Vacant Buildable Lands Model

2018 Update

– Issue Paper 1.0, April 11, 2018

Purpose

This issue paper (Issue Paper 1.0) will discuss the existing capacity of urban growth areas for population and jobs captured by the vacant and buildable lands model (VBLM). It also discusses capacity to accommodate (including urban holding) the projected 20-year population growth as selected by the County Councilors on February 23, 2016.

Background

In December 2017, during Council time the vacant and buildable lands model was discussed and a work session is proposed for April 11, 2018. This issue paper (Issue Paper 1.0) will discuss the existing capacity of urban growth areas for population and jobs captured by the vacant land model. In June 2016, Clark County adopted the 2016 Clark County Comprehensive Growth Management Plan 2015-2035 with a projected population of 577,431 on March 1, 2016. E2SSB 5254 was signed into law by Governor Inslee on July 6, 2017 and became effective October 19, 2017. A brief description of E2SSB 5254 is to ensure adequacy of buildable lands and zoning in urban growth areas and provide funding for low-income housing and homelessness programs. With the passage of E2SSB 5254, Washington State Department of Commerce is working with a consultant to develop an updated guidance document on the buildable lands review and evaluation, that is anticipated to be available in December 2019. The new guidance document may require amending the vacant buildable lands model.

Methodology

The VBLM is a planning tool developed to analyze residential, commercial, and industrial lands within urban growth areas. The model serves as a tool for evaluating urban area alternatives during Clark County 20-year Comprehensive Growth Management Plan updates and for monitoring growth patterns during interim periods. It analyzes potential residential and employment capacity of each urban growth area within the county based on vacant and underutilized land classifications. This potential capacity is used to determine the amount of urban land needed to accommodate projected population and job growth for the next 20 years during plan updates and to analyze land consumption or conversion rates on an annual basis for plan monitoring purposes.

Planning Assumptions

Planning assumptions, that account for infrastructure, reduced development on constrained land, and never to convert factors, are applied to the inventory of vacant and underutilized gross acres in order to arrive at a net available land supply. Employment and housing units per acre densities are applied to derived net acres to predict future capacities. This issue paper, we will only discuss the residential model planning assumptions in order to address recent population projections and impacts on the urban

growth areas. The following residential model planning assumptions are from the vacant buildable lands model that is described at pages 7-8 in this link. http://gis.clark.wa.gov/vblm/assets/VBLM.pdf

Residential Model Planning Assumptions:

- 27.7% deduction to account for both on and off-site infrastructure needs. 20% infrastructure deduction for mixed use lands.
- Never to convert factor
- 10% for vacant land
- 30% for underutilized
- 50% of available constrained (critical) land will not convert
- 60% of mixed use land will develop as residential, 85% residential for Battle Ground mixed use - residential and 25% residential for mixed use - employment.

Countywide planning policy 1.1.13 identifies the following density tiers, using net acres, for the county's Urban Growth Area Centers (UGA): Vancouver is eight (8); Battle Ground, Camas, Ridgefield and Washougal have six (6); and La Center is four (4). No density is assigned for the Town of Yacolt.

Process

GIS annually updates the VBLM to include new structures, short plats and subdivisions within urban growth areas. Planning staff works with the cities to review the updated VBLM. Any discrepencies in the VBLM are corrected. After this review, GIS publishes the updated VBLM for the public.

Capacity Results

The summary results of the VBLM capacity analysis in Table 1 indicate that in aggregate, UGA's developed 398 acres of land between 2016 and 2018. Vancouver experienced the largest change during this period, 314 acres.

The OFM April 1, 2017 countywide population estimate is 471,000. Issue Paper #7, March 10, 2016, discussed during the 2016 Comprehensive Growth Management Plan update, indicated Clark County could accommodate population growth of 135,122 exceeding the 20-year projected population growth of 128,856 with the adopted urban growth area boundaries. The 2018 VBLM urban capacity is 127,098 people. Based on OFM's estimate and the 2018 VBLM, there is an estimated capacity of 598,098 people that exceeds the 2035 Comprehensive Plan Growth Plan Population Projection of 577,431. Tables 1 -3 on the following pages compare the 2016 and 2018 VBLMs.

Table 1

2016 and 2018 VBLM Summary Results Residential Capacity Comparison

UGA	Developable Net Acres		Difference between 2016 & 2018
	2016	2018	
Battle Ground	1,118.1	1,076.1	-41.9
Camas	866.7	856.4	-10.3
La Center	370.4	373.4	3.0
Ridgefield	1,036.5	991.7	-44.8
Vancouver	3,511.5	3,197.5	-314.0
Washougal	470.0	483.2	13.2
Yacolt	44.0	40.6	-3.4
Woodland	25.2	25.2	0.0
Residential Total	7,442.3	7,044.1	-398.2

Table 2

2016 and 2018 VBLM Summary Results Commercial Capacity Comparison

UGA	Developable Net Acres		Difference between 2016 & 2018
	2016	**2018**	
Battle Ground	430.3	383.0	-47.3
Camas	327.2	344.5	17.3
La Center	80.6	76.2	-4.4
Ridgefield	195.1	286.8	91.7
Vancouver	927.1	845.4	-81.7
Washougal	81.9	72.8	-9.1
Yacolt	10.6	9.1	-1.4
Woodland	0.0	0.0	0.0
COMMERCIAL TOTAL	**2,052.9**	**2,017.9**	-35.0

Table 3

2016 and 2018 VBLM Summary Results Industrial Capacity Comparison

UGA	Developable Net Acres		Difference between 2016 & 2018
	2016	**2018**	
Battle Ground	161.6	93.6	-68.0
Camas	491.1	609.1	118.1
La Center	48.8	36.8	-12.0
Ridgefield	541.9	456.7	-85.2
Vancouver	2,328.1	2,185.6	-142.5
Washougal	265.3	217.6	-47.7
Yacolt	28.5	28.5	0.0
Woodland	0.0	0.0	0.0
INDUSTRIAL TOTAL	**3,865.2**	**3,627.9**	-237.3

Source for Tables 1-3: Clark County GIS. Note: 2016 VBLM Summary Results are from Issue Paper #7 February 23, 2016 Preferred Alternative and Ordinance #2016-06-12.

VBLM Summary

See Appendix 1 for complete 2016 and 2018 Summary tables.

Office of Financial Management (OFM)

OFM will be providing population forecasts or projections for counties planning under the state Growth Management Act (GMA) for the next growth plan update cycle as required by state statue, RCW 36.70A.110 (2). It is likely that the overall projections for the state will increase over the 2012 OFM projections. Given that Clark County's growth is mostly driven by migration and that migration in the years just prior to the 2012 projections was historically low, it is likely that future projections will rebound to previous levels.

Forecasts change and higher future projections do not suggest that there is an error in the growth assumptions for the county's current plan. Clark County's next plan update will be completed in 2024,

and will address new land use forecasts based on the best available forecast by OFM for the county. The county planning horizon year will likely be 2044 or 2045 at that time. As always, future land use assumptions will be based on the adopted growth land use assumptions and policies of the County Council.

Urban Holding

The 2018 VBLM does account for land with an Urban Holding overlay. See Appendix 2 for a complete discussion on urban holding.

Appendix 1

VBLM Summary

The following tables 1-3 are from the 2018 VBLM summary results. Tables 4-6 on the following pages are the February 2016 BOCC Preferred Alt Summary Totals, 2016.

Table 1 Residential VBLM Summary Totals, 2018

RESIDENTIAL	Gross Acres	Will Not Convert Acres	Infrastructure Acres	Developable Net Acres	Housing Units	Persons
Battle Ground						
City	1,729.1	651.4	297.3	780.5	4,682.9	12,456.5
UGA	678.9	272.0	111.3	295.7	1,774.0	4,718.8
Total	2,408.1	923.3	408.6	1,076.1	6,456.9	17,175.3
Camas						
City	1,503.4	556.7	262.3	684.5	4,107.0	10,924.7
UGA	375.6	137.9	65.8	171.9	1,031.1	2,742.8
Total	1,879.1	694.6	328.1	856.4	5,138.2	13,667.5
La Center						
City	696.1	266.7	117.6	311.8	1,247.2	3,317.4
UGA	175.2	90.0	23.6	61.6	246.4	655.3
Total	871.3	356.7	141.2	373.4	1,493.5	3,972.7
Ridgefield						
City	1,549.0	640.3	251.7	657.0	3,942.2	10,486.1
UGA	815.7	352.9	128.2	334.7	2,007.9	5,341.1
Total	2,364.7	993.2	379.9	991.7	5,950.1	15,827.3
Vancouver						
City	1,168.8	401.4	211.8	555.7	4,445.4	11,824.8
UGA	5,816.0	2,168.3	1,005.8	2,641.8	21,134.6	56,218.0
Total	6,984.8	2,569.7	1,217.6	3,197.5	25,580.0	68,042.8
Washougal						
City	671.5	240.4	118.5	312.5	1,875.0	4,987.5
UGA	407.4	171.4	65.4	170.7	1,024.0	2,723.8
Total	1,078.9	411.8	183.9	483.2	2,899.0	7,711.3
Yacolt						
City	67.3	15.9	14.2	37.1	148.5	395.0
UGA	7.7	2.8	1.3	3.5	14.0	37.3
Total	75.0	18.8	15.6	40.6	162.5	432.3
Woodland						
City	5.8	3.1	0.8	2.0	8.0	21.2
UGA	88.9	56.8	8.9	23.3	93.0	247.4
Total	94.8	59.8	9.7	25.2	101.0	268.5
RESIDENTIAL TOTAL	**15,756.6**	**6,028.0**	**2,684.5**	**7,044.1**	**47,781.1**	**127,097.8**

Table 2 Commercial VBLM Summary Totals, 2018

COMMERCIAL	Gross Acres	Will Not Convert Acres	Infrastructure Acres	Developable Net Acres	Jobs
Battle Ground					
City	560.0	90.8	119.0	350.2	7,004.2
UGA	49.0	5.4	10.9	32.8	655.1
Total	609.0	96.2	129.9	383.0	7,659.3
Camas					
City	524.1	64.7	114.8	344.5	6,890.4
UGA	0.0	0.0	0.0	0.0	0.0
Total	524.1	64.7	114.8	344.5	6,890.4
La Center					
City	109.8	8.3	25.4	76.2	1,523.9
UGA	0.0	0.0	0.0	0.0	0.0
Total	109.8	8.3	25.4	76.2	1,523.9
Ridgefield					
City	419.8	46.7	93.3	279.8	5,596.5
UGA	10.4	1.0	2.3	7.0	140.3
Total	430.2	47.7	95.6	286.8	5,736.8
Vancouver					
City	500.1	29.8	117.6	352.7	7,054.9
UGA	706.7	49.7	164.2	492.7	9,853.6
Total	1,206.8	79.6	281.8	845.4	16,908.4
Washougal					
City	66.1	6.3	14.9	44.8	895.9
UGA	40.6	3.2	9.3	28.0	560.8
Total	106.7	9.5	24.3	72.8	1,456.7
Yacolt					
City	12.2	0.0	3.0	9.1	182.7
UGA	0.0	0.0	0.0	0.0	0.0
Total	12.2	0.0	3.0	9.1	182.7
Woodland					
City	0.0	0.0	0.0	0.0	0.0
UGA	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0	0.0	0.0	0.0
COMMERCIAL TOTAL	**2,998.8**	**306.0**	**674.9**	**2,017.9**	**40,358.2**

Table 3 Industrial VBLM Summary Totals, 2018

INDUSTRIAL	Gross Acres	Will Not Convert Acres	Infrastructure Acres	Developable Net Acres	Jobs
Battle Ground					
City	194.1	69.3	31.2	93.6	842.4
UGA	0.0	0.0	0.0	0.0	0.0
Total	194.1	69.3	31.2	93.6	842.4
Camas					
City	1,187.1	420.5	191.7	575.0	5,174.8
UGA	69.8	24.3	11.4	34.1	307.2
Total	1,256.9	444.8	203.0	609.1	5,482.0
La Center					
City	64.8	15.7	12.3	36.8	331.5
UGA	0.0	0.0	0.0	0.0	0.0
Total	64.8	15.7	12.3	36.8	331.5
Ridgefield					
City	795.0	233.2	140.4	421.3	3,792.0
UGA	64.9	17.7	11.8	35.4	318.2
Total	859.8	250.9	152.2	456.7	4,110.3
Vancouver					
City	2,573.9	826.3	436.9	1,310.7	11,796.3
UGA	1,603.6	437.0	291.6	874.9	7,874.3
Total	4,177.5	1,263.3	728.5	2,185.6	19,670.5
Washougal					
City	146.9	73.4	18.4	55.1	495.7
UGA	280.7	64.0	54.2	162.5	1,462.9
Total	427.6	137.4	72.5	217.6	1,958.5
Yacolt					
City	9.6	0.9	2.2	6.5	58.9
UGA	39.6	10.3	7.3	21.9	197.5
Total	49.2	11.2	9.5	28.5	256.4
Woodland					
City	0.0	0.0	0.0	0.0	0.0
UGA	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0	0.0	0.0	0.0
INDUSTRIAL TOTAL	**7,030.0**	**2,192.7**	**1,209.3**	**3,627.9**	**32,651.5**

Table 4 February 2016 BOCC Preferred Alt Summary Totals, 2016

RESIDENTIAL	Gross Acres	Will Not Convert Acres	Infrastructure Acres	Developable Net Acres	Housing Units	Persons
Battle Ground						
City	1,797.3	711.9	299.2	786.1	4,717	12,547
UGA	740.0	283.7	124.3	331.9	1,992	5,298
Total	2,537.2	995.6	423.5	1,118.1	6,708	17,844
Camas						
City	1,517.4	561.5	264.8	691.2	4,147	11,031
UGA	383.9	141.1	67.3	175.5	1,053	2,801
Total	1,901.3	702.5	332.1	866.7	5,200	13,832
La Center						
City	570.6	227.5	94.5	248.6	994	2,645
UGA	314.2	145.8	46.7	121.8	487	1,296
Total	884.8	373.2	141.2	370.4	1,481	3,941
Ridgefield						
City	1,535.4	643.2	247.1	645.0	3,870	10,295
UGA	921.2	379.7	150.0	391.4	2,349	6,247
Total	2,456.6	1,023.0	397.1	1,036.5	6,219	16,542
Vancouver						
City	1,178.7	412.0	211.6	555.2	4,441	11,814
UGA	6,498.8	2,418.2	1,124.4	2,956.3	23,650	62,910
Total	7,677.5	2,830.1	1,335.9	3,511.5	28,092	74,724
Washougal						
City	659.1	247.4	113.2	298.6	1,791	4,765
UGA	403.9	166.8	65.7	171.4	1,028	2,736
Total	1,063.1	414.3	178.8	470.0	2,820	7,501
Yacolt						
City	65.6	14.8	14.1	36.7	147	391
UGA	16.4	6.4	2.8	7.3	29	77
Total	82.0	21.1	16.9	44.0	176	468
Woodland						
City	5.8	3.1	0.8	2.0	8	21
UGA	88.9	56.8	8.9	23.3	93	247
Total	94.8	59.9	9.7	25.2	101	269
RESIDENTIAL TOTAL	**16,697.2**	**6,419.8**	**2,835.1**	**7,442.3**	**50,797**	**135,121**

Table 5 Commercial VBLM Summary Totals, 2016

COMMERCIAL	Gross Acres	Will Not Convert Acres	Infrastructure Acres	Developable Net Acres	Jobs
Battle Ground					
City	580.2	90.9	123.9	365.3	7,306.8
UGA	98.2	11.6	21.6	64.9	1,298.3
Total	678.4	102.5	145.6	430.3	8,605.1
Camas					
City	499.7	63.3	109.1	327.2	6,544.7
UGA	0.0	0.0	0.0	0.0	0.0
Total	499.7	63.3	109.1	327.2	6,544.7
La Center					
City	61.5	4.4	14.3	42.8	856.7
UGA	54.3	4.0	12.6	37.8	755.7
Total	115.9	8.4	26.9	80.6	1,612.4
Ridgefield					
City	283.0	32.2	62.7	188.1	3,762.3
UGA	10.4	1.0	2.3	7.0	140.3
Total	293.4	33.2	65.0	195.1	3,902.7
Vancouver					
City	484.2	25.2	114.7	344.2	6,884.2
UGA	835.7	58.5	194.3	582.9	11,658.5
Total	1,319.9	83.7	309.0	927.1	18,542.6
Washougal					
City	74.2	7.3	16.7	50.2	1,003.3
UGA	45.5	3.2	10.6	31.8	635.0
Total	119.7	10.5	27.3	81.9	1,638.4
Yacolt					
City	14.1	0.0	3.5	10.6	211.5
UGA	0.0	0.0	0.0	0.0	0.0
Total	14.1	0.0	3.5	10.6	211.5
Woodland					
City	0.0	0.0	0.0	0.0	0.0
UGA	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0	0.0	0.0	0.0
COMMERCIAL TOTAL	**3,041.0**	**301.6**	**686.5**	**2,052.9**	**41,057.3**

Table 6 Industrial VBLM Summary Totals, 2016

INDUSTRIAL	Gross Acres	Will Not Convert Acres	Infrastructure Acres	Developable Net Acres	Jobs
Battle Ground					
City	307.3	91.9	53.9	161.6	1,454.5
UGA	0.0	0.0	0.0	0.0	0.0
Total	307.3	91.9	53.9	161.6	1,454.5
Camas					
City	848.7	240.1	152.1	456.4	4,108.0
UGA	72.6	26.4	11.5	34.6	311.5
Total	921.2	266.5	163.7	491.1	4,419.5
La Center					
City	83.3	19.1	16.1	48.2	433.5
UGA	1.1	0.2	0.2	0.7	6.1
Total	84.4	19.3	16.3	48.8	439.6
Ridgefield					
City	941.4	266.5	168.7	506.2	4,555.5
UGA	65.3	17.7	11.9	35.7	321.5
Total	1,006.7	284.1	180.6	541.9	4,877.0
Vancouver					
City	2,650.7	841.2	452.4	1,357.1	12,213.7
UGA	1,779.3	484.6	323.7	971.0	8,739.0
Total	4,429.9	1,325.8	776.0	2,328.1	20,952.7
Washougal					
City	218.4	87.7	32.7	98.0	881.9
UGA	286.8	63.8	55.8	167.3	1,505.5
Total	505.2	151.5	88.4	265.3	2,387.5
Yacolt					
City	9.7	0.9	2.2	6.5	58.9
UGA	39.6	10.3	7.3	21.9	197.5
Total	49.2	11.3	9.5	28.5	256.4
Woodland					
City	0.0	0.0	0.0	0.0	0.0
UGA	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0	0.0	0.0	0.0
INDUSTRIAL TOTAL	**7,304.1**	**2,150.4**	**1,288.4**	**3,865.2**	**34,787.1**

Appendix 2

Urban Holding

Urban Holding in Clark County implements Goals 1 and 12 of the Growth Management Act (GMA) implements planning goals (RCW 36.70A.020) in relation to Urban Holding:

> (1)Urban growth. Encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner.
>
> (12) Public facilities and services. Ensure that public facilities and services necessary to support development shall be adequate to serve the development at the time the development is available for occupancy and use without decreasing current service levels below the minimum standards.

This paper provides an overview of Urban Holding (UH) and examines its history in Clark County as it pertains to the County's transportation investments that support urban development. UH remains an important tool that Clark County uses to phase development and fulfill the requirements of GMA. UH exists as a zoning overlay and comprehensive plan designation overlay. The zoning overlay is in place to detail the uses and intensity allowed in order to protect areas from premature land division and development. Premature land development would preclude efficient transition to urban development or large-scale industrial development, stifling the most effective land development. The UH comprehensive plan designation is in effect to require the Clark County Council approval and ensure infrastructure capacity for removal of the designation.

Clark County approved its first Comprehensive Plan under the GMA in 1994, with the most recent Comprehensive Plan update occurring in 2016. Within that timeframe, 1994 to 2016, the urban growth areas for the 7 cities and the Town of Yacolt have grown 27%. The urban holding overlays are placed on lands where the urban growth area (UGA) has expanded, but the infrastructure will not allow the urban level of service standards to be met. The following table displays the UGA growth since the GMA was adopted.

1994-2016 Urban Growth Areas by Jurisdiction

Jurisdiction	UGA in Acres				1994-2016 Increase	
	1994	2004	2007	2016	Acres	Percentage
Battle Ground	4,168	5,300	6,807	6,820	2,652	63.6
Camas	8,387	9,462	11,845	11,848	3,461	41.2
La Center	806	924	2,361	1,844	1,038	128.8
Ridgefield	3,728	4,356	6,040	6,134	2,406	64.5
Vancouver	61,122	64,257	68,280	67,396	6,274	10.3
Washougal	3,899	3,914	4,922	5,390	1,491	38.2
Woodland	183	183	183	183	0	0
Yacolt	373	371	371	448	75	20.1

Source: Clark County Comprehensive Growth Management Plan. 2016.

The Vancouver UGA has had the most significant UGA expansion in absolute numbers of acres since 1994. In turn, the UH areas in the Vancouver UGA have expanded during periodic updates of the Comprehensive Plan. Incrementally, the urban holding areas shrink when either urban services (transportation infrastructure, water and sewer) are in place to serve the urban development, or Clark County Council approves developer's agreements that ensure the urban services will be provided.

Vancouver UGA Urban Holding			
	Addition	Deletion	Acreage Balance
2004 Comprehensive Plan Urban Holding Areas			3489.71
2007 Vancouver UGA Expansion	4022.9		7512.61
2007 Comprehensive Plan Urban Holding Areas			7512.61
2008-North Orchards Urban Holding		2616.96	4895.65
2009 Vancouver UGA Remand		972.86	3922.79
2010-North Orchards Phase II Urban Holding		122.42	3800.37
2010-Pleasant Valley Urban Holding		678.38	3121.98
2012-North Fifth Plain Creek		105.42	3016.56
2012-North Fishers Swale Urban Holding		164.30	2852.27
2013-Fifth Plain Creek Urban Holding		434.35	2417.92
2013-50th Ave Urban Holding		201.19	2216.73
2016 Comprehensive Plan Urban Holding Areas			2216.73

Source: GIS Data

The Comprehensive Plan states that "The urban holding overlay designation may be removed pursuant to Clark County Code 40.560.010 (J) upon satisfaction of the following:… Determination that the completion of localized critical links and intersection improvements are reasonably funded as shown on the county 6 Year Transportation Improvement Plan or through a development agreement." This policy language allows two means for financing the urban infrastructure; public dollars or private financing, or a combination of public and private funding.

The Transportation improvement Program (TIP) details the transportation projects Clark County will fund in six years. These projects can be fully funded by Clark County, but mostly receive funding from a some combination of local, state and federal funds. Capital improvement projects are ranked and evaluated for the TIP two to four years prior to approval by the Clark County Council. The evaluation system is designed to provide objective measurements in nine categories. Two of these nine categories help to identify projects that resolve existing needs or projects that create future growth. Updates occur annually with the adoption of the Transportation Improvement Program (TIP).

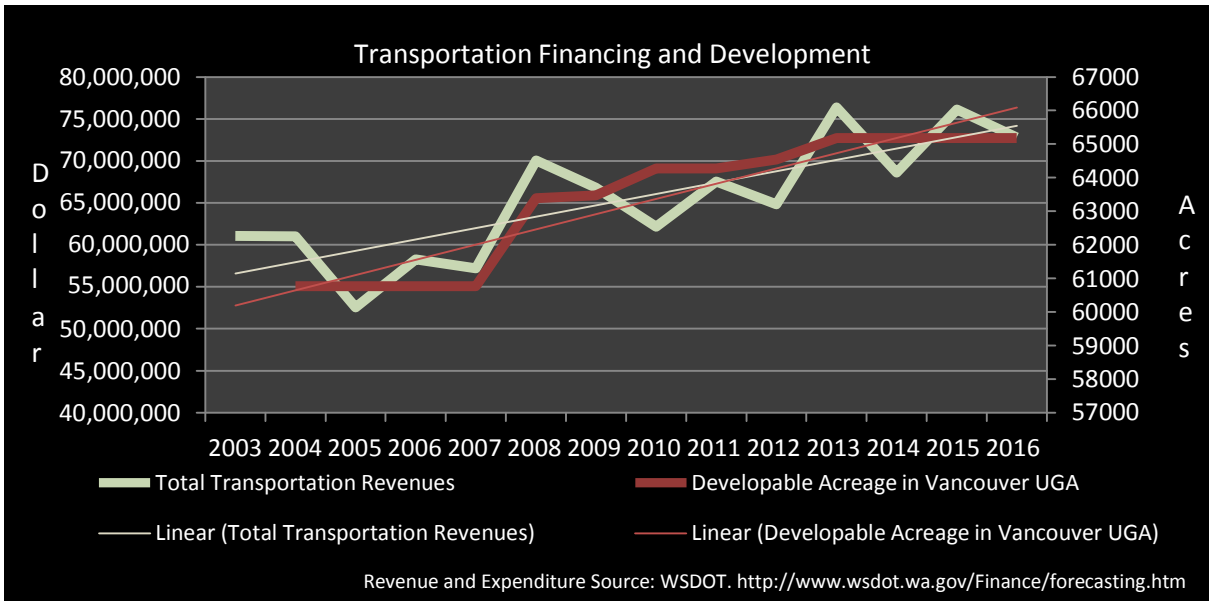
A development agreement is a voluntary contract between a local jurisdiction and a person who owns or controls property within the jurisdiction, detailing the obligations of both parties and specifying the standards and conditions that will govern development of the property. Although the agreements are voluntary, once made they are binding on the parties and their successors. A development agreement

provides assurances to the developer that the development regulations that apply to the project will not change during the term of the agreement. The city or county may require conditions to mitigate project impacts, as well as clarification about project phasing and timing of public improvements. RCW 36.70B.170 describes the type of development standards that are appropriate in a development agreement.[1]

Financing of Urban Holding

The urban holding designation creates a direct relationship between capital projects costs and the future land development. Future subdivisions are dependent on the infrastructure needed to serve development of the land; yet the development is needed to generate the revenues that pay for the infrastructure. This relationship results in a dependency on revenues from existing taxpayers to pay for infrastructure for future taxpayers.

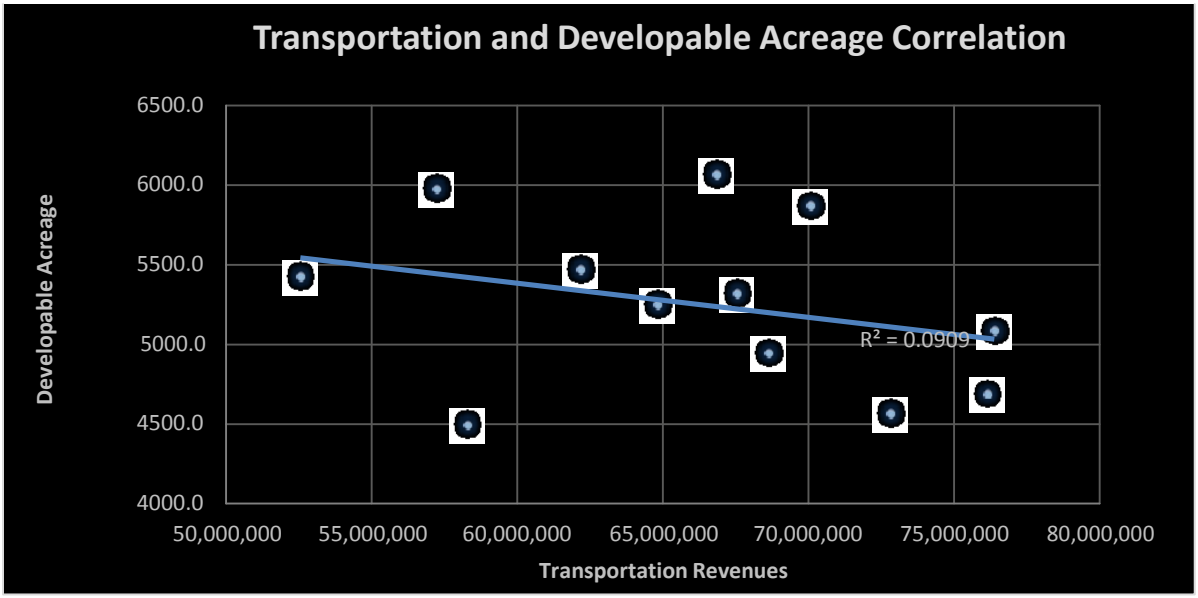
The following chart displays the transportation revenues and expenditures and the developable acreage in the Vancouver Urban Growth Area from 2003-2016. The developable acreage is calculated by adding the total land in the Vancouver UGA from land designated as urban holding. This chart demonstrates that developable acreage and transportation revenues have increased over time. However, the chart does not show that revenues and developable acres are correlated.



In statistical modeling, **regression analysis** is a set of statistical processes for estimating the relationships among variables. Regression analysis helps one understand how the typical value of the dependent variable (or 'criterion variable') changes when any one of the independent variables is varied, while the other independent variables are held fixed. In order to determine correlation of revenues and developable acreage, the two variables must be evaluated based on their interdependence, rather than time. The low r-squared value demonstrates that there is no relationship between additional acreage in

[1] Municipal Research and Services Center. http://mrsc.org/Home/Explore-Topics/Planning/Land-Use-Administration/Development-Agreements.aspx. 2018

developable land and additional transportation revenues. Therefore, there is no relationship indicating that lifting of urban holding will generate additional revenues to pay for the needed infrastructure.



Source: WSDOT and GIS Data

Clark County continues, long after urban development has been permitted, to invest in infrastructure to support the development of areas from which urban holding areas was lifted. These expenditures continue because of the upfront costs to lift urban holding are only a fraction of the total realized costs for the transportation system to be upgraded from rural standards. The following table displays the total transportation investments that have been made for each urban holding area. The transportation projects were assigned to the urban holding area based on proximity.

Transportation Projects and Expenditures associated with Urban Holding Areas	
North Orchards	
NE 119th St - NE 72nd Ave to NE 87th Ave	$17,420,011
NE 119th St - NE 87th Ave to NE 112th Ave	$12,395,000[2]
NE 94th Ave - Padden Pkwy to NE 99th St	$6,183,200
NE 99th St - NE 117th Ave to NE 137th Ave	$3,921,472
NE 99th St & NE 117th Ave Intersection	$3,390,000
NE 99th St - NE 94th Ave to NE 117th Ave	$15,869,000
Total	**$59,178,683**
North Orchards Phase II	
NE 119th St at NE 132nd Ave	$8,000,000
Pleasant Valley	
NE 119th St at NE 50th Ave Intersection	$2,438,142
NE 119th St - NE 50th Ave to NE 72nd Ave	$9,299,000
NE 72nd Ave - NE 122nd St to NE 133rd St	$10,800,000
NE 72nd Ave - NE 133rd to NE 179th St	$10,199,000
Total	**$32,736,142**
North Fifth Plain Creek	
NE Ward Rd & NE 172nd Ave Intersection	$5,670,076
North Fishers Swale	
No Projects	$0
Fifth Plain Creek	
NE Ward Rd - NE 162nd Ave to NE 172nd Ave	$6,000,000
88th St. @ Fifth Plain Creek Bridge	$1,176,447
NE 182nd Ave/Fourth Plain Blvd Intersection	Unknown
Total	**$7,176,447**
NE 50th Ave	
No Projects	$0

Source: Clark County Public Works. Final Construction Costs and 2018-2023 Transportation Improvement Program
Note: The North Fishers Swale area was excluded from this list due to the adjacent city limits of Vancouver and Camas, which provided transportation facilities to serve the urban development.

The transportation costs associated with each Urban Holding can be associated with the acreage lifted to arrive at a transportation cost per acre. This analysis allows decision makers to gain a sense of the financial commitments that have been necessary for investment into expanded urban growth areas, and suggests that future transportation investments required for expanded areas may be no less costly.

[2] Programmed in 2018-2023 TIP

Transportation Investment Per Acre			
	Transportation Investment	Acres	Investment Per Acre
North Orchards	$59,178,683	2616.96	$22,614
North Orchards Phase II	$8,000,000	122.42	$65,349
Pleasant Valley	$32,736,142	678.38	$48,256
North Fifth Plain Creek	$5,670,076	105.42	$53,786
Fifth Plain Creek	$7,176,447	434.35	$16,522
Total	**$112,761,348**	**3,957.53**	**$28,493**

Source: Final Construction Costs, 2018-2023 Transportation Improvement Program, and GIS Data