The U.S. Cities Sustainable Development Goals Index 2017

ACHIEVING A SUSTAINABLE URBAN AMERICA

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SUSTAINABLE DEVELOPMENT SOLUTIONS NETWORK
A GLOBAL INITIATIVE FOR THE UNITED NATIONS

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Abstract

America is the world's richest large economy, with the world's leading technologies and institutions of higher learning. Yet, the United States of America (U.S.) is falling behind other countries on a range of indicators relating to quality-of-life, economic opportunity, and environmental management. Nowhere is this problem more apparent than in American cities, which are home to 62.7 percent of the domestic population. The Sustainable Development Goals, universally adopted by the world's governments in 2015, aim to set a framework for action on sustainable development. The U.S. Cities SDG Index aims to help urban leaders address the many sustainable development challenges affecting their cities. The Index covers the 100 most populous cities (measured as Metropolitan Statistical Areas, or MSAs). It synthesizes data available today across 49 indicators spanning 16 of the 17 Sustainable Development Goals (SDGs) that were agreed upon by all countries in September 2015. The data provides a more holistic and comprehensive assessment of sustainable development challenges faced by U.S. cities than available through other metrics. Results show that all U.S. cities, even those at the top of the Index, have far to go to achieve the SDGs.

Authors' Note

The views expressed in this report do not reflect the views of any organization, agency or programme of the United Nations. It has been prepared by a team of independent experts of the SDSN Secretariat.

The core data collection and analytical work was carried out by Mihir Prakash with Katerina Teksoz and substantial inputs from Guido Schmidt-Traub, Jessica Espey led the team, Michael Shank assisted, and Jeffrey Sachs supervised the overall project.

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FOREWORD

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America is a paradox: the world's leader in technology and dynamism and yet increasingly a laggard in wellbeing, public health, inequality, and even confidence in the future. As is famously known, the U.S. is getting richer but not happier. The paradox is resolved of course by recognizing that money is not everything. A society's wellbeing depends on its social cohesion, trust in institutions, sense of fairness, good health, and care for the natural environment. In short, wellbeing depends on a holistic vision of sustainable development, embracing the economic, social, and environmental dimensions of wellbeing.

That is why the world's governments unanimously adopted the Sustainable Development Goals (SDGs) in September 2015, to be reached by 2030. These ambitious goals aim to end poverty and malnutrition, ensure health and education for all, promote gender equality and a fairer distribution of income, and to protect the environment, notably by ending global warming and conserving ecosystems and biodiversity. Notably, the SDGs singled out a special role for cities, by adopting SDG 11, calling for resilient, inclusive and sustainable cities.

The UN Sustainable Development Solutions Network (SDSN) promotes the achievement of the SDGs worldwide by partnering with universities, governments, think tanks, and community leaders to accelerate SDG progress. The SDSN welcomes many partner institutions in this effort, including the new SDG USA, a non-governmental organization that aims to spur interest and focus on the SDGs in the United States. Many outstanding organizations, such as Bread for the World, Results, the Kresge and Hilton Foundations, and many others, are showing great leadership in this regard. SDSN is proud to partner with them.

Many cities are taking up the SDG Challenge and using the SDGs to help guide bold actions for their future. SDSN works with the dynamic city leaders of San Jose (CA), Baltimore (MD), and New York City (NY), in this cause. Dozens, indeed hundreds, of cities around the U.S. are showing great creativity and energy in promoting sustainable development, including low-carbon futures, social justice, and improved local economies. We strongly salute those efforts.

The SDSN has produced this first U.S. Cities SDG Index in order to help cities across the U.S. to take up sustainable development as an organizing framework and a key motivation for public action. We find in this report the scale of the challenge ahead. Many American cities face high rates of racial disparities, high levels of income inequality, and sky-high carbon emissions, just to name some of the key metrics and problems. Many cities are experiencing deep and growing crises regarding safe water, a challenge that perhaps most Americans thought had been long solved. Many American cities are caught in the turmoil of today's labor market, in which traditional jobs are disappearing because of technological changes and yet too few in the labor force are properly trained for future skill-needs.

We hope that the SDGs, suitably adapted to America's context, will become America's Goals for 2030. We have within reach tremendous opportunities: to slash poverty, ensure good jobs for all, provide quality healthcare and education for all, end glaring inequalities by gender and race, and protect the natural environment. America is rich in know-how, creativity, and entrepreneurship. We have vast renewable energy resources as well, to wean ourselves off of fossil fuels. In other words, the SDGs present not only a set of challenges, but a tremendous opportunity to dedicate the skills of this generation to a great economic and social renewal and to build the new American economy of the 21st century.

We count on the new U.S. Cities SDG Index to be a help in this national endeavor. By measuring the current state of the SDGs across America's metropolitan areas, we create an accurate starting line for our race to 2030 and a smart, fair, and sustainable future. No doubt there will be many areas of improvement to the U.S. Cities SDG Index in the years ahead. Yet time is short and 2030 is near. Let us seize the opportunities offered by the Sustainable Development Goals.

Jeffrey Sachs,
Director, Sustainable Development Solutions Network

EXECUTIVE SUMMARY

America is the world's richest large economy, with the world's leading technologies and institutions of higher learning. Yet, the U.S. is falling behind other countries on a range of indicators relating to quality-of-life, economic opportunity, and environmental management. Nowhere is this problem more apparent than in American cities, which are home to 62.7 percent of the domestic population. The SDGs are an opportunity to address many of America's challenges while building on America's great reservoirs of dynamism and talent.

America's cities are experiencing enormous challenges. The economy is in a state of rapid transformation as the result of new information technologies. Income and job inequalities are widening. Many cities are experiencing dangerous levels of water scarcity and drought, food insecurity and persistent poverty, underemployment, health disparities, flooding due to sea-level rise, and persistent levels of crime and violence. Ensuring that U.S. cities are resilient, inclusive and sustainable, in 2030 and beyond, is the critical task of today, and there are reasons for hope. City leaders from all across the country have pledged to protect the environment, by aligning themselves with the Paris Climate Agreement to limit global warming. Concurrently, more and more American cities are signing up to the global sustainable development agenda and its set of 17 Sustainable Development Goals (SDGs) that seek to tackle inequalities, provide opportunities for all, and ensure we protect our natural environment.

This first-ever U.S. Cities SDG Index uses the 17 SDGs, a set of goals agreed to by the U.S. and 192 other nations in 2015, as a lens to examine progress towards sustainable development in the 100 most populous U.S. cities.

Cities such as San Jose (CA), Baltimore (MD) and New York City (NY), to name a few, are taking steps towards a more sustainable future, by looking to implement the SDGs within their jurisdictions. They are surveying how their citywide plans and data monitoring systems could be made more holistic and ambitious, consulting local stakeholders to define priorities, and developing strategies to achieve sustainable development through evidence-based policy and investment. This commitment to sustainable development is paying off: the San Jose MSA region is the top scoring city region within this U.S. Cities SDG Index.

The U.S. Cities SDG Index hopes to encourage these efforts and amplify other good practices across America by providing an American-centric snapshot of sustainable development at the local level. The U.S. Index consists of 49 indicators that capture the most pressing challenges facing American cities, as well as spanning the breadth of the new Sustainable Development Goals.

The Index ranks the 100 most populous Metropolitan Statistical Areas (MSAs) within the U.S. MSAs are used both because of the greater data availability at the level of MSAs and also because most of the SDG challenges present themselves at the level of the MSAs rather than the individual cities and other jurisdictions within the MSAs. Nonetheless we use the term "city" as interchangeable with MSA except where otherwise noted. The U.S. Cities SDG Index enables us to see which U.S. cities and regions are faring well or performing badly on specific goals. The results are also presented in regional dashboards, which enable us to see how regions are faring relative to one another and identify region-specific challenges.

The Index aims to spur local level action, led by local governments and with federal government support. It is a tool for benchmarking progress on different aspects of sustainable development and helping U.S. city administrators and planners analyze their progress relative to their peers, prioritize policy and investment areas, and accelerate change. It also intends to serve as an advocacy tool that, through American mainstream media pick-up and city-level dissemination, will motivate the U.S. federal government to examine and track the status of sustainable development across its cities.

The top findings from the U.S. Cities SDG Index are as follows: The San Jose-Sunnyvale-Santa Clara metro region in California wins the top spot, with an overall index score of 61.04. This means that the San Jose MSA is 61.04 percent of the way to achieving the SDGs, according to the measures used in this Index. The San Jose MSA is also in the top ten for 10 of the

16 goals. Provo-Orem in Utah secured second ranking with an Index score of 58.05, followed by Seattle-Tacoma-Bellevue (WA) and San Francisco-Oakland-Hayward (CA). It is also worth noting that 4 of the top 10 MSAs are in the state of California.

The Index also sheds light on poor U.S. performers. The lowest performing city is Baton Rouge (LA), but rust-belt city regions like Detroit-Warren-Dearborn (MI) and Cleveland-Elyria (OH) also score poorly due to high levels of relative poverty, acute unemployment, and high CO2 emission rates due to heavy car dependence.

Preparing this U.S. Cities SDG index revealed a huge array of data challenges for monitoring sustainable development in the United States. Very few sustainable development indicators are consistently collected across all MSAs, and several basic, crucial indicators are still not monitored at all at the local level. Gender-related data, for example, are notably deficient, with important indicators such as 'number of women in local government' and 'number of businesses owned by women' measured only on an ad-hoc basis and with no standardization across MSAs.

As a lead negotiator in the development of the Sustainable Development Goals, the United States committed to using data to achieve sustainable development, rectifying global and domestic inequalities, and ensuring 'no one is left behind'. Investments in local level statistical systems, and a strong federal commitment to collate and share this data, will be essential to the design of successful policies and programs to tackle the sustainable development challenge. Better U.S. data will also enable future U.S. Cities SDG Indexes to more accurately reflect sustainability trends in America.

The lessons to be learned from the U.S. Cities SDG Index are clear. If American cities want to weather the next storms and withstand the next shocks, whether the shocks turn out to be social, economic or environmental, a more sustainable and integrated approach will be essential. Goal-setting for 2030 will be enormously helpful here. In short, we need every American city to be developing smart, fair, and sustainable infrastructure, generating decent jobs, promoting high-quality education, and creating peaceful communities. This U.S. Cities SDG Index helps cities assess their successes and failures in these great challenges and set an ambitious course towards 2030, with the metrics and guideposts to help. The time for action is now.

Select Findings:

- San Jose-Sunnyvale-Santa Clara metro region (CA) is top of the Index, with an overall index score of 61.04. The San Jose MSA region also ranks in the top ten cities on 10 of the 16 goals monitored by this Index.
- The worst performing urban areas, with the lowest U.S. Cities SDG Index scores, are Baton Rouge (LA), Cleveland-Elyria (OH) and Detroit (MI).
- Overall, our 100 MSAs see a poverty rate of 15.6 percent. This means approximately 33.28 million people are currently living below the national poverty line in these 100 MSAs and there is a clear North-South gradient, with Southern MSAs having considerably higher poverty rates.
- The percentage of children living in poverty in large urban areas is very acute, reaching as high as 70 percent.
- Malnutrition and obesity is a profound problem across the country. Even the best performing urban areas have adult obesity rates of 30 percent.

GLOSSARY

Core Based Statistical Areas (CBSAs): County or counties (or equivalent entities) associated with at least one core (urbanized area or urban cluster) of at least 10,000 population, plus adjacent counties with a high degree of social and economic integration and a core measured through commuting times.

Global SDG Index: On July 20, 2016, the SDSN and Bertelsmann Stiftung launched a Global SDG Index and a set of dashboards to provide a report card for tracking SDG progress and ensuring accountability. The Global SDG Index is an annual product available at www.sdgindex.org.

Inter-Agency and Expert Group on SDG Indicators (IAEG-SDG): On March 6, 2015, at its forty-sixth session, the United Nations Statistical Commission created an Inter-Agency and Expert Group on SDG Indicators (IAEG-SDGs), composed of Member States and including regional and international agencies as observers. The IAEG-SDGs was tasked with developing a global indicator framework to accompany the 17 SDGs and 169 targets agreed upon by UN Member States at the SDG Summit in September 2015. The set of official SDG indicators is available at: https://unstats.un.org/sdgs/iaeg-sdgs/.

Metropolitan Statistical Area: County or counties (or equivalent entities) associated with at least one urbanized area of at least 50,000 population, plus adjacent counties.

OneNYC: New York City's sustainability strategy, first published in April 2015. It is unique in being the first-ever city strategy to align with, and take inspiration from, the Sustainable Development Goals.

Paris Climate Agreement: The Paris Agreement is an agreement within the United Nations Framework Convention on Climate Change (UNFCCC) dealing with greenhouse gas emissions, climate change mitigation, adaptation and finance and starting in the year 2020. The language of the agreement was negotiated by representatives of 195 countries at the 21st Conference of the Parties of the UNFCCC in Paris and adopted by consensus in December 2015. The agreement aims to hold the increase in global average temperatures to well below 2 degrees Celsius above pre-industrial levels.

Principal City: The largest incorporated place with a population of at least 10,000 in a core based statistical area (CBSA).

Sustainable Cities Initiative (SCI): Since 2013 SDSN has been running a pilot project called the Sustainable Cities Initiative, which aims to support local governments in implementing a holistic sustainable development agenda. As part of this initiative, SDSN developed a partnership with three U.S. cities and local academic institutions to support the design of local SDG-aligned goals, targets and indicators and a framework for implementation. The USA SCI cities are San Jose (CA), Baltimore (MD) and New York (NY).

Sustainable Development: The concept of sustainable development is based on a three-part, normative framework, which embraces economic development, social inclusion and environmental sustainability, and is pursued in concert with one another.

Sustainable Development Goals (SDGs): The Sustainable Development Goals are a set of 17 goals and underlying targets included in the 2030 Agenda for Sustainable Development. They were developed by 193 UN Member States between 2012 and 2015 and endorsed in September 2015, including by the U.S.

ACRONYMS

ACS	American Community Survey
BEA	U.S. Bureau of Economic Analysis
CBSA	Core Based Statistical Area
Gini	The Gini Coefficient
GIS	Geographical Information Systems
GMP	Gross Metropolitan Product
IAEG-SDGs	Inter-Agency and Expert Group on Sustainable Development Goal Indicators
MDGs	Millennium Development Goals
MSA	Metropolitan Statistical Area
OECD	Organization for Economic Cooperation and Development
OMB	U.S. Office of Management and Budget
SCI	SDSN's Sustainable Cities Initiative
SDGs	Sustainable Development Goals
SDSN	Sustainable Development Solutions Network
STEM	Science, Technology, Engineering and Math
UNFCCC	United Nations Framework Convention on Climate Change
U.S.	United States of America

INTRODUCTION

Around the world, cities are on the front lines of sustainable development. Home to more than 54 percent of global population and responsible for 70 percent of global carbon emissions, they are where the battle for sustainable development will be won or lost. This is especially the case in the United States. U.S. cities are at a critical juncture.

America's cities, home to 62.7 percent of the domestic population, are experiencing enormous challenges.[1] The economy is in a state of rapid transformation as the result of new information technologies. Income and job inequalities are widening. Many cities are experiencing dangerous levels of water scarcity and drought, food insecurity and persistent poverty, underemployment, health disparities, flooding due to sea-level rise, and persistent levels of crime and violence. The SDGs are an opportunity to address many of America's challenges while building on America's great reservoirs of dynamism and talent.

If local, state and federal governments want to reverse these trends, long-term goals must be set now to get America on a more sustainable track. What America will look like in 2030 should be on all policy agendas.

Cities such as San Jose, Baltimore and New York City, to name a few, are leading the way, setting holistic sustainable development plans, based on consultation with local stakeholders and careful assessment of data on past, current, and projected future performance. They are taking inspiration from the global sustainable development agenda ("Agenda 2030"), agreed upon in 2015 by the United States and 192 other nations, and showing its relevance here in the United States. This agenda includes a set of 17 Sustainable Development Goals (SDGs).

These goals were unanimously adopted at the United Nations and call on all countries to pursue a planning strategy that combines economic development, social inclusion, and environmental sustainability. The 17 SDGs combine these three dimensions of sustainable development into action at the local, national, and international levels.

Inspired by the global agenda and seeking to help identify priorities for action at the global level, the Sustainable Development Solutions Network and the Bertelsmann Stiftung launched, in 2016, the first-ever Global SDG Index to rank national performance on the SDGs.[2] A second edition was released in July 2017.

This Global SDG Index establishes the foundation for the first unofficial U.S. Cities SDG Index, published by the Sustainable Development Solutions Network. In 2016, the Global Index ranked the U.S. 25th among all countries pursuing the SDGs. In 2017, the U.S. was 42nd as a result of the inclusion of additional indicators that assess international spillover effects such as CO2 emissions and tax evasion. It was these low scores that, in part, prompted the creation of this U.S. Cities SDG Index, so that we could better understand America's specific challenges and cross-country variation.

Launched in the first year of a new U.S. presidential administration, the U.S. Cities SDG Index is well timed. In the next four years, cities, especially, will need to play a leading role in making America – and its agriculture, water, health, education, energy, economy, industry, consumption and production practices, forests, and oceans – more sustainable.

Why Develop a U.S. Cities SDG Index?

The U.S. Cities SDG Index is a snapshot of sustainable development at the local level for the 100 most populous cities in the United States of America. We use Metropolitan Statistical Areas (MSAs) as our measure both because of the greater data availability at the level of MSAs and also because most of the SDG challenges present themselves at the level of the MSAs rather than the individual cities and other jurisdictions within the MSAs. Nonetheless we use the term "city" as interchangeable with MSA except where otherwise noted. The U.S. Cities SDG Index enables us to see which U.S. cities and regions are faring well or performing badly on specific goals. The Index consists of 49 indicators spanning the breadth of the new Sustainable Development Goals.

The concept and methodology for an urban index draw heavily from the Bertelsmann Stiftung and SDSN's Global SDG Index. For each goal, we identify indicators that evaluate various aspects of sustainable development, for which data are readily available and are consistently collected across the country. All U.S. cities studied in this Index perform poorly on one or more goals, highlighting widespread sustainable development challenges such as environmental degradation, access to vital infrastructure, and social disparities.

The U.S. Cities SDG Index serves as an advocacy tool that, through media pick-up and city-level dissemination,

should motivate mayors, other local government leaders and the U.S. federal government to examine and track the status of sustainable development across its cities and MSAs. This Index should spur local level action, led by local governments and with federal government support. And there is precedent for this. In the run-up to the Paris climate agreement, for example, U.S. cities were taking early action to reduce their carbon emissions 80 percent by 2050. This is the kind of leadership America now needs.

The U.S. Cities SDG Index presents a picture of urban sustainable development in the United States. It is a composite index, which includes measures of specific local challenges in American cities. These indicators map closely to the set of global SDG indicators proposed by the Inter-Agency and Expert Group on SDG Indicators, as well as the indicators that the U.S. government will be using to measure their progress on the SDGs, available at https://sdg.data.gov.

What are the Main Objectives of the U.S. Cities SDG Index?

This report provides the following:

- a consolidated database of indicators to monitor sustainable development in America;
- a snapshot of where U.S. cities stand on SDG implementation to help identify priorities for early action in each city;
- a list of data gaps that are hindering cities' and the federal government's ability to effectively monitor sustainable development at the local level.

This Index and its selection of indicators can also serve as a tool for benchmarking progress on different aspects of sustainable development and helping city administrators prioritize policy and investment areas. Cities such as San Jose, Baltimore and New York City, to name a few, have started implementing the SDGs within their jurisdictions. They are surveying how their sustainable development plans and data monitoring systems align with the SDGs, consulting local stakeholders to define priorities, and developing strategies for SDG achievement through evidence-based policy and investment.

The experiences of these cities are inspiring action, and as their knowledge circulates and practical resources expand - such as SDSN's "Getting Started with the SDGs in Cities" guide and SDG Academy's Sustainable Cities Massive Open Online Course[3] – it is clear that progress, feasibility and momentum are scaling up quickly. By joining the growing list of cities that prioritize sustainability, cities across America can use limited resources to more efficiently and effectively improve the quality of life of its residents.

SUSTAINABLE DEVELOPMENT GOAL SETTING

Sustainable development is the pursuit of economic, social and environmental development, in concert with one another. Across America, mayors and other local government leaders are placing great emphasis on each of these pillars, recognizing that lasting change requires a physical growth strategy that is developed with attention to the environment, that economic growth will be broader and more rapid if you provide opportunities to the poorest and most vulnerable, and that conservation efforts will be undercut unless you change economic incentives. The challenge for every city around the world is to do these things together, simultaneously.

What are the SDGs?

In September 2015, Heads of State and Government attempted to map out a path for countries to pursue integrated, sustainable development through the adoption of the 2030 Agenda for Sustainable Development. This agenda includes 17 Sustainable Development Goals, or SDGs, and 169 targets, which set out quantitative objectives across the social, economic, and environmental dimensions of sustainable development, all to be achieved by 2030. The goals provide a framework for shared action "for people, planet and prosperity," to be implemented by "all countries and all stakeholders, acting in collaborative partnership." As articulated in the 2030 Agenda, "never before have world leaders pledged common action and endeavored across such a broad and universal policy agenda."[4]

Central to this agreement was recognition that cities have a crucial role to play. Urban areas occupy a tiny proportion of the global land mass[5] but have a disproportionate impact on development that can be leveraged for large gains in the fight against poverty, inequality and climate change.

Why Should Cities Pursue the SDGs?

The SDGs come into effect in a world that is increasingly urban: a little over half the global population now lives in cities and this figure is projected to grow to over two-thirds of the global population by 2050.[6] In the United States more than 60 percent of the population live in cities and large urbanized areas.[7]

Urbanization has exacerbated some of the world's greatest development challenges, but it also has tremendous opportunities for advancing sustainable development. Today, cities generate 80 percent of global GDP, but, at the same time, they are also responsible for as much as 70 percent of global energy consumption and 70 percent of global carbon emissions.[9] They are home to extreme poverty, unemployment and socio-economic disparities, unsustainable patterns of consumption and production, and they are key contributors to climate change and environmental degradation. And yet, cities also accommodate most of the world's businesses and informal enterprises, provide markets for industry and employment, foster technological innovations, and support high-density habitation and efficient land use.

For mayors and local leaders that are working to improve the quality of life in urban environments, the SDGs provide a roadmap for more balanced and equitable urban development. The mounting challenges posed by climate change, environmental degradation, food security, and civil unrest and violence, need different development solutions from those of the previous century. The SDGs offer a set of integrated objectives that can bring about a more sustainable vision of urban development, one that provides equal opportunities to all inhabitants, promotes healthy living environments with access to green spaces, and is resilient in the face of everyday disasters and climate risks.

The quest to build sustainable cities, and their importance for the world's global development, is also putting mayors and local government leaders at the forefront of international politics. Cities like Copenhagen have gained considerable attention and investment by aiming to be the first capital city in the world to be carbon neutral. The Carbon Neutral Cities Alliance represents some of the most aggressive urban climate action with goals of 80-100 percent greenhouse gas emissions reductions and 100 percent renewable energy targets by 2050. Likewise, the Global Compact of Mayors,[10] with 507 cities as signatories, has received considerable media coverage as the world's largest coalition of city leaders addressing climate change. Signatories pledge to reduce their greenhouse gas emissions, track their progress, and prepare for the impacts of climate change.[11] These kinds of initiatives are spurring interest and investment in 21st Century urban development.

Recognizing these opportunities, a number of U.S. cities, like San Jose, Baltimore, and New York have already started to integrate the SDGs into their strategy and planning. They are taking the framework and goals as guideposts to ensure their cities are growing economically, respecting the environment, and becoming more inclusive (See Box 1).

For the American government, studying the plight and progress of U.S. cities (and specifically the 100 MSAs covered in this report) provides a window into the lives of more than 60 percent of the total population of the U.S. Examining the status of this large population more closely allows us to see both the bright spots and challenge areas, both sectorally and geographically, and to direct resources and attention as needed to make SDG attainment possible at the national level. The SDGs are an opportunity to address many of America's challenges while building on America's great reservoirs of dynamism and talent.

Box 1: Ahead of The Curve: U.S. Cities Using the SDGS

Three cities in the U.S. have already recognized the immense value of the SDGs as a framework for planning and action. Since 2015, local communities and city officials in San Jose (CA), Baltimore (MD), and New York City (NY) have used the SDGs as a framework to facilitate community consultations, garner citizen feedback, and organize city-level planning to achieve sustainable and inclusive local development, in partnership with SDSN under the banner of their "Sustainable Cities Initiative."

San José (California) is the tenth most populous city in the U.S. and has long been a pioneer in environmental sustainability, including recycling and waste diversion, water reuse, as well as renewable energy. The city's commitment to sustainable development is reflected in its pole position in this year's U.S. Cities SDG Index, ranking number 1 out of the 100 most populous MSAs in the U.S. The City has been successful in the past at leveraging external funding, strategic partnerships, and demonstration projects, particularly with emerging technology companies, to help realize San José's sustainability goals. The UN's 17 Sustainable Development Goals provide another mechanism that the City can use to help ensure that existing and future sustainability goals are comprehensive and inclusive.

Through a partnership established between San José State University and SDSN, working with the Office of the Mayor, a series of recommendations were developed for how to ensure that the city's general plan and priority strategies are aligned with the SDGs. Following that work, the city is updating its Sustainability Plan, with particular attention to SDGs 6, 7 and 13, and establishing a monitoring partnership with Stanford University focused on the goals.

In the city of **Baltimore** (Maryland), the SDGs have been the anchor for a multi-stakeholder, community consultation on city priorities. Less than a year after the civil unrest following the death of Freddie Gray in April 2015, the local SCI Baltimore project team – led by the University of Baltimore and the Baltimore Neighborhood Indicators Alliance, along with SDSN – conducted a range of consultative meetings and adopted a "listening-to-the-listening" approach to ensure inclusive engagement of city residents. Through this consultation, and by reviewing existing plans and initiatives in the city relating to sustainable development, a recommendations report was developed for local government outlining pressing development priorities and potential policy responses. The project team also compiled a set of 56 indicators to monitor the breadth of the sustainable development agenda within the local context. These practical recommendations are now being taken up by the city through the update of the Baltimore Sustainability Plan. Local groups such as the Baltimore Neighborhood Indicators Alliance and the Maryland Access to Justice Commission are also taking it upon themselves to work with the city to track dimensions of sustainable development not currently recorded.

New York (New York) has led global efforts on urban sustainability for many years through their PlaNYC and, more recently, through OneNYC, their comprehensive sustainable development strategy. OneNYC is one of the world's first holistic sustainable urban development strategies. It considers the economic, social and environmental development of the city in an integrated manner. This report shows the alignment of OneNYC with the global sustainable development agenda and demonstrates how cities, worldwide, can adopt such a comprehensive, broad strategy for change.

In partnership with Columbia University and SDSN, New York City officials have also started to examine how to complement the initiatives included in OneNYC with additional activities from the SDG agenda, as well as a comprehensive monitoring of sustainable development (and locally relevant SDG indicators) across the city. Annual OneNYC reviews provide a unique opportunity to take stock of the city's SDG alignment and to ensure no dimension of sustainable development is left behind.

For more information on these cities' activities and their recommendation reports visit http://unsdsn.org/

RESULTS AND FINDINGS

Methodological Summary

The U.S. Cities SDG Index ranks 100 U.S. MSAs, according to 49 indicators across 16 of the 17 Sustainable Development Goals. The selected indicators are closely aligned to the IAEG-SDG indicators endorsed by the UN Statistical Commission.[12]

Each indicator is scaled from 0 to 100, with 100 being the best possible score and 0 the worst. For some indicators, the best possible score is set by the ambitious and aspirational global SDG agenda. For example, *Goal 1: End Poverty* implies a best value of 0, consistent with eradicating extreme poverty. For other indicators, the "aspirational" target is not so clear. Where possible we adopt the principle of "leaving no one behind" (e.g. a zero gender gap in earnings and 100% school enrollment rate). For the rest of the indicators where no universal target exists, we based the upper bound on the average of the top five performing cities, with a few exceptions. For two indicators – obesity and teenage births – our upper bound is set at the average of the top five performing OECD countries. The OECD average was used where U.S. performance is particularly poor, in an attempt to raise the bar and focus on solutions. *For information on each indicator's upper bound, please see Annex D.*

After defining the upper and lower bound for each indicator, we use simple arithmetic mean to aggregate indicators within each SDG and rank cities accordingly. This makes it easy to interpret the U.S. Cities SDG Index. A city that scores 50 on an indicator is halfway towards achieving the best possible outcome. *For more information on our methodology and its limitations for calculating the U.S. Cities SDG Index please see Annex A and B.*

Which U.S. Cities Perform Best?

Table 1 provides a summary of the top ten performers on the U.S. Cities SDG Index. The San Jose-Sunnyvale-Santa Clara metro region in California wins the top spot, with an overall index score of 61.04. This means that the San Jose MSA is 61.04 percent of the way toward achieving the SDGs, according to the measures used in this Index. The San Jose MSA is also in the top ten for 10 of the 16 goals (see 'Goal By Goal Rankings' below). Provo-Orem in Utah secured second ranking with an Index score of 58.05, followed by Seattle-Tacoma-Bellvue (WA) and San Francisco-Oakland-Hayward (CA). It is also worth noting that 4 out of 10 MSAs in the top ten are in the state of California.

Table 1 | The Top 10 U.S. City Regions

Rank	MSA	Index
1	San Jose-Sunnyvale-Santa Clara, CA	61.04
2	Provo-Orem, UT	58.05
3	Seattle-Tacoma-Bellevue, WA	57.98
4	San Francisco–Oakland–Hayward, CA	56.43
5	San Diego-Carlsbad, CA	56.38
6	Albany-Schenectady-Troy, NY	56.29
7	Boise City, ID	55.23
8	Oxnard-Thousand Oaks-Ventura, CA	53.98
9	Boston-Cambridge-Newton, MA-NH	53.88
10	Portland-Vancouver-Hillsboro, OR-WA	53.14

Table 1 provides a ranked list of the ten highest scoring MSAs in descending order of Index score. Colors have been assigned to the MSAs for ease of comparison to ranking by goal (table 3).

What is perhaps most startling about our top performers is that they are still only 55-60 percent of the way to achieving the SDGs. In contrast to the 2016 Global SDG Index where the U.S. ranks 25th with an overall score of 72.7, only one city in the U.S. Cities SDG index scores above 60. This is because the U.S. Cities SDG Index utilizes indicators that are more relevant at the urban level rather than nationally relevant indicators.

Table 2 | Bottom 10 U.S. MSAs

Rank	MSA	Index
91	Cincinnati, OH-KY-IN	35.32
92	Milwaukee-Waukesha-West Allis, WI	35.27
93	Richmond, VA	35.14
94	Jackson, MS	34.46
95	Memphis, TN-MS-AR	34.39
96	New Orleans-Metairie, LA	33.16
97	Augusta-Richmond County, GA-SC	32.25
98	Detroit-Warren-Dearborn, MI	31.82
99	Cleveland-Elyria, OH	31.41
100	Baton Rouge, LA	30.47

Table 2 provides a ranked list of the ten lowest scoring MSAs in descending order of Index score.

Which are the Worst Performing U.S. Cities?

Table 2 showcases the ten worst performing cities across the U.S. Baton Rouge in Louisiana is the lowest ranking city, due to high levels of relative poverty and acute unemployment. Cleveland-Elyria (OH) and Detroit-Warren-Dearborn (MI) follow it; both are rust-belt cities with high unemployment and high emission rates due to excess car use.

What are some Emerging Regional Trends?

A geographic view of the rankings (Figure 1) shows a clear concentration of low ranking MSAs in the Midwestern and Southern regions of the U.S. East Coast. The coastal regions of the country have consistently high-ranking MSAs.

What are the Key Findings by Goal?

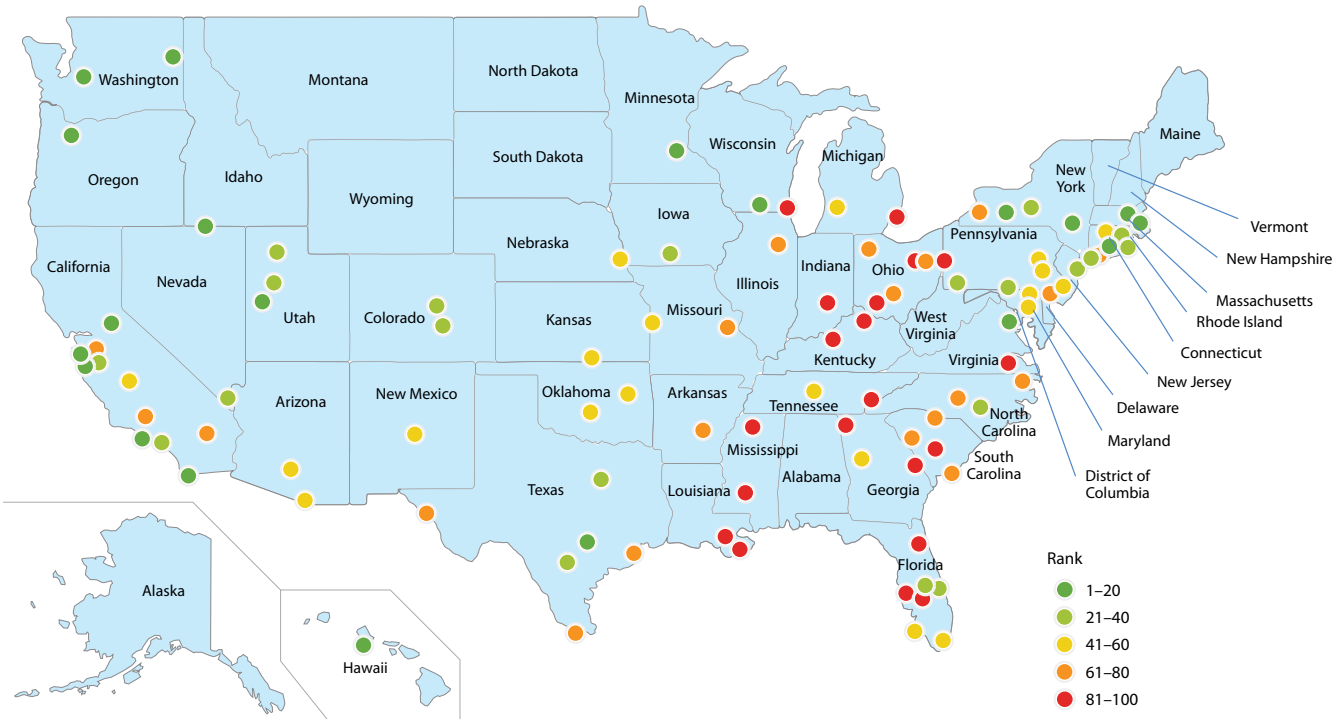
Reviewing the Index in aggregate clearly shows the acute challenges facing U.S. cities: poverty (Goal 1), hunger and malnutrition (Goal 2), low standards of education (Goal 4), slow industry, innovation and tired infrastructure (Goal 9), acute levels of inequality (Goal 10), unsustainable cities (Goal 11), and large carbon emissions (Goal 13). All of these goals above present big challenges for MSAs, with scores significantly far from 100.

Taking a closer look at individual goals we see that **poverty** (Goal 1) divides the country into a clear north-south distinction, with the northern half of the U.S. faring better than the south. The Southwestern states see the worst rates of poverty in the country.

Good Health (Goal 3), although not as stark as Goal 1, also sees a clear north-south distinction, with the northern half doing relatively better than the south. Overall the Southeastern region observes the worst composite scores on Goal 3.

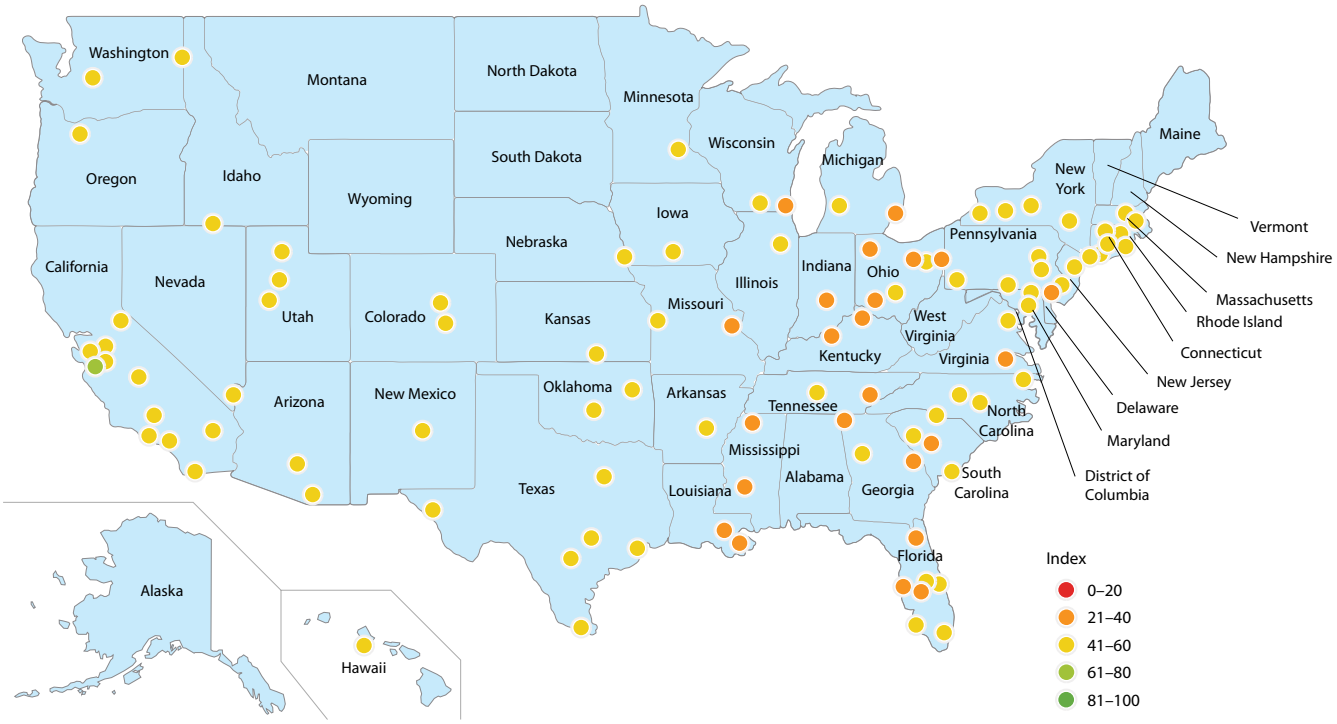
Inequality (Goal 10) is the most visible in Midwestern and Southeastern states, with the west coast doing significantly better than the east coast.

Figure 1 | Map of MSAs by Rank



This map shows the spatial distribution of the 100 MSAs across the U.S. with color classification representing the relative rankings.

Figure 2 | Map of MSAs by Index Score



This map shows the spatial distribution of the 100 MSAs across the U.S. with color classification representing the relative rankings.

Sustainable Cities (Goal 11), which measures a wide range of indicators such as transport and air quality, sees a very dispersed geographic distribution of good and poor performance. The state of California, for example, has a wide range of good and poor performers. San Francisco and the surrounding Bay Area fare better while Los Angeles and its suburbs show poor performance.

Goal 13, which is measured by **carbon emissions** per capita, is one of the worst scoring goals for all city regions in the Index. Particularly poor performers are concentrated in the Midwestern Region of the U.S., in cities such as Detroit, Chicago, Kansas City, Milwaukee, Minneapolis, Oklahoma City and Memphis.

What are the Key Findings by Indicator?

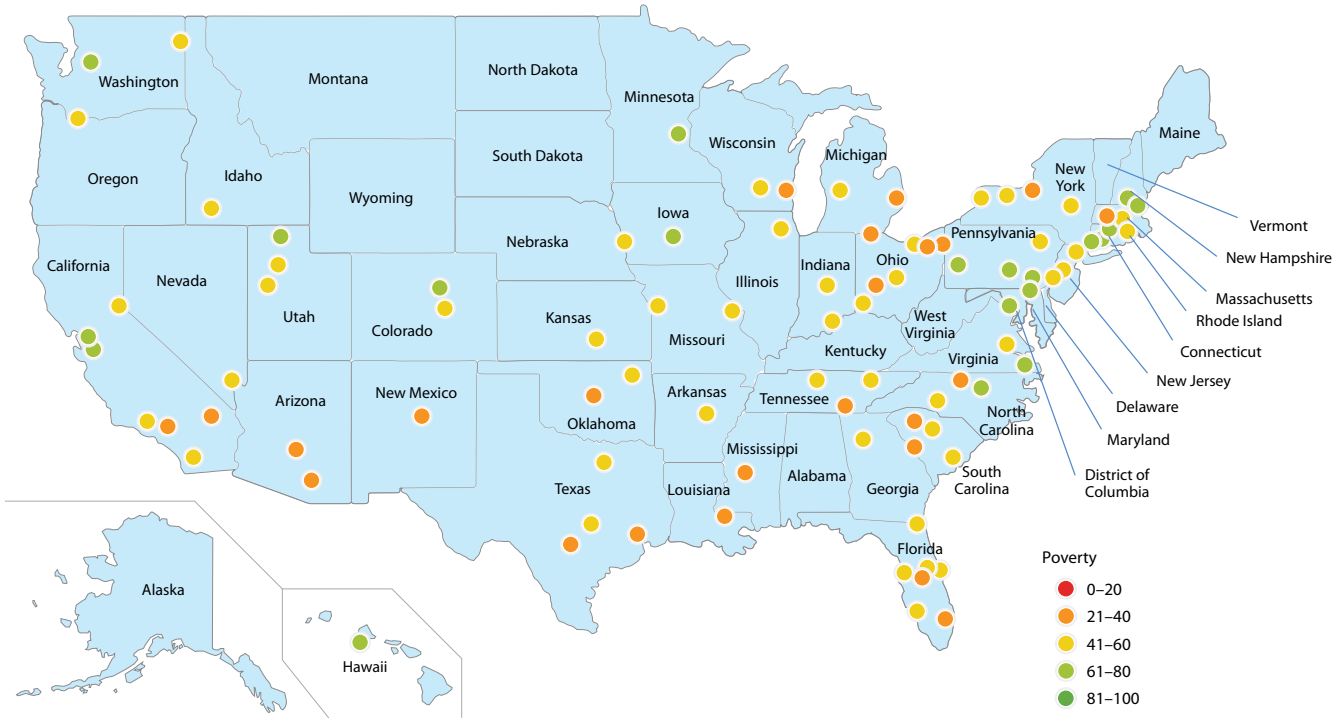
A review of the goals gives us a good overview of priority issues and concerns but does not identify specific challenges, nor does it help to explain how federal and local governments should respond. In the following section, we shine a spotlight on some of the patterns emerging from the measurement of specific indicators such as relative poverty rates, real personal income, race and gender. These measures clearly expose acute inequalities in standards of living across America, along income and race lines, as well as gender.

Poverty

The most alarming pattern identified by the U.S. Cities SDG Index was the high rates of poverty across the country. Only four MSAs have a rate of less than 10 percent, while poverty is more prevalent in the Midwestern, Southern and Southwestern MSAs. Washington DC-Arlington-Alexandria has the lowest rate of poverty at 8.65 percent and McAllen-Edinburg-Mission, TX, has the highest at 34.29 percent, as defined by the U.S. Census.

Among the 100 MSAs analyzed in our Index the average percentage of the population living below the national poverty is 15.6%. This means approximately 33.28 million people in the top 100 MSAs are currently living in poverty. Notably, most of the metros with the highest poverty rates are concentrated in the South. Southern states have some of the lowest minimum wages across the country, which

Figure 3 | Map of MSAs by Index Score for Poverty



This map shows the spatial distribution of the 100 MSAs across the U.S. with color classification representing the Index score associated with just the poverty rate indicator.

Figure 4 | Number of MSAs by per capita real income quintiles

This histogram shows the distribution of MSAs based on average per capita real income values. The X-axis shows income brackets while the Y-axis shows the number of MSAs in that income bracket.

contributes to the regions' high poverty rates. Poverty among children is also markedly more widespread in the South. In our Index seven of the metro areas with the highest child poverty rates are in the South.[13]

Personal Income

Real personal income takes into account the different living costs across metro areas and adjusts personal income accordingly. It is an important measure in comparing the purchasing power of incomes. We benchmark it to the average of the top five performers in the list of 100 MSAs. Immediately we can see that MSAs on the West Coast have the lowest personal incomes, except for San Francisco and San Jose where incomes are higher due to the high concentration of well-paying jobs in science and technology. Adjacent large MSAs, such as Los Angeles, San Diego, Fresno, Modesto, Sacramento, Stockton and San Bernardino, do not fare as well.

McAllen-Edinburg-Mission, TX, scores the lowest on real personal income at only USD 25,423 per annum. Bridgeport-Stamford-Norwalk, CT, shows the highest income at USD 79,874 per annum.

Overall, we found that most MSAs fall under the 40th percentile on the median real personal income scale, which is an indication of the acute income inequality across the United States.

Gender

Good, consistent gender data were difficult to find at the MSA level. This was one of the biggest obstacles in compiling the Index (see page 14). We eventually chose two indicators: one measuring sexual violence, which is high in the Midwest, and one measuring the gender gap in earnings, which is worsening across the country. We benchmarked individual MSAs against the aspirational target value of a 0 percent difference in earnings between men and women and found that even the best performing MSAs are only half of the way toward achieving gender parity in earnings. Major cities on both coasts, such as New York, Washington DC, Los Angeles, San Diego and Miami, tend to fare slightly better compared to the rest of the country.

Energy and Transportation

In addition to socio-economic indicators, we can observe interesting trends relating to clean energy access and transportation. Berkeley University's Cool Climate Network has modeled carbon emissions by zip code, which we transformed to MSA boundaries using GIS software. Berkeley's estimates are based on local trends in travel, housing, food, and consumption. Our Index benchmarks their values to the best score of 1.7 tons per capita,[14] which is what is required to achieve the 2 degree Celsius temperature change goal set under the Paris agreement.[15]

In comparison, the current annual carbon emissions per capita in the U.S. are roughly 17 tons. High carbon emissions are evident across all the MSAs, with the best performing MSAs scoring just below 40 (i.e. they are only 39 percent of the way to the recommended target). If we delve deeper, we see that the Rust Belt — which stretches to the Great Lakes and industrial Midwest — has the worst carbon footprint of all U.S. MSAs. This is because of high levels of vehicle ownership per household, low access to public transport, and high energy usage at home due to extreme cold temperatures.

GOAL BY GOAL RANKINGS

What follows are the rankings for cities by goal (Table 3). The top 10 cities in the overall Index have been colored so it is possible to see their performance within each goal area. San Jose-Sunnyvale-Santa Clara, Provo-Orem and Seattle-Tacoma-Belleveue are clearly discernable as high scorers on multiple dimensions, suggesting that progress on one dimension can have positive spillover effects for progress in other areas.

The Top 10 U.S. City Regions

1 San Jose-Sunnyvale-Santa Clara, CA
2 Provo-Orem, UT
3 Seattle-Tacoma-Bellevue, WA
4 San Francisco–Oakland–Hayward, CA
5 San Diego-Carlsbad, CA
6 Albany-Schenectady-Troy, NY
7 Boise City, ID
8 Oxnard-Thousand Oaks-Ventura, CA
9 Boston-Cambridge-Newton, MA-NH
10 Portland-Vancouver-Hillsboro, OR-WA

Table 3 | Top 10 Cities by Goal

Table 3 provides a ranked list of the ten highest scoring MSAs in descending order of Index score for each goal of the SDGs.

1 NO POVERTY

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Bridgeport-Stamford-Norwalk, CT	86.59
2	San Jose-Sunnyvale-Santa Clara, CA	82.70
3	Boston-Cambridge-Newton, MA-NH	76.30
4	San Francisco–Oakland–Hayward, CA	73.04
5	Washington-Arlington-Alexandria, DC-VA-MD-WV	72.67
6	Hartford-West Hartford-East Hartford, CT	68.29
7	Seattle-Tacoma-Bellevue, WA	67.03
8	Minneapolis-St. Paul-Bloomington, MN-WI	64.14
9	Manchester-Nashua, NH	63.75
10	Denver-Aurora-Lakewood, CO	61.77

2 ZERO HUNGER

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Modesto, CA	68.63
2	Oxnard-Thousand Oaks-Ventura, CA	62.66
3	Madison, WI	59.32
4	Bakersfield, CA	54.87
5	Stockton-Lodi, CA	54.72
6	Lancaster, PA	49.04
7	Albany-Schenectady-Troy, NY	45.23
8	Portland-Vancouver-Hillsboro, OR-WA	43.93
9	Harrisburg-Carlisle, PA	43.88
10	Provo-Orem, UT	43.67

3 GOOD HEALTH AND WELL-BEING

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Bridgeport-Stamford-Norwalk, CT	73.18
2	Boston-Cambridge-Newton, MA-NH	72.01
3	Hartford-West Hartford-East Hartford, CT	71.16
4	Minneapolis-St. Paul-Bloomington, MN-WI	67.95
5	San Jose-Sunnyvale-Santa Clara, CA	67.68
6	Urban Honolulu, HI	67.27
7	Worcester, MA-CT	67.22
8	Springfield, MA	66.95
9	New Haven-Milford, CT	66.29
10	Manchester-Nashua, NH	65.56

4 QUALITY EDUCATION

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Los Angeles-Long Beach-Anaheim, CA	57.85
2	Springfield, MA	57.78
3	San Francisco–Oakland–Hayward, CA	56.91
4	Houston-The Woodlands-Sugar Land, TX	56.86
5	Baltimore-Columbia-Towson, MD	55.34
6	Washington-Arlington-Alexandria, DC-VA-MD-WV	54.78
7	Boston-Cambridge-Newton, MA-NH	54.42
8	Austin-Round Rock, TX	53.06
9	San Jose-Sunnyvale-Santa Clara, CA	52.36
10	San Diego-Carlsbad, CA	51.82

6 CLEAN WATER AND SANITATION

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Orlando-Kissimmee-Sanford, FL	93.65
2	Miami-Fort Lauderdale-West Palm Beach, FL	92.43
3	San Antonio-New Braunfels, TX	92.38
4	Memphis, TN-MS-AR	91.22
5	Provo-Orem, UT	90.97
6	Colorado Springs, CO	90.86
7	San Jose-Sunnyvale-Santa Clara, CA	90.07
8	Portland-Vancouver-Hillsboro, OR-WA	90.04
9	Tulsa, OK	89.75
10	Des Moines-West Des Moines, IA	89.28

5 GENDER EQUALITY

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Cape Coral-Fort Myers, FL	74.58
2	New York-Newark-Jersey City, NY-NJ-PA	70.47
3	Los Angeles-Long Beach-Anaheim, CA	67.90
4	San Diego-Carlsbad, CA	66.44
5	Greensboro-High Point, NC	66.32
6	Orlando-Kissimmee-Sanford, FL	65.09
7	Sacramento–Roseville–Arden-Arcade, CA	64.17
8	Knoxville, TN	62.49
9	Baltimore-Columbia-Towson, MD	62.46
10	Atlanta-Sandy Springs-Roswell, GA	62.15

7 AFFORDABLE AND CLEAN ENERGY

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Spokane-Spokane Valley, WA	100.00
2	Boise City, ID	100.00
3	Seattle-Tacoma-Bellevue, WA	100.00
4	Las Vegas-Henderson-Paradise, NV	99.99
5	Portland-Vancouver-Hillsboro, OR-WA	91.88
6	Kansas City, MO-KS	54.30
7	Des Moines-West Des Moines, IA	44.18
8	San Jose-Sunnyvale-Santa Clara, CA	42.53
9	Oxnard-Thousand Oaks-Ventura, CA	42.53
10	San Diego-Carlsbad, CA	42.53

8 DECENT WORK AND ECONOMIC GROWTH

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Spokane-Spokane Valley, WA	64.49
2	Boise City, ID	56.41
3	Seattle-Tacoma-Bellevue, WA	60.09
4	Las Vegas-Henderson-Paradise, NV	25.68
5	Portland-Vancouver-Hillsboro, OR-WA	36.39
6	Kansas City, MO-KS	58.03
7	Des Moines-West Des Moines, IA	73.32
8	San Jose-Sunnyvale-Santa Clara, CA	68.11
9	Oxnard-Thousand Oaks-Ventura, CA	57.97
10	San Diego-Carlsbad, CA	67.54

10 REDUCED INEQUALITIES

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Provo-Orem, UT	78.12
2	Ogden-Clearfield, UT	77.84
3	Salt Lake City, UT	64.66
4	Urban Honolulu, HI	64.23
5	El Paso, TX	61.58
6	Boise City, ID	60.29
7	Colorado Springs, CO	57.21
8	Modesto, CA	55.23
9	Oxnard-Thousand Oaks-Ventura, CA	54.37
10	Manchester-Nashua, NH	53.92

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Urban Honolulu, HI	100.00
2	San Francisco–Oakland–Hayward, CA	67.65
3	San Jose-Sunnyvale-Santa Clara, CA	62.70
4	Denver-Aurora-Lakewood, CO	56.43
5	Salt Lake City, UT	54.28
6	Charlotte-Concord-Gastonia, NC-SC	52.57
7	Las Vegas-Henderson-Paradise, NV	52.04
8	Seattle-Tacoma-Bellevue, WA	51.61
9	Atlanta-Sandy Springs-Roswell, GA	50.93
10	Austin-Round Rock, TX	49.46

11 SUSTAINABLE CITIES AND COMMUNITIES

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	McAllen-Edinburg-Mission, TX	63.47
2	Buffalo-Cheektowaga-Niagara Falls, NY	59.32
3	Palm Bay-Melbourne-Titusville, FL	58.29
4	Madison, WI	58.03
5	Tucson, AZ	56.50
6	Cape Coral-Fort Myers, FL	55.55
7	New Haven-Milford, CT	55.55
8	Syracuse, NY	55.24
9	New Orleans-Metairie, LA	54.99
10	Urban Honolulu, HI	54.73

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	McAllen-Edinburg-Mission, TX	100.00
2	Albuquerque, NM	100.00
3	Tucson, AZ	99.93
4	Las Vegas-Henderson-Paradise, NV	99.86
5	Fresno, CA	99.81
6	Stockton-Lodi, CA	99.47
7	Bakersfield, CA	99.38
8	Oxnard-Thousand Oaks-Ventura, CA	99.33
9	Provo-Orem, UT	99.32
10	San Jose-Sunnyvale-Santa Clara, CA	98.95

15 LIFE ON LAND

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Provo-Orem, UT	100.00
2	McAllen-Edinburg-Mission, TX	98.94
3	Augusta-Richmond County, GA-SC	97.57
4	Greensboro-High Point, NC	95.00
5	Youngstown-Warren-Boardman, OH-PA	93.31
6	Greenville-Anderson-Mauldin, SC	90.27
7	Houston-The Woodlands-Sugar Land, TX	87.63
8	Springfield, MA	86.21
9	Riverside-San Bernardino-Ontario, CA	85.65
10	Palm Bay-Melbourne-Titusville, FL	84.97

13 CLIMATE ACTION

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	McAllen-Edinburg-Mission, TX	39.27
2	Fresno, CA	39.27
3	El Paso, TX	35.35
4	Modesto, CA	34.83
5	Bakersfield, CA	34.77
6	Urban Honolulu, HI	33.61
7	Stockton-Lodi, CA	31.63
8	Riverside-San Bernardino-Ontario, CA	31.23
9	Los Angeles-Long Beach-Anaheim, CA	30.29
10	Provo-Orem, UT	29.69

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	Boise City, ID	95.65
2	Manchester-Nashua, NH	94.29
3	Provo-Orem, UT	93.58
4	Providence-Warwick, RI-MA	93.56
5	San Jose-Sunnyvale-Santa Clara, CA	93.32
6	Albany-Schenectady-Troy, NY	93.14
7	Worcester, MA-CT	92.52
8	Hartford-West Hartford-East Hartford, CT	92.25
9	New York-Newark-Jersey City, NY-NJ-PA	91.06
10	El Paso, TX	89.42

17 PARTNERSHIPS FOR THE GOALS

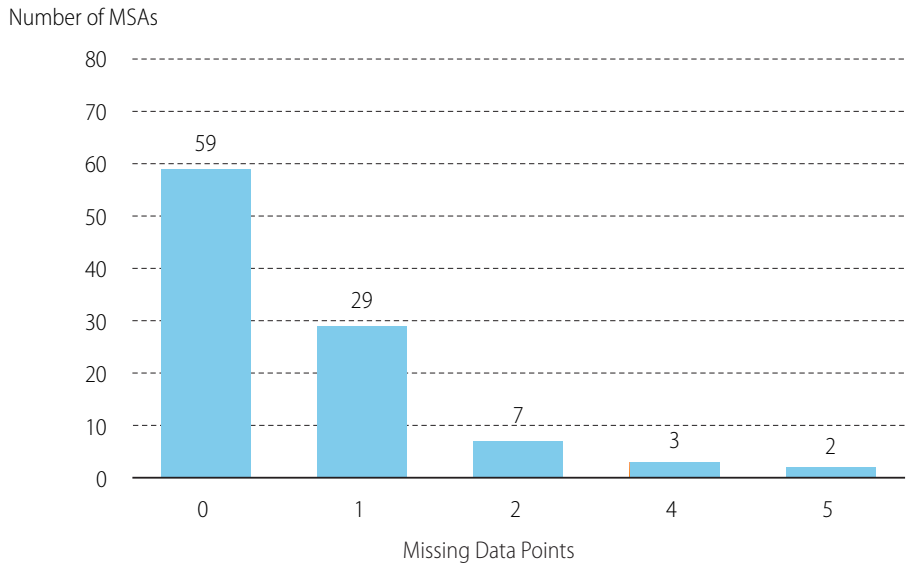
RANK	METROPOLITAN STATISTICAL AREA	INDEX
1	San Jose-Sunnyvale-Santa Clara, CA	68.89
2	San Diego-Carlsbad, CA	68.44
3	Colorado Springs, CO	68.44
4	Provo-Orem, UT	67.56
5	Seattle-Tacoma-Bellevue, WA	66.22
6	Washington-Arlington-Alexandria, DC-VA-MD-WV	66.00
7	Manchester-Nashua, NH	65.78
8	San Francisco–Oakland–Hayward, CA	65.78
9	Bridgeport-Stamford-Norwalk, CT	65.11
10	Ogden-Clearfield, UT	63.33

DATA GAPS AND MONITORING CHALLENGES

At the outset of this project our ambition was to evaluate the 150 most populous cities in the United States. Not long into the data collection exercise, however, we realized that city-level data availability was insufficient to conduct our evaluation. Although they are not legal entities like cities or counties, Metropolitan Statistical Areas had much more robust and readily available data, so it was quickly apparent that these were a better proxy for city outcomes. MSAs also provide a more holistic picture as they typically represent a central, large city and adjacent areas of regional influence, providing a better representation of an urban settlement.

This Index is built on the premise that only MSAs that have coverage across 90 percent of our indicator spectrum would be evaluated and ranked. In our first iteration of the U.S. Cities SDG Index, we compiled data on 45 indicators, spanning 15 out of 17 SDGs, for the 150 MSAs. There were many data gaps, however, so we decided to drop MSAs that did not have data for 8 or more indicators. This left us with a total of 125 MSAs. In the next iteration, we added 9 more indicators, covering additional dimensions of poverty (Goal 1), nutrition (Goal 2), health (Goal 3), education (Goal 4), energy (Goal 7), inequality (Goal 10), sustainable cities (Goal 11)

Figure 5 | Missing Data Points by MSA



This histogram shows the distribution of MSAs based on the number of missing data points across 49 indicators. The X-axis shows the number of missing data points while the Y-axis shows the number of MSAs with that many missing values.

and peace and justice (Goal 16). Again, we noticed acute data gaps so were forced to drop another 25 MSAs. This gave us a final tally of 100 MSAs.

Even in the Index's final form, there are concerns of having adequate coverage on certain goals. For example, *Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all* assigns values to MSAs that are drawn from state level data. Data on the source of energy at the city level are unavailable. Other indicators such as number of homes with rooftop solar panels or local investments in renewable energy were explored but no consistent or standard metric was available. Similarly, carbon emissions per capita is the only indicator under *Goal 13: Take urgent action to combat climate change and its impacts*. This variable comes from Berkeley University's Cool Climate Institute.[16] We pursued indicators that measure urban disaster risk management and resiliency planning but no standard measures across enough number of MSAs were available.

Box 2: The relevance of the U.S. Cities SDG Index for local-level monitoring and decision-making

The U.S. Cities SDG Index serves as an advocacy tool that, through media pick-up and city-level dissemination, should motivate the U.S. federal government to examine and track the status of sustainable development across its cities and Metropolitan Statistical Areas. This index should spur local level action, led by local governments and with federal government support.

This Index does not propose to be a detailed, local-level monitoring tool, however, as cities and metropolitan areas require context-specific, granular data to map local progress and design effective policies and programs. Much of these data are collected by local entities and are not comparable across MSAs. Take, for example, measures of access to justice. In Baltimore (MD), residents participating in a community consultation highlighted the importance of SDG 16 regarding access to justice. They called for a focus on the perpetual cycle of poverty, adjudication and/or imprisonment and asked the government to design policies to address the systemic inequalities perpetuating incarceration. Data available at the MSA level lack the granularity needed to design effective policies and programs. As such, the Maryland Access to Justice Commission is collating data to measure new local indicators on *State/Local Public Funding for Legal Aid for Eligible Clients, Length of Time in Jail Pretrial for Misdemeanor Offenses, and the Civil Legal Aid Attorney Ratio*.

For local-level monitoring of the SDGs and policy and planning purposes, it will also be important for local governments to consider the use of human movement data and GIS (for example through geo-referenced data from smart phones) that can help them to design public services and encourage businesses in areas of high demand. While the ability to incorporate these data into a national index is limited, these types of data will be extremely important as cities innovate their own local data and measurement tools.

Finally, for local SDG monitoring exercises to have the most impact it is important that they are designed in partnership with residents. Community dialogues in Baltimore (MD) and San Jose (CA) on the relevance of the SDGs quickly highlighted the importance of co-creating monitoring frameworks between residents and local government. In Baltimore, stakeholders discussing poverty measurements suggested that traditional indicators (e.g., percentage of residents below poverty line) were inadequate, and that measures of liquid asset poverty and the Distressed Communities Index were more meaningful and effective measurements to inform poverty reduction strategies in the city. When indicators resonate with residents it can strengthen the social contract between residents and local authorities, as they perceive that their priorities, needs and concerns are understood. It also builds confidence among residents that authorities have the data required to design effective policy measures.

For more information on these SDG community dialogues visit: http://unsdsn.org/what-we-do/solution-initiatives/usa-sustainable-cities-initiative-usa-sci/

Goal 5: Achieve gender equality and empower all women and girls also proved difficult to measure in the U.S. at the city level. Indicators such as 'number of women in local government' and 'number of businesses owned by women' are monitored on an ad-hoc basis, and standardized data are not available at the federal, MSA or city level.

Indicators for *Goal 17: Strengthen the means of implementation* also proved problematic, so we were only able to include one indicator measuring broadband penetration. Indicators that measure self-sufficiency and financial capacity of local governments such as 'local revenue generation as percentage of city budget' could not be found.

Despite our best efforts to minimize the number of missing values, including using previous year data, we are still left with a patchwork of data at the metropolitan level. The chart (Figure 5, page 14) shows the number of MSAs in our final dataset for which indicators could not be found.

The range of missing variables identified by this exercise suggests sizeable underinvestment in local data systems, both at the city and MSA level. It also indicates a deliberate underinvestment by the U.S. government in some crucial measures of equity, including gender-disaggregated data. As the sustainable development challenge becomes broader and more complex, a data-driven approach to policy-making will be crucial. Investments in basic operational data on sustainable development should be a founding principle of effective governance, within the U.S. and around the world.

CONCLUSION

The U.S. Cities SDG Index provides a snapshot of sustainable development across America. By highlighting the best and worst performing metropolitan areas, exposing regional disparities and persistent problems for all cities (such as high levels of poverty and carbon emissions), it aims to galvanize efforts to tackle the sustainable development challenge.

Cities such as San Jose, Baltimore and New York City, to name a few, have started implementing the SDGs within their jurisdictions. They are surveying how their sustainability plans and data monitoring systems align with the SDGs, consulting local stakeholders to define priorities, and developing strategies for SDG achievement through evidence-based policy and investment. And their commitment to sustainable development is paying off, with San Jose taking the top spot in this year's U.S. Cities SDG Index. The Index hopes to encourage these efforts by showing how cities are faring relative to their neighbors. The Index also hopes to encourage a closer examination of local policies, plans and investments that can make a profound difference for sustainable development outcomes.

According to our Index, San Jose in California is 61.04 percent of the way to achieving the SDGs. Its strong performance on a range of the goals shows that the sustainable development challenge is doable and that cities do not have to prioritize economic interests over environmental, or prioritize profit over equity. It is possible to be a profitable, integrated, inclusive, and sustainable city all at once.

The Index also sheds light on poor performers. City regions like Baton Rouge in Louisiana, as well as Detroit-Warren-Dearborn and other Rust Belt cities score lowest on the Index, due to high levels of relative poverty, acute unemployment, and high emission rates. The Rust Belt cities have suffered due to the shift away from heavy manufacturing. America needs to learn from this by encouraging business development in green technologies and green enterprise and by encouraging innovation among small and medium enterprises.

To tackle the inequalities that are so apparent in this Index, federal and local governments need to invest in data and monitoring. It is inexcusable that such an advanced, high-tech economy does not adequately track gender disparities for example. As a leading advocate of the 2030 Agenda for Sustainable Development, the United States committed to using data to achieve sustainable development, rectifying global and domestic inequalities, and ensuring 'no one is left behind'. Investments in local level statistical systems, and a strong federal commitment to collate and share these data, will be essential to the design of successful policies and programs to tackle the sustainable development challenge. Better U.S. data will also enable the future iteration of the U.S. Cities SDG index to most accurately reflect sustainability trends in America.

ANNEX A: METHODOLOGY

The U.S. Cities SDG Index evaluates and ranks cities according to their level of sustainable development using the internationally agreed upon Sustainable Development Goals as the analytical framework. It is a composite index drawing on data collected from a variety of reputable sources. It provides a useful benchmark of key sustainability indicators and a single measure of which cities in the U.S. have the best or the worst urban environments, socio-economic integration and service access.

The U.S. Cities SDG Index ranks 100 of the most populous U.S. Metropolitan Statistical Areas (MSA). Metropolitan Statistical Areas are geographic entities defined by the U.S. Office of Management and Budget (OMB) for use by federal statistical agencies in collecting, tabulating, and publishing federal statistics. Each of the one-hundred most populated metro areas included in this report contains one or more counties, including a core urban area with a population of 50,000 or more, and any adjacent counties that have a high degree of social and economic integration (measured by commuting to work patterns) with the core urban area. For the purposes of the report we use MSAs and cities interchangeably.

The methodology follows four steps: indicator and data selection, rescaling source data, normalizing the rescaled data and then aggregating in a composite index measure.

A1: Indicator and Data Selection

The Index, measured out of 100, considers 49 indicators related to income, health care, educational resources, gender, access to safe water and sanitation and air quality safety, among others. These indicators correspond closely to the official set of global SDG monitoring indicators proposed by the UN Inter-Agency and Expert Group on SDG indicators.[17] SDG 14 "*Conserve and sustainably use the oceans, seas and marine resources for sustainable development*" is the only SDG not measured by this Index as it is only applicable to coastal cities and the data are insufficient. While compiling our database, we used the most recent data available. We give preference to those indicators that have data available for the past two years. However, some indicators that did not have up-to-date data, and were considered important for inclusion, have also been included. Each source has been verified for the validity of its methods of data collection. Data used in this report are gathered from a variety of federal statistical sources such as the Census Bureau, Bureau of Labor Statistics, and Centers for Disease Control and Prevention, databases collected by university research groups like Columbia University, Harvard University and University of California Berkeley, and geospatial data obtained by processing data such as satellite imagery. For a detailed list of indicators, definitions, calculation methodology and their source, please see Annex C: Sources and Definitions.

A2: Preparing Source Data

To make valid comparisons of levels and scores across cities, we must have timely, high-quality data derived from official sources. However, coverage rates for many key indicators (e.g. maternal and infant mortality) are far below international standards. Our strategy for handling missing values resulted in a trade-off between a decision to limit inconsistency and our desire to expand coverage. We do not impute missing values and, therefore, narrowed the dataset from the original selection of 150 to 100 MSAs. For various indicators when data are unavailable for earlier years, the values are substituted with the latest available year. Where data availability allows, we have included most up-to-date variables. For comparability, the prepared datasets were also standardized to percentage or per capita for comparability purposes. Any descending indicator that was scaled such that worse values represented higher levels was first reversed. In cases where raw data were only available for a different geographic boundary than the MSA, we used geospatial tools to translate all variables to the MSA level for consistency. Some examples of such spatial transformations are from "zip code" to MSA, and from "county" to MSA. Latest official U.S. Census shapefiles were layered to create spatial concordance.

A3: Normalizing the Prepared Data

Each indicator was then normalized for aggregation into the U.S. Cities SDG Index. The indicators are normalized by utilizing the min/max method

$$x' = \frac{\mathrm{x} - min(x)}{max(x) - min(x)}$$

where the minimum and maximum values are calculated from the dataset of 100 cities for any given indicator. The normalized value is then transformed from a 0-1 value to

a 0-100 score to make it directly comparable with other indicators. This in effect means that the city with the highest raw data value will score 100, while the lowest will score 0. The standardization converts all indicators to a scale from the "worst" (score 0) to the "best" (score 100) to be compatible with other available sources. To normalize the data, a five step decision tree was used:

1. Where possible, use absolute quantitative thresholds outlined in the SDG targets;
2. Where no explicit SDG target is available, set upper bound to universal access or zero deprivation for indicators such as public service coverage and access to basic infrastructure;
3. Where science-based targets exist (that must be achieved by 2030 or later) use these to set the 100% upper bound;
4. If none of the above are available but OECD data exists, use the greater of the average of top five OECD countries or the average of top five performing U.S. cities; and
5. For everything else use the average of top five performing U.S. cities.

Knowing that in some cases U.S. cities may be performing well enough already, the lower threshold was set using the following decision tree:

1. Where OECD data exists, use the lower of the 2.5th percentile of OECD countries and the 2.5th percentile of U.S. cities;
2. Where OECD data does not exist, use the 2.5th percentile of U.S. cities.

This method allows us to limit the presence of extreme values within the upper tail. An example of this is on real per capita personal income levels, where to get a score of 100 a city would need to have real income levels of $61,507, the average of the 5 cities with the highest median income scores. All cities that exceed the average of the best values are assigned the best value. Similarly, all values below the 2.5th percentile were replaced with the lower threshold, as recommended by the OECD manual on constructing composite indicators.[18] The lower bounds serve to eliminate outliers at the lower end of the distribution.

A4: Aggregating into a Composite Index

To obtain the overall Index score for each city we first calculated the arithmetic mean of indicators within each SDG and then aggregated the index by taking the arithmetic average across the SDG goals. The arithmetic average provides an easy and straightforward interpretation: An Index score between 0 and 100 reflects the average starting point of the city across 16 of the 17 goals. After defining the 100 and 0 values for each indicator, we scored each city to determine their place on the scale for each of the 49 indicators. This approach makes it easy to interpret the U.S. Cities SDG Index: A city that scores 50 on an indicator is, on average, equidistant between the worst and best performers on SDG achievement.

Correlation checks were applied to determine if high correlation is a problem for the structure of the composite index and if the set of indicators can be narrowed. The highest correlation based on a threshold of 0.80 and above was established between the following pairs of indicators – poverty and child poverty, traffic deaths and gun violence as well as green space and violent crimes. In order to assess the statistical significance of the correlation between the indicators, we conducted a number of statistical tests, including skewness and kurtosis test for normality, as well as Shapiro–Wilk and Shapiro–Francia tests, to determine whether the variables considered in the U.S. Cities SDG Index were normally distributed. For various indicators, such as poverty and teenage births, the assumption of normality is rejected at the 5% significance level. We note that this might be due to the low power of the tests in relatively small samples. The results of the tests did not point to reducing the number of indicators in the Index and highlighted the range of issues cities and countries are willing to track.

ANNEX B: LIMITATIONS

Like all composite measures, the Index has some limitations. The following points highlight the major limitations of the U.S. Cities SDG Index.

The MSA-level data is based on the most recent available survey. In some cases, these data are from 2010 (e.g. traffic deaths). Currently, in the U.S., there are 382 official metropolitan statistical areas and over 680 counties. The boundaries are county-based and defined by the Office of Management and Budget every 10 years, based on population counts taken during the decennial census (current delineation as of July 2015). Starting with the 2013 data, some metropolitan areas no longer met the criteria to be considered a "Metropolitan Statistical Area" and new metropolitan areas were added to the data series.

Some MSAs tend to have many fragmented counties, leading to estimates with high standard errors. Microdata are highly sensitive to identity disclosure. For example, mortality data do not identify counties with populations less than 100,000 people. Access to mortality and natality files with all counties currently requires approval and the signing of a data user's agreement.

The Index includes data from a variety of sources. We were unable to track many of the SDG indicators at the MSA level due to a paucity of data. In several instances the numbers are transformed from state-level statistics to MSA or by matching the five-digit ZIP codes with the Federal Information Processing Standards codes specified for each metropolitan area using GIS.

Because of U.S. laws that preclude disclosure of confidential business data provided to the federal government, it is necessary for the U.S. Census Bureau to take precautions so that its data do not disclose information about specific individuals and households. To achieve this, the Bureau suppresses the totals based on small numbers of persons or units for certain metropolitan areas each year.

In terms of geographical coverage, the U.S. Cities SDG Index covers the 100 most populous MSAs. The specific region-level coverage is indicated in the table and maps. All U.S. regions are represented by aggregating data, although the quality, timeliness and reliability of the data vary between regions and metro areas.

The results of the rankings should be interpreted with caution and only after reviewing Appendix C: Sources and Definitions, which contains important information about the measurement issues and methods used to obtain the estimates.

ANNEX C: CITIES DASHBOARD

The U.S. Cities SDG Dashboard uses the same data as the Index after preparation. We introduced additional quantitative thresholds for each indicator to group cities in a "traffic-light" table format. Aggregating across all indicators for a goal yielded an overall score for each SDG for each city, which was used to assign a color band according to set thresholds.

The dashboard methodology classifies cities into four bands – green, yellow, orange and red. The top and bottom values of this spectrum are the same as the upper and lower bounds of the Index. The three interim thresholds (green/yellow, yellow/orange and orange/red) were set by using the following decision tree:

1. Where the same indicator exists in the Global SDG Index 2017, use same threshold values;
2. Where the science-backed intermediate targets exist, use the same threshold values; and
3. Where neither exist, use the Jenks Natural Breaks method to determine intermediate thresholds.

C1: Jenks Natural Breaks

The Jenks Natural Breaks method is a variance minimization and distance between means maximization technique to distribute the data into desired class intervals. For our data, this method clusters cities based on relative performance into 4 distinct groups. The hypothesis behind its adoption is that various groups of cities are already delivering at certain levels for indicators, which is a reasonable distance for other cities to cover in order to join the higher performing cluster.

The validity of this method of determining intermediate thresholds was also tested by comparing science-backed thresholds, thresholds of best judgment, and the results from the Jenks algorithm. The results were not found to be extremely different.

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

Best Value	Worst Value
4.79	24.54

Description

Percentage of population living below poverty line as defined by the American Community Survey 2014.

Real Per Capita Personal Income (Chained 2009 Dollars)

Dataset Year **2014**

Source

Bureau of Economic Analysis 2014

Best Value	Worst Value
61,507.19	30,055.58

Description

Inflation Adjusted Per Capita Personal Income as calculated by the Bureau of Economic Analysis.

Children Under 18 Living Below Twice the Poverty Threshold

Dataset Year **2014**

Source

Census ACS 2014

Best Value	Worst Value
20.48	58.08

Description

Children that are living in households twice below the national poverty line as defined by the American Community Survey 2014.

2 ZERO HUNGER

Prevalence of Obesity

Dataset Year **2013**

Source

CDC

Best Value	Worst Value
2.80	41.06

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.

Low Birth Weight

Dataset Year **2014**

Source

CDC

Best Value	Worst Value
4.40	10.01

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.

Infant Mortality

Dataset Year **2014**

Source

CDC

Best Value	Worst Value
2.10	11.10

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.

3 GOOD HEALTH AND WELL-BEING

Health Insurance Coverage

Dataset Year **2014**

Source

Census ACS 2014

Best Value	Worst Value
100	74.43

Description

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

Primary Care Physicians

Dataset Year **2011**

Source

Dartmouth Atlas

Best Value	Worst Value
278.66	47.70

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.

Heart Attack Deaths

Dataset Year **2014**

Source

CDC

Best Value	Worst Value
31.04	222.48

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.

Diabetes Incidences

Dataset Year **2014**

Source

CDC

Best Value	Worst Value
5.67	12.19

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.

Syphilis, Chlamydia, Gonorrhea Cases

Dataset Year **2014**

Source

CDC

Best Value	Worst Value
332.28	14,178.39

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.

Traffic Deaths

Dataset Year **2004–2010**

Source

CDC

Best Value	Worst Value
3.20	91.1

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.

Teenage Births

Dataset Year **2014**

Source

CDC

Best Value	Worst Value
0.25	9.19

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.

4 QUALITY EDUCATION

School Enrollment Rate

Dataset Year **2014**

Source

Census ACS 2014

Best Value	Worst Value
100	69.48

Description

The percentage of school age individuals that are in school.

High School Dropout Rates

Dataset Year **2014**

Source

Census ACS 2014

Best Value	Worst Value
0	21.36

Description

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

Quality of Higher Education (Index)

Dataset Year **2015**

Source

U.S. News

Best Value	Worst Value
100	0

Description

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

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

Best Value	Worst Value
58.92	16.92

Description

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

5 GENDER EQUALITY

Sexual Violence Incidences Reported

Dataset Year **2014**

Source

FBI

Best Value	Worst Value
8.13	104.21

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.

Gender Gap in Earnings

Dataset Year **2014**

Source

BLS

Best Value	Worst Value
0	29.84

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.

6 CLEAN WATER AND SANITATION

Normalized Deficit (Water Stress) Index

Dataset Year **2009**

Source

Columbia University Water Center

Best Value	Worst Value
0	36.26

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.

Households Without Access to Piped Water and Sanitation

Dataset Year **2014**

Source

Census ACS 2014

Best Value	Worst Value
0	3.88

Description

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

7 AFFORDABLE AND CLEAN ENERGY

Share of Renewable Energy Generated in the State

Dataset Year **2011-2016**

Source

Georgetown Climate Center/EIA

Best Value	Worst Value
73.66	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	Worst Value
27.4	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	Worst Value
6.42	1.23

Description

Running 5 year average of Annual GMP Growth Rate.

Unemployment Rate

Dataset Year **2014**

Source

BLS

Best Value	Worst Value
3.72	18.70

Description

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

Disconnected Youth

Dataset Year **2013**

Source

Measure of America

Best Value	Worst Value
8.36	20.21

Description

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

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Patent Applications

Dataset Year **2010-2014**

Source

USPO

Best Value	Worst Value
4.35	0.08

Description

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

Emplanements per Capita

Dataset Year **2014**

Source

Federal Aviation Administration

Best Value	Worst Value
9.20	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.

10 REDUCED INEQUALITIES

GINI Coefficient

Dataset Year **2014**

Source

Census ACS 2014

Best Value	Worst Value
0.25	0.5

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.

Absolute Upward Mobility

Dataset Year **2016**

Source

Equal Opportunity Project, Harvard University

Best Value	Worst Value
46.57	35.88

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.

Racial Segregation

Dataset Year **2010**

Source

Population Studies Center, University of Michigan

Best Value	Worst Value
29.97	59.47

Description

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

11 SUSTAINABLE CITIES AND COMMUNITIES

Public Transport Use for Work Commute

Dataset Year **2014**

Source

Census ACS 2014

Best Value	Worst Value
36.81	0.87

Description

Percentage of people using public transport for commuting.

Walking or Bicycling for Work Commute

Dataset Year **2014**

Source

Census ACS 2015

Best Value	Worst Value
4.16	0.86

Description

Percentage of people using bicycles and walking for commuting.

Road Density

Dataset Year **2010**

Source

gRoads Database, CIESIN, Columbia University

Best Value	Worst Value
0.99	0.05

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.

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

Dataset Year **2014**

Source

Census ACS 2014

Best Value	Worst Value
33.03	56.73

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.

Rent Burdened Residents

Dataset Year **2014**

Source

Census ACS 2014

Best Value	Worst Value
1.42	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.

Housing Affordability

Dataset Year **2014**

Source

CDC + Census ACS 2014

Best Value	Worst Value
2.16	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.

Access to Parks

Dataset Year **2013**

Source

CDC

Best Value	Worst Value
71.84	7.75

Description

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

PM 2.5 Average Levels (Population Weighted)

Dataset Year **2014**

Source

CDC

Best Value	Worst Value
6.30	14.15

Description

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

Ozone Levels (8-Hr)

Dataset Year **2015**

Source

EPA

Best Value	Worst Value
0.09	0.05

Description

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

Commuting Time

Dataset Year **2014**

Source

Census ACS 2015

Best Value	Worst Value
19.02	31.05

Description

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

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Toxic Release in Air, Water and Land

Dataset Year **2014**

Source

EPA

Best Value	Worst Value
8.19	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.

13 CLIMATE ACTION

Carbon Emissions

Dataset Year **2014**

Source

Berkeley Cool Climate Network

Best Value	Worst Value
1.7	22.12

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.

15 LIFE ON LAND

Green Open Space Per Capita

Dataset Year **2016**

Source

Open Street Maps

Best Value	Worst Value
186.88	16.07

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.

EPA Cleanup Sites

Dataset Year **2016**

Source

EPA CIMC Database

Best Value	Worst Value
0	0.21

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.

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

Homicide Victims

Dataset Year **2014**

Source

FBI

Best Value	Worst Value
1.36	37.15

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.

Gun Violence

Dataset Year **2014**

Source

CDC

Best Value	Worst Value
3.67	17.91

Description

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

Violent Crimes

Dataset Year **2014**

Source

FBI

Best Value	Worst Value
126.38	1,582.63

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.

17 PARTNERSHIPS FOR THE GOALS

Broadband Penetration

Dataset Year **2014**

Source

Census ACS 2015

Best Value	Worst Value
100	55

Description

Percentage of households with a broadband connection.

ANNEX E: RATIONALE FOR THRESHOLDS

The table below provides a snapshot view of all indicators with the spread between the best and worst value, the unit of measurement, and the rationale for choosing the best and worst values.

	Variable	Descending- Higher is worse (0 is best) Ascending- Lower is worse (100 is best)	Worst Value	Best Value	Best-Worst	UNIT of Measurement	Rationale for Worst Value	Rationale for Best Value
Goal 1	Population Living Below the National Poverty Line	Descending	24.54	4.79	-19.75	Percent	2.5th Percentile	Half of the value of best performing MSA
	Real Per Capita Personal Income	Ascending	30055.58	61507.20	31451.63	USD/year	2.5th Percentile	Average of top 5
	Children Under 18 Living Below Twice the Poverty Threshold	Descending	58.08	20.48	-37.60	Percent	2.5th Percentile	Half of the value of best performing MSA
Goal 2	Prevalence of Obesity	Descending	41.06	2.80	-38.26	Percent	2.5th Percentile	Upper Bound SDG Index 2017
	Low Birth Weight (<2500g)	Descending	10.01	4.40	-5.61	Percent	2.5th Percentile	Average of top 5 OECD
	Infant Mortality	Descending	11.10	2.10	-9.00	per 1000	2.5th Percentile of OECD	Average of top 5 OECD
Goal 3	Health Insurance Coverage	Ascending	74.43	100.00	25.57	Percent	2.5th Percentile	Aspirational
	Primary Care Physicians	Ascending	50.70	278.66	227.96	per 100,000	2.5th Percentile	Average of top 5
	Heart Attack Deaths	Descending	222.48	31.04	-191.45	per 100,000	2.5th Percentile	Average of top 5 OECD
	Diabetes Incidences	Descending	12.19	5.67	-6.51	per 1000	2.5th Percentile	Average of top 5
	Syphilis, Chlamydia, Gonorrhea Cases	Descending	14178.39	332.28	-13846.11	per 100,000	2.5th Percentile	Average of top 5
	Traffic Deaths	Descending	91.11	3.20	-87.91	per 100,000	2.5th Percentile	SDG Index Best Value
	Teenage Births	Descending	9.19	0.25	-8.94	Percent	2.5th Percentile	SDG Index Best Value
Goal 4	School Enrollment Rate	Ascending	69.48	100.00	30.52	Percent	2.5th Percentile	Aspirational
	High School Dropout Rate	Descending	21.36	0.00	-21.36	Percent	2.5th Percentile	SDG mandates universal secondary education
	Quality of Higher Education (Index)	Ascending	0.00	100.00	100.00	Index	Index	Index
	Population Above 25 Years of Age with an Undergraduate Degree or Above	Ascending	16.92	58.92	42.00	Percent	2.5th Percentile	Average of top 5 OECD

ANNEX E: RATIONALE FOR THRESHOLDS (cont.)

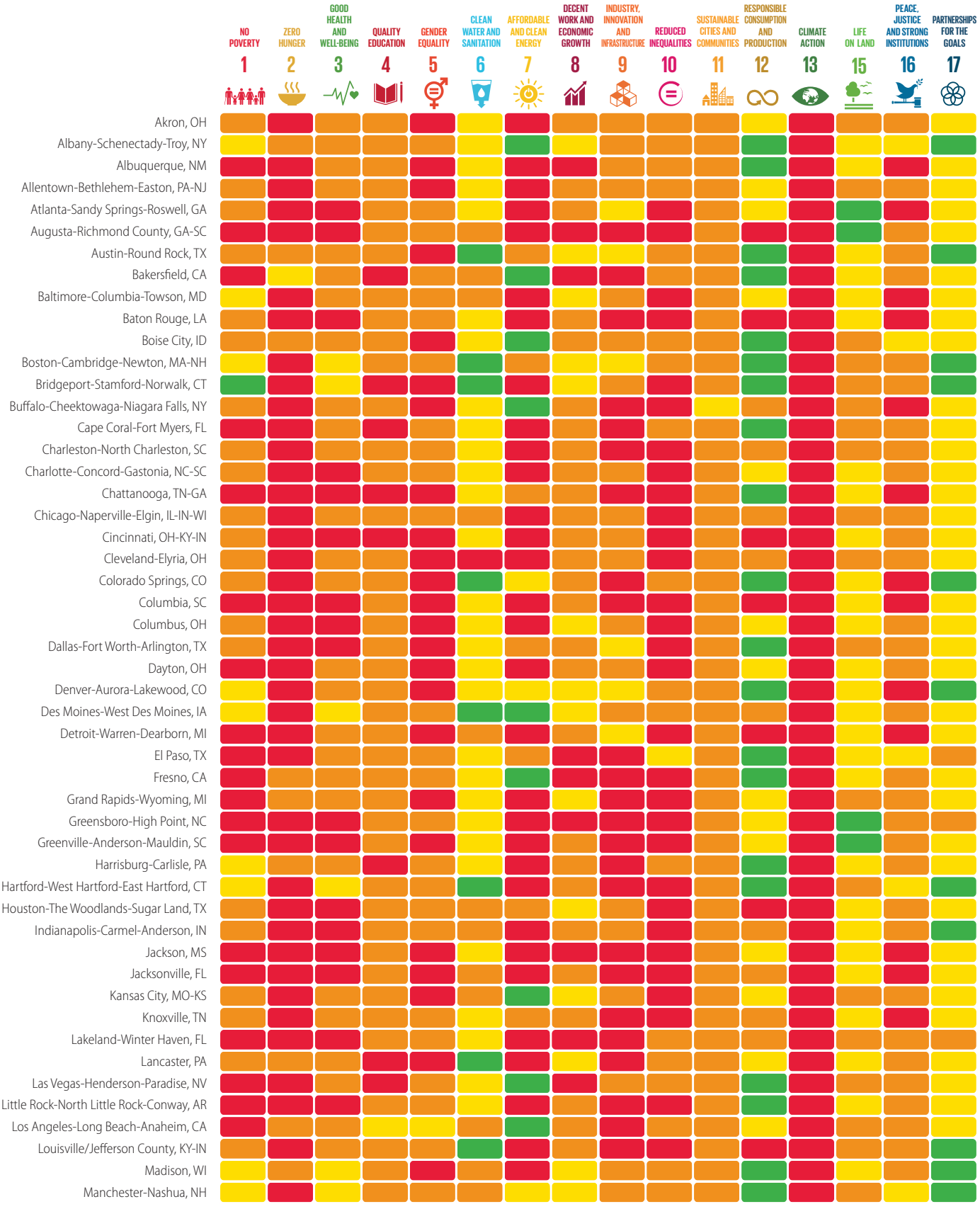
	Variable	Descending- Higher is worse (0 is best) Ascending- Lower is worse (100 is best)	Worst Value	Best Value	Best-Worst	UNIT of Measurement	Rationale for Worst Value	Rationale for Best Value
Goal 5	Sexual Violence Incidences Reported	Descending	104.21	8.13	-96.08	per 100,000	2.5th Percentile	Average of top 5
	Gender Gap in Earnings	Descending	29.84	0.00	-29.84	Percent	2.5th Percentile	Aspirational
Goal 6	Normalized Deficit (Water Stress) Index	Descending	36.26	0.00	-36.26	Index	2.5th Percentile	Average of top 5
	Households Without Access to Piped Water and Sanitation	Descending	3.88	0.00	-3.88	Percent	2.5th Percentile	Aspirational
Goal 7	Share of Renewable Energy Generated in State	Ascending	2.16	73.66	71.50	Percent	2.5th Percentile	Average of top 5
Goal 8	Gross Metropolitan Product growth rate per capita	Ascending	1.23	6.42	5.19	Percent	2.5th Percentile	Average of top 5
	Unemployment Rate	Descending	18.70	3.72	-14.98	Percent	2.5th Percentile of OECD	Average of top 5 OECD
	Disconnected Youth	Descending	20.21	8.36	-11.85	Percent	2.5th Percentile	Average of top 5
	STEM Jobs Growth Rate	Ascending	12.98	27.40	14.42	Percent	2.5th Percentile	Average of top 5
Goal 9	Patent Applications	Ascending	0.08	4.35	4.27	per 1000	2.5th Percentile	Average of top 5
	Emplanements per Capita	Ascending	0.00	9.20	9.20	per capita	2.5th Percentile	Average of top 5
Goal 10	GINI Coefficient	Descending	0.50	0.25	-0.25	Index	2.5th Percentile	Upper Bound SDG Index 2017
	Absolute Upward Mobility	Ascending	35.88	46.57	10.69	Percent	2.5th Percentile	Average of top 5
	Racial Segregation	Descending	59.47	29.97	-29.49	Index	2.5th Percentile	Average of top 5

ANNEX E: RATIONALE FOR THRESHOLDS (cont.)

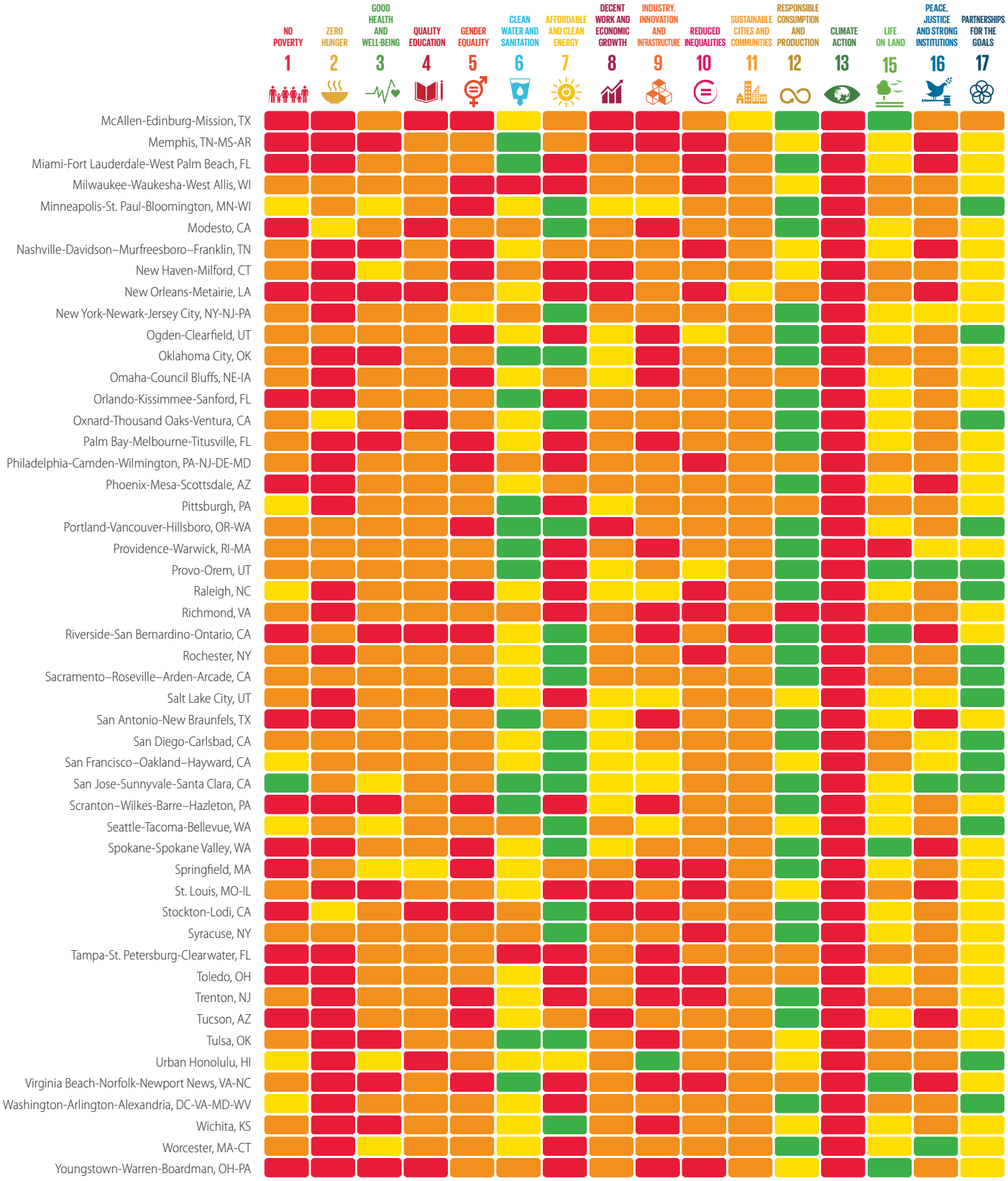
	Variable	Descending-Higher is worse (0 is best) Ascending-Lower is worse (100 is best)	Worst Value	Best Value	Best-Worst	UNIT of Measurement	Rationale for Worst Value	Rationale for Best Value
Goal 11	Public Transport Use for Work Commute	Ascending	0.87	36.81	35.94	Percent	2.5th Percentile	Average of top 5
	Walking or Bicycling for Work Commute	Ascending	0.86	4.16	3.30	Percent	2.5th Percentile	Average of top 5
	Road Density	Ascending	0.05	0.99	0.94	Miles per square mile	2.5th Percentile	Average of top 5
	Mortgaged Homeowners Spending 30 Percent or More of Household Income on Selected Owner Costs	Descending	56.73	33.03	-23.70	Percent	2.5th Percentile	Average of top 5
	Rent Burdened Residents		23.71	1.42	-22.29	Percent	2.5th Percentile	Average of top 5
	Housing Affordability	Descending	7.53	2.16	-5.37	per 1000 square feet	2.5th Percentile	Average of top 5
	Access to Parks	Ascending	7.75	71.84	64.09	Percent	2.5th Percentile	Average of top 5
	PM 2.5 Average Levels (Population Weighted)	Descending	14.15	6.30	-7.85	$\mu g/m^3$	2.5th Percentile	SDG Index Best Value
	Ozone Levels (8-Hr)	Descending	0.10	0.05	-0.05	parts per million	2.5th Percentile	WHO Standard
	Commuting Time	Descending	31.05	19.02	-12.03	minutes	2.5th Percentile	Average of top 5
Goal 12	Toxic Release in Air, Water and Land	Descending	2192.01	8.19	-2183.81	lbs/square mile	2.5th Percentile	Average of top 5
Goal 13	Carbon Emissions	Descending	22.12	1.70	-20.42	Tons per capita	2.5th Percentile	DDPP Target
Goal 15	Green Open Space	Ascending	16.07	186.88	170.81	square meters	2.5th Percentile	Average of top 5
	EPA Cleanup Sites	Descending	0.21	0.00	-0.21	per square mile	2.5th Percentile	Average of top 5
Goal 16	Homicide victims	Descending	37.15	1.36	-35.79	per 100,000	2.5th Percentile	Average of top 5
	Gun Violence	Descending	17.91	3.67	-14.24	per 100,000	2.5th Percentile	Average of top 5
	Violent Crimes	Descending	1582.63	126.38	-1456.25	per 100,000	2.5th Percentile	Average of top 5
Goal 17	Broadband Penetration	Ascending	55.00	100.00	45.00	Percent	2.5th Percentile of OECD	Aspirational

ANNEX F: **DASHBOARD**

The dashboard below offers a four-tier classification of performance for each MSA by SDG. On the X-axis are goals and on the Y-axis are the MSAs. The color ranges from green to red where green is good performance and red is poor performance.



ANNEX F: DASHBOARD (cont.)



ANNEX G: DASHBOARD THRESHOLDS

The table below provides the four intermediate thresholds that were chosen for each indicator. These thresholds determine classification at an indicator level which is then averaged to obtain the classification for the goal for each MSA. This averaged classification is used to develop the dashboard.

	Description/Label	Units	Best Value	Green	Yellow	Orange	Red	Worst Value
Goal 1	Population Living Below the National Poverty Line	Percent	4.79	<=10	10 < x <= 12.5	12.5 < x <= 15	<15	24.54
	Real Per Capita Personal Income	USD/year	61507.20	>51939	51939>=x>43108	43108>=x>37375	>=37375	30055.58
	Children Under 18 Living Below Twice the Poverty Threshold	Percent	20.48	<=34	34 < x <= 42	42 < x <= 50	<50	58.08
Goal 2	Prevalence of Obesity	Percent	2.80	<=10	10 < x <= 17.5	17.5 < x <= 25	<25	41.06
	Low Birth Weight (<2500g)	Percent	4.40	<=5	5< x <= 7	7 < x <= 9	<9	10.01
	Infant Mortality	per 1000	2.10	<=4.92	4.92 < x <= 6.3	6.3< x <= 7.75	<7.75	11.10
Goal 3	Health Insurance Coverage	Percent	100.00	>98	98>=x>92.65	92.65>=x>87.3	>=87.3	74.43
	Primary Care Physicians	per 100,000	278.66	>217.6	217.6>=x>162.5	162.5>=x>102	>=102	50.70
	Heart Attack Deaths	per 100,000	31.04	<=142	142< x <= 164.7	164.7 < x <= 191.7	<191.7	222.48
	Diabetes Incidences	per 1000	5.67	<=7.2	7.2 < x <= 8.83	8.83< x <= 10.78	<10.78	12.19
	Syphilis, Chlamydia, Gonorrhea Cases	per 100,000	332.28	<=1594.7	1594.7 < x <= 3536.2	3536.2 < x <= 8333.5	<8333.5	14178.39
	Traffic Deaths	per 100,000	3.20	<=22.5	22.5< x <= 45.55	45.55 < x <=68.33	<68.33	91.11
	Teenage Births	Percent	0.25	<=2.5	2.5 < x <= 3.75	3.75< x <= 5	<5	9.19
Goal 4	School Enrollment Rate	Percent	100.00	>98	98>=x>89	89>=x>80	>=80	69.48
	High School Dropout Rate	Percent	0.00	<=2	2< x <= 7.35	7.35< x <= 12.7	<12.7	21.36
	Quality of Higher Education (Index)	Index	100.00	>70	70>=x>40	40>=x>10	>=10	0.00
	Population Above 25 Years of Age with an Undergraduate Degree or Above	Percent	58.92	>25	25>=x>20	20>=x>15	>=15	16.92
Goal 5	Sexual Violence Incidences Reported	per 100,000	8.13	<=28.5	28.5 < x <= 50	50< x <= 76.6	<76.6	104.21
	Gender Gap in Earnings	Percent	0.00	<=7.5	7.5 < x <= 11.25	11.25 < x <= 15	<15	29.84
Goal 6	Normalized Deficit (Water Stress) Index	Index	0.00	<=5.26	5.26< x <= 15.64	15.64 < x <= 26.81	<26.81	36.26
	Households Without Access to Piped Water and Sanitation	Percent	0.00	<=1	1< x <= 2	2< x <= 3	<3	3.88
Goal 7	Share of Renewable Energy Generated in State	Percent	73.66	>20	20>=x>15	15>=x>10	>=10	2.16

ANNEX G: DASHBOARD THRESHOLDS (cont.)

	Description/Label	Units	Best Value	Green	Yellow	Orange	Red	Worst Value
Goal 8	Gross Metropolitan Product growth rate per capita	Percent	6.42	>4	4>=x>3	3>=x>2	>=2	1.23
	Unemployment Rate	Percent	3.72	<=5	5 < x <= 7.5	7.5 < x <= 10	<10	18.70
	Disconnected Youth	Percent	8.36	<=10	10< x <= 12.5	12.5 < x <= 15	<26	20.21
	STEM Jobs Growth Rate	Percent	27.40	>22	22>=x>19	19>=x>15	>=15	12.98
Goal 9	Patent Applications	per 1000	4.35	>2.46	2.46>=x>1.18	1.18>=x>0.47	>=0.47	0.08
	Emplanements per Capita	per capita	9.20	>4.97	4.97>=x>2.94	2.94>=x>1.17	>=1.17	0.00
Goal 10	GINI Coefficient	Index	0.25	<=0.3	0.3 < x <= 0.35	0.35 < x <= 0.4	<0.4	0.50
	Absolute Upward Mobility	Percent	46.57	>43.36	43.36>=x>40.95	40.95>=x>38.5	>=38.5	35.88
	Racial Segregation	Index	29.97	<=36.97	36.97 < x <= 45.09	45.09 < x <= 52.3	<52.3	59.47
Goal 11	Public Transport Use for Work Commute	Percent	36.81	>20.8	20.8>=x>11.17	11.17>=x>4.8	>=4.8	0.87
	Walking or Bicycling for Work Commute	Percent	4.16	>3.08	3.08>=x>2.14	2.14>=x>1.46	>=1.46	0.86
	Road Density	Miles per square mile	0.99	>0.64	0.64>=x>0.39	0.39>=x>0.21	>=0.21	0.05
	Mortgaged Homeowners Spending 30 Percent or More of Household Income on Selected Owner Costs	Percent	33.03	<=40	40< x <= 45	45< x <=50	<50	56.73
	Rent Burdened Residents	Percent	1.42	<=5	5 < x <= 9	9 < x <= 14	<14	23.71
	Housing Affordability	per 1000 square feet	2.16	<=2.9	2.9 < x <= 3.79	3.79 < x <= 5.38	<5.38	7.53
	Access to Parks	Percent	71.84	>53	53>=x>34.5	34.5>=x>19.3	>=19.3	7.75
	PM 2.5 Average Levels (Population Weighted)	$\mu g/m^3$	6.30	<=10	10 < x <= 17.5	17.5 < x <= 25	<25	14.15
	Ozone Levels (8-Hr)	parts per million	0.05	<=0.05	0.05 < x <= 0.08	0.08 < x <= 0.09	<0.09	0.10
	Commuting Time	minutes	19.02	<=21.9	21.9 < x <= 24.6	24.6 < x <= 27.7	<27.7	31.05

ANNEX G: DASHBOARD THRESHOLDS (cont.)

	Description/Label	Units	Best Value	Green	Yellow	Orange	Red	Worst Value
Goal 12	Toxic Release in Air, Water and Land	lbs/square mile	8.19	<=286.63	286.63 < x <= 796.19	796.19 < x <= 1482.09	<1482.09	2192.01
Goal 13	Carbon Emissions	Tons per capita	1.70	<=2	2< x <= 3	3 < x <= 4	<4	22.12
Goal 15	Green Open Space	square meters	186.88	>126.9	126.9>=x>82.46	82.46>=x>41.77	>=41.77	16.07
	EPA Cleanup Sites	per square mile	0.00	<=0.02	0.02 < x <=0.07	0.07 < x <= 0.12	<0.12	0.21
Goal 16	Homicide victims	per 100,000	1.36	<=1.5	1.5 < x <= 2.25	2.25 < x <= 3	<3	37.15
	Gun Violence	per 100,000	3.67	<=6.84	6.84 < x <= 10.66	10.66 < x <= 14.19	<14.19	17.91
	Violent Crimes	per 100,000	126.38	<=426.69	426.69 < x <= 748.56	748.56 < x <=1116.75	<1116.75	1582.63
Goal 17	Broadband Penetration	Percent	100.00	>80	80>=x>65	65>=x>50	>=50	55.00

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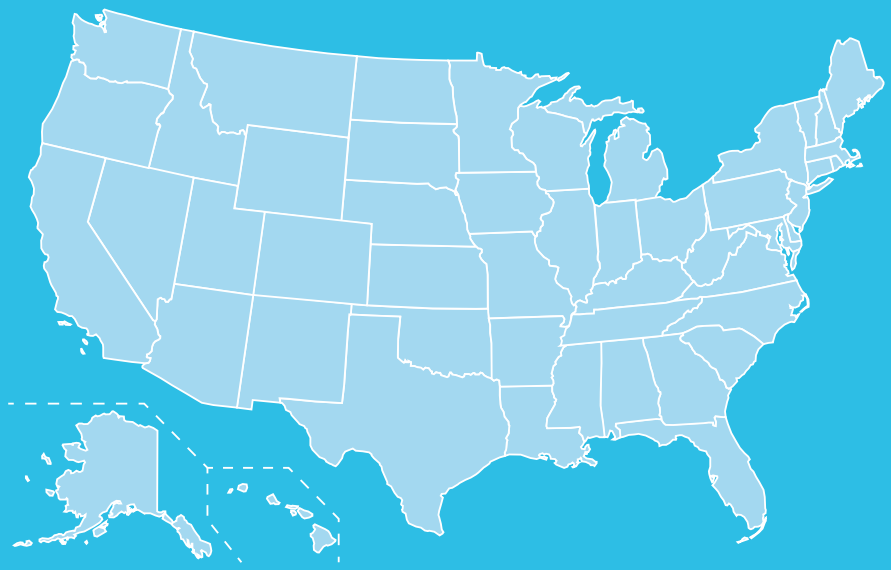
The U.S. Cities Sustainable Development Goals Index 2017

ACHIEVING A SUSTAINABLE URBAN AMERICA

America is the world's richest large economy, with the world's leading technologies and institutions of higher learning. Yet, the United States of America (U.S.) is falling behind other countries on a range of indicators relating to quality-of-life, economic opportunity, and environmental management. Nowhere is this problem more apparent than in American cities, which are home to 62.7 percent of the domestic population. The U.S. Cities SDG Index aims to set a framework for action and help urban leaders address the many sustainable development challenges affecting their cities. The Index covers the 100 most populous cities (measured as Metropolitan Statistical Areas, or MSAs). It synthesizes data available today across 49 indicators spanning 16 of the 17 Sustainable Development Goals (SDGs) that were agreed upon by all countries in September 2015. The data provides a more holistic and comprehensive assessment of sustainable development challenges faced by U.S. cities than available through other metrics. Results show that all U.S. cities, even those at the top of the Index, have far to go to achieve the SDGs.



SUSTAINABLE DEVELOPMENT SOLUTIONS NETWORK
A GLOBAL INITIATIVE FOR THE UNITED NATIONS