

# Network Integration

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A photograph of a transit station. In the foreground, a red bicycle is parked in a rack. The rack has the word "JUMP" on it. In the background, a blue bus is stopped at a platform. The bus has the number "25" and a logo that says "Regional Transit". The scene is set during the day with some shadows, suggesting late afternoon or early morning. The overall image has a slightly dark, muted color palette.

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# What is Network Integration?

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# What is Network Integration?

FOR USERS, NETWORK  
INTEGRATION FUNDAMENTALLY  
MEANS CREATING A *SEAMLESS  
TRAVEL EXPERIENCE* ACROSS RAIL  
AND TRANSIT IN CALIFORNIA BY  
ELIMINATING *POINTS OF FRICTION*.

Poor service design and lack of coordination across agencies

52 min **2 hr 53** 1 d 52 min 6 h

Depart at 12:33 PM [Options](#)

Lamentin Ct

7 > **25** > > > 3 hr 55 min >

1:34 - 5:30 PM

**on time** · 1:41 PM from La Cuenta Dr & Lamentin Ct

MIXED MODES

6 > **235** > **217** 2 hr 42 min >

Leave by 2:48 PM · Light traffic

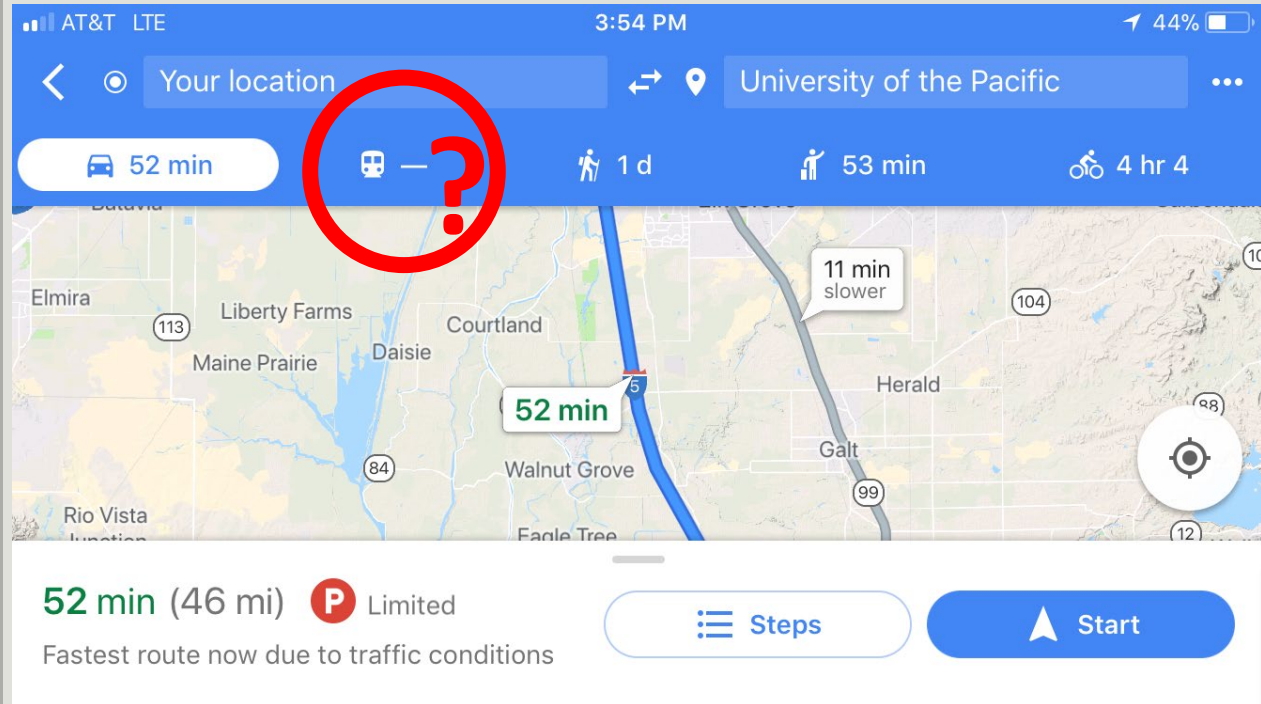
**In 2 hr 26 min & 2 hr 41 min** from Clairemont Mesa Bl & Ruffin Rd

9 > **20** > **280** > 3 hr 6 min >

Leave by 2:24 PM · Light traffic

**In 2 hr 5 min** from Clairemont Mesa Bl & Complex Dr

Inadequate  
and  
inaccurate  
trip-planning  
information



# Unclear fare structure and payments

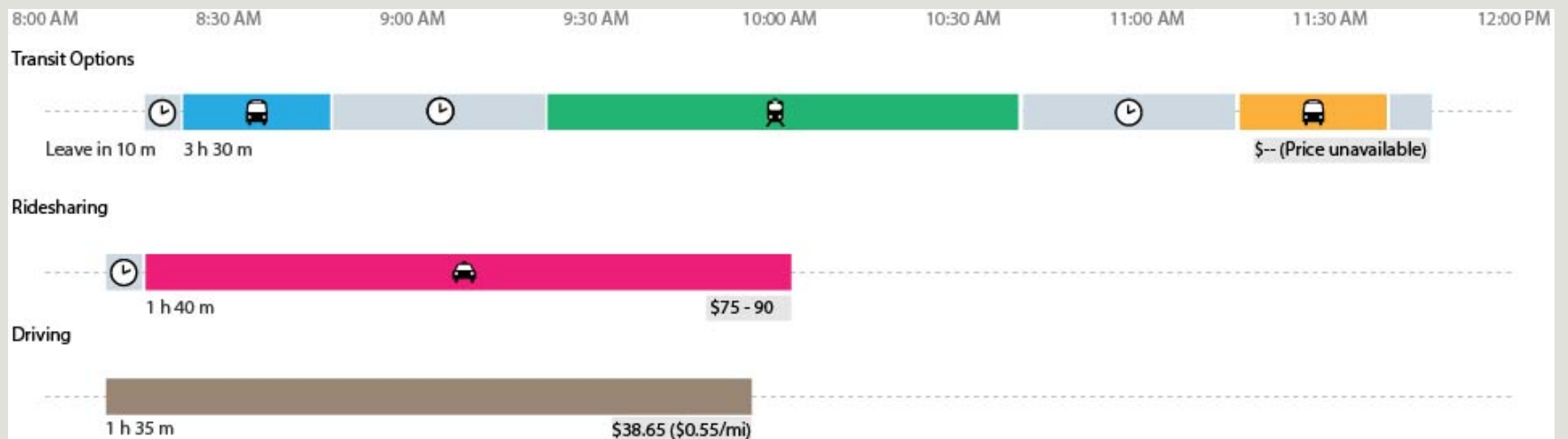
Incompatible fare and ticketing policies between agencies require passengers to purchase multiple tickets for one journey.



# Poor Physical Connections

between travel modes, such as stations that require long walks and lack travel amenities.

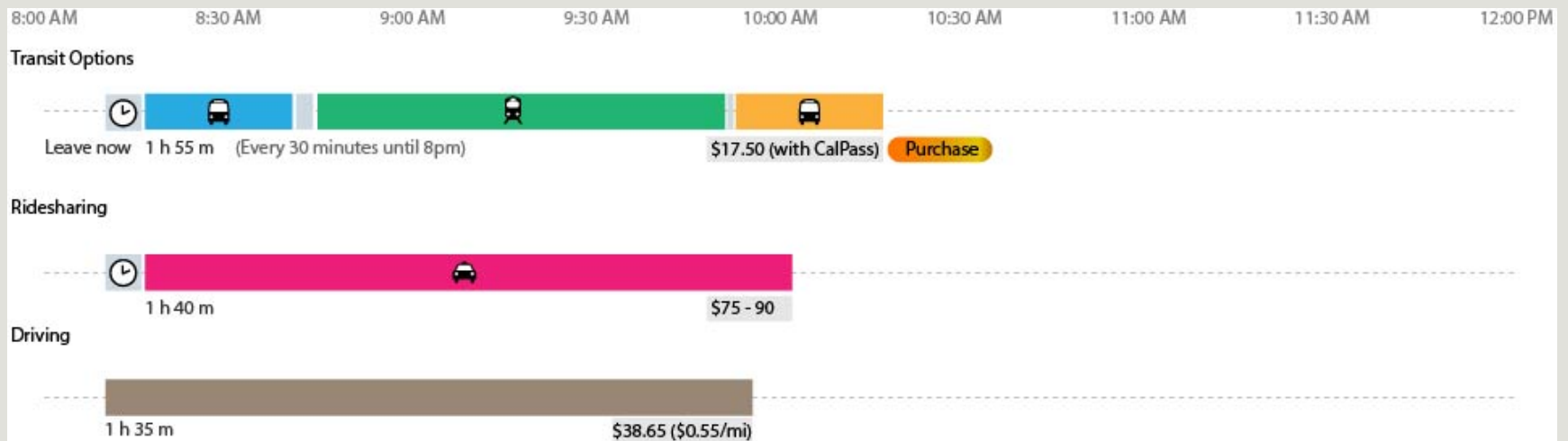




# The Current Situation: Disconnected Transit

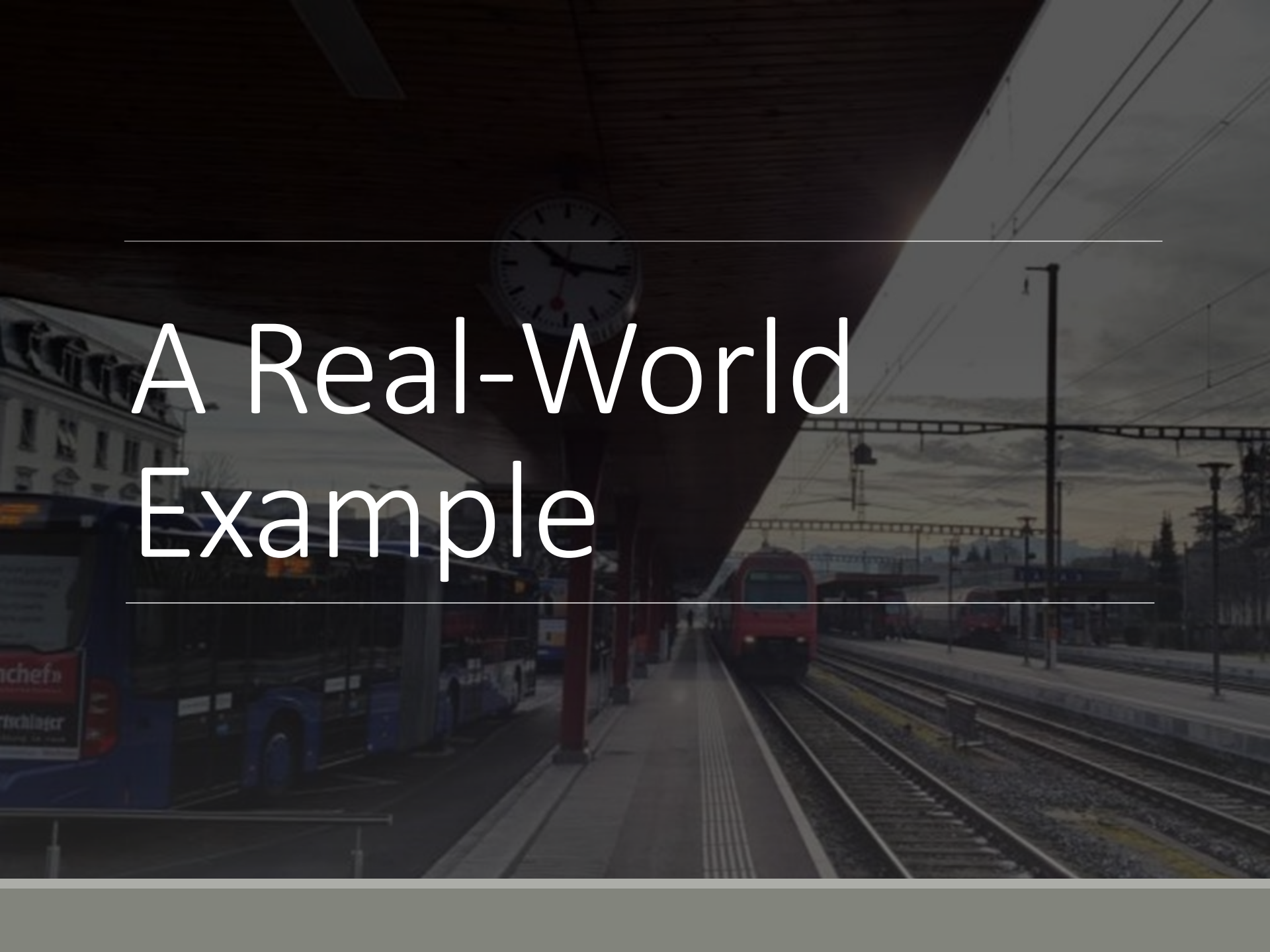
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# The Future Situation: Integrated Transit

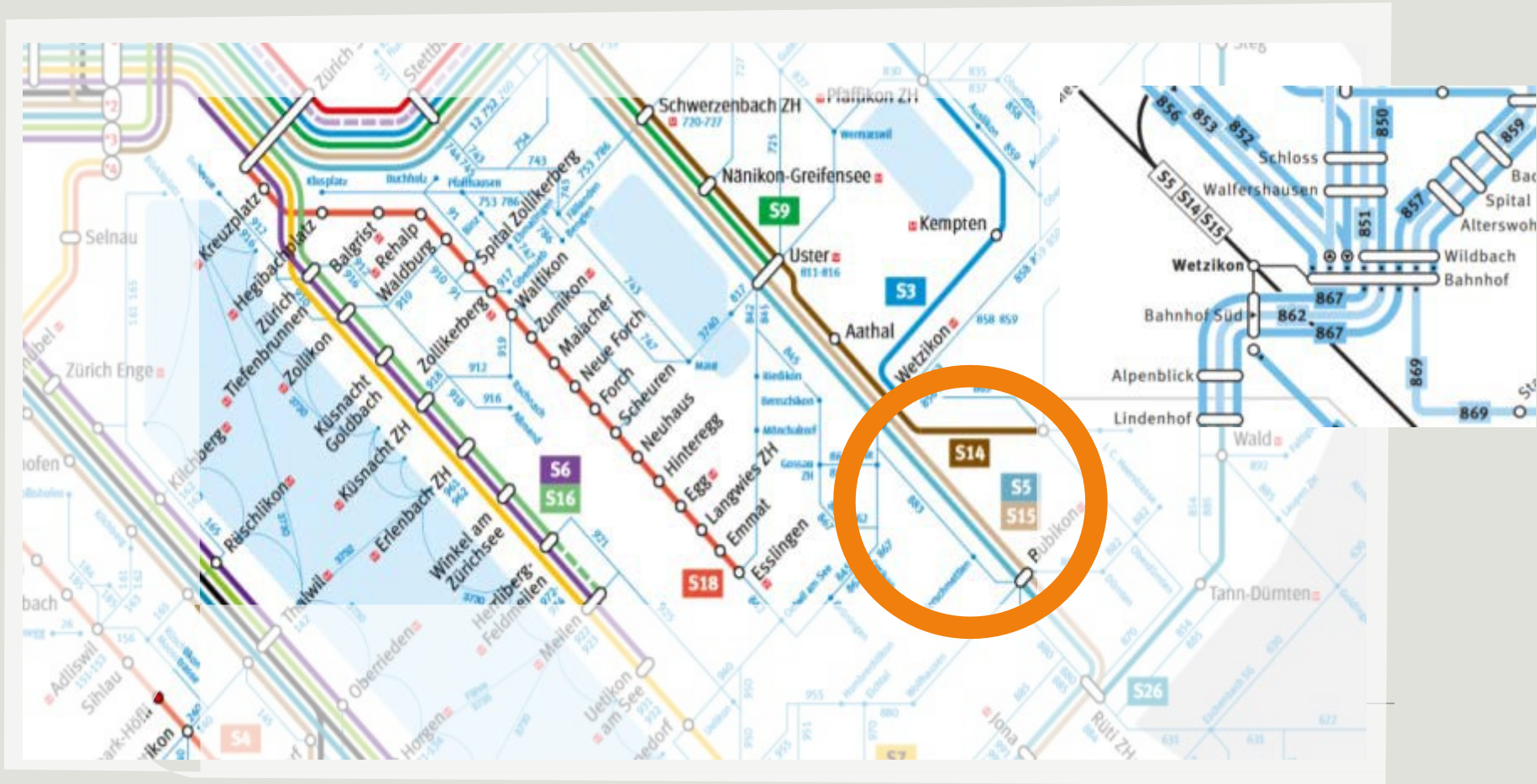
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A dark, atmospheric photograph of a train station platform. A red train is visible on the tracks in the distance. A large clock is mounted on the platform structure. The scene is dimly lit, suggesting dusk or dawn. The text "A Real-World Example" is overlaid in white, centered on the image.

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# A Real-World Example

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Wetzikon, Switzerland

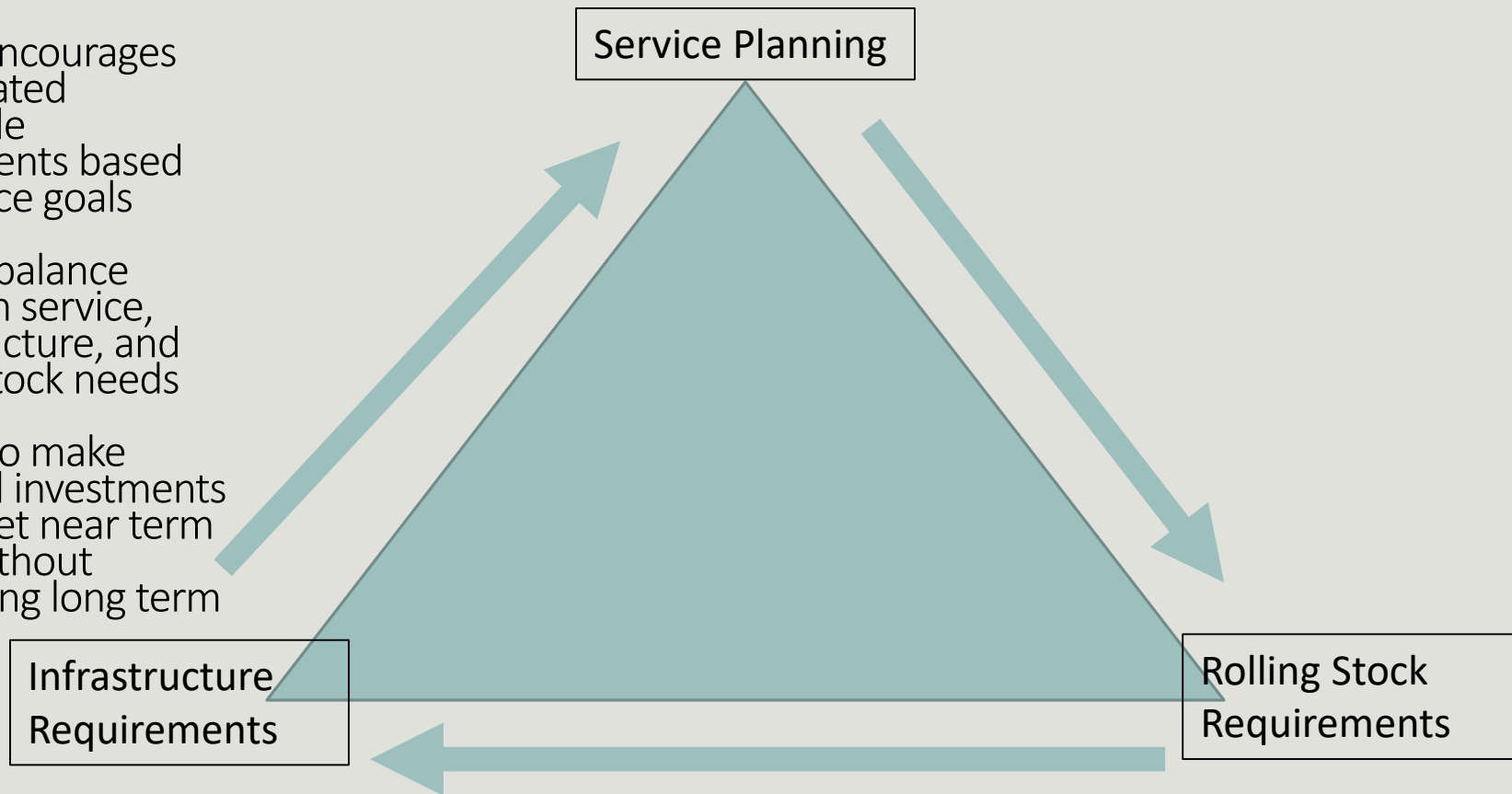
# Wetzikon

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# Integrated Planning Approach

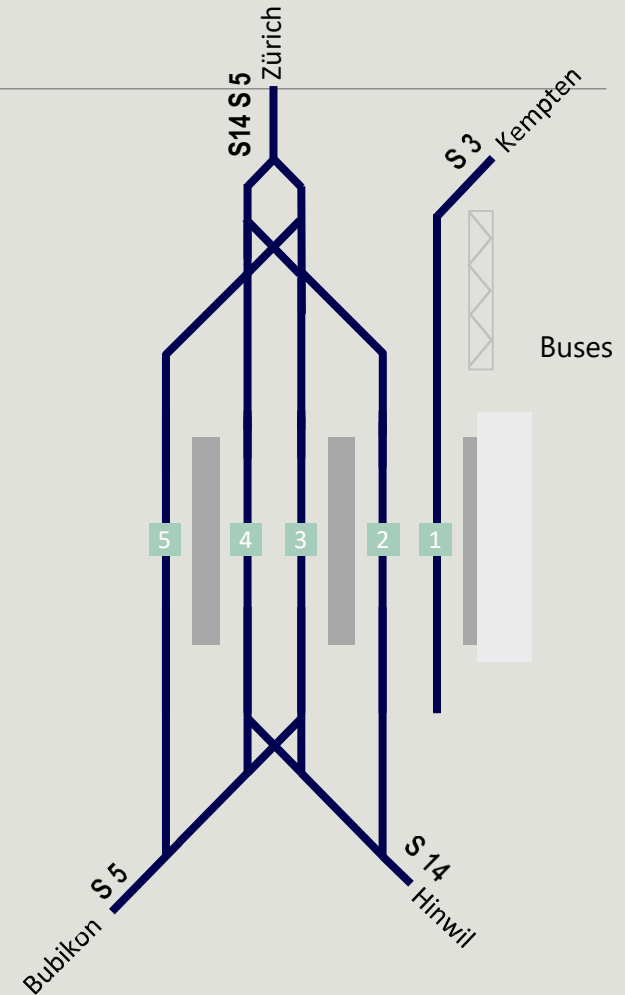
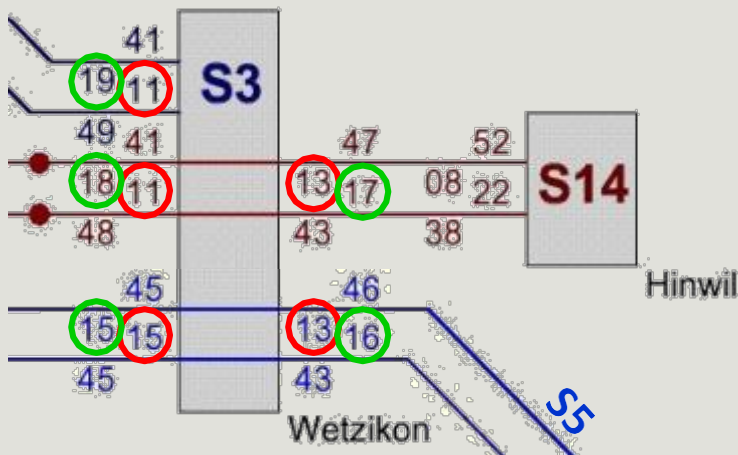
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- DRMT encourages coordinated statewide investments based on service goals
- Strike a balance between service, infrastructure, and rolling stock needs
- Crucial to make targeted investments that meet near term goals without precluding long term vision.



# Wetzikon

1. Buses arrive in advance of the trains
2. Trains arrive in the station
3. All services are in the station
4. Trains depart from the station
5. Buses depart from the station

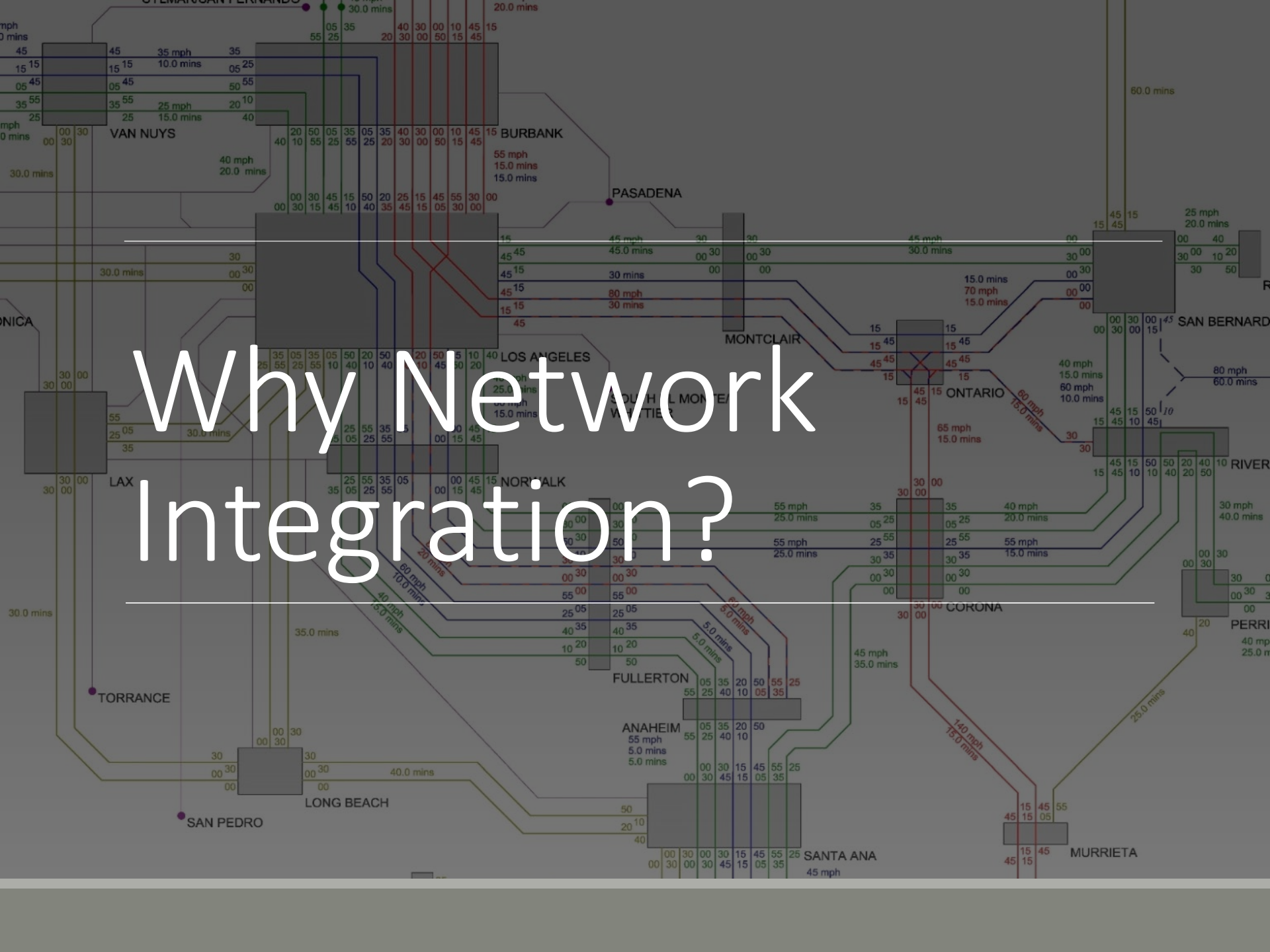


# What is Network Integration?

FOR THE STATE AND OUR PARTNERS,  
NETWORK INTEGRATION MEANS:

- COLLABORATING TO ELIMINATE  
DUPLICATE INVESTMENTS;
- PLANNING OF SHARED CORRIDORS  
AND INFRASTRUCTURE;
- COORDINATED SCHEDULES;
- COORDINATING ROLLING STOCK  
PROCUREMENT AND MANAGEMENT.

# Why Network Integration?





The California State Rail Plan and the forthcoming Statewide Transit Strategic Plan describe the need to coordinate investments in a way that ties together public transit offerings across California into a cohesive system.

# 2040 Vision for Passenger Rail

## Integrated Statewide Network

- » High Speed Rail
- » Intercity and Regional Services
- » Integrated Express Bus

## Coordinated Schedules

- » Regular pulsed service
- » Key transfer hubs
- » Public Transit Connections

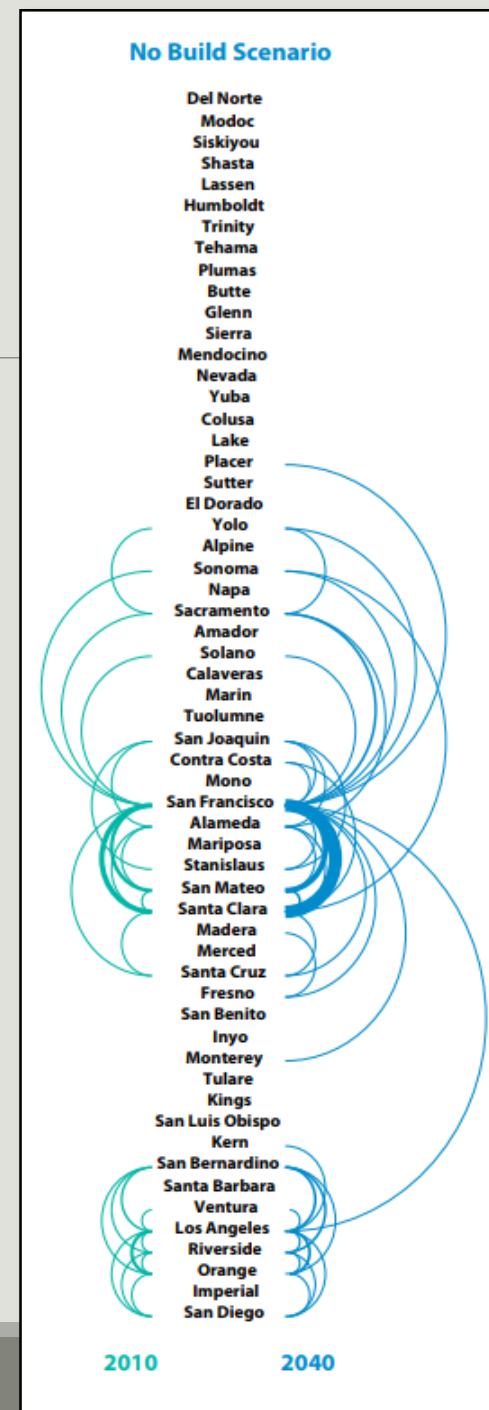
## Customer Focus

- » Seamless First/Last-Mile Access
- » Integrated Ticketing
- » Auto and air competitive



# Rail Plan Vision: Ridership

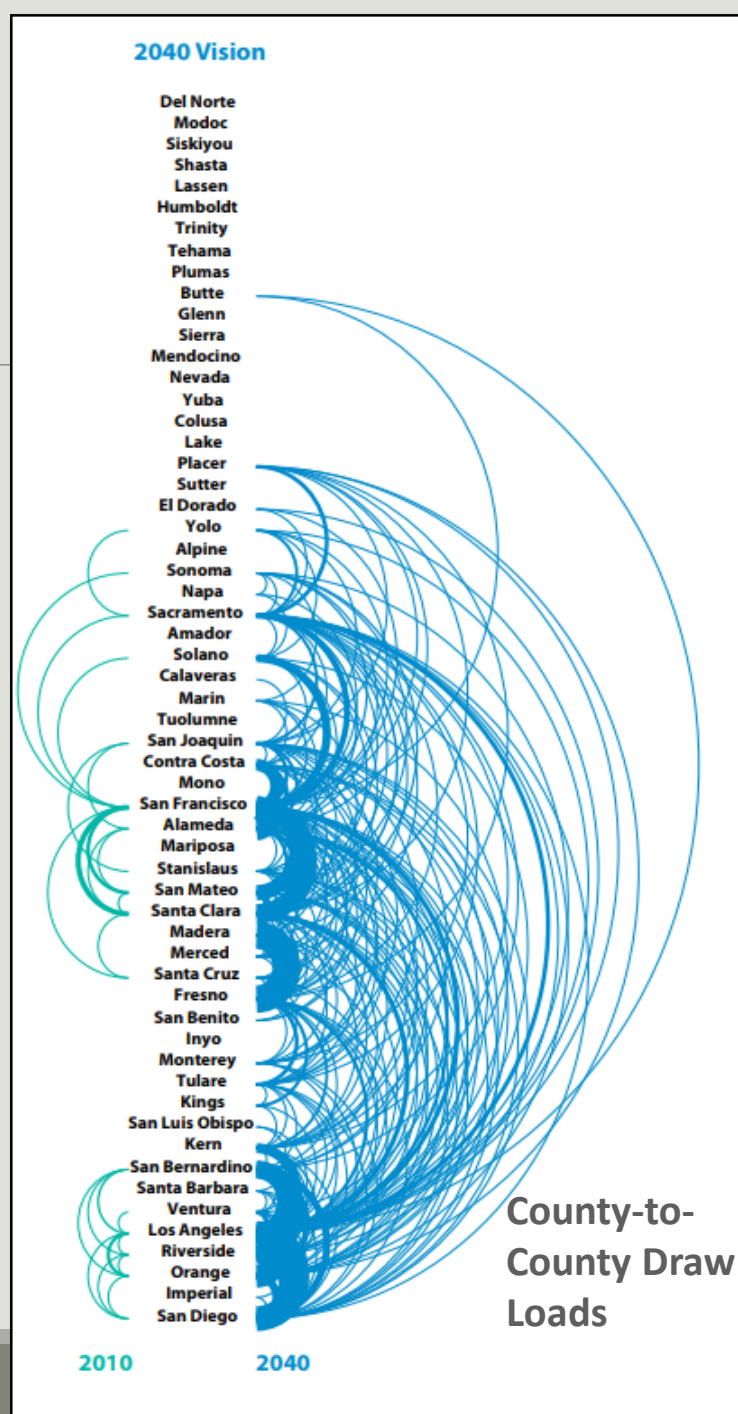
- » Results show incremental increase in rail ridership due to **population growth**
- » However, market potential for networked services is **unrealized**



County to  
County Draw  
Loads

## Rail Plan Vision: Ridership – Market Potential

- » Result of integration and HSR shows **huge increase** in rail ridership demand
- » Satisfies a **large market potential** for **networked services**

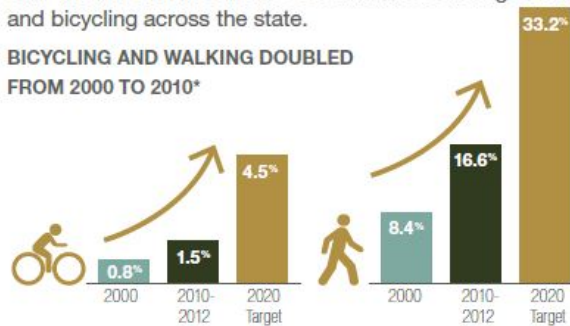


California's statewide goals necessitate integration of our transportation system for:

- Climate change goals
- Mode shift goals
- Equity goals

California has seen significant growth in the use of active transportation over the last decade and has set an ambitious target to increase walking and bicycling across the state.

**BICYCLING AND WALKING DOUBLED FROM 2000 TO 2010\***



Data from 2010-2012 California Household Travel Survey. Figures are as a percent of all trips. Charts are not to scale.

*More people walk and bicycle in California than in many other states. Only in Oregon do residents both walk and bike more. In a few peer states with major urban areas, residents either walk or bicycle more for their trips.*

**Rail Mode Share**

**Current: 0.34%**



**2040 No Build: 0.52%**



**2040 Vision: 6.8%**



**CALIFORNIA CLIMATE STRATEGY**

*An Integrated Plan for Addressing Climate Change*

**VISION**

**Reducing Greenhouse Gas Emissions to 40% Below 1990 Levels by 2030**

**GOALS**



50% renewable electricity



50% reduction in petroleum use in vehicles



Double energy efficiency savings at existing buildings



Carbon sequestration in the land base



Reduce short-lived climate pollutants

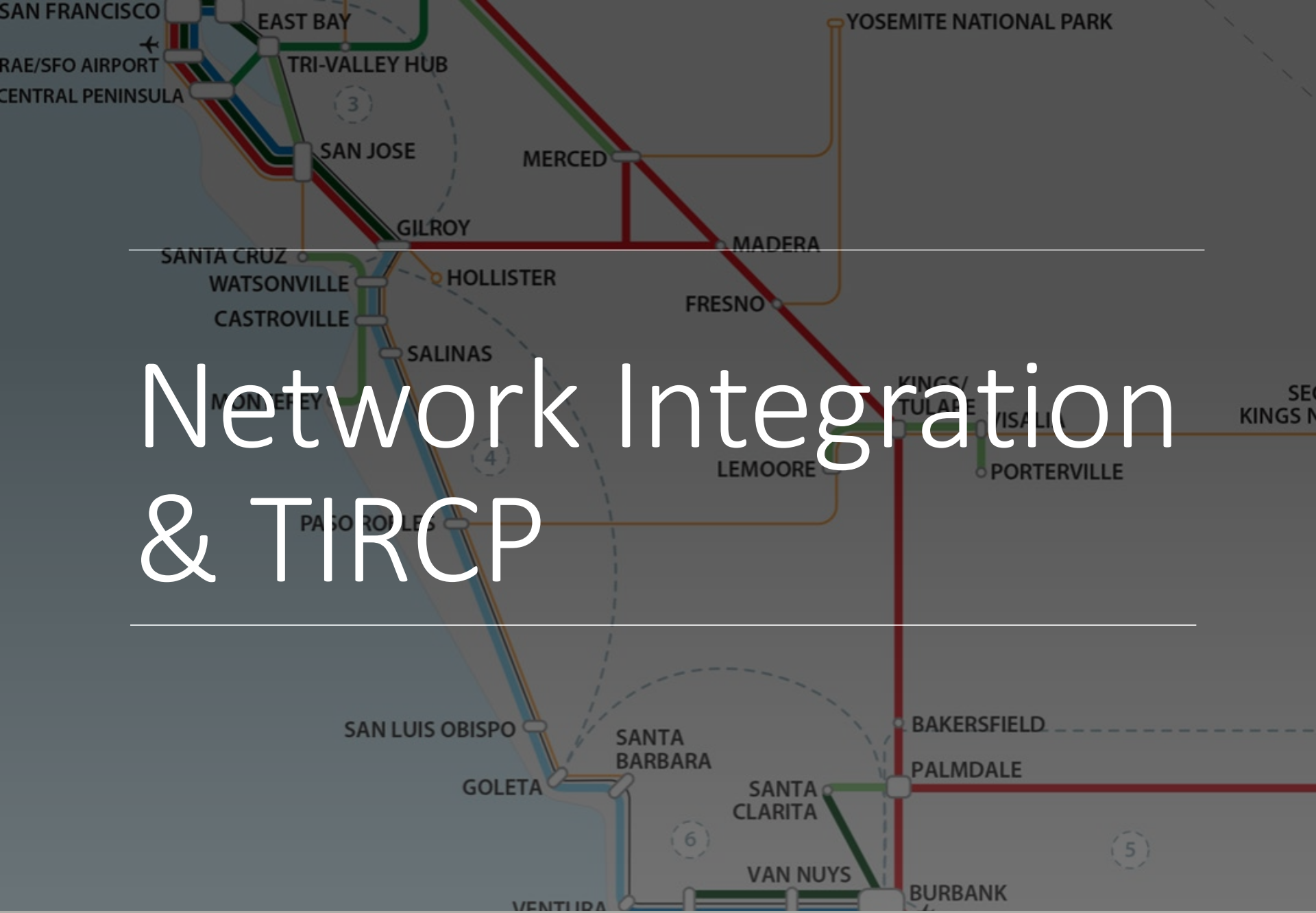


Safeguard California

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Through network effects, **economies of scale**, simplification, and the adoption of uniform standards and practices, we can realize greater benefits:

- Reduced costs to operate public transportation
- Reduced cost for travelers to use public transportation
- Increased ridership
- Increased farebox recovery and revenue



# Network Integration & TIRCP

Network integration is one of the 4 main policy objectives of the TIRCP program.

The guidelines for the upcoming cycle clarifies and makes explicit the expectation when applying for network integration projects.

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“Projects eligible for funding under TIRCP include... Rail, bus, and ferry integration implementation, including integrated ticketing and scheduling systems, shared-use corridors, related planning efforts, and other service integration initiatives.”

- CA PRC 75221(a)(3)

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## Transit and Intercity Rail Capital Program 2018 /

Project Title	Key Project Elements	TIRCP Funds (FY18/19 to FY22/23)
Purchase Zero Emission High Capacity Buses to Support Transbay Tomorrow and Clean Corridors Program	Deploys 45 zero-emission buses to support the Transbay Tomorrow and Clean Corridors project, primarily on the MacArthur-Grand corridor, and to add capacity on the Bay Bridge Transbay network.	\$14,000,000
Electrify Anaheim: Changing the Transit Paradigm Southern California	Deploys 40 zero-emission electric buses to double service levels on up to 8 routes, add 2 new routes, and implement a new circulator/on-demand first-mile/last-mile service. Also includes construction of a new maintenance facility with solar canopy structures.	\$28,617,000
From the Desert to the Sea: Antelope Valley Transit Authority and Long Beach Transit Zero Emission Bus Initiative	Deploys 7 zero-emission battery electric buses and upgrades charging infrastructure serving AVTA local and commuter bus routes, bringing the entire AVTA system to fully electric status (the first in the nation) by 2019. Deploys 5 zero-emission battery electric buses and related infrastructure for Long Beach Transit services. Increased frequency on up to 5 local and community transit routes operated by LBT.	\$13,156,000
The Transbay Corridor Core Capacity Program	Deploys 272 new rail vehicles and completes a communication-based train control system (CBTC), allowing an increase in train frequency to 30 trains per hour through the Transbay tunnel as well as an increase in train length to 10 car trains during peak hours to alleviate crowding. Allows for over 200,000 new riders per day to ride BART.	\$144,490,000

- The State is invested in the continued development of a comprehensive, integrated network.
- 18 agencies in 2018 were awarded network integration funds to multiply the benefits of the standalone investments.



Examples of funded network integration projects include:

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- Design enhancements to improve ease of transfers from different systems
- Review and support for development of integrated, pulse-schedule service plans for corridors
- Development of a feasibility study analyzing potential for new service
- Identifying best practices for integrating regional transit and rail services, including: scheduling; fare; governance; operations.

Caltrans has a statutory responsibility (AB 528) for interregional transit planning and coordination.

The State serves as a coordinator for planning, funding and technology decisions with system-wide impacts.

We rely on local agencies to know what's best for their region.



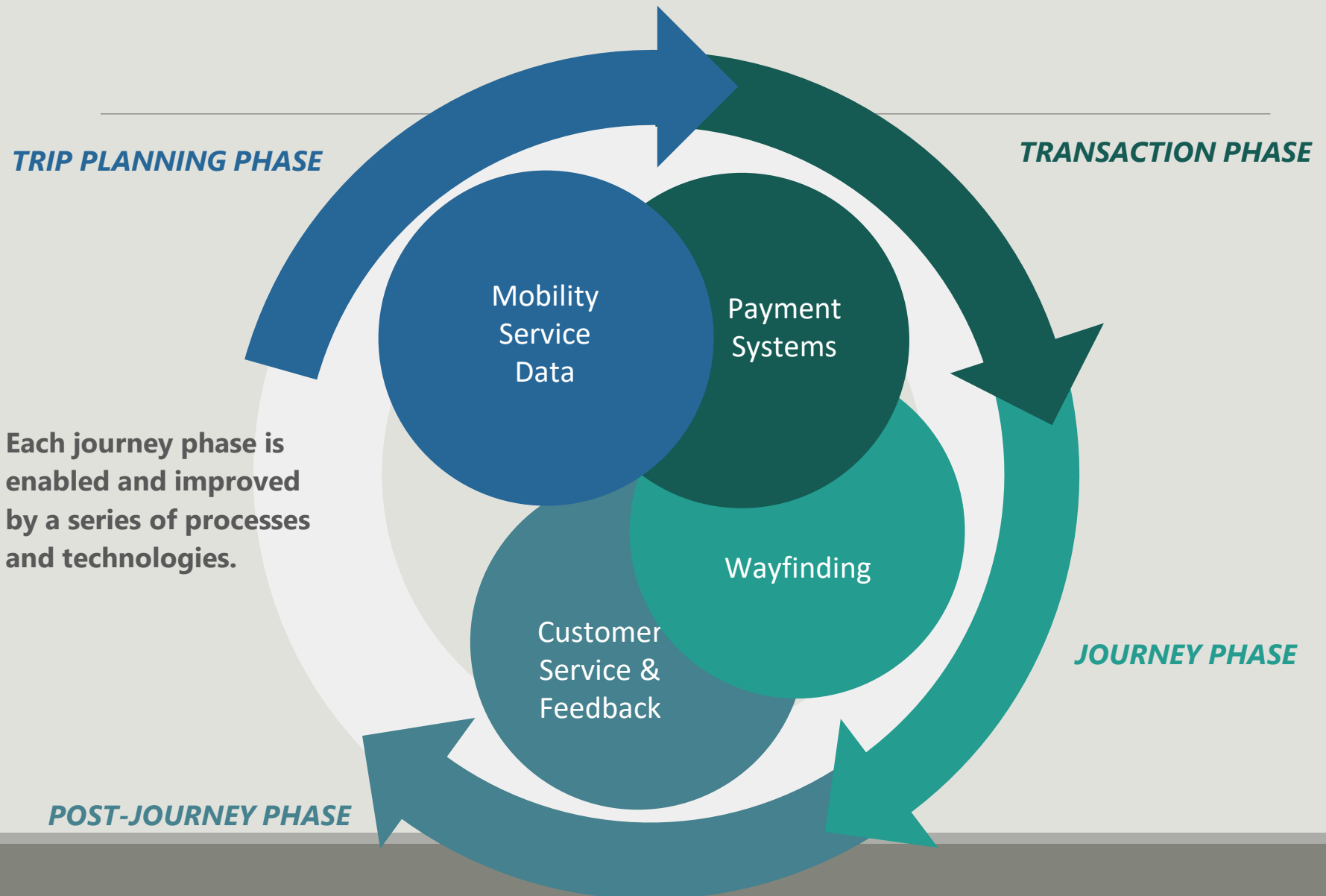
# Cal-ITP: Eliminating Trip- Planning and Payment Barriers

# California Integrated Travel Project (Cal-ITP)

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- Increase ridership by offering seamless trip planning/payment across modes and across California
- Making transit easier for the transit rider by enabling a great user experience
- Meet changing consumer expectations
- Lower costs of fare/revenue collection/information management due to advantage of economies of scale

# What Can We Integrate?



# What Can We Integrate?

**The**

- » **People**
- » **Operations**
- » **Service**
- » **Vehicles**
- » **Infrastructure**

**...are the NETWORK**

**These other 7 components should be integrated**

Contracts &  
Procurements

Policies &  
Regulations

Mobility  
Service  
Data

Wayfinding

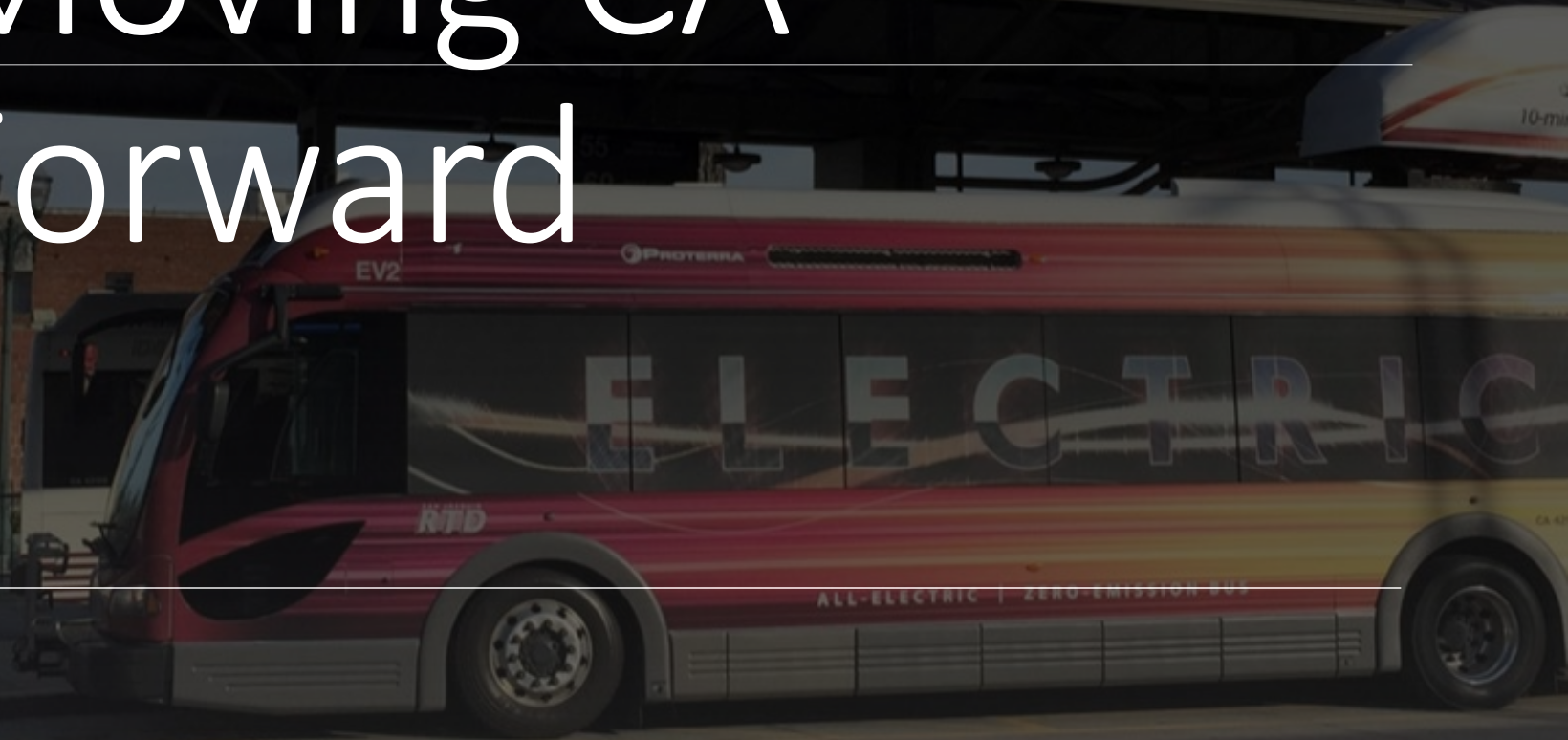
Payment  
Systems

Customer  
Service &  
Feedback

User Data/  
Accounts/  
Identity

# Moving CA

# Forward





The shift to Zero-Emissions Buses (ZEBs) will require an integrated planning approach that must consider the tradeoffs between service design, vehicle technology, and infrastructure.

Working with multiple state agencies and transit agencies, we can meet our policy goals and make California a global leader in the field of ZEBs.

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A long-exposure photograph of a city street at night, showing light trails from cars and buildings. The word "Questions?" is overlaid in white text.

Questions?