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February 3, 2020

Via Email and Hand Delivery

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Vice Mayor D'Lynda Fischer
Councilmember Mike Healy
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Re: Final Environmental Impact Report for the Sid Commons Apartment Project (SCH No. 2007072041)

Dear Mayor Barrett, Vice Mayor Fischer, and Honorable Councilmembers:

I am writing on behalf of Kallie Kull and other Petaluma residents concerned about the environmental impacts of the proposed Sid Commons Apartment Project ("Project") and the inadequacy of the Project's Final Environmental Impact Report ("FEIR"). The Project applicants Gary Johnson and Mark Johnson (collectively, "Applicant") appealed the Petaluma Planning Commission's November 19, 2019 decisions denying the Applicant's request to rezone the northern portion of the Project site and to modify the Oak Creek Apartment Planned Unit District ("PUD"). At the same hearing, the Planning Commission voted to recommend the Petaluma City Council certify the FEIR for the Project.

After reviewing the FEIR together with our consultants, it is clear that the document fails to comply with CEQA and fails to adequately analyze and mitigate the Project's impacts. Accordingly, because of the Project's significant impacts on the neighborhood, the Petaluma

River, and the City at large, we request that the City Council deny the Applicant's appeal, deny the Applicant's request to rezone the Project site, and deny the Applicant request to modify the Oak Creek Apartment PUD. In addition, we request the City Council not certify the FEIR, and instead require staff make the changes discussed below, and recirculate the revised EIR for public review and comment.

We respectfully request the City to deny the Appeal, and to decline to certify the FEIR. Instead, we urge the City to revise and recirculate the EIR to adequately describe, analyze, and mitigate the Project and its impacts.

PROJECT DESCRIPTION

The Project has been changed numerous times, including most recently, after the Planning Commission rejected the Project on November 19, 2019. The project analyzed in the DEIR was a residential development with 278 apartment units provided in multiple three-story buildings, located directly on the Petaluma River. Primary access to the project was to be via a proposed extension of Shasta Avenue, which would include an at-grade crossing of the railroad tracks adjacent to the site. The project included terracing above the ordinary high-water line of the west bank of the Petaluma River.

The project analyzed in the Final EIR differed from what was analyzed in the Draft EIR. The project analyzed in the FEIR included 205 apartment units in two-story buildings. The FEIR project was sited to remove residential development from the three Petaluma River Plan Corridor management zones. The FEIR project also proposed that 10% of units would be affordable housing. The project no longer sought to extend Shasta Avenue via an at-grade crossing, and instead relied on Graylawn Avenue as a single access point. In addition, the FEIR project included a dog park and a traffic calming plan. The Planning Commission considered the project proposed in the FEIR and the FEIR itself on at a Planning Commission meeting November 19, 2019. At that meeting, the Planning Commission voted to recommend certifying the EIR, but voted against the Project itself.

The Project has now changed again, months after the FEIR was issued. According to the Staff Report, on January 8, 2020, the Applicant submitted a further-revised concept plan to the City. The public was only given information about the new alternative when it was released as an attachment to the Staff Report for the City Council meeting at which the Project seeks approval. This essentially provided the public with less than one week to consider and comment on the newest iteration of the Project. The Project is now different from what was analyzed in the DEIR, the FEIR, and even from what was presented to the Planning Commission.

As currently proposed, the Project involves 180 residential units in 11 buildings, which would all be three-story buildings, except in areas directly abutting existing single-family homes, which would be two-story buildings. Ten percent of the units would be low-income. The Project now includes only a single point of ingress and egress, via Graylawn Avenue. It includes a dog

park, a children's playground, and a traffic calming plan. Neither the DEIR nor the FEIR analyze the Project as currently proposed.

LEGAL BACKGROUND

CEQA requires that an agency analyze the potential environmental impacts of its proposed actions in an environmental impact report ("EIR") (except in certain limited circumstances). See, e.g., Pub. Res. Code § 21100. The EIR is the very heart of CEQA. *Dunn-Edwards v. BAAQMD* (1992) 9 Cal.App.4th 644, 652. "The 'foremost principle' in interpreting CEQA is that the Legislature intended the act to be read so as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language." *Communities for a Better Environment v. Calif. Resources Agency* (2002) 103 Cal. App. 4th 98, 109.

CEQA has two primary purposes. First, CEQA is designed to inform decision makers and the public about the potential, significant environmental effects of a project. 14 Cal. Code Regs. ("CEQA Guidelines") § 15002(a)(1). "Its purpose is to inform the public and its responsible officials of the environmental consequences of their decisions before they are made. Thus, the EIR 'protects not only the environment but also informed self-government.'" *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal. 3d 553, 564 The EIR has been described as "an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return." (*Berkeley Keep Jets Over the Bay v. Bd. of Port Comm'rs*. (2001) 91 Cal. App. 4th 1344, 1354 ("Berkeley Jets"); *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810)

Second, CEQA requires public agencies to avoid or reduce environmental damage when "feasible" by requiring "environmentally superior" alternatives and all feasible mitigation measures. 14 C.C.R. § 15002(a)(2) and (3); *see also*, *Berkeley Jets*, *supra*, 91 Cal. App. 4th at pp. 1344, 1354; *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564. The EIR serves to provide agencies and the public with information about the environmental impacts of a proposed project and to "identify ways that environmental damage can be avoided or significantly reduced." 14 C.C.R. §15002(a)(2)) If the project will have a significant effect on the environment, the agency may approve the project only if it finds that it has "eliminated or substantially lessened all significant effects on the environment where feasible" and that any unavoidable significant effects on the environment are "acceptable due to overriding concerns." Pub. Res. Code § 21081; 14 C.C.R. § 15092(b)(2)(A) & (B). The lead agency may deem a particular impact to be insignificant only if it produces rigorous analysis and concrete substantial evidence justifying the finding. *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 732.

While the courts review an EIR using an "abuse of discretion" standard, "the reviewing court is not to 'uncritically rely on every study or analysis presented by a project proponent in support of its position. A 'clearly inadequate or unsupported study is entitled to no judicial deference.'" *Berkeley Jets*, *supra*, 91 Cal. App. 4th at p. 1355 [emphasis added] [quoting *Laurel*

Heights Improvement Assn. v. Regents of University of California (1988) 47 Cal. 3d 376, 391 409, fn. 12]. As the court stated in *Berkeley Jets*, "A prejudicial abuse of discretion occurs 'if the failure to include relevant information precludes informed decisionmaking and informed public participation, thereby thwarting the statutory goals of the EIR process.'" *Berkley Jets*, *supra*, 91 Cal. App. 4th at p. 1355. More recently, the California Supreme Court has emphasized that:

> When reviewing whether a discussion is sufficient to satisfy CEQA, a court must be satisfied that the EIR (1) includes sufficient detail to enable those who did not participate in its preparation to understand and to consider meaningfully the issues the proposed project raises [citation omitted], and (2) makes a reasonable effort to substantively connect a project's air quality impacts to likely health consequences.

Sierra Club v. Cty. of Fresno (2018) 6 Cal.5th 502, 510 (2018), citing *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 405. "Whether or not the alleged inadequacy is the complete omission of a required discussion or a patently inadequate one-paragraph discussion devoid of analysis, the reviewing court must decide whether the EIR serves its purpose as an informational document." *Sierra Club v. Cty. of Fresno*, 6 Cal.5th at 516. Although an agency has discretion to decide the manner of discussing potentially significant effects in an EIR, "a reviewing court must determine whether the discussion of a potentially significant effect is sufficient or insufficient, i.e., whether the EIR comports with its intended function of including 'detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project.'" 6 Cal.5th at 516, citing *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1197, 22 Cal.Rptr.3d 203 (*Bakersfield*). As the Court emphasized:

> [W]hether a description of an environmental impact is insufficient because it lacks analysis or omits the magnitude of the impact is not a substantial evidence question. A conclusory discussion of an environmental impact that an EIR deems significant can be determined by a court to be inadequate as an informational document without reference to substantial evidence.

Sierra Club v. Cty. of Fresno, 6 Cal.5th at 514.

ANALYSIS

I. THE PROPOSED PROJECT CANNOT BE APPROVED BECAUSE IT WAS NEVER ANALYZED IN A CEQA DOCUMENT.

Approval of the 2020 Project, with 180 residential units in mostly three-story buildings, would violate CEQA because it differs from the projects analyzed in the Draft EIR and the Final EIR. Only in January 2020, months after the Final EIR was released, did the Applicant introduce a new alternative. Making matters worse, the public was only given information about the new alternative when it was released as an attachment to the Staff Report for the City Council

meeting at which the Project seeks approval. This essentially provided the public with less than one week to consider and comment on the newest iteration of the Project. The City would violate CEQA by approving a project that was never introduced, discussed, or analyzed in an a CEQA document

A. The FEIR Violates CEQA Because it Does Not Contain an "Accurate, Stable and Finite" Project Description Thereby Precluding Informed Decision Making and Informed Public Participation.

"An accurate, stable and finite project description is the *sine qua non* of an informative and legally adequate EIR." *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 192. This requirement stems from the essential nature of informed public participation in the CEQA process. The courts "have recognized that a project description that gives conflicting signals to decision makers and the public about the nature and scope of the project is fundamentally inadequate and misleading." *Citizens for a Sustainable Treasure Island v. City and County of San Francisco* (2014) 227 Cal.App.4th 1036, 1052 (*Treasure Island*). "Only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal (i.e., the 'no project' alternative), and weigh other alternatives in the balance." *Id*.

CEQA prohibits the type of ever-shifting project that occurred here. In *County of Inyo*, an EIR initially described a Los Angeles water department's project as a 51-cubic-feet-per-second increase in pumping water, while other sections of the report analyzed a project of much greater scope, including higher rates of pumping and the installation of infrastructure needed to deliver water to Los Angeles. *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 189-90. The court acknowledged the EIR had adequately describe the project's environmental impacts generally, but it found that "[t]he incessant shifts among different project descriptions do vitiate the city's EIR process as a vehicle for intelligent public participation." *Id*. at 197. Accordingly, the court held that the EIR was insufficient to meet the city's duty under CEQA. *Id*. at 205. "A curtailed, enigmatic or unstable project description draws a red herring across the path of public input." *Id*. at 198.

The court came to the same conclusion in *Washoe Meadows Cmty. v. Dep't of Parks & Recreation* (2017) 17 Cal. App. 5th 277, 288 (*Washoe Meadows*). In that case, the court evaluated a DEIR prepared by the California Department of Parks and Recreation which described five different alternatives for a project, including an existing 18-hole golf course, to reduce sediment discharge from the Upper Truckee River into Lake Tahoe. *Id.* at 283. The DEIR did not identify a preferred alternative but instead proposed that, after comments had been received on the DEIR, the Department would identify the preferred alternative in the FEIR to "determine which alternative or combinations of features from multiple alternatives will become the preferred alternative." *Id*. at 283.

In the FEIR, the Department identified "[a] refined version of Alternative 2" as the preferred alternative. The FEIR stated:

> The Preferred Alternative plan is conceptual, and acreages have been modified from the description of Alternative 2 in the [DEIR] [sic] to further address public access issues . . . The final design may reflect modifications to project features made as a result of the normal design refinement process. . . Minor modifications presented below do not require recirculation of the EIR because these modifications do not change any significance conclusions presented in the [DEIR] [sic].

Id. at 284. The Department subsequently certified the FEIR. *Id.* at 283-84. The petitioners sought to set aside the approval of the project because, *inter alia*, the DEIR did not contain an "accurate, final and stable" project description. *Id*. at 285.

The court agreed with petitioners, that "***for a project to be stable, the DEIR, the FEIR, and the final approval must describe substantially the same project***." *Washoe*, 17 Cal.App.5th at 288 [emphasis added]. Notably, that the DEIR had a thorough analysis of the environmental impacts of Alternative 2 did not alter the court's analysis because the revised version of Alternative 2 ultimately described in the FEIR and adopted by the agency was different than the Alternative 2 in the DEIR. The court held, "an agency's failure to propose a stable project is not confined to 'the informative quality of the EIR's environmental forecasts.'" *Id.* [quoting *County of Inyo*, 71 Cal.App.3d at 197].) The court further explained:

> Rather, ***inconsistencies in a project's description, or (as here) the failure to identify or select any project at all, impairs the public's right and ability to participate in the environmental review process.*** A description of a broad range of possible projects, rather than a preferred or actual project, presents the public with a moving target and requires a commenter to offer input on a wide range of alternatives that may not be in any way germane to the project ultimately approved.

Id. [emphasis added].

Here, as in *Washoe* and *County of Inyo*, the City failed to provide an "accurate, stable, and finite" project. *Washoe*, 17 Cal.App.5th at 287; *County of Inyo*, 71 Cal.App.3d at 193. Instead, the projects proposed, described, and analyzed in the DEIR, the FEIR, and now proposed for approval are all different. Since the current proposal is an amended version of various alternatives in the DEIR and FEIR, but was not itself an alternative, and was never subject to a formal comment period, such "conflicting signals to decision makers and the public about the nature and scope of the project" render the CEQA process "fundamentally inadequate and misleading." *Treasure Island*, 277 Cal.App.4th at 1052. Just as in *Washoe*, where no proposed project was settled on during the EIR process, and *County of Inyo*, where the adopted final project differed significantly from the proposed project in the EIR, the CEQA process here "present[ed] the public with a moving target" which ultimately "impair[ed] the public's right and

ability to participate in the environmental review process." *Washoe*, 17 Cal.App.5th at 288.

The Project description has shifted dramatically, including as recently as a week ago. Because the Project now before the City Council was never analyzed in the DEIR or the FEIR, the public was precluded from being able to meaningfully participate in the environmental review process.

B. Analysis of Alternatives with Greater Environmental Impacts than the Currently Proposed Project does not remedy the Inconsistency Between the Proposed Project and the CEQA Documents.

In the Staff Report, City Staff claim that there is no problem presenting an entirely new project description after the FEIR is released because "[t]he revised plan continued to be consistent with the range of alternatives evaluated by the EIR." Staff Report, p. 1. Any discussion of environmental impacts of alternatives in the DEIR or FEIR that may be consistent with the Project are irrelevant. In *County of Inyo*, the court notes that "the informative quality of the EIR environmental forecasts [were] not affected by the ill-conceived, initial project description" did not alter the court's conclusion that the inconsistency between the proposed project and the CEQA documents failed to define a stable and finite project. *County of Inyo*, 71 Cal.App.3d at 197, 199 ["The defined project and not some other project must be the EIR's bona fide subject."]. As discussed above, the court in *Washoe* reiterated that the adequacy of the analysis of a project's environmental impacts is inconsequential to determining whether an agency has complied with CEQA's informational requirements because "an agency's failure to propose a stable project is not confined to 'the informative quality of the EIR's environmental forecasts.'" *Washoe*, 17 Cal.App.5th at 288 [quoting *County of Inyo*, 71 Cal.App.3d at 197].

Just last year, in *Stopthemillenniumhollywood.com v. City of Los Angeles* (2019) 39 Cal. App. 5th 1, 18, *review denied* (Nov. 26, 2019) the court rejected this same argument. In that case, the city of Los Angeles argued that an EIR for a mixed-use development complied with CEQA. Specifically, the City argued that "so long as the worse-case-scenario environmental effects have been assumed, analyzed, and mitigated, and so long as no development takes place that exceeds those mitigation measures, CEQA's purpose has been fully satisfied." *Stopthemillenniumhollywood.com*, 39 Cal.App.5th at 18. The appellate court rejected this argument. "CEQA's purposes go beyond an evaluation of theoretical environmental impacts. 'If an EIR fails to include relevant information and precludes informed decisionmaking and public participation, the goals of CEQA are thwarted and a prejudicial abuse of discretion has occurred.'" *Stopthemillenniumhollywood.com*, 39 Cal.App.5th at 18 (quoting *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 128).

The City cannot rely on the DEIR or FEIR's environmental analysis of various alternatives to justify the adoption of the new Project where the DEIR and FEIR made no mention of such a project, even if the alternatives analyzed would have greater environmental impacts. The City must prepare a revised EIR that analyzes the newly-proposed Project, and circulate the revised EIR for public review and comment.

II. THERE IS SUBSTANTIAL EVIDENCE THAT THE PROJECT WILL HAVE SIGNIFICANT INDOOR AIR QUALITY IMPACTS.

One component of an air quality impact analysis under CEQA is evaluating the health risk impacts of toxic air contaminant ("TACs") emissions contributed by a proposed project as well as cumulatively with other nearby TAC sources. Certified Industrial Hygienist, Francis "Bud" Offermann, PE, CIH, has conducted a review of the Project, the CEQA Analysis, and relevant appendices regarding the Project's indoor air emissions. Offermann Comment, attached hereto as Exhibit A. Mr. Offermann is one of the world's leading experts on indoor air quality and has published extensively on the topic. As discussed below and set forth in Mr. Offermann's comments, the Project's emissions of formaldehyde to air will result in very significant cancer risks to future residents. The FEIR violates CEQA because it fails to analyze this potentially significant impact.

Formaldehyde is a known human carcinogen. Many composite wood products typically used in modern home construction contain formaldehyde-based glues which off-gas formaldehyde over a very long time period. Mr. Offermann explains, "The primary source of formaldehyde indoors is composite wood products manufactured with urea-formaldehyde resins, such as plywood, medium density fiberboard, and particle board. These materials are commonly used in residential building construction for flooring, cabinetry, baseboards, window shades, interior doors, and window and door trims." Offerman, pp. 2-3.

The Bay Area Air Quality Management District ("BAAQMD") has set its CEQA significance threshold for airborne cancer risk at 10 excess cases of cancer per million people. According to Mr. Offermann, even if the Project uses modern "CARB-compliant" materials, there is a fair argument that residents of the Project will be exposed to a cancer risk from formaldehyde of 112 per million. Offermann, p. 4. This level is more than eleven times above the CEQA significance threshold. *Id*. Mr. Offermann concludes that this significant environmental impact should be analyzed in an EIR and mitigation measures should be imposed to reduce the risk of formaldehyde exposure.

When a Project exceeds a duly adopted CEQA significance threshold, as here, this alone establishes a fair argument that the project will have a significant adverse environmental impact and an EIR is required. Indeed, in many instances, such air quality thresholds are the only criteria reviewed and treated as dispositive in evaluating the significance of a project's air quality impacts. See, e.g. *Schenck v. County of Sonoma* (2011) 198 Cal.App.4th 949, 960 (County applies BAAQMD's "published CEQA quantitative criteria" and "threshold level of cumulative significance"). See also *Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98, 110-111 ("A 'threshold of significance' for a given environmental effect is simply that level at which the lead agency finds the effects of the project to be significant"). The California Supreme Court made clear the substantial importance that an air district significance threshold plays in providing substantial evidence of a significant adverse impact. *Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310, 327 ("As the [South Coast Air Quality Management] District's

established significance threshold for NOx is 55 pounds per day, these estimates [of NOx emissions of 201 to 456 pounds per day] constitute substantial evidence supporting a fair argument for a significant adverse impact"). Since expert evidence demonstrates that the Project will exceed the BAAQMD's CEQA significance threshold, there is a fair argument that the Project will have significant impact that must be analyzed in the EIR.

Mr. Offermann also notes that the high cancer risk that may be posed by the Project's indoor air emissions likely will be exacerbated by the additional cancer risk that exists as a result of the Project's location near roads with moderate to high traffic (e.g. Highway 101/116, Petaluma Boulevard, etc.) as well as being located only feet away from an active railroad track. *Id*. at 11. Making matters worse, the Project is also located in the San Francisco Bay Area Air Basin, which is a State and Federal non-attainment for PM 2.5. *Id*. at 12. An analysis must be conducted to determine the cumulative health impacts to new residence of the Project.

Another factor impacting indoor air quality is outdoor air ventilation rates. Offermann, p. 11. As Mr. Offermann explains, "[o]utdoor air ventilation is a very important factor influencing the indoor concentrations of air contaminants, as it is the primary removal mechanism of all indoor air generated air contaminants. Lower outdoor air exchange rates cause indoor generated air contaminants to accumulate to higher indoor air concentrations." *Id*. As a result of the Project's location so close to the SMART rail line, windows will likely be kept closed to control the exterior noise. As a result of the high outdoor noise levels, Mr. Offermann notes that the "there needs to be a mechanical outdoor air ventilation systems so that the windows may be kept closed at the occupant's discretion to control exterior noise within building interiors." Offermann, p. 10.

The failure of the CEQA Analysis to address the Project's formaldehyde emissions is contrary to California Supreme Court decision in *California Building Industry Ass'n v. Bay Area Air Quality Mgmt. Dist.* (2015) 62 Cal.4th 369, 386 ("*CBIA"*). In that case, the Supreme Court expressly holds that potential adverse impacts to future users and residents from pollution generated by a proposed project ***must be addressed*** under CEQA. At issue in *CBIA* was whether the Air District could enact CEQA guidelines that advised lead agencies that they must analyze the impacts of adjacent environmental conditions on a project. The Supreme Court held that CEQA does not generally require lead agencies to consider the environment's effects on a project. *CBIA*, 62 Cal.4th at 800-801. However, to the extent a project may exacerbate existing environmental conditions at or near a project site, those would still have to be considered pursuant to CEQA. *Id*. at 801. In so holding, the Court expressly held that CEQA's statutory language required lead agencies to disclose and analyze "impacts on ***a project's users or residents*** that arise ***from the project's effects*** on the environment." (*Id*. at 800 (emphasis added).)

The carcinogenic formaldehyde emissions identified by Mr. Offermann are not an existing environmental condition. Those emissions to the air will be from the Project. People will be residing in and using the Project once it is built and begins emitting formaldehyde. Once built, the Project will begin to emit formaldehyde at levels that pose significant health risks. The

Supreme Court in *CBIA* expressly finds that this type of air emission and health impact by the project on the environment and a "project's users and residents" must be addressed in the CEQA process.

The Supreme Court's reasoning is well-grounded in CEQA's statutory language. CEQA expressly includes a project's effects on human beings as an effect on the environment that must be addressed in an environmental review. "Section 21083(b)(3)'s express language, for example, requires a finding of a 'significant effect on the environment' (§ 21083(b)) whenever the 'environmental effects of a project will cause substantial adverse effects *on human beings,* either directly or indirectly.'" (*CBIA*, 62 Cal.4th at 800 (emphasis in original.) Likewise, "the Legislature has made clear—in declarations accompanying CEQA's enactment—that public health and safety are of great importance in the statutory scheme." (*Id*., citing e.g., §§ 21000, subds. (b), (c), (d), (g), 21001, subds. (b), (d).) It goes without saying that the hundreds of future residents at the Project are human beings and the health and safety of those residents is as important to CEQA's safeguards as nearby residents currently living adjacent to the Project site.

A revised EIR is necessary to analyze, disclose, and mitigate this significant impact.

III. THE EIR FAILS TO ANALYZE PUBLIC SAFETY IMPACTS IN CASE OF AN EVACUATION.

The EIR fails to address the potential impact to public safety as a result of the Project's increased traffic in the event that an evacuation is necessary. Attached hereto as Exhibit B are the expert comments of Professor Thomas Cova, who is an expert is evacuations, and whose studies involve the nexus of hazards, transportation, and geographic information science. See Cova CV, attached hereto as Exhibit B. Professor Cova concludes that the additional vehicles that would need to evacuate onto Payran Avenue as a result of the Project may create a significant public safety impact.

The Project site is bounded by the Petaluma River on the east and the railway on the west. The current iteration of the Project eliminates the extension of Shasta Avenue over the SMART railroad tracks, with an at-grade crossing, which was analyzed in the DEIR. DEIR, p. 3-19. Instead, the iteration of the Project analyzed in the FEIR, as well as the iteration currently being proposed for approval, includes only a single point of ingress and egress, which is via Graylawn Avenue.

A number of hazardous events may result in an evacuation, including flooding along the Petaluma River, earthquakes, fire, or a railway hazardous materials spill, among others. *Id*. In the event of an evacuation, all future residents of the Project must exit the site onto Graylawn Avenue, and then either continue straight on Graylawn to Payran Street or turn left onto Jess Avenue which then connects to Payran Street. In an emergency, the addition of 1,591 cars trying to turn onto Payran Street could have a significant impact on public safety. Because this issue was never analyzed in the EIR, a revised EIR must be prepared to address this potentially significant impact. into this

As Professor Cova explains, "[a]ll households north of Cedar Grove Park/Rocca Dr. up to and including Oak Creek Apartments share these same two exits. Payran Street therefore constitutes a bottleneck if this area was evacuated." Cova Comment, p. 1; see Figure 1, above. The hundreds of new residents and 1,591 cars created by the Project would be in addition to the "more than two hundred existing households in this community which could generate over four hundred vehicles during an evacuation." *Id*. Making matters worse, all of these cars would be "in addition to any traffic already using Payran Street as an evacuation route and community

connector." *Id*.

The increased traffic caused by the Project, combined with the proposal for the Project to have only a single point of egress, may create a significant public safety impact. Professor Cova concludes that "[b]ecause of this community's unusually constrained egress, additional homes in this area could compromise public safety, and further study of the impact of additional development should be conducted." *Id*. The EIR never addresses this potentially significant and dangerous impact. Professor Cova's expert opinion constitutes substantial evidence that the Project may have a significant public safety impact that has not been analyzed in the EIR.

The City has a duty to investigate issues relating to a project's potential environmental impacts. *See County Sanitation Dist. No. 2 v. County of Kern*, (2005) 127 Cal.App.4th 1544, 1597–98. ("[U]nder CEQA, the lead agency bears a burden to investigate potential environmental impacts."). "If the local agency has failed to study an area of possible environmental impact, a fair argument may be based on the limited facts in the record. Deficiencies in the record may actually enlarge the scope of fair argument by lending a logical plausibility to a wider range of inferences." *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 311. Given the lack of analysis conducted by the City on the public safety risks posed by the Project's increased traffic in the event of an emergency, the increased traffic from the Project may pose a significant public safety risk. As a result, the City must revise and recirculate the EIR to include an analysis and discussion which discloses and analyzes the public safety risks that the Project's increased traffic and single point of egress may have on the current and future residents, and identify appropriate mitigation measures.

IV. THE EIR FAILS TO ESTABLISH A BASELINE SUPPORTED BY SUBSTANTIAL EVIDENCE.

Every CEQA document must start from a "baseline" assumption. The CEQA "baseline" is the set of environmental conditions against which to compare a project's anticipated impacts. *Communities for a Better Environment v. So Coast Air Qual. Mgmnt. Dist*. (2010) 48 Cal. 4th 310, 321. Section 15125(a) of the CEQA Guidelines (14 C.C.R., § 15125(a)) states in pertinent part that a lead agency's environmental review under CEQA:

> "…must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time [environmental analysis] is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a Lead Agency determines whether an impact is significant."

See, *Save Our Peninsula Committee v. County of Monterey* (2001) 87 Cal.App.4th 99, 124-125 ("*Save Our Peninsula*"). As the court of appeal has explained, "the impacts of the project must be measured against the 'real conditions on the ground.'" *Save Our Peninsula*, 87 Cal.App.4th 99, 121-123.

Here, the EIR fails to establish a baseline for impacts to special-status species or wetlands.

A. The EIR Fails to Establish an Accurate Baseline for the Project's Biological Resources.

The EIR fails to establish an environmental baseline for special-status species or support its findings and conclusions regarding the Project's impacts on special status species with substantial evidence. The EIR's analysis, mitigation, and conclusions related to the Project's impacts on special-status species are based entirely on a report prepared in 2004, which itself was based on a single site visit nearly 20 year ago, in 2001.

The "Special Status Species Report," included in the DEIR as Appendix 6A, was prepared by Wetlands Research Associates, Inc ("WRA") in March of 2004. According to that report, the onsite assessment for special status species was conducted three years before, on May 22, 2001. DEIR, App. 6A, p. 3. In addition to being out of date, the Report admits a major shortcoming, that "[t]iming of this assessment prevented the identification of special status plant species…" *Id*. at 4. Without a biologist conducting a site visit to look for special-status species anytime in the last 20 years, an accurate baseline has not been established, and the EIR's conclusions regarding special status species are not supported by substantial evidence.

B. There EIR fails to establish an accurate baseline from which to Analyze or Mitigation Impacts Related to Wetlands.

A wetland assessment was conducted by the City's consultant, WRA, in 2012, and confirmed by the US Army Corps of Engineers in 2013. DEIR, p. 6-11. "The jurisdictional delineation is based on the conditions of the site as verified during the field investigation of September 26, 2012." *Id*. The DEIR itself admits that the jurisdictional delineation expired five years after the date of the field investigation, on September 26, 2017. As Ms. Kull explained in her expert comments, this wetland delineation "is outdated and cannot be used for calculation of area impacts to wetlands or area of mitigation for temporary/permanent loss of wetlands." Kull, p. 6.

In response to comments, the FEIR says that the wetland delineation was reconfirmed by the Army Corps of Engineers in January 2019. FEIR, p. 4-39. But that confirmation was an office exercise, made without a representative from the Corps conducting a site visit. See Kull, p. 6. This confirmation does not constitute substantial evidence to support the EIR's findings regarding wetland impacts.

CEQA findings must be supported by substantial evidence, which includes "facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts." 14 C.C.R. § 15384(b). Substantial evidence does not include speculation or unsubstantiated

opinion. *Id*. at § 15384(a). Without going to the Project site to observe soil and plant types, water levels, and other wetland characteristics, the Corp's 2019 recertification amounts to nothing more than unsubstantiated opinion.

Without anyone from the Corps having been on the Project site for nearly eight years, there is no evidence that the expired 2012 wetland delineation remains accurate. Without an accurate wetland delineation, there is no baseline against which to measure the Project's significant impacts. Without knowing the extent and types of wetlands at the Project site, there is no way to determine the extent of the Project's impacts on wetlands. In turn, without knowing the extent of harm to the on-site wetlands, there is no evidence to support a finding that proposed mitigation measures adequately reduce the Project's impacts to a level of insignificance.

V. THE EIR DOES NOT ADEQUATELY ANALYZE OR MITIGATION BIOLOGICAL IMPACTS.

A. The EIR Fails to Disclose the Extent of the Project's Impacts on Biological Resources.

The EIR contains findings that, prior to implementing mitigation, the Project will have significant impacts on special-status birds, bats, reptiles, amphibians, and fish, yet there is no evidence of how significant those impacts may be, or the extent of necessary mitigation. This failure stems from the fact that there have been no biological surveys on site for nearly 20 years. The failure of the EIR to include a biological survey from the past 19 years, or even a report prepared by a biologist, precludes informed decision making and informed public participation.

An EIR must not only identify significant impacts, but must "describe the nature and magnitude of the adverse effect." *Cleveland Nat'l Forest Found. v. San Diego Assn. of Gov'ts* (2017) 3 Cal.5th 497, 514. "To facilitate CEQA's informational role, the EIR must contain facts and analysis, not just the agency's bare conclusions or opinions." *Concerned Citizens of Costa Mesa v. 32nd Dist. Ag. Ass'n* (1986) 42 Cal.3d 929, 935. An EIR must include its underlying technical data so that readers can evaluate its conclusions. *San Franciscans for Reas. Growth v. City & County of San Francisco* (1987) 193 Cal.App.3d 1544, 1549.

The underlying data and reports relied on to support the EIR's conclusions about special status species are nearly two decades old. They tell us nothing about what plants and animal species are on or near the Project site today, or use the site for foraging. Making matters worse, the biological report that was prepared in 2004, three years after the site visit took place, admits that "[t]iming of [the] assessment prevented the identification of special status plant species." DEIR, App. 6A, p. 4. In other words, there never has been a site inspection for special status plant species. Without any survey for animal species in the last 19 years, and without have having conducted a properly timed survey to located special status plants, there is no evidence on which to base the EIR's conclusions about special status plants and animals. Moreover, there is no discussion of the extent of those potential impacts that the EIR does acknowledge, because no effort was made to determine which special status plants and animals occur on site, and to what

extent.

While "an evaluation of the environmental effects of a proposed project need not be exhaustive, the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible." 14 C.C.R. § 15151. The EIR fails to meet this standard. To be reasonable, an EIR addressing potentially significant impacts on biological resources, including critically endangered wildlife, must be supported by documentation demonstrating that a qualified biologist conducted necessary surveys or evaluations. The biological resource analysis is nothing more than a set of conclusions, based on a stale site assessment that itself was inadequate and took place nearly 20 years ago.

B. There is No Evidence to Support the EIR's Finding that the Project will not have a Significant Impact on Special-Status Plant Species.

The DEIR concludes that the Project will not result in a significant impact on special-status plant species. DEIR, p. 6-34. The entire analysis supporting this conclusion consists of a single paragraph:

> Potential special status plant habitats in the Project area were evaluated in 2008 and cross-referenced with CNDDB and CNPS lists of special status plants potentially present in the region. Based on the habitat types present and other knowledge of the site, special status plant species were determined to have either low potential for being present, or were determined to be not present at the Project site. Therefore, it is considered that the potential for the Project to result in adverse impacts on special status plant species is less than significant.

Id.

This paragraph makes clear that there is no evidence to support a finding that the Project will not have a significant impact on special-status species. First, an on-site survey was never conducted to determine if special-status species are or are not present at the Project site. Basing a conclusion on general "knowledge of the site" does not constitute the substantial evidence. An EIR must contain facts and analysis, not just an agency's bare conclusions. Without looking for special-status species, it is guaranteed that none will be found. A revised EIR must include an on-site survey for special-status plant species in order to make findings regarding the Project's impacts.

C. There is No Evidence to Support the EIR's Finding that Impacts on Special Status Species will be Less-Than-Significant After Mitigation.

The absence of a more recent 2004 biological report is also fatal to the EIR's conclusion that after mitigation, all impacts to special-status biological resources will be less-than-significant. "To facilitate CEQA's informational role, the EIR must contain facts and analysis, not just the agency's bare conclusions or opinions … to support the inference that the mitigation

measures will have a quantifiable 'substantial' impact on reducing the adverse effects." *Sierra Club*, 6 Cal. 5th at 522; *Friends of Oroville v. City of Oroville* (2013) 219 Cal. App. 4th 832, 842-843 (EIR must quantify effectiveness of mitigation measures). The EIR's mitigations of biological impacts are not supported by the requisite facts and analysis.

For example, the DEIR finds that "there is a moderate to high potential for occurrence of four special status bird species and raptors to occur at the Project site." DEIR, p. 6-34. Among other impacts, the trees along the Petaluma River onsite "could provide suitable nesting habitat, and grasslands on the site provide suitable foraging habitat for the White-Tailed Kite, a CDFW fully protected species." DEIR, p. 6-34. The DEIR also concludes that the Project may impact the California Red-Legged Frog, the Western Pond Turtle, and the Central California Coast Steelhead DPS, Southern Green Sturgeon DPA, and the Sacramento Splittail. DEIR, 6-36 to 6-37.

The DEIR concludes that with the implementation of mitigations measures BIO-2a, BIO-2b, BIO-3A, BIO-3B, BIO-3C, and BIO-3D, these impacts will be mitigated to less-than-significant. DEIR, p. 6-35, 6-39. But this conclusion is no supported by substantial evidence. The 2004 special status species report prepared by WRA contains no discussion of what mitigation measures would reduce the Project's impacts below the level of significance, and there is no other expert-prepared biological report that contains the analysis either. The EIR contains only a bare conclusion that the Project's impacts on biological species will be fully mitigated with the imposition of the proposed mitigation measures. CEQA requires more.

Without more, adopting findings that the Project's impacts on special-status species will be mitigated to a less-than-significant level would be an abuse of discretion because the conclusion is not supported by substantial evidence.

D. The EIR Contains No Meaningful Discussion of the Project's Cumulative Impacts on Biological Resources.

CEQA documents, such as the EIR, must discuss cumulative impacts, and mitigate significant cumulative impacts. 14 C.C.R. § 15130(a). This requirement flows from CEQA section 21083, which requires a finding that a project may have a significant effect on the environment if "the possible effects of a project are individually limited but cumulatively considerable. . . . 'Cumulatively considerable' means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." A legally adequate cumulative impacts analysis views a particular project over time and in conjunction with other related past, present, and reasonably foreseeable probable future projects whose impacts might compound or interrelate with those of the project at hand.

"Cumulative impacts" are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." 14 C.C.R. § 15355(a). "[I]ndividual effects may be changes resulting from a single

project or a number of separate projects." *Id.* "The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time." *Comm. for a Better Env't v. Cal. Resources Agency ("CBE v. CRA"*) (2002) 103 Cal.App.4th 98, 117; 14 CCR § 15355(b).

The CEQA Guidelines allow two methods for satisfying the cumulative impacts analysis requirement: the list-of-projects approach, and the summary-of projects approach. Under either method, the EIR must summarize the expected environmental effects of the project and related projects, provide a reasonable analysis of the cumulative impacts, and examine reasonable mitigation options. 14 CCR § 15130(b). The EIR's cumulative impacts analysis does not comply with either of these requirements.

There are numerous flaws in the EIR's cumulative biological resources analysis. First, the analysis is devoid of substantial evidence, and therefore fails to provide sufficient information for the public and decision makers to evaluate cumulative impacts that may result from approval of the Project.

The cumulative biological impacts analysis states that "[t]he area considered for cumulative biological resource impacts is the City of Petaluma and Sonoma County." DEIR, p. 6-70. But no information is provided about the environmental impacts of other cumulative projects within the city or county. The EIR does not mention a single past, present, or future project that it evaluated cumulatively with the instant Project's biological impacts. Without any information on what – if any – cumulative projects were considered, and what environmental impacts those cumulative projects have, the public and decision makers lack any information on which to assess the validity of the cumulative impacts conclusions under CEQA. Without even the most basic information about any of the cumulative projects or their environmental impacts, the EIR's general cumulative impact conclusion is not supported by substantial evidence.

Second, the cumulative biological impact analysis that is included in the EIR is inconsistent with the underlying analysis. The EIR concludes that the Project's cumulative biological impact will be "Less Than Significant with Mitigation." DEIR, p. 6-70. This is contradicted in the explanation following the conclusion, which starts by stating:

> Development envisioned under the General Plan (including the Project) would incrementally alter biological habitats in the City and contribute to a fragmentation and loss of regional biodiversity through the incremental conversion of plant and wildlife habitat (including special status species habitats) to human use, and thus limit the availability and accessibility of remaining natural habitat. The General Plan 2025 EIR found that cumulative biological impacts would be significant.

DEIR, p. 6-71.

But then in the very next sentence, the EIR dismisses the possibility of a cumulative impact, stating: "However, incremental project-specific impacts to oak and riparian woodlands, and wetlands were found capable of being mitigated to less than significant." *Id*. If this is the basis for finding the impact insignificant, it violates CEQA. The conclusion that the Project will have no cumulative impact because each individual impact has been reduced to a less-than-significant level relies on the exact argument CEQA's cumulative impact analysis is meant to protect against. The entire purpose of the cumulative impact analysis is to prevent the situation where mitigation occurs to address project-specific impacts, without looking at the bigger picture. This argument, applied over and over again, has resulted in major environmental damage, and is a major reason why CEQA was enacted. *CBE v. CRA,* 103 Cal. App. 4th at 114.

The cumulative biological impact analysis ends by ultimately determining that the Project will have a significant cumulative impact:

> Alteration of biological habitats was identified as cumulatively considerable in the General Plan EIR, and the Project, even though its specific impacts would be less than significant, would still contribute to this significant cumulative impact.

The EIR must acknowledge and mitigate this significant impact. The conclusion that the Project's cumulative biological impact is less than significant with mitigation is not supported by substantial evidence, or even by the EIR itself.

Finally, the EIR's cumulative biological impact analysis violates CEQA because it does not analyze all of the Project's potential cumulative impacts. It only looks at whether the Project "would contribute to the cumulative alteration of biological habitats throughout the City, and contribute to fragmentation and loss of regional biodiversity through the incremental conversion of plant and wildlife habitat (including special status species habitats) to residential use." DEIR, 6-70. The EIR never discuses the Project's potential cumulative impacts on special-status plant and animal species, or the cumulative impacts on wetlands. The EIR's failure to analyze these cumulative impacts violates CEQA.

VI. THE EIR FAILS TO ANALYZE THE ENVIRONMENTAL IMPACTS OF PROPOSED MITIGATION MEASURES.

If a mitigation measure would itself cause environmental impacts distinct from the significant impacts caused by the project, the impacts must be discussed in the EIR. 14 CCR 15126.4(1)(1)(D). Two proposed mitigation measures will themselves cause significant impacts that were not analyzed in the EIR.

The traffic calming plan proposed by the Applicant will create a significant impact that has not been disclosed or analyzed in the EIR. As currently proposed, the Project now includes a traffic calming plan to reduce the Project's traffic impacts on Graylawn and Jess Avenues. The traffic calming plan, which may include bulb outs, median islands, speed bumps, curb extensions, and roundabouts. As Ms. Kull points out in her expert comments, "[b]ulb outs, speed

bumps and roundabouts would all be considered impediments to stormwater run-off in this neighborhood. Proposed structures would be built directly on the roadway surface and interrupt sheet flow and gutter flow in the street, causing water to back up and pool on the street, intersections, and residential properties." Kull, p. 4. IN part as a result of the US Army Corps of Engineers Flood Project, which constructed ta 15-foot steel wall between the Payran Neighborhood and the Petaluma River, during high rain events, drainage is much slower in Project neighborhood, pooling at intersection for hours during storms. *Id*. Even just a garbage can that was left on the street can cause stormwater to back up into driveways. *Id*. Compounding the problem, the culverts that drain the neighborhood are clogged with sediment. *Id*.

It is Ms. Kull's expert opinion that the proposed traffic calming plan would increase the risk of flooding for the Payran neighborhood and its residents. *Id*. "Installing impediments to run-off including bulb-outs, speed bumps or traffic circles, would be considered a hazard to residents in the Payran neighborhood." *Id*. This potentially significant impact must be analyzed in a revised EIR.

In addition, the potential impacts to water quality from the dog park were not analyzed in the EIR. Impacts from the dog park may arise as a result of loss or riparian habitat, impacts to water quality from dog feces, parking and human garbage associated with the park, would all negatively impact water quality and the riverine habitat. Kull, p. 5.

Impacts of these mitigation measures must be disclosed, analyzed, and mitigated in a revised EIR.

VII. AB 3194 DOES NOT MANDATE PROJECT APPROVAL

A. AB 3194 Does Not Relieve the City of its Duty to Comply with CEQA.

AB 3194 explicitly states that nothing in the statute relieves a local agency of its statutory duty to comply with CEQA. Cal. Govt. Code § 65589.5(e). This means that, before the Project can be approved, the EIR prepared for the Project must comply with CEQA. As discussed above, the EIR does not comply with CEQA for numerous reasons. Unless and until the EIR comes into compliance with CEQA, City Council is prohibited from approving the Project, regardless of AB 3194.

B. The City Council Does Not Have to Approve the Project Based on AB 3194 Because the Project will have an Adverse Impact on Public Health and Safety that Cannot be Mitigated.

Government Code Section 65589.5(j) states:

> When a proposed housing development project complies with applicable, objective general plan and zoning standards and criteria in effect at the time that the housing

> development project's application is determined to be complete, but the local agency proposes to disapprove the project or to approve it upon the condition that the project be developed at a lower density, the local agency shall base its decision regarding the proposed housing development project upon written findings supported by substantial evidence on the record that both of the following conditions exist:
>
> (1) The housing development project would have a specific, adverse impact upon the public health or safety unless the project is disapproved or approved upon the condition that the project be developed at a lower density. As used in this paragraph, a "specific, adverse impact" means a significant, quantifiable, direct, and unavoidable impact, based on objective, identified written public health or safety standards, policies, or conditions as they existed on the date the application was deemed complete.
>
> (2) There is no feasible method to satisfactorily mitigate or avoid the adverse impact identified pursuant to paragraph (1), other than the disapproval of the housing development project or the approval of the project upon the condition that it be developed at a lower density.
>
> . . .
>
> (4) For purposes of this section, a proposed housing development project is not inconsistent with the applicable zoning standards and criteria, and shall not require a rezoning, if the housing development project is consistent with the objective general plan standards and criteria but the zoning for the project site is inconsistent with the general plan. If the local agency has complied with paragraph (2), the local agency may require the proposed housing development project to comply with the objective standards and criteria of the zoning which is consistent with the general plan, however, the standards and criteria shall be applied to facilitate and accommodate development at the density allowed on the site by the general plan and proposed by the proposed housing development project.

According to this section, the City may deny the Project as long as it makes written findings, supported by a preponderance of the evidence, that the Project will have an adverse impact on public health or safety that cannot be mitigated through other means. The City has not yet undertaken this analysis, but must do so.

This comment, as well as those comments raised by others, can provide the evidence needed to make the finding that the Project will have an adverse impact on public health or safety that cannot be mitigated. Specifically, as described above, the Project will create a serious adverse impact on public safety as a result of increased traffic in the event of an evacuation. See Cova Comment, p. 1. Moreover, there is a significant risk to public safety stemming from the increased flooding created by the Project, both locally and in downtown Petaluma. See, e.g., Kull Comment, p. 2.

The City Council is not legally obligated to approve the Project. The City Council should take the time to analyze and document the Project's impacts on public health and safety. Once a true public safety analysis has been conducted, the City Council will have the evidence necessary to deny the Project.

VIII. THE PROJECT MUST BES SENT BACK TO THE PLANNING COMMISSION FOR REVIEW.

Because the currently proposed Project was introduced after the Planning Commission's November 19, 2019 hearing and decision, the Project must go back to the Planning Commission before it can be heard by the City Council.

Government Code section 65857 provides that:

> The legislative body may approve, modify or disapprove the recommendation of the planning commission; provided that <u>any modification of the proposed ordinance or amendment by the legislative body not previously considered by the planning commission during its hearing, shall first be referred to the planning commission for report and recommendation.</u>

This provision of the Government Code is supported by Petaluma Municipal Code § 8.10.040(4), which give the City Council authority to refer a matter back to the Planning Commission for further consideration if new or different evidence is presented on appeal. Here, an entirely new project is being presented to the City Council on appeal. As a result, the matter must be sent back to the Planning Commission for further review before it can be heard by City Council. City Council must send the new Project back to the Planning Commission for its recommendation based on the current proposal.

<u>CONCLUSION</u>

For the foregoing reasons, we request the City Council deny the Appeal, decline to certify the EIR, and instead require a revised EIR to address the inadequacies described above.

Sincerely,

Rebecca L. Davis

EXHIBIT A

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Date: January 25, 2020

To: Rebecca Davis
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From: Francis J. Offermann PE CIH

Subject: Indoor Air Quality: Sid Commons Apartment Project - Petaluma.
(IEE File Reference: P-4333)

Pages: 16

Indoor Air Quality Impacts

Indoor air quality (IAQ) directly impacts the comfort and health of building occupants, and the achievement of acceptable IAQ in newly constructed and renovated buildings is a well-recognized design objective. For example, IAQ is addressed by major high-performance building rating systems and building codes (California Building Standards Commission, 2014; USGBC, 2014). Indoor air quality in homes is particularly important because occupants, on average, spend approximately ninety percent of their time indoors with the majority of this time spent at home (EPA, 2011). Some segments of the population that are most susceptible to the effects of poor IAQ, such as the very young and the elderly, occupy their homes almost continuously. Additionally, an increasing number of adults are working from home at least some of the time during the workweek. Indoor air quality also is a serious concern for workers in hotels, offices and other business establishments.

The concentrations of many air pollutants often are elevated in homes and other buildings relative to outdoor air because many of the materials and products used indoors contain and release a variety of pollutants to air (Hodgson et al., 2002; Offermann and Hodgson,

2011). With respect to indoor air contaminants for which inhalation is the primary route of exposure, the critical design and construction parameters are the provision of adequate ventilation and the reduction of indoor sources of the contaminants.

Indoor Formaldehyde Concentrations Impact. In the California New Home Study (CNHS) of 108 new homes in California (Offermann, 2009), 25 air contaminants were measured, and formaldehyde was identified as the indoor air contaminant with the highest cancer risk as determined by the California Proposition 65 Safe Harbor Levels (OEHHA, 2017a), No Significant Risk Levels (NSRL) for carcinogens. The NSRL is the daily intake level calculated to result in one excess case of cancer in an exposed population of 100,000 (i.e., ten in one million cancer risk) and for formaldehyde is 40 µg/day. The NSRL concentration of formaldehyde that represents a daily dose of 40 µg is 2 $\mu g/m^3$, assuming a continuous 24-hour exposure, a total daily inhaled air volume of 20 m^3, and 100% absorption by the respiratory system. All of the CNHS homes exceeded this NSRL concentration of 2 $\mu g/m^3$. The median indoor formaldehyde concentration was 36 $\mu g/m^3$, and ranged from 4.8 to 136 $\mu g/m^3$, which corresponds to a median exceedance of the 2 $\mu g/m^3$ NSRL concentration of 18 and a range of 2.3 to 68.

Therefore, the cancer risk of a resident living in a California home with the median indoor formaldehyde concentration of 36 $\mu g/m^3$, is 180 per million as a result of formaldehyde alone. The CEQA significance threshold for airborne cancer risk is 10 per million, as established by the Bay Air Quality Management District (BAAQMD, 2017).

Besides being a human carcinogen, formaldehyde is also a potent eye and respiratory irritant. In the CNHS, many homes exceeded the non-cancer reference exposure levels (RELs) prescribed by California Office of Environmental Health Hazard Assessment (OEHHA, 2017b). The percentage of homes exceeding the RELs ranged from 98% for the Chronic REL of 9 $\mu g/m^3$ to 28% for the Acute REL of 55 $\mu g/m^3$.

The primary source of formaldehyde indoors is composite wood products manufactured with urea-formaldehyde resins, such as plywood, medium density fiberboard, and

particleboard. These materials are commonly used in building construction for flooring, cabinetry, baseboards, window shades, interior doors, and window and door trims.

In January 2009, the California Air Resources Board (CARB) adopted an airborne toxics control measure (ATCM) to reduce formaldehyde emissions from composite wood products, including hardwood plywood, particleboard, medium density fiberboard, and also furniture and other finished products made with these wood products (California Air Resources Board 2009). While this formaldehyde ATCM has resulted in reduced emissions from composite wood products sold in California, they do not preclude that homes built with composite wood products meeting the CARB ATCM will have indoor formaldehyde concentrations that are below cancer and non-cancer exposure guidelines.

A follow up study to the California New Home Study (CNHS) was conducted in 2016-2018 (Chan et. al., 2019), and found that the median indoor formaldehyde in new homes built after 2009 with CARB Phase 2 Formaldehyde ATCM materials had lower indoor formaldehyde concentrations, with a median indoor concentrations of 22.4 $\mu g/m^3$ (18.2 ppb) as compared to a median of 36 $\mu g/m^3$ found in the 2007 CNHS.

Thus, while new homes built after the 2009 CARB formaldehyde ATCM have a 38% lower median indoor formaldehyde concentration and cancer risk, the median lifetime cancer risk is still 112 per million for homes built with CARB compliant composite wood products, which is more than 11 times the OEHHA 10 in a million cancer risk threshold (OEHHA, 2017a).

With respect to this project, the buildings in the Sid Commons Apartment Project in Petaluma, CA consist of apartments.

The apartment occupants will potentially have continuous exposure (e.g. 24 hours per day, 52 weeks per year). These exposures are anticipated to result in significant cancer risks resulting from exposures to formaldehyde released by the building materials and furnishing commonly found in residential construction.

Because these residences will be constructed with CARB Phase 2 Formaldehyde ATCM materials, and be ventilated with the minimum code required amount of outdoor air, the indoor residential formaldehyde concentrations are likely similar to those concentrations observed in residences built with CARB Phase 2 Formaldehyde ATCM materials, which is a median of 22.4 $\mu g/m^3$ (Chan et. al., 2019)

Assuming that the residential occupants inhale 20 m^3 of air per day, the average 70-year lifetime formaldehyde daily dose is 448 µg/day for continuous exposure in the residences. This exposure represents a cancer risk of 112 per million, which is more than 11 times the Bay Area Air Quality Management District CEQA cancer risk of 10 per million (BAAQMD, 2007). For occupants that do not have continuous exposure, the cancer risk will be proportionally less but still substantially over the BAAQMD CEQA cancer risk of 10 per million (e.g. for 12/hour/day occupancy, more than 5 times the BAAQMD CEQA cancer risk of 10 per million).

While measurements of the indoor concentrations of formaldehyde in residences built with CARB Phase 2 Formaldehyde ATCM materials (Chan et. al., 2018), indicate that indoor formaldehyde concentrations in buildings built with similar materials (e.g. hotels, residences, offices, warehouses, schools) will pose cancer risks in excess of the CEQA cancer risk of 10 per million, a determination of the cancer risk that is specific to this project and the materials used to construct these buildings can and should be conducted prior to completion of the environmental review.

The following describes a method that should be used prior to construction in the environmental review under CEQA, for determining whether the indoor concentrations resulting from the formaldehyde emissions of the specific building materials/furnishings selected for the building exceed cancer and non-cancer guidelines. Such a design analyses can be used to identify those materials/furnishings prior to the completion of the City's CEQA review and project approval, that have formaldehyde emission rates that contribute to indoor concentrations that exceed cancer and non-cancer guidelines, so that alternative lower emitting materials/furnishings may be selected and/or higher minimum outdoor air ventilation rates can be increased to achieve acceptable indoor concentrations and

incorporated as mitigation measures for this project.

Pre-Construction Building Material/Furnishing Formaldehyde Emissions Assessment.

This formaldehyde emissions assessment should be used in the environmental review under CEQA to assess the indoor formaldehyde concentrations from the proposed loading of building materials/furnishings, the area-specific formaldehyde emission rate data for building materials/furnishings, and the design minimum outdoor air ventilation rates. This assessment allows the applicant (and the City) to determine before the conclusion of the environmental review process and the building materials/furnishings are specified, purchased, and installed if the total chemical emissions will exceed cancer and non-cancer guidelines, and if so, allow for changes in the selection of specific material/furnishings and/or the design minimum outdoor air ventilations rates such that cancer and non-cancer guidelines are not exceeded.

1.) Define Indoor Air Quality Zones. Divide the building into separate indoor air quality zones, (IAQ Zones). IAQ Zones are defined as areas of well-mixed air. Thus, each ventilation system with recirculating air is considered a single zone, and each room or group of rooms where air is not recirculated (e.g. 100% outdoor air) is considered a separate zone. For IAQ Zones with the same construction material/furnishings and design minimum outdoor air ventilation rates. (e.g. hotel rooms, apartments, condominiums, etc.) the formaldehyde emission rates need only be assessed for a single IAQ Zone of that type.

2.) Calculate Material/Furnishing Loading. For each IAQ Zone, determine the building material and furnishing loadings (e.g., m^2 of material/m^2 floor area, units of furnishings/m^2 floor area) from an inventory of all potential indoor formaldehyde sources, including flooring, ceiling tiles, furnishings, finishes, insulation, sealants, adhesives, and any products constructed with composite wood products containing urea-formaldehyde resins (e.g., plywood, medium density fiberboard, particleboard).

3.) Calculate the Formaldehyde Emission Rate. For each building material, calculate the formaldehyde emission rate (µg/h) from the product of the area-specific formaldehyde

emission rate (μg/m^2-h) and the area (m^2) of material in the IAQ Zone, and from each furnishing (e.g. chairs, desks, etc.) from the unit-specific formaldehyde emission rate (μg/unit-h) and the number of units in the IAQ Zone.

NOTE: As a result of the high-performance building rating systems and building codes (California Building Standards Commission, 2014; USGBC, 2014), most manufacturers of building materials furnishings sold in the United States conduct chemical emission rate tests using the California Department of Health "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources Using Environmental Chambers", (CDPH, 2017), or other equivalent chemical emission rate testing methods. Most manufacturers of building furnishings sold in the United States conduct chemical emission rate tests using ANSI/BIFMA M7.1 Standard Test Method for Determining VOC Emissions (BIFMA, 2018), or other equivalent chemical emission rate testing methods.

CDPH, BIFMA, and other chemical emission rate testing programs, typically certify that a material or furnishing does not create indoor chemical concentrations in excess of the maximum concentrations permitted by their certification. For instance, the CDPH emission rate testing requires that the measured emission rates when input into an office, school, or residential model do not exceed one-half of the OEHHA Chronic Exposure Guidelines (OEHHA, 2017b) for the 35 specific VOCs, including formaldehyde, listed in Table 4-1 of the CDPH test method (CDPH, 2017). These certifications themselves do not provide the actual area-specific formaldehyde emission rate (i.e., μg/m^2-h) of the product, but rather provide data that the formaldehyde emission rates do not exceed the maximum rate allowed for the certification. Thus for example, the data for a certification of a specific type of flooring may be used to calculate that the area-specific emission rate of formaldehyde is less than 31 μg/m^2-h, but not the actual measured specific emission rate, which may be 3, 18, or 30 μg/m^2-h. These area-specific emission rates determined from the product certifications of CDPH, BIFA, and other certification programs can be used as an initial estimate of the formaldehyde emission rate.

If the actual area-specific emission rates of a building material or furnishing is needed (i.e. the initial emission rates estimates from the product certifications are higher than desired), then that data can be acquired by requesting from the manufacturer the complete chemical emission rate test report. For instance if the complete CDPH emission test report is requested for a CDHP certified product, that report will provide the actual area-specific emission rates for not only the 35 specific VOCs, including formaldehyde, listed in Table 4-1 of the CDPH test method (CDPH, 2017), but also all of the cancer and reproductive/developmental chemicals listed in the California Proposition 65 Safe Harbor Levels (OEHHA, 2017a), all of the toxic air contaminants (TACs) in the California Air Resources Board Toxic Air Contamination List (CARB, 2011), and the 10 chemicals with the greatest emission rates.

Alternatively, a sample of the building material or furnishing can be submitted to a chemical emission rate testing laboratory, such as Berkeley Analytical Laboratory (https://berkeleyanalytical.com), to measure the formaldehyde emission rate.

4.) Calculate the Total Formaldehyde Emission Rate. For each IAQ Zone, calculate the total formaldehyde emission rate (i.e. µg/h) from the individual formaldehyde emission rates from each of the building material/furnishings as determined in Step 3.

5.) Calculate the Indoor Formaldehyde Concentration. For each IAQ Zone, calculate the indoor formaldehyde concentration (µg/m^3) from Equation 1 by dividing the total formaldehyde emission rates (i.e. µg/h) as determined in Step 4, by the design minimum outdoor air ventilation rate (m^3/h) for the IAQ Zone.

$$C_{in} = \frac{E_{total}}{Q_{oa}} \quad \text{(Equation 1)}$$

where:

C_{in} = indoor formaldehyde concentration (µg/m^3)

E_{total} = total formaldehyde emission rate (µg/h) into the IAQ Zone.

Q_{oa} = design minimum outdoor air ventilation rate to the IAQ Zone (m^3/h)

The above Equation 1 is based upon mass balance theory, and is referenced in Section

3.10.2 "Calculation of Estimated Building Concentrations" of the California Department of Health "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources Using Environmental Chambers", (CDPH, 2017).

6.) Calculate the Indoor Exposure Cancer and Non-Cancer Health Risks. For each IAQ Zone, calculate the cancer and non-cancer health risks from the indoor formaldehyde concentrations determined in Step 5 and as described in the OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines; Guidance Manual for Preparation of Health Risk Assessments (OEHHA, 2015).

7.) Mitigate Indoor Formaldehyde Exposures of exceeding the CEQA Cancer and/or Non-Cancer Health Risks. In each IAQ Zone, provide mitigation for any formaldehyde exposure risk as determined in Step 6, that exceeds the CEQA cancer risk of 10 per million or the CEQA non-cancer Hazard Quotient of 1.0.

Provide the source and/or ventilation mitigation required in all IAQ Zones to reduce the health risks of the chemical exposures below the CEQA cancer and non-cancer health risks.

Source mitigation for formaldehyde may include:

1.) reducing the amount materials and/or furnishings that emit formaldehyde
2.) substituting a different material with a lower area-specific emission rate of formaldehyde

Ventilation mitigation for formaldehyde emitted from building materials and/or furnishings may include:

1.) increasing the design minimum outdoor air ventilation rate to the IAQ Zone.

NOTE: Mitigating the formaldehyde emissions through use of less material/furnishings, or use of lower emitting materials/furnishings, is the preferred mitigation option, as mitigation with increased outdoor air ventilation increases initial and operating costs associated with the heating/cooling systems.

Further, we are not asking that the builder to "speculate" on what and how much composite materials be used, but rather at the design stage to select composite wood materials based on the formaldehyde emission rates that manufacturers routinely conduct using the California Department of Health "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources Using Environmental Chambers", (CDPH, 2017), and use the procedure described earlier (i.e. Pre-Construction Building Material/Furnishing Formaldehyde Emissions Assessment) to insure that the materials selected achieve acceptable cancer risks from material off gassing of formaldehyde.

Outdoor Air Ventilation Impact. Another important finding of the CNHS, was that the outdoor air ventilation rates in the homes were very low. Outdoor air ventilation is a very important factor influencing the indoor concentrations of air contaminants, as it is the primary removal mechanism of all indoor air generated air contaminants. Lower outdoor air exchange rates cause indoor generated air contaminants to accumulate to higher indoor air concentrations. Many homeowners rarely open their windows or doors for ventilation as a result of their concerns for security/safety, noise, dust, and odor concerns (Price, 2007). In the CNHS field study, 32% of the homes did not use their windows during the 24-hour Test Day, and 15% of the homes did not use their windows during the entire preceding week. Most of the homes with no window usage were homes in the winter field session. Thus, a substantial percentage of homeowners never open their windows, especially in the winter season. The median 24-hour measurement was 0.26 ach, with a range of 0.09 ach to 5.3 ach. A total of 67% of the homes had outdoor air exchange rates below the minimum California Building Code (2001) requirement of 0.35 ach. Thus, the relatively tight envelope construction, combined with the fact that many people never open their windows for ventilation, results in homes with low outdoor air exchange rates and higher indoor air contaminant concentrations.

The Sid Commons Apartment Project in Petaluma, CA is close to roads with moderate to high traffic (e.g. Highway 101/116, Petaluma Boulevard, etc.) as well as nearby railroad traffic e.g. SMART and Northwest Pacific Railroad. As a result of the outdoor vehicle traffic noise and rail traffic noise, the Project site is likely to be a sound impacted site. The noise analyses provided in the Draft Environmental Report (Lamphier-Gregory, 2018), reports in

Table 13-3 existing noise ranging from 55.1 to 61.6 Ldn at two locations with measurements conducted over a single 24-hour day more than 12 years ago in 2008. Longer term (e.g. one week) sound measurements should be collected to know the existing sound levels in 2020.

As a result of the high outdoor noise levels, the current project will require the need for mechanical supply of outdoor air ventilation air to allow for a habitable interior environment with closed windows and doors. Such a ventilation system would allow windows and doors to be kept closed at the occupant's discretion to control exterior noise within building interiors. In the Sid Commons Apartment Project Response to Comments / Final Environmental Impact Report (Lamphier-Gregory, 2019) on page 6-21 in response to question 7 by a Councilmember "whether the noise analysis presented in the Draft EIR would preclude homes from having operable windows", the report states "The 'conditionally acceptable' noise level requires noise control treatments (i.e., sound rated windows and doors, sound-rated wall construction, acoustical caulking, protected ventilation openings, stucco siding thicker walls, bedroom orientation, etc.) capable of achieving interior noise levels of 45 dBA or lower, **but does not require inoperable windows**."

This response infers that acceptable indoor noise levels can be achieved when occupants open the windows for ventilation, however this is false, as opening windows for ventilation defeats the building noise control measures (i.e. sound rated windows – these windows only provide protection from outdoor noise levels when the windows are closed and no, protection when the windows are opened). As a result of the high outdoor noise levels, while windows can be operable, there needs to be a mechanical outdoor air ventilation systems so that the windows may be kept closed at the occupant's discretion to control exterior noise within building interiors.

<u>$PM_{2.5}$ Outdoor Concentrations Impact</u>. An additional impact of the nearby motor vehicle traffic associated with this project, are the outdoor concentrations of $PM_{2.5}$. According to the Draft Environmental Report (Lamphier-Gregory, 2018), this Project is located in the San Francisco Bay Area Air Basin, which is a State and Federal non-attainment area for $PM_{2.5}$.

An air quality analyses should to be conducted to determine the concentrations of $PM_{2.5}$ in the outdoor and indoor air that people inhale each day. This air quality analyses needs to consider the cumulative impacts of the project related emissions, existing and projected future emissions from local $PM_{2.5}$ sources (e.g. stationary sources, motor vehicles, and airport traffic) upon the outdoor air concentrations at the project site. If the outdoor concentrations are determined to exceed the California and National annual average $PM_{2.5}$ exceedence concentration of 12 $\mu g/m^3$, or the National 24-hour average exceedence concentration of 35 $\mu g/m^3$, then the buildings need to have a mechanical supply of outdoor air that has air filtration with sufficient $PM_{2.5}$ removal efficiency, such that the indoor concentrations of outdoor $PM_{2.5}$ particles is less than the California and National $PM_{2.5}$ annual and 24-hour standards.

It is my experience that based on the projected high traffic noise levels, the annual average concentration of $PM_{2.5}$ will exceed the California and National $PM_{2.5}$ annual and 24-hour standards and warrant installation of high efficiency air filters (i.e. MERV 13 or higher) in all mechanically supplied outdoor air ventilation systems.

Indoor Air Quality Impact Mitigation Measures

The following are recommended mitigation measures to minimize the impacts upon indoor quality:

- indoor formaldehyde concentrations
- outdoor air ventilation
- $PM_{2.5}$ outdoor air concentrations

<u>Indoor Formaldehyde Concentrations Mitigation</u>. Use only composite wood materials (e.g. hardwood plywood, medium density fiberboard, particleboard) for all interior finish systems that are made with CARB approved no-added formaldehyde (NAF) resins or ultra-low emitting formaldehyde (ULEF) resins (CARB, 2009). Other projects such as the AC by Marriott Hotel – West San Jose Project (Asset Gas SC Inc.) and 2525 North Main Street,

Santa Ana (AC 2525 Main LLC, 2019) have entered into settlement agreements stipulating the use of composite wood materials only containing NAF or ULEF resins.

Alternatively, conduct the previously described Pre-Construction Building Material/Furnishing Chemical Emissions Assessment, to determine that the combination of formaldehyde emissions from building materials and furnishings do not create indoor formaldehyde concentrations that exceed the CEQA cancer and non-cancer health risks.

It is important to note that we are not asking that the builder to "speculate" on what and how much composite materials be used, but rather at the design stage to select composite wood materials based on the formaldehyde emission rates that manufacturers routinely conduct using the California Department of Health "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources Using Environmental Chambers", (CDPH, 2017), and use the procedure described earlier (i.e. Pre-Construction Building Material/Furnishing Formaldehyde Emissions Assessment) to insure that the materials selected achieve acceptable cancer risks from material off gassing of formaldehyde.

Outdoor Air Ventilation Mitigation. Provide each habitable room with a continuous mechanical supply of outdoor air that meets or exceeds the California 2016 Building Energy Efficiency Standards (California Energy Commission, 2015) requirements of the greater of 15 cfm/occupant or 0.15 cfm/ft^2 of floor area. Following installation of the system conduct testing and balancing to insure that required amount of outdoor air is entering each habitable room and provide a written report documenting the outdoor airflow rates. Do not use exhaust only mechanical outdoor air systems, use only balanced outdoor air supply and exhaust systems or outdoor air supply only systems. Provide a manual for the occupants or maintenance personnel, that describes the purpose of the mechanical outdoor air system and the operation and maintenance requirements of the system.

$PM_{2.5}$ Outdoor Air Concentration Mitigation. Install air filtration with sufficient $PM_{2.5}$ removal efficiency (e.g. MERV 13 or higher) to filter the outdoor air entering the mechanical outdoor air supply systems, such that the indoor concentrations of outdoor $PM_{2.5}$

particles are less than the California and National $PM_{2.5}$ annual and 24-hour standards. Install the air filters in the system such that they are accessible for replacement by the occupants or maintenance personnel. Include in the mechanical outdoor air ventilation system manual instructions on how to replace the air filters and the estimated frequency of replacement.

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Education

M.S. Mechanical Engineering (1985)
Stanford University, Stanford, CA.

Graduate Studies in Air Pollution Monitoring and Control (1980)
University of California, Berkeley, CA.

B.S. in Mechanical Engineering (1976)
Rensselaer Polytechnic Institute, Troy, N.Y.

Professional Experience

President: Indoor Environmental Engineering, San Francisco, CA. December, 1981 - present.

Direct team of environmental scientists, chemists, and mechanical engineers in conducting State and Federal research regarding indoor air quality instrumentation development, building air quality field studies, ventilation and air cleaning performance measurements, and chemical emission rate testing.

Provide design side input to architects regarding selection of building materials and ventilation system components to ensure a high quality indoor environment.

Direct Indoor Air Quality Consulting Team for the winning design proposal for the new State of Washington Ecology Department building.

Develop a full-scale ventilation test facility for measuring the performance of air diffusers; ASHRAE 129, Air Change Effectiveness, and ASHRAE 113, Air Diffusion Performance Index.

Develop a chemical emission rate testing laboratory for measuring the chemical emissions from building materials, furnishings, and equipment.

Principle Investigator of the California New Homes Study (2005-2007). Measured ventilation and indoor air quality in 108 new single family detached homes in northern and southern California.

Develop and teach IAQ professional development workshops to building owners, managers, hygienists, and engineers.

Air Pollution Engineer: Earth Metrics Inc., Burlingame, CA, October, 1985 to March, 1987.

Responsible for development of an air pollution laboratory including installation a forced choice olfactometer, tracer gas electron capture chromatograph, and associated calibration facilities. Field team leader for studies of fugitive odor emissions from sewage treatment plants, entrainment of fume hood exhausts into computer chip fabrication rooms, and indoor air quality investigations.

Staff Scientist: Building Ventilation and Indoor Air Quality Program, Energy and Environment Division, Lawrence Berkeley Laboratory, Berkeley, CA. January, 1980 to August, 1984.

Deputy project leader for the Control Techniques group; responsible for laboratory and field studies aimed at evaluating the performance of indoor air pollutant control strategies (i.e. ventilation, filtration, precipitation, absorption, adsorption, and source control).

Coordinated field and laboratory studies of air-to-air heat exchangers including evaluation of thermal performance, ventilation efficiency, cross-stream contaminant transfer, and the effects of freezing/defrosting.

Developed an *in situ* test protocol for evaluating the performance of air cleaning systems and introduced the concept of effective cleaning rate (ECR) also known as the Clean Air Delivery Rate (CADR).

Coordinated laboratory studies of portable and ducted air cleaning systems and their effect on indoor concentrations of respirable particles and radon progeny.

Co-designed an automated instrument system for measuring residential ventilation rates and radon concentrations.

Designed hardware and software for a multi-channel automated data acquisition system used to evaluate the performance of air-to-air heat transfer equipment.

Assistant Chief Engineer: Alta Bates Hospital, Berkeley, CA, October, 1979 to January, 1980.

Responsible for energy management projects involving installation of power factor correction capacitors on large inductive electrical devices and installation of steam meters on physical plant steam lines. Member of Local 39, International Union of Operating Engineers.

Manufacturing Engineer: American Precision Industries, Buffalo, NY, October, 1977 to October, 1979.

Responsible for reorganizing the manufacturing procedures regarding production of shell and tube heat exchangers. Designed customized automatic assembly, welding, and testing equipment. Designed a large paint spray booth. Prepared economic studies justifying new equipment purchases. Safety Director.

Project Engineer: Arcata Graphics, Buffalo, N.Y. June, 1976 to October, 1977.

Responsible for the design and installation of a bulk ink storage and distribution system and high speed automatic counting and marking equipment. Also coordinated material handling studies which led to the purchase and installation of new equipment.

PROFESSIONAL ORGANIZATION MEMBERSHIP

American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)

- Chairman of SPC-145P, Standards Project Committee - Test Method for Assessing the Performance of Gas Phase Air Cleaning Equipment (1991-1992)
- Member SPC-129P, Standards Project Committee - Test Method for Ventilation Effectiveness (1986-97)
  - Member of Drafting Committee
- Member Environmental Health Committee (1992-1994, 1997-2001, 2007-2010)
  - Chairman of EHC Research Subcommittee
  - Member of Man Made Mineral Fiber Position Paper Subcommittee
  - Member of the IAQ Position Paper Committee
  - Member of the Legionella Position Paper Committee
  - Member of the Limiting Indoor Mold and Dampness in Buildings Position Paper Committee
- Member SSPC-62, Standing Standards Project Committee - Ventilation for Acceptable Indoor Air Quality (1992 to 2000)
  - Chairman of Source Control and Air Cleaning Subcommittee
- Chairman of TC-4.10, Indoor Environmental Modeling (1988-92)
  - Member of Research Subcommittee
- Chairman of TC-2.3, Gaseous Air Contaminants and Control Equipment (1989-92)
  - Member of Research Subcommittee

American Society for Testing and Materials (ASTM)

- D-22 Sampling and Analysis of Atmospheres
  - Member of Indoor Air Quality Subcommittee
- E-06 Performance of Building Constructions

American Board of Industrial Hygiene (ABIH)

American Conference of Governmental Industrial Hygienists (ACGIH)

- Bioaerosols Committee (2007-2013)

American Industrial Hygiene Association (AIHA)

Cal-OSHA Indoor Air Quality Advisory Committee

International Society of Indoor Air Quality and Climate (ISIAQ)

- Co-Chairman of Task Force on HVAC Hygiene

U. S. Green Building Council (USGBC)
- Member of the IEQ Technical Advisory Group (2007-2009)
- Member of the IAQ Performance Testing Work Group (2010-2012)

Western Construction Consultants (WESTCON)

PROFESSIONAL CREDENTIALS

Licensed Professional Engineer - Mechanical Engineering

Certified Industrial Hygienist - American Board of Industrial Hygienists

SCIENTIFIC MEETINGS AND SYMPOSIA

Biological Contamination, Diagnosis, and Mitigation, Indoor Air'90, Toronto, Canada, August, 1990.

Models for Predicting Air Quality, Indoor Air'90, Toronto, Canada, August, 1990.

Microbes in Building Materials and Systems, Indoor Air '93, Helsinki, Finland, July, 1993.

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Controlling Microbial Moisture Problems in Buildings, Walnut Creek, CA, February 27, 1997.

Scientific Advisory Committee, Roomvent 98, 6th International Conference on Air Distribution in Rooms, KTH, Stockholm, Sweden, June 14-17, 1998.

Moisture and Mould, Indoor Air '99, Edinburgh, Scotland, August, 1999.

Ventilation Modeling and Simulation, Indoor Air '99, Edinburgh, Scotland, August, 1999.

Microbial Growth in Materials, Healthy Buildings 2000, Espoo, Finland, August, 2000.

Co-Chair, Bioaerosols X- Exposures in Residences, Indoor Air 2002, Monterey, CA, July 2002.

Healthy Indoor Environments, Anaheim, CA, April 2003.

Chair, Environmental Tobacco Smoke in Multi-Family Homes, Indoor Air 2008, Copenhagen, Denmark, July 2008.

Co-Chair, ISIAQ Task Force Workshop; HVAC Hygiene, Indoor Air 2002, Monterey, CA, July 2002.

Chair, ETS in Multi-Family Housing: Exposures, Controls, and Legalities Forum, Healthy Buildings 2009, Syracuse, CA, September 14, 2009.

Chair, Energy Conservation and IAQ in Residences Workshop, Indoor Air 2011, Austin, TX, June 6, 2011.

Chair, Electronic Cigarettes: Chemical Emissions and Exposures Colloquium, Indoor Air 2016, Ghent, Belgium, July 4, 2016.

SPECIAL CONSULTATION

Provide consultation to the American Home Appliance Manufacturers on the development of a standard for testing portable air cleaners, AHAM Standard AC-1.

Served as an expert witness and special consultant for the U.S. Federal Trade Commission regarding the performance claims found in advertisements of portable air cleaners and residential furnace filters.

Conducted a forensic investigation for a San Mateo, CA pro se defendant, regarding an alleged homicide where the victim was kidnapped in a steamer trunk. Determined the air exchange rate in the steamer trunk and how long the person could survive.

Conducted *in situ* measurement of human exposure to toluene fumes released during nailpolish application for a plaintiffs attorney pursuing a California Proposition 65 product labeling case. June, 1993.

Conducted a forensic *in situ* investigation for the Butte County, CA Sheriff's Department of the emissions of a portable heater used in the bedroom of two twin one year old girls who suffered simultaneous crib death.

Consult with OSHA on the 1995 proposed new regulation regarding indoor air quality and environmental tobacco smoke.

Consult with EPA on the proposed Building Alliance program and with OSHA on the proposed new OSHA IAQ regulation.

Johnson Controls Audit/Certification Expert Review; Milwaukee, WI. May 28-29, 1997.

Winner of the nationally published 1999 Request for Proposals by the State of Washington to conduct a comprehensive indoor air quality investigation of the Washington State Department of Ecology building in Lacey, WA.

Selected by the State of California Attorney General's Office in August, 2000 to conduct a comprehensive indoor air quality investigation of the Tulare County Court House.

Lawrence Berkeley Laboratory IAQ Experts Workshop: "Cause and Prevention of Sick Building Problems in Offices: The Experience of Indoor Environmental Quality Investigators", Berkeley, California, May 26-27, 2004.

Provide consultation and chemical emission rate testing to the State of California Attorney General's Office in 2013-2015 regarding the chemical emissions from e-cigarettes.

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S.A.Loiselle, A.T.Hodgson, and F.J.Offermann, "Development of An Indoor Air Sampler for Polycyclic Aromatic Compounds", *Indoor Air* , Vol 2, pp 191-210, 1991.

F.J.Offermann, S.A.Loiselle, A.T.Hodgson, L.A. Gundel, and J.M. Daisey, "A Pilot Study to Measure Indoor Concentrations and Emission Rates of Polycyclic Aromatic Compounds", *Indoor Air* , Vol 4, pp 497-512, 1991.

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"Designing for Healthy and Comfortable Indoor Environments", Construction Specification Institute, Santa Rosa, CA, November 6, 1997.

"Ventilation System Design for Good IAQ", University of Tulsa 10th Annual Conference, San Francisco, CA, February 25, 1998.

"The Building Shell", Tools For Building Green Conference and Trade Show, Alameda County Waste Management Authority and Recycling Board, Oakland, CA, February 28, 1998.

"Identifying Fungal Contamination Problems In Buildings", The City of Oakland Municipal Employees, Oakland, CA, March 26, 1998.

"Managing Indoor Air Quality in Schools: Staying Out of Trouble", CASBO, Sacramento, CA, April 20, 1998.

"Indoor Air Quality", CSOOC Spring Conference, Visalia, CA, April 30, 1998.

"Particulate and Gas Phase Air Filtration", ACGIH/OSHA, Ft. Mitchell, KY, June 1998.

"Building Air Quality Facts and Myths", The City of Oakland / Alameda County Safety Seminar, Oakland, CA, June 12, 1998.

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"Identifying and Mitigating Mold Contamination in Buildings", Western Construction Consultants Association, Oakland, CA, March 15, 2000; AIG Construction Defect Seminar, Walnut Creek, CA, May 2, 2001; City of Oakland Public Works Agency, Oakland, CA, July 24, 2001; Executive Council of Homeowners, Alamo, CA, August 3, 2001.

"Using the EPA BASE Study for IAQ Investigation / Communication", Joint Professional Symposium 2000, American Industrial Hygiene Association, Orange County & Southern California Sections, Long Beach, October 19, 2000.

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"Managing Building Air Quality and Energy Efficiency, Meeting the Standard of Care", BOMA, MidAtlantic Environmental Hygiene Resource Center, Seattle, WA, May 23rd, 2000; San Antonio, TX, September 26-27, 2000.

"Diagnostics & Mitigation in Sick Buildings: When Good Buildings Go Bad," University of California Berkeley, September 18, 2001.

"Mold Contamination: Recognition and What To Do and Not Do", Redwood Empire Remodelers Association; Santa Rosa, CA, April 16, 2002.

"Investigative Tools of the IAQ Trade", Healthy Indoor Environments 2002; Austin, TX; April 22, 2002.

"Finding Hidden Mold: Case Studies in IAQ Investigations", AIHA Northern California Professionals Symposium; Oakland, CA, May 8, 2002.

"Assessing and Mitigating Fungal Contamination in Buildings", Cal/OSHA Training; Oakland, CA, February 14, 2003 and West Covina, CA, February 20-21, 2003.

"Use of External Containments During Fungal Mitigation", Invited Speaker, ACGIH Mold Remediation Symposium, Orlando, FL, November 3-5, 2003.

Building Operator Certification (BOC), 106-IAQ Training Workshops, Northwest Energy Efficiency Council; Stockton, CA, December 3, 2003; San Francisco, CA, December 9, 2003; Irvine, CA, January 13, 2004; San Diego, January 14, 2004; Irwindale, CA, January 27, 2004; Downey, CA, January 28, 2004; Santa Monica, CA, March 16, 2004; Ontario, CA, March 17, 2004; Ontario, CA, November 9, 2004, San Diego, CA, November 10, 2004; San Francisco, CA, November 17, 2004; San Jose, CA, November 18, 2004; Sacramento, CA, March 15, 2005.

"Mold Remediation: The National QUEST for Uniformity Symposium", Invited Speaker, Orlando, Florida, November 3-5, 2003.

"Mold and Moisture Control", Indoor Air Quality workshop for The Collaborative for High Performance Schools (CHPS), San Francisco, December 11, 2003.

"Advanced Perspectives In Mold Prevention & Control Symposium", Invited Speaker, Las Vegas, Nevada, November 7-9, 2004.

"Building Sciences: Understanding and Controlling Moisture in Buildings", American Industrial Hygiene Association, San Francisco, CA, February 14-16, 2005.

"Indoor Air Quality Diagnostics and Healthy Building Design", University of California Berkeley, Berkeley, CA, March 2, 2005.

"Improving IAQ = Reduced Tenant Complaints", Northern California Facilities Exposition, Santa Clara, CA, September 27, 2007.

"Defining Safe Building Air", Criteria for Safe Air and Water in Buildings, ASHRAE Winter Meeting, Chicago, IL, January 27, 2008.

"Update on USGBC LEED and Air Filtration", Invited Speaker, NAFA 2008 Convention, San Francisco, CA, September 19, 2008.

"Ventilation and Indoor air Quality in New California Homes", National Center of Healthy Housing, October 20, 2008.

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"Mechanical Outdoor air Ventilation Systems and IAQ in New Homes", ACI Home Performance Conference, Kansas City, MO, April 29, 2009.

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"Respiration: IEQ and Ventilation", AIHce 2010, How IH Can LEED in Green buildings, Denver, CO, May 23, 2010.

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EXHIBIT B

January 29, 2020

To Whom It May Concern:

I am writing in regard to the Sid Commons Apartments proposed development near the Oak Creek Apartments in the City of Petaluma. This area shaded below is bounded by the Petaluma River on the east and the railway on the west. For this reason the only egress is via Payran Street east or west. All households north of Cedar Grove Park/Rocca Dr. up to and including Oak Creek Apartments share these same two exits. Payran Street therefore constitutes a bottleneck if this area was evacuated. Hazardous events that might result in an evacuation include flooding along the Petaluma River, earthquakes, fire or a railway hazardous materials spill. There are more than two hundred existing households in this community which could generate over four hundred vehicles during an evacuation. This traffic would be in addition to any traffic already using Payran Street as an evacuation route and community connector. Because of this community's unusually constrained egress, additional homes in this area could compromise public safety, and further study of the impact of additional development should be conducted.

Respectfully,

Thomas J. Cova, Evacuation Consultant

Area of interest north of Cedar Grove Park and Rocca Dr. up to and including Oak Creek Apartments and the site of the proposed Sid Commons Apartments. Because of this community's unusually constrained gress, additional homes in this area could compromise public safety, and further study of the impact of additional development should be conducted. (Thomas Cova, National Evacuation Expert, 1/29/2020)

Professor, Geography Department

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More Contact Information

More Links

Publications

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Research Statement

My research and teaching interests lie at the nexus of hazards, transportation, and geographic information science. I am interested in all three of these areas separately, but topics that incorporate two or three are especially interesting. A prime example is the role of transportation in emergencies, which may involve relocating people to safety or deploying resources to a disaster site. My primary

focus is advancing the field of regional evacuation analysis. The methods that I've developed are explicitly geographic and rely on integrating techniques in operations research and geographic information science.

Research Keywords

- Hazards, Risks & Disasters
- Emergency Management
- Evacuation
- Warning systems
- Transportation
- Geographic Information Science

Presentations

Cova, T.J. (2017) "Improving situational awareness in wildfire evacuations with volunteered geographic information." NSF IBSS/IMEE Summer Workshop, San Diego, August. Invited Talk/Keynote, Presented, 08/06/2017.

Cova, T.J. (2017) Simulating warning triggers. Association of American Geographers Annual Meeting, Boston, MA, CA, April. Conference Paper, Presented, 04/12/2017.

Grants, Contracts & Research Gifts

Evacuation decision making of hospital administrators in Hurricane Harvey. PI: Kimberley Shoaf. Co-PI(s): Thomas J. Cova. National Science Foundation, 10/01/2017 - 09/30/2018. Total project budget to date: $49,301.00

EXHIBIT C

Rebecca L. Davis
Lozeau | Drury LLP
1939 Harrison St., Suite 150
Oakland, CA 94612

January 29, 2020

Dear Ms. Davis,

Please find attached to this letter my technical comments on the Final EIR for the proposed Sid Commons Apartments, specifically focusing on the topics of Hydrology and Natural Resources. Thank you for including these comments into the letter that you are preparing for the Petaluma City Council, to be sent prior to the hearing on the Final EIR scheduled for Feb 3, 2020.

Please contact me with questions you may have on any of these items.

Best Regards,

Kallie Marie Kull

Water Resources Planning & Environmental Compliance
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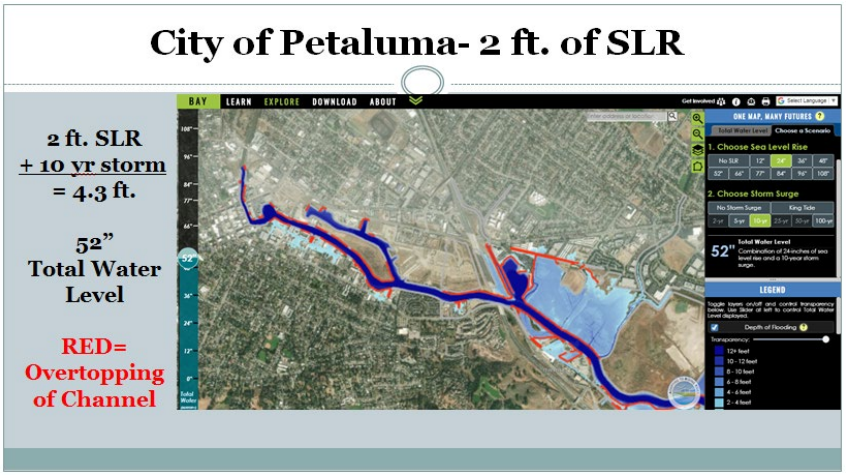
Hydrology Related Impacts

City Planners describing the project in a public meeting held 10/30/2019, detailed how the terracing of the river channel along the length of the proposed project plus 300 ft. downstream, is designed to shunt run-off from the development into the river as fast as possible. This is in direct in contrast to the accepted principles of Slow it, Spread It, Sink It for stormwater management, required by the SF Regional Water Quality Control Board. Studies by West Consultants[1] conclude that terracing of the river banks along the Sid Commons property will primarily benefit the development, while hydrology data[2] in a related study shows that proposed terracing for the Sid Commons development combined with rapid run-off from the development will increase river elevations and flood risk downstream in the Payran neighborhood and Downtown. The EIR considers this impact for the 100 year storm only, and dismisses the impact as insignificant, falling within the statistical margin of error. Rise in river height however is more evident in the 10 year data, which is a more typical frequency for flooding in Petaluma. When analyzed for the 10 year storm, the same study showed that water surface elevations downstream will increase by 0.5 feet in the Payran and Downtown areas. During a 10 year storm event the Petaluma River is straining to stay in its channel and an additional 6" is significant in terms of flooding and over topping of the channel. As shown in Figure 1 below, the Sea Level Rise map published by BCDC (Adapting to Rising Tides 2018), shows 2' of Sea Level Rise in Downtown Petaluma, combined with a 10 year storm event, causing the river to rise 4.3'. Significant impacts include over-topping of channel and extensive flooding in Downtown Petaluma and its major roads and highways.

The risk of flooding downtown due to the proposed development is under-estimated, since the hydrology modeling does not accurately account for the loss of channel capacity due to lack of dredging. As sediment has built up over the past 15 years, areas where water was once stored in the channel are no longer available for stormwater. An update to the study tried to get at this issue by adjusting the Manning's N in the hydrology model, however that method only captures the effects of sedimentation along the edge of the channel and does not account for sediment in the middle of the channel away from the edges.

Conclusions: The FEIR should consider impacts from flooding during a 10 year storm event to accurately assess impacts that have potential to cause significant flooding in Petaluma. The EIR is inadequate in its limited consideration of impacts of the project on the 100 year flood. Hydrology studies updated for the FEIR do not accurately consider the loss of channel capacity due to sedimentation; therefore, the FEIR is inadequate in its calculations of assessment of flood risk on downstream properties.



[1] SID Commons Hydraulic Evaluation; WEST Consultants Feb 22, 2017

[2] Detention and Terracing Evaluation; WEST Consultants Dec 22, 2016 based on data from 2012 FEMA Map Revision

Impacts of the proposed project on the US Army Corps Petaluma River Flood Project (USACE Project)

A large concrete dam (aka weir) was constructed at the uppermost boundary of the USACE Flood Project. The weir is located immediately downstream of the proposed development. Its function is to slow water and retain high flows upstream of the weir to prevent, to prevent flooding in the Payran area and Downtown Petaluma. Widening of the channel with terracing and compaction along the boundary of the project will essentially create a large in-channel stormwater detention basin. Widening the channel upstream would most likely increase the hydraulic pressure on the weir, potentially causing a catastrophic failure or over-topping. Massive and sudden flooding could easily occur if the weir failed; or was over-topped. Potential impacts to the weir and the overall performance of the Flood Project, have not been evaluated in the FEIR. The USACE Project Certified EIR[3] includes findings that clearly state that development on the floodplain upstream of the weir will degrade the level of protection that the USACE Project can guarantee. Residents in the Payran neighborhood, who suffered decades of flooding before the Project was built, are extremely concerned that $100 million was spent on the USACE Flood Project and now performance of the project and safety in their neighborhood, could be compromised so quickly by the proposed development. The USACE Flood Project also took 600 residents out of the 100 yr. flood plain who no longer have FEMA flood insurance, so there is considerable concern that impacts to the Flood Project performance or stability of the weir were not considered or analyzed in the DEIR or FEIR.
Conclusion: Impacts of the project in the performance and stability of the USACE Flood Project need to be analyzed in the FEIR. Since the Army Corps is still the managers of the project, having not turned it over to the City yet, they need to be consulted on the impacts of this proposed development on their Flood Project and this consultation needs to be included in the flood risk analysis in the EIR.

Water Quality Issues
The Petaluma River was listed in 2019 as impaired by the State Water Quality Control Board and issued a Total Maximum Daily Load (TMDL) for pollutants, including coliform bacteria. The proposed development will create stormwater run-off into the river (car oils, asbestos, copper from brake pads, landscaping fertilizers/pesticides/ dog waste and human garbage). Terracing the river banks to facilitate run-off will increase run-off into the river. The use of 95% retention or stormwater is unrealistic (Marin County only uses 85% because they know 95% is unattainable; Pers., Conv. Rob Carson Stormwater Program Director). High groundwater and shrink swell soils create impossible conditions for water detention. Since hydro modeling assumes 95% retention, impacts from run-off and increase in peak flows are under-estimated. Compliance with the TMDL requires that the City do everything possible to control non-point source run-off into the river. Paving over wetlands and flood prone areas that naturally treat stormwater directly compromises the City's ability to comply with critical TMDL water quality objectives.

Conclusion: The DEIR/FEIR states that mitigations for stormwater impacts will be developed during the permitting process with the Regional Water Quality Control Board. This approach is inadequate and not advisable. Mitigations designed to treat stormwater prior to it reaching the river need to be shown in enough detail that they can be evaluated for effectiveness, prior to approving the EIR. The details and calculations for stormwater are inadequate to assess if the system will protect the river. Impacts from stormwater run-off need to be more fully considered in the EIR, including the project's ability to comply with TMDL regulations. For a project that is proposed so close to the river, this important analysis and determination of impacts cannot be deferred to the later permitting phase of the project.

[3] Final EIR/EIS Petaluma River Flood Control Section 205; Army Corps of Engineers and City of Petaluma; Figure 1.1.1 00-year Storm Floodplains, Locally Preferred Plan.

Sea Level Rise- Issue with Analysis

The EIR analysis of Sea Level Rise (SLR) impacts related to the proposed project, fails to cite the source and year of data for which the analysis is based. Additionally, the analysis is limited to the impact of Sea Level Rise on the development itself and applies "worst case scenario" using predictions far into the future based on extreme height of Sea Level Rise. The EIR concludes that impacts from SLR will become an issue sometime after 2100, which is contrary to recent information available from several sources including BCDC Adapting to Rising Tides Mapping Tool for Local Communities. The river terracing which is planned to be implemented to protect the proposed development from flooding, is shown to raise water surface levels by 0.5ft. downtown in a 10-year storm event. The EIR is inadequate in its discussion of Sea Level Rise and does not adequately assess cumulative impacts related to downstream flooding caused by the development in the context of currently available Sea Level Rise scenarios. Given the challenge the City of Petaluma already faces to combat SLR, approval of this project is ill advised and contrary to the direction the City needs to go in terms of meeting the CA Office of Planning and Research requirements for local municipalities to plan for SLR.

Traffic Calming Plan Creates a Flooding Hazard

FEIR P 1-42: Staff recommends traffic calming plan and Appendix A conceptually discusses bulb-outs, speed bumps and roundabouts for the traffic calming plan. Bulb outs, speed bumps and roundabouts would all be considered impediments to stormwater run-off in this neighborhood. Proposed structures would be built directly on the roadway surface and interrupt sheet flow and gutter flow in the street, causing water to back up and pool on the streets, intersections and residential properties. These impacts are made worse due to the fact that the drainage in this neighborhood is already compromised by the USACE Flood Project, which constructed a 15 ft. steel floodwall between the Payran neighborhood and the Petaluma River. Stormwater passes through the wall in limited locations with long distances between storm drains on the streets. During high rain events drainage is much slower in this neighborhood, than it would be without the wall. Currently stormwater pools at intersections for hours during storms. Even garbage cans left on the street can cause stormwater to back up into driveways. The culverts that drain the neighborhood are also clogged with sediment and are not being cleared by the City on a regular basis (per comm. with City Engineer 1/2020). As the river continues to fill with sediment from lack of dredging, so will the culverts, increasing risk of flooding from lack of drainage in this neighborhood.

Conclusion: Implementation of the Traffic Hazard Plan would increase risk of flooding for the Payran neighborhood and its residents. Installing impediments to run-off including bulb-outs, speed bumps or traffic circles, would be considered a HAZARD to the residents in the Payran neighborhood. Impacts of flooding hazards from proposed elements in the traffic calming plan have not been considered or analyzed in the DEIR or FEIR.

Development in the Floodplain/Floodway

The proposal states that no development is planned within the various setbacks from the river (Floodway, Floodplain, Petaluma River Corridor), however several elements of the proposed project should be considered development and be removed from the River Floodway, Floodplain and Petaluma River Corridor. These include:

Terracing

This element should be removed from the Floodway, Floodplain, Petaluma River Corridor, as it is in direct opposition to the Petaluma River Enhancement Plan, which calls for preservation of this reach if river. It is also in direct opposition to the Region 2- SF Bay Regional Water Quality Control Board Basin Plan, which protects beneficial uses and water quality. Terracing will bull-doze the channel of the river and remove 20,000+ CY of riverbank soil (2,000-3,000 dump trucks). Terracing will also widen the river corridor and compact it into an engineered channel, turning it into a flood control detention basin. This action will cause serious and irreversible permanent impacts to the river corridor, including

permanent loss of over-hanging vegetation that provides shade and food matter for threatened steelhead and Chinook salmon. Sedimentation from construction and run-off from the terraced banks will fill cold, deep water pools that are essential for juvenile salmonid survival during warm summer months. Vegetation to be established on the terraces will be far from the edge of channel and will no longer shade the river, creating a permanent impact to steelhead who over summer in the creek. Impacts to cold water fisheries are in direct violation of the Region 2- SF Bay Regional Water Quality Control Board Basin Plan which protects salmon, an ESA listed special status species.

Stormwater detention ponds: These detention ponds should be removed from the River area. Detention ponds are engineered and constructed as development related infrastructure and as such are inconsistent with the River Enhancement Plan and should not be located in the active Floodway, Floodplain, Petaluma River Corridor.

Children's Park: This feature should be removed from the floodplain. Impacts from the children's park include loss of riparian habitat, impacts to water quality, interruption wildlife movement due to fencing and potential inputs of garbage into the river from such close proximity to the channel. Fencing around the Children's park would and be inconsistent with the River Corridor Plan. Maintenance of the park (regular garbage pick-up, erosion control, equipment maintenance, parking lot maintenance) have not been described in the EIR. Fencing around the Children's park would interrupt wildlife movement and be inconsistent with the River Corridor Plan.

Dog Park: This feature should be removed from the floodplain. Impacts from the dog park including loss of riparian habitat, impacts to water quality from dog feces, parking and human garbage associated with this park, would negatively impact to water quality and riverine habitat. Maintenance of the dog park (regular garbage pick-up, erosion control, parking lot maintenance) has not been described in the EIR.

Developer Mark Johnson stated in a public meeting that if any of these amenities are not maintained by the City, they would become public. Per communication with Former Parks Commissioner, Roger Leventhal, the City Parks Department would never agree to maintain a park located inside an apartment complex. As such, the claim that the dog park and the children's park will be public amenities is based on false premise. At the Oak Creek Apartments next door, managed by the same developer, private property, no trespassing signs have been posted at the entrance, prohibiting the public from accessing the creek trail, which was also identified as a public amenity when Oak Creek was constructed in 1982 but without City maintenance has become private.

Conclusion: Impacts from amenities such as a dog park, children's park and public river trail need to be thoroughly analyzed in the FEIR. Easements and maintenance agreements need to be made a condition of approval, in order to ensure that these facilities remain open to the public and properly maintained for human and dog safety. The dog park, children's park, and detention ponds should be relocated outside of the Floodway, Floodplain, Petaluma River Corridor or removed from the project. Permanent protection of access to the river trail needs to be guaranteed by means of an easement with the City that ensures future access to the river and maintenance of the trail.

Impacts to Special Status Species

DEIR acknowledges presence of steelhead trout and Chinook salmon in the project area, yet fails to analyze impacts to these species, which are listed as threatened under State and Federally Endangered Species Act provisions. The proposed development will terrace the riverbank transforming it from a natural channel into an engineered flood control detention basin to provide flood control for the proposed development. Excavators will remove 20,000+ CY of soil and compact the banks to 95% compaction to withstand high flows. Impacts to salmonids from terracing include permanent loss of riparian vegetation that creates shade and provides protection and cover from predators. Sediment will slowly fill the channel due to river widening, which will require regular dredging which will disturb the channel bottom and remove the cobbles and gravels essential to steelhead for spawning. Sedimentation caused by the widening

of the channel will also fill in the interstitial spaces in the gravels of the salmon nests (redds), causing entombment (suffocation) and mortality of the eggs prior to hatching. Deep, cold water pools steelhead juvenile need for rearing and summer survival will inevitably fill with sediment and water temperature will rise, causing direct impacts to these listed salmonids. These types of impacts to listed species are in direct violation of the SF Regional Water Quality Control Board Basin Plan and its protections of cold-water fisheries, including steelhead and salmon. Bull-dozing a natural channel into a flood detention basin to protect the proposed development, paving over wetlands and clearing riparian vegetation are all actions that are contrary to the mission of the Department of Fish and Game and NOAA/National Marine Fisheries, the State and Federal agencies charged with protecting listed salmon species.

Temporary impacts from construction may include erosion from grading and exposed soils, lime run-off from treatment of slabs for buildings, and spills of toxins from heavy equipment. The EIR fails to analyze impacts from dewatering the channel and relocating fish and aquatic life prior to construction of terraces. Additionally, the Casa Grande United Anglers of Casa Grande, a 39 year old salmon restoration program at the local high school, operates a steelhead hatchery in this reach of the river. The United Anglers hatchery program would be destroyed by the project as the ability of steelhead to survive in this reach of the river will be highly compromised.

Conclusion: the DEIR/FEIR fails to consider multiple serious and permanent impacts on steelhead and Chinook salmon from the proposed development. Mitigations to offset these impacts have not been proposed.

Impacts to Opposite Bank

The FEIR fails to analyze the impacts of terracing and increased peak flows from the development directly impacting the opposite (east) bank of the Petaluma River. Increases in force of run-off from the development could easily cause bank failures and loss of heritage oak trees. Mitigations to terrace around oak tree roots will compact their root systems and most likely kill them. High flows around the roots could destabilize them as well causing massive bank failures and sedimentation downstream. Mitigations proposed to reconstruct natural riparian habitat lost in the terracing is speculative since riverbank terraces will need to be highly compacted to withstand flood flows. This compaction will not allow replacement plantings to take root and will increase the potential for opposite ban destabilization.
Conclusion: The FIR fails to address issues of bank stability of the east side of the river.

Impacts to Wetlands

The wetland delineation completed by WRA in 2012 and certified by USACE in 2013 is outdated and cannot be used for calculation of area of impacts to wetlands or area of mitigation for temporary/permanent loss of wetlands. The DEIR states that wetland delineations are only valid for 5 years. The review of the 2012 delineation conducted by the USACE in 2013, was an office exercise and the recent update by the Army Corps of Engineers in 2019 was also an office exercise. Since 2012, there have not been “boots on the ground” conducting a legitimate wetlands delineation.
Conclusion: The FEIR is wrong to conclude that impacts to wetlands have been mitigated to a level of significance. The wetland delineation must be updated to properly assess area of impacts to wetlands and all mitigations for wetlands need to be evaluated based on a new “boots on the ground” updated delineation. The new delineation should be completed in the winter when the area is covered with seasonal wetlands. Click link or enter into browser for an aerial video of seasonal wetlands covering Parcel 09:
https://youtu.be/2gAkXW7H7x4

Mitigation for Loss of Wetlands

The FEIR includes an enhancement plan for recreation of permanently impacted wetland areas calculated to meet the required No Net Loss of wetlands policy in the General Plan and Regional Water Board wetland policy to meet requirements of the Clean Water Act. The proposed develop plans for wetlands to be established within the newly

terraced and compacted banks of the river channel. The river terrace is a poor choice for area to create wetlands and the probability of survival is low. Riverbank soil is composed of alluvial deposits of sandy loam, that do not hold water like the typical wetland soil that is comprised of clay and loam and is much more water absorbent that riverine soils. The lack of wetland soil itself will make it almost impossible to establish wetlands in the river terraces. Of equal concern is the fact the river terraces will need to be highly compacted (~95% compaction) to create a channel capable of withstanding 100-year flows coming from the upper watershed, combined with the large volume of run-off the project will generate. The compaction of terraces will negatively impact the establishment of wetlands in these terraced areas. The location of wetlands below top of bank would subject them to erosion and scour from high flows. Establishing wetlands on a gradient slope will be less successful since the water will not pool to form wetlands due to gradient of terraced banks.
Conclusion: Given the issues listed above, the proposed mitigation plan to recreate permanently loss of wetlands within the terraces of the riverbank, is inadequate and has not been proven to sustain the newly created wetlands to mitigate for permanent loss of wetlands form the development.

Changing Weather Patterns and Micro-Climate Conditions

Data from storm events published in a recent study (USACE and Scripps Institute of Oceanography 8/2019), show that no other County across 11 Western States has been hit harder by Atmospheric Rivers than Sonoma County. Damage from these extremely wet storm events in Sonoma County is estimated at $5 Billion (press Democrat Dec 8, 2019). Drone video footage of the property shows the lower elevation flood prone area (APN-009) covered with seasonal pools and wetlands. The break in slope between the lower flood prone area (APN-009) and the upland area (APN-006) is clearly evident in the video. The extent of the seasonal pools and wetlands on APN-009 in the video, supports the claim that the wetland delineation is outdated, and new site conditions caused by sudden precipitation events (Atmospheric Rivers) should be assessed.
Conclusion: The data from the outdated wetland delineation is deemed unusable given the new normal for storm events in our region. Modeling for river flows and impacts from flooding should take into account the changing weather patterns in our area. https://youtu.be/2gAkXW7H7x4

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SUMMARY

Successful environmental professional bringing 25 years' experience with project development, regulatory compliance, permit acquisition, project implementation, and mitigation and monitoring strategies. Strong interpersonal and problem-solving skills; reliable team player with science-based credibility. Proven track record of successful project implementation within time and budget constraints.

EXPERTISE

• Regulatory Compliance/Permit Acquisition • Contract/Budget Management	• Project Coordination/Implementation • Agency/Stakeholder Agreements

EXPERIENCE

08/2005 to Current **Senior Planner; Marin County Public Works and Flood Control** – San Rafael, CA
Lead planner and regulatory specialist for busy public works and flood control divisions. Responsible for project coordination, CEQA and permit acquisition, integration of regulatory requirements into project design and engineering, obtaining stakeholder and agency agreements, developing mitigation and monitoring plans and pre and post-project surveys.

09/1998 to 07/2005 **Executive Director**; **Fishery Network of the Central California Coast** – Central CA Coast Counties
Consultant to six Counties (Mendocino, Sonoma, Marin, San Mateo, Santa Cruz and Monterey), responsible for developing policies, programs and implementing projects to restore salmonid habitat impacted by County infrastructure and urban development.

11/1997 to 08/1998 **Environmental Consultant; Stillwater Sciences, Inc.** – Berkeley, CA
Developed strategies and work products to implement sediment TMDLs in compliance with North Coast Regional Water Quality Control Board Basin Plan standards. Served as technical advisor on the San Joaquin River stakeholders committee. Business proposal development.

06/1995 to 10/1997 **Field Supervisor; Forest, Soil and Water, Inc.** – Healdsburg, CA
Supervised field team collecting stream data for Habitat Conservation Plans for Collins Pine Timber Company. Data analysis and report production.

09/1987 to 12/1991 **AgroForestry Extension; US AID and Peace Corps** –Guatemala
Supervised a team of nursery workers and community groups to produce and plant trees to off-set impacts from deforestation. Managed staff building an agroforestry research station in the Guatemalan Highlands. Extension for landowners for reforestation strategies.

EDUCATION AND TRAINING

1994 **University of California, Berkeley** – Berkeley, CA
Masters (MLA): Environmental Planning/Forestry/Watershed Ecology

1982 **University of California, Santa Barbara** – Santa Barbara, CA
Bachelor of Science: Physical Geography; **Bachelor of Arts:** Environmental Science