Carroll, John (BOS)

From: Mae Empleo <mae@semlawyers.com>
Sent: Monday, November 30, 2015 11:01 AM
To: BOS Legislation, (BOS)
Cc: 'Patrick Soluri'; Osha Meserve; Tom Lippe; susanbh@preservationlawyers.com; Carroll, John (BOS)
Subject: Mission Bay Alliance, Warriors EIR CEQA Appeal; Appellants' Partial Brief
Attachments: SM Law Appeal Brief 11.30.15.pdf

Categories: 150990

Dear Clerk of the Board of Supervisors:

Attached, in .pdf format please find the above referenced appeal brief with exhibits. Eighteen hard copies of same will be hand delivered to your office today by noon. Thank you for your attention to this matter.

Sincerely,

Mae Ryan Empleo
Legal Assistant
Soluri Meserve, A Law Corporation
1010 F Street, Suite 100
Sacramento, CA 95814

☎ *tel:* 916.455.7300 ▪ *fax*: 916.244.7300 ▪ *mobile:* 559.361.5363 ▪ *email*: mae@semlawyers.com

Before the San Francisco Board of Supervisors

Appeal of Subsequent Environmental Impact Report for the
Warriors Arena Project
Commission on Community Investment and Infrastructure
Resolutions 69-2015 and 70-2015

Hearing Date: December 8, 2015

APPELLANTS' PARTIAL BRIEF

Re: Project Description, Tiering, AB 900, Greenhouse Gas Emissions, Geology and Soils, Hazards and Hazardous Materials, Urban Decay, Wind and Shadow, and Recreation

Submitted By:
Patrick M. Soluri, SBN 210036
Osha R. Meserve, SBN 204240
SOLURI MESERVE, A LAW CORPORATION
1010 F Street, Suite 100
Sacramento, CA 95814
Tel: (916) 455-7300
Fax: (916) 244-7300
Attorneys for Appellant Mission Bay Alliance

This office represents the Mission Bay Alliance ("Alliance"), an organization dedicated to preserving the environment in the Mission Bay area of San Francisco, regarding the project known as the Event Center and Mixed Use Development at Mission Bay Blocks 29-32 ("Warriors Arena Project" or "Project").

The Alliance submits this brief in support of its appeal of Commission on Community Investment and Infrastructure Resolution 69-2015, certifying the Subsequent Environmental Impact Report ("SEIR", "DSEIR" or "FSEIR" as appropriate) for the Warriors Arena Project, and Resolution 70-2015, adopting CEQA Findings for the Warriors Arena Project, both approved on November 3, 2015.

The grounds for this appeal are set forth in the Alliance's November 13, 2015, Notice of Appeal, and is based on all of the Alliances' comments letters and associated exhibits to those comments submitted to date (see References List, attached as **Exhibit 1**) as well as the materials physically attached as exhibits to this brief. (**Exhibits 2–7**.)

The grounds for this appeal are set forth in this brief and the two companion briefs submitted by our co-counsel, Thomas H. Lippe and Susan Brandt-Hawley, in the Alliance's November 13, 2015, Notice of Appeal, and all previously submitted Alliance comment letters and supporting exhibits. This brief discusses certain of these grounds in more detail.

A. PROJECT DESCRIPTION.

The SEIR repeatedly presents a shifting and inconsistent project description that thwarts informed decision-making and public participation about the project.

The FSEIR is fundamentally flawed because the project description is internally inconsistent, thereby thwarting intelligent public participation about the Project and its impacts. (*County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 197.) Changing the project description to avoid dealing with a difficult environmental issue appears to have become a recurring strategy employed by the City with respect to its analysis of the Project.

As first noted in the July 26, 2015 letter by Soluri Meserve, the DSEIR took internally inconsistent positions with respect to whether the Project included significantly reduced events at Oracle Arena. (July 26, SM Law, DSEIR.)[1] This strategy was

[1] To facilitate review, short form citations are used for the Alliance's previously submitted materials, and are identified in the References List attached as **Exhibit 1**.

employed in the AB 900 application as well as the DSEIR in order to justify the City's assertion that the Project would be carbon neutral. Although including reduced events at Oracle arena in the project description in the context of GHG emissions, the DSEIR omitted analysis of the consequences from such reduced events including, but not limited to, urban decay in Oakland.

The FSEIR also took inconsistent positions with respect to whether the Project included the two office towers. (Nov 2, SM Law, FSEIR, p. 5.) The Project's AB 900 application as well as the DSEIR took the incredible position that the two massive office towers were not components of the Project for purposes of the GHG analysis because they were somehow "vested." Setting aside the factual and legal deficiency associated with attempting to avoid CEQA review based on so-called "vested rights," it is noted that the FSEIR's energy analysis of the Project included analysis of the energy consumption associated with operation of the towers. The FSEIR attempts to side-step this inherent inconsistency by claiming that the FSEIR never, in fact, analyzed the Project's GHG emissions on a quantitative basis. As demonstrated below, however, that claim is false.

Finally, the FSEIR took internally inconsistent positions on the issue of whether the open space within the Project site was considered publicly available or purely private open space. (Nov 2, SM Law, FSEIR, p. 6.) In order to avoid disclosing a significant wind impact within these onsite open spaces, the FSEIR asserted that they were exempt from analysis because the spaces were "publically [sic] accessible but private recreational areas." (FSEIR, p. 13.15-1.) This characterization, however, was inconsistent with the FSEIR's characterization of this open space as counting towards the Project's requirement to construct 0.46 acres of open space for each 1.0 acre of development area, which the FSEIR characterizes as "directly serv[ing] the project's demand for recreational facilities." (FSEIR, p. 13.16-3.)

By repeatedly shifting the project description to avoid troublesome environmental issues, the City has thwarted informed decision-making about the Project, its impacts and mitigation measures. (See, e.g., *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, 655-656 ("By giving such conflicting signals to decision makers and the public about the nature and scope of the activity being proposed, the Project description was fundamentally inadequate and misleading").) The City will need to recirculate a revised DSEIR based on a stable and consistent project description.

B. TIERING.

The SEIR attempts to rely on and tier from EIRs prepared in 1990 and 1998 for Mission Bay Redevelopment planning efforts, yet tiering is not permissible because the

Project is different than the project described in the prior EIRs. Under CEQA Guidelines section 15152, "'Tiering' refers to using the analysis of general matters contained in a broader EIR (such as one prepared for a general plan or policy statement) with later EIRs and negative declarations on narrower projects; incorporating by reference the general discussions from the broader EIR; and concentrating the later EIR or negative declaration solely on the issues specific to the later project." Tiering is only appropriate where the prior EIR has adequately addressed environmental effects that would not be substantially different than those related to the proposed project. (See CEQA Guidelines, § 15152, subd. (f).) When a program EIR has been prepared, an agency may determine that a project is within the scope of the previously prepared program EIR. (CEQA Guidelines, § 15168.) But in order to address those effects adequately, the project must be similar, if not the same as, the previously analyzed project.

A subsequent EIR must concentrate on issues specific to the later project that were not previously addressed in the prior EIR. (CEQA Guidelines, § 15152, subd. (a).) Here, reliance on the 1990 and 1998 EIRs for analysis of the impact areas excluded from consideration in the SEIR was impermissible because new information and/or changes in circumstances rendered the prior analyses inapplicable to the currently proposed Project. Contrary to the SEIR, the Project is not consistent with the Mission Bay Redevelopment Plan. (See July 26, Brandt-Hawley, DSEIR, pp. 1-2; Nov 2, Brandt-Hawley, Secondary Use, pp. 2-4.) As explained in the Alliance's comments, the Project is neither a permitted use, nor a secondary use within Mission Bay South. As a result, the proposed Project is not within the scope of the previously prepared program EIRs, and those EIRs do not disclose the impacts of the Project.

The Record also contains substantial evidence supporting a fair argument that the Project will result in potentially significant impacts associated with the resource areas excluded from consideration in the SEIR or, alternatively, the record demonstrates that supplemental review is required under Public Resources Code section 21166 for those same resource areas. (July 26, MBA, Tiering, pp. 2-3; November 2, SM Law, FSEIR, pp. 1-3.) The SEIR's approach to environmental review, including relying on environmental documents almost two decades old as well as numerous subsequently prepared reports and other documents prepared outside of the CEQA process fails to provide a cohesive, understandable document meeting CEQA's mandates for adequacy, completeness, and a good faith effort at full disclosure. (June 30, oral comments by Osha Meserve, FSEIR, Vol. 6, p. PH-45.)

Moreover, the NOP/IS improperly determined that the project would have no new significant or substantially more severe impacts than analyzed in the 1998 SEIR. The determinations in the NOP/IS are not supported by substantial evidence in the Record.

Additional information regarding the inadequacy of the City's approach to review with respect to analysis of specific resource areas is provided below.

C. AB 900 AND ADMINISTRATIVE RECORD.

The City has failed to comply with applicable requirements to compile and maintain a complete and adequately indexed Record, and also failed to timely make the Record made available online at the time of release of the DSEIR. Therefore, the Project may not rely on AB 900 litigation fast tracking.

The City did not post all of the documents comprising the Record at the time of DSEIR release, contrary to Public Resources Code section 21186, subdivision (b). The City failed to include numerous pieces of correspondence that were clearly within the documents comprising the Record under Public Resources Code sections 21186, subdivision (b) and 21167.6, subdivision (e). The City also failed to post references to the 1990 and 1998 EIRs, upon which the FSEIR relies for analysis of about half of the resource topics that are typically analyzed in an EIR. Examples of those missing documents were described in various comments submitted by the Alliance. (See, e.g., July 9, SM Law, pp. 1-2; July 26, MBA, Record, 1-3; see also Nov 2, 2015, SM Law, FSEIR, p. 3.) Moreover, the City admits that the Record is not located on the gsweventcenter.com website as required by Public Resources Code section 21168. The CEQA Findings do not refer to the gsweventcenter.com website as the location of the Record, but rather the Project files at the OCII. (CEQA Findings, p. 18.)

As a result of these and other related failures with respect to the Record, the City is not eligible for AB 900 litigation fast tracking for CEQA claims that may be lodged in the future. In addition, the purely legal argument inappropriately contained in the OCII CEQA Findings (p. 14) that all challenges to the Project—whether related to CEQA or not—would be subject to AB 900 fast tracking, would not be entitled to any deference by a reviewing court simply because it is bootstrapped in a document normally setting forth factual findings that may be entitled to deference. In any event, this legal argument is incorrect and contrary to the plain language of the referenced legal authority. Thus, any future litigation would progress according to normally applicable statutory timelines, not the timelines within AB 900.

D. THE SEIR IS NOT SUFFICIENT AS AN INFORMATIONAL DOCUMENT WITH RESPECT TO GREENHOUSE GAS EMISSION IMPACTS.

The DSEIR stated that it "focuses on the project's contribution to cumulatively significant GHG emissions." (DSEIR, p. 5.5-9.) The DSEIR points to the certification of

the project as an AB 900 "Leadership Project" to reach its less than significant determination, stating that the proposed project "would not result in any net additional GHG emissions" after purchase of offsets from a "qualified greenhouse gas emissions broker." (DSEIR, p. 5.5-11 to 5.5-12.) The FSEIR, in an about-face, then claimed that the less than significant determination" is based on finding consistency of the project with the San Francisco Greenhouse reduction Strategy" (FSEIR, p. 13.14-6), explaining that commenters were somehow confused (FSEIR, p. 13-14-5). In yet another about-face, the FSEIR claims that instead of being a quantitative analysis as one would have gathered from the DSEIR, it was actually a *qualitative analysis*. All the while, neither the DSEIR nor the FSEIR clearly describe the GHG implications of the Project. This approach fails in several respects.

As quantitative methods of assessing Project-level GHG emissions are available, the EIR's lack of quantification of the impact was a failure to proceed in the manner provided by law. The Alliance has demonstrated that ample information was available that allows the City to quantify the Project's GHG emissions, consistent with regulatory guidance. (Nov 2, SCS, GHG, pp. 2-3.) Thus, while the City might ordinarily have discretion to utilize a qualitative analysis, that discretion is constrained because extensive quantitative data has already been prepared for the Project that was readily available to the City. (*Berkeley Keep Jets Over the Bay Committee v. Board of Board Commissioners of the City of Oakland* (2001) 91 Cal.App.4th 1344, 1371 (agency abused discretion by not quantifying project's air emissions).)

The FSEIR's conclusion that GHG emissions from the Project would result in a less than significant impact is not supported by substantial evidence in the Record. In particular, the allegedly quantitative analysis in the AB 900 Leadership application failed to include the entire Project; the 700,000 square feet of retail and office uses in the Project's towers were inexplicably not counted at all). The application also made unsubstantiated assertions regarding a 76 percent reduction in GHG emissions from Oracle Arena. (July 26, SM Law, DSEIR, pp. 3-6; see also July 20, SCS, pp. 1, 4-6.) The allegedly *qualitative* analysis of the Project's consistency with the San Francisco GHG Reduction Strategy also fails to meet minimum CEQA standards. CEQA allows lead agencies to consider whether the Project complies with an adopted local plan, for instance, in making a determination as to the significance of the Project's GHG impact. (CEQA Guidelines, § 15064.4, subd. (b)(3).) Yet here, the EIR fails to provide any meaningful analysis of how the Projects alleged compliance with the SF GHG Reduction strategy actually results in a less than significant impact. (See FSEIR, pp. 13.14-6 (simply listing regulations that the Project would comply with).)

Under CEQA Guidelines section 15088.5, subdivision (a)(4), recirculation is required when meaningful public review is precluded by a fundamentally inadequate EIR. Here, recirculation of the DSEIR was required due to the FSEIR's change in approach to GHG analysis from the quantitative analysis described in the DSEIR that relied on the faulty GHG inventory prepared for AB 900 Leadership Development Project certification concluding there would be "no net emissions" to a "qualitative" analysis stating GHG emissions would be less than significant based on the Project's consistency with the local GHG reduction plan. (Nov 2, SM Law, DSEIR, p. 2.) While the DSEIR initially relied on the faulty AB 900 quantification of GHG emissions to reach a less than significant conclusion; when the FSEIR changed the approach to a "qualitative" approach, recirculation was required.

Even the flawed AB 900 GHG inventory revealed that the Project would result in very large GHG emissions, including: (1) 4,099 metric tons per year of carbon dioxide ("CO2") emissions during project operations; and (2) 10,066 metric tons of CO2 emissions over the two year construction period. (AB 900 Application, p. 8.)[2] According to the U.S. Environmental Protection Agency, a typical passenger car emits 4.7 metric tons of CO2 per year.[3] With the Project emitting almost 200,000 tons of CO2 over the 30-year period considered the life of the Project for purposes of the AB 900 analysis, the Project's GHG emissions are about the same as adding about 42,500 cars to the road for an entire year. Is this really a less than significant impact?

The SEIR also includes wholly inadequate mitigation for these substantial GHG emissions. In addition to allegedly being consistent with the SF GHG Reduction Strategy, the EIR includes an "Improvement Measure" that requires purchase of offset for the nearly 200,000 tons of GHG emissions that the AB 900 application stated the Project would emit. (FSEIR, MMRP-51.) Yet as described in the Alliance's comments, the measure does not specify purchase of any particular type of offsets, such as offsets certified by the California Air Resources Board, to ensure that the offsets are real, additional, quantifiable, permanent, verifiable, and enforceable. (July 20, SCS, p. 2.) Without any specification of offset type, the Project may make the claim that it is "GHG neutral" by purchasing offsets that may cost as little as $1.00 per ton, with an overall cost to the Project of just $200,000. Moreover, unlike other projects, there is no requirement that the offsets be purchased

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[2] Available at: http://www.gsweventcenter.com/AB_900/2015_0217_GSW_Blocks29-32_AB900_Application_Submission.pdf.

[3] USEPA, GHG Emissions from a Typical Passenger Vehicle, p. 2, available at: http://www3.epa.gov/otaq/climate/documents/420f14040a.pdf, attached as **Exhibit 2**.

locally, which can create other local environmental benefits in addition to reducing GHG emissions.

The SEIR also impermissibly conflates conflating analysis of the Project's design features (Improvement Measures) and mitigation measures, and thus fails to consider whether other possible mitigation measures would be more effective. The SEIR refers to the GHG reduction measure as an "Improvement Measure" rather than a mitigation measure. (FSEIR, MMRP-51.) To the extent that the City intends to incorporate the purchase of offsets as a "design feature" or otherwise incorporate it into the project description, this strategy violates CEQA's mandate to disclose project impacts and separately address feasible mitigation measures. (*Lotus v. Department of Transportation* (2014) 223 Cal.App.4th 645, 655-56 (incorporating mitigation measures for redwood trees into the project description violated CEQA "[b]y compressing the analysis of impacts and mitigation measures into a single issue . . ."].)

Last, the FSEIR fails to adequately respond in good faith to comments about the GHG analysis, including but not limited to explaining why it was proper to exclude the office towers from the GHG emissions inventory. (CEQA Guidelines, § 15088.) In fact, the FSEIR fails to respond at all to comments concerning the legitimacy of excluding GHG emissions from the office towers from the AB 900 Leadership Project calculations. Though the FSEIR now claims that it does not rely on the AB 900 analysis to make its less than significant determination, the DSEIR referenced the AB 900 analysis as support for the determination. As a result of this shifting and unsupported approach to GHG analysis, the FSEIR misled the public and is deficient as an informational document.[4]

E. THE SEIR IS NOT SUFFICIENT AS AN INFORMATIONAL DOCUMENT WITH RESPECT TO GEOLOGY AND SOILS IMPACTS.

Geology and Soils is one of the resource areas that the City determined it was unnecessary analyze in the SEIR. Yet, in the City of San Francisco, it is difficult to imagine a more important issue than seismic safety. For instance, it was the seismic upgrades at Candlestick park made before the 1989 Loma Prieta earthquake that undoubtedly saved countless lives. (See July 23, Karp, Loma Prieta, attached as **Exhibit 3**.) Given the complexity of the site, which is located on Bay fill placed after the 1906 Earthquake, as well as the fact that the arena is classified as Risk Category III under the

[4] In addition to the materials cited above, the following materials contain additional detail regarding the flawed approach to GHG analysis: July 27, 2015, letter from Susan Vaughn, Sierra Club, FSEIR, Vol. 6, COM-180 - COM 181.

California Building Code (public assembly with more than 300 people), special attention to these impacts is necessary. (July 20, BSK, Geology, p. 4.)

The Record contains substantial evidence supporting a fair argument that the Project will result in potentially significant Geology and Soils impacts or, alternatively, supplemental review is required under Public Resources Code section 21166. Additionally, the failure to include an up to date analysis of Geology and Soils is subject to "de novo review," as it constitutes a "failure to include required information." (See *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1207-08.) Evidence in the Record reveals significant concerns with respect to seismic safety, liquefaction, tsunami hazards, and evacuation, among other impacts. (July 26, SM Law, DSEIR, pp. 13-20; Nov 2, SM Law, FSEIR, pp. 9-11; July 21, pp. 1-7; July 20, BSK, Geology, pp. 1-18, Nov 2, BSK, Geology.)

Reliance on the 1998 SEIR analysis of Geology and Soils was impermissible because the Project is much different than the project described in the 1998 FSEIR. For example, the Mission Bay Redevelopment Plan was a land use plan for mixed use development that did not contain any public assembly uses. Such uses have entirely different standards with respect to seismic safety. (July 20, BSK, Geology, p. 4.) Additionally, the 1998 FSEIR relies on outdated data and methodology to analyze impacts, and conditions have changed such that the 1998 FSEIR does not describe the present conditions at the site. (July 26, SM Law, DSEIR, pp. 13-20; July 21, Karp, Geology, pp. 1-5; July 20, BSK, Geology, pp. 5-6,8.)

Rather than include a cohesive discussion of Geology and Soils impacts in the context of the specific Project and today's standards, the City has presented a hodgepodge of outdated information that is not tailored to the known Project and risks at hand. The FSEIR attempts to excuse the lack of information with the statement that an "EIR must achieve a balance between technical accuracy and public understanding." (FSEIR, p. 13.20-12.) Yet, the SEIR provides *no analysis at all* of Geology and Soils Impacts, and instead relies on analysis in the outdated and inapplicable 1998 SEIR.

The SEIR also impermissibly defers development of mitigation measures necessary to ensure that Geology and Soils impacts are mitigated to less than significant levels. (July 26, SM Law, DSEIR, pp. 18-20; Nov 2, SM Law, FSEIR, pp. 9-11.) While the FSEIR refers to the importance of mitigation measures and compliance with building codes as means to address these issues (FSEIR, pp. 13.20-13 to 13.20-14) , there are *no mitigation measures provided* to reduce Geology and Soils impacts to less than significant levels. (CEQA Findings, pp. 24-25; see also, FSEIR, p. 13.20-17.) With respect to building code, moreover, the Alliance's expert explained that "Seismic response of

structures located on soft or liquefiable soils is non-linear and requires a site specific seismic response analysis." (Nov 2, BSK, Geology, p. 2.) Thus, while certain design issues may properly be deferred and developed in accordance with applicable building code, it was necessary in this instance for Geology and Soils impacts to be analyzed in the context of an EIR, rather than a patched together network of new reports and excuses. As a result of the significant new information presented during the course of the review period regarding substantially more severe Geology and Soils impacts, recirculation of the SEIR was required. (CEQA Guidelines, § 15088.5, subd. (a).)

The FSEIR fails to adequately respond in good faith to comments regarding the inadequacy of the Geology and Soils analysis. For instance, the FSEIR does not adequately address comments regarding the interrelationship of liquefaction hazards around the site and the crucial need for attendees at events to be able to effectively evacuate the area. (Nov 2, BSK, Geology, pp. 2, 5.) In particular, expert comments explained that "liquefaction induced sand boils that may develop along the surface streets surrounding the project. Sand boils that may occur during an earthquake could result in significant settlements that would render the roads unusable for evacuation or emergency response. This issue has not been evaluated and considering that 18,000 people may be trying to evacuate from the area into unusable roads, this is a significant impact that has not been addressed." (Nov 2, BSK, Geology, p. 4.) Instead of addressing this specific concern, the FSEIR simply referred to compliance with building codes. (FSEIR, p. 13.20-12.)

With respect to the adequacy of the SEIR's analysis of Geology and Soils, the California Supreme Court's opinion in *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal. 4th 412, 443 is instructive:

> The audience to whom an EIR must communicate is not the reviewing court but the public and the government officials deciding on the project. That a party's briefs to the court may explain or supplement matters that are obscure or incomplete in the EIR, for example, is irrelevant, because the public and decision makers did not have the briefs available at the time the project was reviewed and approved. The question is therefore not whether the project's significant environmental effects can be clearly explained, but whether they were.

Here, the analyses in the 1990 and 1998 are no longer pertinent. The City admits that none of the mitigation measures developed during that time even apply now. Subsequent brief descriptions in the IS/NOP also fail to characterize the full nature and extent of the seismic and other hazards that will result from construction of the Project.

Now, the FSEIR includes yet additional analysis and information regarding how impacts related to Geology and Soils will be addressed later through future regulatory processes and building codes. This review process does not clearly explain the effects of the Project to the public, and therefore violates CEQA.

F. THE SEIR IS NOT SUFFICIENT AS AN INFORMATIONAL DOCUMENT WITH RESPECT TO HAZARDS AND HAZARDOUS MATERIALS IMPACTS.

Hazards and hazardous materials is one of the resource areas that the City determined it was unnecessary analyze in the SEIR, which is surprising since the Project site as well as the surrounding properties have a long history of extensive soil and groundwater contamination. (July 26, SM Law, DSEIR; July 22, BSK, Hazards.) The SEIR failed to include an analysis of the Project's impacts with respect to Hazards and Hazardous materials because of the flawed determination that there were no new or more significant impacts in this category than addressed in the 1998 FSEIR (NOP/IS, pp. 106-107; DSEIR, p. 1-9.) Although the NOP/IS determined that no additional analysis was required of these issues in the DSEIR, changed circumstances and/or new information following the 1998 SEIR requires recirculation of the DEIR that includes adequate analysis and disclosure of the Project's potentially significant impacts with respect to hazards and hazardous materials.

First, the DSEIR did not previously acknowledge the presence of asbestos on-site. Following release of the DSEIR, the Bay Area Air Quality Management District ("BAAQMD") staff sampled the stockpiles within the Operable Unit identified in the Revised Risk Management Plan (2006) and Risk Management Plan (collectively "RMP") for the site, which identified the presence of asbestos above regulatory limits. (Nov 2, SM Law, FSEIR; Oct 20, SM Law, Health Risk.) According to sampling by the BAAQMD, stockpiles of materials adjacent to the Project site contain more than 3 percent asbestos. (See **Exhibit 5**, BAAQMD Asbestos Results, August 7, 2015.) According to the sampling, stockpiles of materials adjacent to the Project site contain more than 3 percent asbestos, well above the USEPA's historically used upper limit of percent soil as a benchmark for defining hazardous levels of asbestos in soils. (See **Exhibit 6**, USEPA Asbestos Memorandum, dated August 10, 2004.)

In response to this newfound hazard from the presence of asbestos in onsite soils, the applicant prepared an Asbestos Dust Mitigation Plan ("ADMP") in order to mitigate the significant public health risk. This Mitigation Measure, included for the first time in the IS/NOP (HZ 1b, NOP/IS, p. 113), is improper in that it was formulated to address a new potentially significant impact that was not the subject of any EIR. (See NOP/IS, p.

113 (improperly assuming the asbestos is naturally occurring).) The ADMP, dated October 9, 2015, was released to the public just prior to the FSEIR. In any case, the newly-discovered presence of asbestos in soils onsite, not previously disclosed in the DSEIR or the prior EIRs prepared for the Mission Bay Redevelopment Plan, represents a new significant impact of the Project that requires recirculation.

Second, following release of the NOP/IS,[5] the applicant's consult prepared a Phase II report that identified significant additional contamination in soils onsite. (Nov 2, SM Law, FSEIR; July 26, SM Law, DSEIR; July 22, BSK, Hazards.) The Phase II report shows that significant amounts of both previously existing and subsequently-imported hazardous waste remain on the site today. (July 22, BSK, Hazards.) Backfill used in this area contained Class 1 and 2 hazardous materials that were not present before the excavation and partial removal of petroleum contaminated materials. These materials are not addressed in the 1998 RMP or 2006 Revised RMP. The FSEIR now acknowledges the existence of this contaminated backfill (FSEIR, 13.22-20), which was withheld from public disclosure in the NOP/IS and DSEIR.

The presence of newly-revealed contamination, viewed in isolation, represents new information and/or a changed circumstance requiring analysis and disclosure in a recirculated DSEIR.[6] Additionally, the Alliance retained an independent toxicologist to compare the results of the Phase II to the health screening levels in the 1998 RMP (and included in the 2006 RRMP) and current standards. The report prepared by Damian Applied Toxicology, LLC ("DAT"): (1) provides updated screening levels for the constituents at the site; (2) provides newly applicable screening levels that did not exist at the time of the 1998 EIR; (3) compares the new and old screening levels; and (4) compares the updated screening levels to the most recent site investigation data from the Project site. (Nov 2, SM Law, FSEIR; Oct 20, SM Law, Health Risk.)

The DAT Report shows that the prior screening levels are completely outdated and do not protect public health. Using updated screening levels that address a wide range of relevant potential receptors and exposure pathways, the DAT Report concludes that 19 chemicals (18 in soil and 1 in groundwater) that were detected in the 2015 Phase II

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[5] Hazards and Hazardous Materials is one of the subjects determined by the City to not warrant any analysis in the DSEIR.

[6] Evidence regarding the presence of asbestos within the Operable Unit that contains the site and described in the RMP dates back to at least August 2015, prior to OCII's certification of the SEIR. The asbestos results would alternatively warrant preparation of supplemental review under Public Resources Code section 21166 and CEQA Guidelines section 15162.

investigation at the site exceed at least one screening level. (Oct 20, SM Law, Health Risk.) The DAT Report did not include applicable screening levels for asbestos, as the Alliance had no information pointing to the presence of asbestos on the site until the BAAQMD asbestos sampling results were recently provided pursuant to a Public Records Act request. In any case, contamination documented previously in the Phase II as well as more recently in the BAAQMD asbestos testing, reveals that the Project poses potentially significant hazards due to impacts to the shallow water table, risks to construction workers exposed to site soils, including backfill, risks to commercial workers at the planned development project, and risks from transport and disposal of this hazardous waste, to the extent it may be taken off site. These hazards are not addressed in the RMP/RRMP, and represent new significant impacts that require recirculation of the DSEIR. (Nov 2, SM Law, FSEIR.)

The FSEIR mischaracterizes the record in an attempt to dismiss the significance of this newly-discovered contamination that is well above screening levels. First, the FSEIR suggests that it is contamination is not the result of subsequent activities at the Project site, stating, "The fill unit is . . . likely related to debris from the 1906 earthquake and resulting fire." (FSEIR, 13.22-21.) This statement is misleading because is conceals from the public the fact, recognized in both the applicant's Phase II report and the prior BSK report, that this material was deposited onto the Project site in approximately 2005 following excavation to remediate petroleum free-product found onsite. (July 22, BSK, Hazards, p. 3.) Thus, available facts indicate that this contaminated soil was the result of activities that took place following the 1998 SEIR, not the 1906 earthquake.

The City also attempts to dismiss the significance of this contamination by asserting, "[T]he Phase II ESA determined that these concentrations are not considered a health concern to construction workers." (FSEIR, 13.22-21.) First, it is the function of a health risk assessment, and not a Phase II environmental site assessment, to make a determination of human health risk. Indeed, the completely inappropriate and inadequate nature of this conclusion in the Phase II is demonstrated with clarity in the DAT Report, discussed above, establishing that some of these contaminants are found in this fill material at up to ten times current screening levels. The City's misstatements on these critical human health issues fall well below its duty of good faith.

Finally, it is noted that the FSEIR repeatedly relies on compliance with the existing 1999 RMP under the San Francisco Bay Regional Water Quality Control Board ("RWQCB") oversight to ensure that impacts are less than significant. (FSEIR, 13.22-8 – 12.) Notably, compliance with the RMP is not even listed as a mitigation measure in the Mitigation Monitoring and Reporting Program, is and is instead listed as a Regulation. (OCII adopted MMRP-58.) In addition to establishing that the RMP itself is outdated

and no longer adequate to protect human health, the attached correspondence establishes that oversight by the RWQCB is no longer adequate to effectively manage the site for the protection of construction workers and the public. (**Exhibit 7**, RWQCB Email Correspondence, dated November 23, 2015.) In particular, there is no record of required air quality monitoring or tracking of movement of hazardous materials within the Operable Unit that includes the Project site. There has apparently been a complete failure to comply with even the most basic terms of the RMP, which in itself is inadequate to protect public health given the changes in circumstances described above. Whether a regulation or a mitigation, this measure is not functioning effectively to protect the public, including onsite workers, from onsite hazards, and is insufficient to reduce Hazard and Hazardous Materials impacts to less than significant levels.

In summary, the information submitted by the Alliance constitutes substantial evidence of a fair argument that the Project will have a significant adverse effect regarding hazardous materials. In the alternative, per CEQA section 21166 and CEQA Guidelines section 15162, the facts described above constitute a change in circumstances since the 1998 SEIR involving, and significant new information showing, a new significant effect not previously analyzed in the 1998 SEIR. Under either standard, the City must prepare and circulate for public comment an environmental impact report to review the Project's impacts on hazardous materials. Moreover, the identified mitigations/regulations to reduce Hazards and Hazardous Materials impacts have been proven to be ineffective and are therefore inadequate under CEQA.

G. THE SEIR IS NOT SUFFICIENT AS AN INFORMATIONAL DOCUMENT WITH RESPECT TO URBAN DECAY IMPACTS IN OAKLAND.

"Under CEQA, a lead agency must address the issue of urban decay in an EIR when a fair argument can be made that the proposed project will adversely affect the physical environment." (*California Clean Energy Committee v. City of Woodland* (2014) 225 Cal.App.4th 173 (*CCEC*).) An EIR is to disclose and analyze the direct and the reasonably foreseeable indirect environmental impacts of a proposed project if they are significant. (CEQA Guidelines, §§ 15126.2, 15064, subd. (d)(3).) Economic and social impacts of proposed projects are outside CEQA's purview. (CEQA Guidelines, § 15131.) When there is evidence, however, that economic and social effects caused by a project, could result in a reasonably foreseeable indirect environmental impact, such as urban decay or deterioration, then the CEQA lead agency is obligated to assess this indirect environmental impact. (*CCEC*, *supra*, 225 Cal.App.4th at 188; *Anderson First Coalition v. City of Anderson* (2005) 130 Cal.App.4th 1173, 1182; *Citizens for Quality Growth v. City of Mt. Shasta* (1988) 198 Cal.App.3d 433, 446 ("The potential economic

problems caused by the proposed project could conceivably result in business closures and physical deterioration of the downtown area").)

Here, the DSEIR explained that the project includes relocating the Warriors home games from the existing Oracle Arena in Oakland to San Francisco. (DSEIR, p. 1-3.) In addition to relocating all NBA games from Oakland to San Francisco, the project description also includes relocating half of all existing non-NBA games from Oakland to San Francisco. (AB 900 Application; DSEIR, p. 5.5-11.) Thus, a direct economic impact of the project is to reduce Oracle Arena events from 89 to 21 per year. As explained by economist Philip King, this is a severe direct economic impact from the project. (July 22, King, Urban Decay, pp. 6-7.)

Such a dramatic economic impact may reasonably be expected to have indirect impacts. Dr. King explains that revenues from a mere 21 events per year will not likely justify the ongoing operational costs of maintaining such a facility. (July 22, King, Urban Decay, pp. 7-8.) As such, a likely indirect impact is the ultimate shuttering of Oracle Arena. Repurposing such a massive facility is difficult to impossible, and so it is very likely that the facility will likely stand dormant and invite the physical deterioration that is characteristic of urban decay. (July 22, King, Urban Decay, pp. 8-9; *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 184, 1212 (urban decay characteristic of "long-term vacancies that deteriorate and encourage graffiti and other unsightly conditions").)

Implicitly acknowledging that the DSEIR impermissibly ignored this issue, the FSEIR included an analysis purporting to explain how there was never any potential for urban decay in the first place. However, as explained by economist Philip King, the FSEIR's technical report was so riddled with methodological errors and omissions including, for example, its repeated misuse of economic data and its sheer speculation that urban decay can be avoided by another professional sports team moving into Oracle Arena. Properly accounting for the numerous methodological flaws, the information contained in that report actually supports Dr. King's conclusion of a fair argument that urban decay may result in Oakland. (Nov 2, King, Urban Decay.) Thus, rather than demonstrate that urban decay is a non-issue, the FSEIR's report constitutes new information of a new potentially significant impact that requires recirculation of the DSEIR.

Rather than prepare the required analysis in good faith and recirculate the RDEIR with this new information as required by CEQA, the City instead hired a consultant to prepare a *post hoc* rationalization for why no analysis was required in the first place. (See FSEIR, Appendix UD.) As explained by Dr. King, the FSEIR's analysis does not

actually respond to Dr. King's original analysis explaining why it is a potentially significant impact requiring analysis. (Nov 2, King, Urban Decay.)

H. THE SEIR IS NOT SUFFICIENT AS AN INFORMATIONAL DOCUMENT WITH RESPECT TO WIND AND SHADOW IMPACTS.

According to the DSEIR, a wind impact would be significant if it would alter wind in a manner that would substantially affect public areas. (DSEIR, p. 5.6-6.) However, the wind analysis only addressed offsite areas and not the public spaces within the Project site. (DSEIR, pp. 5.6-10 to -13.) While the DSEIR included a discussion of wind impacts in these areas, it did so only for "informational purposes." (DSEIR, p. 5.6-18.)

The Alliance commented that the DSEIR failed to analyze the Project's impact on on-site open space, which rendered it defective as an informational document. (FSEIR, p. 13.15-1.) The FSEIR's response to this comment was not made in good faith, and instead was intended to conceal a significant impact (and thereby avoid recirculation) and improperly deferred mitigation.

The FSEIR first suggested that the open space provided on-site was somehow exempted from analysis because it consists of "publically [sic] accessible but private recreational areas." (FSEIR, p. 13.15-1.) This characterization, however, is inconsistent with the FSEIR's characterization of this open space as counting towards the Project's requirement to construct 0.46 acres of open space for each 1.0 acre of development area, which the FSEIR characterizes as "directly serv[ing] the project's demand for recreational facilities." (FSEIR, p. 13.16-3.) It is also inconsistent with the project applicant's own application materials, which plainly characterized these areas as public open spaces. (Golden State Warriors Even Center and Mixed-Use Development Combined Basic Concept/Schematic Design Submittal, Blocks 29-32: Open Space, Gatehouse & Parking and Loading, p. 5.)

In other words, the FSEIR characterizes this open space as "private" to avoid a wind analysis, but "public" for purposes of dismissing impacts to recreational facilities. The FSEIR's characterization of this space as "private" is also inconsistent with the project applicant's repeated representations about this space. This type of shifting project description is misleading and thwarts informed decision-making. (*County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 197.)

What is more, the FSEIR's attempt to narrow the scope of the required wind analysis by reference to Planning Code section 148 is misplaced. Indeed, if one were to simply apply the scope of that code section directly, it would not apply at all because the

Project is being developed in a redevelopment area. Here, the 1998 Mitigation Monitoring and Reporting Program did not limit the application of a wind analysis to only those instances where Section 148 would apply on its own terms, but rather much more broadly:

> Require a qualified wind consultant to review specific designs for buildings 100 feet or more in height for potential wind effects. The Redevelopment Agency would conduct wind review of high-rise structures above 100 ft. Wind tunnel testing would also be required unless, upon review by a qualified wind consultant, and with concurrence by the Agency, it is determined that the exposure, massing, and orientation of buildings are such that impacts, based on a 26-mile-per-hour hazard for a single hour of the year criterion, will not occur. The purpose of the wind tunnel studies is to determine design-specific impacts based on the above hazard criterion and to provide a basis for design modifications to mitigate these impacts. Projects within Mission Bay, including UCSF, would be required to meet this standard or to mitigate exceedances through building design.

(1998 EIR, p. VI.6, Mitigation Measure D.7.)

Thus, by its own terms this mitigation measure applies to "high-rise structures above 100 ft." within any land use designation, and the scope of the affected area to review is in no way limited to "public open space" rather than so-called "private open space." Nor is there any explanation that the scope of affected area is to be limited by Section 148.

The FSEIR also disclosed, for the first time, that the Project would "exceed the wind hazard criterion" at no less than "three test points on the project site," which constitutes a new significant impact that requires recirculation of the DSEIR. The FSEIR dismisses the significance of those exceedances because "wind effects at these locations are not considered significant impacts on the environment." (FSEIR, p. 13.15-3.) The FSEIR reaches this strained legal conclusion in order to avoid the factual issue that the de facto mitigation offered for that significant impact is both ineffective and impermissibly deferred under CEQA. This legal analysis is flawed, however and will be offered no deference by a reviewing court. The SEIR must be recirculated based upon these newly-disclosed wind exceedances that constitute new significant impacts from the Project.

I. THE SEIR IS NOT SUFFICIENT AS AN INFORMATIONAL DOCUMENT WITH RESPECT TO RECREATION IMPACTS.

The DSEIR improperly failed to include any analysis of impacts to recreation based on the NOP/IS's determination there would be no new or more severe impacts than identified in the 1998 SEIR based on the incorrect assertion that "[t]he increase in demand for recreational facilities generated by the project would generally be consistent with that described in the Mission Bay FSEIR." (NOP/IS, pp. 61-64.) This conclusion is completely unsupported by any citation or factual support whatsoever. Rebutting this statement is the Project description itself: the Project includes a massive arena with a capacity of more than 18,000 seats holding up to 225 events per year.

These huge crowds, in addition to employees associated with the 580,000 square feet of commercial uses, would all be crammed into an 11 acre parcel. These thousands of additional arena visitors are in addition to the people associated with the 580,000 square feet of office space, the 125,000 square feet of retail space, and all other people within the larger Mission Bay area who are anticipated to use Bayfront Park. Since the 1998 SEIR limited its consideration to 50,000 square feet of entertainment uses and not a massive 750,000 square foot arena, the open space needs of these arena crowds were never contemplated in the 1998 SEIR. Accordingly, the Project will result in significantly accelerated physical deterioration of Bayfront Park than disclosed in the 1998 SEIR, which is a significant impact under CEQA. (CEQA Guidelines, Appendix G, section XV(a).)

The Project would also result in undisclosed impacts to recreation by constructing and operating Bayfront Park at a site with existing and historical soil and groundwater contamination. (July 22, BSK, Hazards; see also **Exhibit 5**, BAAQMD Asbestos Sampling.) While the development of Bayfront Park is considered a separate project for purposes of CEQA, the DSEIR acknowledged the development of the Project triggers development of Bayfront Park and must be completed prior to occupancy of the Project. (DSEIR, p. 3-37-38.) In other words, development of the Project requires construction of Bayfront Park. (See, e.g., CEQA Guidelines, Appendix G, section XV(b).) By failing to comply with the City's duty to analyze construction of Bayfront Park at a project level, serious questions are left unaddressed about whether construction of Bayfront Park along with the Project will result in adverse physical effects on the environment due to the presence of hazardous contamination on that site. (*Ibid*.) The failure to follow the procedures required in the RMP for the Operable Unit, also call into question the effectiveness of any existing requirements to adequately protect the public. (See **Exhibit 7**, RWQCB Email Correspondence.)

The potentially significant impacts regarding hazardous materials use, transport, disposal and public exposure are exacerbated in the context of Bayfront Park because that will be a ground-level landscaped park. Having failed to disclose that the soil underlying Bayfront Park is contaminated, the NOP/IS also failed to explain whether such contaminated soil will be left in place and thereby expose visitors to hazardous materials. There is no discussion of whether an impermeable cap will be used, for instance, to protect future park visitors from the existing contaminated soil.

The failure to address these critical issues supports a fair argument that the Project will require construction of a recreational facility (i.e., Bayfront Park) that will have an adverse effect on the environment by facilitating the exposure of contaminated soils to humans and the environment. (CEQA Guidelines, Appendix G, section XV(b)).

The FSEIR failed to provide good faith responses to these comments. Rather than actually cite any report or analysis, the FSEIR merely restates its prior unsubstantiated claims. (DSEIR, p. 13.16-2.) Thus, there is no evidence whatsoever supporting the conclusions with respect to Recreation impacts.

In the absence of any meaningful analysis regarding the Project's demand for recreational facilities, the FSEIR claims that the Project will not substantially degrade Bayfront Park in part because of "the inclusion of on-site publically accessible open space proposed by the project that would directly serve the project's demand for recreational facilities." (FSEIR, 13.16-3.) Yet this characterization of the Project's "open space" is inconsistent with the FSEIR's treatment of these areas in its wind analysis, which it characterizes as "publicly accessible but private recreational areas," (FSEIR, 13.15-1.) The FSEIR's inconsistent treatment of this important component of the Project thwarts informed decision-making and public participation.

The FSEIR also failed to respond in good faith to comments about hazardous materials exposure associated with construction and occupancy of Bayfront Park. The City first claimed that Bayfront Park is somehow a separate CEQA project notwithstanding the fact that its existence is triggered by construction of the arena. (FSEIR, 13.16-4.) Setting aside the FSEIR's attempted legal obfuscation, the FSEIR then conclusively asserted that all issues concerning hazardous materials at Bayfront Park are satisfied because a RMP has been approved for the area. (FSEIR, 13.16-5.) This response, however, ignores that the RMP itself is not sufficiently protective of human health because it is: (i) premised on outdated screening levels that are significantly higher than now utilized; (ii) does not address contaminated soil that was subsequently imported onto the Project site; and (iii) does not even address several contaminants that have been recently identified onsite at levels well above current screening levels. (Oct

20, SM Law, Health Risk; July 22, BSK, Hazards.) Moreover, the RMP is not being followed. (See **Exhibit 7**, RWQCB Email Correspondence.) As a result, the SEIR fails to adequately analyze Recreation Impacts, and must be revised and recirculated to correct this deficiency.

For all the reasons described about, the Alliance respectfully requests that the Board of Supervisors grant the Alliance's appeal and reverse OCII's certification of the SEIR and the associated Project approvals.

Respectfully submitted,

SOLURI MESERVE
A Law Corporation

By: 
Patrick M. Soluri

By: 
Osha R. Meserve

Attached Exhibits:

1. List of previous comment letters relied upon in this appeal
2. U.S. Environmental Protection Agency, "Questions and Answers" handout regarding "Greenhouse Gas Emissions from a Typical Passenger Vehicle," dated May 2014
3. Facsimile from Lawrence B. Karp, dated July 23, 2015
4. "Warriors Stadium Economics: Uncertainty and Alternatives, Version 2.0," dated November 29, 2015, by Jon Haveman, Ph.D, of Marin Economic Consulting
5. BAAQMD Asbestos Samples, dated August 8, 2015
6. USEPA Asbestos Memorandum, dated August 10, 2004
7. Email Correspondence from Regional Water Quality Control Board, dated November 23, 2015

EXHIBIT 1

EXHIBIT 1: REFERENCES LIST

(Previously-submitted materials available at gsweventcenter.com and relied upon in this brief)

- November 9, 2015, letter from Soluri Meserve to Budget and Finance Committee (Nov 9, SM Law, Budget and Finance)

- November 3, 2015, letter to the San Francisco Municipal Transportation Agency, Board of Directors regarding their November 3, 2015, Agenda Item No. 13 (Nov 3, SM Law, MTA)

    - Exhibit 1, report dated November 2, 2015 by Jon Haveman, Ph.D. entitled, "Warriors Stadium Economics: Uncertainty and Alternatives";

- November 2, 2015, Letter to the San Francisco Planning Department regarding the Environmental Review for Warriors Event Center and Mixed-Use Development at Mission Bay Blocks 29-32 (Nov 2, SM Law, FSEIR). Exhibits:

    1. November 2, 2015, Memorandum from SCS Engineers (Nov 2, SCS, GHG)

    2. November 2, 2015, Geology report from BSK Associates (Nov 2, BSK, Geology)

    3. October 23, 2015, letter to DTSC requesting oversight (Oct 23, SM Law, Hazards)

    4. November 2, 2015, Memorandum from Dr. Philip King (Nov 2, King, Urban Decay)

    5. October 13, 2015, SMFTA Spreadsheet re: Capital and Operating Cost Estimates

    6. November 2, 2015, Report from Marin Economic Consulting (Nov 2, Haveman, Economics)

- October 20, 2015, letter to the San Francisco Planning Department regarding Supplemental Comments on Environmental Review for Warriors Event Center and Mixed-Use Development at Mission Bay Blocks 29-32 – Updated Soil and Screening Levels (Oct 20, SM Law, Health Risk)

- October 7, 2015, letter to the San Francisco Planning Department regarding Supplemental Comments on Environmental Review for Warriors Event Center and Mixed-Use Development at Mission Bay Blocks 29-32 – Clean Water Act 404 and CZMA Consistency (Oct 7, SM Law, CWA 404)

- July 26, 2015, letter from the Mission Bay Alliance, by Thomas Lippe, Susan Brandt-Hawley, Patrick Soluri, and Osha Meserve, to OCII and Planning Department regarding EIR tiering (July 26, MBA, Tiering)

- July 26, 2015, letter regarding impacts on Geology and Soils, Recreation, Hazardous Materials, Greenhouse Gases, Wind and Shadow, Utilities and Service Systems, Public Services, Energy and Urban Decay (July 26, 2015, SM Law, DSEIR) Exhibits:

    A. July 22, 2015, letter report authored by air quality professionals Patrick Sullivan, CPP, REPA, and Joh Henkelman, regarding Greenhouse Gas Emissions (July 22, SCS, GHG)

    B. July 22, 2015, letter report authored by geotechnical engineer Lawrence Karp, CE, CEG, regarding Geology and Soils impacts (July 22, Karp, Geology)

    C. July 22, 2015, letter report authored by engineering geologist Marin Cline, CEG, and hydrogeologist Kurt Balasek, PG, CHg, QSD, regarding Geology and Soils impacts (July 22, BSK, Geology)

    D. July 22, 2015, letter report authored by geotechnical engineer Martin Cline, GEG and Kurt Balasek, PG, CHg, QSD, regarding Hazardous Materials (July 22, BSK, Hazards)

    E. July 22, 2015, letter report authored by economist Philip King, Ph.D., regarding Urban Decay (July 22, King, Urban Decay)

- July 26, 2015, letter from the Brandt-Hawley Law Group (July 26 Brandt-Hawley, DSEIR)

- July 9, 2015, letter to the San Francisco Planning Department regarding Notice of Incomplete Record for Warriors Event Center Environmental Review (July 9, SM Law, Record)

- June 29, 2015, letter regarding the City's failure to comply with AB 900 record keeping procedures and the resultant ineligibility of the Project for AB 900's litigation fast track procedures. (June 29, 2015, SM Law, Record)

EXHIBIT 2

Questions and Answers

Greenhouse Gas Emissions from a Typical Passenger Vehicle

The U.S. Environmental Protection Agency (EPA) developed this fact sheet to answer common questions about greenhouse gas emissions from passenger vehicles. This fact sheet provides emission rates and calculations consistent with EPA's regulatory work.

How much tailpipe carbon dioxide (CO_2) is created from burning one gallon of fuel?

The amount of CO_2 created from burning one gallon of fuel depends on the amount of carbon in the fuel. Typically, more than 99% of the carbon in a fuel is emitted as CO_2 when the fuel is burned. Very small amounts are emitted as hydrocarbons and carbon monoxide, which are converted to CO_2 relatively quickly in the atmosphere. Carbon content varies by fuel, and some variation within each type of fuel is normal. The EPA and other agencies use the following average carbon content values to estimate CO_2 emissions:

CO_2 Emissions from a gallon of gasoline:	8,887	grams CO^2/ gallon[1]
CO_2 Emissions from a gallon of diesel:	10,180	grams CO^2/ gallon[2]

Diesel creates about 15% more CO_2 per gallon. However, many vehicles that use diesel fuel achieve higher fuel economy than similar vehicles that use gasoline, which generally offsets the higher carbon content of diesel fuel.

[1] This gasoline factor is from a recent regulation establishing GHG standards for model year 2012-2016 vehicles (75 FR 25324, May 7, 2010).

[2] This diesel factor is from the calculations that vehicle manufacturers use to measure fuel economy (40 C.F.R 600.113).

EPA United States Environmental Protection Agency

Office of Transportation and Air Quality
EPA-420-F-14-040a
May 2014

How much tailpipe carbon dioxide (CO_2) is emitted from driving one mile?

The average passenger vehicle emits about 411 grams of CO_2 per mile. This number can vary based on two factors: the fuel economy of the vehicle and the amount of carbon in the vehicle's fuel. Most vehicles on the road in the U.S. today are gasoline vehicles, and they average about 21.6 miles per gallon.[3] Every gallon of gasoline creates about 8,887 grams of CO_2 when burned. Therefore, the average vehicle when driving one mile has tailpipe CO_2 emissions of about:

$$CO_2 \text{ emissions per mile} = \frac{CO_2 \text{ per gallon}}{MPG} = \frac{8{,}887}{21.6} = \mathbf{411\ grams}$$

This value will decrease slightly each year as standards become more stringent.

What are the average annual carbon dioxide (CO_2) emissions of a typical passenger vehicle?

A typical passenger vehicle emits about 4.7 metric tons of carbon dioxide per year. This number can vary based on a vehicle's fuel, fuel economy, and the number of miles driven per year. The average gasoline vehicle on the road today has a fuel economy of about 21.6 miles per gallon and drives around 11,400 miles per year[4]. Every gallon of gasoline burned creates about 8,887 grams of CO_2, and there are one million grams per metric ton. Therefore, the average vehicle over a year of driving has tailpipe CO_2 emissions of about[5]:

$$\text{Annual } CO_2 \text{ emissions} = \frac{CO_2 \text{ per gallon}}{MPG} \times \text{miles} = \frac{8{,}887}{21.6} \times 11{,}400 = \mathbf{4.7\ metric\ tons}$$

EPA uses this to compare CO_2 emissions from other sources to emissions from passenger vehicles. For example, an energy efficiency program that reduces greenhouse gas emissions by 4,700 metric tons of CO_2 per year has the same impact as removing 1,000 vehicles from the road.

Are there other sources of greenhouse gas (GHG) emissions from a vehicle?

In addition to carbon dioxide (CO_2), automobiles produce methane (CH_4) and nitrous oxide (N_2O) from the tailpipe and hydrofluorocarbon (HFC) emissions from leaking air conditioners.

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[3] Federal Highway Administration Highway Statistics 2012. This is representative of the light duty passenger vehicle fleet as a whole, including both new and existing vehicles. EPA expects the average passenger vehicle fuel economy to increase over time as a result of new greenhouse gas and fuel economy standards developed in coordination between EPA, DOT and California.

[4] Federal Highway Administration Highway Statistics 2012.

[5] This calculation provides a simple way to determine the average annual CO^2 emissions from a passenger vehicle. Anyone that needs a more detailed approach should use the EPA's Motor Vehicle Emission Simulator (MOVES) model. This model contains detailed data about the light duty fleet and driving patterns in the United States. Although simplified, the calculated annual CO^2 emissions above are consistent with analyses performed by the EPA using MOVES.

The emissions of these gases are small in comparison to CO_2; however, the impact of these emissions can be important because they have a higher global warming potential (GWP) than CO_2.

The global warming potential of a gas relates the impact of that gas relative to an equivalent amount of CO_2. Using global warming potentials, the impact of various GHGs can be directly compared using a common metric. This metric is expressed in units of carbon dioxide equivalent, written as CO_2e. Multiplying the amount of a GHG times the global warming potential of that GHG results in the amount of GHG in terms of CO_2e. For automotive-related gases, these global warming potentials are:

Greenhouse Gas	Abbreviation	GWP[6]
Carbon Dioxide	CO_2	1
Methane	CH_4	25
Nitrous Oxide	N_2O	298
Air Conditioning Refrigerant	HFC-134a	1,430

It is more difficult to estimate vehicle emissions of CH_4, N_2O, and HFCs than CO_2. Emissions of CH_4 and N_2O are dependent on the design of the engine and emission control system, rather than fuel consumption per mile. The amount of HFC leakage from air conditioners is dependent on system design, amount of use, and maintenance. On average, CO_2 emissions are 95-99% of the total greenhouse gas emissions from a passenger vehicle, after accounting for the global warming potential of all GHGs. The remaining 1-5% is CH_4, N_2O, and HFC emissions.

What are the tailpipe emissions from a plug-in hybrid electric vehicle (PHEV) or an electric vehicle (EV)? What about hydrogen fuel cell vehicles?

A vehicle that operates exclusively on electricity (an EV) will not emit any tailpipe emissions. A fuel cell vehicle operating on hydrogen will emit only water vapor.

Calculating tailpipe emissions for PHEVs is more complicated. PHEVs can operate on electricity only, gasoline only, or some combination of electricity and gasoline. A PHEV operating on electricity only (like an EV) does not generate any tailpipe emissions. When a PHEV is operating on gasoline only, it creates tailpipe emissions based on the PHEV's gasoline fuel economy. Tailpipe emissions for a PHEV operating on both electricity and gasoline cannot be calculated without detailed information about how the PHEV operates. The overall tailpipe emissions for a PHEV can vary significantly based on the PHEV's battery capacity, how it is driven, and how often it is charged.

For more information, see the "My Plug-In Hybrid" calculator.

[6] These 100-year time horizon GWP values are from the 2007 Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report.

Are there any greenhouse gas emissions associated with the use of my vehicle other than what comes out of the tailpipe?

Driving most vehicles creates tailpipe greenhouse gas emissions. Producing and distributing the fuel used to power your vehicle also creates greenhouse gasses. Gasoline, for example, requires extracting oil from the ground, transporting it to a refinery, refining the oil into gasoline, and transporting the gasoline to service stations. Each of these steps can produce additional greenhouse gas emissions.

Electric vehicles (EVs) have no tailpipe emissions; however, emissions are created during both the production and distribution of the electricity used to fuel the vehicle. Visit the Beyond Tailpipe Emissions calculator to estimate GHG emissions for an EV in your region of the country.

I thought my gasoline was blended with ethanol. Does that change my tailpipe CO_2 emissions?

Most of the gasoline sold in the U.S.is a mixture of gasoline and up to 10% ethanol (often referred to as E10). The exact formulation of the gasoline in your vehicle will vary depending on season, region in the U.S., and other factors. While your fuel economy when using an ethanol blend in your vehicle will be slightly lower than when using gasoline without ethanol, the CO_2 tailpipe emissions per mile will be similar. This is because ethanol has less carbon per gallon than gasoline.

How does the EPA measure CO_2 emissions from vehicles?

The EPA and automobile manufacturers measure vehicle fuel economy and CO_2 emissions using a set of standardized laboratory tests. These tests were designed by the EPA to mimic typical driving patterns. The EPA and the Department of Transportation use these values to ensure that manufacturers meet federal greenhouse gas and corporate average fuel economy (CAFE) standards.

For every new vehicle, the test results are used to determine real world fuel economy and CO_2 emissions. These adjusted results are used on the Fuel Economy and Environment Labels and on Fueleconomy.gov.

For more information, see Frequent Questions on Fuel Economy Testing and Labeling and How Vehicles Are Tested.

Questions and Answers

How can I find and compare CO_2 emission rates for specific vehicle models?

Visit Fueleconomy.gov and click on "Find a Car."

When shopping at a dealership, check out tailpipe CO_2 emission rates on vehicle *Fuel Economy and Environment Labels*. The labels also feature a 1-to 10 Fuel Economy and Greenhouse Gas Rating to enable easy comparison shopping.

Where can I find information on the emissions of the transportation sector as a whole?

You can find documents on greenhouse gas emissions on the EPA's Transportation and Climate website. This website is maintained by the Office of Transportation and Air Quality (OTAQ).

The EPA also publishes industry-wide data in the report, "Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends." This report analyzes trends in fuel economy and CO_2 emissions for new light duty vehicles from 1975 to the present.

Other useful sources include:

- Fueleconomy.gov
- Green Vehicle Guide
- U.S. Greenhouse Gas Inventory Report
- Greenhouse Gas Equivalencies Calculator
- Household Carbon Footprint Calculator

For additional information on calculating emissions of greenhouse gases, please contact OTAQ@epa.gov, or you can contact the OTAQ library for document information at:

U. S. Environmental Protection Agency
Office of Transportation and Air Quality
2000 Traverwood Drive
Ann Arbor, MI 48105
734-214-4311 & 734-214-4434
E-mail: Group_AAlibrary@epa.gov

EXHIBIT 3

July 23, 2015

Osha, when writing the review letter concerning an earthquake that would affect the proposed Warriors arena, an experience with another stadium came to mind. In 1985, when I was involved with a study of how Candlestick Park would perform in a serious seismic event, I was at a summary meeting in City Hall with Norm Karasick, the City architect. The discussion was about the cost of rebuilding the deteriorated concrete bleachers to then-current standards. It was recognized that one or more sections could collapse in an earthquake. Karasick pointed out that the City probably would not want to spend the money to strengthen the bleachers saying: "What are the odds there would be an earthquake during a game?" Well, in the end the City decided to do the work and on October 18, 1989 the Loma Prieta earthquake, centered near Santa Cruz, occurred during a World Series game. Nobody was injured at the game. All damages in the Bay Area were from liquefaction of sand (Marina District) and amplification of ground motion in soft ground (Cypress overpass). At the engineering team leader's retirement dinner almost 20 years later a toast to him was made by another engineer who thanked him for pushing the retrofit because his two sons had been at the game sitting below one of the rebuilt overhanging concrete bleachers. LBK

Lawrence B. Karp
Geotechnical Engineer
100 Tres Mesas
Orinda, CA 94563
P. (925) 254-1222
F. (925) 253-0101
C. (415) 860-0791
E. lbk@lbkarp.com
W. www.lbkarp.com

EXHIBIT 4

Warriors Stadium Economics: Uncertainty and Alternatives

Version 2.0

Produced by:

Marin Economic Consulting

Jon Haveman, Principal

415-336-5705
Jon@MarinEconomicConsulting.com

November 29, 2015

Contents

Executive Summary

This report provides both a cash flow analysis of the arena development and a comparison with a plausible alternative. The focus in the report is on the effect of the project on San Francisco's General Fund. It also provides a discussion of some of the assumed revenues associated with the Golden State Warriors (GSW) project. The project is currently expected to result in a small surplus in each year, but that surplus may not materialize. Either cost overruns in ensuring the flow of traffic during events or revenue shortfalls could erase the razor thin margin for benefit.

This report provides an update to a report by the same name originally released on November 2, 2015. Since that time, much has changed regarding the parameters of the agreement. An update of the analysis is provided herein.

Fundamental Changes to the Analysis

1. City's Budget and Legislative Analyst has made it clear that off-site and dedicated and restricted revenues estimated in the fiscal impact report should not be included in stadium revenue calculations. Transit fare and parking revenues resulting from events at the arena, however, should be included. This makes the relevant revenue estimate $11.6 million rather than $14.1 million.

2. SFMTA's annual operating costs associated with the arena are now estimated to be $6.9 million. The previous $6.1 figure was a cost estimate net of fare and parking revenues associated with transit use by Event Center attendees.

3. It has been estimated that the one-time revenues ($25.4 million) available to offset one-time transportation infrastructure related expenses ($55.3 million) will fall short by $29.9 million. Annual debt service payments associated with this shortfall are estimated to be $2.1 million.

4. Total City departments' annual ongoing expenditures related to the Event Center are estimated to be $10.1 million, including debt servicing.

5. Net revenues associated with the GSW are estimated to be $1.5 million (= $11.6 million − $10.1 million), far less than previous estimates.

6. The final sales price on the 12-acre parcel has been established as $150 million. This has implications for transfer tax revenues.

These changes make it clear that the City's Budget and Legislative Analyst (BLA) is in agreement with our prior conclusion that off-site changes should not be included in anticipated revenues associated with the GSW project. The BLA has also, rightly, focused on revenues and commitments associated with the City's General Fund.

Unfortunately, the Board of Supervisors has failed to adopt this recommendation from the BLA. In the absence of very extensive and sophisticated surveys of the activities of those attending events at the Event Center, and surveys of those who would otherwise have contributed to the off-site economy (a completely unidentifiable set of people), there is no way to accurately estimate *NEW* off-site revenues; off-site revenues that do not merely displace economic activity that would otherwise have occurred. Including highly flawed estimates off-site revenues that represent additions rather than diversions of General Fund revenues will do nothing other than cover up the true costs of the Event Center to the general public. Including off-site revenues represents bad accounting, bad economics, and disingenuous communication with the public on the part of the City.

The BLA has estimated that annual expenditures related to the Arena will be $10.1 million and that on-site or direct revenues will be approximately $11.5 million, yielding net revenues of $1.5 million. A comparison with the biotechnology alternative reveals an annual difference in revenue to the General Fund of $4.5 million. Annual net revenues associated with the biotechnology alternative are estimated to be $6.0 million. The difference in one-time net revenues is $38.5 million in favor of biotechnology.

The City's General Fund is on the hook for revenue short falls and cost overruns in providing transit and traffic support to the arena. Although the ordinance establishing the Mission Bay Transportation Improvement Fund has been amended to require GSW work with the city to reduce overruns associated with the SFMTA, there are other expenses —debt servicing, police presence, and DPW expenses —that remain obligations of the General Fund. These obligations are estimated to be $3.2 million per year and will come at the expense of other City services.

> **Important note:** If it is ever the case that revenues are less than SFMTA expenses, it will necessarily be the case that the General Fund will run a deficit of between $2.1 and $3.2 million. The requirement that the Warriors provide transit services in this case does *nothing* to cover these other Event Center related obligations.

There is sufficient uncertainty in future projects to be concerned about this scenario. As was pointed out by Controller Ben Rosenfield in a memo dated October 6, 2015, revenues associated with the project are "highly sensitive to actual attendance and the number of

events at the Event Center, local economic conditions when the Event Center opens, and other cyclical factors." With a slim margin of benefit and sensitive revenues, the likelihood of the City's General Fund running a deficit in any given year is significant.

The bottom line of this report is that an alternative agreement is expected to add to General Fund revenues between $3.6 and $7.4 million per year in present discounted value terms, or between $80 and $163 million over the first 20 years of arena operations. These figures can be thought of as the amount that San Franciscans are paying to bring the Warriors to town. It is the amount of revenues that the City would forgo with the GSW project, relative to a plausible alternative. This is not to say that the project is a bad idea, but merely to point out what is being given up in order to accommodate the Warriors' move.

Key Findings

1. A cash flow analysis of the arena through the first twenty years of operation suggests net revenues for San Francisco's General Fund of $22.1 million. This is after City expenses of approximately $159 million during this time for transit and traffic mitigation. (Both figures are in present discounted value.)

2. This $159 million of City spending in support of the Arena represents an implicit subsidy to the project. The City is funding transit infrastructure and the mitigation of traffic and transportation issues related to arena operations.

3. Despite claims to the contrary, the City is heavily subsidizing the Event Center.

4. Although the Arena generates significant revenues for San Francisco, the City's costs will exceed its revenues from the development for at least the first nine years of Arena operation, in the absence of financing.

5. There are elements of the estimates of City revenues that are filled with uncertainty. Numbers of spectators attending, taking mass transit, or parking, the general state of the economy. These all have implications for net revenues.

6. It is forecast that net revenues will be on the order of $1.5 million per year. The City's contribution to annual arena expenses is capped at 90% of estimated revenues. It is possible that revenues will not be sufficient to cover expenses.

7. If revenues are insufficient to cover expenses, the City's General Fund will be responsible for covering the resulting shortfall of $3.2 million.

8. If an alternative development, one suited to biotechnology, were pursued, the City's net General Fund revenues would be $80.2 million higher and possibly as much as $163.2 million higher over 22 years, or $7.4 million per year.

9. An alternative development would have considerably larger economic impacts for the rest of the San Francisco economy than would an arena, creating significantly more jobs —more than 2,000 on-site. Oracle Arena currently generates just 494 jobs.

10. An alternative development would generate as much as $1 billion in direct economic activity on-site.

11. Forgoing the biotechnology development and pursuing the Arena reduces net revenues to the City of San Francisco's General Fund by $3.6 to $7.4 million per year - and potentially much more.

1: Introduction

In 2017, the Golden State Warriors are expected to begin playing in San Francisco. Although this is an exciting development for the City of San Francisco, the economics of the Warriors presence in the City are unclear. There are likely to be significant revenue benefits for the City, but welcoming the Warriors will also involve significant infrastructure investments and ongoing expenses for the City and County of San Francisco. The net effects of these revenues and costs have not been adequately addressed.[1]

It is not clear whether San Francisco is importing a lucrative asset or a financial burden; that is, it is not clear whether the revenues associated with the Warriors play in San Francisco exceed the considerable upfront investments that the City must make. It is also an open question as to what exactly the City might be giving up in order to host the Warriors. The 12-acre parcel on which the arena is to be built is a valuable piece of real estate. In 2010, Salesforce paid $278 million for a 14-acre site that includes the property in question. The property, located as it is across the street from UCSF and near a variety of biotech companies, seems a likely candidate for a biotech friendly building.[2] Were this to happen, it would yield significant benefits for the City. Whether or not these financial benefits exceed those associated with the Warriors is the subject of this report.

The report proceeds to review the costs and benefits associated with the Warriors, as they have been made public. The focus of the report is on the City's General Fund. The General Fund receives the majority of the revenues associated with the project, and also bears the liability for any shortfalls. This is followed by an estimate of the likely benefits of a biotech development occupying the same space. The benefits of the GSW plan are then examined from a perspective of robustness, whether or not they are likely to come to pass.

This report provides a cash flow analysis of the GSW project's effect on the General Fund and compares that analysis with an alternative development that includes a biotechnology-oriented commercial structure in place of the arena. The GSW project is cash flow positive, but not until at least the *tenth* year of operations. Relative to the alternative development, even after 20 years of operating, the GSW project falls short in terms of net government revenues by at least $80 million, or $3.6 million per year over 22 years, but potentially by as much as $163 million, or $7.4 million per year over 22 years. The alternative brings about these revenues without the need for heavy subsidization on the part of the City in

[1] Accepting the team also results in a significant revenue hole for the City of Oakland in that most events that currently take place at Oracle Arena are projected to move to the new arena.

[2] Its neighbors would include UCSF, Celgene Corporation, National Multiple Sclerosis Society, venBio, Nurix, Clovis Oncology, FibroGen, and Illumina, among others.

the early years. From a purely financial perspective, the GSW project is a significant drain on the City's General Fund revenues potentially on its own, but certainly relative to what alternative developments might yield.[3]

2: Benefits and Costs of Hosting the Warriors

As with any economic activity, there are certainly financial benefits for the City of San Francisco associated with hosting the Warriors. A report has been produced for the City of San Francisco that provides a fiscal analysis of the GSW project.[4] Subsequently, the BLA produced estimates of the effects of the project on the City's General Fund. The General Fund is the primary recipient of revenues directly attributable to the project, and also bears the burden of liabilities. The BLA memo and this report both focus on revenues that are directly attributable to the project as well as those that originate on the site of the project. This is comparable to the assignment of obligations in the agreement between the City and the GSW as outlined in the ordinance establishing the Mission Bay Transportation Improvement Fund.

These benefits are derived from one-time revenues from the purchase of the land and subsequent construction and ongoing benefits associated with the events that the stadium hosts. The ongoing benefits also include revenues from commercial and retail activity built into the project.

– Benefits/Revenues

Table 1 provides a summary of an estimate of those benefits. Annually, stadium, retail, and office operations associated with the development are estimated to provide just over $11.6 million in revenues to the City of San Francisco's General Fund. Of these revenues, $9.8 million are a direct result of activities on the project site while $1.8 million are the result of City transportation use by those attending events at the Event Center.

[3]The methodology used in this report is comparable to the methods and assumptions used by EPS in producing its fiscal impact analysis of the GSW arena and used by the City's Budget and Legislative Analyst in its November 9, 2015 memo to the Board of Supervisors Budget and Finance Committee.

[4]Economic Planning Systems, *San Francisco Multi-Purpose Venue Project - Fiscal Impact Analysis: Revenues*, 9/25/15. (EPS)

Table 1. Summary of San Francisco General Fund Revenues from Ongoing Stadium Operations (Thousands of 2014 dollars)

Annual Project-Generated Revenues	General Fund Revenues
Revenues From on-Site Businesses	$\$9,804$ (85%)
Revenues From Transit Fares and Parking	$\$1,773$ (15%)
Total Annual Project-Generated Revenues	$\$11,577$ (100%)

Source: San Francisco Budget and Leg. Analyst report for Nov. 9, 2015 Budget and Finance Committee Meeting.

Table 2 provides estimates of detailed categories of revenues directly associated with ongoing economic activity once the development is completed.[5] The largest categories of revenue include the stadium admission tax ($4.3 million), gross receipts taxes ($2.4 million), and property taxes ($1.8 million, including both general fund and in lieu of VLF). These three categories account for the vast majority of revenues ($9.8 million) associated with the development. Revenues associated with transportation to and from events at the Event Center add an additional $1.8 million, bringing the total to $11.6 million.

Table 2. Details of San Francisco Revenues from Ongoing Stadium Operations (2014 dollars)

Item	Amount
Annual General Revenue	
Property Tax (General Fund)	$\$912,000$
Property Tax in Lieu of VLF	$\$868,000$
Sales Tax	$\$521,000$
Parking Tax	$\$482,000$
Stadium Admission Tax	$\$4,336,000$
Gross Receipts Tax	$\$2,431,000$
Utility User Tax	$\$254,000$
Subtotal	$\$9,804,000$
Annual Transit Related Revenue	
Event Related Fares	$\$869,000$
Event Related Parking	$\$904,000$
Subtotal	$\$1,773,000$
Total Ongoing Revenues	$\$11,577,000$

Source: BLA Report, 11/9/15, Table 3

[5] Whether or not revenues associated with transit usage are appropriately labeled *direct*, it seems reasonable to include them in the analysis. Their exclusion, however, would eliminate the General Fund surplus that is forecast to result from the project.

As mentioned, there will also be one-time General Fund revenues associated with the construction of the arena and the accompanying office and retail space (Table 3). These benefits amount to just over $25.4 million, the vast majority of which is associated with the TIDF, or Transportation Impact Development Fee.[6] Another significant source of one-time revenue comes in the form of a Property Transfer Tax, $3.7 million. Sales taxes and gross receipts taxes collected during construction add another $5.4 million.

In its analysis, the City's Budget and Legislative Analyst's report indicates just $25.4 million.[7] This number appears to omit contributions for Child Care and to use an outdated figure for "Sales Taxes During Construction" of $1.7 million, rather than the $2.4 million figure included in the table, a practice with which we agree.[8]

Table 3. Summary of One-Time Revenues from Stadium Construction (2014 dollars)

Item	Difference
City Fees (per gross building sq. ft.)	
Transit Impact Development Fee	$17,436,000
Other One-Time Revenues	
Transfer Tax and Construction Gross Receipts and Sales Taxes	$7,956,000
Total One-Time Revenues	$25,392,000

Source: BLA Report, 11/9/15, Table 2

– Costs

As with the benefits, there are also one-time and ongoing costs. The one-time costs are primarily those associated with enhancing transportation infrastructure and amount to $55.3 million.[9] These costs include transit investments (the purchase of light rail vehicles), the installation of crossovers, the construction of a new center boarding platform, power aug-

[6] http://www.sf-planning.org/ftp/files/legislative_changes/new_code_summaries/120523_TIDF_Transportation_Impact_Development_Fee_Update.pdf Medical and Health Services, and Retail/Entertainment economic activity categories was increased to $13.30 per square foot, except that the rate for museums, a subcategory of CIE, are $11.05 per square foot, a reduction from the current amount. The rate for the Management, Information and Professional Services (MIPS) and Visitor Services economic activity categories was increased to $12.64 per square foot, and the rate for the Production/Distribution/Repair (PDR) category was reduced to $6.80 per square foot.

[7] November 9, 2015 Budget and Finance Committee Meeting memo.

[8] There is a difference of $200 thousand between the BLA's figure and ours, but we defer to the BLA.

[9] One-time costs are from SFMTA, **Capital and Operating Cost Estimates for the Event Center and Mixed Use Development at Mission Bay Blocks 29-32**, 10/6/2015. Estimates are in 2014 dollars.

ments to idling event trains, traffic/signals engineering investments, and a Mariposa Street restriping study.

These expenses are spread out over a four-year period, with the vast majority of expenses occurring in the 2016-17 MTA fiscal year. A major expenditure on light rail vehicles is slated to take place in the 2017-18 FY, when the Event Center begins operating. The costs to MTA are heavily loaded in the early years of the project, before ongoing revenues have begun. Estimated one-time revenues will be available during this time to cover expenses, but they will fall short of the total by $29.9 million.[10] This difference will be borrowed and paid back over time.

Table 4 provides the details of the City's estimates of ongoing expenses related to the operation of the Event Center. In the BLA's November report, estimated annual ongoing costs associated with operations at the Event Center amount to $10.1 million.[11] The vast majority, $6.9 million, are associated transit costs. Other expenses include nearly $1 million in additional policing, and $100 thousand in expenses incurred by DPW. Given that the infrastructure expense shortfall is likely to be financed, the BLA's estimate of debt service payments, $2.1 million, is also included.

Table 4. Ongoing Costs of the Arena (millions of 2014 dollars)

Agency	5/18 Estimates	10/6 Revisions	11/9 Revisions
City Operating Costs			
SFMTA	$5.5	$5.1	$6.9
SFPD	$0.9	$0.9	$1.0
DPW	$0.2	$0.2	$0.1
Sub-Total	$6.6	$6.2	$8.0
Payments for Capital Improvements			$2.1
Total	$6.6	$6.2	$10.1

Source: Golden State Warriors Arena: Event Management OCII Commission Presentation, May 18, 2015, and MTA, October 6, 2015.
Nov. 6, 2015 from Budget and Legislative Analyst report.

– Net Benefits

The project comes with considerable costs and benefits. Both upfront net costs and ongoing net revenues are considerable. The benefits presented here are significantly less than

[10] This figure is the difference between $55.3 million, the total estimated capital uses estimate allocated to the project, and the total one-time revenues from the Budget and Legislative Analysts' report ($25.4).

[11] City Operating Costs in the first two columns are net of revenues from fares and parking from riders going to events at the arena. These revenues amount to approximately $1.8 million, split roughly evenly between the two sources. They are included in the final column because we support the notion of making both revenues and expenditures clear.

those discussed elsewhere. This is because the analysis here is limited to the direct benefits associated with the project and omits revenues accruing to dedicated and protected accounts. It is our view that the initial fiscal impact study inappropriately included those extra revenues. Their inclusion not only projects a false impression of the overall benefit of the project, but fails to highlight the budget obligations that befall the City's General Fund should costs rise or revenues fall short.

Table 5 summarizes the net benefits associated with the project in terms of net contributions to the City's General Fund. The table illustrates the $29.9 million hole that the project introduces into the General Fund. It also illustrates how slowly that hole would be filled. Although a surplus of $1.5 million is projected in each year, that includes debt servicing. Without the debt servicing, the surplus would be $3.6 million, which would still take in excess of eight years to fill the hole.

Table 5. Net Benefits of GSW Event Center Project (Millions of 2014 dollars)

	Benefits	Costs	Net Benefits
One-Time	$25.4	$55.3	−$29.9
Ongoing	$11.6	$10.1	$1.5

Source: Calculations by Marin Economic Consulting.

It is important to note that the annual surplus is just $1.5 million, or 13% of projected General Fund revenues. This is a relatively slim margin. Should one-fourth of the projected spectators fail to materialize, the surplus is likely to evaporate. If spectators fail to materialize, the revenues associated with the project (stadium admissions taxes and transit fares and parking, in particular) decline accordingly. However, the costs associated with managing the events do not. Should the number of events be lower, costs would then also decline.

It is also important to note that any last minute concessions by the City in terms of the Stadium Admissions Tax could eliminate the surplus in its entirety rendering a discussion of inaccuracies in spectator forecasts or economic activity unnecessary with regard to whether or not the General Fund is likely to be in surplus or deficit. The Giants currently enjoy a reduced stadium admissions tax that should the Warriors be granted a similar concession would turn the small surplus into a deficit.

A Cash Flow Analysis

In order to assess the rate at which the hole would be filled, a cash flow analysis is required. It is our view that the original EPS report was incomplete in not considering the implications of the project over time. It failed to provide a comparison of overall costs and benefits

associated with the GSW project. The reviewer, Keyser Marston Associates, appeared to agree with the EPS approach, saying that a "cash flow approach is appropriate to evaluate a multi-phase project, which does not apply to this project." We respectfully disagree. There are two stages to this project: first, the one-time infrastructure investments and revenue implications of construction and parcel purchase, and second, the ongoing costs and revenues. The project's benefits to the City come inherently in two stages. If both stages yielded a net benefit, the need for a cash flow approach would not be nearly as acute. As the first stage is significantly negative, the overall net benefits must be evaluated over time in order to properly evaluate the project.

This has not been publicly done. Here, we consider a 20-year period following the construction of the Event Center. Given that many of these revenues accrue many years in the future, it is necessary to discount them to today's dollars. The bottom line is the present discounted value of the net stream of revenues to the City of San Francisco.

Assumptions crucial to the present value discount calculation:

1. Discount Rate: 4.5%
2. Rate of inflation: 2.5% (2% for property taxes, as per Proposition 13)

Table 6 provides an estimate of the present discounted value of net revenues to the City of San Francisco, using estimates from the EPS report of September 25, 2015 and from documents from the City of San Francisco. Once the facility has been operating for 20 years, net present discounted revenues are expected to be on the order of $22.1 million, or approximately $1 million per year over a 22-year period including two years of construction and 20 years of operation.[12] This estimate includes the upfront expenses incurred by the City as well as the ongoing expenses associated with event traffic mitigation.

Table 6. Net Benefits of GSW Event Center Project over 22 years (Millions of Present Discounted 2014 dollars)

	Benefits	Costs	Net Benefits
One-Time	$25.4	$55.3	−$29.9
Financed			$29.9
Ongoing	$181.4	$159.4	$22.1
Total	$206.8	$214.7	$22.1

Source: Calculations by Marin Economic Consulting.

[12]This differs from the $1.5 million per year surplus in the Budget Analyst's report because the values are presented in discounted value terms.

The project pencils out as estimated, but with a net benefit over two decades that is unimpressive. Additionally, this calculus begs two important questions:

1. This is a 12-acre plot of land in the middle of a biotechnology hub. Are there better uses for this land from a revenue perspective?
2. Estimating the costs associated with event management is a more certain endeavor than estimating the benefits. How certain is it that the benefits will materialize?

For a project of this magnitude, it is vitally important to evaluate the potential for plausible alternatives to provide more benefits than the project in question. It is also important to consider robustness tests for the revenues in question. Neither of these issues has been publicly addressed. This report will present plausible revenues associated with an alternative development, a space designed with biotech in mind, and will discuss weak points in the revenue estimates presented above.

3: On the Economics of Biotech as an Alternative

When evaluating the benefits of an economic endeavor, an exploration of alternatives is vital to understanding the full implications of an investment. Suppose that instead of building a 750,000-square-foot arena, the amount of commercial space on the property were doubled. In this section, we consider such an investment following as closely as possible the assumptions contained in the EPS estimate of revenues associated with the GSW project.

Important assumptions associated with this analysis include:[13]

1. Instead of a 750,000-square-foot arena, a commercial facility is constructed that provides 522,000 square feet of space. This constitutes an exact doubling of the commercial space in the GSW plan. This alternative development is otherwise comparable to the Warriors plan, including the original commercial, retail, and parking structures.
2. The space is designed with biotechnology in mind, which brings with it significant laboratory space. As such, it has a relatively high amount of space per worker associated with it: 250 square feet per employee.[14]

[13] It was previously assumed that a commercial facility would have ancillary benefits in terms of indirect and induced economic activity in San Francisco. Consistent with the BLA memo, we have omitted these benefits from the analysis.

[14] This is an extremely conservative assumption. Some estimates suggest that a ratio of 150 to 11 is possible. This would considerably increase employment and hence output at the site, increasing the resulting income to both City residents and City coffers.

3. The transaction price for the land is $150 million.[15]
4. It is assumed that just two-thirds of the biotech revenues generated onsite are subject to gross receipts taxation in San Francisco.[16]

With the addition of these assumptions, an exercise similar to that undertaken by EPS is performed for the new development. The new development includes the same retail revenues and costs, the same parking revenues, and essentially double the revenues associated with commercial development. Doubling the office space and maintaining other assets leads to an assessed value of at least $605.5 million. This is considerably less than the project's assessed value with an arena.

Support for the notion that this construction is feasible comes not only from the 750,000-square-foot arena that the buildings will be replacing, but also from a similar planned development. UCSF was planning to build 500,000 square feet on four acres of blocks 33-34, right next to the site.[17] A new building of the size being considered is clearly feasible on the space currently to be occupied by the arena.

Table 7 presents a comparison of the one-time revenues and expenditures associated with the Event Center versus doubling the commercial space on the 12-acre property. While the Event Center brings with it a need for considerable infrastructure to accommodate the development, it is not clear that a doubling of the commercial space does. Accordingly, the Event Center brings with it a net upfront cost of $38.5 million, relative to a commercial facility in place of the Center.

Although capital expenditures related to the Event Center are significantly higher than the revenues brought in through the TIDF, such is not expected to be the case for additional commercial space. The TIDF was put in place with developments such as this alternative in mind. Therefore, the transit costs associated with the development are better approximated using the TIDF taxation formula. The TIDF collected from the hypothetical alternative development (including the commercial, retail and parking in the GSW project) will serve as our estimate of related transit costs, $10,901.

In the analysis above, the sales price for the property on which the event center and accompanying commercial and retail structures will be built is $150 million. Property transfer tax would result regardless of the purchaser and the end use, but conceivably at a higher price.

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[15]The actual transaction price has been announced as $150 million. San Francisco Times, **Warriors buy Mission Bay arena site from Salesforce**, 10/13/2015. This will result in differences in the values presented here and in the EPS report.

[16]There are several avenues through which revenues may be exempt from gross receipts taxes in San Francisco. This analysis is extremely conservative in assuming that this is more likely the case for biotechnology firms (perhaps because of significant revenues accruing through pass-through companies) than for firms in other industries.

[17]**UCSF, Salesforce in talks for S.F. Mission Bay land deal**, SFGate, March 15, 2014.

Table 7. Summary of One-Time Revenues from Development
(Thousands of 2014 Dollars)

Category	Biotech	GSW Arena	Difference
Property Transfer Tax	3,651	3,651	0
City Fees - TIDF	10,902	17,436	-6,534
Construction			
- Sales Taxes	1,617	1,352	-265
- Gross Receipts Taxes	2,028	2,953	-925
Total	19,461	25,392	-5,931
One-Time Expenses Associated with Development			
Infrastructure Improvements	10,901	55,308	-44,407
Net One-Time Revenues Associated with Development			
Immediate Net Revenue Impact	8,560	-29,916	38,476

Source: BLA Report (11/9/15) and calculations by Marin Economic Consulting.

Salesforce originally paid $278 million dollars for 14 acres (including the space in question) in 2010. The actual sales price was $150 million for 12 acres. The plot of land in question represents the majority of the plot originally purchased by Salesforce, and is the largest single contiguous piece. Property values have also increased substantially since the original purchase by Salesforce.[18] It seems likely then that the value of the land would have increased significantly over the last five years as San Francisco is currently starved for commercial real estate. In the end, the price that the Warriors have paid for the land is surprisingly low. It represents the bulk of a property that was valued at $278 million in 2010 and market values have only increased in the intervening years. Therefore, the actual market value of the land may well be higher than the price the Warriors have been offered and have paid, with correspondingly higher transfer taxes resulting from some alternative development.

Table 8 provides an analysis of the annual City revenues and expenses that can be attributed to each of the projects.[19] The first column is for the alternative development which targets the biotechnology industry.[20] The second column reflects estimates regarding the current Golden State Warriors project, and the final column presents the difference in expected revenue between the two.

[18] **Salesforce.com Is Said to Plan Sale of San Francisco Land**, Bloomberg Business, March 11, 2014.

[19] This alternative is chosen because it will allow the use of most of the EPS parameters and assumptions in producing annual revenues for the alternative project. See the Appendix to the first version of this report for a comparison of calculations between this project and the EPS report.

[20] The City seems to have performed its own analysis of a 100% commercial alternative. This can be found on page 1 of **Warriors Handout Sierra Club 11.17.15.pdf**. The estimates presented here are somewhat higher, in particular for sales taxes. This is in part because they eliminated retail in their estimates. Overall, the estimate here is just $737 thousand more than in the City's estimates.

Table 8. Summary of Annual Revenues and Expenses (in Thousands of 2014 Dollars)

Category	Biotech	GSW Arena	Difference
Annual Direct General Revenue			
Property Tax (General Fund)	$603	$912	-$309
Property Tax in Lieu of VLF	$570	$868	-$298
Sales Tax	$253	$521	-$268
Parking Tax	$243	$482	-$239
Stadium Admission Tax	$0	$4,336	-$4,336
Gross Receipts Tax	$4,078	$2,431	$1,647
Utility User Tax	$249	$254	-$5
Transit Related	$0	$1,773	-$1,773
Total Annual Revenues	$5,996	$11,577	-$5,581
Annual Development-Related Expenses			
SFMTA	$0	$6,912	-$6,912
SFPD	$0	$952	-$952
DPW	$0	$95	-$95
Debt Service	$0	$2,123	-$2,123
Total Annual Expenses	$0	$10,082	-$10,082
Annual Net Revenues	$5,996	$1,495	$4,501

Source: BLA Report and calculations by Marin Economic Consulting.

In most categories, the annual revenues are greater for the Event Center than for a development with additional commercial space. The exception is in the Gross Receipts Taxes, where a biotech firm occupies the additional commercial space. Taken as a whole, annual revenues from a purely commercial development are $5.6 million less than for the project under consideration. Accounting for expenses related to the different projects, the commercial development results in $4.5 million more in General Fund revenues annually than would the arena (last line of Table 8). From a net revenue perspective, a commercial development clearly dominates the construction of the Event Center.

As discussed above, merely calculating the one-time costs and an estimate of the ongoing revenue is insufficient. Were it sufficient, a commercial project focused on biotech would clearly dominate the current project. Table 9 provides an evaluation of the 22-year net benefits of an alternative development with space devoted to biotechnology comparable to the evaluation for the current project.[21]

According to these calculations, an alternative development would provide an extra $80.2 million in revenues for the City of San Francisco (as in Table 10). Net present discounted

[21]Net one-time benefits for the GSW project are zero, which follows the assumption that the deficit brought on by infrastructure developments will be financed. The debt service payments are incorporated in the ongoing net benefits line.

Table 9. Net Benefits of Alternative Developments after 22 Years
(Millions of Present Discounted 2014 Dollars)

	Biotechnology		Net Benefits		
	Benefits	Costs	Biotech	GSW	Difference
One-Time	$19.5	$10.9	$8.6	$0.0	$8.6
Ongoing	$93.7	$0.0	$93.7	$22.1	$71.7
Total	$113.2	$10.9	$102.3	$22.1	$80.2

Source: Calculations by Marin Economic Consulting

revenues for the project with an Event Center are $22.1 million, while a project with commercial space devoted to attracting biotechnology firms has a discounted value of net revenues expected to be $102.3 million, a difference of $80.2 million dollars, or an additional $3.6 million each year on average over the 22 years.

From a cash flow perspective, there is a deep hole early on with the Event Center. The first three columns of Table 10 present annual present discounted flows of revenues into San Francisco City coffers. The second set of three columns provide a cash flow, or cumulative contribution to City coffers. The final column indicates the annual cash flow position of the City were it to cover the deficit without financing. Several things are immediately apparent from the table:

1. The Event Center puts an enormous hole in the City's budget in the first year (row 1, last column).
2. It will take *ten* years of operation of the Event Center to dig the City out of the hole (last column).
3. Substituting a commercial development is cash flow positive in the first year (row 3, column 4).
4. Although the gap in annual discounted net revenue closes over time, it remains significant even in year 20 (last row, column 4).
5. In year 20 of Event Center operations, there remains a surplus of revenue in the amount of $80.2 million for the biotechnology development (last row, column 7), which continues to grow in subsequent years.

A final issue that differentiates a biotechnology-centric development over an arena is one of economic impact. It is clear from the economics literature that sports stadiums and arenas provide little economic boost to the local economy. At the same time, it is clear that these facilities are responsible for generating some local economic activity. The failure to

Table 10. Stream of Net Revenues over Time
(Thousands of 2014 Discounted Dollars)

	Annual			Cumulative			GSW Balance
Year	Biotech	GSW	Difference	Biotech	GSW	Difference	w/o Financing
One-Time Net Revenues:							
2016	$8,559	$0	$8,560	$8,559	$0	$8,560	-$29,908
Start of On-Going Revenues:							
2017	$5,642	$1,386	$4,256	$14,201	$1,386	$12,815	-$26,519
2018	$5,529	$1,352	$4,177	$19,730	$2,738	$16,993	-$23,202
2019	$5,418	$1,318	$4,100	$25,148	$4,056	$21,092	-$19,956
2020	$5,309	$1,286	$4,024	$30,458	$5,342	$25,116	-$16,780
2021	$5,203	$1,254	$3,949	$35,660	$6,595	$29,065	-$13,672
2022	$5,099	$1,222	$3,876	$40,759	$7,817	$32,942	-$10,631
2023	$4,996	$1,192	$3,804	$45,755	$9,009	$36,746	-$7,655
2024	$4,896	$1,162	$3,734	$50,652	$10,172	$40,480	-$4,742
2025	$4,798	$1,133	$3,665	$55,450	$11,305	$44,145	-$1,893
2026	$4,702	$1,105	$3,597	$60,152	$12,410	$47,742	$896
2027	$4,608	$1,078	$3,530	$64,760	$13,488	$51,272	$3,625
2028	$4,516	$1,051	$3,465	$69,275	$14,539	$54,737	$6,296
2029	$4,425	$1,025	$3,400	$73,700	$15,563	$58,137	$8,909
2030	$4,336	$999	$3,337	$78,037	$16,562	$61,474	$11,466
2031	$4,250	$974	$3,276	$82,286	$17,536	$64,750	$13,969
2032	$4,165	$950	$3,215	$86,451	$18,486	$67,965	$16,418
2033	$4,081	$926	$3,155	$90,532	$19,412	$71,120	$18,815
2034	$4,000	$903	$3,097	$94,532	$20,315	$74,216	$21,161
2035	$3,920	$881	$3,039	$98,452	$21,196	$77,256	$23,456
Year 20 of Event Center operation:							
2036	$3,841	$859	$2,983	$102,293	$22,055	$80,238	$25,702

Source: Marin Economic Consulting

add to a region's economy is because they tend to displace other entertainment purchases from the broader economy rather than to stimulate new spending. An individual may go to a basketball game instead of to a play, opera, symphony, or rock concert. These facilities are therefore not additive to the economy.

Nonetheless, it has been estimated that economic activity associated with Oracle Arena accounts for $44.9 million in economic Activity and 494 jobs in Alameda County.[22] It seems likely that the impact of the new arena will be of a similar magnitude.

By comparison, a 522,000 square foot biotechnology facility, with a ratio of space to employee of 250 to 1 can accommodate more than 2,000 employees. That represents four times more employment for biotechnology than for the Event Center It is also consistent

[22]Memo to Patrick Soluri, Attorney at Law, from Philip King, Ph.D., regarding Urban Decay Analysis of Proposed Relocation of Golden State Warriors from Oakland to San Francisco, page 9.

with an estimate of economic output on the order of $1 billion, an order of magnitude higher than for the Arena. Accordingly, the biotechnology development can serve as a much more significant engine of economic growth for the region than can the new event center.

4: Questioning the Benefits and Costs of the GSW Project

There are few guarantees with economic endeavors. Assuming that the conditions that exist today will exist tomorrow, the day after that, or 20 years from now is of dubious merit. Conditions change. The level of success of a basketball team ebbs and flows (though hopefully not for the Warriors), the economy grows and shrinks, and modes of transportation change.

This certainly holds true for the construction of an arena. While it is quite likely that the Warriors will play at the arena for the foreseeable future and experience a high level of success for some time, it is not certain that the estimated revenues will materialize. As a case in point, the EPS study assumes a sales price for the land of $172,546,000. The actual sales price was $150,000,000. That represents a reduction in sales price of 13%, with a corresponding reduction in revenues that are tied to the sales price: transfer taxes and ongoing property taxes. Although the long-term implications of a decline in ongoing property taxes is likely small, the transfer tax is reduced from $4.2 million to $3.65 million, a reduction in one-time revenues of $549,000. Granted, this is just one percent of the one-time transit costs associated with the project, but it is more than half a million dollars no longer available for other city needs.

Of the sources of General Fund revenue, only two are relatively secure. Property taxes and utility user taxes are both likely to materialize in the projected amounts, securing only about $2 million out of $11.5. The gross receipts taxes are highly dependent on the occupants of the commercial facilities and all of the other sources are dependent on numbers of and the behavior of event attendees.

Most important assumptions regarding both revenues and costs surround the number of event attendees and their mode of transportation. If they drive, walk, or ride bikes more often than is anticipated, transit revenues will fall. If ride sharing or autonomous vehicles take over, parking revenue will fall. If attendees fail to materialize, then both revenues from transit and other sources will fall. Whether or not costs do is an open question. Costs are related to numbers of events, so if there are fewer events, costs may also fall.

The City also has a history of relaxing stadium admissions taxes. From the general City code, tickets to Giants games are granted an exemption. Whereas most tickets to a Giants game would be subject to a stadium admissions tax of $1.50, they are currently taxed at $0.25 per ticket. Were such an exemption to be granted to the Warriors, General Fund revenues would decline by $2 each, or approximately $1.5 million. Such an act would wipe out the General Fund surplus. Were the exception granted to all events at the Event Center, that would reduce revenues by $3.6 million.

The point of this discussion is that estimated revenues are suspect, while estimated costs are much more likely accurate. Fixed investments, in particular, are known and not subject to market whims. However in this case, there are unknowns lurking in the cost estimates. It is likely that the revenue implications are biased high, resulting in uncertainty over their future stream with more downside risk than upside. It is already the case that actual one-time revenues have turned out to be less than anticipated (such as the transfer tax, which was lower by $549,000). Clearly, there is great uncertainty in almost all of these estimates.

5: Some Sensitivity Analysis

The revenue estimates relating to the GSW project and the revenue estimates relating to a biotechnology center are both uncertain. It is therefore worthwhile to experiment with basic assumptions to better understand the implications for City revenues. Table 11 offers some evidence for the implications of particular assumptions. We provide three separate alternatives that relax in different ways the assumptions inherent in the baseline analysis. The top line of the table presents the baseline results of the analysis, the estimates of present discounted net revenues accruing to the City (corresponding to the last row in Table 8). In the case of the biotechnology development net present discounted revenues are $102.3 million whereas they are just $22.1 million for the GSW project, a difference of $80.2 million.

The first alternative assumes a greater density of employment in the new commercial facility, leaving the existing commercial plans constant. If there are 200 square feet per employee, rather than 250, revenues associated with the new facility increase by more than $8.2 million relative to the baseline. This increase in revenue stems largely from an increase in the output produced by the building's occupants, resulting in increased gross receipts tax revenues. Further reducing the space per employee will have correspondingly larger increases in revenues.

A second alternative assumes a larger facility is constructed, with 722,000 square feet of space rather than 522,000 square feet of space. This increases the number of employees

Table 11. Summary of Net Present Discounted Value Associated with Alternatives (22 Years, 2015-2036) Comparing the Multi-Purpose Venue with a Biotechnology Center (Millions)

Item	Biotech	GSW	Difference Over 22 Years	Difference Per Year
Baseline	$102.3	$22.1	$80.2	$3.6
Alternative 1	$110.6	$22.1	$88.4	$4.0
- Area to employee ratio for Biotech of 200/1		$Over Baseline$:	$8.2	
Alternative 2	$116.5	$22.1	$94.3	$4.3
- Add 200,000 sq ft to New Commercial Space		$Over Baseline$:	$14.0	
Alternative 3 (Extreme)	$185.3	$22.1	$163.2	$7.4
- Area to employee ratio for Biotech of 150/1		$Over Baseline$:	$83.0	
- 100% of Biotech revenues are subject to GRT				
- Add 200,000 sq ft to New Commercial Space				

Source: Marin Economic Consulting

working in the space by nearly 40%, maintaining the assumption of 250 square feet per employee. With greater space comes increased employment and increased output. Accordingly, revenues are estimated to increase by $14.0 million with an expanded space. Under this scenario, the net discounted value of City revenues increases by $94.3 million relative to the GSW project. Even larger spaces would have a correspondingly larger impact on City revenues.

Finally, an extreme alternative is offered. Alternative 4 allows for a 150 to 1 ratio of square feet to employees, assumes that all of the revenues accruing to the biotech occupants are subject to the GRT, and involves a building with 722,000 square feet. Under this alternative, City revenues increase by $83.0 million relative to the baseline, with biotechnology revenues exceeding GSW revenues by $163.2 million over 22 years and $7.4 million per year.

These alternatives are not put forward to suggest that there is $163.2 million being left on the table (though there may be), but rather to illustrate the range of differences that underlying assumptions can make. At the same time, even the extreme alternative is plausible.

6: Re-Evaluating the Net Benefits of Hosting the Warriors

There are two fundamental points made in this report:

1. Estimates of costs and revenues are highly speculative, and the evidence suggests that there is more downside risk to the GSW project than upside.
2. There is significant revenue that is forgone by the City in order to bring the Warriors to town.

Both of these points raise significant questions about the Warriors arena project from a financial perspective. First, how comfortable are taxpayers in their understanding of the implications of this development? Second, is this the right development?

The respective answers are "not very" and "quite possibly no." There is uncertainty in the information available and replacing the Event Center in the project with additional commercial space has the potential to increase City revenues significantly.

Another way of thinking about the differences in revenues between the GSW project and a biotechnology development is that these differences reflect the price the City is paying in order to bring the Warriors to town. There are certainly other more tangible costs, but these costs are also real.

The above analysis indicates that even with relatively conservative assumptions, in particular those regarding employment in the new development and the size of the new development, a biotechnology center would increase City revenues significantly relative to the Event Center. Under the baseline scenario, the difference is $80.2 million over 22 years. Under the most extreme, yet plausible, scenario presented, an additional $163 million could be raised over the 22-year period. This analysis suggests that the citizens of San Francisco, through lower levels of revenue in the City's General Fund, are paying between $3.6 and $7.4 million per year to host the Warriors.

Every economic development represents a choice. That choice is between the proposed development and plausible alternatives. The City has chosen to pursue a basketball team without exploring or disclosing the relative merits of the project compared with plausible alternatives. This report is not designed to condemn the choice, but rather to better inform the debate on the implications of this choice.

Aside from foregone revenue, it is quite possible that the GSW project could require additional General Fund expenditures. The ordinance establishing the Mission Bay Transportation Improvement Fund spells out shares of GSW revenues that are to be spent on transportation, including a cap of 90% of estimated revenues directly associated with the project. This would appear to guarantee that the General Fund will be increased by at least 10% of revenues from the project. The ordinance has even been amended to indicate that if SFMTA's expenses exceed the revenues from the Warriors project, "□ [I]f the revenue cap

is insufficient to cover SFMTA□ s expenditures for transportation services to the Warriors Project, then the Warriors will be responsible to provide additional transportation services to comply with EIR mitigation measures TR-2b and TR-18.□ (Nov. 9 staff report, p. 10). It is not clear the extent to which this language obligates GSW to do anything other than work with the City to pursue one or more of a list of strategies. This language is not necessarily strong enough to ensure that future shortfalls will not occur.

This provision appears to be a guarantee that the General Fund will at worst be left whole. However, this amendment applies only to the SFMTA expenditures. There are other expenditures, including police, DPW, and debt servicing that are not covered by this amendment. If it does happen that SFMTA's expenses exceed revenues from the Warriors project, the City's General Fund will still be responsible for these expenses, which amount to $3.2 million. In a year where SFMTA expenses are high and revenues are low, the existence of the Event Center will result in the balance of the General Fund being reduced by $3.2 million, with correspondingly fewer general services provided by the City to its residents.

> **Important note:** If it is ever the case that revenues are less than SFMTA expenses, it will necessarily be the case that the General Fund will run a deficit of between $2.1 and $3.2 million. The requirement that the Warriors provide transit services in this case does *nothing* to cover these other Event Center related obligations.[23]

In the ordinance, the City has also made a commitment to ameliorate any remaining congestion issues related to the functioning of the hospital at UCSF. Remaining congestion issues and any sense of their cost are significant unknowns. Should they be significant, this would represent another financial obligation of the City's General Fund.

There has also been language used that indicates that there is no public subsidy of the Arena. In announcing the deal, Warriors COO Rick Welts said:

> "We're the only sports team in America doing this all w/ private funds, on private land, with *no public subsidy*." (Italics added.)

This is simply not true. Any economic activity coming to the City will generate revenues. Some of these revenues, from the TIDF, for instance, are expected to support the activity. The remaining revenues are expected to supplement the services provided by the City to its residents. In the case of the GSW project, $25.4 million in one-time revenues and $10.1 million in revenues in each subsequent year will be spent to facilitate the Event Center. These funds represent a clear and present public subsidy of the project.

[23] Confirmed with the Budget and Legislative Analyst's office, 11/24/15.

EXHIBIT 5

Osha Meserve

From: Public Records <PublicRecords@baaqmd.gov>
Sent: Monday, November 16, 2015 5:37 PM
To: osha@semlawyers.com
Subject: PRA Request
Attachments: N007359_REP01 Mission Bay NOA sample.pdf; N007358_REP01 Mission Bay NOA sample 2.pdf

Good evening,

Attached are the lab reports. In speaking with the supervisor there are no additional reports. Your request is not considered closed.

Rochelle Reed
Public Records Coordinator
415-749-4784
Publicrecords@baaqmd.gov

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Bay Area Air Quality Mgmt. District
Project Manager

939 Ellis St
San Francisco, CA 94109

Client ID: 2763
Report Number: N007359
Date Received: 08/06/15
Date Analyzed: 08/07/15
Date Printed: 08/07/15

Job ID/Site: Pump Station #5, 16th St. + Terry Francois Blvd.

PLM Report Number: N/A

FALI Job ID: 2763
Total Samples Submitted: 1
Total Samples Analyzed: 1

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
1	11671293	**Grey/Green Stones**

Point Count Results:

Number of asbestos points counted:	15
Number of non-empty points:	400
Matrix percentage of entire	100
Percent asbestos in matrix:	**3.8**
Visual estimation percentage:	2.0
Asbestos type(s) detected:	Chrysotile

Comment:

Tad Thrower

Tad Thrower, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification (LOQ) = 0.25%. Trace denotes the presence of asbestos below the LOQ. ND = None Detected.

3777 Depot Road, Suite 409, Hayward, CA 94545 / Telephone: (510) 887-8828 (800) 827-FASI / Fax: (510) 887-4218

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Bay Area Air Quality Mgmt. District
Project Manager

939 Ellis St
San Francisco, CA 94109

Client ID: 2763
Report Number: N007358
Date Received: 08/06/15
Date Analyzed: 08/07/15
Date Printed: 08/07/15

Job ID/Site: Mission Bay Development Group Property Stockpile, 16th St. + Terry Francois Blvd.

PLM Report Number: N/A

FALI Job ID: 2763
Total Samples Submitted: 1
Total Samples Analyzed: 1

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
1	11671292	**Grey/Green Stone**

Point Count Results:

Number of asbestos points counted:	13
Number of non-empty points:	400
Matrix percentage of entire	100
Percent asbestos in matrix:	**3.3**
Visual estimation percentage:	2.0
Asbestos type(s) detected:	Chrysotile

Comment:

Tad Thrower

Tad Thrower, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification (LOQ) = 0.25%. Trace denotes the presence of asbestos below the LOQ. ND = None Detected.

3777 Depot Road, Suite 409, Hayward, CA 94545 / Telephone: (510) 887-8828 (800) 827-FASI / Fax: (510) 887-4218

EXHIBIT 6

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG 10 2004

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

OSWER 9345.4-05

MEMORANDUM

SUBJECT: Clarifying Cleanup Goals and Identification of New Assessment Tools for Evaluating Asbestos at Superfund Cleanups

FROM: Michael B. Cook, Director
Office of Superfund Remediation and Technology Innovation

TO: Superfund National Policy Managers, Regions 1-10

Purpose

The purpose of this memo is twofold. The first purpose is to clarify that Regions should develop risk-based, site-specific action levels to determine if response actions should be taken when materials containing less than 1 percent asbestos (including chrysotile and amphibole asbestos) are found on a site. Regions should not assume that materials containing less than 1 percent asbestos do not pose an unreasonable risk to human health. The second purpose is to outline some activities underway to assist in the evaluation of asbestos risks at Superfund sites.

It is important to note that this memorandum is not a regulation itself, nor does it change or substitute for any regulations. Thus, it does not impose legally binding requirements on EPA, States, or the regulated community. This memorandum does not confer legal rights or impose legal obligations upon any member of the public. Interested parties are free to raise questions and objections about the substance of this memorandum and the appropriateness of the application of this memorandum in a particular situation. EPA and other decision makers retain the discretion to adopt approaches on a case-by-case basis that differ from those described in this memorandum. The use of the word "should" in this document means that something is suggested or recommended, but not required.

Background

The 1 percent threshold for asbestos-containing materials was first used in the 1973 National Emissions Standards for Hazardous Air Pollutants (NESHAP), where the intent of the threshold was:

... to ban the use of materials which contain significant quantities of asbestos, but to allow the use of materials which would: (1) contain trace amounts of asbestos which occur in numerous natural substances, and (2) include very small quantities of asbestos (less than 1 percent) added to enhance the material's effectiveness. (38 FR 8821)

All subsequent EPA regulations and the Asbestos Hazardous Emergency Response Act Statute included this 1 percent threshold. In the 1990 NESHAP revisions, EPA retained the threshold, stating that it was related to the phase contrast microscopy (PCM) analytical method detection limits. The Occupational Safety and Health Administration (OSHA) Standards also defined an asbestos-containing material as a material containing more than 1 percent of asbestos[1] (29 CFR Part 1910.1001 and 29 CFR Part 910.134). The wide use of the 1 percent threshold in regulations may have caused site managers to assume that levels below the threshold did not pose an unreasonable risk to human health. However, it is important to note that the 1 percent threshold concept was related to the limit of detection for the analytical methods available at the time and also to EPA's prioritization of resources on materials containing higher percentages of asbestos.

Issue

Currently, many site managers continue to employ the use of the 1 percent threshold to determine if response actions for asbestos should be undertaken. However, based upon scientific discussions and findings reported by EPA and ATSDR from the Libby, Montana Superfund site, as well as EPA's "Peer Consultation Workshop on a Proposed Asbestos Cancer Risk Assessment[2]," there may be confusion regarding the appropriate use of the 1 percent threshold at Superfund sites. This concern was discussed at EPA's "Asbestos Site Evaluation, Communication, and Cleanup Workshop[3]," and it was concluded that the 1 percent threshold for asbestos in soil/debris as an action level may not be protective of human health in all instances of site cleanups. The 1 percent threshold is not risk-based and an accurate exposure value could only be determined through site sampling techniques that generate fibers from soil and bulk samples. Therefore, we recommend the development of risk-based, site-specific action levels to determine if response actions for asbestos in soil/debris should be undertaken.

Recent data from the Libby site and other sites provide evidence that soil/debris containing significantly less than 1 percent asbestos can release unacceptable air concentrations of all types of asbestos fibers (i.e., serpentine/chrysotile and amphibole/tremolite). The most critical determining factors in the level of airborne concentrations are the degree of disturbance, which is associated with the level of activity occurring on the site, and the presence of complete exposure pathways. For example, activities such as excavation or plowing generate large amounts of dust that can result in the generation of airborne fibers that can be inhaled even from a complex soil matrix. To address this evolving issue, OSRTI will be hosting a review of methods for determining conversion of soil to air concentrations in 2004.

Future Action

OSRTI has formed three technical working groups to assist in developing guidance and policy relating to risk assessment, field sampling, and analytical methods. These working groups have already contributed to a new toolbox that is located on the EPA Intranet. The location of the tool box is http://intranet.epa.gov/osrtinet/hottopic.htm.

The toolbox will be continually updated as products are developed and will eventually contain information on risk assessments, generic site sampling, and analytical approaches for asbestos cleanup projects. In the interim, numerous site reports that discuss specific concerns and issues from current asbestos site actions are contained in the toolbox. Additionally, to facilitate the development of sampling plans, there are examples of approved site sampling plans with data quality objectives, and a list of asbestos analytical laboratories which have passed an EPA audit.

Our goal is to have the majority of the guidance and policy documents prepared by the end of this year. If you have any questions, please consult with Richard Troast of my staff, who is the lead scientist within OSRTI for asbestos. He can be reached at (703) 603-8805 or by e-mail at: troast.richard@epa.gov.

cc:

Nancy Riveland, Superfund lead Region Coordinator, USEPA Region 9
Eric Steinhaus in Region 8
NARPM Co-Chairs
OSRTI Managers
Robert Springer, Senior Advisor to OSWER AA
Jim Woolford, FFRRO
Debbie Dietrich, OEPPR
Matt Hale, OSW
Cliff Rothenstein, OUST
Linda Garczynski, OBCR
Dave Kling, FFEO
Susan Bromm, OSRE
Earl Salo, OGC
Charles Openchowski, OGC
Joanna Gibson, OSRTI Documents Coordinator

Endnotes:

1. Pursuant to industry comments, the 1994 amendments to the OSHA Standards incorporated a definition of asbestos-containing material that included the 1 percent threshold to be consistent with EPA, and noted that the National Institute for

Occupational Safety and Health (NIOSH) had raised questions whether even one percent may be below the accuracy level for certain microscopic methods. However, OSHA's Hazard Communication Standard requires a Material Safety Data Sheet (MSDS) to be prepared by the manufacturer or importer of a chemical substance, mixture, or product containing more than 0.1 percent of any carcinogen, including asbestos. Additionally, OSHA has recently issued several letters stating that some of the requirements in the OSHA Asbestos Construction Standard (29 CFR 1926.1101) do cover materials containing less than one percent asbestos.

2. USEPA's *Peer Consultation Workshop on a Proposed Asbestos Cancer Risk Assessment* was held in San Francisco, California on February 25-27, 2003. The purpose of the workshop was to discuss the scientific merit of the proposed methodology developed for EPA by Dr. Wayne Berman and Dr. Kenny Crump. The proposed methodology distinguishes carcinogenic potency by asbestos fiber size and asbestos fiber type and advocates use of a new exposure index to characterize carcinogenic risk. Proceedings from this conference can be located at: http://www.epa.gov/superfund/programs/risk/asbestos/index.htm.

3. USEPA's *Asbestos Site Evaluation, Communication and Cleanup Workshop* was held in Keystone, Colorado on September 23-26, 2003. The purpose of the workshop was to provide an opportunity to share lessons learned from working on large sites contaminated with asbestos. The meeting was also used to identify key outstanding technical and policy issues, and to begin to develop a consistent approach to measuring "success", especially short-term impacts and long-term risk reduction. Proceedings from this conference can be located at: http://www.epa.gov/superfund/programs/risk/asbestos/workshop/index.htm.

EXHIBIT 7

Osha Meserve

From: Prowell, Cheryl@Waterboards <Cheryl.Prowell@waterboards.ca.gov>
Sent: Monday, November 23, 2015 9:44 AM
To: Meserve, Osha@semlawyers.com
Cc: Lee, Randy@Waterboards; Hill, Stephen@Waterboards; Pettijohn, Julie@DTSC; Toth, Karen@DTSC
Subject: RE: Status of Mission Bay Wastes

Osha,

Thank you for your email. We have been looking into the issues that you have raised. Randy Lee is working to get the regular monitoring reports documenting compliance with the Risk Management Plan uploaded to our GeoTracker database. I anticipate that these reports will address the majority of your concerns. We will give you a more detailed answer once these reports are publically available.

Cheryl

From: Osha Meserve [mailto:osha@semlawyers.com]
Sent: Friday, November 20, 2015 4:33 PM
To: Prowell, Cheryl@Waterboards
Cc: Lee, Randy@Waterboards; Hill, Stephen@Waterboards; Pettijohn, Julie@DTSC; Toth, Karen@DTSC
Subject: Status of Mission Bay Wastes

Hi Cheryl,
It has come to my attention that the piles of asbestos containing fill have been moved from the proposed Warrior's arena site, and possibly transported to a landfill or to a property immediately northeast. We respectfully request information regarding the tracking of the staged wastes at, and between, sites (including the Warriors site) within the Mission Bay Development area.

The documented asbestos containing materials are required to have a specific Asbestos Dust Management Plan before it is disturbed (ADMP). It is not clear to us that the development activities have been completing and following these plans. In particular, we further request evidence that this was created and applied to the recent asbestos contaminated soil removal activities.

In addition to the ADMP, we request documentation that a site mitigation plan for the hazardous materials was created and applied to the site for the prior remedial activities, the staged soil management, and the recent removal action. We also request a copy of the Site Specific Health and Safety Plan (SSHSP) that should have been completed for these three same site activities, as well as evidence that this was submitted to DPH. It appears that the SSHSP is only for the excavation of the foundation of the proposed buildings and not for the staged soils.

We also again request that the stormwater Best Management Practices be appropriately applied to, and maintained on, Terry François Boulevard. The stormwater drains remain clogged with soil, and the BMPs damaged, including the 'Protect the Bay' placards, on the western side of the street along the site.

Thank you,
Osha

Osha R. Meserve

Soluri Meserve
1010 F Street, Suite 100
Sacramento, CA 95814

☎ *tel:* 916.455.7300 ▪ 🖷 *fax:* 916.244.7300 ▪  *mobile:* 916.425.9914 ▪ ✉ *email:* osha@semlawyers.com