# FEHR & PEERS

## *Multi-Modal Level of Service Toolkit*

# *Pedestrian Environmental Quality Index*

### Overview

The San Francisco Department of Public Health (SFDPH) developed the Pedestrian Environmental Quality Index (PEQI) to measure the impacts of built environment factors on pedestrian environmental quality, pedestrian activity and pedestrian safety. The PEQI was developed through consultation with transportation professionals and travel behavior researchers.

### What it measures

The PEQI measures thirty indicators to evaluate pedestrian environment quality at both the intersection and street segment level. The intersection-level assessment looks only at safety features that aim to protect pedestrians from vehicle traffic, while the segment-level assessment looks at land use, traffic and design features as well as perceived safety from crime.

### Using the PEQI

After an analysis location is selected, trained observers visit the site and evaluate it according to the PEQI checklist. SFDPH's *PEQI Data Manual* guides observers in how to evaluate each factor on the list.

Field data are input into a customized Microsoft Access database (available from SFDPH). The database calculates scores for street segments and intersections, which can then be imported into ESRI's ArcMap GIS program to create a map of existing pedestrian conditions.

| Intersection | Street Segment | | | |
|---|---|---|---|---|
| Intersection Safety | Traffic | Street Design | Land Use | Perceived Safety |
| - Crosswalk<br>- Ladder crosswalk<br>- Pedestrian signal<br>- Traffic Signal<br>- Crosswalk<br>- Scramble<br>- No turn on red signs<br>- Traffic calming features<br>- Additional signs for pedestrians | - Number of lanes<br>- Two-way traffic<br>- Vehicle speed limit<br>- Traffic volume<br>- Traffic calming features | - Sidewalk width<br>- Sidewalk impediments<br>- Sidewalk obstructions<br>- Presence of curb<br>- Driveway cuts<br>- Trees<br>- Planters/gardens<br>- Public seating<br>- Presence of buffer | - Store fronts/retail use<br>- Public art/historical sites | - Illegal graffiti<br>- Litter<br>- Pedestrian scale lighting<br>- Construction sites<br>- Abandoned buildings |

**Table 1: PEQI indicators by domain, from *SFDPH PEQI Methods Report, 2008***

●Community Plans ●Transportation/Pedestrian Master Plans ● Safe Routes to School  ● Health Impact Assessments

### Advantages

- Straightforward application: checklist and index
- Simple training required for data collection
- Basic software requirements (Microsoft Access, ArcGIS)
- Integrated with mapping software
- Research-based

### Disadvantages

- Does not address street connectivity and presence of pedestrian attractors
- May not address all relevant design factors
- Not designed for use outside urban areas

### Sample Applications

SFDPH used the PEQI to perform health impact assessments in San Francisco's Eastern Neighborhoods and Mid Market areas. SFDPH also used the PEQI in community planning efforts on Treasure Island and in San Francisco's Excelsior Neighborhood.

The UCLA Center for Occupational and Environmental Health added additional factors to the PEQI for use in Los Angeles, created an Android app for field data collection, and developed training materials and data collection worksheets in both English and Spanish. It used these new tools to help four community groups in Los Angeles collect data on pedestrian safety and amenities, which contributed to their campaigns for increased public investment in their neighborhoods.
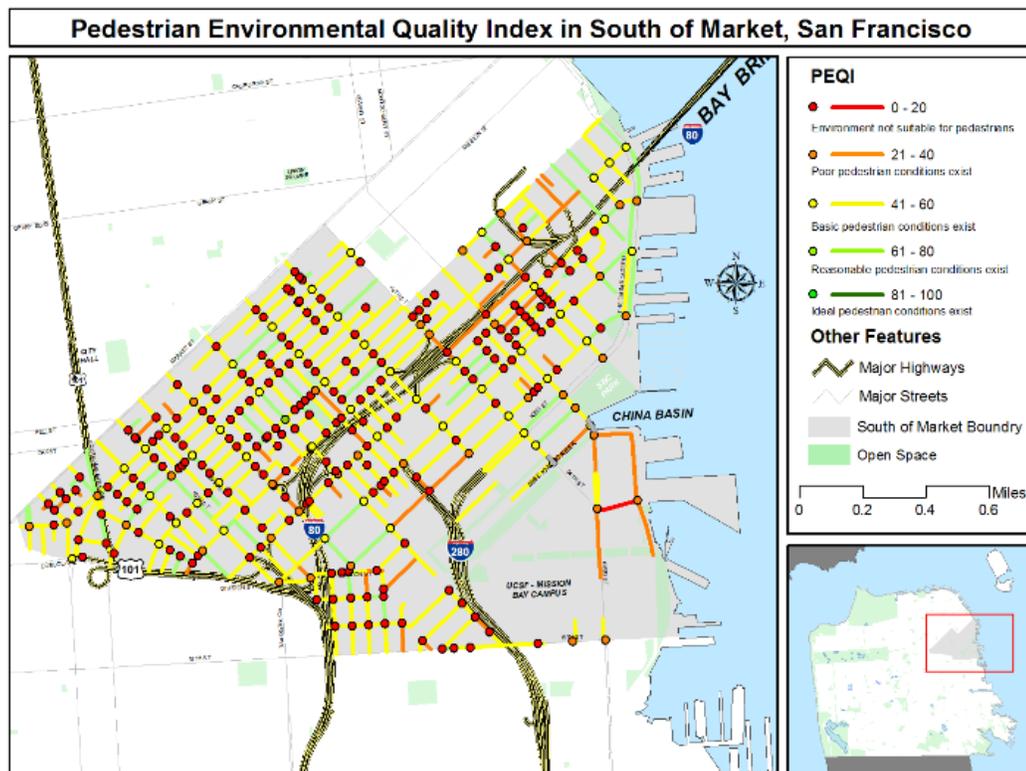


**Figure 2: Map showing PEQI analysis of South of Market neighborhood in San Francisco**

### Data Requirements

See Table 1 for field data requirements.