AGENDA ITEM NO. 6.e.

City of Garden Grove

INTER-DEPARTMENT MEMORANDUM

To:	Matthew J. Fertal	From:	William E. Murray
Dept:	City Manager	Dept.:	Public Works
Subject:	RESOLUTION APPROVING THE SUBMITTAL OF THE KNOTT STREET TRAFFIC SIGNAL SYNCHRONIZATION IMPROVEMENT PROJECT TO THE ORANGE COUNTY TRANSPORTATION AUTHORITY FOR FUNDING CONSIDERATION	Date:	January 24, 2012

OBJECTIVE

To adopt a resolution approving the submittal of the Knott Street Traffic Signal Synchronization Improvement Project to the Orange County Transportation Authority (OCTA) for funding under the competitive Measure 2 Regional Traffic Synchronization Program.

BACKGROUND/DISCUSSION

OCTA issued a call for projects through the Regional Traffic Signal Synchronization Program that coordinates traffic signals across jurisdictional boundaries in the county. The City of Buena Park, as the lead agency, in coordination with the cities of Garden Grove, Anaheim, and Stanton, identified Knott Street as a heavily traveled corridor that would benefit from traffic signal coordination.

The proposed project spans approximately seven miles and includes 28 traffic signals. It would begin at Artesia Boulevard in Buena Park, passing through Anaheim and Stanton, and terminating at Garden Grove Boulevard in Garden Grove (see attached funding application – Exhibit A).

The entire project cost is estimated at $560,000. The project subtotal for the City of Garden Grove is $53,250. The local match (@20%) is $10,650.

FINANCIAL IMPACT

There is no impact to the General Fund. The City of Garden Grove's financial responsibility towards the project is estimated at $10,650. Gas Tax revenues will be budgeted in FY 12/13 to cover this cost.

RECOMMENDATION

It is recommended that the City Council:

- Adopt the attached resolution approving the submittal of the Knott Street Traffic Signal Synchronization Improvement Project to the Orange County Transportation Authority for funding consideration.

WILLIAM E. MURRAY, P.E.
Public Works Director/City Engineer

By: Dan Candelaria, P.E., T.E.
City Traffic Engineer

Attachment 1: Resolution
Attachment 2: Exhibit A- Funding Application

Recommended for Approval

Matthew Fertal

Matthew Fertal
City Manager

GARDEN GROVE CITY COUNCIL

RESOLUTION NO.

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF GARDEN GROVE APPROVING THE SUBMITTAL OF THE KNOTT STREET IMPROVEMENT PROJECT TO THE ORANGE COUNTY TRANSPORTATION AUTHORITY FOR FUNDING UNDER THE COMPETITIVE MEASURE M2 REGIONAL TRAFFIC SIGNAL SYNCHRONIZATION PROGRAM

WHEREAS, the Measure M2 Regional Traffic Signal Synchronization Program targets over 2000 signalized intersections across Orange County to maintain traffic signal synchronization, improve traffic flow, and reduce congestion across jurisdictions;

WHEREAS, the City of Garden Grove has been declared by the Orange County Transportation Authority to meet the eligibility requirements to receive revenues as part of Measure M2;

WHEREAS, the City of Garden Grove has adopted a Local Signal Synchronization Plan consistent with the Regional Traffic Signal Synchronization Master Plan as a key component of local agencies' boundaries;

WHEREAS, the City of Garden Grove will provide matching funds for each project as required by the Orange County Comprehensive Transportation Funding Programs Procedures Manual;

WHEREAS, the City of Garden Grove will not use Measure M funds to supplant Developer Fees or other commitments; and

WHEREAS, the City of Garden Grove desires to implement multi-jurisdictional signal synchronization listed below.

WHEREAS, traffic flow will be improved and congestion reduced on Knott Street in Garden Grove through implementation of the Regional Traffic Signal Synchronization Program.

NOW, THEREFORE, be it resolved that the City Council of the City of Garden Grove hereby requests the Orange County Transportation Authority allocate funds in the amount specified in the City's application to said City from the Regional Traffic Signal Synchronization Program to implement regional signal synchronization along Knott Street, Garden Grove.

ATTACHMENT #2

EXHIBIT "A"

Project P

Regional Traffic Signal Synchronization Program

Supplemental Application Information

Knott Avenue

12/01/2011

Agency: City of Buena Park

Contact Name: Dennis D. Barnes, P.E., T.E.
Contact Number: 714-562-3696
Contact Email: dbarnes@buenapark.com

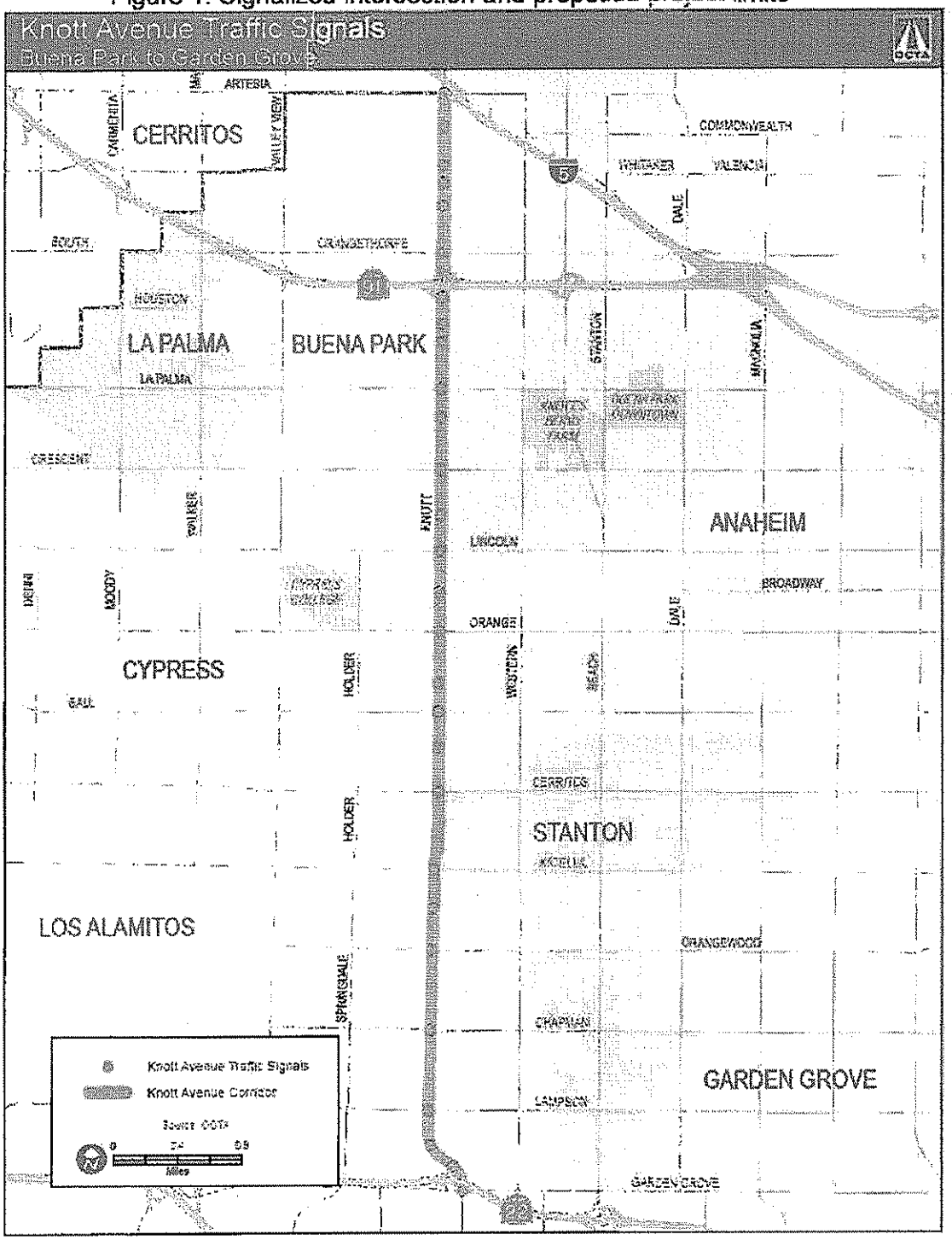
Project P Regional Traffic Signal Synchronization Program Application Checklist

Project P Application Checklist	Included
RTSSP Online Application – submitted through OCFundTracker 1. Vehicle Miles Traveled 2. Benefic Cost Ratio 3. Project Characteristics 4. Transportation Significance 5. Maintenance of Effort 6. Project Scale 7. Number of Jurisdictions 8. Current Project Readiness 9. Funding Match	Online
Section 1: Key technical information a. Project limits of the corridor to synchronize b. Designation of the corridor to synchronize: priority corridor, traffic signal synchronization network corridor, or master plan of arterial highways corridor c. Project start date and end date, including any commitment to operate traffic signal synchronization beyond the three year grant period d. Signalized intersections that are part of the project e. Traffic Forum members	 Pg. 3 Pg. 4 Pg. 4 Pg. 4 Pg. 5
Section 2: Lead agency	Pg. 5
Section 3: Resolutions of support from the project's Traffic Forum members	Pp. 5-9
Section 4: Preliminary plans for the proposed project The plans shall include details about both phases of the project: Primary Implementation and the Ongoing Maintenance and Operation. The plan should be organized using the following setup. Primary Implementation shall include details about the following: a. Developing and implementing optimized traffic signal synchronization timing (required) b. Producing a Before and After Study for the proposed project (required) c. Proposed traffic signal improvements (optional): i. New or upgraded detection ii. New or upgraded communication systems iii. Intersection/field system modernization and replacement iv. Minor traffic signal operation improvements v. Traffic management centers vi. Real-time traffic actuated operations and demonstration projects Ongoing Maintenance and Operation will begin after the Primary Implementation of the project is completed. It shall include details about the following: a. Monitoring and improving optimized traffic signal timing (required) b. Communications and detection support (optional)	 Pg. 10-12 Pg. 12
Section 5: Total Proposed Project Cost by Task	Pg. 12-14
Section 6: Project Schedule by Task for the 3 Year Grant Period	Pg. 14
Section 7: Matching Funds	Pg. 15-16
Section 8: Environmental clearances and other permits	Pg. 16
Section 9: Calculations used to Develop Selection Criteria Inputs	Pg. 17
Section 10: Calculations and Estimated Points	Pg. 18
Section 11: Any additional information deemed relevant by the applicant	Pg. 18

Section 1: Key Technical Information

a. The proposed project would synchronize Knott Avenue. The limits for the project are from Artesia Boulevard in the north (Caltrans) to Garden Grove Boulevard in the south (Garden Grove). Figure 1 shows a map of the project.

Figure 1: Signalized intersection and proposed project limits



b. Designation of the corridor to synchronize:

☒ Priority Corridor ☐ Signal Synchronization Network Corridor

☐ Master Plan of Arterial Highways Corridor

c. Project start date July 1, 2012 Project end date July 1, 2015

All agencies commit to operate traffic signal synchronization beyond the three year grant period for:

☒ 0 years ☐ 1 year ☐ 2 years ☐ 3 years ☐ Other ____

d. Signalized intersections that are part of the project: see Table 1

Table 1: Project Traffic Signals for the Knott Avenue Traffic Signal Synchronization Project
1. Knott Avenue at Artesia Boulevard (Caltrans)
2. Knott Avenue at Village Drive (Buena Park)
3. Knott Avenue at 8th Street (Buena Park)
4. Knott Avenue at 9th Street (Buena Park)
5. Knott Avenue at Caballero Boulevard (Buena Park)
6. Knott Avenue at Orangethorpe Avenue (Buena Park)
7. Knott Avenue at 91 WB Off-Ramp (Caltrans)
8. Knott Avenue at 91 EB Off-Ramp (Caltrans)
9. Knott Avenue at El Verano Drive (Buena Park)
10. Knott Avenue at Thelma Avenue (Buena Park)
11. Knott Avenue at La Palma Avenue (Buena Park)
12. Knott Avenue at Holder Street (Buena Park)
13. Knott Avenue at Crescent Avenue (Buena Park)
14. Knott Avenue at Monroe Avenue/Younger Drive (Buena Park)
15. Knott Avenue at Lincoln Avenue (Anaheim)
16. Knott Avenue at Danbrook Avenue (Anaheim)
17. Knott Avenue at Orange Avenue (Anaheim)
18. Knott Avenue at Savannah Street (Anaheim)
19. Knott Avenue at Ball Road (Anaheim)
20. Knott Avenue at Cerritos Avenue (Stanton)
21. Knott Avenue at Katella Avenue (Stanton)
22. Knott Avenue at Recycle Way (Stanton)
23. Knott Avenue at Orangewood Avenue (Garden Grove)
24. Knott Avenue at Chapman Avenue (Garden Grove)
25. Knott Avenue at Lampson Avenue (Garden Grove)
26. Knott Avenue at Stanford Avenue (Garden Grove)

27. Knott Avenue at Acacia Avenue/SR-22 WB On-ramp (Caltrans)
28. Knott Avenue/Goldenwest Street at Garden Grove Boulevard (Caltrans)

e. Traffic Forum members

Buena Park

Anaheim

Stanton

Garden Grove

California Department of Transportation (Caltrans)

Section 2: Lead Agency

☒ City of Buena Park will be the lead agency

☐ OCTA agency is requested to be the lead

☐ County of Orange will be the lead agency

Section 3: Resolutions of Support

Agency	Match (Commitment)	Council Meeting to adopt resolution
City of Buena Park (Lead)	20% in hard and soft match	December 13, 2011
City of Anaheim (Participating)	20% in hard and soft match	December 20, 2011
City of Stanton (Participatiing)	20% in hard match	November 22, 2011
City of Garden Grove (Participating)	20% in hard match	January 24, 2012
Caltrans (Participating)	20% in soft match	To be determined

Caltrans is unable to submit a letter of support until after the application deadline pending a meeting with OCTA to discuss resources. See attached draft lead agency resolution from Buena Park and participating agency resolution from Anaheim, Stanton, and Garden Grove. Letters of support from the Cities of Anaheim, Stanton, and Garden Grove is attached.

DRAFT

RESOLUTION NO. _____

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BUENA PARK APPROVING THE SUBMITTAL OF IMPROVEMENT PROJECTS TO THE ORANGE COUNTY TRANSPORTATION AUTHORITY FOR FUNDING UNDER THE COMPREHENSIVE TRANSPORTATION PROGRAM

WHEREAS, the City of Buena Park desires to implement the Measure M2 transportation projects ("PROJECTS") listed below:

1. Knott Avenue Corridor Traffic Signal Synchronization (Project P)
2. State Route 91 Westbound Off-Ramp Widening at Beach Boulevard (FAST)

WHEREAS, the City of Buena Park has been declared by the Orange County Transportation Authority to meet the eligibility requirements to receive funds under the Measure M2 Regional Transportation Synchronization and Turnback Programs ; and

WHEREAS, the City's Circulation Element is consistent with the County of Orange Master Plan of Arterial Highways; and

WHEREAS, the City of Buena Park has adopted a Local Signal Synchronization Plan consistent with the Regional Traffic Signal Synchronization Master Plan as a key component of local agencies' efforts to synchronizing traffic signals across local agencies' boundaries; and

WHEREAS, The City of Buena Park will provide matching funds for each Project as required by the Orange County Transportation Funding Program Procedures Manual; and

WHEREAS, the City of Buena Park will not use Measure M funds to supplement developer fees and other commitments; and

NOW, THEREFORE, the City Council of the City of Buena Park does hereby find and resolve as follows:

Section 1. The facts set forth in the Recitals, above in this Resolution, are true and correct.

Section 2. The City Council of the City of Buena Park hereby requests the Orange County Transportation Authority allocate funds to the City of Buena Park in the amounts specified in the City's application from the Measure M2 Regional Transportation Signal Synchronization and "Turnback" Programs for the Projects.

Section 3. The City Clerk shall certify to adoption of this Resolution.

PASSED AND ADOPTED this _____ day of _____ _____, by the following called vote:

AYES: COUNCILMEMBERS:

NOES: COUNCILMEMBERS:

ABSENT: COUNCILMEMBERS:

ABSTAIN: COUNCILMEMBERS:

_____
Mayor

ATTEST:

_____
City Clerk

I, Shalice Tilton, City Clerk of the City of Buena Park, California, hereby certify that the foregoing resolution was duly and regularly passed and adopted at a regular meeting of the City Council of the City of Buena Park, held this _____ day of _____, _____.

_____
City Clerk

DRAFT

RESOLUTION OF THE CITY COUNCIL OF ***(ANAHEIM/STANTON/GARDEN GROVE)***, CALIFORNIA

December __, 2011

WHEREAS, the City of ***(Anaheim/Stanton/Garden Grove)*** supports the City of Buena Park as the lead local agency requesting funding for the Knott Avenue Corridor Traffic Signal Synchronization Project under the Measure M2 Regional Traffic Signal Synchronization Program administered by the Orange County Transportation Authority (OCTA); and

WHEREAS, the City of ***(Anaheim/Stanton/Garden Grove)*** desires to participate in the Knott Avenue Corridor Traffic Signal Synchronization Project; and

WHEREAS, the City of ***(Anaheim/Stanton/Garden Grove)*** has been declared by the Orange County Transportation Authority to meet the eligibility requirements to receive revenues as part of Measure M2; and

WHEREAS, the City of ***(Anaheim/Stanton/Garden Grove)*** has a currently adopted Local Signal Synchronization Plan consistent with the Regional Traffic Signal Synchronization Master Plan as a key component of local agencies' efforts to synchronize traffic signals across local agencies' boundaries; and

WHEREAS, the City of ***(Anaheim/Stanton/Garden Grove)*** will not use Measure M2 funds to supplant Developer Fees or other commitments;

NOW, THEREFORE, BE IT RESOLVED that this Council does hereby:

1. Authorize matching funds or in-kind services commitment for the Knott Avenue Corridor Project funding application.
2. Authorize the Director of ***(Anaheim/Stanton/Garden Grove)*** Public Works to co-sign the Knott Avenue Corridor Project funding application including the commitment of matching funds or in-kind services.
3. The City Clerk shall certify to adoption of this Resolution.

PASSED AND ADOPTED this _____ day of _____ _____, by the following called vote:

AYES: COUNCILMEMBERS:

NOES: COUNCILMEMBERS:

ABSENT: COUNCILMEMBERS:

ABSTAIN: COUNCILMEMBERS:

_____
Mayor

ATTEST:

_____
City Clerk

I, _____, City Clerk of the City of ***(Anaheim/Stanton/Garden Grove)***,California, hereby certify that the foregoing resolution was duly and regularly passed and adopted at a regular meeting of the City Council of the City of ***(Anaheim/Stanton/Garden Grove)***, held this _____ day of _____ _____.

_____
City Clerk

City of Anaheim
DEPARTMENT OF PUBLIC WORKS
Traffic Management Center

December 2, 2011

Jim Biery
Director of Public Works/City Engineer
City of Buena Park
6650 Beach Boulevard, 1st Floor
Buena Park, CA 90622

Subject: Letter of Intent for Regional Traffic Signal Synchronization Program Application – Knott Avenue

Dear Mr. Biery:

The Orange County Transportation Authority issued a call for projects for Regional Traffic Signal Synchronization Program to coordinate traffic signals across jurisdictional boundaries in the county. The City of Anaheim in cooperation with participating cities identified the Knott Avenue Corridor for Project P application. The signal synchronization on Knott Avenue between Artesia Boulevard in the City of Buena Park and Garden Grove Boulevard in the City of Garden Grove will improve the signal coordination along this heavily traveled corridor.

The City of Anaheim is in support of City of Buena Parks' effort in pursuing Renewed Measure M funds for this project.

The City of Anaheim is committed to provide the required matching funds and will be seeking City Council adoption of a resolution on 12/20/11 in support of implementing and funding this project. We will forward the adopted resolution as soon as it is available.

Sincerely,

John Thai
Principal Traffic Engineer
City of Anaheim

201 S. Anaheim Blvd., Suite 502
Anaheim, California 92805
TEL (714) 765-5202
FAX (714) 765-4493
www.anaheim.net

GARDEN GROVE

CITY OF GARDEN GROVE

Jim Biery
Director of Public Works
City of Buena Park
6650 Beach Boulevard
Buena Park, CA 90621

December 2, 2011

Subject: Letter of Intent for Regional Traffic Signal Synchronization Program Application –Knott Avenue

Dear Mr. Biery:

The Orange County Transportation Authority issued a call for projects for Regional Traffic Signal Synchronization Program to coordinate traffic signals across jurisdictional boundaries in the county. The City of Garden Grove in coordination with participating cities identified the Knott Avenue Corridor for Project P application. The signal synchronization on Knott Avenue (between Firestone/I-5 NB Off-Ramp in the City of Buena Park and Garden Grove Boulevard in the City of Garden Grove) will improve the signal coordination along this heavily traveled corridor.

The City of Garden Grove is in support of City of Buena Park's effort in pursuing Renewed Measure M funds for this project.

The City of Garden Grove is committed to provide the required matching funds and will be seeking City Council adoption of a resolution on January 24, 2012 in support of implementing and funding this project. We will forward the adopted resolution as soon as it is available.

Sincerely,

Dan Candelaria, P.E., T.E.
City Traffic Engineer
City of Garden Grove

Jim Biery
Director of Public Works
City of Buena Park
6650 Beach Boulevard
Buena Park, CA 90621

December 2, 2011

Subject: Letter of Intent for the Regional Traffic Signal Synchronization Program Application – Knott Avenue

Dear Mr. Biery:

The Orange County Transportation Authority issued a call for projects for the Regional Traffic Signal Synchronization Program to coordinate traffic signals across jurisdictional boundaries in the county. The City of Stanton, in coordination with participating cities, identified the Knott Avenue Corridor for the Project P application. The signal synchronization on Knott Avenue (between Firestone/I-5 NB Off-Ramp in the City of Buena Park and Garden Grove Boulevard in the City of Garden Grove) will improve the signal coordination along this heavily traveled corridor.

The City of Stanton is in support of City of Buena Park's effort in pursuing Renewed Measure M funds for this project.

The City of Stanton is committed to providing the required matching funds and has adopted a resolution on November 22, 2011, in support of implementing and funding this project. A copy of the adopted resolution is attached.

Sincerely,

Nick Guilliams, P.E.
City of Stanton
Director of Public Works
714-890-4204

Attachment: Resolution 2011-44

RESOLUTION NO. 2011-44

RESOLUTION OF THE CITY OF STANTON FOR THE CITY OF BUENA PARK TO ACT AS THE LEAD AGENCY IN SUBMITTING A GRANT APPLICATION FOR THE KNOTT AVENUE SIGNAL SYNCHRONIZATION PROJECT

WHEREAS, the City of Stanton supports the City of Buena Park as the lead local agency requesting funding for the Knott Avenue Traffic Signal Synchronization Project under the Measure M2 Regional Traffic Signal Synchronization Program administered by the Orange County Transportation Authority (OCTA); and

WHEREAS, the City of Stanton desires to participate in the Knott Avenue Traffic Signal Synchronization Project; and

WHEREAS, the City of Stanton has been declared by the Orange County Transportation Authority to meet the eligibility requirements to receive revenues as part of Measure M2; and

WHEREAS, the City of Stanton has a currently adopted Local Signal Synchronization Plan consistent with the Regional Traffic Signal Synchronization Master Plan as a key component of local agencies' efforts to synchronize traffic signals across local agencies' boundaries; and

WHEREAS, the City of Stanton will not use Measure M2 funds to supplant Developer Fees or other commitments.

NOW THEREFORE, THE CITY COUNCIL OF THE CITY OF STANTON DOES HEREBY RESOLVE AS FOLLOWS:

SECTION 1: Authorize matching funds or in-kind services commitment for the Knott Avenue Traffic Signal Synchronization Project funding application.

SECTION 2: Authorize the Director of Public Works to co-sign the Knott Avenue Traffic Signal Synchronization Project funding application including the commitment of matching funds or in-kind services.

ADOPTED, SIGNED AND APPROVED this 22nd day of November, 2011.

David J. Shawver

DAVID J. SHAWVER, MAYOR PRO TEM

Section 4: Preliminary Plans for the Project

Primary Implementation

a. Project Administration

The City of Buena Park will lead the project using contracted consultant staff to optimize signal synchronization timing along the Knott Avenue corridor. The City of Buena Park will work cooperatively with all other agencies involved in the project to improve traffic flow. The local agencies shall perform normal day to day project administration duties. Project budget shall include time and funding for agency outreach and cooperative agreement development and execution and collection of matching funds required of and by participating agencies. The contracted consultant staff shall be responsible for all aspects of the project with City of Buena Park internal staff.

b. Developing and implementing optimized traffic signal synchronization timing (required)

The City of Buena Park will lead the project to optimize traffic signal synchronization timing along the Knott Avenue corridor. The City of Buena Park will work cooperatively with all other agencies involved in the project to improve traffic flow. Synchronization will be inter-jurisdictional in nature. All existing traffic patterns, flows, and conditions will be taken into account. Synchronized timing will be developed for the AM Peak, PM Peak, Mid-day Peak and Weekend Peak periods by a consultant. Special generators such as schools and businesses along with cross street traffic will be considered as part of the project.

c. Producing a Final Report for the project

The Project team will develop a final report for the project using the OCTA Final Report Template. This report will be completed after the Primary Implementation is completed and will include the following:

- Introduction/project description: a summary of the project including the purpose, background, and objectives of the project.
- Data collection: a summary of the data collected as part of the effort including the traffic counts, phasing, lane configurations, etc.
- Traffic signal systems improvements: a summary of the implemented traffic signal systems improvements by city.

- Signal timing optimization: a summary of the development and implementation of updated signal timing including the models, selected cycle lengths, intersection groupings, etc.
- Before and after study: the study will contain directional morning and evening peak period using travel times, average speeds, green lights to red lights, stops per mile, and the derived corridor system performance index (CSPI) metric. This information shall be collected both before any signal timing changes have been made. Additional details based on the Final Report Template will also be included.
- Benefits to cost analysis: project benefits resulting from signal synchronization will be evaluated based on the Before and After study results. Savings will be calculated for travel time, fuel consumption, vehicle maintenance, and a final benefit cost ratio.
- Future signal corridor improvements: recommendations for system and equipment enhancements to improve traffic flow and signal synchronization will be provided.
- Conclusion: a summary of the project and its findings.

d. Engineering Design of Signal Improvements for the project

The City of Buena Park will use qualified traffic engineering consultants' assistance to complete the engineering design of the fiber upgrade and communications for the project.

e. Proposed Traffic Signal Improvements:

Buena Park

The City of Buena Park will install fiber-optic cable in new underground conduit to upgrade communications between City Hall and Knott Avenue. This requires installation of pull boxes, media converters, splice cabinets, splice closures, and Ethernet switches. A CCTV will be installed at Village Drive and a new cabinet will be installed at El Verano Way and Crescent Avenue. The signals in Buena Park will also be re-timed and re-optimized for traffic signal synchronization.

Anaheim

The traffic signals in Anaheim will be re-timed and re-optimized for traffic signal synchronization. The City of Anaheim will receive two performance measuring

devices (exact technology not determined), one at Lincoln Avenue and one at Ball Road.

Stanton

At Knott Avenue and Cerritos Avenue, the City of Stanton will install a new cabinet, new controller, emergency vehicle preemption (EVP) card, and type II service cabinet. At Knott Avenue and Recycle Way, the City of Stanton will install a new cabinet, controller, EVP card, and type II service cabinet. The three traffic signals in Stanton will be re-timed and re-optimized for traffic signal synchronization.

Caltrans

Caltrans signals will be re-timed and re-optimized for traffic signal synchronization.

Ongoing Maintenance and Operation

The ongoing maintenance and operation period will start after traffic signal timing is implemented and last for a period of two years. It will consist both of (1) monitoring and improving optimized traffic signal timing and (2) communications and detection support by a consultant and/or contractor. Descriptions of both are provided below:

a. Monitoring and improving optimized traffic signal timing

The corridor will be driven monthly from end to end in order to monitor and regularly improve the traffic signal synchronization timing and parameters. Improvements and corrections will be implemented as necessary. These reviews will begin upon the completion of the primary implementation and will continue until the end of the three year grant period.

b. Communications and detection support

Communication between a central system and traffic signals will be monitored, maintained, and repaired as necessary along the corridor across all local agencies to ensure necessary conditions for traffic signal synchronization. In addition, detection will be maintained well for a period of two years after traffic signal timing is implemented with consultant help. The project will use a variety of methods to monitor, maintain, and repair both communications and detection along the synchronized corridor in Figure 1 and the intersections identified in Table 1 to ensure the necessary conditions for traffic signal synchronization. A number of tools will be used including monthly drives along the corridor, analysis of central system report output, and discussion with the local agency staff.

Section 5: Total Proposed Project Cost by Task

Primary Implementation

The Primary Implementation will last for one year and include the following elements (See Table 2).

Table 2. Estimated Cost of Proposed Signal Improvements for Knott Avenue by Agency					
a. Project Administration (Buena Park)					$15,000.00
b. Developing and Implementing Optimized Signal Synchronization Timing (all agencies $5,500/signal)					$154,000
c. Producing a Final Report for the proposed project (all agencies, $1,000/signal)					$28,000
d. Engineering design of Signal Systems Improvements (all agencies $1,000/signal)					$28,000
Total 1 – Project Admin, Developing/Implement Timing, Final Report, and Engineering Design					**$225,000**
Agency	**Knott Avenue @**	**Description of Work at This Location**	**Unit Price**	**Unit Measure**	**Total**
Buena Park	Village Drive	New CCTV PTZ Camera w/Encoders	$10,000/EA	1	$10,000
Buena Park	El Verano Way	New Type P Cabinet with New Foundation	$20,000/EA	1	$10,000
Buena Park	Crescent Avenue	New Type P Cabinet with New Foundation	$20,000/EA	1	$20,000
Anaheim	Lincoln Avenue	Performance Measuring Device	$10,000/EA	1	$10,000
Anaheim	Ball Road	Performance Measuring Device	$10,000/EA	1	$10,000
Stanton	Cerritos Avenue	Type P Cabinet	$20,000/EA	1	$20,000
Stanton	Cerritos Avenue	ASC3 Controller	$3,000/EA	1	$3,000
Stanton	Cerritos Avenue	ASC/2M-2100 Master Controller	$3,500/EA	1	$3,500
Stanton	Cerritos Avenue	4 Channel EVP Card	$400/EA	1	$400
Stanton	Cerritos Avenue	Type II Service Cabinet	$20,000/EA	1	$20,000
Stanton	Cerritos Avenue	NEMA Enclosure on side of Cabinet for telephone interconnect access	$1,000/EA	1	$1,000
Stanton	Recycle Way	Type P Cabinet	$20,000/EA	1	$20,000
Stanton	Recycle Way	ASC3 Controller	$3,000/EA	1	$3,000
Stanton	Recycle Way	ASC/2M-2100 Master Controller	$3,500/EA	1	$3,500
Stanton	Recycle Way	4 Channel EVP Card	$400/EA	1	$400
Stanton	Recycle Way	Type II Service Cabinet	$1,000/EA	1	$1,000
Garden Grove	Orangewood Avenue	ASC3 Controller	$3,000/EA	1	$3,000
Garden Grove	Orangewood Avenue	Ethernet Switch	$2,000/EA	1	$2,000
Garden Grove	Orangewood Avenue	Fiber Splicing	$1,000/LS	1	$1,000
Garden Grove	Stanford Avenue	Ethernet Switch	$2,000/EA	1	$2,000
Garden Grove	Stanford Avenue	Fiber Splicing	$1,000/LS	1	$1,000
Subtotal: Estimated cost of "Proposed Signal System Improvements" (sum of above)					*$144,800*
Construction support and inspection costs (up to 15% of the estimated costs of "Proposed Signal System Improvements")					*$21,720*
Contingency (up to 10% of the estimated costs of "Proposed Signal System Improvements")					*$14,480*

Total 2- Signal System Improvements, Construction Support/Inspection, and Contingency Costs	**$181,000**
Totals 1+2	**$406,000**

New or Upgraded Communication Systems

Estimated Cost: $70,000 (see Table 3)

Table 3. Estimated Cost of Communications System Upgrades in Buena Park				
Item No.	**Description of Work**	**Unit Price**	**Unit Measure**	**Total**
1	Furnish and Install 72 strand underground fiber-optic cable with new 4" PVC conduit (includes double-stacked pull boxes, splice cabinets. Splice closures, Ethernet switches)	$35/LF	2,000	$70,000
	Estimated cost of proposed communication system upgrades			$70,000

Ongoing Maintenance and Operation

a. Monitoring and improving optimized traffic signal timing

Estimated Cost: $57,120 (see Table 4)

b. Communications and detection support timing

Estimated Cost: $26,880 (see Table 4)

Table 4. Estimated Cost of Proposed Ongoing Maintenance and Operation for Knott Avenue by Agency				
Description of Work	**Description**	**Unit Price**	**Unit Measure**	**Cost**
*Monitoring and improving optimized traffic signal timing	Drive monthly and improve timing parameters along 28 traffic signals for 24 months after traffic signal timing is implemented along Knott Avenue from Artesia Boulevard to Garden Grove Boulevard after traffic signal timing (Includes labor, truck and materials)	$85 per traffic signal per month	28 signals for 24 months	$57,120
*Communications and detection support	Monitor, maintain, and repair communication and detection for 28 traffic signals for 24 months after traffic signal timing is implemented along Knott Avenue from Artesia Boulevard to Garden Grove Boulevard.	$40 per traffic signal per month	28 signals for 24 months	$26,880
Proposed Ongoing Maintenance and Operation				$84,000

* By consultant/contractor at standard billing rates

Total Project Cost Including Primary Implementation and Ongoing Maintenance and Operation for Three Year Grant Period

Total Estimated Cost: $560,000

Comments(if any): _____

_____

Section 6: Project Schedule by Task for the 3 Year Grant Period

Project start date: July 1, 2012

Project end date: June 1, 2015

Primary Implementation

Task	Starting Date	Ending Date
a. Project Administration	July 1, 2012	July 1, 2013
b. Developing and implementing optimized signal synchronization timing	July 1, 2012	July 1, 2013
c. Producing a Final Report	July 1, 2012	May 1, 2013
d. Engineering design of Signal Systems Improvement	July 1, 2012	July 1, 2013
e. Proposed Signal System Improvements, Construction Support/Inspection, and Contingency Costs	July 1, 2012	July 1, 2013

Ongoing Maintenance and Operation

Task	Starting Date	Ending Date
a. Monitoring and improving optimized signal timing	July 1, 2013	July 1, 2015
b. Communications and detection support	July 1, 2013	July 1, 2015

Section 7: Matching Funds

M2 Funds Requested	**$448,000**
Match Amount (min 20%)	**$112,000**
In-kind match amount (max 20%)	*$36,000*
Dollar match amount	*$76,000*
Total Project Cost	**$560,000**

Total Match Ratio (to total project cost)	$112,000 / $560,000 = 20%

Details of Matching Funds

Provide details in tables (expand as necessary)

Direct Dollar Match — Total Dollar Match for the Project: $ 76,000

In Lieu Funding: — Total In Lieu Funding for the Project: $ 36,000

Total Match for Project: $ 112,000

Direct Dollar Match -

Agency	Funding Source	Amount of Direct Contribution
City of Buena Park	Traffic Signal Improvements CIP (Gas Tax)	$ 35,100
City of Anaheim	Gas Tax	$ 5,000
City of Stanton	Gas Tax	$25,250
City of Garden Grove	Gas Tax	$10,650
Caltrans		$ 0
	TOTAL	$ 76,000

In Lieu/Soft Match of Improvements or Staffing Support
Specific Improvements (List items and Cost)

Agency	Improvement	Date of Construction	Expenditure
Caltrans			$ 0
Caltrans			$ 0
City of Anaheim			$ 0
City of Buena Park			$ 0
City of Buena Park			$ 0
		TOTAL	$ 0

Staffing Commitment:

Agency	Staff Position	Type of Service to Project	No. of Hours**	Hourly Rate (fully burdened)	Total
Caltrans	Field Technician	Equipment Installation	60	$75	$4,500
Caltrans	Traffic Engineer	Signal timing implementation/Review of Consultant's work	60	$100	$6,000
City of Anaheim	Principal Traffic Engineer	Design and Engineering Review/Meetings	105	$120	$10,500
City of Buena Park	City Traffic Engineer	Project Administration/Review of Consultant's work	100	$79	$7,900
City of Buena Park	Assistant Engineer	Project Administration/Review of Consultant's work	74.5	$55	$4,100
				TOTAL	$36,000

**Note - Staff hours should not exceed staffing and reasonable dedicated time

Section 8: Environmental clearances and other permits

A categorical exemption will be obtained for this project upon project award.

Section 9: Calculations used to Develop Selection Criteria Inputs

Vehicle Miles Traveled (VMT):

Jurisdiction & Source of Traffic Counts	Segment	Current Average Daily Traffic	Distance (ml)	VMT = ADT*D	Signals in Segment	$20,000 per Signal	$60,000 per mile	Highest of the two
Buena Park (2011)	Artesia Boulevard to 8th Street	14,900	0.45	6,705	3	$60,000	$27,000	
	8th Street to Caballero Boulevard	8,500	0.27	2,295	2	$40,000	$16,200	
	Caballero Boulevard to Orangethorpe Avenue	26,500	0.3	7,950	1	$20,000	$18,000	
	Orangethorpe Avenue to the SR-91 freeway	30,600	0.2	6,120	1	$20,000	$12,000	
	SR-91 freeway to Thelma Avenue	49,400	0.35	17,290	3	$60,000	$21,000	
	Thelma Avenue to La Palma Avenue	46,200	0.37	17,094	1	$20,000	$22,200	
	La Palma Avenue to Crescent Avenue	38,900	0.5	19,450	2	$40,000	$30,000	
	Crescent Avenue to Lincoln Avenue	39,400	0.5	19,700	1	$20,000	$30,000	
				Buena Park Subtotal	14	$280,000	$176,400	$280,000
Anaheim (city website)	Lincoln Avenue to Orange Avenue	24,200	0.5	12,100	2	$40,000	$30,000	
	Orange Avenue to Ball Road	22,100	0.5	11,050	2	$40,000	$30,000	
	Ball Road to Cerritos Avenue	20,100	0.5	10,050	1	$20,000	$30,000	
				Anaheim Subtotal	6	$100,000	$90,000	$120,000
Stanton	Cerritos Avenue to Katella Avenue	25,000	0.5	12,500	2	$40,000	$30,000	
	Katella Avenue to Orangewood Avenue	29,880	0.5	14,940	1	$20,000	$30,000	
				Stanton Subtotal	3	$60,000	$60,000	$60,000
Garden Grove	Orangewood Avenue to Chapman Avenue	27,299	0.5	13,650	2	$40,000	$30,000	
	Chapman Avenue to Lampson Avenue	28,736	0.5	14,368	1	$20,000	$30,000	
	Lampson Avenue to Garden Grove Boulevard	36,393	0.5	18,197	3	$60,000	$30,000	
				Garden Grove Subtotal	6	$120,000	$90,000	$120,000
		Total Project Miles	6.94					
			Total Project VMT	203,458				
				MAXIMUM TOTAL COST OF PROJECT		$560,000	$416,400	$[illegible]

Section 10: Calculations and Estimated Points

Calculations and Estimated Points	
Criteria	**Estimated Points**
1. Vehicle Miles Traveled (VMT) (20 points) VMT = 203,458 (See above Table)	15
2. Benefit Cost Ratio: (15 points) Calculation for VMT/Total Project Cost = 203,458/$560,000=0.35	0
3. Project Characteristics: (10 points) Signal Coordination; Communications and detection support; New or upgraded communication systems; Intersection/field system modernization and replacement; and minor signal operational improvements.	10
4. Transportation Significance: (10 points) Priority corridor	10
5. Maintenance of Effort: (5 points) 0 years beyond 3 year grant period	0
6. Project Scale: (10 points) a. Number of signals / Project length (mi) = 28/6.94= 4.03 b. Number of signals being synchronized/ Total number of corridor signals= 28/55=51%	5
7. Number of Jurisdictions: (20 points) 5 jurisdictions	20
8. Current Project Readiness (5 points) Project start date: July 1, 2012	5
9. Funding Match: (5 points) $112,000 / $560,000 = 20%	0
Total Points	**65**

Section 11: Include any additional information or documentation deemed relevant by the applicant

None.

Project Summary

☒ All guidelines were met for this project

☐ Not all qualifications were met; provide an explanation below of why the guidelines were not met for this project.