DRAFT

Los Angeles County
Metropolitan Transportation Authority

WE ARE MOVING BEYOND SUSTAINABILITY.

Sustainability Strategic Plan 2020

Metro®


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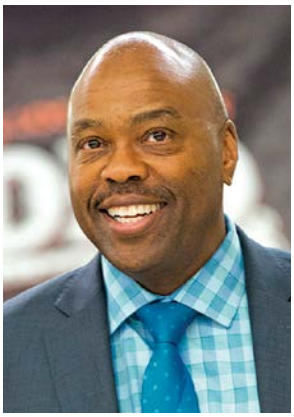
WE HAVE A PLAN FOR A BETTER LA, WHERE EVERYONE CAN THRIVE, AND WHERE LESS OF US DRIVE ALONE.

IT'S A PLAN to stop bumper-to-bumper idling, moving instead towards a resilient future for ourselves and the planet.



Metro is a lifeline to millions of people in the most populous county in the United States, including first responders, hospital staffs and other essential workers. As we address this rapidly evolving landscape, our vision for a sustainable transportation system remains clear.

Metro is leading a bold movement to reimagine LA County: one that expands mobility, increases access to opportunity and advances environmental stewardship, while also focusing on equity. We are thoughtfully and strategically moving forward to combat climate change and reduce LA County's carbon footprint. In addition to our role in reducing single-occupancy vehicle emissions, Metro is on track to reduce our total greenhouse gas emissions by 79% from 2017 levels through fleet electrification and system retrofits by 2030.

To achieve those goals, we are investing in our communities and empowering tomorrow's leaders. Metro is developing the county's premiere transportation infrastructure school, the SEED School of Los Angeles County, to prepare future generations of Angelenos to address emergent systemwide and regional challenges.

Through innovation, we are reimagining LA County – transforming the region into a more resilient, sustainable and vibrant place to live, work and play for everyone.

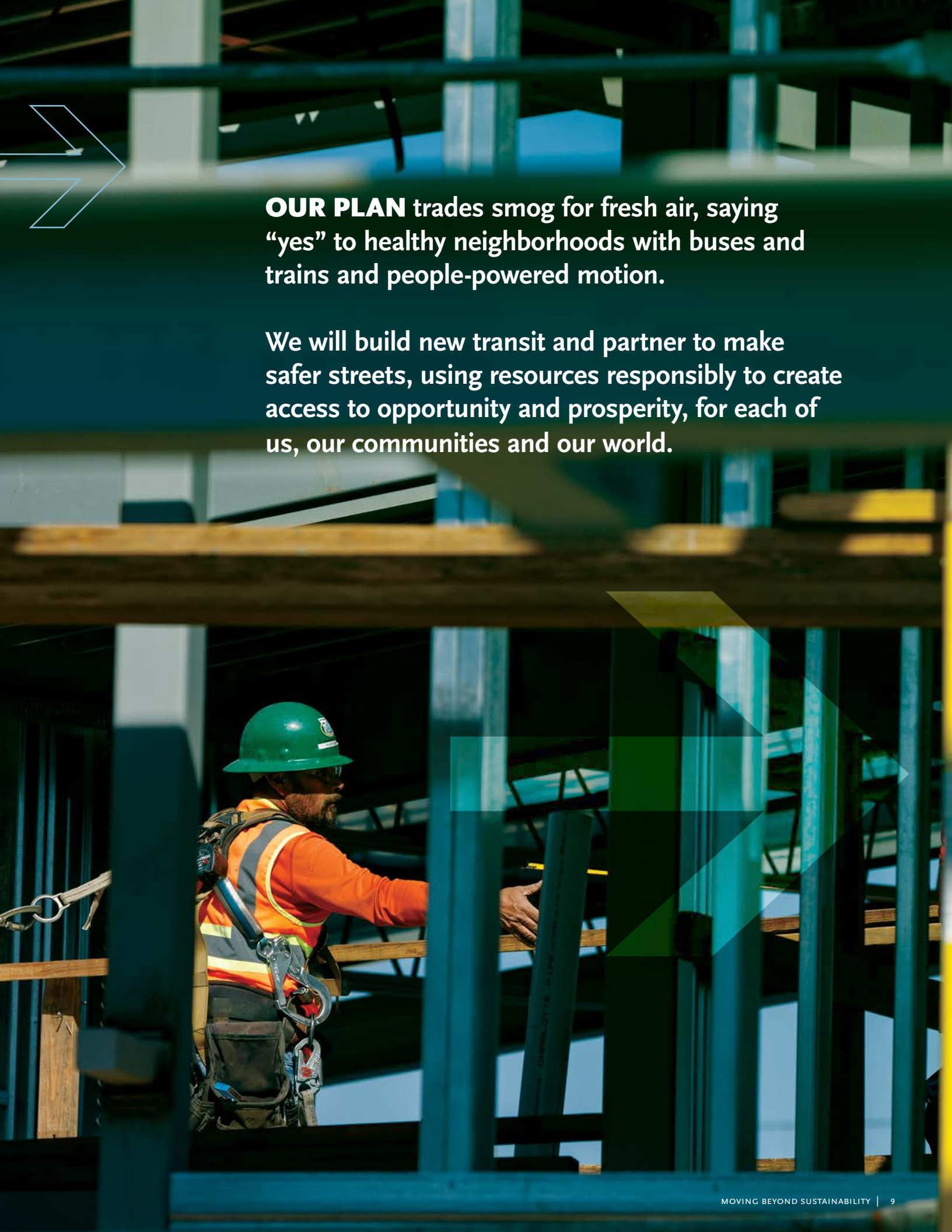
Phillip A. Washington
Chief Executive Officer

The 2020s will be defined as the decade of climate action. Now, more than ever, bold and ambitious policies are needed to tackle the challenges of climate change here in LA County. Acknowledging that passenger vehicles are the region's single greatest source of greenhouse gas emissions is central to that challenge and Metro is already working to overcome it.

By 2030, we will transition to a 100% electric bus fleet and triple our on-site renewable energy generation, and we will continue to plan and build transformative transit projects that reduce emissions, improve air quality and benefit public health across the region.

Along with implementation of the City of Los Angeles's *Green New Deal,* these efforts will be crucial to not only combat climate change, but also reimagine a more prosperous, healthy and equitable future for LA County. I am excited to work with Metro as we lead the way both nationally and globally toward reaching our sustainability goals and raise the bar ever higher in galvanizing the movement to achieve sustainable mobility.

Mayor Eric Garcetti
Board Chair



OUR PLAN trades smog for fresh air, saying "yes" to healthy neighborhoods with buses and trains and people-powered motion.

We will build new transit and partner to make safer streets, using resources responsibly to create access to opportunity and prosperity, for each of us, our communities and our world.

BECAUSE WE SEE A BETTER LA for everybody. With every trip, every project, every choice, we find our way to making a positive difference.

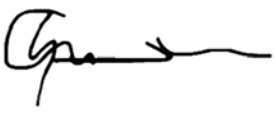
Our plan seeks to move past normal—a congested and unsustainable LA County—and take the bold steps necessary to move us forward.

When Metro first undertook the development of this plan, the world was a different place. Amidst the challenges presented by COVID-19, our commitment to sustainability does not waver. The role of this plan remains paramount as we advance toward recovery and a more resilient future.

Sustainability is more relevant than ever and continues to be a core value at Metro. It is a steadfast pillar of our transportation system and woven into the fabric of everything we build and do. In addition to offering LA more sustainable transportation choices, Metro has made substantial operational improvements over the last seven years. We have cut water consumption by 34% and increased our landfill diversion rate to 39%. Sustainability is now the expectation, and this moment demands that we proceed with bolder endeavors. We refuse to stop moving.

Moving Beyond Sustainability is our call to action. We are creating sustainable transportation solutions in LA County to advance regional prosperity and equity. This plan does more than set ambitious goals – we are extending our hand to all Angelenos to help us transcend the conventional and the expected. Together, we will do more than what is merely sustainable – we will leverage the transportation system so we can be more innovative, sustainable and increase access to opportunity for everyone.

We hope you will join the movement to make this vision a reality.



Cris B. Liban
Chief Sustainability Officer


Division 15
Operations and Maintenance Facility

What's Inside

WHAT LIES "BEYOND"

1.1 Sustainability at Metro

The Los Angeles County Metropolitan Transportation Authority's (Metro) mission is to provide a world-class transportation system that enhances the quality of life for all who live, work and play within Los Angeles (LA) County. To fulfill that mission, Metro must be sustainable. Our definition of sustainability is holistic – accounting for environmental, social and economic considerations in our decision making and operations, while also prioritizing community resilience and equity. Our day-to-day operations and upcoming service lines inherently advance sustainability as we take cars off the road and get Angelenos onto transit, but we are not stopping there. Our system accelerates environmental benefits in the region by reducing far more greenhouse gas (GHG) emissions than we generate, consistent with our *2019 Climate Action and Adaptation Plan (CAAP)* goals of becoming carbon neutral and displacing over 780,000 $MTCO_2e$ by 2050. Our work moves beyond transportation as we increase access to opportunity, reduce disparities, foster vibrant communities, improve public health, drive economic development and improve the quality of life for all.

Moving Beyond Sustainability (MBS) is the manifestation of this commitment and builds on over a decade of sustainability policies, plans, initiatives and reporting by Metro leadership and staff, including the foundational 2008 *Metro Sustainability Implementation Plan* (MSIP). *MBS* outlines a comprehensive sustainability strategy for the next 10 years – and beyond. The plan combines the concerted efforts of our Environmental Compliance & Sustainability Department (ECSD) and Countywide Planning & Development Department (Planning) and integrates input and guidance from internal and external stakeholders. To prepare the plan, we facilitated workshops involving community members, subject matter experts and Metro's Sustainability Council. We also gathered insight from Metro staff across several departments to discuss how current programs and goals could be integrated into our strategies.

MBS is Metro's most comprehensive sustainability planning document to date and sets goals, targets, strategies and actions that align with and emanate from other key Metro guidance documents, including: *Vision 2028, Long Range Transportation Plan (LRTP), Equity Platform Framework* and our *Climate Action and Adaptation Plan*. It is also designed to align with and support parallel efforts and plans underway at the City of Los Angeles and LA County, including *LA's Green New Deal* and *Our County*.

As outlined in the *Vision 2028 Strategic Plan*, Metro's visionary outcome is to double the share of transportation modes other than solo driving. The plan details five goals:

1. **Provide high-quality mobility options that enable people to spend less time traveling**
2. **Deliver outstanding trip experiences for all users of the transportation system**
3. **Enhance communities and lives through mobility and access to opportunity**
4. **Transform LA County through regional collaboration and national leadership**
5. **Provide responsive, accountable, and trustworthy governance within the Metro organization**

MBS supports the achievement of these goals and performance outcomes that are core to Metro's mission by outlining a comprehensive sustainability strategy for the next decade. *MBS* supports achieving a customer-focused transformative future of mobility through comprehensive sustainability strategies.

Metro's *LRTP* outlines how Metro's planned investments will deliver the Strategic Plan vision of increasing transit and other mode shares over the next 30 years by focusing on the following priority areas:

> Better Transit
> Less Congestion
> Complete Streets
> Access to Opportunity

The *LRTP* addresses how commitment to these priorities will help LA County meet its current and future challenges, including: Regional Growth; Changing Mobility Needs and Preferences; Technological Change; Inequitable Access; and Adapting to a Changing Environment

Through these plans and polices, Metro is addressing its priorities and challenges as a compelling opportunity to create a more sustainable and more equitable future. *MBS* supports the *LRTP* through the cross-cutting theme of equity and inclusion and lays out specific strategies and actions for resilience and climate adaptation.

METRO'S FRAMEWORK FOR IMPROVING MOBILITY IN LA COUNTY

We're guided by our *Strategic Plan* goals.

Vision 2028 Strategic Plan

We're creating
❶ *Faster Travel Options* ❷ *Better Trips* ❸ *Thriving Communities*

Better Transit

Providing more transit options with improved quality and service

- *Transit Projects*
- *Bus Improvements*
- *New Mobility Options*

Less Congestion

Managing the transportation system to reduce the amount of time people spend in traffic

- *Roadway Improvements*
- *Congestion Management*
- *Goods Movement*

Complete Streets

Making streets and sidewalks safe and convenient for everyone, to support healthy neighborhoods

- *Bike and Pedestrian Projects*
- *Local Street Improvements*
- *Station and Stop Access Enhancements*

Access to Opportunity

Investing in communities to expand access to jobs, housing and mobility options

- *Workforce Initiatives*
- *Support for Local Businesses*
- *Transit Oriented Communities*

Long Range Transportation Plan

We're committed to
❹ *Leadership* ❺ *Accountability*

Collaboration · Continual Improvement · Customer Focus · Innovation · Inspired and Inclusive Workforce · Safety

Customer Experience Plan · *COVID-19 Recovery Plan*

We're intentionally focused on *eliminating racial and socioeconomic disparities* and *advancing sustainable practices* in everything we do.

Equity · Sustainability

Equity Plan · *Moving Beyond Sustainability Plan*

REDEFINING SUSTAINABILITY

VISION

Create an organizational culture and workforce that continually integrates the principles of sustainability into all aspects of decision-making and execution to enhance communities and lives through mobility and access to opportunity.

1.2 Sustainability Commitment

Moving Beyond Sustainability serves both as a reaffirmation of our more than a decade-long commitment to sustainability and as a redefinition of what sustainability means at Metro. We remain aligned with the Brundtland Commission's definition of sustainable development; as we plan, design, build, operate and maintain transportation infrastructure, our charge is to meet present needs without compromising the ability of future generations to meet their own needs. Our approach is holistic: it looks beyond core transit, planning, construction and operations. We have amended our Sustainability Vision Statement and our Guiding Principles in ways that redefine and reaffirm our commitment to sustainability.

Guiding Principles

1. **Implement sustainable practices and initiatives that advance and enhance the goals of Metro's *Vision 2028 Strategic Plan*.**
2. **Align sustainability projects and initiatives to support Metro's *Long Range Transportation Plan*.**
3. **Monitor key performance metrics to track and report the success of our sustainability strategies and actions.**
4. **Achieve our sustainability goals through transparent and authentic engagement with our stakeholders and community members.**
5. **Foster a culture of sustainability at Metro through staff education, workforce development and increased capacity.**
6. **Encourage innovation in strategic planning and sustainable practice through adaptation and resilience.**
7. **Strengthen sustainability efforts through leadership and collaboration with regional partners and agencies.**

1.3 Equity and Inclusion

To move beyond sustainability, equity must be part of the foundation of Metro's decision-making, planning and operations. Metro is committed to eliminating areas of inequity, discrimination or implicit bias within our policies, procedures and practices.

Metro recognizes that issues related to equity and inclusion must be addressed both internally and externally, in how we authentically engage with our riders and the communities we serve. In February 2018, Metro adopted the *Equity Platform Framework* which is comprised of four pillars:

> Define and Measure: define equity and develop performance metrics that allow us to determine whether equity, as defined, is being meaningfully achieved as part of Metro's actions.

> Listen and Learn: establish the crucial connection and communication between Metro and the larger LA County community in carrying out and determining Metro's actions.

> Focus and Deliver: implement actions and programs that achieve measurable, equitable outcomes and carry out *Equity Platform Framework* objectives and principles.

> Train and Grow: recognize that significant commitments will be needed from within the Metro organization to understand, embrace and maximize equity advancements.

The importance of equity and inclusion in sustainability planning for transit agencies is also reinforced by the 2018 American Public Transportation Association (APTA) guidance document *Social and Economic Sustainability for Transit Agencies (APTA SUDS-CC-RP-005-18)*, which augments earlier APTA guidance on sustainability.

Metro understands equity to be both an outcome and a process to address racial, socio-economic and gender disparities, to ensure fair and just access – with respect to where you begin and your capacity to improve from that starting point – to opportunities, including jobs, housing, education, mobility options and healthier communities. It is achieved when one's outcomes in life are not predetermined, in a statistical or experiential sense, on their racial, economic or social identities. It requires community informed and needs-based provision, implementation and impact of services, programs and policies that reduce and ultimately prevent disparities.

Some equity issues, primarily those related to structural and procedural concerns, are agency-wide and systemic. Metro recognizes that an enterprise-wide focus on these issues is critical. Within Metro's sphere of influence, we are actively pursuing equity in both processes and outcomes, exemplified by the hiring of Metro's first Executive Officer of Equity and Race. Metro's multifaceted approach to advancing equity internally and in the community is evidenced through many of our commitments, such as the Women & Girls Governing Council, which looks to find opportunities to remove barriers to success and expand opportunities for women at, within, and on Metro, and the On the Move Riders Program which helps show older adults how to get around on the Metro system. Internally, we continue efforts to create career development pathways for all employees.

The distribution of equity is often influenced by geographical factors, which we are addressing through the Equity Focus Communities (EFCs) Screening Tool. EFCs are those communities most heavily impacted by gaps in inequity throughout the County. The transportation performance of EFCs can be evaluated by setting a threshold of census tracts in the County, including:

> More than 40% of the census tracts having low-income households over the County average; and

> Either more than 80% of the census tracts having non-white populations over the County average; or

> More than 10% of the census tracts having zero-car households over the County average.[1]

In developing this plan, equity is understood to be an inherently crosscutting topic that touches on many aspects of the agency's sustainability activities. Strategies and actions related to equity are infused into *MBS* and it's addressed specifically when most relevant or appropriate. The chapters of this plan that have the strongest relationship to equity and inclusion are Resilience and Climate Adaptation, Livable Neighborhoods and Economic and Workforce Development.

1. For more information on how Metro defines Equity Focus Communities, see the Board report regarding the *LRTP* update. *https://boardagendas.metro.net/board-report/2018-0819/*

1.4 Environmental Compliance

As stated in its 2009 Environmental Policy, Metro is committed to planning and constructing projects, operating and maintaining facilities and vehicles, and procuring products and services consistent with State and federal laws and regulations and in a manner that protects human health and the environment but not neglecting the efficient delivery of quality public transit services within our financial ability. Environmental compliance is a critical foundation of sustainability at Metro.

In coordination with internal and external stakeholders, ECSD oversees the agency's environmental compliance responsibilities and conformance to environmental laws, regulations and standards for operations and the capital construction program.

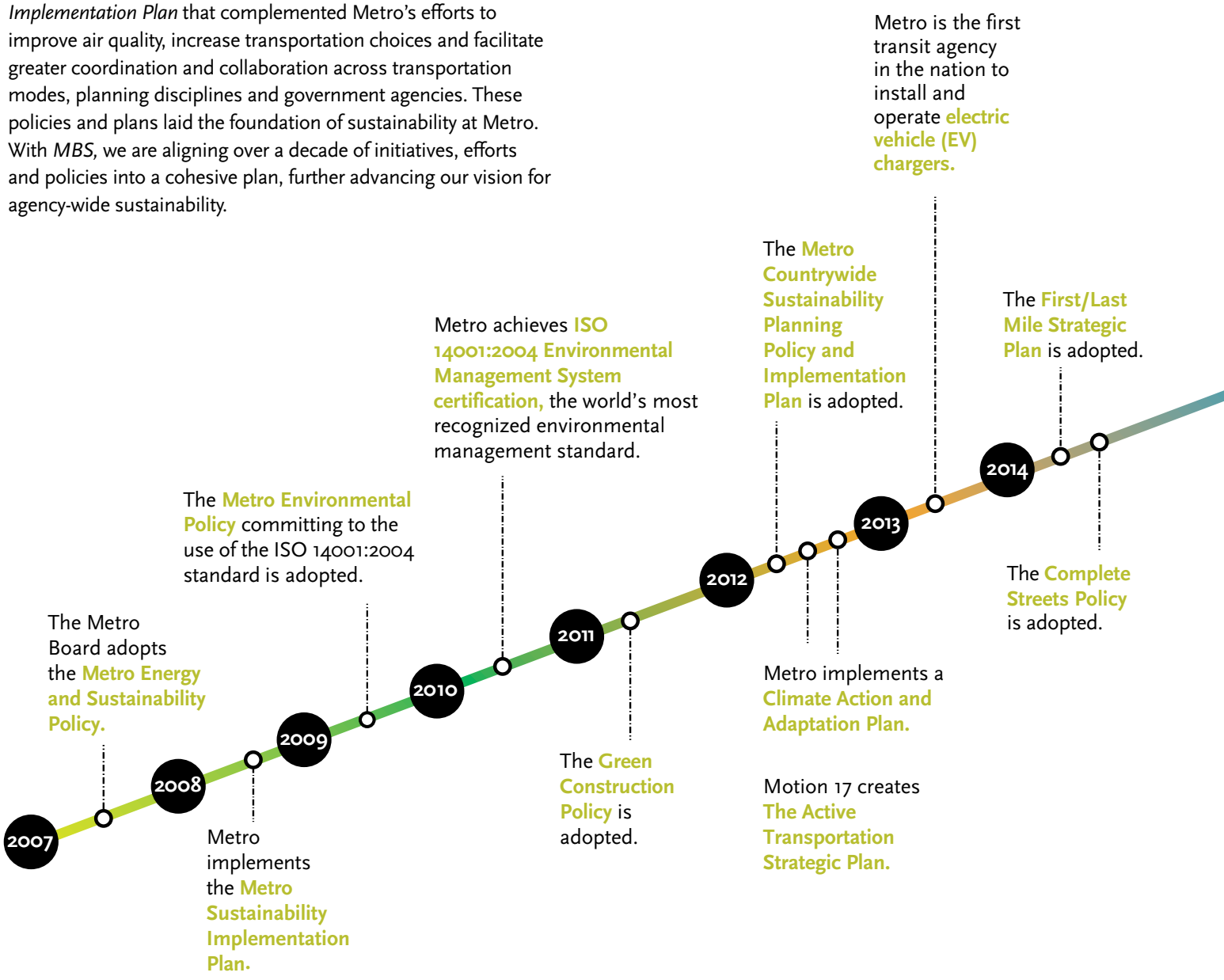
ECSD works across departments to ensure Metro meets its regulatory requirements for environmental compliance as we plan and construct projects, operate and maintain facilities and vehicles and procure products and services. The environmental compliance areas include, but are not limited to:

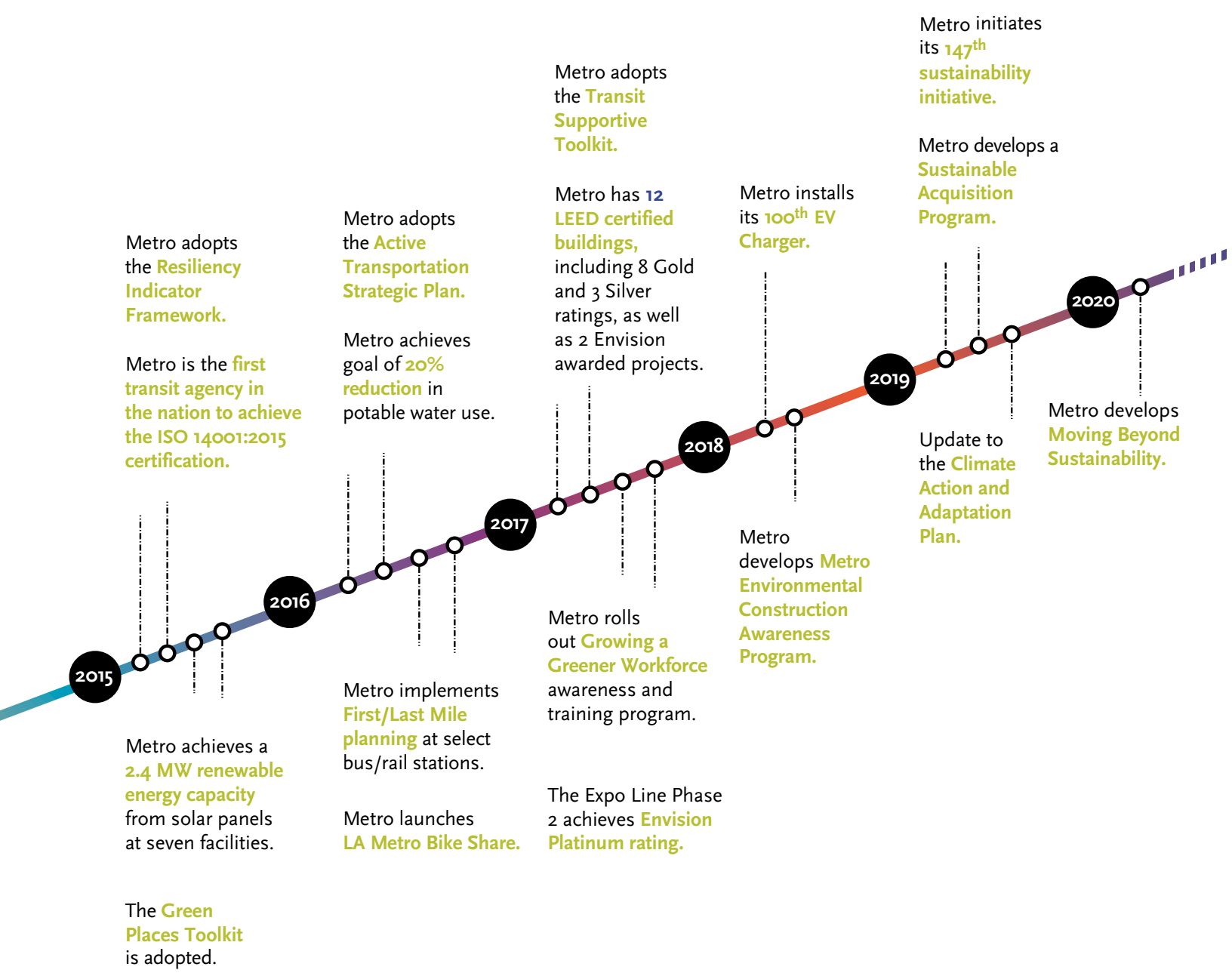
> Water pollution control
> Hazardous materials
> Noise and vibration control
> Air quality
> CEQA/NEPA
> Archeological, paleontological and tribal cultural resources
> Waste management
> Biological resources
> Hydrology/water quality

Metro's environmental compliance program is advanced through the implementation and continual improvement of the Environmental Management System (EMS) at our operating facilities and construction projects. The EMS creates a framework for implementing best practices that help ensure compliance with federal, state and local environmental regulations, pollution prevention and sustainability goals and maintaining the International Organization for Standardization (ISO) 14001:2015 certification by conducting both internal and external third-party audits. 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.

1.5 Key Accomplishments and Milestones

For over a decade, Metro has developed plans and established initiatives to integrate sustainability principles and practices into agency operations. There are three major milestones that led to several substantive initiatives and accomplishments over Metro's sustainability program development. In 2007, Metro adopted the *Energy and Sustainability Policy* to control energy consumption through energy efficiency and conservation measures. This was followed by Metro's *Sustainability Implementation Plan,* the agency's first sustainability strategic plan. In 2012, Metro published the *Countywide Sustainability Planning Policy and Implementation Plan* that complemented Metro's efforts to improve air quality, increase transportation choices and facilitate greater coordination and collaboration across transportation modes, planning disciplines and government agencies. These policies and plans laid the foundation of sustainability at Metro. With *MBS,* we are aligning over a decade of initiatives, efforts and policies into a cohesive plan, further advancing our vision for agency-wide sustainability.




2015
Metro achieves a 2.4 MW renewable energy capacity from solar panels at seven facilities.
The Green Places Toolkit is adopted.
2016
Metro adopts the Resiliency Indicator Framework.
Metro is the first transit agency in the nation to achieve the ISO 14001:2015 certification.
2017
Metro adopts the Active Transportation Strategic Plan.
Metro achieves goal of 20% reduction in potable water use.
Metro implements First/Last Mile planning at select bus/rail stations.
Metro launches LA Metro Bike Share.
2018
Metro adopts the Transit Supportive Toolkit.
Metro has 12 LEED certified buildings, including 8 Gold and 3 Silver ratings, as well as 2 Envision awarded projects.
Metro rolls out Growing a Greener Workforce awareness and training program.
The Expo Line Phase 2 achieves Envision Platinum rating.
2019
Metro installs its 100th EV Charger.
Metro develops Metro Environmental Construction Awareness Program.
Metro initiates its 147th sustainability initiative.
Metro develops a Sustainable Acquisition Program.
Update to the Climate Action and Adaptation Plan.
2020
Metro develops Moving Beyond Sustainability.

1.6 Board Motions and Guidance Documents

The following documents provide key guidance on the overall structure and role of *MBS* within the agency:

Metro's *Vision 2028 Strategic Plan* outlines an innovative approach for transforming mobility in LA County over the next decade. This vision influences *MBS* by highlighting the importance and urgency Metro places on shaping a sustainable future for all Angelenos.

Metro's *Long Range Transportation Plan* outlines what the agency is doing currently and must do to lead the transportation system improvements necessary to bring about the economic, mobility, safety, environmental and quality of life benefits needed in LA County. These current challenges present great opportunities for Metro to take bold action and help achieve our vision for sustainability in the region.

Metro's *Equity Platform Framework* and Board Motion 18: Defining EFCs is a recognition that there exists vast disparity among neighborhoods and individuals in LA County in their ability to see and seize opportunity – be it jobs, housing, education, health, safety or other essential facets of thriving in vibrant, diverse communities. The multi-faceted equity platform provides a basis for Metro to actively lead and partner in addressing and overcoming those disparities. Board Motion 18 directs Metro to adopt EFCs as a working definition, evaluate EFC scenarios in planning efforts and continue to refine the definition and applicability of EFCs.

Board Motion 57, passed in 2016, directs the Chief Executive Officer (CEO) to update the Board on Metro's environmental and sustainability efforts and undertake a range of projects. Responding to Motion 57 enabled Metro to strengthen and expand our sustainability policies, plans and implementation efforts, as well as to increase coordination with peer agencies trying to address sustainability mandates. *MBS* addresses all the previous environmental and sustainability Board Motions and completes the full response to Motion 57.

Green bonds are financial instruments used by an issuer where the proceeds will be applied towards climate change impact reduction and/or environmental sustainability purposes. The issuer is expected to report on the actual use of proceeds to assure investors that these purposes have been met. To help support growth in the green bonds market, the Climate Bonds Initiative was created to increase transparency in this market and provide a form of calibration for securities labeled as "green bonds." Metro has implemented a program to issue green bonds, to help support the development of a municipal green bonds capital marketplace, where investors who share in valuing sustainability can reward such efforts with their investment, eventually resulting in a reduced cost of capital for such projects.

Metro's Sustainability Program and initiatives are shaped and guided by California state regulatory requirements. Some of the more notable legislations include:

> AB 32: California Global Warming Solutions Act (2006)

> SB 375: The Sustainable Communities and Climate Protection Act (2008)

> SB 32: Greenhouse Gas Emission Reduction Target for 2030 (2016)

> AB 2800: California's Climate Safe Infrastructure Working Group (2016)

> Governor's Executive Order B-55-18

> SB 100: California Renewables Portfolio Standard Program (2018)

> AB 802: California Energy (Benchmarking) Disclosure Law (2018)

> SB 743: Transportation Impacts (2013)

> SB 375: Transportation Planning: Travel Demand Models: Sustainable Communities Strategy (2008)

Awards

2020 Municipal Green Building Conference & Expo: **Award of Recognition – Envision Platinum Westside Subway Extension, Section 1**
2020 Municipal Green Building Conference & Expo: **Award of Recognition – LEED Gold C1078 Building 61S**
2020 Municipal Green Building Conference & Expo: **Award of Recognition – LEED Silver Division 16**
2019 ASCE: **Outstanding Sustainability Engineering Project: Division 4 Permeable Concrete Pilot Project**
2019 LA Sanitation One Water LA: **Partner of the Year**
2019 U.S. Green Building Council – Los Angeles: **Partner Award for Growing a Greener Workforce**
2018 APA Sustainable Communities Division (SCD): **Excellence in Sustainability Award, Leadership in Sustainability Award**
2018 APA Sustainable Communities Division (SCD): **Excellence in Sustainability Award, Sustainable Transportation Project: Metro Expo Line Phase 2**
2018 Breathe CA: **Community Impact Award**
2018 CA Sustainability Coalition/County of LA Department of Public Works: **Outstanding Sustainability Award**
2018 LADWP One Water Award: **Development of One Water LA 2040 Plan and Collaborating to advance more efficient, cost-effective and sustainable water management**
2018 LA Conservancy: **Preservation Award – Lankershim Depot**
2017 Municipal Green Building Conference & Expo: **Award of Recognition – LEED Gold Division 13**
2017 U.S. Green Building Council – Los Angeles: **Sustainable Innovation Award – Division 14**
2016 LADWP Sustainability Award: **2nd Place – Demand Curtailment**
2016 Municipal Green Building Conference & Expo: **Award of Recognition – LEED Silver Division 7**
2016 U.S. Green Building Council – Los Angeles: **Sustainable Innovation Award Water Efficiency Honor – Division 13**
2015 AQMD: **Clean Air Award – Model Community Achievement**
2015 California Energy Efficiency Industry Council: **Energy Champion Award for Advancing Energy Efficiency**
2015 Municipal Green Building Conference & Expo: **Award of Recognition – LEED Silver Division 10**
2015 National APA Best Practice Winner: **First/Last Mile Strategic Plan**
2015 National Complete Streets Coalition Recognition: **Metro Complete Streets Policy**
2014 National Complete Streets Coalition: **Best Complete Streets Policy**
2013 Municipal Green Building Conference & Expo: **Award of Recognition**

COMMITTED TO SUSTAINABILITY

2.1 Sustainability Leadership at Metro

At Metro, we believe that sustainability is about people – and ultimately through our efforts we strive to create positive impacts and benefits for the people we serve. This principle is reflected in Metro's sustainability governance, which is shared across internal departments and supported by external stakeholders and riders. Programs are driven and goals are achieved through consistent management efforts and reported to Metro's Board of Directors. The recent hiring of the Chief Sustainability Officer (CSO) reflects Metro's commitment to sustainability in the new decade. The CSO develops, executes and maintains the activities of Metro sustainability initiatives and plans.

Metro ensures its commitment to meeting and monitoring sustainability and environmental compliance through the utilization of its EMS ISO 14001 framework adopted by Metro's Board in 2009 as part of the *Environmental Policy*. The ISO framework ensures that Metro leadership is driving continual environmental improvement through planning, support and operation, performance evaluation and improvement plans.

2.2 Internal Shared Governance

Sustainability is everyone's responsibility at the agency. While individual employees or select departments may be tasked with developing, implementing and sustaining programs, all efforts are built on an evolved understanding of sustainability principles and a cohesive, forward-thinking approach that involves all stakeholders.

Sustainability planning and implementation are primarily led by two departments at Metro: ECSD and Planning. These two departments have largely shared the responsibility of integrating sustainability into agency-wide operations and culture, whether it be through developing new specifications for forthcoming projects or by empowering employees through workforce development and environmental education.

MBS closely aligns the planning, reporting and program implementation efforts of ECSD and Planning. Using this Plan as a roadmap, the CSO will help synchronize ECSD's environmental compliance and impact mitigation efforts with Planning's work to incorporate sustainability into Metro's planning functions. This alignment and coordination will help implement the plan's holistic vision for sustainability at Metro and across LA County.

Environmental Compliance & Sustainability Department
ECSD spearheads Metro's sustainability program and is responsible for the agency's sustainability initiatives. The department is responsible for reducing the environmental, social and financial impacts resulting from Metro's transportation system and services. ECSD takes an innovative approach to fulfilling these core responsibilities. The department has effectively integrated energy conservation, resource management, alternative financing, climate change mitigation and adaptation, and overarching sustainability into Metro's construction and operational practices. ECSD will continue to act as the lead on climate action and sustainability initiatives at Metro.

Countywide Planning & Development Department
Countywide Planning & Development plans and programs (funds) countywide transportation projects designed to improve mobility in significant ways. As part of that, Planning is responsible for integrating sustainability activities into the agency's planning functions and coordinating with other public agencies and external stakeholders. The work includes a broad range of coordinating activities that align common goals, such as environmental stewardship, improving the quality of life in communities and increasing mobility options for the sake of sustainability. Planning strives to foster collaboration and to create more sustainable communities throughout the region.

2.3 External Stakeholders

Recognizing the importance of engaging external stakeholders in our planning and implementation processes, Metro has developed formal structures to communicate with external groups whose input informs the activities of the CSO and internal sustainability governance.

Policy Advisory Council
The Metro Policy Advisory Council was established in early 2017 to review, comment and provide input on the draft Measure M Master Guidelines, the *LRTP* and other work plans and policy areas that the Metro Board may request. The council is made up of transportation consumers, transportation providers and representatives from the various communities served by Metro.

SUSTAINABILITY ROLES AND RESPONSIBILITIES THROUGHOUT METRO

POSITION	SUSTAINABILITY FOCUS AREA
Metro Board	Approve policies and directives to support sustainability at Metro.
Chief Executive Officer	Implements Board directives, provides leadership and holds departments accountable for meeting Sustainability Plan targets.
Chief Sustainability Officer	Oversees the agency's sustainability and environmental compliance efforts, including tracking metrics, updating the plan and participating in regional sustainability, climate and resilience efforts.
Other Chiefs and Department Heads	Implements sustainability actions in areas of their control and takes responsibility to identify areas of continual improvement.
Environmental Compliance & Sustainability Department	Oversees environmental compliance and reduction of environmental liabilities during planning, design, procurement, construction, operation and maintenance of the agency's facilities, services and products. Responsible for implementing sustainable operations throughout Metro.
Countywide Planning & Development Department	Responsible for incorporating sustainability activities into Metro's planning activities and coordinates and works with ECSD in external partner engagements.

Sustainability Council

In 2016, Metro formed the Sustainability Council in response to Motion 57.[2] The council is composed of up to 30 voting members representing a range of sectors and community stakeholder groups[3] with expertise in sustainability and transportation. The Sustainability Council is an advisory body that provides Metro with input on direction and feasibility of policies, operations, construction and maintenance processes related to sustainability. The council is staffed and supported by ECSD, Planning, V/CM and Operations. Bi-monthly meetings cover updates on Metro sustainability activities and new regulations, discussion of opportunities for collaboration and actions on key agenda items. The public is welcome to all meetings.

Community-based Organizations (CBOs)

Metro is developing an approach to work more frequently and effectively with CBOs on stakeholder outreach and engagement. Additionally, ECSD is partnering with WIN-LA to pilot new language in select procurement contracts that recommend contractors work with CBOs to help employ low-income and/or previously-homeless populations. CBOs are valuable partners in achieving our understanding of the lived experience of communities served by Metro. The insight from community-based outreach can inform future technical assistance or grant support efforts, as well as identify key opportunities in the design of new alignments and stations. CBO partnerships will be emphasized in areas considered to be EFCs.

2.4 Implementing *Moving Beyond Sustainability*

Under the leadership of the CSO, ECSD and Planning staff will establish the annual program and budget for implementing *Moving Beyond Sustainability*. Projects will be prioritized annually using the goals, targets, strategies and actions outlined in *MBS*. Justification for those projects will be submitted to the Office of Management & Budget (OMB). The CSO will work with OMB to allocate funding. See chapter four for information regarding the implementation of *MBS*.

2. Adopted by the Metro Board of directors, Motion 57: *Environmental & Sustainability Efforts to Further Metro's Goals to Reduce Emissions, Clean the Air & Improve Urban Areas* prioritizes sustainability reporting and efforts in four main areas: climate change and resiliency, energy, solid waste and recycling and water. *http://libraryarchives.metro.net/DB_Attachments/181018_Motion_57.pdf*

3. *https://www.metro.net/projects/sustainability-council/*

APPROACH, CATEGORIES AND COMMITMENTS

3.1 Methodology

Moving Beyond Sustainability is guided by the APTA guidelines for sustainability which are comprised of the following Recommended Practices:

> *Transit Sustainability Guidelines (APTA SUDS-CC-RP-004-11)*

> *Social and Economic Sustainability for Transit Agencies (APTA SUDS-CC-RP-005-18)*

> *Quantifying Greenhouse Gas Emissions from Transit (APTA SUDS-CC-RP-001-09)*

> *Quantifying and Reporting Transit Sustainability Metrics (APTA SUDS-CC-RP-03-12)*

Projections

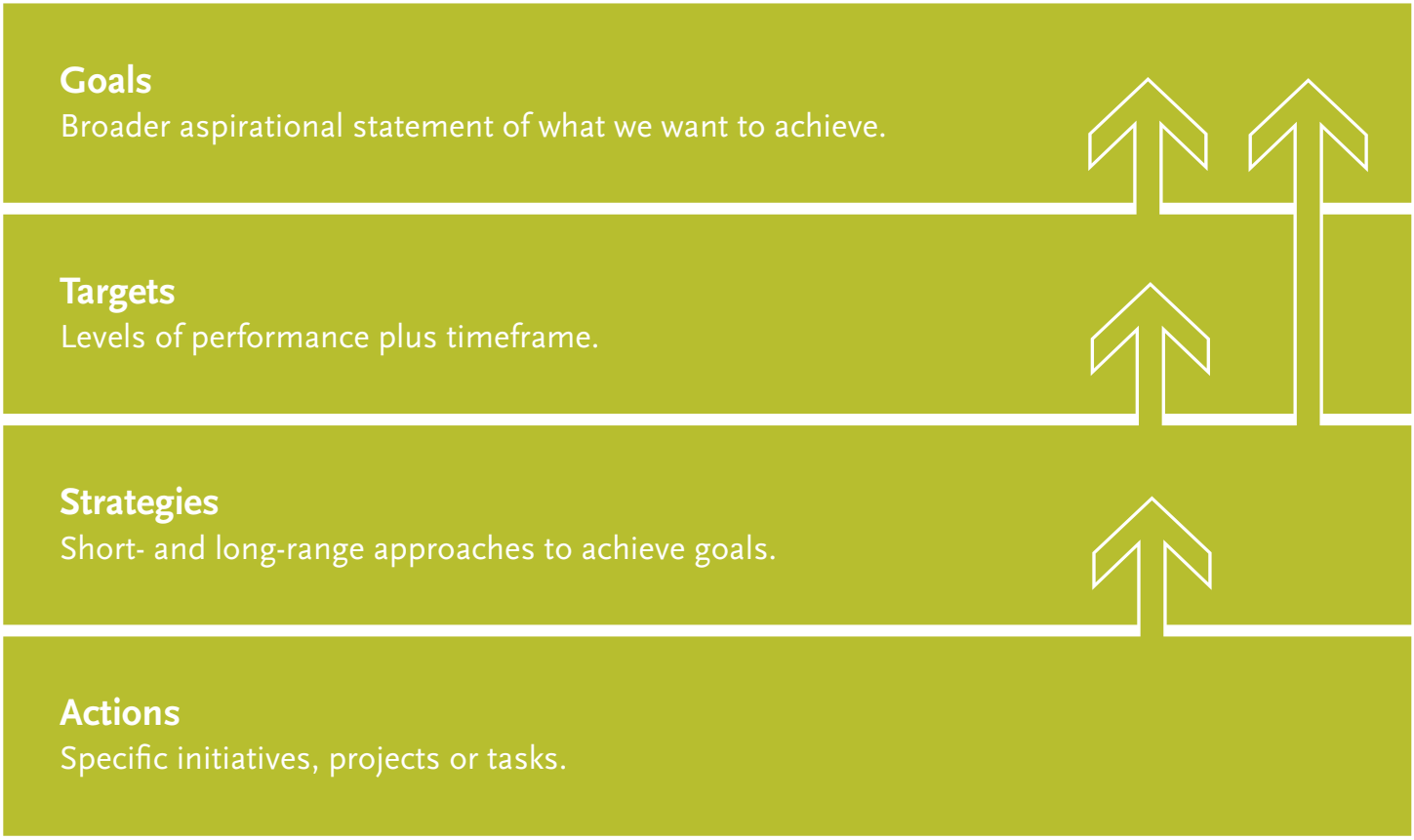
Quantitative targets identified in *MBS* were created using a detailed, data-driven analysis of infrastructure growth and a calculated 2030 Business as Usual (BAU) scenario. The 2030 BAU scenario was developed through a review of historical organizational practices, utility consumption, waste and emissions generation and planned agency growth. The BAU accounts for planned construction and improvements.

MBS will be updated every five years with formal progress reports every two years, and annual performance updates through Metro's Sustainability dashboard (sustainabilityreporting.metro.net).

3.2 How to Read the Plan

Moving Beyond Sustainability uses a hierarchical framework of goals, targets, strategies and actions to organize the measures, programs and projects necessary to advance Metro's mission and vision. As a note to the reader, abbreviations and acronyms are defined in the appendix.

HIERARCHICAL FRAMEWORK CHART



Goals
Goals are outcome statements that further articulate the vision statement. They define what Metro is trying to accomplish, both programmatically and organizationally.

Targets
Targets are precise, time-bound and quantifiable measures that provide benchmarks to measure progress toward the achievement of the goals. Targets are measurable, stated in terms of results and have a 10-year or earlier completion date.

Strategies and Actions
The third level of the plan's hierarchy outlines the specific strategies and actions directly supporting the achievement of category targets. Strategies and corresponding actions represent planned initiatives or programs currently being implemented.

The plan is organized into the following seven (7) program categories (see next page).

The Category Tables are comprised of strategies, actions, a status indicator and designation of strategy responsibility: **Lead Department (Bold)** and Support Department.

The status indicators are designated as follows:

KEY: COMPLETION OF STATUS

				
in development	started	up to 25%	up to 50%	up to 75%

3.3 Category Targets

Water Quality and Conservation

1 Reduce potable water use by **22%** from the 2030 Business as Usual scenario.

2 Increase runoff infiltration and capture capacity for stormwater by **15%** from 2020 baseline levels.

Solid Waste

1 Reduce annual operational solid waste disposal **24%** from 2030 Business as Usual scenario.

2 Achieve **50%** landfill diversion rate for operational waste.

3 Achieve **85%** construction landfill diversion rate.

Emissions and Pollution Control

1 Displace **903,000 $MTCO_2e$** annually.

2 Reduce total GHG emissions by **79%** from 2017 baseline.[4]

3 Reduce total nitrogen oxides (NOx) emissions **54%** from 2018 baseline.

4 Reduce total particulate matter (PM) emissions **62%** from 2018 baseline.

Resilience and Climate Adaptation

1 Identify all acute shocks or stressors for critical and/or vulnerable areas at or near Metro infrastructure by 2025.

2 Implement the flexible adaptation pathways concept to incorporate climate adaptation into planning, procurement, asset management and operations by 2025.

3 Prioritize improvements to locations, facilities, infrastructure, equipment and operations to reduce risk.

4. As published in its 2019 *CAAP*, Metro commits to reducing our greenhouse gas emissions by 79% relative to 2017 levels by 2030 and 100% (i.e., zero emissions) by 2050.

Materials, Construction and Operations

1 Achieve **LEED Silver** certification for all new facilities over 10,000 square feet, and achieve Envision certification where LEED is not applicable.

2 Design and build **100%** of capital projects to CALGreen Tier 2 standards.

3 Complete **Sustainable Acquisition Program training/implementation** and develop **2030 program targets** for annual sustainable acquisition spend by 2022.

Energy Resource Management

1 Reduce energy consumption by **17%** at facilities from the 2030 Business as Usual scenario.

2 Increase onsite renewable energy generation to **7.5 MW**.

Economic and Workforce Development

1 Review job classifications on a regular basis and eliminate obsolete requirements that create barriers to career advancement.

2 Recruit employees from diverse sources, including vocational schools, community colleges, groups supporting formerly incarcerated persons and organizations supporting persons with disabilities and older adults.

3 Achieve triennial DEOD contracting goals related to small, disadvantaged and veteran-owned businesses.

Together we can build a transportation system that is innovative, sustainable and increases access to opportunity for everyone.

WE WILL USE OUR WATER WISELY.

In Southern California, water is a precious and limited resource. So Metro is planting California native and drought-tolerant landscaping and recycling the water used for everyday operations. And we'll continue to find new ways to conserve, doing our part to be water smart.

WATER QUALITY AND CONSERVATION

GOALS

> **Optimize and manage Metro's water use.**

> **Manage wastewater and stormwater constructively.**

TARGETS

1 **Reduce potable water use by 22% from the 2030 Business as Usual scenario.**

2 **Increase runoff infiltration and capture capacity for stormwater by 15% from 2020 baseline levels.**

3.4 Overview

The state of California faces urgent challenges related to the availability of potable water. Local sources, including aquifers, across the state have not recovered from years of drought, a problem exacerbated by the anticipated impacts of climate change. Continuing the import of water from elsewhere is unsustainable in the long term. The ramifications of these two challenges will be felt, especially in Southern California.

As of 2018, 97.4% of our water consumption is potable water. More than half of Metro's water use goes toward irrigation along rail and bus alignments (55.3%) and over another quarter of our consumption goes toward operational divisions (26.6%).

Metro is actively monitoring water use and finding new ways to increase conservation efforts. We have reduced potable water use by 34% since 2013 through conservation efforts, system enhancements and efficiency upgrades aligned with Metro's *2010 Water Action Plan*. These actions supported the City of LA's goal of reducing consumption by 20% over the same timeframe. Our efforts have included bus wash system retrofits, smart irrigation controller installations, turf removal, water-efficient landscaping upgrades and irrigation restrictions.

Water reclamation and reuse will be an equally critical component of our water use strategy through 2030. We will identify and evaluate opportunities to implement capture and reuse strategies, such as reusing water discharged from dewatering activities, and nature-based, low-impact development measures, such as stormwater runoff infiltration. We expect that this intentional, responsible water consumption and resource management will contribute to community-wide resilience. Metro also recognizes the potential to create multi-benefit projects that may serve EFCs through participation in Measure W initiatives.

TARGET 1

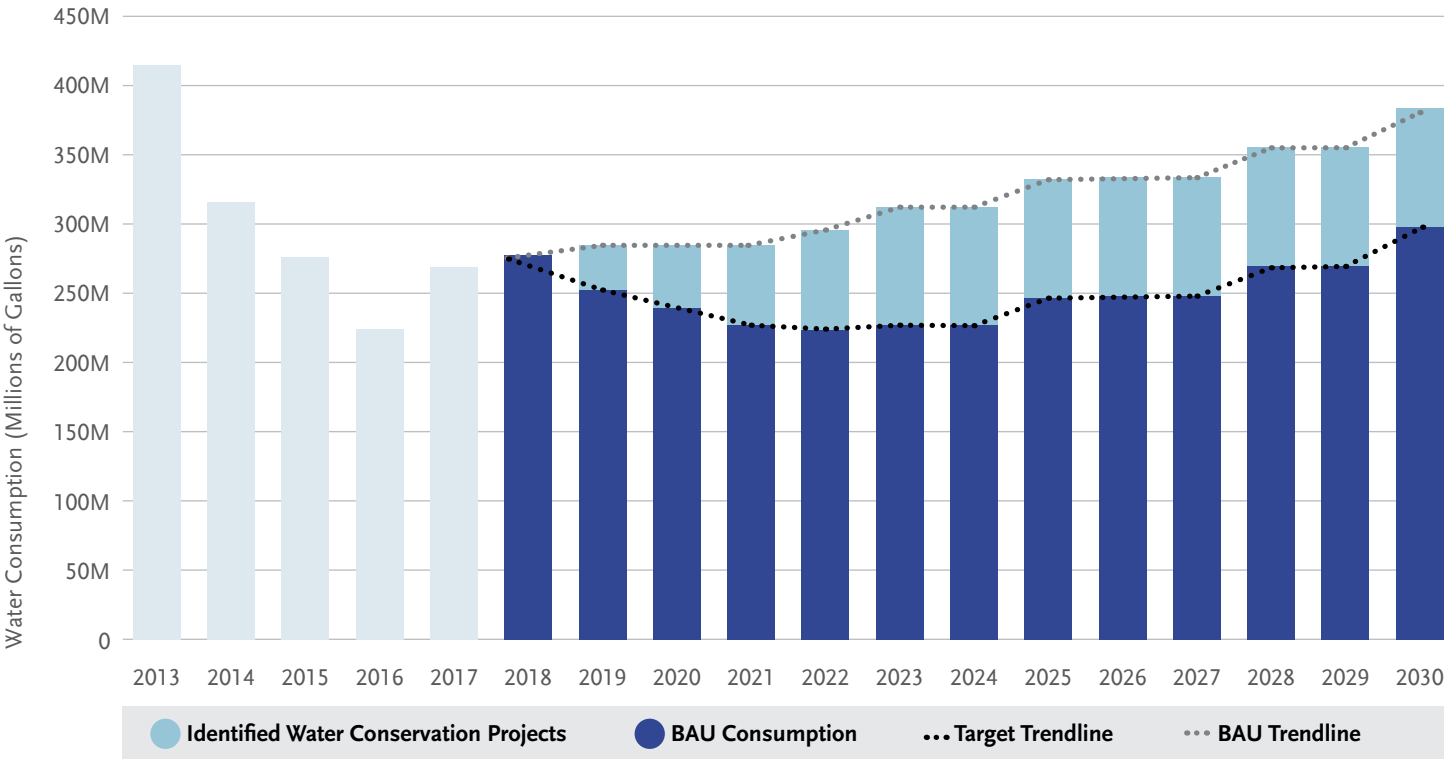
Reduce potable water use by 22% from the 2030 Business as Usual scenario.

Potable water consumption is expected to increase due to our Twenty-Eight by '28 initiative, featuring transit and facility expansion projects set to come online by 2028. In a BAU scenario, system growth is estimated to increase overall water use by 38.1% by 2030 (from 2018 levels).

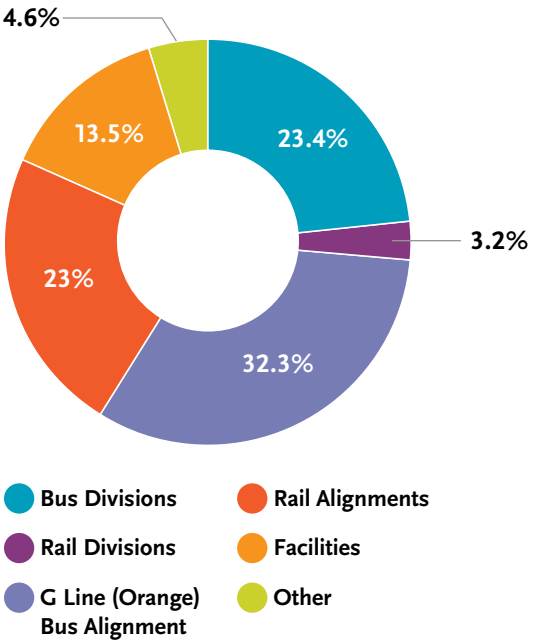
To mitigate anticipated increases in water consumption, we have identified, approved and are implementing several strategies to reduce potable water consumption, including: bus and rail car wash facility improvements, domestic fixture replacements and an upgrade to smart irrigation controllers along the G Line (Orange) alignment. Conservative estimates suggest these strategies will yield a 22% reduction in water consumption from levels in the 2030 BAU scenario.

As a responsible steward of water conservation, Metro continues to develop additional water use reduction strategies focused on technical improvements and behavioral change at Metro, while developing partnerships with key regional stakeholders to build a more resilient LA county.

WATER CONSUMPTION FORECAST (2013 – 2030)



2018 TOTAL WATER CONSUMPTION BY END USE



TARGET 2

Increase runoff infiltration and capture capacity for stormwater by 15% from 2020 baseline levels.

Metro is actively evaluating opportunities to increase runoff infiltration and capture capacity for stormwater. For example, permeable surface installations at divisions with large asphalt surface areas could reduce runoff, increasing infiltration capacity systemwide. Installations along rail alignments and highways or near current and forthcoming facilities, such as bioswales or other nature-based solutions, have the potential to increase stormwater infiltration and contribute to larger ecosystem health and restoration. Together, these efforts will produce long-term water savings as more water can safely infiltrate into soil and replenish groundwater sources and local aquifers. Such installations also have filtration features that capture and prevent pollutants from entering land and water ecosystems and harming wildlife.

What We've Done

ACHIEVEMENTS AND ONGOING INITIATIVES

Low Flow Nozzle Pilot Installation for Bus Washes
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 this success, similar modifications will be made at other bus divisions, accompanied by monitoring practices to quantify water and cost savings. It is estimated that nozzle replacements systemwide will save over 20 million gallons of water per year.

G Line (Orange) Upgrades: Smart Irrigation, Recycled Water and Use Efficiency
In 2018, 32.3% of Metro's overall water consumption was used along the G Line (Orange) alignment or right-of-way. To reduce potable water consumption, multiple reduction measures were identified and implemented. Forty-one conventional irrigation controllers were replaced with smart controllers 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.

Permeable Pavement and Bioretention Pilot Project
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.

Low-to-No Flow Sanitary Fixtures
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.

Intentional and responsible water consumption and resource management will contribute to community-wide resilience.

PLANNED STRATEGIES AND ACTIONS

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Identify and implement operational water conservation and efficiency projects W1	1.1 Implement all identified water conservation projects.		**ECSD**
	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*.		**ECSD**
	1.3 Prioritize the new Water Action Plan strategies for phased implementation.		**ECSD** Operations
	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.		**ECSD** Operations
	1.5 Develop and conduct staff training on water conservation strategies.		**ECSD**
Increase the use of non-potable water sources to offset potable water use W2	2.1 Identify opportunities to expand water capture for reuse.		**ECSD** Operations
	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.		**ECSD** Operations
	2.3 Determine the feasibility of including graywater and other water reuse strategies in Metro's design specifications.		**ECSD** Engineering
	2.4 Evaluate grant opportunities to study and implement innovative reclaimed water strategies.		**ECSD** Planning
	2.5 Evaluate the use/reuse of water from system dewatering activities for operations and construction.		**ECSD** Operations
Implement water monitoring and reporting systems W3	3.1 Install smart sub-meters to improve the collection of water usage data.		**ECSD** Operations
	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.		**ECSD** Operations
	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.		**ECSD** Operations

KEY: COMPLETION OF STATUS

 in development	 started	 up to 25%	 up to 50%	 up to 75%

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Integrate water conservation and efficiency best practices into policies, standard operating procedures (SOPs) and specifications W4	4.1 Further integrate and regularly update water conservation approaches into contractor requirements to better mitigate water use impacts from construction through operations.		**ECSD**
	4.2 Establish and implement specifications for water reuse during dewatering activities.		**ECSD** Operations
	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.		**ECSD** Engineering
	4.4 Establish and implement specifications for high-efficiency water fixtures and systems for all new construction and renovations.		**ECSD** Operations, Planning Engineering
	4.5 Establish and implement specifications for native, climate appropriate landscaping for all new construction and renovations.		**ECSD** Operations,Engineering Facilities Management Systemwide Design
	4.6 Establish procedures requiring the regular review and update of SOPs for water use that reflect best water conservation and efficiency practices.		**ECSD** Operations
	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.		**ECSD** Operations
	4.8 Integrate a triple bottom line analysis into cost and value assessments of all planned water efficiency measures.		**ECSD** V/CM
Partner with other public agencies and community groups to advance regional water goals W5	5.1 Establish ongoing evaluation of local partner policies, procedures, mandates, requirements and best practices to identify collaborative opportunities.		**ECSD** Engineering
	5.2 Collaborate with other Municipal Separate Storm Sewer System permittees for implementation of enhanced watershed management programs.		**ECSD** Engineering
	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.		**ECSD** Operations
	5.4 Engage with external stakeholders to identify collaboration and funding opportunities that advance regional water goals.		**ECSD**

KEY: COMPLETION OF STATUS

in development	started	up to 25%	up to 50%	up to 75%

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Develop strategic resources and collaborative relationships across the agency to advance the water program and drive behavior change W6	6.1 Expand partnerships with operations staff across the agency to develop and implement water initiatives and projects.		**ECSD** Operations
	6.2 Use the Metro Intranet and other digital media tools to communicate water program goals, initiatives and achievements internally.		**ECSD** Marketing and Communications
	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.		**ECSD** Marketing and Communications Talent Development
Implement best management practices to minimize stormwater runoff and keep stormwater clean W7	7.1 Characterize stormwater quality at operating division discharge locations to identify opportunities for improvement.		**ECSD** Operations
	7.2 Identify stormwater management opportunities and constraints for underground, at grade and above grade rail/busway stations.		**ECSD** Operations Engineering
	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.		**ECSD** Operations Engineering
Prioritize the infiltration, capture and/or use of stormwater W8	8.1 Evaluate and prioritize opportunities to retrofit existing facilities using a whole systems approach, including life-cycle, maintenance needs and potential system impacts.		**ECSD** Operations
	8.2 Integrate green infrastructure principles into specifications.		**ECSD** Operations Engineering
	8.3 Support regional water initiatives through collaborative capture/reuse projects.		**ECSD** Operations Engineering
Reduce pollutants in industrial wastewater W9	9.1 Develop a source control pollution prevention plan focused on decreasing the volume and increasing the quality of wastewater.		**ECSD** Operations
	9.2 Develop a screening process for new materials based on their potential to affect discharge.		**ECSD** V/CM

WE WILL GENERATE LESS WASTE.

Eliminating waste starts by evaluating our choices. Metro always looks for new ways to get the most out of materials. We're working to reduce, reuse, recycle and repair as we support the movement to zero waste and a sustainable circular economy.

SOLID WASTE

GOALS

> Reduce Metro's waste disposal.

> Increase diversion from landfill.

TARGETS

1 Reduce annual operational solid waste disposal **24%** from 2030 Business as Usual scenario.

2 Achieve **50%** landfill diversion rate for operational waste.

3 Achieve **85%** construction landfill diversion rate.

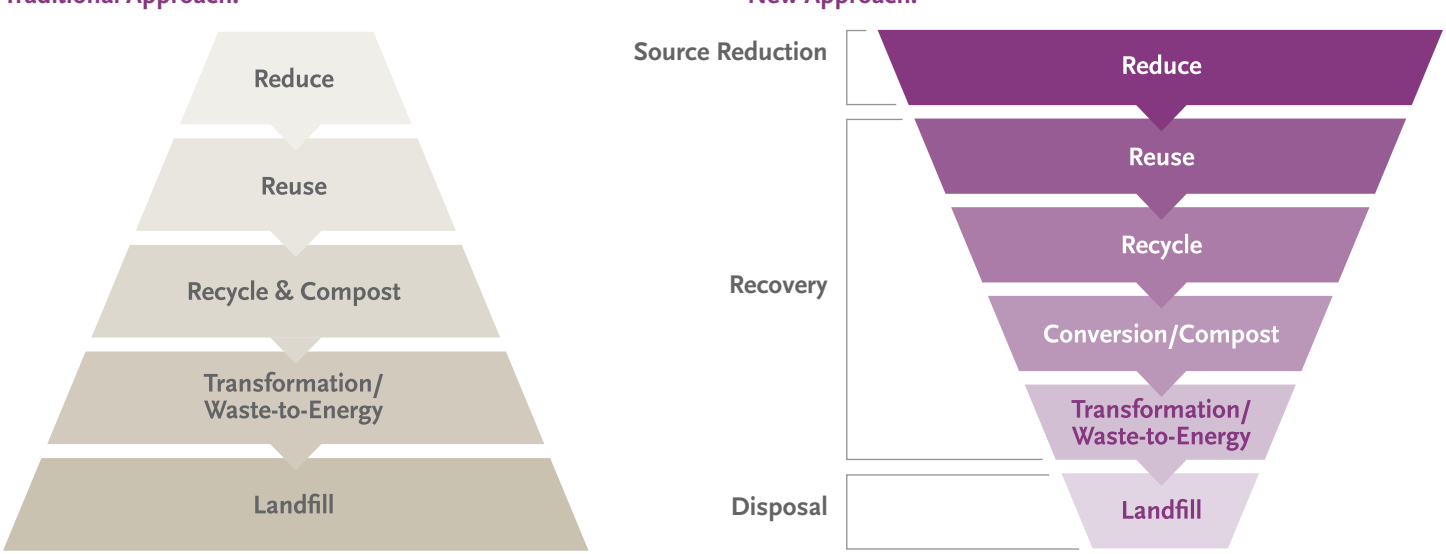
3.5 Overview

As one of the largest transportation authorities in the U.S., Metro acquires, moves, uses and disposes of thousands of tons of material each year. Disposing of this material carries operational expenses, has land-use implications and generates regional GHG emissions. Our priorities for reducing the impact of our waste are two-fold: decrease the amount of waste that is generated and divert waste from landfills.

In alignment with the City of LA and LA County, Metro is actively applying the **Integrated Waste Management Hierarchy (IWMH)**[5] to our operational waste. Using this hierarchy, we are prioritizing waste reduction and sustainable procurement as the first and most important steps toward managing and reducing solid waste. The IWMH is also an integral component of multiple agency-wide policies and programs, including our *Solid Waste Management Plan,* Sustainable Acquisition Program and *Construction and Demolition Debris Policy.* These efforts help us support and comply with California state legislation and CalRecycle regulations.

Waste reduction and diversion strategies through sustainable procurement and operational improvements will be critical to

INTEGRATED WASTE MANAGEMENT HIERARCHY



5. U.S. Environmental Protection Agency. "Sustainable Materials Management: Non-Hazardous Materials and Waste Management Hierarchy." https://www.epa.gov/smm/sustainable-materials-management-non-hazardous-materials-and-waste-management-hierarchy

meet our 2030 operational targets. We are building on waste characterization studies and our growing Sustainable Acquisition Program to identify strategies to change existing behavioral and purchasing practices as a means to minimize both the upstream and downstream impacts of procured material. To address construction waste, we are partnering with Metro's contractors to further develop waste management strategies that focus on material reuse and landfill diversion.

Definitions

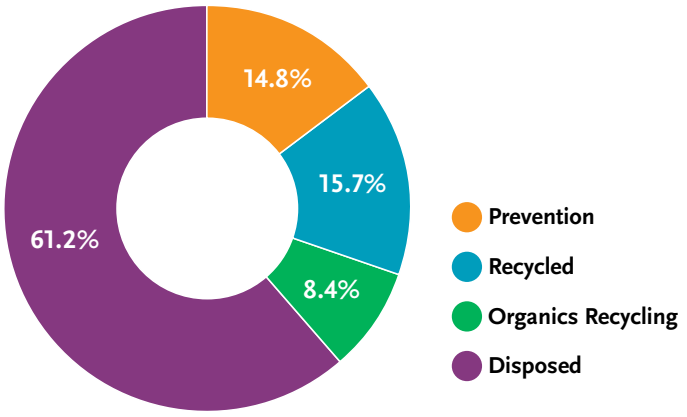
Generation: The amount of waste that is produced before it is recycled, diverted or sent to the landfill
Disposal: The amount of waste that is sent to the landfill or treated as "trash"
Diversion: The percentage of waste that is diverted from landfill through recycling, composting, reuse or source reduction
Prevention: Eliminating waste through source reduction (e.g., using paperless systems)

TARGET 1

Reduce annual operational solid waste disposal **24%** from 2030 Business as Usual scenario.

In 2018, 61.2% of our solid waste was sent to landfills. While we have made substantial progress over the last five years to capture and divert waste from landfills, disposed waste has still increased steadily during that time period. In a BAU scenario, we anticipate a 21.6% increase in waste sent to landfills from 2018 levels due to system growth by 2030.

2018 OPERATIONAL SOLID WASTE COMPOSITION



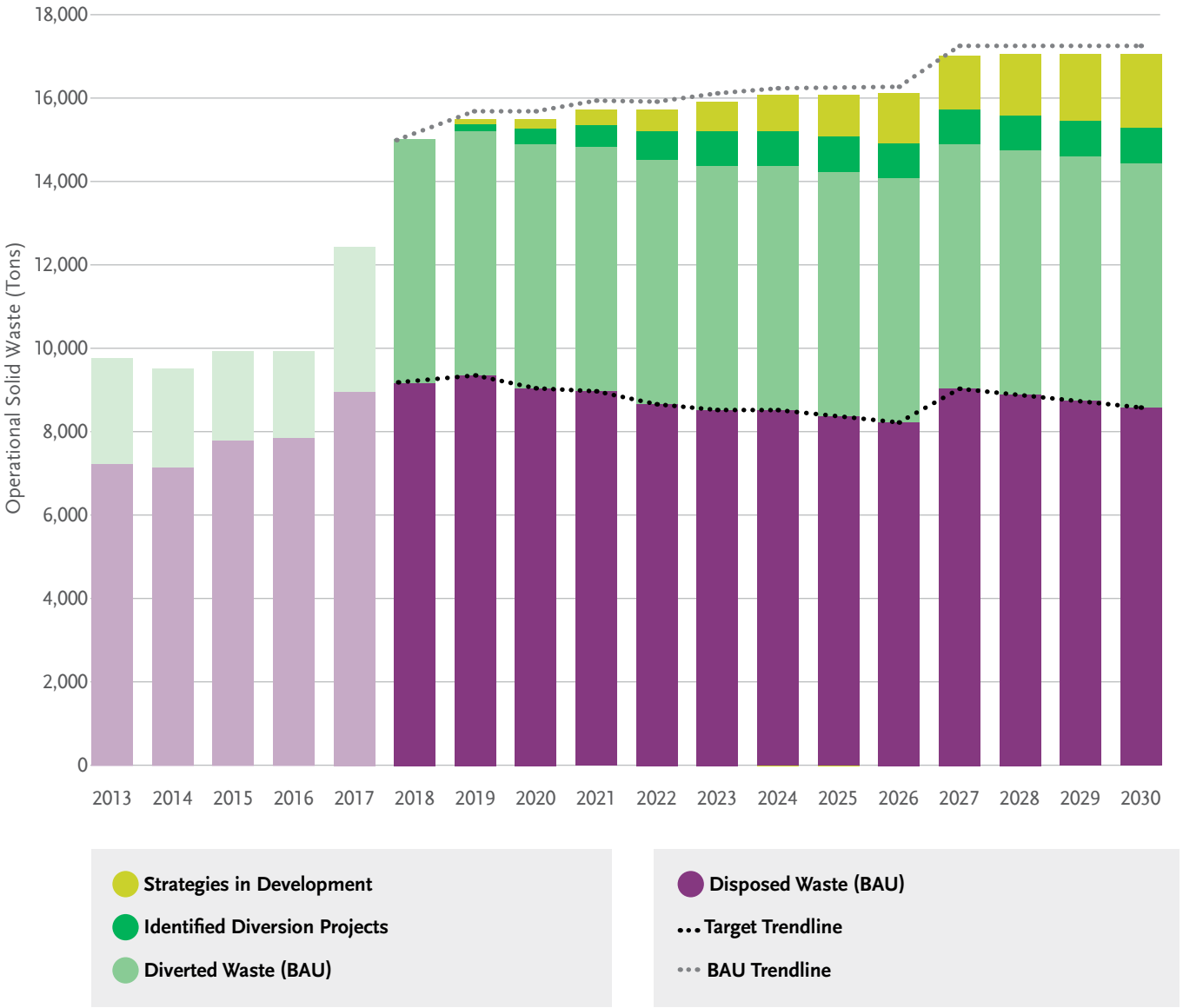
Planned waste prevention and diversion strategies are expected to minimize the impact of expected system growth on waste generation. The strategies, outlined under Target 2, will contribute toward reducing waste sent to landfills. By 2030, we expect to reduce landfill waste disposal from 2030 BAU levels by 24%.

TARGET 2

Achieve **50%** landfill diversion rate for operational waste.

New diversion and prevention programs will assist with reducing waste sent to landfills. Not only will this reduce our overall landfill disposal tonnage, but it will also increase our overall diversion rate. Strategies to increase waste diversion at Metro include the launch of a food waste collection program at Metro headquarters and increased attention on sorting recyclables across all Metro facilities among other waste prevention strategies. It is also expected that the launch and growth of the Sustainable Acquisition Program will lead to increased opportunities for diversion. Using these and other strategies yet to be identified, we aim to achieve a 50% diversion rate by the year 2030.

OPERATIONAL SOLID WASTE FORECAST (2013 – 2030)



Note: This graph forecasts operational solid waste only as construction waste is variable and measured separately.

TARGET 3

Achieve **85%** construction landfill diversion rate.

Materials generated during construction and demolition activities have the greatest potential to be diverted from typical landfills. CALGreen code currently requires 65% diversion of construction and demolition materials, yet we are committed to diverting at least 85% of our construction waste. To achieve this, we are updating our construction waste management specifications and creating a central electronic repository to track and monitor all project construction and demolition waste prevention and landfill diversion rates. In addition, through the Sustainability Plan Program, we are developing tools and procedures to help contractors develop more comprehensive waste plans.

What We've Done

ACHIEVEMENTS AND ONGOING INITIATIVES

Solid Waste Baseline and Characterization Studies
In 2017, we completed a solid waste baseline study and waste characterization studies to evaluate existing activities and performance at Metro headquarters and multiple bus and rail facilities. The baseline study evaluated operational practices and procedures and identified the material composition of the agency's waste streams. The results provided insight into our current reduction and recycling activities and quantified diversion activities that were not previously reported, including multiple organics, recycling and reuse programs. The studies provided compliance thresholds for regulated waste streams, giving us metrics to track compliance with AB 939 and AB 1826.

Solid Waste Management Plan
Metro is developing a *Solid Waste Management Plan* that provides a roadmap to address climate change and reduce regional GHG emissions by managing solid waste sustainably and effectively. The plan prioritizes upstream solutions to prevent waste, which reflect the IWMH and consider the benefits of prevention, recycling, conversion and minimization of landfill disposal. This plan will help the agency set up the infrastructural framework for implementing disposal reduction programs that achieve regulatory compliance and progress toward meeting sustainability goals.

Pallet Return Program
Metro's Central Maintenance Facility (CMF), which fulfills nearly 360,000 inventory requests per year, implemented a program to reduce waste output from pallets used for inventory storage and distribution. The program replaced standard wooden pallets with heavy-duty block wooden pallets, which are far more durable than conventional slatted pallets and survive an average of five times as many trips. In 2018, the program prevented approximately 2,100 tons of wood waste from going to landfills.

Waste reduction and diversion strategies through sustainable procurement and operational improvements will be critical to meet our 2030 targets.

PLANNED STRATEGIES AND ACTIONS

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Implement operational waste prevention and material reuse programs, which support a circular economy S1	1.1 Add waste prevention and reuse specifications to major product/service contracts.		**ECSD** V/CM
	1.2 Develop contract language to support Extended Producer Responsibility requirements for bulky and non-recyclable items.		**Facilities Maintenance** ECSD
	1.3 Partner with regional stakeholders to develop and implement material reuse/exchange programs for surplus materials.		**ECSD** Operations General Services
	1.4 Implement paperless systems and paper reduction programs and systems (e.g., Safety Data Sheets).		**ECSD** Operations General Services
	1.5 Explore options to minimize single use consumable supplies and provide alternatives.		**ECSD** Operations General Services
	1.6 Evaluate the feasibility of implementing a reuse program for materials like furniture and other items that may be discarded in a remodel.		**ECSD** Operations General Services
	1.7 Identify opportunities for waste reduction by aligning with the Sustainable Acquisition Program and the principles of a circular economy.		**ECSD** Operations General Services
Implement operational recycling and organics diversion programs, including those that support compliance with AB 939, AB 341, AB 1826 and SB 1383 S2	2.1 Add recycling specifications to major product/service contracts.		**ECSD** V/CM
	2.2 Update agency-wide recycling programs to streamline collection bins and standardize signage.		**ECSD** Marketing and Communications
	2.3 Update specifications and contractor SOWs to require compliance with organics regulations.		**ECSD** Engineering
	2.4 Establish programs to divert organic waste from landfills, including edible food donation, anaerobic digestion and composting.		**ECSD** Operations General Services
	2.5 Evaluate and prioritize facilities for implementation of organics programs.		**ECSD** Operations
	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.		**ECSD**

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Establish and integrate best waste management practices into agency-wide operations S3	3.1 Implement the Solid Waste Management Plan.		**ECSD** Operations
	3.2 Integrate waste management best practices into the SOPs and policy of strategic business units.		**ECSD** Operations
	3.3 Develop and deploy staff training on sustainable waste management principles and compliance obligations.		**ECSD**
	3.4 Integrate waste collection and diversion systems into the planning process in order to include space considerations for separating and storing waste.		**Planning**
Establish comprehensive monitoring and reporting practices to drive continual improvement S4	4.1 Standardize solid waste/recycling monitoring protocols and incorporate into the EMS.		**ECSD**
	4.2 Develop mechanisms to track and report waste generation and diversion accomplishments.		**ECSD** Operations
	4.3 Partner with waste haulers to improve data accuracy by refining bin subscription levels and reporting protocols.		**ECSD**
Implement construction waste prevention and landfill diversion best practices S5	5.1 Update Metro's Waste Management specification.		**ECSD**
	5.2 Update the *Construction and Demolition Debris Policy.*		**ECSD** Engineering
	5.3 Update vendor and construction specifications to support agency waste reduction and diversion targets.		**ECSD** V/CM
	5.4 Provide supporting tools and procedures to help contractors develop and implement more comprehensive waste plans.		**ECSD**
	5.5 Explore new technologies and cutting-edge practices that further construction waste prevention and diversion.		**ECSD**
	5.5 Create a central electronic repository to track and monitor all project construction and demolition waste prevention and landfill diversion rates.		**ECSD**

KEY: COMPLETION OF STATUS

				
in development	started	up to 25%	up to 50%	up to 75%

WE WILL CRAFT EVERY PROJECT SUSTAINABLY.

Innovative design and construction standards will increase Metro's use of low-carbon and responsibly produced materials. Smarter, more efficient operations will ensure the benefits of our green design strategies are realized.

MATERIALS, CONSTRUCTION AND OPERATIONS

GOALS

> **Demonstrate sustainable design and construction practices throughout all phases of capital improvement projects.**

> **Optimize sustainable operations and maintenance of fleet, infrastructure and facilities.**

TARGETS

1 **Achieve LEED Silver certification or higher for all new facilities over 10,000 square feet, and achieve Envision certification where LEED is not applicable.**

2 **Design and build 100% of capital projects to CALGreen Tier 2 standards.**

3 **Complete Sustainable Acquisition Program training/implementation and develop 2030 program targets for annual sustainable acquisition spend by 2022.**

3.6 Overview

Metro has embarked on an extensive capital construction program to expand our world-class transportation system. LA County voters approved two half-cent sales tax measures, Measure R in 2008 and Measure M in 2016, which have provided Metro with the resources to catalyze rapid growth in our system. The expansion includes construction and maintenance of new transit alignments and support infrastructure for rail lines, as well as rapid bus lines and bike paths. These improvements will advance regional mobility, but they require considerations for sustainable building and construction equipment and mindful consumption of water, fuels and materials.

Over and above the requirements of NEPA and CEQA, we have established programs to reduce the negative impacts of system growth. We established a *Green Construction Policy* (GCP) in 2011 to reduce emissions during construction, as well as the Sustainability Plan (SP) Program to assist contractors with meeting CALGreen obligations. Going forward, we are turning our attention to materials sourcing, for which we are actively identifying opportunities and funding for a more sustainable acquisition and services procurement.

Metro has established a sustainability engagement team who is responsible for developing interdepartmental partnerships across ECSD, Planning, Engineering & Operations, to ensure sustainability gets integrated into our construction projects at the earliest stages.

TARGET 1

Achieve LEED Silver certification or higher for all new facilities over 10,000 square feet, and achieve Envision certification where LEED is not applicable.

Metro has committed to constructing all new buildings over 10,000 square feet to LEED Silver standard or higher, per Board policy. To date, 12 buildings have been certified to LEED Silver or higher including Metro headquarters and several transportation and maintenance buildings. Additionally, we currently have four new facilities undergoing the certification process. We continue that commitment with additional efforts to incorporate applicable strategies from rating systems like Envision (https://sustainableinfrastructure.org/envision/overview-of-envision/) where LEED is not applicable.

TARGET 2

Design and build 100% of capital projects to CALGreen Tier 2 building standards.

Metro capital projects are designed and constructed based on approved design criteria, standards and specifications. In 2016, we developed and updated the Metro Rail Design Criteria (MRDC) section related to project environmental and sustainability requirements, specifically relating to energy conservation and efficiency, renewable energy, water conservation, biological and cultural resources and climate change and adaptation. The Metro systemwide

design team has developed a "kit of parts" to assist project teams in implementing sustainable infrastructure, such as LED lighting. In 2017, we developed a new Sustainability Technical Requirements specification (13 60 00) to augment our Sustainability Plan specification (01 35 63) requiring contractors to create a Sustainability Plan that integrates sustainable elements into design and construction of every project and ensure compliance to CALGreen Tier 2 requirements. More importantly, the specification requires 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.

Capital projects designed and built to Tier 2 building standards include both buildings and stations. Going forward, we will be applying relevant sections of the standard to other infrastructure improvements, including rights-of-way and alignments.

TARGET 3

Complete Sustainable Acquisition Program training/ implementation and develop 2030 program targets for annual sustainable acquisition spend by 2022.

Metro strives to integrate sustainability considerations into procurement decisions and evaluate the sustainability consequences of a product throughout its lifecycle. To this end, new products and technologies are evaluated for their ability to advance our environmental and social commitments, such as resource efficiency and small business engagement, while delivering the best financial value for Metro. Our Sustainable Acquisition Program will apply a more structured and comprehensive approach to considering the direct social and environmental impacts of products and services, as well as the operational practices of vendors along key points in the supply chain. As a result, the program will operationalize commitments in our environmental policy, advance our sustainability initiatives and continue Metro's leadership regionally and among transportation agencies nationally.

What We've Done

ACHIEVEMENTS AND ONGOING INITIATIVES

Metro Environmental Management System (ISO 14001)

Metro integrates sustainability and environmentally friendly practices into the lifecycle of its projects, including the planning, design, construction, operations and maintenance phases. One tool to achieve this is our robust EMS, which is certified to the ISO 14001:2015 standard and serves as a system for internal and external stakeholders to help us continually measure and improve our environmental and sustainability efforts. As of 2019, the Metro EMS covers 19 operational facilities (as defined by ISO 14001), bus and rail divisions and recently introduced construction (CEMS) as part of its scope. EMS seeks to continually improve sustainable building and construction processes through a rigorous process (Plan-Do-Check-Act) within an overall framework for managing the challenges of a project.

Sustainability Plan Program

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 commitments are consistent with statutory and regulatory requirements. Each project-specific sustainability plan meets or exceeds Metro's environmental and sustainability requirements, as well as the requirements of the California Green Building Code. The sustainability plan specification requires the contractor to also provide a project-specific sustainability coordinator to oversee all resiliency and long-term sustainability-related requirements for the project. Additionally, Metro is actively engaging project team members early through our Sustainability Engagement Teams, to integrate sustainability into the design and planning process.

Sustainable Infrastructure Engagement Process

CAPITAL PROJECT PHASE	KEY STAKEHOLDERS	SUSTAINABILITY *ENGAGEMENT TEAM* ACTIVITIES
Project Initiation (Planning)	Metro Countywide Planning & Development	Assign *Engagement Team,* start technical assessments, and catalog requirements.
Preliminary Design (Preliminary Engineering)	Metro Program Management & Design Contractor	Complete project specific assessments, analysis and studies; deliver *Sustainability/ Environmental Requirements Package,* review contract specifications and ensure budget for next phase.
Design (Design Development)	Metro Program Management & Design Contractor	Track requirements, review design, develop commissioning protocols, review contract specifications and ensure budget for next phase.
Construction	Metro Program Management & Construction Contractor	Track project-specific *Sustainability Plan* progress submittals per design and specifications.
Transition to Operations and Maintenance	Operations and Maintenance & Contracts	Provide O&M training, develop manuals, and commissioning and maintenance protocols.

Metro Rail Design Criteria Update

The environmental considerations within the MRDC were updated in 2010 and 2018 to include sustainability requirements, multi-mobility hubs with various first/last mile strategies, climate change adaptation principles and green infrastructure.

Certification Report Card

The following Metro facilities have achieved LEED certification:

FACILITY	CERTIFICATION	LEVEL	YEAR / STATUS
Division 16 Southwestern Yard	Division 16 Southwest Yard	Silver	2019
Location 64	Location 64	Gold	2019
Division 14	Division 14	Gold	2017
Division 24	Division 24	Silver	2016
Division 7 Campus	Division 7 Campus	Silver	2015
Division 10 Campus	Division 10 Campus	Silver	2014
Division 3 Maintenance Annex	Division 3 Maintenance Annex	Gold	2010
Union Station Gateway	Union Station Gateway	Gold	2010
El Monte Station	El Monte Station	Gold	2009
Division 13	Division 13	Gold	2009
Division 3 Maintenance Building	Division 3 Maintenance Building	Certified	2008
Division 9 Transportation Building	Division 9 Transportation Building	Gold	2008
CMF Building 6	CMF Building 6	Gold	2007

As of this printing, the following projects are in the process of LEED certification:

FACILITY	CERTIFICATION	LEVEL	YEAR / STATUS
Emergency Security Operations Center	NC	TBD	In design
Airport Metro Connector 96th Street Station	NC	Silver	In design
Willowbrook/Rosa Parks Station–Security Hub	NC	TBD	2020–under construction
Willowbrook/Rosa Parks Station–Bike Hub	NC	TBD	2020–under construction

Envision Certification

With the focus on planning and process from design stage through operations and maintenance, there is much in the Envision rating system that helps Metro consider the best sustainability practices throughout the life of our projects. Both the Expo Line Phase 2 and the Purple (D Line) Extension – Section 1 achieved Platinum Envision certification. While Envision is an industry best practice and is used to guide the building of sustainable infrastructure, it is not a formally adopted Metro policy.

Metro's Environmental Construction Awareness (MECA)

Launched in 2017, MECA is an online platform that provides information and resources to contractors about environmental requirements to help them develop effective proposals. MECA reinforces the importance of environmental compliance and sustainability from project design through construction, upholding Metro's commitment to the environment.

Sustainable Acquisition Program

In June 2019, Metro's Board of Directors adopted the Sustainable Acquisition Program: Metro's first top-down and enterprise-wide program for sustainable purchasing. This program enhances the agency's acquisition practices, ensuring that environmental, human health, social, ethical and financial considerations consistently inform such decisions. The program supports an already robust supplier outreach program at Metro that incorporates social considerations into Metro's acquisition process, including Disadvantaged Business Enterprise (DBE), Small Business Enterprise (SBE) and Disabled Veteran Business Enterprise (DVBE).

Metro is actively working to engage project team members early to integrate sustainability into the design and planning process through our Sustainability Engagement Teams.

PLANNED STRATEGIES AND ACTIONS

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Continually improve sustainability standards and requirements for project design and construction M1	1.1 Adopt CALGreen Tier 2 building standards for all capital projects.		**ECSD** Engineering, Planning
	1.2 Ensure continual improvement in alignment with MRDC, Bus Rapid Transit, design criteria and language with current CALGreen codes and Board policies.		**ECSD** Engineering, Planning
	1.3 Increase early engagement with ECSD by identifying sustainability standards that are required during early project planning phases.		**ECSD** Planning
	1.4 Require design and construction projects to use sustainable building materials.		**ECSD** V/CM, Planning
	1.5 Require Environmental Product Declarations for construction materials.		**V/CM** ECSD, Planning
	1.6 Update requirements for urban greening actions on all applicable project specifications.		**ECSD** Planning
	1.7 Evaluate the opportunity to hold an annual supplier symposium where contractors can present green alternatives for products and services.		**ECSD** Planning
	1.8 Develop a green infrastructure decision-making framework.		**Planning**
Pursue green certification standards for buildings and infrastructure construction M2	2.1 Assess and implement available environmental certifications for adoption as Metro's policy.		**ECSD**
	2.3 Collaborate with designers to determine achievable green certification options for specific projects.		**ECSD**

KEY: COMPLETION OF STATUS

				
in development	started	up to 25%	up to 50%	up to 75%

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Commission all projects to ensure optimal performance M3	3.1 Develop a commissioning policy and specifications identifying the size and frequency of buildings to undergo commissioning and retro-commissioning.		**ECSD** Program Management Engineering
	3.2 Provide oversight for project commissioning and retro-commissioning efforts.		**ECSD** Program Management Engineering
	3.3 Perform Metro enterprise-wide assessment of Building Management System (BMS) and update performance specifications with results of data.		**ECSD** Program Management Engineering
	3.4 Provide training on commissioning requirements to Metro engineers and project managers.		**ECSD** Talent Development
	3.5 Perform upgrades and improvements to the existing BMS and install BMS at those facilities that do not yet have one.		**ECSD**
	3.6 Install an Energy Management System (EMS) to monitor, control and remotely audit the BMS at each Metro facility.		**ECSD**
	3.7 Perform regular energy audits on the EMS to ensure it is running efficiently and effectively and that the BMS at each facility is connected and transmitting data to the EMS.		**ECSD**
Expand the Green Construction Policy and Sustainability Plan Programs M4	4.1 Evaluate the SP Program to identify opportunities to increase contractor compliance and project sustainability commitments.		**ECSD** Program Management
	4.2 Develop sustainability budget allowances or alternatives in project bid documents to fund sustainability elements for projects.		**ECSD** Program Management V/CM
	4.3 Develop a set of tools to assist contractors in meeting CALGreen and Metro sustainability requirements.		**ECSD**
	4.4 Investigate expanding the GCP to include or favor electric construction equipment.		**ECSD**

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Implement the *Sustainable Infrastructure Engagement Process* on all major capital projects **M5**	5.1 Integrate the *Sustainability Engagement Team* into all phases of major capital projects to shepherd project specific sustainability and environmental requirements.		**ECSD** V/CM, Engineering Planning
	5.2 Ensure proper budget allocation and contract language for sustainability and environmental requirements to eliminate change orders.		**ECSD** V/CM, Engineering Planning
	5.3 Conduct project specific research, sustainability technical assessments and studies, life-cycle cost analysis and other technical specification requirements to demonstrate value.		**ECSD** V/CM, Engineering Planning
	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.		**ECSD** V/CM, Engineering Planning
Develop and implement an agency-wide Sustainable Acquisition Program **M6**	6.1 Develop tools and procedures to guide implementation of the Sustainable Acquisition Program.		**ECSD** V/CM
	6.2 Conduct annual spend analyses to identify and prioritize product replacement and other high impact acquisition opportunities.		**ECSD** V/CM
	6.3 Assess environmental impacts of products and materials using life cycle cost analysis, including embodied carbon.		**ECSD** V/CM
	6.4 Engage the Metro vendor community to evaluate opportunities for supplier leadership.		**ECSD** V/CM
	6.5 Assess feasibility of electronic bid submission system for all procurements.		**ECSD** V/CM
	6.6 Include DBE as part of the Sustainable Acquisition Program.		**V/CM** ECSD

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Integrate resource conservation, life cycle and efficiency considerations into Metro's operational policies, SOPs and specifications **M7**	7.1 Evaluate implementing a hierarchical sustainability decision matrix as a tool for prioritizing procurement and overall programmatic decisions.		**ECSD**
Develop and implement materials, construction and operations related training for Metro staff, partners and community to facilitate a culture of sustainability **M8**	8.1 Develop a certification program within MECA to improve contractor and subcontractor knowledge of environmental and sustainability requirements.		**ECSD** DEOD
	8.2 Expand Growing a Greener Workforce (GGW) Program to include additional curriculum and partners to raise awareness about sustainable materials, construction and operations.		**ECSD**
	8.3 Implement Metro staff training on sustainable materials, construction and operations goals, targets and strategies.		**ECSD** Talent Development
	8.4 Provide sustainable design training to support the selection of sustainable design materials for Metro discretionary grant recipients and public agency partners.		**Planning** Talent Development

KEY: COMPLETION OF STATUS

				
in development	started	up to 25%	up to 50%	up to 75%

WE WILL USE MORE RENEWABLE ENERGY.

Our energy choices have far-reaching impacts on air quality, community health and well-being. By improving the efficiency of our buildings and purchasing carbon-free electricity, Metro is flipping the switch to a renewable, resilient and reliable energy future.

ENERGY RESOURCE MANAGEMENT

GOAL

> **Optimize and manage Metro's use of energy.**

TARGETS

1 **Reduce energy consumption by 17% at facilities from the 2030 Business as Usual scenario.**

2 **Increase onsite renewable energy generation to 7.5 MW.**

3.7 Overview

Our transportation system is powered primarily by electricity and natural gas, provided by seven utility suppliers across the region. The use and sourcing of that energy has ongoing impacts and longstanding implications for the environmental, fiscal and infrastructural resilience of our system. That is why Metro is taking proactive measures to procure and generate more renewable energy and implement innovative energy conservation practices and technologies in buildings.

However, 80% of our energy footprint is vehicle fuel, including a mix of compressed natural gas (CNG), diesel and gasoline that powers vehicles across our fleet. Metro is making strides in electrifying its fleet through our *Zero Emissions Bus Master Plan* (2020) and *Electric Vehicle (EV) Implementation Plan* (2021), which will substantially reduce our GHG emissions (see the Emissions and Pollution Control section and the 2019 CAAP for more information).

We primarily use energy in three ways: powering our operational facilities, fueling our vehicles and powering our rail systems.

Facility Energy

Building operations support over 1.2 million weekday rail and bus transit patrons. Metro's building energy consumption alone accounts for just over 100 gigawatt-hours (GWh) of electricity consumption per year across our extensive inventory of facilities in LA County.

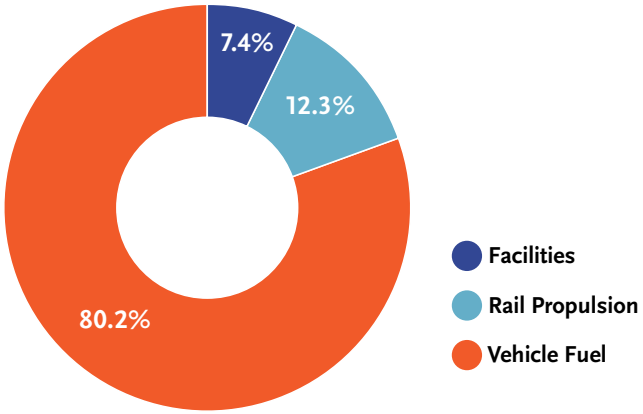
Vehicle Fleet Energy

Metro's vehicle fleet accounts for 80% of total energy consumption per year. Vehicle fuels power Metro's bus fleet, bus transit alignments, vanpool and all non-revenue vehicle fuels. Strategies to minimize Metro's fleet energy impact are more thoroughly discussed in the Emissions and Pollution Control section.

Rail Traction Power Energy

Rail propulsion power accounts for greater than 200 GWh of electricity use and accounts for 12% of the agency's energy consumption. Metro's coverage includes over 100 miles of light and heavy rail transit across LA County, with an expected 51 additional route miles by 2030. Metro purchases electricity from local utilities all of which are mandated to provide carbon free energy by 2045 (SB 100).

2018 ENERGY CONSUMPTION BY END USE



A Growing Future, A Growing Responsibility

Metro's total energy consumption is expected to increase as a result of aggressive expansion of the rail system and commitment to increasing our electrified bus assets. In November 2016, Measure M was passed to help ease traffic and improve transportation. Within the *Measure M Program Management Plan*, the Twenty-Eight by '28 Initiative highlights the highest priority developments to complete prior to the 2028 Olympic Games. Key developments include the Purple (D Line) Extension Project Sections 1-3, the Airport Metro Connector and the Metro Rail Foothill Extension Project.

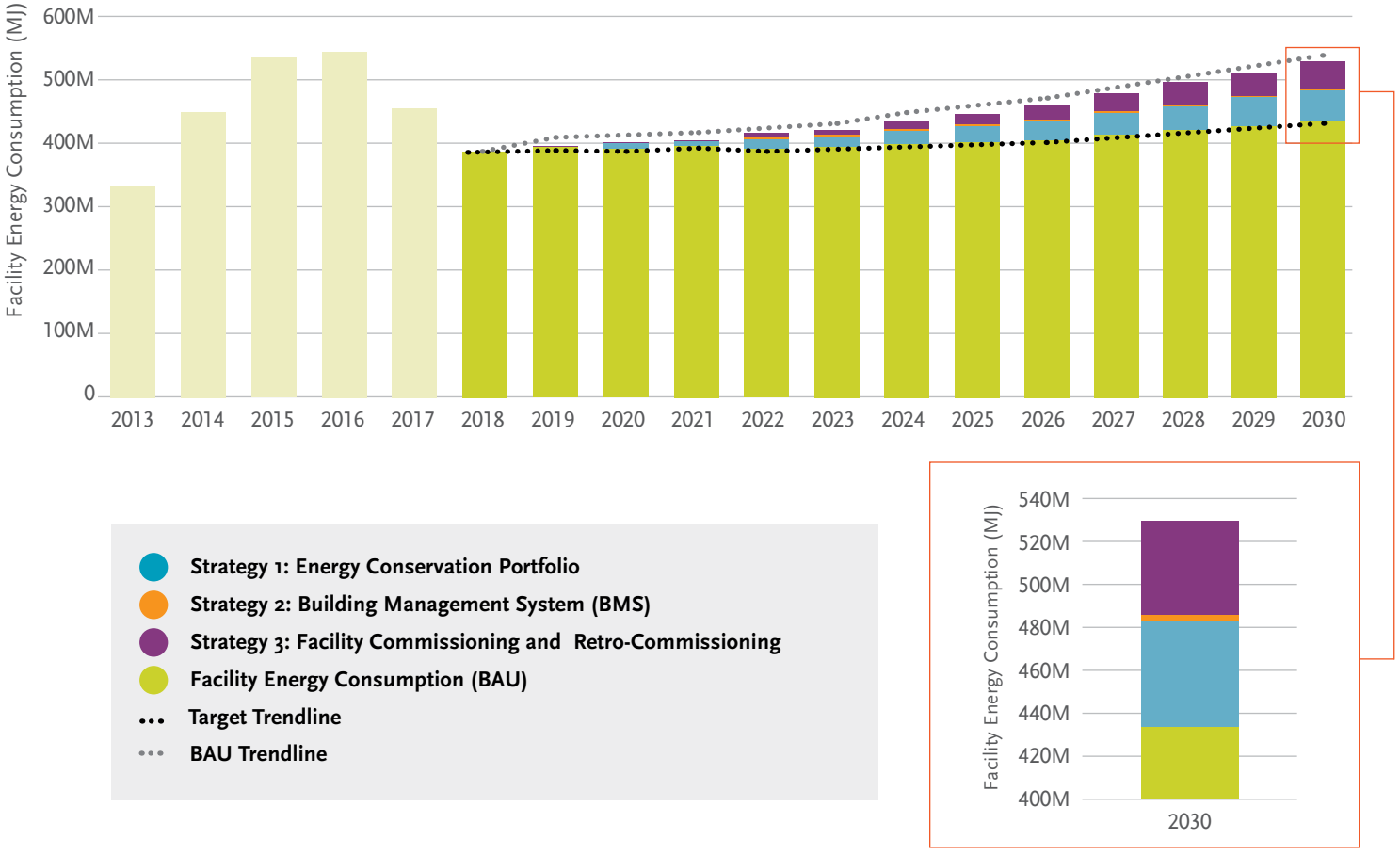
TARGET 1

Reduce energy consumption by 17% at facilities from the 2030 Business as Usual scenario.

Despite system growth and increasing demand, we are committed to reducing our energy consumption. We have identified multiple opportunities to achieve a 17% reduction from the 2030 BAU scenario. These include implementing already identified energy projects, instituting an enterprise-level BMS and adopting a formal facility commissioning and retro-commissioning policy.

The chart below shows how Metro will reduce its energy consumption from the BAU scenario, highlighting the specific contributions of each of the strategies that we will implement between now and 2030.

TOTAL FACILITY ENERGY CONSUMPTION FORECAST

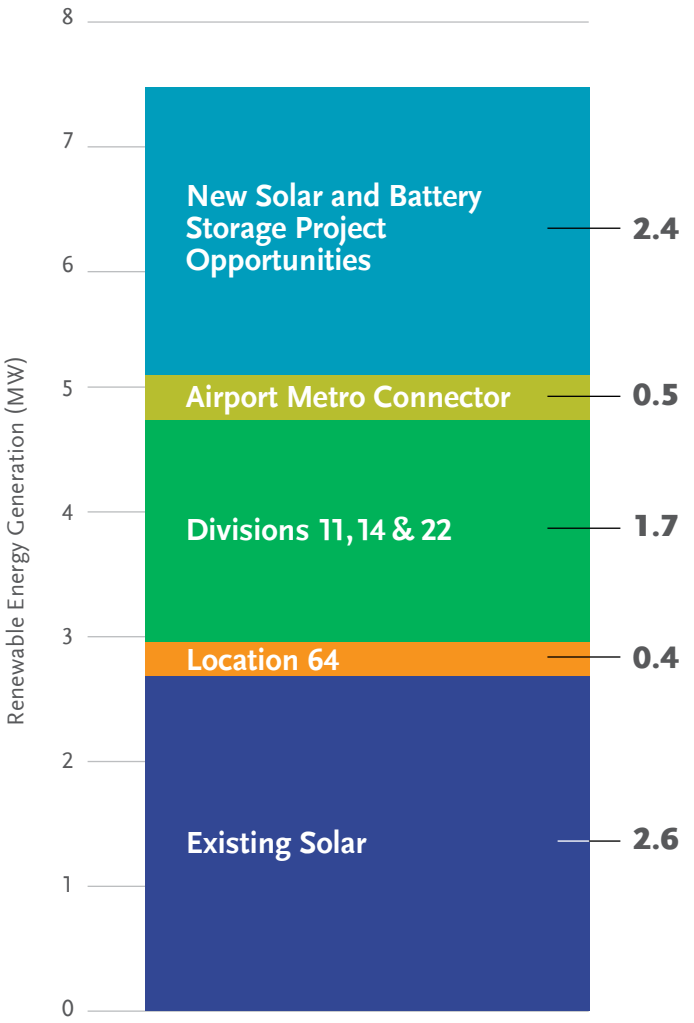


TARGET 2

Increase Renewable Energy Generation to **7.5 MW.**

Solar photovoltaic (PV) technology is a critical component of our renewable energy strategy. We currently own and operate 2.6 megawatts (MW) of solar PV across eight facilities. These onsite installations accounted for 2.65 megawatt-hours of consumption in 2019. However, we are working aggressively to increase renewable energy generation capacity through installations at multiple operating divisions, the newly constructed Location 64 and the Airport Metro Connector by 2023. Together, these projects will help us achieve our 2030 goal of 7.5 MW of renewable energy generation – tripling current generation levels.

2030 ONSITE RENEWABLE ENERGY GENERATION TARGET



New projects will help us achieve an increase to our target of 7.5 MW of renewal energy generation by 2030.

What We've Done

ACHIEVEMENTS AND ONGOING INITIATIVES

Union Station Gateway Parking Garage Lighting Retrofit
We are currently retrofitting the parking garage at Union Station Gateway with new light-emitting diode (LED) lamps to replace existing lighting fixtures. This project is estimated to reduce energy consumption by 866,000 kWh each year. After the installation, we will measure and verify consumption and cost reductions on an ongoing basis to support similar projects at other facilities.

Parking Structure Lighting Upgrades
Our Parking Management department completed a lighting retrofit at four parking structures in 2018. Upgrades to light fixtures produced annual savings of 1.2 million kWh.

PV Preventative Maintenance Program
To support our renewable energy investments, we launched the 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 this year with a promise of even greater savings moving forward.

Energy Conservation Portfolio
We have created a 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

We primarily use energy in three ways: powering our operational facilities, fueling our vehicles and powering our rail systems.

PLANNED STRATEGIES AND ACTIONS

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Implement projects identified in the energy conservation project portfolio E1	1.1 Complete Gateway LED Lighting Project.		**ECSD** Engineering, Facilities Maintenance
	1.2 Complete ECSD's Phase 1 Energy Project portfolio.		**ECSD** Engineering, Facilities Maintenance
	1.3 Identify additional energy conservation measures for implementation.		**ECSD** Engineering, Facilities Maintenance
	1.4 Consolidate existing energy studies into a comprehensive Energy Efficiency Study.		**ECSD** Engineering, Facilities Maintenance
	1.5 Consolidate energy data and develop formal management and analysis plan for quality-controlled agency reporting.		**ECSD** Engineering, Facilities Maintenance
Optimize BMS at all divisions and Gateway facility E2	2.1 Perform an enterprise-level BMS assessment.		**ECSD** Maintenance and Engineering Facilities Maintenance, ITS
	2.2 Implement recommended repairs identified by BMS assessment.		**ECSD** Maintenance and Engineering Facilities Maintenance, ITS
	2.3 Install BMS controls at divisions without preexisting system to streamline operations and maintenance.		**ECSD** Maintenance and Engineering Facilities Maintenance, ITS
	2.4 Incorporate BMS into brand-agnostic and uniform user interface for improved quality assurance.		**ECSD** Maintenance and Engineering Facilities Maintenance, ITS
	2.5 Develop BMS maintenance and training program.		**ECSD** Maintenance and Engineering Facilities Maintenance, ITS
Implement an agency-wide facility commissioning and retro-commissioning program E3	3.1 Develop commissioning standards, guidelines and commissioning specifications.		**ECSD** Engineering, Facilities Maintenance Planning
	3.2 Onboard an in-house Commissioning Team.		**ECSD** Engineering, Facilities Maintenance
	3.3 Develop a five-year rolling cycle of energy auditing and retro-commissioning for all major facilities.		**ECSD** Engineering, Facilities Maintenance

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Expand the onsite renewable energy portfolio E4	4.1 Complete installation of identified solar PV projects.		**ECSD** Engineering, Facilities Maintenance
	4.2 Expand PV Operations and Maintenance Program.		**ECSD** Engineering, Facilities Maintenance
	4.3 Update renewable energy inventory and include distributed energy resources.		**ECSD** Engineering, Facilities Maintenance
	4.4 Develop and refine solar design guidelines for all Metro projects, including considerations for scalability.		**ECSD** Engineering, Facilities Maintenance, Planning
	4.5 Identify additional onsite renewable energy generation and energy storage projects.		**ECSD** Engineering, Facilities Maintenance
Develop supporting infrastructure for electric transportation E5	5.1 Secure favorable utility billing rates for electrified rail and bus charging.		**ECSD** Rail Vehicle Acquisition, Government Relations
	5.2 Analyze opportunities to reduce peak loads from propulsion power.		**ECSD** Rail Vehicle Acquisition, Government Relations
	5.3 Partner with regional utilities to implement EV charging infrastructure.		**ECSD** Rail Vehicle Acquisition, Government Relations

KEY: COMPLETION OF STATUS

				
in development	started	up to 25%	up to 50%	up to 75%

WE WILL REDUCE EMISSIONS.

Clean air is among the building blocks of healthy living. Metro's investments in zero-emissions vehicles and advanced energy sources are helping LA County improve air quality. And each trip you make on a bus, train or bike helps, too.

DRAFT

EMISSIONS AND POLLUTION CONTROL

GOALS

> Reduce regional GHG emissions.

> Reduce Metro's GHG and criteria air pollutant emissions.[6]

TARGETS

1 Displace 903,000 $MTCO_2e$ annually.

2 Reduce total GHG emissions by **79%** from 2017 baseline.[7]

3 Reduce total nitrogen oxides (NOx) emissions **54%** from 2018 baseline.

4 Reduce total particulate matter (PM) emissions **62%** from 2018 baseline.

3.8 Overview

Transportation is a major contributor to reducing regional GHG emissions. By providing more convenient, efficient and appealing transportation options, we can move more people, while reducing GHG emissions for each trip taken – reducing the negative impact that transportation has on the environment and public health.

We have an obligation to recognize and mitigate the negative environmental impacts of operating our system. We understand the urgency posed by climate change projections, which are expected to present risks affecting our riders and employees, as well as our infrastructure and services. The Intergovernmental Panel on Climate Change's *Special Report on Global Warming of 1.5-degrees Celsius* provides clear information about these risks and the consequences of inaction.

In addition, California has passed ambitious climate and renewable energy legislation and regulations, including Assembly Bill 32 (AB 32) in 2006 and Senate Bill 100 (SB 100) in 2018. Accordingly, Metro updated our *2019 CAAP,* where we commit to building climate change resilience within our transportation system and across the region, and commit to zero GHG emissions by 2050. Thus far, we have completed several energy assessments and implemented large-scale projects, including LED lighting retrofits, a transition to RNG for our bus fleet, a bus electrification plan and various system upgrades at rail and bus maintenance divisions. Each action is a step toward achieving regional and statewide emissions goals, and ultimately achieving a zero emission transportation system.

The impacts of our transportation system and its operations extend beyond GHG emissions. We operate within the South Coast Air Basin, the most polluted air basin in the United States. Criteria air pollutants of particular concern include low level ozone, oxides of nitrogen and particulate matter. Metro's fuel consumption and use of chemicals contribute to present air quality issues. We recognize that our commitments to mitigate emissions must include strategies that reduce the formation of smog and other air pollution, which will be critical to protecting regional public health.

TARGET 1

Displace 903,000 $MTCO_2e$ annually.

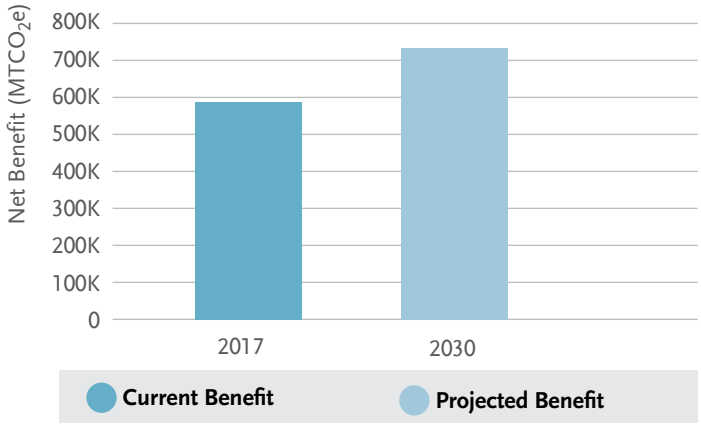
Metro consistently displaces more GHG emissions than we produce, meaning that by virtue of providing an alternative mode of transit we are preventing GHG emissions. A fifth of Metro's displaced emissions come from individuals selecting to ride Metro over driving their own vehicles, and the rest are displaced through land use patterns based on our transit services, Without Metro, LA County's GHG emissions in 2017 would have been 3.7% higher.

6. **Criteria air pollutants** are pollutants for which the U.S. EPA has set National Ambient Air Quality Standards. Metro tracks emissions for three common criteria air pollutants: Nitrogen Oxides (NOx), Particulate Matter (PM), and Hydrocarbons (HC).

7. This baseline was set in the 2019 *CAAP* and incorporated new APTA guidelines for calculating displaced emissions from land use.

It is important to quantify and track Metro's regional GHG impact in order to ensure we are meeting the intent of regional and state climate goals. In 2019 alone, we displaced or prevented 900,000 metric tons of carbon dioxide equivalent ($MTCO_2e$) from being emitted. By 2030, we anticipate this figure will slightly increase to 903,000 $MTCO_2e$, since we anticipate that passenger miles traveled will increase by 21% by 2030 (from 2017), preventing additional emissions via mode shift and changes to land use. However, increased fuel efficiency standards for private vehicles are expected to reduce displaced emissions over time (12% by 2030, 15% by 2050). Despite that, we anticipate that net GHG benefits (emissions displaced minus direct emissions) will increase over time, but increasing ridership through improved access, quality and affordability will yield additional benefits.

PROJECTED NET GHG EMISSION BENEFIT



Increasing ridership through improved access, quality and affordability will harness additional benefits.

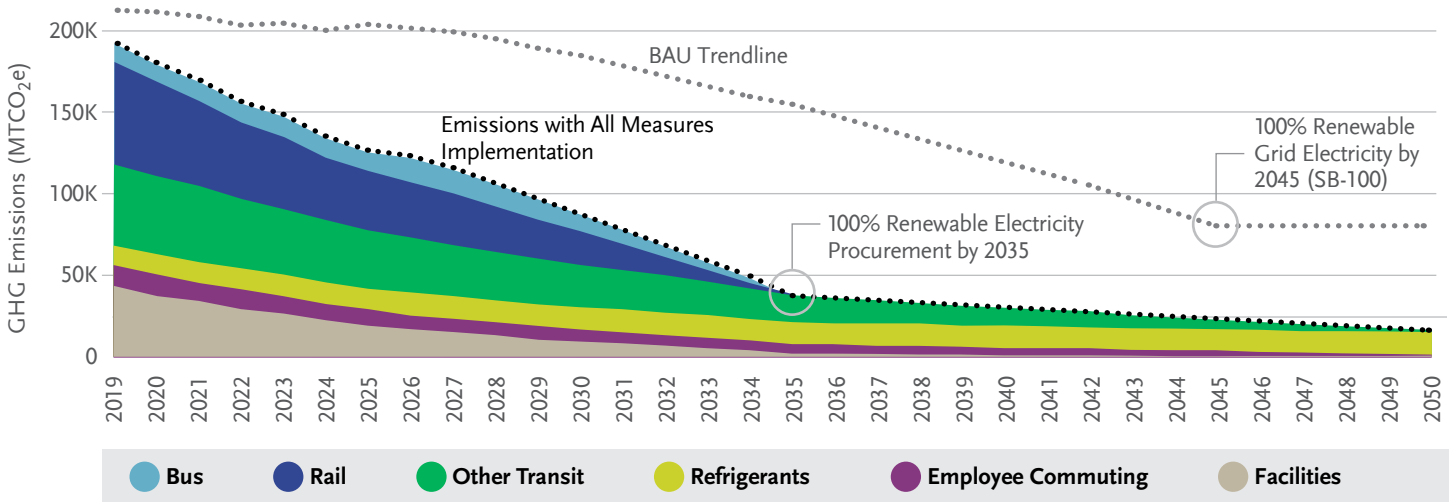
TARGET 2

Reduce total GHG emissions by 79% from 2017 baseline.

The single largest contributor to Metro emissions is our directly operated bus fleet (57%). From operational activities alone, we emitted over 432,000 $MTCO_2e$ in 2017 (or one year's worth of GHG emissions from 88,000 passenger vehicles), 81% of which are attributable to transit.

Metro estimates that our emissions will decrease 57% from the 2017 baseline by 2030 in a BAU scenario (See the 2019 *CAAP*). Reductions are largely anticipated based on expected shifts in fuel sourcing from CNG to RNG through 2020. However, in the *CAAP,* we identified 13 measures to expedite the reduction of GHG emissions at Metro. These include electrifying our vehicle fleet, increasing renewable energy sourcing and storage and improving electricity, water and other facility fixtures. Metro is coordinating with regional utilities including The Clean Power Alliance to reduce emissions from electrical sourcing and support the utilities in achieving the SB100 requirement of carbon free energy by 2045. By implementing the *CAAP,* Metro expects to achieve a 79% reduction in emissions from 2017 levels by 2030.

GHG EMISSIONS FORECAST BY END-USE CATEGORY



Note: Other transit includes CNG compression, contracted buses, vanpool and non-revenue vehicles.

TARGET 3

Reduce total nitrogen oxides (NOx) emissions 54% from 2018 baseline.

Reducing criteria air pollutant emissions is critical to protecting public health and reducing air pollution. Metro is expediting the transition of our directly operated bus fleet engines to near-zero emissions engines, already yielding substantial reductions in NOx emissions. We have committed to completely electrify our bus fleet by 2030, as well as to ramp up electrification across our contracted bus, non-revenue and vanpool fleets.

We are in the process of developing our *EV Implementation Plan* (2021), which will commit Metro to increasing support for bus and non-revenue fleet electrification, as well as increase EV charging access for community members and employees. As of now, we anticipate that 70% of our non-revenue light duty vehicles will be battery electric by 2030.

These shifts in fleet composition will lower overall NOx emissions by just over 54% by 2030 (from 2018 levels). We will continue to evaluate additional opportunities to expand and expedite vehicle electrification.

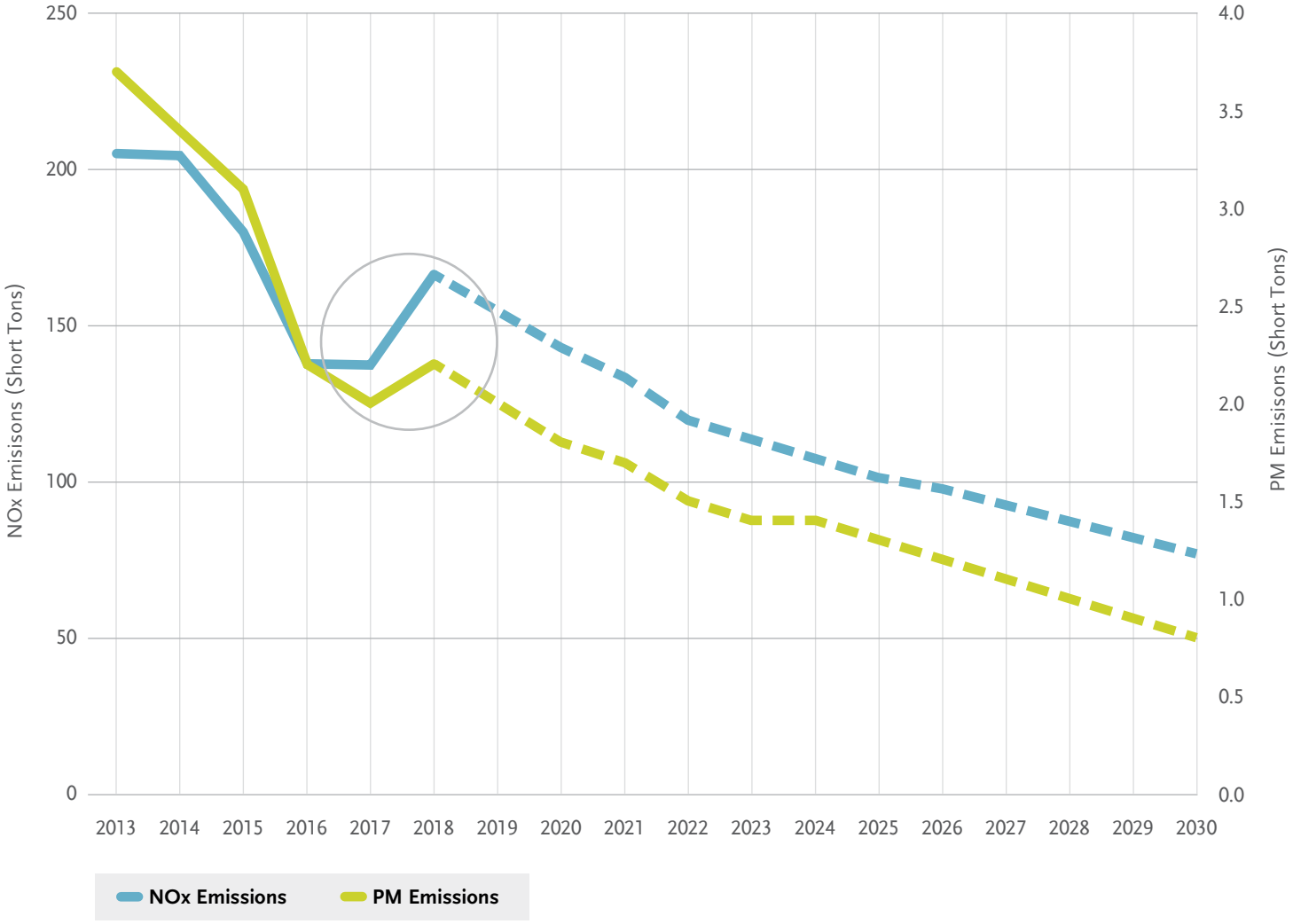
We recognize that our commitments to mitigate emissions must include strategies that reduce the formation of smog and other air pollution.

TARGET 4

Reduce total particulate matter (PM) emissions 62% from 2018 baseline.

Metro is committed to reducing PM emissions by replacing older engines with near-zero emissions engines, as well as transitioning to battery electric buses and vehicles. These efforts are expected to yield substantial reductions in PM emissions, amounting to a 62% reduction by 2030 from the 2018 baseline.

CRITERIA AIR POLLUTANT EMISSIONS FORECAST (2018–2030)



Note: Non-revenue fleet criteria air pollutant emissions measurements were not recorded until 2017. Vanpool fleet criteria measurements were not recorded until 2018. The circle notes the addition of the non-revenue fleet and vanpool fleet criteria air pollutant emissions measurements to Metro's total measurements.

What We've Done

ACHIEVEMENTS AND ONGOING INITIATIVES

2019 Climate Action and Adaptation Plan (CAAP)

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. 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.

Transition from Compressed Natural Gas to Renewable Natural Gas

As of 2018, 85% of Metro's GHG emissions came from vehicle fuels. Metro turned to RNG as a cost-effective, low-carbon alternative to CNG. Derived from waste sources such as landfills, RNG has proven effective in reducing emissions and fuel costs. Our 2017 pilot realized a 3.5% reduction in fleet emissions and a 19% cut to fuel costs. The directly operated bus fleet completed its full transition to RNG fuel sourcing in mid-2020.

Green Construction Policy

The GCP was updated in 2018, requiring contractors to use renewable diesel for all diesel engines and thus reducing the negative health impacts from diesel exhaust. For the Crenshaw/LAX project, the reduction in emissions for 2017 was equivalent to removing over 15,000 cars from the road. This effort reaffirms Metro's commitment to protect the communities we serve, especially those disproportionately affected by air pollution.

Near-Zero Emission Engines and Bus Electrification

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. This initiative not only increases the operating life of existing buses, but more importantly it reduces NOx and PM emissions from our bus fleet. 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).

710 Clean Truck Program

At the April 2020 Board Meeting, the Board approved programming $50 million in Metro-controlled funds for the 710 Clean Truck Program, aimed at easing congestion and reducing pollution on the southern part of the 710 between the ports and rail yards. The idea is to help develop and incentivize zero or near-zero emission truck technology and recharging equipment to be used by private industry.

We have an obligation to recognize and mitigate the negative environmental impacts of operating our system.

PLANNED STRATEGIES AND ACTIONS

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Transition Metro's fleet to zero emissions technology EP1	1.1 Adopt and implement Metro's *Zero Emission Bus Master Plan*.		**Operations** ECSD
	1.2 Develop, adopt and implement an EV Implementation Plan to expand use of EVs and access to EV charging infrastructure.		**ECSD** Operations
	1.3 Pursue transition of non-revenue medium-to-heavy duty vehicles and vanpool fleet to electric vehicles.		**ECSD** Non-Revenue
Decarbonize Metro's energy and fuel supply EP2	2.1 Complete fleet transition to RNG fuel.		**Operations** ECSD, Program Management
	2.2 Apply renewable diesel requirements for contractors and identify opportunities to decarbonize fuel sources at construction sites.		**ECSD**
	2.3 Adopt an Energy Supply Plan to establish a clear pathway to 100% renewable energy supply.		**ECSD**
Improve methodology for monitoring and measuring emissions EP3	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.		**ECSD**
	3.2 Enhance accounting practices for air quality to include both operations and construction activities.		**ECSD** Corporate Safety
	3.3 Inventory and phase out refrigerants with high global warming potential for both mobile and stationary sources.		**ECSD** Corporate Safety
	3.4 Update CAAP every five years.		**ECSD**
	3.5 Develop associated performance metrics in Metro's *LRTP*.		**Planning**

KEY: COMPLETION OF STATUS

 in development	 started	 up to 25%	 up to 50%	 up to 75%

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Implement a scheduled maintenance program for stationary and mobile emissions sources in order to reduce emissions EP4	4.1 Inventory all portable engines to ensure portable equipment registration program compliance.		**ECSD**
	4.2 Implement a tracking system for off-road vehicles and engines to monitor maintenance, fuel type and engine hours.		**ECSD**
Coordinate and partner on regional efforts to achieve state GHG emissions reduction goals EP5	5.1 Adopt and support an LA County Goods Movement Strategic Plan.		**Planning**
	5.2 Support the state of California's Zero Emissions Vehicle Action Plan by using zero emission freight service equipment.		**Operations**
	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.		**ECSD**
	5.4 Explore further measures to reduce employee commuting emissions.		**ECSD** Facilities Maintenance Human Capital & Development
	5.5 Continue to participate in the Transportation Electrification Partnership formed by LACI.		**Operations** ECSD Planning
	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.		**Planning**
	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.		**Planning** ECSD

KEY: COMPLETION OF STATUS

				
in development	started	up to 25%	up to 50%	up to 75%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WE WILL BE STRONG IN THE FACE OF CHANGE.

Climate change and other crises need a thoughtful and proactive response. Metro is improving the resilience of our system and is committed to being a partner in regional efforts to safeguard our community.


Exit t
1 A 7th St/Metro Center 11 min
2 A Downtown Long Bea... 17 min
COVID-19 Info
Prevention
Maintain a distance of 6 feet (2 meters) between yourself and others.
cdph.ca.gov
Maps
Arrivals
Alerts
Intersection

RESILIENCE AND CLIMATE ADAPTATION

GOALS

> **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.**

> **Expand Metro's leadership as a key partner in establishing a regional resilience network.**

TARGETS

1 **Identify all acute shocks or stressors for critical and/or vulnerable areas at or near Metro infrastructure by 2025.**

2 **Implement the flexible adaptation pathways concept to incorporate climate adaptation into planning, procurement, asset management and operations by 2025.**

3 **Prioritize improvements to locations, facilities, infrastructure, equipment and operations to reduce risk.**

3.9 Overview

Metro understands that planning for uncertainty is challenging but essential. Projections for changes in climate, population, land use, technology and other factors can influence how the Metro system is planned, used and operated. It is therefore important to develop solutions that can be implemented gradually and modified as new information becomes available, thus minimizing cost and disruptions to service, while providing safe and comfortable transit for a growing population.

Metro's service and continuity have the potential to affect several million people directly or indirectly. As the climate changes, it will be critical to not only maintain reliable and consistent service but also increase passenger comfort and safety. To reduce the potential of service disruption, we have been assessing the resiliency of our systems against the anticipated changes to climate since 2012 and are developing an *All-Hazards Mitigation Plan* that comprehensively assesses natural hazards. This plan will develop strategies to mitigate hazards, maintain system reliability and build regional resilience in the communities we serve.

Metro, along with a growing number of other agencies and jurisdictions, is pursuing an approach known as *flexible adaptation pathways*, a conceptual framework that can guide decisions about where, when and how to select climate adaptation actions, while providing the flexibility needed for the future. Using this approach, we will identify and set thresholds for action, as well as metrics to evaluate system resilience.

In using the flexible adaptation pathways concept, we recognize that resilience is best achieved through multiple strategies that are evaluated and implemented in stages over time, as background conditions, risks, exposure and technology change. Using the pathways approach has several advantages. It reduces the risk of being under or over prepared at unnecessary cost. It encourages proactive, rigorous and transparent monitoring to ensure that action is taken at the appropriate time, while safeguarding against unexpected climate events. A flexible pathways approach enables us to identify a range of potential paths forward and to recognize the pros and cons associated with each approach. This allows us to enhance system resilience, providing a safe and reliable service for our riders.

TARGET 1

Identify all acute shocks or stressors for critical and/or vulnerable areas at or near Metro infrastructure by 2025.

The services Metro provides are a crucial part of LA County infrastructure and disruptions to service have the potential to impact millions of people. In addition to addressing climate concerns, we are committed to reducing the risk of impacts to the system from natural and human-induced hazards. We will identify potential acute or chronic hazards to critical and/or vulnerable assets through assessments like the Triennial Threat and Vulnerability Assessment Program, all hazard mitigation planning efforts and climate vulnerability assessments.

TARGET 2

Implement the flexible adaptation pathways concept to incorporate climate adaptation into planning, procurement, asset management and operations by 2025.

The flexible pathways approach creates a structure for thoughtful, incremental integration of clear adaptation strategies into Metro business units by identifying alternatives and establishing triggers for action. This process will be supported by a monitoring program that evolves over time as data and information become available. Integrating this approach into Metro's state-of-the-art asset management, project planning processes and maintenance practices will minimize risk to business continuity.

TARGET 3

Prioritize improvements to locations, facilities, infrastructure, equipment and operations to reduce risk.

Metro understands that resilience-related investments need to be carefully evaluated and planned to provide the greatest benefit and reduction in risk to its users. Resilience investments will address physical assets and social vulnerability, so that we can make informed and strategic decisions about where and when to invest in measures that increase local and systemwide resilience. We will develop and prioritize improvements to critical infrastructure and in EFCs. Improvements to reduce risks may include increasing redundancy of communication systems, installing back-up power, coordinating regional multi-agency resilience programs or preparing to provide resources to meet employee and patron needs post-disaster.

What We've Done

ACHIEVEMENTS AND ONGOING INITIATIVES

Resiliency Indicator Framework

In 2015, Metro released the *Resiliency Indicator Framework* that established a mechanism to measure and evaluate climate adaptation priorities to ensure infrastructure resilience and maintain a good state of repair. These indicators could have a broad multi-hazard application across Metro since they facilitate continual improvement and allow us to track the effectiveness of our planning, construction and operations to increase agency-wide resilience.

All-Hazards Mitigation Plan

The *All-Hazards Mitigation Plan* is an interdepartmental effort to improve Metro's resiliency to natural hazards. The plan identifies all assets, their threats and vulnerabilities and ways to reduce and/or mitigate potential hazards—or limit the negative effects of such natural hazards—to Metro's operations. The goal is to identify actions that will minimize or eliminate threats from major hazards impacting Metro properties and to secure eligibility to pursue additional federal funding.

Transportation Mutual Assistance Compact (TransMAC)

The TransMAC is a mutual aid compact of more than 20 Southern California transit agencies designed to streamline the transit mutual aid process to respond to planned and unplanned emergencies and events. Currently, a resource guide based on a Metro-developed template is being compiled to identify the types of resources owned by transit entities (i.e., vehicles, fuel, equipment, personnel) and associated costs to ensure requestor and provider parties are aligned during emergencies.

Earthquake Early Warning System

Metro's Emergency Management and Information Technology Services (ITS) departments are working together to expand the current U.S. Geological Survey (USGS) ShakeAlert earthquake early warning system. Phase One went live in 2018 to alert Metro Rail Operations Control Center of pending ground shaking to minimize train derailments and injuries on the system. Phase Two is underway and expands access of the warning system to all employee-occupied facilities, including all bus and rail divisions, locations and Gateway headquarters. Phase Three is planned to expand the system to all buses.

Enterprise Geographic Information System (GIS) Platform for Spatial Data Management

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.

This plan will develop strategies to mitigate hazards, maintain system reliability and build regional resiliency in the communities we serve.

PLANNED STRATEGIES AND ACTIONS

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Conduct and maintain a multi-hazard risk assessment to understand vulnerabilities of the transportation system R1	1.1 Regularly perform detailed natural and anthropogenic risk assessments for all critical Metro properties, assets and operations.		**Emergency Management**
	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.		**ECSD** Planning
	1.3 Develop an Energy Resiliency Policy.		**ECSD**
	1.4 Identify data gaps for all-hazards at Metro properties, assets and operations to improve vulnerability and risk assessment.		**ECSD Emergency Management** Planning
	1.5 Create and integrate climate hazard data into a geodatabase enterprise for use by relevant departments.		**ITS**
	1.6 Deploy and manage an enterprise GIS platform with appropriate infrastructure and applications to enable better data sharing.		**ITS**

KEY: COMPLETION OF STATUS

				
in development	started	up to 25%	up to 50%	up to 75%

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Incorporate considerations for all-hazards into Metro decision-making about capital planning, procurement, asset management and operations R2	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.		**ECSD,** Emergency Management, Planning, Enterprise Transit Asset Management, Engineering
	2.2 Develop and implement a climate adaptation decision support framework (flexible adaptation pathways) that defines triggers for adaptation actions.		**ECSD**
	2.3 Develop a monitoring system allowing Metro to adjust the adaptation approach over time as climate science data improves.		**ECSD**
Regularly update resilience and climate adaptation plans and policies to address changing hazards and risks to system service R3	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.		**Emergency Management**
	3.2 Integrate and apply the *Resiliency Indicator Framework* into the EMS process.		**ECSD** Emergency Management, Operations

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Implement hazard mitigation and climate adaptation strategies to increase transportation system resilience and passenger safety R4	4.1 Adjust existing bus and rail operations to minimize the impacts of hazards to revenue service.		**Operations** ECSD, Emergency Management
	4.2 Include climate resilience of materials in the Sustainable Acquisition Program (e.g., heat, water-, fire-resilient materials).		**V/CM**
	4.3 Institute a Reliability-Entered Maintenance Program for critical systems to track persistent maintenance and repair issues.		**Asset Management** Engineering, Planning, Operations
	4.4 Pilot and implement earthquake early warning systems for train vehicles and facilities, including Metro shake alert mobile application.		**Emergency Management** ITS, Operations
	4.5 Deploy emergency supply kits and communication devices at key locations and facilities.		**Emergency Management**
	4.6 Protect and harden Metro infrastructure to better withstand hazards.		**ECSD**, Engineering, Planning, Emergency Management, Operations
	4.7 Identify opportunities to relocate or re-site Metro infrastructure and services to avoid hazards.		**Planning** Operations, ECSD
	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.		**Emergency Management** Planning, Operations
	4.9 Implement the Safety Review Standard Policy for activities that may contain HAZMAT or HAZCON.		**Corporate Safety**

KEY: COMPLETION OF STATUS

				
in development	started	up to 25%	up to 50%	up to 75%

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Develop and implement all-hazards-related trainings for Metro staff and partners to further advance a culture of sustainability R5	5.1 Develop and update trainings for Metro staff regarding hazard identification and mitigation, increasing resilience and emergency procedures.		**Emergency Management** Talent Development
	5.2 Regularly update the Employee Personal Preparedness Guide.		**Emergency Management**
	5.3 Identify key internal staff with a role in all-hazards mitigation and convene regularly to track key vulnerabilities and opportunities.		**Emergency Management** ECSD
	5.4 Provide climate adaptation and resilience training to contractors and engineers.		**ECSD**
	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.		**Emergency Management**

KEY: COMPLETION OF STATUS

				
in development	started	up to 25%	up to 50%	up to 75%

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Build a greater LA resilience network R6	6.1 Maintain the TransMAC and other information sharing mechanisms with relevant agencies.		**Emergency Management**
	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.		**Emergency Management** Operations, Corporate Safety
	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.		**Marketing and Communications** Safety, Emergency Management ECSD
	6.4 Establish real-time communication protocols and tools for use during hazard events (e.g., Metro's earthquake early warning system).		**Emergency Management** Operations, ITS, Marketing and Communications
	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.		**Emergency Management** Operations, Marketing and Communications
	6.6 Improve digital infrastructure to communicate emergency and service disruption information to riders.		**Marketing and Communications** Operations, Emergency Management
	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.		**ECSD** Planning OEI
	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.		**Emergency Management** Planning Engineering
	6.9 Develop program guidelines and pilot an urban greening competitive grant program.		**Planning** ECSD

WE WILL TRAIN TODAY FOR THE WORK OF TOMORROW.

Because innovation and continual improvement are cornerstones of a robust economy, Metro is preparing our employees to reach for new kinds of work, setting the stage for a vibrant future.

ECONOMIC AND WORKFORCE DEVELOPMENT

GOALS

> Provide opportunities for continual career growth within the agency.

> Prepare for the talent needs of the future.

> Utilize Metro investments to support the regional economy and increase opportunity for LA County residents.

TARGETS

1 Review job classifications on a regular basis and eliminate obsolete requirements that create barriers to career advancement.

2 Recruit employees from diverse sources, including vocational schools, community colleges, groups supporting formerly incarcerated persons, and organizations supporting persons with disabilities and older adults.

3 Achieve triennial DEOD contracting goals related to small, disadvantaged and veteran-owned businesses.

3.10 Overview

The economic impact of transit on the economy includes job creation, resource procurement, economic output and the ability to catalyze investment and development. Metro's investments in new infrastructure and ongoing expenditures related to operating our existing transportation system can generate high-quality employment, new career pathways and business opportunities for a wide array of residents and businesses. Measure M is projected to generate more than 778,000 new job opportunities in the transportation industry over the next 40 years.

Metro is investing in the future of the LA region, which starts with investing in our greatest asset– people. We must expand our highly skilled and diverse workforce to meet this expected workforce demand, recognizing that as of today 46% of Metro's workforce will be eligible for retirement over the next five years. Succession planning is crucial to maintaining business continuity and Metro needs qualified professionals to deliver our aggressive infrastructure program over the coming decades. To meet the ongoing need for talent and expertise, we are creating clear pathways for existing employees to advance their careers while we expand our recruitment efforts and create proactive pipelines and equitable access to opportunity for the next generation of employees to follow.

TARGET 1

Review job classifications on a regular basis and eliminate obsolete requirements that create barriers to career advancement.

Job classifications will be reviewed regularly to ensure that minimum requirements related to education, expertise, experience and capacity are appropriate and align with industry standards. Descriptions will ensure that potentially qualified applicants are not dissuaded from applying or unintentionally screened out of consideration for positions.

TARGET 2

Recruit employees from diverse sources, including vocational schools, community colleges, groups supporting formerly incarcerated persons and organizations supporting persons with disabilities and older adults.

In this era of expansion, we must attract, develop and retain expertise to further the agency's innovative work. Recruitment efforts should be multi-faceted and engage those groups and communities that Metro has traditionally had difficulty reaching. We recognize the need for a well-trained workforce to build, run and maintain our growing transportation system. We are investing in preparing local residents, often from underrepresented populations, for positions with Metro and in the transportation industry as a whole.

TARGET 3

Achieve triennial DEOD contracting goals related to small, disadvantaged and veteran-owned businesses.

Metro will increase efforts to provide access to opportunity for local businesses, SBE, women-owned businesses, DBE and/or DVBE at Metro. We know from experience that the ingenuity, innovation and expertise of such businesses are the forefront of our region's economic development. Metro needs to harness this workforce in order to build, operate and maintain our fast-growing transportation system. Agency-wide, Metro's SBE goal is 30%, DBE goal is 27% and DVBE goal is 3%.

What We've Done

ACHIEVEMENTS AND ONGOING INITIATIVES

Environmental Training Institute (ETI)

ETI offers environmental and sustainability-focused trainings and certifications designed to build support for sustainability initiatives, ensure regulatory compliance and foster an agency-wide culture of sustainability. ETI not only ensures the success of Metro's sustainability program over time, but also helps develop a regional workforce equipped for the expanding green economy. ETI includes the MECA online training for contractors, environmental compliance training for employees and the GGW Program. The GGW program offers courses in environmental concepts for employees and the public, and environmental compliance training for employees. Through ETI, Metro is driving a cultural revolution and transforming Metro employees and community members alike into agents of change.

Workforce Initiative Now (WIN-LA)

WIN-LA launched in 2018 to attract, hire and grow a world-class transportation workforce locally from the communities of LA County. WIN-LA creates career pathways in construction and non-construction operations and maintenance, administration and professional services within Metro and throughout the transportation industry. The program provides support in areas including life skills development, skill set enhancement and educational attainment services. WIN-LA increases resources needed for training and placement focused on traditionally hard-to-fill positions in our industry.

Metro leverages the successful outcomes of our Project Labor Agreement and Construction Careers Policy (PLA/CCP) to deliver construction career opportunities and a collaborative model of trainers, service providers and partners to identify, assess, train and employ WIN-LA participants for career pathways in construction and non-construction.

E3 (Expose – Educate – Employ) Initiative and Transportation School

The mission of E3 is to prepare LA County youth for career and college pathways in the global transportation infrastructure industry by teaching them transferrable STEAM (Science, Technology, Engineering, Arts and Math) based industry skills. The centerpiece of the E3 Initiative is Metro's Transportation School, designed to prepare students for STEAM careers with a specialized focus on the transportation and infrastructure industries. This program also includes paid externships for teachers and supports BridgeBuilders, a program for high school students in South LA. To maximize its potential impact on LA County youth, Metro also plans to offer a range of supplemental E3 programs that complement the school program, providing students direct exposure, education and real-world work experience.

Transportation Career Academy Program (TCAP)

TCAP provides paid summer internships to junior and senior high school students who are transit dependent, reside in LA County, live near a Metro rail station and whose school is located near Metro's rail expansion efforts. TCAP offers students an opportunity to learn about careers in transportation and apply classroom theories and concepts to real work situations. Interns establish professional relationships with mentors who provide on-the-job guidance and help students explore their interests in the industry.

Project Labor Agreement/Construction Careers Policy

Metro adopted the Construction Careers Policy in conjunction with the Project Labor Agreement to encourage construction employment and training opportunities to those who reside in economically disadvantaged areas on Metro construction projects. The agreement applies to certain local and federally funded construction projects with a construction value greater than $2.5 million.

Measure M is projected to generate more than 778,000 new job opportunities in the transportation industry over the next 40 years.

PLANNED STRATEGIES AND ACTIONS

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Eliminate barriers to career pathways and advancement EW1	1.1 Review hiring and advancement criteria for relevance to current tasks.	started	**Talent Development** Civil Rights & EEO, Talent Acquisition
	1.2 Identify and eliminate barriers or bias in current job descriptions.	started	**Talent Development** Civil Rights & EEO, Talent Acquisition
	1.3 Review and update policies, procedures and practices to eliminate barriers or bias.	in development	**Talent Development** Civil Rights & EEO, Talent Acquisition
Reach out to traditionally underrepresented communities about hiring opportunities EW2	2.1 Create effective, targeted communication to communities typically unresponsive or under-represented in hiring practices.	up to 50%	**Talent Development** Civil Rights & EEO, DEOD, PEDM, Talent Acquisition
	2.2 Retain employees from targeted communities through authentic engagement.	in development	**Talent Development** Civil Rights & EEO
	2.3 Establish a Board policy based on the tenets of WIN-LA.	up to 75%	**DEOD** PEDM
Offer quality training on skills needed for Metro's future workforce EW3	3.1 Evaluate efficacy and expand the E3 and Transportation School initiatives.	started	**Talent Development**
	3.2 Raise awareness about Metro as a future employer with local junior colleges and universities.	started	**Talent Development**
	3.3 Offer vocational opportunities that combine classroom learning with field experience.	in development	**Talent Development**
	3.4 Develop training that will be needed by future employees.	in development	**Talent Development**
	3.5 Leverage GGW and MECA with WIN-LA and other programs to increase sustainability-based skills across LA County.	in development	**Talent Development** DEOD, PEDM
	3.6 Offer sustainability and environmental stewardship curriculum as part of E3 and Transportation School programs.	in development	**Talent Development**

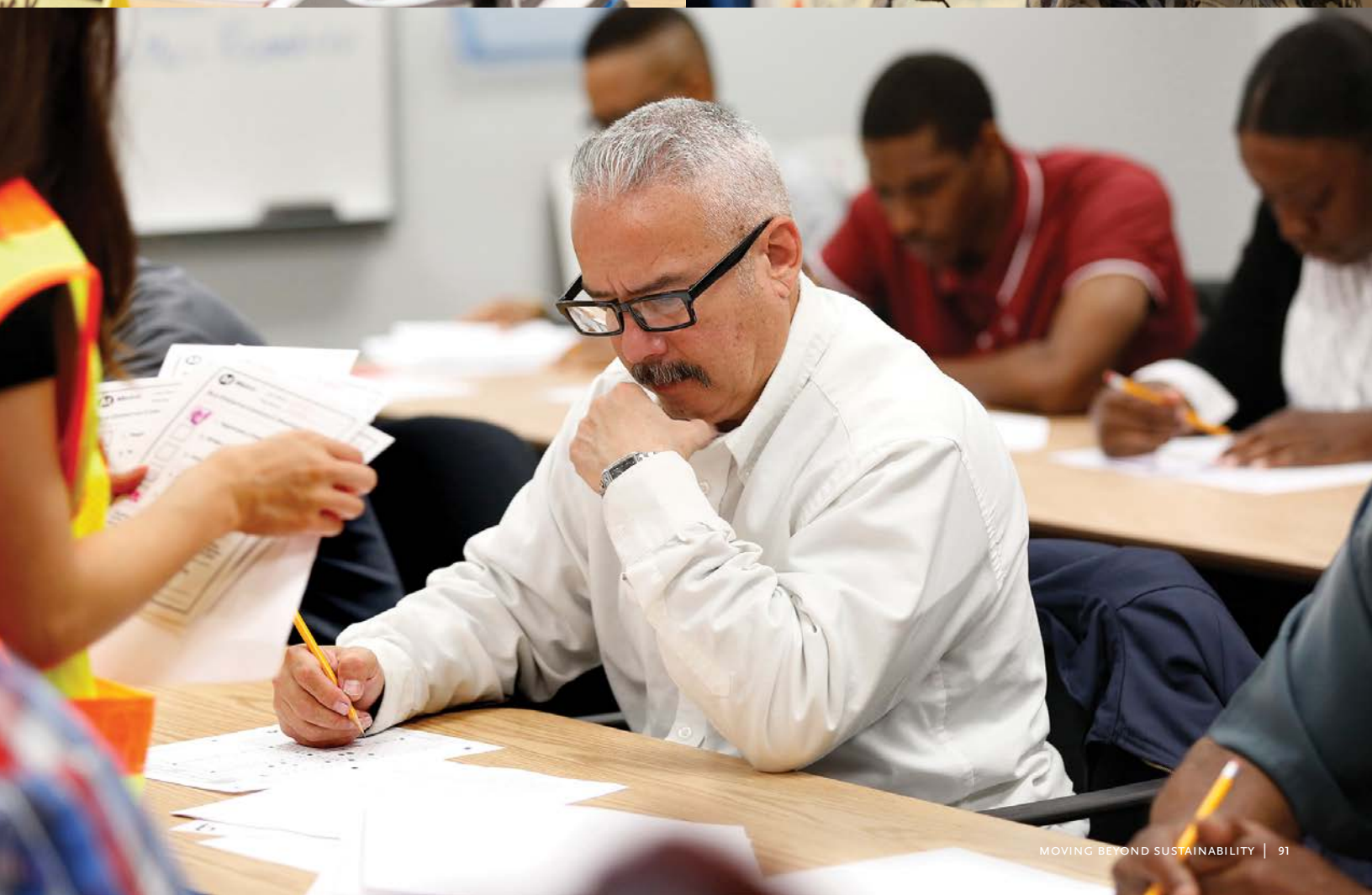
KEY: COMPLETION OF STATUS

in development	started	up to 25%	up to 50%	up to 75%

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Increase awareness of Metro opportunities among SBE, DBE and DVBE firms EW4	4.1 Provide assistance in navigating the Metro business registration and procurement process.		**DEOD**
	4.2 Reach targeted businesses through workshops, various forms of media and trade organizations.		**DEOD**
Increase the region's economic viability and growth EW5	5.1 Complete the Goods Movement Strategic Plan.		**Planning**

KEY: COMPLETION OF STATUS

				
in development	started	up to 25%	up to 50%	up to 75%



WE WILL FOSTER CONNECTED COMMUNITIES.

The choice to use public transportation requires a safe, convenient and enjoyable trip. We're committed to helping communities plan and build dynamic, transit-supportive places where riding together is integral to our daily lives.

Photo: Scott Oshima

CONNECTING TRANSIT AND COMMUNITY

3.11 Overview

In order to create a more sustainable LA County, Metro must leverage its role as a transportation planner to support our vibrant communities and promote healthy, equitable and livable neighborhoods. In livable neighborhoods, multimodal transportation networks are effectively combined with community development and land use patterns that include a range of housing options (including affordable housing), neighborhood amenities, recreation and social services, economic centers and cultural centers.

The effective integration of public transportation and land-use planning promotes local land use and urban design patterns that meet community needs and make it easier for people to drive less and access transit more, thereby improving sustainability outcomes.

The design and location of public transportation routes, stops and stations have an impact on patterns of growth and development, and should be informed by current and anticipated future factors. Creating convenient connections between transportation modes, including bicycling, walking and efficient transfers, promotes transit as a viable alternative to driving. In addition, physical activity associated with accessing transit can enhance public health, both physical and mental. Partnerships with local agencies and governments are critical to realizing these benefits.

To create more livable neighborhoods, transit and other mobility investments must be integrated with broader strategies to create compact, complete and connected neighborhoods; preserve and create affordable housing; provide local services and jobs and ensure that transit facilities can be accessed in a safe and convenient manner. When combined with land use and design decisions that recognize the value of transit, these strategies can produce livable places that promote health and opportunity.

In 2018, the Metro Board of Directors adopted the Transit Oriented Communities (TOC) Policy as an affirmation of the importance of incorporating considerations of equity, community development and land use in how Metro plans the transit system. The TOC Policy outlines Metro's definition of a TOC, defines areas where Metro leads and where the agency supports others in realizing TOCs and TOC activities that are eligible for local return. Local Return funds are a portion of the transportation funds derived from sales taxes that are re-allocated to the county's local governments.

Metro has been working with stakeholders in developing the TOC Implementation Plan, establishing how Metro will partner with others to create equitable TOCs in LA County. Release of the TOC Implementation Plan is anticipated in fall of 2020. The plan is organized under the four following initiative areas:

1. Creating TOC Corridor Baseline Assessments For All Measure M Transit Corridors

Metro proposes to create TOC Corridor Baseline Assessments (Baselines) for every Measure M Transit Corridor, in partnership with local jurisdictions and with stakeholder engagement throughout the entire process.

The Baselines will focus on the communities surrounding transit corridors and provide a snapshot of existing demographic characteristics, an inventory and assessment of existing jurisdiction TOC-related policies, and a series of recommended strategies that jurisdictions can pursue, with Metro support.

2. Continually Improving Metro TOC Programmatic Areas

Metro's TOC Programmatic Areas include Joint Development, First/Last Mile, Systemwide Design and TOC Strategic Initiatives. Through the TOC Implementation Plan, Metro seeks to continuously improve these programmatic areas and align them with the TOC Policy goals.

3. Improving Metro's Internal Coordination

Our work in this area Identifies a series of internal collaboration opportunities that Metro can undertake to create equitable TOCs in areas within Metro's functional jurisdiction, i.e. identifying joint development sites and incorporating TOC goals and tasks in the Measure M corridor delivery process.

4. Strengthening Coordination and Collaboration with Metro Partners

Many of the community development policies and programs that are integral to creating TOCs are outside of Metro's functional jurisdiction. Metro will use a series of strategies to strengthen coordination and collaboration with partners, such as municipalities, in order to create equitable TOCs.

What We've Done

ACHIEVEMENTS AND ONGOING INITIATIVES

First/Last Mile Planning

Since 2016, Metro has been preparing groundbreaking first/last mile solutions based on the award-winning First/Last Mile Strategic Plan. The plan outlines a range of strategies to improve primary access to transit. Improvements such as pedestrian and bicycle safety and seamless interfaces between the Metro system and other modes of travel can now be experienced in our first-of-its-kind New Blue Improvements Project, completed in 2020. This 22-station project was planned in partnership with community-based organizations.

NextGen Bus Study

In 2018, Metro launched the NextGen Bus Study, aiming to re-imagine and restructure the agency's bus system to better meet the needs of current and future riders. This project is the first major overhaul of the bus network in 25 years and includes extensive community engagement. The outcome of NextGen will be a bus network that is more relevant, reflective of and attractive to LA County residents. Updates to the system are scheduled to be implemented by the end of 2020.

Bike Share

The Metro Bike Share Program launched in the summer of 2016 and provides impactful first/last mile solutions for Angelenos across the county. This program offers convenient round-the-clock access to a fleet of over 1,000 bicycles at 90 different stations that are available for riders 365 days a year. Riders can unlock bicycles using the same regional TAP card that provides them access to the Metro bus and rail system and over 20 other TAP-enabled systems in LA County. Additionally, the fleet of smart Metro Bikes and e-bikes can be unlocked using the official Metro Bike Share mobile app. The rapidly expanding program currently serves Downtown LA, the San Fernando Valley, the Port of LA and the Westside with more locations to come. To date, over 1,000,000 trips have been made with Metro Bike Share in LA County. Since the program launch, riders have collectively pedaled over 2.4 million miles and reduced over 2.3 million pounds of CO_2 emissions from the air.[8]

Transit to Parks Strategic Plan

In 2019, Metro adopted the *Transit to Parks Strategic Plan* providing a systematic vision for increasing access to parks and open spaces across LA County. The purpose of the plan is to find targeted, holistic ways to increase access to these spaces, especially for communities with demonstrated need. The plan showcases Metro's mobility-based definition of park access need and analyzes this need by focusing on countywide issues and opportunities. It evaluates prior programs, pinpoints best practices that can be applied locally and recommends cost effective strategies for both Metro and partner agencies.

In 2018, the Metro Board of Directors adopted the Transit Oriented Communities (TOC) Policy as an affirmation of the importance of incorporating considerations of equity, community development and land use in how Metro plans the transit system.

8. *https://bikeshare.metro.net/about/data/*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Metro Bike
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WE WILL RAISE THE BAR.

Moving Beyond Sustainability **establishes a new perspective for Metro. It's a path of increasing leadership and greater collaboration within our organization, in concert with our partners and – most of all – with our community.**

HOW WE'LL GET THERE

Metro has built a robust sustainability program since its inception over a decade ago. In order to move beyond sustainability, we are adopting ambitious goals and timelines. We will need to be nimble and adaptable as we move forward during these unprecedented times. To achieve our sustainability goals, Metro is committed to working internally and with external partners and stakeholders to implement *Moving Beyond Sustainability* strategies and actions. ECSD and Planning have already started implementing some of the actions and strategies outlined, as evidenced by completion status indicators within this document, while others will go through an annual implementation planning process. This process includes an estimation of capital costs and staff resources and the development of key milestones for projects and programs. The CSO will ultimately work with ECSD and Planning to prepare an *MBS Implementation Plan (MBS-IP)* and assemble resources to do so, and will directly oversee the implementation process each year.

4.1 How This Plan Will Be Used

MBS Implementation Plan

The strategies and actions identified in *MBS* offer a set of initiatives Metro will implement to advance sustainability. A review of these initiatives will be performed annually to identify ongoing and new *MBS* initiatives to be pursued in the coming fiscal year (FY). These initiatives will be prioritized using our guiding principles defined in chapter one.

Metro will review best practices and innovations when prioritizing actions for the coming fiscal year and make adjustments and course corrections as necessary. The selected *MBS* initiatives will be compiled into an annual *MBS-IP,* which will serve as a project development, implementation and monitoring tool.

Implementation Program Costs

The selected actions and projects will be analyzed and evaluated in order to identify resource and staffing requirements, budgetary needs and other factors influencing the associated

TENTATIVE FISCAL YEAR MILESTONES

QUARTER	TENTATIVE FY MILESTONES
Q1	Identify capital projects for the next FY. Workbooks will be developed for each capital project and submitted to the CSO for review and approval. The CSO will submit approved workbooks to OMB for inclusion in the FY Capital Program.
Q3	Identify potential Task Orders (TO) and their estimated cost (ROM) for the next FY; some of these potential TOs will support new capital projects identified in Q1 and others may be continuing capital projects. The proposed TOs will be submitted to the CSO for approval/incorporation into the annual budget.
Q3	Recap and analyze the capital projects and TOs developed in Q1 and Q3; review and update *MBS*; identify potential sustainability projects for the next FY Sustainability Capital Funds (out of cycle).
Q4	Prepare Statements of Work (SOW) for the TOs identified in Q3 and submit to the CSO for review and approval. Approved SOWs are sent to the appropriate consultant team for development of Cost and Schedule Proposals (CSP) and to Metro's Cost Estimator for preparation of an Independent Cost Estimate (ICE).
Q4	Receive CSPs from the consultant teams and ICEs from the cost estimator and conduct fact finding (if needed). Sustainability staff prepares TO worksheet and other procurement documents and submits them to the CSO for review and approval. Approved CSPs/TO packets are sent to Metro's Contract Administration and Project Controls for processing.
Q1 (New FY)	Check the cumulative value of new TOs against the amount budgeted in the various Sustainability project numbers to ensure sufficient funds are available for all new TOs (if there are insufficient funds, then some of the new TOs will be delayed to the next FY). The new TOs are executed and sustainability staff prepares requisitions for the amount to be expended in the current FY.

projects and program costs. This information will be used by Metro to develop its sustainability capital project and operating budget requests for the coming FY. Additionally, we will secure state and federal grants, utility incentive programs and mutually beneficial financial partnerships to augment the annual budget.

MBS-IP Procedure and Milestones
Projects and actions aligned with this strategic plan will be reviewed annually to determine those to pursue each fiscal year. See the Tentative Fiscal Year Milestones Table for the annual review process guidelines.

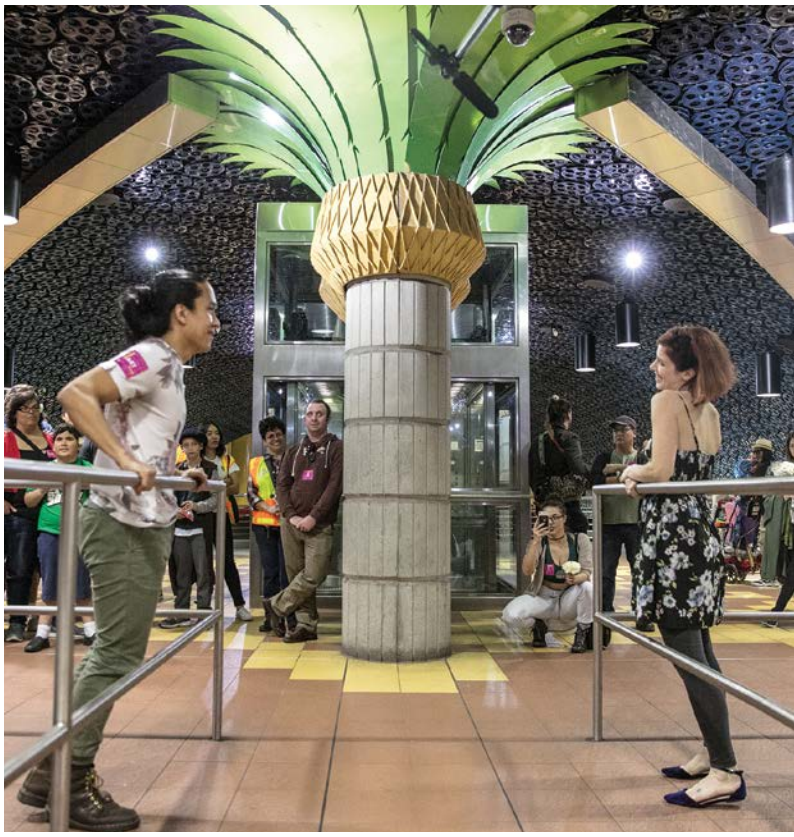
4.2 How to Measure Success

Performance Reporting
The strategies and actions in this plan are tied to measurable performance metrics and time-bound targets. Progress on the metrics and the targets will be reported annually through Metro's online Sustainability Dashboard, and formally reported every two years in Metro's *Sustainability Performance Report.* Producing formal reports every two years enables Metro to better understand and communicate the impact of sustainability initiatives on our performance over time.

As part of the reporting process, Metro will revisit the targets set in the *MBS* and develop revised or more metrics as new technologies and frameworks emerge to better monitor and communicate our progress. In addition, Metro will adopt and implement a decision matrix, drawing from the flexible adaptation pathways concept to help prioritize the mitigation of different environmental impacts (i.e., GHG emissions, energy consumption, water consumption, etc.) and determine if performance metrics and targets must be revised. Any such revisions to performance metrics and targets will be addressed and communicated via the biennial *Sustainability Performance Reports.*

4.3 Outreach and Communication

Public outreach, engagement and communication are essential to ensuring that the successes we achieve are in line with the expectations of the wider public. In drafting *MBS,* we engaged with partners and valued stakeholders along the way from various community-based organizations, city and county



sustainability staff and local government organizations. We are looking forward to maintaining those partnerships as we move forward in implementing our plan. These efforts will be informed by the Equity Platform in order to authentically engage with our riders and the communities we serve.

Metro's commitment to serving LA County extends beyond transportation infrastructure. Metro is dedicated to engaging with the community in transformative ways and providing resources that advance connectivity, equity and economic opportunity to improve quality of life.

DRAFT

WE WILL GET THERE, TOGETHER.

Each of us has a part to play in creating a better LA County. It starts with the choice to walk, bike, carpool or take transit, and flows easily into other everyday actions. Metro is doing our part. You can too.

A PRECEDENT-SETTING UNDERTAKING

Moving Beyond Sustainability is an ambitious, aspirational and precedent-setting undertaking. It reflects Metro's commitment to continual improvement. Fulfilling this commitment will require reviewing and updating internal standards and procedures, providing staff with education and training, capturing opportunities across all plans and projects, and working as a collaborative partner with the residents of LA County. As Metro assembles the expertise, partnerships and funding to implement this plan, it will be essential to both celebrate incremental success and acknowledge that the long-term work is never complete.

The thoughtful procurement and management of energy, water and materials remains at the core of our sustainability programs. *MBS* builds on this foundation establishing a unified approach to sustainability that integrates emerging topics, such as equity, economic opportunity and resilience. *MBS* also emphasizes the need for collaboration so that the transportation system can become the backbone of efforts to create low-carbon, equitable and healthy communities; enable access to opportunity; and support ridership on Metro's growing system. This expanded understanding of sustainability is integral to our role as an innovative agency in Southern California and the nation.

MBS charts the path for sustainability over the next decade by outlining clear goals, strategies and actions. Whenever possible, quantifiable targets are provided. In some instances, where sufficient background data is not available or the ability to implement the actions is dependent on other entities or agencies, qualitative or process-based targets are provided. As more data or definition about these parts of the plan become available, quantitative targets can be developed.

MBS is a precedent-setting undertaking, and in light of COVID-19 and other external pressures, Metro will need to rely heavily on adaptive design principles to meet its goals in a financially sustainable way. To date, ECSD and the sustainability program have prioritized cost neutrality, cost-effectiveness, revenue generation and value creation. Accordingly, the program has generated over $100 million in revenue since 2015 and has been cost neutral since 2017. Metro has achieved this success by adopting low carbon technologies, monetizing green benefits and reinvesting savings from energy and water use reductions.

Staff developed a financial model to forecast the magnitude of net financial benefits from our sustainability and resiliency activities. Using this model, an analysis of the 2019 *Climate Action and Adaptation Plan* strategies identified a potential net positive financial benefit of at least $155M by 2030. To realize these benefits, the *CAAP* measures need to be executed, including a combination of operational, financial and delivery model modifications. This approach balances urgent priorities and opportunities that are influenced by the impacts of the COVID-19 pandemic with fiscal challenges from decreased revenue since March 2020.

The analysis we employed on the *CAAP* strategies will be applied to those outlined in *MBS*. This is a necessary step to ensure continued success and address short- and long-term solutions on a scale proportional to the challenges and goals in front of us. Self-generated funding will allow us to make strategic decisions to deploy the sustainable infrastructure necessary to achieve the goals outlined in this plan. Furthermore, we will be able to make investments that offer the greatest benefits to our communities and our ridership, create additional benefits for those beyond our service area and ultimately set a strong example for other transit agencies and industries striving to do the same or similar work.

Emerging Issues

Through *MBS*, Metro also recognizes that policies, priorities, rider needs, trends and technology are constantly evolving. We are aware of these and other emerging issues, and intend to track and report out on our progress on how these issues are addressed and integrated into our plan. These include but are not limited to:

> 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

We will continue to improve our actions and strategies to achieve our goals based on new information. The goals indicate our long-term direction, while the strategies and actions to achieve them may shift in emphasis, timing or magnitude of application over the life of the plan.

Through diligence, smart decisions and innovation, Metro can achieve the goals laid out in this plan and, along the way, make major contributions to the sustainability, equity, health and resilience of LA County.

This expanded understanding of sustainability is integral to our role as an innovative agency in Southern California and the nation.

Acronyms/Abbreviations

APTA	American Public Transportation
AQMD	Air Quality Management District
BAU	Business as usual
BMS	Building Management System
CAAP	Climate Action and Adaptation Plan
CARB	California Air Resources Board
CBOs	Community Based Organizations
CEQA	California Environmental Quality Act
CMF	Central Maintenance Facility
CNG	Compressed Natural Gas
CO_2	Carbon Dioxide
COVID-19	Corona Virus of 2019
CSO	Chief Sustainability Officer
CSP	Cost and Schedule Proposal
DBE	Disadvantaged Business Enterprise
DEOD	Diversity & Economic Opportunity Department
DVBE	Disabled Veteran Business Enterprise
E3	Expose – Educate – Employ
EAMS	Enterprise Asset Management System
ECSD	Environmental Compliance & Sustainability Department
EEO	Equal Employment Opportunity Program
EFCs	Equity Focus Communities
EMS	Environmental Management System
ETI	Environmental Training Institute
EV	Electric Vehicle
FEMA	Federal Emergency Management Agency
FY	Fiscal Year
GCP	Green Construction Policy
GGW	Growing a Greener Workforce
GHG	Greenhouse Gas
GIS	Geographic Information Systems
GWh	Gigawatt-hours
HAZCON	Hazardous Condition
HAZMAT	Hazardous Materials
HVAC	Heating, Ventilation and Air Conditioning
ICE	Independent Cost Estimate
ISO	International Organization for Standardization
ITS	Information Technology Services
IWMH	Integrated Waste Management Hierarchy
kWh	Kilowatt Hour
LADWP	Los Angeles Department of Water and Power
LEED	Leadership in Energy and Environmental Design
LRTP	Long Range Transportation Plan
MBS	Moving Beyond Sustainability
MBS-IP	Moving Beyond Sustainability Implementation Plan
MECA	Metro Environmental Construction Awareness
MRDC	Metro Rail Design Criteria
$MTCO_2e$	Metric Tons of Carbon Dioxide Equivalent
MW	Megawatts
NEPA	National Environmental Policy Act
NOx	Nitrogen Oxides
OEI	Office of Extraordinary Innovation
OMB	Office of Management and Budget
PEDM	Project Economic Development Management
PM	Particulate Matter
PV	Photovoltaic
RNG	Renewable Natural Gas
ROM	Rough Order of Magnitude
SBE	Small Business Enterprise
SCAG	Southern California Association of Governments
SOP	Standard Operating Procedure
SP	Sustainability Plan
STEAM	Science, Technology, Engineering Arts and Math
TCAP	Transportation Career Academy Program
TO	Task Order
TOC	Transit Oriented Communities
TransMAC	Transportation Mutual Assistance Compact
USGS	U.S. Geological Survey
V/CM	Vendor Contract Management
VMT	Vehicle Miles Traveled
WIN-LA	Workforce Initiative Now

Categories at a Glance

CATEGORY	GOALS	TARGETS	STRATEGIES	
WATER QUALITY AND CONSERVATION	Optimize and manage Metro's water use.	1. Reduce potable water use by 22% from the 2030 Business as Usual scenario.	W1	Identify and implement operational water conservation and efficiency projects.
			W2	Increase the use of non-potable water sources to offset potable water use.
			W3	Implement water monitoring and reporting systems.
			W4	Integrate water conservation and efficiency best practices into policies, Standard Operating Procedures (SOPs) and specifications.
			W5	Partner with other public agencies and community groups to advance regional water goals.
			W6	Develop strategic resources and collaborative relationships across the agency to advance the water program and drive behavior change.
	Manage wastewater and stormwater constructively.	2. Increase runoff infiltration and capture capacity for stormwater by 15% from 2020 levels.	W7	Implement best management practices to minimize stormwater runoff and keep stormwater clean.
			W8	Prioritize the infiltration, capture and/or use of stormwater.
			W9	Reduce pollutants in industrial wastewater.

CATEGORY	GOALS	TARGETS	STRATEGIES	
SOLID WASTE	Reduce Metro's waste disposal.	1.Reduce annual operational solid waste disposal 24% from 2030 Business as Usual scenario.	S1	Implement operational waste prevention and material reuse programs, which support 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.
	Increase diversion from landfill.	2. Achieve 50% landfill diversion rate for operational waste.	S3	Establish and integrate best waste management practices into agency-wide operations.
			S4	Establish comprehensive monitoring and reporting practices to drive continual improvement.
		3. Achieve 85% construction landfill diversion rate.	S5	Implement construction waste prevention and landfill diversion best practices.
MATERIALS, CONSTRUCTION AND OPERATIONS	Demonstrate sustainable design and construction practices throughout all phases of capital improvement projects.	1. Achieve LEED Silver certification or higher for all new facilities over 10,000 square feet,and achieve Envision certification where LEED is not applicable. 2. Design and build 100% of capital projects to CALGreen Tier 2 standards.	M1	Continually improve sustainability standards and requirements for project design and construction.
			M2	Pursue green certification standards for buildings and infrastructure construction.
			M3	Commission all projects to ensure optimal performance.
			M4	Expand the GCP and SP Programs.
	Optimize sustainable operations and maintenance of fleet, infrastructure and facilities.	3. Complete Sustainable Acquisition Program training/implementation and develop 2030 program targets for annual sustainable acquisition spend by 2022.	M5	Implement the *Sustainable Infrastructure Engagement Process* on all major capital projects.
			M6	Develop and implement an agency-wide Sustainable Acquisition Program.
			M7	Integrate resource conservation, life cycle and efficiency considerations into Metro's operational policies, SOPs and specifications.
			M8	Develop and implement materials, construction and operations related training for Metro staff, partners and community to facilitate a culture of sustainability.

CATEGORY	GOALS	TARGETS	STRATEGIES	
ENERGY RESOURCE MANAGEMENT	Optimize and manage Metro's use of energy.	1. Reduce energy consumption by 17% at facilities from the 2030 Business as Usual scenario.	E1	Implement projects identified in the energy conservation project portfolio.
			E2	Optimize BMS at all divisions and Gateway facility.
			E3	Implement an agency-wide facility commissioning and retro-commissioning program.
		2. Increase onsite renewable energy generation to 7.5 MW.	E4	Expand the onsite renewable energy portfolio.
			E5	Develop supporting infrastructure for electric transportation.
EMISSIONS AND POLLUTION CONTROL	Reduce regional GHG emissions.	1. Displace 903,000 $MTCO_2e$ annually.	EP1	Transition Metro's fleet to zero emissions technology.
			EP2	Decarbonize Metro's energy and fuel supply.
		2. Reduce total GHG emissions by 79% from 2017 baseline.	EP3	Improve methodology for monitoring and measuring emissions.
	Reduce Metro's GHG and criteria air pollutant emissions.	3. Reduce total nitrogen oxides (NOx) emissions 54% from 2018 baseline.	EP4	Implement a scheduled maintenance program for stationary and mobile emissions sources in order to reduce emissions.
		4. Reduce total particulate (PM) emissions 62% from 2018 baseline.	EP5	Coordinate and partner on regional efforts to achieve state GHG emissions reduction goals.

CATEGORY	GOALS	TARGETS	STRATEGIES	
RESILIENCE AND CLIMATE ADAPTATION	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.	1. Identify all acute shocks or stressors for critical and/or vulnerable areas at or near Metro infrastructure by 2025.	R1	Conduct and maintain a multi-hazard risk assessment to understand vulnerabilities of the transportation system.
			R2	Incorporate considerations for all-hazards into Metro decision-making about capital planning, procurement, asset management and operations.
			R3	Regularly update resilience and climate adaptation plans and policies to address changing hazards and risks to system service.
		2. Implement the flexible adaptation pathways concept to incorporate climate adaptation into planning, procurement, asset management and operations by 2025.	R4	Implement hazard mitigation and climate adaptation strategies to increase transportation system resilience and passenger safety.
			R5	Develop and implement all-hazards-related trainings for Metro staff and partners to further advance a culture of sustainability.
	Expand Metro's leadership as a key partner in establishing a regional resilience network.	3. Prioritize improvements to locations, facilities, infrastructure, equipment and operations to reduce risk.	R6	Build a greater LA resilience network.
ECONOMIC AND WORKFORCE DEVELOPMENT	Provide opportunities for continual career growth within the agency.	1. Review job classifications on a regular basis and eliminate obsolete requirements that create barriers to career advancement.	EWD1	Eliminate barriers to career pathways and advancement.
	Prepare for the talent needs of the future.	2. Recruit employees from diverse sources, including vocational schools, community colleges, groups supporting formerly incarcerated persons and organizations supporting persons with disabilities and older adults.	EWD2	Reach out to traditionally underrepresented communities about hiring opportunities.
			EWD3	Offer quality training on skills needed for Metro's future workforce.
	Utilize Metro investments to support the regional economy and increase opportunity for LA County residents.	3. Achieve triennial DEOD contracting goals related to small, disadvantaged, women and veteran-owned businesses.	EWD4	Increase awareness of Metro opportunities among SBE, DBE and DVBE firms.
			EWD5	Increase the region's economic viability and growth.

Acknowledgments

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Asset Management
Building Services
Bus Maintenance
Civil Rights & Equal Employment Opportunity
Communications
Community Relations
Congestion Reduction
Construction Management
Corporate Safety
Countywide Planning & Development
Diversity & Economic Opportunity Department
Emergency Preparedness
Environmental Compliance & Sustainability Department
Facilities Engineering
Facilities/Property Maintenance
Federal/State Policy & Programming
Finance & Budget
First/Last Mile
Human Capital & Development
Information Management
Information Technology Services
Local Programming
Long Range Transportation Plan & Mobility Corridors
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Systemwide Design
Talent Acquisition
Talent Development
Third Party Administration
Transit Demand Model
Policy & Regional Shared Mobility
Transit Project Delivery
Transit-Oriented Communities
Vendor/Contract Management
Wayside Systems Facility Maintenance

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EXTERNAL PARTNERS

Metro Sustainability Council
3Cotech
AECOM
All About Waste
Alta Environmental
ARUP
Caltrans District 7
CivilEarth Engineering
City of Los Angeles, Bureau of Street Services
City of Los Angeles, Department of Public Works
City of Los Angeles, Office of Mayor Eric Garcetti
City of Los Angeles, Department of Transportation
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Mark Ridley-Thomas
Los Angeles County Supervisor
Second Supervisorial District

John Bulinski
Caltrans District 7 Director
Non-Voting
Appointed by the Governor
of California

Metro
One Gateway Plaza
Los Angeles, CA 90012-2952

323.GO.METRO

sustainability@metro.net

metro.net/sustainability

Metro