

**City of Garden Grove
INTER-DEPARTMENT MEMORANDUM**

To:	Matthew J. Fertal	From:	Keith G. Jones
Dept.:	City Manager	Dept.:	Public Works
Subject:	KATELLA AVENUE TRAFFIC LIGHT SYNCHRONIZATION PROGRAM PROJECT MEMORANDUM OF UNDERSTANDING WITH ORANGE COUNTY TRANSPORTATION AUTHORITY	Date:	April 12, 2011

OBJECTIVE

To secure City Council authorization of a Memorandum of Understanding (MOU) between the Orange County Transportation Authority (OCTA) and the City of Garden Grove for the Katella Avenue Traffic Light Synchronization Program (TLSP) project.

BACKGROUND

OCTA is proposing to implement a TLSP project on Katella Avenue. The goal of the project is to improve the coordination of traffic signals to enhance traffic flow and reduce congestion across cities' boundaries. The project is approximately fifteen (15) miles in length and includes fifty-eight (58) traffic signals located in the City's of Garden Grove, Anaheim, Cypress, Fullerton, Los Alamitos, Orange, Stanton, Villa Park and the County of Orange.

The project would include preparation of new timing plans optimized for signal synchronization, hardware and software upgrades to traffic controllers, telecommunications and inter-tie systems, central traffic master controllers and associated systems.

DISCUSSION

While not participating in the costs, Garden Grove will allow access to city facilities and provide on-site support as needed. Garden Grove will also provide existing timing plans and traffic signal plans and agree to maintain the improvements and upgrades created by the project.

KATELLA AVENUE TRAFFIC LIGHT SYNCHRONIZATION PROGRAM PROJECT

April 12, 2011

Page 2


FINANCIAL IMPACT


There is no impact to the General Fund. The proposed street improvements will be funded by OCTA Measure M and Proposition 1B funds.

RECOMMENDATION

It is recommended that the City Council:

- Approve the Katella Avenue Traffic Light Synchronization Program project Memorandum of Understanding between Orange County Transportation Authority and the City of Garden Grove; and
- Authorize the Mayor to execute Memorandum of Understanding on behalf of the City including making any minor modifications to the Memorandum of Understanding as necessary.


KEITH G. JONES
Director of Public Works


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

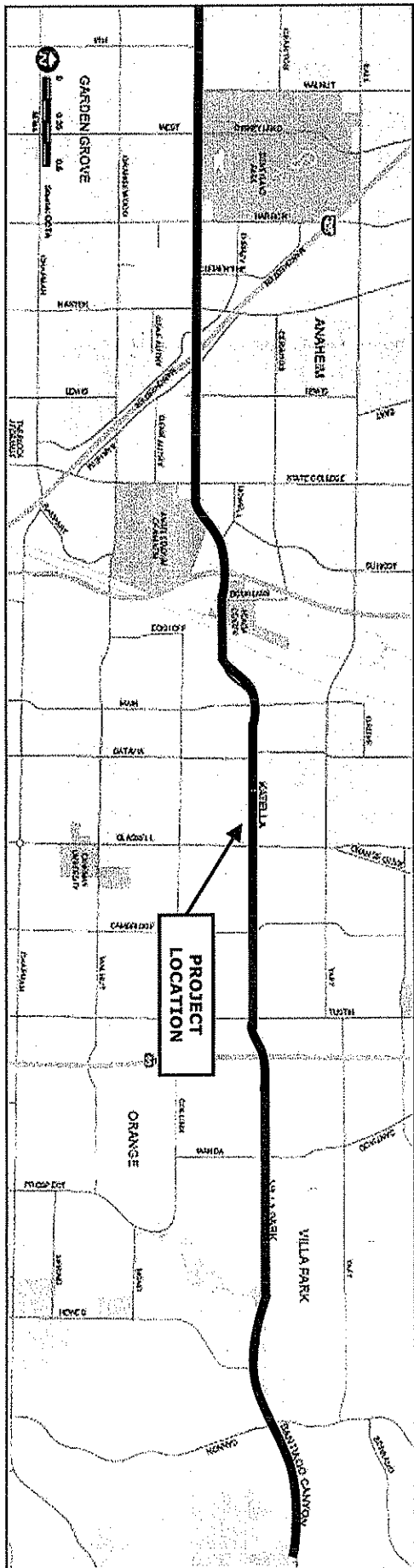
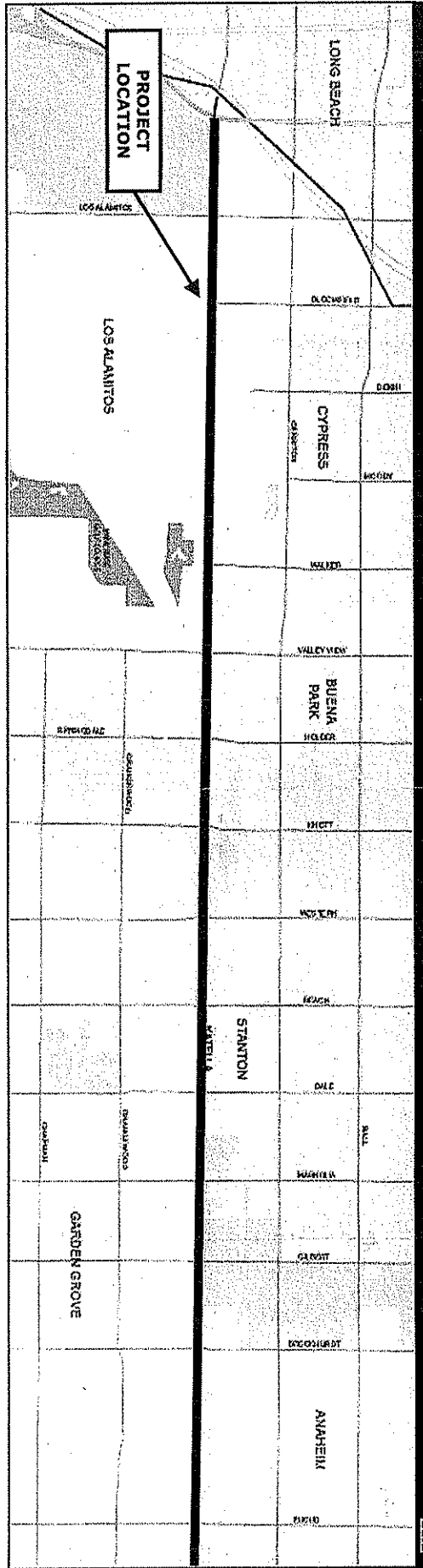
Attachment 1: Vicinity Map

Attachment 2: Katella Avenue Traffic Light Synchronization Program Project MOU

Recommended for Approval


Matthew Ferial
City Manager

Katella Avenue Corridor



1 MEMORANDUM OF UNDERSTANDING C-1-2466

2 BY AND BETWEEN

3 ORANGE COUNTY TRANSPORTATION AUTHORITY

4 AND THE CITIES OF

5 ANAHEIM, CYPRESS, GARDEN GROVE, LOS ALAMITOS, ORANGE, STANTON, VILLA PARK,

6 THE COUNTY OF ORANGE

7 AND

8 THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

9 FOR

10 THE KATELLA AVENUE TRAFFIC LIGHT SYNCHRONIZATION PROGRAM PROJECT

11 The following Memorandum of Understanding (hereinafter, "MOU") is effective _____ day
12 of _____, 2011 entered by and between the Orange County Transportation Authority (hereinafter,
13 "AUTHORITY"), the City of Anaheim, the City of Cypress, the City of Garden Grove, the City of Los
14 Alamitos, the City of Orange, the City of Stanton, the City of Villa Park, the County of Orange, and the
15 State of California Department of Transportation (Caltrans) hereinafter jointly referred to as the
16 "AGENCIES" and severally as "AGENCY"; with regard to the following matters:

17 **WHEREAS**, coordinating and synchronizing traffic signals across cities' boundaries is a major
18 component in enhancing countywide traffic flow and reducing congestion; and

19 **WHEREAS**, AUTHORITY has the responsibility to carry out signal coordination and
20 synchronization efforts in Orange County; and

21 **WHEREAS**, AUTHORITY has successfully completed two interjurisdictional traffic signal
22 synchronization demonstration projects (one located in the northern part of the Orange County and the
23 other located in the southern part of Orange County); and

24 **WHEREAS**, the AUTHORITY has combined the Signal Improvement Program funds from
25 Measure M with equal funds from Proposition 1B to create the Traffic Light Synchronization Program
26 (hereinafter, "TLSP") of ten (10) countywide inter jurisdictional corridors to be synchronized; and

**MEMORANDUM OF UNDERSTANDING C-1-2466
KATELLA AVENUE
TRAFFIC LIGHT SYNCHRONIZATION PROGRAM**

1 **WHEREAS**, the TLSP PROJECTS shall consist of corridors that will span a minimum of two
2 jurisdictions, not require immediate street widening, and have sufficient traffic volumes to show a
3 measurable benefit of interagency signal synchronization through cooperative time-based coordination;
4 and

5 **WHEREAS**, AUTHORITY and AGENCIES agree to the implementation of the Katella Avenue
6 Traffic Signal Synchronization Project (hereinafter, the "PROJECT") as one of the ten (10) corridors for
7 TLSP signal synchronization PROJECTS for Orange County; and

8 **WHEREAS**, the PROJECT is fifteen (15) miles in length and will include approximately
9 fifty-eight (58) traffic signals located from the west Orange County border in the City of Los Alamitos to
10 the intersection of Santiago Canyon Road and Cannon Street in the City of Orange in the east as
11 illustrated in Attachment B; and

12 **WHEREAS**, the TLSP PROJECT is funded 50 percent by Proposition 1B Traffic Light
13 Synchronization Program and 50 percent by Measure M Signal Improvement Program; and

14 **WHEREAS**, the PROJECT will also include hardware and software upgrades to traffic
15 controllers, traffic telecommunications and inter-tie systems, central traffic master controllers and
16 associated systems, (hereinafter collectively referred to as "Traffic Control Elements"), and these Traffic
17 Control Elements will be constructed and/or installed and implemented as part of the PROJECT as
18 identified in the PROJECT scope of work and as approved by the owning AGENCY; and

19 **WHEREAS**, AUTHORITY agrees to work with AGENCIES to coordinate the inclusion of other
20 Traffic Control Elements to be installed during the construction of the PROJECT that are NOT included
21 in the PROJECT Scope of Work, and that the owning AGENCY will have responsibility for coordinating
22 and funding the installation of those Traffic Control Elements during the course of the PROJECT; and

23 **WHEREAS**, AUTHORITY and AGENCIES acknowledge that other TLSP corridor projects and
24 similar other AUTHORITY sponsored Traffic Signal Timing Synchronization Projects are currently
25 underway or completed which intersect the PROJECT, and that their respective corridor timing
26 operations must be incorporated into the design and completion of the PROJECT; and

**MEMORANDUM OF UNDERSTANDING C-1-2466
KATELLA AVENUE
TRAFFIC LIGHT SYNCHRONIZATION PROGRAM**

1 **WHEREAS**, AUTHORITY and AGENCIES acknowledge their mutual desire to enter into this
2 MOU formalizing the terms and conditions, to establish guidelines and responsibilities between the
3 AUTHORITY and AGENCIES, for mutually agreed upon services and use of resources for the
4 development and implementation of the Katella Avenue TLSP Project, and;

5 **NOW, THEREFORE**, it is mutually understood and agreed by AUTHORITY and AGENCIES to
6 enter into the following Memorandum of Understanding with respect to the matters as follows:

7 **ARTICLE 1. COMPLETE AGREEMENT:**

8 This MOU, including all exhibits and documents incorporated herein and made applicable by
9 reference, constitutes the complete and exclusive statement of the terms and conditions of the MOU
10 between AUTHORITY and AGENCIES concerning the PROJECT and supersedes all prior
11 representations, understandings and communications between the parties. The above-referenced
12 recitals are true and correct and are incorporated by reference herein. The invalidity in whole or part of
13 any term or condition of this MOU shall not affect the validity of other term(s) or condition(s).

14 **ARTICLE 2. RESPONSIBILITIES OF AUTHORITY:**

15 AUTHORITY agrees to the following responsibilities for PROJECT:

- 16 1. To provide administrative functions for PROJECT and retain oversight of the PROJECT
17 by establishing PROJECT milestones and overseeing the PROJECT development.
- 18 2. To pay 100 percent for all eligible expenses for PROJECT as determined by
19 AUTHORITY.
- 20 3. AUTHORITY shall maintain interface with the AGENCIES and coordinate outreach for
21 the PROJECT.
- 22 4. AUTHORITY shall assist in building consensus among the AGENCIES with respect to
23 the required services for the PROJECT.
- 24 5. The AGENCIES and AUTHORITY agree that PROJECT signal synchronization efforts
25 shall focus on those time periods with intersection and/or system specific operational parameters as
26 specified in the PROJECT scope of work.

**MEMORANDUM OF UNDERSTANDING C-1-2466
KATELLA AVENUE
TRAFFIC LIGHT SYNCHRONIZATION PROGRAM**

1 6. AUTHORITY shall collect all data necessary for the analysis and optimization of traffic
2 signal timing specified in the PROJECT Scope of Work (Attachments A through C).

3 7. AUTHORITY shall develop new timing plans optimized for signal synchronization while
4 maintaining or minimizing impact to existing crossing arterial timing and operations.

5 8. AUTHORITY shall provide on-site support to implement the timing plans as necessary.
6 Timing plans are subject to each AGENCY'S review and approval.

7 9. AUTHORITY shall provide updated timing plans and all relevant data acquired for the
8 analysis to the AGENCIES upon request.

9 10. AUTHORITY shall endeavor to provide construction items designed, specified, and
10 called by the Project Scope of Work and " Katella Avenue TLSP Work by Location", or equivalent
11 (See Attachment B); to facilitate coordination and synchronization along PROJECT, including
12 Agency specific operating systems and intersection signal control systems, with the caveat that
13 during the course of construction, better more cost effective methods may be found and/or employed
14 that meet the intent of the required and/or specified operation for the construction items.

15 11. To prepare "before" and "after" studies of the PROJECT conditions. The "before" studies
16 and the "after" studies shall be completed during the time periods when local public schools (K – 12)
17 are in session with completion by end of spring 2012.

18 12. To designate a technical lead person to act as a liaison among the AGENCIES.

19 **ARTICLE 3. RESPONSIBILITES OF AGENCIES**

20 AGENCIES agree to the following responsibilities for PROJECT:

21 1. To provide AUTHORITY current intersection, local field master, and/or central control
22 system timing plans and related data no later than thirty (30) days subsequent to the execution of
23 this MOU, and updates thereafter, as they occur, within 7 days of the event.

24 2. To provide appropriate Plans, Specifications, and Estimates (PS & E) documentation to
25 the AUTHORITY, or its representative, to utilize in the construction of infrastructure required to
26 implement the desired coordinated and synchronized systems and operations.

**MEMORANDUM OF UNDERSTANDING C-1-2466
KATELLA AVENUE
TRAFFIC LIGHT SYNCHRONIZATION PROGRAM**

1 3. To waive all costs and fees related to any and all AGENCY required encroachment and
2 inspection permits for the construction phase of the PROJECT.

3 4. To pay for any items or expense deemed ineligible for PROJECT but is requested to be
4 installed or provided to AGENCY in conjunction with or as part of PROJECT.

5 5. To give PROJECT related signal and telecommunications equipment a high maintenance
6 priority during the PROJECT.

7 6. To take reasonable steps to keep signal controls, inter – tie, and detection systems and
8 equipment in proper working order during the PROJECT.

9 7. To fund and provide function to maintain and repair the signal control inter – tie, and
10 detection systems and equipment located within each of their respective jurisdictions.

11 8. To work with AUTHORITY to determine which of the AGENCIES shall provide on-site
12 support for timing plan changes and upgrades to all synchronization systems, components,
13 equipment, and infrastructure systems as specified in the PROJECT scope of work. Each
14 AGENCY's Traffic Engineer or authorized designee (which in some cases may be the AUTHORITY)
15 shall be authorized to make changes or adjustments to the signal timing plans when required.

16 9. To perform the changes required at central or field control locations and/or intersection
17 controller assemblies. When AUTHORITY is required to make such changes, AGENCIES shall
18 provide AUTHORITY access to all necessary equipment.

19 10. To designate a technical lead person to act as a liaison among the AGENCIES

20 **ARTICLE 4. MUTUAL RESPONSIBILITES OF ALL PARTIES:**

21 AUTHORITY and AGENCIES agree to the following mutual responsibilities for PROJECT:

22 1. PROJECT signal synchronization efforts shall focus on those time periods specified in
23 the PROJECT scope of work, and/or as determined through the course of the PROJECT.

24 2. To attend and participate in all joint AGENCIES related PROJECT meetings.

25 3. To cooperate and coordinate with all other AGENCIES, their staff, contractors,
26 consultants, vendors, in providing the services and responsibilities required under this MOU to the

**MEMORANDUM OF UNDERSTANDING C-1-2466
KATELLA AVENUE
TRAFFIC LIGHT SYNCHRONIZATION PROGRAM**

1 extent practicable with respect to the performance of the PROJECT.

2 4. The owning AGENCY shall be responsible for coordinating the construction and/or
3 installation of Traffic Control Elements and other items that are not included but by necessity, must
4 be built concurrent, with the PROJECT.

5 5. To work together in good faith, using reasonable efforts to resolve any unforeseen issues
6 and disputes arising out of the performance of this MOU.

7 6. This MOU may only be modified or amended upon written mutual consent of all agencies.
8 All modifications, amendments, changes and revisions of this MOU in whole or part, and from time
9 to time, shall be binding upon the parties, so long as the same shall be in writing and executed by
10 the AUTHORITY and the AGENCIES.

11 7. Counterparts of MOU: This MOU may be executed and delivered in any number of
12 counterparts, each of which, when executed and delivered shall be deemed an original and all of
13 which together shall constitute the same MOU. Facsimile signatures will be permitted.

14 8. This MOU shall be governed by all applicable federal, state and local laws. The
15 AUTHORITY and AGENCIES warrant that in the performance of this MOU, each shall comply with
16 all applicable federal, state and local laws, statutes and ordinances and all lawful orders, rules and
17 regulations promulgated there under.

18 9. Each AGENCY agrees to defend, indemnify and hold harmless the other AGENCIES,
19 their Officers, agents, elected officials, and employees, from all liability, claims, losses and demands,
20 including defense costs and reasonable attorneys' fees, whether resulting from court action or
21 otherwise, arising out of the acts or omissions of the defending AGENCY, its officers, agents, or
22 employees, in the performance of this MOU. When acts or omissions of one AGENCY are directed
23 by another AGENCY, the AGENCY directing the acts or omissions shall owe this defense and
24 indemnity obligation to the AGENCY following the directions. The provisions of this paragraph 8
25 shall survive termination of this MOU.

26 10. Each AGENCY shall be excused from performing its obligations under this MOU during

**MEMORANDUM OF UNDERSTANDING C-1-2466
KATELLA AVENUE
TRAFFIC LIGHT SYNCHRONIZATION PROGRAM**

1 the time and to the extent that it is prevented from performing by an unforeseeable cause beyond its
2 control, including but not limited to: any incidence of fire, flood; acts of God; commandeering of
3 material, products, plants or facilities by federal, state or local government; national fuel shortage; or
4 a material act or omission by any other agency; when satisfactory evidence of such cause is
5 presented to the other AGENCIES, and provided further such nonperformance is unforeseeable,
6 beyond the control and is not due to the fault or negligence of the AGENCY not performing.

7 11. Any notice sent by first class mail, postage paid, to the address and addressee, shall be
8 deemed to have been given when in the ordinary course it would be delivered. The representatives
9 of the agencies who are primarily responsible for the administration of this MOU, and to whom
10 notices, demands and communications shall be given are as detailed in Attachment C.

11 12. This MOU shall continue in full force and effect through December 31, 2012, unless
12 terminated earlier, or extended, by mutual consent by AUTHORITY and AGENCY. AUTHORITY and
13 AGENCIES may elect to extend the term of this MOU for an additional six (6) months commencing
14 January 1, 2013 and ending June 30, 2013.

15 13. The term of this MOU may only be extended upon mutual written agreement by all
16 AGENCIES.

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MEMORANDUM OF UNDERSTANDING C-1-2466
KATELLA AVENUE
TRAFFIC LIGHT SYNCHRONIZATION PROGRAM

1 **IN WITNESS WHEREOF**, the AGENCIES hereto have caused this MOU No. C-1-2466
2 to be executed on the date first above written.

3 **CITY OF ANAHEIM**

ORANGE COUNTY TRANSPORTATION AUTHORITY

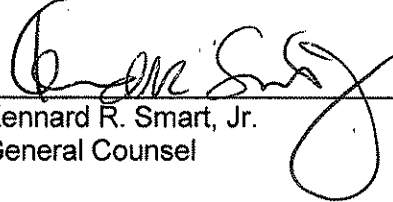
4 By: _____
5 Tom Tait
6 Mayor

By: _____
Meena Katakia, Manager
Capital Projects

6 **ATTEST:**

APPROVED AS TO FORM:

7
8 By: _____
Linda Andal
City Clerk

By: 
Kennard R. Smart, Jr.
General Counsel

9 **APPROVED AS TO FORM:**
10 **CRISTINA L. TALLEY, CITY ATTORNEY**

11 By: _____
12 Bryn M. Morley
13 Deputy City Attorney



MEMORANDUM OF UNDERSTANDING C-1-2466
KATELLA AVENUE
TRAFFIC LIGHT SYNCHRONIZATION PROGRAM

1 **IN WITNESS WHEREOF**, the AGENCIES hereto have caused this MOU No. C-1-2466
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4 **CITY OF CYPRESS**

5 By: _____

6 Leroy Mills
7 Mayor

8 **ATTEST:**

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10 By: _____

11 Denise Basham
12 City Clerk

13 **APPROVED AS TO FORM:**

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15 By: _____

16 William Wynder
17 City Attorney

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MEMORANDUM OF UNDERSTANDING C-1-2466
KATELLA AVENUE
TRAFFIC LIGHT SYNCHRONIZATION PROGRAM

1 **IN WITNESS WHEREOF**, the AGENCIES hereto have caused this MOU No. C-1-2466
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4 **CITY OF GARDEN GROVE**

5 By: _____
6 William J. Dalton
7 Mayor

8 **ATTEST:**

9 By: _____
10 Kathleen Bailor
11 City Clerk

MEMORANDUM OF UNDERSTANDING C-1-2466
KATELLA AVENUE
TRAFFIC LIGHT SYNCHRONIZATION PROGRAM

1 **IN WITNESS WHEREOF**, the AGENCIES hereto have caused this MOU No. C-1-2466
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3

4 **CITY OF LOS ALAMITOS**

5 By: _____
6 Kenneth Stevens
7 Mayor

8 **ATTEST:**

9 By: _____
10 Adria M. Jimenez
11 City Clerk

12 **APPROVED AS TO FORM:**

13 By: _____
14 Sandra J. Levin
15 City Attorney

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MEMORANDUM OF UNDERSTANDING C-1-2466
KATELLA AVENUE
TRAFFIC LIGHT SYNCHRONIZATION PROGRAM

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3

4 **CITY OF ORANGE**

5 By: _____
6 Carolyn V. Cavecche
7 Mayor

8 **ATTEST:**

9 By: _____
10 Mary. E. Murphy
11 City Clerk

12 **APPROVED AS TO FORM:**

13 By: _____
14 David A. DeBerry
15 City Attorney

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MEMORANDUM OF UNDERSTANDING C-1-2466
KATELLA AVENUE
TRAFFIC LIGHT SYNCHRONIZATION PROGRAM

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3

4 **CITY OF STANTON**

5 By: _____
6 David Cadena
7 Mayor

8 **ATTEST:**

9 By: _____
10 Brenda Green
11 City Clerk

12 **APPROVED AS TO FORM:**

13 By: _____
14 Ralph D. Hanson
15 City Attorney

MEMORANDUM OF UNDERSTANDING C-1-2466
KATELLA AVENUE
TRAFFIC LIGHT SYNCHRONIZATION PROGRAM

1 **IN WITNESS WHEREOF**, the AGENCIES hereto have caused this MOU No. C-1-2466
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3

4 **CITY OF VILLA PARK**

5 By: _____

6 W. Richard Ulmer
7 Mayor

8 **ATTEST:**

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10 By: _____

11 Jarad L. Hildenbrand
12 City Clerk

13 **APPROVED AS TO FORM:**

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15 By: _____

16 Todd O. Litfin
17 City Attorney

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MEMORANDUM OF UNDERSTANDING C-1-2466
KATELLA AVENUE
TRAFFIC LIGHT SYNCHRONIZATION PROGRAM

1 **IN WITNESS WHEREOF**, the AGENCIES hereto have caused this MOU No. C-1-2466
2 to be executed on the date first above written.

3 **COUNTY OF ORANGE, a political subdivision of the State of California**

4
5
6 By: _____
7 Chairman, Board of Supervisors

8 **ATTEST, SIGNED AND CERTIFIED THAT A COPY OF THIS DOCUMENT HAS BEEN DELIVERED**
9 **TO THE CHAIRMAN OF THE BOARD:**

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11
12 By: _____
13 Darlene Bloom, Clerk of the Board of Supervisors of Orange County, California

14 **APPROVED AS TO FORM, COUNTY COUNSEL ORANGE COUNTY, CALIFORNIA:**

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16
17 By: _____
18 Deputy

MEMORANDUM OF UNDERSTANDING C-1-2466
KATELLA AVENUE
TRAFFIC LIGHT SYNCHRONIZATION PROGRAM

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IN WITNESS WHEREOF, the AGENCIES hereto have caused this MOU No. C-1-2466 to be executed on the date first above written.

CALIFORNIA DEPARTMENT OF TRANSPORTATION

By: _____
James Pinheiro
Deputy District Director
Operations and Maintenance

**SCOPE OF WORK
KATELLA AVENUE
TRAFFIC LIGHT SYNCHRONIZATION PROGRAM
PROJECT**

The Orange County Transportation Authority (Authority or OCTA) desires to provide all required construction to improve and enhance signal timing and synchronization services and operations for all signalized intersections on the Katella Avenue Traffic Light Synchronization Program (TLSP) Project. This 15 mile stretch of Katella Avenue TLSP Project includes fifty eight (58) signalized intersections and includes six (6) Orange county cities, unincorporated County of Orange, and Caltrans. The street was selected by the local cities to be a preferred corridor for conducting a TLSP project for expanded, interjurisdictional signal coordination.

The Katella Avenue TLSP Project passes through the cities of Anaheim, Cypress, Garden Grove, Los Alamitos, Orange, Stanton, the County of Orange, and Caltrans. Signals along the corridor are controlled by the cities, County of Orange Public Works, and by the California Department of Transportation (Caltrans). The agencies along the corridor utilize several different types of controllers, including Type 170 C8, Type 2070, NEMA TS - 1, 2 by Econolite, Traconex, CSC, 2070/ACTRA and Multisonics 820 controllers, and other miscellaneous types.

The main goals and objective of this project is for a qualified Traffic Engineering Consultant (Consultant) to perform:

- An operations and timing analysis to develop and implement optimized traffic signal synchronization timing, including the development and implementation of timing plans at all signalized intersections
- Consultant shall determine and make recommendations for, all traffic signal equipment and infrastructure related solely to improve and/or enhance synchronization.
- Upon approval by the owning AGENCY and OCTA, Consultant shall procure, furnish and install all approved infrastructure improvements for The Katella Avenue TLSP Project.

The implementation of the new optimized timing and infrastructure improvements will provide signal synchronization timing for prevailing traffic patterns, maximize the number of intersections traversed on a green indication vs. those stop by a red indication, reduce stops, decrease travel times, reduce overall delay, and reduce emissions and Green House Gases (GHG), and provide a continuing foundation for interjurisdictional cooperation in coordination of interactive but autonomous local agency traffic signal systems.

**AGREEMENT NO. C-1-2466
KATELLA AVENUE TLSP
ATTACHMENT A**

The following specific tasks are required to be performed in the course of providing service for the traffic signal coordination project. Tasks are listed in sequential order for clarity. However, some tasks may run concurrently or commence prior to the order listed.

Task 1: Project Management

Project Management is ongoing throughout the duration of the project. This task includes day-to-day project management including meetings, progress reports, tracking of schedules, invoicing, and overall administration of the project. The project management team, comprised of Authority personnel, and the On – Call TLSP Traffic Engineering Consultant (Consultant), acts as an extension of the Authority staff and will act in that capacity at meetings with the respective corridor agencies. The following list is a minimum of what is required of this task:

1. Consultant shall prepare a detailed Project Management Plan (PMP) that includes budget and schedule estimates for all of the tasks described in the Scope of Work, providing specific project milestones for review and approval by the Orange County Transportation Authority (Authority) Project Manager (APM) or designated representative. These items shall be detailed and include expected meetings, activities (by work task, whether performed by Consultant team or by others), start dates, activity durations, product submittal dates, relationships among work tasks (including critical path items), and a detailed flow chart for the project tasks, and float time. Consultant shall finalize the report based on comments received from the project sponsor, other involved agencies, and APM and/or Authority staff.
2. Consultant shall lead a two (2) stage Project Kick-Off Meeting with the APM and agencies staff.
 - a. The first stage will be to kick-off the project with the APM; establish communication channels and protocols discuss the scope of work, schedule, and budget; gather available information; and obtain a thorough understanding of the goals for the project. Specific topics to discuss include data collection needs, specific Synchro/Sim Traffic version 7.0 and Tru – Traffic version 9.0+ modeling needs, specific construction items and procurement methodologies, and schedule.
 - b. The second stage of the meeting will be with the Consultant, APM, and agency representatives that have signalized intersections along the Katella Avenue TLSP Project. Data collection needs and requirements shall be outlined to the involved agencies. Consultant shall notify each agency of the

**AGREEMENT NO. C-1-2466
KATELLA AVENUE TLSP
ATTACHMENT A**

type of work, and when the work is to be performed within that agency. Consultant shall notify each participating Agency any and all documents that need to be produced pertaining to the construction of the facilities and the coordination, including but not limited to: as-built drawings, new Plans, Specifications and Estimates for new construction to be built as part of this project (PS&E), Intersection Timing Charts, Existing Synchro Models, Aerial photos, ADT and TMC data, etc. The APM may assist in this endeavor to facilitate time constraints.

3. Consultant shall lead project meetings as directed by the Authority to include the Consultant staff, APM, and other project related participants. The purpose of these meetings will be to ensure that proper input is being received by Consultant and the Authority and that it is included in the work effort.
 - a. Consultant shall prepare agendas, provide status updates, discuss the progress and direction of the work, and provide notes of these meetings as directed by the Authority to all participants. These meetings will also serve to provide feedback between the project development team and Consultant regarding specific issues of the effort, including facilitating the development of measures of effectiveness, construction alternatives and mitigations, and as specified in later tasks.
4. Consultant shall attend and be an active presenter at the Authority-led Intelligent Transportation Systems (ITS) Roundtable, updating the group on the effort, its status, and other items as determined by Authority staff. The ITS Roundtable is a semi – annual forum envisioned to further communication and information exchange between the Authority and the local agencies regarding signal coordination and ITS.
5. Consultant shall attend and present at four (4) Board/Committee meetings to summarize the findings. Consultant shall attend and present at other agency committee meetings, and intergovernmental meetings as directed by the Authority. The purpose of these meetings may be to inform attendees about the project, signal synchronization in general, the Katella Avenue TLSP Project potential strategies, and other relevant information.
 - a. At a minimum, a total of 10 monthly project team meetings, 2 Board, 2 committee, and 6 project team and other meetings shall be used for scheduling and budgeting purposes.

Deliverables – Task 1:

1. Lead a 2 Stage Project Kick-off Meeting and prepare agenda and meeting materials.
2. Detailed Project Management Plan.
3. Attend Monthly project team meetings and prepare meeting materials, including agenda, action items, graphics, presentation aides, and notes.
4. Monthly progress reports (electronic master and two copies) including status of the work effort and updated schedule. Draft and Final Project Reports.
5. Electronic versions of all data files as directed by Authority.
6. Graphics and presentation aides required for all meetings.
7. All documents provided in electronic form should be of currently used OCTA MS Word 2007 format.
8. All electronic data produced for this project shall be provided on CD-R.

Task 2: Data Collection

Consultant shall collect the following data necessary to thoroughly understand existing traffic conditions in the study area and be able to develop optimal time-of-day traffic signal coordination plans, if applicable.

1. From the involved agencies and or Authority, Consultant shall collect existing timing charts/sheets, existing coordination plans, traffic as-built drawings, aerial photos, maps, traffic collision data as available, and collision diagrams for the study intersections, if available. Consultant shall also collect any off the shelf plans (PS & E) for construction of any and all traffic signal coordination/synchronization related plans, specifications and estimates for the corridor. Consultant, if requested by the involved agency, will provide their own staff to review available records/plans and request copies of needed records/plans with a minimum of disruption to the involved agency.
2. From the involved agencies, Consultant shall collect signal timing and signal priority preferences, including, but not limited to, those related to pedestrian and bicycle timing, phase sequence modifications and preferences, and special operations such as conditional service, coordination preferred phase re – service, and ring – barrier logic, as well as the timing optimization software preference.
3. Consultant shall conduct seven-day 24-hour machine counts along each 1 mile segment of Katella Avenue TLSP Project. Additionally, Consultant will collect 24-hour vehicle classification counts using a machine at four (4) locations on Katella Avenue TLSP Project to determine heavy vehicle (truck) percentage information. Data obtained from Saturday and Sunday counts will determine the necessity of

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weekend signal timing.

4. Consultant shall conduct weekday and weekend peak period turning movement counts (TMC) at each of the fifty eight (58) project signalized intersections, including pedestrian and bicycle counts. No other types of TMC classification shall be necessary. Weekday counts shall be conducted for two hours of each peak period (AM, mid-day, and PM). If needed, after analyzing the seven-day 24-hour machine counts, weekend counts shall be conducted at each of the 58 project signalized intersections for a single two hour Saturday mid-day peak period. For intersections with more than 2 through lanes in any of the approaches, a minimum of 2 people per intersection is required.
 - a. Consultant, APM, and Local Agencies shall determine locations for special video recording of bicycle and pedestrian activity for specific data collection in support of upcoming changes to the CA MUTCD. Video recording and data reduction shall be required at minimum 4 locations.
5. All counts shall be summarized in MS Excel 2007 format. Copies of the raw data count sheets will be provided to each involved agency.

Deliverables – Task 2:

1. Report summarizing data collection effort, including intersection turning counts, traffic collision analysis, current traffic signal timing patterns, and drawings of intersection features.
2. Electronic versions of all data files.

Task 3: Field Review

1. Consultant shall review the geometric layout, existing traffic signal equipment and signal synchronization related infrastructure, and identify any deficiencies for each intersection and along the whole corridor. The review shall include an assessment of the existing intersection geometry, traffic conditions, and traffic signal control equipment and telemetry/interconnect facilities along the corridor and of each intersection using observation, available as-built plans, consultation with the local agencies, and agency aerial photos. Consultant will use a standard field form developed by Consultant for this review that accounts for each piece of intersection data required. With permission of the local agencies, Consultant will inspect the interior of each traffic control cabinet, inspect the telemetry systems and determine their respective condition and make recommendations for equipment upgrades. Consultant is advised that certain infrastructure and equipment upgrades have been identified previously by the agencies and reviewed by the APM and shall be a

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requirement of this project. These items are identified subsequently within this document.

2. Consultant shall also include an identification of all planned and programmed improvements widening projects, intersection improvements, etc.) on the study corridor. The identification of these projects should be at minimum a list summarizing all improvements.
3. Key components of the corridor review shall include, at minimum, the following:
 - Corridor lane configurations and lane widths
 - Existing street and lane geometries, curbs, and medians.
 - Upcoming improvements to the corridor;
 - Traffic signs and pavement markings at intersections along Katella Avenue TLSP Project and cross streets
 - Traffic signal control device information, such as type of device, brand and make, condition of equipment.
 - Existing signal operation characteristics – signal phasing, cycle lengths, phase sequence alteration, and protective-permissive, etc.,
 - Existing controller and telemetry/interconnect equipment;
 - Existing time-referencing setup;
 - Existing Central Master Equipment
 - Existing Field Master Equipment
 - open each controller cabinet and take digital photos of all equipment inside
 - Note any deficiencies of traffic control equipment at each intersection
 - Note the maintenance condition or existence of the traffic signal equipment, controllers; and synchronization related infrastructure

Consultant shall also investigate factors that are expected to affect signal progression including, but not limited to: intersections with high pedestrian or bicyclist volumes; over-saturated intersections; uneven lane distribution; high volumes of trucks and buses; high-volume un-signalized intersections, including interchanges; parking maneuvers; presence and location of bus stops; differing signal timing patterns among agencies; etc.

With the view of assisting, enhancing, and improving the traffic operations along this corridor, Consultant shall identify any deficiencies of the existing traffic signal control and telemetry infrastructure, and geometric layout, and provide recommendations towards simple solutions that may be implemented to correct such deficiencies.

Consultant shall prepare a report summarizing the findings of the field review.

Deliverables – Task 3:

1. Report documenting:
 - a. the field review
 - b. recommended mitigations to perceived problems
2. Electronic versions of the report and all data files

Task 4: Katella Avenue TLSP Project 'Before' Study

Consultant shall conduct a 'Before' field study report representative of the times and days for which synchronization plans will be developed. The report shall identify Measures of Effectiveness (MOE) to evaluate the effects of the synchronization plans. MOE's will likely include traffic flow, travel time, average speed, number of stops, fuel consumption reduction, pollution reduction, and other pertinent items. As an option, the Consultant may include additional MOE's that are not usually identified but may be relevant to proving corridor improvements. The Consultant shall identify these additional MOE's and the methodology used to quantify them. The identified MOE's shall be compiled for the corridor using the floating car method and from Synchro 7.0. Between three (3) to five (5) runs will be completed in each direction for each of the three weekday timing plans (a.m., midday, and p.m.), and three (3) to five (5) runs will be completed in each direction during the Saturday midday plan. Number of runs shall be consistent for both directions and time periods. Consultant shall notify and receive approval from APM on number of runs to be accomplished.

Project travel-time data will be collected using the floating car method, a laptop computer, a GPS receiver unit, and JAMAR PC Travel or Tru Traffic v 9.0 or greater.

The report shall address likely optimization strategies for signal synchronization, specifically focusing on how to consider Katella Avenue TLSP Project optimization: end – to – end vs. coordinated zones. Ideally, the analysis should include the floating car data and data collected as part of Task 2. However draft versions of the report can include previously collected traffic, travel time, or other data, if considered relevant and available. The evaluation report shall provide a very good understanding of traffic patterns on Katella Avenue TLSP Project throughout the weekdays and throughout the weekend.

The Consultant shall perform due diligence with regard to existing and proposed timing operations on arterials that intersect with the Katella Avenue TLSP Project.

Consultant shall prepare a memorandum and present the findings to the Authority outlining the findings of the 'Before' field study. The Authority may request a

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presentation on the traffic patterns on Katella Avenue TLSP Project and possible synchronization strategies to address the traffic patterns (optimizing the fill corridor versus optimizing segments identified with natural traffic breaks) to provide direction on the preferred signal timing strategy. Any requested presentation shall include as much of the turning movement, 24-hour machine counts, travel time, earlier city counts, etc. as available. Consultant shall finalize the memorandum based on comments received from the Authority Project Manager and other involved agencies and after incorporating the full set of data collected by Consultant as part of Task 2.

Deliverables – Task 4:

1. A memorandum documenting the results of the 'Before', to be distributed to the APM and agencies as a discussion item. More detailed analysis of project results shall be included in Task 8: Project Report.
2. Electronic versions of all data files and memorandum.

Task 5: Signal Timing Optimization and Implementation

Consultant shall work with the APM and agencies to develop a model of the study area and calibrate the model based on field observations of existing conditions. Signal synchronization optimization shall be conducted in Synchro 7.0. The corridor model must be consistent with all aspects and seamlessly interface and interlace with the County Wide Synchro Network as administered by the GIS/ROADS database. The Katella Avenue TLSP Project Synchro 7.0 model and shall be easily imported and or exported from that database. Node or intersection numbering scheme must remain consistent with ROADS. Any modifications, additions, or removal of intersections or roadway segments (nodes or links) must be approved by Authority Section Manager – Development/GIS, Planning and Analysis and the APM. Consultant shall calibrate the model based on travel time, delay studies, field observations of queue lengths, and saturation flows for heavy movements at key intersections. At the discretion of the Consultant, TS/PP – Draft Software version 7.0 or latest release may be used, subsequent to initial optimization, to augment and enhance green band throughput (offset, splits, phase rotation); and, to incorporate specific off band coordinated traffic platoons into the corridor operation as required by data analysis and field observations.

Consultant shall evaluate signal timing and coordination parameters with consideration for the following:

- Optimize coordination timing using:
 - Modified Phase Sequence Rotation
 - Overlap or display output phase transfer techniques to reservice

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- phases with capacity problems (Ring – Barrier Logic)
- Protected/Permissive operations
 - Phasing will be lead/lead only; or,
 - Flashing Yellow Arrow technique may be employed for lead/lag if controlling/owner agency permits its use
 - Harmonic cycling
 - other innovative techniques
- Consultant will measure the saturation flow rates at key project intersections during one peak hour where the overall intersection volume-to-capacity ratio is greater than or equal to 0.8 as a calibration for the Synchro model
- Timing parameters which provide adequate splits and corresponding offsets which fully accommodate pedestrians within the split time. Consultant shall take into consideration the pedestrian timing parameters used by the local agency on a case by case basis. Pedestrian Intervals shall be examined and retimed to current adopted standards by each respective agency. Consultant should note that proposed new timing standards now being analyzed by FHWA for the upcoming revisions to the MUTCD have not been approved nor adopted at any legislative level.
- Timing parameters which incorporate minimal pedestrian activity to provide the optimum vehicle split and offset timing and accommodate pedestrians using various pedestrian timing adjustment techniques for pedestrian splits during coordination
- Appropriate cycle lengths consistent with the goals of this effort. Additionally, Consultant shall recommend time-of-day start and stop intervals for the various timing plans based on the identified peaks from the 24-hour machine counts, and field observation
- Consultant shall prepare, at minimum, a total of three (3) timing plans for a typical weekday which consider the following peak periods: AM PEAK, MID-DAY PEAK, PM PEAK and one (1) timing plan for a typical Saturday for a MID-DAY PEAK. Timing plans should be in both Synchro format and the preferred timing chart format of each local agency.

Consultant shall develop an operational model within SimTraffic. The operational analysis will be used to micro – simulate and analyze specific roadway segments with queuing, spill back, starvation, storage blocking, and other queuing interactions, and to analyze and mitigate the conditions discovered by Consultant and/or APM and agencies in field reviews.

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Consultant shall develop optimized signal timings using the results from Synchro 7.0, SimTraffic, and Tru Traffic version 9.0 or latest released version and recommend any changes to the signal phasing at each signalized intersection that may improve the efficiency of operations. Output of the modeling software shall not be utilized without proper QA/QC. Engineering judgment shall be utilized to determine final operational parameters. The recommended signal timing plans shall be reviewed by the APM and local agency staff.

Upon approval of the optimized signal timings by the Authority, Caltrans, the County (if part of the corridor MOU), and the cities, the Consultant shall implement, or assist local agencies staff in the implementation of new signal timings either through the central traffic signal system (if available) or direct implementation intersection controller units. Consultant shall use existing traffic signal interconnection systems, where they exist, and, as a result of the inter-jurisdictional nature of the project, shall implement time-based signal coordination techniques across signals controlled by different agencies.

As the project will be using time-based signal coordination, the Consultant shall evaluate the current time-referencing of all traffic signal controllers and recommend a corridor-wide strategy (such as WWV or GPS clocks) to ensure that all traffic signal controllers are on synchronized time clocks. Consultant shall verify that all Central Master or Local Field Master, and/or Local Controller unit clocks are:

- operating properly and are synchronized;
- that all clocks are referencing a common reset time;
- and that all clocks are referencing a common time of day for start of cycle length calculation (i.e. 12:00AM – Midnight)

Consultant shall fine-tune, or assist local agency staff in the fine-tuning of, the new settings and timings. Consultant shall fine-tune timings in the field and record all changes. Fine-tuning shall be conducted during times and days that are representative of the times and days for which coordination plans were developed.

Consultant shall utilize Tru – Traffic Version 9.0 or later software on a laptop with appropriate GPS device and use the floating car method utilized in the Katella Avenue TLSP Project “Before” Study to fine tune the corridor operation and verify integrity of system intersection clocks. Synchronized Video shall be used to compare actual conditions to anticipated conditions dictated by the Tru Traffic time space diagram so that any anomalies may be corrected prior to “After” Study tasks.

Consultant shall prepare a memorandum detailing the signal timing optimization and implementation, including detail on the time-referencing system and SimTraffic results.

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Consultant shall finalize the memorandum based on comments received from the project sponsor, other involved agencies, and the Authority Project Manager.

Deliverables Task 5:

1. All optimized and synchronized traffic signal timing plans, including existing corridor conditions and improved corridor conditions.
2. Field implementation of optimized traffic signal plans for existing corridor conditions, including all required fine tuning.
3. Evaluation, recommendation, and installation of a time-referencing system.
4. Electronic Synchro 7.0 data files used in analysis.
5. Electronic SimTraffic data files used in analysis.
6. Electronic Tru Traffic v 9.0 data files with video used in analysis.
7. Electronic versions of all other data files and memorandums.
8. Memorandum documenting the signal timing optimization and implementation.

Task 6: Katella Avenue TLSP Project 'After' Study

The Consultant shall conduct an 'After' field study representative of the times and days for which synchronization plans will be developed. The 'After' study must be conducted in the same manner and contain the same MOE's as the 'Before' study in order to evaluate the improvements of the synchronization plans. MOE's should be compiled for the optimized corridor using the floating car method output in Tru Traffic and then from Synchro 7.0. Three (3) to five (5) runs will be completed in each direction for each of the three weekday timing plans (a.m., midday, and p.m.), and three (3) to five (5) runs will be completed in each direction during the Saturday midday plan.

Project travel-time data will be collected using the floating car method, a laptop computer, a GPS receiver unit, and the methodologies and software to match the before study, exactly.

Consultant shall prepare a memorandum comparing the results of the 'Before' and 'After' field study with reference to the specific MOE's and present the findings to the Board. Consultant shall finalize the memorandum based on comments received from the OCTA Project Manager and other involved agencies.

Deliverables Task 6:

1. Memorandum comparing the results of the 'Before' and 'After' studies, to be distributed to OCTA Board as an item. More detailed analysis of project results to be included in Task 6: project report.
2. Presentation to the Board of the 'Before' and 'After' study comparison.

3. Electronic versions of all data files and memorandum.

Task 7: Synchronization System Construction – Agency Specific

General:

Consultant shall coordinate with each agency of the Katella Avenue TLSP Project to assess special construction requirements, needs and desires, previously unforeseen or unknown necessary to complete the project. This may include:

1. GPS time clocks at Central, Field Master, and Local Intersection Controller Assemblies;
2. The replacement and/or modifications to intersection controller assemblies and/or units;
3. Modifications or upgrades from closed loop system to central system hardware, firmware, and software,
4. Modifications, additions; or repair of missing or damaged signal synchronization infrastructure and other assets to be determined. Listed below is a matrix for each agency as to what is currently deemed to be constructed:

Task 8: Project Report

Consultant shall prepare a Final Timings and Evaluation Technical Report with an executive summary. The report shall provide complete documentation of the project, including, but not limited to, project objectives, project locations, project scope, findings, recommendations, implementation schedule, improvements accomplished, and procedures for continuing maintenance, surveillance, and evaluation of the coordinated signal system, work performed, data collected: 'before' and 'after' studies and project benefits achieved in terms of fuel savings, travel timing, travel time, and other measurable parameters. The report shall document all planned and programmed improvements on the study corridor as well as recommendations for further infrastructure improvements that would likely improve the corridor signal coordination project results. Consultant shall present the final report and results of the project to the Board and city councils as required.

The report shall include for each intersection the lane configurations; signal phasing, turning movement data, and cycle lengths for existing and proposed timings for all peak periods. In addition, in a separate binder, all the traffic signal phase sequences, signal timing plans, and pedestrian timings shall be documented. Finally, the report shall provide recommendations with cost and benefit estimates for future improvements to traffic signal infrastructure (signal controllers, vehicle detection, communications, etc.),

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intersection capacity (appropriate signal phasing, lane geometrics, and alleviation of physical bottlenecks that curtail arterial capacity), and traffic management strategies. These proposed improvements are beyond the scope of this demonstration project but should be useful in determining future enhancements to the corridor.

Deliverables Task 8:

1. Draft and final Katella Avenue TLSP Project Signal Synchronization Project Report (one electronic master and 15 hardcopies) and Presentations.

Task 9: Continuing Signal Timing Support

Consultant will provide "on-call" signal timing support services for a period of nine (9) months following the implementation and fine – tuning of the final signal timing plans, Task 5, to address any future adjustments that may be needed during this period.

During this 9-month period Consultant will be prepared to review any project intersection requested by the OCTA or any AGENCY within (24) hours of written notice, including observing and fine-tuning the signal timing.

Consultant will drive the length of the project arterial during all designated corridor synchronization timing plan hours of operation on a monthly basis in order to verify that the synchronization timing is working as designed, and complete any necessary adjustments. Monthly driving times will consist of a full 12-hour weekday and a 4-hour Saturday. Consultant shall notify APM 24 hours prior to commencement of driving periods.

Deliverables Task 9:

1. 9- months of on-call support and revised signal timing plans and memorandum documenting changes.
2. Electronic versions of all data files and memorandums.

KATELLA AVENUE TLSP by Agency

Agency	Katella Avenue @	Location	Node #	Description of Work This Location
Caltrans	I - 605 N/B Ramp	1	8773	
Los Alamitos	Oak Street	2	8753	
Los Alamitos	Walnut Street/Walingsford	3	8756	
Los Alamitos	Los Alamitos Boulevard	4	8757	
Los Alamitos	Cherry Street	5	8768	
Los Alamitos	Bloomfield Street	6	8758	
Los Alamitos	Noel Street	7	8759	
Los Alamitos	Lexington Drive	8	8760	
Cypress	Cottonwood	9	8801	
Cypress	Siboney Street/Track Entrance	10	7388	ca
Los Alamitos	Winners Circle	11	8761	
Cypress	Walker Street	12	7389	ca
Cypress	Douglas Drive/Warland	13	7361	ca
Cypress	Valley View Street	14	7390	City to upgrade by Jan, 2011
Cypress	Hope Street	15	7362	City to upgrade by Jan, 2011
Cypress	Holder Street	16	7391	City to upgrade by Jan, 2011
Cypress	Dana Way/Yamaha Way	17	7366	City to upgrade by Jan, 2011
Cypress	Meridian Drive	18	7363	City to upgrade by Jan, 2011
Stanton	Knott Avenue/Knott Street	19	8907	
Stanton	Western Avenue	20	8910	
Stanton	Cedar Street	21	8902	20 and 21 clustered one ICU
Stanton	Rose Street	22	8925	
Caltrans	Beach Boulevard SR - 39	23	185	Not a Part/ Beach Boulevard
Garden Grove	Dale Street/Dale Avenue	24	8909	
Stanton	Magnolia Avenue/Magnolia Street	25	8908	
Orange County	Garza Avenue	26	6550	
Garden Grove	Gilbert Street	27	6416	
Garden Grove	Brookhurst Street	28	801	
Garden Grove	Nutwood Street	29	802	
Garden Grove	Euclid Street	30	805	
Garden Grove	Ninth Street	31	806	
Anaheim	Walnut Street	32	804	
Anaheim	Disneyland Drive/West Street	33	803	
Anaheim	Convention Center Way	34	651	
Anaheim	Harbor Boulevard	35	807	
Anaheim	Clementine Street	36	809	
Anaheim	Anaheim Boulevard/Haster Street	37	810	
Caltrans	Manchester Ave / I - 5 S/B Ramps	38	184	
Caltrans	Anaheim Way / I - 5 Ramps	39	397	
Anaheim	Lewis Street	40	811	
Anaheim	State College Boulevard	41	812	Not a Part / BRT TSS
Anaheim	Community Circle	42	808	
Anaheim	Howell Avenue	43	800	
Caltrans	SR - 57 S/B Off Ramps	44	20	
Caltrans	SR - 57 N/B Off Ramps	45	19	
Anaheim	Douglas Road	46	799	
Orange	Struck Avenue	47	3081	ca,bbs
Orange	Katella Ave @ Stadium Promenade	48	3036	
Orange	Katella Ave @ Stadium Promenade	49	3370	
Orange	Main Street	50	3050	ca
Orange	Batavia	51	3049	ca, Type III Service
Orange	Railroad Crossing	52	9102	
Orange	Xtra/Home Depot Center	53	3006	
Orange	Glassell Avenue	54	3051	ca, Type III Service

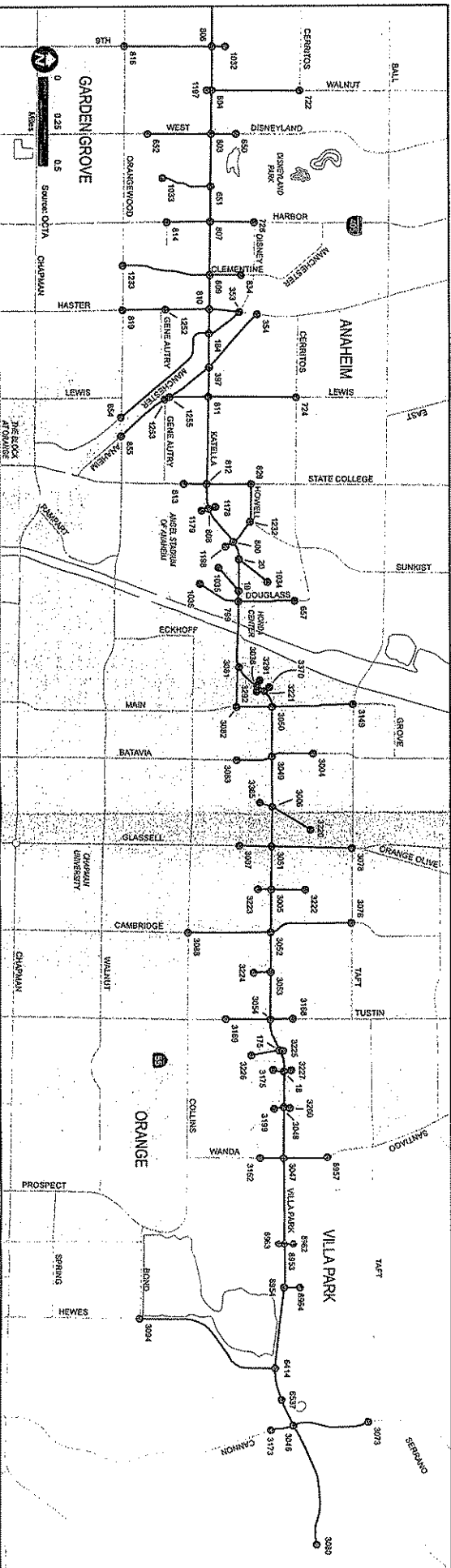
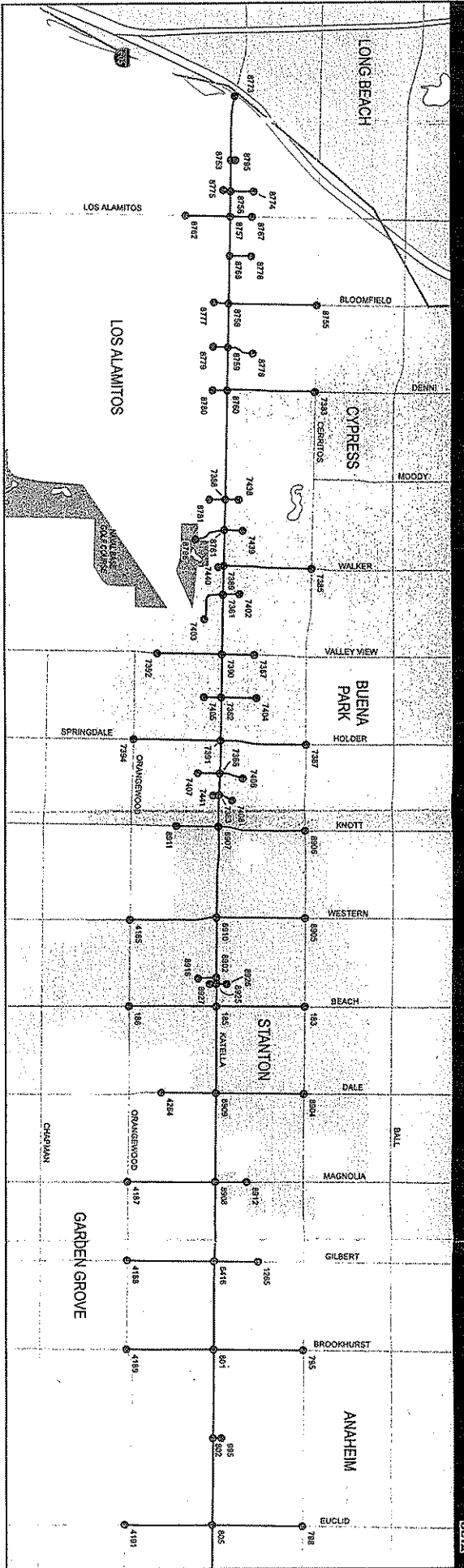
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Agency	Villa Park Road @	Location	ROADS Node #	Description of Work This Location
Orange	Shaffer Street	55	3005	ca, Type III Service, bbs
Orange	Cambridge Street	56	3052	cu
Orange	California Street	57	3053	ca, Relocate at City Expense
Orange	Tustin Street	58	3054	cu
Caltrans	SR - 55 S/B Ramps	59	175	2070
Caltrans	SR - 55 N/B Ramps/Sacramento	60	18	2070, 170E, gps, I/C to loc. 57
Orange	Handy Street/Van Owen	61	3048	ca, Type III Service, bbs
Orange	Katella/Villa Park/Wanda St	62	3047	ca, Relocate at City Expense
Villa Park	Center Drive	63	8953	ca, C? on licensing
Villa Park	Lemon Street	64	8954	ca
Orange County	Hewes Street	65	6414	ca
Villa Park	Cannon Street	66	3046	

cu = controller unit; ca = controller assembly includes cu + all necessary equipment and appurtenances + es; es = ethernet switch; gps = gps interface and antennae installed; 2070 = C = CenTracs; A = Aries; ACT = ACTRA; TAC = TACTICS; BB = Battery Backup System; Exist. or New I/C = Interconnect Conduit with media; media - F = Fiber Optic, TP = 24 pair TPisted Copper; VD = Video Detection; VS = Video Surveillance System; W = WiFi; L = Loop Detector; a # following item codes = quantity (i.e. L42 = install 42 loop detectors); * = shared ownership; ** following task code = NOT A PART, agency pays 100% for that task only. m - cu = modify existing controller. New controller may be substituted if functionally equivalent

CONSULTANT is cautioned to verify interconnect components in field.

All other location tasks are a part; *** following task code = Part TLSP/Part Agency funded; All equipment is furnished and installed and/or modify existing installation with 1 year guaranty on labor and material. Firmware and Software Upgrades for installed specified systems is included in the installed price for a period of 3 years (This is only for fixes or enhancements necessary for the current operation and does not include upgrade functionality). Excludes new software for new features not originally installed nor specified to be installed and included. Removal of existing equipment and appurtenances is included in the furnish and install or modify existing installation price. PS & E may be available at no cost to the Consultant from Project Agencies. ☉ = Xing Arterial Operations



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LIST OF CONTACTS

<p><u>OCTA</u> Mr. Ronald Keith Principal Traffic Engineer Planning 550 S. Main Street Orange, CA 92866 Tel: 714.560.5990 rkeith@octa.net</p>	<p><u>Caltrans</u> Mr. Fedrico Hormozi Senior Electrical Engineer 6681 Marine Way Irvine, CA 92618 Tel: 949.936.3464 fedrico_hormozi@dot.ca.gov</p>	<p><u>City of Anaheim</u> Mr. John Thai Principal Traffic Engineer 201 S. Anaheim Boulevard Suite 502 Anaheim, CA 92805 Tel: 714.765.5202 jthai@anaheim.net</p>
<p><u>City of Cypress</u> Mr. Keith Carter Traffic Engineer 5275 Orange Avenue Cypress, CA 90630 Tel: 714.229.6750 kcarter@ci.cypress.ca.us</p>	<p><u>City of Garden Grove</u> Mr. Dan Candelaria Traffic Engineer 11222 Acacia Parkway Garden Grove, CA 92842 Tel: 714.741.5185 danc@garden-grove.org</p>	<p><u>City of Los Alamitos</u> Mr. Dave Hunt City Engineer 3191 Katella Avenue Los Alamitos, CA 90720 Tel: 562.431.3538 x110 dhunt@ci.los-alamitos.ca.us</p>
<p><u>City of Orange</u> Mr. Amir Farahani Traffic Engineer 300 E. Chapman Avenue Orange, CA 92866 Tel: 714.744.5534 afarahani@cityoforange.org</p>	<p><u>City of Stanton</u> Mr. Nick Guilliams Director of Public Works/ City Engineer 7800 Katella Avenue Stanton, CA 90680-5612 Tel: 714.379.9222 x203 Nguilliams@ci.stanton.ca.us</p>	<p><u>City of Villa Park</u> Mr. William "Joe" O'Neil City Engineer 17855 Santiago Boulevard Villa Park, CA 92861 Tel: 714.998.1500 joneil@villapark.org</p>
		<p><u>County of Orange</u> Mr. Ted Rigoni Manager - OC Road P. O. Box 4048 Santa Ana, CA 92702-4048 Tel: 714.834-5872 Ted.Rigoni@ocpw.ocgov.com</p>