THE STATE OF RIDE

Team Members: Madison Cranford, Jack Noble, Jong Houn Gang

SDSU
San Diego State University

BIKESD

TEAM MEMBERS

Madison Cranford

SDSU MCP Candidate

Jong Houn Gang

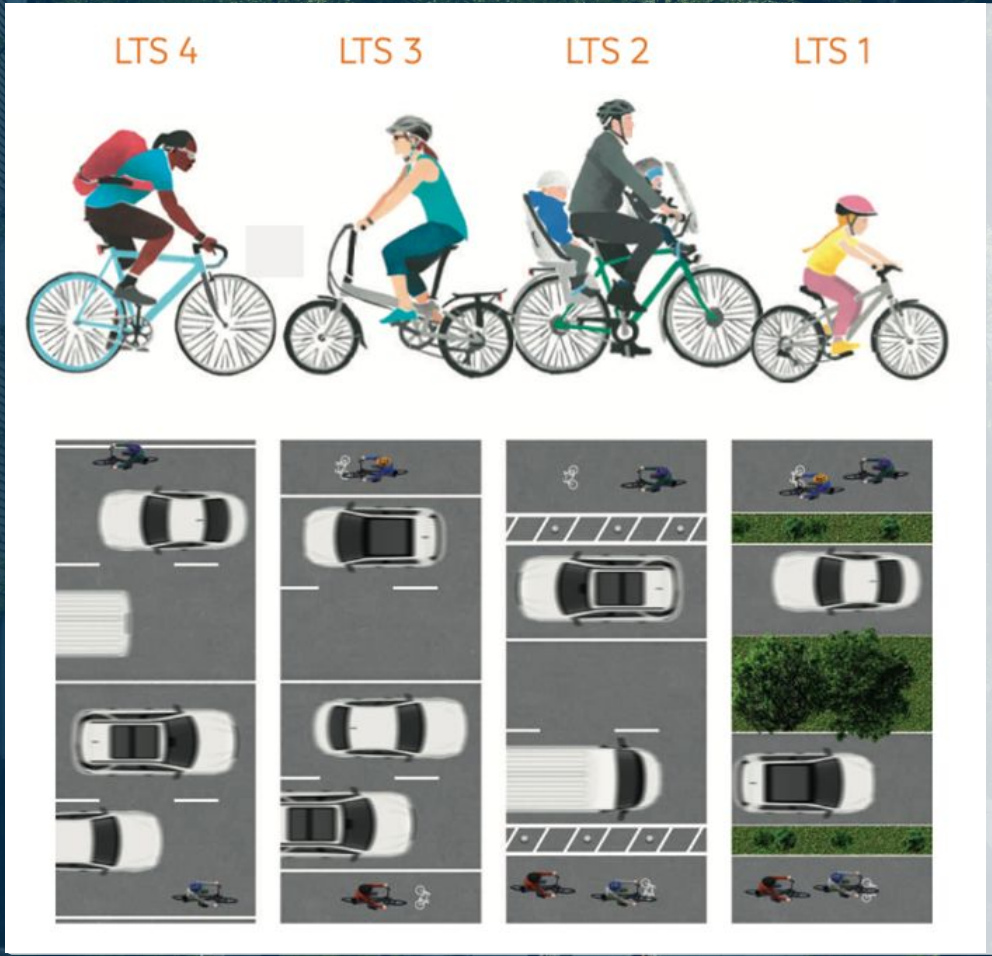
SDSU MPA Candidate

Jack Noble

SDSU MCP Candidate

The Goal:

A Low -Stress Network



SAFETY

CONNECTIVITY

USABILITY

Purpose of the Study

Evaluate **implementation vs. planned bike network**

Assess:

- What has been built
- Where gaps remain
- How the network actually performs

Identify **critical gaps and priority corridors**

Provide a **data-driven evaluation framework**

We cannot improve
what we cannot measure

Methods

GIS

GIS-based Analysis

Planned vs. built network

Level of Traffic Stress (LTS)

Connectivity to destinations

Collision analysis

Audit

Corridor Audits

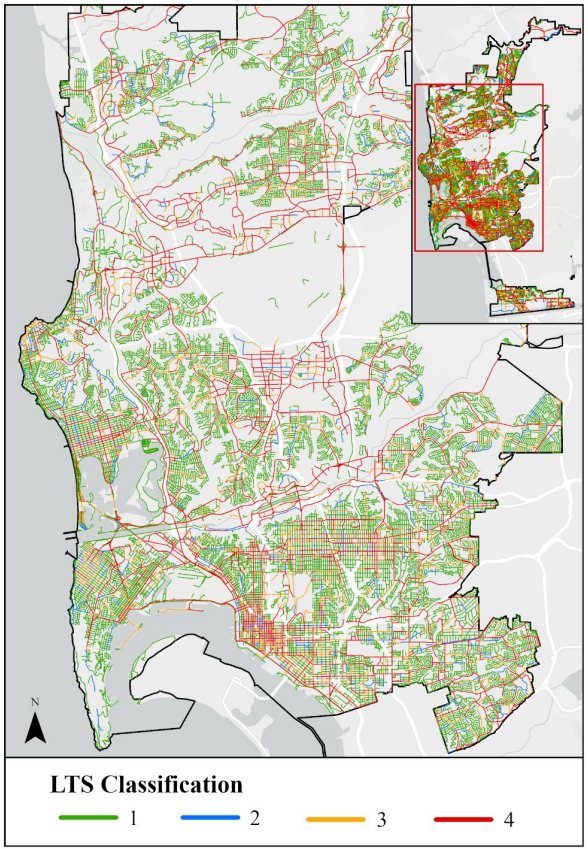
Real-world validation of network conditions

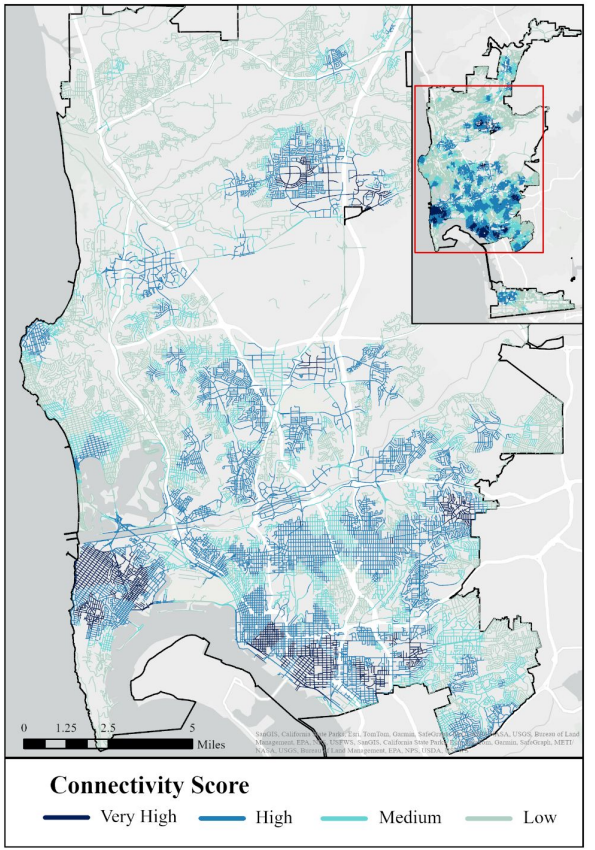
RESULTS & DISCUSSION

Comfort & Connectivity

- Not all low-stress areas provide meaningful access
- Many areas are **highly connected but uncomfortable for many riders**

Comfort alone does not guarantee access





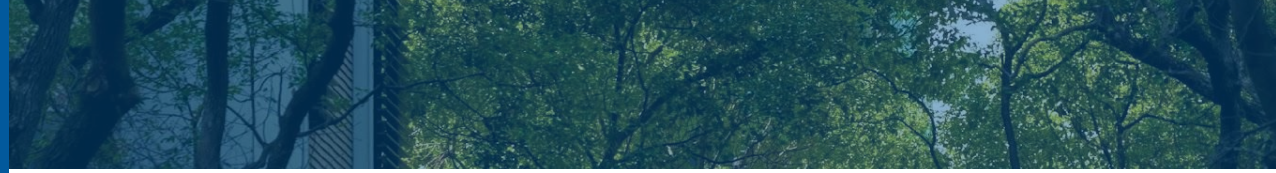
Critical Gaps

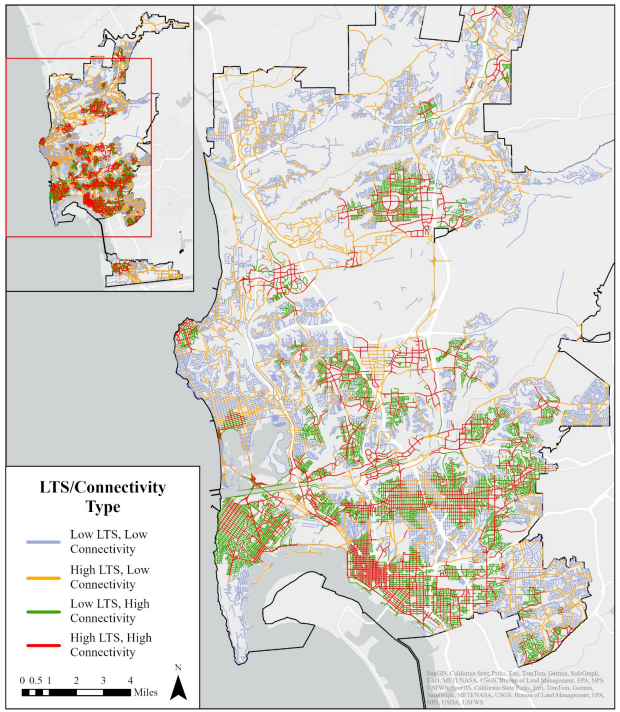
- **15%** of the network = **high stress + high connectivity**
- These are the **most critical gaps**
- Key corridors:

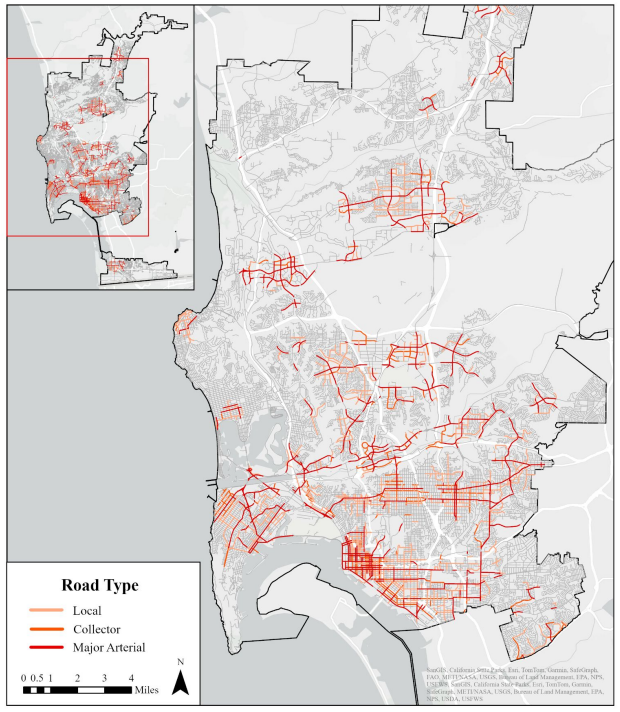
  High demand

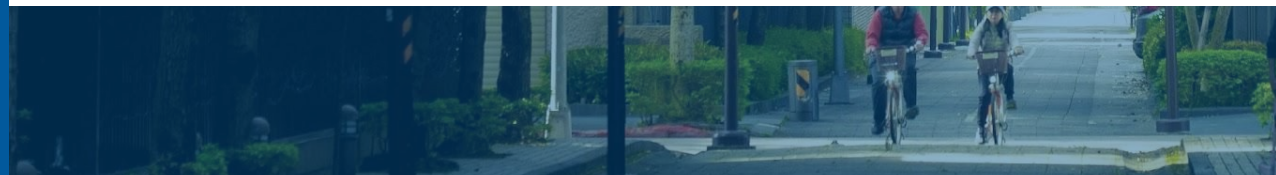
  But unsafe for most riders
- Major arterial roads dominate these gaps

Many places people need to bike are the least safe





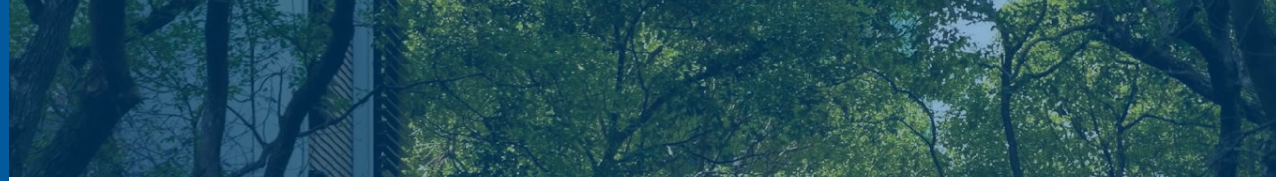


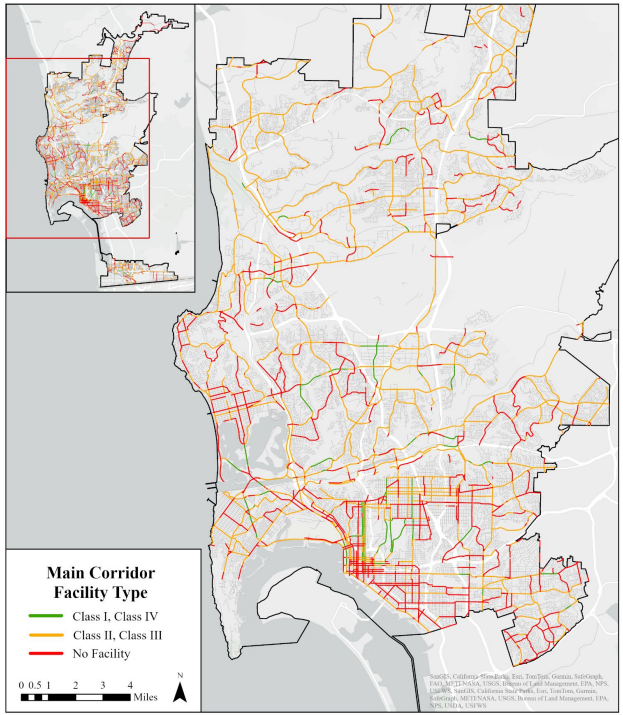


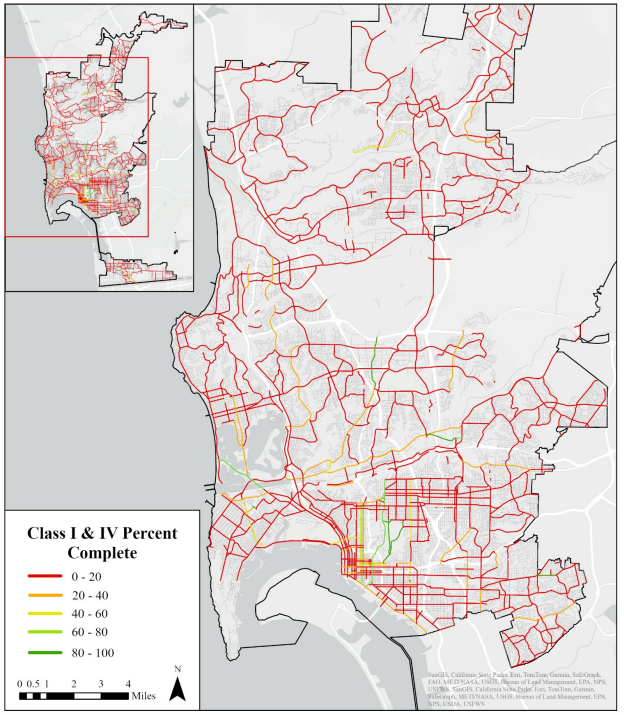
Corridor Completeness

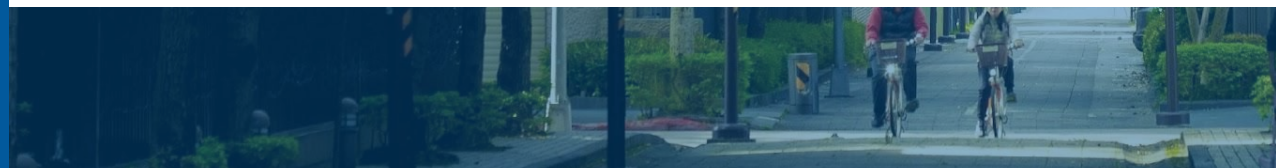
- ~83% of major roads have some bike infrastructure
- BUT most corridors are only 0–20% complete
- Only ~8% of roads have protected infrastructure
- Most facilities are disconnected segments

Miles of infrastructure do not equal a functional network









Network Safety

- **51%** of collisions are on **Class II** bike lanes
- **Class III** routes = **31%** of collisions
- High-stress roads (LTS 3–4)

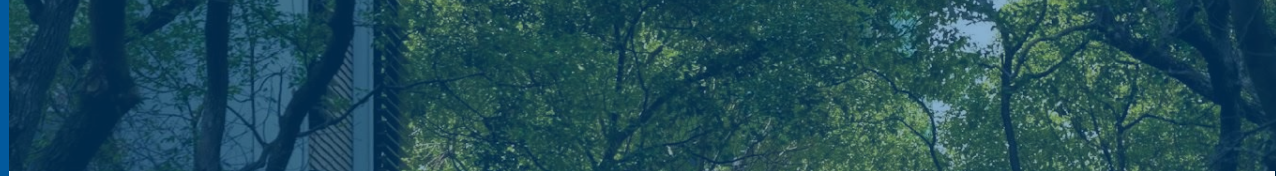
→ **majority of crashes**

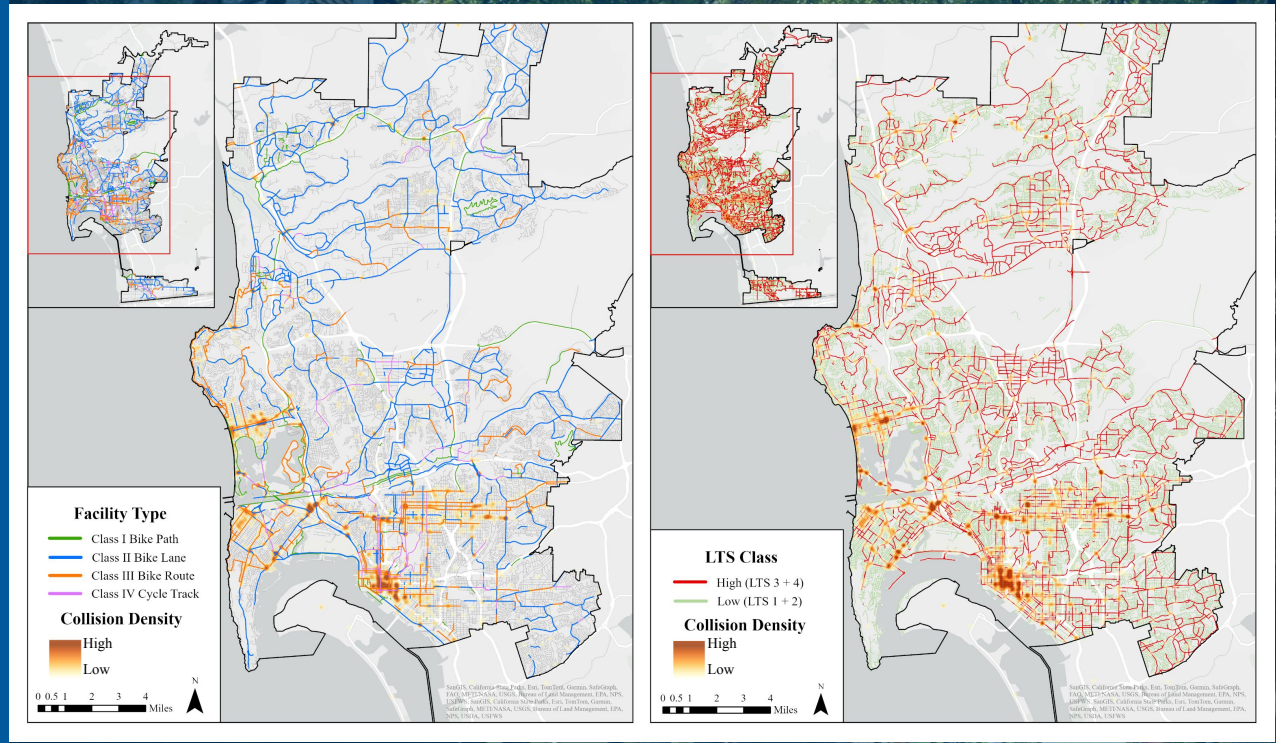
- Collisions are concentrated on:

high-stress corridors

arterials & intersections

Bike infrastructure does not guarantee safety



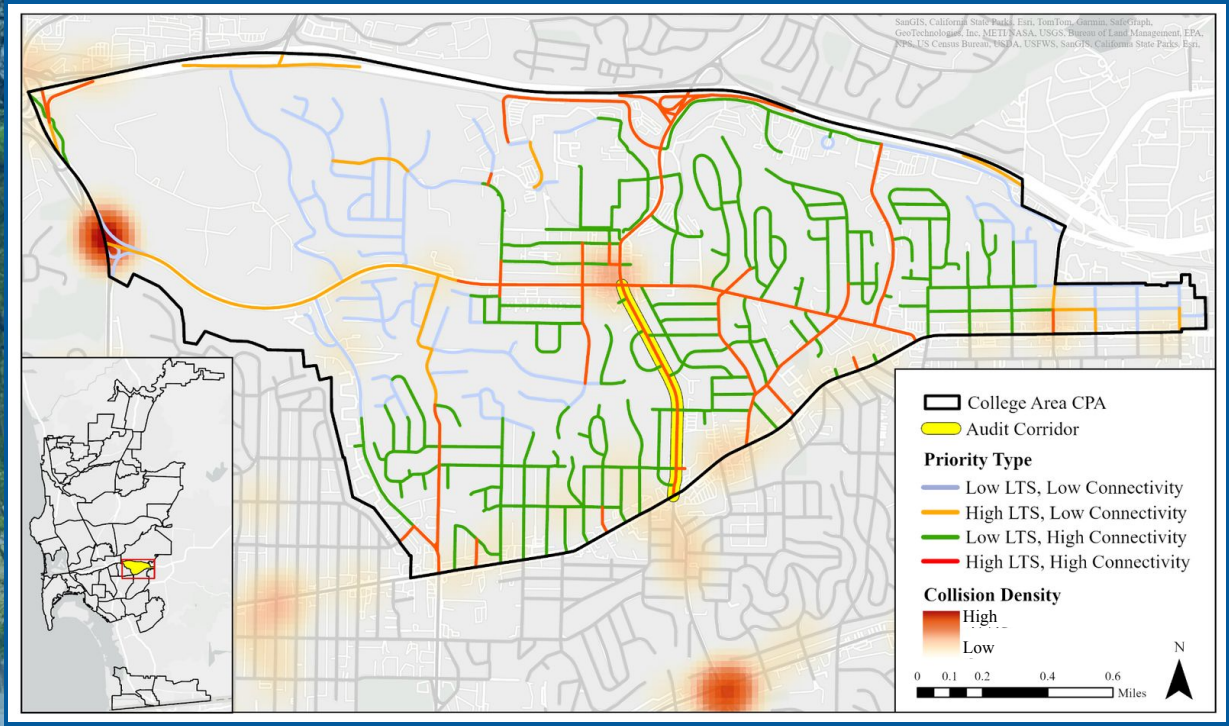


College Area

College Ave: High Stress, No Protection

- **0 protected bike lanes**
- Speed: **25–35 mph**
- Avg LTS: **3.84 (high stress)**
- **11 severe collisions**

- No separation from traffic
- Unsafe intersections
- Discontinuous infrastructure
- High-speed exposure

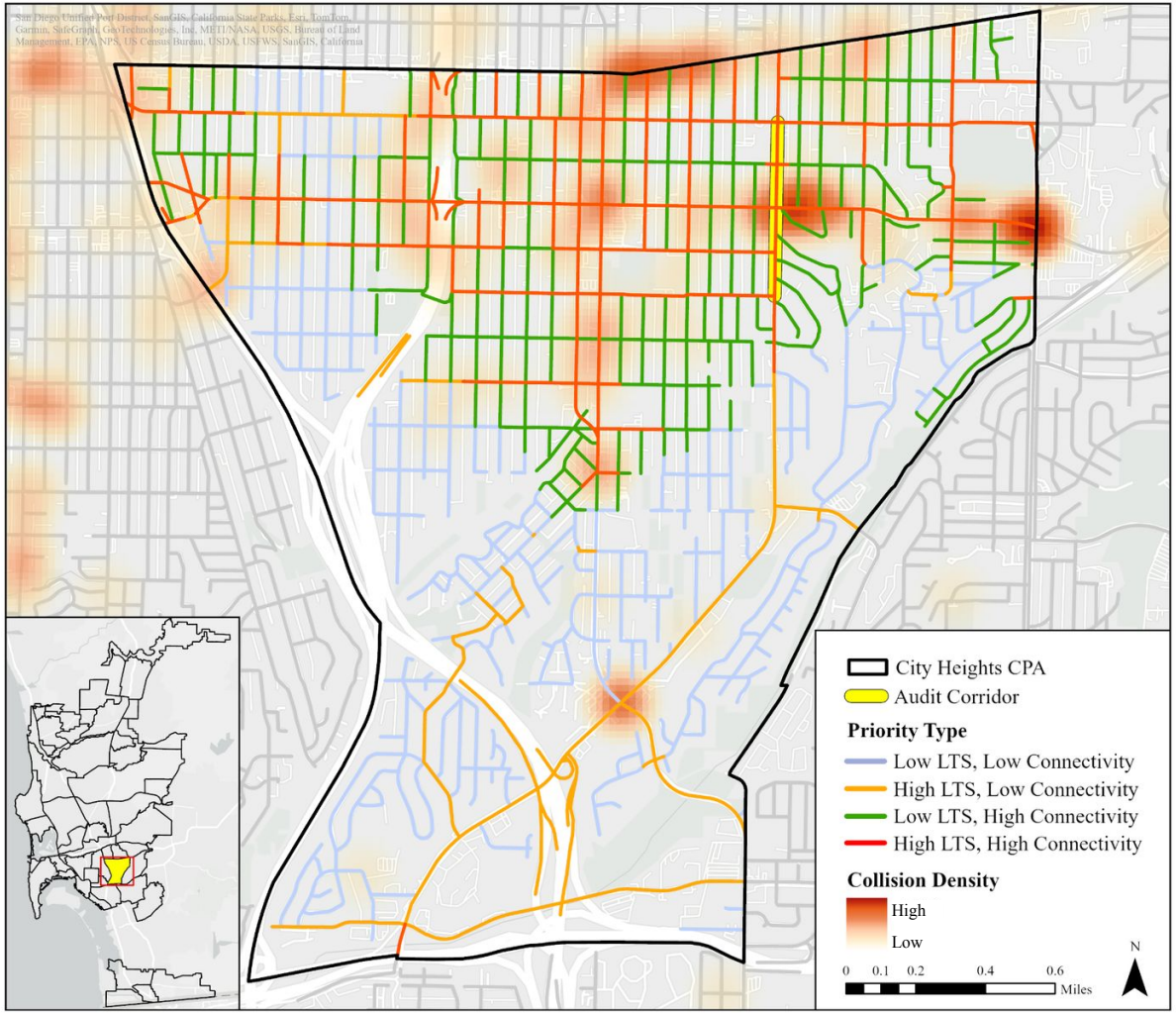


Mid-City/City Heights

Euclid Ave: Fragmented and Incomplete Network

- **95% of corridor lacks protected lanes**
- Avg LTS: **3.72 (high stress)**
- **14 severe collisions**
- Infrastructure is **inconsistent**

- No protection (mostly sharrows)
- Unsafe and unclear street design
- Poor pedestrian conditions
- Frequent disruptions

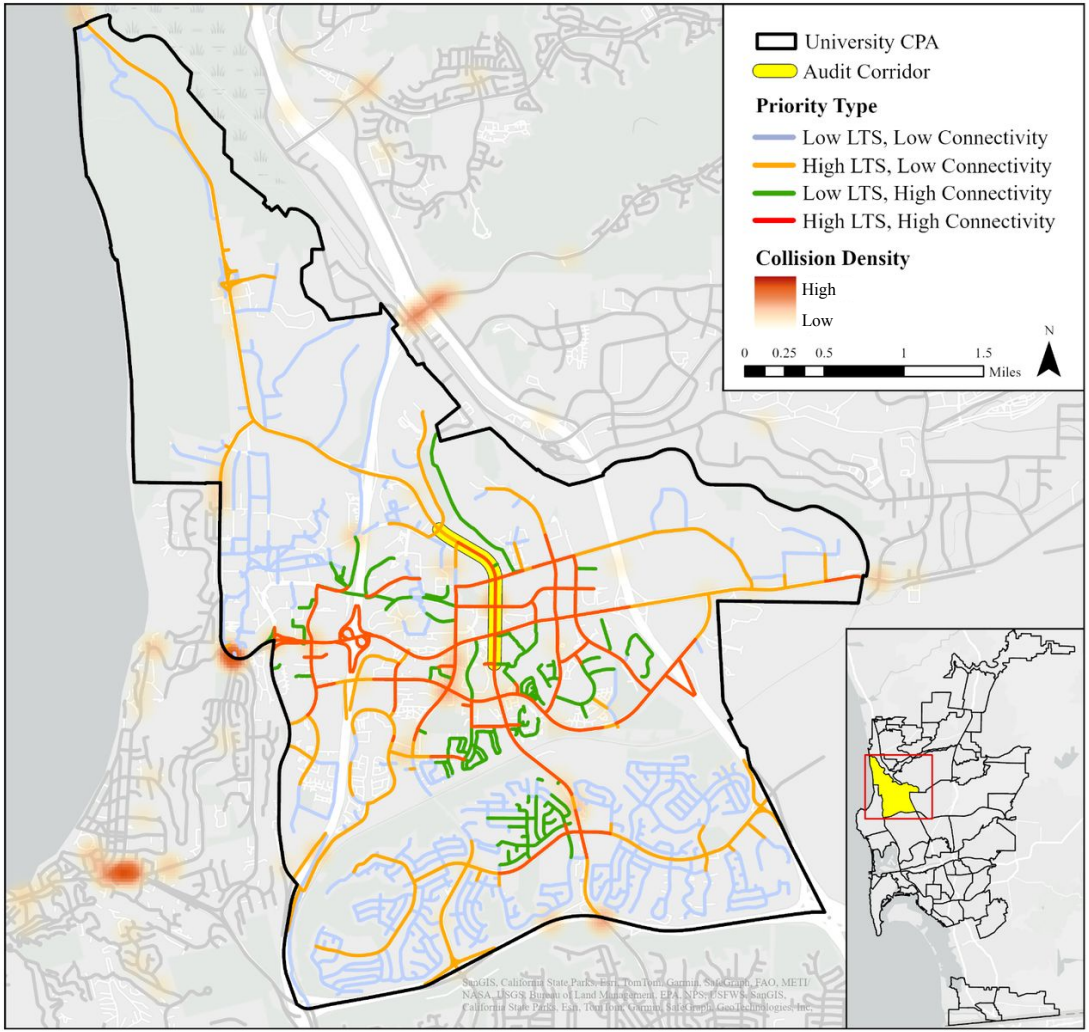


UTC

Genesee Ave: Incomplete and High-Stress Corridor

- **96% lacks protected lanes**
- Avg LTS: **3.96 (very high stress)**
- **21 severe collisions**
- Some protected segments exist

- inconsistent and discontinuous protection
- High speeds and traffic exposure
- Complex and unsafe intersections
- Poor maintenance conditions

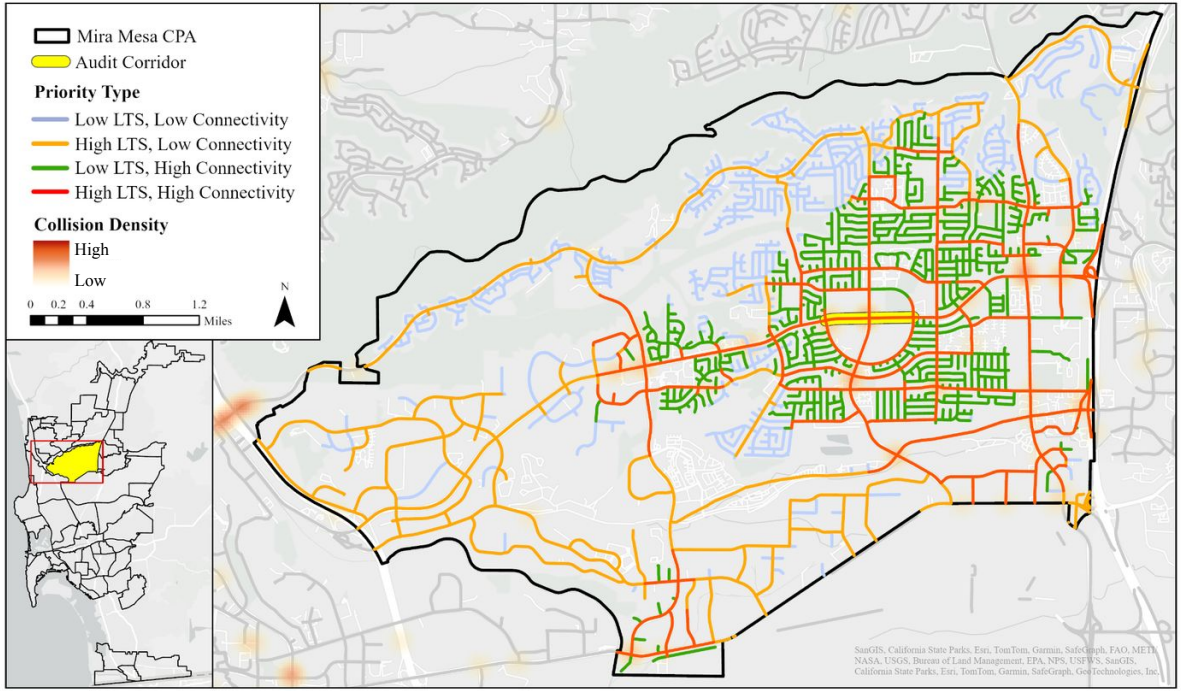


Mira Mesa

Mira Mesa Blvd: High Demand, No Infrastructure

- **~100% lacks protected lanes**
- LTS: 4 **(highest stress)**
- **19 severe collisions**
- Designed for **vehicle priority**

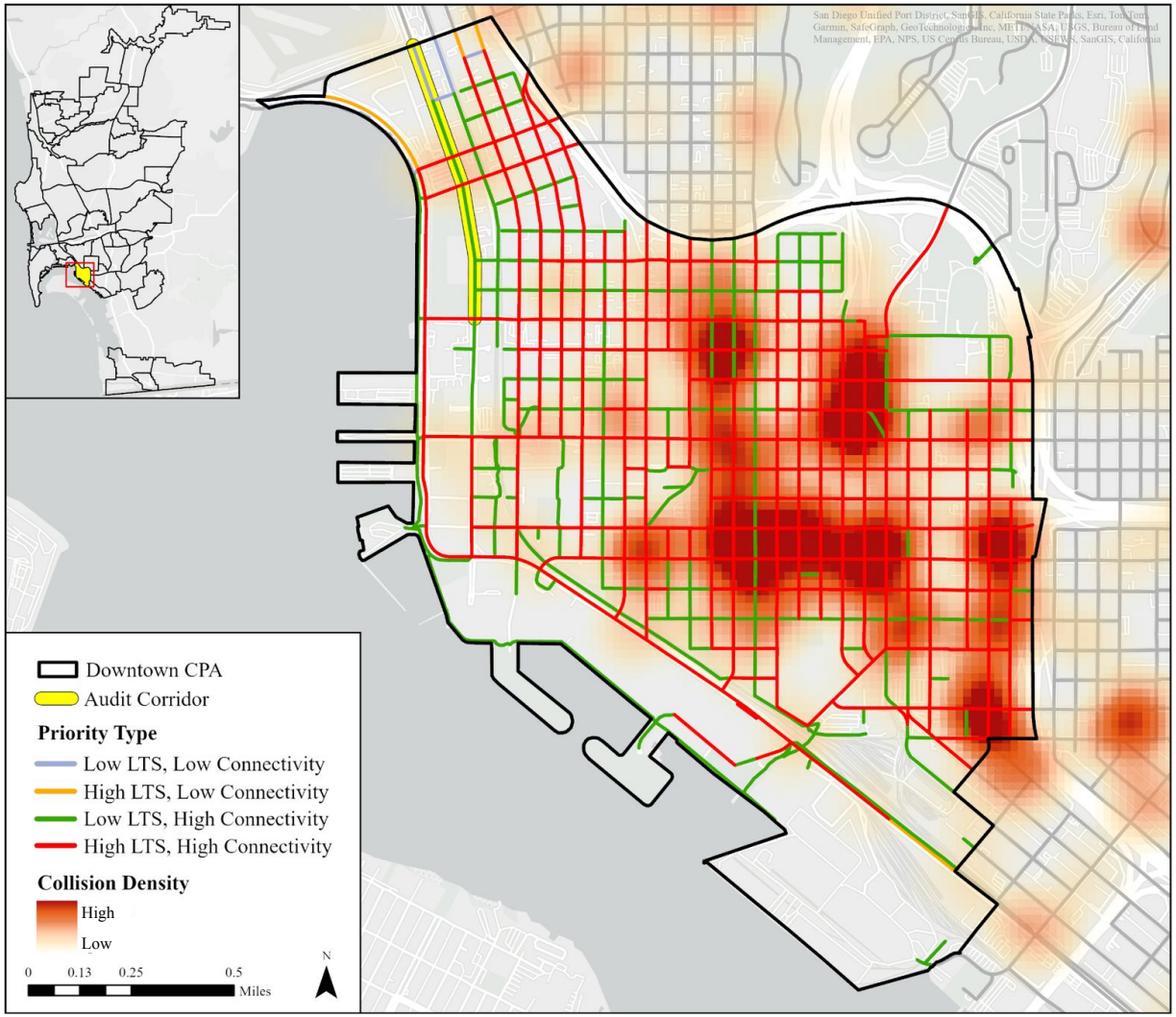
- No bike infrastructure
- High speeds and traffic volumes
- Unsafe, complex intersections
- Poor or unclear markings

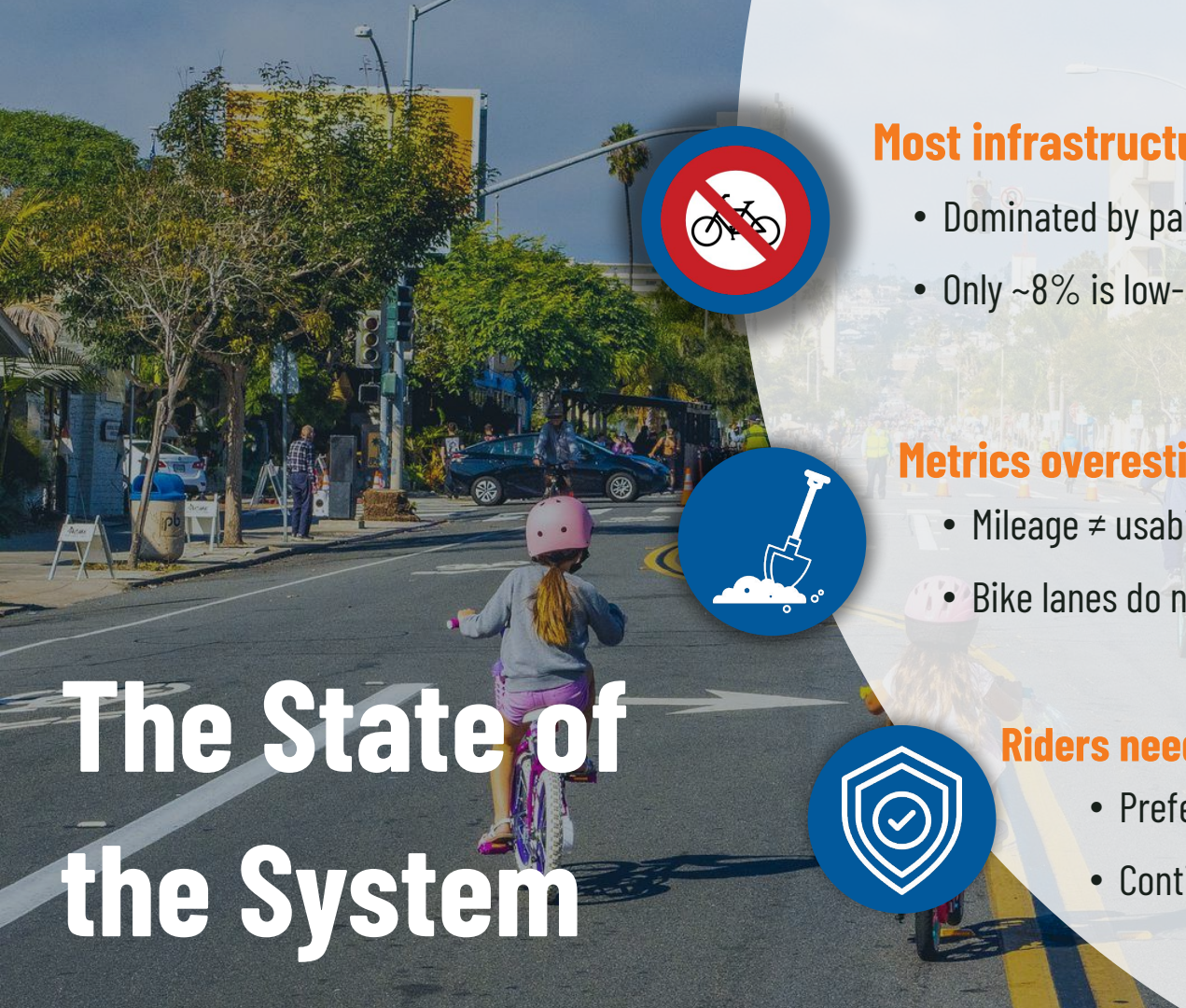


PCH: High-Quality Design, Poor On-the-Ground Performance

- **83% unprotected facilities**
- Avg LTS: **3.75 (high stress)**
- **23 severe collisions**

- Isolated high-quality treatments (bike boxes, green paint)
- Long gaps with insufficient protection
- High-speed traffic exposure
- Disruptions (construction, closures)





The State of the System

Most infrastructure is not protected

- Dominated by painted lanes (Class II & III)
- Only ~8% is low-stress (Class I & IV)

Metrics overestimate performance

- Mileage ≠ usability
- Bike lanes do not always improve safety

Riders need low-stress, connected networks

- Preference for protected facilities
- Continuity is critical

CONCLUSIONS & RECOMMENDATIONS

From Plans to Performance

Metrics versus Performance

- The network is:
  - High-stress
  - Fragmented
  - Incomplete
- Most infrastructure is **not low-stress or protected**

Build networks that people can actually use

- Shift from **quantity → quality**
- Build **continuous, low-stress networks**
- Prioritize **high-impact corridors**

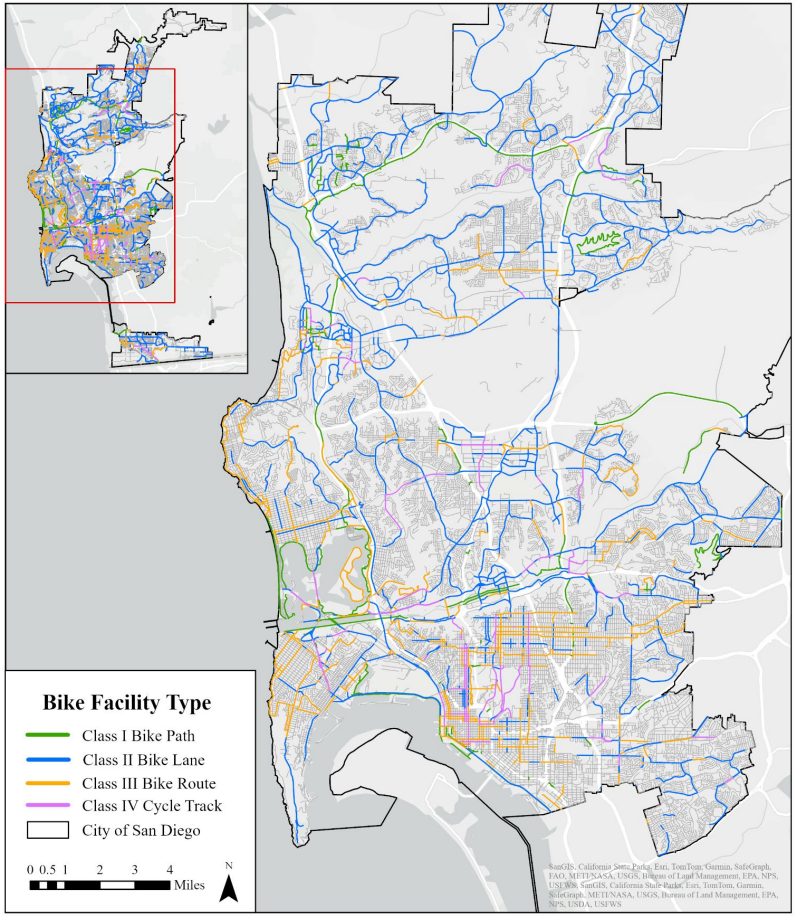
Building a Network that Works for Everyone

- Safety
- Connectivity
- Demand
- Equity
- Feasibility

Corridor Prioritization Model


THANK YOU

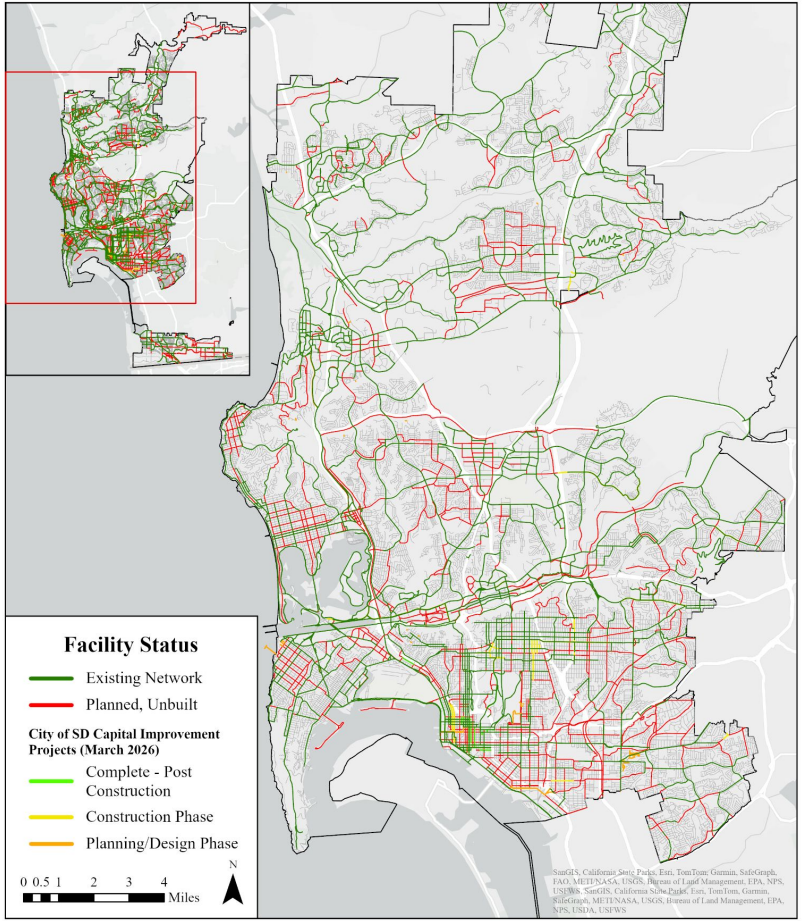
San Diego's Existing Bike Network



- nearly **700 miles** of bike facilities
- About **75% of the 2013 plan goal has been built**
- Most of the network is **Class II bike lanes (57%)**
- Infrastructure is **unevenly distributed across the city**

The network is extensive, but not evenly distributed or consistently low-stress

Planned Network vs. Built Reality



- Many **planned segments remain unbuilt**
- Some gaps are being addressed through current capital projects
- But ongoing projects are **small relative to the full gap**
- The network remains **fragmented**

Adopted plans have not yet translated into a complete network

63% of the network
= **low stress (LTS 1)**

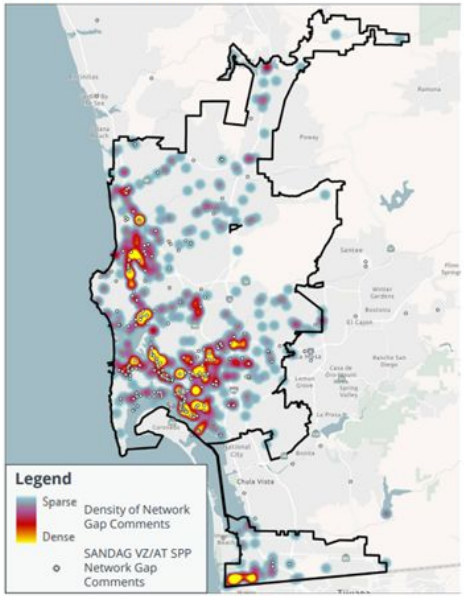
Over 30% = **high stress (LTS 3-4)**

High-stress conditions are
unsuitable for many riders

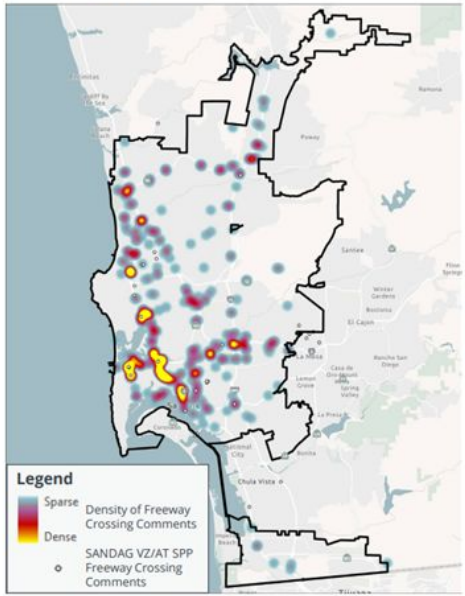
Rider Comfort: Level of Traffic Stress (LTS)

Heatmap of Network Gap Comments

Survey Tag: Network Gaps

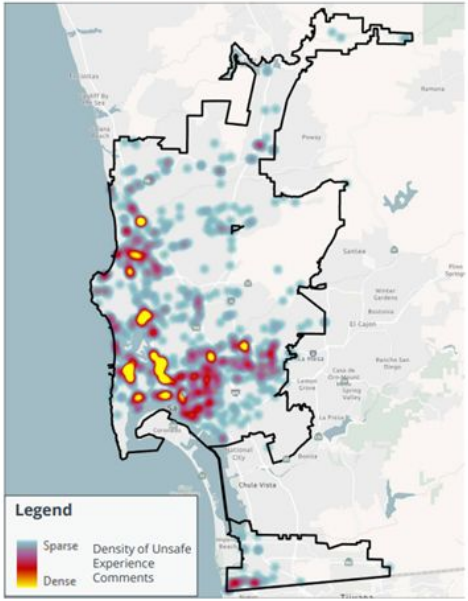


Survey Tag: Freeway Crossings

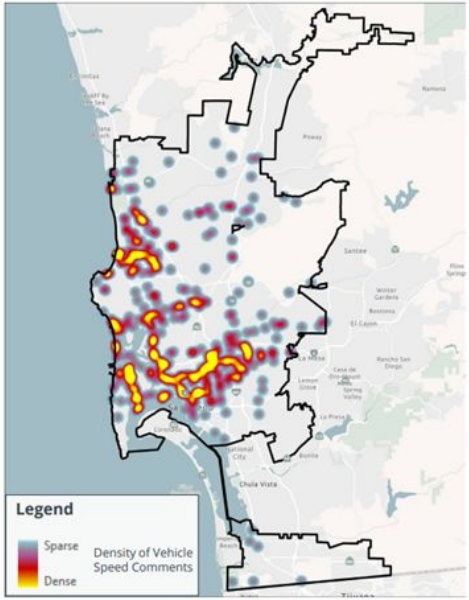


Heatmap of Unsafe Experiences and Vehicle Speeds Comments

Survey Tag: Unsafe Experiences



Survey Tag: Vehicle Speeds



The Problem

01 Traffic Safety

02 Network Gaps

03 Freeway Crossings

Source: City of San Diego. (2025). *BMPU Engagement Summary*