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Plan Bay Area 2050 Draft Blueprint: Update on the Environment Element

Subject: Overview of the environmental strategies under consideration for inclusion in the Plan Bay Area 2050 Draft Blueprint.

Background: The Plan Bay Area 2050 Draft Blueprint includes four elements: Transportation, Housing, the Economy, and the Environment. For the Environment element of the Draft Blueprint, strategies will be integrated to address topic areas including reducing greenhouse gases, mitigating climate and natural hazard risks, and conserving key natural and agricultural lands. These issues and their associated strategies link to and are thought of as an integrated Blueprint alongside complementary transportation, housing and economic strategies.

This document introduces the three environmental topical areas and the Draft Blueprint strategies proposed to achieve improved regional outcomes. The proposed strategies each have a brief strategy description for both Blueprint Basic (which assumes no new future regional revenue measures) and Blueprint Plus (which assumes robust new futures regional revenue measures), as well as findings from Horizon analysis.

Strategies: Building on Plan Bay Area 2040 and Horizon, staff are recommending the study of four environmental strategies in the Draft Blueprint:

Reduce Transportation-Related Greenhouse Gas (GHG) Emissions

1. **Expand the Climate Initiatives Program** captures additional GHG reductions from Plan Bay Area 2040 strategies that comprise MTC's Climate Initiatives Program, as well as new strategies under consideration such as increased electrification requirements for transportation network companies.

Note: additional GHG reductions will be achieved through a combination of transportation, housing, and economic strategies to be showcased later in January.

Conserve Agricultural Lands and Open Space

2. **Keep Current Urban Growth Boundaries in Place** continues to be recommended in the Draft Blueprint; this strategy has been a part of both prior versions of Plan Bay Area.

Address Climate and Hazard Impacts

3. **Adapt to Sea Level Rise** to reduce regional climate impacts. Three Horizon sea level rise strategies will be merged into this single strategy for the Draft Blueprint, contingent on funding availability in Blueprint Basic.
4. **Modernize Existing Buildings with Seismic, Wildfire, Drought, and Energy Retrofits** to preserve existing housing. The strategy aims to make



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existing homes healthier and safer while also reducing the carbon and water footprint of the Bay Area's aging homes, contingent upon New Revenues available in Blueprint Plus.

Next Steps:

Staff recommend the study of four environmental strategies in the Draft Blueprint. Staff will continue to explore how the strategies reduce greenfield development, address climate and hazard impacts, and reduce transportation-related emissions. Working with stakeholders, staff will also develop possible funding measures to support the more expansive and costly strategies included in the Draft Blueprint Plus.

Attachments:

Attachment A: Description of Environmental Strategies Proposed for Inclusion in the Draft Blueprint
Attachment B: Plan Bay Area 2050 and the Bay Conservation and Development Commission's ART Bay Area initiative
Attachment C: Presentation

Attachment A

Reduce Transportation-Related Greenhouse Gas (GHG) Emissions

Transportation emissions represent the largest source of greenhouse gas emissions in California. There are over 170 million miles driven in the Bay Area each day, an average of nearly 25 vehicle miles traveled (VMT) per person. Most of these vehicles are conventional gasoline cars, emitting carbon dioxide and other air pollutants with each mile driven.

Through legislation and executive order, the State has established goals to reduce GHG emissions 40 percent below 1990 levels by 2030 and become carbon neutral by 2045. To support this goal, SB 375, the Sustainable Communities and Climate Protection Act of 2008, requires the State to establish GHG emission reduction goals for each metropolitan region in California. Under SB 375, MTC is charged with developing a plan to reduce per-capita GHG emissions from cars and light-duty trucks by 19 percent compared to 2005 levels by 2035. To achieve this goal, Plan Bay Area 2050 will have to prioritize strategies that accommodate growth while reducing dependence on automobiles.

While such strategies were not specifically studied in Horizon, many other complementary strategies for transportation, housing, and the economy were evaluated to understand how these could complement the Climate Initiatives Program (discussed on the following page). These included:

- Allowing diverse housing in Priority Development Areas
- Allowing diverse housing in Transit Rich Areas
- Streamlining development in all growth areas
- Expanding public transit networks
- Building a complete micromobility network
- Implementing Vision Zero speed reduction measures
- Applying tolls based on time-of-day and vehicle occupancy on all freeways

These strategies helped to support significant reductions in GHG emissions in Futures Round 2.

In Horizon, individual projects and policy strategies were not developed and analyzed solely for GHG emission reductions. Because reducing GHG emissions is a priority of the regional planning process, many strategies considered in Horizon – from transportation investments to land use policies – were considered for their impact on travel behavior and emissions. At the series of recent “pop-up” workshops, 90 percent of all comments were in support of the strategies. Future committee items will inform which strategies advance into the draft Blueprint for the transportation, housing and economy elements, which will ultimately complement the strategy listed below.

Strategy – Expand the Climate Initiatives Program

Staff expect that the GHG reduction achieved by strategies from the Transportation, Housing, and Economy elements alone will fall short of the 19 per-capita reduction target, even as new strategies continue to be

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integrated to make the Plan more sustainable than ever. Similar to past Plans, staff anticipate closing most or all of the remaining gap with an expanded Climate Initiatives Program.

A number of policies and investments that can reduce GHG emissions are currently not able to be analyzed in the regional land use and travel models because the models are not sensitive enough to capture every type of strategy. Instead, separate calculation methodologies are developed for these policies and programs. Because they are analyzed outside of the standard regional models, the strategies are referred to as “off-model” strategies. These off-model strategies make up the Climate Initiatives Program, the set of activities to help the region meet its SB 375 GHG reduction targets. The Plan Bay Area 2050 Climate Initiatives Program is expected to include most strategies from Plan Bay Area 2040, as well as several new strategies:

- Bikeshare
- Bike Infrastructure
- Carshare
- Commuter Benefits Ordinance
- Employer Shuttles
- Trip Caps
- Vanpool
- Regional EV Charger Network
- Feebate Program Implementation
- Vehicle Buyback Program
- Mobility-as-a-Service (*potential new strategy*)
- Electric TNC Requirement (*potential new strategy*)

The performance of these strategies, in combination with updated land use and transportation strategies, will be assessed as the Blueprint is developed for Plan Bay Area 2050 and compared to the GHG reduction targets. Depending on the assessment, additional policy commitments may be required to reach the 2035 target established by the State.

Conserve Agriculture and Open Space

The San Francisco Bay Area is exceptional in its natural beauty, biologically diverse landscapes and waters, bountiful farms and ranchlands, and world-class parks, trails and open spaces. Vibrant natural and working lands are essential to the high quality of life, health, and prosperity of the region. These natural and working landscapes and their rich biodiversity also form the region’s life support system by purifying, storing, and conveying water, producing food, sequestering carbon, and much more.

Protection of natural and working lands has been a regional priority in recent decades, resulting in approximately 28 percent (1.3 million acres) of Bay Area lands under some form of land use protection. Despite these efforts, every year urban development continues to move outward, onto previously undeveloped lands. Pressures for greenfield development are already immense and with two million additional residents anticipated by 2040, conserving natural and working lands will only become more challenging. The healthier and more connected these natural and working lands remain, the better able they

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will be to provide benefits to people and wildlife while withstanding the effects of population increases and climate change in the coming decades. Meeting this challenge will require bold action.

Strategy – Keep Current Urban Growth Boundaries in Place

Maintaining urban growth boundaries (UGBs) was the core conservation strategy in Plan Bay Area 2040 and Horizon. Expanding urban development outward has negative environmental impacts and increases the amount of public infrastructure required to be built and maintained into the future. With the exception of San Francisco, all counties in the Bay Area protect open space and agricultural lands by county-wide land use measures, such as urban service areas, environmental corridors, slope/density restrictions, stream conservation areas, or riparian buffers. Additionally, some cities have UGBs to limit sprawl and protect agricultural land. Generally, this means that if a project falls outside a UGB, there are regulatory measures in place to aid local jurisdictions in land protection.

Blueprint Basic: Using urban growth boundaries, confine new development within areas of existing development or areas otherwise suitable for growth, as established by local jurisdictions.

Blueprint Plus:

same as Blueprint Basic.

No funding required

Horizon Analysis: With this strategy in place, the projected greenfield development from 2020 to 2050 would be 33 to 47 times less than the recent 2000 peak. The reason there is still some greenfield development is that counties and cities have identified limited greenfield areas within the current set of UGBs that are built out during the planning timeframe. In Horizon and in Plan Bay Area 2040, MTC and ABAG use the regional land use model to assert that no growth occurs outside the UGBs. This assertion assumes that UGBs on their own are a strong enough strategy to prevent development beyond the boundary. However, the general growth measures that are in place vary in effectiveness and enforcement. Given the effectiveness of the UGBs in recent years at constraining greenfield development, no strengthened Blueprint Plus measure is currently recommended. ABAG and MTC staff will work with conservation stakeholders to continue to find ways to strengthen UGBs as a means to prevent sprawl onto important agricultural and habitat lands.

Address Climate and Hazard Impacts

In recent years, shocks and stresses have impacted the daily lives of residents - wildfires have destroyed over 10,000 homes in the region, power shut offs have left communities in the dark, and transportation networks have struggled to deal with increasing floods. Many communities have already faced these hazards, raising funds for both mitigation and adaptation. Yet the future holds even more uncertainty - within the next 30 years, there's an estimated 72 percent chance of a 6.7 or greater earthquake hitting the area. Sea level rise is expected to impact the region on a timeline that keeps inching closer. Additionally, climate change has exacerbated the risk of wildfires, as well as other extreme weather impacts.

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Without regional resilience efforts, hundreds of thousands of jobs and housing units could be displaced, and key infrastructure rendered unusable by delays or closures. Some hazards, such as earthquakes and wildfires, can be particularly troubling, as they quickly exacerbate the region's housing crisis. A resilient approach is critical to moving forward. The Bay Area has taken steps in a number of communities, but piecemeal efforts have left critical vulnerabilities within the region that the following Blueprint strategies seek to address. By focusing on both sea level rise adaptation and home retrofits, the region can look to 2050 with a foundation of resilient strategies on which to build.

Strategy – Adapt to Sea Level Rise

With no protective measures, even just 1 foot of additional sea level rise will flood key highways, homes and jobs, and many of the Bay Area's marsh ecosystems. The impacts grow larger with each additional foot of sea level rise.

Blueprint Basic: Using forecasted revenues from existing sources like the Army Corps of Engineers and FEMA, the region could protect portions of the Bay Area's shoreline. With limited existing funds the strategy would prioritize resources on areas of high benefits and low costs. Some areas would be assumed to flood as seas rise. **Funding: \$2 billion**

Blueprint Plus: With new revenues, the region could more fully adapt to sea level rise. Most Bay Area communities and transportation facilities could be protected; this may include protecting SR-37, provided equity mitigation strategies are identified. **Funding: \$20 billion**

Horizon Analysis: In Horizon, sea level rise adaptation was studied through three separate strategies: partial adaptation to sea level rise, full adaptation to sea level rise, and adaptation of the SR-37 corridor.

In partial adaptation, protective and adaptive approaches were focused in areas with the most significant impacts. These impacts included areas with existing communities, sensitive ecosystems, key transportation systems, or areas planned for future growth. Horizon analysis found that a partial, or more limited adaptation approach, could prevent flooding under a 3-foot scenario of up to 100,000 housing units, between 100,000-200,000 jobs, and many critical infrastructure assets, such as major highways. However, many communities were not fully protected under this strategy, and crucial connective infrastructure like SR 37 went unprotected. The Draft Blueprint Basic relies on only a portion of the "partial adaptation" Horizon strategy because existing forecasted revenues were less than anticipated. The adaptation for Blueprint Basic is therefore expected to protect fewer homes, jobs, marsh ecosystems and transportation assets than what was analyzed in the partial Horizon strategy.

Horizon also studied a strategy that more fully adapted the region to sea level rise, and a strategy that specifically adapted State Route 37 (SR-37) and the surrounding ecosystems. More fully adapting to sea level rise protected more communities, and expanded wetland restoration efforts. Adapting SR-37 to sea level rise would maintain a critical east-west highway corridor, preserving much faster travel times than any alternative, and opening up a regionally significant opportunity to restore over 15,000 acres of historic marsh. The Blueprint Plus could integrate all three Horizon sea level rise strategies, provided equity mitigation strategies are identified for SR-37. At the January 7th RAWG workshop, staff will continue to work with stakeholders to answer two key questions: How much adaptation should be funded?

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Strategy – Modernize Existing Buildings with Seismic, Wildfire, Drought and Energy Retrofits

Many older buildings built before modern codes are at a greater risk of damage in earthquakes and wildfires and do not meet current standards for energy and water efficiency. A significant earthquake or fire could create even greater pressure on the tight Bay Area housing market by reducing the available housing stock. New buildings are already required to use water and energy efficiently – improvements to existing buildings will further reduce the region’s environmental footprint.

Blueprint Basic: Due to a lack of substantial existing funding, the strategy as included in the Blueprint would only entail a continuation of ad-hoc upgrades. The strategy would have a very limited effect on the quality of existing Bay Area homes. **Funding:** <\$1 billion

Blueprint Plus: With new revenues, expand the local adoption of building ordinances and companion retrofit incentives to bring existing buildings up to higher standards. Align \$20 billion in new funding split evenly between seismic, wildfire, drought, and energy upgrades. Provide subsidies up to 50 percent to offset the burden of multifamily and single-family building retrofits. **Funding:** \$20 billion

Horizon Analysis: The Bay Area has made efforts to retrofit the existing housing stock, but many of these efforts are geographically localized, or siloed within specific focuses. This Blueprint Plus strategy imagines a broad effort to modernize Bay Area housing, providing upgrades that work in tandem to make safer, more efficient homes. As studied in Horizon, the Blueprint Plus strategy would provide incentives for earthquake, wildfire, energy, and water retrofit upgrades for older homes constructed before modern codes. It accounts for a 50 percent subsidy to reduce the burden of retrofits on tenants and homeowners. This strategy is only recommended for inclusion in the Draft Blueprint Plus, with the addition of new revenues to support the measure.

Horizon analysis has shown that this strategy – when fully funded - could reduce residential earthquake risk for over 500,000 households -- in the modeled scenario with a magnitude 7.0 Hayward earthquake, the strategy saved 50,000 homes and sped up regional recovery. The strategy would support wildfire mitigation measures for over 275,000 at-risk homes in the region, focusing on proven measures like structure hardening and defensible space. The energy and water efficiency measures would reduce carbon emission by roughly 2 million tons, and water use by 12 billion gallons annually.

The Horizon analysis highlighted the benefits of mitigation. Moving forward, it is important to consider the impact of up-front costs or variable subsidy rates, especially for lower income residents. Additionally, even when funded as a Blueprint Plus strategy, this is not a catch-all fix, as retrofits only reduce a home’s risk. Insurance and land use policies are also key to mitigating risk for wildfires, earthquakes and flooding. Additionally, water and energy efficiency retrofits within this strategy tend to address low hanging fruit, and the next step for many communities may end up trickier.



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Attachment B

Attachment B

Regional Planning: Plan Bay Area 2050 and ART Bay Area

In 2016, ART Bay Area was developed as a collaborative effort between MTC/ABAG, BARC, and BCDC, helping the region to understand sea level rise vulnerability and regional risk. Its analysis has informed the modeling efforts of Horizon, while creating regional agreement on processes and data. With the onset of Plan Bay Area 2050, the assessments provided by ART Bay Area are especially beneficial. A shared understanding of the region's vulnerability helps Plan Bay Area 2050 create a robust framework for MTC's entrance into sea level rise planning, and supports a more unified vision on regional risk. The collaborative relationship of these agencies has led to mutually beneficial planning efforts, and helps to institutionalize resilience planning within the Bay Area.



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