

BURO HAPPOLD



Glendale Bicycle Transportation Plan (BTP)

Draft Recommendations

City Council

30 July 2024

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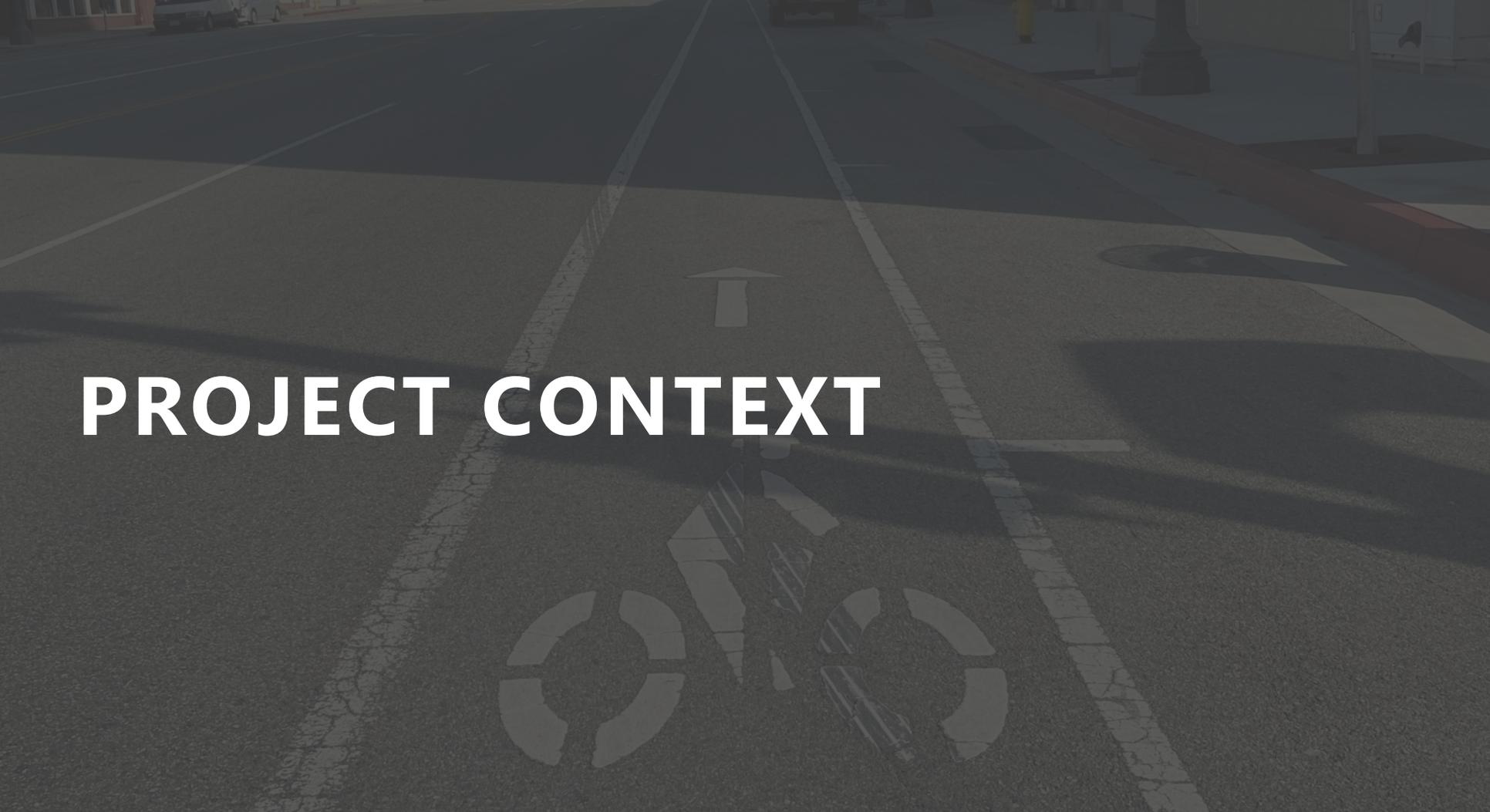
An aerial photograph of a person riding a bicycle on a multi-colored bike lane. The lane is painted with various colors: dark blue, green, grey, and light blue. The person is wearing a dark cap and is positioned in the center of the frame, riding towards the top. The background shows a concrete sidewalk with a red curb and some trees on the right side.

Collaboratively create a 20-year vision for the planning, development, design, and maintenance of a safe, convenient, and inviting bike network for all of Glendale.

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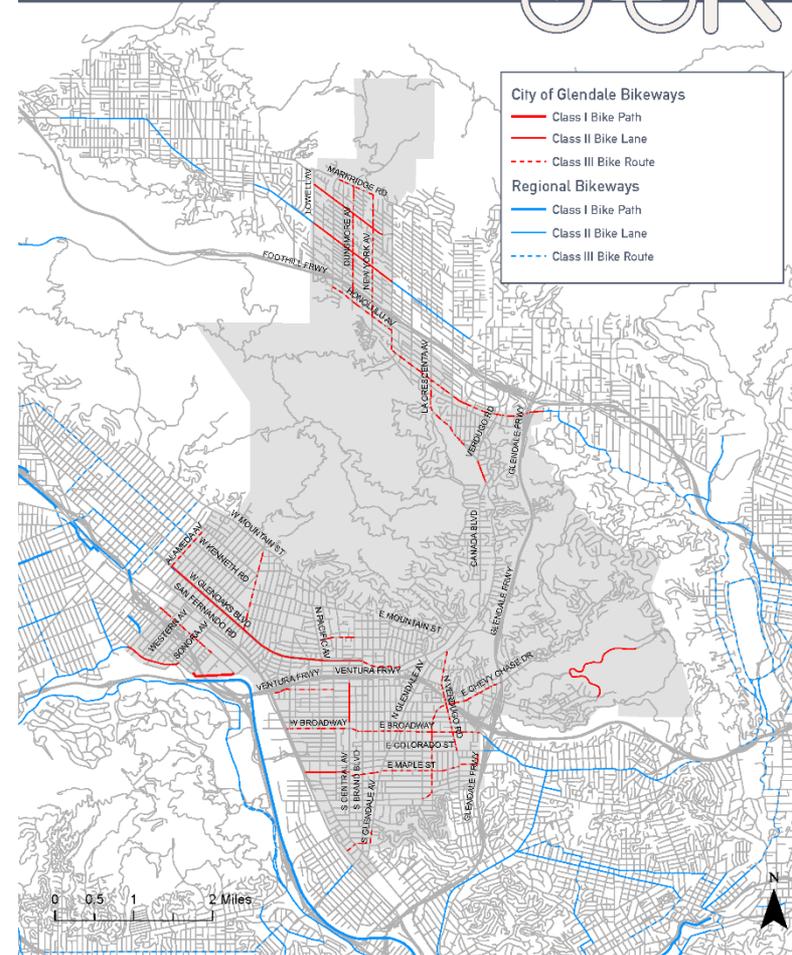




PROJECT CONTEXT

Project Context

- 2012 Bicycle Transportation Plan
- 2019 Citywide Pedestrian Plan
- 2025 Vision Zero Plan
- Freeways and heavy commuter traffic contribute to uncomfortable and unsafe biking conditions, especially downtown
 - Network mostly sharrows
 - Constrained by mountains
- Verdugo Wash and Metro BRT projects will form spine of upgraded network



Context

- Great weather
- Dense
- Street grid
- Mixed-use
- Short distances

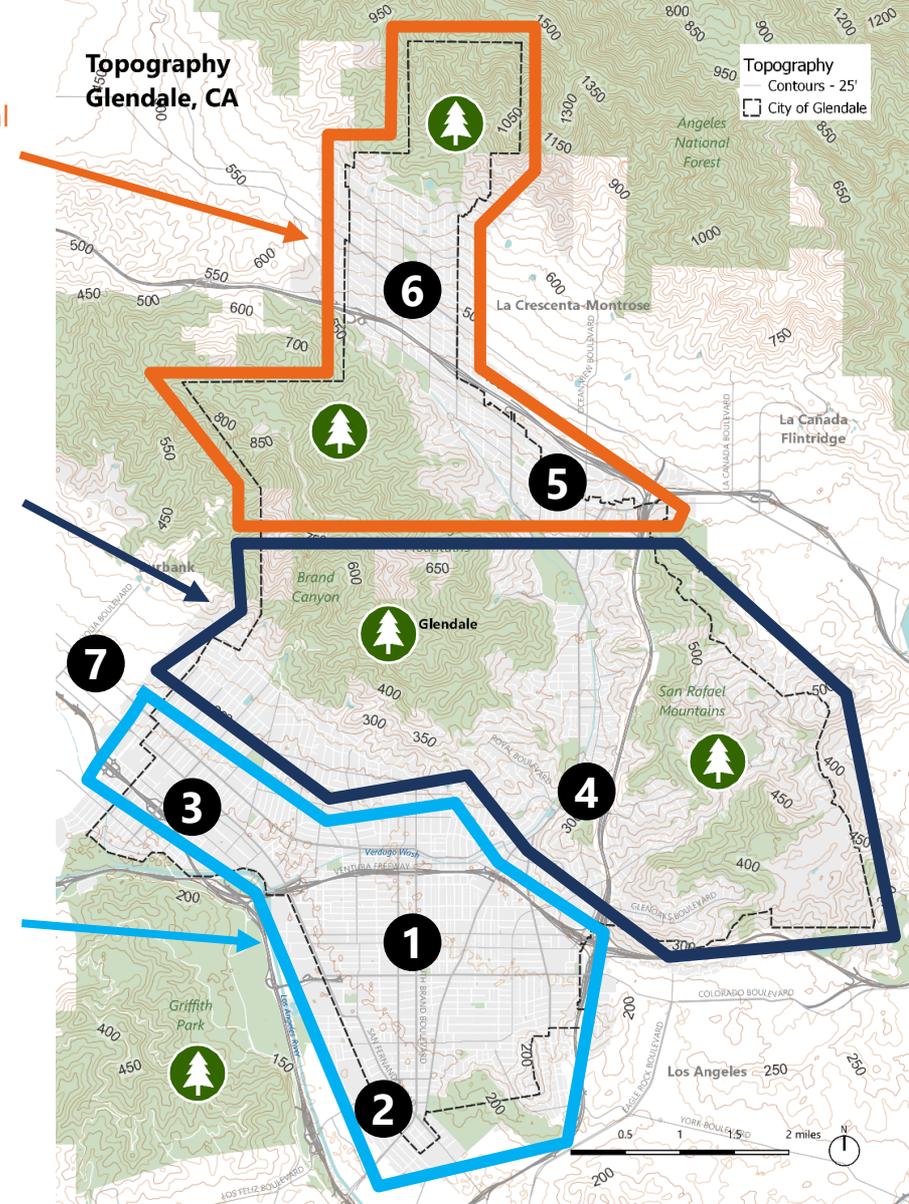
Key Destinations

- ① City Center
- ② Glendale Transportation Center
- ③ West Glendale
- ④ Glendale Community College
- ⑤ Honolulu Ave
- ⑥ Foothill Blvd
- ⑦ Burbank
- 🌲 Parks + Open Space

- Residential with popular commercial streets
- Lower density
- Hilly

- Mostly residential
- GCC
- Low density
- Very Hilly

- Downtown
- Dense
- Mixed-use
- Transit
- Major employers and destinations
- Flat
- Connects to LARP



Bike Lane Types

New to Glendale



Class I Multi-Use Path



An off-street facility with exclusive space for bicyclists and pedestrians, with minimal crossings by vehicle traffic.

Class IV Protected Bike Lane



Bike lanes that are physically separated from vehicle traffic and parking lanes using vertical and horizontal features, such as bollards, planters, and parked vehicles.

Class II Bike Lane



A conventional striped bike lane denoted by pavement markings.

Class II Climbing Lane



A striped bike lane in the uphill direction that provides separation between bicyclists and vehicles for bicyclists ascending steep hills.

Class III Bike Boulevard

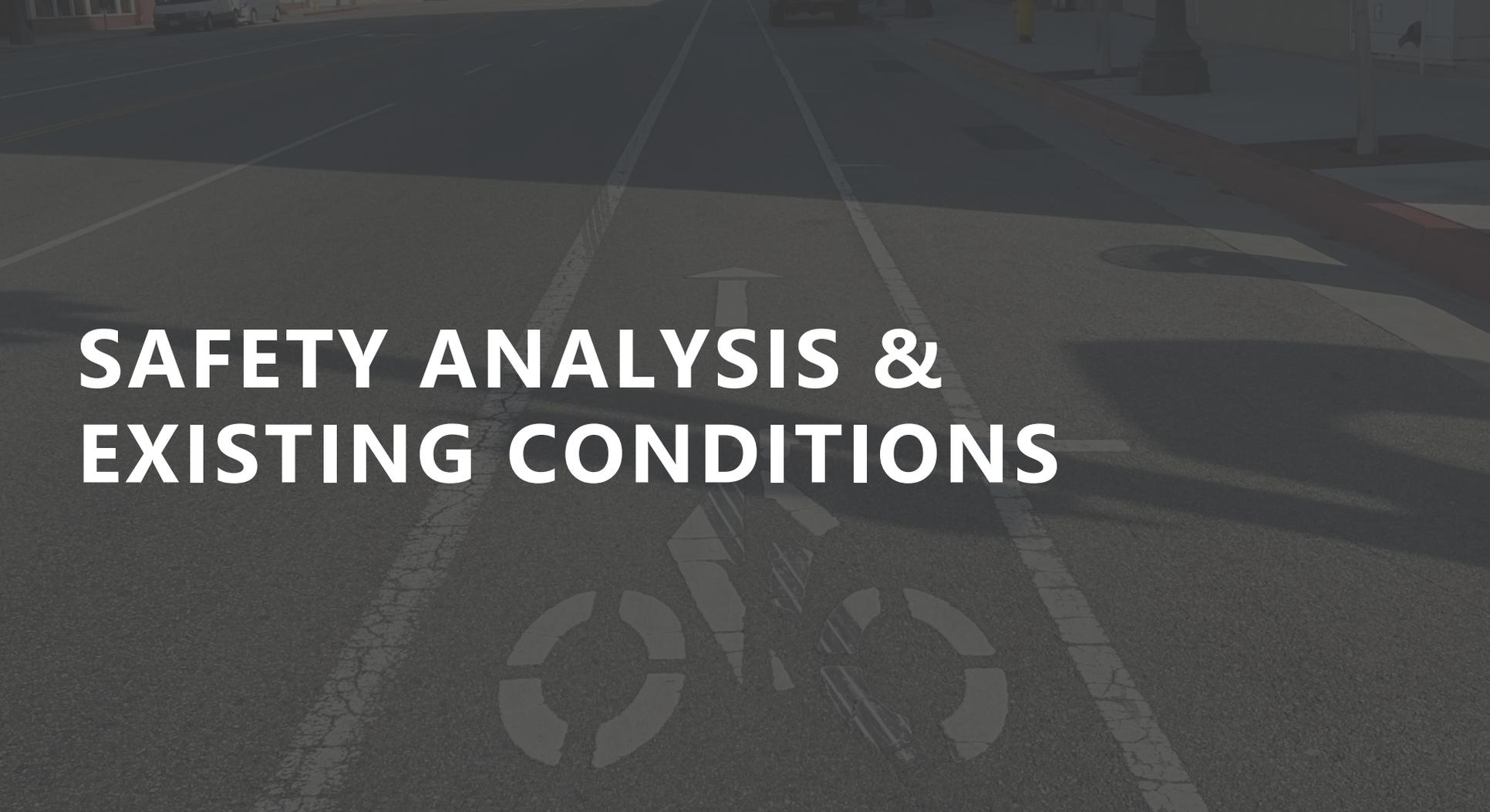


Low-stress, marked bikeways located on low-volume, low-speed local streets that operate as shared streets. These require traffic calming features such as neighborhood traffic circles, chicanes, and traffic diverters to maintain low vehicle speeds and volumes.

Class III Bike Routes



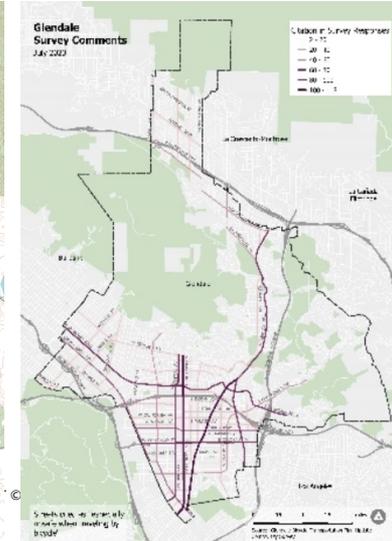
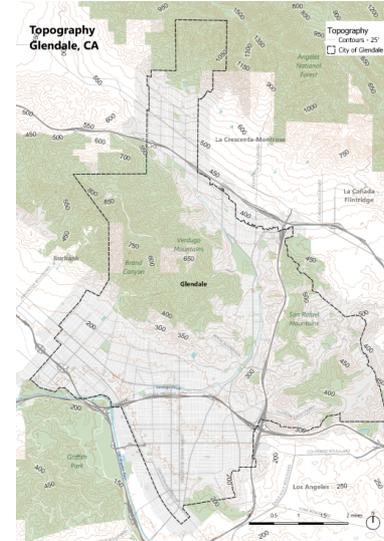
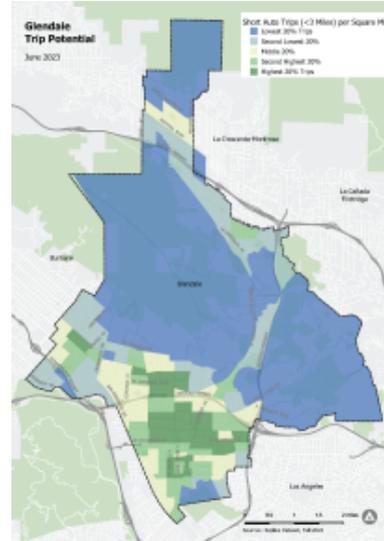
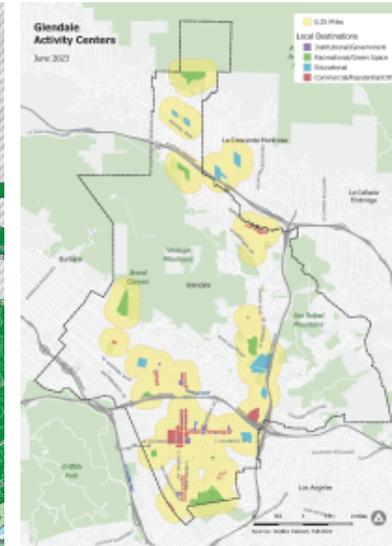
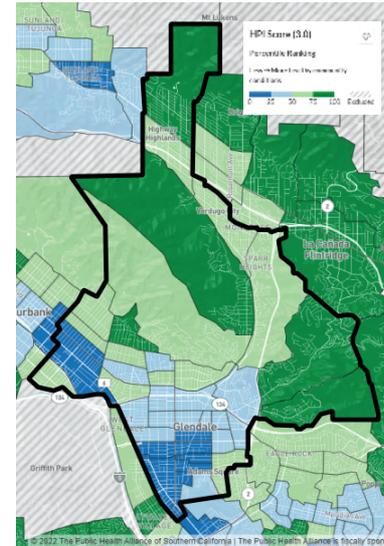
Signed bike routes on low-stress streets that use a shared lane, designated through shared lane markings and signage.



SAFETY ANALYSIS & EXISTING CONDITIONS

Existing Conditions Summary

- Explored the following factors:
 - Bicycle Crashes
 - Equity Areas
 - Activity Center Destinations
 - Trip Potential
 - Topography
 - Survey Results
- Determined Downtown and West Glendale is also generally flat, mixed-use, and relatively well served by transit



Safety Corridors

The *High Injury Network* (HIN) is a list of crash density corridors weighted for severity. **According to AB43, communities can reduce speed limits on designated *Safety Corridors*, which are HIN streets.**

We've identified 10 safety corridors to inform bike facility recommendations and prioritization, using:

- The 10-year time period crash data, to align with Pedestrian Study methodology (2012-2021)
- Includes both injury/fatality and property damage only (PDO) crashes

Source: UC Berkeley's Transportation Injury Mapping System (TIMS), California's Statewide Integrated Traffic Records System (SWITRS)



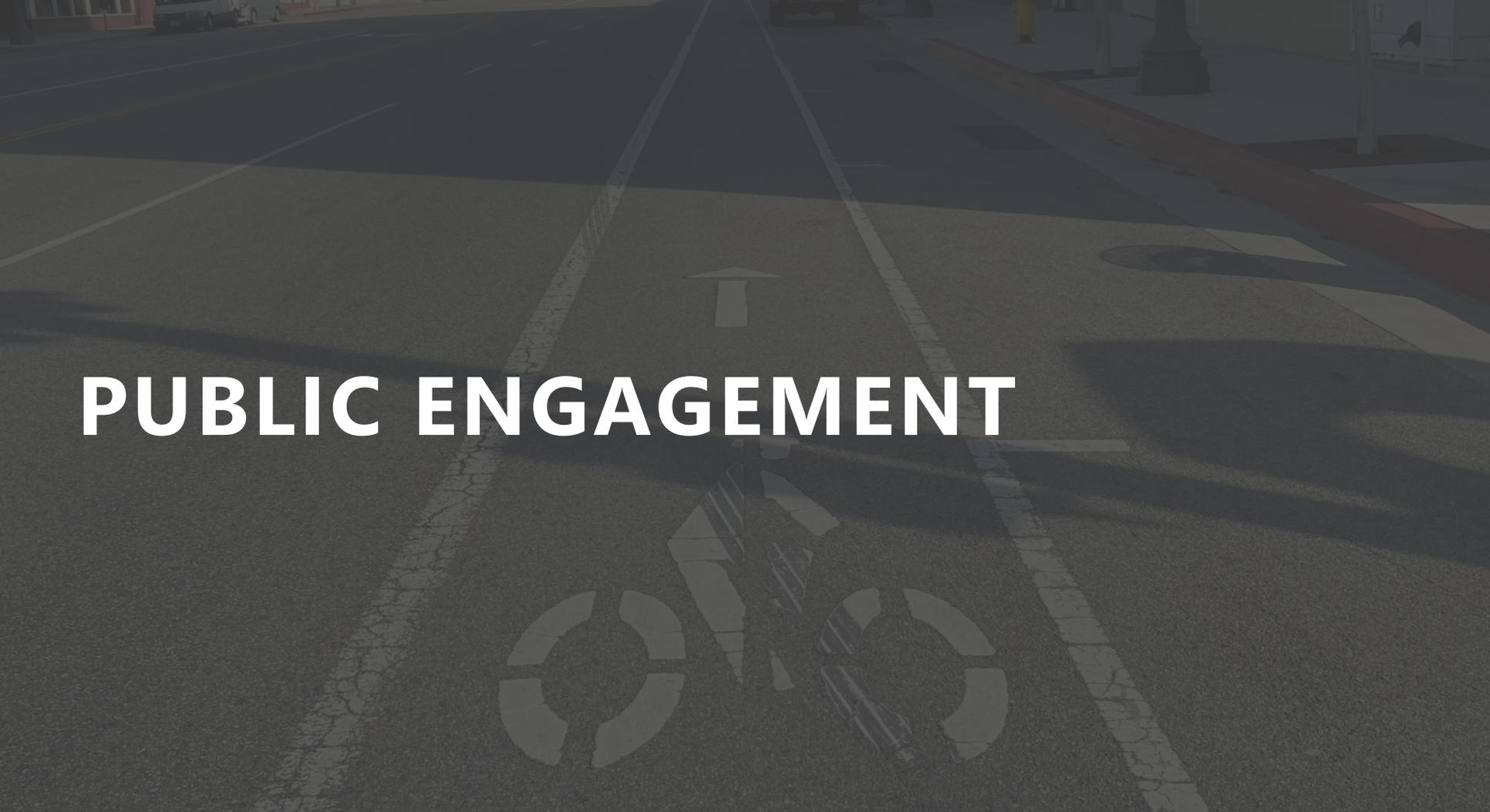
ID	Safety Corridors
1	Glenoaks Blvd
2	S Brand Blvd
3	Colorado St
4	Broadway
5	S Glendale Ave
6	N Glendale Ave / Verdugo Rd
7	Pacific Ave
8	San Fernando Rd
9	S Central Ave
10	Chey Chase Dr

Bicycle Crash Density

- High
- Medium
- Low

Bicycle-Involved Crashes (2012-2021)

- Killed or Severe Injury
- Other Injuries
- Property Damage Only



PUBLIC ENGAGEMENT

Outreach Summary

14 Outreach Events

Reached over 600 people in person

Online survey and webmap

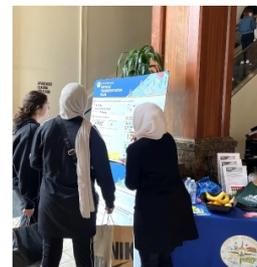
Reached over 500 people online

4 languages

English, Armenian, Spanish, Korean

5 PDT meetings

Critical partners



City Commissions and Council Hearings

Nov 21, 2023	Transportation and Parking Commission
Dec 6, 2023	Sustainability Commission
Jan 9, 2024	City Council
Mar 6, 2024	Joint: Planning & Sustainability Commissions
Mar 25, 2024	Transportation and Parking Commission
July 30, 2024	City Council
Fall 2024	City Council

Project Update +
Early Network
Recommendations

Draft
Recommendations

Final Plan

Consistent Themes

- Importance of **safety**
- Need for greater **connectivity** and continuity of bike facilities
 - Connections to local destinations
- Desire for **usable bike infrastructure** throughout the city, including bike lanes and parking
 - Strong routes to and through downtown
- **Accessible** bike network that people of all-ages and all-abilities can use



Help us create a safer, more connected and active community! The City of Glendale is working on an updated Bicycle Transportation Plan to identify opportunities for people of all ages to bike more safely and efficiently for school, work and/or recreation. **Please take our brief survey** and help create a plan that will benefit people ages 8 to 80. The survey will take about 5 minutes to complete.

GOALS



Project Goals

1. Safety



- Create a bike network that feels safe and encourages people to ride.
- Decrease frequency and severity of crashes while increasing biking overall.

2. Connectivity



- Create a connected bike network across the city.
- Create a bike network that links major destinations to primary bike corridors.

3. Accessibility



- Create an all-ages, all-abilities bike network that is easy and enjoyable to use.

4. Equity



- Prioritize bike infrastructure in areas of equity concern.

5. Implementable



- Create a plan that is ambitious yet implementable, phased to meet current and future challenges

6. Public Health

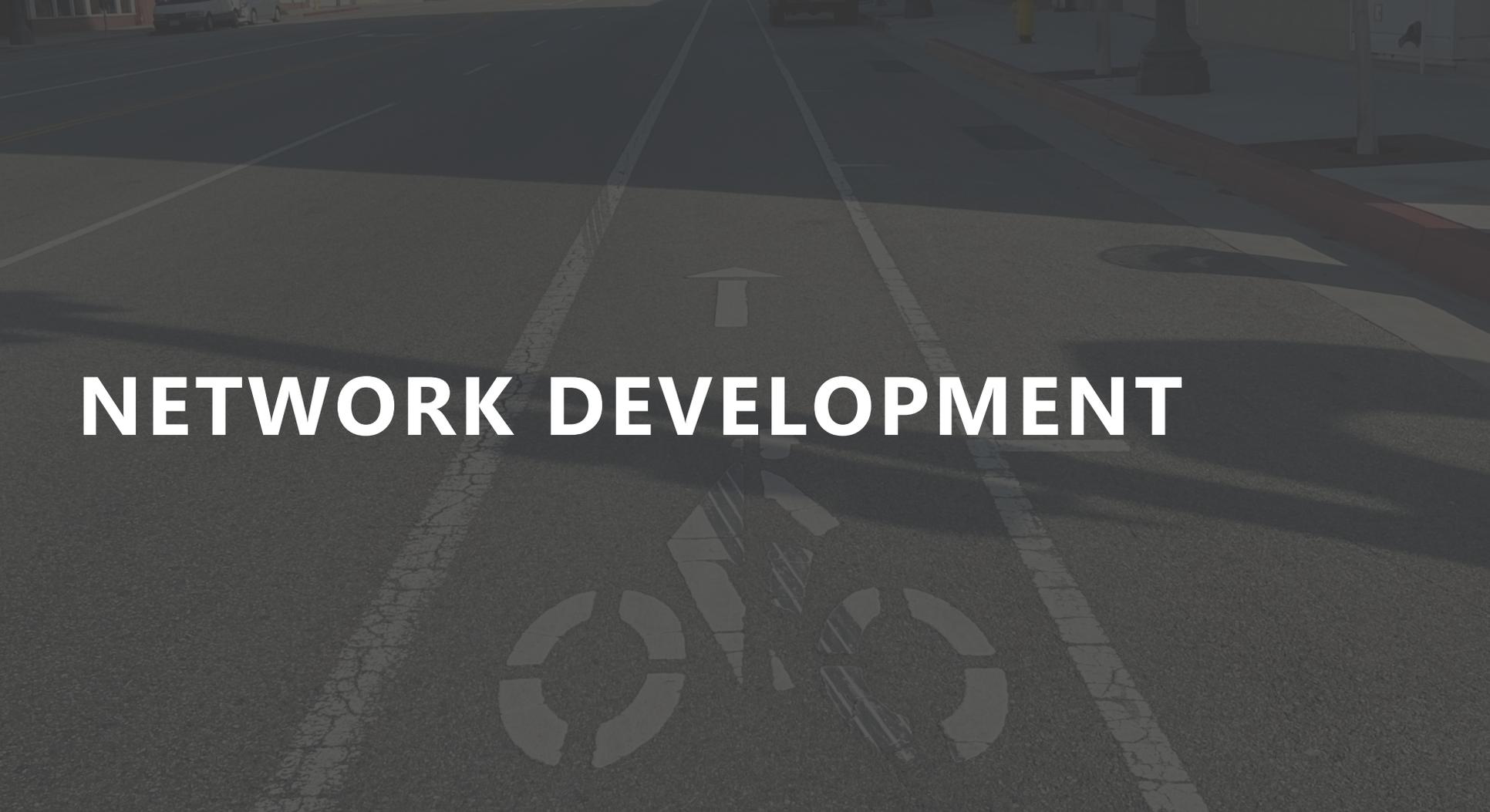


- Increase public health by encouraging active transportation.

7. Environment



- Reduce single occupancy vehicle trips for local trips.



NETWORK DEVELOPMENT

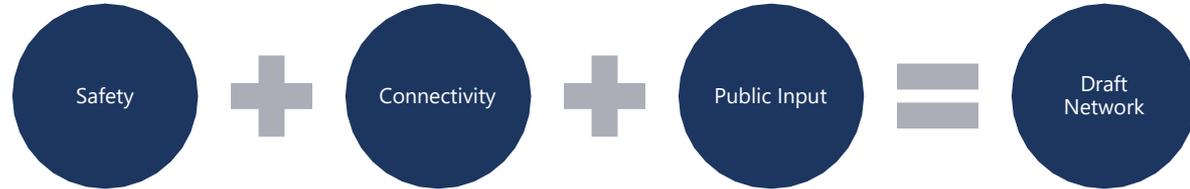
Network and Bike Facility Class Selection Criteria

Proposed network followed the *Network Selection Factors* and the *Bike Facility Class Criteria*

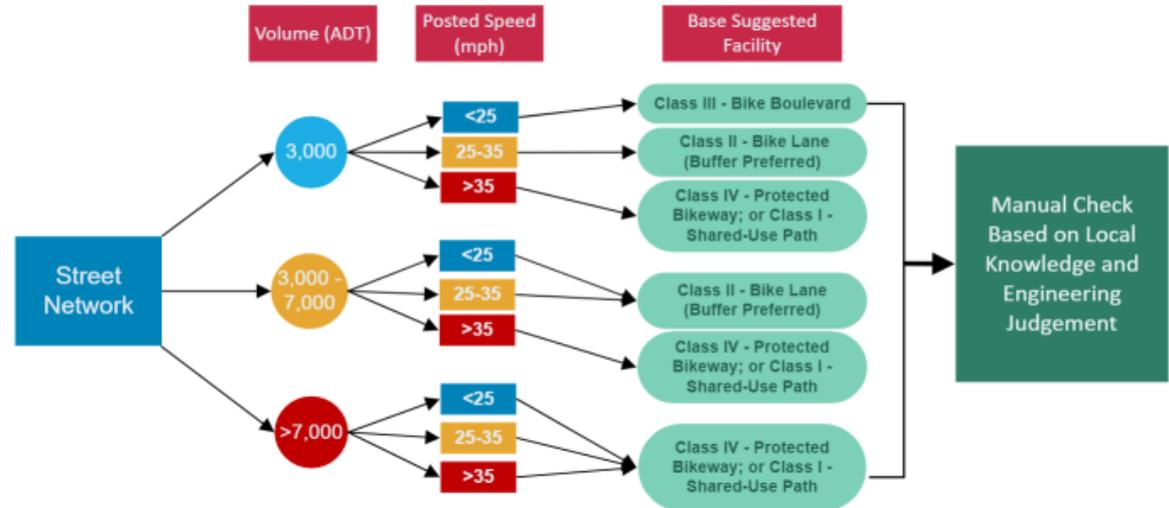
Bike Facility Class Selection establishes current condition of the street network dictates what is an acceptable and safe facility type based on the type of road:

- Speed
- ADT
- Width
- Context

Network Selection Factors



Bike Facility Class Selection Criteria



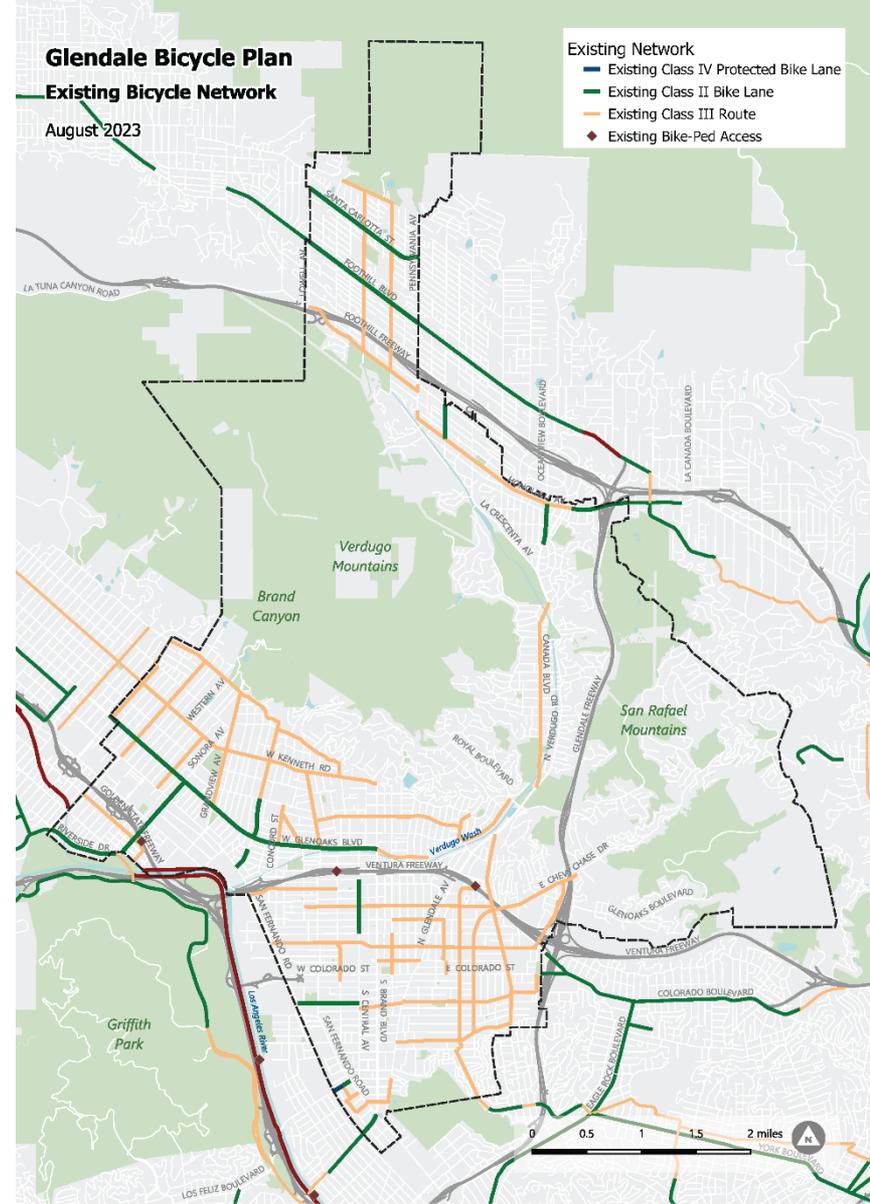
Guidance: FHWA, NACTO, Caltrans

Existing Network

- Relies heavily on sharrows (Class III)
- Disconnected
- Low coverage
- Doesn't feel safe or enjoyable to use

Facility Type	Length (Miles)	Percent of Network
Class I Multi-Use Path	<1	1%
Class IV Protected Bike Lane		
Class II Bike Lane	9.7	19%
Class II Climbing Lane		
Class III Bike Boulevard		
Class III Bike Route	40.1	79%
Total	50.5	100%

Note: lengths are centerline and measure one direction only

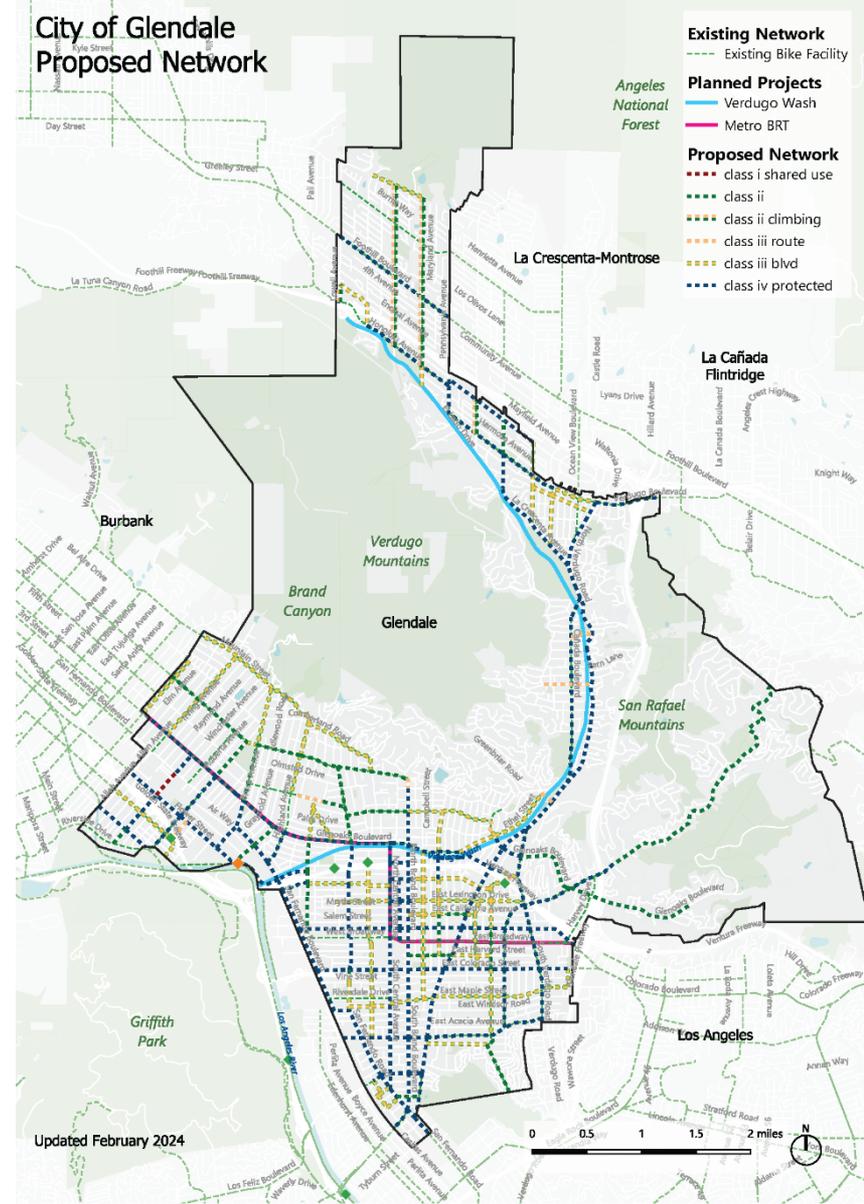


Proposed Network

- Safe and Connected network for whole city
- Extensive network of protected bike lanes
- Bike boulevards help to fill in the network

Proposed Facility Type	Length (Miles)	Percent of Proposed Network
Class I Multi-Use Path	0.3	<1%
Class IV Protected Bike Lane	46.7	52%
Class II Bike Lane	13.2	15%
Class II Climbing Lane	3.5	4%
Class III Bike Boulevard	24.9	28%
Class III Bike Route	1.6	2%
Total	90.2	100%

Note: lengths are centerline and measure one direction only

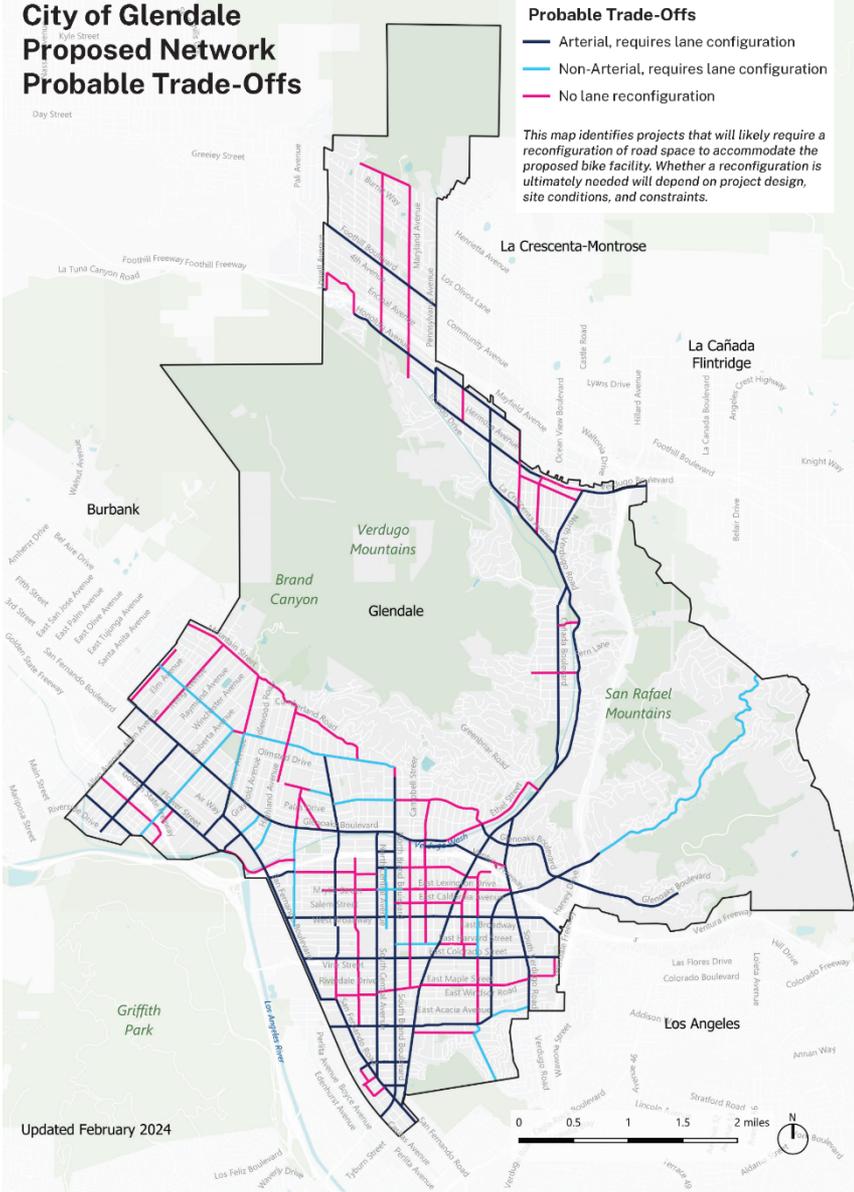


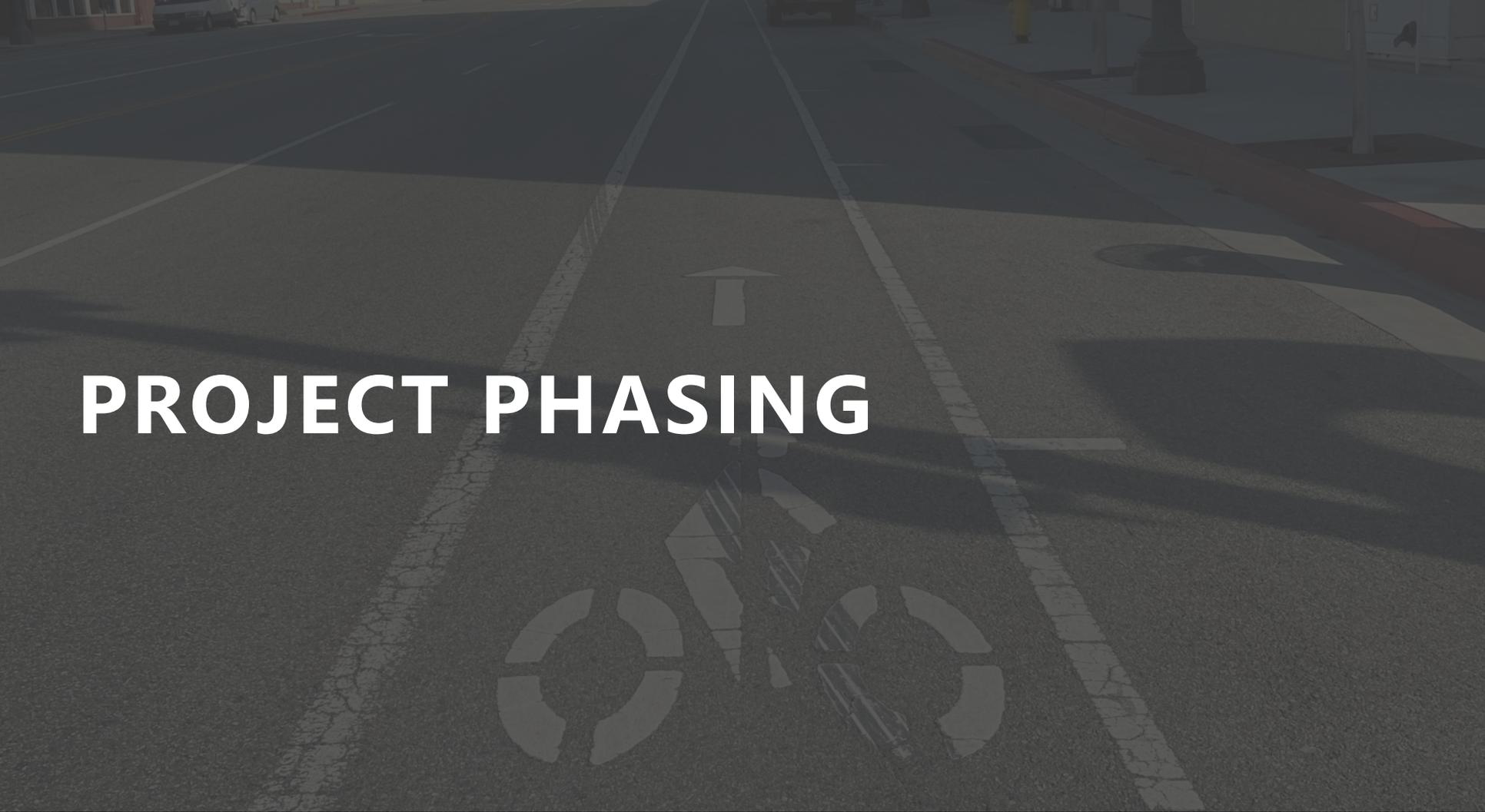
Probable Lane Reassignment

Creating a safe, protected, and connected bike network will require that some parking or moving lanes be reassigned to have enough width for the bike facility

Whether a trade-off is ultimately needed will depend on project design, site conditions, and constraints.

City of Glendale Proposed Network Probable Trade-Offs

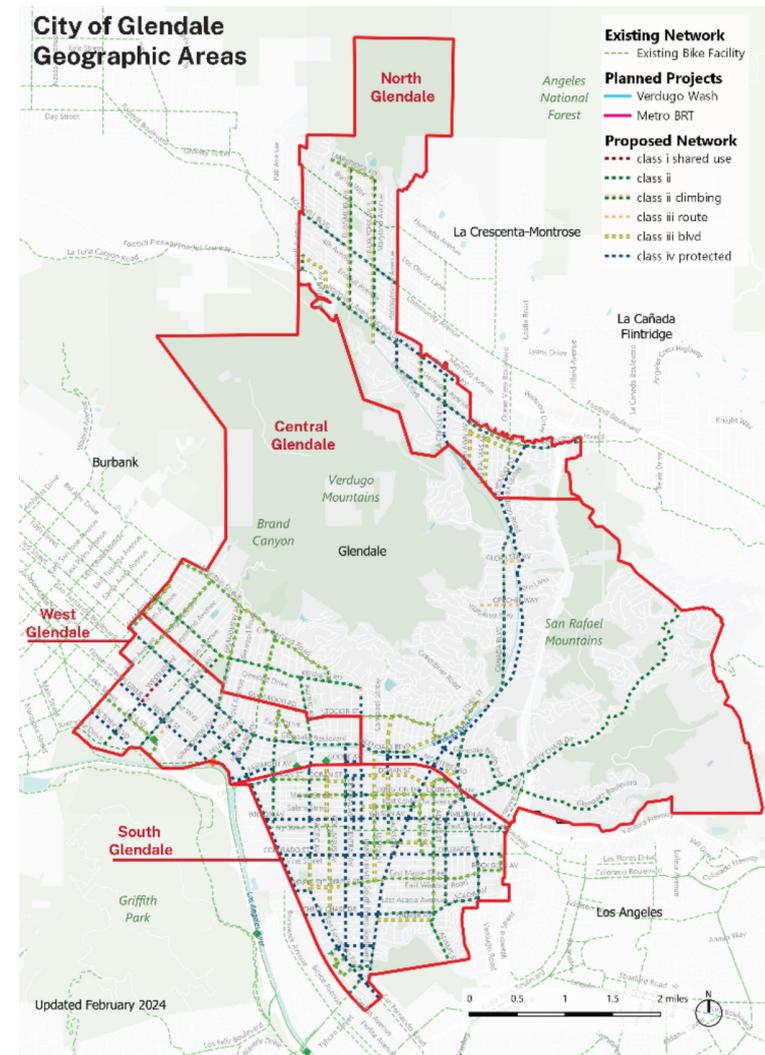




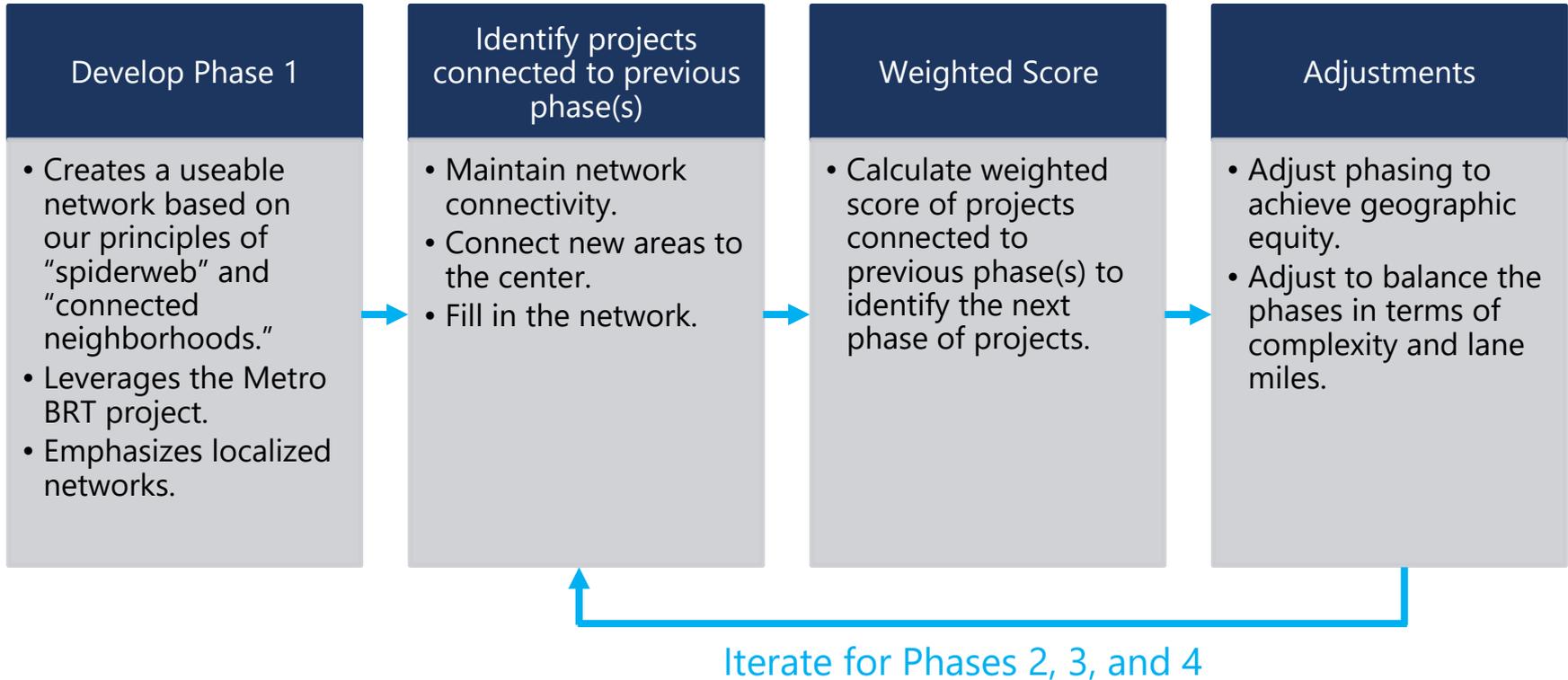
PROJECT PHASING

Project Phasing

- Recommended phasing of the 90-mile network over 20-years.
 - Four phases, assumed to be 5-years each
- Regardless of phase, projects should be implemented in tandem with other opportunities such as repaving projects
- Phases were developed based on:
 - Connectivity to prior phase(s)
 - Weighted Score
 - Geographic equity
 - Balancing complexity and lane miles between phases



Project Phasing - Process



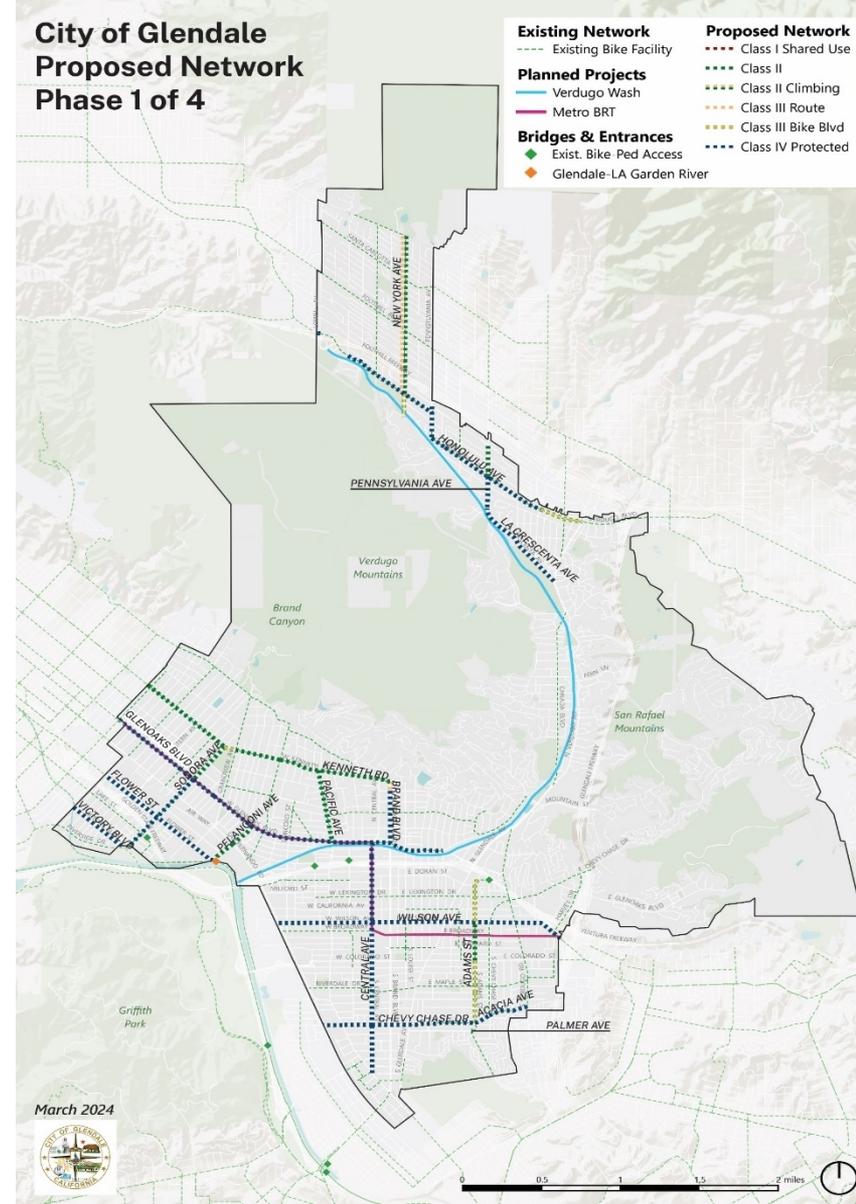
Phase 1

- Basic network in North, West, and South Glendale
- Adjacent to Metro BRT and Verdugo Wash projects
- Includes high ranking segments (e.g., Brand Blvd, Central Ave, Acacia Ave)

Proposed Facility Type	Phase 1	Phase 2	Phase 3	Phase 4
Class I Multi-Use Path	0.0	0.3	0.0	0.0
Class IV Protected Bike Lane	17.1	14.0	10.0	5.7
Class II Bike Lane	4.7	1.9	1.4	5.4
Class II Climbing Lane	1.5	1.9	0.0	0.0
Class III Bike Boulevard	1.7	12.9	3.8	6.5
Class III Bike Route	0.0	0.2	0.9	0.5
Total	25.0	31.2	16.0	18.0

Note: lengths are centerline and measure one direction only

City of Glendale Proposed Network Phase 1 of 4



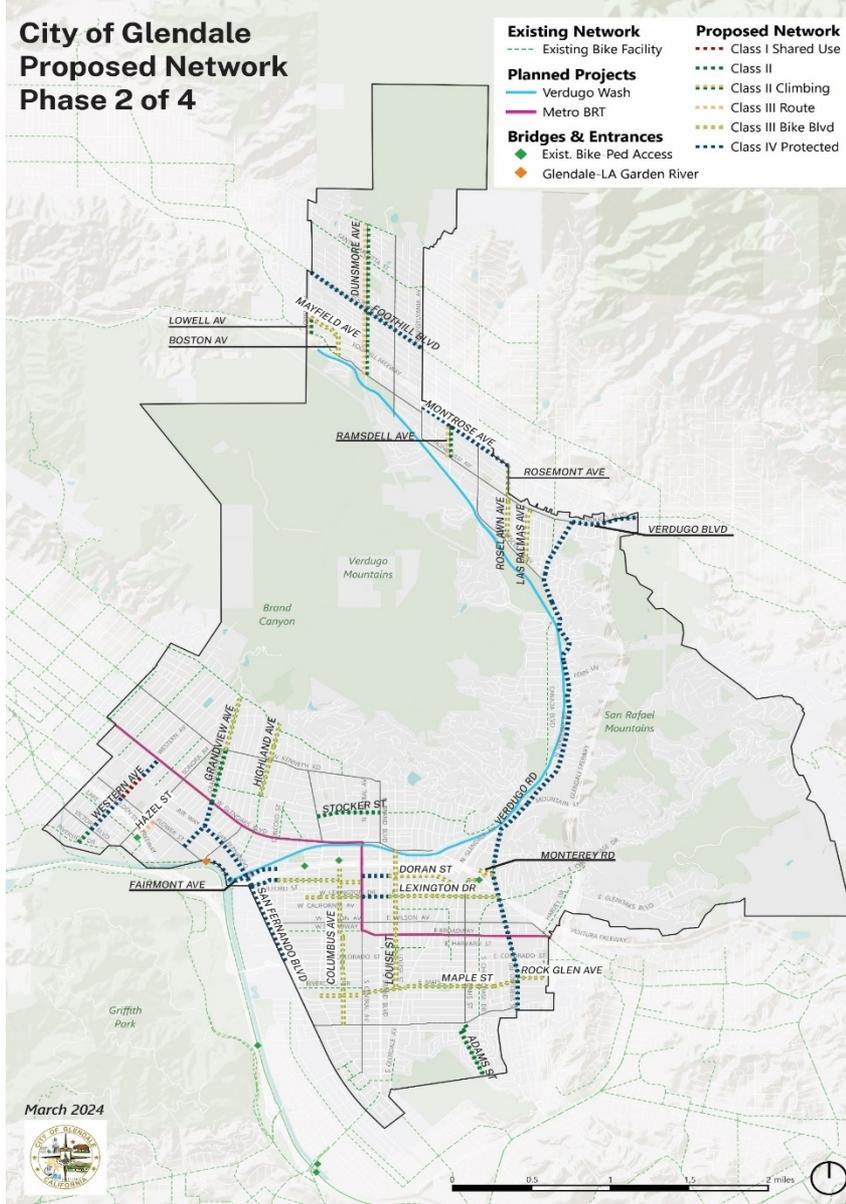
Phase 2

- Network expansion with connection between North and South Glendale on Verdugo Rd
- Includes high ranking segments (e.g., Columbus Ave, San Fernando Rd, and Verdugo Rd)

Proposed Facility Type	Phase 1	Phase 2	Phase 3	Phase 4
Class I Multi-Use Path	0.0	0.3	0.0	0.0
Class IV Protected Bike Lane	17.1	14.0	10.0	5.7
Class II Bike Lane	4.7	1.9	1.4	5.4
Class II Climbing Lane	1.5	1.9	0.0	0.0
Class III Bike Boulevard	1.7	12.9	3.8	6.5
Class III Bike Route	0.0	0.2	0.9	0.5
Total	25.0	31.2	16.0	18.0

Note: lengths are centerline and measure one direction only

City of Glendale Proposed Network Phase 2 of 4



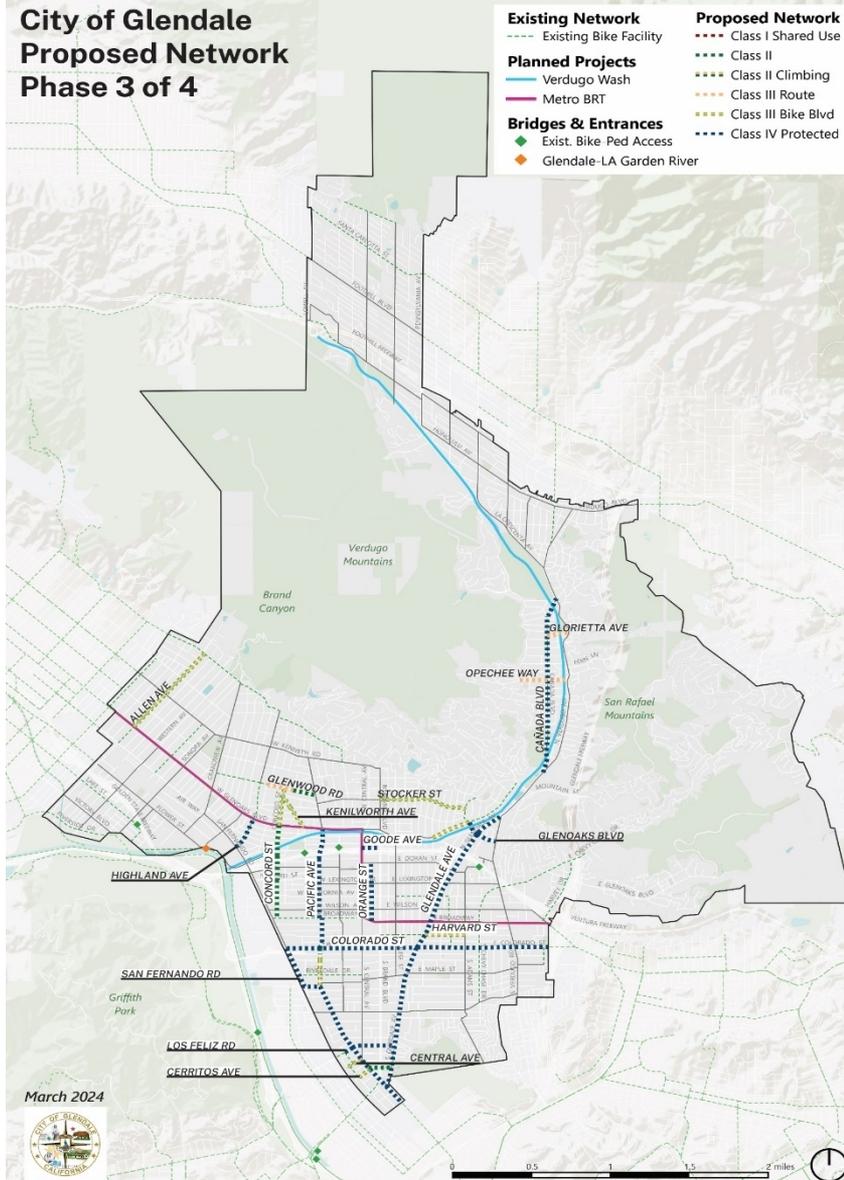
Phase 3

- Density network with major projects on Glendale Ave and Colorado St
- Captures high-to-medium scoring projects in South and Central Glendale (e.g., Cañada Blvd, Opechee Way, San Fernando Rd)

Proposed Facility Type	Phase 1	Phase 2	Phase 3	Phase 4
Class I Multi-Use Path	0.0	0.3	0.0	0.0
Class IV Protected Bike Lane	17.1	14.0	10.0	5.7
Class II Bike Lane	4.7	1.9	1.4	5.4
Class II Climbing Lane	1.5	1.9	0.0	0.0
Class III Bike Boulevard	1.7	12.9	3.8	6.5
Class III Bike Route	0.0	0.2	0.9	0.5
Total	25.0	31.2	16.0	18.0

Note: lengths are centerline and measure one direction only

City of Glendale Proposed Network Phase 3 of 4



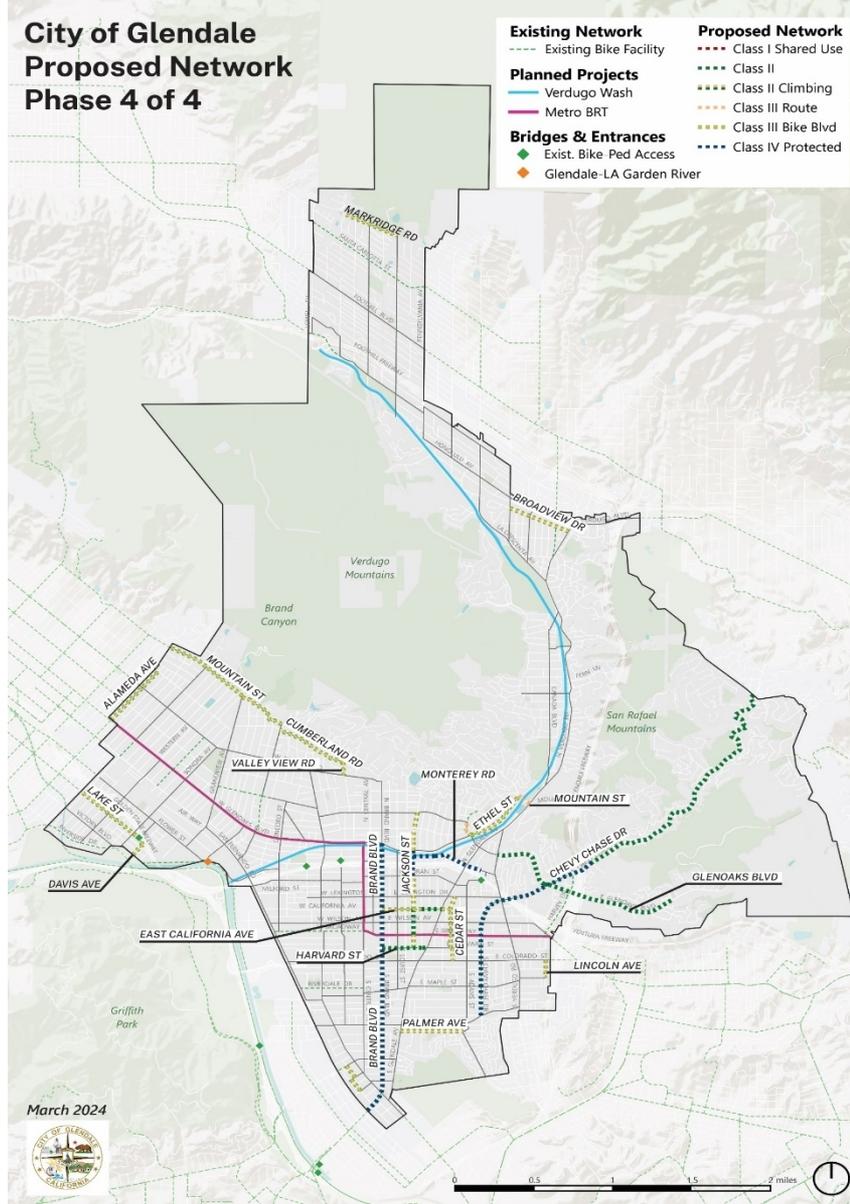
Phase 4

- Final pieces to complete network, including Brand Blvd
- Captures medium-to-low ranking segments (e.g., Cedar St, Lake St, Rossmoyne Ave)

Proposed Facility Type	Phase 1	Phase 2	Phase 3	Phase 4
Class I Multi-Use Path	0.0	0.3	0.0	0.0
Class IV Protected Bike Lane	17.1	14.0	10.0	5.7
Class II Bike Lane	4.7	1.9	1.4	5.4
Class II Climbing Lane	1.5	1.9	0.0	0.0
Class III Bike Boulevard	1.7	12.9	3.8	6.5
Class III Bike Route	0.0	0.2	0.9	0.5
Total	25.0	31.2	16.0	18.0

Note: lengths are centerline and measure one direction only

City of Glendale Proposed Network Phase 4 of 4





COST ESTIMATE

Developing the Cost Estimates

- Develop a **per-mile cost** for each facility type
 - Based on recent bids provided by the City of Glendale and Caltrans Cost Data
- Add a conservative **contingency** for a range of associated project costs that will be refined during project development
- Actual costs may vary based on project scope and current market conditions

Contingency	Percent
Engineering, Design, Outreach	25% (of construction cost)
Mobilization	5% (of material cost)
Traffic Control	5% (of material cost)
Construction Management	10% (of construction cost)
Construction Cost Contingency	20% (of material cost)
Utility Contingency	5% (of material cost)
Drainage Contingency	5% (of material cost)
Environmental Contingency	5% (of material cost)

Cost Estimate for bike facilities includes other improvements

- **Single cost** for Class I and III
 - *Class I* – Reconstruct existing sidewalk with raised path, curb ramps
 - *Class III Bike Route* – Signing and striping
- **Low-cost** broadly includes signing & striping, as well as:
 - *Class II* – Removal of existing striping
 - *Class III Bike Blvd* – Speed humps
 - *Class IV* – Bike detection loops, bollards, curb ramps, traffic signal modifications
- **High-cost** reflect low-cost improvements *and* additional facility design features, such as:
 - *Class II* – Resurfacing and restriping
 - *Class III Bike Blvd* – Landscaped traffic circles and curb ramps
 - *Class IV* – Concrete separators, resurfacing, traffic signal upgrades, curb ramps, and upgraded curb and gutter

Unit Cost Estimates

Facility Type & Roadway Improvements	Length (miles)	Rounded Per Mile Cost Estimate (2023)	
		Low Cost	High Cost
Class I	0.3	\$9,000,000	
Class II	16.7	\$710,000	\$3,330,000
Class III – Bike Route	1.6	\$470,000	
Class III Bike Blvd	24.9	\$880,000	\$1,770,000
Class IV	46.7	\$2,590,000	\$9,170,000

*Costs provided by
Glendale Public Works
and Caltrans database*

Cost Estimates

- Estimate of the proposed 20-year bike network
- Each phase is 5 years long
- The high proportion of Class IV protected bikeways in the network (52% of the network by mileage) results in a safer and more inviting network that also costs more on a per-mile basis.
- High-cost estimates may also include roadway enhancements (repaving, signals, ADA upgrades) not directly related to bike project

Total Cost *by Phase*

Phase	Length (Miles)	Rounded Cost Estimate (2023)	
		Low Cost	High Cost
1	25	\$ 50,232,000	\$ 180,219,000
2	31	\$ 53,160,000	\$ 166,800,000
3	16	\$ 30,750,000	\$ 103,470,000
4	18	\$ 24,418,000	\$ 81,451,000
Total	90	\$ 158,560,000	\$ 531,940,000

Each phase is 5-years long
(20-year plan)



POLICY RECOMMENDATIONS

Policy Recommendations

Safety:

- **End penalties** for bicycle safety measures
- Lower **speed limits**
- Improve bicycle safety at **intersections**
- Regularly collect **data** on bicycling in Glendale
- Conduct **education** outreach campaigns

Connectivity:

- Maintain updated bicycle network map and **information**
- Incorporate bicycle network **implementation and maintenance** into regular road repairs

Accessibility:

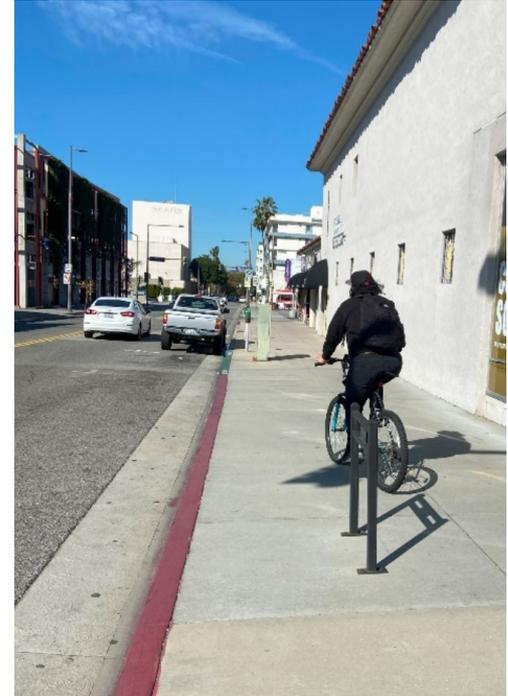
- Provide convenient and accessible **bicycle parking** throughout Glendale

Equity

- **Pilot** active transportation projects to gauge impact and build support

Implementable:

- Adopt guidelines for **reconfiguring traffic lanes** into the General Plan Circulation Element
- Incorporate bicycle facilities in **new developments** through zoning requirements
- Implement Design Guidelines





NEXT STEPS

Next Steps

July	City Council
August	CEQA Analysis (6-8 weeks)
September / October	30-day public comment period of Draft Plan
October / November	Incorporate comments into Final Plan
November	City Council votes on adoption