



KEYSER MARSTON ASSOCIATES™
ADVISORS IN PUBLIC/PRIVATE REAL ESTATE DEVELOPMENT

MEMORANDUM

ADVISORS IN:
REAL ESTATE
REDEVELOPMENT
AFFORDABLE HOUSING
ECONOMIC DEVELOPMENT

To: Nancy Johnson, Housing and Community Development Program Manager
County of Napa

From: Kate Funk

Date: April 21, 2014

Subject: Vineyard Planting and Replanting
Affordable Housing Nexus Analysis

SAN FRANCISCO

A. JERRY KEYSER
TIMOTHY C. KELLY
KATE EARLE FUNK
DEBBIE M. KERN
REED T. KAWAHARA
DAVID DOEZEMA

LOS ANGELES

KATHLEEN H. HEAD
JAMES A. RABE
GREGORY D. SOO-HOO
KEVIN E. ENGSTROM
JULIE L. ROMEY

SAN DIEGO

PAUL C. MARRA

We are pleased to transmit the following draft of our analysis which explores the potential to enact an impact fee on the planting or replanting of Vineyards in Napa, pursuant to our current contract agreement.

The following presents our findings with respect to the major data needs and the key analysis linkage and results. We conclude with a discussion of potential next steps and also the conceptual issues with respect to replanting.

In several major steps, we use the same materials that we are using in the forthcoming non-residential nexus analysis. Examples include the affordability gaps, etc. While you do not have the report yet, you do have a set of tables, but doubt you will need them to follow this narrative. We are also not including the full nexus analysis table set for vineyard employment since we think it adds little at this point.

The text has been written in a more informal style given the nature of the assignment. As such, this material could remain in this memorandum format or could be reformatted slightly and included or appended to the update report.

We would appreciate discussing this document with you after the County team has had a chance to review it. There is much we might talk about, particularly when it comes to the replanting, so we look forward to the discussion when you are ready.

VINEYARD PLANTING AND REPLANTING – AFFORDABLE HOUSING NEXUS

Introduction and Context

As part of the work program to update the non-residential nexus analysis for Napa County, KMA was asked to examine the possibility of including vineyard planning as part of the overall non-residential affordable housing program. Vineyard lands are responsible for significant employment within the county as well as ongoing employment growth within the County and underlie the economy of the County overall. Planted vineyards currently account for around 45,000 acres of land with potential for some additional planting of new lands and ongoing replanting on a regular basis.

A jobs-housing nexus analysis demonstrates and quantifies the increase in affordable housing demand generated by the net new employment associated with development activity – typically commercial and residential development. In the case of vineyard land, KMA was asked to analyze the employment generated by two activities – establishing new vineyard land, which generates an ongoing demand for vineyard workers, and the replanting of existing vineyard land, which generates a temporary demand for employees to conduct the replanting. The two activities are handled separately from a nexus perspective.

The purposes of this task, for both new vineyard planting and replanting, is to test the concept, examine the relationships, establish data availability and additional data needs, and to draw conclusions and recommendations about next steps. As such, the following has been undertaken to demonstrate the relationships and illustrate the nexus, recognizing that more research and analysis may be needed if the County wishes to pursue an affordable housing obligation to be charged on new vineyard development and replanting of existing vineyards.

Data and Information Sources

The analyses in this report have been prepared using the best and most recent data available. Local and current data was used whenever possible. For this analysis, KMA built upon the research conducted by Bay Area Economics in the *2012 Napa County Farmworker Housing Needs Assessment* analysis. Additional published data and reports, including Census data, EDD data, a University of California Cooperative Extension cost analysis for producing winegrapes report, and other materials were consulted.

Highly useful and valuable information was derived from interviews with key personnel at two vineyard management companies based in Napa County. Vineyard management companies are increasingly responsible for the day-to-day farming and operations at vineyards in Napa Valley and therefore have a broad understanding of the labor needs for grape-growing activities. The interviews yielded extensive helpful information on many aspects of employment

(occupations, compensation, hours worked, etc.) for planting new vineyards and the cycle of replanting, current housing and worker commute conditions, and housing needs. KMA consulted with Goldfarb & Lipman, the County's consulting attorneys for affordable housing issues.

Specific sources are cited throughout this report. While we believe all sources utilized are sufficiently accurate for the purposes of the analyses, we cannot guarantee their accuracy. Keyser Marston Associates, Inc. assumes no liability for information from these and other sources.

A. New Vineyard Land

A jobs-housing nexus analysis, presented herein, for new vineyard land has much in common with the jobs-housing nexus analysis conducted for other new commercial and industrial land uses, being prepared under the same work program as this task. The analysis quantifies and documents the linkages among development of the new vineyard, the employees that work in the vineyard, the compensation level of the employees and the income of their households and the demand for affordable housing generated by the new worker households. Since jobs in vineyards cover a range of compensation levels, and the households of the workers range in size, there are needs at various affordability levels. This analysis quantifies the needs at the different affordability levels associated with newly planted vineyard land, assuming the prior use of the land entailed minimal employment.

1. Vineyard Employment

The first step in developing a jobs-housing nexus analysis for new vineyard land is to understand the employment patterns typical for Napa County wine grape cultivation, in particular, the employment density and the distribution of jobs by occupation. Employment density in this case is number of workers in relation to land area planted, or workers per acre.

Employment Density

To develop an estimate of employment density, KMA relied upon existing data sources and the interviews with the two vineyard management companies. The following summarizes the density information from the various sources.

The University of California Cooperative Extension publishes a series of reports detailing production costs for various crops in different regions of California, including one on wine grapes in Napa Valley. In the 2012 report titled "Sample Costs to Establish a Vineyard and Produce Wine Grapes: Cabernet Sauvignon," the authors estimate both the initial start-up costs (years 1-3) and the annual operating costs (years 4 and on), including an estimate of the labor hours, to produce wine grapes in Napa Valley. Including harvesting, the authors estimate that

an acre of established cabernet sauvignon grapevines requires 208 hours of labor annually. Assuming a full-time employee works 2,080 hours annually, this is equivalent to 0.10 full-time equivalent workers per acre. It is noted that the analysis focused on cabernet sauvignon and did not discuss how other types of grapes might differ in labor needs. Since it is known that vineyard workers do not work the full twelve months of the year, the 208 hours may entail more employment than 0.10 per acre.

Our interviews with vineyard managers suggest that typical employment density for vineyard land is about 2 workers for every 10 acres, or 0.2 workers per acre. In the not-so-distant past, labor demands for vineyards were significantly lower – at about 1 worker for every 20 acres (or 0.05 workers per acre). With increases in planting density and an increased focus on labor-intensive canopy management techniques, typical employment density has intensified. In fact, our interviews suggest that high-end wine varietals such as cabernet sauvignon can have an employment density of 4 or 5 workers per 10 acres (which translates to 0.4 - 0.5 workers per acre), for at least the most active months of the years. It is important to note that these figures are for fieldworkers and their immediate supervisors and does not include a factor for office administrators, accounting, upper management and other vineyard management employees who do not work onsite. Total employment density is therefore likely to be higher than these figures.

For the purposes of this analysis, a factor that is something of mid-point of the various sources described above is used: 0.15 workers per acre, including the direct employees who work offsite such as office administration and upper management. For ease of presentation, the nexus analysis is presented for a 100-acre vineyard, which is to say that the 100 acre vineyard has 15 employees.

Occupational Distribution

The next step in the nexus analysis estimates the occupational distribution of the vineyard workers. For this step, KMA used the Bureau of Labor Statistics 2012 Occupational Employment Survey (OES) for the industry titled “Support Activities for Crop Production.” This national data was customized somewhat to reflect Napa County vineyards more accurately, based on our discussion with vineyard managers regarding the occupational distribution of their employees.

For example, within farmworker occupations, the national OES data sorts employees into first-line supervisors, agricultural equipment operators, farmworkers/laborers, and other. Nationally, about 3% of farming occupations are first-line supervisor positions. However, our interviews with vineyard managers suggested that in Napa, there is a higher percentage of supervisor positions. One manager told us that about 1/7 of his workforce (about 15%) is at the supervisor level, while a second manager indicated that about 30% of his employees are either supervisors or equipment operators. KMA adjusted the national figures to reflect the higher ratio of supervisors to fieldworkers and the higher percentage of equipment/spray operators in Napa than the national average.

Farming, Fishing and Forestry Occupations	National OES Data	KMA Adjusted Data
First-Line Supervisors of Farming, Fishing, and Forestry Workers	2.9%	15%
Agricultural Equipment Operators	5.3%	15%
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	84.1%	69%
All Other Farming, Fishing Occupations	<u>7.7%</u>	<u>1%</u>
	100.0%	100.0%

Overall, the farming occupations represent over 75% of the jobs associated with vineyard lands. The remaining jobs include office and administrative roles, transportation and material moving occupations, and miscellaneous others. A complete distribution of occupations is shown in Table 1.

As with the other non-residential nexus analyses that count only jobs within the buildings themselves, this accounting of jobs in the field does not take into account all the indirect employment attributable to the increased grape production. The indirect employment would include wine making, storage, and a number of other related jobs attributable to the wine grape production.

Compensation Levels

A key input into the nexus analysis is the compensation levels for the various occupations. As a starting point, KMA used recent Napa County wages and salary information from the California Employment Development Department (EDD). KMA compared the data published by EDD with the wage and salary information in the Farmworker Housing Needs Assessment, and the wages paid by the vineyard managers that we interviewed. The EDD wage data proved consistent with the other data sources. The sources concur that fieldworkers earn a little over \$12 per hour, equipment or spray operators earn between \$15 and \$18 per hour, and supervisors or foremen in the range of \$20 to \$25 per hour. No adjustments to this information were deemed necessary.

Hourly Wage Data	EDD Wage Data	Vineyard Manager Interviews
First-Line Supervisors/Managers of Farming, Fishing, and Forestry Workers	\$23.14	\$20 - \$25
Agricultural Equipment Operators	\$13.76	\$15 - \$17
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	\$12.37	\$12 - \$12.30

The hourly wage data collected by EDD appears to be a sound estimate of wages paid to vineyard workers in Napa County. However, the number of hours for which workers are compensated per year is a little less clear. EDD uniformly assumes all workers in all occupations (not just farmworkers) work 40 hours a week for 52 weeks per year.

The Farmworker Housing Needs Assessment discusses the level of employment for Napa County farmworkers. The interviews conducted for the Needs Assessment suggest that there is a trend towards vineyard workers working for at least 10 months each year. One interviewee estimate that about 75% of farmworkers in Napa County work more or less year-round.

Farm management interview information suggests that farmworkers are paid benefits, which presumably means holidays and some vacation time, but it is also clear that these workers are not employed all 12 months of the years. On the other hand, for many weeks the farmworkers may work up to 60 hours (the maximum before overtime pay goes into effect). Our interviews with vineyard managers also suggest that vineyard employment is more cyclical with intense hours during the spring and in the fall, fewer hours in the summer, and about 1-2 months of unemployment in the winter months for the fieldworkers.

One vineyard manager estimated that his 'seasonal' employees work for 11 months of the year; half of the time, they are working 40 hours per week, and half the time, they are working about 52 hours per week (9 hour days during the week plus 6 to 8 hours in Saturday). This works out to 2,200 hours per year. A second vineyard manager estimated that his seasonal employees work 10 months of the year but with longer days – 10 hours per day, 6 days per week. This works out to 2,600 hours per year.

For the purposes of the analysis, we assume the standard 2,080 hours per year (40 hours per week, 52 weeks). This makes the annual compensation of the \$12.37 per hour farm workers total about \$25,700 per year. While some vineyard employees may exceed this annual figure, there are clearly many employees who work less, such as those brought on during the peak periods in the spring and fall. At the supervisory level, annual compensation is approximately \$48,000 per year with the same assumptions at \$23.13 per hour. These figures could be adjusted with more research on annual compensation levels for the various types of jobs but we believe these estimates are sufficiently accurate for the purposes of this test analysis.

Note that overstating the total hours worked would make the analysis more conservative, as it would overstate annual incomes.

Table 2 presents an overview of the annual incomes of the various occupations included in the analysis.

Household Income

In the nexus analysis, individual *employee* income data is used to calculate the number of *households* that fall into the various income categories by assuming that multiple earner households are, on average, formed of individuals with similar incomes. In the case of farmworkers, our research indicates that this is particularly true with vineyard workers. In many cases, vineyard workers either live together or with their families. Our interviews suggested that

many of the wives of the vineyard workers are employed in the hospitality industry in Napa Valley. The jobs in the hotel and retail/restaurant industries tend to be at a pay-scale comparable to the wages paid to vineyard workers.

Since data specific to farm workers on the number of workers per worker household (and also their house hold size distribution which could be different) is not available, the overall average used in the rest of the nexus analysis at 1.76 workers per worker household is used in this analysis. The model does recognize a different distribution of number of workers for each household size. For example, a four-person worker household may have one, two, three or four workers.

2. Nexus Analysis Results

The forgoing information on number of employees, compensation levels and number of workers per worker household are input into the nexus model in the same manner as with employment in a commercial or industrial building, except in this case the space module is 100 acres. (See Section II of the main report.)

Households are sorted into income categories based on household size and household income. (The 2013 Median Income in Napa County for a four person household was \$86,100.) The results are shown below.

Household Income Category	Number of Households (per 100 acres)	Percent of Households
Up to 50% Median Income	3.5	42.4%
50% to 80% Median Income	2.6	30.9%
80% to 120% Median Income	1.8	21.3%
Subtotal to 120% AMI	7.9	94.6%
Above 120% of Median	0.5	5.4%
Total New Worker Households	8.4	100%

Almost 95% of new worker households associated with new vineyard land will have household incomes below 120% of the median. Over 42% of the new worker households will earn less than 50% of the median income.

3. Nexus Estimates – Total Nexus Costs

The final step of the nexus takes the conclusions on the number of households in the various income categories and identifies the total cost of assistance required to make housing affordable. This section puts a cost on the units for each income level to produce the “total nexus cost.”

The cost of assistance component of the linkage requires an assumption regarding the type of housing unit to be produced to accommodate the new worker households. In Napa County, there is considerable discussion regarding solutions to the farmworker housing crisis, including additional farmworker housing camps, housing onsite at vineyards and others. Based on the data contained in the Farmworker Housing Needs Assessment, and confirmed by our interviews with vineyard managers, there is a clear demand for family housing at rent levels affordable to vineyard workers. Because of the very limited supply of such units within the County, substantial numbers of workers reside outside the County and commute to their jobs on a daily basis.

Because of the strong need for housing units for families, the housing unit used in the nexus analysis non-residential building is used in this analysis. The County intends to assist in the production of rental units for households in the Very Low (less than 50% of median income) and Low (50 – 80% of median income) income categories, and the production of ownership units for households in the Moderate (80% - 120% of median income) income category. KMA reviewed the development pro forma for four affordable rental housing developments – three from Napa Valley Community Housing (Oak Creek Terrace, Arroyo Grande and Magnolia Park) and one from Bridge Housing (Napa Creekside).

Based on these recent projects, KMA concluded that, on average, the new affordable rental units have 2.0 bedrooms. The affordable ownership units are assumed to be small single family units with a mix of unit sizes averaging 2.0 bedrooms per unit. Note that larger units are likely to be in demand by many farmworker households. The Farmworker Needs Assessment found that on average, seasonal or migrant farmworker households have 2.4 children, with a range from 0 to 11 children. Larger units would result in larger affordability gaps; therefore, the estimates used here are conservative.

The analysis assumes that tax credit financing is available for the rental income units. The level of tax credit equity per unit represents a blend of 4% and 9% tax credit projects, based on the sample pro formas reviewed. For a complete review of the assumptions used in the affordability gap analysis, see Appendix C of the Job-Housing Nexus Analysis Update Report.

	Households Per 100 Acres	Affordability Gap per household	Total Nexus Cost Per Acre
Up to 50% Median Income	3.5	\$164,000	\$5,810
50% to 80% Median Income	2.6	\$138,000	\$3,570
80% to 120% Median Income	1.8	\$80,000	\$1,423
Total	7.9		\$10,803

The total housing nexus cost for new vineyard land is \$10,803 per acre. In other words, each newly planted acre of wine grapes adds new employment, most of which is at compensation levels for which affordable housing in the County cannot be delivered without subsidy. To supply housing for the new farmworkers, the County would need to charge \$10,803 per acre to cover the subsidy costs.

These total nexus costs represent the ceiling for any affordable housing fee placed on new vineyard land. The totals are not recommended levels for fees; they represent only the maximums established by this analysis, below which fees or other requirements may be set.

B. Replanting of Vineyards

In this section, the nexus analysis for replanting of existing vineyards is explored, using much of the same data but with some significant distinctions.

In Napa Valley, an established vineyard must be replanted every 20 to 30 years, the economic lifespan of a grapevine. As a grapevine ages, it produces less fruit until it eventually reaches a point where it is more economical to replace the vine. Our interviews with vineyard managers suggest that replanting a vineyard is a labor-intensive activity that requires additional fieldworkers for three years, with especially intense labor needs the first two years. By the fourth year, the labor needs for the new vineyard are about the same as they were prior to the replanting.

The Farmworker Housing Needs Assessment indicates the increase in labor is followed by a three or four year reduction in labor demands because the new vines do not require harvesting during that time. In addition, the survey conducted as part of the Needs Assessment found that three-quarters of employers indicated that replanting would likely have no effect on their farmworker labor requirements. The vineyard managers that we interviewed both agreed that there is a short-term increase in employment, after which employment returns to pre-replanting levels.

Cyclical Activity

Historically in Napa, replanting activity has been cyclical in nature, with periods of activity lasting up to 10 years followed by lulls lasting about ten years. Replanting activity at the current time is driven by the fact that many vineyards were replanted in the late 1980s and early 1990s following the phylloxera disaster and the need to replant with phylloxera-resistant root stock. These vineyards are now starting to be replanted and the region anticipates a burst of replanting activity over the next several years.

While the phylloxera outbreak in the late 1980s put many vineyards on the same replanting schedule, there are also several long-term external factors that suggest replanting will remain fairly cyclical in Napa Valley. The replanting decision is dependent on wine grape prices, financing costs, trends in vineyard management, and vineyard pests and diseases, among other factors. Many of these factors are external to a particular vineyard, including grape prices, financing costs, and trends in vineyard management; these external factors work to reinforce the cyclical nature of replanting. The benefits of staggering replanting activity throughout the region do not outweigh these external factors.

On the other hand, the high costs of replanting and the labor shortages to do the replanting may drive growers to eventually even out replanting programs so that the high activity years and low activity years become more normalized. Nonetheless, the cyclical aspect of replanting every 20 to 30 years will continue.

Unfortunately, the cycle of replanting exacerbates the shortage of housing in the region during the replanting periods.

Employment Demands

The replanting of a vineyard requires special additional labor for a brief period of years.

One vineyard manager estimates that labor needs increase by about 50% during replanting periods; in other words, in addition to his standard workforce of about 200 fieldworkers, he would need 100 more short-term workers to conduct the replanting. He estimates that labor demands are higher for the first three years of replanting, and starting in year four, labor demands return to their pre-replanting levels. If the typical employment density of a vineyard is 0.15 persons per acre, this suggests that replanting activities would generate a demand for an additional 0.075 persons per acre.

A second vineyard manager estimates that 10 acres of replanted vineyards would take a 12-person crew 2-3 weeks to replant in year one. With 50-hour work weeks for 2 ½ weeks, this translates to 1,500 hours of labor per 10 acres, or 0.07 full-time equivalent workers per acre. In year two, a similar level of effort is required for training the vines. By the third year, the vineyard requires about 10-15% more labor than normal, and by the fourth year, labor needs have returned to their pre-replanting levels.

The UC Cooperative cost study estimates the cost to replant a vineyard, but does not estimate the hours of labor required during the replanting period. Given the data available, KMA estimates that replanting activities generate a demand for labor equal to approximately 0.075 workers per acre for a two-year period. There is an additional, smaller impact in the third year that is not included in the above density estimate. The estimate also focuses on vineyard workers only, and does not include a factor for the office administrative staff that supports the vineyard workers, including upper management, accounting, and others.

Nexus Approach

A standard jobs-housing nexus analysis quantifies the impact of a one-time long-term increase in employment due to the development of new workspace. The resulting fee is then charged once at the time of development, and not again (unless there is an intensification of use/employment on the site). A nexus analysis on replanting activity, however, requires an adjustment to the standard analysis. In the case of replanting, the employment impact is short-term (two to three years) and reoccurs every 20 to 30 years or so.

The short-term employment, however, generates a quantifiable demand for housing over the 2 year period. And in the aggregate, replanting the vineyards in Napa County creates a significant need for additional vineyard workers on top of those already needed to care for the vineyards. These workers in turn generate a demand for affordable housing within commuting distance to Napa County.

One approach for addressing the short-term nature of replanting employment would be to apply a factor to the total housing demand generated. An individual vineyard generates two years of employment demand approximately every 25 years. Thus, the vineyard could be construed to generate 2/25 of the employment demand, and therefore 2/25 of the housing demand.

An additional adjustment would need to be made to address the recurring nature of the replanting activity. If a vineyard pays a replanting jobs-housing nexus fee in year 1 and the proceeds from that fee are used to create affordable housing in Napa County, then that housing is presumably still available in year 25 when the vineyard replants again. An adjustment based on the typical useful life of an affordable housing development should be made to ensure that a vineyard does not pay for the same housing demand more than once. For example, if the typical useful life of an affordable unit is, say, 50 years, and a vineyard replants every 25 years, then the vineyard would be assigned 50% of the housing demand at each replanting. Continuing with the 2/25 factor from above, the recurring payment adjustment would reduce the factor further, to 1/25. The idea here is that the vineyard pays half of its obligation at the first replanting (1/25 of the housing demand), and half of its obligation at the second replanting 25 years later (1/25 of the housing demand), for a total payment of 2/25 of the housing demand over a 50 year period, the useful life of the affordable housing developed by the fee proceeds.

Nexus Estimate

Based on our discussions with vineyard managers, it appears that the occupational distribution of the workers doing the replanting, and the wages paid to those workers, would be substantially the same as the workers conducting the annual vineyard operations. If anything, the workers conducting the replanting would earn less than the long-term employees, as they would have less seniority at the vineyards. However, for the purposes of this preliminary nexus exploration, the distributions of jobs, wages, and households by affordability level developed in the New Vineyards analysis is applied to the short-term workers conducting the replanting. With an employment density of 0.075 workers per acre, the nexus analysis results are as follows:

	Total Nexus Cost Per Acre	1/25 of the Nexus
Up to 50% Median Income	\$2,905	\$116
50% to 80% Median Income	\$1,785	\$71
80% to 120% Median Income	\$711	\$28
Total	\$5,401	\$216

These total nexus costs represent the ceiling for any affordable housing requirement placed on replanting vineyards. The totals are not recommended levels for fees; they represent only the maximums established by this analysis, below which fees or other requirements may be set.

Alternative Nexus Cost

Since the labor needs associated with replanting are of a two to three year duration, the annual cost per farmworker for the Napa County Farmworker Centers might be considered as an alternative. The Farmworker Centers are subsidized in part by the CSA#4 Assessment that Napa County vineyard owners approved in 2002 and again in 2012; the annual assessment is currently \$10 per planted acre. The Centers have a total of 180 beds and they provide dormitory style housing and three meals per day.

In addition to the rents received from farmworkers and the revenue from the CSA#4 annual assessment, the FY2013-14 budget estimates that an additional \$175,683 in funding will be required to cover operating expenses at the Farmworker Centers. In addition, the County will fund \$190,000 in administration costs for the Centers. Overall, this totals \$365,683 in additional funding required to operate the Centers on top of the rents paid and the CSA#4 assessment. This translates to \$2,032 per bed.

For the purpose of the analysis, we assume that replanting causes a two-year increase in employment (our interviews suggest that there is an additional smaller increase in the third year as well). Two years worth of the additional funding per bed required for the Centers, with the second year discounted at 5%, equates to \$3,966 per bed. At an employment density of 0.075 employees per acre, this translates to a fee of \$297 per replanted acre.

The above figures assume that the \$10 per planted acre currently assessed on vineyard land continues. This fee generates \$483,000 per year in funding for the Centers. If this program is eliminated, an additional \$2,683 per bed per year would need to be funded. Adding this amount to the two-years of funding per bed and applying the employment density estimate results in a fee of \$690 per replanted acre.

C. Costs of Planting and Replanting

When considering any obligation to cover the cost of affordable housing, other infrastructure or public benefits, it is important to understand the total investment cost. The KMA non-residential nexus analysis always includes a review of total development costs for the various types of commercial and industrial buildings on which the Housing Trust Fund levy will be charged. For the purposes of this evaluation, we have assembled some information on total development cost for vineyard planting, both replanting and the initial planting.

Planting and replanting of vineyards in Napa represents a substantial investment. Costs include installation of infrastructure, such as irrigation systems, soil preparation, trellising structures and the root stock itself. Vineyard land in Napa County is the most expensive agricultural land in the US, according to the California Chapter of the American Society of Farm Managers and Rural Appraisers (CalASFMRA). Prime vineyard land in Napa County ranges in value from \$200,000 to \$300,000 per acre (2014 data). Plantable land, while scarce in the County, is estimated to range from between \$75,000 and \$200,000 per acre (2012 data).¹

Our researched focused on the cost of replanting vineyards in Napa County. The UC Cooperative study estimates that replanting costs almost \$60,000 per acre for cabernet sauvignon. One vineyard consultant told the Napa Valley Register that vineyard owners pay \$50,000 to \$60,000 for replanting an acre of vineyard land. In our discussion with vineyard managers, we were told that it costs \$50,000-\$60,000 per acre for a higher end vineyard and perhaps \$40,000 - \$50,000 per acre for a more standard vineyard. On the other hand, very high end replanting can cost over \$100,000 including the costs of special consultants. Of the total cost in the \$50,000 per acre range, it appears that about \$10,000 to \$20,000 is for materials while the rest is labor.

If \$50,000 per acre represents the average replanting cost, then every \$100 charged for affordable housing would add 0.2% to total cost.

D. Conclusions and Possible Next Steps

One conclusion from the foregoing analyses on the linkages between the planting or replanting of new vineyards and the need for additional affordable housing is that the linkage is clear and quantifiable. The linkage is there, the data exists and the findings required by the Mitigation Fee Act can be made, with the caveats discussed below.

Data Issues

Based on the research to prepare this preliminary analysis, we believe the remaining data issues are all resolvable with a little more research and confirmation from persons knowledgeable about grape growing and farmworker labor in Napa County. Among the many factors used in the analysis, we cite the following:

- *Density of employment.* A range of findings resulted from our research; agreement on a good average would be desirable. Most of the data and input we got related to the planting and cultivating of cabernet sauvignon; do other grapes vary significantly?

¹ 2014 data from CalASFMRA press release. 2012 data from CalASFMRA as quoted by www.napavalleyaddress.com, "Napa Valley 2013 Grape Prices and current Napa Valley Vineyard Land Values," April 14, 2013.

- *Compensation of workers.* Hourly compensation is agreed upon by both the published data sources and the interviews. More clarity on total hours and annual compensation, the role of benefits, etc. would be helpful.
- *Household size of farmworkers, numbers of workers in the household.* More information on these factors would lead to more refined calculations of affordability of farmworker households.
- *Housing Units for Farmworkers.* With better information on households and needs, appropriate unit sizes and configurations for farmworkers can be articulated and agreed upon, leading to perhaps different units than used in the test analysis. In the test analysis, the same two bedroom unit with a three person household was used, producing the same affordability gaps as used in the non-residential nexus analysis. It may be that larger units, also allowing for more people per unit, would be more appropriate. Identifying the most appropriate units for farmworkers is more of an implementation question than a nexus question, in our opinion. The nexus is supported assuming small households and small units while larger households and units would most assuredly increase the findings. The County's use of Trust Fund revenues could be more tailored to the specific needs of farmworkers as they exact needs become better understood.
- *Total costs per acre* for developing new vineyards and for replanting existing vineyards need to be refined and agreed upon.

Conceptual Issues

With respect to conceptual issues, we separate new planting from replanting.

- For new planting of land not previously in grape cultivation, there is clearly a long term employment impact and accompanying affordable housing need. We did not uncover any trends or factors that would suggest a change in the labor intensive needs of Napa vineyards. Furthermore, investment costs for new planting are so substantial that the County could add an affordable housing charge without significantly altering the total cost. The main limitation with a fee on new planting is that there appears to be little land remaining that can be planted (although this assumption was made 15 or 20 years ago and proved to be quite wrong). Our interviews suggested only 2,000 to 3,000 acres in additional planting potential remains.
- For replanting, the major conceptual issue relates to the short term nature of the employment. Replanting employment bears many similarities to construction employment except that the life cycle of a vineyard is shorter than of a building. To our knowledge there are no impact fees in California that address short term employment generation. As such, anything done by the County as an impact fee would be pioneering. We have suggested a discounting possibility that might be further explored.

The California Code section on impact fees (Section 66000 et seq.) mostly addresses “projects” and “facilities” and occasionally “operations” or “services.” For example, Section 66000 introduces the Code section with some definition of terms. Section 66000 (d) Public Facilities reads “includes public improvements, public services, and community amenities.” To our knowledge, the only impact fees that also cover services or operations (per the language of the respective ordinances) are for child care and public transit in the case of San Francisco. To our knowledge, this particular “operations” feature has also never been tested in court.

Were the County to determine that services or operations could be included in impact fees, then the costs of annual subsidy for the farmworker camps might be used as the mitigation cost. Years of operating experience for the three camps offers solid data on the cost per farm worker per day or per year, should the concept be pursued. The two years of increased labor associated with replanting could be readily linked to two years of operating subsidy for the quantified additional labor per acre as has been demonstrated in the analysis.

DRAFT

TABLE 1
2012 NATIONAL VINEYARD LAND WORKER DISTRIBUTION BY OCCUPATION
JOB HOUSING NEXUS ANALYSIS
COUNTY OF NAPA, CA

DRAFT - for Internal Review Only

Major Occupations (4% or more)	2012 National Vineyard Land Occupation Distribution⁽¹⁾	
Office and Administrative Support Occupations	13,840	4.4%
Farming, Fishing, and Forestry Occupations	240,370	75.7%
Transportation and Material Moving Occupations	31,500	9.9%
All Other Vineyard Land Related Occupations	<u>31,650</u>	<u>10.0%</u>
INDUSTRY TOTAL	317,360	100.0%

Notes

⁽¹⁾ Based on the industry "Support Activities for Crop Production."

**TABLE 2
AVERAGE ANNUAL COMPENSATION, 2013
VINEYARD LAND WORKER OCCUPATIONS
JOBS HOUSING NEXUS ANALYSIS
COUNTY OF NAPA, CA**

DRAFT - for Internal Review Only

<u>Occupation</u> ¹	<u>2013 Avg. Compensation</u> ²	<u>% of Total Occupation Group</u> ³	<u>% of Total Vineyard Land Workers</u>
<i>Office and Administrative Support Occupations</i>			
First-Line Supervisors of Office and Administrative Support Workers	\$55,000	5.7%	0.2%
Bookkeeping, Accounting, and Auditing Clerks	\$47,400	19.1%	0.8%
Payroll and Timekeeping Clerks	\$44,700	6.0%	0.3%
Customer Service Representatives	\$52,800	2.2%	0.1%
Shipping, Receiving, and Traffic Clerks	\$37,700	12.8%	0.6%
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	\$37,700	7.7%	0.3%
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	\$41,400	11.6%	0.5%
Office Clerks, General	\$35,600	23.5%	1.0%
All Other Office and Admin Occupations (Avg. All Categories)	<u>\$40,900</u>	<u>11.4%</u>	<u>0.5%</u>
Weighted Mean Annual Wage	\$41,600	100.0%	4.4%
<i>Farming, Fishing, and Forestry Occupations</i>			
First-Line Supervisors of Farming, Fishing, and Forestry Workers	\$48,100	15.0% ⁴	11.4%
Agricultural Equipment Operators	\$28,600	15.0% ⁴	11.4%
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	\$25,700	69.0% ⁴	52.3%
All Other Farming, Fishing Occupations (Avg. All Categories)	<u>\$28,100</u>	<u>1.0%</u> ⁴	<u>0.8%</u>
Weighted Mean Annual Wage	\$26,700	100.0%	75.7%
	\$23.13		
<i>Transportation and Material Moving Occupations</i>			
First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	\$61,700	3.2%	0.3%
Heavy and Tractor-Trailer Truck Drivers	\$45,800	12.5%	1.2%
Industrial Truck and Tractor Operators	\$39,500	14.6%	1.5%
Laborers and Freight, Stock, and Material Movers, Hand	\$28,400	18.3%	1.8%
Packers and Packagers, Hand	\$24,000	37.4%	3.7%
All Other Transportation and Material Moving Occupations (Avg. All Categories)	<u>\$34,000</u>	<u>13.9%</u>	<u>1.4%</u>
Weighted Mean Annual Wage	\$32,400	100.0%	9.9%
Weighted Average Annual Wage - All Occupations	\$28,000		90.0%

¹ Including occupations representing 2% or more of the major occupation group.

² The methodology utilized by the California Employment Development Department (EDD) assumes that hourly paid employees are employed full-time. Annual compensation is calculated by EDD by multiplying hourly wages by 40 hours per work week by 52 weeks.

³ Occupation percentages are based on the 2012 National Industry - Specific Occupational Employment survey compiled by the Bureau of Labor Statistics. Wages are based on the 2012 Occupational Employment Survey data applicable to Napa County updated by the California Employment Development Department to 2013 wage levels.

⁴ Based on interviews with vineyard management companies, KMA adjusted the percentages to match Napa County employment patterns.