Identifying Redevelopable Lands

Application of a Land Value Potential (LVP) approach in Urban Centers

An approach intended to improve the land use inventory assumptions incorporated in the next Pierce County Buildable Lands analysis.

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community attributes

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IDENTIFYING REDEVELOPABLE LANDS: THE APPLICATION OF A LAND VALUE POTENTIAL (LVP) APPROACH IN URBAN CENTERS

INTRODUCTION

Background and Purpose

Pierce County Planning and Land Services (PALS), in coordination with its cities and towns, published the most recent Pierce County Buildable Lands Report in the fall of 2007. The Report incorporates the results of a residential and employment capacity analysis as required through RCW 36.70A.215, Buildable Lands. A component of the analysis is an inventory of potential redevelopable lands. Consistent with past practices, redevelopable lands were identified through the comparison of a parcel's land and improvement values. Through local review and comment, some jurisdictions expressed concern that this criterion does not adequately identify potential redevelopable properties in downtown areas. In response to these concerns Pierce County, utilizing a grant from the Washington State Department of Community, Trade and Economic Development (CTED), initiated this project to identify an alternative approach.

This report presents a new approach used to identify redevelopable properties, referred to as the Land Value Potential (LVP) method. The LVP approach is proposed for urban centers because it provides a simplified assessment to determine whether an investor might choose to acquire land and buildings at market prices to tear-down and redevelop a site.

Project Approach

This study demonstrates an alternative method to identify land suitable for redevelopment within urban centers. The proposed method is tested in two study areas within Pierce County: downtown Tacoma and downtown Puyallup. These two study areas were chosen to replicate the diversity in scale and intensity of downtown areas in Pierce County.

The study benefitted from the participation of a working group assembled with municipal planners from Pierce County Planning and Land Services, City of Tacoma and the City of Puyallup. The consultant team met with the working group three times throughout development of the proposed approach to ensure progress met the team's expectations of an implementable approach.

Additionally, the LVP methodology is designed to be practical and implementable by 1) using data that planners can regularly update at low cost and 2) taking advantage of accessible technology commonly used in the planning profession. The proposed approach makes use of parcel data from the County tax assessors' office and quarterly real estate market data disseminated at little or no cost. Technologies used include ArcGIS and Microsoft Office software.

Organization of Report

This report is organized into two major sections. The body of the report orients the user to the proposed LVP approach. Key concepts and preliminary outcomes are presented. The second section of the report includes a technical guidebook and appendices. The guidebook provides step-by-step instructions for completing the LVP methodology. The guidebook explains inputs and assumptions, illustrates calculations, and provides prospective analysts with valuable user tips. Appendices also include pro forma analyses of successful redevelopment projects in study areas, data tables and key definitions. Through-out the body of report readers can use page references and hyperlinks to reference more detailed information in guidebook and appendices.

The body of the report is organized as follows:

- **Redevelopable Lands and Land Use Planning.** An overview of considerations in designing a new approach for estimating redevelopable lands.
- **Overview of the Proposed Land Value Potential (LVP) Approach.** A description of the theory and application of a proposed new approach to estimating redevelopable lands.
- **Case Studies.** Application of the LVP approach to downtown Tacoma and downtown Puyallup.
- **Benefits and Limitations of the LVP Approach.** An overview of benefits and limitations of the LVP methodology in comparison to traditional methods of measuring redevelopable lands.

REDEVELOPABLE LANDS AND LAND USE PLANNING

Land Use Planning and Growth Management Act Requirements

General growth management requires an understanding of where growth might take place and locations where growth is desired. GMA calls for cities and urban growth areas together to provide capacity for 20 years of growth within each jurisdiction. This growth is measured in terms of people and jobs, and by extension, housing units and commercial and industrial buildings.

Under GMA guidelines and the goal to concentrate growth in urban areas, the redevelopable potential of land will continue to rank highly for understanding land capacity. Therefore, cities will benefit by planners employing as accurate means as possible to understand and estimate redevelopment capacity when developing land use plans.

Past Approaches

Past approaches used to identify redevelopable lands simply compared the value of improvements (i.e. building values) to the value of the land, drawing both values from tax assessor's data. Under this traditional approach, redevelopable parcels are

frequently identified as those where improvement value is less than land value. Other ratios and simple adjustments are common, as well.

The ease of employing this approach makes it attractive. However, this simplicity comes with significant trade-offs. As land use planners have long understood, past approaches do not consider the economic feasibility of redevelopment, which limits the accuracy of identifying and quantifying redevelopable lands.

Criteria for New Approach

The goal of this study is to define and demonstrate a new approach for estimating redevelopment potential that meets the following criteria:

- More closely reflective of development economics than traditional methods
- Applicable on a countywide basis, but customizable to small areas
- Output linked to a GIS to allow for spatial analysis, mapping and quantification.
- Efficient to update with current and readily available information
- Customizable with local market data that change over time and by location
- Suitable for adjusting through policy-based discussions
- Flexible to add non-market criteria, such as environmental justice, historic preservation and additional considerations

Pierce County planners may need to consider further how this approach meets their need to estimate "net" developable lands. If land is constrained from development within 20 years, due to known covenants or other considerations that prevent development on the site, then those lands would be removed ("netted out"). Otherwise, the key assumptions of property revenues (sales or rents) and redevelopment costs could be adjusted to reflect future year assumptions (20 years from now), which may assume that revenues increase more rapidly than redevelopment costs in some market areas. Appendix A of the report for addresses this further.

PROPOSED METHOD

This section presents an overview of the proposed approach, which for the purposes of this study is referred to as the Land Value Potential (LVP) method. The following sections describe the basic economic framework of the LVP method and its relationship to market conditions and land use policies. Implementation considerations are also presented.

Economic Framework

The LVP approach uses a market-based methodology to identify redevelopable lands and development capacity. The LVP method defines market districts and then tests redevelopment feasibility of commercial and residential development for each parcel within the districts given current market conditions and zoning regulations.

Redevelopment feasibility is tested using residual land value analysis. This analysis finds the residual capital available to acquire land after accounting for anticipated developments costs, net operating incomes, and required return on investment. Mathematically, residual land values are calculated as follows:

(1) Present value of net operating incomes (rental income per square feet) generated by new construction over time

(2) – Development and Demolition Costs (excluding site acquisition)

(3) – Desirable Return (Profit) on Development

(4) = Resources (dollars) left to purchase site, or the residual land value

The outcome of the calculation results in a theoretical willingness-to-pay for the opportunity to develop and operate a commercial or residential project at a site, given market conditions and profit requirements. If the residual land value (4) is greater than or equal to the anticipated asking price of the parcel from the seller, then the parcel is considered feasible for redevelopment.

For this analysis, the seller's asking price is assumed to be equivalent to total assessed value of the parcel, including land and improvement values.[1] Parcels are considered potentially redevelopable if the residual land value exceeds total assessed value.

For more information on preliminary stages of the LVP approach see Appendix A, page 41; for market districts see Appendix A, page 44 For detailed illustrations of LVP calculations see Appendix A, page 63; pro forma analyses are presented in Appendix B, page 86; definitions of terms used in the LVP equation are provided in Appendix F.

[1] This assumption could be adjusted. For example, assuming the selling price is 10% greater than the assessed value might represent better a seller's asking price.

Market and Site Conditions

Market data provide information on construction costs, building rents and other measures that are used to determine the development feasibility for various land uses within particular study areas.

Market Districts

Market conditions vary by location, reflecting varying desirability to construct and lease or sell buildings for certain uses. In the LVP analysis, "market districts" are used to determine the "attractiveness" or "market potential" of a specific area to command a certain level of rent and quality of construction.

Market data for commercial and multi-family housing uses are collected for each market district. Market data generally fall into two general categories of construction cost and market indicators, described in the following sections.

Construction Costs

Construction costs used in this analysis were obtained through Rider Levett Bucknall (RLB) for the Seattle MSA for the first quarter of 2009. Construction cost data represent the "hard" costs of construction, or the price of building materials and labor at a "high" or "low" quality. Construction cost values are chosen with assumptions for anticipated building types and construction quality for each market district (e.g. high quality office buildings in high market districts). Other construction cost variables include soft costs (permitting and design costs), demolition cost, and entrepreneurial return (developers required profit margin on construction). See **Appendix C** for source data on all construction costs.

Market Data

Market data, including vacancy rates and revenues (rental rates and sales prices) used in this analysis come from the bi-annual *"Central Puget Sound Real Estate Research Report"* (CPSRERR), published by the Central Puget Sound Real Estate Research Committee; CBRE Richard Ellis; Grubb & Ellis and GVA Kidder Mathews.

Rents and vacancy inputs assume anticipated building types and construction quality for each market district (e.g. high quality office buildings in high market districts). Other market variables include capitalization rates (generally similar to required rates of return for property investors), operating expenses, and building efficiency. See **Appendix D** for source data on market indicators. See **Appendix F** for definitions of market inputs.

LVP outcomes, expressed in the value of the land per s.f. of land, are highly sensitive to market inputs. The LVP analysis includes sensitivity analysis to test assumptions on market inputs and uses pro forma income analyses of successful redevelopments to calibrate inputs to market realities.

Land Use Policies

The capacity of the site, in terms of s.f. of potential development, is a key determinant of redevelopment feasibility. Net operating income to be gained by a new development is influenced by development capacity of the site. Zoning regulations determine development capacity.

The proposed LVP analysis applies zoning in two ways: (1) to estimate the total allowable building square footage using a floor area ratio (FAR) and (2) to allocate the buildable space into space available for building and space required for parking.

Development Capacity (Floor Area Ratio)

Zoning data determine the development capacity of land using the floor area ratio (FAR). The LVP analysis requires that FAR be defined for each zoning district. In some cases, zoning guidelines clearly specify FAR. In other cases, the zoning language does not define an FAR and analysts are required to estimate FAR given zoning specifications.

Buildable Space and Parking Requirements

Zoning also defines space allocation requirements for parking. This enables the analysis to consider construction costs and rents individually for rentable building space and parking uses.

Unique Zoning Considerations

Residential and commercial land uses require separate analysis, even for developments that include a mix of both uses. Related zoning considerations include lot coverage, density bonuses and parking requirements for *each* respective use. Sensitivity analysis can also test zoning assumptions to include varying levels of FAR by use or variations in parking requirements by use.

For more information on zoning inputs and methodologies reference the Guidebook on Appendix A page 57.

Technology and Data Requirements for Implementing the LVP Method

Implementation of the LVP method utilizes geographic information systems (GIS) software and an excel spreadsheet model. GIS is used to delineate study areas and market districts and to organize spatial data. The spreadsheet model integrates market and zoning data to test redevelopment feasibility for each parcel in the study areas. The model quantifies the net new development capacity gained through redevelopment (square footage of new development minus the loss of existing square footage) in summary tables and links back to the GIS to allow for mapping.

Additional data required to implement LVP calculations include the following:

- **County assessor's data.** Assessor's data provide baseline data on existing conditions and characteristics of a site. Assessor's data include information such

as land value, improvement value, total site value (total assessed value), lot size, current land uses as well as existing building characteristics including square footage and number of units.

- **Land parcel GIS files.** GIS parcel files **e**nable selection of specific study areas and mapping of results.

CASE STUDIES

The LVP method is tested in two case study areas for Pierce County: downtown Tacoma and downtown Puyallup, presented in this section. The case studies illustrate application and results of the LVP approach and test its sensitivity with some of the inputted assumptions and requirements. The case studies are organized as follows:

- Study Areas and Market Districts
- Market Conditions
- Zoning and Policy Context
- Outcomes of the LVP method and key findings

Study Areas and Market Districts

City staff from Puyallup and Tacoma helped to define study areas. The study area for the City of Tacoma includes all parcels located within the downtown area shown in **Exhibit 1**. The study area for the City of Puyallup includes all parcels located within CBD and CBD-Core zoning districts[2]. LVP analysis covers all existing land uses and vacant parcels, except public or quasi-public land uses such as parks, right of way, educational and religious institutions. See Appendix A page 41 for further information on defining study areas and scope of analysis.

Three distinct market districts are defined for downtown Tacoma (high, medium and low rent areas, shown in **Exhibit 1**) and two districts are defined for downtown Puyallup (high and low, shown in **Exhibit 3**). The boundaries of each market district were conceptualized by analyzing the improvement value per square foot of *land* for parcels within the study areas (shown in **Exhibits 2** and **4**). This metric, calculated using County assessors data, shows varying levels of historic investment on a geographic basis. Market districts are further defined by analyzing spatial patterns and clusters of improvement values/s.f. of land and the general characterization of each district.

In Tacoma, relatively clear improvement value patterns and physical distinctions (i.e. highways and waterways) led to the definition of market districts. In Puyallup, improvement values do not provide clear spatial investment patterns, and zoning districts were used to define market districts. The CBD-Core zones serves as the

[2] Slight refinements were made to both study areas. In Tacoma, parcels located on the east side of the Thea Foss Waterway whose centroids fell within the Downtown MUC were removed from the study area. In Puyallup, a small number of parcels in CG and PF zoning districts were added to the study area, but not included in the analysis.

"high" market district and the CBD district serves as the "low" market district. Market districts were assigned to each parcel using GIS and linked to assumptions about construction costs and building rents within the excel model.

For more information on methods used to define market districts, including assumptions used to define Tacoma and Puyallup market districts, reference the Guidebook in Appendix A on page 44.

Exhibit 1. Downtown Tacoma - Study Area & Market Districts

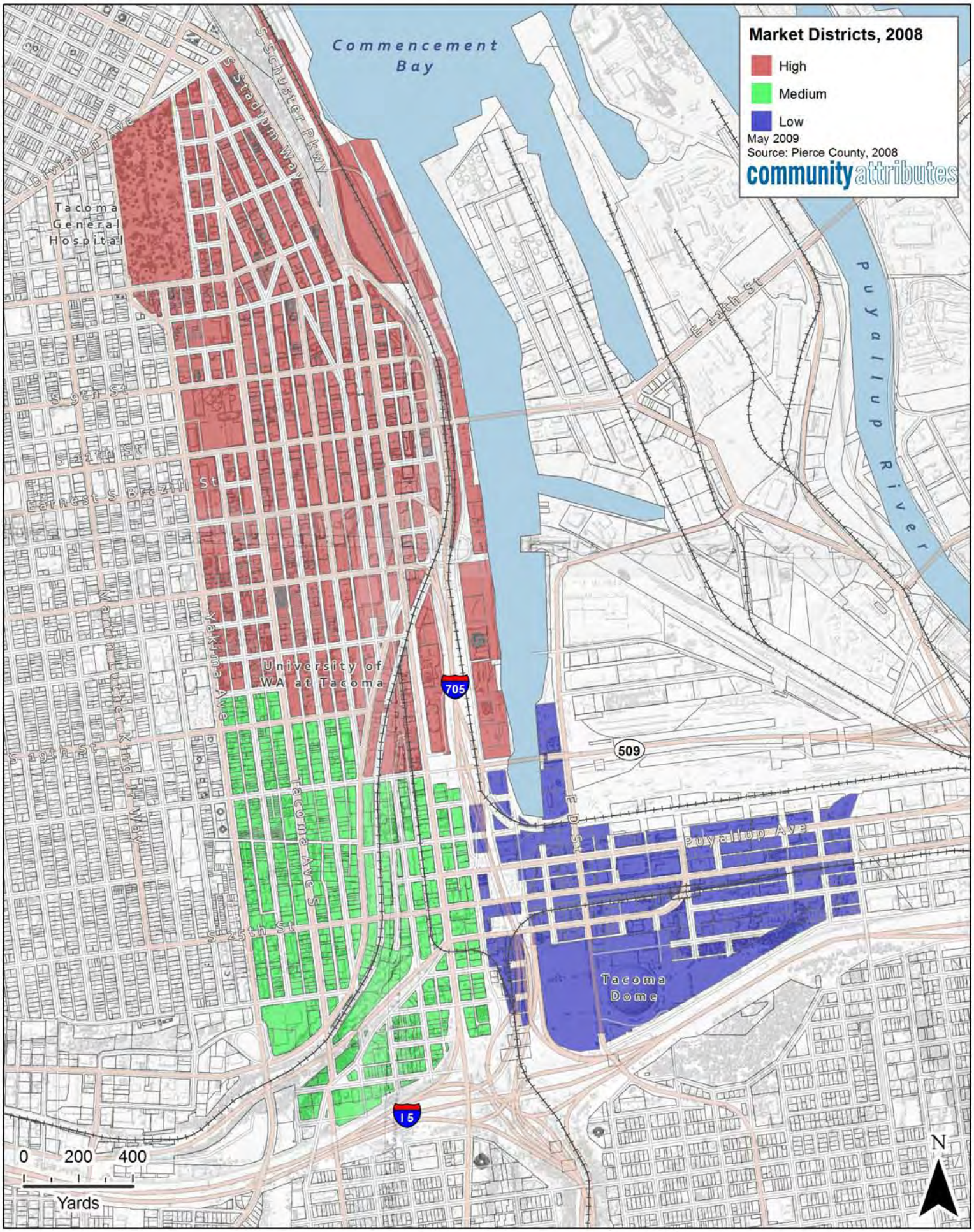


Exhibit 2. Downtown Tacoma - Demonstration of Market Values

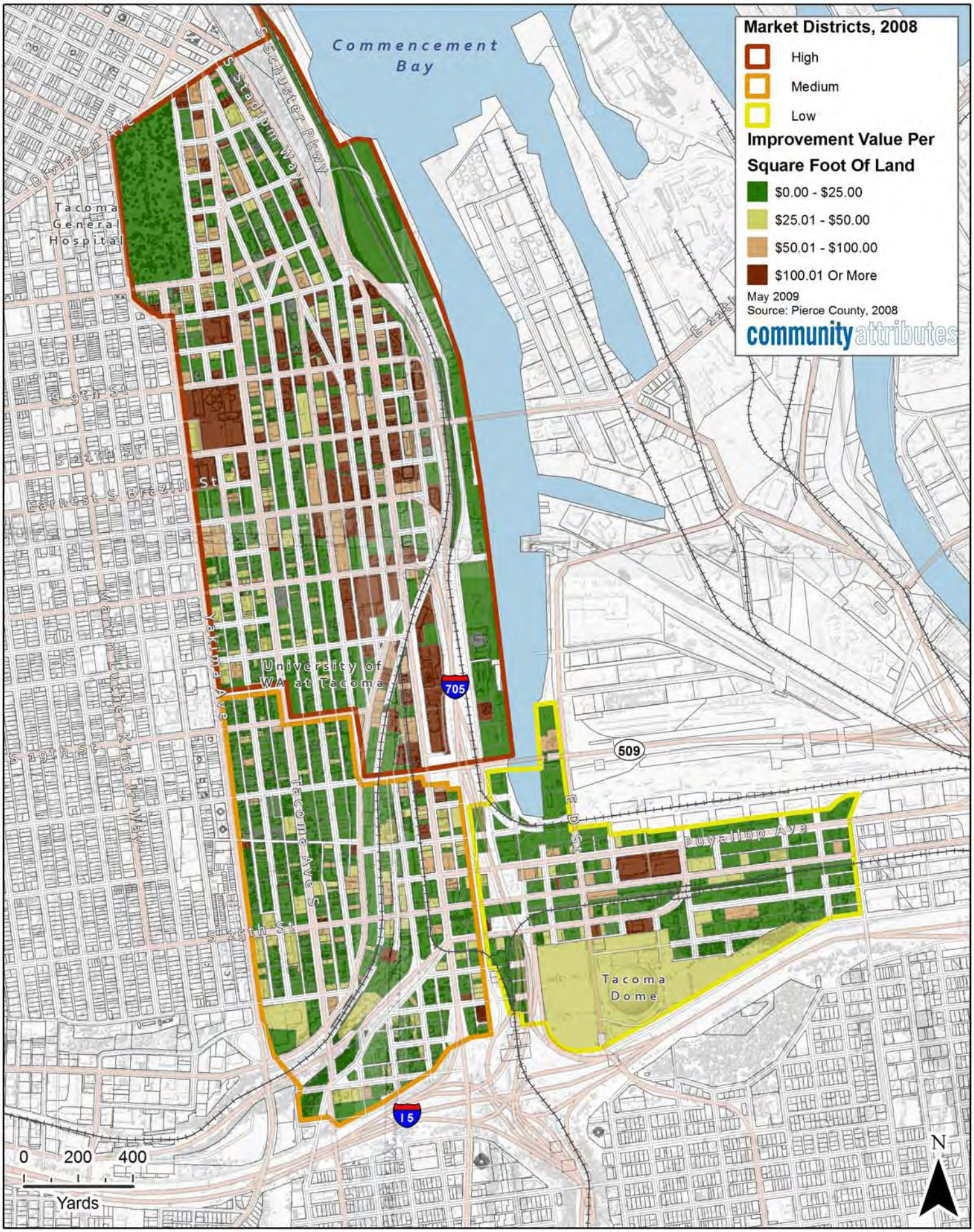


Exhibit 3. Downtown Puyallup - Study Area & Market Districts

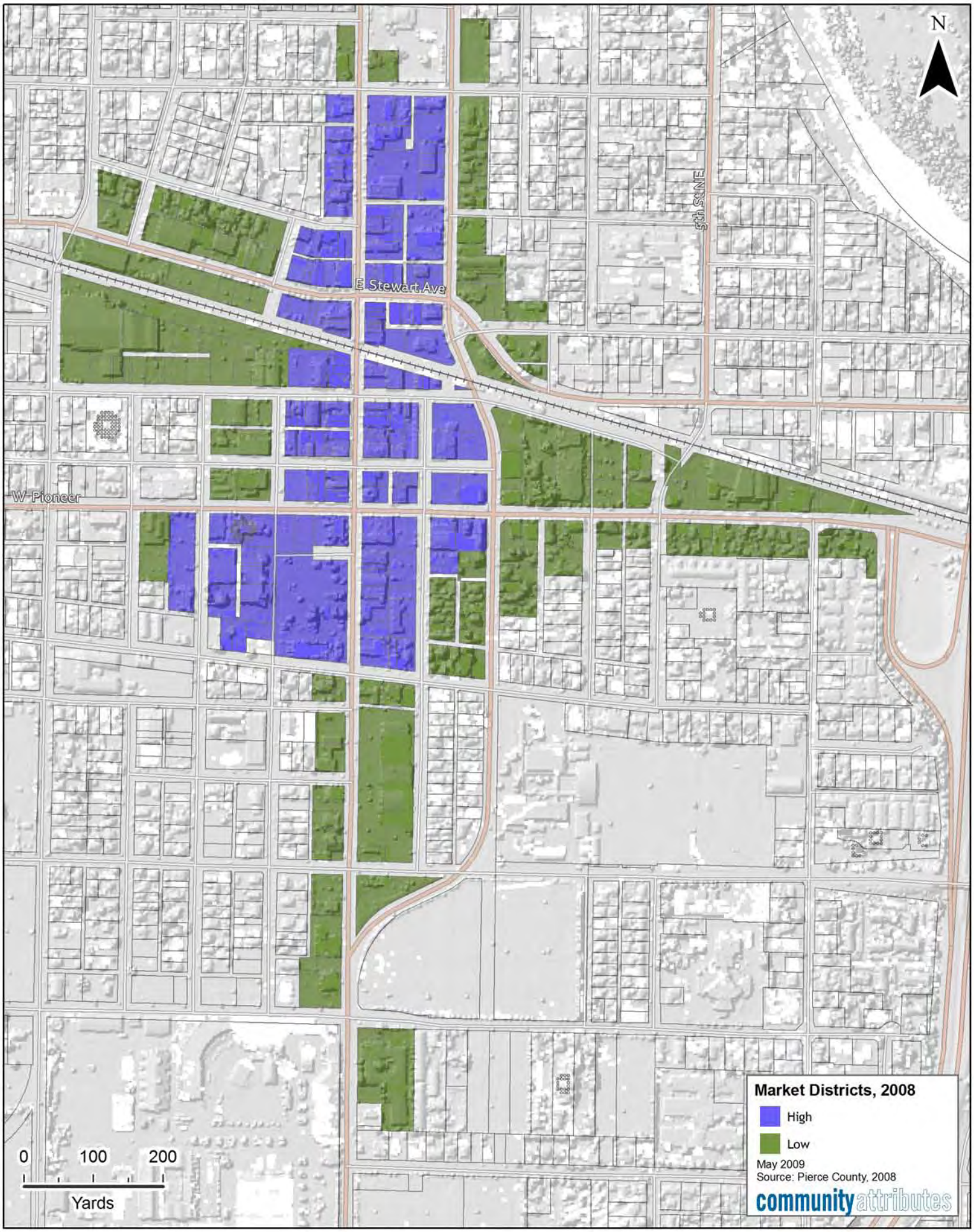
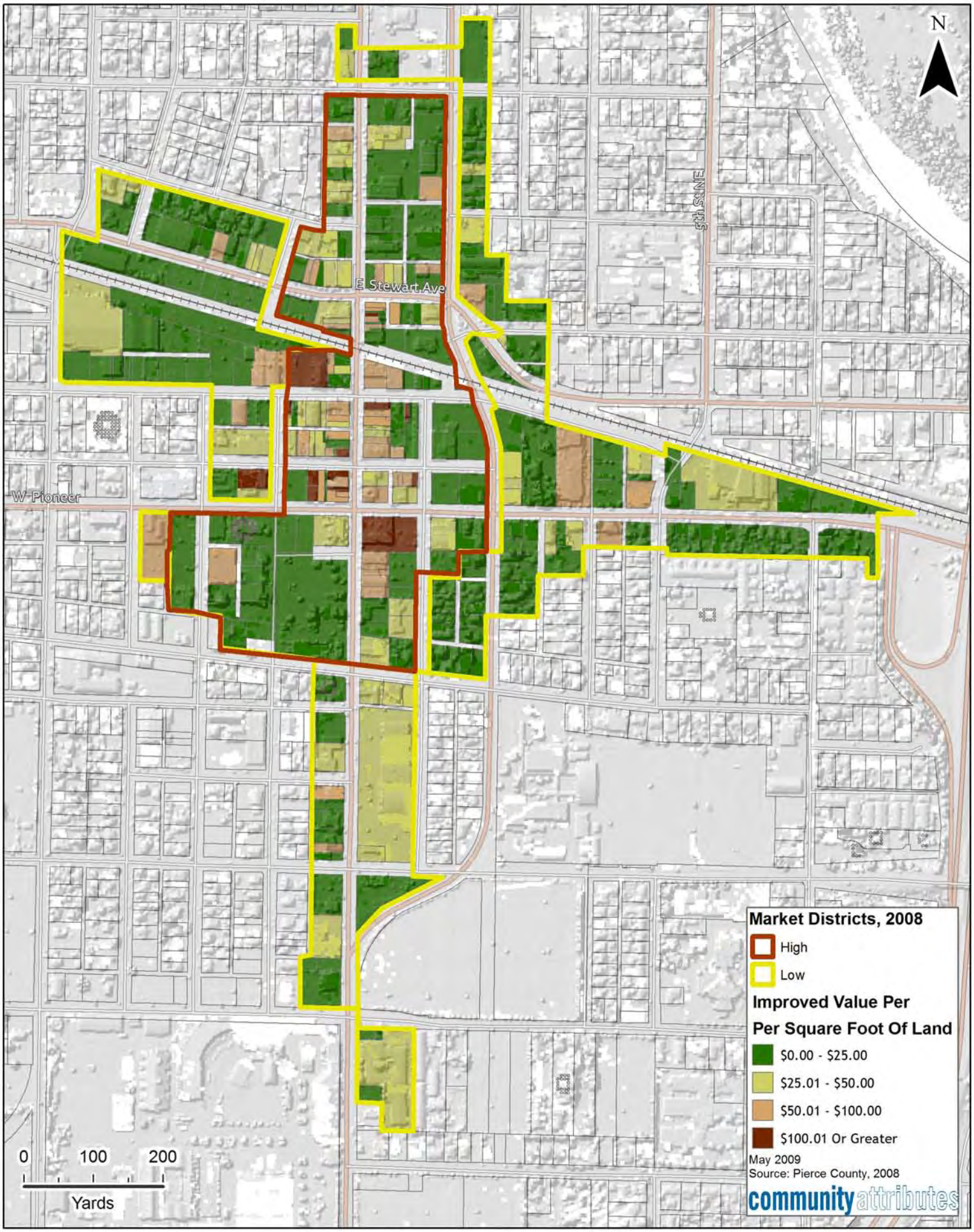


Exhibit 4. Downtown Puyallup - Demonstration of Market Values



Market Conditions and Assumptions

Exhibits 5 through **12** present market data assumptions for the Tacoma and Puyallup study areas, including inputs used for sensitivity analysis. Market inputs and assumptions are presented for commercial and multi-family land uses. A general overview of methods used to define assumptions and sensitivity inputs are provided here.

Reference the Guidebook in Appendix A on page 46 for complete documentation of market inputs and assumptions used in Tacoma and Puyallup study areas. See **Appendix C** for source data on construction costs and **Appendix D** for source data on market indicators.

Commercial Land Uses

Baseline commercial assumptions are presented in **Exhibits 5 and 6**. In Tacoma, high market districts assume a quality of construction and rental rates typical of high-end prime and secondary office uses found in the Seattle MSA[3]. In Puyallup, high market districts assume a mix of high-end retail and high-end secondary office uses. Higher rental rates and lower vacancy are assumed in Tacoma compared to Puyallup, due to desirability of location.

In Tacoma's, medium market district, construction costs and rents represent those typical of high or medium quality retail or secondary offices uses. These same assumptions help form Puyallup's low market district. The low market district in Tacoma assumes rents and construction prices similar to those associated with low end retail and high-end flex tech uses, both uses typically found in the area. Vacancy is assumed to be more prominent in low districts than high districts.

Several other market inputs, including cap rates, soft costs, demolition costs, operating expenses and building efficiency are held constant across market districts and commercial land uses. These inputs were calibrated using pro forma analysis of recent redevelopment projects and aim to represent current market conditions.

Sensitivity analysis examines two different scenarios in Tacoma and Puyallup study areas (**Exhibits 7 and 8**). In Tacoma, sensitivity analysis examines the impacts of a 10% increase in rental rates (optimistic scenario) and a decrease in baseline vacancy by a factor of 10%. (e.g. 10% baseline vacancy is 11% in sensitivity analysis) In Puyallup, a 10% and 15% increase in rental rates were tested.

Reference the Guidebook in Appendix A on page 46 for more detail on commercial market inputs and assumptions used in Tacoma and Puyallup study areas.

[3] Note, that by assuming potential land uses most likely to be developed, analysts are able to identify the most likely range of construction cost or rents. Other uses (such as high end retail in this example) could also be assumed, however construction costs and rents may be considered higher than usual.

Exhibit 5
Downtown Tacoma Commercial Market Inputs, 2009

Market Area	High	Medium	Low
Construction Costs			
Hard Construction Costs ($/sf)			
Building Construction Cost	$ 190	$ 155	$ 110
Parking Construction Cost	$ 83	$ 75	$ 75
Soft Costs (% of Hard Costs)	33%	33%	33%
Demolition Costs (% of Existing Imp Value)	10%	10%	10%
Entrepreneurial Return (% of total hard+ soft costs)	10%	10%	10%
Market Rates			
Rental Rates ($/sf)			
Bldg Rent	$ 30	$ 25	$ 18
Parking Rent	$ 8	$ 5	$ 4
Capitalization Rate	6.00%	6.00%	6.00%
Bldg Operating Expense	30%	30%	30%
Parking Operating Expense	15%	15%	15%
Vacancy	6%	8%	10%
Building Efficiency	90%	90%	90%
Equivalent Construction Price (Demolition Costs excluded, will vary by scenario)			
Commercial Space @ 1,500 sf	$ 416,960	$ 340,150	$ 241,400
Parking Space @ 325 sf	$ 39,460	$ 35,660	$ 35,660
Equivalent Rental Prices per Month			
Commercial Space @ 1,500 sf	$ 3,750	$ 3,130	$ 2,250
Parking Space @ 325 sf	$ 220	$ 140	$ 110

Exhibit 6
Downtown Puyallup Commercial Market Inputs, 2009

Market Area	High	Low
Construction Costs		
Hard Costs ($/sf)		
Building Construction Cost	$ 160	$ 150
Parking Construction Cost	$ 75	$ 75
Soft Costs (% of Hard Costs)	33%	33%
Demolition Costs (% of Existing Imp Value)	10%	10%
Entrepreneurial Return (% of total hard+ soft costs)	10%	10%
Market Rates		
Rental Rates ($/sf)		
Bldg Rent	$ 28	$ 26
Parking Rent	$ 5	$ 5
Capitalization Rate	6.000%	6.000%
Bldg Operating Expense	30%	30%
Parking Operating Expense	15%	15%
Vacancy	10%	10%
Building Efficiency	90%	90%
Equivalent Construction Price (Demolition Costs excluded, will vary by scenario)		
Commercial Space @ 1,500 sf	$ 351,120	$ 329,180
Parking Space @ 325 sf	$ 35,660	$ 35,660
Equivalent Rental Prices per Month		
Commercial Space @ 1,500 sf	$ 3,500	$ 3,250
Parking Space @ 325 sf	$ 140	$ 140

Exhibit 7
Tacoma Commercial Rental Rates for Sensitivity Analysis, 2009

	Baseline Rent Assumptions			Increase in Vacancy (by a factor of 10%)			10% increase in Rent		
Market Area	**High**	**Medium**	**Low**	**High**	**Medium**	**Low**	**High**	**Medium**	**Low**
Bldg Rent	$ 30	$ 25	$ 18	$ 30	$ 25	$ 18	$ 33	$ 28	$ 20
Parking Rent	$ 8	$ 5	$ 4	$ 8	$ 5	$ 4	$ 9	$ 6	$ 4
Vacancy	6.0%	8.0%	10.0%	6.6%	8.8%	11.0%	6.0%	8.0%	10.0%
Equivalent Rental Prices per Month									
Commercial Space @ 1,500 sf	$ 3,750	$ 3,130	$ 2,250	$ 3,750	$ 3,130	$ 2,250	$ 4,130	$ 3,440	$ 2,480
Parking Space @ 325 sf	$ 220	$ 140	$ 110	$ 220	$ 140	$ 110	$ 240	$ 150	$ 120

Exhibit 8
Puyallup Commercial Rental Rates for Sensitivity Analysis, 2009

	Baseline Rent		10% increase in Rent		15% increase in Rent	
Market Area	**High**	**Low**	**High**	**Low**	**High**	**Low**
Bldg Rent	$ 28.00	$ 26.00	$ 30.80	$ 28.60	$ 32.20	$ 29.90
Parking Rent	$ 5.00	$ 5.00	$ 5.50	$ 5.50	$ 5.75	$ 5.75
Equivalent Rental Prices per Month						
Commercial Space @ 1,500 sf	$ 3,500	$ 3,250	$ 3,850	$ 3,580	$ 4,030	$ 3,740
Parking Space @ 325 sf	$ 140	$ 140	$ 150	$ 150	$ 160	$ 160

Multi-Family Residential Land Uses

Baseline multi-family residential assumptions are presented in **Exhibits 9 and 10** for Tacoma and Puyallup market districts. Multi-family housing assumptions include assumptions both for-sale (condo) and for-rent (apartment) building types.

A large range in multi-family construction costs exist in the Seattle MSA ($130 – $260/sf). Above average quality of construction ($200/sf) is assumed for the high market district in downtown Tacoma. High and low market districts in Puyallup as well as the medium market district in Tacoma, all assume slightly below average quality of construction[4] ($170 - $160/sf). The low market district in Tacoma assumes low-end multi-family construction costs. Parking costs represent low-end, above ground urban parking structures.

Rental rates for new multi-family units are assumed to command a premium over rents for existing multi-family units in the area. Assumptions included in this analysis range from a high rental rate of nearly $2,200/month or sale price of $433,000 for a typical 1,000 square foot unit in Tacoma's high market district to as low as $1,250 rent/month or $250,000 sale price in Tacoma's low market district. Parking rates are typically $140 per month, with a premium assumed for Tacoma's high market district.

Higher rental rates are assumed in Tacoma's high and medium market district compared to downtown Puyallup's market districts, due to desirability of location. Vacancy rates range from 5% to 7% in Tacoma's high and low market districts, respectively. Vacancy is assumed at 6% in Puyallup's high and low market districts.

Several other market inputs, including cap rates, soft costs, demolition costs, operating expenses and building efficiency are held constant across market districts and multi-family land uses. These inputs were calibrated using pro forma analysis of recent redevelopment projects and aim to represent current market conditions.

Sensitivity analysis examines two different scenarios in Tacoma and Puyallup study areas (**Exhibits 11 and 12**. In Tacoma, sensitivity analysis examines the impacts of a 10% increase in rental rates and a decrease in baseline vacancy by a factor of 10%. (e.g. 10% baseline vacancy is 11% in sensitivity analysis) In Puyallup, a 10% and 15% increase in rental rates were tested.

Reference the Guidebook in Appendix A on page 46 for more detail on multi-family residential market inputs and assumptions.

[4] Variation in multi-family construction costs and rental rates for Puyallup market districts are minimized due to proximity of location.

Exhibit 9
Downtown Tacoma Multi-Family Market Inputs, 2009

Market Area	High	Medium	Low
Construction Costs			
Hard Construction Costs ($/sf)			
Building Construction Cost	$ 200	$ 160	$ 130
Parking Construction Cost	$ 83	$ 75	$ 75
Soft Costs (% of Hard Costs)	33%	33%	33%
Demolition Costs (% of Existing Imp Value)	10%	10%	10%
Entrepreneurial Return (% of total hard+ soft costs)	10%	10%	10%
Market Rates			
Rental Rates ($/sf)			
Bldg Rent	$ 26	$ 20	$ 15
Parking Rent	$ 8	$ 5	$ 5
Capitalization Rate	6.000%	6.000%	6.000%
Bldg Operating Expense	30%	30%	30%
Parking Operating Expense	15%	15%	15%
Vacancy	5.0%	6.0%	7.0%
Building Efficiency	85%	85%	85%
Equivalent Construction Price (Demolition Costs excluded, will vary by scenario)			
Multi-Family Unit @ 1,000 sf	$ 292,600	$ 234,080	$ 190,190
Parking Space @ 325 sf	$ 39,460	$ 35,660	$ 35,660
Equivalent Rental Prices per Month			
Apartment @ 1,000 sf	$ 2,170	$ 1,670	$ 1,250
Parking Space @ 325 sf	$ 220	$ 140	$ 140
Equivalent Sales Price (Condo ownership)			
Condo @ 1,000 sf	$ 433,333	333,333	250,000
Parking Space @ 325 sf	$ 2,600	$ 1,625	$ 1,625

Exhibit 10
Downtown Puyallup Multi-Family Market Inputs, 2009

Market Area	High	Low
Construction Costs		
Hard Costs ($/sf)		
Building Construction Cost	$ 170	$ 160
Parking Construction Cost	$ 75	$ 75
Soft Costs (% of Hard Costs)	33%	33%
Demolition Costs (% of Existing Imp Value)	10%	10%
Entrepreneurial Return (% of total hard+ soft costs)	10%	10%
Market Rates		
Rental Rates ($/sf)		
Bldg Rent	$ 22	$ 19
Parking Rent	$ 5	$ 5
Capitalization Rate	6.000%	6.000%
Bldg Operating Expense	30%	30%
Parking Operating Expense	15%	15%
Vacancy	6%	6%
Building Efficiency	85%	85%
Equivalent Construction Price (Demolition Costs excluded, will vary by scenario)		
Multi-Family Unit @ 1,000 sf	$ 248,710	$ 234,080
Parking Space @ 325 sf	$ 35,660	$ 35,660
Equivalent Rental Prices per Month		
Apartment @ 1,000 sf	$ 1,830	$ 1,580
Parking Space @ 325 sf	$ 140	$ 140
Equivalent Sales Price (Condo ownership)		
Condo @ 1,000 sf	$ 367,000	$ 317,000
Parking Space @ 325 sf	$ 1,625	$ 1,625

Exhibit 11
Tacoma Multi-Family Rental Rates for Sensitivity Analysis, 2009, Prices per SF

	Baseline Rent Assumptions			Increase in Vacancy (by a factor of 10%)			10% increase in Rent		
Market Area	**High**	**Medium**	**Low**	**High**	**Medium**	**Low**	**High**	**Medium**	**Low**
Bldg Rent	$ 26	$ 20	$ 15	$ 26	$ 20	$ 15	$ 29	$ 22	$ 17
Parking Rent	$ 8	$ 5	$ 5	$ 8	$ 5	$ 5	$ 9	$ 6	$ 6
Vacancy	5.0%	6.0%	7.0%	5.5%	6.6%	7.7%	5.0%	6.0%	7.0%
Equivalent Rental Prices per Month									
Apartment @ 1,000 sf	$ 2,170	$ 1,670	$ 1,250	$ 2,170	$ 1,670	$ 1,250	$ 2,380	$ 1,830	$ 1,380
Parking Space @ 325 sf	$ 220	$ 140	$ 140	$ 220	$ 140	$ 140	$ 240	$ 150	$ 150
Equivalent Sales Price (Condo ownership)									
Condo @ 1,000 sf	$433,333	$333,333	$250,000	$433,333	333,333	250,000	$476,667	366,667	275,000
Parking Space @ 325 sf	$ 2,600	$ 1,625	$ 1,625	$ 2,600	$ 1,625	$ 1,625	$ 2,860	$ 1,788	$ 1,788

Exhibit 12
Puyallup Multi-Family Rental Rates for Sensitivity Analysis, 2009, Prices per SF

	Baseline Rent		10% increase in Rent		15% increase in Rent	
Market Area	**High**	**Low**	**High**	**Low**	**High**	**Low**
Bldg Rent	$ 22.00	$ 19.00	$ 24.20	$ 20.90	$ 25.30	$ 21.85
Parking Rent	$ 5.00	$ 5.00	$ 5.50	$ 5.50	$ 5.75	$ 5.75
Equivalent Rental Prices per Month						
Apartment @ 1,000 sf	$ 1,830	$ 1,580	$ 2,020	$ 1,740	$ 2,110	$ 1,820
Parking Space @ 325 sf	$ 140	$ 140	$ 150	$ 150	$ 160	$ 160
Equivalent Sales Price (Condo ownership)						
Condo @ 1,000 sf	$367,000	$317,000	$403,000	$348,000	$422,000	$364,000
Parking Space @ 325 sf	$ 1,625	$ 1,625	$ 1,788	$ 1,788	$ 1,869	$ 1,869

Land Use Policy and Zoning Context

The LVP analysis requires a floor-to-area ratio value or assumption for each zoning district. In some cases, including Tacoma's downtown zoning districts, zoning guidelines clearly specify FAR. In other cases, in both Puyallup and Tacoma, certain zoning districts do not define FAR and FAR assumptions were made based on lot coverage and height limitations.

Tacoma and Puyallup zoning codes provide zoning incentives to increase development density in downtown zoning districts if certain design guidelines are met. This required that redevelopment feasibility be tested at multiple levels of FAR.

Parking requirements were also taken into account. Both zoning ordinances require a certain number of stalls per square foot of commercial use or per residential housing unit.

Reference the Guidebook in Appendix A on page 57 for more detail on defining zoning inputs used in Tacoma and Puyallup study areas. This section of the guidebook also provides an illustration of FAR calculations. See **Appendix E** for zoning source data and complete zoning assumption calculations.

Downtown Tacoma

Due to the design incentives established in Tacoma's zoning code, development feasibility is tested for commercial and multi-family land uses at three levels of FAR in all zoning districts within the Tacoma study area. Downtown districts include:

- Downtown Commercial Core (DCC);
- Downtown Mixed-Use District (DMU);
- Downtown Residential District (DR); and
- Warehouse (WR).

Each of the above zoning districts establish an "FAR by right" (or FAR baseline in the analysis), which provides a baseline FAR for residential and non-residential development under current zoning, without applying increased density allowed by the zoning with incentives or exceptions. Residential and non-residential uses are allowed in all zones, with some zones providing higher FARs for buildings that contain a residential component. The Tacoma zoning code also establishes incentives to increase FAR if design guidelines or special features are implemented.

"FAR with design guidelines" (also referred to as "medium FAR") allow developers to increase allowable FAR by incorporating design elements (0.5 FAR increase for each element) within a development project. The analysis assumes that developers will achieve the maximum FAR allowable under the design guideline incentives. Similarly, "FAR with special features," (also referred to as high FAR) allows a developer to increase FAR by incorporating pre-defined special features. Again, the analysis assumes that developers will achieve the maximum FAR allowable under the special features incentives.

Three levels of FAR are assumed for the following Tacoma zoning districts because the zoning code does not define a FAR:

- General Community Commercial District (C2)
- Light Industrial District (M1)
- Heavy Industrial District (M2)
- Two-Family Dwelling District (R3)
- Multi-Family Dwelling District (R4)
- Shoreline District Thea Foss Waterway (S8)
- Urban Center Mixed-Use District (UCX-TD)

FAR is defined for these districts starting from a maximum development density (high FAR) and adjusted towards lower levels of density (medium FAR and baseline FAR). Many of the districts have a maximum height limitation, which was used to calculate the maximum allowable FAR. For most zoning districts, medium FAR assumed 2/3 the level of development density as high FAR while FAR baseline assumed 1/3 the level of density.[5]

Most zoning districts require parking (with the exception of S8 and UCX-TD), with unique requirements for commercial and residential uses. Buildable area required for building and parking construction were allocated for each land use within each zoning district.[6]

Note, that at the time of this analysis, the City of Tacoma established an International Financial Services Area which eliminated all parking requirements for new construction. This new parking guideline has not been taken into account for this analysis. Elimination of parking requirements would increase leasable area which improves the economic feasibility of redevelopment.

Puyallup Zoning

Zoning districts in downtown Puyallup provide for a more simplistic analytical structure. Redevelopment feasibility for commercial and multi-family land uses are tested in two zoning districts: Central Business District Core (CBD-Core) and Central Business District (CBD).

Neither of the two zones districts defines allowable FAR. Lot coverage and maximum height allowances are used to calculate FAR (See Appendix A, page 59 for calculation references). Like Tacoma, the City of Puyallup provides incentives to

[5] These various levels of FAR follow a similar progression defined by density incentives in Downtown zoning districts.

[6] Different commercial and residential parking requirements for each zoning district were taken into account. Only three zoning districts have regulations that required different parking space requirements be specified for each level of FAR (C2, M1, M2). For C2, M1 and M2, office uses are assumed at 2.5 stalls per 1,000 sf building space for FAR3, a mix of office and retail uses at 3.5 stalls per 1,000 sf building space for FAR2 (2.5 office, 4.0 retail). At FAR1, district C2 assumes retail uses at 4.0 stalls per 1,000 sf building space while M1 and M2 assume flex-tech uses at 1.5 stalls per 1,000 sf building space. See **Appendix A** for detailed parking assumptions and calculations.

increase development density in the CBD district. Implementing a residential component and structured parking increases allowable height. Within the CBD zone, commercial land uses are tested at the baseline FAR while multi-family uses are tested at the bonus level of FAR. Commercial and multi-family land uses are tested at the same level of FAR in the CBD-Core districts, as no density bonuses exist.

Prototypical parking stall sizes (325 s.f. per stall includes driveways and other structures) and building types (i.e. office or retail) are used to integrate Puyallup's parking requirements within LVP analysis.

Case Study Outcomes

This section presents preliminary outcomes of LVP method as applied in the study areas. Growth capacity estimates of households, persons, and jobs on redevelopable lands are presented for demonstration purposes only[7].

This analysis assumes that if either commercial or multi-family uses are feasible, then the parcel is considered re-developable (this is referred to as "all land uses" in summary tables). A sensitivity matrix presents results of baseline and sensitivity analysis calculations and demonstrates how increases in rental rates and vacancy rates affect growth capacity estimates. Maps show the "redevelopability" under baseline conditions and sensitivity scenarios at the highest feasibility FAR.

Redevelopable lands identified under the LVP method are compared to redevelopable lands using traditional methods in summary tables and in map sets. Estimates of redevelopable lands using both new and traditional methods are applied to all existing land uses and vacant parcels (excluding public and quasi-public uses). In previous buildable lands analysis, traditional methods used to identify redevelopable lands were applied exclusively to existing commercial and industrial parcels. Vacant lands were simply classified as vacant and were classified as developable.

Tacoma

Baseline LVP calculations find that approximately 13% to 15% of total land area in downtown Tacoma is currently redevelopable under current market conditions (**Exhibit 13 – Map** and **Exhibit 17 – Sensitivity Table**). Redevelopable lands at the baseline FAR could accommodate 4,600 households, 10,600 persons and 12,600 jobs. At the maximum FAR, redevelopment could accommodate nearly 10,700 households, 24,700 persons and 35,700 jobs. (**Exhibit 17 – Sensitivity Table**)

Approximately 48% of parcels in the Tacoma study area have land values greater than improvement values (**Exhibit 14 – map** and **Exhibit 18- comparison table**). The traditional improvement-to-land value ratio method revealed that approximately

[7] Application of the LVP method to the two case study cities is intended to illustrate some potential outcomes based on the preliminary assumptions. The jurisdictions are encouraged to further refine the assumptions.

45% of total land area could be re-developable compared to 15% using the LVP method under current market conditions[8].

Increases vacancy rates result in lower estimates of redvelopable lands. Between 11% (baseline FAR) and 14% (highest FAR) of land is redevelopable when vacancy assumptions are increased by a factor of 10% (**Exhibit 15 – Map** and **Exhibit 17 – Sensitivity Table**). Under these conditions, redevelopable lands could support between 4,500 to 10,000 households, 10,400 to 23,400 persons and 11,100 to 34,000 jobs depending of FAR assumptions.

Higher rental rates improve the economic feasibility of redevelopment and boost estimates of redevelopable lands and growth capacity. A 10% increase in rents results in 30% (baseline FAR) to 39% (highest FAR) of total land area classified as redevelopable (**Exhibit 16 – Map** and **Exhibit 17 – Sensitivity Table**). Under more optimistic market conditions redevelopment at the baseline FAR could accommodate 6,400 households, 15,000 persons and 18,400 jobs while redevelopment at the maximum FAR could accommodate 18,200 households, 42,200 persons and 62,400 jobs (**Exhibit 17 – Sensitivity Table**).

LVP analysis demonstrates that zoning incentives which allow for increased development capacity have an impact on redevelopment feasibility in downtown Tacoma. Increases in height result in increased development costs that reduce development feasibility in some cases. Incentives that reduce parking increase the likelihood of redevelopment as well as the capacity of redevelopable lands to accommodate new persons and jobs.[9]

Puyallup

No parcels in downtown Puyallup met the criteria to be re-developable using the LVP method under baseline market conditions (**Exhibits 19 – Map** and **Exhibit 23 – Sensitivity Table**).

Approximately 50% of parcels have land values greater than improvement values, accounting for 54% of land area in the study area (**Exhibit 20 – Map and Exhibit 24 – Comparison Table**).

Sensitivity analysis demonstrates that increases in rents improve the feasibility of redevelopment in downtown Puyallup. A 10% increase in rental rates results in 16% of land supporting redevelopment. Under these market conditions, redevelopable lands could accommodate nearly 600 households, 1,400 new persons, and 1,200 new jobs (**Exhibit 21 – Map and Exhibit 23 Sensitivity Table**). A 15% increase in

[8] Note that the improvement-to-land value method is typically applied to only commercial and industrial uses. For comparison purposes new and traditional methods are applied to all existing land uses except public and quasi-public land uses.

[9] As stated earlier, the City of Tacoma established an International Financial Services Area which eliminated all parking requirements for new construction. These new parking guidelines have not been taken into account for this analysis. Elimination of parking requirements would increase leasable area and improve the economic feasibility of redevelopment, likely resulting in more parcels being identified as redevelopable

rental rates results in 47% of land supporting redevelopment. Under the most optimistic conditions, redevelopable parcels could accommodate 1,500 households, 3,500 persons and 3,000 jobs (**Exhibit 22 – Map and Exhibit 23 Sensitivity Table**).

Reference Appendix A, page 68 for complete information and methodologies used to calculate preliminary estimates of households, persons and jobs on redevelopable lands. See Appendix A, pages 73 – 77 for more detailed exhibits of growth capacity outcomes.

Exhibit 13. Downtown Tacoma - Suitability For Redevelopment

LVP Baseline Rent Scenario, Highest Feasible FAR

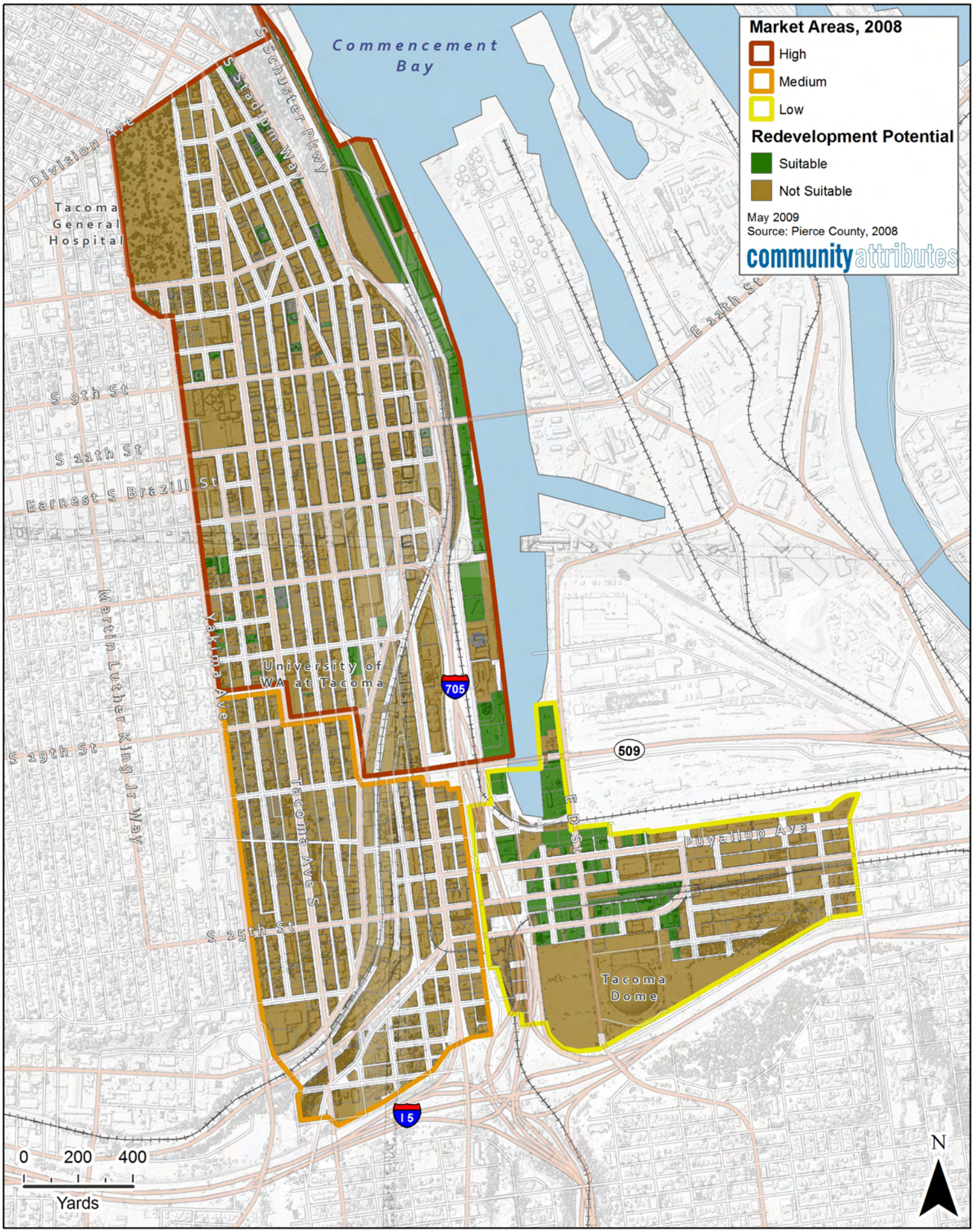


Exhibit 14. Downtown Tacoma - Improvement to Land Value Ratio

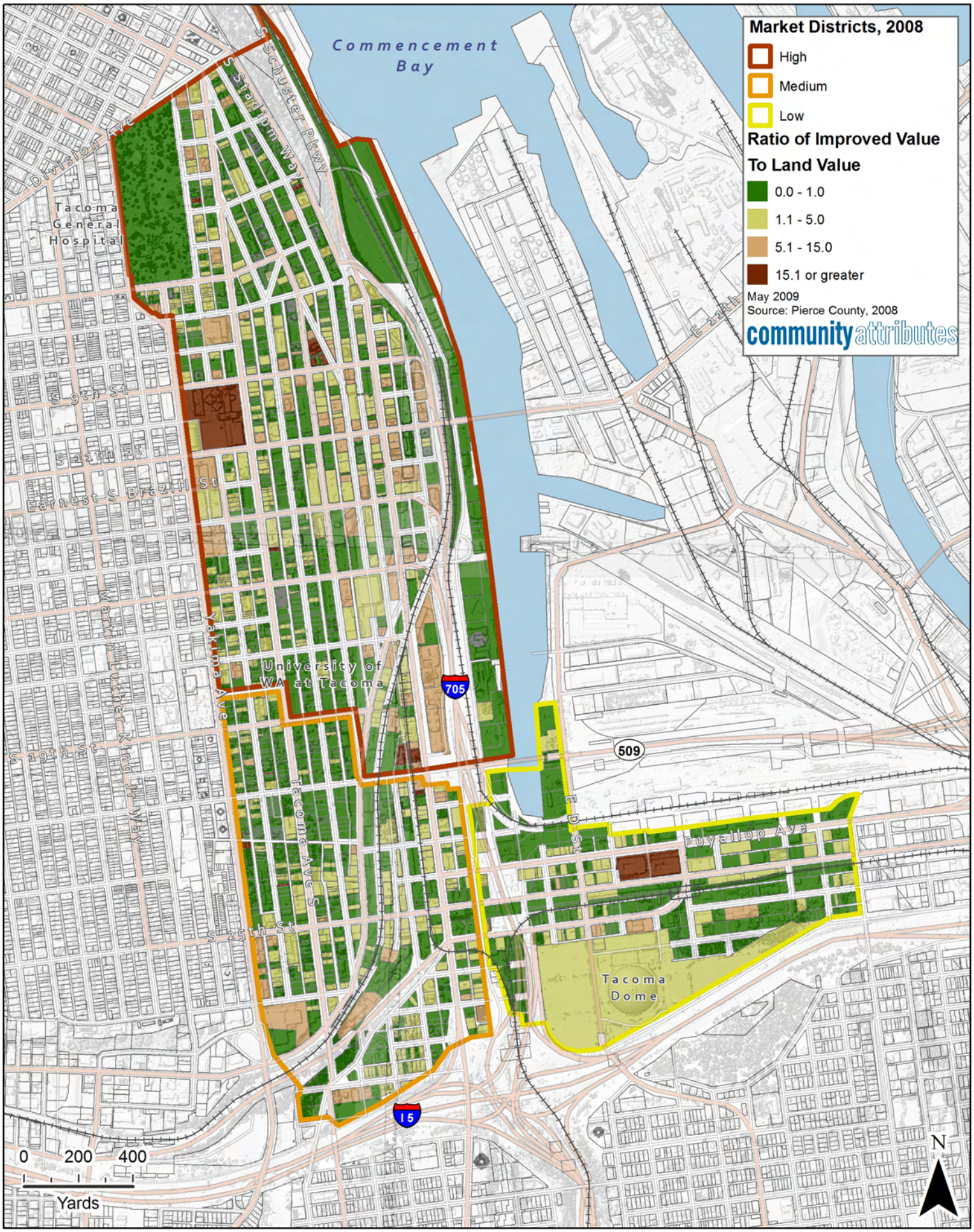


Exhibit 15. Downtown Tacoma - Suitability For Redevelopment - Sensitivity Scenario One

Sensitivity Analysis - Increase in Vacancy by Factor of 10%, Highest Feasible FAR

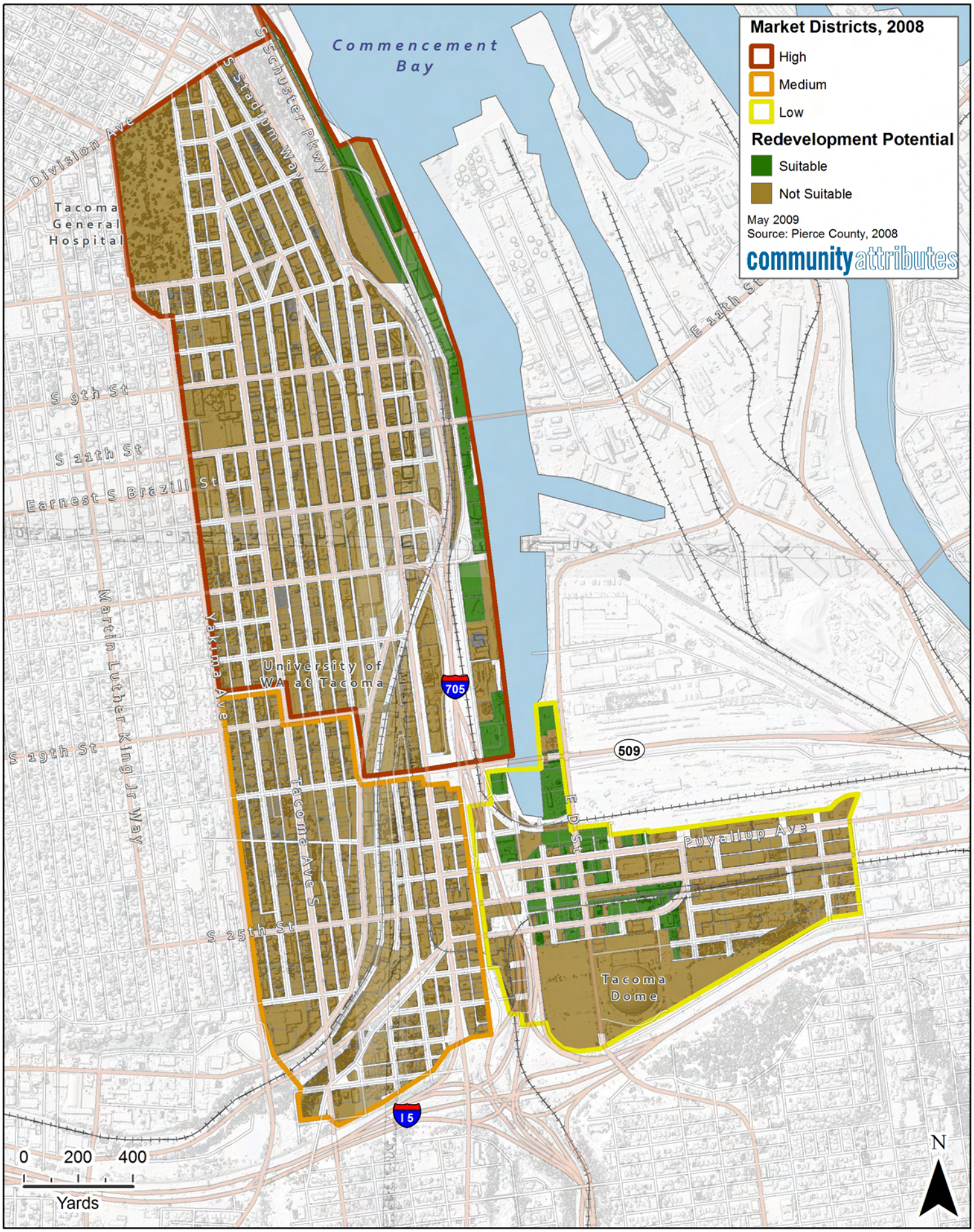


Exhibit 16. Downtown Tacoma - Suitability For Redevelopment - Sensitivity Scenario Two

Sensitivity Analysis - 10% Increase in Rents, Highest Feasible FAR

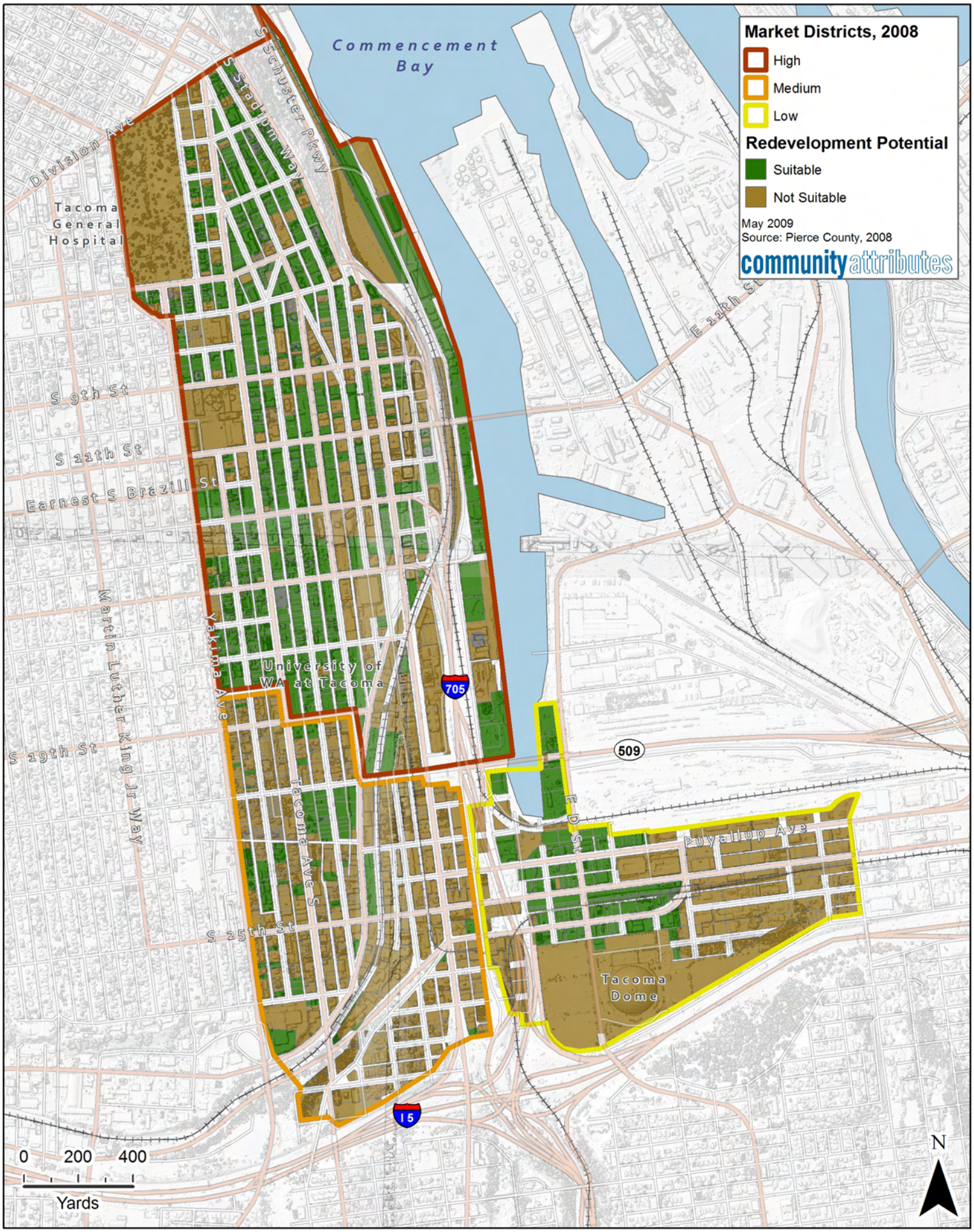


Exhibit 17
Downtown Tacoma Re-developable Lands Potential, All Uses

Downtown Tacoma Redevelopable Lands Potential

		Baseline Rent Assumptions	Increase in Vacancy (Factor of 10%)	10% Increase in Rents
	Redevelopable Lands	**Total**	**Total**	**Total**
FAR by Right (Baseline)	Redevelopable Parcels	134	118	594
	Redevelopable Land Area	3,353,928	2,830,131	7,611,296
	% of Total Land that is Redevelopable	13%	11%	30%
	Re-development Bldg Capacity SF	10,787,314	10,060,703	16,699,709
	Existing Building SF	683,278	613,272	2,143,773
	Net Re-developable Bldg SF	10,104,036	9,447,431	14,555,936
FAR w Design Guidelines (Medium)	Redevelopable Parcels	159	133	845
	Redevelopable Land Area	3,436,615	3,119,994	9,551,829
	% of Total Land that is Redevelopable	14%	12%	38%
	Re-development Bldg Capacity SF	19,084,275	17,747,265	32,674,602
	Existing Building SF	1,142,508	799,260	3,869,904
	Net Re-developable Bldg SF	17,941,767	16,948,005	28,804,698
FAR w Special Features (High)	Redevelopable Parcels	151	125	873
	Redevelopable Land Area	3,842,055	3,490,000	9,950,535
	% of Total Land that is Redevelopable	15%	14%	39%
	Re-development Bldg Capacity SF	27,587,464	26,218,977	50,585,050
	Existing Building SF	1,220,101	1,126,812	4,915,081
	Net Re-developable Bldg SF	26,367,363	25,092,165	45,669,969
	Existing Conditions			
	Total Parcels	2,373	2,373	2,373
	Total Land Area	25,338,760	25,338,760	25,338,760
	Total Built Space (sf)	19,867,450	19,867,450	19,867,450

Population, Households and Jobs Supported by Redevelopable Land Capacity

		Baseline Rent Assumptions	Increase in Vacancy (Factor of 10%)	10% Increase in Rents
	Growth Capacity	**Total**	**Total**	**Total**
FAR by Right (Baseline)	Households	4,572	4,492	6,443
	Persons	10,607	10,420	14,947
	Jobs	12,573	11,263	18,439
FAR Medium	Households	8,191	7,777	12,444
	Persons	19,004	18,043	28,870
	Jobs	22,160	20,842	37,184
FAR High	Households	10,656	10,083	18,200
	Persons	24,722	23,392	42,225
	Jobs	35,707	34,113	62,431

Exhibit 18
Downtown Tacoma Comparison of Re-developable Lands Methods, Traditional and Proposed Approaches, Baseline Rental Rate Assumptions

	Improvement-to-Land Value Ratio Method	LVP Method; Redevelopment at Highest Feasible FAR		
		Baseline Conditions	Increase in Vacancy	10% increase in Rent
Redevelopable Parcels	1,138	151	125	873
% of Total Parcels that are Redevelopable	48%	6%	5%	37%
Redevelopable Land Area	11,331,794	3,842,055	3,490,000	9,950,535
% of Total Land that is Redevelopable	45%	15%	14%	39%

Exhibit 19. Downtown Puyallup - Suitability For Redevelopment

LVP Baseline Scenario, Highest Feasible FAR

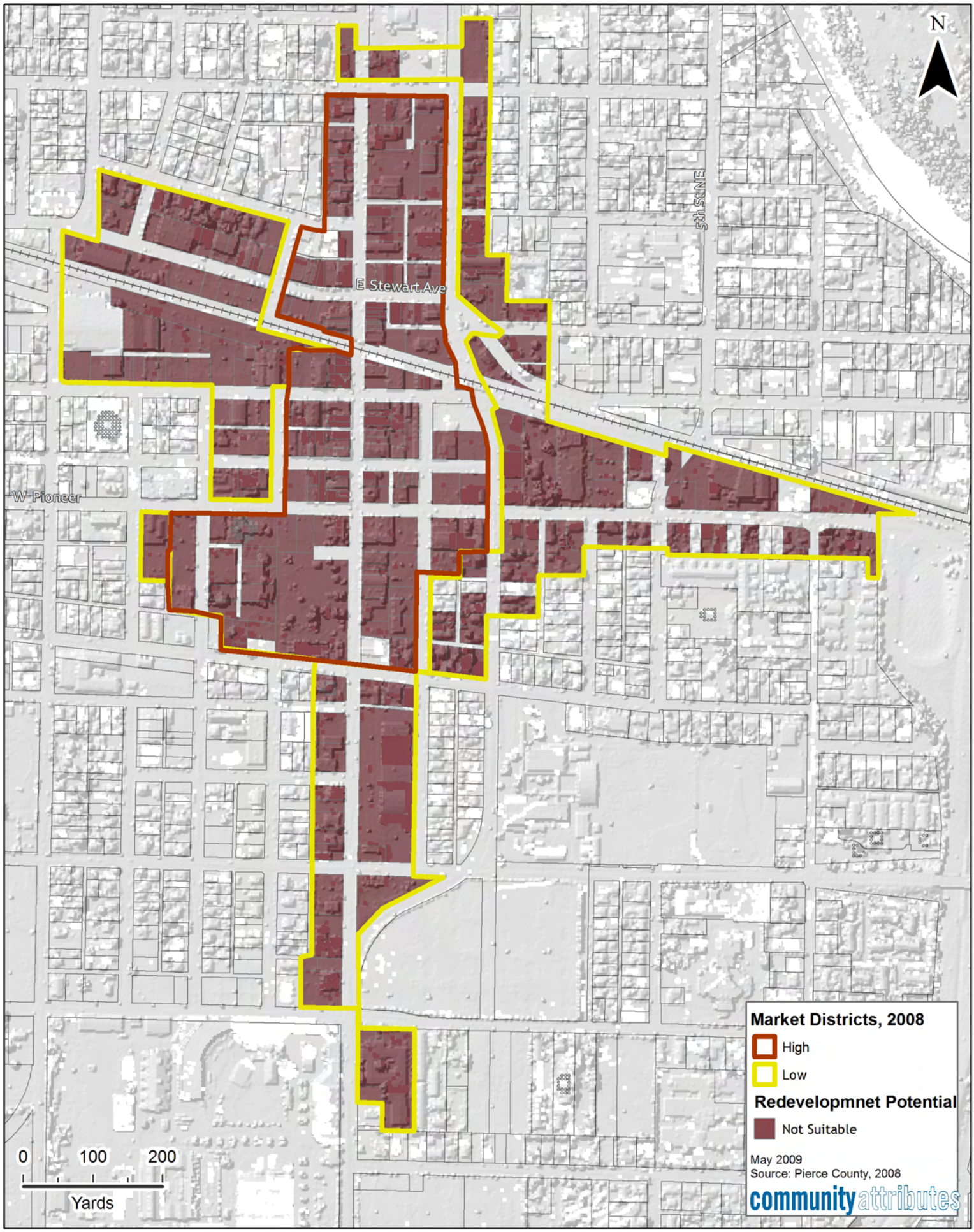


Exhibit 20. Downtown Puyallup - Improvement to Land Value Ratio

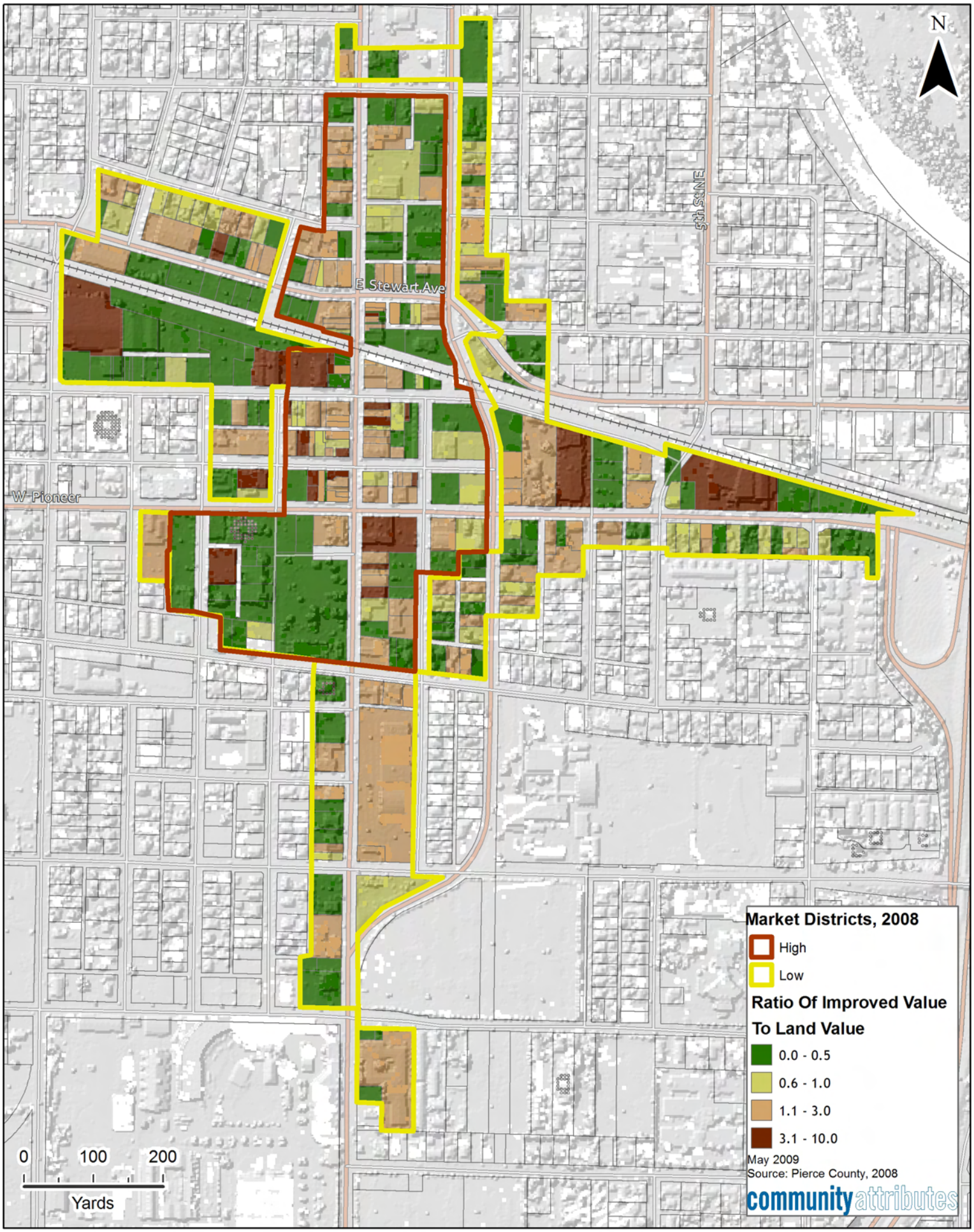


Exhibit 21. Downtown Puyallup - Suitability For Redevelopment - Sensitivity Scenario One

Sensitivity Analysis - 10% Increase in Rents

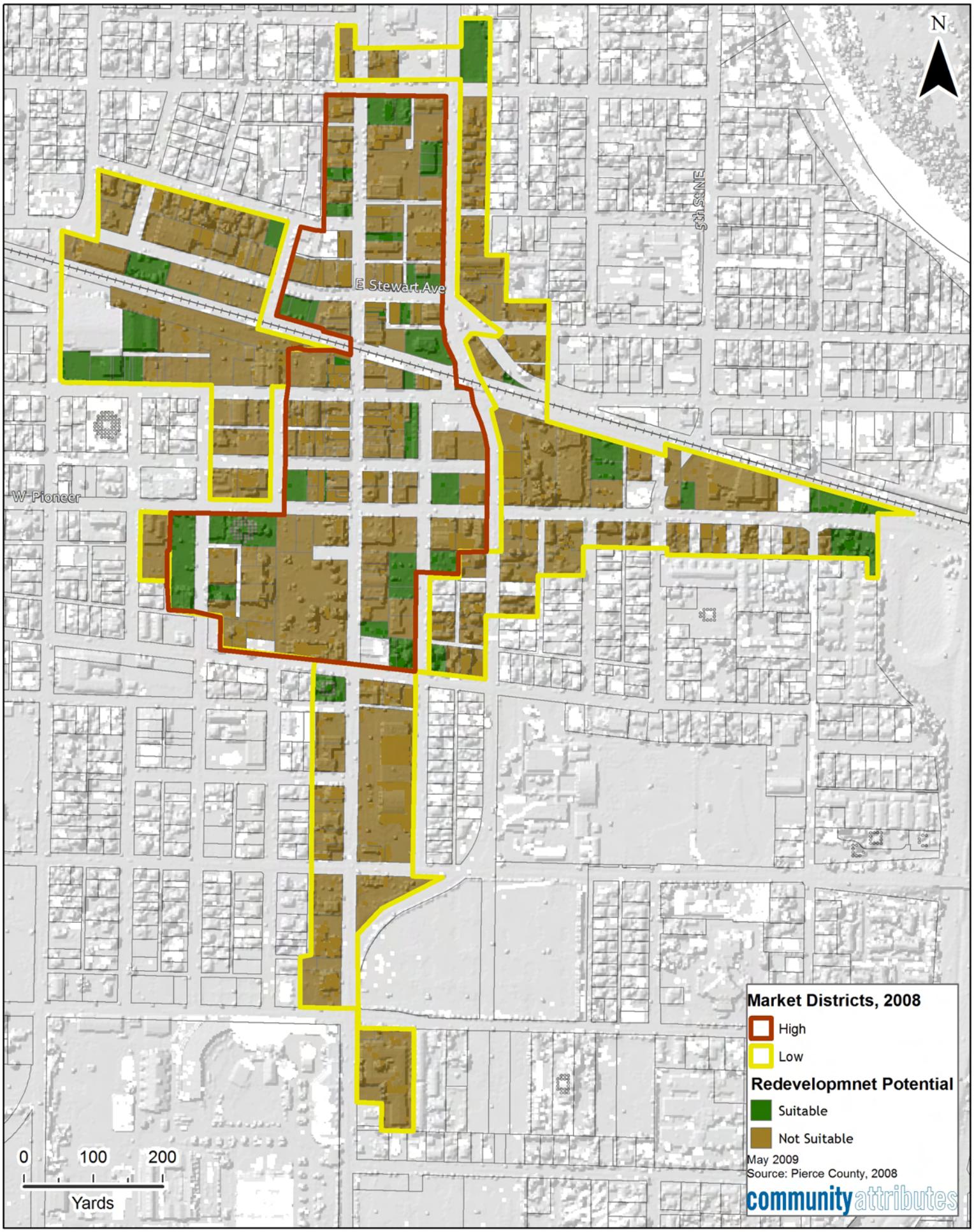


Exhibit 22. Downtown Puyallup - Suitability For Redevelopment - Sensitivity Scenario Two

Sensitivity Analysis - 15% Increase in Rents

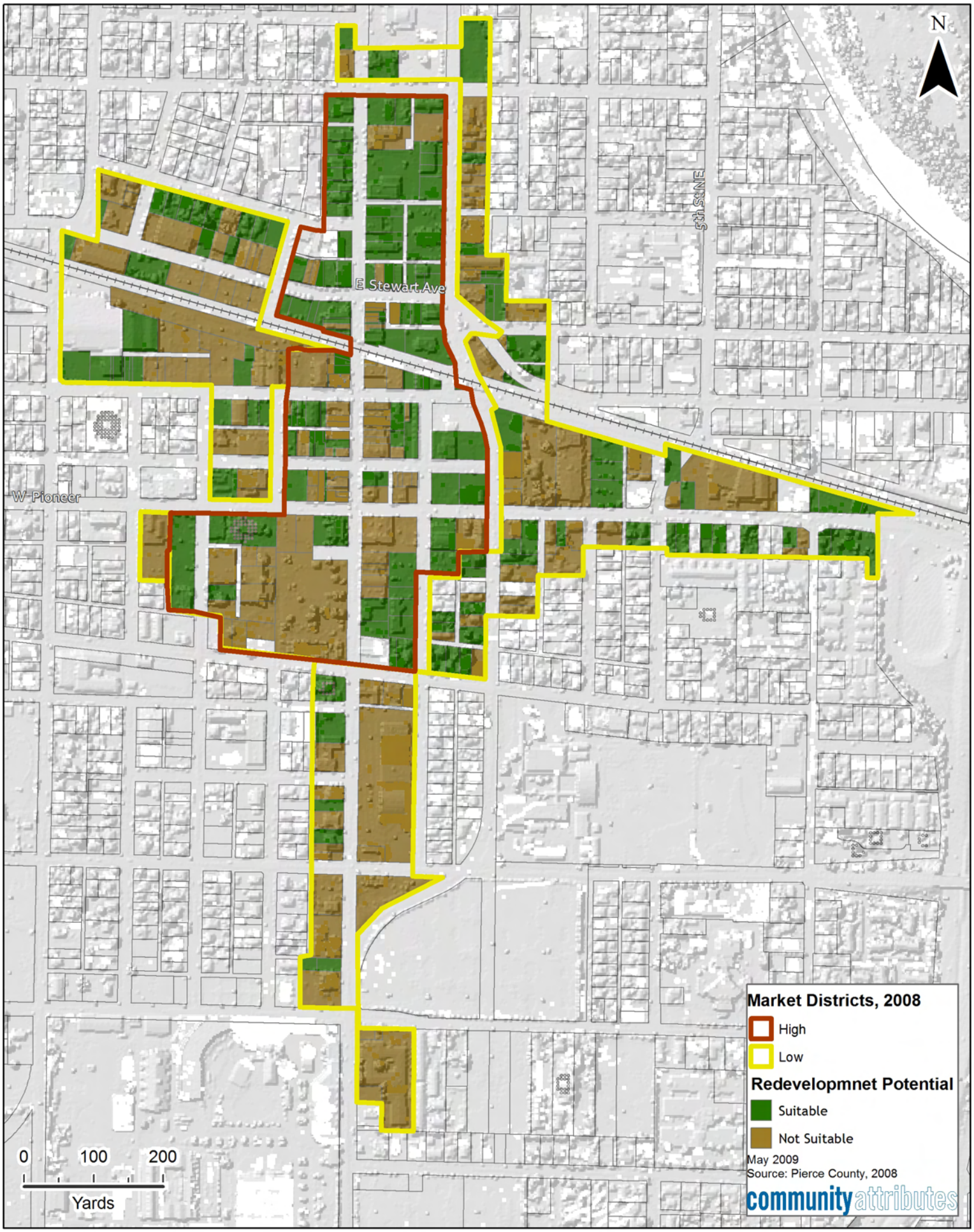


Exhibit 23
Downtown Puyallup Re-developable Lands Potential, All Uses

Downtown Puyallup Redevelopable Lands Potential

	Baseline Assumptions	10% Increase in Rent	15% Increase in Rent
Redevelopable Lands	**Total**	**Total**	**Total**
Redevelopable Parcels	-	59	179
Redevelopable Land Area	-	608,595	1,766,593
% of Total Land that is Redevelopable	0%	16%	47%
Re-development Bldg Capacity SF	-	1,223,866	3,310,051
Existing Building SF	-	14,003	389,618
Net Re-developable Bldg SF	-	1,209,863	2,920,433
Existing Conditions			
Total Parcels	392	392	392
Total Land Area	3,773,372	3,773,372	3,773,372
Total Built Space (sf)	1,312,388	1,312,388	1,312,388

Population, Households and Jobs Supported by Redevelopable Land Capacity

	Baseline Assumptions	10% Increase in Rent	15% Increase in Rent
Growth Capacity	**Total**	**Total**	**Total**
Households	-	605	1,460
Persons	-	1,440	3,475
Jobs	-	1,235	2,980

Exhibit 24
Downtown Puyallup Comparison of Re-developable Lands Methods, Traditional and Proposed Approaches

		LVP Method		
	Improvement-to-Land Value Method	**Baseline Conditions**	**10% Increase in Rent**	**15% Increase in Rent**
Redevelopable Parcels	198	-	59	179
% of Total Parcels that are Redevelopable	51%	0%	15%	46%
Redevelopable Land Area	2,046,613	-	608,595	1,766,593
% of Total Land that is Redevelopable	54%	0%	16%	47%

Benefits and Limitations

Benefits

The LVP method offers a framework to identifying redevelopable land similar to how real estate developers and investors evaluate redevelopment opportunities, but with a more general, higher-altitude approach to apply to planning decisions across a broad geographic area. The LVP method also provides added flexibility and scenario modeling that can enhance policy making and understanding.

Land Value Potential Method	**Improvement to Land Value Ratio Method**
• Determines the economic feasibility of redevelopment given current zoning and market conditions. • Quantifies redevelopment capacity at various levels of economically feasible development densities (FAR). • Tests the economic feasibility of redevelopment for different land uses. • Accounts for many of the fundamental factors that determine development feasibility such as: site, demolition, and construction costs, capitalization rates, vacancy rates, zoning and others • Supports scenario and outcome modeling that allow analysts to examine assumptions or identify conditions necessary to achieve desired redevelopment goals. • Uses a case study approach to support model inputs and assumptions. • Uses readily available data as inputs, most available for free, some for a small fee.	• Identifies redevelopment potential of a parcel given current level of investment at a site. (Uses improvement to land value ratios as a proxy to level of investment). • Uses efficient, simple and straightforward calculations • Readily understood • Commonly applied in other counties throughout Washington State. • Meets buildable lands and GMA requirements. • Uses readily available and free data as inputs.

Limitations and Challenges

A primary limitation and challenge of the LVP method is the reliance on sensitive data inputs and assumptions that affect all parcels and the outcomes of analysis. This challenge has been addressed in part through sensitivity analysis, scenario modeling and case studies.

Land Value Potential Method	**Improvement-Value to Land Value Ratio Method**
• Requires analysts to make judgments on assumptions in the absence of hard data (i.e. zoning FAR, cap rates, demolition costs etc). • Methods are more complex and time consuming than traditional methods. • Cannot account for all nuances of zoning regulations, simplifications are necessary. • Range of redevelopment complexities not addressed in generic application (i.e. incentives, partnerships, etc.)	• Does not account for the economic feasibility of redevelopment. • Viewed as overly simplified approach to identifying redevelopment potential • Does not identify what "mix" of land uses are desirable at a site. • Cannot account for all nuances of zoning regulations, simplifications are necessary. • Range of redevelopment complexities not addressed in generic application (i.e. incentives, partnerships, etc.)

Summary and Next Steps

Summary of Findings

The Land Value Potential (LVP) method is a market-oriented approach to indentify land suitable for redevelopment in urban centers. The LVP method can be updated with readily available information at low cost to capture current market conditions and site characteristic information. The method integrates with geographic information systems for modeling, analysis and mapping outputs.

This analysis tests the LVP approach in two study areas within Pierce County: Downtown Tacoma and Downtown Puyallup. The method could be applied in urban centers in other Pierce County jurisdictions and perhaps areas outside urban centers. Application in other areas of the County requires market, zoning and parcel data are integrated within the model to capture unique conditions within various market districts.

This demonstration project benefited significantly from the participation of a working group of municipal and county planners. Outcomes of this team-oriented process emphasized the importance of local jurisdiction review and adjustments necessary for countywide implementation. While this study shows the baseline findings of the LVP method, project team members from Tacoma and Puyallup identified specific parcels where unique circumstances apply, resulting in a need to adjust and further customize baseline calculations.

The LVP method offers a more sophisticated analysis than the traditional, improvement-to-land value ratio method. Beyond direct applications for GMA and Buildable Lands, the LVP method can serve as a tool to gauge the effectiveness of local zoning in supporting feasibility of redevelopment. Furthermore, the LVP method can account for estimates of the timing of redevelopment by adjusting market data to reflect future projections of revenues and costs.

The LVP method does have important limitations. The LVP method relies on sensitive data inputs and assumptions that affect the outcomes of analysis. The degree of the limitations depends on the degree of customization applied to the inputs for each parcel. The method allows for the user to choose a more general application or a more tailored application.

Future improvements to the LVP method may focus on creating an interactive, online GIS application that would be available on a countywide basis to support planning or development initiatives.

Next Steps

To apply the LVP method on a countywide basis for the Pierce County 2012 Buildable Lands Report, the following next steps are recommended:

- Establish a steering committee of city and County representatives to guide LVP method review and implementation.

- Define study areas to apply the LVP method. Potential applications beyond urban centers include commercial or industrial centers.

- Establish market districts and define market and zoning inputs including formal review of inputs and assumptions by County and City staff.

- Create a redevelopment index to gauge the relative attractiveness of redevelopable parcels. This task could incorporate other accessible information such as building quality, condition, demographics and environmental data to help rank parcels best suited, or most desirable for redevelopment.

- Create an ArcGIS interface that enables city and County analysts to conduct analysis and map output in a seamless and efficient manner. Development of a ArcGIS may leverage existing County or city data sets and technologies and would require security standards. Development of web applications and design features would require a series of formal reviews before finalization and implementation.

APPENDIX A. IMPLEMENTATION GUIDEBOOK

Background and Purpose

This guidebook provides step-by-step instructions for completing the Land Value Potential (LVP) methodology for identifying redevelopable lands. The purpose of the guidebook is to help prospective analysts understand LVP assumptions and replicate calculations.

The implementation guidebook aims to supplement the report. The report provides a "high-elevation" orientation to the proposed LVP analysis and possible outcomes. The guidebook presents LVP methods in a process-oriented manner and provides a detailed documentation of methodologies and assumptions.

This guidebook is designed for prospective analysts or stakeholders interested in learning more about LVP calculations and assumptions. This document can be used to support further refinement of the LVP approach; fostering the LVP method through a formalization process with the goal of implementation in Pierce County to support 2012 buildable lands calculations. The current LVP method presented here is a *proposed* approach for demonstration purposes. Further analysis, adjustments and public review are required before the LVP approach can be finalized for Countywide implementation.

Organization of the Guidebook

The LVP methodology is defined by four key stages. The guidebook is organized around these stages, which include:

1. Define Scope of Analysis and Data Inputs
2. Calculate Land Value Potential
3. Calculate Growth Capacity of Redevelopable Lands and Evaluate Outcomes
4. Forecast Redevelopment Absorption

Required Technologies and Applications

The LVP approach requires use of two primary tools, applied in the following manner:

- **ArcGIS** is used to analyze and join data spatially and map LVP outcomes
- **Microsoft Excel** is used to create a spreadsheet model for conducting LVP calculations and storing input data. The spreadsheet model is connected to GIS for mapping.

Stage 1. Define Scope of Analysis and Data Inputs

Define the scope of the analysis, project inputs and assumptions prior to conducting LVP calculations.

Step 1. Answer key questions and define the scope of the analysis

Answer three key questions to determine scope and approach for analysis.

Key Question 1: What areas should the LVP method be applied to?
The LVP method can be applied to contiguous market areas, comprising urban centers and industrial corridors, or specific areas where re-development interest aligns with planning objectives. Applications to residential neighborhoods where a greater degree of mixed-use or increases in density is desired may also be appropriate. Answers may vary if the analysis is conducted for multiple municipalities or a single jurisdiction. The study area chosen for this pilot study is Downtown Tacoma and Puyallup.

Key Question 2: Should the method be applied to all existing land uses and parcels within the study area? Traditional methods for identifying redevelopable lands are applied to parcels with existing commercial or industrial uses only. The LVP method can be applied to all existing land uses, including vacant land to determine economic feasibility of redevelopment. Consider approaches for "protected" or "sensitive" lands such as religious land uses, schools or wetlands. This analysis excludes public and quasi-public land uses such as right of way, parks, religious and educational institutions.

Question 3: What types of land uses should be analyzed to determine redevelopment feasibility?
Question three references prospective development that will likely take place in the future (opposed to question two which references existing land uses). This analysis examines prospective commercial and multi-family developments. Examining multiple land uses requires collection of unique market and zoning inputs for each respective use. Analyzing multiple land uses requires re-iterative LVP calculations but also enables analysis of mixed-use options.

Upon answering these questions, the analyst is prepared to gather data efficiently and effectively.

Step 2. Preliminary data collection

The goal of step two is to create a preliminary database of information that can be used to define project inputs and complete LVP calculations. **Exhibit A-1** below demonstrates the data types, required inputs and sources of data used to conduct LVP calculations; user tips follow.

Exhibit A-1
Data Inputs and Sources

Data Type	Required Fields	Source
Parcel shapefile (a)	• Parcel Identification Number • ShapeArea "lot size"	
County Assessor's Data Extracts (b)	ACCOUNT (c) • Bldgs "Number of buildings" • Groupaccountno ATREXTRACT • Landval "land value" • Impval "improvement or building value" • Totalval "total value" • Usecd-descr "land use description" IMPROVEMENT (d) • Units • SF "square footage of building"	Pierce County Assessor/Treasurer Office
Zoning Data (f)	• Zoning district in shapefile format • FAR • Parking requirements by land use type • Allowable land uses • Other key factors that determine development capacity such as bonuses, height, lot covereage, etc.	Municipal sources, Pierce County Assessor also maintains a "zoning field," however
Market Data (g)	• Construction costs by building type • Parking construction costs • Rent by building type and parking • Capitalization rate • Vacancy	Construction costs Market data (Sources presented later in the guidebook)

USER TIPS AND NOTES FOR PRELIMINARY DATA COLLECTION

a) A parcel shapefile serves as a foundation for spatial analysis and cartography. Join the parcel file with other data files (primarily assessor's data using the PIN-parcel identification number).

b) Create one complete database of assessor's information. To reduce double counting in growth estimates, group assessor parcel records by PIN, average improvement and land value fields, number of units and buildings and sum building sf. This eliminates duplicate parcel records where numerous buildings are found on a single parcel.

c) Zoning data recorded by the assessor may not be up to date with municipal records, therefore analysts should use this information with caution. "Landnetacres" can provide lot size information, however GIS parcel files often provide a more accurate source of information.

d) The IMPROVEMENT extract has a wealth of potentially useful information. Fields such as condition, quality and age can be used to help analyze the "desirability of redevelopment" amongst re-developable parcels.

e) Collect zoning information is a GIS format. Join zoning districts to respective parcels within zoning district boundaries by PIN or use a spatial join if the PIN field is not available. More information on zoning data is discussed later on in the guidebook.

f) Collect data for land uses specified in step 1 question 3 (above). Compare data across comparable cities and geographies to understand current market conditions in defined study area. More information on market data is discussed later on in the guidebook.

Step 3. Define Market Districts

Market districts are used to determine the "attractiveness" or "market potential" of a specific area to command a certain level of rent and quality of construction.

Defining market districts is an inexact science that requires judgment. First, map current assessor data to identify areas with "high" or "low" sources of value to date. Improvement value per square foot of lot size demonstrates the relative amount of investments in an area, indicative of how the market has valued the area. (Divide improvement value by square feet of lot).

Study value patterns. In some cases, this measure results in relatively clear patterns of investment (see E**xhibit A-2** and notes for Tacoma example) in others it does not (see **Exhibit 3** for Puyallup on **page 11**). Study physical boundaries that define an area such as highways, natural boundaries, or clusters of prominent land uses. Examine past development patterns. Delineate districts based on these methods. Create a GIS shapefile of market districts. Using GIS, define a market district classification for each parcel within the study area.

USER TIPS AND NOTES FOR DEFINING MARKET DISTRICTS

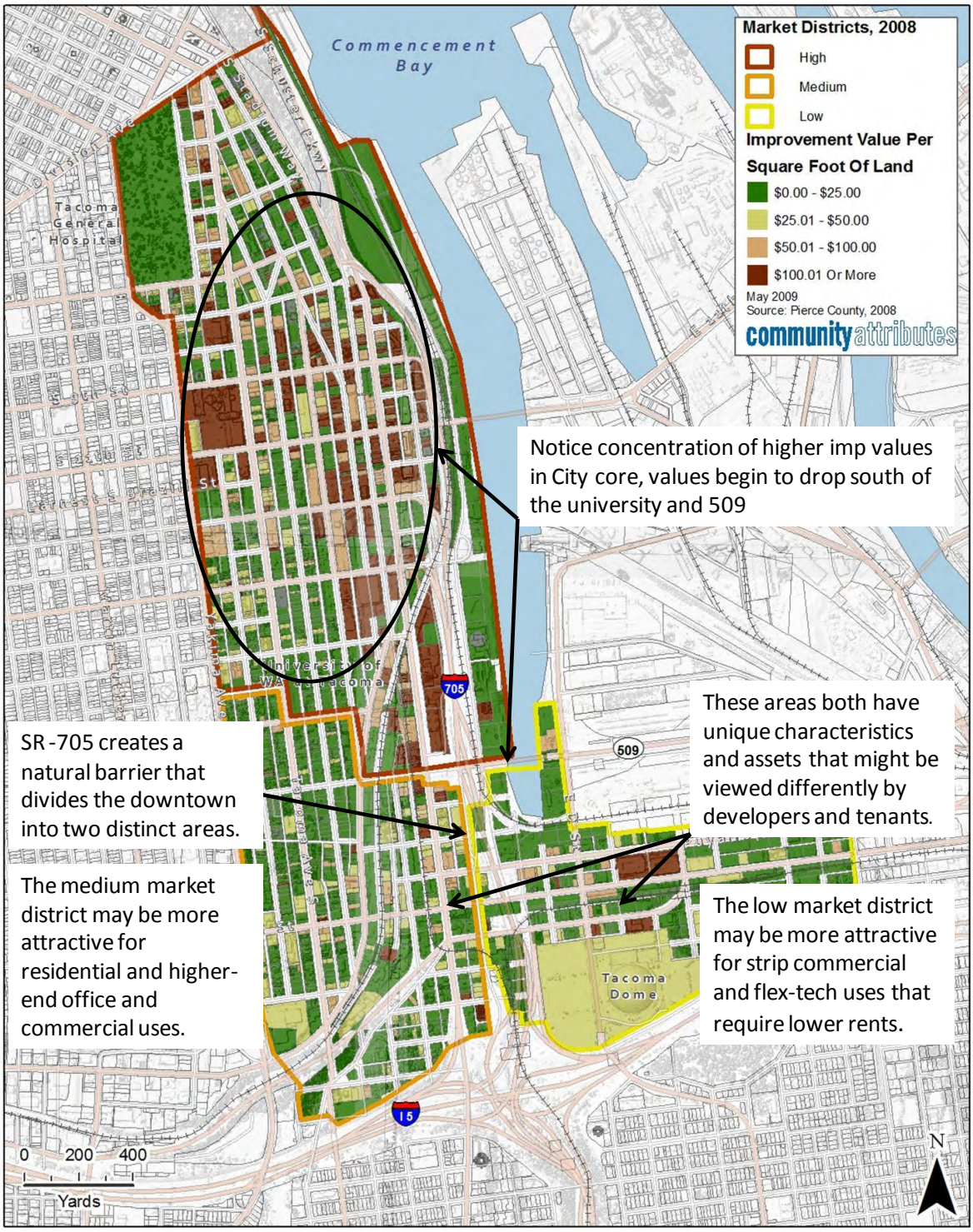
- Establish a small review committee of local stakeholders to review and confirm market districts. Members of the review committee should have knowledge of past and present market conditions and development patterns.

- Market districts can be adjusted or specific parcels can be flagged for unique circumstances.

- In small areas (such was the case in Puyallup) market conditions will not vary significantly from one district to the next. In these cases, classify an area as a single market district, or delineate market districts to match zoning districts.

- Variation in inputs and assumptions should be minimized when defining market assumptions for small geographic areas that share similar characteristics.

Exhibit A-2. Defining Market Districts in the Tacoma Study Area using Imp Value/SF of Lot



Step 4. Create Input and Assumption Tables

Outcomes of the LVP analysis are only as good as the assumptions that go in to the analysis. Analysts will likely have to adjust inputs and assumptions before finalizing LVP calculations. Defining inputs and assumptions is an important task that affects growth capacity calculations. Use sensitivity analysis to examine how variations in inputs and assumptions impact identification of redevelopable lands and growth capacity estimates.

Define Market Inputs and Assumptions

Create one market input table for each land uses analyzed. Begin by constructing the framework for market input tables. **Exhibit A-3** below identifies each market input used in the LVP analysis. Sources of data are provided with web links to data providers. References and user tips link to other parts of the report where the analyst can find additional information. Additional details on assumptions and inputs used in this analysis are provided after **Exhibit A-3**.

Exhibit A-3
Market Data Input and Assumptions

MARKET INPUTS	Directions and Key Questions	Source of Data, Reference & User Tips
Building Construction Cost (4a)	• Define building cost per square foot for each land use analyzed within each market district. • Choose the appropriate data input based on the two steps below; adjust as needed. See **Appendix C** for data. • First, define commercial or residential building types most likely to be built in each market district (i.e. office, retail or strip for commercial; attached or detached for residential) • Second, define construction quality for building type. Ask, will construction quality for each land use be "high" or "low" quality based on market district assumptions and previous development?	Go to Step 4a. Define Assumptions, Building Costs. Source: Rider Levett Bucknall (RLB) http://www.rlb.com/ • Evaluate assumptions for building type and construction quality against current building patterns, new developments and recent permit activity in market districts. • Review construction cost assumptions with local developers. • For-sale and for-rent multi-family can be modeled simultaneously.
Parking Construction Cost (4b)	• Define parking cost per square foot within each market district. • Choose the appropriate data input from **Appendix C** based on the two steps below; adjust as needed. • First, define parking construction types most likely to be built in each market district (i.e. above or below ground, surface)? • Second, define construction quality for parking. • Above ground low-end parking structures for urban centers for all land uses. A slight premium in Tacoma's high market district is assumed.	Go to Step 4b. Define Assumptions, Parking Costs. Source: Rider Levett Bucknall (RLB) http://www.rlb.com/ • Examine parking structures for new developments in market districts to ground truth assumptions. • Analysts may choose to reduce parking costs to replicate surface parking or increase costs to replicate underground parking.

MARKET INPUTS	Directions and Key Questions	Source of Data, Reference & User Tips
Demolition Costs (4c)	• Define a consistent redevelopment cost (as a percentage of existing value at the site) for all land uses in all market districts. • Use pro forma analysis of successful redevelopment projects to help calibrate this input (see **Appendix B**) • Redevelopment costs 10% of improvement value	Go to Step 4c. Define Assumptions, Demolition Costs See **Appendix B** for pro forma analysis
Soft Costs (4d)	• Soft costs include architectural fees, permit review and other costs that developers incur during the development process. • 33% of hard construction costs; a common industry standard.	Go to Step 4d. Define Assumptions, Soft Costs See **Appendix B** for pro forma analysis
Entrepreneurial Return (4e)	• The analysis assumes that developers will require a 10% return on their investment. • Entrepreneurial return will vary by investor and by project and is subject to many intangible factors such as developer credit, capital sources, lending practices, etc.	Go to Step 4e. Define Assumptions, Entrepreneurial Return See **Appendix B** for pro forma analysis
Building Rent (4f)	• Define building rents per square foot for each land use analyzed within each market district. • Choose the appropriate data input from **Appendix D** based on building type and construction quality assumptions defined for building costs in step 4a. • Use pro forma analysis of successful redevelopment projects to help calibrate these inputs (see **Appendix B**) • Adjust rental prices to account for a "rental premium" associated with new development.	Go to Step 4f. Define Assumptions, Building Rents. Source: www.realestatereport.org www.cbre.com ; www.grubb-ellis.com ; www.gvakm.com • Analyst judgment is required to define building rents. • LVP outcomes are highly sensitive to rental price assumptions, therefore we recommend using sensitivity analysis, to test adjustments to rent assumptions.

MARKET INPUTS	Directions and Key Questions	Source of Data, Reference & User Tips
Parking Rent (4g)	• Define parking rents per square foot for each land use analyzed within each market district. • Use pro forma analysis of successful redevelopment projects to help calibrate these inputs (see **Appendix B**) •	Go to Step 4g. Define Assumptions, Parking Rents. Source: http://www.dsaa.com/ for apartment parking rates. • Test different rental prices to determine the cost of one parking spot. • Call local parking providers, property managers to ground truth rent assumptions
Cap Rate (4h)	• Define a cap rate for all land uses in all market districts. • Use pro forma analysis of successful redevelopment projects to help calibrate this input (see **Appendix B**) • 6.000%. Reflects market averages in 2009.	Go to Step 4h. Define Assumptions, Cap Rate See **Appendix B** for pro forma analysis See **Appendix F** for definition of cap rate • Call real estate agents, local lenders to ground truth cap rate assumptions • LVP outcomes are highly sensitive to cap rate assumptions, by keeping cap rate assumptions consistent it helps ensure equitable analysis
Operating Expense (4i)	• Define a consistent operating expense for all land uses in all market districts. • Use pro forma analysis of successful redevelopment projects to help calibrate this input (see **Appendix B**) • 30% for building operation; 15% for parking operation (Reflects market averages in 2009)	Go to Step 4i. Define Assumptions, Operating Expenses See **Appendix B** for pro forma analysis See **Appendix F** for definition of operating expense • Reduce operating expenses to model the impacts of public incentives (i.e. property tax exemptions) on project feasibility

MARKET INPUTS	Directions and Key Questions	Source of Data, Reference & User Tips
Vacancy (4j)	• Define vacancy rates for each land use analyzed within each market district. • Choose the appropriate data input from **Appendix D** based on building types chosen in step 4a. • If multiple land use types assumed in a single market district, average and adjust vacancy rates data for each land use • Adjust average vacancy rate data downwards for new construction to replicate higher demand. • Define lower vacancy rates for high market districts to replicate desirability of location.	Go to Step 4j. Define Assumptions, Vacancy Rates Source: www.realestatereport.org www.cbre.com ; www.grubb-ellis.com ; www.gvakm.com • Adjust vacancy rates upward as a more conservative approach.
Building Efficiency (4k)	• Define a consistent building efficiency for all land uses in all market districts. • 90% for commercial uses and 85% for multi-family uses assumed.	Go to Step 4k. Define Assumptions, Building Efficiency • Decrease building efficiency to account for special zoning considerations that decrease buildable area.

USER TIPS AND NOTES FOR DEFINING MARKET INPUTS

STEP 4A. CONSTRUCTION COST ASSUMPTIONS

Reference **Appendix C** for construction costs. See also **Exhibits 5-12** beginning on **page 14.**

HIGH MARKET DISTRICTS:

Commercial

- Tacoma ($190/sf) - A mix of high-end prime and secondary office uses. This analysis assumes average cost between the range of high-end prime ($210/sf) and high-end secondary ($175/sf) office uses. Note, retail could still be considered, but construction costs would be more comparable to costs for office uses.

- Puyallup ($160/sf) – high-end secondary office and retail. This analysis assumes average cost between the range of high-end secondary office ($175/sf), high-end shopping center ($165/sf) and strip retail ($135/sf).

Multi-family Residential

- Tacoma ($200/sf) – Above average multi-family construction quality. There is a large range in multi-family construction costs exist in the Seattle MSA ($130 – $260/sf). This analysis assumes above average cost ($195 average cost between low and high end multi-family construction).

- Puyallup ($170/sf) – Slightly below average multi-family construction quality. Average cost within region is $195. Puyallup assumptions are slightly above Tacoma medium market district.

- Assumptions for construction costs were also calibrated by pro forma analysis of successful multi-family developments in the Tacoma and Puyallup areas.

MEDIUM MARKET DISTRICTS (DEFINED FOR TACOMA ONLY):

Commercial

- Tacoma ($155/sf) - High-end secondary office and retail. This analysis assumes average cost between the range of high-end secondary office ($175/sf), high-end shopping center ($165/sf) and strip retail ($135/sf). Costs in Tacoma medium market district are between those assumed for Puyallup high and low market districts. Assumptions align with commercial character of the market district.

Multi-Family Residential

- Tacoma ($160/sf) - Slightly below average multi-family construction quality within the region. Average cost within region is $195. Construction cost assumptions are slightly lower than Puyallup high market district, and the same as Puyallup low market district.

LOW MARKET DISTRICTS:

Commercial

- Tacoma ($110/sf) – Average construction quality for retail uses, high-end construction quality for warehouse and flex-tech. Assumptions align with existing and planned land uses in the Tacoma's low market district.

- Puyallup ($150/sf) – High-end retail and secondary office. Costs are slightly lower than high market district. Base data for assumed building types range from ($135/sf to $175/sf). Assumptions are similar to the medium market district assumptions in Tacoma.

Multi-family Residential

- Tacoma ($130/sf) - Multi-family construction costs in Tacoma represent low-end multi-family construction costs identified by RLB.

- Puyallup ($160/sf) - Slightly below average construction quality within the region. Average cost within region is $195. Construction cost assumptions are slightly lower than Puyallup high market district, and the same as Tacoma medium market district.

STEP 4B. PARKING COST

Reference **Appendix C** for construction costs. See also **Exhibits 5-12** beginning on **page 14.**

- Parking construction costs assume low-end above ground parking structures. ($75/sf). In Tacoma's high market districts, a cost premium is assumed for improved quality and aesthetics ($83/sf).

STEP 4C. DEMOLITION COSTS

Little information exists on demolition costs. Demolition costs are based on a number of unique factors such as building materials, contamination, etc. Demolition costs are assumed to be a constant 10% of existing improvement value, consistent with similar analyses used in California. Analysts may choose to adjust this assumption to account for unique site conditions.

STEP 4D. SOFT COSTS

Soft costs include architectural fees, permit review and other costs that developers incur during the development process. Soft costs are assumed a constant 33% of hard construction costs; a commonly held industry assumption.

STEP 4E. ENTREPRENEURIAL RETURN

The analysis assumes that developers will require a 10% return on their investment. 10% is added on top of the sum of hard costs, soft costs, and demolition costs. Entrepreneurial return will vary by investor and by project and is subject to many intangible factors such as developer credit, capital sources, lending practices and many others.

STEP 4F. BUILDING RENT

Reference **Appendix D** for rental data. See also **Exhibits 5-12** beginning on **page 14.**

HIGH MARKET DISTRICTS:

Commercial

- Tacoma ($30/sf) - A mix of high-end prime and secondary office uses. Data identifies average office rents in Tacoma CBD ranging between $22/sf and $23/sf (CBRE Richard Ellis and Real Estate Research Report). Pro forma analysis implies that rental rates in recent Tacoma projects were approximately $27 (see Poole's Corner and Rainer Pacific). Rental rates adjusted to $30/sf to account for rental premium of new construction in most desirable location.

- Puyallup ($28 /sf) - high-end secondary office and retail. Data identifies rental rates of approximately $25 for office (CBRE Richard Ellis and Real Estate Research Report) and $22 for retail (CBRE Richard Ellis). Rental rates adjusted to $28/sf to account for rental premium of new construction in high market district.

Multi-family Residential

- Tacoma ($26/sf) – Above average construction quality. Data shows average apartment rents ranging from $11 to $12 per square foot. Pro forma analysis demonstrates that rents for new units command $24/sf or more in Tacoma (Bella on Broadway, 505 Broadway, Mercato – note that 505 Broadway and Mercato are expressed in sale price/sf). Base data on rents are adjusted to $26/sf to account for rental premium of new construction in most desirable location.

- Puyallup ($22/sf) – Slightly below average construction quality. Data shows average apartment rents of $12.50 per square foot. Rental rates adjusted to

$22/sf to account for rental premium of new construction in most desirable location.

MEDIUM MARKET DISTRICTS (TACOMA ONLY):

Commercial

- Tacoma ($25/sf) - High-end secondary office and retail. Data identifies average office rents in Tacoma CBD ranging between $22/sf and $23/sf and retail rates of $20/sf (CBRE Richard Ellis and Real Estate Research Report). Pro forma analysis indicated that rents between $27 and $20 would be reasonable for this market district (See Poole's Corner and 38th and Pacific Shopping Center). Rental rates set at $25/sf to account for rental premium of new construction.

Multi-family Residential

- Tacoma ($20/sf) – Slightly below average construction quality within the region. Data shows average apartment rents ranging from $11 to $12 per square foot. Pro forma analysis (see 6th Ave Area Townhomes) indicated that rents of $20/sf to be reasonable. Base data adjusted to $20/sf to account for rental premium of new construction.

LOW MARKET DISTRICTS:

Commercial Land Uses

- Tacoma ($18/sf) – Average construction quality for retail uses, high-end construction quality for warehouse and flex-tech. Pro forma analysis (see 38th and Pacific Shopping Center and Johnsborogh Station) are representative examples of assumed development type and quality. Rents between $20 and $16/sf appear to support feasible redevelopment. Data identifies average office rents in Tacoma ranging between $22/sf and $23/sf and retail rates of $20/sf (CBRE Richard Ellis and Real Estate Research Report). Base data rates adjusted downward to accommodate inclusion of high-end warehousing and flex-tech uses that require lower rental rates.

- Puyallup ($26/sf) – Pro forma analysis (see Jerome Center Mixed Use, Rieder Medical and Puyallup Activity Center) supports assumed rental rates around $24, which closely aligns with other data sources ($24/sf to 22/sf). Rents assumed to be similar to Puyallup high market district and Tacoma medium market district. Base data adjusted to $26/sf to account for rental premium of new construction.

Multi-Family Land Uses

- Tacoma ($18/sf) – Low-end multi-family. Data shows average apartment rents ranging from $11 to $12 per square foot in Tacoma. Pro forma analysis (see 6th Ave Area Townhomes) indicated that rents of $20/sf to be

reasonable in more desireable locations. Base data adjusted to $18/sf to account for rental premium of new construction.

- Puyallup ($19/sf) - Slightly below average construction quality within the region. Rent assumptions are slightly lower than Puyallup high market district and Tacoma medium market district. Base data shows average apartment rents of $12.50 per square foot (Real estate Research Report). Rental rates adjusted to $19/sf to account for rental premium of new construction.

STEP 4G. PARKING RENT

Little formal data exists on parking rents. Pro forma analysis supports parking rate assumptions (see 505 Broadway). Calls to local parking service companies (Diamond Parking) and local real estate agents (GVA Kidder Mathews) cite similar monthly rates as those assumed for garage parking – averaging between $160 to $150 in Tacoma locations – which align with multi-family and commercial assumptions for Puyallup and Tacoma's medium and low market districts. A premium for new on-site parking is assumed for Tacoma's high market district.

STEP 4H. CAPITALIZATION RATE

The capitalization rate is the percentage of the initial investment that a developer wishes to re-capture each year on his/her investment. Cap rates demonstrate the "appetite for risk" within the real estate market where high cap rates, equate to high risk (need to re-capture money quickly, greater-uncertainty about rents, vacancy, etc.) and low rates equate to low risk (willing to re-coup money more slowly because of high demand for space, willingness to pay for rents). Cap rates vary depending on intangible factors such as developer credit and capital, lending practices, among others. Cap rates in this analysis are set at 6.000% to replicate current market conditions. LVP results are highly sensitive to small adjustments in cap rates, therefore keeping cap rates constant isolates this factor.

STEP 4I. OPERATING EXPENSE

Operating expenses or the cost of maintaining and operating the building, are held at a constant 30% of rental rates for buildings and 15% for parking. Dupre and Scott identify operating expenses of approximately 30% for apartment buildings in the Puget Sound region. The analyst has the flexibility to reduce operating expenses to account for certain redevelopment incentives (e.g. property tax abatements, developer agreements, etc) that would reduce annual expenses of operating a new property.

STEP 4J. VACANCY

Commercial

- In the second quarter of 2009, vacancy rates identified for office uses in downtown Tacoma range from 10% to 13% (7% for suburban Tacoma locations) and 3% for retail uses. Vacancy rates for warehousing uses in Tacoma are over 8%. For flex-tech uses, vacancy rates are over 15% region-

wide. In Puyallup, office vacancy ranges from 14.6% to 18.5% and over 9% for retail. Sources of vacancy rates include CBRE Richard Ellis, GVA Kidder Matthews, and the Puget Sound Real Estate Research Report.

- Tacoma - This analysis assumes baseline conditions of 10% commercial vacancy in Tacomas' low market district, the greatest level of vacancy in the study area. Tacoma's medium market district assumes an 8% commercial vacancy rate and the high market district assumes a 6% vacancy rate. Both high and medium market districts assume a blended vacancy rate between office and retail uses, with the high market district identified as the most desirable locations, therefore having less vacancy.

- Puyallup – This analysis assumes a 10% vacancy rate for both high and low market districts due to close proximity. The vacancy rate represents a blend of office and retail vacancy rates. Base data is adjusted downward to replicate higher demand for new office and retail space.

Multi-Family

- Multi-family vacancy rates identified for Pierce County average 6% in Quarter one of 2009. CBRE Richard Ellis identifies a 5% vacancy rate in Tacoma, Grubb and Ellis identifies 5.2% multi-family vacancy in downtown Tacoma. Vacancy rates for Puyallup range from 5.1% to 6.7%.

- Tacoma – 5% vacancy is assumed for the high market district, 6% for the medium market district, and 7% for the low market district. Vacancy rates are adjusted downward for less desirable market districts.

- Puyallup – a 6% vacancy rate is assumed for both high and low market districts. This vacancy represents the Pierce County average and is between the range of vacancy identified for Puyallup.

STEP 4K. BUILDING EFFICIENCY

Building efficiency, or the net leasable area, is assumed a constant 90% for commercial uses and 85% for multi-family uses. Areas in a building such as hallways and stairwells cannot be rented and therefore are excluded from building rent prices.

Define Zoning Inputs and Assumptions

Use local zoning ordinances to define zoning inputs shown in **Exhibit A-4**. Gather information for each zoning district found in the study area(s). Tacoma and Puyullap are used to illustrate important concepts for the analyst's benefit.

Define floor area ratio for each allowable land use (that is being analyzed) in each zoning district within the study area(s). Some zoning districts have an established FAR, others do not, but rather define lot coverage, maximum height or unit per acre requirements.

Define the percentage of buildable area (defined by multiplying FAR times lot size) in each zoning district that must be dedicated to parking. The remaining percentage of buildable area not dedicated to parking is designated as building area.

Use the following equation (customize the following equation based on zoning information available) to determine FAR and area allocations for parking and building requirements simultaneously (**Exhibit A-5, page 59**). The equation must be entirely set up first, in order to calculate the values in the blue cells. To see zoning calculations for all land uses and zoning districts in study areas see **Appendix E.**

Exhibit A-4
Zoning Data Input and Assumptions

ZONING INPUTS	Directions and Key Questions	Source of Data, Reference, User Tips
Floor Area Ratio	*If FAR is established:* • Identify applicable FAR for each zoning district in study area • Identify FAR for each prospective land use (for example Tacoma establishes a higher FAR for residential uses than it does for commercial uses in downtown zoning districts) and insert FAR into zoning input tables for each associated land use and zone *If FAR is not established:* • Identify zoning standards that determine building capacity such as height, max lot coverage, minimum lot size. Document different standards for different land uses if applicable. • Use equation in **Exhibit A-5** to estimate FAR for each zoning district. • Review FAR assumptions with municipal planners.	Source: Municipal Zoning Codes • Test multiple levels of FAR within each zoning district for each land use to identify a range of revelopable lands and growth capacity estimates. • Test multiple FARs if zoning codes provide incentives to increase building capacity (Tacoma zones DCC, DMU, DR, WR; Puyallup zone CBD) • Analysts will conduct multiple iterations of LVP calculations for each FAR established, for each land use. • Analysts may chose to replicate multiple levels of FAR to test feasibility of building at an FAR less than the max allowable FAR
% Buildable Area for Parking Construction	• If zoning requirements require parking, analysts must quantify the portion of the site that must be set aside for parking. • Identify zoning requirements for each land use within each zoning district. Collect information on the number of stalls required per square foot of land use or number of residential units. • Assume a standard parking stall size for calculations (shown in **Exhibit A-5**)	Source: Municipal Zoning Codes • If testing multiple land uses, then zoning codes will likely specify different parking requirements. • Conduct unique parking calculations for each land use
% Buildable Area for Building Construction (% area not dedicated to parking)	• Use the equation in **Exhibit A-5** to determine the percent of the site that can be used for building construction (not for parking). • Tailor the equation to the information available in the zoning code.	Source: Municipal Zoning Codes • Calculating parking requirements requires knowing how large the building could be on each respective site. Likewise, knowing how large the building can be requires knowing how much parking is required.

Exhibit A-5 demonstrates calculations used to determine an FAR, parking requirements and building requirements for a commercial use in Puyallup's CBD zoning district. Known information from the zoning code is shaded in gray and assumptions are shaded in green. Cells outlined in red, are the outputs of the analysis. Blue denote cells that require special calculations.

This calculation represents a tailored approach to Puyallup given the information available. Calculations are adjusted based on the information known. For this equation to work, analysts should set up the entire equation first (inputs and formulas) and then perform calculations highlighted in blue.

Exhibit A-5
Sample Zoning Input Calculations used in Puyallup Case Study for CBD Zoning District, Commercial Land Uses

Key	Input	Outcome	Equation
a	Height	36	Given
b	Lot coverage	90%	Given
c	Assumed lot size (sf)	40,000	Assumed
d	Story height	10	Assumed
e	Max buildable area (sf)	1,296,000	height (a) * lot coverage (b) * Lot size (c)
f	Max buildable footprint	129,600	Buildable area (e) / story height (d)
g	Bldg FAR	1.56	Enter ball park number
h	Bldg Area	62,210	Bldg FAR (g) * Lot Size (c)
i	Parking required (bldg sf per stall)	300	Given
j	Stalls required	207	Bldg area (h) * parking requirement (i)
k	Parking stall (sf)	325	Assumed or given
l	Parking Area	67,394	Stalls required (j) * assumed stall size (k)
m	Parking FAR	1.68	Parking area (l) / lot size (c)
n	Total Buildable Area	129,600	Parking area (l) + Building area (h)
o	Total FAR	3.24	Building FAR (g)+ Parking FAR (m)
p	Building allocation ratio	48%	Building FAR (g) / Total FAR (o)
q	Parking allocation ratio	52%	Parking FAR (m) / Total FAR (o)

Notes

1. Select "excel options" under file or windows icon. Under formulas check the box that says, "enable iterative calculations"

2. Select "what if analysis" (under the "Data" menu) and choose "goal seek."

3. "Set cell" to reference "total buildable area" (step n)

4. "To value" plug in value for max building footprint calculated in step f

5. "By changing cell" select cell reference corresponding to Bldg FAR in step g.

This automatically calculates Bldg FAR based on parking, height, and lot coverage inputs

These are the primary inputs used in the zoning assumption tables.

It may be beneficial to calculate FAR to guide the process of setting up this long equation. Analysts can alternatively calculate FAR using the following equation:
height*lot coverage /story height.

USER TIPS AND NOTES FOR DEFINING ZONING INPUTS

- It is very difficult to incorporate all nuances of zoning for every parcel and every possible development scenario in the LVP approach. Include the basic factors that have major influence on development (such as building capacity and parking requirements).

- If there are other zoning requirements that reduce building size on a site, be conservative with other inputs. There are various assumptions that can be adjusted such as parking stall size (increase this to account for larger setbacks, open space requirements, etc) or building efficiency (see step 4k). Analysts can adjust inputs at any point in the analysis.

- Test redevelopment feasibility for land uses at multiple levels of FAR. Some zoning districts, such as downtown zoning districts in Tacoma, establish incentive programs with various levels of bonus FAR. In this case, use the baseline FAR as the low starting point, and two other levels of FAR (as defined by maximum FAR allowances under incentive programs) to establish medium and high FARs. For districts with no FAR, establish a maximum FAR and then decreased FAR by 2/3 and 1/3 to create two other levels of lower FAR.

- When considering options for analyzing FAR, analysts should answer a key question*: Is it reasonable that the developer will always build to the maximum FAR?*

  This question has important implications to buildable lands calculations. Developers don't build to max FAR all the time, for every project. (This was a key finding in pro forma analysis). Develop a sensitivity matrix to quantify buildable lands (net units, population and jobs) and make policy judgments about target redevelopment and buildable lands.

Step 5. Sensitivity Inputs and Assumptions

Sensitivity analysis is used to test the "sensitivity" of assumptions and their impact on LVP outcomes. Sensitivity analysis helps test redevelopment feasibility under various scenarios that could represent changing market conditions or zoning amendments. Sensitivity analysis also supports integrity of the analysis, by demonstrating multiple scenarios were considered when identifying redevelopable parcels and defining growth capacity.

This section of the guidebook will discuss three key inputs that are used to conduct sensitivity analysis: rent, vacancy and FAR.

SENSITIVITY ANALYSIS OF RENT INCOMES

Construction costs and rent are two of the most influential inputs into the LVP calculations. This analysis holds construction costs constant and tests changes rental rates. Sensitivity analysis tests a 10% increase in rents in Tacoma and 10% and 15% increases in rents in Puyallup.

VACANCY

Sensitivity analysis tests increases vacancy rates by a factor of 10% in the Tacoma study area. For example, the 5% vacancy for multi-family land uses in the high market district was adjusted up to 5.5%.

SENSITIVITY ANALYSIS OF FLOOR AREA RATIO

Multiple levels of FAR were tested in Tacoma and Puyallup. Three levels of FAR were established in Tacoma (guided by zoning incentives) and two in Puyallup for the CBD zoning district. FAR is influential when determining redevelopment feasibility and is influential in translating LVP outcomes to measures of growth capacity.

Sensitivity analysis requires reiterative calculations to test each respective scenario. For example, in Tacoma, this analysis tests feasibility for two different land uses, at three levels of FAR (baseline, medium and high) and three scenarios (baseline, 10% increase in rent; increase in vacancy). In total 18 iterations of LVP calculations are made in Tacoma. In Puyallup, analysis requires six iterations of calculations (2 land uses, 3 levels of rent).

Step 6. Assemble Custom Data Set for LVP calculations

The last step in the first stage of the LVP method is to assemble a custom data set, from which LVP calculations will be based. Begin this step once the scope of the analysis has been defined, the appropriate data has been gathered and market, zoning and sensitivity inputs have been defined.

First, assemble base data collected in step 2. **Exhibit A-6** demonstrates the fields that should be present. All fields except the zoning district and market area are present in County Assessor's data. To incorporate zoning districts and market area fields, use GIS. Overlay zoning and market area shapefiles with the parcel file. Use the spatial join function or select by location feature to define applicable zoning districts and market areas for each parcel.

Exhibit A-6
Example of Base Data and Fields for Conducting LVP Calculations

PIN	2009040023
Group Account No	
Land Value	$ 162,200
Improvement Value	$ 449,800
Total Value	$ 612,000
Land Use	RESTAURANT
No. Bldgs	1
No. Residential Units	0
Building SF	6000
Lot Size (sf)	6,079
Zoning District	DCC
Market Area	High

Next, link input and assumption tables to the base data using zoning district and market area fields. Linking input tables to base data allows analysts to easily make adjustments inputs and update calculations automatically.

When analysts connect input data with base data, they have compiled all the necessary information to conduct LVP calculations in Stage 2 of the LVP methodology.

Stage One Review

By this stage in the analysis, analysts should have:

- Defined the scope of the analysis, including the study area, the existing land uses and parcels to be analyzed, and prospective land use types to analyze
- Gathered base data from various sources
- Defined market districts along with several key market and zoning inputs
- Decided on an approach to sensitivity analysis and defined inputs to use in sensitivity analysis
- Assembled all data in a database model to be used for LVP calculations.

Stage 2. Calculate Land Value Potential

Set up a model to conduct LVP calculations. The model can be set up in Microsoft Excel and linked to GIS or can be completely programmed within GIS. For this demonstration project an excel model was used, because it allows for greater flexibility in developmental stages of the LVP method.

The goal of LVP calculations is to determine the residual land value (i.e. the capital available to acquire a development site after accounting for anticipated developments costs, net operating incomes and returns on investment). Mathematically, residual land values are calculated as follows:

(1) Present value of net operating income anticipated on-site over time (for perpetuity)

(2) – Development and Demolition Costs (excluding site acquisition)

(3) – Expected or Required Return on Development (Profit required to take the risk of developing the site)

(4) = Resources (dollars) left to purchase site, or the residual land value

The outcome of the calculation results in a theoretical willingness-to-pay for the opportunity to develop and operate a commercial or residential project, given market conditions and profit requirements. If the residual land value (4) is greater than or equal to the anticipated asking price of the parcel from the seller (defined as total assessed value), then the parcel is considered feasible for redevelopment.

The following presents a single example of LVP calculations, testing redevelopment feasibility of a commercial use, in Tacoma's high market district, under baseline FAR and rental rate assumptions. (See **Exhibit 5 and 7** for inputs and assumptions) In illustrations, green cells highlight assumptions, gray cells highlight base data.

Calculate Present Value of Gross Income Generated By New Construction over Time

NOI for buildings and parking structures on the site (Exhibit A-7).

Determine total building area by multiplying the lot size by FAR. Next, determine the gross leasable area for buildings. Gross leasable area takes into consideration parking requirements (% of site required for parking, % of site available for building) and building efficiency[10].

Next, multiply gross leasable area by the assumed rental rate and occupancy (1-vacancy rate) to determine potential gross income. To calculate net operating

[10] Efficiency accounts for areas such as stairwells, mechanical equipment, have already been incorporated into stall size assumptions used to calculate parking requirements, therefore gross leasable area is calculated for building structures only.

income, multiple gross operating incomes by annual operating expenses (1-operating expenses, expressed as a % of gross income).

Sum building NOI and parking NOI to quantify the total net annual operating income for the site. Next, transform annual NOI into the present value of NOI by dividing NOI by the capitalization rate assumed (similar to an annual rate of return). In the example below, the present value of net operating incomes at the site is $3.84 million. This represents the "development value potential of the site," given assumed building types, market conditions and development capacity.

Exhibit A-7
Calculate Present Value of Gross Income Generated by New Construction over Time

1. Calculate Gross Leasable Area (GLA) for Building			
Lot Size		6,079	From Parcel Data
Baseline FAR (DCC Zone)		3	Linked from Zoning Input Tables
Buildable Area		18,238	Lot Size * FAR
% Buildable Area for Building		55%	Linked from Zoning Input Tables
Building Efficiency		90%	Linked from Market Input Tables
Building GLA		9,028	Buildable Area * % Buildable Area for Bldg * Efficiency
2. Calculate Net Operating Income (NOI) for Building			
Vacancy		6.00%	Linked from Market Input Tables
Assumed Building Rent ($/sf)	$	30.00	Linked from Market Input Tables
Gross Operating Income	$	254,584	GLA * (1-% Vacancy) * Rent
Operating Cost		30%	Linked from Market Input Tables
Building NOI		178,209	Gross Operating Income * (1-% Operating Costs)
3. Calculate Parking GLA and NOI			
% Buildable Area for Parking		45%	Linked from Zoning Input Tables
Parking GLA		8,207	Buildable Area * % Buildable Area for Parking
Vacancy		6.00%	Linked from Market Input Tables
Assumed Parking Rent ($/sf)	$	8.00	Linked from Market Input Tables
Operating Cost		15%	
Parking NOI	$	52,460	Parking GLA * (1-Vacancy) *Rent * (1-% Operating Cost)
4. Calculate Total Net Operating Income (NOI) for Site			
Building Space NOI	$	178,209	Step 2
Parking NOI	$	52,460	Step 3
Total NOI for Site	$	230,669	Building NOI + Parking NOI
5. Calculate Present Value of Net Operating Income (NOI) for Site			
Total NOI for Site	$	230,669	Step 4
Cap Rate		6.000%	Linked from Market Input Tables
Present Value of NOI for Site	**$**	**3,844,479**	Total NOI/Cap Rate

The cost of redevelopment at the site (Exhibit A-8). Sum hard costs, soft costs and demolition costs to calculate total construction costs.

- **Hard construction costs for building and parking structures.** Multiply buildable area by the percentage of buildable area dedicated for parking or allowed for building. Next multiply the buildable area for building and parking structures by their respective construction costs. Add building and parking construction costs to derive the total hard costs of construction.

- **Soft costs.** Soft costs are assumed in this model to be a constant percentage of hard costs for all developments. Multiply hard costs by soft cost assumptions to derive total soft costs for the development.

- **Demolition costs.** This analysis assumes that demolition costs are equal to 10% of existing improvement value (the value of existing buildings on the site).

Exhibit A-8
Calculate Development and Demolition Costs (excluding site acquisition)

6. Calculate Hard Construction Costs for Building			
Lot Size		6,079	From Parcel Data
Baseline FAR		3	Linked from Zoning Input Tables
Buildable Area		18,238	Lot Size * FAR
% Buildable Area for Building		55%	Linked from Zoning Input Tables
Assumed Bldg Cost	$	190	Linked from Market Input Tables
Building Cost	$	1,905,831	Buildable Area * % Buildable Area for Bldg * Bldg Cost
7. Calculate Hard Construction Costs for Parking			
Buildable Area		18,238	Lot Size * FAR
% Buildable Area for Parking		45%	Linked from Zoning Input Tables
Assumed Parking Cost	$	83	Linked from Market Input Tables
Parking Cost	$	681,175	Buildable Area * % Buildable Area for Parking * Parking Cost
8. Calculate Total Hard Construction Costs			
Building Cost	$	1,905,831	Step 6
Parking Cost	$	681,175	Step 7
Total Hard Costs	$	2,587,006	Building Cost + Parking Cost
9. Calculate Soft Costs			
Total Hard Costs	$	2,587,006	Step 8
Soft Costs as % of Hard Costs		33%	Linked from Market Input Tables
Soft Costs	$	853,712	Hard Costs * % Soft Cost
10. Calculate Demolition Costs			
Existing Improvement Value	$	449,800	From Parcel Data
Demolition Costs as % of Imp Value		10%	Linked from Market Input Tables
Demolition Costs	$	44,980	Improvement Value * % Demolition Costs
11. Total Construction Costs			
Hard Costs	$	2,587,006	Step 8
Soft Costs		853,712	Step 9
Demolition Costs	$	44,980	Step 10
Total Construction Costs	**$**	**3,485,699**	SUM(Hard Costs, Soft Costs, Demo Costs)

Developers expected return on development, or the profit required to take the risk of developing the site (Exhibit A-9). This analysis assumes that developers will require a return of 10% on their investment. Required return is expressed as a percentage of total costs. Multiply the total hard costs shown above (**Exhibit A-8**) by the percentage of required return.

Exhibit A-9
Expected Return on Development (Profit required to take the risk of developing the site)

12. Calculate Expected Return on Development			
Total Construction Costs	$ 3,485,699		Step 11
Required Return as % of Total Costs	10%		Linked from Market Input Tables
Entrepreneurial Return Required	$ 348,570		Required Return * Total Construction Costs

Residual land value, or the money left over to purchase the site. Subtract total construction costs and required return from the present value of net operating incomes on the site to determine the residual land value.

To determine if the site supports economically feasible redevelopment, compare the residual value to the site value (what would be the seller's asking price in a real transaction). In this case, site value is defined as the total assessed value (land value + improvement values). If the residual land value is greater than the site value, the parcel is redevelopable. If the site value is greater than the residual land value, the parcel is not redevelopable.

The residual land value is a theoretical "willingness-to-pay" for the opportunity to develop and operate a commercial or residential project at a site. In this example, the developer is willing to pay just over $10,000 to redevelop this site, given the value of construction (present value of NOI) minus the costs (construction costs and required return) at this site. In other words, the "land value potential" of this site is not great enough to justify the type of redevelopment modeled.

Exhibit A-10
Calculate Resources (dollars) Left to Purchase Site, or the Residual Land Value

13. Calculate Residual Land Value			
Present Value of NOI for Site	$ 3,844,479		Step 5
Construction Costs	$ 3,485,699		Step 11
Required Return on Investment	$ 348,570		Step 12
Residual Land Value	**$ 10,211**		Present NOI for Site - Const. Costs and Required Return
14. Determine Feasibility of Redevelopment			
Site Value	$ 612,000		From Parcel Data
Residual Land Value	$ 10,211		Step 13
Is Residual Land Value Greater			If RLV > Site Value, Yes
than Site Value?	**NO**		If RLV < Site Value, No
Is this site redevelopable?	**Not**		If RLV > Site Value, Redevelopable
	Redevelopable		If RLV < Site Value, Not Redevelopable

Identify Redevelopable Parcels

Assumptions are required to define what is considered a redevelopable parcel if multiple prospective land uses are analyzed. In this analysis, a parcel is considered redevelopable if either commercial or multi-family land uses are determined feasible. This analysis assumes that if one use is feasible, then the right mix of the two uses would also be redevelopable.

Calculate Buildable Land Capacity on Redevelopable Parcels

In the last step in Phase 2, calculate the building area or "capacity" on all redevelopable parcels. This step supports calculations of households, persons and jobs that can be accommodated on redevelopable parcels.

For all redevelopable parcels, multiply the gross leasable area for the building (calculated in step one, **Exhibit A-7**) by the occupancy rate (1-vacancy). Note, inclusion of building occupancy, building efficiency, and parking requirements within calculations at this stage of the analysis, allows for ease of growth capacity calculations by zoning district in stage 3.

After estimating the capacity of all redevelopable parcels, analysts have compiled the necessary information to conduct preliminary calculations of households, population and jobs that can be accommodated on redevelopable parcels in Stage 3 of the LVP methodology.

Stage Two Review

By this stage in the analysis, analysts should have:

- Conducted LVP calculations for each parcel in the study area
- Identified all parcels that support economically feasible redevelopment
- Calculate capacity of redevelopable parcels by using assumed FAR and accounting for market conditions

Stage 3. Calculate Growth Capacity of Redevelopable Lands and Evaluate Outcomes

This portion of the guidebook presents one possible option for estimating the number of households, persons and jobs that can be accommodated on redevelopable lands. These are referred to as "growth capacity" calculations. *Note that the methodology presented here is different than methods used in past buildable lands reports. For this approach to be used for future buildable lands methods, further study and analysis is required.*

Step 1. Define Growth Capacity Inputs and Assumptions

The first step in determining the growth capacity of redevelopable lands is to establish assumptions that serve as inputs into the analysis. Inputs must be established for each zoning district. **Exhibits A-12 and A-13** presents assumptions for Tacoma and Puyallup respectively; methods for defining inputs follows.

Exhibit A-12
Assumptions Used to Calculate Growth Capacity of Redevelopable Lands in Downtown Tacoma

	Growth Capacity Assumptions			Allocation of Land by Use	
Zoning District	Avg Housing Unit Size (sf)	Persons/HH	Avg SF/Job	% Residential Mix	% Commercial Mix
C2	1,000	2.32	440	0%	100%
DCC	1,000	2.32	440	25%	75%
DMU	1,000	2.32	440	25%	75%
DR	1,000	2.32	440	65%	35%
M1	1,000	2.32	440	0%	100%
M2	1,000	2.32	440	0%	100%
R3	1,000	2.32	440	100%	0%
R4	1,000	2.32	440	100%	0%
S8	1,000	2.32	440	50%	50%
UCX-TD	1,000	2.32	440	25%	75%
WR	1,000	2.32	440	65%	35%

Source: 2007 Buildable Lands Report, Pierce County, p. 296 and 298 (Persons/HH, % Res/% Comm)
Source: Community Attributes (Avg HU Size Assumption, % FAR calculations)
Source: PSRC, Pierce County Assessor (Avg Job/SF)

Exhibit A-13
Assumptions Used to Calculate Growth Capacity of Redevelopable Lands in Downtown Puyallup

	Growth Capacity Assumptions			Allocation of Land by Use	
Zoning District	Avg Housing Unit Size (sf)	Persons/HH	Avg SF/Job	% Residential Mix	% Commercial Mix
CBD	1,000	2.38	490	50%	50%
CBD-Core	1,000	2.38	490	50%	50%

Source: 2007 Buildable Lands Report, Pierce County, p. 227 (Persons/HH, % Res/% Comm)
Source: Community Attributes (Avg Household Size Assumption, % FAR calculations)
Source: PSRC, Pierce County Assessor (Avg Job/SF)

AVERAGE HOUSING UNIT AREA

Average square feet (sf) per housing unit is assumed by the analyst. This analysis assumes an average 1,000 sf per household, in part to keep assumptions consistent with LVP calculations and also based on data research. Ground-truth assumptions by examining the average building square footage for condo developments in downtown areas (use assessor records) or the average unit size in comparable multi-family developments recently constructed.

For redevelopment feasibility determinations, the LVP method is not very sensitive to this assumption, since most calculations are made on a per-square-foot basis. Larger units generate proportionally larger revenues.

PERSONS PER HOUSEHOLD

Persons per household are necessary to correlate buildable land calculations to population growth trends. This study was asked to consider absorption, which relies on comparing the redevelopable land to population growth trends or forecasts. This study was not undertaken to address policy-based growth targets, but the application is an obvious extension of the analysis. Household population is therefore included in the documentation.

The average number of persons per household is estimated by dividing the total number of persons in occupied housing units by the number of occupied housing units. Persons per household assumptions used in this analysis were defined in the 2007 Buildable Lands Report for Tacoma and Puyallup respectively, which were collected from OFM estimates.

Note that person per household assumptions may be adjusted to better represent the demographics of urban centers (i.e. smaller persons per household to represent a greater concentration of singles, empty nesters). Sensitivity analysis can also be applied to this assumption.

AVERAGE SQUARE FOOT PER JOB

Jobs metrics are only necessary to correlate buildable land calculations to employment growth trends or targets. This study does address absorption, which relies on comparison of redevelopable lands to employment trends projections. The study was not undertaken to address policy-based growth targets, but the application is an obvious extension of the analysis. Jobs are therefore included in the documentation.

This input was defined using a four step process. First, 2008 covered employment for Tacoma and Puyallup was collected from the Puget Sound Regional Council (www.psrc.org). Note, that "covered employment" represents employees covered by the Washington State Employment Act, which accounts for 85% to 90% of total employment. Next, adjust covered employment to a measure of total employment. Define a conversion factor by taking the ratio of current employment to covered employment. This analysis used a ratio of 1.13 to estimate total jobs (Note, the 2007 buildable lands report applied the same factor, derived by PSRC based on their estimates of jobs not covered by state unemployment insurance). Next, query

assessor's data to quantify total commercial building space for each respective study area (use only commercial codes). Finally, divide total commercial square footage by total employment to arrive at the average square foot per job.

Average square foot per job metrics can be customized for areas of higher or lower employment density such as urban centers or industrial centers. Customized analysis of this metric was beyond the scope of this demonstration project, but may be further refined for formal implementation. For more information, see page 15 of the 2007 Pierce County Buildable Lands Report and Pierce County Buildable Lands Program, Employment Density Survey, 2006.

ALLOCATION OF BUILDABLE CAPACITY BY LAND USE

Define the "mix" of land uses expected on redevelopable lands. Mix assumptions used in this analysis were defined in the 2007 Pierce County Buildable Lands Report. This proposed method, requires defining a combined percentage of commercial and residential uses equal 100% to allocate net redevelopable land[11].

Step 2. Summarize LVP outcomes for analysis

After defining inputs and assumptions, the analyst will summarize and organize LVP data to support buildable lands calculations.

Organize data by zoning district to integrate unique zoning considerations (such as mixed use) into buildable lands estimates. The analyst should quantify the following 6 metrics for each zoning district:

- The total number of parcels
- The total number of redevelopable parcels
- Total land area
- Total redevelopable land area
- Total occupied, gross leasable area for buildings on redevelopable parcels (for each level of FAR, if multiple FARs are tested)
- Total existing building square footage on redevelopable parcels.

Create a sensitivity matrix to summarize and compare growth capacity for each scenario. Creating a sensitivity matrix supports transparent examination of LVP estimates, assists in evaluation and adjustments of inputs, and enables policy judgments when necessary.

[11] Where vertical mixed use is expected, the 2007 buildable lands report identifies 100% of both commercial and residential uses. In the case of Puyallup downtown districts, a 50-50 mix of residential and commercial is assumed.

Step 3. Calculate Growth Capacity of Redevelopable Lands

The following **Exhibits A-14** through **A-16** present a single example of growth capacity calculations in downtown Tacoma's DCC zoning district at baseline FAR and baseline rental inputs.

NET BUILDABLE CAPACITY ON REDEVELOPABLE LANDS

To determine growth capacity, first determine the net occupied gross leasable area of buildings on redevelopable parcels (**Exhibit A-19**). This requires quantifying the amount of new building capacity under current zoning and the amount of existing building space that would be demolished to make way for redevelopment.

Exhibit A-14
Determine Net Buildable Capacity on Redevelopable Parcels

Step	Input	Value	Source or Equation
1. Calculate Net Occupied GLA for Redevelopable Parcles			
	Net Occupied GLA on Redevelopable Parcels	99,074	
	Existing Bldg SF on Redevelopable Parcels	12,500	
	Net Building Capacity on Redevelopable Parcels	86,574	Net Occupied GLA - Existing Bldg SF

HOUSEHOLDS AND PERSONS

Next, quantify how many households and persons can be accommodated within that buildable space (**Exhibit A-15**).

Multiply the percent residential "mix" by net building capacity to identify capacity for residential uses. Next, determine the total number of occupied housing units (aka households) by dividing net building capacity for residential uses by the assumed average household unit size.

Multiple households by the average persons per household assumed to determine the number of persons.

Exhibit A-15
Calculate Number of Households and Persons

Step	Input	Value	Source or Equation
2. Calculate Number of Households			
	Net Bldg Capacity on Redevelopable Parcels	86,574	Step 1
	% Residential Mix	25%	Linked to Assumption Table
	Occupied GLA for Residential Use	21,643	Net Building Capacity * % Residential Mix
	Average Household Size	1,000	Linked to Assumption Table
	Total Number of Households	**22**	Occupied GLA for Res Use / Average HH Size
3. Calculate Number of Persons			
	Total Number of Households	22	Step 2
	Average Persons per Household	2.32	Linked to Assumption Table
	Total Number of Persons	**50**	Total Households * Persons per Household

JOBS

To calculate the number of jobs, begin my multiplying net occupied building capacity on redevelopable lands by the percent mix assumed for commercial uses.

Divide the buildable space for commercial uses by the assumed average square foot per job to determine the total number of jobs.

Exhibit A-16
Calculate Number of Jobs

Step	Input	Value	Source or Equation
4. Calculate Number of Jobs			
	Net Bldg Capacity on Redevelopable Parcels	86,574	Step 1
	% Commercial Mix	75%	Linked to Assumption Table
	Occupied GLA for Commercial Use	64,930	Net Building Capacity * % Commercial Mix
	Average SF per Job	440	Linked to Assumption Table
	Total Number of Jobs	148	Occupied GLA for Comm Use / Avg SF per Job

Preliminary Growth Capacity Estimates of Redevelopable Lands Identified using the Proposed LVP Methodology

The following Exhibits (**A-17** through **A-20**) present *preliminary* growth capacity estimates for Tacoma and Puyallup study areas in detail. These outcomes are for demonstration purposes only. Buildable lands estimates require a formal process of involvement and evaluation that is beyond the scope of this demonstration project.

Exhibit A-17 demonstrates redevelopable lands in downtown Tacoma under baseline rental rate assumptions for the three levels of FAR analyzed. Under baseline rental assumptions, preliminary estimates indicate that 13% of land in downtown Tacoma is potentially redevelopable. Redevelopable lands could accommodate approximately 10,600 to 24,700 people and 12,500 to 35,700 jobs.

Exhibit A-16 demonstrates redevelopable lands in downtown Tacoma with higher vacancy rates (by a factor of 10%). Preliminary estimates indicate that 11% to 14% of land is potentially redevelopable; accommodating between 10,000 to 23,400 people and 11,200 to 34,100 jobs.

Exhibit A-17 demonstrates redevelopable lands in downtown Tacoma assuming 10% increase in rental rates. Preliminary estimates indicate that 30% to 39% of land is potentially redevelopable; accommodating between 15,000 to 42,200 people and 18,400 to 62,400 jobs.

Exhibit A-18 demonstrates redevelopable lands in downtown Puyallup under baseline and sensitivity analysis conditions. Preliminary estimates resulted in no parcels supporting redevelopment given baseline inputs and assumptions. Assuming 10% increase in rents, 16% of land was found to be redevelopable, with the potential of accommodating 1,400 people and 1,200 jobs. Under the most optimistic scenario, redevelopable lands could potentially accommodate over 3,500 persons and nearly 3,000 jobs.

Exhibit A-17
Downtown Tacoma Redevelopable Lands, All Land Uses, Baseline Rental Rate Assumptions

		Baseline Rent Assumptions							
	Redevelopable Lands	**DCC**	**DMU**	**DR**	**M2**	**S8**	**UCX-TD**	**WR**	**Total**
FAR by Right (Baseline)	Redevelopable parcels	10	4	13	1	46	60	-	134
	Redevelopable Land Area	70,975	85,261	158,247	328,666	2,116,765	594,013	-	3,353,928
	% of Total Land that is Redevelopable	2%	3%	3%	28%	68%	18%	0%	13%
	Re-development Bldg Capacity SF	99,074	79,344	147,265	351,964	8,906,791	1,202,877	-	10,787,314
	Existing Building SF	12,500	1	-	-	606,508	64,269	-	683,278
	Net Re-developable Bldg SF	86,574	79,343	147,265	351,964	8,300,283	1,138,608	-	10,104,036
FAR w Design Guidelines (Medium)	Redevelopable parcels	7	6	21	-	48	77	-	159
	Redevelopable Land Area	58,481	89,125	241,151	-	2,229,742	818,116	-	3,436,615
	% of Total Land that is Redevelopable	2%	3%	5%	0%	72%	25%	0%	14%
	Re-development Bldg Capacity SF	163,267	165,879	448,831	-	14,992,928	3,313,370	-	19,084,275
	Existing Building SF	-	1	1	-	887,205	255,301	-	1,142,508
	Net Re-developable Bldg SF	163,267	165,878	448,830	-	14,105,723	3,058,069	-	17,941,767
FAR w Special Features (High)	Redevelopable parcels	-	4	14	2	49	82	-	151
	Redevelopable Land Area	-	85,261	173,637	459,878	2,263,186	860,093	-	3,842,055
	% of Total Land that is Redevelopable	0%	3%	4%	39%	73%	26%	0%	15%
	Re-development Bldg Capacity SF	-	238,031	484,759	2,615,510	19,024,099	5,225,064	-	27,587,464
	Existing Building SF	-	1	-	-	927,205	292,895	-	1,220,101
	Net Re-developable Bldg SF	-	238,030	484,759	2,615,510	18,096,894	4,932,169	-	26,367,363
	Existing Conditions								
	Total Parcels	561	316	803	17	157	104	272	2,373
	Total Land Area	3,572,133	3,113,828	4,686,011	1,172,046	3,090,309	3,288,887	3,068,910	25,338,760
	Total Built Space (sf)	7,768,624	2,897,659	3,367,684	2	1,590,682	1,458,801	2,188,448	19,867,450

Population, Households and Jobs Supported by Redevelopable Land Capacity

		Baseline Assumptions							
	Growth Capacity	**DCC**	**DMU**	**DR**	**M2**	**S8**	**UCX-TD**	**WR**	**Total**
FAR by Right (Baseline)	Households	22	20	96	-	4,150	285	-	4,572
	Persons	50	46	222	-	9,628	660	-	10,607
	Jobs	148	135	117	800	9,432	1,941	-	12,573
FAR Medium	Households	41	41	292	-	7,053	765	-	8,191
	Persons	95	96	677	-	16,363	1,774	-	19,004
	Jobs	278	283	357	-	16,029	5,213	-	22,160
FAR High	Households	-	60	315	-	9,048	1,233	-	10,656
	Persons	-	138	731	-	20,992	2,861	-	24,722
	Jobs	-	406	386	5,944	20,565	8,407	-	35,707

Note: C2, M1, R3 and R4 zoning districts did not contain any redevelopable parcels and are excluded from Exhibit A-17.

Exhibit A-18
Downtown Tacoma Redevelopable Lands, All Land Uses, Increase in Vacancy by a Factor of 10%

Downtown Tacoma Redevelopable Lands Potential

		Increase in Vacancy								
	Redevelopable Lands	**DCC**	**DMU**	**DR**	**M2**	**R4**	**S8**	**UCX-TD**	**WR**	**Total**
FAR by Right (Baseline)	Redevelopable parcels	7	4	11	-	-	46	50	-	118
	Redevelopable Land Area	58,481	85,261	146,704	-	-	2,116,765	422,920	-	2,830,131
	% of Total Land that is Redevelopable	2%	3%	3%	0%	0%	68%	13%	0%	11%
	Re-development Bldg Capacity SF	81,633	79,344	136,523	-	-	8,906,791	856,412	-	10,060,703
	Existing Building SF	-	1	-	-	-	606,508	6,763	-	613,272
	Net Re-developable Bldg SF	81,633	79,343	136,523	-	-	8,300,283	849,649	-	9,447,431
FAR w Design Guidelines (Medium)	Redevelopable parcels	-	4	14	-	-	46	69	0	133
	Redevelopable Land Area	-	85,261	173,637	-	-	2,116,765	744,331	-	3,119,994
	% of Total Land that is Redevelopable	0%	3%	4%	0%	0%	68%	23%	0%	12%
	Re-development Bldg Capacity SF	-	158,687	323,173	-	-	14,250,866	3,014,539	-	17,747,265
	Existing Building SF	-	1	-	-	-	606,508	192,751	-	799,260
	Net Re-developable Bldg SF	-	158,686	323,173	-	-	13,644,358	2,821,788	-	16,948,005
FAR w Special Features (High)	Redevelopable parcels	-	-	-	2	-	48	75	-	125
	Redevelopable Land Area	-	-	-	459,878	-	2,229,742	800,380	-	3,490,000
	% of Total Land that is Redevelopable	0%	0%	0%	39%	0%	72%	24%	0%	14%
	Re-development Bldg Capacity SF	-	-	-	2,615,510	-	18,741,160	4,862,307	-	26,218,977
	Existing Building SF	-	-	-	-	-	887,205	239,607	-	1,126,812
	Net Re-developable Bldg SF	-	-	-	2,615,510	-	17,853,955	4,622,700	-	25,092,165
	Existing Conditions									
	Total Parcels	561	316	803	17	80	157	104	272	2,373
	Total Land Area	3,572,133	3,113,828	4,686,011	1,172,046	684,245	3,090,309	3,288,887	3,068,910	25,338,760
	Total Built Space (sf)	7,768,624	2,897,659	3,367,684	2	72,943	1,590,682	1,458,801	2,188,448	19,867,450

Population, Households and Jobs Supported by Redevelopable Land Capacity

		Increase in Vacancy								
	Growth Capacity	**DCC**	**DMU**	**DR**	**M2**	**R4**	**S8**	**UCX-TD**	**WR**	**Total**
FAR by Right (Baseline)	Households	20	20	89	-	-	4,150	212	-	4,492
	Persons	47	46	206	-	-	9,628	493	-	10,420
	Jobs	139	135	109	-	-	9,432	1,448	-	11,263
FAR Medium	Households	-	40	210	-	-	6,822	705	-	7,777
	Persons	-	92	487	-	-	15,827	1,637	-	18,043
	Jobs	-	270	257	-	-	15,505	4,810	-	20,842
FAR High	Households	-	-	-	-	-	8,927	1,156	-	10,083
	Persons	-	-	-	-	-	20,711	2,681	-	23,392
	Jobs	-	-	-	5,944	-	20,289	7,880	-	34,113

Note: C2, M1, R3 and R4 zoning districts did not contain any redevelopable parcels and are excluded from Exhibit A-18.

Exhibit A-19
Downtown Tacoma Redevelopable Lands, All Land Uses, 10% Increase in Rents

Downtown Tacoma Redevelopable Lands Potential

10% Increase in Rents

	Redevelopable Lands	DCC	DMU	DR	M2	S8	UCX-TD	WR	Total
FAR by Right (Baseline)	Redevelopable parcels	135	87	162	2	50	86	72	594
	Redevelopable Land Area	1,044,106	1,007,750	1,309,409	459,878	2,317,570	895,112	577,471	7,611,296
	% of Total Land that is Redevelopable	29%	32%	28%	39%	75%	27%	19%	30%
	Re-development Bldg Capacity SF	1,457,467	937,812	1,215,128	492,477	9,732,302	1,812,601	1,051,921	16,699,709
	Existing Building SF	325,201	101,468	398,940	-	968,439	321,301	28,424	2,143,773
	Net Re-developable Bldg SF	1,132,266	836,344	816,188	492,477	8,763,863	1,491,300	1,023,497	14,555,936
FAR w Design Guidelines (Medium)	Redevelopable parcels	191	117	316	2	50	97	72	845
	Redevelopable Land Area	1,520,299	1,256,393	2,409,309	459,878	2,317,570	1,010,909	577,471	9,551,829
	% of Total Land that is Redevelopable	43%	40%	51%	39%	75%	31%	19%	38%
	Re-development Bldg Capacity SF	4,244,372	2,334,499	4,467,871	910,075	15,571,683	4,094,181	1,051,921	32,674,602
	Existing Building SF	1,165,378	195,971	943,061	-	968,439	568,631	28,424	3,869,904
	Net Re-developable Bldg SF	3,078,994	2,138,528	3,524,810	910,075	14,603,244	3,525,550	1,023,497	28,804,698
FAR w Special Features (High)	Redevelopable parcels	226	123	326	2	50	99	47	873
	Redevelopable Land Area	1,797,631	1,303,122	2,564,875	459,878	2,317,570	1,068,951	438,508	9,950,535
	% of Total Land that is Redevelopable	50%	42%	55%	39%	75%	33%	14%	39%
	Re-development Bldg Capacity SF	10,037,252	3,634,997	7,140,631	2,615,510	19,464,604	6,493,875	1,198,180	50,585,050
	Existing Building SF	1,622,401	350,391	1,291,992	-	968,439	666,448	15,410	4,915,081
	Net Re-developable Bldg SF	8,414,851	3,284,606	5,848,639	2,615,510	18,496,165	5,827,427	1,182,770	45,669,969
	Existing Conditions								
	Total Parcels	561	316	803	17	157	104	272	2,373
	Total Land Area	3,572,133	3,113,828	4,686,011	1,172,046	3,090,309	3,288,887	3,068,910	25,338,760
	Total Built Space (sf)	7,768,624	2,897,659	3,367,684	2	1,590,682	1,458,801	2,188,448	19,867,450

Population, Households and Jobs Supported by Redevelopable Land Capacity

10% Increase in Rents

	Growth Capacity	DCC	DMU	DR	M2	S8	UCX-TD	WR	Total
FAR by Right (Baseline)	Households	283	209	531	-	4,382	373	665	6,443
	Persons	657	485	1,231	-	10,166	865	1,543	14,947
	Jobs	1,930	1,426	649	1,119	9,959	2,542	814	18,439
FAR Medium	Households	770	535	2,291	-	7,302	881	665	12,444
	Persons	1,786	1,240	5,315	-	16,940	2,045	1,543	28,870
	Jobs	5,248	3,645	2,804	2,068	16,595	6,009	814	37,184
FAR High	Households	2,104	821	3,802	-	9,248	1,457	769	18,200
	Persons	4,881	1,905	8,820	-	21,456	3,380	1,784	42,225
	Jobs	14,343	5,599	4,652	5,944	21,018	9,933	941	62,431

Note: C2, M1, R3 and R4 zoning districts did not contain any redevelopable parcels and are excluded from Exhibit A-19.

Exhibit A-20
Downtown Puyallup Redevelopable Lands, All Land Uses, Baseline and Sensitivity Assumptions

Downtown Puyallup Redevelopable Lands Potential

	Baseline Rent Assumptions		Baseline Assumptions	10% Increase in Rent		10% Increase in Rent	15% Increase in Rent		15% Increase in Rent
Redevelopable Lands	**CBD-Core**	**CBD**	**Total**	**CBD-Core**	**CBD**	**Total**	**CBD-Core**	**CBD**	**Total**
Redevelopable parcels	-	-	-	37	22	59	93	86	179
Redevelopable Land Area	-	-	-	360,722	247,873	608,595	855,749	910,844	1,766,593
% of Total Land that is Redevelopable	0%	0%	0%	25%	11%	16%	58%	40%	47%
Re-development Bldg Capacity SF	-	-	-	911,617	312,248	1,223,866	2,162,649	1,147,402	3,310,051
Existing Building SF	-	-	-	13,258	745	14,003	233,296	156,322	389,618
Net Re-developable Bldg SF	-	-	-	898,359	311,503	1,209,863	1,929,353	991,080	2,920,433
Existing Conditions									
Total Parcels	206	186	392	206	186	392	206	186	392
Total Land Area	1,467,958	2,305,414	3,773,372	1,467,958	2,305,414	3,773,372	1,467,958	2,305,414	3,773,372
Total Built Space (sf)	653,084	659,304	1,312,388	653,084	659,304	1,312,388	653,084	659,304	1,312,388

Population, Households and Jobs Supported by Redevelopable Land Capacity

			Baseline Assumptions			10% Increase in Rent			15% Increase in Rent
Growth Capacity	**CBD-Core**	**CBD**	**Total**	**CBD-Core**	**CBD**	**Total**	**CBD-Core**	**CBD**	**Total**
Households	-	-	-	449	156	605	965	496	1,460
Persons	-	-	-	1,069	371	1,440	2,296	1,179	3,475
Jobs	-	-	-	917	318	1,235	1,969	1,011	2,980

Step 4. Evaluate Results

Evaluate redevelopable lands and growth capacity outcomes by zoning district, existing land uses and specific parcels of interest.

EVALUATE GROWTH CAPACITY ESTIMATES BY ZONING DISTRICT.

For example, growth capacity estimates in downtown Tacoma's S-8 Thea Foss Waterway Zone District, produced larger growth capacity estimates than previously hypothesized by City staff. Further review of zoning and market inputs for this district would therefore be required.

EVALUATE IMPACTS OF EXCLUDING SPECIFIC TYPES OF EXISTING LAND USES FROM LVP CALCULATIONS.

For example, in the Tacoma study area, inclusion of large tracts of park land, railroad right of way, and other public uses skewed preliminary draft estimates of redevelopable lands and growth capacity targets. In subsequent analyses, these land uses were removed. In Puyallup however, inclusion of existing public land uses may be desirable. In recent years, several publicly owned lands in Puyallup (including the former city hall) were redeveloped.

EVALUATE SPECIFIC PARCELS

Some parcels have unique considerations that impact redevelopment feasibility. Parcel-by-parcel considerations often require special adjustments to LVP calculations. For example, the City of Tacoma's newly established an International Financial Services Area, which eliminates parking requirements in a section of downtown, is not captured in this analysis. Elimination of parking requirements would increase leasable area and improve the economic feasibility of redevelopment, likely resulting in more parcels being identified as redevelopable. Similarly, LIFT incentives (Local Infrastructure Financing Tool) in downtown Puyallup provide economic support for targeted redevelopment. Additional work on the LVP approach could account for economic incentives, assigning a change in development costs or revenues associated with each incentive.

Step 5. Revise Inputs and Calculations as Necessary

A formal process of City and County involvement and review is required to make these final determinations, which is beyond the scope of this demonstration study.

Stage Three Review

By this stage in the analysis, analysts should have:

- Constructed a sensitivity matrix that summarizes redevelopable land outcomes and growth capacity estimates

- Evaluated preliminary findings and identified potential adjustments to LVP assumptions and calculations

Stage 4. Forecast Redevelopment Absorption

One important component of buildable lands requirements is to estimate how much redevelopment will take place over a 20 year planning horizon. This portion of the guidebook presents two possible options for estimating the rate of redevelopment on redevelopable lands.

Absorption of redevelopment is illustrated using a scenario defined at the outset of the project. The scenario illustrated here examines redevelopment factors that yield a 10% or 15% redevelopment rate in downtown Tacoma over the next 15 years. Similar methods could be used to identify how much redevelopment would occur in a study area over a twenty year planning period.

The analysis presents two potential methods for estimating the rate and amount of redevelopment in Tacoma over the next 15 years. The first method uses historical assessor's records of new development to quantify an average development rate in downtown Tacoma from 2000 to 2008. The average development rate is applied to future years to estimate the amount of redevelopment that would take place if the current pace of downtown development continues in the future.

The second method uses City of Tacoma population allocations and employment targets published in Pierce County's 2007 Buildable Lands Report to serve as drivers of new development citywide. This method uses sensitivity analysis to establish possible scenarios. The method tests the rate and amount of redevelopment in downtown given a certain percentage of growth directed towards downtown.

Method One: Historical Development Trend Analysis

Begin by measuring new development by year in the study area. New development is defined using assessor's data and is based on the net square feet of development by year of construction. This analysis found that from 2000 to 2008, over 1.9 million s.f. of new development was constructed in downtown Tacoma accounting for nearly 27% of citywide new development (**Exhibit A-21**). Nearly 2,000 acres have been development citywide in Tacoma over this time period, with over 54 acres (2.4 million s.f.) of land in downtown.

Next, analysts calculate the average rate of development, and forecast development at this rate over a future planning horizon.

This analysis found that on average, 215,000 s.f. of new building development and 265,000 sf. in land development occurred annually in downtown Tacoma from 2000 to 2008. At this rate of development, over 3.23 million s.f. of new construction would be developed or re-developed in downtown Tacoma between 2009 to 2023. This translates to approximately 92 acres or 10.8% of land area being re-developed. The LVP analysis

identifies that approximately 13% to 15% of land area could support feasible redevelopment under current market conditions. If historical trends continue in the future, it is possible that downtown Tacoma could meet a redevelopment target of 10% to 15% within the next 15 years.

Exhibit A-21
Summary of New Development in Tacoma, Citywide and Downtown, 2000 – 2008

	New Development Citywide		New Development in Downtown Tacoma		
Year Built	New Building Development (SF)	Land Developed (sf)	New Building Development (sf)	Land Developed (sf)	% Bldg Development in Downtown
2000	967,295	22,332,332	41,938	44,533	4.3%
2001	1,236,881	6,296,894	909,525	510,226	73.5%
2002	1,050,704	11,331,678	295,785	272,234	28.2%
2003	693,145	10,303,661	282,161	884,309	40.7%
2004	1,184,460	12,355,336	31,436	442,440	2.7%
2005	765,535	11,885,036	194,110	97,460	25.4%
2006	532,653	7,691,098	-	13,526	0.0%
2007	625,617	4,171,694	25,411	6,749	4.1%
2008	176,824	606,943	155,200	114,075	87.8%
Total	7,233,114	86,974,673	1,935,566	2,385,553	26.8%
Annual Avg	803,679	9,663,853	215,063	265,061	26.8%

Source: Pierce County Assessor's, Community Attributes

DISCUSSION AND LIMITATIONS OF THE HISTORICAL DEVELOPMENT TREND METHOD.

Rates of development are cyclical and can vary dramatically based on exogenous market trends. Development rates varied in downtown from 2000 to 2008, which challenges the assumption that an average historical rate of development will continue consistently in the future. In the last three years, downtown Tacoma has averaged only 60,000 s.f. in new construction, however in 2008 it captured 88% of total development citywide, the most of any year from 2000 to 2008.

Second, building square footage from 2000 to 2008 was less than the square footage of land developed, indicating relatively low levels of density (average FAR of 0.8). Future downtown planning initiatives will likely advocate for greater levels of development density than estimated, resulting in less land consumed, and a lower rate of land redevelopment.

Method Two: Population and Employment Based Forecasts

The first step in method two is to calculate compounded annual growth rates for population and employment. This analysis used growth rates defined in the Pierce County 2007 Buildable Lands Report. In future buildable lands analyses, analysts would use OFM projections and a combination of additional methods to define citywide growth rates.

The Pierce County 2007 Buildable Lands Report projects that population in the City of Tacoma will increase by 1.55% annually and employment will increase by 1.75% from 2006 to 2022 (**Exhibit A-22**). In total, Tacoma is expected to accommodate 55,640 new persons and 25,683 new jobs from 2006 to 2022.

Exhibit A-22
City of Tacoma Population Allocations and Employment Targets, 2006 - 2022[12]

	2006	2022	CAGR	Net Change
Population	199,600	255,240	1.55%	55,640
Employment	111,409	147,092	1.75%	35,683

Source: Pierce County Buildable Lands Report, 2007

Next, analysts calculate new development, population and employment growth that occurred in past years.

From 2000 to 2008, over 7.2 million square feet of building space was constructed. Using historic data from PSRC and the Buildable Lands Report, population increased by nearly 12,300 and jobs (not including construction and resources) increased by nearly 4,900.

Historic population figures use OFM annual estimates for 2000 through 2006 and buildable lands growth rate projections to estimate 2007 and 2008 population. The analysis assumes that new development is built to accommodate new population and job growth from 2000 to 2008. A "development driver" divides the total building square footage of new development citywide from 2000 to 2008 by the sum of new persons and jobs citywide from 2000 to 2008. The driver value estimates 422 square feet of new construction will be built per person plus job (**Exhibit A-23**).

[12] 2006 population from OFM, 2006. 2006 employment represents total employment minus covered construction and resource jobs. See errata on p. 11 and p.284

Exhibit A-23
City of Tacoma Development, Population and Job Growth, 2000 - 2008[13]

New Building SF	2000 - 2008
Citywide (new bldg sf)	7,233,114
Downtown Tacoma (new bldg sf)	1,935,566
Population and Job Growth	
Population	12,274
Total Jobs - Const. Res	4,863
Development Driver	
New bldg SF citywide per new person+job (sf)	422

Using projected population and employment growth, this method estimates approximately 34.3 million square feet of new construction for the City of Tacoma from 2009 to 2022 (**Exhibit A-24**). The LVP method estimates development capacity on re-developable lands under baseline conditions range from 10.1 million square feet (low or baseline FAR) to as much as 26 million square feet (high FAR). Potential redevelopment capacity exists in downtown to accommodate between 30% and 75% of future growth under baseline conditions depending on FAR assumptions. Under the most optimistic scenario (10% increase in rents and highest FAR) downtown Tacoma could accommodate all projected growth within an estimated 45.7 million square feet of redevelopment.

[13] A greater level of specificity could be integrated into this analysis to define a development driver for population and a development driver for jobs. This method represent one variation of the driver method.

Exhibit A-24
Forecasts of New Construction using the Population and Employment Allocation Drivers Method, 2000 – 202214

	Citywide			% of Citywide Development (sf) focused in Downtown		
Year Built	Total Development by Year (SF)	New Tacoma Population	New Tacoma Employment	25%	50%	75%
2000	967,295			41,938	41,938	41,938
2001	1,236,881	944	-347	909,525	909,525	909,525
2002	1,050,704	400	-994	295,785	295,785	295,785
2003	693,145	1,400	-294	282,161	282,161	282,161
2004	1,184,460	500	820	31,436	31,436	31,436
2005	765,535	1,300	1,096	194,110	194,110	194,110
2006	532,653	1,500	644	-	-	-
2007	625,617	3,091	1,952	25,411	25,411	25,411
2008	176,824	3,139	1,986	155,200	155,200	155,200
2009	2,198,543	3,188	2,021	549,636	1,099,272	1,648,907
2010	2,233,997	3,237	2,056	558,499	1,116,998	1,675,497
2011	2,270,294	3,287	2,092	567,574	1,135,147	1,702,721
2012	2,307,436	3,338	2,129	576,859	1,153,718	1,730,577
2013	2,345,000	3,390	2,166	586,250	1,172,500	1,758,750
2014	2,382,986	3,442	2,204	595,747	1,191,493	1,787,240
2015	2,421,816	3,496	2,242	605,454	1,210,908	1,816,362
2016	2,461,068	3,549	2,282	615,267	1,230,534	1,845,801
2017	2,501,587	3,605	2,322	625,397	1,250,793	1,876,190
2018	2,541,683	3,660	2,362	635,421	1,270,841	1,906,262
2019	2,583,890	3,718	2,404	645,972	1,291,945	1,937,917
2020	2,625,252	3,774	2,446	656,313	1,312,626	1,968,939
2021	2,668,303	3,833	2,489	667,076	1,334,151	2,001,227
2022	2,710,932	3,893	2,530	677,733	1,355,466	2,033,199
Total 2009 - 2022	**34,252,786**	**49,410**	**31,745**	**8,563,197**	**17,126,393**	**25,689,590**

Exhibit A-25 presents a sensitivity analysis which translates forecasts of newly constructed building square feet needed to accommodate growth targets (from Exhibit A-24) to re-developable land. The method assumes that a given percentage of growth is focused in downtown and built at an assumed development density (FAR). Exhibit A-25 shows aggregate totals of re-developable land from 2009 to 2025 and the percent of downtown land area that could be re-developed.

If 25% of new citywide development was focused in downtown at an average FAR 0.8 then redevelopment could occur on as much as 29% of land area from 2009 to 2025. This outcome is not supported by LVP calculations. Assuming 25% of growth is directed downtown, 12% of land could be re-developed under current market conditions at an FAR of 2.0 to all little as

[14] Data shaded in gray represents base data from Pierce County assessor's office.

2% of land being re-developed at an FAR of 12, a more likely scenario given LVP calculations.

Exhibit A-25
Downtown Tacoma Re-developable Land from 2009 – 2022 using the Population and Job Allocation Driver Method

	Percentage of Citywide New Building SF Directed Towards Downtown Tacoma					
	25%		50%		75%	
FAR	Re-developed Land (ac)	Downtown Area	Re-developed Land (ac)	Downtown Area	Re-developed Land (ac)	% of Downtown Area
0.8	242	29%	485	57%	727	86%
1.0	197	23%	393	47%	590	70%
2.0	98	12%	197	23%	295	35%
4.0	49	6%	98	12%	147	17%
6.0	33	4%	66	8%	98	12%
12.0	16	2%	33	4%	49	6%

DISCUSSION AND LIMITATIONS OF THE POPULATION AND EMPLOYMENT DRIVER METHOD.

The application of population and employment forecasts to projections of redevelopment absorption accounts for both historical trends in new development and draws important connections to buildable lands population allocations and job targets. The driver method could be adjusted for a greater level of specification that creates unique drivers for population and jobs respectively. Sensitivity analysis also allows for planners to understand a range of different scenarios, including levels of density needed to achieve redevelopment targets and the percentage of growth that should be focused in downtown areas. Historical development may also not accurately represent new development, due to consumer preference, land use types and a range of other issues. Baseline drivers that define a consistent square foot per job and square foot per housing unit would conform more closely to existing buildable lands methods and ensure a consistent approach across jurisdictions.

Appendix B: Redevelopment Prototypes

Overview

A series of pro forma analyses were conducted on successful redevelopment projects completed in Tacoma and Puyallup from 2004 to the present. Pro forma analysis allowed analysts and project team members to analyze factors and market conditions that supported economically feasible development.

Pro formas represent a basic, conceptual analysis used for discussion purposes and method development only. Data inputs and assumptions used in the LVP method were calibrated through pro forma analysis, including rental rates, construction costs, capitalization rates and others. However, some inputs and assumptions used in pro forma analysis vary from those used in the LVP method.

Methods

City staff and project team members identified successful redevelopment projects for case study analysis. Assessor's base data was collected for two points in time 2004 and 2008, to document "before and after" conditions at redevelopment sites.

Inputs and assumptions were adjusted to analyze requirements for feasible development. All assumptions in pro forma analyses are highlighted in green. A sensitivity analysis was also used to understand how development capacity and zoning regulations (FAR) impacted development choices and feasibility.

Lessons Learned

Completion of pro forma analyses resulted in several lessons applicable to the LVP approach. Some key lessons learned include:

- Assessor's data does not account for all factors that influence redevelopment feasibility. Development incentives influence redevelopment decisions. This is especially the case in the City of Puyallup.

- Total assessed values are sometimes lower than sales prices. It is the intent of total assessed value to replicate "true market value," however analysts may consider increasing total assessed values upwards to capture sales price.

- New developments command rent premiums. Rental rates published in base data should be adjusted upwards for LVP calculations.

- Outcomes of analysis are highly sensitive to market inputs including construction cost, rental rates, and capitalization rates. Feasibility analysis

should be integrated within the LVP method to analyze changes to sensitive market inputs.

- New redevelopments have taken advantage of FAR bonuses in Tacoma and Puyallup. The LVP method should incorporate a method to test redevelopment feasibility at multiple levels of FAR.

Rainier Pacific

1498 Pacific Ave.
Mixed Use Office and Retail Building

SITE & PARCEL CHARACTERISTICS

PIN
2013040100
2013040110
2013040130
2013040120
2013040140
2013040150
2013040180
2013040191

	Before 2004	After 2008
Assessor Data		
Improvement Value:	$ 4,800	$ 8,903,100
Land Value:	$ 1,121,500	$ 2,279,000
Taxable Value:	$ 1,126,300	$ 11,182,100
Total AV / SF of Land	$ 30.86	
Sale Price:	$ 8,275,000	
Sale Date:	12/1/2002	
Land Use(s):	AUTO PARKING, COMM VAC LND	MISC OFFICE SPACE
No. Bldgs:	1	1
Bldg SF:	1	125,845
Stories:	0	2
Lot Size:	36,500	36,426
FAR:	-	11.00
Condition:	Average	Average
Quality:	Average	Good
Year Built:	0	2003
Year Remodeled:	0	0
Age:	0	5
Zoning Policies		
Downtown Commercial Core District (DCC)		
Max Height:	400	400
FAR by Right	3.0	3.0
FAR w/Design Guidelines	6.0	6.0
FAR w/Special Features	12.0	12.0
Parking (stalls/bldg sf; min - max)	2.4 - 3.6	2.4 - 3.6
Historic:	No	
Market Conditions		
Vacancy Rate (%)	10%	10%
Rental Rates	$ 22.81	22.8

RESIDUAL LAND VALUE ANALYSIS

Development Capacity		
Lot Area	36,426	
Max Allowable FAR	12.0	Development Capacity
Max Allowable building size	437,109	
Actual Bldg SF	125,845	As Built
Actual FAR	3.5	
Actual Development Size vs. Development Capacity	29%	
Did the developer build to maximum capacity?	No	
Did the developer take advantage of zoning incentives to increase development capacity?	Yes	

Building Value		Analyst Assumptions
Lease rate (gross), SF/yr.	$ 26.50	
Vacancy	10%	
Operating costs	30%	
Net operating income (NOI)	$ 16.70	
Cap rate	6.000%	
Bldg value per s.f. of building	$ 278.25	

Building Costs		
Construction hard costs	$ 135	
Demolition Costs (% of site value)	10% $ 3	
Total hard costs	$ 138	
Soft costs (% of hard costs)	33% $ 46	
Entrepreneurial Return (% of total costs)	10% $ 18	
Total bldg costs (per s.f. of bldg)	$ 202.02	

Residual Land Value	
Land value per s.f. of building	$ 76.23
FAR	3.00
Available land value (per s.f. land)	**$ 228.69**
Actual Land Value (sale $/s.f.)	**$ 227.17**

Is this redevelopment feasible? ***Yes, redevelopment value greater than parcel value***

Residual Land Value Feasibility Table

Residual Land Value with FAR incentives	Available for Site Purchase ($ Total AV/s.f. lot)	Redevelopment Feasible?
3	$ 228.69	Yes
3.5	$ 266.81	Yes
4	$ 304.92	Yes
4.5	$ 343.04	Yes
5	$ 381.15	Yes
5.5	$ 419.27	Yes
6	$ 457.38	Yes
8	$ 609.84	Yes
10	$ 762.31	Yes
12	$ 914.77	Yes

Metropolitan Phase II

233 St. Helens Ave.
High-Rise Condos and Adaptive Reuse

SITE & PARCEL CHARACTERISTICS

PIN
2002070090
2013040100
2013040110
2013040130
2013040120
2013040140
2013040150
2013040160
2013040170
2013040180
2013040191

	Before 2004	After 2008
Assessor Data		
Improvement Value:	$ 515,100	$ -
Land Value:	$ 155,000	$ 670,300
Taxable Value:	$ 670,100	$ 670,300
Total AV / SF of Land	$ 54.04	
Sale Price:	$ 925,000	
Sale Date:	1/1/2000	
Land Use(s):	RELIGIOUS SERVICES	APT CONDO HIGH RISE
No. Bldgs:	1	0
Bldg SF:	21,960	81,754
Stories:	2	9
Lot Size:	12,400	12,525
FAR:	1.77	6.53
Condition:	Average	Under Const.
Quality:	Low	Under Const.
Year Built:	1940	Under Const.
Year Remodeled:	1960	Under Const.
Age:	43	Under Const.
Zoning Policies		
Downtown Residential District (DR)		
Max Height:	90	90
FAR Base	3	3
FAR w/Design Guidelines	5	5
FAR w/Special Features	7	7
Parking (stalls/bldg sf; min - max)	1.2-3.6	1.2-3.6
Historic:	No	No
Market Conditions		
Vacancy Rate (%)	10%	10%
Rental Rates	$ 300	300.0

RESIDUAL LAND VALUE ANALYSIS

DEVELOPMENT CAPACITY		
Lot Area	12,525	
Max Allowable FAR	7.0	Development Capacity
Max Allowable building size	87,672	
Actual Bldg SF	81,754	As Built
Actual FAR	6.5	
Actual Development Size vs. Development Capacity	93%	
Did the developer build to maximum capacity?	No	
Did the developer take advantage of zoning incentives to increase development capacity?	Yes	

Building Value				
Sale Value, SF/yr.		$	318.42	Analyst Assumptions
Bldg value per s.f. of building		$	318.42	
Building Costs				
Construction hard costs		$	200	
Demolition Costs (% of site value)	10%	$	1	
Total hard costs		$	201	
Soft costs (% of hard costs)	33%	$	66	
Entrepreneurial Return (% of total costs)	10%	$	27	
Total bldg costs (per s.f. of bldg)		$	293.80	
Residual Land Value				
Land value per s.f. of building		$	24.62	
FAR			3.00	
Available land value (per s.f. land)		**$**	**73.86**	
Actual Land Value (sale $/s.f.)		**$**	**73.86**	

Is this redevelopment feasible? **Yes, redevelopment value greater than parcel value**

Residual Land Value Feasibility Table

Residual Land Value with FAR incentives	Available for Site Purchase ($ Total AV/s.f. lot)	Redevelopment Feasible?
3.0	$ 73.86	Yes
3.5	$ 86.17	Yes
4.0	$ 98.48	Yes
4.5	$ 110.79	Yes
5.0	$ 123.10	Yes
5.5	$ 135.41	Yes
6.0	$ 147.72	Yes
6.5	$ 160.03	Yes
7.0	$ 172.34	Yes

505 Broadway

505 Broadway Ave

Mixed-use high-rise condos with ground floor commercial and structured parking

SITE & PARCEL CHARACTERISTICS

	Before 2004	After 2008			
Assessor Data					
Land Use(s):	MISC OFFICE SPACE	Parking	Commercial	Condo	Total
Improvement Value:	$ 341,100	$ -	$ -	$ -	$ -
Land Value:	$ 282,300	$ 288,947	$ 21,671	$ 965,082	$ 1,275,700
Taxable Value:	$ 623,400	$ 288,947	$ 21,671	$ 965,082	$ 1,275,700
Total AV / SF of Land	$ 25.06				
Sale Price:		-	-	-	$ 1,000,000
Sale Date:		-	-	-	10/18/2006
No. Bldgs:		1	1	1	1
Bldg SF:	28,544	40,000	3,000	133,600	176,600
Height:		-	-	-	90
Stories:	2	-	-	-	11
Lot Size:	24,878	-	-	-	24,892
FAR:	1.15	-	-	-	7.09
Condition:	Average	Under Const.	Under Const.	Under Const.	Under Const.
Quality:	Low	Under Const.	Under Const.	Under Const.	Under Const.
Year Built:	1946	Under Const.	Under Const.	Under Const.	Under Const.
Year Remodeled:	1960	Under Const.	Under Const.	Under Const.	Under Const.
Age:	43	Under Const.	Under Const.	Under Const.	Under Const.
Zoning Policies					
Downtown Residential District (DR)					
Max Height:	90	90	90	90	90
FAR Base	3	3	3	3	3
FAR w/Design Guidelines	5	5	5	5	5
FAR w/Special Features	7	7	7	7	7
Parking (stalls/bldg sf; min - max)	1.2-3.6	1.2-3.6	1.2-3.6		1.2-3.6
Historic:	No				No
Market Conditions					
Vacancy Rate (%)	10%	0.0		0.1	
Sales Prices or Rental Rates	$ 300	$ 5.00	$ 15.79	$ 300	
Price per unit per month		$ 145.83		$ 31,250	

RESIDUAL LAND VALUE ANALYSIS

DEVELOPMENT CAPACITY

Lot Area	24,892	
Max Allowable FAR	7.0	Development Capacity
Max Allowable building size	174,246	
Actual Bldg SF	176,600	As Built
Actual FAR	7.1	
Actual Development Size vs. Development Capacity	101%	
Did the developer build to maximum capacity?	Yes	
Did the developer take advantage of zoning incentives to increase development capacity?	Yes	

Building Value	Parking	Commercial	Condo
Lease rate (gross), SF/yr.	$ 5.00	$ 15.79	$ 300.00
Vacancy	0%	0%	
Operating costs	5%	33%	
Net operating income (NOI)	$ 4.75	$ 10.58	
Cap rate	6.500%	6.500%	
Bldg value per s.f. of building	$ 73.08	$ 162.71	$ 300.00

Building Costs		Parking	Commercial	Condo
Construction hard costs		$ 55.00	$ 107.50	$ 200.00
Demolition Costs (% of site value)	10%			$ 0.35
Total hard costs		$ 55.00	$ 107.50	$ 200.35
Soft costs (% of hard costs)	33%	$ 18	$ 35	$ 66
Entrepreneurial Return (% of total costs)	10%	$ 7	$ 14	$ 27
Total bldg costs (per s.f. of bldg)		$ 80.47	$ 157.27	$ 293.12

Residual Land Value	Parking	Commercial	Condo	TOTAL RLV
Land value per s.f. of building	$ (7.39)	$ 5.44	$ 6.88	$ 4.94
FAR				7.00
Available land value (per s.f. land)				**$ 34.56**
Actual Land Value (sale $/s.f.)				**$ 40.17**

Is this redevelopment feasible? **No, parcel value greater than redevelopment value**

Residual Land Value Feasibility Table

Residual Land Value with FAR incentives	**Available for Site Purchase ($ Total AV/s.f. lot)**	**Redevelopment Feasible?**
3.0	$ 14.81	No
3.5	$ 17.28	No
4.0	$ 19.75	No
4.5	$ 22.22	No
5.0	$ 24.69	No
5.5	$ 27.15	Yes
6.0	$ 29.62	Yes
6.5	$ 32.09	Yes
7.0	$ 34.56	Yes

Mercato

1501 TACOMA AV S
Condos
PIN: 2015110011

SITE & PARCEL CHARACTERISTICS

	Before 2004	After 2008
Assessor Data		
Improvement Value:	$ -	$ 20,165,400
Land Value:	$ 287,700	$ 6,204,000
Taxable Value:	$ 287,700	$ 6,204,000
Total AV / SF of Land	$ 17.13	
Sale Price:	$ 1,294,000	
Sale Date:	6/1/2000	
Land Use(s):	COMM VAC LND	APT CONDO HIGH RISE
No. Bldgs:	-	95
Bldg SF:	-	87,245
Stories:	-	1
Lot Size:	16,800	31,238
FAR:	-	2.79
Condition:	-	Average
Quality:	-	Average
Year Built:	-	2006
Year Remodeled:	-	0
Age:	-	2
Zoning Policies		
Downtown Mixed-Use District (DMU)		
Max Height:	100	100
FAR Base	3	3
FAR w/Design Guidelines	5	5
FAR w/Special Features	7	7
Parking (stalls/bldg sf; mir	2.4-3.6	2.4-3.6
Historic:	No	No
Market Conditions		
Vacancy Rate (%)	10%	10%
Avg. Sale $/SF	$ 200	$ 340
Sales Price Per Unit		

RESIDUAL LAND VALUE ANALYSIS

DEVELOPMENT CAPACITY

Lot Area	31,238	
Max Allowable FAR	7.00	Development Capacity
Max Allowable building size	218,663	
Actual Bldg SF	87,245	As Built
Actual FAR	2.79	
Actual Development Size vs. Development Capacity	40%	
Did the developer build to maximum capacity?	No	
Did the developer take advantage of zoning incentives to increase development capacity?	No	

Building Value			
Sale Value, SF/yr.		$ 300.00	Analyst Assumptions
Bldg value per s.f. of building		$ 300.00	
Building Costs			
Construction hard costs		$ 130	
Demolition costs (% of site value)	10%	$ 2	
Total hard costs		$ 132	
Soft costs (% of hard costs)	33%	$ 43	
Entrepreneurial Return (% of total costs)	10%	$ 18	
Total bldg costs (per s.f. of bldg)		$ 192.70	
Residual Land Value			
Land value per s.f. of building		$ 107.30	
FAR		3.00	
Available land value (per s.f. land)		**$ 321.91**	
Actual Land Value (sale $/s.f.)		**$ 77.02**	

Is this redevelopment feasible? **Yes, redevelopment value greater than parcel value**

Residual Land Value Feasibility Table

Residual Land Value with FAR incentives	Available for Site Purchase ($ Total AV/s.f. lot)	Redevelopment Feasible?
3.0	$ 321.91	Yes
3.5	$ 375.57	Yes
4.0	$ 429.22	Yes
4.5	$ 482.87	Yes
5.0	$ 536.52	Yes
5.5	$ 590.18	Yes
6.0	$ 643.83	Yes
6.5	$ 697.48	Yes
7.0	$ 751.13	Yes

Poole's Corner

3518 6TH AV
Mixed-Use Retail and Office

SITE & PARCEL CHARACTERISTICS

PIN
3245003540
3245003520
3245003530

	Before 2004	After 2008
Assessor Data		
Improvement Value:	$ 250,200	$ 3,260,700
Land Value:	$ 316,600	$ 670,600
Taxable Value:	$ 566,800	$ 3,931,300
Total AV / SF of Land	$ 25.53	
Sale Price:	$ 2,640,000	
Sale Date:	11/18/2003	
Land Use(s):	RETAIL	OLDER BUSINESS DIST
No. Bldgs:	2	1
Bldg SF:	6,595	27,468
Stories:	1	3
Lot Size:	22,200	22,127
FAR:	0.30	3.85
Condition:	Average	Average
Quality:	Low-Average	Average Plus
Year Built:	1939 -1986	2004
Year Remodeled:	1970	0
Age:	33-17	4
Zoning Policies		
General Community Commercial District (C2)		
Minimum Lot Size:	0	0
Minimum Lot Width:	0	0
Minimum Lot Depth:		
Max Height:	45	45
Max FAR:	None	None
Historic:	No	No
Market Conditions		
Vacancy Rate (%)	10%	10%
Rental Rates	$ 22.81	22.8

RESIDUAL LAND VALUE ANALYSIS

DEVELOPMENT CAPACITY		
Lot Area	22,127	
Max Allowable FAR	None	Development Capacity
Max Allowable building size	None	
Actual Bldg SF	27,468	As Built
Actual FAR	1.24	
Actual Development Size vs. Development Capacity	NA	
Did the developer build to maximum capacity?	NA	
Did the developer take advantage of zoning incentives to increase development capacity?	NA	

Building Value			Analyst Assumptions
Lease rate (gross), SF/yr.		$ 22.81	
Vacancy		10%	
Operating costs		30%	
Net operating income (NOI)		$ 14.37	
Cap rate		6.00%	
Bldg value per s.f. of building		$ 239.51	
Building Costs			
Construction hard costs		$ 119	
Demolition Costs (% of site value)	10%	$ 2	
Total hard costs		$ 121	
Soft costs (% of hard costs)	33%	$ 40	
Entrepreneurial Return (% of total costs)	10%	$ 16	
Total bldg costs (per s.f. of bldg)		$ 176.75	
Residual Land Value			
Land value per s.f. of building		$ 62.75	
FAR		1.24	
Available land value (per s.f. land)		**$ 77.90**	
Actual Land Value (sale $/s.f.)		**$ 119.31**	

Is this redevelopment feasible?	**No, parcel value greater than redevelopment value**

Residual Land Value Feasibility Table

Residual Land Value with FAR incentives	Available for Site Purchase ($ Total AV/s.f. lot)	Redevelopment Feasible?
0.5	$ 38.95	Yes
1.0	$ 77.90	Yes
2.0	$ 155.80	Yes
3.0	$ 233.70	Yes
4.0	$ 311.61	Yes
5.0	$ 389.51	Yes
6.0	$ 467.41	Yes
8.0	$ 623.21	Yes
10.0	$ 779.02	Yes
12.0	$ 934.82	Yes

6th Av Area Townhomes

635 and 645 S Trafton
Eight-Plex Apartments
PIN: 3830000190 & 383020043C

SITE & PARCEL CHARACTERISTICS

	Before 2004	After 2008
Assessor Data		
Improvement Value:	$ 83,200	$ 1,069,615
Land Value:	$ 42,100	$ 336,000
Taxable Value:	$ 125,300	$ 336,000
Total AV / SF of Land	$ 7.75	
Sale Price:	$ 400,000	
Sale Date:	9/29/2005	
Land Use(s):	SINGLE FAMILY DWELLING	MULTI FAM APTS 5 UNITS OR MORE
No. Bldgs:	2	2
No. Units		16
Bldg SF:	900	23,200
Stories:	1	3
Height:	NA	35
Lot Size:	16,167	16,167
FAR:	0.06	0.8
Condition:	Average	Average
Quality:	Fair	Average
Year Built:	1942	2006
Year Remodeled:	1961	0
Age:	42	2
Zoning Policies		
Residential Commercial Mixed-Use District (RCX)		
Minimum Lot Size:	0	0
Minimum Lot Width:	0	0
Max Height:	60	60
Min Density (units/ac)	15	15
Max FAR:	NA	NA
Historic:	No	No
Market Conditions		
Vacancy Rate (%)	4%	4%
Rental Rates/sf	$ 12.24	$ 18.00

RESIDUAL LAND VALUE ANALYSIS

DEVELOPMENT CAPACITY

Lot Area	16,167	
Max Allowable FAR	NA	Development Capacity
Max Allowable building size	NA	
Actual Bldg SF	23,200	As Built
Actual FAR	1.44	
Actual Development Size vs. Development Capacity	NA	
Did the developer build to maximum capacity?	NA	
Did the developer take advantage of zoning incentives to increase development capacity?	NA	

Building Value			Analyst Assumptions
Lease rate (gross), SF/yr.		$ 18.00	
Vacancy		4%	
Operating costs		30%	
Net operating income (NOI)		$ 12.06	
Cap rate		6.00%	
Bldg value per s.f. of building		$ 200.93	
Building Costs			
Construction hard costs		$ 130	
Demolition Costs (% of site value)	10%	$ 1	
Total hard costs		$ 131	
Soft costs (% of hard costs)	33%	$ 43	
Entrepreneurial Return (% of total costs)	10%	$ 17	
Total bldg costs (per s.f. of bldg)		$ 190.98	
Residual Land Value			
Land value per s.f. of building		$ 9.95	
FAR		1.44	
Available land value (per s.f. land)		**$ 14.28**	
Actual Land Value (sale $/s.f.)		**$ 24.74**	

Is this redevelopment feasible? **No, parcel value greater than redevelopment value**

Residual Land Value Feasibility Table

Residual Land Value with FAR incentives	Available for Purchase Site Purchase ($ Total AV/s.f. lot)	Redevelopment Feasible?
0.5	$4.97	No
1.0	$9.95	Yes
2.0	$19.90	Yes
3.0	$29.84	Yes
4.0	$39.79	Yes
5.0	$49.74	Yes
6.0	$59.69	Yes
8.0	$79.58	Yes
10.0	$99.48	Yes
12.0	$119.37	Yes

38th and Pacific Shopping Center

3802 Pacific Ave.
Retail Shopping Center
PIN: 7470023651 & 747002363C

SITE & PARCEL CHARACTERISTICS

	Before 2004	After 2008
Assessor Data		
Improvement Value:	$ 89,300	$ 3,868,700
Land Value:	$ 109,100	$ 2,095,800
Taxable Value:	$ 198,400	$ 5,964,500
Total AV / SF `of Land	$ 1.98	
Sale Price:	NA	NA
Sale Date:	NA	NA
	GEN MERCHANDISE	GEN MERCHANDISE
Land Use(s):	RETAIL TRADE	RETAIL TRADE
No. Bldgs:	1	
Bldg SF:	22,190	100,420
Stories:	2	1
Lot Size:	100,188	100,188
FAR:	0.22	1.00
Condition:	Average	Average
Quality:	Low	Good
Year Built:	1925	2008
Year Remodeled:	1960	0
Age:	43	0
Zoning Policies		
General Community Commercial District (C2)		
Minimum Lot Size:	0	0
Max Height:	45	45
Max FAR:	None	None
Historic:	No	No
Market Conditions		
Vacancy Rate (%)	10%	10%
Rental Rates	$ 20.00	$ 20.00

RESIDUAL LAND VALUE ANALYSIS

DEVELOPMENT CAPACITY

Lot Area	100,188	
Max Allowable FAR	NA	Development Capacity
Max Allowable building size	NA	
Actual Bldg SF	100,420	As Built
Actual FAR	1.00	
Actual Development Size vs. Development Capacity	NA	
Did the developer build to maximum capacity?	NA	
Did the developer take advantage of zoning incentives to increase development capacity?	NA	

Building Value			Analyst Assumptions
Lease rate (gross), SF/yr.		$ 20.00	
Vacancy		10%	
Operating costs		20%	
Net operating income (NOI)		$ 14.40	
Cap rate		6.00%	
Bldg value per s.f. of building		$ 240.00	
Building Costs			
Construction hard costs		$ 80	
Demolition Costs (% of site value)	10%	$ 0.20	
Total hard costs		$ 80	
Soft costs (% of hard costs)	33%	$ 26	
Entrepreneurial Return (% of total costs)	10%	$ 11	
Total bldg costs (per s.f. of bldg)		$ 117.33	
Residual Land Value			
Land value per s.f. of building		$ 122.67	
FAR		1.00	
Available land value (per s.f. land)		**$ 122.96**	
Actual Land Value (sale $/s.f.)		**$ 20.92**	

Is this redevelopment feasible? **Yes, redevelopment value greater than parcel value**

Residual Land Value Feasibility Table

Residual Land Value with FAR incentives	Available for Site Purchase ($ sale value/s.f. lot)	Redevelopment Feasible?
0.5	$61.34	Yes
1.0	$122.67	Yes
2.0	$245.34	Yes
3.0	$368.01	Yes
4.0	$490.68	Yes
5.0	$613.35	Yes
6.0	$736.03	Yes
8.0	$981.37	Yes
10.0	$1,226.71	Yes
12.0	$1,472.05	Yes

Bella on Broadway

436 Broadway
High-rise apartments with structural parking
PIN: 2004060040

SITE & PARCEL CHARACTERISTICS

	Before 2004	After 2008
Assessor Data		
Improvement Value:	$ 744,400	$ 7,707,300
Land Value:	$ 122,400	$ 793,000
Taxable Value:	$ 866,800	$ 793,000
Total AV / SF of Land	$ 56.05	
Sale Price:	$ 725,000	
Sale Date:	3/1/2004	
Land Use(s):	NURSING CONVALESCENT HOSPITALS	100 Unit apartment building and structural parking
No. Bldgs:	2	
Bldg SF:	14,975	86,738
Stories:	3	5
Lot Size:	15,465	15,465
FAR:	0.97	5.61
Condition:	Average	Average
Quality:	Low Plus	Average Plus
Year Built:	1964	2005
Year Remodeled:	0	0
Age:	39	3
Zoning Policies		
Downtown Residential District (DR)		
Max Height:	90	90
FAR Base	3	3
FAR w/Design Guidelines	5	5
FAR w/Special Features	7	7
Parking (min-max)	1.2-3.6	1.2-3.6
Historic:	No	No
Market Conditions		
Vacancy Rate (%)	4%	4%
Rental Rates	$ 12.24	$ 13.00

RESIDUAL LAND VALUE ANALYSIS

DEVELOPMENT CAPACITY

Lot Area	15,465	
Max Allowable FAR	7	Development Capacity
Max Allowable building size	108,255	
Actual Bldg SF	86,738	As Built
Actual FAR	5.61	
Actual Development Size vs. Development Capacity	80%	
Did the developer build to maximum capacity?	No	
Did the developer take advantage of zoning incentives to increase development capacity?	Yes	

Building Value				Analyst Assumptions
Lease rate (gross), SF/yr.		$	13.00	
Vacancy			4%	
Operating costs			5%	
Net operating income (NOI)		$	11.82	
Cap rate			6.600%	
Bldg value per s.f. of building		$	179.04	
Building Costs				
Construction hard costs		$	106	
Demolition Costs (% of site value)	10%	$	1	
Total hard costs		$	107	
Soft costs (% of hard costs)	33%	$	35	
Entrepreneurial Return (% of total costs)	10%	$	14	
Total bldg costs (per s.f. of bldg)		$	156.91	
Residual Land Value				
Land value per s.f. of building		$	22.13	
FAR			5.61	
Available land value (per s.f. land)		**$**	**124.13**	
Actual Land Value (sale $/s.f.)		**$**	**46.88**	

Is this redevelopment feasible? **Yes, redevelopment value greater than parcel value**

Residual Land Value Feasibility Table

Residual Land Value with FAR incentives	Available for Site Purchase ($ sale value/s.f. lot)	Redevelopment Feasible?
1.0	$ 22.13	No
2.0	$ 44.26	No
3.0	$ 66.40	Yes
4.0	$ 88.53	Yes
5.0	$ 110.66	Yes
6.0	$ 132.79	Yes
8.0	$ 177.05	Yes
10.0	$ 221.32	Yes
12.0	$ 265.58	Yes

Johnsborough Station

1621-25 E 72nd Street
Retail Shopping Center
PIN: 0320275035

SITE & PARCEL CHARACTERISTICS

	Before 2004	After 2008
Improvement Value:	$ 113,100	$ 1,599,100
Land Value:	$ 175,900	$ 566,800
Taxable Value:	$ 289,000	$ 2,165,900
Total AV / SF of Land	$ 5.52	
Sale Price:		$ 5,070,000
Sale Date:		8/29/2007
Land Use(s):	Single Family House	GEN MERCHANDISE RETAIL TRADE
No. Bldgs:	1	
Bldg SF:	1,710	11,615
Stories:	1	1
Lot Size:	52,335	52,335
FAR:	0.03	0.22
Condition:	Average	Average
Quality:	Average	Average Plus
Year Built:	1964	2004
Year Remodeled:	0	0
Age:	39	4
Zoning Policies		
Community Commercial Mixed-Use District (CCX)		
Minimum Lot Size:	0	0
Max Height:	45-75	45-75
Max FAR:	3	3
Historic:	No	No
Market Conditions		
Vacancy Rate (%)	10%	10%
Rental Rates	$ 14.79	$ 14.79

RESIDUAL LAND VALUE ANALYSIS

DEVELOPMENT CAPACITY

Lot Area	52,335	
Max Allowable FAR	3.00	Development Capacity
Max Allowable building size	157,005	
Actual Bldg SF	11,615	As Built
Actual FAR	0.22	
Actual Development Size vs. Development Capacity	7%	
Did the developer build to maximum capacity?	No	
Did the developer take advantage of zoning incentives to increase development capacity?	NA	

Building Value — Analyst Assumptions

Lease rate (gross), SF/yr.	$ 14.79	
Vacancy	10%	
Operating costs	20%	
Net operating income (NOI)	$ 10.65	
Cap rate	6.00%	
Bldg value per s.f. of building	$ 177.43	

Building Costs

Construction hard costs		$	112
Demolition Costs (% of site value)	10%	$	1
Total hard costs		$	112
Soft costs (% of hard costs)	33%	$	37
Entrepreneurial Return (% of total costs)	10%	$	15
Total bldg costs (per s.f. of bldg)		$	164.48

Residual Land Value

Land value per s.f. of building	$	12.95
FAR		0.22
Available land value (per s.f. land)	**$**	**2.87**
Actual Land Value (sale $/s.f.)	**$**	**5.52**

Is this redevelopment feasible? **No, parcel value greater than redevelopment value**

Residual Land Value Feasibility Table

Residual Land Value with FAR incentives	Available for Site Purchase ($ sale value/s.f. lot)	Redevelopment Feasible?
0.5	$ 6.47	Yes
1.0	$ 12.95	Yes
2.0	$ 25.90	Yes
3.0	$ 38.84	Yes
4.0	$ 51.79	Yes
5.0	$ 64.74	Yes
6.0	$ 77.69	Yes
8.0	$ 103.58	Yes
10.0	$ 129.48	Yes
12.0	$ 155.37	Yes

Jerome Center Mixed Use

211 RIVER RD
Mixed-Use Retail and Office
PIN: 0420214046 & 0420214047

SITE & PARCEL CHARACTERISTICS

	Before 2004	After 2008
Assessor Data		
Improvement Value:	$ 267,800	$ 1,873,400
Land Value:	$ 337,000	$ 1,287,100
Taxable Value:	$ 604,800	$ 3,160,500
Total AV / SF of Land	$ 8.46	
Sale Price:	NA	NA
Sale Date:	NA	NA
Land Use(s):	OFF INSURANCE REAL ESTATE FINANCE, AUTO PARKING	MISC OFFICE SPACE, AUTO PARKING
No. Bldgs:	2	2
Bldg SF:	5,751	19,377
Stories:	1	2
Lot Size:	71,507	72,353
FAR:	0.08	0.38
Condition:	Average	Average
Quality:	Average	Good
Year Built:	1950	2007
Year Remodeled:	1968	0
Age:	35	1
Zoning Policies		
General Commercial Zone (CG)		
Minimum Lot Size:	0	0
Minimum Lot Width:	50	50
Minimum Lot Depth:	100	100
Max Height:	50	50
Max FAR:	4.0	4.0
Max Lot Coverage:	75%	75%
Historic:	No	No
Market Conditions		
Vacancy Rate (%)	15%	0.1
Rental Rates	$ 24.00	24.0

RESIDUAL LAND VALUE ANALYSIS

DEVELOPMENT CAPACITY

Lot Area	72,353	
Max Allowable FAR	4.00	Development Capacity
Max Allowable building size	289,412	
Actual Bldg SF	19,377	As Built
Actual FAR	0.27	
Actual Development Size vs. Development Capacity	7%	
Did the developer build to maximum capacity?	No	
Did the developer take advantage of zoning incentives to increase development capacity?	NA	

Building Value			Analyst Assumptions
Lease rate (gross), SF/yr.		$ 24.00	
Vacancy		15%	
Operating costs		20%	
Net operating income (NOI)		$ 16.40	
Cap rate		7%	
Bldg value per s.f. of building		$ 234.24	
Building Costs			
Construction hard costs		$ 122.50	
Demolition Costs (% of site value)	10%	$ 3.12	
Total hard costs		$ 126	
Soft costs (% of hard costs)	33%	$ 41	
Entrepreneurial Return (% of total costs)	10%	$ 17	
Total bldg costs (per s.f. of bldg)		$ 183.78	
Residual Land Value			
Land value per s.f. of building		$ 50.46	
FAR		0.27	
Available land value (per s.f. land)		**$ 13.51**	
Actual Land Value (sale $/s.f.)		**$ 8.46**	

Is this redevelopment feasible? **Yes, redevelopment value greater than parcel value**

Residual Land Value Feasibility Table

Residual Land Value with FAR incentives	Available for Site Purchase ($ sale value/s.f. lot)	Redevelopment Feasible?
0.5	$ 25.23	Yes
1.0	$ 50.46	Yes
2.0	$ 100.91	Yes
3.0	$ 151.37	Yes
4.0	$ 201.82	Yes
5.0	$ 252.28	Yes
6.0	$ 302.74	Yes
8.0	$ 403.65	Yes
10.0	$ 504.56	Yes
12.0	$ 605.47	Yes

Rieder Medical Building

1701 3RD ST SE

Medical Office

PIN: 0420214046 & 0420214047

Note: Part of good samaritan hospital plan, land owner near hospital swapped a piece of land with developer

SITE & PARCEL CHARACTERISTICS

	Before 2004	After 2008
Assessor Data		
Improvement Value:	$ -	$ 2,109,200
Land Value:	$ 1,198,100	$ 871,000
Taxable Value:	$ -	$ 2,980,200
Total AV / SF of Land	$ 7.84	
Sale Price:	$ 653,000	
Sale Date:	11/12/2004	
Land Use(s):	COMM VAC LND	MEDICAL OFFICES SERVICES
No. Bldgs:	NA	1
Bldg SF:	NA	21,928
Stories:	NA	3
Lot Size:	152,848	43,725
FAR:	NA	0.50
Condition:	NA	Average
Quality:	NA	Average Plus
Year Built:	NA	2007
Year Remodeled:	NA	0
Age:	NA	1
Zoning Policies		
Medical Zone (MED)		
Minimum Lot Size:	4,000	4,000
Minimum Lot Width:	50	50
Minimum Lot Depth:	70	70
Max Height:	36	36
Max FAR:	2	
Max Lot Coverage:	50%	50%
Historic:	No	No
Market Data		
Vacancy Rate (%)	15%	15%
Rentable Area		123,695
Absorption YTD		(9,130)
Rental Rates	$ 25.00	$ 25.19

RESIDUAL LAND VALUE ANALYSIS

DEVELOPMENT CAPACITY			
Lot Area		43,725	Development Capacity
Max Allowable FAR		2.00	
Max Allowable building size		65,587	
Actual Bldg SF		21,928	As Built
Actual FAR		0.50	
Actual Development Size vs. Development Capacity		25%	
Did the developer build to maximum capacity?		No	
Did the developer take advantage of zoning incentives to increase development capacity?		NA	

			Analyst Assumptions
Building Value			
Lease rate (gross), SF/yr.		$ 25.00	
Vacancy		15%	
Operating costs		20%	
Net operating income (NOI)		17	
Cap rate		7%	
Bldg value per s.f. of building		$ 242.86	
Building Costs			
Construction hard costs		$ 122.50	
Demolition Costs (% of site value)	10%	$ 5.46	
Total hard costs		$ 128	
Soft costs (% of hard costs)	33%	$ 42	
Entrepreneurial Return (% of total costs)	10%	$ 17	
Total bldg costs (per s.f. of bldg)		$ 187.21	
Residual Land Value			
Land value per s.f. of building		$ 55.65	
FAR		0.50	
Available land value (per s.f. land)		**$ 27.91**	
Actual Land Value (sale $/s.f.)		**$ 14.93**	

Is this redevelopment feasible?

Yes, redevelopment value greater than parcel value

Residual Land Value Feasibility Table

Residual Land Value	Available for Site Purchase ($ sale value/s.f. lot)	Redevelopment Feasible?
0.5	$ 27.82	Yes
1.0	$ 55.65	Yes
200%	$ 111.29	Yes
3.0	$ 166.94	Yes
4.0	$ 222.58	Yes
5.0	$ 278.23	Yes
6.0	$ 333.88	Yes
8.0	$ 445.17	Yes
10.0	$ 556.46	Yes
12	$ 667.75	Yes

Puyallup Activity Center Mixed Use

210 W. Pioneer

Mixed-use building with senior citizen activity center and retail on ground floor with condos on floors two and three

Former site of Puyallup City Hall

SITE & PARCEL CHARACTERISTICS

	Before 2004	After 2008			
Assessor Data					
Land Use(s):	City hall, senior center and municipal courts	APT CONDO 3 STOR OR LESS	OTHER RETAIL TRADE	REC ACTIVITIES, UNKNOWN	TOTAL
Improvement Value:	NA	$ 8,994,100	$ 322,000	$ 1,878,400	$ 11,194,500
Land Value:	$ 81,400	$ 3,420,000	$ 238,000	$ 1,120,500	$ 4,778,500
Taxable Value:	$ -	$ 3,190,000	$ 560,000	$ -	$ 3,750,000
Total AV / SF of Land	$ 2.08				
Sale Price:	NA	$ 8,082,013	$ 717,020	$ 2,573,399	$ 11,372,432
Sale Date:	NA	8/14/2006-5/13/2008	10/03/2007 - 12/07/2007	8/15/2006	
No. Bldgs:	-	38	2	2	42
Bldg SF:	-	34,504	2,267	11,360	48,131
Stories:	-	1-1.5	1	1	3.5
Lot Size:	39,200				39,200
FAR:	-				1.23
Condition:	-	Average	Average	Average	
Quality:	-	Good	Average Plus	Average Plus	
Year Built:	-	2006	2006	2006	2006
Year Remodeled:	-	0	0	0	0
Age:	-	2	2	2	2
Zoning Policies					
Central Business District - Core (CBD Core)					
Minimum Lot Size:	0	0	0	0	0
Minimum Lot Width:	30	30	30	30	30
Minimum Lot Depth:	70	70	70	70	70
Max Height:	65	65	65	65	65
Max FAR:	3	3	1	1	
Max Lot Coverage:	90%	90%	90%	90%	90%
Historic:	No	No		No	
Market Data					
Vacancy Rate (%)		0.1	10%	10%	
Rental/Selling Rates		$ 350	$ 25	$ 25	
Operating Expense Ratio		33%	33%	33%	

RESIDUAL LAND VALUE ANALYSIS

DEVELOPMENT CAPACITY	
Lot Area	39,200
Max building size	229,320
Max height (stories) @ 10ft/story	6.5
Buildable Lot Area	35,280
Bldg SF	48,131
FAR	1.23
Actual Development Size/Development Capacity	0.21
Did the developer build to capacity?	**No**

Building Value	**APT (Condo)**	**Retail**	**Rec and Other**
Lease rate (gross), SF/yr.	$ 350.00	$ 25.00	$ 25.00
Vacancy		10%	10%
Operating costs		33%	33%
Net operating income (NOI)		$ 15.08	$ 15.08
Cap rate		7%	7%
Bldg value per s.f. of building	$ 350.00	$ 215.36	$ 215.36

Building Costs		**APT (Condo)**	**Retail**	**Rec and Other**
Construction hard costs		$ 92.50	$ 125.00	$ 125.00
Demolition Costs (% of site value)	10%			$ 0.17
Total hard costs		$ 92.50	$ 125.00	$ 125.17
Soft costs (% of hard costs)	33%	$ 31	$ 41	$ 41
Entrepreneurial Return (% of total costs)	10%	$ 12	# $ 17	$ 17
Total bldg costs (per s.f. of bldg)		$ 135.33	$ 182.88	$ 183.12

Residual Land Value	**APT (Condo)**	**Retail**	**Rec and Other**	**TOTAL RLV**
Land value per s.f. of building	$ 214.67	# $ 32.48	$ 32.23	$ 279.39
FAR	3.00	1.00	1.00	
Available land value (per s.f. land)	**$ 644.02**	**$ 32.48**	**$ 32.23**	**$ 708.73**
Actual Land Value (sale $/s.f.)				**$ 2.08**

Is this redevelopment feasible?	**Yes, redevelopment value greater than parcel value**

Residual Land Value Feasibility Table

Residual Land Value with FAR incentives	**Available for Site Purchase ($ sale value/s.f. lot)**	**Redevelopment Feasible?**
3	$ 838.17	Yes
3.5	$ 977.86	Yes
4	$ 1,117.56	Yes
4.5	$ 1,257.25	Yes
5	$ 1,396.95	Yes
5.5	$ 1,536.64	Yes
6	$ 1,676.34	Yes
6.5	$ 1,816.03	Yes
7	$ 1,955.73	Yes

Appendix C. Regional Construction Cost Data

Rider Levett Bucknall Construction Costs for the Seattle Metropolitan Area; April, 2009

Land Use	Quality	2004	2005	2006	2007	2008	2009.1
Prime Office	Low ($/sf)	$ 143	$ 155	$ 160	$ 153	$ 140	$ 135
	High ($/sf)	$ 198	$ 211	$ 220	$ 225	$ 215	$ 210
Secondary Office	Low ($/sf)	$ 108	$ 110	$ 110	$ 123	$ 130	$ 125
	High ($/sf)	$ 170	$ 180	$ 185	$ 200	$ 190	$ 175
Shopping Center	Low ($/sf)	$ 70	$ 70	$ 73	$ 80	$ 78	$ 75
	High ($/sf)	$ 154	$ 160	$ 160	$ 170	$ 170	$ 165
Strip Shopping	Low ($/sf)	$ 69	$ 71	$ 75	$ 80	$ 80	$ 80
	High ($/sf)	$ 119	$ 120	$ 125	$ 135	$ 135	$ 135
Above Ground Parking	Low ($/sf)	$ 41	$ 50	$ 55	$ 65	$ 70	$ 75
	High ($/sf)	$ 55	$ 61	$ 73	$ 85	$ 88	$ 90
Basement Parking	Low ($/sf)	$ 56	$ 65	$ 68	$ 75	$ 103	$ 125
	High ($/sf)	$ 85	$ 101	$ 108	$ 115	$ 163	$ 195
Warehouse	Low ($/sf)	$ 31	$ 36	$ 58	$ 50	$ 55	$ 60
	High ($/sf)	$ 58	$ 58	$ 70	$ 85	$ 88	$ 90
Multi-family Residential	Low ($/sf)	$ 86	$ 88	$ 93	$ 123	$ 135	$ 130
	High ($/sf)	$ 136	$ 125	$ 168	$ 245	$ 265	$ 260
Single Family Residential	Low ($/sf)	$ 94	$ 96	$ 105	$ 115	$ 115	$ 110
	High ($/sf)	$ 255	$ 258	$ 270	$ 290	$ 295	$ 295

Source: Rider Levett Bucknall

Office Market

Exhibit D-1. Pierce County Office Market Metrics, 2008 Q.3

	Tacoma CBD	Puyallup
Net Rentable Area	3,748,475	123,695
Total Vacancy Rate	10%	14.6%
Total Absorption	(47,138)	(9,130)
Direct Asking Rate Class "A"	$ 21.56	$ 25.19
Total Asking Rate Class "A"	$ 22.81	$ 25.19

Source: Central Puget Sound Real Estate Research Report, Fall 2008

Exhibit D-2. Puget Sound Regional Office Market Metrics, 2009. Q2

Market Submarket	Net Rentable Area	Total Vacancy Rate	Total Absorption SF	Under Construction SF	Direct Asking Rate C (Full Service/SF/Yr)	Total Asking Rate Class A (Full Service/SF/Yr)
Seattle CBD	19,870,687	16.2%	(160,700)	275,000	$31.14	$30.98
Waterfront	2,225,788	9.9%	1,120	—	$31.45	$30.51
Pioneer Square	3,577,877	13.6%	(16,294)	288,000	$27.46	$26.61
Denny Regrade	6,296,225	19.4%	(77,036)	653,697	$29.69	$29.14
Lower Queen Anne	2,783,764	7.5%	(12,910)	360,000	$25.62	$25.44
Lake Union	3,656,296	10.7%	(122,641)	1,689,464	$36.23	$35.12
Canal	1,354,812	13.9%	1,660	—	$36.89	$33.85
Downtown seattle	39,765,449	14.9%	(386,801)	3,266,161	$31.08	$30.74
North Seattle/Interbay	1,733,316	16.1%	(16,870)	34,000	$26.68	$24.16
Capitol Hill/E Seattle/Rainie	979,351	27.3%	(16,895)	—	$23.76	$26.13
seattle close-in	2,712,667	20.2%	(33,765)	34,000	$25.20	$23.17
South Seattle	1,387,596	11.7%	(5,456)	—	$26.21	$25.84
Sea-Tac	872,914	19.2%	(10,634)	—	$18.44	$18.30
Tukwila	2,208,168	22.0%	(41,352)	—	$21.98	$21.71
Renton	3,314,992	13.3%	(71,344)	—	$20.41	$20.27
Kent	1,208,646	27.2%	746	—	$21.93	$21.84
Auburn	360,991	6.1%	(5,149)	—	$21.83	$21.83
Federal Way	2,208,102	27.4%	(6,844)	—	$20.17	$20.18
southend	11,561,409	19.1%	(140,033)	—	$21.44	$21.23
Bellevue CBD	7,913,943	10.9%	1,012,247	330,800	$37.69	$35.95
I-405	2,909,251	13.9%	(10,273)	—	$28.54	$27.90
SR-520	2,571,507	13.8%	1,957	—	$27.22	$26.27
I-90	6,526,424	15.6%	(197,911)	165,320	$32.06	$30.39
Bel-Red Road	1,384,897	8.3%	(25,286)	—	$30.16	$24.67
Kirkland	1,379,287	17.2%	(3,440)	180,760	$35.73	$35.39
Redmond	4,033,602	15.8%	(42,312)	—	$31.20	$29.90
Bothell	3,076,863	19.9%	97,557	—	$24.75	$24.20
eastside	29,795,774	14.2%	832,539	676,880	$32.00	$30.65
Lynn/Edm/Mtlk Terr	2,502,650	24.3%	30,725	—	$25.00	$24.83
Everett	1,643,615	7.7%	653	—	$22.21	$21.12
northend	4,146,265	17.7%	31,378	—	$24.74	$24.38
Tacoma CBD	2,741,792	13.0%	(28,653)	102,187	$21.77	$22.21
Tacoma Suburban	1,022,160	7.3%	(10,805)	—	$20.51	$20.51
Fife	213,994	13.6%	—	—	$23.00	$24.94
Puyallup	138,962	18.5%	—	—	$24.61	$24.61
tacoma/Fife	4,116,908	11.8%	(39,458)	102,187	$21.66	$22.66
Market Total	92,098,472	15.4%	263,860	4,079,228	$29.38	$28.78

Source: CBRE Richard Ellis, Q209

Retail Market

Exhibit D-3. Puget Sound Regional Retail Market Metrics, 2009. Q2

Marke	Submarket	Gross Leasable Area	Total Vacant	Total Vacancy	Total Absorption SF (1st Half)	Under Const	Direct Asking Rate (NNN/SF/Yr)
	Downtown/Lake Uni	1,346,854	79,285	5.89%	(12,655)		$38.58
Downtown Seattle		1,346,854	79,285	5.89%	(12,655)	—	$38.58
	South/West Seattle	786,297	15,731	2.00%	31,864		$28.67
	SeaTac	392,360	26,758	6.82%	(16,584)		$19.64
	Renton/Tukwila	5,276,115	337,005	6.39%	(48,509)		$20.34
	Kent/Auburn	3,133,252	181,626	5.80%	(41,870)		$20.86
	Federal Way	2,821,680	323,901	11.48%	(111,961)		$18.37
Southend		12,409,704	885,021	7.13%	(187,060)	—	$19.80
	Bellevue CBD	2,004,284	49,461	2.47%	(27,461)		$28.89
	Bellevue Suburban/I	4,353,038	281,157	6.46%	(110,205)		$28.27
	Kirkland/Totem Lake	778,431	175,591	22.56%	(30,144)		$15.27
	Redmond/Willows	2,087,028	87,699	4.20%	(16,186)		$27.63
	Bothell/Woodinville	1,838,696	72,613	3.95%	5,096		$21.02
Eastside/Bellevue		11,061,477	666,521	6.03%	(178,900)	300,000	$25.39
	Northgate/North Sea	4,176,583	177,582	4.25%	113,360		$25.95
	Lynnwood/Mountlak	3,444,963	238,126	6.91%	(123,311)		$18.00
	Everett/N. Snohomis	5,467,119	320,185	5.86%	(191,384)		$20.47
Northend/Everett		13,088,665	735,893	5.62%	(201,335)	180,000	$20.10
	Tacoma	3,420,541	105,318	3.08%	5,791		$20.22
	Fife/Milton	67,000	5,312	7.93%	—		$19.00
	Puyallup/Bonney La	3,488,722	318,346	9.13%	(59,809)		$22.35
	Lakewood/Universit	2,088,871	390,601	18.70%	(184,055)		$16.03
	Gig Harbor	922,020	45,929	4.98%	20,740		$31.13
Pierce Co/Tacoma		9,987,154	865,506	8.67%	(217,333)	14,000	$19.61
Market Total		47,893,854	3,232,226	6.7%	(797,283)	494,000	$21.27

Source: CBRE Richard Ellis, Q209

Exhibit D-4. Puget Sound Regional Industrial Market Metrics, 2009. Q2

Area	Building Type	Net Rentable Area	Total Vacant	Total Vacancy Rate	Total Absorption SF	Under Construction SF	Direct Asking Rate (NNN/SF/Mo)
Seattle Close-in		62,680,096	1,764,243	2.8%	(349,638)	149,924	$0.55
	Ware/Manuf/Bus Pk	61,030,286	1,755,788	2.9%	—	—	$0.55
	Flex/Tech	1,649,810	8,455	0.5%	—	—	$1.00
Kent Valley		110,378,431	8,198,685	7.4%	(965,866)	—	$0.42
	Ware/Manuf/Bus Pk	107,526,678	7,774,593	7.2%	—	—	$0.38
	Flex/Tech	2,851,753	424,092	14.9%	—	—	$1.00
Tacoma/Fife		29,430,509	2,370,056	8.1%	1,145,830	150,000	$0.34
	Ware/Manuf/Bus Pk	28,719,855	2,370,056	8.3%	—	—	$0.34
	Flex/Tech	710,654	—	N/A	—	—	N/A
Eastside		23,282,869	2,690,733	11.6%	(257,349)	196,680	$0.90
	Ware/Manuf/Bus Pk	17,849,020	1,457,387	8.2%	—	—	$0.60
	Flex/Tech	5,433,849	1,233,346	22.7%	—	—	$1.30
Northend		14,633,491	1,859,792	12.7%	122,015	210,375	$0.63
	Ware/Manuf/Bus Pk	13,974,151	1,745,657	12.5%	—	—	$0.60
	Flex/Tech	659,340	114,135	17.3%	—	—	$1.10
Market Total		240,405,396	16,883,509	7.0%	(305,008)	706,979	$0.52
	Ware/Manuf/Bus Pk	229,099,990	15,103,481	6.6%	—	—	$0.44
	Flex/Tech	11,305,406	1,780,028	15.7%	—	—	$1.20

Source: CBRE Richard Ellis, Q209

Multi-Family Market

Exhibit D-5 Regional Multi-Family Vacancy and Cap Rates

Market	Vacancy Rate	Cap Rate
Dupont/Steilacoom	3.4%	
Fircrest/University Place	4.0%	
Gig Harbor	6.0%	
Lakewood/Tillicum	5.1%	
Puyallup/Sumner/Bonney Lake	5.1%	
South Tacoma/Parkland	3.8%	
Tacoma	5.0%	
pierce county	4.5%	6.46%
Region	4.9%	5.71%

Source: CB Richard Ellis, Market View Puget Sound Multi-Housing, Second Half 2008

Exhibit D-5 Regional Multi-Family Vacancy and Cap Rates

Market	1Q09 Vacancy rate
King County	6.80%
Capital Hill/Eastlake	4.90%
Queen Anne	6.10%
Redmond	6.70%
Pierce County	6.00%
Downtown Tacoma	5.20%
Puyallup/Sumner	6.70%
Snohomish County	6.80%
Central Everett	6.90%
Montlake Terrace	6.40%

Source: Grubb & Ellis Research, Multi-Family Market Trends Seattle, First Quarter 2009

Exhibit D-8. Pierce County Apartment Market Metrics, 2008.3

Apartments	Rent/SF/Month	Rent/SF/Y	Avg. Vacancy
Fife	$ 1.02	$ 12.24	4.5%
Gig Harbor	$ 0.99	$ 11.88	4.8%
Lakewood	$ 1.01	$ 12.12	4.5%
Puyallup	$ 1.04	$ 12.48	4.6%
Tacoma North Central	$ 1.02	$ 12.24	4.3%
Tacoma South	$ 0.89	$ 10.68	4.9%
University Place, Fircrest	$ 0.96	$ 11.52	3.6%
TOTAL	$ 0.98	$ 11.76	4.5%

Source: Central Puget Sound Real Estate Research Report, Fall 2008

Exhibit D-9. Pierce County Condo Market Metrics, 2008 Q3

Bedrooms	Avg. Sale $/SF
Studio	$ 157
1	$ 267
2	$ 204
3	$ 171

Source: Central Puget Sound Real Estate Research Report, Fall 2008

Exhibit D-6. Pierce County Apartment (5+ Units) Development Trends

Year	Number of Sales	Sales Volume	Med Price/Unit	Avg. Cap Rate
2001	19	$ 38,203,795	$ 37,500	9.60%
2002	26	$ 69,146,850	$ 40,625	9.00%
2003	53	$ 171,092,420	$ 48,750	7.80%
2004	37	$ 92,251,604	$ 56,083	7.20%
2005	49	$ 203,159,555	$ 64,744	6.60%
2006	46	$ 208,302,223	$ 67,748	6.40%
2007	45	$ 159,050,550	$ 66,667	6.50%

Source: Central Puget Sound Real Estate Research Report, Fall 2008

Exhibit D-7. Puget Sound Region Multi-Family Market Metrics, 2009. Q2

SubRegion	Vacancy 1Q 2009	Vacancy 1Q 2008	Avg. Rent 1Q 2009	Avg. Rent 1Q 2008	% Change
King - Seattle	5.5%	3.1%	$1.62	$1.57	3.2%
King - Eastside	6.6%	4.0%	$1.38	$1.34	3.0%
King - South	7.6%	4.6%	$1.06	$1.02	3.9%
King County	6.7%	4.0%	$1.28	$1.25	2.4%
Snohomish County	6.8%	4.8%	$1.08	$1.05	2.9%
Pierce County	6.0%	3.9%	$0.99	$0.95	4.2%
Tri-County Totals	**6.6%**	**4.1%**	**$1.20**	**$1.16**	**3.4%**

GVA Kidder Mathews Apartment Seatlle Real Estate Market Review, Mid-Year 2009

Market Data Sources and Documentation

Source: *Central Puget Sound Real Estate Research Report*, Central Puget Sound Real Estate Research Committee. Published bi-annually. Annual subscription is $150, single issues can be purchased for $95.
http://www.realestatereport.org/

Directions - For Pierce County multi-family data see pierce county vacancy and multi-family rent tables (page 70). For office data, see Puget Sound Office Market table (page 83); tables include vacancy, GLA, absorption, and rental statistics for Tacoma and Puyallup. For warehouse, manufacturing and flex-tech uses see Puget Sound Industrial Market table (pages 92 – 96) for Tacoma/Fife. Note, the CPSRERR contains little data on retail uses for Pierce County.

Source: CBRE Richard Ellis. Published quarterly. User account required. Free.http://www.cbre.com/USA/Research/Local+Reports+Worldwide/globalresearch.htm

Directions - From the link above, select "Seattle" from "select Local Market" drop down menu. Choose reports on industrial, office, retail and multi-family housing. See market statistics table (usually on page 2) for vacancy and rental data. Data is available for office uses at Tacoma, Tacoma suburban, Fife and Puyallup geographies; industrial reports have data for the Tacoma/Fife geography; retail reports have data for Tacoma, Fife/Milton, Puyallup/Bonney lake; Lakewood/University Place and Gig Harbor geographies; multi-family housing reports have vacancy data only for Dupont/Steilacoom, Fircrest/University Place, Gig Harbor, Lakewood/Tillicum, Puyallup/Sumner/Bonney Lake;,South Tacoma/Parkland, and Tacoma geographies.

Source: Grubb and Ellis. Published quarterly. Free. http://www.grubb-ellis.com/Research/Reports.aspx

Directions - From link above, select "Seattle" from metro industrial and multi-housing drop down lists. Office and retail data not available for Pierce County geographies, Industrial data available for Pierce County average and Tacoma geographies, multi-family housing data available for Pierce County average, downtown Tacoma, and Puyallup/Sumner.

Source: GVA Kidder Mathews. Published quarterly. Free

http://www.gvakm.com/

Directions - From market research drop down menu select office, industrial, retail and multi-family uses. Multi-family reports have vacancy and rents for Pierce County. Reports have hard data on comparable properties, but not geographies.

Exhibit E-1. City of Tacoma Commercial Development Building and Parking Allocations, FAR calculations

Max Commercial FAR scenario

Zone	Building FAR allocation ratio	Parking FAR allocation ratio	FAR	Hypothetical Lot size	Assumed Parking Stall Size	Assumed Story Height	Max Height	Maximum Built Space Allowed	Building Efficiency (GLA/Total excl. Pkg)	Commercial GLA	Parking Code	Parking Required	Building Space (Check)
DCC	55.17%	44.83%	12.00	40,000	325	10	0	480,000	100%	264,828	2.5	215,172	480,000
DMU	55.17%	44.83%	6.00	40,000	325	10	0	240,000	100%	132,414	2.5	107,586	240,000
DR	55.17%	44.83%	6.00	40,000	325	10	0	240,000	100%	132,414	2.5	107,586	240,000
WR	55.17%	44.83%	6.00	40,000	325	10	0	240,000	100%	132,414	2.5	107,586	240,000
C2	50.63%	49.37%	4.50	40,000	325	10	45	180,000	100%	91,139	3.0	88,861	180,000
M1	50.63%	49.37%	7.50	40,000	325	10	75	300,000	100%	151,899	3.0	148,101	300,000
M2	50.63%	49.37%	10.00	40,000	325	10	100	400,000	100%	202,532	3.0	197,468	400,000
S8	100.00%	0.00%	10.00	40,000	325	10	100	400,000	100%	400,000	-	-	400,000
UCX-TD	100.00%	0.00%	7.50	40,000	325	10	75	300,000	100%	300,000	-	-	300,000

Mid Commercial FAR scenario

Zone	Building FAR allocation ratio	Parking FAR allocation ratio	FAR	Hypothetical Lot size	Assumed Parking Stall Size	Assumed Story Height	Max Height	Maximum Built Space Allowed	Building Efficiency (GLA/Total excl. Pkg)	Commercial GLA	Parking Code	Parking Required	Building Space (Check)
DCC	55.17%	44.83%	12.00	40,000	325	10	0	480,000	100%	264,828	2.5	215,172	480,000
DMU	55.17%	44.83%	6.00	40,000	325	10	0	240,000	100%	132,414	2.5	107,586	240,000
DR	55.17%	44.83%	6.00	40,000	325	10	0	240,000	100%	132,414	2.5	107,586	240,000
WR	55.17%	44.83%	6.00	40,000	325	10	0	240,000	100%	132,414	2.5	107,586	240,000
C2	46.78%	53.22%	3.00	40,000	325	10	30	120,000	100%	56,140	3.5	63,860	120,000
M1	46.78%	53.22%	5.00	40,000	325	10	50	200,000	100%	93,567	3.5	106,433	200,000
M2	46.78%	53.22%	6.60	40,000	325	10	66.667	266,667	100%	123,509	3.5	140,491	264,000
S8	100.00%	0.00%	6.67	40,000	325	10	66.667	266,667	100%	266,667	-	-	266,667
UCX-TD	100.00%	0.00%	5.00	40,000	325	10	50	200,000	100%	200,000	-	-	200,000

Baseline Commercial FAR scenario

Zone	Building FAR allocation ratio	Parking FAR allocation ratio	FAR	Hypothetical Lot size	Assumed Parking Stall Size	Assumed Story Height	Max Height	Maximum Built Space Allowed	Building Efficiency (GLA/Total excl. Pkg)	Commercial GLA	Parking Code	Parking Required	Building Space (Check)
DCC	55.17%	44.83%	12.00	40,000	325	10	0	480,000	100%	264,828	2.5	215,172	480,000
DMU	55.17%	44.83%	6.00	40,000	325	10	0	240,000	100%	132,414	2.5	107,586	240,000
DR	55.17%	44.83%	6.00	40,000	325	10	0	240,000	100%	132,414	2.5	107,586	240,000
WR	55.17%	44.83%	6.00	40,000	325	10	0	240,000	100%	132,414	2.5	107,586	240,000
C2	43.48%	56.52%		40,000	325	10	15	60,000	100%	26,087	4.0	33,913	60,000
M1	67.23%	32.77%		40,000	325	10	25	100,000	100%	67,227	1.5	32,773	100,000
M2	67.23%	32.77%		40,000	325	10	33.333	133,333	100%	89,636	1.5	43,697	133,333
S8	100.00%	0.00%	3.33	40,000	325	10	33.333	133,333	100%	133,333	-	-	133,333
UCX-TD	100.00%	0.00%	2.50	40,000	325	10	25	100,000	100%	100,000	-	-	100,000

Exhibit E-2. City of Tacoma Downtown Residential Development Building and Parking Allocations

Max Residential FAR scenario

Zone	Building FAR allocation ratio	Parking FAR allocation ratio	FAR	Hypothetical Lot size	Assumed Parking Stall Size	Assumed Story Height	Max Height	Assumed Units or Size	Maximum Built Space Allowed	Building Efficiency (GLA/Total excl. Pkg)	Bldg SF	Parking Code	Parking Required	Building Space Check
DCC	75.47%	24.53%	12.00	40,000	325	10	0	NA	480,000	100%	362,264	1.00	117,736	480,000
DMU	75.47%	24.53%	7.00	40,000	325	10	0	NA	280,000	100%	211,321	1.00	68,679	280,000
DR	75.47%	24.53%	7.00	40,000	325	10	0	NA	280,000	100%	211,321	1.00	68,679	280,000
WR	75.47%	24.53%	7.00	40,000	325	10	0	NA	280,000	100%	211,321	1.00	68,679	280,000
C2	71.11%	28.89%	4.50	40,000	325	10	45	NA	180,000	100%	128,000	1.25	52,000	180,000
R3	60.00%	40.00%	3.50	3,000	325	10	35	3	10,500	100%	6,300	2.00	4,200	10,500
R4	68.90%	31.10%	6.00	6,000	325	10	60	900	36,000	100%	24,804	1.25	11,196	36,000
S8	100.00%	0.00%	10.00	40,000	325	10	100	NA	400,000	100%	400,000	-	-	400,000
UCX-TD	100.00%	0.00%	12.00	40,000	325	10	120	NA	480,000	100%	480,000	-	-	480,000

Mid Residential FAR scenario

Zone	Building FAR allocation ratio	Parking FAR allocation ratio	FAR	Hypothetical Lot size	Assumed Parking Stall Size	Assumed Story Height	Max Height	Assumed Units or Size	Maximum Built Space Allowed	Building Efficiency (GLA/Total excl. Pkg)	Bldg SF	Parking Code	Parking Required	Building Space Check
DCC	75.47%	24.53%	12.00	40,000	325	10	0	NA	480,000	100%	362,264	1.00	117,736	480,000
DMU	75.47%	24.53%	7.00	40,000	325	10	0	NA	280,000	100%	211,321	1.00	68,679	280,000
DR	75.47%	24.53%	7.00	40,000	325	10	0	NA	280,000	100%	211,321	1.00	68,679	280,000
WR	75.47%	24.53%	7.00	40,000	325	10	0	NA	280,000	100%	211,321	1.00	68,679	280,000
C2	71.11%	28.89%	3.00	40,000	325	10	30	NA	120,000	100%	85,333	1.25	34,667	120,000
R3	60.00%	40.00%	2.33	3,000	325	10	23.333	3	7,000	100%	4,200	2.00	2,800	7,000
R4	68.90%	31.10%	4.00	6,000	325	10	40	900	24,000	100%	16,536	1.25	7,464	24,000
S8	100.00%	0.00%	6.67	40,000	325	10	66.667	NA	266,667	100%	266,667	-	-	266,667
UCX-TD	100.00%	0.00%	8.00	40,000	325	10	80	NA	320,000	100%	320,000	-	-	320,000

Baseline Residential FAR scenario

Zone	Building FAR allocation ratio	Parking FAR allocation ratio	FAR	Hypothetical Lot size	Assumed Parking Stall Size	Assumed Story Height	Max Height	Assumed Units or Size	Maximum Built Space Allowed	Building Efficiency (GLA/Total excl. Pkg)	Bldg SF	Parking Code	Parking Required	Building Space Check
DCC	75.47%	24.53%	12.00	40,000	325	10	0	NA	480,000	100%	362,264	1.00	117,736	480,000
DMU	75.47%	24.53%	7.00	40,000	325	10	0	NA	280,000	100%	211,321	1.00	68,679	280,000
DR	75.47%	24.53%	7.00	40,000	325	10	0	NA	280,000	100%	211,321	1.00	68,679	280,000
WR	75.47%	24.53%	7.00	40,000	325	10	0	NA	280,000	100%	211,321	1.00	68,679	280,000
C2	71.11%	28.89%	1.50	40,000	325	10	15	NA	60,000	100%	42,667	1.25	17,333	60,000
R3	60.00%	40.00%	1.17	3,000	325	10	11.667	3	3,500	100%	2,100	2.00	1,400	3,500
R4	68.90%	31.10%	2.00	6,000	325	10	20	900	12,000	100%	8,268	1.25	3,732	12,000
S8	100.00%	0.00%	3.33	40,000	325	10	33.333	NA	133,333	100%	133,333	-	-	133,333
UCX-TD	100.00%	0.00%	4.00	40,000	325	10	40	NA	160,000	100%	160,000	-	-	160,000

Exhibit E-3. City of Puyallup Downtown Development Building and Parking Allocations, FAR calculations

Comm. Dev. Building and Parking Allocations

Zone	Building FAR allocation	Parking FAR allocation	Height	Lot cover	Assumed Lot Size	Parking stall	Story Height	Max Building Size	Max building footprint	Bldg FAR	Bldg Size	Stalls required	Parking Area	Parking FAR	Total Area	Total FAR
CBD	48.0000%	52.0000%	36	90%	40,000	325	10	1,296,000	129,600	1.56	62,208	207	67,392	1.68	129,600	3.24
CBD-Core	48.0000%	52.0000%	65	100%	40,000	325	10	2,600,000	260,000	3.12	124,800	416	135,200	3.38	260,000	6.50

Res. Dev. Building and Parking Allocations

Zone	Building FAR allocation	Parking FAR allocation	Height	Lot cover	Assumed Lot Size	Parking stall	Story Height	Max Building Size	Max building footprint	Bldg FAR	Bldg Size	Avg Unit Size	Stalls required	Parking Area	Parking FAR	Total Area	Total FAR
CBD	64.865%	35.135%	51	100%	40,000	325	10	2,040,000	204,000	3.31	132,324	900	221	71,676	1.79	204,000	5.10
CBD-Core	73.469%	26.531%	65	100%	40,000	325	10	2,600,000	260,000	4.78	191,020	900	212	68,980	1.72	260,000	6.50

City of Puyallup Parking Requirements	
Office or Retail (bldg sf per stall)	300
CBD-Core Residential (stalls per unit)	1
CBD Residential (stalls per unit)	1.5

APPENDIX F: DEFINITIONS

Net Operating Income (NOI). The developer's required return is defined by the Net Operating Income (NOI). The required NOI is the total cost of the building multiplied by the cap rate. The NOI defines the income that the developer needs to receive each year to satisfy his or hers initial investment on construction. (Expressed in $/bldg sf)

Required Return on Investment. A developer's NOI is reduced by three factors: operating expenses, vacancy and un-leasable space (efficiency). The NOI is adjusted upwards to account for these penalties to define the Potential Gross Income (PGI). The PGI, per sf of building, is the expected baseline income the developer is required to receive to make an initial investment economically feasible.

Residual Land Value. Building rents are subtracted from the required PGI, to define the residual land value. The residual land value (RLV), is the money left over to purchase the site after the developer's requirements for return on building construction (PGI) is satisfied by those paying rent or buying property. At this stage, RLV is defined as $ available to spend on land per square foot of building. RLV per sf of building is multiplied by the floor-to-area ratio, to obtain RLV/sf of land (simple algebra; building floor area cancel each other out, resulting in RLV/sf of land). This transformation, shown below, is required to compare residual land value/sf of land with site acquisition costs per sf of land. Site acquisition costs are defined by the total assessed value of land plus improvements per square foot of land area for any given parcel.

Pro Forma. A pro forma documents financial assumptions, analysis and statements in advance of a development project. The objective of a pro forma is to determine project feasibility and cash outlay given one or more assumptions or hypothetical conditions in advance of development. Pro formas are often used in conjunction with or to support balance sheets and income statements.

Capitalization Rates (a.k.a Cap Rate) The capitalization rate is the percentage of the initial investment that a developer wishes to re-capture each year on his/her investment. Cap rates demonstrate the "appetite for risk" within the real estate market where high cap rates, equate to high risk (need to re-capture money quickly, greater-uncertainty about rents, vacancy, etc) where low rates equate to low risk (willing to re-coup money more slow because of high demand for space, willingness to pay for rents). Cap rates vary depending on intangible factors such as developer credit and capital, lending practices, among others.