Agenda

Metro Sustainability Council

LA Metro HQ
University Conference Room
4th Floor
One Gateway Plaza
Los Angeles, CA

Agenda

a. Welcome/Introductions: Chair (5 min)

b. Approval of Minutes: Chair (5 min)

c. Meetings ARC Update: Stephanie (3 min)

d. Announce Vice Chair Vacancy: Chair (5 min)

e. Introduce Green Procurement Policy: Carolina (20 min)

f. Introduce Resiliency Framework: Andrina (20 min)

g. CAAP Workshop Prep – GHG Reduction Strategies: Stephanie (15 min)

h. Action Items Log: Aaron (5 min)
Agenda

Metro Sustainability Council

LA Metro HQ
William Mulholland
15th Floor
One Gateway Plaza
Los Angeles, CA

Agenda

a. Welcome/Introductions: Chair (5 min)
b. Approval of Minutes: Chair (5 min)
c. Draft Meetings ARC for FY19: Bryan (10 min)
d. Introduce Climate Action Plan Update: Cris (20 min)
e. Oral Update on LRTP Outreach & Activities: Paul (20 min)
f. Motion 57 Update Follow-up: Stephanie (10 min)
g. Vacant Council Positions: Chair (15 min)
h. Subcommittees Discussion: Chair (15 min)
i. Action Items Log: Aaron (10 min)
MEETING MINUTES

Introductions

Council members’ self-introductions.
Community guests’ self-introductions.

Chair Smalls: Tribute to Dilara El-Assaad Rodriguez

Announcement: SCAQMD Community Kickoff meeting, (AB) 617 – Tues Oct 16: For questions contact Fabian Wesson, SCAQMD Public Advisor at (909) 396-2432 or at publicadvisor@aqmd.gov.

Chair Smalls: Approval of the Minutes:
- No comments on meeting minutes
- Bruce Reznik – Motion; Joel Levin 2nd – Approved.

Bryan Pennington (self-introduction): Stephanie Wiggins announced at the last meeting that we are the three amigos and I am the Amigo for this meeting. We developed the priorities that are outlined in the development of the Colorful Chart. Encourages Council to come up with a better name than Colorful Chart.

From discussions at Metro have taken key priorities from Metro, identified 3 initiatives that are FY19 Priorities:

1. Climate Action and Adaptation Plan (CAAP)
2. Resiliency Framework
3. Policy Green Procurements and then there is a fourth time how this all links to the LRTP

Brian commenced a review of draft ARC (Meeting Agenda and Topics for the next 6 months); Month by month, will be dealing with all four issues. To set schedules and goals in terms of time and how to review each process.

Agrees with Council Chair that the ARC gives everyone a focus and understanding of priorities associated. Though the ARC will be updated from time to time, the FY19 priorities will not change. What may change is that other issues become important as dialogue progresses. The Chart is consistent with framework to move forward throughout the year.

Bryan Pennington asks if anyone has questions.

Joel Levin (Exec. Dir, Plug in America): Would like to see LA Metro EV implementation plan added to ARC when draft is complete.

Chair Small: That’s the kind of living flexibility that we want to inject into this. The ARC gives backbone to check and see progress that we’re making. To be productive, we need to be open to other things members can bring in terms of presentation and input. Chair Small asks Joel to keep Council updated about EV Implementation Plan as it progresses so Council will know when to schedule a presentation.

Belinda Faustinos: It would be helpful to get an update on where the implementation of the RAMP RCIS plan is.
Cris Liban: Staff is progressing faster than expected on some items in the ARC. Council will be advised of early completions (as well as reasons for delays). Regarding the RAMP; the Board rec’d and filed document. Conversations in terms of what it means in an urban environment.

Belinda: Recommends a broader RCIS program;

CLIMATE ACTION PLAN – PRESENTATION (Cris Liban)

Hardcopy presentation is in agenda packet.

Cris: Due to changes in legislation and strategy from the state and on statutes; we felt it was time not only to update CAAP but do it aggressively. Cris addresses present updates about CAAP:

1. What is CAAP?
2. What does CAAP provide?
3. Why update CAAP?
4. Schedule for input from Council.

Document is downloadable: metro.net/ecsd/plans and studies/climate action and adaptation plan

Presentation Questions:

John Williams (Question): Have you tracked emissions against the forecast?

Cris Liban (Response): We are following the act of protocol in terms of emission calculations. There are three parts of equation: Emissions, Displacement, Meth Emissions. As an agency LA Metro; on average is displacing about one hundred thousand metric tons per year. We are a rating negative carbon agency.

John Williams: So that has to do with the number of cars removed from the streets?

Cris Liban: There is no formal tracking of GHG emissions versus what we’re achieving.

John Williams: What if you just look at operations and not ground displacement?

Cris Liban: If you look at the annual Energy Resource report, it’s been declining through increased operations.

Bryn Lindblad (Question): The CAAP, it doesn’t have a BMT effect, right? It’s only Metro’s footprint and not about the effect it’s having with what other cars have on the road?

Cris Liban (Response): Not in that context; which is why we wanted to include this update to include a lot of these activities that might be relevant to the operations of the agency and still be conclusive and educational to the LRTP.

Barbara Marquez (Dep. Distr. Dir., Caltrans) – I understand operations from Metro’s perspective. What about highway projects?
Cris Liban (Response): We have been inclusive in reaching out to CalTrans through our highway programs.

Michael Samulon (Sr. Policy Analyst, City of LA): Encourage to include an annual benchmarking against the updated path so you’re following the protocol used to reach your numbers. It’s what we’re doing in the City.

Roy Thun (Sr. Environment Specialist, GHD): Cautions of how the state – in terms of double counting. Everyone wants to capture credit for displacement. I don’t think there’s a common system yet. States trying to figure out total adaptation plan. CalTrans and Metro will have major impact on how this looks.

Hilda Blanco: Have you thought of publishing this on a regular basis? Right now, Climate Registry is putting together something. All of these concerns can be thought out.

Joel Levin: That’s true. It’s worth doing. I used to be the guy who did that.

CAAP Update / Report resiliency framework next month

METRO Long Range Transportation Planning (LRTP) REPORT
Overview by Paul Backstrom from Metro Planning Department

Addresses the 3 main areas:

OUTREACH
4 major outreach pushes:
   1. Baseline (asking open-ended questions)
   2. Values (tradeoffs/preferences)
   3. Investment Scenarios
   4. Draft

Whenever something is learned in later phases, Planning will go back and make changes. Currently in the baseline phase, asking open ended questions, Paul invites Council to review the newly developed website: http://ournext.la/, take the survey and share with friends, family and colleagues as feedback is vital.

Survey was pushed to Metro and County employees as well as Los Angeles International Airport. There are Facebook ads and community events.

Two additional events coming up:
   1. South Bay (disabilities)
   2. Veterans Outreach

Additionally, there has been outreaching to elected officials and key stakeholders. Planning has updated the Metro internal long-range website.

Other activities within Planning development; there are 7 modules in LRTP. We’re focused on development of 3 of them. We will utilize existing conditions and values framework. Right now, the work focused on vision 20/20 strategic plan.

On the Feb Council Meeting agenda we will show the results of the Nextgen survey and develop framework in chapter for values section. Continuing to coordinate
QUESTIONS:

Bruce Reznik: To the extent that you want to take advantage of this group. This group can reach a lot of people. Bruce suggested make it simple. 4 or 5 times

Thomas Small: How are we evaluating outreach efforts.

Paul Backstrom: Trying to adapt to new methods and perform surveys to LA County employee’s beginning in November. The goal is to go through several phases. Email list is growing in numbers.

We will try to continue to cast broader nets. Try to reach every single county resident that has some sort of social presence. Try to be adaptive.

Chair Small: How about reaching out directly to ridership?

Paul Backstrom: We have a lot of ridership info now. Info we have moving forward. Not just talking about transit surveys. The goal is to go above and beyond ridership. We want to make sure we’re capturing ALL priorities.

Michael Samulon: Recommends LA Library for additional surveys. Michael will send tool kit. Michael indicated they have given survey link to a lot of people. We haven’t seen a lot of traffic from other sources. Outreach will be ongoing.

Hilda Blanco: Any observation studies during the outreach; Is affordable housing important to you?

Hilda Blanco: There should be an objective observation of what’s going on. There were classic studies.... that might give you insight that responding to questionnaires might not. Asking communities to tell us what is important to them; what we need to focus on.

Chair Small: In gov’t, outreach is the most important and hardest thing. Manuel Pastor talked about going to where the people are. Daycares, homeless shelters, etc. We are taking a very specific look to equity. A meaningful part of that is engagement. Try to hit an enormous spectrum of events. It’s a long process. The question is also the pace. When do I need to pay attention? It’s not always going to be what someone wants to hear.

Anthony Brower: Massive undertaking. Team with GoPros trying to capture things you can’t get with surveys. Can connect you with that team.

Chair Small: This could be a topic. Set of recommendations from this council. Everything that Metro has

Paul Backstrom: Paul reiterates Feb follow-up.

Belinda Faustinos: Advance materials? Thoughtful constructive. From constituency work

Paul Backstrom: We’ll bring materials. Would have given this presentation a month or two ago. Stephanie did ask if we had a PPT.
Cris: We do want to provide advance documentation.

(NEXT TOPIC)

Bryan Pennington: As we continue, we have clear FY 19 priorities and will stay focused; the Colorful chart will not be forgotten. We will continue to update on a monthly basis. The colors will change as we progress. There are various members of Council who have interests in segments of the Board 57 motion items with clear Metro priorities.

B. Pennington: Priorities are indicated in the Meeting ARC

Chair Small: Any lingering thoughts should be addressed.

Cris: Cris asked if the Council Subcommittees are still relevant.

Bryn – I want to make note that the colorful chart does not include all items in correlation with Motion 57. Finding ways to update those Motion 57 items.

Bruce Reznik: Perhaps Bryn can come up with a list of things that we don’t think are fully captured.

Chair Small: We can get them on the agenda.

B. Pennington: If you give us preliminary info, it will be addressed.

Caryn Mandelbaum: When is the next time the Metro board wants an update on Motion 57?

Cris: We intend to annually update them. July/August timeframe. The MSIP (Metro Sustainability Implementation Plan) will be our reporting tool to update the Board Motion 57 and other projects and efforts on the chart. MSIP update will occur in Feb timeframe.

Caryn: Will it be possible to develop a timeframe?

B. Pennington: If Council decides that they want a verbal report, a request to staff would be preferred. We don’t want to bog the meeting down with a lot of detail. We’ll ensure an update to the ‘colorful chart’ every month.

Bryn Lindblad: Can we see that in track changes form?

Bryan: We can look at the logistics of this.

Cris: Perhaps Aaron can include a pink flag for updated information.
(NEW TOPIC) VACANT COUNCIL MEMBERS

Cris: Cris mentioned that we might have more interest from faith-based organizations;

Bruce: A lot of vacancies are NGO. The list is outdated. It is not up to this agency to recruit. I don’t think we do stipends for this group, but this might make a difference. Active transportation is a missing category.

Dilara: I will be working with Aaron to reflect on who is here.

Joel: What is the process?

Cris: We will adhere to the by-laws; Selection committee vets Council applicants.

Chair Small: I’d like to see if we can initiate that process. We’d like to see which spots are open?

Small Cities alternate
Air quality; primary and alt
Habitat/Natural resources: Alt

B Reznik: Steven Johnson is no longer with Heal the Bay

Social Justice: Per Bruce, we came up with 5 or 6 representatives.

Caryn: We’d like to reiterate – Some of these groups are on shoestring budgets as it is. We can’t ask them to invest their time without offering a stipend. They have a large reach within their prospective communities.

Labor Unions: Per Dilara, will forward the application to Aaron.

Public Health: Not filled

Joel: Moves to adopt a Selection Committee process. All “ayes”.

Next meeting, we will further report to find what opportunities there are.

(NEW TOPIC) SUBCOMMITTEES

Belinda: Main issue: Develop of an implementation plan for subcommittees.

Chair Small: We can report in next meeting in how Subcommittees can best move forward.

Roy Thun: There’s a lot of passion around aspirational sustainability concepts. I believe there is room for the Council to address both Motion 57 and other subcommittee projects.

Bryan: The way we set up these documents is based on the concern of Council members.

T. Small: Observation is accurate.
S. Wiggins: We have to manage the feedback we get. We will provide a comment disposition log. We will be asking the Executive Committee to provide comments before the Board.

**ACTION LOG:**
Aaron facilitated the announcement of Action Items and will track action item log: Aaron iterated that everyone is given cards to contribute topics. The card response will be updated monthly and documented.

Mehran Mazari: Announced CSI conference registration

Doug: Requirements include submission of an abstract (250 words or less). Same group is looking for reviewers.

Bryn: Can we get an Action Item Log? (yes)

Bruce: Will it incorporate what members seats are vacant and relevant information?

Belinda: We need clarification if we want to be prepared to make recommendations for that. Ad hoc committees can prepare responses to topics so the rest of the committee and actually come up with concrete recommendations.

Cris: There is no report to review next month; there will be a technical memo to look at; the intent is to send it out to whoever ahead of time.

S. Wiggins: What we would like to do is send out a minimum one week in advance. We would like to structure Council Meetings to have breakout sessions, so you all can be working in your smaller groups again, in recognition of the issue of resources.

Bryn: In the packet there is a scope of work for the CAAP; on page 45 there is a bulleted list of what we’re going to get a presentation on?

Cris: As shown on the ARC, we will be giving you an opportunity to review and respond to those CAAP items.

Peter Meng: In support of new topics on social justice.

*Meeting Adjourned by Chair Small.*

**Attachments:**

Attachment A – Attendee List

Attachment B – Draft notes for item E: Oral Update on LRTP Outreach & Activities
# ATTENDEE LIST

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<tr>
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<tr>
<td>Y</td>
<td>Berwyn Salazar</td>
<td>N</td>
<td>Aki Luukkainen</td>
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<td>Y</td>
<td>Roy Thun</td>
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<td>Charles Favors</td>
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<td>Anthony Brower</td>
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<td>Joe Ablay</td>
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<td>Debra Avila</td>
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<td>Dominique Hargreaves</td>
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<td>James Okazaki</td>
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<td>Emily Freund</td>
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<td>Fernando Cazares</td>
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<td>Kimberly Colbert</td>
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<td>Doug Dietrich</td>
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<td>Kristen Torres-Pawling</td>
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<td>Mehran Mazari</td>
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<td>Patricia Menjivar</td>
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<td>Omar Gomez</td>
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<td>Pavitra Rammohan</td>
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<td>Salem Afeworki</td>
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<td>Steven JOHNSON</td>
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<td>Wendy RAMALLO</td>
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<td>Will WRIGHT</td>
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## NON-MEMBERS:

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<tr>
<th>ATTENDED</th>
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<tbody>
<tr>
<td>Bryan Pennington</td>
<td>Richard Clarke</td>
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<tr>
<td>Stephanie Wiggins (Attended at 10:30am)</td>
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<tr>
<td>Aaron Santos</td>
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<td>Christine Marez</td>
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<td>Valerie Davis</td>
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<td>Linda Bybee</td>
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<td>Alvin Kusumoto</td>
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<td>Cris Liban</td>
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<td>Barbara Marquez</td>
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LRTP Update:

1. Outreach Efforts
   a. Four major engagement points
      i. Baseline
      ii. Values
      iii. Alternative Investment Scenarios
      iv. Final
   b. Iterative Process
   c. Baseline Outreach Round 1
      i. Launched Project Website- Our Next.LA
      1. Survey
      2. Community meetings
   d. SURVEY-
      i. Metro employees
      ii. County Employees
      iii. Major Employers
      iv. Digital Ad buys Facebook ads
   e. COMMUNITY EVENTS- two major events in each subregion +
   f. ADDITIONAL BRIEFINGS-CBO’s, elected officials and key stakeholders
   g. UPDATED METRO LRTP
      i. Board reports
      ii. Direct to project website

2. Ongoing Activities with Plan Development- Seven modules comprise our LRTP
   a. Seven modules total:
      i. **Vision:** What do we want to achieve?
      ii. Orientation and Context: Who is Metro what do we do?
      iii. **Baseline Understanding:** Defines existing conditions for future commitments based on adopted plans and programs.
      iv. **Values Framework** Expression of stakeholder values to help shape decisions and measure performance
      v. Transportation Network and Management Plan: Network operations and asset management
      vi. Implementing the Plan CIP and Funding.
      vii. Enduring Relevance Annual reporting and evaluation
   b. Vision 2028 inform Vision module
   c. Baseline Communities and Partners
      i. Baseline Partners Survey
   d. Values Framework
3. Next Steps
   a. Baseline outreach to close.
   b. Outreach for Values kick-off
      i. Online tool
   c. Develop Values Framework module
   d. Ongoing coordination with Parallel efforts
      i. Equity
      ii. Next Gen
      iii. BRT Vision and Principles
      iv. Transit Oriented Communities
      v. SCAG RTP/SCS
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<tr>
<th>Meeting</th>
<th>Agenda Topics</th>
<th>Outcomes</th>
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<tr>
<td>September 21, 2018</td>
<td>*New Metro Role</td>
<td>*Bylaws amended to reflect new Metro role</td>
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<td>*Motion 57 Progress Update</td>
<td>*All participants leave meeting with a basic understanding of Metro’s current progress related to Motion 57</td>
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<td>October 12, 2018</td>
<td>*Introduce Climate Action Plan (CAAP) Update topic</td>
<td>*All participants leave meeting with a basic understanding of Metro’s current practices related to CAAP, as well as best practices in this field (related to transportation projects), and challenges related to this topic. *Direction provided from the Council to Metro staff on developing initial recommendations on CAAP update; additional information needs identified *All participants leave meeting with a basic understanding of the LRTP development progress and provide feedback as part of the outreach effort.</td>
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<td>*Oral Update on LRTP Outreach and Activities</td>
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<td>November 9, 2018</td>
<td>*Introduce Resiliency Framework topic</td>
<td>*All participants leave meeting with a basic understanding of Metro’s current practices related to Resiliency, as well as best practices in this field (related to transportation projects), and challenges related to this topic. *Direction provided from the Council to Metro staff on developing initial recommendations on a Resiliency Framework; additional information needs identified</td>
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| December 14, 2018 | *CAAP Update: Introduce Candidate GHG Reduction Strategies  
*Draft EV Implementation Plan  
*All participants leave meeting with a basic understanding of Metro’s current practices related to GHG Reduction Strategies; challenges related to this topic.  
*Direction provided from Council to Metro Staff on developing initial recommendations on Green Procurement Policy; additional information needs identified  
*Distribute Council assignments to prepare for the December workshop discussion. |
| January 11, 2019 | *Present draft Candidate Climate Adaptation Strategies; continue discussions re: CAAP Update  
*Present draft Green Procurement Policy  
*GHG Inventory/Forecast  
*Final EV Implementation Plan  
*Feedback provided by the Council to Metro staff on draft Candidate Climate Adaptation Strategies; CAAP Update  
*Feedback provided by the Council to Metro staff on draft Green Procurement Policy  
*Provide an update and receive feedback input on the methodology and results of GHG inventory  
*Consensus Comments received from the Council to Metro Staff on the draft EV Implementation Plan |
| February 8, 2019 | *Adaptation & Resiliency Workshop  
*Presentation on LRTP Values Framework  
*Feedback provided by the Council to Metro staff at the Workshop  
*All participants leave meeting with a basic understanding of the LRTP development progress, including the |
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<th>Date</th>
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| March 8, 2019    | *Motion 57 Progress Update          | *Consensus Comments received from the Council to Metro Staff on draft Chapters 1, 2, and 5 of the CAAP Update  
*Consensus Comments received from the Council to Metro Staff on the draft Green Procurement Policy  
*All participants leave meeting with a basic understanding of Metro’s current progress related to Motion 57 |
| April 12, 2019   | *Adopt Green Procurement Policy     | *Consensus Comments received from the Council to Metro Staff on draft Chapters 3, 4, and Executive Summary of the CAAP Update  
*Green Procurement Policy recommendations & metrics adopted by the Council |
| May 10, 2019     | *Adopt CAAP Update  
*Adopt Resiliency Framework | *CAAP Update recommendations & metrics adopted by the Council  
*Resiliency Framework recommendations & metrics adopted by the Council |
| June 14, 2019    | *Metro Board approval of CAAP Update & Resilience Policy  
*Draft FY20 Meetings ARC | *All participants discuss potential policy topics for FY20 cycle |
Metro Green Procurement Program

Project Introduction
November 9, 2018
Project Vision

To integrate Environmental, Ethical, and Social considerations into Metro’s procurement processes for products and vendor services for its operational and construction needs.
Benefits of Green Procurement

- **Driving Innovation**
  Leveraging business partners to drive innovation

- **Eco-efficiency & Sustainability Benefits**
  Reducing waste, energy consumption, and GHG emissions

- **Brand Enhancement**
  Enhancing Metro’s reputation as a Sustainability leader

- **Financial ROI**
  Purchasing green products and services that reduce the cost of ownership over the lifecycle

- **Risk Reduction**
  Reducing exposure to toxins in consumer goods and construction building products

- **Engaged Employees**
  Connecting employees to corporate sustainability mission
Metro’s Current Practices
Metro has many pieces in place, this effort will integrate and build on these

**Procurement**
- Green Construction Policy (RR-01)
- Green Construction Policy Specifications (01 35 66)

**Committees**
- Chemical Standards Committee

**Programs**
- ISO 14001 Environmental Management System
- Strategic Initiative for Regulatory Compliance
- Sustainability Plan Program (e.g. LEED, Envision)
- Low Carbon Fuel Standards Credit program
  - Metro generates and markets (sells) LCFS credits from its low-carbon fuels including renewable natural gas (RNG) and electricity (rail and EVs).

**Specifications and Requirements**
- Metro Rail Design Criteria (MRDC)
- Metro Bus Rapid Transit Criteria (BRT)
- 01 35 29 Health, Safety And Emergency Response For Contaminated And Hazardous Sites
- 01 35 43 Environmental Procedures For Contaminated And Hazardous Materials
- 01 35 63 Sustainability Plan
- 01 56 39 Shrub And Tree Protection
- 01 74 00 Cleaning
- 01 74 19 Waste Management And Disposal
Green Construction Policy (GCP)

- Reduce emissions on construction projects through regulation of contractor equipment and vehicles
- Requirement for Renewable Diesel for contractor bulk fuel purchasing

CASE STUDY: Crenshaw LAX

The reduction in emissions related to construction activity for CLAX was equivalent to removing over 15,000 cars from the road
Transition Non-Revenue Fleet to Battery Electric Vehicles (EV):
- 10 all-electric Chevy Bolts (2017)
- 20 more Chevy Bolts (2018-19)

EV charging stations

Bus Electrification Program
- 100% conversion goal by 2030
- 95 buses initially purchased

By 2019, over 15% of Metro’s non-revenue sedan fleet will be BEVs
Challenges Considered

- Workforce Development
- Potential Increased Costs
- Availability of ‘eco-friendly’ materials
- Lack of available suppliers
- Technology
- Increase procurement cycle time
Work Plan

PHASE 1 | PROGRAM DEVELOPMENT

• Baseline Assessment of purchasing and procurement processes
  o Assess current Policies, Specifications, Committees, and Programs.
  o Analyze product categories and develop work flow processes
  o Conduct Interviews with Vendor/Contract Management

• Development of Green Procurement Policy and Framework:
  o Agency-wide Policy
  o Green Procurement Framework (structure)
  o Apply industry standards

PHASE 2 | IMPLEMENTATION (Post Board Approval of Policy)
Develop and implement agency-wide initiatives for product category specific purchasing and vendor services contracts.
Framework and Project Outcomes

Phase 1: Framework includes ALL Areas
Phase 2: * Indicates areas to be implemented in Phase 2
# Schedule of Activities

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<thead>
<tr>
<th>Target Date</th>
<th>Milestone</th>
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</thead>
<tbody>
<tr>
<td>10/15/18</td>
<td>Phase 1 Project Kick-Off Meeting</td>
</tr>
<tr>
<td>11/9/18</td>
<td><strong>Sustainability Council Meeting introduction to Green Procurement</strong></td>
</tr>
<tr>
<td>12/14/18</td>
<td>Complete Baseline Assessment and develop draft policy</td>
</tr>
<tr>
<td>1/11/19</td>
<td><strong>Present Draft Policy to Sustainability Council</strong></td>
</tr>
<tr>
<td>3/8/19</td>
<td>Consensus Comments received from the Sustainability Council</td>
</tr>
<tr>
<td>4/12/19</td>
<td><strong>Final Policy and Framework to Sustainability Council</strong></td>
</tr>
<tr>
<td>4/18/19</td>
<td>Submit documents to the Metro Board</td>
</tr>
<tr>
<td>June 2019</td>
<td>Board Approves Green Procurement Policy</td>
</tr>
<tr>
<td>Beyond</td>
<td><em>(Pending Board Approval)</em> Phase 2 Kickoff: Implementation, Roll-Out</td>
</tr>
</tbody>
</table>

*Schedule, and Training Program.*
Green Procurement at Other Agencies

Bay Area Rapid Transit

King County Metro
• Established sustainable procurement priorities
• Provides sustainable purchasing training and tools for staff

Sound Transit (Seattle WA)
• (Jan 2016) Established sustainability priority to ensure percent of new procurements include green methods and features.
• (2017) Reported 93% of agency procurements assessed for green methods and features. 33% of new procurements included green methods and features.
Toronto Transit Commission

- Green Procurement Policy approved July 2008 followed by training and tools for staff
- Established 11 TTC-wide environmental standards and Total Cost of Ownership analysis
- Collaborative innovation projects with key vendors

Port Authority of New York & New Jersey

- Board-Approved Sustainability Policy janitorial services
  - Over $100M worth of contracts
  - Bi-State Executive Orders
- Implemented outreach program Vendors/Small Businesses; Surveys, Roundtables, Workshops
FEEDBACK AND COMMENTS

• Solicit Sustainability Council feedback and comments
• Questions and Clarification
Framework Update

- Originally released in 2015
- Outlines 20 technical and 41 operational resiliency indicators
  - Technical indicators vetted and applied using case studies
  - Operational indicators not yet tested or applied in case studies
- 2018 update includes:
  - Review and updates to the operational indicators
  - Development of a weighting system for indicators in order to develop overall Operational Resiliency score
Framework Process

1. Dimension
   - Technical
   - Organizational

2. Principle
   - Robustness
   - Redundancy
   - Safe to Fail
   - Change Readiness
   - Networks
   - Leadership & Culture

3. Indicators
   - 20 Technical
   - 41 Organizational

4. Measurement Scale
   - Level of Resilience:
     - 4 (Very High)
     - 3 (High)
     - 2 (Moderate)
     - 1 (Low)

5. Score
   - Individual scores are aggregated by principle and dimension.
   - Technical: Each indicator is scored and weighted
   - Organizational: Each indicator is scored
## Organizational Resilience

### Change Readiness

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Measurement Scale</th>
<th>Lead Department/Source of Information</th>
<th>Score</th>
<th>Assessment Notes/Score Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-1 Warnings - General Public</td>
<td>4 - Information is continuously updated live across all communication channels 3 - Information is updated across all communication channels within 1 hr of an event 2 - Information is updated across all communication channels when feasible 1 - Information updated through limited communication channels</td>
<td>Communications, Bus Operations Control (BOC), Rail Operations Control (ROC), Transit Police</td>
<td></td>
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</tr>
<tr>
<td>C-2 Communication Systems - Staff</td>
<td>4 - Systems exist and have back up and have been tested with staff annually 3 - Systems exist and have back up, but are not tested with staff annually 2 - Some gaps in system, not tested 1 - Large gaps in system</td>
<td>Labor/Employ Employee Relations, BOC, ROC, SCADA, Wayside Systems, Transit Police</td>
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</tr>
<tr>
<td>C-3 External - Public Awareness</td>
<td>4 - Systematic, structured campaign exists 3 - Some structure, not systematic 2 - Infrequent ad hoc campaign 1 - No campaign</td>
<td>Communications, Marketing</td>
<td></td>
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</tr>
<tr>
<td>C-4 Sensors</td>
<td>4 - Documented methodology and established information platform 3 - Partial documentation and platform development 2 - Not documented but some knowledge of potential process 1 - No knowledge of or development of methodology or platform</td>
<td>Information Technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C-5 Current Weather Data</td>
<td>4 - Monitoring systems exist across entire network 3 - Monitoring systems exist across part of network 2 - Large gaps in monitoring systems 1 - No monitoring system</td>
<td>Information Technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C-6 Backup</td>
<td>4 - Back-ups taking place 3 - Documented procedure, occasional back-up 2 - Documented procedure, no back-up 1 - No documented procedure</td>
<td>Information Technology, Records Management, Document Control</td>
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</tr>
</tbody>
</table>
## Example Case Study Result

<table>
<thead>
<tr>
<th>Case Study</th>
<th>Evaluation Summary</th>
<th>Resiliency Score</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wardlow Station, Blue Line</strong></td>
<td>Wardlow Station on the Blue Line received an overall resiliency score of 5.3.\n\nThe asset scored high in the following indicators: compliance with current codes, defined alternate route/mode choices and rerouting plans, and availability of back up parts and equipment.\n\nThe asset scored low in the following indicators: develop overheating standards, understand extreme weather repair costs, engage utility suppliers to improve procedures, and provide capacity levels during alternate route/mode events.\n\nGiven that safe to fail is a relatively new approach, this was not considered for the design and construction of Wardlow Station.</td>
<td><strong>Resiliency Score = 5.3</strong></td>
<td>Robustness = 4.6\nRedundancy = 6.9\nSafe to fail = 2.5</td>
</tr>
</tbody>
</table>

**Legend:**

- Purple: Robustness Score: 4 (Most resilient)
- Orange: Redundancy Score: 3
- Green: Score: 2
- Blue: Safe-to-fail Score: 1 (Least resilient)
- Gray: NA/Incomplete
Staff Engagement – Growing a Greener Workforce

• Workshop September 27, 2018
• In-depth discussion that validated initial analysis
• Participants included:
  • Risk/Safety and Asset Management
  • Communications
  • Planning
  • Program Management
  • Procurement & Supply Chain Management
  • Operations
Lessons Learned So Far

• 41 Operational Indicators are too many, so we’ve narrowed them down to 34.

• The Change Readiness Principle had a disproportionate number of indicators, so we expanded the # of principles from 3 to 5.

• Information access and sharing is important and should be captured broadly in the indicators.
  • Expanded 2015 Indicator C-5 to include other data besides weather (See 2018 Indicator I-5)

• Indicators need to have a clear distinction between those capturing planning for incidents versus those capturing longer-term planning.
Lessons Learned So Far (cont’d)

• The Leadership & Culture Principle indicators should more clearly reflect:
  • Whether leadership overtly expresses resiliency as a priority
  • Whether the agency culture encourages staff engagement throughout all aspects of resiliency

• Additional language needed to convey the context of some indicators, such as clarifying they cover climate change resiliency
Best Practices Learned through Expert Engagement

City of Los Angeles Chief Resilience Officer

- Form partnerships
  - involve people from different backgrounds
  - integrate adaptation and emergency management
  - pass resilience mindset to communities
- Focus on actionable items
  - invest in critical infrastructure
- Connect it back to people
  - call out specific shocks and stressors rather than just operational metrics
  - explain why resilience matters
Best Practices Learned through Expert Engagement (cont’d)

USGBC Resilience-LA Initiative

• Stakeholder engagement
  • incorporate knowledge from workers at all levels
  • relate resilience to the specific situation/department
  • form external partnerships

• Interdisciplinary framework
  • don’t just focus on the technical/physical aspects of indicators, create a system that allows one to prep for and learn from disasters

• Multi-hazard risk assessment
  • consider all aspects of resilience (seismic, IT, etc.)
## Organizational Indicators: 2015 vs. 2018

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<th>Indicator</th>
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<td>Change Readiness</td>
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<td>C-1. Warnings – General Public</td>
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<td>C-2. Communication Systems - Staff</td>
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<td>C-3. External - Public Awareness</td>
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<td></td>
<td>Information and Technology</td>
<td>C-4. Sensors</td>
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<td></td>
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<td>C-5. Current Weather Data</td>
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<td>C-6. Backup</td>
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<td></td>
<td>Insurance</td>
<td>C-7. Coverage</td>
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<td>C-8. Information</td>
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<td></td>
<td>Internal Resources</td>
<td>C-9. Roles &amp; Responsibilities – Key People Identified</td>
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<td>C-10. Roles &amp; Responsibilities – Succession Planning</td>
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<td>C-11. Internal Coordination – Event Response</td>
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<td>C-12. Remote Response Ability</td>
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<td>C-13. Staffing Response Roles</td>
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<td>C-14. Sufficient Staffing</td>
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<tr>
<td>Planning Strategies</td>
<td>Planning Strategies</td>
<td>C-15. Risk Assessment and Scenario Planning</td>
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<td>C-17. Tracking Climate-Related Injuries</td>
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<td>C-18. Joint Planning</td>
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<td>C-19. Priority Routes/Structures to Manage First</td>
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<td>C-20. Lessons Learned and Thinking Ahead</td>
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<td>Drills and Response Exercises</td>
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<td>C-21. Training/Drills - Curriculum</td>
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<td>C-23. Training/Drills - Completed</td>
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<td>C-25. Capital Availability</td>
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<td>C-28. Contingency Funding</td>
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<td>C-29. Modeling</td>
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<tr>
<td>Networks</td>
<td>Breaking Siloes</td>
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<td>N-2. Information Sharing - Internal</td>
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<td>Effective Partnerships</td>
<td>Effective Partnerships (external)</td>
<td>N-3. Interagency Compatibility</td>
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<td>N-4. Business Continuity/Awareness</td>
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<td>N-5. Information Sharing - External</td>
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<td>N-6. Interagency Compatibility and Cooperation</td>
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<td>L-1. Roles and Responsibilities</td>
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<td>L-2. Staff Engagement</td>
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<td>L-3. Leveraging Knowledge</td>
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<tr>
<td>Decision Making Authority</td>
<td>Decision Making Authority</td>
<td>L-4. Crisis Decision Making</td>
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<td>L-5. Advance Agreements</td>
</tr>
<tr>
<td>Innovation and Creativity</td>
<td>Innovation and Creativity</td>
<td>L-6. Approach to Projects</td>
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</table>

### 2018

<table>
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<tr>
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<tbody>
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<td>I-4. Sensors</td>
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<td>I-5. Data - Access to, and Maintenance of, Key Data Sets, Including Weather Data, GIS Data, Asset Mgt Databases, Access to other Relevant External Databases</td>
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<tr>
<td></td>
<td>I-6. Information Security and Contingency Planning</td>
</tr>
<tr>
<td>Planning and Preparing for Incidents</td>
<td>P-1. Risk Assessment and Scenario Planning</td>
</tr>
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<td>P-2. Tracking Climate-Related Injuries &amp; Other Incidents</td>
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<td></td>
<td>L-7. Approach to Projects &amp; Integration with Resilience</td>
</tr>
</tbody>
</table>
Indicator Weighting

• The same weighting system will be used for the organizational dimension as was used for the technical dimension.

• Each indicator will receive a score 1-4 based on whether or not they met the following Metro priorities:
  • Safety
  • Service reliability
  • Fiscal responsibilities
  • Other priorities (sustainability, etc.)
## Project Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Late Aug. 2018</td>
<td>Project start up &amp; initial analysis</td>
</tr>
<tr>
<td>Sept. 2018</td>
<td>Metro staff workshop</td>
</tr>
<tr>
<td>Oct. 2018</td>
<td>Revising indicators and weighting</td>
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<tr>
<td></td>
<td>Expert consultation</td>
</tr>
<tr>
<td></td>
<td>• City of Los Angeles Chief Resilience Officer</td>
</tr>
<tr>
<td></td>
<td>• USGBC Resilience-LA Initiative</td>
</tr>
<tr>
<td>Nov. 2018</td>
<td><strong>Seek Sustainability Council preliminary feedback</strong></td>
</tr>
<tr>
<td></td>
<td>Organizational case study development</td>
</tr>
<tr>
<td>Feb. 2019</td>
<td>Draft Report</td>
</tr>
<tr>
<td>May 2019</td>
<td><strong>Seek Sustainability Council review of report</strong></td>
</tr>
</tbody>
</table>
Discussion

• Do the revised principles reflect the nature of the underlying indicators?
• Do the revised indicators (slide 9) still capture relevant components of resiliency?
SCOPE OF WORK
Resiliency Indicator Framework Update

Project Introduction and Description
As part of the Los Angeles County Metropolitan Transportation Authority’s (Metro’s) Climate Change Program, the Environmental Compliance & Sustainability Department (ECSD) will provide an update to the Board of Directors on how the agency has introduced the concept of resiliency to climate change within the agency’s activities and how this work fits into the overall resiliency strategy agency-wide.

Scope of Work

Kick-Off Meeting
ICF will attend a kick-off meeting with Metro staff. The purpose of the kick-off meeting is to obtain existing information and relevant documentation/technical reports from Metro, outline project expectations, verify project assumptions, reaffirm roles and responsibilities, and confirm the project schedule. Prior to the meeting, ICF will prepare a data needs list and a draft schedule that tentatively identifies milestones, workshop and meeting dates, draft and final deliverable dates and review periods, and completion dates.

Framework Tool Review and Refinement
ICF will review and assess the current tool. Additionally, ICF will review the organizational dimension’s 41 criteria with Metro staff to verify and modify each criterion’s language, measurement scale, and lead department/source of information.

Indicator Weighting
ICF will review the organizational dimension’s 41 criteria with Metro staff to review how each criterion should be weighted, which may be best achieved against Metro’s core values most relevant to resiliency: safety, service, reliability, and fiscal responsibility. However, alternative weighting methods may be accepted, and the proposed approach will be documented in a memo to Metro staff. Once the weighting system has been agreed upon, ICF will work with Metro staff and determine the appropriate weight for each criterion. The tool will be modified to incorporate the weighting.

Case Study Assessment
Once the tool has been modified per tasks 2 and 3, ICF will lead a workshop with Metro staff to conduct a scenario test of the tool and evaluate Metro’s organizational resiliency in the context of a particular scenario. The case study will be documented with meeting minutes, and a case study will be developed to be incorporated into the Resiliency Indicator’s Case Study section of the report, which will include the tool’s graphical representation of the scenario and a high-level narrative of the workshop and outcomes. The draft case study will be circulated amongst all participants prior to finalization.

Report Revision
ICF will review the Resiliency Indicator Framework report and provide an update to the text in relation to agency, local, state, and federal context, which may include, but is not limited to: AB 2800, Metro’s Strategic Plan, Metro’s 28 by 2028 goal, Measure M, the Climate Action and Adaptation Plan Update, Metro’s evolving design criteria and technical requirements, and the City of Los Angeles’ Resiliency Strategy and Sustainability pLAN. In addition, ICF will provide an update to the Next Steps chapter of the report, and at minimum, provide an update on where the agency is with each of the next step items.
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</tr>
<tr>
<td></td>
<td>L-6. Advance Agreements</td>
</tr>
<tr>
<td></td>
<td>L-7. Approach to Projects &amp; Integration with Resilience</td>
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</table>
Metro is engaged and incorporating a significant number of best practices in resiliency across the transportation industry some of which come from these research projects.

While the current work on resiliency framework is still in its formative stages, our sustainability and resiliency management has taken these ideas to ensuring that we are on the cutting edge of practice in the transportation industry.

**Resilience and Sustainability Thought Leadership**


FHWA (sub to Cadmus): **Advancing Transportation Agency Capabilities on Incorporating Resilience and Durability in Programs and Practices**. Case studies, pilots and technical support through 2021.


NCHRP 08-100: **Environmental Justice Analyses When Considering Toll Implementation or Rate Changes**. Process framework, tools, case studies and resources to thoroughly address the issues. 2018. [http://www.trb.org/NCHRP/Blurbs/177062.aspx](http://www.trb.org/NCHRP/Blurbs/177062.aspx)


CAAP Update in for 2019

- Successes/lessons learned
- 2017 baseline inventory
- 2030 and 2050 forecasts
- GHG reduction strategies
- Vulnerability & criticality assessment
- Adaptation strategies
- Resiliency assessment and building
## Project Schedule

<table>
<thead>
<tr>
<th>Month</th>
<th>GHG Inventory &amp; Forecast</th>
<th>GHG Reduction Measures</th>
<th>Adaptation</th>
<th>Final CAAP</th>
</tr>
</thead>
</table>
| Nov   | (-) Complete *draft* inventory and forecast estimates | (-) Complete *draft* measure list  
(-) Continue internal stakeholder interviews  
(-) Hold Sustainability Council Pre-Workshop | (-) Complete *draft* vulnerability and criticality assessment |  |
| Dec   | (-) Complete *final* inventory and forecast estimates | (-) Hold Sustainability Council Workshop  
(-) Complete *final* candidate measures list | (-) Complete *final* draft vulnerability and criticality assessment |  |
| Jan   |  | (-) Complete *draft* measure analysis | (-) Present *draft* to Sustainability Council |  |
| Feb   |  | (-) Complete *final* measure analysis | (-) Hold Sustainability Council workshop |  |
| Mar   |  |  | (-) Present *draft part 1* to Sustainability Council |  |
| Apr   |  |  | (-) Present *draft part 2* to Sustainability Council |  |
| May   |  |  | (-) Present *final* to Sustainability Council |  |
2017 GHG Emissions Inventory

Total Emissions: 390,251
Total Displacement: -431,009
NET EMISSIONS: -40,758 (MT CO₂e)

By Mode
- Heavy Rail – 4%
- Light Rail – 9%
- Metro Operated Bus Fleet – 65%
- Contracted Bus Fleet – 4%
- Vanpool – 4%
- Non-Modal Emissions – 14%

By Source
- Vehicle Fuel – 75%
- Rail Electricity – 13%
- Building Energy and Stationary Sources – 9%
- Other – 3%

Non-modal emissions include building energy use, water, refrigerants, and fuels for support vehicles.
### GHG Mitigation Measure Categories

<table>
<thead>
<tr>
<th>Mitigation Category</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Energy Supply**   | Expand use of renewable energy for vehicles and facilities  
Maximize participation in CPA |
| **Vehicles**        | Convert revenue fleets to ZEVs  
Convert non-revenue fleets to ZEVs |
| **Buildings & Facilities** | Adopt zero energy building guidelines  
Retrofit existing facilities |
| **Other Resources Areas** | Expand employee commuting program  
Purchase carbon offsets |
Discussion Topics for December Workshop

• How should measures be prioritized? Long term vs. short term?
• What are some implementation risks?
• Where are synergies & opportunities for partnerships?
• Are there measures or strategies not addressed?
Thank you!

Questions?
<table>
<thead>
<tr>
<th>Meeting Date</th>
<th>Status</th>
<th>Council Member</th>
<th>Comment</th>
<th>Metro Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-Oct-18</td>
<td>Closed</td>
<td>Joel Levin</td>
<td>Incorporation of LA Metro EV Implementation Plan on Meetings ARC</td>
<td>DONE: Has been added to the ARC for the 12/14/18 meeting.</td>
</tr>
<tr>
<td>12-Oct-18</td>
<td>Open</td>
<td>Belinda Faustinos</td>
<td>Update on the RAMP/RCIS plan</td>
<td>Working to schedule an update on the plan's implementation on the ARC</td>
</tr>
<tr>
<td>12-Oct-18</td>
<td>Open</td>
<td>Michael Samulon</td>
<td>Encourages Metro to include an annual benchmarking against the updated path to reach numbers on the CAAP</td>
<td>Currently under consideration.</td>
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<tr>
<td>12-Oct-18</td>
<td>Open</td>
<td>Hilda Blanco</td>
<td>Thoughts on publishing the CAAP</td>
<td>Once CAAP is approved, it will be posted on Metro's website.</td>
</tr>
<tr>
<td>12-Oct-18</td>
<td>Open</td>
<td>Caryn Mandelbaum</td>
<td>Request of a timeframe on Motion 57 updates</td>
<td>Motion 57 Progress Update is scheduled for the 3/8/19 meeting. We will provide monthly informal updates.</td>
</tr>
<tr>
<td>12-Oct-18</td>
<td>Closed</td>
<td>Michael Samulon</td>
<td>Request to provide an LRTP Toolkit</td>
<td>DONE: Was sent to council members on 10/24/18.</td>
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<tr>
<td>12-Oct-18</td>
<td>Closed</td>
<td>Bruce Reznik</td>
<td>Request to provide Paul Backstrom's notes on LRTP Update</td>
<td>DONE: Notes attached to the Meeting Minutes for 10/12/18.</td>
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<tr>
<td>21-Sep-18</td>
<td>Closed</td>
<td>Bryn Lindblad</td>
<td>Request of a Meetings ARC</td>
<td>DONE: Provided Meetings Arc at the 10/12/18 meeting.</td>
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# SUSTAINABILITY COUNCIL MEMBERSHIP LIST

**YEAR:** 2018-19

<table>
<thead>
<tr>
<th>Department</th>
<th>Email</th>
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</thead>
<tbody>
<tr>
<td>Metro Exec Staff</td>
<td></td>
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</table>
| 3 | Stephanie Wiggins  
CEO  
WIGGINS@metro.net |
| Rick Clarke  
Construction  
ClarkeR@metro.net |
| Bryan Pennington  
Construction  
PenningtonB@metro.net |
| Aaron Santos  
CEO  
SantosAa@metro.net |
| Cris Liban  
ECSD  
Liban@metro.net |
| Paul Backstrom  
Planning  
backstrom@metro.net |
| Dilara El-Assaad  
ECSD  
rodriguezd@metro.net |
| Carolina Coppola  
Vendor/CM  
CoppolaC@metro.net |
| Debra Avila  
Vendor/CM  
AvilaD@metro.net |

## Main Category

<table>
<thead>
<tr>
<th>No. Seats</th>
<th>Sub-Category</th>
<th>Classification</th>
<th>Member First Name</th>
<th>Member Last Name</th>
<th>Member Organization</th>
<th>Member Email</th>
<th>Member Phone</th>
<th>Notes</th>
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</thead>
</table>
| 3 | Local Gov't Public entities (COGs, cities, special jurisdictions) | Primary | Lauren  
City of LA  
lauen.faber@lacity.org |
| | Alternate | Michael  
City of LA  
michael.samulon@lacity.org |
| | Alternate | Kristen  
County of LA  
kpmaling@ceo.lacounty.gov |
| | Primary | Thomas  
Small Cities  
Thomas.small@culvercity.org  
310-922-7286 |
| | Alternate | VACANT  |
| | Primary | Caryn  
Mandelbaum  
caryn@ldcfoundation.org  
310-927-4914 |
| | Alternate | Roy  
GHD  
roy.thun@ghd.com  
805-501-3996 |
| | Primary | Bruce  
LA Waterkeeper  
bruce@lawaterkeeper.org  
619-851-9997 |
| | Alternate | Steven  
Heal the Bay  
json@healthebay.org  
310-227-7963 |
| | Alternate | Michale  
LACI  
mike@Lacubator.org  
310-709-3543 |
| 7 | Environmental NGOs | Primary | Belinda  
Nature For All  
belinda@kangabrielmountain.org  
626-614-4990 |
| | Alternate | VACANT  |
| | Primary | Cindy  
Tree People  
cmontanez@treepeople.org |
| | Alternate | Peter  
Climate Resolve  
blindblad@climatereolve.org  
310-227-2064 |
| | Primary | Peter  
CEENGH  
pmeng@ceengh.com |
| | Alternate | VACANT  |
| | Primary | VACANT  |
| | Alternate | VACANT  |
| 1 | NGO Equity | Primary | Ghina  
Alta Environmental  
ghina.yamout@altaenvironment.com  
855-980-2070 |
| | Alternate | Joe  
IC Engineering  
joblay@icengineering.com  
909-967-0236 |
| | Primary | Patricia  
Kleinfield  
pmenjivar@kleinfeld.com  
(213) 610-0817 |
| | Alternate | Kimberly  
Colbert Group  
kimberly@colbertgroup.com |
| | Primary | Doug  
Burns and McDonnell  
ddietrich@burnsmcd.com  
913-325-3632 |
| | Alternate | Charles  
CBF XERESCAPE  
cfavors@yahoo.com  
323-570-6267 |
| 1 | Local Labor Unions | Primary | Carolyn  
LA County Economic Dev  
carolyn.hull@laedc.org |
| | Alternate | Jack  
Jack Sahl & Associates  
jack@sahll.com |
| | Primary | Mike  
City of Pasadena  
mahager@cityofpasadena.net  
626-744-7208 |
| | Primary | Berwyn  
Global ASR  
berwyn@globalsar.com |
| | Alternate | James  
SBC Global  
jokazaki@sbcglobal.net |
| | Alternate | Emily  
WSP  
emily.freund@wsp.com |
| | Alternate | Mark  
Kempton Strategies  
mrk@kemptonstrategies.com  
908-431-7789 |

## Other (Small Cities, etc.)

| Primary | Small Cities  
Thomas.small@culvercity.org  
310-922-7286 |
| Alternate | VACANT  |

## Professional Associations (Architects and Engineers)

| Primary | Ghina  
Yamout  
Alta Environmental  
ghina.yamout@altaenvironment.com  
855-980-2070 |
| Alternate | Joe  
IC Engineering  
joblay@icengineering.com  
909-967-0236 |
| Primary | Patricia  
Kleinfield  
pmenjivar@kleinfeld.com  
(213) 610-0817 |
| Alternate | Kimberly  
Colbert Group  
kimberly@colbertgroup.com |

## Landscaping and Infrastructure Design

| Primary | Doug  
Burns and McDonnell  
ddietrich@burnsmcd.com  
913-325-3632 |
| Alternate | Charles  
CBF XERESCAPE  
cfavors@yahoo.com  
323-570-6267 |

## Public Health

| Primary | Jack  
Jack Sahl & Associates  
jack@sahll.com |

## Technical Advisory Committee (TAC)

| Primary | Mike  
City of Pasadena  
mahager@cityofpasadena.net  
626-744-7208 |
| Alternate | Mark  
mhunter@santa-citarta.com  
961-628-1460 |
| Primary | Berwyn  
Global ASR  
berwyn@globalsar.com |
| Alternate | James  
SBC Global  
jokazaki@sbcglobal.net |
| Alternate | Emily  
WSP  
emily.freund@wsp.com |
| Alternate | Mark  
Kempton Strategies  
mrk@kemptonstrategies.com  
908-431-7789 |
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<td>Pavitra Ram Mohan</td>
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<td>Real Estate Development Community</td>
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<td>Primary</td>
<td>Anthony Brower</td>
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<td>Alternate</td>
<td>Will Wright</td>
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<td>Academic Institution</td>
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<td>Primary</td>
<td>Hilda Blanco</td>
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<td>Alternate</td>
<td>Mehran Mazari</td>
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<tr>
<td>Primary</td>
<td>Stephen Cheung</td>
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<tr>
<td>Alternate</td>
<td>Aki Luukkainen</td>
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<td>Future Memberships Voted by SAC</td>
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