Los Angeles County
Metropolitan Transportation Authority

WE ARE MOVING BEYOND SUSTAINABILITY.

Sustainability Plan 2020

Metro®

DRAFT


Metro Bike

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 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 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. Our work moves beyond transportation as we increase access to opportunity, foster vibrant communities, improve public health, drive economic development and transform LA.

Moving Beyond Sustainability (MBS) is the manifestation of this committment and builds on a decade of sustainability policies, plans, initiatives and reporting by Metro leadership and staff, including the foundational 2008 *Metro Sustainability Implementation Plan* (MSIP). *Moving Beyond Sustainability* outlines a comprehensive sustainability strategy for the next ten years — and beyond. The plan combines the concerted efforts of our Environmental Compliance and Sustainability (ECSD) and Countywide Planning and Development (Planning) departments 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, strategies and actions that align with and emanate from other key Metro guidance documents, including *Vision 2028, Long Range Transportation Plan, Equity Platform Framework* and our *Resiliency Indicator Framework*. It is also designed to align with and support parallel efforts and plans underway at LA County and the City of Los Angeles, including *LA's Green New Deal* and *Our County.*

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 ten years. *MBS* supports achieving a customer-focused transformative future of mobility through comprehensive sustainability designed strategies.

SUSTAINABILITY IN METRO'S ECOSYSTEM

We have a plan for a better LA.

Everything Metro does ladders up to our mission – improving mobility to enhance the quality of life for you and all who live, work and play in LA County. We're creating:

Better Transit	***Less Congestion***	***Complete Streets***	***Access to Opportunity***
Providing more and better transportation options	Reducing traffic	Improving streets for pedestrians and cyclists	Making it easier for people to live and work near transit

We're using a robust mix of *projects, programs, policies* and *plans.*

Long Range Transportation Plan

We're passionate about creating *sustainable* and *equitable* solutions.

Moving Beyond Sustainability Plan *Equity Platform*

We take our *responsibilities* seriously.

Accountability *Collaboration* *Innovation* *Safety*

We're guided by our *strategic plan.*

Vision 2028 Strategic 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 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. Doing so entails a more holistic approach: one that looks beyond core transit planning, construction and operations. Consequently, we have amended our Sustainability Vision statement, as well as our Guiding Principles, to 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. **Establish measurable key performance indicators to track the implementation and 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 adaptability and resilience.**
7. **Strengthen regional sustainability efforts by providing leadership and collaborating with regional partners and agencies.**

1.3 Equity and Inclusion

To move beyond sustainability, equity must be foundational for 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 engages with our riders and the communities Metro serves. In February 2018, Metro adopted the *Equity Platform Framework* as a basis to actively lead and partner in addressing and overcoming disparities in access to opportunity. Metro's *Equity Platform Framework* 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 between Metro and the larger LA County community in carrying out the principles of the Platform;

> Focus and Deliver: implement actions and programs that carry out *Equity Platform Framework* objectives and principles; and

> 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's approach to equity in this plan is informed by the *Equity Platform Framework*, the APTA guidance document and discussions with internal and external stakeholders regarding the current efforts underway and future needs and opportunities.

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 establishment 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 and Girls Governing Council and the On the Move Riders Program. Internally, we continue efforts to create career development pathways for all employees. Distributional equity often has a place-based or spatial component, which we are addressing through the Equity Focus Communities (EFCs) Screening Tool. All of these efforts will be informed by authentic and consistent outreach to and engagement with system users.

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

1.4 Environmental Compliance

Metro's Environmental Policy, adopted in April 2009, provides guidance in carrying out our ongoing commitment to providing multi-modal public transportation services that greatly improve the quality of the environment in the communities we serve. This policy ensures that we operate consistently with state and federal laws and regulations and in a manner that protects human health and the environment with the most efficient delivery of quality public transit services within its financial ability.

ECSD oversees the agency's environmental compliance responsibilities and conformance to environmental laws, regulations and standards for operations and the capital construction program.

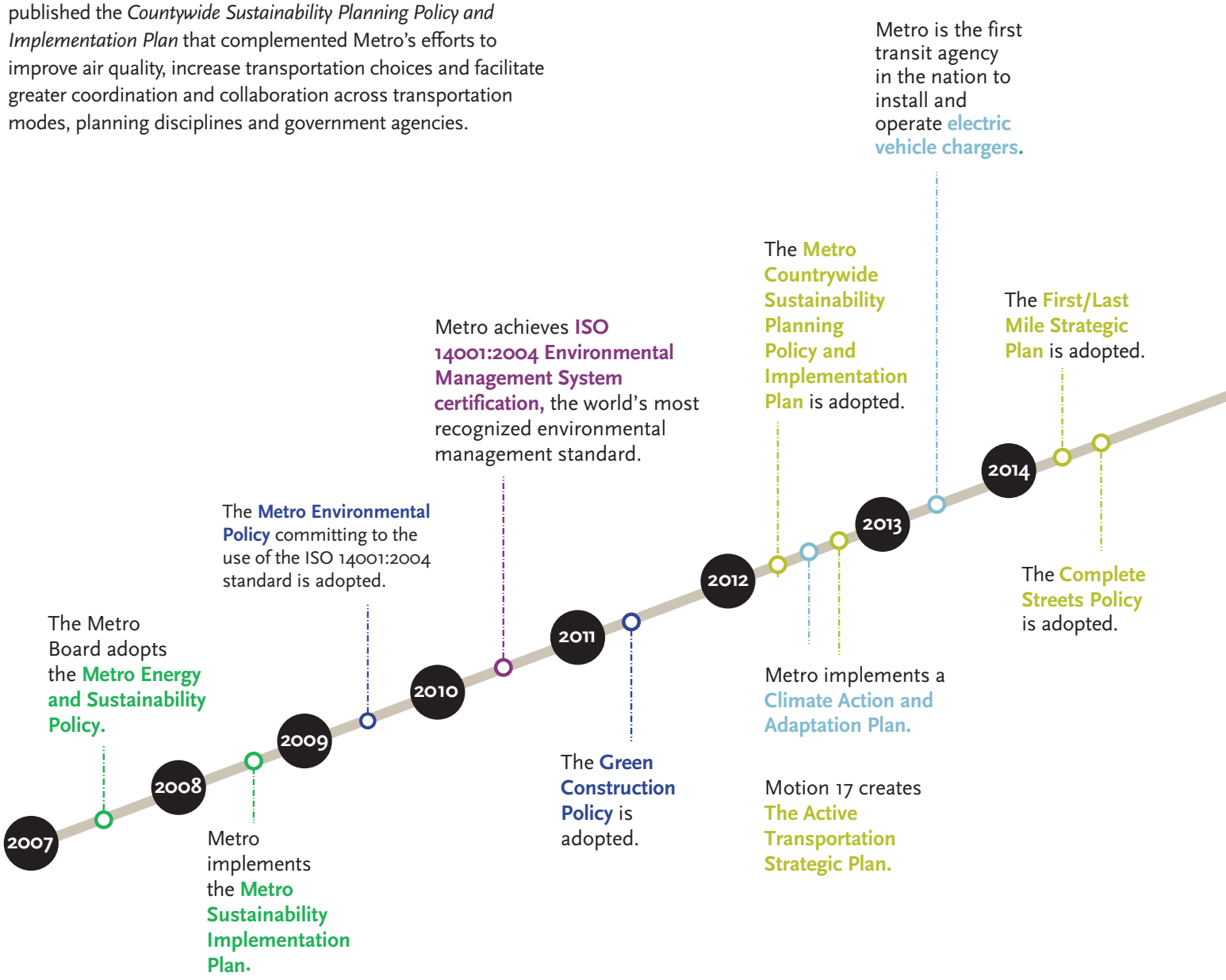
ECSD works across departments to ensure Metro meets its regulatory requirements for environmental compliance in planning and constructing projects, operating and maintaining facilities and vehicles and procuring products and services. The environmental compliance areas include, but are not limited to:

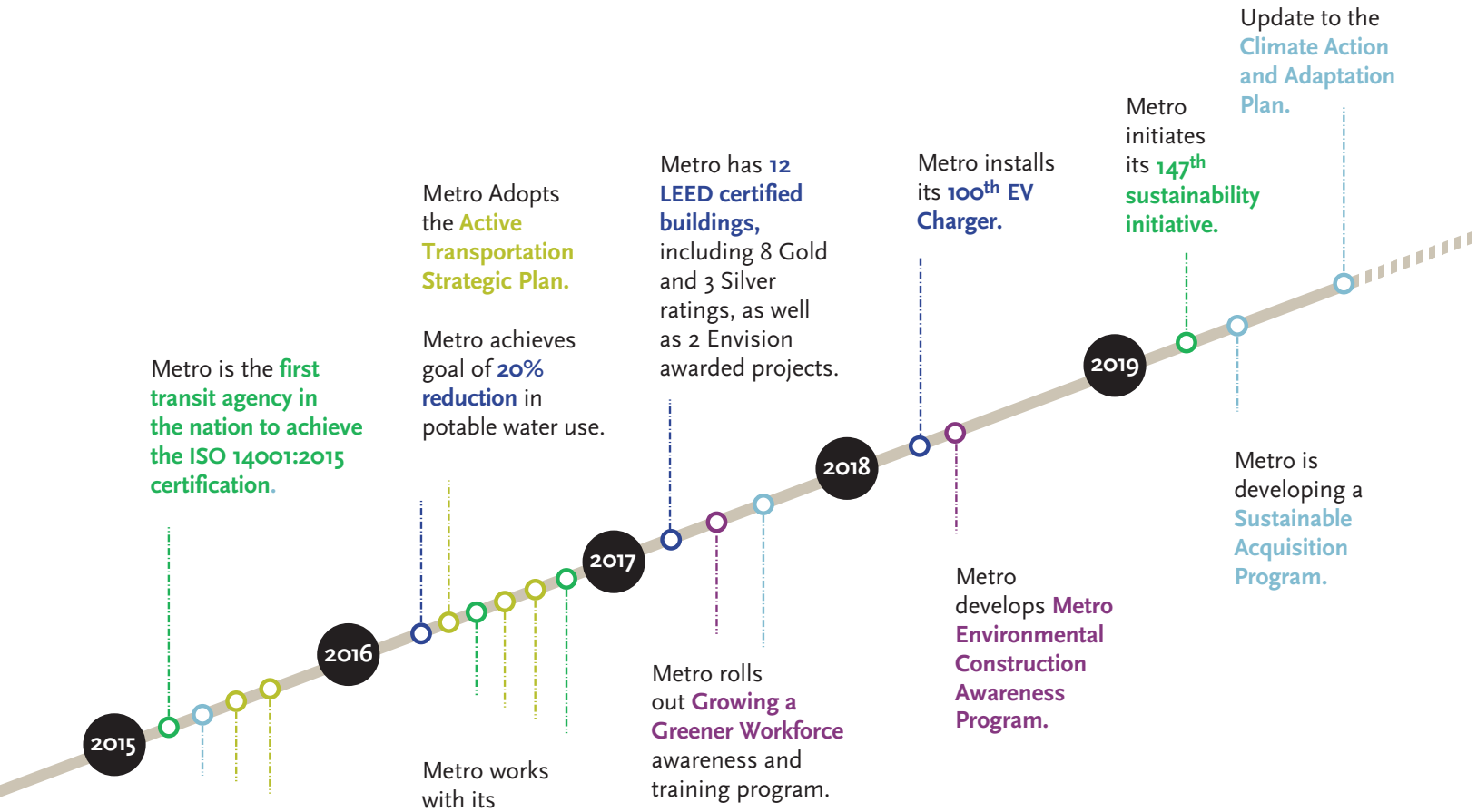
> Water pollution control
> Hazardous materials
> Noise and vibration control
> Air quality
> CEQA/NEPA
> Archeological, paleontological and tribal cultural resources
> Waste management
> Biological resources
> Hydrology/water quality

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, Metro EMS builds on Metro's Environmental Policy to synchronize operational best practices with the agency's larger environmental and sustainability goals and helps to increase employee awareness on how to reduce impacts on the environment.

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. These policies and plans laid the foundation of sustainability at Metro. 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 strategic sustainability 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.




2015
2016
2017
2018
2019
Metro is the first transit agency in the nation to achieve the ISO 14001:2015 certification.
Metro achieves a 2.4 MW renewable energy capacity from solar panels at seven facilities.
The Urban Greening Toolkit is adopted.
The Green Places Toolkit is adopted.
Metro Adopts the Active Transportation Strategic Plan.
Metro achieves goal of 20% reduction in potable water use.
Metro works with its partners regionally and strategically to create a more resilient LA.
Motion 14.1 First/Last Mile implementation: planning for 254 station areas.
Motion 14.2 3% local contribution for rail projects.
Metro launches LA Metro Bikeshare.
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.
Metro installs its 100th EV Charger.
Metro develops Metro Environmental Construction Awareness Program.
Metro initiates its 147th sustainability initiative.
Update to the Climate Action and Adaptation Plan.
Metro is developing a Sustainable Acquisition Program.

1.6 Board Motions and Guidance Documents

The following documents provide key guidance on the overall structure and role of the *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* will outline what Metro is doing currently and what Metro must do to lead and advance the transportation system improvements necessary to bring about the economic, mobility, safety, environmental and quality of life benefits the needed in LA County. Current challenges present great opportunities for Metro to take bold action and help achieve our vision of sustainability for the region.

Metro's *Equity Platform Framework* and *Board Motion 18:* The Equity Platform Framework 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-point 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 Equity Focus Communities as a working definition, evaluate equity focus community scenarios in planning efforts and continue to refine the definition and applicability of Equity Focus Communities.

Board Motion No. 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.

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

Awards

2019 ASCE: **Outstanding Sustainability Engineering Project: Division 4 Permiable Concrete Pilot Project**
2019 US Green Building Council - Los Angeles: **Partner Award for Growing a Greener Workforce**
2018 Breath 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 US 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**
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**

COMMITTED TO SUSTAINABILITY

2.1 Sustainability Leadership at Metro

Sustainability governance at Metro is an enterprise-wide effort shared across internal departments and supported by external stakeholders and system users. Programs, goals and targets are administered and achieved through a clear and consistent management effort, all of which are reported to and overseen by Metro's Board of Directors.

The recent creation of the Chief Sustainability Officer (CSO) and the Sustainability Executive Officer (EO) positions reflect the agency's commitment to Metro's sustainability program goals moving beyond sustainability in the new decade.

Metro ensures its commitment to meeting and monitoring the sustainability and environmental compliance commitments through the utilization of its EMS ISO 14001 framework adopted in 2005 and is in the process of adopting the ISO 9001 Quality Management. The ISO framework insures that Metro leadership is driving continuous environmental improvement through planning, support and operation, performance evaluation and improvement plans.

2.2 Internal Shared Governance

Sustainability is a critical responsibility held by everyone at the agency. While individuals or select departments may be tasked with developing, implementing and sustaining programs, these efforts are built on an evolved understanding of sustainability principles and a cohesive and forward-thinking approach to governance and implementation 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 operations and culture, whether it be through developing new specifications for forthcoming projects by empowering employees through workforce development and environmental education.

Moving Beyond Sustainability more closely aligns the sustainability planning, reporting and program implementation efforts of ECSD and Planning. While they still will maintain certain distinct functions, *Moving Beyond Sustainability* will synchronize ECSD's environmental compliance and impact mitigation efforts with Planning's work to incorporate sustainability into Metro's planning functions, fulfilling the plan's more holistic vision for sustainability at Metro and across LA County. Table 2.1 outlines the roles and responsibilities throughout the agency.

Environmental Compliance and 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 and has effectively integrated issues of 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 primary lead on climate action and sustainability initiatives at Metro.

Countywide Planning and Development Department

Countywide planning and 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 externally with other public agencies and stakeholders on sustainability initiatives. The work includes a broad range of coordinating activities that align along the common goals of environmental stewardship, improving quality of life in communities and increasing mobility options for the sake of sustainability. Countywide Planning strives to foster collaboration and partners 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 engage with external stakeholder groups.

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 (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 Metro serves.

TABLE 2.1

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 sustainability efforts of the agency, including tracking the targets, 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. > Takes responsibility and initiative to identify areas of improvement.
Environmental Compliance and 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 and Development Department	Responsible for incorporating sustainability activities into Metro's planning activities and coordination with external partners.

Sustainability Council

In 2016, Metro formed the Sustainability Council in response to Motion 57[1]. The Council is composed of 30 voting members representing a range of sectors and community stakeholder groups[2] with expertise in sustainability and transportation. The Sustainability Council advises and provides recommendations on Metro's sustainability program related to policies, operations, construction and maintenance processes that further Metro's vision of delivering a sustainable transit system to LA County. The Council is staffed and supported by ECSD, Planning and V/CM and Operations. Bi-monthly meetings include a combination of 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

Metro is developing an approach to work more frequently and effectively with CBOs on stakeholder outreach and engagement. CBOs are valuable partners in learning about and understanding 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 equity focus communities.

2.4: Implementing Moving Beyond Sustainability

Through this interdepartmental partnership and with the establishment of the new CSO role, both ECSD and Planning will establish a budget for *Moving Beyond Sustainability*. Projects will be prioritized annually using the goals, targets, strategies and actions in *MBS* as the basis for projects and programs. Justification for those projects will be submitted to the Office of Management and Budget (OMB) and other departments impacted. ECSD and Planning will work with OMB and partner departments to allocate funding. See chapter four for information regarding the implementation of *MBS*.

1. 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 & resiliency, energy, solid waste and recycling and water. http://libraryarchives.metro.net/DB_Attachments/181018_Motion_57.pdf

2. 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 as identified within *MBS* were created using a detailed, data-driven analysis of infrastructure growth and calculated a 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.

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 achieve the aspirations set forth by Metro's mission and vision.

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 show 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 by Metro's sustainability team.

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[1].

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 Incorporate climate adaptation into planning, procurement, asset management and operations by 2025, using the flexible adaptation pathways concept.

2 Identify all acute shocks or stressors for critical and/or vulnerable areas at or near Metro infrastructure and prioritize improvements to locations, facilities, infrastructure, equipment and operations to reduce risk by 2025.

1. 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.

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**.

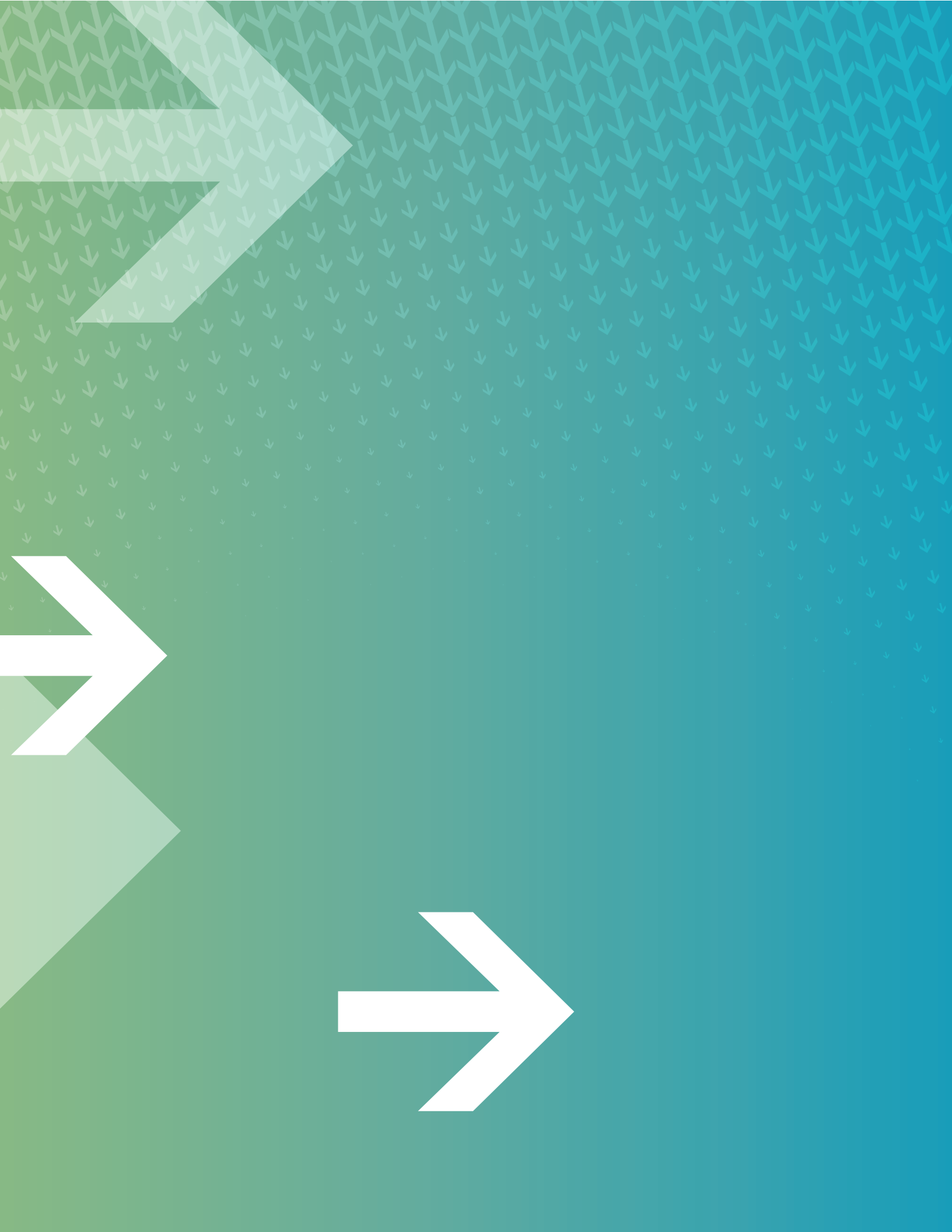
Economic and Workforce Development

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.

WATER QUALITY AND CONSERVATION



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 water availability; aquifers across the state are still in recovery after years of drought and continued import of water from elsewhere is unsustainable in the long term. The scarcity of local and state water resources over time will be exacerbated by climate change and the ramifications 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 (55.2%) and nearly another quarter of our consumption goes toward operational divisions (26.6%).

Metro is actively monitoring water use and finding new ways to drive conservation. 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 and 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, as we will identify and evaluate opportunities to implement capture and reuse strategies and low-impact development measures such as stormwater runoff infiltration. We expect that this intentional and responsible water consumption and resource management will contribute to community-wide resilience.

TARGET 1

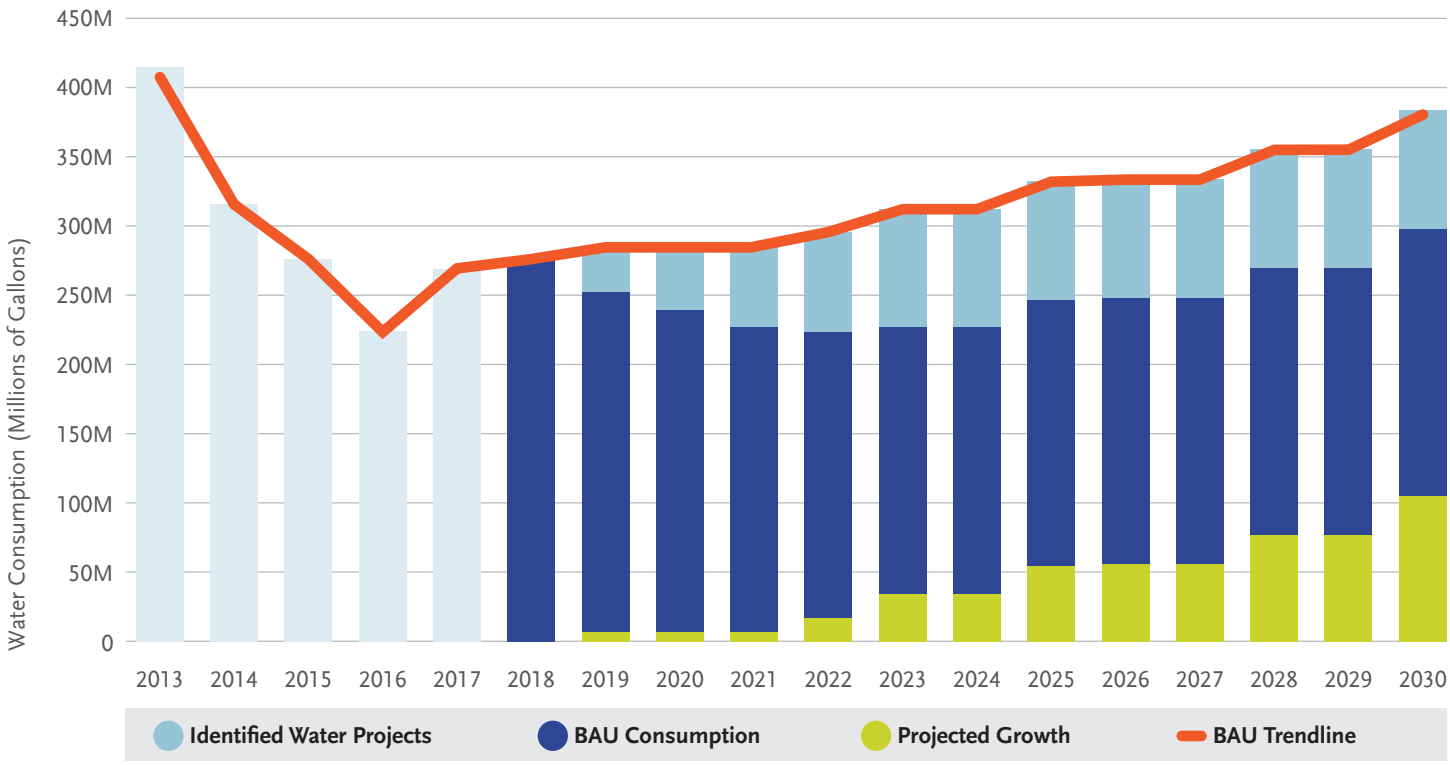
Reduce potable water use by 22% from the 2030 Business as Usual scenario.

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).

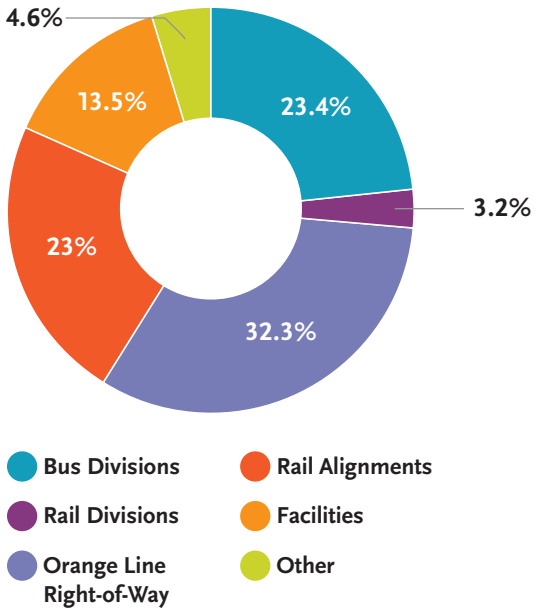
To mitigate anticipated growth in water consumption, we have identified, approved and are implementing several strategies to reduce potable water consumption, including: bus and rail car wash facility improvements, domestic fixture replacements and an upgrade to smart irrigation controllers along the Orange Line 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, we are continuing to develop additional water use reduction strategies focused on technical improvements and behavioral change 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 or near current and forthcoming facilities, such as bioswales, also have the potential to increase stormwater capture and infiltration capacity. 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 overall consumption by 19% while maintaining bus cleanliness levels. 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.

Orange Line Upgrades: Smart Irrigation, Recycled Water and Use Efficiency
32.3% of Metro's overall water consumption in 2018 was used along the Orange Line alignment or right-of-way. To reduce potable water consumption along the line, multiple reduction measures were identified and implemented. Forty-one conventional irrigation controllers were replaced with smart controllers in 2018, which are anticipated to save at least 21 million gallons of water per year. In addition, we completed installation of purple pipe recycled water between Vesper Avenue and Sepulveda Boulevard along the Orange Line (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 bus 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 Climate Action and Adaptation Plan* 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 operational 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.		**ECSD** Operations

KEY: COMPLETION OF STATUS

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

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
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 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
Integrate water conservation and efficiency best practices into operational 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 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
	4.3 Establish procedures requiring the regular review and update of SOPs for water use that reflect best water conservation and efficiency practices.		**ECSD** Operations
	4.4 Establish and implement specifications for high-efficiency water fixtures and systems for all new construction and renovations.		**ECSD** Operations
	4.5 Establish and implement specifications for native, climate appropriate landscaping for all new construction and renovations.		**ECSD** Operations
	4.6 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 to maximize stormwater capture and recycled water use opportunities that support Measure W or an alternative compliance program.		**ECSD** Operations
	5.4 Engage with external stakeholders to identify collaboration opportunities that advance regional water goals.		**ECSD**

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.	started	**ECSD** Operations
	6.2 Use the Metro Intranet and other digital media tools to communicate water program goals, initiatives and achievements internally.	started	**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.	started	**ECSD** Marketing and Communications Talent Development
Implement best management practices to minimize stormwater run-off and keep stormwater clean W7	7.1 Characterize stormwater quality at operating division discharge locations to identify opportunities for improvement.	up to 25%	**ECSD** Operations
	7.2 Identify stormwater management opportunities and constraints for underground, at grade and above grade rail/busway stations.	started	**ECSD** Operations
	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.	in development	**ECSD** Operations
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.	started	**ECSD** Operations
	8.2 Integrate green infrastructure principles into specifications.	up to 25%	**ECSD** Operations Engineering
	8.3 Support regional water initiatives through collaborative capture/reuse projects.	in development	**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.	in development	**ECSD** Operations
	9.2 Develop a screening process for new materials based on their potential to affect discharge.	in development	**ECSD** V/CM

KEY: COMPLETION OF STATUS

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

SOLID WASTE

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 United States, 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 GHG emissions. Our priorities for reducing the impact of our waste are two-fold: reducing 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)**[1].

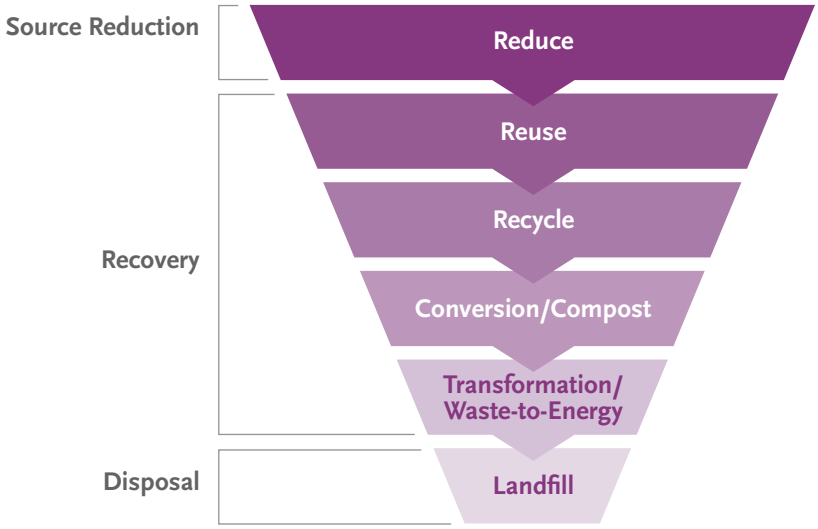
Using this hierarchy, we are prioritizing waste reduction and sustainable procurement as the first and most important steps toward managing and reducing solid waste. The IWMH is also an integral component of multiple agency-wide policies and programs, including our *Solid Waste Management Plan,* Sustainable Acquisition Program and *Construction and Demolition Debris Policy.* These efforts help us comply with and support California state legislation and CalRecycle regulations.

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

INTEGRATED WASTE MANAGEMENT HIERARCHY

Traditional Approach:

New Approach:



1. 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>

critical to meet our 2030 targets. We are building on waste characterization studies and our growing Sustainable Acquisition Program to identify strategies to change existing behavioral and purchasing practices to minimize both the upstream and downstream impacts of procured material.

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)

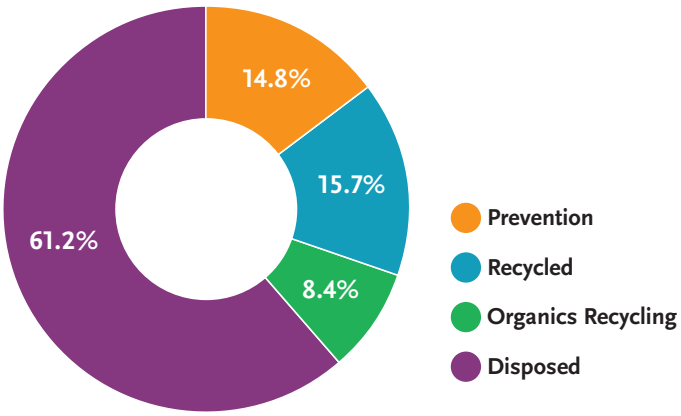
TARGET 1

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

In 2018, 61.2% of our solid waste was landfilled. 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.

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%.

2018 MUNICIPAL SOLID WASTE COMPOSITION

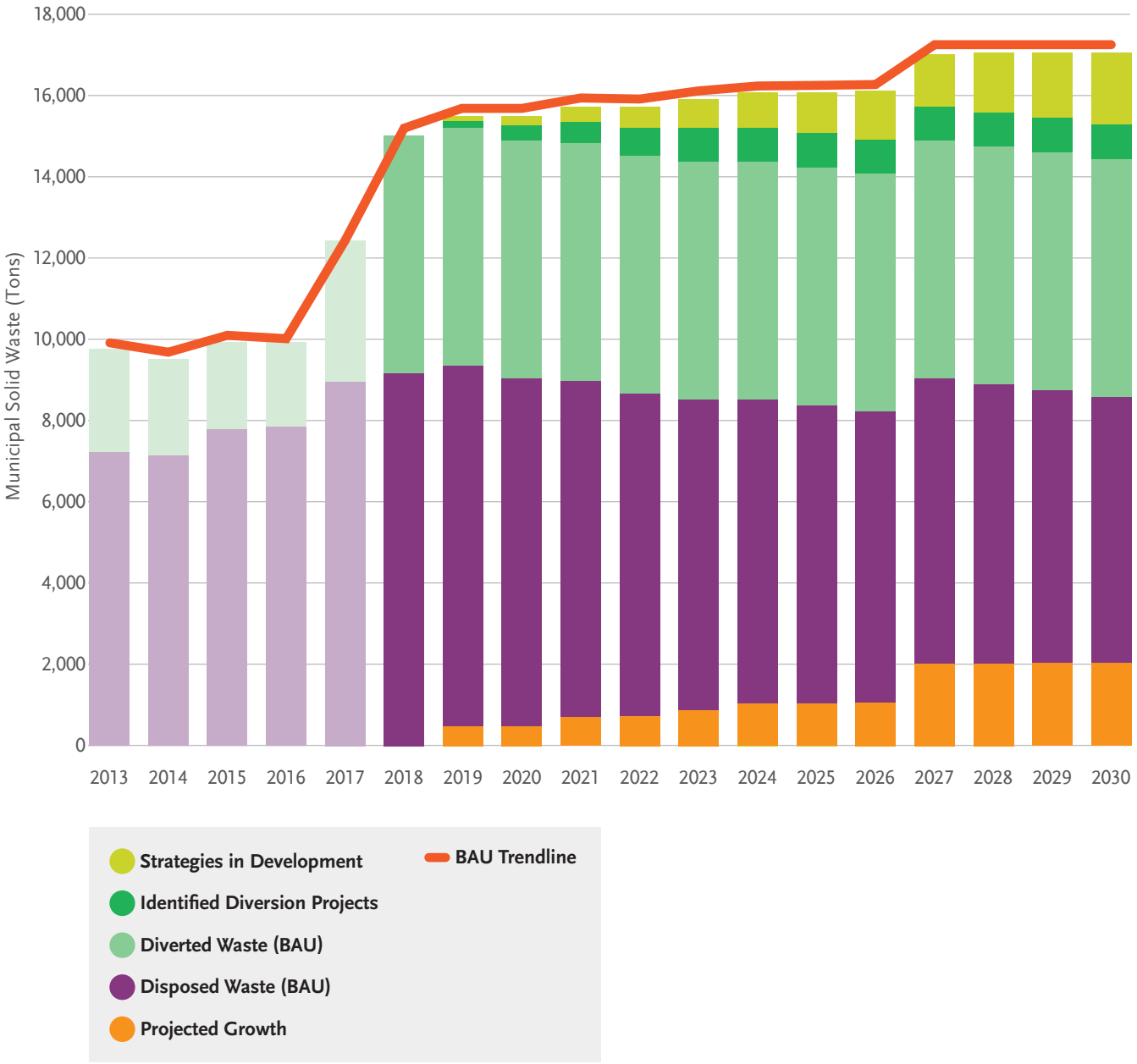


TARGET 2

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.

MUNICIPAL SOLID WASTE FORECAST (2013 – 2030)



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. The recycling of construction and demolition waste is responsible for approximately 68% of Metro's total waste diverted from 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 for reporting. 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 existing 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 with which to track compliance with AB 939 and AB 1826.

Solid Waste Management Plan
Our 2020 *Solid Waste Management Plan* provides a roadmap to address climate change and reduce 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 necessary for the implementation of 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 a 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

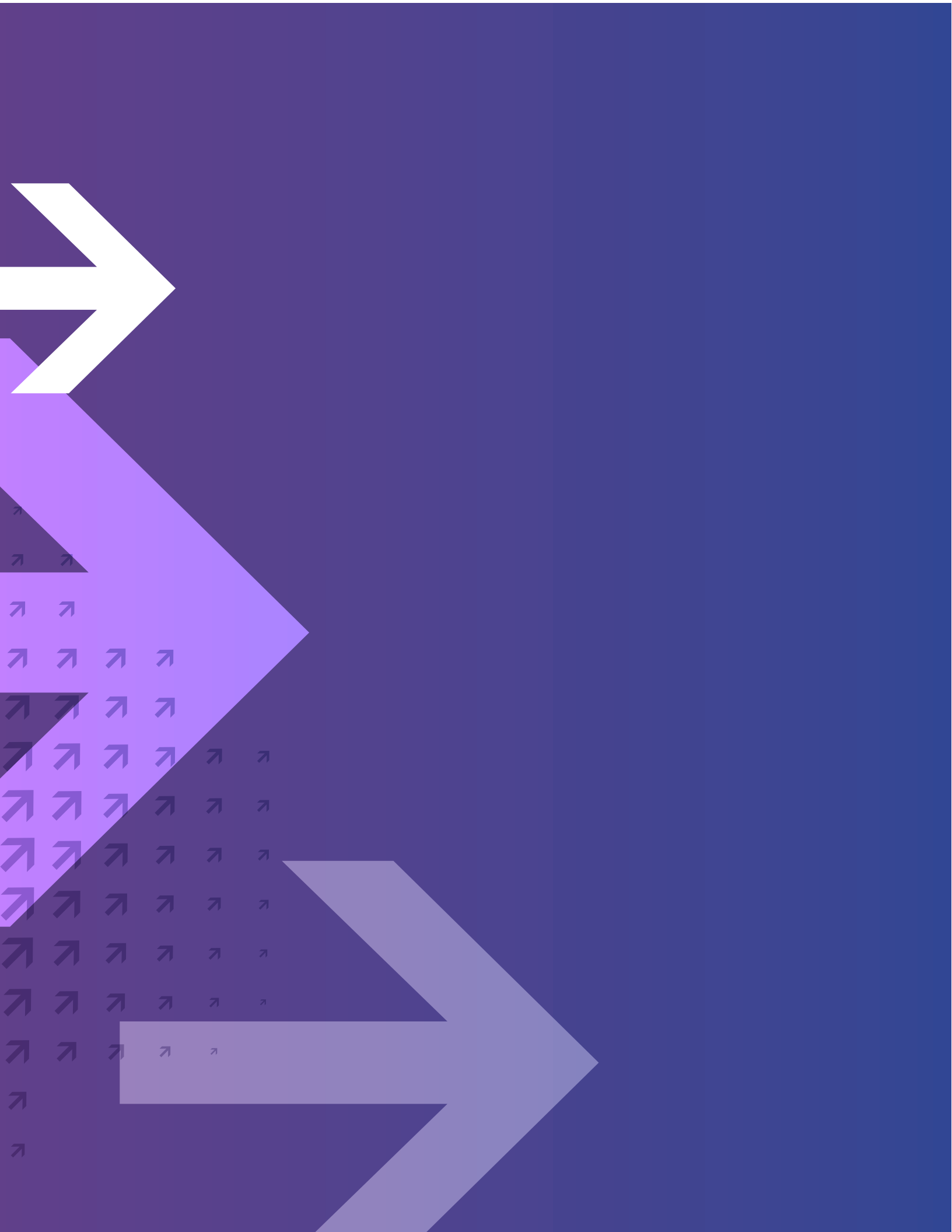
STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Implement operational waste prevention and material reuse programs which support a circular economy S1	1.1 Add waste prevention and reuse specifications to major product/service contracts.		**ECSD** V/CM
	1.2 Develop contract language to support Extended Producer Responsibility requirements for bulky and non-recyclable items.		**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** Talent Development
	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 continuous 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%

MATERIALS, CONSTRUCTION AND OPERATIONS



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.**

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. These include construction of new transit alignments and support infrastructure for rail lines, as well as for 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.

We have accordingly established programs to reduce the 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 more sustainable acquisition and services procurement.

TARGET 1

Achieve LEED Silver certification or higher for all new facilities over 10,000 square feet.

Metro is committing to constructing all new buildings over 10,000 square feet to LEED Silver standard or higher. To date, twelve 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.

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 relating to energy conservation and efficiency, renewable energy, water conservation, biological and cultural resources and climate change and adaptation. In 2017 we developed a new Sustainability Technical Requirements Specification (13 60 00), requiring contractors to integrate sustainable elements into the design and construction of a project. 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, state 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 initiations 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 and Specifications

In 2018, Metro's baseline specifications were updated to require the development and implementation of a project-specific Sustainability Plan (Specification 01 35 63) 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. The 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 provide a project-specific Sustainability Coordinator to oversee all resiliency and long-term sustainability-related requirements for the project and assist the agency's CSO in achieving Metro's sustainability metrics.

Metro Rail Design Criteria Update

The environmental considerations within the MRDC were updated in 2010 and 2018 to include consideration of sustainability requirements, multi-mobility hubs with various first and 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

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 - Section 2 and the Purple Line Extension - Section 1 achieved Platinum Envision certification.

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 sustainability 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).

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 continuous 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 future 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 available environmental certifications for adoption as Metro's standard.		**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%

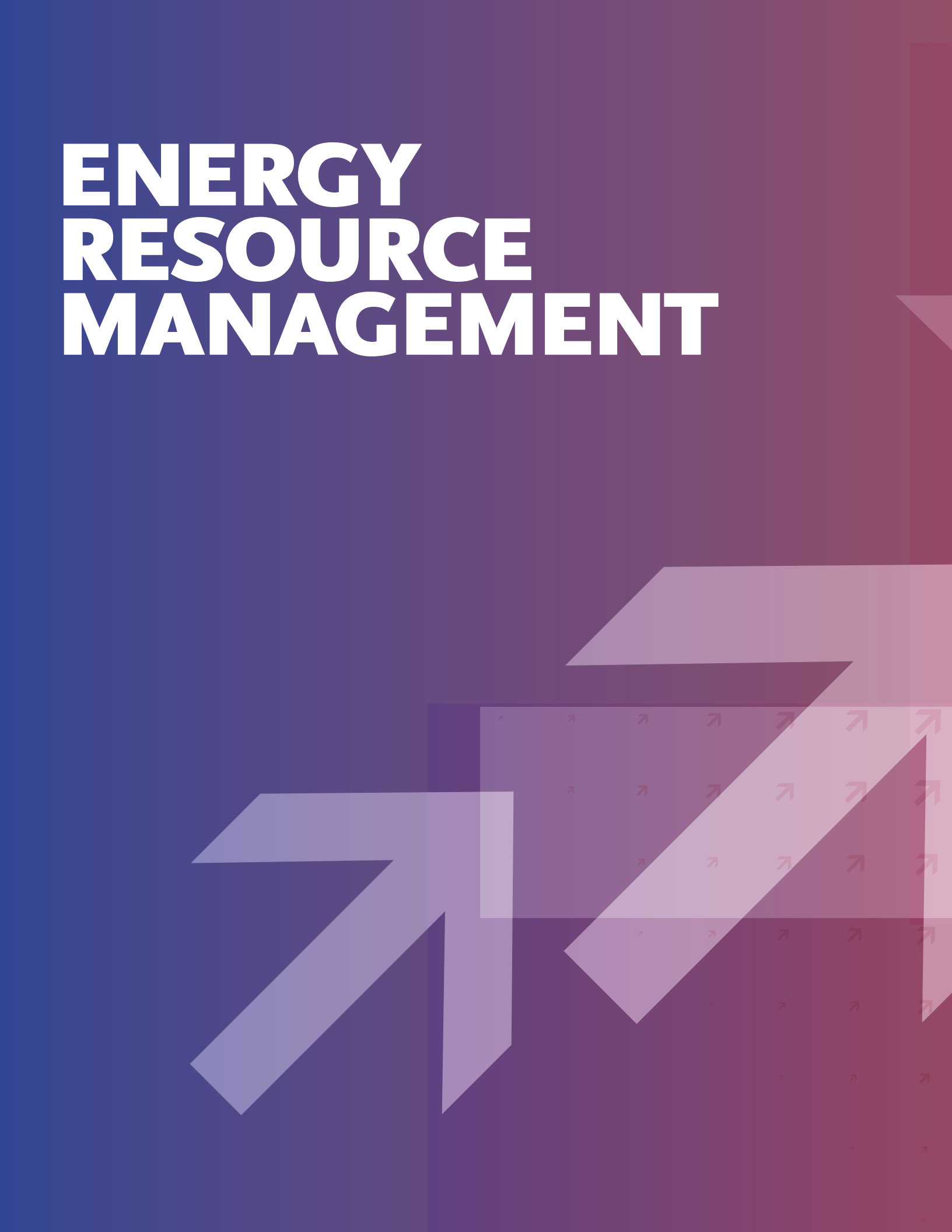
STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Commission all projects to ensure optimal performance **M3**	3.1 Develop a commissioning policy and specifications identifying the size and frequency of buildings to undergo commissioning and retro-commissioning.		**ECSD** Program Management Engineering
	3.2 Provide 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 to monitor, control and remotely audit the BMS at each Metro facility.		**ECSD**
	3.7 Perform regular energy audits on the Energy Management system to ensure it is running efficiently and effectively and that the BMS at each facility.		**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 add-alternates 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 equipment.		**ECSD**

KEY: COMPLETION OF STATUS

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

STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Develop and implement an agency-wide Sustainable Acquisition Program M5	5.1 Develop tools and procedures to guide implementation of the Sustainable Acquisition Program.		**ECSD** V/CM
	5.2 Conduct annual spend analyses to identify and prioritize product replacement and other high impact acquisition opportunities.		**ECSD** V/CM
	5.3 Assess environmental impacts of products and materials using life cycle cost analysis.		**ECSD** V/CM
	5.4 Engage the Metro vendor community to evaluate opportunities for supplier leadership.		**ECSD** V/CM
	5.5 Assess feasibility of electronic bid submission system for all procurements.		**ECSD** V/CM
	5.6 Include DBE as part of the Sustainable Acquisition Program.		**V/CM** ECSD
Integrate resource conservation, life cycle and efficiency considerations into Metro's operational policies, SOPs and specifications M6	6.1 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 M7	7.1 Develop a certification program within MECA to improve contractor and subcontractor knowledge of environmental and sustainability requirements.		**ECSD** DEOD
	7.2 Expand Growing a Greener Workforce (GGW) Program to include additional curriculum and partners to raise awareness about sustainable materials, construction and operations.		**ECSD**
	7.3 Implement Metro staff training on sustainable materials, construction and operations goals, targets and strategies.		**ECSD** Talent Development
	7.4 Provide Sustainable Design Training to support the selection of sustainable design materials for Metro discretionary grant recipients and public agency partners.		**Planning** Talent Development

ENERGY RESOURCE MANAGEMENT



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 providers across the region. However, the use and sourcing of that energy has ongoing impacts and longstanding implications for the environmental, fiscal and infrastructural resiliency of our system. That is why Metro is taking proactive measures to procure and generate more renewable energy, design energy efficient buildings and implement innovative energy conservation practices and technologies.

However, 80% of our energy footprint is vehicle fuel: including a mix of compressed natural gas (CNG), diesels 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 our *Electric Vehicle (EV) Implementation Plan* (2020), which will substantially reduce our GHG emissions (see the Emissions and Pollution Control section for more information).

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

Facility Energy

Building operations make up the foundation that supports over 1.2 million weekday rail and bus transit patrons. Metro's building energy consumption alone accounts for just over 100 gigawatt-hours of electricity consumption per year across its extensive inventory of facilities in LA County.

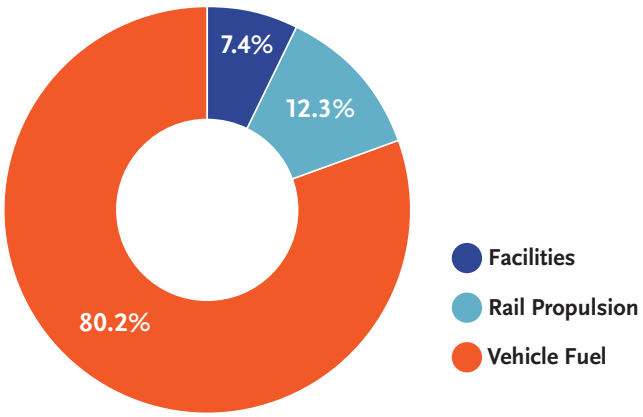
Vehicle Fleet Energy

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

Rail Traction Power Energy

Rail propulsion power accounts for greater than 200 gigawatt-hour electric energy consumption 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 miles additional route miles by 2030.

2018 ENERGY CONSUMPTION BY END USE



A Growing Future, A Growing Responsibility

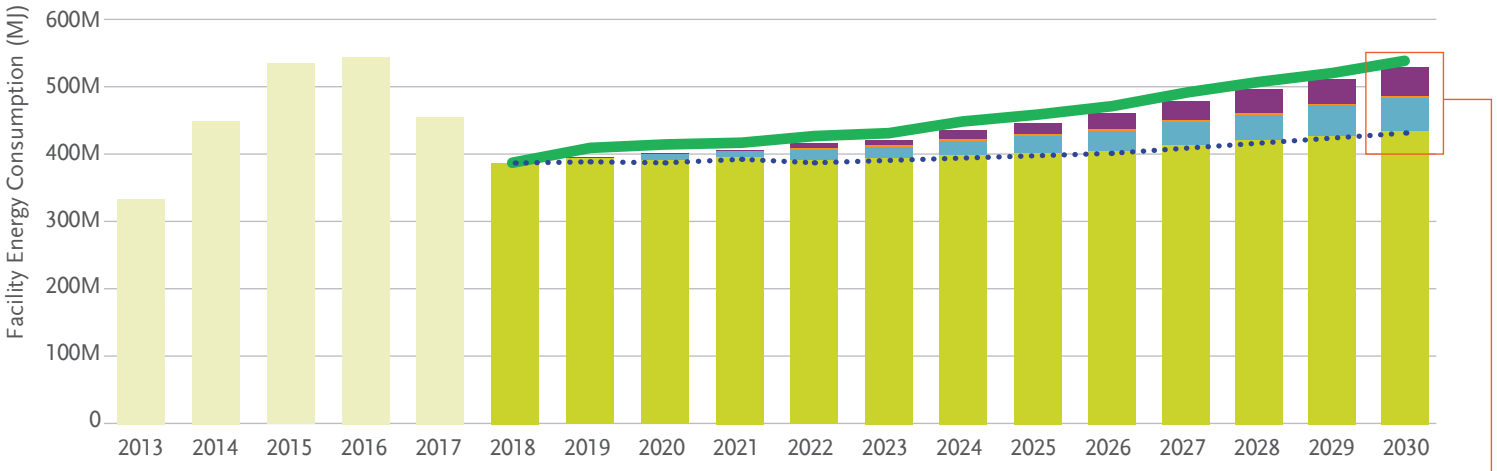
Metro's total energy consumption is expected to increase as a result of aggressive expansion of the transit system. In November 2016, Measure M was passed to help ease traffic and improve transportation. Within the *Measure M Program Management Plan*, the Twenty-Eight by '28 Initiative highlights the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

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.

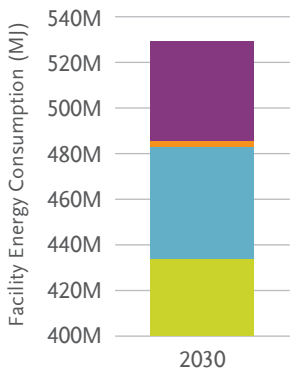
TOTAL FACILITY ENERGY CONSUMPTION FORECAST



- **Strategy 1: Energy Conservation Portfolio**
- **Strategy 2: Building Management System (BMS)**
- **Strategy 3: Facility Commissioning and Retro-Commissioning**
- **Facility Energy Consumption (BAU)**
- **BAU Trendline**
- **Target Trendline**

Phase 1 Energy Efficiency Projects

- Parking Lot LED (Red: NoHo North, NoHo South, Universal City) and Gold (Heritage and Lincoln)
- LED Lighting and HVAC Retrofits at Divisions 3, 7, 9, 11, 15, 18, 22, 30
- Gateway Building LED and Advanced Lighting Controls
- Gateway Project Garage Variable Frequency Drives
- Gateway Building Mechanical Repairs
- CMF Building 5 Dust Collection System
- Gateway Building Parking Garage LED



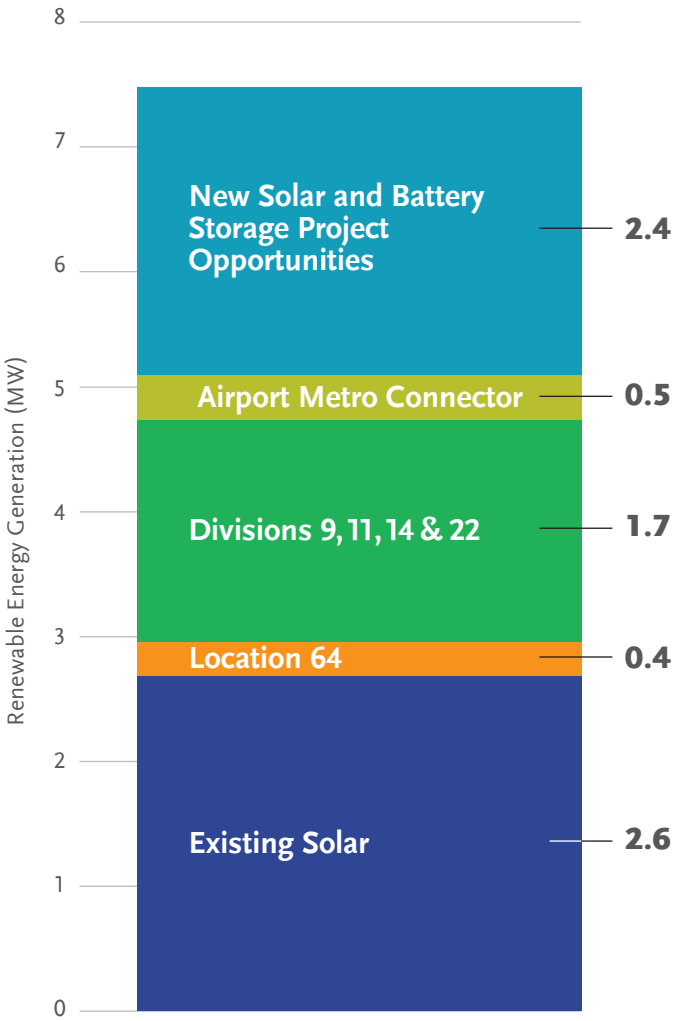
TARGET 2

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

Solar photovoltaic (PV) technology is a critical component of our renewable energy strategy. In 2018 we generated 2.9 million kilowatt-hours (kWh) from PV installations, and we expect this to increase as we add new PV installations throughout the system.

We currently own and operate 2.6 megawatts (MW) of solar PV across eight facilities. These onsite installations accounted for 2.93 megawatt-hours of consumption in 2018. However, we are working aggressively to increase renewable energy generation capacity through installations at existing and future projects. For instance, the Board approved a landmark Power Purchasing Agreement in 2019 to source renewable energy for multiple operating divisions, the newly constructed Location 64 and the Airport Metro Connector that will come online by 2023. We also expect to double onsite solar energy generation from 2018. Together, these projects will help us achieve our 2030 goal of 7.5 MW of renewable energy generation – tripling current generation levels.

RENEWABLE ENERGY GENERATION TARGET (MW)



New projects 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 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 resource 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. System output in 2018 represented a 25% increase from 2016 performance. We have since expanded the program in 2018 by creating site-specific operation and maintenance resources as well as SOPs.

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 Division 5, 11 and 22

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

PLANNED STRATEGIES AND ACTIONS

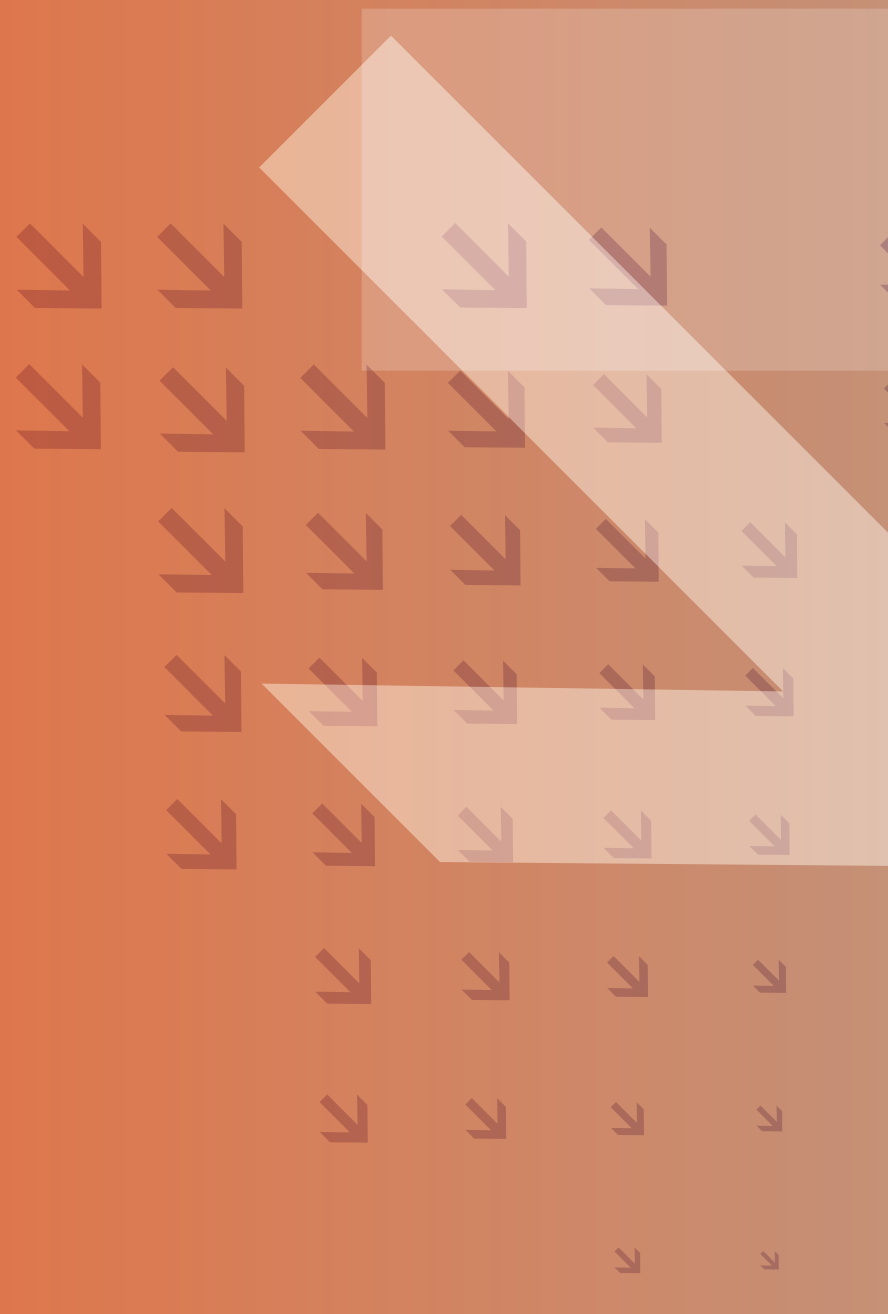
STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Implement projects identified in the energy conservation project portfolio E1	1.1 Complete Gateway LED Lighting Project.		**ECSD** Engineering, Facilities Maintenance
	1.2 Complete ECSD's Phase 1 Energy Project portfolio.		**ECSD** Engineering, Facilities Maintenance
	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
	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.		**ECSD** Engineering, Facilities Maintenance, Planning
	4.5 Identify additional onsite renewable energy generation and battery storage projects.		**ECSD** Engineering, Facilities Maintenance
Transition to electric transportation E5	5.1 Secure favorable utility billing rates for electrified rail and bus charging.		**ECSD** Rail Vehicle Acquisition, Government Relations
	5.2 Incorporate load management into EV charging deployment.		**ECSD** Rail Vehicle Acquisition, Government Relations
	5.3 Analyze opportunities to reduce peak loads from propulsion power.		**ECSD** Rail Vehicle Acquisition, Government Relations
	5.4 Partner with regional utilities to implement EV charging infrastructure for fleet vehicles (revenue and non-revenue).		**ECSD** Rail Vehicle Acquisition, Government Relations

KEY: COMPLETION OF STATUS

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

EMISSIONS AND POLLUTION CONTROL



EMISSIONS AND POLLUTION CONTROL

GOALS

> Reduce regional GHG emissions.

> Reduce Metro's GHG and criteria air pollutant emissions.[2]

TARGETS

1 Displace 903,000 $MTCO_2e$ annually.

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

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 – thereby mitigating the 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, the state of 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 Climate Action and Adaptation Plan (CAAP)*, where we further commit to reducing GHG emissions and building climate change resilience within our transportation system and across the region. 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 schedule and various system upgrade installations 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.

However, 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. Our fuel consumption and use of chemicals contribute to our 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.

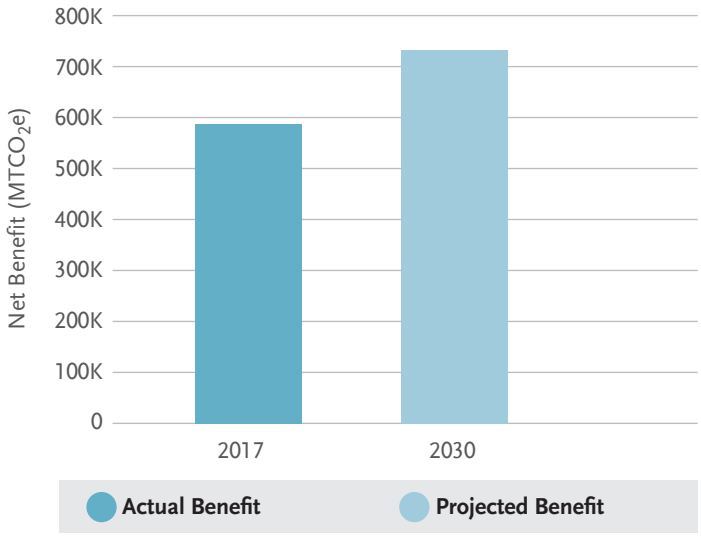
Metro consistently displaces more GHG emissions than we produce, having avoided nearly one million metric tons of carbon dioxide equivalent ($MTCO_2e$) in 2017 alone. A fifth of those emissions are displaced when individuals select riding Metro over driving their own vehicles. The rest are displaced indirectly through land use patterns based on our transit services. Without Metro, LA County's GHG emissions in 2017 would have been 3.7% higher.

It is anticipated that planned system expansion will attract additional ridership. The BAU scenario laid out in the

2. Air Pollutant Emissions Nitrogen Oxides (NOx), Particulate Matter (PM) and Hydrocarbons (HC)

CAAP forecasts an increase in passenger miles traveled of 21% by 2030 and 29% in 2050 (from 2017), preventing additional emissions via mode shift and changes to land use. Additionally, increased fuel efficiency standards for private vehicles are expected to reduce displaced emissions (12% by 2030 and 15% by 2050). 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 harness additional benefits.

PROJECTED NET GHG EMISSION BENEFIT



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

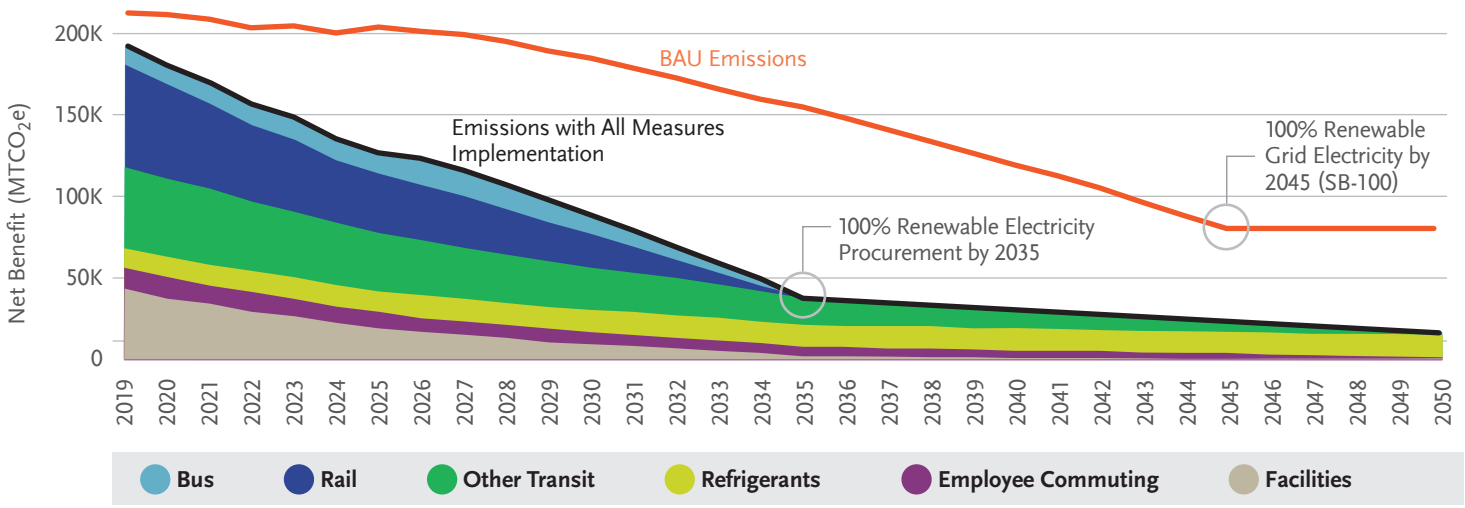
TARGET 2

Reduce total GHG emissions by 79% from 2017 baseline.

The single largest component of our 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 (*CAAP,* 2019). 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 and increase the anticipated GHG emissions reductions, including the electrification of our vehicle fleet, an increase in renewable energy sourcing and storage and improved electricity, water and other facility fixtures. 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 will soon release our *EV Implementation Plan*, committing Metro to increase support of bus and non-revenue fleet electrification at divisions and facilities, as well as increase EV charging access for community members and employees. Through this plan, 70% of our non-revenue light-duty vehicles will be 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 across our fleet.

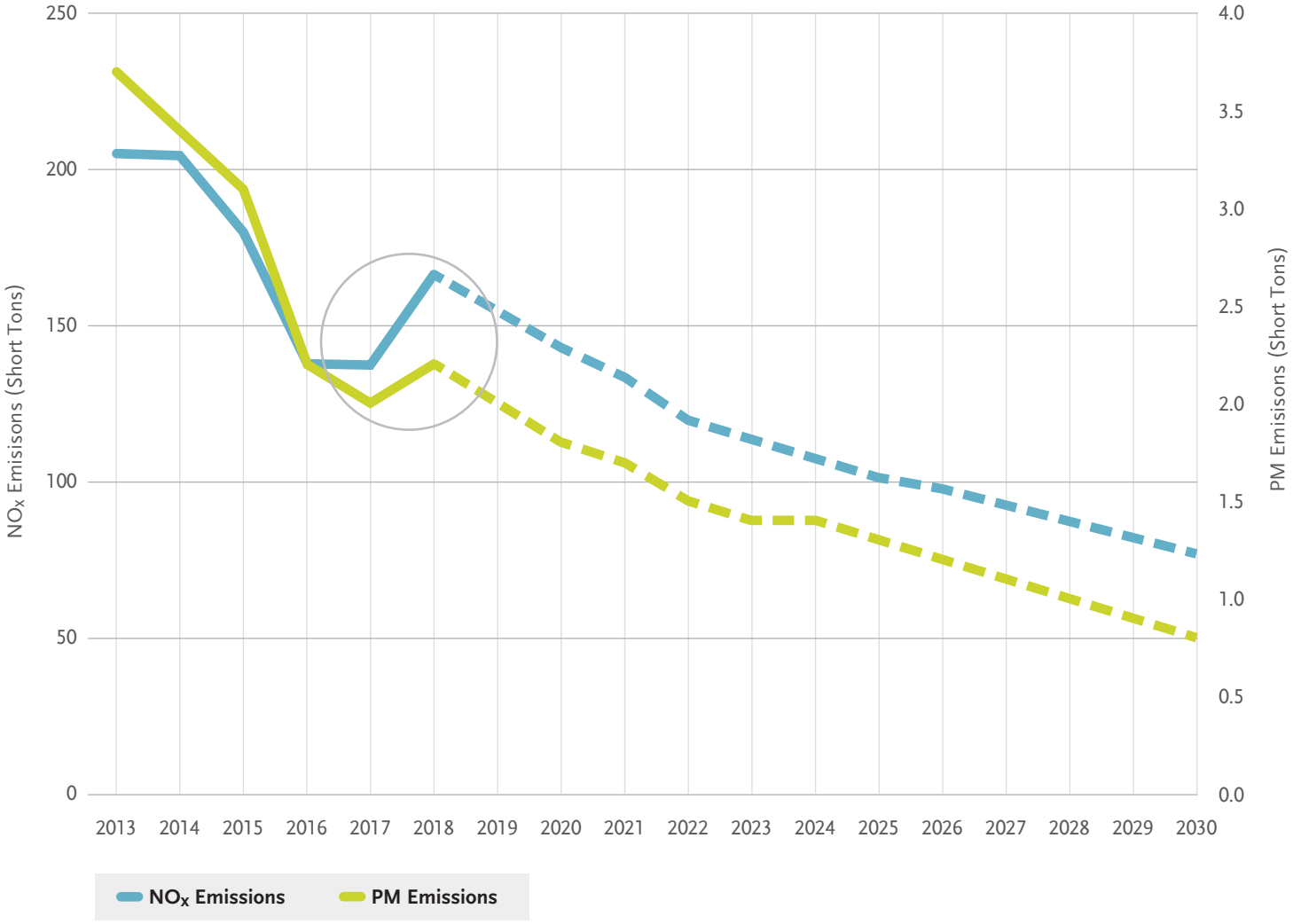
We recognize that our commitments to mitigate emissions must include strategies that reduce the formation of smog and other air pollution.

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.

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 Planning, Vehicle Technology/Non-Revenue Vehicles, Engineering, Asset Management and other key departments. The 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 2019.

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. 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 180 engines per year. This initiative is not only increasing the operating life of existing buses, but more importantly, it is reducing NOx and PM emissions from our bus fleet. Additionally, we have adopted a comprehensive plan to transition to a 100% zero emission electric bus fleet by 2030. These initiatives will significantly reduce NOx, PM and GHG emissions.

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 Transition bus fleets from diesel and CNG to electric power.		**Operations** ECSD
	1.3 Identify targets for vehicle electrification of non-revenue medium-to-heavy duty vehicles and vanpool fleet.		**ECSD** Non-Revenue
Decarbonize Metro's energy and fuel supply EP2	2.1 Complete fleet transition to RNG.		**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 high global warming potential refrigerants for both mobile and stationary sources.		**ECSD** **Corporate Safety**
	3.4 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 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**
Adopt and support an LA County goods movement strategy that assists the reduction of regional GHG and criteria air pollutant emissions 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**
Create incentives that prioritize use of zero emission vehicles in the GCP EP6	6.1 Implement strategies for the electrification of medium and heavy-duty equipment used during construction.		**ECSD**

KEY: COMPLETION OF STATUS

				
in development	started	up to 25%	up to 50%	up to 75%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RESILIENCE AND CLIMATE ADAPTATION

RESILIENCE AND CLIMATE ADAPTATION

GOALS

> **Increase responsiveness to shocks or stressors that impact Metro services to maintain a safe, reliable, equitable and comfortable service 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 **Incorporate climate adaptation into planning, procurement, asset management and operations by 2025 using the flexible adaptation pathways concept.**

2 **Identify all acute shocks or stressors for critical and/or vulnerable areas at or near Metro infrastructure and prioritize improvements to locations, facilities, infrastructure, equipment and operations to reduce risk by 2025.**

3.9 Overview

Metro understands that planning for uncertainty is challenging but essential. Changes in climate projections, 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, minimizing cost and disruptions to service while providing safe and comfortable transit for a growing population.

Metro's quality of service and service 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 Hazard Mitigation Plan*. 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.

TARGET 1

Incorporate climate adaptation into planning, procurement, asset management and operations by 2025 using the flexible adaptation pathways concept.

The flexible pathways approach creates a structure for thoughtful, incremental integration of clear adaptation objectives into Metro business units by identifying a full suite of alternatives and establishing triggers that initiate 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 practices as well as the agency's project planning processes and maintenance practices will minimize risk to business continuity.

TARGET 2

Identify all acute shocks or stressors for critical and/or vulnerable areas at or near metro infrastructure and prioritize improvements to locations, facilities, infrastructure, equipment and operations to reduce risk 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. We are committed to reducing the risk of impacts to the system from climate and anthropogenic 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. Additionally, we will develop and prioritize improvements for areas at or near Metro infrastructure that are considered critical or vulnerable based on set metrics or standards. Metrics to define criticality or vulnerability may include critical infrastructure or equity focus communities. 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 implementation priorities to ensure infrastructure resilience and maintain a good state of repair. These indicators could have a broader multi-hazard application across Metro as they facilitate continual improvement, tracking the effectiveness of our planning, construction and operational activities in increasing agency-wide resilience.

All Hazard Mitigation Plan

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

Transportation Mutual Assistance Compact (TransMAC)

The TransMAC is a mutual aid compact of more than twenty 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 department and Technology Services (ITS) are working together to expand the current US Geological Survey (USGS) ShakeAlert earthquake early warning system enterprise-wide. 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 Roadmap addressing major potential system hazards resulting from detailed natural and anthropogenic risk assessments.		**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 Establish a Metro Resilience Policy.		**ECSD**, Emergency Management
	2.2 Establish a decision-making framework that integrates all hazard considerations into capital planning, procurement, asset management and operations.		**ECSD**, Planning, Engineering, Operations, Emergency Management, Risk Assessment, V/CM
	2.3 Develop prioritization criteria for the implementation of all hazard 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
	2.4 Develop and implement a climate adaptation decision support framework (flexible adaptation pathways) that defines triggers to initiate adaptation actions.		**ECSD**
	2.5 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 hazard and emergency management plans, studies and reports, incorporating new data and information about hazards and the effectiveness of mitigation and preparedness strategies.		**Emergency Management**
	3.2 Integrate the *Resiliency Indicator Framework* into existing risk assessment processes.		**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. > Identifying and partner 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 hazard-related trainings for Metro staff and partners to facilitate 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 hazard mitigation implementation and convene regularly to track key vulnerabilities and mitigation 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, providing 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, multi-lingual public awareness campaign to educate and engage the public about hazard risks, preparedness and safety on or around Metro's system.		**Emergency Management,** ECSD, Marketing and Communications
	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 care resources available for short term shocks such as extreme heat or poor air quality warning days.		**Emergency Management** Operations, Marketing and Communications
	6.6 Create communication portals for riders about redundant bus/rail lines due to disruption.		**Operations** Emergency Management, Marketing and Communications
	6.7 Use Metro digital infrastructure to communicate emergency information to riders.		**Operations,** Marketing and Communications Emergency Management
	6.8 Coordinate with regional agencies 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
	6.9 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
	6.10 Develop program guidelines and pilot and Urban Greening competitive grant program.		**Planning** ECSD

ECONOMIC AND WORKFORCE DEVELOPMENT

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.

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 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. Currently, Metro's SBE goal is 30%, DBE goal is 27% and DVBE goal is 3%.

What We've Done

ACHIEVEMENTS AND ONGOING INITIATIVES

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 by 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 at one of the nation's largest public transportation agencies. Interns establish professional relationships with mentors who provide on-the-job guidance and help students explore their interests in the industry.

Environmental Training Institute (ETI)

Metro is investing in the future of the LA region, which starts with investing in our greatest asset – people. Our ETI offers environmental and sustainability-focused trainings and certifications designed to build support for sustainability initiatives, ensure regulatory compliance and fostering 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 MECA online training for contractors, GGW Program, offering in-person 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.

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 (non-federally) funded 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.		**Talent Development** Civil Rights & EEO, Talent Acquisition
	1.2 Identify and eliminate barriers or bias in current job descriptions.		**Talent Development** Civil Rights & EEO, Talent Acquisition
	1.3 Review and update policies, procedures and practices to eliminate barriers or bias.		**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.		**Talent Development** Civil Rights & EEO, DEOD, PEDM, Talent Acquisition
	2.2 Retain employees from targeted communities through authentic engagement.		**Talent Development** Civil Rights & EEO
	2.3 Establish a Board policy based on the tenets of WIN-LA.		**DEOD** PEDM
Offer quality training on skills needed for Metro's future workforce EW3	3.1 Evaluate the efficacy of and expand the E3 and Transportation School initiatives.		**Talent Development**
	3.2 Raise awareness about Metro as a future employer with local junior colleges and universities.		**Talent Development**
	3.3 Offer vocational opportunities that combine classroom learning within the field experience.		**Talent Development**
	3.4 Plan training that will be needed by future employees.		**Talent Development**
	3.5 Leverage GGW and MECA with WIN-LA and other programs to increase sustainability-based skills across LA County.		**Talent Development** DEOD, PEDM
	3.6 Offer sustainability and environmental stewardship curriculum as part of E3 and Transportation School programs.		**Talent Development**

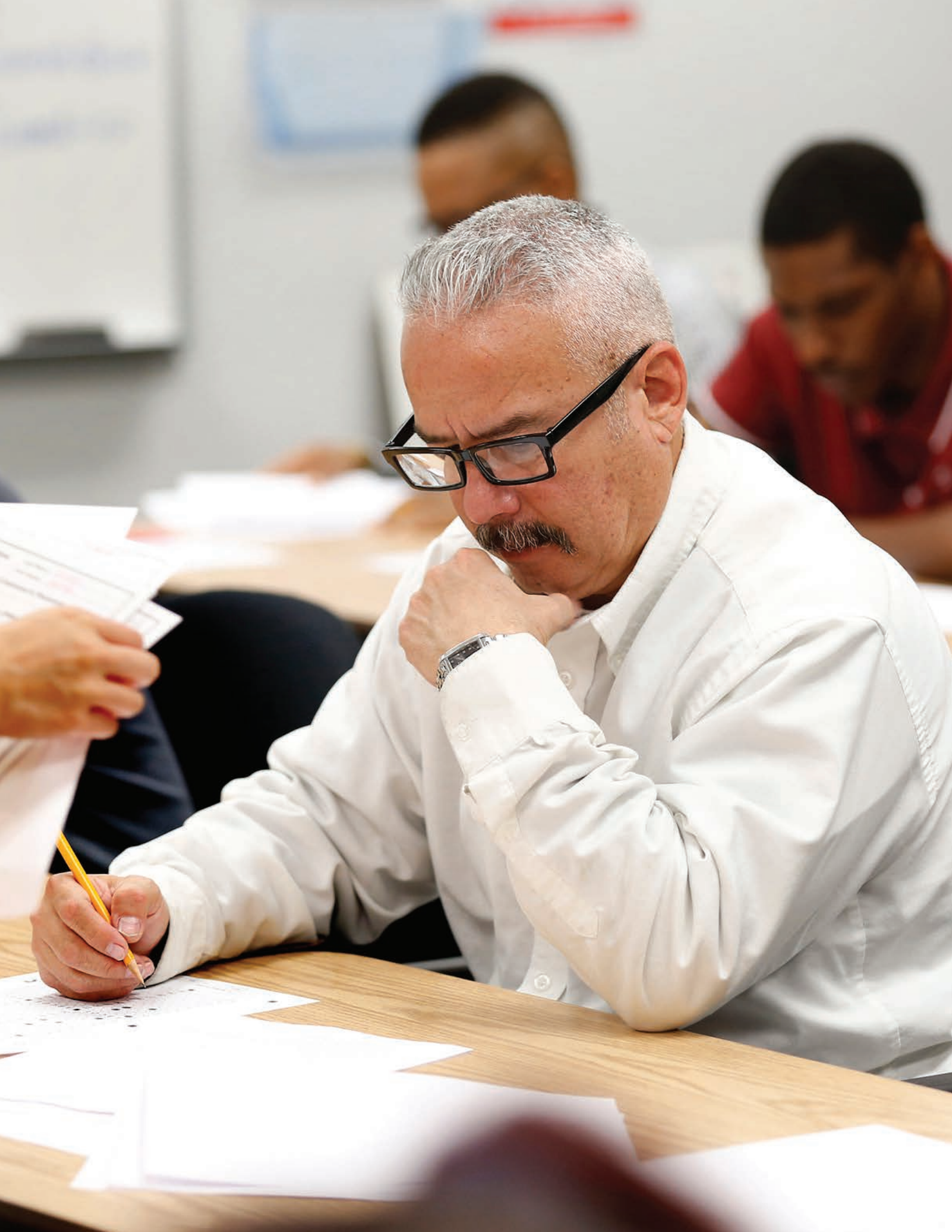
KEY: COMPLETION OF STATUS

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

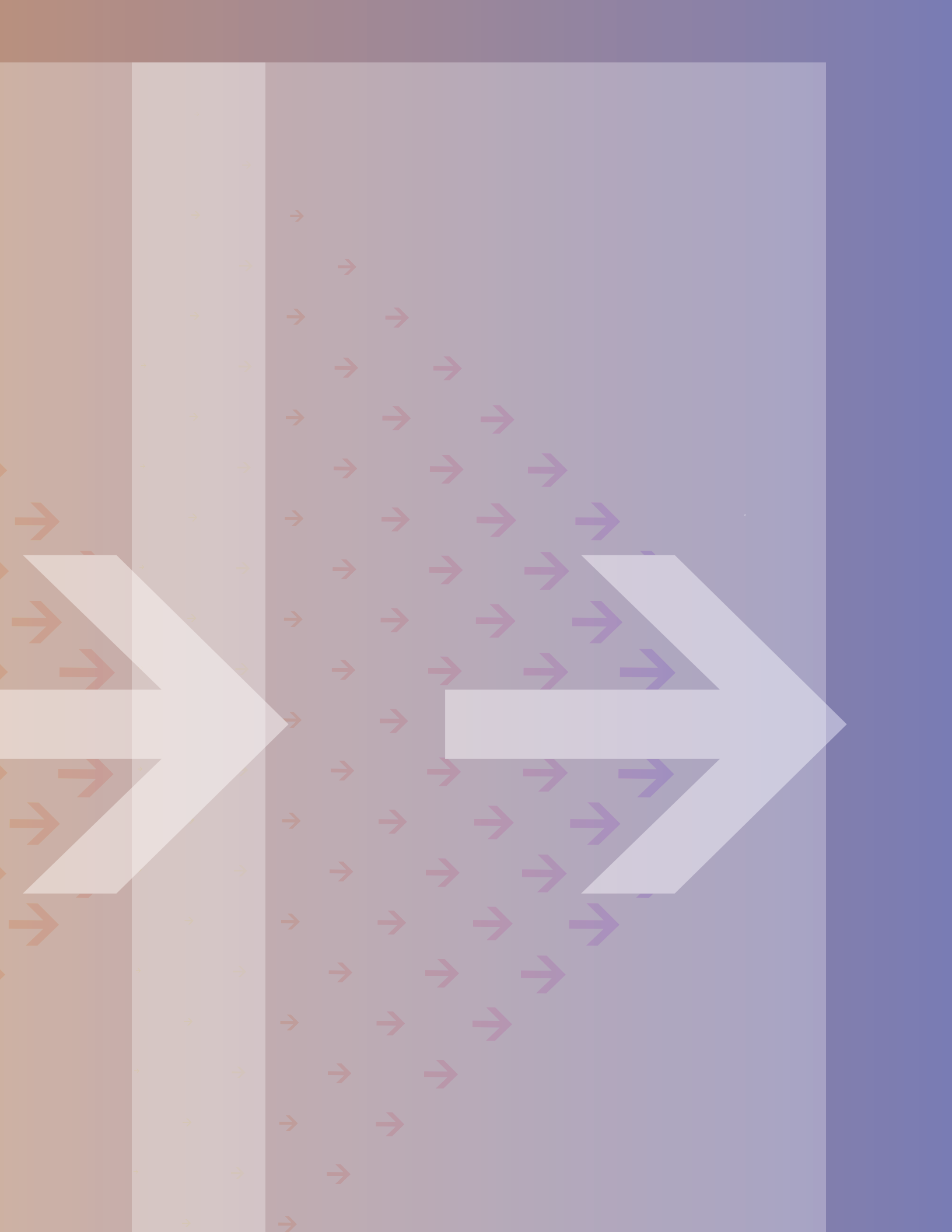
STRATEGIES	ACTIONS	STATUS	RESPONSIBILITY
Increase awareness of Metro opportunities among SBE, DBE and DVBE firms EW4	4.1 Provide assistance in navigating the Metro business registration and procurement process.		**DEOD**
	4.2 Reach targeted businesses through workshops, various forms of media and publication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

KEY: COMPLETION OF STATUS

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



LIVABLE NEIGHBORHOODS



3.11 The Bloom of Transit

In order to create a more sustainable LA County, we must support our vibrant communities and leverage our role as a transportation planner to promote healthy, equitable and livable neighborhoods. Livable neighborhoods have access to multimodal transportation networks that are maximized when integrated with community development and land use patterns that include a range of housing options and types, including affordable housing, neighborhood serving 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 communities needs and create an environment that makes 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 context. Providing connectivity among multiple transportation modes, including bicycling and walking and efficient transfers promotes transit as a viable alternative to automobile use. 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 fashion. 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 defined what TOCs are for Metro, defined areas where Metro leads and where Metro 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 back to the county's local governments.

Metro has been working with stakeholders in developing the TOC Implementation Plan to establish the action plan for how Metro will partner with others to realize equitable TOCs in LA County. The Plan is organized under the four following action areas:

1. Creating TOC Corridor Baseline Assessments for all Measure M Transit Corridor

Metro proposes to create TOC Corridor Baseline Corridor 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 the transit corridor and will 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, to realize equitable TOCs in their community.

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 upon these programmatic areas and continuously align them with the TOC Policy goals.

3. Improving Metro's Internal Coordination

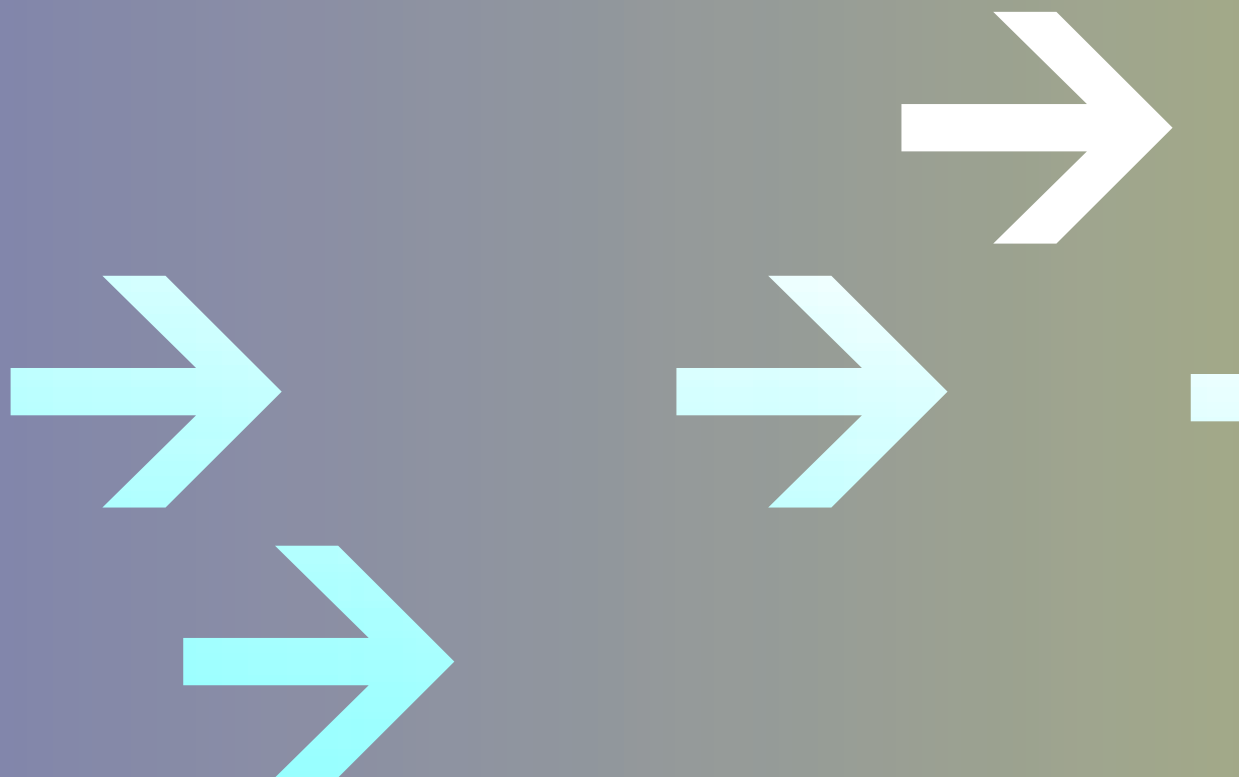
Identifies a series of internal collaboration opportunities that Metro can undertake to realize equitable TOCs in areas that are within Metro's functional jurisdiction such as through identifying joint development sites and incorporating TOC goals and tasks in the Measure M corridor delivery process.

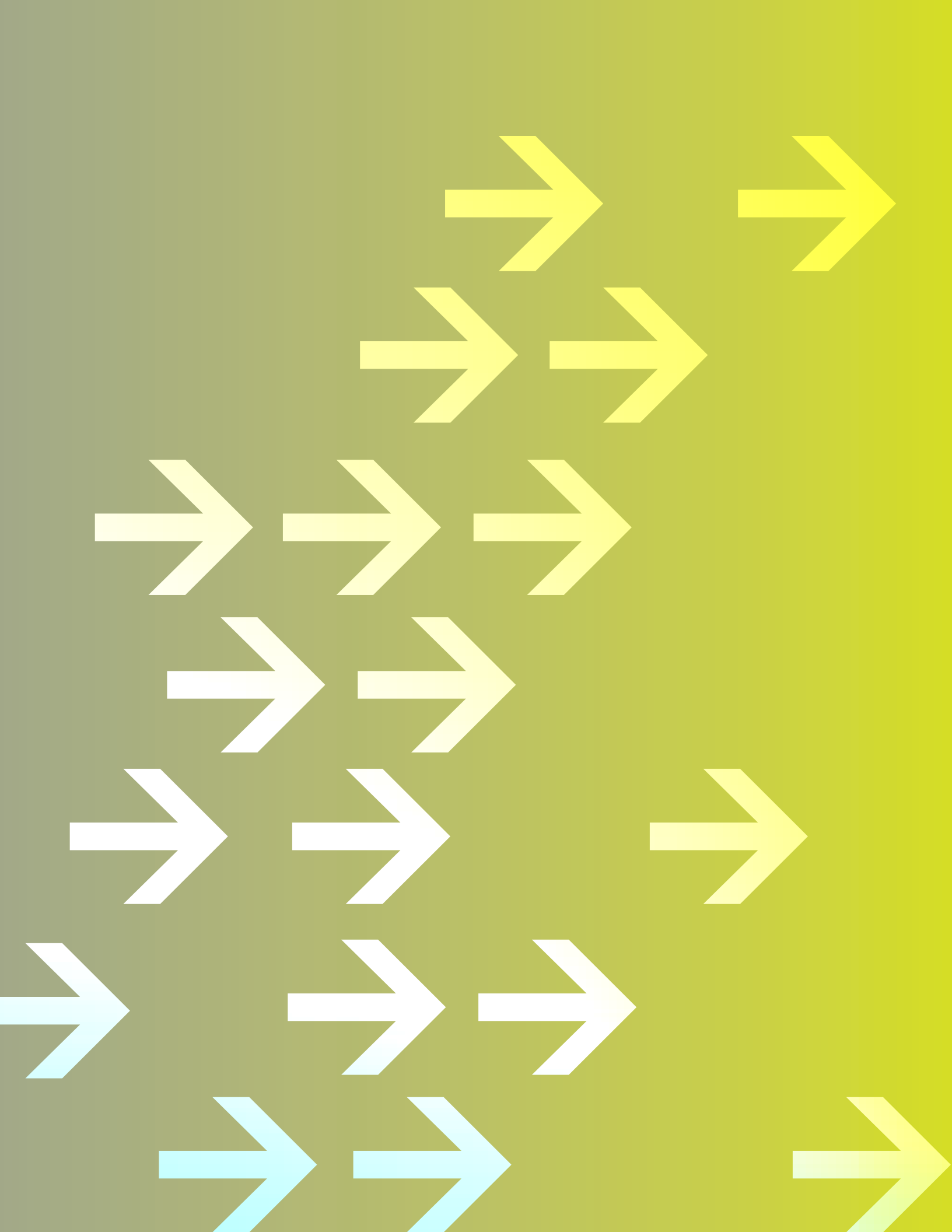
4. Strengthening Coordination and Collaboration with Metro's Partners

Many of the community development policies and programs that are integral to realizing TOCs are outside of Metro's functional jurisdiction. Strengthening coordination and collaboration with Metro's partners will include a series of strategies that Metro can use to realize equitable TOCs through coordination and collaboration with Metro's many partners including local municipalities.

It is anticipated that the Plan will be considered by the Metro Board in spring 2020.

IMPLEMENTATION





HOW WE'LL GET THERE

Metro is committed to working across internal departments and with external partners and stakeholders to implement the *Moving Beyond Sustainability* strategies and actions to achieve our sustainability goals. Certain strategies and actions are being implemented immediately by ECSD and Planning, while other strategies will go through an annual implementation planning process. This process includes an estimation of capital costs and staff resources associated with strategies and actions, and the development of project and program key milestones.

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 continuing *MBS* actions and new actions/projects to be pursued in the coming fiscal year (FY). The selected *MBS* actions/projects will be compiled into an annual *MBS Implementation Plan (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 to identify resource and staffing requirements, budgetary needs and other factors influencing the associated 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

The development of *MBS-IP* will take place every year to identify sustainability projects and actions to be pursued in the coming FY. See the Tentative Fiscal Year Milestones Table for the annual review process guidelines.

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 or designee 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 or designee for approval/incorporation into the annual budget.
Q3	Recap and analyze the capital projects and TOs developed in Q1 and Q3; review and update the *MBS*; and 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 or designee 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 or designee 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.

4.2 How to Measure Success

Performance Reporting

The strategies and actions in this plan are tied to measurable and time-bound targets. Progress toward the targets will be reported annually through Metro's *Bi-Annual Sustainability Performance Report*.

As part of this process, Metro may adopt a decision matrix to help prioritize different environmental impacts (GHG emissions, energy consumption, water consumption, etc.). These decisions will be made through the Sustainable Acquisition Program.

4.3 Outreach and Communication

Public outreach, engagement and communications are essential to ensuring that the successes we achieve are in line with the expectations of the wider public. 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. Metro provides key educational opportunities for internal staff, Metro vendor partners and the community to learn about the agency's sustainability efforts and commitments.


Metro Rail
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MOVING BEYOND

A PRECEDENT SETTING UNDERTAKING

Moving Beyond Sustainability is an ambitious, aspirational and precedent setting undertaking for Metro. It is also a commitment to continual improvement. Fulfilling this commitment in practice means 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 the 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 to establish 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 nationally.

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.

Metro is in a unique position of having internal resources of funding to support *MBS* goals. Through early adoption of low-carbon technologies, monetizing green benefits and reinvesting energy and water cost savings, it is estimated during the development of this plan that upwards of $50 million annually can be directed toward the realization of the *MBS strategies*. This source of funding is an initial down payment of an investment into a sustainable program; and is a fundamental guiding principle that allows us to make strategic decisions on sustainable infrastructure and similar investments that offer the greatest benefit to our communities and our system, offer co-benefits beyond those we immediately serve, and show the way for other transit agencies and industries.

MBS also recognizes that policies, priorities, rider needs, trends and technology are constantly evolving. The strategies outlined in *MBS are continually improving with truly aspirational but achievable goals*. We will continue to improve our tactics to achieve these goals based on new information, changes in technology and shifts in agency, regional, state and federal policy. The goals set the long-term direction, while the strategies and actions 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 *MBS* goals and, in the process, make a major contribution to the sustainability, equity, health and resilience of LA County and beyond.

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


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Metro Local

Acronyms/Abbreviations

AQMD Air Quality Management District

BMP Best Management Practice

CAAP Climate Action and Adaptation Plan

C&D Construction and Demolition

CMF Central Maintenance Facility

CO_2 Carbon Dioxide

CO_2e Carbon Dioxide Equivalent

CSP Cost and Schedule Proposal

DEOD Diversity & Economic Opportunity Department

DSS Diamond Seal System

ECM Energy Conservation Measure

ECSD Environmental Compliance and Sustainability Department

EEO Equal Employment Opportunity Program

EMS Environmental Management System

EO Executive Officer

ETI Environmental Training Institute

EV Electric Vehicle

FTE Full Time Equivalent

GCP Green Construction Program

GHG Greenhouse Gas

HID High-Intensity Discharge

HVAC Heating, Ventilation and Air Conditioning

ICE Independent Cost Estimate

ISO International Organization for Standardization

IWMH Integrated Waste Management Hierarchy

kW Kilowatt

kWh Kilowatt Hour

LCCA Life Cycle Cost Assessment

LCFS Low-Carbon Fuel Standard

LEED Leadership in Energy and Environmental Design

M&V Measurement and Verification

MBS Moving Beyond Sustainability

MRDC Metro Rail Design Criteria

MRF Material Recovery Facility

MSIP Metro Sustainability Implementation Plan

NO_x Nitrogen Oxides

OAL Outdoor Area Lighting

PM Particulate Matter

PPA Power Purchase Agreement

PV Photovoltaic

PZNE Pathways to Zero Net Energy

RO Reverse Osmosis

ROI Return on Investment

ROM Rough Order of Magnitude

SOP Standard Operating Procedure

TO Task Order

V/CM Vendor Contract Management

V2G Vehicle to Grid

VFD Variable Frequency Drive

VMT Vehicle Miles Traveled

WESS Wayside Energy Storage System

ZEB Zero Emission Bus

ZEV Zero Emission Vehicle


LOS ANGELES
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MORE TO EXPLORE

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 operational potable water use.
			W3	Implement water monitoring and reporting systems.
			W4	Integrate water conservation and efficiency best practices into operational 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 run-off 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.	SW1	Implement operational waste prevention and material reuse programs which support a circular economy.
			SW2	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 by 2030.	SW3	Establish and integrate best waste management practices into agency-wide operations.
			SW4	Establish comprehensive monitoring and reporting practices to drive continuous improvement.
		3. Achieve 85% construction landfill diversion rate by 2030.	SW5	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.	M1	Continually improve sustainability standards and requirements for project design and construction.
			M2	Pursue green certification standards for buildings and infrastructure construction.
		2. Design and build 100% of capital projects to CALGreen Tier 2 standards.	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	Develop and implement an agency-wide Sustainable Acquisition Program.
			M6	Integrate resource conservation, life cycle and efficiency considerations into Metro's operational policies, SOPs and specifications.
			M7	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	Transition to electric transportation.
EMISSIONS AND POLLUTION CONTROL	Reduce regional GHG emissions. Reduce Metro's GHG and criteria air pollutant emissions.	1. Displace 903,000 MTCO2e annually. 2. Reduce total GHG emissions by 79% from 2017 baseline. 3. Reduce total nitrogen oxides (NOx) emissions 54% from 2018 baseline. 4. Reduce total particulate (PM) emissions 62% from 2018 baseline.	EP1	Transition Metro's fleet to zero emissions technology.
			EP2	Decarbonize Metro's energy and fuel supply.
			EP3	Improve methodology for monitoring and measuring emissions.
			EP4	Implement a scheduled maintenance program for stationary and mobile emissions sources to reduce emissions.
			EP5	Adopt and support an LA County goods movement strategy that assists the reduction of regional GHG and criteria air pollutant emissions.
			EP6	Create incentives that prioritize use of zero emission vehicles in the GCP.

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 service for our customers, even as the climate changes over time.	1. Incorporate an approach for climate adaptation into planning, procurement, asset management and operations by 2025, using the flexible adaptation pathways concept.	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. Identify all acute shocks or stressors for critical and/or vulnerable areas at or near metro infrastructure and prioritize improvements to locations, facilities, infrastructure, equipment and operations to reduce risk by 2025.	R4	Implement hazard mitigation and climate adaptation strategies to increase transportation system resilience and passenger safety.
			R5	Develop and implement all hazard-related trainings for Metro staff and partners to facilitate a culture of sustainability.
	Expand Metro's leadership as a key partner in establishing a regional resilience network.		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.

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