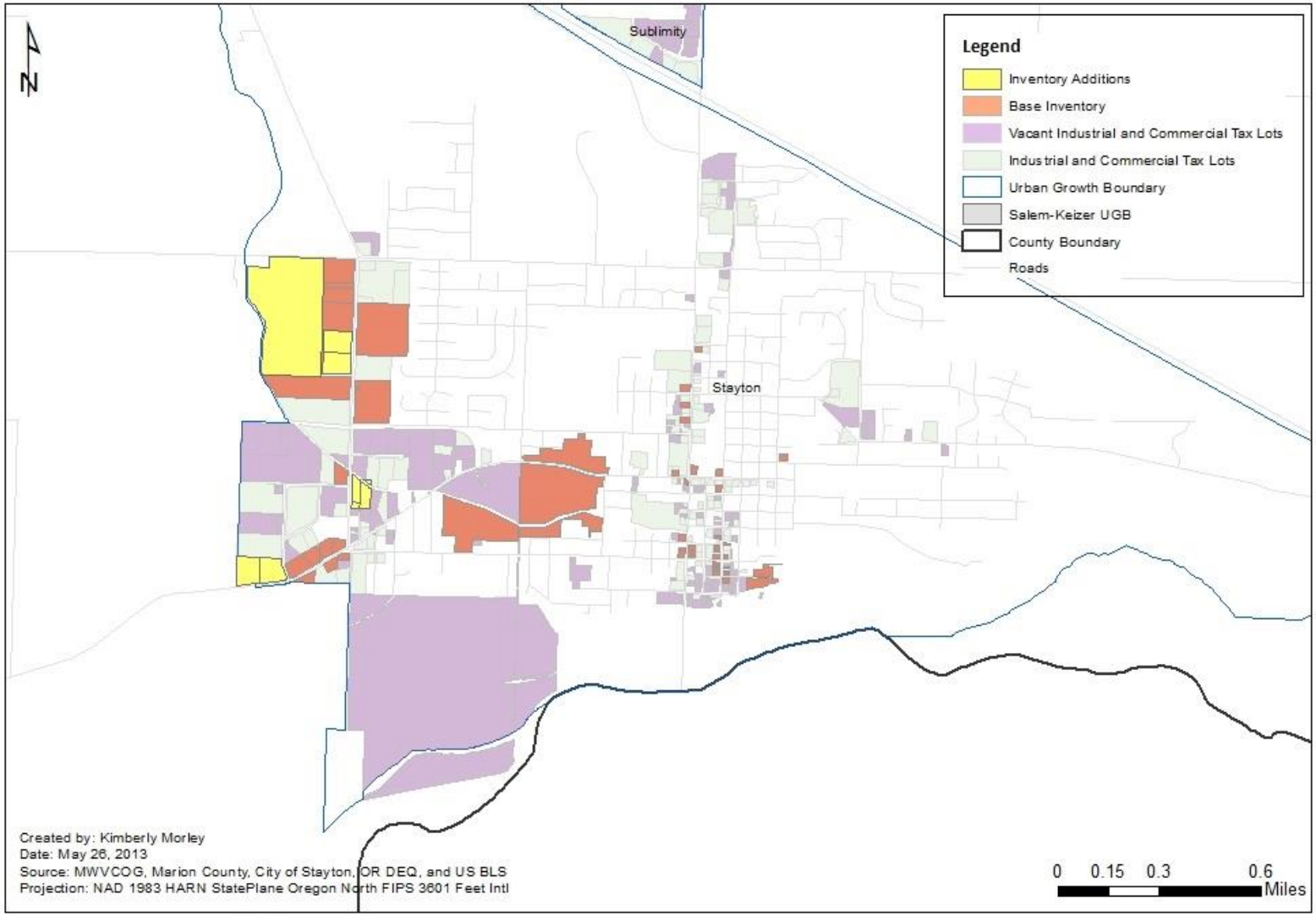
Map A-6: Woodburn Base Inventory



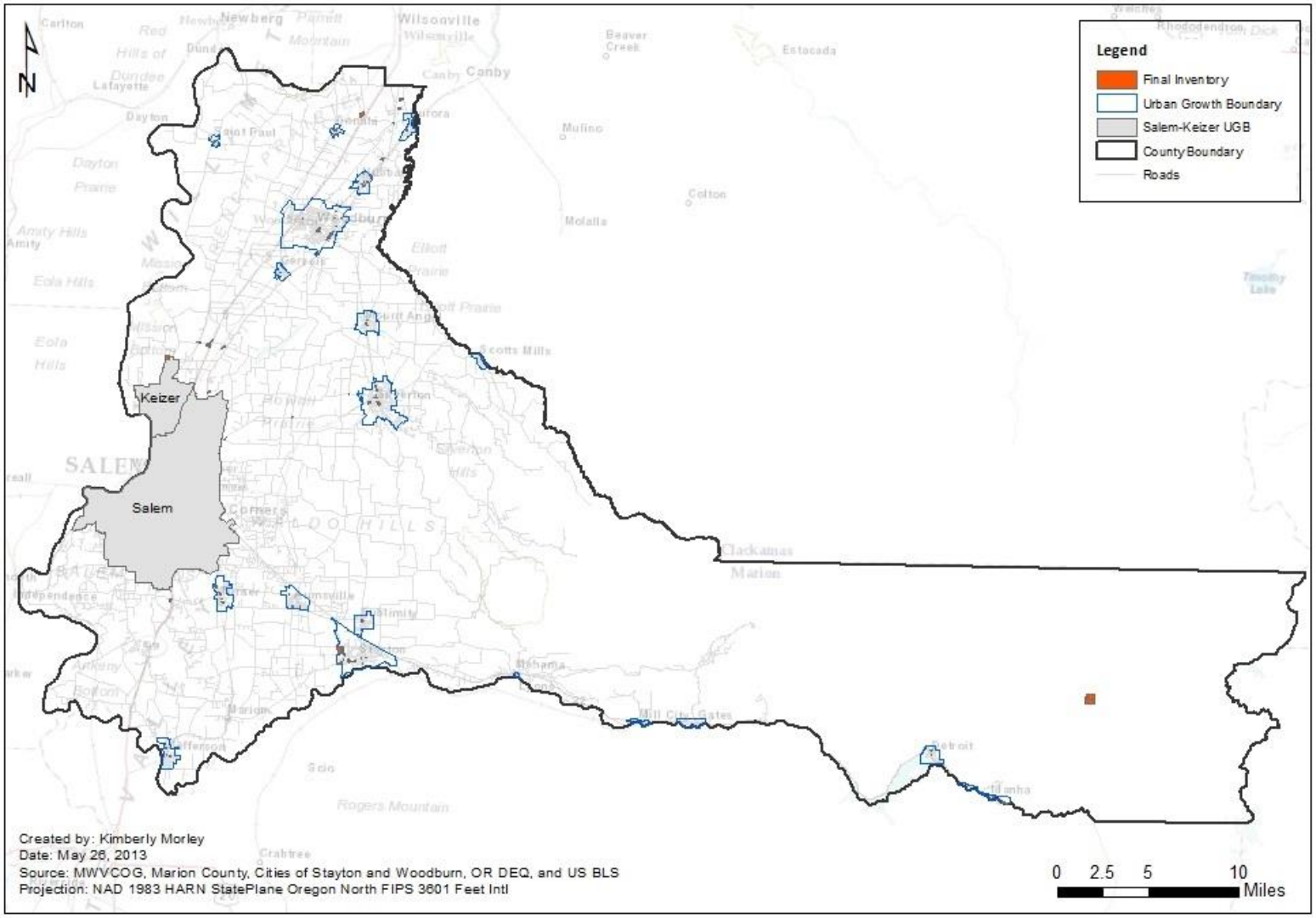
Map A-7: Woodburn Inventory Additions



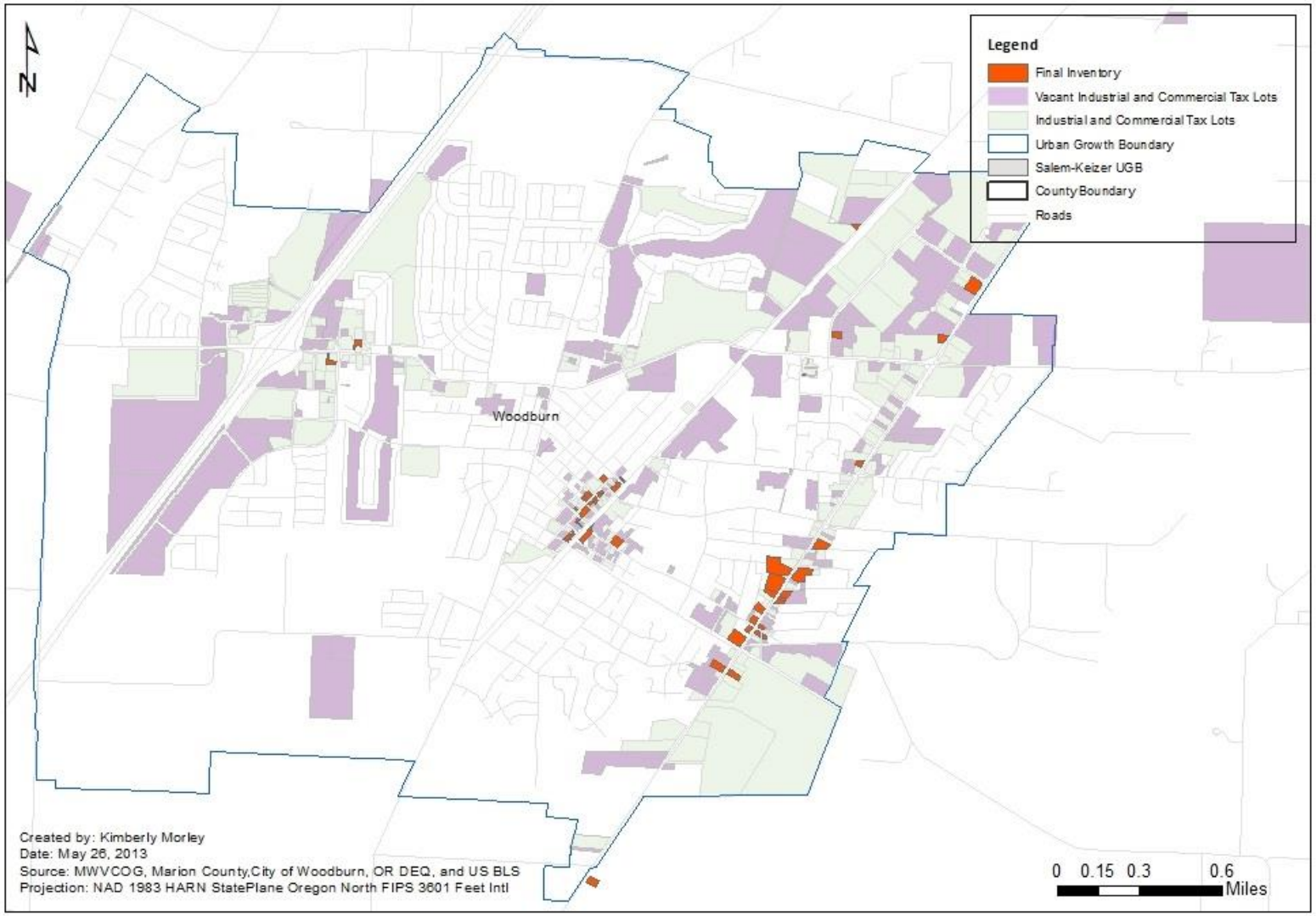
Map A-8: Stayton Inventory Additions



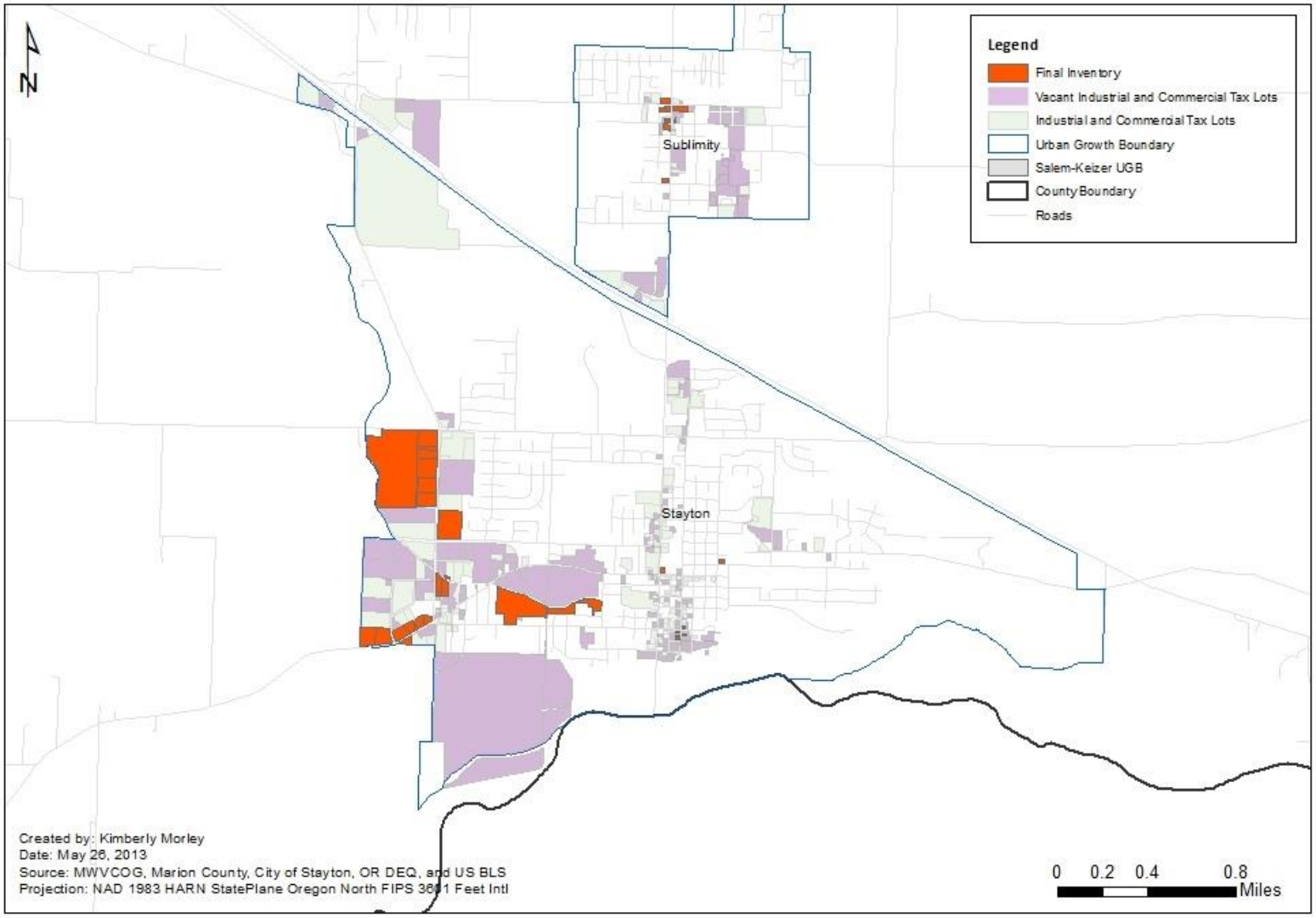
Map A-9: Final Inventory – Marion County



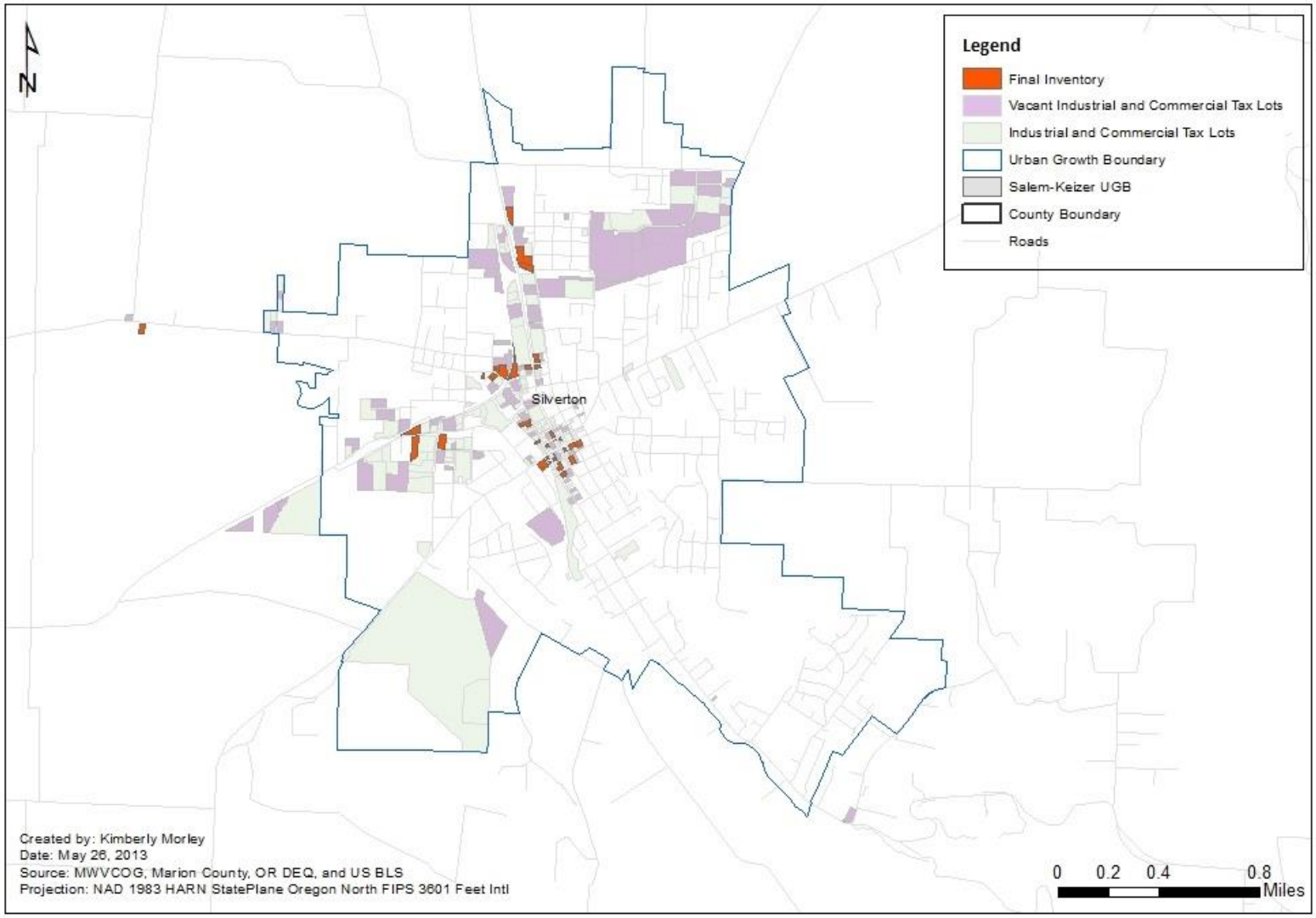
Map A-10: Woodburn – Final Inventory



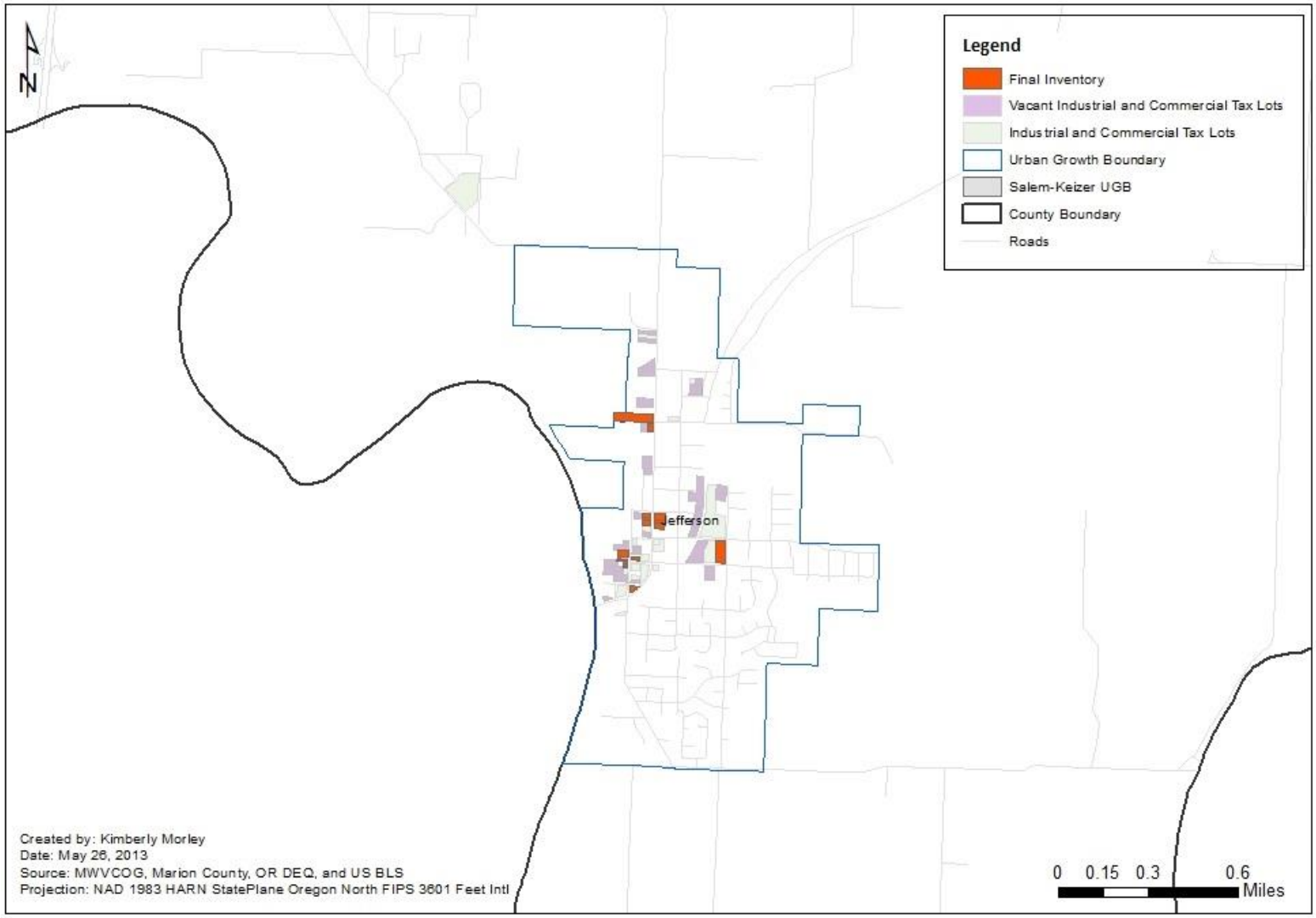
Map A-11: Stayton and Sublimity – Final Inventory



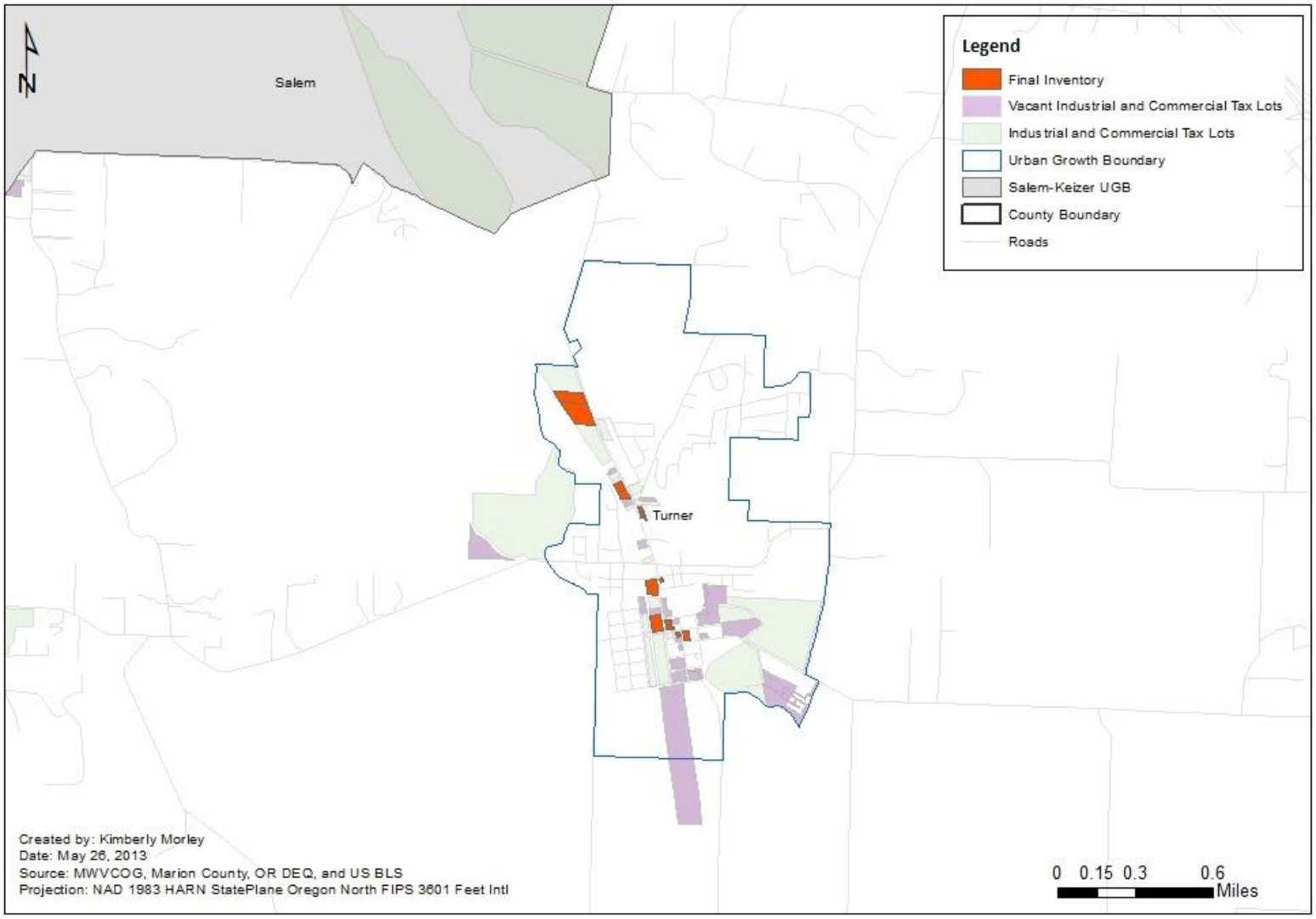
Map A-12: Silverton – Final Inventory



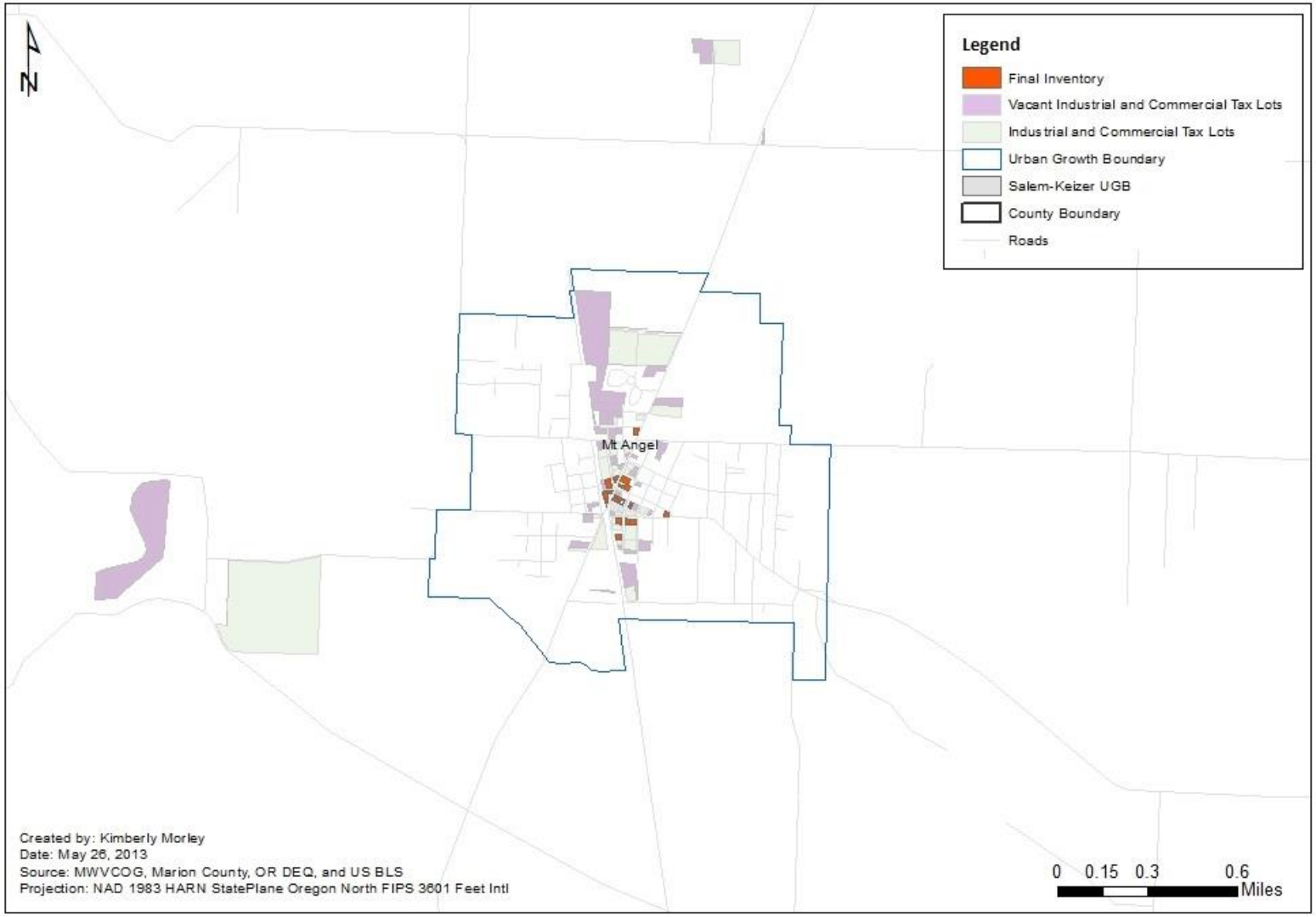
Map A-13: Jefferson – Final Inventory



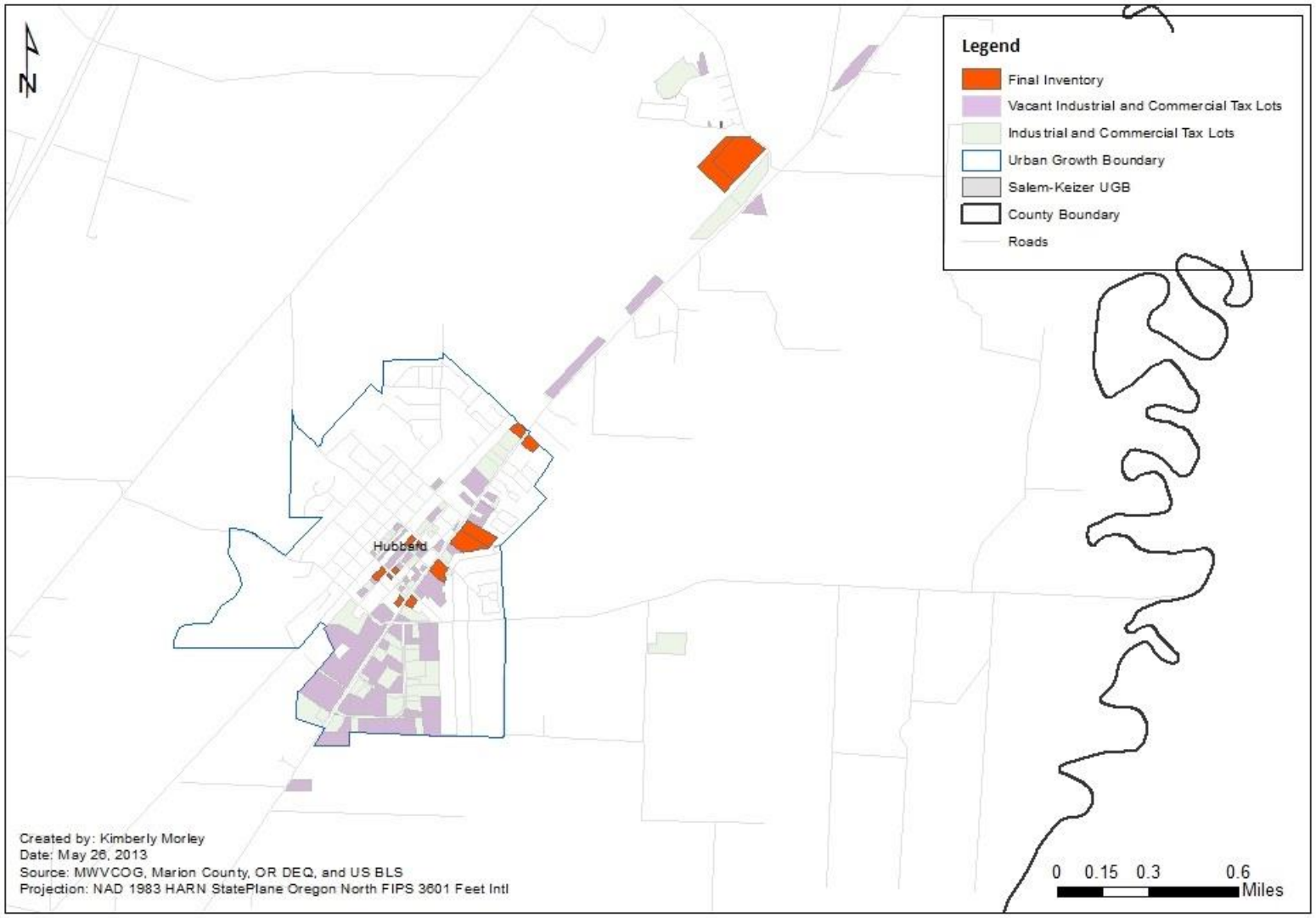
Map A-14: Turner – Final Inventory



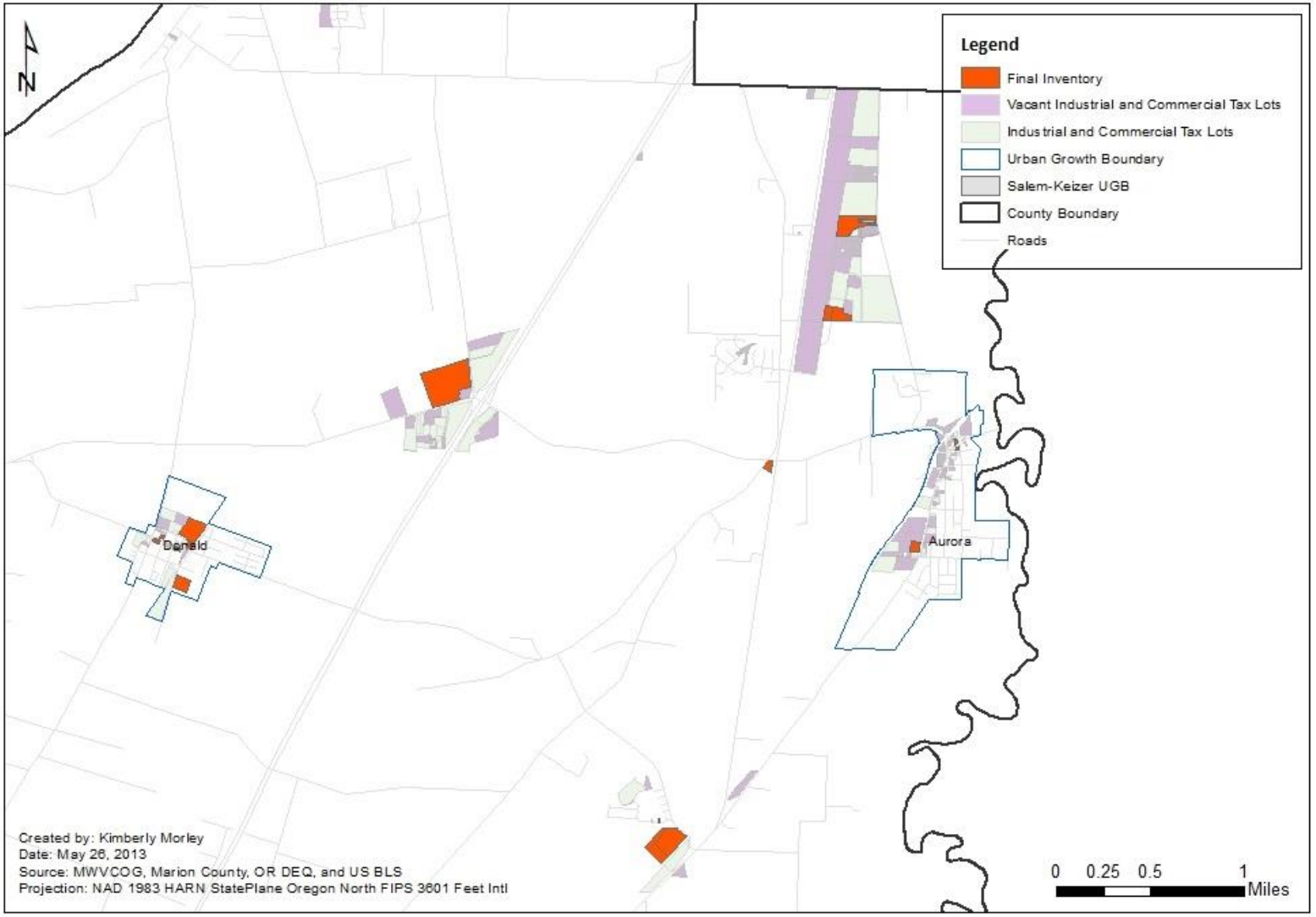
Map A-15: Mt. Angel – Final Inventory



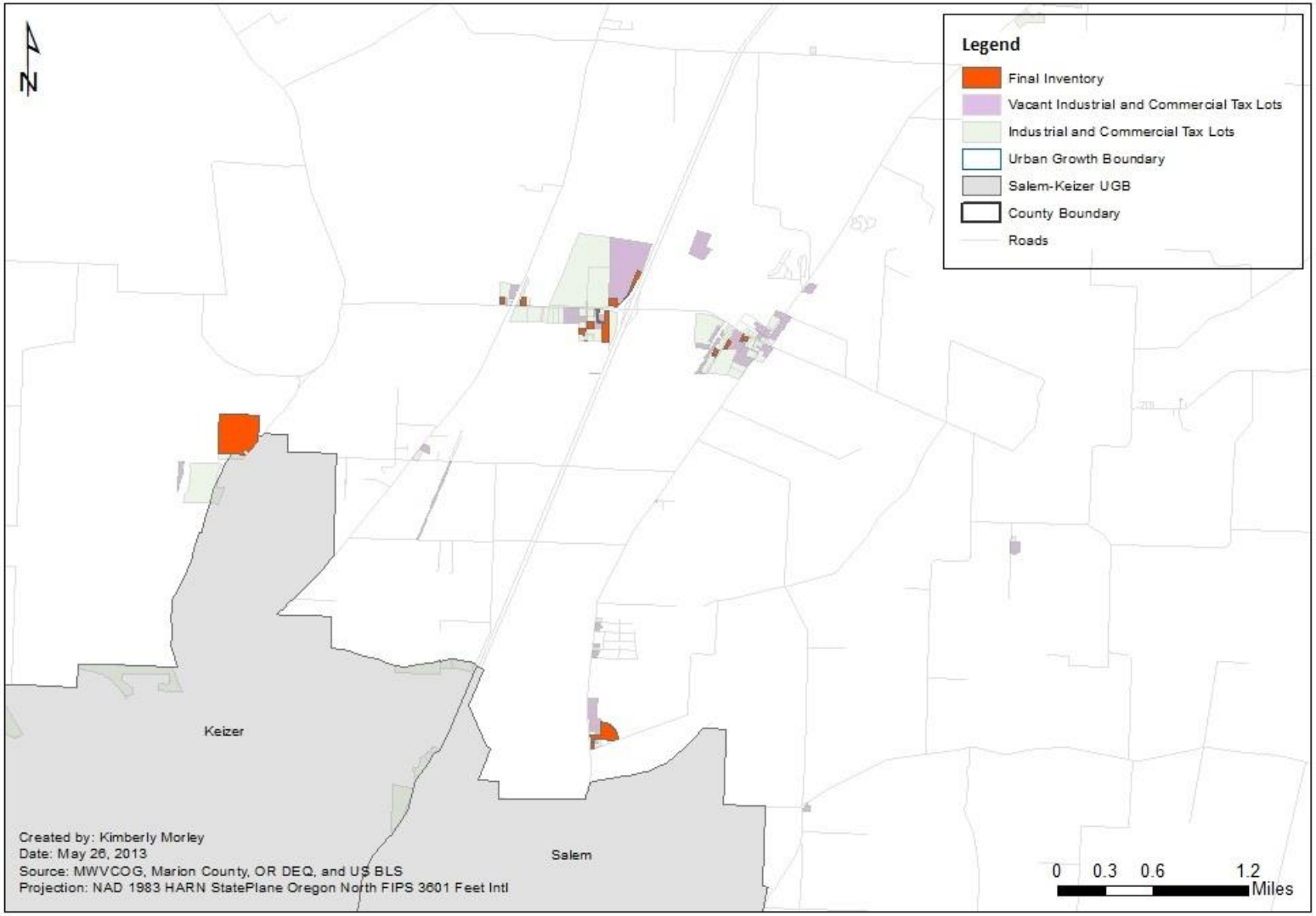
Map A-16: Hubbard – Final Inventory



Map A-17: Aurora and Donald – Final Inventory



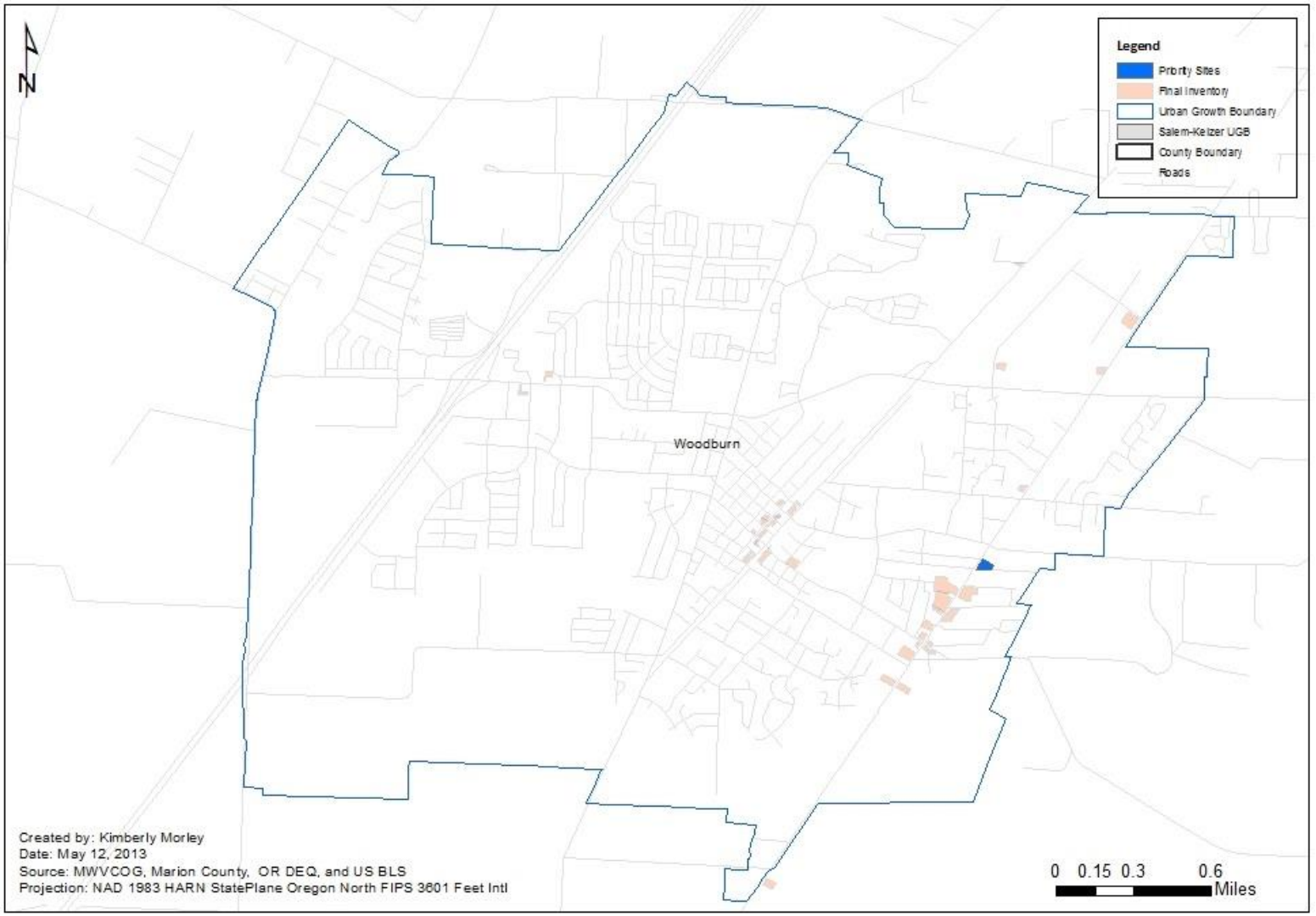
Map A-18: Area north of Salem-Keizer UGB – Final Inventory



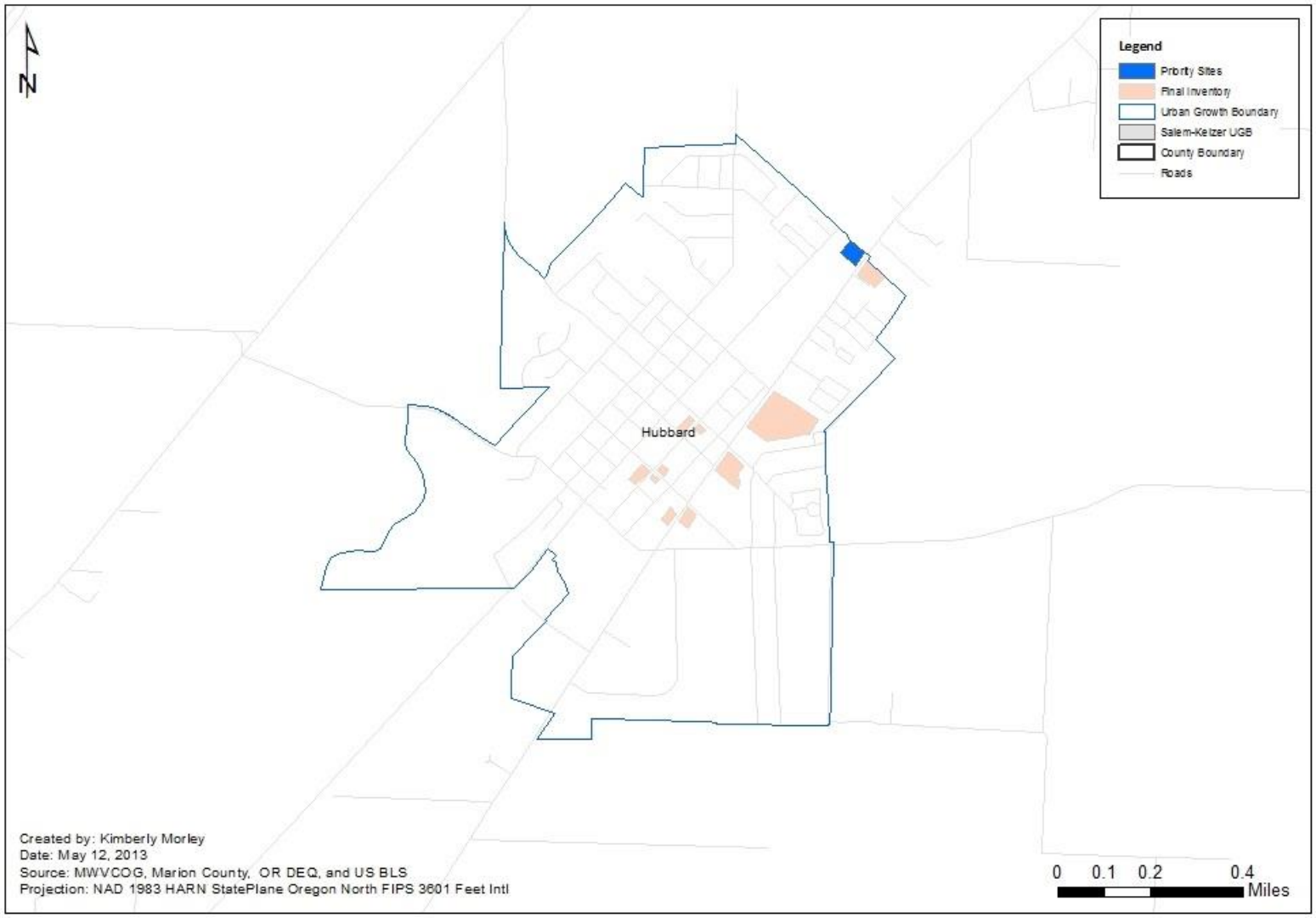
Appendix B: Priority Site Information

Map B-1: Silverton Priority Sites

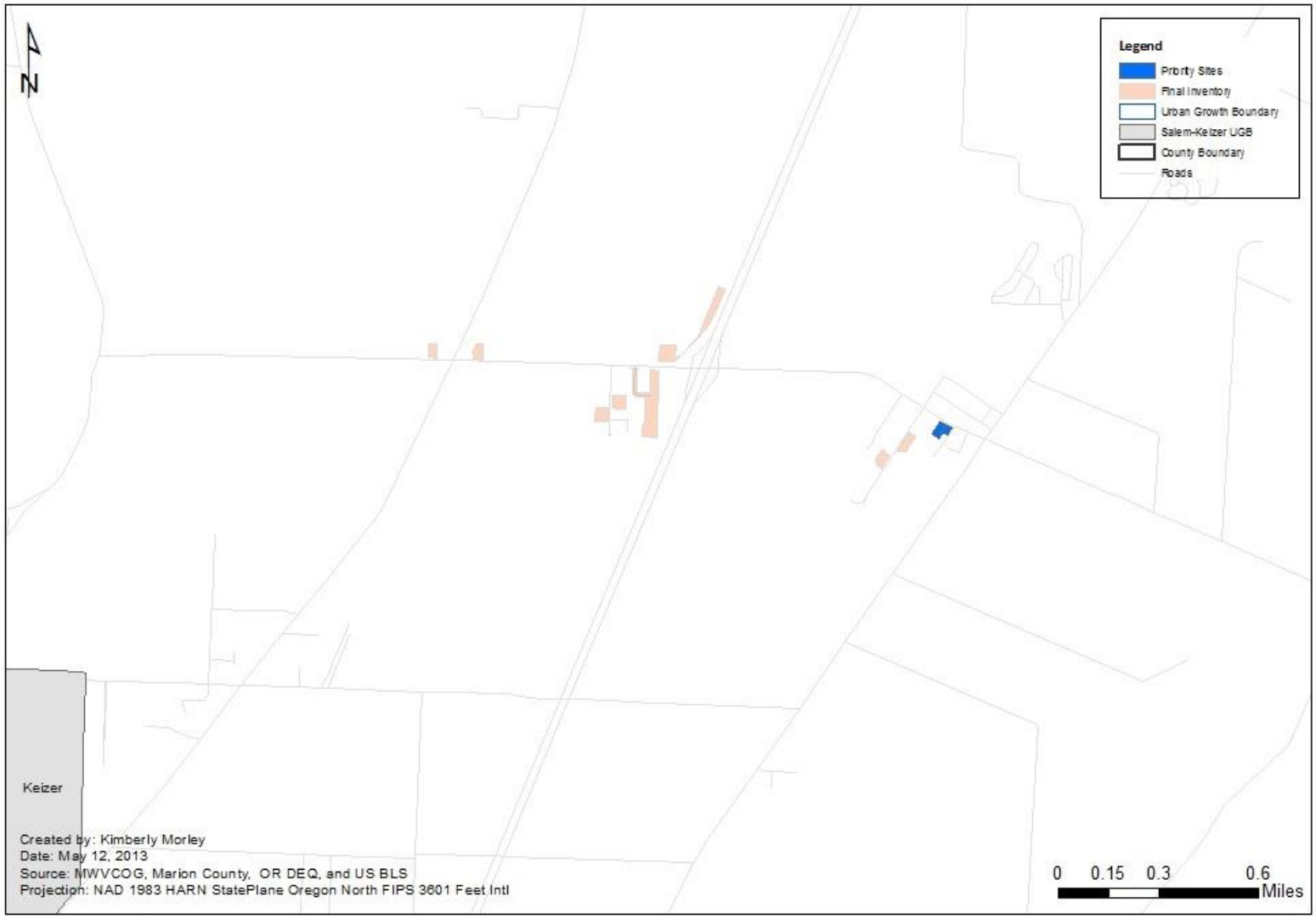
Map B-2: Woodburn Priority Sites



Map B-3: Hubbard Priority Sites



Map B-4: Priority Sites outside UGBs



Sites in UGBs

Site Number 1
Tax Lot Number: 041W27CD01300
Owner Name: Timothy K Ruffing
Publicly Owned: No
Site Address: 4517 Pacific Hwy 99E, Hubbard
Acreage: 0.8
Square Feet: 38,019
Land Value: 199,260
Improvement Value: 177,320
Property Class: Commercial
Zone: CG
Comprehensive Plan Designation: Commercial
Floodplain or Wetland: No
Surface Water: No
Sensitive Groundwater Overlay: No
Nearest ECSI-listed site: 1,828 feet, Shrock Trucking, No Further State Action Required
Nearest LUST-listed site: 73 feet, Viers Property
Distance to Railroad: 50 feet

Site Number 2
Tax Lot Number: 061W27DD00100
Owner Name: Heater Family LP
Publicly Owned: No
Site Address: 1,205 N 2nd Street, Silverton
Acreage: 1.7
Square Feet: 75,739
Land Value: 240,670
Improvement Value: 289,940
Property Class: Commercial
Zone: Industrial
Comprehensive Plan Designation: Industrial
Floodplain or Wetland: No
Surface Water: No
Sensitive Groundwater Overlay: No
Nearest ECSI-listed site: 616 feet, Silverton – Hwy. 214, No Further State Action Required
Nearest LUST-listed site: 99 feet, Stadeli Pump
Distance to Railroad: 371
Other: Existing Water Lines

Site Number 3
Tax Lot Number: 061W35BC09800
Owner Name: Rolie Family LLC
Publicly Owned: No
Site Address: 207 N 1st Street, Silverton
Acreage: 0
Square Feet: 4,696
Land Value: 57,500
Improvement Value: 61,240
Property Class: Commercial
Zone: Commercial
Comprehensive Plan Designation: Commercial
Floodplain or Wetland: No
Surface Water: No
Sensitive Groundwater Overlay: No
Nearest ECSI-listed site: 638 feet, Silverton Oil Release Site, Site Investigation Recommended
Nearest LUST-listed site: 97 feet, Oak Tree Properties
Distance to Railroad: 1,339
Other: In Silverton Urban Renewal District, Existing Water Lines

Site Number 4
Tax Lot Number: 061W35BC11300
Owner Name: Ann Soentpiet
Publicly Owned: No
Site Address: 217 - 219 Oak Street, Silverton
Acreage: 0.1
Square Feet: 4,724
Land Value: 57,500
Improvement Value: 164,400
Property Class: Commercial
Zone: Commercial
Comprehensive Plan Designation: Commercial
Floodplain or Wetland: No
Surface Water: No
Sensitive Groundwater Overlay: No
Nearest ECSI-listed site: 583 feet, Silverton Oil Release Site, Site Investigation Recommended
Nearest LUST-listed site: 43 feet, Oak Tree Properties
Distance to Railroad: 1,417 feet
Other: In Silverton Urban Renewal District, Existing Water Lines

Site Number 5
Tax Lot Number: 061W34AD06800
Owner Name: Betty K Duer
Publicly Owned: No
Site Address: 403 N Water Street, Silverton
Acreage: 0.0
Square Feet: 6,679
Land Value: 39,960
Improvement Value: 110,610
Property Class: Commercial
Zone: Commercial
Comprehensive Plan Designation: Commercial
Floodplain or Wetland: No
Surface Water: No
Sensitive Groundwater Overlay: No
Nearest ECSI-listed site: 809 feet, Silverton Oil Release Site, Site Investigation Recommended
Nearest LUST-listed site: 29 feet, Heating Oil Tank
Distance to Railroad: 924 feet
Other: In Silverton Urban Renewal District, Existing Water Lines

Site Number 6
Tax Lot Number: 061W35BC11600
Owner Name: Robert E Nordyke
Publicly Owned: No
Site Address: 108 N 1st Street, Silverton
Acreage: 0.6
Square Feet: 2,475
Land Value: 34,500
Improvement Value: 297,810
Property Class: Commercial
Zone: Commercial
Comprehensive Plan Designation: Commercial
Floodplain or Wetland: No
Surface Water: No
Sensitive Groundwater Overlay: No
Nearest ECSI-listed site: 538 feet, Silverton Upholstery (former), Site Screening Recommended
Nearest LUST-listed site: 58 feet, Oak Tree Properties
Distance to Railroad: 1,590 feet
Other: In Silverton Urban Renewal District and Historic District, Existing Water and Sewer Lines

Site Number 7
Tax Lot Number: 061W34AD02100
Owner Name: Silverton Super Service, Inc.
Publicly Owned: No
Site Address: NA
Acreage: 0.0
Square Feet: 6,014
Land Value: 41,400
Improvement Value: 54,460
Property Class: Commercial
Zone: Commercial
Comprehensive Plan Designation: Commercial
Floodplain or Wetland: No
Surface Water: No
Sensitive Groundwater Overlay: No
Nearest ECSI-listed site: 1,783, United Disposal Service, No Further State Action Required
Nearest LUST-listed site: 73 feet, Pacific Pride - Silverton
Distance to Railroad: 204 feet
Other: In Silverton Urban Renewal District

Site Number 8
Tax Lot Number: 061W34AD02200
Owner Name: Billups LT &
Publicly Owned: No
Site Address: 609 N Water Street, Silverton
Acreage: 0.0
Square Feet: 5,992
Land Value: 57,500
Improvement Value: 19,110
Property Class: Commercial
Zone: Commercial
Comprehensive Plan Designation: Commercial
Floodplain or Wetland: No
Surface Water: No
Sensitive Groundwater Overlay: No
Nearest ECSI-listed site: 1,856, United Disposal Service, No Further State Action Required
Nearest LUST-listed site: 59, Pacific Pride - Silverton
Distance to Railroad: 188 feet
Other: In Silverton Urban Renewal District, Existing Water Lines

Site Number 9
Tax Lot Number: 061W34AA00900
Owner Name: Stumptown Properties LLC
Publicly Owned: No
Site Address: 622 N Water Street, Silverton
Acreage: 0.2
Square Feet: 6,562
Land Value: 57,500
Improvement Value: 40,440
Property Class: Commercial
Zone: Commercial
Comprehensive Plan Designation: Commercial
Floodplain or Wetland: No
Surface Water: No
Sensitive Groundwater Overlay: No
Nearest ECSI-listed site: 1,960, United Disposal Service, No Further State Action Required
Nearest LUST-listed site: 72 feet, Pfeifer Construction
Distance to Railroad: 237 feet
Other: In Silverton Urban Renewal District

Site Number 10
Tax Lot Number: 061W34AA00800
Owner Name: Stumptown Properties LLC
Publicly Owned: No
Site Address: 622 N Water Street, Silverton
Acreage: 0.2
Square Feet: 7,807
Land Value: 57,330
Improvement Value: 59,800
Property Class: Commercial
Zone: Commercial
Comprehensive Plan Designation: Commercial
Floodplain or Wetland: No
Surface Water: No
Sensitive Groundwater Overlay: No
Nearest ECSI-listed site: 1,935, United Disposal Service, No Further State Action Required
Nearest LUST-listed site: 22 feet, Pfeifer Construction
Distance to Railroad: 217 feet
Other: In Silverton Urban Renewal District, Existing Water and Sewer Lines

Site Number 11
Tax Lot Number: 061W34DB01400
Owner Name: LLJ ARS C-Store Ventures 1 LLC
Publicly Owned: No
Site Address: 737 McClaine Street, Silverton
Acreage: 1.5
Square Feet: 65,228
Land Value: 172,150
Improvement Value: 615,210
Property Class: Commercial
Zone: Commercial
Comprehensive Plan Designation: Commercial
Floodplain or Wetland: No
Surface Water: No
Sensitive Groundwater Overlay: No
Nearest ECSI-listed site: Onsite, Wilco Farms Co-op, Site Screening Recommended
Nearest LUST-listed site: 228 feet, Wilco Farms Silverton
Distance to Railroad: 172 feet

Site Number 12
Tax Lot Number: 051W17BA02000
Owner Name: Abbas & Moradi
Publicly Owned: No
Site Address: 770 N Pacific Hwy, Woodburn
Acreage: 1.0
Square Feet: 48,182
Land Value: 384,800
Improvement Value: 324,020
Property Class: Commercial
Zone: CR
Comprehensive Plan Designation: Commercial
Floodplain or Wetland: No
Surface Water: No
Sensitive Groundwater Overlay: No
Nearest ECSI-listed site: 1,072 feet, Woodburn Area Groundwater Contamination, State Basic Preliminary Assessment recommended
Nearest LUST-listed site: 24 feet, Friendly GMC
Distance to Railroad: 2,360 feet

Sites outside UGBs

Site Number 1
Tax Lot Number: 062W17DB03300
Owner Name: Marion County Fire District #1
Publicly Owned: Yes
Site Address: 4960 Brooklake Rd NE, Salem
Acreage: 0.7
Square Feet: 27,706
Land Value: 121,970
Improvement Value: 2,219,330
Property Class: Commercial
Zone: CC
Comprehensive Plan Designation: Commercial
Floodplain or Wetland: No
Surface Water: No
Sensitive Groundwater Overlay: No
Nearest ECSI-listed site: 425 feet, PGE – Brooks, No Further State Action Required
Nearest LUST-listed site: 38 feet, Brooks Post Office
Distance to Railroad: 661 feet

Site Number 2
Tax Lot Number: 062W17DB03400
Owner Name: Wilma M Guthrie
Publicly Owned: No
Site Address: 5000 Brooklake Road NE, Salem
Acreage: 0.4
Square Feet: 17,746
Land Value: 77,430
Improvement Value: 294,040
Property Class: Commercial
Zone: CC
Comprehensive Plan Designation: Commercial
Floodplain or Wetland: No
Surface Water: No
Sensitive Groundwater Overlay: No
Nearest ECSI-listed site: 563 feet, PGE – Brooks, No Further State Action Required
Nearest LUST-listed site: 14 feet, Brooks Post Office
Distance to Railroad: 759 feet

Appendix C: Detailed Inventory Methodology

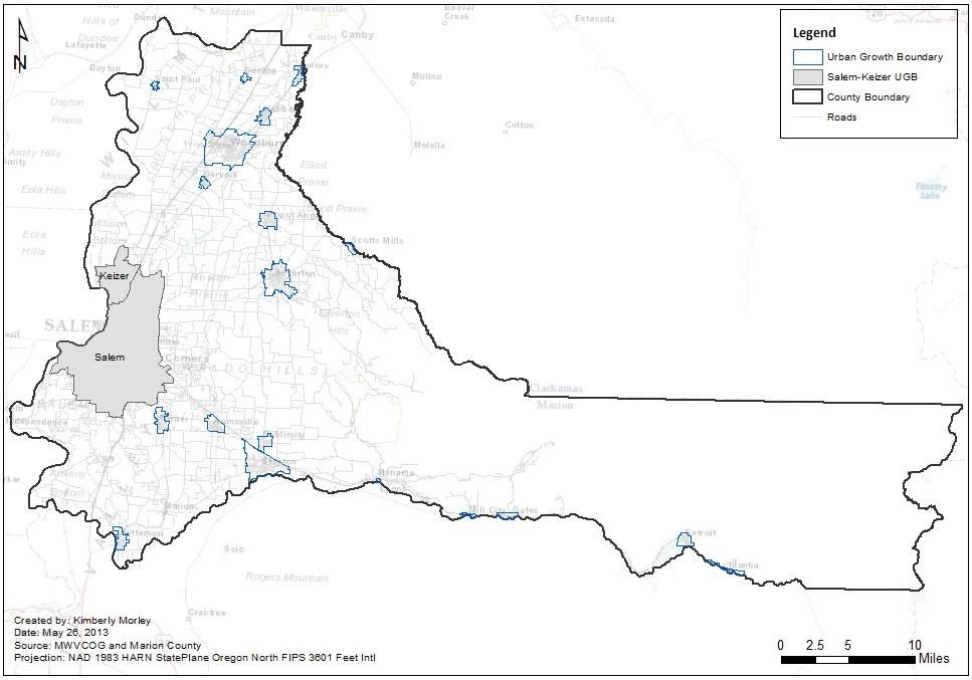
Based on literature reviewed on the development of brownfields inventories and regional planning documents that identify development goals in Marion County, a process to create a base inventory of brownfields sites was developed. Supplemental data was identified for inclusion in the inventory to provide information that enables prioritization of sites for redevelopment. All data used in the inventory is existing, publicly available GIS data, with the exception of U.S. Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages data (discussed below). Publicly available data was obtained online from the Oregon Department of Environmental Quality's (DEQ) databases, Marion County's GIS server, and the U.S. Fish and Wildlife Service National Wetlands Inventory. Additional available county and city data was obtained from the Mid-Willamette Valley Council of Governments and member jurisdictions. No new GIS data was created for development of this inventory, as this project aimed to develop a rapid assessment tool using available resources.

A summary of the methodology used to develop the brownfields inventory is provided in Chapter 3. This Appendix provides a detailed description of the process and GIS functions used to develop the inventory.

Base Map

The inventory was developed using ArcGIS 10.0. First, a base map of Marion County (excluding the Salem-Keizer UGB) was created using County, city limit, urban growth boundary, and road files retrieved from Marion County's GIS server on February 15, 2013. After applying County boundaries and the road file, urban growth boundaries and city limit boundaries were applied, with the exception of the Salem-Keizer UGB. The study area is shown in Figure C-1 below and includes urban and rural areas in Marion County with the exception of land within the Salem-Keizer UGB.

Figure C-1: Study Area Map



Base Inventory

The inventory was developed using key characteristics of brownfields: commercial or industrial classification, vacancy status, and confirmed or perceived contamination. The base inventory was limited to existing GIS data that represents these characteristics.

The inventory was developed using tax lot information as a base in order to identify individual properties considered potential brownfields, and tax lot information for the County and each jurisdiction was applied to the base map. The initial tax lot file identified 114,115 tax lots within Marion County. The tax lots were narrowed by removing all tax lots located entirely within the Salem-Keizer UGB, which resulted in the removal of 64,164 lots from the tax lot file, leaving 52,651 tax lots for further analysis. This data was used to narrow sites for inclusion in the inventory by identifying those with recorded commercial or industrial uses. Using Marion County property class codes, sites in the inventory were limited to those recorded as having current commercial or industrial uses, reducing the inventory to 2,714 tax lots for further analysis. Marion County property class codes included in the commercial and industrial designations included: 024, 025, 200, 201, 300, 301, 303, 308, C10, C11, C30, C31, C40, C41, C50, C51, C60, C80, C81, C90, C91, C99, and XXX (assigned to new tax lots with no code assigned).

Once narrowed based on tax lot information, the next step in the analysis used data from the U.S. BLS Quarterly Census of Employment and Wages (QCEW) to identify sites with current employment. The QCEW is a program of the U.S. BLS that primarily functions to provide information on "employment and wages of establishments which report to the Unemployment Insurance (UI) programs of the United States", and employment information covered by these programs accounts for nearly 98% of civilian

employment (U.S. BLS, 2012). Data available through the QCEW includes "data on the number of establishments, monthly employment, and quarterly wages, by NAICS industry, by county, by ownership sector" (U.S. BLS, 2003). The QCEW identifies the number of employees at a particular company or facility and can be used as a proxy to indicate properties that do not currently report to UI programs.

This information is confidential and not available to the general public. Because of this confidentiality, the MWVCOG applied 2011 QCEW employment data to the 2,714 commercial and industrial tax lots identified in the study area. A shapefile of the tax lots with current industrial or commercial classifications was provided to the MWVCOG, who ran a query to determine where geocoded employer data intersected parcels in the inventory. Where an employer intersected an identified commercial or industrial parcel, the MWVCOG added a field to the existing attribute table associated with the shapefile and noted that employment occurred on that parcel. The MWVCOG estimated that the results obtained through this method are about 95% accurate (K. Sapunar, personal communication, March 13, 2013). Once complete, the MWVCOG returned an updated shapefile containing information on whether employment existed on each parcel (based on 2011 data). From this updated shapefile, tax lots were separated into files based on the presence of recorded employment, and those without current employment were considered the vacant commercial and industrial lots in the County. The results indicated 868 tax lots with employment and 1,846 tax lots without recorded employment.

Of the 1,846 tax lots without recorded employment, several were located within the Salem-Keizer UGB, a result of a previous query that only eliminated sites completely within the UGB. The inventory was queried to identify and eliminate the non-study area tax lots whose centroids were located within the Salem-Keizer UGB, leaving 1,818 tax lots for further analysis.

The Oregon DEQ maintains two primary databases that identify sites with contamination or potential contamination. The first is a database of properties that have known or presumed contamination by hazardous substances, called the Environmental Cleanup Site Information (ECSI) database (OR DEQ, 2013a). A second database lists facilities that have confirmed releases from underground storage tanks, called the LUST database.[3] These two lists were used to identify potential brownfields in the County from the 1,818 tax lots classified as vacant industrial or commercial lands.

In Marion County, DEQ data identifies 204 records in the ESCI database and 2,627 records in the LUST database (OR DEQ, 2013a). Using data updated on March 1, 2013, sites from the ECSI database were added to the inventory. This data was downloaded in spreadsheet format and sent to the DEQ to obtain a shapefile of the data. Sites listed on the ECSI database located completely within the Salem-Keizer UGB as well as those that plotted outside of Marion County were deleted, which totaled 124 sites. After this step, 80 sites listed on the ECSI database remained in the study area. Next, data from the LUST database was added to identify sites with potential contamination from underground petroleum tanks. The LUST files were retrieved on February 15, 2013. No coordinates were available with the data downloaded, so

[3] These lists provide information about facilities that have been identified as having environmental concerns, but are not complete in that they only show sites that have been identified by the DEQ. Additionally, listing in the ECSI database does not necessarily mean that a release has occurred, and not all sites in this database are considered brownfields.

facilities were mapped by address. After plotting LUST sites by address, 2,494 sites were matched to addresses (95%), 45 sites were considered "tied" and were matched (2%), and 88 sites could not be matched by address (3%). From here, listed LUST facilities within the Salem-Keizer UGB and sites that plotted outside of Marion County were eliminated. However, because these sites were plotted by address rather than by geographic coordinates, it was recognized that some sites might plot slightly off from their actual facility location. To ensure that sites on the edge of the Salem-Keizer UGB that could feasibly be associated with a site identified in the inventory were not deleted. LUST facilities that plotted outside of Marion County and within the Salem-Keizer UGB were eliminated, with the exception of those located within 500 feet of an identified inventoried site located near the northwestern boundary of the UGB. After this step, 616 LUST facilities remained in the study area.

After application of ESCI and LUST facility data, the inventory was narrowed to only those tax lots located within 100 feet of an ECSI or LUST site. There are 34 ECSI sites and 168 of LUST sites located on or within 100 feet of an inventoried site. This 100-foot buffer was chosen to account for slight misplotting of sites or inaccurate address locations, as well as to include sites in the inventory that may have been impacted by contamination on adjoining properties.[4] This resulted in a base brownfields inventory of 315 tax lots.

Community Outreach

Literature reviewed and interviews conducted for this study (discussed below) identified stakeholder input into the inventory process as an effective way to identify potential brownfields. Once the base inventory was developed, the primary cities where potential brownfields were identified, Woodburn and Stayton, were contacted to provide an opportunity for city officials to confirm the data in the inventory and to use local knowledge to identify potential brownfields not identified in the base inventory. These cities were selected for stakeholder outreach because, combined, they account for approximately one-third of the sites identified in the base inventory. Input from these jurisdictions resulted in the removal of several sites from the inventory and the addition of others. The limited timeframe of the project prohibited further outreach to all of the MWVCOG's member jurisdictions in the study area.

Supplemental Inventory Data

After development of the inventory, supplemental information was selected for inclusion in the inventory based on literature reviewed and existing GIS data available from the MWVCOG, member jurisdictions, and other sources. The use of only existing data to supplement the inventory limited the types of information that could be included based on available resources. Data from Marion County was downloaded on February 15, 2013 and additional data was obtained by May 1, 2013.

To incorporate supplemental information into the inventory, available GIS layers were joined to the inventory attribute table and data joined was edited in order to include only relevant information. This method was chosen in order to consolidate relevant inventory information into one spatial file. In some

[4] Although contaminated media can migrate more than 100 feet, this amount was selected to account mostly for contaminated adjoining properties.

cases the information contained in a particular GIS layer was examined and a column was added to the inventory attribute table to include relevant information (either text or calculations) rather than keeping the joined data in the inventory. Not all GIS data was available for the entire study area. The supplemental information included in the inventory is shown in Table C-1 and is discussed in more detail below.

Table C-1: Supplemental Inventory Data

GIS Layer	Information Obtained
Tax Lot	Tax lot number, size, location, owner information, land and improvement value, property type (current use), most recent sale information, and improvement construction date/size
DEQ ECSI	Site number, name, location, cleanup status, and distance to nearest ECSI site
DEQ LUST	Site number, name, location, and distance to nearest LUST site
Zoning (Marion County and cities of Idanha, Gates, Jefferson, and Silverton)	County or city zoning designation, overlay zone information in Jefferson
Comprehensive Plan (Marion County and cities of Silverton and Woodburn)	County or city comprehensive plan designations
Floodplain	100-year floodplain locations
Wetlands (NWI and LWI)	National and local wetlands locations
Solid Waste Sites	Distance to solid waste disposal, transfer, and recycling locations
Sensitive Groundwater Overlay (SGO)	SGO Zone locations
Lakes/Ponds	Lake and pond locations
Rivers/Streams	River and stream locations
Railroad Tracks	Distance to railroad tracks
Stayton Buildings	Construction date and current building occupant
Silverton Historic District	Historic District boundaries
Silverton Urban Renewal District	Urban Renewal District boundaries
Silverton Water Service Lines	Water service line locations
Silverton Sewer Lines	Sewer line locations

Because tax lot data is the basis for the inventory, the inventory was first supplemented using information provided in the tax lot shapefile. Relevant information provided in this file included the tax lot number, property size (sq. ft. and acreage), location, owner Information, land and improvement value, property type, information on the most recent recorded sale, and construction date and size (sq. ft.) of the primary improvement on the property. Fields that did not contribute to the inventory were deleted from the attribute table.

After editing the base inventory file to include only relevant property information, information from the DEQ's ECSI and LUST databases was added to the attribute table. Only sites in these databases located within the boundaries of an inventoried site were selected, and separate shapefiles were created for each database. There were 18 ECSI sites within the boundaries of inventoried tax lots and nine LUST sites within these boundaries. Both of these shapefiles were joined to the base inventory file by linking

sites to the tax lot nearest the DEQ-listed site. This associated listed sites with multiple parcels, so the DEQ site information was deleted from tax lots where the distance to the nearest DEQ-listed site was not equal to zero (which indicates location within the associated tax lot). This allowed inclusion of the DEQ site number, name, and location for inventoried sites listed on either the ECSI or LUST database. Additionally, the cleanup status of sites listed on the ECSI database was added to the inventory. For sites in the inventory that are not listed on the ECSI or LUST database, the ID number, name, and distance to the nearest DEQ-listed site have been listed in the attribute table.[5]

After incorporating DEQ information, zoning data was added to the inventory. Zoning information available included Marion County zoning as well as separate zoning files for the cities of Gates, Idanha, Jefferson, and Silverton. Starting with the Marion County zoning file, the area within the Salem-Keizer UGB was removed. County zoning information was joined to the inventory by associating parcels with intersecting zoning polygons. This resulted in the identification of zoning designations for 48 tax lots in the inventory. Another 193 tax lots joined to polygons from the Marion County zoning file, but these polygons cover cities in the study area and do not have County zoning designations. The remaining 74 tax lots had no Marion County zoning data. Using this method of joining data, zoning data for Gates (2009), Idanha (2007), Jefferson (2012), and Silverton (2012) provided zoning designations for about 55 additional tax lots on the inventory. Jefferson zoning data also indicated that eight tax lots are located within the Highway Overlay Zone in the City, and six tax lots are located within the Main Street Overlay Zone.

Next, comprehensive plan designations for the County were added by joining available data to the inventory using the same process used for incorporating zoning data. This resulted in comprehensive plan designations for 47 tax lots in the inventory. Another 182 tax lots joined to polygons from the Marion County comprehensive plan file, but these polygons covered areas with no recorded plan designations. The remaining 86 tax lots are located within UGBs with no Marion County comprehensive plan data, which includes the cities of Aurora, Jefferson, Stayton, Sublimity, Lyons, Mill City, Gates, and Idanha. In addition to county data, comprehensive plan data for Silverton and Woodburn was included, which provided plan designations for 43 tax lots in Silverton and 55 tax lots in Woodburn.

After adding zoning and comprehensive plan designations, data was added to identify areas of 100-year floodplain, wetlands, sensitive groundwater overlay areas, and other water sources in relation to inventoried sites. Each of these data layers was added to the inventory using the same method discussed above for incorporating zoning and comprehensive plan information. The results indicate that 17 tax lots in the inventory are located at least partially within a floodplain, and seven tax lots contain U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) wetlands. Local wetlands inventory (LWI) data was available for Silverton and indicated that no tax lots on the inventory contain these wetlands. These environmental factors and sensitive groundwater overlay areas on inventoried sites are

[5] Due to data inaccuracies, particularly lack of geographic coordinates in the LUST data file, it is possible that sites listed on either the ECSI or LUST databases are located on a tax lot in the inventory. However, for this report, I have not associated listed sites to tax lots unless spatial data matches sites and tax lots. This was done to avoid inaccurately linking a DEQ-listed site to a specific parcel. While these sites may or may not be associated with a DEQ-listed site, they all plot within 100 feet of a DEQ-listed site and therefore I consider them potentially contaminated.

indicated in the inventory attribute table in a field created for each factor that notes 'Yes' where present. Surface water sources are indicated by the type and water source present onsite.

Solid waste sites (which includes disposal, transfer, and recycling facilities) and railroad track information was added to the inventory by linking data to the tax lot nearest the solid waste site or railroad track location. This allowed indication in the attribute table of the distance from each tax lot to the nearest solid waste disposal site or railroad track, and of the name and type of disposal site.

After county data was added, available city specific data was incorporated to further inform the inventory. The City of Stayton provided building footprint information that included the current occupant (if any) and construction date of the building, which was added to the inventory attribute table for 31 of the tax lots in the inventory located in Stayton. Silverton provided boundary files for their Historic District and Urban Renewal District, as well as information on whether specific tax lots are connected to water and sewer service. New fields in the inventory attribute table were created for each of these data layers examined, and 'Yes' is included in the field when these factors are present on a site.

Appendix D: List of Interview Participants

Name	Organization	Position	Interview Type
Jeff Bickford	Marion County Environmental Services	Environmental Services Division Manager	Group – 4/25/13
Jenn Bildersee	Portland Brownfields	Portland Brownfields Program Coordinator	Individual – 4/11/13
Mary Camarata	Oregon DEQ	ERT Representative, Regional Environmental Solutions	Individual – 4/15/13
Jill Corcoran	City of Salem	Urban Development Project Coordinator	Group – 4/25/13
Suzanne Dufner	Mid-Willamette Valley COG	Community Development Director	Group – 4/25/13
Jaime Estrada	City of Hubbard	Public Works Director	Group – 4/25/13
Dan Fleishman	City of Stayton	City Planner	Group – 4/25/13
Chad Freeman	Strategic Economic Development Corporation (SEDCOR)	President	Individual – 4/19/13
Karen Homolac	Business Oregon	Brownfields Specialist	Group – 4/25/13
Alex Rhoten	Coldwell Banker	Participating Owner of Coldwell Banker Commercial Mountain West Real Estate	Group – 4/25/13
John Safstrom	Valley Development Initiatives/MWVCOG	Commercial Loan Officer	Group – 4/25/13
Mike Slater	EPA Region 10, Office of Environmental Cleanup, Brownfields Program	Oregon Brownfields State Contact	Individual – 4/16/13
Gil Wistar	Oregon DEQ	Site Assessment, Brownfields	Group – 4/25/13
Lon Yandell	Terracon	Department Manager, Environmental Services	Group – 4/25/13

Appendix E: Outreach Materials

Fact Sheet for Owners of Potential Brownfields

What are brownfields?
Brownfields are vacant or underutilized properties where actual or perceived environmental contamination complicates their expansion, redevelopment, or reuse. Some of these properties are contaminated while some are only assumed to have contamination. Brownfields most often include properties previously used for industrial or commercial purposes, such as former gas stations, auto repair shops, dry cleaners, closed factories, and vacant lots with underground storage tanks, among others. Brownfields can be located anywhere, but are often located in areas considered prime real estate and can provide excellent opportunities for redevelopment.

Why care about brownfields?
Brownfields can negatively impact a community's economy, health, and environment. Left alone, some brownfields can harm human health, contribute to environmental degradation, and limit economic growth. Owners of brownfields deal with additional negative impacts of these properties because the uncertainty of contamination discourages potential investors and can slow or halt real estate transactions, and owners can be held responsible for the cleanup of their property even if they did not cause the environmental problems.

What are the redevelopment barriers of brownfields?
Actual or perceived environmental contamination often prevents prospective purchasers, lenders, or developers from considering these properties for redevelopment due to the time and costs associated with cleanup and the potential of liability for existing contamination. They fear that they may be required to clean up environmental problems they did not create. Yet, if you intend to sell, refinance, or redevelop your property, chances are the buyer may be financing the transaction and the lender, also concerned with liability, will require an environmental site assessment.

What is an Environmental Site Assessment?
Properties with prior industrial or commercial use are not necessarily contaminated and may not require cleanup. However, properties must be assessed to determine their potential for contamination. A Phase I Environmental Site Assessment (ESA) is the formal process of determining the potential for contamination at a specific property.

A Phase I ESA is the standard environmental due diligence performed for any transaction involving real property, and will tell you about the property's history and current conditions, giving you the information you need to make informed choices. A Phase I ESA involves a visual inspection of site conditions, interviews with property owners and others, research into historic uses of the property and surrounding properties, assessment of the physical characteristics of the property, and review of environmental records to understand what environmental contamination may be present on or near the

property. No physical sampling of the property occurs during a Phase I ESA. Rather, the Phase I ESA provides information about whether Recognized Environmental Conditions (RECs) exist on the property and determines if further assessment is necessary.

A Recognized Environmental Condition (REC) is defined as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water on the property." The presence of a REC on the property does not necessarily mean that contamination has occurred, or if it has, that it has occurred at an extent that requires cleanup.

Often, the completion of a Phase I ESA provides adequate information on potential liabilities on the site to allow purchasers, lenders, or owners to proceed with their plans for the site. Sometimes, however, more information about the site is needed. If RECs are identified on the property, a Phase II Environmental Site Assessment (ESA) may be conducted to take physical samples from the site and analyze them for suspected contaminants. Phase II ESAs require one or more visits to the property to collect samples, typically of soil and/or groundwater. Sample locations are selected based on the results of the Phase I ESA, and the Phase II ESA seeks to determine the types and extent of contaminants onsite. If sampling results in the discovery that contamination is present above safe levels (according to state and federal standards), site cleanup may be required.

Why should I do an Environmental Site Assessment?

Most lenders, developers, and purchasers ask for a Phase I ESA on any commercial or industrial site prior to a real estate transaction. If your property may be contaminated, you could have difficulty financing, developing, or selling it for its full value until an assessment has been performed. Knowledge of site contamination (or lack thereof) can bring peace of mind not just to owners, but also to potential developers and investors concerned about liability.

Although the completion of a Phase I ESA on your property could reveal hazardous substance or petroleum contamination you were previously unaware of, knowledge about the extent of environmental contamination onsite can help you proactively manage your liability concerns even if you are not currently planning to sell or redevelop your property. It can also help you to receive a fair value for your property based on the extent of environmental contamination if you do decide to sell. Uncertainty about the severity of contamination may lead prospective purchasers to estimate costs for remediating or cleaning the site far in excess of the real problem.

The sooner you have knowledge of environmental contamination on your property, the sooner you can address any liability issues and seek cleanup funding assistance from state and local governments.

How long do Environmental Site Assessments take?

Phase I ESAs can generally be completed in 1 to 2 months. The average time for completion of Phase II ESAs is typically longer, and can take several months to complete depending on site conditions.

Do Phase I ESAs expire?

Yes. A Phase I ESA is considered current for one year. However, certain aspects of a Phase I ESA must be completed within 180 days prior to a property transfer. Although they have a limited shelf life, a Phase I ESA that is free of Recognized Environmental Conditions (even after it's shelf life) provides peace of mind to current owners, but can also be helpful to potential purchasers in that they will have an idea of what to expect onsite. It provides a snapshot of property conditions at the time the assessment was conducted, providing interested parties a baseline from which to begin a new assessment. Also, it creates a sense of transparency during the real estate transaction and lets potential purchasers and lenders know that you are not trying to conceal information about your property.

What are the costs involved?

Both Phase I and Phase II ESAs can be very expensive, but without ESAs, you have no way of knowing if your property is free of Recognized Environmental Conditions (RECs), or what steps are needed to address any RECs on the property. This can create difficulties and delays when you try to sell, refinance, or redevelop your property. Property owners can lose thousands of dollars in attempted real estate transactions for not taking a proactive approach to ESAs. Additionally, the cleanup costs of properties contaminated with petroleum and/or hazardous substances can be very high.

How does the Mid-Willamette Valley Council of Governments want to help?

The Mid-Willamette Valley Council of Governments (MWVCOG) recognizes the importance of identifying and cleaning up potential brownfields in the region in order to improve community health and meet future employment land needs. The first step in redevelopment of these lands to get them back into productive use involves the identification, assessment, and cleanup (when necessary) of these properties. The MWVCOG would like to act as a resource to owners of properties that may be considered brownfields. While the MWVCOG cannot provide financial assistance at this time, we can assist in providing technical guidance about the process of property assessment and cleanup, and can work with property owners to seek opportunities for financial assistance from state and federal sources, many of which are primarily available to public entities.

Fact Sheet for Prospective Purchasers of Potential Brownfields

What are brownfields?
Brownfields are vacant or underutilized properties where actual or perceived environmental contamination complicates their expansion, redevelopment, or reuse. Some of these properties are contaminated, while some are only assumed to have contamination. Brownfields most often include properties once used for industrial or commercial purposes, such as former gas stations, auto repair shops, dry cleaners, closed factories, and vacant lots with underground storage tanks, among others.

Why care about brownfields?
Brownfields can be located anywhere, but are often located in areas considered prime real estate, and can offer excellent reuse and redevelopment opportunities in the absence of environmental contamination (real or *perceived*). Prospective purchasers, lenders, and developers may be concerned with the time and costs associated with cleaning up brownfields for reuse. They worry that they may be required to cleanup environmental problems they did not create.

However, there are opportunities in brownfields for an informed purchaser or real estate investor. If the property has concerns regarding environmental contamination, it is possible that the number of prospective purchasers may be limited and the price may be lowered. With knowledge about the use potential of brownfield sites and the protections in place to limit a purchasers' liability for contamination already present on a property, purchasers can find opportunity in brownfield sites.

What is an Environmental Site Assessment?
Properties with prior industrial or commercial use are not necessarily contaminated and may not require cleanup. However, properties must be assessed to determine their potential for contamination. A Phase I Environmental Site Assessment (ESA) is the formal process of determining the potential for contamination at a specific property.

A Phase I ESA is the standard environmental due diligence performed for any transaction involving real property, and will tell you about the property's history and current conditions, giving you the information you need to make informed choices. A Phase I ESA involves a visual inspection of site conditions, interviews with property owners and others, research into historic uses of the property and surrounding properties, assessment of the physical characteristics of the property, and review of environmental records to understand what environmental contamination may be present on or near the property. No physical sampling of the property occurs during a Phase I ESA. Rather, the Phase I ESA provides information about whether Recognized Environmental Conditions (RECs) exist on the property and determines if further assessment is necessary.

A Recognized Environmental Condition (REC) is defined as "the presence or likely presence of any *hazardous substances* or *petroleum products* on a *property* under conditions that indicate an existing release, a past release, or a *material threat* of a release of any *hazardous substances* or *petroleum*

products into structures on the *property* or into the ground, ground water, or surface water on the *property*." The presence of a REC on the property does not necessarily mean that contamination has occurred, or if it has, that it has occurred at an extent that requires cleanup.

Often, the completion of a Phase I ESA provides adequate information on potential liabilities on the site to allow purchasers, lenders, or owners to proceed with their plans for the site. Sometimes, however, more information about the site is needed. If RECs are identified on the property, a Phase II Environmental Site Assessment (ESA) may be conducted to take physical samples from the site and analyze them for suspected contaminants. Phase II ESAs require one or more visits to the property to collect samples, typically of soil and/or groundwater. Sample locations are selected based on the results of the Phase I ESA, and the Phase II ESA seeks to determine the types and extent of contaminants onsite. If sampling results in the discovery that contamination is present above safe levels (according to state and federal standards), site cleanup may be required.

Why should I do an Environmental Site Assessment?

As with any large investment you want to know what kind of additional costs you may incur before you finalize the purchase of a property. In the case of a site with redevelopment potential, you want to find out whether the site is contaminated and, if so, how much it is likely to cost to clean it up before you buy it. You also want to ensure that as a purchaser you will not be liable for contamination that exists on a property when you were not responsible for the contamination. If the Phase I ESA reveals there are potential environmental contaminants existing on site, a purchaser can either choose to walk away from the deal or conduct further assessment work before making a decision. Also, knowledge about contamination can help ensure that you pay a fair cost for the property.

Lenders and developers require environmental site assessments prior to real estate transactions in order to qualify for certain landowner liability protections under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The liability protections include the innocent landowner defense, contiguous property owner exemption, and the bona fide prospective purchaser exemption. More information about these landowner liability protections can be found on the EPA's Brownfields and Land Revitalization website. As a potential purchaser, the completion of an environmental site assessment that meets the requirements of All Appropriate Inquiries (AAI) will provide protection from liability associated with contamination that you did not cause.

What is All Appropriate Inquiries (AAI)?

All Appropriate Inquiries (AAI) is the process of evaluating a property's environmental conditions and assessing the likelihood of contamination that is described in the All Appropriate Inquiries Final Rule (40 CFR 312) (http://www.epa.gov/brownfields/aai/index.htm). Following the requirements of AAI in a pre-purchase environmental site assessment allows a prospective purchaser to qualify for one of the landowner liability protections under CERCLA.

What are my liability risks?

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) establishes a liability scheme to determine who can be held responsible for releases of hazardous substances, identifying "potentially responsible parties". Under CERCLA, individuals or entities can be liable for contamination based on their actions with respect to a property. Liability can include the cost of cleanup as well as impacts to other properties or health impacts to those in the area of your site. As a potential purchaser, you risk liability for contamination if you purchase a contaminated property without conducting All Appropriate Inquiries (AAI) prior to acquisition of the property.

Will an environmental site assessment performed several years ago meet the new All Appropriate Inquiries (AAI) requirements?

The 2002 federal Small Business Liability Relief and Brownfields Revitalization Act ("Brownfields Act") requires that a Phase I ESA that meets the requirements of AAI is completed within a year prior to taking ownership of a property. This is to ensure the current environmental status of the property is known at the time of the property transfer. In addition, certain aspects of the Phase I ESA must be completed within 180 days prior to the property transfer.

What are the costs involved?

The prospective purchaser typically pays for assessment costs, and both Phase I and Phase II ESAs can be very expensive. However, without ESAs, you have no way of knowing if a property you are considering purchasing is free of Recognized Environmental Conditions (RECs), or what steps are needed to address any RECs on the property. Additionally, the cleanup costs of properties contaminated with petroleum and/or hazardous substances can be very high. If this contamination is discovered prior to your purchase of the property and cleanup is necessary, you will not be responsible for costs associated with cleanup. Rather, the party determined liable under CERCLA will be responsible for the cost of cleanup onsite.

How does the Mid-Willamette Valley Council of Governments want to help?

The Mid-Willamette Valley Council of Governments (MWVCOG) recognizes the importance of identifying and cleaning up potential brownfields in the region in order to improve community health and meet future employment land needs. The first step in redevelopment of these lands to get them back into productive use involves the identification, assessment, and cleanup (when necessary) of these properties. The MWVCOG would like to act as a resource to prospective purchasers and developers of properties that may be considered brownfields. While the MWVCOG cannot provide financial assistance at this time, we can assist in providing technical guidance about the process of property assessment and cleanup, and can work with prospective purchasers to seek opportunities for financial assistance from state and federal sources, many of which are primarily available to public entities.

Appendix F: Legal Framework and Redevelopment Assistance

As discussed in Chapter 1, the redevelopment of brownfields has both economic and environmental benefits. From an environmental standpoint, impacts of high-profile hazardous waste sites on the environment and public health launched federal efforts to clean up these sites in the late-1970s and 1980s. One such case was Love Canal. A small canal in Niagara Falls, New York was used as a chemical dumpsite from the 1920s into the 1950s. The owner of the site at that time, Hooker Chemical Company, then covered the canal and sold the land to the City for $1. A school and 100 homes were built on the site of the former dump. By the late 1970s waste began breaking through the ground surface and leaching into homes, resulting in high levels of birth defects in the community and the need to evacuate the residents, as well as introducing the issue of liability for cleanup of abandoned hazardous waste sites (Beck, 1979). During this time, the economy was shifting from an industrial-based economy toward a service-based economy, resulting in a need to address the cleanup of former industrial sites for economic purposes (Dull & Wernstedt, 2010). Disasters like Love Canal and economic shifts have resulted in federal and state regulations and assistance programs to address the issues surrounding contaminated sites and to guide redevelopment efforts.

Legal Framework

Regulatory actions involving both environmental cleanup and economic development of contaminated sites have evolved to provide guidance on how brownfields are addressed today. Even before the term "brownfield" was widely used, recognition that these sites were often left unused in favor of developing new sites resulted in regulations to encourage the cleanup and reuse of these sites.

Federal Legislation

Early legislation to support redevelopment of brownfields recognized the importance of these sites as an economic development tool. The Community Reinvestment Act (CRA) passed in 1977 as an attempt to increase economic development opportunities in urban areas and limit further decline, particularly in areas characterized by low- and moderate-incomes. At this time, the fear of liability for contamination had affected lenders, developers, and property owners, hindering redevelopment. The CRA sought to remedy this by requiring lenders to earmark capital for investment in low- and moderate-income urban neighborhoods in order to prevent further decline in these areas (U.S. EPA, 2011c).

Then, in 1980, in response to Love Canal and other similar cases, the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), also known as Superfund, was enacted (Collaton & Bartsch, 1996). The purpose of CERCLA is to clean up sites with hazardous substance contamination. CERCLA required the EPA to establish a list of the most contaminated sites in the country, known as the National Priority List (NPL), and implemented a tax on chemical and petroleum industries in order to create a fund (Superfund) to clean up these sites. Sites on the NPL were based on a larger list of contaminated sites in the country, the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), which lists sites with varying levels of

contamination (CERCLA, 2002). Under CERCLA, the Federal government can act on releases or threatened releases of hazardous substances that require immediate response, as well as long-term responses on sites that have serious health or environmental impacts. In addition, CERCLA detailed liability for contaminated sites and established regulations for closed hazardous waste sites. The EPA can seek to determine the parties responsible for the release and require that they pay for cleanup, but in the event no responsible party can be identified the EPA can use the Superfund to clean up sites (U.S. EPA, 2013a). The Superfund Amendments and Reauthorization Act (SARA) of 1986 reauthorized CERCLA and added amendments to address issues identified during the early years of CERCLA (U.S. EPA, 2013a). SARA increased the focus of CERCLA on human health problems and increased the size of the Superfund to $8.5 billion (U.S. EPA, 2011d). The EPA has ultimate authority over Superfund, but state agencies are responsible for site identification, monitoring, and response to releases (U.S. EPA, 2013a).

With the passage of CERCLA, the EPA was able to secure funding to address and clean up some of the most contaminated sites in the Country by focusing on those on the National Priority List. However, this unintentionally resulted in the dismissal of many of the nation's less contaminated sites for redevelopment because liability for these brownfields had not yet been addressed. In fact, CERCLA created problems for brownfields because it created the potential for lenders to be held liable for contamination of property if a site was moved from CERCLIS to the NPL, making lenders unwilling to finance projects on these sites (Collaton & Bartsch, 1996). Critics expressed the need to identify economic development as a goal of CERCLA and remove the barriers to development created by associating less contaminated brownfields with the more seriously contaminated sites listed on the NPL (Howland, 2007).

In the 1990s, interest in revitalization of downtown areas increased, and the EPA began revising its regulatory framework to broadly address brownfields (Harnik & Donahue, 2011). This began first through the 1994 Brownfields Economic Redevelopment Initiative and then further through the 2002 Brownfields Act. After SARA reformed CERCLA, the 1994 Brownfields Economic Redevelopment Initiative attempted more changes to CERCLA. Its most important effect was the removal of approximately 30,000 less contaminated sites from CERCLIS in 1997 (Solitare & Greenberg, 2002).

Next, the Small Business Liability Relief and Brownfields Revitalization Act ("Brownfields Act") passed in 2002 in order to "provide certain relief for small businesses from liability under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, and to amend such Act to promote the cleanup and reuse of brownfields, to provide financial assistance for brownfields revitalization, to enhance State response programs, and for other purposes" (Brownfields Act, 2002). This law amended CERCLA by designating funds in order to assess and remediate brownfields and to enhance state and tribal environmental response programs (U.S. EPA, 2012d). In addition, it clarified the liability protections outlined in CERCLA, exempting contiguous property owners, prospective purchasers, and innocent landowners from liability (U.S. EPA, 2011e). As a result, the EPA's Brownfields Program and state agencies now provide financial assistance to local and regional governments to inventory, assess, and conduct community outreach and planning around brownfields sites, as well as to assist with funding remediation projects.

After revisions to CERCLA, cities have increasingly looked to brownfields as an economic development objective, particularly in areas where available undeveloped land is scarce (DePass, 2006). Today, brownfields redevelopment remains a priority nationwide as the population continues to grow and the amount of available undeveloped land decreases. Introduced to Congress in March, the Brownfields Utilization, Investment, and Local Development (BUILD) Act of 2013 aims to increase the funding and support of these redevelopments. If passed, the Act would reauthorize the EPA's Brownfields Program and would continue funding at current levels until 2016. Key elements of the BUILD Act include increased flexibility of grant awards and property eligibility for the use of the awards, and perhaps, most importantly, the ability for a grantee to use grant funding from inventory to remediation, simplifying the redevelopment process (Paull, 2013).

State Legislation

Although the EPA manages implementation of CERCLA, state agencies have the responsibility of identifying and responding to sites with releases (U.S. EPA, 2013a). In addition to federal legislation to address brownfields, states have adopted various laws to address contamination and guide the redevelopment of brownfields. There are various types of state policies that address brownfields, including state Superfund laws and other enforcement-based policies, as well as voluntary cleanup laws.

In Oregon, key legislation to address these sites includes the 1987 Environmental Cleanup Law and the Recycled Lands Act of 1995. Oregon's Environmental Cleanup Law was established in 1987 and is similar to CERCLA in that it requires parties responsible for causing contamination to pay for site cleanup (OR DEQ, 2013c). The Recycled Lands Act of 1995 outlined liability protections for prospective purchasers, as well as guidelines for remediation. Amendments to the Act in 1997 focused on funding of these projects and created a Brownfields Redevelopment Loan Program, discussed in the following section (Kass, Bridgen, & Lee, 1998).

Redevelopment Assistance

There are primary agencies in federal and state government responsible for implementation of the regulations discussed above and for providing technical and financial assistance to communities necessary for successful redevelopment. Communities, in turn, can work with private property owners and developers to facilitate redevelopment of brownfields. There are more funding sources available to public agencies for brownfields assessment, remediation, and cleanup than there are to private property owners. The ability of public entities to partner with private property owners can benefit communities in that public entities can assist and play a direct role in the revitalization of their community and add to the local tax base.

Below is a summary of the key programs that manage brownfields, in addition to information on partner organizations and other agencies that provide financial assistance through loans, grants, and tax incentives to assist in the redevelopment of brownfields in Oregon.

Federal Agencies and Programs

At the federal level, the EPA has primary responsibility for managing brownfields, and does so through the Brownfields Program, which is managed by the EPA's Office of Solid Waste and Emergency Response (OSWER) (U.S. EPA, 2012a). EPA's Brownfields Program was created in 1995 and differs from the federal Superfund Program in that it focuses on abandoned properties with contamination that is not severe enough to warrant listing on the NPL (Ramseur, 2008). In its early years the program provided up to $200,000 for several pilot inventory and assessment projects nationwide, and with the passage of the 2002 Brownfields Act, a primary activity of the Brownfields Program is the appropriation of grant money to encourage redevelopment of brownfields (Greenberg & Hollander, 2006; U.S. EPA, 2012b). The EPA Brownfields Program has resulted in the assessment of more than 20,000 properties and the cleanup of approximately 850 properties. This has resulted in the creation of about 85,000 jobs and has leveraged close to $20 billion (U.S. EPA, 2013c).

There are four competitive grants developed through and managed by this program: assessment grants, cleanup grants, job training grants, and revolving loan fund (RLF) grants (Ramseur, 2008). These grants are available to government entities and not to private companies or property owners (CERCLA, 2002). Assessment grants can be used to inventory, assess, and conduct community outreach activities around brownfields. These are important in that they enable local governments to determine the scope of the brownfields problem in their communities and the types and extent of contamination on individual sites, which is the first step communities must take to get these properties back into productive use. Cleanup grants provide funding for remediation work at brownfields, with up to $200,000 awarded per site. These grants require a 20% cost share by the grantee. EPA job training grants are awarded to provide job training in the environmental field to residents of communities dealing with brownfields issues. These grants focus primarily on low-income and minority populations living in these areas (U.S. EPA, 2012c). Finally, Revolving Loan Fund (RLF) grants can be awarded to governments to capitalize revolving loan funds so they can provide low-interest loans for remediation work (Ramseur, 2008).

In addition to the EPA, several federal agencies and departments have programs in place to assist the EPA or to provide financial incentives to those working to redevelop brownfields. The Department of Housing and Urban Development (HUD) seeks to support community development activities with a goal of providing affordable housing to all. Several of HUD's programs support funding for brownfields projects, including the Community Development Block Grant (CDBG) Program, Brownfields Economic Development Initiative (BEDI), and the Section 108 Loan Guarantee Program. HUD established the Community Development Block Grant (CDBG) program in 1974 with the goal of "developing viable communities by providing decent housing, a suitable living environment and by expanding economic opportunities, principally for persons with low or moderate incomes" (Environmental Management Support, Inc., 2012). Grants are provided annually to Entitlement Communities (determined based on population) and states, with states distributing funds to communities in need (Environmental Management Support, Inc., 2012). Funding under this program can be provided to local governments to assist with acquisition and construction costs at both publicly and privately owned sites, as well as to

cover assessment costs associated with projects that may have environmental contamination (Schnapf, 1999).

The Brownfields Economic Development Initiative (BEDI) is a grant program also managed by HUD designed to facilitate redevelopment of brownfields. BEDI funds redevelopment projects at brownfields that will contribute to an area's economy by adding jobs or that will be used to improve economic conditions for low- and moderate-income individuals (HUD, 2013). BEDI grants must be used in conjunction with a new Section 108-guaranteed loan commitment, which is the "loan guarantee provision of the CDBG program" (Environmental Management Support, Inc., 2011). Both BEDI and Section 108 funds should be used for projects with anticipated short-term results (HUD, 2013).

The Economic Development Administration (EDA) within the U.S. Department of Commerce seeks to promote economic development, particularly in economically distressed communities nationwide (Environmental Management Support, Inc., 2011). The EDA supports funding of brownfields redevelopment to bring jobs and an increased tax base to these communities, and most funding for this work comes through their Public Works and Economic Development Facilities Program (Environmental Management Support, Inc., 2011). The Public Works and Economic Development Facilities Program provides funding to expand and improve community infrastructure, such as building renovation or new construction on brownfields sites that can facilitate job growth and attract businesses to an area. Funding through this program is available to governments, non-profits, and educational institutions, but not to private parties (Environmental Management Support, Inc., 2011).

The Agency for Toxic Substances and Disease Registry (ATSDR) within the Department of Health and Human Services focuses on the effects of public exposure to hazardous substances. In addition to providing technical assistance on the health issues associated with brownfields, ATSDR can provide financial support to state health departments through the Brownfield/Land Reuse Initiative Program in order to help fund evaluations of exposures and educational programs (Environmental Management Support, Inc., 2011).

Managed by the U.S. Department of the Treasury, the New Markets Tax Credits program was created by the Community Renewal Tax Relief Act of 2000 and encourages economic development in distressed communities by providing tax credits to organized Community Development Entities (CDEs). Investors can either approach CDEs for tax credits or can pursue designation as a CDE to directly receive tax credits. In exchange for a cash investment on a project, which the CDE must use for qualified investments, the investor will receive a 39% tax credit on their investment over a seven-year period (U.S. EPA, 2011a). This program's focus on distressed areas makes it particularly attractive to brownfields redevelopment.

The National Park Service, along with the IRS and State Historic Preservation Offices, administers the Historic Rehabilitation Tax Credit program and issues tax credits to encourage investment in historic properties (U.S. EPA, 2011a). The program distinguishes between two types of properties for tax credits: certified historic properties, which are listed on the National Register of Historic Places or on a local

historic district, and non-certified historic properties constructed before 1936. Rehabilitation of certified historic properties can qualify for a 20% tax credit, and rehabilitation work on non-certified, non-residential structures constructed before 1936 qualifies for a 10% tax credit (U.S. EPA, 2011a). Brownfields sites can often take advantage of these credits, particularly for the non-certified structure 10% credit, since many brownfields have existing older buildings onsite in need of remediation or remodeling.

State and Regional Agencies and Programs

In addition to federal agency management and assistance with brownfields, state and regional programs provide assistance to their communities. At the state level, the Oregon DEQ has primary responsibility for providing guidance on brownfields statewide. The DEQ seeks to assist communities in the investigation and cleanup of sites that are potentially contaminated through technical assistance, site-specific assessments, Prospective Purchaser Agreements (PPAs), and a Voluntary Cleanup Program (VCP) (Wistar, 2010).

Site-specific assessments are cost-free assessments conducted by the DEQ using EPA funding to determine contamination at properties and to provide assistance with cleanup planning. These assessments are conducted at the request of communities and non-profits, and aim to prepare properties for real estate transactions or redevelopment activities (OR DEQ, 2013b). The DEQ also issues Prospective Purchaser Agreements (PPAs), which limit liability for the prospective purchaser of a contaminated property to encourage their purchase, cleanup, and reuse of the property (OR DEQ, 2013b).

The DEQ's primary guidance, however, is through its Voluntary Cleanup Program (VCP), which differs from traditional enforcement-based strategies for brownfields cleanup in that it assists property owners and other private entities to clean up contaminated sites on a voluntary basis (OR DEQ, 2013b). Through this method the DEQ can encourage cleanup and redevelopment of sites by working with owners throughout the cleanup process, creating an efficient path to move sites from identification of contamination to cleanup and reuse. The DEQ also offers an Independent Cleanup Pathway through its VCP that allows owners to clean sites on their own (OR DEQ, 2013b).

Most state funding for brownfields redevelopment comes from Business Oregon, which works to attract businesses to Oregon and promote economic development in its communities (Business Oregon, 2013a). Specific funding to assist in redevelopment of brownfields includes the Brownfields Redevelopment Fund, the Oregon Coalition Brownfields Cleanup Fund, and Industrial Development Bonds.

The Brownfields Redevelopment Fund and the Oregon Coalition Brownfields Cleanup Fund are revolving loan fund programs, although some grant money can be issued through these programs for publicly owned redevelopments. These funds can be used for all aspects of preparing a site for reuse, from initial environmental assessment through the cleanup process. These funds differ from typical federal

financing options in that they allow private parties, including property owners and prospective purchasers, to apply for funds (Business Oregon, 2013a).

Industrial Development Bonds are low-interest, tax-exempt bonds available to help manufacturers grow their businesses. The bonds can be used for land, buildings, and equipment, and can play a role in developing former brownfields sites that may be of interest to manufacturers (Business Oregon, 2013b). The availability of these bonds has the potential to attract developers or owners of manufacturing companies that are seeking to expand or relocate in Oregon.

A regional resource for communities is the Technical Assistance to Brownfields Communities (TAB) Program, which provides financial assistance to communities and other entities to fund the education of communities about the importance of redevelopment of brownfields. The TAB program grantees act as resources to areas in various aspects of brownfields redevelopment, primarily by providing information about redevelopment, legal issues, and identification of potential funding sources (U.S. EPA, 2013b). In Oregon, the San Francisco-based Center for Creative Land Recycling (CCLR) is the TAB recipient that provides guidance to Oregon communities. CCLR maintains an online resource, the Brownfields Resource Center, which provides financial and regulatory information on brownfields in the State (CCLR, 2013).

Other Incentives

Outside of federal and state departments and agencies, tax incentives can assist those seeking to redevelop brownfields. Low Income Housing Tax Credits (LIHTCs) are used to encourage developers to create affordable housing for the low-income population (U.S. EPA, 2011a). Individual states administer this program and receive tax credits based on their population. Investors can receive tax credits for the costs of developing affordable units in rental housing projects, with the credits allocated over a ten-year period (U.S. EPA, 2011a). These tax credits can be beneficial to brownfields redevelopment projects that involve development of affordable housing.

Additionally**,** made available by the Energy Policy Act of 2005 and currently available through the end of 2013, the Energy-Efficient Commercial Buildings Tax Deduction allows a deduction of up to $1.80 per square foot of building space for owners of commercial buildings that use energy efficient technologies (U.S. EPA, 2011a). Owners or developers of brownfields may be eligible for these credits if they can incorporate energy efficient technologies into rehabilitation of existing structures or new construction of commercial buildings.

Typically, financial assistance for brownfields redevelopment, including grants, tax incentives, and loans, are available primarily to public entities and in some cases non-profits and educational institutions. However, brownfields are often not owned by these entities, but by individuals or for-profit companies that are not eligible for this funding. Therefore, it is important to develop public-private partnerships in order to successfully address the brownfields problem. These partnerships can more efficiently move sites from their identification to redevelopment and reuse. Because of the many entities involved, development of these partnerships can be difficult initially, but the ability of local and regional

governments to partner with private property owners and developers can result in projects that provide benefits to both developers and communities as a whole.

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