Appendix B: Community Indicators for Flood Risk

Development Process:

RESEARCH BACKGROUND:

Identifying characteristics of individuals and households that affect their ability to prepare for, respond to, and recover from a major hazard event is an important part of resilience planning. The following community indicators for flood risk were developed as part of the Stronger Housing, Safer Communities project led by the Association of Bay Area Governments (ABAG) and the Bay Conservation and Development Commission (BCDC). An advisory committee of recognized experts, including community advocates, selected indicators based on professional experience, local knowledge, and consultion of academic and federally sponsored research. Key indicator themes that emerged included age, language and ethnicity, cost-burden, housing tenure and access to resources. Indicators were developed as a regional screening tool to help identify neighborhoods where community members may be at greater risk. This approach does not, however, reflect qualitative characteristics that may increase or decrease risks, such as community cohesion and social capital (i.e., community capacity).

DATA REQUIREMENTS:

Not all characteristics that impact community risk are included in this analysis. Only characteristics with data that could be compared accurately were included. Requirements included that data was:

- Consistently available for the Bay Area
- Geo-referenced
- Numerically measurable
- Publically available

American Community Survey 2014 5-year estimates were used as the data source for nine of the indicators, and the Center for Neighborhood Technology's Housing and Transportation Affordabilty Index for one indicator.

TRIGGERING METHODOLOGY:

Indicators were measured and analyzed using a triggering level methodology developed by the Metropolitan Transportation Commission (MTC) to identify Communities of Concern (CoC). The triggering level methodology identifies block groups that have a concentration of individuals or households with a particular characteristic. The triggering levels, which are reported as a percent, are determined for each indicator by calculating the regional mean + ½ standard deviation. This methodology is appropriate for local to regional scale planning, but should not be used for project reviews or environmental assessments.

User Guide:

ArcGIS layers for each indicator are available for use in mapping and analysis. The layers contain for each block group the total count of individuals or households with each indicators, the total population and number of households, the percent of individuals or households with each indicator, whether the percent is at or above the triggering level (1=has met trigger, 0=has not), as well as the reliability of the data for each indicator (1=reliable, 0=not reliable). Reliabile data is defined as having a coefficient of variation less than 40%.

The table below provides information about each indicator, including the measure used, the source of data, and the triggering level (reported as a percent). In addition, an unweighted score of one (1) was assigned to each indicator to allow for composite mapping of block groups with 3 or more indicators to be completed.

Table: Community Indicators for Flood Risk

Indicator	Measure	Source: 2010-2014 American Community Survey, unless otherwise noted	Percentage Per Block Group	Count
Language	% Households without a proficient English speaker 15 years and older	S1602: Limited English Speaking Households	≥ 14	1
Access to a vehicle	% Households without a vehicle	B08201: Household size by vehicles available	≥ 15	1
Housing cost burden	% Households spending greater than 50% income on housing	B25091: Monthly owner costs as a percentage of household income & B25070: Gross rent as a percentage of household income	≥ 35 renters &/or ≥ 19 owners	1
Race and ethnicity	% Persons of Color	B03002: Hispanic or Latino origin by race	≥ 68	1
Education	% Persons 25 years and older without a high school degree	B15003: Educational attainment for the population 25 years and over	≥ 19	1
Housing tenure	% Not owner-occupied households	B25003: Tenure	≥ 55	1
Transportation cost burden	% Households with high transportation costs	Center for Neighborhood Technology Housing and Transportation Affordability Index	≥ 18	1
Income	% Households with income less than 50% of Area Median Income	B19001: Median household income	≥ 33	1
Age	% Persons 75 and older	B01001: Sex by age	≥ 9	1
	% Persons under 5		≥ 8	1
Total				10