FEHR PEERS

Multi-Modal Level of Service Toolkit

Bicycle Environmental Quality Index

Overview

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

What it measures

The BEQI measures twenty-two indicators to evaluate the bicycle service quality at both the intersection and street segment level. Intersection-level assessment looks only at safety features that aim to protect cyclists from vehicle traffic, while the segment-level looks at land use, traffic and design features as well as safety measures that increase visibility for cyclists.

Using the BEQI

After an analysis location is selected, trained observers visit the site and evaluate it according to the BEQI checklist. SFDPH's *BEQI 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 bicycling conditions.

Intersection	**Street Segment**			
Intersection Safety	Traffic	Street Design	Land Use	Safety/Other
- Left turn bicycle lane - Dashed intersection bicycle lane* - No turn on red signs **relevant only at complex intersections with high traffic volumes and/or speeds*	- Number of vehicle lanes - Vehicle speed - Traffic calming features - Parallel parking adjacent to bicycle lane/route - Traffic volume - Percentage of heavy vehicles	- Presence of a marked area for bicycle traffic - Bicycle lane markings - Bike lane width - Trees - Connectivity of bike lanes - Pavement type/condition - Driveway cuts - Street slope	- Line of sight - Bicycle parking - Retail use	- Bicycle/pedestrian scale lighting - Presence of bicycle lane signs

Table 1: BEQI indicators by domain, from *SFDPH BEQI Factsheet,* 2010

Potential Applications

●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
- Integrated with mapping software
- Research-based

Disadvantages

- Requires ArcGIS 3D Analyst software to indicate street slope
- San Francisco-specific method. May require significant time investment to transfer to other areas.

Sample Applications

SFDPH partnered with the San Francisco Bicycle Coalition to pilot the BEQI method in the Treasure Island and Lakeshore neighborhoods of San Francisco. The method is currently under further development.

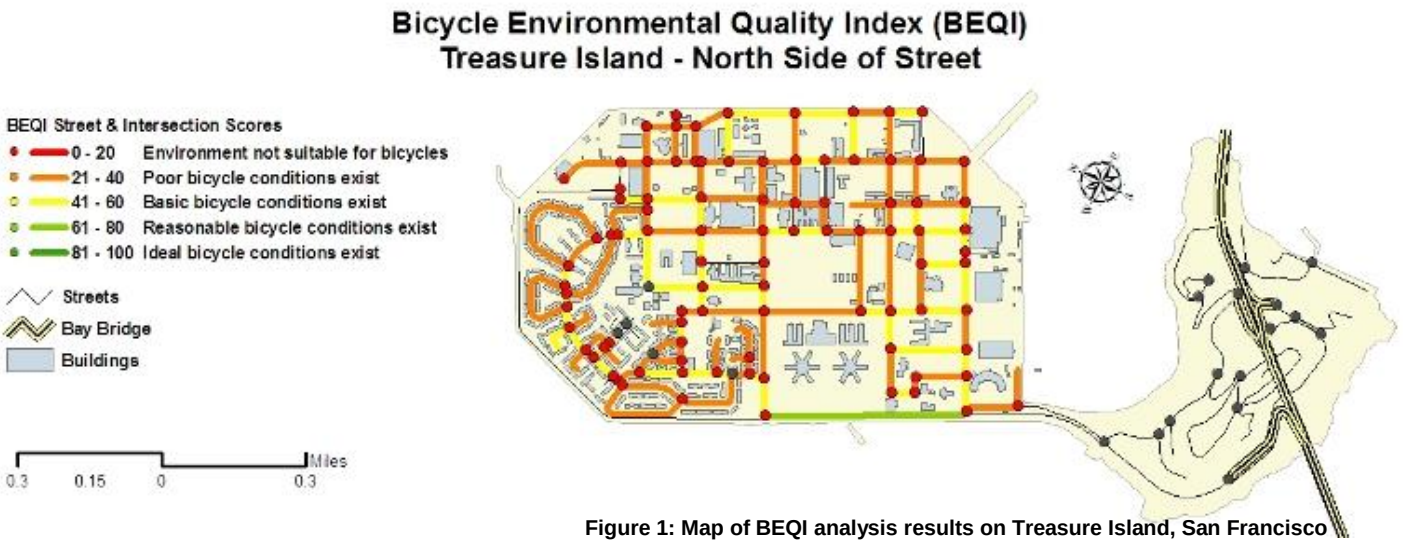

Figure 1: Map of BEQI analysis results on Treasure Island, San Francisco

Data Requirements

See Table 1 for field data requirements.