CITY OF OAKLAND

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OFFICE OF THE CITY CLERK
OAKLAND

2018 NOV 20 PM 12: 48

AGENDA REPORT

TO:	Sabrina B. Landreth City Administrator	**FROM:**	Ryan Russo Director, OakDOT
SUBJECT:	Approval of Various Lane Conversions	**DATE:**	November 9, 2018

City Administrator Approval Date: 11/20/18

RECOMMENDATION

Staff Recommends That The City Council Adopt A Resolution To Approve The Conversion of Travel Lanes on Telegraph Avenue, 42nd Street to 52nd Street.

EXECUTIVE SUMMARY

This resolution would authorize travel lane conversions for the purposes of reducing speeding, improving pedestrian safety, providing continuous bike lanes, and the associated safety benefits and comfort improvements for all roadway users. The proposed project would reduce travel lanes and implement complete streets standards on Telegraph Avenue from 42nd to 52nd Streets. This project underwent outreach and conceptualization through the Planning & Project Development section and will be delivered through repaving efforts of the Complete Streets Pavement & Sidewalk section of Oakland Department of Transportation.

BACKGROUND / LEGISLATIVE HISTORY

Lane conversions are important tools for reducing speeding and allocating space for other uses on Oakland streets. Lane conversions are also a primary tool for improving uncontrolled crosswalks, reducing pedestrian exposure by reducing the number of travel lanes that a person must cross in order to cross the street. Lane conversions are also performed to reallocate roadway space for continuous bikeways, which gives both people driving and biking a comfortable place to travel on the street. While the City's Traffic Engineer has the authority to improve roadway safety by implementing lane conversions and by implementing bikeways, City Council has directed staff to prepare reports for their approval when bicycle projects require the reduction of travel lanes on a roadway.

Staff have proposed a lane conversion on Telegraph Avenue between 42nd Street and 52nd Street, a segment of Telegraph Avenue within the Temescal District commercial area. A lane conversion has been approved on all other segments of Telegraph Avenue between downtown Oakland and Temescal, through the adoption of the 2014 Telegraph Avenue Complete Streets Plan (2014 Plan).

Item: _____
Public Works Committee
December 4, 2018

While the 2014 Plan established a vision of a continuous bikeway on Telegraph Avenue, it did not recommend a specific bikeway design between 41st Street and 57th Street. Instead, City Council provided the following direction through Resolution No. 85323 C.M.S., 2014:

> *Further Resolved: The City Council intends to create a dedicated, continuous bikeway for the area from 41st Street to 57th Street and reconfigure the Telegraph Avenue/Shattuck Avenue intersection, and directs staff to study, perform environmental review and conduct extensive community outreach on how best to implement the bikeway and reconfiguration to become a complete street, and to seek all potential funding sources to support technical design assistance and a focused community outreach program on this matter and return to City Council to consider the recommendation for this area.*

Per this direction, last spring staff initiated a transportation study and extensive community outreach to identify a preferred bikeway design on Telegraph in the Temescal neighborhood. Staff are seeking authorization to convert travel lanes to bicycle lanes to complete the directive from this resolution.

ANALYSIS AND POLICY ALTERNATIVES

Temescal is a key economic district and priority transportation corridor for residents, businesses and visitors. Telegraph Avenue is also a high injury corridor, meaning that it is among the 71 miles of streets in Oakland where the majority of severe and fatal injury crashes occur. A major cause of vehicle crashes in this corridor is speeding (***Attachment A – North Oakland's High Injury Network).*** Addressing these existing safety concerns and providing a dedicated, continuous bikeway, per Council direction, were the goals of staff's concept development.

Beginning in spring 2018, staff conducted a survey that asked respondents to identify their top priorities for street improvement elements. This survey led to the design criteria of the project: safety, equity, community input, and corridor vibrancy. Based on these criteria, staff developed two concepts for continuous bikeways in the Temescal neighborhood (***Attachment B – Protected Bike Lane and Alternative Buffered Bike Lane Option)***. Within the 10- block project area, both concepts would require the conversion of travel lanes. The parking protected concept has five (5) less parking spaces than the buffered bike lane alternative. Other alternatives, including adding bicycle lanes by removing parking lanes, were screened out of consideration because they did not meet the criteria.

Both bikeway concepts included new pedestrian crossings, upgrades to existing crosswalks, and new painted safety zones at intersections and in the median to slow turning vehicles and reduce the crossing distance for pedestrians and people with disabilities. The key difference between the two concepts was that one would provide a protected bikeway, and the other would provide a buffered bikeway. With buffered bike lanes, the bike lane is positioned to the left of parked cars and to the right of travel lanes, with an extra width of striped buffer added between the bike lane and travel lane. With protected bikeways, the bike lane is positioned to the left of a sidewalk curb and to the right of parked cars or other vertical separation. There are several examples of buffered bike lanes in Oakland, including on MacArthur Boulevard between Telegraph and Broadway, and there are several examples of protected bike lanes in Oakland,

including on Telegraph between 20th Street and 27th Street, and on Lakeside Drive between Jackson Street and Harrison Street.

The two concepts were presented at community meetings, stakeholder meetings, on the Department of Transportation's DOT website, through project email lists, and through a second online survey that received 1,498 responses. The 'Public Outreach/Interest' section of this report provides details on the outreach effort.

Protected bikeway
While the City Council policy regarding lane conversion does not specify that Council must approve the *type* of bikeway being constructed, staff are bringing forward a resolution that reflects City's recommended design as a matter of public interest.

Per staff's evaluation, the protected bikeway concept best met the design criteria and had the most community support. Staff acknowledge that while the concept has the most community support, many community members do not support the concept. However, staff have worked to address specific concerns about the concept through design refinements. The following is a short list of high-level issues raised by community members and the design or programmatic changes incorporated to address these concerns:

- Concern: Right turning vehicle conflicts with the curbside bike lanes
- Resolution: Lengthen the "sight lines" of the travel lane at side street intersections and place additional bollards in the clear zone to ensure vehicles do not park in the safety zones.

- Concern: Lane conversion will prohibit creating a plaza at Shattuck Avenue
- Solution: Incorporate Shattuck Avenue between Telegraph Ave and 46th Street into the project and establish this segment as a community plaza, to be programmed with activities and maintained by the Telegraph-Temescal Business Improvement District

- Concern: A lane conversion may slow down buses
- Solution: Relocate bus stops to safer and more convenient locations, which reflects AC Transit's Rapid Corridor improvement plan. Provide bus boarding islands at stops, to ensure buses can get back into traffic without delay. Provide a bus queue jump lane to prioritize AC Transit between 51st and 52nd on Telegraph.

- Concern: A lane conversion may slow down traffic
- Solution: Maintain two northbound travel lanes on Telegraph Avenue between Temescal Plaza and 51st Street to accommodate northbound vehicle volumes. Left turns would be prohibited from Telegraph Avenue onto 51st Street (***Attachment C – Traffic Study***).

- Concern: Loss of parking
- Solution: Maintain net zero loss of metered parking by adding new locations of metered parking. Additionally, manage curb space by designating new commercial loading zones, passenger pick-up/drop-off areas, and new blue zones for drivers and passengers with disabilities (***Attachment D – Parking Proposal Overview***).

- Concern: Protected bike lanes make it difficult for people with disabilities to exit vehicles and access the curb
- Resolution: Incorporate a wider parking lane to accommodate ramp deployment. Incorporate additional mid-block curb ramps to ensure a curb cut is available within 200 feet of any parked vehicle.

- Concern: Having to park near the travel lane.
- Resolution: Incorporate a buffered parking lane so that drivers have more room to exit vehicles and more room between the parked car and the bike lane. The design provides 4 more feet in width for each parking stall than currently exists on Telegraph Avenue in the KONO district.

The project would be implemented next summer/fall through citywide paving contracts.

FISCAL IMPACT

No direct fiscal impacts are associated with this report.

PUBLIC OUTREACH / INTEREST

Through outreach, surveys, and stakeholder meetings, staff have connected with over 1,500 people and spent more than 40 hours in community engagement efforts since spring 2018. Methods of community engagement included in-person and online surveys, community meetings, stakeholder meetings, presentations to neighborhood associations, mobile workshops, and communication through digital platforms including the City website, OakDOT Twitter, and e-mail to subscribers. Additionally, a notice of public hearing was filed with the Oakland Tribune for the August, 21 open house event.

In coordination with the Temescal Business Improvement District, staff also conducted door-to-door business survey reaching 71 percent of merchants along the corridor and received information from 52 percent of merchants on their operations, customer activities, and their most important need on Telegraph Avenue (***Attachment E – Merchant Survey Results***).

Broader community engagement followed two phases of outreach and surveying. Phase 1 presented data on current traffic safety issues on Telegraph Avenue and asked residents and visitors to prioritize safety improvements along the corridor. This survey received 875 responses. Bicycle safety, walking safety, and unsafe vehicle speeds were the 3 top concerns respectively. Approximately 81 percent of respondents said they would like to see bicycle safety improvements and 77 percent of respondents supported pedestrian safety improvements (***Attachment F – User Survey Results***).

During Phase 2 outreach, staff presented two street design concepts and requested feedback on the two concepts. This in-person and online survey received 1,498 responses. The wide majority—76 percent—supported the parking-protected bike lane concept. Of respondents who supported the parking protected bike lane, 71 percent identified as residents of the Temescal

neighborhood. Of the 1500 survey responses, 56 total respondents opposed all concepts (***Attachment G – Design Survey Results***).

Some of the highlights of community engagement include:

- Temescal Street Fair, June 10, 2018. Staff managed a standalone booth during the street fair, administering in-person questionnaires and providing information on repaving, street safety concepts, and other project information.
- 40th Street Block Party, July 14, 2018. Staff managed a standalone booth during the street fair, administering in-person questionnaires and providing information on repaving, street safety concepts, and other project information.
- Community meeting, August 21, 2018. Co-hosted by Councilmember Dan Kalb, staff presented the two proposed concepts and facilitated community discussion on the alternatives. Approximately 100 people attended the meeting.
- 3 mobile workshops July-August, 2018
- Staff administered merchant surveys to the businesses in the project area to understand the needs of the local merchants.
- Temescal Business Improvement District, Staff, Board of Directors, and Design Committee on April 26, 2018; July 11, August 22, September 26, 2018. Staff attended multiple meetings with the Temescal Business Improvement District staff, Board of Directors, and Design Committee, to discuss the project concepts.

COORDINATION

The Office of the City Attorney and Budget Bureau were consulted in the preparation of this report. Staff coordinated with AC Transit's Planning & Operations Division to ensure the improvements benefit AC Transit operations. Staff also coordinated with Councilmember Dan Kalb to co-host an open house event.

SUSTAINABLE OPPORTUNITIES

Economic: Incorporating safety projects in routine pavement maintenance work is a cost-effective way to deliver safety improvements.

Environmental: Safe places to bike and walk can help reduce environmental impacts associated with transportation.

Social Equity: Road diets are a key tool to reduce severe and fatal injury crashes by reducing speeding, and in Oakland, severe and fatal traffic crash victims are predominantly people of color. Allow for convenient, affordable, and safer alternative forms of transportation.

ACTION REQUESTED OF THE CITY COUNCIL

Adopt A Resolution To Approve The Conversion of Travel Lanes on Telegraph Avenue, 42nd Street to 52nd Street.

For questions regarding this report, please contact Hank Phan, Transportation Planner at (510) 238-6109.

Respectfully submitted,

RYAN RUSSO
Director
Oakland Department of Transportation

Reviewed by:
Wladimir Wlassowsky, P.E., Assistant Director
Oakland Department of Transportation

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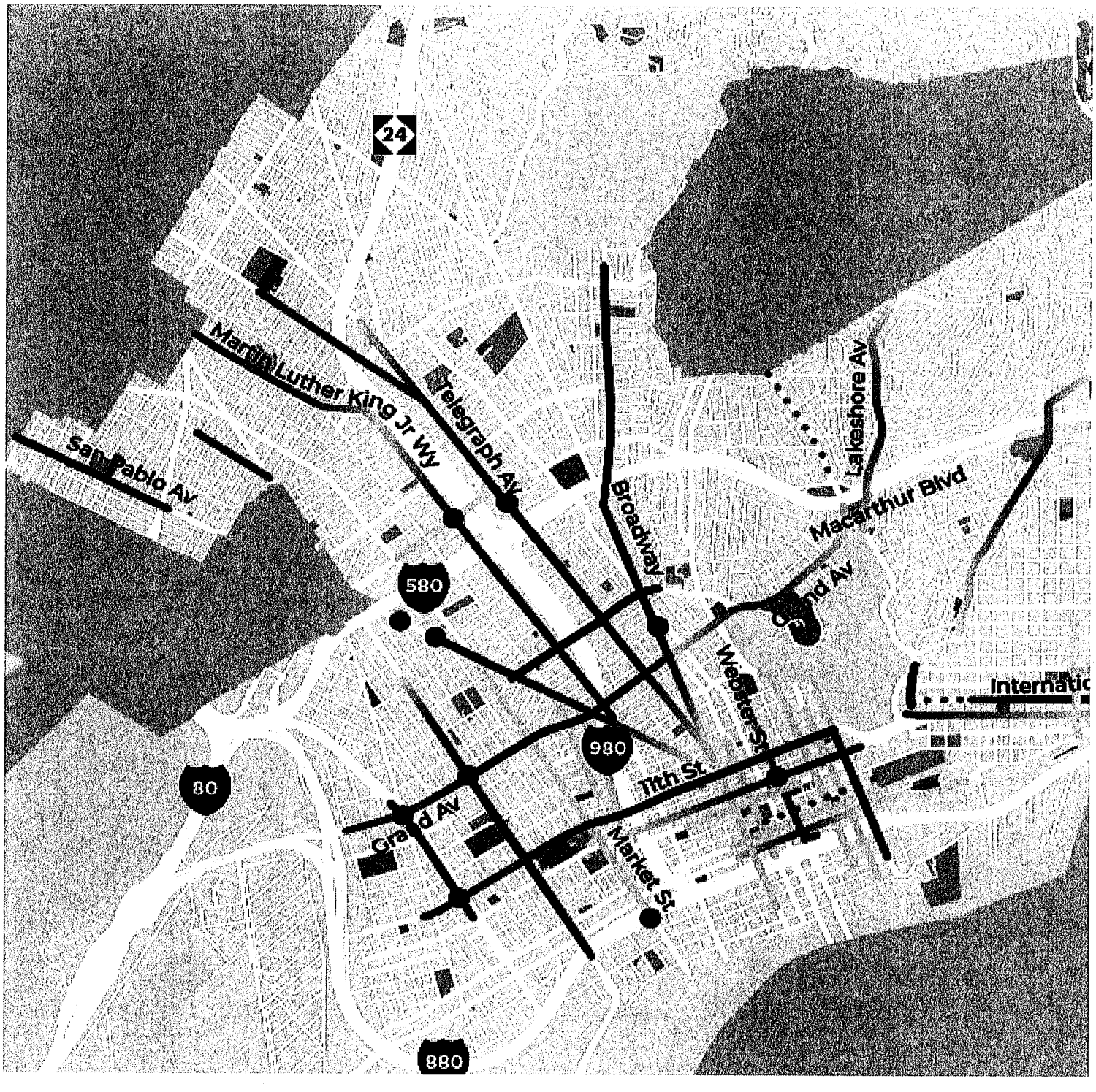
Prepared by:
Hank Phan, Transportation Planner
Great Streets Planning & Project Development

Attachments (7):
A – North Oakland's High Injury Network
B – Protected Bike Lane and Alternative Buffered Bike Lane Option
C – Traffic Study
D – Parking Proposal Overview
E – Merchant Survey Results
F – User Survey Results
G – Design Survey Results

Attachment A

North Oakland's High Injury Network

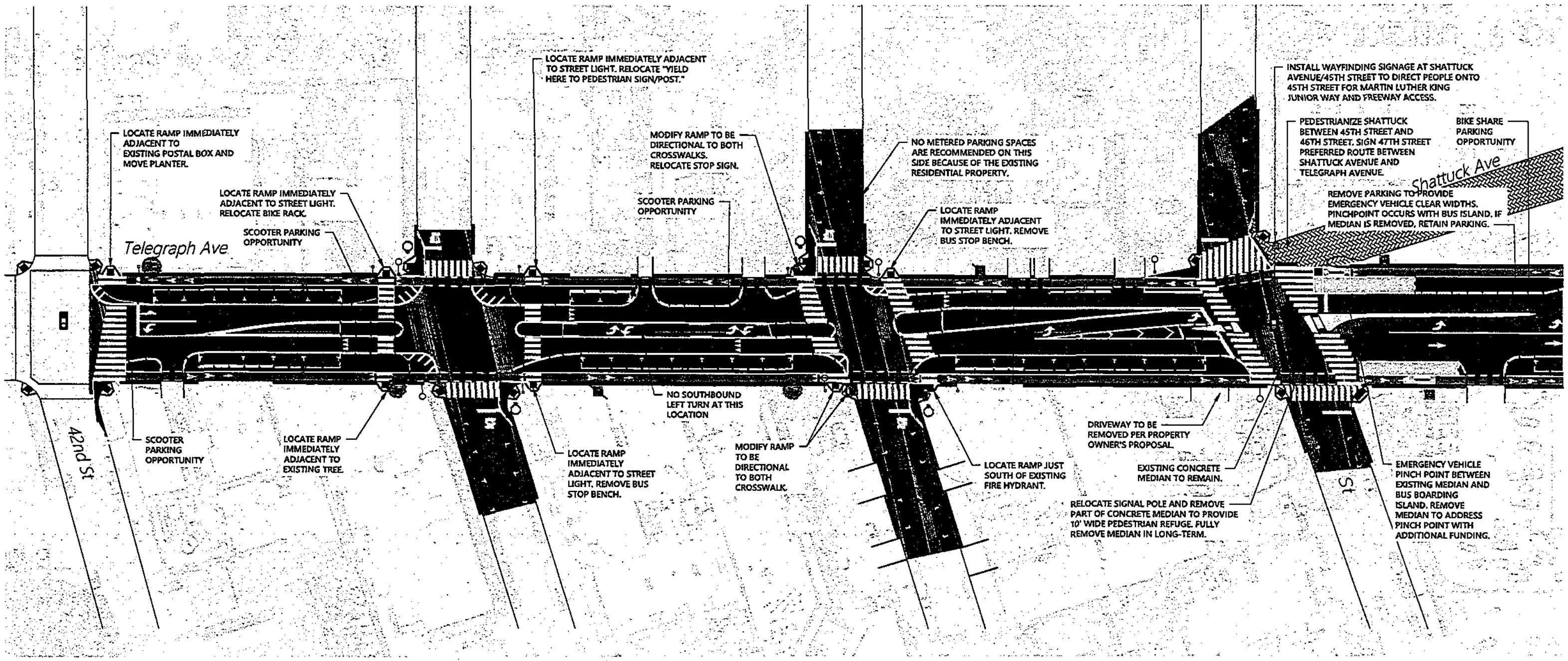
North Oakland's High Injury Network



Attachment B

Protected Bike Lane and Alternative Buffered Bike Lane Option

Protected Bike Lane Concept



LEGEND:

- PROPOSED PAINTED PEDESTRIAN SAFETY ZONE
- AREA OF IMPACT
- PROPOSED BUS LANE
- PUBLIC SPACE OPPORTUNITY AREA
- PROPOSED BUS STOP AREA
- PROPOSED BIKE/SCOOTER LANE
- EXISTING BUS STOP
- PROPOSED BUS STOP
- ELIMINATED BUS STOP PER AC TRANSIT PROJECT
- EXISTING STOP SIGN
- PROPOSED STOP SIGN
- PROPOSED RUBBER SPEED BUMP
- PROPOSED K-72 POST
- PROPOSED CURB RAMP
- EXISTING CURB RAMP
- REMOVED CURB RAMP
- TRUNCATED DOME
- RED CURB SPACE
- METERED CURB SPACE
- GREEN CURB SPACE
- TIME OF DAY YELLOW CURB (COMMERCIAL LOADING ZONE) EXCEPT WHERE NOTED
- BLUE CURB (ACCESSIBLE PARKING)
- PASSENGER LOADING/TNC GEOFENCE ZONE
- EXISTING SIGNAL
- EXISTING TREE
- EXISTING STREET LIGHT POLE

PROJECT NOTES:

1. EXISTING AND PROPOSED CURB RAMPS IDENTIFIED IN THE CONCEPT PLANS WERE VISUALLY ASSESSED AND NOT FOR CONSTRUCTION. ADDITIONAL ENGINEERING AND ANALYSIS REQUIRED.
2. PROPOSED ADA PARKING SPACES WERE VISUALLY ASSESSED. ADDITIONAL ENGINEERING AND ANALYSIS REQUIRED.
3. SURFACE UTILITIES INVENTORY IS REQUIRED IN ORDER TO INSTALL, RELOCATE, AND REMOVE PARKING METERS ON THE CORRIDOR.
4. ALL CURB RAMPS SHOULD BE DIRECTIONAL. ADDITIONAL ENGINEERING AND ANALYSIS REQUIRED.
5. SCOOTER STENCIL SHOWN WITH BIKE LANE SYMBOL FOR INFORMATION ONLY. CITY TO DETERMINE APPLICABILITY AND DIRECT FINAL DESIGN ENGINEER.

40 0 40 80
1" = 40' GRAPHIC SCALE

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BUREAU OF ENGINEERING AND CONSTRUCTION
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(510) 238-3467 • FAX (510) 238-7415

TELEGRAPH AVENUE
IN TEMESCAL
CITY OF OAKLAND
PROTECTED BIKE LANE CONCEPT

PRELIMINARY
NOT FOR
CONSTRUCTION

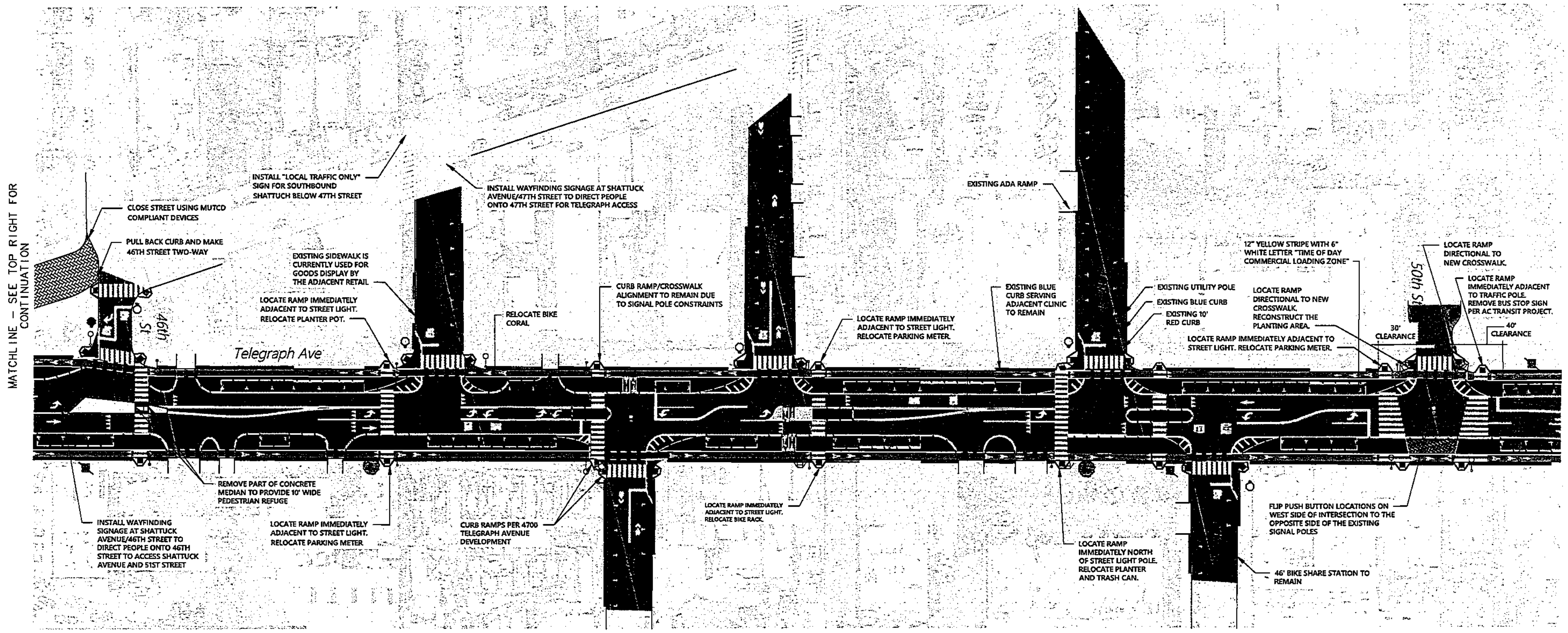
FEHR & PEERS
2201 Broadway Suite 400 Oakland, CA 94612 (510) 834-3200

CHECKED BY	PC/MA
DESIGNED BY	RM/CN
DRAWN BY	LC/CW

No.	BY	DATE	REFERENCE

DRAFT CONCEPT PLANS
ADDITIONAL ENGINEERING
AND ANALYSIS REQUIRED
NOT FOR CONSTRUCTION

SCALE: AS SHOWN
DATE: JULY 13, 2018
SHEET NO. ___ OF X



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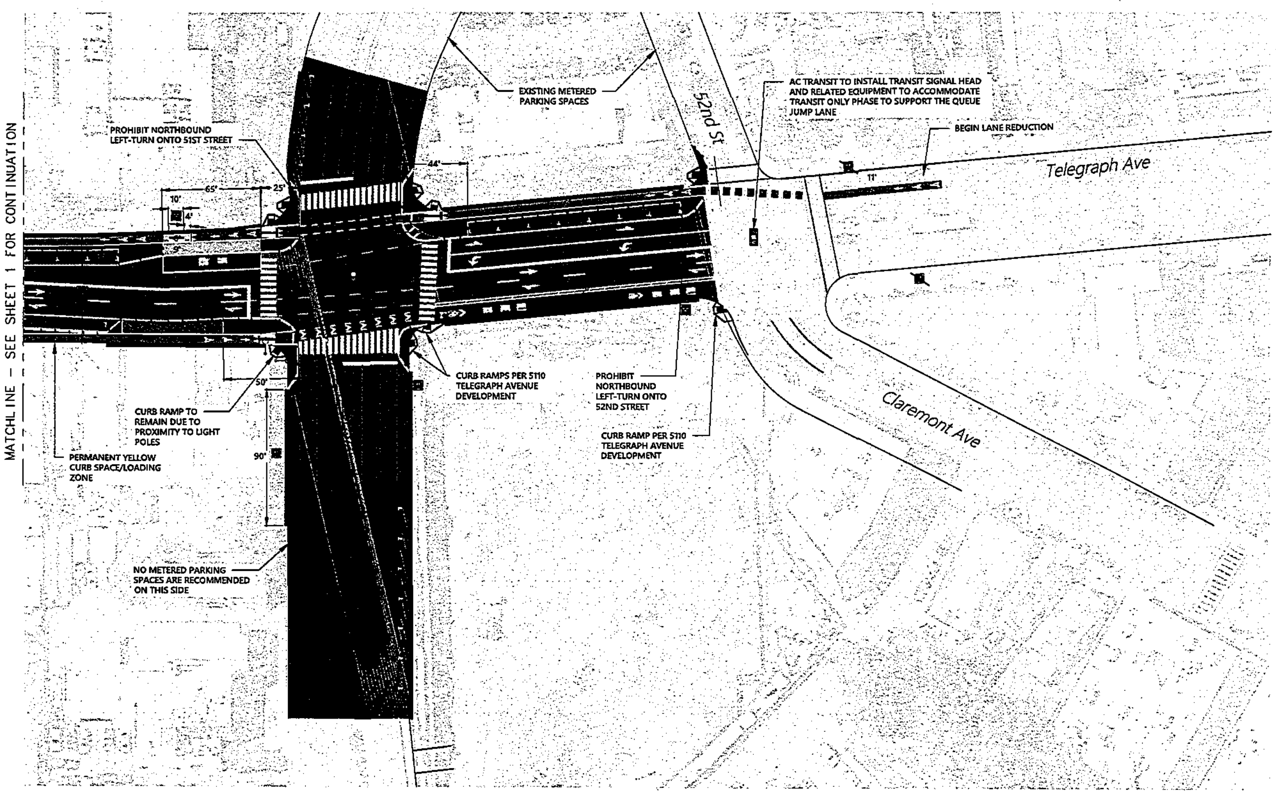

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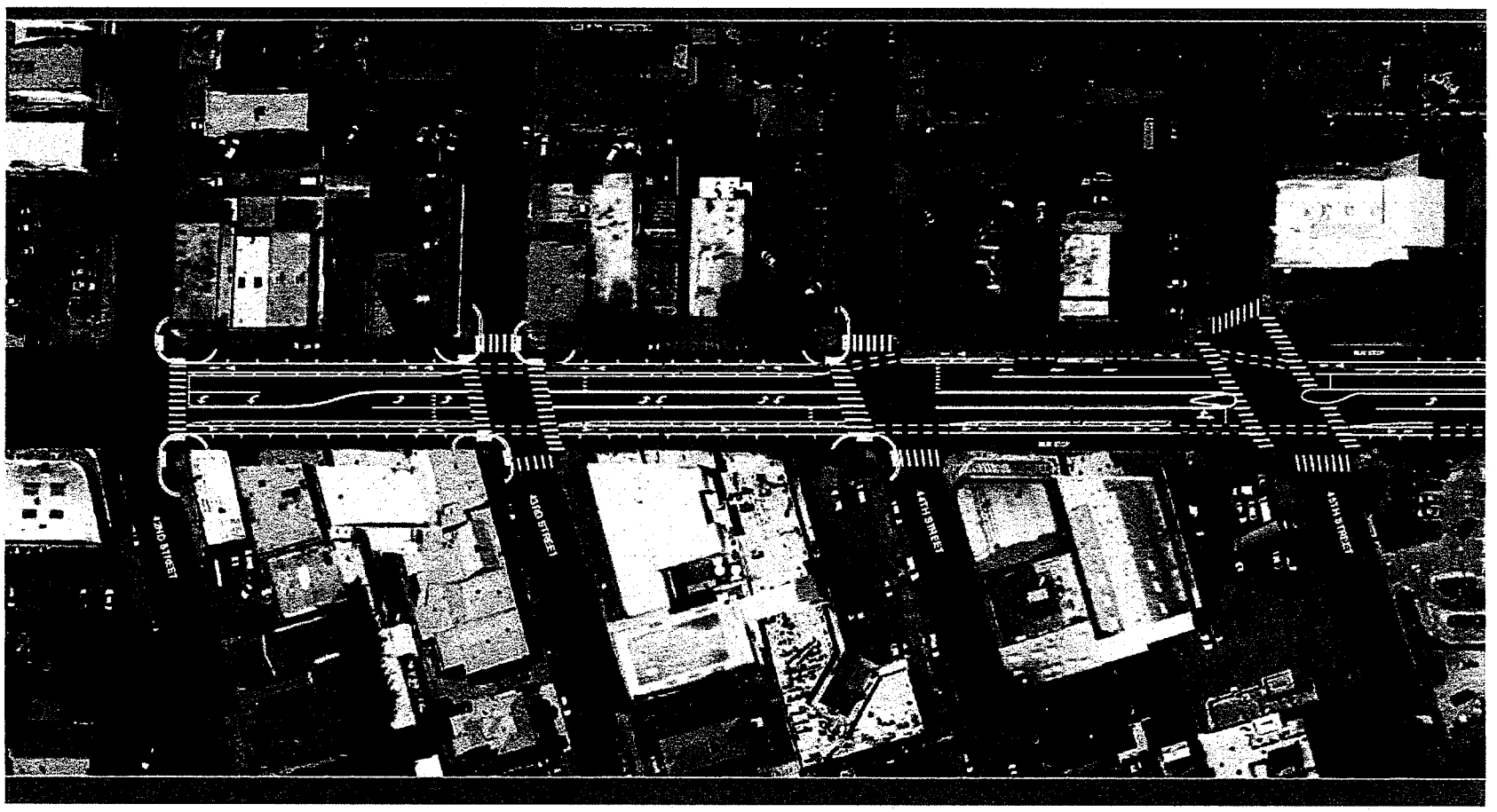
SCALE: AS SHOWN
DATE: JULY 13, 2018
SHEET NO. ___ OF X

Alternative Buffered Bike Lane Option



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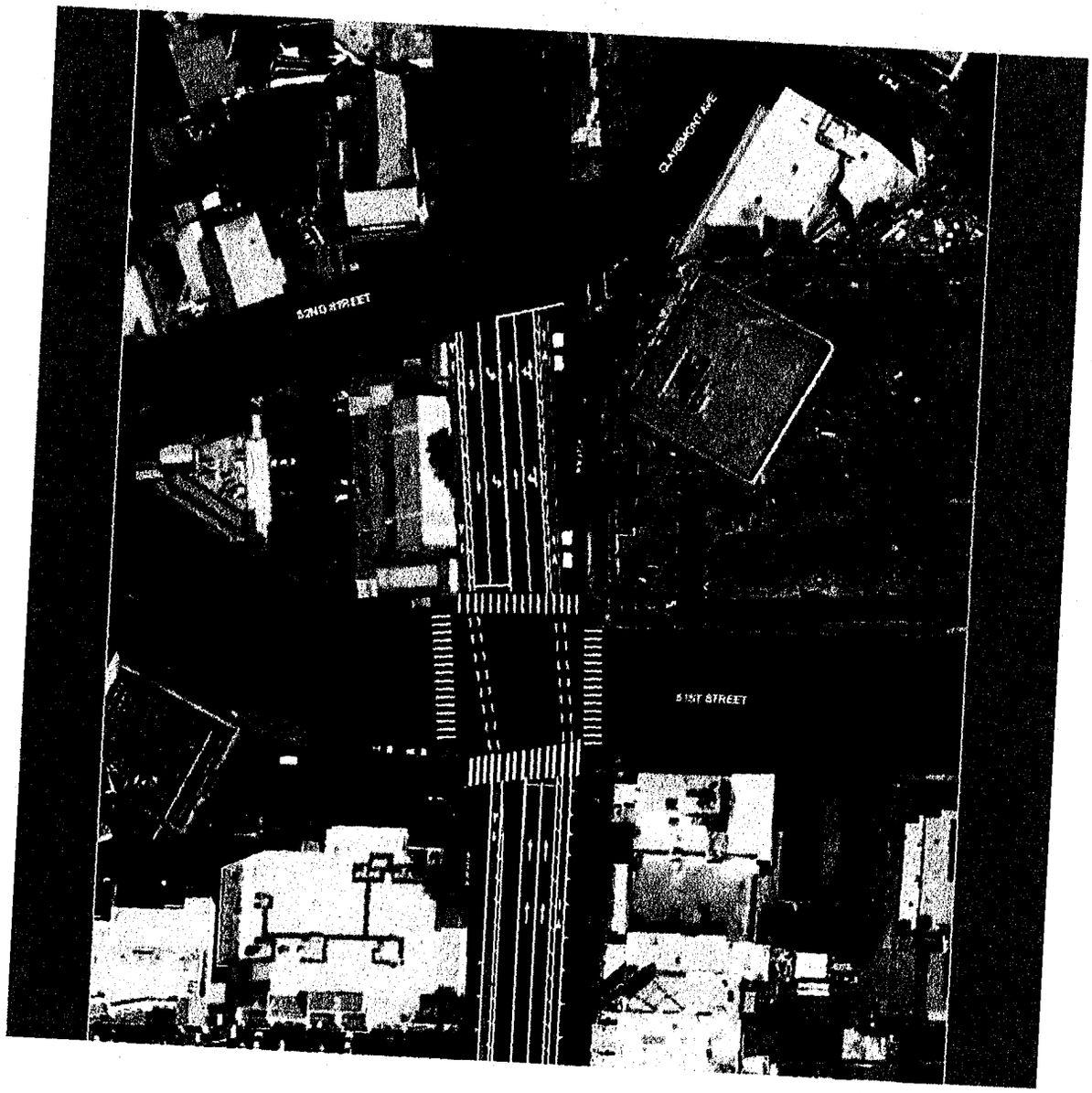

CLAREMONT AVE
52ND STREET
51ST STREET

Attachment C

Traffic Study

FEHR PEERS

MEMORANDUM

Date: July 12, 2018

To: Nicole Ferrara, OakDOT

From: Jordan Brooks and Rob Rees, Fehr & Peers

Subject: Telegraph Complete Streets in Temescal Intersection Operations

OK18-0203.02

This memorandum summarizes the results of the intersection operations analysis that Fehr & Peers completed for the Telegraph repaving project in the Temescal neighborhood of Oakland. The project proposes a separated bikeway and road diet along Telegraph to improve pedestrian and cyclist safety. The purpose of this memorandum is to summarize the effect of these changes on intersection operations at constraining signalized intersections in Temescal.

The intersection operations analysis shows that the level of service (LOS) during the weekday peak hour at the Telegraph Avenue/52nd Street-Claremont Avenue intersection would degrade from LOS B to LOS C, and the Shattuck Avenue/52nd Street-51st Street intersection would degrade from LOS C to LOS D. However, these changes do *not* degrade intersection operations to unacceptable conditions under City of Oakland thresholds.

DATA COLLECTION AND METHODOLOGY

Fehr & Peers retained a traffic count firm to conduct PM peak hour (4:00 PM to 6:00 PM) intersection count data for automobiles by turning movement at the following four locations:

1. Telegraph Avenue/Temescal Plaza
2. Telegraph Avenue/51st Street
3. Telegraph Avenue/52nd Street-Claremont Avenue
4. Shattuck Avenue/52nd Street-51st Street

Counts were collected on a clear day, while K-12 area schools were in session in May and June 2018. **Appendix A** presents the existing traffic volume counts. For each study intersection, the peak hour (i.e., the hour with the highest traffic volumes) for the PM peak period was selected for evaluation.

Off-peak volumes were estimated by reducing peak volumes by 20%. This reduction factor was obtained by comparing average hourly volumes between 11:00 AM to 3:00 PM to the evening peak hour using 24-hour counts collected on Telegraph Avenue in November 2017.

A SimTraffic simulation model was developed in order to analyze the study intersections as part of an interconnected roadway network and estimate queue lengths. Use of SimTraffic enables the inclusion of delay caused by queue spillbacks and yields a more accurate assessment of the vehicle interactions. This type of analysis is particularly important in the context of a corridor-wide road diet and protected bikeway installation, as these corridor-wide vehicle capacity reductions could potentially affect study intersection operations due to upstream or downstream bottlenecks. The entire Telegraph corridor from 20th Street to Aileen Street was therefore included in the SimTraffic simulation model.

Counts from 2013 were used for the Telegraph Avenue intersections outside the study area. At the three Telegraph Avenue intersections, the 2013 counts were 7% higher than the 2018 counts obtained for this study. To ensure consistency and present a conservative analysis, the results shown below use 2013 counts at all Telegraph Avenue intersections, including the study intersections.

EXISTING AND EXISTING PLUS PROJECT TRAFFIC CONDITIONS

Figure 1 presents Existing and Existing Plus Project intersection lane configurations, traffic control, and peak and off-peak traffic volumes at the study intersections. Based on the volumes and roadway configurations presented in Figure 1, Fehr & Peers calculated LOS[1] at the study intersections using 2010 *Highway Capacity Manual* (HCM) methodologies. As summarized in **Table**

[1] The operations of roadway facilities are typically described with the term level of service (LOS), a qualitative description of traffic flow based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels are defined from LOS A, which reflects free-flow conditions where there is very little interaction between vehicles, to LOS F, where the vehicle demand exceeds the capacity and high levels of vehicle delay result. LOS E represents "at-capacity" operations. When traffic volumes exceed the intersection capacity, stop-and-go conditions result, and a vehicle may wait through multiple signal cycles before passing through the intersection; these operations are designated as LOS F.

1, all study intersections currently operate at LOS C or better during weekday off-peak hours and at LOS D or better during the weekday PM peak hour.

The proposed project would repurpose travel lanes to create Class IV separated bikeways on Telegraph Avenue between 45th Street and 52nd Street. While not part of the study area, the Existing Plus Project simulation model includes implementing a similar road diet on Telegraph Avenue between 29th Street and 45th Street.

South of Temescal Plaza, one travel lane in each direction would be removed, resulting in a roadway configuration of two travel lanes and one center left turn lane. Between Temescal Plaza and 52nd Street, one southbound travel lane would be removed. The northbound left turn lane at the Telegraph Avenue/51st Street intersection would be removed, and vehicles seeking to make that left turn would be diverted to a left turn between 46th Street and 49th Street to connect with northbound Shattuck Avenue.

At the Telegraph Avenue/52nd Street-Claremont Avenue intersection, the southbound through-right lane would be converted to a right-turn only lane to begin the road diet. The westbound shared lane at the intersection would be converted to a through-right lane to remove the existing double-left movement from Claremont Avenue. Except for the diversion of left-turning vehicles from Telegraph Avenue to Shattuck Avenue, volumes would remain the same as exiting conditions due to no modification to the current land use.

Under Existing Plus Project conditions, all intersections are expected to operate at a similar LOS as existing conditions during off-peak hours. During the weekday PM peak hour, all intersections would continue to operate at acceptable LOS D or better. The Telegraph Avenue/52nd Street-Claremont Avenue intersection would degrade from LOS B to LOS C, and the Shattuck Avenue/52nd Street-51st Street intersection would degrade from LOS C to LOS D.

Appendix B provides detailed LOS calculation sheets.

TABLE 1: EXISTING AND EXISTING PLUS PROJECT INTERSECTION LEVELS OF SERVICE SUMMARY

Intersection	Control[1]	Time of Day	Existing		Existing Plus Project		Unacceptable LOS Change?[4]
			Delay[2,3]	LOS	Delay[2,3]	LOS	
1. Telegraph Avenue/Temescal Plaza	Signal	PM Peak	6	A	7	A	No
		Off-peak	6	A	6	A	
2. Telegraph Avenue/51st Street	Signal	PM Peak	45	D	39	D	No
		Off-peak	28	C	28	C	
3. Telegraph Avenue/52nd Street-Claremont Avenue	Signal	PM Peak	17	B	32	C	No
		Off-peak	13	B	15	B	
4. Shattuck Avenue/52nd Street-51st Street	Signal	PM Peak	32	C	36	D	No
		Off-peak	24	C	26	C	

Notes:
1. Signal = intersection is controlled by a traffic signal.
2. For signalized intersections, average intersection delay and LOS based on the 2010 HCM method is shown.
3. U-turns modeled as left turns due to minimal U-turn volumes.
4. Unacceptable LOS changes occur when an intersection deteriorates from LOS D operations or better to LOS E or F operations.

Source: Fehr & Peers, 2018.

Queuing

Queue lengths at all intersections were calculated in the SimTraffic model for Existing and Existing Plus Project conditions for both off-peak and the PM peak hour volumes. The results cannot be validated at this time given lower summer traffic volumes. Fehr & Peers can revisit and validate these estimates in October 2018 when local schools are back in normal session.

The differences in queue lengths between Existing and Existing Plus Project conditions were as expected, however. Queue lengths increased on the southbound approach of the Telegraph Avenue/52nd Street-Claremont Avenue intersection due to the reduction in travel lanes occurring at that intersection. Queues also increased in the southbound through lanes on Telegraph Avenue at 51st Street and Temescal Plaza due to the continuation of the road diet, though the increases were less than at 52nd Street-Claremont Avenue.

At the Shattuck Avenue/52nd Street-51st Street intersection, queue lengths for the northbound left-turn movement slightly increased in the Existing Plus Project condition due to increased left-turn volumes caused by vehicles diverted from the eliminated left turn at the Telegraph Avenue/51st Street intersection. Westbound through-right queues at the Shattuck Avenue/52nd Street-51st Street intersection were correspondingly smaller due to reduced volumes stemming from that diversion.

Appendix C provides detailed queue length results.

CONCLUSION

The proposed road diet on Telegraph Avenue would not degrade intersection LOS operations at any of the study intersections during off-peak hours. LOS degrades slightly during the peak hour, but the intersections continue to operate at acceptable levels based on City of Oakland thresholds. During the evening peak hour, the diversion of left-turning traffic to Shattuck Avenue slightly reduces average intersection delay at the Telegraph Avenue/51st Street intersection, though it increases the Shattuck Avenue/52nd Street-51st Street average intersection delay by a similar amount, resulting in a LOS degradation from LOS C to LOS D. The Telegraph Avenue/52nd Street-Claremont Avenue intersection degrades from LOS B to LOS C primarily due to increased delay in the southbound direction caused by the elimination of a travel lane.

The proposed road diet would increase southbound queue lengths on Telegraph Avenue, particularly where the road diet begins at 52nd Street-Claremont Avenue. However, these increases are to be expected from the reduction in travel lanes. The Shattuck Avenue/52nd Street-51st Street intersection would also experience a slight increase in northbound queues and slight reduction in westbound queues due to the proposed changes on Telegraph Avenue.

Please contact Rob with questions or comments.

ATTACHMENTS

Figure:

Figure 1	Existing and Existing Plus Project Intersection Lane Configurations, Traffic Control, and Peak and Off-Peak Traffic Volumes.

Appendices:

Appendix A	Traffic Counts
Appendix B	LOS Calculations
Appendix C	Queue Lengths

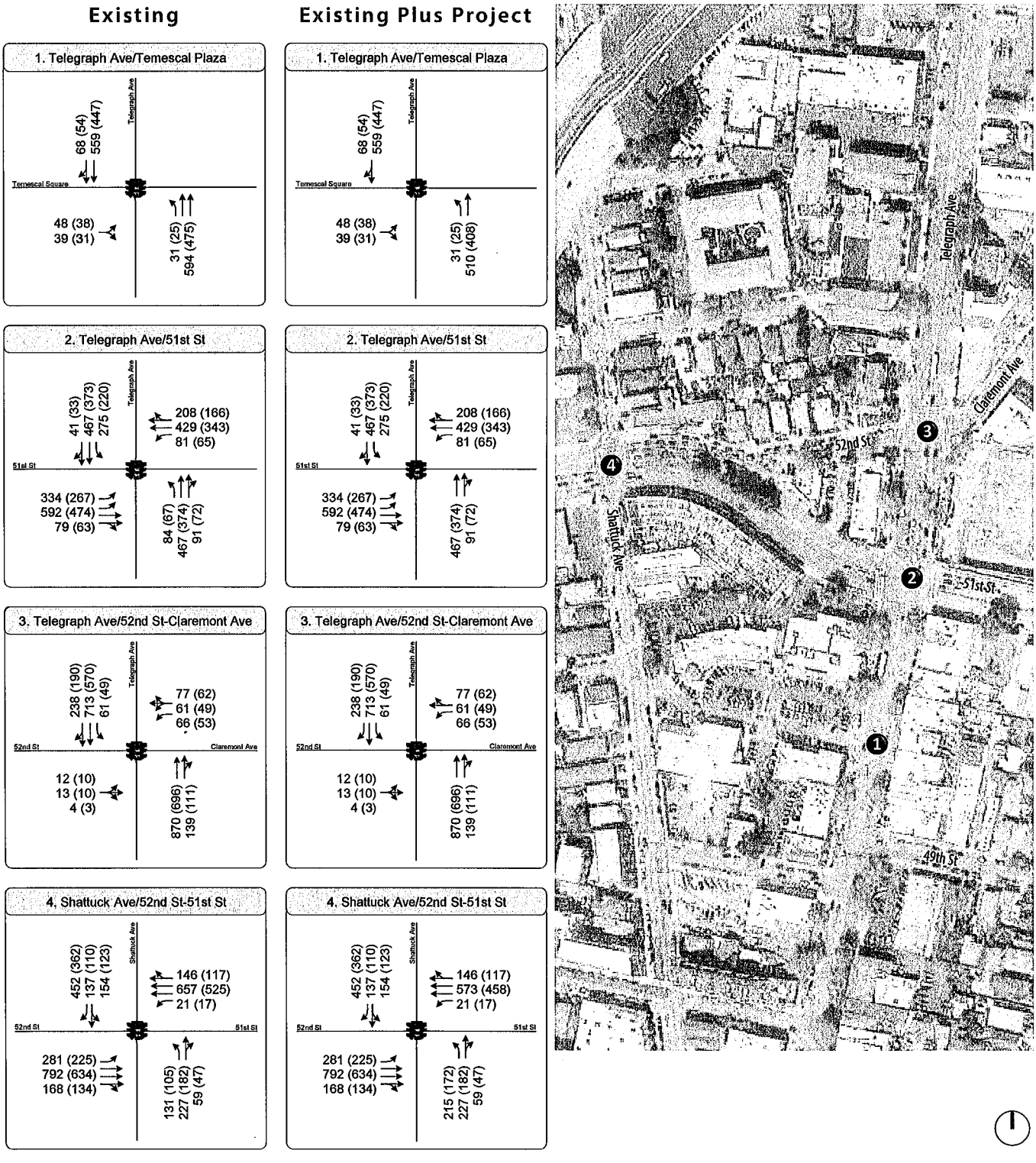


Figure 1

Existing and Existing Plus Project PM and Off-Peak Intersection Traffic Volumes, Lane Configurations and Traffic Controls

OK17-0203.02_1_Vol-Ex+ExPP

Appendix A

Traffic Counts

FEHR & PEERS

Unshifted Count = All Vehicles & Uturns

Ave ınd		Temescal Square Westbound					Telegraph Ave Northbound					Temescal Square Eastbound				
UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TC
0	79	0	0	0	0	0	7	40	0	0	47	4	0	1	0	5
0	98	0	0	0	0	0	8	60	0	0	68	4	0	6	0	1(
0	80	0	0	0	0	0	8	86	0	0	94	9	0	8	0	17
0	114	0	0	0	0	0	4	92	0	0	96	8	0	11	0	19
0	371	0	0	0	0	0	27	278	0	0	305	25	0	26	0	51
0	127	0	0	0	0	0	10	92	0	0	102	5	0	6	0	11
0	146	0	0	0	0	0	6	112	0	0	118	8	0	8	0	16
0	158	0	0	0	0	0	11	133	0	0	144	7	0	12	0	19
0	138	0	0	0	0	0	10	96	0	1	107	6	0	4	0	1(
0	569	0	0	0	0	0	37	433	0	1	471	26	0	30	0	56
0	169	0	0	0	0	0	8	171	0	0	179	14	0	9	0	23
0	143	0	0	0	0	0	7	158	0	0	165	9	0	8	0	17
0	127	0	0	0	0	0	7	149	0	0	156	13	0	11	0	24
0	161	0	0	0	0	0	11	149	0	0	160	9	0	10	0	19
0	600	0	0	0	0	0	33	627	0	0	660	45	0	38	0	83
0	136	0	0	0	0	0	11	159	0	1	171	4	0	10	0	14
0	175	0	0	0	0	0	7	138	0	1	146	8	0	10	0	18
1	159	0	0	0	0	0	6	171	0	0	177	6	0	12	0	18
0	168	0	0	0	0	0	13	150	0	0	163	11	0	8	0	19
1	638	0	0	0	0	0	37	618	0	2	657	29	0	40	0	69
1	2178	0	0	0	0	0	134	1956	0	3	2093	125	0	134	0	25
0.0%		0.0%	0.0%	0.0%	0.0%		6.4%	93.5%	0.0%	0.1%		48.3%	0.0%	51.7%	0.0%	
0.0%	48.1%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%	43.2%	0.0%	0.1%	46.2%	2.8%	0.0%	3.0%	0.0%	5.7

Ave ınd		Temescal Square Westbound					Telegraph Ave Northbound					Temescal Square Eastbound				
UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TC
)8:00																
0	127	0	0	0	0	0	10	92	0	0	102	5	0	6	0	11
0	146	0	0	0	0	0	6	112	0	0	118	8	0	8	0	16
0	158	0	0	0	0	0	11	133	0	0	144	7	0	12	0	19
0	138	0	0	0	0	0	10	96	0	1	107	6	0	4	0	1(
0	569	0	0	0	0	0	37	433	0	1	471	26	0	30	0	56
0.0%		0.0%	0.0%	0.0%	0.0%		7.9%	91.9%	0.0%	0.2%		46.4%	0.0%	53.6%	0.0%	
.000	.900	.000	.000	.000	.000	.000	.841	.814	.000	.250	.818	.813	.000	.625	.000	.73

Ave ınd		Temescal Square Westbound					Telegraph Ave Northbound					Temescal Square Eastbound				
UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TC
17:00																
0	136	0	0	0	0	0	11	159	0	1	171	4	0	10	0	14
0	175	0	0	0	0	0	7	138	0	1	146	8	0	10	0	18

Unshifted Count = All Vehicles & Uturns

Ave ınd		51st St Westbound					Telegraph Ave Northbound					51st St Eastbound				
UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TC
0	71	8	36	10	0	54	4	34	2	0	40	27	50	14	0	91
0	97	12	51	20	0	83	7	57	3	0	67	50	54	6	0	11
0	82	8	63	20	0	91	14	74	10	0	98	30	70	14	0	11
0	115	7	90	43	0	140	14	68	14	0	96	58	107	14	0	17
0	365	35	240	93	0	368	39	233	29	0	301	165	281	48	0	49
0	131	10	104	33	0	147	15	80	8	0	103	51	139	17	0	20
0	167	12	125	47	0	184	21	86	7	0	114	54	112	16	0	18
0	171	12	117	49	0	178	17	107	7	0	131	47	113	20	0	18
0	141	20	98	54	0	172	16	88	10	0	114	53	115	17	1	18
0	610	54	444	183	0	681	69	361	32	0	462	205	479	70	1	75
0	182	26	96	44	0	166	22	129	29	0	180	77	148	20	0	24
0	169	12	95	48	0	155	17	131	33	0	181	73	140	21	0	23
0	160	10	91	42	1	144	12	113	24	0	149	79	116	20	1	21
0	178	20	104	35	0	159	21	124	27	0	172	59	138	21	2	22
0	689	68	386	169	1	624	72	497	113	0	682	288	542	82	3	91
0	149	14	101	47	0	162	19	102	30	0	151	41	139	24	0	20
0	208	26	89	47	0	162	21	109	27	0	157	53	148	11	1	21
0	197	14	112	47	0	173	16	130	21	0	167	57	155	19	2	23
0	194	20	88	54	0	162	21	118	24	0	163	63	159	18	1	24
0	748	74	390	195	0	659	77	459	102	0	638	214	601	72	4	89
0	2412	231	1460	640	1	2332	257	1550	276	0	2083	872	1903	272	8	305
0.0%		9.9%	62.6%	27.4%	0.0%		12.3%	74.4%	13.3%	0.0%		28.5%	62.3%	8.9%	0.3%	
0.0%	24.4%	2.3%	14.8%	6.5%	0.0%	23.6%	2.6%	15.7%	2.8%	0.0%	21.1%	8.8%	19.3%	2.8%	0.1%	30.9

Ave ınd		51st St Westbound					Telegraph Ave Northbound					51st St Eastbound				
UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TC
08:00																
0	131	10	104	33	0	147	15	80	8	0	103	51	139	17	0	20
0	167	12	125	47	0	184	21	86	7	0	114	54	112	16	0	18
0	171	12	117	49	0	178	17	107	7	0	131	47	113	20	0	18
0	141	20	98	54	0	172	16	88	10	0	114	53	115	17	1	18
0	610	54	444	183	0	681	69	361	32	0	462	205	479	70	1	75
0.0%		7.9%	65.2%	26.9%	0.0%		14.9%	78.1%	6.9%	0.0%		27.2%	63.4%	9.3%	0.1%	
.000	.892	.675	.888	.847	.000	.925	.821	.843	.800	.000	.882	.949	.862	.875	.250	.91

Ave ınd		51st St Westbound					Telegraph Ave Northbound					51st St Eastbound				
UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TC
17:00																
0	149	14	101	47	0	162	19	102	30	0	151	41	139	24	0	20
0	208	26	89	47	0	162	21	109	27	0	157	53	148	11	1	21

Unshifted Count = All Vehicles & Uturns

Ave ınd		52nd St Westbound					Telegraph Ave Northbound					52nd St Eastbound				
UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TC
0	105	7	7	12	0	26	0	61	10	0	71	0	0	0	0	0
0	129	14	11	21	0	46	0	99	20	0	119	0	0	0	0	0
0	132	11	8	28	0	47	0	98	28	0	126	1	0	1	0	2
0	183	16	12	24	0	52	0	150	27	0	177	0	0	0	0	0
0	549	48	38	85	0	171	0	408	85	0	493	1	0	1	0	2
0	201	14	19	31	0	64	0	142	27	0	169	0	0	0	0	0
0	219	22	22	31	0	75	0	157	28	0	185	2	0	2	0	4
0	223	28	21	31	0	80	0	171	37	0	208	0	1	1	0	2
0	215	22	20	30	0	72	1	150	37	0	188	2	1	0	0	3
0	858	86	82	123	0	291	1	620	129	0	750	4	2	3	0	9
0	246	19	14	27	0	60	2	196	54	0	252	1	2	5	0	8
0	225	22	21	14	0	57	2	194	57	0	253	2	2	2	0	6
0	223	17	17	34	0	68	0	175	53	0	228	5	2	4	0	11
0	213	24	23	29	0	76	1	179	41	0	221	0	0	3	0	3
0	907	82	75	104	0	261	5	744	205	0	954	8	6	14	0	28
0	214	23	32	31	0	86	1	159	33	0	193	2	1	0	0	3
0	248	29	25	43	0	97	1	157	46	0	204	3	1	4	0	8
0	241	31	38	44	0	113	1	195	36	0	232	3	0	10	0	13
0	239	30	22	23	0	75	0	192	45	0	237	3	2	8	0	13
0	942	113	117	141	0	371	3	703	160	0	866	11	4	22	0	37
0	3256	329	312	453	0	1094	9	2475	579	0	3063	24	12	40	0	76
0.0%		30.1%	28.5%	41.4%	0.0%		0.3%	80.8%	18.9%	0.0%		31.6%	15.8%	52.6%	0.0%	
0.0%	43.5%	4.4%	4.2%	6.0%	0.0%	14.6%	0.1%	33.0%	7.7%	0.0%	40.9%	0.3%	0.2%	0.5%	0.0%	1.0

Ave ınd		52nd St Westbound					Telegraph Ave Northbound					52nd St Eastbound				
UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TC
08:00																
0	201	14	19	31	0	64	0	142	27	0	169	0	0	0	0	0
0	219	22	22	31	0	75	0	157	28	0	185	2	0	2	0	4
0	223	28	21	31	0	80	0	171	37	0	208	0	1	1	0	2
0	215	22	20	30	0	72	1	150	37	0	188	2	1	0	0	3
0	858	86	82	123	0	291	1	620	129	0	750	4	2	3	0	9
0.0%		29.6%	28.2%	42.3%	0.0%		0.1%	82.7%	17.2%	0.0%		44.4%	22.2%	33.3%	0.0%	
.000	.962	.768	.932	.992	.000	.909	.250	.906	.872	.000	.901	.500	.500	.375	.000	.56

Ave ınd		52nd St Westbound					Telegraph Ave Northbound					52nd St Eastbound				
UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TC
17:00																
0	214	23	32	31	0	86	1	159	33	0	193	2	1	0	0	3
0	248	29	25	43	0	97	1	157	46	0	204	3	1	4	0	8

Unshifted Count = All Vehicles & Uturns

Ave and		52nd St Westbound					Shattuck Ave Northbound					52nd St Eastbound				
UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TO
0	114	3	93	10	1	107	21	14	2	0	37	51	78	28	7	16
0	107	1	93	11	1	106	32	19	5	0	56	48	111	44	3	20
0	149	2	119	19	0	140	22	28	3	0	53	57	101	39	7	20
0	163	4	182	13	0	199	30	29	4	0	63	80	131	42	10	26
0	533	10	487	53	2	552	105	90	14	0	209	236	421	153	27	83
0	171	5	135	20	2	162	31	34	9	0	74	70	143	44	7	26
0	194	6	158	27	2	193	35	29	7	0	71	46	157	19	10	23
0	180	9	171	23	2	205	29	41	5	0	75	50	148	36	3	23
0	182	6	180	34	0	220	32	29	8	0	69	53	165	33	7	25
0	727	26	644	104	6	780	127	133	29	0	289	219	613	132	27	99
0	207	5	137	30	0	172	35	47	17	0	99	66	198	49	9	32
0	191	2	167	33	0	202	30	49	11	0	90	57	203	48	10	31
0	167	9	161	38	2	210	32	62	20	0	114	60	183	44	9	29
0	178	3	158	45	0	206	34	69	11	0	114	60	208	27	10	30
0	743	19	623	146	2	790	131	227	59	0	417	243	792	168	38	124
0	183	6	179	50	0	235	26	70	13	0	109	45	171	28	5	24
0	182	11	143	46	3	203	35	72	14	0	121	73	184	28	9	29
0	182	14	129	37	0	180	35	65	9	0	109	80	190	36	6	31
0	186	9	125	46	2	182	21	61	8	0	90	84	198	40	11	33
0	733	40	576	179	5	800	117	268	44	0	429	282	743	132	31	118
0	2736	95	2330	482	15	2922	480	718	146	0	1344	980	2569	585	123	425
0.0%		3.3%	79.7%	16.5%	0.5%		35.7%	53.4%	10.9%	0.0%		23.0%	60.3%	13.7%	2.9%	
0.0%	24.3%	0.8%	20.7%	4.3%	0.1%	26.0%	4.3%	6.4%	1.3%	0.0%	11.9%	8.7%	22.8%	5.2%	1.1%	37.8

Ave and		52nd St Westbound					Shattuck Ave Northbound					52nd St Eastbound				
UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TO
08:00																
0	171	5	135	20	2	162	31	34	9	0	74	70	143	44	7	26
0	194	6	158	27	2	193	35	29	7	0	71	46	157	19	10	23
0	180	9	171	23	2	205	29	41	5	0	75	50	148	36	3	23
0	182	6	180	34	0	220	32	29	8	0	69	53	165	33	7	25
0	727	26	644	104	6	780	127	133	29	0	289	219	613	132	27	99
0.0%		3.3%	82.6%	13.3%	0.8%		43.9%	46.0%	10.0%	0.0%		22.1%	61.9%	13.3%	2.7%	
.000	.937	.722	.894	.765	.750	.886	.907	.811	.806	.000	.963	.782	.929	.750	.675	.93

Ave and		52nd St Westbound					Shattuck Ave Northbound					52nd St Eastbound				
UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TO
16:00																
0	207	5	137	30	0	172	35	47	17	0	99	66	198	49	9	32
0	191	2	167	33	0	202	30	49	11	0	90	57	203	48	10	31

Appendix B

LOS Calculations

FEHR & PEERS

SimTraffic Post-Processor **Telegraph in Temescal**
Average Results from 10 Runs **Existing**
Volume and Delay by Movement **Off-peak**

Intersection 1 **Telegraph Ave/Temescal Plaza** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	25	24	97.6%	7.8	3.7	A
	Through	475	467	98.4%	4.3	1.0	A
	Right Turn						
	Subtotal	500	492	98.3%	4.5	1.0	A
SB	Left Turn						
	Through	447	448	100.2%	3.4	0.9	A
	Right Turn	54	55	101.9%	2.3	0.8	A
	Subtotal	501	503	100.4%	3.3	0.8	A
EB	Left Turn	38	39	101.3%	40.7	11.6	D
	Through						
	Right Turn	31	34	109.0%	15.3	7.6	B
	Subtotal	69	72	104.8%	27.1	6.1	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,070	1,067	99.7%	5.5	1.1	A

Intersection 2 **Telegraph Ave/51st St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	67	67	99.6%	52.2	13.4	D
	Through	374	367	98.2%	27.5	4.0	C
	Right Turn	72	71	98.1%	23.2	5.9	C
	Subtotal	513	505	98.4%	30.6	3.8	C
SB	Left Turn	220	221	100.4%	39.3	6.5	D
	Through	373	377	101.0%	11.6	2.4	B
	Right Turn	33	28	83.9%	7.7	3.2	A
	Subtotal	626	625	99.9%	21.7	3.1	C
EB	Left Turn	267	265	99.1%	30.7	4.3	C
	Through	474	476	100.3%	25.6	1.6	C
	Right Turn	63	62	97.9%	22.4	2.7	C
	Subtotal	804	802	99.7%	27.1	1.9	C
WB	Left Turn	65	64	97.8%	43.3	4.1	D
	Through	343	338	98.5%	36.0	3.7	D
	Right Turn	166	165	99.2%	32.1	8.2	C
	Subtotal	574	566	98.6%	35.6	4.2	D
Total		2,517	2,498	99.2%	28.4	1.6	C

SimTraffic Post-Processor **Telegraph in Temescal**
Average Results from 10 Runs **Existing**
Volume and Delay by Movement **Off-peak**

Intersection 3 **Telegraph Ave/52nd St-Claremont Ave** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	696	687	98.7%	12.2	2.0	B
	Right Turn	111	108	97.2%	11.1	2.6	B
	Subtotal	807	795	98.5%	12.0	1.8	B
SB	Left Turn	49	47	96.7%	51.0	9.7	D
	Through	570	574	100.6%	7.6	1.5	A
	Right Turn	190	190	99.9%	5.2	1.0	A
	Subtotal	809	811	100.2%	9.6	0.8	A
EB	Left Turn	10	10	100.0%	33.0	17.3	C
	Through	10	10	95.0%	44.5	19.7	D
	Right Turn	3	3	110.0%	10.4	13.8	B
	Subtotal	23	23	99.1%	37.2	6.6	D
WB	Left Turn	53	50	93.6%	37.8	6.9	D
	Through	49	49	100.0%	40.1	11.2	D
	Right Turn	62	65	104.4%	20.1	5.1	C
	Subtotal	164	163	99.6%	31.9	5.1	C
Total		1,803	1,792	99.4%	13.2	1.0	B

Intersection 4 **Shattuck Ave/52nd St-51st St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	105	108	102.9%	18.4	3.0	B
	Through	182	182	99.9%	19.8	4.3	B
	Right Turn	47	48	102.6%	13.5	4.0	B
	Subtotal	334	338	101.2%	18.4	3.1	B
SB	Left Turn	123	126	102.4%	34.3	5.4	C
	Through	110	104	94.9%	31.8	6.7	C
	Right Turn	362	359	99.2%	9.8	2.8	A
	Subtotal	595	590	99.1%	19.0	2.9	B
EB	Left Turn	225	222	98.5%	39.3	3.9	D
	Through	634	627	98.9%	17.0	1.3	B
	Right Turn	134	134	99.7%	7.9	1.2	A
	Subtotal	993	982	98.9%	20.8	1.4	C
WB	Left Turn	17	16	95.9%	48.1	10.5	D
	Through	525	513	97.8%	37.7	2.9	D
	Right Turn	117	120	102.6%	31.2	4.1	C
	Subtotal	659	650	98.6%	36.8	2.7	D
Total		2,581	2,560	99.2%	24.3	1.3	C

SimTraffic Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Telegraph in Temescal
Plus Project
Off-Peak

Intersection 1 **Telegraph Ave/Temescal Plaza** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	25	26	102.8%	9.9	4.2	A
	Through	408	399	97.8%	5.3	1.4	A
	Right Turn						
	Subtotal	433	425	98.1%	5.5	1.4	A
SB	Left Turn						
	Through	447	461	103.1%	4.4	0.9	A
	Right Turn	54	54	99.1%	2.3	1.2	A
	Subtotal	501	515	102.7%	4.2	0.9	A
EB	Left Turn	38	34	90.3%	37.1	6.4	D
	Through						
	Right Turn	31	30	95.5%	13.1	4.4	B
	Subtotal	69	64	92.6%	27.2	4.9	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,003	1,003	100.0%	6.2	0.7	A

Intersection 2 **Telegraph Ave/51st St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	374	364	97.3%	29.0	2.8	C
	Right Turn	72	70	97.1%	24.1	4.3	C
	Subtotal	446	434	97.3%	28.2	2.8	C
SB	Left Turn	220	222	101.0%	47.7	7.4	D
	Through	373	383	102.8%	9.8	1.4	A
	Right Turn	33	34	103.6%	6.1	3.5	A
	Subtotal	626	640	102.2%	23.1	3.6	C
EB	Left Turn	267	265	99.4%	29.7	5.5	C
	Through	474	480	101.2%	24.6	1.6	C
	Right Turn	63	62	98.4%	22.8	3.6	C
	Subtotal	804	807	100.4%	26.3	1.9	C
WB	Left Turn	65	68	104.5%	41.4	7.3	D
	Through	343	343	99.9%	34.2	4.2	C
	Right Turn	166	165	99.4%	28.4	6.7	C
	Subtotal	574	576	100.3%	33.3	3.5	C
Total		2,450	2,456	100.3%	27.5	1.7	C

Intersection 3 **Telegraph Ave/52nd St-Claremont Ave** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	696	687	98.7%	12.0	1.7	B
	Right Turn	111	107	96.4%	10.9	1.5	B
	Subtotal	807	794	98.4%	11.9	1.6	B
SB	Left Turn	49	50	102.4%	52.6	7.5	D
	Through	570	575	100.8%	14.0	6.6	B
	Right Turn	190	193	101.6%	3.5	1.5	A
	Subtotal	809	818	101.1%	13.8	5.2	B
EB	Left Turn	10	9	93.0%	45.2	10.3	D
	Through	10	10	98.0%	40.4	27.5	D
	Right Turn	3	4	126.7%	13.5	18.9	B
	Subtotal	23	23	99.6%	43.1	12.7	D
WB	Left Turn	53	60	113.8%	37.1	10.9	D
	Through	49	52	105.5%	36.9	7.4	D
	Right Turn	62	65	104.2%	18.8	6.0	B
	Subtotal	164	177	107.7%	30.5	6.2	C
Total		1,803	1,811	100.5%	15.0	2.6	B

Intersection 4 **Shattuck Ave/52nd St-51st St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	172	169	98.2%	23.4	2.8	C
	Through	182	182	100.0%	18.9	2.8	B
	Right Turn	47	52	110.4%	14.0	4.2	B
	Subtotal	401	403	100.4%	20.2	2.4	C
SB	Left Turn	123	125	101.5%	34.6	4.8	C
	Through	110	108	98.4%	37.4	7.6	D
	Right Turn	362	373	102.9%	11.1	2.2	B
	Subtotal	595	606	101.8%	20.8	3.0	C
EB	Left Turn	225	227	100.8%	40.8	3.2	D
	Through	634	632	99.7%	18.1	1.8	B
	Right Turn	134	134	100.0%	11.1	2.5	B
	Subtotal	993	993	100.0%	22.6	1.4	C
WB	Left Turn	17	17	100.0%	40.3	18.5	D
	Through	458	466	101.7%	42.4	3.7	D
	Right Turn	117	114	97.3%	36.2	6.2	D
	Subtotal	592	597	100.8%	41.3	4.0	D
Total		2,581	2,598	100.7%	26.1	1.5	C

SimTraffic Post-Processor **Telegraph in Temescal**
Average Results from 10 Runs **Existing**
Volume and Delay by Movement **PM Peak Hour**

Intersection 1 **Telegraph Ave/Temescal Plaza** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	31	29	93.5%	7.7	3.6	A
	Through	594	591	99.6%	5.2	2.1	A
	Right Turn						
	Subtotal	625	620	99.3%	5.3	2.1	A
SB	Left Turn						
	Through	559	560	100.1%	3.7	0.7	A
	Right Turn	68	69	101.5%	2.7	0.9	A
	Subtotal	627	629	100.3%	3.5	0.7	A
EB	Left Turn	48	52	107.3%	37.8	6.2	D
	Through						
	Right Turn	39	39	101.0%	20.6	9.4	C
	Subtotal	87	91	104.5%	30.9	7.3	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,339	1,340	100.1%	6.3	1.2	A

Intersection 2 **Telegraph Ave/51st St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	84	79	93.9%	74.4	37.3	E
	Through	467	472	101.0%	33.5	2.3	C
	Right Turn	91	91	100.1%	32.3	5.9	C
	Subtotal	642	642	99.9%	39.1	7.3	D
SB	Left Turn	275	268	97.3%	55.3	14.3	E
	Through	467	474	101.6%	14.2	1.3	B
	Right Turn	41	39	96.1%	9.8	4.3	A
	Subtotal	783	781	99.8%	28.2	5.8	C
EB	Left Turn	334	325	97.3%	46.6	19.1	D
	Through	592	601	101.5%	27.2	2.7	C
	Right Turn	79	76	95.6%	24.9	4.2	C
	Subtotal	1,005	1,001	99.6%	33.4	7.1	C
WB	Left Turn	81	79	97.8%	63.7	21.9	E
	Through	429	427	99.5%	75.3	28.0	E
	Right Turn	208	207	99.4%	113.2	41.1	F
	Subtotal	718	713	99.3%	85.0	29.4	F
Total		3,148	3,137	99.6%	45.2	8.2	D

Intersection 3 **Telegraph Ave/52nd St-Claremont Ave** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	870	867	99.7%	15.5	2.1	B
	Right Turn	139	137	98.3%	15.0	2.6	B
	Subtotal	1,009	1,004	99.5%	15.4	2.0	B
SB	Left Turn	61	61	99.3%	54.1	4.4	D
	Through	713	715	100.3%	15.9	8.9	B
	Right Turn	238	241	101.2%	9.1	1.8	A
	Subtotal	1,012	1,017	100.4%	16.3	6.6	B
EB	Left Turn	12	11	88.3%	29.5	17.9	C
	Through	13	15	117.7%	34.9	9.6	C
	Right Turn	4	4	107.5%	5.4	9.0	A
	Subtotal	29	30	104.1%	32.3	8.4	C
WB	Left Turn	66	64	96.5%	32.6	10.2	C
	Through	61	59	96.1%	39.5	4.4	D
	Right Turn	77	82	106.0%	20.7	4.6	C
	Subtotal	204	204	100.0%	30.7	2.8	C
Total		2,254	2,254	100.0%	17.4	3.0	B

Intersection 4 **Shattuck Ave/52nd St-51st St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	131	134	102.4%	23.0	4.3	C
	Through	227	230	101.4%	22.2	2.3	C
	Right Turn	59	61	103.1%	20.6	8.0	C
	Subtotal	417	425	102.0%	22.2	2.6	C
SB	Left Turn	154	157	102.0%	54.6	16.9	D
	Through	137	135	98.5%	57.2	14.5	E
	Right Turn	452	443	98.0%	26.8	15.2	C
	Subtotal	743	735	98.9%	38.4	14.9	D
EB	Left Turn	281	274	97.5%	42.9	6.2	D
	Through	792	781	98.6%	18.7	1.7	B
	Right Turn	168	171	101.6%	13.7	3.2	B
	Subtotal	1,241	1,225	98.7%	23.5	2.1	C
WB	Left Turn	21	21	98.1%	52.0	16.6	D
	Through	657	653	99.3%	43.5	5.1	D
	Right Turn	146	147	100.4%	38.6	9.2	D
	Subtotal	824	820	99.5%	42.8	5.9	D
Total		3,225	3,205	99.4%	31.8	3.5	C

SimTraffic Post-Processor | **Telegraph in Temescal**
Average Results from 10 Runs | **Plus Project**
Volume and Delay by Movement | **PM Peak Hour**

Intersection 1 **Telegraph Ave/Temescal Plaza** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	31	28	89.7%	10.4	5.5	B
	Through	510	492	96.5%	4.7	1.2	A
	Right Turn						
	Subtotal	541	520	96.1%	4.9	1.2	A
SB	Left Turn						
	Through	559	554	99.1%	6.2	3.4	A
	Right Turn	68	69	101.5%	3.9	1.9	A
	Subtotal	627	623	99.4%	5.9	3.2	A
EB	Left Turn	48	52	107.3%	35.8	7.4	D
	Through						
	Right Turn	39	41	104.1%	19.6	10.2	B
	Subtotal	87	92	105.9%	27.8	7.7	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,255	1,235	98.4%	7.2	1.9	A

Intersection 2 **Telegraph Ave/51st St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	467	452	96.9%	35.4	2.8	D
	Right Turn	91	89	97.9%	34.6	6.8	C
	Subtotal	558	541	97.0%	35.3	3.1	D
SB	Left Turn	275	274	99.6%	51.7	3.7	D
	Through	467	460	98.5%	12.6	1.9	B
	Right Turn	41	39	95.6%	8.0	3.6	A
	Subtotal	783	773	98.7%	26.8	2.7	C
EB	Left Turn	334	333	99.7%	42.2	6.7	D
	Through	592	601	101.5%	25.9	2.0	C
	Right Turn	79	85	107.1%	24.9	2.6	C
	Subtotal	1,005	1,019	101.4%	31.2	3.0	C
WB	Left Turn	81	79	97.2%	44.6	11.0	D
	Through	429	430	100.2%	60.2	22.9	E
	Right Turn	208	209	100.3%	82.1	23.8	F
	Subtotal	718	717	99.9%	65.4	21.1	E
Total		3,064	3,050	99.6%	39.0	5.4	D

Intersection 3 **Telegraph Ave/52nd St-Claremont Ave** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	870	851	97.8%	16.0	1.4	B
	Right Turn	139	141	101.1%	15.0	3.5	B
	Subtotal	1,009	992	98.3%	15.8	1.6	B
SB	Left Turn	61	59	97.4%	90.1	37.1	F
	Through	713	705	98.9%	54.7	33.7	D
	Right Turn	238	235	98.8%	19.8	17.5	B
	Subtotal	1,012	1,000	98.8%	49.1	31.0	D
EB	Left Turn	12	11	95.0%	43.0	13.3	D
	Through	13	15	111.5%	32.5	18.3	C
	Right Turn	4	5	115.0%	16.4	16.6	B
	Subtotal	29	31	105.2%	36.4	10.5	D
WB	Left Turn	66	65	98.2%	37.3	10.7	D
	Through	61	57	93.8%	35.5	7.0	D
	Right Turn	77	74	96.2%	21.0	7.4	C
	Subtotal	204	196	96.1%	30.1	6.9	C
Total		2,254	2,218	98.4%	32.4	14.4	C

Intersection 4 **Shattuck Ave/52nd St-51st St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	215	217	100.8%	29.7	9.8	C
	Through	227	219	96.6%	24.7	6.7	C
	Right Turn	59	64	108.1%	20.2	7.5	C
	Subtotal	501	500	99.7%	26.5	7.9	C
SB	Left Turn	154	155	100.8%	67.6	46.9	E
	Through	137	128	93.6%	69.8	50.4	E
	Right Turn	452	447	99.0%	42.1	44.9	D
	Subtotal	743	731	98.3%	52.2	46.1	D
EB	Left Turn	281	276	98.0%	40.5	7.1	D
	Through	792	800	101.0%	18.6	2.0	B
	Right Turn	168	169	100.8%	11.8	2.6	B
	Subtotal	1,241	1,245	100.3%	22.7	2.2	C
WB	Left Turn	21	22	102.4%	54.9	14.8	D
	Through	573	564	98.4%	46.0	7.4	D
	Right Turn	146	148	101.5%	42.9	7.7	D
	Subtotal	740	734	99.2%	45.6	7.1	D
Total		3,225	3,209	99.5%	35.6	12.2	D

Appendix C

Queue Lengths

FEHR & PEERS

Direction	Lane Group	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	60	7	100	14	140	28	0%	0%
NB	Left Turn	20	3	60	6	60	18	1%	0%
	Through	60	9	140	13	160	11	3%	1%
SB	Through	40	5	80	9	100	11	0%	0%
	Through/Right	40	5	80	10	100	30	0%	0%

Intersection 2 **Telegraph Ave/51st St** **Signal**

Direction	Lane Group	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	120	15	200	33	240	57	2%	0%
	Through	160	7	240	6	260	12	0%	0%
	Through/Right	180	5	260	9	280	19	0%	0%
NB	Left Turn	60	6	120	11	160	9	5%	0%
	Through	100	8	180	17	240	20	9%	0%
	Through/Right	160	12	240	17	260	15	0%	1%
SB	Left Turn	140	13	220	10	200	7	0%	6%
	Through	80	7	140	16	180	14	0%	1%
	Through/Right	80	6	140	13	160	18	0%	0%
WB	Left Turn	60	7	100	14	140	30	0%	0%
	Through	140	9	220	17	240	26	4%	0%
	Through/Right	180	12	260	27	300	48	0%	0%

Direction	Lane Group	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Shared	40	5	60	6	80	11	0%	0%
NB	Through	140	14	220	10	200	15	0%	1%
	Through/Right	160	13	220	9	220	10	0%	4%
SB	Left Turn	40	5	100	14	120	35	2%	0%
	Through	40	8	100	34	180	79	1%	0%
	Through/Right	80	12	160	29	220	47	0%	0%
WB	Left Turn	40	4	80	8	100	23	0%	0%
	Shared	80	10	160	22	180	24	0%	0%

Intersection 4 **Shattuck Ave/52nd St-51st St** **Signal**

Direction	Lane Group	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	140	4	200	5	180	1	14%	0%
	Through	140	13	280	31	340	57	2%	0%
	Through/Right	120	5	180	15	220	26	0%	0%
NB	Left Turn	80	23	180	51	240	64	0%	0%
	Through/Right	100	13	180	16	160	5	4%	0%
SB	Left/Through	140	9	240	20	280	25	2%	0%
	Right Turn	120	8	200	16	220	2	0%	0%
WB	Left Turn	40	7	80	17	120	18	1%	0%
	Through	160	7	220	11	220	21	35%	0%
	Through/Right	180	10	280	7	320	11	0%	0%

Direction	Lane Group	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	60	5	100	10	120	26	0%	0%
NB	Left Turn	20	3	60	6	80	9	1%	0%
	Through	100	7	180	9	160	2	11%	3%
SB	Through/Right	80	6	160	15	180	12	0%	0%

Intersection 2 **Telegraph Ave/51st St** **Signal**

Direction	Lane Group	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	120	7	180	13	200	34	1%	0%
	Through	160	10	240	23	260	36	0%	0%
	Through/Right	180	7	260	16	280	29	0%	0%
NB	Through	120	7	180	12	240	21	0%	0%
	Through/Right	160	9	220	13	260	20	0%	0%
SB	Left Turn	160	8	220	8	200	5	0%	7%
	Through/Right	120	8	220	12	220	14	0%	3%
WB	Left Turn	60	6	120	17	160	52	0%	0%
	Through	140	7	220	19	260	45	4%	0%
	Through/Right	160	9	260	30	280	45	0%	0%

Direction	Lane Group	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	40	6	60	9	80	15	0%	0%
NB	Through	120	7	200	7	200	3	0%	0%
	Through/Right	160	7	220	8	220	7	0%	3%
SB	Left Turn	60	6	120	11	160	0	2%	0%
	Through	140	31	300	86	400	126	9%	0%
	Right Turn	40	19	120	91	220	186	0%	0%
WB	Left Turn	60	3	100	8	120	19	0%	0%
	Through/Right	80	10	140	23	160	43	0%	0%

Intersection 4 **Shattuck Ave/52nd St-51st St** **Signal**

Direction	Lane Group	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	140	7	220	6	180	1	16%	0%
	Through	160	22	280	34	340	63	3%	0%
	Through/Right	120	9	200	14	220	27	0%	0%
NB	Left Turn	120	9	220	33	300	67	2%	0%
	Through/Right	120	6	180	7	160	1	3%	0%
SB	Left/Through	160	20	280	52	380	79	3%	0%
	Right Turn	120	15	220	25	220	1	1%	0%
WB	Left Turn	40	7	80	18	100	28	1%	0%
	Through	160	7	220	11	220	22	30%	0%
	Through/Right	180	7	280	10	340	10	0%	0%

Direction	Lane Group	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	80	5	120	13	160	43	0%	0%
NB	Left Turn	20	3	60	6	80	16	2%	0%
	Through	80	10	160	16	160	6	5%	2%
SB	Through	40	5	100	9	100	17	0%	0%
	Through/Right	60	5	100	8	120	16	0%	0%

Intersection 2 **Telegraph Ave/51st St** **Signal**

Direction	Lane Group	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	180	33	320	69	380	66	12%	0%
	Through	220	11	300	12	340	19	0%	0%
	Through/Right	240	9	320	10	340	19	0%	0%
NB	Left Turn	100	12	160	11	160	0	12%	0%
	Through	160	15	260	18	260	11	21%	2%
	Through/Right	200	11	280	12	280	8	0%	6%
SB	Left Turn	180	6	240	8	220	5	0%	23%
	Through	120	10	220	16	220	15	0%	5%
	Through/Right	120	9	180	15	200	12	0%	0%
WB	Left Turn	120	32	260	62	240	26	1%	0%
	Through	340	127	540	199	580	175	43%	0%
	Through/Right	380	124	580	197	600	199	0%	0%

Direction	Lane Group	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Shared	40	6	80	11	80	22	0%	0%
NB	Through	160	8	220	7	200	9	0%	4%
	Through/Right	180	7	240	11	220	7	0%	13%
SB	Left Turn	60	6	120	17	140	22	4%	0%
	Through	80	23	200	65	280	72	11%	0%
	Through/Right	100	20	220	43	300	75	0%	0%
WB	Left Turn	40	5	80	14	100	33	0%	0%
	Shared	100	7	180	8	200	22	0%	0%

Intersection 4 **Shattuck Ave/52nd St-51st St** **Signal**

Direction	Lane Group	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	160	8	200	7	180	1	23%	0%
	Through	200	32	360	55	420	90	5%	0%
	Through/Right	160	10	240	21	300	52	0%	0%
NB	Left Turn	120	14	240	31	280	50	1%	0%
	Through/Right	140	4	180	6	180	0	7%	0%
SB	Left/Through	300	52	600	101	780	159	16%	0%
	Right Turn	180	17	280	10	240	0	5%	0%
WB	Left Turn	40	10	100	20	120	11	0%	0%
	Through	200	7	240	11	260	12	42%	0%
	Through/Right	240	7	360	11	400	15	0%	0%

Direction	Lane Group	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Shared	80	7	120	10	160	26	0%	0%
NB	Left Turn	20	6	60	13	80	19	1%	0%
	Through	100	10	180	7	160	1	13%	2%
SB	Through/Right	100	18	180	24	220	24	0%	0%

Intersection 2 **Telegraph Ave/51st St** **Signal**

Direction	Lane Group	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	160	14	280	38	340	47	9%	0%
	Through	220	9	300	18	320	23	0%	0%
	Through/Right	240	9	320	14	340	12	0%	0%
NB	Through	160	9	240	15	240	6	0%	0%
	Through/Right	180	10	260	11	260	9	0%	3%
SB	Left Turn	180	8	220	5	200	5	0%	18%
	Through/Right	160	10	260	10	240	16	0%	10%
WB	Left Turn	100	24	220	50	240	4	1%	0%
	Through	260	39	420	64	480	74	33%	0%
	Through/Right	300	35	460	75	540	117	0%	0%

Direction	Lane Group	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	40	4	80	9	100	15	0%	0%
NB	Through	180	5	220	9	200	8	0%	3%
	Through/Right	180	4	240	9	220	9	0%	12%
SB	Left Turn	80	13	160	25	160	0	2%	0%
	Through	420	104	800	161	760	58	35%	4%
	Right Turn	280	115	680	207	720	89	0%	2%
WB	Left Turn	60	7	100	14	140	31	0%	0%
	Through/Right	80	10	160	23	180	25	0%	0%

Intersection 4 **Shattuck Ave/52nd St-51st St** **Signal**

Direction	Lane Group	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	160	4	220	6	180	0	22%	0%
	Through	200	20	360	42	420	61	5%	0%
	Through/Right	160	15	240	24	280	60	0%	0%
NB	Left Turn	160	25	320	66	420	132	6%	0%
	Through/Right	140	8	200	7	180	0	7%	0%
SB	Left/Through	380	208	720	424	800	347	17%	1%
	Right Turn	180	21	280	15	240	0	6%	0%
WB	Left Turn	40	10	100	21	120	18	1%	0%
	Through	180	8	240	14	240	17	41%	6%
	Through/Right	180	7	240	8	240	11	0%	11%

Attachment D

Parking Proposal Overview

REPAIRING TELEGRAPH

Parking Proposal Overview

Oakland uses parking meters to actively manage on-street parking availability and encourage turnover in commercial corridors where parking is in high demand. Staff identified 39 unregulated key locations as potential meter opportunities to make up for the loss of 34 metered parking spaces on Telegraph Avenue.

Maximum amount of metered-parking gained in Telegraph area:	Maximum amount of parking lost on Telegraph Ave.
+75 spots	**-34 spots**

Implement curb management best practices to determine best reallocation of lost metered spaces onto commercial sidestreets

Relocate all ADA parking to sidestreets
- easier access, (pull in/pull out)
- increased number of spaces

- Determine enhanced passenger loading zones
- Identify TNC passenger pick-up/ drop-off zones (Lyft/Uber)

- Relocate commerical loading onto Telegraph for optimized loading
- Implement time-of-day loading zones to create more metered parking spaces outside of loading hours

- Identify effective short-term parking locations
- Beneficial in areas with high volume of patrons making short, 15-minute trips

	EXISTING			AFTER PROJECT			Δ
	ON TELEGRAPH	ON SIDESTREETS		ON TELEGRAPH	ON SIDESTREETS		CHANGE IN PARKING
METERED PARKING	**78**	**13**	**91**	**72**	**80**	**152**	**+61**
(blue curb) **PARKING FOR DISABILITIES**	**2**	**1**	**3**	**2**	**7**	**9**	**+6**
(white curb) **PASSENGER LOADING**	**0**	**0**		**4**	**0**		
				***TIME-OF-DAY COMMERCIAL LOADING**			
(yellow curb, units in feet) **COMMERCIAL LOADING**	**135 ft.**	**20 ft.**		***340 ft.**	**20 ft.**		**+205 ft.**
(green curb) **SHORT-TERM PARKING**	**0**	**0**		**3**	**1**	**4**	**+4**
UNMETERED PARKING	**14**	**107**		**0**	**70**	NET LOSS OF UNMETERED PARKING **-37**	

CITY OF OAKLAND | Department of Transportation

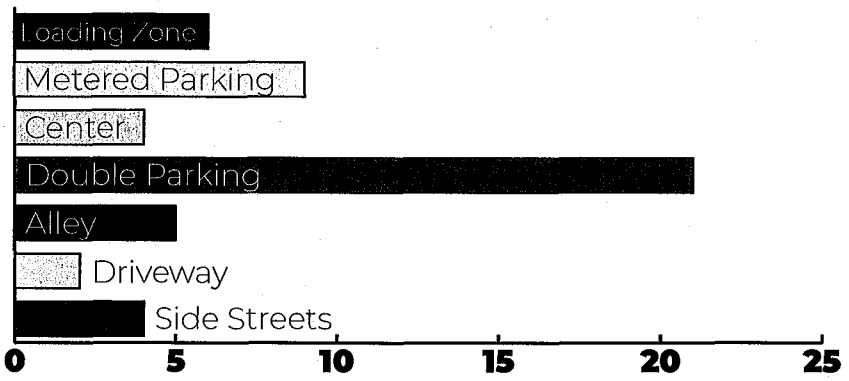
Attachment E

Merchant Survey Results

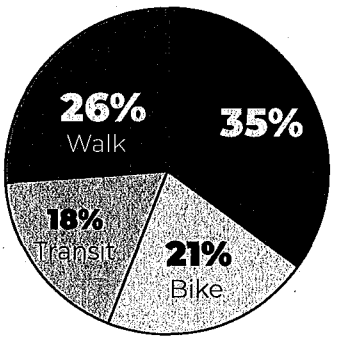
Merchant Survey Results

Over the course of 4 weeks, our team reached out to the merchants along Telegraph Ave. Of the 80 businesses along the corridor we visited 65 at varying hours throughout the day. Thus far, we have received 38 surveys. The following results were generated from those surveys and will be updated accordingly as we get more surveys.

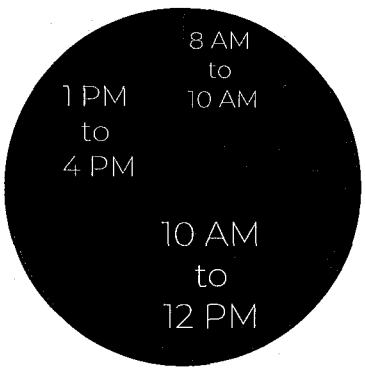
Where does loading usually occur?



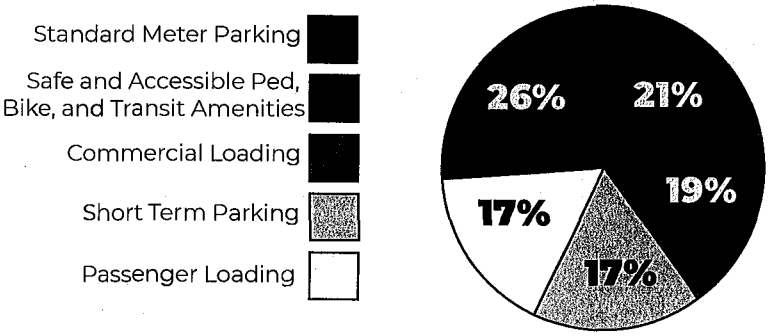
How business owners think a majority of visitors get to their business



When does loading usually occur?



What is most important to your business?



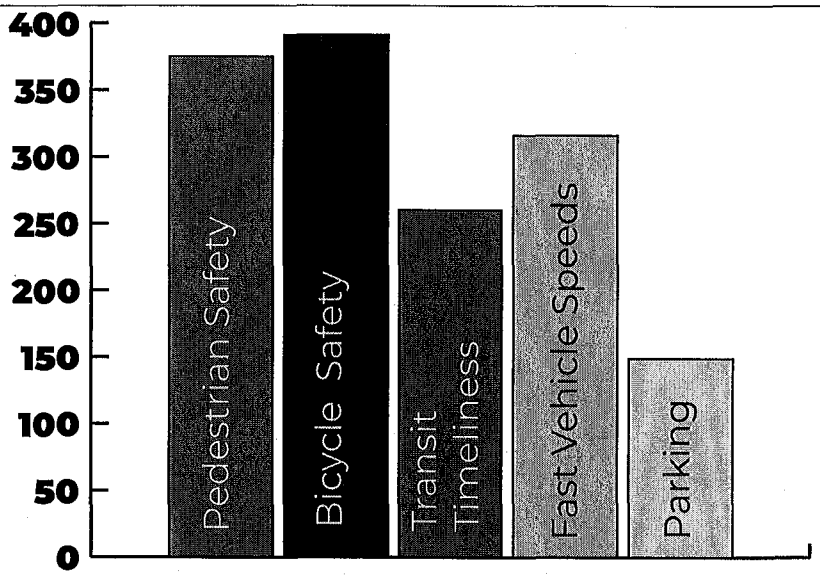
When do your customers usually visit?

Attachment F

User Survey Results

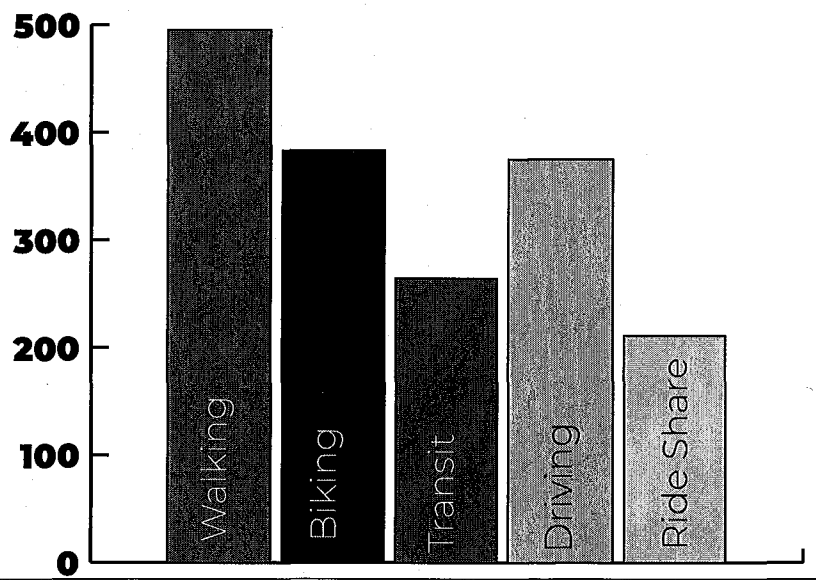
User Survey Results

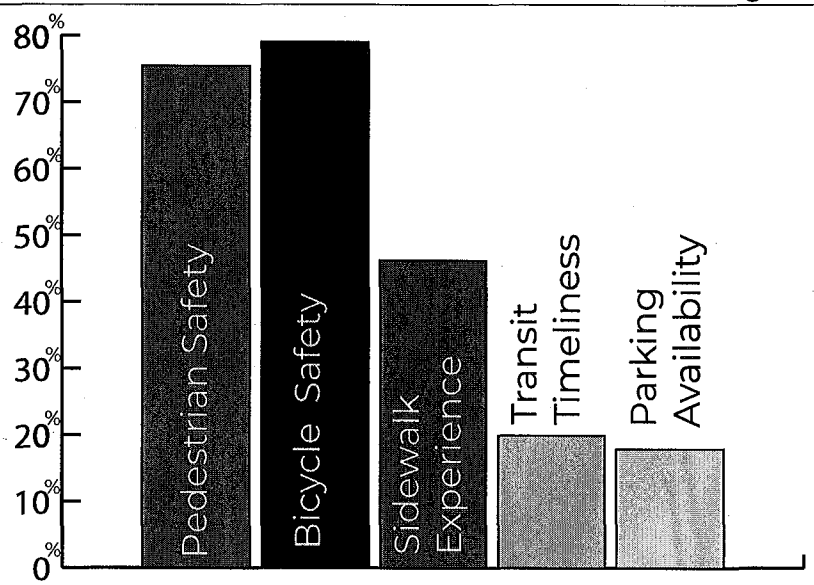
The user survey our team produced generated over 600 responses, collected both in person and online. Survey collection began at the Temescal Street Fair and is still in the collection process. So far, most people who completed the survey identified as female (49.4%), white (70.3%), under 35 years old (44%), and having a total household income of $100,000+ per year (53.2%). The following graphics depict the results as they have been gathered thus far.



How concerned are you with each of the following?

How do you usually get to Temescal?





Which safety and mobility improvements would you like to see on Telegraph Ave?

Attachment G

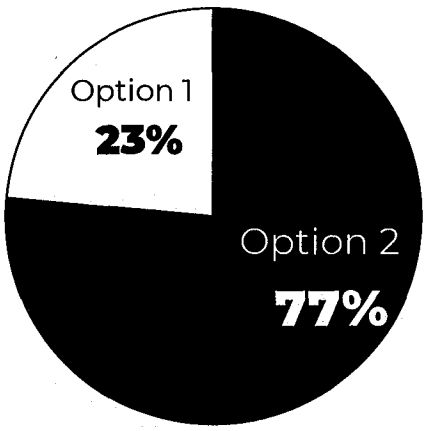
Design Survey Results

Design Survey Results

Our design survey was available online from August 21st to October 22nd. The primary purpose of the survey was to allow the community to choose between a buffered bikeway option (Option 1) and a separated bikeway option (Option 2). Other results are also shown below.

Which of the designs would you prefer on Telegraph in Temescal?

1,480 Responses



Demographics

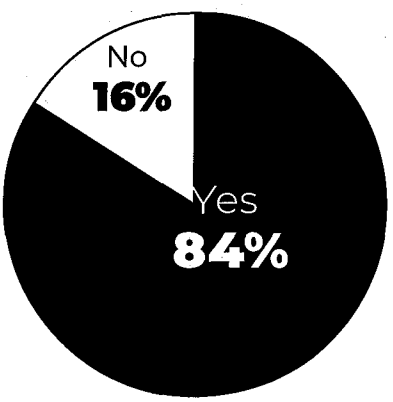
Of the 1,286 people who provided their zipcodes, it was found that 794, or 62%, of these people were from areas in and near Temescal.

Which of the designs would you prefer between 51st and 52nd Street for the bus stop?

1,472 Responses

Would you like to see changes to Shattuck between 45th and 46th?

1,475 Responses



Approved as to Form and Legality
DRAFT
City Attorney

OAKLAND CITY COUNCIL

RESOLUTION NO._____C.M.S.

Introduced by Councilmember _____

RESOLUTION: 1) AUTHORIZING THE REMOVAL OF TRAVEL LANES AND THE INSTALLATION OF CLASS II BICYCLE LANES ON TELEGRAPH AVENUE FROM 42ND STREET TO 52ND STREET AND 2) ADOPTING CALIFORNIA ENVIRONMENTAL QUALITY ACT EXEMPTION FINDINGS

WHEREAS, the City of Oakland's Bicycle Plan was adopted by City Council on December 7, 2007 as part of the Land Use and Transportation Element of the City's General Plan and reaffirmed by City Council on December 4, 2012; and

WHEREAS, the City of Oakland's Bicycle Plan calls for the implementation of a citywide network of bikeways to connect downtown, transit stations, commercial districts, neighborhoods, and the waterfront; and

WHEREAS, the Bicycle Plan identifies Telegraph Avenue from 42nd Street to 52nd Street as proposed bikeway; and

WHEREAS, the Complete Streets Policy for the City of Oakland was adopted by City Council on February 5, 2013 and the Policy calls for the incorporation of bicycle lanes in reconstruction and maintenance projects to create a connected network of facilities for bicyclists; and

WHEREAS, Action 1B.1 of the Bicycle Plan states, "Include bicycle safety and access improvements in roadway resurfacing, realignment, and reconstruction projects"; and

WHEREAS Telegraph Avenue from 42nd Street to 52nd Street have been designed to include useful bikeway connections; and

WHEREAS, the installation of bicycle lanes on Telegraph Avenue would reduce the number of travel lanes from four (4) through lanes to two travel lanes from 42nd Street to 52nd Street, would include left-turn pockets to address traffic operations at key signalized intersections, and would also include enhancement of pedestrian crossings through high-visibility crosswalks ("Project"); and

WHEREAS, the Project is consistent with the City's General Plan, Bicycle Plan, and Complete Streets Policy; and

WHEREAS, as required by Public Resources Code section 21080.20.5, the City, in part, has prepared an assessment of traffic and safety impacts of the Project, which concluded that the Project will have negligible impacts on traffic operations and will not result in a decrease in safety for any travel mode; and

WHEREAS, City Council has directed staff to prepare reports for their approval when bicycle projects require the reduction of travel lanes on a roadway; and

WHEREAS, after a duly noticed public meeting, on December 4, 2018, the Public Works Committee voted to recommend the proposal to the City Council; and

WHEREAS, on December 11, 2018, the City Council considered the proposed Project; and

WHEREAS, the proposed Project is exempt from the California Environmental Quality Act ("CEQA") pursuant to Public Resources Code Section 21080.20.5 (restriping of streets for bicycle lanes), and on a separate and independent basis, the project is also exempt from CEQA pursuant to CEQA Guidelines Sections 15183 (Projects Consistent with a Community Plan, General Plan or Zoning), 15301(c) (Existing Facilities, Highways and Streets), 15304(h) (minor alterations to land), and/or 15061(b)(3) (No Significant Effect on the Environment); each of the aforementioned provides a separate and independent basis for CEQA compliance; now, therefore be it

FURTHER RESOLVED: That the City Council authorizes the installation of bicycle lanes on Telegraph Avenue by reducing the number of travel lanes from four (4) through lanes to two travel lanes from 42nd Street to 52nd Street and; and be it

FURTHER RESOLVED: That this Resolution complies with CEQA and the City Administrator or designee shall file a Notice of Exemption with appropriate agencies.

IN COUNCIL, OAKLAND, CALIFORNIA, _____

PASSED BY THE FOLLOWING VOTE:

AYES – BROOKS, CAMPBELL WASHINGTON, GALLO, GIBSON MCELHANEY, GUILLEN, KALB, KAPLAN and PRESIDENT REID

NOES -

ABSENT -

ABSTENTION -

ATTEST: _____
LaTonda Simmons
City Clerk and Clerk of the Council
of the City of Oakland, California