

**TO: Sonoma County Groundwater Sustainability Agencies**

**FROM: Pete Parkinson, AICP**

**DATE: December 22, 2020**

**SUBJECT: Rural Residential Housing Unit Projections**

This memo summarizes the methodology used to develop a range of rural residential housing unit projections for use with the required projected water budgets for the three Groundwater Sustainability Plans (GSPs). These projections include rural residential growth anticipated to rely on groundwater in the three basins, including water from individual domestic wells and from independent water systems that rely on groundwater (e.g., mutual water companies and similar entities). The projections do not include development where water is provided by a large public water system<sup>1</sup>. The projections cover the entire 50-year planning horizon in the GSPs (2022 to 2072) and are summarized in the attachment.

Public agencies typically do not generate 50-year projections, mainly because of the considerable uncertainty associated with future land use and economic conditions. The starting point for most projections is the local general plan, in this case Sonoma County's *General Plan 2020*. However, the projections in General Plan 2020 only extend to the Plan's horizon year of 2020, so another source for data and projections is needed. It is noted that the California Department of Finance projects a 15 percent decline in Sonoma County's population by 2060, but this projection is not useful for estimating the rural residential subset of Sonoma County's land use future.<sup>2</sup>

Despite the lack of projections beyond the General Plan horizon year, this analysis assumes that the foundational planning policies adopted by the County and the incorporated cities will remain in place for the duration of the GSP. These adopted planning policies focus most residential growth into the cities and designated unincorporated urban service areas. All nine cities in Sonoma County have voter-adopted urban growth boundaries, which are assumed to remain in effect throughout the GSP planning period. As a result of these policies, residential growth in the rural areas has historically been low and is expected to remain that way into the foreseeable future.

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<sup>1</sup> For analysis purposes, large public water systems include municipal purveyors and other public water systems serving over 500 connections. Most of these large public water system service areas are included in water demand projections through 2045 that are currently under development for 2020 Urban Water Management Plans (UWMPs). These UWMP projections will help inform the development of future groundwater projections in service areas for large public water systems.

<sup>2</sup> California Department of Finance. Demographic Research Unit. Report P-2A: Total Population Projections, California Counties, 2010-2060 (Baseline 2019 Population Projections; Vintage 2019 Release). Sacramento: California. January 2020.

While the local land use plan does not provide useful projections, the Sonoma County Transportation Authority (SCTA) develops and maintains a countywide transportation model as part of the Comprehensive Transportation Plan (CTP) to forecast future traffic volumes and patterns. The current CTP has a horizon year of 2040. The transportation model includes projections of land use changes (residential and non-residential) in approximately 900 Traffic Analysis Zones (TAZs) throughout the County. These land use projections at the TAZ level are based on the projections in PlanBayArea 2040,<sup>3</sup> supplemented with a finer-grained analysis of local development activity and consideration of general plan buildout capacity, based on input from local planning agencies. In addition to the 2040 land use projections, the SCTA model has the added advantage of providing a geographic distribution of the projected housing unit growth.

Using SCTA's TAZ data, we have developed rural residential growth projections for three scenarios that provide a high, medium, and low range of growth rates, as shown in the attachment. The "low" scenario corresponds to general plan buildout, which is low mainly because of the short time horizon for the current general plan but relies on the geographic distribution from the SCTA model. The "medium" scenario is based on PlanBayArea 2040 and the "high" scenario is 25 percent above PlanBayArea 2040. Separate projections were made for areas within each groundwater basin and for areas in the contributing watershed for each basin which are also included in the domains of the models which will be used to estimate the projected water budgets. These are shown as "in-basin" and "watershed," respectively, on the attachment. The geographic distribution of future growth is the same for each scenario and is based on the land use projections in SCTA's model.

The following paragraphs describe how these projections were developed to ensure that we are only looking at rural residential growth that affects groundwater demand.

- The analysis excludes any portion of a TAZ that is either outside the basin or watershed (as the case may be), or within a large public water system.<sup>4</sup> Areas within a large public water system service boundary will be accounted for in the groundwater model by taking into account data projections from 2020 UWMPs or other water system projections currently being developed. GIS data was used to calculate the percentage of land area in each TAZ that is relevant to this analysis (i.e., within a basin but outside a municipal boundary). That percentage was then applied to the SCTA model's housing unit projections to arrive at an adjusted projection for each TAZ. The resulting data and projections were further analyzed for anomalous situations.

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<sup>3</sup> The regional planning agency for the Bay Area, ABAG/MTC, develops population and housing projections for each city and county in the region as part of the Regional Transportation Plan and Sustainable Communities Strategy. The current version of this plan, PlanBayArea 2040, includes projections to the year 2040.

<sup>4</sup> Large public water systems include the Town of Windsor; Cal-Am (California-American Larkfield PUC service area); the cities of Santa Rosa, Rohnert Park, Cotati, Petaluma, Sonoma and Sebastopol; Penngrove (used geographic extent of Penngrove detailed in the US Census TIGER database); and the Valley of the Moon Water district.

- Most anomalies occurred where a TAZ straddles a municipal boundary, but the projected housing unit growth will occur within the municipality, not in the rural portion of the TAZ. Since growth in the rural areas is expected to be relatively low, these anomalies were identified by scanning for TAZs that showed a high growth rate (e.g., more than a 25% increase over 25 years). These TAZs were then checked on a map to determine whether growth would likely occur within the municipal boundary or in the rural area. In nearly every situation where this was checked, the likely growth was determined to be within the municipal boundary, not in the rural area, so the projections for that TAZ were adjusted downward.
- In the community of Penngrove (part of the Petaluma Valley Subbasin), domestic water is provided by the privately owned Penngrove Water Company. Within this portion of its service area, the PWC uses water from the Sonoma Water aqueduct rather than groundwater, so this usage should not be included in groundwater demand projections. However, the PWC service area map does not correspond to the location of actual connections (actual connections are in a much smaller area). Considering this, the Penngrove area defined by the TIGER Census database was used as the service area instead of the published service area as it reflects the likely extent of the service area. The portion of the PWC service area outside of Penngrove relies on groundwater (most notably the Canon Manor West area in the Santa Rosa Plain Basin) and is included in the rural residential projections.
- The numerous mutual water companies in the three basins create an additional issue because geographically dispersed rural residential parcels draw water from a single shared well (or well field). For these areas, the projected growth will be distributed throughout the relevant TAZs as described above, but the current baseline groundwater pumping for the mutual water company will be assigned to the known location of the water company well(s), where data is available. Projections of housing unit growth in TAZs encompassing mutual water companies should not be interpreted as projections for those water providers; no attempt was made to project housing unit growth or future water demand for mutual water companies but additional housing unit development is accounted for at the TAZ level. It is noted that the areas served by most mutual water companies are largely built out and substantial additional residential development is not anticipated.
- Since the low-growth TAZ level projections based on SCTA's model only went to 2040, these figures were extrapolated out to 2072. This was a straight-line extrapolation based on the growth rates calculated in each TAZ from 2015 to 2040 (the period covered in SCTA's model). Consideration was given to decreasing the growth rate after 2040 as the County's rural areas approach buildout, but a straight-line extrapolation was chosen due to the considerable uncertainty with long-range projections. The projected

growth was divided evenly into 5-year increments to correspond to the time frames in the groundwater model.

- The figures in the attachment do not include Accessory Dwelling Unit (ADU) development in the rural areas. However, ADUs will be accounted for in the groundwater model by including a water use factor based on new ADUs as a percentage of new dwelling units. Data from 2014 to 2018 shows that, on average, the number of new ADUs was 25 percent of the number of new dwellings (with a low of 15% and a high of 35% per year). The water use factor assumes that ADUs do not result in additional outdoor water use, so the per-unit water use factor for new ADUs is a fraction of that used for new dwellings.
- While these projections were in development, the ABAG and MTC were (and remain) in the process of updating PlanBayArea to a 2050 horizon year. A key feature of this regional planning process is the Regional Housing Needs Allocation process, or RHNA. The RHNA process provides the number of new housing units that each city and county must plan for over the next eight-year planning period (2022-2030). Although the RHNA process is not finalized, preliminary information indicates jurisdictions throughout the Bay Area are likely to receive a substantially larger housing allocation in this upcoming cycle. Substantial uncertainty remains about the final RHNA numbers. The RHNA process and the planning necessary to distribute these additional housing units at the jurisdictional level will not be completed in time to be integrated into the initial GSPs. Given this timing and the substantial uncertainty surrounding the RHNA numbers themselves, no attempt was made in this analysis to forecast future housing based on new RHNA numbers.

As shown in the attachment, the growth rates in the three groundwater basins are projected to be quite low under the low, medium, and high growth scenarios. Even the “high” growth scenario shows less than 1 percent growth annually. As discussed above, this is to be expected in the rural areas of the County. Nonetheless, the three scenarios provide a reasonable range of projected rural residential housing unit growth.

These projections will be revisited and updated for each 5-year update of the GSP. The projections contained in the SCTA traffic model will remain a useful tool for medium-term projections (i.e., 20 years) and the TAZs will remain useful for projecting the geographic distribution of rural residential growth. In the first 5-year GSP interval, the upcoming round of RHNA allocations will be finalized and local planning agencies will complete the planning necessary to distribute those additional housing units throughout their respective communities. In addition, the County will likely make substantial progress and perhaps even complete its General Plan update, which will provide useful insights and updated population and housing forecasts.

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In addition to using the adopted planning documents for each update of rural residential growth, it is recommended that permitting activity be tracked in each basin and watershed, at the TAZ level if possible. This will help validate the results obtained using the SCTA model data and improve the accuracy of projections over time as implementation of the GSPs occurs.

Attachment: Rural Residential Housing Projections

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	Low		Medium		High	
	Annual Rate	Total New Housing Units	Annual Rate	Total New Housing Units	Annual Rate	Total New Housing Units
2015 Baseline Housing Units						
<b>Sonoma Valley, In Basin</b>	2987	0.2%	340	0.6%	986	0.7%
<b>Sonoma Valley, Watershed</b>	2843	0.1%	98	0.4%	630	0.5%
<b>Petaluma Valley, In Basin</b>	1021	0.1%	67	0.5%	286	0.6%
<b>Petaluma Valley, Watershed</b>	1399	0.1%	44	0.1%	101	0.2%
<b>SRP, In Basin</b>	7116	0.2%	612	0.5%	2077	0.6%
<b>SRP, Watershed</b>	5649	0.2%	560	0.5%	1734	0.7%