



SAN JUAN COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT

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STAFF REPORT

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Planning Commission

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SUBJECT: 2036 Comprehensive Plan Update
Briefing: Land Capacity Analysis Gross Developable Lands Inventory

DATE: June 5, 2019

BRIEFINGS: County Council: June 17 and 18, 2019
Planning Commission: June 21, 2019

ATTACHMENT: A. May 23, 2019, Land Capacity Analysis Methodology – Second draft
B. *Draft Land Capacity Analysis Methodology* criteria and LCA Script Translation
C. Process for Validation of Script Results
D. Gross Developable Land Inventory Maps – Ferry Served Islands

Briefing Purpose: To inform the County Council, Planning Commission and public of the progress on the Land Capacity Analysis (LCA), review the purpose of the LCA, discuss the second draft of the LCA methodology (Attachment A) and discuss the first LCA step: identification of the Gross Developable Land Inventory (GDLI).

This step results in the assignment of a type and category to all County parcels (over 17,000) based on existing development. Making certain that the correct type and category is assigned to each parcel is the most complex stage of the analysis. The next LCA steps require all types and categories to be correct. DCD will roll out the LCA work in steps to obtain public comment at each stage of the process.

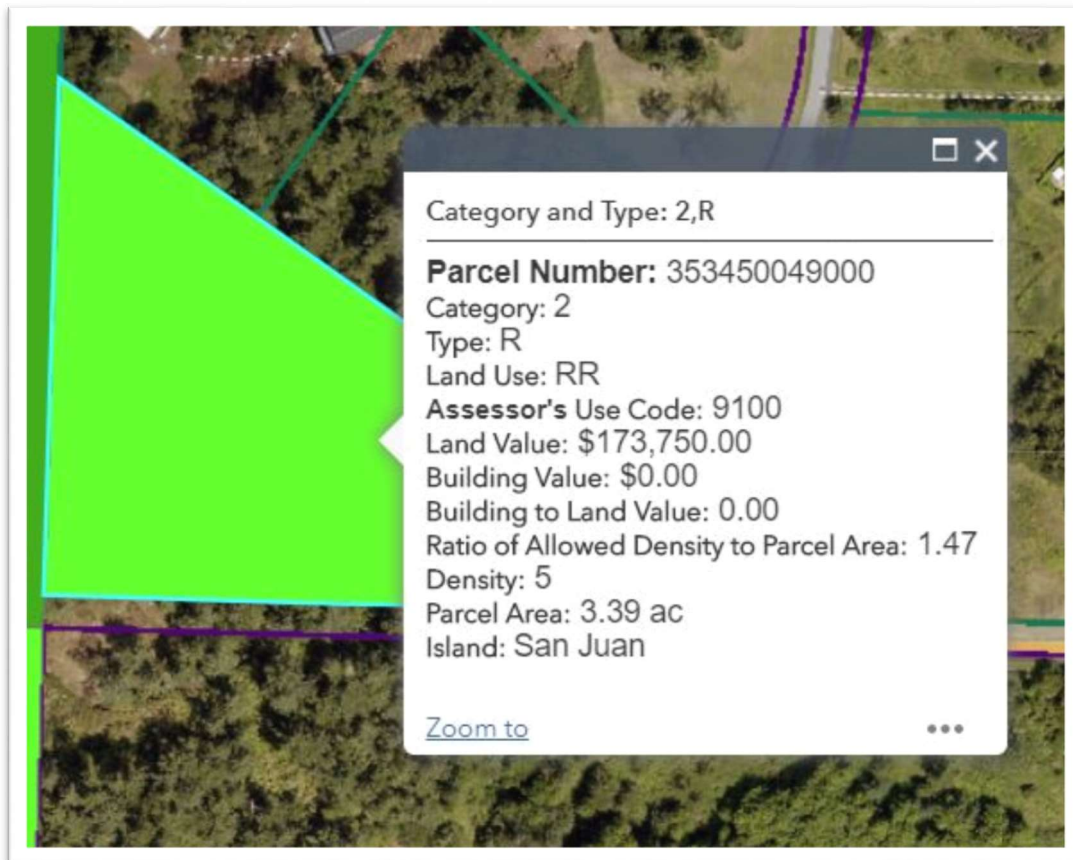
This staff report provides an overview of the LCA purpose, process and schedule, and explains how the first LCA step (GDLI) was conducted. It contains technical attachments about the GDLI process (Attachments B and C) for transparency and copies of the GDLI maps for the ferry served islands (Attachment D) for convenience.

Public Comments: Public comments are requested on the GDLI web map for all of San Juan County, the May 23, 2019, draft LCA methodology, and LCA script. After reviewing this report, the public is invited to review the web map showing the categorized and typed parcels. It is available online at <http://sjcgis.maps.arcgis.com/apps/webappviewer/index.html?id=2bd8ee18da174c1db126cacbf8198729> Maps of the ferry served islands are provide with this report as a convenience.

Reviewing the Web Map: The GDLI web map provides the information used to assign the type and category for each parcel. This information can be compared with the criteria in the May 23rd draft of the *Land Capacity Methodology* provided as Attachment A. Please follow these steps to review a parcel's assigned type and category:

1. **Zoom to a parcel.** The initial view of the map shows the whole County. The search bar in the upper right corner allows you to search by parcel number or address.
2. **Click on the parcel.** Clicking on a parcel will open a pop-up window that shows the information used to assign the type and category (Figure 1).

Figure 1. Web Map Pop-Up Example.



3. **Compare the assigned type and category, parcel information, and methodology criteria.** All of the criteria for assigning type and category are provided in Table 1 of the *Land Capacity Analysis Methodology*, beginning on page 8 (Attachment A).

Table 1. Vacant, Non-Subdividable Residential Criteria from the May 23rd draft *Land Capacity Analysis Methodology*.

	LCA CATEGORY	DEFINITION	THRESHOLDS /ASSUMPTIONS
E.	Vacant Non-Subdividable Residential <u>GIS Data Category 2</u> <u>GIS data type: R</u>	Land Use Designations: Agricultural Resource (AG) Forest Resource (FOR) Conservancy (C) Rural Residential (RR), Rural Farm Forest (RFF) Village Residential (VR) Hamlet Residential, (HR) Lopez Village Residential (LVR) Eastsound Residential (ER) Eastsound Rural Residential (ERR) Eastsound Rural (ER*) Village Res./Institutional (VR/I) Olga Hamlet Residential (OHR), Deer Harbor Hamlet Residential (DHHR) Orcas Village Residential (OVR) *With several densities	Parcels in these land use designations will be considered vacant but not sub-dividable if they meet the following criteria: a. The assessed improvement value is < \$10,000 \$42,000; and b. The ratio of allowed density to parcel size is > 0.5.

4. **Note a proposed correction.** If you feel that a property may require a different type or category, note the parcel number, assigned type/category, what change you propose, and an explanation of why the change is justified. A sample table for making comments is provided below.

How to Comment: Written comments may be emailed to compplancomments@sanjuanico.com, or mailed to Adam Zack, SJC Department of Community Development PO Box 947 Friday Harbor, WA 98250. Written comments about assigned category and type for specific parcels should refer to the tax parcel number (TPN), assigned category/type, and reason for changing the category or type. Staff requests that the public provide comments on the type and category assigned to the parcels they feel may be incorrectly categorized in the draft GDLI. Comments should include:

- The parcel number;
- The assigned category and type;
- What category and type you believe should be assigned to the parcel; and
- A brief explanation of why the category or type should change.

The GDLI web map shows the parcel number, assigned category and type, and relevant parcel information when you click on a parcel. Staff has included a sample comment table below. Please submit your comments on the draft GDLI web map by June 28, 2019.

Parcel Number	Script Assigned Category/Type	Proposed Category/Type	Explanation

Comments on the draft LCA Methodology should reference the page and line number. For questions, please contact Adam Zack at (360) 370-7580 or adamz@sanjuanco.com.

Public Comment Deadline: June 28, 2019.

Tentative LCA Rollout Schedule:

June 6 – Begin the public comment period on draft GDLI

June 28 – End of Comment period on draft GDLI

July – Work to account for public comments on categorization and apply the finalized GDLI to create net developable land inventory, calculate existing development intensities, calculate and map gross development capacity, and calculate final capacity.

If LCA July work products are complete:

August 1 – Make LCA results available for public review.

August 16 – Brief Planning Commission on results.

August 19 – Brief County Council on results.

September – Finalize LCA results, accounting for Planning Commission, County Council and public comment.

Land Capacity Analysis Purpose: According to the Washington State Department of Commerce, Urban Growth Area Guidebook, 2012, “LCA is a methodology used by counties and cities to determine the amount of vacant, partially used, under-utilized lands, and redevelopment potential of built properties, to accommodate growth.” **The purpose of the maps and data in this analysis is to assist with comprehensive planning only, it cannot be used for permitting or evaluation of site specific development proposals.**

Conducting a land capacity analysis is an important step in determining how and what growth can be accommodated through the year 2036. The land capacity analysis will help determine if the County’s land supply aligns with the 2036 population growth projection of 19,423.

The primary purpose of the LCA is to determine the capacity of UGAs for balancing urban development with adequate and cost-efficient urban services. However, because the majority of development in San Juan County occurs outside of the UGA’s, the LCA will help the County evaluate the development potential of rural and natural resource lands.

The LCA is also used to determine whether the County will have sufficient developable land to meet the GMA housing goal. This goal encourages the availability of affordable housing to all economic segments of the population, promotes a variety of residential densities and housing types and encourages preservation of existing housing stock (RCW 36.70A.020(4)).

The LCA is a study of County data to quantify potential future development in San Juan County given current regulations, market factors, and existing levels of development. The LCA is conducted primarily using GIS software. The attached May 23rd draft *Land Capacity Analysis Methodology* is the foundation of the entire

analysis. To ensure continuous public participation, this is the second draft of the LCA methodology. Public comments were taken on the first draft in October 2107.

Changes in the Second Draft – May 23, 2019 LCA Methodology:

Aside from general housekeeping edits, the following summarize the major changes to the draft methodology from the October 2017 version:

- The assessed improvement value for vacant land was changed from \$10,000 to \$42,000 after staff research was provided to the Planning Commission and County Council in an August 2018 staff report: <https://www.sanjuanco.com/DocumentCenter/View/16809>. The initial threshold did not capture all of the land that could be considered vacant due to existing infrastructure such as a septic system or well or a dock, etc.
- Additional Assessor's land use codes for public, utility and conservation types were added.
- The seasonal market factor (35 percent) was made consistent throughout the document.

Land Capacity Analysis Overview:

The analysis consists of five major components including the first step we are rolling out today:

1. **Develop a gross developable land inventory** – GIS is used to assign parcels a type and category based on existing development. For example, a parcel that cannot be subdivided, is designated for residential use, and already developed with a single-family home is typed and categorized as fully developed residential.
2. **Prepare a net developable land inventory** – Development capacity on some lands may be limited by critical areas and their buffers or other regulatory factors. At this step in the LCA, area is subtracted from the GDLI to account for these kinds of development constraints.
3. **Calculate existing development intensities** – During this step, existing floor area ratios for commercial development, assumed densities for residential development, pending development and other aspects of existing development are calculated in an Excel spreadsheet.
4. **Calculate and map gross development capacity** – Once the area of land available for development, development constraints such as critical areas, and existing development intensity is quantified, it is possible to calculate gross development capacity. Gross development capacity is expressed as total potential housing units for residential lands and building square feet for commercial lands.
5. **Calculate final capacity** – Public use, market, and seasonal home factors are deducted from the gross development capacity using GIS and calculations in Excel. After these deductions, the resulting capacity for future housing and commercial/industrial development is calculated as total housing units by land use designation, total population capacity, and employment capacity (expressed as building square footage).

What tools are used to complete the LCA?

Geographic Information System (GIS) software, code that tells the software what to do (a script), County data, and staff calculations in excel spreadsheets will be used to apply the draft *Land Capacity Analysis Methodology*. The results will calculate existing levels of development and future capacity for residential and commercial/industrial development under existing development regulations. The attached draft LCA Methodology explains the criteria for each step of the LCA process.

How is GIS used in the process?

A Geographic Information System is a computer program that allows us to geographically understand, analyze, and represent data. It associates geographic features such as parcels with a data table, similar to an Excel spreadsheet. This data can be presented visually by a map. For example, Figure 2 below provides an example of Figure 3 data (assessed land value in standard deviations from the mean) geographically represented as a map.

Figure 2. Shaw Island Parcels by Assessed Land Value

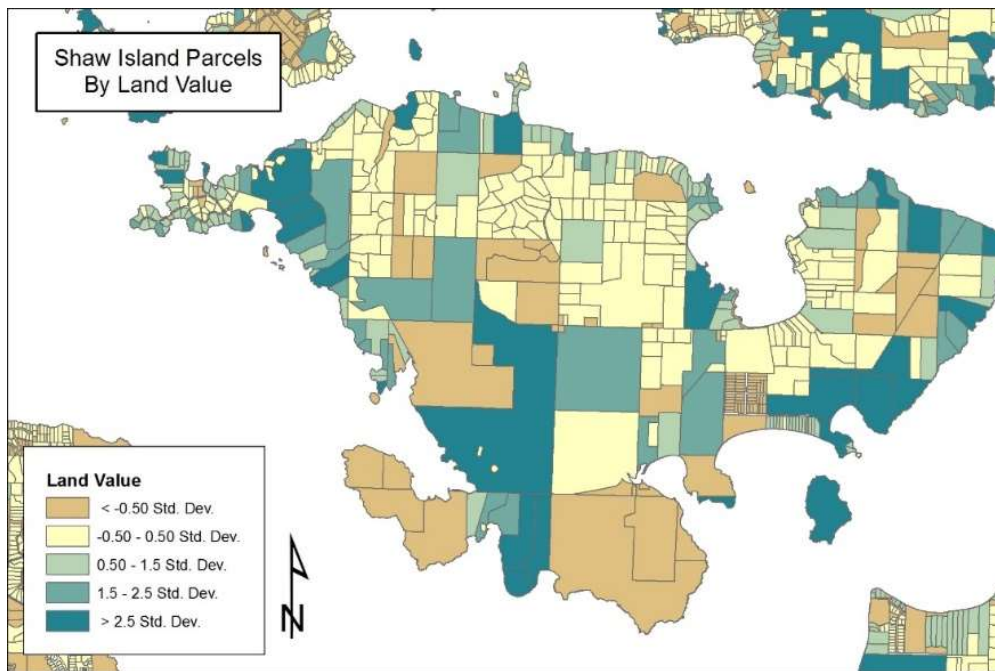


Figure 3. Shaw Parcel Data Table Excerpt

Parcel Number	Island	Assessed Land Value
263241001000	Shaw	2600540
262942001000	Shaw	698700
250423001000	Shaw	883620
262631002000	Shaw	44740
262842003000	Shaw	313170
263431001000	Shaw	0
263050004000	Shaw	348850

County staff created a script that tells the GIS software how to apply the *Land Capacity Analysis Methodology* to the parcel data to perform the analysis at each step of the process. The script is a series of logical statements that sort parcels into types and categories and applies the necessary equations to provide information that will help quantify future capacity. GIS maps and tables (Excel spreadsheets) will be created to visually represent the data resulting from the analysis.

Parcel Type and Categorization

In order to prepare the GDLI, parcels must have a type assigned based on the type of possible future development. Then they are categorized based on their existing level of development. The assigned type and category form the foundation of all of the remaining steps in the LCA. There are five types, shown in Table 2 below. There are six categories, shown in Table 3 below.

Table 2. Land Capacity Analysis Gross Developable Land Inventory Types.

Type	Description
R	Residential.
CI	Commercial and Industrial.
MU	Mixed Use. The land use designation allows for a mix of commercial and residential uses.
P	Public, Utility, and Conservation. Parcels with this type have existing uses that preclude additional development (i.e. public parks, platted open space, parcels with electrical sub-stations, etc.).
..	N/A. These parcels are located in the County but the County does not have jurisdiction over them (i.e. Town of Friday Harbor).

Table 3. Land Capacity Analysis Gross Developable Land Inventory Categories.

Category	Description
0	Fully-developed. Property that is assumed to have no further development capacity.
1	Partially Used. Residential property occupied by a use allowed by its land use designation which contains enough land to be further subdivided or developed.
2	Vacant. Property with minimal or no building improvements.
3	Vacant and Subdividable. Vacant property that can also be further divided into smaller lots.
4	Re-developable. A parcel that has a land use designation that allows uses that would be more intensive than an existing use (i.e. a parcel with a single-family home in a commercial land use designation).
5	N/A. Parcels in this category are located in the County but the County does not have jurisdiction over (i.e. Town of Friday Harbor)

Pairings of types and categories are defined by the draft *Land Capacity Analysis Methodology* and assigned by the LCA script. The category and type criteria in the *Land Capacity Analysis Methodology* begins on page 8 of that document. For example, fully developed residential parcels are assigned the category 0 and type R. These assignments correspond to the legend on the GDLI maps.

Draft Land Capacity Analysis Methodology criteria and LCA Script Translation

The LCA script is a block of Python coding (computer language) that translates the draft *Land Capacity Analysis Methodology* into a series of commands that the GIS software executes. Staff is using ESRI ArcPro and ArcMap 10.4 GIS software to perform the data analysis for the LCA. Essentially, the script defines a sequence of logical statements that the software applies to the existing data to assign each parcel a category and type. The software then interpolates the results such as assigned type and category into the GIS data table. That analysis and interpolation produces an updated data table similar to the table in Figure 3, albeit with many more columns of data. The GIS software then uses that data to create a visual representation (GDLI map) of the information similar to the map in Figure 2.

In Attachment B, the LCA script is broken into smaller components to allow a comparison between the script and the corresponding criteria in the *Land Capacity Analysis Methodology*. The criteria from the methodology and script are presented side by side for a comparison of both.

Process for Validation of Script Results

During the development of the LCA script, staff reviewed the preliminary results for consistency with the *Land Capacity Analysis Methodology*. The validation process is summarized below. Attachment C provides the specific details of how each validation step was conducted.

Random Sampling

To validate the LCA script results, staff checked a random selection of parcels in each combination of category and type against the *Land Capacity Analysis Methodology* criteria. This process was repeated several times during the review of the script results and used to refine the LCA script by making minor changes to the criteria or script such as including additional Assessor's use codes that were not accounted for in the *Land Capacity Analysis Methodology* or refining the way the script applies assigned density.

For example, the use codes 9900 through 9920 were not included in the original draft of the LCA Methodology criteria for categorization as fully developed public, utility and conservation. These use codes are applied to platted common area and access parcels that cannot be developed because of how they were dedicated when the parcel was created. Because parcels with this use code cannot be developed with residential, commercial, or industrial uses, they should not be included in the gross developable land inventory (GDLI). These use codes were added to the criteria in the LCA script and Table 1 in the May 23, 2019, draft *Land Capacity Analysis Methodology*.

Spot-check

Once the random samples were showing consistent, accurate and repeatable results, it became clear that some parcels had data that the LCA Script was unable to correctly process and categorize. These parcels needed to be checked individually to further validate the categorization results before moving to the next step of the *Land Capacity Analysis Methodology*. Fortunately, GIS software has tools that streamlined the process for finding these parcels.

There were several attributes that incorrectly categorized parcels had in common. These common attributes were assembled into selection criteria shown in Attachment C. They were used to highlight the parcels in the GIS software so staff could spot-check the assigned type and category. A majority but not all of the parcels that share these common attributes were incorrectly categorized by the LCA Script. The type and category for these parcels was manually edited in the GIS data set to be consistent with the May 23rd

draft *Land Capacity Analysis Methodology* as needed. A list of all parcels manually edited in this way is included in Attachment C.

Local Knowledge

The final stage of validation is public review of the draft GDLI map to tap into the wealth of local knowledge about the land in San Juan County. The public comment period through June 28, 2019, will provide the public the opportunity to weigh-in on the assigned type and categories. It gives staff the time to incorporate comments while working on the other steps of the LCA in July.

COMPREHENSIVE PLAN

Appendix 1

LAND CAPACITY ANALYSIS METHODOLOGY

~~October 11, 2017~~

May 23, 2019

TABLE of CONTENTS

1.0 Introduction 3

2.0 Terms 4

3.0 Methodology Overview 5

4.0 Land Capacity Methodology

4.A Prepare the LCA County Land Base and Gross Developable Land Inventory 7

4.B Prepare An Inventory Of Net Developable Land 13

4.C Calculate Existing Floor Area Ratios, Summarize Development Trends, Assign Assumed
Densities and FAR, and Calculate Pending Development Capacity.....15

4.D Calculate and Map Gross Housing and Development Capacity.....18

4.E Calculate Final Capacity.....21

TABLES

Table 1. Land Capacity Categories: Thresholds / Assumptions.....8

Table 2. Basic Achieved Density Calculations by Development Type.....16

Table 3. Achieved Density by Land Use Designation.....16

Table 4. Pending Development Capacity.....17

Table 5. Gross Housing Capacity by Land Use Designations.....19

Table 6. Gross Commercial and Industrial Land Capacity.....20

Table 7. Gross Mixed-Use Capacity.....20

1.0 Introduction

San Juan County's 2036 Comprehensive Plan update process includes a Land Capacity Analysis (LCA). The Land Capacity Analysis methodology is described in this document.

The Growth Management Act (GMA) allows counties to exercise discretion in their Comprehensive Plans and to make choices on how they plan to accommodate growth over the twenty-year planning horizon.

Conducting a Land Capacity Analysis is an important Step in determining how and what growth can be accommodated through the year 2036. The Washington State Department of Commerce (Commerce), indicates that the Land Capacity Analysis methodology is used to determine:

- The amount of vacant, partially-used, under-utilized lands, and redevelopment potential of built properties needed to accommodate growth, and
- If the existing or potential Urban Growth Areas (UGA's) can accommodate twenty years of urban growth.

The Land Capacity Analysis will help determine if the County's land supply aligns with the 2036 population growth projection of 19,423. The primary purpose of the Land Capacity Analysis is to determine the capacity of Urban Growth Areas for balancing urban development with adequate and cost-efficient urban services. However, because the majority of development in San Juan County occurs outside of the Urban Growth Areas, the Land Capacity Analysis will help the County evaluate the development potential of rural and natural resource lands.

The Land Capacity Analysis is also used to determine whether the County will have sufficient developable land to meet the Growth Management Act housing goal. This goal encourages the availability of affordable housing to all economic segments of the population, promotes a variety of residential densities and housing types and encourages preservation of existing housing stock (RCW 36.70A.020(4)).

This report defines terms, provides a high level overview of the Land Capacity Analysis methodology and details the Steps and assumptions of the Land capacity Analysis. It identifies deliverables of the various Steps of the analysis and documentation of the necessary calculations through the use of GIS maps, metadata, and Excel tables.

2.0 TERMS.

The following terms are used in this methodology:

Vacant means property with minimal or no building improvements.

Re-developable means a parcel that has a land use designation that allows uses that would be more intensive than an existing use (e.g. a single family home on a parcel with a commercial land use designation).

Partially-used means residential property occupied by a use allowed by its land use designation which contains enough land to be further subdivided or developed (e.g. a single-family home on a very large lot).

Fully developed means property that is assumed to have no further development capacity.

Floor Area Ratio (FAR) means the total building square footage divided by total lot square footage.

3.0 Methodology Overview

The bullets below provide a high level overview of the Land capacity Analysis methodology:

A. Prepare the Land Capacity Analysis County Land Base and Develop a Gross Developable Land Inventory (GDLI) and GIS Map Layers

Assessing land supply begins with the identification of all parcels within the County that are fully developed, vacant, partially-used, re-developable, or public, utility & conservation. The **Gross Developable Land Inventory** includes parcels which are vacant, partially used or re-developable and are potential candidates to accommodate future growth. This parcel based inventory is based upon the Assessor's land use codes and data from March 3, 2017, the most current information.

All parcels are categorized. Two map layers (GIS shapefiles) are produced:

- The first layer categorizes all parcels as fully developed, public/conservation, vacant, partially-used, or re-developable. This layer is the **Land Capacity Analysis Land Base**.
- The second layer identifies all parcels categorized as vacant, partially used or re-developable and are assumed to have further development capacity.

The second map layer of potentially developable land is the **Gross Developable Land Inventory**.

B. Prepare an Inventory of Net Developable Land for Residential and Commercial, Industrial and Mixed-use Lands

The net developable land inventory is determined by deducting areas with reduced development potential such as critical areas and their buffers from the Gross Developable Land Inventory.

$$\begin{array}{l} \text{Gross Developable Land Inventory} \\ - \text{Critical areas, buffers and other undevelopable areas} \\ = \text{Net Developable Land} \end{array}$$

Deliverables: Two map layers (GIS shapefiles):

- The first layer depicts the net developable residential land.
- The second layer depicts the net developable Commercial, Industrial and Mixed-Use land.

These layers show the land expected to be available to accommodate future growth before other deductions are made. This information is provided by island, UGA's, and land use designations.

1 **C. Calculate Existing Floor Area Ratios, Summarize Development Trends,**
2 **Assign Assumed Densities and FAR, and Calculate Pending Development**
3 **Capacity.**
4

5 This section provides analysis of past development trends in order to provide a basis for
6 estimating future development capacity; to determine if development is occurring
7 consistent with Comprehensive Plan densities; and to calculate pending development.
8 The information gathered in this Step will be used in the capacity calculations. This Step
9 will:

- 10 ■ Analyze recent development history, achieved densities and assign assumed
11 densities;
- 12 ■ Provide data necessary to convert available land into capacity in terms of dwelling
13 and square feet of building on each parcel; and
- 14 ■ Calculate pending development capacity.

15
16 **D. Calculate and Map Gross Housing and Development Capacity**
17

18 The Net Developable Land Inventory (in acres) is converted into capacity for housing units
19 for residential land and building square feet for commercial, industrial, and mixed-use
20 land. This work is conducted in GIS and Excel. This results in tables and GIS map layers
21 showing capacity by parcel. The purpose of this exercise is to graphically display capacity
22 at the parcel level.
23

24 The capacity calculated in this Step will not be the final capacity because it is not
25 converted to population and does not include deductions for public uses, market
26 factors, and seasonal/recreational home factors.
27

28 Deliverables:

- 29
30 ■ Net Developable Land Inventory maps for residential land – categorized into
31 housing capacity ranges (dwelling units), and
32
- 33 ■ Net Developable Land Inventory maps for commercial, industrial and mixed use
34 lands – categorized into building capacity ranges (square feet).
35
- 36 ■ Excel tables of the Preliminary Housing and Development Capacity calculations
37 summarized by island, land use designation, and urban growth areas.
38

39 **E. Calculate Final Housing and Development Capacity**
40

41 The summary tables of the preliminary housing and development capacity calculations
42 created in the previous Step are the basis of the **Final Capacity Calculations**. Public use,
43 market and seasonal/recreational home factors are deducted from the preliminary
44 housing and development capacity. After these deductions, the following are calculated:
45

- 46 - **Total Occupied Housing Units by Land Use Designation**
- 47 - **Total Population Capacity**
- 48 - **Employment Capacity** (square feet of building)

4.0 Land Capacity Analysis (LCA) Methodology

Prepare the Land Capacity Analysis County Land Base and Gross Developable Land Inventory

Assessing land supply begins with the categorizing of all parcels within the County as fully developed, vacant, partially used, and re-developable, or public, utility, and conservation as identified in Table 1. This results in the **Land Capacity Analysis Parcel Base** GIS layer. The subset of this layer consisting of all vacant, partially-used and re-developable parcels is the **Gross Developable Land Inventory**. The Gross Developable Land Inventory is calculated by deducting all parcels categorized as fully developed from the Land Capacity Analysis Parcel Base.

LCA Parcel Base

- Fully developed parcels
- Public, utility and conservation parcels
- = Gross Developable Land Inventory

The San Juan County Assessor's county-wide parcel data in shapefile format and the associated attribute data including improvement value and land value from March 3, 2017 (the latest data update) is used.

Parcels with structures existing on March 3, 2017 are considered developed. Structures proposed, built, or occupied after that date are counted in future capacity calculations.

GIS shapefiles for each island, Lopez Village and Eastsound UGA's, the Town of Friday Harbor, and all of the County land use designations are used.

Steps

A.1. Create a GIS layer that consists of all county parcels and includes fields for area, assessor land use code, assessed value of improvements, land use designation, Comprehensive Plan density and Land Capacity Analysis category.

A.2. Consistent with the assumptions in *Table 1. Gross Developable Land Inventory: Thresholds and Assumptions* and using the Assessor's land use codes and Comprehensive Plan land use designations categorize each parcel as:

- Fully developed residential;
- Fully developed industrial, commercial or institutional;
- Fully developed mixed-use;
- Public and conservation lands;
- Vacant and subdividable residential;
- Vacant non-subdividable residential;
- Partially-used residential;
- Vacant industrial or commercial;
- Vacant mixed-use;

- Re-developable industrial or commercial; or
- Re-developable mixed-use.

A.3 All parcels categorized as fully developed or public/conservation lands are deducted from the LCA Land Base. The result of this initial cut is a collection of all the parcels in the County that are vacant, partially-used or re-developable. This is the **Gross Developable Land Inventory**. The Gross Developable Land Inventory is the base from which additional acreage is deducted to account for various physical and regulatory constraints on future development.

Gross Developable Land Inventory = GIS layer of all parcels that are not fully developed.

This map layer depicts categories of the County's parcels and includes fields for land use and density designation, the Assessor's land use codes, improvement value, and land area.

Table 1. LCA Categories: Thresholds and Assumptions

	LCA CATEGORY	DEFINITION	THRESHOLDS /ASSUMPTIONS
A.	Fully Developed Residential (No further development potential) <u>GIS Data Category 0</u> <u>GIS data type: R</u>	<u>Land Use Designations</u> Agricultural Resource (AG) Forest Resource (FOR) Conservancy (C), Rural Residential (RR), Rural Farm Forest (RFF) Village Residential (VR), Hamlet Residential, (HR), Lopez Village Residential (LVR) Eastsound Residential (ER) Eastsound Rural Residential (ERR) Eastsound Rural (ER*) Village Residential/Institutional (VR/I) Olga Hamlet Residential (OHR) Deer Harbor Hamlet Residential (DHHR) Orcas Village Residential (OVR)	Parcels in these land use designations are considered fully developed if the following criteria apply: - The assessed improvement value is $\geq$ <u>\$10,000</u> <u>\$42,000</u>; and - The ratio of allowed density to parcel size is > 0.5; <u>or</u> - Site developed with multi-family use (Assessor code 1200-1300) in any designation and the building to land value (BV/L ratio) is >1.0
B.	Fully Developed Industrial, Commercial (No further development potential) <u>GIS data Category 0</u> <u>GIS data type: CI</u>	<u>Assessor's land use codes</u> 1400-1488 Accommodations 1600 Hotels/motels 1700 Institutional lodging 2100 Food and kindred products 2200 Textile Mill Products 2400-2403: Lumber/wood products 2500: Furniture/fixtures 2600: Paper and Allied products 2700: Printing and publishing 2800: Chemicals 2900: Petroleum refining / related 3100: Rubber misc. plastic products 3200: Stone, clay and glass 3300: Primary metal industries 3400: Fabricated metal products 3500: Prof. & Scientific Instruments	Parcels in these Assessor's codes are fully developed if the following criteria apply: - The site is developed with existing industrial, commercial or non-residential use per the Assessor's codes; <u>and</u> - The ratio of building value to land value (BV/L ratio) is >1.0; <u>or</u> - Existing development, such as gas stations, quarries or uses preclude significant additional development on the site, regardless of BV/L ratio.

	LCA CATEGORY	DEFINITION	THRESHOLDS /ASSUMPTIONS
		3900: Misc. Manufacturing 4100: Railroad and Transit 4200: Motor vehicle transportation 4300: Aircraft transportation 4400: Marine transportation 4600: Automobile parking 4700 Communications 4900: Other transportation 5000: Non-residential condos 5100: Wholesale trade 5200: Building & hardware & farm 5300-5320: General merchandise 5400-5403: Retail food 5500-5503: Retail-auto, marine, aircraft 5600: Apparel 5700-5708: Retail furniture and home furnishings 5800: Retail- Eating and drinking 5900: Other retail 6100: Finance, insurance & real estate 6200-6220: Personal services 6300: Business services 6400-6402: Repair services 6500-6503: Professional services 6600 Contract construct. services 6900-6902 Miscellaneous services 7100: Cultural activities 7200-7202: Public assembly 7300: Amusements 7400-7420: Recreational activities 7500: Resorts and group camps 7900: Other recreational 8100-8328: Agriculture 8400: Fishing and related services 8500: Mining activities 8600: Marijuana grow operation 8900: Other resource production	

	LCA CATEGORY	DEFINITION	THRESHOLDS /ASSUMPTIONS
C.	Public, Utility & Conservation (No further development potential) <u>GIS Data Category 0</u> <u>GIS data type: P</u>	<u>Assessors Land Use Codes:</u> 7600: Parks 4800-4820: Utilities 6800-6820: Educational services 6700-6793: Governmental services 9240 9420: Open space with conservation easement 9243 9423: Open Space with conservation easement and dock 9520: Current Use Timber land with a conservation easement 8120: Agriculture with Conservation Easement 4500: Highway right-of-way 7400-7420: Recreational activities 8800-8820: Designated forest land <u>9900-9920 – Platted Common Area or Access</u> <u>Land Use Designations</u> <u>Natural (N)</u> <u>Eastsound Natural (EN)</u> <u>Olga Community Center (OCC)</u> <u>Hamlet Park (HP)</u>	Parcels are considered fully developed public, utility and conservation lands if the following criteria apply: - Properties with land uses listed by the Assessor's codes as Public, Utility and Conservation; <u>or</u> - The parcel is on the GIS layers of public lands and County Parks and Open Space; <u>or</u> <u>Existing public, utility and conservation developments preclude future development (i.e. cemeteries, public water system properties)</u>
D.	Vacant and Sub-dividable Residential <u>GIS Data Category 3</u> <u>GIS data type: R</u>	<u>Land Use Designations</u> Agricultural Resource (AG) Forest Resource (FOR) Conservancy (C) Rural Residential (RR) Rural Farm Forest (RFF) Village Residential (VR) Hamlet Residential, (HR) Lopez Village Residential (LVR) Eastsound Residential (ER) Eastsound Rural Residential (ERR) Eastsound Rural (ER*) Village Residential/Institutional (VR/I) Olga Hamlet Residential (OHR) Deer Harbor Hamlet Residential Orcas Village Residential (OVR) *With several densities	Parcels in these land use designations will be considered vacant and sub-dividable if they meet the following criteria: - The assessed improvement value is < \$10,000 <u>\$42,000</u>; <u>and</u> - The ratio of allowed density to parcel size is ≤ 0.5.

	LCA CATEGORY	DEFINITION	THRESHOLDS /ASSUMPTIONS
E.	Vacant Non-Subdividable Residential <u>GIS Data Category 2</u> <u>GIS data type: R</u>	<u>Land Use Designations:</u> Agricultural Resource (AG) Forest Resource (FOR) Conservancy (C) Rural Residential (RR), Rural Farm Forest (RFF) Village Residential (VR) Hamlet Residential, (HR) Lopez Village Residential (LVR) Eastsound Residential (ER) Eastsound Rural Residential (ERR) Eastsound Rural (ER*) Village Res./Institutional (VR/I) Olga Hamlet Residential (OHR), Deer Harbor Hamlet Residential (DHHR) Orcas Village Residential (OVR) *With several densities	Parcels in these land use designations will be considered vacant but not subdividable if they meet the following criteria: a. The assessed improvement value is < \$10,000 <u>\$42,000</u> ; and b. The ratio of allowed density to parcel size is > 0.5.
F.	Partially-Used Residential <u>GIS Data Category 1</u> <u>GIS data type: R</u>	<u>Land Use Designations</u> Agricultural Resource (AG) Forest Resource (FOR) Conservancy (C) Rural Residential (RR) Rural Farm Forest (RFF) Village Residential (VR) Hamlet Residential, (HR) Lopez Village Residential (LVR) Eastsound Residential (ER) Eastsound Rural Residential (ERR) Eastsound Rural(ER*) Village Residential/Institutional (VR/I) Olga Hamlet Residential (OHR) Deer Harbor Hamlet Residential (DHHR) Orcas Village Residential (OVR) *With several densities	Parcels in these land use designations are considered partially-used if they meet the following criteria: a. The assessed improvement value ≥ \$10,000 <u>\$42,000</u> ; and b. The ratio of allowed density to parcel size is ≤ 0.5.

	LCA CATEGORY	DEFINITION	THRESHOLDS /ASSUMPTIONS
G.	Vacant Industrial and Commercial <u>GIS Data Category 2</u> <u>GIS data type: CI</u>	<u>Land Use Designations:</u> Rural Industrial (RI) Island Center(IC) Rural Commercial (RC) Orcas Village Transportation (OVT) Orcas Village Commercial (OVC) Rural General Use (RGU), Village Commercial (VC) Village Industrial (VI) Hamlet Commercial (HC) Hamlet Industrial (HI) Service Light Industrial (SLI) Service Park (SP) Country Corner Commercial (CCC) Eastsound Marina (EM M) Eastsound Airport (EAD) Olga Hamlet Commercial (OHC), Olga Hamlet Community Cntr. (OHCC) Deer Harbor Commercial (DHC) Deer Harbor Industrial (DHI)	Parcels in these land use designations are considered vacant if the: Assessed improvement value is < \$10,000 <u>\$42,000</u> .
H.	Vacant Mixed-Use <u>GIS Data Category 2</u> <u>GIS data type: MU</u>	Eastsound Village Commercial (EVC) Lopez Village Commercial (LVC)- <u>Urban Growth Area (LUGA)</u>	Parcels in these land use designations are considered vacant if the assessed improvement value is < \$10,000 <u>\$42,000</u> .
I.	Re-Developable Industrial and Commercial An assumption is that existing use may be demolished and new project developed over the planning period. <u>GIS Data Category 4</u> <u>GIS data type: CI</u>	Industrial, Commercial, Institutional Rural Industrial (RI) Island Center(IC) Rural Commercial (RC) Orcas Village Transportation (OVT) Orcas Village Commercial (OVC) Rural General Use (RGU), Village Commercial (VC) Village Industrial (VI) Hamlet Commercial (HC) Hamlet Industrial (HI) Service Light Industrial (SLI) Service Park (SP) Country Corner Commercial (CCC) Eastsound Marina (EM M) Eastsound Airport (EAD) Olga Hamlet Commercial (OHC), Olga Hamlet Community Cntr. (OHCC) Deer Harbor Commercial (DHC) Deer Harbor Industrial (DHI)	Parcels in these land use designations are considered re-developable if they meet the following criteria: a. The ratio of building value to land value is ≤ 1.0 ; <u>or</u> b. They are occupied by a single family residence (Assessor's codes 1100-1199).
J.	Re-Developable Mixed-Use <u>GIS Data Category 4</u> <u>GIS data type: MU</u>	Eastsound Village Commercial (EVC) Lopez Village Commercial (LVC)	Parcels in these land use designations are considered re-developable if one of the following conditions are met: a. The ratio of building value to land value is ≤ 1 . <u>or</u> b. The parcel is occupied by a single family residence. (Assessor's codes 1100-1199).

B. Prepare an Inventory of Net Developable Land

The **Net Developable Land Inventories** are obtained by deducting critical areas, buffers, and other areas with reduced development potential from the **Gross Developable Land Inventory**.

- Gross Developable Land Inventory
- Critical Areas and areas with reduced development potential (Residential)
- = **Residential Net Developable Land Inventory**
- Gross Developable Land Inventory
- Critical areas, buffers and areas w/reduced development potential (Commercial, Industrial)
- = **Commercial, Industrial and Mixed-Use Land Inventory**

There are two layers because different deductions from the **Gross Developable Land Inventory** will be taken to create each layer based on the following assumptions:

Critical area buffers will not affect future capacity on residential parcels and are not deducted because the San Juan County development regulations allow for reasonable use exceptions and flexible development of residential properties with critical areas on them.

Critical area buffers are not be developable on commercial, industrial and mixed-use parcels because development regulations for these uses are more restrictive. These uses are also more intensive than residential uses.

Steps

B.1. Create the **Critical Area Deduction** GIS layer (shapefile) consisting of all critical area deductions described as follows:

Critical Area Deductions

Wetlands: The County's possible wetland inventory.

Streams: The County's base stream dataset with stream centerlines and an assumed 35 feet of non-buildable area on either side of the centerline, corresponding with Tree Protection Zone 1 (TPZ 1) per SJCC Table 18.35.130-2.

Steep Slopes: Areas with slopes greater than 50 percent which are considered Category 1 geo-hazards. Development in these areas is limited per SJCC 18.35.065.

Flood Plain: Land located within 100-year floodplains as shown on the Federal Emergency Management Agency (FEMA), April 2017, Flood Insurance Rate Maps (FIRMS).

Other Undevelopable Areas: Mitigation and old dump sites that are not available or suited for development.

- 1 **B.2.** Create the **Total Net Developable Land Inventory** by deducting critical areas from the
2 GDLI. In GIS, overlay the Critical Area Deduction layer on the Gross Developable Land
3 Inventory and clip the Gross Developable Land Inventory. The result will be the Gross
4 Developable Land Inventory with critical areas removed. This layer is the **Total Net**
5 **Developable Land Inventory**.
6
- 7 **B.3.** Create the **Residential Net Developable Land Inventory** by selecting residential vacant,
8 partially used and re-developable parcels from the Total Net Developable Land Inventory.
9 The layer resulting from this selection is the **Residential Net Developable Land Inventory**.
10
- 11 **B.4.** Create the **Critical Area Buffer Deduction** GIS layer (shapefile). Create a GIS layer of
12 critical area buffers as follows:
13
- 14 a. A 150 foot wetland buffer because most of the County's wetlands are Class III or Class
15 IV and industrial and commercial uses are designated high intensity uses (SJCC
16 18.35.095 and Tables 18.35.100-2 and 18.35.100-2), and
17
 - 18 b. The following Tree Protection Zone buffers on parcels with a shoreline FWHCA (SJCC
19 Tables 18.35.100-2 18.35.130-2):
20
 - 21 i. 110 feet from the centerline for Type F (Type 2 or 3) streams and ponds
22 designated as FWHCAs (assuming an 8 foot wide stream);
 - 23 ii. 110 feet from the Ordinary High Water Mark (OHWM) for marine shorelines
24 containing FWHCAs and ponds, excluding parcels subject to the Eastsound
25 Waterfront Access Plan or parcels within approved master planned resorts;
 - 26 iii. 50 feet from the bank full width for Type Np (Type 4) streams;
 - 27 iv. 30 feet from the bank full width for Type Ns (Type 5) streams; and
 - 28 v. 30 feet from the bank full width for un-typed streams.
29
- 30 **B.5.** Create the **Commercial, Industrial and Mixed-Use Net Developable Land Inventory** as
31 follows:
32
- 33 a. Select vacant, partially used and Re-developable Commercial, Industrial and Mixed-
34 Use parcels from the Total Net Developable Land Inventory created in B.2.
35
 - 36 b. Overlay the Critical Area Buffer Deduction layer over this selection and clip to remove
37 the critical area buffers. The resulting layer will be the **Commercial, Industrial and**
38 **Mixed Use Net Developable Land Inventory**.
39

C. Calculate Existing Floor Area Ratios, Summarize Development Trends, Assign Assumed Densities and Floor Area Ratio and Calculate Pending Development Capacity

This section provides analysis of past development trends in order to provide a basis for estimating future development capacity; to determine if development is occurring consistent with Comprehensive Plan densities; and to calculate pending development.

To calculate future capacity on vacant, partially-used and re-developable parcels, the Land Capacity Analysis must use assumptions about how much development is expected on each parcel in the future. Analysis of existing built conditions, achieved densities, and development trends provides the data necessary to forecast future development.

This analysis will also account for pending development which is a more accurate predictor of future densities. Later, achieved densities and building intensities will be used to calculate the future capacity of available land.

- Analyze recent development history and achieved densities and assign assumed densities,
- Convert information into dwelling units per acre and building intensity Floor Area Ratio, and
- Calculate pending development capacity

C.1 Calculate Existing Building Floor Area Ratios by Land Use Designation

One method to calculate future capacity on Commercial, Industrial and Mixed Use parcels is to assume future Floor Area Ratios will be similar to Floor Area Ratio as past development. This information will be used in Step C.3 to determine future assumed Floor Area Ratio.

For commercial, industrial and mixed-use parcels, Floor Area Ratio is good measure of how much building capacity exists on a parcel. Floor Area Ratio is a good measure because it accounts for parking, sewage disposal and other site improvements that affect capacity but vary widely by use and from site to site. The capacity of a commercial, industrial or mixed-use parcel is the assumed future Floor Area Ratio multiplied by the area of the parcel.

The following are the Steps to calculate the average existing Floor Area Ratio by land use designation:

- a. Select all parcels from the Land Capacity Analysis Land Base layer that are fully developed and are Commercial, Industrial or Mixed-use land as defined by Table 1. Add a field for Floor Area Ratio for each parcel.
- b. Using Assessor building improvement information for the parcels selected in Step A, calculate the ratio of total building square feet to lot area for each parcel. This results in a floor area ratio for each parcel.

$$\text{FAR} = \frac{\text{Total building area (square feet)}}{\text{Parcel area (square feet)}}$$

c. Average the floor area ratio for each land use designation and export to an Excel table.

C.2 Summarize Recent Development Trends

The results of Step C.1 above will provide an average Floor Area Ratio for all Commercial, Industrial and Mixed-Use parcels as of March 3, 2017. This average will include buildings constructed under many different land use and building regulations, and therefore may not be accurate for forecasting into the future if regulations have changed and significantly altered the amount of development that is allowed. In order to check the reliability of the averages developed in C.1, the Land Capacity Analysis must also evaluate development that occurred within the recent past to see if there are other development trends to consider.

Ten years of County development history (April 1, 2005 – April 1, 2015) is evaluated to determine the actual densities achieved in all land use designations and Urban Growth Areas (UGA's). Department of Community Development staff performs this analysis using permit files.

Table 2. Basic Achieved Density Calculations by Development Type

Development Type	Achieved Density Calculation
Single Family Residential Plats	Number of Lots / Plat Area
Multi-family Building Permits and Plats	Number of Units / Site Area
Mixed-Use Building Permits Residential Portion	Number of Units / Residential Portion of Site
Mixed-Use Building Permits Commercial Portion	Commercial Floor Area / Commercial Portion of Site
Commercial and Industrial Building Permits	Total Floor Area (main building)/ Site Area

Create an Excel table and compile data from permit files as follows:

Table 3. Achieved Density by Land use Designation

A. Parcel	B. Land Use Designation	C. Permit #	D. Plat area or lot site area (SF)	E. Pending lots (Number of lots approved)	F. Pending housing units (Number approved)	G. Pending building square feet (SF approved)	H. Achieved FAR	I. Achieved Density (DU/acre)
							= G/D	= F/ (D/43,560)

Source: DCD permit data April 1, 2005- 2015

C.3 Assign Assumed Density and Floor Area Ratios (FAR)

Each land use designation will be assigned an assumed density for the purposes of calculating capacity. For residential capacity, the Comprehensive Plan land use designations and densities are the future assumed densities. For commercial and industrial building intensity, existing average Floor Area Ratio by land use designation will be used. For mixed-use intensity, an assumed density and Floor Area Ratio will be used based on land use regulations and existing FAR.

Different assumptions may be used if there is a clear and compelling rationale for deviating from these designations. The following factors would be considered in deviating from the assumed densities: recent achieved densities; land use goals and policies; local circumstances such as development plans and pending development; and any other local market or policy conditions that are likely to impact future development densities.

C.4. Calculate Pending Development Capacity

This Step accounts for pending development which is a more accurate predictor of future density than assumed densities. It involves compiling parcels with approved multi-family permits, commercial and industrial binding site plans, and preliminary and final plats that were not constructed by March 3, 2017 (last date of Assessor's update). This includes Master Planned Projects that are not completely built out but that have received preliminary approval for a number of dwelling units or commercial and industrial square footage. These developments will be considered pending capacity and will be added to the final land capacity for each parcel during the final capacity calculations.

For this analysis, the development records for all multi-family, commercial, industrial, binding site plans, and preliminary and final plats approved since January 1, 2010 that were not finalized prior to March 3, 2017 are compiled including:

- Residential preliminary and final approved plats and short plats;
- Multi-family building permits;
- Assessor's county-wide parcel data in shapefile format; and
- Commercial and industrial building permit activity and binding site plans.

Create an Excel table and compile data as follows:

Table 4. Pending Development Capacity.

A. Parcel	B. Land Use Designation	C. Permit #	D. Plat area or lot site area (SF)	E. Pending lots (Number of lots approved)	F. Pending housing units (Number approved)	G. Pending building square feet (SF approved)	H. Achieved FAR	I. Achieved Density (DU/acre)
							= G/D	= F/(D/43,560)

Source: DCD permit data April 1, 2005-2015 and GIS shapefiles

Deliverables:

Excel tables that summarize the following by land use designation and island:

- Achieved densities;
- Achieved floor area ratios;
- Existing floor area ratios;
- Recommended assumed densities to be used in Step D; and
- Pending development capacity to be used in Step D.

D. Calculate and Map Gross Housing and Commercial Development Capacity

The purpose of this Step is to graphically display capacity at the parcel level. This work is conducted in GIS and produces maps showing capacity by parcel.

The Net Developable Land Inventory (in acres) is converted into capacity for housing units on residential land and building square feet on commercial, industrial and mixed-use land.

The capacity calculated in this Step will not be the final capacity because it will not be converted to population and will not include deductions for public uses, market factors, and seasonal/recreational home factors. Those deductions will be taken to obtain final capacity in Step E.

The following conversion factors as modified by Step C.3 are used in this Step:

- a. Density allowed by Comprehensive Plan land use designation for residential, and
- b. Average existing floor area ratio for fully developed commercial and industrial by land use designations.

Determine Gross Housing Unit Capacity

Gross Housing Unit Capacity is derived from the Residential Net Developable Land Inventory developed in Step B.3. The output will be total dwelling units of capacity available on each parcel. These calculations use:

- The Residential Net Developable Land Inventory;
- Assumed densities for residential land use designations; and
- Pending development capacity.

D.1 Using GIS, multiply the net developable acres of residential developable land on each parcel by the assumed density (DUs/acre) for each land use designation. The output will be the Total Dwelling Unit Capacity available on each parcel before accounting for existing development on partially-used and re-developable parcels.

D.2 Subtract existing dwelling units on partially-used and re-developable parcels by land use from the capacity calculated in the previous Step so that existing units are not counted as part of partially-used or parcel capacity

D.3 Earlier in the process, parcels with pending developments were set aside. These parcels included preliminary or final plats, permits, and binding site plans for developments that have received preliminary approval but have not been constructed by March 3, 2017. Master Planned Projects that have not been completely built out but have received approval for a certain number of dwelling units are also included. The estimated capacity in these developments is more accurate than calculated theoretical capacity. Add these pending housing units to the parcels on which they occur.

D.4 Using GIS and the Residential Net Developable Land Inventory, calculate capacity for each parcel using the following fields and export to Excel table:

Table 5. Gross Housing Capacity by Land Use Designations.

A. Parcel Number	B. Area	C. Land Use Designation	D. LCA Category (Vacant, Re- developable, Partially used etc...)	E. Comprehensive Plan Density (assumed density)	F. Existing Housing Units	G. Pending Housing Units	H. Housing Capacity (Housing Units)
							= (B*E) - F OR = G-F (if pending >0)

Determine Commercial and Industrial Land Capacity

Capacity to accommodate future commercial or industrial growth is derived from the net developable area in commercial and industrial land use designations. This work requires the following data:

- The Commercial and Industrial Net Developable Land Inventory created in Step B.5;
- Assumed Floor Area Ratio values for commercial and industrial designations created in Step C.3;
- Assessor's data for re-developable parcels; and
- Pending commercial and industrial development from Step C.4.

D.5 Multiply net acres of commercial and industrial land in each land use designation by the assumed Floor Area Ratio for each land use designation. The output will be the **Total Square Footage Capacity** available in each land use designation before accounting for existing development on re-developable parcels.

D.6 Summarize total existing commercial and industrial building square footage on parcels by land use designation. Subtract this square footage from the totals from the previous Step so that existing buildings are not counted as part of re-developable parcel capacity.

D.7 Earlier in the process, parcels with pending developments were set aside. These parcels included commercial and industrial permits or binding site plans for developments that have received preliminary approval but had not been constructed by March 3, 2017. Master Planned Projects that have not been completely built out but have received

approval for a certain amount of commercial/industrial square footage are also included. The estimated capacity in these developments is more accurate than calculated theoretical capacity. Replace theoretical capacity on each parcel with actual capacity from Step C.4. The output will be total commercial and industrial square footage capacity available in each land use designation.

Deliverables:

- Map layers (GIS Shapefiles) of the Net Developable Land Inventory parcel map of commercial, industrial, and mixed-use lands including the following fields in the attribute table:

Table 6. Gross Commercial and Industrial Land Capacity.

A. Parcel Number	B. Area	C. Comp Plan Land Use Designation	D. LCA Category (Vacant, re- developable etc.)	E. Assumed Floor Area Ratio	F. Existing Total Floor Area	G. Pending Floor Area	H. Building Capacity (Square Feet)
							= (B*E) - F OR G+F (If pending>0)

- Net Developable Land Inventory parcel map of mixed use lands including the following fields in the attribute table:

Table 7. Gross Mixed-Use Capacity.

A. Parcel No.	B. Area	C. Land use designation	D. Category (Vacant, redevelop- able etc.)	E. Assumed Floor Area Ratio	F. Comprehen sive Plan Density or Achieved Densities	G. Existing total floor area	H. Existing Housing Units	I. Pending Floor Area	J. Pending housing units	K. Building capacity (Square Feet)	L. Housing Capacity (Housing Units)
										= (B*E) - G OR G+I (if pending>0)	= (B*F) -H OR J-H (if pending >0)

Excel Tables for County-Wide Capacity and Capacity for Each Island Depicting:

- Totals of residential acreage and capacity (housing units) by land use designation;
- Totals of residential acreage and capacity by category (vacant, partially used etc.) and by land use designation;
- Totals of commercial and industrial acreage and capacity (building square feet) by land use designation;
- Totals of commercial and industrial acreage and capacity by category (vacant, partially used etc.) and by land use designation;

5. Totals of mixed-use acreage and capacity (building square feet) by land use designation and category (vacant, partially used etc.); and
6. Totals of mixed-use acreage and capacity (housing units) by land use designation and category (vacant, partially used etc.).

Maps

1. Residential Net Developable Land Inventory with parcels categorized in housing capacity ranges;
2. Commercial and Industrial Net Developable Land Inventory parcel maps with parcels categorized in building capacity ranges;
3. Mixed Use Net Developable Land Inventory maps of mixed use lands with parcels categorized in building capacity ranges;
4. Mixed Use Net Developable Land Inventory maps with parcels categorized in housing capacity ranges.

E. Calculate Final Capacity

Conduct the **Final Capacity** calculations using the Excel tables created in Step D, **Gross Capacity**. Add a new column to the tables to include the Final Capacity numbers. The Final Capacity column reflects the gross capacity from Step D minus the capacity deductions described below:

Deduct Capacity to Account for Public Use, Market, Seasonal/Recreational Home Factors

Public Use Factor

The Public Use Factor is a deduction to account for the lands that may be used for public purposes, such as road right-of-ways, utility corridors, public pathways and other lands set aside for public uses. A public use factor of five percent (5%) will be deducted.

Market Factor

The market factor is a deduction to account for lands that will not be available for development during the planning period. It is expected that over the 20-year planning period some lands will be kept off the market due to speculative holding, land banking, and personal use. A market factor of twenty-five percent (25%) of the Developed Land Inventory will be deducted to account for the land that is not available for development during the planning period.

Seasonal/Recreational Home Factor

The 2010 US Census indicated that 35 percent (35%) of the houses in the County were categorized as seasonal/recreational, or occasional use properties. Recent comparisons of the

1 population increases and finalized residential building permits indicate that between 2010 and
2 2016 approximately one and one half (1.5) housing units were built for each new resident.
3 An additional deduction of ~~twenty five percent (25%)~~ thirty five percent (35%) of the gross
4 housing capacity will be deducted to account for the recreational home market.

5
6 **E.1** To each Excel tables developed in Section F, add columns for “Public Use Deduction”,
7 “Market Factor”, “Seasonal/Recreational Home Factors”, “Capacity Deduction”,
8 “Occupied Housing Units”, “Total Population Capacity” and “Final Building Capacity”.
9

10 **E.2** Add the following factors to the tables in Step D as applicable:
11

- 12 ▪ A 5 percent (5%) public use factor for all designations;
- 13
- 14 ▪ For vacant residential designations: a 25 percent (25%) market factor, plus an
15 additional ~~25~~ 35 (~~25~~ 35%) percent seasonal, recreational or occasional use home
16 factor;
- 17
- 18 ▪ For partially-used residential parcels: a 25 percent (25%) market factor and an
19 additional ~~25~~ 35 (~~25~~ 35%) percent seasonal, recreational or occasional use home
20 factor;
- 21
- 22 ▪ For vacant commercial or industrial land use designations: a 25 percent (25%)
23 market factor; and
- 24
- 25 ▪ For a re-developable commercial or industrial parcels: a 25 percent (25%) market
26 factor.
27
28

29 **E.3** A market factor will be applied to Master Planned Resorts as a proportionate share
30 based on the ratio of developed to undeveloped areas within the Master Planned Resort.
31 See Section C.
32

33 **E.4** In the “Capacity Deduction” column calculate the total amount of capacity to be
34 subtracted based on Steps G.2 and G.3.
35

36 **E.5** Calculate the Total Occupied Housing Units by Land Use Designation. To convert dwelling
37 units into occupied housing units use the following data on occupancy rates and average
38 household sizes:
39

- 40 ▪ Apply occupancy rate assumptions for the County by using best available data
41 from Washington Office of Financial Management (OFM) and/or the US Census.
42 Seasonal housing is considered vacant according to Census definitions. These
43 housing units are not included in the occupied housing unit category and are not
44 folded into Census calculations of average household size.
45
- 46 ▪ Multiply the total housing units of capacity in each land use designation by the
47 occupancy rate assumption. The output will be total occupied dwelling units in
48 each land use designation. Add this result in a column to the table modified as part
49 of Step 1 called “Occupied Housing Units”.

1
2 **E.6** Calculate the **Total Population Capacity**. In the “Total Population Capacity” Column,
3 subtract “Capacity Reduction” from the “Housing Capacity” column and multiply the
4 result by the average household size for the County which is 2.04 to calculate “Total
5 Population Capacity”.

6
7
8 **E.7.** Calculate **Employment Capacity**. In the “Total Building Capacity” column, subtract
9 “Capacity Reduction” from the “Building Capacity” column to calculate “Total Building
10 Capacity.”

11
12 **Deliverables:**

13
14 **Excel Tables for County-Wide Final Capacity and Final Capacity for Each Island Depicting:**

- 15
16 1. Totals of residential acreage and final capacity (housing units and population) by land
17 use designation;
18
19 2. Totals of residential acreage and final capacity by category (vacant, partially used etc.)
20 and by land use designation;
21
22 3. Totals of commercial and industrial acreage and final capacity (building square feet)
23 by land use designation;
24
25 4. Totals of commercial and industrial acreage and final capacity by category (vacant,
26 partially used etc.) and by land use designation;
27
28 5. Totals of mixed-use acreage and final capacity (building square feet) by land use
29 designation and category (vacant, partially used etc.); and
30
31 6. Totals of mixed-use acreage and final capacity (housing units) by land use designation
32 and category (vacant, partially used etc.).
33

Draft Land Capacity Analysis Methodology and Script Translation

The LCA script is a block of Python coding (computer language) that translates the draft *Land Capacity Analysis Methodology* into a series of commands that the GIS software executes. Staff is using ESRI ArcPro and ArcMap 10.4 GIS software to perform the data analysis for the LCA. Essentially, the script defines a sequence of logical statements that the software applies to the existing data to assign each parcel a category and type. The software then interpolates the results such as assigned type and category into the GIS data table. That analysis and interpolation produces an updated data table similar to the table in Figure 2, albeit with many more columns of data. The GIS software then uses that data to create a visual representation (GDLI map) of the information similar to the map in Figure 1.

In the summary below, the LCA script is broken into smaller components to allow a comparison between the script and criteria in the *Land Capacity Analysis Methodology*. The criteria from the methodology and script are presented side by side.

Glossary of Script Terms

The following are terms or abbreviations used in the LCA script.

dr – ‘Density ratio’. This is the ratio of allowed density to parcel size. It is the inverse of dwelling unit capacity.

imp_val – Improvement value. This is the building value field on the parcel data.

indComInsLU – Industrial, commercial, and Institutional land use designations.

mixedLU – Mixed use land use designations.

parcel_size > (2400/43560) – This criteria is used to identify parcels smaller than 0.05 acres (2,400 square feet). Parcels this size are typically uninhabited islands or other lands that do not significantly contribute to capacity.

publicLU – Public, utility or conservation land use designations.

residentialLU – Residential Land Use Designations.

townLU – Town of Friday Harbor land use designations.

land_val – Land value.

(imp_val/land_val) – The ratio of building value to land value.

Land Use Designation Code Blocks, used to calculate the ‘Type’ field.

The part of the Python script that defines what type is assigned to each SJC Comprehensive Plan land use designation is shown below.

```
residentialLU = ['AG', 'C', 'ER', 'ER1', 'ER1P', 'ER2', 'ER2P', 'ER412', 'ER4P', 'ERR',
'ERRP2', 'FO', 'HR', 'OLGA', 'OVR2', 'RFF', 'RR', 'RR+', 'VR', 'LGRA', 'ACT', '2 BDD']
indComInsLU = ['RG', 'RI', 'RC', 'HC', 'HI', 'IC', 'SLI', 'SP', 'CCC', 'M', 'MC', 'EAD', 'OHC',
'OVC', 'OVT', 'W', 'MPR', 'RMP']
mixedLU = ['EVC', 'EVCL', 'VC', 'VCL', 'LUGA']
publicLU = ['EN', 'N', 'P', 'OLP', 'OCC', 'HP', 'N SPD', 'P SPD']
townLU = ['FHIA', 'FHUA', 'FH']
```

Draft Land Capacity Analysis Methodology and Script Translation

Script Explanation: ResidentialLU is criteria to assign type 'R'. IndComInsLU is the criteria to assign type 'CI'. MixedLU is the criteria to assign type 'MU'. Public LU is the criteria to assign type 'P'. TownLU is the criteria for Friday Harbor lands, type ' '. The Land Capacity Analysis (LCA) does not calculate capacity for lands within the jurisdiction of Friday Harbor.

Multfamcode block

Below is a block of Assessor's use codes used to categorize residential properties with multi-family development. These use codes are defined in the *Land Capacity Analysis Methodology* in Table 1.

```
multfamCode = ['1200','1201','1203','1207','1208','1220','1223','1300','1302']
```

ConservCode block

This is a block of Assessor's use codes used to categorize parcels as fully developed with public, utility, and conservation uses (i.e. platted open-space, public parks, etc.). This list of use codes is defined on page 10 of the *Land Capacity Analysis Methodology*.

```
conservCode  
=['4500','4800','4820','6700','6793','6800','7400','7403','7420','7600','8120','9420','9423','9  
520','9900','9903','9920']
```

FuldevindcomCode block

This is a set of Assessor's use codes used to categorize parcels as fully developed with industrial and commercial uses. This list of Assessor's use codes is defined on pages 8 and 9 of the *Land Capacity Analysis Methodology*.

```
fuldevindcomCode  
=['1400','1403','1407','1408','1418','1488','1600','1700','2100','2200','2400','2403','2500','2  
600','2700','2800','2900','3100','3200','3300','3400','3500','3900','4100','4200','4300','4400',  
'4600','4700','4900','5000','5100','5200','5300','5320','5400','5403','5500','5503','5600','570  
0','5708','5800','5900','6100','6200','6220','6300','6400','6402','6500','6502','6503','6600','6  
900','6902','7100','7200','7202','7300','7400','7403','7420','7500','7900','8100','8200','8300',  
'8302','8307','8308','8320','8322','8328','8400','8500','8600','8900']
```

SingfamCode block

Below is a set of Assessor's use codes for single-family residential development. This block of use codes applies to a couple of type and categorization criteria as defined in Table 1 of the *Land Capacity Analysis Methodology*.

```
singfamCode =  
['1100','1101','1102','1103','1104','1107','1108','1120','1127','1128','1130','1137','1138','114  
7','1148','1158','1188','1190','1192']
```

Draft Land Capacity Analysis Methodology and Script TranslationDensity code block

Some of the density values in the existing data were re-defined to allow the script correctly to interpret the fields. This is because some of the values had text or were expressing a ratio of acres per unit but needed to be updated to calculate the ratio of units per acre to enable the proper calculations. The following block is how the script resolves these values. Note: the acronyms represent the density value so there is not one for each land use designation.

```
density = {'0.01': {'MinLotSize': 0, 'UnitsAcre': 0.01},
'0.25': {'MinLotSize': 0, 'UnitsAcre': 0.25},
'0.5': {'MinLotSize': 0, 'UnitsAcre': 0.5},
'0.65': {'MinLotSize': 0, 'UnitsAcre': 0.65},
'1': {'MinLotSize': 0, 'UnitsAcre': 1},
'10': {'MinLotSize': 0, 'UnitsAcre': 0.1},
'15': {'MinLotSize': 0, 'UnitsAcre': 0.0667},
'2': {'MinLotSize': 0, 'UnitsAcre': 0.5},
'2 BDD': {'MinLotSize': 0, 'UnitsAcre': 0.5},
'2*': {'MinLotSize': 0, 'UnitsAcre': 0.5},
'20': {'MinLotSize': 0, 'UnitsAcre': 0.05},
'40': {'MinLotSize': 0, 'UnitsAcre': 0.025},
'5': {'MinLotSize': 0, 'UnitsAcre': 0.2},
'CCC': {'MinLotSize': 0.5, 'UnitsAcre': 2},
'EAD': {'MinLotSize': 0, 'UnitsAcre': 0},
'EN': {'MinLotSize': 0, 'UnitsAcre': 0},
'ER': {'MinLotSize': 0.5, 'UnitsAcre': 0.2},
'ER1': {'MinLotSize': 0, 'UnitsAcre': 1},
'ER1P': {'MinLotSize': 0, 'UnitsAcre': 1},
'ER2': {'MinLotSize': 0, 'UnitsAcre': 0.5},
'ER2P': {'MinLotSize': 0, 'UnitsAcre': 0.5},
'ER412': {'MinLotSize': 0, 'UnitsAcre': 0.83333},
'ER4P': {'MinLotSize': 0, 'UnitsAcre': 0.25},
'ERR': {'MinLotSize': 0.5, 'UnitsAcre': 0.2},
'ERR2': {'MinLotSize': 0, 'UnitsAcre': 0.5},
'EVC': {'MinLotSize': 0, 'UnitsAcre': 0},
'EVCL': {'MinLotSize': 0, 'UnitsAcre': 0.025},
'M': {'MinLotSize': 0.16, 'UnitsAcre': 0.16666},
'N': {'MinLotSize': 0, 'UnitsAcre': 0},
'N SPD': {'MinLotSize': 0, 'UnitsAcre': 0},
'P': {'MinLotSize': 0, 'UnitsAcre': 0},
'P SPD': {'MinLotSize': 0, 'UnitsAcre': 0},
'RMP': {'MinLotSize': 0, 'UnitsAcre': 0.5},
'SLI': {'MinLotSize': 0.46, 'UnitsAcre': 0},
'SP': {'MinLotSize': 0.5, 'UnitsAcre': 0},
'VC': {'MinLotSize': 0, 'UnitsAcre': 0.025},
'VR': {'MinLotSize': 0.16, 'UnitsAcre': 0.8333},
'W': {'MinLotSize': 0, 'UnitsAcre': 0}}
```

Draft Land Capacity Analysis Methodology and Script Translation

Categorization Script: Code Blocks

The following sections provide the script/computer code used to categorize parcels based on the draft LCA Methodology.

Remove Friday Harbor Parcels (Category 5, Type ‘ ‘)

```
def townFriday(lu):
    if lu in townLU:
        return True
    else:
        return False
```

This block of code is not specifically defined in the draft *Land Capacity Analysis Methodology* but is necessary to prevent Friday Harbor parcels from being included in the County's land capacity. The Town of Friday Harbor completes their own land capacity analysis.

Fully Developed Residential, Table 1, Item A (Category 0, Type R)

From page 8 of the draft *Land Capacity Analysis Methodology*.

	LCA CATEGORY	DEFINITION	THRESHOLDS /ASSUMPTIONS
A.	Fully Developed Residential (No further development potential) <u>GIS Data Category 0</u> <u>GIS data type: R</u>	<u>Land Use Designations</u> Agricultural Resource (AG) Forest Resource (FOR) Conservancy (C), Rural Residential (RR), Rural Farm Forest (RFF) Village Residential (VR), Hamlet Residential, (HR), Lopez Village Residential (LVR) Eastsound Residential (ER) Eastsound Rural Residential (ERR) Eastsound Rural (ER*) Village Residential/Institutional (VR/I) Olga Hamlet Residential (OHR) Deer Harbor Hamlet Residential (DHHR) Orcas Village Residential (OVR)	Parcels in these land use designations are considered fully developed if the following criteria apply: a. The assessed improvement value is $\geq$ \$10,000 <u>\$42,000</u> ; <u>and</u> b. The ratio of allowed density to parcel size is > 0.5 ; <u>or</u> c. Site developed with multi-family use (Assessor code 1200-1300) in any designation and the building to land value (BV/L ratio) is >1.0

Draft Land Capacity Analysis Methodology and Script Translation

From the script:

```
def fullyDevelopedRes(imp_val, lu, density, parcel_size, land_val, assr_code, dr):
    if lu in residentialLU and imp_val >= 42000 and dr > 0.5 or (assr_code in
multfamCode and (imp_val/land_val) > 1.0):
        return True
    else:
        return False
```

Full Developed Industrial and Commercial, Table 1, Item B (Category 0, Type CI)

From pages 8 – 9 of the draft *Land Capacity Analysis Methodology*.

	LCA CATEGORY	DEFINITION	THRESHOLDS /ASSUMPTIONS
B.	Fully Developed Industrial, Commercial (No further development potential) <u>GIS data Category 0</u> <u>GIS data type: CI</u>	<u>Assessor's land use codes</u> 1400-1488 Accommodations 1600 Hotels/motels 1700 Institutional lodging 2100 Food and kindred products 2200 Textile Mill Products 2400-2403: Lumber/wood products 2500: Furniture/fixtures 2600: Paper and Allied products 2700: Printing and publishing 2800: Chemicals 2900: Petroleum refining / related 3100: Rubber misc. plastic products 3200: Stone, clay and glass 3300: Primary metal industries 3400: Fabricated metal products 3500: Prof. & Scientific Instruments 3900: Misc. Manufacturing 4100: Railroad and Transit 4200: Motor vehicle transportation 4300: Aircraft transportation 4400: Marine transportation 4600: Automobile parking 4700 Communications 4900: Other transportation 5000: Non-residential condos 5100: Wholesale trade 5200: Building & hardware & farm 5300-5320: General merchandise 5400-5403: Retail food 5500-5503: Retail-auto, marine, aircraft 5600: Apparel	Parcels in these Assessor's codes are fully developed if the following criteria apply: a. The site is developed with existing industrial, commercial or non-residential use per the Assessor's codes; <u>and</u> b. The ratio of building value to land value (BV/L ratio) is >1.0; <u>or</u> c. Existing development, such as gas stations, quarries or uses preclude significant additional development on the site, regardless of BV/L ratio.

Draft Land Capacity Analysis Methodology and Script Translation

	LCA CATEGORY	DEFINITION	THRESHOLDS /ASSUMPTIONS
		5700-5708: Retail furniture and home furnishings 5800: Retail- Eating and drinking 5900: Other retail 6100: Finance, insurance & real estate 6200-6220: Personal services 6300: Business services 6400-6402: Repair services 6500-6503: Professional services 6600 Contract construct. services 6900-6902 Miscellaneous services 7100: Cultural activities 7200-7202: Public assembly 7300: Amusements 7400-7420: Recreational activities 7500: Resorts and group camps 7900: Other recreational 8100-8328: Agriculture 8400: Fishing and related services 8500: Mining activities 8600: Marijuana grow operation 8900: Other resource production	

From the Script:

```

def fullyDevelopedIndComIns (lu, imp_val, land_val, assr_code):
    if lu not in townLU and (imp_val/land_val) > 1.0 and assr_code in fuldevindcomCode:
        return True
    else:
        return False

```

Draft Land Capacity Analysis Methodology and Script Translation**Fully Developed Public, Utility, and Conservation, Table 1, Item C (Category 0, Type P)**

Land Capacity Methodology page 10, Table 1.

	LCA CATEGORY	DEFINITION	THRESHOLDS /ASSUMPTIONS
C.	Public, Utility & Conservation (No further development potential) <u>GIS Data Category 0</u> <u>GIS data type: P</u>	<u>Assessors Land Use Codes:</u> 7600: Parks 4800-4820: Utilities 6800-6820: Educational services 6700-6793: Governmental services 9240 <u>9420</u> : Open space with conservation easement 9243 <u>9423</u> : Open Space with conservation easement and dock 9520: Current Use Timber land with a conservation easement 8120: Agriculture with Conservation Easement 4500: Highway right-of-way 7400-7420: Recreational activities 8800-8820: Designated forest land <u>9900-9920 – Platted Common Area or Access</u>	Parcels are considered fully developed public, utility and conservation lands if the following criteria apply: a. Properties with land uses listed by the Assessor's codes as Public, Utility and Conservation; <u>or</u> b. The parcel is on the GIS layers of public lands and County Parks and Open Space

From the script:

```
def publicLand (lu):
    if lu in publicLU:
        return True
    else:
        return False

def conservLand (lu, assr_code):
    if assr_code in conservCode:
        return True
    else:
        return False
```

The draft *Land Capacity Analysis Methodology* was updated to include a list of land use designations for categorization of public lands. It was added because the handful of designations in the list do not allow residential or commercial development.

Draft Land Capacity Analysis Methodology and Script Translation

Vacant and Sub-dividable Residential, Table 1, Item D (Category 3, Type R)

From page 10 of the draft *Land Capacity Analysis Methodology*.

	LCA CATEGORY	DEFINITION	THRESHOLDS /ASSUMPTIONS
D.	Vacant and Sub-dividable Residential <u>GIS Data Category 3</u> <u>GIS data type: R</u>	<u>Land Use Designations</u> Agricultural Resource (AG) Forest Resource (FOR) Conservancy (C) Rural Residential (RR) Rural Farm Forest (RFF) Village Residential (VR) Hamlet Residential, (HR) Lopez Village Residential (LVR) Eastsound Residential (ER) Eastsound Rural Residential (ERR) Eastsound Rural (ER*) Village Residential/Institutional (VR/I) Olga Hamlet Residential (OHR) Deer Harbor Hamlet Residential Orcas Village Residential (OVR) *With several densities	Parcels in these land use designations will be considered vacant and sub-dividable if they meet the following criteria: a. The assessed improvement value is < \$10,000 <u>\$42,000</u> ; and b. The ratio of allowed density to parcel size is ≤ 0.5.

From the Script

```
def vacantDividableRes(imp_val, lu, density, parcel_size, assr_code, dr):
    if lu in residentialLU and imp_val < 42000 and dr <= 0.5 and parcel_size >
(2400/43560) and assr_code not in conservCode:
        return True
    else:
        return False
```

Draft Land Capacity Analysis Methodology and Script TranslationVacant, Non-sub-dividable Residential, Table 1, Item E (Category 2, Type R)

From page 11 of the draft Land Capacity Analysis Methodology. Added (parcel_size > (2400/43560)) to the script to subtract parcels smaller than 0.05 acres. Parcels of this size are mostly uninhabitable islands or parcels that do not otherwise contribute to capacity.

	LCA CATEGORY	DEFINITION	THRESHOLDS /ASSUMPTIONS
E.	Vacant Non-Subdividable Residential <u>GIS Data Category 2</u> <u>GIS data type: R</u>	<u>Land Use Designations:</u> Agricultural Resource (AG) Forest Resource (FOR) Conservancy (C) Rural Residential (RR), Rural Farm Forest (RFF) Village Residential (VR) Hamlet Residential, (HR) Lopez Village Residential (LVR) Eastsound Residential (ER) Eastsound Rural Residential (ERR) Eastsound Rural (ER*) Village Res./Institutional (VR/I) Olga Hamlet Residential (OHR), Deer Harbor Hamlet Residential (DHHR) Orcas Village Residential (OVR) *With several densities	Parcels in these land use designations will be considered vacant but not sub-dividable if they meet the following criteria: a. The assessed improvement value is < \$10,000 <u>\$42,000</u> ; and b. The ratio of allowed density to parcel size is > 0.5.

```
def vacantRes(imp_val, lu, density, parcel_size, assr_code, dr):
    if lu in residentialLU and imp_val < 42000 and dr > 0.5 and parcel_size > (2400/43560) and assr_code not in conservCode:
        return True
    else:
        return False
```

Draft Land Capacity Analysis Methodology and Script Translation

Partially Used Residential, Table 1, Item F (Category 1, Type R)

From page 11 of the draft Land Capacity Analysis Methodology.

	LCA CATEGORY	DEFINITION	THRESHOLDS /ASSUMPTIONS
F.	Partially-Used Residential <u>GIS Data Category 1</u> <u>GIS data type: R</u>	<u>Land Use Designations</u> Agricultural Resource (AG) Forest Resource (FOR) Conservancy (C) Rural Residential (RR) Rural Farm Forest (RFF) Village Residential (VR) Hamlet Residential, (HR) Lopez Village Residential (LVR) Eastsound Residential (ER) Eastsound Rural Residential (ERR) Eastsound Rural(ER*) Village Residential/Institutional (VR/I) Olga Hamlet Residential (OHR) Deer Harbor Hamlet Residential (DHHR) Orcas Village Residential (OVR) *With several densities	Parcels in these land use designations are considered partially-used if they meet the following criteria: a. The assessed improvement value $\geq$ \$10,000 <u>\$42,000</u> ; and b. The ratio of allowed density to parcel size is $\leq$ 0.5.

```

def partiallyUsedRes(imp_val, lu, density, parcel_size, assr_code, dr):
    if lu in residentialLU and imp_val > 42000 and dr <= 0.5 and parcel_size >
(2400/43560) and assr_code not in conservCode:
        return True
    else:
        return False

```

Draft Land Capacity Analysis Methodology and Script Translation

Vacant Industrial and Commercial, Table 1, Item G (Category 2, Type CI)

From Page 12 of the draft Land Capacity Analysis Methodology.

	LCA CATEGORY	DEFINITION	THRESHOLDS /ASSUMPTIONS
G.	Vacant Industrial and Commercial <u>GIS Data Category 2</u> <u>GIS data type: CI</u>	<u>Land Use Designations:</u> Rural Industrial (RI) Island Center(IC) Rural Commercial (RC) Orcas Village Transportation (OVT) Orcas Village Commercial (OVC) Rural General Use (RGU), Village Commercial (VC) Village Industrial (VI) Hamlet Commercial (HC) Hamlet Industrial (HI) Service Light Industrial (SLI) Service Park (SP) Country Corner Commercial (CCC) Eastsound Marina (EM M) Eastsound Airport (EAD) Olga Hamlet Commercial (OHC), Olga Hamlet Community Cntr. (OHCC) Deer Harbor Commercial (DHC) Deer Harbor Industrial (DHI)	Parcels in these land use designations are considered vacant if the: Assessed improvement value is < \$10,000 <u>\$42,000</u> .

```
def vacantIndComIns (imp_val, lu, density, min_size, parcel_size):
    if lu in indComInsLU and imp_val < 42000:
        return True
    else:
        return False
```

Vacant Mixed-Use, Table 1, Item H (Category 2, Type MU)

From page 12 of the draft Land Capacity Analysis Methodology.

	LCA CATEGORY	DEFINITION	THRESHOLDS /ASSUMPTIONS
H.	Vacant Mixed-Use <u>GIS Data Category 2</u> <u>GIS data type: MU</u>	Eastsound Village Commercial (EVC) Lopez Village Commercial (LVC)	Parcels in these land use designations are considered vacant if the assessed improvement value is < \$10,000 <u>\$42,000</u> .

Draft Land Capacity Analysis Methodology and Script Translation

```
def vacantMixedUse (imp_val, lu, density, parcel_size, min_size):

    if lu in mixedLU and imp_val < 42000:

        return True

    else:

        return False
```

Re-Developable Industrial and Commercial, Table 1, Item I (Category 4, Type CI)

From page 12 of the draft Land Capacity Analysis Methodology.

	LCA CATEGORY	DEFINITION	THRESHOLDS /ASSUMPTIONS
I.	Re-Developable Industrial and Commercial An assumption is that existing use may be demolished and new project developed over the planning period. <u>GIS Data Category 4</u> <u>GIS data type: CI</u>	Industrial, Commercial, Institutional Rural Industrial (RI) Island Center(IC) Rural Commercial (RC) Orcas Village Transportation (OVT) Orcas Village Commercial (OVC) Rural General Use (RGU), Village Commercial (VC) Village Industrial (VI) Hamlet Commercial (HC) Hamlet Industrial (HI) Service Light Industrial (SLI) Service Park (SP) Country Corner Commercial (CCC) Eastsound Marina (EM M) Eastsound Airport (EAD) Olga Hamlet Commercial (OHC), Olga Hamlet Community Cntr. (OHCC) Deer Harbor Commercial (DHC) Deer Harbor Industrial (DHI)	Parcels in these land use designations are considered re-developable if they meet the following criteria: a. The ratio of building value to land value is ≤ 1.0 ; <u>or</u> b. They are occupied by a single family residence (Assessor's codes 1100-1199).

```
def redevIndComIns (imp_val, land_val, lu, assr_code):

    if lu in indComInsLU and ((imp_val/land_val) <= 1.0 or assr_code in singfamCode):

        return True

    else:

        return False
```

Draft Land Capacity Analysis Methodology and Script Translation

Re-Developable Mixed-Use, Table 1, Item J (Category 4, Type MU)

From page 12 of the draft Land Capacity Analysis Methodology.

	LCA CATEGORY	DEFINITION	THRESHOLDS /ASSUMPTIONS
J.	Re-Developable Mixed-Use <u>GIS Data Category 4</u> <u>GIS data type: MU</u>	Eastsound Village Commercial (EVC) Lopez Village Commercial (LVC)	Parcels in these land use designations are considered re-developable if one of the following conditions are met: a. The ratio of building value to land value is ≤ 1.0 . <u>or</u> b. The parcel is occupied by a single family residence. (Assessor's codes 1100-1199).

```
def redevMixedUse (imp_val, land_val, lu, assr_code):
    if lu in mixedLU and ((imp_val/land_val) <= 1.0 or assr_code in singfamCode):
        return True
    else:
        return False
```

Draft Land Capacity Analysis Methodology and Script Translation

Order That Script Assigns Type and Category

This block of code shows the order in which the script applies the type and categorization criteria. The order matters because some parcels may meet the criteria for more than one type or category. The logic behind the order of operations was built into the methodology. For example, if a parcel meets the criteria for 'Fully-developed Residential' (0, R) it cannot be Re-developable mixed use (2, MU), even if it meets the criteria for both.

The final criteria "return (5, ' ')" is a catch-all for parcels outside of Friday Harbor that do not meet any of the criteria. These parcels (20 total as-of this writing) were manually categorized during the spot-check step in validating the results. An overview of the validation process is provided in Attachment C.

```
def field_calc (imp_val, lu, density, parcel_size, min_size, land_val, assr_code, dr):

    if townFriday(lu=lu):

        return (5, " ")

    elif fullyDevelopedRes(imp_val=imp_val, lu=lu, density=density,
parcel_size=parcel_size, assr_code=assr_code, land_val=land_val, dr=dr):

        return (0, 'R')

    elif fullyDevelopedIndComIns(imp_val=imp_val, land_val=land_val, lu=lu,
assr_code=assr_code):

        return (0, 'CI')

    elif publicLand(lu=lu):

        return (0, 'P')

    elif conservLand(assr_code=assr_code, lu=lu):

        return (0, 'P')

    elif vacantDividableRes(imp_val=imp_val, lu=lu, density=density,
parcel_size=parcel_size, assr_code=assr_code, dr=dr):

        return (3, 'R')

    elif vacantRes(imp_val=imp_val, lu=lu, density=density, parcel_size=parcel_size,
assr_code=assr_code, dr=dr):

        return (2, 'R')

    elif partiallyUsedRes(imp_val=imp_val, lu=lu, density=density,
parcel_size=parcel_size, assr_code=assr_code, dr=dr):

        return (1, 'R')
```

Draft Land Capacity Analysis Methodology and Script Translation

```
elif vacantIndComIns(imp_val=imp_val, lu=lu, density=density, min_size=min_size,
parcel_size=parcel_size):

    return (2, 'CI')

elif vacantMixedUse(imp_val=imp_val, lu=lu, density=density,
parcel_size=parcel_size, min_size=min_size):

    return (2, 'MU')

elif redevIndComIns(imp_val=imp_val, land_val=land_val, lu=lu,
assr_code=assr_code):

    return (4, 'CI')

elif redevMixedUse(imp_val=imp_val, land_val=land_val, lu=lu,
assr_code=assr_code):

    return (4, 'MU')

elif fullyDevelopedMixedUse(imp_val=imp_val, land_val=land_val, lu=lu,
density=density, parcel_size=parcel_size, min_size=min_size):

    return (0, 'MU')

else:

    return (5, "")
```

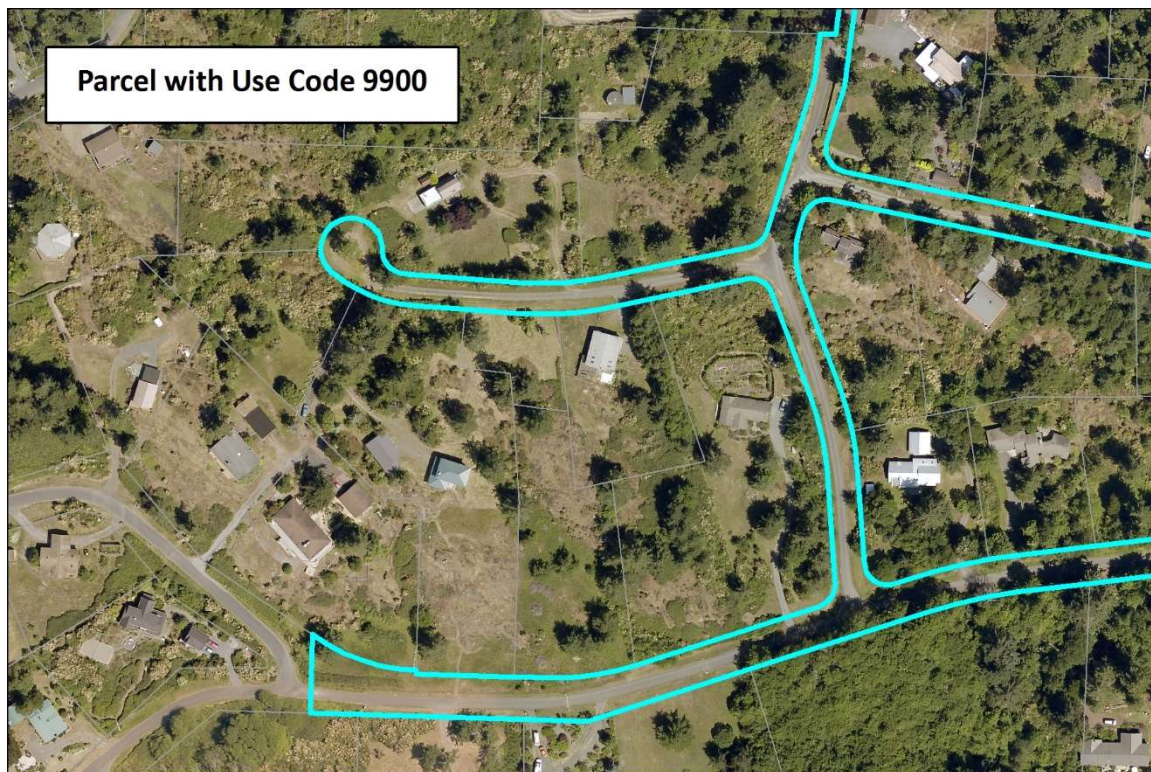
Process for Validation of Script Results

Staff Validation of Script Results – Random Sample Check

To validate the LCA script results, staff checked a random selection of parcels in each combination of category and type against the *Land Capacity Analysis Methodology* criteria. This process was repeated several times during the review of the script results and used to refine the LCA script by making minor changes to the criteria such as including additional Assessor's use codes that were not accounted for in the *Land Capacity Analysis Methodology*.

For example, the use codes 9900 through 9920 were not included in the original draft of the LCA Methodology criteria for categorization as fully developed public, utility and conservation. These use codes are applied to platted common area and access parcels that cannot be developed because of how they were dedicated when the parcel was created. An example of such a parcel is shown in Figure 1. Because parcels with this use code cannot be developed with residential, commercial, or industrial uses, they should not be included in the gross developable land inventory (GDLI). These use codes were added to the criteria in the LCA script and the May 23, 2019, draft *Land Capacity Analysis Methodology* in Table 1.

Figure 1. Example of a Parcel with Use Code 9900



Validation of Results – Spot Check Criteria

Once the random samples were showing consistent, accurate and repeatable results, it became clear that some parcels had data that the LCA Script was unable to correctly process and categorize. These parcels needed to be checked individually to further validate the categorization results before moving to the next step of the *Land Capacity Analysis Methodology*. Fortunately, GIS software has tools that streamlined the process for finding these parcels.

Process for Validation of Script Results

There were several attributes that incorrectly categorized parcels had in common. These common attributes were assembled into selection criteria used to highlight the parcels in the GIS software. A majority but not all of the parcels that share these common attributes were incorrectly categorized by the LCA Script. This means that the search results represented a level of nuance in the data set that required case-by-case review. The type and category for these parcels was manually edited in the GIS data set to be consistent with the draft *Land Capacity Analysis Methodology* as needed. A list of all parcels manually edited in this way is included below.

Spot-Check Criteria 1 – Search by attributes:

"Category" = 5 AND "Type" = '' AND "Legal_Acre" > 0.0551 AND NOT ("Landuse" = 'FH' OR "Landuse" = 'FHIA' OR "Landuse" = 'FHUA')

Note: This query brought up parcels outside of Friday Harbor that were not categorized or typed.

Lopez – no parcels changed based on these search criteria.

Rural Orcas - no parcels changed based on these search criteria.

Eastsound UGA			
PARCEL NUMBER	Script Assigned Cat/Type	Spot-Check Assigned Cat/Type	Explanation
271460075000	5, ''	2, CI	This parcel has been combined with the parcel to the north, it should be the same cat/type (2, CI)
271460031000	5, ''	2, R	Though this is a small lot it may be developable
271449057000	5, ''	0, R	This area is part of the parcel adjacent to the west both should be categorized the same. The parcel is fully developed residential because it is the site of condos. Both parcels were mis-categorized.

San Juan			
PARCEL NUMBER	Script Assigned Cat/Type	Spot-Check Assigned Cat/Type	Explanation
361833001000	5, ''	2, CI	In RH MPR, undeveloped acreage
462352027000	5, ''	4, CI	In RH MPR, fully developed with SFR (can be re-developed)
462352035000	5, ''	2, CI	In RH MPR, undeveloped

Other Islands			
PARCEL NUMBER	Script Assigned Cat/Type	Spot-Check Assigned Cat/Type	Explanation
460243001000	5, ''	0, P	BLM
360623001000	5, ''	0, P	BLM
360512001000	5, ''	0, P	BLM
263031001000	5, ''	0, P	BLM
263031002000	5, ''	0, P	BLM
152644001000	5, ''	0, P	BLM
151532004000	5, ''	0, CI	Met Criteria

Process for Validation of Script Results

Other Islands			
PARCEL NUMBER	Script Assigned Cat/Type	Spot-Check Assigned Cat/Type	Explanation
152111008000	5, ''	4, CI	Occupied by SFR
152111007000	5, ''	4, CI	Occupied by SFR
152231007000	5, ''	0, CI	Met Criteria
152243001000	5, ''	0, CI	Met Criteria
152723002000	5, ''	4, CI	SFR

Spot-Check Criteria 2 – Search by attributes

"Tax_Status" = 'EX' AND "Category" >= 1 AND NOT ("Use_Code" = '8800' OR "Use_Code" = '9500' OR "Use_Code" = '9520' OR "Use_Code" = '9100' OR "Use_Code" = '9101' OR "Use_Code" = '9120') AND NOT "Category" = 5

***Note:** these criteria bring up approximately 136 parcels that are categorized with some amount of capacity but are likely to be fully developed because they have uses like churches, summer camps, cemeteries etc. that do not have an assessed building value.

The excluded use codes (see AND Not in script above) are for uses that are tax exempt but do not necessarily preclude future development. These are use codes for things like tax-deferred forestland (8800), which is not restricted from development in the future. Parcels with these use codes are tax exempt, not developed, and still have development potential. They are excluded from this search because they are likely to be correctly categorized by the script.

Lopez

Lopez			
PARCEL NUMBER	Script Assigned Cat/Type	Spot-Check Assigned Cat/Type	Explanation
251432001000	2, MU	0, P	Church
251541012000	2, MU	0, P	Community Center
251541008000	2, MU	0, P	Lopez Museum
251544005000	2, MU	0, P	Church
252349005000	2, CI	0, P	Common Area
240321002000	2, R	0, P	Cemetery
240312001000	2, R	0, P	Cemetery
253544005000	2, R	0, P	Church
242412014000	2, R	0, P	Platted Road
242412014000	2, R	0, P	Platted Road

Rural Orcas - no parcels changed based on these search criteria.

Eastsound UGA			
PARCEL NUMBER	Script Assigned Cat/Type	Spot-Check Assigned Cat/Type	Explanation
271149021000	2, CI	0, CI	This is platted road area. It is fully developed
271149024000	2, R	0, R	This is platted road area. It is fully developed

Process for Validation of Script Results

Eastsound UGA			
PARCEL NUMBER	Script Assigned Cat/Type	Spot-Check Assigned Cat/Type	Explanation
271150519000	2, R	0, R	This is an OPAL CLT property and the improvement value is not linked with the land. The property is actually developed with a SFR
271142017000	2, CI	0, P	This is an EWUA property that is already fully developed
271155042000	2, R	0, R	This property is fully developed per assessor's records
271411004000	3, R	0, P	This property is the site of a church
271412008000	2, R	0, P	This property is the site of a church
271412002000	2, R	0, CI	This is the site of a day care facility (the funhouse)
271412016000	2, R	0, CI	This is the site of a day care facility (the funhouse)
271453301000	2, CI	0, P	Parcel owned by school
271449048000	2, CI	0, CI	Site of a 'commercial condominium' per assessor's records
271455112000	2, CI	0, CI	Site developed with multi-family housing
271414005000	2, R	0, P	This property is the site of a church
271449057000	2, R	0, R	Site developed with multi-family housing
271449055000	2, CI	0, CI	Site developed with multi-family housing
271442012000	2, CI	0, P	This property is the site of a church
271442008000	2, CI	0, P	This property is the site of a church
271442007000	2, CI	0, P	This property is the site of a church
271449056000	3, R	0, R	Site developed with multi-family housing
271449050000	3, R	0, R	Site developed with multi-family housing
271149023000	3, R	0, R	Site developed with multi-family housing

San Juan			
PARCEL NUMBER	Script Assigned Cat/Type	Spot-Check Assigned Cat/Type	Explanation
461349001000	2, R	0, P	Platted common area
462349070000	2, R	0, R	Condos
462349069000	2, R	0, R	Condos
462349071000	2, R	0, R	Condos
462349073000	2, R	0, R	Condos
462349060000	2, R	0, R	Condos
362949001000	2, R	0, R	Platted common area
351721001000	3, R	1, R	There is an existing home on this property
351049102000	2, R	0, P	Platted common area
352446001000	3, R	0, P	This is a lagoon
352349001000	2, CI	0, CI	Developed with commercial uses
352250001000	2, R	0, P	Church and cemetery
352241001000	2, R	0, P	Cemetery
353511007000	2, R	0, P	Platted common area

Process for Validation of Script Results

Other Islands			
PARCEL NUMBER	Script Assigned Cat/Type	Spot-Check Assigned Cat/Type	Explanation
472911003000	2, R	0, P	Cemetery
472144001000	3, R	0, CI	YMCA Summer Camp
472643009000	3, R	0, CI	Summer Camp
472643008000	2, R	0, CI	Summer Camp
472643006000	2, R	0, CI	Summer Camp
472643004000	3, R	0, CI	Summer Camp
473511001000	3, R	0, CI	Summer Camp
473511003000	2, R	0, CI	Summer Camp
371231001000	2, R	0, P	Cemetery
263050001000	2, R	0, P	Platted Well Pump-house
262844003000	2, R	0, P	Cemetery
263422001000	2, R	0, P	Shaw Community Center

Spot-Check Criteria 3 – Select by Assessor's Use Code 4300:

4300 is the airport use code. It usually is assigned to airport runways or parcels with hangars. Separately leased hangars sometimes do not have a building value assigned in the data set.

"Use_Code" = '4300' AND NOT "Category" = 0

Lopez			
PARCEL NUMBER	Script Assigned Cat/Type	Spot-Check Assigned Cat/Type	Explanation
253314003000	4, CI	0, CI	Lopez Airport

Rural Orcas - no parcels changed based on these search criteria.

Eastsound UGA			
PARCEL NUMBER	Script Assigned Cat/Type	Spot-Check Assigned Cat/Type	Explanation
271142024000	2, CI	0, CI	This site is fully developed with hangars
271158009000	2, CI	0, CI	This site is fully developed with hangars

San Juan - no parcels changed based on these search criteria.

Other Islands			
PARCEL NUMBER	Script Assigned Cat/Type	Spot-Check Assigned Cat/Type	Explanation
371242001000	2, R	0, CI	Airport
371242004000	2, R	0, CI	Airport

Process for Validation of Script Results

162832001000	3, R	0, CI	Airport
152150064000	3, R	0, CI	Airport

Spot-check Criteria 4 – Select by Assessor's Use Code 4200

4200 is a land transportation use code. It is usually assigned to parcels set aside for uses such as roads or school bus parking. Most, but not all, parcels with this assigned use code are not developable for residential or commercial/industrial uses.

"Use_Code" = '4200' AND NOT "Category" = 0

Lopez			
PARCEL NUMBER	Script Assigned Cat/Type	Spot-Check Assigned Cat/Type	Explanation
251311006000	2, R	0, P	Platted Road
252712016000	2, R	0, P	Platted Road

Rural Orcas			
PARCEL NUMBER	Script Assigned Cat/Type	Spot-Check Assigned Cat/Type	Explanation
173642011000	2, R	0, P	Platted Road
173543004000	2, R	0, P	Doe Bay Fire Station
160231003000	2, R	0, P	Platted Road
173152037000	2, R	0, P	Platted Road
173152038000	2, R	0, P	Platted Road
272131003000	2, R	0, P	Platted Road
262111012000	5, ' '	0, P	Bus parking

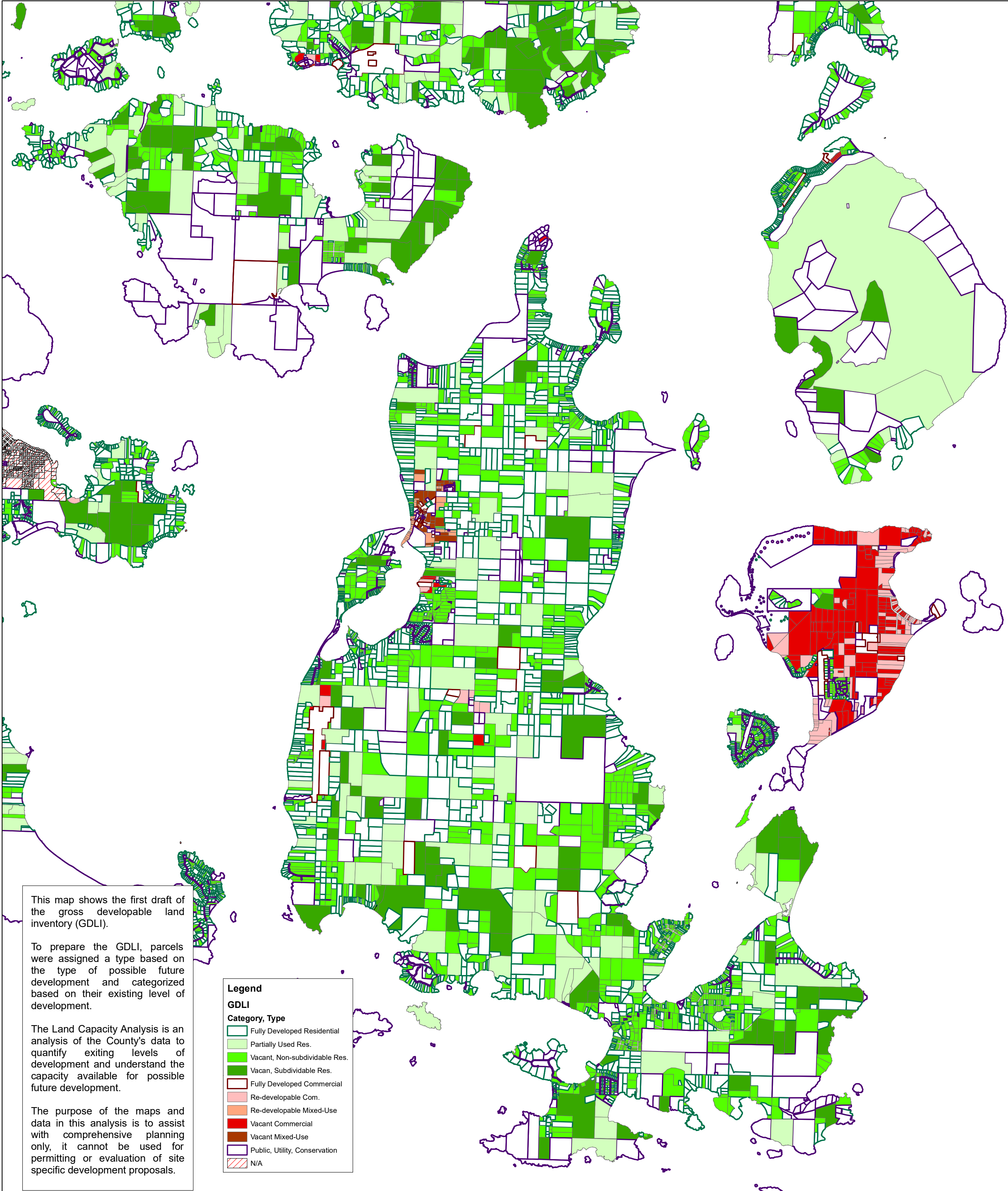
Eastsound UGA - no parcels changed based on these search criteria.

San Juan			
PARCEL NUMBER	Script Assigned Cat/Type	Spot-Check Assigned Cat/Type	Explanation
350213009000	2, R	0, P	Road
463553009000	2, R	0, P	Road

Other Islands - no parcels changed based on these search criteria.

Draft Gross Developable Land Inventory (GDLI): Lopez and Shaw

Attachment D



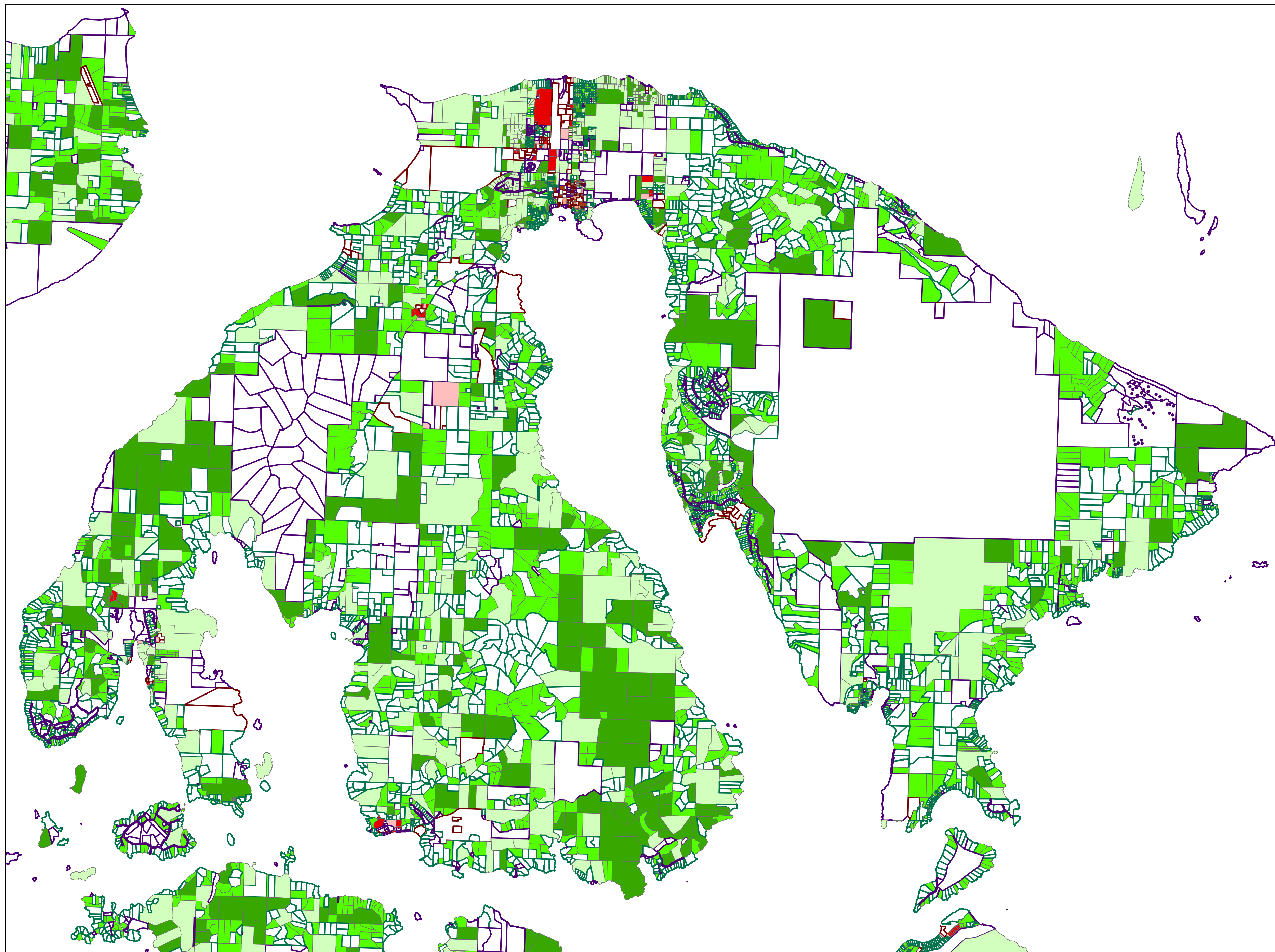
0 0.5 1 2 3 4 5 Miles
1 in = 1 miles

Document Path: O:\Projects\Comprehensive Plan\2018\LCA Validation\Maps for June staff report\GDLI_Lopez.mxd



Draft GDLI Lopez and Shaw Version 1.0
Map Drawn: May 29, 2019
Drawn By: Adam Zack, Planner III

Draft Gross Developable Land Inventory (GDLI): Orcas Island



Legend

GDLI

Category, Type

- Fully Developed Residential
- Partially Used Res.
- Vacant, Non-subdividable Res.
- Vacan, Subdividable Res.
- Fully Developed Commercial
- Re-developable Com.
- Re-developable Mixed-Use
- Vacant Commercial
- Vacant Mixed-Use
- Public, Utility, Conservation
- N/A

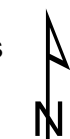
This map shows the first draft of the gross developable land inventory (GDLI).

To prepare the GDLI, parcels were assigned a type based on the type of possible future development and categorized based on their existing level of development.

The Land Capacity Analysis is an analysis of the County's data to quantify exiting levels of development and understand the capacity available for possible future development.

The purpose of the maps and data in this analysis is to assist with comprehensive planning only, it cannot be used for permitting or evaluation of site specific development proposals.

0 1 2 4 6 8 10 Miles 1 in = 1 miles

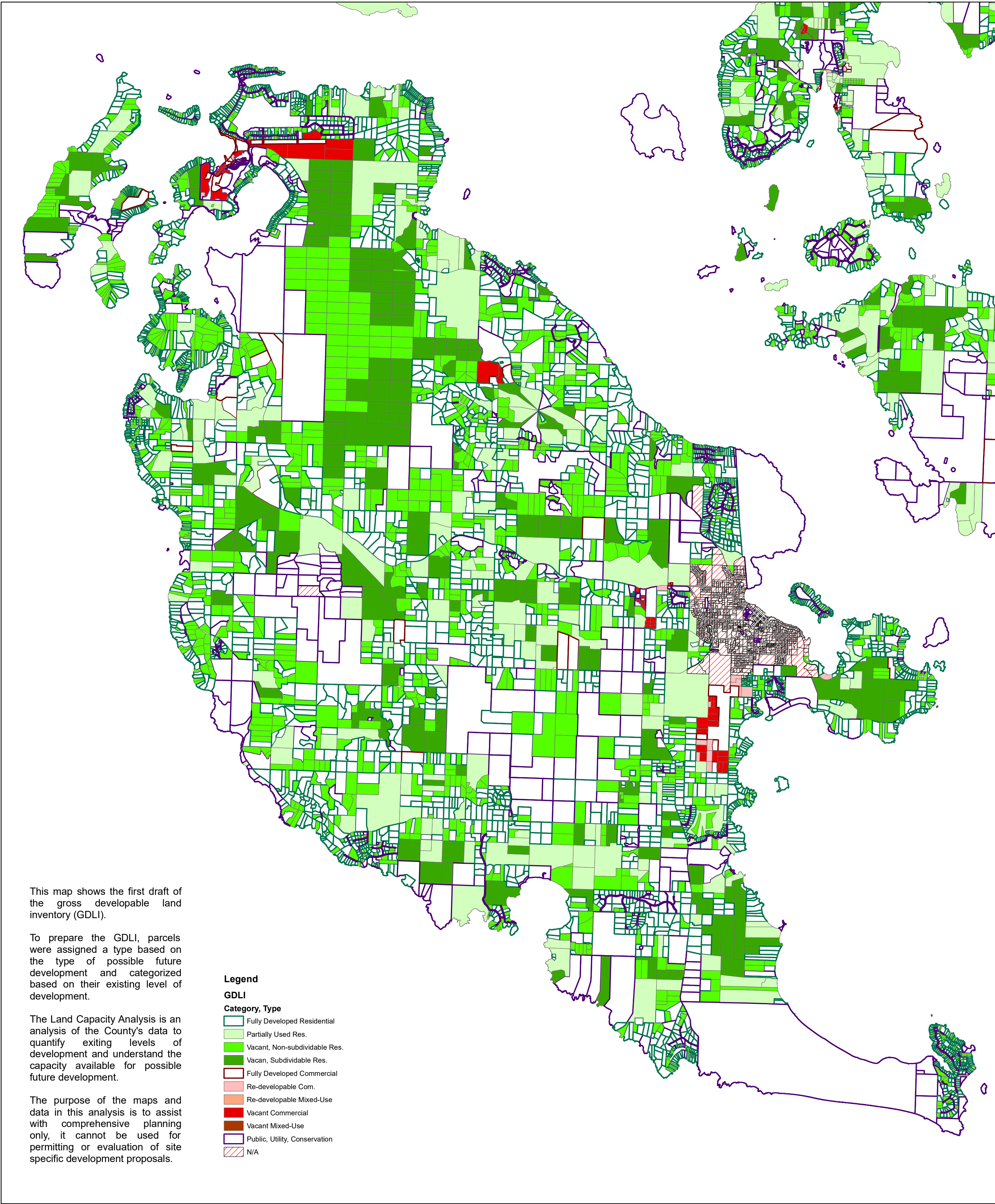


Draft GDLI Orcas Island Version 1.0

Map Drawn: May 29, 2019

Drawn By: Adam Zack, Planner III

Draft Gross Developable Land Inventory (GDLI): San Juan Island



0 0.5 1 2 3 4 5 Miles

1 in = 1 miles



Document Path: O:\Projects\Comprehensive Plan\2018\LCA Validation\Maps for June staff report\GDLI_SJI.mxd

Draft GDLI San Juan Island Version 1.0

Map Drawn: May 29, 2019

Drawn By: Adam Zack, Planner III