Appendix T - Assumptions Used in Preparing Development Projections

As stated in Chapter 2, future growth in the General Plan Planning Area and Period is guided by the land uses identified in the General Plan Land Use Diagram (See General Plan Update Appendix F, Map Book). In this EIR, impact analysis of both temporary [i.e. construction-related] and operational effects is based on these proposed land use patterns. However, because the estimated maximum feasible development potential of the General Plan Update land uses is extraordinarily high and virtually unattainable within the planning period of the General Plan (2016-2040), This EIR analyzes the environmental impacts of the residential and non-residential growth projected between 2010 and 2040.

The following table shows the projected population for Humboldt County for the 2010 - 2040 time period from the Department of Finance:

Table T-1 Humboldt County Total Population Projections, 2010 - 2060

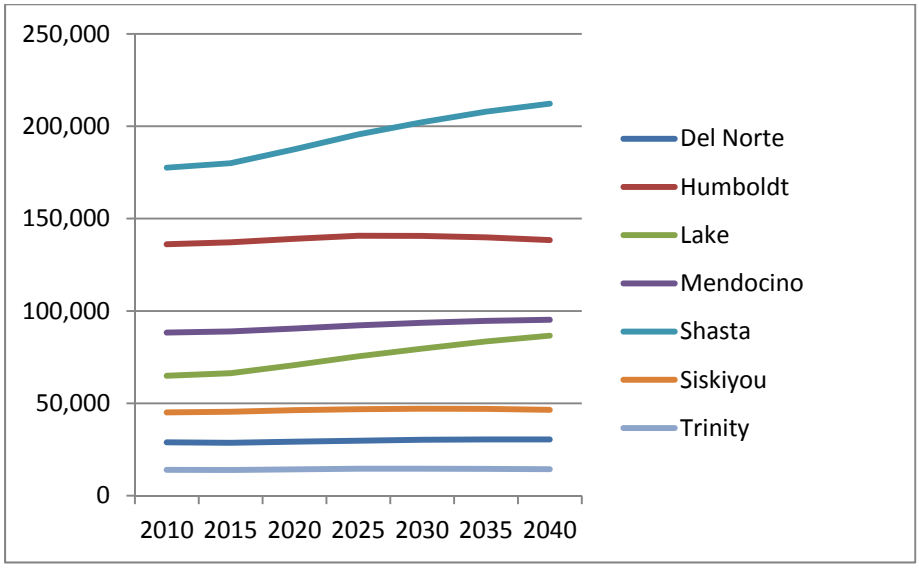
	2010	2020	2028	2030	2040	2050	2060
Population[1]	134,623	139,033	141,441	140,608	138,307	134,509	134,398

Source: DOF *Reports and Research Papers - P1 Population Projections, December 2014, and P2 State and County Population Projections by Race/Ethnicity and Age, December 2014*

Notes: 1) Population includes each of the seven incorporated cities

The table shows a peak population of 141,441 persons in 2028. After that, Humboldt County's population is projected to decline slightly to the year 2040. This is similar to the trends projected for most of the neighboring counties as shown below in Figure T-1.

Figure T-1. Population Projections for Counties in Northern California, 2010 - 2040



Source: DOF *Reports and Research Papers - P1 Population Projections, December 2014*

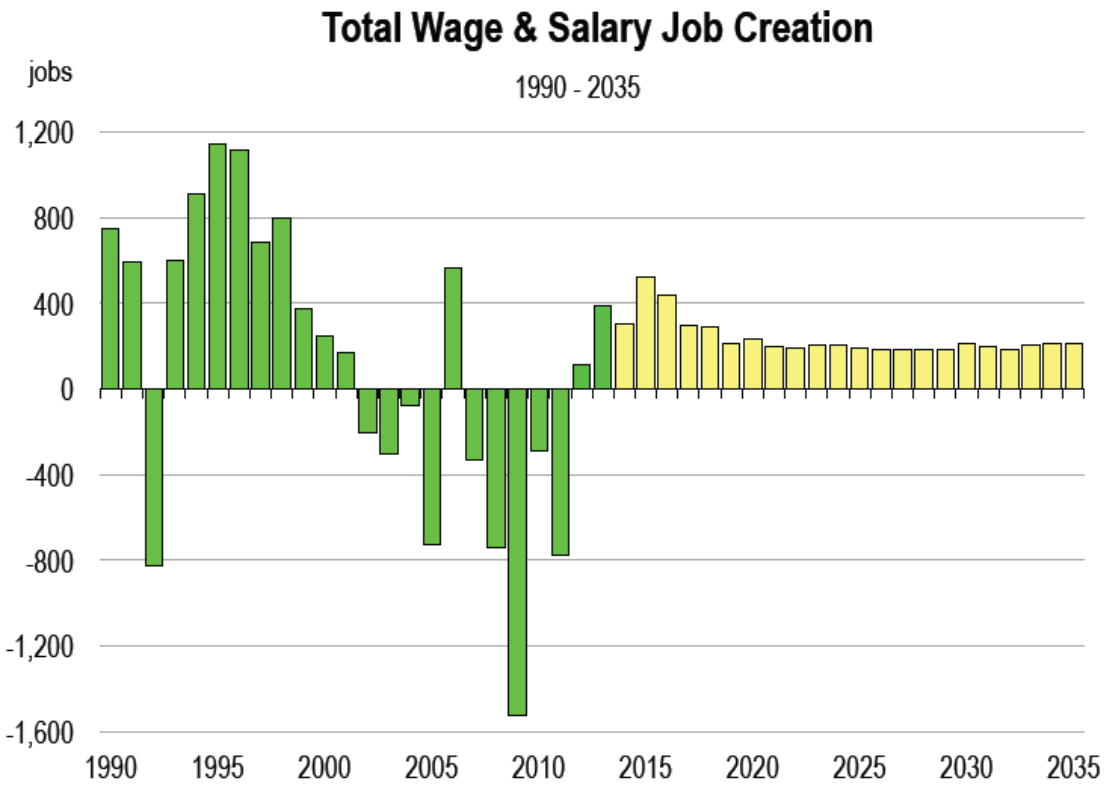
Employment is projected by Caltrans to grow continuously from 2010 to 2040. As shown below, employment for Humboldt County will grow by almost 6,000 jobs between 2010 and 2040.

Table T-2. Projected Employment for Humboldt County, 2010 - 2040

Year	# Jobs
2010	47,180
2015	47,740
2020	49,210
2025	50,200
2030	51,140
2035	52,160
2040	53,160

Source: Caltrans; County Level Economic Forecast 2014 - 2040; 2014

Figure T-2. Employment Projections for Humboldt County, 1990 - 2040



Source: Caltrans; County Level Economic Forecast 2014 - 2040; 2014

To evaluate the impacts associated with the General Plan, and to compare it to the existing General Plan, the population and employment increases were converted into housing units and commercial / industrial space and allocated on a parcel specific basis using the methodology described in the following paragraphs.

Methodology Used for Conversion of Population to Housing Units

The 2010 Census reported that 134,623 persons lived in Humboldt County, and that there were 33,972 housing units in the unincorporated areas. As mentioned above, the Department of Finance projects population for the County as a whole to be 141,441 persons in 2028. Applying the 2010 ratio of countywide population to unincorporated area housing units (0.252 housing units per person) and applying it to the projected 2028 population of 141,441 persons results in a projection of 35,093 housing units in the unincorporated areas, which is 1,721 more housing units than existed in 2010. The equations used for this calculation are shown below:

Step 1: Derive the ratio of housing units per person	Housing Units in Unincorporated Areas in 2010		Persons living in Humboldt County in 2010		Ratio of housing units per person
	33,972	÷	134,623	=	0.252

Step 2: Apply the ratio to the 2028 population	Ratio of housing units per person		Persons living in Humboldt County in 2028		Housing Units in Unincorporated Areas in 2028
	0.252	x	141,441	=	35,093

Step 3: Calculate the number of housing units added	Housing Units in Unincorporated Areas in 2028		Housing Units in Unincorporated Areas in 2010		New Housing Units in Unincorporated Areas in 2028
	35,093	-	33,972	=	1,721

Methodology Used for Allocating Housing Units to Parcels Allocating these 1,721 new housing units to specific parcels was done in several steps described in the following paragraphs. Basically it involved using historic building permit records to distribute the new homes.

Step 1 - Calculate the Percentage of Building Permits Issued by Land Use Designation. In this first step, building permit records from 1972 through 2015 were used to aggregate the number of new homes permitted by land use designation. We know, for example, that of the 3,119[1] homes permitted since 1972 most of them (66 percent) occurred on parcels with an "RL - Residential Low Density" General Plan designation. The following table shows the percentage of building permits issued between 1972 and 2015 by land use designation:

Table T-3. Percentage of Building Permits Issued Between 1972 and 2015 by Land Use Designation.

Land Use Designation	Percent of Building Permits Issued 1972 - 2015
AE - Agriculture Exclusive	2.18%
AG - Agriculture Grazing	2.82%

[1] There are 3,119 homes permitted since 1972 on parcels within the County's GIS system. Homes that were permitted on older parcels that are not represented in the County's GIS system were not evaluated.

Table T-3. Percentage of Building Permits Issued Between 1972 and 2015 by Land Use Designation.

Land Use Designation	Percent of Building Permits Issued 1972 - 2015
T - Timber Production	2.95%
RM - Residential Medium Density	4.42%
RE - Residential Estates	7.95%
RA - Residential Agriculture	12.50%
RL - Residential Low Density	65.73%
Other	1.45%
Total	**100%**

Source: Humboldt County Planning and Building Department, 2017

Building permit percentages were used in this step because past development patterns are most likely to continue into the future based on access, availability of infrastructure (water, sewer, schools), distance to work and shopping, etc. that influence cost and market desirability.

Step 2 - Calculate the Estimated Maximum Feasible Development Potential of Each Parcel. In this step, the County's Geographic Information System (GIS) was used to calculate the maximum feasible development potential of each parcel. The assumptions used and programming language used is detailed in Exhibit A of this Appendix. Basically it involved multiplying the maximum allowed density of the GPU land use designation by the developable acres of the parcel to calculate the maximum feasible development potential for that parcel.

As described on page 24 of Chapter 2 - Project Description, the maximum feasible development potential of all parcels in the County is 38,972 additional units. What this means is that if all the properties were developed at the maximum density allowed by the GPU, 38,972 new homes could be built. This development potential figure excludes those areas of the county that have physical constraints, and are likely undevelopable given the steep slopes (slopes >30 percent), 100-year flood zones, wetlands, streamside management areas, earthquake fault zones, and areas of historic landslide occurrence.

Step 3 - Combine Together the Percentage of Building Permits Issued by Land Use Designation and the Estimated Maximum Feasible Development Potential of Each Parcel. In this step, a spreadsheet was used to multiply together the Percentage of Building Permits Issued by Land Use Designation and the Estimated Maximum Feasible Development Potential for each parcel. This resulted in a total of 8,903 units, which is more than five times the projected number of units projected by the DOF.

Step 4 - Reflect the Estimated Development Potential of 1,721 units. In this step, a spreadsheet was used again to reflect the proportion of development expected during the planning period (1,721 units rather than 8,903 units). This was done by multiplying the results from Step 3 by (1,721 ÷ 8,903) units, which equals 0.19330563.

Example:
As an example, in the paragraphs below we track the calculations for allocating a portion of the 1,721 total new housing units projected for 2028 to one of the vacant developable parcels, Assessor's Parcel Number (APN) 015-221-018. This is a 5.28 acre parcel near Humboldt Bay that

has an "RL - Residential Low Density" General Plan designation on one side and an "RM - Residential Medium Density" on the other.

Step 1: Based on our building permit history, we know that 66 percent of the new homes constructed between 1972 and 2015 were on parcels with an RL Plan designation, and four percent of the new homes constructed between 1972 and 2015 were on parcels with an RM Plan designation.

Step 2: The RL Plan designation has a maximum density of seven units per acre. The RL portion of the site has 1.42 acres with physical constraints, leaving 2.99 developable acres. Multiplying the developable acres times the maximum Plan density yields an estimated maximum feasible development potential of 20 housing units on the RL portion (2.99 * 7 = 20 units).

The RM Plan designation has a maximum density of 30 units per acre. The RM portion of the site has 0.05 acres with physical constraints, leaving 0.52 developable acres. Multiplying the developable acres times the maximum Plan density yields an estimated maximum feasible development potential of 15 housing units on the RM portion (30 x 0.52 = 15 units).

Step 3: Multiplying the 20 unit estimated maximum feasible development potential of the RL portion times 66 percent yields 13.2 housing units (20 x 0.66 = 13.2 units). Multiplying the 15 unit estimated maximum feasible development potential of the RM portion times four percent yields 0.6 housing units (15 x 0.04 = 0.6 units).

Step 4: Multiplying the RL units by 0.19330563 results in 2.54 of the 1,721 total housing units allocated to the RL portion of APN 015-221-018. Multiplying the RM units by 0.19330563 results in 0.11 of the 1,721 total housing units allocated to the RM portion of APN 015-221-018. A table showing those calculations for each land use designation is presented at the end of this appendix.

Conceptually it is difficult to understand how a parcel could be allocated a fraction of a housing unit when homes are not built that way. One way to perhaps better understand this fractional allocation is to look at it in terms of probability - two parcels with an allocation of 0.5 housing units will have one home developed between them by 2028 (0.5 + 0.5 = 1). In other words, there is a 50% chance that a home will be developed on one of the parcels by 2028.

Methodology Used for Calculating Commercial and Industrial Square Footage, and Allocating Commercial and Industrial Square Footage to Parcels. Commercial and Industrial development is typically described in terms of square footage of commercial and industrial space. This EIR uses employment figures projected by CalTrans to the year 2040 to estimate future development of commercial and industrial space. , which is 401,861. Basically it involved the following three steps:

1) Use the regional Humboldt County Travel Demand Model's distribution of employment growth by Traffic Analysis Zone (TAZ) to distribute the countywide employment growth projected by CalTrans,
2) Distribute the TAZ employment growth to each parcel based on the acreage designated commercial or industrial, and
3) Convert employment growth for each parcel into commercial and industrial square feet based on the parking standards of the Zoning Ordinance, which require one new employee parking space for each 300 square feet of commercial space, and 2,500 square feet of industrial space.

Step 1 - Use the Regional Humboldt County Travel Demand Model's Distribution of Employment Growth by Traffic Analysis Zone (TAZ) to Distribute the Countywide Employment Growth Projected by CalTrans. As discussed above, CalTrans projects that there will be 5,980 jobs added countywide between 2010 and 2040. The HCDTM distributes these jobs by TAZ such that 2,440 jobs are added in the unincorporated areas (40.8% of the total), and 3,540 jobs are added in the cities (59.2% of the total). The following table shows the distribution of jobs added between 2010 and 2040 in the unincorporated areas by TAZ.

Table T4. Jobs Added by TAZ 2010 - 2040

TAZ	Jobs Added	TAZ	Jobs Added	TAZ	Jobs Added
104	19.89	217	30.89	691	0.34
130	22.79	218	5.13	696	0.02
131	1.19	225	16.42	702	0.63
144	9.71	226	21.78	713	0.06
145	72.99	227	1.90	718	0.78
146	7.46	228	0.51	719	0.24
150	17.39	267	3.62	723	38.28
156	34.49	268	10.36	724	29.63
157	0.15	285	0.35	727	0.21
162	2.47	287	1.72	730	48.09
165	7.33	298	23.61	731	17.39
166	0.70	300	29.57	737	7.63
168	1.68	303	28.32	738	6.42
169	5.45	306	6.81	739	6.53
170	9.99	307	156.32	741	5.15
171	32.51	400	0.36	742	0.60
172	0.84	401	0.29	747	11.45
175	27.50	467	239.08	750	45.25
176	1.22	505	1.08	751	4.20
179	12.68	506	1.12	753	2.67
182	5.32	507	1.27	764	0.46
183	0.29	511	0.27	765	6.66
184	1.55	513	1.59	767	18.85
185	2.17	514	1.70	776	21.30
186	2.71	515	0.10	784	11.33
187	2.33	517	0.19	798	6.41
189	13.85	560	2.71	799	13.85
190	2.25	561	0.41	804	53.48
191	12.24	562	0.04	806	2.00
193	0.32	563	0.06	807	3.75
194	4.65	564	0.66	809	6.61
195	123.97	565	7.05	810	91.00
197	0.14	602	0.24	811	18.41
198	14.22	603	4.61	819	1.30
202	15.37	604	0.52	821	34.31
203	12.31	644	5.12	822	4.68
204	6.77	662	14.93	823	9.01

Table T4. Jobs Added by TAZ 2010 - 2040

TAZ	Jobs Added	TAZ	Jobs Added	TAZ	Jobs Added
205	0.46	663	0.33	824	17.37
208	1.36	678	1.60	825	75.16
209	4.35	679	0.23	827	31.51
214	3.75	686	0.14	829	12.32
216	7.07	690	1.05	830	11.77
831	43.90	848	46.75	896	3.89
832	163.18	849	17.97	897	6.52
833	14.19	850	2.30	898	6.75
834	16.18	851	5.98	899	1.47
836	1.04	852	11.30	900	1.28
837	20.14	853	17.20	901	22.08
839	0.76	857	2.44	902	1.41
840	6.51	858	5.91	916	29.81
841	0.72	878	3.43	917	39.15
842	1.36	883	0.52	918	38.19
843	3.53	885	0.89	919	11.09
844	4.37	893	1.88	839001	19.58
845	0.72	894	0.89		
846	0.02	895	3.07		

Source: TJKM, 2017

Step 2 - Distribute the TAZ employment growth to each parcel based on the acreage designated commercial or industrial

The total developable area designated commercial and industrial by the Plan was calculated by adding together the developable commercial and industrial land area of each individual parcel within the TAZ. From there, the percent of the total area from each parcel was calculated, and multiplied by the employment growth to derive the fraction of the total TAZ employment allocated to each parcel.

For example, TAZ #899 is comprised of two parcels that total 7.8 acres in size, one of them is 2.3 acres (29 percent of the total area), and the other is 5.5 (71 percent of the total area). The HCDTM projects 1.47 additional jobs will be created in this TAZ. Employment was calculated for the smaller parcel by multiplying 1.47 jobs by 29 percent to arrive at 0.42 jobs added on that parcel. Similarly, employment was calculated for the larger parcel by multiplying 1.47 jobs by 71 percent to arrive at 1.05 jobs added on that parcel.

Step 3 - Convert employment growth for each parcel into commercial and industrial square feet based on the parking standards of the Zoning Ordinance,

The jobs added per parcel calculated in step 2 was converted into commercial and industrial square footage using the parking standards in the Zoning ordinance, which require one new employee parking space for each 300 square feet of commercial space, and 2,500 square feet of industrial space. Simply put, if a parcel has a commercial or mixed use land use designation, the number of jobs added was multiplied by 300 to estimate the commercial square footage that will be developed on that property.

Using the above example for TAZ #899, the smaller parcel was calculated to have 0.42 jobs added, so the commercial square footage added is calculated as 0.42 times 300, or 126 square feet. Similarly, the larger parcel was calculated to have 1.05 jobs added, so the commercial square footage added is calculated as 1.05 times 300, or 315 square feet. If a parcel has an industrial land use designation, the multiplier used was 2,500 rather than 300 because the parking standards in the Zoning Ordinance specify that one additional parking space is required for every 2,500 square feet of industrial space added.

Exhibit A

Detail of Assumptions and Programming Language Used to Calculate Parcel Specific Estimated Maximum Feasible Development Potential

This Exhibit describes the methodology for calculating the Estimated Maximum Feasible Development Potential of the proposed General Plan Update and the current General Plan, and the Alternatives. For purposes of this analysis, the Estimated Maximum Feasible Development Potential of the General Plan is defined as the theoretical maximum number of housing units allowable based on the maximum density of General Plan Land Use Designation applied to the developable area of the portion of the parcel to which the Land Use Designation is applied.

The Assessor's Use Code and assessed value data were used to identify vacant and improved parcels within the unincorporated areas of the County. The developable acreage of each parcel and the acreage of the Land Use Designations were determined using the County geographic information systems (GIS) database. There may be minor differences between the GIS acreage and the parcel acreage contained in the Assessor's database, because the GIS data has been developed for planning purposes and not for assessment purposes. Parcel status, vacant or improved, is used in calculating maximum allowable density. Improved parcels that are greater than ¼ acre and are at least three times the maximum allowable density are assumed to be underdeveloped and included in Estimated Maximum Feasible Development Potential calculations.

The "developable" parcel acreage, or the developable acreage of each Land Use Designation within a parcel, was used in calculating Estimated Maximum Feasible Development Potential. The developable parcel acreage does not include areas with certain environmental constraints because they effectually preclude almost all residential, commercial or industrial development. The following physical features are assumed eliminate any development potential: 100-year flood zones, wetlands, streamside management areas, earthquake fault zones, areas of historic landslide occurrence, and areas with slopes in excess of 30 percent. Areas with these physical constraints were excluded from the parcel acreage in calculating the Estimated Maximum Feasible Development Potential.

Methodology

Vacant Developable Parcel Assumptions

1. Parcels must have at least 2,500 square feet of developable area to have development potential.

Improved Developable Parcel Assumptions

1. Developable land must be equal to at least three times the minimum density.
2. Improved parcels that are less than ¼ acres are not considered developable.

Residential development is assumed to occur on land planned for commercial development and on land planned for mixed uses. Given that residential development on commercial land has been permitted with a use permit for years and there has been little or no interest in carrying out such development, little or no residential development is expected to occur on commercial

land. Up to 50 percent of land planned for mixed uses is expected to be used for residential development.

It should be noted that the current General Plan is comprised of land use designations from the Framework General Plan, numerous Local Coastal Programs and Community Plans as well as several antiquated planning documents from the 1960's. In addition, Estimated Maximum Feasible Development Potential was calculated at the parcel level and many parcels are split between different current land use designations. As a result, in some instances the current land use designations were generalized to simplify Estimated Maximum Feasible Development Potential calculations.

The following tables show the densities that were used in calculating buildout for proposed General Plan Update and the current General Plan.

Proposed General Plan and Alternatives:

Proposed Land Use Designation	Acres per Dwelling Unit
AE	20
AE20	20
AE60	60
AEG	160
AEG160	160
AEG600	600
AG	20
AG20-60	20
CF	0
CG	0.0625
CG/RA	5
CG/RE	1
CR	0.0625
CR/CG	0.0625
CR/PF/PR	0.0625
CR/PR	0.0625
CS	0.0625
CS/IG	0
IG	0
IR	0
MB	0
MC	0
MG	0
MR/CG	0
MR/CR	0
MR/MC	0
MR/MG	0
MR/RL	0.125
MU	0.0625

Proposed Land Use Designation	Acres per Dwelling Unit
NR	0
NR/MR	0
NR/PF	0
NR/PR	0
OS	0
P	0
PF	0
PF/PR	0
PR	0
RCC	0.25
RA	5
RA 5-20	5
RA10	10
RA10-20	10
RA160	160
RA20	20
RA20-160	20
RA40	40
RA40-160	40
RA5	5
RA5-10	5
RA5-20	5
RA5-20\UR	5
RA60	60
RE	1
RE1-5	1
RE1.5	1.5
RE2.5-5	2.5
RE2-5	2
RE2.5	2.5
RE3-5	3
RE5	5
RL	0.125
RL(700 UNIT MAX)	0
RL/UR	0.125
RL0-2	0.5
RL0-4	0.25
RL1	1
RL1-2	0.5
RL1-4	0.25
RL1-5	1
RL1-7	0.1429

Proposed Land Use Designation	Acres per Dwelling Unit
RL1-7 (240 MAX)	240 units
RL1-7 (300 MAX)	300 units
RL1-7 (320 MAX)	320 units
RL1-7 (700 MAX)	700 units
RL3-7	0.1429
RM	0.0333
RM/UR	0.0333
T	40
TC	40
TC(160)	160
Tribal Lands	40
UR	0.125
VC	0.25

Current General Plan:

General Plan Land Use Designation	Grouping	Acres per Dwelling Unit
(blank)	P	0
(RAILROAD)	Public or Recreation	0
E-A	AE	20
AE	AE	20
AE (HBAP)	AE	20
AE (MCCP)	AE	20
AE(55)	AE	55
AE(HBAP);EXCL AGRI(ARC66)	AE	20
AEG	AG	600
AEG(160)	AG	160
AEG(2)	AG	600
AEG(SCAP);P(FRWK)	AEG/P	160
AEP	AE	60
AEP(60)	AE	60
AEP(MCAP);AE(MCCP)	AE	60
AG	AG	20
AG EX;GRAZ;NR;DISP HOUSES (N	Open Space Desig/Disp Houses	10
AG(20)	AG	20
AG(5)	AG	5
AGRI (MGP77)	Open Space	20
AGRICULTURE (MGP77)	Open Space	20
AGRICULTURE (MGP77);EST RES(	Open Space Desig/Disp Houses	10
AL	AL	20
AL 20	AL	20
AL 40	AL	40
AL(20)	AL	20
AL(40)	AL	40
AL160	AL	160
AL160;P(FRWK);CON-T(SHGP)	Open Space	20
AL20	AL	20
AL40	AL	40
AL60	AL	60
AR	AR	5
AR (5-20)	AR	5
AR (MCCP)	AR	5
AR 20-5	AR	5
AR(10 ac. min.)	AR	10
AR(10AC)	AR	10
AR(12)	AR	12
AR(5 AC)	AR	5
AR(5)	AR	5
AR(5-20)	AR	5
AR(5-20) (NHGP)	AR	5
AR(5AC)	AR	5
AR(8)	AR	8
AR;T(MCCP);LD RES;FOREST(65)	Open Space Desig/Disp Houses	10
AR-10	AR	10
AR10 (NHGP)	AR10	10
AR20-5	AR	5
AR40	AR	40

General Plan Land Use Designation	Grouping	Acres per Dwelling Unit
AR-5	AR	5
AR5-20	AR	5
AS	AS	2.5
AS 5 - 2 1/2	AS	2.5
AS(1-5)	AS	1
AS(3AC)	AS	3
AS(5)	AS	5
AS2 (NHGP)	AS2	2
AS5-2.5 (NHGP)	AS5-2.5	2.5
Big Lagoon Indian Reserva	Tribal	0
C-C (SHGP)	Commercial/Industrial	0
C-C;R-L (SHGP)	Commercial/Disp Houses	5
CEMETERY (NHGP)	Public or Recreation	0
CF	CF	0
CFR	CFR	0
CG	CG	0.0625
CG(5)	CG	0
CG(8)	CG	0
CG/AS	CG	2.5
CG/RR	CG	2
COMM (NHGP)	Commercial/Industrial	0
COMM;GRAZING (NHGP)	Open Space	20
COMMERCIAL (NHGP)	Commercial/Industrial	0
CON-F	CF	5
CON-F-R	PR	5
CON-R	PR	0
CON-R (SHGP)	Public or Recreation	0
CON-T (SHGP)	Open Space	20
CON-T(SHGP);AEG(SCAP)	Open Space	20
CON-T-R	T	2.5
CR	CR	0
CR/CG	CR	0.0625
CS	CS	0.0625
CS/IG	CS	0
DISP HOUSES (NHGP)	Dispersed Houses	1
DISP HOUSES;GRAZING (NHGP)	Open Space Desig/Disp Houses	10
DISP HOUSING;GRAZING (NHGP)	Open Space Desig/Disp Houses	10
DISP HS (NHGP)	Dispersed Houses	1
DISP HS(NHGP);RRC(TAP)	Dispersed Houses	1
DISP HS(NHGP);T(MCCP)	Dispersed Houses	1
DISP HS;COMM (NHGP)	Commercial/Disp Houses	5
DISP HS;GRAZING (NHGP)	Open Space Desig/Disp Houses	10
DISP HS;GRAZING;COMM(NHGP)	Open Space Desig/Disp Houses	10
DISP HS;GRAZING;REC (NHGP)	Open Space Desig/Disp Houses	10
DISP HS;RECREATION (NHGP)	Open Space Desig/Disp Houses	10
DISP HS;REDWOOD (NHGP)	Open Space Desig/Disp Houses	10
DISP HS;RES EST;TIMBER(NHGP)	Open Space Desig/Disp Houses	10

General Plan Land Use Designation	Grouping	Acres per Dwelling Unit
DISP HS;TIMBER (NHGP)	Open Space Desig/Disp Houses	10
DISP HS;TIMBER;GRAZING(NHGP)	Open Space Desig/Disp Houses	10
DISPERSED HOUSES (NHGP)	Dispersed Houses	1
DISPERSED HOUSES(NHGP)	Dispersed Houses	1
DISPERSED HOUSING (NHGP)	Dispersed Houses	1
EST RES (ARC66) TIMBER(NHGP)	Open Space Desig/Disp Houses	10
EST RES (ARC66);TIMBER(NHGP)	Open Space Desig/Disp Houses	10
EST RES;OPEN;LUMBER (ARC66)	Open Space Desig/Disp Houses	10
EST RES;OPEN;VL DENS (ARC66)	Open Space Desig/Disp Houses	10
EST RES;VL DENS (ARC66)	Dispersed Houses	1
EST RES;VLD;LUMBER (ARC66)	Open Space Desig/Disp Houses	10
ESTATE RES;OPEN (ARC66)	Open Space Desig/Disp Houses	10
ESTATE RESIDENTIAL (ARC66)	Dispersed Houses	1
EXCL AG (ARC66);AE (MCCP)	Open Space	20
EXCL AG(ARC66);FOREST(MC65)	Open Space	20
EXCL AGRI (ARC66)	Open Space	20
EXCL AGRI (ARC66);AE (HBAP)	Open Space	20
EXCL AGRI (NHGP)	Open Space	20
EXCL AGRI;GRAZING (NHGP)	Open Space	20
FOREST(MC65)	Open Space	20
FOREST(MC65);EST RES(ARC66)	Open Space Desig/Disp Houses	10
FOREST(MC65);EXCL AG(ARC66)	Open Space	20
FOREST(MC65);T(NHGP);T(MCCP)	Open Space	20
GEN INDSTRY;EXCL AG(ARC66)	Commercial/Industrial	0
GENERAL INDUSTRIAL (ARC66)	Commercial/Industrial	0
golf course	OTHER	0
GRAZING (NHGP)	Open Space	20
GRAZING;DISP HOUSES (NHGP)	Open Space Desig/Disp Houses	10
GRAZING;NATR RES (NHGP)	Open Space	20
GRAZING;NR;DISP HSE (NHGP)	Open Space Desig/Disp Houses	10
GRAZING;NR;DISPHSE;IND (NHGP	Open Space Desig/Disp Houses	20
GRAZING;REC(NHGP);P(FRWK)	Open Space	20
GRAZING;RECREATION (NHGP)	Open Space	20
GRAZING;TOURISM (NHGP)	Open Space	20
green gulch	OTHER	0
Hoopa Valley	OTHER	0
HWY	OTHER	0
HWY 101	OTHER	0
HWY 299	OTHER	0
HWY 96	OTHER	0
IG	IG	0
IND	IG	0
INDUSTRIAL (NHGP)	Commercial/Industrial	0

General Plan Land Use Designation	Grouping	Acres per Dwelling Unit
INDUSTRIAL RESERVE (NHGP)	Commercial/Industrial	0
INDUSTRIAL RESV;GRAZ(NHGP)	Commercial/Industrial	0
IR	IR	0
LOW DENSITY (ARC66)	Low Density	0.25
LOW DENSITY (NHGP)	Low Density	0.25
LOW DENSITY;GRAZING (NHGP)	Open Space Desig/Disp Houses	10
LOW DENSITY;NATR RES (NHGP)	Open Space Desig/Disp Houses	10
MB	MB	0
MC	MC	0
MED DENSITY;GRAZING (NHGP)	Open Space Desig/Disp Houses	10
MEDIUM DENSITY (ARC66)	Medium Density	0.143
MG	MG	0
MH	IG	0
MR/CG	NR	0
MR/CR	NR	0
MR/MC	NR	0
MR/MG	NR	0
MR/RL	NR	1
NATR RES;GRAZING (NHGP)	Open Space	20
NATR RES;RECREATION (NHGP)	Public or Recreation	0
NATR RES;TIMBER;GRAZ(NHGP)	Public or Recreation	0
NATR RES;WATER AREAS (NHGP)	Public or Recreation	0
NATURAL RESOURCES (NHGP)	Public or Recreation	0
NR	NR	0
NR (SCAP)	Public or Recreation	0
NR(SCAP)	Public or Recreation	0
NR(SCAP);CON-R(SHGP)	Public or Recreation	0
NR(SCAP);R-L(SHGP)	Dispersed Houses	1
OPEN (ARC66)	Open Space	20
OPEN;PARKS (ARC66)	Public or Recreation	0
P	P	0
P (FRWK)	Public or Recreation	0
PARKS (ARC66)	Public or Recreation	0
PF	PF	0
PF (FRWK)	Public or Recreation	0
PF(TAP);DISP HS(NHGP)	Open Space Desig/Disp Houses	10
PL/PR	P	0
P-M (SHGP)	Public or Recreation	0
PR	PR	0
PUBLIC FACILITI	P	0
PUBLIC(NHGP)	Public or Recreation	0
R	PR	0
RAILROAD	P	0
RCC	RCC	2.5
RE	RE	2.5
RE(1)	RE	1
RE(TAP);RES EST(NHGP)	Dispersed Houses	1
RE(TAP);RES EST;TIMBER(NHGP)	Open Space Desig/Disp Houses	10
REC;TIMBER;WATER AREA(NHGP)	Public or Recreation	0
RECREATION (NHGP)	Public or Recreation	0

General Plan Land Use Designation	Grouping	Acres per Dwelling Unit
RECREATION;TIMBER (NHGP)	Open Space	20
REDWOOD (NHGP)	Open Space	20
REDWOOD(NHGP);TC(TAP)	Open Space	20
REDWOOD;GRAZ;TIMBER(NHGP)	Open Space	20
REDWOOD;GRAZING (NHGP)	Open Space	20
REDWOOD;TIMBER (NHGP)	Open Space	20
RES EST;GRAZ;TIMBER;NR(NHGP)	Open Space Desig/Disp Houses	10
RES EST;GRAZING;REC (NHGP)	Open Space Desig/Disp Houses	10
RES EST;LOW DENSITY (NHGP)	Dispersed Houses	1
RES EST;REC;TIMBER (NHGP)	Open Space Desig/Disp Houses	10
RES EST;TIMB;GRAZ;REC (NHGP)	Open Space Desig/Disp Houses	10
RES EST;TIMB;NATR RES(NHGP)	Open Space Desig/Disp Houses	10
RES EST;TIMBER;GRAZ (NHGP)	Open Space Desig/Disp Houses	10
RES EST;TIMBER;REC (NHGP)	Open Space Desig/Disp Houses	10
RES ESTATES (NHGP)	Dispersed Houses	1
RES ESTATES(NHGP)	Dispersed Houses	1
RES ESTATES(NHGP);RRC(TAP)	Dispersed Houses	1
RES ESTATES;COMM (NHGP)	Commercial/Disp Houses	5
RES ESTATES;GRAZING (NHGP)	Open Space Desig/Disp Houses	10
RES ESTATES;REC (NHGP)	Open Space Desig/Disp Houses	10
RES ESTATES;TIMBER (NHGP)	Open Space Desig/Disp Houses	10
RES ESTATES;TOURISM (NHGP)	Open Space Desig/Disp Houses	10
RES.ESTATE (NHGP)	Dispersed Houses	1
RES.ESTATES (NHGP)	Dispersed Houses	1
RESIDENTIAL ESTATES (ARC66)	Dispersed Houses	1
RESORT(NHGP)	Public or Recreation	0
RESORT;TIMBER;GRAZING (NHGP)	Open Space	20
RL	RL	0.1429
R-L	RL	0.2
RL (1-5)	RL	1
RL (HBAP)	RL	0.143
RL (SCAP)	RL	0.143
R-L (SHGP)	Dispersed Houses	1
RL(0.5AC)	RL	0.5
RL(1)	RL	1
RL(1AC)	RL	1
RL(2)	RL	2
RL(240)	RL	0
RL(300 UNIT MAX)	RL	0
RL(3-7 U/AC)	RL	0.1429
RL(700 UNIT MAX)	RL	0
RL(SCAP);R-L(SHGP)	Dispersed Houses	1
R-L;C-C (SHGP)	Open Space Desig/Disp Houses	10

General Plan Land Use Designation	Grouping	Acres per Dwelling Unit
R-L;C-C(SHGP)	Open Space Desig/Disp Houses	10
R-L;CON-R (SHGP)	Open Space Desig/Disp Houses	10
RL1	RL	1
RLA	RL	0.5
RLB	RL	0.5
RM	RM	0.0333
ROAD	P	0
RR	RR	5
R-R	RR	1
RR(10)	RR	10
RR(2.5)	RR	2
RR(4)	RR	4
RR(5)	RR	5
RR(A)	RR	2
RR(B)	RR	5
RR(C)	RR	2.5
RR(D)	RR	5
RR(E)	RR	1
RR(F)	RR	5
RRA(TAP);RES EST;TIMB(NHGP)	Open Space Desig/Disp Houses	10
RRA(TAP);RES ESTATES (NHGP)	Dispersed Houses	1
RRA(TAP);T(NHGP)	Open Space	20
RRB	RR	5
RRC (TAP)	RR(C)	2.5
RRC(TAP);RES EST (NHGP)	Dispersed Houses	1
RRC(TAP);RES EST;TIMB(NHGP)	Open Space Desig/Disp Houses	10
RRC(TAP);RES ESTATES (NHGP)	Dispersed Houses	1
RRC(TAP);TIMBER(NHGP)	Open Space	20
RRC(TAP);TIMBER;REC(NHGP)	Open Space	20
RS	RS	2.5
RV	UR	2.5
RV (TAP)	RCC	2.5
RV(TAP);TIMBER(NHGP)	Open Space	20
RV/RE	RV	2.5
RV/RL	RV	2
RV/RL(HBAP);MED DENS(ARC66)		0.14285714
RX	RS	2
RX(2.5)	RS	2.5
RX2.5	RS	2.5
SCENIC HWY	Public or Recreation	0
SCHOOL(NHGP)	Public or Recreation	0
SUBURBAN (NHGP)	Dispersed Houses	1
SUBURBAN;GRAZING (NHGP)	Open Space Desig/Disp Houses	10
T	T	40
T (FRWK)	T	40
T (JCCP)	T	40
T (MCCP)	T	40
T (MCCP);FOREST (MC65)	Open Space	20
T(FRWK);TIMBER;GRAZING(NHGP)	Open Space	20
T(JCCP);EST RES(ARC66)	Dispersed Houses	1

General Plan Land Use Designation	Grouping	Acres per Dwelling Unit
T(MCCP);FOREST(MC65)	Open Space	20
T(MCCP);TIMBER(NHGP)	Open Space	20
T;AG (FRWK)	T;AG	40
TC	T	40
TC(160)	T	160
TC(TAP);TIMBER(NHGP)	Open Space	20
TIMB;NATR RES;INDL RSV(NHGP)	Public or Recreation	0
TIMBER (NHGP)	Open Space	20
TIMBER (NHGP);RRC (TAP)	Open Space	20
TIMBER (NHGP);RV (TAP)	Open Space	20
TIMBER(NHGP)	Open Space	20
TIMBER(NHGP);AR10(MCCP)	Open Space	20
TIMBER(NHGP);EST RES(ARC66)	Open Space Desig/Disp Houses	10
TIMBER(NHGP);RR(C)(TAP)	Open Space	20
TIMBER(NHGP);RRC(TAP)	Open Space	20
TIMBER(NHGP);T(FRWK)	Open Space	20
TIMBER(NHGP);T(MCCP)	Open Space	20
TIMBER(NHGP);VL DENS(ARC66)	Open Space Desig/Disp Houses	10
TIMBER(NHGP);VLD;ESTR(ARC66)	Open Space Desig/Disp Houses	10
TIMBER;DISP HS(NHGP);T(MCCP)	Open Space Desig/Disp Houses	10
TIMBER;DISPERSED HOUSES (NHG	Open Space Desig/Disp Houses	10
TIMBER;GRAZ;NATR RES(NHGP)	Open Space	20
TIMBER;GRAZ;TOURISM (NHGP)	Open Space	20
TIMBER;GRAZING (NHGP)	Open Space	20
TIMBER;REC;GRAZING(NHGP)	Open Space	20
TIMBER;REC;RES EST (NHGP)	Open Space	20
TIMBER;RECREATION (NHGP)	Open Space	20
TIMBER;RES EST (NHGP)	Open Space Desig/Disp Houses	10
TOURISM (NHGP)	Public or Recreation	0
TPZ	T	40
U	OTHER	0
URBAN EXPANSION	UR	0.5
VERY LOW DENSITY (ARC 66)	Very Low Density	1
VERY LOW DENSITY (ARC66)	Very Low Density	1
VERY LOW DENSITY (NHGP)	Very Low Density	1
VL DENSITY;LUMBER (ARC66)	Open Space Desig/Disp Houses	10
VL DENSITY;OPEN (ARC66)	Open Space Desig/Disp Houses	10
VL DENSITY;OPEN;PARK(ARC66)	Open Space Desig/Disp Houses	10
VL DENSITY;PARK (ARC66)	Open Space Desig/Disp Houses	10
WATER AREA (NHGP)	Public or Recreation	0
WATER AREA;GRAZING (NHGP)	Public or Recreation	0
WATER AREA;RECREATION(NHGP)	Public or Recreation	0
WATER AREAS;GRAZING (NHGP)	Public or Recreation	0

Development projections were calculated using ESRI ArcView GIS 3.2 and compiled into tables using Excel pivot tables. The following is a listing of the each of the database queries and formulas for the maximum allowable buildout projections.

Estimated Maximum Feasible Development Potential ("Maximum Buildout Level")

ALTERNATIVE BOS

DENSITY ADJUSTMENTS

Minimum density where type is water-only is 1.0 acres, where there are no municipal services minimum density is 2.0 acres.

RESIDENTIAL PROPERTIES
([Bos_201510] = "AE*") or ([Bos_201510] = "AG*") or ([Bos_201510] = "RE*")
or ([Bos_201510] = "RL*") or ([Bos_201510] = "RM*") or ([Bos_201510] = "RA*") or
([Bos_201510] = "T*") or ([Bos_201510] = "TC*")

Calculate:
{BOS_Use} = "residential"

MIXED USE PROPERTIES
([Bos_201510] = "CR*") or ([Bos_201510] = "CS*") or ([Bos_201510] = "CG*") or ([Bos_201510] = "MU*") or ([Bos_201510] = "VC") or ([Bos_201510] = "RCC")

Calculate:
{BOS_Use} = "mixed use"

URAN RESERVE AREAS
([Bos_201510] = "*UR*")

Calculate:
{BOS_Use} = "urban reserve"

VACANT DEVELOPABLE RESIDENTIAL PROPERTY

#1 Where "vacant" = <= $5,000 improvement value; Query to calculate development potential for parcels larger than minimum density, prior to application of minimum parcel size assumptions relating to onsite water and wastewater (see below).

([BOS_Use] = "residential") and ([BOS_max_de] > 0) and ([Status] = "vacant") and
([Dev_ac]/[BOS_max_de] >= 1)
>>New Set

Calculate:
{BOS_exp} =

([Dev_ac] / [BOS_max_de]).Truncate

#2 Query establishing development potential prior to application of minimum parcel size

([BOS_Use] = "residential") and ([BOS_max_de] > 0) and ([Status] = "vacant") and ([Dev_ac]/[BOS_max_de] < 1)
>>New Set

Calculate:
{BOS_exp} =

([Dev_ac] / [BOS_max_de]).Ceiling

#3 Query for minimum parcel size in areas served by sewer and water (2,500 square feet or 0.057392 acres), areas with water service (1.0 acres), and in rural areas (2.0 acres).

([BOS_Use] = "residential") and ((([BOS_max_de] > 0) and ([Status] = "vacant") and ([Dev_ac] <= 0.057392) and ([Serv_type] = "water/sewer")) or (([BOS_max_de] > 0) and ([Status] = "vacant") and ([Dev_ac] <= 1.0) and ([Serv_type] = "water")) or (([BOS_max_de] > 0) and ([Status] = "vacant") and ([Dev_ac] <= 2.0) and ([Serv_type] = "")))

Calculate:
{BOS_exp} = 0

IMPROVED RESIDENTIAL PROPERTY

#4 Where "improved" > $5,000 improvement value; Query to determine the development potential of parcels containing land equal to at least three times the minimum density.

([BOS_Use] = "residential") and ([BOS_max_de] > 0) and ([Dev_ac] > 0) and ([Status] = "improved") and (([Dev_ac]-([BOS_max_de]*3))/[BOS_max_de] >= 1)
>>New Set

Calculate:
{BOS_exp} =

(([Dev_ac] - [BOS_max_de])/ [BOS_max_de]).Truncate

#5 Query to eliminate improved parcels that do not contain developable land equal to at least three times the minimum density, or that are less than 1/4 acres, or that are in water service areas and less than 1.0 acre, or in rural areas and less than 2.0 acres, or that contain high value improvements (>$100,000).

([BOS_Use] = "residential") and ((([BOS_max_de] > 0) and ([Dev_ac] > 0) and ([Status] = "improved") and (([Dev_ac]-([BOS_max_de]*3))/[BOS_max_de] < 1)) or (([BOS_max_de] > 0) and ([Dev_ac] > 0) and ([Status] = "improved") and ([Acres] < 0.25)) or (([BOS_max_de] > 0) and ([Dev_ac] <= 1.0) and ([Status] = "improved") and ([Serv_type] = "water")) or (([BOS_max_de] > 0) and ([Status] = "improved") and ([Dev_ac] <= 2.0) and ([Serv_type] = "")) or (([BOS_max_de] > 0) and ([Dev_ac] > 0) and ([Status] = "improved") and (([Dev_ac]-([BOS_max_de]*3))/[BOS_max_de] >= 1) and ([Impr] > 100000)))

Calculate
{BOS_exp} = 0

URAN RESERVE AREAS
#6 Query to calculate development potential of areas planned UR. Such areas can develop at one dwelling unit per parcel.

([BOS_Use] = "urban reserve") and ([Dev_ac] > 2.0) and ([Status] = "vacant")
>>New Set

Calculate:
{BOS_exp} = 1

VACANT DEVELOPABLE MIXED USE PROPERTY

#2 Query to calculate expected residential and commercial development potential for parcels larger than 2,500 square feet with sewer service.

([Status] = "vacant") and ([Desg_ac] > 0.057392) and ([Bos_use] = "mixed use") and
(([Bos_201510] <> "mu") and ([Bos_201510] <> "rcc") and ([Bos_201510] <> "vc"))

Calculate:
{BOS_max} =

(([Dev_ac] / [BOS_max_de])*0.25).Truncate

([Status] = "vacant") and ([Desg_ac] > 0.057392) and ([Bos_use] = "mixed use") and
(([Bos_201510] = "mu") or ([Bos_201510] = "rcc") or ([Bos_201510] = "vc"))

Calculate:
{BOS_max} =

(([Dev_ac]/[BOS_max_de])).Truncate

Table T-5. Calculations Used to Derive New Housing Units Added in the Unincorporated Areas, 2017 - 2028

Column A	Column B	Column C	Column D	Column E	Column F	Col. G	Column H
Land Use Designation	**Developable Acres**	**Estimated Maximum Feasible Development Potential**	**New Home Building Permits 1972-2015**	**% of Building Permits**	**Column C * Column E**	**1721 / 8903**	**Projected New Units 2028**
AE	15,425	419	68	2.18%	9	0.1933	2
AG	159,976	6,713	88	2.82%	189	0.1933	37
CF	325	0	5	0.16%	0	0.1933	0
CG	274	176	8	0.26%	0	0.1933	0
CI	1	0	0	0.00%	0	0.1933	0
CR	952	806	6	0.19%	2	0.1933	0
CS	362	239	2	0.06%	0	0.1933	0
IG	987	0	0	0.00%	0	0.1933	0
IR	78	0	0	0.00%	0	0.1933	0
MB	12	0	0	0.00%	0	0.1933	0
MC	739	0	0	0.00%	0	0.1933	0
MG	3	0	0	0.00%	0	0.1933	0
MR	54	0	0	0.00%	0	0.1933	0
MU	158	925	1	0.03%	0	0.1933	0
NR	2,603	0	1	0.03%	0	0.1933	0
OS	91	0	1	0.03%	0	0.1933	0
P	143,205	0	0	0.00%	0	0.1933	0
PF	2,288	0	1	0.03%	0	0.1933	0
PR	5,686	0	1	0.03%	0	0.1933	0
RA	61,929	2,092	390	12.50%	262	0.1933	51
RCC	966	920	13	0.42%	4	0.1933	1
RE	8,408	1,165	248	7.95%	93	0.1933	18
RL	6,507	12,004	2,050	65.73%	7,890	0.1933	1,525
RM	495	5,158	138	4.42%	228	0.1933	44
T	297,240	7,640	92	2.95%	225	0.1933	44
TC	6,913	174	3	0.10%	0	0.1933	0
Tribal Lands	32,814	461	0	0.00%	0	0.1933	0
UR	118	2	3	0.10%	0	0.1933	0
VC	70	78	0	0.00%	0	0.1933	0
(blank)	183	0	0	0.00%	0	0.1933	0
Total	**748,861**	**38,972**	**3,119**	**100.00%**	**8,903**		**1,721**