PUBLIC WORKS

Gateway Cities
Traffic Signal Synchronization and
Bus Speed Improvement Project
I-5/Telegraph Road Corridor

ATMS User Requirements Presentation

Siemens Energy & Automation, Inc.
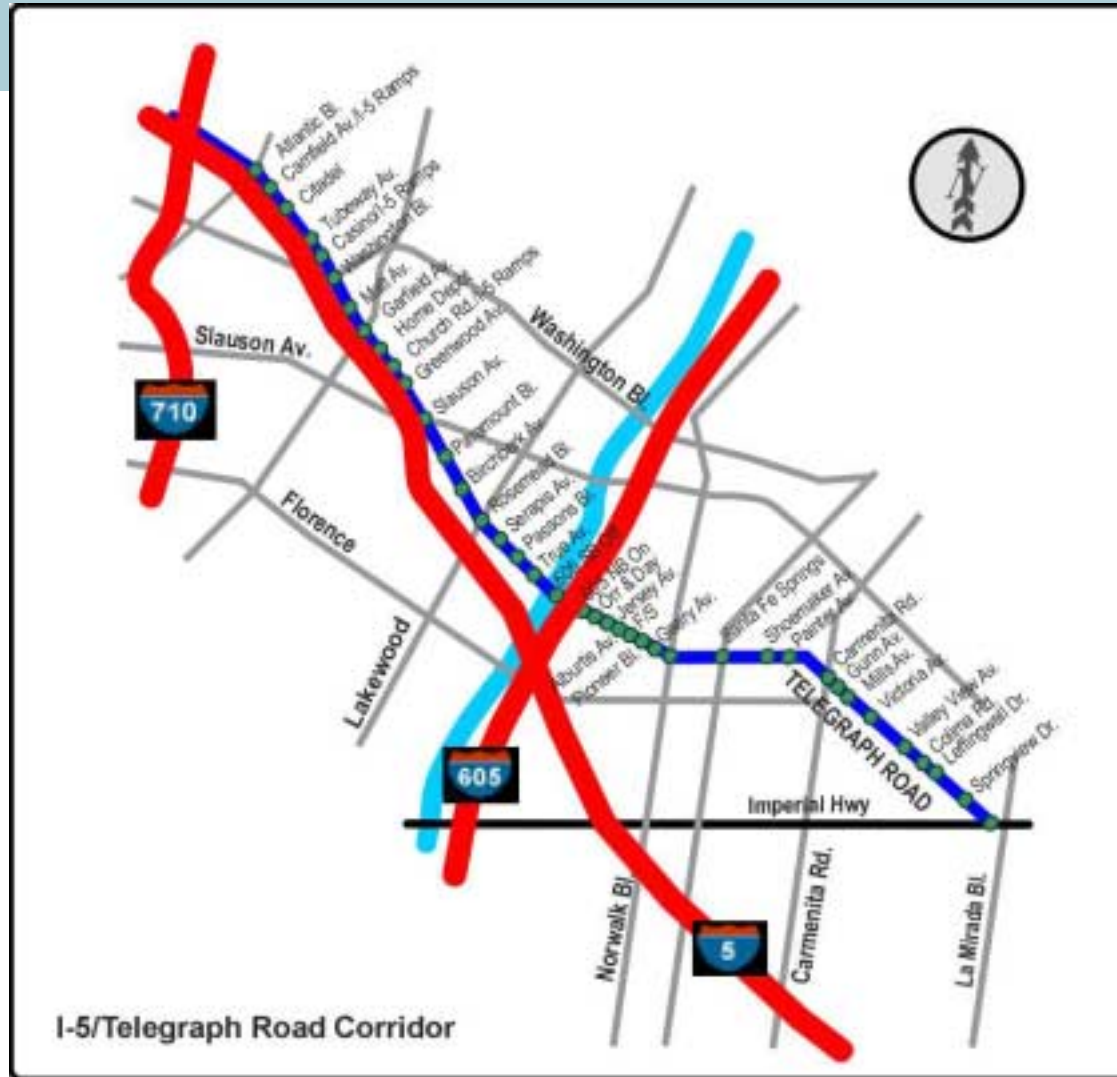
Gardner Transportation Systems
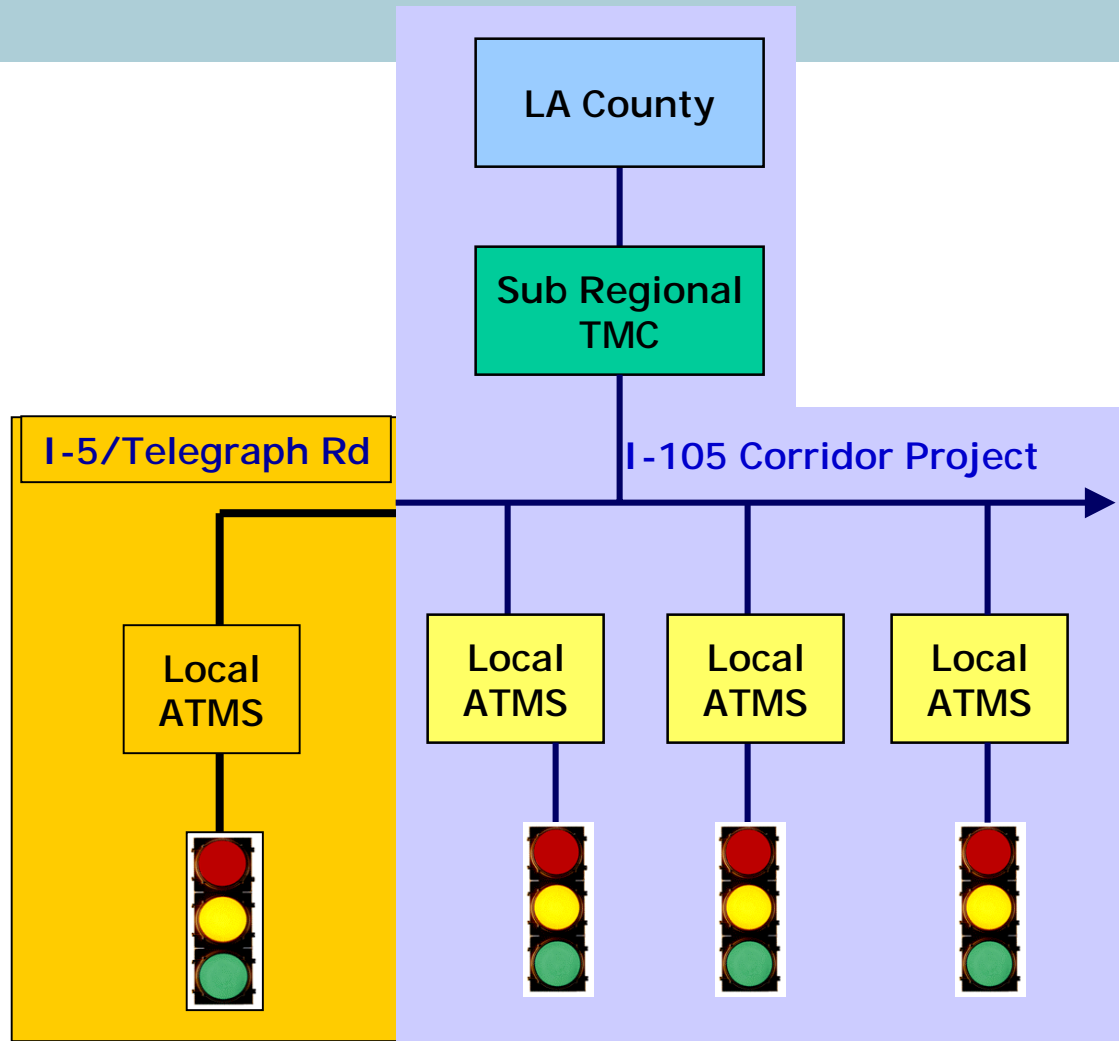
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Today's Agenda

- Review of Overall Project
- Project Status
- ATMS User Requirements
- Next Steps

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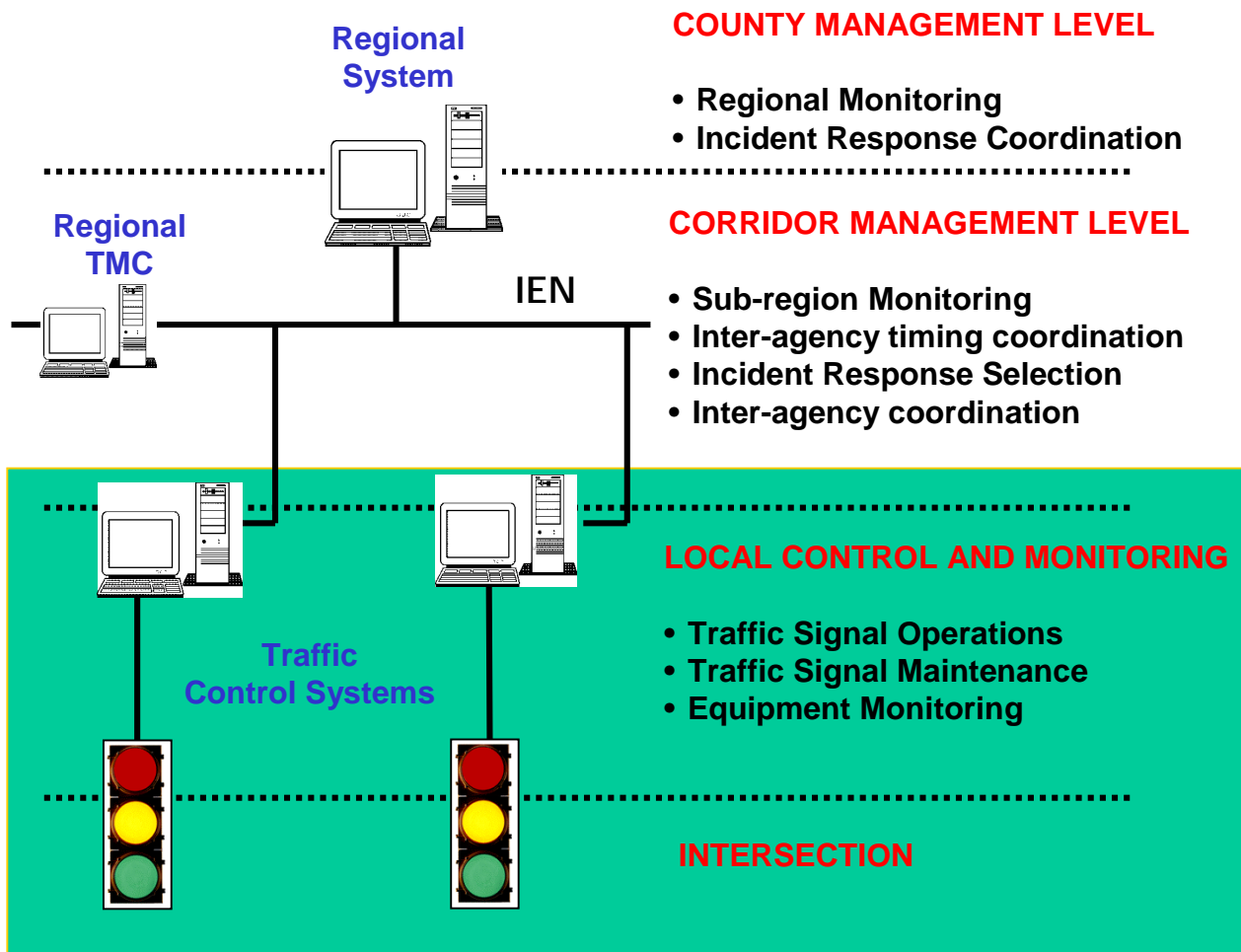# Project Area

I-5/Telegraph Road Corridor

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Relationship with other Projects

LA County

Sub Regional TMC

I-5/Telegraph Rd

I-105 Corridor Project

Local ATMS

Local ATMS

Local ATMS

Local ATMS

Project Focus

Regional System

COUNTY MANAGEMENT LEVEL

- **Regional Monitoring**
- **Incident Response Coordination**

Regional TMC

CORRIDOR MANAGEMENT LEVEL

IEN

- **Sub-region Monitoring**
- **Inter-agency timing coordination**
- **Incident Response Selection**
- **Inter-agency coordination**

LOCAL CONTROL AND MONITORING

Traffic Control Systems

- **Traffic Signal Operations**
- **Traffic Signal Maintenance**
- **Equipment Monitoring**

INTERSECTION

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PHASE 1 | PHASE 2

Task 1. Project Management

Task 2. Preliminary/Conceptual Design

- Identification of stakeholders
- Review Project Scope & Identify Deficiencies
- Develop User and System Functional Performance Requirements
- Perform an Alternative Analysis and Provide Recommendations
- Conceptual Design Master Plan
- Strategic Implementation Plan
- Develop O&M Plan

Task 3. Detailed System Design

- E-Mail System
- ATMS
- Communications
- Integration System

Before Study

Task 4. System Implementation

Task 5. Construction Inspection

Task 6. System Acceptance Testing

Task 7. Documentation and As-Builts

Task 8. Training

Task 9. Before and After System Evaluation

Task 10. Start-up & On-going System Maintenance

Quality Assurance

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• **Identification of Stakeholders and Operational Objectives**
• **Develop a Concept of Operations**
• **Develop a Strategic Implementation Plan**

1. Problem Definition/ Project Planning

•**Identify User Requirements**
•**Define System Requirements**
•**Develop a Conceptual Design**
•**Develop an O&M Plan**

2. Requirements Analysis/Specification

3. Detailed Design/ Prototyping

•**Detailed Design**

• **System Implementation**
• **Construction Inspection Assistance**
• **Training**

4. System Implementation

•**System Acceptance Testing**

5. Integration and System Test

• **Documentation and As-Built Plans**
• **Start-Up and On-Going System Maintenance**
• **Before and After Study Evaluation**

6. Release, Operation and Maintenance

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Project Status

- Web Page   Complete/Regularly Updated
- Agency Interviews   Complete
- Field Surveys   Complete
- Operational Objectives   Final in Progress
- City Reports
- ATMS User Requirements   Final Submitted Today
- ATMS Functional Requirements   In Progress
- System Integration Requirements   In Progress

Requirements Process

- Input:
  - Stakeholders Objectives Agency Interviews
  - Agency Needs   Agency Interviews
  - Existing Conditions   Agency Interviews/Field Surveys
  - I-105 User Requirements
  - SGVPP User Requirements

- Output:
  - Identification of System Functions (Use Cases)
  - Identification of Requirements Per Use Case

> **Use Case: A View of the Functionality of the System From the User's Perspective**
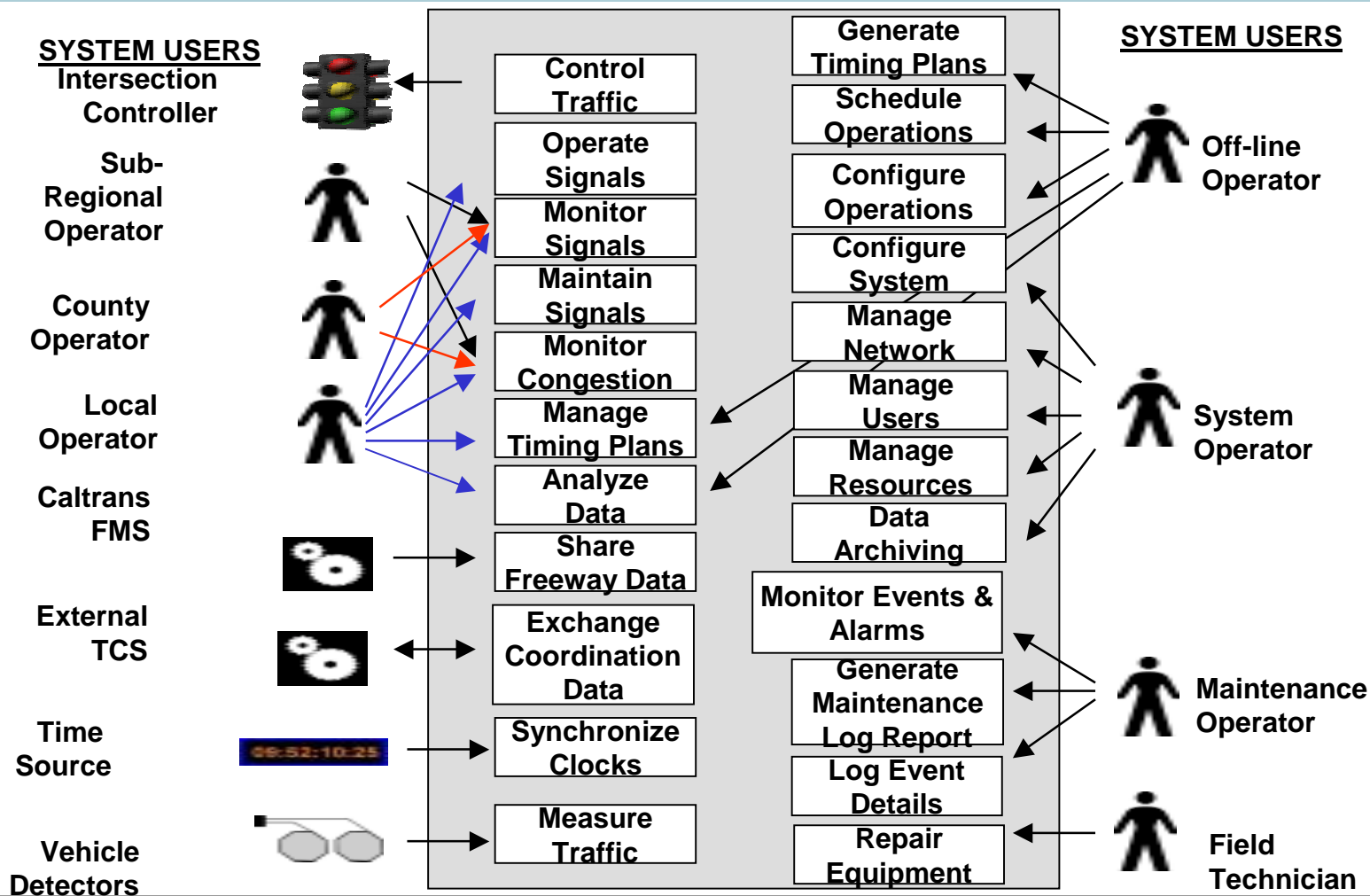
Use Cases

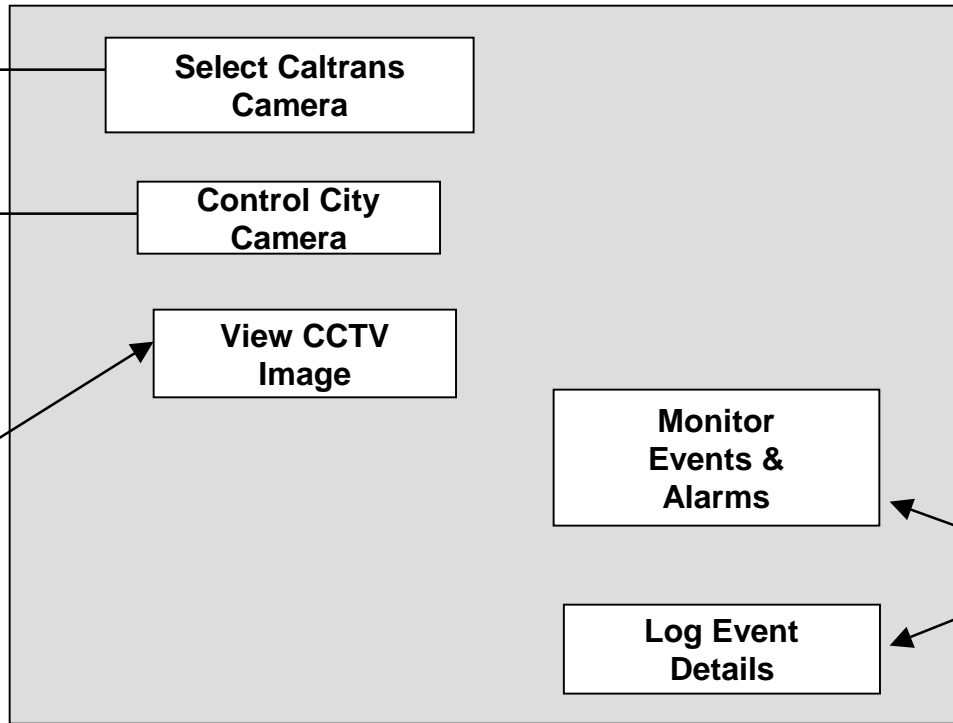- Base: For SGV Project
- Additional: For I-5/Telegraph Road Agencies

Common ATMS Use Cases

SYSTEM USERS

Intersection Controller

Sub-Regional Operator

County Operator

Local Operator

Caltrans FMS

External TCS

Time Source

Vehicle Detectors

- Control Traffic
- Operate Signals
- Monitor Signals
- Maintain Signals
- Monitor Congestion
- Manage Timing Plans
- Analyze Data
- Share Freeway Data
- Exchange Coordination Data
- Synchronize Clocks
- Measure Traffic

- Generate Timing Plans
- Schedule Operations
- Configure Operations
- Configure System
- Manage Network
- Manage Users
- Manage Resources
- Data Archiving
- Monitor Events & Alarms
- Generate Maintenance Log Report
- Log Event Details
- Repair Equipment

SYSTEM USERS

Off-line Operator

System Operator

Maintenance Operator

Field Technician

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Additional Use Cases: City of Commerce

SYSTEM USERS

SYSTEM USERS

Caltrans CCTV Camera

Select Caltrans Camera

CCTV Camera

Control City Camera

Local Operator

View CCTV Image

Monitor Events & Alarms

Police Operator

Log Event Details

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SYSTEM USERS

SYSTEM USERS

CMS

Control
Signs

Operator

Operate
Signs

Caltrans
FMS

External
ATMS

Response to
Incidents

Transit

Priority to
Transit

Emergency
Vehicle

Emergency
Vehicle
Preemption
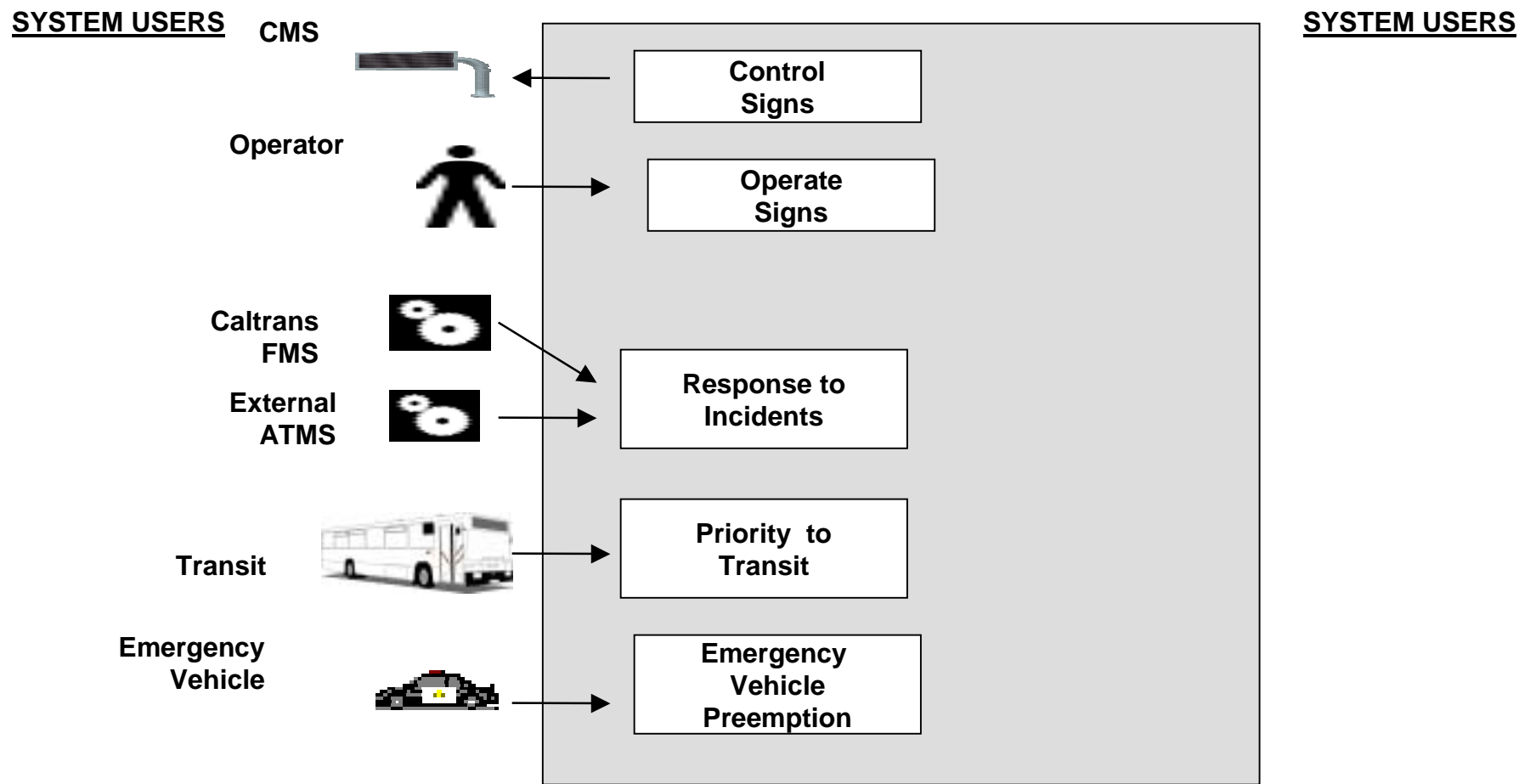
Additional Use Cases: City of Downey

SYSTEM USERS

SYSTEM USERS

CCTV
Camera

Local
Operator

Control City
Camera

View CCTV
Image

Manage
Incidents
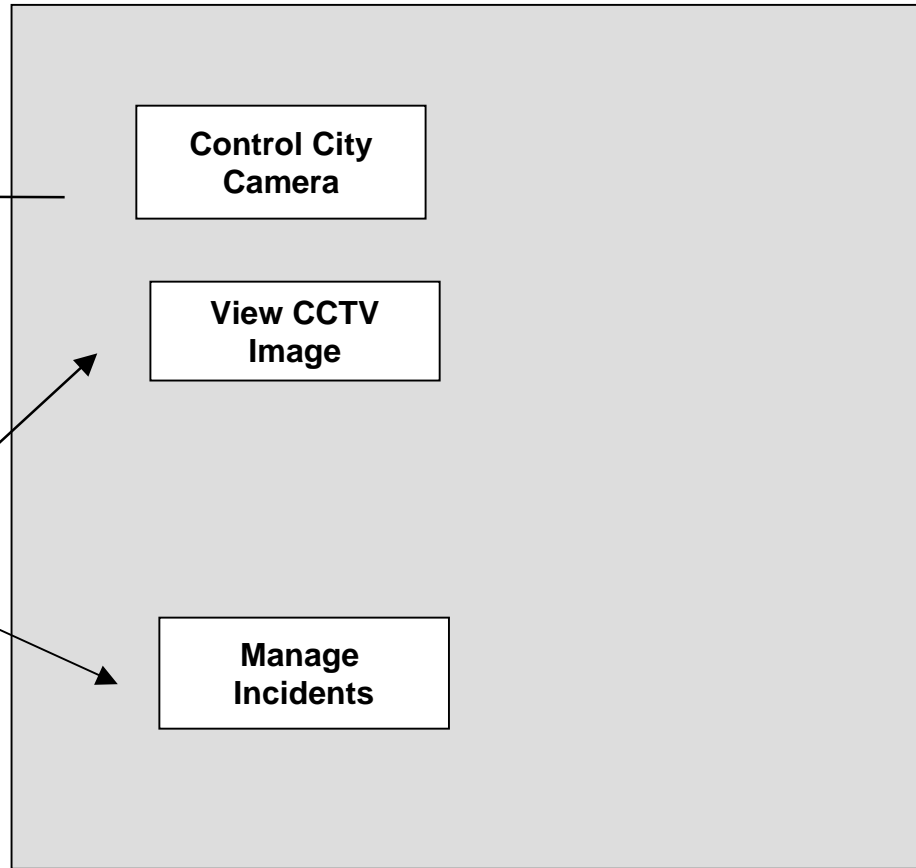
User Requirements Example

- ## System Control
  - Operators will be able to manipulate intersection controllers if they have the proper privileges.
  - Local agencies will be able to delegate control authority to another agency.
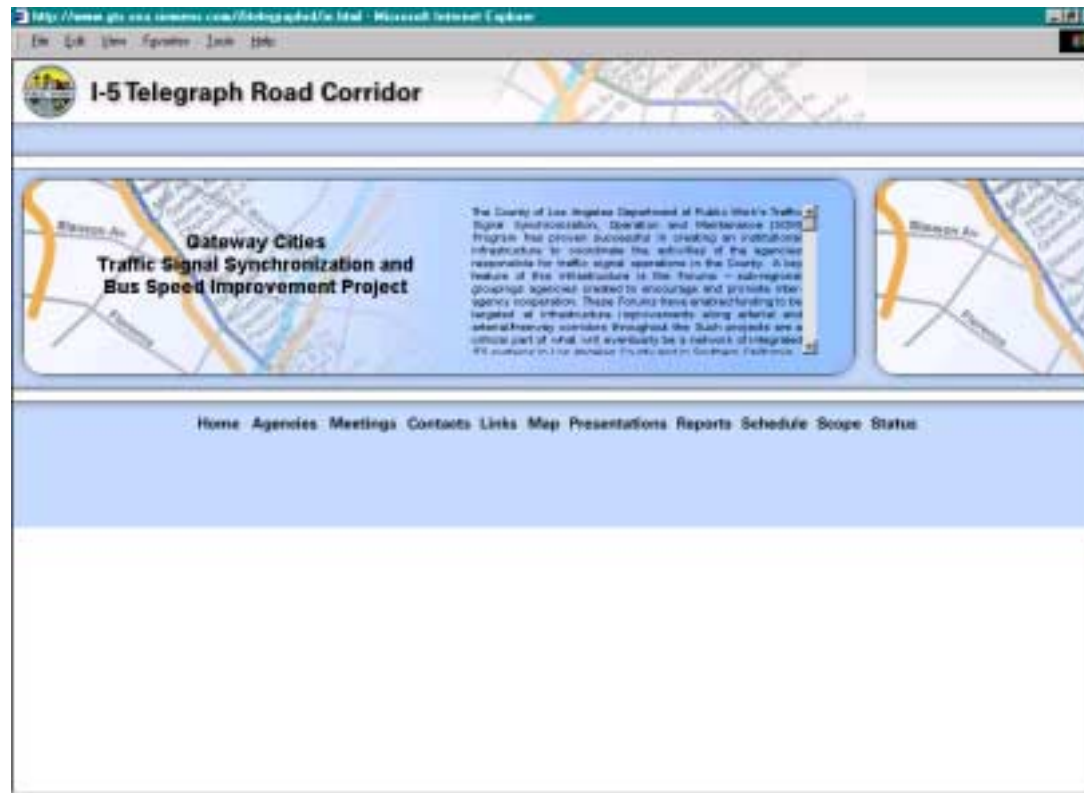 - Operator shall be able to log in from a remote location and be able to operate the system.

Next Steps

- Further Definition of Requirements:
  - ATMS Functional Requirements (Local Traffic Control Operations)
  - System Integration Requirements (Multi-Agency Corridor Operations)
  - Local Traffic Control Center

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Web page

www.gts.sea.siemens.com