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TRB Webinar: Rethinking Public Transit in Emergency Evacuations—Lessons from Wildfires

August 4, 2025

12:00 – 1:30 PM

PDH Certification Information

1.5 Professional Development Hours (PDH) – see follow-up email

You must attend the entire webinar.

Questions? Contact Andie Pitchford at TRBwebinar@nas.edu

The Transportation Research Board has met the standards and requirements of the Registered Continuing Education Program. Credit earned on completion of this program will be reported to RCEP at RCEP.net. A certificate of completion will be issued to each participant. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the RCEP.



AICP Credit Information

1.5 American Institute of Certified Planners Certification Maintenance Credits

You must attend the entire webinar

Log into the American Planning Association website to claim your credits

Contact AICP, not TRB, with questions

Purpose Statement

This webinar will explore how transit systems can support mass evacuations, reduce congestion, aid carless residents and visitors, and preserve emergency response capacity.

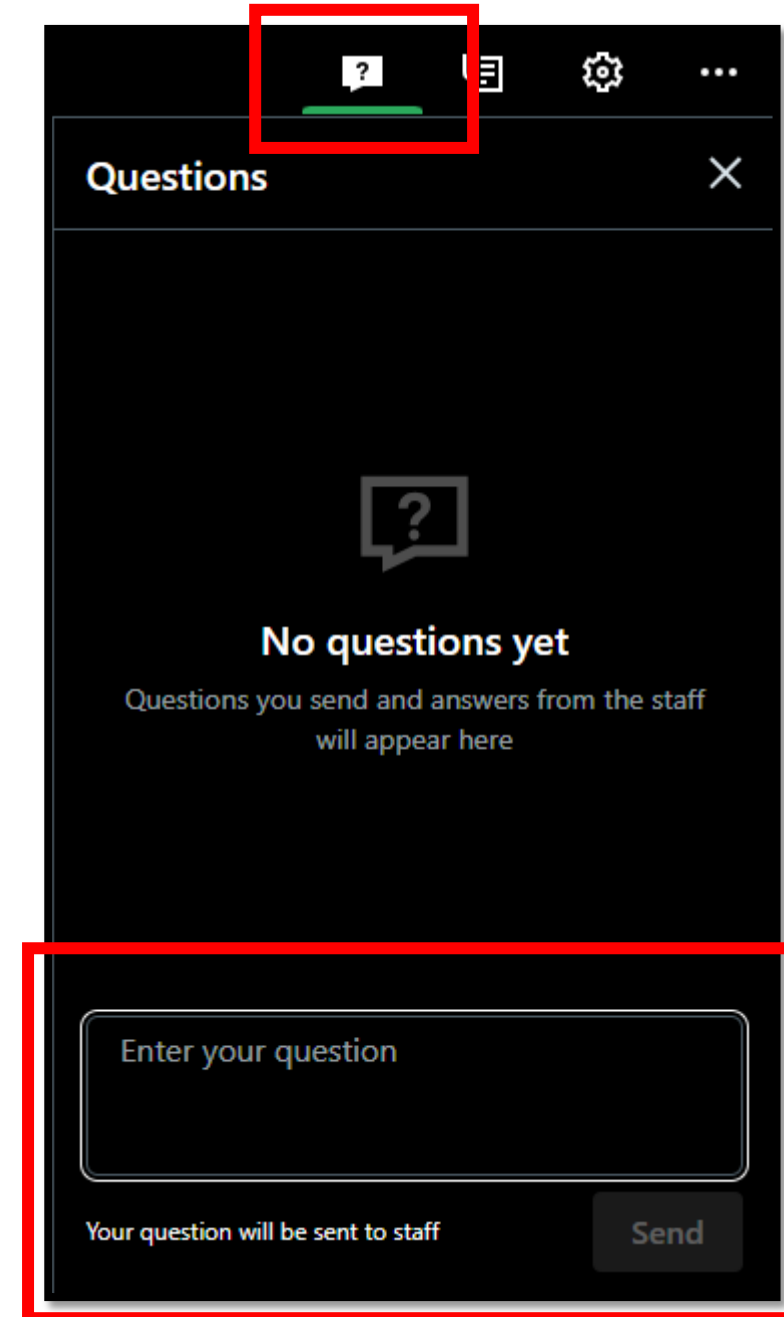
Learning Objectives

At the end of this webinar, participants will be able to:

- Describe the effectiveness of public transportation in wildfire evacuations and disaster responses using recent real-world examples,
- Identify gaps in current implementation plans and explain how initiatives such as mobility hubs can be adapted to enhance regional resilience, and
- Apply actionable strategies for improving disaster response efforts based on shared expertise and case studies.

Questions and Answers

- Please type your questions into your webinar control panel
- We will read your questions out loud, and answer as many as time allows



The screenshot shows a dark-themed mobile application interface for a webinar. At the top, a navigation bar contains several icons: a question mark icon (highlighted with a red box), a list icon, a settings gear icon, and a three-dot menu icon. Below the navigation bar is a header section titled "Questions" with a close button (X) on the right. The main content area displays a large question mark icon and the text "No questions yet" followed by "Questions you send and answers from the staff will appear here". At the bottom, there is a text input field with the placeholder "Enter your question" (highlighted with a red box). Below the input field, the text "Your question will be sent to staff" is displayed next to a "Send" button (also highlighted with a red box).

Today's Presenters



Ian Barnes

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Tara Goddard

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**Hazard Reduction
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ASSOCIATION OF BAY AREA GOVERNMENTS
METROPOLITAN TRANSPORTATION COMMISSION

Transportation Lessons Learned Through The Los Angeles Fire Response



Metro

EMERGENCY
MANAGEMENT
SYSTEM SECURITY &
LAW ENFORCEMENT

METRO'S FIRE RESPONSE COORDINATION SUMMARY

1

Extent of recent fires ■ Burned area



Image Source: New York Times with CalFire Data (1/14/25)

Level 2 EOC activation from
Jan 8th – 18th [7am -10pm]

Four (4) EOC Briefings per day
• All Metro departments represented

Metro Liaisons in the LA City
and County EOCs

Activated our Crisis
Management Team



GENERAL PROCEDURES DURING AN EOC ACTIVATION

- Coordinate Response
 - Regularly Scheduled Briefings
 - Internal Departments
 - Local, State, and Federal partners
- Fulfill Mutual Aid Requests
- Notify Stakeholders and the Public

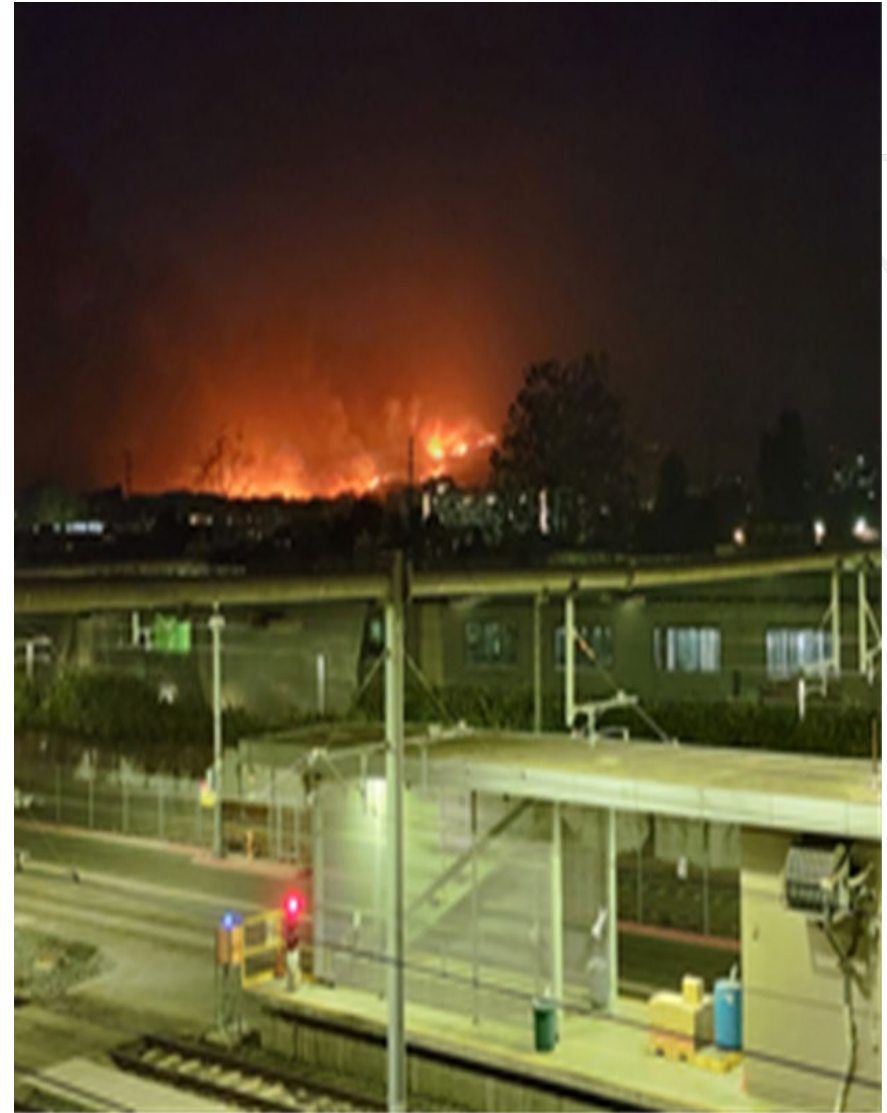
CHALLENGES

- Tracking six fires in LA County
 - Two Major - Eaton and Palisades Fires
- Initial Impacts to Metro Operations
 - Mutual aid requests for evacuation
 - Metro staff call-outs
 - Tracking staff directly impacted
 - Route Shedding and Delays
 - Unsafe areas where service could not be provided



CHALLENGES *con't*

- Supporting Impacted Staff
 - Not everyone self-identified
- Procurement
 - Ensuring enough supplies (PPE) for field staff and riders
- Research & Analysis of Safety Protocols
- Recovery
 - Capturing the costs/hours for recovery



LESSONS LEARNED

- Consolidate Resource Request
- Tracking for staff time and procurements
- Training, training, and more training
- Way finding for service disruptions
- Evacuation Protocol for the impending event



MORE LESSONS LEARNED

- Enhance internal communications protocols
- Engage more stakeholders in pre-planning
- Maintain a unified GIS platform





LEVEL SETTING

Don't assume your
stakeholders understand
the role of public transit



Thank you!

Aqib Kenoly
Sr. Manager, Emergency Services & Homeland Security



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Hazard Reduction
& Recovery Center

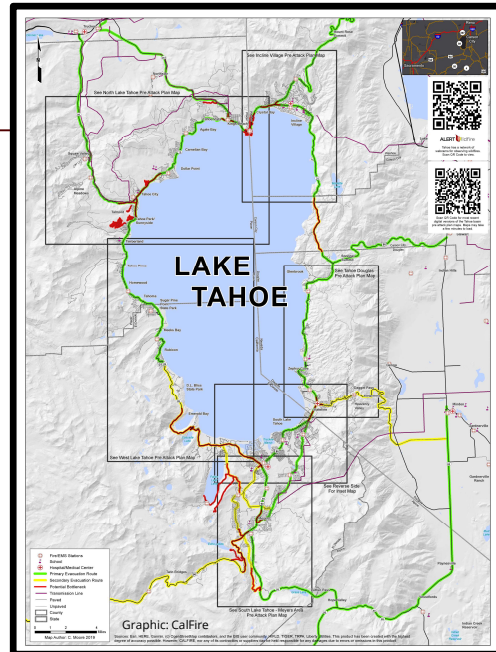


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Landscape Architecture
& Urban Planning

Transit agencies and wildfire evacuation: Case study of the 2021 Caldor Fire

Tara Goddard, PhD
Associate Professor, Urban Planning
Fellow, Hazard Reduction & Recovery Center (HRRC)
Texas A&M University

*Cal Poly San Luis Obispo
Civil & Environmental Engineering
as of Fall 2025



August-October 2021 Caldor Fire

- Started in California foothills west of Lake Tahoe, “down the hill”
- Difficult terrain and limited evacuation routes
- Large tourist, seasonal worker, and second homeowner population - popular international destination but also small/rural
- High income inequality, housing crisis, unhoused population
- Resulted in evacuation of 30,000+ people from the Tahoe Basin and over 50,000 total displaced



Tara Goddard

Evacuation traffic challenges



Tara Goddard

Private car evacuation is not a (complete) solution



Tara Gaddard

Evacuation of people by transit

- As many as 20-30% of people in any community do not or cannot drive
- Local transportation agency evacuated over 1,800 bus riders and nearly 500 paratransit riders



Tara Goddard

Local transit and paratransit in the Basin



Tara Goddard

Study overview

- Semi-structured interviews with agency employees about experience before, during, and after the fire
- Content analysis of existing plans before the fire
- Funded by Natural Hazards Center Wildfire Ready Quick Response Research, with support from NSF and NOAA



Tara Goddard

Natural Hazards Center (NHC) and NOAA Weather Ready Research Award Program:
Wildfire Ready Research

Initiated May 2023, 6-month grant

Public official/employee interviewees

Case study with interviews, discourse analysis



Challenges for the agency during the wildfire response

- Small agency – limited capacity, limited or no training or pre-planning related to rapid evacuation
- Small town – employees themselves also evacuated
- Dispatch had to be moved twice due to advancing evac area
- Bus yard had to be moved to continue operations and save assets, relied on relationship with school district administrators
- Shelters were outside normal service area
- Cascading disasters – COVID

Tara Goddard



Transit agencies not on list of “usual suspects”

Transit provider not included by emergency management – had to “bang on the door” to get invited to the emergency operations center and daily meetings

“We really had to elbow our way in [to the EOC]. One day [we] just went to [the meeting without being invited]. We're like, where are you guys [meeting]? Okay, we'll show up in an hour. And they were definitely surprised to see us.”

Tara Goddard



Technology challenges

Difficult to figure out which paratransit riders had left with family/friends/neighbors, drivers wasted time driving to homes where people had left already

“It was like an Excel spreadsheet that had a map component that I would say one of their IT guys like put it together on the fly. And we were like ‘this is kind of wonky. We’re going to do the best we can.’ I think that could have been hugely helpful just for all of us to have it ahead of time.”

Tara Goddard



Evacuating the “invisible”

- No pre-planning among emergency response or transportation agencies to get unhoused people evacuated
- Coordinated with local advocacy group to get local unhoused people out via bus
- Unhoused people not seen as residents/purview of typical emergency management operations

“[unhoused people] weren't really being thought about all that much. It was very focused on ‘we need to get our residents out [via cars].’ It’s like, hey, they’re residents, too.”

Tara Goddard



Success due to “all hands on deck”

Drivers had to work extra/long shifts, were “the heroes” of the event, drivers who lived outside the evac area went “above and beyond” to come to work

“I don't really look at it as, you know, this was a heroic thing. We did our job, and that job is to move people and we moved people. We did as best we could.”

Tara Goddard



Summary: Themes and lessons

- Many (most?) transportation professionals do not receive training in emergency response
- Most evacuation planning focused on private automobiles, transit not considered by EM/LE as a potential proactive tool
- Conventional wisdom about topography, weather patterns, and/or WUI risk affected response in this event, just like in the Lahaina, Panhandle, and Los Angeles fires
- A lack of existing plans, Mutual Aid Agreements, or Memorandums of Understanding (MOUs) results in over-reliance on informal and ad-hoc processes and relationships

Tara Goddard

- “Vulnerable” is shorthand for many people and communities, not a homogenous group
- “Access and functional needs” (FEMA)
- “At Risk Population” (CalFire)
 - Households With Disability
 - Population 65+
 - Households Without Vehicle



The potential of proactive transit

“there needs to be more awareness of these resources and of these different roles that public transit can play. I was at a [local community meeting where **people said:] ‘we don’t need public transit here. What if we need to evacuate? We need our roads clear.’ Okay. You’re not thinking very deeply about this. You know how many people can fit on a bus versus how many people can fit in a car.**”

And if you end up burning, that is going to be why, because there’s too many people trying to get out on narrow roads and **you’re not taking the bus thinking that is for other people in that situation.[Guess what?] You’re the other people.”**

-agency staff, Tahoe Transportation District

Tara Goddard



Photo: Noah Berger



Original photo: Noah Berger;
Photo edits Tara Goddard

Guidance exists – but is it translating into practice?

The Role of Transit in Emergency Evacuation
SPECIAL REPORT 204
TRANSPORTATION RESEARCH BOARD OF THE NATIONAL ACADEMIES

NCHRP Research Report 1093
National Cooperative Highway Research Program
An Emergency Management Playbook for State Transportation Agencies
NATIONAL ACADEMIES
TRANSPORTATION RESEARCH BOARD
RECOMMENDED PRACTICE
First Published: April 24, 2004
APTA Security and Emergency Management Working Group

Transit Evacuation Plans for People with Disabilities: Key Integration Details
April 2025, Edition 1.0
By June Isaacson Kailes, Disability Policy Consultant
Produced by The Partnership for Inclusive Disaster Strategies
June Isaacson Kailes
THE PARTNERSHIP FOR INCLUSIVE DISASTER STRATEGIES

Emergency Operations Plan for Transit Agencies
Abstract: This recommended practice provides guidance to assist transit agencies in developing and implementing a standalone Emergency Operations Plan and supporting annexes.
Keywords: emergency management, emergency operations, Emergency Operations Plan

Despite federal reports and guidance about integrating transit into emergency management planning, implementation seems limited

Next steps – planning for comprehensive evacuation in Tahoe

- Research into Operations grant through the Natural Hazards Center Wildfire Ready Quick Response Research, funded by NSF and NOAA
- Two-day workshop with local agencies and organizations focused on various communities with transit or other coordinated evacuation needs



Tara Goddard

Natural Hazards Center (NHC) and NOAA Weather Ready Research Award Program:
Wildfire Ready Research

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Next steps – broader context

- Many open questions about planning and coordination related to transit and paratransit evacuation – needs, best practices, potential for proactive use of transit
- Many gaps in research into non-private car evacuation, despite 20-30% of people in every community are non-drivers
 - Age, disability, poverty, students, tourists/visitors, etc.
- Need for wildfire science prediction and monitoring that integrates with transportation planning and operations tools, policies, and decision-making
- Projects that support larger goals of sustainability and safety can be complementary, not competing, with evacuation needs

Tara Goddard

- Intersecting identities (i.e. multiple of the characteristics above) create compounding vulnerabilities
- An approach only focused on cars is inefficient and unsafe for both citizens and first responders



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Thank you!



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Landscape Architecture
& Urban Planning

"Disasters are always inclusive. Response and recovery are not, unless we plan for it." - June Isaacson Kailes



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Texas A&M Hazard Reduction & Recovery Center (HRRC) Research Initiatives

Planning the Future of Evacuation

<https://www.arch.tamu.edu/impact/centers-institutes-outreach/hrrc/research/hrrc-research-initiatives/>





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METROPOLITAN TRANSPORTATION COMMISSION



Mobility Hubs for Emergency Evacuations

Krute Singa

Metropolitan Transportation Commission (MTC)
Association of Bay Area Governments (ABAG)

TRB Webinar: Rethinking Public Transit in Emergency Evacuations — Lessons from Wildfires

August 4, 2025



Overview

- What are mobility hubs?
- Elements of a mobility hub
- Hubs for emergency evacuations

About Us

Metropolitan Transportation Commission (MTC) is the Metropolitan Planning Organization and the transportation planning, financing and coordinating agency for the 9-county Bay Area

Association of Bay Area Governments (ABAG) is the region's Council of Governments, whose mission is to strengthen collaboration across jurisdictions to build healthier, stronger communities

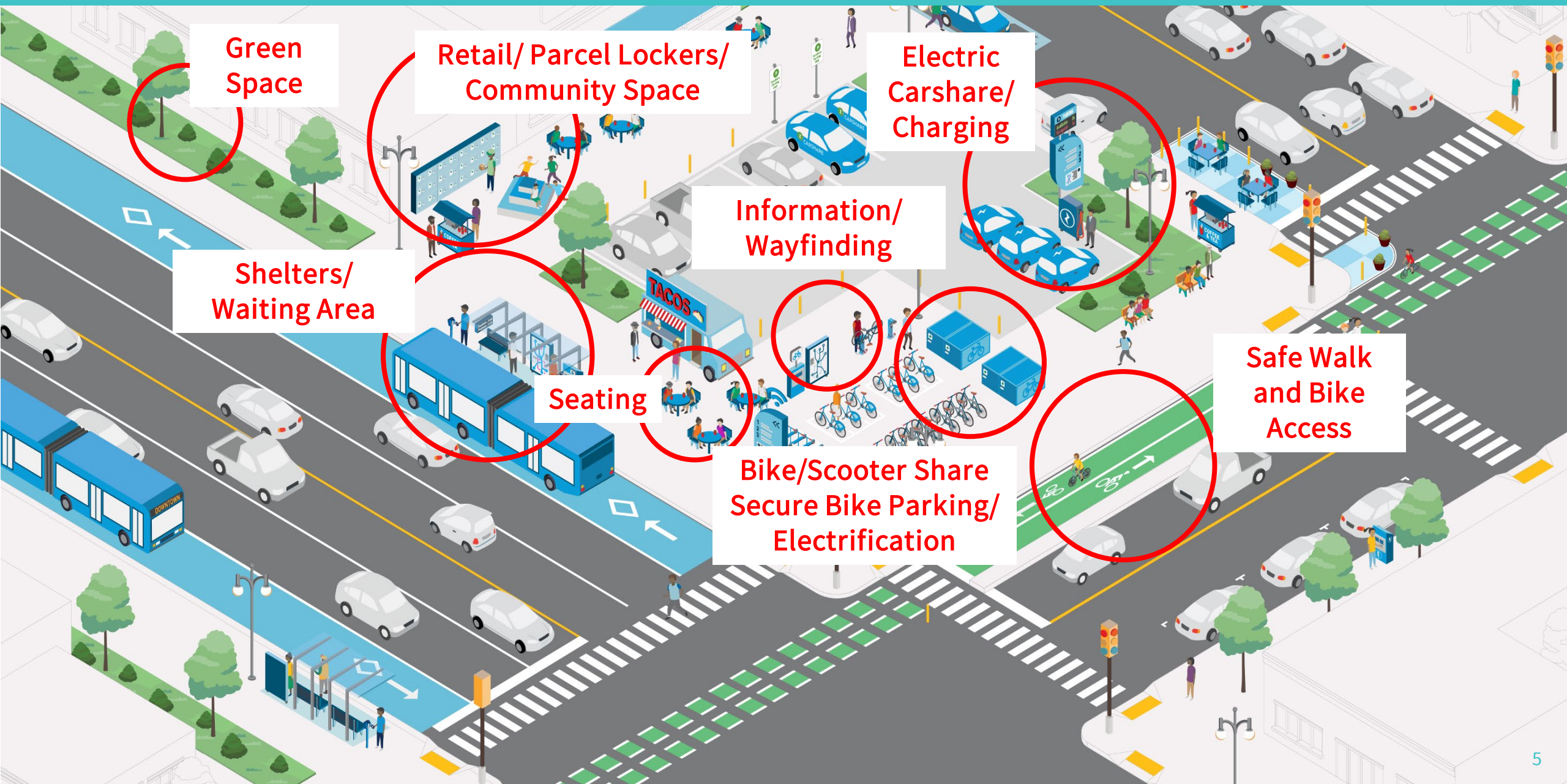


What are Mobility Hubs?



Mobility hubs = community anchors that enable travelers of all backgrounds and abilities to access multiple transportation options - including shared scooters, bicycles and cars, and transit – as well as supportive amenities in a cohesive space, oriented to the customer

Elements of a Mobility Hub



Key Features: Customer Orientation

San Francisco Ferry Terminal



Key Features: Easy Connections

4th and King Street Caltrain Station



Key Features: Safe, Welcoming and Inclusive Community Spaces

Fruitvale Village/BART Station



Key Features: Wayfinding and Information

Santa Rosa Transit Mall



Key Features: Emergency Evacuation?



Benefits of Mobility Hubs for Emergency Evacuation

- **Improved Access and Evacuation**
 - Provide connections to multiple transportation options (e.g., transit, bike lanes, walking paths) can facilitate quicker and more efficient assembly, evacuation and access to emergency resources
- **Enhanced Information Dissemination**
 - Serve as communication points to the evacuating population
- **Reduced Confusion and Congestion**
 - Prevent bottlenecks and ensuring a more organized process
- **Centralized Resource Deployment**
 - Act as staging areas or central drop-off points for relief supplies for efficient distribution
- **Support for Vulnerable Populations**
 - Benefit communities with transportation disadvantages and those relying on public transit



Resilience Hub: Existing Concept

- Definition = community-serving facilities to support residents, coordinate communication, distribute resources, reduce carbon pollution, while enhancing quality of life
- Designed to be reliable during emergencies but are not solely emergency shelters - are everyday community centers
- Not intended to replace emergency centers, part of emergency/resilient ecosystem
- Key elements include:
 - Services and programming
 - Communication systems
 - Building and landscape considerations
 - Power systems
- Existing examples at public libraries, community centers

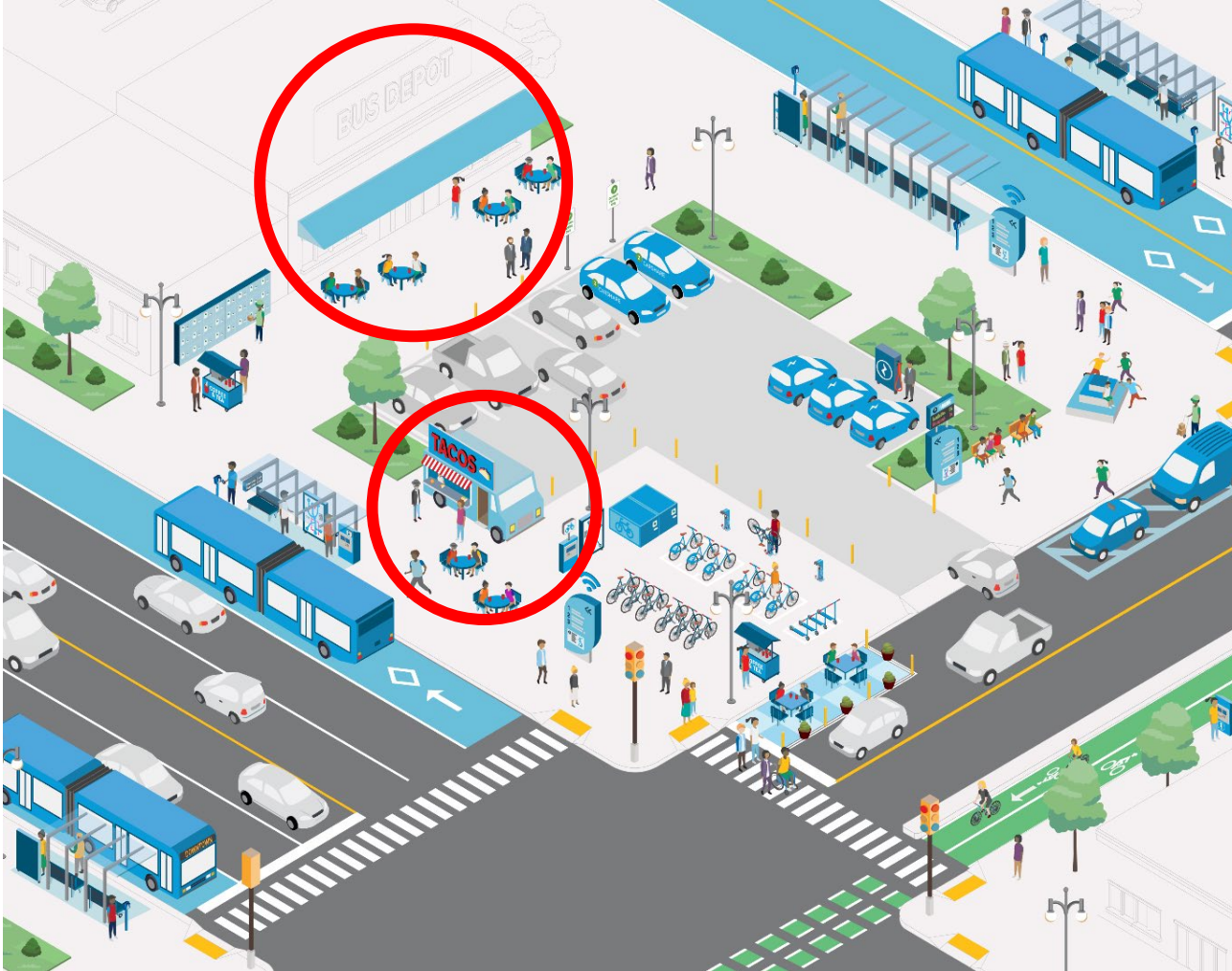
(Source: [Urban Sustainability Directors Network](#))



Image source: City of Austin ([RMI.org](#))

Mobility and Resilience Hub Similarities – Community Space

Mobility Hub Elements



Resilience Hub Elements



Mobility and Resilience Hub Similarities – Bicycle/Scooter Access

Mobility Hub Elements

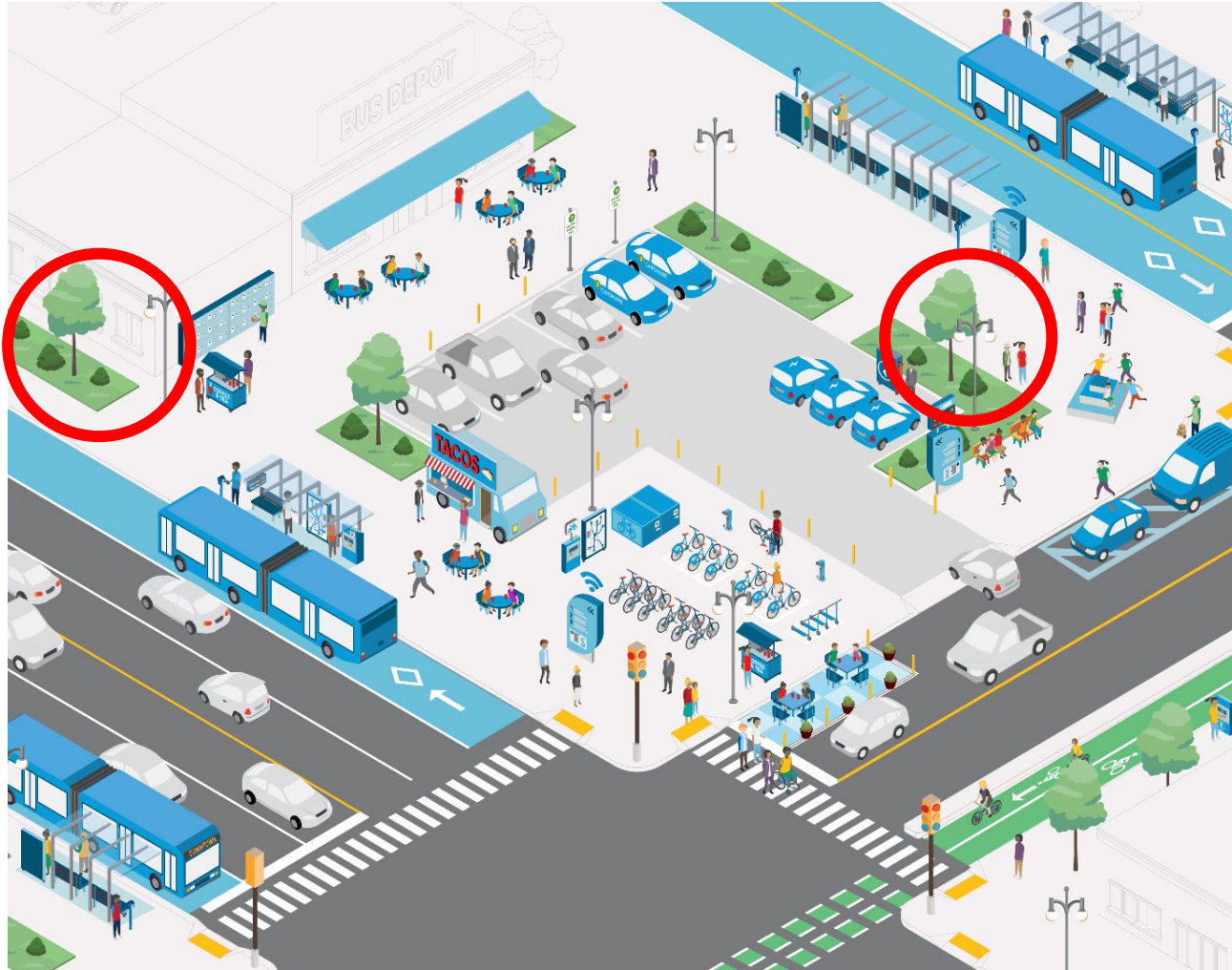


Resilience Hub Elements



Mobility and Resilience Hub Similarities – Green Space

Mobility Hub Elements

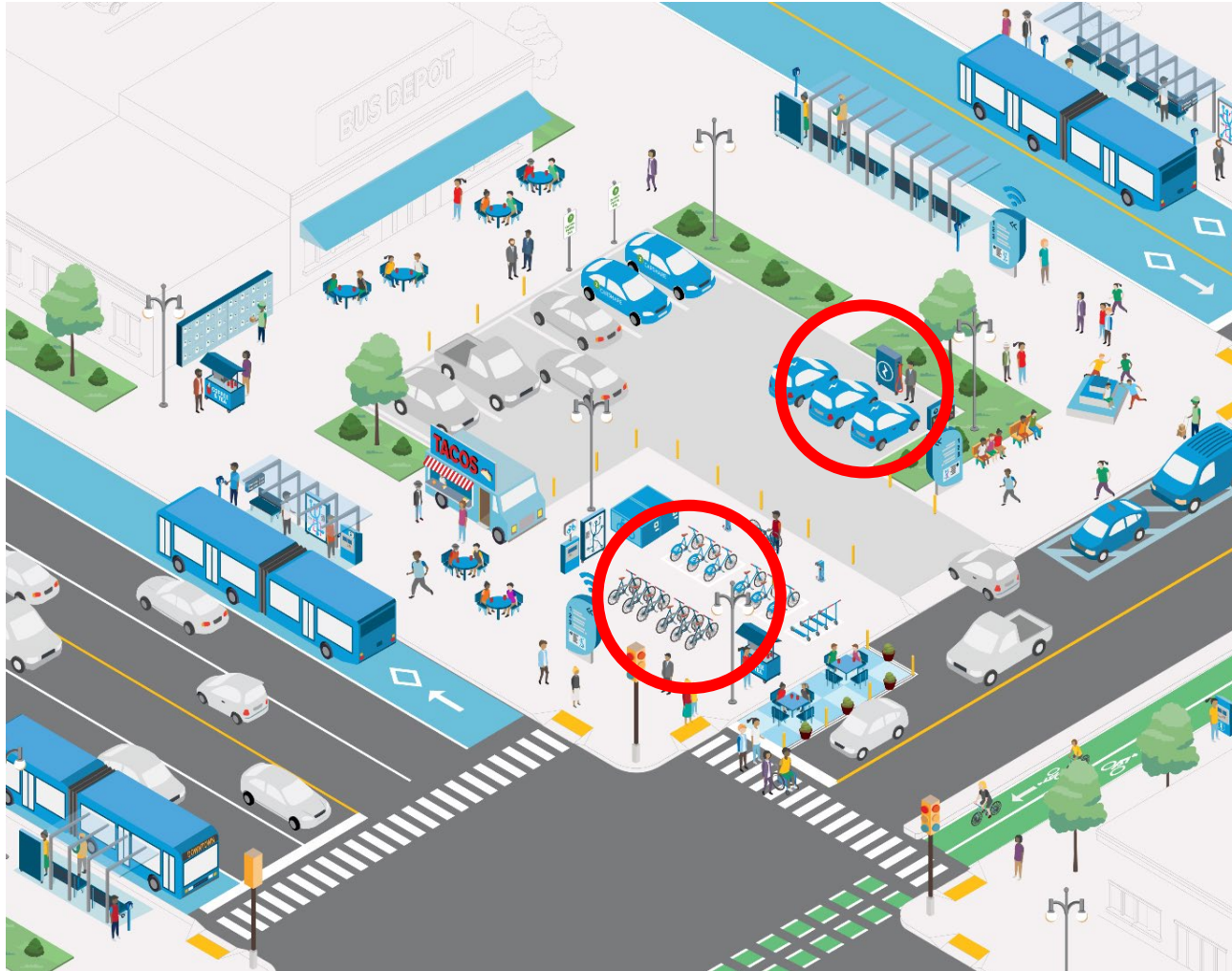


Resilience Hub Elements



Mobility and Resilience Hub Similarities – Electrification

Mobility Hub Elements



Resilience Hub Elements



Resilience and Mobility Hub Coordination Opportunities

Current Situation	Opportunity
Transportation connections to and from resilience hubs not yet well integrated into overall functionality or usability	Coordinate resilience and mobility hubs or create a connected network to provide access to resources reliably and quickly during crises, including transportation evacuation services
Resilience hubs can offer services like cooling, shelter, and access to essential supplies during crises – mobility hubs do not have these services	Co-locating resilience and mobility hubs can use limited resources and funding more effectively – the hubs have different funding sources that can be leveraged for emergency preparedness
Transit stations have evacuation plans and protocols (including clear and well-lit exit routes, communication protocols, and regular training for staff)	Build on existing transit station emergency plans with assembly protocols, and connections to resilience hubs and emergency centers

Mobility Hub Planning to Incorporate Emergency Evacuation

Understand

- Determine mobility gaps, community needs, safety with surrounding community
- Involve local communities to understand needs and preferences related to emergency assembly points and transportation access
- Build spaces that are resilient, flexible and adaptable to changing conditions (e.g., fireproof buildings, flood-resistant roads)

Plan

- Design access, amenities, public realm, customer experience, and information
- Connect to community centers, resilience hubs, emergency routes

Launch/Install/Build

- Start small to test new hub features on temporary or semi-permanent basis

Operate and Maintain

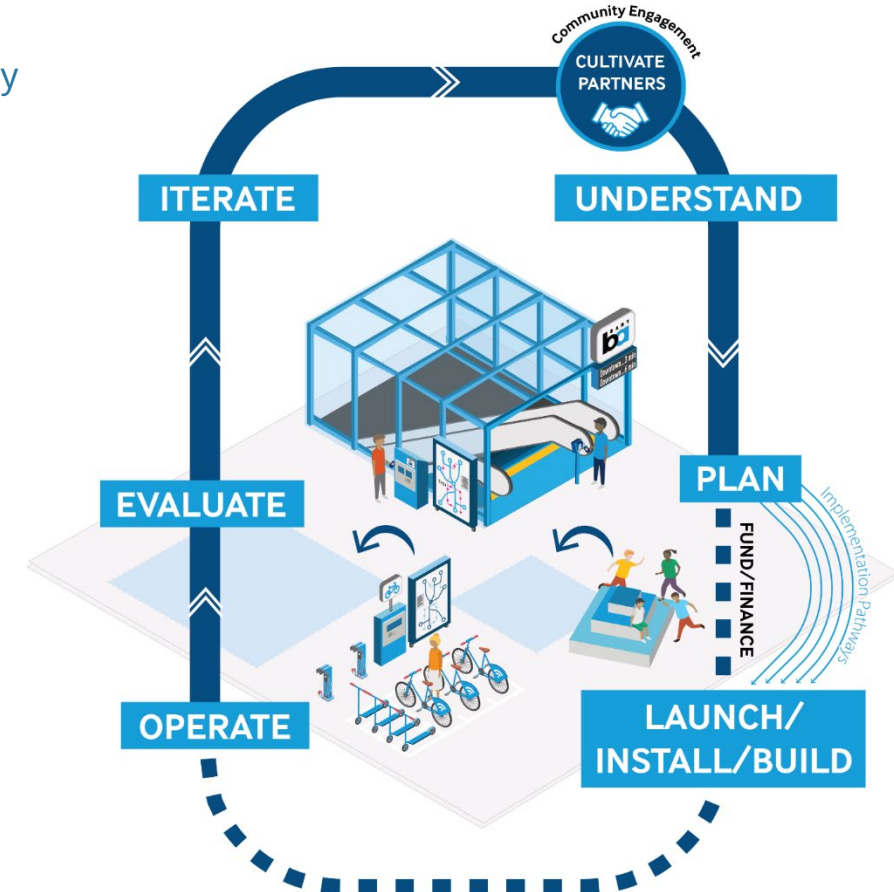
- Include funding for long-term operations, including space and vendor management, maintenance, and programming
- Conduct regular drills and training exercises

Evaluate

- Evaluate hub's performance early and often

Iterate

- Design, both physically and contractually, for agile iteration of hub design, configuration, services, and programs to meet changing needs



Thank You



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METROPOLITAN TRANSPORTATION COMMISSION

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MTC/ABAG Regional Mobility Hubs Program Site

<https://abag.ca.gov/technical-assistance/mobility-hubs-program-overview>

Mobility Hubs Implementation Playbook

<https://abag.ca.gov/technical-assistance/mobility-hubs-playbook>

Today's Presenters



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Upcoming events for you

TRB Annual Meeting

January 11-15, 2026

Washington, DC

<https://trb-annual-meeting.nationalacademies.org/>

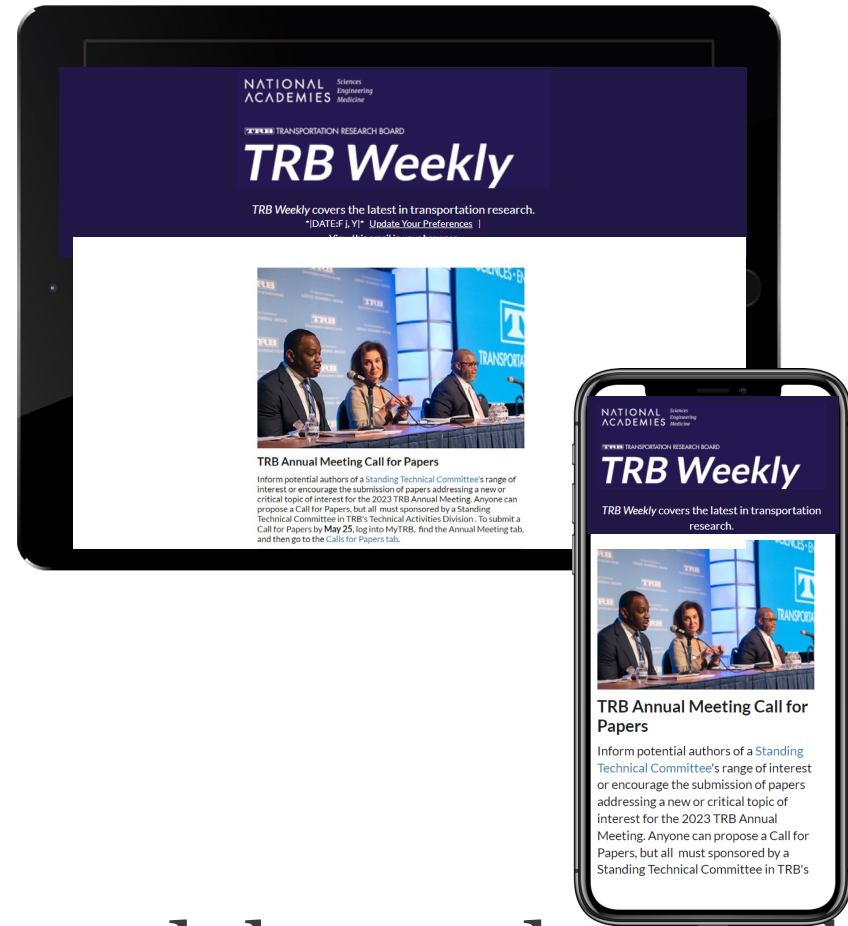


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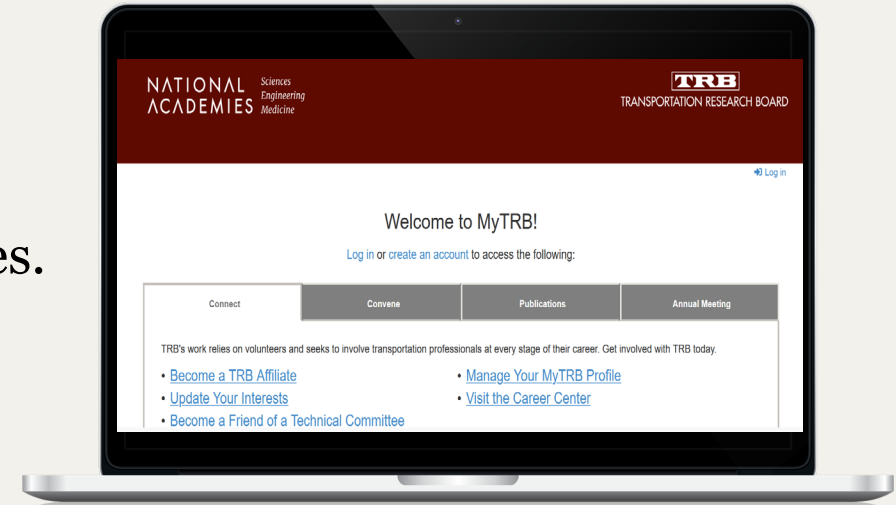


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