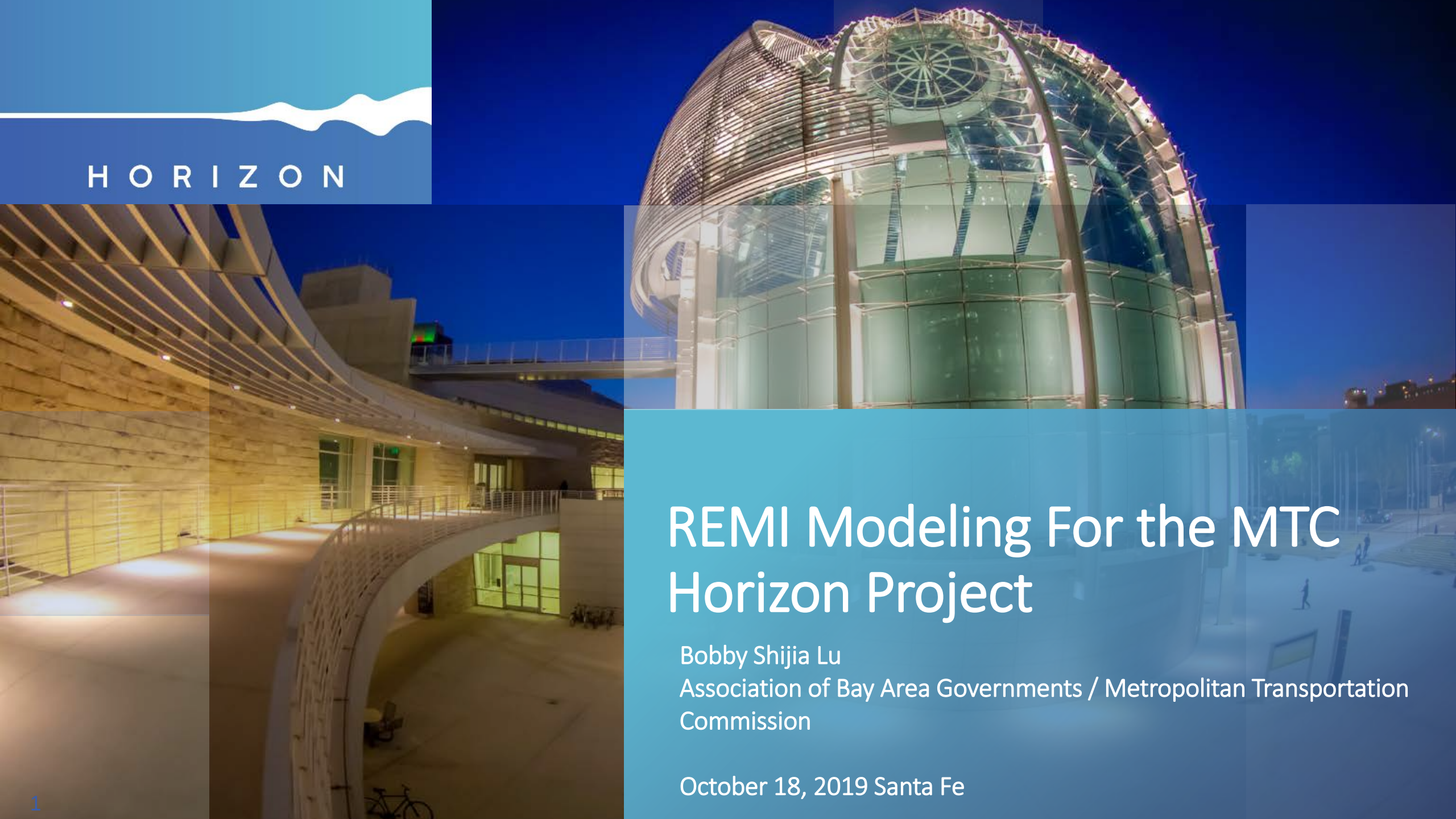




H O R I Z O N

REMI Modeling For the MTC Horizon Project

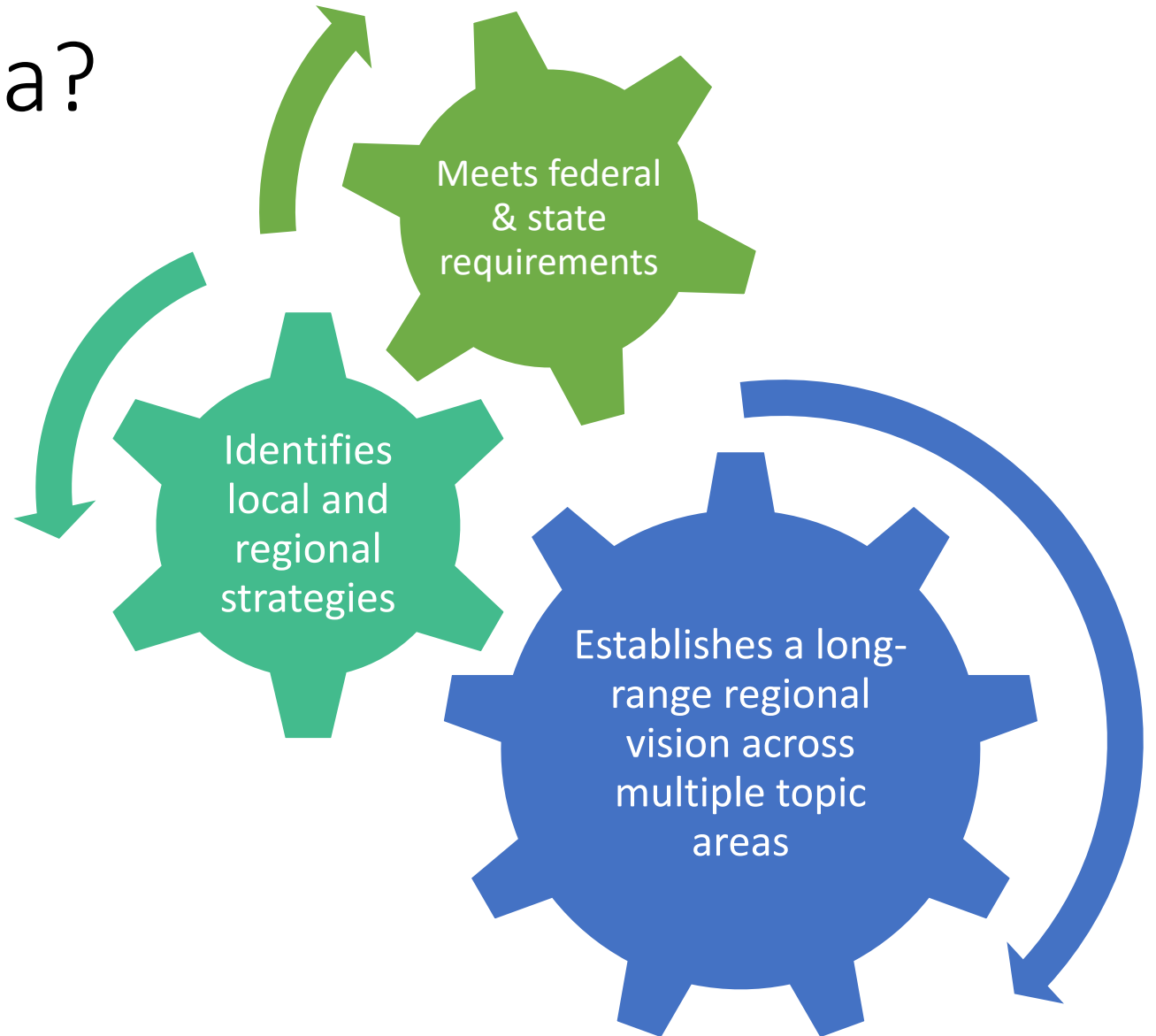
Bobby Shijia Lu

Association of Bay Area Governments / Metropolitan Transportation
Commission

October 18, 2019 Santa Fe

What is Plan Bay Area?

- The regional plan is a **blueprint for growth and infrastructure for the next 30 years**.
- The regional plan is **updated every four years**, with this major update due in 2021.
- The regional plan is a reflection of **the shared priorities of the diverse nine-county San Francisco Bay Area**.
- The regional plan is **fiscally-constrained**, even as it aspires to tackle the Bay Area's big challenges with specific strategies.
- The regional plan is **not an expenditure plan**; it is focused on setting priorities and over the long term and looking holistically across "silos".





Spring 2015 to July
2017

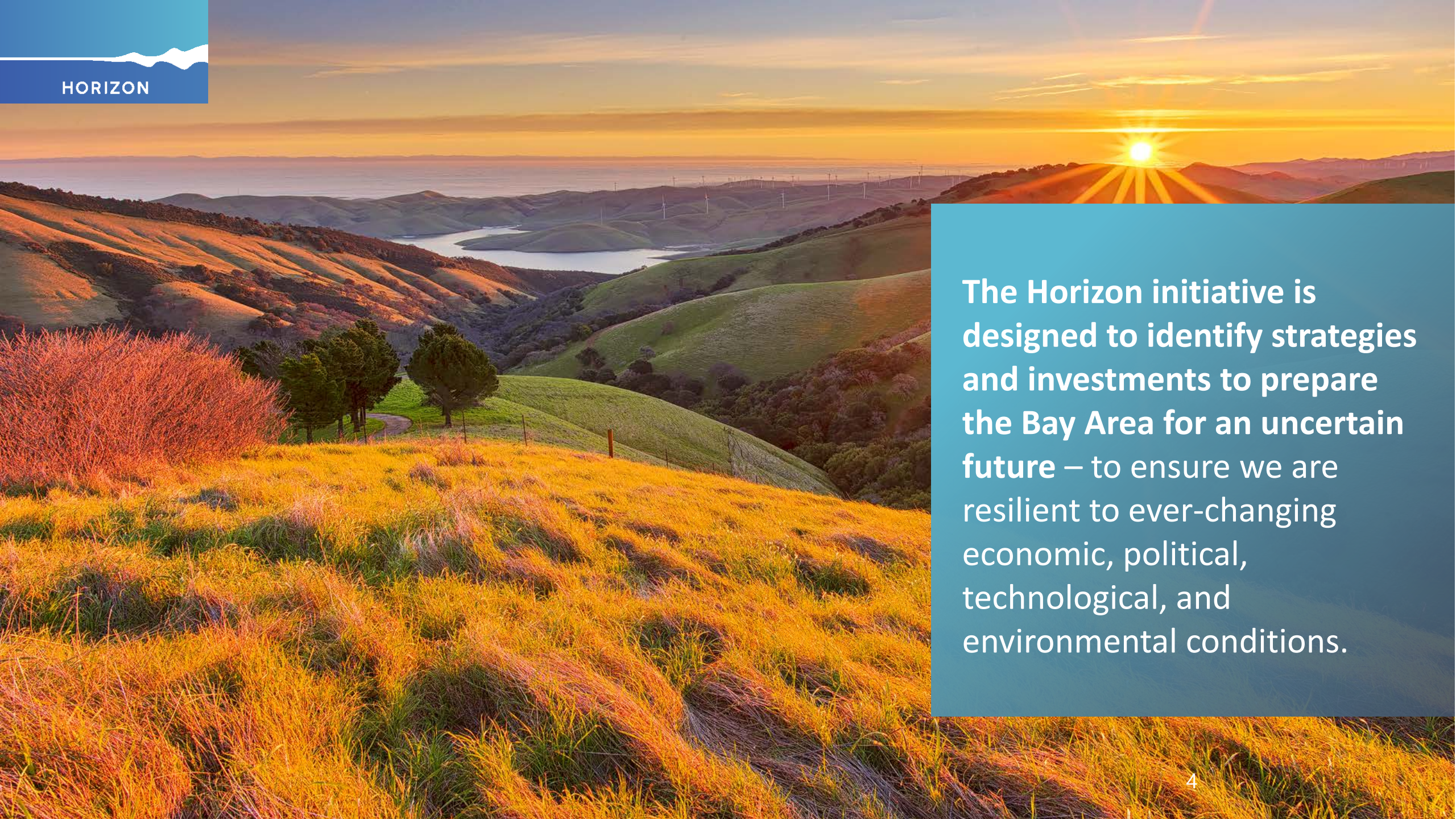


February 2018 to
September 2019



August 2019 to
June 2021

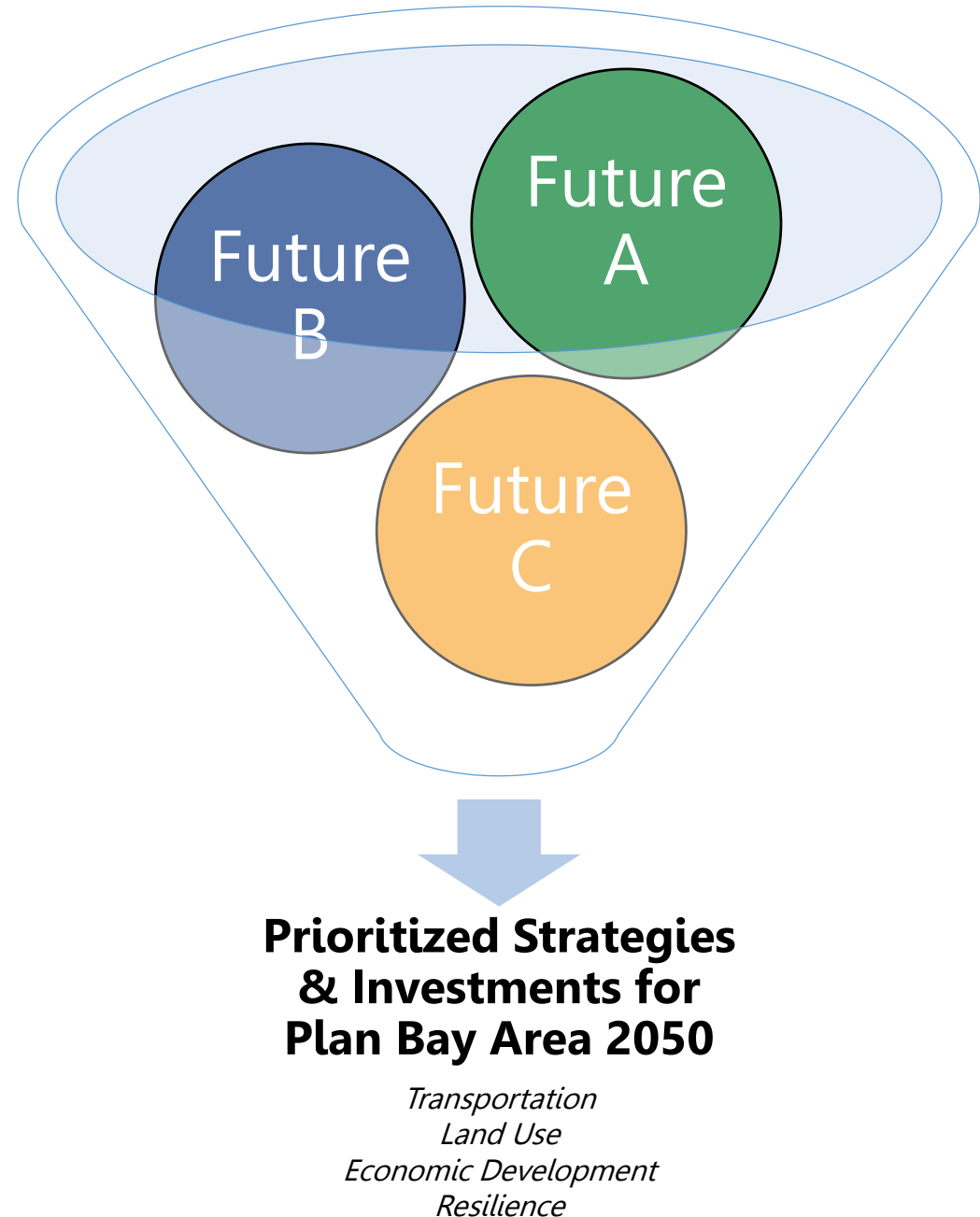
High-performing strategies and projects from *Horizon* – those that are resilient to uncertainties – **will be recommended for inclusion in Plan Bay Area 2050 (RTP/SCS).**

A wide-angle landscape photograph showing rolling hills under a sunset sky. The sun is a bright yellow orb on the right horizon, casting long, golden rays across the sky. The hills are covered in dry, golden-brown grass in the foreground and green grass further back. A winding road is visible on a hillside, and a body of water is nestled in a valley in the distance. Wind turbines are visible on the horizon line.

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.

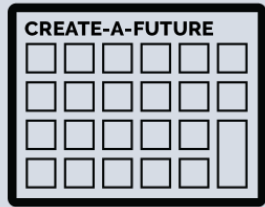
Why Are We Creating Futures?

Creating a range of divergent futures will allow us to envision how the San Francisco Bay Area would respond to a wide range of external forces. The futures enable us to “stress test” policies and investments to ensure they are effective under a range of future conditions.



Futures Process

OUTREACH



ROUND 1 ANALYSIS

Current Strategies



REPORT



OUTREACH



ROUND 2 ANALYSIS

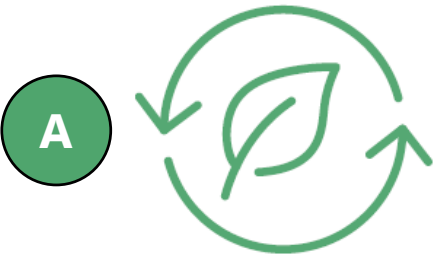
New Strategies



REPORT

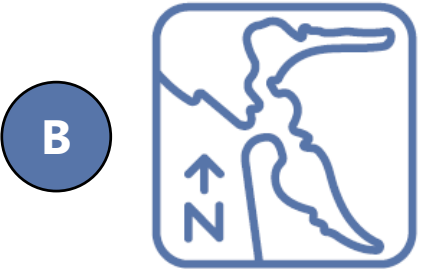


Three Futures – “What If?” Scenarios



**Clean
and Green**

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



**Rising Tides,
Falling
Fortunes**

What if... the federal government cuts spending and reduces regulations, leaving more policy decisions to states and regions?



**Back to
the Future**

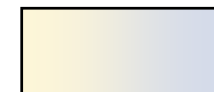
What if... an economic boom and new transportation options spur a new wave of development?

Summary: External Forces

#	FUTURE NAME	IMMIGRATION AND TRADE	NATIONAL TAXES AND FUNDING	NATIONAL GROWTH	LAND USE PREFERENCES	NATIONAL ENVIRONMENTAL POLICY	NEW TECHNOLOGIES	NATURAL DISASTERS
A	 Clean and Green	Similar to today	Higher funding via carbon tax	Similar to today	Housing: more urban	Stricter regulations (1' SLR)	Widespread	Magnitude 7.0 Hayward Fault earthquake
					Jobs: more dispersed			
B	 Rising Tides, Falling Fortunes	Reduced	Lower funding due to tax cuts	Limited	Housing: more urban	Relaxed regulations (3' SLR)	More limited	Magnitude 7.0 Hayward Fault earthquake
					Similar to today			
C	 Back to the Future	Increased	Similar to today	Rapid	Housing: more dispersed	Similar to today (2' SLR)	Widespread	Magnitude 7.0 Hayward Fault earthquake
					Jobs: more urban			

COLOR LEGEND

Lower value



Higher value

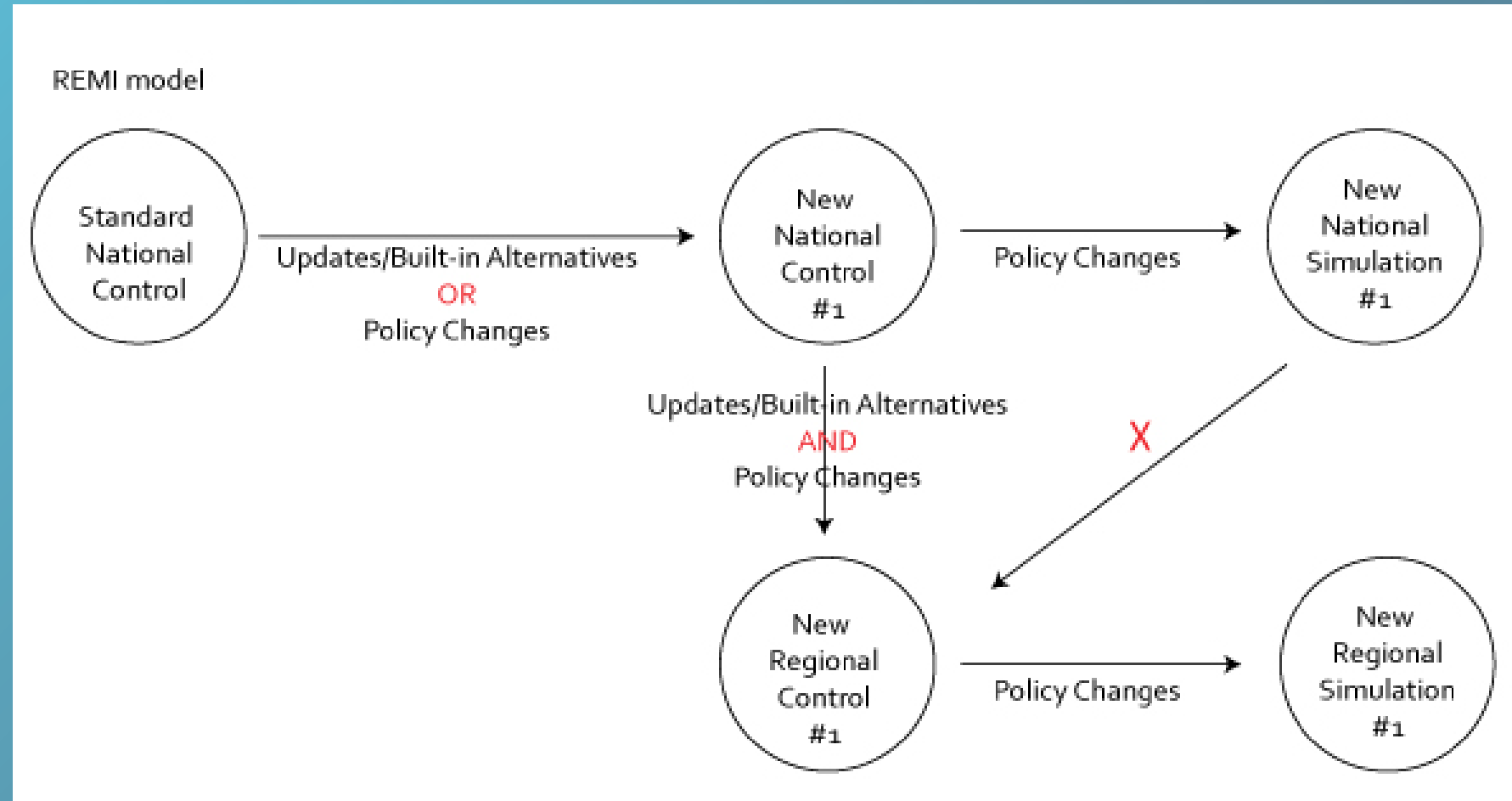
			2 + 4	3 + 5 + 11	8 + 10
External Forces			Clean and Green	Rising Tides, Falling Fortunes	Back to the Future
Environmental	1	Sea Level Rise	1 Foot	3 Feet	2 Feet
	2	Natural Disasters	2035 Hayward Fault Earthquake (magnitude 7.0)	2035 Hayward Fault Earthquake (magnitude 7.0)	2035 Hayward Fault Earthquake (magnitude 7.0)
Political	3	U.S. Political System	Healthy Democracy	Flawed Democracy	Healthy Democracy
	4	U.S. Standing in the World	Multiple Superpowers	Declining Power	Preeminent Global Power
	5a	U.S. Tax Rates	Higher Tax Rates	Lower Tax Rates	Similar to Today
	5b	U.S. Tax Structure	Carbon Tax	Income Tax (Similar to Today)	Income Tax (Similar to Today)
	6a	U.S. Spending Levels	Higher Expenditures	Lower Expenditures	Similar to Today
	6b	U.S. Spending Distribution	Similar Share to Today	Reduced Share for Metro Areas	Larger Share for Metro Areas
	7	Immigration Policy	80,000 Annual Immigrants (to Bay Area)	20,000 Annual Immigrants (to Bay Area)	240,000 Annual Immigrants (to Bay Area)
	8	Trade Policy	3% Average Tariff Rate	10% Average Tariff Rate	0% Average Tariff Rate
	9	Environmental Policy	Increased Regulations	Reduced Regulations	Similar to Today
Economic	10	U.S. Population Annual Growth Rate	+1.0%	+0.5%	+2.5%
	11	U.S. Jobs Annual Growth Rate	+0.5%	+0.5%	+2.5%
	12	U.S. Jobs Distribution	currently being refined	currently being refined	currently being refined
	13	U.S. Productivity	+4.0%	+2.0%	+2.0%
Land Use	14	Housing Preferences	Greater Preference for Urban Housing	Greater Preference for Urban Housing	Greater Preference for Dispersed Housing
	15	Workplace Preferences	Greater Preference for Dispersed Employment Centers	Similar Preference to Today	Greater Preference for Urban Employment Centers
	16	Telecommute Share	30%	15%	6%
	17	E-Commerce Market Share	50%	20%	50%
	18	Interregional Volumes	Current Growth Rates	Limited Growth Rates	Faster Growth Rates
Transportation	19	Transportation Technologies	High Speed Rail, Autonomous Rail and Buses, Freight Aerial Drones	Autonomous Buses	Hyperloop, Autonomous Rail and Buses, Freight Aerial Drones, Lower-Cost Helicopter Transport
	20	Autonomous Vehicle Market Share	95%	10%	75%
	21	Electric Vehicle Market Share	95%	10%	75%
	22	Sharing Preferences	Greater Preference	Similar Preference to Today	Reduced Preference
	23	Per-Mile Vehicle Operating Cost	\$0.50 per Mile	\$0.30 per Mile	\$0.15 per Mile
	24	Annual Federal Transportation Funding (Bay Area)	\$2.5 Billion	\$0.0 Billion	\$2.5 Billion



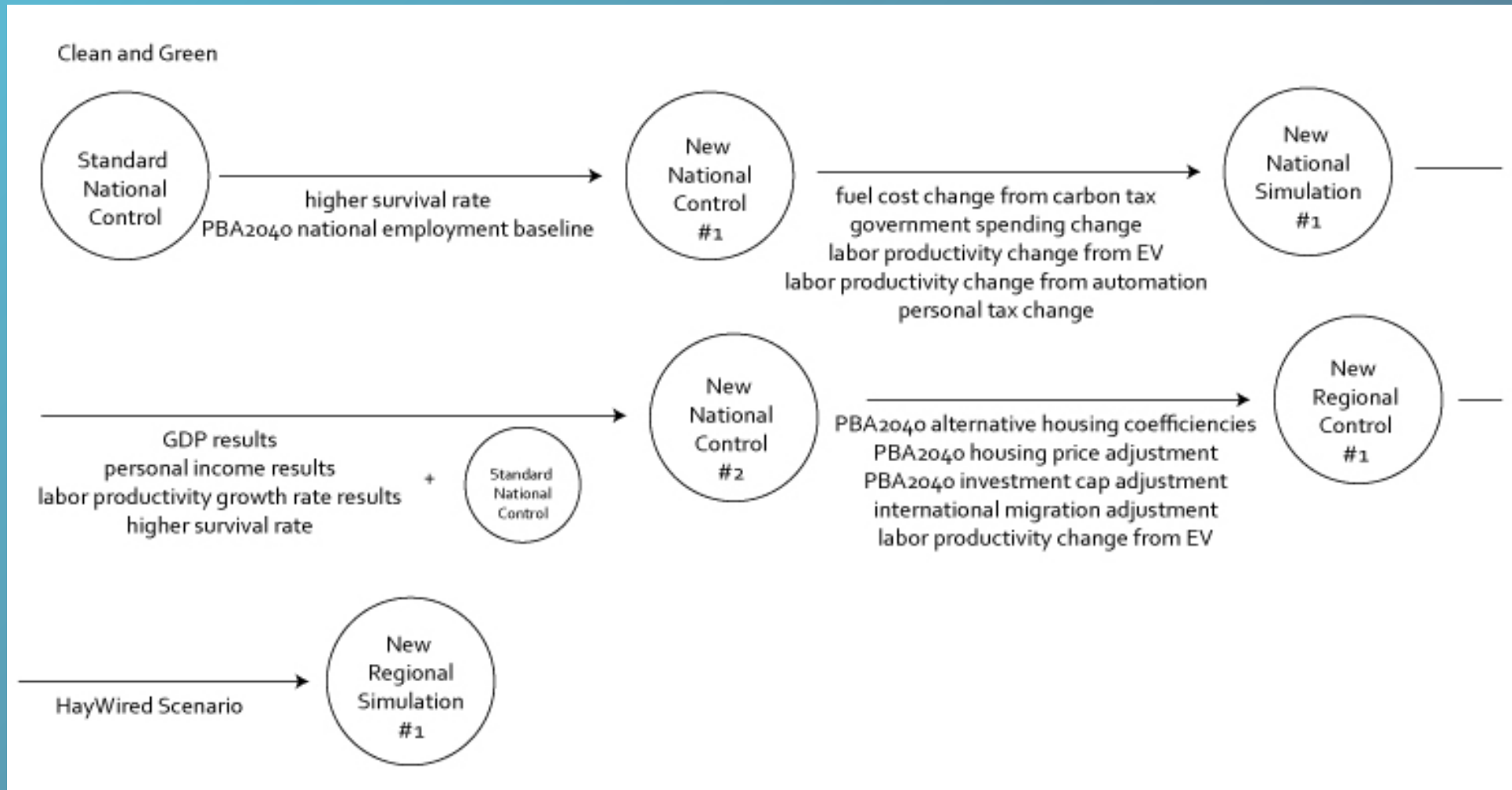
HORIZON

Turning Futures Into Numbers -- Round 1 REMI Analysis

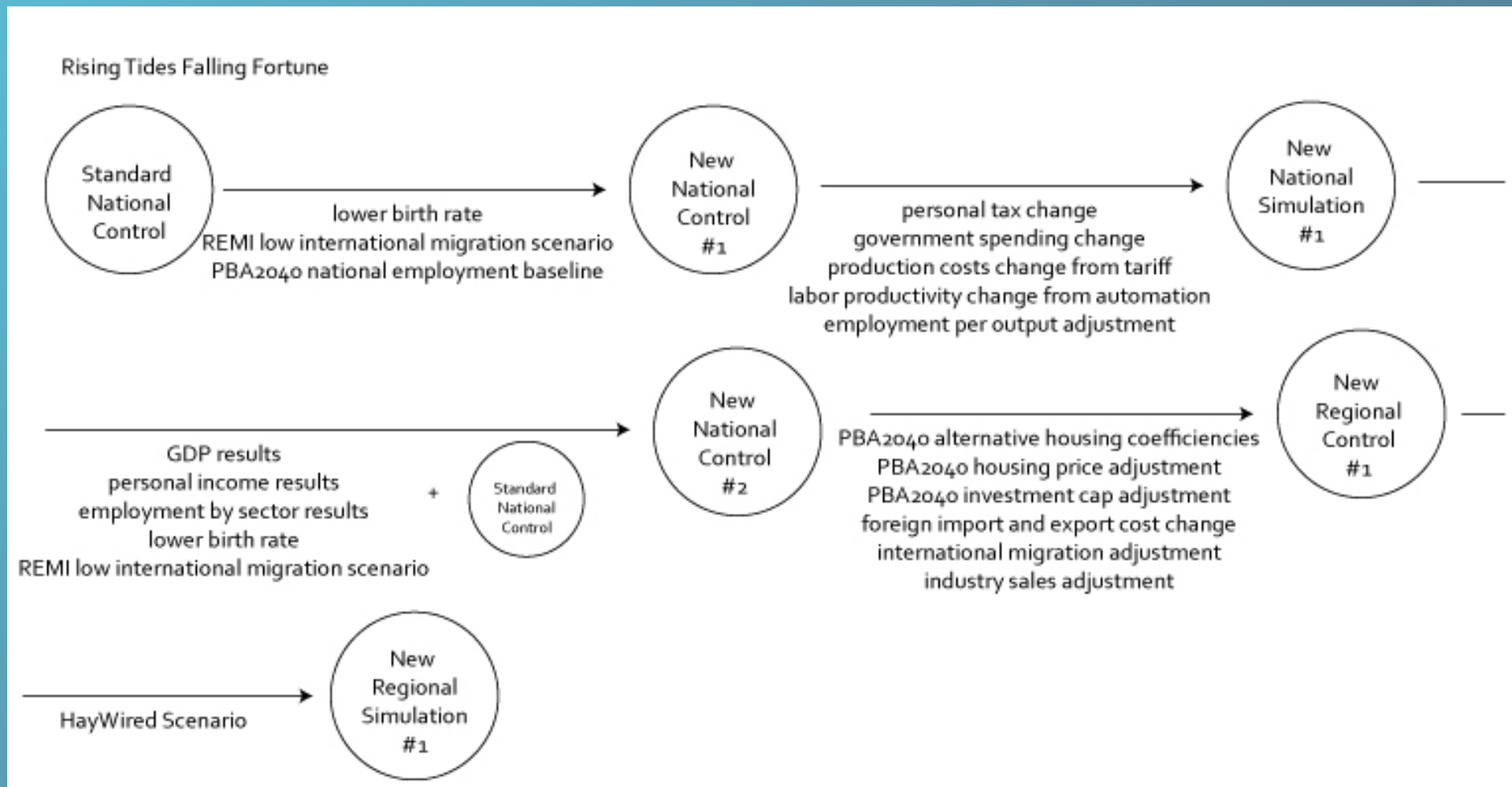
HORIZON



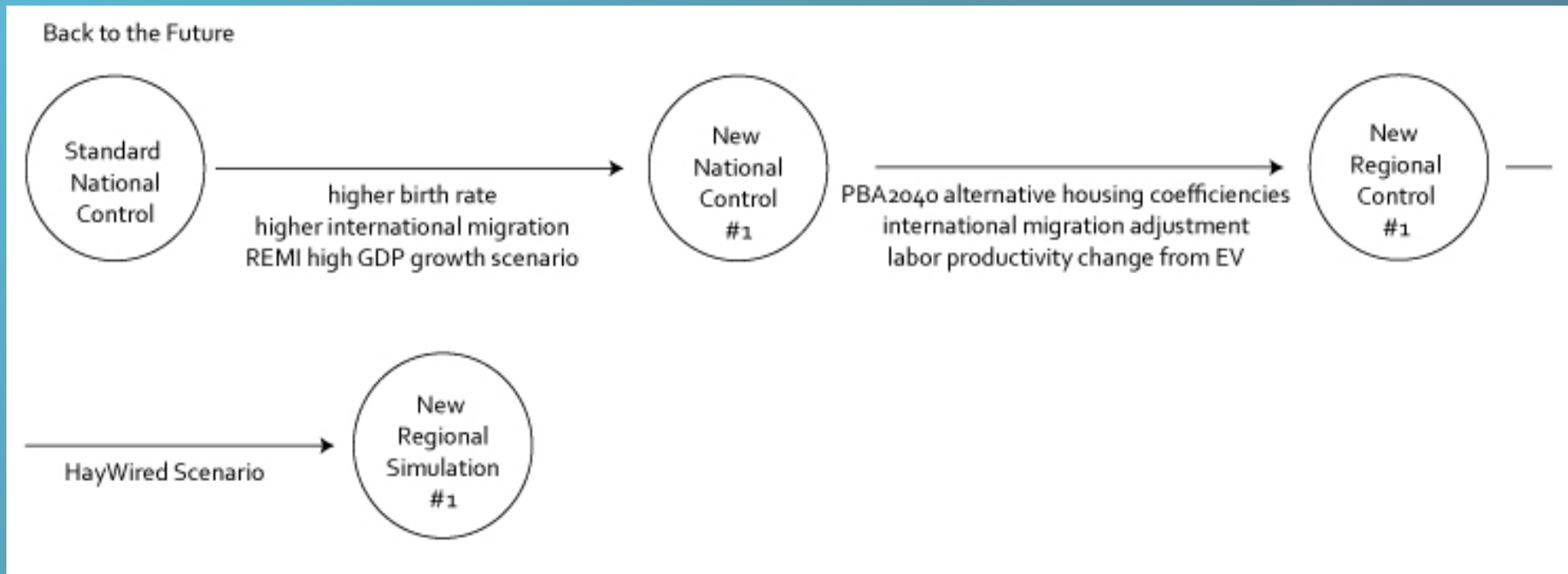
HORIZON



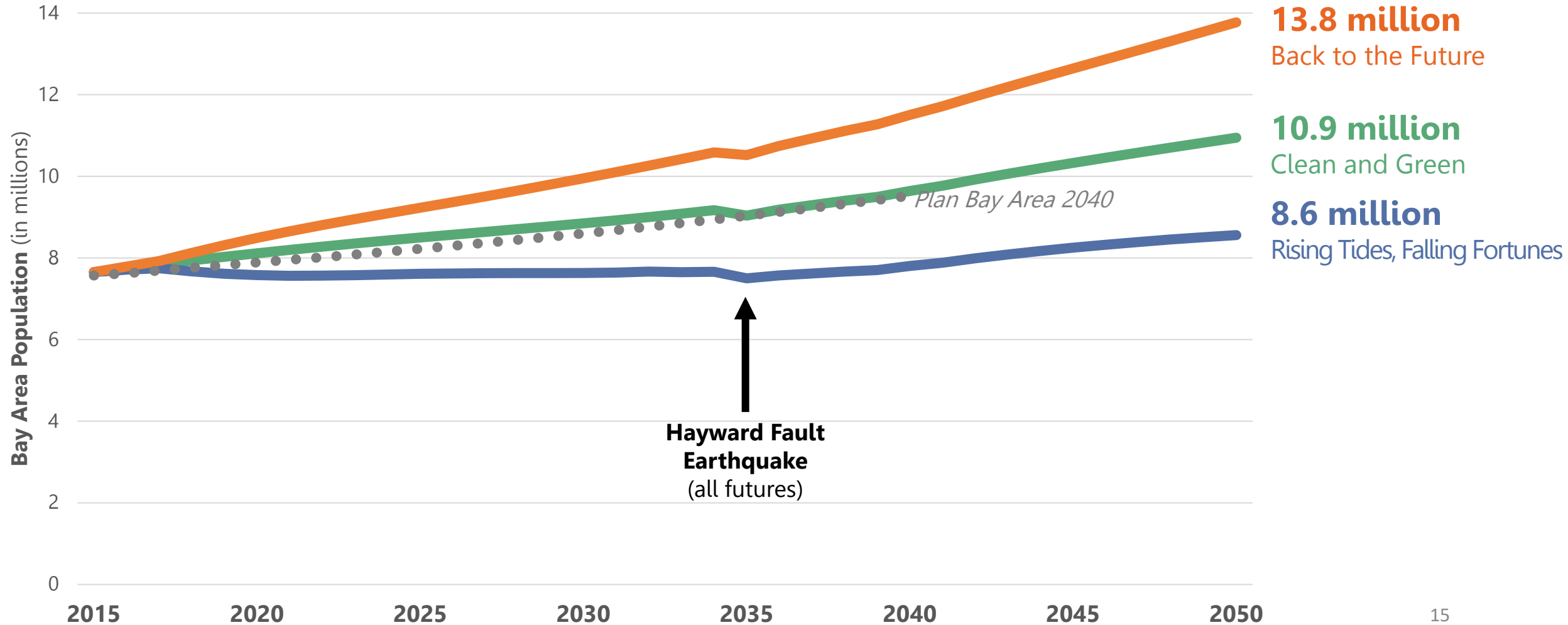
HORIZON



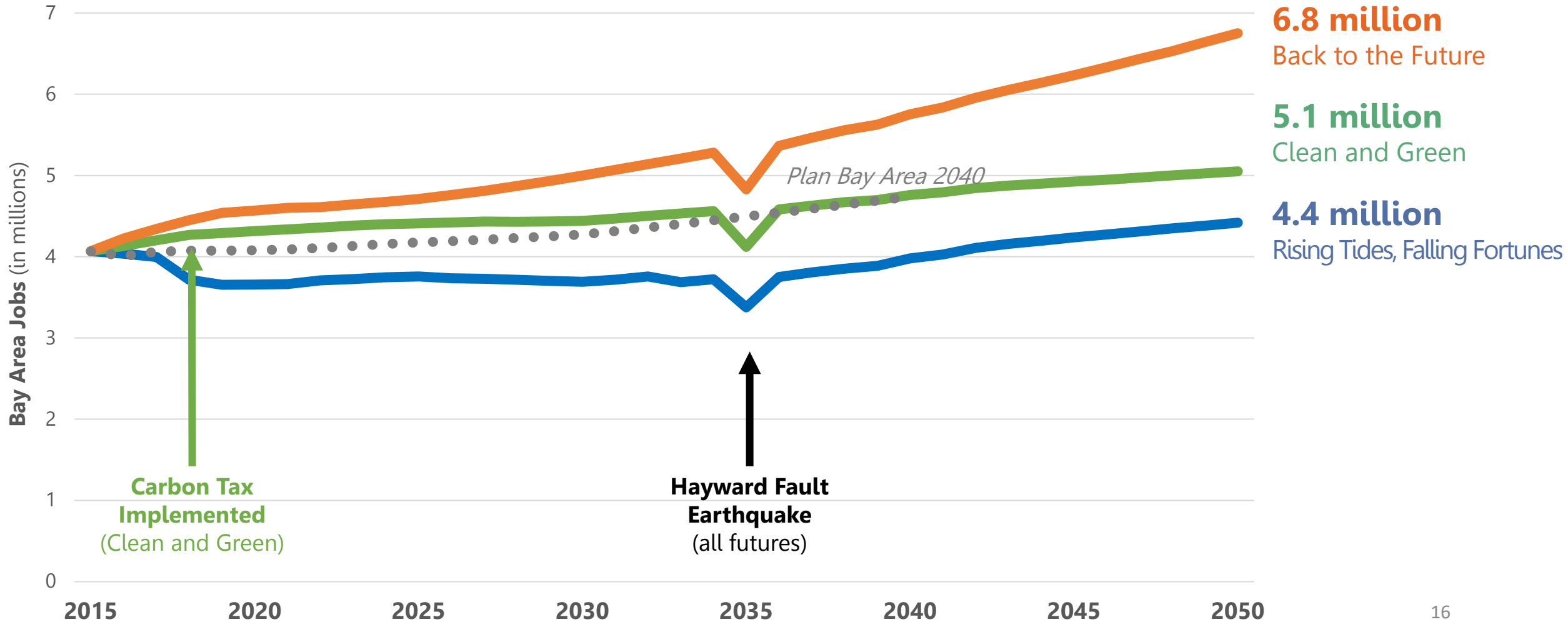
HORIZON



Futures: Bay Area Population

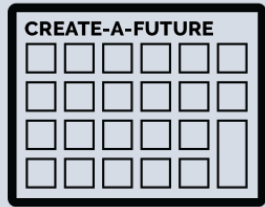


Futures: Bay Area Jobs



Futures Process

OUTREACH



ROUND 1 ANALYSIS

Current Strategies



REPORT



OUTREACH



ROUND 2 ANALYSIS

New Strategies

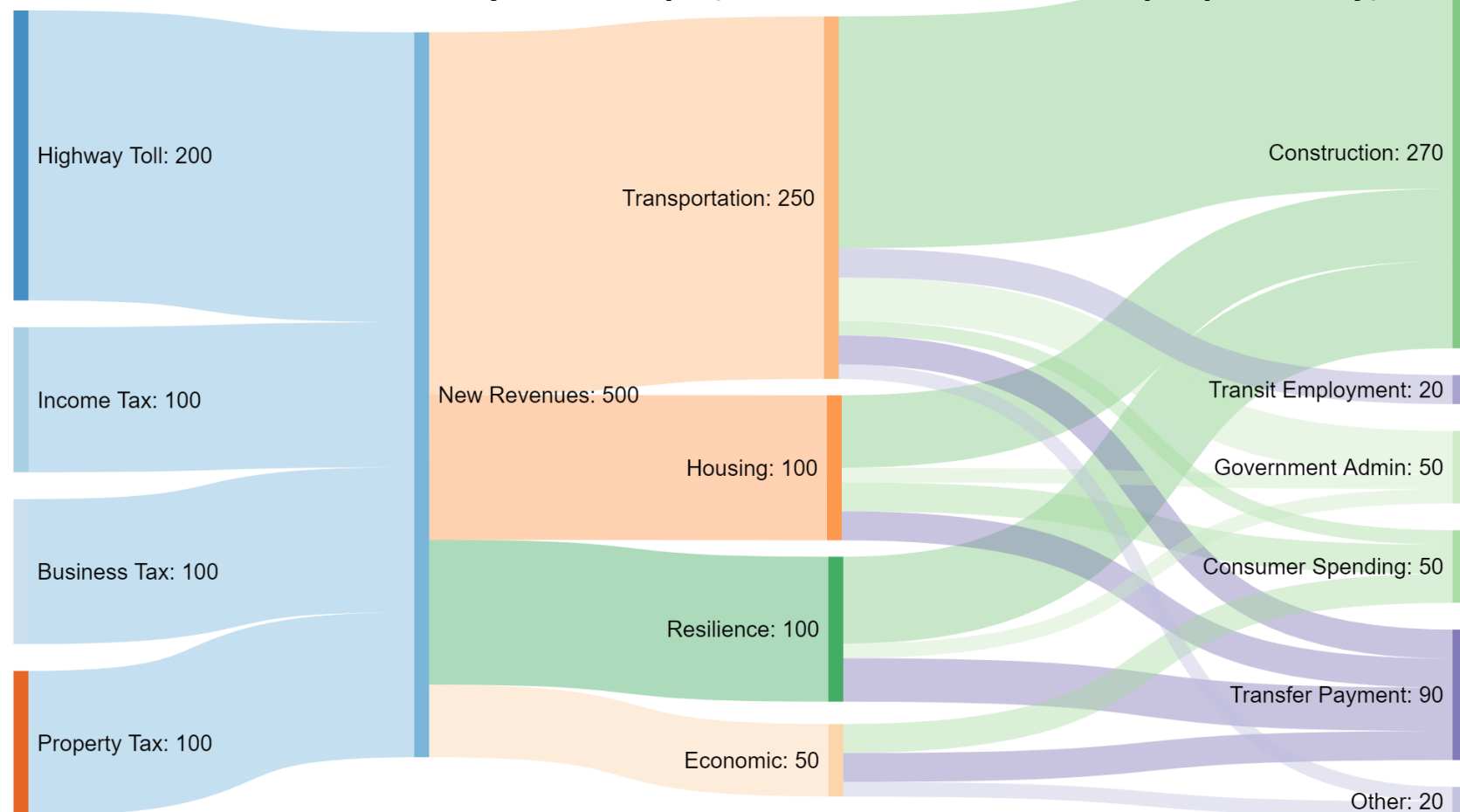


REPORT



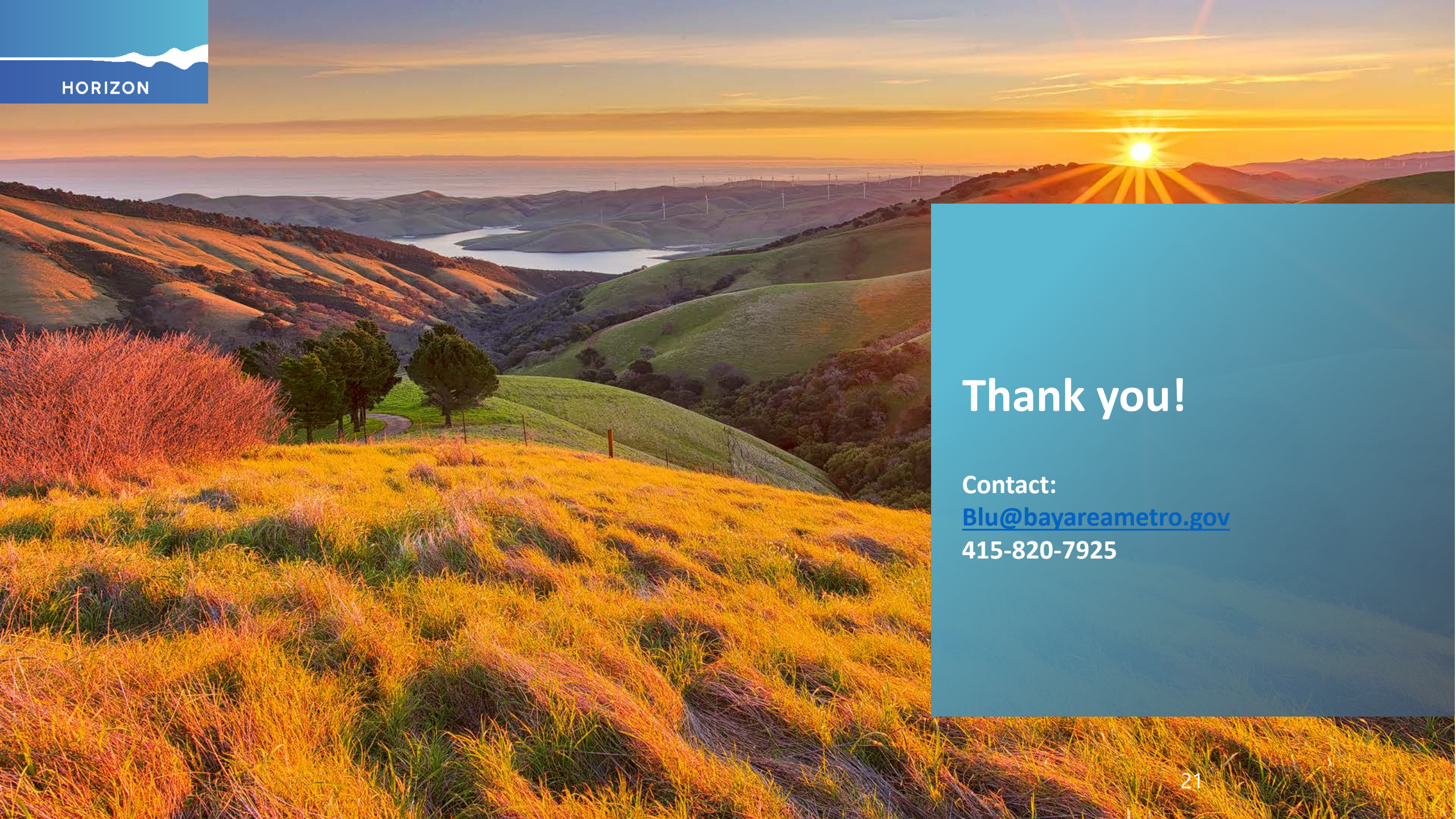
		Icon 1 FBA Strategies	Icon 2 Horizon I Strategies	Icon 3 Horizon II Strategies	Icon 3 Horizon II Strategies
	Strategy Title	2040	RTFF	CAG	BTTF
Housing Spur More Production (Location of Housing)	Streamline Development in PDAs				
	Allow Diverse Housing Around all Major Transit Stops				
	Allow Affordable Housing in Areas of High Opportunity				
	Transform Aging Malls and Office Parks Into Neighborhoods				
	Repurpose Public Land to Build Housing				
Housing Retain and Expand Affordable Units	Require 20 Percent of all new Housing to be Affordable				
	Increase Renter Protections				
	Raise Taxes to Spur Affordable Housing Production & Preservation				
Transportation Transit Reliability and Speed	Operate and Maintain the Existing System				
	Build Express Lanes & Address Interchange Bottlenecks				
	Make Strategic Transit Modernization and Expansion Investments				
	Build and Operate a Next Generation Bus Rapid Transit Network				
	Increase Capacity and Frequency by Modernizing Existing Rail Network				
	Build a New Transbay Rail Crossing				
Transportation Prioritize Active Modes	Extend the Regional Rail Network				
	Vision Zero Policies - Speed Reductions				
	Complete Regional Bike Networks				
	Invest in Free "Last Mile" Service				
Transportation Price Services	Develop a Single Platform to Access all Mobility Options				
	Apply 10-Cent-per-Mile Peak-Period Pricing on Freeways				
	Provide 50 Percent Fare Discount for Low-Income Transit Riders				
Environment Reduce Our Impact on Environment	Keep Urban Growth Boundaries in Place				
	Preserve Agricultural Lands and Parks, Trails, and Greenways				
	Expand Existing Building Retrofit Programs				
Environment Reduce Environment's Impact on Us	Purchase Disaster Recovery Financing				
	Partially Adapt to Sea Level Rise				
	Fully Adapt to Sea Level Rise				
	Adapt Highway 37 to Sea Level Rise				
Economy Shift-Location of Jobs	VMT Fee				
	Office Space Caps				
	Implement Disincentives to Locate Jobs in Job-Rich Locations				
	Create Incubator Program in Economically Challenged Communities				
Economy Improve Economic Mobility	Provide Portable Benefits for Part-Time and Freelance Workers				
	Expand Support for Low-Income Community College Students				
	Expand Construction Workforce Programs				

Futures Round 2 REMI Analysis Concept (numbers for illustration purpose only)



Coming Next:

- Finalizing Futures Round 2 Analysis
- Seeking public input on new strategies
- Including selected new strategies into Plan Bay Area 2050



Thank you!

Contact:

Blu@bayareametro.gov

415-820-7925