CALTRANS EQUITY INDEX

INFORMATION SESSION #2: BETA UPDATE

March 28, 2023

PRESENTED BY: ERIC SUNDQUIST, CAROLYN ABRAMS, AND HENRY MCKAY

DIRECTOR’S OFFICE OF EQUITY, SUSTAINABILITY & TRIBAL AFFAIRS
CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS)
AGENDA

1. Purpose and motivation for the Caltrans Equity Index
2. Alignment with State and Federal Efforts
3. Potential Applications of the Tool
4. Equity Index Overview
   • Methodology
   • Data layers
   • Comparison to other mapping tools
5. Public Engagement Plan
EXEMPLARY FROM CALTRANS EQUITY STATEMENT

Caltrans recognizes our leadership role and unique responsibility in State government to eliminate barriers to provide more equitable transportation for all Californians.

This understanding is the foundation for intentional decision-making that recognizes past, stops current, and prevents future harms from our actions.
EQI OBJECTIVES

• Identify indicators to account for equity-based outcomes
• Develop data-driven definition for underserved communities
• Assist in the evaluation and prioritization of the department’s plans and projects
STATE CONSIDERATIONS

• CAPTI Action S3.4:
  o Identify indicators to account for equity-based outcomes
  o Assist in the evaluation and prioritization of the department’s projects

• Reconnecting Communities: Highways to Boulevards Pilot Program (Cal. Sts. & Hy. Code § 104.3)
  • Requires development of data-driven definition for underserved communities
FEDERAL CONSIDERATIONS

• Justice 40: “A commitment to deliver 40 percent of the overall benefits of Federal climate, clean energy, affordable and sustainable housing, clean water, and other investments to disadvantaged communities that are marginalized, underserved, and overburdened by pollution.”
POTENTIAL USE OF THE TOOL

Informational
• Project reviews
• Environmental reviews

Funding allocation
• Discretionary grants
• Program guidelines

Decision-making
• Corridor/area planning
• Project prioritization
• Equity assessment/mitigation
• Performance measurement
BETA EQI APPROACH

• Granularity
• Spatially-significant indicators
  o Some equity issues may not be spatial
• Focus on issues affected by transportation decisions
• Avoid double counting indicators
<table>
<thead>
<tr>
<th>BETA EQI INDICATORS</th>
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<tr>
<td><strong>Transportation Burdens</strong></td>
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<tr>
<td>• Truck-weighted traffic proximity and volume</td>
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<td>• Crash exposure</td>
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<tr>
<td><strong>Transportation Benefits</strong></td>
</tr>
<tr>
<td>• Access to work destinations</td>
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<tr>
<td>• Access to nonwork destinations</td>
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<td><strong>Demographics</strong></td>
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<tr>
<td>• Household income</td>
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<tr>
<td>• Race/ethnicity</td>
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</table>
DEMOGRAPHIC OVERLAY

Demographic Indicator

- **Household Income**
  
  Proposed threshold: \( \leq 80\% \) of the statewide median household income OR \( \leq \) HCD county low-income threshold (AB 1550)

  **AND/OR**

- **Race and Ethnicity Data**
  
  Proposed threshold: \( \geq 63\% \) non-white (statewide average)
TRAFFIC EXPOSURE

Traffic Exposure Indicators

• Traffic Proximity and Volume
  Proposed threshold: ≥ 80th percentile for truck-weighted traffic proximity and volume exposure
  OR

• Crash Exposure Data
  Proposed threshold: ≥ 80th percentile for weighted crash exposure
TRAFFIC PROXIMITY AND VOLUME

- Highway Performance Monitoring System (HPMS) input data
- Buffer from centerline and intersect with blocks
- Inverse-distance decay weighting
- Impact measured as truck-weighted Annual Average Daily Traffic (AADT)
- Measures cumulative impact
Traffic Exposure

Traffic Proximity and Volume

Southern CA

Bay Area

Percentile
0.0 - 0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
CRASH EXPOSURE

- Transportation Injury Mapping System (TIMS) Input data (derived from SWITRS)
- Crashes on controlled-access facilities removed
- Crashes weighted by severity
- Weighted crashes summed within 250-foot buffer of block
- **Update Since Sept:** Crash Density Metric
Traffic Exposure

Crash Exposure
ACCESS TO DESTINATIONS

Access to Destinations Indicators

• Ratio of multimodal access (transit & walking) to auto access
  Proposed threshold: < 0.2 for both work and non-work destinations

• ‘Ideal Access’ analysis (still under development)
  Will be used to develop screens for bicycle access, accounting for Level of Traffic Stress (LTS) and circuity barriers
ACCESS TO DESTINATIONS

• Access calculated using Open Street Map (OSM) + General Transit Feed Specification (GTFS) networks
• Cumulative opportunities metric used
• Opportunities decay-weighted
• Calculated statewide using 200-meter grid cells

• **Update Since Sept:** Now includes both work and non-work Access to Destinations

$$A_i = \sum_j o_j f(c_{ij})$$
Access to Destinations

Work Access

Southern CA

Bay Area

Access Ratio

0.00 - 0.04
0.05 - 0.08
0.09 - 0.12
0.13 - 0.16
0.17 - 0.20
0.21 - 0.24
0.25 - 0.28
0.29 - 0.32
0.33 - 0.36
0.37 +
Access to Destinations

Non-Work Access

Southern CA

Bay Area

Access Ratio

0.00 - 0.04
0.05 - 0.08
0.09 - 0.12
0.13 - 0.16
0.17 - 0.20
0.21 - 0.24
0.25 - 0.28
0.29 - 0.32
0.33 - 0.36
0.37 +
Access to Destinations
‘Ideal Access’ metric (under development)

- Designed for use in evaluating bicycle access to destinations
- Compares access with existing network to access under ideal conditions where the network isn’t a constraint
- Identifies gaps in the network explainable by both:
  - Level of Traffic Stress (LTS)
  - Circuity
## EQI Screens

<table>
<thead>
<tr>
<th>Demographic Overlay</th>
<th>Transportation Indicators</th>
<th>EQI Screens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic Overlay</td>
<td>Traffic Proximity and Volume OR Crash Exposure</td>
<td>Traffic Exposure Screen</td>
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<tr>
<td>Demographic Overlay</td>
<td>Access to Destinations</td>
<td>Access to Destinations Screen</td>
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<tr>
<td>Demographic Overlay</td>
<td>Traffic Proximity and Volume OR Crash Exposure AND Access to Destinations</td>
<td>Priority Populations Screen</td>
</tr>
</tbody>
</table>
Demographic Overlay
Total Population Coverage: 71%

Household Income
OR
Race/Ethnicity
Traffic Exposure Screen
Total Population Coverage: 26%
Access to Destinations Screen
Total Population Coverage: 61%
Priority Populations Screen
Total Population Coverage: 20%
## COMPARING EQUITY MAPPING TOOLS

<table>
<thead>
<tr>
<th></th>
<th>OEHHA: CalEnviroScreen</th>
<th>CEQ: CEJST (J40)</th>
<th>Caltrans: EQI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation burdens</td>
<td>AADT, diesel exposure</td>
<td>AADT, diesel exposure</td>
<td>Weighted AADT, severe crashes</td>
</tr>
<tr>
<td>Transportation benefits</td>
<td>Not included</td>
<td>Time and dollar cost of travel</td>
<td>Non-auto access to work, non-auto access to non-work destinations</td>
</tr>
<tr>
<td>Demographics</td>
<td>Age, race, income, housing burden, employment, health, education</td>
<td>Income</td>
<td>Income, race/ethnicity</td>
</tr>
<tr>
<td>Unit of analysis</td>
<td>Census tract</td>
<td>Census tract</td>
<td>Census block</td>
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</table>
COVERAGE COMPARISON OF EQUITY MAPPING TOOLS

Coverage Comparison of Equity Screening Tools

- EQI Priority Populations Screen
- CalEnviroScreen Top 25% Tracts
- Justice 40 DAC
COVERAGE COMPARISON OF EQUITY MAPPING TOOLS

- Granularity of Census blocks
- Difference in project analysis methods
PUBLIC ENGAGEMENT PLAN

Timeline Overview - 2023

Public Engagement

- EQI 1.0 Release
- Use Case Development

Public Review

January	Feb	June	July	Oct	Nov	Dec
PUBLIC ENGAGEMENT PLAN

Information Sessions

• Session #1 – Introduction of beta EQI (purpose and preview)
• Session #2 – Update on beta EQI developments since September 2022 preview
• Session #3 – Discussion of technical and methodological considerations
• Session #4 – Presentation of draft use case scenarios
• Session #5 – Solicitation of input and questions on use cases
PUBLIC ENGAGEMENT PLAN

Target Audiences

• State Agencies/Transportation Agencies
• Tribal Governments
• Transportation Industry and Labor Groups
• Environmental Justice Partners
• NGOs and CBOs
• Research Centers and Institutes
PUBLIC ENGAGEMENT PLAN

Approach

• Information sessions

• Targeted audience listening sessions
  o Standing meetings
  o New convenings

• Interagency briefings
QUESTIONS?

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For more information:
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