Futures Final Report

Preliminary Findings on Horizon Strategies in Advance of Plan Bay Area 2050

MTC Planning Committee with the ABAG Administrative Committee
October 11, 2019 - Michael Germeraad
The Horizon initiative is designed to identify strategies and investments to prepare the Bay Area for an uncertain future - to ensure we are resilient to ever-changing economic, political, technological, and environmental conditions.
Futures Process

OUTREACH

ROUND 1 ANALYSIS
Current Strategies

REPORT

OUTREACH

ROUND 2 ANALYSIS
New Strategies

REPORT
Three Futures - “What If?” Scenarios

A. Rising Tides, Falling Fortunes
   What if… the federal government cuts spending and reduces regulations, leaving more policy decisions to states and regions?

B. Clean and Green
   What if… new technologies and a national carbon tax enabled greater telecommuting and distributed job centers?

C. Back to the Future
   What if… an economic boom and new transportation options spur a new wave of development?
<table>
<thead>
<tr>
<th>Future</th>
<th>Round 1 Analysis</th>
<th>Round 2 Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rising Tides, Falling Fortunes</strong></td>
<td>Comparing the three Futures, how does Plan Bay Area 2040 fare in an era of uncertainty?</td>
<td>Comparing against Round 1 results, how do new strategies improve each Future?</td>
</tr>
<tr>
<td><strong>Clean and Green</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Back to the Future</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Refresher: External Forces for Each Future

<table>
<thead>
<tr>
<th>Future Name</th>
<th>Immigration and Trade</th>
<th>National Taxes and Funding</th>
<th>National Growth</th>
<th>Land Use Preferences</th>
<th>National Environmental Policy</th>
<th>New Technologies</th>
<th>Natural Disasters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rising Tides, Falling Fortunes</td>
<td>Reduced</td>
<td>Lower funding due to tax cuts</td>
<td>Limited</td>
<td>Housing: more urban</td>
<td>Relaxed regulations (3’ SLR)</td>
<td>More limited</td>
<td>Magnitude 7.0 Hayward Fault earthquake</td>
</tr>
<tr>
<td>Clean and Green</td>
<td>Similar to today</td>
<td>Higher funding via carbon tax</td>
<td>Similar to today</td>
<td>Housing: more urban</td>
<td>Stricter regulations (1’ SLR)</td>
<td>Widespread</td>
<td>Magnitude 7.0 Hayward Fault earthquake</td>
</tr>
<tr>
<td>Back to the Future</td>
<td>Increased</td>
<td>Similar to today</td>
<td>Rapid</td>
<td>Housing: more dispersed</td>
<td>Similar to today (2’ SLR)</td>
<td>Widespread</td>
<td>Magnitude 7.0 Hayward Fault earthquake</td>
</tr>
</tbody>
</table>
Refresher: How Did We Integrate the Megaregion?

Status quo Future - interregional travel continues to grow at current rate, including in-commuting.

Federal policy minimizes further growth in interregional travel, with new taxes making it much less affordable for mega-commuters.

Low cost of driving allows the megaregion to blossom - with much more rapid interregional growth than today overwhelming existing regional gateways.
Refresher: 35 Strategies Analyzed

Strategies were designed to support these nine priority areas, based on the Futures Interim Report findings. While new revenues were assumed in all Futures, fiscal constraint did mean that some strategies were omitted from Rising Tides, Falling Fortunes.

- Improve Economic Mobility
- Shift the Location of Jobs
- Spur Housing Production
- Retain & Expand Affordable Housing
- Improve Access, Speed, and Reliability of Transportation
- Prioritize Active Modes
- Price Transportation Services
- Reduce the Environment’s Impact on Us
- Reduce Our Impact on the Environment
Refresher: Five Challenges from Round 1 Analysis

In the Futures Interim Report (March 2019), a set of key challenges were identified. The challenges focused on how Plan Bay Area 2040 strategies might fare under previously-unstudied external forces like sea level rise, autonomous vehicles, and federal policy shifts.
Without new strategies in place, Bay Area housing affordability continued to get worse.
In 2015, 77% of commuters use an automobile to get to work.

**Rising Tides, Falling Fortunes**
In 2050, 67% of commuters use autos.

**Clean and Green**
In 2050, 45% of commuters use autos.

**Back to the Future**
In 2050, 69% of commuters use autos.
A significant share of lower-income households remained at risk of displacement in each Future.
Unmitigated impacts from sea level rise and natural disasters resulted in significant damage across the region.

- **Rising Tides, Falling Fortunes**
  - 3 feet of sea level rise

- **Clean and Green**
  - 1 foot of sea level rise

- **Back to the Future**
  - 2 feet of sea level rise

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### Homes Affected by Hazards

- **Sea Level Rise**
  - Permanent Inundation

- **Earthquake Damage & Recovery**
  - Recovered before 2040
  - Recovered between 2040-2045
  - Recovered between 2045-2050
  - Recovered after 2050
Land use strategies included in Plan Bay Area 2040 were insufficient to address the region’s longstanding jobs-housing imbalance.

**Rising Tides, Falling Fortunes**
+0.5M Homes, +0.5M Jobs

**Clean and Green**
+1.3M Homes, +1.1M Jobs

**Back to the Future**
+2.1M Homes, +2.7M Jobs
Top 10: Horizon Strategy Findings

We have explored the effectiveness of over 30 strategies to improve the region’s economic, housing, transportation, and environmental challenges.
New growth areas enable more growth near transit and near opportunity.

Allow Diverse Housing Around Transit
Allow more diverse housing growth around areas with high frequency transit. Expand the growth footprint beyond the current list of PDAs.

Allow Diverse Housing in High-Resource Areas
Allow more diverse housing growth in areas of high opportunity that also have moderate transit service. Expand the growth footprint beyond the current list of PDAs.

Location of households added between 2015-2050 relative to growth geography

- Outside growth areas
- High Resource Areas only
- Transit and High Resource Areas
- Transit Areas only
A mix of strategies to retain and expand affordable housing made progress in addressing the current affordable housing gap.

### Pass Inclusionary Zoning Policies

Require 10% to 20% of all new development to be deed-restricted affordable, expanding off the Plan Bay Area 2040 inclusionary strategy.

### Fund Affordable Housing

Raise $1.5 billion in new annual revenue to build and preserve affordable housing, complementing existing federal, state, and local affordable housing funds.

#### Number of deed restricted affordable housing units and the number of low-income households

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Low-income Households and Deed Restricted Affordable Housing Units</th>
<th>Low-income Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>250,000</td>
<td>13%</td>
</tr>
<tr>
<td>2050</td>
<td>1,000,000</td>
<td>65%</td>
</tr>
</tbody>
</table>

### How affordable units are built

- **N/A**
- **New revenue (Rd 2)**
- **Existing revenue**
- **New inclusionary (Rd 2)**
- **PBA inclusionary**
- **Existing units**
Shifts in transportation mode choice were most pronounced for active transportation, driven in part by micromobility strategies.

**Strategies that prioritized active modes.**

- **Implement Vision Zero Speed Reductions**
  Reduce speed limits to 25 mph on local roads within three miles of transit, in addition to reducing speeds on highways.

- **Build a Micromobility Network**
  Build nearly 10,000 miles of micromobility infrastructure, including protected lanes and trails.

- **Invest in Free Short-Trip Service**
  Fund shared personal mobility, including scooters and electric bikes, within 3 miles of transit.

**Other strategies that contributed to modal shift.**

- **Suite of Growth Pattern Strategies**
  By changing the growth pattern in Round 2 analysis, more households and jobs are in areas where the active transportation investments were focused.

- **Apply Time-of-Day Tolls on All Freeways**
  Toll vehicles on highways based on the time of day and the number of occupants in the vehicle.

**Active (walk & bike) mode share in 2015, and Futures round 1 and round 2 analysis**

- **Rising Tides, Falling Fortunes**
  Up to 9%  
  6%

- **Clean & Green**
  Up to 9%  
  6%

- **Back to the Future**
  Up to 10%  
  6%

**active (walk+bike) mode share**

- 2015
- 2050 Round 1
- 2050 Round 2

*Note that mode share is reflective of commute mode; the share is higher when accounting for all trips.*
While still present, transit overcrowding was partially alleviated, with new Bus Rapid Transit (BRT) lines as well as a new Transbay Rail Crossing playing a key role.

**Make Strategic Transit Investments**
Build major PBA2050 transit investments, such as BART to Silicon Valley Phase 2 and Caltrain DTX.

**Build a Next-Generation BRT Network**
Create a fast and frequent regional bus network, providing redundancy for rail lines and connecting underserved areas.

**Build a New Transbay Rail Crossing**
Build a new rail crossing from the East Bay to the West Bay to provide greater transit capacity across the Bay.

Final analysis of transit overcrowding still under development.
Road pricing reduced roadway congestion, but equity concerns need to be addressed before advancing this strategy further. (part 1)

We were able to explore how congestion was affected by external forces & strategies. 
*The next slide will show the difference in Round 2.*
Road pricing reduced roadway congestion, but equity concerns need to be addressed before advancing this strategy further. (part 2)

**Apply Time-of-Day Tolls on All Freeways**

Apply a $0.05 - $0.15 per mile toll on all freeways depending on vehicle occupancy and time of day.

**Rising Tides Falling Fortunes**
- 2050: 10% autonomous vehicle market share
- 2050: $0.20 per mile vehicle operating cost

**Clean and Green**
- 2050: 95% autonomous vehicle market share
- 2050: $0.40 per mile vehicle operating cost

**Back to the Future**
- 2050: 75% autonomous vehicle market share
- 2050: $0.10 per mile vehicle operating cost

**Average Annual Time-of-Day Toll Revenue per Household by Income in 2050 (2019 dollars)**

- **Rising Tides, Falling Fortunes**
  - Low Income: $10
  - Med-Low Income: $20
  - Med-High Income: $30
  - High Income: $40

- **Clean & Green**
  - Low Income: $20
  - Med-Low Income: $30
  - Med-High Income: $40
  - High Income: $50

- **Back to the Future**
  - Low Income: $30
  - Med-Low Income: $40
  - Med-High Income: $50
  - High Income: $60

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**Round 2**

**Highway Congestion**
- corridors near max capacity
  - major highways
  - 2050, congestion
  - 2050, closure from hazards
Economic development strategies evaluated were insufficient to slow the decline of the middle class.

Create Incubator Programs

Expand and create new job incubator programs in economically-challenged communities.

Expand Construction Workforce Programs

Expand construction workforce development and training programs. Support early construction professionals in early apprenticeship years.

Share of regional jobs in middle wage industries - historic and projected

<table>
<thead>
<tr>
<th>Year</th>
<th>Round 1</th>
<th>Round 2</th>
<th>Historic Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>30%</td>
<td>29%</td>
<td>30%</td>
</tr>
<tr>
<td>2015</td>
<td>20%</td>
<td>19%</td>
<td>19%</td>
</tr>
<tr>
<td>2050</td>
<td>10%</td>
<td>9%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Historic data shows a steady decline in the share of jobs in middle wage industries from 1990 to 2050.
Adaptation and retrofit strategies boosted our region’s resilience.

**Adapt to Sea Level Rise**
Leverages existing and new revenues to fund a hybrid set of gray and green infrastructure systems to adapt the region.

**Retrofit Older Existing Buildings**
Provides 50% subsidies for older buildings built before current codes to support common earthquake, wildfire, energy, and water retrofit strategies.

Residential sea level rise impacts in Futures round 1 (without adaptation) and round 2 (with adaptation)

- **Rising Tides, Falling Fortunes**
  - 3 feet of sea level rise

- **Clean and Green**
  - 1 foot of sea level rise

- **Back to the Future**
  - 2 feet of sea level rise

92%, 93%, and 96% of housing impacts are mitigated.
Maintain Urban Growth Boundaries

Restrict urban development on greenfield lands, continuing the region’s recent commitment to reducing sprawl outward.

Acres of greenfield development annually - historic and projected

Urban growth boundaries led to minimal greenfield development in both Round 1 and Round 2.
A VMT-based fee on office development was effective in focusing office growth, but not in shifting jobs to the East and North Bay.

Apply a VMT-Based Fee on Office Development

Apply a fee on new office development in areas that have high employment-related vehicle miles traveled (VMT), expanding upon a Plan Bay Area 2040 strategy.

Given that this strategy was included in Plan Bay Area 2040, it was studied in both Futures Round 1 and Futures Round 2 - and was very effective in focusing growth in low-VMT places in both analyses.

Further refinements could focus on better tailoring this strategy to reflect county-level conditions - rather than “one size fits all”.

Location of new office-related job growth relative to an area’s associated VMT level

- Low and Very Low VMT areas account for 98%, 97%, and 94% of all office job growth.

Vehicle miles traveled (VMT) associated with an area:
- High VMT
- Medium VMT
- Low VMT
- Very-Low VMT

Bar chart showing the location of new office-related job growth relative to an area’s associated VMT level.
A large tax package (to fund subsidies / projects) focused on higher-income individuals and businesses did not have significant adverse impacts on the economy.

Raise New Revenues

Place a balanced tax increase on businesses, parcels (building and home owners), and high-income earners.

Projected Average Household Income in 2050

<table>
<thead>
<tr>
<th>Scenario</th>
<th>2050 Average Household Income (in 2018 dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rising Tides, Falling Fortunes</td>
<td>Rd. 1: 0.04% increase</td>
</tr>
<tr>
<td>Clean &amp; Green</td>
<td>Rd. 1: -0.02% decrease</td>
</tr>
<tr>
<td>Back to the Future</td>
<td>Rd. 1: -0.02% decrease</td>
</tr>
</tbody>
</table>

Projected Annual Gross Regional Product in 2050

<table>
<thead>
<tr>
<th>Scenario</th>
<th>2050 Gross Regional Product (in billions of 2018 dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rising Tides, Falling Fortunes</td>
<td>Rd. 1: +0.10% increase</td>
</tr>
<tr>
<td>Clean &amp; Green</td>
<td>Rd. 1: +0.12% increase</td>
</tr>
<tr>
<td>Back to the Future</td>
<td>Rd. 1: +0.12% increase</td>
</tr>
</tbody>
</table>

Initial economic analysis indicates that impacts would be relatively limited; however, further refinements could potentially better reflect the broader suite of benefits from infrastructure investments.
Rating Strategies

Staff have selected one of three ratings for each strategy, based on its resilience and efficacy in the Futures analysis as well as its support for equitable outcomes.
# Futures Round 2: Strategy Recommendations

## Economy

<table>
<thead>
<tr>
<th>Status</th>
<th>Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>★</td>
<td>No economic strategies received this rating.</td>
</tr>
<tr>
<td>✔️</td>
<td>Assess a VMT-Based Fee on Office Development</td>
</tr>
<tr>
<td>✔️</td>
<td>Create Incubator Programs in Economically-Challenged Areas</td>
</tr>
<tr>
<td>✔️</td>
<td>Expand Childcare Support for Low-Income Families</td>
</tr>
<tr>
<td>❓</td>
<td>Expand Construction Workforce Programs</td>
</tr>
<tr>
<td>❓</td>
<td>Place Office Caps in Job-Rich Cities</td>
</tr>
<tr>
<td></td>
<td>Provide Portable Benefits for Part-Time/Freelance Workers</td>
</tr>
<tr>
<td></td>
<td>Establish Priority Production Areas to Protect Industrial Lands</td>
</tr>
</tbody>
</table>

### Recommended to move forward into Plan Bay Area 2050 Blueprint.

- No economic strategies received this rating.

### Recommended to move forward with minor revisions.

- Assess a VMT-Based Fee on Office Development
- Create Incubator Programs in Economically-Challenged Areas
- Expand Childcare Support for Low-Income Families

### Not recommended to move forward unless major revisions are made.

- Expand Construction Workforce Programs
- Place Office Caps in Job-Rich Cities

### Already advancing into implementation due to state legislative action in 2019.

- Provide Portable Benefits for Part-Time/Freelance Workers

### Not explored as part of Futures Round 2 analysis, but will be explored as part of Plan Bay Area 2050 Blueprint.

- Establish Priority Production Areas to Protect Industrial Lands
## Futures Round 2: Strategy Recommendations

### Housing

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Action</th>
</tr>
</thead>
</table>
| **Recommended to move forward into Plan Bay Area 2050 Blueprint.** | Allow Diverse Housing in Priority Development Areas (PDAs)  
Streamline Development in All Growth Areas |
| **Recommended to move forward with minor revisions.** | Allow Diverse Housing around Major Transit Stops (TPAs)  
Allow Diverse Housing in High-Resource Areas (HRAs)  
Transform Aging Malls and Office Parks into Neighborhoods  
Fund Affordable Housing Preservation & Production  
Require 10 to 20 Percent of All New Housing to be Affordable |
| **Not recommended to move forward unless major revisions are made.** | Repurpose Public Land to Build Housing  
Increase Renter Protections |

*No housing strategies received this rating.*
<table>
<thead>
<tr>
<th>Futures Round 2: Strategy Recommendations</th>
<th>Transportation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recommended to move forward into Plan Bay Area 2050 Blueprint.</strong></td>
<td>Operate and Maintain the Existing System</td>
</tr>
<tr>
<td></td>
<td>Advance a Complete Micromobility Network</td>
</tr>
<tr>
<td></td>
<td>Develop a Single Platform to Access and Pay for All Mobility</td>
</tr>
<tr>
<td><strong>Recommended to move forward with minor revisions.</strong></td>
<td>Advance a New Transbay Rail Crossing</td>
</tr>
<tr>
<td></td>
<td>Invest in Free Short-Trip Service</td>
</tr>
<tr>
<td></td>
<td>Implement Vision Zero Speed Reduction Measures</td>
</tr>
<tr>
<td><strong>Not recommended to move forward unless major revisions are made.</strong></td>
<td>Apply Time-of-Day Tolls on All Freeways</td>
</tr>
<tr>
<td>Ratings pending release of Draft Project Performance results.</td>
<td>Provide Free Transit to Lower-Income Riders</td>
</tr>
<tr>
<td></td>
<td>Make Strategic Transit Modernization/Expansion Investments</td>
</tr>
<tr>
<td></td>
<td>Build a Next-Generation Bus Rapid Transit Network</td>
</tr>
<tr>
<td></td>
<td>Build Carpool Lanes &amp; Address Interchange Bottlenecks</td>
</tr>
<tr>
<td></td>
<td>Advance Next-Generation Rail Modernization</td>
</tr>
<tr>
<td></td>
<td>Extend the Regional Rail Network</td>
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</tbody>
</table>
### Futures Round 2: Strategy Recommendations

#### Environment

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended to move forward into Plan Bay Area 2050 Blueprint.</td>
<td>Keep Current Urban Growth Boundaries in Place</td>
</tr>
<tr>
<td></td>
<td>Retrofit Older Existing Buildings (Energy, Water, Seismic, Fire, etc.)</td>
</tr>
<tr>
<td>Recommended to move forward with minor revisions.</td>
<td>Partially Adapt to Sea Level Rise</td>
</tr>
<tr>
<td></td>
<td>Fully Adapt to Sea Level Rise</td>
</tr>
<tr>
<td>Not recommended to move forward unless major revisions are made.</td>
<td>Purchase Disaster Recovery Financing</td>
</tr>
</tbody>
</table>

Rating pending release of Draft Project Performance results.

Adapt SR-37 to Sea Level Rise
Futures Final Report: Resilient and Equitable Strategies for the Bay Area’s Future

The full report will highlight the full suite of strategies studied and describes to what extent the region performs better with these strategies.

The report is expected to be posted on the MTC website later this month.
What’s Next?

Horizon provided an opportunity to “stress test” key strategies in advance of Plan Bay Area 2050. Input from elected officials, stakeholders, and the general public will help inform further refinements to make the shortlist of strategies included in the Plan Bay Area 2050 Draft Blueprint as resilient and equitable as possible.

The final decision on what strategies to include will occur in early 2020 and will be made by the MTC Commission and ABAG Executive Board.