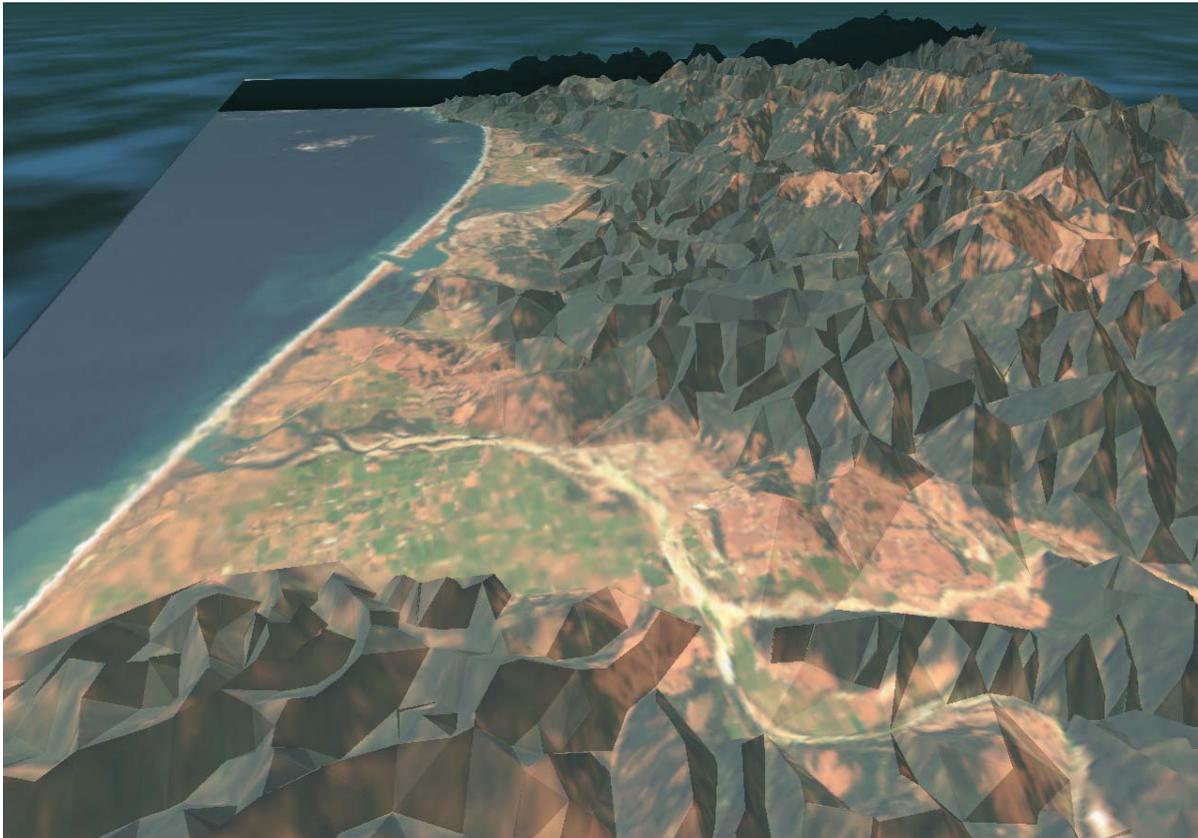


ROOM TO GROW?

An Assessment of the Potential for Unincorporated Humboldt County to Accommodate Future Projected Population Growth



Dr. Michael D. Smith and Dr. Steven J. Steinberg
Department of Environmental and Natural Resource Sciences
Humboldt State University
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EXECUTIVE SUMMARY

As Humboldt County has engaged in the process of updating its General Plan for guiding development through the year 2025, one of the most contentious issues that has emerged is the availability and location of available land to accommodate expected future population growth. In addition, two major concerns have emerged from the public participation efforts conducted for the Plan update: (1) the desire to protect the county's remaining agricultural, timber, and open space lands from future conversion to other uses; and (2) a desire to address the county's lack of affordable housing. The research presented here attempts to illustrate how various development, land-use policy, and population growth assumptions interact with one another in estimating the capacity of the county to absorb future population growth. Such analysis also allows the public, planners, policy makers, and elected officials to use the best information to decide the optimum mix of future land-use policies for Humboldt County that will balance desires and needs for meeting future population growth, providing more affordable housing, and protecting existing resource production and open space lands.

Through the use of a new interactive computer software tool – called CommunityViz® - these issues can be examined for a virtually infinite number of hypothetical scenarios. The software, designed and distributed by the Vermont-based Orton Family Foundation, uses satellite photographs, global positioning data and development plans to analyze various alternative development scenarios and display them in a three-dimensional format. Numerous rural counties and towns throughout the country have used the software in similar modeling analyses.

We used this software, along with data layers from Humboldt County's GIS-based land use inventory and population data and estimates from the U.S. Census Bureau and California Department of Finance, to analyze likely population growth and development scenarios for Humboldt County's future. Throughout our analysis, we explain explicitly what data and estimates are used, how we use them, and how we addressed any challenges that arose in adapting the data for our analysis.

We developed eight future, hypothetical population growth and development scenarios for Humboldt County through the year 2025 for analysis and comparison. We feel these scenarios represent a reasonable range of options for Humboldt County's future based on past and projected population growth, development density, and land-use trends. Each of the scenarios shares a set of common assumptions, such as the amount of land excluded due to various development constraints and the proportion of future population growth that will occur in unincorporated areas of Humboldt County. All of the scenarios forecast population growth and development through the year 2025, since this is the target year the county is using in their General Plan update. The following are brief descriptions of the basic elements of each of the eight scenarios, presented in order of increasing future projected population growth:

Scenario #1

- 0.5% annual growth rate
- average development density of 1 unit per 10 acres (average density of permitted development in Humboldt County for the period 1985-2000)
- development confined to existing sewer and water-serviced areas

Scenario #2

- 0.5% annual growth rate
- average development density of 5 units per acre
- development confined to existing sewer and water-serviced areas

Scenario #3

- 0.5% annual growth rate
- average development density of 2.5 acres per acre
- development confined to existing sewer and water-serviced areas

Scenario #4

- 1% annual growth rate
- average development density of 5 units per acre
- development confined

Scenario #5

- 1% annual growth rate
- average development density of 10 units per acre
- development confined to existing sewer and water-serviced areas

Scenario #6

- 2% annual growth rate
- average development density of 5 units per acre
- development confined to existing sewer and water-serviced areas

Scenario #7

- 2% annual growth rate
- average development density of 5 units per acre
- development confined to existing sewer and water-serviced areas and parcels up to one mile radius from existing sewer and water-serviced areas.

Scenario #8

- 2% annual growth rate
- average development density of 9.6 units per acre
- development confined to existing sewer and water-serviced areas

The purpose of this analysis is not to advocate any particular scenario for how the county should accommodate population growth and development in the next few decades. Rather, we wish to illustrate the implications of various assumptions and hypothetical planning decisions and to demonstrate the potential that the CommunityViz® modeling software has to assist planners, policy makers, and the public in making more-informed decisions involving future development patterns in Humboldt County.

When we analyzed and compared the scenarios, the most important finding is that under the most likely future population growth and development scenarios, ***Humboldt County can easily accommodate growth with moderate housing densities on existing residentially-zoned lands within existing sewer and water serviced-areas while protecting agricultural, timber, and open space lands.*** This is true even when excluding 60 percent of the total available land due to various development constraints. And, this development would not have to occur at a density level that residents would likely find incompatible with the “rural” character of Humboldt County communities: 90 percent of the development could be accommodated with a mix of large-lot suburban homes and large lot rural estate-type development.

For example, using the annual population growth rate forecast by the State – 0.5 percent per year – and an average density of 5 units built per acre, ***8,273 housing units could be accommodated but only 3,354 units are needed.*** Thus, there is a substantial surplus of available land, even when development is limited to existing sewer and water-serviced areas and significant development constraints are factored in.

The results also show that even if the population growth rate turns out to be significantly higher than the current forecast by the California Department of Finance, that growth could still be accommodated without converting substantial amounts of agricultural, timber, and open space lands. For example, if the population growth rate turns out to be twice the rate predicted by the State (1% vs. 0.5%), in the scenarios we evaluated, there is more than enough land to accommodate the increase. If the growth rate turns out to be substantially higher than current State predictions (four times higher, or 2% vs. 0.5%), this rate of population growth could still be accommodated without a significant expansion onto resource production and open space lands by increasing density of new development (such as by increasing the average density of development to 10 units per acre, as we evaluate in two of our scenarios), or by moderately expanding development outside of current sewer and water-serviced areas.

Another key finding from another of our scenarios shows that if we keep developing at densities similar to what the County has permitted between 1985-2000 (approximately 1 housing unit per 10 acres), we will fall far short of projected housing needs: ***we would need to build 3,354 housing units, but we could only build 166 units (less than 5 percent of the need) at historical density levels.*** In order to meet the projected housing need under this scenario, over 30,000 acres outside of existing residentially-zoned land in sewer and water district-serviced areas would need to be developed. Clearly, if the public and County decision-makers desire to protect substantial amounts of resource production

and open space lands, and if they want to provide more affordable housing opportunities¹, future development will need to be built at a higher density than what has been permitted in the recent past.

If new housing is built at the moderate average density (5 units per acre) that we use in many of our development scenarios, it is likely that in addition to the benefit of preserving existing agricultural, timber, and open space lands, there will be substantial economic benefits as well. For example, many infrastructure costs (such as roads, sewer and water lines, police and fire protection) will likely be substantially lower if new development is built within and adjacent to existing developed areas and at a higher density than the extremely-low average density that was permitted between 1985-2000. Also, such housing is likely to be more affordable as many lot sizes will be smaller than historical development patterns, significantly reducing one of the key components of housing cost (cost of land). These benefits would increase if a higher average density of development is chosen, such as the average density of 10 units per acre that we analyzed in two of our scenarios.

Our use of the CommunityViz® software package for this analysis provides a transparent method for analyzing various growth scenarios. Although we have made every effort to be extremely detailed and specific about the methods and data used, one of the strengths of the software program is its ability to change assumptions “on-the-fly.” Therefore, if some of our facts or figures are disputed by readers and reviewers of this report, we hope to use this software to work with groups and individuals to illustrate the implications of different assumptions and hypothetical planning decisions. Thus, we hope that the results presented here will lead to future, productive discussions on how to accommodate future population growth while protecting the rural qualities that make Humboldt County such a special place to live.

¹ One of the major costs of housing is the cost of land, so in many situations higher-density development on a given parcel can lead to a lower per-unit housing cost. In nearly all locations in Humboldt County, the per unit cost of housing would be lower if housing were built at higher average densities (such as 5 or 10 housing units per acre) than the average permitted density between 1985-2000 of 1 house per every 10 acres.

SECTION 1: INTRODUCTION

As Humboldt County engaged in the process of updating its General Plan, one of the most contentious issues that emerged is the availability and location of available land to accommodate expected future population growth. The research presented here attempts to illustrate how various development, land-use policy, and population growth scenarios interact with one another.

Through the use of a new interactive computer software tool – called CommunityViz® - these issues can be examined for a virtually infinite number of hypothetical scenarios. The software, designed and distributed by the Vermont-based Orton Family Foundation, uses satellite photographs, global positioning data and development plans to analyze various alternative development scenarios and display them in a three-dimensional format. It has been used by numerous rural counties and towns throughout the country in similar modeling analyses.

Throughout Humboldt County's work to date on updating the General Plan, public participation efforts have elicited two key areas of concern: (1) the protection of open space, natural resources, and working farms and forest lands; and (2) the availability of affordable housing (Humboldt County Department of Community Development Services 2003; 2000). The County's *Critical Choices* report, prepared early in the General Plan update process and based on public input obtained through 40 public meetings and a public survey, identified the protection of the county's "rural quality-of-life" and protection of agricultural lands and open space as a key priority for the plan update (Humboldt County Department of Community Development Services 2000). Also, the results of a recent survey of Humboldt County residents highlights the importance they place on protecting agricultural and open space lands: 80 percent indicated they wanted the county to do more to protect agricultural lands from development, and 83 percent supported stronger zoning ordinances for protecting agricultural lands (Humboldt County Farm Bureau 2003).

Recent county studies and media reports document the extraordinarily rapid rise in housing prices in the county, and subsequent rapid drop in the affordability and attainability of for-purchase housing for a large percentage of the county's population. For example, in just the first six months of 2004, the housing affordability index for the county dropped from 35 to 20 percent (Humboldt County Department of Community Development Services 2004; Rosso 2004).

Fueling concern over both of these issues has been a pattern of relatively low-density development in unincorporated areas of Humboldt County in recent years. For example, between 1985-2000, the county approved 335 subdivisions which created 2,945 individual lots on 30,448 acres, for an average density of approximately 1 housing lot per 10 acres (Humboldt County Department of Community Development Services 2002).

The purpose of this project is not to advocate any particular scenario for how the county will accommodate population growth and development in the next few decades. Rather, we wish to illustrate the implications of various assumptions and hypothetical planning decisions and to demonstrate the potential that the CommunityViz® modeling software has to assist planners, policy makers, and the public in making more-informed decisions involving future development patterns in Humboldt County.

SECTION 2: METHODOLOGY

This section describes in detail the methods used in our analysis, which utilizes data from the Humboldt County Department of Community Development Services, including multiple data layers of the county's GIS-based land use inventory. This database includes information on all of the approximately 48,000 individually-owned land parcels in the unincorporated portions of the county. These layers include information such as the parcel size, zoning and land use designation, whether the parcel is developed or not (improvement value), and whether the parcel is an area serviced by water and sewer systems. In addition, we used population data, household size data, and population growth estimates provided by the U.S. Census Bureau and the State of California Department of Finance to construct our scenarios.

We recognize that not all parcels zoned residential will be developed due to a number of factors, and we therefore include information on likely constraints to parcel development from a recent study conducted as a partnership between the Humboldt County Department of Community Development Services, the Humboldt County Association of Realtors, and the Northern California Association of Home Builders entitled *Housing Needs, Availability and Affordability in the Eureka and McKinleyville Community Planning Areas of the Unincorporated Areas of Humboldt County* (Humboldt County Department of Community Development Services et al. 2004). Although this study only provided likely constraint data for the Eureka and McKinleyville Community Planning Areas, these two areas comprise a significant portion of the county's total unincorporated population (approximately 44 percent), and are likely centers for a disproportionate share of future development in the county. This study concluded that approximately 60 percent of available, vacant parcels were in fact not likely to be developed due to various constraint factors, including physical characteristics of the parcel, resource and hazards constraints, and owner-related constraints (such as the desire to retain an adjacent parcel vacant for viewshed/privacy-related reasons). In this analysis, we have applied this approximately 60 percent constraints figure to all of the potentially-developable unincorporated land in Humboldt County. In other words, approximately 60 percent of the parcels that our analysis initially indicated were available for development were excluded from consideration after constraints were factored in. It is also important to note that our results likely *underestimate* the total future development potential in Humboldt County because we do not take into account the potential for secondary dwelling (accessory) unit development on parcels where they are allowed.

Our basic approach was to feed these data layers into the CommunityViz® software package, develop likely assumptions about population growth rates and development densities, and then use the software to analyze and compare alternative development scenarios. The sections below describe in more detail the exact methods we used in constructing the analysis and alternative scenarios, some of the challenges we confronted in converting data, and an explanation of how we addressed those challenges.

Adjustments to the Parcels Layer: The parcels layer being used for this analysis (apnhum18sp.shp) was acquired from the Humboldt County Community Development Services Department. In its unprocessed form, this layer was not suitable for answering many of the questions required for this analysis. The problems with this layer (as they relate to this analysis) and the actions taken to counteract these problems are as follows (for details see Appendix D):

Problem 1: 26 polygons were not valid parcels with a valid APN (Assessor's Parcel Number) (e.g. polygons with an entry of "state" or "slough" in the APN field).

Action: These polygons were selected and removed.

Problem 2: 89 polygons shared an APN with another polygon.

Action: These polygons were dissolved by APN into 49 records.

Problem 3: Many parcels in Humboldt County have multiple zoning designations. While not a problem, per se, it required an additional step in order to identify which portions of a parcel were residentially zoned in order to accurately assess development potential. For example, within a 200 acre parcel, only 5 acres may have been zoned residential. A query for residentially zoned parcels would return the entire 200 acre lot. This would have resulted in an inflated estimate of the amount of land available for residential development and consequently distorted the results.

Action: Parcels with multiple zoning designations were selected and put into a new layer. These parcels were then combined with a zoning layer (via a union operation) to produce a layer where each parcel was split along its zoning boundary. Next, those parcels that did not have multiple zoning designations were selected in the original parcels layer and put into a new layer. These two resulting layers were then combined together to produce a layer where parcels without multiple zoning designations were left unmodified while those with multiple zoning designations were split along their zoning boundaries. This allowed for the identification of the portions of each parcel that were potentially suitable for residential development.

The original parcels layer has 69,787 records. The number of records in the parcels layer after adjusting for polygons without an APN and for polygons which shared an APN is 69,678. The number of records in the parcels layer after the adjusted parcels layer was combined with the zoning layer is 144,206.

Identifying Vacant Parcels: Within the CommunityViz® software analysis environment, whether or not a parcel is considered to be vacant is dependent on the value specified in the “improvement value required for vacancy” (IMPR) assumption. Parcels which have an improvement value (in the IMPR less than the value specified in this assumption are considered to be vacant (in which case the “vacant” field receives a 1). Those which have an improvement value greater than this value are considered to be developed (in which case the “vacant” field receives a 0). In cases where the improvement value of a parcel cannot be determined (due to a “null” value in the IMPR field), vacancy is determined by the “vacant_” field. This field has an entry of ‘vacant’, ‘improved’, ‘check’ or null. In cases where there is no improvement value and there is either an entry of ‘check’ or null in the “vacant_” field, the “vacant” field received a value of 9.

The reason why the “IMPR” value field takes precedence over the “vacant_” field in determining vacancy is because the GIS specialist for the Humboldt County Community Development Services Department (Chinmaya Lewis) indicated that the “vacant_” field is likely to be less reliable than the “IMPR” field when there is a discrepancy between the two. For example, a parcel may have an improvement value of, \$150,000 and an entry of “vacant” in the “vacant_” field. In this situation, the “vacant” field would receive a value of 0—indicating that it is not vacant.

Establishing Residential Zoning: Once the parcels layer had been combined with zoning layer, every polygon received a single zoning designation. Those polygons that had a residential zoning designation were assigned a 1 in the “residential_” field. Those with a zoning designation other than residential were assigned a 0. Some parcels had no entry in the zoning field (notice that this is different from an entry of “U” which indicates that a parcel was simply unzoned). Since many of these parcels fell inside of a residentially zoned polygon in the “zoning” layer, first parcels that fell inside of a residentially zoned polygon in the zoning layer were selected. Then all parcels that had no zoning entry were selected from this subset and assigned a zoning designation of the residentially zoned polygon in the zoning layer that they were contained by.

Criteria for Evaluation: If a parcel meets the criterion established in the “Distance_to_water_and_sewer_or_city assumption” (that is, if it is within a specified distance of areas currently serviced by sewer and water) and if it is residentially zoned (if the assumption is that only residentially zoned parcels will be evaluated), then a parcel is considered for evaluation. Parcels that meet both of these criteria receive a “1” in the “evaluate_” field.

Identifying Developable Parcels: Parcels which have been identified as being both vacant and have met the criteria to be considered for evaluation are considered “developable.” These parcels receive a “1” in the “developable_” field. The sum of the area for all “developable” parcels is then used to calculate the capacity for new dwelling units which is in turn used to calculate the number of people that Humboldt County can accommodate under the given assumptions (including restraints to development).

Identifying Parcels Currently Serviced By Sewer and Water: This was accomplished by simply selecting those parcels that had their center inside the sewer and water-serviced data layers.

Building the CommunityViz® Analysis: This process involved creating assumptions, indicators, and dynamic attributes and linking them together. The formulas used and the relationships between all of these components can be found in Appendices A, B and C.

Programming Logic: In order to make the analysis functional, formulas for the indicators and dynamic attributes are written (see Appendices A, B and C). While not all-inclusive, the following table (Table 2.1) reflects the internal logic programmed into the CommunityViz® Analysis for calculating the number of dwelling units required to accommodate the projected population growth for Humboldt County. The grey boxes represent assumptions which, when changed, will affect the indicators which are represented by the blue boxes. Note that within the CommunityViz® analysis environment, the 2025 Household Population may be directly entered as a numerical value, or, alternatively, it may be calculated from an assumed growth rate. In this example, the 2025 Household Population is entered as a numerical value directly. In the five hypothetical scenarios presented in this report, the 2025 Household Population is calculated using an assumed growth rate.

The figure used in the table below for the 2025 Household Population (138,100) is the same figure used in the *Building Communities Report* (Humboldt County Department of Community Development Services 2002), as is the vacancy rate of 7% and the percent of people expected to take up residence in unincorporated Humboldt County (54%).

Table 2.1: Calculating Persons Per Household, 2025 Population Increase, and Dwelling Units Required to Accommodate the Projected Population Growth for Humboldt County.

| | Figures from The Census Bureau and the DOF or the Building Communities Report | Action | Result: Persons Per Household | Result: Pop. Increase by 2025 | Result: Pop. Increase by 2025 in Unincorporated Humboldt County | Intermediate Result: Dwelling Units Required to Meet the 2025 Population Forecast | Result: Dwelling Units Required to Meet the Population Forecast with a 7% vacancy rate. |
|--|---|--------------------|-------------------------------|-------------------------------|---|---|---|
| 2000 Household population | 122,445 ¹ | | | | | | |
| 2000 Households | 51,238 ² | 122,445/51,238 = | 2.38973028 | | | | |
| Current Household Population | 125,611 ³ | | | | | | |
| 2025 Household Population | 138,100 | 138,100 - 125,611 | | 12,489 | | | |
| % of population to immigrate to Unincorporated Humboldt County | 54% | 12,489 .54 | | | 6,744 | | |
| 2025 Household Population Increase Divided By PPH | | 6,744/2.38973028 = | | | | 2,822 | |
| Required Dwelling Units x 7% Vacancy Rate | | 2,822 x 1.07 = | | | | | 3020 |

¹The total 2000 population as reported by the US Census Bureau was 126,518. However, the total “population in households” as reported by the US Census Bureau was 122,445. Therefore, 122,445 is the figure that was used by the US Census Bureau to calculate “Persons per Household” (PPH), and is also the figure that is used here. The PPH calculated here is the same as that given by the US Census Bureau and the Humboldt County Department of Community Development Services’ *Building Communities Report*.

²The total households in the year 2000 as reported by the US Census Bureau was 51,238. This should be distinguished from the total “housing units” which also takes into account vacant homes. The total number of “housing units” in the year 2000 as reported by the US Census Bureau was 55,912. However, 51,238 is the figure that that the US Census Bureau used to calculate PPH, and is also the figure that is used here.

³This value was taken from the DOF E-5 City / County Population and Housing Estimates, 2004, Revised 2001-2003, with 2000 DRU Benchmark, and represents the population estimate for Humboldt County on 1/1/2004

The following describes the data layers, databases, and software used in our analysis:

Name: Humboldt County Parcels Layer (apnhum18.shp)
Format: Shapefile (Later converted to a feature class within a Geodatabase)
Source: Humboldt County Community Development Services Department
Date of Last Update: 6/28/04

Name: Cites and Sphere of Influence (cities2_and_sphere.shp)
Format: Shapefile
Source: Humboldt County Community Development Services Department
Date of Last Update: unknown

Name: Sewer (SWRONLY3rev.shp)
Format: Shapefile
Source: Humboldt County Community Development Services Department
Date of Last Update: unknown

Name: Sewer (SWRONLY3rev.shp)
Format: Shapefile
Source: Humboldt County Community Development Services Department
Date of Last Update: unknown

Name: Water (wsa2rev.shp)
Format: Shapefile
Source: Humboldt County Community Development Services Department
Date of Last Update: unknown

Name: Zoning (humz9sp.shp)
Format: Shapefile
Source: Humboldt County Community Development Services Department
Date of Last Update: unknown

Name: Humcntydem
Format: GRID
Source: HSU Advanced Spatial Analysis Facility
Date of Last Update: Unknown

Name: Arcata North DOQQ (c40124h1nw.tif)
Format: tiff
Source: California Spatial Information Library
Date of Flight: 04/28/1989

Databases:

Name: Land Information System (LIS3.dbf)
Format: DBF
Source: Humboldt County Community Development Services Department
Date of Last Update: unknown

Software:

ArcGis® 9
CommunityViz® 2.0.8.4, 2.2.0.9
MSOffice® 2003

SECTION 3: CALCULATIONS & FIGURES

This section describes some of the baseline calculations we used or derived for our analysis.

Section 3.1: Total Number of Parcels in the County (broken out by cities and unincorporated areas).

Note: See Appendix D for details on the methodology used to make adjustments to the Parcels Layer.

Table 3.1: Total Parcel Count

| | Unincorporated | Incorporated | Total |
|---|-----------------------|---------------------|---------------|
| Total number of parcels in the unprocessed Parcels Layer: | N/A | N/A | 69,787 |
| Total number of parcels in the parcels layer after adjusting for polygons without an APN and for polygons which shared an APN | 47,973 | 21,705 | 69,678 |

Section 3.2: Total Number of Developed and Undeveloped Parcels in the Parcels Layer after Adjusting For Polygons without an APN and for Polygons Which Share an APN.

Note: Whether or not a parcel was considered to be developed was dependent on the “vacant?” field. See the topic “Identifying vacant parcels” in the Methods section for an explanation of how this field was calculated.

Note: There were 405 records for which there was no improvement value. There were 358 parcels that had neither an improvement value nor an entry in the “vacant_” field (The implication here is that there were 47 records for which vacancy was determined based on the “vacant_” field). It was not possible to determine whether or not a parcel was developed for the 358 parcels that had neither an improvement value nor an entry in the “vacant_” field.

Table 3.2: Developed Parcel Count: All Zoning Designations

| | Unincorporated | Incorporated | Total |
|---------------------|-----------------------|---------------------|---------------|
| Developed parcels | 24,574 | 18,363 | 42,937 |
| Undeveloped parcels | 23,258 | 3,125 | 26,383 |
| Total | 47,832 | 21,488 | 69,320 |

Table 3.1.1: Developed Parcel Count: Residentially Zoned Parcels

| | Unincorporated | Incorporated | Total |
|---------------------|-----------------------|---------------------|---------------|
| Developed parcels | 14,761 | N/A | 14,761 |
| Undeveloped parcels | 6,673 | N/A | 6,673 |
| Total | 21,434 | N/A | 21,434 |

Section 3.2.1: Total Number of Parcels that are Developed and that are Vacant for Parcels Without an Improvement value.

Note: In this table, whether or not a parcel was determined to be developed or undeveloped is dependent on the “vacant_” field (not the “vacant?” field) since these represent the parcels without an improvement value. See the topic “Identifying vacant parcels” in the Methods section for an explanation of this field.

Note: The information provided in this table is supplemental to section 2.2 and should not be considered in addition to it.

Table 3.2.1: Total Number of Developed and Undeveloped Parcels in the Parcels Layer for parcels without an improvement value.

| | Unincorporated | Incorporated | Total |
|--------------------------------|-----------------------|---------------------|--------------|
| Developed parcels (vacant) | 46 | 0 | 46 |
| Undeveloped parcels (improved) | 0 | 1 | 1 |
| Unable to determine | 142 | 216 | 358 |
| Total | 188 | 217 | 405 |

Section 3.3: Undeveloped Parcels in Cities and Their Current Spheres of Influence (SOI’s)

Note: It was not possible to identify residentially zoned vacant parcels that fell within city limits. Therefore, while the table below does indicate the number of residentially zoned vacant parcels that fall within each city’s SOI, it does not do so for the cities.

Note: In the table below, a residentially zoned parcel may not be zoned entirely residential. That is, it may have multiple zoning designations.

Table 3.3: Undeveloped Parcels in Cities and Their Current SOI's

| City Name | Undeveloped Parcels in City Limits | Undeveloped Parcels in SOI | Residentially Zoned Undeveloped Parcels in SOI |
|--------------|--|-------------------------------|---|
| Trinidad | 102 | 20 | 19 |
| Arcata | 763 | 214 | 69 |
| Eureka | 1,117 | 906 | 629 |
| Blue Lake | 92 | 38 | 0 |
| Ferndale | 147 | 0 | 0 |
| Fortuna | 667 | 184 | 39 |
| Rio Dell | 227 | 7 | 0 |
| Total | 3,115 | 1,369 | 756 |

Section 3.4: Number of Vacant Parcels in Unincorporated Areas that Have Both Sewer and Water.

Note: These parcels are heavily concentrated in McKinleyville and Southern Eureka.

Note: In the table below, a residentially zoned parcel may not be zoned entirely residential. That is, it may have multiple zoning designations.

Table 3: Vacant Parcels in Unincorporated Areas that Have Both Sewer and Water.

| | |
|-----------------------------|--------------|
| All Zoning Types | 3,965 |
| Residentially Zoned Parcels | 3,140 |

SECTION 4: THE COMMUNITYVIZ® ANALYSIS

This section describes how we used the CommunityViz® software package to create hypothetical future growth scenarios using our updated parcel, population, and population growth projection data. The core module of the CommunityViz® software package is called Scenario 360. When creating an analysis using Scenario 360, one of the initial steps is the creation of assumptions. An assumption is a value that is used as input to an analysis. Once created, these assumptions may be changed “on the fly.” Changing an assumption will either directly affect the indicators (impact or performance measures), or affect a dynamic attribute within a feature class in a Geodatabase which in turn may affect one or more indicators (a dynamic attribute is an attribute that is automatically updated as changes are made in the analysis).

For example, changes made to the assumption about housing density will affect the indicator which determines the number of new houses which may be constructed. Likewise, changing assumptions in the maximum allowable distance from areas currently serviced by sewer and water for a parcel to be considered for development will affect the dynamic attribute named “evaluate_”. As the name indicates, this attribute is one of the criteria used by Scenario 360 when determining which parcels are suitable for development.

The various combinations that can be made to the assumptions allows for a virtually unlimited number of different hypothetical scenarios to be evaluated. Assumptions are changed via interaction with a user-friendly interface comprised of slider bars and drop down menus. An example of how the assumption interface is set up is shown on the next page (because they would not all fit on a single screen, not all assumptions used in this analysis are displayed in this image).

Scenario Base Scenario



2025 Household Population 100000 200000
138100 people

Improvement Value Required for Vacancy 0 70000
0.00 \$

Only Evaluate Parcels this Distance From Sewer -1 2 50
-1.00 Miles

Only Evaluate Residentially Zoned Parcels Yes No

2000 Households 51238

Vacancy Rate 0 30
7.00 %

2000 Household Population 120000 150000
122,445 people

Current Household Population 120000 150000
125,611 people

Method Used to Determine 2025 Household Population

Growth Rate -10 10
0.50 %

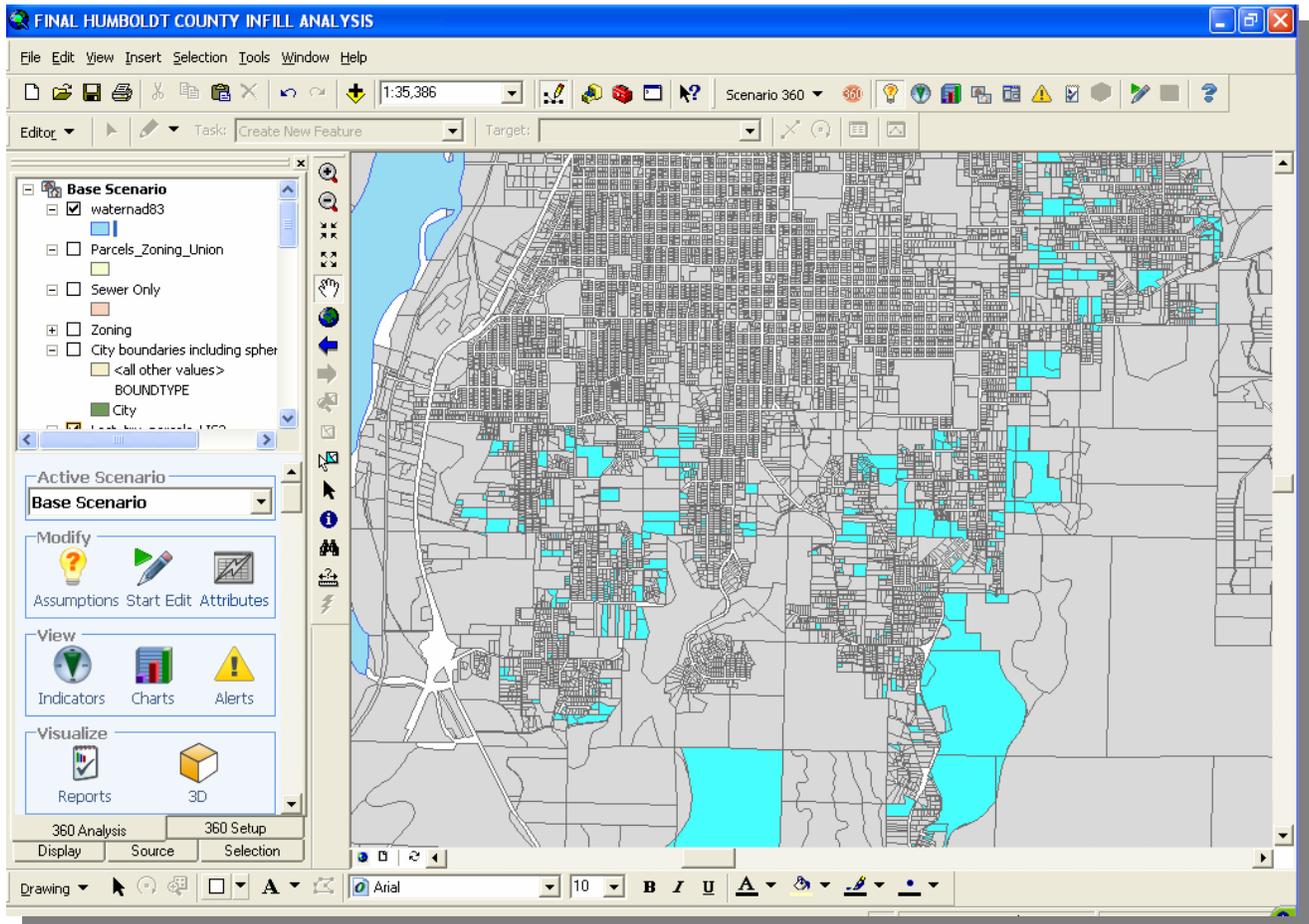
% of Pop. to Immigrate to Unincorporated 0 100
54 %

Housing Density - Sewered 0 50
5.00 Dwelling Units Per Acre

Housing Density - Unsewered -4 50
0.40 Dwelling Units Per Acre

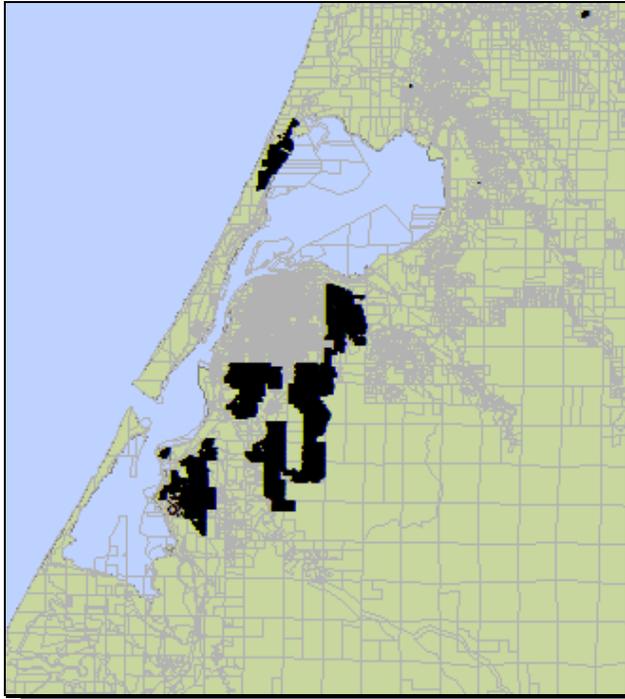
Environmental Constraints 0 100
30.15 %

When modifications are made to these assumptions, the CommunityViz® analysis engine dynamically updates the attributes of certain records within the parcels GIS layer as well as the relevant indicators. The map below shows a subset of parcels in the South Eureka/Cutten area that have been selected as suitable for development (colored blue) based on the assumptions shown in the graphic above.

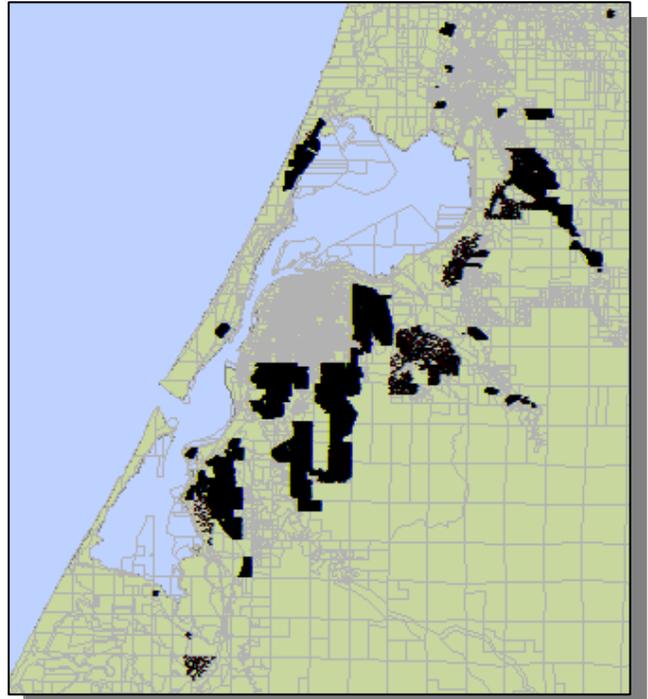


Using the Build-Out analysis wizard available with CommunityViz® version 2.2, two and three-dimensional models may then be constructed in order to enhance the visualization of different scenarios. Within the model, dwelling units may be randomly placed at a specified density or according to current zoning regulations.

The following two images show the results of a build-out analysis run for the Eureka Community Planning Area. In both scenarios buildings (shown as black dots at this scale) have been placed on residentially zoned parcels at the maximum allowable densities specified in the current zoning regulations. In image A, development has been restricted to areas currently serviced by sewer and water. In image B, no such development restrictions have been imposed.

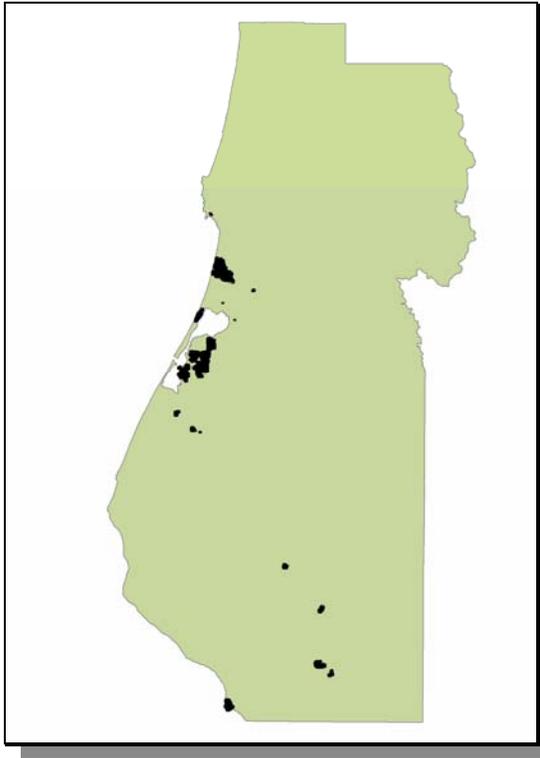


A) Development restricted to areas currently serviced by sewer and water.

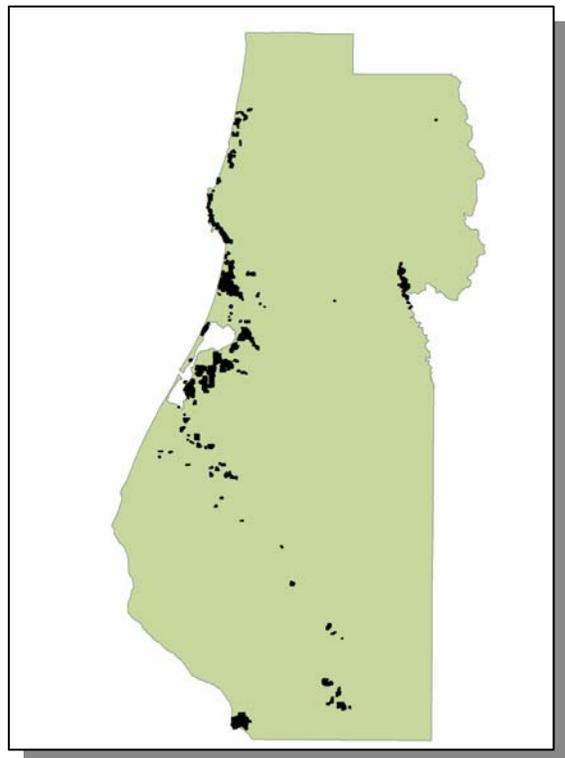


*B) Development **not** restricted to areas currently serviced by sewer and water.*

A build out analysis was also conducted for all of unincorporated Humboldt County. As before, in the images below, Image A depicts a scenario in which development has been restricted to areas currently serviced by sewer and water, while image B depicts a scenario in which no such development restrictions have been imposed.

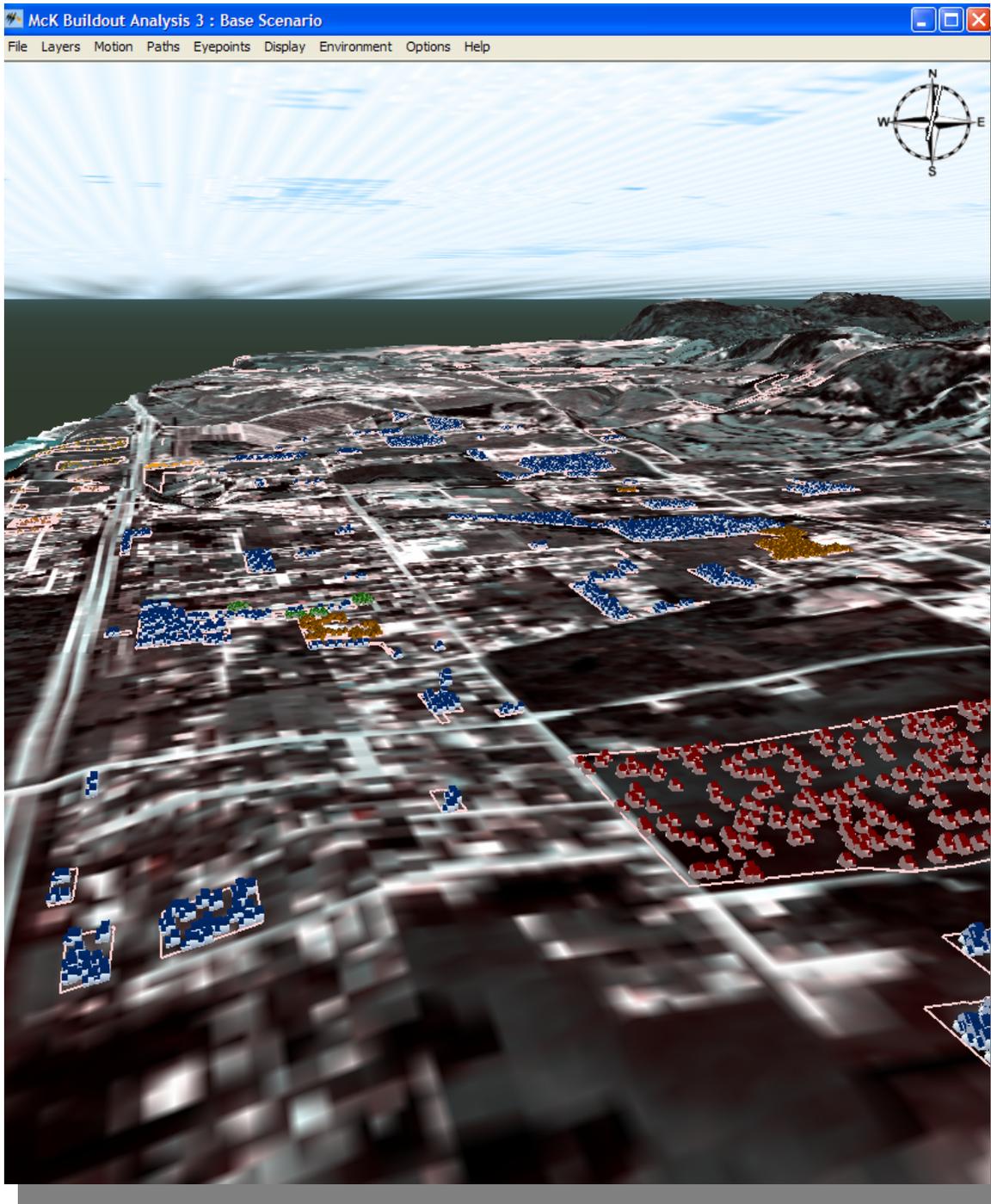


A) Development restricted to areas currently serviced by sewer and water.



*B) Development **not** restricted to areas currently serviced by sewer and water.*

For local areas, a Three-Dimensional model may then be constructed in order to further enhance visualization. The following image is from a model constructed for the McKinleyville Community Planning Area (CPA). Dwelling units have been placed within developable parcels at the maximum allowable densities specified in the Humboldt County Zoning Regulations for each zoning designation.



McKinleyville Community Planning Area, looking north, with U.S. Highway 101 on far left of image.

SECTION 5: EVALUATING ALTERNATIVE SCENARIOS

This section presents the heart of our analysis – the results that were calculated for a range of eight hypothetical alternative development scenarios for Humboldt County through the year 2025.

The “Availability and Need” graphs provided for each scenario are the best measure of performance for a given scenario. In these graphs, Bar 1 should be compared to Bar 2 and Bar 3 should be compared with Bar 4. When Bars 2 and 4 are greater than Bars 1 and 3, respectfully, this indicates that under the assumptions of the scenario being evaluated, it would not be possible to accommodate the projected population growth for the year 2025. Under these circumstances, alternative means for providing land and housing accommodations would need to be identified (such as increasing housing density, or making land available for development that is not being considered under the assumptions specified for that particular scenario).

The following subsections describe eight different possible development scenarios that we created and evaluated. We feel these scenarios represent a reasonable range of options for Humboldt County’s future based on past, existing and projected population, population growth, development density, and land-use trends. It is important to note that in all of the development scenarios presented below, we used the maximum percentage of development constraints identified in the *Housing Needs, Availability and Affordability in the Eureka and McKinleyville Community Planning Areas of the Unincorporated Areas of Humboldt County* report (Humboldt County Department of Community Development Services et al. 2004), hereafter referred to as the “County Restraints Study.”

The development densities applied in all of the scenarios use an *average* level of density for all parcels identified as developable within each of the scenarios. We chose an average density of 5 units per acre as a likely development scenario in many of the scenarios, although in two of the scenarios we examine a higher level of average development density. Although an average of 5 units per acre is a higher density than the county overall has seen historically, it is not unreasonable to expect that higher land and housing costs, coupled with the increased desire of many residents to protect existing resource production and open space lands, will lead to a higher average density of future housing built in the county. This is by no means an “urban” level of density; for example, many of the recent subdivisions built in the McKinleyville and Cutten areas have average densities *greater* than 5 units per acre. This level of density roughly translates into single-family detached dwellings on 8,000 sq. foot lots, which are quite large and what most people would consider “suburban” rather than “urban” in character and overall density. Also, it is important to note that this is an *average* level of density for all lots considered developable in the scenario; thus, if some lots were built a higher density, some could also be built at a lower density. Therefore, at this level of *average* density, some amount of larger-lot development could still be easily accommodated if that is desired. For example, the results of this scenario show that at an average density of 5 units per acre, there is space for over 8,000 individual dwelling units to be constructed. However, this assumes that every acre that is developed will have 5 units built on it, which of course is

not how development will likely proceed. Some lots will likely be built at a higher density (such as single-family detached dwellings on smaller lots at 10 units per acre, to condominiums and apartment complexes that might develop at 16 to 25 units per acre or higher. In the scenario that examines the State's projected population growth rate for the county (0.5 percent), if 10% (160 acres) of the total acreage available for development (1,655 acres) was developed at 10 units per acre, and 15% (249 acres) was developed at 5 units per acre, that would leave 75% (1,245 acres) of the total acreage that could be developed in large-lot fashion at 1 unit per acre and still build a total of 4,090 total housing units, which is a 736 unit surplus over the projected demand for housing in the scenario of 3,354 units. This hypothetical scenario is not provided to suggest a recommended development model, but rather to illustrate the point that limiting future residential development to existing community areas located within water and sewer service areas does not mean having to build at "urban" densities, and does not preclude the option to provide opportunities for some larger-lot development. Also, it is important to note that the current General Plan update process only plans for population growth through the year 2025, so planners and policymakers may want to consider limiting substantial amounts of large lot development in this plan so that population growth beyond 2025 can be accommodated without having to convert substantial amounts of resource production and open space lands and make significant expenditures to expand infrastructure in the future.

Scenario 1

Synopsis:

This scenario was constructed in an effort to model the known development pattern (in terms of housing density) that occurred in Humboldt County between 1985 and 2000. This scenario therefore best represents the "status quo" based on the data that are currently available. According to the County's *Building Communities Report* (Humboldt County Department of Community Development Services 2002), between the years of 1985 and 2000, the average density of new permitted development in the county was 1 dwelling unit per 10 acres, or .1 units per acre. Development constraints identified in the County Restraints Study are used as in all of the other scenarios.

Conclusion:

Humboldt County **would not** be able to accommodate the 2025 projected population growth given the assumptions made in this scenario. In order to meet the projected housing need under this scenario, over 30,000 acres outside of existing residentially-zoned land in sewer and water district-serviced areas would need to be developed.

Assumption Highlights:

- 0.5% annual population growth rate
- Average development density of 1 unit per 10 acres
- Development confined to existing sewer and water-serviced areas
- Assumes 54% of county’s population growth will occur in unincorporated areas
- Includes all development constraints identified in the County Restraints Study

Detailed Assumptions:

| S1 Assumption | S1 Value |
|--|------------------------|
| Improvement Value Required for Vacancy | 0 |
| Only Evaluate Parcels this Distance From Sewer & Water | -1 |
| Only Evaluate Residentially Zoned Parcels | TRUE |
| 2000 Household Population | 122,445 |
| 2000 Households | 51,238 |
| Current Household Population | 125,611 |
| Method Used to Determine 2025 Household Population | Growth Rate Assumption |
| Growth Rate | 0.5% |
| % of Pop. to Immigrate to Unincorporated | 54% |
| Vacancy Rate | 7% |
| Housing Density --Sewered | .1 D.U./acre |
| Environmental Constraints | 30.15 |
| Owner Constraints | 11.24 |
| Developed Parcel Constraints | 6.50 |
| Additional Physical Constraints | 12.66 |

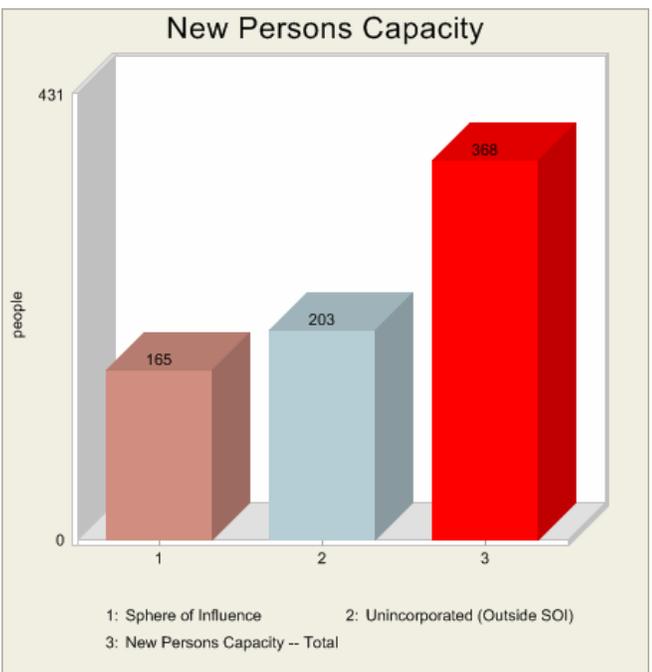
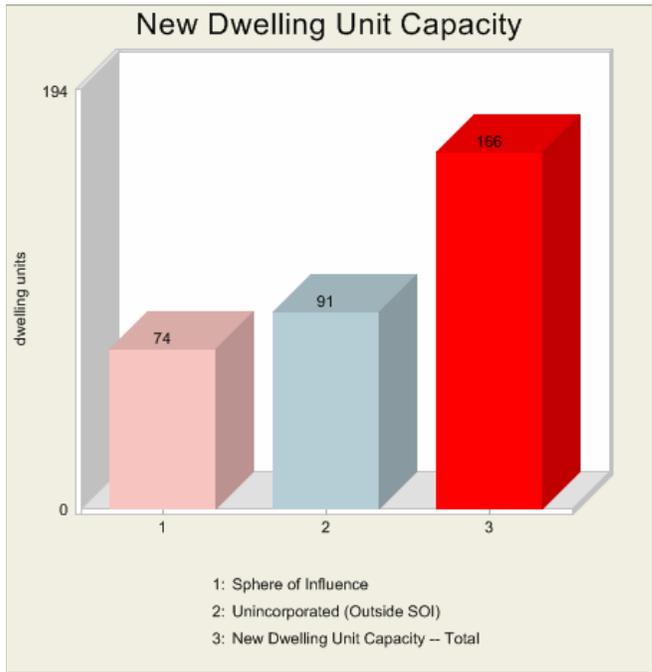
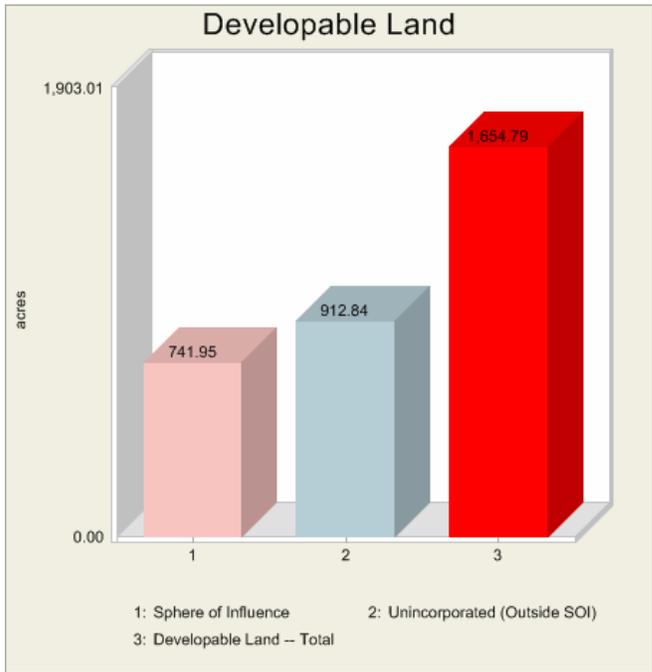
Scenario 1 Results:

Tabular:

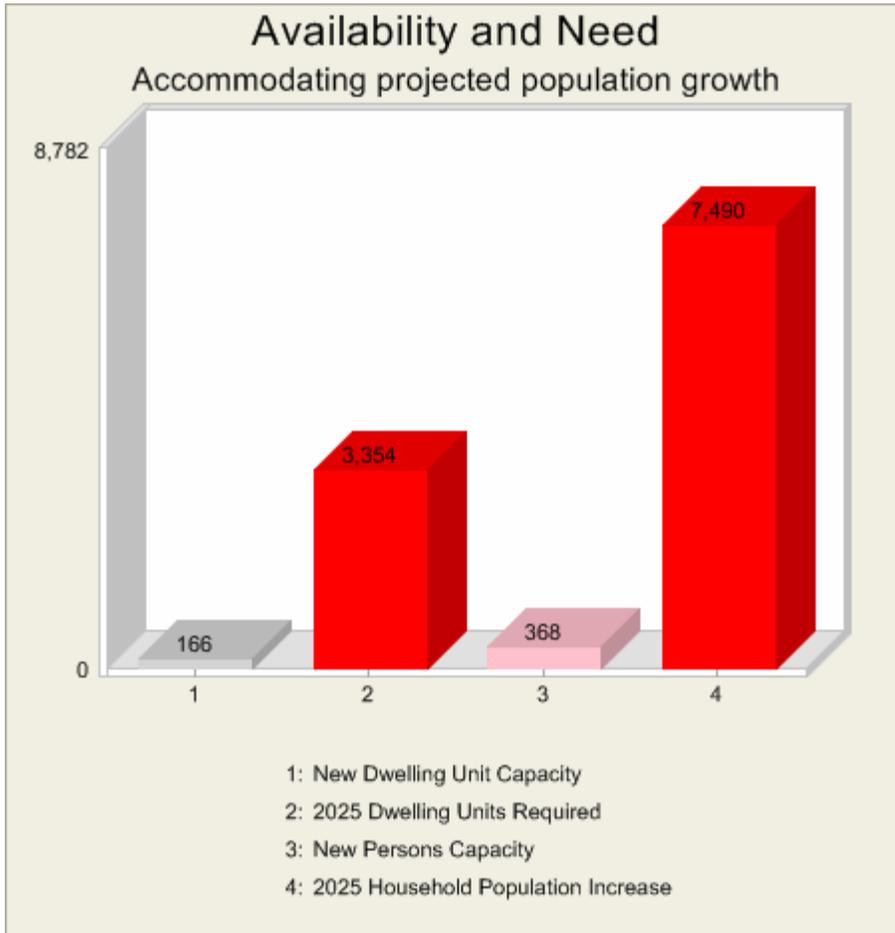
| S1 Indicator | S1 Results |
|--|------------|
| 2025 Household Population Increase | 7,490 |
| 2025 Household Population | 139,481 |
| Persons Per Household | 2.39 |
| 2025 Dwelling Units Required -- Total | 3,354 |
| Developable land -- Unincorporated (acres) | 912.84 |
| Developable land – SOI (acres) | 741.95 |
| Developable Land --Total (acres) | 1,654.79 |
| New Dwelling Unit Capacity -- Unincorporated | 91 |
| New Dwelling Unit Capacity – SOI | 74 |
| New Dwelling Unit Capacity -- Total | 166 |

| | |
|---|-----|
| New Persons Capacity -- Unincorporated | 203 |
| New Persons Capacity -- Sphere of Influence | 165 |
| New Persons Capacity -- Total | 368 |

Graphical:



Summary Results for Scenario 1:



Scenario 2

This scenario incorporates the assumptions made in the *Building Communities* report (with regards to demographic data, population projections, etc.) and the development constraints identified in the County Restraints Study. This scenario assumes that no development will occur outside of areas currently serviced by sewer and water. This scenario thus poses the question, “Assuming that the development constraints identified in the County Restraints Study are applicable to the entire county, will it be possible to accommodate the amount of population growth expected in Humboldt County by the year 2025 based on a 0.5% annual growth rate even if future development was restricted to existing residential lots of legal record that are currently serviced by sewer and water at an average housing density of 5 units per acre

Conclusion:

Humboldt County **would** be able to accommodate the 2025 projected population growth given the assumptions made in this scenario.

Assumption Highlights:

- Assumes that no development will occur outside of residentially zoned parcels that are currently serviced by both sewer and water.
- Assumed annual growth rate of 0.5%
- Average development density of 5 units per acre
- Assumed % of Population to Immigrate to Unincorporated Humboldt County of 54%
- Each development constraint was calculated using the average of the respective constraints identified in the County Restraints Study for the McKinleyville and Eureka CPAs.

Detailed Assumptions:

| S2 Assumption | S2 Value |
|--|------------------------|
| Improvement Value Required for Vacancy | 0 |
| Only Evaluate Parcels this Distance From Sewer & Water | -1* |
| Only Evaluate Residentially Zoned Parcels | TRUE |
| 2000 Household Population | 122,445 |
| 2000 Households | 51,238 |
| Current Household Population | 125,611 |
| Method Used to Determine 2025 Household Population | Growth Rate Assumption |
| Growth Rate | 0.5% |
| % of Pop. to Immigrate to Unincorporated | 54% |
| Vacancy Rate | 7% |
| Housing Density --Sewered | 5 D.U./acre |
| Environmental Constraints | 30.15 |
| Owner Constraints | 11.24 |
| Developed Parcel Constraints | 6.50 |
| Additional Physical Constraints | 12.66 |

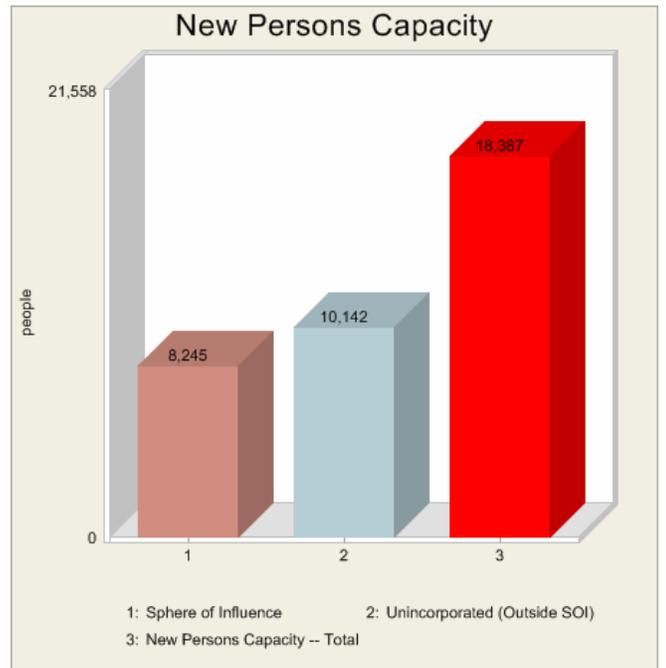
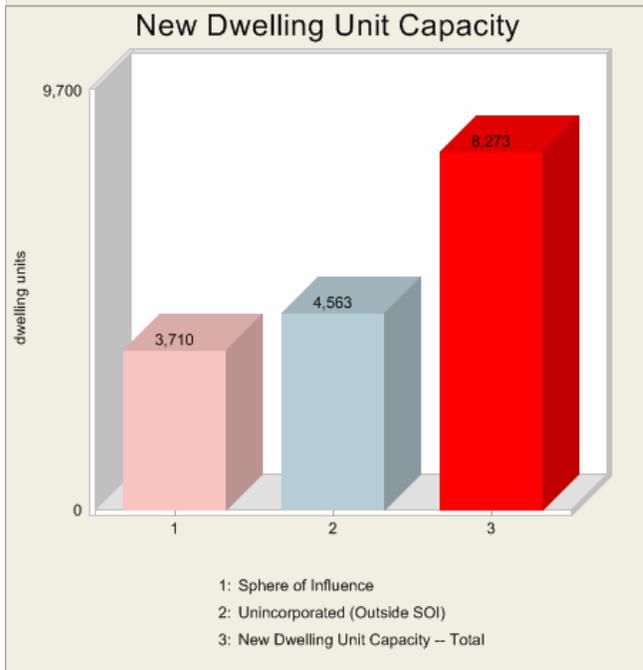
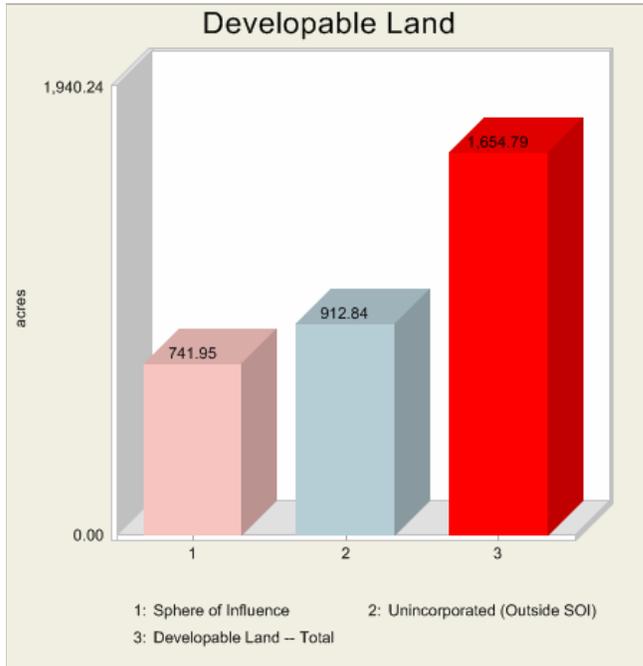
* The negative 1 instructs the CV analysis engine to only evaluate (or consider for development) those parcels that are within an area currently serviced by sewer and water.

Scenario 2 Results:

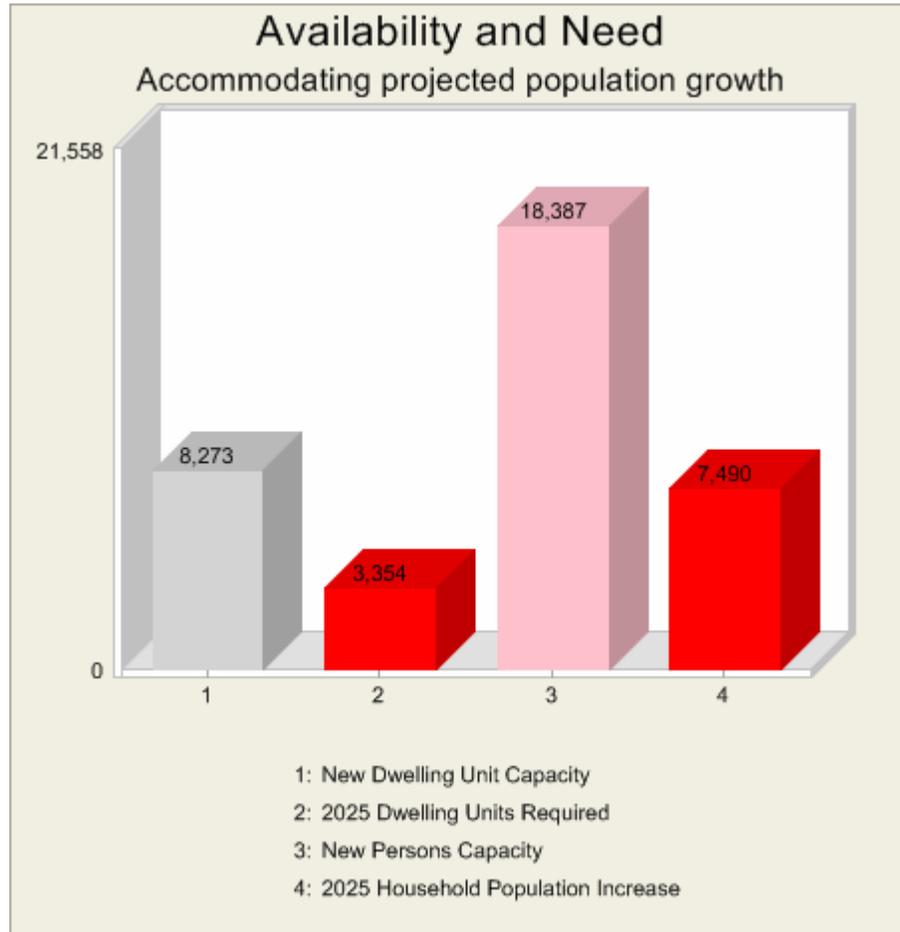
Tabular:

| S2 Indicator | S2 Results |
|---|------------|
| 2025 Household Population Increase | 7,490 |
| 2025 Household Population | 139,481 |
| Persons Per Household | 2.39 |
| 2025 Dwelling Units Required -- Total | 3,354 |
| Developable land -- Unincorporated (acres) | 912.84 |
| Developable land -- Sphere of Influence (SOI) (acres) | 741.95 |
| Developable Land -- Total (acres) | 1,654.79 |
| New Dwelling Unit Capacity -- Unincorporated | 4,563 |
| New Dwelling Unit Capacity -- Sphere of Influence | 3,710 |
| New Dwelling Unit Capacity -- Total | 8,273 |
| New Persons Capacity -- Unincorporated | 10,142 |
| New Persons Capacity -- Sphere of Influence | 8,245 |
| New Persons Capacity -- Total | 18,387 |

Graphical:



Summary Results for Scenario 2:



Scenario 3

S3 Synopsis:

This scenario uses the same assumptions as were used in Scenario 2 with the exception of dwelling units per acre which has been changed from 5 D.U. per acre to 2.5 D.U. per acre. The purpose of this scenario is to analyze whether a lower density of development density would still be able to accommodate projected housing demand using the State's projected population growth rate for the county.

Conclusion:

Humboldt County **would** be able to accommodate the 2025 projected population growth given the assumptions made in this scenario.

Assumption Highlights:

- Assumes that no development will occur outside of residentially zoned parcels that are currently serviced by both sewer and water.
- Assumed annual growth rate of 0.5%
- Assumed housing density of 2.5 D.U. per acre
- Assumed % of Population to Immigrate to Unincorporated Humboldt County of 54%
- Each development constraint was calculated using the average of the respective constraints identified in the County Restraints Study for the McKinleyville and Eureka CPAs

S3 Assumptions:

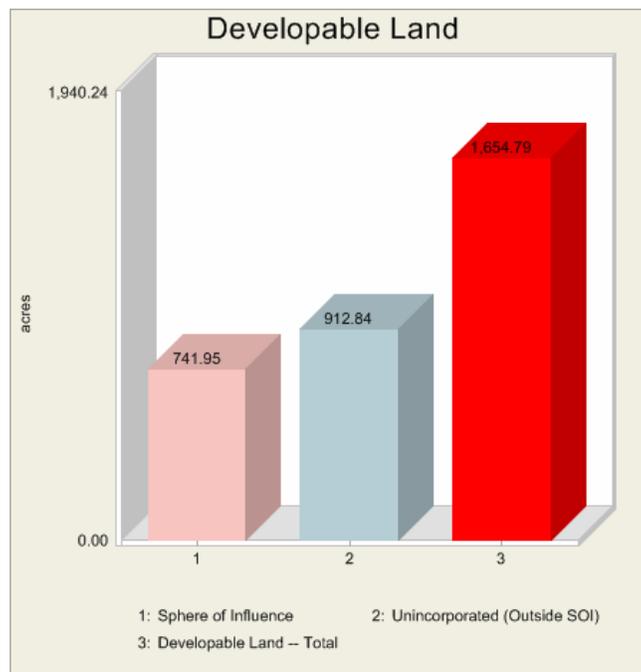
| S3 Assumption | S3 Value |
|--|------------------------|
| Improvement Value Required for Vacancy | 0 |
| Only Evaluate Parcels this Distance From Sewer & Water | -1* |
| Only Evaluate Residentially Zoned Parcels | TRUE |
| 2000 Household Population | 122,445 |
| 2000 Households | 51,238 |
| Current Household Population | 125,611 |
| Method Used to Determine 2025 Household Population | Growth Rate Assumption |
| Growth Rate | 0.5% |
| % of Pop. to Immigrate to Unincorporated | 54% |
| Vacancy Rate | 7% |
| Housing Density --Sewered | 2.5 D.U./acre |
| Environmental Constraints | 30.15 |
| Owner Constraints | 11.24 |
| Developed Parcel Constraints | 6.50 |
| Additional Physical Constraints | 12.66 |

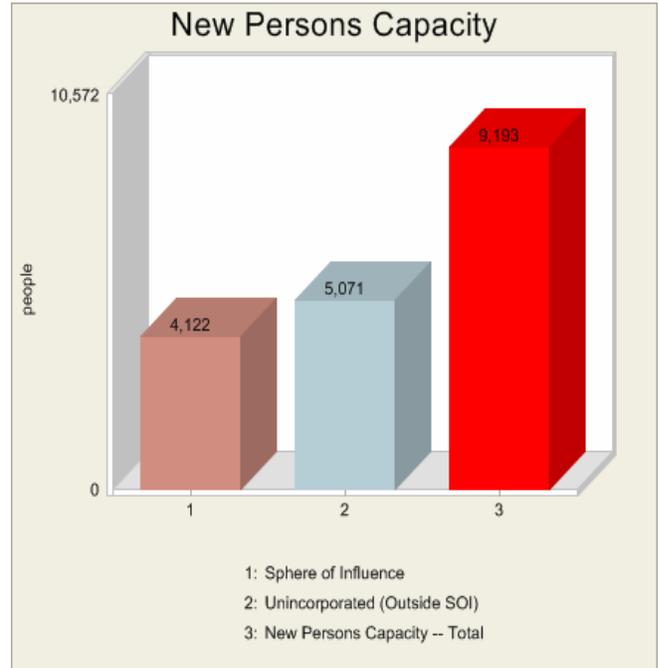
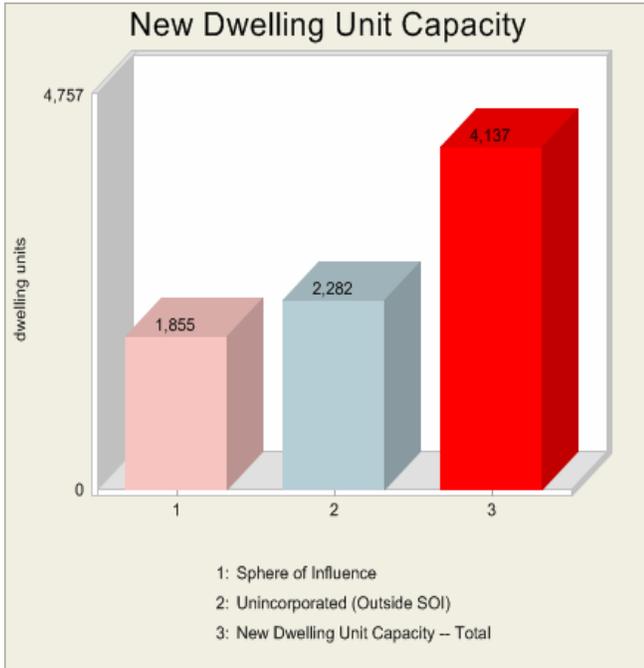
Scenario 3 Results:

Tabular:

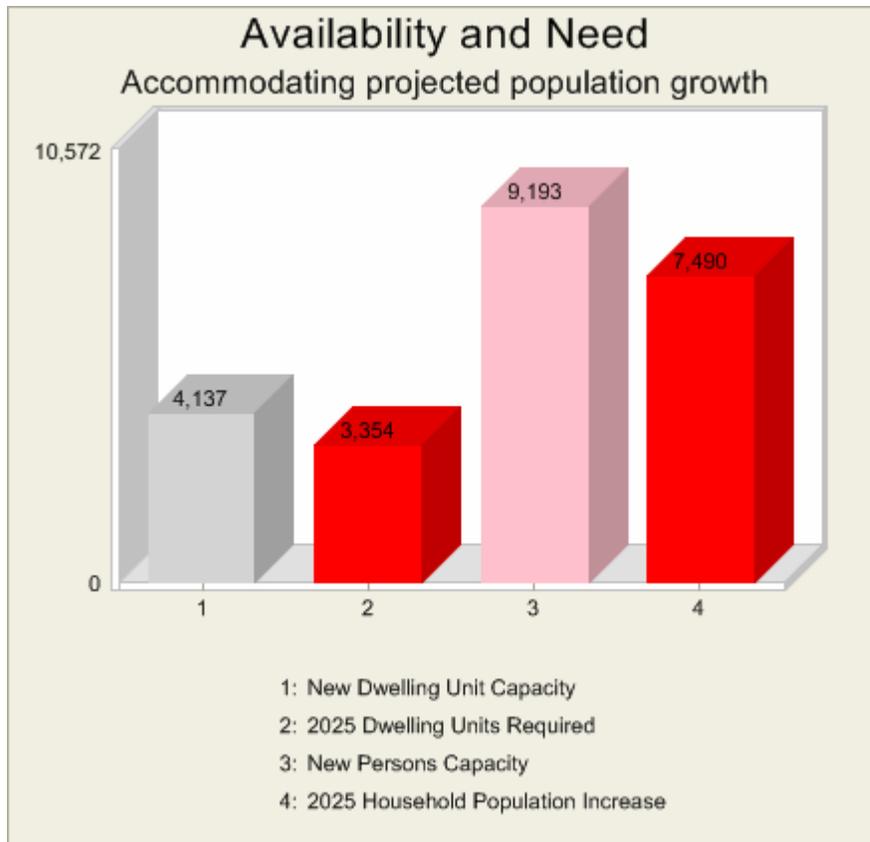
| S3 Indicator | S3 Results |
|---|------------|
| 2025 Household Population Increase | 7,490 |
| 2025 Household Population | 139,481 |
| Persons Per Household | 2.39 |
| 2025 Dwelling Units Required -- Total | 3,354 |
| Developable land -- Unincorporated (acres) | 912.84 |
| Developable land -- Sphere of Influence (acres) | 741.95 |
| Developable Land -- Total (acres) | 1,654.79 |
| New Dwelling Unit Capacity -- Unincorporated | 2,282 |
| New Dwelling Unit Capacity -- Sphere of Influence | 1,855 |
| New Dwelling Unit Capacity -- Total | 4,137 |
| New Persons Capacity -- Unincorporated | 5,071 |
| New Persons Capacity -- Sphere of Influence | 4,122 |
| New Persons Capacity -- Total | 9,193 |

Graphical:





Summary Results for Scenario 3:



Scenario 4

Synopsis:

This scenario uses the same assumptions as were used in Scenario 2 with the exception of the annual population growth rate, which has been changed from .5% per year to 1.0% per year. Thus, this scenario takes into account the possibility that future population growth could be higher than current state projections.

Conclusion:

Humboldt County **would** be able to accommodate the 2025 projected population growth given the assumptions made in this scenario.

Assumption Highlights:

- Assumed annual growth rate of 1.0%
- All other assumptions are the same as those used in Scenario 2.

Detailed Assumptions:

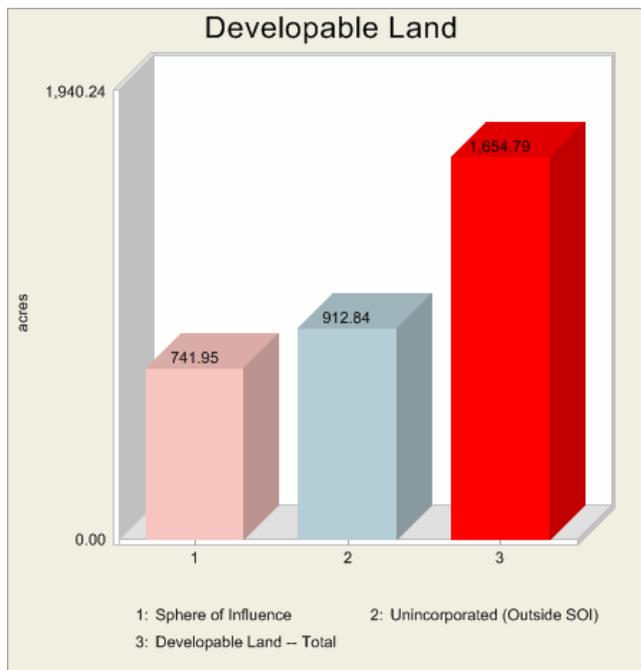
| S4 Assumption | S4 Value |
|--|------------------------|
| Improvement Value Required for Vacancy | 0 |
| Only Evaluate Parcels this Distance From Sewer & Water | -1 |
| Only Evaluate Residentially Zoned Parcels | TRUE |
| 2000 Household Population | 122,445 |
| 2000 Households | 51,238 |
| Current Household Population | 125,611 |
| Method Used to Determine 2025 Household Population | Growth Rate Assumption |
| Growth Rate | 1.0% |
| % of Pop. to Migrate to Unincorporated | 54% |
| Vacancy Rate | 7% |
| Housing Density --Sewered | 5 D.U./acre |
| Environmental Constraints | 30.15 |
| Owner Constraints | 11.24 |
| Developed Parcel Constraints | 6.50 |
| Additional Physical Constraints | 12.66 |

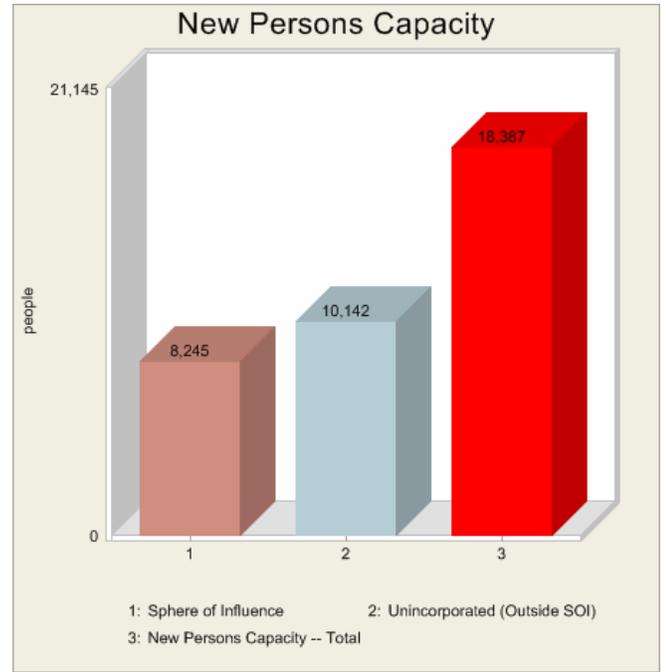
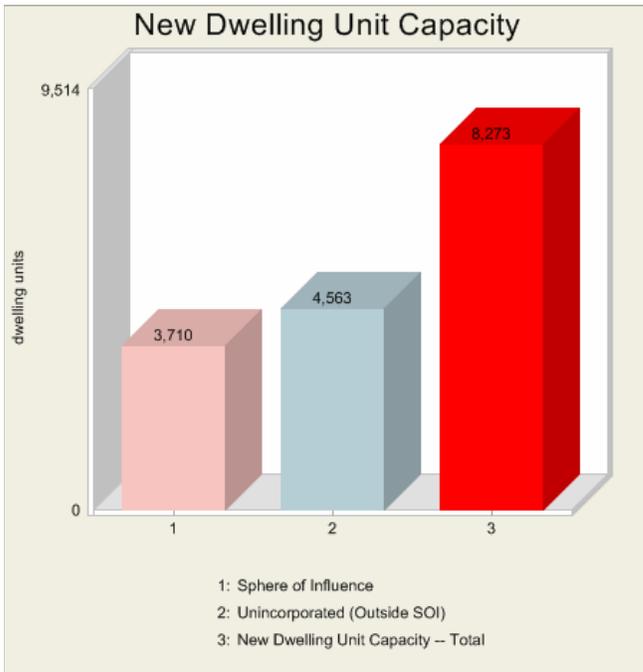
Scenario 4 Results:

Tabular:

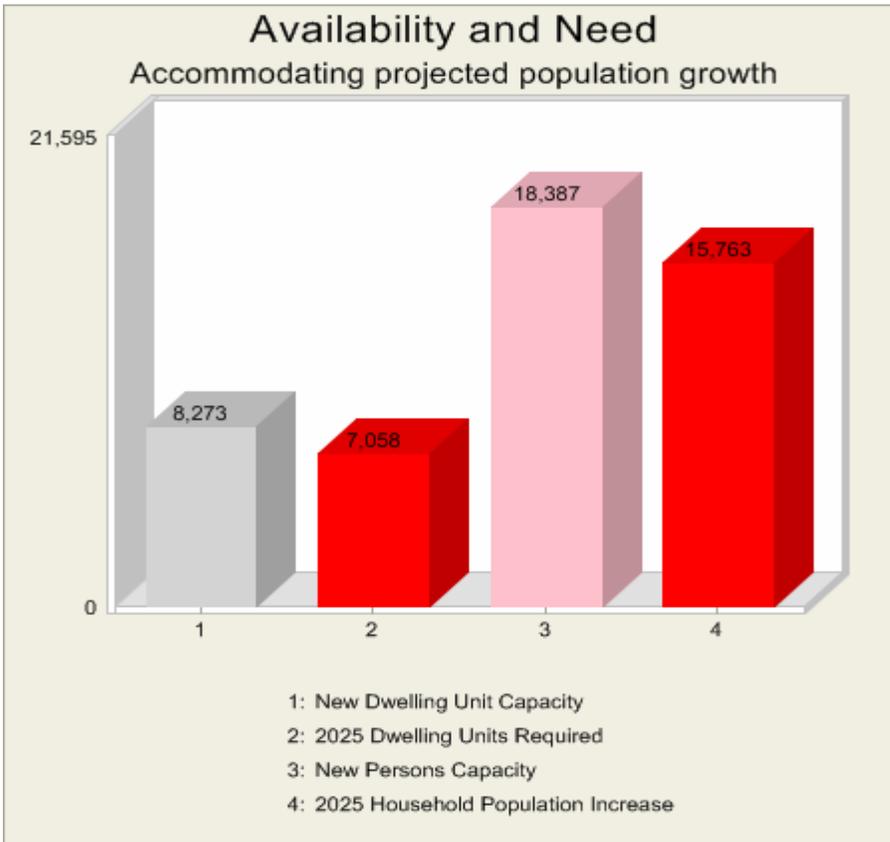
| S4 Indicator | S4 Results |
|---|------------|
| 2025 Household Population Increase | 15,763 |
| 2025 Household Population | 139,481 |
| Persons Per Household | 2.39 |
| 2025 Dwelling Units Required -- Total | 7,058 |
| Developable land -- Unincorporated (acres) | 912.84 |
| Developable land -- Sphere of Influence (acres) | 741.95 |
| Developable Land -- Total (acres) | 1,654.79 |
| New Dwelling Unit Capacity -- Unincorporated | 4,563 |
| New Dwelling Unit Capacity -- Sphere of Influence | 3,710 |
| New Dwelling Unit Capacity -- Total | 8,273 |
| New Persons Capacity -- Unincorporated | 10,142 |
| New Persons Capacity -- Sphere of Influence | 8,245 |
| New Persons Capacity -- Total | 18,387 |

Graphical:





Summary Results for Scenario 4:



Scenario 5

S5 Synopsis:

This scenario uses the same assumptions as were used in Scenario 4 with the exception of the average density of new development, which has been changed from an average of 5 units per acre to 10 units per acre. The purpose of this scenario is to determine whether a relatively high growth rate can be accommodated in a way which would still allow for future growth beyond the 20 year horizon of the current General Plan update.

Conclusion:

Humboldt County **would** be able to accommodate the 2025 projected population growth given the assumptions made in this scenario.

S5 Assumption Highlights:

- Assumed housing density of 10 D.U. per acre
- Assumed annual growth rate of 1%.
- Assumes that no development will occur outside of residentially zoned parcels that are currently serviced by both sewer and water.
- Assumed % of Population to Immigrate to Unincorporated Humboldt County of 54%
- Each development constraint was calculated using the average of the respective constraints identified in the County Restraints Study for the McKinleyville and Eureka CPAs.

Detailed Assumptions:

| S5 Assumption | S5 Value |
|--|------------------------|
| Improvement Value Required for Vacancy | 0 |
| Only Evaluate Parcels this Distance From Sewer & Water | -1 |
| Only Evaluate Residentially Zoned Parcels | TRUE |
| 2000 Household Population | 122,445 |
| 2000 Households | 51,238 |
| Current Household Population | 125,611 |
| Method Used to Determine 2025 Household Population | Growth Rate Assumption |
| Growth Rate | 1% |
| % of Pop. to Immigrate to Unincorporated | 54% |
| Vacancy Rate | 7% |
| Housing Density --Sewered | 10 D.U./acre |
| Environmental Constraints | 30.15 |
| Owner Constraints | 11.24 |

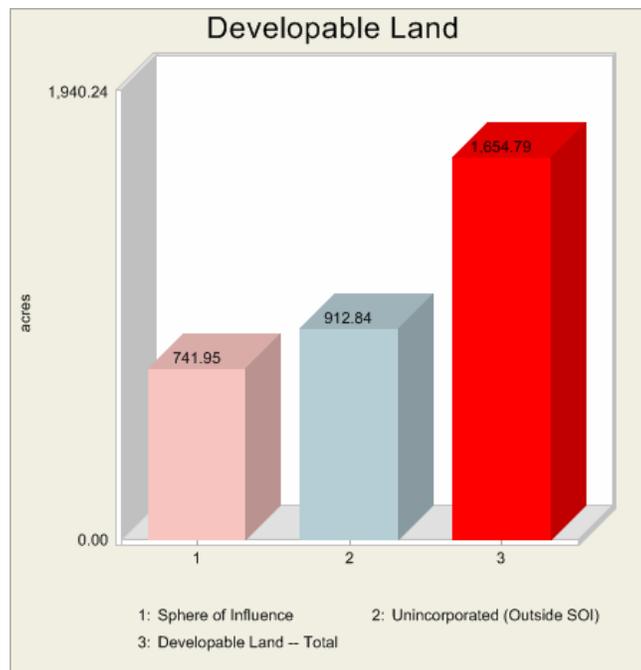
| | |
|---------------------------------|-------|
| Developed Parcel Constraints | 6.50 |
| Additional Physical Constraints | 12.66 |

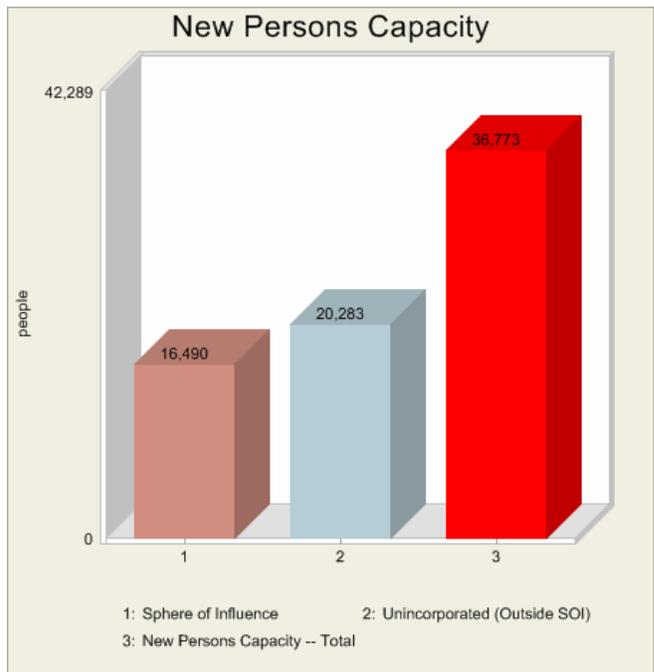
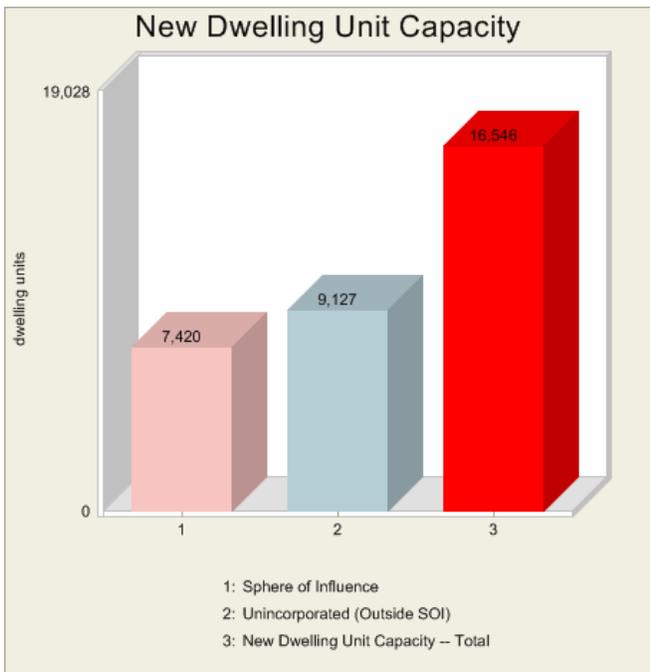
Scenario 5 Results:

Tabular:

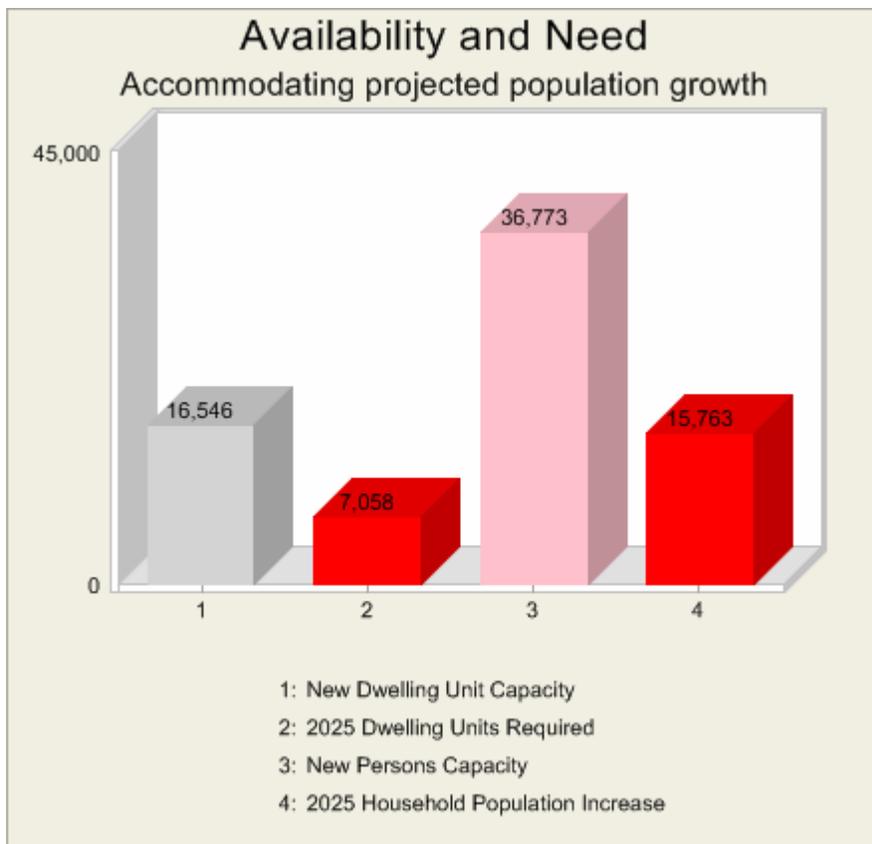
| S5 Indicator | S5 Results |
|---|------------|
| 2025 Household Population Increase | 15,763 |
| 2025 Household Population | 154,802 |
| Persons Per Household | 2.39 |
| 2025 Dwelling Units Required -- Total | 7,058 |
| Developable land -- Unincorporated (acres) | 912.84 |
| Developable land -- Sphere of Influence (acres) | 741.95 |
| Developable Land -- Total (acres) | 1,654.79 |
| New Dwelling Unit Capacity -- Unincorporated | 9,127 |
| New Dwelling Unit Capacity -- Sphere of Influence | 7,420 |
| New Dwelling Unit Capacity -- Total | 16,546 |
| New Persons Capacity -- Unincorporated | 20,283 |
| New Persons Capacity -- Sphere of Influence | 16,490 |
| New Persons Capacity -- Total | 36,773 |

Graphical:





Summary Results for Scenario 5:



Scenario 6

Synopsis:

This scenario uses the same assumptions as were used in Scenario 2 with the exception of annual growth rate, which has been changed from 0.5% per year to 2.0% per year. Thus, this scenario examines the possibility of a dramatically higher population growth rate than projected by the State.

Conclusion:

Humboldt County **would not** be able to accommodate the 2025 projected population growth given the assumptions made in this scenario.

S6 Assumption Highlights:

- Assumed annual growth rate of 2.0% per year.
- All other assumptions are the same as those used in Scenario 2.

Detailed Assumptions:

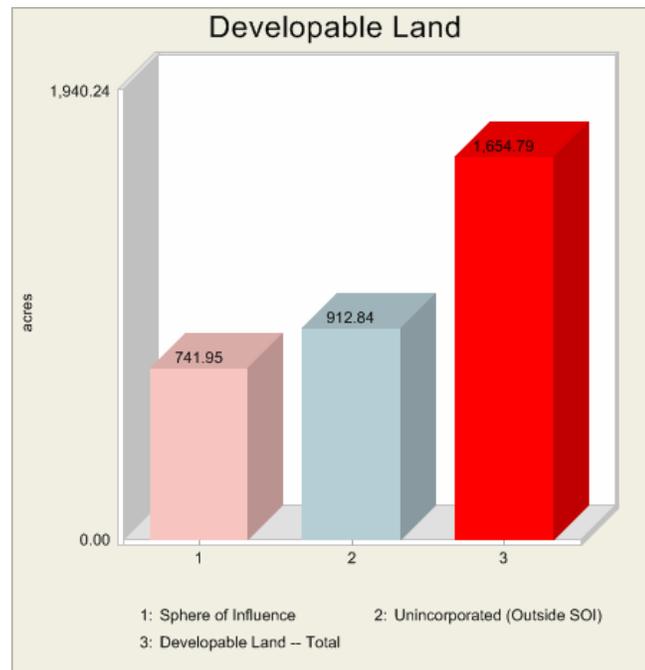
| S6 Assumption | S6 Value |
|--|------------------------|
| Improvement Value Required for Vacancy | 0 |
| Only Evaluate Parcels this Distance From Sewer & Water | -1 |
| Only Evaluate Residentially Zoned Parcels | TRUE |
| 2000 Household Population | 122,445 |
| 2000 Households | 51,238 |
| Current Household Population | 125,611 |
| Method Used to Determine 2025 Household Population | Growth Rate Assumption |
| Growth Rate | 2.0% |
| % of Pop. to Migrate to Unincorporated | 54% |
| Vacancy Rate | 7% |
| Housing Density --Sewered | 5 D.U./acre |
| Environmental Constraints | 30.15 |
| Owner Constraints | 11.24 |
| Developed Parcel Constraints | 6.50 |
| Additional Physical Constraints | 12.66 |

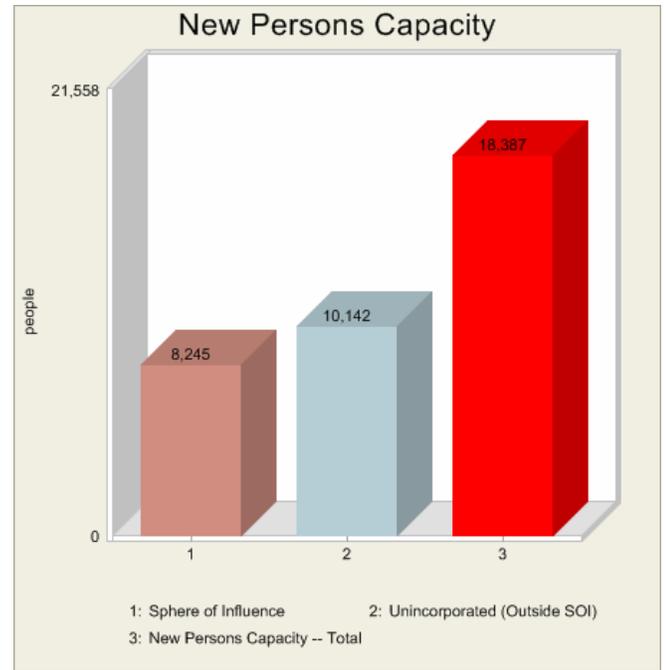
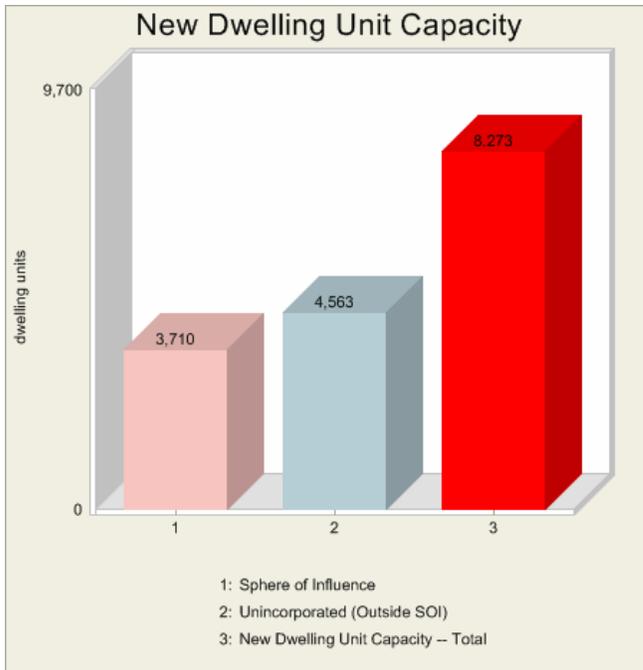
Scenario 6 Results:

Tabular:

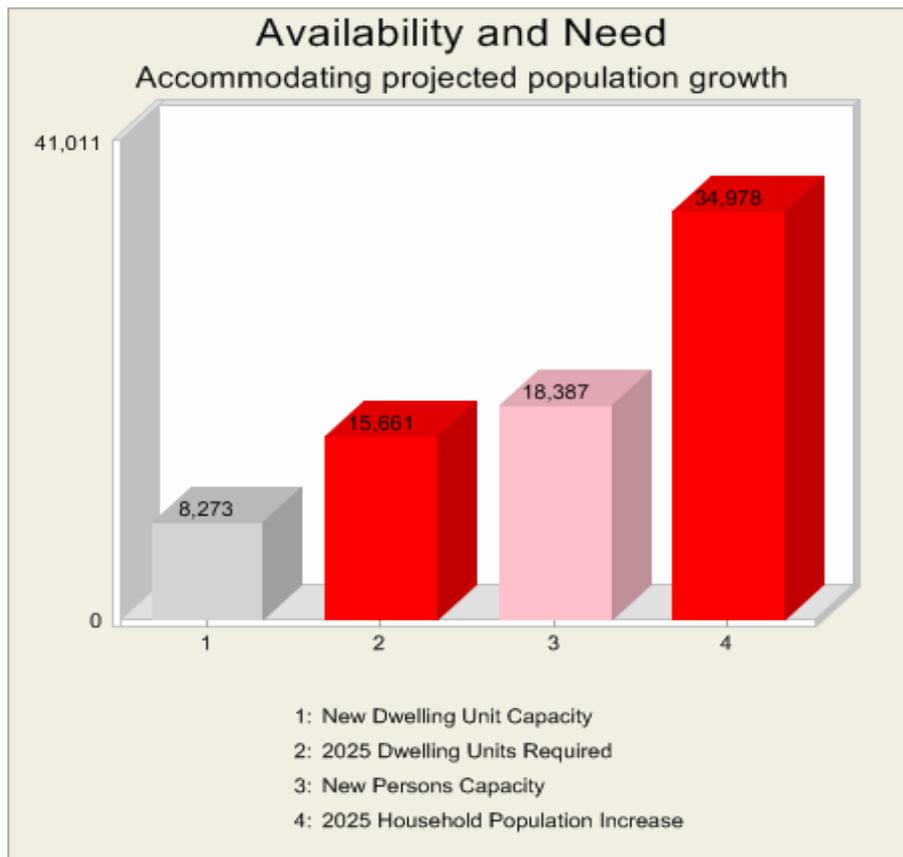
| S6 Indicator | S6 results |
|---|------------|
| 2025 Household Population Increase | 34,978 |
| 2025 Household Population | 190,384 |
| Persons Per Household | 2.39 |
| 2025 Dwelling Units Required -- Total | 15,661 |
| Developable land -- Unincorporated (acres) | 912.84 |
| Developable land -- Sphere of Influence (acres) | 741.95 |
| Developable Land -- Total (acres) | 1,654.79 |
| New Dwelling Unit Capacity -- Unincorporated | 4,563 |
| New Dwelling Unit Capacity -- Sphere of Influence | 3,710 |
| New Dwelling Unit Capacity -- Total | 8,273 |
| New Persons Capacity -- Unincorporated | 10,142 |
| New Persons Capacity -- Sphere of Influence | 8,245 |
| New Persons Capacity -- Total | 18,387 |

Graphical:





Summary Results for Scenario 6:



Scenario 7

S7 Synopsis:

The results of Scenario 6 indicate that under the assumption of a 2.0% annual growth rate, it would not be possible to accommodate that rate of population growth in Humboldt County if future development were to be restricted to areas currently serviced by sewer and water at an average density of 5 units per acre. This scenario therefore uses the same assumptions that were used in Scenario 6, with the exception of adding parcels outside existing areas currently served by sewer and water. In all previous scenarios, the assumption was that development would be restricted to those parcels which are currently serviced by sewer and water.

Essentially, this scenario examines an alternative means for accommodating the projected population growth for 2025 under the assumption of a 2.0% growth rate by considering for development those parcels which are within 1 mile of areas currently serviced by sewer and water (a parcel must still meet other criteria such as zoning, and vacancy). In this scenario, housing density in areas not currently serviced by sewer and water is assumed to be the same as areas with current sewer and water service – an average density of 5 units per acre.

The results demonstrate that when residentially zoned vacant parcels that are within 1 mile of areas currently serviced by sewer and water are considered for development at a density of 5 units per acre, it sufficiently increases the new dwelling unit capacity to a level that would be required to provide housing for the 34,978 new persons that would require housing under a 2.0% assumed growth rate.

Conclusion:

Humboldt County **would** be able to accommodate the 2025 projected population growth given the assumptions made in this scenario.

Assumption Highlights:

- Assumed annual growth rate of 2% per year.
- Parcels that are within 1 mile of areas currently serviced by sewer and water are considered for development.
- Assumed housing density for currently unsewered parcels of 5 D.U. per acre.
- Assumed housing density for sewerred parcels remains at 5 D.U. per acre.
- All other assumptions are the same as those used in Scenario 6.

Detailed Assumptions:

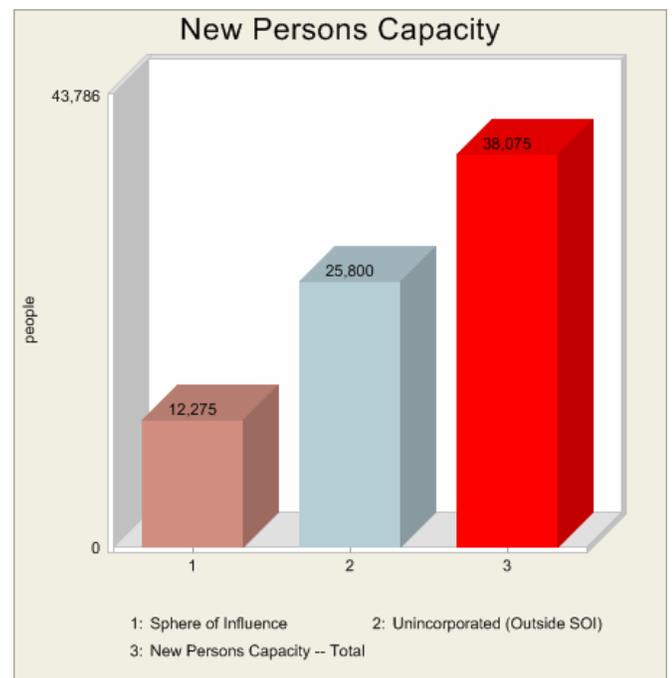
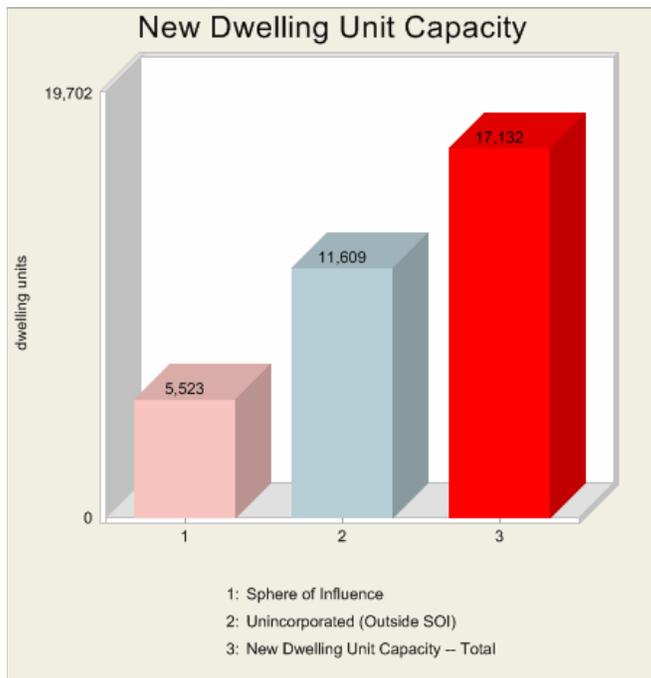
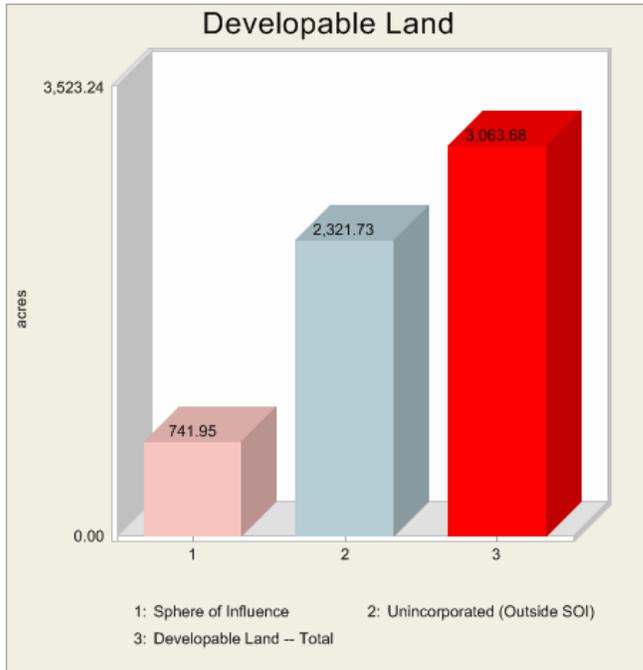
| S7 Assumption | S7 Value |
|--|------------------------|
| Improvement Value Required for Vacancy | 0 |
| Only Evaluate Parcels this Distance From Sewer & Water | 1 mile |
| Only Evaluate Residentially Zoned Parcels | TRUE |
| 2000 Household Population | 122,445 |
| 2000 Households | 51,238 |
| Current Household Population | 125,611 |
| Method Used to Determine 2025 Household Population | Growth Rate Assumption |
| Growth Rate | 2.0% |
| % of Pop. to Immigrate to Unincorporated | 54% |
| Vacancy Rate | 7% |
| Housing Density --Sewered | 5 D.U./acre |
| Housing Density --Unsewered | 5 D.U./acre |
| Environmental Constraints | 30.15 |
| Owner Constraints | 11.24 |
| Developed Parcel Constraints | 6.50 |
| Additional Physical Constraints | 12.66 |

Scenario 7 Results:

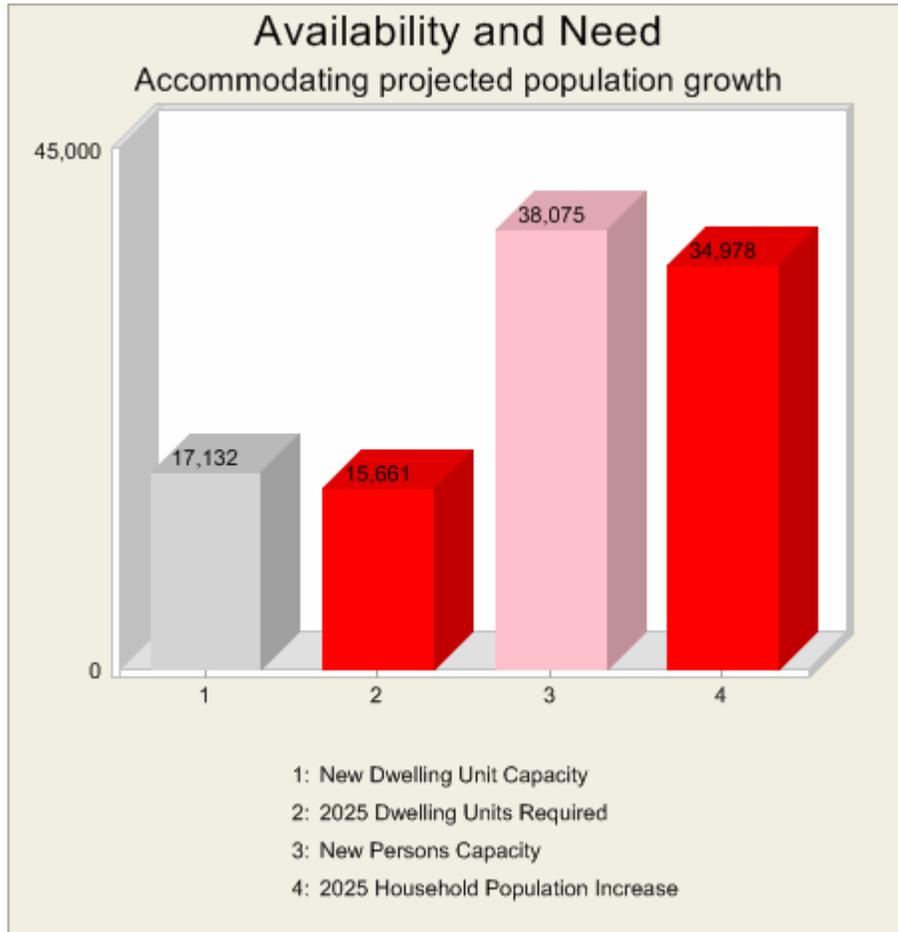
Tabular:

| S7 Indicator | S7 Results |
|---|-------------------|
| 2025 Household Population Increase | 34,978 |
| 2025 Household Population | 190,384 |
| Persons Per Household | 2.39 |
| 2025 Dwelling Units Required -- Total | 15,661 |
| Developable land -- Unincorporated (acres) | 2,321.73 |
| Developable land -- Sphere of Influence (acres) | 741.95 |
| Developable Land --Total (acres) | 3,063.68 |
| New Dwelling Unit Capacity -- Unincorporated | 11,609 |
| New Dwelling Unit Capacity -- Sphere of Influence | 5,523 |
| New Dwelling Unit Capacity -- Total | 17,132 |
| New Persons Capacity -- Unincorporated | 25,800 |
| New Persons Capacity -- Sphere of Influence | 12,275 |
| New Persons Capacity -- Total | 38,075 |

Graphical:



Summary Results for Scenario 7:



Scenario 8

Synopsis:

The results of Scenario 6 indicate that under the assumption of a 2.0% annual growth rate, it would not be possible to accommodate expected population growth in Humboldt County by the year 2025 if future development were to be restricted to areas currently serviced by sewer and water at a density of 5 units per acre. This scenario therefore uses the same assumptions as were used in Scenario 6, with the exception of housing density, which has been set to the lowest possible value (rounded to the nearest 10th units per acre) that would be required in order to meet the projected population increase under the assumption of a 2.0% growth rate. A separate evaluation indicated that the lowest possible average density value, rounded to the nearest 10th units per acre, is 9.6 units per acre.

Conclusion:

Humboldt County **would** be able to accommodate the 2025 projected population growth given the assumptions made in this scenario (at a development density average of 9.6 units per acre).

Assumption Highlights:

- Assumed annual growth rate of 2% per year.
- Assumed housing density of 9.6 D.U. per acre.
- All other assumptions are the same as those used in Scenario 6.

Detailed Assumptions:

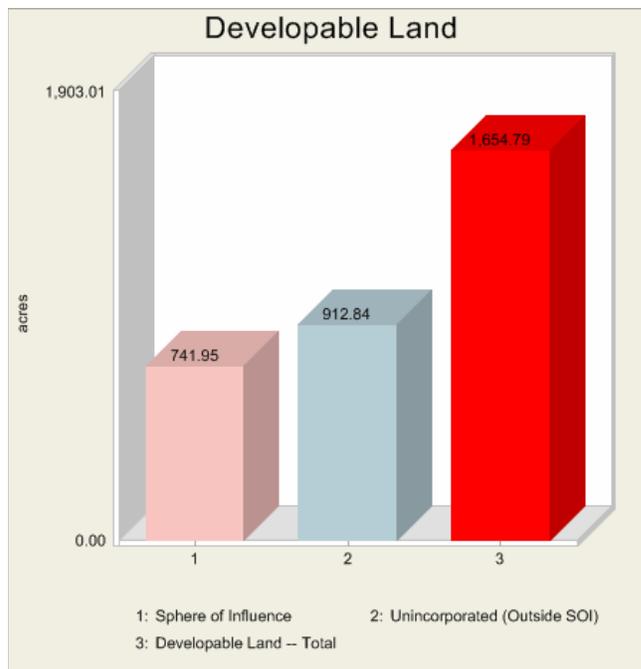
| S8 Assumption | S8 Value |
|--|------------------------|
| Improvement Value Required for Vacancy | 0 |
| Only Evaluate Parcels this Distance From Sewer & Water | -1 |
| Only Evaluate Residentially Zoned Parcels | TRUE |
| 2000 Household Population | 122,445 |
| 2000 Households | 51,238 |
| Current Household Population | 125,611 |
| Method Used to Determine 2025 Household Population | Growth Rate Assumption |
| Growth Rate | 2.0% |
| % of Pop. to Migrate to Unincorporated | 54% |
| Vacancy Rate | 7% |
| Housing Density --Sewered | 9.6 D.U./acre |
| Environmental Constraints | 30.15 |
| Owner Constraints | 11.24 |
| Developed Parcel Constraints | 6.50 |
| Additional Physical Constraints | 12.66 |

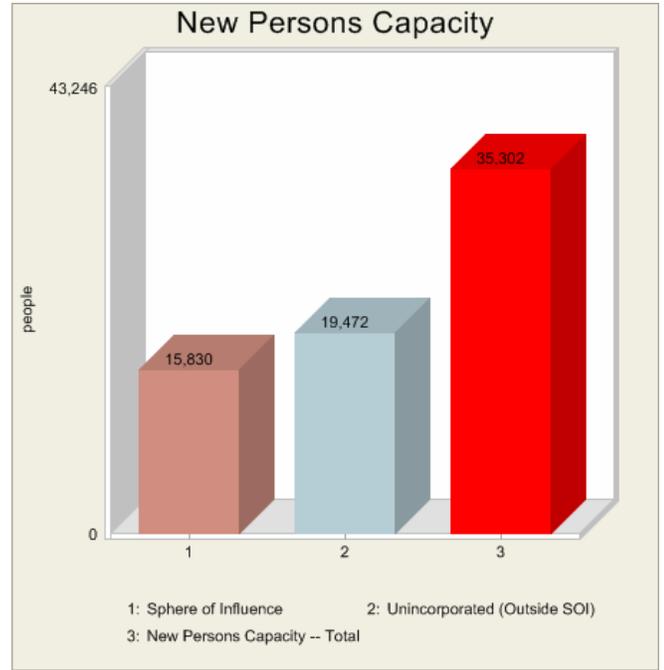
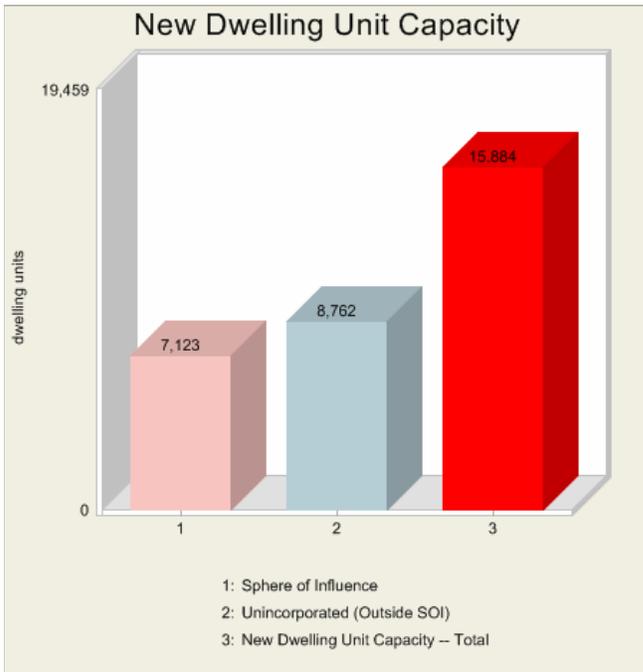
Scenario 8 Results:

Tabular:

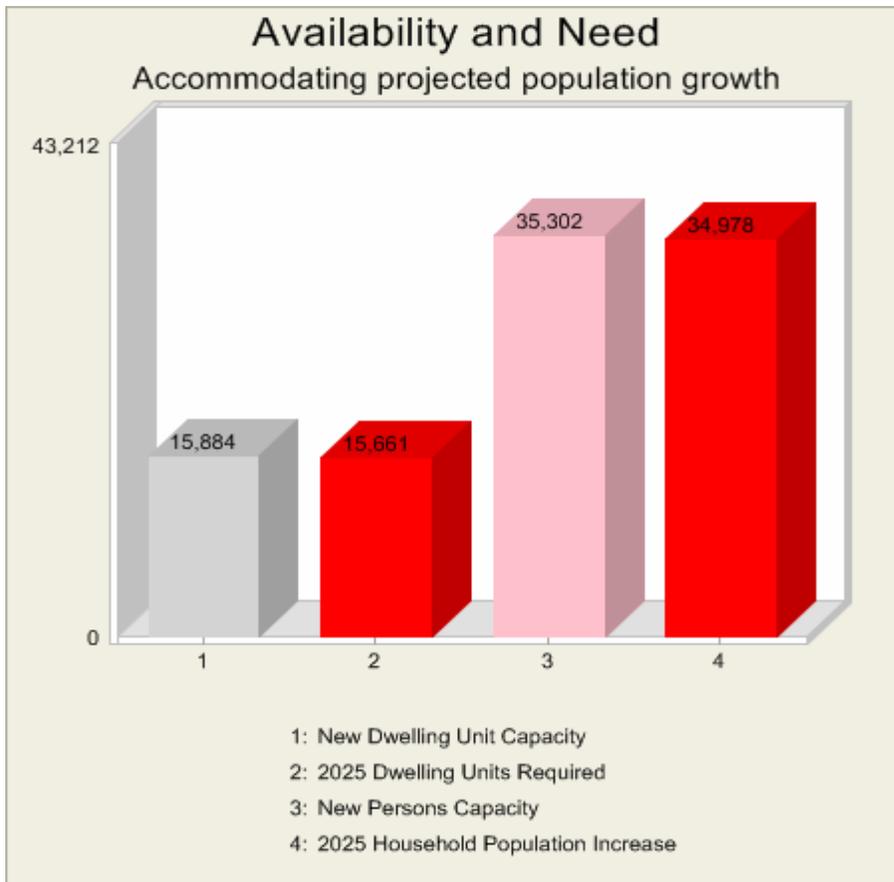
| S8 Indicator | S8 Results |
|---|------------|
| 2025 Household Population Increase | 34,978 |
| 2025 Household Population | 190,384 |
| Persons Per Household | 2.39 |
| 2025 Dwelling Units Required -- Total | 15,661 |
| Developable land -- Unincorporated (acres) | 912.84 |
| Developable land -- Sphere of Influence (acres) | 741.95 |
| Developable Land -- Total (acres) | 1,654.79 |
| New Dwelling Unit Capacity -- Unincorporated | 8,762 |
| New Dwelling Unit Capacity -- Sphere of Influence | 7,123 |
| New Dwelling Unit Capacity -- Total | 15,884 |
| New Persons Capacity -- Unincorporated | 19,472 |
| New Persons Capacity -- Sphere of Influence | 15,830 |
| New Persons Capacity -- Total | 35,302 |

Graphical:





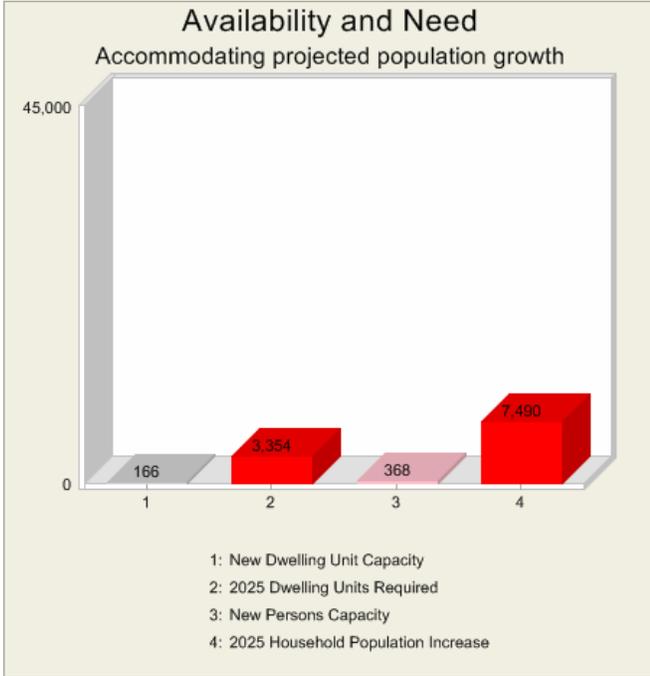
Summary Results for Scenario 8:



Scenario Summaries:

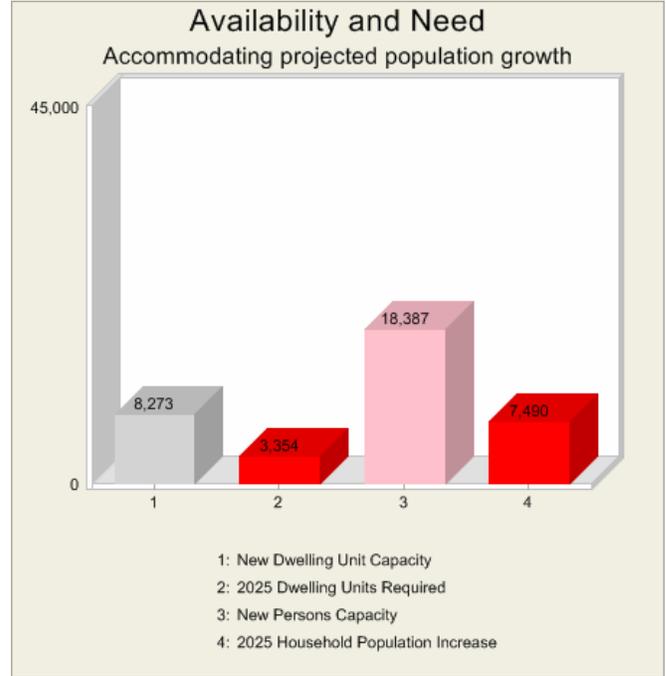
Scenario 1:

Annual Growth Rate = 0.5 %
Density = 0.1 D.U. per acre



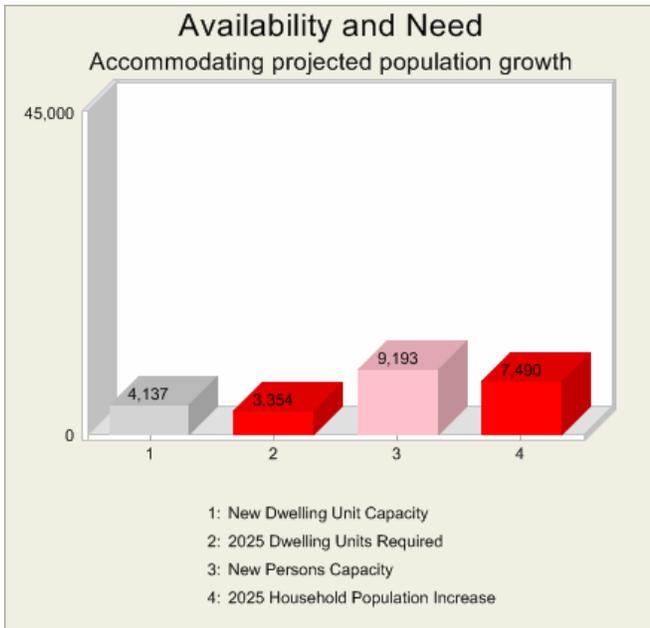
Scenario 2:

Annual Growth Rate = 0.5 %
Density = 5 D.U. per acre



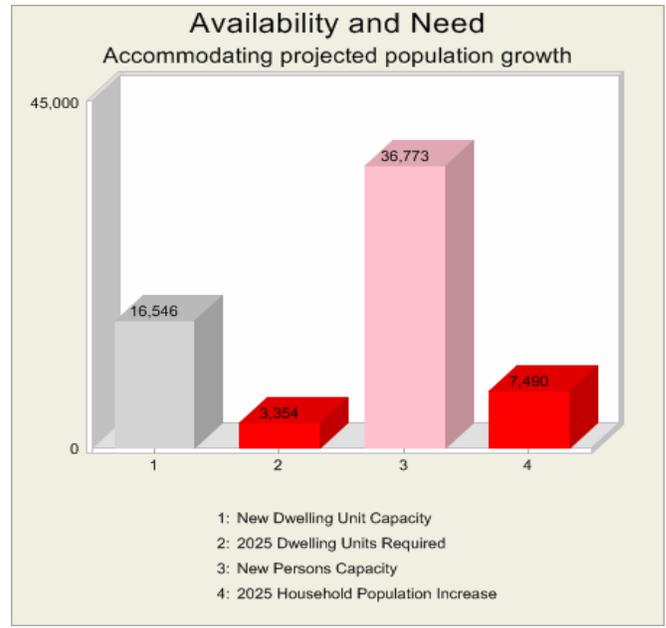
Scenario 3:

Annual growth rate = 0.5 %
Density = 2.5 D.U. per acre



Scenario 4:

Annual growth rate = 1.0 %
Density = 5 D.U. per acre



Scenario 5:

Annual growth rate = 1.0 %

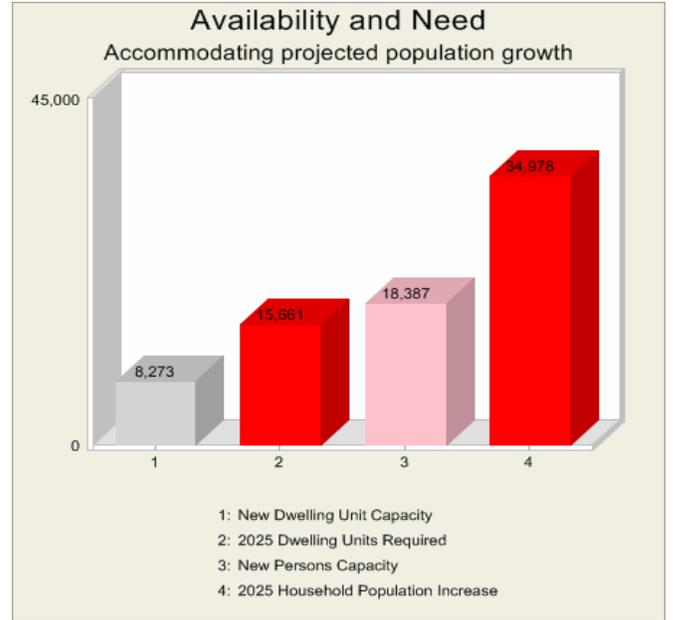
Density = 10 D.U. per acre



Scenario 6:

Annual growth rate = 2.0 %

Density = 5 D.U. per acre



Scenario 7:

Annual growth rate = 2.0 %

Density (Sewered) = 5 D.U. per acre

Density (Unsewered) = 5 D.U. per acre

Distance from Sewer and Water = 1 mile



Scenario 8:

Annual growth rate = 2.0 %

Density = 9.6 D.U. per acre



SECTION 6: CONCLUSION

The most important finding of the analysis presented here is that under a range of likely future population growth and development scenarios, ***Humboldt County can easily accommodate growth with moderate housing densities on existing residentially-zoned lands within existing sewer and water serviced-areas while protecting agricultural, timber, and open space lands.*** This is true even when 60 percent of the total available land is excluded due to various development constraints. And, the majority of this development could occur at a density level that residents would likely find compatible with the “rural” character of Humboldt County communities.

For example, under one of the most likely growth and development scenarios, assuming the State-forecasted rate of 0.5 percent annual population growth rate and an average density of 5 units built per acre, ***8,273 housing units could be accommodated but only 3,354 units are needed.*** Thus, there is a substantial surplus of available land, even when development is limited to existing sewer and water-serviced areas and significant development constraints are factored in².

The results also show that even if population growth rates turn out to be significantly higher than those forecast by the California Department of Finance, that growth could still be accommodated without converting substantial amounts of agricultural, timber, and open space lands. For example, if the population growth rate turns out to be twice the rate predicted by the State (1% vs. 0.5%), in the scenarios we created, there is more than enough land to accommodate the increase. If the growth rate turns out to be substantially higher than current State predictions (four times higher, or 2% vs. 0.5%), that population growth could still be accommodated without a significant expansion onto resource production and open space lands by increasing the average density of new development, or by moderately expanding development outside of current sewer and water-serviced areas.

Another key finding from another of our scenarios shows that if we keep developing at densities similar to what the County has permitted between 1985-2000 (approximately 1 housing unit per 10 acres), we will fall far short of projected housing needs: ***we would need to build 3,354 housing units, but we could only build 166 units (less than 5 percent of the need) at historical density levels.*** In order to meet the projected housing need under this scenario, over 30,000 acres outside of existing residentially-zoned land in sewer and water district-serviced areas would need to be developed. Clearly, if the public

² Due to the large number of undeveloped residential parcels in the isolated Shelter Cove subdivision in the southwestern part of the county, we were initially concerned that a large proportion of the acreage identified as available for development might be located there. If this were true, it might overestimate the total amount of development potential since these parcels would likely continue being built-out at their historically low development densities. However, an examination of our model runs in the scenarios where new development is limited to areas within existing sewer and water service districts shows only 13% of the total acreage (216 acres out of a total of 1,660 acres countywide) are located in Shelter Cove. Thus, even if all of this acreage were removed from the analysis, in most of the scenarios we analyzed there would still be more than enough land available to meet development needs.

and County decision-makers desire to protect substantial amounts of resource production and open space lands, and if they want to provide more affordable housing opportunities, future development will need to be built at a higher density than what has been permitted in the past fifteen years.

If new housing is built at the moderate average density (5 units per acre) that we use in many of our development scenarios, it is likely that in addition to the benefit of preserving existing agricultural, timber, and open space lands, there will be substantial economic benefits as well. For example, many infrastructure costs (such as roads, sewer and water lines, police and fire protection) will likely be substantially lower if new development is built within and adjacent to existing developed areas and at a higher density than the extremely-low density that was permitted between 1985-2000. Also, such housing is likely to be more affordable as lot sizes will be somewhat smaller than historical development patterns, significantly reducing one of the key components of housing cost (cost of land).

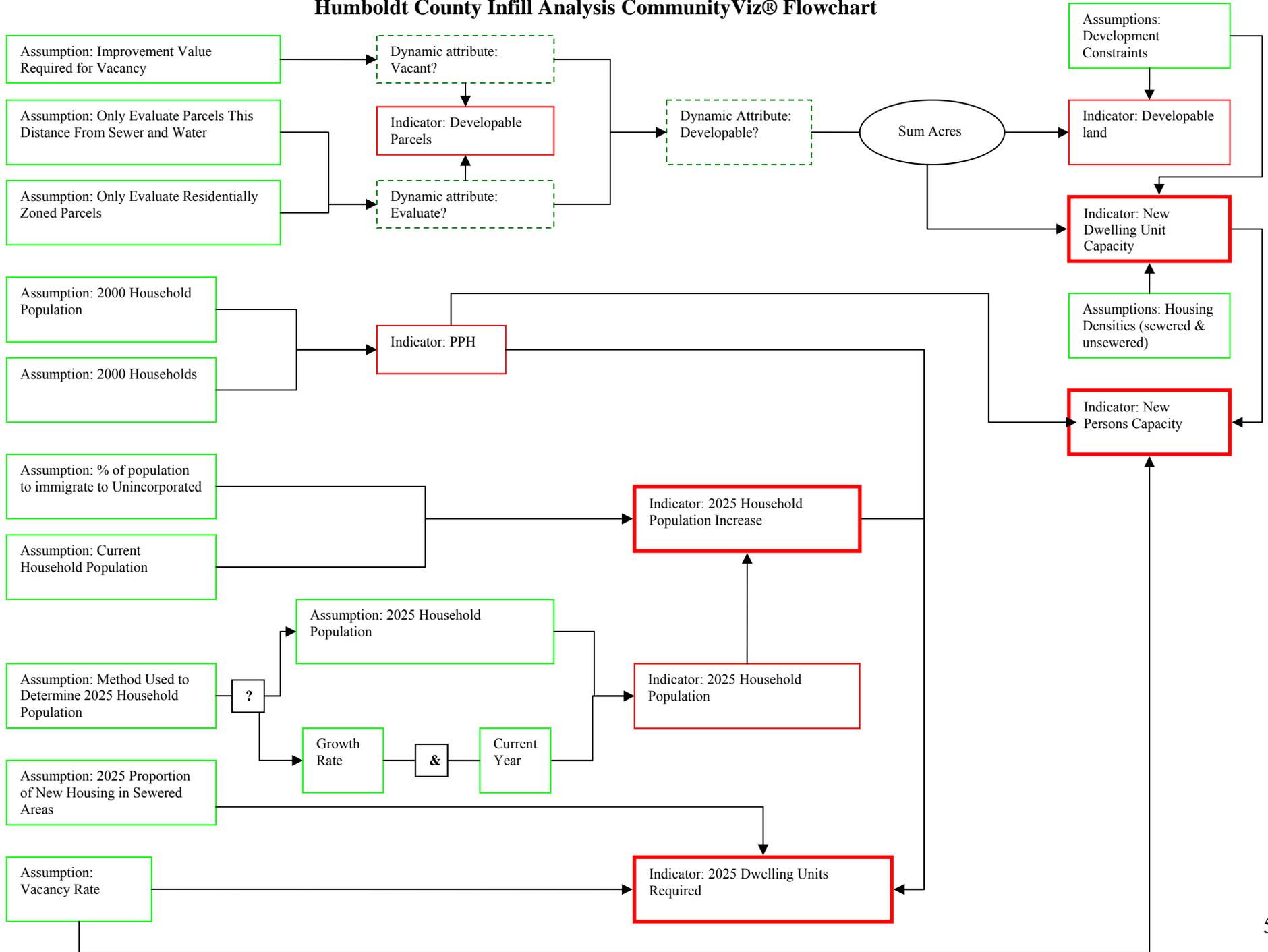
Our use of the CommunityViz® software package for this analysis provides a transparent method for analyzing various growth scenarios. Although we have made every effort to be extremely detailed and specific about the methods and data we have used, one of the strengths of the software program is its ability to change assumptions “on-the-fly.” Therefore, if some of our facts or figures are disputed by readers and reviewers of this report, we are prepared to use this software to work with these groups and individuals to arrive at assumptions, methods, and data that all can agree with in order to provide accurate forecasts of the development potential of existing residential land in the county. Thus, we hope that the results presented here will lead to future productive discussions on how to accommodate future population growth while protecting the rural qualities that make Humboldt County such a special place to live.

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Appendix A: Humboldt County Infill Analysis CommunityViz® Flowchart

Humboldt County Infill Analysis CommunityViz® Flowchart



Appendix B: Indicator Formulas

Demographics:

New Persons Capacity – Incorporated

([Indicator:New Dwelling Unit Capacity -- Incorporated] -
[Indicator:New Dwelling Unit Capacity -- Incorporated] *
[Assumption:Vacancy Rate] / 100)

* [Indicator:Persons Per Household]

New Persons Capacity -- SOI

([Indicator:New Dwelling Unit Capacity -- Sphere of Influence] -
[Indicator:New Dwelling Unit Capacity -- Sphere of Influence] *
[Assumption:Vacancy Rate] / 100)

*

[Indicator:Persons Per Household]

New Persons Capacity -- Unincorporated

([Indicator:New Dwelling Unit Capacity -- Unincorporated] - ([Indicator:New Dwelling Unit Capacity
-- Unincorporated] * [Assumption:Vacancy Rate] / 100))

* [Indicator:Persons Per Household]

New Persons Capacity -- Total

[Indicator:New Persons Capacity -- Incorporated] + [Indicator:New Persons Capacity -- Sphere of
Influence] + [Indicator:New Persons Capacity -- Unincorporated]

Persons Per Household

[Assumption:2000 Household Population] / [Assumption:2000 Households]

Housing:

New Dwelling Unit Capacity -- Incorporated

(Sum ([Attribute>Last_try_parcel_LIS3:real_acres],
Where ([Attribute>Last_try_parcel_LIS3:Incorp_Unincorp] = "I"
And [Attribute>Last_try_parcel_LIS3:is_vacant_] = 1
And [Attribute>Last_try_parcel_LIS3:Evaluate_] = 1
And [Attribute>Last_try_parcel_LIS3:is_Sewer_] = Yes))

-

(Sum ([Attribute>Last_try_parcel_LIS3:real_acres],
Where ([Attribute>Last_try_parcel_LIS3:Incorp_Unincorp] = "I"
And [Attribute>Last_try_parcel_LIS3:is_vacant_] = 1
And [Attribute>Last_try_parcel_LIS3:Evaluate_] = 1
And [Attribute>Last_try_parcel_LIS3:is_Sewer_] = Yes))

* ([Assumption:Additional Physical Constraints] / 100 + [Assumption:Developed Parcel Constraints]
/ 100 + [Assumption:Environmental Constraints] / 100 + [Assumption:Owner Constraints] / 100)

```

))
* [ Assumption:Housing Density --Sewered ]
+
(( Sum ( [ Attribute:Last_try_parcel_LIS3:real_acres ],
Where ( [ Attribute:Last_try_parcel_LIS3:Incorp_Unincorp ] = "I"
And [ Attribute:Last_try_parcel_LIS3:is_vacant_ ] = 1
And [ Attribute:Last_try_parcel_LIS3:Evaluate_ ] = 1
And [ Attribute:Last_try_parcel_LIS3:is_Sewer_ ] = No ) )
-
( Sum ( [ Attribute:Last_try_parcel_LIS3:real_acres ],
Where ( [ Attribute:Last_try_parcel_LIS3:Incorp_Unincorp ] = "I"
And [ Attribute:Last_try_parcel_LIS3:is_vacant_ ] = 1
And [ Attribute:Last_try_parcel_LIS3:Evaluate_ ] = 1
And [ Attribute:Last_try_parcel_LIS3:is_Sewer_ ] = No ) )

* ( [ Assumption:Additional Physical Constraints ] / 100 + [ Assumption:Developed Parcel Constraints ]
/ 100 + [ Assumption:Environmental Constraints ] / 100 + [ Assumption:Owner Constraints ] / 100 ) )

* [ Assumption:Housing Density -- Unsewered ]
)

```

New Dwelling Unit Capacity -- SOI

```

( Sum ( [ Attribute:Last_try_parcel_LIS3:real_acres ],
Where ( [ Attribute:Last_try_parcel_LIS3:Incorp_Unincorp ] = "U"
And [ Attribute:Last_try_parcel_LIS3:SOI_ ] = Yes
And [ Attribute:Last_try_parcel_LIS3:is_Vacant_ ] = 1
And [ Attribute:Last_try_parcel_LIS3:Evaluate_ ] = 1
And [ Attribute:Last_try_parcel_LIS3:is_Sewer_ ] = Yes ) )
-
( Sum ( [ Attribute:Last_try_parcel_LIS3:real_acres ],
Where ( [ Attribute:Last_try_parcel_LIS3:Incorp_Unincorp ] = "U"
And [ Attribute:Last_try_parcel_LIS3:SOI_ ] = Yes
And [ Attribute:Last_try_parcel_LIS3:is_Vacant_ ] = 1
And [ Attribute:Last_try_parcel_LIS3:Evaluate_ ] = 1
And [ Attribute:Last_try_parcel_LIS3:is_Sewer_ ] = Yes ) )

* ( [ Assumption:Additional Physical Constraints ] / 100 + [ Assumption:Developed Parcel Constraints ]
/ 100 + [ Assumption:Environmental Constraints ] / 100 + [ Assumption:Owner Constraints ] / 100 )

))

* [ Assumption:Housing Density --Sewered ]

+

(( Sum ( [ Attribute:Last_try_parcel_LIS3:real_acres ],
Where ( [ Attribute:Last_try_parcel_LIS3:Incorp_Unincorp ] = "U"
And [ Attribute:Last_try_parcel_LIS3:SOI_ ] = Yes
And [ Attribute:Last_try_parcel_LIS3:is_Vacant_ ] = 1
And [ Attribute:Last_try_parcel_LIS3:Evaluate_ ] = 1
And [ Attribute:Last_try_parcel_LIS3:is_Sewer_ ] = No ) )
-
( Sum ( [ Attribute:Last_try_parcel_LIS3:real_acres ],
Where ( [ Attribute:Last_try_parcel_LIS3:Incorp_Unincorp ] = "U"
And [ Attribute:Last_try_parcel_LIS3:SOI_ ] = Yes
And [ Attribute:Last_try_parcel_LIS3:is_Vacant_ ] = 1
And [ Attribute:Last_try_parcel_LIS3:Evaluate_ ] = 1
And [ Attribute:Last_try_parcel_LIS3:is_Sewer_ ] = No ) )

```

* ([Assumption:Additional Physical Constraints] / 100 + [Assumption:Developed Parcel Constraints] / 100 + [Assumption:Environmental Constraints] / 100 + [Assumption:Owner Constraints] / 100))
 * [Assumption:Housing Density -- Unsewered]
)

New Dwelling Unit Capacity -- Unincorporated

(Sum ([Attribute:Last_try_parcel_LIS3:real_acres],
 Where ([Attribute:Last_try_parcel_LIS3:Incorp_Unincorp] = "U"
And [Attribute:Last_try_parcel_LIS3:SOI_] = No
And [Attribute:Last_try_parcel_LIS3:IS_Vacant_] = 1
And [Attribute:Last_try_parcel_LIS3:Evaluate_] = 1
And [Attribute:Last_try_parcel_LIS3:IS_Sewer_] = Yes))
 -
 (Sum ([Attribute:Last_try_parcel_LIS3:real_acres],
 Where ([Attribute:Last_try_parcel_LIS3:Incorp_Unincorp] = "U"
And [Attribute:Last_try_parcel_LIS3:SOI_] = No
And [Attribute:Last_try_parcel_LIS3:IS_Vacant_] = 1
And [Attribute:Last_try_parcel_LIS3:Evaluate_] = 1
And [Attribute:Last_try_parcel_LIS3:IS_Sewer_] = Yes))
 * ([Assumption:Additional Physical Constraints] / 100 + [Assumption:Developed Parcel Constraints] / 100 + [Assumption:Environmental Constraints] / 100 + [Assumption:Owner Constraints] / 100))
))
 * [Assumption:Housing Density --Sewered]
 +
 ((Sum ([Attribute:Last_try_parcel_LIS3:real_acres],
 Where ([Attribute:Last_try_parcel_LIS3:Incorp_Unincorp] = "U"
And [Attribute:Last_try_parcel_LIS3:SOI_] = No
And [Attribute:Last_try_parcel_LIS3:IS_Vacant_] = 1
And [Attribute:Last_try_parcel_LIS3:Evaluate_] = 1
And [Attribute:Last_try_parcel_LIS3:IS_Sewer_] = No))
 -
 (Sum ([Attribute:Last_try_parcel_LIS3:real_acres],
 Where ([Attribute:Last_try_parcel_LIS3:Incorp_Unincorp] = "U"
And [Attribute:Last_try_parcel_LIS3:SOI_] = No
And [Attribute:Last_try_parcel_LIS3:IS_Vacant_] = 1
And [Attribute:Last_try_parcel_LIS3:Evaluate_] = 1
And [Attribute:Last_try_parcel_LIS3:IS_Sewer_] = No))
 * ([Assumption:Additional Physical Constraints] / 100 + [Assumption:Developed Parcel Constraints] / 100 + [Assumption:Environmental Constraints] / 100 + [Assumption:Owner Constraints] / 100))
 * [Assumption:Housing Density -- Unsewered]
)

New Dwelling Unit Capacity – Total

[Indicator:New Dwelling Unit Capacity -- Incorporated]
 + [Indicator:New Dwelling Unit Capacity -- Unincorporated]
 + [Indicator:New Dwelling Unit Capacity -- Sphere of Influence]

Land:

Developable land – Incorporated

Sum ([Attribute:Last_try_parcel_LIS3:real_acres], **Where** ([Attribute:Last_try_parcel_LIS3:Incorp_Unincorp] = "I" **And** [Attribute:Last_try_parcel_LIS3:is_Vacant_] = 1 **And** [Attribute:Last_try_parcel_LIS3:Evaluate_] = 1)) -
 (**Sum** ([Attribute:Last_try_parcel_LIS3:real_acres], **Where** ([Attribute:Last_try_parcel_LIS3:Incorp_Unincorp] = "I" **And** [Attribute:Last_try_parcel_LIS3:is_Vacant_] = 1 **And** [Attribute:Last_try_parcel_LIS3:Evaluate_] = 1))
 * ([Assumption:Additional Physical Constraints] / 100 + [Assumption:Developed Parcel Constraints] / 100 + [Assumption:Environmental Constraints] / 100 + [Assumption:Owner Constraints] / 100))

Developable land – Unincorporated

Sum ([Attribute:Last_try_parcel_LIS3:real_acres], **Where** ([Attribute:Last_try_parcel_LIS3:Incorp_Unincorp] = "U" **And** [Attribute:Last_try_parcel_LIS3:SOI_] = No **And** [Attribute:Last_try_parcel_LIS3:is_Vacant_] = 1 **And** [Attribute:Last_try_parcel_LIS3:Evaluate_] = 1)) -
 (**Sum** ([Attribute:Last_try_parcel_LIS3:real_acres], **Where** ([Attribute:Last_try_parcel_LIS3:Incorp_Unincorp] = "U" **And** [Attribute:Last_try_parcel_LIS3:SOI_] = No **And** [Attribute:Last_try_parcel_LIS3:is_Vacant_] = 1 **And** [Attribute:Last_try_parcel_LIS3:Evaluate_] = 1))
 * ([Assumption:Additional Physical Constraints] / 100 + [Assumption:Developed Parcel Constraints] / 100 + [Assumption:Environmental Constraints] / 100 + [Assumption:Owner Constraints] / 100))

Developable land – SOI

Sum ([Attribute:Last_try_parcel_LIS3:real_acres], **Where** ([Attribute:Last_try_parcel_LIS3:SOI_] = Yes **And** [Attribute:Last_try_parcel_LIS3:is_Vacant_] = 1 **And** [Attribute:Last_try_parcel_LIS3:Evaluate_] = 1)) -
 (**Sum** ([Attribute:Last_try_parcel_LIS3:real_acres], **Where** ([Attribute:Last_try_parcel_LIS3:SOI_] = Yes **And** [Attribute:Last_try_parcel_LIS3:is_Vacant_] = 1 **And** [Attribute:Last_try_parcel_LIS3:Evaluate_] = 1))
 * ([Assumption:Additional Physical Constraints] / 100 + [Assumption:Developed Parcel Constraints] / 100 + [Assumption:Environmental Constraints] / 100 + [Assumption:Owner Constraints] / 100))

Developable Land – Total

[Indicator:Developable Land -- Incorporated] + [Indicator:Developable land -- Sphere of Influence] + [Indicator:Developable land -- Unincorporated]

Parcels:

Developable Parcels – Incorporated

Count ([Layer:Last_try_parcel_LIS3], **Where** ([Attribute:Last_try_parcel_LIS3:Incorp_Unincorp] = "I" **And** [Attribute:Last_try_parcel_LIS3:is_Vacant_] = 1 **And** [Attribute:Last_try_parcel_LIS3:Evaluate_] = 1))

Developable Parcels – SOI

Count ([Layer:Last_try_parcel_LIS3],
Where ([Attribute:Last_try_parcel_LIS3:SOI_] = Yes
And [Attribute:Last_try_parcel_LIS3:is_Vacant_] = 1
And [Attribute:Last_try_parcel_LIS3:Evaluate_] = 1))

Developable Parcels -- Unincorporated

Count ([Layer:Last_try_parcel_LIS3],
Where ([Attribute:Last_try_parcel_LIS3:Incorp_Unincorp] = "U"
And [Attribute:Last_try_parcel_LIS3:SOI_] = No
And [Attribute:Last_try_parcel_LIS3:is_Vacant_] = 1
And [Attribute:Last_try_parcel_LIS3:Evaluate_] = 1))

Developable Parcels – Total

[Indicator:Developable Parcels -- Incorporated]
+ [Indicator:Developable Parcels -- Sphere of Influence]
+ [Indicator:Developable Parcels -- Unincorporated]

Projections:

2025 Dwelling Units Required – Sewered

([Indicator:2025 Dwelling Units Required -- Total] * [Assumption:2025 Proportion of New Housing in Sewered Areas] / 100)

2025 Dwelling Units Required – Unsewered

([Indicator:2025 Dwelling Units Required -- Total] * (1 - ([Assumption:2025 Proportion of New Housing in Sewered Areas] / 100)))

2025 Dwelling Units Required – Total

[Indicator:2025 Household Population Increase] / [Indicator:Persons Per Household]

+

([Indicator:2025 Household Population Increase] / [Indicator:Persons Per Household] * [Assumption:Vacancy Rate] / 100)

2025 Household Population

If ([Assumption:Method Used to Determine 2025 Household Population] = "Growth Rate Assumption",

'formula for compound growth'

Then ([Assumption:Current Household Population] *
(1 + [Assumption:Growth Rate] / 100) ^ (2025 - [Assumption:Current Year])),

Else ([Assumption:2025 Household Population]))

2025 Household Population Increase

([Indicator:2025 Household Population] - [Assumption:Current Household Population])

*

([Assumption:% of Pop. to Immigrate to Unincorporated] / 100)

Appendix C: Dynamic Attribute Formulas

Evaluate_

```
IfThenElse ( If ( [ Attribute:Last_try_parcel_LIS3 ] <= [ Assumption:Only Evaluate Parcels this Distance From Sew & Wat ]  
And [ Assumption:Only Evaluate Residentially Zoned Parcels ] = Yes  
And [ Attribute:Parcels_Zoning_Union:Residential_ ] = 1 ),  
    Then ( Yes ),  
    If ( ( [ Attribute:Last_try_parcel_LIS3 ] > [ Assumption:Only Evaluate Parcels this Distance From Sew & Wat ] ) Or  
    ( [ Assumption:Only Evaluate Residentially Zoned Parcels ] = Yes  
And [ Attribute:Parcels_Zoning_Union:Residential_ ] = 0 ) ),  
    Then ( No ),  
    Else ( Yes ) )
```

Vacant_

```
IfThenElse ( If ( [ Attribute:Real_IMPR ] <= [ Assumption:Improvement Value Required for Vacancy ] ),  
    Then ( 1 ),  
    If ( [ Attribute:Real_IMPR ] > [ Assumption:Improvement Value Required for Vacancy ] ),  
    Then ( 0 ),  
    Else ( IfThenElse ( If ( [ Attribute:vacant_num ] = 1 ),  
        Then ( 1 ),  
        If ( [ Attribute:vacant_num ] = 0 ),  
        Then ( 0 ),  
        Else ( 9 ) ) ) )
```

Developable_

```
If ( [ Attribute:Parcels_Zoning_Union:Evaluate_ ] = Yes  
And [ Attribute:Parcels_Zoning_Union:Vacant_ ] = 1,  
    Then ( 1 ),  
    Else ( 0 ) )
```

Distance_to_water&sewer_or_city

```
( MinDistance ( [ Layer:Union_City_water&sewer ] ) ) * [ Conversion:meters to miles ]
```

Appendix D: Adjustments made to the Parcels Layer

Problem 1: Calculation of the Number of Total Parcels in the County (adjusted for polygons without an APN)

Table 1.1: Total number of Parcels in Unincorporated and Incorporated areas of the county (adjusted for polygons without an APN)

| | Unincorporated | Incorporated | Total |
|--|-----------------------|---------------------|---------------|
| Parcels with a “ZONING” value | 47,429 | 21,480 | 68,909 |
| Parcels without a “ZONING” value (Either no LIS record or no entry)* | 635 | 243 | 878 |
| Total # of Parcels | 48,064 | 21,723 | 69,787 |
| Records with an APN value other than an APN (e.g. ‘state’, ‘canal’) | 10 | 16 | 26 |
| Total # of Parcels with an APN | 48,054 | 21,707 | 69,761 |

*There was no way to determine from the attribute table whether or not a parcel that had no “ZONING” data was part of an incorporated or an unincorporated area. So whether or not a Parcel without a “ZONING” value was considered to be within an incorporated or unincorporated area was determined by performing a spatial query using the “city boundary including spheres” layer. Those parcels without “ZONING” which met the condition of having their center inside an incorporated area (with a 10 meter buffer applied) were considered to be incorporated. Since the “city boundary including spheres” layer does not always perfectly coincide with “ZONING” data in the LIS3 database, the categorization of a parcel without “ZONING” data into either the Unincorporated or Incorporated column is speculative. There are cases however where, for example, a parcel that falls outside of the city limits in the “City boundary including spheres” layer has a “ZONING” value that indicates that it is part of a city.

Problem 2: Calculation of the Number of Total Parcels in the County (adjusted for polygons which share an APN):

Note: Polygons where the APN field is not a valid APN such as those accounted for in “Appendix D: Problem 1” have not been accounted for in this section.

Total Number of Records: 69,787

Action: Dissolve on APN

Report: Number of records that were dissolved: 138

Report: Resulting number of dissolved records: 49 (see table 1-1)

Report: Number of records dropped: $49 - 138 = (-)89$

Total Number of Records (post dissolve): 69,698

Verify: $69,787 - 89 = 69,698$

Conclusion: Total number of polygons with a unique APN = **69,698** (see Table 1.3.2)

Table 2.1: Resulting dissolved Records

| APN | Cnt_APN | APN | Cnt_APN | APN | Cnt_APN | APN | Cnt_APN |
|----------|---------|----------|---------|----------|---------|--------------|------------|
| 01703108 | 2 | 20535116 | 9 | 30704107 | 2 | 31306105 | 2 |
| 01703202 | 2 | 30001114 | 9 | 30706107 | 2 | 31308138 | 2 |
| 01703203 | 4 | 30301103 | 2 | 31101101 | 2 | 40308118 | 2 |
| 01707107 | 2 | 30301201 | 2 | 31102110 | 2 | 50519204 | 2 |
| 01707108 | 2 | 30301205 | 2 | 31122110 | 2 | 50805115 | 2 |
| 01707109 | 3 | 30310105 | 3 | 31122117 | 3 | humco | 2 |
| 01707110 | 2 | 30315102 | 7 | 31123109 | 2 | no patent | 2 |
| 01707203 | 2 | 30315103 | 5 | 31213136 | 2 | river | 2 |
| 01707306 | 3 | 30315104 | 6 | 31219010 | 2 | slough | 3 |
| 01707307 | 2 | 30402102 | 3 | 31303107 | 2 | state | 2 |
| 20338210 | 2 | 30414136 | 5 | 31303108 | 2 | Total | 138 |
| 20338211 | 2 | 30501101 | 5 | 31305112 | 2 | | |
| 20338212 | 2 | 30702121 | 2 | 31306101 | 2 | | |

Table 2.2: Total number of Parcels in Unincorporated and Incorporated areas of the county (adjusted for polygons which share an APN)

| | Unincorporated | Incorporated | Total |
|---|-----------------------|---------------------|---------------|
| Parcels with a "ZONING" value | 47,352 | 21,480 | 68,832 |
| Parcels without a "ZONING" value (Either no LIS record or no entry)* | 629 | 237 | 866 |
| Total # of Parcels | 47,981 | 21,717 | 69,698 |

Summary of adjustments made for problems 1 and 2: Calculation of the Number of Total Parcels in the County (Adjusted for polygons without an APN, and polygons which share an APN):

Table 1.3: Final Summary

| | Unincorporated | Incorporated | Total |
|--|-----------------------|---------------------|---------------|
| Total # of Polygons¹ | 48,064 | 21,723 | 69,787 |
| Number of records dropped following APN dissolve from section 1-2 | N/A | N/A | -89 |
| Records with an APN value other than an APN (e.g. ‘state’, ‘canal’) from section 1-1 AFTER THE DISSOLVE² | N/A | N/A | -20 |
| Total adjusted number of Parcels | N/A | N/A | 69,678 |
| Of the 69,678 total adjusted number of parcels, | | | |
| Total adjusted number of parcels in the county with a “ZONING” value | 47,352 | 21,480 | 68,832 |
| Total adjusted number of parcels in the county without a “ZONING” value | 621 | 225 | 846 |
| Total adjusted number of parcels | 47,973 | 21,705 | 69,678 |

¹ Includes polygons which had no zoning designation in the LIS3 database (from table 1.1)