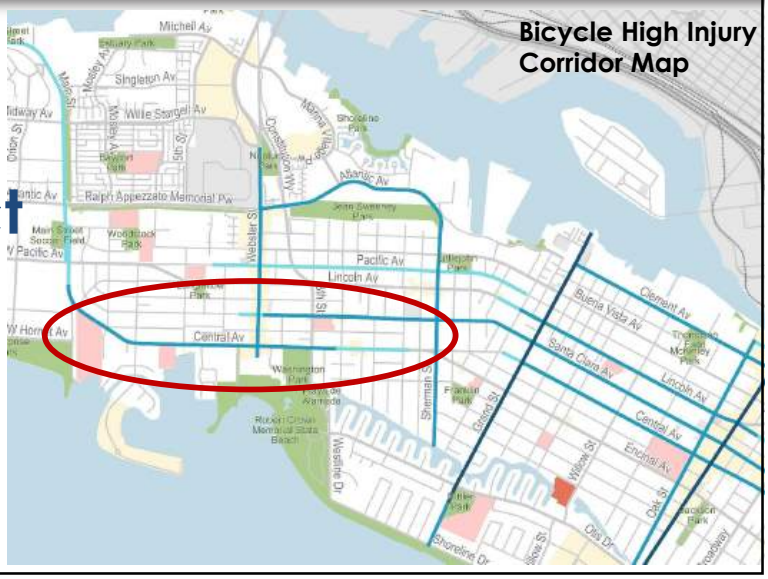
Central Avenue Safety Improvement Project Final Concept (action item)

City Council: April 20, 2021



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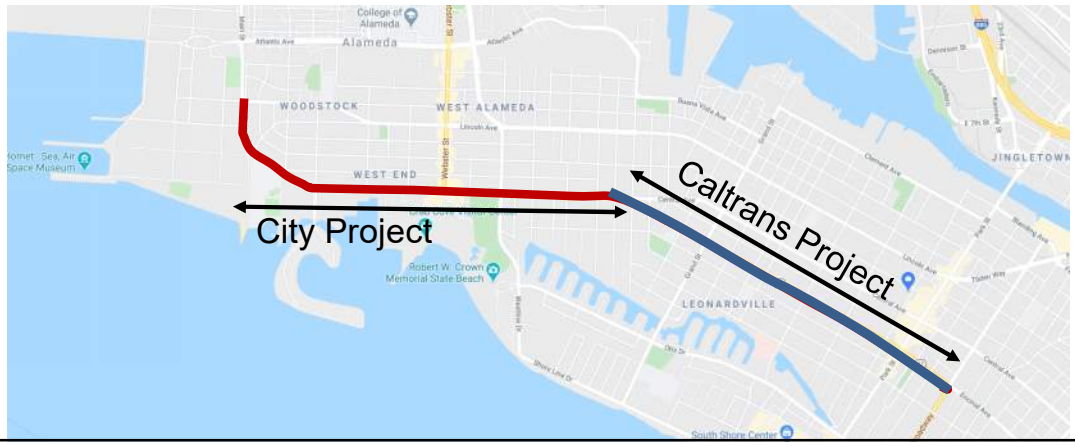
Central Ave: Project Location

- Central Ave (Main St/Pacific Ave to Sherman St): City Project
- Encinal Ave (Sherman St to Broadway): Caltrans Project



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Central Ave: History

City Council Approvals

- 2010: High-priority bikeway in Bike Plan
- 2013: Planning Grant Application
- 2014: Consultants for Concept Planning
- 2016: Concept (except Webster) & Grant
- 2017: Central Ave CIP Project
- 2018: Caltrans Co-op Agreement and Consultants for PID
- 2019: CIP Project; 2-way Bikeway to McKay; Consultant Amendment
- 2020: Caltrans Co-op Agreement for PA&ED and PS&E

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Central Ave: Project Overview

- Goals
  - Improve safety for all users
  - Calm traffic
  - Improve multimodal access
- Safety Improvements
  - Road diet with bikeway
  - High visibility crosswalks
  - Bus stops and islands
  - Roundabouts

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Central Ave: Project Overview

Bikeway: For entire corridor with protected bikeway between west end and Washington Park

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Central Ave: Project Overview

- Existing: Four lane streets w/higher rates of collisions
- Project: Two lanes w/ center turn lane + bikeway = road diet

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Recommendation

Pass a motion to approve the Central Avenue Safety Improvement Project Final Concept

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Supplemental Slides for Reference and Discussion

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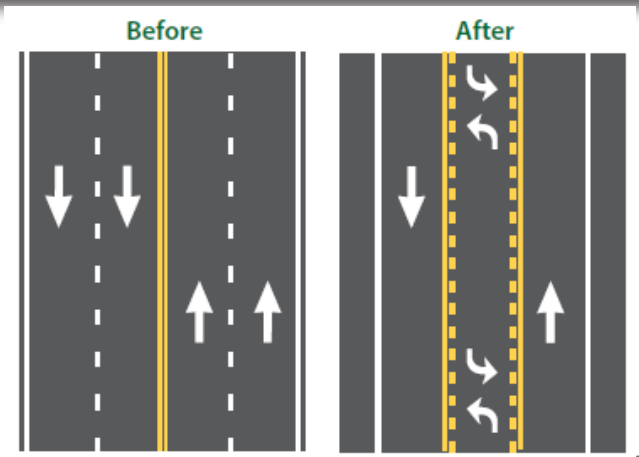
Central Ave: Project Benefits

- Safety:
  - Fewer and less severe collisions
  - Shorter crossing distances
  - Separation of modes
- Corridor travel time: 4-5 minute decrease
- Traffic pattern changes: Varies, traffic calming added
- Added capacity for bicycling and walking



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Central Ave: Project Benefits

- Reduced emissions
- Reduced traffic noise
- Drainage and water quality improvements
- Reduced heat island effects
- Aesthetic improvements

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Road Diet Benefits

Federal Highway Administration:

- Reduce collisions by up to 47%
- Reduce speeds by at least 3 mph
- Less severe collisions
- Fewer vehicle lanes to cross
- Better visibility of pedestrians
- Provide space for bicyclists
- Smoother travel flow
- Livability and economic benefits

U.S. Department of Transportation
Federal Highway Administration

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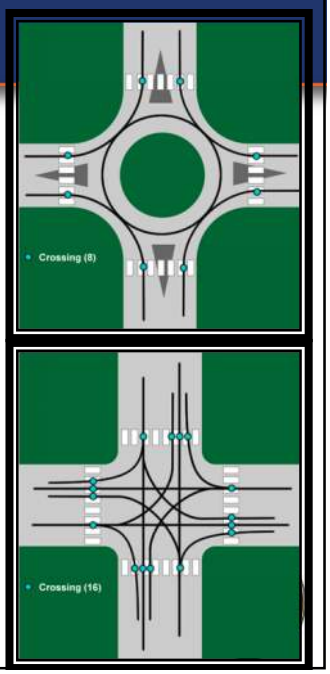
Roundabout Benefits

- According to FHWA:
  - Reduce fatal and serious injury crashes by 78-82%
  - Results in lower vehicle speeds: 15-25 MPH
  - Are safer, more efficient, less costly and more aesthetically appealing



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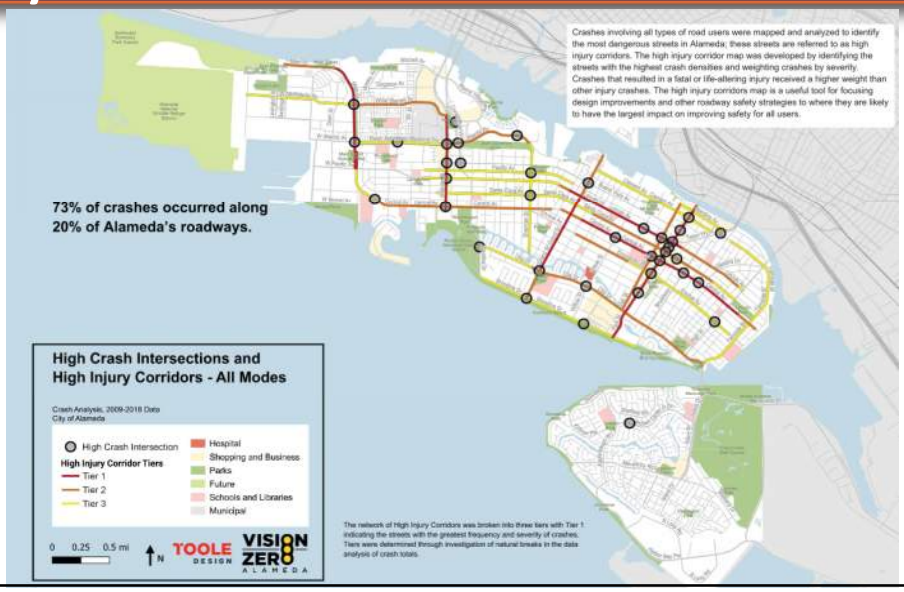
High crash intersections and high injury corridors



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Central Ave: Collisions 2014-2018

Location	Total	Pedestrian-Related	Bicycle-Related
Third St	11	0	2
Fifth St	3	1	1
Sixth St	2	0	0
Webster St	13	3	0
Page St	4	0	0
Eighth St	7	1	1
Burbank St	7	0	0
Ninth St	2	0	0
Caroline St	4	0	1
St Charles St	5	1	0
Bay St	2	0	0
Sherman St	3	0	0
Total	**63**	**6**	**5**

Source: Caltrans TASAS; City of Alameda Police Department

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Estimated Collision Reduction Effects

Treatment	Crash Type	Crash Modification Factor	Reduction Percentage
Four to three lane conversion (Road Diet)	All	0.71	29%
Cycle Tracks, Bike Lanes, or On-Street Cycling	Vehicle/bicycle	0.41	59%
Installing Rectangular Rapid Flashing Beacon (RRFB)	Vehicle/pedestrian	0.526	47.4%
Installing high-visibility crosswalk	Vehicle/pedestrian	0.6	40%
Converting signalized intersection to modern roundabout	All	0.99	1%
	Injury	0.40	60%
Converting intersection with minor-road stop control to modern roundabout	All	0.61	39%
	Injury	0.22	78%

Source: Highway Safety Manual, CMF Clearinghouse

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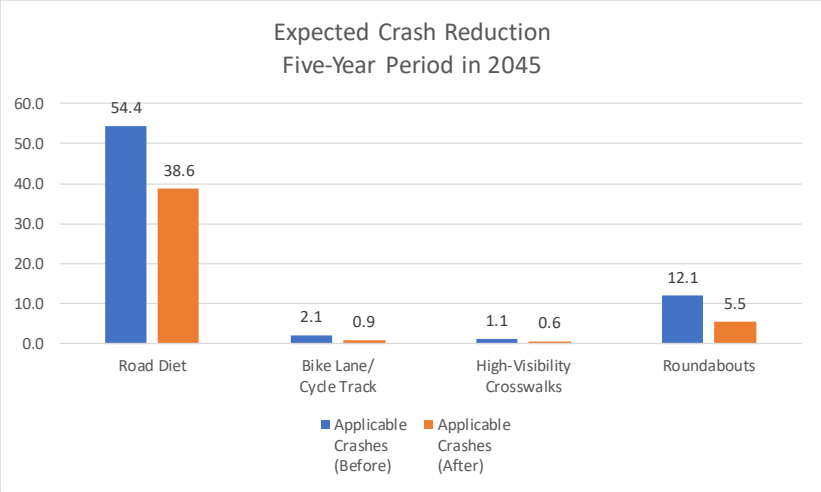
Central Ave: Safety (2045)

24 fewer collisions in 5-year period in 2045



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Collision Reduction Economic Benefits

Countermeasure	2045	
	Crash Reductions	Benefits*
Road Diet	15.8	$358,481
Convert Signalized Intersection to Roundabout	0.7	$31,319
Convert TWSC Intersection to Roundabout	5.9	$127,712
Bike Lane/Cycle Track	1.2	$47,408
High-Visibility Crosswalk	0.4	$1,288
Total	**24**	**$566,208**

Source: TASAS data, City of Alameda, SWITRS 2017 Annual Report, Study team analysis.
**2017 dollars*

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2045 AM Conditions, Intersections

ID	Location	No Build			Build		
		Control Type	Delay (sec)	LOS	Control Type	Delay (sec)	LOS
1	Central Ave & Main St/Pacific Ave	Signalized	195.6	F	Roundabout	7.2	A
2	Central Ave & Third St/Taylor Ave	Side-Street Stop	946.2 (SB)[1]	F	Roundabout	8.1	A
3	Central Ave & Fourth St	Signalized	10.6	B	Roundabout	9.3	A
4	Central Ave & Fifth St	All-Way Stop	42.5	E	All-Way Stop	50.9	F
5	Central Ave & Webster St	Signalized	35.7	D	Signalized	78.8	E
6	Central Ave & Eighth St	Signalized	45.5	D	Signalized	73.9	E
7	Central Ave & Encinal Ave/Sherman St	Signalized	24.1	C	Roundabout	9.1	A
8	Santa Clara Ave & Webster St	Signalized	10.0	A	Signalized	8.5	A
9	Santa Clara Ave & Eighth St	Signalized	16.1	B	Signalized	16.3	B
10	Santa Clara Ave & Sherman St	All-Way Stop	23.0	C	All-Way Stop	22.8	C
11	Lincoln Ave & Webster St	Signalized	14.6	B	Signalized	46.1	D
12	Lincoln Ave & Eighth St	Signalized	25.8	C	Signalized	34.3	C
13	Lincoln Ave & Sherman St	Signalized	14.5	B	Signalized	14.6	B

[1]*Side-street stop-controlled intersection. Worst delay of the stop-controlled approaches (southbound in this case) is reported.*

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2045 PM Conditions, Intersections

ID	Location	No Build			Build		
		Control Type	Delay (sec)	LOS	Control Type	Delay (sec)	LOS
1	Central Ave at Main St/Pacific Ave	Signalized	241.5	F	Roundabout	6.1	A
2	Central Ave at Third St/Taylor Ave	Side-Street Stop	405.1 (SB)[1]	F	Roundabout	6.2	A
3	Central Ave at Fourth St	Signalized	9.8	A	Roundabout	6.4	A
4	Central Ave at Fifth St	All-Way Stop	22.4	C	All-Way Stop	19.7	C
5	Central Ave at Webster St	Signalized	41.9	D	Signalized	74.1	E
6	Central Ave at Eighth St	Signalized	191.5	F	Signalized	138.3	F
7	Central Ave at Encinal Ave/Sherman St	Signalized	22.8	C	Roundabout	11.6	B
8	Santa Clara Ave at Webster St	Signalized	7.6	A	Signalized	6.2	A
9	Santa Clara Ave at Eighth St	Signalized	16.2	B	Signalized	16.6	B
10	Santa Clara Ave at Sherman St	All-Way Stop	19.9	C	All-Way Stop	20.2	C
11	Lincoln Ave at Webster St	Signalized	16.6	B	Signalized	44.1	D
12	Lincoln Ave at Eighth St	Signalized	28.4	C	Signalized	45.2	D
13	Lincoln Ave at Sherman St	Signalized	19.1	B	Signalized	18.6	B

[1]*Side-street stop-controlled intersection. Worst delay of the stop-controlled approaches (southbound in this case) is reported.*

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Central Ave: Corridor Travel Time

Direction	Corridor Segment	Distance (mi)	SimTraffic Output (min)		
			2045 No Build	2045 Build	Difference
Eastbound	From Pacific Ave/Main St to Webster St	1.0	5.1	3.0	-2.1
	From Webster St to Encinal Ave/ Sherman St	0.7	4.6	2.4	-2.2
	Total	**1.7**	**9.7**	**5.5**	**-4.2**
Westbound	From Encinal Ave /Sherman St to Webster St	0.7	6.4	2.7	-3.7
	From Webster St to Pacific Ave/ Main St	1.0	3.3	2.7	-0.6
	Total	**1.7**	**9.7**	**5.4**	**-4.3**

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Central Ave: Project Impacts

- Diversion to side streets: Varies, traffic calming added
- Parking (on-street):
  - City policy to prioritize safety
    - Adding capacity for biking and walking
    - Most impacts: Fourth Street to Page Street
    - Underutilized off-street parking

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Central Ave: Parking Losses

Roadway Location	Eastbound			Westbound			Net Change
	Existing	Vision Zero/ Lane Width	Central Ave. Build	Existing	Vision Zero/ Lane Width	Central Ave. Build	
Total – Central Avenue	189	168	109	222	216	216	-86
Total – Side Streets	36	24	24	71	55	31	-49
Grand Total	225	192	133	293	266	247	-135

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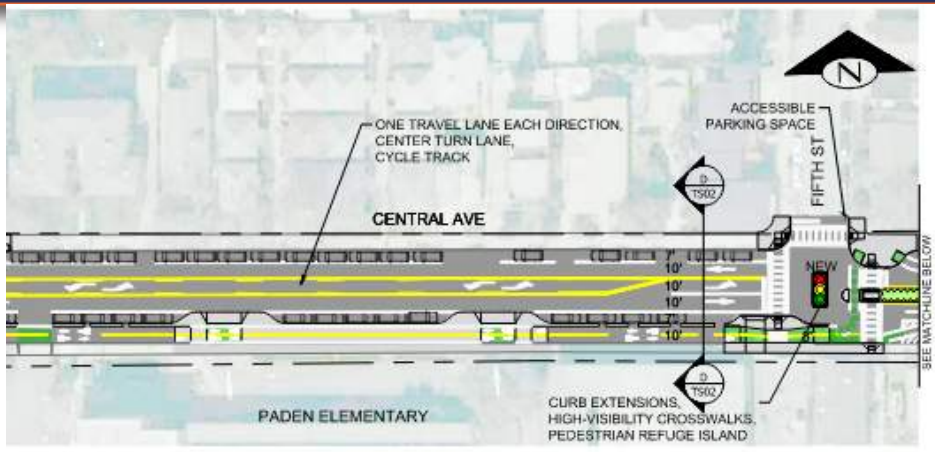
South Side Parking with Non-Standard Lane Widths

Required lane width reductions:

- Travel lanes (11’ to 10’)
- Parking lanes (8’ to 7’)
- Bike path (12’ to 10’)



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PRELIMINARY DRAFT - NOT FOR CONSTRUCTION

CDM Smith

ALAMEDA CENTRAL AVENUE
PACIFIC AVE ROUNDABOUT
NOVEMBER, 2020

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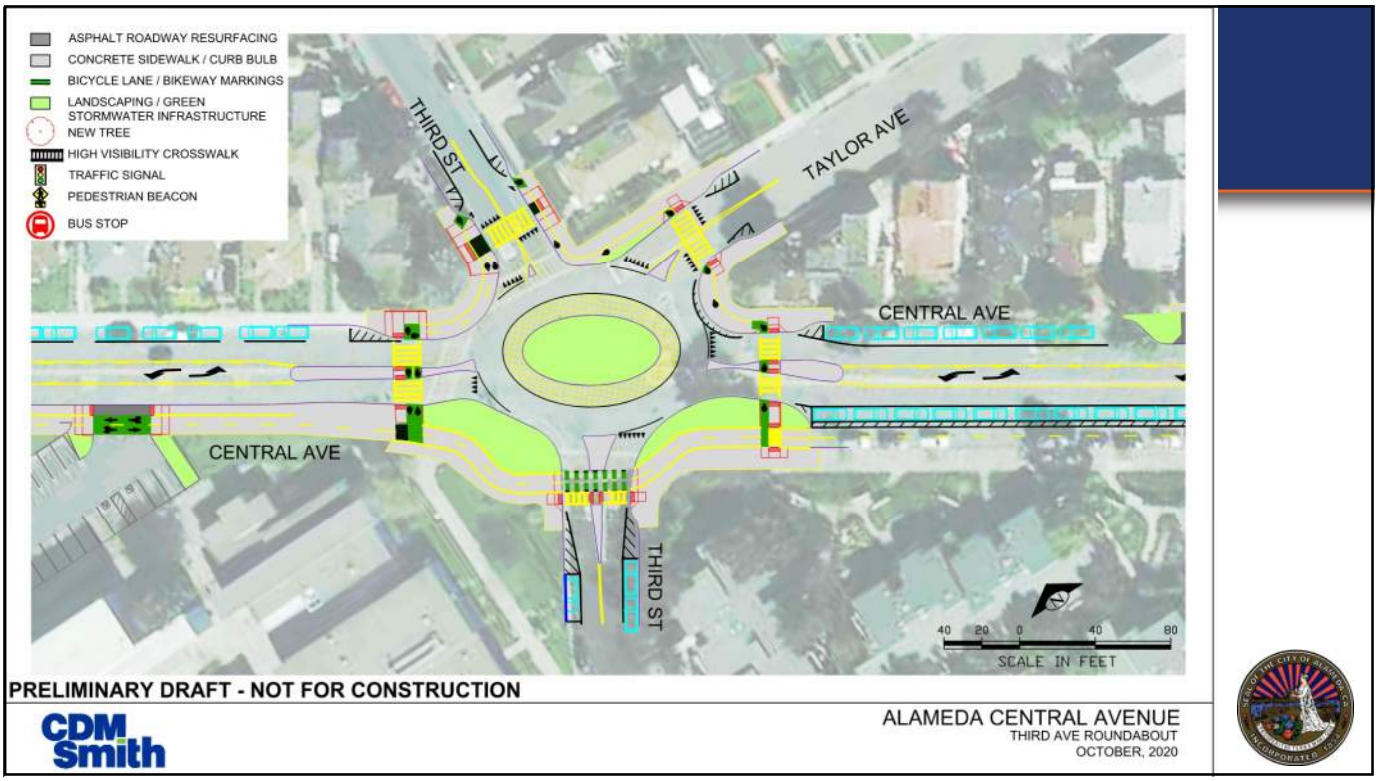
ASPHALT ROADWAY RESURFACING
CONCRETE SIDEWALK / CURB BULB
BICYCLE LANE / BIKEWAY MARKINGS
LANDSCAPING / GREEN STORMWATER INFRASTRUCTURE
NEW TREE
HIGH VISIBILITY CROSSWALK
TRAFFIC SIGNAL
PEDESTRIAN BEACON
BUS STOP
THIRD ST
TAYLOR AVE
CENTRAL AVE
CENTRAL AVE
THIRD ST
40 20 0 40 80
SCALE IN FEET
PRELIMINARY DRAFT - NOT FOR CONSTRUCTION
CDM Smith
ALAMEDA CENTRAL AVENUE
THIRD AVE ROUNDABOUT
OCTOBER, 2020

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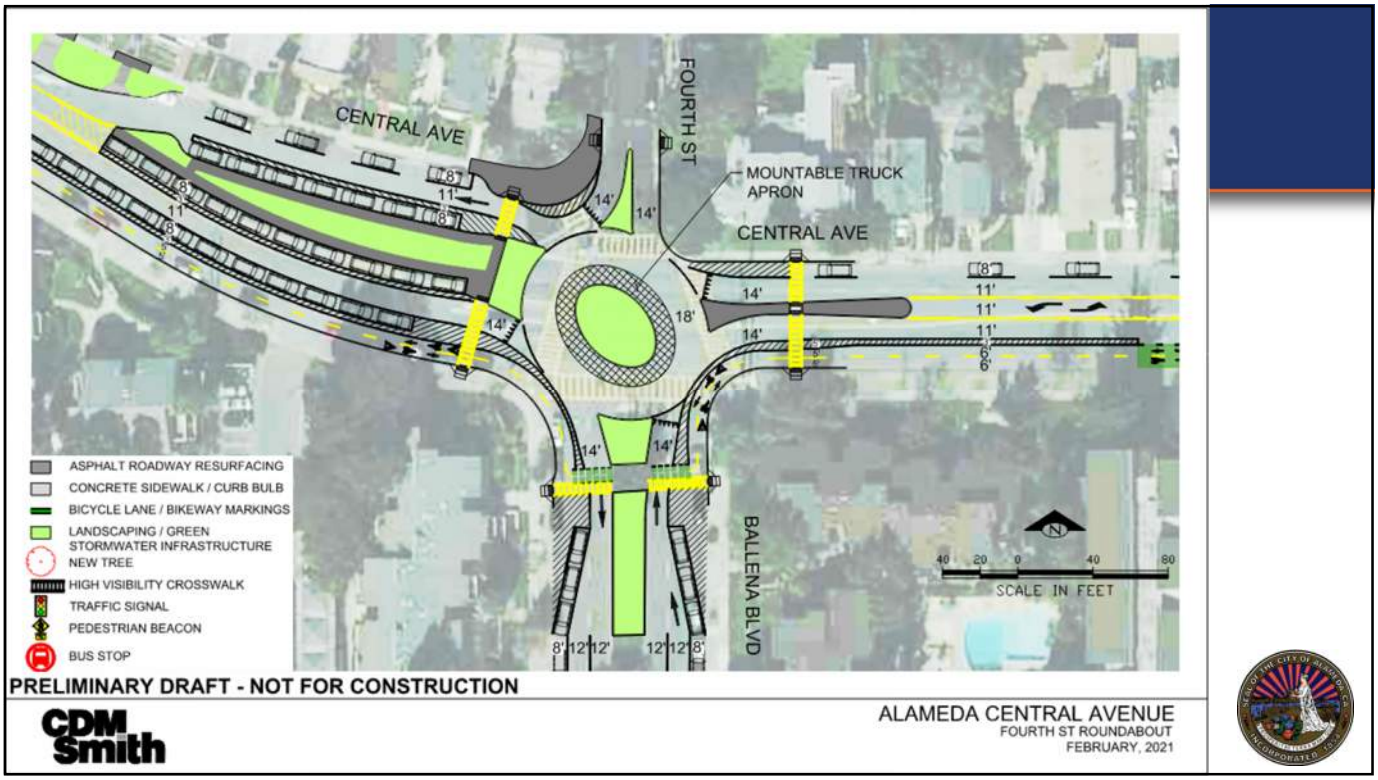
CENTRAL AVE
FOURTH ST
MOUNTABLE TRUCK APRON
CENTRAL AVE
BALLENA BLVD
8' 12' 12' 12' 12' 8'
40 20 0 40 80
SCALE IN FEET
ASPHALT ROADWAY RESURFACING
CONCRETE SIDEWALK / CURB BULB
BICYCLE LANE / BIKEWAY MARKINGS
LANDSCAPING / GREEN STORMWATER INFRASTRUCTURE
NEW TREE
HIGH VISIBILITY CROSSWALK
TRAFFIC SIGNAL
PEDESTRIAN BEACON
BUS STOP
PRELIMINARY DRAFT - NOT FOR CONSTRUCTION
CDM Smith
ALAMEDA CENTRAL AVENUE
FOURTH ST ROUNDABOUT
FEBRUARY, 2021

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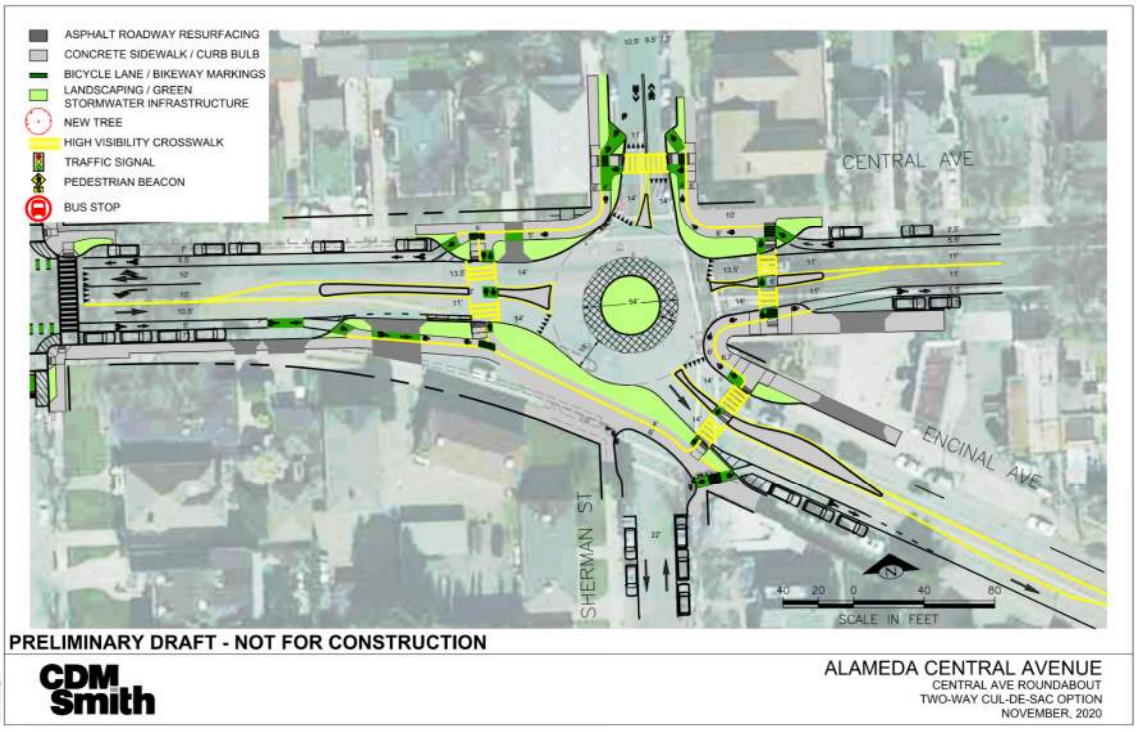

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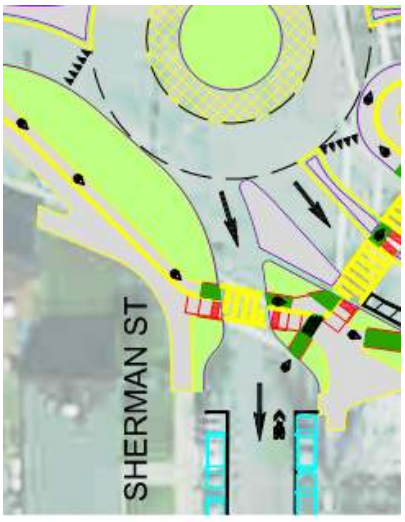
Considered but rejected: Roundabout with one-way on Sherman St.

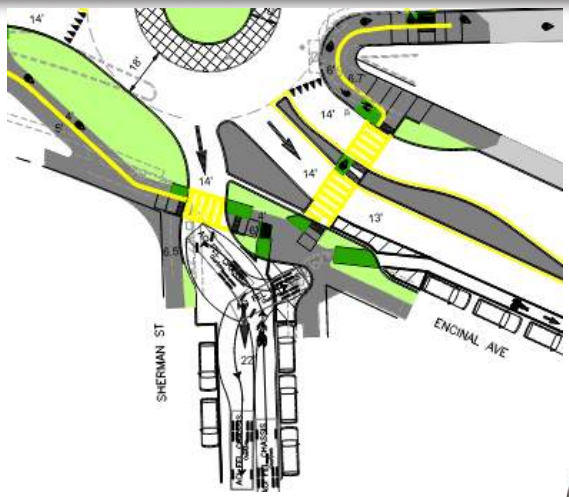
- Infeasible for garbage service
- Resident opposition



28

Considered but rejected: Roundabout with two-way on Sherman St.

- Requires three-point turn
- Hazardous traffic conflict



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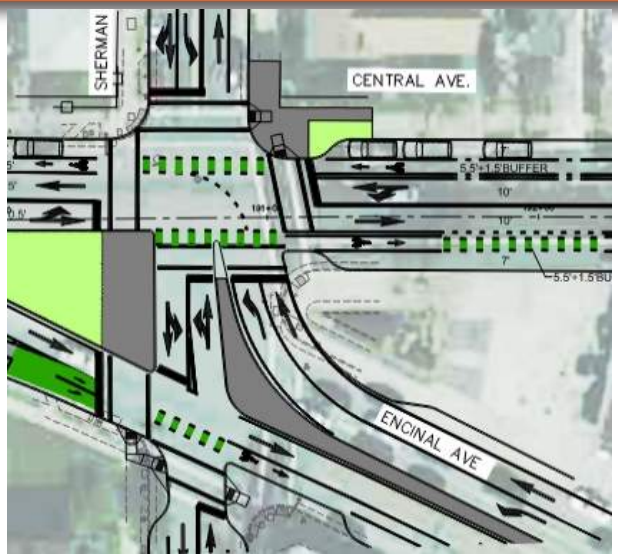
Considered but rejected: Signalized intersection

- High delay times
- Multiple traffic conflict points



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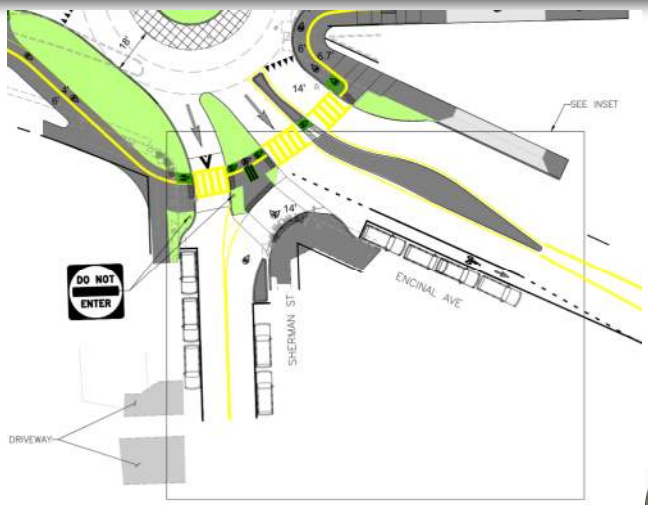
Considered but rejected: Two-way on Sherman St. and slip lane

- Two-way option with raised slip lane



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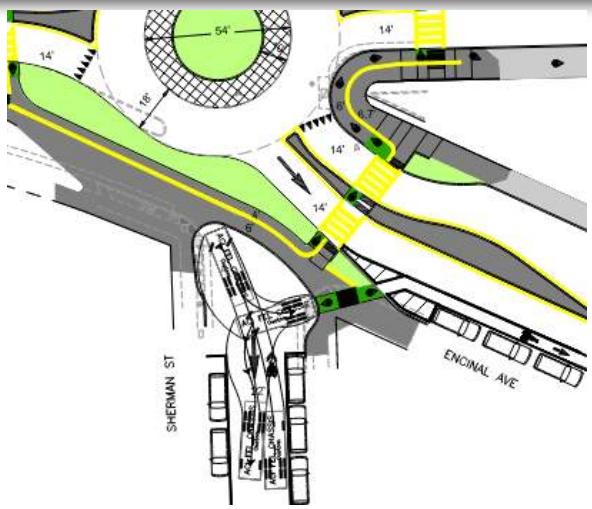
Preferred option: Sherman St. closure and cul-de-sac

- Two-way option with cul-de-sac



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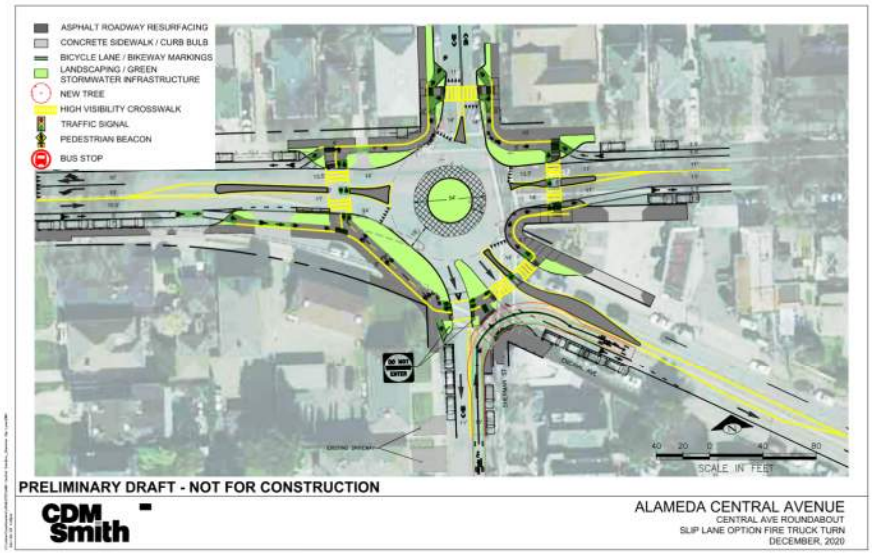
Sherman fire truck exit (cul-de-sac, or slip lane)



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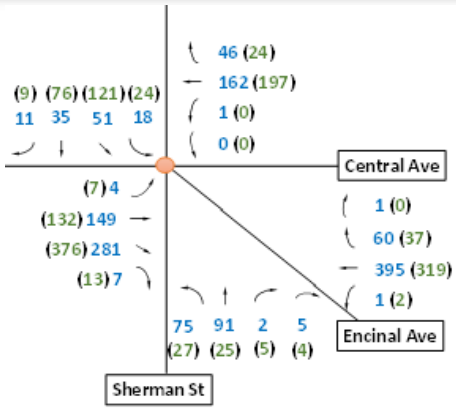
Diversions due to Sherman Cul-de-sac

	AM Peak Hour		PM Peak Hour	
	Total	Per Minute	Total	Per Minute
Inhibited Movements*	217	3.6	152	2.5
Divert West	139	2.3	79	1.3
Divert East	78	1.3	73	1.2

* Total inhibited movements in both directions due to cul-de-sac on Sherman.



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Considerations for the blind and visually impaired

- Shorter crossings
- Lower vehicle speeds
- Raised/High visibility crosswalks
- Landscaped buffers/fencing
- Tactile domes/strips
- Flashing/Auditory signals

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Central Ave: Schedule

Outreach	February 2021
City Council	Tues, April 20, 2021
Environmental Clearance	Summer 2021
Final Design	Mid 2022
Construction	Late 2022

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Central Ave: Funding Overview

	Concept	PID	PA&ED	PS&E	Construction	Total	Percentage
Grants	$198,095	$0	$180,000	$300,000	$10.3 m	$11 m	74%
Local Match	$23,455	$557,000	$1.42 m	$600,000	$1.34 m	$3. 9 m	26%
Total Cost	$221,550	$557,000	$1.6 m	$900,000	$11.6 m	$14.9 m	
Schedule	**2014-2016**	**2018-19**	**2019-21**	**2021-22**	**2022**		

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Central Ave: Project Team

- Project Team:
  - City of Alameda
  - Caltrans
  - CDM Smith and Subconsultants
    - Stefan Schuster
    - Jennifer Cheung
    - Michael Bjork
    - Szu-han Chen
    - Jake Gunther
  - Kittelson and Associates
  - Nelson Nygard

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Central Avenue Safety Improvement Project – Final Concept

https://www.alamedaca.gov/Central

Gail Payne, Senior Transportation Coordinator

gpayne@alamedaca.gov – *510-747-6892*

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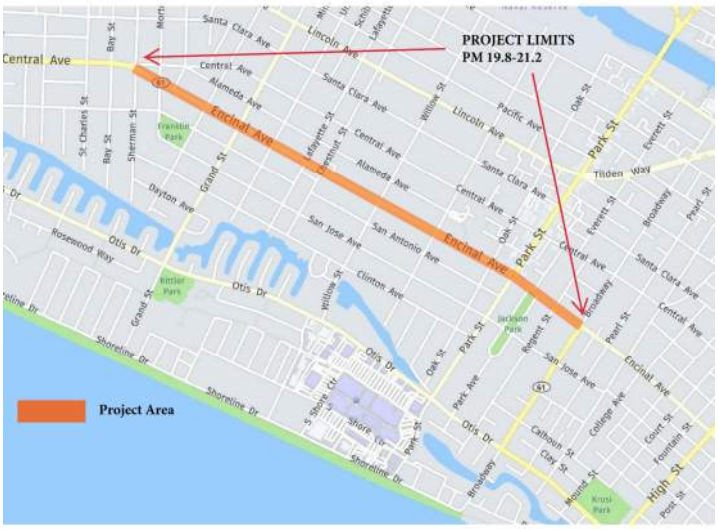
Encinal Ave: Project Overview

Between Broadway and Sherman Street:

- Pavement rehabilitation
- ADA curb ramps
- Improve crosswalks
- Road diet



Contact: Janis Mara, Public Information Officer, Caltrans

Janis.Mara@dot.ca.gov

510-715-9291

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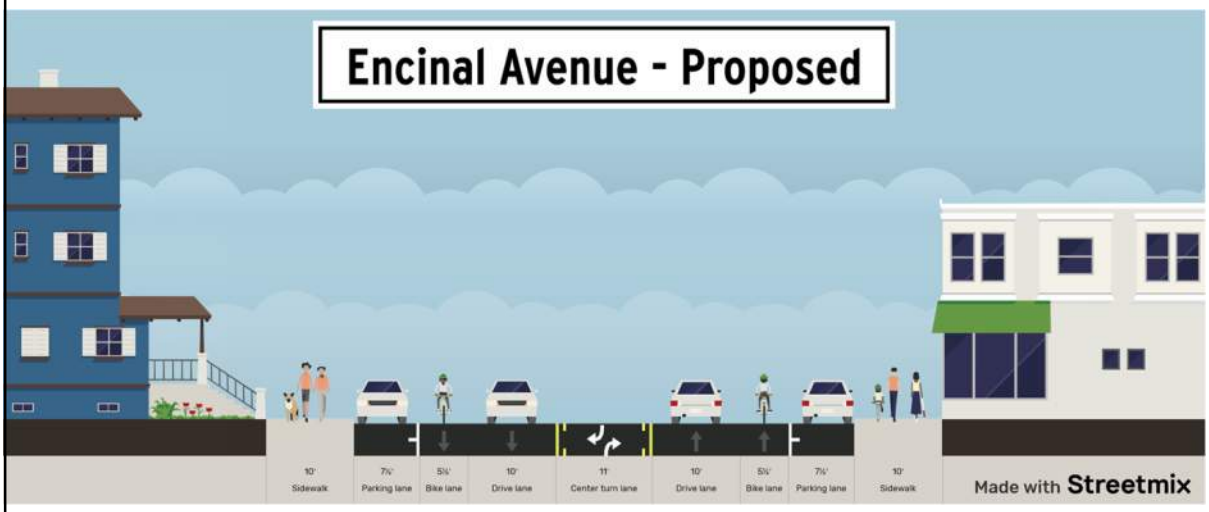
Encinal Ave: Concept



(Widths vary and are approximate)

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Encinal Ave: Schedule

Work Task	Completion
Project Approval and Environmental Document	June 2020 (actual)
Ready to List for Construction	June 2021 (tentative)
Construction Advertisement	September 2021 (tentative)
Construction Award	November 2021 (tentative)
Construction Contract Acceptance	June 2023 (tentative)

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