SAN GABRIEL VALLEY TRAFFIC FORUM

ATMS CONCEPTUAL DESIGN REPORT

Deliverable 2.6.1

DRAFT

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1. INTRODUCTION

1.1 PROJECT OVERVIEW

The San Gabriel Valley Traffic Forum (SGVTF) is one of the planned Intelligent Transportation Systems (ITS) improvement projects that the Los Angeles County Department of Public Works (County) is developing as part of the Traffic System Management (TSM) program in order to improve traffic flow and enhance arterial capacity in a cost-effective way where roadway widening is not possible. The purpose of the SGVTF Project is to design, develop, and deploy an Advanced Transportation Management System (ATMS) that can be tailored to each Agency's operational needs so that traffic signals can be synchronized and ITS systems integrated across jurisdictional boundaries. The SGVTF Project focuses on the specific needs of each Agency to manage their ATMS and recommends improvements to field infrastructure (e.g., controllers, detection systems, communications, etc.) and centralized Traffic Control Systems (TCSs) and/or Traffic Management Centers (TMCs) to meet those requirements. When the SGVTF is successfully completed, each of the Agencies responsible for traffic signal operations will have full access to an ATMS that monitors and controls the traffic signals within their jurisdiction. In addition, Agencies will be able to synchronize their signals and exchange traffic information in real-time with neighboring Agencies. This will allow the Agencies to respond to recurrent and non-recurrent congestion in a coordinated fashion across jurisdictional boundaries.

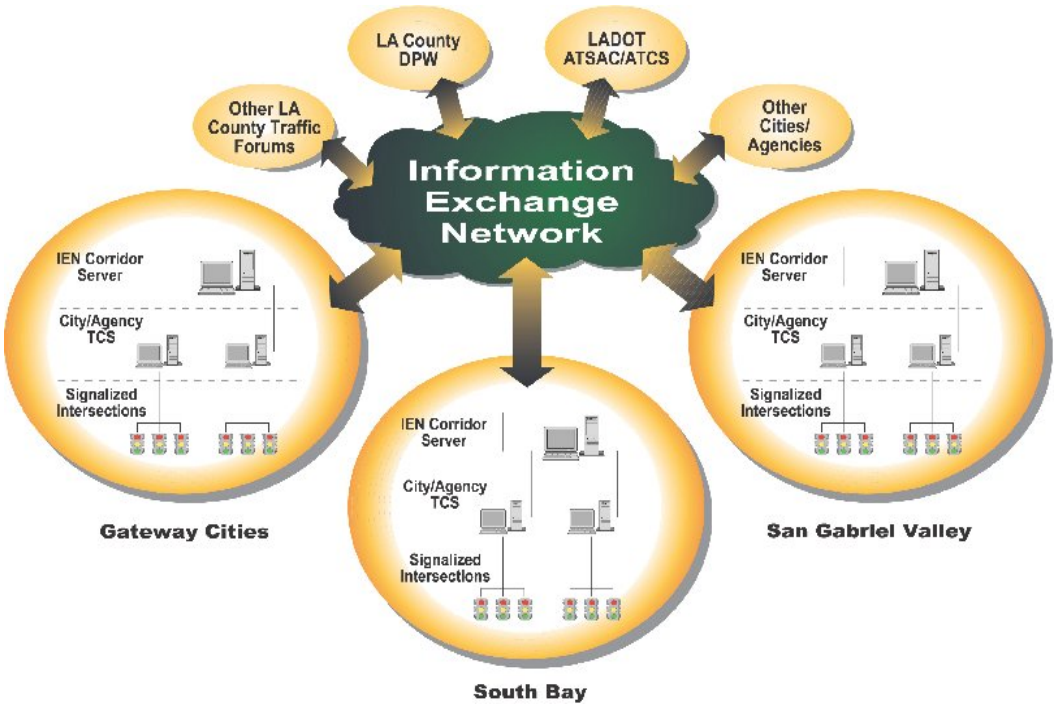
The SGVTF Project area ranges from Cities bordering the California State Route (CA SR) 110 and I-710 freeways to the west, I-210 freeway to the north, CA SR 57 freeway to the east, and the CA SR 60 freeway to the south. It encompasses 24 municipalities as well as unincorporated portions of Los Angeles County. The traffic signals in this Region are operated by many of the individual Agencies, County, and Caltrans District 7.

Developed by the County, the Countywide Information Exchange Network (IEN) is the integrated system framework that connects participating Agency ATMSs into a Regional network to support the operational goals identified above. The Countywide IEN supports traffic signal operations at the Local level, Corridor level, and Regional level. The SGVTF assumes the availability of the Countywide IEN at the Corridor and Regional levels. Therefore, the SGVTF Project is focused on the selection of TCSs and the integration of those systems to the Countywide IEN at the Local level. The eventual ATMS design for the SGVTF will take into account the interface to the IEN and its requirements at the Local level and encompass the following six (6) core components:

- ATMS and/or TCS (Individual Agency)
- Detection and Surveillance
- TMC and/or Workstation Layouts (ATMS and/or IEN)
- Communications Network
- SGVTF Participation/Coordination (City-specific and/or SGVTF-Regional integration)
- Operations and Maintenance (O&M)

As depicted in Exhibit 1.1, the Countywide IEN comprises a series of computer servers, communication networks, and software applications that integrates these components for the collection and transfer of data to support Corridor and Regional functions throughout Los Angeles County.

Exhibit 1.1 - Countywide Information Exchange Network (IEN)



1.2 AGENCY LEVEL DEFINITIONS

Four (4) Agency roles or "Levels" have been defined as well as a planning-related Level (Region Coordinator) for the implementation of the ATMS based upon the level of interaction an Agency will have in managing its traffic operations:

Level 1

- Agency does NOT operate its traffic signals
  - Agency wants to be "Agency B" on another Agency's ATMS
  - Another Agency operates its traffic signals (e.g., LA County DPW)
- Provided with an IEN W/S to monitor traffic signals & incident management activities
- No separate ATMS W/S provided

Level 2A

- Agency passively manages its traffic signals
  - Establish initial signal timings, monitor system status daily, etc.
  - May operate on an exception/as-needed basis
  - Monitor mainly for alarms & malfunctions
- Agency wants to be "Agency B" on another Agency's ATMS
- Provided with an IEN W/S to monitor traffic signals & incident management activities [Regional view]
- Maintains a separate ATMS W/S connected to "host" Agency's ATMS [Local view]

Level 2B

- Agency actively manages & operates its own ATMS

- Actively manages ATMS during exceptions
- Passively manages ATMS during AM & PM peak periods

- Agency may operate some other ITS devices (small amount)
- Agency may operate other Agencies' traffic signals (Level 1)
- Agency may "host" other Agencies' traffic signals (Level 2A)
- Maintains an LCCS facility to manage traffic signals & incident management activities
  - IEN W/S [Regional view]
  - ATMS W/S [Local view]
  - CDI between the ATMS & IEN

Level 3

- Agency actively manages its own ATMS & other ITS devices (large amount)
  - Typically AM & PM peak period traffic operations & incidents
  - May support 24/7 operations
- Agency may operate other Agencies' traffic signals (Level 1)
- Agency may "host" other Agencies' traffic signals (Level 2A)
- Agency will have a TMC from which to operate its ATMS, the IEN, & other ITS devices
- Maintains an TMC/LCCS facility to manage ATMS & incident management activities
  - IEN W/S (Regional view)
  - ATMS W/S (Local view)
  - CDI between the ATMS & IEN

Each Agency has been mapped to one of these Levels based upon the types of traffic and incident management functions and operations the Agency is proposed to be performing following the ATMS implementation and not what is being done today. Exhibit 1.2 presents the Agency/Level mapping for the SGVTF.

Exhibit 1.2 - SGVTF Agency/Level Mapping

Level 1	Level 2A	Level 2B	Level 3
Duarte La Puente San Marino South El Monte South Pasadena Temple City	Azusa Baldwin Park El Monte Glendora Monrovia Montebello Monterrey Park San Gabriel	Alhambra Arcadia Covina Irwindale Rosemead San Dimas West Covina	Caltrans LA County DPW Pasadena

1.3 PURPOSE OF DOCUMENT

This document is Deliverable 2.6.1 – ATMS Conceptual Design Report (Draft). The objective of this report is to document and analyze the ATMS needs for each Agency within the San Gabriel Valley Traffic Forum (SGVTF). Each Agency was contacted and visited to determine the existing ATMS infrastructure and to determine what ATMS infrastructure each Agency anticipates deploying in the future (if funds are available for deployment). The above task was

performed in parallel with Deliverable 2.6.2-Communications Conceptual Design Report due to the close nature of the work activities involved within each.

This document presents the following information at a minimum for the SGVTF.

- Documents, existing and proposed ITS field devices:
    - CCTV cameras
    - Traffic controllers
    - System detector stations
    - Presents a snapshot of each Agency's current traffic signal system
    - Discusses the ATMS equipment needs for each Agency
    - Documents any future plans for infrastructure expansion and/or updates

1.4 ORGANIZATION OF DOCUMENT

After this introduction, the report is broken into the following sections:

Section 2: Task Methodology

Section 3: ATMS Overview

Section 4: ATMS Conceptual Design per Agency

Appendices

1.5 REFERENCED DOCUMENTS

The following documents have been used as reference material in the preparation of this report:

- San Gabriel Valley Traffic Forum Project
    - Deliverable 2.1.2: Operational Objectives
    - Deliverable 2.2.2: System Needs
    - Deliverable 2.3.1.1: Concept-of-Operations
    - Deliverable 2.3.2.1: ATMS User Requirements
    - Deliverable 2.3.3.1: ATMS Functional Requirements
    - Deliverable 2.5.1.1: ATMS Alternatives Analysis
- City of Arcadia Intelligent Transportation System (ITS) Master Plan; Submitted by KAKU Associates January 2004; Reference 1580

2. TASK METHODOLOGY

In order to compile the information required for Task 2.6.1-ATMS Conceptual Design Report, representatives from the TransCore Team visited each traffic signal site, and then conducted follow-up interviews with the individual Agencies to discuss the information collected. For each SGVTF Agency, the TransCore Team focused its efforts on obtaining/analyzing the information that was originally documented in the 2.1.2-Operational Objectives and 2.2.2-System Needs for both "Existing Conditions" and "Planned Operations" scenarios.

With this information in-hand, the TransCore Team then performed the following activities:

- Identified technologies that can be used for each ATMS application
- Identified locations for CCTV cameras based on each Agency's needs
- Developed detailed traffic signal inventories for each Agency, which include types of controllers deployed and coordination plans currently in use
- Analyzed the major arterials that cross though several Agencies and located system detector stations
- Developed preliminary costs for each Agency to use for future budgeting of ATMS deployments

Please note that the following SGVTF Agencies have not been included within the ATMS Conceptual Design:

- Caltrans
    - Caltrans is responsible for performing any/all enhancements to their arterial ITS components
    - It is anticipated that Caltrans arterial traffic signal data/control will be through the CDI between CT-NET and the IEN (TBD)
- LACO DPW
    - All LA County signalized intersections are being brought back to the LACO TMC via each respective SGVTF Agency's ATMS and/or Communications conceptual design
    - No other ITS components have been identified for LA County within the SGVTF project boundaries
- Pasadena
    - Basically, the City is already 100% "built-out" with regard to ITS (TCS, communications, TMC, CCTV, etc)
    - The City is also in the process of implementing any/all remaining ITS components
    - The SGVTF's ATMS conceptual design will only take into account the design of potential system detection locations
- San Dimas
    - The City is also a member of the Pomona Valley ITS Forum (PVITS)
    - Therefore, all of the City's conceptual designs will be developed as part of PVITS (not SGVTF)

3. SGVTF – ATMS OVERVIEW

3.1 CCTV CAMERA OVERVIEW

3.1.1 Agency Deployment

The following SGVTF Agencies have expressed interest in deploying CCTV cameras as part of their ATMS system:

- City of Azusa
- City of Monrovia
- City of Alhambra
- City of Arcadia
- City of Covina
- City of Irwindale
- City of Rosemead

Once deployed, CCTV camera images will be sent to each Agency's Local City Control System (LCCS). The video has the potential to be shared with LA County since all LCCS locations will have a direct communication link to the LA County Transportation Management Center (TMC).

3.1.2 CCTV Camera Technology

The technology components that are typically included within a CCTV camera installation are listed below:

CCTV Technology Component	Description
Concrete Base	The concrete base should be designed to support the camera pole and all the components attached to the pole. Typical dimensions of the cylindrical base are 28 inches in diameter and 10 feet below the ground surface.
Steel Pole (45 to 50 feet)	The camera pole is specifically designed to allow for only one inch of deflection. If there is a greater deflection, the camera image will become distorted.
Camera Lowering System	This is a steel arm that is attached to the camera pole that facilitates lowering the dome camera from the ground versus needing a bucket truck to maintain the dome camera.
Dome Camera	The dome camera contains the image lens, pan/tilt/zoom unit, and camera controller. The dome camera is sealed and pressurized to protect the internal components from the environment.
CCTV Cables	There are three (3) types of cable needed for each camera site: one for communication, one for electrical power, and one for video feed (coaxial). These cables are typically bundled together and terminated at a field cabinet.
Video Encoder	The video encoder compresses the video for transmission (using less bandwidth for transmission than sending the video feed without an encoder). There is a video decoder at the LCCS that decompresses the video for viewing. The video encoder is housed in a field cabinet. (Please not that a video encoder is not required for those Agencies that use fiber-optic communications as they can just transmit/bring-back analog video)

Each CCTV camera installation will cost approximately $35,000 based on the technologies used in the table above. Obviously, some cost savings can be achieved if the use of existing poles can be accomplished.

The Central CCTV System will cost approximately $50,000 based on the technology chosen. Obviously, if an Agency already has a CCTV system and display, this additional cost is not applicable.

3.1.3 CCTV Camera Selection Criteria

Exhibit 3.1 below provides a prioritization for CCTV camera potential locations utilizing the methodology described in Section six (6) of the SGVTF ATMS Alternatives Report document (Deliverable 2.5.1.1). Potential locations for CCTV cameras in the SGVTF region include all the main arterials and intersections as well as corridors surrounding the traffic generators listed for each Agency in the SGVTF Operational Objectives and System Needs Report document (Deliverables 2.1.2 and 2.2.2).

The CCTV camera locations for the SGVTF were chosen based on the following criteria:

- Intersection LOS
- Intersection AADT
- Special Events
- Freeway Detour (Potential)
- Agency Preference (Since each Agency will need to operate and maintain each CCTV with their own funds)

Exhibit 3.1 - CCTV Camera Prioritization Location Summary

LEVEL 2A		
Agency	**Intersection**	**AADT**
Azusa (4 Cameras)	Foothill Boulevard and Todd Avenue	34,700
	Foothill Boulevard and Azusa Avenue	33,700
	Citrus Avenue and Alosta Avenue	40,300
	Citrus Avenue and First Street	35,600
Monrovia (6 Cameras)	Huntington Drive and I-210	37,200
	Myrtle Avenue and I-210	25,300
	Myrtle Avenue and Duarte Road	22,100
	Myrtle Avenue and Huntington Drive	15,100
	Myrtle Avenue and Colorado Boulevard	14,400
	Myrtle Avenue and Foothill Boulevard	11,200

LEVEL 2B		
Agency	**Intersection**	**AADT**
Alhambra (7 Cameras)	Main Street and Atlantic Boulevard	55,000
	Main Street and Garfield Avenue	48,000
	Mission Road and Garfield Avenue	53,000

LEVEL 2B		
Agency	**Intersection**	**AADT**
	Mission Road and Atlantic Boulevard	52,000
	Valley Boulevard and Atlantic Boulevard	64,000
	Valley Boulevard and Garfield Avenue	59,000
	Valley Boulevard and Fremont Avenue	66,000
Arcadia (4 Cameras)	Huntington Drive and Santa Anita Avenue	49,000
	Huntington Drive and Baldwin Avenue	61,000
	Foothill Boulevard and Santa Anita Avenue	41,500
	TBD (South of Duarte Road)	N/A
Covina (5 Cameras)	Azusa Avenue and Cypress Street	N/A
	Azusa Avenue and San Bernardino Road	N/A
	Azusa Avenue and Badillo Street	N/A
	Azusa Avenue and Covina Boulevard	N/A
	Azusa Avenue and Grondahl	N/A
Irwindale (6 Cameras)	Irwindale Avenue and Foothill Boulevard	N/A
	Irwindale Avenue and Arrow Highway	N/A
	Irwindale Avenue and I-210	N/A
	Irwindale Avenue and First Street	N/A
	Live Oak Avenue and Peck Road	N/A
	Arrow Highway and I-605	N/A
Rosemead (8 Cameras)	Rosemead Boulevard and Marshall	N/A
	Rosemead Boulevard and Mission Drive	N/A
	Rosemead Boulevard and Valley Boulevard	N/A
	Valley Boulevard and Mission Drive	N/A
	Garvey Road and Walnut Grove Avenue	N/A
	Garvey Road and San Gabriel Boulevard	N/A
	San Gabriel Blvd and Walnut Grove Ave	N/A
	San Gabriel Boulevard and I-10	N/A

3.2 TRAFFIC CONTROLLER OVERVIEW

3.2.1 Traffic Controller Technology

Traffic controller types fall into three (3) main categories:

NEMA Controllers - NEMA is an acronym for the National Electrical Manufacturers' Association. Its controllers are not interchangeable with Model 170 controllers. NEMA controllers adhere to a standard set of input/output definitions, which provide for basic signal operation. The standard does not define "enhanced" operations. NEMA controllers generally have proprietary firmware controlling the hardware.

Model 170 Controllers – This type of controller also adheres to a hardware specification, but hardware and firmware are separated, so one company's firmware can be used in another's hardware.

Advanced Transportation Controllers - (ATC or 2070) controllers were developed as a successor to Model 170 controllers, offering more computational power, advanced features, and a menu-driven front-panel interface while maintaining an open hardware standard. The Model 2070N controller is a Model 2070 controller with NEMA connectors, allowing it to be retrofitted into a NEMA cabinet.

3.2.2 Traffic Controller Recommendations

In order for the traffic controller to communicate to an Agency LCCS, the traffic controller must be advanced enough to allow for remote serial communication. The NEMA, 170, and 2070 controllers can communicate remotely if configured to do so. Some Agencies will need to upgrade their current controllers to allow for remote management of the traffic signal. In some cases the upgrade may be inexpensive (adding a $150 dollar modem card to an existing controller), moderately expensive (replacing the entire controller which costs approx. $4,000), or expensive (replacing both the entire controller and cabinet which costs approx. $15,000). This report identifies which controllers will need replacement so the traffic signal can communicate to the Agency LCCS.

3.3 DETECTOR OVERVIEW

3.3.1 Detector Technology

Within Deliverable 2.5.1.1-ATMS Alternatives Analysis, the following vehicle detector technologies were recommended for use as a detection system:

- Inductive loop
- Microwave radar
- Ultrasonic
- Video image detection (VIDs)

3.3.2 Local Intersection Detector Recommendation

Within the SGVTF, the primary type of detection system used at a local intersection is inductive loops. For those Agencies that exclusively use inductive loops, have O&M considerations in-place, and have no current plans to update, then it is recommended that they continue with their use of inductive loops. For those Agencies that are already using an/or considering the use of

VIDs for future signals or signal upgrades, then it is recommended that they use VIDs. These recommendations will be depicted in the individual Agency exhibits found in Section 4.

3.3.3 SGVTF System Detector Overview

System detectors are vehicle detectors used to gather measures of effectiveness such as volume or occupancy, but are not generally used directly for extension or termination of a traffic signal's "green" time. The typical traffic responsive mode of coordination has the on-street master or central system dynamically calculating the "best" coordination pattern based on comparisons of real-time system detector data with a stored lookup table.

The following SGVTF corridors were analyzed for placement of system detector stations:

East-West Corridors:

1. Huntington Drive/Foothill Boulevard/Alosta Avenue (Route 66)
2. Arrow Highway/Live Oak Avenue/Las Tunas Drive/Main Street
3. Valley Boulevard
4. Badillo Street/Ramona Boulevard/Covina Boulevard
5. Amar Road/Temple Avenue

Honorable Mention:

6. Garvey Avenue

North-South Corridors:

1. Rosemead Boulevard
2. Azusa Avenue
3. Citrus Avenue
4. Myrtle Avenue/Peck Road
5. Fair Oaks/Fremont Avenue
6. Baldwin Avenue
7. San Gabriel Boulevard
8. Atlantic Boulevard
9. Santa Anita Avenue
10. Garfield Avenue

3.3.4 System Detector Recommendations

It is recommended that inductive loops be used for the SGVTF system detection station sites. Typically located 350-feet from the intersection stop bar, the inductive loops can be wired straight into the local intersection traffic controller and brought back with all of the other traffic data to the central TCS. The ease of this data retrieval method, low cost to implement, and high-level of Agency know-how regarding the use of inductive loops makes this a straightforward recommendation.

4. ATMS CONCEPTUAL DESIGN BY AGENCY

4.1 CITY OF DUARTE (LEVEL 1)

4.1.1 CCTV Cameras

There are no current plans for the City of Duarte to deploy CCTV cameras.

4.1.2 Traffic Controllers and Detection

A listing of each signalized intersection for the City of Duarte is provided in Exhibit 4.1. Each traffic signal will be interconnected to the City of Duarte LCCS location (1600 Huntington Drive). This will enable the LA County to monitor and control its traffic signals remotely. Exhibit 4.2 indicates the locations of existing traffic signal controllers.

The existing City of Duarte's existing traffic signals have the following characteristics:

- Type 170 controllers at each intersection
- Inductive loop detection at each intersection
- Fixed pattern/ TOD timing plans
- LACO DPW Tier 1 coordination (Huntington Blvd. & Buena Vista St.)
- Six (6) signals solely owned by the City of Duarte
- Maintenance for the traffic signals is contracted to LA County

There are no plans to install additional traffic signals or upgrade traffic controllers within the next five years. The only upgrade proposed in this report is to install communications equipment at each traffic signal controller site to allow the traffic signal to communicate to the LCCS and LACO TMC.

Exhibit 4.1 - City of Duarte Signalized Intersections

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
1	Huntington Dr.	Las Lomas Rd.	Duarte	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA County
2	Huntington Dr.	Highland Ave.	Duarte	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA County
3	Huntington Dr.	Buena Vista St.	Duarte	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA County
4	Huntington Dr.	Mtn. Vista Plaza	Duarte	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA County
5	Huntington Dr.	Crestfield Dr.	Duarte	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA County
6	Buena Vista St.	Duarte Rd.	Duarte	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA County

Exhibit 4.2 - City Map of Duarte

Please Insert Color Map (.jpg) Here

4.1.3 System Detectors

A listing of each proposed system detector for the City of Duarte is provided in Exhibit 4.3. The system detector stations will be installed at three (3) locations on Huntington Drive. They are spaced approximately one mile apart. Please refer again to Exhibit 4.2 (Map of Duarte) that indicates locations of proposed system detector.

Exhibit 4.3 - City of Duarte Proposed System Detectors

#	Main Street	Between Cross Streets		Detector Type
1	Huntington Drive	Highland Ave	Amberwood Drive	Inductive Loops
2	Huntington Drive	Encanto Parkway	Las Lomas Road	Inductive Loops
3	Huntington Drive	Mountain Avenue	Bradbury Road	Inductive Loops

4.1.4 ATMS System Cost

Exhibit 4.4 indicates the cost of furnishing and installing the equipment necessary for a complete installation. Please note that the communication costs are located in the Communication Conceptual Design Report (Deliverable 2.6.2).

Exhibit 4.4 – City of Duarte Total ATMS Equipment Cost

ATMS Equipment	Quantity	Unit Cost	Total Cost
Connection to LA County TCS	1	$10,000	$10,000
Inductive Loops	3	$15,000	$45,000
Total Proposed ATMS System Cost			**$55,000**

4.2 CITY OF LA PUENTE (LEVEL 1)

4.2.1 CCTV Cameras

There are no current plans for the City of La Puente to deploy CCTV cameras.

4.2.2 Traffic Controllers and Detection

A listing of each existing traffic signal for the City of La Puente is provided in Exhibit 4.5. Each traffic signal will be connected to the City of La Puente LCCS location (15900 E. Main Street). This will enable LA County to monitor and control its traffic signals remotely. Exhibit 4.6 indicates the locations of existing traffic signal controllers.

The City of La Puente's existing traffic signals have the following characteristics:

- Type 170 controllers at each intersection
- Inductive loop detection at each intersection
- Fixed Pattern/TOD timing plans
- LACO DPW Tier 1 Coordination (Temple Avenue)
- Thirteen (13) signals are solely owned by the City of La Puente
- Maintenance for the traffic signals is contracted to LA County

There are no plans to install additional traffic signals or upgrade traffic controllers within the next five years. The only upgrade proposed in this report is to install communication equipment at each traffic signal controller site to allow the traffic signal to communicate to the LCCS and LACO TMC.

Exhibit 4.5 – City of La Puente Signalized Intersections

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
1	Amar Rd.	Ardilla Ave.	La Puente	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
2	Amar Rd.	Del Valle Ave.	La Puente	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
3	Amar Rd.	Hacienda Blvd.	La Puente	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
4	Temple Ave.	Ardilla Ave.	La Puente	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
5	Temple Ave.	Del Valle Ave.	La Puente	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
6	Temple Ave.	Glendora Ave.	La Puente	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
7	Temple Ave.	Hacienda Blvd.	La Puente	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
8	Temple Ave.	Orange Ave.	La Puente	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
9	Temple Ave.	Stimson Ave.	La Puente	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
10	Temple Ave.	Willow Ave.	La Puente	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
11	Valley Blvd.	Wickford Ave.	La Puente	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
12	Valley Blvd.	Ferrero Lane	La Puente	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
13	Glendora Ave.	Hacienda Blvd.	La Puente	170	Inductive Loops	Fixed Pattern/TOD	None	LACO

Exhibit 4.6 - City Map of La Puente

Please Insert Color Map (.jpg)

4.2.3 System Detectors

There are no current plans for the City of La Puente to deploy system detectors.

4.2.4 ATMS System Cost

These costs include furnishing and installing the equipment necessary for a complete installation. Please note that the communication costs are located in the Communication Conceptual Design Report (Deliverable 2.6.2).

Exhibit 4.7 – City of La Puente Total ATMS Equipment Cost

ATMS Equipment	Quantity	Unit Cost	Total Cost
Connection to LA County TCS	1	$10,000	$10,000
Total Proposed ATMS System Cost			**$10,000**

4.3 CITY OF SAN MARINO (LEVEL 1)

4.3.1 CCTV Cameras

There are no current plans for the City of San Marino to deploy CCTV cameras.

4.3.2 Traffic Controllers and Detection

A listing of each existing traffic signal for the City of San Marino is provided in Exhibit 4.8. Each traffic signal will be interconnected to the City of San Marino LCCS location (2200 Huntington Drive). This will enable LA County to monitor and control its traffic signals remotely. Exhibit 4.9 indicates the locations of existing traffic signal controllers.

The City of San Marino's existing traffic signals have the following characteristics:

- Type 170 controllers at each intersection
- Inductive loop detection at each intersection
- Fixed Pattern/TOD timing plans
- LACO DPW Tier 1 and Tier 3 Coordination on Huntington Drive
- LACO DPW Tier 1 on all other intersections
- Sixteen (1) signals are solely owned by the City of San Marino
- Two (2) of the signal have shared ownership with LA County
- Maintenance for the traffic signals is contracted to Republic Electric

There are no plans to install additional traffic signals or upgrade traffic controllers within the next five years. The only upgrade proposed in this report is to install communications equipment at each traffic signal controller site to allow the traffic signal to communicate to the LCCS and LACO TMC.

Exhibit 4.8 – City of San Marino Signalized Intersections

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
1	Huntington Dr.	San Gabriel Blvd.	LACO/San Marino	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
2	Huntington Dr.	Grenada Ave.	San Marino	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 3	Republic Electric
3	Huntington Dr.	Oak Knoll Ave.	San Marino	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Republic Electric
4	Huntington Dr.	Saint Albans Rd.	San Marino	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Republic Electric
5	Huntington Dr.	Virginia Rd.	San Marino	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Republic Electric
6	Huntington Dr.	Cambridge Rd./ West Dr.	San Marino	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 3	Republic Electric
7	Huntington Dr.	San Marino Blvd./Sierra Madre Blvd.	San Marino	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 3	Republic Electric
8	Huntington Dr.	Del Mar Ave.	San Marino	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 3	Republic Electric
9	Huntington Dr.	Gainsborough Dr./ Bradbury Rd.	San Marino	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Republic Electric
10	Los Robles Ave.	Mission St.	San Marino	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Republic Electric
11	Los Robles Ave.	Monterey Rd.	San Marino	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Republic Electric
12	Los Robles Ave.	Wilson Ave.	San Marino	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Republic Electric
13	California Blvd.	Allen Ave.	San Marino	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Republic Electric
14	California Blvd.	San Marino Blvd.	San Marino	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Republic Electric
15	California Blvd.	Sierra Madre Blvd.	San Marino	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Republic Electric
16	California Blvd.	Santa Anita Ave.	San Marino	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Republic Electric
17	San Gabriel Blvd.	Duarte Rd.	LACO/San Marino	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
18	San Gabriel Blvd.	California Blvd.	LACO/San Marino	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO

Exhibit 4.9 – City Map of San Marino

Please Insert Color Map (.jpg)

4.3.3 System Detectors

A listing of each proposed system detector for the City of San Marino is provided in Exhibit 4.10. The system detector stations will be installed at four (4) locations, two (2) on Huntington Drive and two (2) on San Gabriel Boulevard. They are spaced approximately one mile apart. Please refer again to Exhibit 4.9 (Map of San Marino) that indicates locations of proposed system detector stations.

Exhibit 4.10 – City of San Marino Proposed System Detectors

#	Main Street	Between Cross Streets		Detector Type
1	Huntington Drive	Ridgeway Road	Kenilworth Ave	Inductive Loops
2	Huntington Drive	Chelsea Road	Old Mill Road	Inductive Loops
3	San Gabriel Boulevard	Canterbury Road	Wallingford Road	Inductive Loops
4	San Gabriel Boulevard	Sheffield Road	Woodlawn Avenue	Inductive Loops

4.3.4 ATMS System Cost

These costs include furnishing and installing the equipment necessary for a complete installation. Please note that the communication costs (fiber optic cable connections, wireless radio, leased telephone lines) are located in the Communication Conceptual Design Report (Deliverable 2.6.2).

Exhibit 4.11 – City of San Marino Total ATMS Equipment Costs

ATMS Equipment	Quantity	Unit Cost	Total Cost
Connection to LA County TCS	1	$10,000	$10,000
Inductive Loops	4	$15,000	$60,000
Total Proposed ATMS System Cost			**$70,000**

4.4 CITY OF SOUTH EL MONTE (LEVEL 1)

4.4.1 CCTV Cameras

There are no current plans for the City of South El Monte to deploy CCTV cameras.

4.4.2 Traffic Controllers and Detection

A listing of each existing traffic signal for the City of South El Monte is provided in Exhibit 4.12. Each traffic signal will be interconnected to the City of South El Monte LCCS location (1415 N. Santa Anita Avenue). This will enable LA County to monitor and control the traffic signals remotely. Exhibit 4.13 indicates the locations of existing traffic signal controllers.

The City of South El Monte's existing traffic signals have the following characteristics:

- Type 170 controllers at each intersection
- Inductive loop detection at each intersection
- Fixed Pattern/TOD timing plans
- LACO DPW Tier 1 Coordination (Peck Road, Santa Anita Avenue, and Garvey Avenue)
- Eighteen (18) signals are solely owned by the City of South El Monte
- Six (6) signals are owned by Caltrans
- Maintenance for the traffic signals is contracted to Signal Maintenance Inc.

There are no plans to install additional traffic signals or upgrade traffic controllers within the next five years. The only upgrade proposed in this report is to install communications at each traffic signal controller site to allow the traffic signal to communicate to the LCCS and LACO TMC.

Exhibit 4.12 – City of South El Monte Signalized Intersections

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
1	Michael Hunt Dr.	Lidcombe Ave.	South El Monte	170	Inductive Loops	Fixed Pattern/TOD	Ped Signal	Signal Maintenance Inc.
2	Merced Ave.	Alesia St.	South El Monte	170	Inductive Loops	Fixed Pattern/TOD	Ped Signal	Signal Maintenance Inc.
3	Central Ave.	Lerma Rd.	South El Monte	170	Inductive Loops	Fixed Pattern/TOD	Ped Signal	Signal Maintenance Inc.
4	Rush St.	Potrero Ave.	South El Monte	170	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
5	Rush St.	Merced Ave.	South El Monte	170	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
6	Rush St.	Santa Anita Ave.	South El Monte	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
7	Rush St.	Tyler Ave.	South El Monte	170	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
8	Rush St.	Peck Rd.	South El Monte	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
9	Rush St.	Durfee Ave.	South El Monte	170	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
10	Tyler Ave.	Michael Hunt Dr.	South El Monte	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
11	Peck Rd./Durfee Ave	Durfee Ave./Thienes Ave.	South El Monte	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
12	Santa Anita Ave.	Fawcett Ave.	South El Monte	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
13	Santa Anita Ave.	Central Ave.	South El Monte	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
14	Santa Anita Ave.	Klingerman St.	South El Monte	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
15	Santa Anita Ave.	Elliott Ave./Fern Ave.	South El Monte	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
16	Santa Anita Ave.	Tyler Ave.	South El Monte	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
17	Michael Hunt Dr	Durfee Ave.	South El Monte	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
18	Rush.	Chico.	South El Monte	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.

Exhibit 4.13 - City Mapof South El Monte

Please Insert Color Map (.jpg)

4.4.3 System Detectors

A listing of each proposed system detector for the City of South El Monte is provided in Exhibit 4.14. The system detector stations will be installed at two (2) locations; one on Durfee Avenue, and one on Santa Anita Avenue. Please refer again to Exhibit 4.13 (Map of South El Monte) that indicates locations of proposed system detectors.

Exhibit 4.14 – City of South El Monte Proposed System Traffic Detectors

#	Main Street	Between Cross Streets		Detector Type
1	Durfee Avenue	Springwood Street	Parlin Street	Inductive Loops
2	Santa Anita Avenue	Rush Street	El Poche	Inductive Loops

4.4.4 ATMS System Cost

These costs include furnishing and installing the equipment necessary for a complete installation. Please note that the communication costs (fiber optic cable connections, wireless radio, leased telephone lines) are located in the Communication Conceptual Design Report (Deliverable 2.6.2).

Exhibit 4.15 – City of South El Monte Total ATMS Equipment Cost

ATMS Equipment	Quantity	Unit Cost	Total Cost
Connection to LA County TCS	1	$10,000	$10,000
Inductive Loops	2	$15,000	$30,000
Total Proposed ATMS System Cost			**$40,000**

4.5 CITY OF SOUTH PASADENA (LEVEL 1)

4.5.1 CCTV Cameras

There are no current plans for the City of South Pasadena to deploy CCTV cameras.

4.5.2 Traffic Controllers and Detection

A listing of each existing traffic signal for the City of South Pasadena is provided in Exhibit 4.16. Each traffic signal will be interconnected to the City of South Pasadena LCCS location (1414 Mission Street). This will enable LA County to monitor and control the traffic signals remotely. Exhibit 4.17 indicates the locations of existing traffic signal controllers.

The City of South Pasadena's existing traffic signals have the following characteristics:

- Type 170 controllers at most intersections
- Ten (10) 2070 controllers to be installed along Fair Oaks Avenue as part of the I-710/Fair Oaks interchange project (to be completed in 2005)
- Six (6) locations where there are NEMA 2000 controllers (the City of South Pasadena will be replacing these with 170 controllers in the next five years.)
- Inductive loop detection at each intersection, except at Fair Oaks Avenue and Huntington Drive where a VIDs will be installed as part of the I-710/Fair Oaks interchange project (to be completed in 2005)
- Fixed Pattern/TOD timing plans
- LACO DPW Tier 1 Coordination (Fair Oaks Avenue, Huntington Drive, and Fremont Avenue)
- Twenty-nine (29) signals are solely owned by the City of South Pasadena
- One (1) signal is owned by Pasadena
- Four (4) signals are owned by the City of Alhambra; the intersection of Huntington/Atlantic/Garfield is co-owned with LA County
- Maintenance for the traffic signals is contracted to Peek Traffic Inc.

There are no plans to install additional traffic signals. There are plans to upgrade the NEMA 2000 traffic controllers within the next five years. The other upgrade proposed in this report is to install communications equipment at each traffic signal controller site to allow the traffic signal to communicate to the LCCS and LACO TMC.

Exhibit 4.16 – City of South Pasadena Signalized Intersections

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
1	Fair Oaks Ave.	Raymond/ Columbia	South Pasadena	2070	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
2	Fair Oaks Ave.	State/Grevelia	South Pasadena	2070	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
3	Fair Oaks Ave.	Hope St.	South Pasadena	2070	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
4	Fair Oaks Ave.	Mission St.	South Pasadena	2070	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
5	Fair Oaks Ave.	El Centro St.	South Pasadena	2070	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
6	Fair Oaks Ave.	Oxley St.	South Pasadena	2070	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
7	Fair Oaks Ave.	Monterey Rd.	South Pasadena	2070	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
8	Fair Oaks Ave.	Rollin St.	South Pasadena	2070	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
9	Fair Oaks Ave.	Oak St.	South Pasadena	2070	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
10	Fair Oaks Ave.	Huntington Dr.	South Pasadena	2070	VIDs	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
11	Huntington Dr.	Fremont Ave.	South Pasadena	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
12	Huntington Dr.	Marengo Ave.	South Pasadena	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
13	Huntington Dr.	Fletcher Ave.	South Pasadena	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
14	Fremont Ave.	Maple Ave.	South Pasadena	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
15	Fremont Ave.	Oak St.	South Pasadena	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
16	Fremont Ave.	Rollin St.	South Pasadena	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
17	Fremont Ave.	Bank St.	South Pasadena	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
18	Fremont Ave.	Monterey Rd.	South Pasadena	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
19	Fremont Ave.	El Centro St.	South Pasadena	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
20	Fremont Ave.	Mission St.	South Pasadena	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
21	Fremont Ave.	Greveila St.	South Pasadena	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
22	Mission St.	Garfield Ave.	South Pasadena	170	Inductive Loops	Fixed Pattern	None	Peek Traffic Inc.

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
23	Mission St.	Meridian Ave.	South Pasadena	NEMA 2000	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
24	Mission St.	Grand Ave.	South Pasadena	NEMA 2000	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
25	Monterey Rd.	Diamond Ave.	South Pasadena	NEMA 2000	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
26	Monterey Rd	Meridian Ave.	South Pasadena	NEMA 2000	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
27	Monterey Rd.	Via Del Rey	South Pasadena	NEMA 2000	Inductive Loops	Fixed Pattern/TOD	None	P eek Traffic Inc.
28	Monterey Rd.	Indiana Ave.	South Pasadena	NEMA 2000	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
29	Monterey Rd.	Pasadena Ave.	South Pasadena	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
30	Huntington Dr	Garfield/Atlantic	Alhambra/LACO	170	Inductive Loops	Fixed Pattern/TOD	None	Alhambra
31	Huntington Dr	Alhambra/Kendall	Alhambra	170	Inductive Loops	Fixed Pattern/TOD	None	Alhambra
32	Fremont Ave.	Alhambra Rd.	Alhambra	170	Inductive Loops	Fixed Pattern/TOD	None	Alhambra
33	Atlantic Blvd.	Pine St.	Alhambra	170	Inductive Loops	Fixed Pattern/TOD	None	Alhambra
34	Orange Grove Ave.	Columbia St.	Pasadena	170	Inductive Loops	Fixed Pattern/TOD	None	Pasadena

Exhibit 4.17 - City Map of South Pasadena

Please Insert Color Map (.jpg)

4.5.3 System Detectors

A listing of each proposed system detector for the City of South Pasadena is provided in Exhibit 4.18. The system detector stations will be installed at five (5) locations; one (1) on Huntington Drive, two (2) on Fair Oaks Avenue, and two (2) on Garfield Avenue. They are spaced approximately one mile apart. Please refer again to Exhibit 4.17 (Map of South Pasadena) that indicates locations of proposed system detectors.

Exhibit 4.18 – City of South Pasadena Proposed System Detectors

#	Main Street	Between Cross Streets		Detector Type
1	Huntington Drive	Wayne Avenue	Bushnell Avenue	Inductive Loops
2	Garfield Avenue	Montrose Avenue	Mill Road	Inductive Loops
3	Fair Oaks Avenue	Spruce Street	Laurel Street	Inductive Loops
4	Fair Oaks Avenue	Mound Avenue	Columbia Street	Inductive Loops

4.5.4 ATMS System Cost

These costs include furnishing and installing the equipment necessary for a complete installation. Please note that the communication costs (fiber optic cable connections, wireless radio, leased telephone lines) are located in the Communication Conceptual Design Report (Deliverable 2.6.2).

Exhibit 4.19 – City of South Pasadena Total ATMS Equipment Cost

ATMS Equipment	Quantity	Unit Cost	Total Cost
Connection to LA County TCS	1	$10,000	$10,000
Traffic Controller	6	$4,000	$24,000
Traffic Controller Cabinet	6	$4,000	$24,000
Inductive Loops	4	$15,000	$60,000
Total Proposed ATMS System Cost			**$118,000**

4.6 TEMPLE CITY (LEVEL 1)

4.6.1 CCTV Cameras

There are no current plans for Temple City to deploy CCTV cameras.

4.6.2 Traffic Controllers and Detection

A listing of each existing traffic signal for Temple City is provided in Exhibit 4.20. Each traffic signal will be interconnected to the Temple City LCCS location (9701 Las Tunas Drive). This will enable the LA County to monitor and control the traffic signals remotely. Exhibit 4.21 indicates the locations of existing traffic signal controllers.

The Temple City's existing traffic signals have the following characteristics:

- Type 170 controllers at all intersections
- Inductive loop detection at each intersection
- Fixed Pattern/TOD timing plans
- LACO DPW Tier 1 Coordination (Las Tunas Drive and Temple City Boulevard)
- Twenty-seven (27) signals are solely owned by Temple City
- One (1) signal is owned by the City of El Monte
- Maintenance for the traffic signals is contracted to Signal Maintenance Inc.

There are no plans to install additional traffic signals or upgrade traffic controllers within the next five years. The only upgrade proposed in this report is to install communication equipment at each traffic signal controller site to allow the traffic signal to communicate to the LCCS and LACO TMC.

Exhibit 4.20 – Temple City Signalized Intersections

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
1	La Tunas Dr.	Sultana Ave.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
2	La Tunas Dr.	Loma Ave.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
3	La Tunas Dr.	Encinita Ave.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
4	La Tunas Dr.	Alessandro Ave.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
5	La Tunas Dr.	Oak Ave.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
6	La Tunas Dr.	Cloverly Ave.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
7	La Tunas Dr.	Primrose Ave.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
8	La Tunas Dr.	Temple City Blvd.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
9	La Tunas Dr.	Camellia Ave.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
10	La Tunas Dr.	Kauffman Ave.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
11	La Tunas Dr.	Golden West Ave.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
12	Temple City Blvd.	Lemon Ave.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
13	Temple City Blvd.	Longden	Temple City	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
14	Temple City Blvd.	Garibaldi Ave.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
15	Temple City Blvd.	Woodruff	Temple City	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
16	Temple City Blvd.	Live Oak Ave.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
17	Temple City Blvd.	Broadway	Temple City	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
18	Temple City Blvd.	Olive St.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
19	Temple City Blvd.	La Rosa Dr.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
20	Temple City Blvd.	Lower Azusa Rd.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
21	Broadway	Encinita Ave.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
22	Oak Ave.	Longden Ave.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
23	Lower Azusa Rd.	Arden Dr.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
24	Lower Azusa Rd.	Halifax Rd.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
25	Baldwin Ave.	Live Oak Ave.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
26	Baldwin Ave.	Olive St.	Temple City	170	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
27	Baldwin Ave.	Lower Azusa Rd.	El Monte	170	Inductive Loops	Fixed Pattern/TOD	None	El Monte (Contracted)
28	Baldwin Ave.	Home Depot	Temple City	170	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
29	Temple City Blvd	Camino Real	Temple City	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.

Exhibit 4.21 - City Map of Temple City

Please Insert Color Map (.jpg)

4.6.3 System Detectors

A listing of each proposed system traffic detector for Temple City is provided in Exhibit 4.22. The system detector stations will be installed at four (4) locations; one on Rosemead Boulevard, two on Las Tunas Drive, and one on Baldwin Avenue. They are spaced approximately one mile apart. Please refer again to Exhibit 4.21 (Map of Temple City) that indicates locations of proposed system detectors.

Exhibit 4.22 – Temple City Proposed System Traffic Detectors

#	Main Street	Between Cross Streets		Detector Type
1	Las Tunas Drive	Rowland Avenue	Golden West Avenue	Inductive Loops
2	Las Tunas Drive	Rosemead Boulevard	Sultana Avenue	Inductive Loops
3	Rosemead Boulevard	Broadway Road	Las Tunas Drive	Inductive Loops
4	Baldwin Avenue	Bogue Street	Daines Drive	Inductive Loops

4.6.4 ATMS System Cost

These costs include furnishing and installing the equipment necessary for a complete installation. Please note that the communication costs are located in the Communication Conceptual Design Report (Deliverable 2.6.2).

Exhibit 4.23 – City of Temple City Total ATMS Equipment Cost

ATMS Equipment	Quantity	Unit Cost	Total Cost
Connection to LA County TCS	1	$10,000	$10,000
Inductive Loops	4	$15,000	$60,000
Total Proposed ATMS System Cost			**$70,000**

4.7 CITY OF AZUSA (LEVEL 2A)

4.7.1 CCTV Cameras

The City of Azusa proposes to install four (4) CCTV cameras in the City to be able to view traffic conditions at some major intersections. These intersections, as shown below in Exhibit 4.24, are currently operating at Level of Service D to E, increasing the likelihood of congestion and vehicle crashes.

Exhibit 4.24 – City of Azusa Proposed CCTV Cameras

Agency	Intersection	AADT
LEVEL 2A		
Azusa (4 Cameras)	Foothill Boulevard and Todd Avenue	34,700
	Foothill Boulevard and Azusa Avenue	33,700
	Citrus Avenue and Alosta Avenue	40,300
	Citrus Avenue and First Street	35,600

4.7.2 Traffic Controllers and Detection

A listing of each existing traffic signal for the City of Azusa is provided in Exhibit 4.25. Each traffic signal will be interconnected to the City of Azusa LCCS location (213 E. Foothill Boulevard). This will enable LA County to monitor and control the traffic signals remotely. Exhibit 4.26 indicates the locations of existing traffic signal controllers.

The City of Azusa's existing traffic signals have the following characteristics:

- Type 170 controllers at the majority of the intersections; there are eight (8) locations where Type 90 controllers are deployed with BI Tran firmware.
- Inductive loop detection at each intersection, except for two (2) intersections where there is VIDs (San Gabriel Boulevard and Sierra Madre; San Gabriel Boulevard and Foothill Boulevard)
- Fixed Pattern/TOD timing plans
- LACO DPW Tier 1 Coordination (Foothill Boulevard)
- Thirty-seven (37) signals are solely owned by the City of Azusa
- Eight (8) signals are owned by LA County
- Maintenance for the traffic signals is contracted to Peek Traffic Inc.

There are no plans to install additional traffic signals. There are plans to upgrade all Type 90 to Type 170 traffic controllers within the next five years. The only other upgrade proposed in this report is to install communications equipment at each traffic signal controller site to allow the traffic signal to communicate to the LCCS and LACO TMC.

Exhibit 4.25 – City of Azusa Signalized Intersections

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
1	Alosta Ave.	Calera Ave.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
2	Alosta Ave.	Citrus Ave.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
3	Alosta Ave.	Foothill Ave.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
4	Foothill Blvd.	Cerritos Ave.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
5	Foothill Blvd.	Pasadena Ave.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
6	Foothill Blvd.	Alameda Ave.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
7	Foothill Blvd.	Orange Ave.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
8	Foothill Blvd.	Vernon Ave.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
9	Foothill Blvd.	Virginina / Georgia	Azusa	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
10	Foothill Blvd.	Todd Ave.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
11	Foothill Blvd.	Citrus Ave.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
12	Foothill Blvd.	Azusa Ave.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
13	Foothill Blvd.	San Gabriel Ave.	Azusa	170	VID	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
14	Gladstone Ave.	Vincent Ave.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
15	Gladstone Ave.	Cerritos Ave.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
16	Gladstone Ave.	Citrus Ave.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
17	Arrow Hwy	Cerritos Ave.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
18	Mauna Loa Ave.	Fairvale Ave.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
19	Citrus Ave.	900' S/O Alosta Ave. (Ped. Signal)	Azusa	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
20	Citrus Ave.	Baseline Ave.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
21	Cerritos Ave.	Fifth St.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
22	Cerritos Ave.	Baseline Ave.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
23	Sierra Madre	Lori Ann Dr.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
24	Vernon Ave.	Second St.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
25	Vernon Ave.	First St.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
26	Vernon Ave.	Eleventh St	Azusa	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
27	Rockvale Ave.	Baseline Ave.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
28	Azusa Ave.	Third St.	Azusa	90	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
29	Azusa Ave.	Fifth St.	Azusa	90	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
30	Azusa Ave.	Eleventh St.	Azusa	90	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
31	Azusa Ave.	Newburgh St.	Azusa	90	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
32	San Gabriel Ave.	Third St.	Azusa	90	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
33	San Gabriel Ave.	Fifth St.	Azusa	90	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
34	San Gabriel Ave.	Ninth Ave.	Azusa	90	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
35	San Gabriel Ave.	Eleventh St.	Azusa	90	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
36	San Gabriel Ave.	Sierra Madre Ave.	Azusa	170	VIDs	Fixed Pattern/TOD	None	Peek Traffic Inc.
37	Gladstone Ave.	Pasadena Ave.	Azusa	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
38	Irwindale	First St.	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
39	Irwindale	Gladstone St.	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
40	Arrow Hwy	Vincent Ave.	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
41	Gladstone Ave.	Vernon Ave.	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
42	Gladstone Ave.	Donna Beth Ave.	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
43	Citrus Ave.	Armstead St.	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
44	Citrus Ave.	Arrow Hwy	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
45	Citrus Ave.	Newburgh St.	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO

Exhibit 4.26 – City Map of Azusa

Please Insert Color Map (.jpg)

4.7.3 System Detectors

A listing of each proposed system detector for the City of Azusa is provided in Exhibit 4.27. The system detector stations are proposed be installed at five (5) locations; two in Citrus Avenue, two on Foothill Boulevard, and one on Azusa Avenue. They are spaced approximately one mile apart. Please refer again to Exhibit 4.26 (Map of Azusa) that indicates locations of proposed system detectors.

Exhibit 4.27 – City of Azusa Proposed System Detectors

#	Main Street	Between Cross Streets		Detector Type
1	Foothill Boulevard	Irwindale Avenue	Todd Avenue	Inductive Loops
2	Foothill Boulevard	Rockvale Avenue	Olive Court	Inductive Loops
3	Citrus Avenue	Foothill Boulevard	College Drive	Inductive Loops
4	Citrus Avenue	Laxford Road	Gallarno Drive	Inductive Loops
5	Azusa Avenue	Russell Street	Roland Street	Inductive Loops

4.7.4 ATMS System Cost

These costs include furnishing and installing the equipment necessary for a complete installation. Please note that the communication costs are located in the Communication Conceptual Design Report (Deliverable 2.6.2).

Exhibit 4.28 – City of Azusa Total ATMS Equipment Cost

ATMS Equipment	Quantity	Unit Cost	Total Cost
Connection to LA County TCS	1	$10,000	$10,000
CCTV System	1	$50,000	$50,000
CCTV Camera	4	$35,000	$140,000
Traffic Controller	8	$4,000	$32,000
Inductive Loops	5	$15,000	$75,000
Total Proposed ATMS System Cost			**$307,000**

4.8 CITY OF BALDWIN PARK (LEVEL 2A)

4.8.1 CCTV Cameras

There are no current plans for the City of Baldwin Park to deploy CCTV cameras.

4.8.2 Traffic Controllers and Detection

A listing of each existing traffic signal for the City of Baldwin Park is provided in Exhibit 4.29. Each traffic signal will be interconnected to the City of Baldwin Park LCCS location (14403 E. Pacific Avenue). This will enable LA County to monitor and control the traffic signals remotely. Exhibit 4.30 indicates the locations of existing traffic signal controllers.

The City of Baldwin Park's existing traffic signals have the following characteristics:

- Type 170E controllers at all of the intersections
- Inductive loop detection at each intersection
- Fixed Pattern/TOD timing plans
- LACO DPW Tier 1 Coordination (Puente Avenue and Ramona Boulevard)
- Forty-seven (47) signals are solely owned by the City of Baldwin Park
- Maintenance for the traffic signals is contracted to Signal Maintenance Inc.

There are plans to install additional traffic signals at the following intersections in the next five years:

- Los Angeles and Stewart
- Los Angeles and Bresee
- Los Angeles and Phelan
- Pacific and Big Dalton
- Baldwin Park and IH-10

There are no plans to upgrade traffic controllers within the next five years. The only upgrade proposed in this report is to install communications equipment at each traffic signal controller site to allow the traffic signal to communicate to the LCCS and LACO TMC.

Exhibit 4.29 – City of Baldwin Park Signalized Intersections

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
1	Badillo Ave.	Puente Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
2	Baldwin Park Blvd.	Bess Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
3	Baldwin Park Blvd.	Calais St.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
4	Baldwin Park Blvd.	Clark St.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
5	Baldwin Park Blvd.	Foster Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
6	Baldwin Park Blvd.	Francisquito Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
7	Baldwin Park Blvd.	Los Angeles St.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
8	Baldwin Park Blvd.	Merced Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
9	Baldwin Park Blvd.	Morgan Park PED Crossing	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
10	Baldwin Park Blvd.	Olive Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
11	Baldwin Park Blvd.	Ramona Blvd.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
12	Baldwin Park Blvd.	Sterling Way	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
13	Baldwin Park Blvd.	Tracy St.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
14	Downing Ave.	Pacific Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
15	Downing Ave.	Ramona Blvd.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
16	Francisquito Ave.	Dalewood St.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
17	Francisquito Ave.	Frazier Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
18	Francisquito Ave.	Garvey Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
19	Francisquito Ave.	Vineland Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
20	Francisquito Ave.	Puente Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
21	Frazier Ave.	Earl Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
22	Los Angeles St.	Merced Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
23	Los Angeles St.	Walnut Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
24	Maine Ave.	Clark St.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
25	Maine Ave.	Francisquito Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
26	Maine Ave.	Los Angeles St.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
27	Maine Ave.	Olive St.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
28	Maine Ave.	Shopping Ctr.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
29	Merced Ave.	Market Place	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
30	Merced Ave.	Vineland Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
31	Pacific Ave.	Vineland Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	None	Signal Maintenance Inc.
32	Puente Ave.	Dalewood St.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
33	Puente Ave.	Merced Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
34	Puente Ave.	Towne Ctr. Dr.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
35	Puente Ave.	Pacific Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
36	Ramona Blvd.	Bogart Ave	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
37	Ramona Blvd.	Earl Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
38	Ramona Blvd.	Foster Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
39	Ramona Blvd.	Francisquito Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
40	Ramona Blvd.	La Rica Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
41	Ramona Blvd.	Maine Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
42	Ramona Blvd.	Merced Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
43	Ramona Blvd.	Monterey Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
44	Ramona Blvd.	Puente Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
45	Ramona Blvd.	Stewart Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
46	Ramona Blvd.	Cesar Chavez	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.
47	Ramona Blvd.	Badillo Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Signal Maintenance Inc.

Exhibit 4.30 - City Map of Baldwin Park

Please Insert Color Map (.jpg)

4.8.3 System Detectors

A listing of each proposed system detector for the City of Baldwin Park is provided in Exhibit 4.31. The system detector stations are proposed be installed at six (6) locations; one (1) on Garvey Avenue, three (2) on Ramona Boulevard, one (1) on Francisquito Avenue, and one (1) on Baldwin Park Boulevard. They are spaced approximately one mile apart. Please refer again to Exhibit 4.30 (Map of Baldwin Park) that indicates locations of proposed system detectors.

Exhibit 4.31 - City of Baldwin Park Proposed System Detectors

#	Main Street	Between Cross Streets		Detector Type
1	Ramona Boulevard	Pacific Avenue	Bogart Avenue	Inductive Loops
2	Ramona Boulevard	Puente Avenue	Sharons Avenue	Inductive Loops
3	Ramona Boulevard	Francisquito Avenue	Rhoades Avenue	Inductive Loops
4	Francisquito Avenue	Garvey Avenue	Paddy Avenue	Inductive Loops
5	Baldwin Park Boulevard	Bess Avenue	Dalewood Avenue	Inductive Loops
6	Garvey Avenue	Puente Avenue	Merced Avenue	Inductive Loops

4.8.4 ATMS System Cost

These costs include furnishing and installing the equipment necessary for a complete installation. Please note that the communication costs (fiber optic cable connections, wireless radio, leased telephone lines) are located in the Communication Conceptual Design Report (Deliverable 2.6.2).

Exhibit 4.32 – City of Baldwin Park Total ATMS Equipment Cost

ATMS Equipment	Quantity	Unit Cost	Total Cost
Connection to LA County TCS	1	$10,000	$10,000
Inductive Loops	6	$15,000	$90,000
Total Proposed ATMS System Cost			**$100,000**

4.9 CITY OF EL MONTE (LEVEL 2A)

4.9.1 CCTV Cameras

There are no current plans for the City of El Monte to deploy CCTV cameras.

4.9.2 Traffic Controllers and Detection

A listing of each existing traffic signal for the City of El Monte is provided in Exhibit 4.33. Each traffic signal will be interconnected to the City of El Monte LCCS location (11333 Valley Boulevard). This will enable the LA County to monitor and control the traffic signals remotely. Exhibit 4.34 indicates the locations of existing traffic signal controllers.

The City of El Monte's existing traffic signals have the following characteristics:

- Type 170E controllers at all of the intersections
- There are two (2) red light running installations (Ramona/Peck and Santa Anita/Lower Azusa)
- Inductive loop detection at each intersection
- Fixed Pattern/TOD timing plans
- LACO DPW Tier 1 Coordination (Santa Anita Avenue, Peck Road, and Valley Boulevard)
- Seventy-one (71) signals are solely owned by the City of El Monte
- Two (2) signals are controlled by LA County
- Maintenance for the traffic signals is contracted to Peek Traffic Inc.

There are plans to install additional traffic signals at the following intersections in the next five years:

- Mountain View at Elliott/Meeker
- Durfee at Exline
- Durfee at Clora

There are no plans to upgrade traffic controllers within the next five years. The only upgrade proposed in this report is to install communications equipment at each traffic signal controller site to allow the traffic signal to communicate to the LCCS and LACO TMC.

Exhibit 4.33 - City of El Monte Signalized Intersections

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
1	Baldwin Ave.	Loftus Dr.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
2	Baldwin Ave.	Rose Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
3	Baldwin Ave.	Gidley St.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
4	Baldwin Ave.	Lower Azusa Rd.	LACO	170E	Inductive Loops	Fixed Pattern/TOD	None	LACO
5	Durfee Ave.	Elliott Ave	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
6	Durfee Ave.	Fineview St.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
7	Durfee Ave.	Klingerman St.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
8	Durfee Ave.	Magnolia St.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
9	Durfee Ave.	Clora Place	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
10	Garvey Ave.	Merced Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
11	Garvey Ave.	Central Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
12	Garvey Ave.	Santa Anita Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
13	Garvey Ave.	Lexington Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
14	Garvey Ave.	Tyler Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
15	Garvey Ave.	Valley Blvd.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
16	Garvey Ave.	Peck Rd.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
17	Garvey Ave.	Meeker Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
18	Garvey Ave.	Mountain View Rd.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
19	Garvey Ave.	Potrero Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
20	Garvey Ave.	Durfee Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
21	Kings Row	Vista Lane	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
22	Lower Azusa Rd.	Cedar Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
23	Lower Azusa Rd.	Cogswell Rd.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
24	Lower Azusa Rd.	Durfee Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
25	Lower Azusa Rd.	El Monte Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
26	Lower Azusa Rd.	Daleview Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
27	Lower Azusa Rd.	Arden Dr.	LACO	170E	Inductive Loops	Fixed Pattern/TOD	None	LACO
28	Lower Azusa Rd.	Halifax Rd.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
29	Peck Rd.	Lower Azusa Rd.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
30	Peck Rd.	Mountain View Rd.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
31	Peck Rd.	Elliott Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
32	Peck Rd.	Dodson St.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
33	Peck Rd.	Meeker Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
34	Peck Rd.	Valley Blvd.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
35	Peck Rd.	Alloway St.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
36	Peck Rd.	Forest Grove	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
37	Peck Rd.	Ramona Blvd.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
38	Peck Rd.	Bryant Rd.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
39	Peck Rd.	Lambert Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
40	Peck Rd.	Emery St.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
41	Peck Rd.	Hemlock St.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
42	Peck Rd.	Stewart St.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
43	Peck Rd.	Federal Dr.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
44	Peck Rd.	Fineview St.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
45	Ramona Blvd.	Cogswell Rd.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
46	Ramona Blvd.	Maxson Rd.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
47	Ramona Blvd.	La Madera Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
48	Ramona Blvd.	Gilman Rd.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
49	Santa Anita Ave.	Ramona Blvd.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
50	Santa Anita Ave.	Lower Azusa Rd.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
51	Santa Anita Ave.	Bodger St.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
52	Santa Anita Ave.	Mildred St.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
53	Santa Anita Ave.	Bryant Rd.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
54	Santa Anita Ave.	Tyler Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
55	Santa Anita Ave.	Mulhall St.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
56	Santa Anita Ave.	Amador St.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
57	Santa Anita Ave.	Asher St.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
58	Santa Anita Ave.	Hondo Pkwy.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
59	Santa Anita Ave.	Kings Row	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
60	Tyler Ave.	Valley Blvd.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
61	Tyler Ave.	Valley Mall	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
62	Tyler Ave.	Ramona Blvd.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
63	Tyler Ave.	Elliott Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
64	Tyler Ave.	Bodger St.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
65	Valley Blvd.	Mountain View Rd.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
66	Valley Blvd.	Baldwin Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
67	Valley Blvd.	Ramona Blvd.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
68	Valley Blvd.	Arden Dr.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
69	Valley Blvd.	Gibson Rd.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
70	Valley Blvd.	Johnson Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
71	Valley Blvd.	Between Arden Dr. & Santa Anita Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
72	Valley Blvd.	Center Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
73	Valley Blvd.	Monterey Ave.	El Monte	170E	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.

Exhibit 4.34 - City Map of El Monte

Please Insert Color Map (.jpg)

4.9.3 System Traffic Detectors

A listing of each proposed system detector for the City of El Monte is provided in Exhibit 4.35. The system detector stations are proposed be installed at nine (9) locations; three on Peck Road, two on Garvey Avenue, one on Ramona Boulevard, one on Valley Boulevard, one on Santa Anita Avenue, and one on Baldwin. They are spaced approximately one mile apart. Please refer again to Exhibit 4.34 (Map of El Monte) that indicates locations of proposed system detectors.

Exhibit 4.35 – City of El Monte Proposed System Detectors

#	Main Street	Between Cross Streets		Detector Type
1	Garvey Avenue	Grenada Avenue	Gage Avenue	Inductive Loops
2	Garvey Avenue	Maxson Place	Southern Pacific Railroad	Inductive Loops
3	Ramona Boulevard	Pen Mar Avenue	Maxson Road	Inductive Loops
4	Valley Boulevard	Grenada Avenue	Lexington Avenue	Inductive Loops
5	Santa Anita Avenue	St Louis Drive	Montecito Drive	Inductive Loops
6	Baldwin Avenue	Gidley Street	Lower Azusa Avenue	Inductive Loops
7	Peck Road	Redberry Street	Maryvine Street	Inductive Loops
8	Peck Road	Lambert Avenue	Basye Street	Inductive Loops
9	Peck Road	Cherrylee Drive	Roseglen Street	Inductive Loops

4.9.4 ATMS System Cost

These costs include furnishing and installing the equipment necessary for a complete installation. Please note that the communication costs are located in the Communication Conceptual Design Report (Deliverable 2.6.2).

Exhibit 4.36 – City of El Monte Total ATMS Equipment Cost

ATMS Equipment	Quantity	Unit Cost	Total Cost
Connection to LA County TCS	1	$10,000	$10,000
Inductive Loops	9	$15,000	$135,000
Total Proposed ATMS System Cost			**$145,000**

4.10 CITY OF GLENDORA (LEVEL 2A)

4.10.1 CCTV Cameras

There are no current plans for the City of Glendora to deploy CCTV cameras.

4.10.2 Traffic Controllers and Detection

A listing of each existing traffic signal for the City of Glendora is provided in Exhibit 4.37. Each traffic signal will be interconnected to the City of Glendora LCCS location (116 E. Foothill Boulevard). This will enable LA County to monitor and control the traffic signals remotely. Exhibit 4.38 indicates the locations of existing traffic signal controllers.

The City of Glendora's existing traffic signals have the following characteristics:

- Type Traconex390 controllers at all of the city owned intersections
- Inductive Loop detection at most of the intersections, the exceptions being two (2) VIDs (Lone Hill/Market Place and Grand/Alosta) and one pedestrian actuated signal (Amelia/Country Club)
- Fixed Pattern/TOD timing plans
- LACO DPW Tier 1 Coordination [Alosta Avenue (Route 66)]
- Twenty-four (24) signals are solely owned by the City of Glendora
- Thirteen (13) signals are controlled by LA County
- Three (3) signals are controlled by Caltrans
- Maintenance for the traffic signals is contracted to Peek Traffic Inc.

There are plans to install additional traffic signals at the following intersections in the next five years:

- LACO DPW to install a signal at Sierra Madre/Barranca

There are plans to upgrade the Traconex 390 traffic controllers (24 of them) within the next five years. The only other upgrade proposed in this report is to install communications equipment at each traffic signal controller site to allow the traffic signal to communicate to the LCCS and LACO TMC.

Exhibit 4.37 – City of Glendora Signalized Intersections

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
1	Grand Ave.	Gladstone St.	Glendora	Traconex 390	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc
2	Grand Ave.	Baseline Rd.	Caltrans	170	Inductive Loops	Fixed Pattern/TOD	None	Caltrans
3	Grand Ave.	Muana Loa Ave.	Glendora	Traconex 390	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc
4	Grand Ave.	Ada Ave.	Glendora	Traconex 391	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc
5	Grand Ave.	Bennette Ave.	Glendora	Traconex 392	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc
6	Grand Ave.	Sierra Madre Ave.	Glendora	Traconex 393	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc
7	Glendora Ave.	Juanita Ave.	Glendora	Traconex 394	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc
8	Glendora Ave.	Gladstone St.	Glendora	Traconex 395	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc
9	Glendora Ave.	Baseline Rd.	Glendora	Traconex 396	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc
10	Glendora Ave.	Muana Loa Ave.	Glendora	Traconex 397	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc
11	Alosta (Route 66)	Barranca Ave.	LACO	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
12	Alosta (Route 66)	Vecino	LACO	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
13	Alosta (Route 66)	Grand Ave.	LACO	Econolite 2000	VIDs	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
14	Alosta (Route 66)	Vermont Ave.	LACO	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
15	Alosta (Route 66)	Glendora Ave.	LACO	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
16	Alosta (Route 66)	Pasadena	LACO	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
17	Alosta (Route 66)	Elmwood Ave.	LACO	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
18	Alosta (Route 66)	Loraine Ave.	LACO	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
19	Alosta (Route 66)	Hunters Trail	LACO	Econolite ASC 800	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
20	Alosta (Route 66)	Compromise Line Rd.	LACO	Ecololite Aires	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
21	Alosta (Route 66)	Lone Hill Rd.	LACO	Traconex 390	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
22	Alosta (Route 66)	Amelia Ave.	LACO	Traconex 391	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
23	Foothill Blvd.	Barranca Ave.	LACO	Traconex 392	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
24	Foothill Blvd.	Grand Ave.	Glendora	Traconex 393	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc
25	Foothill Blvd.	Vermont Ave.	Glendora	Traconex 394	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc
26	Foothill Blvd.	Glendora Ave.	Glendora	Traconex 395	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc
27	Foothill Blvd.	Cullen Ave.	Glendora	Traconex 396	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc
28	Foothill Blvd.	Loraine Ave.	Glendora	Traconex 397	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc
29	Foothill Blvd.	Valley Center Ave.	Glendora	Traconex 398	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc
30	Gladstone St.	Sunflower Ave.	Glendora	Traconex 399	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc
31	Gladstone St.	Lone Hill Rd.	Glendora	Traconex 400	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc
32	Juanita Ave.	Sunflower Ave.	Glendora	Traconex 401	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc
33	Lone Hill Ave.	Glendora Market Place	Glendora	Econolite 2000	VID	Fixed Pattern/TOD	None	Peek Traffic Inc
34	Lone Hill Ave.	Allen Ave.	Caltrans	170	Inductive Loops	Fixed Pattern/TOD	None	Caltrans
35	Lone Hill Ave.	Petunia St.	Glendora	Traconex 390	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc
36	Lone Hill Ave.	Allen Ave.	Caltrans	170	Inductive Loops	Fixed Pattern/TOD	None	Caltrans
37	Amelia Ave.	Duell St.	Glendora	Traconex 390	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc
38	Amelia Ave.	Country Club Rd.	Glendora	Econolite 2000	Pedestrian	Fixed Pattern/TOD	None	Peek Traffic Inc
39	Glendora Mtn Rd.	Boulder Springs Dr.	Glendora	Traconex 390	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc
40	Loraine Ave.	Steffen St.	Glendora	Traconex 390	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc

Exhibit 4.38 – City Map of Glendora

Please Insert Color Map (.jpg)

4.10.3 System Detectors

A listing of each proposed system detector for the City of Glendora is provided in Exhibit 4.39. The system detector stations are proposed be installed at three (3) locations, all on Alosta Avenue. They are spaced approximately one mile apart. Please refer again to Exhibit 4.38 (Map of Glendora) that indicates locations of proposed system detector stations.

Exhibit 4.39 – City of Glendora Proposed System Detectors

#	Main Street	Between Cross Streets		Detector Type
1	Alosta Avenue	Barranca Avenue	Vecino Drive	Inductive Loops
2	Alosta Avenue	Lamar Park Drive	Glenwood Avenue	Inductive Loops
3	Alosta Avenue	Glengrove Avenue	Amelia Avenue	Inductive Loops

4.10.4 ATMS System Cost

These costs include furnishing and installing the equipment necessary for a complete installation. Please note that the communication costs are located in the Communication Conceptual Design Report (Deliverable 2.6.2).

Exhibit 4.40 – City of Glendora Total TMS Equipment Costs

ATMS Equipment	Quantity	Unit Cost	Total Cost
Connection to LA County TCS	1	$10,000	$10,000
Traffic Controller	24	$4,000	96,000
Inductive Loops	3	$15,000	$45,000
Total Proposed ATMS System Cost			**$151,000**

4.11 CITY OF MONROVIA (LEVEL 2A)

4.11.1 CCTV Cameras

The City of Monrovia proposes to install six (6) CCTV cameras in the City to be able to view traffic conditions at the major arterial intersections and at the freeway entrance/exits. These intersections currently are operating at Level of Service D to F, so the likelihood of congestion and vehicle crashes is increased.

Exhibit 4.41 – City of Monrovia Proposed CCTV Cameras

Agency	Intersection	AADT
LEVEL 2A		
Monrovia (6 Cameras)	Huntington Drive and I-210	37,200
	Myrtle Avenue and I-210	25,300
	Myrtle Avenue and Duarte Road	22,100
	Myrtle Avenue and Huntington Drive	15,100
	Myrtle Avenue and Colorado Boulevard	14,400
	Myrtle Avenue and Foothill Boulevard	11,200

4.11.2 Traffic Controllers and Detection

A listing of each existing traffic signal for the City of Monrovia is provided in Exhibit 4.42. Each traffic signal will be interconnected to the City of Monrovia LCCS location (415 S. Ivy Avenue). This will enable LA County to monitor and control the traffic signals remotely. Exhibit 4.43 indicates the locations of existing traffic signal controllers.

The City of Monrovia's existing traffic signals have the following characteristics:

- Type 170 controllers at all of the intersections
- Inductive loop detection at all of the intersections
- Fixed Pattern/TOD timing plans
- LACO DPW Tier 1 Coordination (Mountain Avenue, Foothill Boulevard, and Huntington Drive)
- Thirty-Eight (38) signals are solely owned by the City of Monrovia
- One (1) signal is controlled by LA County
- Six (6) signals are controlled by Caltrans
- Maintenance for the traffic signals is contracted to LA Signal Inc.

There are no plans to install additional traffic signals or upgrade traffic controllers within the next five years. The only upgrade proposed in this report is to install communications equipment at each traffic signal controller site to allow the traffic signal to communicate to the LCCS and LACO TMC.

Exhibit 4.42 – City of Monrovia Signalized Intersections

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
1	Huntington Dr.	Fifth Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
2	Huntington Dr.	210 Freeway West	Caltrans	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Caltrans
3	Huntington Dr.	210 Freeway East	Caltrans	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Caltrans
4	Huntington Dr.	Monterey Rd.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
5	Huntington Dr.	Hwy Espianade	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
6	Huntington Dr.	Mayflower Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
7	Huntington Dr.	Magnolia Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
8	Huntington Dr.	Myrtle Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
9	Huntington Dr.	California Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
10	Huntington Dr.	Shamrock Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
11	Huntington Dr.	Mountain Ave.	Duarte/Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
12	Foothill Blvd.	Fifth Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
13	Foothill Blvd.	Madison Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
14	Foothill Blvd.	Violet Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
15	Foothill Blvd.	Mayflower Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
16	Foothill Blvd.	Magnolia Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
17	Foothill Blvd.	Primrose Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
18	Foothill Blvd.	Myrtle Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
19	Foothill Blvd.	Ivy Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
20	Foothill Blvd.	Canyon Blvd.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
21	Foothill Blvd.	Shamrock Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
22	Foothill Blvd.	Mountain Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
23	Duarte Ave.	Fifth Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	None	LA Signal Inc.

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
24	Duarte Ave.	Sixth Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	None	LA Signal Inc.
25	Duarte Ave.	Tenth / Almitas Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	None	LA Signal Inc.
26	Duarte Ave.	Mayflower Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	None	LA Signal Inc.
27	Duarte Ave.	Magnolia Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	None	LA Signal Inc.
28	Duarte Ave.	California Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	None	LA Signal Inc.
29	Myrtle Ave.	Palm Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	None	LA Signal Inc.
30	Myrtle Ave.	Lime Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	None	LA Signal Inc.
31	Myrtle Ave.	Lemon Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	None	LA Signal Inc.
32	Myrtle Ave.	Colorado Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	None	LA Signal Inc.
33	Myrtle Ave.	Olive Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	None	LA Signal Inc.
34	Myrtle Ave.	Central Ave.	Caltrans	170	Inductive Loops	Fixed Pattern/TOD	None	Caltrans
35	Myrtle Ave.	Evergreen Ave.	Caltrans	170	Inductive Loops	Fixed Pattern/TOD	None	Caltrans
36	Myrtle Ave.	Duarte Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	None	LA Signal Inc.
37	Myrtle Ave.	Fire Station #2	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	None	LA Signal Inc.
38	Myrtle Ave.	Peck Rd./ Live Oak Ave.	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
39	California Ave.	Central Ave.	Caltrans	170	Inductive Loops	Fixed Pattern/TOD	None	Caltrans
40	California Ave.	Evergreen Ave.	Caltrans	170	Inductive Loops	Fixed Pattern/TOD	None	Caltrans
41	Mountain Ave.	Duarte Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
42	Mountain Ave.	Lemon Ave.	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
43	Mountain Ave.	Royal Oaks	Monrovia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
44	Mountain Ave.	Central Ave.	Caltrans	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.
45	Mountain Ave.	Evergreen Ave.	Caltrans	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LA Signal Inc.

Exhibit 4.43 - City Map of Monrovia

Please Insert Color Map (.jpg)

4.11.3 System Traffic Detectors

A listing of each proposed system traffic detector for the City of Monrovia is provided in Exhibit 4.44. The system traffic detector stations are proposed be installed at three (3) locations; two on Myrtle Avenue and one on Huntington Drive. They are spaced approximately one mile apart and will utilize the proposed wireless communication system. Please refer again to Exhibit 4.43 (Map of Monrovia) that indicates locations of proposed system detector stations.

Exhibit 4.44 – City of Monrovia Proposed System Detectors

#	Main Street	Between Cross Streets		Detector Type
1	Myrtle Avenue	Greystone Avenue	Oaks Avenue	Inductive Loops
2	Myrtle Avenue	Spanner Street	Kruse Avenue	Inductive Loops
3	Huntington Drive	Mayflower Avenue	Magnolia Avenue	Inductive Loops

4.11.4 ATMS System Cost

These costs include furnishing and installing the equipment necessary for a complete installation. Please note that the communication costs (fiber optic cable connections, wireless radio, leased telephone lines) are located in the Communication Conceptual Design Report (Deliverable 2.6.2).

Exhibit 4.45 – City of Monrovia Total ATMS Equipment Costs

ATMS Equipment	Quantity	Unit Cost	Total Cost
Connection to LA County TCS	1	$10,000	$10,000
CCTV System	1	$50,000	$50,000
CCTV Camera	6	$35,000	$210,000
Inductive Loops	3	$15,000	$45,000
Total Proposed ATMS System Cost			**$315,000**

4.12 CITY OF MONTEBELLO (LEVEL 2A)

4.12.1 CCTV Cameras

There are no current plans for the City of Montebello to deploy CCTV cameras.

4.12.2 Traffic Controllers and Detection

A listing of each existing traffic signal for the City of Montebello is provided in Exhibit 4.46. Each traffic signal will be interconnected to the City of Montebello LCCS location (1600 W. Beverly Boulevard). This will enable LA County to monitor and control the traffic signals remotely. Exhibit 4.47 indicates the locations of existing traffic signal controllers.

The City of Montebello's existing traffic signals have the following characteristics:

- Type 170 controllers at most of the intersections, some Econolite controllers
- Inductive loop detection at all of the intersections, with the exception of one (1) VIDs (Garfield/Via Paseo)
- Fixed Pattern/TOD timing plans
- LACO DPW Tier 1 Coordination (Washington Boulevard, Beverly Boulevard, and Whittier Boulevard)
- Sixty-nine (69) signals are solely owned by the City of Montebello
- Maintenance for the traffic signals is contracted to Peek Traffic Inc.

There are no plans to install additional traffic signals or upgrade traffic controllers within the next five years. The only upgrade proposed in this report is to install communications equipment at each traffic signal controller site to allow the traffic signal to communicate to the LCCS and LACO TMC.

4.12.3 System Detectors

There are no current plans for the City of Montebello to deploy system detectors.

Exhibit 4.46 – City of Montebello Signalized Intersections

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
1	Beverly Blvd.	Rea Dr.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
2	Beverly Blvd.	Poplar Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
3	Beverly Blvd.	4th St.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
4	Beverly Blvd.	6th St.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
5	Beverly Blvd.	Montebello Blvd.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
6	Beverly Blvd.	Howard Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
7	Beverly Blvd.	Taylor Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
8	Beverly Blvd.	Maple Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
9	Beverly Blvd.	Civic Center	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
10	Beverly Blvd.	18th St.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
11	Beverly Blvd.	Wilcox Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
12	Beverly Blvd.	Via Val Verde	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
13	Beverly Blvd.	Hay St.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
14	Beverly Blvd.	Findlay Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
15	Beverly Blvd.	Bradshawe St.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
16	Beverly Blvd.	Garfield Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
17	Garfield Ave.	Via Paseo Dr.	Montebello	170	VIDs	Fixed Pattern/TOD	None	Peek Traffic Inc.
18	Garfield Ave.	Via Acosta	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
19	Garfield Ave.	Hay St.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
20	Greenwood Ave.	Olympic Blvd.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
21	Greenwood Ave.	Mines Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
22	Greenwood Ave.	Beach St.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
23	Greenwood Ave.	Date St.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
24	Greenwood Ave.	Oakwood St.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
25	Greenwood Ave.	Elm St.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
26	Greenwood Ave.	Sycamore St.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
27	Greenwood Ave.	Telegraph	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
28	Montebello Blvd.	Plaza Dr.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
29	Montebello Blvd.	Paramount Blvd.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
30	Montebello Blvd.	Sears Driveway	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
31	Montebello Blvd.	Costco Driveway	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
32	Montebello Blvd.	Liberty	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
33	Montebello Blvd.	Jefferson	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
34	Montebello Blvd.	Avenida De LA Merced	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
35	Montebello Blvd.	Lincoln Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
36	Montebello Blvd.	Victoria Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
37	Montebello Blvd.	Madison Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
38	Montebello Blvd.	Cleveland Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
39	Montebello Blvd.	Olympic Blvd.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
40	Montebello Blvd.	Truck Way	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
41	Washington Blvd.	Greenwood Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
42	Washington Blvd.	Bluff Rd.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
43	Washington Blvd.	Montebello Way	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
44	Washington Blvd.	Maple Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
45	Washington Blvd.	Vail Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
46	Whittier Blvd.	Montebello Blvd.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
47	Whittier Blvd.	Bluff Rd. /1st	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
48	Whittier Blvd.	2nd St.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
49	Whittier Blvd.	5th St.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
50	Whittier Blvd.	10th St.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
51	Whittier Blvd.	Taylor Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
52	Whittier Blvd.	Maple Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
53	Whittier Blvd.	California	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
54	Whittier Blvd.	21st St.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
55	Whittier Blvd.	Wilcox Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
56	Whittier Blvd.	Concourse Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
57	Whittier Blvd.	Garfield Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
58	Olympic Blvd.	Vail Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
59	Olympic Blvd.	Concourse Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
60	Lincoln Ave.	Poplar Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
61	Lincoln Ave.	Wilcox Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
62	Lincoln Ave.	Howard Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
63	Lincoln Ave.	Maple Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
64	Wilcox Ave.	Madison Ave.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
65	Wilcox Ave.	Merle Dr.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
66	Wilcox Ave.	Hay St.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
67	Vail	Flotilla	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
68	Slauson Ave.	Chaplin Rd.	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
69	Slauson Ave.	Telegraph	Montebello	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.

Exhibit 4.47 – City Map of Montebello

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4.12.4 ATMS System Cost

These costs include furnishing and installing the equipment necessary for a complete installation. Please note that the communication costs are located in the Communication Conceptual Design Report (Deliverable 2.6.2).

Exhibit 4.48 – City of Montebello Total ATMS Equipment Cost

ATMS Equipment	Quantity	Unit Cost	Total Cost
Connection to LA County TCS	1	$10,000	$10,000
Total Proposed ATMS System Cost			**$10,000**

4.13 CITY OF MONTEREY PARK (LEVEL 2A)

4.13.1 CCTV Cameras

There are no current plans for the City of Monterey Park to deploy CCTV cameras.

4.13.2 Traffic Controllers and Detection

A listing of each existing traffic signal for the City of Monterey Park is provided in Exhibit 4.49. Each traffic signal will be interconnected to the City of Monterey Park LCCS location (320 W. Newmark Avenue). This will enable LA County to monitor and control the traffic signals remotely. Exhibit 4.50 indicates the locations of existing traffic signal controllers.

The City of Monterey Park's existing traffic signals have the following characteristics:

- Type 170 controllers at all of the Caltrans intersections, Econolite 2100 and 8200 at the City-owned signals
- Inductive loop detection at all of the intersections, with the exception of two (2) VIDs (Garfield/Garvey and Atlantic/Garvey)
- Fixed Pattern/TOD timing plans
- LACO DPW Tier 1 Coordination on Garfield Avenue and Atlantic Boulevard
- Sixty-one (61) signals are solely owned by the City of Monterey Park
- Maintenance for the traffic signals is contracted to CSC Inc.

There are no plans to install additional traffic signals or upgrade traffic controllers within the next five years. The only upgrade proposed in this report is to install communications equipment at each traffic signal controller site to allow the traffic signal to communicate to the LCCS and LACO TMC.

Exhibit 4.49 – City of Monterey Park Signalized Intersections

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
1	Atlantic Blvd.	Emerson Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
2	Atlantic Blvd.	Midblock Emerson/Garvey	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
3	Atlantic Blvd.	Garvey Ave.	Monterey Park	Econolite 8200	VIDs	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
4	Atlantic Blvd.	Newmark Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
5	Atlantic Blvd.	Harding Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
6	Atlantic Blvd.	El Portal Place	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
7	Atlantic Blvd.	Cadiz St.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
8	Atlantic Blvd.	Sevilla St.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
9	Atlantic Blvd.	El Repetto Dr.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
10	Atlantic Blvd.	Brightwood St.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
11	Atlantic Blvd.	Floral Dr.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
12	Atlantic Blvd.	Midblock Floral/Riggin	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
13	Atlantic Blvd.	Cesar Chavez/Riggin	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
14	Cesar Chavez	Collegian Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
15	Cesar Chavez	Schoolside Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
16	Corporate Center Dr.	Ramona Blvd.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
17	Corporate Center Dr.	Casuda Canyon Dr.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
18	Corporate Center Dr.	Davidson Dr.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
19	First St.	Woods Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
20	Floral Dr.	Collegian Dr.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
21	Garfield Ave.	Hampton Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
22	Garfield Ave.	North of Hilliard	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
23	Garfield Ave.	Emerson Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC, Inc.
24	Garfield Ave.	Avondale Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
25	Garfield Ave.	Garvey Ave.	Monterey Park	Econolite 8200	VIDs	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
26	Garfield Ave.	Newmark Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
27	Garfield Ave.	Graves Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
28	Garfield Ave.	El Repetto Dr.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
29	Garfield Ave.	Elmgate Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
30	Garfield Ave.	Riggin St.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
31	Garfield Ave.	Pomona Blvd.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	CSC
32	Garvey Ave.	Casuda Canyon	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
33	Garvey Ave.	Hitchcock Dr.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
34	Garvey Ave.	Chandler Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
35	Garvey Ave.	Ynez Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
36	Garvey Ave.	McPherrin Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
37	Garvey Ave.	Ramona Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
38	Garvey Ave.	Nicholson Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
39	Garvey Ave.	Alhambra Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
40	Garvey Ave.	Orange Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
41	Garvey Ave.	New Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
42	Monterey Pass Rd.	Vagabond Rd.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
43	Monterey Pass Rd.	Davidson Dr.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
44	New Ave.	Hellman Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
45	New Ave.	Emerson Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
46	New Ave.	Newmark Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
47	Pomona Blvd.	Gerhart Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
48	Pomona Blvd.	Wilcox Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
49	Potrero Grande Dr.	Greenwood Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
50	Ramona Ave.	Midblock Newmark/Harding	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
51	Ramona Blvd.	Centre Plaza Dr.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
52	Riggin St.	Findlay Ave.	Monterey Park	Econolite 2100	Inductive Loops	Fixed Pattern/TOD	None	CSC
53	Corporate Center Dr.	Midblock Casuda Canyon & Davidson Dr.	Monterey Park	Econolite 2100	Inductive Loops	Fixed Pattern/TOD	None	CSC
54	Garvey Ave.	Abajo Dr.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
55	Monterey Pass Rd.	Fremont Ave .	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
56	Cesar Chavez	Bleakwood Ave.	Monterey Park	Econolite 2100	Inductive Loops	Fixed Pattern/TOD	None	CSC
57	Wilcox	Via Campo	Monterey Park	Econolite 2100	Inductive Loops	Fixed Pattern/TOD	None	CSC
58	Gerhart Ave.	Via Campo	Monterey Park	Econolite 2100	Inductive Loops	Fixed Pattern/TOD	None	CSC
59	Garvey Ave.	Lincoln Ave.	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
60	Monterey Pass Rd.	South of Vagabond	Monterey Park	Econolite 8200	Inductive Loops	Fixed Pattern/TOD	None	CSC
61	Collegian Ave.	Midblock Cesar Chavez and Floral	Monterey Park	Econolite 2100	Inductive Loops	Fixed Pattern/TOD	None	CSC

Exhibit 4.50 - City Map of Monterey Park

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4.13.3 System Detectors

A listing of each proposed system detector for the City of Monterey Park is provided in Exhibit 4.51. The system detector stations are proposed be installed at nine (9) locations; three on Garvey Avenue, three on Garfield Avenue, and three on Atlantic Boulevard. They are spaced approximately one mile apart. Please refer again to Exhibit 4.50 (Map of Monterey Park) that indicates locations of proposed system detector stations.

Exhibit 4.51 – City of Monterey Park Proposed System Detectors

#	Main Street	Between Cross Streets		Detector Type
1	Atlantic Boulevard	Floral Drive	Brightwood Street	Inductive Loops
2	Atlantic Boulevard	Sevilla Street	Cadiz Street	Inductive Loops
3	Atlantic Boulevard	Emerson Avenue	Hellman Avenue	Inductive Loops
4	Garfield Avenue	Roselyn Way	Newmark Avenue	Inductive Loops
5	Garfield Avenue	Maronde Way	Roca Way	Inductive Loops
6	Garfield Avenue	Arlight Street	Floral Drive	Inductive Loops
7	Garvey Avenue	Elizabeth Avenue	Florence Avenue	Inductive Loops
8	Garvey Avenue	Hathaway Avenue	Marguerita Avenue	Inductive Loops
9	Garvey Avenue	Carlos Avenue	Montezuma Avenue	Inductive Loops

4.13.4 ATMS System Cost

These costs include furnishing and installing the equipment necessary for a complete installation. Please note that the communication costs are located in the Communication Conceptual Design Report (Deliverable 2.6.2).

Exhibit 4.52 – City of Monterey Park Total ATMS Equipment Cost

ATMS Equipment	Quantity	Unit Cost	Total Cost
Connection to LA County TCS	1	$10,000	$10,000
Inductive Loops	9	$15,000	$135,000
Total Proposed ATMS System Cost			**$145,000**

4.14 CITY OF SAN GABRIEL (LEVEL 2A)

4.14.1 CCTV Cameras

There are no current plans for the City of San Gabriel to deploy CCTV cameras.

4.14.2 Traffic Controllers and Detection

A listing of each existing traffic signal for the City of San Gabriel is provided in Exhibit 4.53. Each traffic signal will interconnected to the City of San Gabriel LCCS location (425 S. Mission Street). This will enable LA County to monitor and control the traffic signals remotely. Exhibit 4.54 indicates the locations of existing traffic signal controllers.

The City of San Gabriel's existing traffic signals have the following characteristics:

- Type 170 controllers at all of the intersections
- Inductive loop detection at all of the intersections, with the exception of two (2) VIDs at (San Gabriel/Scott and Valley/Abbot)
- Fixed Pattern/TOD timing plans
- LACO DPW Tier 1 Coordination (Las Tunas Avenue, Valley Boulevard, Mission Road, and San Gabriel Boulevard)
- Thirty-four (34) signals are solely owned by the City of San Gabriel
- Maintenance for the traffic signals is performed by City of San Gabriel staff

There are no plans to install additional traffic signals or upgrade traffic controllers within the next five years. The only upgrade proposed in this report is to install communications equipment at each traffic signal controller site to allow the traffic signal to communicate to the LCCS and LACO TMC.

Exhibit 4.53 – City of San Gabriel Signalized Intersections

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
1	Las Tunas Dr.	Mission Dr.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
2	Las Tunas Dr.	Santa Anita St.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
3	Las Tunas Dr.	San Marino Ave.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
4	Las Tunas Dr.	Del Mar Ave.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
5	Las Tunas Dr.	San Gabriel Blvd.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
6	Las Tunas Dr.	Charlotte Ave.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
7	Las Tunas Dr.	Willard Ave.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
8	Las Tunas Dr.	Burton Ave.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
9	San Gabriel Blvd.	Hermosa Dr.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
10	San Gabriel Blvd.	Broadway	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
11	San Gabriel Blvd.	Mission Rd.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
12	San Gabriel Blvd.	Chestnut Ave.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
13	San Gabriel Blvd.	Valley Blvd.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
14	San Gabriel Blvd.	Marshall St.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
15	San Gabriel Blvd.	Scott St.	San Gabriel	170	VIDs	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
16	Valley Blvd.	Walnut St.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
17	Valley Blvd.	Del Mar Ave.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
18	Valley Blvd.	Abbot Ave.	San Gabriel	170	VIDs	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
19	Valley Blvd.	Prospect Ave.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
20	Del Mar Ave.	Hermosa Dr.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	None	San Gabriel
21	Del Mar Ave.	Broadway	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	None	San Gabriel
22	Del Mar Ave.	Angeleno Ave.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	None	San Gabriel
23	Del Mar Ave.	Mission Rd.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	None	San Gabriel

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
24	Del Mar Ave.	Fairview	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	None	San Gabriel
25	Del Mar Ave.	Wells St.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	None	San Gabriel
26	Del Mar Ave.	Marshall St.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	None	San Gabriel
27	Del Mar Ave.	(Complex Shopping Ctr.)	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	None	San Gabriel
28	Mission Rd.	Junipero Serra Dr.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
29	Mission Rd.	Ramona Mission Dr.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
30	Mission Rd.	Santa Anita St.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
31	Mission Dr.	Santa Anita St.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
32	Mission Dr.	Broadway	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	San Gabriel
33	Grand Ave.	Ramona St.	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	None	San Gabriel
34	Walnut Grove Ave.	Broadway	San Gabriel	170	Inductive Loops	Fixed Pattern/TOD	None	San Gabriel

Exhibit 4.54 - City Map of San Gabriel

Please Insert Color Map (.jpg)

4.14.3 System Traffic Detectors

A listing of each proposed system detector for the City of San Gabriel is provided in Exhibit 4.55. The system detector stations are proposed be installed at four (4) locations; one on Las Tunas Avenue, two on San Gabriel Boulevard, and one (1) on Valley Boulevard. They are spaced approximately one mile apart. Please refer again to Exhibit 4.54 (Map of San Gabriel) that indicates locations of proposed system detector stations.

Exhibit 4.55 – City of San Gabriel Proposed System Detectors

#	Main Street	Between Cross Streets		Detector Type
1	Las Tunas Drive	Charlotte Avenue	Gladys Avenue	Inductive Loops
2	San Gabriel Boulevard	Pearl Street	Grand Avenue	Inductive Loops
3	San Gabriel Boulevard	Dewey Avenue	Norwood Place	Inductive Loops
4	Valley Boulevard	New Avenue	Prospect Avenue	Inductive Loops

4.14.4 ATMS System Cost

These costs include furnishing and installing the equipment necessary for a complete installation. Please note that the communication costs are located in the Communication Conceptual Design Report (Deliverable 2.6.2).

Exhibit 4.56 – City of San Gabriel Total ATMS Equipment Cost

ATMS Equipment	Quantity	Unit Cost	Total Cost
Connection to LA County TCS	1	$10,000	$10,000
Inductive Loops	4	$15,000	$60,000
Total Proposed ATMS System Cost			**$70,000**

4.15 CITY OF ALHAMBRA (LEVEL 2B)

4.15.1 CCTV Camera Locations

The City of Alhambra proposes to install seven (7) cameras in the City to be able to view traffic conditions at the major arterial intersections. These intersections currently are operating at Level of Service D, so the likelihood of congestion and vehicle crashes is increased.

Exhibit 4.57 – City of Alhambra Proposed CCTV Cameras

Agency	Intersection	AADT
LEVEL 2B		
Alhambra (7 Cameras)	Main Street and Atlantic Boulevard	55,000
	Main Street and Garfield Avenue	48,000
	Mission Road and Garfield Avenue	53,000
	Mission Road and Atlantic Boulevard	52,000
	Valley Boulevard and Atlantic Boulevard	64,000
	Valley Boulevard and Garfield Avenue	59,000
	Valley Boulevard and Fremont Avenue	66,000

4.15.2 Traffic Controllers and Detection

A listing of each existing traffic signal for the City of Alhambra is provided in Exhibit 4.58 Each traffic signal will be interconnected to the City of Alhambra LCCS location (111 S. First Street). This will enable the City to monitor and control the traffic signals "in-house" with their own TCS. Exhibit 4.59 indicates the locations of existing traffic signal controllers.

The City of Alhambra's existing traffic signals have the following characteristics:

- Type 170 or NEMA controllers at all of the intersections
- Inductive loop detection at all of the intersections, with the exception of eleven (11) VIDs sites
    - Valley and Westmont/Fremont/Atlantic/Garfield/New (5 total)
    - Mission and Garfield/Chapel/Fremont (3 total)
    - Huntington/Garfield/Atlantic (3 total)
- Fixed Pattern/TOD timing plans
- LACO DPW Tier 1 Coordination (Valley Boulevard)
- NEMA RCTB signal coordination (Garfield Avenue, Atlantic Boulevard, and Main Street)
- NEMA copper interconnect on Mission Road, Fremont Avenue, and Main Street
- Ninety-seven (97) signals are solely owned by the City of Alhambra
- Maintenance for the traffic signals is performed by City of Alhambra staff

There are no plans to install additional traffic signals or upgrade traffic controllers within the next five years. The only upgrade proposed in this report is to install a spread spectrum radio at

each traffic signal controller site to allow the traffic signal to communicate to the LCCS and Los Angeles County Department of Public Works.

Exhibit 4.58 – City of Alhambra Signalized Intersections

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
1	Fremont Ave.	Alhambra Rd.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
2	Fremont Ave.	Main St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
3	Fremont Ave.	Poplar Blvd.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
4	Fremont Ave.	Commonwealth Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
5	Fremont Ave.	Concord Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
6	Fremont Ave.	Orange St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
7	Fremont Ave.	Between Orange St. & Mission Rd.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
8	Fremont Ave.	Mission Rd.	Alhambra	NEMA	VIDs	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
9	Fremont Ave.	Rose Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
10	Fremont Ave.	Hellman Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
11	Fremont Ave.	Montezuma Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
12	Fremont Ave.	Carlos St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
13	Atlantic Blvd.	Huntington Dr.	Alhambra	170	VIDs	Fixed Pattern/TOD	LACO DPW Tier 3	Alhambra
14	Atlantic Blvd.	Garfield Ave.	Alhambra	170	VIDs	Fixed Pattern/TOD	LACO DPW Tier 3	Alhambra
15	Atlantic Blvd.	Pine St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
16	Atlantic Blvd.	Spruce St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
17	Atlantic Blvd.	Alhambra Rd.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
18	Atlantic Blvd.	Woodward Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
19	Atlantic Blvd.	Washington St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
20	Atlantic Blvd.	Commonwealth Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
21	Atlantic Blvd.	Shorb St.	Alhambra	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Alhambra
22	Atlantic Blvd.	Glendon Way.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
23	Garfield Ave.	Huntington Dr.	Alhambra	170	VIDs	Fixed Pattern/TOD	LACO DPW Tier 3	Alhambra
24	Garfield Ave.	Pine St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
25	Garfield Ave.	McLean St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
26	Garfield Ave.	Alhambra Rd.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
27	Garfield Ave.	Woodward Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
28	Garfield Ave.	Elgin St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
29	Garfield Ave.	Between Main St. & Bay State St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
30	Garfield Ave.	Bay State St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
31	Garfield Ave.	Commonwealth Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
32	Garfield Ave.	Los Higos St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
33	Garfield Ave.	San Marino Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
34	Garfield Ave.	Shorb St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
35	Garfield Ave.	Norwood Place	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
36	Garfield Ave.	Glendon Way	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
37	Garfield Ave.	Hellman Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
38	Main St.	Palm Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
39	Main St.	Raymond Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
40	Main St.	Marengo Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
41	Main St.	Electric Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	NEMA RCTB	Alhambra
42	Main St.	Atlantic Blvd.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
43	Main St.	Sixth St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
44	Main St.	Fifth St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
45	Main St.	Fourth St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
46	Main St.	Third St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
47	Main St.	Second St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
48	Main St.	First St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
49	Main St.	Garfield Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
50	Main St.	Stoneman Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
51	Main St.	Monterey St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
52	Main St.	Chapel Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
53	Main St.	Between Chapel Ave. & Almansor St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
54	Main St.	Almansor St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
55	Main St.	Hidalgo Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
56	Main St.	Cordova Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
57	Main St.	Granada Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
58	Alhambra Rd.	Granada Ave.	Alhambra	170	Inductive Loops	Fixed Pattern/TOD	None	Alhambra
59	Marengo Ave.	Larch St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	None	Alhambra
60	Marengo Ave.	Between Lemon St. & Orange St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	None	Alhambra
61	Chapel Ave.	Bay State St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	None	Alhambra
62	Commonwealth Ave.	Date Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	None	Alhambra
63	Commonwealth Ave.	Palm Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	None	Alhambra
64	Commonwealth Ave.	Marengo Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	None	Alhambra
65	Commonwealth Ave.	Second St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	None	Alhambra
66	Commonwealth Ave.	First St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	None	Alhambra
67	Mission Rd.	Palm Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
68	Mission Rd.	Marengo Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
69	Mission Rd.	Marguerita Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
70	Mission Rd.	Atlantic Blvd.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
71	Mission Rd.	Sixth St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
72	Mission Rd.	Fourth St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
73	Mission Rd.	Garfield Ave.	Alhambra	NEMA	VIDs	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
74	Mission Rd.	Champel Ave.	Alhambra	NEMA	VIDs	Fixed Pattern/TOD	Interconnect-Copper	Alhambra
75	Valley Blvd.	Westmont Dr.	Alhambra	170	VIDs	Fixed Pattern/TOD	LACO DPW Tier 1	Alhambra
76	Valley Blvd.	Cabrillo Ave.	Alhambra	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Alhambra
77	Valley Blvd.	Grand View Dr.	Alhambra	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Alhambra
78	Valley Blvd.	Fremont Ave.	Alhambra	170	VIDs	Fixed Pattern/TOD	LACO DPW Tier 1	Alhambra
79	Valley Blvd.	Edgewood Dr.	Alhambra	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Alhambra
80	Valley Blvd.	Raymond Ave.	Alhambra	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Alhambra
81	Valley Blvd.	Marengo Ave.	Alhambra	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Alhambra
82	Valley Blvd.	Benito Ave.	Alhambra	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Alhambra
83	Valley Blvd.	Marguerita Ave.	Alhambra	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Alhambra
84	Valley Blvd.	Atlantic Blvd.	Alhambra	170	VIDs	Fixed Pattern/TOD	LACO DPW Tier 1	Alhambra
85	Valley Blvd.	Ninth St.	Alhambra	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Alhambra
86	Valley Blvd.	Sixth St.	Alhambra	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Alhambra
87	Valley Blvd.	Fourth St.	Alhambra	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Alhambra
88	Valley Blvd.	Garfield Ave.	Alhambra	170	VID	Fixed Pattern/TOD	LACO DPW Tier 1	Alhambra
89	Valley Blvd.	Chapel Ave.	Alhambra	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Alhambra
90	Valley Blvd.	Almansor St.	Alhambra	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Alhambra
91	Valley Blvd.	Granada Ave.	Alhambra	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Alhambra

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
92	Valley Blvd.	Vega St.	Alhambra	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Alhambra
93	Valley Blvd.	New Ave.	Alhambra	170	VIDs	Fixed Pattern/TOD	LACO DPW Tier 1	Alhambra
94	New Ave.	Norwood Place	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	None	Alhambra
95	Hellman Ave.	Almansor St.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	None	Alhambra
96	Garvey Ave.	Westminster Ave.	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	None	Alhambra
97	Garvey Ave.	Ramona Road South	Alhambra	NEMA	Inductive Loops	Fixed Pattern/TOD	None	Alhambra

Exhibit 4.59 - City Map of Alhambra

Please Insert Color Map (.jpg)

4.15.3 System Detectors

A listing of each proposed system detector for the City of Alhambra is provided in Exhibit 4.60. The system detector stations are proposed to be installed at six (6) locations; one (1) on Las Tunas Avenue, three (3) on Main Street, and two (2) on Fremont Avenue. They are spaced approximately one mile apart. Please refer again to Exhibit 4.59 (Map of Alhambra) that indicates locations of proposed system detector stations.

Exhibit 4.60 – City of Alhambra Proposed System Detectors

#	Main Street	Between Cross Streets		Detector Type
1	Fremont Avenue	Birch Street	Grand Avenue	Inductive Loops
2	Fremont Avenue	Loma Vista Drive	Garvey Avenue	Inductive Loops
3	Main Street	Cedar Street	Poplar Boulevard	Inductive Loops
4	Main Street	Citrus Avenue	Olive Avenue	Inductive Loops
5	Main Street	Granada Avenue	Valencia Avenue	Inductive Loops
6	Las Tunas Drive	Bridge Street	Champion Place	Inductive Loops

4.15.4 ATMS System Cost

These costs include furnishing and installing the equipment necessary for a complete installation. Please note that the communication costs are located in the Communication Conceptual Design Report (Deliverable 2.6.2).

Exhibit 4.61 – City of Alhambra Total ATMS Equipment Cost

ATMS Equipment	Quantity	Unit Cost	Total Cost
Traffic Control System	1	$250,000	$250,000
CDI (Development & Equipment*	1	$125,000	$125,000
CCTV Camera	7	$35,000	$245,000
Inductive Loops	6	$15,000	$90,000
Total Proposed ATMS System Cost			**$710,000**

***Depending upon the City's TCS selection, the CDI cost may decrease due to prior deployment of that TCS CDI.

4.16 CITY OF ARCADIA (LEVEL 2B)

4.16.1 Overview

The City of Arcadia has a couple of separate ITS projects to be let in 2005 that will install/integrate the following components:

- Traffic Control System (TCS)
- CDI (Development & Equipment)
- CCTV System
- CCTV Cameras
- LCCS Equipment/Furnishing
- Controller upgrades
- Fiber-optic communications network

In addition, these ITS projects will focus on the area north of Duarte Road. Therefore, the SGVTF Project's ATMS conceptual design will focus only on the area south of Duarte Road, and assume that the ITS components identified above will be covered elsewhere.

4.16.2 CCTV Cameras

The City of Arcadia proposes to install six (6) cameras in the City to be able to view traffic conditions at the major arterial intersections. These intersections currently are operating at Level of Service D to F, so the likelihood of congestion and vehicle crashes is increased.

Exhibit 4.62– City of Arcadia Proposed CCTV Cameras

Agency	Intersection	AADT
LEVEL 2B		
Arcadia (6 Cameras)	Santa Anita Avenue and Huntington Drive	49,000
	Huntington Drive and Baldwin Avenue	61,000
	Santa Anita Avenue and I-210 Freeway	29,000
	Baldwin Avenue and Foothill Boulevard	41,500
	Santa Anita Avenue and Duarte Road	N/A
	Baldwin Avenue and Duarte Road	N/A

4.16.3 Traffic Controllers and Detection

A listing of each existing traffic signal for the City of Arcadia is provided in Exhibit 4.63. Each traffic signal south of Duarte Road will be interconnected to the City of Arcadia LCCS location (240 W Huntington Drive). This will enable the City monitor and control the traffic signals "in-house" with their own TCS. Exhibit 4.64 indicates the locations of existing traffic signal controllers.

The City of Arcadia's existing traffic signals have the following characteristics:

- Type 170 (6) or Multisonics 820 (15) controllers at all of the intersections
- Inductive loop detection at all of the intersections, with the exception of two (2) VIDs sites.
    - Huntington and Santa Anita
    - Huntington and Santa Clara
- Fixed Pattern/TOD timing plans
- LACO DPW Tier 1 Coordination (Foothill Blvd, Colorado Blvd, Duarte Road, Las Tunas Drive, Live Oak Ave, Baldwin Ave, and Santa Anita Ave.)
- There is existing interconnect (copper) on Huntington (from Michillinda to Fifth) and on Live Oak (from Las Tunas to Tyler); all other signals use phone drops
- The City of Arcadia is installing fiber optic cable for several corridors north of Duarte Road
- Twenty-one (21) signals are solely owned by the City of Arcadia (South of Duarte Road)
- Maintenance for the traffic signals is performed by Peek Traffic Inc.

There are no plans to install additional traffic signals in the next five years. There are plans to upgrade older traffic controllers (Multisonics 820 with 170, 12 total) south of Duarte Road within the next five years. The only other upgrade proposed in this report is to install communications equipment at each traffic signal controller site to allow the traffic signal to communicate to the LCCS and LACO TMC.

Exhibit 4.63 – City of Arcadia Signalized Intersections (South of Duarte Road)

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
1	Baldwin Ave.	Camino Real Ave.	Arcadia	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
2	Baldwin Ave.	Duarte Rd.	Arcadia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc
3	Baldwin Ave.	Naomi Ave.	Arcadia	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc
4	Baldwin Ave.	Las Tunas Dr.	Arcadia	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc
5	Baldwin Ave.	Longden Ave.	Arcadia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc
6	Duarte Rd.	El Monte Ave.	Arcadia	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc
7	Duarte Rd	First Ave	Arcadia	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc
8	Duarte Rd	Golden West Ave/	Arcadia	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc
9	Duarte Rd.	Holly Ave.	Arcadia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc
10	Duarte Rd	Second Ave	Arcadia	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc
11	Duarte Rd	Sunset Blvd.	Arcadia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc
12	Las Tunas Dr.	El Monte Ave.	Arcadia	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc
13	Las Tunas Dr.	Holly Ave.	Arcadia	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc
14	Las Tunas Dr.	Live Oak Ave.	Arcadia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc
15	Las Tunas Dr.	Warren Way	Arcadia	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc
16	Live Oak Ave.	Second Ave.	Arcadia	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc
17	Live Oak Ave.	Sixth Ave.	Arcadia	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc
18	Santa Anita Ave.	Duarte Road	Arcadia	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc
19	Santa Anita Ave.	Camino Real Ave.	Arcadia	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc
20	Santa Anita Ave.	Longden Ave.	Arcadia	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc
21	Santa Anita Ave.	Wistaria Ave.	Arcadia	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc

Exhibit 4.64 - City Map of Arcadia

Please Insert Color Map (.jpg)

4.16.4 System Detectors

A listing of each proposed system detector for the City of Arcadia is provided in Exhibit 4.65. The system detector stations are proposed be installed at eight (8) locations; three on Baldwin Avenue, three (3) on Santa Anita Avenue, two (2) on Huntington Drive.. They are spaced approximately one mile apart. Please refer again to Exhibit 4.64 (Map of Arcadia) that indicates locations of proposed system detector stations.

Exhibit 4.65 – City of Arcadia Proposed System Detectors

#	Main Street	Between Cross Streets		Detector Type	Note
1	Baldwin Avenue	Gloria Road	Hampton Road	Inductive Loops	North of Duarte Rd
2	Baldwin Avenue	Stanford Drive	Hugo Reid Drive	Inductive Loops	North of Duarte Rd
3	Baldwin Avenue	Lemon Avenue	Wistaria Avenue	Inductive Loops	
4	Santa Anita Avenue	Virginia Drive	Sierra Madre Boulevard	Inductive Loops	North of Duarte Rd
5	Santa Anita Avenue	Colorado Place	St Joseph Street	Inductive Loops	North of Duarte Rd
6	Santa Anita Avenue	Magna Vista Avenue	La Sierra Drive	Inductive Loops	
7	Huntington Drive	Michillinda Avenue	Sunset Boulevard	Inductive Loops	North of Duarte Rd
8	Huntington Drive	1st Avenue	2nd Avenue	Inductive Loops	North of Duarte Rd

4.16.5 ATMS System Cost

These costs include furnishing and installing the equipment necessary for a complete installation. Please note that the communication costs are located in the Communication Conceptual Design Report (Deliverable 2.6.2).

Exhibit 4.66 – City of Arcadia Total ATMS Equipment Cost

ATMS Equipment	Quantity	Unit Cost	Total Cost
CCTV Camera	6	$35,000	$210,000
Traffic Controller	21	$4,000	$84,000
Traffic Controller Cabinets	21	$4,000	$84,000
Non-Intrusive Traffic Detector	8	$15,000	$120,000
Total Proposed ATMS System Cost			**$498,000**

4.17 CITY OF COVINA (LEVEL 2B)

4.17.1 CCTV Cameras

The City of Covina proposes to install five cameras in the City to be able to view traffic conditions at the major arterial intersections. These intersections currently are operating at Level of Service D, so the likelihood of congestion and vehicle crashes is increased.

Exhibit 4.67 – City of Covina Proposed CCTV Cameras

Agency	Intersection	AADT
LEVEL 2B		
Covina (5 Cameras)	Azusa Avenue and Cypress Street	N/A
	Azusa Avenue and San Bernardino Road	N/A
	Azusa Avenue and Badillo Street	N/A
	Azusa Avenue and Covina Boulevard	N/A
	Azusa Avenue and Grondahl	N/A

4.17.2 Traffic Controllers and Detection

A listing of each existing traffic signal for the City of Covina is provided in Exhibit 4.68. Each traffic signal will be interconnected to the City of Covina LCCS location (125 E. College Street). This will enable the City to monitor and control the traffic signals "in-house" with their own TCS. Exhibit 4.69 indicates the locations of existing traffic signal controllers.

The City of Covina's existing traffic signals have the following characteristics:

- Type 170 (64) or Type 90 (2) controllers at all of the intersections
- Inductive loop detection at all of the intersections
- Fixed Pattern/TOD timing plans
- LACO DPW Tier 1 Coordination (Azusa Avenue, Grand Avenue, and Barranca)
- Forty-Six (46) signals are solely owned by the City of Covina
- One (1) signal controlled by Caltrans
- Twelve (12) signals controlled by LA County
- Seven (7) signals controlled by bordering Agencies
- Maintenance for the traffic signals is performed by the Computer Services Company

There are no plans to install additional traffic signals in the next five years. There are plans to upgrade older traffic controllers (Type 90 with Type 170s) within the next five years. The only other upgrade proposed in this report is to install communications equipment at each traffic signal controller site to allow the traffic signal to communicate to the LCCS and LACO TMC.

Exhibit 4.68 – City of Covina Signalized Intersections

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
1	Badillo St.	Vincent Ave.	Other Cities	170	Inductive Loops	Fixed Pattern/TOD	None	Other Cities
2	San Bernardino Rd.	Vincent Ave.	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
3	Badillo St.	Lark Ellen Ave	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
4	San Bernardino Rd.	Lark Ellen Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
5	Lark Ellen Ave.	Bridger St.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
6	San Bernardino Rd.	Rimsdale Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
7	Cypress St.	Homerest Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
8	Azusa Ave.	Arrow Hwy	Caltrans	170	Inductive Loops	Fixed Pattern/TOD	None	Caltrans
9	Azusa Ave.	SEARS	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
10	Azusa Ave.	Grondahl St.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
11	Azusa Ave.	Covina Blvd.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
12	Azusa Ave.	Cypress St.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
13	San Bernardino Rd.	Azusa Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
14	Badillo St.	Azusa Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
15	Arrow Hwy	Hollenbeck Ave.	Other Cities	170	Inductive Loops	Fixed Pattern/TOD	None	Other Cities
16	Hollenbeck Ave.	Hollenbeck Park	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
17	Covina Blvd.	Hollenbeck Ave.	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
18	Cypress St.	Hollenbeck Ave.	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
19	San Bernardino Rd.	Hollenbeck Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
20	Badillo St.	Hollenbeck Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
21	Puente St.	Hollenbeck Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
22	Rowland St.	Hollenbeck Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
23	Workman St.	Hollenbeck Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
24	Arrow Hwy	Citrus Ave.	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
25	Citrus Ave.	Devanah St.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
26	Citrus Ave.	Covina Blvd.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
27	Citrus Ave.	Cypress St.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
28	Citrus Ave.	Metro Rail	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
29	Citrus Ave.	Front St.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
30	San Bernardino Rd.	Citrus Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
31	Citrus Ave.	College St.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
32	Badillo St.	Citrus Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
33	Citrus Ave.	Puente St.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
34	Citrus Ave.	Rowland St.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
35	Citrus Ave.	Workman St.	Other Cities	170	Inductive Loops	Fixed Pattern/TOD	None	Other Cities
36	San Bernardino Rd.	2nd Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
37	2nd Ave.	College St.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
38	Badillo St.	2nd Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
39	2nd Ave.	Puente St.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
40	2nd Ave.	Rowland St.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
41	Arrow Hwy	Barranca Ave.	Other Cities	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Other Cities
42	Cienega St.	Barranca Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Computer Svcs Co.
43	Covina Blvd.	Barranca Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Computer Svcs Co.
44	Cypress St.	Barranca Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Computer Svcs Co.
45	San Bernardino Rd.	Barranca Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Computer Svcs Co.
46	Badillo St.	Barranca Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Computer Svcs Co.
47	Puente St.	Barranca Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Computer Svcs Co.

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
48	Rowland St.	Barranca Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Computer Svcs Co
49	Workman St.	Barranca Ave.	Covina	Type 90	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Computer Svcs Co.
50	Grand Ave.	Arrow Hwy	Covina	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Computer Svcs Co.
51	Grand Ave.	Cienega St.	LACO	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
52	Grand Ave.	Covina Blvd.	LACO	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
53	Grand Ave.	Cypress St.	LACO	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
54	Grand Ave.	Edna Place	Covina	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Computer Svcs Co.
55	Grand Ave.	San Bernardino Rd.	Covina	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Computer Svcs Co.
56	Grand Ave.	Badillo St.	Covina	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Computer Svcs Co.
57	Grand Ave.	Puente St.	LACO	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
58	Grand Ave.	Rowland St.	LACO	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
59	Covina Blvd.	Glendora Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
60	Covina Blvd.	Bonnie Cove Ave.	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
61	Cienega St.	Sunflower Ave.	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
62	Badillo St.	Glendora Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
63	Badillo St.	Banna Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
64	Badillo St.	Reeder Ave.	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Computer Svcs Co.
65	Badillo St.	Sunflower Ave.	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
66	Badillo St.	Cypress St.	Other Cities	170	Inductive Loops	Fixed Pattern/TOD	None	Other Cities

Exhibit 4.69 – City Map of Covina

Insert Color Map (.jpg)

4.17.3 System Detectors

A listing of each proposed system detector for the City of Covina is provided in Exhibit 4.70. The system detector stations are proposed be installed at thirteen (13) locations; six (6) on Badillo Street, four (4) on Arrow Highway, two (2) on Citrus Avenue, and one (1) on Azusa Avenue. They are spaced approximately one mile apart. Please refer again to Exhibit 4.69 (Map of Covina) that indicates locations of proposed system detector stations.

Exhibit 4.70 – City of Covina Proposed System Detectors

#	Main Street	Between Cross Streets		Detector Type
1	Arrow Highway	Arrow Avenue	Glendora Avenue	Inductive Loops
2	Arrow Highway	Citrus Avenue	Fenimore Avenue	Inductive Loops
3	Arrow Highway (2)	Azusa Avenue	End Avenue	Inductive Loops
4	Badillo Street (2)	Ellen Drive	Hartley Drive	Inductive Loops
5	Badillo Street	Leaf Avenue	Rimsdale Avenue	Inductive Loops
6	Badillo Street	1st Avenue	San Jose Avenue	Inductive Loops
7	Badillo Street	Nearglen Avenue	Glendora Avenue	Inductive Loops
8	Badillo Street	Garsden Avenue	Lyman Avenue	Inductive Loops
9	Azusa Avenue	Cypress Street	Covina Boulevard	Inductive Loops
10	Citrus Avenue	Cypress Street	Covina Boulevard	Inductive Loops
11	Citrus Avenue	Center Street	Puente Street	Inductive Loops

4.17.4 ATMS System Cost

These costs include furnishing and installing the equipment necessary for a complete installation. Please note that the communication costs are located in the Communication Conceptual Design Report (Deliverable 2.6.2).

Exhibit 4.71 – City of Covina Total ATMS Equipment Cost

ATMS Equipment	Quantity	Unit Cost	Total Cost
Traffic Control System (TCS)	1	$250,000	$250,000
CDI (Development & Equipment)*	1	$125,000	$125,000
CCTV System	1	$25,000	$25,000
CCTV Camera	5	$35,000	$175,000
Traffic Controller	2	$4,000	$8,000
Traffic Controller Cabinet	2	$4,000	$8,000
Inductive Loops	13	$15,000	$195,000
Total Proposed ATMS System Cost			**$786,000**

*Depending upon the City's TCS selection, the CDI cost may decrease due to prior deployment of that TCS CDI.

4.18 CITY OF IRWINDALE (LEVEL 2B)

4.18.1 CCTV Cameras

The City of Irwindale proposes to install six (6) cameras in the City to be able to view traffic conditions at the major arterial intersections. These intersections currently are operating at Level of Service D, so the likelihood of congestion and vehicle crashes is increased.

Exhibit 4.72 – City of Irwindale Proposed CCTV Cameras

Agency	Intersection	AADT
LEVEL 2B		
Irwindale (6 Cameras)	Irwindale Avenue and Foothill Boulevard	N/A
	Irwindale Avenue and Arrow Highway	N/A
	Irwindale Avenue and I-210	N/A
	Irwindale Avenue and First Street	N/A
	Live Oak Avenue and Peck Road	N/A
	Arrow Highway and I-605	N/A

4.18.2 Traffic Controllers and Detection

A listing of each existing traffic signal for the City of Irwindale is provided in Exhibit 4.73. Each traffic signal will be interconnected to the City of Irwindale LCCS location (5050 N. Irwindale Drive). This will enable the City to monitor and control the traffic signals "in-house" with their own TCS. Exhibit 4.74 indicates the locations of existing traffic signal controllers.

The City of Irwindale's existing traffic signals have the following characteristics:

- Type 170E controllers at all of the intersections
- Inductive loop detection at all of the intersections
- Fixed Pattern/TOD timing plans
- LACO DPW Tier 1 Coordination (Irwindale Avenue, Foothill Boulevard, Arrow Highway, and Live Oak Avenue)
- Thirty (30) signals are solely owned by the City of Irwindale
- Six (6) signals controlled by Caltrans
- One (1) signal controlled by Los Angeles County
- Two (2) signals controlled by bordering Agencies
- Maintenance for the traffic signals is performed by LACO DPW

There are plans to install four (4) additional traffic signals in the next five years in the following locations:

- Irwindale and 1st Street
- Tapia and Cypress
- Arrow Highway and Morada
- Azusa Canyon Road and Arrow Highway

There are plans to upgrade eight (8) older traffic controllers within the next five years. The only other upgrade proposed in this report is to install communications equipment at each traffic signal controller site to allow the traffic signal to communicate to the LCCS and Los Angeles LACO TMC.

Exhibit 4.73– City of Irwindale Signalized Intersections

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
1	Arrow Hwy	Azusa Canyon Rd.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
2	Irwindale Ave.	First St.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
3	Live Oak Ave.	Rivergrade	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
4	Arrow Hwy	Vincent Ave.	LACO	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
5	Martinez St.	Tapia St.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	None	LACO
6	Ramona Blvd.	Francisquito Ave.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	None	LACO
7	Gladstone St.	Irwindale Ave.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
8	Azusa Canyon Rd.	Cypress St.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	None	LACO
9	Arrow Hwy	Irwindale Ave.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
10	Arrow Hwy	Cypress St.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
11	Cypress St.	Irwindale Ave.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
12	Live Oak Ave.	Longden Ave.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
13	Live Oak Ave.	Peck Rd.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
14	Bircher/Gateway Business	Irwindale Ave.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
15	Foothill Blvd.	Irwindale Ave.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
16	Arrow Hwy	Moranda St.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
17	Arrow Hwy	Rivergrade Rd.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Baldwin Park
18	Live Oak Ave.	Stewart Ave.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
19	Arrow Hwy	Buena Vista St.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
20	Arrow Hwy	Live Oak Ave.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
21	Irwindale Ave.	Calle Del Norte	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
22	Arrow Hwy	Santa Fe Dan Spillway (Flashing Beacon)	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
23	Arrow Hwy	Main Ave.	Baldwin Park	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Baldwin Park
24	Graham Access Rd.	Live Oak Ave.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
25	Live Oak Ave.	Baldwin Park Blvd.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
26	Ramona Blvd.	Barnes Ave/Durbin St.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	None	LACO
27	Ramona Blvd.	Syracuse Ave. /Schabarum Ave.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	None	LACO
28	Stewart Ave.	Rivergrade Rd.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	None	LACO
29	Commerce Dr.	Rivergrade Rd.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	None	LACO
30	Rivergrade Rd.	Brooks Ave.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	None	LACO
31	Longden Ave.	Myrtle Ave.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	None	LACO
32	Little John	Los Angeles St.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	None	LACO
33	Azusa Canyon Rd.	Olive St.	Irwindale	170E	Inductive Loops	Fixed Pattern/TOD	None	LACO

Exhibit 4.74 – City Map of Irwindale

Please Insert Color Map (.jpg)

4.18.3 System Detectors

A listing of each proposed system detector for the City of Irwindale is provided in Exhibit 5.58. The system detector stations are proposed be installed at six (6) locations, one (1) on Live Oak Avenue, three (3)on Arrow Highway, one (1) on Peck Road, and one (1) on Irwindale Blvd. They are spaced approximately one mile apart. Please refer again to Exhibit 4.74 (Map of Irwindale) that indicates locations of proposed system detector stations.

Exhibit 4.75 – City of Irwindale Proposed System Detectors

#	Main Street	Between Cross Streets		Detector Type
1	Peck Road	Longden Avenue	Jeffries Avenue	Inductive Loops
2	Live Oak Avenue	Myrtle Avenue	Longden Avenue	Inductive Loops
3	Arrow Highway	Batemen Avenue	IH-605	Inductive Loops
4	Arrow Highway	Rivergrade Road	Live Oak Avenue	Inductive Loops
5	Arrow Highway	Calmview Avenue	Lante Street	Inductive Loops
6	Irwindale Boulevard	Gladstone Avenue	Ornelas Street	Inductive Loops

4.18.4 ATMS System Cost

These costs include furnishing and installing the equipment necessary for a complete installation. Please note that the communication costs are located in the Communication Conceptual Design Report (Deliverable 2.6.2).

Exhibit 4.76 – City of Irwindale Total ATMS Equipment Cost

ATMS Equipment	Quantity	Unit Cost	Total Cost
Traffic Control System (TCS)	1	$250,000	$250,000
CDI (Development & Equipment)*	1	$125,000	$125,000
CCTV System	1	$25,000	$25,000
CCTV Camera	6	$35,000	$210,000
Traffic Controller (New)	4	$15,000	$60,000
Traffic Controller (Upgrade)	8	$4,000	$32,000
Inductive Loops	6	$15,000	$90,000
Total Proposed ATMS System Cost			**$792,000**

***Depending upon the City's TCS selection, the CDI cost may decrease due to prior deployment of that TCS CDI.

4.19 CITY OF ROSEMEAD (LEVEL 2B)

4.19.1 CCTV Cameras

The City of Rosemead proposes to install eight (8) cameras in the City to be able to view traffic conditions at the major arterial intersections. These intersections currently are operating at Level of Service D, so the likelihood of congestion and vehicle crashes is increased.

Exhibit 4.77 – City of Rosemead Proposed CCTV Cameras

Agency	Intersection	AADT
LEVEL 2B		
Rosemead (8 Cameras)	Rosemead Boulevard and Marshall	N/A
	Rosemead Boulevard and Mission Drive	N/A
	Rosemead Boulevard and Valley Boulevard	N/A
	Valley Boulevard and Mission Drive	N/A
	Garvey Road and Walnut Grove Avenue	N/A
	Garvey Road and San Gabriel Boulevard	N/A
	San Gabriel Blvd and Walnut Grove Ave	N/A
	San Gabriel Boulevard and I-10	N/A

4.19.2 Traffic Controllers and Detection

A listing of each existing traffic signal for the City of Rosemead is provided in Exhibit 4.78. Each traffic signal will be interconnected to the City of Rosemead LCCS location (8838 E Valley Boulevard). This will enable the City to monitor and control the traffic signals "in-house" with their own TCS. Exhibit 4.79 indicates the locations of existing traffic signal controllers.

The City of Rosemead's existing traffic signals have the following characteristics:

- Type 170 controllers at all of the intersections
- Inductive loop detection at all of the intersections
- Fixed Pattern/TOD timing plans
- LACO DPW Tier 1 Coordination (Valley, Garvey, Del Mar, Temple City, San Gabriel, Mission, and Rosemead)
- Fifty-five (55) signals are solely owned by the City of Rosemead
- Maintenance for the traffic signals is performed by Peek Traffic Inc.

There are no plans to install additional traffic signals in the next five years. There are plans to upgrade older traffic controllers within the next five years (quantities yet to be determined). The only other upgrade proposed in this report is to install communication equipment at each traffic signal controller site to allow the traffic signal to communicate to the LCCS and LACO TMC.

Exhibit 4.78 – City of Rosemead Signalized Intersections

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
1	Garvey Ave.	Jackson Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
2	Garvey Ave.	Delmar Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
3	Garvey Ave.	Kelburn Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
4	Garvey Ave.	San Gabriel Blvd.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
5	Garvey Ave.	Delta Ave./ Langford Place	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
6	Garvey Ave.	Walnut Grove Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
7	Garvey Ave.	Muscatiel Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
8	Garvey Ave.	Rosemead Place/ River Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
9	Garvey Ave.	Driggs Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
10	Garvey Ave.	New Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
11	Hellman Ave.	Jackson Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
12	Hellman Ave.	Del Mar Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
13	Hellman Ave.	San Gabriel Blvd.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
14	Hellman Ave.	Walnut Grove Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
15	Emerson Ave.	Del Mar Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
16	Emerson Ave.	San Gabriel Blvd.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
17	Valley Blvd.	Delta Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
18	Valley Blvd.	Walnut Grove Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
19	Valley Blvd.	Muscatel Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
20	Valley Blvd.	Ivar Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
21	Valley Blvd.	Rosemead Place	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
22	Valley Blvd.	Hart Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
23	Valley Blvd.	Rio Honcho Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
24	Valley Blvd.	Grand Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
25	Valley Blvd.	Temple City Blvd.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
26	Mission Dr.	Walnut Grove Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
27	Mission Dr.	Muscatel Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
28	Mission Dr.	Rosemead Place	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
29	Mission Dr.	Encinita Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
30	Rosemead Place	Marshall St.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
31	Rosemead Place	Glendon Way	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
32	Rosemead Place	Driggs Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
33	Walnut Grove Ave.	Wells St.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
34	Walnut Grove Ave.	Marshall St.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
35	Del Mar Ave.	Highcliff St.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
36	Del Mar Ave.	Graves Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
37	New Ave.	Newmark Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
38	Lower Azusa Rd.	Rosemead Place	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
39	Lower Azusa Rd.	Encinita Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
40	Marshall St.	Temple City Blvd.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
41	Temple City Blvd.	Loftus Dr.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
42	San Gabriel Blvd.	Graves Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
43	San Gabriel Blvd.	Angeles Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
44	San Gabriel Blvd.	Rush St.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
45	Walnut Grove Ave.	Fern Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
46	Walnut Grove Ave.	Klingerman St.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
47	Walnut Grove Ave.	Edison Way	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
48	Walnut Grove Ave.	Rush St.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
49	Walnut Grove Ave.	Landis View Lane	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
50	Rosemead Place	Telstar Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
51	Walnut Grove Ave.	Marriott	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
52	San Gabriel Blvd.	Town Center Dr.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
53	Town Center Dr.	Montibello Blvd.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
54	San Gabriel Blvd.	SR-60 WB Ramp	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
55	San Gabriel Blvd.	Delta Ave.	Rosemead	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.

Exhibit 4.79 - City Map of Rosemead

Insert Color Map (.jpg)

4.19.3 System Detectors

A listing of each proposed system detector for the City of Rosemead is provided in Exhibit 4.80. The system detector stations are proposed be installed at seven (7) locations; two (2) on Rosemead Boulevard, two (2)on Garvey Avenue, one (2) on Valley Boulevard, and one (1) on San Gabriel Boulevard. They are spaced approximately one mile apart. Please refer again to Exhibit 4.79 (Map of Irwindale) that indicates locations of proposed system detector stations.

Exhibit 4.80 – City of Rosemead Proposed System Detectors

#	Main Street	Between Cross Streets		Detector Type
1	Rosemead Boulevard	Pentland Street	Southern Pacific Railroad	Inductive Loops
2	Rosemead Boulevard	Ramona Boulevard	Telstar Avenue	Inductive Loops
3	Valley Boulevard	Loma Avenue	Mission Drive	Inductive Loops
4	San Gabriel Boulevard	Yarrow Street	Bleeker Avenue	Inductive Loops
5	Garvey Avenue	Gladys Avenue	Angelus Avenue	Inductive Loops
6	Garvey Avenue	Loma Avenue	Lee Avenue	Inductive Loops
7	Valley Boulevard	Delta Avenue	Charlotte Avenue	Inductive Loops

4.19.4 ATMS System Cost

These costs include furnishing and installing the equipment necessary for a complete installation. Please note that the communication costs are located in the Communication Conceptual Design Report (Deliverable 2.6.2).

Exhibit 4.81 – City of Rosemead Total ATMS Equipment Cost

ATMS Equipment	Quantity	Unit Cost	Total Cost
Traffic Control System	1	$250,000	$250,000
CDI (Development & Equipment)*	1	$125,000	$125,000
CCTV System	1	$25,000	$25,000
CCTV Camera	8	$35,000	$280,000
Inductive Loops	7	$15,000	$105,000
Total Proposed ATMS System Cost			**$785,000**

****Depending upon the City's TCS selection, the CDI cost may decrease due to prior deployment of that TCS CDI.

4.20 CITY OF WEST COVINA (LEVEL 2B)

4.20.1 CCTV Cameras

There are no current plans for the City of West Covina to deploy CCTV cameras.

4.20.2 Traffic Controllers and Detection

A listing of each existing traffic signal for the City of West Covina is provided in Exhibit 4.82. Each traffic signal will be interconnected to the City of West Covina LCCS location (1444 W. Garvey Avenue). This will enable the City to monitor and control the traffic signals "in-house" with their own TCS. Exhibit 4.83 indicates the locations of existing traffic signal controllers.

The City of West Covina's existing traffic signals have the following characteristics:

- Type Mutlisonics820 controllers at all of the City owned intersections
- Inductive loop detection at all of the intersections
- Fixed Pattern/TOD timing plans
- LACO DPW Tier 1 Coordination (Azusa, Pacific, Valinda, Vincent, Glendora, Sunset, Lark Ellen, and Amar)
- Seventy-nine (79) signals are solely owned by the City of West Covina
- Eleven (11) signals are controlled by Los Angeles County
- Four (4) signals are controlled by outside Agencies
- Maintenance for the traffic signals is contracted to PEEK Traffic Inc.

There are no plans to install additional traffic signals in the next five years. There are plans to upgrade the traffic controllers within the next five years, quantities yet to be determined. The only other upgrade proposed in this report is to install communications equipment at each traffic signal controller site to allow the traffic signal to communicate to the LCCS and LACO TMC.

Exhibit 4.82 – City of West Covina Signalized Intersections

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
1	Amada	Nogales	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
2	Amar	Azusa	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
3	Amar	Lark Ellen	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
4	Amar	Nogales	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
5	Amar	Officer Chiles Way	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
6	Amar	Shadow Oak	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
7	Amar	Temple	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
8	Amar	Westport	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
9	Aroma	Azusa	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
10	Azusa	B.K.K.	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
11	Azusa	Cameron	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
12	Azusa	Cortez	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
13	Azusa	Fairgrove	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
14	Azusa	Francisquito	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
15	Azusa	Merced	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
16	Azusa	Manila Way	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
17	Azusa	Vine	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
18	Azusa Canyon	San Bernardino	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
19	Badillo	Vincent	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
20	Barranca	No. Garvey	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
21	Barranca	So. Garvey	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
22	California	Cameron	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
23	California	Merced	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
24	California	West Covina Pkwy.	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
25	Cameron	Dawley (Flasher)	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
26	Cameron	Fernwood	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
27	Cameron	Glendora (Ped Crossing)	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
28	Cameron	Hollenbeck	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
29	Cameron	Lark Ellen	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
30	Cameron	Lark Ellen (Flasher)	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
31	Cameron	Orange	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
32	Cameron	Pacific	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
33	Cameron	Sunset	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
34	Cameron	Valinda	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
35	Christopher	Glendora (Ped Crossing)	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
36	Citrus	Eastland	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
37	Citrus	Lark Hill (Cart Crossing)	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
38	Citrus	So. Garvey	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
39	Citrus	Workman	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
40	Durnes	Sunset	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
41	Fairway	Grand	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
42	Fashion Plaza Way	West Covina Pkwy.	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
43	Francisquito	Sunset	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
44	Francisquito	Valinda	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
45	No. Garvey	Hollenbeck	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
46	No. Garvey	Sunset	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
47	So. Garvey	Hollenbeck	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
48	So. Garvey	Lark Ellen	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
49	Glendora	Lakes	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
50	Glendora	Merced	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
51	Glendora	Valinda / West Covina Pkwy.	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
52	Glendora	Vincent	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
53	Glendora	Vine	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
54	Grand	Holt	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
55	Lakes/Plaza	Vincent	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
56	Lark Ellen	Puente	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
57	Lark Ellen	Rowland	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
58	Lark Ellen	Stuart	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
59	Lark Ellen	Workman	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
60	La Puente	Sentous	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
61	Merced	Orange	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
62	Merced	Sunset	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
63	Merced	Valinda	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
64	Nogales	Francesca	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
65	Nogales	Shadow Oak	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
66	Nogales	Shakespere	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
67	Plaza	Sunset	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
68	Puente	Sunset	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
69	Puente	Vincent	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
70	Sentous	Valley	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
71	Service	Valinda	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
72	Summerplace	Valinda	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
73	Sunset	Vine	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
74	Sunset	West Covina Pkwy.	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
75	Sunset	Workman	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
76	Toluca	West Covina Pkwy.	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	None	Peek Traffic Inc.
77	Valinda	Vine	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
78	Vincent	West Covina Pkwy.	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
79	Vincent	Workman	West Covina	Multisonics 820	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Peek Traffic Inc.
80	Amar	Valinda	LACO	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	LACO
81	Badillo	Orange	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
82	Badillo	Sunset/ Irwindale	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
83	California	Francisquito	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
84	Fairgrove	Sunset	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
85	Francisquito	Orange	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
86	Francisquito	Willow	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
87	Las Puente	Nogales	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
88	Maplesgrove	Valinda	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
89	Nogales 0	Valley	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
90	Orange	San Bernardino	LACO	170	Inductive Loops	Fixed Pattern/TOD	None	LACO
91	Badillo	Lark Ellen	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Covina

#	Intersection		Ownership	Controller Type	Detection	Timing Plan	Coordination	Maintaining Agency
92	Barranca	Workman	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Covina
93	Lark Ellen	San Bernardino	Covina	170	Inductive Loops	Fixed Pattern/TOD	LACO DPW Tier 1	Covina
94	Barranca	IKEA	Covina	170	Inductive Loops	Fixed Pattern/TOD	None	Covina

Exhibit 4.83 - City Map of West Covina

Please Insert Color Map (.jpg)

4.20.3 System Detectors

A listing of each proposed system detector for the City of West Covina is provided in Exhibit 4.84. The system detector stations are proposed be installed at six (6) locations, four on Azusa Avenue, one on Amar Road, and one on Citrus Avenue. They are spaced approximately one mile apart. Please refer again to Exhibit 4.83 (Map of West Covina) that indicates locations of proposed system detector stations.

Exhibit 4.84 - City of West Covina Proposed System Detectors

#	Main Street	Between Cross Streets		Detector Type
1	Citrus Street	Walnut Creek Parkway	Vanderhoof Drive	Inductive Loops
2	Amar Road	Leanna Drive	Carmen Street	Inductive Loops
3	Azusa Avenue	Hemphill Street	Temple Avenue	Inductive Loops
4	Azusa Avenue	Bike Access Road	Lahaina Street	Inductive Loops
5	Azusa Avenue	Walnut Creek Court	Holly Oak Drive	Inductive Loops
6	Azusa Avenue	Puente Avenue	Badillo Street	Inductive Loops

4.20.4 ATMS System Cost

These costs include furnishing and installing the equipment necessary for a complete installation. Please note that the communication costs are located in the Communication Conceptual Design Report (Deliverable 2.6.2).

Exhibit 4.85 – City of West Covina Total ATMS Equipment Cost

ATMS Equipment	Quantity	Unit Cost	Total Cost
Traffic Control System (TCS)	1	$250,000	$250,000
CDI (Development & Equipment)*	1	$125,000	$125,000
Inductive Loops	6	$15,000	$90,000
Total Proposed ATMS System Cost			**$240,000**

****Depending upon the City's TCS selection, the CDI cost may decrease due to prior deployment of that TCS CDI.

4.21 CITY OF PASADENA (LEVEL 3)

4.21.1 System Detectors

A listing of each proposed system detector for the City of Pasadena is provided in Exhibit 4.86. The system detector stations are proposed to be installed at five (5) locations; three (3) on Fair Oaks Avenue and two (2) on San Gabriel Boulevard. They are spaced approximately one mile apart. Exhibit 4.88 indicates the location of proposed system detector stations.

Exhibit 4.86 - City of Pasadena Proposed System Detectors

#	Main Street	Between Cross Streets		Detector Type
1	Fair Oaks Avenue	Montana Street	Tremont Street	Inductive Loops
2	Fremont Avenue	Orange Grove Blvd.	Painter Street	Inductive Loops
3	Fremont Avenue	California Blvd.	E. Bellevue Dr.	Inductive Loops
4	San Gabriel Boulevard	Orange Grove Blvd.	Hermanos Street	Inductive Loops
5	San Gabriel Boulevard	Del Mar Boulevard	San Marcos Dr.	Inductive Loops

4.21.2 ATMS System Cost

Exhibit 4.87 indicates the cost of furnishing and installing the equipment necessary for a complete installation.

Exhibit 4.87 – City of Pasadena Total ATMS Equipment Cost

ATMS Equipment	Quantity	Unit Cost	Total Cost
Inductive Loops	5	$15,000	$75,000
Total Proposed ATMS System Cost			**$75,000**

Exhibit 4.88 - City of Pasadena

Please Insert Color Map (.jpg)