

# Baseline VMT Data Source Evaluation

## Purpose:

Tehama County must comply with SB 743, which requires CEQA transportation impact analysis to shift from measuring “Level of Service” (LOS) to Vehicle Miles Traveled (VMT). The County lacks a locally developed and calibrated travel demand model, so alternative data sources are needed for baseline and threshold-setting.

## Three data sources evaluated:

### 1. California Statewide Travel Demand Model (CSTDM)

- Operated by Caltrans; forecasts statewide short/long-distance travel.
- *Strengths:* Can produce forecasts by trip purpose and traveler type.
- *Limitations:*
  - Only **seven large traffic analysis zones (TAZs)** for all of Tehama County – poor local sensitivity.
  - Calibrated to 2015 conditions; no post-pandemic adjustments.
  - Truncates trips at California borders.
- Example metric: 2015 Home-based VMT per resident = **9.1**, Home-based work VMT per employee = **11.2**.

### 2. VMT+ (StreetLight Data)

- Uses anonymized smartphone/connected vehicle data.
- Provides **home-based VMT per capita** and **home-based work VMT per employee**.
- Data for **2019 & 2022** show declines (pandemic effects, more telework, online shopping).
  - 2019: 29.4 VMT/resident, 18.5 VMT/employee.
  - 2022: 28.9 VMT/resident, 18.1 VMT/employee.
- *Limitations:* Post-2022 changes in data privacy limit ability to identify trip purposes. Smaller rural sample sizes may reduce reliability. Cannot forecast.

### 3. Replica

- Nationwide activity-based model simulating daily trip “tours” by residents, visitors, and freight.
- Higher geographic resolution (census block group) than CSTDM.
- Provides **Total resident-generated VMT**, **Home-based VMT**, **Home-based work VMT**, and **Total network VMT**.
  - 2019: 33.9 VMT/resident, 28.1 VMT/employee.
  - 2024: 30.7 VMT/resident, 19.4 VMT/employee.
- *Limitations:* Not fully validated for California; requires careful filtering by user; cannot forecast long-term changes.

**Conclusion:**

- **CSTDm** best for forecasting but least locally accurate.
- **VMT+** is simple to use and captures pre/post-pandemic shifts but limited to certain metrics and years.
- **Replica** offers more local detail and broader metrics but less CA-specific calibration.
- All can establish CEQA baselines and thresholds, but trade-offs exist between geographic precision, forecast capability, and metric scope.

# Asset Assessment Findings – Tehama County (Admin Draft, Aug 2025)

## 1. County Facilities (Buildings)

- **Inventory:** ~60 county-owned facilities, totaling **~389,000 sq ft**. Includes admin offices, courthouses, health clinics, public safety buildings, libraries, and community centers.
- **Largest Facilities:**
  - Tehama County Jail – 40,975 sq ft
  - Social Services Department Complex – 39,966 sq ft
  - Health Services Agency Clinic – 34,591 sq ft
  - Juvenile Hall – 34,233 sq ft
  - Old Courthouse – 28,962 sq ft
- **Age & Condition:** Many structures built 1920s–1980s. Deferred maintenance issues: outdated HVAC, poor insulation, single-pane windows, roofs nearing end of life. Overcrowding in some offices (e.g., Social Services).
- **Energy Performance:**
  - 2008 baseline: 4.96M kWh/year electricity use (~450 households' worth).
  - Annual cost ~\$750k at \$0.15/kWh.
  - 1,450 MTCO<sub>2</sub>e/year from electricity use.
  - No on-site renewables; large rooftops suitable for solar PV.
- **Risks:** Wildfire exposure for some urban-wildland interface sites; extreme heat increasing HVAC demand; possible flooding for certain facilities.

## 2. Vehicle Fleet (Transportation & Equipment)

- **Inventory:** ~200 on-road vehicles; mix of passenger cars, SUVs, trucks, heavy-duty public works vehicles, emergency response units, and **17 TRAX buses** (diesel/gasoline).
- **Age & Reliability:** Many exceed 10–15 years of service; high maintenance downtime, especially older public works trucks and buses.
- **Fuel & Emissions:**
  - 2008 baseline: 180,000 gallons of fuel/year.
  - 2,360 MTCO<sub>2</sub>e/year from operations; another ~2,100 MTCO<sub>2</sub>e from employee commuting.
- **Usage Patterns:**
  - Sheriff's patrol: high mileage and idling.
  - Public Works: seasonal heavy use (snow plowing, construction).

- TRAX: tens of thousands of miles/year; reliable operation critical for public trust.
- **Regulatory Deadlines:**
  - **Advanced Clean Fleets Rule:** All light-duty county fleet purchases ZEV by Jan 1, 2027.
  - **Innovative Clean Transit Rule:** All new buses ZEV by 2029; entire fleet ZEV by 2040.
- **Opportunities:** Immediate transition of high-mileage light-duty vehicles to EVs; plug-in hybrids for longer routes; install Level 2 chargers at key county facilities; pursue HVIP & FTA Low/No-Emission grants.

### 3. Transportation Infrastructure (Roads, Bridges, Traffic Assets)

- **Road Network:** ~1,000 miles of county-maintained roads.
  - PCI (Pavement Condition Index) average = **50 (“Poor”)**, down from 54 in 2018 and 65 in 2012.
  - Below statewide local road average (66 in 2022).
  - Poor roads increase safety risks, vehicle wear, and fuel use.
- **Bridges:** 304 total county & city-owned.
  - 59 eligible for replacement (structural/functionally obsolete).
  - 96 eligible for rehabilitation.
  - Estimated total bridge need: \$172M (2020 RTP).
- **Traffic Assets:** Minimal county-maintained signals; street lighting accounts for ~1% of county electricity use (~58,830 kWh/year).
- **Risks:**
  - Extreme heat softening asphalt.
  - Wildfire damage to guardrails, signage, pavements.
  - Post-fire debris flows and flooding undermining roads/bridges.
- **Opportunities:** PCI improvement program; integrate climate-resilient materials/designs; target SB1, IIJA, FEMA BRIC funding.

### 4. County-Owned Utilities & Energy Systems

- **Electricity & Gas:** All grid-supplied (PG&E); no on-site generation except emergency diesel generators.

- **Water/Wastewater:** Limited direct management; wells and septic at remote sites; most supply from municipal/district providers.
- **Solid Waste:** Tehama County/Red Bluff Landfill = major methane source (~7,800 MTCO<sub>2</sub>e/year in 2008 baseline).
- **Telecoms:** Radio towers for emergency services; wildfire/wind exposure risk; rely on battery backups.
- **Opportunities:** Methane capture or flare; EV charging infrastructure expansion; drought-resilient facility retrofits; smart monitoring systems.

## 5. Parks & Open Spaces

- **Key Sites:** River Park, Mill Creek Park, Ridgeway Park, smaller community spaces.
- **Condition:** Fair; targeted upgrades like ADA-compliant restrooms and picnic facilities.
- **Risks:**
  - 88% of county land = moderate+ wildfire hazard.
  - River Park flood risk from Sacramento River.
  - Extreme heat reducing summer usability.
- **Opportunities:** Wildfire defensible space, shaded seating, solar-powered lighting, resilient landscaping, integration into carbon sequestration programs.

## 6. Cross-Cutting Findings

- **Overall State of Good Repair:** Below benchmarks for all major asset categories.
- **Financial Exposure:** Deferred maintenance increases costs (road overlays ~\$200k/mile vs. reconstruction ~\$1M/mile).
- **Climate Hazards:** Direct and compounding effects from wildfire, extreme heat, flooding, drought.
- **Regulatory Pressures:** SB 32, EO B-55-18, CARB ZEV rules, Title 24 energy code, SB 1383 organic waste diversion.
- **Funding Gap:** Large unfunded needs (~\$10M+ each for facilities & fleet; ~\$172M for bridges/roads).

- **Opportunity:** Leverage state/federal grants, public-private partnerships, and energy savings performance contracts.