



CITY OF COSTA MESA

CALIFORNIA 92628-1200

P.O. BOX 1200

FROM THE OFFICE OF THE TRANSPORTATION SERVICES MANAGER

June 11, 2008

Fred Minagar
Minagar & Associates, Inc
6 Venture, Suite 315
Irvine, CA 92618

**SUBJECT: REQUEST FOR PROPOSAL FOR THE COSTA MESA/SANTA ANA
TRAFFIC SIGNAL COORDINATION PROJECT**

Dear Consultant:

The City of Costa Mesa is requesting proposals to develop traffic signal coordination improvements at 29 intersections within the north Costa Mesa area. The project will be developed in concert with signal coordination work to be conducted separately by the City of Santa Ana. The project area and subject intersections are illustrated by attached Exhibits "A" and "B." The general project scope of work includes:

- ❖ Assessment of 29 traffic signals and arterial network conditions including signal phasing, traffic and pedestrian volumes, vehicle speeds, roadway capacity and operational efficiency.
- ❖ Modeling of arterial and intersection capacity/progression and joint preparation of signal analysis and coordination timings with City of Santa Ana and Caltrans;
- ❖ Implementation and fine-tuning of signal coordination plans and compilation of a Before/After Study documenting improvements.

BACKGROUND

The City of Costa Mesa manages 122 traffic signals within 16 square miles of jurisdictional area. To the north, the City of Santa Ana controls 275 traffic signals within 27 square miles. Along the five miles of common border between agencies, a number of major regional arterials are shared including Main Street, Bristol Street, Bear Street, Fairview Road, Harbor Boulevard, Sunflower Avenue and MacArthur Boulevard. Daily traffic volumes along these arterials are significant, with Harbor Boulevard, Fairview Road and Bristol Street ranking among the heaviest traveled corridors in the County in proximity to the I-405. Caltrans controls six signalized intersections within the project area serving on/off ramps to the I-405 Freeway.

Currently, signal coordination is lacking along the Costa Mesa/Santa Ana boundary. Accordingly, traffic circulation is not optimally efficient and lends to motorist delay, congestion and associated increases in fuel consumption and exhaust emissions. Five OCTA designated congestion "Hot Spot" intersections exist within the project limits consisting of Harbor Boulevard/I-405, Fairview Road/I-405, Bristol Street/I-405, Bear Street/MacArthur and Main Street/Sunflower. The following scope of work is therefore developed to improve these conditions jointly with the City of Santa Ana and Caltrans.

GENERAL WORK PROGRAM

The professional services scope of work is intended as a "Turnkey" project to maintain a responsible and comprehensive base for project development. All tasks shall be coordinated to effectively develop interrelated project elements and tasks shall not be advanced until preliminary requirements are addressed and clear direction established. The consultant shall have total responsibility for the accuracy and completeness of all work and services required for this project. Quality Control shall be consistently and thoroughly applied throughout project development. Assigned QA/QC staff shall be technically well qualified to conduct the appropriate level of oversight, and demonstrate a concerted commitment to provide a high quality product.

Project development meetings shall be held monthly with concise written records prepared on all meetings and activities. The consultant will be responsible for all coordination with participating agencies, preparing meeting agendas, minutes and presentation materials. A project schedule shall be prepared itemizing all activities and subtasks to support project milestones. The schedule shall be in the form of a bar chart and show a deliverables and other relevant data needed for the control of work. A copy of the schedule software program and monthly updates shall be furnished to the City Project Manager. The proposed scope of work is based on a Measure M Signal Improvement Program (SIP) grant award received from the Orange County Transportation Authority (OCTA). The consultant shall retain detailed accounting records to fully meet OCTA accounting and auditing oversight.

Consultants proposing on this project shall clearly demonstrate the ability and commitment to accelerate project development with alacrity and efficiency. Accordingly, the consultant shall commit all necessary resources to achieve expeditious completion. Firms considering proposal submittals are requested to have an in-house technical expertise to fully and professionally address and facilitate all aspects of the project. The selected consulting firm shall maintain the same project manager throughout the duration of the project, as specified in the proposal and approved by the City.

The following description of work defines the general project requirements. Associated tasks and provisions not specifically defined herein are requested to be fully addressed in the proposal and undertaken within the proposed "Not to Exceed" contract fee.

PROJECT DESCRIPTION

The project consists of providing signal timing and coordination improvements at twenty-nine (29) signalized intersections per Exhibits A and B, and non-optimization coordination modeling of 12 intersections within the City of Santa Ana. The City of Santa Ana shall provide coordination split, offset, etc. data for consultant's incorporation into the subject study. The consultant shall confer with the City of Santa Ana and Caltrans on a weekly basis as required throughout project development for all interagency signal timing/arterial coordination work.

Existing field conditions and signal timing plans for intersection and corridor operations shall be evaluated and conditions documented. The consultant shall model, analyze and optimize individual intersection conditions and submit for review by the City, prior to analysis of arterial coordination studies. The intersection and arterial signal analysis and optimization approach and software programs to be utilized by the Consultant shall be described in detail in the proposal. New timings shall be

developed, implemented, tested and refined to optimize signal coordination and vehicle progression. Three separate timing plans per intersection shall be prepared covering the AM, Noon and PM peak periods. Travel progression time/delay field studies shall be conducted along the five arterials within both agencies for each timing plan. Full scale “draft” Time-Space Diagrams (500’ per inch horizontal/50 second per inch vertical) shall be prepared for each new timing pattern and presented to each City for review, with final diagrams prepared documenting final coordination timings. The timing study shall account for the network-wide coordination system and respective impact/benefits to cross street progression. Network traffic flow shall not be compromised.

The manual input of new coordination timings and any adjustments recommended by the consultant shall be made by the respective agency staff. A minimum of three (3) separate “post timing implementation“ field studies shall be conducted for each timing plan to incrementally optimize progression by refining cycle lengths, offsets, phase sequences and split parameters in close consultation with City, Santa Ana and Caltrans staff. A final report will be prepared summarizing “before” and “after” conditions identifying signal coordination benefits derived in corridor vehicle progression, reduction in stops, delays, fuel consumption, exhaust emissions and improvement in individual intersection operations.

AGENCY ROLES AND RELATIONSHIPS

The City of Costa Mesa will serve as lead agency on the project and be responsible for project administration, contractual agreements and adherence to the budget. Direct oversight by the City of Santa Ana and Caltrans will be provided on all interrelated project elements.

CONTENT OF PROPOSAL

It is requested that the following be submitted with your proposal:

- A narrative understanding of the project, any suggestions you might have to expedite the project or special concerns that the City should be advised. Identify all tasks necessary to meet the intended project objective and achieve project completion within the proposal.
- A detailed schedule indicating stages of work, sub-tasks and time frames.
- An organization chart and staffing plan identifying personnel who will perform work on this project, a brief resume on each individual (one page max per person) and recent projects they have worked on of similar type. Identify the project manager with a detailed resume, and the individual authorized to negotiate the contract on behalf of the consulting firm.
- A listing of similar improvement projects that your firm has completed within the last five years. Information should include a description of work, year completed, cost, and agency/client name along with the agency contact person.
- Commitment to comply with Professional Services Agreement requirements (see attached agreement).
- Submittal of **Two (2)** duplicate proposals are requested.

FEE SCHEDULE

The professional services contract fee is to be submitted in a separate envelope. The fee schedule should show the hourly cost of personnel per task under each phase, with a total not-to-exceed amount for the project. The consultant's cost proposal for the prime and subcontractors should contain a breakdown of all cost components including labor base rate, other direct costs, overhead, and fees in compliance with the described scope, the attached General Specifications, and include all associated work required to achieve the project objective. It is requested that the fee, including meetings, reproduction, materials, and associated project expenses be itemized per the following General Fee Schedule format:

General Fee Schedule

Traffic Counts at 22 Intersections *	Per Intersection \$ _____	Total \$ _____
Signal Coordination Study 29 Costa Mesa Intersections	Per Intersection \$ _____	Total \$ _____
Non-optimization Coordination Modeling of 12 Santa Ana Intersections	Per Intersection \$ _____	Total \$ _____

* Count data furnished by City at 7 locations

CUMULATIVE NOT-TO-EXCEED FEE: \$ _____

Additive Work Scope

Coordination Optimization Modeling & Analysis of 12 Santa Ana Intersections	Per Intersection \$ _____	Total \$ _____
Traffic Counts at 12 Intersections	Per Intersection \$ _____	Total \$ _____

Additive work shall be included exclusively at the discretion of the City contingent on bid results.

All originals of plans, field notes, data and calculations, correspondence, reports, electronic files, etc., will be turned over to the City upon completion of work. Ten percent (10%) of the total contract fee will be withheld until final project documents are submitted to the City.

CONTRACT CHANGES

Any change in the scope of work resulting in a contract increase or decrease in fee shall be approved by the City **in writing prior to commencement** of any change in work. No fee adjustment will be allowed unless said **prior** approval is authorized exclusively **in writing** by the City, without exception.

RIGHT TO REJECT ALL PROPOSALS

The City of Costa Mesa reserves the right to reject any or all proposals submitted, and no representation is made hereby that any contract will be awarded pursuant to this request for proposal, or otherwise. All costs incurred in the preparation of the proposal, in the submission of additional information, and/or in any other aspect of a proposal prior to the award of a written contract will be borne by respondent. The City will provide only the staff assistance and documentation specifically referred to herein and will not be responsible for any other cost or obligation of any kind that may be incurred by a respondent. All proposals submitted to the City of Costa Mesa in response to this request for proposals shall become the property of the City.

Enclosed is the City of Costa Mesa professional services standard agreement and sample certificate of insurance for reference in preparing the proposal. The minimum insurance and endorsement requirements are stated within the enclosed documents. Should your firm be interested in submitting a proposal for this project, please forward to the City of Costa Mesa, Transportation Services Division, 4th floor City Hall, **on or before 5:00 p.m. July 9, 2008**. If additional information is required, please contact me at (714) 754-5183, or email at: ddsorge@ci.costa-mesa.ca.us.

Sincerely,



DAVID SORGE
PROJECT MANAGER

Attachments: Exhibits A & B – Project Area and Intersection List
City Standard Agreement and Certificate of Insurance Forms

cc:
Peter Naghavi, Public Services Director
Raja Sethuraman, Transportation Services Manager

Vinh Nguyen, Senior Civil Engineer
City of Santa Ana
PWA-Traffic Engineering
20 Civic Center Plaza, M-43
Santa Ana, CA 92701

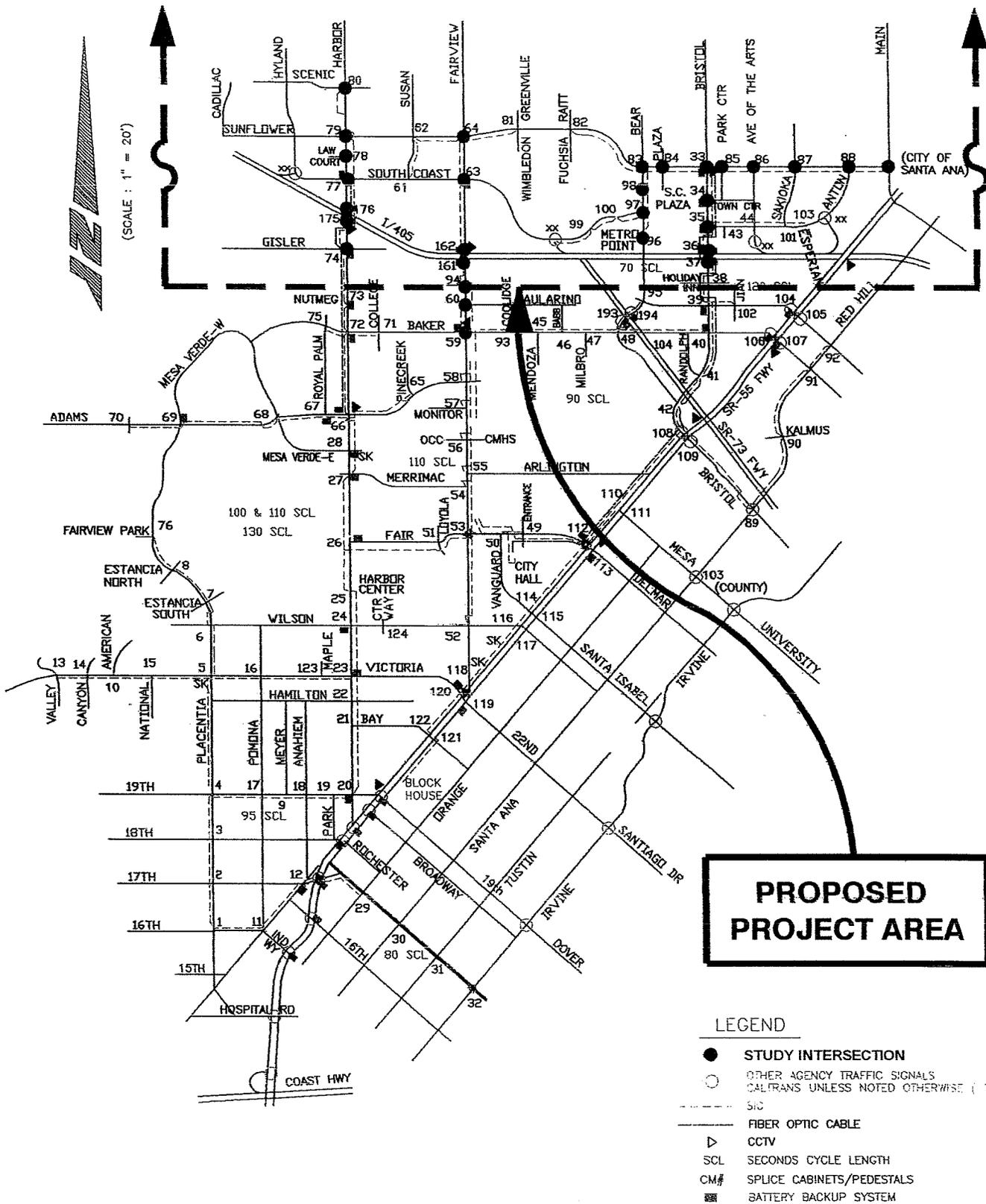


EXHIBIT A
COSTA MESA/SANTA ANA SIGNAL COORDINATION PROJECT
PROJECT AREA

EXHIBIT B

Costa Mesa/Santa Ana Signal Coordination Project Traffic Signal Locations

<u>Costa Mesa Signals – Base Project</u>	<u>Santa Ana Signals **</u>
<p>74 - Harbor /Gisler (tc) x - Harbor/SB 405* x - Harbor/NB 405* 77 - Harbor/South Coast 78 - Harbor/Law Court 79 - Harbor/Sunflower 80 - Harbor/Scenic/Lake Center</p> <p>59 - Fairview/Baker (tc) 60 - Fairview/Paularino 94 - Fairview/McCormack x - Fairview/SB 405* x - Fairview/NB 405* 63 - Fairview/South Coast (tc) 64 - Fairview/Sunflower</p> <p>83 - Bear/Sunflower 98 - Bear/Crystal Court 97 - Bear/South Coast 96 - Bear/Metro Pointe</p> <p>33 - Bristol/Sunflower (tc) 34 - Bristol/Town Center 35 - Bristol/Anton (tc) 36 - Bristol/NB 405* (tc) 37 - Bristol/SB 405* (tc)</p> <p>84 - Sunflower/Plaza 85 - Sunflower/Park Center 86 - Sunflower/Ave of Arts 87 - Sunflower/Sakioka 88 - Sunflower/Anton x - Sunflower/Main</p>	<p>Harbor/MacArthur Harbor/Garry Harbor/Segerstrom Harbor/Warner</p> <p>Fairview/MacArthur Fairview/Alton Fairview/Segerstrom Fairview/Warner</p> <p>Bristol/Callen’s Commons Bristol/MacArthur Bristol/Shopping Center Bristol/Alton</p> <p>** Addressed by the City of Santa Ana or Additive Bid Item Work</p>
<p>* - Caltrans Signals (tc) – AM/PM peak traffic counts available</p>	

EXHIBIT B

RESPONSE AND SCOPE OF SERVICES

SECTION 3

TECHNICAL APPROACH/WORK PLAN

The City of Costa Mesa, in conjunction with the City of Santa Ana and Caltrans, desires to engage professional consulting traffic engineering services for a proposed project to improve traffic flow along key arterials by developing, implementing and fine-tuning coordinated traffic signal timing plans for various intersections in the north Costa Mesa/south Santa Ana area. Along the five miles of common border between the two Cities, a number of major regional arterials are shared, including Main Street, Bristol Street, Bear Street, Fairview Road, Harbor Boulevard, Sunflower Avenue, and MacArthur Boulevard. Additionally, Caltrans controls six signalized intersections within the project area serving on/off ramps to the I-405 Freeway. Currently, signal coordination is lacking along the Costa Mesa/Santa Ana boundary. Accordingly, traffic circulation is not optimally efficient and leads to motorist delay, congestion, and associated increases in fuel consumption and exhaust emissions.

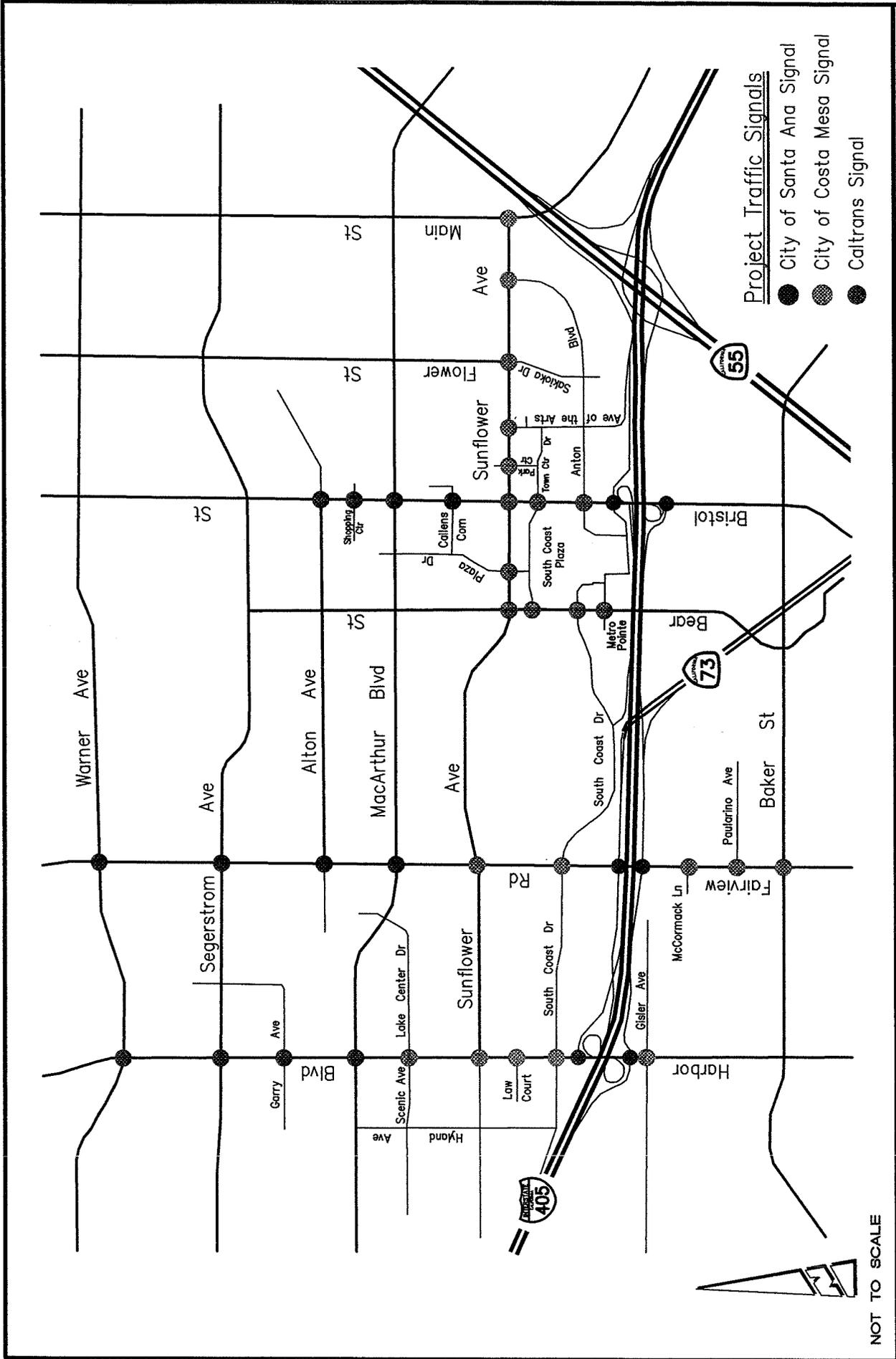
The AGA Project Team and their relevant experience is discussed in Sections 1 and 2 of this proposal. The Project Team has discussed this project and agreed on the following Project Approach, which is based upon the RFP, our preliminary field investigation, discussions with City staff, our previous experience working with the Cities and with Caltrans, our specific knowledge of the significant traffic operational problems along the project routes, and our previous experience in designing, installing, operating and maintaining interconnected traffic signal systems throughout Southern California. In summary, we will develop, assist the Cities with implementation, and fine-tune AM, Midday, and PM weekday peak periods and weekend Midday coordination timing plans for 29 signalized intersections in Costa Mesa (including 6 Caltrans intersections at I-405 on/off ramps). Additionally, we will develop non-optimization coordination modeling of 12 intersections within the City of Santa Ana.

The Project Location Map (Figure 2) identifies specific intersections that are included in the project.

The following is our detailed Scope of Work for this project.

Task 1: Project Management

Mr. Chalap Sadam, T.E., is AGA's Project Manager for this Project. As such, he will be responsible for the overall and the daily management of the project for AGA's Project Team. Team meetings will be held as required. Mr. Sadam will personally arrange all meetings that are included as part of the project scope of work, and will confer weekly with Costa Mesa, Santa Ana, and Caltrans regarding project progress and issues. He will be responsible for adherence to the project schedule and, along with Mr. Al Grover, for maintaining quality control of all project work products. In short, he will do everything necessary to ensure that the project is completed on time, within budget, and in a manner



COSTA MESA/SANTA ANA TRAFFIC SIGNAL COORDINATION
PROJECT LOCATION MAP

FIGURE 2

Figure 2

that fulfills all the goals and objectives of Costa Mesa, Santa Ana, Caltrans and OCTA, the agency funding the project via a Measure M Signal Improvement Program (SIP) Grant.

Costa Mesa desires that all work be conducted with alacrity and efficiency in order to accelerate project development. Our preliminary project schedule is included as Figure 3. Upon receipt of Notice to Proceed, and prior to the Project Kick-Off Meeting, AGA will prepare a more detailed project schedule that includes start dates, activity durations, product submittal dates, etc., including review times by Costa Mesa and other agencies.

Agendas and minutes will be prepared before/after all monthly project development meetings and provided to Costa Mesa and all other meeting attendees. Mr. Sadam's extensive experience in conducting forums and in dealing with traffic engineering problems and political concerns, as viewed from both a consultant's and a City's perspective, will be invaluable in providing guidance for this project. Additionally, our involvement in the recent Orange County Regional ITS Architecture Project, the Orange County Traffic Signal Coordination Program, the I-405 Major Investment Study and Project Study Report, and a multitude of signal coordination projects with Orange County Cities (especially including Costa Mesa and Santa Ana) and Caltrans District 12 provides us a good background for understanding agencies' concerns.

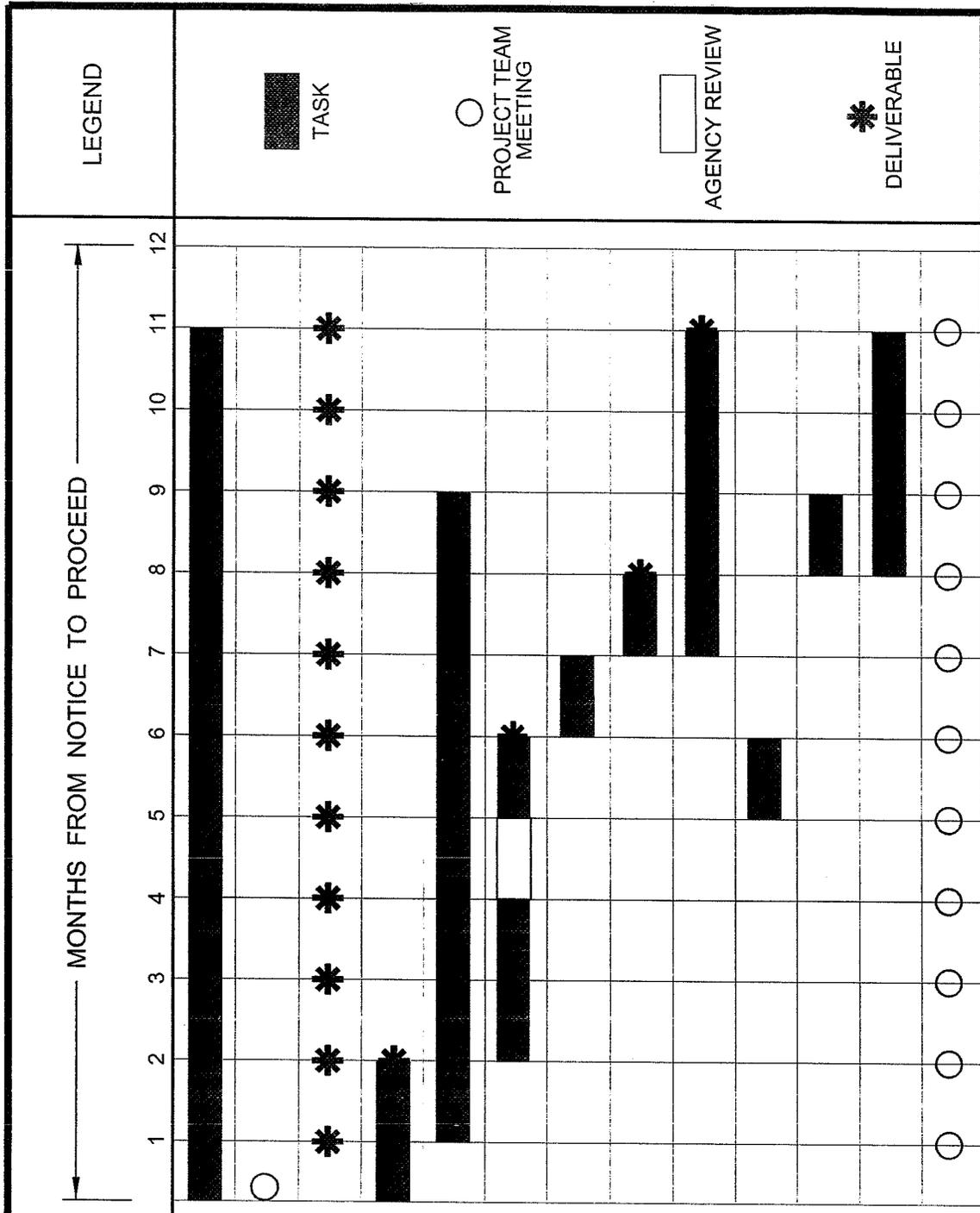
Establishing good working relationships with the various agency personnel is of paramount importance for the project. Additionally, it is important to reach a consensus on all proposed project recommendations, including items such as cycle length selection and system grouping. While it is a known fact that different public agencies may have different needs, we have found by virtue of our extensive experience in completing similar projects that a key aspect of consensus building is establishing good working relationships initially at project kick-off and understanding each agency's perspective. Because we have conducted traffic signal coordination projects for both Costa Mesa and Santa Ana, and have worked with the same City staff personnel on those projects as we will be working with on this project, we feel that we already have a good understanding of each City's perspective. Likewise, via our many coordination signal timing projects involving Caltrans signals, we have established relationships with key District 12 personnel.

AGA will conduct a Project Kick-Off Meeting to discuss project objectives, scope of work, project schedule, and various budget factors. As this meeting sets the stage for the entire project, our Project Manager (Chalap Sadam) and Assistant Project Manager (Greg Wong) will both attend the meeting.

In addition to the Kick-Off Meeting, subsequent meetings will be held monthly with both cities and Caltrans during the course of the project.

Deliverables:

- Updated project schedule, presentations and meeting attendance, supporting meeting/presentation materials, agendas and minutes and monthly Project Reports.



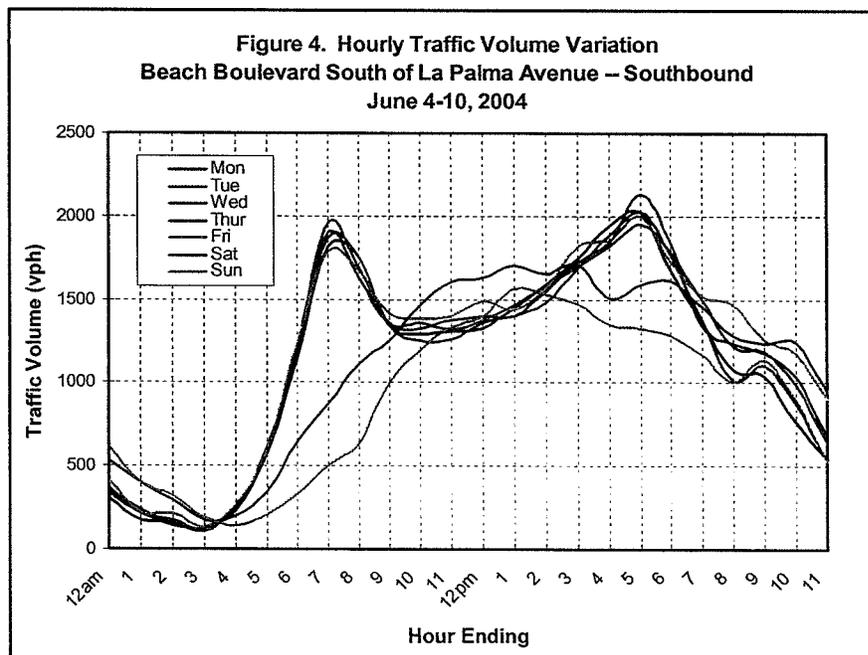
**Costa Mesa/Santa Ana Traffic Signal Coordination
Project Schedule**

Figure 3

Task 2: Data Collection and Field Review

It is important to obtain all appropriate data elements that are required for the development of optimal coordinated signal timing. Such items include as-built plans; aerial photos; signal timings and agency preferences; data to better understand prevailing traffic conditions; traffic patterns and peaking characteristics; usage and magnitude of vehicular traffic as well as pedestrians and bicycles; school area traffic; high intensity retail traffic; and any unusual traffic patterns that may be governed by special uses such as neighborhood parks or cultural activities on the weekends. The following data will be collected:

- Existing signal timing sheets and existing coordination timing plans for project intersections as well as any crossing arterials, as-built signal plans, aerial photos, maps, speed data and any available traffic counts.
- Agency preferences related to signal timing – lead/lag phasing, minimum left-turn splits, cycle lengths, use of preferred or conditional service, coordination time periods, full actuated vs. semi-actuated coordination, use of pedestrian override, weekend coordination, and local timing parameters (Walk, pedestrian clearance, yellow, all red, gap and extension timing).
- Weekday and Weekend ADT 24-hour counts at one or two critical locations on each project roadway, because traffic patterns may not be constant throughout each corridor and may change at major cross streets and in the immediate vicinity of freeway interchanges. Additionally, graphs will be developed that show hourly traffic volume variations for weekday and weekends, and by location. A sample hourly traffic volume variation chart is shown on Figure 4.



- Available daily traffic counts for all major crossing arterials that have a bearing on traffic flow patterns.
- Information from the Cities and Caltrans on any construction activities in the immediate vicinity, such as the I-405 bridge work on Fairview Road, and the Harbor Boulevard ramp realignment.
- Two-hour peak period turning movement counts for the weekday (AM, Midday and PM) and weekend (Midday) at all project intersections. Additional counts may be collected at school areas where the school closing times do not coincide with typical peaks. In addition, traffic counts will also be collected at major shopping areas (South Coast Plaza, MetroPointe, etc.) and in the vicinity of other special traffic generators such as the Orange County Performing Arts Center. Additionally, the number of pedestrian and bicycle users, as well as the number of pedestrian actuations occurring by crosswalk, will also be collected at each intersection. AGA's experienced signal timing engineers will evaluate the above data elements and provide an assessment of prevailing traffic patterns and conditions.

In the development of signal timing plans, it is imperative to have appropriate intersection geometrics, signal phasing, arterial link speeds, knowledge of closely spaced intersections, location of major traffic generators, and an assessment of existing traffic conditions at the project intersections and along the project corridors. For this project, the field data inventory will be directly overseen by AGA's Project Manager so that the prevailing conditions in the project area are better understood.

AGA will collect field data in sufficient quantity to identify existing deficiencies, existing system capabilities and operations. Using data collected from the Cities and Caltrans as a starting point (including as-built plans and aerial photos), and with input from both Cities and Caltrans, AGA will conduct extensive field reviews throughout the project corridor to identify and assess all components that affect signal coordination, including:

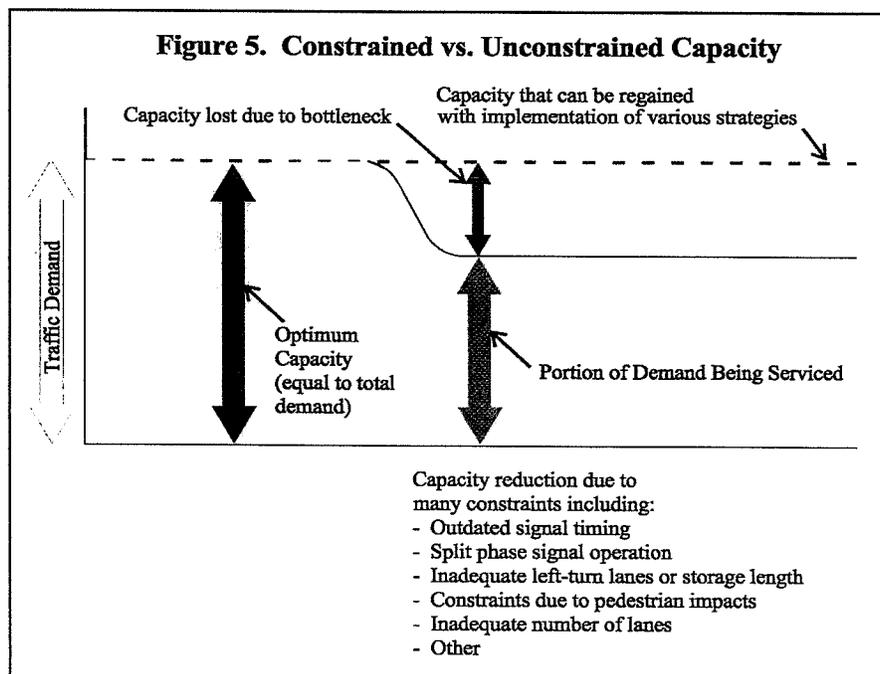
- Intersection lane geometrics, including number, usage of each lane; length of left/right turning lanes; distance between signalized intersections; and corridor lane configurations and lane widths, as appropriate.
- Existing signal operation characteristics – signal phasing, cycle lengths, protected/permissive left-turn operation (including first car detection vs. queue detection), lead-lag phasing, right-turn overlap phasing and U-turn restrictions.
- Special characteristics such as proximity to adjacent intersections and any senior centers; presence and location of bus stops (near-side vs. far-side); location of driveways; on-street parking, parking maneuvers, and parking restrictions; adequacy of left-turn and right-turn storage; intersections with high volumes of pedestrians and bicyclists; areas with high volumes of trucks and buses; high volume un-

signalized intersections; and impact of freeway access points both on project corridors and in the immediate vicinity on cross streets.

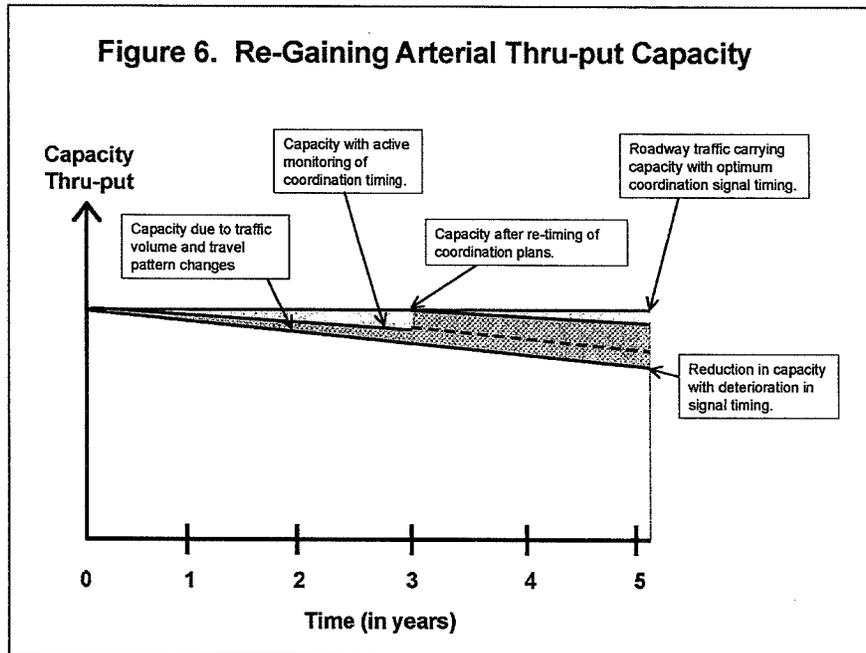
- Over-saturated intersections and measures to improve operations; uneven lane distribution, including impacts to saturation flow rate due to a lane drops or traffic circulation upstream or downstream of intersections; pedestrian activity and crosswalk locations; unbalanced traffic distribution of a dual left-turn lane resulting in lower saturation flows; and observations for queuing and queue spillovers, including potential lane blockages.

Additionally, to improve traffic operations along the project corridors, AGA will identify any traffic operational deficiencies, including minor lane striping or signal phasing modifications, removal of split phasing, on-street parking restrictions etc., and provide recommendations with simple low-cost solutions that can be quickly implemented.

While optimizing of signal timing definitely provides for traffic flow improvements, it is very critical to also eliminate any minor traffic operational bottlenecks in order to maximize arterial traffic carrying capacities. AGA recognizes that while traffic signal coordination, with supplementary infrastructure improvements and alleviation of bottlenecks, helps in traffic flow conditions, it is equally important to monitor and maintain coordinated timing so as to sustain the increase in capacity on a long-term basis. Two graphics that AGA developed as part of the Orange County Traffic Signal Coordination Program help illustrate this item. Figure 5 shows the impact to arterial capacity due to bottlenecks – constraints that may be due to inadequate left-turn lanes or storage length, split phasing, pedestrian timing constraints, and outdated or even improper timing or unnecessary signal phases.



Additionally, Figure 6 illustrates the reduction in arterial traffic carrying capacity if signal timings are not actively monitored or updated with changing traffic volumes. AGA proposes to address both these items via identification, and potential implementation, of deficiencies, and providing the monitoring/fine tuning of coordination signal timing plans for a three month duration after the finalization of the coordination plans. AGA will also utilize field data, including the peak hour turning movement counts, to conduct Level of Service analyses for all project intersections.



Deliverables:

- Summary of all data collected, including turning movement counts and 24 hour traffic volumes.
- Report documenting the field review with recommendations for short-term improvements

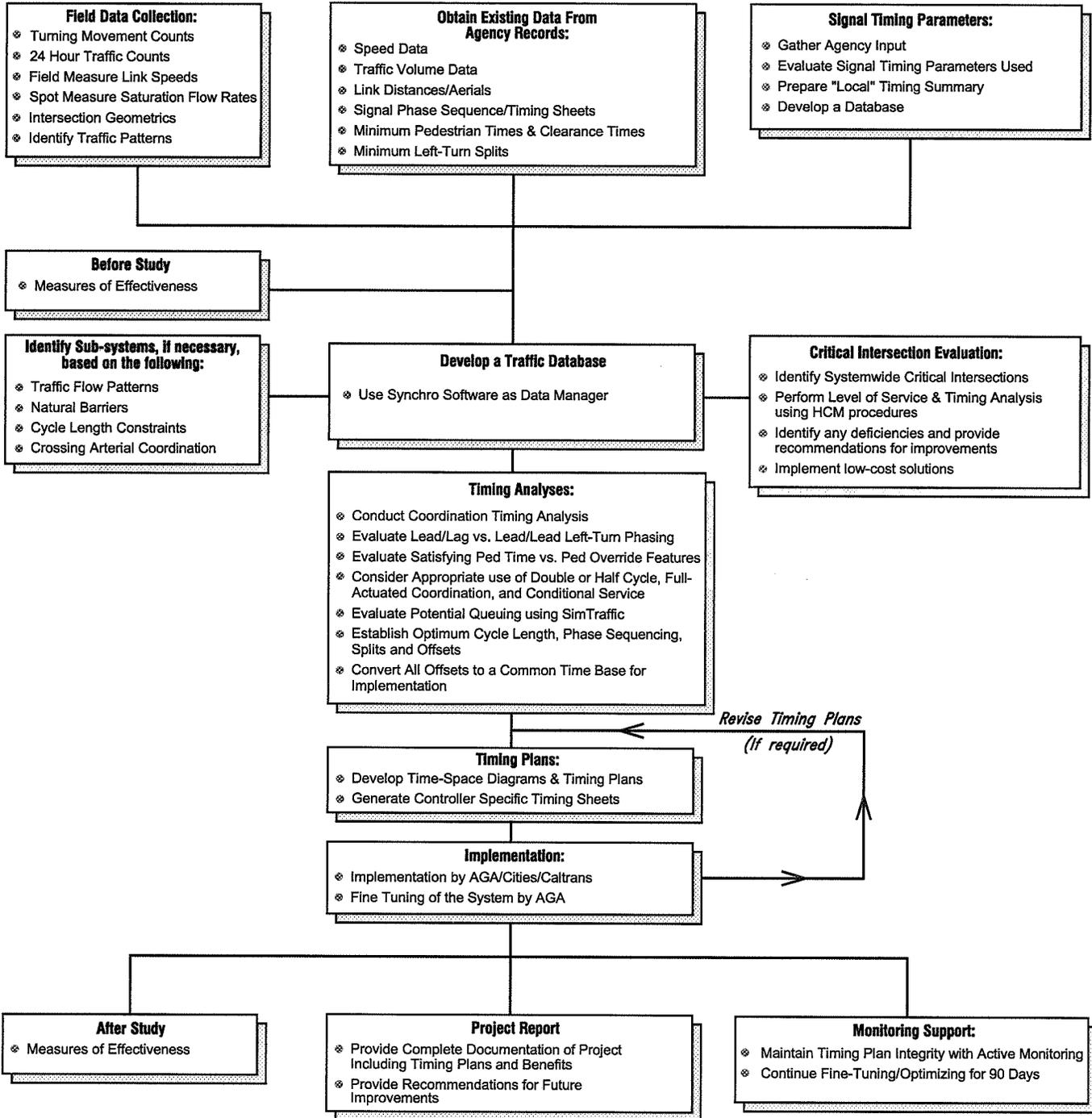
Task 3: Signal Timing Optimization and Implementation

Experience is a key factor in determining the appropriate technical approach for preparing the signal timing plans. AGA staff's experience, not only in conducting similar signal timing projects but also in developing the computer software currently used by other consulting firms and government agencies to perform the technical analyses required to complete projects of this type, is invaluable for this effort. Our experience is not only in using software, but more importantly in providing engineering of timing plan development. The various software programs available are incapable of providing a workable timing plan independently, but are invaluable "tools" for an experienced Traffic Engineer to utilize in

developing a workable timing plan. These various “tools” are used by the experienced Traffic Engineer in a manner similar to how a gifted carpenter uses hammers, chisels, saws, etc. When hiring a carpenter to do remodeling, his experience and ability to properly utilize the most appropriate tool is far more important than the type of hammer he selects for any given task. Software programs are merely the “hammers and saws” of our trade. AGA’s approach to several key components of the signal timing plan development process is detailed in the following sections. A graphical representation of this process is presented on Figure 7.

- **Arterial Link Speeds:** AGA proposes to field measure link speeds for signal coordination using the floating car technique. This field measurement is crucial for determining proper and effective coordination between signals. Our practice is to develop progression timing for prevailing speeds. The coordination design speed is extremely critical and difficult to ascertain because prevailing speed can change after coordination timing is implemented. We measure mid-block speed and then have an experienced Traffic Engineer verify its appropriateness for coordination speed. This subtask will also aid in determining if coordination between widely spaced intersections can be achieved.
- **Saturation Flow Rate Measurements:** One of the key parameters that plays a pivotal role in developing effective signal timing is saturation flow rate. The saturation flow rate, expressed in vehicles per hour of green per lane, is affected by factors such as number and width of lanes, cross gutters and street grade, driver attitude, vehicle mix, lack of left turn pockets, pedestrians, transit and area type. AGA proposes to field measure saturation flow rates at selected critical locations along project arterials. These measured values are then used to determine accurate capacity values, which is key to developing efficient signal progression.
- **Local Timing Parameters:** In addition to the above parameters, it is also critical for multijurisdictional coordination timing to standardize certain local timing parameters such as pedestrian walk time, pedestrian clearance time, yellow time and all-red time. As we have done on other projects, we will review both the Cities’ policies, recommend standardized and coordination efficient policies, and then create the coordination timing plans based on the approved parameters. A database of existing signal phase assignments, minimum green times, walk times and pedestrian and vehicle clearance times, all of which have a direct bearing on coordination timing, will also be developed and provided.
- **Signal Timing Software:** As previously noted, various signal timing analysis and simulation software programs and/or combinations of programs can be used for this project. Such programs include Synchro, SimTraffic, WEBSTER, PASSER, and Time-Space Platoon Progression Draft (TS/PPD) programs. The most appropriate method depends upon various factors, including whether minimization of system delay or optimization of arterial progression is most important to the City. WEBSTER, (Webster Based Signal Timing Evaluation Routine) is a program for

Timing Plan Development Process



developing/analyzing cycle lengths at individual intersections. WEBSTER is based on the Year 2000 Highway Capacity Manual and can be used for traffic impact analyses and signal timing development as well as CMP monitoring. PASSER provides arterial coordination analysis while Synchro provides system wide delay minimization. The following discussion is based on the premise that optimization of arterial progression is the primary goal of this coordination timing project.

For this project, AGA proposes to utilize Synchro in addition to other signal timing optimization programs in an interactive manner. The PASSER program may be used to determine phase sequence (Lead/Lag vs. lead/lead) and a combination of Synchro/WEBSTER programs may be used to develop optimized timing plans for this project. TS/PPD program, an industry leading tool, will be used to prepare the time-space diagrams. SimTraffic, a powerful traffic simulation software, will be used at specific locations such as closely spaced intersections with blocking problems or lane change problems, or at congested intersections with large turning movement volumes. Micro simulation analysis programs allow for evaluation of queue spill-over impacts, evaluation of unusually high turning movement volumes, use of lead-lag left turn phasing, etc.

- **Cycle Length and Timing Analysis:** Before developing any timing plans for project intersections, AGA will analyze the complete network to determine system cycle length requirements and subsystem requirements. Every attempt will be made to minimize the number of subsystems required throughout the project area to maximize the benefits of coordination (reduced delay, stops, fuel usage, mobile source emissions, etc). AGA will also consider existing coordination on many of the crossing arterials with the objective of improving overall arterial network operations.

The system cycle length determination is extremely critical, as the cycle length must be minimal to achieve maximum benefits. AGA will identify critical intersections areawide, and perform detailed capacity/delay analyses using sophisticated delay optimization routines to help establish system/subsystem cycle lengths. When system cycle lengths are arbitrarily selected rather than minimized and optimized, complaints often arise from local side street traffic because of their increased waiting time.

Various signal timing programs will be used to help calculate the signal timing information including cycle lengths, splits, phase sequences and offsets for signalized intersections along project arterials to maximize arterial progression and to reduce delay. The different traffic flow conditions will be analyzed and timing plans will be developed accordingly. One tool, WEBSTER, which was developed by Mr. Grover based on the HCM2000, allows an engineer to quickly analyze each intersection independently to determine the minimum delay, cycle length and queuing for each one. The program considers pedestrian minimum times, overlap phasing and left turn minimums. This analysis may result in different cycles for some intersections, primarily because each intersection may have a different optimum

cycle based on the traffic volumes, available capacity and other factors. Intersections can then be logically grouped into subsystems with common cycles. This process results in optimum coordination timing grouping while minimizing side street delay. The optimization will include the analysis of progression based on optimum phase sequences (leading lefts, lead/lag, etc.) to provide the best arterial progression. The results of the progression analysis will be shown on time-space diagrams.

The Synchro program will be used to evaluate queue lengths, stops and delays resulting from the impacts/benefits of coordination. At the freeway interchanges we may use Synchro instead of PASSER to determine appropriate offsets. We have found this to be appropriate in certain situations because of the various turning movements that occur at interchanges versus pure arterial progressions. Also, this often provides the best means to minimize queuing within the interchange. We only use the appropriate signal timing tool after we conduct a very detailed and careful evaluation of the entire system to identify a proper cycle length for each time period. We recently implemented timing using this approach and obtained very good results. Typical public and agency comments were "Where did the traffic go?" We often hear this, and the answer is that the traffic is still there but it is being controlled efficiently such that queuing and excess stopping is radically reduced. Our approach provides the desired results. These results happen because of our experience and knowledge of how to use the "tools" available. Anyone can use the tools (Synchro, SimTraffic, PASSER, and WEBSTER), but good results require a very experienced team. AGA timing experts do not simply proceed with the computer timing outputs from these tools, but carefully review the program output and adjust the values manually, using time-space diagrams, to properly match local conditions. It should be noted that while we may use different signal timing software for different aspects of coordination timing development primarily to capitalize on specific strengths of each software, all final timings will be completed using the Synchro software.

The existing cycle length systems in the project area range from 120 seconds to 150 seconds. It is important to recognize that while many of the project intersections near the I-405 interchanges (Harbor Boulevard, Fairview Road, Bristol Street) are fairly large with multiple lanes, many of which are currently coordinated at 120/130 second cycles, intersections on Bear Street and Sunflower Avenue could operate at lower cycles, particularly during the off-peak hours. Understanding the traffic patterns, the intersection capacities, natural barriers, and what is optimum given the characteristics of a certain time period, are all important when evaluating if local, arterial or system-wide optimization is desired. For early morning or late evening time periods, it may be appropriate to coordinate traffic signals at a much shorter cycle or use full-actuated coordination, in order to minimize delays to side-streets.

The City of Santa Ana is currently updating coordination signal timing throughout the City. The City has implemented a 120 second cycle plan on Harbor Boulevard for the AM and midday traffic conditions, and a 150 second cycle plan for the PM traffic conditions. Recognizing that the City of Costa Mesa currently uses a 130 second cycle on its signals on Harbor Boulevard, it becomes critical in identifying which areas follow a 130 or 150 second

cycle, or if a different cycle is appropriate in the project area. Additionally, the integration of project arterials with currently coordinated crossing arterials, both in Costa Mesa and Santa Ana, is paramount in achieving overall project goals. The intricacy of coordinating the closely spaced signals such as on Harbor Boulevard between the freeway interchange and Gisler Avenue and their relationship with other nearby intersections is also critical. AGA's involvement in the on-going OCTA BRT Project, which includes coordination of traffic signals on both Harbor Boulevard and Bristol Street, including such crossing arterials as Adams Avenue and Fairview Road, and the leveraging of resources to improve overall traffic conditions will be helpful.

Recognizing the changing traffic patterns on Sunflower Avenue at its termination at Main Street including the use of split phase operation at this intersection, a moderate to heavy pedestrian usage on Sunflower Avenue at Stevens/Park Center intersection including direct access to large parking areas here and at Sunflower Avenue/Avenue of the Arts intersection, and the unusual internal parking circulation in South Coast Plaza at the intersection of Bristol Street and Town Center Drive will all be critical when developing appropriate signal coordination timing plans.

Serving the needs of pedestrian is a significant component of timing analysis. Knowing the number of pedestrians helps in defining if appropriate Walk time is being provided, such as in school, downtown and shopping areas; knowing how many pedestrian actuations are occurring in a time period will help define if the pedestrian override feature may be deployed to help maximize arterial progression. Working in conjunction with City of Costa Mesa and Santa Ana staff, via the use of central signal system software, AGA will evaluate split timing reports to help understand the allocation of splits, the number of instances when pedestrian calls are made, and areas which may need additional time. Proper allocation of left-turn splits is important to avoid excessive queues that may block thru traffic.

After careful review of traffic patterns, elimination of minor deficiencies and assessment of available capacities, AGA will conduct an arterial bandwidth requirement analysis before time-space diagrams are generated so that the timing plans can accommodate the prevailing traffic volumes for each time period.

- **Lead/Lag Phasing:** Another factor that will influence the development of coordination timing plans for the project arterials involves lead/lag phasing at protected left turn locations. AGA will investigate the potential use of such phasing. Our experience has been that such phasing can help optimize signal timing at selected locations. For example, in our East-Valley and Western San Bernardino Valley Projects we implemented lead/lag phasing on approximately 75% of the signals that have protected left turns. Lead/Lag phasing is very helpful in minimizing delay and allowing for the use of shorter cycles. Primarily, it provides for wider bands and allows for progression with both thru and left turn movements. Without lead/lag phasing, left turns are typically NOT coordinated and queues will be longer, so lead/lag phasing can help when pockets are short. The use of time-

space diagrams helps indicate when lead/lag phasing may be appropriate. AGA's experienced staff will carefully review the actual need for lead/lag phasing at minor intersections and will minimize its usage for better efficiency of actuated operation.

We will also carefully analyze queuing, especially for left turn pockets to ensure that left turn demand does not overflow and block thru traffic, thereby disrupting traffic progression. Adequate time will be provided to the left-turns both to avoid queue spill-over and minimize resident complaints.

- **Side Street Delay:** Because AGA's staff members have prior experience working for cities, AGA understands the sensitivity in coordinating signals at minor cross streets. The side street delays will be kept to a minimum by the usage of double cycle or half cycle where feasible. Our field review indicated that while a significant percentage of project signals are multi-phase, there are several two phase signals. This requires special attention for maintaining short cycles and minimizing side street delay.
- **Local Factors:** Knowledge of key local factors, such as the location, operating hours and peak flow conditions related to periods of high commute traffic, various area schools, shopping areas such as South Coast Plaza and Metro Pointe, Orange County Performance Arts Center, etc, are all very important in preparing coordination signal timing plans. AGA's knowledge of such local factors, combined with input from all cities and Caltrans staff, will greatly enhance our ability to develop the most appropriate timing plans. Additionally, attention must be given to any crossing arterial that may be interconnected and coordinated when establishing logical break points, if such break points are required. Consideration will also be given to local streets when developing the cycle lengths, to avoid unnecessary delays to local residents and pedestrians.

Via our previous signal timing projects with all participating agencies and our on-going signal system management services in Orange County, we are aware of the significant traffic generation and congestion areas. Knowledge of on-going construction improvement projects at the I-405 interchanges (Harbor Boulevard and Fairview Road), the change in traffic patterns in the project with the recent opening of the Susan Street ramp, and the extensive turning movements in both the South Coast Plaza area as well as in the Performing Arts areas will be very helpful in developing appropriate coordination signal timing plans.

As a part of signal timing analyses, AGA will also determine if minor modifications to existing signal operations and striping layouts would improve the level of service at project intersections. Such modifications could include converting split-phase operation to standard leading left turn operation, adding a right turn lane at selected intersections, etc.

- **Timing Plan Deliverables:** Based on our experience and area knowledge, AGA proposes to prepare weekday a.m., mid-day and p.m. peak hour, weekend timing plans. The weekend timing plans are especially important in shopping areas. All of these various timing plans will be stored in a database format. Time-of-day schedules (the appropriate start time for each plan) will be developed based on field observations, 24 hour traffic counts and input from each City staff. Particular attention will be given to existing timing plans on coordinated crossing arterials. We know from our previous projects how even minor modifications to timing plans at intersections that are part of coordinated systems can significantly impact traffic operations throughout the systems.

An additional service being proposed by AGA is the development of holiday shopping plans for roadways in the vicinity of major shopping areas (South Coast Plaza, Metro Pointe, etc). These specialized plans will consider the impact of substantially increased traffic to/from these areas at selected times of the year. While these plans would primarily be utilized on weekends from Thanksgiving through New Year's Day, they could also be appropriate for weekdays immediately preceding Christmas and selected Saturdays during the remainder of the year (such as the Saturday prior to Mother's Day in May). Development and implementation of both weekend plans and holiday plans would be especially beneficial not only to businesses located in these areas but also to area residents who drive near these shopping areas.

After initial development of all signal timing plans, they will be submitted to the appropriate City and Caltrans for review. Plans will be revised as required, and any necessary new controller timing sheets will be developed. These revisions are typically minimized because AGA will already have reviewed and manually optimized all timing plans. Time-space diagrams will be prepared for all timing plans, to aid in the review process and to graphically document the finalized timing parameters.

Implementation of Timing Plans

After development and respective City/Caltrans approval, the new coordination timing plans will be installed by the respective agency. AGA staff, as required, will assist each agency in the implementation of the coordination signal timing in the appropriate signal controllers, either directly from each agency's central computer or via remote access or directly in the field.

One key item to note during implementation is that while the use of WWV or GPS time source receivers eliminates the possibility of inconsistencies in the various local and master controller internal clocks, it is critical that both Cities and Caltrans agree to synchronize the system clocks at a common agreed upon time, such as midnight, so that the offset reference time is the same for all systems. A common time base is critical for successful multijurisdictional signal coordination.

An additional area where experience with various controllers and central system software is very important is during the implementation of coordination timings. Certain systems, such as the Type 90s - Multisonics VMS system, Econolite, etc., require phase splits in percent of cycle or in seconds. Eagle SEPAC controllers require coordination timing splits in seconds. Model 170/2070 controllers using BI Tran 200/233/2033 local software and QuicNet central control software require phase force-offs. Other Model 170 controllers, such as those used by Caltrans operating on the C-8 local controller software, require green factors for phase timing. The new Caltrans Traffic Signal Control Program (TSCP) for Model 2070 controllers allows the use of green factors or phase force-offs for implementing coordination timing. Similarly, the coordination offsets are referenced differently on various systems, such as at the beginning or end of coordination phase green, and refer to either ring 1 phases or ring 2 phases. Other system and/or controller intricacies, such as the mechanism to accomplish lead-lag phasing, proper phase permissive times, yield points, etc., are all important for successful signal coordination implementation. More than once we have witnessed the implementation of incorrect offsets by others, unfamiliar with such subtle differences. AGA staff is very familiar with the various differences.

Based on our extensive experience with various systems, AGA will develop customized coordination timing sheets that are controller specific. These customized sheets will eliminate the implementation errors that are typical when software program output is implemented directly on different signal systems. Given the difference in hardware and software systems used by the Cities of Costa Mesa and Santa Ana and Caltrans, development of controller specific timing sheets is critical. A sample signal coordination timing output developed by AGA is provided in Appendix B. This one-page output provides a quick summary of all signal timing plan critical elements for direct implementation on many of the various signal control systems.

AGA will work directly with Caltrans in the field to implement timing at the Caltrans signals. We have done this on many other projects with Caltrans. Each timing plan will identify cycle lengths, splits and offsets for all signals along each arterial, and will identify start times and end times of each timing plan.

The new timing will be observed in the field, and will be tested for a minimum of two weeks. Working in conjunction with staffs of Costa Mesa/Santa Ana and Caltrans, adjustments to the timing will be made as necessary and revised timing plan data files will be prepared. After final timing plans are approved by the respective City and Caltrans, final Time-Space Diagrams will be prepared and provided to the respective agency for each time of day timing plan. A sample Time-Space Diagram is provided in Appendix C. All Synchro data files and other electronic files will be provided.

Time Referencing and Additional Equipment

All signals on project routes have signal-interconnect communications. Traffic signal controller types include Model 170 and Multisonics controllers. Central signal system

software include Caltrans CTNET system and Multisonics VMS system. Because the proposed coordination on the project routes will be based on each of the agencies controlling and operating their own traffic signals, using a common time-base such as GPS or WWV time, and a common synchronization time (such as midnight) is critical. Because both GPS and WWV time source receivers provide virtually **identical time** (within 25 nano-seconds or 0.025 seconds), any of the agencies can use either of the type or a mixture thereof, as long as all signal controllers and central signal systems synchronize at a common time. For additional details see Appendix **D** for similarities and differences between various time sources (GPS vs. WWV) and why it is important for the synchronization of system clocks at a common time.

Caltrans currently operates many of its systems using BI Tran 210 field masters and C-8 (version 3.0) local software on Model 170 controllers. While many of the local controllers are interconnected to the field master controllers, they do not have communications to the Caltrans District 12 Traffic Management Center. Additionally, Caltrans is currently using CTNET central system in certain areas of Orange County and plans on expanding to other areas. Based on our discussions with Caltrans staff, and our recent experience in San Bernardino County where we are assisting Caltrans District 8 staff in the upgrade of traffic signal systems encompassing approximately 40 freeway interchanges and State Highway intersections, and in concert with the project goals while staying within the project budget, AGA proposes to provide a GPS time source receiver for the Caltrans field master for the I-405/Fairview system. It should be noted that as a part of OCTA BRT Project, GPS time source receivers are proposed to be installed at the Caltrans field masters at I-405/Harbor Boulevard system and I-405/Bristol Street system.

The provision of GPS equipment to Caltrans will be very essential for implementation and realization of optimized coordination timings on project routes as well as the ability to monitor and fine tune timings on an on-going basis.

Deliverables:

- Optimized and synchronized traffic signal timing plans.
- Assistance in field implementation of optimized traffic signal plans, including all required fine tuning.
- Evaluation, recommendation, and installation of a time-referencing system.
- Electronic Synchro data files used in analysis.
- Electronic versions of all other data files and memorandums.
- Memorandum documenting the signal timing optimization and implementation.

Task 4: Project Report

The AGA Team will conduct a “before” and “after” travel time and delay field study for each peak period for which coordinated timing plans are developed. Measures of Effectiveness (MOE) parameters, which will provide a quantitative basis for determining coordination benefits, will include stops, delays, travel times, average speeds, fuel consumption, and emissions. MOE’s will be compiled using Synchro software and field measurements using the floating-car technique. According to the floating-car technique, the driver floats with the traffic by passing as many vehicles as pass the test car. A minimum of 5 floating car runs will be conducted for each direction for each coordination time period. AGA will summarize and compare the results of the “before” and “after” field studies.

AGA will prepare a Final Timings and Evaluation Technical Report with an Executive Summary. The final report will provide a complete documentation of the project, including project objectives, scope and location, findings and recommendations, implementation schedule, improvements accomplished, and procedures for continuing maintenance, surveillance, and evaluation of the coordinated signal system. In addition, the report will include a summary of work performed, data collected, “before” and “after” studies and project benefits achieved in terms of fuel savings, travel time reduction and other measurable parameters. The report will also include for each project intersection the lane configurations, signal phasing, turning movement data, and cycle lengths for existing and proposed timing for all peak periods. In addition, in a separate binder, all the traffic signal phase sequences, signal timing plans, and pedestrian timings will be documented.

Deliverables:

- Project Final Report

Task 5: Continued Fine Tuning/Operational and Implementation Support

System fine tuning and monitoring is generally defined as ensuring that the entire system is functioning as a whole, that is, as an inter-jurisdictional multi-agency coordinated system. However, there are different signal control system software programs in use by the agencies that are included in the proposed project, and it is critical to have a working knowledge of the intricacies of all the systems to effectively monitor and fine tune system timing.

AGA is well versed in the operations of many of the systems in use in this region. AGA presently provides such service annually for several Cities in Southern California for both Type 90 and Model 170/2070 systems. We currently provide on-going fine tuning services for QuicNet systems, Eagle ACTRA systems, Multisonics VMS systems and Naztec systems, and recently implemented new timing for an Econolite ARIES system. We have various systems’ software on our office computers, and can readily access the systems via telephone line or via Internet using Virtual Private Network (VPN). We are currently working with Caltrans staff in District 8 on the installation and operation of QuicNet/4 and CTNET systems that encompass approximately 40 freeway interchanges and State Highway

intersections. This hands-on experience will be very important, as a number of project signals are Caltrans ramp signals.

AGA will support both cities and Caltrans staff in the operation of the system, and will provide continuous fine tuning/optimizing of system timing of all project intersections for 90 days following implementation of signal timing plans to further fine tune the system and modify the plans as needed. This will consist of monitoring of the systems from our offices (via telephone modems or VPN) combined with extensive field reviews. This 90 day operational period will not officially start until all coordination timing plans have been implemented.

Our proposed 90 day fine tuning of project signals includes the following components: (a) Periodic driving of the system signals to visually review the coordination effectiveness, (b) Communicating with responsible agency maintenance technicians, (c) Minor modifications of splits and offsets to respond to traffic fluctuations, and (d) Reports on system effectiveness, and most importantly maintaining multi-jurisdictional coordination. The following provides additional details of the coordination monitoring and fine tuning of signal timing plans:

- **Signal Timing Complaints:** Because of our extensive operational experience, we are well-versed in assisting Cities in responding to complaints relative to signal timing and phasing, especially when new plans are implemented. We have helped Cities address complaints from residents, commuters, parents of students, police personnel, and City officials. A key to responding to such complaints is to approach each situation with an open mind. The average driver is not a traffic engineer, and doesn't view signal operations in the same manner as a traffic engineer. It must be remembered that we work for Costa Mesa and Santa Ana, which means we work for many thousands of residents.
- **Interagency Coordination:** Because we will have developed the coordination timing plans that will be in place, we know that coordination with Caltrans and both Cities is an important component of the project. We understand that we cannot arbitrarily make changes to one City's signal timing without impacting other agency signals. We will regularly coordinate signal operations with both Cities and Caltrans to ensure optimum timing and coordination.

Deliverables:

- Revised signal timing plans and a memorandum documenting the changes (if appropriate).

EXHIBIT C
FEE SCHEDULE

FEE PROPOSAL

AM, MidDay and PM Traffic Counts at 22 Intersections (Wiltec)	Per Intersection \$ <u>750</u>	Total \$ <u>16,500</u>
Mid Day Counts at 7 Intersections (Wiltec)	Per Intersection \$ <u>250</u>	Total \$ <u>1,750</u>
Signal Coordination Study Costa Mesa Intersections	Per Intersection \$ <u>2,400</u>	Total \$ <u>69,600</u>
Performance Optimization Coordination Modeling of 12 Santa Ana Intersections	Per Intersection \$ <u>1,200</u>	Total \$ <u>14,400</u>

CUMULATIVE NOT-TO-EXCEED FEE: \$102,250

Additional Work Scope

Performance Optimization Modeling &
Analysis of 12 Santa Ana Intersections

Per Intersection \$ 2,400 Total \$ 28,800

Traffic Counts at 12 Intersections (Wiltec)

Per Intersection \$ 750 Total \$ 9,000

~~Signal Additional Tasks~~
~~Signal Timing Plans at 29 Intersections~~
~~(including counts)~~

Per Intersection \$ 900 Total \$ ~~26,100~~

~~Signal Timing Plans at 12 Intersections~~
~~at High Volume Shopping Areas~~
~~(City-provided historical count data)~~

Total \$ ~~10,800~~

Equipment for Caltrans
(Fairview)

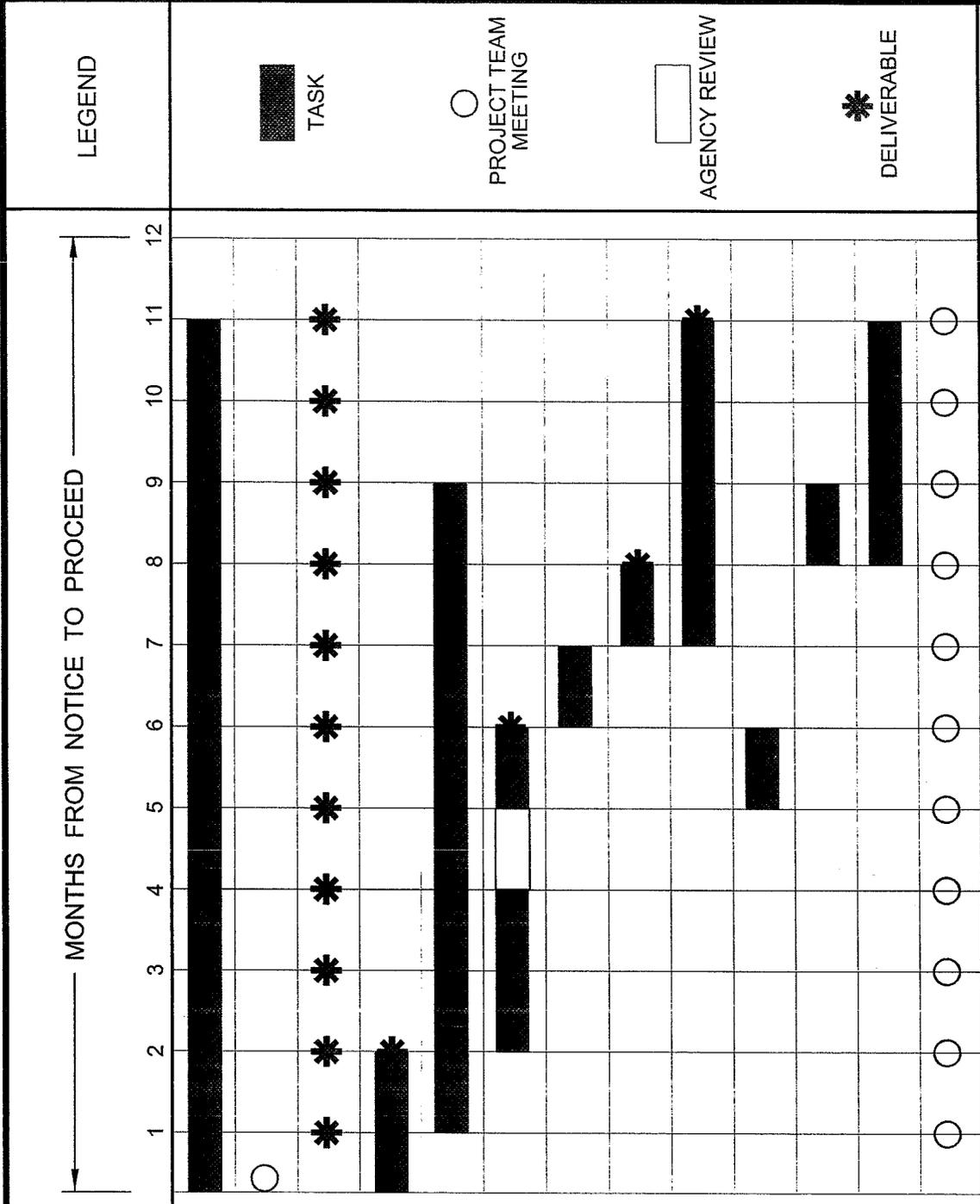
Total \$ 3,000

Monitoring No Charge

Total
\$143,050.

CostaMesaSignal Coordination Project 2008Signal Coord FEE Ltr.doc

EXHIBIT D
PROJECT SCHEDULE



Costa Mesa/Santa Ana Traffic Signal Coordination Project Schedule

EXHIBIT E

CITY COUNCIL POLICY 100-5

SUBJECT	POLICY NUMBER	EFFECTIVE DATE	PAGE
DRUG-FREE WORKPLACE	100-5	8-8-89	1 of 3

BACKGROUND

Under the Federal Drug-Free Workplace Act of 1988, passed as part of omnibus drug legislation enacted November 18, 1988, contractors and grantees of Federal funds must certify that they will provide drug-free workplaces. At the present time, the City of Costa Mesa, as a sub-grantee of Federal funds under a variety of programs, is required to abide by this Act. The City Council has expressed its support of the national effort to eradicate drug abuse through the creation of a Substance Abuse Committee, institution of a City-wide D.A.R.E. program in all local schools and other activities in support of a drug-free community. This policy is intended to extend that effort to contractors and grantees of the City of Costa Mesa in the elimination of dangerous drugs in the workplace.

PURPOSE

It is the purpose of this Policy to:

1. Clearly state the City of Costa Mesa's commitment to a drug-free society.
2. Set forth guidelines to ensure that public, private, and nonprofit organizations receiving funds from the City of Costa Mesa share the commitment to a drug-free workplace.

POLICY

The City Manager, under direction by the City Council, shall take the necessary steps to see that the following provisions are included in all contracts and agreements entered into by the City of Costa Mesa involving the disbursement of funds.

1. Contractor or Sub-grantee hereby certifies that it will provide a drug-free workplace by:
 - a. Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in Contractor's and/or sub-grantee's workplace, specifically the job site or location included in this contract, and specifying the actions that will be taken against the employees for violation of such prohibition;

SUBJECT	POLICY NUMBER	EFFECTIVE DATE	PAGE
DRUG-FREE WORKPLACE	100-5	8-8-89	2 of 3

b. Establishing a Drug-Free Awareness Program to inform employees about:

1. The dangers of drug abuse in the workplace;
2. Contractor's and/or sub-grantee's policy of maintaining a drug-free workplace;
3. Any available drug counseling, rehabilitation and employee assistance programs; and
4. The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

c. Making it a requirement that each employee to be engaged in the performance of the contract be given a copy of the statement required by subparagraph A;

d. Notifying the employee in the statement required by subparagraph 1 A that, as a condition of employment under the contract, the employee will:

1. Abide by the terms of the statement; and
2. Notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction;

e. Notifying the City of Costa Mesa within ten (10) days after receiving notice under subparagraph 1 D 2 from an employee or otherwise receiving the actual notice of such conviction;

f. Taking one of the following actions within thirty (30) days of receiving notice under subparagraph 1 D 2 with respect to an employee who is so convicted:

1. Taking appropriate personnel action against such an employee, up to and including termination; or
2. Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health agency, law enforcement, or other appropriate agency;

SUBJECT	POLICY NUMBER	EFFECTIVE DATE	PAGE
DRUG-FREE WORKPLACE	100-5	8-8-89	3 of 3

- g. Making a good faith effort to maintain a drug-free workplace through implementation of subparagraphs 1 A through 1 F, inclusive.
2. Contractor and/or sub-grantee shall be deemed to be in violation of this Policy if the City of Costa Mesa determines that:
 - a. Contractor and/or sub-grantee has made a false certification under paragraph 1 above;
 - b. Contractor and/or sub-grantee has violated the certification by failing to carry out the requirements of subparagraphs 1 A through 1 G above;
 - c. Such number of employees of Contractor and/or sub-grantee have been convicted of violations of criminal drug statutes for violations occurring in the workplace as to indicate that the contractor and/or sub-grantee has failed to make a good faith effort to provide a drug-free workplace.
 3. Should any contractor and/or sub-grantee be deemed to be in violation of this Policy pursuant to the provisions of 2 A, B, and C, a suspension, termination or debarment proceeding subject to applicable Federal, State, and local laws shall be conducted. Upon issuance of any final decision under this section requiring debarment of a contractor and/or sub-grantee, the contractor and/or sub-grantee shall be ineligible for award of any contract, agreement or grant from the City of Costa Mesa for a period specified in the decision, not to exceed five (5) years. Upon issuance of any final decision recommending against debarment of the contractor and/or sub-grantee, the contractor and/or sub-grantee shall be eligible for compensation as provided by law.

PROFESSIONAL LIABILITY NOTICE ENDORSEMENT

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.
EFFECTIVE DATE OF CHANGE:

COMPANY: St. Paul Fire & Marine Insurance Company

POLICY NUMBER: QP03812385

POLICY PERIOD: FROM: 7/1/2008
TO: 7/1/2009

NAMED INSURED: Albert Grover & Associates, Inc.

This endorsement modifies insurance provided under the following:

ARCHITECTS AND ENGINEERS PROFESSIONAL LIABILITY POLICY

It is agreed that this policy will not be cancelled or nonrenewed by the Company until 30 days prior written notice is given to:

City of Costa Mesa

Dave Sorge

77 Fair Dr

Costa Mesa CA 92626

All other provisions of this policy remain unchanged.

19000 MacArthur Blvd. PH Floor
Irvine, CA 92612
(949) 263-0606
www.CompleteInsurance.com

HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURERS AFFORDING COVERAGE

NAIC #

INSURED Albert Grover & Associates, Inc.

INSURER A: St. Paul Fire & Marine Ins. Co.

24767

INSURER B:

INSURER C:

INSURER D:

INSURER E:

211 E. Imperial Hwy., Ste. 208
Fullerton CA 92835

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR	ADD'L LTR	INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS								
			GENERAL LIABILITY <input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC				EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COMP/OP AGG \$								
			AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS				COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$								
			GARAGE LIABILITY <input type="checkbox"/> ANY AUTO				AUTO ONLY - EA ACCIDENT \$ OTHER THAN AUTO ONLY: EA ACC \$ AGG \$								
			EXCESS/UMBRELLA LIABILITY <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE DEDUCTIBLE RETENTION \$				EACH OCCURRENCE \$ AGGREGATE \$ \$ \$ \$								
			WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below				<table border="1"> <tr> <td>WC STATU-TORY LIMITS</td> <td>OTH-ER</td> </tr> <tr> <td>E.L. EACH ACCIDENT</td> <td>\$</td> </tr> <tr> <td>E.L. DISEASE - EA EMPLOYEE</td> <td>\$</td> </tr> <tr> <td>E.L. DISEASE - POLICY LIMIT</td> <td>\$</td> </tr> </table>	WC STATU-TORY LIMITS	OTH-ER	E.L. EACH ACCIDENT	\$	E.L. DISEASE - EA EMPLOYEE	\$	E.L. DISEASE - POLICY LIMIT	\$
WC STATU-TORY LIMITS	OTH-ER														
E.L. EACH ACCIDENT	\$														
E.L. DISEASE - EA EMPLOYEE	\$														
E.L. DISEASE - POLICY LIMIT	\$														
A			OTHER Professional Liability	QP03812385	7/1/2008	7/1/2009	\$2,000,000 Per Claim \$4,000,000 Aggregate								

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

30 Day Notice Endt. AE008 Ed. 5-03 included.

CERTIFICATE HOLDER

Traffic Signal Coordination Study
City of Costa Mesa
Dave Sorge

77 Fair Dr
Costa Mesa

CA 92626

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30* DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.
* 10 Days for Non-Payment of Premium

AUTHORIZED REPRESENTATIVE

Alicia K. Igram





**WORKERS COMPENSATION
AND
EMPLOYERS LIABILITY POLICY**

ENDORSEMENT WC 99 03 76 (00)

POLICY NUMBER: UB6676Y748

**WAIVER OF RIGHT TO RECOVER FROM OTHERS
ENDORSEMENT – CALIFORNIA
(BLANKET WAIVER)**

We have the right to recover our payments from anyone liable for an injury covered by this policy. We will not enforce our right against the person or organization named in the Schedule.

You must maintain payroll records accurately segregating the remuneration of your employees while engaged in the work described in the Schedule.

The additional premium for this endorsement shall be 3% of the California workers' compensation premium otherwise due on such remuneration.

SCHEDULE

PERSON OR ORGANIZATION

JOB DESCRIPTION

ALL PERSONS OR ORGANIZATIONS
THAT ARE PARTIES TO A CONTRACT
THAT REQUIRES YOU TO OBTAIN
THIS AGREEMENT PROVIDED YOU
EXECUTED THE CONTRACT BEFORE
THE LOSS.

DATE OF ISSUE:

Coverage Part must apply on a primary basis, or a primary and non-contributory basis, this insurance is primary to other insurance that is available to such additional insured which covers such additional insured as a named insured, and we will not share with the other insurance, provided that:

- (1) The "bodily injury" or "property damage" for which coverage is sought occurs; and
- (2) The "personal injury" for which coverage is sought arises out of an offense committed;

after you have entered into that "contract or agreement requiring insurance" for such additional insured. But this insurance still is excess over valid and collectible other insurance, whether primary, excess, contingent or on any other basis, that is available to the additional insured when the additional insured is also an additional insured under any other insurance.

C. The following is added to Paragraph 8. **Transfer Of Rights Of Recovery Against Others To Us in COMMERCIAL GENERAL LIABILITY CONDITIONS (Section IV):**

We waive any rights of recovery we may have against the additional insured shown in the Schedule above because of payments we make for "bodily injury", "property damage" or "personal

injury" arising out of "your work" on or for the project, or at the location, shown in the Schedule above, performed by you, or on your behalf, under a "contract or agreement requiring insurance" with that additional insured. We waive these rights only where you have agreed to do so as part of the "contract or agreement requiring insurance" with that additional insured entered into by you before, and in effect when, the "bodily injury" or "property damage" occurs, or the "personal injury" offense is committed.

D. The following definition is added to **DEFINITIONS (Section V):**

"Contract or agreement requiring insurance" means that part of any contract or agreement under which you are required to include the person or organization shown in the Schedule as an additional insured on this Coverage Part, provided that the "bodily injury" and "property damage" occurs, and the "personal injury" is caused by an offense committed:

- a. After you have entered into that contract or agreement;
- b. While that part of the contract or agreement is in effect; and
- c. Before the end of the policy period.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

**ADDITIONAL INSURED
(ARCHITECTS, ENGINEERS AND SURVEYORS)**

This endorsement modifies insurance provided under the following:
COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

NAME OF PERSON(S) OR ORGANIZATION(S):

City of Costa Mesa
Dave Sorge

77 Fair Dr
Costa Mesa

CA 92626

PROJECT/LOCATION OF COVERED OPERATIONS:

PROVISIONS

A. The following is added to WHO IS AN INSURED (Section II):

The person or organization shown in the Schedule above is an additional insured on this Coverage Part, but only with respect to liability for "bodily injury", "property damage" or "personal injury" caused, in whole or in part, by your acts or omissions or the acts or omissions of those acting on your behalf:

- a. In the performance of your ongoing operations;
- b. In connection with premises owned by or rented to you; or
- c. In connection with "your work" and included within the "products-completed operations hazard".

Such person or organization does not qualify as an additional insured for "bodily injury", "property damage" or "personal injury" for which that person or organization has assumed liability in a contract or agreement.

The insurance provided to such additional insured is limited as follows:

- d. This insurance does not apply to the rendering of or failure to render any "professional services".
- e. The limits of insurance afforded to the additional insured shall be the limits which you agreed in that "contract or agreement requiring insurance" to provide for that additional insured, or the limits shown in the Declarations for this Coverage Part, whichever are less. This endorsement does not increase the limits of insurance stated in the **LIMITS OF INSURANCE (Section III)** for this Coverage Part.

B. The following is added to Paragraph a. of 4. Other Insurance in COMMERCIAL GENERAL LIABILITY CONDITIONS (Section IV):

However, if you specifically agree in a "contract or agreement requiring insurance" that, for the additional insured shown in the Schedule, the insurance provided to that additional insured under this

19000 MacArthur Blvd. PH Floor
Irvine, CA 92612
(949) 263-0606
www.CompleteInsurance.com

HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURERS AFFORDING COVERAGE

NAIC #

INSURED Albert Grover & Associates, Inc.

INSURER A: Travelers Property Casualty Ins Co 36161

INSURER B: Travelers Indemnity Company of CT 36170

INSURER C:

INSURER D:

INSURER E:

211 E. Imperial Hwy., Ste. 208
Fullerton CA 92835

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR ADD'L LTR INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
A	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> Primary/NonContrib <input checked="" type="checkbox"/> Waiver Subrogation GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input checked="" type="checkbox"/> LOC	6802598L177 Scheduled AI Endt #CGD3820907	7/1/2008	7/1/2009	EACH OCCURRENCE \$ 1,000,000
	DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000				
A	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS	6802598L177	7/1/2008	7/1/2009	COMBINED SINGLE LIMIT (Ea accident) \$ Incl in GL
					BODILY INJURY (Per person) \$
	GARAGE LIABILITY <input type="checkbox"/> ANY AUTO				BODILY INJURY (Per accident) \$
					PROPERTY DAMAGE (Per accident) \$
B	EXCESS/UMBRELLA LIABILITY <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE DEDUCTIBLE RETENTION \$	CUP6677Y247	7/1/2008	7/1/2009	AUTO ONLY - EA ACCIDENT \$
					OTHER THAN AUTO ONLY: EA ACC \$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below	UB6676Y748 Blanket Waiver of Subro #WC99037600	7/1/2008	7/1/2009	AGGREGATE \$ 2,000,000
					E.L. EACH ACCIDENT \$ 1,000,000
	OTHER				E.L. DISEASE - EA EMPLOYEE \$ 1,000,000
					E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

Cert Holder is Add Insd as respects Gen Liab but only if required by written agreement with the Named Insured prior to an occurrence per Endt form #CGD3820907. WC Waiver of Subro Endt form #WC99037600 incl for all persons/organizations that are parties to a contract requiring this Endt, provided the contract is executed before the Loss. Coverage subject to all policy terms, conditions, limitations, and exclusions. Gen Liab incl Severability of Interest & Contractual Liab per limitations in Liab coverage form #CG00011001.

CERTIFICATE HOLDER

CANCELLATION

Traffic Signal Coordination Study
City of Costa Mesa
Dave Sorge

77 Fair Dr
Costa Mesa CA 92626

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ~~NOTICE~~ TO MAIL 30* DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, ~~BY FIRST CLASS MAIL~~
~~BY FIRST CLASS MAIL~~ * 10 Days for Non-Payment of Premium

AUTHORIZED REPRESENTATIVE

Alicia K. Igram

