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REMOTE PARTICIPATION ONLY

EMERGING TECHNOLOGIES COMMITTEE

Thursday, February 23, 2023
10:00 a.m. - 12:00 p.m.

To Participate on Your Computer:
https://scag.zoom.us/j/941139378

To Participate by Phone:
Call-in Number: 1-669-900-6833
Meeting ID: 941 139 378

Please see next page for detailed instructions on how to participate in the meeting.

PUBLIC ADVISORY

Given the declared state of emergency (pursuant to State of Emergency Proclamation dated March 4, 2020) and local public health directives imposing and recommending social distancing measures due to the threat of COVID-19, and pursuant to Government Code Section 54953(e)(1)(A), the meeting will be held telephonically and electronically.

If members of the public wish to review the attachments or have any questions on any of the agenda items, please contact Maggie Aguilar at (213) 630-1420 or via email at aguilarm@scag.ca.gov. Agendas & Minutes are also available at: www.scag.ca.gov/committees.

SCAG, in accordance with the Americans with Disabilities Act (ADA), will accommodate persons who require a modification of accommodation in order to participate in this meeting. SCAG is also committed to helping people with limited proficiency in the English language access the agency's essential public information and services. You can request such assistance by calling (213) 630-1420. We request at least 72 hours (three days) notice to provide reasonable accommodations and will make every effort to arrange for assistance as soon as possible.

Instructions for Public Comments

You may submit public comments in two (2) ways:

1. **<u>In Writing</u>: Submit written comments via email to:** ePublicComment@scag.ca.gov **by 5pm on Wednesday, February 22, 2023.** You are **not** required to submit public comments in writing or in advance of the meeting; this option is offered as a convenience should you desire not to provide comments in real time as described below.

   All written comments received after 5pm on Wednesday, February 22, 2023 will be announced and included as part of the official record of the meeting.

2. **<u>In Real Time</u>:** If participating in real time via Zoom or phone, during the Public Comment Period (Matters Not on the Agenda) or at the time the item on the agenda for which you wish to speak is called, use the "raise hand" function on your computer or *9 by phone and wait for SCAG staff to announce your name/phone number. SCAG staff will unmute your line when it is your turn to speak. Limit oral comments to 3 minutes, or as otherwise directed by the presiding officer. For purpose of providing public comment for items listed on the Consent Calendar, please indicate that you wish to speak when the Consent Calendar is called; items listed on the Consent Calendar will be acted on with one motion and there will be no separate discussion of these items unless a member of the legislative body so requests, in which event, the item will be considered separately.

   If unable to connect by Zoom or phone and you wish to make a comment, you may submit written comments via email to: ePublicComment@scag.ca.gov.

In accordance with SCAG's Regional Council Policy, Article VI, Section H and California Government Code Section 54957.9, if a SCAG meeting is "willfully interrupted" and the "orderly conduct of the meeting" becomes unfeasible, the presiding officer or the Chair of the legislative body may order the removal of the individuals who are disrupting the meeting.

Instructions for Participating in the Meeting

SCAG is providing multiple options to view or participate in the meeting:

To Participate and Provide Verbal Comments on Your Computer

1. Click the following link: https://scag.zoom.us/j/941139378
2. If Zoom is not already installed on your computer, click "Download & Run Zoom" on the launch page and press "Run" when prompted by your browser. If Zoom has previously been installed on your computer, please allow a few moments for the application to launch automatically.
3. Select "Join Audio via Computer."
4. The virtual conference room will open. If you receive a message reading, "Please wait for the host to start this meeting," simply remain in the room until the meeting begins.
5. During the Public Comment Period, use the "raise hand" function located in the participants' window and wait for SCAG staff to announce your name. SCAG staff will unmute your line when it is your turn to speak. Limit oral comments to 3 minutes, or as otherwise directed by the presiding officer.

To Listen and Provide Verbal Comments by Phone

1. Call **(669) 900-6833** to access the conference room. Given high call volumes recently experienced by Zoom, please continue dialing until you connect successfully.
2. Enter the **Meeting ID: 941 139 378**, followed by **#**.
3. Indicate that you are a participant by pressing **#** to continue.
4. You will hear audio of the meeting in progress. Remain on the line if the meeting has not yet started.
5. During the Public Comment Period, press *9 to add yourself to the queue and wait for SCAG staff to announce your name/phone number. SCAG staff will unmute your line when it is your turn to speak. Limit oral comments to 3 minutes, or as otherwise directed by the presiding officer.

ETC - Emerging Technologies Committee
Members – February 2023

1. **Sup. Curt Hagman**
   Chair, San Bernardino County

2. **Hon. Drew Boyles**
   El Segundo, RC District 40

3. **Ms. Leslie Lindahl**
   Government Relations, Ex-Officio Non-Voting Member

4. **Hon. Margaret Clark**
   Rosemead, RC District 32

5. **Hon. Keith Eich**
   La Cañada Flintridge, RC District 36

6. **Hon. Margaret Finlay**
   Duarte, RC District 35

7. **Hon. Jan C. Harnik**
   RCTC Representative

8. **Hon. Dan Kalmick**
   Huntington Beach, OCCOG

9. **Hon. Steve Manos**
   Lake Elsinore, RC District 63

10. **Mr. Paul Marquez**
    Caltrans District 7, Ex-Officio Non-Voting Member

11. **Hon. Carol Moore**
    Laguna Woods, OCCOG

12. **Hon. Frank Navarro**
    Colton, RC District 6

13. **Ms. Pam O'Connor**
    CA Road Charge TAC, Ex-Officio Non-Voting Member

14. **Sup. Luis Plancarte**
    Imperial County

15. **Hon. Deborah Robertson**
    Rialto, RC District 8

16. **Hon. Alan Wapner**
    SBCTA Representative

17. **Hon. Acquanetta Warren**
    Fontana, SBCTA

18. **Hon. Edward Wilson**
    Signal Hill, GCCOG

19. **Hon. Frank Zerunyan**
    Rolling Hills Estates, SBCCOG

EMERGING TECHNOLOGIES COMMITTEE AGENDA

Southern California Association of Governments
Remote Participation Only
Thursday, February 23, 2023
10:00 AM

The Emerging Technologies Committee may consider and act upon any of the items listed on the agenda regardless of whether they are listed as information or action items.

CALL TO ORDER AND PLEDGE OF ALLEGIANCE
(The Honorable Curt Hagman, Chair)

PUBLIC COMMENT PERIOD (Matters Not on the Agenda)
This is the time for persons to comment on any matter pertinent to SCAG's jurisdiction that is ***not*** listed on the agenda. Although the committee may briefly respond to statements or questions, under state law, matters presented under this item cannot be discussed or acted upon at this time. Public comment for items listed on the agenda will be taken separately as further described below.

General information for all public comments: Members of the public are encouraged, but not required, to submit written comments by sending an email to: ePublicComment@scag.ca.gov by 5pm on Wednesday, February 22, 2023. Such comments will be transmitted to members of the legislative body and posted on SCAG's website prior to the meeting. Any writings or documents provided to a majority of the Emerging Technologies Committee regarding any item on this agenda (other than writings legally exempt from public disclosure) are available at the Office of the Clerk, located at 900 Wilshire Blvd., Suite 1700, Los Angeles, CA 90017 during normal business hours and/or by contacting the office by phone, (213) 630-1420, or email to aguilarm@scag.ca.gov. Written comments received after 5pm on Wednesday, February 22, 2023, will be announced and included as part of the official record of the meeting. Members of the public wishing to verbally address the Emerging Technologies Committee in real time during the meeting will be allowed up to a total of 3 minutes to speak on items on the agenda, with the presiding officer retaining discretion to adjust time limits as necessary to ensure efficient and orderly conduct of the meeting. The presiding officer has the discretion to equally reduce the time limit of all speakers based upon the number of comments received. If you desire to speak on an item listed on the agenda, please wait for the chair to call the item and then indicate your interest in offering public comment by either using the "raise hand" function on your computer or pressing *9 on your telephone. For purpose of providing public comment for items listed on the Consent Calendar (if there is a Consent Calendar), please indicate that you wish to speak when the Consent Calendar is called; items listed on the Consent Calendar will be acted upon with one motion and there will be no separate discussion of these items unless a member of the legislative body so requests, in which event, the item will be considered separately.

REVIEW AND PRIORITIZE AGENDA ITEMS

CONSENT CALENDAR

Approval Items

1. Minutes of the Meeting – October 27, 2022 PPG. 7

Receive and File

2. ETC 2023 Calendar of Meetings PPG. 12

3. Emerging Technologies Guiding Principles PPG. 15

ACTION ITEM

4. Clean Transportation Technology Policy 30 Mins. PPG. 22
(Alison Linder, Senior Regional Planner, SCAG)

RECOMMENDED ACITON:
Recommend that the Regional Council (RC) adopt the Clean Transportation Technology Policy Resolution.

INFORMATION ITEM

5. Connected Autonomous Vehicles and Data Privacy 90 Mins. PPG. 37
(Imara Galaz, Senior Business Development Manager, Wejo, Timothy Papandreou, Founder, Emerging Transport Advisors, Andrew Glass Hastings, Executive Director, Open Mobility Foundation)

FUTURE AGENDA ITEMS

ANNOUNCEMENTS

ADJOURNMENT

Southern California Association of Governments
Remote Participation Only
February 23, 2023

EMERGING TECHNOLOGIES COMMITTEE (ETC)
MINUTES OF THE MEETING
THURSDAY, OCTOBER 27, 2022

THE FOLLOWING MINUTES ARE A SUMMARY OF ACTIONS TAKEN BY THE EMERGING TECHNOLOGIES COMMITTEE. A DIGITAL RECORDING OF THE ACTUAL MEETING IS AVAILABLE FOR LISTENING IN SCAG'S OFFICE.

The Emerging Technologies Committee (ETC) of the Southern California Association of Governments (SCAG) held its regular meeting telephonically and electronically given public health directives limiting public gatherings due to the threat of COVID-19 and in compliance with the Governor's recent Executive Order N-29-20. A quorum was present. The meeting was called to order by Chair Hon. Curt Hagman, San Bernardino County. A quorum was present.

Members Present:

Hon.	Drew Boyles	District 40
Hon.	Margaret Clark	SGVCOG
Hon.	Keith Eich	District 36
Hon.	Margaret E. Finlay	District 35
Hon.	Curt Hagman **(Chair)**	San Bernardino County
Hon.	Dan Kalmick	Hunington Beach, OCCOG
Hon.	Leslie Lindahl	Ex-Officio Non-Voting Member
Hon.	Steve Manos	District 63
Hon.	Carol Moore	OCCOG
Hon.	Frank Navarro	District 6
Hon.	Pam O'Connor, CA Road Charge TAC	Ex-Officio Non-Voting Member
Hon.	Luis Plancarte	Imperial County
Hon.	Acquanetta Warren	City of Fontana

Members Not Present:

Hon.	Jan Harnik	RCTC
Mr.	Paul Marquez, Caltrans District 7	Ex-Officio Non-Voting Member
Hon.	Deborah Robertson	District 8
Hon.	Cheryl Viegas-Walker	District 1
Hon.	Alan Wapner	SBCTA
Hon.	Edward H.J. Wilson	GCCOG

Hon. Frank Zerunyan SBCCOG

CALL TO ORDER & PLEDGE OF ALLEGIANCE

The Honorable Curt Hagman called the meeting to order at 10:00 a.m. and led the Pledge of Allegiance.

PUBLIC COMMENT PERIOD

There were no public comments.

REVIEW AND PRIORITIZE AGENDA ITEMS

There was no prioritization of agenda items.

CONSENT CALENDAR

Approval Items

1. Minutes of ETC Meeting – August 25, 2022

A MOTION was made (Navarro) to approve the Consent Calendar. The motion was SECONDED (Finlay) and passed by the following votes:

AYES: Boyles, Eich, Finlay, Hagman, D. Kalmick, Manos, Moore, Navarro, Plancarte, Warren (10)

NOES: None (0)

ABSTAIN: None (0)

INFORMATION/DISCUSSION ITEMS

2. Emerging Technologies Committee Agenda Outlook

There were no public comments on this item.

Tom Bellino, SCAG staff, provided an agenda outlook. He noted recent discussions focused on broadband and Smart Cities. Current topics include clean energy and lithium. Future agendas will look at connected/automated vehicles, data and privacy, technology, and equity. He encouraged members to provide input on future committee discussions.

Hon. Curt Hagman, San Bernardino County, suggested that the region focus its activities on how to take advantage of grant funding opportunities for emerging technologies and coalesce a regional vision and strategy.

Hon. Carol Moore, OCCOG, noted that it is important that distinctions in the different technologies are clearly communicated so that promising technologies are discerned.

3. SCAG's Draft Digital Action Plan

Roland Ok, SCAG staff, provided an update on SCAG's Draft Digital Action Plan. Mr. Ok reported in February 2021, the Region Council adopted Resolution No. 21-629-2 which pledged SCAG to assist in bridging the digital divide in underserved and unserved communities. The resolution directed staff to develop a Digital Action Plan as part of a series of actions. SCAG's Digital Action Plan will lay out steps the agency will take to provide accessibility and in turn foster an equitable, prosperous and resilient region for all residents. He noted the digital divide is defined as the growing gap between members of society who have reliable access to broadband services and/or adequate devices for connecting to the internet and those who do not. Three factors are identified as the cause: availability, affordability and literacy.

He reviewed current efforts including a permit streamlining project. Broadband goals include 1. Accessibility and Affordability: every household in the region should have access to affordable high-speed broadband service and high-quality devices, 2. Adoption: all residents should have the confidence and skills to participate in digital activities, 3. Consensus: building partnerships and reach consensus that high-quality and affordable broadband is an essential service with economic, environmental and safety benefits, 4. Planning: develop broadband technical tools and studies that provide value. Mr. Ok noted specific strategies include seeking and securing funding; coordinate and collaborate with stakeholders; build partnerships with agencies, jurisdictions and the public; advocate and assist for fair share funding; and gain data and knowledge. He reviewed guiding principles noting that proposed actions and deliverables are under development.

Hon Curt Hagman, San Bernardino County, suggested that effort is made to focus on legislative advocacy and advance specific legislation that aids broadband deployment.

Wally Siembab, South Bay Council of Governments, provided public comment stating that SBCOG had been developing a different approach to universal access through neighborhood access facilities in disadvantaged communities that consolidate all aspects including education.

4. Clean Technology Program Update and Panel Context

Tom Bellino, SCAG staff, provided an update on the Clean Technology Program. He stated that Connect SoCal 2020 includes a holistic and coordinated approach to de-carbonizing or electrifying passenger, transit and goods movement vehicles. Mr. Bellino reviewed current research, evaluation and planning to advance this goal including zero emission vehicle development which also includes medium and heavy-duty vehicles. He emphasized that staff is technology neutral mainly seeking ways to address larger goals to reduce greenhouse gas emissions.

Wally Siembab, South Bay Council of Governments, provided public comment noting that every technology has its downside that accompanies its use.

5. Lithium Extraction in the Salton Sea

Jonathan Weisgall, Vice President for Legislative and Regulatory Affairs, Berkshire Hathaway Energy, reported on lithium extraction in the Salton Sea. He noted Berkshire Hathaway is a large energy group with billions in assets that originated with geothermal energy plants. Berkshire has built 10 geothermal plants adjacent to the Salton Sea generating 345 megawatts of renewable electricity. Energy is created when geothermal brine emerges producing steam to turn turbines. The brine also contains lithium which is an essential element in batteries used for electric vehicles. He noted demonstration plants have been constructed on site and scaling to commercial level production can be achieved with minor environmental impact. The significant economic benefit to Imperial County was reviewed. Further, recent federal legislation is supportive of clean energy technology which could boost its development.

Supervisor Ryan Kelley, Imperial County, continued the presentation noting that Imperial County has hosted geothermal and lithium activities for decades. He highlighted the geothermal/lithium production plants and their history in the county. The Economic Opportunity Investment Plan for Lithium Valley was also highlighted.

Michael McKibben, Geologist, UC Riverside, continued the presentation stating lithium is an element capable of storing electrical energy and is ideal for batteries such as those used in electric vehicles. The demand for lithium has increased significantly in recent years and the US largely imports lithium from other countries. This creates a fragile supply chain, and it is beneficial to seek domestic production sources that are also environmentally sensitive. He noted the efforts adjacent to the Salton Sea and their limited environmental impacts using a near closed loop system. It is estimated that between one million and six million tons of lithium are available in the area making it one of the largest deposits in the world. Extraction efforts could produce enough lithium to manufacture 10 million electric vehicles per year. It is a significant amount which could dominate the global market for lithium. Further, the extraction process creates low environmental impacts when compared to other activities.

Wally Siembab, South Bay Council of Governments, provided public comment asking what role SCAG can play in this process. Mr. Weisgall responded that the first need is community outreach and education. A longer-term vision includes developing regional manufacturing activities that use locally extracted raw materials, for example, battery and electric vehicle manufacturing.

Hon. Dan Kalmick, Huntington Beach, OCCOG, asked about fault lines near the extraction plants and if this technology would likely advance to Berkshire's other energy production firms. Mr. Weisgall responded that plants are built to withstand a significant earthquake. Further, the technology is not likely to shift to other Berkshire production activities as the brine in the area is unique and extraction is built around its unique qualities.

Hon. Margaret Finlay, District 35, asked if extracting lithium domestically would ease our reliance on China. Mr. McKibben stated it would reduce dependence on imports, as well as extract in an environmentally responsible way compared to other global methods. He emphasized that policy development will be needed to achieve these goals.

ADJOURNMENT

There being no further business, Chair Hagman adjourned the Emerging Technologies Committee meeting at 12:00 p.m.

[MINUTES ARE UNOFFICIAL UNTIL APPROVED BY THE EMERGING TECHNOLOGY COMMITTEE]

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AGENDA ITEM 2
REPORT

Southern California Association of Governments
Remote Participation Only
February 23, 2023

To: Emerging Technologies Committee (ETC)

EXECUTIVE DIRECTOR'S APPROVAL

From: Philip Law, Department Manager
(213) 236-1841, law@scag.ca.gov

Kome Ajise

Subject: ETC 2023 Calendar of Meetings

RECOMMENDED ACTION:
Information Only – No Action Required

STRATEGIC PLAN:
This item supports the following Strategic Plan Goal 1: Produce innovative solutions that improve the quality of life for Southern Californians.

EXECUTIVE SUMMARY:
The Emerging Technologies Committee (ETC) meets regularly every two months from February to October, and is dark in December. Accordingly, staff is providing herein a schedule of ETC meeting dates for the calendar year 2023, as follows.

- ***February 23, 2023***
- ***April 27, 2023***
- ***June 29, 2023***
- ***August 31, 2023***
- ***October 26, 2023***

BACKGROUND:
Staff is providing in this report a schedule of meeting dates for the ETC for calendar year 2023. Additionally, on January 4, 2023, staff provided a progress report on the 2022-2023 EAC Strategic Work Plan to the Executive Administration Committee (EAC) and Regional Council (RC). The 2022-2023 EAC Strategic Work Plan includes outlooks for the regular Policy Committees, the ETC, the Connect SoCal Special Committees, and the Regional Council. As part of the progress report, staff worked with the Chairs and Vice-Chairs of each policy committee to review and update the regular Policy Committee, ETC, and RC outlooks to reflect work completed by each committee to-date and identify items to be scheduled for deliberation and action through the end of the fiscal year. Please refer to the attachment to this report for the ETC outlook.

FISCAL IMPACT:
None.

ATTACHMENT(S):
1. 2022-2023 EAC Strategic Work Plan - ETC Outlook

Emerging Tech Committee Agenda Outlook for FY 2023

Anticipated major actions and information items. Does not include all Receive/File and Program Updates.

Date	Connect SoCal	Local Assistance Program	Regional Update
July to Sept	✓ Broadband and Smart Cities ✓ Permit Streamlining ✓ Smart Cities ✓ Broadband and Vehicle Miles Traveled (VMT) Reduction		
Oct to Dec	✓ Clean Technology ✓ SCAG Studies - Supporting Infrastructure for Medium/Heavy Duty Vehicles, Passenger Electric Vehicle (PEV) Charging Stations ✓ Future Demand for Critical Materials for Zero Emissions Transportation ✓ Lithium and the Salton Sea ✓ Electric Vehicle Battery Supply Chain and Lithium Supply ✓ Potential for Salton Sea to Provide a Third of the World's Lithium ✓ Regional Economic Resiliency and Equitable Recovery Goals		

EAC Strategic Work Plan Committee Outlooks--January 2023 Update

Emerging Tech Committee Agenda Outlook for FY 2023

Anticipated major actions and information items. Does not include all Receive/File and Program Updates.

Date	Connect SoCal	Local Assistance Program	Regional Update
Jan to March	• Connected/Automated Vehicles (CAVs) • Smart Cities, Transportation Infrastructure and CAVs • Industry Outlook • Caltrans and State Regulation • Data and Privacy • Public Policy Interest in Collecting and Using Data • Data sharing among public and private sector agencies • Legislative Safeguards to Protect Access and Privacy • Clean Transportation Technology Policy (Action)		
April to June	• Technology and Equity • Access to New Technologies • Role of Technology in Addressing Disparity • Emerging Technology Guiding Principles for Connect SoCal (Action) • Framework for Assessment and Policy Decisions • Local Government and Transportation Agencies Emerging Technology Policy Matrix (Recap of 2020 Connect SoCal)		

AGENDA ITEM 3
REPORT

Southern California Association of Governments
Remote Participation Only
February 23, 2023

To: Emerging Technologies Committee (ETC)

EXECUTIVE DIRECTOR'S APPROVAL

From: Javier Silva, Assistant Regional Planner
(213) 630-1508, silva@scag.ca.gov

Subject: Emerging Technology Guiding Principles

RECOMMENDED ACTION:
Receive and File

STRATEGIC PLAN:
This item supports the following Strategic Plan Goal 1: Produce innovative solutions that improve the quality of life for Southern Californians. 2: Advance Southern California's policy interests and planning priorities through regional, statewide, and national engagement and advocacy.

EXECUTIVE SUMMARY:
As technology continues to rapidly progress and become woven into daily life, leaders are presented with the challenge of weighing the impacts of emerging technologies to their communities. While elected officials frequently consult their constituents on a variety of issues, in the case of emerging technologies, their constituents may be just as uninformed as their local leaders. In the absence of the ability to formulate community input and needs, an objective framework (i.e., Guiding Principles) can be used to develop a foundation to evaluate and measure the impact of new technologies before they're considered for adoption. Such Guiding Principles can help staff and local leaders to evaluate emerging technologies and make informed recommendations and decisions. As emerging technologies may result in substantial impacts at the regional scale, SCAG is in need of a framework to guide policy discussion and integration with respect to SCAG's programs. As such, staff is currently researching a set of principles from other cities and agencies which can serve as a foundation or template for the development of SCAG's own emerging technology guiding principles.

CONTEXT WITHIN CONNECT SOCAL 2020 & 2024
During the development of Connect SoCal 2020, Staff evaluated San Francisco's Emerging Mobility Guiding Principles[1] as an example of guiding principles and recommended that a set of regional

[1] San Francisco County Transportation Authority Emerging Mobility Guiding Principles: https://www.sfcta.org/policies/emerging-mobility#panel-guiding-principles

principles be developed for the SCAG region. Further, Connect SoCal 2020 included a recommended set of policies which would bolster current and future Connect SoCal plans, be integrated into and enhance SCAG's existing and future programs, and serve as a template for local jurisdictions and transportation agencies to develop and adopt in support of plan implementation. These recommended policies would need to be further studied, customized, and adopted by local jurisdictions to fit their specific local context. They are organized with respect to land use, street design, and pricing and system management and are identified in the Connect SoCal 2020 Emerging Technology Technical Report. [2]

For the Connect SoCal 2024 update, SCAG established three special Policy Subcommittees to provide guidance on priorities and strategies. One of these Policy Subcommittees, The Next Generation Infrastructure (NGI) Subcommittee was convened to identify recommendations regarding the future of mobility and associated implications for public policy. Over the course of four meetings from September 2022 to January 2023, the NGI Subcommittee discussed changes in travel behavior due to the pandemic, evolving goals for highway investment, ensuring transit recovery, and better aligning how we pay for and fund transportation with equity and resilience goals. Draft findings and recommendations have emerged out of the Subcommittee's work, some with relevance to the topic of emerging technology:

- Ensure that deployment of new technologies support people's needs and address larger shared goals like advancing equitable access and reducing traffic fatalities and serious injuries.
- Plan and manage the transportation system more like an investor, including asserting a role in the management of the transportation digital realm.

These draft recommendations align with and provide further impetus for the development of guiding principles for emerging technologies for the Connect SoCal 2024 update. The NGI Subcommittee held its final meeting on February 15, 2023, they discussed the draft findings and recommendations as described within a white paper and took action to submit the recommendations to the Joint Policy Committee, which will meet on March 2, 2023.

GUIDING PRINCIPLES BACKGROUND:

The principles presented in this staff report serve to inform the development of SCAG's own guiding principles, and also to provide a glimpse into the evolving landscape of emerging technology principles. It's important to note that not all the guiding principles discussed in this staff report directly refer to the field of emerging technologies. However, all principles and frameworks share the common goal of developing criteria to assess the impact of new mobility technologies. For

[2] Connect SoCal 2020, Table 2: https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal_emerging-technology.pdf?1606001600,#page=24

example, San Francisco's Emerging Mobility Guiding Principles[3] emphasized collaboration with the community; to ensure a large emphasis on equity for emerging mobility projects in the city. The Shared Mobility Principles for Livable Cities direct their attention to the global transportation landscape with principles that seek to promote equity and sustainability. Staff is currently evaluating each framework to develop a recommended set of guiding principles for Connect SoCal 2024. Below is a description of guiding principles staff has been evaluating.

EXAMPLE OF GUIDING PRINCIPLES:
San Francisco's Guiding Principles for Emerging Mobility

In 2017, the San Francisco County Transportation Authority (SFCTA) partnered with the San Francisco Municipal Transportation Agency (SFMTA) to perform community outreach to develop "guiding principles" for evaluating existing and future private transportation services on that city's streets. After developing a loose framework for these principles, the agencies solicited feedback from transportation stakeholder groups and the public via the existing Citizens Advisory Committee and a new web form. Simultaneously, SFCTA and SFMTA staff met with private transportation companies such as Uber, Lyft, Scoot and Chariot to discuss how these principles could be crafted in such a way to facilitate cooperation with the companies to avoid a surprising or negative reception on their part.

The community input led to greater emphasis on equity and accessibility principles. In addition to concerns for safety, sustainability, data, and noncompetition with transit, the public requested greater accountability regarding accessibility and the holistic effects these services have on issues such as employment practices, housing affordability and cultural fit.

In 2018, the agencies released the principles and a series of accompanying reports that detailed services and technologies that the principles applied to, an explanation of the principles themselves, and an evaluation of existing services and technologies in the city, based on the principles.

The principles are focused on:

- Collaboration
- Safety
- Transit
- Congestion
- Sustainability
- Equitable Access

[3] San Francisco County Transportation Authority Emerging Mobility Guiding Principles: https://www.sfcta.org/policies/emerging-mobility#panel-guiding-principles

- Accountability
- Labor
- Disabled Access
- Financial Impact

While local and regional agencies may not have direct regulatory authority over private sector companies' operations, these guiding principles will assist SFCTA and SFMTA to monitor the transportation-based impacts of public and private sector work.

Shared Mobility Principles for Livable Cities[4]

These principles were developed by Robin Chase (the founder of Zipcar) and some prominent non-governmental organizations (NGOs). This is a broader, internationally focused set of principles that aim to set the course of global transportation technology trends and regulations toward equity, sustainability, and human-scale livability. Some governments (such as Paris) and public transportation agencies (such as San Antonio's VIA) have signed on to the principles, but most signatories are nonprofits, advocacy groups, and private companies.

The principles are:

1. WE PLAN OUR CITIES AND THEIR MOBILITY TOGETHER.
2. WE PRIORITIZE PEOPLE OVER VEHICLES.
3. WE SUPPORT THE SHARED AND EFFICIENT USE OF VEHICLES, LANES, CURBS, AND LAND.
4. WE ENGAGE WITH STAKEHOLDERS.
5. WE PROMOTE EQUITY.
6. WE LEAD THE TRANSITION TOWARDS A ZERO-EMISSION FUTURE AND RENEWABLE ENERGY.
7. WE SUPPORT FAIR USER FEES ACROSS ALL MODES.
8. WE AIM FOR PUBLIC BENEFITS VIA OPEN DATA.
9. WE WORK TOWARDS INTEGRATION AND SEAMLESS CONNECTIVITY.
10. WE SUPPORT THAT AUTONOMOUS VEHICLES (AVS) IN DENSE URBAN AREAS SHOULD BE OPERATED ONLY IN SHARED FLEETS.

Pittsburgh's Shared + Autonomous Mobility Principles

The City of Pittsburgh is a signatory to Robin Chase's Shared Mobility Principles for Livable Cities. In March 2019, the Mayor released Pittsburgh's Shared + Autonomous Mobility Principles[5], which were later referenced in an Executive Order regarding "Self-Driving Vehicle Testing and Operations in the City of Pittsburgh." Building off Chase's principles, Pittsburgh adapted the principles and divided them among four topics. Pittsburgh Shared + Autonomous Mobility Principles are:

[4] Shared Mobility Principles: https://www.sharedmobilityprinciples.org/

[5] Pittsburgh Shared + Autonomous Mobility Principles: https://apps.pittsburghpa.gov/redtail/images/5172_Pittsburgh_Shared_and_Autonomous_Mobility_Principles_03_01_19.pdf

- People
  - By supporting cities and street design that prioritizes people and human safety.
  - By enhancing access and connectivity for all residents across both city and region.
  - By ensuring equitable service across geography, socio-economic groups, and time.
- Planet
  - By protecting public mobility and mass transit as the most accountable, transparent and sustainable mobility option.
  - By promoting shared, higher occupancy vehicles for people and freight.
- Place
  - By promoting and enabling land development patterns that locate everyday destinations and needs in close physical proximity to people.
  - By integrating mobility systems for seamless travel and access.
- Performance
  - By increasing open and share data while protecting civil liberties and individual and system security.
  - By pursuing fair user fees to provide sustainable resources for the maintenance of the public infrastructure on which services operate.
  - By empowering stakeholders with the tools, resources, and opportunities to meaningfully participate in shaping public policy.

ADDITIONAL MOBILITY FRAMEWORKS

The frameworks in this section are not mobility guiding principles, however they do provide useful strategies for SCAG to consider when developing the content of its own guiding principles. They also provide a glimpse into what the direct application of a guiding principle could look like.

San Diego Association of Governments (SANDAG) Regional Mobility Hub Implementation Strategy: Equity Considerations and Implementation Considerations

While these are not principles which were used to evaluate projects prior to implementation, SANDAG's Equity Memo[6] regarding their Regional Mobility Hub Strategy is an analysis that highlights the complexities present in measuring the principle of equity within a mobility project. The analysis primarily considers the impact of their regional mobility hub on three key groups: low-income people, minority communities, and older adults. Discussions regarding costs, barriers, and benefits are considered on a range of issues ranging from active transportation to shared mobility services. The findings from the analysis are used to recommend design features that could benefit disadvantaged populations at their 11 mobility hub design prototypes around San Diego County.

[6] SANDAG's Equity Considerations memo: https://www.sdforward.com/docs/default-source/default-document-library/equity-considerations-memo_12-15-17_final.pdf?sfvrsn=c0d0f965_0

Los Angeles County Metropolitan Transportation Authority, Office of Extraordinary Innovation[7]

In 2021 Los Angeles County Metropolitan Transportation Authority (Metro) released a five-year review of their Unsolicited Proposals (UP) Policy. UP allows outside parties to submit ideas to Metro's Office of Extraordinary Innovation (OEI) for review and implementation. From 2016 to 2021, Metro received more than 241 unsolicited proposals, 27 of which advanced to implementation resulting in 19 unique projects. This five-year review provides a hindsight score to all 241 projects and proposes various policies to improve the UP as it assesses the value of these various technologies. The after-the-fact scoring considered a variety of criteria such as cost, benefit, risk, and feasibility. One finding from the report found that high value projects more often encountered resistance from OEI's proposal review teams and as a result led to a lower score compared to smaller proof-of-concept projects. Although these projects faced more resistance, these projects were found to have a large positive impact with a value that could be taken in many different directions.

Additionally, the review also made a UP policy recommendation to consider equity during a proposal's review. These proposals present the opportunity to further Metro's equity objectives. Although the review's scoring criteria of received projects are done after-the-fact and were not done at time of review, the criteria still provide a useful framework to consider as SCAG continues to craft its own guiding principles content.

KEY TERMS FOR CONSIDERATION

In addition to research on mobility principles and frameworks, staff has identified key terms that may be referenced or integrated into the draft principles. SCAG's previous efforts defining equity, resilience, and climate vulnerability are reflected in the discussion below.

Racial Equity: The actions, policies, and practices that eliminate bias and barriers that have historically and systemically marginalized communities of color, to ensure all people can be healthy, prosperous, and participate fully in civic life. [8]

Resilience: The capacity of the SCAG region's built, social, economic, and natural systems to anticipate and respond to changing conditions, acute shocks, and chronic stressors by creating multiple opportunities for a sustainable, thriving and equitable future.[9]

[7] Metro's Office of Extraordinary Innovation Five Year Plan Report: https://www.dropbox.com/s/3g1sux9kmj8kx3m/Unsolicited%20Proposal%20Five%20Year%20Review%20Report_Final_20210921.pdf?dl=0

[8] https://scag.ca.gov/our-work-inclusion-diversity-equity-and-awareness

[9] https://scag.ca.gov/sites/main/files/file-attachments/rcs012323fullagn.pdf?1674069876

Climate Vulnerability: The ability for a technology to respond to climate vulnerability. Per SCAG's 2020 Southern California Climate Adaptation Planning Guide, "Climate vulnerability describes the degree to which natural, built, and human systems are at risk of exposure to climate change impacts. Vulnerable communities experience heightened risk and increased sensitivity to climate change and have less capacity and fewer resources to cope with, adapt to, or recover from climate impacts."[10]

Equitable Access: SCAG and its member agencies should consider equitable access when assessing new technology, particularly as it relates to mobility challenges and linguistic isolation. According to SCAG's 2021 Racial Equity Early Action Plan[11], 10% and 11% of the region's residents are disabled and linguistically isolated, respectively. SCAG and its member agencies should ensure that people with disabilities and non-English speakers have access and full use of these interventions.

Safety: The reduction of risk using standards to ensure safety and security for new technology. [12] Consideration should be given to how technology supports the region in addressing federal safety performance measure requirements for both highways and transit.

NEXT STEPS:
SCAG staff will continue to evaluate guiding principles and its applications from other jurisdictions, then prepare a draft set of guiding principles to be vetted with internal and external stakeholders. Upon receiving feedback, staff will complete the draft set of principles and present them at the next Emerging Technology Committee meeting in April for feedback and approval. Upon approval, staff will incorporate the guiding principles into Connect SoCal 2024.

FISCAL IMPACT:
None.

[10] https://scag.ca.gov/sites/main/files/file-attachments/socaladaptationplanningguide_oct2020_0.pdf?1619029039
[11] https://scag.ca.gov/sites/main/files/file-attachments/reeap_final.pdf?1620325603
[12] For the purposes of the proposed emerging technology principles, staff developed a high-level definition of safety to accommodate all modes of transportation and land use development.

AGENDA ITEM 4
REPORT

Southern California Association of Governments
Remote Participation Only
February 23, 2023

To: Emerging Technologies Committee (ETC)

EXECUTIVE DIRECTOR'S APPROVAL

From: Alison Linder, Senior Regional Planner
(213) 236-1934, linder@scag.ca.gov

Kome Ajise

Subject: Clean Transportation Technology Policy

RECOMMENDED ACTION:
Recommend that the Regional Council (RC) adopt the Clean Transportation Technology Policy Resolution.

STRATEGIC PLAN:
This item supports the following Strategic Plan Goal 1: Produce innovative solutions that improve the quality of life for Southern Californians.

EXECUTIVE SUMMARY:
A long-time priority for SCAG is to mitigate the impacts of the transportation system on regional air quality. As Clean Transportation Technologies have improved and proliferated over time, and the problems of climate change have intensified, the long-term vision of a zero-emission transportation system has advanced as part of regional and state policy. SCAG's 2020 Regional Transportation Plan/Sustainable Communities Strategies (RTP/SCS or Connect SoCal 2020) identified a holistic and coordinated approach for de-carbonizing or electrifying passenger vehicles, transit, and goods movement vehicles, further formalizing SCAG's vision for a zero-emission transportation system. In the last four years, SCAG has made progress in supporting the region's goals. In Connect SoCal 2024, SCAG will refresh this vision, identifying regional progress and providing resources and strategies to accelerate Clean Transportation. The attached pending Resolution formalizes SCAG's Clean Transportation Technology Policy with the long-term aim of supporting the development, commercialization and deployment of a zero-emission transportation system and its supporting elements to: improve air quality, lower the health risks to all residents in the region, reduce greenhouse gas emissions to meet federal, state, and regional targets, and promote economic development, resilience, and equity. The Resolution also defines and formalizes SCAG's long held position on Technology Neutrality, supporting further innovation in this area and allowing operators to select and invest in the best fit technology for their needs. In preparing for Connect SoCal 2024, SCAG will provide additional information about potential technologies in a Clean Transportation Technology Compendium.

BACKGROUND:

In the South Coast region in 2018, mobile sources were responsible for 85% of NOx emissions and nearly 29% of PM2.5 emissions. Statewide, 41% of greenhouse gas (GHG) emissions come from mobile sources.[1] Criteria pollutants such as NOx and PM2.5 threaten public health and GHGs lead to climate change which has exacerbated extreme heat days, drought, and wildfire in Southern California and further exacerbates inequities amongst the most vulnerable populations as they are most susceptible to impacts of climate change.

Additionally, the region's failure to meet requirements of the Federal Clean Air Act (CAA) means federal sanctions may be imposed, jeopardizing transportation funds. As such, the permitting of stationary facilities may become substantially more burdensome. The federal government may also take over local air quality regulation if state plans are not adequate to meet federal standards. To meet deadlines imposed by the Federal Clean Air Act, the region must reduce NOx emissions by 45% above and beyond the existing regulations by 2023, and 55% by 2031.

To support regional attainment and improve public health, a long-held priority for SCAG is to mitigate the impacts of the transportation system on regional air quality. As clean transportation technologies have improved and proliferated over time, minority and low-income communities continue to be the most impacted by air pollution, and the problems of climate change have intensified, resulting in the advancement of a long-term vision of a zero-emissions transportation as part of regional and state policy.

In response to these issues, the State of California established goals and adopted policies to accelerate the adoption of near-zero and zero-emission vehicles (ZEVs) across the mobile sources, among them the Climate Action Plan for Transportation Infrastructure (CAPTI). In September 2020, Governor Newsom signed Executive Order No. N-79-20, setting ambitious targets for the state to reach 100% ZEV sales for passenger vehicles by 2035, 100% medium and heavy-duty vehicles in the state by 2045 for all operations where feasible, and 100% zero-emission drayage trucks by 2035. Additionally, the state established a goal of fully transitioning the off-road equipment to zero-emission by 2035. To achieve these ambitious targets, the California Air Resources Board (CARB) has adopted multiple regulations such as the Innovative Clean Transit (ICT), Advanced Clean Truck (ACT), and Advanced Clean Cars (ACC) II regulations to accelerate the adoption of zero-emissions technologies for the on-road sector. For example, the recently adopted ACC II regulation will require 100% of light duty passenger vehicles sold in California to be zero-emissions by 2035. Further, CARB is pursuing a new regulation called Advanced Clean Fleet (ACF) which, starting in 2024, requires fleets operating in California to transition to zero-emission technology with the goal of transitioning all drayage trucks to zero-emission by 2035 and the rest of the medium and heavy-duty vehicles to zero-emission by 2045.

[1] https://ww2.arb.ca.gov/ghg-inventory-data

With these policies in place, the region must work towards deploying zero-emission vehicles and infrastructure needed to support them across all modes of transportation. Multiple stakeholders will be critical in meeting these goals. The private sector is innovating in producing zero-emission vehicles and developing charging and fueling stations as well as the supply chain needed to support them. Transit agencies are evaluating and implementing technologies to meet the ICT. Cities are pursuing permit streamlining and identifying opportunities to transition their own fleets. Multiple fleets and businesses are evaluating which technologies best fit their needs and utilities are enhancing their infrastructure for the production and distribution of the fuel required. The Clean Air Action Plan (CAAP) developed by the San Pedro Bay Ports (Los Angeles and Long Beach) sets a goal to achieve a 100% zero-emission drayage fleet by 2035, and both ports have been working hard to demonstrate and advance zero-emission drayage trucks in revenue service throughout the region.

As an MPO, SCAG works to coordinate and support the work of these stakeholders through research and evaluation, resource and tool provision, intrastate and intraregional coordination, advocacy, and where applicable investment programs.

Connect SoCal and SCAG's Clean Transportation Technology Definition and Program

Connect SoCal 2020 identified a holistic and coordinated approach to de-carbonizing or electrifying passenger vehicles, transit, and goods movement vehicles, further formalizing SCAG's vision for a zero-emission transportation system where feasible. Pending approval of the Clean Technology Policy, a similar vision will be included in Connect SoCal 2024.

To support the holistic view of the Plan, the proposed policy defines Clean Transportation Technology as "zero- and near zero- emission vehicles, their supporting infrastructure, and facilitating products that reduce environmental impact over their life cycle." Development of the proposed policy considered the need for: the research and development of vehicles, improvement and deployment of infrastructure to support these vehicles, technological advancements in the Information Technology (IT) sector to facilitate and improve the use and efficiency of these technologies (i.e Intelligent Transportation System (ITS)), and environmental life cycle for the design, production, use, transportation, and disposal of the technology.

Additionally, Connect SoCal 2020 put forth several actions SCAG might take to support this policy. In the light-duty sector, Connect SoCal described strategies to increase the availability of charging infrastructure (e.g., working with member agencies to streamline the process of permitting and installing new charging stations). For transit, Connect SoCal laid out strategies to facilitate the transition to zero-emission by working with transit agencies to ensure adequate charging stations and electricity rates are available. For goods movement, Connect SoCal set goals for achieving a zero-emission system, as well as early adoption of near-zero and clean combustion technologies. The Goods Movement Technical Appendix also identified a role for SCAG to work with partners in

determining station locations for heavy duty fueling and a study to develop a regional roadmap for medium and heavy-duty supporting infrastructure, which kicked off in January 2023.

SCAG continues to further the vision of a zero-emission transportation system by providing support to the region through research, evaluation and planning, technical support, outreach and development of tools and resources, and advocacy and policy work to bring funding to the region to support these efforts. Examples of projects include but are not limited to:

- SCAG's Last Mile Freight Program (LMFP), funded through the state's Mobile Source Air Pollution Reduction Review Committee (MSRC), awarded grants totaling $16.75 million to 26 clean-energy projects.
- Through the EV Charging Site Suitability Study (EVCSS), part of the Sustainable Communities Program, SCAG is currently partnering with 18 cities within the region to help jurisdictions promote development and deployment of EV charging infrastructure by providing tailored policy guidance to study partner cities; a regionwide site suitability analysis to target areas for future EV charging infrastructure; EV site evaluations; and a passenger EV Infrastructure Plan that will provide a roadmap for cities to spur development of charging stations and support EV adoption across Southern California.
- SCAG is working with partners to create a Medium and Heavy Duty Zero-Emission Roadmap through the Supporting Infrastructure for Zero-Emission Medium and Heavy-Duty Trucks Study and is leveraging this work in partnership with Energy Power Research Institute (EPRI) through the California Energy Commission (CEC) funded Research Hub for Electric Technologies in Truck Applications (RHETTA) project.
- SCAG runs an active Clean Cities Coalition, a program of the Department of Energy (DOE), and provides support, resources, and programming to the region through this effort.

<u>Approach to Connect SoCal 2024</u>

SCAG staff proposes to create a Clean Transportation Technology Compendium for Connect SoCal 2024. This will provide information on vehicles, infrastructure and supporting products needed for a zero-emission transportation system. The compendium will provide key information about different technologies using staff developed and stakeholder informed criteria of importance to SCAG and the region. This collection of information will support end users in decision making about Clean Transportation investments. The compendium may include the following:

a. Existing Conditions
b. Compendium Need, Purpose, and Application
c. SCAG Clean Transportation Technology Policy (pending approval)
d. Guiding Principles for SCAG Emerging Technologies as applicable to the Clean Transportation Technology Program
e. Scoping of criteria for compendium inclusion

f. Descriptive characteristics for included technologies
g. Recommendations for SCAG and Regional Clean Technology Strategies

Proper investment in vehicles, infrastructure and products requires a comprehensive understanding of the zero- and near zero-emission technology options across various sectors. Dozens of clean transportation technologies have been commercialized in the last several years, and many more are expected in the near future. However, these technologies can vary widely in terms of technology readiness, impacts on criteria pollutant and GHG emissions, cost, infrastructure requirements, and potential scale of deployment. As SCAG and the region continue to invest in clean transportation technology, it is important to allow for continuous innovation, while also meeting goals of standardization and interoperability. Furthermore, with the diversity of transportation and users within the region, it is important to allow flexibility for different technologies to be applied to different use cases as determined by the investing entity. Therefore, the proposed Clean Transportation Technology Policy defines Technology Neutrality as a "stance that does not give preference to a particular technology as long as it furthers the desired outcome of a zero-emission transportation system that meets or exceeds federal and state targets."

A detailed description for each technology will be provided along with knowledge gaps and uncertainties with respect to available technologies. Findings will be summarized and recommendations and strategies will be offered to further deploy zero-emission supporting infrastructure which may include targeted incentive programs, streamlined permitting, site development, and promotion of public-private-partnership business models.

Proposed Clean Transportation Technology Policy

To best support the region in a transition to a zero-emissions transportation system, staff recommend approval of the Clean Transportation Technology Policy with the long-term aim of supporting the development, commercialization and deployment of a zero-emission transportation system and its supporting elements to improve air quality, reduce greenhouse gas emissions, meet federal, state and regional targets and promote economic development, resilience and equity.

The Policy States that:

1. Clean Transportation Technology is defined as "zero- and near zero-emission vehicles, their supporting infrastructure, and other facilitating products that reduce environmental impacts over their full life cycle including upstream production and end of life."

2. SCAG will take a technology neutral approach in its study of, advancement of, and where applicable investment in Clean Transportation Technology where SCAG defines Technology Neutrality as a "stance that does not give preference to a particular technology as long as it furthers the desired outcome of a zero-emission transportation system that meets or exceeds federal and state targets."

3. As part of the development of Connect SoCal 2024, SCAG will prepare a Clean Transportation Technology Compendium that will support decision making by providing information on various clean transportation technologies;

4. SCAG will continue to foster innovation and will support the study and deployment of a range of affordable and scalable Clean Transportation Technologies with consideration of the best available information and expected use case as determined by the end user, thus maintaining a Technology Neutral Approach;

5. SCAG will continue to support the region in deployment of Clean Transportation Technology through research and evaluation, stakeholder support, resource and tool provision, intrastate and intraregional coordination, advocacy, and where applicable investment programs; and

6. SCAG will promote equitable use of and access to Clean Transportation Technologies so that all may benefit from them.

The above policy broadly defines Clean Transportation Technology, provides direction for development of Connect SoCal 2024 and formalizes SCAG's position on Technology Neutrality, while defining a broad role for SCAG in achieving the goal of an equitable zero emission transportation system in the region.

REQUEST FOR RECOMMENDATION AND NEXT STEPS:
Staff requests that the ETC recommend the RC to adopt the Clean Transportation Technology Policy Resolution. Upon ETC's action, staff will take this recommendation to the RC at its April 6, 2023, meeting. A receive and file report will also be shared with the Energy and Environment Committee (EEC) and Transportation Committee (TC).

FISCAL IMPACT:
Funding for staff work on this issue is included in the OWP under 115.4912.01 (Clean Technology) and 310.4874.02 (Key Connections Strategy Team).

ATTACHMENT(S):
1. PowerPoint Presentation - Clean Transportation Technology
2. Draft Resolution Clean Transportation Technology Policy

Clean Transportation Technology Policy

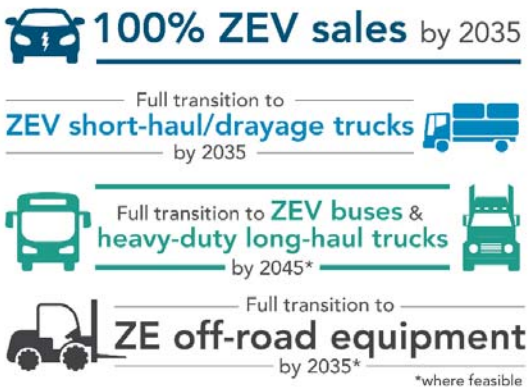
WWW.SCAG.CA.GOV

Clean Transportation Technology (Clean Tech) Vision

- Connect SoCal 2020 includes a holistic and coordinated approach to de-carbonizing or electrifying passenger, transit and goods movement vehicles and a *vision* for a zero-emission transportation system or using cleaner mobility options where zero emission options are not feasible.

Clean Transportation Technology Drivers

- Federal Clean Air Act
- GHG reduction
- Public Health
- Increased Public Funding
- Economic, Equity and Resilience Opportunities



SCAG Clean Technology Program

- Ongoing research, evaluation and plan development
  - EV Charging Site Suitability Study (EVCSS), part of the Sustainable Communities Program
  - Medium and Heavy Duty Zero Emissions Roadmap
  - RHETTA pilot partnership with EPRI/CEC
- Providing Support to Regional Stakeholders
- Advocacy and Policy Work
  - Funding for city infrastructure and vehicle purchases
  - Continued funding for vehicle demonstration and early deployment (MD/HD)
  - Share success stories
- Investments in Clean Technology
  - Last Mile Delivery Program

Clean Transportation Technology Policy

1. Clean Transportation Technology is defined as "zero- and near zero-emission vehicles, their supporting infrastructure, and other facilitating products that reduce environmental impacts over their full life cycle including upstream production and end of life."

2. SCAG will take a technology neutral approach in its study of, advancement of, and where applicable investment in Clean Transportation Technology where SCAG defines Technology Neutrality as a "stance that does not give preference to a particular technology as long as it furthers the desired outcome of a zero-emission transportation system that meets or exceeds federal and state targets."

3. As part of the development of Connect SoCal 2024, SCAG will prepare a Clean Transportation Technology Compendium that will support decision making by providing information on various clean transportation technologies;

Clean Transportation Technology Policy

4. SCAG will continue to foster innovation and will support the study and deployment of a range of affordable and scalable Clean Transportation Technologies with consideration of the best available information and expected use case as determined by the end user, thus maintaining a Technology Neutral Approach;

5. SCAG will continue to support the region in deployment of Clean Transportation Technology through research and evaluation, stakeholder support, resource and tool provision, intrastate and intraregional coordination, advocacy, and where applicable investment programs; and

6. SCAG will promote equitable use of and access to Clean Transportation Technologies so that all may benefit from them.

Clean Transportation Technology Compendium

- Systematic and comprehensive approach to presenting technology options
- Includes vehicles, supporting infrastructure and facilitating products
- Covers passenger, transit, rail and commercial heavy duty
- Describes important characteristics and makes information transparent
  - ex - total cost of ownership, technology readiness level, environmental impacts, safety, etc.
- Includes existing conditions, scoping criteria for compendium inclusion, descriptive characteristics, and regional clean technology strategies.

Feedback

- PEV Study City Stakeholders, Jan 18
- PEV Study Steering Committee, Jan 26
- Regional ZE Truck Collaborative, (over email)
- RTTAC, Jan 30
- GLUE Council, Jan 30

Next Steps: Upcoming RTP/SCS Development (2024)

- Setting a vision for ZE Tech in the Region
  - Focus on publicly accessible stations
  - Regional Road Map for MD/HD Vehicles
- Demonstrate ability to meet and exceed state targets
- Create Technology Compendium (pending board direction)
- Continued Outreach

https://scag.ca.gov/connect-socal
linder@scag.ca.gov

Recommendation

Recommend that the Regional Council (RC) adopt the Regional Clean Transportation Technology Resolution

Next Steps:

- Upon ETC's action, staff will take this recommendation to the RC at its April 6, 2023 meeting.
- A receive and file report will also be shared with the Energy and Environment Committee (EEC) and the Transportation Committee (TC).

THANK YOU!

For more information, please visit:

https://scag.ca.gov/alternative-fuels-vehicles

SCAG
INNOVATING FOR A BETTER TOMORROW

SOUTHERN CALIFORNIA
ASSOCIATION OF GOVERNMENTS
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DRAFT
RESOLUTION NO. XX-XXX-X
A RESOLUTION OF THE SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS APPROVING A REGIONAL CLEAN TRANSPORTATION TECHNOLOGY POLICY

WHEREAS, the Southern California Association of Governments (SCAG) is the largest Metropolitan Planning Organization (MPO) in the United States covering six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura), and serving 19 million people pursuant to 23 USC § 134 et seq. and 49 USC § 5303 et seq.; and

WHEREAS, SCAG is responsible for bringing Southern California's diverse residents and local partners together with unifying regional plans, policies, and programs that result in more healthy, livable, sustainable, and economically resilient communities; and

WHEREAS, improving mobility, accessibility, reliability, regional environmental conditions, and transportation safety has been a goal included in SCAG's long-range plans, including Connect SoCal, for decades; and

WHEREAS, Connect SoCal 2020 identified a vision to create a holistic and coordinated approach to de-carbonizing passenger vehicles, transit, and goods movement vehicles; and

WHEREAS, improvement of regional air quality is a priority and the region is a non-attainment area for NOx; failure to meet requirements of the Federal Clean Air Act means federal sanctions may be imposed, jeopardizing transportation funds; and

WHEREAS, Clean Transportation Technology is defined via this document for SCAG's purposes as "zero- and near zero-emission vehicles, their supporting infrastructure, and other facilitating products that reduce environmental impacts over their full life cycle including upstream production and end of life," and the below policy will formalize this; and

WHEREAS, a zero-emission transportation system is envisioned as the regional goal, near-zero-emission technologies may play a role in support of this goal and offer short term benefits as bridging technologies where zero-emission solutions are not yet feasible or commercially viable (heavy duty vehicles); near zero implies a significant reduction compared to commonly used technologies;

WHEREAS, Clean Transportation Technology will be necessary in order to meet state climate and air quality goals and requirements such as the Innovative Clean Transit Rule, Advanced Clean Cars Act, the Advanced Clean Trucks Regulation

and those reflected in the Climate Action Plan for Transportation Infrastructure (CAPTI) and the 2022 California Air Resources Board (CARB) Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan); and

WHEREAS, SCAG's Regional Council unanimously adopted a Climate Action Resolution in January 2021 that affirmed its commitment to reduce greenhouse gas emissions and to establish partnerships to support local jurisdictions' climate adaptation and mitigation initiatives, including implementation of Clean Transportation Technologies; and

WHEREAS, investment in Clean Transportation Technologies is an important part of meeting SCAG's objectives in economic development and recovery, resilience planning and achievement of equity; and

WHEREAS, jurisdictions throughout the region including cities, counties, transit agencies, and private fleets, are currently evaluating and making investments in Clean Transportation Technology; and

WHEREAS, SCAG, though not an implementing agency, has an evolving role in Clean Transportation Technology Investment, including but not limited to the Last Mile Freight Program, and future funding opportunities; and

WHEREAS, SCAG supports the region in deployment of Clean Transportation Technology through research and evaluation, stakeholder support, partnerships, and advocacy;

NOW, THEREFORE, BE IT RESOLVED by the Regional Council of the Southern California Association of Governments, that SCAG hereby adopts a regional Clean Transportation Technology Policy with the long-term aim of supporting the development, commercialization and deployment of a zero-emission transportation system and its supporting elements to improve air quality, reduce greenhouse gas emissions, meet federal, state and regional targets and promote economic development, resilience and equity.

BE IT FURTHER RESOLVED THAT:

1. Clean Transportation Technology is defined as "zero- and near zero-emission vehicles, their supporting infrastructure, and other facilitating products that reduce environmental impacts over their full life cycle including upstream production and end of life."

2. SCAG will take a technology neutral approach in its study of, advancement of, and where applicable investment in Clean Transportation Technology where SCAG defines Technology Neutrality as a "stance that does not give preference to a particular technology as long as it furthers the desired outcome of a zero-emission transportation system that meets or exceeds federal and state targets."

3. As part of the development of Connect SoCal 2024, SCAG will prepare a Clean Transportation Technology Compendium that will support decision making by providing information on various clean transportation technologies;

4. SCAG will continue to foster innovation and will support the study and deployment of a range of affordable and scalable Clean Transportation Technologies with consideration of the best available information and expected use case as determined by the end user, thus maintaining a Technology Neutral Approach;

5. SCAG will continue to support the region in deployment of Clean Transportation Technology through research and evaluation, stakeholder support, resource and tool provision, intrastate and intraregional coordination, advocacy, and where applicable investment programs; and

6. SCAG will promote equitable use of and access to Clean Transportation Technologies so that all may benefit from them.

PASSED, APPROVED AND ADOPTED by the Regional Council of the Southern California Association of Governments at its regular meeting this 6th day of April, 2023.

_____

Jan C. Harnik
President, SCAG
Riverside County Transportation Commission

Attested by:

_____

Kome Ajise
Executive Director

Approved as to Form:

_____

Michael R.W. Houston
Chief Counsel

AGENDA ITEM 5
REPORT

Southern California Association of Governments
Remote Participation Only
February 23, 2023

To: Emerging Technologies Committee (ETC)

EXECUTIVE DIRECTOR'S APPROVAL

From: Marisa Laderach, Senior Regional Planner
(213) 236-1927, laderach@scag.ca.gov

Subject: Connected Autonomous Vehicles and Data Privacy

RECOMMENDED ACTION:
Information Only – No Action Required

STRATEGIC PLAN:
This item supports the following Strategic Plan Goal 1: Produce innovative solutions that improve the quality of life for Southern Californians. 2: Advance Southern California's policy interests and planning priorities through regional, statewide, and national engagement and advocacy. 4: Provide innovative information and value-added services to enhance member agencies' planning and operations and promote regional collaboration.

EXECUTIVE SUMMARY:
Connected autonomous vehicles (CAVs) rely on collecting and generating a significant amount of data. Such data may include, vehicle diagnostics, geographic location, driver habits such as speed and seat belt use, and data about the vehicle's surroundings – including other vehicles and the location of nearby pedestrians[1]. While the mass deployment of CAVs will result in improved safety and mobility options, it is important to consider the privacy of user data. While regulatory authority over CAVs rests with the federal and state governments, local governments can and should be able to influence the actions of those regulatory bodies. It is SCAG's goal to educate and facilitate such communication between its member agencies and those regulatory bodies.

At the same time, SCAG staff seek to propose guiding principles to assist the region's jurisdictions in preparing for and assessing emergent and disruptive technologies, including the development of policies that are regionally cohesive and support collective goals such as safety, equity, mobility, and sustainability. A draft framework for such guiding principles is included separately in the committee agenda as a receive and file item.

[1] https://fpf.org/wp-content/uploads/2017/01/consumerguide.pdf

The Emerging Technology Committee members will engage in discussion with three experts in the field of CAVs and data privacy, representing a mix of public, nonprofit, and/or private sector perspectives. The speakers for today's discussion are:

- ***Timothy Papandreou, Founder, Emerging Transport Advisors***
- ***Andrew Hastings, Executive Director, Open Mobility Foundation (OMF)***
- ***Hal Lennox, Vice President, Government Affairs & Public Policy, Wejo***

These presentations will be followed by an open discussion where ETC members can ask questions and the panelists can collaboratively answer.

BACKGROUND:

As explained by the Institute of Transportation Engineers, connected vehicles have the capability to identify hazards on the roadway and communicate this information over wireless networks to give drivers alerts and warnings, through the use of technologies such as advanced vehicle sensors, Global Positioning System (GPS) navigation, and smart infrastructure, and relying on a networked environment supporting very high speed, real-time data transactions among vehicles (V2V) and between vehicles and infrastructure components (V2I) or hand held devices (V2D) to enable safety and mobility applications. For example, when a vehicle breaks suddenly, it can transmit a notice to vehicles behind it that enables those vehicles to warn drivers to stop, or in the case of an automated vehicle, to automatically apply brakes if a crash is imminent. Automated vehicles are those in which some aspect of a safety-critical control function (steering, throttle, braking) occurs without direct driver input. Automation has potentially a wide range of impacts on driving safety, personal mobility, energy consumption, operating efficiency, environmental sustainability, and land use.

While the California Department of Motor Vehicles (DMV) has the authority to permit the use of CAVs, the protection of vehicle data falls under the regulatory umbrella of the Federal Trade Commission (FTC). The FTC is the primary federal agency responsible for protecting consumer privacy. Given that this topic is associated with vehicle safety, the FTC works closely with the National Highway Traffic Safety Administration regarding vehicle data privacy issues. Although consumer privacy is an important issue for the NHTSA, they do not have authority to regulate consumer privacy relative to motor vehicle data[2].

In 2022, NHTSA released a cybersecurity best practice guide for the safety of modern vehicles. The guide covers a range of topics such as risk assessment, sensor vulnerability risks, and product development practices[3]. In addition, the Cybersecurity and Infrastructure Security Agency (CISA), within the Department of Homeland Security (DHS), released a guide of best practices on

[2] https://www.nhtsa.gov/technology-innovation/vehicle-data-privacy

[3] https://www.nhtsa.gov/sites/nhtsa.gov/files/2022-09/cybersecurity-best-practices-safety-modern-vehicles-2022-tag.pdf

autonomous ground vehicles (trucking, mass transit, and last-mile delivery services)[4]. These guides illustrate that although CAVS can provide many benefits to people such as improved safety and mobility options, these vehicle systems can increase the exposure of cyber-attacks.

Currently, it is not certain if there is a set of comprehensive US laws in effect that explicitly protect the data created by CAVs. It's often up to the CAV manufacturer to determine the level of privacy of their customers. For example, according to their Customer Privacy Notice, Tesla does not associate the vehicle data generated by a person's driving with their identity or account by default[5].

PANELISTS:

The Emerging Technology Committee members will engage in discussion with three experts in the field of CAVs and data privacy, representing a mix of public, nonprofit and/or private sector perspectives.

Timothy Papandreou, Founder, Emerging Transport Advisors
Mr. Papandreou will provide an overview of emerging technology trends in CAVs. Following this, he will give an update on the status of the technology and its deployment readiness, as well as the best practices in how local government can best prepare and leverage these deployment opportunities. To conclude, Mr. Papandreou will discuss the data collection, privacy, and data sharing challenges and opportunities of this technology for local and regional governments in managing the data captured in the public right of way.

Andrew Hastings, Executive Director, Open Mobility Foundation
The Open Mobility Foundation (OMF) is a non-profit open-source foundation with a mission to transform the way cities, regions and states manage transportation in the modern era using well-designed, open-source data standards and tools, including the Mobility Data Specification (MDS) and Curb Data Specification (CDS). Mr. Hastings presentation will explore how public agencies are using digital infrastructure like MDS and CDS to digitize their rules and regulations and manage shared mobility to drive outcomes such as improved safety, better equity, reduced congestion, and reduced emissions in a way that respects user privacy and the public's need for transparency.

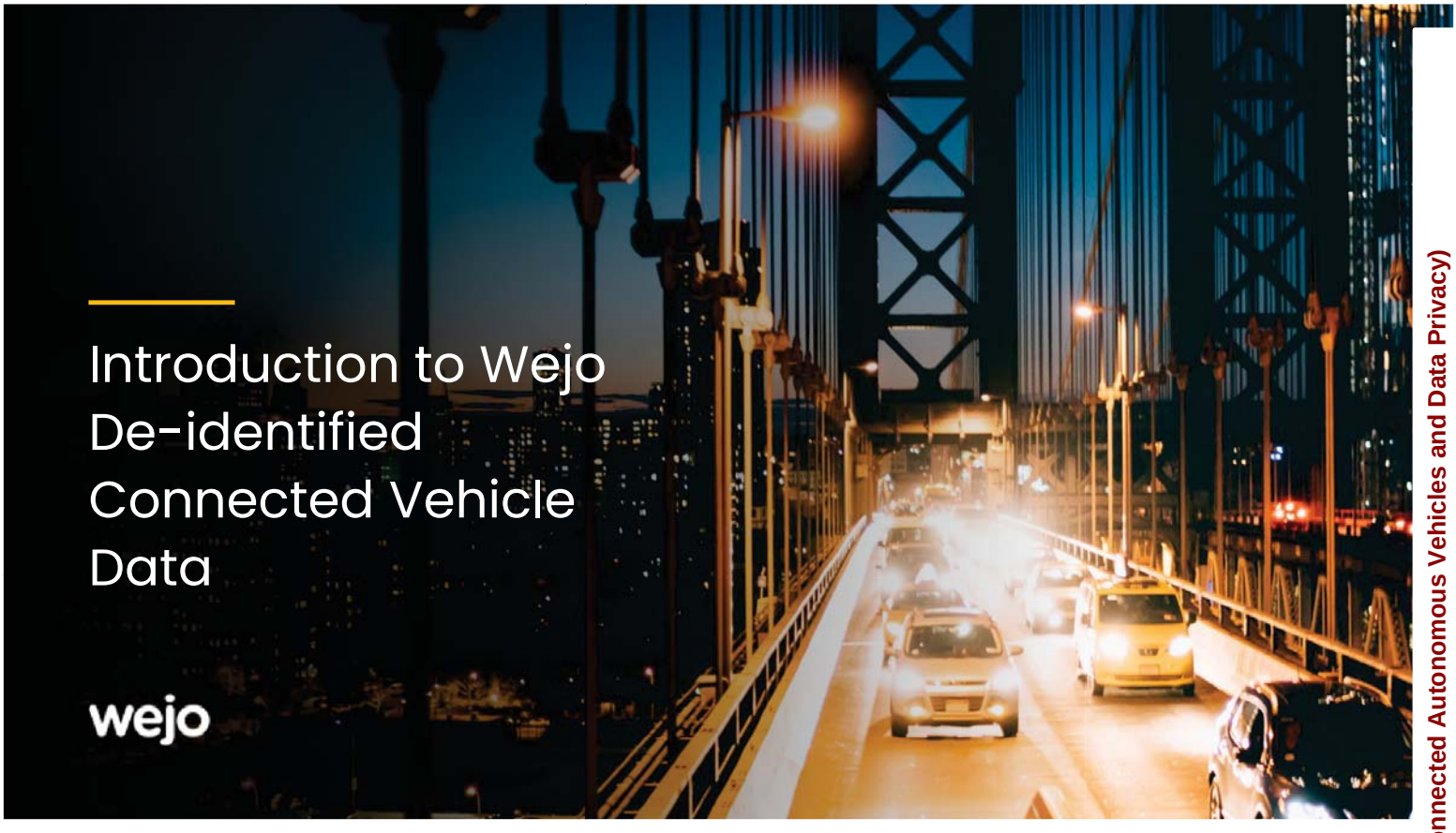
Hal Lennox, Vice President, Government Affairs & Public Policy, Wejo
Wejo is an automobile data analytics company that operates and collects data from millions of privately owned automobiles around the world. This presentation will open with an introduction to Connected Vehicle Data (CVD) – what it is, how it is gathered, an overview of its architecture, and an explanation of its importance. Next, Mr. Lennox will discuss its applications, including safety,

[4] https://www.cisa.gov/sites/default/files/publications/Autonomous%20Ground%20Vehicles%20Security%20Guide.pdf
[5] https://www.tesla.com/legal/privacy

congestion mitigation and other uses and concerns, and conclude with discussion regarding privacy and security implications, including concerns presented at other government agencies.

FISCAL IMPACT:
None.

ATTACHMENT(S):
1. PowerPoint Presentation - Hal Lenox - Wejo
2. PowerPoint Presentation - Andrew Hastings - Open Mobility Foundation
3. PowerPoint Presentation - Timothy Papandreou



Introduction to Wejo De-identified Connected Vehicle Data

wejo

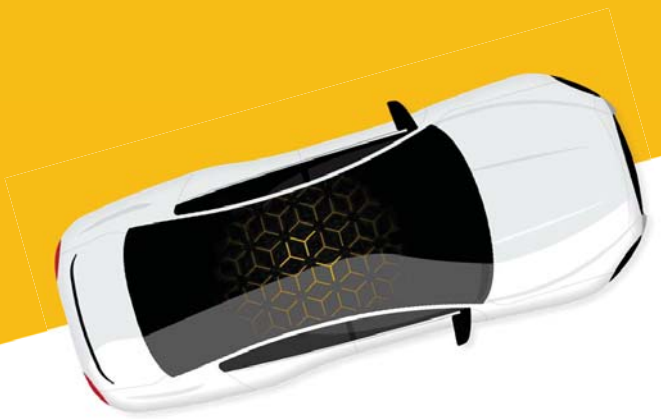
Presentation to Southern California Association of Governments Emerging Technology Committee

Hal Lenox
VP – Public Policy and Government Affairs

Wejo

February 23, 2023

Wejo is the global leader in Smart Mobility Intelligence.



Using connected vehicle data, we help government and public sector organizations create better experiences and more liveable places for the people they serve. Our insights assist in reducing preventable road incidents, easing congestion, and making mobility smarter, and more sustainable for all.

We license our tools and insights to ethical, like-minded organizations ranging from traffic analysts and civil engineers to smart city planners and government agencies.

wejo © Wejo Ltd.

We do this by partnering with global auto manufacturers to create smart mobility intelligence that revolutionizes the way we live, work, and travel

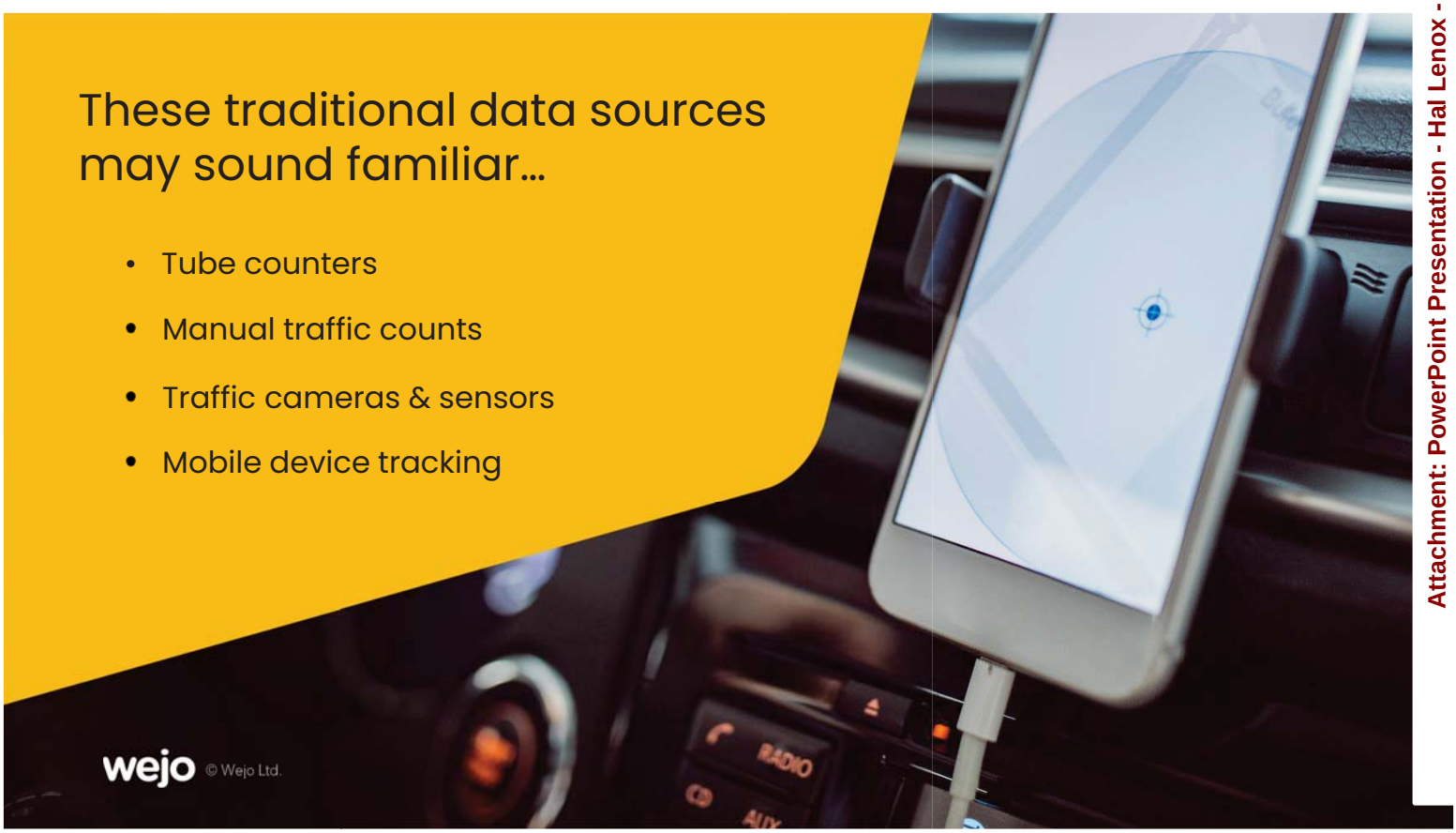
wejo © Wejo Ltd.

wejo

Why Connected Vehicle Data?

These traditional data sources may sound familiar...

- Tube counters
- Manual traffic counts
- Traffic cameras & sensors
- Mobile device tracking



...but they also come with traditional challenges

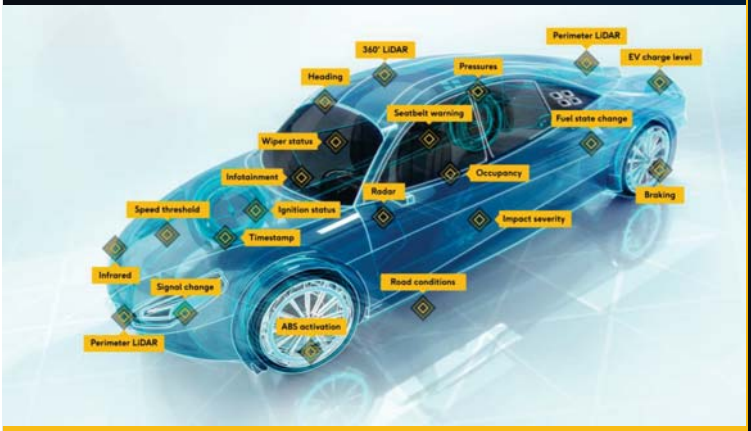
- ✖ Difficult to manage
- ✖ Disparate sources
- ✖ Poor quality
- ✖ Inconsistent elements
- ✖ Low volume
- ✖ Rising costs

Connected Vehicle Data offers more...

More accuracy, more data attributes, more coverage and more availability at higher frequencies, lower latency, and increased fidelity

wejo © Wejo Ltd.

Independent Software and Analytics for the AV, EV and Connected Vehicle Industry



Wejo collects more data per day than the New York Stock Exchange

WEJO MULTI-OEM DATA SUPPLY

>18 BILLION
DATA POINTS INGESTED PER DAY

>507 BILLION
MILES CURATED

>8.1 PETABYTES
DATA INGESTED

>62.6 BILLION
JOURNEYS

>462 THOUSAND
DATA POINTS INGESTED PER SECOND

>72.7 MILLION
JOURNEYS PER DAY

wejo At a Glance

DATA POINTS INGESTED
>13.2 TRILLION

CONTINENTS
4

PENDING AND GRANTED PATENTS
34

VEHICLES LIVE ON PLATFORM
13.7 MILLION+

OEMS, TIER 1s AND FLEET
27

The power of Smart Mobility: Unlocking real value

It's faster, more in-depth and offers new levels of information

High Accuracy

Accurate to 3 meters, which helps identify highway lanes and parking spots, giving high confidence in traffic locations representative to the road network.

3 Meters Accuracy

High Frequency

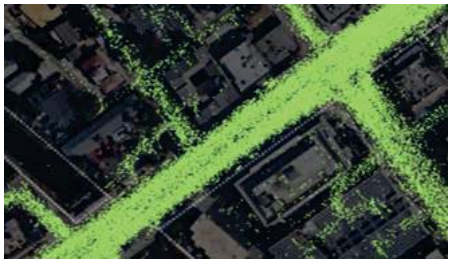
1 to 3 second data capture rate with a Service Level Agreement (SLA) that 95% of the data is delivered within 60 seconds.

3 Second Capture-Rate

Volume

High volume of journeys tracked: 1.3 billion per month providing coverage across the US of 95% of all roads over a calendar month.

11m+ USA Connected Vehicles



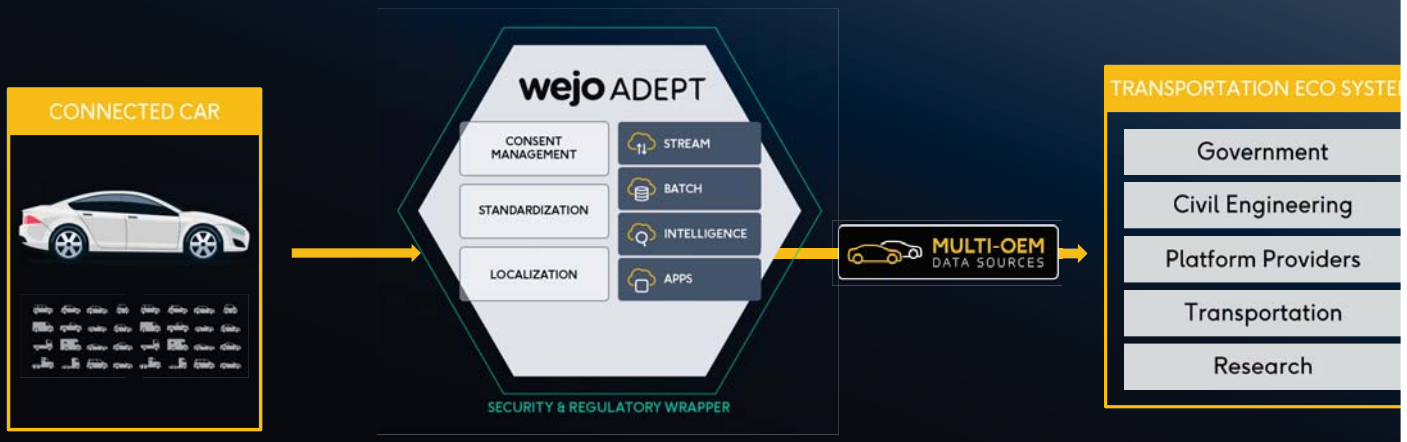
Historical

Data from historical events gives insights about incident hotspots, harsh breaking or acceleration, speeding and more supporting studies of historical patterns.

Data from January 2019

wejo © Wejo Ltd.

Wejo makes it easy to unlock the value in connected vehicle data



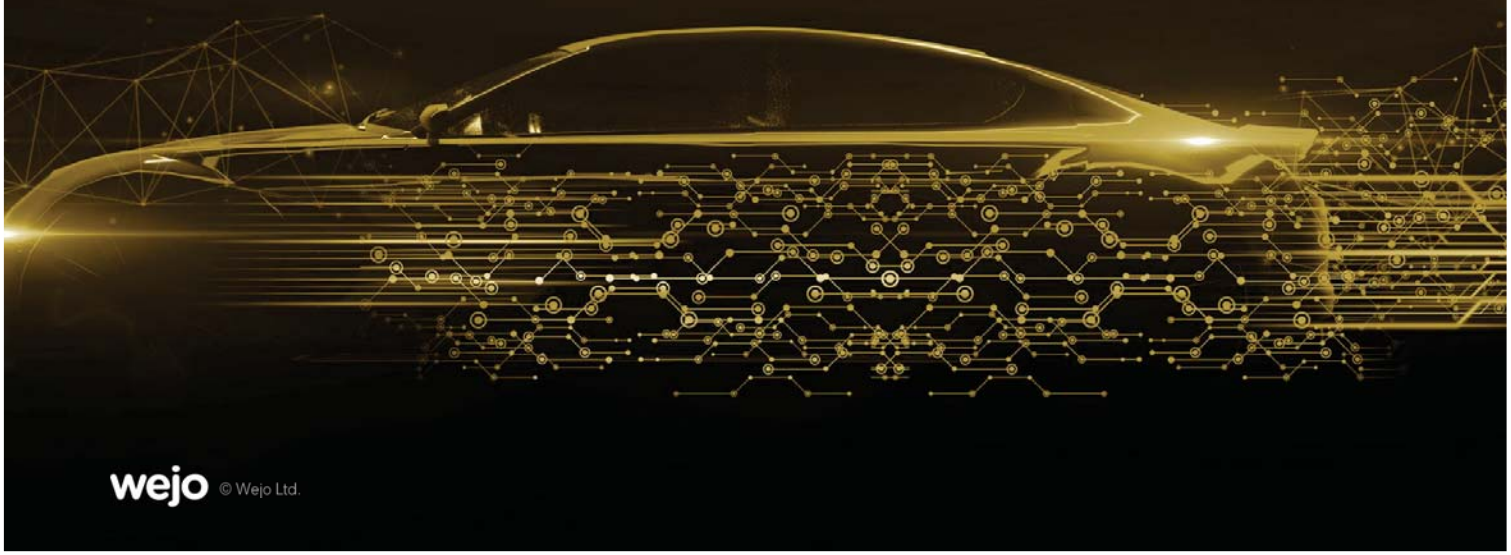
Diverse range of demographics

Highly accurate and granular data

Single integration of data to support the government sector

wejo

Smart Mobility drives better decision-making about safety, efficiency, and sustainability



wejo © Wejo Ltd.

Safety

Reduce fatalities and improve safety for all

Demonstrate your commitment to community safety with a data-driven safety enforcement program, and make travel safer for drivers, passengers, and pedestrians.

- Monitor performance of road network and improve incident response time
- Gather accurate speed data from crash-prone areas
- Understand congestion trends to deliver effective traffic control measures
- Shift from being reactive to proactive when it comes to road safety

wejo © Wejo Ltd.

Traffic & Congestion

Modernize public infrastructure and reduce congestion

Traffic congestion costs U.S. cities billions every year. Reducing congestion, lowering accident and fatality rates, and improving economic and environmental impact is what's on the agenda for towns, cities and states across the U.S.

- Deliver effective traffic control measures by fully understanding traffic and journey insights across your community
- Ensure all modes of transport have suitable usage of roads
- Recommend infrastructure improvements based on historical and real-time data

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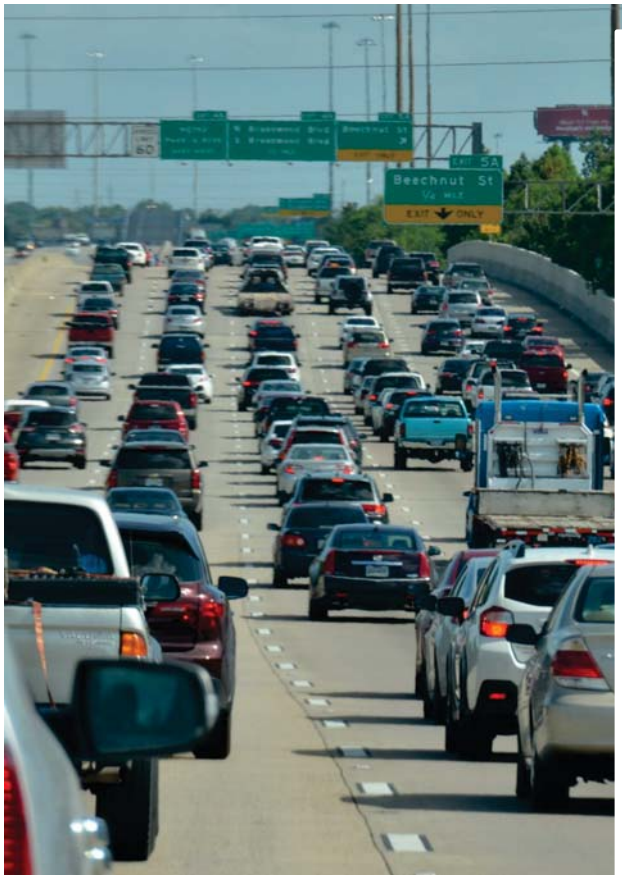

Resiliency

Infrastructure and smart cities designed with resilience in mind

No one knows exactly what the future holds. But that should not stop us from preparing for the inevitable. Managing disaster recovery and putting in place evacuation procedures requires a good understanding of how people move.

- Knowing where to direct traffic, what roads to navigate and where gridlocks could occur can help you plan for the future
- Spot trends and identify priorities using historical and real-time traffic and journey data
- See what's happening on your roads as it happens with access to intelligent real-time aggregated traffic data

wejo

Environment

Giving everyone access to EV charging

Building more EV charging stations across your community sounds easy. But without accurate data guiding planning, the shift towards EVs could face significant backlash.

- Keep pace with shifting electrification goals set out by the federal government. i.e. planning for charging site locations, power needs, and adoption rates
- Understand the landscape on the ground and the interplay between electric vehicle drivers and the current infrastructure
- Identify trends in the way existing electric car drivers use their vehicles to inform policy decisions as the sector grows

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Selected Bibliography: CVD at the Heart of Safety, Infrastructure Planning, and Electrification

Desai, J., H. Li, J.K. Mathew, Y. Cheng, A. Habib, and D.M.Bullock, "Correlating Hard-Braking Activity with Crash Occurrences on Interstate Construction Projects in Indiana." Journal of Big Data Analytics in Transportation, October 2020. https://doi.org/10.1007/s42421-020-00024-x

Sakhare, R. , Desai, J. , Mathew, J. , McGregor, J. and Bullock, D.(2021) "Evaluation of the Impact of Presence Lighting and Digital Speed Limit Trailers on Interstate Speeds in Indiana Work Zones," Journal of Transportation Technologies, 11, 157-167. https://doi.org/10.4236/jtts.2021.112010

Hunter, M., Saldivar-Carranza, E., Desai, Mathew, J.K., Li, H., and Bullock, D. "A Proactive Approach to Evaluating Intersection Safety Using Hard-Braking Data," Journal of Big Data Analytics in Transportation. (2021). https://doi.org/10.1007/s42421-021-00039-y

Mathew, J.K., J.C. Desai, R.S. Sakhare, W. Kim, H. Li, and D.M.Bullock, "Big Data Applications for Managing Roadways," ITE Journal, Institute of Transportation Engineers, 91(2), 28-35, February 2021. https://www.nxtbook.com/ygsreprints/ITE/ite-journal-february-2021/index.php#/p/28

Selected Bibliography: CVD at the Heart of Safety, Infrastructure Planning, and Electrification

Sakhare R.S., Desai J, Li H, Kachler MA, Bullock DM. Methodology for Monitoring Work Zones Traffic Operations Using Connected Vehicle Data. *Safety*. 2022; 8(2):41. https://doi.org/10.3390/safety8020041

Desai, J.; Mathew, J.K.; Li, H.; Bullock, D.M. "Leveraging Connected Vehicle Data to Assess Interstate Exit Utilization and Identify Charging Infrastructure Investment Allocation Opportunities." *World Electr. J.* 2022, 13, 167. https://doi.org/10.3390/wevj13090167

The Eastern Transportation Coalition. "Hurricane Proof of Concept Results, State's Experience with Real-time Connected Vehicle Data." Available at: https://tetcoalition.org/wp-content/uploads/2021/03/MT2008_Wejo_HurricaneReport_2021.pdf

Adanu, Emmanuel, *et al*. "Incorporating Big Data into Safety Analysis: An Integrated and Proactive Approach." *ITE Technical Brief*, 2022. Available at: https://www.ite.org/pub/?id=58CEE45-A47E-6834-CD6D-CE7346788015

Policy Benefits to Policy Makers and DOTs

Make roadway safety programs more efficient and effective

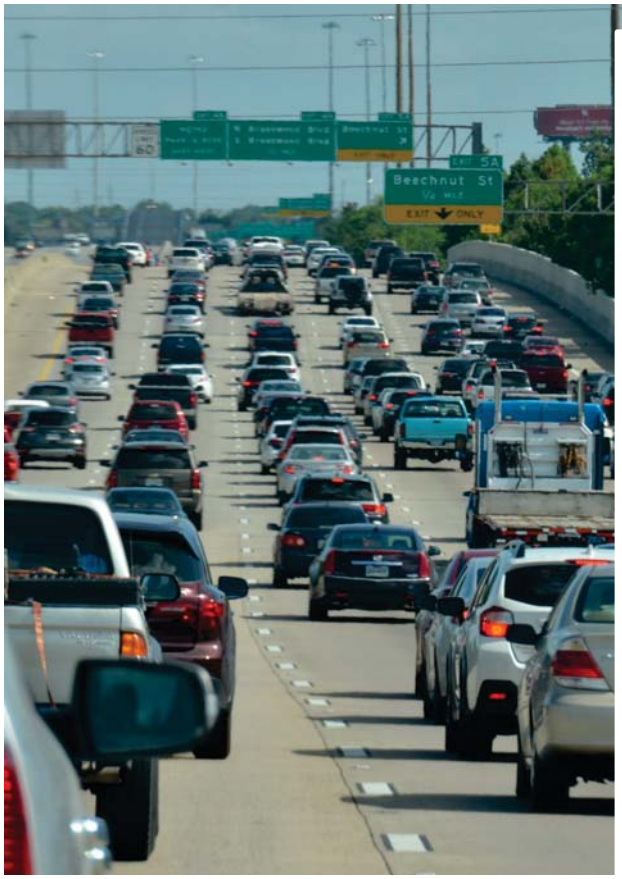
Improve urban and infrastructure planning

Quickly identify congestion and roadway incidents

Enable performance reviews of infrastructure investments

Respond to natural disasters

Support improved efficiency of supply chain movements



"We can now carry out a months' worth of analysis within 45 minutes that previously would have taken 2-3 years, all using Wejo data."

Dr. Darcy Bullock
Lyles Family Professor of Civil Engineering,
Director, Joint Transportation Research Program
Purdue University

wejo © Wejo Ltd.

“Traditional traffic studies look only at infrastructure and not the *human component*. CVD changes that. It lets us see how humans are interacting with a given environment and make decisions based on that.”

Dr. Xiao Li
Associate Transportation Researcher,
Mobility Analysis
Texas A&M Transportation Institute

wejo © Wejo Ltd.

A Few Words on Data Privacy

- Wejo is committed to high standards of data security and privacy protection
- Wejo complies with all applicable laws:

✓ U.S. State Law (CA, CO, CT, VA, UT)

✓ GDPR

- *Privacy by Design (PbD)* informs and guides our product and service offerings
- CVD in our aggregated intelligence products are de-identified and aggregated to protect against the re-identification of Personally Identifiable Information (PII)

wejo

A Few Words on Data Privacy

- Technical measures implemented to protect against re-identification
- Enforceable contract provisions to protect "egress" data against re-identification
- Dedicated privacy team
- Employee Engagement

✓ *"Privacy Champions"* assigned across departments

✓ *Privacy Playbook*

- Data is treated fully in accordance with consumers' consent
- Consent obtained by the Original Equipment Manufacturer (OEM)

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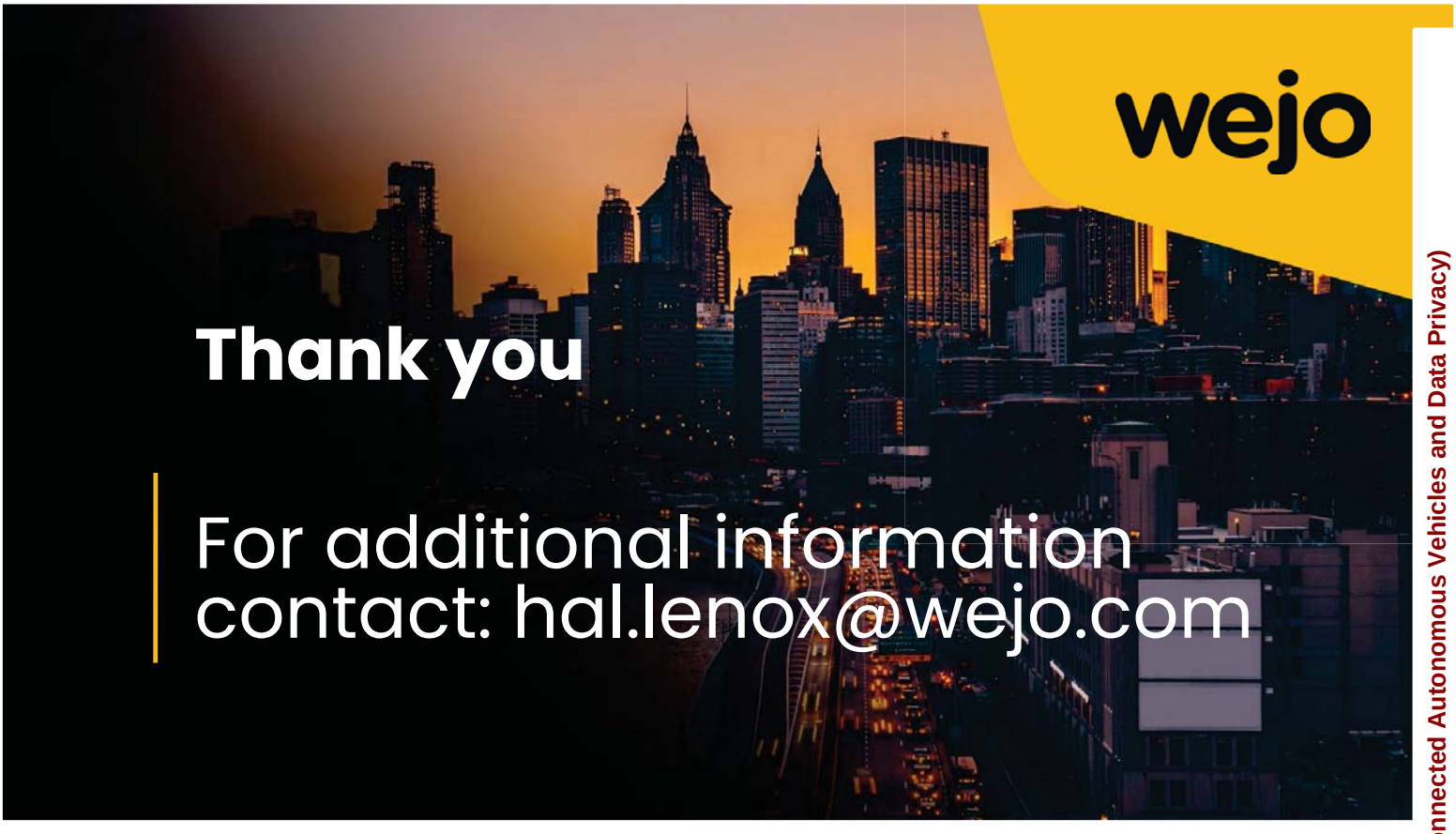


THE OPEN MOBILITY FOUNDATION – DATA & DIGITAL INFRASTRUCTURE

SCAG Emerging Technology Committee

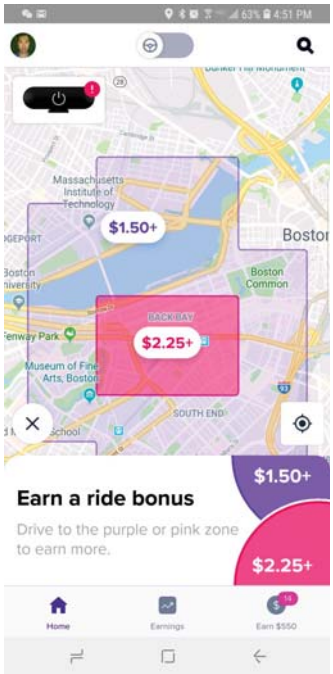
Andrew Glass Hastings, Executive Director
March 23, 2023

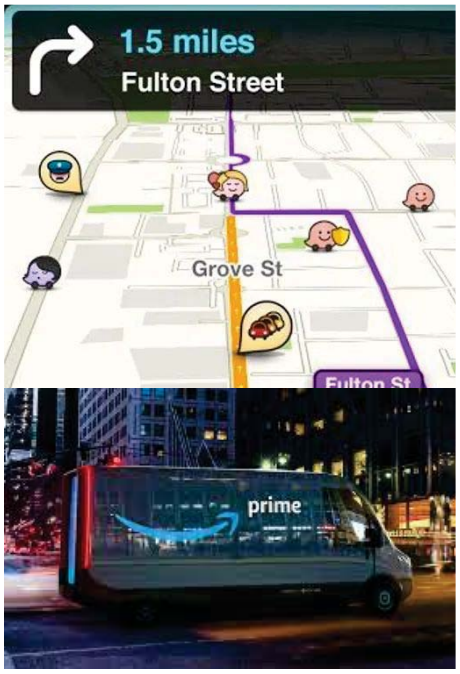
OPEN MOBILITY FOUNDATION

THE CHALLENGE

1900s-2000s: PHYSICAL INFRASTRUCTURE

2010s -: THE NEED FOR DIGITAL INFRASTRUCTURE

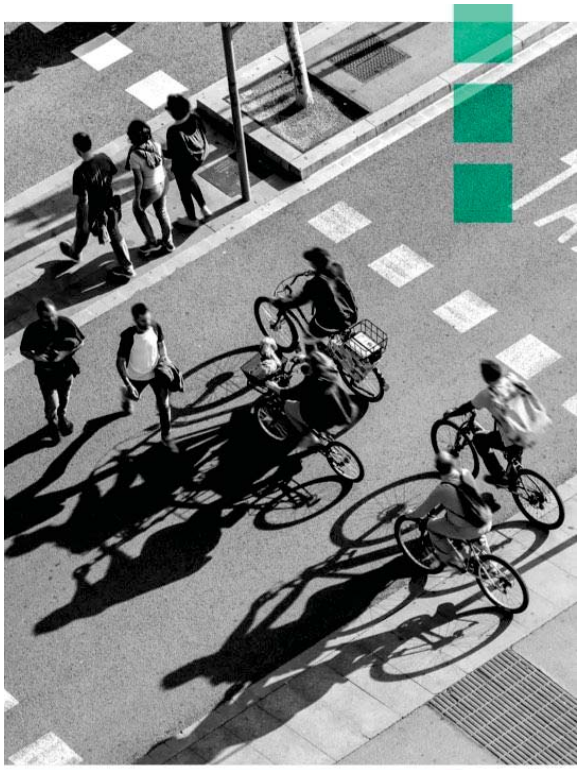




OUR APPROACH

THE OMF VISION

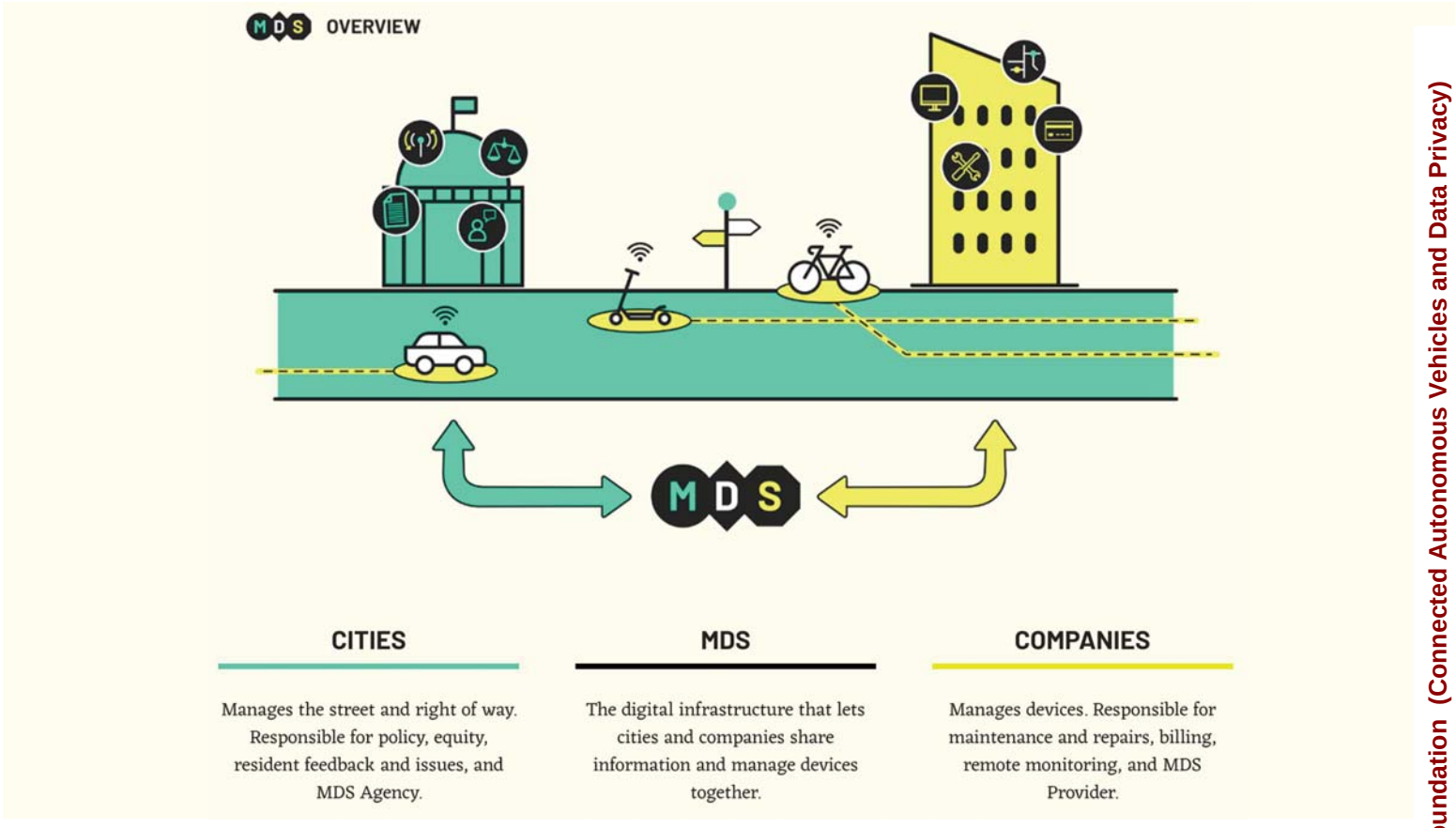
- Digital infrastructure to manage public space for the public good
- Data standards and open source tools
- Public/private collaboration that encourages responsible growth of new mobility services
- Cross-sector relationships and a shared vision for mobility
- Building toward the city transportation operating system of tomorrow



OUR MEMBERS

50+ members and counting. Complete list:
openmobilityfoundation.org/members

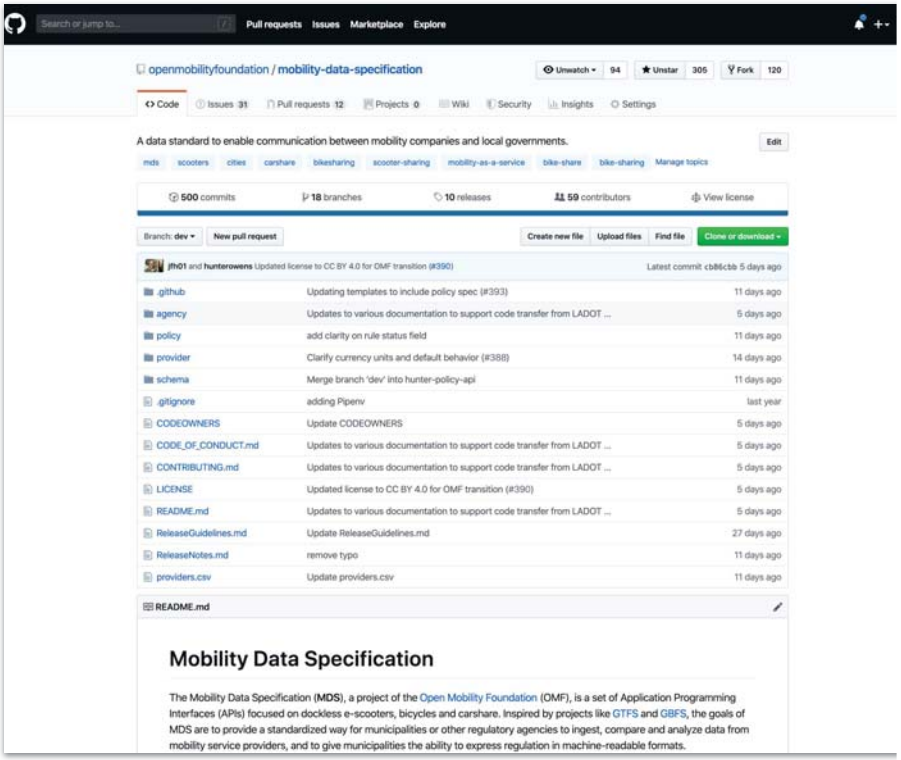
TOOLS FOR DIGITAL INFRASTRUCTURE



MOBILITY DATA SPECIFICATION

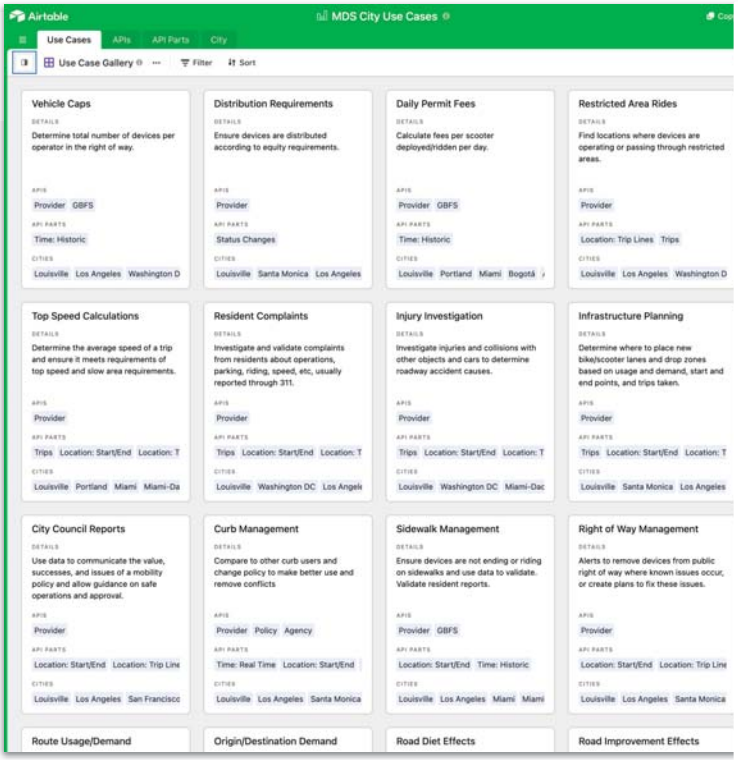
AN API CONNECTING MOBILITY COMPANIES WITH LOCAL GOVERNMENTS

- 160+ cities in 21+ countries
- Marketplace of tools for cities built on MDS
- Now: e-scooters, mopeds, bikes
- Soon: Taxi, TNC, delivery bots, car share



MDS USE CASE DATABASE

- Actual use cases from cities using MDS
- Identifies specific MDS APIs and endpoints used to achieve goal
- ~15 cities



https://www.openmobilityfoundation.org/whats-possible-with-mds/

MDS

VERSION 2.0.0

MICROMOBILITY

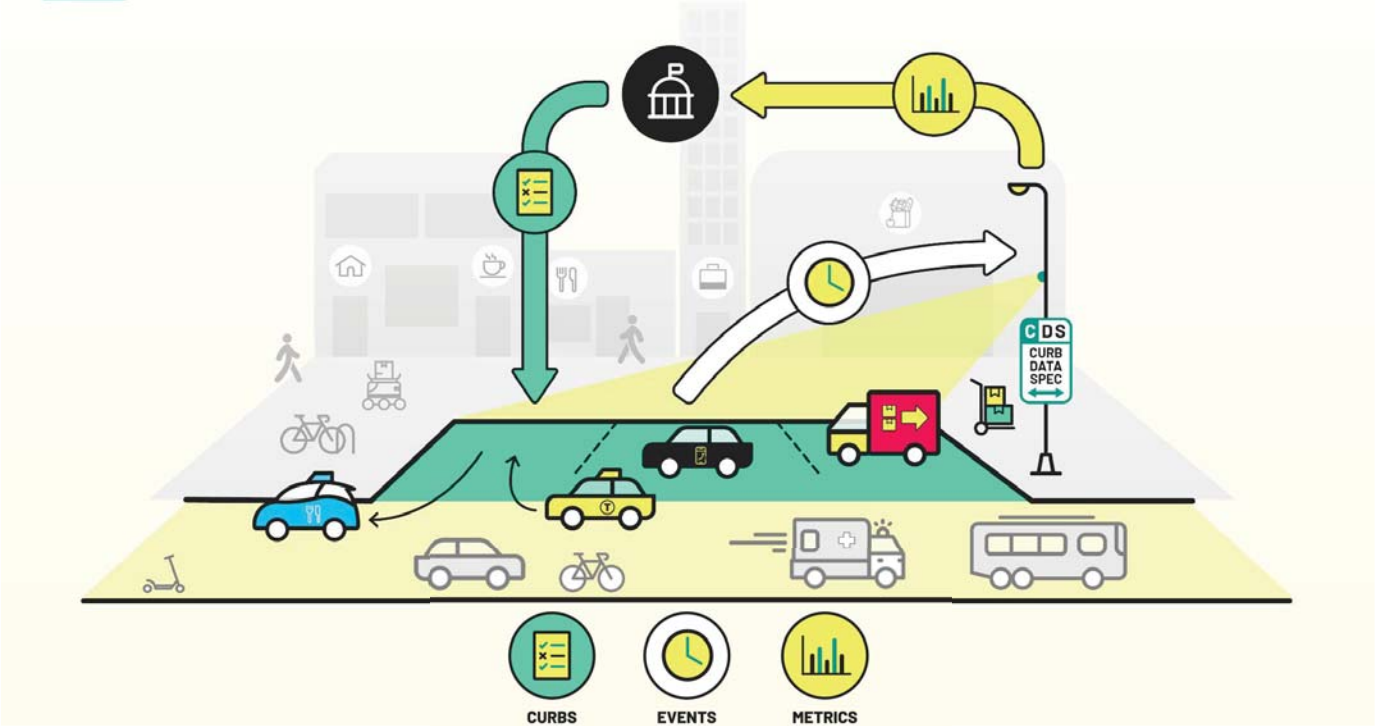
PASSENGER SERVICES

CAR SHARE

DELIVERY ROBOTS

OMF OPEN MOBILITY FOUNDATION

CDS OVERVIEW



CURB DATA SPECIFICATION

A NEW STANDARD THAT HELPS PILOT AND SCALE DYNAMIC CURB ZONES

- Allows cities to digitally express regulations, measure activity at the curb, and develop dynamic policies
- Developed through contributions from 160+ individuals from dozens of public agencies, curb users, and technology companies
- Early adopters include dozens of cities and companies

CDS
CURB
DATA
SPEC

CDS IN PRACTICE: USE CASES

Pittsburgh pilot includes local Amazon affiliate and offers incentives for zero-emission delivery vehicles

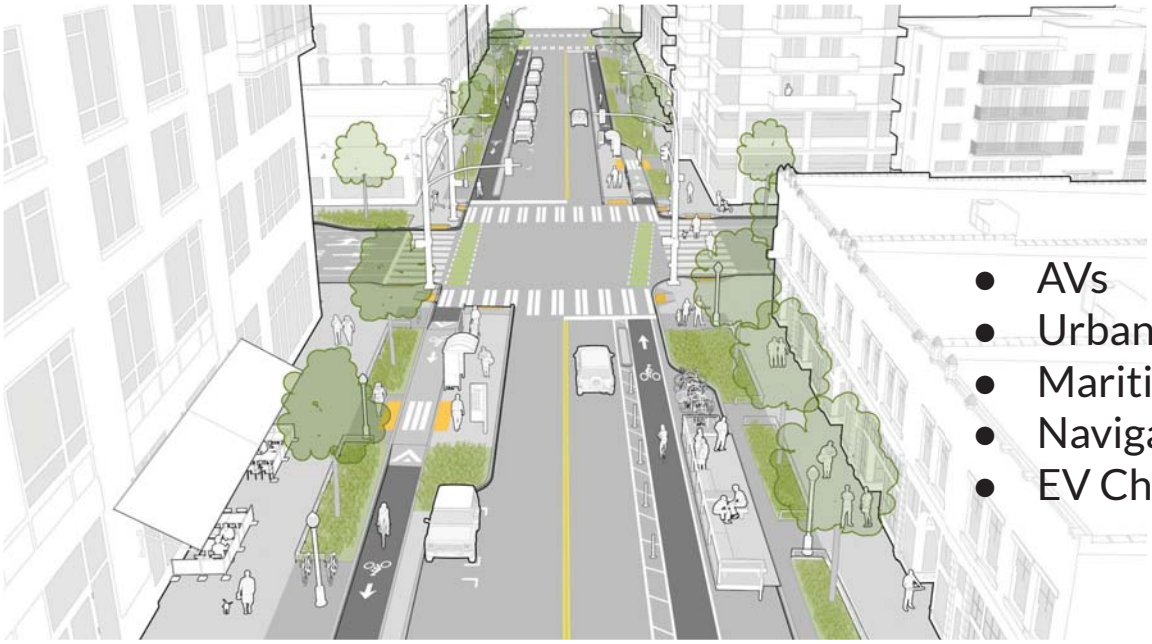
See more use cases here

CDS' flexibility means it can be used in many scenarios, including:

- Digitally sharing regulations, including loading zone rules and locations
- Determining real-time curb status
- Tracking and analyzing curb usage
- Responding to curb violations and improving curb enforcement
- Optimizing curb usage and access to meet policy goals

WHAT'S NEXT?

SUPPORTING CITIES TRANSITION TO DIGITAL INFRASTRUCTURE

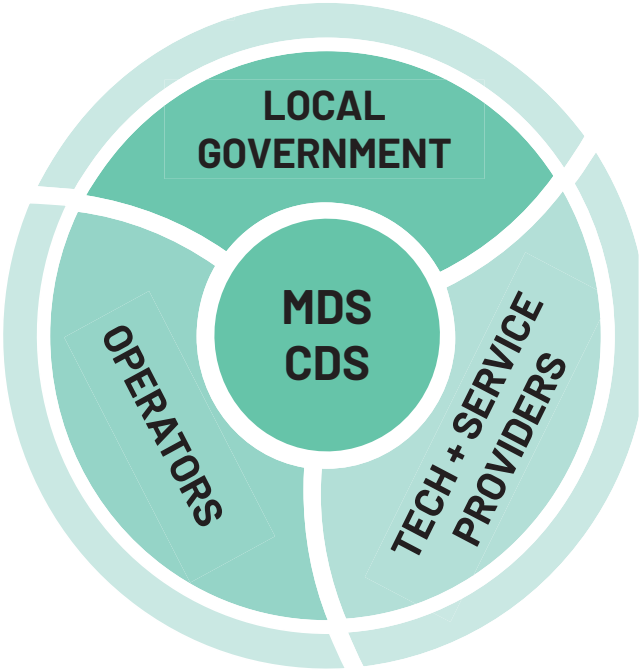


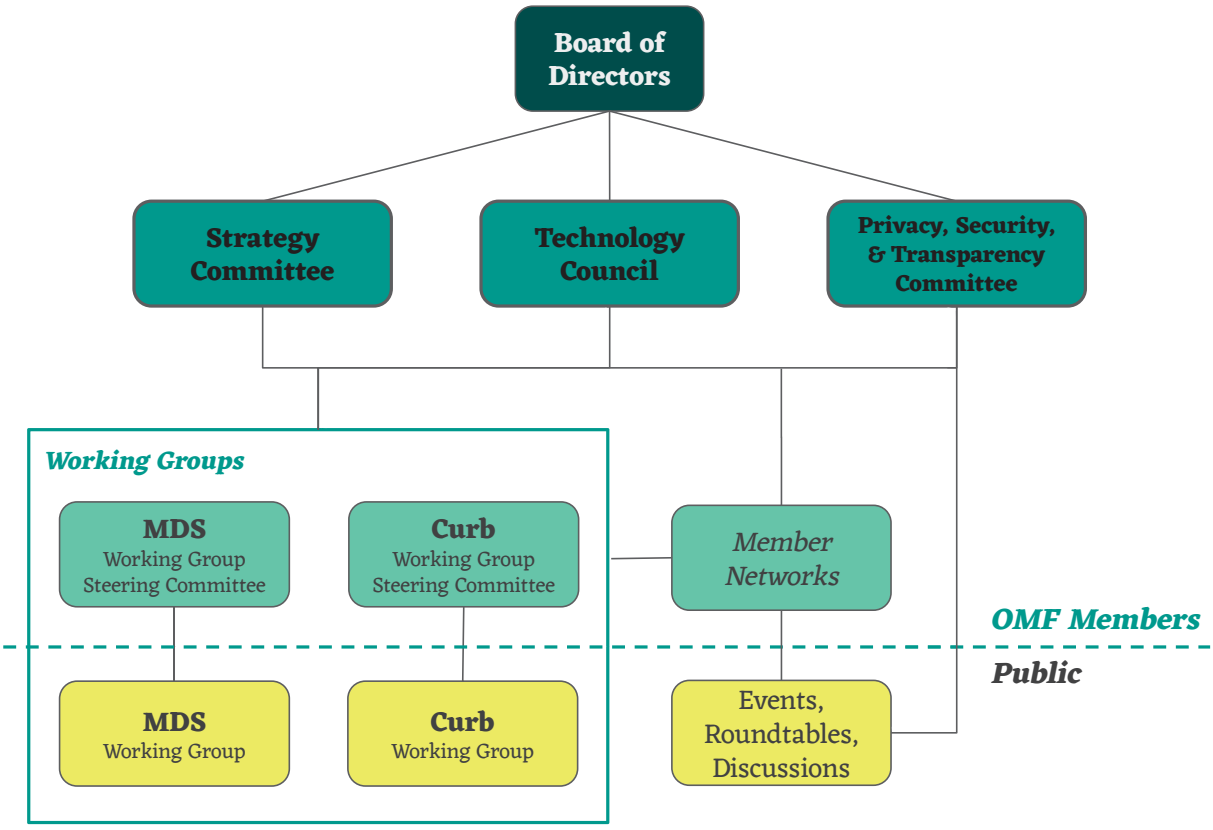
- AVs
- Urban aviation
- Maritime
- Navigation
- EV Charging

GETTING INVOLVED

HOW WE WORK

- Led by cities w/ strong private sector governance participation
- Working groups and GitHub repositories open-to-all
- Technology built through public and private sector collaboration
- Open-source licensing
- Members drive our work



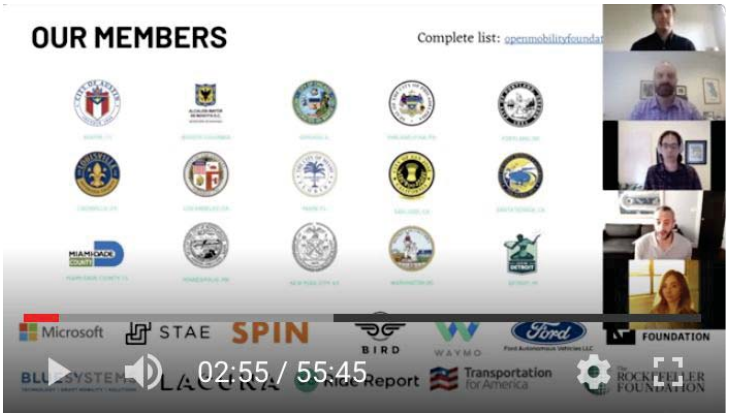


INDIVIDUAL CONTRIBUTORS

- Participate in software development and bring their priorities and ideas to development
- Join working group meetings and engage on GitHub
- Part of a thriving community working to build a more uniform regulatory environment and technology marketplace

MEMBER ORGANIZATIONS

- Participate in leadership roles and committees
- Access member engagement events and programming
- Build relationships and access a diverse array of perspectives on emerging mobility services



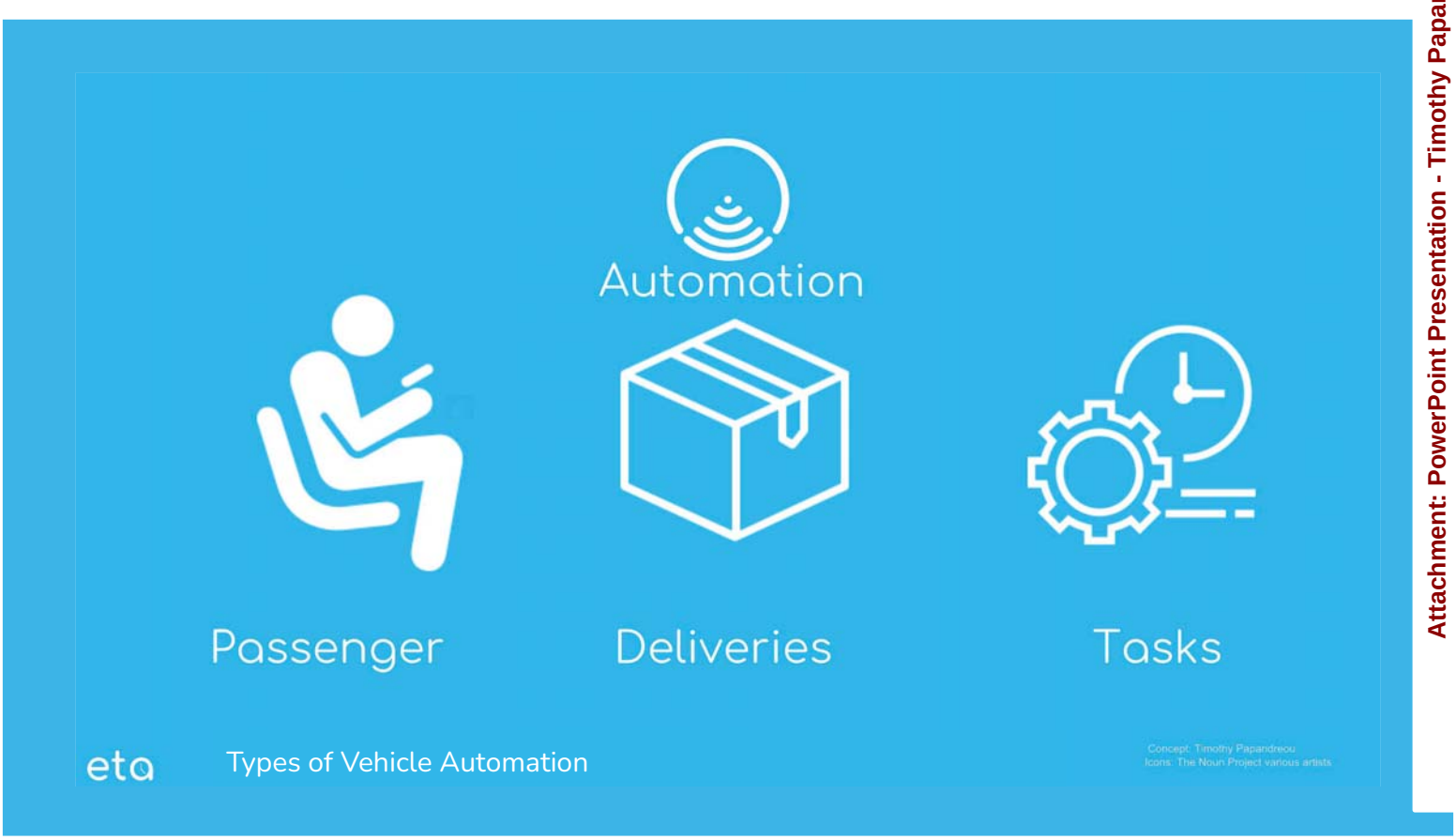
CONNECT WITH US

openmobilityfoundation.org

@openmobilityfnd

github.com/openmobilityfoundation

emergingtransport.com
timothy@emergingtransport.com
Timothy Papandreou
@tpap_





Passenger Automation

eta


Driver

Rider

eta Automation changes our relationship with the vehicle

Concept: Timothy Papandreou
Icons: The Noun Project various artists



Delivery Automation


eta

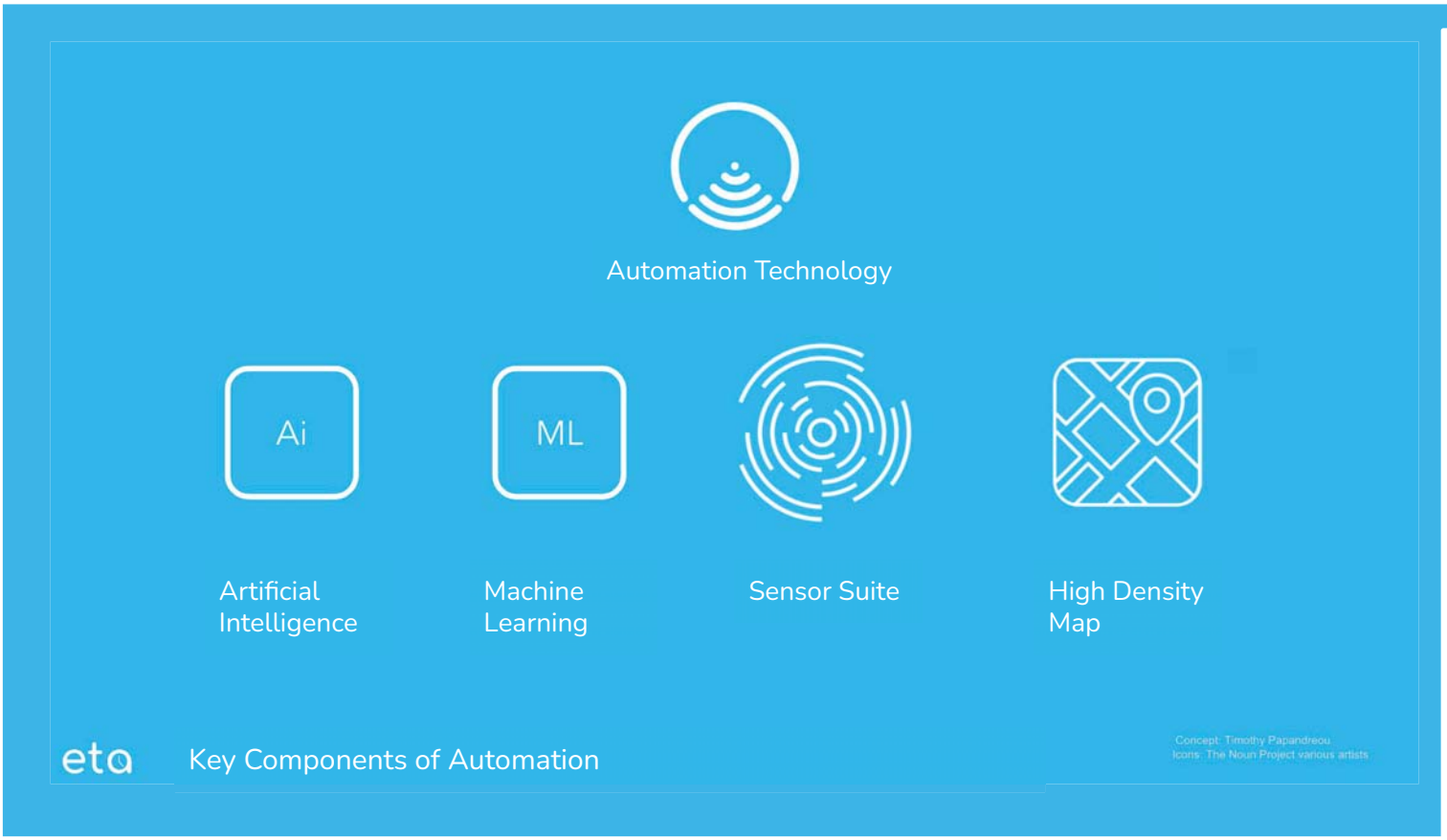


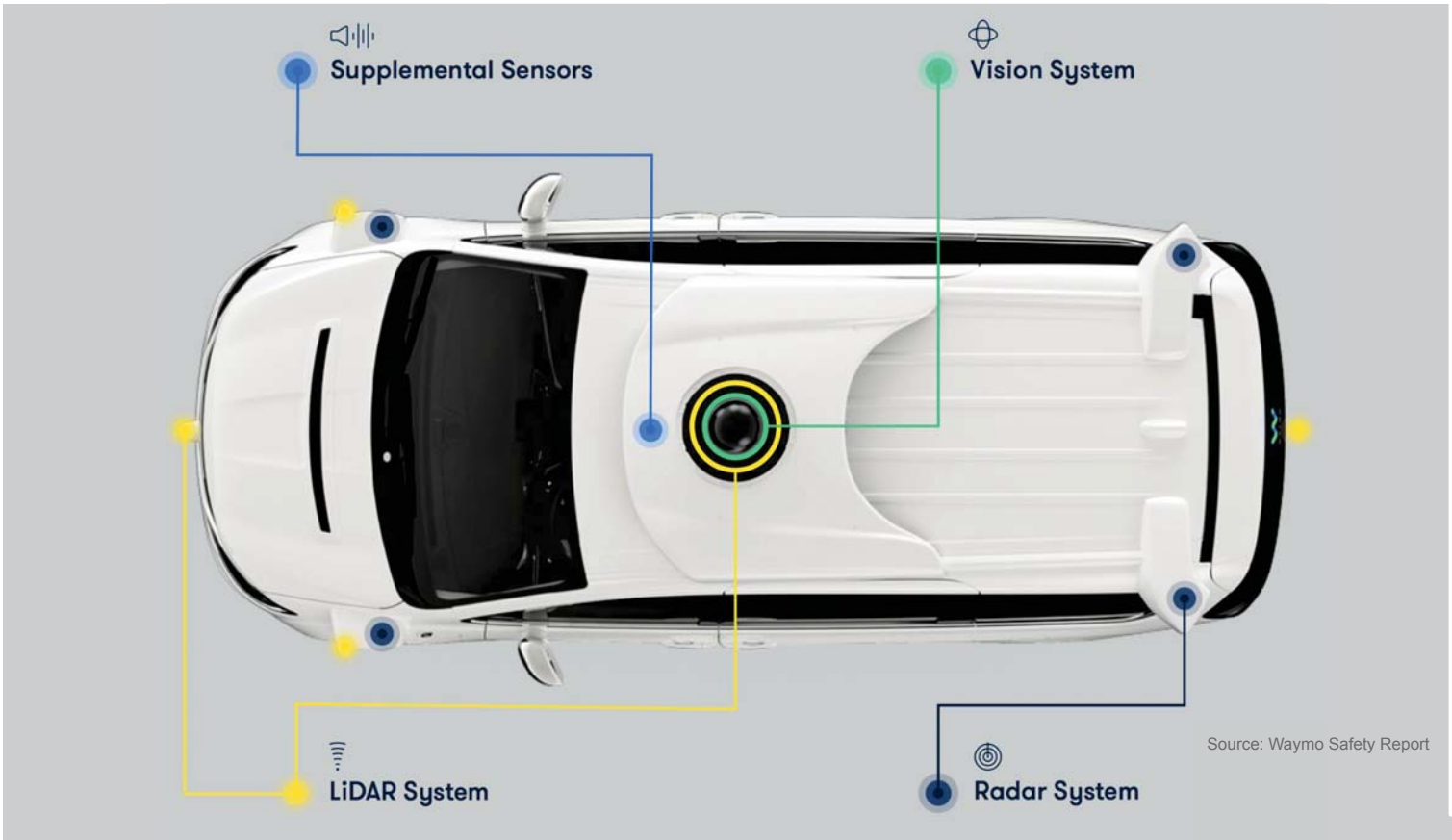


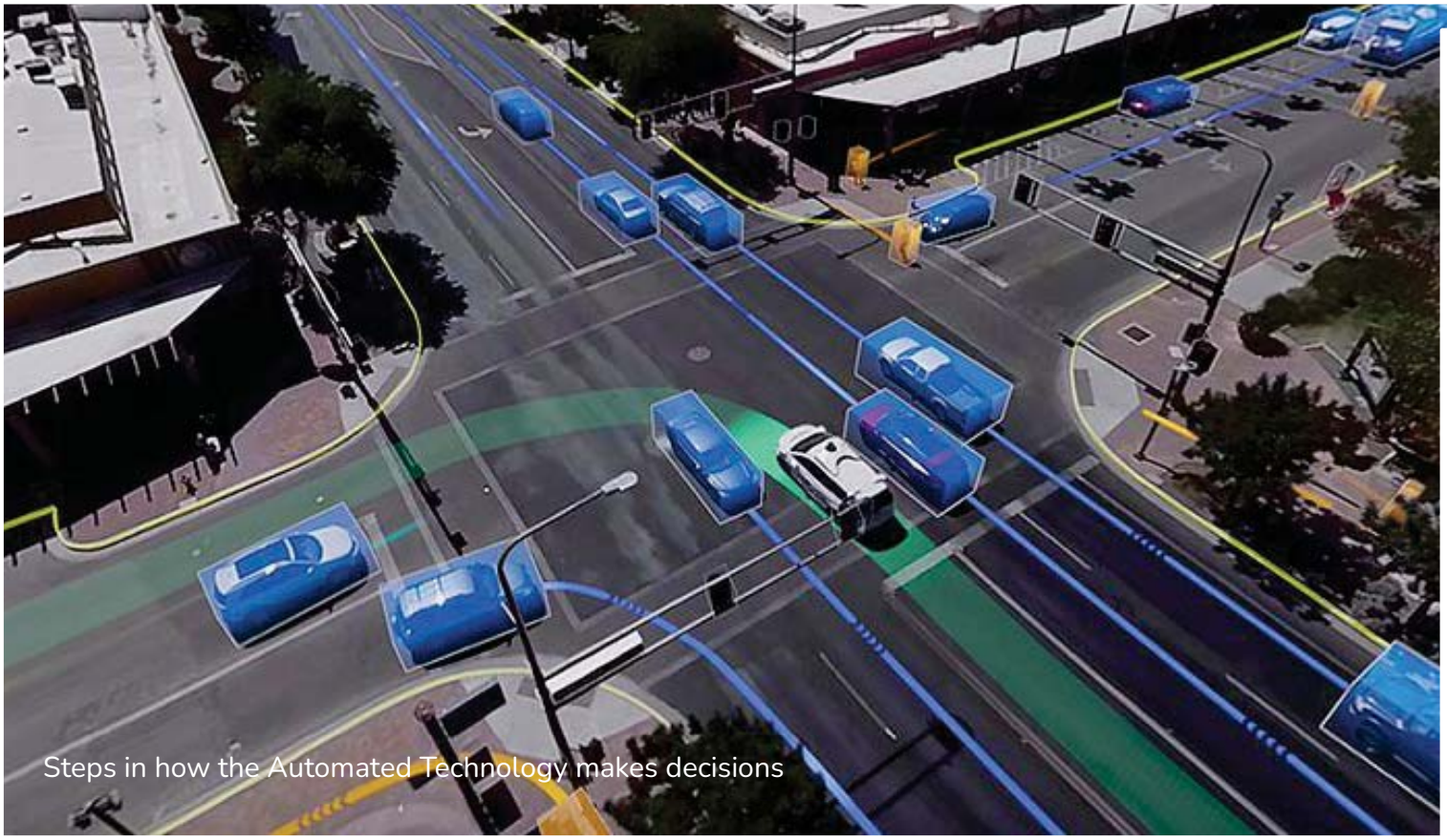


eta

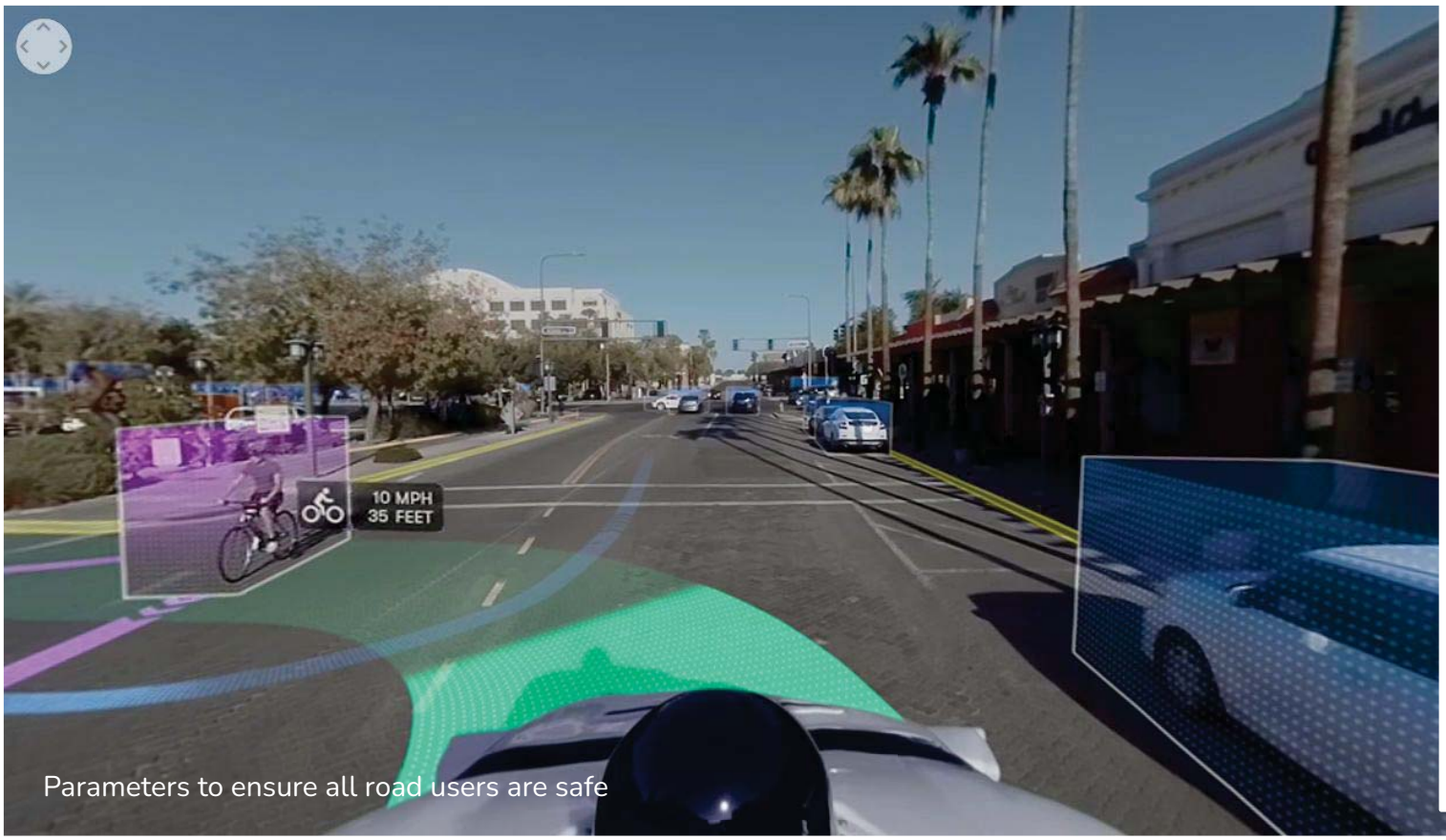
Tasks Automation


Automation Technology
Ai
ML
Artificial Intelligence
Machine Learning
Sensor Suite
High Density Map
eta
Key Components of Automation
Concept: Timothy Papandreou
Icons: The Noun Project various artists

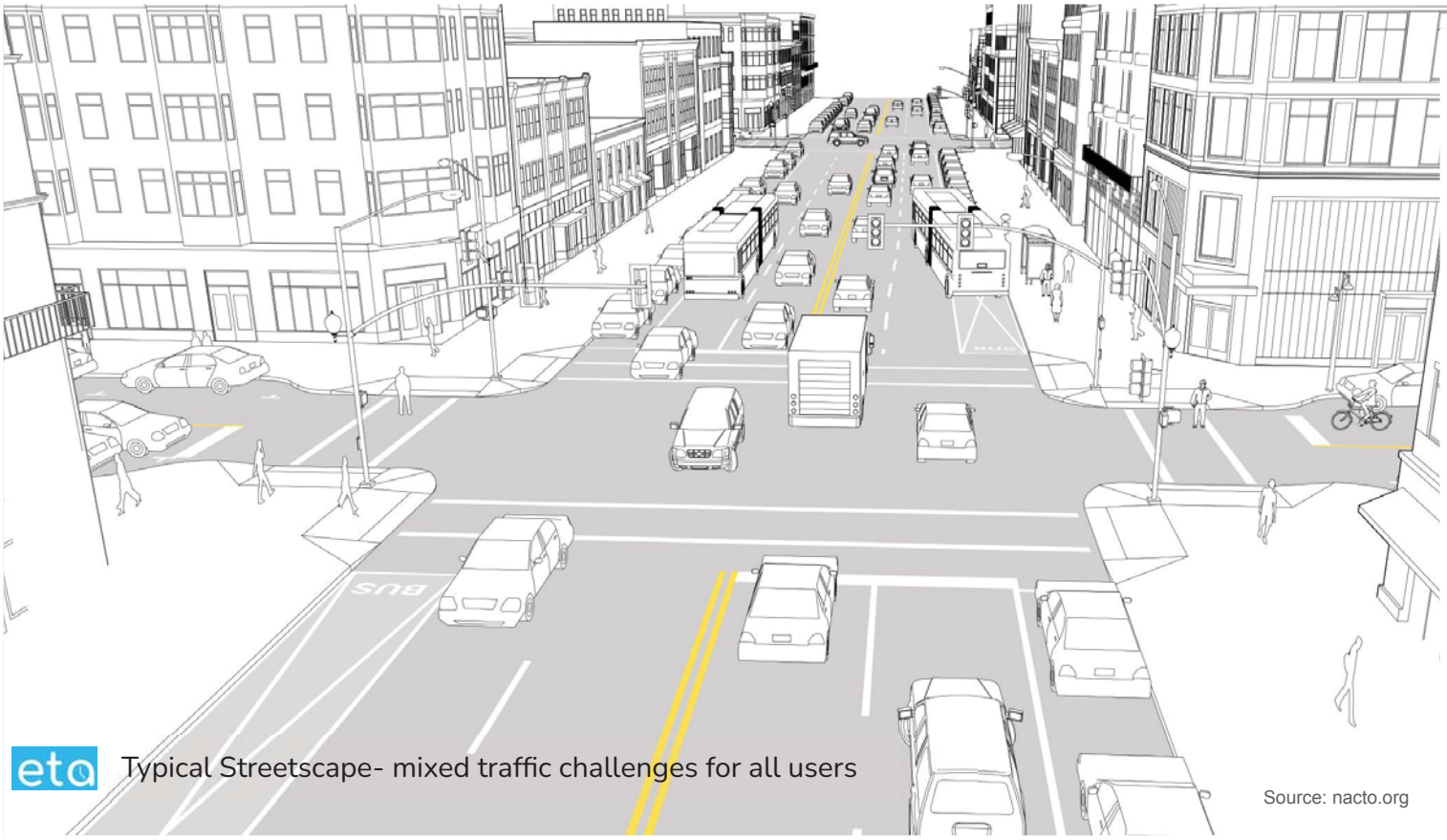

Supplemental Sensors
Vision System
LiDAR System
Radar System
Source: Waymo Safety Report



Steps in how the Automated Technology makes decisions



Parameters to ensure all road users are safe

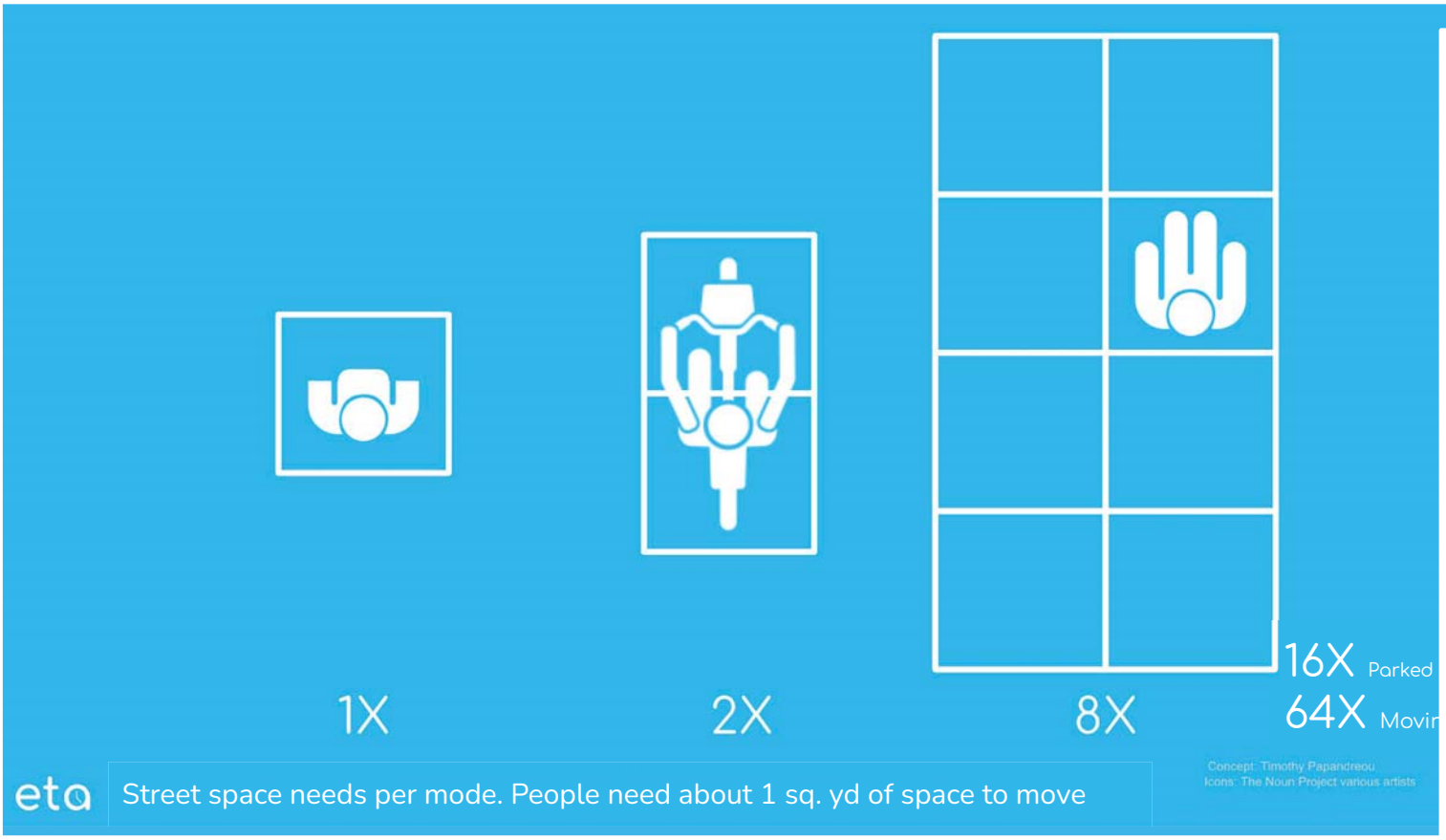


Typical Streetscape- mixed traffic challenges for all users

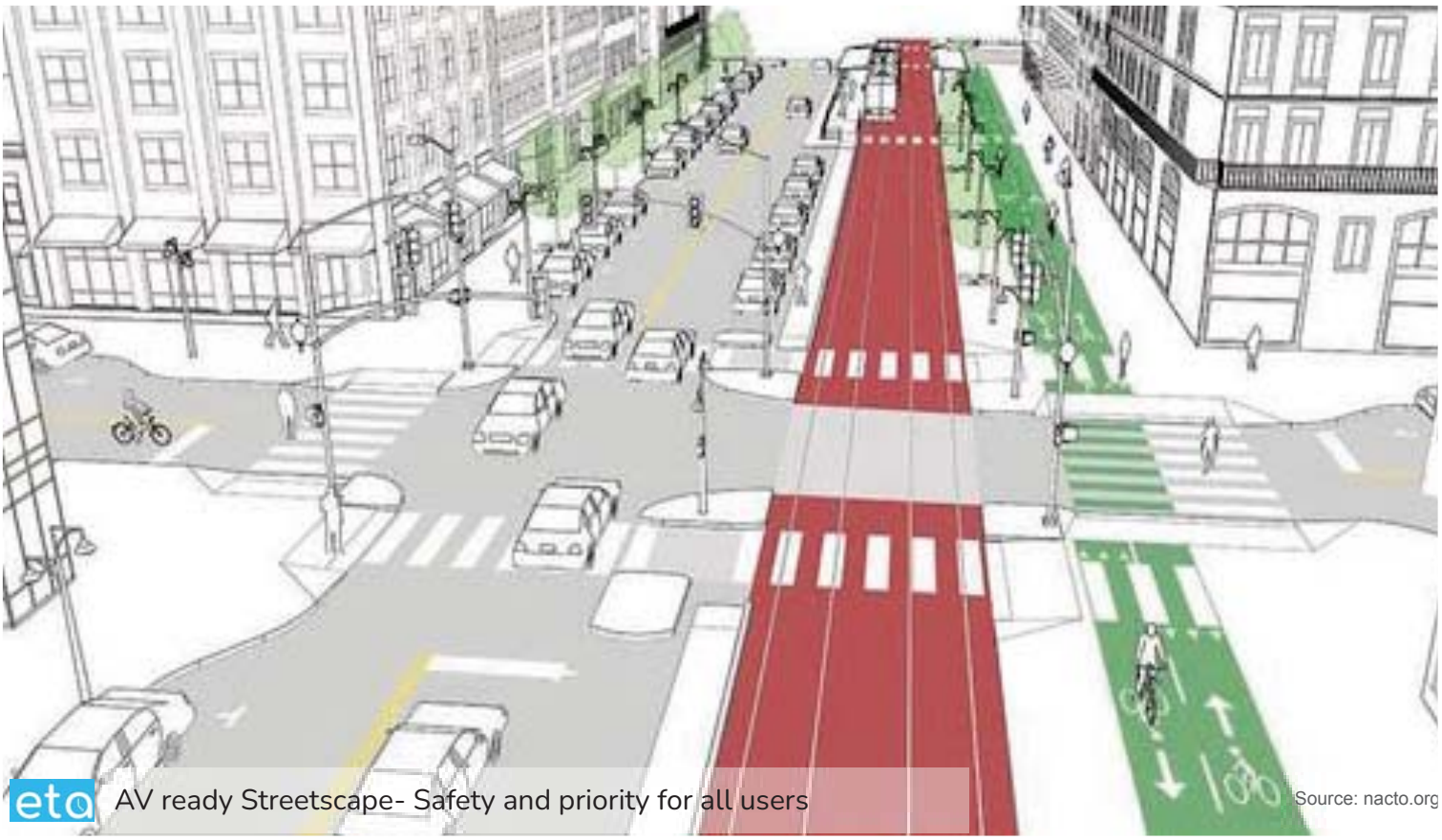
Source: nacto.org

Who and how we prioritize space on the street determines outcomes

250



eta Street space needs per mode. People need about 1 sq. yd of space to move



eta AV ready Streetscape- Safety and priority for all users

Source: nacto.org

Attachment: PowerPoint Presentation - Timothy Papandreou (Connected Autonomous Vehicles and Data Privacy)

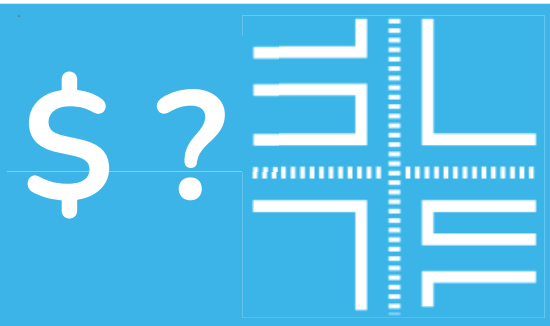
Industries Disrupted by Automated Vehicle Technology

Transportation Services

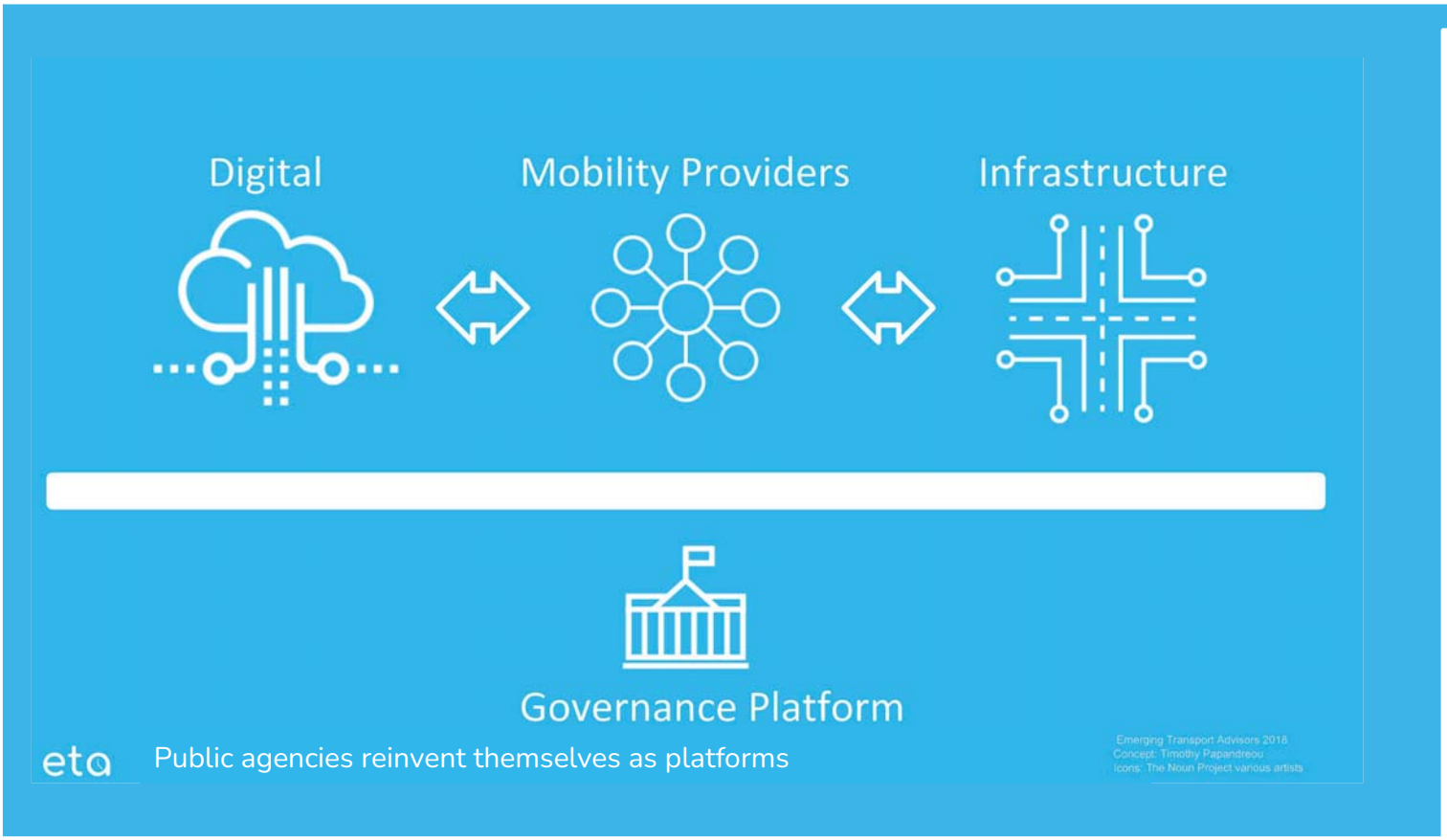
Support Services

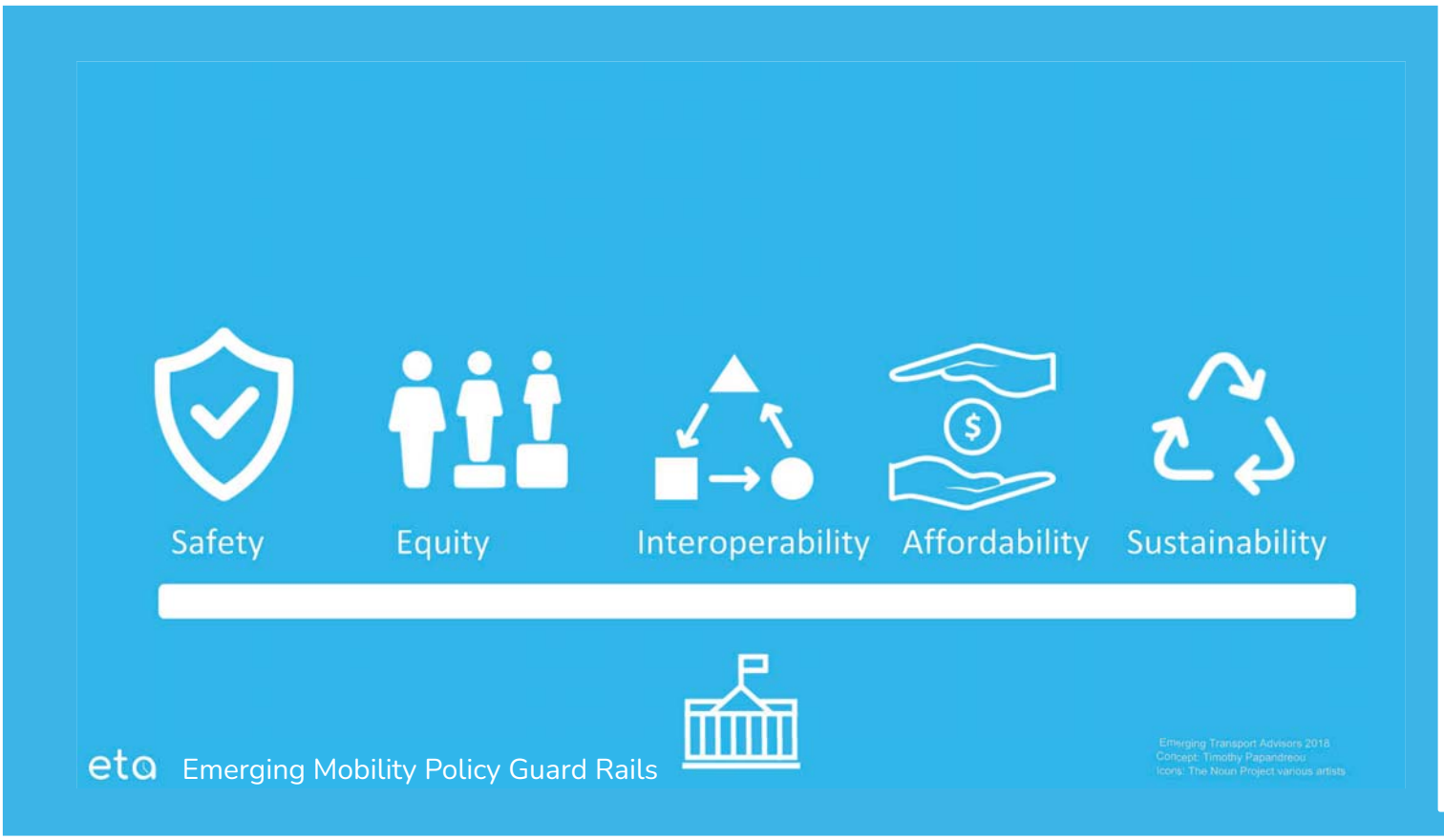
Land Services

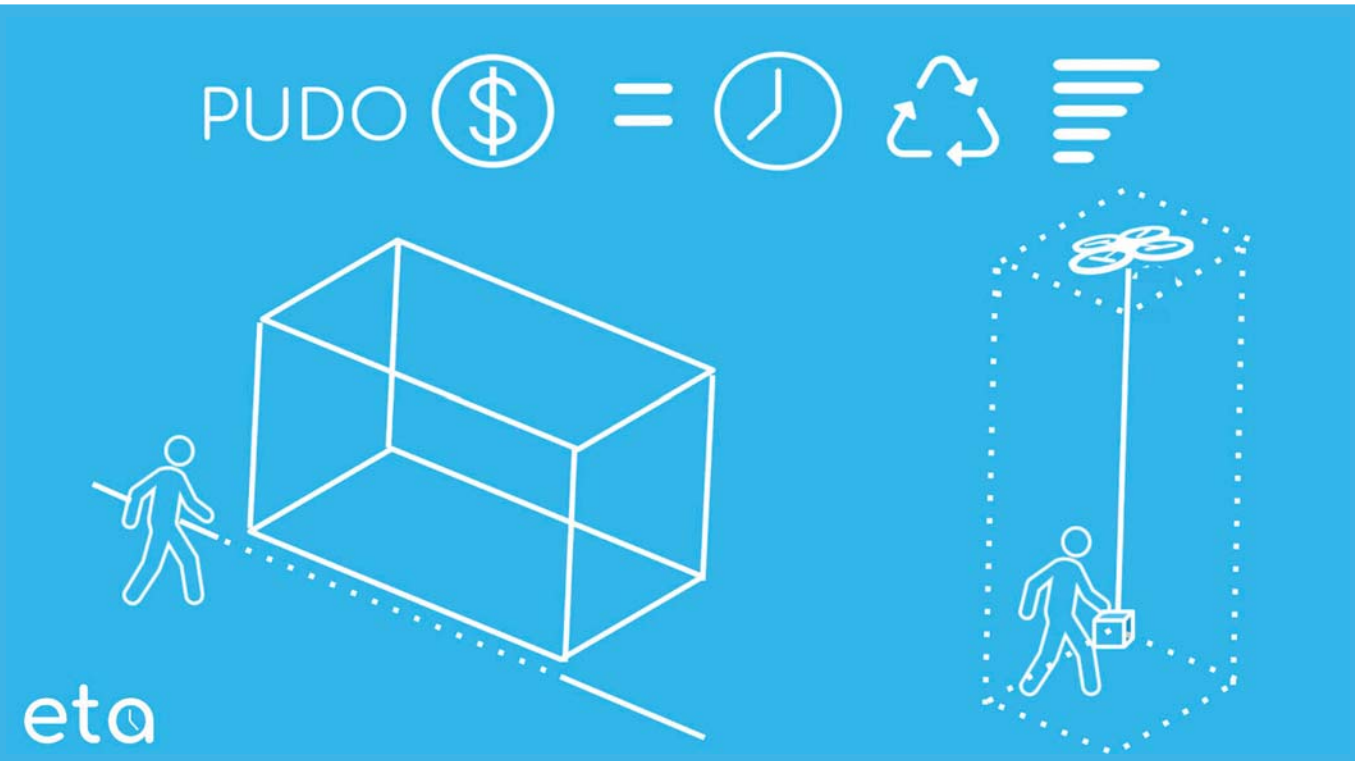
eta timothy@emergingtransport.com



The current public infrastructure funding model is being disrupted







New dynamic public infrastructure funding models being explored

eta Stronger partnerships centered on community will be key to success

Concept: Timothy Papandreou
Emerging Transport Advisors 2018
Icons: The Noun Project various artists