

January 24, 2008

Humboldt Economic & Land Plan
PO Box 168
Eureka, CA 95502

Attn: Ms. Kay Backer

RE: HDR REVIEW OF THE COMMUNITY INFRASTRUCTURE & SERVICES TECHNICAL
REPORT, DATED NOVEMBER 2007

Dear Members of HELP:

As requested, attached is our peer review dated January 7, 2008 of the Community Infrastructure & Services Technical Report, dated November 2007, by Winzler & Kelley on behalf of Humboldt County.

In summary, we found the following:

1. The presentation of information is overly confusing
2. Development projections and growth rates lack sound planning assumptions
3. Development projections are overstated
4. No projection of population growth was estimated for year 2025
5. The cost estimate for future infrastructure was not calculated to accommodate development within the County through year 2025
6. The analysis does not provide the necessary information from which policy decisions can be made

We welcome the opportunity to answer any questions you may have after reviewing the detailed review comments.

Sincerely,



Mark J. Hammer, Jr. PE
Vice President

Enclosure

Primary Author:	Joshua Hart, AICP Mark Hammer, PE Nolan Lenahan, EIT	Project:	Humboldt County – Community Infrastructure & Services Technical Report
Date:	January 7, 2008	Job No:	00000000066635
Re:	Overview of Community Infrastructure & Services Technical Report		

Purpose

The purpose of this memorandum is to provide basic overall comments as a peer review to the water and wastewater infrastructure portions of the Community Infrastructure & Services Technical Report. The subject report analyzes existing specified infrastructure and public services, potential development, and resulting future needs in Humboldt County. The overview comments presented in this memorandum are intended to identify substantive issues and areas of conflict with the document. The review is intended to provide clarity and further validate the specific assumptions, facts, and figures presented.

Organization

This memorandum begins with some comments regarding our overall observations about the approach taken in the Community Infrastructure and Services Technical Report for water and wastewater infrastructure requirements, comments then generally follows the order in which information is presented in the report.

Because of the importance of the growth areas served by Humboldt CSD (Humboldt Hill, Ridgewood, Cutten, and Myrtle town), McKinleyville CSD, and the Fieldbrook Glendale CSD, we have included a review of the detailed water and sewer needs. The review comments associated with these areas are representative of the other service areas.

Synopsis

In general we found the following:

1. The purpose of the report was to “present policies and implementation measures for providing the infrastructure needs to accommodate development within the County through year 2025.” Throughout the document, it is unclear what populations will be served in 2025 and how the cost estimates based on existing deficiencies and low and high build-out are to be used to guide policy and decision making. There is no presentation of the economic and social conditions along with development interest (activity) that would drive development toward the low or high build-out values.
2. The County’s housing growth projection is 0.81%. Low and high growth projections were determined to be 0.5% and 2.5%. These are County wide values and are difficult to correlate to specific service areas. There is no presentation of historic trends in water consumption or customer counts for the service area. Utilities, both water and sewer needs are flow based and correlate better to population rather than housing projections. While the

economic denominator for connection costs is number of housing units, the demand for new infrastructure such as storage, pumping, and treatment is based on population (flow). The population projection is 0.54% which would provide a range between 0.3% and 1.7%. The values used in the report for housing projection assumes that housing occupancy will remain constant (in spite of a consistently decreasing trend) and over estimates County wide infrastructure needs as compared with projections of population. There is no correlation presented in the study between growth in the service areas and average growth in the County to bracket a projection to 2025.

3. Build-out capacity of the available land was developed using GIS and is presented in a range from "low" to "high." It is unclear how this range should be interpreted by utilities making decisions about connection fees. The difference between low and high ranges from almost nothing to a factor of 60. Certainly the low estimate of potential dwelling units will result in the most advantageous revenue picture as existing deficiencies and existing capacity is spread over few new customers. It is unclear what the high estimate would be achieved in the next 20 years unless tied to an economic or social condition that would suggest the greater build-out condition.
4. The treatment of infrastructure costs is not very helpful and the connection fees are understated. New connections were given credit for existing capacity in the calculation while the text states "Future connections should buy into the existing infrastructure capacity through connection fees." It would seem more appropriate to determine a unit cost (even if at a market rate) for water wheeling, treatment (if needed), storage, and pumping; and for wastewater sewers, pumping and treatment. Results for the Correction of Existing Deficiencies suggest the cost to existing customers with no growth. Results for the Low Build-Out Estimate are important to evaluating the cost per connection. It is unclear what the estimated financing cost per connection (\$/Month) would be used for. New capital should be paid for by connection fees (unless it represents the risk cost associated with building the infrastructure without the commensurate growth). Rather than the High Build-Out Estimate, it would be more appropriate to present the cost associated with the housing projected to year 2025 and the infrastructure required adjusted based on population.

Values for the growth areas should be adjusted to reflect area specific conditions rather than using County-wide growth values.

Comments

Executive Summary (Page xii)

The purpose of this report is to serve as a basis for the development of the Community Infrastructure and Services Element. This new General Plan Element will present policies and implementation measures for providing the infrastructure needs to accommodate development within the County through the year 2025. The information contained in this report was developed

The report uses the "low" and "high" build-out estimates to determine the ultimate infrastructure needs and utility costs. An analysis of projected housing growth from 2005 to 2025 was used to compare against the high build-out estimate, then only the high build-out estimate was carried forward for sizing and economic analysis.

Cost Development (Page xii)

potential and infrastructure capacity within the County. One of the goals of this analysis was to develop unit costs for providing the required infrastructure to meet development potential within the USAs. These unit costs would then identify areas where development could occur and be the most cost effectively within the County. This approach was used where sufficient data is

It is not clear that the unit costs would identify areas where development could occur within the County. Employment, broader economic factors, and developer interest also play a large role in development decisions. The costs as developed for water and wastewater utilities should not be used to draw such conclusions.

Summary of Infrastructure Capacity Limitations (Pages xiii-xvii)

Current water and wastewater capacity, which ever of the two is more limiting, has been used to identify the maximum number of available connections within each urban study area. For a

Table ES-1 lists the low development estimate, the available capacity, and determines the capacity limitation based on the lower of excess capacity and the low land use density. It is unclear what is to be inferred from this table. Certainly, it is good information to know if there is any excess capacity and what that capacity is in relation to the low unit development estimate, however the low unit land use density does not really limit service by the utility if excess capacity already exists. It would be good information to show the total available capacity value rather than limiting it by the low unit development estimate. It is also unclear why the high values are not used as limiting. Not including the high values seems inconsistent with the detailed evaluation of each service area where the high build-out estimate was used to determine if the projected housing growth were possible and to determine future infrastructure costs.

The development assumptions presented in Table ES-1 are substantially more than projected by the County in its General Plan update. Table ES-1 indicates that the total low unit development estimate will be 9,964 units (page xvii). The County's General Plan update projects demand for 5,961 units, including 3,220 units in unincorporated Humboldt County, by 2025. The low unit development estimate therefore exceeds the County's projected demand by almost two times for total development and more than three times for development in unincorporated areas.

Low and High Build-out Estimates (Page 1-1)

constraints, into consideration to determine the actual acreage of land available for development. the net developable acreage for each parcel was multiplied by two different residential densities (the number of dwelling units permitted per net acre of land as measured in terms of acres per dwelling unit) to develop "low" and "high" estimates of development potential. The low estimate is based upon the mid point of development potential based on the General Plan land use designation and the high estimate reflects potential changes in density (such as increasing the allowable density range of the RL designation from 1 to 7 dwelling units per acre to 3 to 8 dwelling units per acre or adding additional multifamily residential land.) The actual development that can (legally) occur on these parcels using the maximum density allowable under the current zoning is higher than the high estimate. The development projections are summarized in Table 1-6.

The strategy used to estimate the high build-out creates some interesting results. For example, Shelter Cove has a current density of 0.3 units/acre and a high estimate of 7.85 units/acre. The issue is whether the Coastal Commission and other review agencies would approve of increasing the allowable density range. Such dramatic changes in density are listed for Glendale, Myrtle town, Shelter Cove, and Willow Creek in Table 1-6 and suggest a significantly longer planning horizon than 2025. And although the high build-out value may be the future ultimate result, its use as a comparable with building projections to 2025 or for economic calculations may be overstated.

Population and Housing Projection (Page 1-3)

Past Growth Rates. Based on the development that occurred between Census 1990 and 2000, Humboldt County housing units grew at an annual average growth rate (AAGR) of 0.9 percent. Population during this period grew at an AAGR of 0.6 percent. This same overall growth rate has continued, according to the California Department of Finance (DOF) data (Table E-5 - City/County Population and Housing Estimates): the AAGR for housing units was 0.91 percent from 1995 to 2007 and the rate of growth for population was 0.60 during the same period. Based on DOF data, the average household size in Humboldt County has declined from 2.49 in 1990 to 2.39 in 2000, and is now 2.34 in 2007 (U.S. Census and DOF Table E-5).

The continued decline in average household size is likely the most significant contributor to the difference between the growth rate in housing and the growth rate in population. However, the difference between the rate of housing and population growth did vary during this period. According to DOF Table E-5 the housing and population growth rates were nearly equal between 2000 and 2003. In contrast, between 2005 and 2006 the population growth rate declined to 33 percent while the housing growth rate increased to almost 1.60 percent.

Table 1-3 shows the Humboldt County Population Growth Forecast. The overall growth rate for 2025 is 0.54%. It was noted that the housing growth is greater than the population growth rate because the average household size has been declining.

It is important to define the responsibility of the utility versus the responsibility of the developer in providing infrastructure. Generally, the developer is responsible for providing the piping within the development and the utility is responsible for meeting the daily demands for water and sewer. This is consistent with the technical report which shows the cost of pipelines to be borne by the developer. Daily demands increase, not with the number of houses, but with the population only. The utility is required to provide fire service, but once fire flows are provided, they are provided for the entire area, and this does not increase with each new home. Therefore an increased number of homes does not reflect an increase the service requirements of the utility when the household size drops in proportion. The utility needs are directly proportion to population. Therefore the strategy of bracketing the housing projection from 0.5% to 2.5% when the population is increasing at 0.54% over estimates the demands on the utility.

Table 1-4. Growth Projections from State and County

Humboldt County Population Projections		
Year	Population AAGR Based on DOF Projections	Housing AAGR Based on Current Population to Housing Ratio
2000-2005	0.71%	1.07%
2005-2010	0.51%	0.76%
2010-2015	0.57%	0.86%
2015-2020	0.50%	0.75%
2020-2025	0.40%	0.59%
2000-2025	0.54%	0.81%

Source: DOF Table E-5; Humboldt County Community Development Services, 2007.

Table 1-4 shows that a population increase of 0.54% relates to a housing increase of 0.81% and a low value of 0.5% to a high value (3x) of 2.5%. In addition, the increase in housing “assumes that the ratio of housing units to population is the same as it is today” (page 1-4). This overstates the future demands on the utilities, because the low and high population projections are 0.33% and 1.67%

Using the values in Table 1-6 and summing the total estimated potential dwelling units for all of the systems listed in the table, the low and high totals are 9,964 and 24,081 or 1.7% and 3.5% equivalent growth rates for a build-out in year 2025. These values are significantly greater than the housing projection values listed on page 1-4, and even greater than the population projected range of 0.33% to 1.67%.

It appears that the “midpoint of the development potential based on the General Plan” is close to the high population projection at 1.7% and would result in build-out of the general plan area in year 2025.

According to Table 1-3 (page 1-4), the Department of Finance estimates approximately 13,600 new residents in the County between 2005 and 2025. Assuming a household size of 2.4 (which is utilized in the County’s General Plan update for 2025), about 5,700 housing units would be needed to accommodate this increase. This figure is less than the report’s low unit development estimate, even if adjusted for vacancies or a smaller household sizes. Note that this figure is similar to the County’s estimates for housing production.

Referring back to the end of the Table ES-1, it is interesting to note that the low estimate of unit development which is about the same as the high estimate of population projection is close to the available capacity for the utilities as a whole. If the 3x projection multiplier were reduced to 2.2x, then the existing utilities would have adequate capacity to serve the projected population.

Utility demands are also impacted by the unit consumption and discharge. Typical water consumption varies with lot size and needs to be established from local conditions. Typical wastewater generation is 100 gpcd, but varies between 80 and 120. The relationship between housing, population, and utility demands needs to be explained for each service area.

Basis for Forecasts

Although there may be valid reasons for increased development pace in the future, no explanation for increased development activity was found in the report during this review. An increase in development can be precipitated by changing demographics (i.e., household size, income, etc.) or regional development patterns (i.e. influxes of new residents, such as retirees, telecommuters, etc.).

The County’s records do indicate trends towards more building permit activity, increasing income, an aging population, and falling household size, which could be extrapolated into the future to forecast an increase development activity. Historical construction activity also indicates that housing production in the past has ranged between approximately 5,000 and 8,500 units per decade, which would seem to validate that the report’s low estimate of almost 10,000 new units during the

planning period. In the case of the Arcata USA, the report does cite that a developer is intending on constructing 150 additional units. However, in many cases, the report should provide a similar rationale for why the development assumptions are high relative to the County's projections, or revise the development assumptions to provide a range more similar to those of the County. If acceptable within the local political environment, it may also be helpful to consider non-residential development in the demand analysis, since current fiscal policies result in greater revenue for non-residential development than residential development.

The report proposes substantial investments in utilities and public services (refer to Table ES-3), but also acknowledges that facilities and systems serving the area are in poor condition, suggesting that maintenance is an issue. Resources for construction of new utilities and services can be provided by increased development activity. Funding and grants currently are available for infrastructure and services, but it appears that the County has not been successful in procuring these funds. Again, changing demographics and economic conditions may be key to this argument.

The executive summary is excessively long and should more succinctly provide only the necessary information for decision-makers to facilitate their review. Interested parties can view the body of the report for more detail.

SPECIFIC AREA EXAMPLES

Arcata USA (Page 6-6 and 7-14)

6.4.1. Arcata USA

The County estimates there were 190 housing units within the Arcata USA in 2005. Based on the estimated range of housing growth projections of between 0.5% and 2.5%, the Arcata USA could have between 210 and 311 total housing units by 2025. According to Table 1-6, the high build-out estimate for total development potential within the USA, which takes into consideration physical and zoning constraints, is 395 housing units. Therefore, the fair share growth projections for the Arcata USA are within the range of what the land can bear.

The infrastructure cost assessment shows the cost of correcting existing deficiencies at \$15 million with 6,000 connections. The \$15 million is a shared responsibility between the City and Arcata USA. Because the table is about Arcata USA and its 190 homes (as of 2005), it would be better to prorate the \$15 million to Arcata USA and use the 190 homes as the number of Existing Connections in Table 6-1. The costs of \$13.64 per month for the existing residents or \$2,552 per existing connection should be the same and should be explained by reference.

The low and high build-out calculation of connection cost should include a market value for the connection and portion of the capital cost for upgrade to the existing pipeline. There is no estimate of the population in 2025 presented. As stated on Page 6-6, Arcata USA is expected to receive 150 additional connections with the proposed Creekside Homes annexation. These homes, unlike new homes will not be assessed a connection charge. The area was considered in the GIS and so the homes go against the build-out capacity. If the low build-out values are accurate, Arcata will build-out with the next 2 homes. If not, what are the economic and development driving forces that would cause the high build-out values to be more realistic? The high build-out value does not result in 205 new homes, but 150 through annexation and potentially 55 new homes. So the number of new

homes, for which connection fees will be collected, range from 2 to 55 and the estimated cost per connection has not been determined.

The wastewater treatment system infrastructure assessment has 6,388 existing connections and again, represents a larger service area than Arcata USA. The proposed annexation of Creekside Homes is not discussed and the build-out table lists 2 to 205 rather than 2 to 55 as the number of new connections.

Glendale USA and WSA (Page 6-24 and 7-7)

The low estimate of 159 and high estimate of 1,765 if build-out represents an extremely large range for planning purposes. The costs for connection are only attributed to additional storage and results in a low estimate for connection costs. The cost calculation is curious, given 737 gpd/connection for storage, it would seem initiative that the connection costs would be about the same even between 159 and 1,765 connections when the additional storage ratios and unit costs remained the same.

There seems to be no presentation of economic or development driving forces that would suggest that the high build-out would take place in the next 20 years. The table would be more valuable keeping the Correction of Existing Deficiencies and Low Build-out Estimate, but replacing the High Build-out Estimate with 960 (270+162+528) which represents 2.5% growth over 20 years.

The presentation of wastewater costs is confusing. The cost per connection ranges from about \$4,000 to \$27,000. Two ranges of connections are listed with a single value for treatment expansion of \$5 million. It is unclear how the utility would use this information to make decisions.

Humboldt Hill USA (Page 6-28 and 7-31)

There is little correlation between the projected housing units for the Humboldt Hill USA and Table 6-6 which includes the Humboldt CSD service area.

Because the discussion was intended to be about Humboldt Hill CSD, the connections and infrastructure upgrade values listed in Table 6-6 should be prorated back to Humboldt Hill USA or change the presentation to be about Humboldt Hill CSD.

The presentation of wastewater system infrastructure is also for the Humboldt Hill CSD rather than Humboldt Hill USA. The low and high estimates are presented with two sets of new and future connections.

It is a question of presentation, but rather than leaving values as being unknown, market values could be used for unit costs that would allow an order of magnitude estimate of costs.

McKinleyville USA and WSA (Page 6-44 and 7-40)

The McKinleyville study area contains both a USA and WSA. The County estimates there were 5,940 and 431 housing units within the McKinleyville USA and WSA, respectively in 2005. Based on the County's housing growth projections of between 0.5% and 2.5%, the McKinleyville USA could have between 6,563 and 9,733 total housing units by 2025, while the McKinleyville WSA could have between 476 and 706 total housing units by 2025. According to Table 1-6, the high build-out estimates for total development potential within the USA and WSA, which takes into consideration physical and zoning constraints, are 10,052 and 568, respectively. Therefore, the growth projections for the WSA are in excess of what the land can bear.

Table 1-6 lists the Estimate of Potential Dwelling Units at low 2,347 and high 4,249 resulting in a low total of 7,432 and a high total of 9,334. This result differs from the values listed above for low build-out value is 568 and the high value is 10,052.

The low housing projection is 668 (5,753 total) and the high value is limited by the high potential units in McKinleyville WS only resulting in a total of 9,015 (5085+3793+137)

There are no economic or development pressures that suggest that the high value would be obtained by 2025. It would seem appropriate to list infrastructure requirements and costs for the Correction of Existing Deficiencies, the Low Build-out Estimate, and the estimated housing projection of 2.5% to 2025 of 3,932.

Additional infrastructure should include the market value of the use of existing infrastructure as previously described.

The presentation of wastewater costs contains two ranges of new and future connections, one set of costs, and an unknown calculation of existing connection cost and range of total future connection costs. The cost does not include use of existing infrastructure, the range of costs for future infrastructure, or an understanding of the use of the values. Connection fees are appropriate for new houses, while connection fees should be used to recover operating costs (as opposed to future capital infrastructure costs).

References

1. Community Infrastructure & Services Technical Report. Prepared by Winzler & Kelly Consulting Engineers and Planwest Partners. November 2007.
2. Humboldt 2025 General Plan Update Building Communities A Discussion Paper for Community Workshops. Prepared by Dyett & Bhatia. February 2002.
3. Humboldt County General Plan update website. December 2007.
<http://co.humboldt.ca.us/planning/gp/default.asp>