
TSP Metrics Report

Work in Progress - First Draft

OVERVIEW

This report summarizes the findings of the TSP Metrics subcommittee. The goal of the subcommittee is to provide a set of potential goals or targets with measurable metrics to be used by TSP. The objective of these metrics are:

- To provide clear and measurable goals for transportation infrastructure.
- To provide progress against these goals.
- To ensure alignment with City Council, city staff, TSP, outside consultants, and the Burlingame community.

METRICS

It was concluded that the most appropriate performance metrics would focus on **Safety, Execution, and Results.**

- **Safety** will be assessed through the monitoring of accident and fatality rates, both across the city and specifically at the Broadway railroad crossing.
- **Execution** will be measured by evaluating the City's progress in implementing its Bicycle and Pedestrian Master Plan.
- **Results** will be determined by comparing the actual outcomes of a major roadway improvement project against its established objectives.

NEXT STEPS

- To present and discuss our findings with TSP so that we can agree on the metrics and metric targets
- To present these agreed upon metrics to Syed and gather his input
- To present agreed upon metric targets to city council
- To report annually to public and city council on the progress against these metrics

SAFETY METRIC

Objective: The objective of the SAFETY metric is to identify and track data that monitors the safety of our infrastructure. This metric helps us measure progress toward our ultimate goal: zero pedestrian, bicyclist, and vehicle deaths or serious injuries each year.

The Data: We leverage TMS (Transportation Injury Mapping System) to gather accidents across the entire City of Burlingame as well as at the specific intersection of the Broadway railroad crossing.

- **City Wide Data**

	Fatal	Severe	Visible Injury	Complaint of Pain	TOTAL
2018		14	86	38	140
2019	1	5	60	43	109
2020	2	8	44	28	82
2021	5	4	46	32	87
2022	1	6	56	32	95
2023		11	65	39	115
2024	1	6	85	30	122

- **Broadway railroad crossing data:**

	Collision Severity	# Killed	# injured	TOTAL
2018	6	0	2	8
2019	0	0	0	0
2020	- covid -	- covid -	- covid -	- covid -
2021	- covid -	- covid -	- covid -	- covid -
2022	7	0	3	10
2023	5	0	2	7
2024	14	0	6	20

FINDINGS FOR CITY WIDE SAFETY

We analyzed the data with and without the COVID years and found not a significant difference. We found the most insight when we analyzed the highest and lowest occurrence in each category and what was the percentage difference.

	Fatal	Severe	Visible Injury	Complaint of Pain	TOTAL
TOTAL LAST 7 YEARS	11	54	442	242	750
AVE over 7 Years	1.6	7.7	63.1	34.6	107.1
TOTAL WITHOUT COVID YEARS	4	42	352	182	581
AVE over 5 Years	1	8	70	36	116.2
TOTAL LAST 5 YEARS	9	35	296	161	501
AVE LAST 5 YEARS	1.8	7	59.2	32.2	100.2
Highest Number	5	14	86	43	140
Lowest Number	0	4	44	28	82
Lowest Number (Outside of COVID Years)	0	5	56	32	95
Difference in Percentage between High and Low		-64%	-35%	-26%	-32%

DISCUSSION

- What is the appropriate City Wide SAFETY target metric?
- **City Wide:** Looking at the percentage increases that have occurred between the highest and lowest numbers. We recommend we set a target of achieving a **25–35% reduction** in the 5 year average in each category over the next three years. With the Fatality Goal being 0. Note: A 75% reduction would be needed to achieve a 0 fatality goal.

		Fatal	Severe	Visible Injury	Complaint of Pain	TOTAL
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GOAL - AVE over 5 years	25%	0	5	44	24	75
GOAL - AVE over 5 years	35%	0	5	38	21	65

FINDINGS FOR BROADWAY RAILROAD CROSSING

We analyzed the data over the last 3 years and found a significant upward trend. In fact, when comparing the highest number to the lowest number the increase is close to 300% across the board.

AVERAGE over last 3 years			8.7	0.0	3.7	12.3
Highest Number from Last 3 Years			14	0	6	20
Lowest Number from Last 3 Years			5	0	2	7
Difference in Percentage between High and Low			280%	0%	300%	286%

DISCUSSION

- What is the appropriate Broadway Railroad Crossing SAFETY target metric?
- **Broadway Railroad Crossing:** We recommend we set a goal of achieving a **35-50% reduction** in the 3-year average in each category over the next 3 years. This would get our city closer to the numbers of 2022.

		Collision Severity	# Killed	# injured	TOTAL
GOAL - AVE over 3 years	35%	6	0	2	8
GOAL - AVE over 3 years	50%	4	0	2	6

EXECUTION METRIC

Objective: The objective of the Execution Metric is to track progress on infrastructure implementation in alignment with the Bike-Ped Master Plan, with the ultimate goal of completing the plan by the designated target date to improve traffic congestion and enhance safety.

The Data: The bike/ped plan outlines 3 bike routes: **the commuter route**, the **safe school routes** and the **recreational route**. (Note: *EXHIBIT 1 - Bike Network*)

- **COMMUTER ROUTE:** A planned dedicated and connected bike network for all directions of travel in Burlingame: East, West, North, South. This will include connectivity to the downtowns, train stations, Burlingame plaza shopping mall, parks, schools, the hospital, and neighboring cities.
- **SAFE SCHOOL ROUTES:** Safe Routes to School (SRTS) program coordinated by the San Mateo County Office of Education (SMCOE) encourages and enables school children to walk and bicycle to school by implementing infrastructure and activities that improve the health, well-being, and safety of children and results in less traffic congestion and emissions caused by school related traffic” (SMCOE).
- **RECREATIONAL / EXERCISE ROUTE:** A route that provides a path or lane for cycling that is separate from motorized traffic and is intended for enjoyment. These are usually located in recreational areas and are separated from main roads. They can be shared with pedestrians or other non-motorized users.

We decided that for the first year we would track metrics on the commuter and recreational route. Next year the safe school route could be added. For the commuter and recreational route we looked at the following data:

- **PLAN vs EXISTING:** We compared the current infrastructure to the Burlingame Bike-Ped Plan and categorized each item as follows:
 - Implemented as outlined in the Burlingame Bike-Ped Plan
 - Implemented differently, but provides safety accommodations equal to or better than those in the plan
 - Implemented differently, but offers less safety than what the plan recommends
 - No changes have been made yet

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- **SIGNAGE:** We then looked at current infrastructure and identified how much of the commute route and recreational route is identified by signage or sharrows.
 - **STRESS LEVEL 1:** We then looked at the stress level of the streets on these routes as identified in the bike plan. The plan categorized the streets according to traffic speed and volume to the following 4 stress levels:
 - Interested but concerned: Represents 70% of riders
 - Enthusiastic & confident: Represents 16% of riders
 - Strong & Fearless: Represents 1% of riders
 - No way no how
 - *NOTE: Most people in the U.S. have little tolerance for interacting with motor vehicle traffic while bicycling unless volumes and speeds are very low. This group of riders is referred to as “interested but concerned,” reflecting both their interest in bicycling for transportation as well as concerns about safety and comfort when interacting. Because of this we identified how much of the commute route and recreation route has achieved stress level 1.*
 - **CONNECTIVITY**
 - *Note: EXHIBIT 2 - Stress Map, EXHIBIT 3 - High Stress Corridors)*
- **CONNECTIVITY**
 - For the commute route to be efficient, it must provide connectivity to several key locations in the city, including downtown Burlingame, downtown Broadway, Burlingame Plaza, Millbrae Train Station, Burlingame Train Station, and the hospital. Additionally, the north/south commute route should connect seamlessly with the east/west routes. We identified how many of these key locations can be accessed by the commute route infrastructure.

FINDINGS FOR COMMUTE ROUTE

- *Note: EXHIBIT 4 - Commute Route Summary, EXHIBIT 5 - Commute Route North/South, EXHIBIT 6 - Commute Route East/West*
- **What is the Commute Route:** Burlingame maintains 161 miles of roads. **10 miles** have been identified for the commute routes. The commute route runs North/South along California and East/West along Murchison & Trousdale
- **Plan vs Existing:** **12%** or **1.2 miles** of accommodations are according to the plan
- **Signage:** **50%** or **5.1 miles** of bike facilities are only signage - suitable for strong & fearless riders representing 3% of our bikers.
- **Stress Level 1:** **14%** or **1.4 miles** of accommodations provide a low stress environment suitable for interested but concerned riders - representing 70% of our bikers.

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- **Connectivity:** Limited connectivity is provided to Downtown Broadway, Millbrae Train Station
 - Lack of safe connectivity to Downtown Burlingame & Burlingame Train Station, mall, hospital, and schools on the streets.
 - Lack of a connected network (East, West, North, South) Routes. Lack of connectivity to San Mateo bike lanes.

DISCUSSION:

- **What are the appropriate EXECUTION target metrics for the commute routes?**
- **Plan vs Existing:** We recommend that we set a goal of achieving **6 additional miles for a total of 7.2 miles of the 10 miles** that have been identified over the next 3 years
- **Stress Level 1:** We recommend that we set a goal to increase bike accommodations achieving Low Stress in Commute Routes from **1.4 Miles to 6 Miles** over the next 3 years
- **Connectivity:** We recommend that we set a goal to Connect a Bike Lane to the Downtown Burlingame Ave and Connect the North/South route and East/West route over the next 3 years

FINDINGS FOR RECREATIONAL ROUTE

- *Note: EXHIBIT 7- Recreational Route Summary, EXHIBIT 7 - Recreational Route North/South, EXHIBIT 9 - Recreational Route Analysis Access Routes*
- **What is the Recreational Route:** **9.6 miles** have been identified for the Bayfront routes. The Bayfront route plan runs North/South from the entrance to Coyote Point to Millbrae Ave and Old Bayshore Hwy. East/West connectivity varies.
- **How do you access the Recreational Route:**
 - Southern access to Coyote point is approximately **1.6 miles** starting at Northlane and Burlingame Ave. It takes you through Howard, Humboldt Rd to the Peninsula overpass.
 - There is a “midpoint” access to the Bay trail along Carolan/Cadillac Way that leverages the overpass at Broadway.
 - Northern access to the route is challenging as it would require biking up and over the busy Millbrae Ave overpass.
- **Plan vs Existing:** Currently **59% (5.7 miles)** of the accommodations are according to the plan
- **Signage:** **34% or 3.3 miles** of bike facilities are only signage - suitable for strong & fearless riders representing 3% of our bikers.

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- **Stress Level 1: 41% (close to 4 miles)** of accommodations provide a low stress environment suitable for interested but concerned riders - representing 70% of our bikers. A good portion of the route is through Coyote Point, Meta, and low traffic areas of airport blvd,
 - **Access/Connectivity:** The safest access to the trail is at the midpoint leveraging the Broadway overpass. There are accommodations to access from the south, but there are not accommodations to access from the north.

DISCUSSION:

- **What are the appropriate EXECUTION target metrics for the recreational routes?**
- **Plan vs Existing:** We recommend that we set a goal to achieve an **additional 2 miles for a total of 7.7 miles of the 9.6 miles identified** over the next 3 years
- **Stress Level 1:** We recommend that we set a goal to increase stress level 1 accommodations by **2 miles for a total of 6 miles** over the next 3 years. This will increase the level of Low Stress accommodations in the Baytrail plan from 41% to 62%.
- **Connectivity/Access:** Since access to the northern part of the trail is from Millbrae and the southern access is in San Mateo, further study will be necessary to establish appropriate goals.

RESULTS METRIC

The objective of the RESULTS metric is to identify and track data that reflects the outcomes of implemented changes.

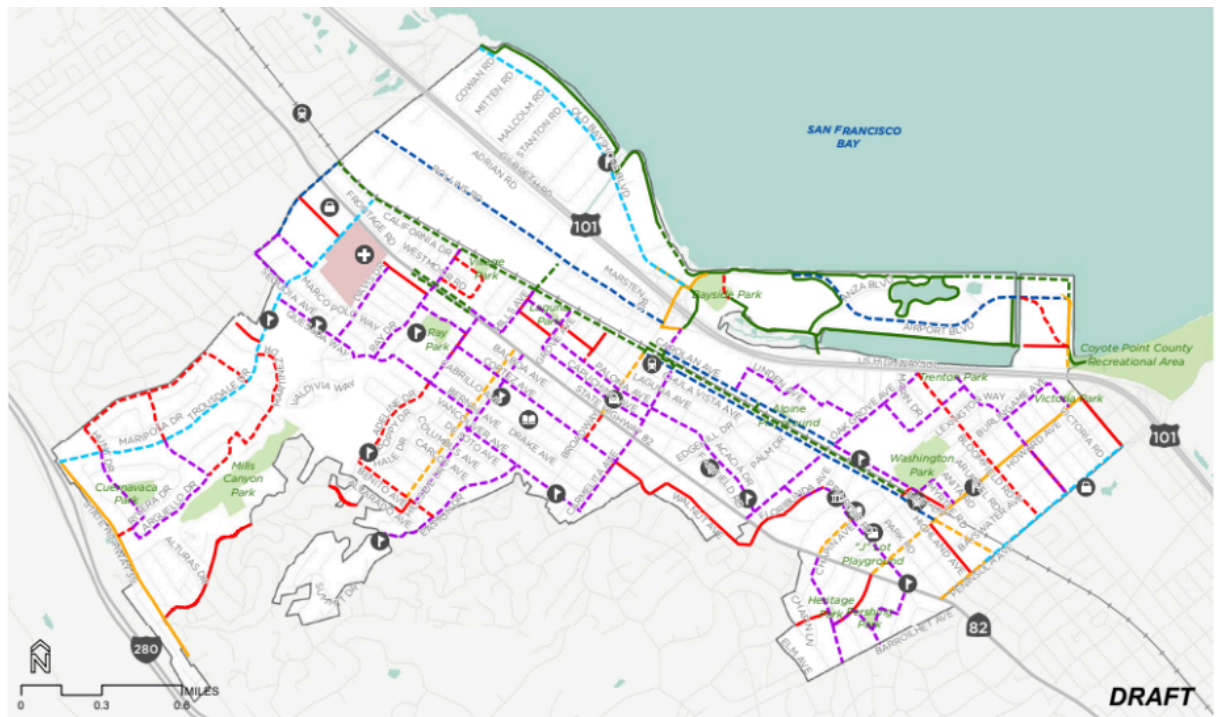
One of the biggest projects last year was the California road diet. This project was awarded the regional APWA Project of the Year Award. The project improves traffic safety by lowering speeds through a road-diet and significantly enhances the safety of pedestrians and bicyclists.

Additionally, the project addresses on-street parking by providing high-visibility pedestrian crossings across several intersections where none existed before. The goal of this project was to reduce both traffic speeds and traffic incidents therefore the following would be analyzed:

- SPEED REDUCTION RESULTS: Before/After
- ACCIDENT REDUCTION RESULTS: Before/After

NOTE: This would need to be performed by the Burlingame Staff.

EXHIBIT 1: BIKE NETWORK PLAN




COMPLETE BIKE NETWORK

BURLINGAME CA BIKE AND PED PLAN

alta Data provided by San Mateo
County, Caltrans, Esri
Map produced June 2019

Bikeway Class

-  Class I Shared-Use Path
- Class II Bicycle Lane
- Class III Bicycle Route

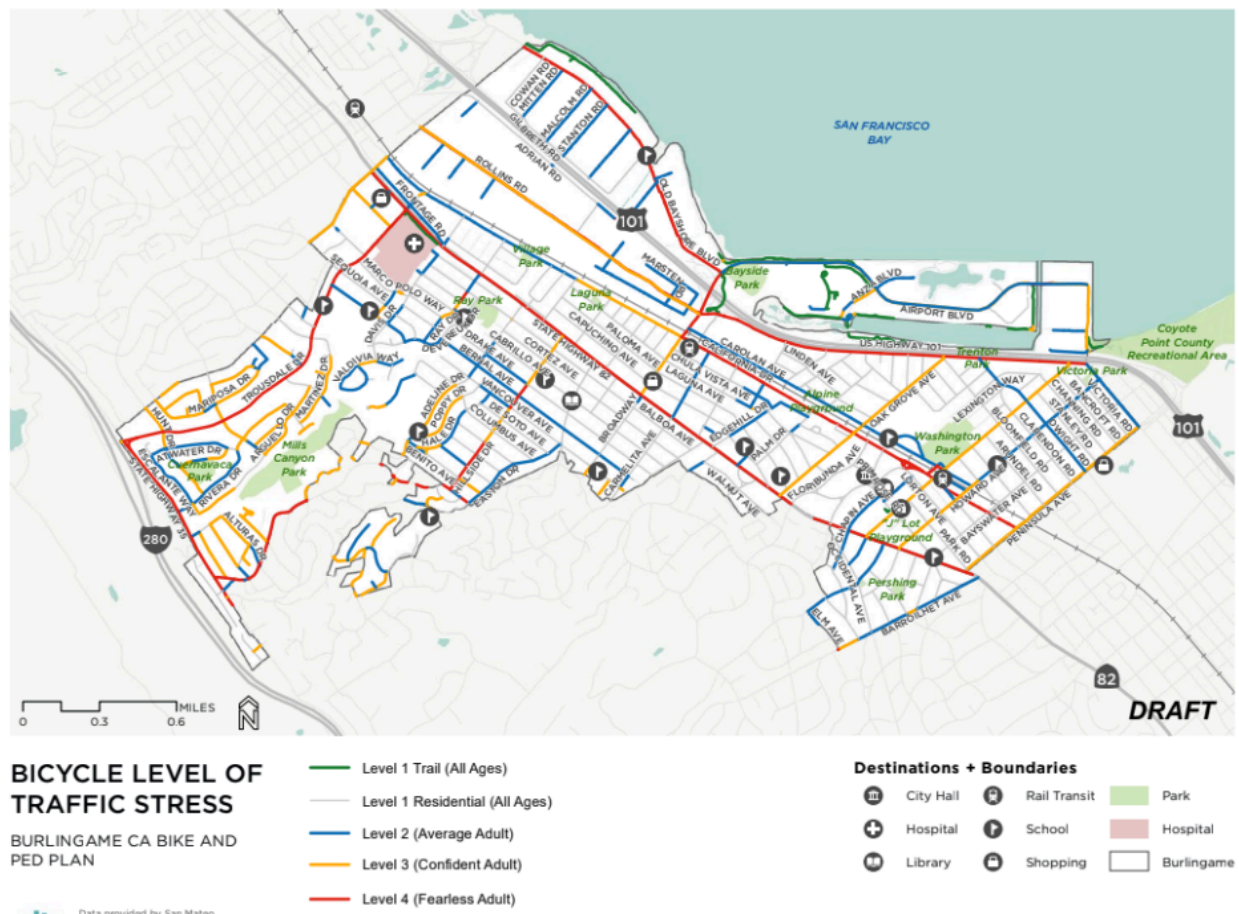
Recommended Bikeway Class

- Class 1 Shared-Use Path
- Class 2 Bicycle Lane
- Class 2B Buffered Bicycle Lane
- Class 3 Bicycle Route
- Class 3B Neighborhood Bike Route
- Class 4 Separated Bikeway

Destinations + Boundaries

-  City Hall
  Train Station
  Park
-  Hospital
  School
  Hospital
-  Library
  Shopping
  Burlingame

EXHIBIT 2: Stress Level Map



This map illustrates the proposed San Francisco Peninsula Expressway (SFPE) route, highlighted in orange. The route begins near the intersection of I-101 and I-280, heading east through the Peninsula. Key features include:

- Highways:** I-101, I-280, SR-82, and various local roads like Serrano Ave, Cowell Ave, and San Bruno Ave.
- Parks and Recreation:** Cowell Park, Serrano Park, San Bruno Park, and various other green spaces.
- Geography:** The map shows the coastline of the San Francisco Peninsula, including the San Francisco Bay and the San Francisco Peninsula.
- Infrastructure:** The SFPE route is shown as a multi-lane highway, with various interchanges and access points.
- Labels:** The word "DRAFT" is prominently displayed in the bottom right corner, indicating that this is a preliminary map.

[illegible]

[illegible]

EXHIBIT 7: RECREATIONAL ROUTE ANALYSIS SUMMARY

	TOTAL MILES	SPEED LIMIT	STRESS LEVEL	IN THE BURLIGAME BIKE/PEP PLAN	ACCOMMODATIONS AS OF MARCH 2025	ACCORDING TO PLAN	SIGNAGE	NO ACCOMMODATIONS	YES: Meets LTS 1 Accommodations	NO: Does NOT meet LTS 1 required accommodations
BAYFRONT ROUTE										
SUMMARY: FOR BAYFRONT ROUTE Along the bay	9.62			IN THE BURLIGAME BIKE/PEP PLAN	ACCOMMODATIONS AS OF MARCH 2025	59%	34%	7%	41%	59%

EXHIBIT 8: RECREATIONAL ROUTE ANALYSIS NORTH/SOUTH ROUTES

	TOTAL MILES	SPEED LIMIT	STRESS LEVEL	IN THE BURLIGAME BIKE/PEP PLAN	ACCOMMODATIONS AS OF MARCH 2025	ACCORDING TO PLAN	SIGNAGE	NO ACCOMMODATIONS	YES: Meets LTS 1 Accommodations	NO: Does NOT meet LTS 1 required accommodations	COMMENTS / SUMMARY: As of April 2025
BAY TRAIL NORTHBOUND ROUTE Starting at Coyote Entrance	3.76	15		IN THE BURLIGAME BIKE/PEP PLAN	ACCOMMODATIONS AS OF MARCH 2025	63%	37%	0%	22%	78%	Summary:
Airport Blvd at Park Entrance	0.13	15	3	Class 2	Class 3	X			X	X	
Park entrance - Baytrail	0.13	15	3	Class 1	Class 1	X			X	X	
Airport Blvd to	0.7	15	2	Class 4	Class 1	X			X	X	
Airport Blvd - Old Bayshore	1.4	25	2	Class 3	Class 3		X			X	
Old Bayshore - Milbrae Ave	1.4	35	2	Class 2	Class 2B	X				X	
						2.36	1.4	0	0.83	2.83	
SOUTHBOUND ROUTE Bay Trail (Milbrae Ave/Old Bayshore start)	3.76			IN THE BURLIGAME BIKE/PEP PLAN	ACCOMMODATIONS AS OF MARCH 2025	59%	37%	0%	59%	41%	Summary:
Milbrae/Old Bayshore - Airport Blvd	1.4	35	3	Class 2B	Class 3		X			X	
Airport Blvd - Beach	1.4	35	2	Class 2	Class 2B	X			X	X	
Beach - Baytrail	0.13	15	2	Class 3	Class 4	X			X	X	
Baytrail to Coyote point entrance	0.7	15	2	Class 1	Class 1	X			X	X	
Coyote Point - Peninsula overpass	0.13	35	4	Class 3	Nothing			X		X	

EXHIBIT 9: RECREATIONAL ROUTE ANALYSIS ACCESS ROUTES

		TOTAL MILES	SPEED LIMIT	STRESS LEVEL	IN THE BURLINGAME BIKEP/ED PLAN	ACCOMMODATIONS AS OF MARCH 2025	ACCORDING TO PLAN	SIGNAGE	NO ACCOMMODATIONS	YES: Meets LTS 1 Accommodations	NO: Does NOT meet LTS 1 required accommodations	COMMENTS / SUMMARY: As of April 2025
ACCESS TO SOUTHEAST OF BAY TRAIL - PARK ENTRANCE FROM DOWNTOWN BURLINGAME AVE (California Ave to Park Entrance)		1.55			IN THE BURLINGAME BIKEP/ED PLAN	ACCOMMODATIONS AS OF MARCH 2025	58%	32%	10%	39%	61%	Summary: The safest path to enter the South End of the Baytrail is to take Howard class 2 bike lane to Humboldt Rd (no bike lane) to Peninsula and across the 101 overpass to the Baytrail Coyote point entrance.
	Burlingame Ave across tracks on North Lane	0.2	35		Class 4	Nothing			X		X	Confident bicyclist only. Others should walk/bike over overpass.
	East Lane to Howard	0.5	25		Class 4	Sharrow		X			X	
	Howard to Humboldt	0.6	25		Class 2	Class 2	X			X		
	Humboldt to Peninsula	0.15	25		Class 3	Nothing			X		X	
	On Peninsula to Coyote Entrance	0.3	35		Nothing	Class 2	X				X	Confident bicyclist only. Others should walk/bike over overpass.
							0.9	0.5	0.15	0.6	0.95	
ACCESS TO MIDPOINT OF BAY TRAIL FROM DOWNTOWN BROADWAY (Broadway to Overpass)		0.55			IN THE BURLINGAME BIKEP/ED PLAN	ACCOMMODATIONS AS OF MARCH 2025	27%	0%	73%	55%	45%	Summary: There is no markings to cross the tracks, but biker/pedestrian have a class 1 overpass to cross 101.
	Broadway over train tracks	0.1			Class 1	Nothing			X	X		
	Carolyn - Cadillac Way	0.05	35		Class 1	Class 1	X				X	
	Cadillac Way to Rollins Road	0.1	25		Class 3B	Class 3B			X		X	
	Rollins Rd cross walk - Birdwy/101 overpass	0.1			Class 1	Class 1	X				X	
	Cross intersection - Bay Trail or Airport Blvd	0.2			Class 2	Nothing			X	X		
							0.15	0	0.4	0.3	0.25	