

Feasibility Analysis of the West 11th Corridor

Is a multiway boulevard a possible alternative?

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TERMINAL PROJECT

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I. Introduction

The City of Eugene initiated the West 11th Corridor Study after the failure of the West Eugene Parkway (WEP), a planned 5.8 mile, four-lane arterial road connecting two state highways between Eugene and neighboring Springfield. The study, kicked off in November 2006, will develop several alternatives in response to increasing traffic congestion along West 11th Avenue and projected growth for the Eugene-Springfield Metropolitan Area.

Purpose

This paper will look at the feasibility of expanding West 11th Avenue into a multiway boulevard along a section of the West 11th Corridor. Multiway boulevards are unique alternatives to major arterial roads, but they are rarely constructed in the United States due to perceived safety issues and strict building standards and codes that often prevent their construction. It is hoped that this study will provide a clear picture of the feasibility of a multiway boulevard including its impacts and social and environmental benefits.

Background

Oregon Department of Transportation (ODOT) suspended plans for the West Eugene Parkway (WEP) in July 2006 after 20 years of planning. ODOT recommended a “no build” Revised Record of Decision in October 2006, effectively ending the WEP project. WEP, planned as a 5.8 mile four-lane arterial road, was supposed to connect Highway 99 and Highway 126.

Ultimately, WEP advocates did not have the local political support necessary to complete the proposed parkway¹. Opposition to the parkway was centered on impacts to wetlands and endangered species and the resulting sprawl the highway would generate². Proponents of the project argue WEP was necessary to meet increasing traffic demands and that it would help manage projected growth.

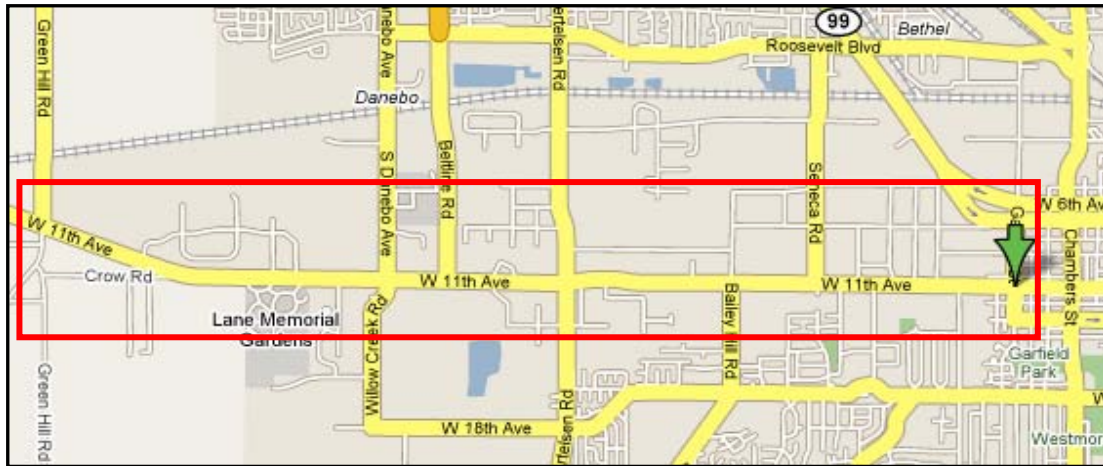
The City of Eugene is at a critical juncture in the planning process. The City teamed up with Lane Transit District (LTD), Lane Council of Governments (LCOG), Lane County, ODOT, and the University of Oregon to develop several alternatives for the West 11th Corridor Study Area. One alternative is to widen West 11th Avenue to accommodate the increasing traffic. Another alternative is to make West 11th and 12th Avenues one way streets running opposite directions. The corridor study will also look at possible operational improvements (i.e. signal timing, street striping, etc.) to improve traffic flow. In addition, the team will analyze access management including left turn access and how and where people access the street.

West 11th Avenue, a portion of Highway 126, is a four to five lane major arterial road (from Garfield Street to Terry Street). The street is dominated by big box retail, strip mall shopping centers, and by the automobile. Sidewalks are discontinuous and streetscaping is sporadic making the area unfriendly to pedestrian activity.

Description of Proposed Multiway Boulevard

This feasibility analysis presents two multiway boulevard alternatives for a portion of West 11th Avenue (Figure 1). One alternative includes Bus Rapid Transit (BRT) lanes within the multiway boulevard concept and the other does not.

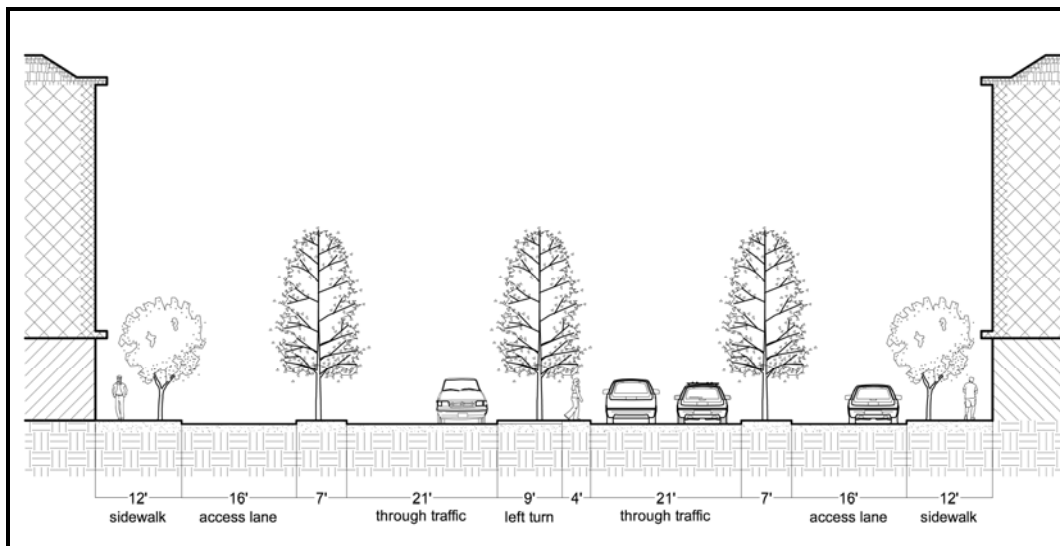
Figure 1: West 11th Study Area



Alternative 1

In Alternative 1 (“No BRT”), the right-of-way of the road is 125 feet and includes four lanes of through traffic, two access lanes, and three tree-lined medians.

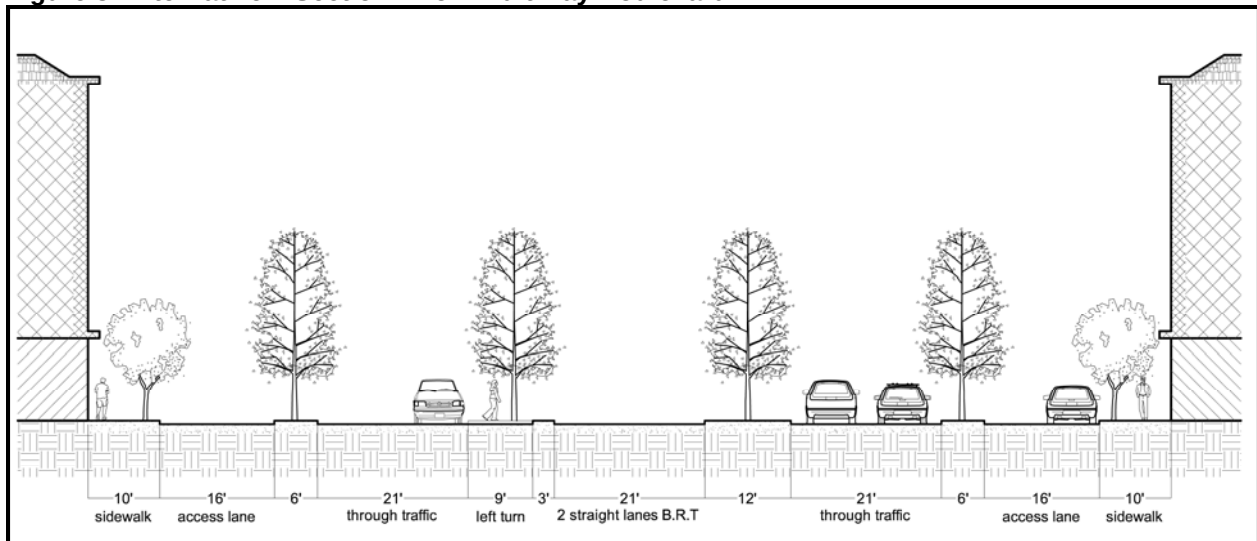
Figure 2: Alternative 1 Section – 125’ Multiway Boulevard



Alternative 2

Alternative 2 (“With BRT”) is similar to Alternative 1, but it also includes two BRT lanes. The cross section of this alternative is 151 feet and includes four lanes of through traffic, two access lanes, four tree-lined medians, and two dedicated BRT lanes. LTD has proposed extending BRT service along West 11th Avenue. Alternative 2 incorporates this plan, although the BRT line is currently proposed to cover only a segment of the study corridor. Within this feasibility analysis, the BRT line travels the entire length.

Figure 3: Alternative 2 Section – 151' Multiway Boulevard



Organization of Report

To determine the feasibility of expanding West 11th Avenue into a multiway boulevard, this paper contains the following sections:

- Section II: Methods – this section covers the methodology used to determine impacts from a multiway boulevard as well as how the current land use analysis was performed.
- Section III: Literature Review – this section evaluates state and local plans and relevant literature related to a multiway boulevard.
- Section IV: Current Land Use – this section analyzes the current zoning, density, and traffic volumes of the Study Area.
- Section V: Proposed Multiway Boulevard – this section proposes a new zoning overlay for the Study Area and discusses potential impacts from Alternatives 1 and 2.
- Section VI: Conclusions – this section summarizes the findings and implications from a proposed multiway boulevard.

II. Methods

Several layers of analysis were performed to determine the feasibility of expanding a 4.3 mile section of West 11th Avenue into a multiway boulevard. Two multiway boulevard options were examined for West 11th Avenue. The first alternative is a multiway boulevard that has a width of 125 feet. Alternative 2 is a multiway boulevard with a width of 151 feet to include a BRT line. Impacts to tax lots from the proposed road expansion were assessed using GIS through the analysis of the overlay of the proposed multiway boulevard right-of-way compared to the existing tax lot boundaries³.

To understand the impacts of expanding the existing right-of-way to accommodate the multiway boulevard concept, the following steps and analyses were conducted within the GIS environment:

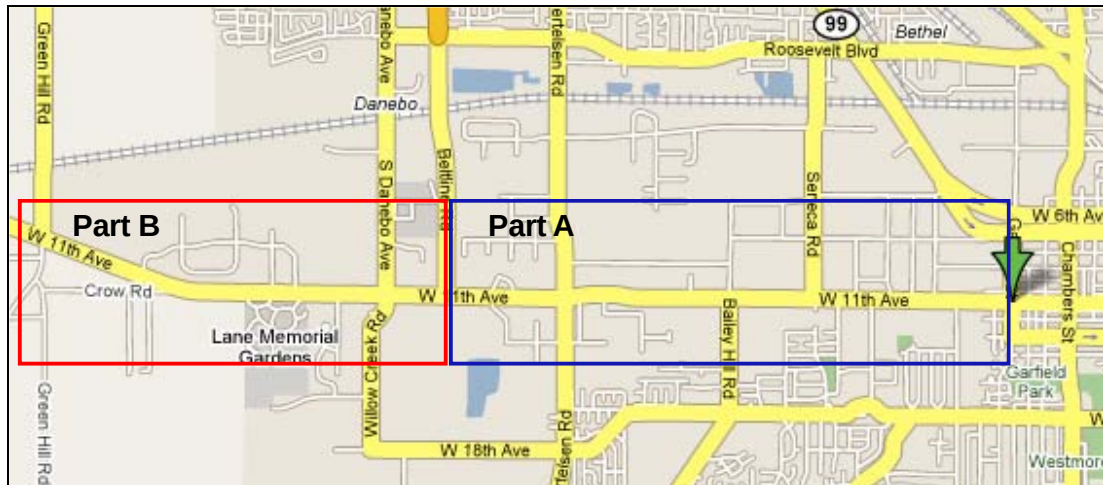
- Using the center line of West 11th Avenue, a buffer of 62.5 feet (Alternative 1 – 125' multiway boulevard) and 75.5 feet (Alternative 2 – 151' multiway boulevard) were created to determine areas of conflict.
 - Areas of conflict are defined as the area of overlap between the proposed multiway boulevard and the tax lots.
- The actual area (in square feet) within these conflict zones were calculated, as was an identification of tax lots that would be impacted.
- Using 2004 aerial photographs as the base layer, buildings within the Study Area were digitized to create a building footprint layer.
- The building footprint layer was used to determine which structures will be impacted by the road expansion for both alternatives.
- The rough fiscal impact to the tax lots was estimated by multiplying the average of the current value of all the tax lots per acre with the total number of acres impacted by the multiway boulevard for each alternative.
- The rough fiscal impacts to the clipped buildings was approximated for both alternatives by calculating the average of the improved value of all the tax lots in the Study Area and dividing that figure by the total square footage of all the buildings in the Study Area. The average price per square footage of the buildings was then multiplied against the total square footage of the impacted buildings to obtain the fiscal impact to the structures.

The final part of the project was a land use analysis. I analyzed the zoning of the Study Area (from Garfield Street to Green Hill Road) to determine current residential and commercial land use. The Study Area is defined as a quarter mile buffer around West 11th Avenue from Garfield Street to Green Hill Road. A quarter mile was chosen because studies have found that people are typically willing to walk between 400 feet to a quarter mile to access transit, shops, or work⁴. Although recent work suggests that when traveling to transit during the morning commute, people are willing to walk up to a half mile on average⁵. That said, a quarter mile is a somewhat standard analysis zone for pedestrian planning, and given that one of the benefits of transforming a major arterial to a multiway boulevard is enhanced pedestrian access, a quarter mile buffer is an appropriate planning zone of analysis.

I established the density of the Study Area by calculating the total area of the building footprints divided by the total area of the tax lots. Splitting the Study Area into two parts (Part A and Part

B), helped to determine a more accurate picture of density; the area between Garfield Street and Beltline Road is significantly more developed than the remaining portion of the Study Area. Part A of the Study Area covers tax lots near Garfield Street to Beltline Road. Part B consists of tax lots from Beltline Road to Green Hill Road (Figure 3.5).

Figure 3.5: Parts A and B of the Study Area



I obtained 2002 traffic volumes for the West 11th Corridor from the City of Eugene and projected 2025 traffic volumes from LCOG. I calculated the percentage of increase of traffic volumes using the 2002 data as the baseline.

Next, I suggested new zoning for the multiway boulevard. Multiway boulevards can support different land use functions than major arterials due to the local access lanes. Thus, the proposed land use of the Study Area is denser and sustains a wider variety of uses.

III. Literature Review

The plans, policies, and literature reviewed in this section includes information on whether a multiway boulevard is consistent with state and local plans as well as information on how multiway boulevards affect the built environment.

Relevant Policies and Plans

State and local plans and policies impact and guide projects of all scopes and size. State transportation and air quality goals as well as local plans call for reducing the use of the automobile and encourage alternate modes of transportation. *Metro Plan*, the 20 year comprehensive planning document for the Eugene-Springfield Metropolitan Area, and Eugene Growth Management Goals aim to preserve the Urban Growth Boundary and natural resources. All the plans respond to the predicted growth of the area and aim to manage it in a way that preserves and enhances quality of life.

State Transportation and Air Quality Goals

The 2006 Oregon Transportation Plan (OTP) is a statewide comprehensive plan for transportation planning for the next 25 years (required by State and Federal statutes including the Clean Air Act). The goals and strategies set within the plan are to be used by metropolitan planning organizations and some counties around the state.

The Oregon Transportation Plan identifies seven goals, “to provide economic efficiency, orderly economic development, safety and environmental quality⁶” when addressing the current and future transportation needs of the State. Goal 4 of the plan deals with sustainability and transportation and seeks to meet the future economic, environmental, and community needs of the public. To achieve this goal, Policy 4.3 calls for creating communities, “that integrate residential, commercial and employment land uses to help make shorter trips, transit, walking and bicycling feasible⁷.” ODOT has employed a number of strategies to achieve this objective including: supporting mixed use zoning, reducing barriers for people who use alternative modes of transit, promoting bicycling and walking, and increasing the service of mass transit.

The 1991 Transportation Planning Rule requires all four of Oregon’s metropolitan areas to reduce vehicle miles traveled by 20 percent by the year 2025⁸. Some metropolitan planning organizations, including Lane Council of Governments and Portland Metro, have advocated the implementation of transit oriented developments in response to these goals. However, most literature surrounding TODs calls into question their ability to reduce VMT. The presence of TODs alone may not be enough to reduce VMT.

LCOG’s *TransPlan*

The 2002 *TransPlan* is the 20 year air and surface transportation planning document for the Eugene-Springfield Metropolitan Area. *TransPlan* includes transportation strategies to deal with the expected growth of the metropolitan area. The Eugene-Springfield population is predicted to grow by 40 percent (286,500 people within the UGB) by the year 2015. Employment is forecasted to grow by 43 percent. The expected growth will have significant impacts on transportation systems.

The major goals of *TransPlan* are: reduce reliance on automobiles, increase transit service and options, and to replace automobile trips with alternative modes of transportation (i.e. walking and biking). To facilitate these goals, the plan recommends land use, transportation demand management (TDM), transportation system improvement (TSI), and finance policies. Some of the land use policies include: nodal development, mixed-use zoning, and multi-modal improvements. TDM policies include: establishing benchmarks to reduce demand, parking management, and strategies to manage congestion. Some of the many TSI policies include: intermodal connectivity to improve linkages between transportation systems, preserve transportation corridors, support transportation that increases neighborhood livability, create BRT lines, give priority to high occupancy vehicles, establish and enhance bike and pedestrian environments.

TransPlan identifies eight potential nodal development (3A-3H) areas within the Study Area. Nodal developments are consistent with the policies of the *Metro Plan* as they are thought to, “achieve compact urban growth, increase residential densities, and encourage mixed-use development⁹.” Nodal developments should have higher than average residential densities, be transit-oriented development areas, and should have other business or activity areas that support alternative modes of travel. Another goal of nodal developments is to reduce the length of automobile trips to less than one mile.

Eugene-Springfield Metropolitan Area General Plan

The 2004 update of the *Metro Plan* establishes long range planning policies and land use allocations for jurisdictions within Lane County¹⁰. The *Metro Plan* sets goals for growth management, housing, economy, environmental resources, transportation, public facilities and services, parks and recreation, special corridors, environmental design, historic preservation, energy, and citizen involvement. Redeveloping West 11th Avenue into a multiway boulevard meets many of these goals (Table 1).

Table 1 – Relationship between <i>Metro Plan</i> Goals and Multiway Boulevard	
<i>Metro Plan</i> Goals¹¹	Relationship to Multiway Boulevard
<i>Growth Management</i> 1. Use urban, urbanizable, and rural lands efficiently. 2. Encourage orderly and efficient conversion of land from rural to urban uses in response to urban needs, taking into account metropolitan and statewide goals. 3. Protect rural lands best suited for non-urban uses from incompatible urban encroachment.	<i>Growth Management</i> 1. A multiway boulevard and its associated land use allows for higher densities which could increase the efficiency of the existing uses. 2. Not applicable. 3. A multiway boulevard and its associated land use can increase existing density which would alleviate pressure from the UGB.
<i>Residential Land Use and Housing</i> 1. Provide viable residential communities so all residents can choose sound, affordable housing that meets individual needs.	<i>Residential Land Use and Housing</i> 1. A multiway boulevard and its associated land use can support a variety of residential housing options that are currently not present in the most of the Study Area.
<i>Economic</i> 1. Broaden, improve, and diversify the metropolitan economy while maintaining or enhancing the environment.	<i>Economic</i> 1. Not directly applicable – though redevelopment along the multiway boulevard will most likely bring in additional business.
<i>Environmental Resources</i> 1. Protect valuable natural resources and encourage their wise management and proper use and reuse, reflecting their special natural assets. 2. Maintain a variety of open spaces within and on the fringe of the developing area.	<i>Environmental Resources</i> 1. Not directly applicable – though a multiway boulevard and its associated land use will help relieve pressure on the UGB 2. Not directly applicable – though a multiway boulevard can support parks, etc.

3. Protect life and property from the effects of natural hazards. 4. Provide a healthy and attractive environment, including clean air and water, for the metropolitan population.	3. Not applicable. 4. Not applicable.
<i>Environmental Design</i> 1. Secure a safe, clean, and comfortable environment which is satisfying to the mind and senses. 2. Encourage the development of the natural, social, and economic environment in a manner that is harmonious with our natural setting and maintains and enhances our quality of life. 3. Create and preserve desirable and distinctive qualities in local and neighborhood areas.	<i>Environmental Design</i> 1. Design elements (ex. tree lined medians and sidewalks) associated with a multiway boulevard will create a pleasant, human-scaled environment. 2. A multiway boulevard establishes a pedestrian-oriented environment which will increase walkability. 3. Design features associated with a multiway boulevard and potential redevelopment will most likely enhance the existing architecture (i.e. big box retail and strip malls) of the Study Area.
<i>Willamette River Greenway, River Corridors, and Waterways</i> 1. Protect, conserve, and enhance the natural, scenic, environmental, and economic qualities of river and waterway corridors.	<i>Willamette River Greenway, River Corridors, and Waterways</i> Not applicable – the Study Area is not within this geographic area.
<i>Transportation</i> 1. Provide an integrated transportation and land use system that supports choices in modes of travel and development patterns that will reduce reliance on the automobile and enhance livability, economic opportunity, and the quality of life. 2. Enhance the Eugene-Springfield metropolitan area's quality of life and economic opportunity by providing a transportation system that is: • Balanced • Accessible • Efficient • Safe • Interconnected • Environmentally responsible • Supportive of responsible and sustainable development • Responsive to community needs and neighborhood impacts; and • Economically viable and financially stable	<i>Transportation</i> 1. A multiway boulevard will help create an environment that is friendly to pedestrians and bicycles. The associated land use will increase density and combine residential and commercial uses which could reduce ADT. 2. Not directly applicable – though Alternative 2 does include BRT lanes.
<i>Public Facilities and Services</i> 1. Provide and maintain public facilities and services in an efficient and environmentally responsible manner. 2. Provide public facilities and services in a manner that encourages orderly and sequential growth.	<i>Public Facilities and Services</i> Not applicable.
<i>Parks and Recreation Facilities</i> 1. Provide a variety of parks and recreation facilities to serve the diverse needs of the community's citizens.	<i>Parks and Recreation Facilities</i> Not applicable.
<i>Historic Preservation</i> 1. Preserve and restore reminders of our origin and historic development as links between past, present, and future generations.	<i>Historic Preservation</i> Not applicable.
<i>Energy</i> 1. Maximize the conservation and efficient utilization of all types of energy. 2. Develop environmentally acceptable energy resource alternatives.	<i>Energy</i> Not applicable.
<i>Citizen Involvement</i> 1. Continue to develop, maintain, and refine programs and procedures that maximize the opportunity for meaningful, ongoing citizen involvement in the community's planning and planning implementation processes consistent with mandatory statewide planning standards.	<i>Citizen Involvement</i> Not applicable.

City of Eugene Growth Management Goals

A multiway boulevard responds to the City of Eugene's Growth Management Policies. The table below illustrates whether a multiway boulevard is in accordance with the City of Eugene's 19 Growth Management Policies (see Table 2).

Table 2 – Relationship between Eugene Growth Management Goals and Multiway Boulevard	
Eugene Growth Management Policies¹²	Relationship to Multiway Boulevard
Policy 1 - Support the existing Eugene Urban Growth Boundary by taking actions to increase density and use existing vacant land and under-used land within the boundary more efficiently.	A multiway boulevard would relieve pressure off the UGB by supporting denser land uses within the Urban Growth Boundary.
Policy 2 - Encourage in-fill, mixed-use, redevelopment, and higher density development.	A multiway boulevard can support residential land uses that are currently absent along West 11 th Avenue including residential and mixed use developments and by encouraging infill.
Policy 3 - Encourage a mix of businesses and residential uses downtown using incentives and zoning.	Not applicable – the Study Area is not within downtown.
Policy 4 - Improve the appearance of buildings and landscapes.	Not directly applicable – though, if planned appropriately, potential redevelopment resulting from a multiway boulevard could improve the appearance of buildings and landscapes.
Policy 5 - Work cooperatively with Metro area partners (Springfield and Lane County) and other nearby cities to avoid urban sprawl and preserve the rural character in areas outside the urban growth boundaries.	Not directly applicable – though a multiway boulevard and its associated land use will relieve pressure on the UGB by supporting denser development.
Policy 6 - Increase density of new housing development while maintaining the character and livability of individual neighborhoods.	A multiway boulevard and its associated land use can support increased density and enhance livability by creating a pedestrian oriented environment.
Policy 7 - Provide for a greater variety of housing types.	A multiway boulevard can support apartments, townhouses, condominiums, etc.
Policy 8 - Promote construction of affordable housing.	Not directly applicable – though affordable housing developments could be included in redevelopment plans.
Policy 9 - Mitigate the impacts of new and/or higher density housing, in-fill, and redevelopment on neighborhoods through design standards, open space and housing maintenance programs, and continuing historic preservation and neighborhood planning programs.	Not directly applicable – though this policy could be incorporated in the proposed zoning overlay for the multiway boulevard (see Section V).
Policy 10 - Encourage the creation of transportation-efficient land use patterns and implementation of nodal development concepts.	A multiway boulevard and its associated land use patterns (mixed uses and increased density) create a pedestrian/bicycle friend environment.
Policy 11 - Increase the use of alternative modes of transportation by improving the capacity, design, safety, and convenience of the transit, bicycle, and pedestrian transportation systems.	The design of the multiway boulevard creates a pedestrian/bicycle friendly environment by separating pedestrians from faster moving traffic and thus encourages alternate modes of transportation
Policy 12 - Encourage alternatives to the use of single-occupant vehicles through demand management techniques.	A multiway boulevard and its associated land use will create a more walkable, bike-friendly environment.
Policy 13 - Focus future street improvements on relieving pressure on the City's most congested roadways and intersections to maintain an acceptable level of mobility for all modes of transportation.	A multiway boulevard can handle high volumes of traffic while preserving neighborhood uses of the area which will improve local streets and potentially alleviate congested roadways.
Policy 14 - Development shall be required to pay the full cost of extending infrastructure and services, except that the City will examine ways to subsidize the costs of providing infrastructure or offer other incentives that support higher-density, in-fill, mixed-use, and redevelopment.	Not applicable – infrastructure will not need to be extended.
Policy 15 - Target publicly-financed infrastructure	Roadway reconfigurations will require public funding and

extensions to support development for higher densities, in-fill, mixed uses, and nodal development.	may lead to adjustments in existing utility locations.
Policy 16 - Focus efforts to diversify the local economy and provide family-wage jobs principally by supporting local, and environmentally-sensitive businesses. Direct available financial and regulatory incentives to support these efforts.	Not applicable.
Policy 17 - Protect and improve air and water quality and protect natural areas of good habitat value through a variety of means such as better enforcement of existing regulations, new or revised regulations, or other practices.	The proposed multiway boulevard will not impact natural areas of good habitat value.
Policy 18 - Increase the amount and variety of parks and open spaces.	If planned, a multiway boulevard can support land use patterns associated with parks and open spaces.
Policy 19 - Expand City efforts to achieve community-based policing.	Not applicable.

Urban Form

A typical multiway boulevard contains six lanes of traffic - four lanes of through traffic and two access lanes. The four lanes of through traffic (two in each direction) are separated by a raised, tree-lined median. On each side of the two lanes of through traffic is a local access route separated again by a raised, tree-lined median. The medians even sometimes provide pedestrian access.

The local access route serves traffic with neighborhood destinations. The traffic on the access routes is slower than the lanes reserved for through traffic which helps to create an environment oriented towards pedestrians. To maintain the pedestrian realm, the speed limit of the access lanes typically does not exceed 15 m.p.h.

Multiway boulevards can channel large amounts of traffic while maintaining a human scale in the surrounding area. This is achieved by providing buffers between traffic and pedestrians and by defining the outdoor realm with tree-lined medians. Multiway boulevards cater to both pedestrian and automobile uses, whereas large arterial streets effectively allow the automobile to dominate the space¹³.

Multiway boulevards can also support varying land uses that most major arterials cannot. Major arterials typically do not include residential or mixed use developments as they are not compatible with fast moving traffic. However, multiway boulevards have local access lanes and medians which provide a buffer between faster moving traffic and potential residential or mixed use developments. The buffer maintains a sense of neighborhood by separating uses that do not match.

Role of Streets

A multiway boulevard also fulfills a public function. Streets represent the majority of public spaces in a city. They are important because they promote a diversity of uses (i.e. leisure, transportation, meeting places, etc). Good streets provide a hospitable environment for pedestrians and automobiles. That is, streets balance the uses of the pedestrian and automobile so that one use does not dominate over the other. The role of the pedestrian is vital on streets. As Jane Jacobs states, “consideration for pedestrians in cities is inseparable from consideration for city diversity, vitality and concentration of use¹⁴.”

Pedestrian activity on streets is attributed to increasing street safety, sustaining local businesses, and increasing public life¹⁵. If streets are highly used by pedestrians and provide a diversity of functions, they can improve neighborhood safety and help build public life. Public life is a vague concept, but Jane Jacobs feels that it can help ease discrimination and segregation¹⁶. Others see it as a way to build tolerance and shape public concepts (which could lead to public action) on relevant issues¹⁷. Public life can comprise many things and each street environment develops its unique version depending on which region of the city, state, and country the street resides. For instance, public life on one street could center on a fountain and public life on another street could be people sitting on their stoops.

Appleyard (1982) suggests that great streets are rare due to the overwhelming presence of traffic¹⁸. Slowing traffic or reducing traffic volume can help a vital street life to flourish. Appleyard feels that if traffic is controlled, the street can have an important role in family and community life. Great streets add to a healthy environment, create community, and should act as a sanctuary for its residents.

Southworth (2005) notes that pedestrian uses have historically been forfeited for automobile uses. Transportation engineers typically devote attention to, “capacity, demand, volume, rate of flow, trip origin/destination analysis, congestion patterns, and regional land use patterns¹⁹.” Pedestrian needs, such as landscaping and sidewalks, are largely ignored by transportation engineers. Prior to the industrial revolution, U.S. cities were pedestrian oriented. This is partly attributed to mixed-land use, the absence of the automobile, and the close proximity between points of destination. However, the introduction of the automobile, segregated land uses, non-gridded street patterns, and higher speed limits have lead to a street pattern that is inhospitable to pedestrians. This is unfortunate because there are many benefits associated with walking, including: better health, social equity, environmental, and increased social capital.

Challenges to Implementation

Multiway boulevards are more frequent in Europe than the U.S. In fact, only two multiway boulevards have been built in the U.S. since the 1920's²⁰. Their lower prevalence in the U.S. is partially due to the conception that they are dangerous and create complicated intersections. While there are more potential points of conflict (due to the presence of the access lanes), researchers have found that drivers adapt to the new environment by practicing additional caution²¹. Trees along streets and boulevards are also seen as points of conflict. Getting beyond these perceptions is vital to the successful implementation of a multiway boulevard.

Strict street standards adopted by most U.S. cities are a major obstacle to overcome to construct a multiway boulevard. Most cities require wide lane widths (12 or 13 feet), large turning radii at corners, and spacious parking lanes (ex. for speed limits under 40 m.p.h. preferred curb/parking width is between 11 and 12 feet; for speed limits over 40 m.p.h. preferred curb/parking width is between 11 and 13 feet²²). The large dimensions do not go hand-in-hand with a multiway boulevard. For example, the access lanes of multiway boulevards are meant to be narrow (widths vary depending on design of the boulevard) to help establish the pedestrian realm and to calm traffic. Wide street widths are also associated with concerns about access for emergency vehicles (such as fire trucks and ambulances). There is also the notion that streets with higher speeds need wider lane widths to increase safety. Building multiway boulevards is possible, but

there are some significant challenges to implementation. The City of San Francisco completed construction of a multiway boulevard in 2005 and the major barrier to overcome centered on lane widths, turning radii, etc. The designers showed the public works engineers real world examples to mollify these concerns.²³

Getting the necessary political support to build a multiway boulevard may be the most significant obstacle to construction²⁴. Multiway boulevards serve the needs of many groups (i.e. cars, pedestrians, bicyclists, residents, business owners, etc.) which mean that different groups and people will need to be involved in the planning process. Coordinating federal, state, city, and local groups could prove a daunting task. However, it is not impossible, particularly if there is a will to implement the boulevard.

Land Use

Multiway boulevards can support a variety of land use²⁵. Unlike freeways or expressways, multiway boulevards provide access to adjacent properties. Since multiway boulevards separate through and local traffic, they are able to permit a variety of uses (residential, commercial, office, open space) that major arterials are unable to support. Freeways and expressways may be able to handle higher capacities of traffic, but they tend to divide cities and communities. Multiway boulevards, on the other hand, can handle large volumes of traffic and are at the same time an integrated feature of the surrounding environment.

Land Use and its Effect on Property Value

Cervero and Duncan (2003) studied land use in Santa Clara County, California and found that properties zoned for higher density (i.e. multi-family) housing increased the square-foot value of land²⁶. The study also found land values decreased if it was within a half-mile radius of a freeway. In addition, high-density parcels gained additional value if retail was present and if there was a good jobs-housing balance in the area.

The removal and reconstruction of major street systems can increase surrounding property values. Cervero (2006) studied the relationship between land values and freeway deconstruction. Freeway deconstruction consists of removing a freeway and replacing the system with a slower, at-grade boulevard that carries lower traffic capacities²⁷. Cervero found that land closest to the at-grade boulevard had higher values than land further away from the boulevard. Although West 11th Avenue is not a freeway, there are similarities between major arterials and freeways. Both road systems are auto-oriented, have high speed limits, divide neighborhoods, and push development to the fringe by not supporting a variety of land uses. Therefore, it is possible that similar conclusions can be drawn if West 11th Avenue is deconstructed to support increased land uses.

Case Studies

The following case studies illustrate how multiway boulevards impact land use and traffic. The origins of multiway boulevards can be traced back to boulevards designed in the late nineteenth century Paris, France²⁸. The purpose of boulevards was to beautify the city with its tree lined avenues as well as to improve congestion and crowding. The park movement and the city beautiful movement helped establish boulevards (including multiway boulevards) in the United States in the late nineteenth and early twentieth centuries. The early U.S. boulevards were often

built prior to development as a way to entice wealthy landowners. Today, multiway boulevards still improve land values as well as diversify land use options. The selected case studies are meant to provide examples of how multiway boulevards affect their surrounding environment as well as to showcase some potential design flaws to avoid when creating future boulevards.

Octavia Boulevard, San Francisco, California

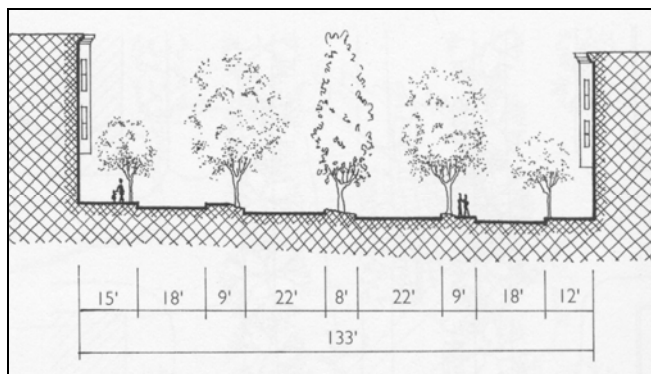
Octavia Boulevard is a four-block long multiway boulevard in San Francisco, California. It is the outcome of the demolition of a portion of the Central Freeway system. Prior to the removal of the Central Freeway, the Hayes Valley neighborhood (where Octavia Boulevard is located) was bisected by the freeway.

The right-of-way of Octavia Boulevard is 133 feet (see Figure 4). The two center lanes have a width of 22 feet, consisting of two lanes of traffic. The tree-lined center median between the two center lanes is eight feet wide. The two access lanes are 18 feet wide. Some criticize the access lanes as being too broad and thus not being effective at calming traffic. There are also two nine foot tree-lined center medians separating the access lanes and the center lanes.

Hayes Valley was not the safest area of San Francisco. It was noisy and visually unappealing. Octavia Boulevard helped reconnect the Hayes Valley neighborhood. The boulevard channels traffic from the freeway off-ramp to Fell Street, a main arterial. Property values started rising once the project was finalized and before construction even began²⁹. Land use changes consisted of housing upgrades, infill, and nearby commercial development (on Hayes Street).

A 2006 traffic impact study found that Octavia Boulevard carries an Average Daily Traffic (ADT) of 44,589 automobiles. This is about half the traffic capacity of the defunct Central Freeway. In 1995, the Central Freeway's ADT was 93,100. Octavia Boulevard is nearly at its estimated capacity of 45,000 vehicles a day and back-ups and congestion are present during peak commuting hours. However, the decreased capacity has not severely impacted the area. Drivers have modified their behavior and some use alternate routes to access the freeway³⁰. Streets like Octavia Boulevard call into question the practice of building new freeways or large parkways to handle increasing traffic and congestion. Octavia has proven that it is possible to build a street that can channel large amounts of traffic without negatively impacting the surrounding neighborhood. Octavia Boulevard is now an asset to Hayes Valley. It serves the needs of pedestrians, local traffic, and through traffic.

Figure 4: Octavia Boulevard Section (source: *The Boulevard Book*)



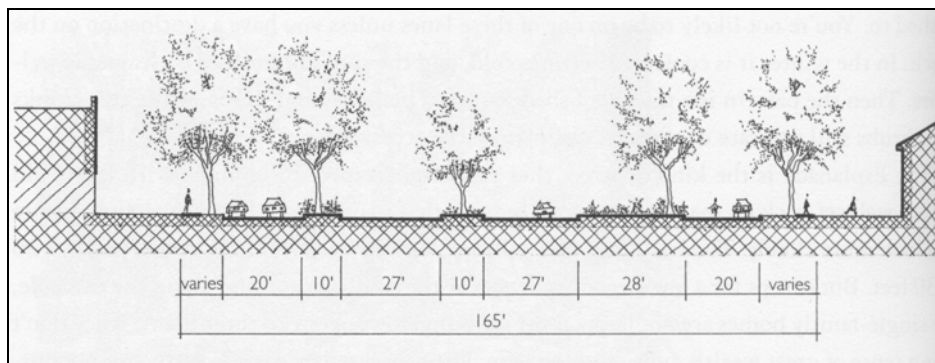
The Esplanade, Chico, California

The Esplanade is a multiway boulevard in Chico, California. The boulevard is a major north/south route that serves both city and regional traffic. The multiway boulevard is 15 blocks long and is located near downtown. The multiway boulevard came into its current form in the 1950s when the street was reconfigured.

The right-of-way of the Esplanade is 165 feet (Figure 5). The two center lanes each have two lanes of traffic and are 27 feet wide. Ten feet wide tree-lined center medians separate the two center lanes. The two access lanes are 20 feet wide and provide one lane of parallel parking and one lane for through traffic. There are stop signs at every intersection of the access lanes. This helps ensure that drivers will never reach too great a speed. Observers recorded an average speed of 21 m.p.h. in the access lanes while the center lanes had an average speed of 31 m.p.h.³¹. Few drivers use the access lanes for more than one block; the regular spacing of stop signs helps encourage local access use only³².

The surrounding use of The Esplanade is mostly residential with a couple of commercial areas on the northern and middle portions of the street. Houses are set back about 20 to 30 feet from the street. Bicyclists also use the access lanes, but often do not mind the one way direction of the streets. Few pedestrians use the street; perhaps this is due to the lack of retail or because crosswalks are not marked which makes crossing the street somewhat confusing.

Figure 5: The Esplanade Section (source: *The Boulevard Book*)



Conclusions

Transportation and land use go hand in hand. Freeways and expressways are good at handling large volumes of traffic, but they tend to disconnect neighborhoods and cities. This is unfortunate because streets have a vital role in cultivating public life, safety, and commercial activity. Multiway boulevards are special because they encourage public life by separating uses. Literature shows that getting the right ratio of jobs and housing is important as is establishing higher densities. The case studies illustrate that design matters. Planners and engineers should learn from past mistakes including ensuring that access lanes are not too wide and making sure to include necessary design elements to encourage pedestrian use. Lastly, a multiway boulevard is aligned with many state and local plans and policies. For example, the integrated transportation and land use of a multiway boulevard satisfies most of the 19 Eugene Growth Management Goals and *Metro Plan's* growth management, transportation, environmental resources, and environmental design goals by redeveloping underutilized lands within the UGB, utilizing

existing public infrastructure, raising density, and by increasing access to alternate modes of transportation. A multiway boulevard also responds to metropolitan transportation plans by creating a pedestrian realm and encouraging alternate modes of transportation. However, building a multiway boulevard will have significant impacts including high financial costs and an increased right-of-way that will affect existing structures and tax lots. Other alternatives might require less political capital and financial resources. The success of a multiway boulevard hinges on dense and varied land use. If the appropriate land use does not follow the development of a multiway boulevard, the area will likely not meet any of the targeted State and local goals.

IV. Current Land Use

Current zoning of the Study Area (Figure 6a-6b) is examined to determine distribution of zoning and land use. Density of the Study Area is also calculated to gauge intensity of use. Daily traffic volumes and land values are also included to set a baseline to compare the proposed multiway boulevard against.

Zoning

The Study Area is dominated by Light-Medium Industrial zoning, comprising 36.48 percent of the area (Table 3). Most businesses in this zoning serve the needs of the automobile.

Automobile repair, stereo, and body shops are typical businesses in this zoning. Other businesses include an ornamental iron works store, storage units, a distributor of electrical products, roofing company, electrical contractor, etc.

The second largest zoning category in the Study Area is Community Commercial representing 18.76 percent of the area. Most businesses in this zoning are big box retail or chain stores and restaurants. Examples of the big box retail include Wal-Mart, Target, Fred Meyer, Safeway, and Staples. Some of the chain restaurants consist of: Shari's Restaurant, Arby's, Pizza Hut, Taco Bell, McDonald's, Carl's Jr., Burger King, Subway, Taco Time, KFC, etc. Other chain businesses in the area include: Blockbuster Video, Sherwin-Williams, Liberty Bank, Umpqua Bank, Curves, Allied Insurance, etc. There are a number of small businesses in this area too including: sub shop, Mexican restaurant, Vietnamese restaurant, donut shop, aquarium store, dry cleaners, furniture store, etc.

Low-Density Residential is the third largest (16.10 percent) zoning class of the Study Area. The majority of the Low-Density Residential zoning is currently undeveloped land west of Beltline Road. The developed portion of the Low-Density Residential is either south or north of West 11th Avenue; none of the Low-Density Residential is actually located on West 11th Avenue.

Natural Resource zoning is the fourth largest (8.41 percent) zoning category in the Study Area. Natural Resource zoning protects native vegetation, plants, wetlands, etc. No Natural Resource zoning is located on West 11th Avenue, though a portion west of Beltline Road is close to the right-of-way of the street (about 70 feet north of the right-of-way).

Campus Industrial is the fifth largest (8.41 percent) zoning category in the Study Area. All the Campus Industrial zoning is found west of Beltline Road. Rosen Aviation and Western Beverage Company are businesses in this zoning.

Commercial Industrial is the sixth largest (5.36 percent) zoning category in the Study Area. All of the Commercial Industrial zoning is located east of Bertelsen Road. Most of the businesses in this category are found along West 11th Avenue. Some of the current uses of this area do not seem to fit under the Commercial Industrial category. For example, the Hampton Inn, Circle K, Pet Medical Center, Paul's Bicycles, etc. are all located within this zoning. A car wash, tool supply, used car lot, archery center, towing service, and flooring store are also found in this zoning.

Table 3 – Zoning of Study Area				
Zone Name	Zone Code	Zone Description³³	Acres	%
Light-Medium Industrial	I-2	Permits secondary processing of materials into components, the assembly of components into finished products, transportation communication and utilities, wholesaling, and warehousing. Limited office and commercial uses are also allowed under this zoning.	258.74	36.48%
Community Commercial	C-2	Supports a range of commercial and entertainment uses. Housing is also allowed. Parcels under this zoning are at least five acres and cannot exceed 40 acres. The service area of C-2 zoning is larger than a neighborhood, but smaller than a metropolitan area.	133.04	18.76%
Low-Density Residential	R-1	Allows single-family, low density residential development.	114.19	16.10%
Natural Resource	NR	Provides for the long-term protection of native vegetation, wetlands, waterways, wildlife habitat, rare plants, and ground water quality.	59.64	8.41%
Campus Industrial	I-1	Allows light industrial activities on campus like settings. I-1 zoning is to increase economic diversification and typically employs a large number of people per square acre. Businesses in this zoning do not generate “offensive external impacts,” and do not tolerate pollution, noise, or other negative effects from surrounding uses.	41.94	5.91%
Commercial/ Industrial	C-4	Supports compatible commercial and industrial uses that are typically oriented to the automobile. Complimentary industrial uses include assembling, packaging, processing, or repairing of already manufactured products.	38.00	5.36%
Heavy Industrial	I-3	Permits a variety of manufacturing uses including the processing of raw materials into refined products. Transportation needs (rail or truck) are often associated with this zoning.	34.34	4.84%
Chamber Special Area/Community Commercial	S-C2	Encourages commercial infill while protecting existing commercial businesses. Creates a pedestrian friendly environment.	7.62	1.07%
Chamber Special Area/Low Density Residential	S-R1	Encourages increased multi family housing while preserving the residential character of the neighborhood. Creates a pedestrian friendly environment.	6.45	0.91%
General Office	GO	Allows small to medium office buildings typically in areas of transition from residential to commercial uses. Businesses should be compatible with residential uses.	6.03	0.85%
Neighborhood Commercial	C-1	Permits commercial uses to serve the daily needs of the surrounding neighborhood. These businesses are typically less than 5 acres.	5.42	0.76%
Limited High-Density Residential	R-3	Allows attached one-family dwelling units and attached multi-family dwelling units. Some non-residential uses are authorized to serve residential needs.	1.35	0.19%
Unknown	n/a	The zoning of this area could not be determined.	1.32	0.19%
Medium-Density Residential	R-2	Permits medium-density residential uses and some non-residential uses to serve residential needs.	1.09	0.15%
Public Land	PL	Allows government and educational uses.	0.03	0.00%
TOTAL			709.19	100%

Heavy Industrial is the seventh largest (4.84 percent) category of zoning in the Study Area. All of the Heavy Industrial zoning is located north of West 11th Avenue between Seneca Street and City View Street.

The remaining zoning categories of the Study Area represent one percent or less of the area. Please see Table 3 for a description of these categories.

Density

There are a total of 404 buildings and 532 tax lots in Part A of the Study Area (Table 4). The total area of the building footprints is 82.41 acres and the total area of the tax lots is 349.44 acres. Most of the buildings are one story, though a few are two to three stories. The ratio of the total area of the building footprints to the total area of the tax lots for Part A of the Study Area is .20.

Part B of the Study Area has a total of 9 buildings and 86 tax lots. The total area of the building footprints is 2.23 acres and the total area of the tax lots is 268.13 acres. The ratio of the total area of the building footprints to the total area of the tax lots for Part B of the Study Area is .008.

Table 4 – Density of Study Area					
	# of Buildings	Area of Buildings	# of Tax Lots	Area of Tax Lots	Ratio of Buildings to Tax Lots
Part A	404	82.41 acres	532	349.44 acres	.20
Part B	9	2.23 acres	86	268.13 acres	.008

Property Value

The total property value for the Study Area was \$636,963,817ⁱ. This represents a total of 2,022 tax lots. It should be noted that some tax lots are clipped by the quarter mile buffer. Even though a portion of the tax lots is not within the Study Area, the total value of the tax lots is included in this figure. Thus, the figure represents an area slightly larger than the quarter mile buffer of the Study Area.

Current and Projected Traffic Volumes

As of 2002, the heaviest traffic volumes of the Study Area were between Bertelsen Road and Bailey Hill Road (Table 5). Daily traffic volumes were around 43,000 ADT. Trips to this area are most likely to the businesses in this street section. Typical commercial in the area includes: convenience stores, automobile repair or body shops, hotel, etc. Aside from commerce related trips, traffic volumes could be associated with people using this route to connect to other places. Bertelsen Road runs north-south and traffic in this segment could be from people accessing this street.

Traffic volumes are second highest between Seneca Street and Garfield Street. The area is mainly Community Commercial zoning along West 11th Avenue. It is likely that many trips to this area are commercial-related.

ⁱ This figure includes the land value and the improved value of each tax lot obtained from the 2004 GIS zoning layer.

Traffic volumes for the Study Area are projected to grow by 68 percent by the year 2025. The heaviest increase of use of West 11th Avenue will be between Green Hill Road and Terry Street. Traffic volumes in this segment are expected to increase by 160 percent. This is most likely due to the Campus Industrial zoning of the area. Since employment is predicted to rise by 43 percent by 2015, it is probable that the larger traffic volume in this segment is due to additional employees commuting to this area.

Traffic volumes between Beltline Road and Bertelsen Road are expected to increase by 116 percent. The area is mostly zoned Community Commercial and Light Medium Industrial. Two major retailers, Wal-Mart and Target, are currently located in this area. If the area continues to be a major commercial draw, the increase in traffic could correlate with the growing population making commercial related trips to this area.

Table 5 – 2002 and 2025 Projected Daily Traffic Volumes of the Study Area			
West 11th Ave. Street Segment	2002	2025	% Increase
Green Hill Rd. to Terry St.	17,600	45,755	159.97%
Terry St. to Danebo St.	18,500	38,861	110.06%
Danebo St. to Beltline Rd.	20,800	36,367	74.84%
Beltline Rd. to Bertelsen Rd.	19,300	41,650	115.80%
Bertelsen Rd. to Bailey Hill Rd.	43,000	60,999	41.86%
Bailey Hill Rd. to Seneca St.	21,900	39,799	81.73%
Seneca St. to McKinley St. (WB)	15,000	19,099	27.33%
Seneca St. to McKinley St. (EB)	16,000	20,984	31.15%
McKinley St. to Garfield St. (WB)	17,300	22,317	29.00%
McKinley St. to Garfield St. (EB)	16,100	20,114	24.93%
TOTAL	205,500	345,945	68.34%

Data source: 2002 volumes from City of Eugene, 2025 volumes from LCOG

Conclusions

The Study Area is dominated by Light-Medium Industrial and Community Commercial zoning. Businesses in the area are automobile oriented (ex. most of the parking is in front of the buildings) and many of them serve the needs of automobiles. The area is not pedestrian oriented due to the large number of curb cuts, discontinuous sidewalks, and general lack of landscaping. The density of the Study Area is fairly low, particularly Part B of the Study Area as it remains largely undeveloped. Traffic appears to be concentrated around main commercial areas as well as around intersections that are major thoroughfares.

V. Proposed Multiway Boulevard

A multiway boulevard is one alternative among many to address traffic and transportation issues along the West 11th Corridor. Although other alternatives might cost less and demand less political capital (ex. demand management techniques or making West 11th and 12th Avenues one way streets running in opposite direction), a multiway boulevard is a unique option because it has the potential to improve both transportation systems and land use issues. The separated uses of multiway boulevards permits residential, commercial, and recreational uses that most major arterials cannot support.

A multiway boulevard combined with mixed-use zoning, increased density, and access to transit systems addresses many federal, state, and local plans and policies. The boulevard improves transportation systems and air quality issues by increasing transportation options and reducing the need of the automobile. The boulevard relieves pressure off the UGB by increasing density within the UGB.

Proposed Zoning

The following section is a possible scenario on the land use changes a multiway boulevard could bring to the Study Area (Figure 7a-7b).

The majority (79.02 percent) of the proposed zoning for the Study Area is Mixed Use (Table 6). Mixed Use zoning includes a variety of uses including commercial, residential, recreation, and general office. Although these uses compliment one another, they are not necessarily meant to be located next to one another. The proposed zoning suggests a combination of uses, but design standards, codes, parking, and citing requirements need to be developed for the zoning to be effective. Design standards are important for Mixed Use zoning to help create the pedestrian realm. Maximum building setbacks should be established and buildings should be oriented towards the street. In general, ground level commercial should be established.

Natural Resource is the second highest (8.25 percent) zoning class in the proposed zoning of the Study Area. The current acreage of Natural Resource zoning in the Study Area is preserved in the proposed zoning.

Campus Industrial zoning comprises 5.83 percent of the Study Area. This zoning currently exists in the Study Area and is upheld in the proposed zoning. Campus Industrial zoning facilitates businesses with a large number of employees. Attracting large employers to the area is important to maintain a good job to housing ratio.

Light-Medium Industrial zoning represents 4.22 percent of the Study Area. Light-Medium Industrial zoning was maintained in the area south of Amazon Creek between Ocean Street and Acorn Park. This area is geographically isolated from the West 11th Avenue due to the presence of the creek. Since connectivity is effectively eliminated to the street, the zoning is preserved in the proposed zoning of the Study Area.

Low-Density Residential comprises 2.68 percent of the proposed zoning of the Study Area. Although, the overall goal of this overlay zone is to increase density, this pocket of Low-Density

Residential will likely not change due to its geographic isolation. The area is south of Amazon Creek between Bailey Hill Road and Arthur Street. There is no direct connection to West 11th Avenue so it is doubtful that the addition of a multiway boulevard would greatly affect this area.

Table 6 – Proposed Zoning of Study Area					
Zone Name	Zone Code	Zone Description	Acres	Proposed Percent	Current Percent
Mixed Use	MU	Flexible zoning that allows a variety of uses (residential, commercial, office, open space) within a single area.	570.81	79.02%	0.00%
Natural Resource	NR	Provides for the long-term protection of native vegetation, wetlands, waterways, wildlife habitat, rare plants, and ground water quality.	59.62	8.25%	8.41%
Campus Industrial	I-1	Allows light industrial activities on campus like settings. I-1 zoning is to increase economic diversification and typically employs a large number of people per square acre. Businesses in this zoning do not generate “offensive external impacts,” and do not tolerate pollution, noise, or other negative effects from surrounding uses.	42.12	5.83%	5.91%
Light-Medium Industrial	I-2	Permits secondary processing of materials into components, the assembly of components into finished products, transportation communication and utilities, wholesaling, and warehousing. ³⁴ Limited office and commercial uses are also allowed under this zoning.	30.48	4.22%	36.48%
Low-Density Residential	R-1	Allows single-family, low density residential development.	19.35	2.68%	16.10%
TOTAL			722.39	100%	N/A

Density and Land Use

Density of the Study Area will most likely increase with the implementation of the new zoning overlay. For example, assuming that all 570 acres of the proposed mixed-use zoning is developed at 35 du/acⁱⁱ, the Study Area could potentially contain a total of 19,950 dwelling units. This is a significant increase in density when compared to current development trends. The majority of housing units being built in the United States are single family residences. In fact, two-thirds of all the housing built within the last ten years has been single-family detached units³⁵. Performing this scenario using typical suburban development trends (i.e. the majority of housing units are single family residences) illustrates the immense differences in land consumption between land use associated with a multiway boulevard and typical suburban land use. Assuming that 70 percent of the 19,950 dwelling units are developed as single family residences (6 du/ac) and 30 percent of the 19,950 dwelling units are developed as multifamily housingⁱⁱⁱ (35 du/ac), 2,500 acres would be needed for this development scenario (Table 7). The lower density scenario requires 383 percent more land than the multiway boulevard land use scenario. Also, the multiway boulevard scenario utilizes urbanized land within the UGB.

ⁱⁱ Thirty-five dwelling units/acre was chosen because developers do not have to provide parking garages, etc. at this density.

ⁱⁱⁱ Density of multi-family housing currently developed in suburban Eugene varies, examples include: Santa Clara Place – 20 du/ac, Sheldon Village – 28 du/ac, Greenley – 15 du/ac, Prairie View (planned, but not built) - 28 du/ac.

Table 7 – Land Use Scenario for a Multiway Boulevard and Suburban Development			
Land Use Scenario	Multifamily (35 du/ac)	Single Family (6 du/ac)	Total Acres
Multiway Boulevard	19,950	0	570
Suburban	5,985	13, 965	2,498

Getting the right density is important to the success of the redevelopment around the multiway boulevard. Getting the right balance of jobs, retail, and residences is important to reduce automobile dependency. The Institute of Transportation Engineers found that residents of condominiums and townhouses make 5.6 ADT while residents of single-family neighborhoods make 10 ADT³⁶. Studies have shown that a job to housing ratio of 1.0 might have a greater impact than housing density on reducing VMT. Also, an area with a variety of land uses increases the amount of trips by walking and bicycling³⁷.

Density is also vital for the proposed BRT lines. A study by the Urban Land Institute found that intermediate local bus service needs 18 residents per acre or 20 employees per acre to be successful³⁸. The study also found that frequent bus service needs 38 residents per acre or 75 employees per acre.

Projected Traffic Capacity

Using Octavia Boulevard as an example, the projected traffic capacity of the proposed multiway boulevard is 45,000 vehicles per day. The dimension of the through traffic lanes is the same for both Octavia Boulevard and Alternatives 1 and 2. Although, the dimension of the access lanes differs, it is assumed that this would not impact the ADT at a significant rate.

Assuming the traffic capacity is 45,000, traffic volume projections for 2025 identify two problem areas along the Study Area. Traffic volumes between Bertelsen Road and Bailey Hill Road are expected to be 60,999 ADT and traffic volumes between Green Hill Road and Terry Street are forecasted to be 45,755 ADT. Peak evening traffic volumes are predicted to be considerably higher than the average daily volume in these places too. A multiway boulevard might have impeded automobile flow on certain street segments and during peak traffic hours. However, the LCOG scenario does not take into account the possible BRT expansion nor does it consider local traffic reductions. Actual traffic volumes could decrease pending on the capacity of the public transit system.

Impacts from Multiway Boulevard

Alternatives 1 and 2 will obviously have different impacts due to the difference in size of each boulevard (Table 8). Alternative 2 is 26 feet wider to accommodate two Bus Rapid Transit lanes. Therefore, impacts from Alternative 2 are greater than impacts from Alternative 1. A multiway boulevard will also impact property values; properties surrounding the boulevard are expected to rise.

Impacts from Alternative 1

Alternative 1 will impact 15.92 acres of property and will clip 29 buildings (Figures 8a-8l). The rough fiscal cost of the impacted tax lots and buildings is \$17,522,429. This figure represents

the estimated price to purchase the land and buildings for the right-of-way expansion. The fiscal impact could be significantly less or more depending on the real estate market.

Impacts from Alternative 2

Alternative 2 will impact 27.53 acres of property and will clip 49 buildings (Figures 9a-9l). The rough fiscal cost of the impacted tax lots is \$42,820,975. This figure represents the estimated price to purchase the land and buildings for the right-of-way expansion. The fiscal impact could be significantly less or more depending on the real estate market.

Table 8 – Impacts from Multiway Boulevard					
	Buildings	Tax Lots	Land Value Cost	Building Cost	Total Cost
Alternative 1	29	15.92 acres	\$2,405,181	\$15,117,248	\$17,522,429
Alternative 2	49	27.53 acres	\$4,159,624	\$38,661,351	\$42,820,975

It should be noted that these figures represent only one potential category of public expense associated with the implementation of a multiway boulevard. Other potential costs not included in this figure are: construction and planning costs, utility relocations, etc.

Property Value

Property values near the multiway boulevard are expected to rise. There is a misperception that higher densities can lower surrounding property values; but a 2003 Virginia Tech University study found that well-designed multi-family housing with attractive landscaping can actually increase the value of nearby property³⁹. In addition, areas with access to transportation facilities and mixed-use developments are connected with higher residential land values⁴⁰. Commercial properties also experience increased property values when major arterials are deconstructed to a more human scale⁴¹. Commercial properties closest to the reconstructed arterial have higher values than those further away.

Some of the costs associated with the construction of a multiway boulevard could be offset by the rise in property values. Higher property values will generate additional property tax revenue for the City. A portion of the increased tax revenue could go towards construction costs generated from a multiway boulevard.

Limitations

It should be noted that the conclusions reached about the possible impacts associated with a right-of-way expansion have several limitations. First off, the study does not take into account the transition between the proposed multiway boulevard and the existing right-of-way. Specific designs are needed for the transition between the beginning and ending of the multiway boulevard on the east and west ends of the Study Area. Secondly, the estimated costs to acquire the impacted buildings might be significantly less. It was assumed that the buildings would need to be replaced at full value, but this may not always be the case. Also, the path of the multiway boulevard follows the current street layout, but modifying the street with a few gentle curves at certain places could avoid clipping some buildings. Lastly, the land use changes supported by a multiway boulevard are based on limited data. Land uses surrounding multiway boulevards has been observed and there is some data on land use changes after the introduction of a multiway boulevard (ex. Octavia Boulevard), but the conclusions drawn from these studies are based on

correlation only. More studies are needed to determine what plans, policies, and actions are needed to ensure the right distribution of desired land uses.

Implications

A multiway boulevard has the potential to transform an underutilized area to an area with a vibrant street life. West 11th Avenue currently exists as a major arterial with discontinuous sidewalks and frequent curb cuts. A multiway boulevard has the potential to create an environment that is at a human scale and will be a pleasant, focal area of the city. The density of the Study Area is relatively low and there is room to intensify uses to transform the area from a commercial strip to a place where people can live, work, and perform most of their daily activities without having to use their automobile. Increasing density in the Study Area not only improves quality of life, but will help contain growth near the city core, preserving rural lands outside the Urban Growth Boundary. The financial costs will be high; it is likely that the budget will be only slightly under the projected \$169 million to build the West Eugene Parkway. There may be less costly alternatives, but those alternatives will likely only address traffic congestion whereas the multiway boulevard option responds to traffic problems and improves existing land use.

Conclusions

Since there have been few multiway boulevards built in the last 50 years, it is impossible to understand the true impacts and benefits of a new multiway boulevard. However, existing literature provides a good indication of what to expect when an arterial is transformed into an area that is at a human scale and can support a variety of land uses that were previously impossible. Benefits of a multiway boulevard include decreasing dependence on the automobile, utilizing existing infrastructure, relieving pressure off the UGB, and creating a well-designed, pleasant urban area. Although there are many benefits associated with the multiway boulevard, property values are expected to rise which might reduce the amount of affordable housing in the area. Also, if the goal is to increase the speed and capacity of traffic, a multiway boulevard is not the best option. A multiway boulevard may also result in reduced Levels of Service during peak hours. Fiscal costs and impacts to property might be a significant barrier; the costs might be considered too high and it could be difficult to get property owners on board with the project. The benefits of the multiway boulevard are great, but the high costs and necessary political support are also significant.

VI. Conclusions

West 11th Avenue is typified by light industrial and commercial businesses where the primary user is the automobile. A multiway boulevard offers the potential to change this major arterial into a vital area of Eugene that serves many functions. The proposed zoning of the Study Area paints a picture of mixed-uses that would help create a lively street life where people can live, work, and shop in a compact and dense neighborhood. The boulevard also provides a wider range in transportation options – people would have the choice to travel by foot, bicycle, public transportation, and automobile. A multiway boulevard will create a pleasant urban environment that will be a place to gather and will be a predominant feature of the city.

State and local plans and policies aim to reduce automobile use and increase development within already urbanized areas. If these goals are met, there are positive correlations for improving air, maintaining the UGB, and protecting natural resources (by utilizing existing infrastructure, etc.). The West 11th Study Area is currently underutilized and there is room to increase densities (residential, commercial, etc.) to help achieve state and local policies. A multiway boulevard is one way to realize these goals

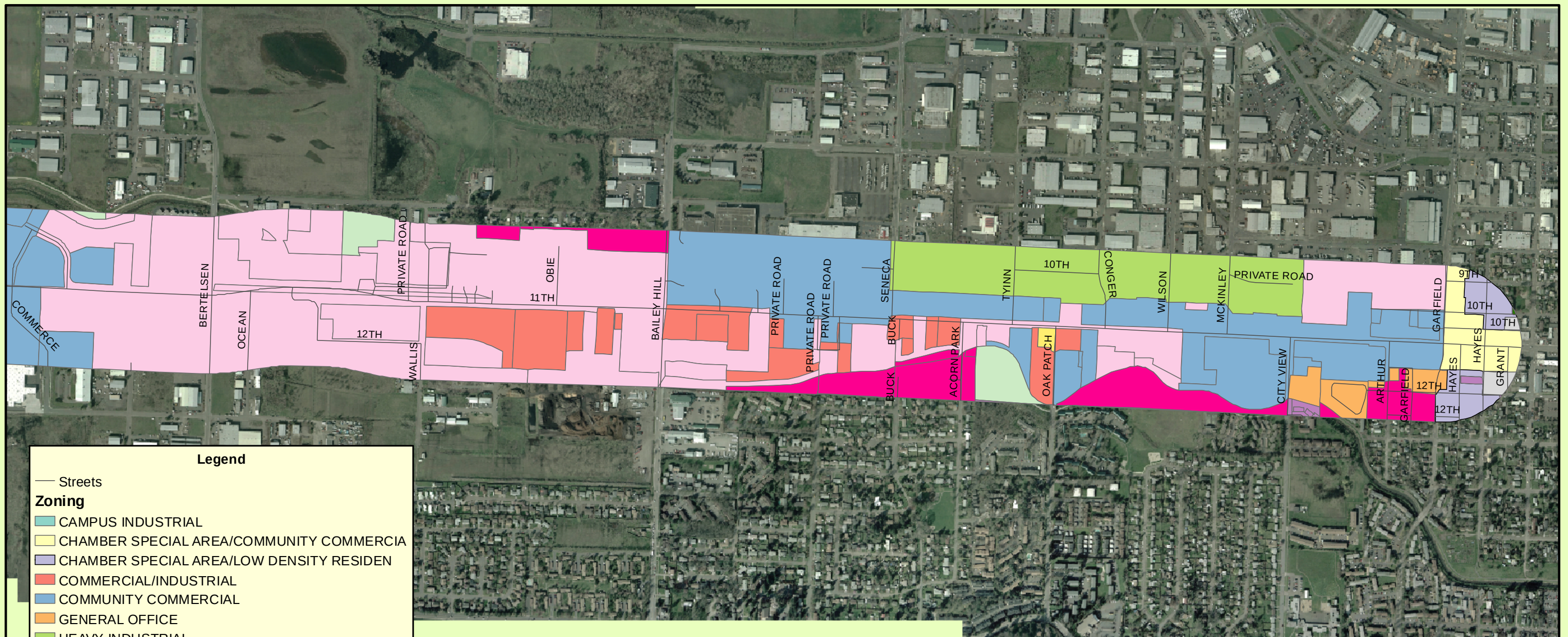
If a multiway boulevard is to be successful, there are some important things to remember in the planning process:

- **Collaboration is key.** Consult with the appropriate city, local, and state officials and the community early and often. Since multiway boulevards do not fit most zoning standards and road specifications, it is vital to have the political will to move the project forward.
- **Transportation and land use go hand in hand.** The multiway boulevard is in part a transportation alternative, but it is also a redevelopment alternative and as such, must be pursued in conjunction with retention of existing UGBs. If there are to be VMT reductions (a beneficial side effect, but not inherently the major goal of a multi-way boulevard), then the UGB in west Eugene must not be expanded. As with the WEP idea, the multiway boulevard will inherently make it easier to drive to and from the western outskirts of Eugene. Yet the goal of the multiway boulevard is to accommodate those people who need to make such trips, while at the same time encouraging densification of housing and employment and increasing the utility of non-car modes of transport. To do this, transportation and land use decisions must be made in conjunction with one another, and an essential component of the multiway boulevard idea is to retain the existing western boundary of the UGB.
- **Design matters.** Necessary design elements to create a pedestrian environment include: the presence of trees, buildings fronting the street, and parking in the rear. It is also important that the appropriate dimensions are applied to lane widths. This is not an area to make concessions as too wide of access lanes can negate their purpose.

Even with everything we know about multiway boulevards, more research is needed on how multiway boulevards affect the local economy and environment. There is plenty of literature about traffic flow (including pedestrian movement) and safety of the boulevards, but there is less information on the impact of multiway boulevards on property values, land use, and whether they actually increase the use of alternate modes of transportation.

Where the West Eugene Parkway developed greenfields and only met transportation goals (mainly decreasing congestion), a multiway boulevard and its associated land use will utilize urbanized land, expand choices of transportation, housing, and commercial uses, and will increase public life. A multiway boulevard also helps limit the outward expansion of the city by redeveloping at higher densities and by increasing residential and commercial uses. The boulevard supports the new Bus Rapid Transit investment and helps make Eugene a leader in sustainable design. The City has an opportunity to change current development patterns and create an area that caters to multiple modes of transit and enhances the livability of Eugene.

VII. FIGURES



Legend

— Streets

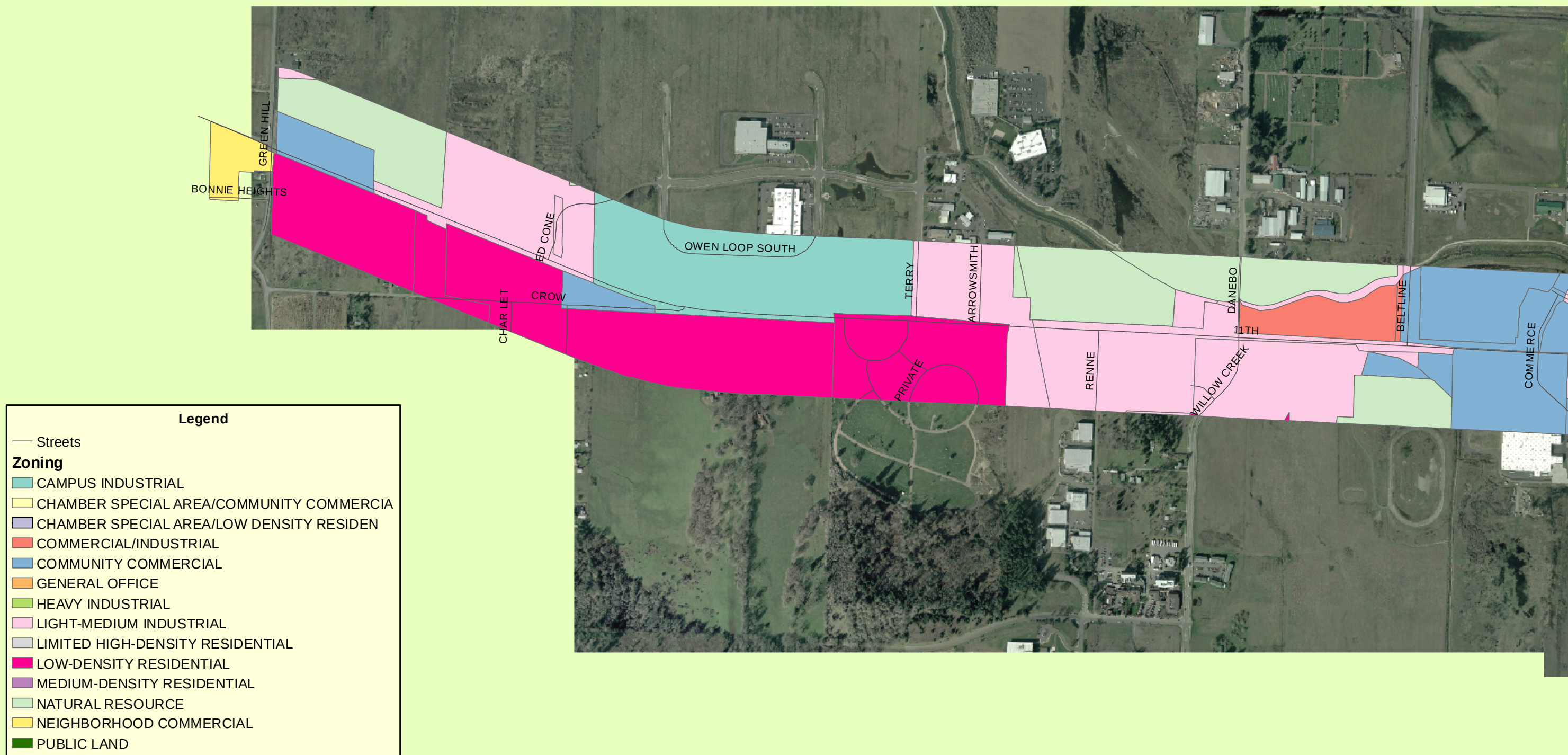
Zoning

- CAMPUS INDUSTRIAL
- CHAMBER SPECIAL AREA/COMMUNITY COMMERCIAL
- CHAMBER SPECIAL AREA/LOW DENSITY RESIDEN
- COMMERCIAL/INDUSTRIAL
- COMMUNITY COMMERCIAL
- GENERAL OFFICE
- HEAVY INDUSTRIAL
- LIGHT-MEDIUM INDUSTRIAL
- LIMITED HIGH-DENSITY RESIDENTIAL
- LOW-DENSITY RESIDENTIAL
- MEDIUM-DENSITY RESIDENTIAL
- NATURAL RESOURCE
- NEIGHBORHOOD COMMERCIAL
- PUBLIC LAND

**Figure 6a - Current Zoning of Study Area
(1/4 Mile Buffer of West 11th)**

Scale 1:10,000

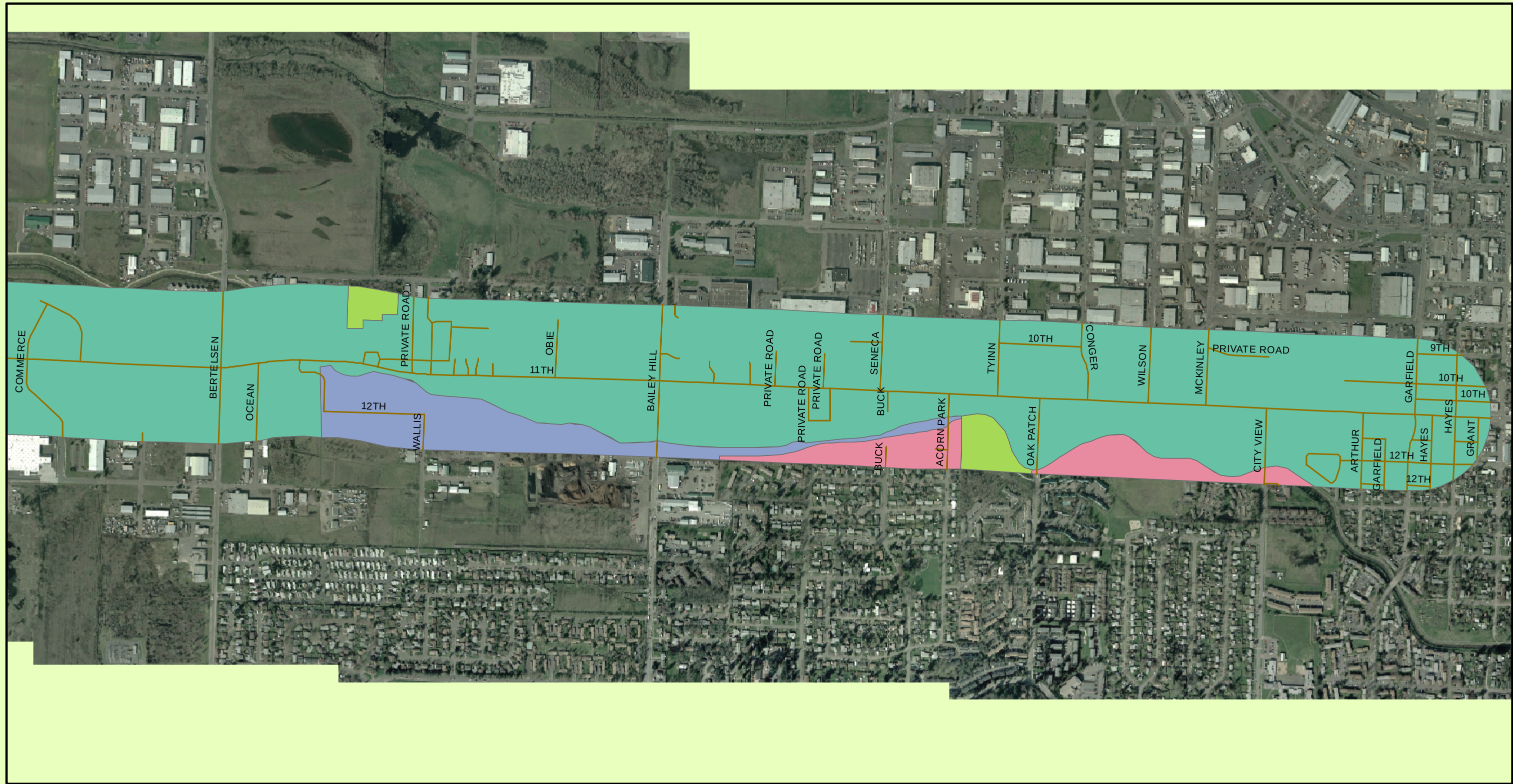




**Figure 6b - Current Zoning of Study Area
(1/4 Mile Buffer of West 11th)**

Scale 1:10,000

0 490 980 1,960 Feet

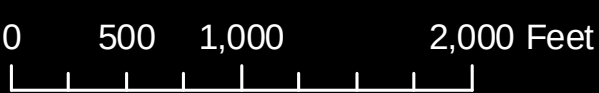


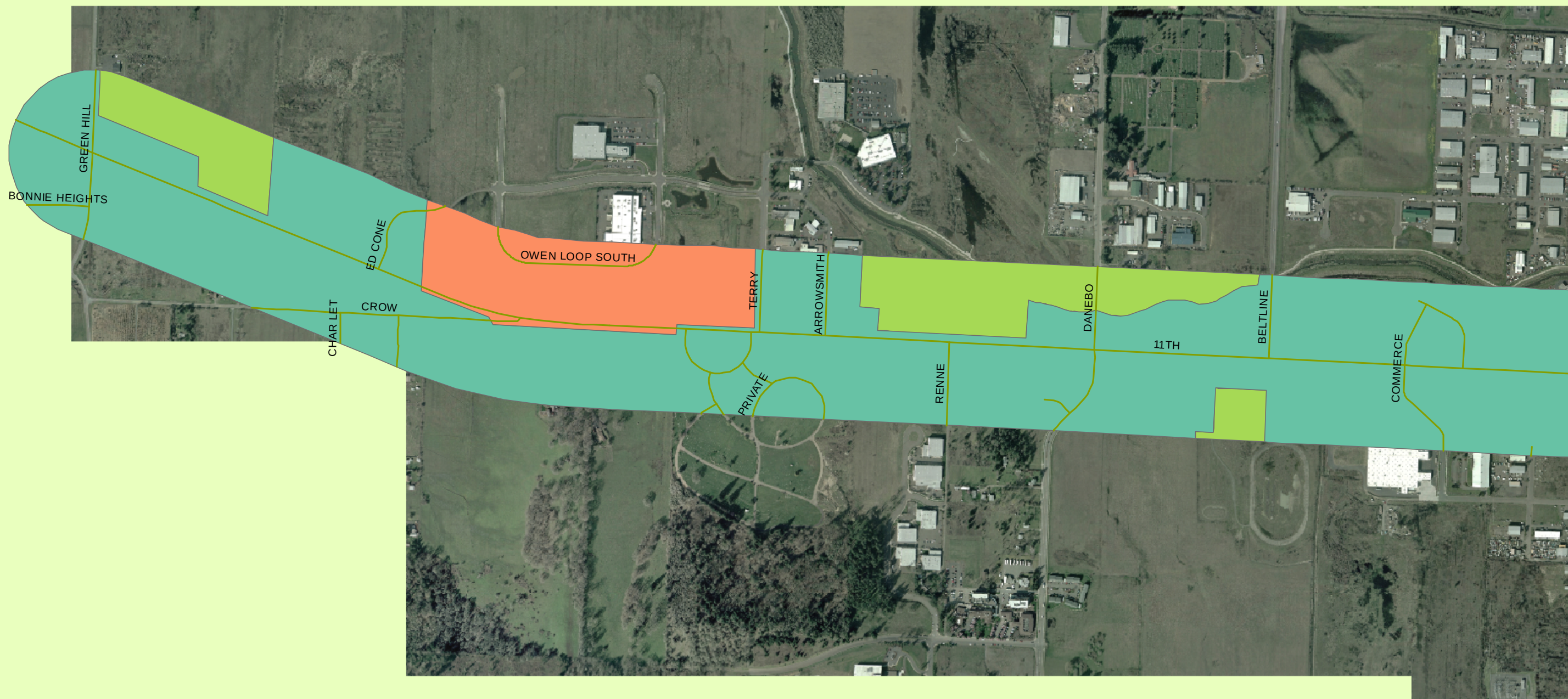
Legend

- Streets
- Campus Industrial
- Light Medium Industrial
- Low Density Residential
- Mixed Use
- Natural Resource

**Figure 7a - Proposed Zoning for Study Area
(1/4 Mile Buffer of West 11th)**

Scale 1:10,000





**Figure 7b - Proposed Zoning for Study Area
(1/4 Mile Buffer of West 11th)**

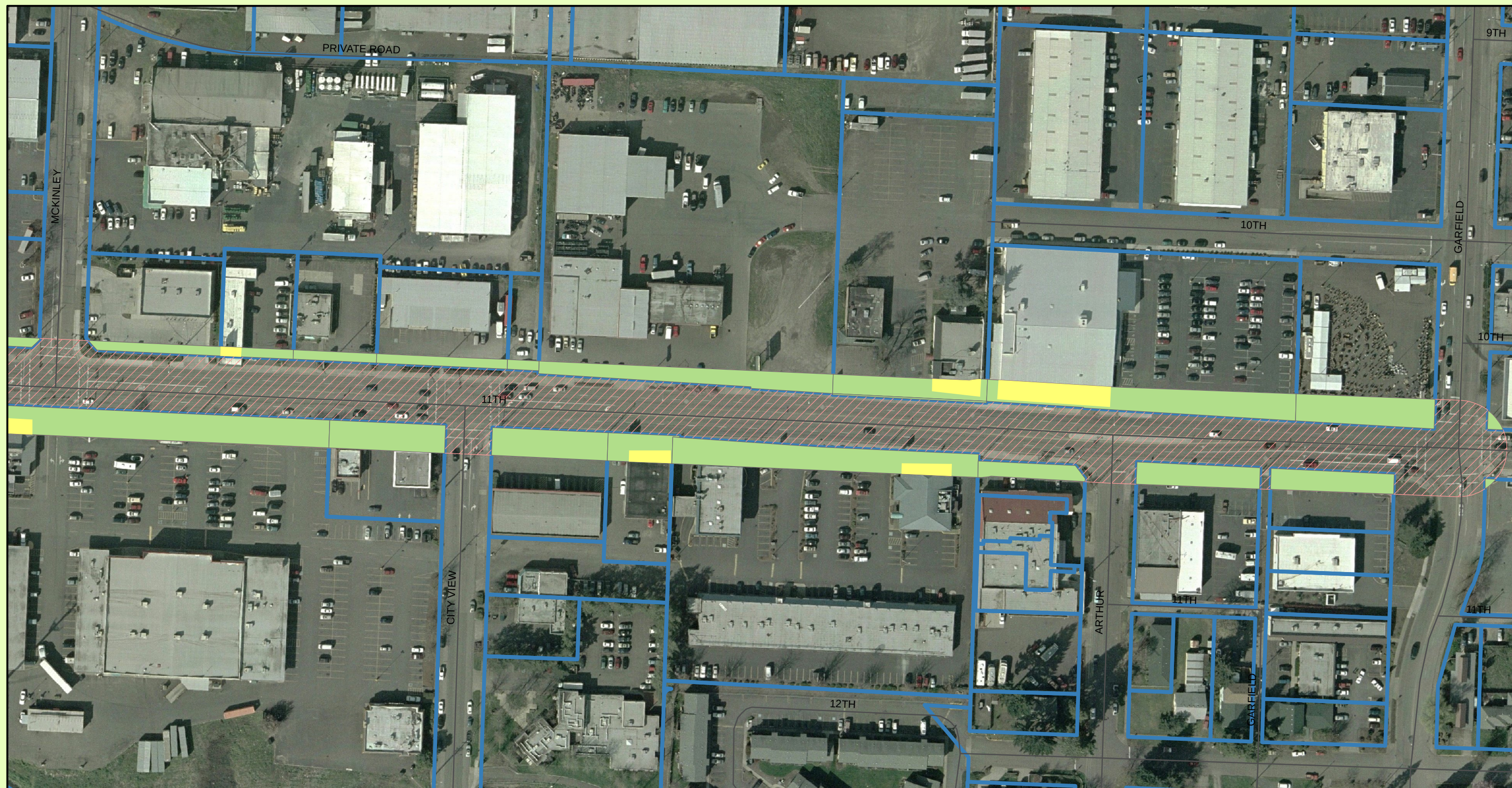
Legend

- Streets
- Campus Industrial
- Light Medium Industrial
- Low Density Residential
- Mixed Use
- Natural Resource

Scale 1:10,000

0 500 1,000 2,000 Feet





**Figure 8a - Impacts from Alternative 1
(125' Multiway Boulevard)**

Scale 1:1,500

Total Impacts:
15.9 acres of private or public property
29 buildings impacted

0 70 140 280 Feet



Legend

- Streets
- ▨ 125' Boulevard
- Clipped Buildings
- Impacted Tax Lots
- ▭ Tax Lots

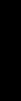


**Figure 8b - Impacts from Alternative 1
(125' Multiway Boulevard)**

Scale 1:1,500

Total Impacts:
15.9 acres of private or public property
29 buildings impacted

0 70 140 280 Feet



Legend

- Streets
- ▨ 125' Boulevard
- Clipped Buildings
- Impacted Tax Lots
- Tax Lots



**Figure 8c - Impacts from Alternative 1
(125' Multiway Boulevard)**

Scale 1:1,500

Total Impacts:
15.9 acres of private or public property
29 buildings impacted

0 70 140 280 Feet



Legend

- Streets
- ▨ 125' Boulevard
- Clipped Buildings
- Impacted Tax Lots
- Tax Lots

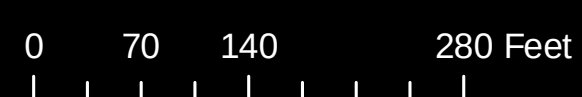


- Legend**
- Streets
 - ▨ 125' Boulevard
 - Clipped Buildings
 - Impacted Tax Lots
 - Tax Lots

**Figure 8d - Impacts from Alternative 1
(125' Multiway Boulevard)**

Total Impacts:
15.9 acres of private or public property
29 buildings impacted

Scale 1:1,500





- Legend**
- Streets
 - ▨ 125' Boulevard
 - Clipped Buildings
 - Impacted Tax Lots
 - Tax Lots

**Figure 8e - Impacts from Alternative 1
(125' Multiway Boulevard)**

Scale 1:1,500

Total Impacts:
15.9 acres of private or public property
29 buildings impacted

0 70 140 280 Feet





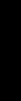
- Legend**
- Streets
 - ▨ 125' Boulevard
 - Clipped Buildings
 - Impacted Tax Lots
 - Tax Lots

**Figure 8f - Impacts from Alternative 1
(125' Multiway Boulevard)**

Scale 1:1,500

Total Impacts:
15.9 acres of private or public property
29 buildings impacted

0 70 140 280 Feet





**Figure 8g - Impacts from Alternative 1
(125' Multiway Boulevard)**

Scale 1:1,500

- Legend**
- Streets
 - ▨ 125' Boulevard
 - Clipped Buildings
 - Impacted Tax Lots
 - Tax Lots

Total Impacts:
15.9 acres of private or public property
29 buildings impacted

0 70 140 280 Feet





**Figure 8h - Impacts from Alternative 1
(125' Multiway Boulevard)**

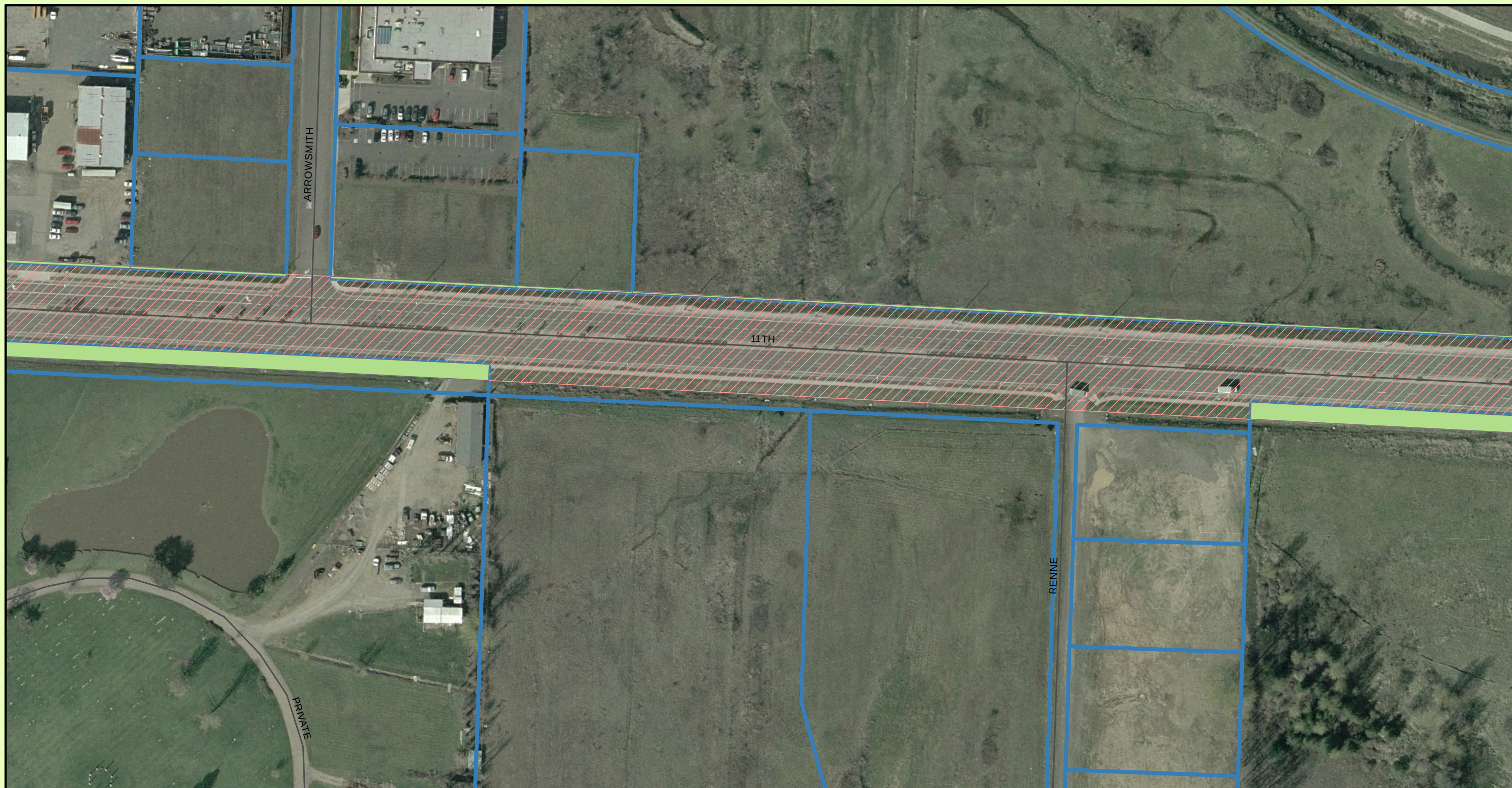
- Legend**
- Streets
 - ▨ 125' Boulevard
 - Clipped Buildings
 - Impacted Tax Lots
 - Tax Lots

Total Impacts:
15.9 acres of private or public property
29 buildings impacted

0 70 140 280 Feet

Scale 1:1,500





**Figure 8i - Impacts from Alternative 1
(125' Multiway Boulevard)**

- Legend**
- Streets
 - ▨ 125' Boulevard
 - Clipped Buildings
 - Impacted Tax Lots
 - Tax Lots

Total Impacts:
15.9 acres of private or public property
29 buildings impacted

Scale 1:1,500

0 70 140 280 Feet





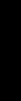
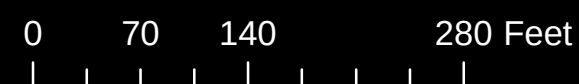
**Figure 8j - Impacts from Alternative 1
(125' Multiway Boulevard)**

Scale 1:1,500

Legend

- Streets
- ▨ 125' Boulevard
- Clipped Buildings
- Impacted Tax Lots
- Tax Lots

Total Impacts:
15.9 acres of private or public property
29 buildings impacted





**Figure 8k - Impacts from Alternative 1
(125' Multiway Boulevard)**

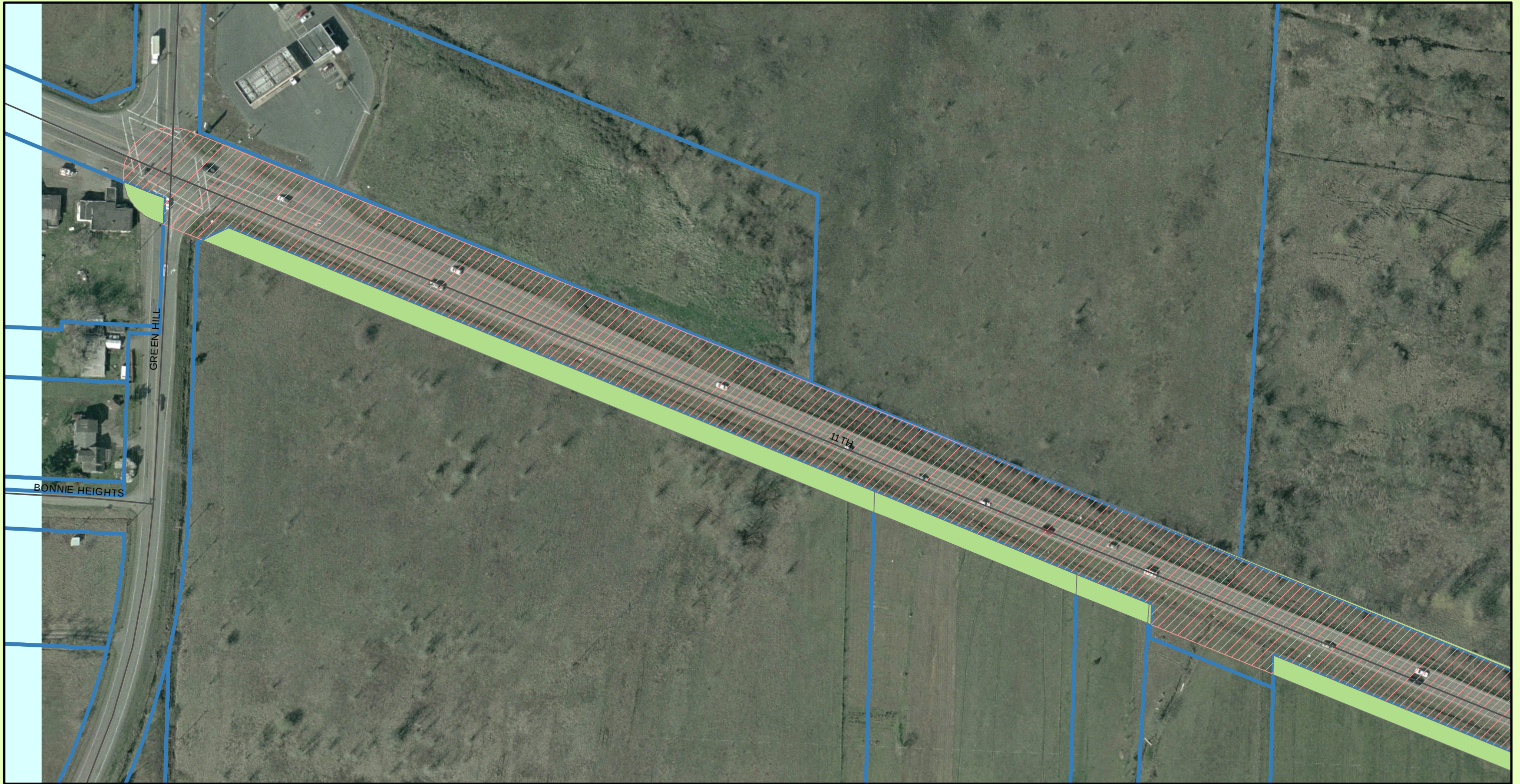
Scale 1:1,500

Total Impacts:
15.9 acres of private or public property
29 buildings impacted

0 70 140 280 Feet



- Legend**
- Streets
 - ▨ 125' Boulevard
 - Clipped Buildings
 - Impacted Tax Lots
 - Tax Lots



Legend

- Streets
- ▨ 125' Boulevard
- Clipped Buildings
- Impacted Tax Lots
- Tax Lots

Figure 8I - Impacts from Alternative 1 (125' Multiway Boulevard)

Total Impacts:
15.9 acres of private or public property
29 buildings impacted

Scale 1:1,500

0 70 140 280 Feet



Legend

- Streets
- 151' Boulevard
- Clipped Buildings
- Impacted Tax Lots
- Tax Lots

**Figure 9a - Impacts from Alternative 2
(151' Multiway Boulevard)**

Scale 1:1,500

Total Impacts:
27.5 acres of private or public property
49 buildings impacted

0 70 140 280 Feet



**Figure 9b - Impacts from Alternative 2
(151' Multiway Boulevard)**

Scale 1:1,500

Total Impacts:
27.5 acres of private or public property
49 buildings impacted

0 70 140 280 Feet

Legend

- Streets
- 151' Boulevard
- Clipped Buildings
- Impacted Tax Lots
- Tax Lots



- Legend**
- Streets
 - 151' Boulevard
 - Clipped Buildings
 - Impacted Tax Lots
 - Tax Lots

**Figure 9c - Impacts from Alternative 2
(151' Multiway Boulevard)**

Scale 1:1,500

Total Impacts:
27.5 acres of private or public property
49 buildings impacted

0 70 140 280 Feet



**Figure 9d - Impacts from Alternative 2
(151' Multiway Boulevard)**

Scale 1:1,500

Total Impacts:
27.5 acres of private or public property
49 buildings impacted

0 70 140 280 Feet

Legend

- Streets
- 151' Boulevard
- Clipped Buildings
- Impacted Tax Lots
- Tax Lots



**Figure 9e - Impacts from Alternative 2
(151' Multiway Boulevard)**

Scale 1:1,500

Total Impacts:
27.5 acres of private or public property
49 buildings impacted

0 70 140 280 Feet

Legend

- Streets
- 151' Boulevard
- Clipped Buildings
- Impacted Tax Lots
- Tax Lots



Legend

- Streets
- 151' Boulevard
- Clipped Buildings
- Impacted Tax Lots
- Tax Lots

**Figure 9f - Impacts from Alternative 2
(151' Multiway Boulevard)**

Scale 1:1,500

Total Impacts:
27.5 acres of private or public property
49 buildings impacted

0 70 140 280 Feet



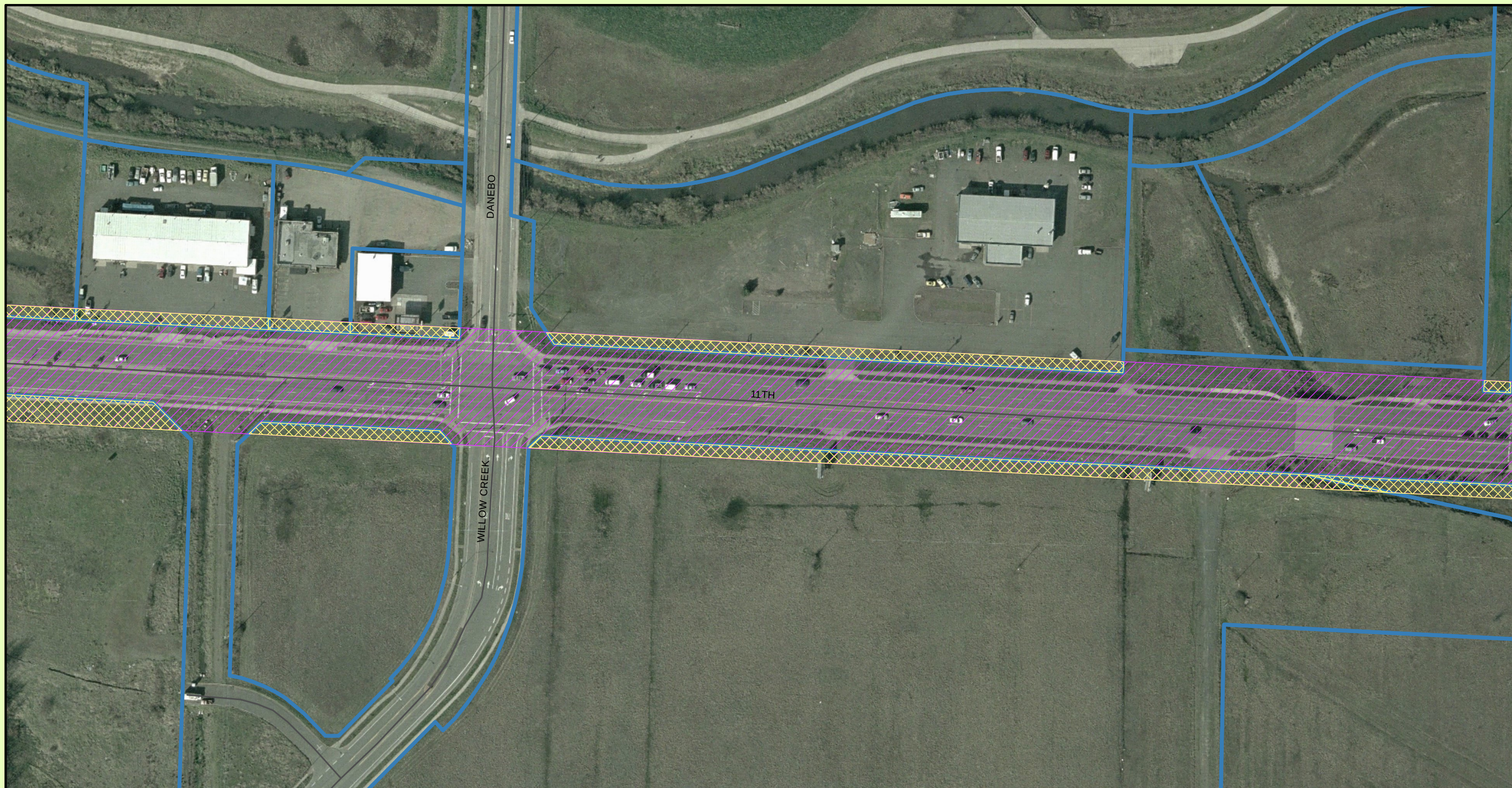
- Legend**
- Streets
 - 151' Boulevard
 - Clipped Buildings
 - Impacted Tax Lots
 - Tax Lots

**Figure 9g - Impacts from Alternative 2
(151' Multiway Boulevard)**

Scale 1:1,500

Total Impacts:
27.5 acres of private or public property
49 buildings impacted

0 70 140 280 Feet



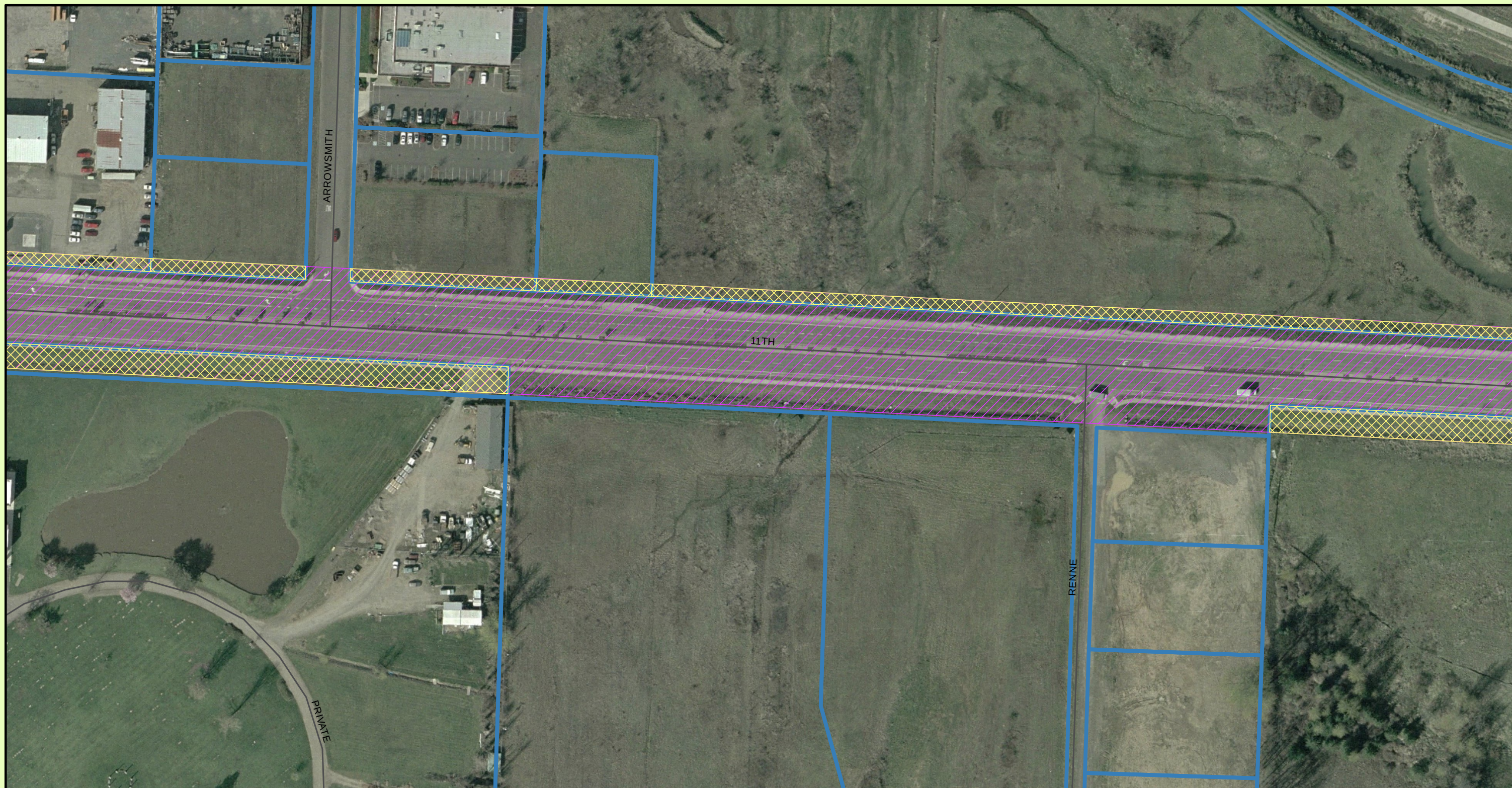
**Figure 9h - Impacts from Alternative 2
(151' Multiway Boulevard)**

Scale 1:1,500

Total Impacts:
27.5 acres of private or public property
49 buildings impacted

0 70 140 280 Feet

- Legend**
- Streets
 - 151' Boulevard
 - Clipped Buildings
 - Impacted Tax Lots
 - Tax Lots

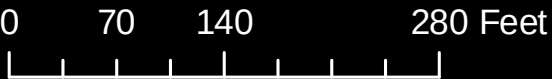


- Legend**
- Streets
 - 151' Boulevard
 - Clipped Buildings
 - Impacted Tax Lots
 - Tax Lots

**Figure 9i - Impacts from Alternative 2
(151' Multiway Boulevard)**

Scale 1:1,500

Total Impacts:
27.5 acres of private or public property
49 buildings impacted





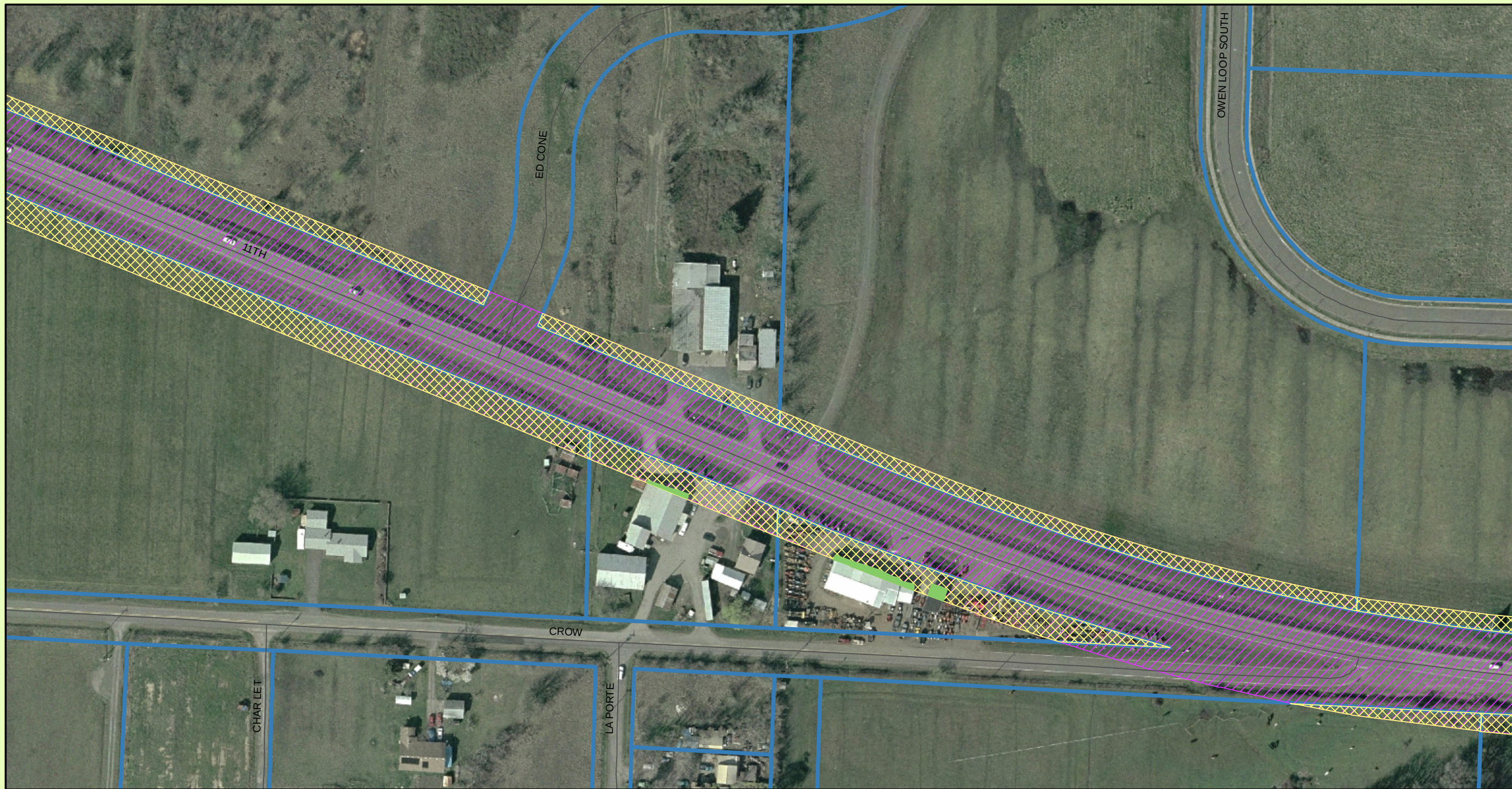
**Figure 9j - Impacts from Alternative 2
(151' Multiway Boulevard)**

Scale 1:1,500

Total Impacts:
27.5 acres of private or public property
49 buildings impacted

0 70 140 280 Feet

- Legend**
- Streets
 - 151' Boulevard
 - Clipped Buildings
 - Impacted Tax Lots
 - Tax Lots



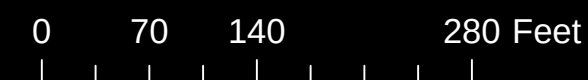
Legend

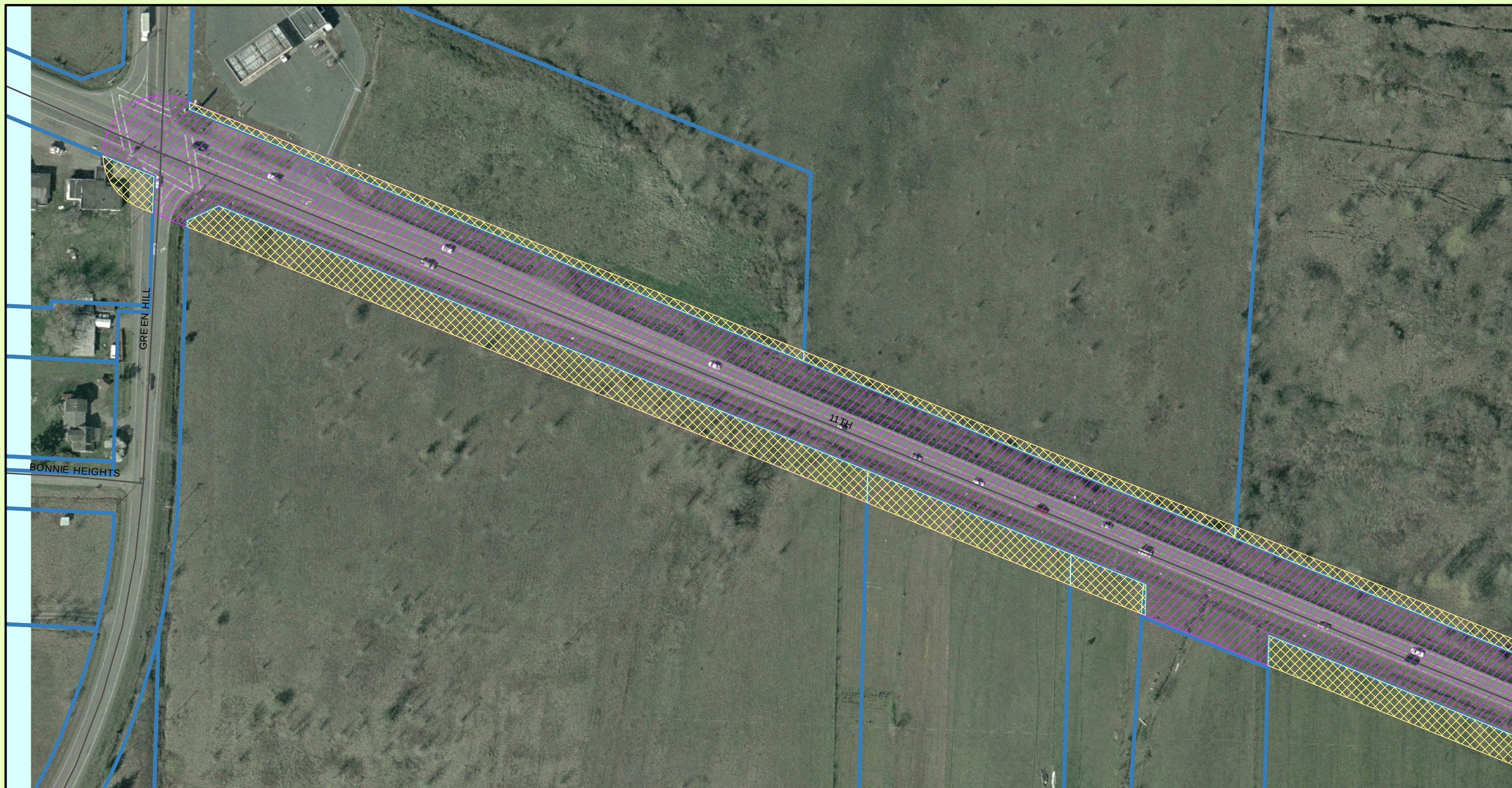
- Streets
- ▨ 151' Boulevard
- Clipped Buildings
- ▤ Impacted Tax Lots
- ▭ Tax Lots

**Figure 9k - Impacts from Alternative 2
(151' Multiway Boulevard)**

Scale 1:1,500

Total Impacts:
27.5 acres of private or public property
49 buildings impacted



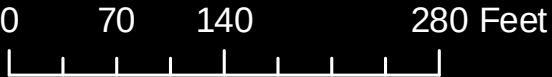


- Legend**
- Streets
 - 151' Boulevard
 - Clipped Buildings
 - Impacted Tax Lots
 - Tax Lots

**Figure 9I - Impacts from Alternative 2
(151' Multiway Boulevard)**

Scale 1:1,500

Total Impacts:
27.5 acres of private or public property
49 buildings impacted



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