Measuring the Miles: Developing New Metrics for Vehicle Travel in Los Angeles

ITE Western & Texas Districts 2018 Annual Meeting

Tom Gaul

June 27, 2018
Transportation policy is evolving
CALIFORNIA & LOS ANGELES ARE LEADING THE WAY
Outcomes with Current Policies
By focusing on reducing driver delay
Streets can become less comfortable and less safe for everyone
Focusing on local vehicle delay encourages development far away from common destinations.
Why the Changes?

- We can’t widen our way out of congestion...
- ...yet everyone wants to ease traffic
- Our continued economic growth and activity...
- ...needs more and enhanced transportation
- Our changing demographics and preferences...
- ...are shifting toward active transportation
Transportation Tech Innovations

The Rise of Shared Mobility
California Complete Streets Act
California Senate Bill 743
LA County Measure M
LA Vision Zero Action Plan
LA Mobility Plan 2035
Sustainable City Plan
LA Mayor ED 1 Great Streets
Proposed New CEQA Guidelines

Would the project:

- Conflict with a City plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle lanes and pedestrian paths?

- Land use projects with VMT exceeding an applicable threshold of significance may be significant.

- Transportation projects that reduce or have no impact on VMT presumed to be less than significant; lead agencies have discretion to determine metric for roadway capacity projects.

- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

- Result in inadequate emergency access?
From LOS to VMT

**LOS**
measures vehicle capacity,

**VMT**
measures vehicle miles traveled,

By moving from LOS to VMT, we can evaluate the impacts based on travel distance, encourage development near transit, and promote more diverse travel choices.
Reviewing Projects through a VMT lens

**Step 1**
Project Screening

**Step 2**
VMT Impact Analysis
- VMT Calculator
- Model run for large scale projects

**Step 3**
Apply TDM as project mitigation
Proposed VMT Impact Criteria

- For **residential** projects, significant if daily household VMT per capita exceeds 15% below existing APC.
- For **office** projects, significant if daily work VMT per employee exceeds 15% below existing APC.
- For **retail** projects, significant if project would result in a net increase in VMT (<50,000 sf exempt).
- For **other** land use types, measure VMT impacts for work trip element using office criteria.
- For **mixed-use** projects, evaluate each use separately.
## Proposed VMT Impact Criteria

### Household per Capita

<table>
<thead>
<tr>
<th>Area Planning Commission</th>
<th>Daily Household VMT per Capita</th>
<th>Proposed Impact Threshold (Less 15%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central</td>
<td>7.1</td>
<td>6.0</td>
</tr>
<tr>
<td>East LA</td>
<td>8.5</td>
<td>7.2</td>
</tr>
<tr>
<td>Harbor</td>
<td>10.8</td>
<td>9.2</td>
</tr>
<tr>
<td>North Valley</td>
<td>10.8</td>
<td>9.2</td>
</tr>
<tr>
<td>South LA</td>
<td>7.0</td>
<td>6.0</td>
</tr>
<tr>
<td>South Valley</td>
<td>11.1</td>
<td>9.4</td>
</tr>
<tr>
<td>West LA</td>
<td>8.7</td>
<td>7.4</td>
</tr>
<tr>
<td>Citywide</td>
<td>9.0</td>
<td>n/a</td>
</tr>
</tbody>
</table>

### VMT PER CAPITA BY HOUSEHOLD

Traffic Analysis Zone (TAZ) Compared to APC Average

- Above APC average
- 0% up to 10% below average
- 10% up to 15% below average
- 15% up to 20% below average
- 20%+ below average

**Map Key:**
- APC Boundaries
- City of Los Angeles Boundary
## Proposed VMT Impact Criteria

### Work per Employee

<table>
<thead>
<tr>
<th>Area Planning Commission</th>
<th>Daily Work VMT per Employee</th>
<th>Proposed Impact Threshold (Less 15%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central</td>
<td>8.9</td>
<td>7.6</td>
</tr>
<tr>
<td>East LA</td>
<td>14.9</td>
<td>12.7</td>
</tr>
<tr>
<td>Harbor</td>
<td>14.5</td>
<td>12.3</td>
</tr>
<tr>
<td>North Valley</td>
<td>17.6</td>
<td>15.0</td>
</tr>
<tr>
<td>South LA</td>
<td>13.6</td>
<td>11.6</td>
</tr>
<tr>
<td>South Valley</td>
<td>13.6</td>
<td>11.6</td>
</tr>
<tr>
<td>West LA</td>
<td>13.1</td>
<td>11.1</td>
</tr>
<tr>
<td>Citywide</td>
<td>12.7</td>
<td>n/a</td>
</tr>
</tbody>
</table>

### VMT PER EMPLOYEE

Traffic Analysis Zone (TAZ) Compared to APC Average

- Above APC average
- 0% up to 10% below average
- 10% up to 15% below average
- 15% up to 20% below average
- 20% + % below average
- APC Boundaries
- City of Los Angeles Boundary
Affordable housing & localized trip generation rates

Mixed-use vehicle trip adjustments & VMT

Travel demand forecasting model update
Affordable housing & localized trip generation rates

Vehicle trip generation is different across the City...

...so we did case study analyses in representative locations

Daily vehicle trip rates are not available for all uses...

...so we allow the user to specify land use and trip purpose mix
LA Affordable Housing Trip Generation

Trip Rates based on local data

<table>
<thead>
<tr>
<th>Type</th>
<th>Daily Trip Rate (Trips per dwelling unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Affordable Housing</td>
<td>4.16</td>
</tr>
<tr>
<td>Senior Affordable Housing</td>
<td>1.72</td>
</tr>
<tr>
<td>Special Needs</td>
<td>1.49</td>
</tr>
<tr>
<td>Permanent Supportive</td>
<td>1.23</td>
</tr>
<tr>
<td>Low-Rise Residential</td>
<td>7.32</td>
</tr>
</tbody>
</table>

ITE Manual Trip Rates

<table>
<thead>
<tr>
<th>Type</th>
<th>Daily Trip Rate (Trips per dwelling unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-Rise Residential</td>
<td>4.45</td>
</tr>
<tr>
<td>Senior Adult Housing Attached</td>
<td>3.70</td>
</tr>
<tr>
<td>Congregate Care Facility</td>
<td>2.02</td>
</tr>
<tr>
<td>Continuing Retirement Community</td>
<td>2.50</td>
</tr>
</tbody>
</table>
Mixed use projects generate trips differently...

so we applied national research and local case studies

A mix of trip purposes must be estimated since lengths differ...

so we applied household travel survey and travel model data

“D” Factors that Affect Trip Generation

1. Density dwellings, jobs per acre
2. Diversity mix of housing, jobs, retail
3. Design connectivity, walkability
4. Destinations regional accessibility
5. Distance to Transit rail proximity
6. Development Scale pop, jobs
7. Demographics household size, income
Existing VMT/capita is different across the City...

...so we mapped and examined area specific criteria

Travel demand forecasting model update
CITY OF LOS ANGELES VMT CALCULATOR Version 1.0

**Project Information**

- **Project:** METC
- **Scenario:** Scenario 1
- **Address:** 12101 W OLYMPIC BLVD, 90064

**TDM Strategies**

- **Parking**
  - **Reduce Parking Requirements**
    - Proposed Pj Mitigation: city code parking provision for the project site
    - Actual parking provision for the project site: 74
  - **Unbundle Parking**
    - Proposed Pj Mitigation: monthly parking cost for the project site: 125
  - **Express Park Coordination / Market Rate Street Parking**
    - Proposed Pj Mitigation: percent increase in on-street parking prices (min 25%, max 50%)

- **Transit**

- **Education & Encouragement**

- **Commute Trip Reductions**

- **Shared Mobility**

- **Bicycle Infrastructure**

- **Neighborhood Enhancement**

**Analysis Results**

<table>
<thead>
<tr>
<th>Proposed Project</th>
<th>With Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>8,351 Daily Vehicle Trips</td>
<td>7,286 Daily Vehicle Trips</td>
</tr>
<tr>
<td>59,380 Daily VMT</td>
<td>51,749 Daily VMT</td>
</tr>
<tr>
<td>9.0 Household VMT per Capita</td>
<td>7.0 Household VMT per Capita</td>
</tr>
<tr>
<td>9.7 Work VMT per Employee</td>
<td>7.6 Work VMT per Employee</td>
</tr>
</tbody>
</table>

**Significant VMT Impact?**

- **Household: Yes**
  - Threshold = 7.4
  - 15% Below APC
- **Household: No**
  - Threshold = 7.4
  - 15% Below APC
- **Work: No**
  - Threshold = 11.1
  - 15% Below APC
- **Work: No**
  - Threshold = 11.1
  - 15% Below APC

**Land Use Type**

<table>
<thead>
<tr>
<th>Land Use Type</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail</td>
<td>Fast-Food Restaurant</td>
<td>10</td>
</tr>
<tr>
<td>Housing</td>
<td>Multi-Family</td>
<td>516</td>
</tr>
<tr>
<td>Retail</td>
<td>General Retail</td>
<td>45</td>
</tr>
<tr>
<td>Retail</td>
<td>High-Turnover Sit-Down Restaurant</td>
<td>4</td>
</tr>
<tr>
<td>Retail</td>
<td>Fast-Food Restaurant</td>
<td>10</td>
</tr>
<tr>
<td>Office</td>
<td>General Office</td>
<td>200</td>
</tr>
</tbody>
</table>

**Click here to add a single custom land use type (will be included in the above list)**
Mitigation options include:

- Parking management (priced, unbundled, shared)
- Transit incentives (bulk pass purchase, shuttles)
- Education and encouragement
- Bicycle infrastructure
- Shared mobility (car share, bike share)
- Commute trip reduction
- Neighborhood enhancement

TDM Measures as Mitigation
Related Implementation Tools

re:code LA

TDM Ordinance

VMT-Based Fee Programs

Measuring the Miles
New Evaluation Process

- New Transportation Study Procedures
- Affordable Housing & Mixed Use Vehicle Trip Adjustments
- Updated Tools for Evaluation
- Localized Trip Generation Rates & VMT
- Credit System & Monitoring for TDM
- Area-Specific VMT Impact Criteria

Measuring the Miles
See you on the streets.