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Bicycle Master Plan Update

State of the Network Report

Fehr / Peers

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State of the Network Report

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Biking in San Diego Today Destinations & Connectivity Bicycle Collisions Gaps and Opportunities

Attachment A: Connectivity Analysis Memorandum Attachment B: Collision Analysis Memorandum The City of San Diego Bicycle Master Plan (BMPU) is a citywide effort to refresh the City's bicycle facility network recommendations and prioritize active transportation projects.

This State of the Network serves as an existing conditions report that lays the groundwork for understanding the City's greatest needs and opportunities to enhance bicycle facilities. This report is broken into four key sections:

- Biking in San Diego Today presents an overview of existing and designed bike facilities within the City.
- Destinations & Connectivity
 provides an overview of key points
 of interest in the City and their
 accessibility via low-stress,
 comfortable bike facilities.
- **Bicycle Collisions** analyzes bicycle collision history in the City.
- Gaps & Opportunities highlights network gaps by geography and other opportunities for the BMPU.

Glossary of Terms

All Ages & Abilities: Design approach focused on safe, comfortable, and accessible networks for all ages, skill levels, and mobility needs.

Designed Bike Facilities: Facilities with 100% or near 100% design plans with secured funding or pending allocation.

Destinations: Defined as schools, parks, transit stops, libraries, shopping areas, and jobs.

Existing Bike Facilities: Facilities on the ground as of November 2024.

Level of Traffic Stress (LTS): Measures how comfortable and safe a roadway feels for cyclists, based on factors like traffic speed and volumes, and bike facility quality.

Short Trips: Vehicle trips three miles or less.

Structurally Excluded Communities: The City of San Diego's Communities of Concern and those priority areas identified in the Environmental Justice Element of the General Plan.

The Bicycle Master Plan Update is guided by five project goals, which will improve and expand a safe, connected, and convenient network:

Safety: Prioritize separated bikeways, protected intersections, and other safety improvements to reduce fatalities and severe injuries.

Equity: Identify project opportunities in structurally excluded communities and to accommodate users of all ages and abilities.

Connectivity: Close existing gaps, improve access, and provide convenient connections within the City and beyond.

Best Practices: Maximize alignment with complete streets best practices and bicycle facility design guidelines.

Innovation: Encourage innovation in design, policy, and programs to optimize opportunities for implementation and increase cycling.

Mode Shift: Increase the number of biking and multimodal trips.

The Bicycle Master Plan Update is guided by the NACTO framework of prioritizing All Ages and Abilities. All Ages and Abilities bicycle facilities are safe, comfortable, and built to attract under-represented cyclists.¹

Who is the "All Ages & Abilities" User?

- Children
- Seniors
- Women
- People of Color
- Low-Income Riders
- People with Disabilities
- Anyone with the need and desire to ride a bicycle





Biking in San Diego Today



Bicycle Facility Types Existing and Designed Facilities **Biking in San Diego Today** provides an overview of the existing and designed facilities in the City of San Diego. It defines bicycle facility types currently seen in the City of San Diego, associated lane miles of each facility type, and recently completed bicycle infrastructure projects. There are four bicycle facility classifications in the City of San Diego.



Class I: Off-street paths exclusively for nonmotorized users, separated from vehicle traffic. These provide safe connections, within roadway right-of-way or an exclusive right-of-way. *Facility Location: San Diego River Trail*



Class II: On-street striped lanes with markings and signage for one-way bike travel, adjacent to vehicle lanes. Often enhanced with striped buffers, they are suitable for lower-speed roadways.

Facility Location: Sabre Springs (left); Fenton Parkway (right)



Class III: Shared roadways with motor vehicles, marked with sharrows and signage. Best for low-speed, low-traffic streets, connecting to parks, schools, or other bike facilities. Class III facilities can be further enhanced as "Bike Boulevards" with traffic calming features like speed humps and diverters.



Class IV: Bike facilities separated from traffic by physical barriers like curbs or bollards. They provide a safer, more comfortable option for riders of all ages and abilities. *Facility Location: Fifth Avenue*

Facility Location: Fashion Valley Road (left), Landis Street (right)

The City of San Diego is expanding and investing in biking infrastructure across the City.



Doubling the separated bikeway network mileage between mid-2023 to early 2025



Over \$50M programmed towards cycling infrastructure Citywide since 2015

1,287 miles of bike facilities

79 miles of <u>Class I bike paths</u>

759 miles of <u>Class II bike lanes</u>

137 miles of <u>Class II bike lanes with buffer</u>

251 miles of <u>Class III bike routes</u>

1 mile of <u>Class III bike boulevards</u>

59 miles of <u>Class IV bikeways</u>

180 miles of <u>designed bike facilities</u> preparing for implementation



Destinations & Connectivity

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Connectivity Score Bicycle Level of Traffic Stress Stress & Connectivity Short Trips & Destinations Connectivity in Structurally Excluded Communities **Destinations & Connectivity** seeks to understand where there is the greatest opportunity to provide low stress bicycle facilities. It evaluates bicycle segment level of traffic stress, density of key destinations, and density of existing short vehicle trips, which represent potential vehicle trips that may shift to bicycle trips if an All Ages & Abilities Network was available.

A **connectivity analysis** was conducted to identify locations within the City where bicycle facilities and network enhancement can provide the greatest connectivity to everyday destinations.

Destination types analyzed: School, Parks, Transit Stops, Libraries, Shopping Areas (including grocery, convenience, etc.), Employment (proxy: jobs per census block).

Connectivity Scores were calculated for each roadway segment within the City to identify which segments provide connections to many destination types. Segments with a score of 3 or higher are considered **High Connectivity**.

See Attachment A for additional information on the Connectivity Analysis.



68% of City's roadway network is considered low stress, with a low (≤2) Level of Traffic Stress score. This is mostly comprised of local streets with slow speeds and low volumes.

The following roadway classifications make up the largest share of high stress facilities, with a high (≥3) Level of Traffic Stress score: 12% Local Collectors 5% Collectors 11% Major Arterials



The Connectivity Analysis considered how accessible key destinations are from the surrounding areas on a low stress network.

Roadways were categorized accordingly:

High Connectivity and High LTS:

Roadway segments where there are many destinations near the segment, but the route is considered high stress.

High Connectivity and Low LTS: Roadway segments where there are many destinations near the segment, and the route is considered low stress.

Low Connectivity and High LTS: Roadways where there are few destinations near the segment, and the route is considered high stress.

Low Connectivity and Low LTS: Roadways where there are few destinations near the segment, but the route is considered low stress.



High Connectivity, High LTS and High Connectivity, Low LTS roadways demonstrate the greatest opportunities to connect people to everyday destinations.

This highlights opportunities to enhance facilities on High Connectivity, High LTS segments or providing parallel facilities on low stress segments.

It also highlights where crossings of high stress streets may need additional traffic calming measures to ensure safety and comfort of a High Connectivity, Low LTS segment.



Short Trips are defined as vehicle trips 3 miles or less.

Top 20% Weekday Short Trips illustrated on the right represents segments with the highest density of short vehicle trips.

These short vehicle trips **represent routes or areas with potential to become bike trips** with an all ages and abilities network.

Additionally, short vehicle trips represent key infrastructural needs within each community and in many cases represent short, intra-community trips.



Figure 6

1 mile

Structurally Excluded Communities with High Connectivity Segments and 20th Percentile Short Trips

City of San Diego

Source: Replica (Fall 2023), Fehr & Peers (December 2024), and SANDAG (November2024)

BALBOA PARK

15

Market St

T

163

KEY TAKEAWAYS

"Structurally Excluded Communities" are defined as City of San Diego's Communities of Concern and those priority areas identified in the EJ Element.

The map illustrates the greatest opportunity for bicycle facilities to connect Structurally Excluded Communities to everyday destinations on a low stress network and roadways residents are most frequently using in their communities.

Legend

Top 20% Weekday Short Trips

- __ High LTS, High Connectivity
- Low LTS,
 High Connectivity
- Structurally Excluded Communities

Bicycle Collisions

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Bicycle Collisions summarizes information from 92 bicyclist-involved collisions in City of San Diego which resulted in either a severe or fatal injury between 2019 and 2023.



Table 1: Bicyclist-Involved Collisions per Year, 2019 to 2023

Year	Fatal Collisions ¹	Severe Injury Collisions ¹	Total Bicyclist Collisions ²
2023	3	19	365
2022	2	16	323
2021	6	12	325
2020	3	9	324
2019	4	18	356
Total	18 (1.1%)	74 (4.4%)	1,693 (94.5%)
Mean per Year	3.6	14.8	338.6

Source: City of San Diego (2024) ¹, SWITRS (2024) ²

Collision Injury Definitions:

Fatal Injury: Resulted in fatality within 30 days of collision.

Severe Injury: Resulted in broken bones, laceration, or other serious impairments.

Broadside crashes occurred in most collisions with motorists when a cyclist was at fault (57.5%).

Rear end collisions were the most common type of collision when the motorist was at fault (13 out of 31 instances) and the second most common type of collision when a cyclist was at fault (8 of 40 instances).

Rear end collisions were by far the leading cause of a fatal bicyclist-involved collision when a motorist was at fault.

Table 4: Collisions by Type of Impact and Party at Fault (Non-Solo Bicyclist Collisions)

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Type of Impact	Bicyclist at-Fault	Bicyclist at-Fault, Fatal Only	Non-Bicyclist at-Fault	Non-Bicyclist at-Fault, <i>Fatal Only</i>	No Fault	No Fault, Fatal Only
Broadside	57.5% (23)	33.3% (2)	25.8% (8)	9.1% (1)	-	-
Rear End	20.0% (8)	33.3% (2)	42.0% (13)	63.6% (7)	-	-
Other	2.5% (1)	-	16.1% (5)	9.1% (1)	100% (1)	100% (1)
Sideswipe	12.5% (5)	33.3% (2)	6.5% (2)	9.1% (1)	-	-
Head-on	2.5% (1)	-	6.5% (2)	9.1% (1)	-	-
Overturned	2.5% (1)	-	3.2% (1)	-	-	-
Not Specified	2.5% (1)	-	-	-	-	-
Total	40	6	31	11	1	1

Bold values = modal category Source: SWITRS (2024)

Unsafe Left or Right Turns, Failure to Yield to Party with Right of Way, Unsafe Speeds, and Traveling on Wrong Side of Road are the most common violation types.

Unsafe Left or Right Turn is the most common violation category in fatal bicyclist involved collisions (33% of all fatal collisions).

Failure to Yield to Party with Right of Way is second most common violation category, though this type of violation was not present in any fatal collisions.

Traveling on Wrong Side of Road a common violation when a bicyclist is at-fault.

Table 5: Collisions by Type of Impact and Party at Fault (Non-Solo Bicyclist Collisions)								
Violation Category	Combined Severe & Fatal	Bicyclist at-Fault	Non- Bicyclist at-Fault	No Fault	Fatal Collisions Only	Bicyclist at-Fault	Non-Bicyclist at-Fault	No Fault
Unsafe Left or Right Turn	19.4% (14)	17.5% (7)	22.6% (7)	-	33.3% (6)	33.3% (2)	36.4% (4)	-
Failure to Yield to Party w/ Right of Way	18.1% (13)	15.0% (6)	22.6% (7)	-	-	-	-	-
Unsafe Speeds	16.7% (12)	12.5% (5)	22.6% (7)	-	27.8% (5)	16.7% (1)	36.4% (4)	-
Traveling on Wrong Side of Road	16.7% (12)	25.0% (10)	6.5% (2)	-	5.5% (1)	16.7% (1)	-	-
Other Hazardous/Misc.	12.5% (9)	5.0% (2)	19.4% (6)	100% (1)	16.7% (3)	-	18.2% (2)	100% (1)
Disobeying Signals and Signs	11.1% (8)	17.5% (7)	3.2% (1)	-	-	-	-	-
Unsafe Lane Change	5.6% (4)	7.5% (3)	3.2% (1)	-	16.7% (3)	33.3% (2)	9.1% (1)	-
Total	72	40	31	1	18	6	11	1

Bold values = modal category Source: SWITRS (2024)

Midway-Pacific Highway and Kearny Mesa have the highest severe and fatal bicycling collisions per capita.

Balboa Avenue & Viewridge Avenue are the only locations with multiple severe injury collisions in the City.

	Comstons		
Community Planning Area	Severe and Fatal Collisions	Severe Collisions	Fatal Collisions
Peninsula	9	9	0
Uptown	8	8	0
Downtown	6	4	2
University	5	4	1
Mid-City: Eastern Area	4	1	1
Skyline-Paradise Hills	4	2	2
Mission Bay Park	4	3	1
Linda Vista	4	3	1
La Jolla	4	3	1

Table 7: CPAs with the Most Fatal and Severe Bicyclist-Involved

 Collisions

Source: City of San Diego (2024) ¹, SANDAG 2023 Estimates (2024) ²

Gaps & Opportunities

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Gaps & Opportunities identifies gaps between the existing and designed bicycle facility networks, highlighting key areas for new or enhanced facilities to make the most impact on the citywide network.









Next Steps and Opportunities for the BMPU Bicycle Network

- <u>Milestone in BMPU Progression</u>: This State of the Network document builds on the Best Practices Report and serves as a foundation for network development and implementation, which will be guided by strong community input.
- <u>Data-Driven Project Identification</u>: By layering multiple data sources—trip activity, connectivity, and community needs—we can pinpoint high-impact projects that maximize return on investment. Identifying gaps in existing facilities strengthens the case for safety improvements where demand is highest.
- Implementation-Focused Approach: The City has many roadways and previously planned facilities. The BMPU approach will focus on streamlining the process from design to construction, by leveraging maintenance projects and other actionoriented implementation efforts.
- <u>Targeting Key Areas:</u> High-need areas, including Structurally Excluded Communities (SECs), can benefit from external funding sources such as the Caltrans Active Transportation Program. Using destination and demand data, we can clearly demonstrate the need for bicycle facility investments and bridge connectivity gaps.

