



November 10th, 2005

San Gabriel Valley Traffic Forum ATMS Improvement Project

Conceptual Design Workshop



TRANSCORE



Meyer, Mohaddes Associates, Inc.

An Itieris Company

SGVTF – Agenda

- Project Overview
- Agency Levels
- Workshop Purpose
- SGVTF Priority Corridors
- ITS Project Assumptions
- SGVTF Conceptual Design Overview
 - ITS Projects & cost per East-West Corridor
 - ITS Projects & cost per North-South Corridor
- Agency Overview
- Wrap-Up



SGVTF – Project Overview

- Design & implement an inter-jurisdictional ATMS for the SGVTF Agencies
- Includes the hardware, software, & communications infrastructure required to allow Agencies to monitor & control their traffic control systems (TCS) & ITS field devices (e.g., controllers, CCTV, CMS, etc.)
- Includes connections to the Countywide Information Exchange Network (IEN)



SGVTF – Primary ITS Components

- **Advanced Traffic Management Systems (ATMS)**
 - Centralized control of signalized intersections
 - Allows “hands-on” monitoring & control capabilities
 - Provides enhanced maintenance capabilities
- **Detection & Surveillance**
 - Provides traffic flow data, information, & images
 - Examples: Inductive loops, VIDs, CCTV, etc.
- **Local City Control Site (LCCS) & Workstations (W/S)**
 - Facility to “house” central computer control systems & W/Ss
 - Target layout to “fit” each Agency (e.g., space, staff, \$\$, etc.)



SGVTF – Primary Components

- **Center-to-Center (C2C) Communications**
 - Provides connection between LACO TMC & Agency LCCS
 - Proposed as dedicated T1- line provided by SBC
 - Grant funded for 10-years
- **Field-to-Center (F2C) Communications**
 - Provides connection between LCCS & traffic signals/CCTV
 - Planned use of wireless communications (Spread Spectrum Radios or SSR)
 - Builds on existing comm. backbone where possible (copper, fiber optic, etc.)
- **System Integration**
 - Making all of the ITS components work together
 - Makes use of the Countywide IEN



SGVTF – Agency Levels (Defn.)

- **Level 1**
 - Agency does NOT operate its traffic signals
 - Agency wants to be “Agency B” on another Agency’s ATMS
 - Another Agency operates its traffic signals (e.g., LA County DPW)
 - Provided with an IEN W/S to monitor traffic signals & incident management activities
 - No separate ATMS W/S provided



SGVTF – Agency Levels (Defn.)

- **Level 2A**

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



SGVTF – Agency Levels (Defn.)

- **Level 2B**

- 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)
- 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



SGVTF – Agency Levels (Defn.)

- **Level 3**

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



SGVTF – Agency Levels (Planned)

Level 1 (26%)

- Duarte
- La Puente
- San Marino
- South El Monte
- South Pasadena
- Temple City

Level 2A (30%)

- Azusa
- Baldwin Park
- El Monte
- Monrovia
- Montebello
- Monterey Park
- San Gabriel

Level 2B (35%)

- Alhambra
- Arcadia
- Covina
- Glendora
- Irwindale
- Rosemead
- San Dimas
- West Covina

Level 3 (9%)

- LA County DPW
- Pasadena



SGVTF – Funding Issues

- **MTA & LA County DPW funding available**
 - Approx. \$8.1 million
- **Individual Agencies need to commit funding for on-going O&M**
 - Proposition “C” Local Return funds eligible



SGVTF – O&M Funding (Planned)

- **Yes (39%)**
 - Alhambra
 - Arcadia
 - Azusa
 - Irwindale
 - LA County DPW
 - Montebello
 - Pasadena
 - San Marino
 - West Covina
- **Maybe (35%)**
 - Covina
 - Duarte
 - Monrovia
 - Rosemead
 - San Dimas
 - San Gabriel
 - South Pasadena
 - Temple City
- **No (26%)**
 - Baldwin Park
 - El Monte
 - Glendora
 - La Puente
 - Monterey Park
 - South El Monte



SGVTF – Workshop Purpose

- **Funding**
 - SGVTF implementation budget is approx. \$8.1 million
 - SGVTF ITS Project cost is approx. \$18.5 million
- **How best to determine funding priorities??**
 - Prioritize SGVTF Corridors (E-W & N-S)
 - Determine ITS Project assumptions
 - Identify ITS Projects & cost per Corridor
 - Identify ITS Projects & cost per Agency
- **Confirm w/ SGVTF Stakeholder Agencies**



SGVTF – Priority Corridors

- **North-South (7)**

- Atlantic Blvd
- Azusa Ave
- Fremont Ave
- Grand Ave
- Myrtle Ave/Peck Rd
- San Gabriel Blvd
- Santa Anita Ave

- **East-West (4)**

- Main St/Las Tunas Dr/Live Oak Ave/Arrow Hwy
- Valley Blvd/Ramona Blvd/Badillo St
- Huntington Dr/Foothill Blvd/Alosta Ave/Rte 66
- Garvey Ave



SGVTF – East-West Corridors

- **Main St/Las Tunas Dr/Live Oak Ave/Arrow Hwy**
 - Starts: Main St @ Fremont Ave (Alhambra)
 - Ends: Arrow Hwy @ Valley Center (Glendora)
- **Valley Blvd/Ramona Blvd/Badillo St**
 - Starts: Valley Blvd @ Winchester Ave (Alhambra)
 - Ends: Badillo St @ Azusa Ave (Covina)
- **Huntington Dr/Foothill Blvd/Alosta Ave/Rte 66**
 - Starts: Huntington Dr @ Fremont Ave (Alhambra)
 - Ends: Rte 66 @ Lone Hill Ave (Glendora)
- **Garvey Ave**
 - Starts: Garvey Ave @ I-10 (Alhambra/Monterey Park)
 - Ends: Garvey Ave @ Durfee Ave/I-10 (El Monte)



SGVTF – North-South Corridors

- **Atlantic Blvd**

- Starts: Atlantic Blvd @ Huntington Dr (Alhambra)
- Ends: Atlantic Blvd @ Garvey Ave (Monterey Park)

- **Azusa Ave**

- Starts: Azusa Ave @ Foothill Blvd (Azusa)
- Ends: Azusa Ave @ Cameron Ave (West Covina)

- **Fremont Ave**

- Starts: Fremont Ave @ Columbia St (South Pasadena)
- Ends: Fremont Ave @ Garvey Ave (Alhambra)

- **Grand Ave**

- Starts: Grand Ave @ Rte 66/Alosta Ave (Glendora)
- Ends: Grand Ave @ I-10 (West Covina)



SGVTF – North-South Corridors (cont.)

- **Myrtle Ave/Peck Rd**

- Starts: Myrtle Ave @ Huntington Dr (Monrovia)
- Ends: Peck Rd @ Garvey Ave (El Monte)

- **San Gabriel Blvd**

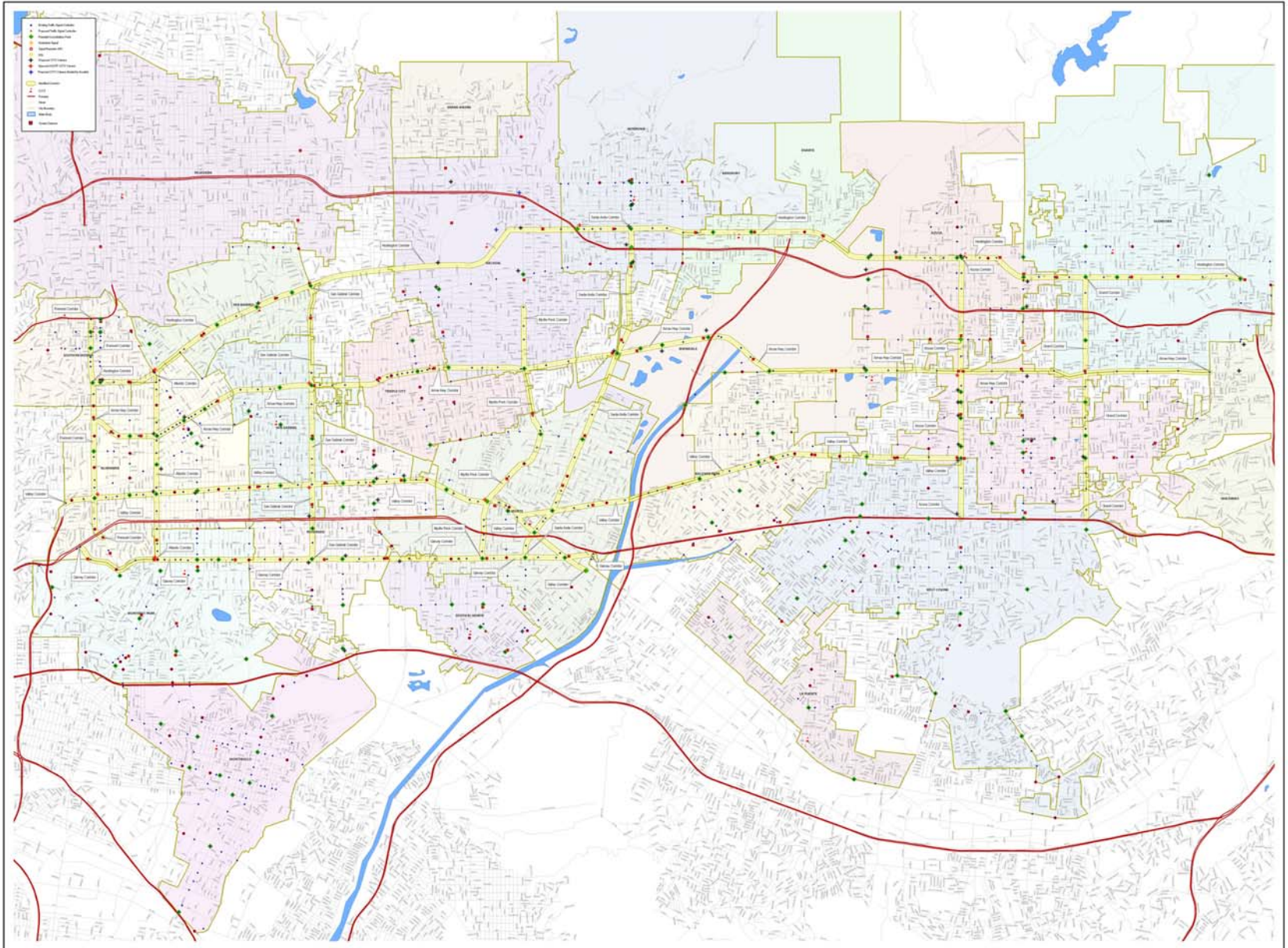
- Starts: San Gabriel Blvd @ Huntington Dr (San Marino)
- Ends: San Gabriel Blvd @ Garvey Ave (Rosemead)

- **Santa Anita Ave**

- Starts: Santa Anita Ave @ Camino Real (Arcadia)
- Ends: Santa Anita Ave @ Garvey Ave (El Monte)



SGVTF – Priority Corridors



SGVTF – ITS Project Assumptions

- IEN Workstation
- C2C Communications
 - T1-line to LACO TMC
- ATMS & TCS
 - Level 1 & 2A Connection to LA County TCS
 - Level 2B “New” TCS
- Traffic Controller & Cabinet Upgrades
- F2C Communications
 - Spread Spectrum Radio (Wireless)
- CCTV Cameras & Video Control System (VCS)
 - Level 1 & 2A Connection to LA County VCS
 - Level 2B “New” VCS



SGVTF – Priority Corridors

- SGVTF Budget \$8,096,951
- SGVTF Implementation Cost \$7,667,300
- Phase 2 Contingency \$ 429,651
- # of Signals 314
- # of “New” TCSs 6
- # of CCTVs 8
- # of “New” VCSs 3



SGVTF – Priority Corridors

• East-West (4)	\$5,909,200	226 signals
– Arrow Hwy	\$2,546,300	70
– Valley Blvd	\$1,435,300	68
– Huntington Dr	\$1,369,800	52
– Garvey Ave	\$ 557,800	36
• North-South (7)	\$1,758,100	88 signals
– Atlantic Blvd	\$232,800	12
– Azusa Ave	\$535,700	10
– Fremont Ave	\$130,700	19
– Grand Ave	\$204,800	11
– Myrtle Ave/Peck Rd	\$222,000	13
– San Gabriel Blvd	\$180,000	9
– Santa Anita Ave	\$252,100	14



SGVTF – East-West Corridors

- **Arrow Hwy**

- Cost **\$2,546,300**
- # of Traffic Signals **70**
- # of "New" TCSs **3 (Alhambra, Covina, & Irwindale)**
- # of CCTVs **2 (Arrow Hwy @ Azusa)
(Las Tunas Ave @ San Gabriel)**
- # of "New" VCSs **2 (Covina & LA County DPW)**

- **Valley Blvd**

- Cost **\$1,435,300**
- # of Traffic Signals **68**
- # of "New" TCSs **1 (Rosemead)**
- # of CCTVs **3 (Valley Blvd @ San Gabriel)
(Valley Blvd @ Fremont)
(Valley Blvd @ Santa Anita)**
- # of "New" VCSs **1 (Alhambra)**



SGVTF – East-West Corridors (cont.)



- **Huntington Dr**

- Cost **\$1,369,800**
- # of Traffic Signals **52**
- # of "New" TCSs **1 (Glendora)**
- # of CCTVs **2 (Huntington Dr @ Atlantic)
(Huntington Dr @ I-210)**
- # of "New" VCSs **None**

- **Garvey Ave**

- Cost **\$557,800**
- # of Traffic Signals **36**
- # of "New" TCSs **None**
- # of CCTVs **1 (Garvey Ave @ Atlantic)**
- # of "New" VCSs **None**



SGVTF – North-South Corridors

- **Atlantic Blvd**

- Cost \$232,800 (CCTV \$\$ in E-W Corridors)
- # of Traffic Signals 12
- # of "New" TCS None
- # of CCTVs 2 (Huntington Dr @ Atlantic)
(Garvey Ave @ Atlantic)
- # of "New" VCSs None

- **Azusa Ave**

- Cost \$535,700 (CCTV \$\$ in E-W Corridors)
- # of Traffic Signals 10
- # of "New" TCSs 1 (West Covina)
- # of CCTVs 1 (Arrow Hwy @ Azusa)
- # of "New" VCSs None



SGVTF – North-South Corridors (cont.)

- **Fremont Ave**

- Cost \$130,700 (CCTV \$\$ in E-W Corridors)
- # of Traffic Signals 19
- # of "New" TCS None
- # of CCTVs 1 (Valley Blvd @ Fremont)
- # of "New" VCSs None

- **Grand Ave**

- Cost \$204,800
- # of Traffic Signals 11
- # of "New" TCS None
- # of CCTVs None
- # of "New" VCSs None



SGVTF – North-South Corridors (cont.)

- **Myrtle Ave/Peck Rd**

- Cost **\$222,000**
- # of Traffic Signals **13**
- # of "New" TCS **None**
- # of CCTVs **None**
- # of "New" VCSs **None**

- **San Gabriel Blvd**

- Cost **\$180,000 (CCTV \$\$ in E-W Corridors)**
- # of Traffic Signals **9**
- # of "New" TCS **None**
- # of CCTVs **2 (Las Tunas Ave @ San Gabriel)
(Valley Blvd @ San Gabriel)**
- # of "New" VCSs **None**



SGVTF – North-South Corridors (cont.)

- **Santa Anita Ave**

- **Cost** \$252,100 (CCTV \$\$ in E-W Corridors)
- **# of Traffic Signals** 14
- **# of "New" TCS** None
- **# of CCTVs** 1 (Valley Blvd @ Santa Anita)
- **# of "New" VCSs** None



SGVTF – Alhambra (Level 2B)

- **SGVTF Funding** **\$895,500**
- **E-W Corridors** **4 (Arrow, Valley, Huntington, & Garvey)**
- **N-S Corridors** **2 (Atlantic & Fremont)**
- **# of Signals** **62**
- **"New" TCS** **Yes**
- **# of CCTVs** **2 (Valley @ Fremont) (Huntington @ Atlantic)**
- **"New" VCS** **Yes**
- **O&M Funding** **Yes**
- **Signal controllers to be upgraded along Valley & Garvey as part of LA County DPW TSSP/signal synch projects**



SGVTF – Arcadia (Level 2B)

- SGVTF Funding \$403,600
- E-W Corridors 1 (Arrow/Las Tunas)
- N-S Corridors 1 (Santa Anita)
- # of Signals 11
- “New” TCS No
- # of CCTVs None
- “New” VCS No
- O&M Funding Yes
- SGVTF Conceptual Design activities only focus on the roadways from Duarte Rd & area south of it
- Arcadia has separate ITS Projects that will cover the remaining portions of the City



SGVTF – Azusa (Level 2A)

- **SGVTF Funding** \$410,400
- **E-W Corridors** 2 (Arrow & Huntington)
- **N-S Corridors** 1 (Azusa)
- **# of Signals** 17
- **“New” TCS** No (Connect to LACO TCS)
- **# of CCTVs** None
- **“New” VCS** N/A
- **O&M Funding** Yes



SGVTF – Baldwin Park (Level 2A)

- **SGVTF Funding** **\$241,800**
- **E-W Corridors** **1 (Valley/Ramona)**
- **N-S Corridors** **None**
- **# of Signals** **13**
- **“New” TCS** **No (Connect to LACO TCS)**
- **# of CCTVs** **None**
- **“New” VCS** **N/A**
- **O&M Funding** **No**



SGVTF – Covina (Level 2B)

- SGVTF Funding \$677,800
- E-W Corridors 1 (Arrow)
- N-S Corridors 2 (Azusa & Grand)
- # of Signals 17
- "New" TCS Yes
- # of CCTVs 1 (Arrow @ Azusa)
- "New" VCS Yes
- O&M Funding Maybe



SGVTF – Duarte (Level 1)

- **SGVTF Funding** **\$156,800**
- **E-W Corridors** **1 (Huntington)**
- **N-S Corridors** **None**
- **# of Signals** **5**
- **"New" TCS** **No (Connect to LACO TCS)**
- **# of CCTVs** **None**
- **"New" VCS** **N/A**
- **O&M Funding** **Maybe**



SGVTF – El Monte (Level 2A)

- **SGVTF Funding** **\$794,800**
- **E-W Corridors** **2 (Valley & Garvey)**
- **N-S Corridors** **2 (Peck & Santa Anita)**
- **# of Signals** **50**
- **“New” TCS** **No (Connect to LACO TCS)**
- **# of CCTVs** **1 (Valley @ Santa Anita)**
- **“New” VCS** **No (Connect to LACO VCS)**
- **O&M Funding** **No**



SGVTF – Glendora (Level 2B)

- **SGVTF Funding** **\$439,700**
- **E-W Corridors** **2 (Arrow & Huntington)**
- **N-S Corridors** **1 (Grand)**
- **# of Signals** **18**
- **“New” TCS** **Yes**
- **# of CCTVs** **None**
- **“New” VCS** **No**
- **O&M Funding** **No**
- **Signal controllers to be upgraded along Alostia/Rte 66 as part of LA County DPW TSSP/signal synch projects**



SGVTF – Irwindale (Level 2B)

- **SGVTF Funding** **\$602,300**
- **E-W Corridors** **3 (Arrow, Valley/Ramona, & Huntington)**
- **N-S Corridors** **1 (Myrtle/Peck)**
- **# of Signals** **17**
- **"New" TCS** **Yes**
- **# of CCTVs** **None**
- **"New" VCS** **No**
- **O&M Funding** **Yes**



SGVTF – LA County DPW (Level 3)

- SGVTF Funding \$173,000
- SGVTF IEN W/S Yes
- C2C Equipment LACO TMC
- Video Control System Yes (Level 1 & 2A)
- O&M Funding Yes
- SGVTF Conceptual Design
 - ITS Projects & cost covered w/in individual Agencies
- TCS installation 2Q '06



SGVTF – La Puente (Level 1)

- **SGVTF Funding** \$0
- **E-W Corridors** None
- **N-S Corridors** None
- **# of Signals** 0
- **“New” TCS** N/A
- **# of CCTVs** None
- **“New” VCS** N/A
- **O&M Funding** No



SGVTF – Monrovia (Level 2A)

- **SGVTF Funding** **\$282,800**
- **E-W Corridors** **1 (Huntington)**
- **N-S Corridors** **1 (Myrtle/Peck)**
- **# of Signals** **10**
- **"New" TCS** **No (Connect to LACO TCS)**
- **# of CCTVs** **1 (Huntington @ I-210)**
- **"New" VCS** **No (Connect to LACO VCS)**
- **O&M Funding** **Maybe**



SGVTF – Montebello (Level 2A)

- **SGVTF Funding** \$0
- **E-W Corridors** None
- **N-S Corridors** None
- **# of Signals** 0
- **“New” TCS** N/A
- **# of CCTVs** None
- **“New” VCS** N/A
- **O&M Funding** Yes
- **Even though the City is also a member of the Telegraph Rd/I-5 Forum, SGVTF Conceptual Design activities performed in full**



SGVTF – Monterey Park (Level 2A)

- **SGVTF Funding** **\$374,300**
- **E-W Corridors** **1 (Garvey)**
- **N-S Corridors** **1 (Atlantic)**
- **# of Signals** **17**
- **“New” TCS** **No (Connect to LACO TCS)**
- **# of CCTVs** **1 (Garvey @ Atlantic)**
- **“New” VCS** **No (Connect to LACO VCS)**
- **O&M Funding** **No**
- **Signal controllers to be upgraded along Garvey as part of LA County DPW TSSP/signal synch projects**



SGVTF – Pasadena (Level 3)

- SGVTF Funding \$0
- O&M Funding Yes
- Since the City is basically already 100% “built-out” from an ITS perspective, only SGVTF Conceptual Design activity performed is location of potential system detectors



SGVTF – Rosemead (Level 2B)

- **SGVTF Funding** \$570,800
- **E-W Corridors** 2 (Valley & Garvey)
- **N-S Corridors** 1 (San Gabriel)
- **# of Signals** 20
- **“New” TCS** Yes
- **# of CCTVs** None
- **“New” VCS** No
- **O&M Funding** Maybe
- **Signal controllers to be upgraded along Valley & Garvey as part of LA County DPW TSSP/signal synch projects**



SGVTF – San Dimas (Level 2B)

- SGVTF Funding \$0
- O&M Funding Maybe
- Since the City is also a member of the Pomona Valley ITS Forum (PVITS), all Conceptual Design activities performed as part of PVITS



SGVTF – San Gabriel (Level 2A)

- **SGVTF Funding** **\$422,800**
- **E-W Corridors** **2 (Arrow & Valley)**
- **N-S Corridors** **1 (San Gabriel)**
- **# of Signals** **19**
- **“New” TCS** **No (Connect to LACO TCS)**
- **# of CCTVs** **2 (Valley @ San Gabriel)
(Las Tunas @ San Gabriel)**
- **“New” VCS** **No (Connect to LACO VCS)**
- **O&M Funding** **Maybe**
- **Signal controllers to be upgraded along Valley as part of LA County DPW TSSP/signal synch projects**



SGVTF – San Marino (Level 1)

- **SGVTF Funding** **\$247,800**
- **E-W Corridors** **1 (Huntington)**
- **N-S Corridors** **1 (San Gabriel)**
- **# of Signals** **10**
- **“New” TCS** **No (Connect to LACO TCS)**
- **# of CCTVs** **None**
- **“New” VCS** **N/A**
- **O&M Funding** **Yes**



SGVTF – South El Monte (Level 1)

- **SGVTF Funding** \$0
- **E-W Corridors** None
- **N-S Corridors** None
- **# of Signals** 0
- **“New” TCS** N/A
- **# of CCTVs** None
- **“New” VCS** N/A
- **O&M Funding** No



SGVTF – South Pasadena (Level 1)

- **SGVTF Funding** **\$261,800**
- **E-W Corridors** **1 (Huntington)**
- **N-S Corridors** **1 (Fremont)**
- **# of Signals** **12**
- **“New” TCS** **No (Connect to LACO TCS)**
- **# of CCTVs** **None**
- **“New” VCS** **N/A**
- **O&M Funding** **Maybe**



SGVTF – Temple City (Level 1)

- SGVTF Funding \$254,800
- E-W Corridors 1 (Arrow)
- N-S Corridors 1 (Santa Anita)
- # of Signals 11
- “New” TCS No (Connect to LACO TCS)
- # of CCTVs None
- “New” VCS N/A
- O&M Funding Maybe



SGVTF – West Covina (Level 2B)

- **SGVTF Funding** **\$386,900**
- **E-W Corridors** **1 (Valley/Badillo)**
- **N-S Corridors** **2 (Azusa & Grand)**
- **# of Signals** **5**
- **“New” TCS** **Yes (Replace existing VMS 330)**
- **# of CCTVs** **None**
- **“New” VCS** **No**
- **O&M Funding** **Yes**
- **Additional signal controllers to be upgraded as part of LA County DPW TSSP/signal synch projects**
- **Additional signals brought “on-line” via existing interconnect & “new” West Covina TCS**



SGVTF – Wrap-Up

- **Agency Confirmation**
 - SGVTF Priority Corridors
 - ITS Project assumptions
- **Next Steps**
 - Determine O&M cost per Agency
 - Obtain “City Concurrence” re: SGVTF Conceptual Design
 - ITS Projects & cost
 - Ability to provide O&M funding
- **Questions & Answers**





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