City of Chula Vista
Traffic Signal Communications Master Plan

City Council Meeting
September 12, 2017

Why was the Traffic Signal Communications Master Plan needed?

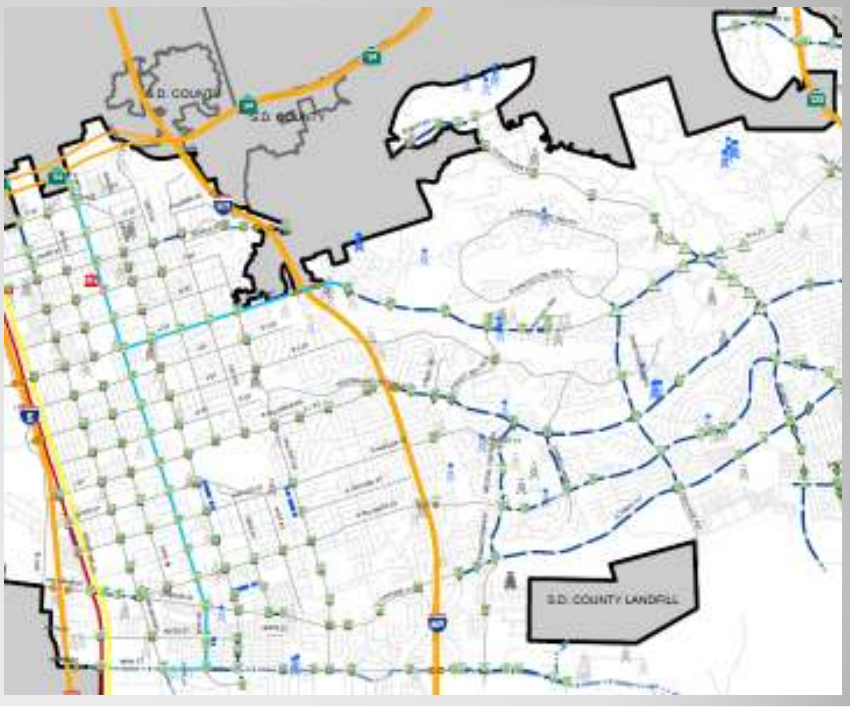
- Existing communications systems are functionally obsolete
  - Existing system is almost 30 years old
  - Over 90 percent of City's traffic signals communicate via AT&T lease lines (telephone drops)
- Needed to identify the status of our existing traffic signal communications infrastructure
- Needed to identify potential for communication upgrades and other technology upgrades to support advanced transportation systems

Master Plan Goals

- Support current and future industry standards
- Eliminate single vendor dependency
- Increase system reliability and capacity
- Reduce system costs
- Create a redundant & self healing network
- Provide a guide to City staff to help identify gaps/needs & future network expansion opportunities

The Master Plan – Element 1: Existing System

- Inventory the existing system
  - Research existing documentation
  - Map the system
    - Traffic signal locations
    - Conduit
    - Communication media
    - Phone line, fiber, copper, & wireless
    - City-owned and private communications towers

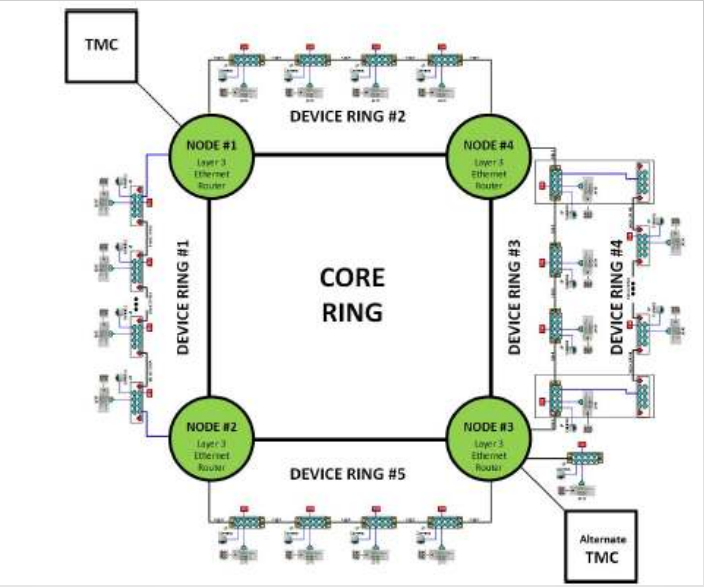


The Master Plan – Element 2: Needs Assessment

- Existing system deficiencies
- Resolution identification
- Future road network needs and potential opportunities
- Traffic Signal Communications Center (TSCC) needs:
  - Data center is obsolete
  - Traffic signal central system
  - Sydney Coordinated Adaptive Traffic System (SCATS)

The Master Plan – Element 3: Future System & ITS Elements

- Future system architecture



- ITS element recommendations
  - CCTV cameras, data collection devices, advanced traffic signal controllers, dynamic message signs

The Master Plan – Element 4: Implementation Phasing Plan

- Phased Approach:
  - Phase 1: City-owned Infrastructure (Years 1-3)
    - Eliminate low bandwidth & costly phone lines
    - Upgrade existing fiber optic system to Ethernet
  - Phase 2: Infrastructure & Priority Corridors Upgrade (Years 4-6)
    - Install fiber optic cable in existing empty conduits
    - Install more fiber optic cable
  - Phase 3: Citywide Buildout (Years 7-10)
    - Buildout of the rest of the traffic systems communications network
    - Deploy more CCTVs and other ITS elements
    - Complete upgrade to 2070 ATC controllers

The Master Plan – Benefit-Cost Analysis

- Benefits:
  - Enhanced network creates opportunities to coordinate/optimize traffic signals
    - Reduction in travel time
    - Fuel savings
    - Reduction in greenhouse gas emissions
  - Able to share network with other departments & agencies
  - Support deployment of Smart City components
  - Improve mobility for all modes, including bicyclists, pedestrians, transit, and emergency vehicles

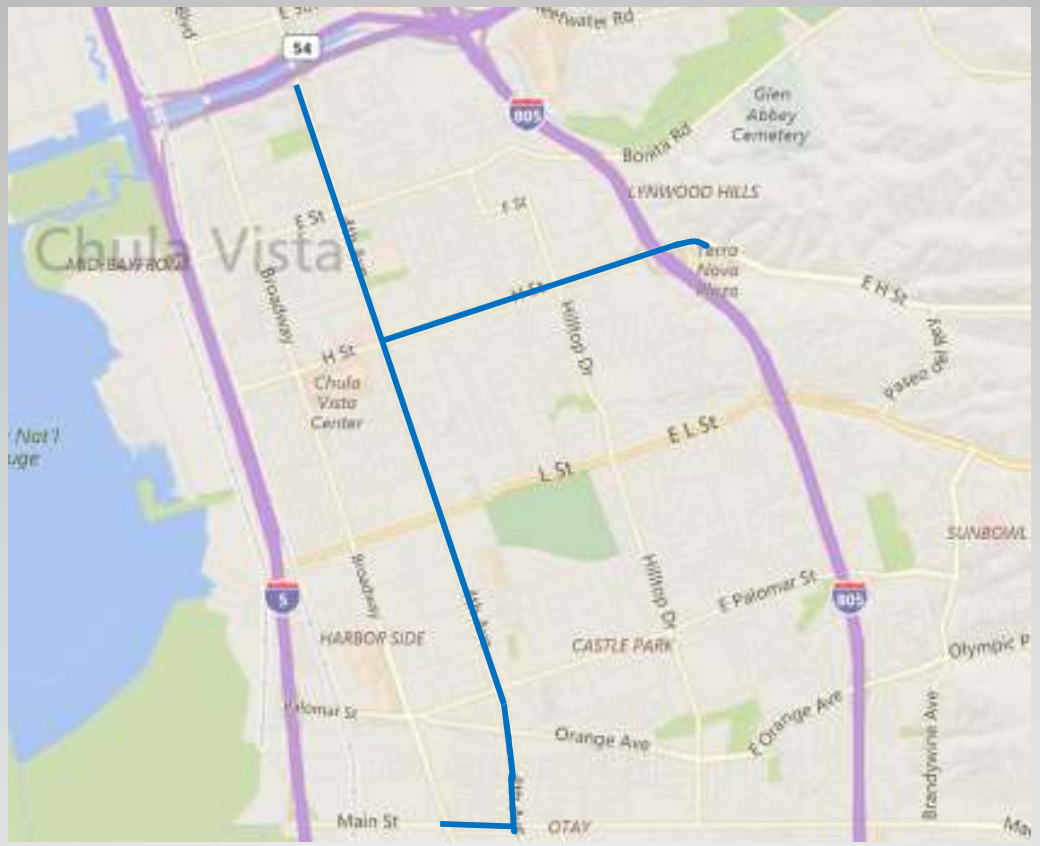
The Master Plan – Work Completed to Date

Traffic Signal Communications Center (TSCC) Upgrade

The Master Plan – Work Completed to Date

New Traffic Management Center (TMC)

The Master Plan – Work Completed to Date



Upgraded Existing Fiber Optic Systems to Ethernet

CITY OF CHULA VISTA

The Master Plan – Ongoing Efforts

- Eliminate obsolete telephone lines

- Upgrade existing traffic signal central system to an Advanced Traffic Management System (ATMS)

- Connect traffic signals on East Palomar Street (Heritage Rd - Olympic Py) onto new fiber network.
  - Part of South Bay Bus Rapid Transit project (Phase 1B)

The Master Plan – Next Steps

- Implement funded projects:
  - **Main Street** Fiber Optic System
  - Replace & expand **adaptive traffic control system**
  - **Measure P** Citywide
    - Communications Upgrades
      - Citywide replacement of obsolete communications systems
      - Upgrade of traffic signal equipment

- Establish partnerships with other City Departments, neighboring agencies, and local businesses
  - IT, Police, Fire, SANDAG, CALTRANS, MTS, Cox, etc.

- Secure additional funding:
  - TransNet, grants, etc.

The Master Plan

QUESTIONS?