

Project Performance Assessment: Final Results

The Project Performance Assessment provided a key lens to understand the potential future benefits and limitations (across three possible 2050 future scenarios) of major transportation projects, with lifecycle costs exceeding \$250 million. These included both capital and service projects, explored in a fiscally-constrained planning context. Similar to Plan Bay Area 2050+, Transit 2050+ and Plan Bay Area 2050+ featured three primary elements when evaluating a given project's performance:

1. **Benefit-Cost:** the monetized benefits and costs of a given project across three possible 2050 Futures with differing demographic, economic, and environmental assumptions.
2. **Equity:** the potential distributive impacts of project-level accessibility benefits across income groups for three possible 2050 Futures and whether projects directly serve Equity Priority Communities.
3. **Guiding Principles:** evaluation of alignment with Plan Bay Area's five Guiding Principles using specific project-focused criteria, flagging areas of potential concern.

Draft Project Performance Assessment results were presented to agency partners, stakeholders, the public, and the MTC Planning Committee in summer and fall 2024 and were used by the Transit 2050+ transit operator-led Project Management Team to develop the recommended Transit 2050+ Network. Results were also used to develop recommended changes to the non-transit set of recommended transportation investments for inclusion in the Plan Bay Area 2050+ Final Blueprint. The Transit 2050+ Final Network and Transportation Project List for the Plan Bay Area 2050+ Final Blueprint were then released for review and comment in December 2024 and were approved by the Commission in January 2025.

Background and Context

The [Horizon](#) initiative developed three divergent 2050 Futures (i.e., planning scenarios) used to "stress test" major transportation investments in preparation for Plan Bay Area 2050. This included the Project Performance Assessment, which was developed to provide a high-level, regionwide assessment of major transportation project benefits under each hypothetical 2050 Future (i.e., Rising Tides Falling Fortunes, Clean and Green, and Back to the Future) using the regional travel model and documented benefit valuations.

The methodology for the Project Performance Assessment¹ is built on performance assessments from prior plan cycles and was informed by significant stakeholder input. For this planning cycle, the Transit 2050+ transit operator-led Project Management Team reviewed and provided feedback on updates to the Project Performance Assessment methodology in fall 2023, making targeted revisions to benefit valuations used in the assessment. Project sponsors

¹ The detailed Project Performance Assessment Methodology is available at <https://planbayarea.org/digital-library/memo-final-ppa-methodology-pba50pdf>.

also provided updated project cost and scope information in summer and fall 2023, which was integrated into both draft and final Project Performance Assessment results.

Because this plan cycle is a limited and focused update, except for the more significant update of the transit-related strategies, the Project Performance Assessment methodology used for Plan Bay Area 2050 was maintained, and only benefit valuations and project scope and cost information were updated. For projects with no change in scope, model outputs for all three Horizon Futures from the prior Horizon/Plan Bay Area 2050 Project Performance Assessment were used and the benefit-cost assessment was rerun using updated valuations. Projects with scope changes were rerun using Travel Model 1.5 to produce updated model outputs. The next major plan update, starting in 2026, will present an opportunity to revisit the project performance methodology, as appropriate.

Interpreting and Understanding Benefit-Cost Scores

Like the prior three cycles of Plan Bay Area, Plan Bay Area 2050+ included a Project Performance Assessment that evaluated projects for cost effectiveness using their societal benefit-cost ratio. The benefit-cost ratio compared project benefits (e.g., regionwide accessibility; freeway reliability and vehicle ownership; transit crowding; emissions and natural land loss; and health and safety) to project lifecycle costs that include construction, operations, and maintenance. The benefit-cost ratio assessment used Travel Model 1.5 to quantify benefits of transportation projects. Benefits (or disbenefits) of the project relative to a baseline “no-project” scenario were determined for each of the three Horizon Futures, reflecting differing external forces, growth forecasts, and land use patterns. As such, each project received three distinct benefit-cost ratio scores, one for each Future. Projects were considered cost-effective when the benefit-cost ratio is equal to or greater than one, indicating that societal benefits and costs are roughly equal, or above one, indicating that benefits outweigh costs. This approach enabled an “apples-to-apples”, order of magnitude comparison across different types of major transportation investments, including both capital and service projects.

It is important to note that individual project scores from the Project Performance Assessment may not be comparable to other types of project assessments that may have been completed for federal or state funding programs, since the Project Performance Assessment focuses on identifying project benefits under a wide range of hypothetical future scenarios. Additionally, for certain projects such as capital-intensive rail projects, economic benefits such as land values and job agglomeration can be significant; however, consistent with federal guidance and best practices, such benefits are not within the scope of the type of societal benefit-cost analyses used for the Project Performance Assessment. Lastly, projects were evaluated individually to understand their impact and to be able to compare all projects uniformly. However, projects serving related travel markets could, if evaluated as a package, increase or decrease the benefits of any individual project.

Interpreting and Understanding Equity Scores

The quantitative equity score included in the Project Performance Assessment was developed to provide insight into whether a project would advance equitable outcomes by providing a greater share of accessibility benefits to people with low incomes. This calculation was performed for each of the Futures, yielding three distinct, different equity scores. Additionally, projects were evaluated for whether or not they provide a point of access to an existing Equity Priority Community (as defined using both 2014-2018 and 2018-2022 American Community Survey data).

The equity score calculated the ratio of the monetized accessibility benefit from the project experienced by lower-income persons (defined as people residing in a household with combined income of less than \$100,000 in 2019 dollars) relative to the monetized accessibility benefits experienced by all Bay Area residents. Projects received one of three equity scores based on the quantitative ratio calculated using regional travel model outputs:

- Advances Equity: more than 60% of project benefits accrue to lower-income persons
- Even Distribution: between 40% and 60% of project benefits accrue to lower-income persons
- Challenges Equity: Less than 40% of project benefits accrue to lower-income persons

It is important to note that this is not a comprehensive or absolute assessment of a project's equity benefits, and that the quantitative equity score is a regionwide, comparative metric that provides insight into a project's potential equity benefits at the regional rather than the local level. For this reason, the assessment was complemented by MTC's traditional geographic assessment of mapping projects and determining if they provide a point of access to Equity Priority Communities, as noted above. The Transit 2050+ Project Management Team ultimately recommended that assessment as the primary equity lens given its greater simplicity and ease of use.

Transit 2050+/Plan Bay Area 2050+: Final Project Performance Findings (December 2024)

Attachment A: Overall Summary Table

Benefit-Cost Ratios and Equity Scores across Three Futures, and Guiding Principle Flags

Project Type	Project ID	Row ID	Project	Project Source	Lifecycle Cost (2019 \$)	Guiding Principle Flags	Provides Point of Access in EPC?	Benefit-Cost Ratio			Equity Score		
								Rising Tides Falling Fortunes	Clean And Green	Back To The Future	Rising Tides Falling Fortunes	Clean And Green	Back To The Future
Enhance Transit Frequency, Capacity, and Reliability	2312	1	ACE Service Expansion	SJRRRC	\$0.3B	0	Yes	>10	>10	>10	Challenges	Even	Advances
	2106	2	AC Transit 23rd Street BRT	AC Transit	\$0.2B	0	Yes	>10	4	3	Challenges	Challenges	Advances
	5003	3	I-680 San Jose-Martinez Express Bus Service Expansion	CCTA	\$0.3B	0	Yes	6	2	2	Challenges	Even	Advances
	2011	4	San Mateo Bridge Express Bus Service Expansion, Multimodal Corridor Improvements, and Infrastructure Improvements	MTC/ABAG	\$0.3B	0	Yes	5	2	>10	Challenges	Challenges	Advances
	2210	5	Capitol Corridor South Bay Connect Rail Speed Improvements, Rail Infill Station, and Infrastructure Improvements	CCJPA	\$0.3B	0	Yes	5	3	5	Challenges	Challenges	Advances
	2202	6	Antioch-Brentwood BRT	CCTA	\$0.2B	0	Yes	5	3	3	Advances	Advances	Advances
	2600	7	WETA Ferry Frequency Boosts	WETA	\$0.4B	0	Yes	4	7	6	Challenges	Even	Advances
	2602	8	WETA Berkeley-San Francisco Ferry Service Expansion	WETA	\$0.2B	0	Yes	4	<0.5	6	Challenges	Even	Advances
	2003	9	SFMTA Muni Forward Five-Minute Network LRT, Rapid Bus, and Local Bus Frequency Boosts	SF	\$1.5B	0	Yes	4	6	5	Challenges	Challenges	Even
	6023	10	ReX Green Line (Vallejo-SFO) Express Bus Service Expansion	MTC/ABAG	\$0.3B	0	Yes	4	<0.5	<0.5	Challenges	Even	Advances
	2010	11	Dumbarton Bridge Express Bus Frequency Boosts, Express Bus Service Expansion, and Transit Priority Infrastructure Improvements	MTC/ABAG + SamTrans	\$0.5B	0	Yes	3	1	4	Challenges	Advances	Advances
	2004	12	Sonoma County Local Bus Frequency Boosts	SCTA	\$0.4B	0	Yes	3	0.5	2	Advances	Even	Advances
	6024	13	ReX Red Line (Oakland-Redwood City) Express Bus Service Expansion	MTC/ABAG	\$0.4B	0	Yes	3	<0.5	2	Challenges	Advances	Advances
	2007	14	SFMTA Southeast San Francisco Local Bus Frequency Boosts, Express Bus Service Expansion, and Multimodal Corridor Improvements	SF	\$0.4B	0	Yes	3	6	6	Even	Even	Even
	2009	15	SamTrans Express Bus Service Expansion	SamTrans	\$0.3B	0	Yes	3	3	4	Challenges	Even	Even
	2400	16	VTA LRT Grade Separations and Modernization - Downtown San Jose	VTA	\$0.6B	0	Yes	3	1	3	Challenges	Challenges	Advances
	2209	17	BART Irvington Infill Station	City of Fremont	\$0.2B	0	No	2	<0.5	8	Even	Even	Even
	2604	18	Golden Gate Transit Ferry and Express Bus Service Expansion and Frequency Boosts	GGBHTD	\$0.6B	0	Yes	2	2	3	Challenges	Even	Advances
	2103	19	SamTrans El Camino Real BRT	SamTrans + CCAG	\$0.5B	0	Yes	2	1	3	Advances	Even	Challenges
	6025	20	ReX Blue Line (San Francisco-San Jose) Express Bus Service Expansion	MTC/ABAG	\$0.5B	0	Yes	2	<0.5	<0.5	Challenges	Advances	Advances
	2000	21	AC Transit Local Bus Frequency Boosts	AC Transit	\$2.2B	0	Yes	1	3	2	Advances	Advances	Even
	2001	22	AC Transit Rapid Bus Frequency Boosts and Multimodal Corridor Improvements	AC Transit	\$1.3B	0	Yes	2	2	0.9	Challenges	Even	Advances
	2201	23	BART Core Capacity Rail Frequency Boosts and Infrastructure Improvements	BART	\$4.6B	0	Yes	1	3	3	Even	Even	Even
	2302	24	Caltrain Frequency Boosts (Enhanced Growth)	Caltrain	\$1.6B	0	Yes	1	9	1	Challenges	Even	Even
	2008	25	AC Transit Alameda Point Rapid Bus Service Expansion and Multimodal Corridor Improvements	ACTC	\$0.3B	0	Yes	1	6	4	Even	Even	Even
	2012	26	VTA Frequency Boosts (Visionary Network)	VTA	\$1.9B	0	Yes	1	3	2	Even	Advances	Advances
	2413	27	Muni Metro Modernization	SF	\$1.3B	0	Yes	0.9	1	<0.5	Challenges	Challenges	Advances
	2100	28	AC Transit San Pablo Avenue BRT	AC Transit	\$0.8B	0	Yes	0.7	2	2	Advances	Advances	Even
	2105	29	AC Transit E 14th Street/Mission Street/Fremont Boulevard Local Bus Frequency Boosts, Rapid Bus Service Expansion, and Multimodal Corridor Improvements	ACTC	\$0.6B	0	Yes	0.7	2	1	Advances	Advances	Even
	2603	30	WETA Redwood City-San Francisco-Oakland Ferry Service Expansion	WETA	\$0.4B	0	No	0.6	<0.5	4	Challenges	Challenges	Advances
Expand Transit Services throughout the Region	2308	31	Valley Link Initial Operating Phase	TVSJVRRRA	\$2.0B	0	No	3	2	4	Even	Advances	Advances
	2402	32	San Jose Airport Connector	City of San Jose	\$0.8B	0	Yes	2	0.9	1	Challenges	Even	Advances
	2206	33	VTA Stevens Creek LRT Extension	VTA	\$1.4B	0	Yes	1	2	2	Challenges	Even	Advances
	2211	34	SFMTA Central Subway Extension	SF	\$1.2B	0	Yes	1	0.6	<0.5	Even	Even	Advances
	1004	35	Link21 Rail Expansion	BART + CCJPA	\$29.9B	0	Yes	<0.5	0.9	0.9	Challenges	Challenges	Challenges
	2306	36	Samtrans Dumbarton Group Rapid Transit Rail Expansion	SamTrans + CCAG	\$2.6B	0	Yes	<0.5	0.5	0.5	Challenges	Challenges	Advances
	2300	37	Caltrain/HSR Portal (Downtown Rail Extension)	TJPA + SFCTA	\$4.8B	0	No	<0.5	0.5	0.6	Challenges	Challenges	Challenges
	2212	38	SF Geary/19th Avenue Subway	SF	\$15.2B	0	Yes	<0.5	<0.5	<0.5	Even	Even	Even
	2304	39	SMART Windsor-Cloverdale Extension	SMART	\$0.5B	0	No	<0.5	<0.5	<0.5	Challenges	Even	Challenges
	2205	40	BART Silicon Valley Phase II Extension	VTA	\$7.0B	0	Yes	<0.5	<0.5	<0.5	Advances	Advances	Even
	2305	41	SMART Solano Extension	SMART	\$1.5B	0	Yes	<0.5	<0.5	<0.5	Even	Challenges	Challenges
Implement Pricing Strategies to Manage Demand	3001	42	Downtown San Francisco Congestion Pricing	SF	\$0.6B	1	Yes	8	7	>10	Challenges	Challenges	Challenges
	3002	43	Treasure Island Congestion Pricing	SF	\$0.2B	1	Yes	3	4	6	Challenges	Challenges	Challenges
Improve Highways and Interchanges	3113	44	VTA US-101/SR-25 Interchange Improvements	VTA	\$0.5B	1	No	6	4	>10	Challenges	Challenges	Even
	5000	45	MTC Bay Area Forward	MTC/ABAG	\$0.8B	0	Yes	3	3	4	Challenges	Challenges	Even
	3104	46	STA I-80/I-680/SR-12 Interchange Improvements	STA	\$0.7B	1	No	1	0.8	2	Challenges	Challenges	Advances
	3200	47	SR-37 Freeway Expansion and Express Bus Service	MTC/ABAG/North Bay ..	\$6.5B	2	Yes	1	1	1	Challenges	Challenges	Challenges
	3100	48	CCTA SR-4/SR-239 Interchange Improvements and Freeway Expansion	CCTA	\$1.1B	1	No	0.8	0.5	<0.5	Challenges	Advances	Advances

Notes:

Lifecycle Costs: This includes initial capital cost, annual O&M costs, rehabilitation and replacements costs, and a residual value of the investment at the end of the analysis period, calculated using discounted present value methodology. Refer to Attachment D for details, and for costs. Note: Societal transfers such as fare/toll revenue (or loss) are excluded from both benefits and costs, following standard practice for societal benefit-cost analyses.

Guiding Principle Flags: Flags, based on qualitative analysis, are intended to draw attention to a direct adverse impact a project may have that may not be captured as part of other assessments. Refer to Attachment C for details.

Benefit-Cost Ratio: All project impacts are measured against a uniform base transportation and land use network in each future, except Resilience projects, which are measured against a baseline where that asset is out of service (hence n/a in some futures). Costs and Benefits to determine the ratio are detailed in Attachment D and E. For inter-regional projects, Modeled Bay Area benefits have been multiplied by a factor to reflect the ratio of expected ridership from outside the region. Valley Link Initial Operating Segment: 3.6; ACE Service Expansion: 8.5; South Bay Connect: 1.6.

Equity Score: "Advances" indicates that the project may benefit lower income individuals (below regional median income) more than higher income individuals. "Challenges" indicates that project benefits skew towards higher income individuals. "Even" indicates even distribution of benefits for all income groups.

Provides Point of Access in EPC: This analysis indicates whether a project provides an access point (such as a station or new roadway facility) in an Equity Priority Community (EPC definition using both 2014-2018 and 2018-2022 ACS data). However, unlike the equity score, this does not reflect which population groups may actually benefit from the project.

Transit 2050+/Plan Bay Area 2050+: Final Project Performance Findings (December 2024)
 Attachment A: Overall Summary Table
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Project Type	Project ID	Row ID	Project	Project Source	Lifecycle Cost (2019 \$)	Guiding Principle Flags	Provides Point of Access in EPC?	Benefit-Cost Ratio			Equity Score		
								Rising Tides Falling Fortunes	Clean And Green	Back To The Future	Rising Tides Falling Fortunes	Clean And Green	Back To The Future
Improve Highways and Interchanges	3114	49	VTA Countywide Expressway Interchange Improvements, Grade Separations, and Roadway Expansion	VTA	\$1.6B	2	Yes	0.8	0.5	1	Challenges	Challenges	Advances
	3000	50	MTC Regional Express Lane System (Plan Bay Area 2050 Network)	MTC/ABAG	\$6.7B	1	Yes	0.5	0.6	2	Challenges	Challenges	Challenges
	3005	51	MTC Regional Express Lane System (Dual Express Lanes Network)	MTC/ABAG	\$10.3B	1	Yes	<0.5	<0.5	3	Challenges	Challenges	Challenges
	3006	52	MTC Regional Express Lane System (Expanded Network)	MTC/ABAG	\$8.2B	1	Yes	<0.5	0.5	3	Challenges	Challenges	Challenges
	3109	53	Alameda CTC SR-262 Interchange Improvements and Freeway Expansion	ACTC	\$0.4B	2	No	<0.5	1	3	Even	Even	Challenges
	3004	54	MTC Regional Express Lane System (Conversion-Only Network)	MTC/ABAG	\$4.8B	1	Yes	<0.5	0.5	1	Even	Challenges	Even

Notes:

Lifecycle Costs: This includes initial capital cost, annual O&M costs, rehabilitation and replacements costs, and a residual value of the investment at the end of the analysis period, calculated using discounted present value methodology. Refer to Attachment D for details, and for costs. Note: Societal transfers such as fare/toll revenue (or loss) are excluded from both benefits and costs, following standard practice for societal benefit-cost analyses.

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Equity Score: "Advances" indicates that the project may benefit lower income individuals (below regional median income) more than higher income individuals. "Challenges" indicates that project benefits skew towards higher income individuals. "Even" indicates even distribution of benefits for all income groups.

Provides Point of Access in EPC: This analysis indicates whether a project provides an access point (such as a station or new roadway facility) in an Equity Priority Community (EPC definition using both 2014-2018 and 2018-2022 ACS data). However, unlike the equity score, this does not reflect which population groups may actually benefit from the project.

Transit 2050+/Plan Bay Area 2050+: Final Project Performance Findings (December 2024)

Attachment B: Detailed Table of Guiding Principle Flags

Project Type	Project ID	Row ID	Project	Affordable	Connected	Diverse	Healthy	Vibrant
Enhance Transit Frequency, Capacity, and Reliability	2000	1	AC Transit Local Bus Frequency Boosts	Supports	Supports	Supports	Supports	Supports
	2001	2	AC Transit Rapid Bus Frequency Boosts and Multimodal Corridor Improvements	Supports	Supports	Supports	Supports	Supports
	2003	3	SFMTA Muni Forward Five-Minute Network LRT, Rapid Bus, and Local Bus Frequency Boosts	Supports	Supports	Supports	Supports	Supports
	2004	4	Sonoma County Local Bus Frequency Boosts	Supports	Supports	Supports	Supports	Supports
	2007	5	SFMTA Southeast San Francisco Local Bus Frequency Boosts, Express Bus Service Expansion, and Multimodal Corridor Improvements	Supports	Supports	Supports	Supports	Supports
	2008	6	AC Transit Alameda Point Rapid Bus Service Expansion and Multimodal Corridor Improvements	Supports	Supports	Supports	Supports	Supports
	2009	7	SamTrans Express Bus Service Expansion	Supports	Supports	Supports	Supports	Supports
	2010	8	Dumbarton Bridge Express Bus Frequency Boosts, Express Bus Service Expansion, and Transit Priority Infrastructure Improvements	Supports	Supports	Supports	Supports	Supports
	2011	9	San Mateo Bridge Express Bus Service Expansion, Multimodal Corridor Improvements, and Infrastructure Improvements	Supports	Supports	Supports	Supports	Supports
	2012	10	VTA Frequency Boosts (Visionary Network)	Supports	Supports	Supports	Supports	Supports
	2100	11	AC Transit San Pablo Avenue BRT	Supports	Supports	Supports	Supports	Supports
	2103	12	SamTrans El Camino Real BRT	Supports	Supports	Supports	Supports	Supports
	2105	13	AC Transit E 14th Street/Mission Street/Fremont Boulevard Local Bus Frequency Boosts, Rapid Bus Service Expansion, and Multimodal Corridor Improvements	Supports	Supports	Supports	Supports	Supports
	2106	14	AC Transit 23rd Street BRT	Supports	Supports	Supports	Supports	Supports
	2201	15	BART Core Capacity Rail Frequency Boosts and Infrastructure Improvements	Supports	Supports	Supports	Supports	Supports
	2202	16	Antioch-Brentwood BRT	Supports	Supports	Supports	Supports	Supports
	2209	17	BART Irvington Infill Station	Supports	Supports	Supports	Supports	Supports
	2210	18	Capitol Corridor South Bay Connect Rail Speed Improvements, Rail Infill Station, and Infrastructure Improvements	Supports	Supports	Supports	Supports	Supports
	2302	19	Caltrain Frequency Boosts (Enhanced Growth)	Supports	Supports	Supports	Supports	Supports
	2312	20	ACE Service Expansion	Supports	Supports	Supports	Supports	Supports
	2400	21	VTA LRT Grade Separations and Modernization - Downtown San Jose	Supports	Supports	Supports	Supports	Supports
	2413	22	Muni Metro Modernization	Supports	Supports	Supports	Supports	Supports
	2600	23	WETA Ferry Frequency Boosts	Supports	Supports	Supports	Supports	Supports
	2602	24	WETA Berkeley-San Francisco Ferry Service Expansion	Supports	Supports	Supports	Supports	Supports
	2603	25	WETA Redwood City-San Francisco-Oakland Ferry Service Expansion	Supports	Supports	Supports	Supports	Supports
	2604	26	Golden Gate Transit Ferry and Express Bus Service Expansion and Frequency Boosts	Supports	Supports	Supports	Supports	Supports
	5003	27	I-680 San Jose-Martinez Express Bus Service Expansion	Supports	Supports	Supports	Supports	Supports
	6023	28	ReX Green Line (Vallejo-SFO) Express Bus Service Expansion	Supports	Supports	Supports	Supports	Supports
	6024	29	ReX Red Line (Oakland-Redwood City) Express Bus Service Expansion	Supports	Supports	Supports	Supports	Supports
	6025	30	ReX Blue Line (San Francisco-San Jose) Express Bus Service Expansion	Supports	Supports	Supports	Supports	Supports
Expand Transit Services throughout the Region	1004	31	Link21 Rail Expansion	Supports	Supports	Supports	Supports	Supports
	2205	32	BART Silicon Valley Phase II Extension	Supports	Supports	Supports	Supports	Supports
	2206	33	VTA Stevens Creek LRT Extension	Supports	Supports	Supports	Supports	Supports
	2211	34	SFMTA Central Subway Extension	Supports	Supports	Supports	Supports	Supports
	2212	35	SF Geary/19th Avenue Subway	Supports	Supports	Supports	Supports	Supports
	2300	36	Caltrain/HSR Portal (Downtown Rail Extension)	Supports	Supports	Supports	Supports	Supports
	2304	37	SMART Windsor-Cloverdale Extension	Supports	Supports	Supports	Supports	Supports
	2305	38	SMART Solano Extension	Supports	Supports	Supports	Supports	Supports
	2306	39	Samtrans Dumbarton Group Rapid Transit Rail Expansion	Supports	Supports	Supports	Supports	Supports
	2308	40	Valley Link Initial Operating Phase	Supports	Supports	Supports	Supports	Supports
	2402	41	San Jose Airport Connector	Supports	Supports	Supports	Supports	Supports
Implement Pricing Strategies to Manage Demand	3001	42	Downtown San Francisco Congestion Pricing	Does Not Support	Supports	Supports	Supports	Supports
	3002	43	Treasure Island Congestion Pricing	Does Not Support	Supports	Supports	Supports	Supports
Improve Highways and Interchanges	3000	44	MTC Regional Express Lane System (Plan Bay Area 2050 Network)	Supports	Supports	Supports	Does Not Support	Supports
	3004	45	MTC Regional Express Lane System (Conversion-Only Network)	Supports	Supports	Supports	Does Not Support	Supports
	3005	46	MTC Regional Express Lane System (Dual Express Lanes Network)	Supports	Supports	Supports	Does Not Support	Supports
	3006	47	MTC Regional Express Lane System (Expanded Network)	Supports	Supports	Supports	Does Not Support	Supports
	3100	48	CCTA SR-4/SR-239 Interchange Improvements and Freeway Expansion	Supports	Supports	Supports	Does Not Support	Supports
	3104	49	STA I-80/I-680/SR-12 Interchange Improvements	Supports	Supports	Supports	Supports	Does Not Support

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Attachment B: Detailed Table of Guiding Principle Flags

Project Type	Project ID	Row ID	Project	Affordable	Connected	Diverse	Healthy	Vibrant
Improve Highways and Interchanges	3109	50	Alameda CTC SR-262 Interchange Improvements and Freeway Expansion	Supports	Supports	Does Not Support	Does Not Support	Supports
	3113	51	VTA US-101/SR-25 Interchange Improvements	Supports	Supports	Supports	Does Not Support	Supports
	3114	52	VTA Countywide Expressway Interchange Improvements, Grade Separations, and Roadway Expansion	Supports	Supports	Does Not Support	Does Not Support	Supports
	3200	53	SR-37 Freeway Expansion and Express Bus Service	Does Not Support	Supports	Supports	Does Not Support	Supports
	5000	54	MTC Bay Area Forward	Supports	Supports	Supports	Supports	Supports

Transit 2050+/Plan Bay Area 2050+: Final Project Performance Findings (December 2024)

Attachment C: Detailed Table of Lifecycle Benefits by Future

All values in billions of 2019 dollars discounted present value

Project Type	Project ID	Row ID	Project	Future	Grand Total	Accessibility Benefits	Transit Crowding Benefits	Freeway Reliability and Vehicle Ownership Benefits	Environmental Benefits	Health Benefits	Safety Benefits
Enhance Transit Frequency, Capacity, and Reliability	2000	1	AC Transit Local Bus Frequency Boosts	Rising Tides Falling Fortunes	\$3.3B	\$0.4B	\$0.8B	\$1.4B	\$0.0B	\$0.2B	\$0.4B
				Clean And Green	\$6.4B	\$1.3B	\$3.1B	\$1.4B	\$0.0B	\$0.3B	\$0.4B
				Back To The Future	\$4.7B	\$2.7B	(\$0.3B)	\$1.6B	\$0.0B	\$0.3B	\$0.4B
	2001	2	AC Transit Rapid Bus Frequency Boosts and Multimodal Corridor Improvements	Rising Tides Falling Fortunes	\$2.0B	\$0.5B	\$0.6B	\$0.5B	(\$0.1B)	\$0.0B	\$0.4B
				Clean And Green	\$2.1B	\$1.0B	\$0.9B	\$0.3B	(\$0.1B)	\$0.0B	\$0.1B
				Back To The Future	\$1.1B	\$1.2B	\$0.4B	(\$0.6B)	(\$0.1B)	(\$0.1B)	\$0.3B
	2003	3	SFMTA Muni Forward Five-Minute Network LRT, Rapid Bus, and Local Bus Frequency Boosts	Rising Tides Falling Fortunes	\$5.3B	\$1.2B	\$2.4B	\$0.5B	(\$0.1B)	\$0.0B	\$1.3B
				Clean And Green	\$8.9B	\$1.4B	\$6.3B	\$0.4B	(\$0.1B)	\$0.0B	\$1.0B
				Back To The Future	\$7.5B	\$1.8B	\$4.8B	(\$0.3B)	\$0.0B	(\$0.1B)	\$1.3B
	2004	4	Sonoma County Local Bus Frequency Boosts	Rising Tides Falling Fortunes	\$1.3B	\$0.4B	\$0.2B	\$0.4B	(\$0.1B)	(\$0.1B)	\$0.5B
				Clean And Green	\$0.2B	\$0.7B	(\$0.5B)	\$0.1B	(\$0.1B)	(\$0.1B)	\$0.0B
				Back To The Future	\$0.7B	\$1.4B	\$0.1B	(\$0.9B)	(\$0.1B)	(\$0.2B)	\$0.2B
2007	5	SFMTA Southeast San Francisco Local Bus Frequency Boosts, Express Bus Service Expansion, and Multimodal Corridor Improvements	Rising Tides Falling Fortunes	\$1.2B	\$0.3B	\$0.7B	\$0.2B	\$0.0B	\$0.0B	\$0.1B	
			Clean And Green	\$2.3B	\$0.2B	\$2.2B	\$0.0B	\$0.0B	(\$0.1B)	\$0.0B	
			Back To The Future	\$2.5B	\$0.6B	\$1.6B	\$0.3B	\$0.0B	(\$0.1B)	\$0.0B	
2008	6	AC Transit Alameda Point Rapid Bus Service Expansion and Multimodal Corridor Improvements	Rising Tides Falling Fortunes	\$0.4B	\$0.1B	\$0.2B	\$0.0B	\$0.0B	\$0.1B	\$0.1B	
			Clean And Green	\$1.9B	\$0.3B	\$1.7B	\$0.0B	\$0.0B	\$0.0B	\$0.1B	
			Back To The Future	\$1.4B	\$1.1B	\$0.0B	\$0.2B	\$0.0B	\$0.1B	\$0.0B	
2009	7	SamTrans Express Bus Service Expansion	Rising Tides Falling Fortunes	\$0.8B	\$0.6B	(\$0.7B)	\$0.4B	(\$0.1B)	\$0.0B	\$0.6B	
			Clean And Green	\$1.0B	\$1.0B	(\$0.2B)	\$0.2B	(\$0.1B)	\$0.0B	\$0.1B	
			Back To The Future	\$1.2B	\$2.4B	(\$0.6B)	(\$0.9B)	(\$0.1B)	(\$0.1B)	\$0.4B	
2010	8	Dumbarton Bridge Express Bus Frequency Boosts, Express Bus Service Expansion, and Transit Priority Infrastructure Improvements	Rising Tides Falling Fortunes	\$1.7B	\$0.6B	\$0.3B	\$0.4B	(\$0.1B)	\$0.0B	\$0.5B	
			Clean And Green	\$0.6B	\$0.7B	\$0.2B	(\$0.2B)	(\$0.1B)	(\$0.1B)	\$0.1B	
			Back To The Future	\$1.9B	\$2.4B	\$0.1B	(\$0.7B)	\$0.0B	(\$0.2B)	\$0.3B	
2011	9	San Mateo Bridge Express Bus Service Expansion, Multimodal Corridor Improvements, and Infrastructure Improvements	Rising Tides Falling Fortunes	\$1.4B	\$0.6B	\$0.3B	\$0.1B	(\$0.1B)	\$0.0B	\$0.4B	
			Clean And Green	\$0.6B	\$0.9B	(\$0.3B)	(\$0.2B)	(\$0.1B)	\$0.0B	\$0.2B	
			Back To The Future	\$2.5B	\$1.8B	\$1.6B	(\$0.9B)	(\$0.1B)	(\$0.2B)	\$0.2B	
2012	10	VTA Frequency Boosts (Visionary Network)	Rising Tides Falling Fortunes	\$2.3B	\$0.6B	\$0.3B	\$0.8B	\$0.0B	\$0.1B	\$0.4B	
			Clean And Green	\$5.3B	\$1.4B	\$2.5B	\$1.1B	\$0.0B	\$0.2B	\$0.2B	
			Back To The Future	\$3.0B	\$1.9B	\$0.5B	\$0.2B	\$0.0B	\$0.1B	\$0.3B	
2100	11	AC Transit San Pablo Avenue BRT	Rising Tides Falling Fortunes	\$0.6B	\$0.1B	(\$0.2B)	\$0.0B	\$0.0B	\$0.2B	\$0.5B	
			Clean And Green	\$1.5B	\$0.1B	\$0.8B	\$0.1B	\$0.0B	\$0.1B	\$0.4B	
			Back To The Future	\$1.6B	\$0.5B	\$0.3B	\$0.3B	\$0.0B	\$0.1B	\$0.5B	
2103	12	SamTrans El Camino Real BRT	Rising Tides Falling Fortunes	\$0.9B	\$0.0B	\$0.6B	\$0.0B	\$0.0B	\$0.1B	\$0.2B	
			Clean And Green	\$0.6B	\$0.3B	\$0.0B	\$0.2B	\$0.0B	\$0.0B	\$0.2B	

Inter-regional projects: Modeled Bay Area benefits have been multiplied by a factor to reflect the ratio of expected ridership from outside the region. Valley Link Initial Operating Segment: 3.6; ACE Service Expansion: 8.5; South Bay Connect: 1.6.

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Transit 2050+/Plan Bay Area 2050+: Final Project Performance Findings (December 2024)

Attachment C: Detailed Table of Lifecycle Benefits by Future

All values in billions of 2019 dollars discounted present value

Project Type	Project ID	Row ID	Project	Future	Grand Total	Accessibility Benefits	Transit Crowding Benefits	Freeway Reliability and Vehicle Ownership Benefits	Environmental Benefits	Health Benefits	Safety Benefits
Enhance Transit Frequency, Capacity, and Reliability	2103	12	SamTrans El Camino Real BRT	Back To The Future	\$1.4B	\$0.4B	\$1.2B	(\$0.2B)	\$0.0B	\$0.0B	\$0.1B
	2105	13	AC Transit E 14th Street/Mission Street/Fremont Boulevard Local Bus Frequency Boosts, Rapid Bus Service Expansion, and Multimodal Corridor Improvements	Rising Tides Falling Fortunes	\$0.4B	\$0.2B	(\$0.4B)	\$0.2B	\$0.0B	\$0.2B	\$0.3B
				Clean And Green	\$1.0B	\$0.2B	\$0.0B	\$0.5B	\$0.0B	\$0.1B	\$0.2B
				Back To The Future	\$0.6B	\$0.3B	(\$0.3B)	\$0.3B	\$0.0B	\$0.1B	\$0.2B
	2106	14	AC Transit 23rd Street BRT	Rising Tides Falling Fortunes	\$1.7B	\$0.7B	\$0.0B	\$0.7B	(\$0.1B)	\$0.0B	\$0.4B
				Clean And Green	\$0.7B	\$0.5B	\$0.1B	\$0.0B	(\$0.1B)	\$0.0B	\$0.2B
				Back To The Future	\$0.6B	\$1.4B	(\$0.7B)	(\$0.5B)	\$0.0B	(\$0.1B)	\$0.5B
	2201	15	BART Core Capacity Rail Frequency Boosts and Infrastructure Improvements	Rising Tides Falling Fortunes	\$5.9B	\$0.5B	\$4.7B	\$0.3B	\$0.0B	\$0.2B	\$0.2B
				Clean And Green	\$13.7B	\$1.0B	\$12.3B	\$0.0B	\$0.0B	\$0.2B	\$0.2B
				Back To The Future	\$13.0B	\$2.0B	\$10.2B	\$0.4B	\$0.0B	\$0.2B	\$0.1B
	2202	16	Antioch-Brentwood BRT	Rising Tides Falling Fortunes	\$0.9B	\$0.4B	(\$0.1B)	\$0.2B	(\$0.1B)	\$0.0B	\$0.4B
				Clean And Green	\$0.6B	\$0.4B	\$0.5B	(\$0.2B)	(\$0.1B)	(\$0.1B)	\$0.0B
				Back To The Future	\$0.5B	\$1.2B	\$0.1B	(\$1.0B)	\$0.0B	\$0.0B	\$0.3B
	2209	17	BART Irvington Infill Station	Rising Tides Falling Fortunes	\$0.4B	\$0.0B	\$0.3B	\$0.0B	\$0.0B	(\$0.1B)	\$0.1B
				Clean And Green	(\$0.4B)	\$0.6B	(\$1.3B)	\$0.1B	\$0.0B	\$0.1B	\$0.1B
				Back To The Future	\$1.6B	\$1.5B	\$0.2B	(\$0.1B)	\$0.0B	\$0.0B	\$0.1B
	2210	18	Capitol Corridor South Bay Connect Rail Speed Improvements, Rail Infill Station, and Infrastructure Improvements	Rising Tides Falling Fortunes	\$1.0B	\$0.4B	\$0.1B	\$0.3B	(\$0.1B)	(\$0.1B)	\$0.4B
				Clean And Green	\$0.5B	\$0.5B	\$0.2B	\$0.1B	(\$0.1B)	(\$0.2B)	\$0.0B
				Back To The Future	\$0.9B	\$1.9B	\$0.1B	(\$1.1B)	(\$0.1B)	(\$0.1B)	\$0.2B
	2302	19	Caltrain Frequency Boosts (Enhanced Growth)	Rising Tides Falling Fortunes	\$2.0B	\$1.2B	\$0.1B	\$0.3B	\$0.0B	\$0.2B	\$0.2B
				Clean And Green	\$14.6B	\$3.5B	\$10.4B	\$0.2B	\$0.0B	\$0.3B	\$0.2B
				Back To The Future	\$2.4B	\$2.9B	(\$1.0B)	\$0.1B	\$0.0B	\$0.2B	\$0.2B
	2312	20	ACE Service Expansion	Rising Tides Falling Fortunes	\$1.0B	\$0.3B	\$0.1B	\$0.2B	(\$0.1B)	\$0.0B	\$0.5B
				Clean And Green	\$0.3B	\$1.0B	(\$0.2B)	(\$0.2B)	(\$0.1B)	(\$0.1B)	\$0.0B
Back To The Future				\$0.6B	\$1.5B	(\$0.1B)	(\$0.8B)	\$0.0B	(\$0.1B)	\$0.2B	
2400	21	VTA LRT Grade Separations and Modernization - Downtown San Jose	Rising Tides Falling Fortunes	\$1.5B	\$0.8B	(\$0.1B)	\$0.4B	(\$0.1B)	\$0.0B	\$0.5B	
			Clean And Green	\$0.7B	\$0.9B	(\$0.4B)	\$0.1B	(\$0.1B)	\$0.0B	\$0.1B	
			Back To The Future	\$1.8B	\$2.5B	\$0.0B	(\$0.8B)	\$0.0B	(\$0.1B)	\$0.2B	
2413	22	Muni Metro Modernization	Rising Tides Falling Fortunes	\$1.2B	\$0.5B	\$0.1B	\$0.1B	(\$0.1B)	\$0.1B	\$0.5B	
			Clean And Green	\$1.9B	\$0.8B	\$1.2B	\$0.1B	(\$0.1B)	(\$0.1B)	\$0.0B	
			Back To The Future	(\$5.7B)	(\$2.3B)	\$0.8B	(\$3.5B)	(\$0.1B)	(\$0.2B)	(\$0.5B)	
2600	23	WETA Ferry Frequency Boosts	Rising Tides Falling Fortunes	\$1.6B	\$0.5B	\$0.8B	\$0.1B	(\$0.1B)	(\$0.1B)	\$0.3B	
			Clean And Green	\$2.9B	\$0.8B	\$2.1B	(\$0.1B)	\$0.0B	\$0.0B	\$0.1B	
			Back To The Future	\$2.5B	\$1.8B	\$1.2B	(\$0.6B)	\$0.0B	(\$0.1B)	\$0.2B	
2602	24	WETA Berkeley-San Francisco Ferry Service Expansion	Rising Tides Falling Fortunes	\$0.7B	\$0.4B	(\$0.1B)	\$0.2B	\$0.0B	\$0.0B	\$0.2B	

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Transit 2050+/Plan Bay Area 2050+: Final Project Performance Findings (December 2024)

Attachment C: Detailed Table of Lifecycle Benefits by Future

All values in billions of 2019 dollars discounted present value

Project Type	Project ID	Row ID	Project	Future	Grand Total	Accessibility Benefits	Transit Crowding Benefits	Freeway Reliability and Vehicle Ownership Benefits	Environmental Benefits	Health Benefits	Safety Benefits
Enhance Transit Frequency, Capacity, and Reliability	2602	24	WETA Berkeley-San Francisco Ferry Service Expansion	Clean And Green	(\$0.1B)	(\$0.2B)	\$0.3B	\$0.0B	\$0.0B	(\$0.1B)	(\$0.1B)
				Back To The Future	\$1.1B	\$1.0B	\$0.1B	(\$0.1B)	\$0.0B	\$0.0B	\$0.1B
				Rising Tides Falling Fortunes	\$0.2B	\$0.0B	\$0.0B	\$0.1B	\$0.0B	\$0.1B	\$0.1B
	2603	25	WETA Redwood City-San Francisco-Oakland Ferry Service Expansion	Clean And Green	\$0.0B	(\$0.1B)	\$0.4B	(\$0.1B)	\$0.0B	(\$0.1B)	(\$0.1B)
				Back To The Future	\$1.4B	\$1.3B	\$0.4B	(\$0.3B)	\$0.0B	(\$0.1B)	\$0.1B
				Rising Tides Falling Fortunes	\$1.2B	\$0.8B	\$0.0B	\$0.2B	(\$0.1B)	\$0.0B	\$0.4B
	2604	26	Golden Gate Transit Ferry and Express Bus Service Expansion and Frequency Boosts	Clean And Green	\$1.1B	\$0.9B	\$0.0B	\$0.2B	(\$0.1B)	(\$0.1B)	\$0.1B
				Back To The Future	\$1.8B	\$2.0B	\$0.7B	(\$0.8B)	\$0.0B	(\$0.2B)	\$0.3B
				Rising Tides Falling Fortunes	\$1.9B	\$0.7B	\$0.4B	\$0.4B	(\$0.1B)	\$0.0B	\$0.6B
	5003	27	I-680 San Jose-Martinez Express Bus Service Expansion	Clean And Green	\$0.6B	\$0.8B	(\$0.2B)	(\$0.1B)	(\$0.1B)	\$0.0B	\$0.2B
				Back To The Future	\$0.5B	\$1.3B	\$0.2B	(\$1.0B)	(\$0.1B)	(\$0.2B)	\$0.2B
				Rising Tides Falling Fortunes	\$1.0B	\$0.6B	(\$0.1B)	\$0.2B	(\$0.1B)	\$0.0B	\$0.3B
	6023	28	ReX Green Line (Vallejo-SFO) Express Bus Service Expansion	Clean And Green	(\$0.3B)	\$0.7B	(\$0.9B)	\$0.1B	(\$0.1B)	(\$0.1B)	\$0.1B
				Back To The Future	(\$0.3B)	\$1.7B	(\$1.2B)	(\$0.9B)	\$0.0B	(\$0.2B)	\$0.3B
				Rising Tides Falling Fortunes	\$1.4B	\$0.4B	\$0.3B	\$0.2B	(\$0.1B)	\$0.0B	\$0.5B
6024	29	ReX Red Line (Oakland-Redwood City) Express Bus Service Expansion	Clean And Green	\$0.1B	\$0.6B	(\$0.4B)	(\$0.1B)	(\$0.1B)	\$0.0B	\$0.1B	
			Back To The Future	\$0.9B	\$1.5B	\$0.6B	(\$1.1B)	\$0.0B	(\$0.2B)	\$0.1B	
			Rising Tides Falling Fortunes	\$1.0B	\$0.3B	\$0.3B	\$0.1B	(\$0.1B)	\$0.0B	\$0.4B	
6025	30	ReX Blue Line (San Francisco-San Jose) Express Bus Service Expansion	Clean And Green	\$0.0B	\$0.4B	(\$0.5B)	\$0.0B	(\$0.1B)	\$0.0B	\$0.1B	
			Back To The Future	\$0.1B	\$1.3B	(\$0.2B)	(\$1.0B)	\$0.0B	(\$0.2B)	\$0.2B	
			Rising Tides Falling Fortunes	\$12.1B	\$3.2B	\$6.9B	\$0.6B	\$0.1B	\$0.4B	\$1.0B	
Expand Transit Services throughout the Region	1004	31	Link21 Rail Expansion	Clean And Green	\$25.9B	\$8.3B	\$15.6B	\$0.6B	\$0.0B	\$0.6B	\$0.8B
				Back To The Future	\$26.7B	\$9.3B	\$14.2B	\$1.6B	\$0.1B	\$0.5B	\$1.1B
				Rising Tides Falling Fortunes	\$0.2B	\$0.2B	(\$0.3B)	\$0.1B	\$0.0B	\$0.1B	\$0.2B
	2205	32	BART Silicon Valley Phase II Extension	Clean And Green	\$1.3B	\$1.0B	(\$0.1B)	\$0.1B	\$0.0B	\$0.2B	\$0.2B
				Back To The Future	\$1.4B	\$2.0B	(\$1.8B)	\$0.7B	\$0.0B	\$0.2B	\$0.2B
				Rising Tides Falling Fortunes	\$2.0B	\$0.6B	\$0.4B	\$0.4B	(\$0.1B)	\$0.1B	\$0.5B
	2206	33	VTA Stevens Creek LRT Extension	Clean And Green	\$3.5B	\$1.1B	\$1.9B	\$0.2B	\$0.0B	\$0.2B	\$0.1B
				Back To The Future	\$2.5B	\$2.8B	(\$0.4B)	(\$0.5B)	\$0.0B	\$0.2B	\$0.4B
				Rising Tides Falling Fortunes	\$1.1B	\$0.4B	\$0.2B	\$0.3B	(\$0.1B)	\$0.0B	\$0.3B
	2211	34	SFMTA Central Subway Extension	Clean And Green	\$0.7B	\$0.8B	\$0.0B	(\$0.1B)	\$0.0B	\$0.0B	\$0.1B
				Back To The Future	\$0.5B	\$0.9B	\$0.1B	(\$0.6B)	\$0.0B	\$0.0B	\$0.2B
				Rising Tides Falling Fortunes	\$1.4B	\$0.3B	\$0.5B	\$0.3B	(\$0.1B)	\$0.0B	\$0.3B
	2212	35	SF Geary/19th Avenue Subway	Clean And Green	\$1.7B	\$0.8B	\$1.1B	(\$0.1B)	\$0.0B	\$0.0B	\$0.1B
				Back To The Future	\$0.9B	\$1.0B	\$0.3B	(\$0.6B)	\$0.0B	\$0.1B	\$0.2B
				Rising Tides Falling Fortunes	\$1.4B	\$0.3B	\$0.5B	\$0.3B	(\$0.1B)	\$0.0B	\$0.3B

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Expand Transit Services throughout the Region	2300	36	Caltrain/HSR Portal (Downtown Rail Extension)	Rising Tides Falling Fortunes	\$1.7B	\$1.1B	\$0.3B	\$0.0B	\$0.0B	\$0.1B	\$0.2B
				Clean And Green	\$2.5B	\$2.4B	(\$0.1B)	\$0.0B	\$0.0B	\$0.1B	\$0.1B
				Back To The Future	\$3.0B	\$1.8B	\$1.3B	(\$0.2B)	\$0.0B	\$0.0B	\$0.1B
	2304	37	SMART Windsor-Cloverdale Extension	Rising Tides Falling Fortunes	\$0.0B	\$0.2B	(\$0.1B)	(\$0.2B)	\$0.0B	\$0.1B	\$0.1B
				Clean And Green	\$0.2B	\$0.0B	\$0.2B	\$0.0B	\$0.0B	\$0.0B	\$0.0B
				Back To The Future	(\$0.6B)	(\$0.2B)	(\$0.6B)	\$0.2B	\$0.0B	\$0.1B	(\$0.1B)
	2305	38	SMART Solano Extension	Rising Tides Falling Fortunes	(\$0.1B)	\$0.1B	(\$0.1B)	(\$0.1B)	\$0.0B	\$0.0B	\$0.0B
				Clean And Green	\$0.2B	\$0.2B	\$0.0B	(\$0.1B)	\$0.0B	\$0.0B	\$0.1B
				Back To The Future	\$0.2B	(\$0.3B)	\$0.2B	\$0.2B	\$0.0B	\$0.1B	\$0.0B
	2306	39	Samtrans Dumbarton Group Rapid Transit Rail Expansion	Rising Tides Falling Fortunes	\$1.1B	\$0.7B	\$0.0B	\$0.3B	(\$0.3B)	\$0.0B	\$0.4B
				Clean And Green	\$1.4B	\$1.3B	\$0.1B	\$0.2B	(\$0.3B)	(\$0.1B)	\$0.1B
				Back To The Future	\$1.3B	\$2.1B	\$0.5B	(\$1.0B)	(\$0.3B)	(\$0.1B)	\$0.1B
	2308	40	Valley Link Initial Operating Phase	Rising Tides Falling Fortunes	\$1.5B	\$0.8B	\$0.5B	\$0.2B	(\$0.1B)	(\$0.1B)	\$0.3B
				Clean And Green	\$1.2B	\$1.3B	\$0.1B	(\$0.2B)	(\$0.1B)	(\$0.1B)	\$0.1B
				Back To The Future	\$1.8B	\$2.9B	(\$0.2B)	(\$1.0B)	(\$0.1B)	(\$0.1B)	\$0.2B
2402	41	San Jose Airport Connector	Rising Tides Falling Fortunes	\$1.3B	\$0.6B	\$0.0B	\$0.3B	(\$0.1B)	\$0.0B	\$0.4B	
			Clean And Green	\$0.7B	\$1.0B	(\$0.1B)	\$0.0B	(\$0.1B)	(\$0.1B)	\$0.0B	
			Back To The Future	\$0.8B	\$1.7B	\$0.1B	(\$1.0B)	(\$0.1B)	(\$0.1B)	\$0.2B	
Implement Pricing Strategies to Manage Demand	3001	42	Downtown San Francisco Congestion Pricing	Rising Tides Falling Fortunes	\$4.8B	\$4.4B	(\$0.9B)	\$0.6B	\$0.0B	\$0.2B	\$0.5B
				Clean And Green	\$4.2B	\$4.4B	(\$0.9B)	\$0.2B	\$0.0B	\$0.2B	\$0.2B
				Back To The Future	\$9.4B	\$7.3B	\$0.3B	\$1.0B	\$0.0B	\$0.2B	\$0.5B
	3002	43	Treasure Island Congestion Pricing	Rising Tides Falling Fortunes	\$0.7B	\$0.1B	\$0.4B	\$0.1B	\$0.0B	\$0.0B	\$0.0B
				Clean And Green	\$1.0B	\$0.3B	\$0.6B	(\$0.1B)	\$0.0B	\$0.1B	\$0.0B
				Back To The Future	\$1.3B	\$0.4B	\$0.6B	\$0.3B	\$0.0B	\$0.1B	\$0.0B
Improve Highways and Interchanges	3000	44	MTC Regional Express Lane System (Plan Bay Area 2050 Network)	Rising Tides Falling Fortunes	\$3.3B	\$4.4B	\$0.6B	(\$0.4B)	(\$0.1B)	(\$0.3B)	(\$0.9B)
				Clean And Green	\$4.1B	\$3.1B	\$1.4B	(\$0.1B)	\$0.0B	(\$0.3B)	(\$0.1B)
				Back To The Future	\$15.3B	\$16.4B	\$0.2B	\$0.1B	\$0.0B	(\$0.5B)	(\$0.8B)
	3004	45	MTC Regional Express Lane System (Conversion-Only Network)	Rising Tides Falling Fortunes	\$0.5B	\$2.0B	\$0.6B	(\$1.2B)	(\$0.1B)	(\$0.2B)	(\$0.6B)
				Clean And Green	\$2.4B	\$1.5B	\$0.9B	(\$0.3B)	\$0.0B	(\$0.2B)	\$0.5B
				Back To The Future	\$6.2B	\$9.2B	(\$1.8B)	(\$0.9B)	\$0.0B	(\$0.1B)	(\$0.2B)
	3005	46	MTC Regional Express Lane System (Dual Express Lanes Network)	Rising Tides Falling Fortunes	\$3.8B	\$7.6B	\$1.1B	(\$2.1B)	\$0.0B	(\$0.5B)	(\$2.2B)
				Clean And Green	\$4.5B	\$5.5B	\$1.2B	(\$1.2B)	\$0.1B	(\$0.4B)	(\$0.6B)
				Back To The Future	\$27.2B	\$25.6B	\$1.7B	\$1.9B	\$0.1B	(\$0.4B)	(\$1.7B)
3006	47	MTC Regional Express Lane System (Expanded Network)	Rising Tides Falling Fortunes	\$3.4B	\$5.1B	\$0.7B	(\$0.7B)	(\$0.1B)	(\$0.3B)	(\$1.3B)	
			Clean And Green	\$4.4B	\$4.3B	\$0.7B	(\$0.1B)	\$0.0B	(\$0.3B)	(\$0.1B)	

Inter-regional projects: Modeled Bay Area benefits have been multiplied by a factor to reflect the ratio of expected ridership from outside the region. Valley Link Initial Operating Segment: 3.6; ACE Service Expansion: 8.5; South Bay Connect: 1.6.

Description of benefits:

Accessibility Benefits: Represents change in accessibility benefits to all Bay Area residents as a result of the project.

Transit Crowding Benefits: Captures the (dis)benefits associated with increase/decrease in crowding, since people may change their travel choices or be denied boarding, or experience discomfort in a crowded vehicle.

Freeway Reliability and Vehicle Ownership Benefits: Reflects change in non-recurring vehicle delay on freeways, and the costs of change in vehicle ownership as a result of the project.

Environmental Benefits: Captures monetary value of change in GHG emissions or impact on natural lands (wetlands, pastureland, farmland) due to the project.

Health Benefits: Represents benefits from increased physical activity due to more walking/biking and reduction in air pollutants and noise.

Safety Benefits: Captures decrease in injuries and collisions due to reduced VMT as well as operational and safety improvements such as freeway ramp redesign or grade separations.

Note: Societal transfers such as fare/toll revenue (or loss) are excluded from both benefits and costs, following standard practice for societal benefit-cost analyses.

Transit 2050+/Plan Bay Area 2050+: Final Project Performance Findings (December 2024)

Attachment C: Detailed Table of Lifecycle Benefits by Future

All values in billions of 2019 dollars discounted present value

Project Type	Project ID	Row ID	Project	Future	Grand Total	Accessibility Benefits	Transit Crowding Benefits	Freeway Reliability and Vehicle Ownership Benefits	Environmental Benefits	Health Benefits	Safety Benefits			
Improve Highways and Interchanges	3006	47	MTC Regional Express Lane System (Expanded Network)	Back To The Future	\$21.7B	\$21.2B	(\$0.1B)	\$1.9B	\$0.0B	(\$0.4B)	(\$0.9B)			
				3100	48	CCTA SR-4/SR-239 Interchange Improvements and Freeway Expansion	Rising Tides Falling Fortunes	\$0.9B	\$0.6B	\$0.1B	\$0.0B	(\$0.2B)	(\$0.1B)	\$0.3B
							Clean And Green	\$0.5B	\$0.9B	\$0.0B	(\$0.2B)	(\$0.1B)	(\$0.2B)	\$0.1B
	Back To The Future	(\$0.1B)	\$1.0B				(\$0.1B)	(\$0.9B)	(\$0.1B)	(\$0.1B)	\$0.2B			
	3104	49	STA I-80/I-680/SR-12 Interchange Improvements	Rising Tides Falling Fortunes	\$0.8B	\$0.3B	\$0.0B	\$0.0B	(\$0.1B)	(\$0.1B)	\$0.6B			
				Clean And Green	\$0.5B	\$0.5B	(\$0.2B)	\$0.1B	(\$0.1B)	(\$0.1B)	\$0.3B			
				Back To The Future	\$1.2B	\$1.2B	\$0.7B	(\$0.8B)	(\$0.1B)	(\$0.2B)	\$0.4B			
	3109	50	Alameda CTC SR-262 Interchange Improvements and Freeway Expansion	Rising Tides Falling Fortunes	\$0.2B	\$0.2B	(\$0.3B)	(\$0.3B)	\$0.0B	\$0.1B	\$0.5B			
				Clean And Green	\$0.4B	\$0.3B	\$0.0B	(\$0.1B)	\$0.0B	(\$0.1B)	\$0.2B			
				Back To The Future	\$1.4B	\$1.1B	\$0.7B	(\$0.6B)	\$0.0B	\$0.0B	\$0.2B			
	3113	51	VTA US-101/SR-25 Interchange Improvements	Rising Tides Falling Fortunes	\$3.4B	\$2.4B	(\$0.1B)	\$0.3B	(\$0.1B)	\$0.0B	\$0.8B			
				Clean And Green	\$2.0B	\$2.1B	\$0.0B	(\$0.2B)	(\$0.1B)	(\$0.1B)	\$0.2B			
				Back To The Future	\$5.2B	\$6.4B	\$0.0B	(\$1.3B)	\$0.0B	(\$0.2B)	\$0.4B			
	3114	52	VTA Countywide Expressway Interchange Improvements, Grade Separations, and Roadway Expansion	Rising Tides Falling Fortunes	\$1.3B	\$0.3B	\$0.0B	\$0.3B	(\$0.1B)	\$0.0B	\$0.7B			
				Clean And Green	\$0.9B	\$0.3B	\$0.3B	\$0.0B	\$0.0B	(\$0.1B)	\$0.4B			
				Back To The Future	\$1.8B	\$2.1B	(\$0.1B)	(\$0.6B)	\$0.0B	(\$0.1B)	\$0.5B			
	3200	53	SR-37 Freeway Expansion and Express Bus Service	Rising Tides Falling Fortunes	\$7.3B	\$0.3B	\$0.0B	(\$0.1B)	\$7.0B	\$0.0B	\$0.0B			
				Clean And Green	\$8.4B	\$0.7B	\$0.5B	\$0.1B	\$7.0B	\$0.0B	\$0.1B			
Back To The Future				\$7.9B	\$0.7B	(\$0.4B)	\$0.4B	\$7.0B	\$0.0B	\$0.1B				
5000	54	MTC Bay Area Forward	Rising Tides Falling Fortunes	\$2.7B	\$2.6B	\$0.2B	\$0.6B	(\$0.1B)	(\$0.1B)	(\$0.6B)				
			Clean And Green	\$2.2B	\$3.4B	(\$0.3B)	(\$0.1B)	(\$0.1B)	(\$0.1B)	(\$0.6B)				
			Back To The Future	\$3.2B	\$4.9B	\$0.7B	(\$0.8B)	(\$0.1B)	(\$0.2B)	(\$1.3B)				

Inter-regional projects: Modeled Bay Area benefits have been multiplied by a factor to reflect the ratio of expected ridership from outside the region. Valley Link Initial Operating Segment: 3.6; ACE Service Expansion: 8.5; South Bay Connect: 1.6.

Description of benefits:

Accessibility Benefits: Represents change in accessibility benefits to all Bay Area residents as a result of the project.

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Environmental Benefits: Captures monetary value of change in GHG emissions or impact on natural lands (wetlands, pastureland, farmland) due to the project.

Health Benefits: Represents benefits from increased physical activity due to more walking/biking and reduction in air pollutants and noise.

Safety Benefits: Captures decrease in injuries and collisions due to reduced VMT as well as operational and safety improvements such as freeway ramp redesign or grade separations.

Note: Societal transfers such as fare/toll revenue (or loss) are excluded from both benefits and costs, following standard practice for societal benefit-cost analyses.

Transit 2050+/Plan Bay Area 2050+: Final Project Performance Findings (December 2024)

Attachment D: Detailed Table of Lifecycle Costs

Lifecycle costs in billions of 2019 dollars discounted present value; Project costs in billions of 2019 dollars

Project Type	Project ID	Row ID	Project	Project Source	Total Lifecycle Cost (billions of discounted present value 2019\$)	Lifecycle Costs (billions of discounted present value 2019 dollars)				Project Costs (2019\$B)	
						Initial Capital Cost	O&M	Rehab + Replacement	Residual Value	Initial Capital Cost	Annual O&M
Enhance Transit Frequency, Capacity, and Reliability	2000	1	AC Transit Local Bus Frequency Boosts	AC Transit	\$2.2B	\$0.2B	\$1.9B	\$0.1B	\$0.0B	\$0.2B	\$0.1B
	2001	2	AC Transit Rapid Bus Frequency Boosts and Multimodal Corridor Improvements	AC Transit	\$1.3B	\$0.2B	\$0.9B	\$0.1B	\$0.0B	\$0.2B	\$0.0B
	2003	3	SFMTA Muni Forward Five-Minute Network LRT, Rapid Bus, and Local Bus Frequency Boosts	SF	\$1.5B	\$0.4B	\$0.8B	\$0.3B	\$0.0B	\$0.4B	\$0.0B
	2004	4	Sonoma County Local Bus Frequency Boosts	SCTA	\$0.4B	\$0.1B	\$0.3B	\$0.1B	\$0.0B	\$0.1B	\$0.0B
	2007	5	SFMTA Southeast San Francisco Local Bus Frequency Boosts, Express Bus Service Expansion, and Multimodal Corridor Improvements	SF	\$0.4B	\$0.2B	\$0.2B	\$0.1B	\$0.0B	\$0.2B	\$0.0B
	2008	6	AC Transit Alameda Point Rapid Bus Service Expansion and Multimodal Corridor Improvements	ACTC	\$0.3B	\$0.1B	\$0.2B	\$0.0B	\$0.0B	\$0.1B	\$0.0B
	2009	7	SamTrans Express Bus Service Expansion	SamTrans	\$0.3B	\$0.1B	\$0.2B	\$0.0B	\$0.0B	\$0.1B	\$0.0B
	2010	8	Dumbarton Bridge Express Bus Frequency Boosts, Express Bus Service Expansion, and Transit Priority Infrastructure Improvements	MTC/ABAG + SamTrans	\$0.5B	\$0.3B	\$0.1B	\$0.1B	\$0.0B	\$0.3B	\$0.0B
	2011	9	San Mateo Bridge Express Bus Service Expansion, Multimodal Corridor Improvements, and Infrastructure Improvements	MTC/ABAG	\$0.3B	\$0.1B	\$0.1B	\$0.1B	\$0.0B	\$0.1B	\$0.0B
	2012	10	VTA Frequency Boosts (Visionary Network)	VTA	\$1.9B	\$0.3B	\$1.6B	\$0.0B	\$0.0B	\$0.4B	\$0.2B
	2100	11	AC Transit San Pablo Avenue BRT	AC Transit	\$0.8B	\$0.2B	\$0.4B	\$0.1B	\$0.0B	\$0.3B	\$0.0B
	2103	12	SamTrans El Camino Real BRT	SamTrans + CCAG	\$0.5B	\$0.2B	\$0.1B	\$0.1B	\$0.0B	\$0.2B	\$0.0B
	2105	13	AC Transit E 14th Street/Mission Street/Fremont Boulevard Local Bus Frequency Boosts, Rapid Bus Service Expansion, and Multimodal Corridor Improvements	ACTC	\$0.6B	\$0.3B	\$0.2B	\$0.2B	\$0.0B	\$0.3B	\$0.0B
	2106	14	AC Transit 23rd Street BRT	AC Transit	\$0.2B	\$0.0B	\$0.1B	\$0.0B	\$0.0B	\$0.0B	\$0.0B
	2201	15	BART Core Capacity Rail Frequency Boosts and Infrastructure Improvements	BART	\$4.6B	\$3.1B	\$1.0B	\$0.6B	(\$0.2B)	\$3.7B	\$0.1B
	2202	16	Antioch-Brentwood BRT	CCTA	\$0.2B	\$0.1B	\$0.0B	\$0.0B	\$0.0B	\$0.1B	\$0.0B
	2209	17	BART Irvington Infill Station	City of Fremont	\$0.2B	\$0.2B	\$0.0B	\$0.0B	\$0.0B	\$0.2B	\$0.0B
	2210	18	Capitol Corridor South Bay Connect Rail Speed Improvements, Rail Infill Station, and Infrastructure Improvements	CCJPA	\$0.3B	\$0.3B	\$0.0B	\$0.0B	\$0.0B	\$0.3B	\$0.0B
	2302	19	Caltrain Frequency Boosts (Enhanced Growth)	Caltrain	\$1.6B	\$1.1B	\$0.5B	\$0.0B	(\$0.1B)	\$1.2B	\$0.0B
	2312	20	ACE Service Expansion	SJRRRC	\$0.3B	\$0.2B	\$0.1B	\$0.0B	\$0.0B	\$0.2B	\$0.0B
	2400	21	VTA LRT Grade Separations and Modernization - Downtown San Jose	VTA	\$0.6B	\$0.6B	\$0.0B	\$0.0B	\$0.0B	\$0.7B	\$0.0B
	2413	22	Muni Metro Modernization	SF	\$1.3B	\$0.6B	\$0.4B	\$0.4B	\$0.0B	\$0.6B	\$0.0B
	2600	23	WETA Ferry Frequency Boosts	WETA	\$0.4B	\$0.1B	\$0.2B	\$0.0B	\$0.0B	\$0.1B	\$0.0B
	2602	24	WETA Berkeley-San Francisco Ferry Service Expansion	WETA	\$0.2B	\$0.1B	\$0.1B	\$0.0B	\$0.0B	\$0.1B	\$0.0B
	2603	25	WETA Redwood City-San Francisco-Oakland Ferry Service Expansion	WETA	\$0.4B	\$0.1B	\$0.3B	\$0.0B	\$0.0B	\$0.1B	\$0.0B
	2604	26	Golden Gate Transit Ferry and Express Bus Service Expansion and Frequency Boosts	GGBHTD	\$0.6B	\$0.1B	\$0.5B	\$0.0B	\$0.0B	\$0.1B	\$0.0B
	5003	27	I-680 San Jose-Martinez Express Bus Service Expansion	CCTA	\$0.3B	\$0.1B	\$0.1B	\$0.1B	\$0.0B	\$0.1B	\$0.0B
	6023	28	ReX Green Line (Vallejo-SFO) Express Bus Service Expansion	MTC/ABAG	\$0.3B	\$0.1B	\$0.2B	\$0.0B	\$0.0B	\$0.1B	\$0.0B
	6024	29	ReX Red Line (Oakland-Redwood City) Express Bus Service Expansion	MTC/ABAG	\$0.4B	\$0.3B	\$0.1B	\$0.1B	\$0.0B	\$0.3B	\$0.0B
	6025	30	ReX Blue Line (San Francisco-San Jose) Express Bus Service Expansion	MTC/ABAG	\$0.5B	\$0.3B	\$0.2B	\$0.1B	\$0.0B	\$0.3B	\$0.0B
Expand Transit Services throughout the Region	1004	31	Link21 Rail Expansion	BART + CCJPA	\$29.9B	\$28.4B	\$1.7B	\$2.1B	(\$2.3B)	\$36.3B	\$0.1B
	2205	32	BART Silicon Valley Phase II Extension	VTA	\$7.0B	\$6.6B	\$0.5B	\$0.5B	(\$0.6B)	\$8.8B	\$0.0B
	2206	33	VTA Stevens Creek LRT Extension	VTA	\$1.4B	\$1.3B	\$0.1B	\$0.1B	(\$0.1B)	\$1.6B	\$0.0B
	2211	34	SFMTA Central Subway Extension	SF	\$1.2B	\$1.3B	\$0.0B	\$0.0B	(\$0.1B)	\$1.6B	\$0.0B
	2212	35	SF Geary/19th Avenue Subway	SF	\$15.2B	\$15.9B	\$0.5B	\$0.2B	(\$1.4B)	\$19.7B	\$0.0B
	2300	36	Caltrain/HSR Portal (Downtown Rail Extension)	TJPA + SFCTA	\$4.8B	\$4.7B	\$0.4B	\$0.1B	(\$0.4B)	\$5.5B	\$0.0B
	2304	37	SMART Windsor-Cloverdale Extension	SMART	\$0.5B	\$0.4B	\$0.1B	\$0.1B	\$0.0B	\$0.4B	\$0.0B
	2305	38	SMART Solano Extension	SMART	\$1.5B	\$1.1B	\$0.2B	\$0.3B	\$0.0B	\$1.2B	\$0.0B
	2306	39	Samtrans Dumbarton Group Rapid Transit Rail Expansion	SamTrans + CCAG	\$2.6B	\$2.1B	\$0.4B	\$0.2B	(\$0.1B)	\$2.4B	\$0.0B
	2308	40	Valley Link Initial Operating Phase	TVSJVRRRA	\$2.0B	\$1.4B	\$0.5B	\$0.3B	(\$0.1B)	\$1.5B	\$0.0B
Implement Pricing Strategies to Manage Demand	2402	41	San Jose Airport Connector	City of San Jose	\$0.8B	\$0.6B	\$0.2B	\$0.1B	\$0.0B	\$0.6B	\$0.0B
	3001	42	Downtown San Francisco Congestion Pricing	SF	\$0.6B	\$0.1B	\$0.4B	\$0.1B	\$0.0B	\$0.1B	\$0.0B
	3002	43	Treasure Island Congestion Pricing	SF	\$0.2B	\$0.0B	\$0.2B	\$0.0B	\$0.0B	\$0.0B	\$0.0B

Lifecycle Costs (calculated using discounted present value methodology):

Initial Capital Cost: Capital cost of constructing/implementing the project.
O&M: Annual operating and maintenance costs of the project over the full analysis period.
Rehab + Replacement: Rehabilitation costs of pavement and roadway structures; replacement costs of roadway and transit assets after their useful lives. (e.g. bus replacement every 14 years, roadway technology every 20 years)
Residual Value: Represents useful value of assets/infrastructure at the end of the analysis period (based on straight line depreciation).

Project Costs:
Reflects sponsor submitted costs of projects. These were revised in some cases when a high-level cost review of all projects using an independent cost consultant, and a uniform methodology flagged sponsor costs that may have been underestimated (such cases were discussed with the sponsors individually).

Note: Societal transfers such as fare/toll revenue (or loss) are excluded from both benefits and costs, following standard practice for societal benefit-cost analyses.

Transit 2050+/Plan Bay Area 2050+: Final Project Performance Findings (December 2024)

Attachment D: Detailed Table of Lifecycle Costs

Lifecycle costs in billions of 2019 dollars discounted present value; Project costs in billions of 2019 dollars

Project Type	Project ID	Row ID	Project	Project Source	Total Lifecycle Cost (billions of discounted present value 2019\$)	Lifecycle Costs (billions of discounted present value 2019 dollars)				Project Costs (2019\$B)	
						Initial Capital Cost	O&M	Rehab + Replacement	Residual Value	Initial Capital Cost	Annual O&M
Improve Highways and Interchanges	3000	44	MTC Regional Express Lane System (Plan Bay Area 2050 Network)	MTC/ABAG	\$6.7B	\$2.9B	\$2.6B	\$1.3B	(\$0.2B)	\$3.4B	\$0.2B
	3004	45	MTC Regional Express Lane System (Conversion-Only Network)	MTC/ABAG	\$4.8B	\$1.7B	\$2.4B	\$0.8B	(\$0.1B)	\$1.9B	\$0.1B
	3005	46	MTC Regional Express Lane System (Dual Express Lanes Network)	MTC/ABAG	\$10.3B	\$4.2B	\$4.5B	\$1.9B	(\$0.2B)	\$4.8B	\$0.3B
	3006	47	MTC Regional Express Lane System (Expanded Network)	MTC/ABAG	\$8.2B	\$3.8B	\$2.9B	\$1.7B	(\$0.2B)	\$4.3B	\$0.2B
	3100	48	CCTA SR-4/SR-239 Interchange Improvements and Freeway Expansion	CCTA	\$1.1B	\$0.8B	\$0.0B	\$0.3B	(\$0.1B)	\$1.0B	\$0.0B
	3104	49	STA I-80/I-680/SR-12 Interchange Improvements	STA	\$0.7B	\$0.5B	\$0.0B	\$0.2B	\$0.0B	\$0.6B	\$0.0B
	3109	50	Alameda CTC SR-262 Interchange Improvements and Freeway Expansion	ACTC	\$0.4B	\$0.4B	\$0.0B	\$0.1B	\$0.0B	\$0.4B	\$0.0B
	3113	51	VTA US-101/SR-25 Interchange Improvements	VTA	\$0.5B	\$0.4B	\$0.0B	\$0.1B	\$0.0B	\$0.5B	\$0.0B
	3114	52	VTA Countywide Expressway Interchange Improvements, Grade Separations, and Roadway Expansion	VTA	\$1.6B	\$1.7B	\$0.0B	\$0.1B	(\$0.2B)	\$2.1B	\$0.0B
	3200	53	SR-37 Freeway Expansion and Express Bus Service	MTC/ABAG/North Bay Count..	\$6.5B	\$5.3B	\$0.0B	\$1.5B	(\$0.4B)	\$6.2B	\$0.0B
	5000	54	MTC Bay Area Forward	MTC/ABAG	\$0.8B	\$0.4B	\$0.1B	\$0.3B	\$0.0B	\$0.5B	\$0.0B

Lifecycle Costs (calculated using discounted present value methodology):

Initial Capital Cost: Capital cost of constructing/implementing the project.

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Rehab + Replacement: Rehabilitation costs of pavement and roadway structures; replacement costs of roadway and transit assets after their useful lives.

(e.g. bus replacement every 14 years, roadway technology every 20 years)

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