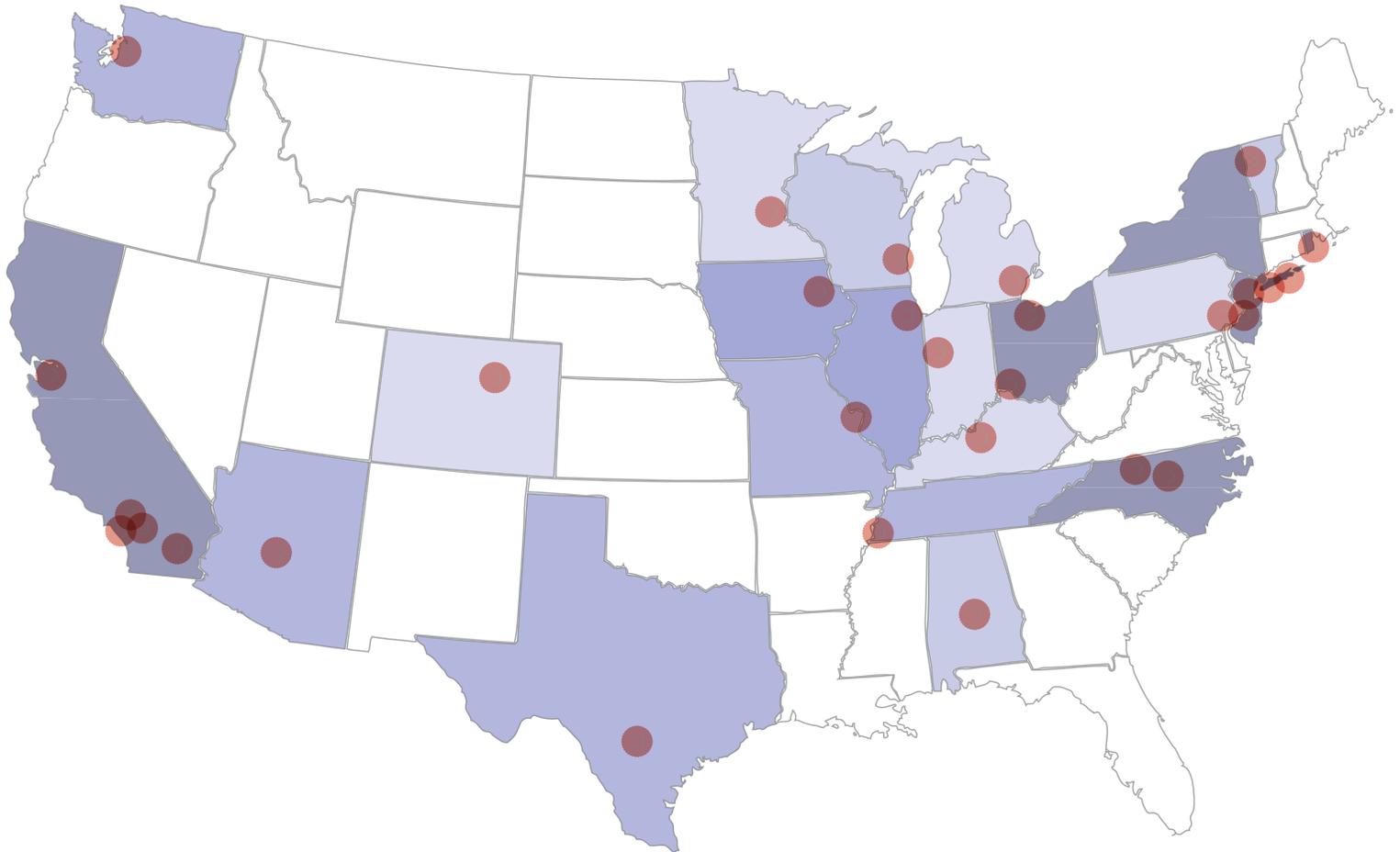


Sustainable Neighborhood Assessments

Impacts, Lessons Learned and Future Directions



2012

Dearborn, MI
Eden Prairie, MN
Greensboro, NC
Lafayette, IN
Lakewood, CO
Louisville, KY
Oakland, CA
Philadelphia, PA

2013

Burlington, VT
Camden, NJ
Cary, NC
Hoboken, NJ
Milwaukee, WI
Montgomery, AL
Staten Island, NY
Toledo, OH

2014

Dubuque, IA
Long Beach, CA
Long Beach, NY
Los Angeles, CA
Oak Forest, IL
Santa Monica, CA
Westerly, RI

2015 - 2016

Cincinnati, OH
Memphis, TN
Phoenix, AZ
San Antonio, TX
Seattle, WA
St. Louis, MO

Sustainable Neighborhood Assessments

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Program Overview

Global Green conducted Sustainable Neighborhood Assessments (SNAs) in 29 communities across the United States from 2012 to 2016 through a Building Blocks for Sustainable Communities grant with the US Environmental Protection Agency's Office of Sustainable Communities. The goal of this technical assistance effort was to enable communities to utilize established sustainability tools to further promote comprehensive analysis and informed decision making related to neighborhood planning and public investment in order to reduce environmental impacts, mitigate climate change, increase economic resilience, and promote social equity.

The Sustainable Neighborhood Assessment methodology was developed to both recognize and address the potential impacts in neighborhood-scale sustainability efforts. While individual buildings built to green criteria can make significant economic, environmental, and social gains, their effects are limited in scale. Similarly, city and state level regulations can induce change over broader sectors of the built environment, but require years of study, legislation, and are subject to varying political priorities and term limits. Neighborhood scale sustainability efforts, however, allow for larger levels of impact that affect more community members and yield mutually beneficial outcomes such as tighter integration of infrastructural systems and neighborhood improvements (e.g., a pocket park that functions as a stormwater capture site). Applying the experience and lessons gained from Global Green's 20 years of green building expertise to neighborhood level planning and design, the SNA program was able to engage community members and city staff on a broad swath of sustainability-related planning improvements while demonstrating their potential for broader policy applications.

Neighborhood Sustainability Evaluation Criteria

The core structure of the SNA program is built upon the US Green Building Council's Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND) rating system. This rating system, developed by a coalition of top practitioners in the field is internationally recognized as a benchmark for neighborhood scale sustainability. The rating system defines neighborhood sustainability through 3 lenses: Smart Location and Linkages (where neighborhoods are built), Neighborhood Pattern and Design (the physical layout and spatial elements of a community), and Green Building and Infrastructure (building systems and efficiency). LEED-ND, however, was created with new development projects in mind; recognizing the potential gains and improvements in existing neighborhoods, Global Green's staff adapted these standards to work in existing communities throughout the nation.

Community Selection and Preparation

Each year of the grant period, Global Green staff prepared and distributed a Request for Proposals (RFP) detailing the program specifics and inviting municipalities to submit an application for

consideration. Applicants were asked to describe existing community conditions and demographics, identify challenges to sustainability, explain the level of current or planned investment, and name a catalytic project in the neighborhood that resulting SNA recommendations could influence and improve. Applicants were also requested to describe if the proposed neighborhood was home to a concentration of at-risk or low-income residents or if the community had suffered any significant environmental, social, and economic injustices.

Applicant responses were collected and entered into a spreadsheet system for direct comparison, and communities were graded upon the demonstrated level of need, ongoing or planned catalytic projects, current and prior investment, and level of engagement with community groups and residents. While not a significantly weighted determining factor, additional consideration was given to ensure technical assistance would be broadly distributed to communities in all 10 EPA regions across the nation, in communities of varying size and experience with sustainable neighborhood planning. Upon selection, applicants were required to supply a signed letter of support from the mayor to demonstrate commitment of city time and resources to the undertaking.

Program Implementation and Delivery

The implementation methodology for SNAs and the resulting Recommendation Document is built around a standardized approach that can be calibrated to specific development conditions and community context. It consists of three basic steps: 1) pre-assessment preparation; 2) site visit by SNA team members; and 3) delivery of assessment and actionable recommendations. Each step is described below.

1) Pre-Assessment Preparation

The SNA is initiated with the collection and synthesis of relevant data and plans regarding the overall community and the target project area (e.g., condition of housing stock, transit service, zoning regulations, development proposals).

This information is synthesized into an internal briefing document shared amongst SNA team members to serve as reference and as the basis for preparing the LEED-ND baseline condition analysis of the target project area, typically a 10 to 100 acre area where significant development activity is slated to occur. LEED-ND prerequisites and credits currently being met by the target project area (by virtue of the project location, existing development density, existing transit access, proximity to community resources and open spaces, and current local, state and federal regulations) are identified. This baseline analysis serves as the backbone of the assessment and enables the technical assistance team to focus on prerequisites and credits that require on-site evaluation, regulatory clarification, local context, or community input.

SNA Site Visit Photos



2) Site Visit

For the site visit, the SNA team travels to the community for roughly 3 days of intensive neighborhood analysis, interviews with city staff, and direct stakeholder engagement. To ensure the SNA process is inclusive of multiple viewpoints and priorities, the SNA team provides the recipient community with suggestions for city staff and local stakeholders to invite for collaboration (e.g. planning staff, housing staff; bicycling advocates, business owners, community development corporations). Local stakeholders are identified through conversations with city staff, discussions with EPA regional staff, calling area nonprofits, and reviews of pertinent news articles. Core elements of the site visit include:

- A. Neighborhood Site Walk
- B. City Staff Interviews
- C. Focused Stakeholder Meetings
- D. SNA Team Work Session
- E. Community Workshop

The goal of the site visit is to familiarize the team with the neighborhood's assets, challenges, and particular nuances not evident through document review and the pre-assessment preparation process. Recognizing the wealth of in-depth knowledge that city staff and neighborhood stakeholders possess, the SNA team seeks to leverage this expertise. By asking targeted questions and relying on staff and community responses, the team is able to form nascent sustainability recommendations.

3) Delivery of Assessment and Actionable Recommendations

Within 8 weeks of the site visit, the team delivers a draft assessment report, including a summary list of actionable recommendations and an annotated LEED-ND checklist documenting community performance within this framework. While not exclusively derived from LEED-ND, the rating system is used as a tool for identifying the most urgent and actionable sustainability improvements for the neighborhood to implement. After draft comments are received, the final SNA Report is released to the city, neighborhood stakeholders, other interested parties, and posted on Global Green's website.

Communities Served

Global Green conducted SNAs in 29 communities. Throughout the course of the grant period, 114 completed applications were submitted in response to the Request for Proposals, with a marked increase during the final year the technical assistance program was offered. The steady submission of applications represents a palpable demand from communities across the nation with unique challenges requiring technical assistance to advance neighborhood sustainability.

Neighborhood Characteristics

Communities that received the technical assistance not only represented a distribution between small towns and big cities, but also in a variety of existing conditions such as staff capacity, project readiness, political climate, and familiarity with the underlying principles of sustainable neighborhood planning and design. Each of the communities served under the SNA program was asked to identify a catalytic project in the neighborhood that could be leveraged by the SNA team. These projects took a variety of forms including transportation investments, affordable housing developments, natural disaster recovery, and major shifts in land use policy. The RFP also asked applicants to describe historic and current economic conditions and list any disadvantaged communities located in the neighborhood. The majority of communities served under the SNA program were at-risk or had suffered historic environmental, social, and economic injustices.

Program Results and Highlights

The underlying structure and implementation methodology remained relatively consistent throughout the duration of the grant period, however, the SNA program evolved in response to internal and external stimuli. In response to Hurricane Sandy, the 2013 and 2014 SNAs added an additional section to the RFP which prioritized assistance to two communities impacted by the storm in order to assist sustainable recovery efforts. Observations by SNA team members of more and less effective strategies for conducting stakeholder meetings, the site visit, and developing pertinent recommendations were then incorporated into subsequent SNAs in other cities. After several visits, the SNA team became more adept at “reading” internal staff capacity and community familiarity with the principles of urban sustainability. In turn, the team was able to identify which elements of the SNA process would require more or less attention during the site visit.

Summary of Results Achieved

The following is a compendium of results achieved and progress made towards improving neighborhood sustainability in all 29 recipient communities. Global Green staff contacted recipient cities several times over an 18-month period after delivery of the Recommendation Document to assess progress on implementation of proposed sustainability improvements.

The primary intended outcome of the SNA process is regulatory changes adopted by local governments that are consistent with the sustainability improvements found in the Recommendation Document. Secondary outcomes include physical neighborhood improvements, increased awareness among the recipient communities’ leaders and residents of smart growth and sustainable development principles, and the integration of neighborhood sustainability into the community planning process. To track the state of implementation, possible actions were divided into six categories:

A.1: Conversation ongoing but no particular actions taken yet

A.2: Task force or committee formed to move forward on recommendations
A.3: Specific proposals developed for changes in local policies or programs
A.4: Specific proposals adopted based on recommendations

A.5: Projects have been built that were shaped by the recommendations
A.6: Other Significant actions or outcomes that don't fit into these categories

This review revealed that 24 projects were built, 53 plans for future improvement projects were adopted, 10 project proposals were developed, and over \$280 million in funding from the US Department of Housing and Urban Development and other federal agencies to fund related projects in these communities. The community updates reflected below represent implementation statuses as of March 2017, but as experience has indicated, additional actions may be forthcoming — particularly in more recently visited communities — as recommended actions work through funding, political, and bureaucratic hurdles.

Summary of Recommendation Actions Taken

2 Actions — A.1: Conversation ongoing but no particular actions taken yet
14 Actions — A.2: Task force or committee formed to move forward on recommendations
10 Actions — A.3: Specific proposals developed for changes in local policies or programs
54 Actions — A.4: Specific proposals adopted based on recommendations
24 Actions — A.5: Projects have been built that were shaped by the recommendations
14 Actions — A.6: Other significant actions or outcomes that don't fit into these categories

For an in-depth review of recommendations, see Appendix 1, Recommendation Implementation

Program Successes

The communities highlighted below represent particularly successful integration of SNA recommendations into plans, regulations, and developments. Each of these communities had particularly strong catalytic projects, dedicated staff, motivated community members, and political leaders willing to pursue innovative solutions to vexing challenges.

1. Cary, NC

The town of Cary received an SNA in 2013, and is one of the top performing communities to implement many of the sustainability improvements identified in the Recommendation Document. The town's catalytic project, the restoration of a historic school house into an arts center (part of a larger downtown revitalization effort), was an attainable goal with shorter time horizons than those of complete neighborhood redevelopment efforts, enabling sustained momentum by the communities newly hired Sustainability Manager. The achievability of the school house restoration project, combined with a motivated Sustainability Manager coalesced to create ideal conditions for a productive SNA. As relayed to Global Green during our post-assessment tracking efforts, contacts commented on the receptive nature of City staff, and their

experience during the site walk and community meeting helped assure them that the SNA team was attentive to and responding to community needs.

2. Long Beach, NY

Long Beach's post Hurricane Sandy recovery challenges were daunting, and much work remains to be done, but the City made a concerted effort to strategically collaborate with proven, effective programs. After the Hurricane, City staff were overwhelmed with assistance offers, and the planning department worked diligently to identify and apply only to programs with a proven track record and appropriate product for the community. This due diligence reveals the level of commitment staff had for recovery efforts, and is a major contributing factor to the Recommendation Document's ongoing relevance and usefulness as the West End rebuilds in a more resilient manner. Following the SNA, Global Green staff were invited back to the City in September 2014 to meet with the City Manager (paid for through separate grant funds) and discuss implementation strategies for the resiliency recommendations with the community. Global Green has continued its engagement with Long Beach through our Solar for Sandy Initiative, installing PV panels on the roof of the Martian Luther King Jr. Community Center, along with a battery back up system, to be able to provide power in the event the electricity grid is down.

3. Seattle, WA

Seattle's Chinatown International District (CID) is at a crossroads, facing multiple development pressures resulting from a housing crisis and major land use and zoning changes. In response to these issues, the City and CID nonprofits collaborated to apply to the SNA program for assistance in developing a unified vision for preserving defining community characteristics while expanding and reinvesting in the District. This level of cooperation between community groups and local government in the application process helped cement a valuable working relationship. This collaboration and open communication has facilitated the implementation of sustainability recommendations in a more timely and efficient manner than experienced in other communities. Further, as relayed to Global Green during the implementation tracking effort, CID stakeholders described how the neighborhood site walk, attended by residents and City staff, helped galvanize a productive working relationship that they have enjoyed since.

SNA Site Visit Photos



Recipient Community SNA Evaluations

Global Green conducted post-SNA evaluation conversations with 8 communities, with at least one from each year of the grant period, to gauge the relative impact of the SNA program, identify strengths and weaknesses, and gain insight on how to improve implementation methodology. Highlights from those discussions can be found below.

1. Cary, NC, EPA Region 4, 2013

The Recommendation Document emphasized some concerns and goals that several departments within the City were interested in pursuing. The report was successful in placing these improvements within a larger context of neighborhood sustainability, and in turn, advancing the dialogue amongst City officials. Report recommendations influenced the design of the Downtown Park and location of the new library within the park.



The site walk was seen as the most valuable part of the SNA visit. City staff appreciated hearing the SNA team think out loud, bring new perspectives to existing neighborhood challenges, and explore the potential of several vacant lots. The team's effort to explore these creative solutions while anchoring them in neighborhood specifics was particularly appreciated.

City staff suggested that the SNA team be more prescriptive regarding needs and expectations relative to the stakeholder meetings — what specific disciplines within City departments were needed, duration of the meetings, and the types of questions the team will be asking them. This would help the City get the right people in the room to ensure interviews are as productive as possible.

2. Cincinnati, OH, EPA Region 5, 2015

The Recommendation Document helped crystalize issues facing affordable housing in the community and has served as a rallying point for neighborhood advocates. Local Community Development Corporation Over The Rhine Community Housing has utilized the report when approaching the City about inclusionary zoning, equity, and affordability issues. The SNA team was able to bring a fresh perspective outside of the entrenched views of community members and City staff and provide external evaluation of these proposals. This was best evidenced in the community meeting, which brought together people who aren't always in the same room for a robust conversation.



The SNA process helped the Community Council and Business Association, Northside, feel more emboldened and informed when working with the City and developers to build sustainability improvements.

3. Dubuque, IA, EPA Region 7, 2014

The Recommendation Document underscored the importance of a concerted improvement effort along the Central Avenue corridor. The City expanded its community engagement process as a result of the SNA to ensure a more robust community design process.

The SNA was viewed as a welcome, non-threatening process, and identified issues that were relevant, providing good foundational work to help people understand the importance of focusing on the Central Ave. corridor and the Washington neighborhood. The report itself was utilized as a foundation plan providing baseline information to build upon.

City staff suggested that attendance at the community meeting could have been improved had they made more use of their social media networks to reach more people about the meeting.

4. Lakewood, CO, EPA Region 8, 2012

The primary value of the Recommendation Document was that sustainability experts outside of the City were able to validate and contextualize a number of improvements staff had proposed or explored, most notably regarding pedestrian safety. The neighborhood-scale scope was appreciated for its uniqueness and effectiveness at producing more comprehensive community improvements. Shortly after the SNA, there was a groundswell of interest in the neighborhood, and the report was utilized by staff to give validity to staff direction and inform their proposals. An outcome of the SNA and report was the allocation of funds to build sidewalks along street leading to the station.

The SNA process was valuable for identifying neighborhood assets and challenges, and bringing fresh perspective on how to leverage community strengths to improve some of these challenges.

5. Long Beach, NY, EPA Region 2, 2014

City staff appreciated the distinct components of the SNA process (one-on-one interviews, group discussions, site walk with local stakeholders, and the community meeting) because people learn in different ways, and some of the less formal elements emboldened



community members to speak up. The longest term value, however, was in the Recommendation Document itself, because it served as a lasting reference that was incorporated into a larger comprehensive plan update.

City staff stated that sitting in on stakeholder interviews was an illuminating and unique exercise, as they were able to hear several perspectives on the neighborhood they had not previously been exposed to.

The public meeting was a great opportunity to expose community members to sustainability and resiliency concepts in a collaborative environment that helped them feel that they had a say in how the neighborhood would rebuild in the wake of Hurricane Sandy. Many of the community members did not have a thorough understanding of the planning process, and the community meeting helped them visualize a more sustainable neighborhood.

One of the most appreciated elements of the SNA effort was outside experts sharing examples of innovative projects from across the nation that many community members thought could not take place in their neighborhood, and affirming that they were in fact feasible.

After Hurricane Sandy, the City received a lot of calls from other groups who had their own vision for how to rebuild that felt almost predatory in nature. The SNA program was one of the few that gave a valuable product that had lasting impact and involved the community in the entire process.

Lessons Learned

Throughout the duration of the SNA grant period, Global Green staff continually refined and improved the program's processes and outputs. The following observations, separated by theme, represent key lessons learned.

Observations Regarding Community Selection Process

1. When reviewing RFP responses, it is critical to consider institutional capacity. While enthusiasm is valuable and necessary, so too is the recipient city's ability to devote considerable attention and resources to ensuring a productive SNA. In addition to coordinating logistics and accompanying the SNA team on the site visit, the SNA processes requires a committed and dedicated city staff member to serve as a liaison between the SNA team, municipal employees, and neighborhood stakeholders.
2. SNAs that were conducted in closer collaboration between the city and local community groups yielded more fruitful connections than those that were managed by the city alone. This often resulted in a more diverse array of community stakeholders to interview, and provided

insightful observations city staff could not. These institutions may prove invaluable for longer-term or ongoing collaboration in future SNA iterations.

3. Clear communication of expectations from city staff, accompanied by guidance documents and templates, is critical to ensure stakeholder interviews and public outreach meetings operate smoothly.
4. The importance of soliciting and encouraging qualified RFP responses is paramount. Utilize professional networks, conferences, and webinars as an opportunity to advertise the opportunity to a broad spectrum of potential applicant communities. A limited applicant pool may result in conducting a SNA in a community not fully prepared for such an undertaking.

Observations Regarding SNA Assessment Methodology

1. A comprehensive pre-visit research effort, beyond document review and summarization, is needed. Elements such as online mapping tools (e.g. walkscore, bikescore), and evaluation of datasets (e.g., GIS analysis of vacant parcels in neighborhood), would better prepare the SNA team prepare for the site visit.
2. Consider structuring stakeholder discussions by theme. If many stakeholders have been identified, it can be effective to schedule multiple stakeholders for the same time so that they can build upon each other's knowledge. A structure that proved effective regardless of the number of stakeholders is to host one discussion session for city employees, and another discussion session for community members.
3. The SNA team must start identifying "vehicles" for implementing the recommendations as early as possible to ensure they are included in grant applications and development plans. These could be a neighborhood plan, HUD Choice Neighborhoods application, transportation project designs, stormwater upgrades that include street reconfigurations.
4. The walking tour is highly valuable, as it provides a view of neighborhood assets and challenges not attainable through document review and spatial analysis alone. Time and logistical constraints can make it challenging to arrange and carry out, but it should not be abandoned.
5. The full value of the SNA emerges not from any one element, but from the process itself. Community meetings, stakeholder engagement, the site visit, and exchanges with city staff all help to build relationships, demonstrate commitment, and reveal valuable insight and nuances that can inform recommendations in unexpected ways.

Observations Regarding Post-Assessment Methodology

1. The creation of a comprehensive and polished report requires a significant amount of production time. Momentum created during the site visit can get lost in the process. However, the preparation of a report gives substance, heft, and lasting value to the recommendations that an alternative such as a Powerpoint presentation does not offer.
2. Following delivery of the Recommendation Document, maintaining engagement with city staff for implementation tracking can often become challenging. Coupled with shifting civic priorities or new administrations, it is important to establish a rapport with multiple staff members to facilitate subsequent information gathering.

3. Community meetings in Long Beach, CA, and Long Beach, NY were both held several weeks after the site visit and stakeholder meetings. In California due to scheduling challenges and proximity, and in New York, a second follow up community meeting was held (paid for through separate grant funds) to address a high level of community interest. In both instances, it appears that the interval between conducting the SNA site walk, stakeholder discussions and hosting the community outreach meeting allowed community members to better prepare, and provide more substantive feedback.
4. Some SNA recommendations can cover familiar territory for city staff, while others can be novel or previously unconsidered. Both are valuable, and the Recommendation Document must strike a balance between reaffirming sustainability goals (several SNA recipient cities have expressed the value of sustainability experts from outside their jurisdiction validate their plans), and developing recommendations that had not yet been previously considered.

Future Directions

This section builds upon and expands the scope, methodology, and deliverables of the SNA program and identifies strategies that can improve its efficacy and impact. The improvements outlined below are a reflection of lessons learned, clarification of areas for refinement, and identification of commonalities found after conducting SNAs in 29 communities throughout the nation.

The central modification to future SNAs is primarily a shift from LEED-ND to a more holistic approach which includes additional evaluation criteria such as health and human dignity, arts and culture, and resilience and adaptation, strengthened by longer-term engagement with the community to help see sustainability improvements to fruition. This re-imagining is a recognition that improving elements of the built environment and its supporting infrastructure, while critical, are just one aspect of what makes lasting, meaningful neighborhood change and progress.

While the SNA methodology works well as a swift-action framework that can inform or be integrated into ongoing or upcoming catalytic projects, a concerted effort must be made to include strategies that support the successful implementation of long-term sustainability measures. Urban greening strategies such as integrated stormwater management, tree planting, and building energy efficiency retrofits can often be integrated into existing catalytic projects, but larger, inherently complicated undertakings such as transit corridor expansions and multi-million dollar public housing developments necessitate more strategic guidance and implementation timelines for longer-term recommendations.

As SNA recipient communities often take several years to begin construction or pass legislation related to recommendations, it may take several years for the potential impact a longer-term engagement with SNA recipient communities to yield results.

Updated Evaluation Criteria

Future SNAs will seek to quantify neighborhood performance in seven thematic areas, to provide specific strategies and tactics community leaders and city staff can utilize to improve what they have and build what they don't. In addition to the LEED-ND categories of Smart Location and Linkage, Neighborhood Pattern and Design, and Green Infrastructure and Building; updated SNA evaluation criteria will include reviews of neighborhood progress on Social Equity, Climate Change, Active Transportation, and Collaborative Governance.

Site Analysis Tools

As discussed above in Observations Regarding SNA Assessment Methodology, future SNAs will utilize digital databases, mapping tools, and analytical methodologies to better inform the team prior to arrival, and help develop more nuanced sustainability recommendations. Using these tool will also help establish a comparative analysis baseline for all SNA recipient communities.

Evaluation tools to be used in future assessments include:

- [14 Patterns of Biophilic Design](#)
- [American Community Survey](#)
- [Bike / Walk / Transit Score](#)
- [EcoDistricts Protocol](#)
- [Environmental Justice Screen](#)
- [Food Desert Atlas](#)
- [Gentrification / Displacement Indicators](#)
- [Housing and Transportation Index](#)
- [Living Community Challenge](#)
- [National Equity Atlas](#)
- [NOAA Sea Level Rise Mapping](#)

Relationship Building and Longer-Term Engagement

While the development of a quick-action, implementation-focused Recommendation Document remains central to the SNA process and methodology, this evaluation effort underscores the longer-term nature inherent in the realization of neighborhood sustainability recommendations. Future SNAs may seek to establish broader partnerships, likely collaborating with both the city as well as a neighborhood-based nonprofit such as a community development corporation, and longer timeframes within the project scope to help guide recommendations toward fruition. With such a partnership in place, the SNA team could leverage civic and community-based networks and utilize the SNA Recommendation Document as an atlas to guide future collaboration.

Additional
Evaluation Criteria

Project Status:	Not Applicable	Yes / Exists	In Progress	No / Does Not Exist
Social Equity				
Affordable Housing				
Access to Jobs				
Access to Food				
Credit and Capital				
Human Dignity				
Continuing Education				
Public Health				
Connections to Nature				
Arts and Culture				
Total:				
	0	0	0	0

Climate Change				
Resilience				
Adaptation				
Retreat				
Total:				
	0	0	0	0

Active Transportation				
Expanded Cycling Infrastructure				
Transit Oriented Development				
First Mile Last Mile Connections				
Total:				
	0	0	0	0

Collaborative Governance				
Representative Community Body				
Financing Strategies				
Regular Public Meetings				
Total:				
	0	0	0	0

Sustainable Neighborhood Assessments

Appendix 2: Tool Refinement

Introduction

This SNA tool refinement effort is informed by the findings of the Final Report, post visit interviews with SNA recipient cities, and a series of working meetings focused on identifying strengths, weaknesses, and opportunities for improving the SNA process. The goal of this tool refinement process is twofold: 1) to improve in-field analysis, better guide stakeholder interviews, and yield more informed Recommendation Documents, and 2) to assist in the holistic identification of neighborhood characteristics that can be leveraged to improve sustainability, or conversely, should be thoroughly reviewed for improvement.

The SNA process is structured around analyzing a neighborhood's performance in the LEED-ND rating system, and producing recommendations based upon shortcomings identified through this exercise. While LEED-ND represents an authoritative and well-documented benchmark for elements of the built environment that influence neighborhood-scale sustainability, our experience conducting 29 SNAs throughout the nation demonstrated that the rating system's existing credits should be supplemented with additional evaluation criteria examining a neighborhood's performance in social and economic realms. Additionally, some elements of the rating system were created with new master-planned developments in mind, and are not relevant in the evaluation of existing neighborhoods (e.g., decisions about where to locate a neighborhood were made long before the SNA). To this end, some credits have been removed, others simplified or consolidated, and new evaluation criteria have been added to supplement LEED-ND credits with performance metrics related to other indicators of sustainability such as public health, civic engagement, and resilience.

Most of the new evaluation criteria do not include benchmark thresholds — rather, they are utilized as binary indicators of where the community stands on a variety of issues, highlighting areas of strength and identifying those that can be improved. In order to achieve a complementary degree of simplicity with evaluation criteria taken from LEED-ND, pre-existing credits have been supplemented with simple, discussion provoking questions informed by the credits' primary intent — leaving technical minutia for the SNA team to interpret (i.e. while conducting the pre-visit document review, in the course of staff/ stakeholder interviews, or during post-visit recommendation development) without causing undo confusion or distraction with local stakeholders and city staff. This tool refinement effort also mirrors many of the improvements found in LEED-ND Version 4, which was released during the grant period.

While evaluating the sustainability characteristics of an existing neighborhood is a necessarily complex and multifaceted operation, this tool refinement effort has focused on presenting the underlying information in an easily digestible and approachable manner. Additionally, the assessment tool itself was updated to include an additional layer of sustainability analysis that reaches beyond the built environment and is more in line with the vanguard of neighborhood-level sustainability efforts. The resulting outcome enables the SNA calculator tool — an Excel-based matrix that the SNA team inputs

existing community conditions based upon observations and interviews — to retain a snapshot-level prediction of how a community may score if it were to apply for formal LEED-ND certification, while simultaneously displaying performance on other sustainability indicators not found in LEED-ND.

Additional evaluation criteria were developed through an analysis of several leading sustainability rating systems and methodologies including The EcoDistricts Protocol, Enterprise Community Partner's Communities of Opportunity Index, The Well Community Standard, and the STAR Community Rating System. Our experience in the field conducting SNAs, combined with this analytical review of complementary rating systems has demonstrated that while LEED-ND addresses many critical neighborhood sustainability indicators such as housing, the built environment, and transportation, opportunity exists to expand the breadth and inclusivity of neighborhood-scale sustainability assessment.

Observations Regarding Using LEED-ND as SNA Foundation

The core framework of LEED-ND provides a thorough and detailed examination of the physical aspects of community sustainability — street width, mixed-use development, park location and size, schools, density, stormwater management, renewable energy production, and methods to improve the environmental performance of urban areas. This protocol, however, is largely oriented toward new developments and the delta between translating these individual evaluation criteria from planned neighborhoods to existing communities, along with an evolving dialogue within the sustainable planning and design community, proved to be a challenge that required focused attention. Over the course of the SNA program, three specific areas for updating and expanding the breadth of the SNA methodology arose:

1. Equity: LEED-ND provides only indirect or tangential coverage of equity through its optional affordable housing credit. LEED-ND does not require an inclusive process or preliminary steps that explore income, employment, public health and longevity, employment, or educational attainment.
2. Resilience: Similar to the conditions described above for equity, LEED-ND does not directly address neighborhood resilience. The rating system requires new projects to avoid developing in floodplains, but does not require or offer credits for conducting a community vulnerability assessment, an up to date emergency plan, or that projected sea level rise or amounts of precipitation are used in analyses and site design.
3. Comprehensiveness: The most recent evolution in sustainable cities and neighborhoods is towards holistic and comprehensive approaches. Systems such as EcoDistricts and STAR Communities intentionally include elements of equity and resilience in their interpretation of sustainability, and contain credit criteria requiring evidence of progress in these arenas.

One of the most beneficial aspects of building the SNA methodology upon LEED-ND is its standing as an internationally recognized 3rd party benchmark for sustainable community design. Much like its sister programs (LEED for Homes, LEED for Building Design and Construction, etc.), LEED-ND has

effectively become shorthand for neighborhood-scale sustainability, thus enabling stakeholder interviews, community meetings, and collaboration with city staff to forgo a vetting process.

Evaluation Criteria Themes

Future SNAs will examine sustainability through seven criteria topics. Three are directly derived from LEED-ND while the remaining four are informed by other sustainability rating systems, academic literature, and experience in the field. Descriptions of what each category explores can be found below.

1. Smart Location and Linkage (LEED-ND)
Where a community is located, adjacent amenities, and neighborhood transportation and land-use patterns. Areas for analysis include: density of intersections, brownfield and infill development, mode and frequency of transportation services, and habitat conservation efforts.
2. Neighborhood Pattern and Design (LEED-ND)
The physical layout and design of a community, with an emphasis on mixed-use neighborhood centers and walkability. Areas for analysis include: neighborhood density (dwelling units per acre), access to civic and recreational facilities, presence of mixed-use structures, and street design that prioritizes and encourages pedestrian activity.
3. Green Infrastructure and Building (LEED-ND)
Evaluates the design, construction, and operation of buildings and infrastructure in the neighborhood. Areas for analysis include: building energy and water efficiency, historic resource preservation and adaptive reuse, stormwater management, and heat island reduction.
4. Social Equity
Development that addresses historic inequities, or increases community equity, with an emphasis on identifying and addressing the needs of the most vulnerable members of the community. Areas for analysis include: the presence of quality affordable housing, exposure to air toxins, access to jobs, banks, and credit, continuing education opportunities, and the inclusion of arts and culture elements into community design.
5. Climate Change
A community's response to hazardous climatic conditions resulting from climate change, including its ability to withstand and recover from major disruptions. Areas for analysis include: the existence of a city-wide adaptation plan, locating critical infrastructure outside of high-risk areas, a resilience study identifying weakness and vulnerabilities, and site development techniques that accommodate inundation.
6. Active Transportation
Design and programming that encourages, prioritizes, and removes barriers to walking and cycling, with an emphasis on transit oriented development and first mile / last mile connections to

transit stations. Areas for analysis include: prioritized right-of-ways, dedicated changing and storage facilities, traffic signal phasing, and signage and wayfinding

7. Collaborative Governance

Engagement and inclusion of community members within the neighborhood planning process in order to establish shared goals and vision for future development. Areas for analysis include: a guiding body comprised of residents, local businesses, artists, and other stakeholders, a vision document with agreed upon goals, regular community meetings, and identified financing strategies.

Evaluation Criteria

The criteria below include standards from LEED-ND as well as additional benchmarks informed by other sustainability rating systems, ongoing discourse in the field, and Global Green's experience after conducting SNAs in 29 communities across the nation. Criteria for Smart Location and Linkage, Neighborhood Pattern and Design, and Green Infrastructure and Building are derived from LEED-ND. Social Equity, Climate Change, Active Transportation, and Collaborative Governance are new additions. The resulting set of updated metrics represents a more complete methodology for analyzing sustainability in existing communities.

1. **Smart Location and Linkage**

1. Smart Location

Does the neighborhood have at least 90 intersections per square mile?

Does a through-street intersect the neighborhood boundary at least every 800 feet?

2. Floodplain Avoidance

Is the neighborhood within the 100th percentile floodplain? If so, are structures built to withstand inundation?

3. Brownfields Remediation

Is there a focused effort to remediate and build upon contaminated lands?

4. Access to Quality Transit

Are at least 50% of dwelling units within a 1/4 mile of bus or 1/2 mile of bus rapid transit or rail service?

5. Bicycle Network and Storage

Does the neighborhood have access

to a robust network of dedicated bike lanes? Is there an established bicycle parking minimum for new commercial, retail and multi-unit residential development?

6. Housing and Jobs Proximity

Are there existing job centers within a 1/2 mile of the neighborhood with FTE positions \geq the number of dwelling units?

7. Conservation, Restoration, and Management

Are there conservation, restoration, and management plans for wetlands, water bodies, and other natural resources within the neighborhood?

2. **Neighborhood Pattern and Design**

1. Walkable Streets - Minimum Standards

Does the neighborhood exhibit these core elements of walkable urbanism:

- A. Functional entries that open to sidewalks or public spaces.
- B. A 1:3 building height to street width ratio for at least 15% of frontages.
- C. Continuous sidewalks with minimum widths of 4' on residential, and 8' on retail or mixed-use blocks.
- D. Less than 20% of street frontages are interrupted by garage and service bay openings.
- E. At least 7 dwelling units per acre, or 12 if in a transit corridor.
- F. Internal connectivity of at least 140 intersections per square mile.

2. Walkable Streets - Advantageous Standards

How many of these desired elements of walkable urbanism does the neighborhood exhibit:

- A. 80% of facades \leq 25' setback.
- B. 50% of facades \leq 18' setback.
- C. 50% of mixed-use facades \leq 1' setback.
- D. 75' spacing of functional entries on mixed-use blocks.
- E. 30' spacing of functional entries on mixed-use blocks.
- F. Clear glass on \geq 60% of ground-level retail.
- G. No blank facades \geq 50% of building length.
- H. Un-shuttered ground level retail.
- I. On-street parking on \geq 70% of streets.
- J. Continuous sidewalks throughout neighborhood.

- K. 50% of ground-floor dwelling units elevated \geq 24" above grade.
 - L. 100% of mixed-use structures have ground-level retail, occupying \geq 60% of facades.
 - M. \geq 40% of blocks exhibit 1:1.5 building height to street width ratio.
 - N. \geq 70% of residential streets designed for \leq 20mph.
 - O. \geq 70% of mixed-use streets designed for \leq 25mph.
 - P. Driveways interrupt less than 10% of sidewalks.
- 3. Compact Development
Are there at least 10 dwelling units per acre, with $>$ 63 encouraged?
 - 4. Mixed-Use Neighborhoods
Are at least 50% of dwelling units within a 1/4 mile of at least 4 diverse uses?
 - 5. Diversity of Housing Types
Is there a sufficient variety of housing types to enable a range of residents from various economic, age, and household sizes?
 - 6. Affordable Housing
Are there dwelling units restricted to residents earning 80% or 60% of the area median income?
 - 7. Reduced Parking Footprint
Are there zoning provisions in place to prohibit parking lots from fronting sidewalks, and restrict surface lots to \leq 20% of development footprints?
 - 8. Connected and Open Community
Are there at least 300 intersections per square mile?
 - 9. Transit Facilities
Are transit shelters covered and

- provide seating, illumination, and display route information?
10. Civic and Public Spaces
Are ≥ 90% of dwelling units within a 1/4 mile of a civic or public space?
 11. Recreation Facilities
Are ≥ 90% of dwelling units within a 1/2 mile of a recreational facility ≥ 1 acre or 25,000 square feet?
 12. Visitability and Universal Design
Are publicly accessible travel routes in compliance with the Americans with Disabilities act?
 13. Community Outreach and Involvement
Does the city require developers to host public meetings or charrettes?
 14. Local Food Production
Is growing produce encouraged and legally protected in residential yards, balconies, rooftops, etc.? Are there nearby farmers markets, community gardens, or community-supported agriculture programs?
 15. Tree Lined and Shaded Streets
Are at least 60% of sidewalks lined with trees at ≤ 50' intervals? Are at least 40% of sidewalks shaded by trees or structures?
 16. Neighborhood Schools
Are at least 50% of dwelling units within a 1/2 mile of an elementary school, or 1 mile of a high school?
3. **Green Building and Infrastructure**
 1. Certified Green Buildings
Does the city require development over a specified square footage to obtain certification through a LEED rating system?
 2. Building Energy Performance
Does the city require development over a specified square footage to comply with relevant ASHRAE standards?
 3. Indoor Water Use Reduction
Does the city require development over a specified square footage to reduce water consumption by an average of 20% from baseline? Are there any requirements for ≥ 40% reduction?
 4. Construction Activity Pollution Prevention
Does the city require all new construction activities to comply with an erosion and sedimentation control plan?
 5. Outdoor Water Use Reduction
Are new landscaping elements designed to not require irrigation or achieve at least 30% reduction from baseline?
 6. Building Reuse
Are there provisions in place requiring the reuse of structures undergoing major renovations?
 7. Historic Preservation and Reuse
Are historic buildings protected from demolition and/or encouraged to be rehabilitated, preserved, or restored?
 8. Minimized Site Disturbance
Do city requirements protect and preserve previously undeveloped land?

9. Stormwater Management
Does the neighborhood employ low impact development and green infrastructure practices to manage stormwater runoff on site for a minimum 80th percentile rainfall event?

10. Heat Island Reduction
Are 50% of non-roof site paving shaded by plants, structures, or constructed of high-reflectance materials?

11. Renewable Energy Production
Do on-site renewable energy sources provide at least 5% of energy consumption for new construction?

12. District Heating and Cooling
Is at least 80% of neighborhood heating and cooling consumption provided by a district plant?
[exclusive of single family homes]

13. Infrastructure Energy Efficiency
Does the city require all new infrastructure to achieve an annual 15% energy reduction?

14. Wastewater Management
Is at least 25% of annual wastewater retained, treated and reused on site?

15. Recycled and Reused Infrastructure
Does the city require at least 50% new infrastructure to be composed of recycled or reused materials?

16. Solid Waste Management
Do mixed-use and non-residential blocks feature trash and recycling receptacles? Is there a hazardous materials drop off point? Are composting services provided?

17. Light Pollution Reduction
Are exterior lighting for residential areas outfitted with backlight-uplight glare fixtures? Are lighting systems for circulation networks restricted from emitting light above 90°?

4. Social Equity

1. Affordable Housing
Are there housing pressures? Are existing residents facing displacement by rising rents?

2. Access to Jobs
Can residents find meaningful employment near their community? Are training and job placement programs in place?

3. Access to Food (Restaurants)
Can residents find affordable, healthy food in their neighborhood?

4. Credit and Capital
Do lending institutions exist in the community? Do residents have access to savings and loans?

5. Human Dignity
Are community services in place for the homeless and extremely poor?

6. Continuing Education
Do residents have access to education and job training programs?

7. Public Health
Has a public health action plan been developed? Are residents exposed to toxic substances or particulate matter? Is the community disproportionately burdened by asthma, obesity, or other health issues?

8. Connections to Nature
Can residents access and experience natural areas?
9. Arts and Culture
Do residents have access to museums and performance venues? Does the community incorporate art in the public realm?

5. Climate Change

1. Resilience
Has a neighborhood resilience study to identify weaknesses and vulnerabilities taken place? Does an action plan exist?
2. Adaptation
Is there a city-wide adaptation plan?
3. Retreat
Have efforts been made to limit development in vulnerable areas?
Has critical infrastructure been relocated or secured?

6. Active Transportation

1. Expanded Cycling Infrastructure
Is there a robust network of cycling infrastructure such as protected bike lanes, traffic signals for cyclists, and wayfinding signage?

2. Transit Oriented Development
Are zoning regulations in place to encourage dense residential development near transit stations?
3. First Mile Last Mile Connections
Do pedestrian and cyclist facilities to facilitate and encourage access to transit exist?

7. Collaborative Governance

1. Representative Community Body
Is a representative community group in place? Is this group connected with appropriate government entities? Do they have a voice in planning and policy decisions?
2. Financing Strategies
Have funding sources been identified? Is there a dedicated grant writer? Have private and philanthropic sources been explored?
3. Regular Public Meetings
Are regular meetings held between community groups, private developers, and local government?

Removed Evaluation Criteria

The following criteria were removed from the SNA evaluation methodology because they were not germane to evaluating existing neighborhoods. During past SNAs, these were typically marked as “Not Applicable” during the assessment process, and as a result, they were removed for clarity.

1. Smart Location and Linkage

1. Imperiled Species and Ecological Communities

Seeks to discourage building on habitat to protect endangered species.

2. Wetland and Water Body Conservation

Seeks to avoid building on wetlands and water bodies.

3. Agricultural Land Conservation

Seeks to avoid building on agricultural land.

4. Steep Slope Protection

Seeks to minimize erosion and protect habitat by not building on steep slopes.

2. Neighborhood Pattern and Design

1. Transportation Demand Management

Encourages developers to provide transit passes to employees.

3. Green Infrastructure and Building

1. Solar Orientation

Seeks to optimize building and street grid for passive and active solar strategies.