

February 6<sup>th</sup>, 2007

# San Gabriel Valley Traffic Forum ATMS Improvement Project

## Communications User & Functional System Requirements Report

(Deliverable 2.3.8.2)

Final, Revision 1

Prepared by:



Meyer, Mohaddes Associates, Inc.

An Iteris Company

# **SAN GABRIEL VALLEY TRAFFIC FORUM**

## **COMMUNICATIONS USER & FUNCTIONAL SYSTEM REQUIREMENTS REPORT**

**Deliverable 2.3.8.2**

**FINAL, Revision 1**

Prepared for:

**Los Angeles County Department of Public Works**

Prepared by:



626 Wilshire Boulevard  
Suite 818  
Los Angeles, CA 90017

**February 6<sup>th</sup>, 2007**

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## **1. INTRODUCTION**

### **1.1 PROJECT OVERVIEW**

The Los Angeles County Department of Public Works (County) Traffic Forum Program has proven successful in creating institutional infrastructure to coordinate the activities of the Agencies responsible for traffic signal operations in LA County. These Traffic Forums allow groups of bordering Agencies to work together to promote inter-Agency cooperation. The Traffic Forums have enabled funding to be targeted at infrastructure improvements along arterial and arterial/freeway corridors in the County's sub-regions. Such projects are a critical part of what will eventually be a network of integrated Intelligent Transportation Systems (ITS) projects in LA County and in Southern California.

### **1.2 SAN GABRIEL VALLEY TRAFFIC FORUM**

The San Gabriel Valley Traffic Forum (SGVTF) project is one such project that will result in arterial infrastructure improvements within the project boundaries. The SGVTF project area ranges the 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 LA County. The traffic signals in the Region are operated by many of the individual Agencies, the County, and Caltrans District 7.

The goal of the SGVTF project is to design, develop, and deploy an Advanced Traffic Management System (ATMS) specifically tailored to each Agency's operations in the Corridor so that traffic signals and ITS systems can be integrated across jurisdictional boundaries. The SGVTF project focuses on the specific needs of each Agency to manage its ATMS and recommends improvements to field infrastructure (e.g., controllers, detection systems, communications, etc.) and centralized Traffic Control Systems (TCSs) and/or Transportation Management Centers (TMCs) to meet those requirements. When the SGVTF project 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 its jurisdiction. In addition, Agencies will be able to monitor and control 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.

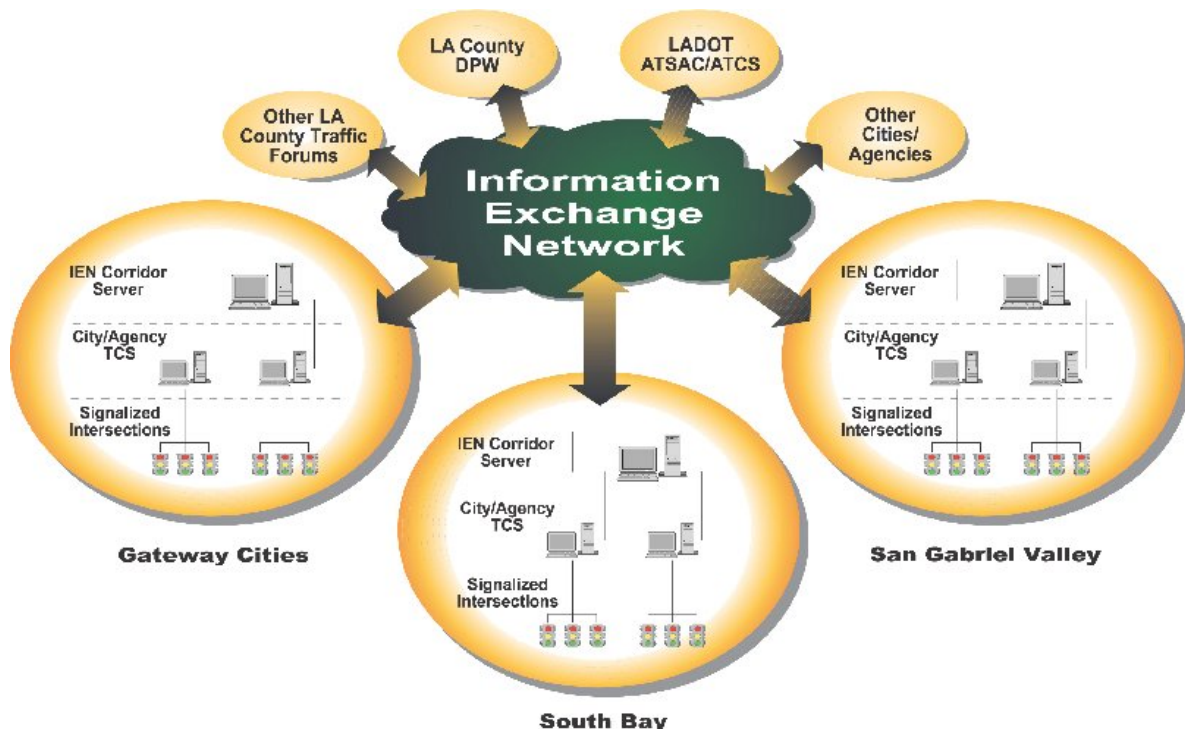
### **1.3 COUNTYWIDE INFORMATION EXCHANGE NETWORK**

Developed by the County, the Countywide Information Exchange Network (IEN) is the integrated system framework that connects all of the individual Agency ATMSs into a Regional network to support the operational goals identified above. As shown in Exhibit 1.1, the Countywide IEN supports traffic signal operations in three (3) levels:

- Local Level
  - Comprises day-to-day traffic signal operations and maintenance (O&M) activities carried out by the individual Agency

- Includes activities such as signal timings, equipment monitoring, response to local traffic conditions and events, etc.
- Corridor Level
  - Supports inter-Agency coordination and joint signal operations within the particular Traffic Forum (or Sub-Region)
  - Includes activities such as signal coordination across jurisdictional boundaries, monitoring and exchange of local traffic data throughout the Corridor, joint response to traffic conditions, incidents, and events that affect more than one jurisdiction, etc.
- Regional Level
  - Permits arterials of Regional significance to be monitored, managed, and controlled as a single entity
  - Supports multi-Agency, cross-Corridor data exchange permitting a Countywide response to traffic conditions and major events
  - Facilitates communications between systems/Agencies not part of a Traffic Forum (e.g., Caltrans, LADOT, etc.).

**Exhibit 1.1 – Countywide IEN**



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 W/S Layouts (ATMS and/or IEN)
- Communications Network
- SGVTF Participation/Coordination (City-specific and/or SGVTF-Regional integration)
- Operations & Maintenance (O&M)

The Countywide IEN comprises the series of computer servers, communications, networks, graphical user interface (GUI) displays, etc. that integrates these components for the collection/transfer of data to support Corridor and Regional functions throughout LA County.

**1.4 PROJECT AREAS & AGENCIES INVOLVED**

The SGVTF Project encompasses several jurisdictions. Furthermore, it will be integrated, or have the ability to integrate with other projects and existing systems in the Region through the Countywide IEN. SGVTF Project Stakeholders include 22 local Agencies, the County, and Caltrans District 7 as the table below indicates:

|                                 |                        |
|---------------------------------|------------------------|
| City of Arcadia                 | City of Alhambra       |
| City of Azusa                   | City of Baldwin Park   |
| City of Duarte                  | City of Covina         |
| City of Glendora                | City of El Monte       |
| City of La Puente               | City of Irwindale      |
| City of Montebello              | City of Monrovia       |
| City of Pasadena                | City of Monterey Park  |
| City of San Dimas               | City of Rosemead       |
| City of San Marino              | City of San Gabriel    |
| City of South El Monte          | City of South Pasadena |
| City of Temple City             | City of West Covina    |
| LA County Dept. of Public Works | Caltrans District 7    |

**1.5 PURPOSE OF DOCUMENT**

This document provides the Communications User and Functional Requirements (Deliverable 2.3.8.2), which is a deliverable related to the Operational Concept and System Requirements Task of the SGVTF Project. It is envisioned that Local Agencies within the San Gabriel Valley region will have at a minimum a relatively basic IEN workstation and/or a more sophisticated ATMS workstation. This document will address SGVTF Local Agency and Traffic Management Center (TMC) communication needs in terms of following:

- Field-to-Center (F2C) (e.g., connecting field traffic controllers to central TCS's, connecting CCTV cameras in the field to central video control system, etc.)
- Center-to-Center (C2C) (e.g., Local Agency ATMS W/S to “host” Agency TCS Server, Local Agency IEN W/S to SGVTF IEN Corridor Server, etc.)

This document will also provide an overview and quantity of the existing and planned ITS field devices in order to provide an accurate calculation of the bandwidth required to communicate with the field equipment as well as to support C2C communication.

In order to perform the analysis described above, site visits were made to 19 of the 22 Local Agencies (Cities participating in the SGVTF Project). Interviews were held with key personnel to review the existing and planned field equipment, level of operations, and existing communication networks. The information obtained during these site visits is provided in Appendix B.

Four (4) levels of operation have been defined in order to categorize each Agency's level of involvement/effort in managing their traffic and responding to incidents within their jurisdiction. These levels are defined in detail in Section 3 of this document.

## 1.6 REPORT ORGANIZATION

This document is organized into the following sections:

- **Section 1: Introduction**

Presents the project overview, background, and introduces the document. It also presents a brief history of the project highlighting on past communications related work. In addition, it provides different levels of the Countywide IEN and how it supports Agency traffic signal operations.

- **Section 2: Task Methodology**

Defines the approach to develop this document.

- **Section 3: Stakeholders**

Identifies all the Agencies and Cities participating in the SGVTF. This section defines all the different Agency Levels, and their direct or indirect involvement with managing traffic operations.

- **Section 4: SGVTF Communications Overview**

Presents an overview of the existing and planned communications infrastructure, devices, and communications media to support F2C and C2C connections. In addition, it also presents any planned communication projects in the near future.

- **Section 5: System Users & Needs Assessment**

This section identifies the communication functional requirements for F2C (e.g., all devices to the TCS Server, etc.), C2C (e.g., IEN W/S to SGVTF IEN Corridor Server, ATMS W/S to TCS Server, etc.). In addition, it provides a list of all existing and planned ITS field devices.

- **Section 6: Communications User and Functional Requirements**

This section identifies the Communications User and Functional Requirements and their ability to meet the needs of the Local Agency communications infrastructure to support its field devices and C2C communication.

- **Appendix A** - Acronyms and Abbreviations
- **Appendix B** - SGVTF Communications Requirements Interview Summary

## **1.7 REFERENCED DOCUMENTS**

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

- San Gabriel Valley Traffic Forum Project
  - Deliverable 2.1.1: Operational Objectives
  - Deliverable 2.2.1: 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 2.3.4.1: LCCS System Requirements
  - Deliverable 2.3.5.1: Sub-Regional TMC Requirements
- I-105 Corridor Project
  - TSMACS User Requirements Report (Final)
  - Functional Requirements Report (Draft)
- San Gabriel Valley Pilot Project
  - System Design Report, Final Version 1.0
  - Communications Report, 2003 Update (Final)
- Pomona Valley ITS Project
  - Sub-Regional TMC Report



## 2. TASK METHODOLOGY

In order to compile the information required for this task, representatives from the TransCore Team developed a comprehensive IEN Communications Requirements Interview Summary form. The Team met with 19 of the 22 Stakeholder Agencies within the SGVTF and discussed each individual Agency's needs and communications requirements, quantity of existing and planned ITS field devices, and any near future projects that might have an impact or needs to be coordinated with this project. Below are the topics that were discussed during the interview. Appendix B provides the Interview Summary for each Agency.

- Level of operation
- Proposed IEN equipment
- Location
- UPS availability
- Planned utilization of IEN for Local or Inter-Agency purposes
- Existing and future ITS devices
- Future projects
- Communications
- SGVTF Participation/Coordination (System Integration)

### 3. STAKEHOLDERS

Section 3 identifies all the Agencies and Cities participating in the SGVTF project. This section defines the project participants categories, different Agency Levels, and their direct or indirect involvement with managing traffic operations and incidents. The four (4) Agency Levels that have been defined (Levels 1, 2A, 2B, and 3) are based upon the level of direct involvement an Agency has in managing traffic operations within its jurisdiction/boundaries.

#### 3.1 SGVTF STAKEHOLDERS IDENTIFICATION

Within the SGVTF, there are three (3) categories of project participants: City Agencies, Transit Agencies, and “Other” Agency types of Stakeholders. The most prevalent are Cities. “City Agencies” Stakeholders operate/manage the traffic-related roadside and central systems/equipment (e.g., traffic signals, controllers, communications, etc.) for themselves and/or for other Local Agencies.

“Transit Agencies” (for the purpose of this project) operate/manage transit systems that traverse the study area in multiple jurisdictions. While many of the Cities in the SGVTF operate some type of intra-City transit, para-transit, and/or Dial-A-Ride service, these entities were not included as additional Stakeholders due to their limited operational and geographical span.

The final stakeholder category, “Other”, are for those entities that do not clearly fall into either of the previously discussed categories.

##### 3.1.1 City Agencies

The following SGVTF Agencies manage traffic operations and systems within their jurisdiction, and possibly for other Stakeholders:

|                                 |                        |
|---------------------------------|------------------------|
| City of Arcadia                 | City of Alhambra       |
| City of Azusa                   | City of Baldwin Park   |
| City of Duarte                  | City of Covina         |
| City of Glendora                | City of El Monte       |
| City of La Puente               | City of Irwindale      |
| City of Montebello              | City of Monrovia       |
| City of Pasadena                | City of Monterey Park  |
| City of San Dimas               | City of Rosemead       |
| City of San Marino              | City of San Gabriel    |
| City of South El Monte          | City of South Pasadena |
| City of Temple City             | City of West Covina    |
| LA County Dept. of Public Works | Caltrans District 7    |

### 3.1.2 Transit Agencies

The following Agencies conduct or administer transit operation/services across the SGVTF project area:

- Los Angeles County MTA (Metro)
- Foothill Transit
- Montebello Bus

### 3.1.3 Other Agencies

The following Agency does not fall into either of the prior categories:

- Alameda Corridor East (ACE)

## 3.2 AGENCY LEVEL DEFINITION

Regardless of the size, every Agency performs a variety of tasks related to traffic and incident management. Obviously, Agencies with fewer signals, traffic issues, staff, etc. will generally perform fewer or less complex activities. Also, as the level of cooperation/collaboration between Agencies increases, understanding what is expected of each Agency becomes increasingly important.

Below are the four (4) Levels that have been defined (Level 1, 2A, 2B, and 3) based upon the level of direct involvement an Agency will have in managing traffic operations within its boundaries, tasks required to be performed on their respective systems, and the Level of data sharing with other IEN member Agencies.

### Level 1 Agency

- 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

- 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**

- Agency 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**

- 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 has a TMC from which to operate its ATMS, the IEN, & other ITS devices
- Maintains a TMC/LCCS facility to manage ATMS & incident management activities
  - IEN W/S (Regional view)
  - ATMS W/S (Local view)

Exhibit 3.1 defines the SGVTF Agencies per level.

**Exhibit 3.1 – SGVTF Agencies Per Level**

| <b>LEVEL 1</b>                                | <b>LEVEL 2A</b> | <b>LEVEL 2B</b> | <b>LEVEL 3</b> | <b>RC</b> |
|---|-----------------|-----------------|----------------|-----------|
| La Puente                                     | Azusa           | Alhambra        | Caltrans       | LA County |
| San Marino                                    | Baldwin Park    | Arcadia         | LA County      |           |
| South El Monte                                | Duarte          | Covina          | Pasadena       |           |
| South Pasadena                                | El Monte        | Glendora        |                |           |
| Temple City                                   | Monrovia        | Irwindale       |                |           |
|   | Montebello      | Rosemead        |                |           |
| MTA*  | Monterrey Park  | San Dimas       |                |           |
| Foothill Transit*                             | San Gabriel     | West Covina     |                |           |
| Montebello Transit*                           |                 |                 |                |           |
| *Transit operators –<br>no traffic operations |                 |                 |                |           |



## **4. SGVTF COMMUNICATIONS OVERVIEW**

This section provides an overview of the existing and planned communications infrastructure between the field devices and local centers. In addition, it presents any planned communication projects in the near future. This section will be the basis of the communication bandwidth calculations for the existing and future ITS devices for the F2C and C2C communications.

### **4.1 EXISTING COMMUNICATIONS PROJECTS**

Most of the Agencies in the SGVTF Project synchronize a portion of the clock on the traffic signal controller using WWV radio signals (LA County DPW Tier 1 Program) and only three (3) Agencies (Alhambra, Arcadia and West Covina) have some existing TWP/copper wire to communicate between field devices and local centers.

### **4.2 PLANNED COMMUNICATIONS PROJECTS**

At this time, no SGVTF Agency has plans to significantly upgrade their communications systems. Therefore, any communication needs provided in this document will be based on existing devices while adding 20% data overhead for future planned projects. Several SGVTF Agencies have expressed an interest in using wireless communications system as part of an ATMS. Every SGVTF Agency indicated that they would base their communications plans on recommendations from this project.

## 5. COMMUNICATIONS USER AND FUNCTIONAL REQUIREMENTS

This section is derived from a collaboration of various points of view, starting with interviews conducted with the SGVTF Agencies, communication experience provided by TransCore, industry standards, and reference materials presented in Section 1.4. Therefore, it provides comprehensive Communications User and Functional Requirements for F2C and C2C that support the SGVTF Project.

Each Agency's ITS field devices have communication needs in order to transfer data and/or images back to the LCCS or through the Countywide IEN workstation to other Agencies. For example: one SGVTF Agency desires to provide CCTV video images to another Agency for traffic management, surveillance, and maintenance purposes. In this case, "CCTV Surveillance Capability" will be a User need. The User objective would be to view CCTV video images on the arterials and at the intersections to assist and facilitate traffic management, surveillance, and maintenance capabilities. One of the requirements for these User objectives would be the requirement for the CCTV camera to be able to pan, tilt, and zoom. In addition, the User needs and objectives will be used to identify the specific ITS elements that can address those needs and objectives.

The Communications User and Functional Requirement have been divided into two (2) distinct categories, Field-to-Center (F2C) and Center-to-Center (C2C) communications. Within both categories, Users demand that the IEN W/S and/or ATMS W/S be able to provide them with the following three (3) levels of operation at the minimum:

- Monitor signal operations
- Control signal operations
- Provide CCTV video images/control

### 5.1 FIELD-TO-CENTER COMMUNICATIONS (F2C)

Exhibit 5.1 presents the F2C communications information in more detail for each ITS field device. By category, the total number of ITS field devices is identified for both *Existing*, and *Planned* components as well as the maximum data rate required to support EVERY device (if they were all placed on the same communication circuit/channel). Please note that the maximum data rate does not indicate the communications required to support one (1) ITS field device. Similarly, the maximum data rate that each Agency needs in order to communicate with every ITS field device ALL of the time is presented in the "Total" column. Please note that even though Exhibit 5.1 focuses on F2C communications needs, the "Total" column provides necessary input for each Agency's C2C needs in Section 5.2.

Some devices transmit data at speeds greater than what is identified in Exhibit 5.1. Therefore, the SGVTF communications design will need to support the higher data transmission speeds, but the amount of data being exchanged will be the same (i.e., a traffic controller using a 1200-baud modem will take 1-sec to transmit its data, while a controller with a 9600-baud modem will take .125-sec to transmit the same amount of data).

Exhibit 5.1 presents the F2C communications requirement needs for individual Agencies. Following Exhibit 5.1 are the F2C User and Functional Requirements.

**Exhibit 5.1 - SGVTF Agency F2C Communication Needs**

| Agency Names   | Field-to-Center Communication Requirements |         |                                |                              |         |                          |                           |         |                         |                                |
|----------------|--|---------|--------------------------------|------------------------------|---------|--------------------------|---------------------------|---------|-------------------------|--------------------------------|
|                | Traffic Controllers                        |         |                                | CCTV Camera                  |         |                          | CMS                       |         |                         | Total                          |
|                | Existing                                   | Desired | Maximum Controller Load (Kbps) | Existing                     | Desired | Maximum CCTV Load (Kbps) | Existing                  | Desired | Maximum CMS Load (Kbps) | Maximum Controller Load (Kbps) |
|                | Data Rate 1.2Kbps per Controller           |         |                                | Data Rate 128Kbps per Camera |         |                          | Data Rate 9.6Kbps per CMS |         |                         |                                |
| Alhambra       | 99   | 99      | 119                            |                              |         |                          |                           |         |                         | 119                            |
| Arcadia        | 71   | 71      | 85                             |                              | 10      | 1,280                    |                           | 3       | 29                      | 1,394                          |
| Azusa          | 52   | 52      | 62                             |                              | 4       | 512                      |                           |         |                         | 574                            |
| Baldwin Park   | 56   | 64      | 77                             |                              | 5       | 640                      |                           |         |                         | 717                            |
| Covina         | 49   | 49      | 59                             |                              | 5       | 640                      |                           |         |                         | 699                            |
| Duarte         | 11   | 14      | 17                             |                              | 3       | 384                      |                           |         |                         | 401                            |
| El Monte       | 67   | 70      | 84                             |                              |         |                          |                           |         |                         | 84                             |
| Glendora       | 40   | 44      | 53                             | 2                            | 2       | 256                      |                           |         |                         | 309                            |
| Irwindale      | 15   | 34      | 41                             |                              | 9       | 1,152                    |                           | 2       | 19                      | 1,212                          |
| La Puente      | 11   | 11      | 13                             |                              |         |                          |                           |         |                         | 13                             |
| LACODPW        | 200*                                       | 200*    | 240                            |                              |         |                          |                           |         |                         | 240                            |
| Monrovia       | 34   | 35      | 42                             |                              | 3       | 384                      | 3                         | 2       | 19                      | 445                            |
| Montebello     | 78   | 78      | 94                             |                              |         |                          |                           | 2       | 19                      | 113                            |
| Monterey Park  | 65   | 65      | 78                             |                              |         |                          |                           |         |                         | 78                             |
| Pasadena       | 308  | 308     | 370                            | 10                           | 18      | 2,304                    | 9                         | 11      | 106                     | 2,780                          |
| Rosemead       | 51   | 52      | 62                             |                              |         |                          |                           |         |                         | 62                             |
| San Dimas      | 33   | 33      | 40                             | 2                            | 7       | 896                      |                           |         |                         | 936                            |
| San Gabriel    | 34   | 34      | 41                             |                              | 5       | 640                      |                           |         |                         | 681                            |
| San Marino     | 18   | 18      | 22                             |                              | 2       | 256                      |                           |         |                         | 278                            |
| South El Monte | 22   | 22      | 26                             |                              | 2       | 256                      |                           |         |                         | 282                            |
| South Pasadena | 36   | 36      | 43                             |                              | 1       | 128                      |                           |         |                         | 171                            |
| Temple City    | 28   | 28      | 34                             |                              | 5       | 640                      |                           |         |                         | 674                            |
| West Covina    | 112  | 112     | 134                            |                              |         |                          |                           |         |                         | 134                            |

Note: \* Traffic signal controller counts are estimated.

The following numbering convention is adopted in this document with regard to the requirements numbers. The alpha-numeric system by which the requirements are listed will be “type”-“subject”-“requirement”, such as “F2C - COMM - U1”, for Field-to-Center, Communications, User Requirement #1. The first functional requirement in the same section will be listed as F2C-COMM-F1 and so on. For purposes of presentation and ease of use, this structure and the requirements information will be transferred into a tabular format.

### 5.1.1 Communications

#### Functional Requirements

- F2C-COMM-F1 The traffic signal controller shall be connected in a multi-drop configuration, with no more than eight (8) controllers per communication circuit.
- F2C-COMM-F2 Each communication circuit shall have a data transmission speed ranging from 1.2Kbps to 1.54Mbps to support the F2C communication, for example:
- One (1) traffic signal controller requires a 1.2Kbps data transmission rate
  - One (1) CCTV camera requires a 1.5Mbps data transmission rate to support an analog or digital compressed video, NTSC, medium resolution (740 x 240 pixels) for less than 25fps.

### 5.1.2 ATMS

#### User Requirements

- F2C-ATMS-U1 The ATMS User shall be able to download and upload monitor, operate, and maintain the traffic signal.
- F2C-ATMS-U2 The ATMS User shall be able upload and download the timing plans.
- F2C-ATMS-U3 The ATMS User shall be able to monitor and control the CCTV cameras.
- F2C-ATMS-U4 The ATMS User shall be able to provide real-time traffic advisory and road guidance to motorists via CMS.
- F2C-ATMS-U5 The ATMS User shall be able to monitor, control, and download messages to the CMS.

#### Functional Requirements

- F2C-ATMS-F1 The ATMS System shall support 1.2Kbps data rate per traffic signal controller.
- F2C-ATMS-F2 The ATMS System shall support once-per-second communications with each traffic signal controller.

- F2C-ATMS-F3<sup>1</sup> The ATMS System shall support 128Kbps data rate for analog or digital compressed video, NTSC, low resolution (352 x 240 pixels), one (1) or two (2) frame per second (fps). <sup>1</sup>
- F2C-ATMS-F4 The ATMS System shall support 512Kbps data rate for analog or digital compressed video, NTSC, low resolution (352 x 240 pixels) for less than 10fps.
- F2C-ATMS-F5 The ATMS System shall support 1.5Mbps data rate for analog or digital compressed video, NTSC, medium resolution (740 x 240 pixels) for less than 25fps.
- F2C-ATMS-F6 The ATMS System shall have once-per-second communications with each CCTV camera.
- F2C-ATMS-F7 The ATMS System shall support 9.6Kbps data rate per CMS.
- F2C-ATMS-F8 The ATMS System shall have once-per-second communications with each CMS.
- F2C-ATMS-F9 The ATMS System shall support an 8KHz phone line for each HAR location to the Telephone Company (Telco) or to the Agency LCCS in case of Center-owned Cable plant.
- F2C-ATMS-F10 The ATMS System shall be able to use POTS to communicate with HAT's in the field.
- F2C-ATMS-F11 The ATMS System shall support a 9600bps to 19.2Kbps data rate to communicate with Traveler Information Kiosks in the field.
- F2C-ATMS-F12 The ATMS System shall support any future ITS devices with a minimum of 56Kbps communication circuit.
- F2C-ATMS-F13 The ATMS System shall use existing communication links wherever feasible.

## 5.2 CENTER-TO-CENTER COMMUNICATION (C2C)

This section will provide the requirements for C2C communication. C2C communications is an integral component of the SGVTF Project. It will allow the Local Agencies to communicate, coordinate, and exchange data via the Countywide IEN with each other through the SGVTF IEN Corridor Server located at the SGVTF Sub-Regional TMC (co-located at the LA County TMC). Similarly, C2C communications will support the connection between a Local Agency ATMS W/S and the “host” Agency central TCS Server.

At this time, all of the SGVTF's Level 1 and 2A Agencies desire to have the County TCS “host” their traffic signals from the County's central TCS Server located at the SGVTF Sub-Regional TMC. For Level 2B and 3 Agencies, their central TCS Server will be connected to the SGVTF IEN Corridor Server through their local command/data interface (CDI). The details of the

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<sup>1</sup> The communications bandwidth/capacity required to support the distribution of video images is the same for all ATMSs, regardless if the ATMS is composed of a Traffic Control System (TCS) "bundled/integrated" w/ a Video Control System (VCS) or if the VCS is deployed in a stand-alone capacity



communication methodology between the Agencies and the SGVTF Sub-Regional TMC will be discussed in the Communications Alternatives Analysis (Deliverable 2.5.2.1).

Local Agencies have several applications for interagency coordination, including coordination of traffic signals across jurisdictions, providing real-time information to share with travelers, or posting messages on the Changeable Message Signs (CMS). Exhibit 5.2 summarizes the SGVTF’s C2C communication data rate requirements that will support the IEN W/S to SGVTF IEN Corridor Server and the ATMS W/S to the “host” Agency TCS Server. The C2C User and Functional Requirements will follow in tabular format after Exhibit 5.2.

**Exhibit 5.2 - SGVTF Center-to-Center Communication Requirements**

| <b>Agency Names</b> | <b>Maximum Controller Load (Kbps)</b> | <b>Data Rate Required (20% Data Overhead) (Kbps)</b> | <b>Recommended Data Rate (Kbps)</b> |
|---------------------|---------------------------------------|--|-------------------------------------|
| Alhambra            | 119                                   | 143  | 128                                 |
| Arcadia             | 1,394                                 | 1,673  | 1,544                               |
| Azusa               | 574                                   | 689  | 768                                 |
| Baldwin Park        | 717                                   | 860  | 1,544                               |
| Covina              | 699                                   | 839  | 1,544                               |
| Duarte              | 401                                   | 481  | 512                                 |
| El Monte            | 84                                    | 101  | 128                                 |
| Glendora            | 309                                   | 371  | 512                                 |
| Irwindale           | 1,212                                 | 1,454  | 1,544                               |
| La Puente           | 13                                    | 16   | 64                                  |
| Monrovia            | 445                                   | 534  | 768                                 |
| Montebello          | 113                                   | 135  | 256                                 |
| Monterey Park       | 78                                    | 94   | 128                                 |
| Pasadena            | 2,780                                 | 3,336  | 1,544                               |
| Rosemead            | 62                                    | 75   | 128                                 |
| San Dimas           | 936                                   | 1,123  | 1,544                               |
| San Gabriel         | 681                                   | 817  | 1,544                               |
| San Marino          | 278                                   | 333  | 384                                 |
| South El Monte      | 282                                   | 339  | 384                                 |
| South Pasadena      | 171                                   | 205  | 256                                 |
| Temple City         | 674                                   | 808  | 1,544                               |
| West Covina         | 134                                   | 161  | 256                                 |

### 5.2.1 Communications

#### Functional Requirements

C2C-COMM-F1 The County shall maintain the communication links between the Agency’s IEN workstation and the SGVTF IEN Corridor Server (located at the Sub-Regional TMC).

### 5.2.2 ATMS

#### Functional Requirements

C2C-ATMS-F1 The ATMS System shall support once-per-second communications between the TCS Servers, traffic signal controllers, and all other ITS field devices.

C2C-ATMS-F2 The ATMS System shall have 2-way communications with all the Agencies within the SGVTF.

C2C-ATMS-F3 The ATMS System shall be designed with 20% greater capacity than required in order to support future ITS field devices.

C2C-ATMS-F4 The ATMS System shall support data rates ranging from 64Kbps to 1.54Mbps for C2C communication link.

C2C-ATMS-F5 The ATMS System shall be available on 24-hours-a-day, 7-days-a-week basis (excluding an acceptable time for system maintenance, back-up etc).

C2C-ATMS-F6 The ATMS System shall demonstrate the ability to support the relevant NTCIP protocol for C2C communications.

C2C-ATMS-F7 The ATMS System shall use existing communication infrastructure wherever feasible.

### 5.2.3 IEN

#### Functional Requirements

C2C-IEN-F1 The Countywide IEN shall be able to support the communication necessary to monitor Corridor-wide traffic conditions.

C2C-IEN-F2 The Countywide IEN shall be able to support the communication necessary to reference other Agency’s traffic timing plans.

C2C-IEN-F3 Local Agencies shall be able to support the communication necessary to monitor all traffic signal controllers within their jurisdictions through the Countywide IEN.

C2C-IEN-F4 Local Agencies shall be able to support the communication necessary to redirect control of their ITS field devices (once the signed MOUs are executed) to other Agencies via the Countywide IEN.

C2C-IEN-F5 The Countywide IEN shall support a committed data rate of 384Kbps or greater connection between the Local Agency’s IEN workstation and the SGVTF IEN Corridor Server.

## APPENDIX A - ACRONYMS AND ABBREVIATIONS

|         |   |
|---------|---|
| ACE     | Alameda Corridor East                         |
| ATMS    | Advanced Transportation Management System     |
| C2C     | Center-to-Center                              |
| CCTV    | Closed Circuit Television                     |
| CDI     | Command/Data Interface                        |
| CMS     | Changeable Message Sign                       |
| DPW     | Department of Public Works                    |
| F2C     | Field-to-Center                               |
| GUI     | Graphics User Interface                       |
| HAR     | Highway Advisory Radio                        |
| HAT     | Highway Advisory Telephone                    |
| IEN     | Information Exchange Network                  |
| ITS     | Intelligent Transportation System(s)          |
| LA      | Los Angeles                                   |
| LACODPW | Los Angeles County Department of Public Works |
| LCCS    | Local City Control Site                       |
| MOU     | Memorandum-of-Understanding                   |
| O&M     | Operations and Maintenance                    |
| SGVTF   | San Gabriel Valley Traffic Forum              |
| TCS     | Traffic Control System                        |
| TMC     | Transportation Management Center              |
| TSM     | Traffic System Management                     |
| W/S     | Workstation                                   |

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**APPENDIX B - SGVTF IEN COMMUNICATIONS REQUIREMENTS INTERVIEW  
SUMMARY**

## SGVTF IEN Communication Requirements Interview Summary

|                        |  |                    |         |  |                             |
|------------------------|--|--------------------|---------|--|-----------------------------|
| Agency Name            | City of Duarte   | Level of Operation | Level 1 | Interview Participants   |                             |
| Interview Date         | 12/07/04   |                    |         | Brian Jakubczak - TransCore<br>Chuck Dankocsik - TransCore<br>George Hattrup - MMA | Steve Esbenshade- PW Coord. |
| Proposed IEN Equipment | <input checked="" type="checkbox"/> IEN W/S & Site Server <input type="checkbox"/> IEN/ATMS CDI Server<br><input type="checkbox"/> ATMS W/S <input type="checkbox"/> ATMS Central Server |                    |         |  |                             |
| IEN Equip. Location    | Steve Esbenshade's Office  |                    |         |  |                             |

Require Additional IEN W/S in Alternate Location     Yes     No    Location Description

UPS Availability     Desktop UPS     Building Generator     Building UPS     None

Existing Dedicated Cat 5 Cable from Telephone Room to IEN W/S Location     Yes     No     Unsure \*    Cable Length < 328 ft.     Yes     No

Able to install New Dedicated Cat 5 Cable from Telephone Room to IEN W/S Location     Yes     No    Cable Length < 328 ft.     Yes     No

Agency Owned Cable Infrastructure     None     Fiber     Copper Cable

Existing Communication System(s)     None     Telco     Cable Provider     Other    The City is currently updating the traffic signal controller clocks with WWV.

Planned Utilization of IEN:

|   |   |   |       |                 |   |     |   |      |   |     |   |      |   |       |
|---|---|---|-------|-----------------|---|-----|---|------|---|-----|---|------|---|-------|
| <b>Local</b>  | <b>Inter-Agency</b>   | <b>Traffic Management Device Quantities</b>   |       |                 |   |     |   |      |   |     |   |      |   |       |
| <input checked="" type="checkbox"/> Monitor Signal Operation<br><input type="checkbox"/> Adjust Signal Operation<br><input type="checkbox"/> Low Res Full Motion Video<br><input type="checkbox"/> High Res Video Still Images<br><input type="checkbox"/> Low Res Video Still Images | <input checked="" type="checkbox"/> Monitor Signal Operation<br><input type="checkbox"/> Adjust Signal Operation<br><input checked="" type="checkbox"/> Low Res Full Motion Video<br><input type="checkbox"/> High Res Video Still Images<br><input checked="" type="checkbox"/> Low Res Video Still Images | <table border="0" style="width: 100%;"> <tr> <td style="border: 1px solid black; width: 30px; text-align: center;">5</td> <td style="padding: 0 10px;">Traffic Signals</td> <td style="border: 1px solid black; width: 30px; text-align: center;">0</td> <td style="padding: 0 10px;">CMS</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">0</td> <td>CCTV</td> <td style="border: 1px solid black; text-align: center;">0</td> <td>VID</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">0</td> <td>ATMS</td> <td style="border: 1px solid black; text-align: center;">0</td> <td>Other</td> </tr> </table> | 5     | Traffic Signals | 0 | CMS | 0 | CCTV | 0 | VID | 0 | ATMS | 0 | Other |
| 5   | Traffic Signals   | 0   | CMS   |                 |   |     |   |      |   |     |   |      |   |       |
| 0   | CCTV  | 0   | VID   |                 |   |     |   |      |   |     |   |      |   |       |
| 0   | ATMS  | 0   | Other |                 |   |     |   |      |   |     |   |      |   |       |

**Additional Notes Communication Items**

1. Don't have any CCTV and don't plan to install any in the near future.
2. Do not need to receive any VID images from other Agencies.

**Additional Notes Operational Items**

1. Need additional UPS.

**\* The City is not sure if there is an existing dedicated CAT5 cable from the Telephone room to the IEN W/S location, however they do know the distance between the two (2) rooms/locations.**



## SGVTF IEN Communication Requirements Interview Summary

|   |   |   |                                       |                        |  |   |  |   |                                       |
|---|---|---|---------------------------------------|------------------------|--|---|--|---|---------------------------------------|
| Agency Name <input style="width: 250px;" type="text" value="City of La Puente"/><br>Interview Date <input style="width: 120px;" type="text" value="12/03/04"/><br>Proposed IEN Equipment <input checked="" type="checkbox"/> IEN W/S & Site Server <input type="checkbox"/> IEN/ATMS CDI Server<br><input type="checkbox"/> ATMS W/S <input type="checkbox"/> ATMS Central Server<br>IEN Equip. Location <input style="width: 350px;" type="text" value="Public Works and City Engineering share work area"/><br>Require Additional IEN W/S in Alternate Location <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No      Location Description <input style="width: 300px;" type="text"/><br>UPS Availability <input type="checkbox"/> Desktop UPS <input checked="" type="checkbox"/> Building Generator <input type="checkbox"/> Building UPS <input type="checkbox"/> None<br>Existing Dedicated Cat 5 Cable from Telephone Room to IEN W/S Location <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unsure *      Cable Length < 328 ft. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>Able to install New Dedicated Cat 5 Cable from Telephone Room to IEN W/S Location <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No      Cable Length < 328 ft. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>Agency Owned Cable Infrastructure <input checked="" type="checkbox"/> None <input type="checkbox"/> Fiber <input type="checkbox"/> Copper Cable<br>Existing Communication System(s) <input type="checkbox"/> None <input type="checkbox"/> Telco <input type="checkbox"/> Cable Provider <input checked="" type="checkbox"/> Other <input style="width: 300px;" type="text" value="The City is currently updating the traffic signal controller clocks with WWV."/><br>Planned Utilization of IEN: | <table border="0" style="width: 100%;"> <tr> <td colspan="2" style="text-align: center;">Level of Operation</td> <td colspan="2" style="text-align: center;">Interview Participants</td> </tr> <tr> <td colspan="2" style="text-align: center;"><input style="width: 80px;" type="text" value="Level 1"/></td> <td style="width: 50%; vertical-align: top;">           Brian Jakubczak - TransCore<br/>           Chuck Dankocsik - TransCore<br/>           George Hatstrup - MMA         </td> <td style="width: 50%; vertical-align: top;">           Guillermo Arreola - City of La Puente         </td> </tr> </table> | Level of Operation  |                                       | Interview Participants |  | <input style="width: 80px;" type="text" value="Level 1"/> |  | Brian Jakubczak - TransCore<br>Chuck Dankocsik - TransCore<br>George Hatstrup - MMA | Guillermo Arreola - City of La Puente |
| Level of Operation  |   | Interview Participants  |                                       |                        |  |   |  |   |                                       |
| <input style="width: 80px;" type="text" value="Level 1"/>   |   | Brian Jakubczak - TransCore<br>Chuck Dankocsik - TransCore<br>George Hatstrup - MMA | Guillermo Arreola - City of La Puente |                        |  |   |  |   |                                       |

|   |  |   |  |                 |   |     |   |      |   |     |   |      |   |       |
|---|--|---|--|-----------------|---|-----|---|------|---|-----|---|------|---|-------|
| <b>Local</b><br><input checked="" type="checkbox"/> Monitor Signal Operation<br><input type="checkbox"/> Adjust Signal Operation<br><input type="checkbox"/> Low Res Full Motion Video<br><input type="checkbox"/> High Res Video Still Images<br><input type="checkbox"/> Low Res Video Still Images | <b>Inter-Agency</b><br><input checked="" type="checkbox"/> Monitor Signal Operation<br><input type="checkbox"/> Adjust Signal Operation<br><input checked="" type="checkbox"/> Low Res Full Motion Video<br><input type="checkbox"/> High Res Video Still Images<br><input checked="" type="checkbox"/> Low Res Video Still Images | <b>Traffic Management Device Quantities</b><br><table border="0" style="width: 100%;"> <tr> <td style="text-align: center;"><input style="width: 30px;" type="text" value="11"/></td> <td>Traffic Signals</td> <td style="text-align: center;"><input style="width: 30px;" type="text" value="0"/></td> <td>CMS</td> </tr> <tr> <td style="text-align: center;"><input style="width: 30px;" type="text" value="0"/></td> <td>CCTV</td> <td style="text-align: center;"><input style="width: 30px;" type="text" value="0"/></td> <td>VID</td> </tr> <tr> <td style="text-align: center;"><input style="width: 30px;" type="text" value="0"/></td> <td>ATMS</td> <td style="text-align: center;"><input style="width: 30px;" type="text" value="0"/></td> <td>Other</td> </tr> </table> | <input style="width: 30px;" type="text" value="11"/> | Traffic Signals | <input style="width: 30px;" type="text" value="0"/> | CMS | <input style="width: 30px;" type="text" value="0"/> | CCTV | <input style="width: 30px;" type="text" value="0"/> | VID | <input style="width: 30px;" type="text" value="0"/> | ATMS | <input style="width: 30px;" type="text" value="0"/> | Other |
| <input style="width: 30px;" type="text" value="11"/>  | Traffic Signals  | <input style="width: 30px;" type="text" value="0"/>   | CMS  |                 |   |     |   |      |   |     |   |      |   |       |
| <input style="width: 30px;" type="text" value="0"/>   | CCTV   | <input style="width: 30px;" type="text" value="0"/>   | VID  |                 |   |     |   |      |   |     |   |      |   |       |
| <input style="width: 30px;" type="text" value="0"/>   | ATMS   | <input style="width: 30px;" type="text" value="0"/>   | Other  |                 |   |     |   |      |   |     |   |      |   |       |

**Additional Notes Communication Items**

1. Don't have any video presently and don't plan on installing any in the near future.
2. Video from surrounding Agencies may be useful to them from time to time.

**Additional Notes Operational Items**

1. LA County maintains and operates their signals.
2. The City does not alter signal timings at all.

**\* The City is not sure if there is an existing dedicated CAT5 cable from the Telephone room to the IEN W/S location, however they do know the distance between the two (2) rooms/locations.**

## SGVTF IEN Communication Requirements Interview Summary

|                        |  |                    |         |  |  |
|------------------------|--|--------------------|---------|--|--|
| Agency Name            | City of San Marino   | Level of Operation | Level 1 | Interview Participants   |  |
| Interview Date         | 12/01/04   |                    |         | Brian Jakubczak - TransCore<br>Jack Schneider - TransCore<br>Moojan Khazra - MMA | John Alderson - City of San Marino<br>Arl Ferris (Chief of Police) - City of San Marino<br>Steve Lewis (IT Consultant) - SLK NET<br>Erik Zandvliet (TE Consultant) - Wildan<br>Fernando Villaluna - LACDPW |
| Proposed IEN Equipment | <input checked="" type="checkbox"/> IEN W/S & Site Server <input type="checkbox"/> IEN/ATMS CDI Server<br><input type="checkbox"/> ATMS W/S <input type="checkbox"/> ATMS Central Server |                    |         |  |  |
| IEN Equip. Location    | Police Dispatch Center   |                    |         |  |  |

|  |   |  |                                       |  |
|--|---|--|---------------------------------------|--|
| Require Additional IEN W/S in Alternate Location | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No                            | Location Description                  | Public Works Building is approximately 200 ft. from the Police Department. |
| UPS Availability                                 | <input type="checkbox"/> Desktop UPS    | <input checked="" type="checkbox"/> Building Generator | <input type="checkbox"/> Building UPS | <input type="checkbox"/> None  |

|   |                              |                             |  |                        |   |                             |
|---|------------------------------|-----------------------------|--|------------------------|---|-----------------------------|
| Existing Dedicated Cat5 Cable from Telephone Room to IEN W/S Location | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> Unsure * | Cable Length < 328 ft. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
|---|------------------------------|-----------------------------|--|------------------------|---|-----------------------------|

|   |   |                             |                        |   |                             |
|---|---|-----------------------------|------------------------|---|-----------------------------|
| Able to install New Dedicated Cat 5 Cable from Telephone Room to IEN W/S Location | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Cable Length < 328 ft. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
|---|---|-----------------------------|------------------------|---|-----------------------------|

Agency Owned Cable Infrastructure     None     Fiber     Copper Cable

Existing Communication System(s)     None     Telco     Cable Provider     Other

The City is currently updating the traffic signal controller clocks with WWV.

Planned Utilization of IEN:

**Local**

Monitor Signal Operation

Adjust Signal Operation

Low Res Full Motion Video

High Res Video Still Images

Low Res Video Still Images

**Inter-Agency**

Monitor Signal Operation

Adjust Signal Operation

Low Res Full Motion Video

High Res Video Still Images

Low Res Video Still Images

Traffic Management Device Quantities

|   |                                      |
|---|--------------------------------------|
| <input type="text" value="18"/> Traffic Signals | <input type="text" value="3"/> CMS   |
| <input type="text" value="0"/> CCTV             | <input type="text" value=""/> VID    |
| <input type="text" value="0"/> ATMS             | <input type="text" value="0"/> Other |

**Additional Notes Communication Items**

1. CCTV cameras and CMS are future.
2. They have VIDs but are unsure of the quantity.
3. The Demarc point will be in the PD basement and the cables for the IEN will be run from there (Need to clear with Chief of Police).
4. There is sufficient space in the basement equipment rack to mount the IEN W/S & Site Server (Need to clear with Chief of Police).
5. They expressed a desire to have a split screen display for video and no more than one (1) monitor in the PD Dispatch room due to space constraints.

**Additional Notes Operational Items**

1. Currently don't monitor or control their signals.
2. Main interest is to monitor signal operations and be able to access historical data pertaining to signal status and traffic conditions.
3. Traffic Engineering functions are currently performed by an on-call consultant.

\* The City is not sure if there is an existing dedicated CAT5 cable from the Telephone room to the IEN W/S location, however they do know the distance between the two (2) rooms/locations.

## SGVTF IEN Communication Requirements Interview Summary

|                        |  |  |         |                        |
|------------------------|--|--|---------|------------------------|
| Agency Name            | City of South El Monte   | Level of Operation   | Level 1 | Interview Participants |
| Interview Date         | 12/03/04   | Brian Jakubczak - TransCore<br>Chuck Dankocsik - TransCore<br>George Hatstrup - MMA<br>George Envall, TE |         |                        |
| Proposed IEN Equipment | <input checked="" type="checkbox"/> IEN W/S & Site Server <input type="checkbox"/> IEN/ATMS CDI Server<br><input type="checkbox"/> ATMS W/S <input type="checkbox"/> ATMS Central Server |  |         |                        |
| IEN Equip. Location    | Communications Room (Downstairs)   |  |         |                        |

Require Additional IEN W/S in Alternate Location     Yes     No    Location Description

UPS Availability     Desktop UPS     Building Generator     Building UPS     None

Existing Dedicated Cat5 Cable from Telephone Room to IEN W/S Location     Yes     No     Unsure \*    Cable Length < 328 ft.     Yes     No

Able to install New Dedicated Cat 5 Cable from Telephone Room to IEN W/S Location     Yes     No    Cable Length < 328 ft.     Yes     No

Agency Owned Cable Infrastructure     None     Fiber     Copper Cable

Existing Communication System(s)     None     Telco     Cable Provider     Other

The City is currently updating the traffic signal controller clocks with WWV.

Planned Utilization of IEN:

|   |  |  |       |                 |   |     |   |      |   |     |   |      |   |       |
|---|--|--|-------|-----------------|---|-----|---|------|---|-----|---|------|---|-------|
| <b>Local</b>  | <b>Inter-Agency</b>  | <b>Traffic Management Device Quantities</b>  |       |                 |   |     |   |      |   |     |   |      |   |       |
| <input checked="" type="checkbox"/> Monitor Signal Operation<br><input type="checkbox"/> Adjust Signal Operation<br><input type="checkbox"/> Low Res Full Motion Video<br><input type="checkbox"/> High Res Video Still Images<br><input type="checkbox"/> Low Res Video Still Images | <input type="checkbox"/> Monitor Signal Operation<br><input type="checkbox"/> Adjust Signal Operation<br><input type="checkbox"/> Low Res Full Motion Video<br><input type="checkbox"/> High Res Video Still Images<br><input type="checkbox"/> Low Res Video Still Images | <table border="0" style="width: 100%;"> <tr> <td style="border: 1px solid black; width: 40px; text-align: center;">22</td> <td style="padding: 0 10px;">Traffic Signals</td> <td style="border: 1px solid black; width: 40px; text-align: center;">0</td> <td style="padding: 0 10px;">CMS</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">0</td> <td style="padding: 0 10px;">CCTV</td> <td style="border: 1px solid black; text-align: center;">0</td> <td style="padding: 0 10px;">VID</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">0</td> <td style="padding: 0 10px;">ATMS</td> <td style="border: 1px solid black; text-align: center;">0</td> <td style="padding: 0 10px;">Other</td> </tr> </table> | 22    | Traffic Signals | 0 | CMS | 0 | CCTV | 0 | VID | 0 | ATMS | 0 | Other |
| 22  | Traffic Signals  | 0  | CMS   |                 |   |     |   |      |   |     |   |      |   |       |
| 0   | CCTV   | 0  | VID   |                 |   |     |   |      |   |     |   |      |   |       |
| 0   | ATMS   | 0  | Other |                 |   |     |   |      |   |     |   |      |   |       |

**Additional Notes Communication Items**

**Additional Notes Operational Items**

1. South El Monte would like Rosemead and/or the County to "host" their TCS and operations.

\* The City is not sure if there is an existing dedicated CAT5 cable from the Telephone room to the IEN W/S location, however they do know the distance between the two (2) rooms/locations.

## SGVTF IEN Communication Requirements Interview Summary

|                        |  |                    |         |  |   |
|------------------------|--|--------------------|---------|--|---|
| Agency Name            | City of South Pasadena   | Level of Operation | Level 1 | Interview Participants   |   |
| Interview Date         | 12/01/04   |                    |         | Brian Jakubczak - TransCore<br>Jack Schneider - TransCore<br>Moojan Khazra - MMA | Ed Hiti - City of S. Pasadena<br>Steve Moronez - City of S. Pasadena<br>Fernando Villaluna - LACDPW |
| Proposed IEN Equipment | <input checked="" type="checkbox"/> IEN W/S & Site Server <input type="checkbox"/> IEN/ATMS CDI Server<br><input type="checkbox"/> ATMS W/S <input type="checkbox"/> ATMS Central Server |                    |         |  |   |
| IEN Equip. Location    | Ed Hiti's 2nd Floor Office   |                    |         |  |   |

|  |   |                      |                       |
|--|---|----------------------|-----------------------|
| Require Additional IEN W/S in Alternate Location | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No   | Location Description | City Maintenance Yard |
| UPS Availability                                 | <input type="checkbox"/> Desktop UPS <input type="checkbox"/> Building Generator <input type="checkbox"/> Building UPS <input checked="" type="checkbox"/> None |                      |                       |

|   |   |                        |   |
|---|---|------------------------|---|
| Existing Dedicated Cat5 Cable from Telephone Room to IEN W/S Location             | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure * | Cable Length < 328 ft. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Able to install New Dedicated Cat 5 Cable from Telephone Room to IEN W/S Location | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                   | Cable Length < 328 ft. | <input type="checkbox"/> Yes <input type="checkbox"/> No            |

|  |  |
|--|--|
| Agency Owned Cable Infrastructure  | <input checked="" type="checkbox"/> None <input type="checkbox"/> Fiber <input type="checkbox"/> Copper Cable                                  |
| Existing Communication System(s)   | <input type="checkbox"/> None <input type="checkbox"/> Telco <input type="checkbox"/> Cable Provider <input checked="" type="checkbox"/> Other |
| The City is currently updating the traffic signal controller clocks with WWV. Interconnect Project (Spring 2005) |  |

Planned Utilization of IEN:

|  |   |  |       |                 |   |     |   |      |   |     |   |      |   |       |
|--|---|--|-------|-----------------|---|-----|---|------|---|-----|---|------|---|-------|
| <b>Local</b>   | <b>Inter-Agency</b>   | <b>Traffic Management Device Quantities</b>  |       |                 |   |     |   |      |   |     |   |      |   |       |
| <input checked="" type="checkbox"/> Monitor Signal Operation<br><input type="checkbox"/> Adjust Signal Operation<br><input checked="" type="checkbox"/> Low Res Full Motion Video<br><input type="checkbox"/> High Res Video Still Images<br><input type="checkbox"/> Low Res Video Still Images | <input checked="" type="checkbox"/> Monitor Signal Operation<br><input type="checkbox"/> Adjust Signal Operation<br><input type="checkbox"/> Low Res Full Motion Video<br><input type="checkbox"/> High Res Video Still Images<br><input type="checkbox"/> Low Res Video Still Images | <table border="0" style="width: 100%;"> <tr> <td style="border: 1px solid black; width: 40px; text-align: center;">36</td> <td style="padding: 0 10px;">Traffic Signals</td> <td style="border: 1px solid black; width: 40px; text-align: center;">0</td> <td style="padding: 0 10px;">CMS</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">1</td> <td>CCTV</td> <td style="border: 1px solid black; text-align: center;">0</td> <td>VID</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">0</td> <td>ATMS</td> <td style="border: 1px solid black; text-align: center;">0</td> <td>Other</td> </tr> </table> | 36    | Traffic Signals | 0 | CMS | 1 | CCTV | 0 | VID | 0 | ATMS | 0 | Other |
| 36   | Traffic Signals   | 0  | CMS   |                 |   |     |   |      |   |     |   |      |   |       |
| 1  | CCTV  | 0  | VID   |                 |   |     |   |      |   |     |   |      |   |       |
| 0  | ATMS  | 0  | Other |                 |   |     |   |      |   |     |   |      |   |       |

**Additional Notes Communication Items**

1. CCTV camera is future.
2. Will need an additional point-to-point connection between the City Maintenance Yard and City Hall for the second IEN W/S
3. Interconnect project (Spring 2005) is on Fair Oaks from Columbia to Alhambra.

**Additional Notes Operational Items**

1. Currently don't operate or maintain their signals.
2. Maintenance is contracted out and Traffic Engineering tasks are performed by an on-call consultant.

**\* The City is not sure if there is an existing dedicated CAT5 cable from the Telephone room to the IEN W/S location, however they do know the distance between the two (2) rooms/locations.**

## SGVTF IEN Communication Requirements Interview Summary

|   |  |                    |  |   |  |
|---|--|--------------------|--|---|--|
| Agency Name   | City of Temple City  | Level of Operation | Level 1  | Interview Participants  |  |
| Interview Date  | 12/07/04   |                    |  | Brian Jakubczak - TransCore<br>Jack Schneider - TransCore<br>George Hatstrup - Iteris | Janice Stroud - Temple City<br>Chuck Erickson - Temple City<br>Inez Yeung - LACDPW |
| Proposed IEN Equipment  | <input checked="" type="checkbox"/> IEN W/S & Site Server <input type="checkbox"/> IEN/ATMS CDI Server<br><input type="checkbox"/> ATMS W/S <input type="checkbox"/> ATMS Central Server |                    |  |   |  |
| IEN Equip. Location   | Either in or near Engineer's office (City Hall Annex)  |                    |  |   |  |
| Require Additional IEN W/S in Alternate Location                                  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  |                    | Location Description   |   |  |
| UPS Availability  | <input type="checkbox"/> Desktop UPS <input checked="" type="checkbox"/> Building Generator <input type="checkbox"/> Building UPS <input type="checkbox"/> None                          |                    |  |   |  |
| Existing Dedicated Cat5 Cable from Telephone Room to IEN W/S Location             | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unsure *  |                    | Cable Length < 328 ft. <input type="checkbox"/> Yes <input type="checkbox"/> No            |   |  |
| Able to install New Dedicated Cat 5 Cable from Telephone Room to IEN W/S Location | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  |                    | Cable Length < 328 ft. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |   |  |
| Agency Owned Cable Infrastructure   | <input checked="" type="checkbox"/> None <input type="checkbox"/> Fiber <input type="checkbox"/> Copper Cable  |                    |  |   |  |
| Existing Communication System(s)  | <input checked="" type="checkbox"/> None <input type="checkbox"/> Telco <input type="checkbox"/> Cable Provider <input type="checkbox"/> Other   |                    |  |   |  |
| Planned Utilization of IEN:   |  |                    |  |   |  |

**Local**

Monitor Signal Operation  
 Adjust Signal Operation  
 Low Res Full Motion Video  
 High Res Video Still Images  
 Low Res Video Still Images

**Inter-Agency**

Monitor Signal Operation  
 Adjust Signal Operation  
 Low Res Full Motion Video  
 High Res Video Still Images  
 Low Res Video Still Images

**Traffic Management Device Quantities**

|    |                 |   |       |
|----|-----------------|---|-------|
| 23 | Traffic Signals | 0 | CMS   |
| 0  | CCTV            | 0 | VID   |
| 0  | ATMS            |   | Other |

**Additional Notes Communication Items**

1. No spare ethernet connections at either potential IEN W/S location; unknown if any cable conduit space.
2. Telecom hub in basement below potential IEN W/S sites.
3. Fiber between the Annex and main City Hall building.
4. SBC has an area comm hub directly adjacent to the Annex building.
5. Project to move utilities underground on Encinitias (between Las Tunas and Eaton Wash) to begin 1/05.

**Additional Notes Operational Items**

1. No real desire for CCTV.
2. Prefers LACO to operate signals.

**\* The City is not sure if there is an existing dedicated CAT5 cable from the Telephone room to the IEN W/S location, however they do know the distance between the two (2) rooms/locations.**

## SGVTF IEN Communication Requirements Interview Summary

|   |   |                             |   |  |                                 |
|---|---|-----------------------------|---|--|---------------------------------|
| Agency Name   | City of Azusa   | Level of Operation          | Level 2A                                  | Interview Participants   |                                 |
| Interview Date  | 12/02/04  |                             |   | Brian Jakubczak - TransCore<br>Chuck Dankocsik - TransCore<br>George Hatstrup - MMA  | Richard Cabildo - City of Azusa |
| Proposed IEN Equipment  | <input checked="" type="checkbox"/> IEN W/S & Site Server <input type="checkbox"/> IEN/ATMS CDI Server<br><input checked="" type="checkbox"/> ATMS W/S <input type="checkbox"/> ATMS Central Server |                             |   |  |                                 |
| IEN Equip. Location   | Employee office (Lance)   |                             |   |  |                                 |
| Require Additional IEN W/S in Alternate Location                                  | <input checked="" type="checkbox"/> Yes   | <input type="checkbox"/> No | Location Description                      | Police Department  |                                 |
| UPS Availability  | <input type="checkbox"/> Desktop UPS <input type="checkbox"/> Building Generator <input type="checkbox"/> Building UPS <input checked="" type="checkbox"/> None                                     |                             |   |  |                                 |
| Existing Dedicated Cat5 Cable from Telephone Room to IEN W/S Location             | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unsure *   |                             | Cable Length < 328 ft.                    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  |                                 |
| Able to install New Dedicated Cat 5 Cable from Telephone Room to IEN W/S Location | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No   |                             | Cable Length < 328 ft.                    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  |                                 |
| Agency Owned Cable Infrastructure   | <input type="checkbox"/> None <input checked="" type="checkbox"/> Fiber <input type="checkbox"/> Copper Cable   |                             |   |  |                                 |
| Existing Communication System(s)  | <input type="checkbox"/> None <input type="checkbox"/> Telco <input type="checkbox"/> Cable Provider  |                             | <input checked="" type="checkbox"/> Other | Fiber Interconnect between City buildings for their WAN/LAN. The City is currently updating the traffic signal controller clocks with WWV. |                                 |
| Planned Utilization of IEN:   |   |                             |   |  |                                 |

**Local**

Monitor Signal Operation  
 Adjust Signal Operation  
 Low Res Full Motion Video  
 High Res Video Still Images  
 Low Res Video Still Images

**Inter-Agency**

Monitor Signal Operation  
 Adjust Signal Operation  
 Low Res Full Motion Video  
 High Res Video Still Images  
 Low Res Video Still Images

**Traffic Management Device Quantities**

|    |                 |   |       |
|----|-----------------|---|-------|
| 52 | Traffic Signals | 0 | CMS   |
| 4  | CCTV            | 2 | VID   |
| 1  | ATMS            | 0 | Other |

**Additional Notes Communication Items**

1. ATMS is planned to be installed with this project.
2. CCTV is a future long term goal.
3. The video from the VIDs is not sent back to the City.
4. City will make two (2) SM fiber strands available for connecting the additional IEN W/S at the Police Department to the IEN Site Server in Lance's office.
5. New Cat 5 needs to be installed from the telephone room in City Hall to Lance's office. Their LAN uses fiber and remote hubs from the Telco Rm.
6. Requested to be scheduled for implementation last due to planned local construction activity.

**Additional Notes Operational Items**

1. Currently don't monitor or control their signals.
2. Would like LA County to "host" their TCS.
3. Would like local control capability on a periodic basis.

**\* The City is not sure if there is an existing dedicated CAT5 cable from the Telephone room to the IEN W/S location, however they do know the distance between the two (2) rooms/locations.**

## SGVTF IEN Communication Requirements Interview Summary

|                        |   |                    |          |  |  |
|------------------------|---|--------------------|----------|--|--|
| Agency Name            | City of Baldwin Park  | Level of Operation | Level 2A | Interview Participants   |  |
| Interview Date         | 12/14/04  |                    |          | Brian Jakubczak - TransCore<br>Jack Schneider - TransCore<br>Moojan Khazra - MMA | Arjan Idrnani, Eng. Manager<br>David Lopez, Assoc Eng. |
| Proposed IEN Equipment | <input checked="" type="checkbox"/> IEN W/S & Site Server <input type="checkbox"/> IEN/ATMS CDI Server<br><input checked="" type="checkbox"/> ATMS W/S <input type="checkbox"/> ATMS Central Server |                    |          |  |  |
| IEN Equip. Location    | David Lopez's Eng. Office (Secure room/locked at night)   |                    |          |  |  |

Require Additional IEN W/S in Alternate Location     Yes     No    Location Description

UPS Availability     Desktop UPS     Building Generator     Building UPS     None

Existing Dedicated Cat5 Cable from Telephone Room to IEN W/S Location     Yes     No     Unsure \*    Cable Length < 328 ft.     Yes     No

Able to install New Dedicated Cat 5 Cable from Telephone Room to IEN W/S Location     Yes     No    Cable Length < 328 ft.     Yes     No

Agency Owned Cable Infrastructure     None     Fiber     Copper Cable

Existing Communication System(s)     None     Telco     Cable Provider     Other

The City is currently updating the traffic signal controller clocks with WWV.

**Planned Utilization of IEN:**

|  |   |  |       |                 |   |     |   |      |   |     |   |      |   |       |
|--|---|--|-------|-----------------|---|-----|---|------|---|-----|---|------|---|-------|
| <b>Local</b>   | <b>Inter-Agency</b>   | <b>Traffic Management Device Quantities</b>  |       |                 |   |     |   |      |   |     |   |      |   |       |
| <input checked="" type="checkbox"/> Monitor Signal Operation<br><input checked="" type="checkbox"/> Adjust Signal Operation<br><input checked="" type="checkbox"/> Low Res Full Motion Video<br><input checked="" type="checkbox"/> High Res Video Still Images<br><input type="checkbox"/> Low Res Video Still Images | <input checked="" type="checkbox"/> Monitor Signal Operation<br><input type="checkbox"/> Adjust Signal Operation<br><input checked="" type="checkbox"/> Low Res Full Motion Video<br><input checked="" type="checkbox"/> High Res Video Still Images<br><input type="checkbox"/> Low Res Video Still Images | <table border="0" style="width: 100%;"> <tr> <td style="border: 1px solid black; width: 40px; text-align: center;">56</td> <td style="padding: 0 10px;">Traffic Signals</td> <td style="border: 1px solid black; width: 40px; text-align: center;">0</td> <td style="padding: 0 10px;">CMS</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">0</td> <td style="padding: 0 10px;">CCTV</td> <td style="border: 1px solid black; text-align: center;">0</td> <td style="padding: 0 10px;">VID</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">0</td> <td style="padding: 0 10px;">ATMS</td> <td style="border: 1px solid black; text-align: center;">0</td> <td style="padding: 0 10px;">Other</td> </tr> </table> | 56    | Traffic Signals | 0 | CMS | 0 | CCTV | 0 | VID | 0 | ATMS | 0 | Other |
| 56   | Traffic Signals   | 0  | CMS   |                 |   |     |   |      |   |     |   |      |   |       |
| 0  | CCTV  | 0  | VID   |                 |   |     |   |      |   |     |   |      |   |       |
| 0  | ATMS  | 0  | Other |                 |   |     |   |      |   |     |   |      |   |       |

**Additional Notes Communication Items**

1. Red light enforcement camera project is forthcoming.
2. Would like to receive video via IEN and /or ATMS W/S.
3. Would like to combine IEN and TCS over one (1) comm line.
4. Would like to coordinate red light enforcement project with CCTV System.
5. Would like to see video from other Agencies, two (2) camera simultaneously.
6. Currently has an IEN IDP W/S.

**Additional Notes Operational Items**

1. Would like the County to "host" TCS/ATMS.

**\* The City is not sure if there is an existing dedicated CAT5 cable from the Telephone room to the IEN W/S location, however they do know the distance between the two (2) rooms/locations.**



## SGVTF IEN Communication Requirements Interview Summary

Agency Name

Level of Operation

### Interview Participants

Brian Jakubczak - TransCore  
Jack Schneider - TransCore  
Moojan Khazra - MMA

Kev Tcharkhotian, CE  
Rudy Sousa

Interview Date

Proposed IEN Equipment  IEN W/S & Site Server  IEN/ATMS CDI Server  
 ATMS W/S  ATMS Central Server

IEN Equip. Location

Require Additional IEN W/S in Alternate Location  Yes  No Location Description

UPS Availability  Desktop UPS  Building Generator  Building UPS  None

Existing Dedicated Cat5 Cable from Telephone Room to IEN W/S Location  Yes  No  Unsure \* Cable Length < 328 ft.  Yes  No

Able to install New Dedicated Cat 5 Cable from Telephone Room to IEN W/S Location  Yes  No Cable Length < 328 ft.  Yes  No

Agency Owned Cable Infrastructure  None  Fiber  Copper Cable

Existing Communication System(s)  None  Telco  Cable Provider  Other

The City is currently updating the traffic signal controller clocks with WWV.

Planned Utilization of IEN:

#### Local

- Monitor Signal Operation
- Adjust Signal Operation
- Low Res Full Motion Video
- High Res Video Still Images
- Low Res Video Still Images

#### Inter-Agency

- Monitor Signal Operation
- Adjust Signal Operation
- Low Res Full Motion Video
- High Res Video Still Images
- Low Res Video Still Images

#### Traffic Management Device Quantities

|                                 |                 |                                |       |
|---------------------------------|-----------------|--------------------------------|-------|
| <input type="text" value="67"/> | Traffic Signals | <input type="text" value="0"/> | CMS   |
| <input type="text" value="2"/>  | CCTV            | <input type="text" value="0"/> | VID   |
| <input type="text" value="0"/>  | ATMS            | <input type="text" value="0"/> | Other |

#### Additional Notes Communication Items

1. City does not need to have video images at this time.

#### Additional Notes Operational Items

1. City would like any alarm triggers to be emailed to Kev Tcharkhotian and the Police Department.

**\* The City is not sure if there is an existing dedicated CAT5 cable from the Telephone room to the IEN W/S location, however they do know the distance between the two (2) rooms/locations.**



## SGVTF IEN Communication Requirements Interview Summary

|                        |   |                    |          |  |   |
|------------------------|---|--------------------|----------|--|---|
| Agency Name            | City of Glendora  | Level of Operation | Level 2A | Interview Participants   |   |
| Interview Date         | 12/09/2004  |                    |          | Brian Jakubczak - TransCore<br>Jack Schneider - TransCore<br>Moojan Khazra - MMA | Chad Veinot - Glendora<br>Mike Maston - Glendora<br>Matt Jester - Glendora<br>Inez Yeung - LACDPW |
| Proposed IEN Equipment | <input checked="" type="checkbox"/> IEN W/S & Site Server <input type="checkbox"/> IEN/ATMS CDI Server<br><input checked="" type="checkbox"/> ATMS W/S <input type="checkbox"/> ATMS Central Server |                    |          |  |   |
| IEN Equip. Location    | "Green Room" (telecom room in basement)   |                    |          |  |   |

Require Additional IEN W/S in Alternate Location     Yes     No    Location Description

UPS Availability     Desktop UPS     Building Generator     Building UPS     None

Existing Dedicated Cat5 Cable from Telephone Room to IEN W/S Location     Yes     No     Unsure \*    Cable Length < 328 ft.     Yes     No

Able to install New Dedicated Cat 5 Cable from Telephone Room to IEN W/S Location     Yes     No    Cable Length < 328 ft.     Yes     No

Agency Owned Cable Infrastructure     None     Fiber     Copper Cable

Existing Communication System(s)     None     Telco     Cable Provider     Other

Dial-up drops to many controllers and VID locations; all new installs get drops.

Planned Utilization of IEN:

|  |  |   |       |                 |  |     |  |      |  |     |  |      |  |       |
|--|--|---|-------|-----------------|--|-----|--|------|--|-----|--|------|--|-------|
| <b>Local</b>   | <b>Inter-Agency</b>  | <b>Traffic Management Device Quantities</b>   |       |                 |  |     |  |      |  |     |  |      |  |       |
| <input type="checkbox"/> Monitor Signal Operation<br><input type="checkbox"/> Adjust Signal Operation<br><input type="checkbox"/> Low Res Full Motion Video<br><input type="checkbox"/> High Res Video Still Images<br><input type="checkbox"/> Low Res Video Still Images | <input checked="" type="checkbox"/> Monitor Signal Operation<br><input type="checkbox"/> Adjust Signal Operation<br><input checked="" type="checkbox"/> Low Res Full Motion Video<br><input type="checkbox"/> High Res Video Still Images<br><input type="checkbox"/> Low Res Video Still Images | <table border="0" style="width: 100%;"> <tr> <td style="border: 1px solid black; width: 40px; text-align: center;">19</td> <td style="padding: 0 10px;">Traffic Signals</td> <td style="border: 1px solid black; width: 40px; text-align: center;"></td> <td style="padding: 0 10px;">CMS</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;"></td> <td>CCTV</td> <td style="border: 1px solid black; text-align: center;"></td> <td>VID</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;"></td> <td>ATMS</td> <td style="border: 1px solid black; text-align: center;"></td> <td>Other</td> </tr> </table> | 19    | Traffic Signals |  | CMS |  | CCTV |  | VID |  | ATMS |  | Other |
| 19   | Traffic Signals  |   | CMS   |                 |  |     |  |      |  |     |  |      |  |       |
|  | CCTV   |   | VID   |                 |  |     |  |      |  |     |  |      |  |       |
|  | ATMS   |   | Other |                 |  |     |  |      |  |     |  |      |  |       |

**Additional Notes Communication Items**

1. Currently has SGV EDP W/S (IEN WAN connection).  
 2. Would like comm to field equipment to go through City Hall in case City moves to Level 2B.  
 3. Plans for copper interconnect on Glendora Avenue (Rte 66 to Baseline).

**Additional Notes Operational Items**

1. Currently has dial-up access to various controllers via Aries and VIDs via AutoScope.  
 2. Unknow usage of CCTV as Level 2A Agency.  
 3. Until move to L2B, prefers LACO to "host" their TCS and manage signals.

**\* The City is not sure if there is an existing dedicated CAT5 cable from the Telephone room to the IEN W/S location, however they do know the distance between the two (2) rooms/locations.**

## SGVTF IEN Communication Requirements Interview Summary

|                        |   |                    |          |  |  |
|------------------------|---|--------------------|----------|--|--|
| Agency Name            | City of Monrovia  | Level of Operation | Level 2A | Interview Participants   |  |
| Interview Date         | 11/30/04  |                    |          | Brian Jakubczak - TransCore<br>Jack Schneider - TransCore<br>Moojan Khazra - MMA | Jed Rizk - City of Monrovia<br>Mitch Cochran - City of Monrovia<br>Fernando Villaluna - LACDPW |
| Proposed IEN Equipment | <input checked="" type="checkbox"/> IEN W/S & Site Server <input type="checkbox"/> IEN/ATMS CDI Server<br><input checked="" type="checkbox"/> ATMS W/S <input type="checkbox"/> ATMS Central Server |                    |          |  |  |
| IEN Equip. Location    | Empty cubicle in Engineering  |                    |          |  |  |

Require Additional IEN W/S in Alternate Location     Yes     No    Location Description

UPS Availability     Desktop UPS     Building Generator     Building UPS     None

Existing Dedicated Cat5 Cable from Telephone Room to IEN W/S Location     Yes     No     Unsure \*    Cable Length < 328 ft.     Yes     No

Able to install New Dedicated Cat 5 Cable from Telephone Room to IEN W/S Location     Yes     No    Cable Length < 328 ft.     Yes     No

Agency Owned Cable Infrastructure     None     Fiber     Copper Cable

Existing Communication System(s)     None     Telco     Cable Provider     Other

Adelphia provided fiber to all controllers in exchange for use of City ROW. The City is currently updating the traffic signal controller clocks with WWV.

Planned Utilization of IEN:

**Local**

Monitor Signal Operation

Adjust Signal Operation

Low Res Full Motion Video

High Res Video Still Images

Low Res Video Still Images

**Inter-Agency**

Monitor Signal Operation

Adjust Signal Operation

Low Res Full Motion Video

High Res Video Still Images

Low Res Video Still Images

Traffic Management Device Quantities

|    |                 |   |       |
|----|-----------------|---|-------|
| 37 | Traffic Signals | 3 | CMS   |
| 3  | CCTV            | 0 | VID   |
| 1  | ATMS            | 0 | Other |

**Additional Notes Communication Items**

1. All LAN, phone, and Internet is thru the Mitel 2000SX with SBC trunks providing PSTN access.
2. Primary requirement is controller data video would be welcomed, but not required.
3. Signals are coordinated using WWV for the Foothill, Huntington, and Myrtle corridors.
4. The 3 CCTV cameras and 3 Changeable Message Signs (CMSs) are future.
5. The ATMS is to be installed with this project.

**Additional Notes Operational Items**

1. Current operation and maintenance of their signals is through on-call contractors

**\* The City is not sure if there is an existing dedicated CAT5 cable from the Telephone room to the IEN W/S location, however they do know the distance between the two (2) rooms/locations.**

## SGVTF IEN Communication Requirements Interview Summary

|                        |   |                    |          |   |                                  |
|------------------------|---|--------------------|----------|---|----------------------------------|
| Agency Name            | City of Montebello  | Level of Operation | Level 2A | Interview Participants  |                                  |
| Interview Date         | 12/02/04  |                    |          | Brian Jakubczak - TransCore<br>Chuck Dankocsik - TransCore<br>George Hatstrup - MMA | Elvin Jiang - City of Montebello |
| Proposed IEN Equipment | <input checked="" type="checkbox"/> IEN W/S & Site Server <input type="checkbox"/> IEN/ATMS CDI Server<br><input checked="" type="checkbox"/> ATMS W/S <input type="checkbox"/> ATMS Central Server |                    |          |   |                                  |
| IEN Equip. Location    | Undetermined vacant cubicle in Engineering  |                    |          |   |                                  |

Require Additional IEN W/S in Alternate Location     Yes     No    Location Description

UPS Availability     Desktop UPS     Building Generator     Building UPS     None

Existing Dedicated Cat5 Cable from Telephone Room to IEN W/S Location     Yes     No     Unsure \*    Cable Length < 328 ft.     Yes     No

Able to install New Dedicated Cat 5 Cable from Telephone Room to IEN W/S Location     Yes     No    Cable Length < 328 ft.     Yes     No

Agency Owned Cable Infrastructure     None     Fiber     Copper Cable

Existing Communication System(s)     None     Telco     Cable Provider     Other

The City is currently updating the traffic signal controller clocks with WWV.

Planned Utilization of IEN:

|  |   |  |       |                 |   |     |  |      |   |     |   |      |   |       |
|--|---|--|-------|-----------------|---|-----|--|------|---|-----|---|------|---|-------|
| <b>Local</b>   | <b>Inter-Agency</b>   | <b>Traffic Management Device Quantities</b>  |       |                 |   |     |  |      |   |     |   |      |   |       |
| <input checked="" type="checkbox"/> Monitor Signal Operation<br><input checked="" type="checkbox"/> Adjust Signal Operation<br><input checked="" type="checkbox"/> Low Res Full Motion Video<br><input type="checkbox"/> High Res Video Still Images<br><input checked="" type="checkbox"/> Low Res Video Still Images | <input checked="" type="checkbox"/> Monitor Signal Operation<br><input type="checkbox"/> Adjust Signal Operation<br><input checked="" type="checkbox"/> Low Res Full Motion Video<br><input type="checkbox"/> High Res Video Still Images<br><input checked="" type="checkbox"/> Low Res Video Still Images | <table border="0" style="width: 100%;"> <tr> <td style="border: 1px solid black; width: 40px; text-align: center;">78</td> <td style="padding: 0 10px;">Traffic Signals</td> <td style="border: 1px solid black; width: 40px; text-align: center;">2</td> <td style="padding: 0 10px;">CMS</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;"> </td> <td style="padding: 0 10px;">CCTV</td> <td style="border: 1px solid black; text-align: center;">0</td> <td style="padding: 0 10px;">VID</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">1</td> <td style="padding: 0 10px;">ATMS</td> <td style="border: 1px solid black; text-align: center;">0</td> <td style="padding: 0 10px;">Other</td> </tr> </table> | 78    | Traffic Signals | 2 | CMS |  | CCTV | 0 | VID | 1 | ATMS | 0 | Other |
| 78   | Traffic Signals   | 2  | CMS   |                 |   |     |  |      |   |     |   |      |   |       |
|  | CCTV  | 0  | VID   |                 |   |     |  |      |   |     |   |      |   |       |
| 1  | ATMS  | 0  | Other |                 |   |     |  |      |   |     |   |      |   |       |

**Additional Notes Communication Items**

1. CCTV and CMS are future. Unsure of CCTV quantity.
2. Would like to view their own video as well as other Agencies' video on a split screen (Quad).
3. ATMS is planned to be installed with this project.
4. Elvin Jiang will verify the existence of the building generator and the interconnect cabling in the field.
5. Would like to minimize the amount of equipment installed by combining as many functions as possible into each W/S.
6. Would like to monitor other Agencies' signals but, not operate them.

**Additional Notes Operational Items**

**\* The City is not sure if there is an existing dedicated CAT5 cable from the Telephone room to the IEN W/S location, however they do know the distance between the two (2) rooms/locations.**

## SGVTF IEN Communication Requirements Interview Summary

Agency Name

Level of Operation

### Interview Participants

Interview Date

Brian Jakubczak - TransCore  
Jack Schneider - TransCore  
Moojan Khazra - MMA

Ronald Merry - City of Monterey Park  
Elias Saykali - City of Monterey Park  
Mike Ho - City of Monterey Park  
Fernando Villaluna - LACDPW

Proposed IEN Equipment  IEN W/S & Site Server  IEN/ATMS CDI Server  
 ATMS W/S  ATMS Central Server

IEN Equip. Location

Require Additional IEN W/S in Alternate Location  Yes  No Location Description

UPS Availability  Desktop UPS  Building Generator  Building UPS  None

Existing Dedicated Cat5 Cable from Telephone Room to IEN W/S Location  Yes  No  Unsure \* Cable Length < 328 ft.  Yes  No

Able to install New Dedicated Cat 5 Cable from Telephone Room to IEN W/S Location  Yes  No Cable Length < 328 ft.  Yes  No

Agency Owned Cable Infrastructure  None  Fiber  Copper Cable

Existing Communication System(s)  None  Telco  Cable Provider  Other

The City is currently updating the traffic signal controller clocks with WWV.

### Planned Utilization of IEN:

#### Local

- Monitor Signal Operation
- Adjust Signal Operation
- Low Res Full Motion Video
- High Res Video Still Images
- Low Res Video Still Images

#### Inter-Agency

- Monitor Signal Operation
- Adjust Signal Operation
- Low Res Full Motion Video
- High Res Video Still Images
- Low Res Video Still Images

#### Traffic Management Device Quantities

|                                 |                 |                                |       |
|---------------------------------|-----------------|--------------------------------|-------|
| <input type="text" value="65"/> | Traffic Signals | <input type="text" value="0"/> | CMS   |
| <input type="text" value="0"/>  | CCTV            | <input type="text" value="8"/> | VID   |
| <input type="text" value="1"/>  | ATMS            | <input type="text" value="0"/> | Other |

### Additional Notes Communication Items

1. ATMS is planned to be installed with this project.
2. Cat 5 cable from telephone room to the computer room will be used to extend the T1 circuit which will then be converted to Ethernet there.
3. Separate Cat 5 cable will connect the IEN equipment to the T1 (converted to Ethernet) in the computer room.
4. Currently no video coming back from the VIDs and it is not a high priority.

### Additional Notes Operational Items

1. Would like LA County to handle the majority of the signal control duties.
2. City would like the ability to operate its signals on a periodic basis.
3. Maintenance is currently performed by on-call contractors.

**\* The City is not sure if there is an existing dedicated CAT5 cable from the Telephone room to the IEN W/S location, however they do know the distance between the two (2) rooms/locations.**

## SGVTF IEN Communication Requirements Interview Summary

|                        |   |                    |          |  |  |
|------------------------|---|--------------------|----------|--|--|
| Agency Name            | City of San Gabriel   | Level of Operation | Level 2A | Interview Participants   |  |
| Interview Date         | 11/30/04  |                    |          | Brian Jakubczak - TransCore<br>Jack Schneider - TransCore<br>Moojan Khazra - MMA | Bruce Mattern - City of San Gariel<br>David Ospina - City of San Gariel<br>Inez Yeung - LACDPW |
| Proposed IEN Equipment | <input checked="" type="checkbox"/> IEN W/S & Site Server <input type="checkbox"/> IEN/ATMS CDI Server<br><input checked="" type="checkbox"/> ATMS W/S <input type="checkbox"/> ATMS Central Server |                    |          |  |  |
| IEN Equip. Location    | Public Works Building (Del Mar and Mission)   |                    |          |  |  |

|  |   |   |                                       |  |
|--|---|---|---------------------------------------|--|
| Require Additional IEN W/S in Alternate Location | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No                 | Location Description                  | City Hall (1/2 mile from Public Works Building) most likely in Bruce Mattern's office. |
| UPS Availability                                 | <input type="checkbox"/> Desktop UPS    | <input type="checkbox"/> Building Generator | <input type="checkbox"/> Building UPS | <input checked="" type="checkbox"/> None   |

|   |  |                                |  |                        |   |                             |
|---|--|--------------------------------|--|------------------------|---|-----------------------------|
| Existing Dedicated Cat5 Cable from Telephone Room to IEN W/S Location             | <input type="checkbox"/> Yes             | <input type="checkbox"/> No    | <input checked="" type="checkbox"/> Unsure * | Cable Length < 328 ft. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| Able to install New Dedicated Cat 5 Cable from Telephone Room to IEN W/S Location | <input checked="" type="checkbox"/> Yes  | <input type="checkbox"/> No    |  | Cable Length < 328 ft. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| Agency Owned Cable Infrastructure   | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Fiber | <input type="checkbox"/> Copper Cable        |                        |   |                             |

|                                  |                               |                                |   |   |   |
|----------------------------------|-------------------------------|--------------------------------|---|---|---|
| Existing Communication System(s) | <input type="checkbox"/> None | <input type="checkbox"/> Telco | <input type="checkbox"/> Cable Provider | <input checked="" type="checkbox"/> Other | The City is currently updating the traffic signal controller clocks with WWV. |
|----------------------------------|-------------------------------|--------------------------------|---|---|---|

|  |  |   |       |                 |   |     |   |      |  |     |   |      |   |       |
|--|--|---|-------|-----------------|---|-----|---|------|--|-----|---|------|---|-------|
| <p style="text-align: center;"><b>Local</b></p> <div style="border: 1px solid black; padding: 5px;"> <input checked="" type="checkbox"/> Monitor Signal Operation<br/> <input checked="" type="checkbox"/> Adjust Signal Operation<br/> <input checked="" type="checkbox"/> Low Res Full Motion Video<br/> <input type="checkbox"/> High Res Video Still Images<br/> <input checked="" type="checkbox"/> Low Res Video Still Images                 </div> | <p style="text-align: center;"><b>Inter-Agency</b></p> <div style="border: 1px solid black; padding: 5px;"> <input checked="" type="checkbox"/> Monitor Signal Operation<br/> <input type="checkbox"/> Adjust Signal Operation<br/> <input checked="" type="checkbox"/> Low Res Full Motion Video<br/> <input type="checkbox"/> High Res Video Still Images<br/> <input checked="" type="checkbox"/> Low Res Video Still Images                 </div> | <p style="text-align: center;"><b>Traffic Management Device Quantities</b></p> <table border="0" style="width: 100%;"> <tr> <td style="border: 1px solid black; width: 40px; text-align: center;">34</td> <td style="padding: 0 10px;">Traffic Signals</td> <td style="border: 1px solid black; width: 40px; text-align: center;">0</td> <td style="padding: 0 10px;">CMS</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">0</td> <td style="padding: 0 10px;">CCTV</td> <td style="border: 1px solid black; text-align: center;"> </td> <td style="padding: 0 10px;">VID</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">1</td> <td style="padding: 0 10px;">ATMS</td> <td style="border: 1px solid black; text-align: center;">0</td> <td style="padding: 0 10px;">Other</td> </tr> </table> | 34    | Traffic Signals | 0 | CMS | 0 | CCTV |  | VID | 1 | ATMS | 0 | Other |
| 34   | Traffic Signals  | 0   | CMS   |                 |   |     |   |      |  |     |   |      |   |       |
| 0  | CCTV   |   | VID   |                 |   |     |   |      |  |     |   |      |   |       |
| 1  | ATMS   | 0   | Other |                 |   |     |   |      |  |     |   |      |   |       |

**Additional Notes Communication Items**

1. ATMS will be installed with this project.
2. Unsure of VID quantity.
3. Would like to view video from their own VIDs as well as video from other Agencies. Cost is the determining factor on quantity and quality of video.
4. They will need a dedicated line installed between PW and City Hall for the 2nd IEN W/S due to the distance between the two (2) locations.
5. Expressed an interest in adding an additional IEN W/S in the Maintenance Shop located across the PW parking lot (approximately 125 ft.).

**Additional Notes Operational Items**

1. Would like LA County to be the primary Agency performing Traffic Engineering and control functions.
2. Desire the ability to operate their signals on a part- time basis.

**\* The City is not sure if there is an existing dedicated CAT5 cable from the Telephone room to the IEN W/S location, however they do know the distance between the two (2) rooms/locations.**

## SGVTF IEN Communication Requirements Interview Summary

|                        |   |                    |          |  |   |
|------------------------|---|--------------------|----------|--|---|
| Agency Name            | City of Alhambra  | Level of Operation | Level 2B | Interview Participants   |   |
| Interview Date         | 12/01/04  |                    |          | Brian Jakubczak - TransCore<br>Jack Schneider - TransCore<br>Moojan Khazra - MMA | Edward Wright III - City of Alhambra<br>R. Delessandro - City of Alhambra<br>Tom Pinkston - City of Alhambra<br>Fernando Villaluna - LACDPW |
| Proposed IEN Equipment | <input checked="" type="checkbox"/> IEN W/S & Site Server <input checked="" type="checkbox"/> IEN/ATMS CDI Server<br><input checked="" type="checkbox"/> ATMS W/S <input checked="" type="checkbox"/> ATMS Central Server |                    |          |  |   |
| IEN Equip. Location    | Ed Wright's office  |                    |          |  |   |

|  |   |                      |  |
|--|---|----------------------|--|
| Require Additional IEN W/S in Alternate Location | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No   | Location Description | Maintenance Yard approximately 1 mile from City Hall |
| UPS Availability                                 | <input type="checkbox"/> Desktop UPS <input type="checkbox"/> Building Generator <input type="checkbox"/> Building UPS <input checked="" type="checkbox"/> None |                      |  |

|   |   |                        |   |
|---|---|------------------------|---|
| Existing Dedicated Cat5 Cable from Telephone Room to IEN W/S Location             | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unsure * | Cable Length < 328 ft. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Able to install New Dedicated Cat 5 Cable from Telephone Room to IEN W/S Location | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                   | Cable Length < 328 ft. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |

|                                   |  |
|-----------------------------------|--|
| Agency Owned Cable Infrastructure | <input type="checkbox"/> None <input type="checkbox"/> Fiber <input checked="" type="checkbox"/> Copper Cable                                  |
| Existing Communication System(s)  | <input type="checkbox"/> None <input type="checkbox"/> Telco <input type="checkbox"/> Cable Provider <input checked="" type="checkbox"/> Other |
| Planned Utilization of IEN:       | The City is currently updating the traffic signal controller clocks with WWV. TWP interconnect. (see additional notes below)                   |

**Local**

Monitor Signal Operation  
 Adjust Signal Operation  
 Low Res Full Motion Video  
 High Res Video Still Images  
 Low Res Video Still Images

**Inter-Agency**

Monitor Signal Operation  
 Adjust Signal Operation  
 Low Res Full Motion Video  
 High Res Video Still Images  
 Low Res Video Still Images

**Traffic Management Device Quantities**

|   |                                      |
|---|--------------------------------------|
| <input type="text" value="99"/> Traffic Signals | <input type="text" value="0"/> CMS   |
| <input type="text" value="0"/> CCTV             | <input type="text" value="11"/> VID  |
| <input type="text" value="1"/> ATMS             | <input type="text" value="0"/> Other |

**Additional Notes Communication Items**

1. ATMS will be installed with this project.
2. Viewing more than one video at any given time is not required.
3. Would like to view still images from other Agencies.
4. Existing 12-pair (pr) #19 interconnect cable along Mission Rd. from Fremont Ave to Palm Ave; from Palm Ave to Garfield Ave becomes 6-pr #19; from Garfield to the East City limits the cable becomes 12-pr #19. Existing 12-pr #19 interconnect cable along Fremont Ave from Alhambra Rd. to Montezuma. Existing 6-pr #19 interconnect cable along Main St. from Atlantic Blvd to El Molino.

**Additional Notes Operational Items**

1. Maintains and operates its own signals.

**\* The City is not sure if there is an existing dedicated CAT5 cable from the Telephone room to the IEN W/S location, however they do know the distance between the two (2) rooms/locations.**

## SGVTF IEN Communication Requirements Interview Summary

|                        |   |                    |          |  |                         |
|------------------------|---|--------------------|----------|--|-------------------------|
| Agency Name            | City of Covina  | Level of Operation | Level 2B | Interview Participants   |                         |
| Interview Date         | 12/04/04  |                    |          | Brian Jakubczak - TransCore<br>Chuck Dankocsik - TransCore<br>George Hattrup - MMA | Vince Mastrosimone, DPW |
| Proposed IEN Equipment | <input checked="" type="checkbox"/> IEN W/S & Site Server <input type="checkbox"/> IEN/ATMS CDI Server<br><input checked="" type="checkbox"/> ATMS W/S <input type="checkbox"/> ATMS Central Server |                    |          |  |                         |
| IEN Equip. Location    | Dedicated cubical (Probably at Public Works)  |                    |          |  |                         |

Require Additional IEN W/S in Alternate Location     Yes     No    Location Description

UPS Availability     Desktop UPS     Building Generator     Building UPS     None

Existing Dedicated Cat5 Cable from Telephone Room to IEN W/S Location     Yes     No     Unsure \*    Cable Length < 328 ft.     Yes     No

Able to install New Dedicated Cat 5 Cable from Telephone Room to IEN W/S Location     Yes     No    Cable Length < 328 ft.     Yes     No

Agency Owned Cable Infrastructure     None     Fiber     Copper Cable

Existing Communication System(s)     None     Telco     Cable Provider     Other

The City is currently updating the traffic signal controller clocks with WWV.

**Planned Utilization of IEN:**

|  |   |  |       |                 |   |     |   |      |   |     |   |      |   |       |
|--|---|--|-------|-----------------|---|-----|---|------|---|-----|---|------|---|-------|
| <b>Local</b>   | <b>Inter-Agency</b>   | <b>Traffic Management Device Quantities</b>  |       |                 |   |     |   |      |   |     |   |      |   |       |
| <input checked="" type="checkbox"/> Monitor Signal Operation<br><input checked="" type="checkbox"/> Adjust Signal Operation<br><input checked="" type="checkbox"/> Low Res Full Motion Video<br><input checked="" type="checkbox"/> High Res Video Still Images<br><input type="checkbox"/> Low Res Video Still Images | <input checked="" type="checkbox"/> Monitor Signal Operation<br><input type="checkbox"/> Adjust Signal Operation<br><input type="checkbox"/> Low Res Full Motion Video<br><input type="checkbox"/> High Res Video Still Images<br><input type="checkbox"/> Low Res Video Still Images | <table border="0" style="width: 100%;"> <tr> <td style="border: 1px solid black; width: 40px; text-align: center;">49</td> <td style="padding: 0 10px;">Traffic Signals</td> <td style="border: 1px solid black; width: 40px; text-align: center;">0</td> <td style="padding: 0 10px;">CMS</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">0</td> <td style="padding: 0 10px;">CCTV</td> <td style="border: 1px solid black; text-align: center;">0</td> <td style="padding: 0 10px;">VID</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">0</td> <td style="padding: 0 10px;">ATMS</td> <td style="border: 1px solid black; text-align: center;">0</td> <td style="padding: 0 10px;">Other</td> </tr> </table> | 49    | Traffic Signals | 0 | CMS | 0 | CCTV | 0 | VID | 0 | ATMS | 0 | Other |
| 49   | Traffic Signals   | 0  | CMS   |                 |   |     |   |      |   |     |   |      |   |       |
| 0  | CCTV  | 0  | VID   |                 |   |     |   |      |   |     |   |      |   |       |
| 0  | ATMS  | 0  | Other |                 |   |     |   |      |   |     |   |      |   |       |

**Additional Notes Communication Items**

1. Have separate space in the Comm. room for IEN/ATMS Servers.
2. Have shared leased lines link with West Covina for Police Department (CAD system).
3. Do not need any CCTV from other Agencies.
4. Secondary IEN W/S co-located at Police Dept. "Eatch Commander".

**Additional Notes Operational Items**

1. Would like the County to operate ATMS during emergencies and nighttime.
2. City would prefer to view high-resolution video still images, knowing that cost is an issue. The second option would be low-resolution full motion video
3. Would like 4-way split-screen capabilities on one (1) monitor for CCTV.
4. City does not want to "host" another Agency's TCS.
5. CCTV images are from VID's.

**\* The City is not sure if there is an existing dedicated CAT5 cable from the Telephone room to the IEN W/S location, however they do know the distance between the two (2) rooms/locations.**



## SGVTF IEN Communication Requirements Interview Summary

|                        |   |                    |          |  |   |
|------------------------|---|--------------------|----------|--|---|
| Agency Name            | City of Irwindale   | Level of Operation | Level 2B | Interview Participants   |   |
| Interview Date         | 12/07/04  |                    |          | Brian Jakubczak - TransCore<br>Jack Schneider - TransCore<br>George Hatstrup - MMA | Jose Loera - Irwindale<br>Inez Yeung - LACDPW |
| Proposed IEN Equipment | <input checked="" type="checkbox"/> IEN W/S & Site Server <input checked="" type="checkbox"/> IEN/ATMS CDI Server<br><input checked="" type="checkbox"/> ATMS W/S <input checked="" type="checkbox"/> ATMS Central Server |                    |          |  |   |

IEN Equip. Location TMC to be ('05/'06 est) on far side of City Hall (currently PD)

|  |   |  |                                       |  |
|--|---|--|---------------------------------------|--|
| Require Additional IEN W/S in Alternate Location | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No                            | Location Description                  | IEN W/S at new PD building (about 1/2 mile from City Hall) |
| UPS Availability                                 | <input type="checkbox"/> Desktop UPS    | <input checked="" type="checkbox"/> Building Generator | <input type="checkbox"/> Building UPS | <input type="checkbox"/> None                              |

Existing Dedicated Cat5 Cable from Telephone Room to IEN W/S Location     Yes    No    Unsure \*    Cable Length < 328 ft.    Yes    No

Able to install New Dedicated Cat 5 Cable from Telephone Room to IEN W/S Location    Yes    No    Cable Length < 328 ft.    Yes    No

Agency Owned Cable Infrastructure     None     Fiber     Copper Cable

Existing Communication System(s)     None     Telco     Cable Provider     Other

The City is currently updating the traffic signal controller clocks with WWV. Short run of F/O cable from Charter Communications to City Hall (<.5 mile)

Planned Utilization of IEN:

**Local**

Monitor Signal Operation

Adjust Signal Operation

Low Res Full Motion Video

High Res Video Still Images

Low Res Video Still Images

**Inter-Agency**

Monitor Signal Operation

Adjust Signal Operation

Low Res Full Motion Video

High Res Video Still Images

Low Res Video Still Images

Traffic Management Device Quantities

|    |                 |  |       |
|----|-----------------|--|-------|
| 17 | Traffic Signals |  | CMS   |
|    | CCTV            |  | VID   |
|    | ATMS            |  | Other |

**Additional Notes Communication Items**

1. Needs to know (ASAP) if and what size conduit to install for several upcoming street projects:
  - \* Arrow Hwy (Live Oak to Santa Fe Dam); to bid 2Q05
  - \* Ramona Blvd (I-605 to City line); construction 2Q06
  - \* Rivergrade; construction 2Q06
  - \* Foothill Blvd
2. Currently using RCTB and GPS for signal coordination.
3. Adequate power and ports will be designed for TMC and PD facilities.

**Additional Notes Operational Items**

1. Initial ATMS plans are for operating signals on Irwindale, Live Oak, Arrow Hwy, and Rivergrade.
2. Would like control of signals at shared intersections.

**\* The City is not sure if there is an existing dedicated CAT5 cable from the Telephone room to the IEN W/S location, however they do know the distance between the two (2) rooms/locations.**



## SGVTF IEN Communication Requirements Interview Summary

|                        |   |                        |          |
|------------------------|---|------------------------|----------|
| Agency Name            | City of Rosemead  | Level of Operation     | Level 2B |
| Interview Date         | 11/30/04  | Interview Participants |          |
| Proposed IEN Equipment | <input checked="" type="checkbox"/> IEN W/S & Site Server <input checked="" type="checkbox"/> IEN/ATMS CDI Server<br><input checked="" type="checkbox"/> ATMS W/S <input checked="" type="checkbox"/> ATMS Central Server |                        |          |
| IEN Equip. Location    | Ken Rukavina's office in the basement   |                        |          |

|  |  |
|--|--|
| Brian Jakubczak - TransCore<br>Jack Schneider - TransCore<br>Moojan Khazra - MMA | Ken Rukavina - City of Rosemead<br>Inez Yeung - LACDPW |
|--|--|

Require Additional IEN W/S in Alternate Location     Yes     No    Location Description

UPS Availability     Desktop UPS     Building Generator     Building UPS     None

Existing Dedicated Cat5 Cable from Telephone Room to IEN W/S Location     Yes     No     Unsure \*    Cable Length < 328 ft.     Yes     No

Able to install New Dedicated Cat 5 Cable from Telephone Room to IEN W/S Location     Yes     No    Cable Length < 328 ft.     Yes     No

Agency Owned Cable Infrastructure     None     Fiber     Copper Cable

Existing Communication System(s)     None     Telco     Cable Provider     Other

The City is currently updating the traffic signal controller clocks with WWV. Spare conduit on Valley between Charlotte and Rosemead

**Planned Utilization of IEN:**

|  |   |  |       |                 |   |     |   |      |   |     |   |      |   |       |
|--|---|--|-------|-----------------|---|-----|---|------|---|-----|---|------|---|-------|
| <b>Local</b>   | <b>Inter-Agency</b>   | <b>Traffic Management Device Quantities</b>  |       |                 |   |     |   |      |   |     |   |      |   |       |
| <input checked="" type="checkbox"/> Monitor Signal Operation<br><input checked="" type="checkbox"/> Adjust Signal Operation<br><input type="checkbox"/> Low Res Full Motion Video<br><input type="checkbox"/> High Res Video Still Images<br><input type="checkbox"/> Low Res Video Still Images | <input checked="" type="checkbox"/> Monitor Signal Operation<br><input type="checkbox"/> Adjust Signal Operation<br><input checked="" type="checkbox"/> Low Res Full Motion Video<br><input type="checkbox"/> High Res Video Still Images<br><input checked="" type="checkbox"/> Low Res Video Still Images | <table border="0" style="width: 100%;"> <tr> <td style="border: 1px solid black; width: 40px; text-align: center;">52</td> <td style="padding: 0 10px;">Traffic Signals</td> <td style="border: 1px solid black; width: 40px; text-align: center;">0</td> <td style="padding: 0 10px;">CMS</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">1</td> <td style="padding: 0 10px;">CCTV</td> <td style="border: 1px solid black; text-align: center;">0</td> <td style="padding: 0 10px;">VID</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">1</td> <td style="padding: 0 10px;">ATMS</td> <td style="border: 1px solid black; text-align: center;">0</td> <td style="padding: 0 10px;">Other</td> </tr> </table> | 52    | Traffic Signals | 0 | CMS | 1 | CCTV | 0 | VID | 1 | ATMS | 0 | Other |
| 52   | Traffic Signals   | 0  | CMS   |                 |   |     |   |      |   |     |   |      |   |       |
| 1  | CCTV  | 0  | VID   |                 |   |     |   |      |   |     |   |      |   |       |
| 1  | ATMS  | 0  | Other |                 |   |     |   |      |   |     |   |      |   |       |

**Additional Notes Communication Items**

1. ATMS is planned to be installed with this project.
2. Only desire on video feed from surrounding Agencies.
3. Two (2) spare Cat 5 cables from the telephone room to the IEN equipment location.
4. Building Generator should have sufficient capacity to accomodate the IEN equipment.
5. Currently, don't have any communications in place to exchange data with traffic signal controllers.

**Additional Notes Operational Items**

1. Have an on-call consultant to perform Traffic Engineering functions.
2. Would like to remotely monitor and control their own signals.
3. Does not want to "host" another Agency's signals.
4. Use of video surveillance with the City limits is not possible due to political constraints.
5. Would like to view video from other Agencies

\* **The City is not sure if there is an existing dedicated CAT5 cable from the Telephone room to the IEN W/S location, however they do know the distance between the two (2) rooms/locations.**

## SGVTF IEN Communication Requirements Interview Summary

|                        |   |                    |          |  |
|------------------------|---|--------------------|----------|--|
| Agency Name            | City of West Covina   | Level of Operation | Level 2B | Interview Participants   |
| Interview Date         | 12/02/04  |                    |          | Brian Jakubczak - TransCore<br>Chuck Dankocsik - TransCore<br>George Hattrup - MMA<br>Mike Urban - City of West Covina<br>Miguel Hernandez - City of West Covina |
| Proposed IEN Equipment | <input checked="" type="checkbox"/> IEN W/S & Site Server <input checked="" type="checkbox"/> IEN/ATMS CDI Server<br><input checked="" type="checkbox"/> ATMS W/S <input checked="" type="checkbox"/> ATMS Central Server |                    |          |  |

IEN Equip. Location IEN & ATMS W/S in Miguel's office. ATMS server in computer rm.

Require Additional IEN W/S in Alternate Location     Yes     No    Location Description Maintenance Yard approximately 1/2 mile from City Hall

UPS Availability     Desktop UPS     Building Generator     Building UPS     None

Existing Dedicated Cat5 Cable from Telephone Room to IEN W/S Location     Yes     No     Unsure \*    Cable Length < 328 ft.     Yes     No

Able to install New Dedicated Cat 5 Cable from Telephone Room to IEN W/S Location     Yes     No    Cable Length < 328 ft.     Yes     No

Agency Owned Cable Infrastructure     None     Fiber     Copper Cable

Existing Communication System(s)     None     Telco     Cable Provider     Other The City is currently updating the traffic signal controller clocks with WWV.

**Planned Utilization of IEN:**

|  |   |   |       |                 |   |     |  |      |  |     |   |      |   |       |
|--|---|---|-------|-----------------|---|-----|--|------|--|-----|---|------|---|-------|
| <b>Local</b>   | <b>Inter-Agency</b>   | <b>Traffic Management Device Quantities</b>   |       |                 |   |     |  |      |  |     |   |      |   |       |
| <input checked="" type="checkbox"/> Monitor Signal Operation<br><input checked="" type="checkbox"/> Adjust Signal Operation<br><input type="checkbox"/> Low Res Full Motion Video<br><input checked="" type="checkbox"/> High Res Video Still Images<br><input checked="" type="checkbox"/> Low Res Video Still Images | <input checked="" type="checkbox"/> Monitor Signal Operation<br><input type="checkbox"/> Adjust Signal Operation<br><input type="checkbox"/> Low Res Full Motion Video<br><input checked="" type="checkbox"/> High Res Video Still Images<br><input checked="" type="checkbox"/> Low Res Video Still Images | <table border="0" style="width: 100%;"> <tr> <td style="border: 1px solid black; width: 40px; text-align: center;">112</td> <td style="padding: 0 10px;">Traffic Signals</td> <td style="border: 1px solid black; width: 40px; text-align: center;">0</td> <td style="padding: 0 10px;">CMS</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;"> </td> <td style="padding: 0 10px;">CCTV</td> <td style="border: 1px solid black; text-align: center;"> </td> <td style="padding: 0 10px;">VID</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">1</td> <td style="padding: 0 10px;">ATMS</td> <td style="border: 1px solid black; text-align: center;">0</td> <td style="padding: 0 10px;">Other</td> </tr> </table> | 112   | Traffic Signals | 0 | CMS |  | CCTV |  | VID | 1 | ATMS | 0 | Other |
| 112  | Traffic Signals   | 0   | CMS   |                 |   |     |  |      |  |     |   |      |   |       |
|  | CCTV  |   | VID   |                 |   |     |  |      |  |     |   |      |   |       |
| 1  | ATMS  | 0   | Other |                 |   |     |  |      |  |     |   |      |   |       |

**Additional Notes Communication Items**

1. Existing TCS (located in secured computer room) will be replaced with ATMS with this project.
2. CCTV and VID are planned for the future. Quantity has not been determined.
3. Building generator has sufficient spare capacity for IEN equipment and a new circuit can be installed if necessary.
4. Cable distance from telephone room to IEN equipment is approximately 475'. Need to extend T1 to IEN equip. and then convert to Ethernet.
5. Will need additional telco connection to link City Hall with the Maintenance Yard for 2nd IEN W/S.
6. Telephone room in the Yard is <328 feet from IEN W/S location and can be run above the drop ceiling.

**Additional Notes Operational Items**

1. Currently operate and maintain their signal system.
2. They are willing to "host" another Agency's signals but, does not want to operate them.

\* The City is not sure if there is an existing dedicated CAT5 cable from the Telephone room to the IEN W/S location, however they do know the distance between the two (2) rooms/locations.