Appendix F: Land Use Conversion Implications Analysis

A primary goal of the land use plan is not only to select land uses that enable the overall program to reach its Sustainability Goals, but to produce an optimal mix that maximizes the Project's overall sustainability. This mix takes advantage of all location advantages, including proximity to existing and new resources, existing infrastructure and synergies with adjacent land uses.

The implications of converting one land use to another are also important to consider when determining the optimal land use mix. The strengths and weaknesses of each conversion proposed in the three Plan alternatives are listed in the chart below. In addition, the "Opportunities" column indicates which strategies can be implemented in order to mitigate the negatives for each conversion type. These are preliminary strategies that could be incorporated into the Project in order to "green up" each corresponding land use type.

Finally, the extent to which each alternative demonstrates a given conversion type is shown in the final table column with labels of "Low, Medium and High. Alternatives that make widespread use of a particular conversion type are marked with an "H", while alternatives that do not call for a particular conversion type to a great extent are marked with a "L." This matrix is based on a high-level analysis of the plans and can be refined in future phases of the project to fully capture the implications of each land use plan.

Conversion	Strengths	Weaknesses	Opportunities (for greening up)	Extent of Conversion (n/a, Low, Medium, High)		
				Alt 1	Alt 2	Alt 3
Industrial to Residential	• Increases density and number of residents in the area. • Conducive to better social fabric, improved safety, pedestrian-friendly streetscapes and transport connectivity. • Reduces the energy and water demand and use of development on an absolute basis • Decreased waste generation (especially toxic / non-recyclable) • Increased availability of open space • Increased opportunity for internal trip capture; enhances mixed use • Reduced demand for virgin materials • If the industrial land is not previously dedicated to food industries, this conversion will result in higher amounts of organic waste produced, which is more conducive for composting and waste-to-energy systems.	• Will reduce jobs in project area; reduce blue-collar or green-collar jobs • Lack of access to transit may increase traffic congestion • May reduce the feasibility of district energy systems, which typically require a "heat sink" to make them feasible; industrial use best candidate for cogeneration and on-site wastewater and solid-waste treatment • Will take away existing character and "branding" of the area • Market demand indicates stronger prospects for industrial; residential may hurt success of overall program	• Adaptive reuse to reduce embodied carbon in materials • Mixed use high-density residential to increase internal trip capture and reduce congestion • Conversion of warehouses rather than heavy industrial to residential may lead to lower embodied carbon emissions. Heavy industrial may be more appropriate for light industrial/R&D conversion due to the strength of its structural design and the high floor area ratio. • Use of on-site renewable energy (especially solar hot water), use of recycled water for all-non-potable uses, waste management systems that facilitate source separation of organics • Consider converting industrial areas to a variety of residential units to ensure diversity of housing types in terms of size, occupancy, height and affordability.	M	M	H

Conversion	Strengths	Weaknesses	Opportunities (for greening up)	Extent of Conversion (n/a, Low, Medium, High)		
				Alt 1	Alt 2	Alt 3
Industrial to Retail	• Opportunity for neighborhood-serving retail; maximizing internal trip capture • Conductive to better social fabric, pedestrian-friendly streetscapes and transport connectivity • Potential reduction in energy and water demand/use and waste generation in absolute terms	• May reduce the feasibility of district energy and water systems • May result in less jobs per square foot and reduction in availability of blue collar jobs. If R&D Industrial is replaced, the job quality and wages would reduce as well • Lack of access may hurt market for destination retail • May not be sufficient residential program to support retail • May hurt area's "brand" as an industrial area; same reputation may prevent success of retail • May increase local traffic and congestion	• Adaptive reuse to reduce embodied carbon in materials • Encourage neighborhood-serving retail • Neighborhood retail with limited parking to encourage low-carbon transit options • Use of shuttles and maximize access to public transit • Use of on-site renewable energy, use of recycled water for all-non-potable uses, waste management systems that facilitate source separation of organics	**H**	**n/a**	**n/a**
Industrial to Park	• Reduced stormwater runoff • Increased amenity value • Increased carbon sequestration via urban trees • Reduced energy consumption in buildings for cooling due to reduced urban heat island effect • Potential reduction in energy and water demand/use and waste generation in absolute terms	• Eliminates the opportunity for adaptive reuse and thus low embodied carbon emissions from materials • Reduces number of available jobs in the region • May reduce the feasibility of district energy and water systems	• Locate parks in areas with low park access by employees and residences • Park conversion may be worth considering for empty warehouses that cannot be renovated easily • Integrate parks into overall stormwater management strategy • Utilize recycled water for irrigation • Utilize compost for fertilizer	**n/a**	**M**	**n/a**
Industrial (heavy or light) to R&D Office or Incubator	• Increased employee density and addition of high quality, higher paying jobs • Increased jobs to residents ratio increasing the likelihood of internal trip capture and reduced congestion • Potential for increasing number of companies locating in the project by housing those that "graduate" from the incubator • Reduced air quality risks related to trucks for industrial logistics • Lower floor area ratios (i.e. larger open space available) • Opportunity for employees to also live in the project area • Potential reduction in energy and water demand/use and waste generation in absolute terms	• Reduced blue-collar jobs • May reduced opportunity for district energy and water systems • Significant competition for green R&D throughout the Bay Area could make finding tenants difficult • Industrial tenants may not want to co-locate with office tenants and vice-versa	• Focus R&D recruitment on clean tech companies, research organizations and start-ups • Make sure to design streets to make use of the commercial office scale that is more conductive to pedestrian movement and transit-oriented development • Maximize access to regional and local public transit for commuters • Provide incentives for employees to live in the project area • Use of on-site renewable energy, use of recycled water for all-non-potable uses, waste management systems that facilitate source separation of organics	**n/a**	**M**	**L**

Conversion	Strengths	Weaknesses	Opportunities (for greening up)	Extent of Conversion (n/a, Low, Medium, High)		
				Alt 1	Alt 2	Alt 3
Retail to Park	• Reduced stormwater runoff. Increased amenity value • Increased carbon sequestration via urban trees. • Reduced energy consumption in buildings for cooling due to reduced urban heat island effect • Potential reduction in energy and water demand/use and waste generation in absolute terms	• Reduced jobs • Reduced economic activity and tax revenue • Increased operation and maintenance costs for City	• Locate parks in areas with low park access by employees and residences • Park conversion may be worth considering for empty warehouses that cannot be renovated easily • Integrate parks into overall stormwater management strategy • Utilize recycled water for sub-surface irrigation • Utilize compost for fertilizer	L	n/a	L
Warehouse to Industrial	• Potential for Increased jobs and density • Increased potential for on-site district and renewable energy, on-site wastewater treatment and recycled water systems and on-site waste management systems	• Increased total energy and water consumption and waste generation • Increased trip generation (especially trucks and other high-carbon modes) which may lead to congestion and reduced air quality • Potential embodied carbon implications due to need for additional infrastructure and suitable building types	• Develop district energy systems utilizing biofuel-based combined heat and power (CHP) systems; waste-to-energy systems; on-site wastewater treatment and recycled water production. • Focus conversion in areas with easy logistical access to major truck routes, far from transit centers • Develop logistics plan that minimizes truck traffic and reduces idling • Incorporate renewable energy systems; install PV on roofs due to large roofscapes and likelihood to match the demand to supply during daytime • Evaluate the embodied carbon implications of seismic retrofit vs. major renovation vs. rebuild.	n/a	H	n/a
Warehouse to Retail or Office	• Potential for increase in jobs • Increased potential for attractive streetscapes and increased revenues via higher rents • Increased potential for workers to live and work in the project area • Increased potential for on-site district and renewable energy, on-site wastewater treatment and recycled water systems and on-site waste management systems	• Increased resource consumption (energy, water) • Increased waste generation • Increased trip generation which may lead to congestion	• Maximize local and regional transit accessibility • Use of on-site renewable energy, use of recycled water for all-non-potable uses, waste management systems that facilitate source separation of organics and potentially biofuel generation • Incent workers to live in project area	n/a	n/a	L