CAPSTONE COURSE FINAL REPORT

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PROJECT TITLE:

Sustainability Indicators in the Master Plan for Newark, New Jersey.

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Daniel Hernandez - Director, Green Urban Solutions
Simon Kawitzky - Project Manager

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Executive Summary

In the process of updating the Master Plan, the City of Newark requested a tool to measure and track the effectiveness of policy and strategy decisions on the long term sustainability of the city. As a result, a partnership was formed between the Jonathan Rose Companies, the J. Max Bond Center on Design for the Just City, and graduate students from the City College of New York to draft sustainability indicators.

The partnership set out to fulfill this request by developing a serious of indicators and measures that would align with the goals and objectives of the Master Plan update. An indicator is a broad theme that is selected for its relevance to the concepts of sustainability under the criteria that generalizations can be made from smaller pieces of information. These smaller pieces of information are called measures, and the distinction between indicator and measure is made through analysis. Measurements offer quantifiable insight, while indicators offer qualitative assessment.

The critical task was selecting indicators and measures that accurately reflected the unique characteristics of the City of Newark. After reviewing many existing indicator programs, 17 unique indicators and 58 measures were selected for the city, which span the three key Master Plan improvement areas of: Economic Development, Healthy and Safe Neighborhoods, and City of Choice. The thematic areas organize indicators and measures to provide clear, and simple observations that can be understood by the greatest audience in Newark.

Ultimately, two iterations of the indicator program developed, one of which was authored by the Jonathan Rose Companies and can be found in the 2012 City of Newark Master Plan, on pages 14 thru 29, with the heading “Measuring Success”. The second iteration was developed by CCNY’s capstone students entitled “Newark Sustainability Indicators” and is a stand alone document that presents a more in depth perspective on how sustainability indicators tie into Master Plan goals and objectives.
Project Statement and Objectives:

The title of this capstone project is Sustainability Indicators in the Master Plan for Newark, NJ. From the onset, the project objectives were to work closely with the leadership of Newark’s master planning team, Jonathan Rose Companies (JRose Co) and the J. Max Bond Center (Bond Center), to develop a system of sustainability metrics—including environmental, social, economic, design, and cultural indicators—that integrates closely with Newark’s new urban development Master Plan and with the city’s long-term sustainability goals.

This project was initiated because Newark, New Jersey was embarking on a master planning process that will guide city decision making until 2025. The consulting firm that drafted the city’s Master Plan, the Jonathan Rose Companies (JRose Co) describes the planning challenges for post-industrial cities like Newark as follows: “The economic, social and physical development goals for these cities have been made more difficult to achieve in an era of climate change, energy crisis, and an evolving marketplace with new demands on cities to provide well-designed mixed-use neighborhoods, walkable and safe streets, green jobs, and affordable housing near transit and services.” The planners believe Newark is positioned to confront these challenges, and that it has a future as a sustainable and resilient city. Their approach to urban planning is premised on the notion that physical development and human development should be “considered together in ways that complement and reinforce each other.” The beginning of a cycle of master planning in Newark affords a unique opportunity to develop and propose a system for measuring sustainability that seamlessly integrates with the objectives of the new Master Plan and the long-term sustainability goals of Newark.

It was decided that a sustainability indicator program was the most effective way to integrate the objectives of the Master Plan with Newark’s sustainability goals in a way that would allow the City to evaluate its progress and assess the effects of the policies it puts in place. A sustainability indicator program separates out individual concepts within sustainability so they can be assessed and ultimately tracked. These individual concepts are termed indicators. Within an indicator there is at least one, and in many cases multiple, individual measures that can be measured directly and accurately. The goal is to choose concrete measures that have broader implications allowing a collection of individual measures to create a complete picture of a sometimes abstract concept.

Early discussion with Toni Griffin of the J. Max Bond Center led to the widening of the scope of the capstone project. Upon the completion of the Newark sustainable indicator program the team was to embark upon the creation of a generic sustainable indicator template that municipalities could adopt as a low cost, a low resource investment method of benchmarking and tracking their progress toward becoming a more sustainable city. As the Newark project wore on and many more edits and reorganization of the work were executed it became clear the team would not have the time to create and organize a sustainable indicator template. The
Bond Center will continue on in the development of the template with some input from the capstone team, but without their full participation.
Introduction

The idea and practice of sustainability have moved beyond the realm of environmentalism into mainstream culture. People of all walks of life and cities of all sizes have begun to realize the importance of acting in accordance with the principles of sustainability. Broad concepts of sustainability can be organized within the three thematic pillars: economy, equity and environment. Long term sustainability demands that we balance these three concepts while considering development; if one or two of these pillars are ignored the others will eventually suffer. The basic premise of each pillar is as follows:

- Economy: The economics and finances need to be profitable and stable or growing.
- Equity: All people are treated fairly; community and individual well-being are improved.
- Environment: The health of the environment is preserved or improved with natural systems functioning well.

Acting in accordance with the principles of sustainability is new for most cities; therefore, there is much uncertainty about how to become more sustainable. Sustainability indicator programs are tools cities can use to assess their current position and track future progress. An indicator is a single characteristic, or a small group of characteristics, that can be measured with a high degree of accuracy that depicts how a broader system or concept is functioning. When applied to sustainability, many individual characteristics of a city are measured and assessed to provide insight into how the city and its residents are faring related to concepts of the economy, society and the environment. When all the pillars are considered together the complete picture of sustainability can be understood.

In an era of government criticism and accountability, sustainability indicator programs offer a number of valuable qualities. They measure the accomplishments of agencies that may be more concerned with political tenure rather than long term goals and objectives. Additionally, they provide insight into measured progress towards goals and objectives important to residents’ and the city’s well-being, and can provide insight into whether policies need to be changed, enforced more vigilantly, overhauled, or dismissed. The periodic reports generated by these programs allow the citizenry to better understand their city, how it’s changing, where the city is focusing its attention and resources, and maybe even where they would like to get involved.

During the creation of a sustainable indicator program there are many variables at play. The key variables include definition of terms, selection of indicators and measures, scale of the city, available resources, and the involved parties and city agencies as well as their motivations. Defining terms is extremely important when working with a new, and in part, nebulous concept like sustainability and ensures the involved parties and those reading the report clearly understand each term and concept. Once terms are defined and general goals outlined indicators and measures can be selected. This process can be complicated by differing
ideologies and motivations of the involved parties, as well as by the available resources to find or generate measurements. These complications may be more likely in cities where municipal resources are weak, further hampering the collection of data. Moreover, there can be conflict between creating an accurate picture of the city’s present position with the desire to “not make the city or an agency ‘look bad.’” As these factors interact, creating the framework of a sustainable indicator program can be challenging; however, the end goal remains: to create a program that assesses the city’s current status, track how it’s evolving, provide insight into the effects of present policies and provide guidance for what needs further attention.

Research Objectives:

- How to address the critical social and human scale issues surrounding Newark – such as poverty, violence, safety or justice.
- Can we expand the primarily environmental focus of sustainability, augmenting it with social aspect of sustainability? Can we relate this to human scale issues?
- How do we design an indicator program as simple as possible, with the greatest access to information, knowing that the city does not have additional resources to manage a complicated and time consuming program?

Background Research

In the process of creating Newark’s sustainable indicator program the usefulness and effectiveness of existing sustainable indicator programs needed to be evaluated. A number of existing indicator programs were evaluated and cataloged to discuss form, layout, content, presentation of material and selection of indicators and measures. Individual city’s sustainable indicator programs were evaluated. Particular attention was paid to Genuine Progress Indicator (GPI), Gross National Happiness (GNH) and programs developed around their structures. A total of 14 indicator programs were evaluated and the information gathered was organized into 12 categories. This matrix can be found in Appendix A. Each of the evaluated sustainability indicator programs was catalogued by the following criteria:

1. Region/City -based, The categories recorded for each program were:NPO
2. Stakeholders: Agencies, community
3. Framework: General focus, 3 pillars, health, GPI, GNH
4. Statement of Purpose
5. Summary Report
6. Number of Indicators
7. Measurement type: Quantitative or qualitative
8. Assessment Time: Baseline for comparison
9. Platform/Medium: Issued report, web
10. Simplicity/Complexity: User friendly
11. Resources (fiscal and staff)
12. Correlation to Newark’s Master Plan

This review of 14 indicator programs, along with the project’s defined goals, informed the type of lens that needed to be used to form a critical baseline of analysis.Analyzing these general areas allowed the team to identify indicator programs that were operating under similar conditions as Newark as well as the factors involved in creating such a program.

Looking at the different frameworks used to structure each program revealed a number of possibilities of which a sustainability indicator program can be used as a tool for a region seeking assessment. Certain programs such as those for the cities of Philadelphia and Portland used a general approach where individual categories were highlighted as components to measure sustainability. However, most programs that were assessed organized indicators under the Three Pillars of Sustainability framework: Economic, Social, and Environment.

The indicator program implemented by Alberta, Canada as well as the State of Maryland’s program, utilizes this framework under an overarching theme called Genuine Progress Indicator (GPI). Conceived as an idea to expand on a region’s self-assessment of Gross Domestic Product (GDP) where analysis informs a region of only its economic welfare, the Genuine Progress Indicator seeks to measure economic, social, and environmental well-being. As illustrated by the Pembina Institute, “The GDP fails to account for environmental costs, natural capital depletion, and the value of unpaid work such as parenting, eldercare, and volunteerism...The Alberta Genuine Progress Indicator (GPI) provides a ‘state of the province’ report describing trends in the most important issues shaping our quality of life and future wellbeing. The GPI considers not just economic factors, but environmental and social factors as well.” Using a thematic framework such as GPI allows a foundation of equity across the three pillars of sustainability. At the core of its purpose is a holistic approach to measuring a region’s quality of life while recognizing that the factors of economics, social, and environment co-exist and are co-dependent for every region.

Additionally, key to the review of precedent work was identifying usability in terms of a region’s available resources to collect data, generate status reports, as well as present its program and reports in an accessible and simple manner. New York City’s PLANYC publishes its program and its progress reports on the web. The end of the report contains a comprehensive chart that depicts in a graphic nature the current standing of New York City under each indicator, the respective target for that metric as well as where the city is trending under each focus category. This is a seamless and accessible way for any city official as well as any New York City resident to understand the state of the city in terms of its sustainability goals along with if the city is trending negatively or positively in respect to its declared targets. The report also publishes the municipal agencies associated with each indicator target along with any linked partners that may affect the objectives of that specific target. This identifies for the city and its community the responsible and accountable parties, organizations, and agencies for each target goals. The provision of clear and organized data that is easily accessible strengthens the effectiveness of
the city’s plan for sustainability. By creating such a usable document the city and its community can actively participate in reaching its target goals.

Along with general frameworks and the usability of an indicator program, another significant aspect to the background research was identifying how each of these programs measured the indicators prescribed by their respective systems. Approaches of measurements were defined as either quantitative, qualitative or both. Many indicator programs set out metrics that require a quantitative result however the assessment of well-being and happiness is difficult to analyze completely quantitatively as these are concepts rooted in qualities of life. If an objective of an indicator program is to assess the well-being of a region as well as the effectiveness of policy, using a hybrid of metrics both qualitative and quantitative metrics might be useful to implement into the program.

A program such as Gross National Happiness (GNH) focuses on a multidimensional measure of happiness. As stated in the GNH’s guide to Gross National Happiness Index “… happiness is itself multidimensional – not measured only by subjective well-being, and not focused narrowly on happiness that begins and ends with oneself and is concerned for and with oneself. The pursuit of happiness is collective, though it can be experienced deeply personally. Different people can be happy in spite of their disparate circumstances and the options for diversity must be wide.” The GNH Index compiles data from the GNH survey that is used to assess the state of a region’s happiness. The survey is intended to be distributed amongst a varied range of demographics to render results reflective of a particular region. Assessment is organized under 9 Domains (psychological well-being, time use, community vitality, cultural diversity, ecological resilience, living standard, health, education, good governance). The indicators are grouped and each group contains variables which are considered the “building blocks” of the GNH. A specific weight is prescribed to each variable, which differ from variable to variable. Heavier weight is linked to less subjective variables and a defined sufficient level is attached to each variable. Ultimately the objective of the GNH indicators seeks to provide a platform to check whether policies and programs are in line with GNH principles.

Generally speaking, looking at precedent programs informed the process of framing the Newark Sustainability Indicator Program. Dissecting and cataloguing the significant components that make an indicator program successful for its respective region allowed the initial brainstorming of thematic framework to be less arbitrary and instead be more contextually appropriate for Newark’s current operating condition alongside its defined goals in the city’s Master Plan.

While conducting background research the team operated under a few general guidance themes:
- select the most relevant and simple measures
- create a user friendly document that is straight forward in meaning
- search for human scale indicators
- search for indicators that are widely transferrable from city to city
- create a document that would be simple to update from year to year
Procedure

The first step in approaching this project was introductions via email to all the involved parties. The communication included Toni Griffin, Director of CCNY’s J. Max Bond Center on Design for a Just City, Daniel Hernandez, a managing partner of the Jonathan Rose Companies, and his project manager, Simon Kawitsky, and Matt Grubler, Caleb Stratton, and Olivia Vien, students from CCNY’s MS in Sustainability program (Team CCNY). This communication resulted in an in-person meeting being set up at JRose Co’s office for formal introductions and to lay out the project goals and expectations. Team CCNY was informed about JRose Co’s involvement and progress in updating Newark’s Master Plan. There was discussion about some expressions of sustainability indicator programs, with specific mention to Gross National Happiness. The scope of work related to Team CCNY’s deliverable was discussed. Team CCNY, under the tutelage of Toni Griffin, was tasked with developing a sustainability indicator program that would provide insight into Newark’s current position and allow the tracking of progress towards Newark’s attainment of success related to the seven ‘Physical Elements’ of their Master Plan. It was agreed that the final product would be a report fit to be published so the city and local residents could use it as a tool to better understanding the workings of their city as well as allowing the assessment of specific policy choices on the sustainability of the city.

A series of meetings were scheduled to allow us to confer with our mentor, Toni, as well as group meetings with JRose Co to provide updates, discuss ideas, provide progress updates and to continue working towards a complete report that meets the project goals. The meeting minutes were organized into outline form for easy reference to the attendees, deliverables provided, future deliverables requested, and topics discussed. These outlines were then circulated to everyone to ensure accountability and confirm everyone was updated with latest information. A complete list of the meeting minutes can be found in Appendix B.

Team CCNY began the project by creating and defining a list of terms frequently used when discussing sustainability. The purpose of this exercise was to ensure that all parties involved had a mutually understood working definition of the terms and concepts. The list was compiled and discussed by all three Team CCNY members and refined with Toni’s input. A list of these definitions can be found in Appendix C.

Simultaneously Team CCNY produced a Statement of Purpose in order to define our goals and targets, which is as follows:

To provide the City of Newark with a tool to assess the effect of policy and strategy on quality of life for residents. Quality of life will be defined by effects upon the triple bottom line. The triple bottom line is defined as social equity, environmental health and economic strength. These three characteristics will be assessed based upon a series of policy actions within the Master Plan update.
The tool will gauge the health of the city and provide guidance for policy makers to base future actions.

With the preceding two items completed we continued by doing some general research into sustainability indicator programs, as outlined in our Background Research section above, which we consider our precedence work. This work was organized into a matrix to allow for easier comparison of the evaluated indicator programs. The information obtained through analysis of the matrix allowed us to formulate the organizational and thematic structure of our report.

Discussion began around how to develop the thematic frameworks for Newark’s Sustainability Indicator program. The result was an organization defined by the Three Pillars of Sustainability: Economy, Equity & Environment.

Given this organizational framework we decided to create of a matrix of indicators we believed adequately defined the purpose under each area of Economy, Equity, and Environment. The proposed set of indicators can be found in Appendix D. This process was initially unrestricted as a “brain dump” exercise to allow as many ideas as possible to flow out; suggested indicators came from our precedent work as well as previous experience and education. Each suggested indicator had to be accompanied by a specific measurable characteristic and a rationale for choosing that indicator and measure. This initial matrix provided a starting point for the discussion and selection of each pillar’s final indicators. In addition to Team CCNY’s suggested indicators, JRose Co also guided the final list of indicators to those they thought were most important in Newark’s progress. JRose Co had valuable input to this process as they had gone through several community involvement workshops to get citizen guidance on what issues affect Newarkers and what aspects of the city were working well and what aspects needed improvement.

The process of indicator and measure selection went through several iterations and updates. There were many important indicators and measures that had to be left out because the data were not available. In some instances the data simply did not exist, in other instances Newark’s resources prevented the city from being able to organize its data into formats useful to Team CCNY.

Throughout the beginning stages of this project Team CCNY used a couple of documents created by JRose Co to guide the direction of the work. These documents include:
- Newark Master Plan Outline, Physical Elements: Draft Goals, Objectives, & Strategies
- Newark’s Promise – Indicators of Success

We reorganized Newark’s Master Plan strategies which were originally listed under each of the 7 Physical Elements and placed them into the framework of the three pillars. Each Master Plan strategy got listed under the one of the three pillars it most corresponded to. From there we drew connections from policy goals and objectives to focus areas under each pillar and its respective indicators. This process demonstrated the connections between the indicators chosen for the report and the goals laid out in the Master Plan. This reorganization was added
of Team CCNY’s adopted version of JRose Co’s Newark’s Promise – Indicators of Success document. Additionally, another matrix was created organized by the three pillars with their respective indicators and measures so they could be correlated to the Master Plan objective they address. This matrix is included as Appendix E.

With most of the background work nearing completion, a general framework for the indicator report was outlined. The Bond Center, JRose Co and Team CCNY agreed that ideally Newark’s sustainability indicator report would appear as an appendix to the Master Plan update; however, the report was to be sufficiently robust to be able to stand alone as its own document. The first few chapters that open the report would provide the reader with an understanding of who organized and collaborated on the report, why the report was done, its importance and how it can be a tool for the improvement of the City of Newark, all the while introducing the reader to the concepts of sustainability. The body of the report would be the data collected with narrative detailing why each measure is relevant. The document would conclude with the specific key findings of the data as well as broader conclusions drawn based on what can be inferred from the data.

Once the indicators and measures were defined and agreed upon Team CCNY began to collect data on those measures. The primary source for most of our data was the US Census and American Community Survey accessed through their website factfinder2.census.gov. JRose Co also provided some data that they had previously collected as well as GIS maps displaying the distribution of certain features throughout the city. All data within the report is cited directly.

As more data was collected we began to populate the report. The data was presented graphically when possible and in a table when appropriate. The data allowed the narrative of each indicator to be expanded to include bits of information about the measure. Microsoft PowerPoint was used to create the document. All text, images, graphs and charts were created within the program. This program is not the best suited for creating a report of this type; however, it was the most versatile program that all members of Team CCNY knew how to use. The color scheme, purple, was chosen to match JRose Co documents.

Once the report was populated the team critically analyzed Newark through the lens of the indicator program. This provided a platform to draw conclusions and key findings as well as recommendations for the city. Within each pillar a key findings section was created. This section summarized the salient points revealed by the data, a highlights section so to speak, and allowed for comparisons of different data points to reveal deeper correlations between measures. Additionally, the measures were compared across pillars to find less obvious trends and correlations.

A site visit to Newark was undertaken, guided by a former Newark business owner, Chris Sedita. The site visit served two purposes. First, was to better acquaint Team CCNY with the City of Newark experientially. Second, images were needed to supplement the report and break up the text. Photos were taken, by Demetra Moralis, at many locations throughout the City. The
team collectively went through the photos and selected the most appropriate images to be included in the report.

Later discussions with JRose Co revealed that Team CCNY’s document was not going to be used directly by JRose Co as an addendum to the Master Plan. They were going to take some of the data and narrative and reformat it to fit the Master Plan Update. In spite of this, the team kept working towards a clean draft of the report since it was nearly entirely created and would include all the data collected and narrative created. Shortly after this decision was made, the team, in conjunction with the Bond Center, agreed to change the formatting of the report in order to provide an aesthetic and complete presentation of the report suitable for public distribution and presentation to the City of Newark. InDesign was the program chosen to create the report. During the redesign some modifications were made to the narrative as well as reorganizing the measures into different pillars to more accurately align with the team’s ideas of sustainability.

Additional measures were added to appropriately address each Master Plan objective. Following this expansion these general tasks were executed:

- Organized Newark’s Master Plan strategies under the framework of the three pillars. Drew connections from policy goals and objectives to focus areas under each pillar and its respective indicators.

- Developed a framework for evaluation where each goal is defined by measure, provided context, and defined by a user lens.

- Critically analyzed Newark through the lens of the indicator program. This provided a platform to draw conclusions and key findings as well as recommendations for the city.

The rigor of thorough development through discussion, research, development, drafting, and revision facilitated an end product that provided indicators, tools of measurement, and assessment for the city.

**Results**

**Products of Research**

The product of Team CCNY’s work led to two distinct products. JRose Co used the data collected and portions of the original report’s narrative to help formulate their *Newark Master Plan Update: Measures of Success*. *Measures of Success* can be found in Chapter Two of the Master Plan update titled *Vision and Policy Goals* and can be found as attached Appendix F. Team CCNY and the Bond Center went on to formulate a robust stand-alone sustainability report for the City of Newark that if taken over and updated regularly can become a full fledged sustainability indicator program.
Since the Master Plan Update: Measures of Success document is almost entirely the work of JRose Co it will not be discussed in detail in the results section. The following paragraphs will discuss the Newark Sustainability Indicator Program Report the body of work produced by Team CCNY in collaboration with the Bond Center. Appendix G consists of the full Newark Sustainability Indicators report that comprises the primary deliverable of this capstone project. The reader is invited to peruse the full report, with the following general comments in mind.

**Intended Audiences**

This report was produced to be included in its entirety as an addendum to Newark’s Master Plan Update. However, from its inception the report was to be of sufficient substance and background information as to be able to stand on its own as an independent document. We envisioned the Newark Sustainability Indicators to be a program that could be used by government and residents to gauge success of Master Plan objectives.

The first intended audience officials of the City of Newark. The sustainability indicators provide valuable information about Newark’s current standing. The report discusses the relevance or importance of certain Master Plan objectives. This sustainability report should provide important details to the City that they can use to help guide policy and municipal resources. By knowing the data provided respective agencies are better able to assess where the most need exists as well as assess if their previous policies have affected the change they desired. We hope the City of Newark will take ownership of this report and update as regularly so they may continue to enjoy the benefits of tracking these data.

The sustainability program is also designed to be accessible to NPO’s, community-based organizations and the residents of Newark. The program suggests that Newark needs to re-engage its residents, and this indicator program aggregates and consolidates pertinent information to be used in a manageable way. This information can be used to focus community interest and attention toward the aspects of the city they are most interested in. They can use this information to inform their interactions with their government representatives and the appropriate city agencies.

Even in today’s more conscientious world many people are not familiar with the concepts of sustainability. For this reason the report was designed with the uninformed reader in mind. The report begins by introducing those involved in the report’s creation and their purpose for involvement. The following section provides an overview of the Master Plan Update. Since the audience may not be familiar with indicator programs and their utility, our background research is summarized within the indicator program.

**General Structure of the Report**

Next the concepts and pillars of sustainability are laid out, where the balanced approach of sustainability is developed and applied directly to Newark. With the groundwork laid, the body
of the report is the actual presentation of data with the accompanying importance of indicators and measures chosen.

The collection of data was a significant portion of the work involved in this Capstone Project. Most of the data collected was from the decennial US Census and the yearly estimates provided by the American Community Survey. This data was easily accessible on the Census’ website. However, there were many measures for which the census does not account for that are relevant to sustainability. These measures presented a challenge and in many cases the team was not able to find data to support our measures. In some instances JRose Co using GIS software was able to generate the data. This came in the form of maps pinpointing the location of particular sites such as schools, health facilities, police and fire stations, commercial districts and tree cover. Many measurements related to community involvement, cultural events, environmental quality, educational attainment and resident proximity to desired services were not available. These measures end up as recommendations to agencies that could be responsible for tracking this information. As evidenced by the indicator report, tracking data is essential to evaluating the past and planning for the future.

The indicator report summarizes the findings of the data in two ways. At the end of each pillar is a key findings section that is broken down by indicator and addresses each measure for which there was data available. Towards the end of the report is another key findings section addressing each indicator as a whole, inclusive of all the associated measures.

Each pillar is introduced by highlighting Newark’s present circumstance and their desired position according to key improvement areas laid out in Newark’s Master Plan Update. Data is then presented in two formats. First is a quick reference matrix that outlines an indicator’s measures, their descriptions, the target objective from the Master Plan, as well as Newark’s current position, the trend over the past decade and the desired trend.

Secondly, the data is presented graphically and includes captions that highlight one or several key points of the data. This initial measure analysis benchmarks Newark’s present status while also providing recent trend data. Each pillar is then wrapped up with key findings based on the data, and concluding remarks with suggestions for future measurements.

The report concludes with a synopsis of the findings of each indicator, a broad conclusion of the report and recommendations for what could follow from this body of work. Lastly, there is a ‘Definition of Terms’ section and ‘References’.
Key Findings

The following paragraphs will provide an overview of the conclusions of the data organized by pillar.

Economy

The nature of the measures within the economic pillar allowed nearly all of the measures to be found. Newark’s economy is transitioning from its historic position as a manufacturing powerhouse toward more professional and office positions. Newark has also increased the number of jobs within the city with a notable increase in the transportation, distribution and logistics industry, which is likely due to the presence of the air and sea ports and strong highway infrastructure; job growth was also seen in the service industry. Even though Newark has experienced positive job growth the City’s unemployment rate has risen in recent years, which begs the question, ‘Why aren’t Newarkers getting these jobs?’ While the City’s businesses seem to be faring well its residents are not. Residential economic indicators are trending negatively as more residents are experiencing housing burden, the poverty rate has increased and households considered self-sufficient has fallen.

Equity

The economic circumstances of Newark’s residents affect the status of healthy and safe neighborhoods within the city. Newark’s population has significant diversity; however, there is not an equitable distribution. The population is concentrated toward younger persons of Hispanic and Black heritage of lower and middle income with a tendency toward non-family and female-headed households. The concentration of younger residents may prove beneficial to Newark. These are individuals who have recently entered the workforce and have many productive years left, they are Newark’s future. However, today’s jobs require a higher level of education than ever before; with only 14% of Newarkers having achieved a bachelor’s degree or beyond their job prospects will likely be limited.

Additionally, Newark struggles with increasing vacancy rates for housing as expanded access has outpaced placement. Despite Newark’s lower socio-economic status, high vacancy rates, and challenging finances, violent crimes have fallen by 50% in recent years. While residents are safer on their streets they are experiencing decreased personal health. Trends in obesity and asthma rates exceed state averages. Addressing education and access to healthy, affordable food may help residents reduce rates of obesity. Another key finding revealed that 31% of residents are registered voters, indicating a low level of civic involvement. These measurements indicate a general increase in safety, but challenges to personal and city-wide health.
Environment

The environmental pillar, titled City of Choice in the indicator report, had the least data available; with many measures that require benchmarking. One notable and positive trend highlighted in this report found that Newark had positive population growth for the first time in over 50 years.

While residents using public transit, walking or biking are higher than state statistics, the city-wide trend is towards less sustainable transportation choices, with an increase in personal vehicle use over public transit and human powered modes. This shift in transit choices could be caused by an un-equitable distribution of transit choices throughout Newark’s neighborhoods. The likelihood of driving increases as residents live farther away from health and community resources, grocery stores, retail shopping, and other commercial areas. The increase in automobile use may also contribute to some of the poor environmental characteristics of Newark.

Newark’s history as an industrial city does not excuse the many unremediated brownfields speckling the City. Additional evidence of low environmental quality could be inferred from the high asthma rates found in the city, which may be exacerbated by the low percentage of tree cover that worsens the urban heat island effect and reduces the potential for the natural purification of air and water. These issues will require significant attention and resources as Newark attempts to move toward a more sustainable future.

Conclusions

This project revealed a great deal of useful information and can provide valuable insight. This section discusses conclusions related to the indicator report as well as the experience of Team CCNY.

A consequence of organizing themes by pillar the indicator program tends to be compartmentalized, where information is presented in silos separate from other factors. Newark’s circumstances are expressed through individual measures, which are then discussed in the context of the measure’s indicator and overarching pillar; however, sustainability aims to recognize the connections between the three pillars. Many factors, some seemingly unconnected, interact to create the economic, social and environmental situation Newark faces. One example of how measures from the different pillars interact is as follows:

An unhealthy or ailing population can contribute less to their local economy and community. Health issues such as asthma rates, heart failure rates, and obesity rates are a way to measure a population’s health. Newark’s asthma rates are three times NJ’s goal, while their obesity rate
is 5% above the state’s but their heart failure rates are 7% lower than the state’s, which could be due to their low percentage of elderly individuals. The extremely high asthma rate may be due to environmental air quality issues, unfortunately no data was available to assess local air quality and compare it to state and regional averages. Poor health could affect educational attainment and job performance as it could cause distractions, absences or impaired ability to perform certain tasks.

This example highlights the importance of connecting data points across measures. These are the sort of conclusions Newark’s residents, community groups and government officials will have to infer in order to affect real and permanent change. While aspects of Newark’s position are improving others remain in need of improvement.

For Economic Development (economy) statistics showed that there has been a city-wide trend towards greater sustainability, but for individuals there was no compelling data that residents were any better off, or trending closer towards sustainability. There were few measures without data, which created a strong and interesting picture of Newark.

For Healthy and Safe Neighborhoods (social equity) statistics depicted a city that is becoming safer, but not necessarily a city that is becoming healthier. There were some measures that were without data, which suggested specific areas for improvement in the city.

For City of Choice - (environmental health) more data was needed to develop a conclusive baseline or trend for most indicators. There were many measures without data which suggested that Newark did not perform well in these areas and that more resources should be put into measuring and improving the measurements without data.

Newark faces many challenges today and in its future, deciding which to address and at what time will be the subject of much debate. Uncertain causal effects lead to chicken and the egg debates: do failing schools lead to poverty and unhealthy eating and living habits or do low wages and poverty lead to too few municipal resources to provide adequate schools and sufficient community services? Ultimately Newark will likely have to take a multi-pronged approach to address several issues at once, but will the City have the financial and human resources to succeed?

The indicator program was developed with input from all the collaborating members, informed by JRose Co’s work developing the Master Plan, which created the guidelines for the indicator program and allowed for concrete context of the indicators and measures. In some ways the scope of the program was constrained by the areas of impact within Master Plan objectives. Team CCNY suggested several indicator measures that were not used for the program. It is understandable to want to avoid handing over a document that does not portray the recipient positively we thought it was important to include certain criteria to fully inform policy decisions; and additionally, Newark’s residents have a right to know about the city they live in.
With the limited resources and connections to city officials of the capstone students, we were not able to obtain data for all measures within the indicator report. When this occurred we turned to JRose Co to provide us with the requested data. JRose Co proved to be an invaluable partner in this endeavor.

This indicator program is unique to the City of Newark. It is unique because Newark has unique challenges, unique objectives and unique circumstances. This program offers a direct tie from Master Plan objectives to sustainability indicators, which is a critical link between policy and healthy growth. The assessment of policy provided by indicator programs such as this one, can help develop more integrated approaches to city and neighborhood revitalization by tracking, analyzing, target setting, strategizing, and ultimately implementing new or revised policy standards in order to achieved desired outcomes of urban sustainability.

Moreover, as the Master Plan objectives clearly focus on the current needs of the city, it is a deliberate theme of this program to focused on social justice and to connect the Master Plan objectives to human-scale indicators and measures. We found there was no simple way to truly gauge sustainability. The concept of resiliency is not necessarily easy to measure. The challenge arose in connecting the themes of quality and quantity to measuring success. The translatable qualities of sustainability are fairly easy to recognize, but there is no one way to define quality. Perhaps the most important recommendation is to find credible and consistent data. Without quality information, there is little that can be analyzed towards sustainability.

Sustainable indicator programs are a new and emerging concept. We applaud the city for undertaking an exercise that would not necessarily paint Newark in a promising light. Without a plan, and a way to track progress it is unlikely that a city will realize success. Based on available data collected for benchmarking the measures of this program, it can be concluded that Newark is well on its way to becoming a sustainable city.

**Recommendations for Future Work**

The process of researching and gathering data was challenging for this project. Many measurements require further exploration, and in some cases data may not exist. The city should dedicate resources towards original research or collection of these key measures of success. For a complete list of measures that require further exploration and data collection refer to page 78 in Newark’s Sustainability Indicator Report found as Appendix G.

The partnership recommends the update of these indicators and measures every 6 years to follow the NJ MLUL for Master Plan re-examinations. For each section key findings should summarize what measures have produced results, and the trend of those measures. The cumulative outcome of each measure should then influence the assessment of indicator success. Following this assessment the city should re-evaluate objectives that relate to an
indicator and weigh whether amendments to the Master Plan are relevant. Using the insight from these measures the City should alter policies that respond to resident input and feelings.

If the goals and objectives are developed to improve the quality of life for residents then these statistics will be a powerful insight into the success of these aspirations. Take the time to consider the implications of future generations if this program is used successfully. If this program does not fit into the framework of governance for the city of Newark then the partnership strongly recommends turning it over to the citizens, a not-for-profit or advocacy group.

A third party champion to continue with regular updates of this indicator program is a strong recommendation from our research. Possible third party champions can include consulting firms, non-governmental organizations (NGO’s), not-for-profit organizations, or community-based organizations or community boards. This is not to say Newark’s Office of Sustainability could not champion this program or continue with its updates.

If the city chooses not to accept this program in its entirety, or finds the organization too cumbersome, it should use what it can. Dissemble these measures and indicators, pull out the meaningful portions and make a piece of this program valuable to the residents of the city.

The Bond Center may use our research to create a template of a sustainability indicator programs that other industrial and post-industrial cities can easily and cost-efficiently adopt.
REFERENCES


2. Genuine Progress Indicators, Nova Scotia, Canada. GPI Atlantic Canada. 


5. Gross National Happiness, Seattle/King County. Sustainable Seattle. 


APPENDICES

A. Precedent Indicator Programs Matrix
B. Meeting Minutes
C. Definitions
D. Proposed Indicators
E. Master Plan Objectives Tie to Measures Matrix
F. Jonathan Rose Companies Newark Master Plan; Chapter 2: Vision and Policy Goals
G. Team CCNY Newark Sustainability Indicator program