

Supporting Urban Sustainability through Subjective Well-Being Measurement

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Section I. Executive Summary

A core goal of city government is to improve and maintain the well-being of its citizens. Maintaining well-being over time requires attention to the interrelated social, environmental, and economic factors that together comprise sustainability. This report advances well-being measurement as an effective municipal tool for understanding social sustainability, complementing environmental and economic indicators, and evaluating sustainability efforts of all types. After reviewing concepts and creating an inventory of existing measurement tools, we outline a framework to help cities implement well-being assessment, and apply the framework to a case study.

The use of well-being assessments on the municipal scale has high potential to become a translational and transformative tool in a city's policy-making process. By directly measuring the well-being of its citizens, a city may gain new insights on regions that need more attention, programs that are not effective, or how safe citizens feel. For the success of well-being indicators, a number of challenges have to be addressed early on in the design process, including securing material, public, and political support. A simple and collaborative design, one where the assessment is easily conducted with support from multiple stakeholders, is a sensible strategy for cities looking to start tracking well-being.

The following sections detail our approach to the challenge of integrating well-being measurement in service to municipal sustainability. In Section II, we explore the many meanings of well-being and sustainability, and arrive at working definitions that complement each other, for local scales within the United States. Section III reviews measurement tools that present promise for providing cities with meaningful alternatives to purely economic or environmental indicators, and rates each tool along multiple dimensions. In turn, Section IV suggests ways for a city to prioritize among those dimensions and integrate measurement tools into sustainability efforts. Finally, in Section V, we apply this framework to ongoing sustainability efforts in Ann Arbor, Michigan, draw insights, and make suggestions based on the city's goals and objectives.

Section II. Well-being and Sustainability

"The care of human life and happiness and not their destruction is the first and only legitimate object of good government." – Thomas Jefferson, 1809

Inadequacy of economic indicators

Well-being, quality of life, and happiness are commonly cited as the fundamental goals of society. Yet, the main indicator that is most often associated with progress of a nation is the Gross Domestic Product (GDP). Since Simon Kuznets developed the GDP for a U.S. Congress Report in 1934, it has become widely used as the de facto metric by which countries around the world evaluate their economies, whose growth is assumed to equate to a higher standard of living and an improvement in well-being (European Commission, 2013). However, Kuznets himself warned against using the GDP as a measure of welfare (Kohler & Chaves, 2003). GDP is an aggregate measure of the total transactions of goods and services produced by a country. Notably, GDP does not distinguish between transactions that positively affect human well-being and those that negatively affect it. For example, natural disasters, disease outbreaks, deaths, and incarcerations all tend to cause the GDP to rise, despite the environmental or social harm caused by these events. On the other hand, actions like volunteering or spending time with family and friends do not count as economic transactions (and hence are excluded from the GDP), but can meaningfully raise the well-being of all involved. As Robert Kennedy said in 1968:

"Too much and too long, we seem to have surrendered community excellence and community values in the mere accumulation of material things. Our gross national product ... if we should judge America by that - counts air pollution and cigarette advertising, and ambulances to clear our highways of carnage. ... It counts the destruction of our redwoods and the loss of our natural wonder in chaotic sprawl...

Yet the gross national product does not allow for the health of our children, the quality of their education, or the joy of their play... it measures everything, in short, except that which makes life worthwhile."

Since the 1960s, the real GDP per capita in the United States has more than doubled, while the percentage of people reporting themselves as “very happy” has stayed relatively flat (Frey & Stutzer, 2002).

Although the United States GDP rose steadily between 1946 and the late 2000s, the average level of reported happiness showed no long-term trend. That is, a rise in GDP doesn’t necessarily equate to a rise

in well-being (Easterlin, 1974; Roberts, 2011). For example, consider the differential effects of crime on GDP and well-being. A higher crime rate means higher expenditures on law enforcement, legal proceedings, incarceration, and medical visits. These increased expenditures all contribute to a rise in GDP. However, increases in crime rates typically lead to a reduction in the well-being of residents, including non-victims, as their sense of safety is diminished (Cornaglia & Leigh, 2011).

All this is not to say that GDP has no utility. Measuring GDP is a universal and uniform way for countries to track economic production over time, and the wealth of historical data – nearly 80 years’ worth – allows for many observations and analyses. However, the fact that GDP is not wholly reflective of or responsive to environmental and social conditions can no longer be ignored. Realizing that economic indicators like GDP are not wholly adequate as measures of progress, more governments are electing to measure well-being by going straight to the source.

Defining well-being

The object of interest in such measures has traveled under a variety of names, including *well-being*, *quality of life*, and *happiness*, to name but a few. The distinction in usage of these terms is often more a matter of preference than semantics, and typically indicates just as much about the speaker and intended audience as any nuances in meaning. (For example, *well-being* and *quality of life* tend to be the preferred nomenclature among scholars and politicians, while *happiness* is often reserved for communications to a general audience.) That said, many definitions have been put forth (for a review, see Barwais, 2011), and for our purposes here we follow those offered by one of the leading researchers of well-being, psychologist Ed Diener:

“*Subjective well-being* refers to all of the various types of evaluations, both positive and negative, that people make of their lives. It includes reflective cognitive evaluations, such as life satisfaction and work satisfaction, interest and engagement, and affective reactions to life events, such as joy and sadness. Thus, subjective well-being is an umbrella term for the different valuations people make regarding their lives, the events happening to them, their bodies and minds, and the circumstances in which they live...The term *well-being* is often used instead of *subjective well-being* because it avoids any suggestion that there is something arbitrary or unknowable about the concepts involved.

Quality of life usually refers to the degree to which a person’s life is desirable versus undesirable, often with an emphasis on external components, such as environmental factors and income. In contrast to

subjective well-being, which is based on subjective experience, quality of life is often expressed as more ‘objective’ and describes the circumstances of a person’s life rather than his or her reaction to those circumstances.” (Diener, 2006)

Throughout this paper, we use *well-being* to refer generally to *subjective well-being*. We advocate for the measurement of subjective well-being in particular as vitally important to understanding individuals’ evaluation of their communities and governance. That said, like GDP, subjective well-being cannot be examined in isolation; it too has limits to its applications in policy-making (OECD, 2009). Rather, subjective well-being reports should be used to identify the factors that are most relevant to a particular constituency (Rees, Goswami, & Bradshaw, 2010). This knowledge can then be mapped to related quality of life (or *objective well-being*) indicators, such as income inequality, access to education, availability of green public spaces, and safety. Objective well-being indicators, being extrinsic to individuals, can be suitably managed through policy interventions. The combination of subjective and objective well-being data, when complemented with traditional economic measures, can provide a more holistic outlook on any community’s development.

Tracking well-being

The idea that well-being is more than just our income is not an entirely new one. In the 1960s, amid rapid social change and pressure on the government to offer responses to societal ills, the U.S. Department of Health, Education, and Welfare (now Department of Health and Human Services) released a landmark report outlining strategies for developing and tracking indicators relevant to social goals and priorities (Lippman, 2007). Marilyn Waring, in her 1998 study of the UN System of National Accounts, coined the phrase “uneconomic growth,” referring to the types of growth that create a decline in quality of life (Waring, 1999). Finally, spurred by a dissatisfaction with how psychology has historically focused on illness at the expense of wellness, a new science of positive psychology emerged in the late 1990s (Gable & Haidt, 2005). Positive psychology – defined as the scientific study of the conditions and processes that contribute to the optimal functioning of people, groups, and institutions – has continued to build both

public and academic interest in well-being (Froh, 2004). Much of this interest has been focused on how new insights on well-being can be applied to public policy.

This line of thinking was formally recognized in a 2011 United Nations resolution, which stated that happiness is “a universal goal and aspiration [that] embodies the spirit of the Millennium Development Goals,” [and] “that the gross domestic product indicator by nature was not designed to and does not adequately reflect the happiness and well-being of the people in a country” (United Nations, 2012). The UN General Assembly “invites its Member States to pursue the elaboration of additional measures that better capture the importance of the pursuit of happiness and well-being in development with a view to guiding their public policies” (UN General Assembly, 65th Session, 2011).

Some alternatives to GDP already exist, with other indicators under development worldwide. Some well-known examples include the Genuine Progress Indicator (GPI), Human Development Index (HDI), Gross National Happiness (GNH), Happy Planet Index (HPI), and OECD Better Life Index. Each measure has its own way of either correcting for, complementing, or replacing the current measure of GDP (Delhey & Kroll, 2012). Though the way that well-being has been incorporated into each indicator differs, what they all seek to do is provide a more accurate measure of well-being – not just economic, but social and environmental as well. These indicators will be discussed in greater detail in Section III.

While the above measures were originally designed as national-scale indicators, cities stand to both benefit and contribute much by learning from these national indicators and paying attention to the well-being of their citizens. In fact, some cities have already begun to do so. The Eau Claire Happiness Initiative uses a survey developed by The Happiness Initiative, a national nonprofit, to measure the happiness of the citizens in Eau Claire, Wisconsin (Eau Claire Happiness, 2011). The city of Somerville, Massachusetts conducted a well-being survey in 2011, which helped them identify that the quality of environment was an important issue to citizens but had not previously been a policy priority. As an extension of that work, Somerville will soon be launching mobile app surveys to measure residents’ happiness (Annear, 2013). In Toronto, well-being measurements allowed the city to explore the

experiences of young people in order to develop better solutions to the rise in violent crime (UK Office for National Statistics, 2012). Finally, just this year, Santa Monica, CA received a \$1 million grant through Bloomberg Mayors Challenge to develop a city-wide index for well-being (Stevens, 2013). Cities interested in enhancing their own sustainability can benefit from well-being assessments, as discussed in Section III.

Defining sustainability

Cities approach sustainability to attract new residents, out of environmental concerns, and out of concern for the future, among other reasons. To pursue these sustainability goals, cities must balance the three key concerns of environmental quality, economic development, and social equity. Typical definitions of sustainability reference these three “legs” as ways of meeting the needs of the present without compromising the needs of future generations (Brundtland, 1987; Campbell, 1996). However, definitions are often vague as to what these needs are, or how to measure them. This report proposes that well-being is what sustainability should sustain now and for the foreseeable future, paying particular attention to social sustainability and equity concerns.

When definitions of sustainability leave terms like “needs” or “environmental quality” undefined, this vagueness can actually be productive (Lélé, 1991, p. 607). Expansive definitions can allow a single sustainability plan to gain the support of multiple constituencies without calling undue attention to conflicts. However, too much vagueness may make it difficult for a city to make necessary and important tradeoffs, while making it nearly impossible for a city to measure progress toward its goals. Using as much specificity as is politically feasible is recommended; where vagueness of goals and values is necessary, setting metrics of success will help provide clarity.

Recommended definition of sustainability

A sustainable city preserves and improves the well-being of its residents through environmental, economic, and social strategies, without shifting problems into the future, or disproportionately onto populations within or beyond its borders.

How a city measures well-being, and in what context, matters. A city that improves well-being or environmental outcomes for its constituents at the expense of populations beyond its borders is not truly sustainable (Yanarella & Levine, 2011). Sustainability efforts deal with environmental resources and conditions that are part of regional and global systems, but have local effects. Drinking water, wastewater treatment, and municipal solid waste are local concerns with regional interconnections; local emissions tie to climate issues; fuel usage and economic activity increasingly depend on global energy prices. Since a city's future and interests are tied to the future of the region and the planet, sustainability cannot be parochial. Meanwhile, efforts to improve environmental and social conditions that do not recognize the continuing history of disparate impacts on poor and minority communities are not only unjust, but ineffective (Thomas, 2013). Altogether, urban sustainability efforts must deal intelligently with the global and regional context of their own environmental, social, and economic issues; as well as the distributional effects of its policies across social divisions. These considerations and others should also be reflected in sustainability indicators. Sustainability is a well-being issue, and tracking well-being can help ensure a more sustainable approach to decision-making.

Sustainability indicators for cities

Given the broad array of goals that cities have in pursuing sustainability, it is somewhat surprising that previous sustainability indicators have overwhelmingly measured only environmental performance. These indicators are useful for measuring “greenness,” or environmental sustainability, but should not be mistaken for integrated measures of sustainability (Yanarella & Levine, 2011, pp. xxiv–xxv). Nor is it sufficient to use economic indicators, discussed earlier, to measure progress toward sustainability goals. The aim of this report is to develop the role of well-being indicators, in context of other available indicators, in measuring balanced sustainability efforts.

Section III. Well-being Indicators

Reviewing existing indicators is instructive for appreciating their potential use and current limitations.

This task is pertinent for well-being assessments in particular, given the recency in which they have been implemented and their concomitant low level of saturation in the policy arena at this point.

At the same time, the newness of well-being assessment and the limited distribution of related ideas makes it somewhat of a challenge to locate suitable models. Indeed, while the trend to measure well-being for policy purposes is rapidly accelerating, to date only a handful of major efforts have been completed, even fewer that integrate this effort with sustainability, and fewer still that have been conducted at a local level. Fortunately, there exist several resources to which municipalities may turn to locate potentially useful models. These resources may be divided into those that: 1) originate from a *sustainability* perspective; 2) focus explicitly on *local-level* indicators; and, most recently, 3) directly pertain to the measurement of *subjective well-being*.

Of these three types of resources, the work on *sustainability* indicators is the most well-developed. The *Compendium of Sustainable Development Indicators Initiatives* contains nearly 900 sustainability indicator efforts from all over the world (IISD, 2013a). Lest the sheer number of these efforts be overwhelming, the compendium is organized into a searchable online database, by which users may define their search by location, scope, initiative type, goal, framework, and a host of other parameters. While “well-being” is not (yet) one of the listed initiative types or issue areas, one may enter it into the search field and return dozens of hits. In any case, one may also select “quality of life” as a proxy for “well-being” and yield still more potentially useful examples. The compendium is maintained by the International Institute for Sustainable Development and the International Sustainability Indicators Network, two additional resources that may prove valuable in their own right to anyone developing sustainability indicators (IISD, 2013b; ISIN, 2013). For those constructing their own sustainability indicators, several works have specifically addressed methodology for doing so (Bell & Morse, 2008; Bossel, 1999; Meadows, 1998; Moldan, Billharz, & Matravers, 1997).

Similar resources exist for indicator development at the *local level*. The Community Indicators Consortium (CIC) maintains a searchable database of their own, housing information on nearly 300 indicator projects to date (CIC, 2013). The CIC has as part of its mission working to integrate community indicator use with performance measurement; users may search for projects and other resources that provide guidance on this integration. The National Neighborhood Indicators Project (NNIP) is an additional information and data-sharing resource that may prove useful to those developing community-level indicators to guide policy in the U.S. (NNIP, 2013).

Finally, while there is not yet a central repository for well-being initiatives (to our knowledge), there are a few resources that provide linkages to such initiatives and/or provide guidance to those wishing to start one. Notable examples include the Happiness Initiative, Gross National Happiness USA, The World Happiness Report, and Guidelines for National Indicators of Subjective Well-Being and Ill-Being (Diener, 2006; GNH USA, 2013; Happiness Initiative, 2013; Helliwell & Wang, 2011; OECD, 2013).

While the bank of these resources is comparatively small, it is a rapidly growing one.

Tables 3.1 and 3.2 present a review of seven alternative indicator projects, including several relevant criteria upon which to evaluate such projects. We've selected these initiatives to be representative of the diversity of approaches currently underway at multiple scales by a variety of agents. The table is roughly organized by scale, from the municipal level to the global level. Some initiatives present the advantage of being able to be adapted to multiple scales; in our categorization, we've placed such initiatives at the scale at which they were originally designed and are most commonly employed.

Initiative	Agent	Agent Type	Scale	Year Started/ Latest Report	Composition	Objective vs. Subjective and Quantitative vs. Qualitative	Nature-Society Integration?
Somerville Well-being and Community Survey	City of Somerville; data collected by SomerStat	Gov't	Municipal	2011/2011	Very brief 6-item survey (mailed with census) or 14-item survey (phone/online) designed to measure residents subjective well-being and satisfaction with city services	Entirely subjective and qualitative	No - just two items tangential to environment as it relates to city services (recycling and appearance/ maintenance of parks)
The Boston Indicators Project	The Boston Foundation; data collected by various agencies	Nonprofit	Municipal	1997/2012	150 detailed indicators in service of 70 broad goals across 10 sectors : Civic Vitality, Cultural Life and the Arts, the Economy, Education, the Environment, Health, Housing, Public Safety, Technology, and Transportation	Primarily objective and quantitative; few subjective indicators	Both present, not integrated - 10 of the 70 goals pertain to environmental quality
Detroit Area Study (DAS) (2001)	University of Michigan	Academic	Metro Area	2001/2001	60-minute survey covering 18 domains , each of which address a particular aspect of community life. Examples include: Safety; Health; Employment; Environment; Neighborhood & Neighboring; Public Services & Transportation; Parks, Recreation & Where Kids Play	Almost entirely subjective and qualitative	Both present, not integrated - Environment is one of the 18 domains; additional items pertain to outdoor recreation
Seattle Area Happiness Initiative (SAHI)	Sustainable Seattle	Nonprofit	County	2011/2011	30-minute survey covering 8 domains + overall well-being consisting of emotional affect and satisfaction with life. The 8 domains included: Psychological Well-being, Material Well-being, Health, Community Vitality, Cultural Vitality, Governance, Ecological Vitality, and Time Balance	Primarily subjective; mix of quantitative and qualitative. One objective, quantitative indicator per domain	Both present, not integrated - Ecological vitality was one of the 8 domains
Gross National Happiness Index (GNHI)	The Happiness Initiative	Nonprofit	Any	2011/2013	10-to-15-minute survey covering 10 domains + overall well-being consisting of emotional affect and satisfaction with life. Domains: Mental Well-Being, Health, Time Balance, Community Vitality, Social Support, Access to Education, Arts & Culture, Environment, Governance, Material Well-Being, & Work	Survey is entirely subjective and qualitative	Both present, not integrated - Environment is one of the 10 domains
Gallup Healthways Well-Being Index	Gallup & Healthways	Private	National; has been analyzed at national, city, state and congressional district level	2008/2012	10-to-15-minute survey of 56 items covering 6 sub-indexes : Life Evaluation, Emotional Health, Work Environment, Physical Health, Healthy Behaviors, and Basic Access. Averaged into a composite index score	Entirely subjective; primarily qualitative	None - No environmental items; focus is exclusively on social indicators
Canadian Index of Well-being (CIW)	Atkinson Charitable Foundation/ University of Waterloo, with data from Statistics Canada et al.	Nonprofit/Academic	National; has been adapted for local scales	2011/2012	64 indicators across 8 domains of 8 indicators each. The domains include: Community Vitality; Democratic Engagement; Education; Environment; Healthy Populations; Leisure and Culture; Living Standards; Time Use	Indicators are evenly split between subjective and objective, and between qualitative vs. quantitative	Full - Environment as one of the 8 domains contains 8 indicators; contributes to the composite index

Table 3.1: Review of current alternative indicator projects based on agent, agent type, scale, composition and nature of indicator

Initiative	Salience (to decision-makers)	Legitimacy (stakeholder engagement)	Credibility (technical soundness)	Effectiveness (impact on policy and outcomes)	Accessibility (for public consumption)
Somerville Well-being and Community Survey	<ul style="list-style-type: none"> Commissioned out of the mayor's office and included in the census as a means to measure residents' well-being and satisfaction with the city to better shape future policy 	<ul style="list-style-type: none"> Some residents hesitant to share info on personal well-being Most residents were forthcoming and many expressed appreciation for the opportunity 	<ul style="list-style-type: none"> Modeled after existing scientifically validated well-being surveys Developed in partnership with leading Harvard psychology researcher and polling expert 	<ul style="list-style-type: none"> Data pointed the city to new policies and policy considerations Set precedent as first city program to measure SWB Program hopes to construct index they can track over time 	<ul style="list-style-type: none"> Both the original survey and the report are featured on the city website, and designed for a general audience Attracted local media attention, generally positive Upcoming mobile app
The Boston Indicators Project	<ul style="list-style-type: none"> Provides meaningful information to users in several sectors Support from mayor and The Boston Foundation encouraged press exposure 	<ul style="list-style-type: none"> Hundreds of stakeholders engaged through several meetings 10 sectors cover 6 cross-cutting topics relevant to wide array of stakeholders 	<ul style="list-style-type: none"> Assembles data from trusted partner agencies Extensive review process with participation of both academic and practitioner experts 	<ul style="list-style-type: none"> Referenced by wide variety of nonprofits and city agencies to motivate policies Contributes directly to the city's civic agenda 	<ul style="list-style-type: none"> Very accessible and interactive site, invites visitors to participate in their blog and connect with them on social media Received press exposure
Detroit Area Study (DAS) (2001)	<ul style="list-style-type: none"> Several relevant governing bodies and policy-makers provided input on its design; as such, the resulting data specifically address their needs and interests 	<ul style="list-style-type: none"> For two years, project leaders met with government, corporate, and community leaders Representative sample of residents reached 	<ul style="list-style-type: none"> Developed and administered by University of Michigan's Institute for Social Research Analyzed using statistical and spatial analytic techniques including GIS 	<ul style="list-style-type: none"> Provides a snapshot of "the state of Detroit" and compares to other cities Produced findings on critical issues facing decision-makers throughout the region Complements Census data 	<ul style="list-style-type: none"> Specific details were difficult to track down Site is designed for a scientific audience Site is static, not updated in several years
Seattle Area Happiness Initiative (SAHI)	<ul style="list-style-type: none"> Not commissioned by the city, but the city council unanimously endorsed the initiative and committed to use the data for policy decisions and resource allocation 	<ul style="list-style-type: none"> Developed to increase residents' engagement over the four prior sets of indicators Sustainable Seattle has received international recognition for data initiatives 	<ul style="list-style-type: none"> SAHI's survey had methodological shortcomings that have subsequently been addressed by the spinoff organization Happiness Initiative 	<ul style="list-style-type: none"> Helped start projects, generate resources for public use, and build coalitions Set precedent as the first initiative measure subjective well-being at the local/regional level in the U.S. 	<ul style="list-style-type: none"> Only some reports and information are accessible on the site Site is somewhat cluttered and difficult to navigate
Gross National Happiness Index (GNHI)	<ul style="list-style-type: none"> Provides new, scientifically validated information on a community's overall well-being and satisfaction with community amenities 	<ul style="list-style-type: none"> 10 domains cover wide span of general community interests and issue areas Focus on subjective well-being inherently engaging for many participants 	<ul style="list-style-type: none"> Sophisticated methodology with demonstrated validity and reliability across several samples and phases 	<ul style="list-style-type: none"> Survey was taken by nearly 27,000 people from across the U.S. in its first two years Has helped launch many neighborhood, campus, city, and state initiatives 	<ul style="list-style-type: none"> Presentation is accessible for a general audience, though somewhat difficult to navigate Includes video, graphic, and social media content
Gallup Healthways Well-Being Index	<ul style="list-style-type: none"> Daily measurements and historical reports provide rich detail within various well-being domains, comparable internationally Full use requires payment 	<ul style="list-style-type: none"> Many domains and items borrowed or adapted from previous Gallup polls Thousands of interviews conducted in pilot samples developing these polls 	<ul style="list-style-type: none"> Core dimensions and well-being questions previously tested for reliability and validity Piloted with nationally representative U.S. sample 	<ul style="list-style-type: none"> Has been adapted and implemented in UK and Germany Standardized format not directly tied to decision-making 	<ul style="list-style-type: none"> Many reports with graphics available on website, including detailed methodology Key audiences include media, policy-makers, and general public
Canadian Index of Well-being (CIW)	<ul style="list-style-type: none"> Covers wide span of policy areas determined in consultation with well-being experts and citizens Highlights specific areas in which well-being could be improved 	<ul style="list-style-type: none"> General framework determined early on by internal working group Subsequently involved citizens and stakeholders in three rounds of public consultation 	<ul style="list-style-type: none"> Assembles data from trusted partner agencies Framework designed and validated through several rounds of consultation with independent experts 	<ul style="list-style-type: none"> Highlights a clear divergence between index and GDP Little evidence of direct impact on policy-making Local and regional variations have included perceptions of city services 	<ul style="list-style-type: none"> Well-designed, easy to navigate website that offers many resources, including downloadable reports, infographics, fact sheets, editorials, and multimedia

Table 3.2: Review of current alternative indicator projects based on salience, legitimacy, credibility, effectiveness and accessibility

In addition to background information on each initiative, the table presents several criteria communities might consider in selecting or developing well-being indicators. These criteria include whether the initiative includes *objective or subjective* and *qualitative or quantitative* measurements; whether different *nature-society dimensions* are integrated and combined into one indicator or index; *salience*, or relevance of the measurement to decision makers; *legitimacy*, the degree to which stakeholders were engaged in the project's development and the outcome serves their interests; *credibility*, the scientific and technical merit of the assessment tool; *effectiveness* of the initiative in terms of the impact it has had on relevant groups of people, institutions, and policy, and *accessibility*, the degree to which the project is consumer-facing and able to be appreciated by a general, nontechnical audience (Cash et al., 2002). These are but a few of the criteria useful for categorizing alternative indicators; in developing a new initiative, organizers would do well to consider additional criteria based on their unique needs and interests (ie, cost of implementation, estimated paperwork burden, relevance to policy). Some of these criteria will be explored further in the following section on selecting indicators.

Section IV. Decision-Making Framework for Cities

To effectively choose how to best administer well-being measures, and how to apply their results to relevant policy questions, cities should explore their goals and objectives, consider their resources and challenges, and evaluate and share eventual results. Through the lens of appropriate objectives for well-being measurement, and with a consideration of local capacity for funding and conducting data collection, cities can use the dimensions noted in the previous section to choose and adapt well-being indicators for local use. The following outlines a four-step process, based on the synthesis of multiple approaches to evaluating and acting on well-being indicators, to move toward embedding well-being measurement in local policy. This process starts with *1) planning* the purpose and general approach of a well-being measurement effort, to inform the specifics of the *2) acquisition* of well-being data. We propose questions to inform *3) application* of data to policy, to be considered both before and as data becomes available.

Finally, 4) *learning* includes assessing tangible and intangible impacts, reflecting on costs and benefits, and sharing results with other cities.

A. Planning: Determining objectives and selecting indicators

Objectives

Clear goals are required to successfully undertake the process of planning for, implementing, monitoring, and reflecting upon well-being measurement. Goals held as shared aspirations will help an implementation process maintain focus, funding, and support. For example, a city could rally support around understanding residents’ needs better and serving them more accurately in the future. To operationalize these goals, a city interested in promoting overall sustainability should adopt objectives:

1. to help evaluate the impact of city services and sustainability projects on residents’ lives;
2. to develop a baseline of information against which residents’ experiences can be compared, for example over the course of a particular intervention;
3. to identify aspects of residents’ lives that they feel most dissatisfied with, for example in order to help tailor interventions;
4. to identify distinct needs and desires corresponding to subpopulations, in order to understand and respond to equity issues more intelligently; and
5. to help raise awareness of the different components of well-being among residents and community leaders, for example in order to help facilitate community-led action to increase well-being and sustainability.

Different objectives suggest distinct areas of well-being indicators to pursue, as illustrated in Table 4.1.

Objective	Type of indicator to pursue
Measuring/eliminating dissatisfaction; improving programs or equity	Measurements of satisfaction with specific city services
Measuring progress, touting success	Subjective well-being measures such as general life satisfaction
Starting out, communicating simply, building momentum	Single measure or small cluster of questions
Building more depth onto existing research capacity or indicators program	Index of multiple measures, added together with weights

Table 4.1: Types of indicators by general objective

Different policy areas and departments may have different objectives, and thus correspond to needs for different indicators. In such a case, a collection or index of well-being indicators would result, each having a direct connection to policy.

Community buy-in

Efforts to consider and measure subjective well-being or “happiness” can meet with resistance from a skeptical public. Cities can head off distractions by connecting community interests to measurement efforts, and by staying positive in response to negative feedback – reaffirming the goals and benefits of the program. To raise awareness and brainstorm connections between community concerns and well-being, the Happiness Initiative recommends an informal sequence of 1) interviewing passersby in an area with foot traffic, 2) assembling responses into word clouds or other simple tallies, and 3) holding forums to discuss well-being (The Happiness Initiative, 2011, Part 1).

Funding

In addition to connecting the goals of a well-being measurement initiative to community interests, it is useful in initial stages to consider connections with the needs of city departments, local agencies, and potential funders. Because well-being is a wide-ranging topic, many departments may be amenable to splitting costs that no one department would be able or willing to take on by itself. Similarly, grants for sustainability and human services often include – or should include – provisions for assessment, for which well-being indicators can play a central role.

Selecting indicators

Once objectives and practical considerations are understood, they can be used to select the indicator or combination of indicators to collect. As detailed in Section III, there are many indicators to choose from, and many ways of categorizing them. Where resources allow, choosing complementary measures across multiple categories will yield clearer and more reliable results. This holds for measures of subjective ratings of residents’ own well-being vs. objective quality of life measures; questions asking about

dissatisfaction as well as satisfaction; and quantitative questions with numerical response choices vs. qualitative and open-ended responses. Ultimately, however, the set of possible options must be narrowed, which requires evaluating potential indicators for their usefulness to the particular community using criteria such as those listed in Table 4.2 (Colman, 2009; Cash et al., 2002).

Criterion:	Rate indicators based on:
Nature-society integration	Does the indicator combine measures of ecological and social well-being? If not, does it complement other metrics to produce a meaningful combined picture?
Salience and Accessibility	How understandable and relevant will the measurements be to decision-makers? To the public?
Legitimacy	How engaged were the stakeholders during the project's development? How will the outcome of the well-being project serve their interests?
Validity	Will results accurately track what is important? Are the survey questions and results scientifically validated?
Effectiveness	Has this survey resulted in any impact in the community in which it was implemented?
Comparability with other jurisdictions	If similar municipalities are implementing well-being indicators, will your metrics be comparable to theirs?

Table 4.2: Selection criteria for indicators

B. Acquisition: Preparing to collect data

Survey administration and tabulation present multifaceted questions that no one framework can completely answer, if only because there is no one “right” way to go about gathering well-being data. The following headings provide a way to structure decisions and perhaps to shortcut some steps, given factors such as available resources, data needs, and the respondents to be surveyed.

Which organization will do the data collection?

External *survey firms* may be the simplest answer, but cost puts them out of reach of many city initiatives. Research units of *local universities*, specifically researchers in well-being, sustainability, and/or survey

methods, may bring outside perspective, experience, effort, and/or funding, but cities should ensure that issues of data ownership and publication are made clear up front.

Another option is to *piggyback on existing surveys*. Careful consideration should be given to the ordering of questions to ensure unbiased responding. For example, it may be wise to ask subjective well-being questions earlier rather than later in the survey so as to avoid having responses affected by preceding questions. Also, survey administrators should consider whether the needs for privacy of the existing and new surveys are compatible: the city of Somerville, Massachusetts initially and very cheaply added questions to a city census; it later moved to separate surveys to allow confidential responses to questions about personal well-being.

Finally, the Happiness Initiative offers *web-based well-being surveys* to municipalities for a suggested \$300 donation. While subject to drawbacks of online data collection as described under the next heading, and while their survey questions can't be customized, their results are standardized and comparable.

Online surveys in Seattle via the Happiness Initiative

In 2010-2011, the nonprofit organization Sustainable Seattle, city government, and local community leaders engaged the Seattle Area Happiness Initiative to evaluate local well-being across ten domains of happiness and to write a detailed report (The Happiness Initiative, 2011). Their report detailed trends by neighborhood and age, and analyzed the limits of the data, including the need for translation into multiple languages.

The same survey resources are available to other cities for minimal costs but without such a detailed analysis, through <http://www.happycounts.org/conduct-a-happiness-initiative/>. The survey website retains Happiness Initiative branding; a city's results are kept separate by referral code and/or zip code.

Mode of administration

It's best to tie responses to physical addresses, in order to ensure that only residents take the survey, and that nobody responds twice. This can be done through *door-to-door* administration, *by mail*, and to a lesser degree *by phone*, as cell phones produce issues with privacy and location uncertainty. Mailed

surveys, even with incentives, can be relatively inexpensive: see the Somerville example below. The promise of *online survey administration*, including the use of *mobile apps*, is a lower cost versus other modes and a greater ability to reach a younger demographic. However, ensuring representative participation is more difficult, both due to typically lower response rates (which exacerbates self-selection bias, in which actual responses misrepresent those who didn't bother to respond) and because it's difficult to verify residency and manage duplicate responses. One strategy is to send survey invitations by paper mail, containing webpage links and unique invitation codes. This is more complicated than either mode alone, but still substantially cheaper than mail-only options because of reduced outbound postage and elimination of return postage and processing.

Surveys administered in person or by telephone yield more positive responses to subjective well-being questions than self-completed surveys do. Since the units of well-being measures are abstract, analysis within a dataset is unaffected, but differences due to survey mode can be much higher than differences due to employment status or other determinants of well-being (Dolan & Kavetsos, 2013).

Creatively inexpensive approaches in Somerville, Massachusetts

In 2011, the city of Somerville, near Boston, decided to complement its data collection practices with measures of subjective well-being. The city sent two-page surveys along with census forms, trained city customer service operators to conduct telephone surveys during periods of low call volumes, and used an online survey as an additional strategy to reach younger residents (Somerville, 2011). Together, these methods reached a broad cross-section of the city, cost-effectively. Today, the city is partnering with the H(app)athon Project to pilot mobile applications which track residents' well-being (Annear, 2013).

Comparing across time, space, and demographics

Ideally, a well-being dataset covering all residents with frequent updates could answer any question about differences between neighborhoods, demographics, or time. In practice, tradeoffs need to be made based on the types and distribution of disparity across a city, and available resources. The questions in

Table 4.3 illustrate the types of queries that could be answered by gathering data at different levels of detail.

Comparison	Example questions	Requirements to obtain meaningful answers
Spatial	Does well-being vary by neighborhood? Does proximity to parks affect well-being?	Collect/record location data, specific enough to map in GIS. Get a large enough sample size (number of people asked x response rate) to be split into those spatial pieces.
Demographic	Are there meaningful differences by age, ethnicity, income, etc?	Collect relevant demographic data. Get a large enough sample size to split the dataset by demographic variable(s).
Temporal	Is the city improving over time? ...as the result of particular programs?	Collect data at the same time of year, ideally every year. Seasonal variation in well-being makes more frequent data collection unattractive.

Table 4.3: Data requirements by desired comparison

C. Application: Identifying how and when to use indicators in policy-making

Uses for indicators

Measuring well-being is of little benefit to a city unless it acts on the results. By closing the loop to policy-making and implementation decisions, measurement can ultimately help to improve social sustainability. A city can *compare well-being data* before and after program implementation, or between areas affected and unaffected by a pilot project, to:

- *Tailor an intervention.* By using well-being data as a springboard for further exploration with participants, you may be able to design your program so as to improve well-being outcomes.
- *Demonstrate outcomes and impact.* By showing that people’s well-being has improved over time, you may be able to better demonstrate the value of your project or service.

A city can *apply overall trends* in data, to:

- *Help with fundraising.* By demonstrating evidence of the needs or issues you are trying to address, you may be able to make a funding application more convincing.
- *Bring about service change.* By informing local agencies about the well-being issues facing a community or group, you may be able to alert them to unmet needs they are well suited to address. Ultimately, non-profit and government agencies serving your area may consider using well-being data such as the indicators you collect to evaluate and improve their services.

Evidence to support neighborhood parks and recycling in Somerville

Somerville, Massachusetts mapped responses from its well-being survey using GIS to identify a statistically significant relationship between satisfaction scores and proximity to a new neighborhood park. This insight provided support for the creation of neighborhood parks in terms of constituent satisfaction. It can also be seen as providing additional evidence that green infrastructure supports not only environmental but social sustainability.

Somerville's data also showed that residents in the pilot area for single-stream recycling displayed higher satisfaction with city services. The city used this insight to quickly roll out single-stream recycling citywide.

Challenges to application

If the average of a well-being indicator across a city is, say, 4.7, should the city invest more or less in its social sustainability efforts? If the average for a subset of residents is 4.4, is the difference cause for special attention? These are some of the challenges of applying well-being indicators to municipal policy; however, they are not unique to well-being indicators. There is no predefined point at which cities should stop working to decrease CO₂ emissions, for example; nor should cities start or stop working to improve well-being at particular measurement levels.

To translate numbers into action, cities should start by examining *differences over time*, and examining *differences with existing economic and/or environmental measures*. For example, if economic measures are increasing over time but well-being is decreasing, it is worth looking into possible negative side

effects of the improving economy, and whether economic development programs could be restructured to have more consistent double- or triple-bottom line effects.

As with any survey research, differences between average measurements should be handled with care to *ensure that decisions aren't based on statistical noise*. In cases where consultants or collaborating institutions can provide statistical analysis, decision-makers should be sure to obtain an indication of what level of difference between groups is statistically significant. In other cases, they should simply be aware that small differences in average values across groups may not be meaningful, especially if the size of each group is small.

By definition, average measurements hide the lowest and highest values. Since sustainability requires equity, *compare not only well-being averages but measures of equity*. As a simple measure of equity, project administrators might calculate the ratio of the 20th percentile of well-being to the 80th percentile. A lower ratio means lower equity – in other words, higher inequality. Falling equity is just as worrisome as falling average well-being, and should trigger an inquiry into the reach of programs as well as differences in residents' needs.

D. Learning: Reflecting and adapting based on experience

Municipal well-being measurement is a new and evolving endeavor, even more so when applied to sustainability policy. As a result, cities should leave time to reflect on and share their progress, and should expect their methods to evolve over time. It is important to not only evaluate the direct results of well-being measurement, but also the combined effects of planning, collection, and application.

Questions for assessing progress include:

- Have sustainability initiatives become more comprehensive in their thinking or program design, to fully incorporate social sustainability as part of their mission or activities?
- Have city programs or departments become more comprehensive in their thinking, incorporating sustainability including social sustainability?
- Has the definition of progress itself changed for the city government, residents, or other stakeholders?

Questions for considering changes in future collection efforts include:

- Are there patterns that the data apparently missed, or got wrong? Would a different indicator or methodology fix that problem? Would the improvement be worth any additional cost?
- How can comparability of results be maintained across time? For example, keeping a simple summary measure of well-being would allow well-being to be compared across years even if other indicators were added or removed.

Summarizing costs and benefits for sharing with others is itself a form of learning. Comparing notes with other data collection efforts can move all parties towards more effective practices, while sharing with municipalities who are not currently collecting well-being data is a way of understanding the relative benefits and costs of well-being measurement. Potential networks and peers include organizations dedicated to sustainability, such as the Urban Sustainability Directors Network (USDN) or ICLEI-Local Governments for Sustainability, and general-purpose associations like municipal leagues, the U.S. Conference of Mayors, and the International City/County Management Association.

Section V. A Case Study in Approaching Well-Being Indicators: Ann Arbor, Michigan

In approaching the implementation of well-being indicators in one's community, it can be instructive to consider specific cases and the opportunities and challenges they pose. Ann Arbor, Michigan is particularly useful for this exercise because it recently adopted a framework for its sustainability goals and is in the process of crafting a sustainability action plan. As such, the City is at a juncture where considering well-being indicators makes logical, fiscal, and strategic sense.

The City Mission Statement reads: "The City of Ann Arbor is committed to providing excellent municipal services that enhance the quality of life for all through the intelligent use of our resources while valuing an open environment that fosters fair, sensitive and respectful treatment of all employees and the community we serve" (Ann Arbor, n.d.). In pursuit of this mission, Ann Arbor, with support from the Home Depot Foundation, began in 2011 an effort to reorganize the City's existing (but disparate) sustainability planning into one cohesive, public document. This effort culminated in early 2013 with the

Ann Arbor Sustainability Framework (Ann Arbor, 2013a). This framework provides the jumping off point for the Sustainability Action Plan, which is currently in progress and when finished will organize established quantifiable targets and actions into a single integrated plan. Where the Framework captures the City's broad, overarching goals, the Plan will link each of these goals to one or more specific targets or guidelines, which will then be linked to specific action items.

The Framework distills over 225 City goals from over 20 plans into 16 sustainability goals. These goals speak to the three key components of sustainability – environment, economy, and equity – and are distributed across four theme areas: Climate and Energy, Community, Land Use and Access, and Resource Management. The Community pillar in particular provides an opportunity in which well-being indicators could be aligned to the activities and decision-making of City Hall. As written in the Framework, “with community goals, Ann Arbor commits to provide a high quality of life to its residents by ensuring access to basic needs and services while empowering community members to continually foster and steward improvements to our community and to our environment” (Ann Arbor, 2013a, p. 7). The Community theme area is comprised of six overarching goals – Engaged Community, Human Services, Diverse Housing, Active Living and Learning, Safe Community, and Economic Vitality – which themselves encapsulate nearly 100 specific goals.

There are two inherent opportunities within the current framework for incorporating indicators. First, at present, the goals are for the most part not quantifiable. Mapping them to specific indicators will provide both a compass for direction and a yardstick against which to measure progress. The more the Sustainability Framework can be made tangible through the Action Plan, with specific, actionable targets, the greater utility it will have. Second, currently very few of the City's goals speak directly to the *equity* component, or social sustainability in general. Incorporating subjective well-being indicators would readily address this need. At the same time, it would also meet the broad goal of enhancing community members' engagement by offering them an outlet to give direct feedback on their satisfaction with the

City and the services it provides. As service providers, this feedback is invaluable to the City Council and something the City actively seeks (Ann Arbor, 2013b).

Before subjective well-being indicators can be incorporated into the Framework, they must first of course be developed, ideally in partnership with citizens, and then measured. With regards to the former, citizen forums provide an opportunity to introduce the concept of measuring well-being for policy, to gauge interest, and to garner ideas. From January through April of 2012 and 2013, the City hosted a series of monthly Sustainable Ann Arbor Forums where a “think tank of local stakeholders, including University of Michigan faculty, representatives from community organizations, and City of Ann Arbor staff...join[ed] the public to discuss local sustainability concepts and efforts—past, present, and future” (Ann Arbor, 2013c). Each month’s meeting had a specific topic corresponding to the Framework’s goals or theme areas. Future forums present an opportunity for the City to engage a wide array of stakeholders in discussing social sustainability, equity, and community well-being.

If these forums and additional research pointed Ann Arbor in the direction of continuing with efforts to measure well-being, there are a number of methods by which to do so. The range of these options and the relative advantages and disadvantages of each have been discussed in Section IV, above. Still, one opportunity in particular bears mentioning here, given both the City and the citizens’ familiarity with it: partnering with an existing organization that has already developed the methodology and tools to collect this type of information. Such tools might include the Gallup-Healthways Well-Being Index, which found Ann Arbor in the top ten metro areas in 2011 and 2012, and the National Research Center’s National Citizen Survey, which gauges citizen satisfaction with City services and was distributed to residents in 2007 and 2008 (Ann Arbor, 2008; Gallup, 2012, 2013). An alternative, lower cost option would be the Happiness Initiative’s Gross National Happiness Index (Happiness Initiative, 2013). The Happiness

	<i>Key Opportunities</i>	<i>Key Challenges</i>	<i>Key Considerations / Recommendations</i>
Planning	<ul style="list-style-type: none"> ● Sustainability Framework and Community theme area give broad goals ● Action Plan will provide clear targets and action items ● Subjective well-being indicators are a natural fit for addressing the equity component of sustainability ● Public forums could introduce the concept of measuring well-being, gauge interest, and gather ideas 	<ul style="list-style-type: none"> ● Garnering support from City Council and citizens ● Securing funding so the project is fiscally sustainable ● Eliciting participation among a cross-section of the population (ensuring effective and diverse sampling) ● Ensuring meaningful data with only a few questions (limiting respondent fatigue or lack of motivation to respond) 	<ul style="list-style-type: none"> ● Determine whether “well-being” can be fully addressed within the Sustainability Framework as written ● If so, integrate approach into Sustainability Action Plan ● Pilot the project through external funding sources
Acquisition	<ul style="list-style-type: none"> ● Multiple channels available to measure well-being ● Aligning well-being surveys with other planned or familiar mechanisms to solicit citizen feedback 	<ul style="list-style-type: none"> ● Incenting participation in tools to measure sustainability and/or well-being ● Capturing representative samples, particularly with changing and shared housing arrangements of university affiliates 	<ul style="list-style-type: none"> ● Employ low-cost, high-value acquisition efforts ● Partner with University of Michigan to deploy surveys to affiliates living in the City, perhaps coupling with an incentive to participate ● Pilot in a single area of Ann Arbor ● Consider mobile app version of survey to appeal to wider audience
Application	<ul style="list-style-type: none"> ● Hundreds of goals categorized by this plan can be evaluated along the distinct areas and populations they serve 	<ul style="list-style-type: none"> ● Sharing relevant data across many City units having their own methods of evaluation 	<ul style="list-style-type: none"> ● Develop evaluation based on well-being as a pilot project with particular unit(s), such as human services and parks ● Connect data to density of street trees and proximity to neighborhood and larger parks ● Report equity measures as well as neighborhood averages to housing and human services units

Learning	<ul style="list-style-type: none"> ● Similar metrics exist against which to compare findings (ie, Gallup-Healthways Well-Being Index, National Research Center’s National Citizen Survey) ● Membership in peer networks with which to share and learn (ie, USDN, ICLEI) ● Wealth of researchers in sustainability, urban planning, and well-being at University of Michigan with whom to share findings and insights 	<ul style="list-style-type: none"> ● Sustaining support for the ongoing tasks of sharing findings, drawing useful comparisons with past/similar initiatives, and refining measurement ● Learning from the experiences of the relatively few municipalities who have already begun to measure well-being 	<ul style="list-style-type: none"> ● Develop a library of policies and practices implemented in response to findings ● Share findings and outcomes with other municipalities and researchers ● Compare measurements across time, before and after policy implementation
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Table 4.4: Key Opportunities and Challenges Facing Ann Arbor in Pursuing Well-being Measurement and Implementation

Initiative could provide a dedicated URL and codes for the City to distribute to residents for a nominal suggested donation (Happiness Initiative, n.d.).

Realizing the full opportunities afforded by well-being indicators is of course not without its challenges. The structure of municipal policy-making and city management often poses challenges to new initiatives due to funding, staff, and time constraints, and Ann Arbor is not immune to these issues. For many initiatives to get off the ground, the organizing department must secure their own external funding. For example, the Ann Arbor Sustainability Framework project was funded by a grant from the Home Depot Foundation, secured by the Department of Environmental Coordination. The costs associated with incorporating well-being indicators into the Sustainability Action Plan, while not necessarily high, would likely require seeking out additional support.

Based on this analysis, several opportunities and challenges have been identified, as well as recommendations for addressing them. Mapping these to the decision-making framework developed in Section IV yields Table 4.4.

Section VI. Conclusion

While economic indicators are useful as a litmus test of the economic health of a community, they say very little about the overall well-being of a community. It is wise to heed the warning of Simon Kuznets, the creator of GDP, that economic measures are scarcely sufficient as measures of welfare. Furthermore, if a city desires to be truly sustainable, it must not only preserve the quality of its environment, but the quality of life for its citizens as well.

With the ever-growing amount of research on well-being as well as examples of application from across the world, alternatives to the existing economic metrics are readily available. This white paper presents several examples of indicators that are utilized by municipalities in both the United States and abroad. A substantial challenge is identifying the right set of metrics that aligns with a municipality's goals. There are significant variations in the indicators presented in Table 3.1, in terms of scale, type of administrative agency, degree of subjectivity, and level of integration of nature and society. For a municipality interested in developing its own set of indicators, reviewing existing metrics and their unique assets is instrumental in beginning this task.

It's important to note that without the standardization of measures, it will be challenging to contrast one community's data against another. As indicators continue to be independently developed, the heterogeneity becomes increasingly problematic. Resources such as the *Compendium of Sustainable Development Indicators Initiatives* and the Community Indicators Consortium currently allow cities to access some well-being data, but until an agency spearheads an effort to define a common set of indices, municipalities will face difficulty when seeking to benchmark their data against those of their peers. As well-being indicators become increasingly common, we expect a central agency or network, perhaps USDN or ICLEI-Local Governments for Sustainability, will provide guidelines to enhance the comparability of well-being data.

We propose a decision-making framework that cities can adopt to develop objectives and identify appropriate well-being indicators. First, a city should set clear objectives for why the well-being indicator should be adopted. Based on the nature of these objectives, we suggest different types of indicators as shown in Table 4.1. After deciding on the type of indicator to be used, it is crucial to gain public buy-in for the development of the indicator. The goal of well-being indicators is for cities to serve its populations better by directly targeting and measuring well-being. Securing buy-in from the residents increases the likelihood of the project getting funded. The level of funding required will depend on the scale of the project and the procedure for data collection. Since well-being measurement is a relatively new concept, cities may not be able to secure long-term funding initially and have to launch the project as a one-year pilot or attach the indicator to another long-standing survey, for example the census, as was the case with Somerville, Massachusetts. Other issues, such as the mode of administration, spatial resolution, and temporal resolution, should also be considered while planning for the first deployment of indicators.

Following data collection, the most critical (but often overlooked) step is for municipalities to determine how well-being measures will be employed to inform decision-making. Application of well-being indicators to policy can address the needs and dissatisfactions of residents. Analysis across neighborhoods or time can yield insights on regions that warrant extra attention and the impact of new projects or services on residents. Tracking well-being data over time allows municipalities to identify whether their policies have been effective and can be a tool to aid in the solicitation of funding for new projects. In the case study of Ann Arbor, we explored ways of incorporating well-being indicators into the City's new sustainability framework, specifically through the "community" pillar. The goal of a diverse, safe, and engaged community with a backdrop of sufficient human services, active livelihood, and economic vitality aligns with many components of well-being indicators. If the challenges in funding, stakeholder engagement, and political will can be overcome, well-being indicators can more directly gauge the impact of sustainability initiatives and ensure that citizen feedback is prioritized in the evaluation process.

Ultimately, as the well-being indicator(s) of a city matures, city officials will be able to strengthen their sustainability initiatives by ensuring that these initiatives are holistic in both thought and design.

Sustainability can no longer be treated as simply an environmental problem. Environmental issues and social issues are more often than not interrelated and cannot be analyzed in isolation:

"Even those cities that have elected to incorporate equity considerations into their sustainability initiatives have done so in only a superficial way ... Simple measures of income inequality, of differential health of at-risk populations, and of law enforcement outcomes may represent a good start, but they do not capture the essence of environmental or social justice. ... It may be unreasonable for any city to initiate an effective program for affecting the level of income inequality, but programmatic efforts to deal with equity issues are generally not part of local understanding of sustainability." — *Taking Sustainable Cities Seriously* (Portney, 2013)

A new direction is needed – not simply superficial changes, but systemic changes that shift the focus from immediate, material prosperity to long-term sustainability. We urge all municipalities to consider seriously this emerging field of well-being measurement. The UN's call for a more direct measurement of happiness is not just for nations; municipalities, as the building blocks of nations, can become more sustainable if well-being indicators are adopted and used wisely.

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Appendix B. Resources of Interest

Resource	Website
Urban Sustainability Directors Network	http://www.usdn.org/
Sustainable Cities Institute	http://www.sustainablecitiesinstitute.org/
U.S. Conference of Mayors	http://www.usmayors.org/climateprotection/agreement.htm
Social Indicators Wiki	http://www.wikiprogress.org/index.php/Social_Indicators
The Happiness Initiative	http://www.happycounts.org/
STAR Community Rating Systems	http://starcommunities.org/rating-system
Siemens Green Cities Index	http://www.siemens.com/entry/cc/en/greencityindex.htm
Gallup Healthways Well-being Index	http://www.healthways.com/solution/default.aspx?id=1125
Gross National Happiness (GNH)	http://www.grossnationalhappiness.com/
Genuine Progress Indicator (GPI)	http://genuineprogress.net/
Human Development Index (HDI)	http://hdr.undp.org/en/statistics/
Happy Planet Index (HPI)	http://www.happyplanetindex.org/
OECD Better Life Index	http://www.oecdbetterlifeindex.org/
Social Progress Index	http://www.socialprogressimperative.org/
Canadian Well-being Index	https://uwaterloo.ca/canadian-index-well-being/
UN World Happiness Report	http://issuu.com/earthinstitute/docs/world-happiness-report
Ethical Markets Quality of Life Index	http://ethicalmarketsqualityoflife.com/