

Agenda

VIRTUAL MEETING
Metro Sustainability Council

Agenda

- a. Welcome/Remarks: Chair (5 min)
 - b. Approval of Minutes: Chair (2 min)
 - c. Recovery Task Force Debrief: Chair (15 min)
 - d. Energy and Resilience at Metro: Craig (15 min)
 - e. Metro Environmental and Sustainability Program: Cris/Paul/Alvin (20 min)
 - f. Working Group Discussion: Chair (15 min)
 - g. Action Items Log: Aaron (2 min)
 - h. General Public Comment (5 min)
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- a. Welcome/Remarks: Chair (5 min)
 - b. Approval of Minutes: Chair (2 min)
 - c. Equity Program: KeAndra Cylear Dodds (20 min)
 - d. Traffic Reduction Study: Tham Nguyen (20 min)
 - e. Sustainability Program Update: Cris Liban (10 min)
 - f. Metro's Measure W (Clean Safe Water) Program: Heather Repenning (25 min)
 - g. Energy and Resilience at Metro: Craig Reiter (15 min)
 - h. Action Items Log: Aaron (2 min)
 - i. General Public Comment (5 min)
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Metro

Los Angeles County
Metropolitan Transportation Authority

A. Welcome/Remarks

Thomas Small: Recognition of tragedy of 09/11. Moment of silence. First meeting with new executive committee. Welcome Ghina as co-vice chair and welcome new members: Sanjiv Gupta, Marie Taylor. Thomas will not be running for elected office but will take on the role of CEO of nonprofit organization- Culver City Forward.

Cris Liban: Aaron is working on updating the Sustainability Council webpage.

B. Approval of Minutes

Bryn L. EV plan mentioned in minutes, confirming it will be added to meeting arc. Minutes approved.

C. Equity Program (KeAndra Cylear Dodds)

KeAndra C: Overview and Introduction of Metro's equity program:

- Goal is to increase access to opportunity, while recognizing there are disparities in mobility options and transportation options.
- Equality does not equal equity
- We focus on broader land use conditions and structural inequality. Splitting community resources evenly does not work. Some need more resources. We need to be intentional in understanding barriers to equity.
- Equity is an outcome and a process to address disparities to ensure and just access to opportunity.
- Equity platform does address sustainability
- Rapid Equity Assessment Tool- simple tool of 6 questions, recently introduced publicly. Developed with COVID response to allow us to include equity even in quick decisions.
- Equitable processes are central
- To be successful we need to build knowledge and capacity
 - This is the job of everyone at Metro
 - We have equity liaisons from each department
- What's next?
 - Require an equity section in board reports
 - Agencywide assessment and strategic plan
 - JEDI Book Club
 - Training for staff

Comment (Thomas S.): Impressive how Metro is on the leading edge of culture. What you are suggesting is a way to move this forward.

Q (Eli L): The clear path and step by step process is very helpful. How are we going to address the budget? Sometimes it does not seem equitable—will bus service be cut? How do we integrate equity in budget processes?

A (Keandra): This is a critical area- I am still learning especially when there are changes due to crisis. We have been looking at whether there are other tools and processes in place for other agencies to implement equity into their budget.

A (Thomas S.): Budget is direct reflection of your values, so this point is well taken in the equity discussion. In Culver City we work with GAR, but right now we are in a historic moment where we are realizing how systemic these issues. The process described by Keandra will contribute to this.

(NEXT TOPIC)

Comment (Patty M.): This is a great presentation, and there is a lot of value in the listening aspect. I have been part of conversations about equity and sustainability together and excited to keep this moving forward in this historic time.

Comment (James O.): Commends presentation.

Comment (Cris L.): The work on social and economic equity as part of the sustainability work has been going on at Metro for 10 years, and we look forward to integrating this into our reporting mechanism in working with KeAndra. There will be an active effort from the sustainability department.

Comment (Bryn L.): First-Last Mile and faster bus service was a priority conducted during our survey.

(NEXT TOPIC)

Q (Luis R.): Are you familiar with any trends or challenges other agencies have experienced?

A (KeAndra): Slow and progressive change is necessary. There is frustration around how quickly people expect change. We are trying to build a base, this will be a journey, if we do it quickly, we risk making it worse.

(NEXT TOPIC)

Q (Doug D.): Do your counterparts see this integrated into sustainability? There is more than just the environmental lens.

A (KeAndra): I've worked primarily in housing and transportation; some people need additional explanation but generally across the board people understand that social and economic factors are part of sustainability.

(NEXT TOPIC)

Q (Ghina Y.): Request to come back in the future and discuss how we are partnering on this outside of Metro, working with City

A (KeAndra): We are having conversations with the City, the County, etc. to understand potential and how to build these partnerships. Want to share what we are doing even on a national level.

D. Traffic Reduction Study (Tham Nguyen)

Tham: Introduction of study and soliciting feedback:

- Goal to decrease congestion and potentially test out a strategy but also increasing mobility
- Planning (not just during the pandemic)
- LA experiencing population growth, which impacts congestion
- Trying to identify pilot program
- To date we have not been able to find a successful way reduce congestion.
- Access to high quality transportation options is problematic
- Where and how can we implement a pilot program? Identifying city partners will be key
- We are looking to have a coalition to engage with stakeholders
- There are other positives, including equity and how we re-invest back into the communities.
- We need to establish measures of success.
- The simplest explanation of congestion is there are more vehicles than available supply of road space.

- Discussion on demand of traffic- charging during high demands times, we need to keep demand below capacity, we can do so through congestion pricing which may encourage people to use different routes, different mode, or different time to travel. The price will be low enough to still be affordable.
- Implementing some better mobility options will also be important in conjunction with congestion pricing.
- By November we are trying to get to some initial plans, including locations of where we can pilot
- Corridor Pricing or VMT pricing are options
- We have been doing a lot of stakeholder engagement, the location is the biggest question
- We have been working closely with KeAndra and equity is central to this study
- Goal is to bring an implementation plan to the board by Spring 2022 after completion of the pilot

Comment (Thomas S.): Culver city is a ready partner. We are closing our streets now for dining now during Covid.

Q (Eli L.): This program would be the largest VMT and GHG reduction program we have seen. Have you considered the idea of emissions playing a factor in pricing? This can be done in communities that have specifically suffered effects of GHGs.

A (Tham N.): We do have core goals, which include environmental aspects.

(NEXT TOPIC)

Q (Roy T.): Last time this was presented to the council, we discussed that rush hour and going to work largely affects the time of travel. Have you considered a partnership with businesses to address the drivers going to work through their company?

A (Tham N.): Business will also have a part to play. But we note that in Los Angeles the commute is not the only type of trip in Los Angeles. But we are looking at incentives for employers to manage travel demand. Now we want to explore more aggressive measures.

(NEXT TOPIC)

Q (Sanjiv Gupta): Traffic is non-linear so you need to take an integrative approach. In Austria CISCO systems has connected roadways. How can we bring technology services and data collection to this?

A (Tham): Thank you- we look forward to engaging with you when we get closer to that time.

(NEXT TOPIC)

Q (Kat J.): Culture is important. We need to be careful with the VMT method being equitable. Goods movements is also crucial—what is the delivery impact on congestion and how can we reduce that? In 1924 LA was already trying to deal with traffic—this may have caused the sprawl in part because high rise buildings were considered to cause congestion.

A (Tham N.): We recognize goods movement is a contributor, and we will be engaging in conversations with those stakeholders.

(NEXT TOPIC)

Q (Berwyn): Madrid was a good example- they have rings for entering and charging is automatic. There is no equipment involved in Madrid like a Fastrack. Madrid also has different

size buses. In Singapore cost of car permit is expensive. There is also number coding on license plates that restrict travel in certain area- used a lot in Europe.

A (Tham): Thank you for sharing that there are multiple strategies.

E. Sustainability Program Update (Cris Liban)

Chris Liban: Update on Sustainability Strategic plan and accomplishments timeline.

- This program has been cost neutral since 2017
- There is potential of even more monetized value from implementation of this program.
- We are in alignment with the larger agency goals.

F. Metro's Measure W (Clean Safe Water) Program (Heather Reppening)

Heather Reppening: Discussion of work around Measure W.

- Significant opportunity for Metro over coming years.
- Clean Safe Water Program establishes a parcel tax for runoff paid by property owners
- The money goes to projects helping cities meet water quality updates
- Gives priority to projects collecting and re-using rainwater

Melissa Levitt: Provides overview of program.

- Regional Program funds for multi-benefit, watershed-based stormwater projects among 9 watershed areas
- Yearly application for projects—due by October 15 2020.
- Watershed committees make decisions on funding

Heather R.: We are looking at how to maximize Metro's participation in the program.

- Rail to Rail project in South LA
- Doing analysis in area of Metro Orange Line for potential large-scale aquifer recharge
- West Santa Ana could be a potential partnership with state
- Vermont Bus Rapid Transit Corridor may also be an opportunity for a groundwater recharge project
- Looking for options of other Green Infrastructure and Urban Cooling through stormwater systems
- Workshop with Streets LA next week.

G. Energy and Resilience at Metro (Craig Reiter)

Craig Reiter: Main presentation will be postponed, but discussion on upcoming events:

- Sept 22nd we are hosting Energy Resiliency Symposium
 - We had impressive white papers, and the selected ones will be presented
 - Will also have a panel of industry leaders
- January 2021 there will be an Energy Resiliency Summit
- All information is on Metro Sustainability Website

Cris L.: We would appreciate if the council can promote the events and we are hoping to have as many people as we can.

H. Actions Items Log (Aaron Santos)

Aaron S.: Transit oriented communities' presentation will be included for a future meeting.

SUSTAINABILITY COUNCIL MEMBERSHIP LIST

YEAR: 2020-21

As of September 4, 2020

		Department	Email
Metro Staff	---	Cris Liban	ECS D LibanE@metro.net
		Heather Repenning	ECS D RepenningH@metro.net
		Aaron Santos	CEO SantosAa@metro.net
		Paul Backstrom	Planning BackstromP@metro.net
		Debra Avila	Vendor/CM AvilaD@metro.net
		Carolina Coppolo	Vendor/CM CoppoloC@metro.net
		Robin Blair	Operations BlairR@metro.net

Main Category	No. Seats	Sub-Category	Classification	Member First Name	Member Last Name	Member Organization	Member Email	Member Phone	Notes	
Local Gov't Public entities (COGs, cities, special jurisdictions)	3	City of Los Angeles	Primary	Lauren	Faber	City of LA	lauren.faber@lacity.org			
			Alternate	Michael	Samulon	City of LA	michael.samulon@lacity.org			
		County of Los Angeles	Primary	Kristen	Torres-Pawling	County of LA	kpawling@ceo.lacounty.gov			
			Alternate	Rita	Kampalath	County of LA	RKampalath@ceo.lacounty.gov			
		Other (Small Cities, etc.)	Primary	Thomas	Small	Small Cities	Thomas.small@culvercity.org	310-922-7286		
			Alternate	Wendy	Nystrom	Small Cities	nystromwendy@gmail.com	617-686-8662		
Environmental NGOs	7	Water Resources	Primary	Roy	Thun	SuRF	roy.thun@GHD.com	805-501-3956		
			Alternate	VACANT						
		Water Quality	Primary	VACANT						Formerly Bruce Reznik - LA Waterkeeper
			Alternate	VACANT						Formerly Yareli Sanchez - Watershed Health
		Energy	Primary	Sanjiv	Gupta	Irepa International, LLC	anjiv.gupta@irepa-international.com	805-637-3276		
			Alternate	VACANT						Formerly Michael Swords - LACI
		Habitat /Natural Resources	Primary	Luis	Rodriguez	Tree People	lrodriguez@treepeople.org			
			Alternate	VACANT						Formerly Belinda Faustinos - Nature for All
		Climate	Primary	David	Diaz	Active SGV	david@activesgv.org	626-602-5064		
			Alternate	VACANT						Formerly Cindy Montanez - Tree People
		Materials and Resources	Primary	Bryn	Lindblad	Climate Resolve	blindblad@climateresolve.org	310-227-0184		
			Alternate	Peter	Meng	CEENGR	peterm@ceengr.com			
		Air Quality	Primary	Joel	Levin	Plug-In America	jlevin@pluginamerica.org	213-935-1364		
Alternate	VACANT									
NGO Equity	1	Social, Environment Justice (Equity)	Primary	Mary	McCormick	MBI Media	mary@mbimedia.com			
			Alternate	Eli	Lipmen	Move LA	eli@moveLA.org			
Professional Associations (Architects and Engineers)	2		Primary	Ghina	Yamout	MARRS Services	ghina@MARRScorp.com	850-980-2078		
			Alternate	Joe	Ablay	ICI Engineering	joe.ablay@ICIengineers.com	909-967-0236		
			Primary	Patricia	Menjivar	Kleinfelder	pmenjivar@kleinfelder.com	(213) 610-0817		
			Alternate	Kimberly	Colbert	Colbert Group	kimberly@colbertgroup.com			
Landscaping and Infrastructure Design	1		Primary	Doug	Dietrich	Burns and McDonnell	ddietrich@burnsmcd.com	913-325-3632		
			Alternate	Charles	Favors	CBF XIERSCAPE DESIGNS	cbf.favors@gmail.com	323-570-6261		
Local Labor Unions	1		Primary	Jennifer	Kropke	IBEW	jkropke@ibew11.org	626-658-6447		
			Alternate	VACANT					Formerly Carolyn Hull- LA County Economic Dev Corp	
Public Health	1		Primary	VACANT					Formerly Elizabeth Rhoades - LA County Dept of Public Health	
			Alternate	VACANT					Formerly Jack Sahl - Jack Sahl and Associates	
Technical Advisory Committee (TAC)	1		Primary	VACANT					Formerly Mike Bagheri - City of Pasadena	
			Alternate	VACANT					Formerly Mark Hunter	
Transportation Business Advisory Council (TBAC)	1		Primary	Berwyn	Salazar	Global ASR	berwyn@globalasr.com			
Associated General Contractors (AGC)	1		Alternate	James	Okazaki	TBAC - AA/AEA	jokazaki@sbcglobal.net			
			Primary	Emily	Freund	Flatiron Construction	efreund@flatironcorp.com			
			Alternate	Mark	Kempton	Kempton Strategies	mark@kemptonstrategies.com	408-431-7789		

Green Building and Services Industry	2		Primary	Salem	Afeworki	Value Sustainability	safeworki@valuesustainability.co	510-701-7056			
			Alternate	Pavitra	Rammohan	Deep Root Green Infrastructure	pavitra@deeproot.com	323-708-0360			
			Primary	Kat	Janowicz	3COTECH	kat@3cotech.com	714-478-4434			
Real Estate Development Community	1		Alternate	Ben	Stapleton	USGBC-LA	ben@usgbc-la.org				
			Primary	Cecilia	Jackson	Stoneridge Development	cecilaj@srds-llc.com				
Academic Institution	1		Alternate	Marie	Taylor	NAI Capital Commercial	mtaylor@naicapital.com	626-222-7449			
			Primary	Hilda	Blanco	USC	hblanco@price.usc.edu				
Foreign Organization	1	Foreign Entities	Alternate	Mehran	Mazari	Cal State LA	mmazari2@calstatela.edu	323-332-1823			
			Primary	VACANT						Formerly Stephen Cheung - President World Trade Ctr	
Future Memberships Voted by SAC	3		Alternate	VACANT						No applications received. Former Member: Aki Luukkainen.	
			Primary								
			Alternate								
			Primary								
			Alternate								
Metro Executive Staff	3	LA Metro (ex-officio members)	---	Nadine	Lee	CEO	leen@metro.net				
			---	Rick	Clarke	Program Management	clarker@metro.net				
			---	Bryan	Pennington	Program Management	penningtonb@metro.net				
Total	30										

VACANT SEATS

Metro Sustainability Council



Sustainability Council
 FY21 **WORKING DRAFT** Meetings Arc
 As of *October 24, 2020*

Meeting	Agenda Topics	Outcomes
July 10, 2020	<p>ACTION: Executive Committee Elections</p> <p>PRESENTATION: Draft Long-Range Transportation Plan</p> <p>PRESENTATION: Sustainability Program for Capital Projects</p> <p>PRESENTATION: Coronavirus Recover Task Force</p>	<p>Selection of Metro Sustainability Council Executive Committee Members: Chair/Vice-Chair/Second Vice-Chair</p> <p>Present Draft Long-Range Plan to solicit feedback from the SC to prepare the final Plan</p> <p>Discuss Metro’s process to incorporate sustainability strategies into Capital projects</p> <p>Provide an update on early action items.</p>
September 11, 2020	<p>UPDATE: Sustainability Program</p> <p>UPDATE: Metro’s Measure W (Clean Safe Water) Program</p> <p>PRESENTATION: Equity Program</p> <p>PRESENTATION: Traffic Reduction Study</p>	<p>Report out the findings of Metro’s Sustainability Programs implementation</p> <p>Presenting Metro projects that are applying for Measure W funding</p> <p>Provide an overview of Metro’s Equity Program.</p> <p>Provide an overview of Metro’s Traffic Reduction Study.</p>

<p>November 13, 2020</p>	<p>WORKSHOP: Metro Recovery Task Force and Metro Environmental and Sustainability Program</p> <p>PRESENTATION/UPDATE: Energy Resilience at Metro</p>	<p>Identify changes and adjustments in environmental and sustainability efforts relative to Metro Recovery Task Force</p> <p>Discuss Metro’s efforts on energy resilience</p>
<p>January 8, 2021</p>	<p>WORKSHOP: Interactive Sustainability Data</p> <p>TO BE INVITED: Metro Fleet Electrification Program</p> <p>PRESENTATION: Transit Oriented Communities Implementation Plan</p>	<p>Sharing publicly accessible data for sustainability at Metro</p> <p>Update on Metro Fleet Electrification Program</p> <p>Provide an overview of Metro’s Transit Oriented Communities Implementation Plan</p>
<p>March 12, 2021</p>	<p>UPDATE: Sustainability Acquisition Program</p> <p>WORKSHOP: Water Strategies</p>	<p>Update on the Sustainability Acquisition Program Pilots and Next Steps.</p> <p>Potable water reduction strategies and green infrastructure. Water Action Planning process</p>
<p>May 14, 2021</p>	<p>UPDATE: Moving Beyond Sustainability Update</p> <p>UPDATE: EV Charger Program</p>	<p>Update Sustainability Council on MBS goals and targets progress.</p> <p>Discuss progress of Metro EV Charger Program</p>

ENERGY RESILIENCY



Sustainability Council Update, November 2020



Can Metro be UP,
if the grid is DOWN?



Metro

Discussion Points



- Why Resilience, Why Now?
- How Metro is Addressing Energy Resilience
- Next Steps

Why Energy Resilience, Why Now?



- Metro is in a transition period while we electrify our fleet and build out our system
- Understand the external threats to the power grid and the impacts to Metro's operations
- Focused on continuity of service to our customers
- Fulfill our promise of access and mobility despite conditions that we cannot control
- Ensuring environmental justice in the development of solutions that benefit the entire region



External Threats to the Power Grid



Source: threatpost.com

Understanding the external threats and vulnerabilities of the power grid allows Metro to develop strategies that ensure Continuity of Operations and Emergency Response.

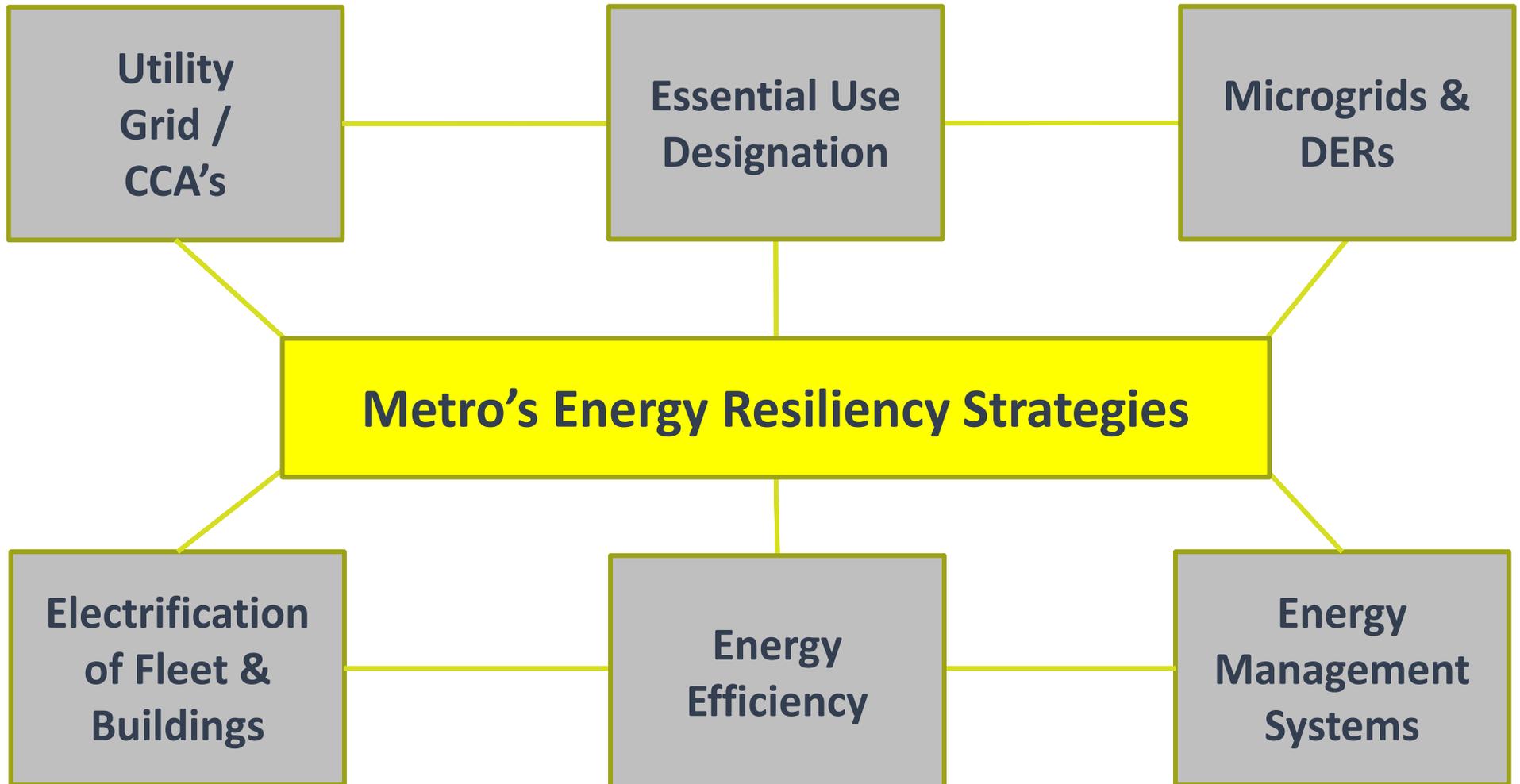


How Metro is addressing Energy Resilience



Metro

Energy Resiliency Opportunities



Energy Resilience Feasibility Analysis



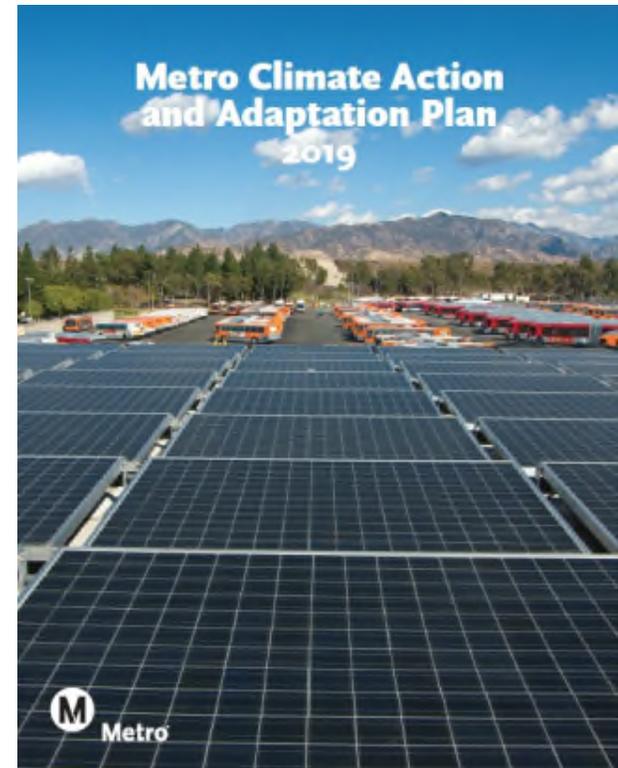
- To ensure Continuity of Operations, Metro is looking at energy solutions in the following areas:
 - Microgrid, solar and battery storage assessments to guarantee system reliability in critical areas
 - Energy Management System implementation to audit and manage energy and reduce energy consumption



Energy Resiliency - 4Ps



- To ensure success, Metro has developed Plans, Procedures, Policies and Protocols that support energy resilience:
 - Moving Beyond Sustainability (MBS)
 - Climate Action and Adaptation Plan (CAAP)
 - Resiliency Framework
 - Sustainable Acquisition Program
 - Continuity of Operations (CO-OP)
 - Environmental Policy



Energy Resiliency - Partnerships



- Metro is looking at every opportunity to incorporate technology and innovation to make our system more energy resilient. We are evaluating the following programs:
 - DWP's FIT (Solar), FIT PLUS (Solar + Battery), DER RFP, EV Charger Programs
 - SCE's Charge Ready Program, Clean Power Alliance, DERP program
 - CEC & DOE Grants for energy installations

Energy Resiliency Events

Three-part series to gather information, engage the market, share knowledge, and increase transparency.

May 15, 2020

**Energy
Resiliency
Webcast**

Sept 22, 2020

**Energy
Resiliency
Symposium**

Jan, 2021

**Energy
Resiliency
Summit**



Metro

Q&A



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THANK YOU

Metro Environmental and Sustainability Program



Metro Sustainability Program



- Focus areas
 - Climate and Resiliency
 - Energy, Water, Solid Waste and Recycling
 - Materials, Construction and Operations
 - Economic and Workforce Development
- *CAAP* and Ten-Year Strategic Plan, *MBS*
- Why a Financial Analysis?
- MBS Report Back, January 2021
 - Metro as a net GHG displacer
 - Routemap: Regional effects of our work
 - Investments vs. sustainability/resiliency

Emerging Issues: What's Next?



- > Addressing COVID-19 and Recovery Task Force recommendations
- > Achieving our goals amidst and in response to an ongoing fiscal and economic crisis
- > Developments with highway infrastructure and active transportation funds
- > Managing retired diesel and CNG bus fleets and potential community impacts
- > New opportunities and developments in technology, funding and financing
- > Revisiting and incorporating learned lessons through our flexible adaptive pathways approach
- > Forthcoming plans and newly developed social and economic sustainability metrics

- 2019 Sustainability Acquisition Program
- Partnerships and collaboration with others
- Life Cycle CBA
- Strengthening outcomes through continual improvement

p. 104, Moving Beyond Sustainability

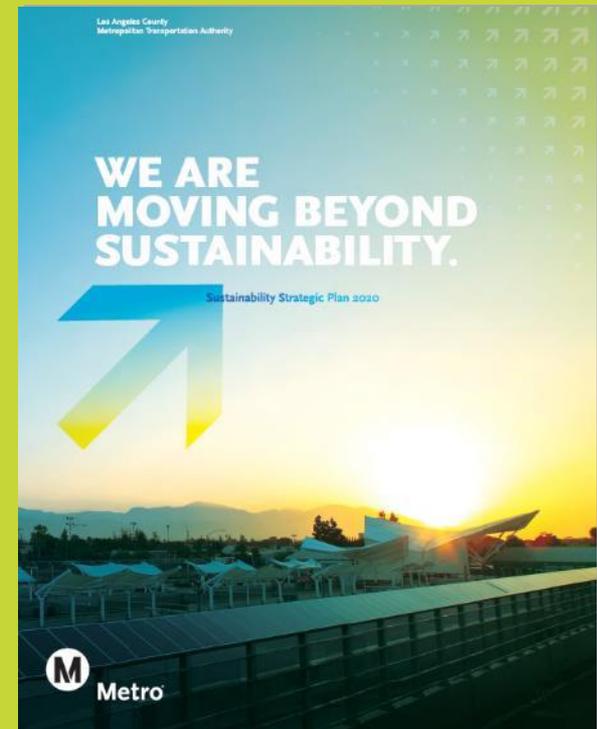


Moving Beyond Sustainability – Implementation Plan Development

MBS – Overview



- Updates/consolidates the Metro Sustainability Implementation Plan and Countywide Sustainability Planning Policy
- Unifies agency-wide sustainability efforts
- Establishes 10-year sustainability goals and targets



MBS – Strategies & Actions



Item No.	MBS Category	No. of Targets	No. of Strategies	No. of Action Items
1.	Water Quality and Conservation (WQC)	2	9	36
2.	Solid Waste (SW)	3	5	26
3.	Materials Construction and Operations (MCO)	3	8	36
4.	Energy Resource Management (ERM)	2	5	21
5.	Emissions and Pollution Control (EPC)	4	5	20
6.	Resilience and Climate Adaptation (RCA)	3	5	34
7.	Economic and Workforce Development (EWD)	3	5	15

MBS-IP: Prioritization Criteria



Item No.	Prioritization Criteria
A.	Bucket 1 Project Support
B.	Risks and Liabilities
C.	Opportunities for Grants/Partnerships
D.	Board Direction
E.	Internally Funded
F.	Equity Platform Nexus
G.	Regional Impact

MBS-IP: Top 5 WQC Actions



Water Quality and Conservation (WQC) - 36 Action Items

1.1 Implement all identified water conservation projects.

1.2 Update the 2010 Water Action Plan to outline operational water conservation, efficiency and reuse strategies through 2030 to fulfill the goals of the 2019 CAAP and MBS.

4.1 Further integrate and regularly update water conservation approaches into contractor requirements to better mitigate water use impacts from construction through operations.

4.6 Establish procedures requiring the regular review and update of SOPs for water use that reflect best water conservation and efficiency practices.

5.3 Work with regional partners, like the Metropolitan Water District, to maximize stormwater capture and recycled water use opportunities that support Measure W and other applicable requirements or regulations.

MBS-IP: Top 5 SW Actions



Solid Waste (SW) - 26 Action Items

2.2 Update agency-wide recycling programs to streamline collection bins and standardize signage.

2.3 Update specifications and contractor SOWs to require compliance with organics regulations.

2.4 Establish programs to divert organic waste from landfills, including edible food donation, anaerobic digestion and composting.

2.5 Evaluate and prioritize facilities for implementation of organics programs.

3.3 Develop and deploy staff training on sustainable waste management principles and compliance obligations.

MBS-IP: Top 5 MCO Actions



Materials Construction and Operations (MCO) - 36 Action Items

- 1.2 Ensure continual improvement in alignment with MRDC, Bus Rapid Transit, design criteria and language with current CALGreen codes and Board policies.
- 1.3 Increase early engagement with ECSD by identifying sustainability standards that are required during early project planning phases.
- 2.1 Assess available environmental certifications for adoption as Metro's standard
- 4.1 Evaluate the SP Program to identify opportunities to increase contractor compliance and project sustainability commitments.
- 5.1 Integrate the Sustainability Engagement Team into all phases of major capital projects to shepherd project specific sustainability and environmental requirements.

MBS-IP: Top 5 ERM Actions



Energy Resource Management (ERM) - 21 Action Items

4.1 Complete installation of identified solar PV projects.

4.2 Expand PV Operations and Maintenance Program.

4.3 Update renewable energy inventory and include distributed energy resources.

4.4 Develop and refine solar design guidelines for all Metro projects, including considerations for scalability.

4.5 Identify additional onsite renewable energy generation and energy storage projects.

MBS-IP: Top 5 EPC Actions



Emissions and Pollution Control (EPC) - 20 Action Items

1.1 Adopt and implement Metro's Zero Emission Bus Master Plan.

1.2 Develop, adopt and implement an EV Implementation Plan to expand use of EVs and access to EV charging infrastructure.

1.3 Pursue transition of non-revenue medium-to-heavy duty vehicles and vanpool fleet to electric vehicles.

2.1 Complete fleet transition to RNG.

2.2 Apply renewable diesel requirements for contractors and identify opportunities to decarbonize fuel sources at construction sites.

MBS-IP: Top 5 RCA Actions



Resilience and Climate Adaptation (RCA) - 34 Action Items

- 1.1 Regularly perform detailed natural and anthropogenic risk assessments for all critical Metro properties, assets and operations.
- 1.2 Assess climate change hazards to the transportation system, with an emphasis on EFCs, utilizing best available data from recognized sources like CalAdapt, FEMA, USGS and other research institutions.
- 1.3 Develop an Energy Resiliency Policy.
- 3.1 Regularly update Metro Continuity of Operations, All-Hazards Mitigation Plan and related reports, incorporating new data and information about the type and duration of hazards and make corresponding updates to the mitigation strategies.
- 4.8 Increase passenger comfort and safety through shading and cooling features at transit stations, ensuring HVAC equipment functionality on Metro buses, and identifying and partnering with local municipalities with jurisdiction over sensitive bus stops.



MBS-IP: Top 5 EWD Actions



Economic and Workforce Development (EWD) - 15 Action Items

2.1 Create effective, targeted communication to communities typically unresponsive or underrepresented in hiring practices.

2.3 Establish a Board policy based on the tenets of WIN-LA.

3.4 Develop sustainability training that will be needed by future employees.

4.1 Provide assistance in navigating the Metro business registration and procurement process.

5.1 Complete a Goods Movement Strategic Plan.

MBS-IP: Timeline



Item No.	Task/Event	Tentative Timeframe
1.	Meet with Category PM's to prioritize MBS Action Items, develop ROM, and identify projects and tasks.	Sep. 30, 2020
2.	Conduct workshop with Category PM's, SME's, and internal partners to present/discuss MBS Action Item priorities, ROM's, and projects.	Oct. 14, 2020
3.	Present MBS Action Items priorities to internal and external stakeholder for input/guidance.	Mid-Nov. 2020
4.	Meet with Category PM's to program MBS Action Items and projects/tasks by fiscal year.	Mid-Nov. 2020
5.	Report by category working groups on the programming of Action Items and tasks by fiscal year.	Early-Dec. 2020
6.	Finalize MBS 5-Year (FY22 - FY26) Implementation Plan (IP).	Jan. 2021
7.	Develop FY22 Work Plan based on final MBS IP.	Feb./Mar. 2021

Thank You

Cris Liban, Metro Environmental Compliance
and Sustainability

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Alvin Kusumoto, Metro Environmental
Compliance and Sustainability

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and Development

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Christine Marez, Sustainability Consultant

CMarez@ccorpUSA.com



Action Item No.	Action Items	Notes
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Water Quality and Conservation (WQC) - 36 Action Items

W1: Identify and implement operational water conservation and efficiency projects

1	1.1 Implement all identified water conservation projects.	
2	1.2 Update the <i>2010 Water Action Plan</i> to outline operational water conservation, efficiency and reuse strategies through 2030 to fulfill the goals of the <i>2019 CAAP</i> and <i>MBS</i> .	
3	1.3 Prioritize the new Water Action Plan strategies for phased implementation.	
4	1.4 Conduct pilot studies on rail wash facilities to reduce potable water use and replace existing equipment with more efficient equipment based on the pilot results.	
5	1.5 Develop and conduct staff training on water conservation strategies.	

W2: Increase the use of non-potable water sources to offset potable water use

6	2.1 Identify opportunities to expand water capture for reuse.	
7	2.2 Transition to recycled water where purple pipe is available and coordinate with local water providers to expand purple pipe access near Metro facilities.	
8	2.3 Determine the feasibility of including graywater and other water reuse strategies in Metro's design specifications.	
9	2.4 Evaluate grant opportunities to study and implement innovative reclaimed water strategies.	
10	2.5 Evaluate the use/reuse of water from system dewatering activities for operations and construction.	

W3: Implement water monitoring and reporting systems

11	3.1 Install smart sub-meters to improve the collection of water usage data.	
12	3.2 Explore the feasibility of automated data communications and leak detection systems to provide real-time water consumption information and leak alerts to facility managers.	
13	3.3 Install and utilize an environmental management reporting system to issue reminders of upcoming compliance deadlines, monitor trends in consumption and costs and facilitate the recognition of emerging issues.	

W4: Integrate water conservation and efficiency best practices into policies, standard operating procedures (SOPs) and specifications

14	4.1 Further integrate and regularly update water conservation approaches into contractor requirements to better mitigate water use impacts from construction through operations.	
15	4.2 Establish and implement specifications for water reuse during dewatering activities.	
16	4.3 Establish a policy requiring all new construction projects to achieve 75% or greater of the available points for the Water Efficiency category of Leadership in Energy and Environmental Design (LEED) or most applicable sustainable design or construction rating system.	
17	4.4 Establish and implement specifications for high-efficiency water fixtures and systems for all new construction and renovations.	
18	4.5 Establish and implement specifications for native, climate appropriate landscaping for all new construction and renovations.	
19	4.6 Establish procedures requiring the regular review and update of SOPs for water use that reflect best water conservation and efficiency practices.	
20	4.7 Evaluate state of good repair of existing equipment and conduct maintenance activities to ensure existing equipment works as designed and in an efficient manner.	
21	4.8 Integrate a triple bottom line analysis into cost and value assessments of all planned water efficiency measures.	

W5: Partner with other public agencies and community groups to advance regional water goals

22	5.1 Establish ongoing evaluation of local partner policies, procedures, mandates, requirements and best practices to identify collaborative opportunities.	
23	5.2 Collaborate with other Municipal Separate Storm Sewer System permittees for implementation of enhanced watershed management programs.	
24	5.3 Work with regional partners, like the Metropolitan Water District, to maximize stormwater capture and recycled water use opportunities that support Measure W and other applicable requirements or regulations.	
25	5.4 Engage with external stakeholders to identify collaboration opportunities that advance regional water goals.	

MBS Strategies and Actions

Link to MBS Report: <http://media.metro.net/2020/Moving-Beyond-Sustainability-Strategic-Plan-2020.pdf>

Action Item No.	Action Items	Notes
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W6: Develop strategic resources and collaborative relationships across the agency to advance the water program and drive behavior change

26	6.1 Expand partnerships with operations staff across the agency to develop and implement water initiatives and projects.	
27	6.2 Use the Metro Intranet and other digital media tools to communicate water program goals, initiatives and achievements internally.	
28	6.3 Develop and conduct trainings, workshops and other outreach events for staff to drive water conservation and behavior change in areas of greatest impact.	

W7: Implement best management practices to minimize stormwater runoff and keep stormwater clean

29	7.1 Characterize stormwater quality at operating division discharge locations to identify opportunities for improvement.	
30	7.2 Identify stormwater management opportunities and constraints for underground, at grade and above grade rail/busway stations.	
31	7.3 Determine the feasibility of installing drywells, treatment trenches and other best management practices at operating divisions and discharge locations in alignment with applicable regulations.	

W8: Prioritize the infiltration, capture and/or use of stormwater

32	8.1 Evaluate and prioritize opportunities to retrofit existing facilities using a whole systems approach, including life-cycle, maintenance needs and potential system impacts.	
33	8.2 Integrate green infrastructure principles into specifications.	
34	8.3 Support regional water initiatives through collaborative capture/reuse projects.	

W9: Reduce pollutants in industrial wastewater

35	9.1 Develop a source control pollution prevention plan focused on decreasing the volume and increasing the quality of wastewater.	
36	9.2 Develop a screening process for new materials based on their potential to affect discharge.	

Action Item No.	Action Items	Notes
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Solid Waste (SW) - 26 Action Items

S1: Implement operational waste prevention and material reuse programs which support a circular economy

1	1.1 Add waste prevention and reuse specifications to major product/service contracts.	
2	1.2 Develop contract language to support Extended Producer Responsibility requirements for bulky and non-recyclable items.	
3	1.3 Partner with regional stakeholders to develop and implement material reuse/exchange programs for surplus materials.	
4	1.4 Implement paperless systems and paper reduction programs and systems (e.g., Safety Data Sheets).	
5	1.5 Explore options to minimize single use consumable supplies and provide alternatives.	
6	1.6 Evaluate the feasibility of implementing a reuse program for materials like furniture and other items that may be discarded in a remodel.	
7	1.7 Identify opportunities for waste reduction by aligning with the Sustainable Acquisition Program and the principles of a circular economy.	

S2: Implement operational recycling and organics diversion programs, including those that support compliance with AB 939, AB 341, AB 1826 and SB 1383

8	2.1 Add recycling specifications to major product/service contracts.	
9	2.2 Update agency-wide recycling programs to streamline collection bins and standardize signage.	
10	2.3 Update specifications and contractor SOWs to require compliance with organics regulations.	
11	2.4 Establish programs to divert organic waste from landfills, including edible food donation, anaerobic digestion and composting.	
12	2.5 Evaluate and prioritize facilities for implementation of organics programs.	
13	2.6 Conduct a feasibility study on the costs and diversion potential of utilizing waste-to-energy for conversion of hard-to-divert materials such as bus blow-out trash.	

S3: Establish and integrate best waste management practices into agency-wide operations

14	3.1 Implement the Solid Waste Management Plan.	
15	3.2 Integrate waste management best practices into the SOPs and policy of strategic business units.	
16	3.3 Develop and deploy staff training on sustainable waste management principles and compliance obligations.	
17	3.4 Integrate waste collection and diversion systems into the planning process in order to include space considerations for separating and storing waste.	

S4: Establish comprehensive monitoring and reporting practices to drive continual improvement

18	4.1 Standardize solid waste/recycling monitoring protocols and incorporate into the EMS.	
19	4.2 Develop mechanisms to track and report waste generation and diversion accomplishments.	
20	4.3 Partner with waste haulers to improve data accuracy by refining bin subscription levels and reporting protocols.	

S5: Implement construction waste prevention and landfill diversion best practices

21	5.1 Update Metro's Waste Management specification.	
22	5.2 Update the <i>Construction and Demolition Debris Policy</i> .	
23	5.3 Update vendor and construction specifications to support agency waste reduction and diversion targets.	
24	5.4 Provide supporting tools and procedures to help contractors develop and implement more comprehensive waste plans.	
25	5.5 Explore new technologies and cutting-edge practices that further construction waste prevention and diversion.	
26	5.6 Create a central electronic repository to track and monitor all project construction and demolition waste prevention and landfill diversion rates.	

Action Item No.	Action Items	Notes
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Materials Construction and Operations (MCO) - 36 Action Items

M1: Continually improve sustainability standards and requirements for project design and construction

1	1.1 Adopt CALGreen Tier 2 building standards for all capital projects.	
2	1.2 Ensure continual improvement in alignment with MRDC, Bus Rapid Transit, design criteria and language with current CALGreen codes and Board policies.	
3	1.3 Increase early engagement with ECSD by identifying sustainability standards that are required during early project planning phases.	
4	1.4 Require future design and construction projects to use sustainable building materials.	
5	1.5 Require Environmental Product Declarations for construction materials.	
6	1.6 Update requirements for urban greening actions on all applicable project specifications.	
7	1.7 Evaluate the opportunity to hold an annual supplier symposium where contractors can present green alternatives for products and services.	
8	1.8 Develop a green infrastructure decision-making framework.	

M2: Pursue green certification standards for buildings and infrastructure construction

9	2.1 Assess available environmental certifications for adoption as Metro's standard.	
10	2.2 Collaborate with designers to determine achievable green certification options for specific projects.	

M3: Commission all projects to ensure optimal performance

11	3.1 Develop a commissioning policy and specifications identifying the size and frequency of buildings to undergo commissioning and retro-commissioning.	
12	3.2 Provide oversight for project commissioning and retrocommissioning efforts.	
13	3.3 Perform Metro enterprise-wide assessment of Building Management System (BMS) and update performance specifications with results of data.	
14	3.4 Provide training on commissioning requirements to Metro engineers and project managers.	
15	3.5 Perform upgrades and improvements to the existing BMS and install BMS at those facilities that do not yet have one.	
16	3.6 Install an Energy Management System to monitor, control and remotely audit the BMS at each Metro facility.	
17	3.7 Perform regular energy audits on the Energy Management system to ensure it is running efficiently and effectively and that the BMS at each facility is connected and transmitting data to EMS.	

M4: Expand the Green Construction Policy and Sustainability Plan Programs

18	4.1 Evaluate the SP Program to identify opportunities to increase contractor compliance and project sustainability commitments.	
19	4.2 Develop sustainability budget allowances or add-alternates in project bid documents to fund sustainability elements for projects.	
20	4.3 Develop a set of tools to assist contractors in meeting CALGreen and Metro sustainability requirements.	
21	4.4 Investigate expanding the GCP to include or favor electric equipment.	

M5: Implement the Sustainable Infrastructure Engagement Process on all major capital projects

22	5.1 Integrate the <i>Sustainability Engagement Team</i> into all phases of major capital projects to shepherd project specific sustainability and environmental requirements.	
23	5.2 Ensure proper budget allocation and contract language for sustainability and environmental requirements to eliminate change orders.	
24	5.3 Conduct project specific research, sustainability technical assessments and studies, life-cycle cost analysis and other technical specification requirements to demonstrate value.	
25	5.4 Update the Sustainability Plan specifications and guidance documents to provide clear direction to contractors on incorporation of sustainability and environmental requirements in all major capital projects.	

Action Item No.	Action Items	Notes
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M6: Develop and implement an agency-wide Sustainable Acquisition Program

26	6.1 Develop tools and procedures to guide implementation of the Sustainable Acquisition Program.	
27	6.2 Conduct annual spend analyses to identify and prioritize product replacement and other high impact acquisition opportunities.	
28	6.3 Assess environmental impacts of products and materials using life cycle cost analysis, including embodied carbon.	
29	6.4 Engage the Metro vendor community to evaluate opportunities for supplier leadership.	
30	6.5 Assess feasibility of electronic bid submission system for all procurements.	
31	6.6 Include DBE as part of the Sustainable Acquisition Program.	

M7: Integrate resource conservation, life cycle and efficiency considerations into Metro’s operational policies, SOPs and specifications

32	7.1 Evaluate implementing a hierarchical sustainability decision matrix as a tool for prioritizing procurement and overall programmatic decisions.	
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M8: Develop and implement Materials, Construction and Operations related training for Metro staff, partners and community to facilitate a culture of sustainability

33	8.1 Develop a certification program within MECA to improve contractor and subcontractor knowledge of environmental and sustainability requirements.	
34	8.2 Expand Growing a Greener Workforce (GGW) Program to include additional curriculum and partners to raise awareness about sustainable materials, construction and operations.	
35	8.3 Implement Metro staff training on sustainable materials, construction and operations goals, targets and strategies.	
36	8.4 Provide Sustainable Design Training to support the selection of sustainable design materials for Metro discretionary grant recipients and public agency partners.	

Action Item No.	Action Items	Notes
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Energy Resource Management (ERM) - 21 Action Items

E1: Implement projects identified in the energy conservation project portfolio

1	1.1 Complete Gateway LED Lighting Project.	
2	1.2 Complete ECSD's Phase 1 Energy Project portfolio.	
3	1.3 Identify additional energy conservation measures for implementation.	
4	1.4 Consolidate existing energy studies into a comprehensive Energy Efficiency Study.	
5	1.5 Consolidate energy data and develop formal management and analysis plan for quality-controlled agency reporting.	

E2: Optimize BMS at all divisions and Gateway facility

6	2.1 Perform an enterprise-level BMS assessment.	
7	2.2 Implement recommended repairs identified by BMS assessment.	
8	2.3 Install BMS controls at divisions without preexisting system to streamline operations and maintenance.	
9	2.4 Incorporate BMS into brand-agnostic and uniform user interface for improved quality assurance.	
10	2.5 Develop BMS maintenance and training program.	

E3: Implement an agency-wide facility commissioning and retro-commissioning program

11	3.1 Develop commissioning standards, guidelines and commissioning specifications.	
12	3.2 Onboard an in-house Commissioning Team.	
13	3.3 Develop a five-year rolling cycle of energy auditing and retro-commissioning for all major facilities.	

E4: Expand the onsite renewable energy portfolio

14	4.1 Complete installation of identified solar PV projects.	
15	4.2 Expand PV Operations and Maintenance Program.	
16	4.3 Update renewable energy inventory and include distributed energy resources.	
17	4.4 Develop and refine solar design guidelines for all Metro projects, including considerations for scalability.	
18	4.5 Identify additional onsite renewable energy generation and energy storage projects.	

E5: Develop supporting infrastructure for electric transportation

19	5.1 Secure favorable utility billing rates for electrified rail and bus charging.	
20	5.2 Analyze opportunities to reduce peak loads from propulsion power.	
21	5.3 Partner with regional utilities to implement EV charging infrastructure.	

MBS Strategies and Actions

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Action Item No.	Action Items	Notes
Emissions and Pollution Control (EPC) - 20 Action Items		
EP1: Transition Metro's fleet to zero emissions technology		
1	1.1 Adopt and implement Metro's <i>Zero Emission Bus Master Plan</i> .	
2	1.2 Develop, adopt and implement an EV Implementation Plan to expand use of EVs and access to EV charging infrastructure.	
3	1.3 Pursue transition of non-revenue medium-to-heavy duty vehicles and vanpool fleet to electric vehicles.	
EP2: Decarbonize Metro's energy and fuel supply		
4	2.1 Complete fleet transition to RNG.	
5	2.2 Apply renewable diesel requirements for contractors and identify opportunities to decarbonize fuel sources at construction sites.	
6	2.3 Adopt an Energy Supply Plan to establish a clear pathway to 100% renewable energy supply.	
EP3: Improve methodology for monitoring and measuring emissions		
7	3.1 Develop a GHG Inventory Plan to improve GHG accounting practices, including additional Scope 3 emissions sources and alignment with the ISO 14064 standard.	
8	3.2 Enhance accounting practices for air quality to include both operations and construction activities.	
9	3.3 Inventory and phase out refrigerants with high global warming potential for both mobile and stationary sources.	
10	3.4 Update CAAP every 5 years.	
11	3.5 Develop associated performance metrics in Metro's <i>LRTP</i> .	
EP4: Implement a scheduled maintenance program for stationary and mobile emissions sources in order to reduce emissions		
12	4.1 Inventory all portable engines to ensure portable equipment registration program compliance.	
13	4.2 Implement a tracking system for off-road vehicles and engines to monitor maintenance, fuel type and engine hours.	
EP5: Coordinate and partner on regional efforts to achieve state GHG emissions reduction goals		
14	5.1 Adopt and support an LA County Goods Movement Strategic Plan.	
15	5.2 Support the state of California's Zero Emissions Vehicle Action Plan by using zero emission freight service equipment.	
16	5.3 Prioritize use of zero emission vehicles in the Green Construction Program by requiring use of electric medium and heavy-duty equipment during construction.	
17	5.4 Explore further measures to reduce employee commuting emissions.	
18	5.5 Continue to participate in the Transportation Electrification Partnership formed by LACI.	
19	5.6 Evaluate the concept of a regional VMT exchange/ bank as a method to reduce VMT through the funding of Metro demand management programs.	
20	5.7 Work with SCAG and CARB to assess the utility of regular measuring and monitoring of VMT and/or GHG emissions attributable to light-duty vehicles at the county level to support state climate goals.	

Action Item No.	Action Items	Notes
Resilience and Climate Adaptation (RCA) - 34 Action Items		
R1: Conduct and maintain a multi-hazard risk assessment to understand vulnerabilities of the transportation system		
1	1.1 Regularly perform detailed natural and anthropogenic risk assessments for all critical Metro properties, assets and operations.	
2	1.2 Assess climate change hazards to the transportation system, with an emphasis on EFCs, utilizing best available data from recognized sources like CalAdapt, FEMA, USGS and other research institutions.	
3	1.3 Develop an Energy Resiliency Policy.	
4	1.4 Identify data gaps for all-hazards at Metro properties, assets and operations to improve vulnerability and risk assessment.	
5	1.5 Create and integrate climate hazard data into a geodatabase enterprise for use by relevant departments.	
6	1.6 Deploy and manage an enterprise GIS platform with appropriate infrastructure and applications to enable better data sharing.	
R2: Incorporate considerations for all-hazards into Metro decision-making about capital planning, procurement, asset management and operations		
7	2.1 Develop prioritization criteria for the implementation of all-hazards mitigation actions across the transportation system, leveraging existing decision-making support tools such as the Transit Asset Management / State of Good Repair Program and focusing efforts by utilizing evaluation criteria like EFCs.	
8	2.2 Develop and implement a climate adaptation decision support framework (flexible adaptation pathways) that defines triggers for adaptation actions.	
9	2.3 Develop a monitoring system allowing Metro to adjust the adaptation approach over time as climate science data improves.	
R3: Regularly update resilience and climate adaptation plans and policies to address changing hazards and risks to system service		
10	3.1 Regularly update Metro Continuity of Operations, <i>All-Hazards Mitigation Plan</i> and related reports, incorporating new data and information about the type and duration of hazards and make corresponding updates to the mitigation strategies.	
11	3.2 Integrate and apply the <i>Resiliency Indicator Framework</i> into the EMS process.	
R4: Implement hazard mitigation and climate adaptation strategies to increase transportation system resilience and passenger safety		
12	4.1 Adjust existing bus and rail operations to minimize the impacts of hazards to revenue service.	
13	4.2 Include climate resilience of materials in the Sustainable Acquisition Program (e.g., heat, water-, fire-resilient materials).	
14	4.3 Institute a Reliability-Entered Maintenance Program for critical systems to track persistent maintenance and repair issues.	
15	4.4 Pilot and implement earthquake early warning systems for train vehicles and facilities, including Metro shake alert mobile application.	
16	4.5 Deploy emergency supply kits and communication devices at key locations and facilities.	
17	4.6 Protect and harden Metro infrastructure to better withstand hazards.	
18	4.7 Identify opportunities to relocate or re-site Metro infrastructure and services to avoid hazards.	
19	4.8 Increase passenger comfort and safety through shading and cooling features at transit stations, ensuring HVAC equipment functionality on Metro buses, and identifying and partnering with local municipalities with jurisdiction over sensitive bus stops.	
20	4.9 Implement the Safety Review Standard Policy for activities that may contain HAZMAT or HAZCON	
R5: Develop and implement all-hazards-related trainings for Metro staff and partners to further advance a culture of sustainability		
21	5.1 Develop and update trainings for Metro staff regarding hazard identification and mitigation, increasing resilience and emergency procedures.	
22	5.2 Regularly update the Employee Personal Preparedness Guide.	
23	5.3 Identify key internal staff with a role in all-hazards mitigation and convene regularly to track key vulnerabilities and opportunities.	
24	5.4 Provide climate adaptation and resilience training to contractors and engineers.	

Action Item No.	Action Items	Notes
25	5.5 Identify, train and state certify additional licensed professionals (engineers, architects, building inspectors, etc.) to expand Metro’s Safety Assessment Program Teams for evaluations of Metro’s structures in the aftermath of a disaster; provide refresher trainings as needed, along with drills to maintain resilient and responsive Safety and Damage Assessment Teams.	

R6: Build a greater LA resilience network

26	6.1 Maintain the TransMAC and other information sharing mechanisms with relevant agencies.	
27	6.2 In conjunction with health care providers, first responders and other emergency managers, develop redundant transportation service plans in EFCs to be deployed after a disaster.	
28	6.3 Maintain a coordinated, multilingual public awareness campaign to educate and engage the public about hazard risks, preparedness and safety on or around Metro’s system.	
29	6.4 Establish real-time communication protocols and tools for use during hazard events (e.g., Metro’s earthquake early warning system).	
30	6.5 Partner with regional leaders to provide real-time information on resources available for short term shocks, such as extreme heat or poor air quality warning days.	
31	6.6 Improve digital infrastructure to communicate emergency and service disruption information to riders.	
32	6.7 Coordinate with regional agencies and local partners involved in resilience planning, such as LA County, City of LA, SCAG, LADWP, Caltrans, the Councils of Governments and other cities and municipalities to collaborate and partner to leverage resources.	
33	6.8 Coordinate with local jurisdictions and licensed and certified Safety Assessment Program members to evaluate structural integrity of retrofit systems and buildings to withstand seismic activity, including collapse threats from other non-Metro structures to Metro structures, transit-ways and support facilities.	
34	6.9 Develop program guidelines and pilot an urban greening competitive grant program.	

MBS Strategies and Actions

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Action Item No.	Action Items	Notes
Economic and Workforce Development (EWD) - 15 Action Items		
EW1: Eliminate barriers to career pathways and advancement		
1	1.1 Review hiring and advancement criteria for relevance to current tasks.	
2	1.2 Identify and eliminate barriers or bias in current job descriptions.	
3	1.3 Review and update policies, procedures and practices to eliminate barriers or bias.	
EW2: Reach out to traditionally underrepresented communities about hiring opportunities		
4	2.1 Create effective, targeted communication to communities typically unresponsive or underrepresented in hiring practices.	
5	2.2 Retain employees from targeted communities through authentic engagement.	
6	2.3 Establish a Board policy based on the tenets of WIN-LA.	
EW3: Offer quality training on skills needed for Metro's future workforce		
7	3.1 Evaluate efficacy and expand the E3 and Transportation School initiatives.	
8	3.2 Raise awareness about Metro as a future employer with local junior colleges and universities.	
9	3.3 Offer vocational opportunities that combine classroom learning with field experience.	
10	3.4 Develop training that will be needed by future employees.	
11	3.5 Leverage GGW and MECA with WIN-LA and other programs to increase sustainability-based skills across LA County.	
12	3.6 Offer sustainability and environmental stewardship curriculum as part of E3 and Transportation School programs.	
EW4: Increase awareness of Metro opportunities among SBE, DBE and DVBE firms		
13	4.1 Provide assistance in navigating the Metro business registration and procurement process.	
14	4.2 Reach targeted businesses through workshops, various forms of media and trade organizations.	
EW5: Increase the region's economic viability and growth		
15	5.1 Complete a Goods Movement Strategic Plan.	

ECSD PROGRAM AND INITIATIVE STATUS UPDATE (includes Board Motion 57) - October 2020 Update

	In Development (MBS Implementation)										
	Completed		Year Initiated	Current Status	Complete Date	Comments	SC(1)	MBS Alignment	Motion 57 Reference (2)(3)(4)(5)(6)(7)(8)	Reference Back to FY19 Initiatives	
	Continuous Improvement										
	Board Motion 57 Items										

CLIMATE CHANGE & RESILIENCY

Ref #										
	ISO 14001:2015 Certification and Implementation			Ongoing	Through the MBS, Metro renewed its commitment to using the ISO 14001 environmental management system as a framework for meeting and monitoring sustainability and environmental compliance commitments. Using the ISO 14001:2015 framework of Plan-Do-Check-Act, the EMS is the primary tool in applying sustainable principles and practices in planning, construction, operations and procurement, and facilitates continual improvement of Metro's environmental performance.	*	Section 1.4 - Environmental Compliance	E		
1	Design and Implement an Enterprise-Wide EMS solution for all facilities	2009		2019	EMS has been successfully implemented at 19 operating Divisions and on three major capital projects. Three new support facilities will be added to the program over the next three years. ISO14001 re-certification was recently achieved for 19 Operating Divisions in May 2019.	*	Section 1.4 - Environmental Compliance	E		
2	Develop guiding document and integrate Climate Change into EMS	2017			MBS identifies a specific strategy and action related to integrating climate change and resiliency into Metro's plan and policies. This includes a priority action to integrate and apply the <i>Resiliency Indicator Framework</i> into the EMS process. This action is 75% complete.	*	R3.2	E		
3	Integrate EMS into construction activities	2016		2019	The Crenshaw LAX project was certified to ISO standards in 2017. Began implementation of EMS on PLE1 and Regional Connector late 2017. Ongoing evaluation of candidate construction projects to add to the EMS. ISO14001 re-certification was recently achieved for (3) Major Capital Projects (C/LAX, PLE1/Regional Connector) in May 2019	*	Section 1.4 - Environmental Compliance	E		
4	Incorporate EMS into Risk Assessment/Management	2017		Ongoing	Discussions with Project Management/ Risk Management staff and QA staff are underway on incorporating the ISO 14001 Environmental Management System principles as a risk reduction strategy. Continual EMS admin team meetings occurring with multiple Metro departments.		Section 1.4 - Environmental Compliance	E		
Resiliency Framework										
5	Resiliency Indicator Framework Report	2014		2018	Completed. Resiliency measures continually pursued. As a next step, Metro is developing an All-Hazards Mitigation Plan that comprehensively assesses natural hazards and has identified a strategy in MBS to develop an Energy Resiliency Policy.		R3.2	A4	Resiliency	
6	Develop a Water Conservation Program	2015			Through the MBS, Metro has identified a new set of water conservation strategies and specific actions for implementation over the next ten years. These include retrofits to existing infrastructure, improvements to operations and maintenance activities/procedures, updates to construction specifications, and the implementation of more advanced water management tools.	*	W1, W2, W3, W4, W5, W6	B4		
7	Develop a NOx Emissions Reduction Program	2008			The MBS updates the baseline for NOx emissions to 2018 and sets a new target to reduce emissions by 54% by 2030. Specific strategies and actions to reduce NOx emissions are identified in the Emissions and Pollution control category of MBS. These include the continued transition to near-zero emission bus engines and a ramp up in electrification of contracted, non-revenue, and vanpool fleets. Metro has achieved a 34% reduction in total NOx emissions between 2016 and 2019.	*	EP1.1, EP1.2, EP1.3, EP3	A1	Climate Action Plan Update	
8	Develop a CO2e Emissions Reduction Program				The MBS expands on the emission reduction measures identified in the 2019 CAAP update and identifies strategies and priority action items for implementation. The MBS also establishes an interim target to reduce total GHG emissions by 79% from 2017 baseline by 2030.		EP1, EP2, EP3	A3	Climate Action Plan Update	
9	Complete an updated study on flooding, rising seas levels, and high heat	2017			Metro is developing an All-Hazards Mitigation Plan that comprehensively assesses natural hazards and has identified a strategy in MBS to develop an Energy Resiliency Policy.	*	R1, R2, R3	A4	Climate Action Plan Update, Resiliency	

ECSD PROGRAM AND INITIATIVE STATUS UPDATE (includes Board Motion 57) - October 2020 Update

		In Development (MBS Implementation)		Year Initiated	Current Status	Complete Date	Comments	SC(1)	MBS Alignment	Motion 57 Reference (2)(3)(4)(5)(6)(7)(8)	Reference Back to FY19 Initiatives
		Completed									
		Continuous Improvement									
		Board Motion 57 Items									
10	Review Asset Management Framework/Tool	2017				As of July 2019, ITS is leading the initiative to consolidate disparate GIS systems across the agency, in collaboration with teams from Planning, Maintenance-of-Way, Industrial Hygiene, ECSD, Real Estate, Security, Engineering and the Enterprise Asset Management System (EAMS) project. This initiative is especially critical for the EAMS and Real Estate Management System (REMS) projects in order to standardize and manage spatial data in a connected environment. This platform will enhance the evaluation and mitigation of risks to Metro's assets and resources, using better analytical and visual tools to see the big picture for resilience. It will also support connectivity to Metro's strategic partners and an improved decision-making framework within the region.		R2, R2.1	A4	Climate Action Plan Update	
Climate Action & Adaptation Plan (CAAP)											
11	Create a CAAP working group	2017		2019		The CAAP working group was formed, including key members from ECSD, Planning, Vehicle Technology/Non-Revenue Vehicles, Engineering, Asset Management and other key departments. The cross-sectional working group analyzed strategies that reduce emissions from regional transportation, support vehicle technology with emissions calculations and reviewed estimates, plans and programs related to biomethane, bus electrification and other fleet improvements. The working group also assessed existing legislation and guidance from local, regional, state and federal entities and completed an inventory of all new and/or existing emission-reducing projects.	*	EP5	A2	Climate Action Plan Update	
12	Develop an Energy and Sustainability Policy	2007		Jun-07		Board approved on June 28, 2007	*		A4		
13	Develop a CAAP	2017		2019		The 2012 CAAP was updated in 2019, describing Metro's commitment to mitigate the impacts of climate change and build climate resilience. The 2019 CAAP identifies 13 measures to reduce GHG emissions by 79% by 2030 and 100% by 2050 (from 2017 levels). It lays out our commitment to make climate resilience an organizational priority, as well as approaches to adapt.	*	Emissions and Pollution Control Category	A2	Climate Action Plan Update	
14	Develop Greenhouse Gas Emissions Cost Effectiveness Study			2012		Completed	*		A2		
15	Develop a Biomethane Implementation Study	2012		Jun-13		Study completed. As of August 2020, Metro completed its transition from compressed natural gas (CNG) to renewable natural gas (RNG), and is actively supplying renewable gas to all of its bus divisions for use by the directly operated bus fleet. This transition is expected to substantially reduce fuel costs for the agency and yield a major reduction in annual GHG emissions.	*	EP2, EP2.1	A1		
16	Develop a LCFS Market Analysis and Revenue Optimization Plan	2014		May-14		Board approved in May 2014. Metro is currently in the process of solidifying a more diverse RNG procurement portfolio that will secure RNG fuel for the fleet for the foreseeable future, as well as create roughly \$6 million in additional yearly revenue from Low Carbon Fuel Standard credits earned through RNG use.	*		A1		
17	Implement Environmental Liability Assessment and Reporting					METRO Policy Gen 49 covers this and is an ongoing annual activity. This is separate from the CAAP update.			A3	Climate Action Plan Update	
Metro Board Motion (2016-0157)											
18	Increase agency infrastructure resiliency	2017				The MBS includes an entire section dedicated to defining goals, targets, strategies, and actions for increasing agency infrastructure resiliency and climate adaptation. It establishes two goals: 1. Increase responsiveness to shocks or stressors that impact Metro services to maintain a safe, reliable, equitable and comfortable experience for our customers, even as the climate changes over time. 2. Expand Metro's leadership as a key partner in establishing a regional resilience network.		R1, R2, R3, R4, R5, R6	A3, E	Resiliency	

ECS D PROGRAM AND INITIATIVE STATUS UPDATE (includes Board Motion 57) - October 2020 Update

	In Development (MBS Implementation)	Year Initiated	Current Status	Complete Date	Comments	SC(1)	MBS Alignment	Motion 57 Reference (2)(3)(4)(5)(6)(7)(8)	Reference Back to FY19 Initiatives
	Completed								
	Continuous Improvement								
	Board Motion 57 Items								
Metro's Urban Greening Implementation Action Plan									
19	Project-specific Sustainability Coordinator	2016			In 2018, Metro's baseline specifications were updated to require the development and implementation of a project specific sustainability plan regardless of the project size. These plans outline the environmental and sustainability commitments for each project. The sustainability plan specification also requires the contractor to provide a project-specific sustainability coordinator to oversee all resilience and long-term sustainability related requirements for the project. Each project-specific sustainability plan must meet or exceeds Metro's environmental and sustainability requirements, as well as the requirements of the California Green Building Code. Additionally, Metro is actively engaging project team members early through our Sustainability Engagement Teams to integrate sustainability into the design and planning process.	*	M1, M4, M5	B3	
20	Increase the number of Urban Greening projects	2016			Actions M1.6 in Materials, Construction and Operations and R6.9 in the Resiliency and Climate Adaptation sections of MBS aim to expand the number of urban greening projects by "updating the requirements for urban greening actions on all applicable project specifications" and "developing program guidelines and pilot an urban greening competitive grant program" respectively.	*	M1.6, R6.9	B4	
Regional Advance Mitigation Planning (RAMP) Document									
21	Metro Regional Advance Mitigation Needs and Feasibility Assessment	2017		2018	Assessment document provided to the Metro Board in July 2018. As a next step, Metro is developing an All-Hazards Mitigation Plan that comprehensively assesses natural hazards.	*	R3.2	E	
22	Develop White Paper: Integrating Mitigation, Carbon Sequestration and Ecosystem Services at Community Relevant Scales	2017		2018	Being updated to reflect urban greening opportunities. Confirm Status.			E	
23	Develop opportunities for zero/near zero emission technologies	2016			Investigating and Implementing clean fuel technologies. Working with the Vehicle Engineering & Acquisition group to review technologies, negotiate rates and assess power infrastructure requirements. Metro has already replaced over 220 aging bus engines with near-zero emission engines and plans to continue, replacing at a rate of 140-180 engines per year. We have additionally adopted a comprehensive plan to transition to a 100% zero emission electric bus fleet by 2030. Our first electric buses hit the road in summer 2020, running on the G Line (Orange).	*	EP1, EP2, EP5.2, EP5.5	D3	
	Green Procurement Policy, Framework and Implementation				The Sustainable Acquisition Program Framework was adopted by the Board in June 2019. Since then, the program has been under development and planning for implementation.	*	M6, S1.7, R4.2	B2	
24	Sustainable Purchasing Guidelines for Gateway	2018			The Sustainable Acquisition Program establishes new tools and procedures that promote the systematic integration of environmental, social, and ethical considerations into procurement specifications and decisions. This program will be applied agencywide.		M6, S1.7, R4.2	B2	Green Procurement
	Metro Sustainability Implementation Plan (MSIP)								
25	Revise and update plan from 2008	2018		2020	The <i>Moving Beyond Sustainability</i> 10-year sustainability strategic plan was adopted by the Board in September 2020. This plan serves as an update to the 2008 Metro Sustainability Implementation Plan (MSIP). An implementation plan supporting MBS is under development for release in early 2021.		Whole Plan	A, C	2019 CAAP Update

ECSD PROGRAM AND INITIATIVE STATUS UPDATE (includes Board Motion 57) - October 2020 Update

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	Continuous Improvement								
	Board Motion 57 Items								
LACMTA Green Construction Policy specification									
26	Revise the LACMTA Green Construction Policy specification	2016			The MBS includes strategies and supporting actions to expand the Green Construction Policy and Sustainability Plan programs. These specifications will continue to be reviewed and updating annually / bi-annually.		M4, EP5.3	B, D	Green Procurement
27	Decarbonization/Reduce onsite fuel use by 25%	2017			Renewable Diesel required by contractors and written into 2018 baseline specifications for Green Construction Policy. MBS also includes a priority action to identify additional decarbonization strategies for construction sites.		EP2, EP2.2	B, D	Green Procurement
Metro Climate Vulnerability and Risk Assessment									
28	Update document to meet current standards	2017			The CAAP working group completed the Draft CAAP, which was approved to the Board in June 2019. As a next step, Metro is developing an All-Hazards Mitigation Plan that comprehensively assesses natural hazards.	*	R1, R2, R3	A	2019 CAAP Update, Green Procurement, Resiliency
Update and Rebaseline the Metro Rail Design Criteria (MRDC)									
29	Update baseline to cover new requirements, regulations and standards	2016			Project rebaselined in 2019. The specifications now require contractors to comply with mandatory and voluntary (Tier 2) sustainability measures per the latest of the California Green Building Standards Code (Part 11) California Code of Regulations, Title 24 (CALGreen), as well as mandatory federal and local requirements. The MBS includes strategies and supporting actions for the continual improvement of sustainability design and construction specs.		M1, M1.1, M1.2	A, B, C, D	2019 CAAP Update, Green Procurement, Resiliency
Update and Rebaseline the Bus Rapid Transit (BRT)									
30	Update baseline to cover new requirements, regulations and standards	2017			BRT MRDC has been updated and is being reviewed by Metro Planning. Strategy M1.2 in the Materials, Construction and Operations section of MBS commits to "continue improvement in alignment with MRDC, Bus Rapid Transit, design criteria and language with current CALGreen codes and Board policies."		M1, M1.2	A, B, C, D	2019 CAAP Update, Green Procurement, Resiliency
Create relationships with external stakeholders regarding climate change									
31	Engage external stakeholder regarding industry standard best practices	2016			Through the Sustainability Council, technology partners, consultants, vendors and the development of the CAAP, engaging with external engagement has been a focus for sustainability at ECSD. Strategies have also been included in the MBS Emissions and Pollution Control and Resiliency sections dedicated to building regional and statewide partnerships to advance GHG reduction goals and resiliency.	*	EP4, R6	E	
Establish a program for compiling new technologies and engineering solutions									
32	Develop a process for to catalog and evaluate new technologies	2016		2019	The constant evolution of technology and need for ongoing evaluation of technologies for integration into the metro system is recognized as a necessity and emerging issue within MBS. Metro will leverage partnerships to stay up to date with new technology solutions. Currently ad hoc through a number of lists in various departments including ECSD, OEI, and across Metro.		Section 5 - Emerging Issues	D1	
Develop an Annual Sustainability Report (Energy and Resources Report)									
33	Compile a report that illustrates all the data pertaining to Metro's sustainability achievements	2016			Metro will continue reporting sustainability data and program achievements on an annual basis. MBS provides a new framework for reporting on sustainability that covers operations, construction, and long-range planning efforts. A comprehensive report will be release in odd calendar years. An interim update report will be released in even calendar years.	*	E1.5, W3, S4 Section 4.2	A, B, C, D	2019 CAAP Update, Green Procurement, Resiliency
Maintain Metro's Environmental Training Institute (ETI)									
34	On-going program management and support will be provided for the ETI	2016			Courses continually updated / select courses transitioned to on-line. The Economic and Workforce Development section of MBS includes training and skill development as a core strategy. This includes actions focused on leveraging GGW and MECA to increase sustainability skills across the County.	*	EW3, EW 3.5	D1	

ECSD PROGRAM AND INITIATIVE STATUS UPDATE (includes Board Motion 57) - October 2020 Update

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	Continuous Improvement								
	Board Motion 57 Items								
Incorporate Sustainability plans into metro's Project Development Plans									
35	Sustainability Plans will be incorporated into project development for ALL construction projects	2016			Metro has established a Sustainability Engagement Team and process, which is designed to develop interdepartmental partnerships across ECSD, Planning, Engineering & Operations. The five "gates" in the process ensure sustainability gets integrated into our construction projects at the earliest stages and throughout every stage of the process.	*	M1, M4, M5,	B, C	
Strengthen and Expand Metro's Green Construction Policy (GCP)									
36	Review GCP to identify opportunities to expand and strengthen Specifications Section 01 35 66	2016			The MBS includes strategies and supporting actions to expand the Green Construction Policy and Sustainability Plan programs. These specifications will continue to be reviewed and updating annually / bi-annually. On-site meetings with sustainability coordinators, part of model offered in 2019.	*	M4, EP5.3	B, C	2019 CAAP Update, Green Procurement, Resiliency
	Update and Implement Metro's Sustainability Program and Project Plan				The new MBS Implementation Plan will serve as the updated Sustainability Program and Project Plan. The implementation plan is currently in development for release in early 2021.		Whole Plan		
37	Ongoing management and support for the sustainability program and projects	2016			ECSD management and staff are dedicated to supports Metro's sustainability programs and projects, both on Capital projects and O&M. The MBS defines the governance structure for the sustainability program, integrating both the ECSD and Countywide Planning departments.	*	Section 2	B, C, E	
References:									

ECSD PROGRAM AND INITIATIVE STATUS UPDATE (includes Board Motion 57) - October 2020 Update

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	Board Motion 57 Items								

ENERGY

38	Energy Management Action Plan (EMAP)	2016			MBS establishes a new energy management strategy focused on assessing Building Management Systems and installing new Energy Management systems to monitor and control facilities. These strategies include ongoing auditing to ensure the systems are working efficiently.		E2, E3, M3.3, M3.5, M3.6, M3.7	D	
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Metro Board Motion (2016-0157)

39	Reduce facility energy use/cost by 2020	2017			The MBS establishes new energy targets: 1. Reduce consumption at facilities by 17% compared to 2030 BAU scenario. 2. Increase onsite renewable energy generation to 7.5 MW.	*	E1, E2, E3, E4, E5	D	
40	Increase fuel efficiency	2015			This strategy is updated in MBS to focus on transitioning to ZEV and decarbonizing the energy supply such as transitioning to renewable natural gas.	*	EP1, EP2, EP2.1	A4, D	Resiliency
41	Increase energy efficient lighting	2010			Various lighting upgrades in progress, including the Union Station Gateway parking garage and four other parking structures. Additionally, the MBS commits to implementing a pipeline of LED lighting projects at Divisions 7, 9, 10, 11, 15 and 22.	*	E1.1, E1.2	A4, D	Resiliency
42	Increase Propulsion and Auxiliary Systems	2013			Developed a Sustainable Rail Plan in 2013 that identifies opportunities for address these issues. Several pilots have been completed at the Red/Purple Line and Gold Lines with others underway. A microgrid study is also underway evaluating how this type of system could provide additional and/or back-up power for rail propulsion and auxiliary systems. Related strategies are included in the Energy & Resiliency sections of MBS.		E4.3, E4.5, E5.2, R4	A4, D	Resiliency
43	Implement alternative energy generation technology	2014			The MBS established a new goal to increase onsite renewable energy generation to 7.5 MW by 2030, which would triple current levels. Several new solar PV projects are in development at existing divisions and on new construction projects. Expanding the portfolio of onsite renewable energy projects is also a priority strategy within the Energy and Emissions categories, supporting our emission reduction goals.	*	E4, EP2	A4, D	Resiliency

Electric Vehicle (EV) Charging Program

44	Conduct feasibility study focusing on conversion of non-revenue vehicles to EV	2016			Project was completed. Over 70 employees have EVs and work is underway to install charger stations at key facilities. Metro is continuing to expand its charger network to new locations and is further defining a long-term vision for EV infrastructure with the development of an Electric Vehicle Implementation Plan.	*	E5, EP1.3	A3, A4, A5, D	Climate Action Plan Update
45	Conduct feasibility study of zero emission vehicles to grid (V2G)	2018		Feb-19	Report completed		E4.5	A3, A4, A5, D	Climate Action Plan Update
46	Develop EV Charger Implementation Plan	2018			Metro is in the process of updating a draft of the ten-year Electric Vehicle (EV) Implementation Plan, which outlines efforts to expand the EV fleet and related EV charging network to support Metro's non-revenue vehicle fleet, employee, and Metro patrons. The draft is currently scoped to expand the EV charger network to 3,500 EV chargers within ten years. The Plan is slated to be presented to the Board for approval in spring 2021. To date, Metro has installed over 100 smart networked Level 2 EV chargers for public, employee, and fleet use. The 2019 CAAP projects that EV technology may reduce over 125 metric tons of GHG emission every year.		E5.3, EP1.2	A3, A4, A5, C, D	

Bus Electrification Program

47	Provide ongoing and as-needed support	2017			ECSD will continue providing support to the agencywide bus electrification initiative. This is a priority initiative to help achieve Metro's emission reduction targets.	*	E5.1, E5.2, S.3	A1, A2, A3	
48	Develop Rate analysis and structure - Resiliency	2015			Metro has designated action via MBS to secure favorable utility billing rates for electrified rail and bus charging, as well as to analyze opportunities to reduce peak loads from rail propulsion power.		E5.1, E5.2	A4, D, E	Resiliency

ECSD PROGRAM AND INITIATIVE STATUS UPDATE (includes Board Motion 57) - October 2020 Update

		Year Initiated	Current Status	Complete Date	Comments	SC(1)	MBS Alignment	Motion 57 Reference (2)(3)(4)(5)(6)(7)(8)	Reference Back to FY19 Initiatives	
										In Development (MBS Implementation)
										Completed
										Continuous Improvement
Board Motion 57 Items										
49	Develop Bus Division Energy Resiliency Site Analysis and Planning	2016			Metro has designated action via MBS to consolidate existing energy studies into a comprehensive Energy Efficiency Study.		E1.4	A4, D, E	Resiliency	
Gateway LED Lighting and advanced lighting controls										
50	Retrofit Building LED Lighting and advanced lighting controls	2013			Created portfolio of energy conservation measures for implementation across maintenance facilities, terminals, and administrative buildings. Planned portfolio projects include: - LED lighting, air compressor upgrades at Location 30 - Installation of retrofit LED lighting at Divisions 7, 9, 10, 11, 15, and 22 - Installation of electrical sub-meters at all Metro Bus and Rail Maintenance Facilities - Energy efficient dust collection system installation at Metro's CMF, Building 5 Paint Shop - Planned Heating, Ventilation and Air Conditioning (HVAC) system retrofits at Divisions 5, 11 and 22		E1.1, E1.2, E1.3	A4, D, E		
51	Retrofit Garage LED Lighting Retrofit	2017			Currently retrofitting parking garage at Union Station Gateway with new LED lamps to replace existing fixtures. This project is estimated to reduce energy consumption by 866,000 kWh each year. After installation, Metro will measure and verify consumption and cost reduction on an ongoing basis to support similar projects at other facilities.		E1.1, E1.2, E1.3	A4, D, E		
52	Parking Structure Lighting Upgrades	2017		2018	Parking Management department completed a lighting retrofit at four parking structures in 2018. Upgrades to light fixture produced annual savings of 1.2 million kWh.		E1.1, E1.2, E1.3	A4, D, E		
53	Central Maintenance Facility Building 5 Air Scrubber	2016			As part of its Energy Conservation Portfolio, Metro has committed to installing an energy efficient dust collection system at Metro's CMF, Building 5 Paint Shop.		E1.2	A4, D, E		
Comprehensive Energy Efficiency Project Portfolio (BUS)										
54	Energy Conservation measures at Bus Div. 3,7,9 and 15	2015			Created portfolio of energy conservation measures for implementation across maintenance facilities, terminals, and administrative buildings. Planned portfolio projects include: - LED lighting, air compressor upgrades at Location 30 - Installation of retrofit LED lighting at Divisions 7, 9, 10, 11, 15, and 22 - Installation of electrical sub-meters at all Metro Bus and Rail Maintenance Facilities - Energy efficient dust collection system installation at Metro's CMF, Building 5 Paint Shop - Planned Heating, Ventilation and Air Conditioning (HVAC) system retrofits at Divisions 5, 11 and 22		E1.2, E1.3	A4, D, E		
55	Perform Energy Audits to plan ECMs	2015			Metro has designated action via MBS to perform regular energy audits on the Energy Management System to ensure it is running efficiently and effectively and that the Building Management System at each facility is connected and transmitting data to the Energy Management System.		M3.7	A4, D, E		
Division 18 Energy Retrofit Project Portfolio										
56	Conduct energy audit to develop ECMs	2017			Metro has designated action via MBS to perform regular energy audits on the Energy Management System to ensure it is running efficiently and effectively and that the Building Management System at each facility is connected and transmitting data to the Energy Management System.		M3.7	A4, D, E		
103rd Watts Outdoor Area Lighting										
57	Design and Install energy efficient Outdoor Area Lighting (OAL) service	2016			Pilot project was completed on February 11, 2018. Ten-year cost savings = \$41,118. Project is in next phase of implementation			A4, D, E		

ECSD PROGRAM AND INITIATIVE STATUS UPDATE (includes Board Motion 57) - October 2020 Update

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	Board Motion 57 Items								
Gateway Parking Garage Variable Frequency Drive (VDRs)									
58	Install VDRs on exhaust fans and supply fans	2016			Project was identified in April 2016 Gateway Building Energy Audit but was not immediately pursued. General Services is considering this project and it will be revisited as part of the ECMs project pipeline to be developed for MBS.		E1.3	A4, D, E	
Division 30 Energy Efficiency Project Package Portfolio									
59	Install a portfolio of ECMs at the Central Maintenance Facility (CMF)	2015			Created portfolio of energy conservation measures for implementation across maintenance facilities, terminals, and administrative buildings. Planned portfolio projects include: - LED lighting, air compressor upgrades at Location 30 - Installation of retrofit LED lighting at Divisions 7, 9, 10, 11, 15, and 22 - Installation of electrical sub-meters at all Metro Bus and Rail Maintenance Facilities - Energy efficient dust collection system installation at Metro's CMF, Building 5 Paint Shop - Planned Heating, Ventilation and Air Conditioning (HVAC) system retrofits at Divisions 5, 11 and 22		E1.1, E1.2, E1.3	A4, D, E	
Comprehensive Energy Efficiency Project Portfolio (RAIL)									
60	Install a portfolio of ECMs at Divisions 11 & 22	2014			Created portfolio of energy conservation measures for implementation across maintenance facilities, terminals, and administrative buildings. Planned portfolio projects include: - LED lighting, air compressor upgrades at Location 30 - Installation of retrofit LED lighting at Divisions 7, 9, 10, 11, 15, and 22 - Installation of electrical sub-meters at all Metro Bus and Rail Maintenance Facilities - Energy efficient dust collection system installation at Metro's CMF, Building 5 Paint Shop - Planned Heating, Ventilation and Air Conditioning (HVAC) system retrofits at Divisions 5, 11 and 22		E1.1, E1.2, E1.3	A4, D, E	
Community Solar and Clean Powers Authority									
61	Work with US Department of Energy and the LA County Clean Power Authority (CPA) in increasing renewable energy mix for propulsion and facilities, specifically within the Southern California Edison (SCE) territory	2015			Metro has designated action via MBS to secure favorable utility billing rates for electrified rail and bus charging, as well as to analyze opportunities to reduce peak loads from rail propulsion power.	*	E5.1, E5.2	A4, D, E	Resiliency
Conjunctive Billing and Direct Access									
62	Work with utility partners to achieve favorable structures for power	2015			Metro has designated action via MBS to secure favorable utility billing rates for electrified rail and bus charging, as well as to analyze opportunities to reduce peak loads from rail propulsion power.		E5.1, E5.2	A4, D, E	Resiliency
Power Purchase Agreement (PPA) 1									
63	PPA to install PV/Roof Repairs at Division 9, 11, 14 and 22	2016			Roof replacement at Divisions 9, 11, 14, and 22 have been completed. PPA contract documents being finalized.	*	E4.1	A4, D, E	Resiliency
Bus Yard Canopy Conceptual Design									
64	Design concepts for solar canopies at three bus divisions	2016		2018	Design concepts were completed. Results being considered for additional projects.	*		A4, D, E	Resiliency

ECSD PROGRAM AND INITIATIVE STATUS UPDATE (includes Board Motion 57) - October 2020 Update

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	Completed								
	Continuous Improvement								
	Board Motion 57 Items								
Biomethane Procurement									
65	Manage and procure biomethane fuel	2015			As of August 2020, Metro completed its transition from compressed natural gas (CNG) to renewable natural gas (RNG), and is actively supplying renewable gas to all of its bus divisions for use by the directly operated bus fleet. The measured impact of this complete transition to RNG has not been measured yet in terms of time, cost, and emissions impacts, in part due to recent implementation as well as in accounting for the overall reduction in bus fuel usage due to COVID-19 (an estimated 21% reduction from business as usual). However, it is certain that this transition substantively reduces fuel costs for the agency and will yield a major reduction in annual greenhouse gas emissions. Furthermore, Metro is currently in the process of solidifying a more diverse RNG procurement portfolio that will not only secure RNG fuel for the fleet for the foreseeable future, but also will create roughly \$6 million in additional yearly revenue from Low Carbon Fuel Standard credits earned through RNG use.	*	EP2.1	A4, D, E	
Photovoltaic Preventative Maintenance									
66	Implement a PV Preventative Maintenance system	2017		Ongoing	Metro launched PV Operations and Maintenance Program in 2014 to provide technical training and resources to Metro maintenance personnel at facilities with PV systems. The program teaches Metro staff to benchmark energy generation and troubleshoot issues. Since launch, the program has provided over 700 hours of training to 120 personnel, resulting in faster response times and increased system uptime year over year. As a result, we embarked on a significant maintenance program in 2019, reducing annual output. Even so, the program avoided approximately \$220,000 in utility costs in 2019 with a promise of even greater savings moving forward. Metro has designated actions via MBS to expand the PV Operations and Maintenance Program.	*	E4.2	A4, D, E	
Measurement and verification (M&V) of Wayside Energy Storage System (WESS)									
67	M&V data on the effectiveness of the flywheel storage system in storing energy				Data is currently generated. Confirm status			D, E	
Pathways to Zero Net Energy (PZNE)									
68	PZNE seeks to eliminate energy-related greenhouse gas emissions	2017		Jul-17	Draft report was completed and then project was shelved due to intellectual property conflicts.			D, E	
Sustainability Plan - Energy Security Operations Center (ESOC)									
69	Provide ongoing and as-needed support	2017			Supporting submittal reviews / annual report preparation on project on an as needed basis; nearing completion in 2019			B, C, E	
LOC64 Sustainability Plan									
70	Provide ongoing and as-needed support	2017			Supporting submittal reviews / annual report preparation on project on an as needed basis; nearing completion in 2019			B, C, E	
Sustainability Plan - Westside Purple Line Extension (PLE) Section 1									
71	Provide ongoing and as-needed support	2017			Supporting submittal reviews / annual report preparation on project on an as needed basis; nearing completion in 2019			B, C, E	
Sustainability Plan - Westside Purple Line Extension (PLE) Section 2									
72	Provide ongoing and as-needed support	2017			Supporting submittal reviews / annual report preparation on project on an as needed basis; nearing completion in 2019			B, C, E	
Sustainability Plan - Rail 2 River									
73	Provide ongoing and as-needed support	2017			Energy team gave technical advice on possibility of using DWP OAL program.	*		B, C, E	

ECSD PROGRAM AND INITIATIVE STATUS UPDATE (includes Board Motion 57) - October 2020 Update

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Westwood Greenway									
74	Provided ongoing support and first mile, last mile strategies	2015		Confirm completion date	Strategies from Metro's award-winning First/Last Mile Strategic Plan were recently implemented during the New Blue Improvements Project, completed in 2020. This project features transit access improvements such as pedestrian and bicycle safety and seamless interfaces between the Metro system and other modes of travel. Providing support for implementing these strategies on future projects is outlined in the "Connecting Transit and Community" section of MBS.		Section 3.11 - Connecting Transit and Community	B1, B4, C3	
Environmental Attribute (Carbon Credit) Reporting and Sales									
75	Manage the Low Carbon Fuel Standard and Renewable Fuel Standard program	2016		2028	Metro LCFS Credit sales have continued to exceed average market value, most recently 5% above as of November 2019. Metro sold 175,000 LCFS credits in 2019, generating roughly \$34.8 million in revenue. Metro is actively continuing to report on a quarterly and annual basis to LCFS, and will onboard an accredited third party verifier in 2021 per LCFS regulation. Metro continues to participate in the EPA Renewable Fuel Standard Program.			E	
LEED-EBOM for Gateway									
76	Pursue a LEED-EBOM Re-Certification based on new lighting and other measures	2015		2021	LEED recertification is pending completion of ongoing energy measures at gateway including building lighting and controls and garage.		M2.1-M2.2	A, B, C, D, E	
Division 13 LEED Audit									
77	Conduct a LEED Audit at Division 13 to identify and address ongoing operational activities	2017			Division 13's LEED certification process is complete. It received a LEED Gold rating. MBS re-commits Metro to achieving LEED Silver certification or higher for all applicable projects over 10,000 square feet.		M2.1, M2.2	A, B, C, D, E	
Develop Enhanced Process for Commissioning and Retro-Commissioning of Facilities									
78	Implement process to reduce energy consumption through proper O&M of equipment/systems	2017			Metro has designated actions in MBS to develop a commissioning policy and specifications identifying the size and frequency of buildings to undergo commissioning and retro-commissioning. In addition, Metro intends to provide oversight for project commissioning and retro-commissioning efforts, as well as to provide training on commissioning requirements to Metro engineers and project managers.		M3.1, M3.2, M3.4	A, B, C, D, E	
Evaluate an Energy Management System (EMS/BMS) for Building to Reduce Energy Consumption									
79	Evaluate existing BMS systems to determine requirements for a enterprise-wide EMS system	2017			Metro has designated actions in MBS to perform an enterprise-wide assessment of Building Management System (BMS) and update performance specifications with results of data. Metro will also perform upgrades and improvements to the existing BMS and install BMS at those facilities that do not yet have one. Metro will also install an Energy Management System to monitor, control, and remotely audit the BMS at each Metro facility, as well as perform regular energy audits on the Energy Management System to ensure it is running efficiently and effectively and that the BMS at each facility is connected and transmitting data to the Energy Management System.		M3.3, M3.5, M3.6, M3.7	A4, D1, D2, E	
Conduct a Microgrid Study to determine the resiliency requirements for the Metro Power System									
80	Evaluate the system to determine if microgrids could keep critical infrastructure functioning	2016			Micro-grid Phase 1 complete in June, 2019; Phase 2 to be complete in 2020. Phase 2 scope options under review 1) Santa Monica pilot co-op w/ Arup, 2) D24 detailed feasibility study, 3) combination of listed/unlisted opportunities. Pending confirmation of scope. MBS identifies distributed energy generation and storage, such as those typically found in a microgrid, as key elements of expanding its renewable energy portfolio and enhancing system resiliency.		E4.3, E4.5	A4, D	Resiliency
References:									

ECSD PROGRAM AND INITIATIVE STATUS UPDATE (includes Board Motion 57) - October 2020 Update

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SOLID WASTE & RECYCLING

Metro Board Motion (2016-0157)

81	Reduce environmental liabilities related to hazardous waste	2016		2020	In 2019, the C&D Solid Waste Plan template was updated to include comprehensive regulatory "checks, " including new local requirements, environmental justice zone checks, HHW components, etc. The EMS program will be used to drive continual improvement related to compliance and reducing environmental liabilities.		Section 1.4 - Environmental Compliance	A4, E	
	Minimize Amount of Paper Waste and Related Consumables								
82	Evaluate paper saving initiatives	2016			Paper saving initiatives have been identified through Division waste characterization studies, facility walk-throughs, and staff interviews. These opportunities are documented in MBS and are considered a priority for implementation as part of waste prevention. Discussions have been initiated regarding paper waste reduction opportunities during the bi-annual "Shake-up" process.	*	S1.1, S1.4, S1.5, S1.7	E	
	Reduce Stretch Wrap and Related Operations Waste								
83	Assess alternates to stretch wraps	2016			A tech memo on the alternatives to stretch wrap and sustainable shipping methods was developed in 2018. MBS includes strategies to eliminate hard to divert materials such as stretch wrap, leverage contracts to return this material to vendors, and/or identify alternative diversion strategies. These efforts will be prioritized for implementation in the MBS implementation plan.		S1, S1.2, S1.7, S2.1, S2.6	E	
	Revise Metro's Environmentally Preferred Purchasing Policy								
84	Develop a "Green Team" to review product and develop consensus	2016			This task is being removed from the solid waste program and addressed as part of the Sustainable Acquisition Program, which was approved by the Board in June 2019. The Sustainable Acquisition Program establishes new tools and procedures that promote the systematic integration of environmental, social, and ethical considerations into procurement specifications and decisions, including waste related issues.		M6, S1.7, R4.2	D2, E	
85	Develop a Metro-wide environmentally Preferred Purchasing Program	2016			The Sustainable Acquisition Program will be implemented agencywide.		M6, S1.7, R4.2	D2, E	
	Increase Material Refurbishing and Re-Use								
86	A re-use program to include coffee cups, cleaning supplies, durable goods, electronics, etc.	2016			ECSD is working with the Property Sales Coordinator in Metro Procurement to inventory and quantify all existing waste reduction/re-use programs, including vendor take-back arrangements and surplus material auctions. MBS includes strategies and actions prioritizing the identification of additional material re-use opportunities, such as transitioning to reusable goods and identifying reuse opportunities for end of life materials.		S1	E	
	Evaluate Processes and Methods to Maximize Waste Diversion								
87	Evaluate Metro's Waste service levels to determine if service can be reduced	2016			Service levels should be monitored on an on-going basis and have been identified as a priority action item in MBS in order to fine tune diversion monitoring and reporting. This has also been written in to the new solid waste service contract to provide Metro with necessary technical support.		S4, S4.1, S4.3	B2, E	
	Identify Key Recyclable Items in Waste Stream								
88	Develop a enterprise-wide recycling system	2016			Waste characterization studies have been completed at Gateway, Division 7, and Division 11. Recyclable items to capture through program improvements have been identified. A redesigned recycling program was piloted in Gateway in spring 2019 to test new recycling signage design and the effectiveness of a fully co-mingled desk-side recycling system. Implementing new bin and signage standards across the agency is a priority action for implementation in MBS.		S2.2	B2, E	

ECSO PROGRAM AND INITIATIVE STATUS UPDATE (includes Board Motion 57) - October 2020 Update

		In Development (MBS Implementation)	Year Initiated	Current Status	Complete Date	Comments	SC(1)	MBS Alignment	Motion 57 Reference (2)(3)(4)(5)(6)(7)(8)	Reference Back to FY19 Initiatives
		Completed								
		Continuous Improvement								
		Board Motion 57 Items								
	Develop a Comprehensive Solid Waste Implementation Plan		2019			A detailed Solid Waste Implementation Plan is under development, which will identify and prioritize the many waste reduction, reuse, recycling, organics, and other diversion opportunities identified through the waste characterization studies. The plan will provide a more detailed roadmap for implementing the strategies and actions identified in MBS.		S1, S2, S3, S4, S5	B2, E	
	Improve Recycling Rates Through Operational Awareness and Signage									
89	Develop an enterprise-wide recycling system		2016			Updating the agency-wide recycling program to streamline collection bins and standardize signage is a priority action item in MBS. This effort will be supported through the implementation of staff training.		S2.2, S3.3	B2, E	
	Reduce Paint Waste and Recycle Usable Paint									
90	Evaluate improvements to the paint use and recycling process		2016			Being reviewed as part of the recycling system improvements, which are prioritized in MBS.		S2.2, S3.3	B2, E	
	Prevent Contamination of Recyclable Through Training and Education									
91	Develop and provide training sessions to Metro Staff		2016			A custodial-staff training program was conducted in spring 2019 to support the roll out of the Gateway recycling program. Recycling training for the Divisions is being developed for deployment in FY21. Training was also identified as a key strategy for improving the waste management program.		S3.3	D1, E	
	Develop and Implement an Organic Waste Management System									
92	Conduct a pilot program for Organic Waste Collection		2016			Organic recycling requirements were integrated into the new tree trimming and landscaping contracts in 2018-2019. Other contracts will be reviewed for similar requirements. Implementing an organic waste collection program in the Metro cafeteria is a MBS priority for 2021.		S2, S2.3, S2.4, S2.5	B4, E	
	Ensure Waste Management Policy is Compliant at State/Federal and Local Levels									
93	Evaluate and confirm Metro's Policies		2016			Reviewing and updating Metro's policies and SOPs will continue on an ongoing basis. Ensuring policies are up to date has been identified as a priority across all categories, including solid waste. Policies and SOPs for both construction and operations will be reviewed periodically and updated.		S3, S3.2, S3.3	B, E	
	Establish Metrics and Revise Policies for Demo/Construction/Renovation Projects for Compliance									
94	Expand requirements to ensure compliance during construction activities		2016			MBS sets new targets for construction waste diversion, with a goal of achieving 85% diversion from landfill or greater on all construction projects. Construction specifications and contractor requirements will be updated to support and advance this goal.		S5, S5.1, S5.2, S5.5	B, D, E	
	Establish Baseline Metrics for Each Facility/Operation									
95	Collect and set baseline metrics for all facilities and existing programs		2016		2018	An agency wide solid waste baseline was finalized in Summer 2018 using the 2016 calendar year. The baseline was updated in Fall 2018 to reflect additional information gathered through the Division waste characterization studies. The MBS sets a new baseline for reducing waste disposal, with a goal of reducing disposal by 24% compared to the 2030 BAU scenario.	*	Solid Waste Target 1	E	
	Develop a Comprehensive Solid Waste Performance Metrics System									
96	Develop a performance metrics system that ensure compliance with state/Federal and Local laws		2016		2018	Updated solid waste performance metrics were established as part of MBS, which reflect compliance with local, state and federal laws. Solid waste performance is reported annually.	*	S4.1, S4.2	E	

ECSD PROGRAM AND INITIATIVE STATUS UPDATE (includes Board Motion 57) - October 2020 Update

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	Completed								
	Continuous Improvement								
	Board Motion 57 Items								

WATER

Metro Board Motion (2016-0157)

103	Conserve and reduce water usage	2016			Through the MBS, Metro has identified a new set of water conservation strategies and specific actions for implementation over the next ten years. These include retrofits to existing infrastructure, improvements to operations and maintenance activities/procedures, updates to construction specifications, and the implementation of more advanced water management tools.	*	W1, W2, W3, W4, W5, W6	B1, E	
104	Future construction projects to use methods to capture and treat stormwater/reclaimed water	2012			Incorporated into Metro Rail Design Criteria and Technical Requirements. <i>Developing equivalent requirements for BRT infrastructure.</i> The MBS sets a new target to "increase runoff infiltration and capture capacity for stormwater by 15% from 2020 baseline levels." Additionally, it identifies strategies and actions to support implementation and achievement of this target.	*	W2.5, W7, W8	B, E	
105	Construction project (>\$5M) shall use sustainable building material	2012			Incorporated into Metro Design Criteria and Technical Requirements. A new category called "Materials, Construction and Operations" was included in MBS to define goals and targets related to design and construction, including material selection. Sustainable materials are also addressed in other categories including Water and Solid Waste.	*	M1, M1.4, M1.5, M1.7, M6.3, M7, S1, W8.2	B, E	

Draft 2015 Urban Water Management Plan

106	By 2017 reduce per capita potable water use by 20% (2025 - 2035)	2015			MBS established a new water conservation target: Reduce potable water use by 22% from the 2030 Business as Usual scenario.	*	W1, W2, W3, W4, W5, W6	B, E	
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Apply Diamond Seal System (DSS) to ALL Bus to Reduce Bus Washing

107	Apply DSS to reduce dirt and residue build-up	2015		2017	Program implemented in 2016. Results showed no significant change in water use. Pilot discontinued.			E	
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Retrofit BUS/CAR Wash Nozzles with Higher Efficiency Options

108	Modify existing nozzles to reduce the amount of water needed to complete vehicle cleaning	2015			A pilot project was completed at Division 15 to test the water savings and cleanliness of buses using low-flow nozzle alternatives. 2.0 GPM is the baseline. A combination of 1.0 GPM and 0.5 GPM nozzles were tested. The 0.5 GPM nozzles were deemed effective without lowering cleanliness scores. Retrofits were installed at Division 5 and 7 in summer 2019. Additional bus divisions are being prioritized through MBS.		W1.1, W1.3	E	
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Adjust Sensors in Car Wash Areas to Limit Water Usage

109	Modify the cycles to limit the amount of water used Before, During and After the Wash	2015			Timing adjustments will be included in the retrofit work at bus and rail divisions.		W1.1, W1.3, W1.4	E	
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Re-evaluate and Implement All 15 Water Conservation Strategies Outline in 2010 Action Plan

110	Update all strategies to identify additional water conservation opportunities	2015			Developing an update to the 2010 Water Action Plan has been identified as a priority action item within the MBS.	*	W1.2	D, E	
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Restrict Irrigation with Potable Water

111	Research/evaluate options to reduce potable water use for irrigation	2015			To reduce potable water consumption, multiple reduction measures were identified and implemented. Forty-one conventional irrigation controllers were replaced with smart controllers along the Orange Line in 2018. Total water use along this alignment alone declined by 49 million gallons or by nearly 44% between 2018 and 2019. In addition, we completed installation of purple pipe recycled water between Vesper Avenue and Sepulveda Boulevard along the G Line (Orange) (which accounts for 2.6% of Metro's overall water use), with plans to install more in 2020 between Tujunga and Laurel Canyon boulevards. Similar measures will be evaluated and prioritized for implementation to meet the MBS potable water reduction goals.	*	W2, W4.5, W5.3	D, E	
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	Continuous Improvement								
	Board Motion 57 Items								
Adjust BUS/CAR Wash Blowers to Capture and Recover Wash Water									
112	Pilot studies to evaluate effectiveness of modifying blowers to conserve water			2018	Project complete. Metro's pilot study at Division 15 evaluated the effect of a decreased flow rate (gallons per minute) on water use during bus washing. The nozzle modifications proved effective, reducing the average water consumption per wash cycle by 40% while maintaining bus cleanliness. Following the success of this pilot, similar modifications will be implemented at other bus divisions, accompanied by monitoring practices to quantify water and cost savings.		W1.4	D, E	
Reduce Water Consumption									
113	Remove Ornamental Turf and Install Drought Tolerant Plants	2015		2018	A tech memo on the results of a Division survey and turf removal opportunities was submitted to Metro on 6/4/18. Turf removal was deemed to be less cost effective than other measures and is not prioritized at this time. Instead, updating the landscaping specs for new construction will be prioritized.	*	W4.5	B2	
114	Conduct a survey with a focus on upcoming renovations	2016		2017	Survey Completed.		W4.4	B2	
Retrofit Cooling Towers									
115	Complete study to improve water recycling and reduce cost of operations	2017		8/15/2018	Cooling towers, boilers, and chillers at Gateway are already being replaced by General Services. This project is no longer necessary.		W4.7	D, E	
Replace Sanitary and Kitchen Fixtures									
116	Identify existing fixtures to be replaced with high efficiency plumbing fixtures	2017			Several low-flow and no-flow sanitary fixtures have been installed across Metro facilities over the last few years. Several other sanitary fixtures are set to be remodeled at various division locations through 2030, which are anticipated to save roughly 3.1 million gallons of water per year.		W4.4,	D, E	
Track Water Consumption for Individual Operations									
117	Prioritize water conservation efforts based on survey of Metro facilities	2015		Ongoing	Water use is currently being tracked for all facilities, but data validation and improvements to the tracking system are ongoing efforts. Sub-meters have been installed on the Division 7, 9, 15, and 24 bus washes to improve water tracking capabilities. Water consumption data will be used to prioritize the implementation of new initiatives under MBS.		W3	B, D, E	
Identify Opportunities for Graywater Use									
118	Conduct study to determine if graywater retrofits are suitable for Metro Facilities	2017		3/30/2018	A tech memo on opportunities for Metro to retrofit existing properties for graywater was submitted to Metro on 3/30/18. This is not a priority initiative at this time.		W2,	B2, B4, E	
Increase Capture of Storm Water Runoff for Use in Landscaped Areas									
119	Increase bio-retention tech., permeable pavement, vegetated swales and infiltration trenches	2017			The MBS establishes a new goal to increase stormwater runoff infiltration and capture capacity by 15% by 2030 compared to 2020 levels. In 2018, Metro replaced 40,000 square feet of asphalt at the Division 4 facility in Downey with permeable pavement and a landscaped bioretention area. This new installation can capture and filter more than 300,000 gallons of rainwater during a single rain event allowing this water to safely infiltrate into the ground to replenish local groundwater and aquifer systems.		W7, W8	B1, B2, E	
Require Existing Facilities to use Technologies to Capture, Reuse and Treat Storm Water Onsite									
120	Implement best management practices regarding storm water recapture and reclamation	2016			Metro is continuing to implement and enforce stormwater best management practices. The MBS identifies strategies and actions to update specs and work with regional partners to advance this goal. Current state and local requirements are being implemented on projects within Metro rights of way but has been in discussion with City and County of LA in other jurisdictions. LA Metro is inclined to install but not maintain these Low Impact Development strategies at locations other than Metro rights-of-way. The permeable concrete pilot project at Division 4 was completed in summer 2019. The results are being evaluated to determine if permeable concrete is an effective stormwater treatment/infiltration strategy.	*	W7, W8	B1, B2, E	

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		Continuous Improvement								
		Board Motion 57 Items								
Educate Public on Water Conservation and Water Database										
121	Information shall be shared with the public via website and other outlets		2017		Ongoing	Metro's new sustainability dashboard supports the public sharing of Metro's water use and highlights projects to minimize potable water consumption. https://sustainabilityreporting.metro.net/sustainabilitydashboard/#	*		D1, E	
Educate Staff on Water Usage and Conservation Through Training										
122	Develop and integrate content for training staff on water usage and conservation strategies		2017			Recognizing the importance of staff training to water conservation, developing new training and SOP materials is a priority water action item in MBS. We also have an opportunity to increase awareness through Green Workforce training and quarterly Metro ENV SP and G-Pro certified Metro staff. Mechanisms for regularly reporting water consumption metrics and performance to operating divisions is under discussion.		W1.5, W6	D1, E	
Identify Funding Opportunities and Collaborate With Local and State Agencies Water Projects										
123	Identify external funding sources for water-related projects		2017			In current conversation with P3, city, and other entities on possible funding opportunities for these types of projects. The MBS also includes a strategy to routinely "Evaluate grant opportunities to study and implement innovative reclaimed water strategies."		W2.4, W5	E	
Maximize Use of Recycled Water										
124	Develop a Recycled Water Plan		2015			A work plan for the cross connection test at Division 3 has been prepared and submitted for review. Metro to determine who will complete this test. Opportunity to connect Orange Line irrigation at Chandler and Colfax has been identified and is being scoped out.		W2, W4	B2, B3, D1, E	
125	Evaluate the feasibility and cost effectiveness of using recycled water (Purple Pipe)		2015			Purple pipe installed in capital projects such as Metro Orange Line MOL and MOL Extension. Metro has participated in the LADWP Integrated Water Resource Planning Process, City-wide One Water LA initiative, and the LA Sanitations Bluebelt research projects to develop opportunities for recycled water in multiple LA Metro facilities. Infrastructure has been built in MOL and MOL extension, but recycled water in limited use due to limited supply. Opportunities have been identified and need to be followed-up. This is a priority strategy within the Water category of MBS.		W2.2	B2, B3, D1, E	
Upgrade Metro Resiliency in Terms of Water Supplies for Catastrophic Events										
126	Increase emergency water supply at Divisions and Locations		2018		Ongoing	Working with Emergency Management Department on a path forward.			A4, B, D1, E	
Implement Green Construction Policies Governing New/Future Metro Divisions										
127	Leverage existing policies, ordinance, and regulations requiring the technologies that capture, treat and infiltrate storm water		2017		Ongoing	Expand implementation into existing facilities. Currently a requirement in new facilities.		W7, W8	A4, B, D1, E	
Increase Existing underground Storage Capacity for Storm Water										
128	Assess the usage of storm water capture cisterns to reduce the use of potable water		2017			Implemented in several facilities. A tech memo evaluating underground storage of stormwater system-wide was submitted to Metro on 5/3/18. Evaluating additional opportunities to capture water for reuse will be explored under MBS.		W7, W8	A4, B, D1, E	
References:										

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	Completed								
	Continuous Improvement								
	Board Motion 57 Items								

MATERIALS, CONSTRUCTION AND OPERATIONS (MCO)*
**MCO is a new category of sustainability initiatives that was added to MBS. It contains several new initiatives that are not included in any of the existing categories above. Year initiated is considered to be 2020, as that is when MBS was adopted by the Board*

M1: Continually improve sustainability standards and requirements for project design and construction									
1	1.1 Adopt CALGreen Tier 2 building standards for all capital projects.	2020		2030					
2	1.2 Ensure continual improvement in alignment with MRDC, Bus Rapid Transit, design criteria and language with current CALGreen codes and Board policies.	2020		2030					
3	1.3 Increase early engagement with ECSD by identifying sustainability standards that are required during early project planning phases.	2020		2030					
4	1.4 Require future design and construction projects to use sustainable building materials.	2020		2030					
5	1.5 Require Environmental Product Declarations for construction materials.	2020		2030					
6	1.6 Update requirements for urban greening actions on all applicable project specifications.	2020		2030					
7	1.7 Evaluate the opportunity to hold an annual supplier symposium where contractors can present green alternatives for products and services.	2020		2030					
8	1.8 Develop a green infrastructure decision-making framework.	2020		2030					
M2: Pursue green certification standards for buildings and infrastructure construction									
9	2.1 Assess available environmental certifications for adoption as Metro's standard.	2020		2030					
10	2.2 Collaborate with designers to determine achievable green certification options for specific projects.	2020		2030					
M3: Commission all projects to ensure optimal performance									
11	3.1 Develop a commissioning policy and specifications identifying the size and frequency of buildings to undergo commissioning and retro-commissioning.	2020		2030					
12	3.2 Provide oversight for project commissioning and retro commissioning efforts.	2020		2030					
13	3.3 Perform Metro enterprise-wide assessment of Building Management System (BMS) and update performance specifications with results of data.	2020		2030					
14	3.4 Provide training on commissioning requirements to Metro engineers and project managers.	2020		2030					
15	3.5 Perform upgrades and improvements to the existing BMS and install BMS at those facilities that do not yet have one.	2020		2030					
16	3.6 Install an Energy Management System to monitor, control and remotely audit the BMS at each Metro facility.	2020		2030					
17	3.7 Perform regular energy audits on the Energy Management system to ensure it is running efficiently and effectively and that the BMS at each facility is connected and transmitting data to EMS.	2020		2030					
M4: Expand the Green Construction Policy and Sustainability Plan Programs									
18	4.1 Evaluate the SP Program to identify opportunities to increase contractor compliance and project sustainability commitments.	2020		2030					

ECSD PROGRAM AND INITIATIVE STATUS UPDATE (includes Board Motion 57) - October 2020 Update

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		Completed								
		Continuous Improvement								
		Board Motion 57 Items								
19	4.2 Develop sustainability budget allowances or add-alternates in project bid documents to fund sustainability elements for projects.		2020		2030					
20	4.3 Develop a set of tools to assist contractors in meeting CALGreen and Metro sustainability requirements.		2020		2030					
21	4.4 Investigate expanding the GCP to include or favor electric equipment.		2020		2030					
M5: Implement the Sustainable Infrastructure Engagement Process on all major capital projects										
22	5.1 Integrate the Sustainability Engagement Team into all phases of major capital projects to shepherd project specific sustainability and environmental requirements.		2020		2030					
23	5.2 Ensure proper budget allocation and contract language for sustainability and environmental requirements to eliminate change orders.		2020		2030					
24	5.3 Conduct project specific research, sustainability technical assessments and studies, life-cycle cost analysis and other technical specification requirements to demonstrate value.		2020		2030					
25	5.4 Update the Sustainability Plan specifications and guidance documents to provide clear direction to contractors on incorporation of sustainability and environmental requirements in all major capital projects.		2020		2030					
M6: Develop and implement an agency-wide Sustainable Acquisition Program										
26	6.1 Develop tools and procedures to guide implementation of the Sustainable Acquisition Program.		2020		2030					
27	6.2 Conduct annual spend analyses to identify and prioritize product replacement and other high impact acquisition opportunities.		2020		2030					
28	6.3 Assess environmental impacts of products and materials using life cycle cost analysis, including embodied carbon.		2020		2030					
29	6.4 Engage the Metro vendor community to evaluate opportunities for supplier leadership.		2020		2030					
30	6.5 Assess feasibility of electronic bid submission system for all procurements.		2020		2030					
31	6.6 Include DBE as part of the Sustainable Acquisition Program.		2020		2030					
M7: Integrate resource conservation, life cycle and efficiency considerations into Metro's operational policies, SOPs and specifications										
32	7.1 Evaluate implementing a hierarchical sustainability decision matrix as a tool for prioritizing procurement and overall programmatic decisions.		2020		2030					
M8: Develop and implement Materials, Construction and Operations related training for Metro staff, partners and community to facilitate a culture of sustainability										
33	8.1 Develop a certification program within MECA to improve contractor and subcontractor knowledge of environmental and sustainability requirements.		2020		2030					
34	8.2 Expand Growing a Greener Workforce (GGW) Program to include additional curriculum and partners to raise awareness about sustainable materials, construction and operations.		2020		2030					
35	8.3 Implement Metro staff training on sustainable materials, construction and operations goals, targets and strategies.		2020		2030					
36	8.4 Provide Sustainable Design Training to support the selection of sustainable design materials for Metro discretionary grant recipients and public agency partners.		2020		2030					

ECSD PROGRAM AND INITIATIVE STATUS UPDATE (includes Board Motion 57) - October 2020 Update

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	Completed								
	Continuous Improvement								
	Board Motion 57 Items								

ECONOMIC AND WORKFORCE DEVELOPMENT (EWF)

**EWF is a new category of sustainability initiatives that was added to MBS. It contains several new initiatives that are not included in any of the existing categories above. Year initiated is considered to be 2020, as that is when MBS was adopted by the Board*

EW1: Eliminate barriers to career pathways and advancement									
1	1.1 Review hiring and advancement criteria for relevance to current tasks.	2020		2030					
2	1.2 Identify and eliminate barriers or bias in current job descriptions.	2020		2030					
3	1.3 Review and update policies, procedures and practices to eliminate barriers or bias.	2020		2030					
EW2: Reach out to traditionally underrepresented communities about hiring opportunities									
4	2.1 Create effective, targeted communication to communities typically unresponsive or underrepresented in hiring practices.	2020		2030					
5	2.2 Retain employees from targeted communities through authentic engagement.	2020		2030					
6	2.3 Establish a Board policy based on the tenets of WIN-LA.	2020		2030					
EW3: Offer quality training on skills needed for Metro's future workforce									
7	3.1 Evaluate efficacy and expand the E3 and Transportation School initiatives.	2020		2030					
8	3.2 Raise awareness about Metro as a future employer with local junior colleges and universities.	2020		2030					
9	3.3 Offer vocational opportunities that combine classroom learning with field experience.	2020		2030					
10	3.4 Develop training that will be needed by future employees.	2020		2030					
11	3.5 Leverage GGW and MECA with WIN-LA and other programs to increase sustainability-based skills across LA County.	2020		2030					
12	3.6 Offer sustainability and environmental stewardship curriculum as part of E3 and Transportation School programs.	2020		2030					
EW4: Increase awareness of Metro opportunities among SBE, DBE and DVBE firms									
13	4.1 Provide assistance in navigating the Metro business registration and procurement process.	2020		2030					
14	4.2 Reach targeted businesses through workshops, various forms of media and trade organizations.	2020		2030					
EW5: Increase the region's economic viability and growth									
15	5.1 Complete a Goods Movement Strategic Plan.	2020		2030					

