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Caltrans Strategic Management Plan
Goal 2: Stewardship and Efficiency

- Strategic Objective: Efficiently manage transportation assets by implementing the asset management plan, embracing a fix it first philosophy
  - Performance Measure: Measure ITS elements health, system operability, and equipment workability
    - Target: by 2020 maintain 90% or better ITS element health (SB 486 requirement)

Caltrans Strategic Management Plan Goal 2: Stewardship and Efficiency

- Performance Measure: Percentage of projects including a life cycle cost analysis methodology for point of evaluation in project selection.
  - Target: By 2020, 100% of SHOPP projects to include a life cost analysis methodology.

Intelligent Transportation Systems (ITS)

- Improved efficiency of existing facilities
- Less costly than major construction
- Cost effective means of managing traffic

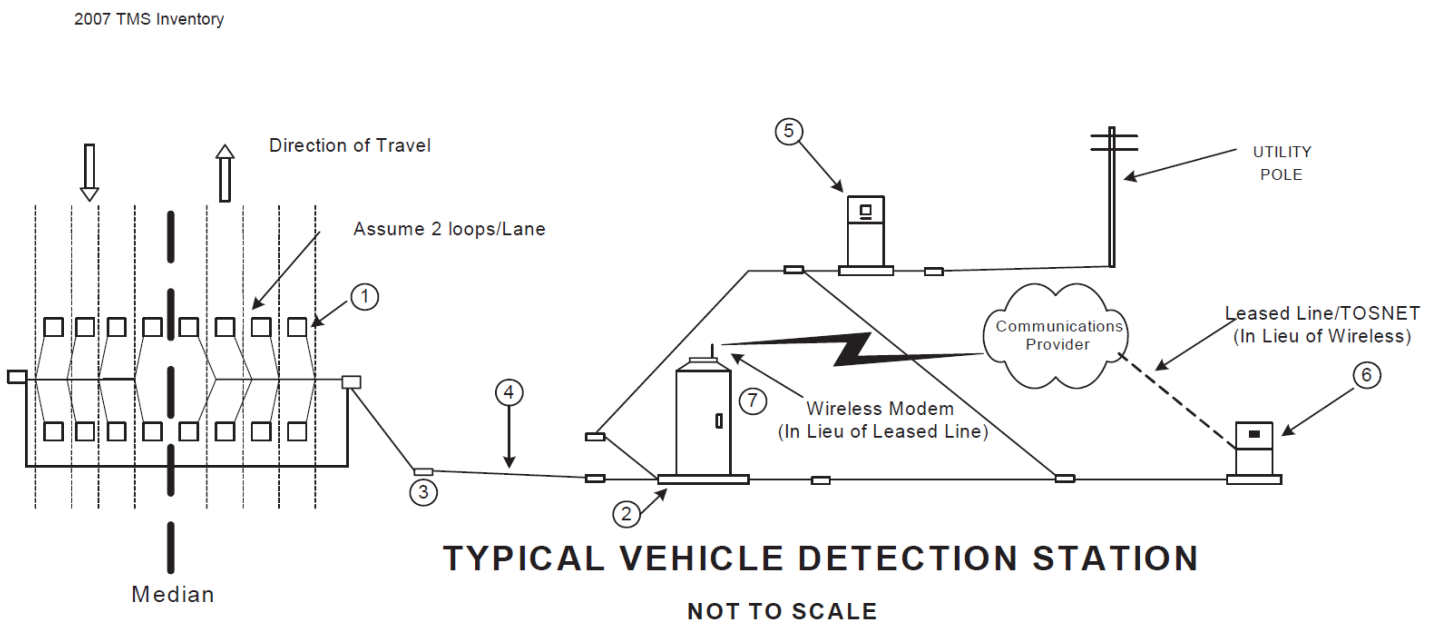
Major ITS Elements (SB 486 Mandated)

- Vehicle Detection Stations (VDS)
- Ramp Meters (RM)
- Changeable Message Signs (CMS)
- Note: There are other major ITS elements not mandated for current analysis

Vehicle Detection Stations

- Embedded roadside detectors and cabinets
- VDS gather vehicle volume and speed data
- VDS data are analyzed by the Performance Measurement System (PeMS)
- PeMS analysis includes congestion and historic trend analyses
- Provides data for travel time and supports CFR 511
- Caltrans has 4,246 VDS which include 41,903 individual lane detectors

Vehicle Detection Station



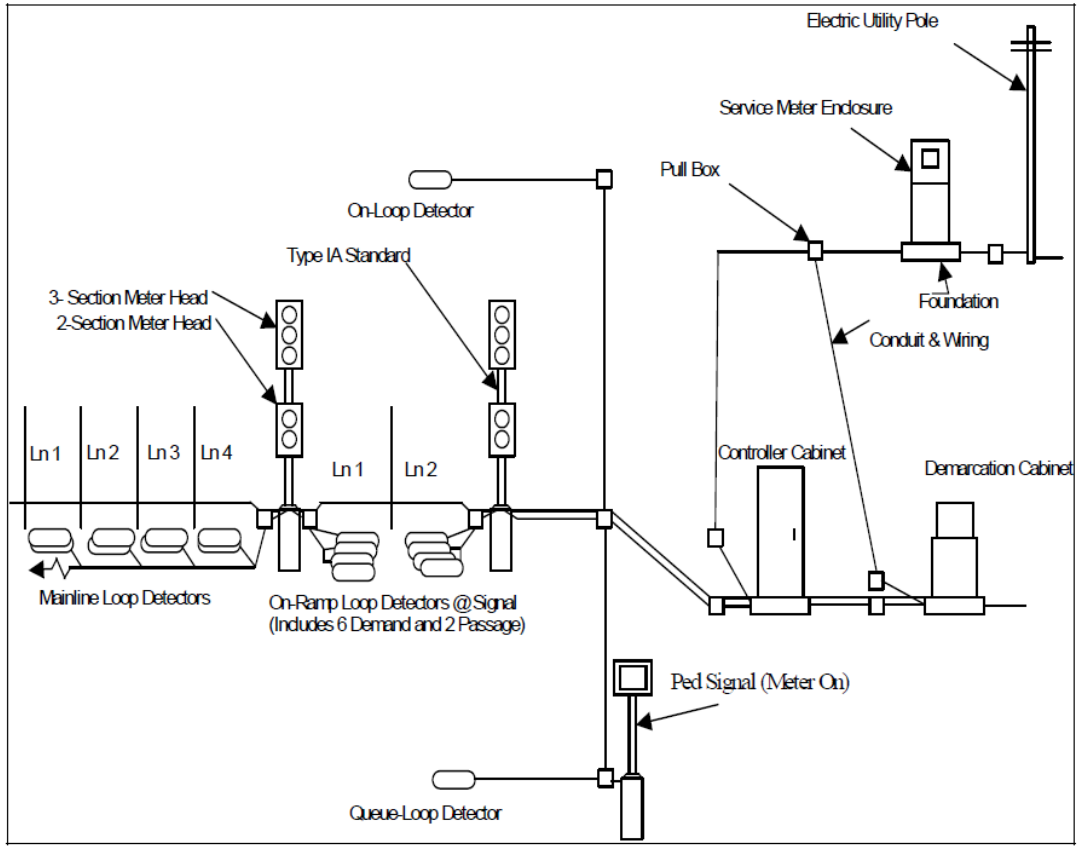
Traffic Controller Cabinet Equipment

Vehicle Detection Loops

Ramp Metering

- Caltrans has 2,723 ramp meters
- Ramp meters regulate the rate at which vehicles enter the main line
- Ramp meters prevent clumping of vehicles
- Ramp meters have been shown to reduce delay by 30% or more in congested urban corridors (Levinson, D. (2004). *Ramp meters on trial: Evidence from the Twin Cities metering holiday*. Retrieved from http://nexus.umn.edu/papers/RampMetersOnTrial.pdf)

Ramp Metering



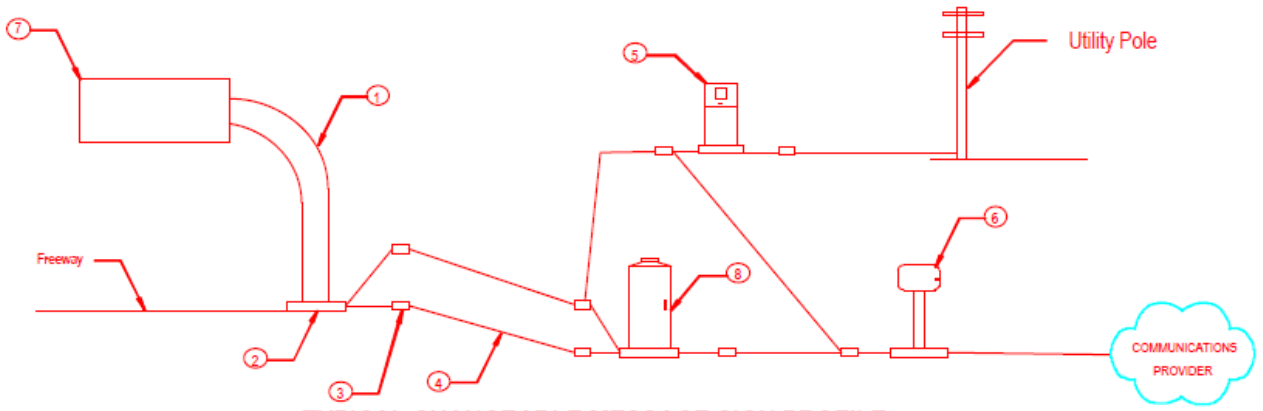
Ramp Metering

Ramp Meters

Changeable Message Signs (CMS)

- CMS provides traveler information:
  - Projected travel times
  - Road condition alerts
  - Safety reminders
  - “Amber” alerts
  - Caltrans has 815 CMS

Changeable Message Sign



TYPICAL CHANGEABLE MESSAGE SIGN PROFILE

NOT TO SCALE

CONSTRUCTION

1. CMS FRAME & STRUCTURE
2. FOUNDATIONS
3. PULL BOXES
4. CONDUIT & WIRING
5. SERVICE METER ENCLOSURE

HARDWARE

6. TEL. DEMARC. CABINET
7. CONTROLLER CABINET AND ASSEMBLY
8. CHANGEABLE MESSAGE SIGN

INCLUDING:
CONTROLLER CABINET
CMS CONTROLLER
MODEM
POWER DIST. ASSY.

SOFTWARE

SIGNVIEW PROGRAM (FIRMWARE)

Changeable Message Sign

Changeable Message Sign

ITS Asset Performance- Current Definition

- Good
  - Providing complete and accurate data set
  - Reliable access
- Poor
  - Incomplete or inaccurate data set
  - No communication
  - Repairs beyond capability of State Maintenance forces
  - Equipment beyond service life and support, obsolete

Current ITS Asset Performance

(Approximate Values, Major Revision Currently Underway)

Asset Type	Statewide Number	Good	Poor
Changeable Message Signs	815	89%	11%
Detectors	41,903	66%	34%
Ramp Meters	2,723	87%	13%