

EL CAMINO REAL CORRIDOR STUDY

Commission Presentations

Bicycle – March 9, 2015

Transportation – March 11, 2015

Planning – March 23, 2015



City of Menlo Park

Presentation Outline

- Study Objectives and Overview
- Existing Conditions and Survey Results
- Proposed Alternatives
- Alternatives Analysis
- Feedback and Identify a Preferred Alternative

STUDY OBJECTIVES AND OVERVIEW



EL CAMINO REAL CORRIDOR STUDY

Study Objectives

- Review potential transportation and safety **improvements**.
- **Consider possible alternatives** to allow for the addition of a bicycle lane or an additional through lane.
- Identify potential **reconfiguration** alternatives.
- Evaluate the **feasibility** and potential impacts of up to **three (3)** alternatives to improve **multi-modal** transportation.
- **Impacts** to traffic, active transportation, safety, parking and aesthetics will be addressed.
- Within the limited right-of-way available, assess safety, efficiency and convenience **trade-offs** between motorists and bicyclists.

EL CAMINO REAL CORRIDOR STUDY

Guidelines from City Council

- El Camino Real between Encinal Avenue and Sand Hill Road will be evaluated.
- Modifications to side-streets will be considered between the western side of the Caltrain tracks and the eastern side of Curtis Street-Hoover Street-Alto Lane.
- All proposed modifications should be consistent with the El Camino Real/Downtown Specific Plan.
- Only surface improvements will be considered (i.e., no grade separation or tunneling).
- No impacts to existing medians and sidewalks
- Impacts (both beneficial and adverse) to all modes of travel will be considered in this study.
- Ultimate design and implementation of modifications to El Camino Real will need to meet Caltrans requirements and standards.

EL CAMINO REAL CORRIDOR STUDY

Study Elements

- Identify performance metrics
- Community Workshop #1 (April 2014)
- Evaluate existing conditions
- Community Workshop #2 (October 2014)
- Develop travel demand forecasts
- Develop and analyze alternatives
- Community Workshop #3
- ***Prepare estimated costs for alternatives***
- ***Prepare draft report***
- City Council identifies preferred plan
- Full design plans will be prepared for ECR/Ravenswood intersection
- Environmental analysis will be completed for the preferred plan

EL CAMINO REAL CORRIDOR STUDY

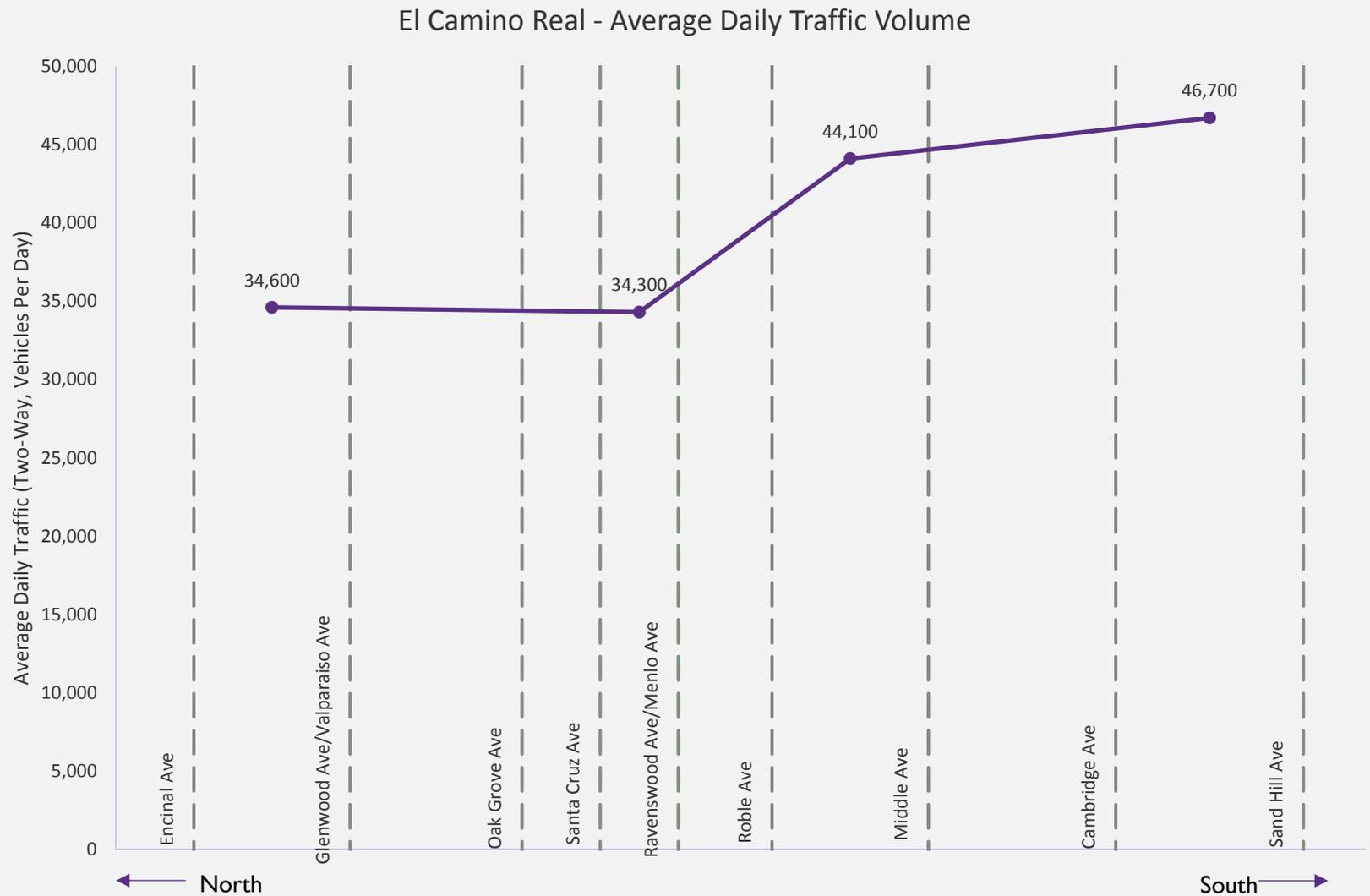
Community Participation Opportunities

- Completed 3 Community workshops
- City Commission Presentations
- Project website
 - www.menlopark-elcamino.com
- 2 Online Surveys

EXISTING CONDITIONS AND SURVEY RESULTS



EL CAMINO REAL CORRIDOR STUDY

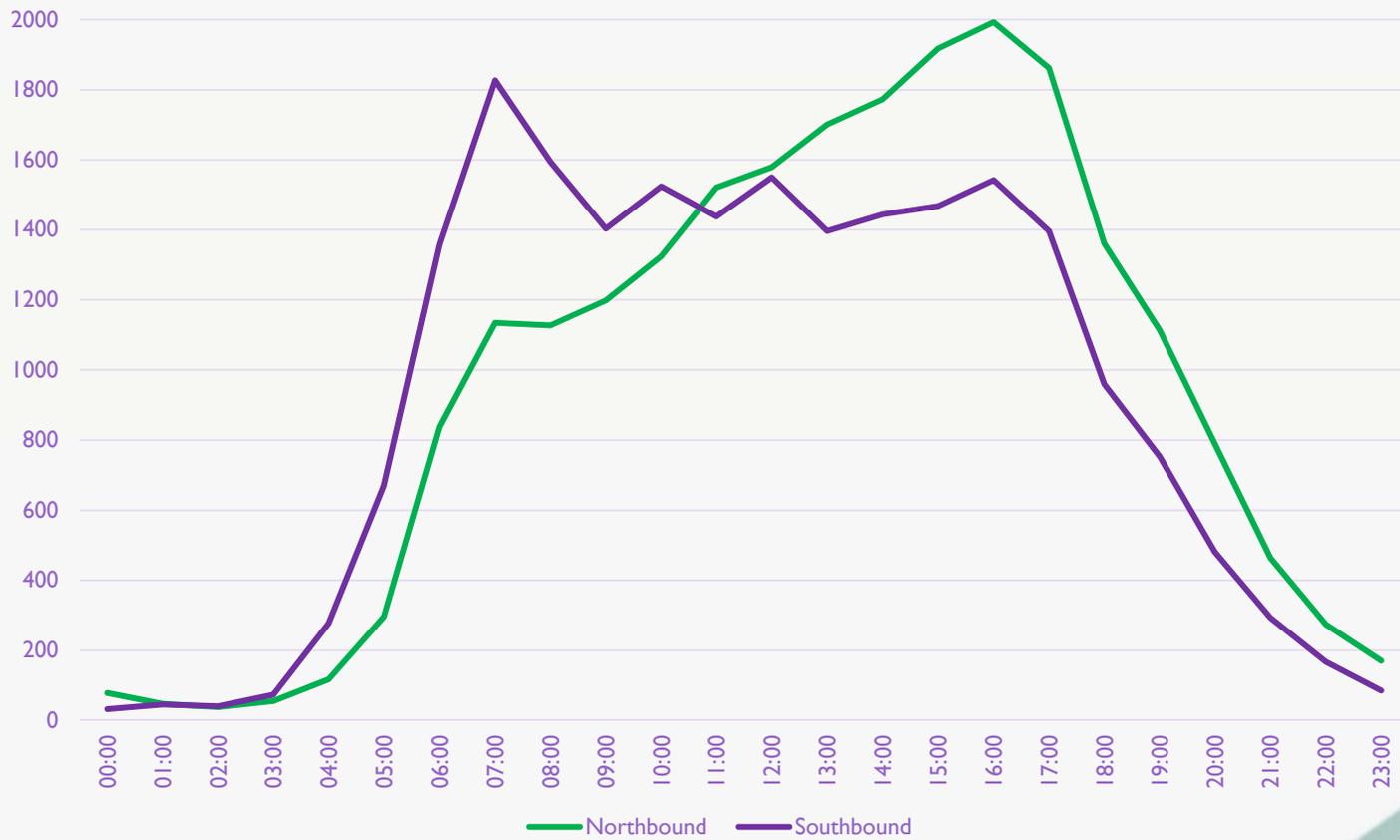


- Truck traffic: 1.5 - 2% of traffic during the afternoon

EL CAMINO REAL CORRIDOR STUDY

Current Conditions

Hourly Traffic Trends – ECR north of Middle Avenue



EL CAMINO REAL CORRIDOR STUDY

Current Conditions

	Northbound	Southbound
AM Peak Average Travel Time	3:48	5:06
AM Peak Average Speed	21.5 mph	15.7 mph
Midday Peak Average Travel Time	4:35	3:48
Midday Peak Average Speed	17.5 mph	21.3 mph
PM Peak Average Travel Time	5:24	5:00
PM Peak Average Speed	14.9 mph	16.1 mph

EL CAMINO REAL CORRIDOR STUDY

Current Conditions – Pedestrians & Bicyclists

Hourly volumes (morning – afternoon)

Intersection	Pedestrian	Bicycle
ECR/Oak Grove Rd	53-88	20-7
ECR/Santa Cruz Ave	96-144	19-13
ECR/Ravenswood-Menlo Ave	35-46	26-25
ECR/Middle Ave	13-28	9-17
ECR/Sand Hill Rd	113-41	201-55

COMMUNITY SURVEY

About the Survey

- Active between June 16 and September 12, 2014
- Outreach included website and e-mail announcements; flyers distributed at local businesses, public spaces, and events; and school newsletters
- Additional responses collected at Open House on October 2
- Total of 316 responses



El Camino Real Transportation Survey

The survey includes 19 questions and is estimated

1. Indicate the condition which applies to the location of your home.

- I live in Menlo Park within a half mile (4-5 blocks) of the El Camino Real.
- I live in Menlo Park, but farther than a half mile of the El Camino Real.
- I don't live in Menlo Park, but I do live within a half mile of the El Camino Real.
- None of the above.

***2. Indicate the condition which applies to the location of your work.**

- I work in Menlo Park within a half mile (4-5 blocks) of the El Camino Real.
- I work in Menlo Park, but farther than a half mile of the El Camino Real.
- I don't work in Menlo Park, but I do work within a half mile of the El Camino Real.
- None of the above.

***3. Do you drive a vehicle on El Camino Real?**

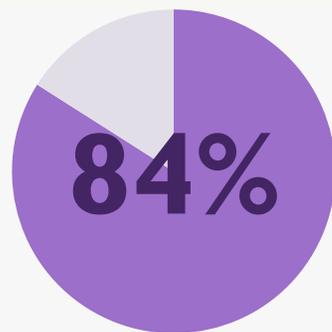
- Multiple times per day
- Approximately once per day
- A few times a week
- Almost never

***4. Do you ride a bike on or across El Camino Real?**

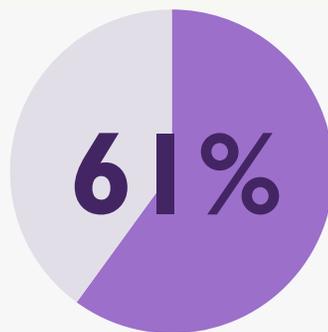
- On a daily basis
- Several times per week
- Mostly on weekends

COMMUNITY SURVEY

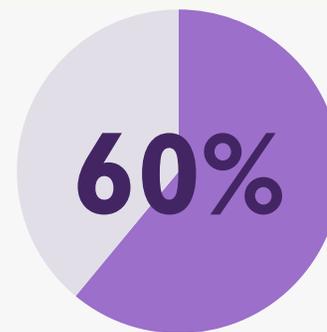
Survey Participants



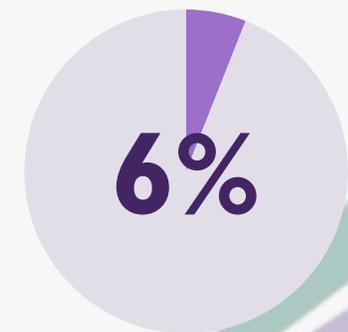
drive



walk



bike



use transit

COMMUNITY SURVEY

Potential Changes

➤ TOP 5 DESIRABLE CHANGES

1. Enhanced pedestrian safety and crossings
2. Inclusion of bike lanes on El Camino Real
3. More bike parking close to downtown
4. More landscaping along El Camino Real (providing buffers between pedestrians or bicyclists and vehicles)
5. Timing traffic signals to favor continuous north-south flow on El Camino Real

➤ MOST UNDESIRABLE CHANGES

1. More convenient on-street parking on El Camino Real
2. Higher travel speeds on El Camino Real
3. Lower travel speeds on El Camino Real
4. Additional through lanes on El Camino Real

PROPOSED ALTERNATIVES



Proposed Alternatives

- No Project (Do Nothing)
- Alt #1 - Continuous Six Lanes
- Alt #2 - Buffered Bike Lanes
- Alt #3 – Separated Bike Facility

No Project (Do Nothing)



EXISTING

Alternative #1 – Continuous 6 Lanes



ALTERNATIVE 1

No Project (Do Nothing)



EXISTING

Alternative #2 – Buffered Bike Lanes



ALTERNATIVE 2

No Project (Do Nothing)



EXISTING

Alternative #3 – Separated Bike Facility



ALTERNATIVE 3

No Project (Do Nothing)



EXISTING

Alternative #1 – Continuous 6 Lanes



ALTERNATIVE 1

No Project (Do Nothing)



EXISTING

Alternative #2 – Buffered Bike Lanes



ALTERNATIVE 2

No Project (Do Nothing)



EXISTING

Alternative #3 – Separated Bike Facility

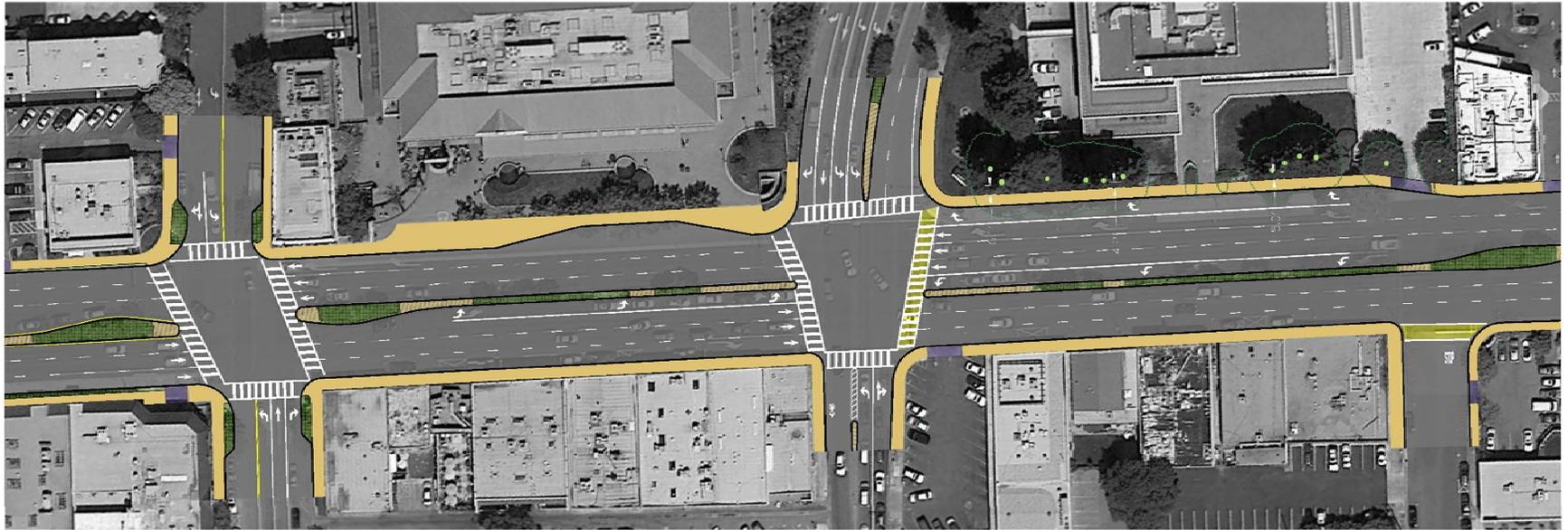


ALTERNATIVE 3

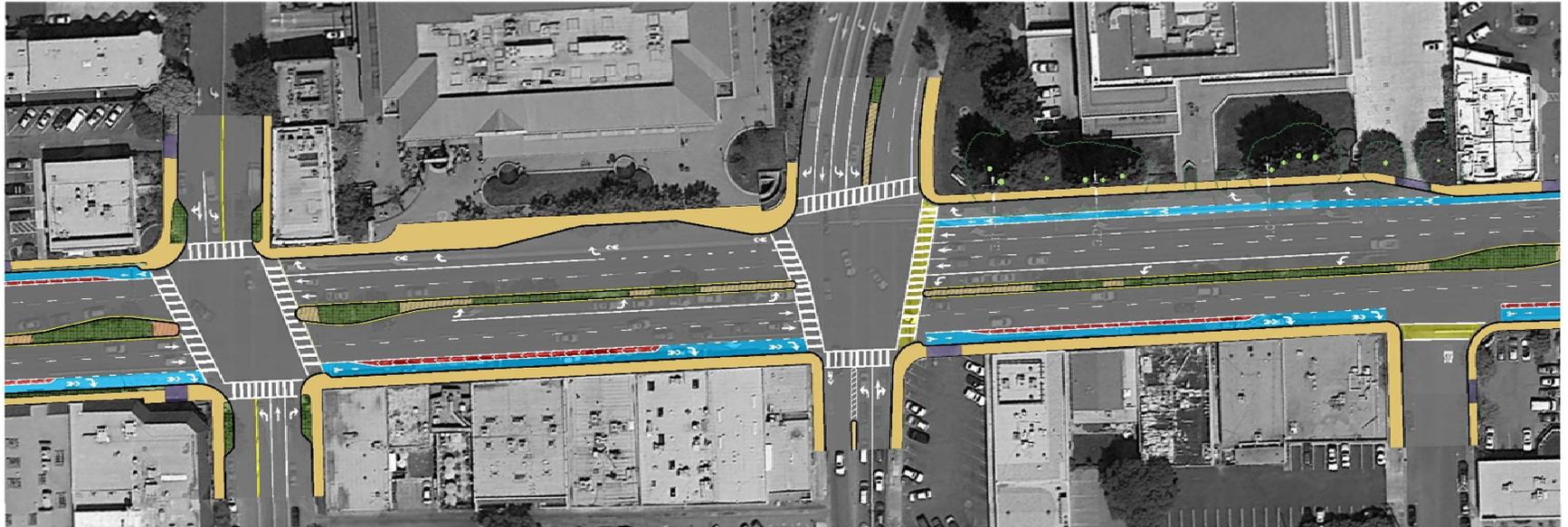
No PROJECT (Do NOTHING)



ALTERNATIVE #1 – CONTINUOUS 6 LANES



ALTERNATIVE #2 – BUFFERED BIKE LANES



ALTERNATIVE #3 – SEPARATED BIKE FACILITY



ALTERNATIVES ANALYSIS



Model Forecasting

- C/CAG-VTA Bi-County Travel Demand Model
- 2010 Base and 2035 Future Traffic Projections
- Primarily ABAG Land Use Outside the Study Area
- Includes MP Downtown Specific Plan Land Use
- Adjustments to lane capacity for Alternative I
- Alts 2 and 3 Included Adjustments based on the Extent of Bike Facility Improvements to the Non-Motorized Mode Forecasting

EL CAMINO REAL CORRIDOR STUDY

Analysis

- Traffic Volume Projections
- Induced Demand
- Change in Travel Patterns
- Corridor Travel Time and Speed
- Intersection Delay
- Intersection Queuing

EL CAMINO REAL CORRIDOR STUDY

Vehicles per hour (pm peak)

Segment	2014 Existing Conditions	Future 2035							
		No Project		Alt 1		Alt 2		Alt 3	
		Volume		Volume	% Inc	Volume	% Inc	Volume	% Inc
El Camino Real									
North of Ravenswood	2,800	3,140		4,550	45%	3,130	-0.5%	3,070	-2%
South of Ravenswood	3,620	4,230		4,620	9%	4,230	0%	4,170	-1.5%
Middlefield Road									
North of Ravenswood	1,290	1,650		1,540	-7%	1,680	2%	1,730	5%
South of Ravenswood	2,100	2,390		2,860	20%	2,460	3%	2,430	2%

EL CAMINO REAL CORRIDOR STUDY

Bike Volumes (bikes per day)

	2014	2035			
El Camino Real		No project	Alt 1	Alt2	Alt 3
North of Ravenswood	120	132	132	475	856
South of Ravenswood	175	203	203	322	368
Middlefield Road					
North of Ravenswood	871	1026	1026	715	594
South of Ravenswood	856	1114	1114	855	744

EL CAMINO REAL CORRIDOR STUDY

**Table 6
Travel Time with Future Volumes (minutes)**

Study Segments	Future 2035						
	No Project	Alt 1		Alt 2		Alt 3	
	Travel Time	Travel Time	% Inc	Travel Time	% Inc	Travel Time	% Inc
AM							
NB Sand Hill to Encinal*	4.1	4.8	17%	4.6	12%	4.3	5%
SB Encinal to Sand Hill*	5.9	5.2	-12%	5.1	-14%	5.8	-2%
PM							
NB Sand Hill to Encinal*	5.3	5.8	9%	5.9	11%	6.0	13%
SB Encinal to Sand Hill*	4.8	5.0	4%	4.9	2%	5.3	10%

Note: Travel Time in minutes
* Segment length is 6,950 feet

EL CAMINO REAL CORRIDOR STUDY

Intersection Delay

	Vehicle Levels of Service				
	Existing	No Project	Alt 1	Alt 2	Alt 3
AM					
1. ECR/Sand Hill	C	D	D	D	D
2. ECR/Cambridge	A	A	A	A	A
3. ECR/Middle	B	C	C	C	C
4. ECR/Roble	B	A	A	A	A
5. ECR/Ravenswood-Menlo	D	D	E	D	D
6. ECR/Santa Cruz	C	B	C	B	B
7. ECR/Oak Grove	C	C	C	C	C
8. ECR/Glenwood-Valparaiso	D	E	F	E	F
9. ECR/Encinal	B	B	B	B	B
PM					
1. ECR/Sand Hill	E	E	F	E	E
2. ECR/Cambridge	B	B	B	B	B
3. ECR/Middle	B	C	C	C	C
4. ECR/Roble	B	B	B	B	B
5. ECR/Ravenswood-Menlo	D	E	D	D	E
6. ECR/Santa Cruz	B	B	C	C	C
7. ECR/Oak Grove	C	D	C	D	D
8. ECR/Glenwood-Valparaiso	C	E	F	E	E
9. ECR/Encinal	B	B	B	B	C

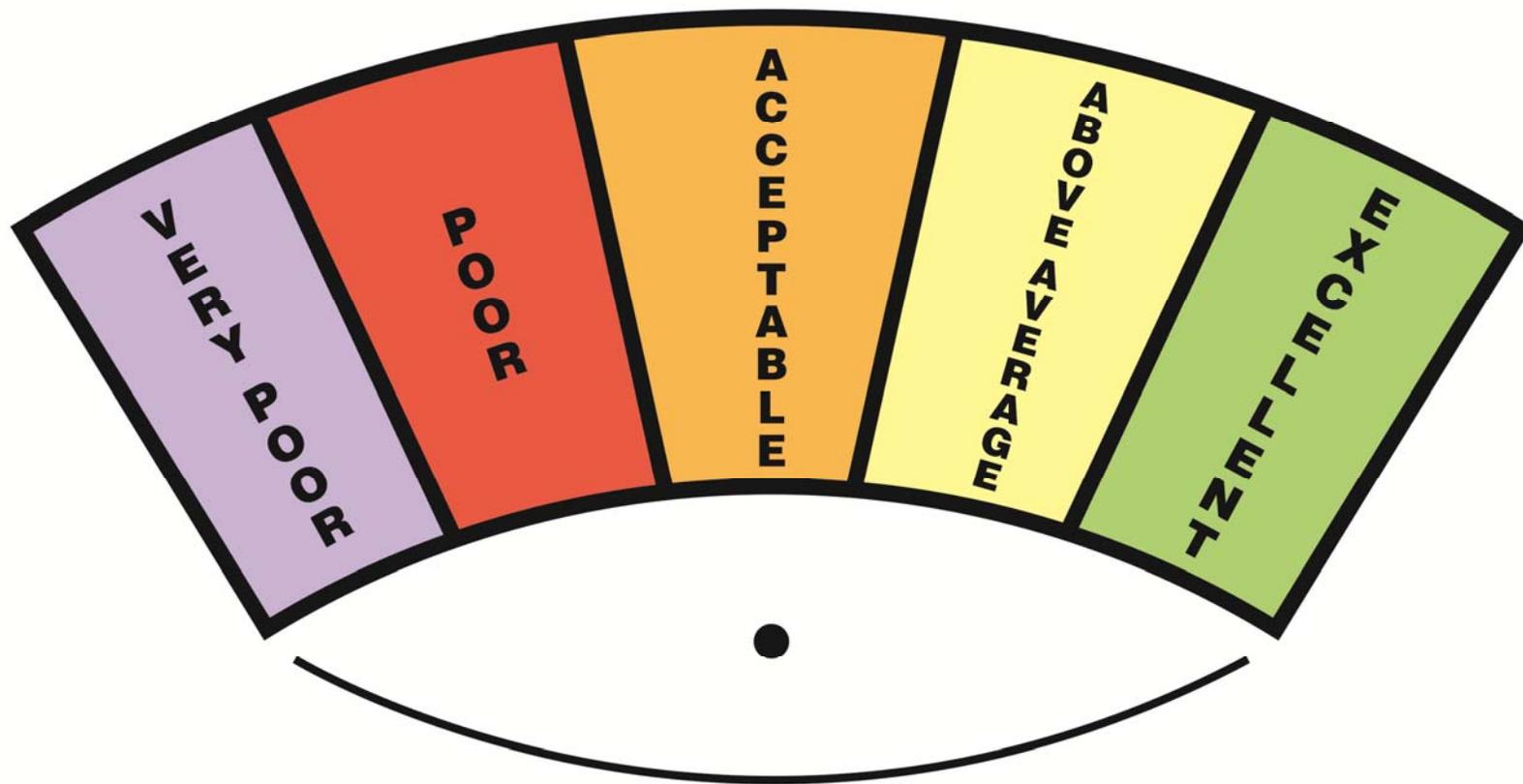
EL CAMINO REAL CORRIDOR STUDY

Queuing

	Available Storage (ft)	% of Storage				
		Existing	No Project	Alt 1	Alt 2	Alt 3
PM						
NB ECR						
1. approaching Sand Hill	1350	36%	over	over	over	over
2. approaching Cambridge	1030	30%	63%	49%	38%	64%
3. approaching Middle	1080	19%	27%	33%	33%	33%
4. approaching Roble	840	58%	32%	41%	28%	42%
5. approaching Ravenswood-Menlo	610	79%	over	over	91%	over
6. approaching Santa Cruz	340	60%	54%	99%	76%	81%
7. approaching Oak Grove	390	45%	94%	over	90%	over
8. approaching Glenwood-Valparaiso	990	59%	over	over	over	over
9. approaching Encinal	1020	12%	29%	9%	29%	41%
SB ECR						
9. approaching Encinal	550	35%	over	99%	over	over
8. approaching Glenwood-Valparaiso	1010	32%	45%	over	43%	over
7. approaching Oak Grove	1000	54%	60%	23%	27%	54%
6. approaching Santa Cruz	410	62%	45%	51%	41%	48%
5. approaching Ravenswood-Menlo	340	84%	over	97%	over	90%
4. approaching Roble	610	33%	43%	29%	43%	69%
3. approaching Middle	840	30%	48%	44%	42%	39%
2. approaching Cambridge	1080	22%	19%	16%	19%	16%
1. approaching Sand Hill	1020	17%	33%	27%	32%	29%

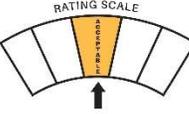
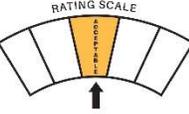
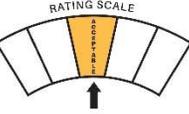
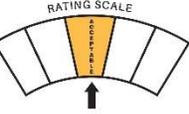
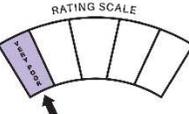
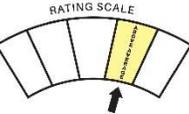
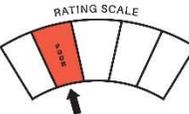
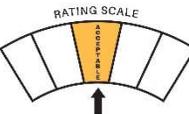
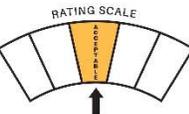
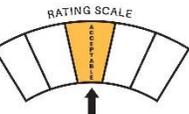
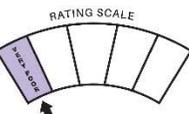
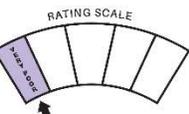
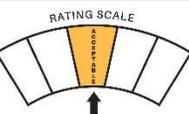
EL CAMINO REAL CORRIDOR STUDY

Alternatives Ratings



EL CAMINO REAL CORRIDOR STUDY

El Camino Real Corridor Study Transportation Rating

	No Project	Alt 1 - 6 Lanes	Alt 2 - Buffered Bike Lanes	Alt 3 - Separated Bike Facilities
 Vehicle Travel on ECR				
 Bicycle Travel on ECR				
 Pedestrian Comfort and Crossings				
 Transit Users				
 On-Street Parking				
 Aesthetic Opportunities				

COMMUNITY FEEDBACK



EL CAMINO REAL CORRIDOR STUDY

El Camino Real Corridor Study

Do Nothing

		AGREE	DISAGREE
	1. Vehicle Travel Experience – The existing vehicle lane alignment and vehicle delay are acceptable.		
	2. Bicycle Facilities – The absence of bicycle lanes on El Camino Real is acceptable.		
	3. Pedestrian Experience – The existing crossing opportunities and delay for pedestrians are acceptable.		
	4. Transit Access – Existing transit access is acceptable.		
	5. Parking – The amount of on-street parking along El Camino Real is acceptable.		
	6. Aesthetics – The opportunity for aesthetic improvements is acceptable.		

EL CAMINO REAL CORRIDOR STUDY

Feedback Results from 2/19/15 Workshop Do Nothing

	Agree	Disagree
1. Vehicle Travel Experience – The existing vehicle lane alignment and vehicle delay are acceptable.	8	9
2. Bicycle Facilities – The absence of bicycle lanes on El Camino Real is acceptable.	10	11
3. Pedestrian Experience – The existing crossing opportunities and delay for pedestrians are acceptable.	9	15
4. Transit Access – Existing transit access is acceptable.	13	1
5. Parking – The amount of on-street parking along El Camino Real is acceptable.	8	4
6. Aesthetics – The opportunity for aesthetic improvements is acceptable.	8	3

EL CAMINO REAL CORRIDOR STUDY

Feedback Results from 2/19/15 Workshop Alternative I - Continuous 6 Lanes

	Agree	Disagree
1. Vehicle Travel Experience – The continuous six lane alignment and resulting vehicle delay is acceptable.	9	8
2. Widening on El Camino Real at Ravenswood – The widening of ECR approaching Ravenswood is acceptable.	15	8
3. Bicycle Facilities – The absence of bicycle lanes on El Camino Real and designation of a parallel route is acceptable.	14	15
4. Pedestrian Experience – The sidewalk location adjacent to the travel lane and added crossings opportunities are acceptable.	13	14
5. Transit Access – Transit access is acceptable.	15	2
6. Parking – The loss of parking to accommodate travel lane north of Roble Avenue is acceptable.	21	4
7. Aesthetics – The opportunity for aesthetic improvements is acceptable.	12	8

EL CAMINO REAL CORRIDOR STUDY

Feedback Results from 2/19/15 Workshop Alternative 2 – Buffered Bike Lanes

	Agree	Disagree
1. Vehicle Travel Experience – The vehicle lane alignment and resulting vehicle delay is acceptable.	20	8
2. Widening on El Camino Real at Ravenswood – The widening of ECR approaching Ravenswood is acceptable.	14	3
3. Bicycle Facilities – The addition of bike lanes (with a striped buffer) on El Camino Real is acceptable.	19	10
4. Right-turn Lane Mixing Zones – The short right-turn pockets mixing with the bike lane at intersections are acceptable.	13	9
5. Pedestrian Experience – The sidewalk location adjacent to the bike lanes and added crossings opportunities are acceptable.	21	1
6. Transit Access – Transit access is acceptable.	14	0
7. Parking – The loss of parking to accommodate a bike lane is acceptable.	20	0
8. Aesthetics – The opportunity for aesthetic improvements is acceptable.	15	1

EL CAMINO REAL CORRIDOR STUDY

Feedback Results from 2/19/15 Workshop Alternative 3 - Separated Bicycle Facility

	Agree	Disagree
1. Vehicle Travel Experience – The vehicle lane alignment and resulting vehicle delay is acceptable.	22	13
2. Widening on El Camino Real at Ravenswood – The widening of ECR approaching Ravenswood is acceptable.	23	5
3. Bicycle Facilities – The separated bicycle facility on El Camino Real is acceptable.	22	11
4. Protected Intersection Design – The bicycle and pedestrian crossings at intersections are acceptable.	16	14
5. Pedestrian Experience – The sidewalk location adjacent to the bike lanes and added crossings opportunities are acceptable.	22	2
6. Transit Access – Transit access is acceptable.	14	0
7. Parking – The loss of parking to accommodate a separated bike facility is acceptable.	25	6
8. Aesthetics – The opportunity for aesthetic improvements is acceptable.	18	2

EL CAMINO REAL CORRIDOR STUDY

Alternative Rankings

- Online voting capability through March 13th.
- **Rankings from the Feb 19th Workshop:**

Alternative	1st	2nd	3rd	4th
No Project	5	7	15	13
Alt 1	12	4	10	16
Alt 2	12	18	4	4
Alt 3	17	8	3	10

EL CAMINO REAL CORRIDOR STUDY

Next Steps

In Progress

- Summarize feedback from workshop and online rankings.
- Prepare final draft report.
- Present to Bicycle, Transportation, Planning Commissions

Pending

- Present to City Council for identification of preferred concept
- Prepare full design plans for ECR/Ravenswood
- Prepare environmental analysis for the preferred concept

Requested Input from the Commissions

- Which alternative would you recommend to Council as preferred?
- Do you have detailed feedback on the concept plans for each alternative?

EL CAMINO REAL CORRIDOR STUDY

END



CITY OF
MENLO PARK

EL CAMINO REAL CORRIDOR STUDY

Location	Improvement Plans?	Status	Source
Atherton	Consider narrowing to 2 lanes each direction with bike and crossing improvements OR pedestrian crossing improvements	On hold pending outcome of Menlo Park study.	Bike Ped Master Plan.
Redwood City	Misc. turn lane and median closures	Moving Forward	SamTrans
Mountain View	TBD		El Camino Real Specific Plan
Sunnyvale	Add bicycle lanes	Installed February 2015	
San Mateo	Raised bicycle lanes; road diet from 2 nd to 9 th Ave. (6 to 4 lanes); 20 th to 25 th Ave. bike connectivity; crosswalk improvements		Sustainable Streets Master Plan
Palo Alto			