2.10 GREENHOUSE GAS EMISSIONS

2.10.1 BASELINE ASSUMPTIONS

Comment

Another potential traffic impact not adequately analyzed is the contribution of such impact to greenhouse gases and the degradation of air quality. The DEIR applies BAAQMD’s second, optional quantitative efficiency threshold of 4.6 MT of CO2e per service population per year to the Project. Both the Project and the Project with Expanded Transit Service are analyzed quantitatively (H. Greenhouse Gas Emissions, page IV.H.27). Moreover, the Waste Management Act of 1989 requires local governments to reduce solid waste by fifty percent. There is an inadequate, cross-analysis correlation between the traffic impact sections and the greenhouse gas/air quality sections.

In particular, the analysis of greenhouse contributions falsely assumes that they are reduced because certain (vague) programs and the Project’s design will reduce solid waste and transportation contributions to greenhouse gas generation. Indeed, there is no demonstrative science in the DEIR that quintupling the population of TI/YBI would produce a “less than significant” impact on greenhouse gas creation. In addition to the aforesaid items, the DEIR analysis should include a worse-case, greenhouse gas scenario in order to determine the Project’s full impacts because solid waste and transportation are fickle habits subject to change by the consumer. 

Response

The analysis of greenhouse gas (“GHG”) impacts in the EIR uses the guidance and thresholds developed by the Bay Area Air Quality Management District (“BAAQMD”), the local air quality regulatory agency with jurisdiction over the project site. As discussed in EIR Section IV.H, Greenhouse Gas Emissions, p. IV.H.26, a qualitative analysis would require that the lead agency have a qualified GHG Reduction Strategy. While the City and County of San Francisco does have a Climate Action Plan and numerous related policies and ordinances that address emissions reductions (see EIR pp. IV.H.19-IV.H.24), at the time the Draft EIR was published it had not formally received acknowledgement from the BAAQMD that its efforts represented a “qualified” GHG Reduction Strategy. Consequently, it was necessary to perform a quantitative analysis of GHG impacts for the Draft EIR. Since publication of the Draft EIR, the City of San Francisco has received acknowledgement from the BAAQMD that its Climate Action Plan meets the conditions of a qualified GHG Reduction Strategy.¹ The EIR continues to rely on the project-specific quantitative analysis presented in Section IV.H.

¹ Jean Roggenkamp, Deputy Air Pollution Control Officer, Bay Area Air Quality Management District, letter to Bill Wycko, Environmental Review Officer, October 28, 2010. A copy of this document is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, in Case File 2007.0903E.
The City also proactively seeks to reduce its GHG emissions through implementation of various programs. For example, the City’s zero waste program commits to a goal of diverting 75 percent of its waste from landfills by 2010, with the ultimate goal of zero waste by 2020. The Proposed Project would be required to comply with the waste recycling and composting requirements in the City ordinances. The City’s Residential Water Conservation Ordinance, as amended in 2009, establishes minimum water conservation standards for new and existing residential buildings. The Commercial and Residential Water Conservation Ordinances are expected to save 4 million gallons per day by 2017, equating to 1,900 metric tons of CO2e (“CO2 [carbon dioxide] equivalents”) by 2017.

Under BAAQMD guidance, the selection of the efficiency-based GHG significance threshold is at the discretion of the lead agency and was selected because it is appropriate for larger-scale mixed-use projects that encourage high-density development such as the Proposed Project. The BAAQMD developed this efficiency standard to represent the emissions below which the State and region can accommodate future growth and still meet the requirements and goals of AB32.

With regard to the correlation between the transportation analysis and the air quality and GHG analyses, the number of daily vehicle trips assumed for both air quality and GHG calculations was provided by the transportation consultant from information used to develop the Transportation Impact Study for the EIR. These values were then input into the URBEMIS2007 model to calculate mobile GHG emissions. Additionally, daily bus trip estimates were also provided by the transportation consultant and are consistent with the transportation analysis in the EIR. The GHG emissions assume only the base levels of transit are in place, and do not assume reductions associated with implementation of additional transit service through Mitigation Measure M-TR-2, in EIR Section IV.E, Transportation, pp. IV.E.74-IV.E.75.

Regarding solid waste use, as stated on EIR p. IV.H.40, the BAAQMD GHG model (“BGM”) was used to calculate GHG emissions from the increase in solid waste generation resulting from the Proposed Project. BGM uses waste disposal rates for the various land uses from values compiled by CalRecycle (formerly the California Integrated Waste Management Board). These rates are likely overestimates since they are based on 1999 data that do not account for the recent increases in percentages of waste that have been diverted from landfills pursuant to AB939, or further diversions that are expected to occur in the future. For example, the City currently diverts 77 percent of its solid waste. Predicted waste generation rates were not adjusted to reflect any project-specific elements or the aggressive waste diversion strategies of San Francisco, and therefore represent a worst case analysis.

2.10.2 GEOTECHNICAL STABILIZATION EMISSIONS

Comment

Although the DEIR seeks to analyze the effect and possible consequences of a large part of the Project being a man-made/artificial island with poor fill and compaction by proposing mitigation and improvement measures to rectify this inherent problem, including without limitation the possibility of liquefaction resulting in massive structural failures of the Project’s improvements, it does not address the environmental impact on the surrounding tidal waters and the generation of greenhouse gases necessary to effectuate such measure’s improvements.  (Nick S. Rossi, Esq., representing Kenneth and Roseanna Masters)  [19.9]

Response

Construction-related GHG emissions are discussed in EIR Section IV.H, Greenhouse Gas Emissions, on p. IV.H.35.  The BAAQMD has not adopted a threshold for construction-related GHG emissions and does not require construction-related emissions to be included in the Project inventory for comparison to its adopted operational GHG threshold.  Nevertheless, the EIR includes emission estimates for equipment used to conduct soil stabilization measures as well as truck and barge trips to export and import soil and stabilization materials.  Total construction-related GHG emissions were then amortized over the Proposed Project lifetime and included in the total Project-related emissions that were compared to the significance thresholds of the BAAQMD.  By including construction emissions in the Proposed Project inventory, Project-related emissions of GHG presented in the EIR represent a conservative estimate of the Proposed Project contribution to the global burden of GHG emissions.

2.10.3 GREENHOUSE GAS ANALYSIS DATA AND ASSUMPTIONS

Comment

Moreover, based on the accepted current understanding of global warming, greenhouse gases and the economic effects (not to mentioned the distorting demographic effects on the surrounding cities/communities) caused by increased traffic, the proposed mitigation measures and alternatives fail miserably to address those issues.  (Nick S. Rossi, Esq., representing Kenneth and Roseanna Masters)  [19.17]

Response

Mitigation measures in EIR Section IV.E, Transportation, are identified to mitigate potential transportation impacts.  The transportation measures are not needed to address emissions of greenhouse gases that may affect climate change because, as discussed in EIR Section IV.H, Greenhouse Gas Emissions, the Proposed Project and the Proposed Project with Expanded Transit Service would have less-than-significant impacts with regard to GHG emissions and climate change.
Comment

3) SERIOUS INADEQUACIES IN ADDRESSING GREENHOUSE GAS EMISSIONS

The Treasure Island and Yerba Buena Island Redevelopment Plan DEIR makes fundamentally false and deeply flawed assumptions about the severity of greenhouse gas emission impacts and relies on reports and data that are far too old, in establishing those assumptions.

Section IV.H. begins its first paragraph with statements including the following:

“While worldwide contributions of GHGs are expected to have widespread consequences, it is not possible to link particular changes to the environment of California to GHGs emitted from a particular source or location. Thus, when considering a project’s contribution to impacts from climate change, it is possible to examine the quantity of GHGs that would be emitted either directly from project sources or indirectly from other sources, such as production of electricity. However, that quantity cannot be tied to a particular adverse effect on the environment of California associated with climate change.”

This statement is completely false. It is now well established science that global greenhouse gas emissions are accelerating, and are currently so high, that the Earth’s atmosphere already contains sufficient excess parts per million (PPM) of CO2 to create adverse climate impacts (along with connected adverse social, agricultural and economic impacts) in every state on the planet. No state is, or will be, unaffected. This is especially true when it is recognized that since some impacts of climate change, no matter where they are happening on the Earth, will be sufficiently powerful to negatively impact the global economy, and food production and distribution systems, that it is impossible for California to completely avoid such impacts.

This can be said with certainty, because recent peer reviewed science has clearly established that the planetary atmospheric CO2 load is causing and will continue to cause adverse impacts unless that load is brought -down- from its current level at around 392 PPM, to be stabilized at or below 350 PPM. Because of this fundamental reality, -all- net increases in greenhouse gas emissions (GHGs) will have adverse impacts on California. This is particularly clear in the case of sea level rise which obviously does not recognize state boundaries in its impacts, and which is even clearly recognized as an immediate problem to the Treasure Island and Yerba Buena Island Redevelopment Plan itself.


This report is also further verified, shown to be accurate, and amplified in its importance, through the even more current reporting and data in the previously mentioned ‘Copenhagen Diagnosis’, which again can be read at http://www.copenhagendiagnosis.org/download/default.html

To understand its full, very serious, and immediate implications, the 64 page ‘Copenhagen Diagnosis’ should be read in its entirety. Particularly important in this report is the section ‘Abrupt Change And Tipping Points’ which can be found on pages 40-42 of the report. (Note that page 40 of the report itself, begins at page 42 of the full PDF document found at the link noted above.)

Since it cannot be determined at precisely which point CO2 overload in the atmosphere will result in triggering the serious tipping points noted in both of these reports, only a project which results in actually -reducing- greenhouse gas emissions can be claimed to have ‘less than significant impacts’.

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Therefore the DEIR’s claims on pages IV.H.44. and IV.H.45 that project greenhouse gas emissions will be ‘Less than Significant’ are clearly and dangerously false.

Consequently, the entire DEIR section IV.H. ‘Greenhouse Gas Emissions’ must be extensively and dramatically revised to properly reflect the realities established in these reports.

Furthermore the entire DEIR, as well as the Treasure Island and Yerba Buena Island Redevelopment Plan itself must be extensively and dramatically revised so that they will set forward clear mandates by which the project will begin achieving quantifiable net -reductions- in greenhouse gas emissions by at least 2050 (and beginning to achieve such reductions by 2030 or even earlier is far more prudent and should be an aggressive goal of the project). (Eric Brooks, Sustainability Chair, San Francisco Green Party) [30.6]

Response

The introductory sentences in EIR Section IV.H, Greenhouse Gas Emissions, on p. IV.H.1 do not deny the existence of a causal link between GHG emissions and climate change nor the fact that carbon dioxide concentrations have been rapidly increasing over the past several decades. The intent of this introductory passage is to advise the reader that no specific quantity or rate of GHG emissions (e.g., x metric tons per year) from a particular source has been demonstrated to directly represent a cumulatively considerable climate change impact or a measureable increase in ambient global carbon dioxide concentrations, or a specific environmental effect, such as sea level rise.

Significance determinations made in Section IV.H, Greenhouse Gas Emissions, of the EIR, specifically those on pp. IV.H.44-IV.H.45, are based on the guidance and thresholds developed by the BAAQMD, the local air quality regulatory agency with jurisdiction over the project area. These thresholds, as well as the methodologies used to determine project-related GHG inventories, are based on guidance adopted by the BAAQMD in June 2010,3 approximately one month prior to publication of the Draft EIR, and therefore are quite recent. No revisions in the thresholds are necessary.

The BAAQMD has adopted a quantitative significance threshold of 4.6 metric tons per service population per year to assess GHG impacts.4 This quantitative threshold was based on the goals and programs of Assembly Bill 32 (“AB 32”) and the Climate Change Scoping Plan that address climate change in California, not on the resulting changes in climate or carbon dioxide concentrations.5 The basic goals of AB 32 are to reduce GHG emissions throughout California to

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3 BAAQMD, CEQA Air Quality Guidelines, June 2010, available at http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines_June%202010.ashx
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1990 levels by the year 2020 (see EIR p. IV.H.12); AB 32 is discussed in more detail later in this response.

In California, AB 32 requires the California Air Resources Board (“CARB”) to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions to ensure that businesses and consumers are not unfairly affected by the reductions. Using these criteria, to reduce statewide GHG emissions to 1990 levels by 2020 would represent an approximate 25 to 30 percent reduction in current emissions levels. As stated earlier, the BAAQMD has adopted a quantitative significance threshold of 4.6 metric tons per service population per year to assess GHG impacts. This quantitative threshold was developed based on consistency with AB 32 and the goals and programs of the Climate Change Scoping Plan, which were developed to address climate change in California. The Proposed Project emissions would be consistent with the targets of AB 32, as discussed on EIR p. IV.H.45, and would not be required to achieve more aggressive targets to demonstrate a less-than-significant GHG impact.

EIR pp. IV.H.2-IV.H.9 provide background information on GHG emissions and climate change based on data sources ranging primarily from 2006 through 2010.

The potential use of a net zero threshold is addressed in the California Air Pollution Control Officers Association (“CAPCOA”) document CEQA and Climate Change.6 CAPCOA identifies the net zero threshold as one of eight significance thresholds that might be potentially adopted by an air quality district or lead agency. Two BAAQMD staff were among the principal authors that participated in the development of the CAPCOA document. The BAAQMD chose not to adopt a net zero threshold, choosing instead to adopt a threshold of significance based on AB 32 goals; this was applied in Section IV.H of the EIR.

Based on the discussion above and the content of the GHG section of the EIR, the analysis of GHG impacts contained in the EIR supports a less-than-significant finding with regard to GHG emissions, as it is based upon the most recent applicable thresholds and methodologies published by the regulatory agency with jurisdiction over the project site.

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2) Establishing that all open space, wildlife habitat, gardening and farming areas in the project area must be carefully designed to achieve aggressive and rapid soil building which will progressively and permanently sequester large amounts carbon from the atmosphere. The actual methods by which such soil carbon sequestration can be achieved are extensive and too numerous to specify in these remarks, however a web search for the combined terms ‘permaculture’ and ‘carbon farming’ will produce a plethora of examples by which to model a successful plan. A similar search for the term “keyline agriculture” will produce similar results which detail one of the most promising methods for such success. The ‘Land Use’, ‘Transportation’, ‘Greenhouse Gas Emissions’, ‘Recreation’, ‘Biological Resources’, ‘Hydrology and Water Quality’, and ‘Agricultural Resources’ sections of the DEIR must each be revised to mandate such changes in the Treasure Island and Yerba Buena Island Redevelopment Plan, so that the project will be able to effectively achieve the establishment of ‘Less than Significant’ impacts on greenhouse gas emissions. (Eric Brooks, Sustainability Chair, San Francisco Green Party) [30.8]

Response

EIR Section IV.H, Greenhouse Gas Emissions, addresses carbon sequestration resulting from proposed landscaping changes that would occur with the Proposed Project. Specifically, EIR pp. IV.H.34-IV.H.35 contain a subsection that discusses the predicted sequestration of 22 metric tons (“MT”) per year of CO₂e, which considers relocation of 100 trees on Treasure Island, removal of all of the remaining 1,677 existing trees on all of Treasure Island and the developed areas of Yerba Buena Island, and the planting of 6,000 new trees, as proposed as part of the Project. Additionally, this section of the EIR takes into account that proposed athletic fields would also sequester carbon and concludes that there would be a net GHG benefit even after consideration of lawn maintenance activities. Athletic fields are predicted to sequester 34 MT per year of CO₂e. Total vegetation sequestration from trees and grass would total 56 MT of CO₂ annually. Other landscape plantings (shrubs, etc.) would also sequester carbon, but would result in only a marginal increase relative to existing plantings.

EIR Section IV.H identified less-than-significant impacts related to greenhouse gas emission and climate change. Consequently, additional measures to sequester carbon in open space and farming management techniques are not required, although plants that are particularly successful at sequestration may be selected as part of the development of landscaping for the open spaces and other areas of the Islands.

Comment

I’m not positive in my mind that that linkage has been properly explored or considered, SB375, all of the other environmental acts, as far as cutting down on greenhouse gas emissions. Everything else involved in that area of the environment I know has been looked at, but I think they will become, at least in my mind, more serious when we get to this 15 or 20 or longer build-out of the project itself. (Ron Miguel, San Francisco Planning Commission) [TR.25.2]
Response

As discussed in EIR Section IV.H, Greenhouse Gas Emissions, on EIR p. IV.H.13, SB 375 aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocations. SB 375 requires Metropolitan Planning Organizations (“MPOs”) to adopt a Sustainable Communities Strategy or alternative planning strategy that will prescribe land use allocation in the MPO’s regional transportation plan. CARB, in consultation with MPOs, is required to provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks for 2020 and 2035. Since publication of the Draft EIR, CARB formally adopted targets on September 23, 2010. For the San Francisco Bay Area, the targets are a 7 percent reduction from passenger vehicles compared to 2005 levels by 2020 and 15 percent by 2035. The MPOs must now begin the process of developing Sustainable Communities Strategies that meet the targets set out by CARB, or if it is not possible for MPOs to meet the targets, the MPOs must prepare an Alternative Planning Strategy that shows how the target could be met. The process initiated by SB 375 is one that will continue to develop over the next several years and will be implemented by planning agencies in conjunction with CARB.

The regional housing needs assessment prepared pursuant to SB 375 is expected to redirect growth to already urbanized areas in the region. Therefore, SB 375, through its Sustainable Communities Strategy, will likely require the City of San Francisco to provide a larger share of new housing in the region. Concentrating growth in urban areas will reduce vehicle miles travelled in the region and the associated GHG emissions.

EIR Section IV.H addresses the impacts of the Proposed Project relative to its generation of GHG emissions and its consistency with plans, policies, and regulations adopted for the purpose of reducing the emissions of GHGs. The significance criteria used to assess these impacts are those adopted by the BAAQMD in June 2010. The supporting document the BAAQMD prepared to justify the development of these thresholds states:7

GHG CEQA significance thresholds recommended herein are intended to serve as interim levels during the implementation of the AB 32 Scoping Plan and SB 375, which will occur over time. Until AB 32 has been fully implemented in terms of adopted regulations, incentives, and programs and until SB 375 required plans have been fully adopted, or the California Air Resources Board (ARB) adopts a recommended threshold, the BAAQMD recommends that local agencies in the Bay Area apply the GHG thresholds recommended herein.

The analysis of GHG impacts in the EIR applied BAAQMD significance thresholds, which were developed as interim assessment levels until plans to be developed under SB 375 are fully

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adopted. Therefore, the analysis contained in the EIR, which also incorporates vehicle miles travelled within the region and transit assumptions of the Proposed Project, addresses the linkage between density, transportation and SB 375 to the degree feasible at the present time.

2.10.4 ENERGY AND GREENHOUSE GASES – IMPACTS OF STORMWATER AND WASTEWATER DISCHARGE

Comment

In the case of Treasure Island, we assume that levees will protect infrastructure that lies below sea level; in that case, however, the discharge of effluent will be more difficult and energy intensive; this is a near-term impact that must be analyzed in this document, particularly in terms of its energy use and GHG emissions.

Recommendation; include increased GHG emissions due to sea level rise in GHG calculations (Jennifer Clary, President, San Francisco Tomorrow) [38.38]

Response

The GHG analysis in the EIR addressed operational GHG emission impacts in Impact GHG-1, in EIR Section IV.H, Greenhouse Gas Emissions, on EIR pp. IV.H.44-IV.H.45. Table IV.H.3: Emissions of GHGs from the Proposed Project, on EIR p. IV.H.36, presents the GHG emissions associated with the Proposed Project, including those generated by increased electricity demand which account for approximately 1.5 percent of total project GHG emissions.

The improvements included in the Proposed Project for flood protection and to accommodate sea level rise do not rely on levees, as explained in the responses in Subsection 2.17.1, Sea Level Rise, in Section 2.17, Hydrology and Water Quality, of this Comments and Responses document. The perimeter berm around Treasure Island would be raised where necessary to prevent significant wave overtopping, and the ground level of the development portion of Treasure Island for buildings and infrastructure would be raised to accommodate up to 36 inches of sea level rise (see also EIR Section IV.O, Hydrology and Water Quality, pp. IV.O.29-V.O.35).

As stated on EIR p. IV.H.38, the Proposed Project’s electrical GHG emissions were calculated based on energy demand estimates contained in the 2009 Treasure Island Development Energy Study.8 This study contains the results of an analysis undertaken to estimate building and site energy use for the Treasure Island/Yerba Buena Development Program. The analysis also defines profiles for this energy use, identifying how much energy is used annually.

Specifically, pp. 18 and 19 of the Energy Study account for infrastructure energy from potable water pump stations, sanitary sewer pump stations, and storm water pump stations. Stormwater pumping energy estimates are conservative in that they assume constant pump operation (8,760

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8 ARUP, *TICD Treasure Island Development Energy Study*, Final, December 2009. A copy of this document is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2007.0903E.
hours per year), whereas they would more typically be operating only during periods of high tides when gravity drainage would not be adequate. With future potential sea level rise, the durations when pumps would operate would increase, but pumps would still not be under constant operation. Because of this conservative assumption, the potential additional energy demand that may be required for operation of effluent outfalls if they are affected by sea level rise is accounted for in the analysis of GHG emissions in the EIR.