THE 2016 NEW JERSEY SUSTAINABLE STATE OF THE STATE REPORT

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A Better Tomorrow, One Community at a Time

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The 2016 New Jersey Sustainable State of the State Report Volume I Summary Report: Table of Contents

I. Introduction and Executive Summary

In June 2015, Sustainable Jersey released its first *Sustainable State of the State Report,* which presented a portrait of sustainability trends in the state. This 2016 volume represents the first in a series of planned updates.

Sustainable Jersey: How We Got Here

Sustainable Jersey is a network and movement of over 463 municipalities and 458 schools and their school districts working collectively to achieve a sustainable future. Our mission is to bring about a sustainable New Jersey, working one community at a time. Acting collectively with state agencies, non-profit organizations, experts, foundations and industry, Sustainable Jersey sets standards and researches best practices for what communities could and should do to contribute to a sustainable future. The program culminates in a prestigious certification after municipalities and schools have documented that they have met a set of rigorous standards.

The best practices and standards in the program are researched and developed by 30 issue-based Task Forces and have broad-based acceptance and credibility. Since the launch of the Sustainable Jersey municipal program in 2009, participants have successfully implemented and documented over 5,000 discrete actions from our list of best practices. Hundreds of millions of dollars in public and private resources have been leveraged in grants and technical assistance to support participants in the program.

Defining a Sustainable New Jersey

Prior to the Sustainable State of the State reports, we lacked a way to track progress and gauge the impact of this remarkable success on the ground against our goals. We lacked an accepted definition of "sustainability," or a vision that defines what our movement is trying to achieve. Nor did we have a way to track our progress and gauge the impact of the remarkable success on the ground against our goals.

Following a two-year process involving stakeholder engagement, research, and expert consultation, this report defines our vision of sustainability for New Jersey in terms of 57 goals (originally proposed in 2015). Each goal has indicators that provide clues as to how the State is doing in achieving these sustainability goals. Each goal is assessed based on whether the indicators and other data suggest we are making adequate progress.

What's New In The State of The State, 2016?

The overall picture for New Jersey points to mounting challenges on the path to a sustainable future. In 2016, the state's performance on two additional goals merited a 'thumbs down,' so that overall we are moving in an unsustainable direction for 27 out of the 57 goals.

Both of the goal assessments that reversed direction were in the transportation dimension. That sector became less efficient as its greenhouse gas emissions crept up and the number of vehicle-miles driven grew more than the state's economic production. In other cases, lack of critical data made it impossible to determine the direction of progress. For example, reports of damaging levels of lead in water from public school drinking fountains underscore the fact that safe *water supply systems* (our indicator) do not guarantee that water is still safe when it comes out the faucet. This prompted the expert panel to add a new indicator for *tap water quality.* "Minimizing the negative impacts of the energy system" was another crucial sustainability goal that was assigned an indeterminate trend. The key indicator, the level of greenhouse gas emissions, crept up in 2013, not enough to reverse the overall downward trend since 2006, yet also not enough to keep up with the rate of reduction scientists say is necessary to avert catastrophic global warming and meet the targets established by the State of New Jersey. Other on-going trends of concern include: loss of biodiversity and open space, more waste generated and less recycled, and growing poverty and inequality.

Yet, there has been bright news, too. Racial and ethnic disparities narrowed in education (test scores and high school graduation) and health (premature death and diabetes). More people got health insurance. Violent crime continues to drop. Air quality is improving and renewable energy production is up.

As much as the challenges are daunting, local communities are responding, not least the 193 certified Sustainable Jersey communities. In the coming year, they will have the opportunity to apply for the first Sustainable Jersey Gold Stars, in Energy and Waste, putting them on the road to achieving the Gold level of certification as new Gold Stars are added each year to incorporate all the dimensions of sustainability.

II. Summary Table of Goals and Progress

This report contains goals for the future and indicators to track progress. This section presents just the goals, with an assessment of New Jersey's progress toward achieving them in 2016. The goals are organized into 7 capitals and 14 dimensions in a theoretical framework, as explained in Section VI. Each goal is described more fully and supported by indicators in Section VII.

Goals are descriptions of what we believe needs to be achieved if we are to become sustainable. They describe outcomes, or end points. For each goal we provide **indicators** based on empirical data that we can track to judge our progress toward the goal.

Each **goal** is assessed based on a judgment of how NJ is doing relative to the goal. Thumbs up is "good," thumbs down is "bad." The assessment is of New Jersey's status, not of any single policy actor, institution, or sector.

Goals


Adequate progress toward goal


Inadequate progress toward goal


Trend Unclear/More Analysis Needed. Either there is insufficient data to render a judgment, or the data do not present a clear picture of our progress.


These icons indicate the assessment of progress has changed direction since last year (e.g., a negative *thumbs down* has become a positive *thumbs up*).

For each **indicator** we simply describe the trend, but render no judgment about whether that trend is positive or negative. Up simply means the values of the data for that trend are increasing, good or bad.

Indicators


Up


Down


Flat


Baseline only. We have data that describes our recent status, but there are no data to describe our trend. In the future we will seek to add new data points where possible.


Insufficient Data/Analysis

Two issues that manifest across many of the goals and indicators are climate and equity. To highlight these connections the icons below appear next to the goals and indicators throughout the report. A full discussion of the crosscutting themes is in Section VI: A Framework for Sustainability.

Crosscutting Themes


Signifies that the goal or indicator relates to climate change


Signifies that the goal or indicator relates to equity

NATURAL CAPITAL

Biodiversity and Ecosystem Services (pg 18)

New Jersey's mosaic of natural, agricultural, and developed land supports its **full complement of species and biodiversity**.		
There is sufficient land, appropriately managed, to provide essential **ecosystem services** and to allow species to adapt and migrate in response to climate change.		
All NJ residents benefit from the ecosystem services provided across the natural, agricultural, and developed landscapes of the state. They should enjoy access to open space, along with trees and other green amenities in their neighborhoods.		

Water (pg 20)

Drinking water from wells and public water systems is clean and safe for human consumption.		
Water quality in streams, lakes, and wetlands is sufficient to support native species and ecosystem functions, and safe for human recreation and fish consumption.		
Water supply, including stream flow and groundwater recharge, is sufficient both for human uses (household, agricultural, and recreational) and for ecosystems, providing for healthy aquatic and riparian habitat and biodiversity.		
The water system, including infrastructure for water supply, stormwater and wastewater, provides adequate capacity and functions at needed standards. It is resilient to climate change, taking future demands and vulnerabilities into account.		
Access for all New Jerseyans to water resources for all necessary uses is universally affordable and fairly distributed.		

Agriculture and Soils (pg 22)

Agricultural practices protect and restore environmental quality and the natural resource base. This includes minimizing pollution associated with agriculture and conserving and restoring soils under agriculture as a key economic and environmental asset.		
Agricultural practices mitigate climate change by optimizing carbon storage in soils and plants, minimize the emissions of GHG in the use of chemical fertilizers, prioritize local markets to lower transport costs, and eventually eliminate use of nonrenewable resources.		
Agriculture is economically viable and provides a sustainable livelihood. Farming livelihoods are strengthened by enhancing quality of life for farmers, improving working conditions and wages, and providing access to farmland at a reasonable cost.		

Air (pg 24)

Outdoor air quality is healthy for all segments of the human population and does not harm the natural environment.		
Indoor air quality does not pose a significant direct or indirect health threat for any segment of the population - in particular to sensitive populations such as children, the elderly, or the immune-compromised.		
There is **equitable distribution** of environmental harms from air pollution so that they do not disproportionately burden any social group defined by class, race, location, age, or other factor.		
Greenhouse gases are reduced commensurate with New Jersey doing our part to avoid catastrophic global climate change.		

HUMAN CAPITAL

Health (pg 26)

The people of New Jersey enjoy **long lives and good health**, characterized by mental well-being and freedom from preventable disease and injury.		
There are no significant **disparities in health** outcomes across racial and ethnic categories.		
All NJ residents have equitable access to an **affordable, high-quality, robust healthcare system**.		
The people of NJ have **access to sufficient, healthy, and nutritious food**.		

Education and Human Development (pg 28)		
A **quality education** is provided to the people of New Jersey, equipping them with the knowledge, skills, and capacities to enable successful careers, civic engagement, and personal fulfillment.		
Disparities in educational outcomes due to poverty and other disadvantages are addressed and reduced.		
The people of NJ have access to **life-long learning** opportunities allowing them to find, (re)train for, and create employment in a changing economy that evolves to meet sustainability challenges.		
New Jerseyans **understand and apply sustainability concepts,** such as the interrelation of social, economic, and ecological systems; system dynamics and thresholds; human interdependence; and intergenerational responsibility.		
SOCIAL CAPITAL		
Social Capital (pg 30)		
New Jersey's communities are **safe and inclusive**.		
Social organizations have the leadership, resources, and institutional capacity to amplify the effectiveness of people in solving social and environmental problems.		
Communities and neighborhoods enjoy high levels of **citizen engagement** and an inclusive sense of identity and place. They host a variety of community events and public venues that bring people together.		
Exposure to the **arts**, recognition of diverse **cultures** and histories, and **recreational opportunities**, are abundant and accessible throughout New Jersey.		
POLITICAL CAPITAL		
Governance (pg 32)		
All **people of NJ are empowered to participate** equally in the formal and informal processes of government at all levels.		
Elected representatives are accountable and transparent in their decision-making and promote the welfare of all their constituents. The composition of elected bodies generally reflects the racial, ethnic and gender make-up of the electorate.		
Government institutions justly, consistently and efficiently provide services, carry out regulation and enforcement, provide timely, accurate and relevant information, act upon citizen input, and redress grievances.		
ECONOMIC CAPITAL		
Economy (pg 34)		
Businesses produce goods and services in a manner that makes **efficient use of natural resources**, maximizes reuse of materials, and minimizes waste and pollution.		
The business sector is robust, with fair competition and low barriers to entry in the market for new ventures and ideas. Investment is made into research and development to foster innovation. The business sector invests in the skills and productivity of the workforce.		
Household **income is adequate to meet needs** and keeps pace with the basic cost of living; poverty is significantly reduced as a result.		
Wealth and income inequality do not reach levels that undermine economic opportunity, social mobility and democratic participation.		
The NJ economy supplies **diverse, quality jobs** and livelihood opportunities sufficient to support families with a standard of living adequate to meet household needs, while allowing for leisure time.		
PHYSICAL CAPITAL		
Housing (pg 36)		
New Jersey residents have **affordable housing** choices.		
All New Jerseyans have housing choices that provide a s**afe and healthy environment**.		
All New Jersey **housing is resilient** to the impacts of climate change in terms of design and location.		

Transportation (pg 38)		
The transportation system enables the **efficient movement** of people and of the goods necessary to support a robust regional economy.		
Environmental impacts are minimized in the planning and construction of transportation infrastructure.		
Transportation infrastructure is maintained to a functional and structurally sound standard.		
Transportation infrastructure is reliable and resilient, including to the anticipated impacts of climate change, such as extreme heat, high winds, and worsening coastal and inland flooding.		
Transportation is accessible and affordable to all segments of society, including low-income households.		
Development Patterns (pg 40)		
Existing developed areas and infrastructure absorb the majority of development; underutilized spaces such as brownfields are reclaimed.		
Open spaces, trees, and natural areas should be retained, restored, and/or created in order to protect and restore biodiversity and ecosystems.		
Access to open space, trees, and natural areas is provided to all New Jerseyans for recreation, and is integrated into neighborhoods and our daily lives. In developed areas, access to green space and recreational opportunities enhance the quality of life.		
Development is resilient to the impacts of climate change. The spatial arrangement of buildings, transportation networks, other infrastructure, and interstitial open space absorbs the impacts of climate change with minimal disruption.		
SYSTEM METABOLISM		
Energy (pg 42)		
Negative impacts from extraction, production, and consumption of energy on environmental, social, and human health are minimized. Greenhouse gas (GHG) emissions are reduced in time to help avoid catastrophic climate change.		
Vulnerabilities are reduced through a transition to a diverse mix of safe renewable energy sources that are relatively invulnerable to disruption or depletion over the long term.		
The distribution of costs and benefits of the energy system is equitable. The needs of all people and segments of the economy are met consistently at affordable and predictable costs.		
Resilient, diverse, and reliable energy infrastructure delivers quality energy when and where it is needed, with minimal vulnerability to threats, both gradual (e.g., sea level rise, infrastructure aging) and sudden (e.g., extreme weather, supply disruptions).		
Risks to human health from the extraction, production, and consumption of energy are minimized.		
Waste (pg 44)		
Solid waste production is minimized in New Jersey.		
Reuse and recycling of the waste that is produced is maximized.		
The production of **hazardous waste** is minimized and is disposed of in ways that are safe for both humans and the environment. Past contamination is cleaned up.		
Nuclear waste must be stored in facilities that are safe and reliable, away from population centers, and that are able to keep nuclear waste safely contained over a time frame commensurate with the lifespan of radioactivity.		
There is an **equitable distribution** of the impacts on human health of all forms of toxic pollution and waste disposal. Remaining harmful emissions and contaminated sites must not be unfairly concentrated near particular residential areas.		

The current actions in Sustainable Jersey are having a real impact. But the sustainability goals in this report take a next step and specify clearly what we need to achieve. Providing indicators will track our progress so that we can ensure that over time our work is yielding results that are commensurate to the long-term challenges.

III. Why This Report?

Looking back to the launch of the Sustainable Jersey program in 2009 we can track some remarkable changes. At that time, sustainability as an idea was not a significant part of the local conversation and it certainly wasn't a major force driving change. Since that time 463 of New Jersey's municipalities have formally pledged to pursue sustainability through an act of the governing body, and pledged to seek Sustainable Jersey certification. Where once sustainability wasn't present in the local conversation, now there are hundreds of new green teams and sustainability commissions created as formal bodies of local government and charged with driving change on these issues. Collectively these municipalities have implemented and documented over 5,000 discrete actions from our list of best practices. Recently we launched Sustainable Jersey for Schools, and in just six months 300 schools and school districts have signed up.

All of this activity begs an important question: so what? In our quest to secure a sustainable future, we need to be able to say how much progress is being made. And to do that we need to be able to say what we want the future to look like, and what issues must be tackled to achieve it. We can be confident that the current Sustainable Jersey program is improving the quality of life in communities around New Jersey. But we can't say with sufficient confidence how implementing the slate of Sustainable Jersey actions relates to achieving our long-term and statewide goals, or what our collective impact is.

This report is a first major step linking our actions at the local level to our broader vision of sustainability. We aim to accomplish three things with this report and our broader effort to define and track progress toward sustainability goals:

1. **Create a vision and inspiration** for Sustainable Jersey and our movement. Working with experts, partners, and local leaders, Sustainable Jersey has codified over 200 best practices and performance standards for communities that are intended to move us toward sustainability. Thousands of local volunteers and officials have dedicated their time and resources to implementing the best practices and meeting the standards. All of this was done by people relying on an intrinsic belief that things needed to change, and a broad unwritten consensus about the general direction in which we need to go. With this report, we hope to provide the benefit of a clear articulation of the broader statewide and long-term outcomes we are trying to achieve. What should the standards be if we want to make sustained progress? Which actions are the most urgent?

   The goals and indicators presented here provide us with a better picture of why we are engaging in sustainability efforts, and help guide the future creation of Sustainable Jersey's standards and actions.

2. **Track our Progress.** By any measure, over 5,000 documented sustainability initiatives and 193 certified municipalities and counting, represent real progress. However, many of the issues we face are hard masters, with their own standards for performance that won't give us credit for a "good try." Climate change, for example, would not be any less severe if someone gave a good effort implementing a number of ineffectual actions. While we should celebrate our success and recognize good work and good effort, ultimately this work is about solving problems and achieving results. The current actions in Sustainable Jersey are having a real impact. But the sustainability goals in this report take a next step and specify clearly what we need to achieve. Providing indicators will track our progress so that we can ensure that over time our work is yielding results that are commensurate to the long-term challenges.

3. **Get us to Gold.** Sustainable Jersey's current levels of certification don't mean a municipality or school is "sustainable." Rather the levels of certification mark milestones on a long-term transition to sustainability. Bronze certification signifies that a municipality or school has made a commitment to sustainability and succeeded in implementing its first major actions. Silver certification signifies that a municipality has gone well.beyond getting started, and is making significant progress on a broad range of issues. Gold certification indicates that a municipality or school is performing at a level such that if the others did likewise, collectively we would be on track to achieving our sustainability goals. Whereas the qualifications for Bronze or Silver involve accomplishing a series of prescriptive actions, Gold requires the demonstration of *outcomes* that meet a performance standard.

   These performance standards, bolstered where necessary by specific actions, will be defined for each dimension of sustainability and recognized by a *Gold Star*. In 2017, municipalities will be able to apply for a Sustainable Jersey *Gold Star in Energy* and one in *Waste*. Each year, new Stars in additional dimensions will be developed and released. Eventually, the full certification in Gold will be issued when a municipality attains a yet-to-be determined number of Gold Stars distributed among environmental, economic and social dimensions.

Most sustainability issues are not the sole responsibility of municipalities and schools, and these local institutions cannot be asked to bear the full burden for making progress. The goals and indicators in this report define what we need to achieve collectively, as individuals and at all levels of public and private institutions within our federal system of shared governance. Part of developing the Gold standard will be to determine reasonable expectations of local governments to address these often regional and global issues.

IV. How We Created this Report: Methods and Process

This report is the result of ongoing research and engagement with experts, partners, and stakeholders that began in 2013. It builds upon the initial release of the State of the State report by Sustainable Jersey in 2015.

The first step was defining the big issue areas. Each Sustainable Jersey Task Force was asked to list the big picture issues that the actions and standards that they had created were intended to fix. This was the first step in defining the list of things about which Sustainable Jersey should be concerning itself and defining the full scope of the goals and indicators. Summing and integrating the responses from all of the Task Forces, we created the first list of topics. These might also be variously described as categories or goal areas. In this report we are calling these categories dimensions.

For each dimension of sustainability we worked with the Task Forces to identify:

- Accepted definitions of sustainability for the dimension, and any accepted targets that defined the level of performance that needed to be achieved
- Relevant data that were available that could be used as indicators to track progress
- Relevant experts that could be enlisted as advisors and collaborators in the work

This information was augmented with research to develop a series of White papers on each dimension. The White papers were released at Sustainable Jersey's First Sustainability Summit held on September 18, 2013. At the Summit, 200 participants divided into workshops to discuss the initial findings and to provide feedback on goals, targets, indicators to track progress, and relevant experts to enlist.

The feedback from the 2013 Summit was catalogued. Working with Task Forces members and other experts, the new information was utilized to refine the input in the following ways:

- The input was organized into 14 dimensions
- Each dimension was further broken down into 3-6 component "goals." The goals are statements of what we want to achieve, and further define each of the elements within the dimension. For example, the Air dimension has goal statements for Indoor Air, Outdoor Air, etc.
- For each goal, we identified and gathered data that could be used to track progress
- For some indicators, no appropriate data were found
- In other cases, we located data that could be used as an indicator, but only with further analysis. Given limited time and resources, we were able to conduct this analysis for some, but not all of the potential indicators. A significant product of the report is the list of data and analysis gaps that we hope to address in the future in collaboration with partners

Each year, the final step in the process is to assess the indicators and evaluate progress toward the goals. The assessment of the goals was updated in 2016 by Sustainable Jersey staff working with an *ad hoc* committee that consists of subject matter experts and leaders.

V. How To Use This Report?

A description of how to interpret and read the main goal sections of the report and the iconography that is used (thumbs up/down, arrows, etc.) appears on the first page of the Summary Table of Goals and Progress on page six.

This report has two volumes:

Volume I – The Summary Report is intended for a general audience. The main focus is on the goals and presenting a long-term vision for New Jersey. The indicators are presented as simple arrow graphics. The Summary Report is succinct and summarizes a great body of information. As a result, it necessarily skips over some detail, caveats, and subtlety.

Volume 2 – The Technical Report contains the sources, data, and other detail that could not fit in the Summary Report. For each indicator presented in the Summary Report, the Technical Report displays the actual data in chart or table form, together with sources and initial analysis, in some cases supported by data that goes beyond the indicators. The Technical Report is available on the Sustainable Jersey website as a PDF.

Volume I presents each of the 57 goals, organized by 7 capitals and 14 dimensions (fully explained in the next section). For each goal we present an assessment of our progress as a state toward the goal. This characterization is not a judgment on specific actors such as municipalities or schools, or on state government, industry, NGOs or individuals. Rather it characterizes the general condition of New Jersey as a whole relative to the goal. The assessment takes into consideration not only our trend, but our current status. If the data suggest that the trend is slightly positive in direction, but the current condition is dire and the rate of positive change is insufficient to bridge to gap to achieve the goal, it would still result in a negative assessment of progress.

Unlike the goal assessments that are an integrative and partially subjective evaluation of progress, each indicator is objectively characterized based on the data. This is not a characterization of progress or a judgment about the goal. An up arrow is not good or bad, it simply means data shows an upward trend of whatever is being tracked. Whether the trend means progress or not depends on the nature of the trend being tracked and how the data are analyzed and presented.

VI. Framework for Sustainability

The premise of this report is that to steer a long-term course, we need a clear destination and understanding of what it is we want to sustain. A sustainable state (or community) is one that is able to provide the things that people value over the long run. Some things we value are incontrovertible such as sufficient basic food and shelter. Other elements, however, are more subject to interpretation and individual and cultural preference. This exercise contributes to an effort to clarify the values at stake for consideration in New Jersey.

For this report we are utilizing the concept of "capital" as a useful way to break down the broad and potentially vague concept of sustainability. The idea of "capital" from the world of finance helps us understand that to be sustainable our basic activities must augment our capital, not draw it down. We use this concept of capital to characterize the assets that nature provides and generations have constructed that provide the necessary conditions to sustain human society. Examples include an adequate water supply as a form of natural capital, or respect for the rule of law as an accepted societal norm (taken for granted in New Jersey, but not around the world) as a form of social capital.

In the context of sustainability, there are six forms of "capital," or stocks (e.g. reserves, supplies, or assets), upon which human livelihoods rely: natural, physical, economic, political, social, and human. For this report we adapted this concept of capital with the addition of one category of "flows" we call system metabolism. Defining these types of capital enabled us to take a more comprehensive and rigorous approach to developing the 14 dimensions of sustainability and 57 goals. These seven forms of capital provide a strong foundation for defining sustainability that helps define the scope of our goal-setting efforts:

Natural capital refers to natural resource stocks (water, soil, air, biodiversity) and flows (water cycles, soil fertility and agriculture, and carbon storage) provided to us by natural capital, such as water purification. Natural capital supports human society through various ecosystem services such as water purification, timber, and productive agriculture, to name a few.

Human capital is the measure of the capacity of individuals to achieve personal well-being, including such prerequisites as knowledge, skills and health.

Social capital lies in the relationships among individuals that allow people to cooperate to get things done – including informal social networks, formal organizations, and cultural norms and identity.

Political capital refers to the systems and norms that define governance and public decision-making, including how power is distributed in society and the processes and institutions that enable democratic participation. Outcomes include how well government services are performed and whose interests get met.

Economic capital describes the resources and mechanisms that power our economy: financial capital (investment and credit), entrepreneurship, technology, labor, and personal income and savings. Economic capital also encompasses the rules, institutions and structures that make markets work, such as protection of intellectual property, contract law, and mechanisms for identifying and weighing risk.

Physical capital is made up of buildings, roads, other forms of infrastructure and all the ways people transform nature to produce what is known as the built environment.

System metabolism tracks the flows of energy and waste as natural and physical capital are transformed via the production and consumption of goods and the movement and settlement of people.

Cross-Cutting Themes: Equity and Climate

Two broad themes intersect all the dimensions of sustainability. Because of this and because of their intrinsic importance, they receive special emphasis throughout this report. Specifically, each goal that has an equity or climate connection will have a special icon in the Summary Table of Goals and Progress. In each dimension, where the full goals are presented, the equity and climate icons will appear next to all the relevant indicators.

Equity is not the same thing as equality. Rather, its requirements are equal rights and opportunity, including the rights to democratic participation, education, and meeting other basic needs that enable fair opportunity.

A sustainable state (or community) is one that is able to provide the things that people value over the long run. We know that at a minimum, we need to sustain the natural environment that sustains us, but beyond that, what values are given priority? Who will reap the benefits (or pay the costs)? Who gets a seat at the table when these decisions are made? Sustainability of what? for whom? Our effort will strive to ensure that these decisions are open to scrutiny and broad-based input.

One group cannot speak up for its own interests in even the most democratic process, namely, future generations. Thus, it is an axiom of sustainable development that the choices we make now must not constrain the ability of our descendants to meet their own needs.

Pursuing sustainability necessarily involves addressing questions of fairness and equity in two ways. First, it raises the issue of the fair distribution of the environmental "goods" (products and health) and "bads" (pollution and resource depletion) among various people and groups in the present, and balancing between our interests today and the interests of future generations. Second, equity is not just about slicing up the pie fairly, it involves procedural fairness in setting sustainability goals and deciding among trade-offs. In other words, equity is about good democratic process.

Equity should be pursued as an expression of our values, but also because it can be seen as an asset to our efforts to organize and solve problems. If a rising tide does not lift all boats, there will be fewer people working to raise it.

Climate Change is the other cross-cutting theme. The direct effects of a changing climate in New Jersey include greatly accelerating sea level rise, and more frequent and severe storms, droughts, and heat waves. The resulting risks cut across many dimensions of sustainability, increasing the likelihood of such outcomes as species loss, water supply interruptions, flooding damage to homes and infrastructure, health stress, and economic loss. Many of these risks are gravest to our most vulnerable populations, potentially deepening social inequities as well.

The effects of climate change beyond our borders have perhaps even more dire consequences. We rely on a complex global network of trade and economic interdependence to supply us with food and other goods. Droughts in prime agricultural land in California, or political and market instability caused by famine and drought in the developing world, have the potential to bring even more severe consequences to New Jersey than simply the changing weather we will directly experience.

A unique challenge of climate change is that the solutions are not simple or targeted at one policy actor. Solving the crisis requires sustained effort over time, in every sector of the economy and walk of life. Since climate change presents what may be the most urgent widespread sustainability challenge facing New Jersey, it is imperative to seek opportunities in each of our 14 sustainability dimensions and goals to reduce the greenhouse gas emissions that are fueling the problem. However, since we can make at best a dent in this global problem through our local actions, New Jersey must also wherever possible seek opportunities to reduce our vulnerability and increase our resilience. Seen in this context as a crucial component of sustainability, resilience refers to our ability to withstand and quickly recover from sudden disruptive changes and catastrophic events. Thus, climate change implications will be highlighted in each of the goals and indicators where they apply.

Some Limitations and New Directions

In this bold and ambitious endeavor to lead a collaborative effort to define and measure progress towards sustainability goals for the state of New Jersey, it is important to be mindful of the limitations we encounter. As noted above, some limitations involve gaps waiting to be filled through more research and discussion, and we are eager to participate in this continued research. But there are also a few built-in limitations worthy of note.

Limits on Numbers of Indicators

A report such as this cannot provide indicators for all the important factors affecting sustainability and remain useful as a device to focus attention and guide action. Over time, better leading indicators may be found to replace some of those currently listed.

"Not everything that counts can be counted. Not everything that can be counted counts."

–Albert Einstein

Limits of Quantitative Indicators

This report emphasizes quantitative indicators. The outcomes for some goals may better be assessed in qualitative terms, a direction we intend to explore in the future.

What goals-and-indicators can and can't do

Some things we value and want to sustain are notoriously difficult to measure or even observe directly (e.g., personal fulfilment, community identity) and others present methodological challenges and funding limitations that haven't yet been addressed (e.g., soil erosion and soil carbon). It is crucial that the lack of top-line, simple indicators does not lead us to overlook the importance of these goals in assessing the big sustainability picture.

Measure what we value – not value what is measured

Finally, the goals-and-indicators approach is not intended to be the only tool in the box. For example, it is less useful than other methods for uncovering the underlying drivers of unsustainability, characterizing the policy environment, or for understanding the interactions among the many dimensions of sustainability. Yet, what this tool does well – articulating our goals and alerting us to danger signs if we diverge from them – provides a crucial contribution to meeting the challenges confronting us on the path to a sustainable future.

GOALS AND

INDICATORS

BIODIVERSITY AND ECOSYSTEM SERVICES

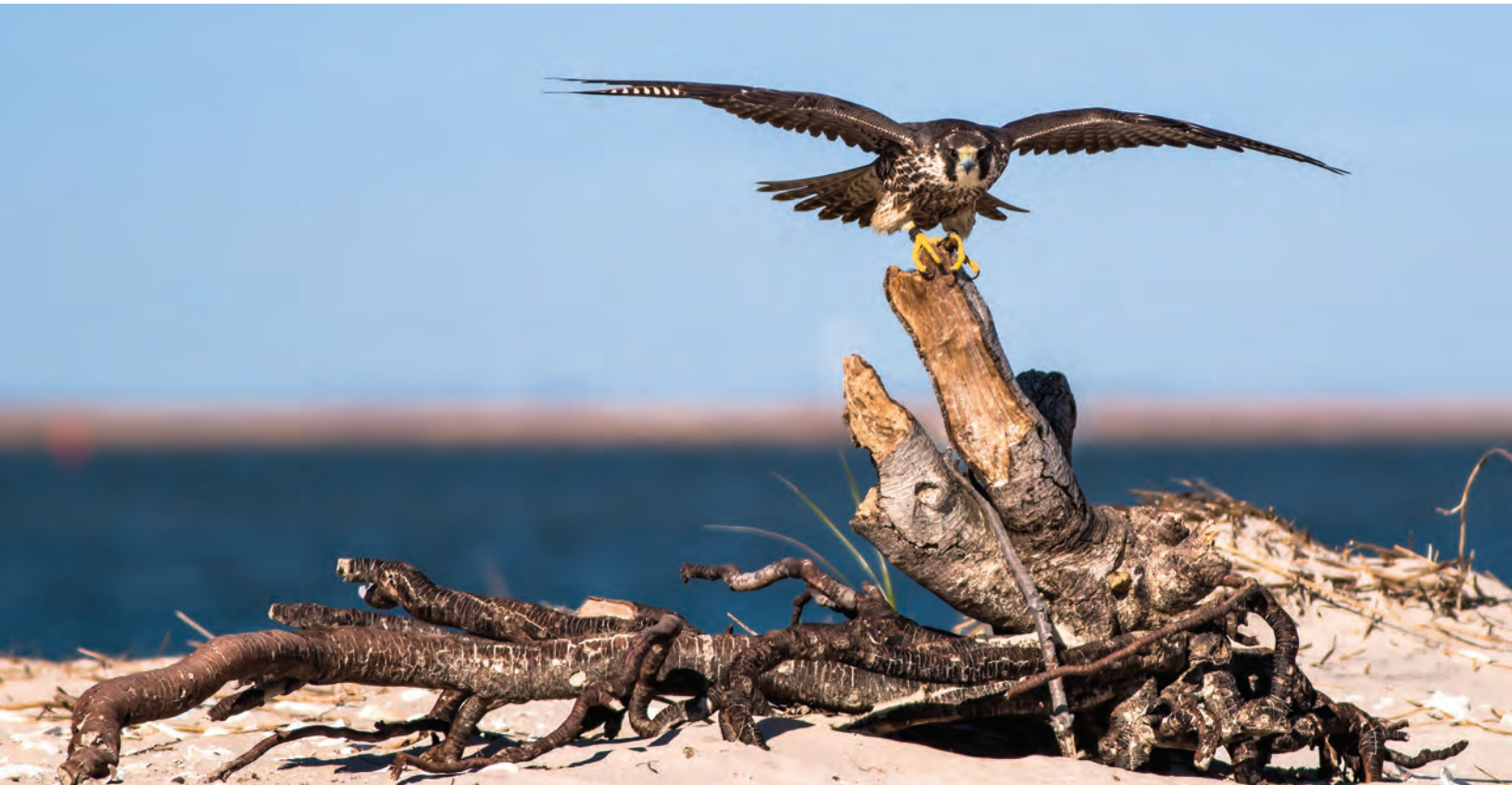
Why Does It Matter?

Biodiversity refers to the awe-inspiring array of species – plants, animals, fungi, and microscopic organisms – and to the genetic diversity within these species that has evolved since the dawn of life on earth. Species form biological communities that interact with their physical environments to make up ecosystems. Ecosystems provide the "services" that sustain life. Among these services are a clean and well-regulated water supply, soil fertility, food, and carbon storage. In the human milieu, healthy ecosystems also result in jobs for people in fishing, tourism, and other industries important to New Jersey's economy. While biodiversity itself is counted among the "services" rendered by ecosystems (e.g., resulting in new drugs, crops, etc.), biodiversity also has an intrinsic value in terms of life on earth that is currently under siege as climate change, habitat destruction, and fragmentation drive extinction rates to the highest levels seen since the end of the Cretaceous Period.

The Goal

New Jersey's mosaic of natural, agricultural, and developed landscapes supports their full complement of species and genetic biodiversity. There are sufficient areas of land, coast, and sea maintained and managed to provide necessary ecosystem services and permanent, seasonal, and transient habitats for New Jersey's species to survive in place, migrate and, over the long term, adapt and evolve.

The Red Knot is a migratory bird species that relies on a New Jersey stopover to gorge on Horseshoe Crab eggs. A monumental effort by conservationists restored the key Horseshoe Crab beach habitat after it was destroyed during Hurricane Sandy.



How Is New Jersey Doing?

New Jersey's mosaic of natural, agricultural, and developed land supports its **full complement of species and biodiversity**.

Bird Species Diversity
Five out of six species of indicator birds representing different New Jersey habitats and regions are declining. Declining: Baltimore Oriole, Eastern Towhee, Black and White Warbler, Grasshopper Sparrow, and Red Knot. Flat/ indeterminate trend: Black-crowned Night Heron.

River and Stream Biodiversity
Surveys of stream-bed life (benthic macroinvertebrates) show that the number of stretches of New Jersey rivers and streams whose health is rated as "excellent" is in decline. The number rated "poor" is also in decline. Thus, we are cleaning up the worst offenders, but failing to protect our pristine areas.

There is **sufficient land, appropriately managed**, to provide essential ecosystem services and to allow species to adapt and migrate in response to climate change.

Conversion of Land from Open to Developed
The amount of land in New Jersey that is developed is increasing at the expense of forests, wetlands, and agricultural land.

Forest Biomass (growth)
The biomass of living trees in New Jersey (not acres of forest, but volume of trees on forested land) is increasing.

Impervious Surface
The amount of land in New Jersey that is paved (covered with impervious surface) continues to increase.

Watershed Disturbance
In 2002, one third of New Jersey's watersheds had over 10% impervious cover and were considered significantly impacted.

All NJ residents benefit from the ecosystem services provided across the natural, agricultural, and developed landscapes of the state. They should enjoy access to open space, along with trees and other green amenities in their neighborhoods.

Urban Tree Canopy
The percent of urban and community land in New Jersey with a tree canopy was 37.7% in 2001.

Preserved Public Open Space
The number of acres of land in recreation areas, parks, and open space that is permanently preserved and open to the public is increasing, although at a rate that has slowed in recent years.

Proximity to Open Space
As of 2013, 64% of the population of Northern New Jersey had good access to a park or public open space (defined as living within a half mile for urban dwellers and one mile for rural residents).

WATER

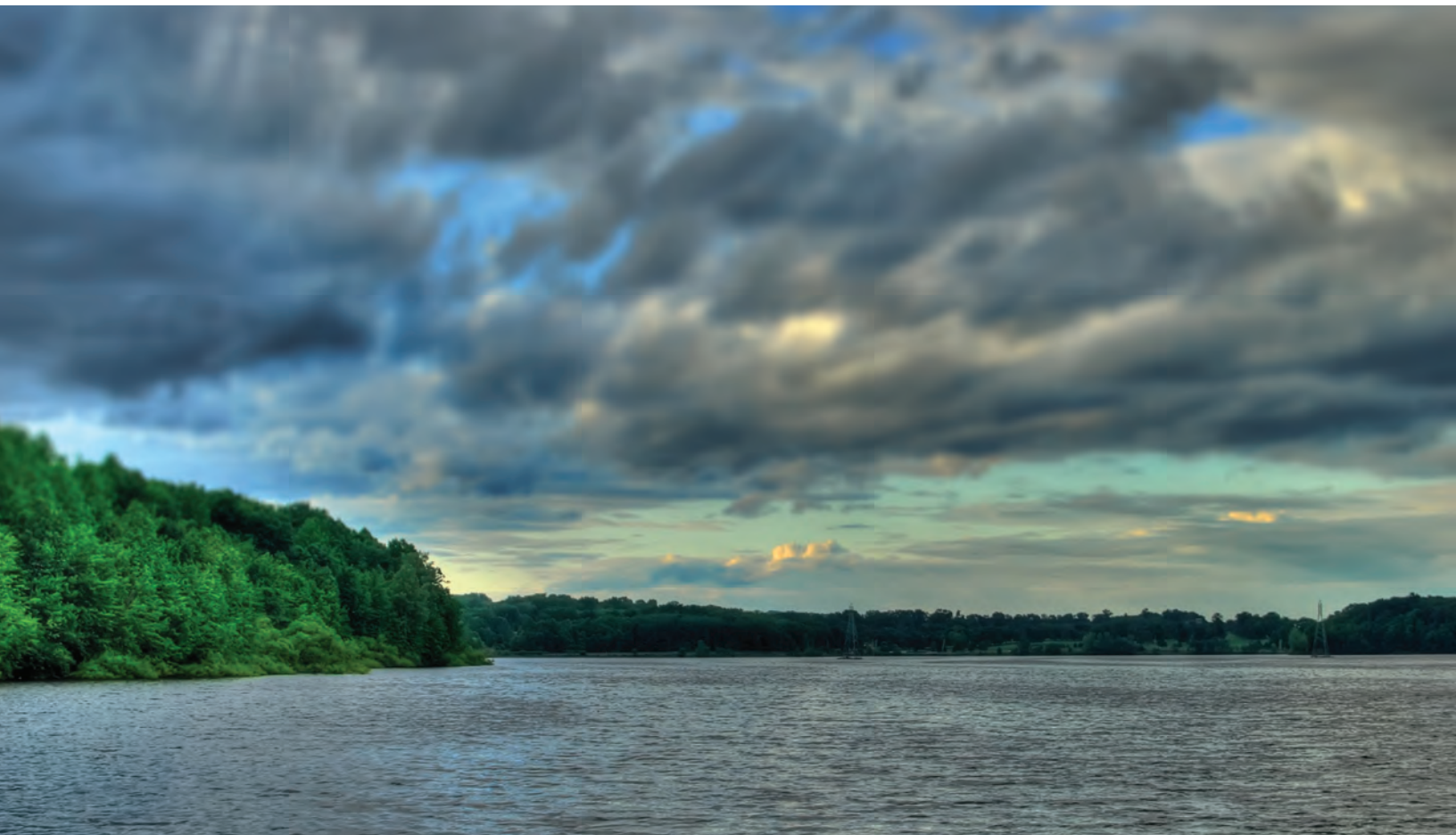
Why Does It Matter?

A fundamental condition necessary for any human civilization or settlement to flourish is to secure adequate water for drinking and agriculture, and then to protect those water supplies as growth occurs. New Jersey is blessed with rich water supplies and 46 inches of rainfall per year. However, we still have droughts, and despite maintaining high water quality at the tap, we place intense demands on our water supply and infrastructure that strains its functional capacity to serve people and competes with the needs of ecosystems. Our infrastructure for drinking water, wastewater and stormwater is old and requires significant and costly upgrades. Meanwhile, development has degraded many watersheds and most of our water bodies are not safe for fishing and swimming. Add the threat of climate change to an already stressed system and water becomes one of our great challenges.

The Goal

New Jersey's water system provides an adequate and affordable supply of clean and safe drinking water for everyone, while also safeguarding water sources to ensure sufficient quality and supply to support healthy ecosystems and biodiversity.

Many new chemicals and prescription drugs, for which we do not test routinely, are appearing in drinking water. In 2014, the State of NJ reported that one of these (toxic perfluorinated compounds) occurred in 78% of water systems sampled.



How Is New Jersey Doing?

Drinking water from wells and public water systems is clean and safe for human consumption.

Public Water Supply Violations
The percent of community water systems meeting current standards for microbial and chemical contamination is high and has not changed significantly.

Tap Water Quality
There are no readily available statewide data on the quality of water as it comes from the tap despite concerns about lead and other major contaminants that can be introduced as water moves through pipes to faucets in homes, schools, and other institutions.

Water quality in streams, lakes, and wetlands is sufficient to support native species and ecosystem functions, and safe for human recreation and fish consumption.

Surface Water Quality
The portion of NJ's water bodies that meet quality standards for various uses is declining. Standards exist for fishing, swimming, shellfish harvesting, drinking water supply, and aquatic life. Fewer than 20% of water bodies in New Jersey are rated as "fully supporting" recreational uses.

River and Stream Biodiversity
Surveys of streambed life (benthic macroinvertebrates) show that the number of stretches of New Jersey rivers with health rated "excellent" is in decline. The number rated "poor" is also in decline.

Water supply, including stream flow and groundwater recharge, is sufficient both for human uses (household, agricultural, and recreational) and for ecosystems, providing for healthy aquatic and riparian habitat and biodiversity.

Surface Water Flow
Four of ten NJ watersheds had impaired surface water flow from 2000-2009. This figure would be higher if we accounted for sensitive species and critical water supply regions, this figure would be higher.

Ground Water Level
There are currently no statewide data readily available that show the condition of all our groundwater and aquifers, although there are regional indications of concern.

The water system, including infrastructure for water supply, stormwater and wastewater, provides adequate capacity and functions at needed standards. It is resilient to climate change, taking future demands and vulnerabilities into account.

Backlog of Infrastructure Upgrades
The estimated cost of upgrading our existing infrastructure to a basic regulatory compliance standard is over forty billion dollars, and climbing.

Making Infrastructure Resilient to Climate Change
There is currently no analysis that provides a comprehensive estimate of the cost of upgrading our water infrastructure beyond mere compliance to achieve resilience to the impacts of climate change.

Access for all New Jerseyans to water resources for all necessary uses is universally affordable and fairly distributed now and across generations.

Affordability of Water to Low Income People and Communities
The cost of water and sewer currently is not a major strain on household budgets for low-income earners.

Cost Burden For Municipal Water System Upgrades
The cost of needed upgrades, if implemented, would put a major strain on the state's poorest cities and their residents. Although this detailed analysis has not been done statewide, it is clear that this challenge is significant for municipalities across the state.

AGRICULTURE AND SOILS

Why Does It Matter?

Agriculture, as the source of food, is the basis for human civilization and individual well-being. It both provides and relies upon numerous essential ecosystem services. New Jersey relies heavily on food imported from around the world. However, agriculture is still a major part of our economy, and roughly one sixth of New Jersey's land is in farmland. We are a significant exporter of certain crops such as cranberries and blueberries, and take pride in key crops such as tomatoes and sweet corn. Farming with sustainable practices contributes to environmental quality locally, provides some limited food security, and contributes to the local economy. The state has also seen a proliferation of farmers' markets that contribute to quality of life and local economic vitality. Healthy soils provide essential services not only for agriculture, but all ecosystems; they play a key role in watershed functions, they store carbon, and they provide the substrate for the built environment.

The Goal

We want a system of agriculture that protects and restores soils, limits pollution that harms the environment and threatens human health, and plays a role in mitigating climate change. It should also be economically viable in order to provide an attractive livelihood necessary for maintaining farming as a sustainable way of life.

New Jersey is the 40th ranked state nationally in terms of total value of agricultural output, but ranks in the top ten for key crops such as blueberries, cranberries, peaches, tomatoes, and wine grapes.

How Is New Jersey Doing?

Agricultural practices protect and restore environmental quality and the natural resource base. This includes minimizing pollution associated with agriculture and conserving and restoring soils under agriculture as a key economic and environmental asset.

Land Treated with Commercial Fertilizers

The percentage of agricultural acres under cultivation that are treated with commercial fertilizers – primarily containing nitrogen and phosphorous – is increasing.

Topsoil Erosion

There is currently no reliable data or analysis that tracks tons of topsoil lost every year due to erosion in New Jersey.

Agricultural practices mitigate climate change by optimizing carbon storage in soils and plants. Greenhouse gas emissions are minimized in the use of chemical fertilizers and in pest control. Agriculture prioritizes regional markets to lower transport costs, and over the long term agriculture transitions towards eliminating the use of nonrenewable resources.

Carbon Stored in Soils

There are no reliable statewide data that track the total amount of carbon stored in soils under agriculture.

Carbon Emissions

There is currently no accepted and readily applicable method to track the carbon intensity of the agriculture system in terms of output of food (dollars, tons, or calories) per unit of greenhouse gas emitted, while controlling for other related factors.

Agriculture is economically viable and provides a sustainable livelihood. Farming livelihoods are strengthened by enhancing quality of life for farmers, improving working conditions and wages for farm workers, and providing access to farmland at a reasonable cost.

Income from Farms

Net farm income per acre in New Jersey has displayed a downward trend since 2006.

Land in Agriculture

The acres of land dedicated to farm and agricultural use is declining as urban and developed land use increases.

Preserved Farmland

The number of acres of farmland that have been permanently preserved is increasing, although at a slower rate in the past two years.

AIR QUALITY

Why Does It Matter?

Air quality – the composition and quality of the atmosphere and the air we breathe – is critical to the health of people and ecosystems. Air pollutants contribute to climate change, which in turn warms the atmosphere and worsens air quality. Increased temperatures also exacerbate natural irritants such as dust, mold, and pollen. Other factors affecting outdoor air quality include carcinogenic particles from fuel combustion, ground level ozone, and industrial releases of toxic chemicals. Indoor air quality can be even worse: hazards include volatile organic chemicals from plastics, furniture, paint, building materials, cleaning supplies, and other household products. We can improve air quality by making different choices about what goods we consume, how we manufacture products, how we build our transport system, and how we generate energy.

The Goal

We want indoor and outdoor air quality to be healthy for people and the environment with no significant threats posed to vulnerable populations such as children, the elderly, and low-income and minority communities. Greenhouse gas (GHG) emissions are also a form of air pollution that must be curtailed.

We are rapidly learning more about the hazards of common household items that contribute to poor indoor air quality.

How Is New Jersey Doing?

Outdoor air quality is healthy for all segments of the human population and does not harm the natural environment.

Unhealthful Air Quality Days

Over time, the number of unhealthful days caused by ground level ozone, particulate matter and other major air pollutants that affect respiratory health has gone down.

Indoor air quality does not pose a significant direct or indirect health threat for any segment of the population - in particular to sensitive populations such as children, the elderly, or the immune-compromised.

Exposure to Unhealthful Indoor Air

There are currently no statewide data that we believe sufficiently track the quality of indoor air.

There is **equitable distribution** of environmental harms from air pollution such that they do not disproportionately burden any social group defined by class, race, location, age, or other factor.

Distribution of Air Pollution

There are currently no readily available statewide data that track the relative exposure of different communities and social groups.

Greenhouse gases are reduced commensurate with New Jersey doing our part to avoid catastrophic global climate change.

Greenhouse Gas Emissions from Energy

Annual greenhouse gas emissions from energy consumption have declined since 2006. These data do not reflect ongoing research to better calculate climate impacts from different energy sources such as methane leakage from natural gas.

HEALTH

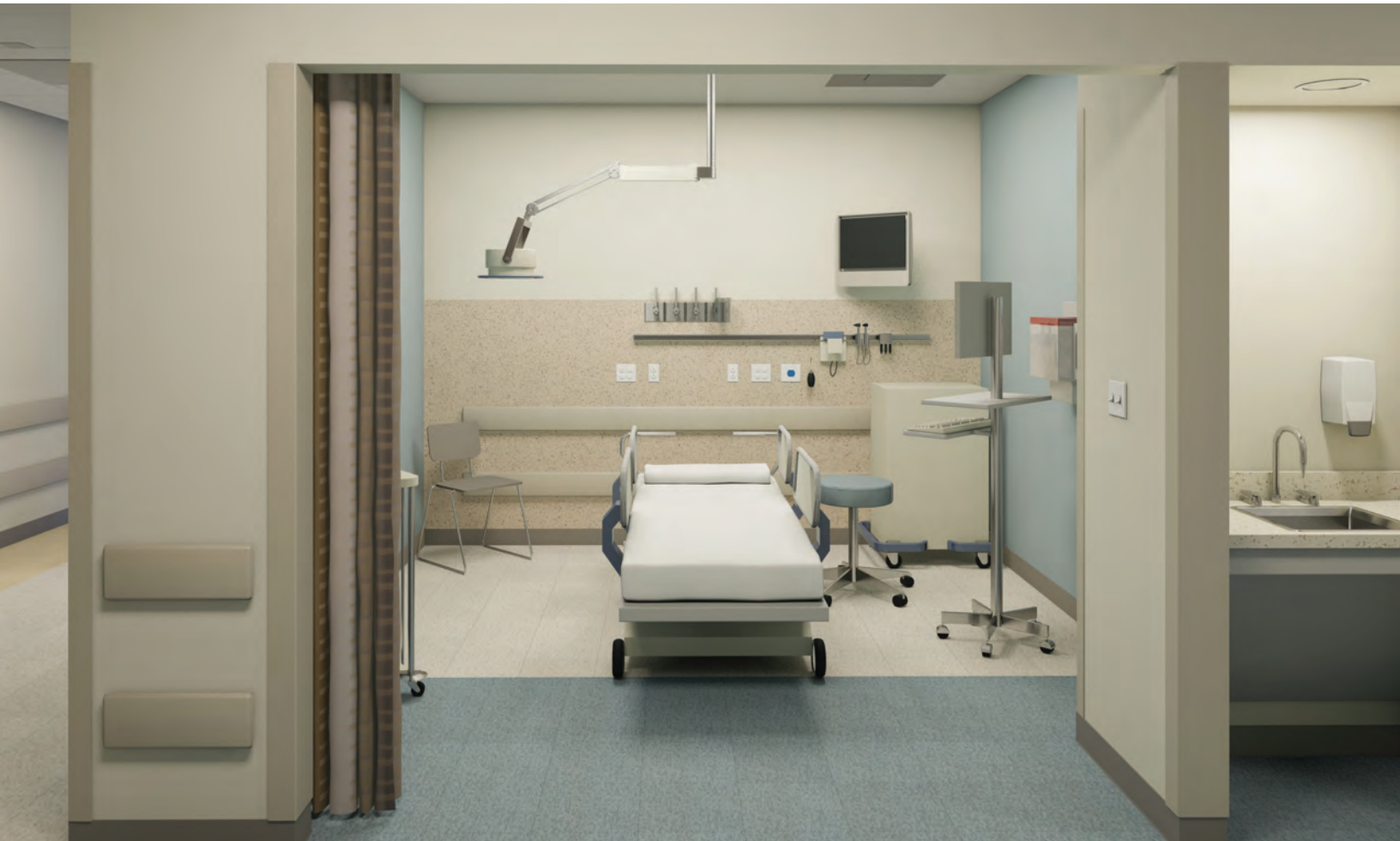
Why Does It Matter?

Good health depends on good outcomes across all dimensions of sustainability such as clean air and water, strong communities, economic security, access to healthcare, and access to adequate, nutritious food. Differences in socioeconomic status are correlated with unequal distribution of environmental goods and harms as well as unequal access to health care. Improving health for all will require addressing those disparities by tackling their social and environmental roots, as well as by improving the healthcare system. Climate change is already exacerbating existing health problems through heat waves, climbing pollen counts, mold outbreaks, and more insect-borne infectious disease. A destabilized climate is also predicted to increase risks to life and limb from natural disasters such as flooding, high winds, falling trees, and freak snow and ice storms.

The Goal

We want a future where all the people of New Jersey enjoy good health and a good quality of life, with minimal loss of life and function due to preventable disease, and where these standards are supported by access to affordable, high-quality healthcare.

New Jerseyans enjoy good health outcomes compared to other states. But why? NJ cancer rates are actually higher than average. Yet NJ residents survive at a higher rate, presumably due to superior medical care.



How Is New Jersey Doing?

The people of New Jersey enjoy **good health and long lives** characterized by mental well-being and freedom from preventable disease and injury.

Diabetes
As in the rest of the U.S., the incidence of diabetes in New Jersey has risen since 1994.

Obesity
The portion of the population that is obese has risen steadily, reaching 25% in 2013.

Asthma
The rate of hospitalizations for acute asthma has decreased since 2009, falling below 2000 levels by 2014.

Premature Death
The number of years of potential life lost in New Jersey due to preventable causes has decreased.

Suicide Rates
The suicide rate among New Jersey residents has risen since 2009.

There are no significant **disparities in health** outcomes across racial and ethnic categories.

Disparities in Diabetes
The disparity in rates of Type 2 Diabetes has narrowed since 2000 between people classified as White, Hispanic, Black, and Asian.

Disparities in Asthma
The disparity in rates of hospitalization for cases of asthma has held steady between people classified as white, Hispanic, black, and Asian since 1998.

Disparities in Premature Death
Since 1998, the disparity in number of years of life lost due to preventable disease has declined significantly between people classified as Black compared with the White, Hispanic, and Asian population.

All NJ residents have equitable access to an affordable, high-quality, robust **healthcare system**.

People without Health Insurance
The portion of the population that does not have health insurance has decreased recently.

People of NJ have **access to sufficient, healthy, and nutritious food**.

Household Food Insecurity
The percentage of households in New Jersey that experience low or very low food security has gone up since 2006.

Access to Healthy Food Choices
In 2010, only 4% of low-income New Jerseyans lived close to a grocery store.

EDUCATION AND HUMAN DEVELOPMENT

Why Does It Matter?

Formal education is the primary mechanism through which a society invests in its future by increasing the capacities and abilities of its citizens. Our schools help students acquire basic capabilities in math, reading, writing and technology, skills that are required in the workplace and as the foundation for higher education and professional and research-related careers. Civics, the sciences, and interdisciplinary sustainability concepts provide a foundation for understanding the world, for practicing good citizenship, and for putting these elements together to solve societal challenges. A quality education weaves the social fabric, provides exposure to literature, the arts, and athletics, and thereby contributes to the full development of human potential. Finally, lifelong education is critical because our dynamic world economy is constantly reinventing itself, demanding shifting and expanding skill sets from citizens and employees. Community colleges, certificate programs, apprenticeships, and online learning provide people with the ability be resilient and adaptable to shifts in the job market.

The Goal

We want quality lifelong education, equally accessible to all New Jerseyans, that provides individuals with knowledge and skills necessary for employment, careers, and personal fulfilment. It should also provide capacity for critical thinking and civic engagement, with an understanding of social, economic, and ecological systems.

Education for Sustainability **is an increasingly accepted practice that equips students with the tools to understand and manage the dimensions of sustainability as a foundation of good citizenship.**

How Is New Jersey Doing?

A quality education is provided to the people of New Jersey, equipping them with the knowledge, skills, and capacities to enable successful careers, civic engagement, and personal fulfilment.

Access to Pre-School
The percentage of children attending preschool has steadily risen.

Student /Teacher Ratio
The number of students in New Jersey schools per teacher has steadily declined, remaining well below the U.S. average.

Basic Skills
After years of improving student performance, average scores in New Jersey on a national standardized test for basic English and Math skills at the 8th grade level declined slightly in 2015, in tandem with the U.S. average. NJ scores continue to compare favorably with those of the country as a whole.

High School Graduation Rates
The percentage of New Jersey students successfully completing high school within four years of entry is high and increasing.

Educational Attainment
The percentage of people attending college and attaining advanced degrees has steadily risen.

Disparities in educational outcomes due to poverty and other disadvantages are addressed and reduced.

Disparities in Basic Skills
The substantial gaps in performance on standardized tests (8th grade level English and Math skills, NAEP) have narrowed among White, Black, and Hispanic students. The scores of Asian students have risen relative to everyone else.

Disparities in High School Graduation Rates
The gaps in high school graduation rates among White, Black, Hispanic, and Asian students have decreased.

Disparities in Educational Attainment
The gap in rates of people attaining a Bachelor's degree is not changing significantly among the White, Black, Hispanic, and Asian populations.

The people of NJ have access to **life-long learning** opportunities allowing them to find, (re)train for, and create employment in a changing economy that evolves to meet sustainability challenges.

Access to Community College
There are no readily available data that can be aggregated statewide to assess adequate funding of community colleges and their ability to offer affordable courses and degrees.

Vacancy Rates in High Skill Jobs
There are currently no reliable statewide data that show the difficulty employers have in filling high-skill jobs due to lack of qualified candidates in the workforce.

New Jerseyans **understand and apply sustainability concepts** such as the interrelation of social, economic, and ecological systems; system dynamics and thresholds; human interdependence; and intergenerational responsibility.

Sustainability Knowledge
There are no readily available data in New Jersey to assess the knowledge levels of students and adults on key sustainability concepts that would enable them to make good decisions for the future.

SOCIAL CAPITAL

Why Does It Matter?

Solving sustainability challenges will require people working together locally and organizing collectively at larger scales to tackle broad social problems. Through formal and informal networks, national and state-level nonprofits, advocacy groups, grassroots social movements, professional societies and religious congregations, sports clubs and PTAs, people develop social capital that enhances their capacity to bring about change. Social capital refers to the institutions, relationships, and know-how necessary to get things done together, be it cleaning up local streams, stocking the community food bank, promoting artistic events, or mounting environmental campaigns. Social organizations and alliances aren't a replacement for government, but rather are needed to partner with or pressure government and business to solve social and environmental problems.

The Goal

We want to see people and diverse social organizations across New Jersey acting together to solve collective problems. We envision vibrant, inclusive and safe communities that offer rich opportunities in the arts, recognition of diverse cultural and historical heritages, and the enjoyment of recreational and natural amenities.

Robert Putnam's *Bowling Alone* famously noted an example of diminishing social capital in the United States. More Americans are bowling, but organized groups and leagues are in decline as people choose to bowl alone.

How Is New Jersey Doing?

New Jersey's communities are **safe and inclusive**.

Violent Crime
The rate of violent crime reported in New Jersey has been steadily declining.

Incarceration Rate
The size of the incarcerated population continues to shrink, but racial and ethnic disparities remain acute.

Feeling Unsafe
The percent of people that say they feel unsafe at night in their neighborhood has decreased.

Social organizations have the leadership, resources, and institutional capacity to amplify the effectiveness of people in solving social and environmental problems.

Organizational Effectiveness
We currently have no state-level measures of quality for civic associations and non-profit organizations or assessments for the performance of the sector as a whole in building capacity to collaborate and solve problems.

Volunteerism
New Jerseyans volunteer at a declining rate that is lower than the national average.

Communities and neighborhoods enjoy high levels of **citizen engagement** and an inclusive sense of identity and place. They host a variety of community events and public venues that bring people together.

Civic Engagement
There are currently no statewide data sources on the number, focus, and participation rate of community-based organizations. Informal forms of cooperation are even more difficult to track.

Community Events
Although the number of permits issued for festivals, public shows, and other community events could be tracked, there are no data that show whether people have access to quality events meaningful to them.

Public Gathering Spaces
Although the number of public venues such as community centers could be counted, there are currently no data that assess how well our need for public gathering spaces is being met.

Exposure to the **arts**, recognition of diverse **cultures** and histories, and **recreational opportunities** are abundant and accessible throughout New Jersey.

Arts Establishments and Employment
The number of organizations, businesses, self-employed individuals, and employees in the arts and music industry declined during the recession, but is now increasing.

Cultural and Historical Heritage
There are currently no quantifiable data that allow us to track how well we are preserving and building our state's diverse cultural heritage.

Proximity to Open Space
As of 2013, 64% of the population of Northern New Jersey had good access to a park or public open space (defined as living within a half mile for urban dwellers and one mile for rural residents).

GOVERNANCE

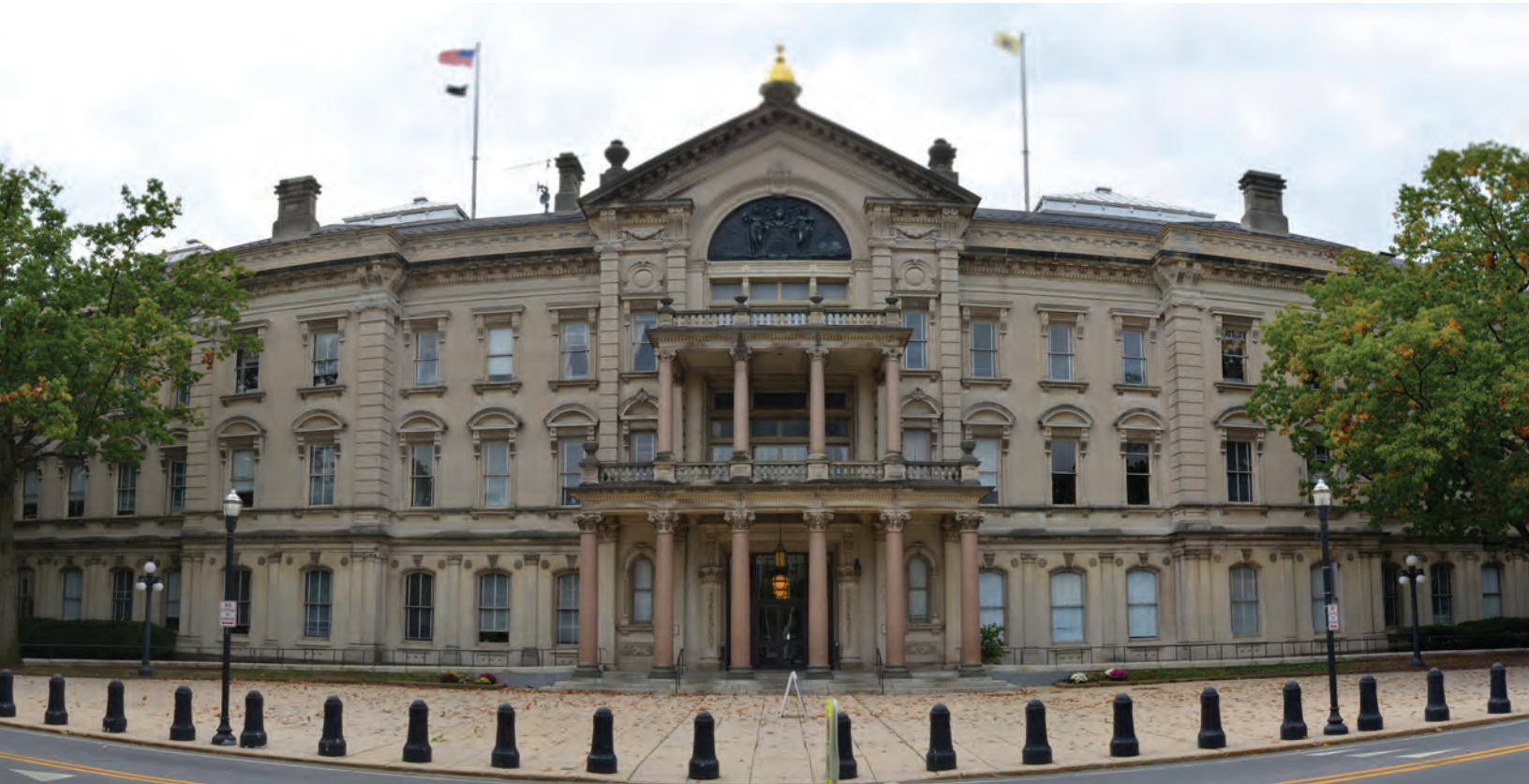
Why Does It Matter?

To achieve sustainability it is essential to have a functioning democracy and effective government that acts for the common good and is responsive to citizens. In this context, we define governance as the institutions, social norms, rules, laws, and power relationships that collectively make up our system. This includes how well government provides services, regulates, problem-solves, and performs its other functions. It also includes the means by which we make public decisions including everything from the rules of the electoral system, to the myriad forms of citizen engagement, such as public hearings and local volunteer commissions. Finally, it also includes the social norms that enable citizens to organize to exercise power within the political system and, where necessary, reform that system when it goes astray. When governmental institutions are just and transparent, citizens and their representatives are able to obtain needed information, participate in decision-making, and work towards consensus for setting common goals.

The Goal

We envision a New Jersey in which empowered people take responsibility for informing themselves and where they exercise their rights to participate effectively in public decision making. This will be a New Jersey where elected officials reflect, represent and respond to diverse constituencies, think beyond short term electoral cycles, and seek the common good, and where government institutions are effective, efficient, transparent, and accountable.

"There has been a strong, dominant push for short term thinking throughout the political and business world…we urgently need to group together and make a collective noise, a collective cry… to say that we want a different relationship with the future." - Camilla Toulmin



How Is New Jersey Doing?

All **people of NJ are empowered to participate** equally in the formal and informal processes of government at all levels.

Voter Registration
The percentage of the eligible population that is registered to vote leveled off after a period of modest growth.

Voter Turnout
Voter turnout, particularly in locally focused elections, has been declining for several decades.

Informed Electorate
The percentage of voters who are aware of the party controlling the NJ State Legislature has varied over time, with no clear trend.

Inclusive Decision-Making Bodies
No statewide data are readily available on the composition of elected and appointed governing bodies by gender, race, ethnicity or socioeconomic status.

Political Mobilization
No statewide data provide a comprehensive account of how actively members of the public contact politicians, attend and speak at planning meetings and political hearings, act as part of political or issue advocacy groups, or otherwise mobilize politically to promote their interests and values.

Elected representatives are accountable and transparent in their decision-making and promote the welfare of all their constituents. The composition of elected bodies generally reflects the racial, ethnic and gender make-up of the electorate.

Voter Approval
Since 2002, voter approval of the NJ State Legislature declined, began to recover, and has recently declined again.

Representativeness of Legislature
While still short of equality, the gender composition of the State Legislature has improved. Data on the racial and ethnic composition of the Legislature over time are not readily available.

Broad-Based Campaign Financing
Data are not readily available to assess trends in the degree to which political campaigns in New Jersey are broadly and transparently funded.

Government institutions justly, consistently and efficiently provide services, carry out regulation and enforcement, provide timely, accurate and relevant information, act upon citizen input, and redress grievances.

Government Effectiveness and Efficiency
There are no readily available statewide measures, or even accepted definitions, of the effectiveness and efficiency of government in New Jersey.

ECONOMY

Why Does It Matter?

Our economy is the societal metabolism that consumes energy and resources and turns them into goods, services, and waste. A sustainable economy does so in a manner that does not degrade, but rather builds on our productive assets, encompassing natural, human, financial, technological, and physical capital. New Jersey's economy is very much linked to the global economy; thus, true economic sustainability must be addressed at a global scale. At the same time, the state economy incorporates an interdependent set of local economies, or municipal "main streets," that are at the core of thriving communities. The typical measure of economic growth, Gross Domestic Product, fails as a sustainability metric because it counts as positive such "bads" as pollution clean-up, fails to count such "goods" as household child-rearing labor, and ignores the distribution of both. The economy is cyclical, rising and falling. Yet, over time we can see broader changes related to sustainability goals, such as how well jobs provide livelihoods, how much waste is produced, how much we invest in innovation, how hard we have to work to maintain our standard of living, and how many people are living in poverty.

The Goal

New Jersey's economy provides a stable or rising standard of living along with economic opportunity and social mobility for all. New Jersey's business sector is dynamic, innovative, competitive, employs an expanding workforce, and minimizes its environmental impacts.

The portion of employed workers in NJ who are "underemployed" (working less than they want), rose during the last recession. Unemployment has fallen recently, but the percentage of workers who are underemployed has not returned to pre-recession levels.

How Is New Jersey Doing?

Businesses produce goods and services in a manner that makes **efficient use of natural resources**, maximizes reuse of materials, and minimizes waste and pollution.

Resource Consumption and Waste per Dollar

Currently there is no readily available summary measure that shows how many resources the economy consumes to produce a dollar. However, we can see the relationship by examining our economic performance against the performance of the Natural Capital, Energy and Waste indicators.

The business sector is robust, with fair competition and low barriers to entry in the market for new ventures and new ideas. Private and public investment is made into research and development at levels sufficient to foster innovation. The business sector invests in building the skills and productivity of the workforce.

Business Starts and Failures

Over the past 15 years, the rate of both new businesses' starts and failures has declined, possibly suggesting a drop in the overall level of business dynamism.

Payrolls

Non-farm payrolls are increasing as NJ's economy recovers from recession. However, the increase is slower for NJ than for the U.S. economy as a whole.

Investment in Innovation and Research

The percentage of our Gross State Product that is invested into research and development by NJ businesses, government, and academia has oscillated over time with no clear trend. Coming out of the recent recession, New Jersey's rate began to slip in relation to the U.S. average.

Household **income is adequate to meet needs** and keeps pace with the basic cost of living; poverty is significantly reduced as a result.

Median Income

The median income of New Jersey's workers has risen and remains well above the US average.

Poverty

The percentage of households living below the Real Cost of Living (an alternative measure of income calculated as 250% of the Federal Poverty Line) has risen steadily since 2008.

Wealth and income inequality does not reach a level that undermines economic opportunity, social mobility and democratic participation.

Distribution of Income

The proportion of total take-home pay that goes to the top 20% of earners has been increasing. At the same time, the share of the pie that goes to the bottom 20% continues to fall.

The NJ economy supplies **diverse, quality jobs** and livelihood opportunities sufficient to support families with a standard of living adequate to meet household needs, while allowing for leisure time.

Unemployment & Underemployment

Despite continued improvement, the unemployment rate has yet to reach pre-recession levels. Workers who had given up looking for work during the recession have lately been rejoining the labor force and finding jobs. Notably, the portion of workers that are underemployed (i.e., working part time jobs while wishing to work full-time) remains much higher than before the recession.

Hours Worked to Make a Living

The number of hours that a two-person household must work to meet the basic living expenses has recently declined. For workers in the bottom 40% of wage-earners, however, even two full-time jobs are insufficient to meet the basic needs of the household.

HOUSING

Why Does It Matter?

Shelter is a fundamental human need. The ability of a society and economy to provide housing for its people is a strong measure of that society's health and sustainability. How and where housing is built drives many trends impacting future sustainability; for example, decisions might include whether to build in floodplains or on remaining open space. Factors in sustainable housing construction include the use of environmentally friendly building materials and water and energy efficient building design. Concerns about high housing costs in New Jersey affect not only low- and moderate-income residents, but those at every income level.

The Goal

We envision that all New Jerseyans should have a choice among a mix of safe, affordable, and high-quality housing options, in locations and built according to standards that will be resilient in the face of climate change.

Approximately 32,000 parcels of residential property in New Jersey with a total assessed value of $11 billion are predicted to be newly exposed to flooding due to sea level rise by 2050.

How Is New Jersey Doing?

New Jersey residents have **affordable housing** choices.

Lack of Affordable Housing

Increasing numbers of New Jersey residents spend more than 30% of their income on housing.

All New Jerseyans have housing choices that provide a **safe and healthy environment**.

Unsafe and Unhealthy Housing

In 2009, 2.9% of owners and 10.2% of renters in the North Jersey region lived in housing that had moderate or severe deficiencies.

All New Jersey **housing is resilient** in terms of design and location to the impacts of climate change.

Housing Threatened by Sea Level Rise

There are approximately 32,000 residential parcels, with an assessed property value of $11 billion, predicted to become newly exposed to coastal flooding risks (sea level rise and storm surge) by the year 2050.

TRANSPORTATION

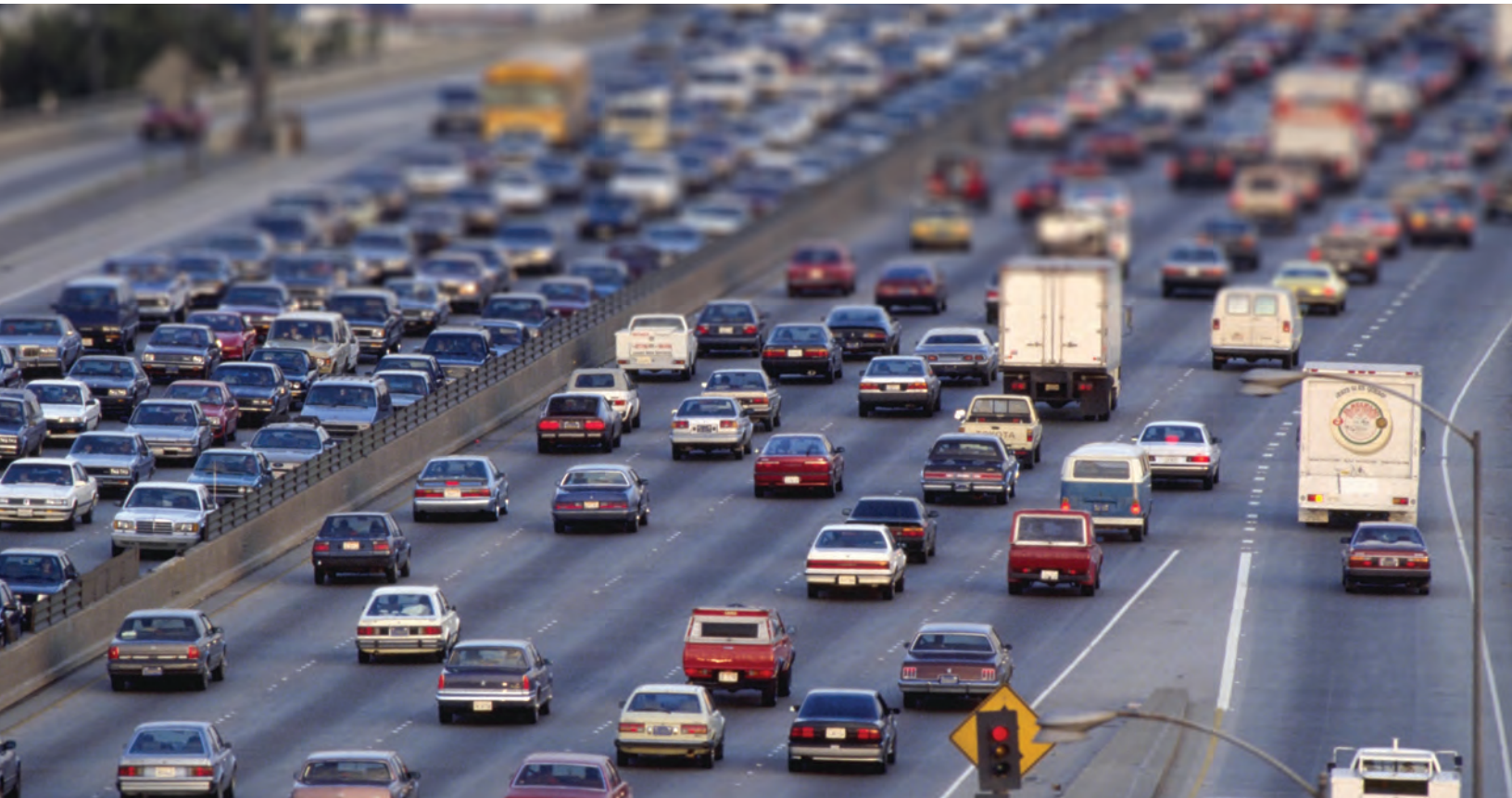
Why Does It Matter?

The transportation system enables the flow of goods and services and also provides mobility for people to reach homes, employment, and entertainment. It includes passenger and freight rail, trucking, passenger vehicles, air travel, shipping and port facilities, and also walking and bicycling infrastructure. Efficient and effective transportation infrastructure is a critical economic asset that requires constant upkeep, upgrading, and investment. The system serves development where it already exists, and also shapes future development patterns. Future development will gravitate towards locations and towards the types of safe, easy, and affordable transportation that have received investment. Significant money, energy, and natural resources are spent on transportation. A significant amount of personal time is also spent in transit. Making wise investments in the New Jersey transportation system will impact how efficiently we can live our lives, the competitiveness of our state's economy, how many natural resources will be consumed, and how much pollution we produce.

The Goal

We want a New Jersey transportation system that efficiently moves people and goods where they need to go at an affordable cost, is accessible to all, and that imposes only minimal impact on the environment. The system must be properly maintained, and it should be reliable, as well as resilient to current and anticipated threats such as climate change.

In recent years funding for the New Jersey Transportation Trust Fund, which finances necessary repairs and upgrades for much of the state's transportation system, has run dry.



How Is New Jersey Doing?

The transportation system enables the **efficient movement** of people and of the goods necessary to support a robust regional economy.

Vehicles Miles Traveled Per Dollar of GSP

The number of miles New Jerseyans drive for each dollar created in the economy (Gross State Product) has not changed significantly over the last decade.

Environmental impacts are minimized as a result of design, construction and use of transportation infrastructure.

Greenhouse Gas Emissions from Transportation

Annual GHG emissions produced by the transportation sector have not changed significantly since 2009. Although they have fluctuated over the years, they are up only slightly up since 1990.

Transportation infrastructure is maintained to a functional and structurally sound standard.

Transportation Infrastructure Conditions

It is estimated that $22 billion in spending will be required over the 2014-2018 period to just to cover short-term critical needs in New Jersey's transportation infrastructure.

Transportation infrastructure is reliable and resilient, including to the anticipated impacts of climate change such as extreme heat, high winds, and worsening coastal and inland flooding.

Road Exposure to Coastal Flooding

The miles of major roads exposed to coastal flooding are expected to increase more than 7% by 2050, according to current sea level rise predictions. The cost to bring the entire transportation system up to a standard resilient to climate change is unknown.

Transportation is accessible and affordable to all segments of society, including low-income households.

Accessibility of Transit

Data exists that would enable the calculation of percent of urban and suburban households within 0.5 mi of a regular transit stop - but the analysis has not yet been done statewide.

Transportation Affordability

There are no readily available statewide data and analysis showing the percent of households spending more than 15% of income on transportation.

DEVELOPMENT PATTERNS

Why Does It Matter?

What and where we build shapes the landscape, our lives, our economy, and our impact on the environment. Unsustainable development patterns, commonly referred to as suburban sprawl, consume open space and simultaneously hollow out existing towns and cities. These development patterns then result in increased traffic, taxes, inefficient energy consumption, and air and water pollution in sprawl areas. Overall, unsustainable sprawl development patterns also result in increased social segregation and declining economic competitiveness. The year 2010 was a tipping point. For the first time since the advent of the automobile, cities in the U.S. grew faster than suburbs, as young people and empty-nesters sought the vitality and quality of life offered by revitalized city centers.

The Goal

We envision a New Jersey where open space is protected and publically accessible. Existing developed areas and infrastructure are optimized, and people, businesses and infrastructure are located in places that are safe and resilient to the impacts of climate change.

In 1996 the proportion of new housing units in New Jersey opening in highly developed areas was only 17%. Marking a shift in development patterns, it is now close to 50%.

How Is New Jersey Doing?

Existing developed areas and infrastructure absorb the majority of development; underutilized spaces such as brownfields are reclaimed.

New Development in Existing Built Areas

The portion of new housing units in NJ issued certificates of occupancy in areas that are already mostly developed (>90% built out) has increased significantly.

Open spaces, trees, and natural areas should be retained, restored, and/or created in order to protect and restore biodiversity and ecosystems.

Conversion of Land from Open to Developed

A growing proportion of land in New Jersey is developed and urbanized relative to lands remaining as forests, wetlands, and farms.

Access to open space, trees, and natural areas is provided to all New Jerseyans for recreation, and is integrated into neighborhoods and our daily lives. In developed areas, access to green space and recreational opportunities enhance the quality of life.

Preserved Open Public Space

The number of acres of land in recreation areas, parks, and open space that is permanently preserved and open to the public is increasing, although at a rate that has slowed in the past two years.

Proximity to Open Space

As of 2013, 64% of the population of Northern New Jersey had good access to a park or public open space (defined as living within a half mile for urban dwellers and one mile for rural residents).

Urban Tree Canopy

The portion of urban and community land in New Jersey with a tree canopy was 37.7% in 2001.

Development is resilient to the impacts of climate change. The spatial arrangement of buildings, transportation networks, other infrastructure, and interstitial open space absorbs the impacts of climate change with minimal disruption.

Development at Risk due to Sea Level Rise

There are approximately 32,000 residential, commercial, and industrial parcels, with an assessed property value of $11 billion, predicted to become newly exposed to coastal flooding risks (sea level rise and storm surge) by the year 2050.

ENERGY

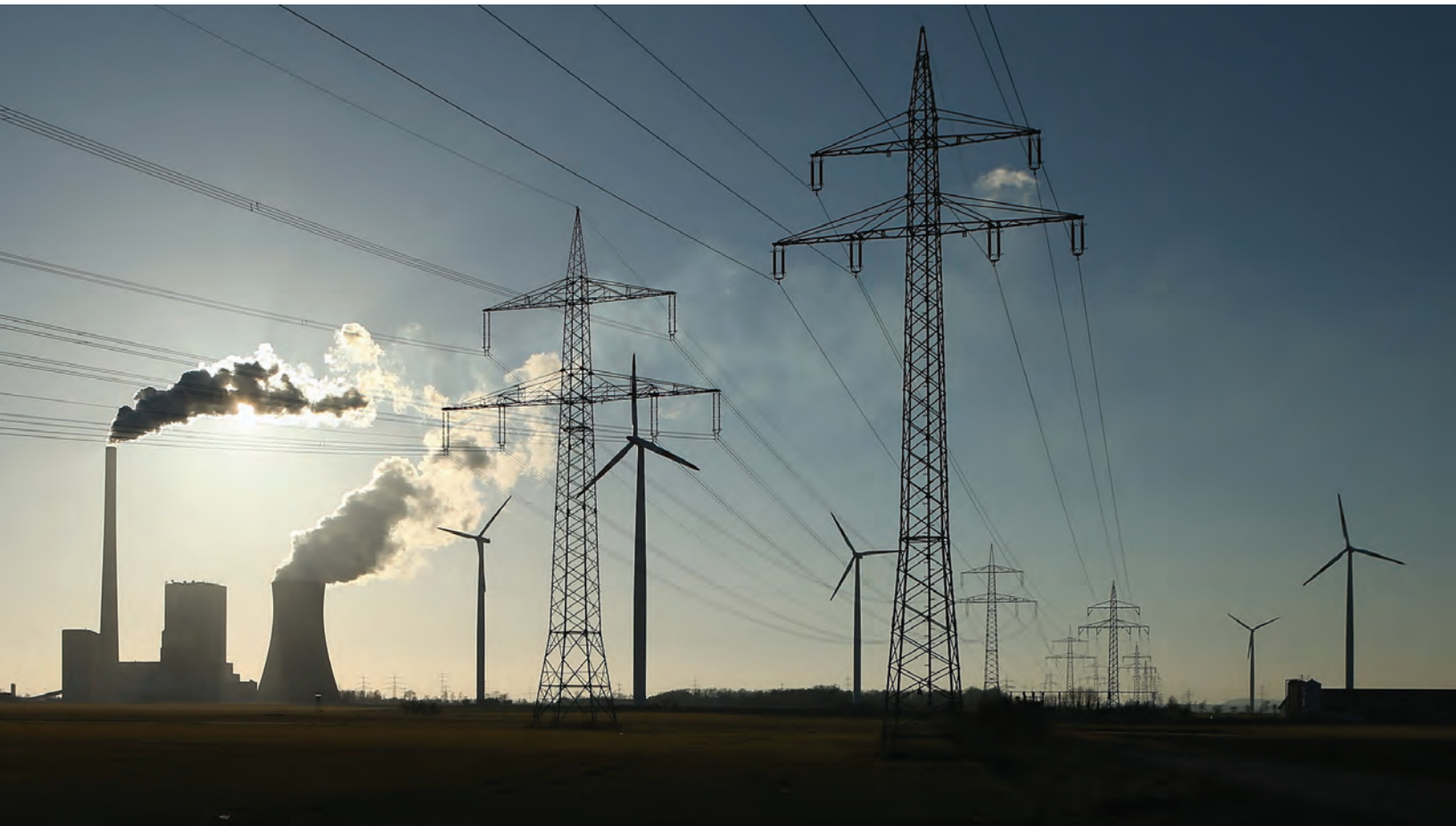
Why Does It Matter?

Production and consumption of energy is arguably the single biggest driver of unsustainable trends in New Jersey. We rely on a complex energy infrastructure to run our economy and provide all the necessities of life. Our energy comes from multiple sources, such as the sun, wind, nuclear, hydropower, and fossil fuels. It is delivered to us commonly as electricity, liquid fuels such as gasoline or ethanol, or as combustible gas. Energy production and consumption are the drivers of problems such as global warming and acid rain, and the need to secure new fossil fuel sources drives global competition, tension, and instability. Finding ways to supply energy cheaply and reliably without driving environmental degradation is a fundamental sustainability challenge.

The Goal

We want to see New Jersey with clean sources of energy available when and where needed over the long term, in forms that are safe for people and the environment, affordable, and resilient to market shifts and other shocks from a changing world.

Greenhouse gas emissions declined in NJ since 2006. Why this occurred, and the implications for future strategy, are unclear. Contributing factors include gains in efficiency, consuming electricity from less carbon-intensive sources, the economic recession, and a decline in manufacturing.



How Is New Jersey Doing?

Negative impacts from extraction, production, and consumption of energy on environmental, social, and human health are minimized. Greenhouse gas (GHG) emissions are reduced in time to help avoid catastrophic climate change.

Greenhouse Gas Emissions from Energy

Annual greenhouse gas emissions from energy consumption have declined since 2006. These data do not reflect ongoing research to better calculate climate impacts from different energy sources such as methane leakage from natural gas.

Vulnerabilities are reduced through a transition to a diverse mix of safe, renewable energy sources that are relatively invulnerable to disruption or depletion over the long term.

Energy from Renewable Sources

The portion of NJ's total energy that comes from renewable sources has increased from 2.6% in 2006 to 4.2% in 2012.

The distribution of costs and benefits of the energy system is equitable. The needs of all people and segments of the economy are met consistently at affordable and predictable costs.

Affordability of Energy

There are currently no readily available data and analysis showing the percentage of households that spend more than 6% of their budgets on energy.

Resilient, diverse, and reliable energy infrastructure delivers high quality energy when and where it is needed, with minimal vulnerability to market, technical, political, operational, or environmental threats, both gradual (e.g., sea level rise, infrastructure aging) and sudden (e.g., extreme weather, terrorism, supply disruptions).

Outages and Reliability

There are currently no readily available statewide data and analysis showing the percentage of time that energy is unavailable in the quantity and quality needed to end consumers.

Vulnerability to Climate Change

There is no available proactive, predictive statewide measure of the probability of energy infrastructure failure due to climate change-related factors (such as flooding, extreme weather, changes in water supply).

Risks to human health from the extraction, production, and consumption of energy are minimized.

Health Risks from the Energy System

There is no available combined measure of the risks posed by all harmful energy emissions or waste, and also by energy-related public health and safety incidents.

WASTE

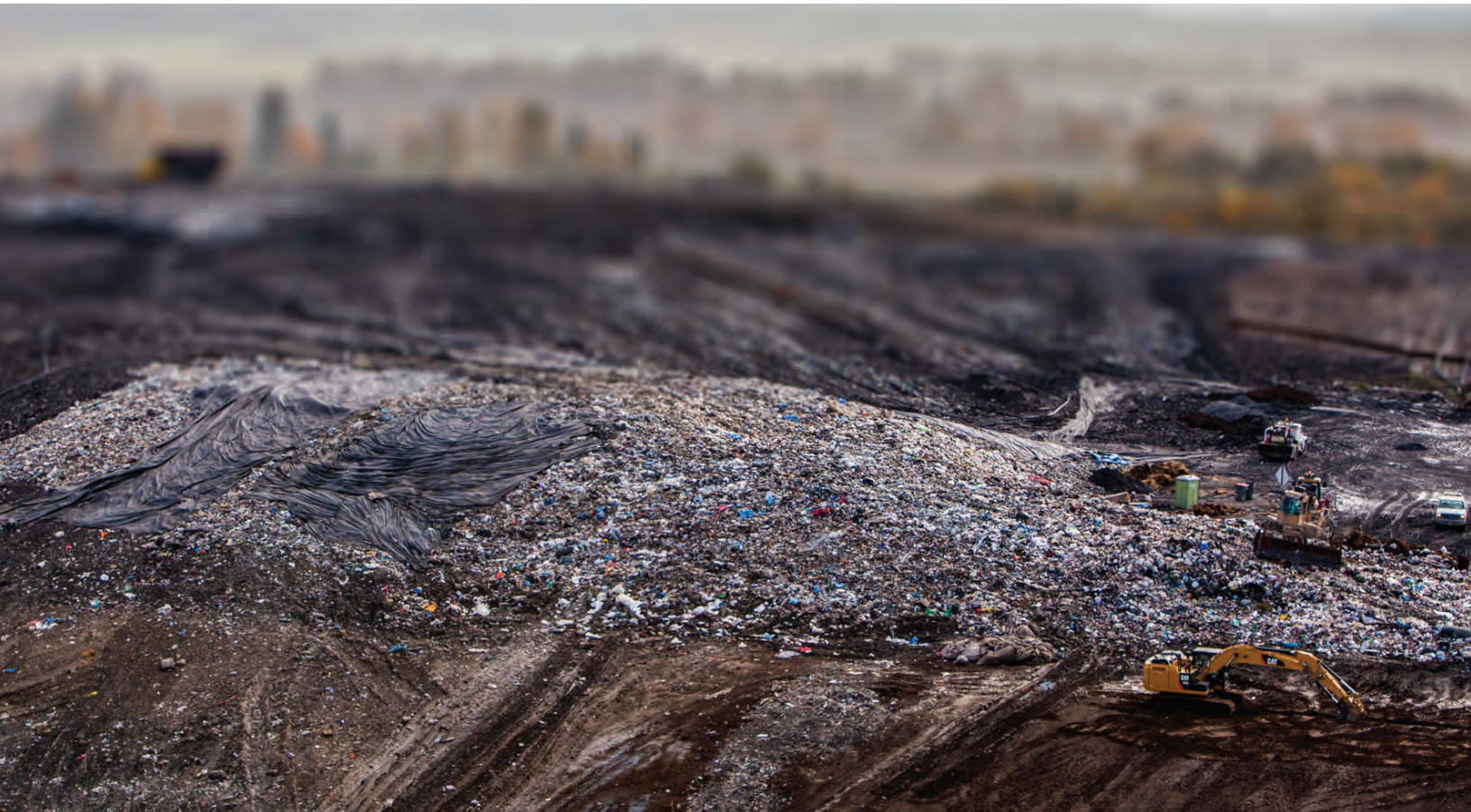
Why Does It Matter?

A byproduct of industrialized society is a huge waste stream, some of it very damaging to human health and ecosystems. Over the past fifty years, more of our solid waste in NJ has been recycled and kept out of landfills and incinerators. Recently, however, progress has slowed. The environmental impacts associated with waste disposal are not the only concerns related to waste production. Waste production is also an issue because the volume of waste we produce is indicative of the vast quantity of natural resources we consume. To maintain industrialized society, and to create consumer products, natural resources are extracted from the earth, transported, and processed. Only after a long sequence of events, each with environmental consequences, do the processed natural resources pass through our homes and businesses and ultimately get counted into our waste stream.

The Goal

We want a system that provides the goods and services we need, and that minimizes the production and accumulation of waste. A sustainable system will reuse and recycle as much of the waste stream as possible. The system must also ensure that all hazardous waste is safely disposed of, and that no particular populations of people are unfairly burdened with exposure to waste hazards or with cumulative impacts.

Local waste impacts constitute only a small part of our overall sustainability impact. What we consume – how much and where it comes from – also creates vast environmental and social impacts around the world.



How Is New Jersey Doing?

Solid waste production is minimized in New Jersey.

Solid Waste Generation

The total amount of municipal solid waste generated in NJ per year is increasing.

Reuse and recycling of the waste that is produced is maximized.

Recycling and Disposal

The percentage of municipal waste in NJ that is recycled has fluctuated recently, with no clear long-term trend.

The production of **hazardous waste** is minimized and that which is produced is disposed of in ways that are safe for both humans and the environment. Past contamination is cleaned up.

Toxic Chemical Releases

Annual releases of the four categories of chemical compounds accumulating in the environment that are considered the most toxic (dioxin, lead, mercury, and polycyclic compounds) were falling as a class until 2008, when the trend reversed direction.

Contaminated Sites

The total number of identified contaminated sites, and the number that have been remediated, are increasing.

Nuclear waste must be stored in facilities that are safe and reliable, away from population centers, and that are able to keep nuclear waste safely contained over a time frame commensurate with the lifespan of radioactivity.

Spent Fuel

The total amount of spent nuclear fuel stored onsite at nuclear power plants is increasing in New Jersey. There is still no long-term storage solution.

There is an **equitable distribution** of the impacts on human health of all forms of toxic pollution and waste disposal. Remaining harmful emissions and contaminated sites must not be unfairly concentrated near particular residential areas.

Cumulative Impacts

There is ample evidence that exposure to environmental hazards is concentrated in minority and low income communities, but there is currently no statewide analysis available showing the relative exposure of different segments of our population.

VIII. Acknowledgments

A report of this scope is not possible without the help and forbearance of many. We are grateful for the backing of countless supporters and partner organizations that have collaborated with us to create a roadmap to a sustainable future. In particular we would like to thank the Geraldine R. Dodge Foundation and the Surdna Foundation for their early and unflagging support of Sustainable Jersey. Their support enabled this project and provides us with the confidence to continue to innovate in our quest for a sustainable future.

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