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To the Napa County Planning Commission

RE: PROPOSED TREE PROTECTION ORDINANCE

Comment on Existing Scientific Findings as they Pertain to the Health of the Napa River

Scientific Reference Papers:

- [Napa River Sediment and Habitat Enhancement Plan](#) by the San Francisco Water Quality Board, 2009 and re-issued 2018 (TMDL)
- [Napa River Watershed Profile](#) by the San Francisco Estuary Institute, 2012 (SFEI)

NOTE: For convenience, I have underlined the specific sections and referenced them by page number in the above attached publications in my arguments below.

Dear Planning Commissioners:

Comments representing wine and farming interests during the recent Board of Supervisors' hearing in opposition to the proposed ordinance and comments by the same in the press have put forward two basic arguments:

- 1) The proposed ordinance (and Measure C) are a solution to a problem which does not exist.
- 2) Napa County has some of the strictest regulations in place regarding vineyard development, with no additional ones required.
- 3) The proposed ordinance (and Measure C) are not supported by scientific evidence.

1) THE PROBLEM

Both (TMDL pg.6) and (SFEI pg.10 & 59)) recognize that the Napa River is listed as impaired under Section 303(d) of the US Clean Water Act due to pathogens (RWQCB 2008), nutrients (RWQCB 2003), and excessive sedimentation (RWQCB 2007).

Such impairment has reduced aquatic life to dangerous and unsustainable levels. Steelhead salmon populations of 6,000 - 8,000 and Coho salmon populations of 2,000 - 4,000 in 1968 had been reduced to 1,000 and just a few hundred respectively by 2005.

These studies identified the continuing, significant increase in fine sedimentation (2 mm) into the river as the most pressing cause for the deterioration in salmon populations.

This and the impaired water quality in general also negatively impacts the quality of life in the county.

2) THE REGULATIONS

There is consensus that Napa County has some of the strictest regulations in place regarding vineyard development, a fact also acknowledged by both the TMDL and SFEI studies.

The question to be explored is whether these regulations are sufficiently effective in addressing the damage inflicted on the Napa River water quality over the past decades by urbanization and agriculture.

That said, the studies also acknowledge that absent the existing regulations which have slowed - but not halted let alone reversed - the river's impairment, the results would have been much worse.

3) SCIENTIFIC FINDINGS ON THE CAUSES OF SILTATION

Both research papers acknowledge that there are several causes to the increase in river fine siltation.

"The average rate of sediment input to the channel network below the major dams is about 159,000 tons/year. This is estimated to be about twice the historical rate. The modern rate is attributed to roadway-related processes (55,000 tons/year), surface erosion in vineyards and range lands (37,000 tons/year), gullies and shallow landslides associated with vineyards and/or intensive historical grazing (30,000 tons/year) and channel incision plus bank erosion (37,000 tons/year)" (SFEI pg. 58). (Also TMDL pg.52, 57 and Table 9a, pg.72).

"Runoff tends to increase with topographic slope for any land cover. It also increases when natural lands with dense vegetation and intact soils are converted to agriculture or urban land uses. Urban landscapes of the Bay Area have runoff coefficients of about 35%... whereas more natural open space areas and forested lands have coefficients of about 10%" (SFEI pg.52).

"Vineyards include a variety of roadways that can effectively increase the total area of roadways...For example, the vineyards in the Carneros Creek watershed have increased the total area of roadways by about 130% compared to the days when Carneros was primarily used for grazing cattle" (SFEI pg.52).

This is solid evidence that vineyards' coefficients are much higher than forested lands and even higher as compared to grazing lands.

SCOPE OF THE ORDINANCE AND MEASURE C

Solutions to all anthropogenic cause of siltation are complex and require action at several levels.

The TMDL report issued in 2009 was updated in 2018 and it shows that Napa County has made no progress towards achieving its set goals.

In this environment of inaction, the proposed ordinance and Measure C addresses only one subsection of the problem, that of oak deforestation and its impact on the watershed whether caused by residential, winery and roadway construction or vineyard development.

DEVELOPMENT IMPACT IN THE WATERSHED

As shown before, urban type development (impermeable structures) has a runoff coefficient of 35%.

Pertaining to vineyards and in spite of the County's erosion control regulations:

"Where hillside vineyards replace mature mixed evergreen forests, peak runoff rate and volume from the vineyard site may be increased substantially because mature conifers [as do evergreen oaks] intercept a significant portion of the total rainfall in a storm, greatly reducing the rate of delivery (and in some cases total amount) of rainfall that is input into the soil. Furthermore, if a vineyard development involves installation of subsurface drainage pipes [or retention basins which overflow], more storm runoff, at a faster rate, may be discharged off-site than under natural conditions. Finally, if discharges from drainage pipes are collected at a single point of discharge, there is the potential of further concentrate runoff volume (Figure 3). The above effects have the potential to cause off-site gully erosion and/or shallow landslide failures, most often at or near the points of discharge from the site and in locations where hillslope soils and bedrock are soft and easily eroded (TMDL pg.18).

"Vineyards have been planted on hillsides and fitted with their own storm drain systems. The resulting increase in the rate and volume of runoff have been unprecedented for the watershed. Channel incision and bank erosion [contributing an additional 37,000 tons/year] have continued, with concomitant increases in the supply of fine sediment, declines in salmonoid populations, and reductions in riparian resources. The river ecosystem has become greatly simplified overall, with narrow riparian zones, narrower floodplains, and a lack of in-stream habitat complexity...Local agencies translated this understanding into new practices intended to minimize or eliminate the negative impacts. The focus has been on the control of agricultural

land erosion through cover crops, retention basins, minimized planting on steep slopes, and other proven practices. One unintended effect of these modern practices has been an increase in runoff without a compensating increase in coarse sediment supply [extremely important to the survival of salmonoid population] (SFEI pg. 70). Similar (SFEI pg.57).

"Land use has encroached far into the riparian zone, eliminating many of the natural riparian functions. The river has become an efficient conduit for runoff and sediment, with little of its historical ecological value. In short, many of the attributes of a healthy river are greatly diminished" (SFEI pg.98).

As per (Table 3, SFEI pg.59), which compares historic changes in the amount of Napa County acreage to 2016, forests (10% runoff coefficient) have diminished from 109,600 acres to 55,100, wetlands from 5,500 acres to 1,400, the bulk of these losses attributed to vineyards (49,200 acres).

"Existing, and projected future vineyard development may have a significant impact on sensitive natural communities that may experience significant impacts from Basin Plan compliance actions...Of the projects considered in the cumulative effects analysis, only existing and projected future vineyard development has the potential to cause significant long-term impacts to water quality as a result of increases in storm runoff quantity. The performance standard for vineyard storm runoff would apply to all existing, replanted, and new vineyards (TMDL pg. 132).

GOALS SET BY THE SAN FRANCISCO WATER QUALITY CONTROL BOARD

Table 9a. Load Allocations (TMDL pg.72)

Napa River fine sediment contribution 1994-2004 shows a combined 67,000 metric tons per year from *"Surface erosion associated with vineyards and grazing lands and gullies and shallow landslides associated with vineyards, and/or intensive historical grazing" or 45% of total natural background" (TMDL pg. 72)*

As a result, the goal set by the Control Board is:*"Total sediment delivery to channels associated with land use activities needs to be reduced by 50% from contemporary values (1994-2004) in order to meet the proposed numeric targets and allocations for sediment".* It further allocates a 51% reduction goal to sediment contributed by vineyards(TMDL pg.76).

CONCLUSIONS

No progress in meeting the Control Board's goals in reducing overall anthropogenic river siltation by 50% (51% from vineyard activities). have been made between 2009 and 2018.

The proposed ordinance (and Measure C) only address the need for an eventual halt to the deforestation of oak woodlands, not forests in general which would have been much more effective. It is only but a small contribution in an otherwise lacking effort towards reducing the sedimentation in the Napa River.

As both reports state, the problem requires a complex multi prong approach which both the County and its Municipalities continue to ignore. Comprehensive reductions of 50% are a monumental task indeed even though they are essential to the river's long term survival.

Not least is the enormous cost of \$1.9-to-3.4 million per year throughout its 20-year implementation, most of it paid through public funds but \$800,000-to-1.7 million per year by agricultural businesses (TMDL pg.146) for a total of \$16-to-34 million, which may explain the agricultural communities resistance to the proposed ordinance.

The findings in these reports which are supported by the best science available today, show the existential importance of maintaining the still available forests.

They also show that vineyards are far from being equivalent to them in terms of their siltation contribution and that the Napa County erosion control measures, while helpful in some ways are not effective enough in reducing the supply of coarse sediment, vital to the health of the fish population.

They also show the counterproductive effect of any and all development in the watershed and more specifically, the continued intrusion into the riparian zones (SFEI pg.98) . In the very least, maintaining more of the tree canopy and increasing the development-free zone at streams will make the sorely needed progress towards fine siltation reduction in the river.

If one is searching for specific numbers regarding the optimum amount of canopy retention and stream setbacks, the answer is simple and one backed by science. Since forests have far superior coefficients to hard surfaces and erosion controlled vineyards, the scientific answer is "the more the better". These parameters will be set strictly along economic considerations, being mindful that the current practices and parameters have been ineffective.

As far as science in general backing the reason why this ordinance (or one more Measure C) is needed beyond attaining the goals in river siltation reduction, I hope that others will provide the many current scientific findings regarding its positive effects in reducing the loss in carbon

sequestration associated with deforestation, halting the enormous release of sequestered carbon when trees are felled as well the many positive factors affecting climate in general.