

ANNEX D: SOURCES AND DEFINITIONS

The tables below provide the list of 49 indicators that were used to develop the U.S. Cities SDG Index, along with the best and worst values that were set for each indicator, and a brief description. In cases where an indicator was developed in-house, a brief methodology is also provided.

1 NO POVERTY



Population Living Below the National Poverty Line	
Dataset Year 2014	
Source Census ACS 2014	
Description Percentage of population living below poverty line as defined by the American Community Survey 2014.	
Best Value	Worst Value
4.79	24.54

2 ZERO HUNGER



Prevalence of Obesity	
Dataset Year 2013	
Source CDC	
Description Percentage of individuals with a Body Mass Index (BMI) of 30.0 or higher. County data converted to MSA by averaging county stats, using County to MSA concordance table, developed using GIS.	
Best Value	Worst Value
2.80	41.06

Real Per Capita Personal Income (Chained 2009 Dollars)	
Dataset Year 2014	
Source Bureau of Economic Analysis 2014	
Description Inflation Adjusted Per Capita Personal Income as calculated by the Bureau of Economic Analysis.	
Best Value	Worst Value
61,507.19	30,055.58

Low Birth Weight	
Dataset Year 2014	
Source CDC	
Description Percentage of low birth weight babies (defined as those weighing <2,500 g). County data converted to MSA by averaging county stats, using County to MSA concordance table, developed using GIS.	
Best Value	Worst Value
4.40	10.01

Children Under 18 Living Below Twice the Poverty Threshold	
Dataset Year 2014	
Source Census ACS 2014	
Description Children that are living in households twice below the national poverty line as defined by the American Community Survey 2014.	
Best Value	Worst Value
20.48	58.08

Infant Mortality	
Dataset Year 2014	
Source CDC	
Description Number of infant deaths per 1000 live births. County data converted to MSA by averaging county stats, using County to MSA concordance table, developed using GIS.	
Best Value	Worst Value
2.10	11.10

3 GOOD HEALTH AND WELL-BEING



Health Insurance Coverage

Dataset Year **2014**

Source
Census ACS 2014

Description
Percentage of non-institutionalized population, as identified by the U.S. Census, to have some form of health insurance.

Best Value	Worst Value
100	74.43

Syphilis, Chlamydia, Gonorrhea Cases

Dataset Year **2014**

Source
CDC

Description
Number of new Syphilis, Chlamydia and Gonorrhea cases diagnosed per 100,000 population. County data converted to MSA by averaging county stats, using County to MSA concordance table, developed using GIS.

Best Value	Worst Value
332.28	14,178.39

Primary Care Physicians

Dataset Year **2011**

Source
Dartmouth Atlas

Description
Number of primary care physicians operating in the MSA per 100,000 population. County data converted to MSA by averaging county stats, using County to MSA concordance table, developed using GIS.

Best Value	Worst Value
278.66	47.70

Traffic Deaths

Dataset Year **2004–2010**

Source
CDC

Description
Cumulative traffic deaths per 100,000 population between 2004 and 2010. County data converted to MSA by averaging county stats, using County to MSA concordance table, developed using GIS.

Best Value	Worst Value
3.20	91.1

Heart Attack Deaths

Dataset Year **2014**

Source
CDC

Description
Number of deaths from heart attacks per 100,000 population. County data converted to MSA by averaging county stats, using County to MSA concordance table, developed using GIS.

Best Value	Worst Value
31.04	222.48

Teenage Births

Dataset Year **2014**

Source
CDC

Description
Percentage of births to 15-19-year-old females. County data converted to MSA by averaging county stats, using County to MSA concordance table, developed using GIS.

Best Value	Worst Value
0.25	9.19

Diabetes Incidences

Dataset Year **2014**

Source
CDC

Description
Number of diagnosed incidences of all types of diabetes per 1,000 people. County data converted to MSA by averaging county stats, using County to MSA concordance table, developed using GIS.

Best Value	Worst Value
5.67	12.19

4 QUALITY EDUCATION



School Enrollment Rate

Dataset Year **2014**

Source

Census ACS 2014

Description

The percentage of school age individuals that are in school.

Best Value	Worst Value
100	69.48

High School Dropout Rates

Dataset Year **2014**

Source

Census ACS 2014

Description

The percentage of individuals that do not complete high school education or have a GED/ equivalency.

Best Value	Worst Value
0	21.36

Quality of Higher Education (Index)

Dataset Year **2015**

Source

U.S. News

Description

Calculated values based on proximity to top 100 higher education institutions/ universities.

Best Value	Worst Value
100	0

Methodology

MSAs that are closest to the top 10 universities are given a score of 100, MSAs with the next 10 universities receive 90, etc. MSAs with universities beyond the rank of 100 receive 0. University rankings are based on the latest U.S. News and World Report rankings.

Population Above 25 Years of Age with an Undergraduate Degree or Above

Dataset Year **2014**

Source

Census ACS 2015

Description

Percentage of population above 25 years of age with an undergraduate degree or higher.

Best Value	Worst Value
58.92	16.92

5 GENDER EQUALITY



Sexual Violence Incidences Reported

Dataset Year **2014**

Source

FBI

Description

Number of rape cases reported per 100,000 population, as defined by FBI's new definition. Extrapolated to MSA population using Principal City population.

Best Value	Worst Value
8.13	104.21

Gender Gap in Earnings

Dataset Year **2014**

Source

BLS

Description

The gender wage gap is unadjusted and is defined as the percentage difference between median earnings of men and women relative to median earnings of men. Data refer to full-time employees and to self-employed.

Best Value	Worst Value
0	29.84

6 CLEAN WATER AND SANITATION



Normalized Deficit (Water Stress) Index

Dataset Year **2009**

Source

Columbia University Water Center

Description

Normalized Deficit Index (NDC) is the normalized cumulative water stress index for that county. It is a fraction indicating the amount of annual average rainfall needed to remove the stress. The NDC values for counties were averaged to get the NDC value for the MSA.

Best Value	Worst Value
0	36.26

Households Without Access to Piped Water and Sanitation

Dataset Year **2014**

Source

Census ACS 2014

Description

Percentage of households that are lacking complete plumbing facilities as defined by the U.S. Census.

Best Value	Worst Value
0	3.88

7 AFFORDABLE AND CLEAN ENERGY



Share of Renewable Energy Generated in the State

Dataset Year **2011-2016**

Source
Georgetown Climate Center/EIA

Best Value **73.66** Worst Value **2.16**

Description
Percentage of energy generated within the state from Wind, Solar, Geothermal, Biomass and Hydroelectric. Value of the State was applied to all MSAs within the State.

STEM Jobs Growth Rate

Dataset Year **2011**

Source
Brookings Institute

Best Value **27.4** Worst Value **12.98**

Description
Rate of growth of jobs in Science, Tech, Engineering and Math fields in at least one field, where high is 1.5 standard deviations above the mean worker (just above 90th percentile).

8 DECENT WORK AND ECONOMIC GROWTH



Gross Metropolitan Product Growth Rate

Dataset Year **2011-2016**

Source
BEA

Best Value **6.42** Worst Value **1.23**

Description
Running 5 year average of Annual GMP Growth Rate.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



Patent Applications

Dataset Year **2010-2014**

Source
USPO

Best Value **4.35** Worst Value **0.08**

Description
Patent applications per thousand workers/jobs in the MSA cumulated over 4 years.

Unemployment Rate

Dataset Year **2014**

Source
BLS

Best Value **3.72** Worst Value **18.70**

Description
Unemployment rate is defined as the percentage of the total labor force that is unemployed but actively seeking employment.

Emplanements per Capita

Dataset Year **2014**

Source
Federal Aviation Administration

Best Value **9.20** Worst Value **0**

Description
Total number of revenue passengers that have boarded a flight at the airport per capita domestic population. Individual airports were mapped to MSAs and total emplanement in the MSA was calculated by adding emplanements for all airports within the MSA.

Disconnected Youth

Dataset Year **2013**

Source
Measure of America

Best Value **8.36** Worst Value **20.21**

Description
Youth who are not in Education, Employment, or Training (NEET).

10 REDUCED INEQUALITIES



GINI Coefficient

Dataset Year **2014**

Source
Census ACS 2014

Description
GINI is a measure of statistical dispersion intended to represent the income distribution of a nation's residents and is the most commonly used measure of inequality.

Best Value	Worst Value
0.25	0.5

Absolute Upward Mobility

Dataset Year **2016**

Source
Equal Opportunity Project, Harvard University

Description
This is a measure of inter-generational upward mobility, which is based on inter-generational household income differentials. County data converted to MSA by averaging county stats, using County to MSA concordance table, developed using GIS.

Best Value	Worst Value
46.57	35.88

Racial Segregation

Dataset Year **2010**

Source
Population Studies Center, University of Michigan

Description
Segregation Indices are Dissimilarity Indices that measure the degree to which a minority group is distributed differently than whites across census tracts. They range from 0 (complete integration) to 100 (complete segregation).

Best Value	Worst Value
29.97	59.47

11 SUSTAINABLE CITIES AND COMMUNITIES



Public Transport Use for Work Commute

Dataset Year **2014**

Source
Census ACS 2014

Description
Percentage of people using public transport for commuting.

Best Value	Worst Value
36.81	0.87

Walking or Bicycling for Work Commute

Dataset Year **2014**

Source
Census ACS 2015

Description
Percentage of people using bicycles and walking for commuting.

Best Value	Worst Value
4.16	0.86

Road Density

Dataset Year **2010**

Source
gRoads Database, CIESIN, Columbia University

Description
Total length of asphalt roads per square mile in the MSA. Total length of asphalt roads was calculated from CIESIN's gRoads vector database using GIS and divided by the total land area of the MSA.

Best Value	Worst Value
0.99	0.05

Mortgaged Homeowners Spending 30 Percent or More of Household Income on Selected Owner Costs

Dataset Year **2014**

Source
Census ACS 2014

Description
This indicator measures the percentage of cost-burdened homeowners, which is defined as homeowners that spend above 30% of their household income on mortgage.

Best Value	Worst Value
33.03	56.73

Rent Burdened Residents

Dataset Year **2014**

Source
Census ACS 2014

Best Value **1.42** Worst Value **23.71**

Description
According to U.S. Department of Housing and Urban Development definitions, a renting household or family is considered rent-burdened when they have to pay more than 30 percent of their household income in gross rent.

Ozone Levels (8-Hr)

Dataset Year **2015**

Source
EPA

Best Value **0.09** Worst Value **0.05**

Description
This is a measure of 8-hour average Ozone readings as maintained by the EPA.

Housing Affordability

Dataset Year **2014**

Source
CDC + Census ACS 2014

Best Value **2.16** Worst Value **7.53**

Description
Measures the relative affordability of housing by standardizing median property value per square foot with median household income for the metropolitan statistical area. Median single family home value per square foot was divided by the median household income for the MSA.

Commuting Time

Dataset Year **2014**

Source
Census ACS 2015

Best Value **19.02** Worst Value **31.05**

Description
Average time in minutes taken to commute one way to or from work.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



Access to Parks

Dataset Year **2013**

Source
CDC

Best Value **71.84** Worst Value **7.75**

Description
Percentage of population living within 15 minutes of pedestrian travel to a public park and recreational space.

Toxic Release in Air, Water and Land

Dataset Year **2014**

Source
EPA

Best Value **8.19** Worst Value **2192.01**

Description
Toxic industrial waste released into the Air, Water or Land per square mile of the MSA (Lbs). Total toxic release (Land, Air and Water) was divided by total land area of MSA.

PM 2.5 Average Levels (Population Weighted)

Dataset Year **2014**

Source
CDC

Best Value **6.30** Worst Value **14.15**

Description
Average levels of PM 2.5 pollutants over the year for the MSA.

13 CLIMATE ACTION



Carbon Emissions

Dataset Year **2014**

Source

Berkeley Cool Climate Network

Description

Carbon dioxide emissions. Zip codes were attributed to MSAs based on the location of their centroid using GIS, and tons of carbon emissions per capita were calculated by averaging the per capita values of each zip code.

Best Value	Worst Value
1.7	22.12

16 PEACE, JUSTICE AND STRONG INSTITUTIONS



Homicide Victims

Dataset Year **2014**

Source

FBI

Description

Number of unlawful and deliberate killings per 100,000 population, as defined by the FBI's Uniform Crime Reporting Program. County data were aggregated to MSA level.

Best Value	Worst Value
1.36	37.15

15 LIFE ON LAND



Green Open Space Per Capita

Dataset Year **2016**

Source

Open Street Maps

Description

Total amount of square meters of green open space available per person in the MSA. Recreational/Open Space polygons from the OSM database were used to calculate the area of public open space in each MSA. This was divided by population to get a per capita figure.

Best Value	Worst Value
186.88	16.07

Gun Violence

Dataset Year **2014**

Source

CDC

Description

Deaths by firearm as reported in the National Vital Statistics System per 100,000 population. County data was aggregated to MSA level.

Best Value	Worst Value
3.67	17.91

Violent Crimes

Dataset Year **2014**

Source

FBI

Description

Number of offenses which involved force or threat of force per 100,000 population, as defined by the FBI's Uniform Crime Reporting Program. County data were aggregated to MSA level.

Best Value	Worst Value
126.38	1,582.63

EPA Cleanup Sites

Dataset Year **2016**

Source

EPA CIMC Database

Description

The number of all EPA cleanup sites per square mile of MSA area. This measures the density of brownfield, superfund and other EPA sites in the MSA. Zip codes were attributed to MSAs based on the location of their centroid using GIS, and total number of EPA sites was divided by the land area of the MSA.

Best Value	Worst Value
0	0.21

17 PARTNERSHIPS FOR THE GOALS



Broadband Penetration

Dataset Year **2014**

Source

Census ACS 2015

Description

Percentage of households with a broadband connection.

Best Value	Worst Value
100	55