MEASURING URBAN SUSTAINABILITY

Ann Arbor's STAR Communities Certification Experience

by

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ABSTRACT

The sustainability of urban areas can be difficult to measure, especially when they include detailed and broad metrics across a wide range of sectors and themes, such as the built environment, climate and energy, local economy, community health, and equity. To facilitate this process, STAR Communities consulted with community stakeholders from across the United States to create a sustainability framework and certification program that was released in 2012, which local governments can use to assess the sustainability of their community. In May 2016, the City of Ann Arbor launched the STAR communities program in partnership with the School of Natural Resources and Environment at the University of Michigan. This yearlong municipal project and master's practicum involved collecting data to complete over 500 metrics, within 44 objectives, spread across seven goal areas. To support the findings and discussion of this practicum, a literature review of urban sustainability and measurement tools was performed. Methods employed included interviews and workshops, document research (data summaries), and GIS maps. In March 2017 a preliminary score of 480.8/700 points was submitted for STAR Communities to review. In addition to the goal of obtaining a 4-STAR or higher rating and certification for the City of Ann Arbor, this practicum also explored and critically reviewed the STAR Communities rating system and process and evaluated the city's outcome, in order to provide recommendations for improving both the efficiency of the STAR Communities process and the future sustainability performance of the city.

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- Angey Wilson

TABLE OF CONTENTS

I. INTRODUCTION 1

WHY ENGAGE IN SUSTAINABILITY CERTIFICATION? UNDERSTANDING THE STAR COMMUNITIES SYSTEM 3

METHODOLOGY 5

II. STAR COMMUNITIES 6

STAR COMMUNITIES BACKGROUND 6

THE STAR COMMUNITIES RATING SYSTEM 7

STRENGTHS 11

WEAKNESSES 11

III. ANN ARBOR'S STAR COMMUNITIES EXPERIENCE 12

ANN ARBOR'S SUSTAINABLE HISTORY 12

EXAMPLES OF ANN ARBOR'S DATA 13

STRENGTHS 23

WEAKNESSES 23

IV. RECOMMENDATIONS 24

V. OUTCOME 27

VI. BIBLIOGRAPHY

I. INTRODUCTION

When considering urban sustainability, protecting and conserving the environment typically comes to mind. Individuals and cities will consider how much energy they use, if they are recycling properly, the cleanliness of the water, density and health of trees, and other similar built environment/natural systems based questions. In that regard, the city of Ann Arbor is no stranger to sustainable practices. Celebrating their 46th annual Earth Day on April 22, 2017, Ann Arbor has been interested in sustainability for almost half a century.

The Ann Arbor Ecology Center was created in 1970, immediately following the first Earth Day celebration. The Center kicked off the first recycling program in the city that same year by starting a collection center in the parking lot of a local shopping center. In 1978, the city followed suit and started providing curbside recycling pickup to its residents. ("The History of Recycle Ann Arbor," 2017) In more recent years and you will find that Ann Arbor has done well keeping up with current sustainability trends. After becoming heavily involved in the solar movement, the city was named a Solar America City by the US Department of Energy in 2007. ("Solar," n.d.) More recently, it has also installed a cutting edge storm water utility ("Stormwater," n.d.). Additionally, there are many sustainability practices driven by non-municipal bodies; local businesses and organizations are "going green" with support from both the City of Ann Arbor and Washtenaw County. ("Green Businesses," 2017) The University of Michigan in Ann Arbor houses the Graham Sustainability Institute (http://graham.umich.edu) and an organization called Planet Blue through which major collaboration of sustainability initiatives take place. (http://sustainability.umich.edu)

However, for a city to be sustainable long term there must also be consideration for issues of equity and inclusion, health and longevity, economy and stability. (Werbach 2009) In 2016, Ann Arbor initiated actions to better understand where it stands in terms of sustainability by using the STAR Communities Rating System and approached the School of Natural Resources and Environment at the University of Michigan as a potential partner to carry out the assessment. This practicum was a result of this

partnership. In this report, we describe the steps taken, the methods and processes of data collection, and Ann Arbor's outcome and opportunities for improvement in terms of sustainability.

The STAR Communities Program

STAR Communities was released in 2012 after being formulated by governments, for governments, to assist communities with assessing sustainability. It has become the leading comprehensive sustainability framework in the United States. ("About Us," 2017) Communities earn points for each of the 500+ community-level outcomes and local actions for which they can demonstrate achievement. The total points accumulated earn a STAR rating from three to five stars, which will identify them as a 3-STAR, 4-STAR, or 5-STAR Community.

In addition to the recognition of achievement and accolade, having a full STAR Communities assessment could provide city official with an insight as to what areas of the community need more attention going forward. It looks at the city as a whole, from large entities such as the Ann Arbor Public School District and the University of Michigan to smaller but equally important groups and organizations such as The Ecology Center, SPARK, Ann Arbor 350, Get Downtown, Ann Arbor's Downtown Development Authority, the Food Policy Council, and the Huron River Watershed Council, among others. For the STAR Communities assessment, over 35 departments and groups were brought together to assess indicators across the seven STAR Communities goal areas. In the end a preliminary score falling within the range of a 4-STAR community was submitted for review on March 17, 2017.

After a period of review (30-60 days) STAR Communities may request that the city revise its submission, correcting or adding to the original submission, within 30 days. The final rating score will not be presented until after the conclusion of this practicum; however, we are confident that Ann Arbor will remain in the 4-STAR community range. Achieving this rating level (or higher) would not only put Ann Arbor at a competitive level of sustainability against all other cities participating in the STAR program but

would also set a precedent for other cities across the region and reinforce the city's role as a leader for sustainable action. Ann Arbor will also be the first community in the State of Michigan to receive a STAR rating. Finally, as mentioned above, going through the data collection and verification process for the STAR program brought to light areas where Ann Arbor could evolve, which include but are not limited to communication/relationships with other entities within the city, living wage issues, invasive species tracking, and general data collection/tracking practices. Reviewing these points brings the potential for the implementation of additional programs and regulations, the creation or updating of policies and codes, the establishment of new community organizations, and the building or repair of city/community relations, thereby improving the quality of life for Ann Arbor residents and the long-term stability of the city.

WHY ENGAGE IN SUSTAINABILITY CERTIFICATION?

UNDERSTANDING THE STAR COMMUNITIES SYSTEM

In order to gain a better understanding of the concepts utilized throughout this process a comprehensive literature review was performed and following questions were considered. What is Urban Sustainability and how is it measured? What are the advantages and disadvantages of performance indicators and sustainability indicators? Why are certifications needed/wanted and how can they help us meet sustainability goals?

Conversations surrounding Urban Sustainability include defining both what is 'urban' and what is 'sustainability'. One common definition of urban is simply "*of, relating to, or designating a city or town* ("Urban," n.d.) and a dominant environmental science definition of sustainability is "*the quality of not being harmful to the environment or depleting natural resources, and thereby supporting long-term ecological balance"*("Sustainability," n.d.). The term urban sustainability is often tied to sustainable urban development; however, "sustainability" indicates a desired level of attainment where "development" is the process used to reach that level of attainment. (Maclaren, 1996) Sustainability, in the framework of certification systems, relates more to humans having a healthy, long-term relationship with and within their environment, one that can be maintained indefinitely. (Alberti, 1996)

In order to evaluate, measure, and track that relationship, a framework is necessary that, ideally, takes into consideration both the quality of the environment in which members of the community being evaluated live in and the effect of that environment upon other environments, in that area and beyond. (Alberti, 2016) Indicators are then created for the individual(s) performing the evaluation and should meet the following criteria: relevance, clear goals/objectives, not difficult to collect regularly, not expensive to collect, universal enough that multiple cities can compare progress, flexibility for adjustments, and they should be clear and easy to understand. (Troy, 2016) Once there are indicators in place and a framework to follow, communities can reference a baseline from which to measure change over time. (Moldan, Janoušková, & Hák, 2012)

Communities that are not tracking their performance in some way are prone to be weaker because they have less ability to foresee detrimental patterns with enough time to mitigate damage or alter practices. (Mason, n.d.) There are many benefits to tracking performance over time. After a trend line is available, mitigation plans can be determined to address weaknesses and a course of action can be planned. This would be the ideal outcome of completing any assessment; however, research has shown that such a result is not always the case and the follow through and success with such endeavors is actually limited. (Sharifi, 2016) In addition to providing a marker, which quantifies whether a tracked metric is on target to meet the goal or not, indicators also determine where that tracked metric is in comparison with others who are tracking the same metric. (Hiremath, Balachandra, & Bansode, 2013) This allows for competition and encourages planning to stimulate positive progress.

In contrast, a major disadvantage of performance indicators is the issue of relevance. Frameworks are created to meet certain criteria but can often relate to local or regional concepts, which do not carry over into other areas and locations. (Hák & Moldan, 2016) If flexibility has not been built in, to accommodate such fluctuations, the outcome can no longer be considered completely accurate or applicable and the process becomes less valuable. (Sharifi, 2016) In most cases, the cons of obtaining a certification are unlikely

to outweigh the pros. In addition to providing valuable assessment data, certifications tend to carry influence and signify a compliance with a set of standards. ("Defining Sustainable (Choices)", 2014) This allows entities to prove uniqueness, while at the same time connecting them other communities in which all members share similar experiences and can potentially work together to advance their goals. ("Defining Sustainable (Choices)", 2014) Certifications can also raise awareness for a particular cause and attract stakeholders/interested parties, leading to funding prospects and other potentials collaborations for development. ("Post Certification Services", 2017) Finally, enhanced awareness can advance the achievement of sustainability goals by increasing the level of accountability experienced. When stakeholder involvement increases and reporting is shared regularly, greater pressure is felt to produce a positive outcome.("Green Rating Systems", 2017)

METHODOLOGY

The year-long process of assessing the community sustainability of Ann Arbor started with efforts to become familiar with the terminology used by STAR communities, the structure of the STAR rating system, the layout of the goal areas and categories, and the procedures necessary to collect various types of information called upon by the various action items. Some time to delve into the STAR Communities website and welcome packet given to participating communities was required at the onslaught of the project. After a base level of understanding was acquired, it was necessary to enlist in the aid of an individual working within the city municipal facilities, who was better able to identify which individuals in each department would be ideal to contact for data collections. Multiple individuals were consulted during this process to help create a list of names for sections of STAR communities that required data from organizations and groups outside of the city municipal buildings. Once a list of initial points of contact was created emails were sent out to those individuals that included a brief introduction to the STAR communities project, a short outline of what to expect in the coming months, and an inquiry as to whether they were the proper point of contact for the category they were being assigned.

Next, planning was initiated with the STAR communities team to organize two days of workshops that would provide each individual invited with a more detailed explanation of STAR communities and what would be needed from them. Upon the completion of planning, invitations were sent out. The workshops were organized by category, correlating to the STAR Communities categories, to ensure that individuals collecting similar types of data were in the room together to collaborate. After the program and process introductions, each group had a quick run through of the questions assigned to their members in order to ensure accuracy of question assignments. Each individual was sent away with a list of their questions and given a deadline for submission. Groups were reminded via email at the halfway point, two weeks prior, and a few days prior to the deadline. Those who did not return the data and spreadsheets requested, by the deadline, were contacted individually to check-in and assess if assistance was necessary. The process of scheduling one-on-one meetings to collect missing data was also started at this time. One-on-one meetings were performed over the course of the coming months, while also working on completion of look-up data and other information that could be found via the Internet or by emailing/calling other community stakeholders not on the original contact list. Collected data was also reviewed to ensure completion prior to copying and uploading information to the STAR communities reporting website. Once the final deadline for the project was near, all data and information was entered into the reporting site and submitted for review by the STAR communities team.

II. STAR COMMUNITIES

STAR COMMUNITIES BACKGROUND

The STAR (Sustainability Tools for Assessing & Rating Communities) Community Rating System is a sustainability framework and certification program. Born from a collaborative idea between ICLEI-Local Governments for Sustainability, the U.S. Green Building Council, and the Center for American Progress back in 2007, the mission was “to address the needs of U.S. cities, towns, and counties seeking a common framework for sustainability.” Released in late 2012, there are over 50 communities that have now achieved a STAR rating and certification.

Figure 1: 2017 list of rated STAR Communities.

Communities use STAR as a management tool to set sustainability targets, measure progress, and ultimately achieve sustainability goals to become healthier and more independently accountable communities. Star was built by local governments, for governments, enlisting nearly 200 volunteers representing "50 cities and counties, state and federal agencies, non-profit organizations, national associations, universities, utilities, and private corporations" to dedicate their time and experience to help create the STAR Community Rating System, which is now the leading comprehensive framework and certification program in the United States. ("Our Story," 2017)

THE STAR COMMUNTIES RATING SYSTEM

The STAR Rating System is a framework based on eight goal areas consisting of five to seven objectives for each goal, which can be seen below

Built Environment	Climate & Energy	Economy & Jobs	Education, Arts, & Community	Equity & Empowerment	Health & Safety	Natural Systems	Innovation & Process
BE-1: Ambient Noise & Light	CE-1: Climate Adaptation	EJ-1: Business Retention & Development	EAC-1: Arts & Culture	EE-1: Civic Engagement	HS-1: Active Living	NS-1: Green Infrastructure	IP-1: Best Practices & Processes
BE-2: Community Water Systems	CE-2: Greenhouse Gas Mitigation	EJ-2: Green Market Development	EAC-2: Community Cohesion	EE-2: Civil & Human Rights	HS-2: Community Health	NS-2: Biodiversity & Invasive Species	IP-2: Exemplary Performance
BE-3: Compact & Complete Communities	CE-3: Greening the Energy Supply	EJ-3: Local Economy	EAC-3: Educational Opportunity & Attainment	EE-3: Environmental Justice	HS-3: Emergency Management & Response	NS-3: Natural Resource Protection	IP-3: Local Innovation
BE-4: Housing Affordability	CE-4: Energy Efficiency	EJ-4: Quality Jobs & Living Wages	EAC-4: Historic Preservation	EE-4: Equitable Services & Access	HS-4: Food Access & Nutrition	NS-4: Outdoor Air Quality	IP-4: Good Governance
BE-5: Infill & Redevelopment	CE-5: Water Efficiency	EJ-5: Targeted Industry Development	EAC-5: Social & Cultural Diversity	EE-5: Human Services	HS-5: Health Systems	NS-5: Water in the Environment	
BE-6: Public Parkland	CE-6: Local Government GHG & Resource Footprint	EJ-6: Workforce Readiness	EAC-6: Aging in the Community	EE-6: Poverty Prevention & Alleviation	HS-6: Hazard Mitigation	NS-6: Working Lands	
BE-7: Transportation Choices	CE-7: Waste Minimization				HS-7: Safe Communities		

Figure 2: Version 2.0 of the STAR Community Rating System, released in October 2016.

All of the goal areas are worth a maximum of 100 points each except the Innovation & Process section, which is worth a maximum of 50 points. The Innovation & Process section is significantly different from the other goal areas by design. Its purpose is to offer a place to tell a story about community practices that the community feels are innovative and not already covered under the STAR framework. Points give for this goal area are considered bonus points that can make up for any areas where the community didn't perform as well. Participants generate essay style responses in order to complete the forms in this section, not only providing a detailed justification for why they are requesting the points but also essentially rating themselves, by telling the STAR Communities Team how many points they feel are deserved for their efforts and how that number of points makes sense in relation to the scoring seen in other areas of the program.

GOAL AREA	POINTS AVAILABLE
Built Environment	100
Climate & Energy	100
Education, Arts & Community	100
Economy & Jobs	100
Equity & Empowerment	100
Health & Safety	100
Natural Systems	100
Innovation & Process	50
TOTAL	750

Figure 3: The breakdown of STARS eight goal areas.

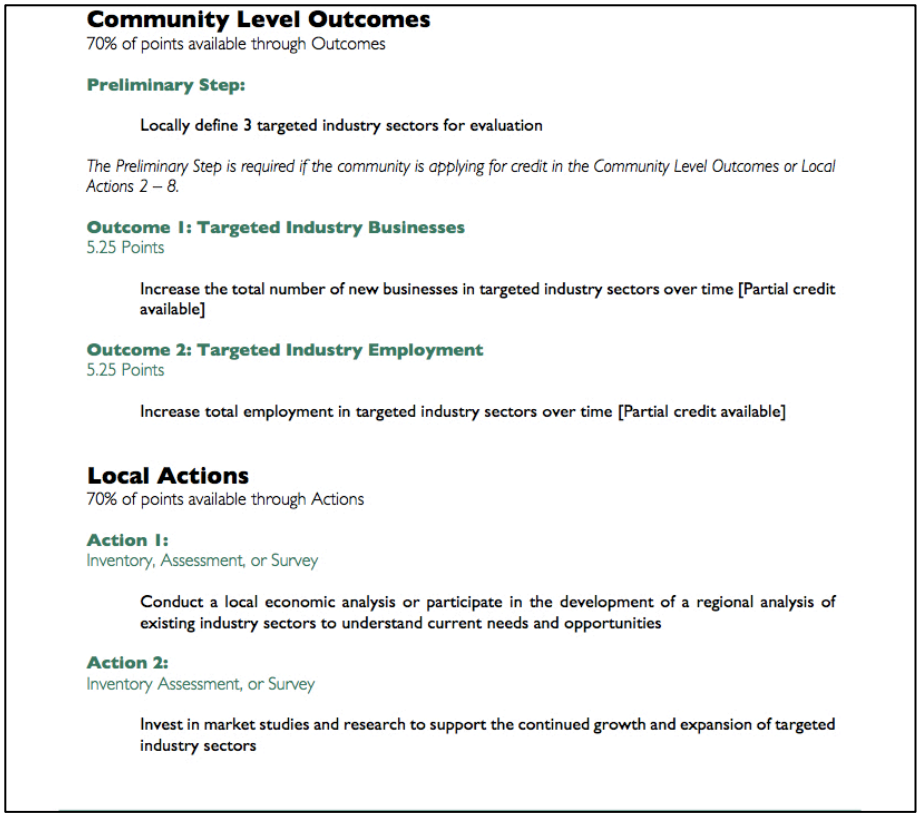
Each goal area is then broken down into objectives, which have a title, and a purpose outlined. Each objective category has a maximum number of points assigned to it, which makeup the total points available for that goal area.

Objective Number	Objective Title and Purpose	Available Points
EJ-1	**Business Retention & Development:** *Foster equitable economic prosperity and stability by retaining and expanding businesses in all neighborhoods with support from the business community*	20
EJ-2	**Green Market Development:** *Increase overall market demand for products and services that protect the environment*	15
EJ-3	**Local Economy:** *Create an increasingly self-reliant community through a robust local economy that strongly supports small independent businesses*	15
EJ-4	**Quality Jobs & Living Wages:** *Expand job opportunities that support upward economic mobility, offer supportive workplace policies, and pay living wages so that all working people and their families can afford basic necessities without governmental assistance*	20
EJ-5	**Targeted Industry Development:** *Increase local competitiveness by strengthening clusters of businesses, suppliers, and associated institutions*	15
EJ-6	**Workforce Readiness:** *Prepare the workforce for successful employment through increasing attainment of post-secondary education and improving outcomes of workforce development programs*	15
	Total Points Available:	100

Figure 4: The objectives that make up the Economy & Jobs goal area.

Each objective is then further broken down into community-level outcomes and local actions. These outcomes and actions look at what the municipal body is doing as well as what is happening within the community as a whole, incorporating the efforts and progress of local organizations, neighborhood actions, community wide activities, public schools and universities, county and state run programs, and any efforts happening within the boundaries of that community that benefit community members. The 100-point

sections follow a similar pattern in regard to the types of data that need to be collected. Excel spreadsheets are provided by STAR communities, on which to record data for most of the Community Level Outcomes in each goal area. Information collected for outcomes tends to be quantitative data that would be tracked and gathered over time by the community or found on an online database, such as U.S. Census Data. The STAR Communities spreadsheets for outcomes will often include tables in which to drop figures and additional tabs with built in calculations that generate a trend line. Excel spreadsheets are also provided for all of the Local Action items in each goal area; however, these forms are more built to accommodate short essay responses and report qualitative data.



Community Level Outcomes
70% of points available through Outcomes

Preliminary Step:

Locally define 3 targeted industry sectors for evaluation

The Preliminary Step is required if the community is applying for credit in the Community Level Outcomes or Local Actions 2 – 8.

Outcome 1: Targeted Industry Businesses
5.25 Points

Increase the total number of new businesses in targeted industry sectors over time [Partial credit available]

Outcome 2: Targeted Industry Employment
5.25 Points

Increase total employment in targeted industry sectors over time [Partial credit available]

Local Actions
70% of points available through Actions

Action 1:
Inventory, Assessment, or Survey

Conduct a local economic analysis or participate in the development of a regional analysis of existing industry sectors to understand current needs and opportunities

Action 2:
Inventory Assessment, or Survey

Invest in market studies and research to support the continued growth and expansion of targeted industry sectors

Figure 5: Partial list of community level outcomes and local actions for Economy & Jobs.

Once data has been collected it gets entered into the reporting section of the STAR Communities website and submitted for review. STAR Communities takes 30-60 days to review submitted materials and then return a preliminary score to the participating community. A loss of 100-150 points is not uncommon during the review process but

much of that can be regained during the final submission process. Once the review results are received, the community has 30 days to make any corrections as well as submit any additional data (that will not have the benefit of a review/correction process) and return everything to STAR, at which point STAR will certify the final score and the community will receive either a 3-STAR, 4-STAR, or 5-STAR certification which lasts for a period of three years.

STRENGTHS

The STAR Communities program has a lot to offer participating communities and works very hard to be able to claim the title of "nation's leading framework and certification program for local sustainability."("About Us," 2017) They offer scholarships to qualifying and approved communities in order to help to alleviate cost concerns and encourage participation. The program itself is quite comprehensive and includes an extensive amount of start up support as well as after care, including programs the community can take advantage of once they have received their final rating, to help them work towards further progress based on their results and continue to be successful. STAR Communities provides continual client support by phone and email and they maintain a schedule of regular checkpoints and meetings between the participating community and their assigned community manager as well as between the cohort of communities that are participating during that acceptance period. The assigned community manager assists the participating community with presenting at the workshops each community is encouraged to set up in order to introduce their identified contacts to STAR Communities. This is incredibly helpful because at that point in the process there was still a lack of familiarity with the whole program so explaining how it all works to the individuals helping with data collection could have resulted in mass confusion all around, without the expertise of the community manager present.

WEAKNESSES

The extensiveness of the program can also complicate matters in some ways. Even after looking through all materials and resources there was still a level of discomfort and misunderstanding surrounding the data collaboration methods and some conflicting

information between the crosswalk, the worksheets, and the technical guide. Questions were quickly answered by the STAR Communities team but once submissions by various departments started coming in, a couple of months down the line, ways to make the whole process even more efficient became apparent. Often, it felt like some of the steps in the instructions were unnecessary and time consuming. However, a case could be made that because individuals work differently, steps that felt unnecessary during our experience could be the same steps that feel like the best way to others. Some of the questions, especially in action items, were not clear, even with multiple people looking them over and reading the corresponding section in the tech guide. At times it was just difficult to interpret exactly what was being asked for and until clarification was received, it was impossible to ensure that proper information was being returned. The relativity of some sections to the participating community could be considered a weakness, albeit a difficult one to overcome. For example, STAR has a section surrounding local industry; however, Ann Arbor does not have any local industry to call upon for data and there is not an alternative option to make up for that lack ability to contribute to that section. As a result, those points are just lost, which may be unfair in terms of reaching the STAR Communities goals.

Finally, another issue that could perhaps be improved upon is their system of deadlines. Although having a deadline makes sense with how the program is currently set up, if there were no deadlines to follow the process would drag on forever, it would be interesting to consider how the whole program might work if it had a more interactive scoring system. For example, one could submit data to the website as it was received and the score was updated in real time. This might produce a more heightened sense of accountability to follow through with making community improvements.

III. ANN ARBOR'S STAR COMMUNITIES EXPERIENCE

ANN ARBOR'S SUSTAINABLE HISTORY

Ann Arbor's history of working to be a more sustainable community has been documented back to 1970 with the birth of recycling within the city limits. More recently,

the Ann Arbor City Council adopted a sustainability framework in 2013 that identifies 16 goals based in environment, economy, and equity. These goals are organized into four areas: climate & energy, community, land use & access, and resource management. Progress is to be measured, reviewed, and updated every two years. ("Sustainability Action Plan," n.d.) The city website also highlights various sustainability related "cool projects" happening around the city such as, the A2 Climate Partnership, Community Solar, Green Housing, the Urban and Community Forestry Management Plan, Curbside Compost Collection, and more. Because the STAR Communities program is more universally adoptable by communities across the country it allows Ann Arbor the opportunity to check their performance against metrics that they may not be already considering. It also gives Ann Arbor the opportunity to network with, learn from, and potentially collaborate on projects with other communities, both in the state of Michigan as well as across the United States.

EXAMPLES OF ANN ARBOR'S DATA

The Built Environment goal area contains seven objectives. Per STAR Communities (2015) this goal area is designed to evaluate development, livability, and design with an emphasis on equitable access. BE-3: Compact & Complete Communities focused on development in areas and neighborhoods that are considered walkable, have transit access, provide services, and have housing available for all income levels. The BE-3 section was on that required a preliminary step to be completed prior to applying for any of the community level outcomes for that section. (p. 17 & 31) The preliminary step for BE-3 was to identify Compact & Complete Centers (CCCs). Per STAR Communities (2015), areas that qualify as CCCs must be within a ½ mile walk distance of a central point that represents the community's strongest mix of uses, transit availability, density, and walkability. Central points are landmarks such as transit stations, civic buildings, urban parks, squares, plazas, or civic spaces. The number of CCCs required is based on population size. Ann Arbor needed to

have four and they needed to maintain geographic diversity across the community with no more than two located within a business district or downtown area. (p.31-32) The following is the map created by Ann Arbor's GIS team, showing the selected CCCs.

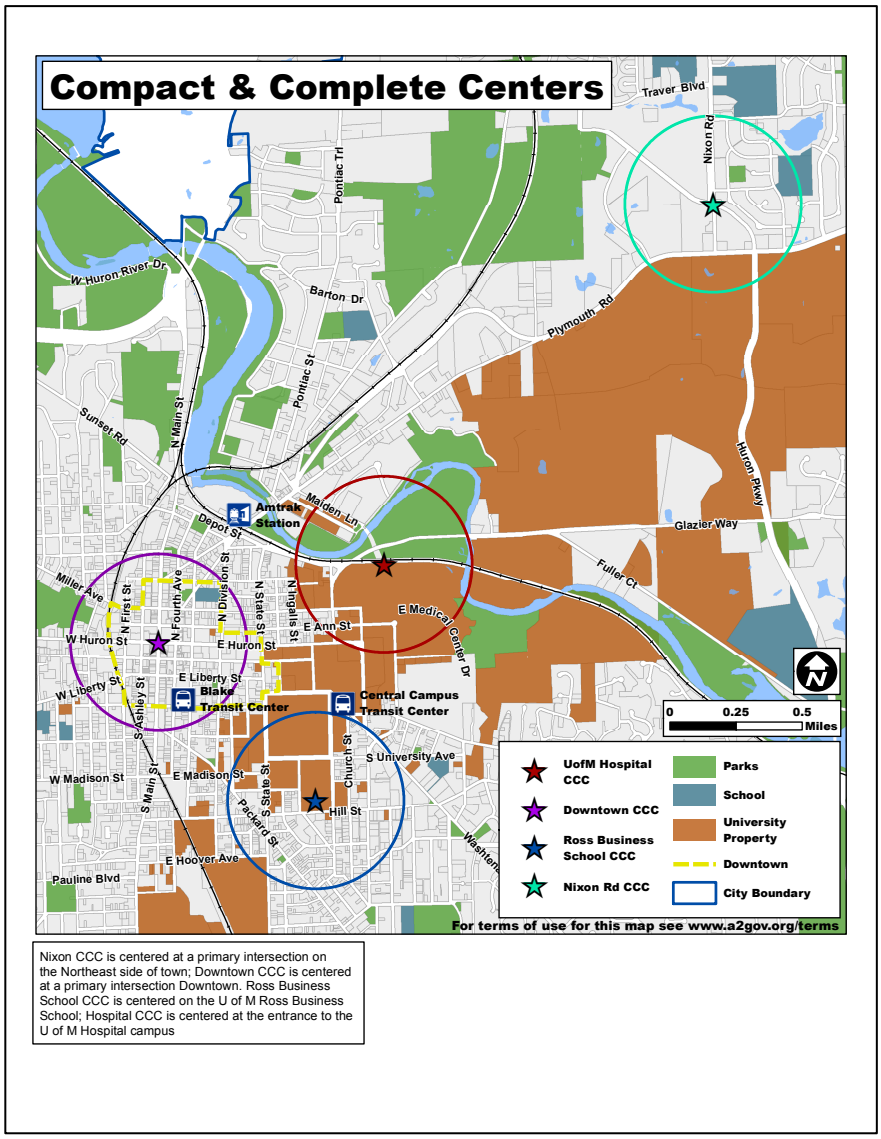


Figure 6: GIS map of Ann Arbor's four, selected CCCs

This map was then used as a reference to complete the outcomes for this goal area, including BE-3: Outcome 1 – Density, Destinations, and Transit, which per STAR Communities (2015) called for demonstration that each CCC achieved the following thresholds: (p.32)

- Residential Density
  Average of at least 12 dwelling unites per acre within a ¼-mile walk distance of bus or streetcar stops and within ½ mile walk distance of bus rapid transit stops, light or heavy rail stations, or ferry terminals
  Average of at least 7 dwelling units per acre within the rest of the CCC boundary
- Employment Density: At least 25 jobs per acre
- Diverse Uses: At least 7 diverse uses present
- Transit Availability: At least 60 weekday trips and 40 weekend trips.

The following spreadsheet was completed and received a graduated score of 6.5/10 points

BE-3: Compact and Complete Communities
Outcome 1 - Density, Destination, and Transit

Notes:
Communities can receive a maximum score of 100 in the CCC Objective (Outcome 1 = 50, Outcome 2 =15, Outcome 3 =15; and Outcome 4 = 20). Each CCC is evaluated separately for each of the components within the Outcome. Scores accumulated for each CCC will be averaged resulting in the total score for the Outcome.

Instructions:
1) Save the file through "save as" and add your community name to the end of the file.
2) Provide your community population based on the ranges provided in the drop down in cell B6. The number of required CCCs will automatically populate cell B7.
3) Enter the name of each CCC in cells B10 to B19, as appropriate.
4) Enter specific data for each CCC in the tables. Data should be entered into yellow cells.
5) Select the appropriate threshold level from the dropdown menu in columns C and H.
6) Review STAR assigned associated points and summary data.
7) Upload file to STAR Communities' Online Reporting Tool.

Notes: Cells highlighted in **yellow** indicate data entry fields. Cells highlighted in **grey** will automatically populate based on data entered in yellow cells.
An asterisk (*) indicates required information.

Initial Data	
Community Population	100,000-249,999
Number of CCCs	4

Summary Data Calculated Density, Destinations and Transit Scores		
CCC 1:	Nixon	20
CCC 2:	Downtown	40
CCC 3:	Ross Business School	32
CCC 4:	Hospital	38
CCC 5:		0
CCC 6:		0
CCC 7:		0
CCC 8:		0
CCC 9:		0
CCC 10:		0
STAR calculated Density, Destinations, and Transit score*		33
STAR Points		6.50

out of 10 points

Notes / Comments
Performed analysis using 1/3 mile CCC Buffer. Nixon CCC is centered at a primary intersection on the North East side of town; Downtown CCC is centered at a primary intersection Downtown. Ross Business School CCC is centered on the U of M Ross Business School; Hospital CCC is centered at the entrance to the U of M Hospital campus.
Relevant Contact
Angey Wilson: awilson@a2gov.org
Data Specifics
Residential Density was calculated using Residential Parcels clipped to the CCC, and 2010 Population Data by Census Block Group. Employment Density calculated using Commercial/Retail/Office/Industrial/ Institutional Parcels clipped to the CCC, and 2014 Primary Jobs Employment Data from OnTheMap. Diverse Uses were identified using Google Maps. Transit Availability was calculated by identifying AATA and UofM Bus Routes servicing each CCC, then

CCC 1: Nixon

CCC Factor	CCC Value	Threshold Level	Associated Points
Residential Density			
within 1/2 or 1/4 mi of transit	6.2	Does not meet threshold	0
remainder of CCC boundary	-		
Employment Density	15.7	Does not meet threshold	0
Diverse Uses	24.0	20+	12
Transit Availability			
weekday trips	450	Weekday 132/Weekend 85	8
weekend trips	112		

CCC 2: Downtown

CCC Factor	CCC Value	Threshold Level	Associated Points
Residential Density			
within 1/2 or 1/4 mi of transit	32.9	>25 and ≤38	8
remainder of CCC boundary	-		
Employment Density	66.1	>50 and ≤75	6
Diverse Uses	38.0	20+	12
Transit Availability			
weekday trips	1265	Weekday 320/Weekend 200	14
weekend trips	381		

CCC 3: Ross Business School

CCC Factor	CCC Value	Threshold Level	Associated Points
Residential Density			
within 1/2 or 1/4 mi of transit	24.6	>18 and ≤25	6
remainder of CCC boundary	-		
Employment Density	7.3	Does not meet threshold	0
Diverse Uses	25.0	20+	12
Transit Availability			
weekday trips	1685	Weekday 320/Weekend 200	14
weekend trips	448		

CCC 4: Hospital

CCC Factor	CCC Value	Threshold Level	Associated Points
Residential Density			
within 1/2 or 1/4 mi of transit	23.2	>18 and ≤25	6
remainder of CCC boundary	-		
Employment Density	148.9	>125	12
Diverse Uses	12.0	11 to 13	6
Transit Availability			
weekday trips	1579	Weekday 320/Weekend 200	14
weekend trips	364		

Figure 7: Completed spreadsheet for BE-3: Outcome 1

CLIMATE & ENERGY	
IN PROGRESS	84.4/100
CE-1: Climate Adaptation	10.8/15
CE-2: Greenhouse Gas Mitigation	19.2/20
CE-3: Greening the Energy Supply	12.3/15
CE-4: Industrial Sector Resource Efficiency	7.6/10
CE-5: Resource Efficient Buildings	12.9/15
CE-6: Resource Efficient Public Infrastructure	8.5/10
CE-7: Waste Minimization	13/15

The Climate & Energy goal area contains seven objectives. Per STAR Communities (2015) these are intended to strengthen community resilience in facing climate change and its impacts. CE-3: Greening the Energy Supply has the purpose of guiding and documentation a transition of the local energy supply for transportation and non-mobile sources towards the use of renewable, less carbon-intensive, and less toxic alternatives. Local action 5 in this goal area was a policy or code development item which asked for documentation showing that a renewable energy or alternative fuel targets for locally owned facilities and vehicles had been adopted. The provided spreadsheet was completed for full points. (p. 79, 93, & 96)

STAR COMMUNITIES | Sustainability Tools for Assessing & Rating Communities

Data Request Form
Action Type: Policy and Code Adjustment

Goal	Climate and Energy
Objective	Greening the Energy Supply
Action #	5
Action Description	Adopt a renewable energy or alternative fuel targets for locally owned facilities and vehicles
Date Required	10/22/16
Filled Out By	Joshua MacDonald

This action type includes changes to laws, ordinances, and codes. Plans will NOT be accepted for credit, unless otherwise noted in the Technical Guide. Applicants are required to submit all of the following information:

Submittal Requirement	Please provide data and narrative below
Provide the title of the specific policy or code	Green Fleets Policy
Link to or upload copy of the policy or code requirement	http://www.a2gov.org/departments/systems-planning/planning-areas/energy/Documents/systemsplanning_greenfleetspolicy_2005-07-01.pdf
Describe the compelling characteristics of the policy or regulation that advance progress towards the desired Outcome(s)	The Green Fleet Policy was created with the understanding that the city's fleet includes approximately 400 vehicles. The transportation emissions threatens public heath and the global climate. The Policy was created to address the problems the city fleet create at the local level and to lead by example for other municipalities, local fleets, and drivers
Was there public engagement during development of the policy or regulation? (Yes/No)	Yes went to council
Date policy or code adoption was adopted or last major update	2012

Figure 8: Completed spreadsheet for CE-3: Action 5

The Economy & Jobs goal area contains six objectives. Per STAR Communities (2015) they support fostering economic prosperity and stability by retaining and expanding businesses with support from the business community. EJ-6: Workforce Readiness wants to see that the community is preparing its workforce for successful employment by increasing attainment of post-secondary education and improving outcomes of workforce development programs. EJ-6 – Outcome 2: Workforce Mobility asked for the data to show the increase in post-secondary educational attainment over time. This was a lookup item, where the data was pulled from an online source provided by STAR Communities. In this case that source was, the Census' American Community Survey (ACS) through American FactFinder 2. (p. 125, 156 & 157)

Initial Data			
Most Recent Reporting Year*	2013		
Degree Type	2013 Census Data	2000 Census Data	Difference
Associate's	4.8%	3.9%	0.9%
Bachelor's	28.7%	29.8%	-1.1%
Graduate or Professional	41.7%	39.4%	2.3%

Trend Data - Associate's Degree						
Year*	Percentage of Population 25 Years and Older - Associate's Degree*	Annual Change	Three Year Average Change	Notes / Comments	Relevant Contact	Data Specifics
2009	4.6%	not applicable	not applicable			
2010	4.7%	0.10%	not applicable			
2011	3.7%	-1.00%	-0.45%			
2012	5.0%	1.30%	0.13%			
2013	4.8%	-0.20%	0.03%			

Trend Data - Bachelor's Degree						
Year*	Percentage of Population 25 Years and Older - Bachelor's Degree*	Annual Change	Three Year Average Annual Change	Notes / Comments	Relevant Contact	Data Specifics
2009	28.4%	not applicable	not applicable			
2010	30.0%	1.60%	not applicable			
2011	29.7%	-0.30%	0.65%			
2012	29.1%	-0.60%	0.23%			
2013	28.7%	-0.40%	-0.43%			

Trend Data - Graduate or Professional Degree						
Year*	Percentage of Population 25 Years and Older - Graduate or Professional Degree*	Annual Change	Three Year Average Annual Change	Notes / Comments	Relevant Contact	Data Specifics
2009	42.4%	not applicable	not applicable			
2010	40.7%	-1.70%	not applicable			
2011	41.5%	0.80%	-0.45%			
2012	40.3%	-1.20%	-0.70%			
2013	41.7%	1.40%	0.33%			

Figure 9: Completed spreadsheet for EJ-6: Outcome 2

This spreadsheet also contained a tab that populated a trend line that correlated to the data. Both the data and the trend line show that while graduate or professional degrees increased over time, a reduced percentage of associate and bachelor level attainment in the 2013 report resulted in a loss of all 5.3 points available for this outcome because the requirement was for all three degree types to show an increase in educational attainment over time or else no points are received.

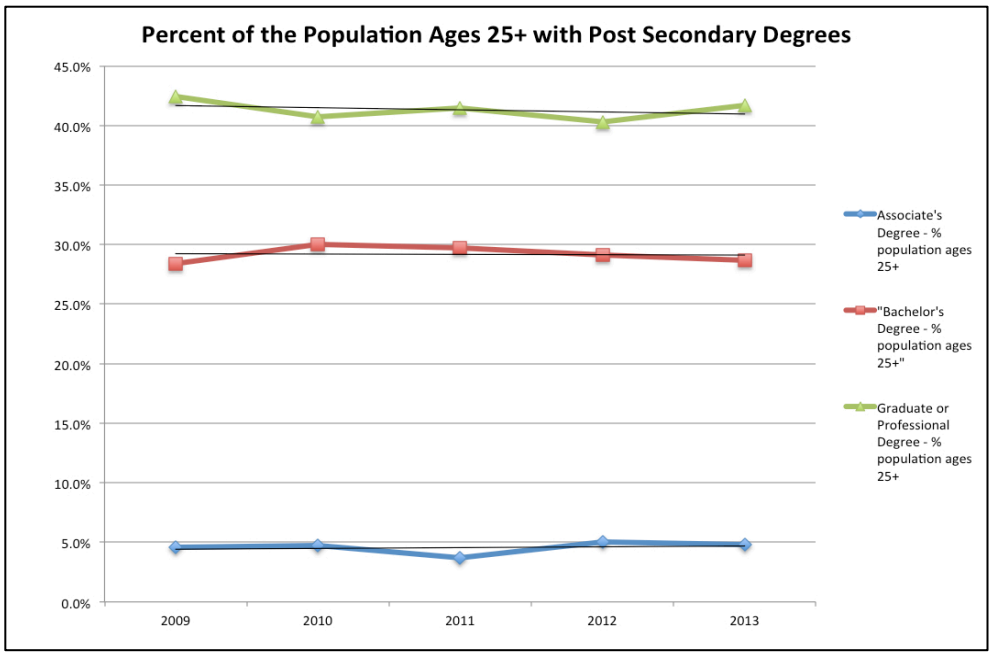


Figure 10: Corresponding trend line for EJ-6:Outcome 2 spreadsheet

The Education, Arts, & Community goal area contains five objectives. Per STAR Communities (2015), they are used to show how the community is providing a broad range of arts and cultural resources and activities that encourage participation and creative self-expression. EAC-2: Community Cohesion requires the community to ensure a cohesive, connected community via adequate opportunities for community interaction, community building activities and events, and sharing of information regarding

community issues and services. EAC-2: Action 4: Partnerships and Collaboration looks at partnerships with neighborhood associations, community organizations, and local service providers to identify and address neighborhood-specific needs. (p. 163, 169, & 172)

For verification the following spreadsheet was completed and submitted for review.

STAR COMMUNITIES | Sustainability Tools for Assessing & Rating Communities

Data Request Form
Action Type: Partnerships and Collaboration

Goal	Education, Arts, and Community
Objective	Community Cohesion
Action #	4
Action Description	Partner with neighborhood associations, community organizations, and local service providers to identify and address neighborhood-specific needs
Date Required	
Filled Out By	PSS Jamie Giordano (obtained from PSS Amy Jones & Sgt. Thomas Hickey)

This action type includes the critical formal alliances, standing commissions, or advisory boards; short-term task forces; community partnerships; and other similar arrangements between the local government and key community actors. Applicants are required to submit all of the following information:

Submittal Requirements	Please provide data and narrative below
Provide the name of the partnership or committee AND briefly describe each partner's contribution or criteria for committee selection	COMMUNITY ENGAGEMENT: SGT Hickey, OFFICER T. Kooy (community engagement officer), OFFICER D. Martelle(community engagement officer), OFFICER J. Oliverio(community engagement officer), Police Service Specialist A. Jones (Neighborhood Watch and Citizens Police Academy Coordinator), Police Service Specialist S. Casey (CERT Coordinator)
Type of collaboration *Pick one: Formal partnership, appointed committee, or community collaboration*	Community Collaboration
Link to or upload documentation of the partnership or committee's creation or ongoing work	Retail Fraud Prevention Initiative, Neighborhood Watch, CERT, Safety Town, and Citizen's Police, Fire, and Courts Academy (CPFCA)
Date established	2016/1990/2007/1979/1992
Describe key accomplishments in the past 3 years	Social Media (Nextdoor and Facebook); retail fraud prevention; crimemapping.com; Community Engagement Unit established; Coordinate annual Neighborhood Watch meetings; Coffee With a Cop-Senior Centers; Provide ALICE Active Shooter training to schools, businesses, and places of worship; Liaison to Mental Health and Veterans Court; Established Juvenile Graffiti Removal program; and Collaboration with Washtenaw County PORT-Project Outreach Team.
Briefly describe the local government's financial contribution and/or elected official/staff time dedicated in the past 3 years	1-full time comand officer, 2-full time police officers, and 1-summer seasonal officer.

Figure 11: Spreadsheet for EAC-2: Action 4

The Equity & Empowerment goal area contains six objectives, per STAR Communities (2015), with the purpose of improving community well being through participation in local decision-making and volunteering with community organizations. EE-2: Civil & Human Rights pertains to promoting the full enjoyment of civil and human rights for all residents in the community. EE-2, Outcome 1: Resolution of Complaints, is worth 7 points and requires the community to demonstrate that all civil and human rights complaints in the past three years have been investigated and violations redressed in a timely manner. In order to verify that the outcome is being met, a document showing the number of complaints received in the past three years, the number of uninvestigated complaints filed more than 120 days ago and dating back no further than three years, and the number of unresolved complaints more than three years old must be provided along with a summary document of complaints received, complaints investigated, complaints redressed, and the timeliness of action. There was no spreadsheet provided by STAR Communities for this outcome. An attached document was sufficient. (p. 198 & 205-206) This outcome was assigned to a city employee who was unresponsive to all communications and it never was completed. This was also the only outcome available for EE-2. The action items in this goal area accounted for up to 70% of the total points available and a score of 7/10 was still obtained for review.

The Health & Safety goal area contains seven objectives. Per STAR Communities (2015) they were created to help enable adults and kids to maintain healthy, active lifestyles by integrating physical activity into their daily routines. HS-5: Indoor Air Quality had the purpose of ensuring that indoor air quality is healthy for all people. 70% of all points for this goal area were available through two outcomes. HS-5, Outcome 1: IAQ Complaints to School District required a spreadsheet to be completed with data from the local school district. The goal

was to show, on both the provided spreadsheet and the correlating trend line, that there was a decrease in the number of student, parent, and staff complaints to the public school district regarding indoor air quality (IAQ) over time. (p. 242 & 274) Unfortunately Ann Arbor was unable to secure a meeting with a representative of the school district, despite numerous attempts, and therefore no data from Ann Arbor Public Schools (AAPS) was available for this project. Most of the action items for this goal area would have been completed by AAPS as well so the score submitted for HS-5 was just 0.7/5.

The Natural Systems goal area contains six objectives that, per STAR Communities (2015) are intended to track the design and maintenance of a green infrastructure network that integrates with the built environment to conserve ecosystem functions and provide associated benefits to human populations. NS-3: Natural Resource Protection works to protect, enhance, and restore natural ecosystems and cultural landscapes to confer resilience and support clean water and air, food supply, and public safety. NS-3, Outcome 3: Connectivity wants to see an increase in the amount of natural or restored areas directly connected to regional natural systems in order to improve ecosystem services. (p. 295 & 308-310) A map depicting all relevant regional natural and resorted areas was required for this outcome and created by the City of Ann Arbor's GIS team.

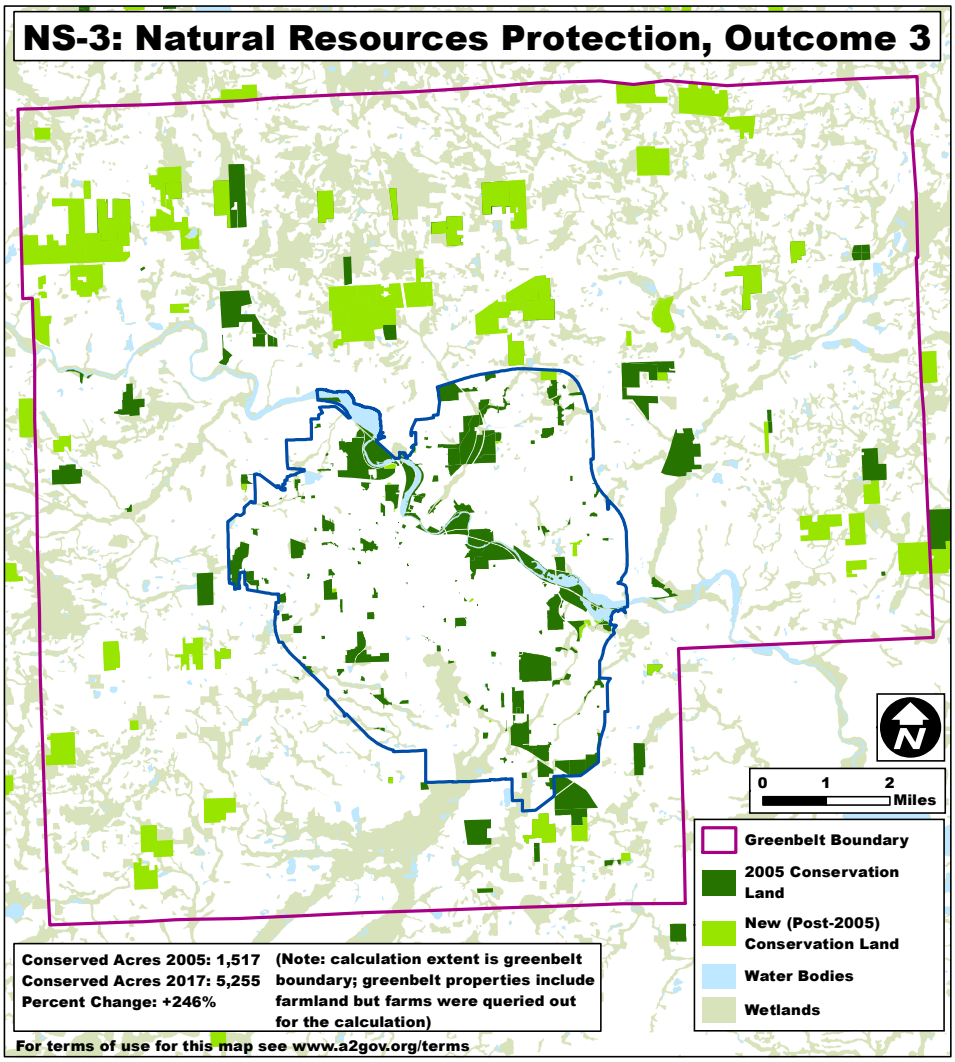


Figure 12: GIS map created for NS-3, Outcome 3

As previously mentioned, the final goal area, Innovation & Process, was significantly different in terms of what was being generated, submitted, and scored. This goal area had only four sections and was worth half the points of the other seven goal areas. Per STAR Communities (2015), its purpose was to recognize important government practices and processes that underpin the implementation of sustainability measures and accelerate community-scale achievement across STAR goal areas. (p. 335)

On March 17th, 2017 preliminary data was submitted to STAR Communities with a tentative score of 480.8/720. As of April 16th we are still awaiting the review results.

Figure 13: Screenshot of preliminary final score at time of March 2017 submission.

STRENGTHS

Ann Arbor did very well in some areas. In the Economy & Jobs goal area, SPARK was a driving force. Ann Arbor SPARK is an organization that exists to foster economic development. They collaborate with groups and organizations all over Michigan in an effort to support innovation and advance the regional economy. ("About Us," n.d.) Another very strong area for Ann Arbor is Climate & Energy. Ann Arbor's Environmental Coordinator, Matt Naud, and Energy Programs Analyst, Nate Geisler, are both very keyed in to what is going on around the country and work closely together to ensure Ann Arbor is doing everything they can to stay in front of national climate & energy efforts. Yet another strong goal area for Ann Arbor was Natural Systems. Green infrastructure, natural resource protection, and water are all active parts of the Ann Arbor community and local sustainability efforts. Additionally, Washtenaw County has a superior level of services that it provides to its communities and Ann Arbor was able to utilize a few of the more well established programs in its STAR Communities evaluation.

WEAKNESSES

At the beginning of this project Ann Arbor was going through a lengthy transition to hire a new city administrator and therefore did not have the push from upper level administration to request city departments and employees participate with the project. As a result there were a few respondents that were overwhelmed by the extra time needed to complete their items and either did not participate at all or did not participate fully, resulting in incomplete data. A couple of people we requested assistance from seemed uninterested from the time we brought them in for the initial workshops and ended up not responding to any email correspondence from that point forward. There were additional respondents that were extremely attentive and responsive from the beginning and spent

the time to do an initial run through of their questions, sent over some completed spreadsheets and/or supporting documentation and then fell out of line with the project at a later point in time and never resumed the process, which resulted in a few items never being fully completed. In general, front the start; there was a fair amount of overwhelmed feelings about the size of the overall task.

Another related issue that came up was the lack of response or lack of ability to connect with some of the larger entities in the community, who were necessary to significant chunks of data. Ann Arbor Public Schools was in this category where, no matter how many communication attempts were made, there was an inability to get in touch with someone who could represent the school for this project. The Southeast Michigan Council of Governments (SEMCOG) was another organization that did not respond to communication attempts; however, Ann Arbor SPARK ended up being able to complete some of the items on that list saving many of the points that would have been lost. It did become apparent later in the process that while sending out lists via email, along with corresponding spreadsheets, instructions, and requests for assistance was often met with hesitancy about the amount of work/time being requested, collecting information was far more effortless and lucrative during one-on-one interviews. When a "working meeting" was scheduled and a block of time was dedicated to working on the project by going through the metrics together and transcribing the responses directly into the STAR Communities website, far more information would be recorded and completed in a much shorter amount of time and with far less aggravation for all parties involved.

IV. RECOMMENDATIONS

Recommendations for Ann Arbor are largely related to what actions they can take, as determined by their STAR Communities outcome, in order to increase their rating level in the future, improve the quality of life of Ann Arbor residents, and increase the sustainability of their community.

- **Generate new data collection and tracking methods**

  A few times the issue of "we don't currently track that" or "we have data but it isn't to that level of detail" came up when attempting to complete some of the outcomes. One such area was BE-1, Ambient Noise and Light. It was especially problematic for the GIS team, when needing to create maps for submission, showing specific attainments. Reviewing these areas and devising a method to start collecting and continue tracking the types of information that were missing would improve the cities database for future assessment efforts.

- **Devise additional programs**

  There were areas of the STAR framework that were lacking due to a general absence of municipal or community programs geared towards solving particular problems. More frequently these were related to issues of equity, such as affordable housing, access concerns, and poverty prevention methods. Section EJ-4: Quality Jobs and Living Wages ended up with a score of 0/20. STAR Communities provides action items intended to help a community build up to achieving the overarching outcome in that area so special attention could be paid to accomplishing more of the action items in the Equity & Empowerment goal area.

- **Update policies and codes**

  There were a few achievements that were simply unattainable due to restrictions placed on all Michigan communities by state legislature. One area this impasse was encountered was BE-5: Infill and Redevelopment. Unfortunately, nothing can be done to realize those goals (although it would be ideal if STAR Communities recognized such barriers and created accommodations for them); however, there were also a number of action items that could not be completed, but that were, in fact, being performed by the city. Many of which are actions practiced by the city for years if not decades but the fact that those practices were not documented in a policy or code and therefore could not be provided as official documentation or tracked for the purposes of trending data, ultimately lost Ann Arbor points. It would be beneficial for the city to take note of which items fell under this category and make requests of Ann Arbor City Council to pass resolutions and add the items in question to official policy or

create a code/ordinance. This would not only allow Ann Arbor to produce supporting documentation in the future but would also hold them accountable for said practices.

- **Form new organizations/groups**

  New organizations, or groups could be organized by the City of Ann Arbor, community members, local non-profits, and even Washtenaw County in an effort to form committees and collaborations with the purpose of addressing the specific goal areas and actions items that did not perform as well. Some groups or organizations may also already exist for the objectives in question but perhaps they were either not identified at the start of the certification process as contacts or were unable to produce the necessary documentation to support their efforts. Examples of affected areas were EJ-1: Business Retention & Development, EAC-4: Historic Preservation, and EAC-5: Social & Cultural Diversity.

- **Establish/repair relationships**

  This could be considered overlap with forming new organizations/groups but typically relationships should be established and cultivated prior to entering into a working relationship. The scoring outcome of the Education, Arts, & Community section and the Health & Safety section were both largely affected by the lack of relationship between the City of Ann Arbor and Ann Arbor Public Schools. As previously mentioned, multiple and repeated attempts to engage and communicate with the public school system, in order to connect with an individual who could assist with data collection or even figure out who that individual might be were largely ignored. In cases like this, having an existing relationship and a point of contact become highly advantageous.

  Another relationship that does currently exist but does not seem to be well nourished is that of the City of Ann Arbor and the University of Michigan/Michigan Medicine. Productive and valuable relationships do exist between individuals as related to specific projects; however, a more universal connection that is reciprocated by all parties involved would likely open the door for more frequent and routine communications.

Finally, continuing to foster and cherish already existing relationships is vital for continuing collaboration and interdependency in the future. When a local non-profit was contacted for assistance with some data collection points related to Education, Arts, & Community, it was quickly realized in conversation that this organization felt somewhat exploited by the city in the past. The indication was that they were frequently asked to help the city but did not feel such actions were returned by the city. After some sincere communication and genuine concern for the state of the connection it was agreed that some strengthening of the relationship would be favorable for all involved but had this project not brought the concern to light, its unclear when or if it would have been addressed.

V. OUTCOME

Assessing the sustainability of communities is not an easy or straightforward task. As urban areas grow and diversify, so do the number of issues affecting their sustainability. The question of sustainability has evolved from simply environmental protection based issues to incorporating issues of equity, economy, and durability, which all greatly broadens the scope of which sustainability markers communities need to be evaluating, tracking, maintaining, and transcending.

Ann Arbor set out to assess the sustainability of their community by utilizing the comprehensive rating system designed by STAR Communities. The goal was to attain a minimum certification of being a 4-STAR Community while also gaining significant feedback as to the areas in which Ann Arbor can work on improving. While the entire process will have taken over a year by the time a final score and certification has been awarded, the data collection portion of the program was executed in just under a year by prepping respondents with the program and tasks being requested of them, collecting and organizing returned data and supporting documentation, performing one-on-one interviews to gather missing data, and submitting everything collected to STAR Communities by the deadline. Just over 480/750 points were submitted for review and approval on March 17, 2017. A 3-STAR Community achieves a final score of 200-399

points, a 4-STAR Community achieves 400-599 points, and a 5-STAR Community achieves a level of 600 points or higher. The review process takes 30-60 days from submission so Ann Arbor is looking for an initial review response to come back sometime between mid-April and mid-May, 2017. At that point 30 days will be given for the City of Ann Arbor to correct and/or complete any data that was not awarded the points requested, as well as add any additional data they have collected during the review period, before resubmitting everything for a final scoring.

Once a final score has been reported, Ann Arbor will receive their certification and follow up information containing next steps and STAR Communities rating graphics that can be used in various fashions to display the outcome of their hard work. The STAR Communities certification process can be completed every three years. The process of determining where improvements can be made is off to a great start and additional areas or ideas may come up once the entire process has been completed and a final tally is recorded for the city. Hopefully the potential for additional community developments and continued progression of sustainability will be given precedence by the new City Administrator in the coming years and the next assessment project will be even more successful and rewarding for the City of Ann Arbor and all of its affected stakeholders.

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